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Patterns & Variations

Designerly Explorations in Architectural Composition and Perception

Breen, Jack

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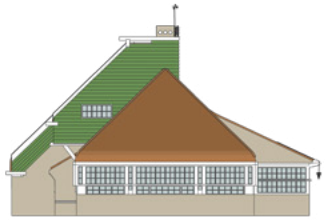
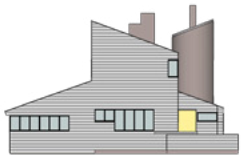




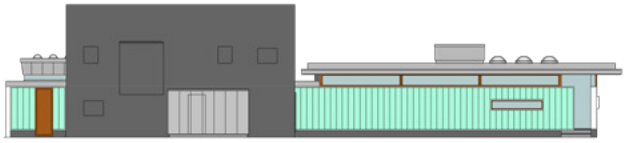

PATTERNS & VARIATIONS

Designerly Explorations in Architectural Composition and Perception



Jack Breen





Patterns & Variations

The central question of the Patterns & Variations study: how might we better understand – and consequently: *explain* – the phenomena of architectural composition and perception?

The *aim*: to systematically and imaginatively (re)consider the conditions of architectural composition, whilst doing justice to the operational, as well as the aesthetic issues of design.
The *ambition*: to contribute towards generating a deeper, more objective understanding, concerning the *craft* of architectural design and consequently: the *art* of architecture.
To unravel the expressive themes that are at interplay in a designed object and to demonstrate their combined workings called for the identification of formal characteristics and the development of conceptual and analytical models, which might be applied and tested in case-studies.

In the Introduction, the motivations and ambitions of the initiative as a whole are set out, after which the relationships between architectural designing and academic research are explored and discussed in the Methods section. The guiding concept for the research-approaches that are considered has been the recognition of *designerly* modes of enquiry.

The proposition was that the active utilisation of the designer's means of *envisioning* would be an essential attribute of methodological study. Thereby, the iterative cycles of design were believed to hold a key to the conceptual structuring the project aspired to. An attempt has been made to characterise methodical approaches to architectural research and identify design-*based* and design-*driven* study opportunities.

In the Explorations section, an indication is given of the works of academics and designers that have been an inspiration to this enterprise. The section highlights some of the thematic explorations and instrumental experiments that have been carried out throughout the years, in the context of various Form and Modelling Studies initiatives.

The Paradigms section considers the issue of aesthetic appreciation in architecture, as well as discussing the designerly conventions and inventions that have led to stylistic paradigm-shifts. A major challenge was the identification and articulation of the compositional themes that may be considered to be representative of designed artefacts.
In the Conceptions section, an attempt is made to identify compositional 'layers' of design.

A thematic framework has been drawn up, on the basis of four elementary conceptions: Space, Order, Form and Detail. The notion was that these conceptions would prove to be beneficial for the imaginative *analysis* and thematic *comparison* of designed artefacts, in precedent-based analytical studies.

The Instruments section addresses the opportunities for different visualisation approaches. These are considered in the context of the project's aspirations and development.
An objective was to develop dedicated, interactive 2D and 3D visualisation techniques, which might stimulate the systematic identification and evocative representation of elementary compositional aspects, in their own right as well as in combination.

The conceptual framework was developed and tested in conjunction with the closing-piece of the study: The AA Variations case-study project. For this in-depth, comparative survey, ten realised projects were selected, all situated in the Dutch municipality of Aalsmeer, which were considered to be representative of the architecture of the Netherlands in the twentieth century.

Patterns & Variations (continued)

In the closing Evaluation section, the findings are presented and conclusions are drawn concerning the study in its entirety and particularly: the methods of exploration, the thematic framework and the visualisation instruments, in the context of imaginative, designerly enquiry.

The essential Patterns & Variations conclusions:

— To reach a more fundamental understanding of the aspects of architectural composition and their perceptions in built objects and environments, it is essential to create initiatives that allow for the recognition of the *patterns* of design, through targeted *comparison*;
— Such objective comparisons may be stimulated by creating thematic *exhibitions*, preferably accompanied by a thematic catalogue, which stimulate the identification and interpretation of the essential aspects of design choices, amongst students as well as staff members;
— To reach a deeper understanding of the interrelated formal themes that are at interplay in any designed artefact, *designerly* modes of enquiry deserve to be appreciated as being central to creative design-oriented education, but no less towards evocative, design-based *research*;
— Architectural composition-research should target the elucidation of the potential effects of individual design decisions, by identifying elementary *conceptions* of design and demonstrate their workings through the active generation of design *variations*;
— Such design conceptions may be instrumental when carrying out targeted, in-depth, case-based *precedent* studies, on the basis of realised design-artefacts with sufficient *complexity* to make their *unravelling* a creatively and intellectually rewarding enterprise;
— Methodically and imaginatively studying works of architecture is essentially a matter of *envisioning*, whereby the application – and development – of visualisation *instruments* is a key factor for the evolvement of knowledge, insights and skills in architectural education and practice, but no less in research and theory.

The Patterns & Variations study as a whole has been a laboratory and testing-ground for a variety of steadily evolving assumptions, interpretations and applications that have been generated over a number of years. It is the closing piece of an extensive, personal search, which has sought to bridge the gap between practice, education, research and theory.

Jack Breen

After studying at the faculty of Architecture at Delft University of Technology, Jack Breen (1952) worked extensively in practice, before returning to the faculty at the end of 1989 to join the Form Studies staff.
During the last 25 years he has been the head of the Form & Modelling Studies group, in which function he has been responsible for the faculty's elementary education in the field of architectural composition and perception. Furthermore, he has been active in the application and development of a variety of architectural modelling initiatives.
In the context of this teaching, he developed a wide range of explorative applications and curated exhibitions highlighting the results of students' work.
Parallel to his academic lecturing and organisational tasks, he has through the years worked on his design-oriented research project: Patterns & Variations.
This book documents the outcomes of the study, which has resulted in an integral doctoral thesis, defended in April 2019.

Patterns & Variations

Patterns & Variations

Designerly Explorations in Architectural Composition and Perception

Dissertation

for the purpose of obtaining the degree of doctor
at the Delft University of Technology
by the authority of the Rector Magnificus, Prof.dr.ir. T.H.J.J. van der Hagen
chair of the Board of Doctorates
to be defended publicly on
10th of April 2019 at 15.00 o'clock

by

Jacobus Laurens Hendrik BREEN
Bouwkundig Ingenieur, Technische Hogeschool, Delft, the Netherlands
born in Aalsmeer, the Netherlands

This dissertation has been approved by the promotors.

Composition of the doctoral committee:

Rector Magnificus	Chairperson
Prof.ir. H.C. Bekkering	Delft University of Technology, promotor
Prof.dr. T.L.P. Avermaete	ETH Zürich, promotor

Independent members:

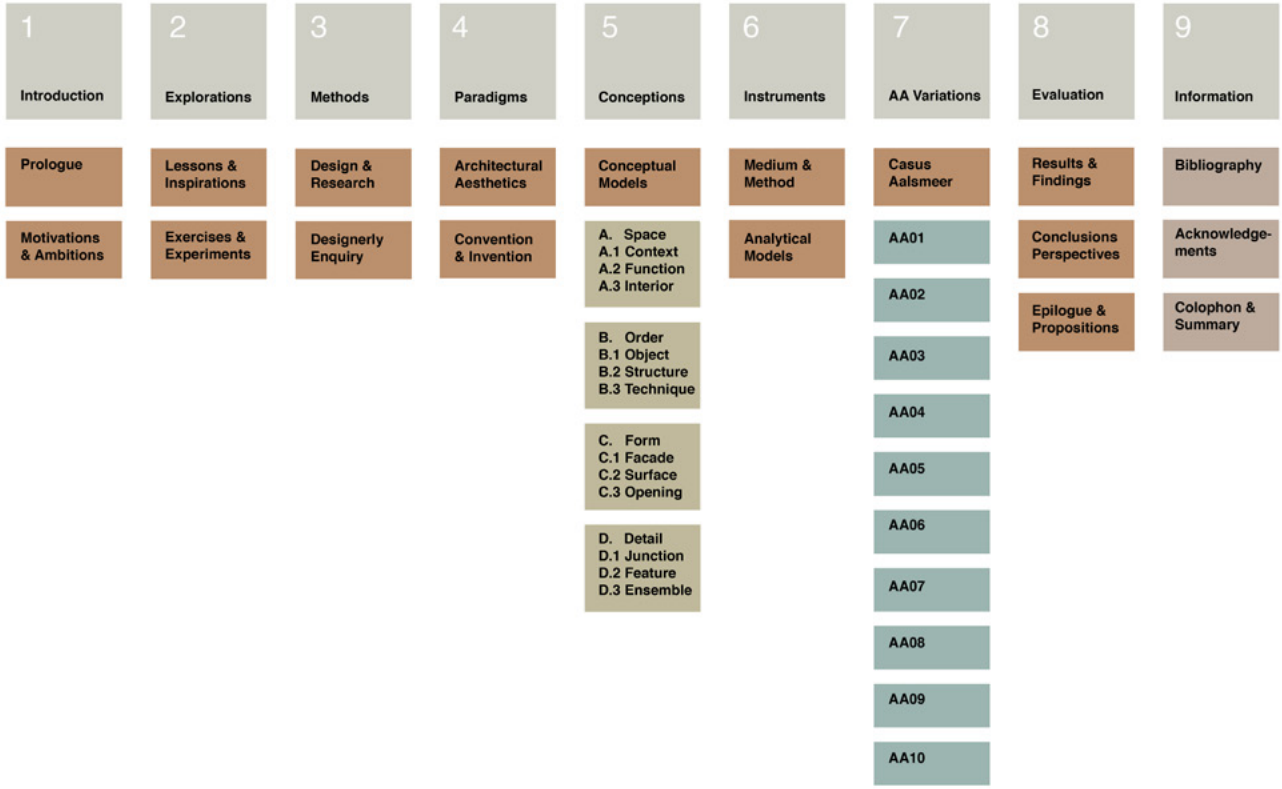
Prof.ir. M.F. Asselbergs	Delft University of Technology
Prof.dr.ir. A.C. den Heijer	Delft University of Technology
Prof.ir. M. Risselada	Delft University of Technology
Prof.dr. M.S. Uddin	Kennesaw State University, USA
Prof. C.J. Platt	The Glasgow School of Art, UK
Prof.dr.ir. B.M. Geerken	Delft University of Technology, reserve

PATTERNS & VARIATIONS

Designerly Explorations in Architectural Composition and Perception

Jack Breen

This Book:
The Patterns & Variations project is documented in an integral document, which is consists of nine different Sections.
In principle, each of these sections contains of two complementary Chapters, each of which is built up of a number of Paragraphs. Within these paragraphs, specific issues are identified and discussed in Sub-paragraphs.
Notes and References are included at the end of each section.
The first exception to this rule is the Conceptions section.
Apart from an opening chapter, this includes four Sub-sections: Space, Order, Form and Detail, each of which has its own collection of Notes and References.
The other 'special' section is entitled AA Variations.
Apart from an introductory chapter, this includes ten Sub-sections: the AA Variations Case-studies.
Each of these has its own Notes and References, as well as a project-specific overview of Sources.
The last section (Information) includes the overall study's Bibliography, the author's Acknowledgements and the Colophon.
Unless otherwise mentioned, all illustrations have been developed in the context of the Patterns & Variations study. Where this is not the case, the original sources are indicated.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1. Introduction

1.0 Prologue
1.1 Motivations
1.2 Ambitions

1.0 Prologue

Patterns and Variations

The world we live in is increasingly ‘man-made’.
As the dominant species – with uniquely human capacities of comprehension, anticipation, adaptation and *creation* – we have lastingly transformed the face of the earth we inhabit.

Through time, our highly evolved senses of environmental *perception*, initially fine-tuned towards the interpretation and appreciation of an abundantly varied natural world, have come to embrace the many-faceted phenomena of an *artificial* world of architectural objects and built environments.
While our responses to natural environments tend to be spontaneous and direct, capable of triggering a heightened sense of awareness, wonder, awe and even *beauty*, works of architecture ‘speak’ to our intellectual and emotional sensibilities, instilling a sense of place, opportunity, belonging and potentially: aesthetic delight.

Architectural compositions tend to be multivalent, layered and complex; the products of targeted design- and construction processes that anticipate the experience of a spatial and material – built – reality.
The aesthetic judgment of architectural artefacts is seldom straightforward and conclusive, being informed by ‘acquired’, largely implicit, knowledge-levels concerning architectural design as a technical, cultural and *artistic* discipline.
What are the elementary, expressive issues of architecture and how may their properties and varied compositional combinations be studied objectively and communicated evocatively?
This study has been developed as a thematic, phenomenological exploration of the varied and interrelated, *formal* issues and domains of architectural design, which tend to be taken as ‘given’ yet are all too often inarticulately expressed and even considered to be enigmatic.
My aim has been to reach a deeper understanding pertaining to the issues and workings of architectural form-giving. Thereby, *conceptual* models are proposed, for the methodical consideration of characteristic design themes and their interrelationships.
Furthermore, *visualisation* instruments have been developed, which are intended to facilitate the systematic ‘unravelling’ of compositional issues and the demonstration of the *effects* of designerly choices.
On the basis of a selection of exemplary artefacts and case-based studies, an attempt has been made to explore, identify and structure recurrent compositional themes and to consider to what extent meaningful *patterns* and significant *variations* may be recognised.
A journey of phenomenological (re)discovery, with the intention of enlivening academic debate, informing architectural education and potentially stimulating further study.

Jack Breen





1.1 Motivations

1.1.1 Composition and Perception

Conceiving a work of Architecture is in many ways comparable to creating a piece of Music: an act of *composition*.

Each architectural design process, in its own way, is a creative *search*, directed towards finding and capturing 'fitting' combinations of complementary and sometimes conflicting qualities – functional, technical and experiential – and 'moulding' these into a concise, consistent whole: a *synthesis* of form, space and material.

Experiencing and comprehending architectural Form is a matter of *perception*.
As in music, the composition has to be brought to life through 'performance.'

What an architectural designer has *imagined* needs to be visualised – or constructed – in order to be understood.
Insights and appreciations concerning a design's virtues may come about by the 'reading' of images that visually represent aspects of a design, or through the visual and tangible interaction with the actual, realised design artefact.

Architectural interventions are not fleeting events, but lastingly alter the environments into which they are placed.
As such, they have a profound influence in the daily lives and well-being of the people who inhabit them, as well as those who are regularly confronted with them, often day in day out.
As a consequence, architectural composition deserves to be considered not just as a creative enterprise in its own right, but as a premeditated act of environmental transformation, with far reaching consequences.
A matter of professional *and* ethical responsibility.

It is therefore essential that, before entering into 'practice', architectural designers are required to undergo a thorough *technical* and *cultural* education.
Learning to design is a process of acquiring knowledge, insights and skills and of simultaneously learning to appreciate the opportunities and consequences of *decisions* on the elusive level of architectural composition.

The central question:
How might we better understand – and consequently: explain – the phenomena of architectural composition and their perception in architectural form?

This elementary research-question has been the guiding theme throughout successive years of learning, practicing, teaching *and* researching architectural design and has been fundamental to shaping this explorative initiative.

This publication documents the results of what has, for a number of years, been an on-going study, which has been driven as much by curiosity, concerning the *capacities* of architecture, as by concerns, regarding the *discipline* of architecture.

The aim:
To systematically and imaginatively (re)consider the conditions of architectural composition and perception, whilst doing justice to the operational and aesthetic issues of architectural design.

The challenge:
To contribute towards generating a deeper, more objective understanding, concerning the *craft* of architectural design and consequently: the *art* of Architecture.

1.1.2 Understanding Architecture

As one of the oldest crafts, architecture was late to join the ranks of the Arts.
Nowadays, architecture – as a discipline – tends not to be considered a 'fine' art form, but rather: to be viewed as an *applied* art, a combination of Engineering and Design. A technical *and* artistic endeavour: in the in-between realm of the Sciences and the Arts. As a consequence, architectural knowledge does not really fit comfortably within the domains of *empirical* science.

The advancement – and subsequently: *sharing* – of understandings concerning the functional, structural and aesthetic qualities of designed objects is a matter of continued involvement and evolvement throughout the interrelated learning cycles that may be considered as the 'four faces' of architecture:

The appliance of technical and intellectual principles in *Practice*;
The deepening of knowledge and methods through *Research*;
The transition of conceptions and comprehensions into *Theory*;
The acquirement of knowledge, insights and skills in *Education*.

When considering the *theoretical* basis of architecture from the perspective of contemporary practice, what might be the 'state of the art' concerning the objective comprehension of the architecture(s) of today?
Which professional domains of study methodically address the complex phenomena of design composition and perception on a *theoretical* level, generating insights and knowledge that might do justice to the practice of architecture as well as resonating in architectural education?
In short: what makes *buildings* 'Architecture'?

1.1.3 Discourse in Architecture

In principle, architectural discourse might be expected to be the platform for the exchange of ideas within the architectural 'community' comprising of professional architects, academics, students, as well as a wider, informed public with a particular interest in the current state of architecture, including professional 'stakeholders', involved in decision-making processes related to architecture.

In the twentieth century, the international discourse was strongly influenced by tone-setting architects from the Netherlands, who were often put centre-stage in the international debate.
Ground-breaking avant-garde movements such as: De Stijl and de 8 en Opbouw were standard-bearers of the Modern Movement, not only in the Netherlands, but as representatives of the *new spirit* of the 'International Style'.

At the same time, the members of the Delft School had begun to make a connection with traditionalist sympathies, by introducing neo-vernacular approaches.
In the fifties and sixties, the Forum group critically considered and discussed the evolvement of post-war industrial Modernism.
Furthermore, the latter decades of the century, gave rise to a 'new wave' of young Dutch architects, who brought about a 'spring cleaning' of architectural conventions in the Netherlands.
Their impact did not go unnoticed in an international context.

In the Dutch architectural discourse of today, the question of *style* hardly seems to be an issue of professional deliberation and dispute.
The emphasis in the architectural media has increasingly come to lie upon 'global' cultural phenomena and the portrayal of the emblematic output of a limited group of recognised architects.
Presentations by 'star' architects are all too often uncritical, self-congratulatory exposés of recent projects, whereby the tendency is to distinguish oneself, rather than to consider the work as part of a 'bigger picture'.
The professional press is primarily concerned with the 'exposure' of new work, whereby the motivations of the designers tend to be aired without criticism, offering room for abundant, seductive imagery and catchy sound-bites. The methodical investigation and interpretation of underlying compositional conventions and inventions does *not* appear to be a priority.

1.1.4 Research in Architecture

In design-based *academic* research in the Netherlands, particularly at the Faculty of Architecture and the Built Environment at the Delft University of Technology (TU Delft), the focus tends to be either on the *architectonic* or on the *architectural*.

In *architectonic* research, the fields of interest are predominantly *technological*: concentrating on principles of construction and on issues relating to the building practice, technical innovation and durability.
Technical research in Delft contributes towards the development of building products and procedures, particularly on the level of the 'building envelope': the facade and the integration of services.
Issues of materialisation and manufacturing, as well as the computer-aided design of complex structures and the methods of assemblage figure prominently.
Such research is robust and relevant, but the established practice is not one of addressing the deeper-lying *expressive* qualities of architecture: the technical *and* aesthetic potentials of architectonic research and development.
In *architectural* research there is a tendency towards involvement in the *design culture* of architecture, from the perspective of designing *as* a discipline.
There is a marked preference towards the study of noteworthy, exemplary architectural *artefacts*.
There is a distinguished category of research in which the emphasis lies on the *oeuvres* of particular (groups of) architects.
Such research is predominantly descriptive and of relevance in the context of the *history* of the modern movements of the twentieth century.
Further issues include determinants of *typology* and building categories considered in relation to *urban* (re)development.

It is my considered opinion that in architectural research – as in architectonic research – there does not appear to be a noteworthy research culture concerning the elucidation of stylistic conditions and aesthetic preferences in the context of *contemporary* architectural practice.
This particular study has been set up to – at least more explicitly – address the often *implicit* issues of architectural form-giving and appreciation. At the same time, the research is also concerned with Dutch architecture in a *historical* context.

1.1.5 Theory in Architecture

The foundations of Architectural Theory lie in the era of the Renaissance, whereby theoretical knowledge was sought through the methodical study of historical *archetypes*, which were considered worthy of imitation and interpretation, serving as 'benchmarks' for architectural practice.

From the Renaissance onwards, intellectually inquisitive practitioners pursued the furthering of understandings concerning the artistic aspects and the expressive instruments of architecture.
Influential treatises, particularly concerning the *stylistic* principles of architecture, illustrated with representations of exemplary projects and their attributes (often with evocative, meticulous drawings), laid the foundations for a broad cultural engagement and a vigorous architectural debate, which was reflected in practice.

With the influx of Functionalist modern architecture, during the first half of the twentieth century, the classical treatises on architectural theory came to be considered as obsolete and were thrown out the window.
Since then, scholars of architecture have not been successful in creating a formal 'grammar' for the *new language* of architecture, which for over a century has steadily proliferated urban landscapes throughout the world.

One might then expect that the aesthetic consideration of contemporary architecture would be high on the agenda of the *Theory* departments of Dutch institutes of architectural learning.
After all: The Netherlands has, at least up to recently, been perceived in an international context as a 'laboratory' for architectural innovation and experimentation.
This is arguably not the case, as the Theory groups at Dutch architecture faculties tend not to be manned by architecturally-trained academics, with a judicious eye for architectural form, but rather

by theorists from other disciplines, who are more inclined to pursue interests that are at best marginally related to the disciplines of architecture.

For an art-form which is as omnipresent as architecture, it is remarkable to behold how inadequate the theoretical body of objective knowledge is, when it comes to understanding contemporary design.
The resulting lack of intellectual 'instrumentation' for objective analysis and interpretation of architectural artefacts poses a problem for *research*, but no less so for design *education*.

The Dutch architectural debate is, to my mind, currently missing a 'practical' theoretical foundation; a frame of reference that might be considered to be relevant in the context of the discipline's professional discourse, as well as the education of practitioners of the future.
How might the 'branche' become unstuck from its ingrained conventions and begin to think outside of its own 'box'?
One way to resolve this problem may be to learn from the ground-breaking studies that have been carried out by Dutch architectural *historians* in recent years.
Another option would be for architectural academics to 'do it for themselves'.

1.1.6 Education in Architecture

Potentially, academic learning-environments might actually be the most vital 'laboratories' for targeted study and experimentation on the level of formal composition and architectural expression.

Working alongside intelligent young individuals, with an inquisitive attitude and an open mind, teachers of architecture are regularly confronted with works of compositional merit and surprising originality.
The downside is that educating students is an intensive, demanding task, whereby there is seldom opportunity for systematic reflection, comparison and documentation of results and findings, let alone for the drawing of *conclusions*.
The 'time-frame' that is allotted to students is becoming increasingly constraining and there is considerable pressure to get things 'right enough' (i.e. getting a 'pass'), rather than taking risks and learning from mistakes.
Still, carrying out designerly challenges within clearly-defined *constraints* can be an experience that is not only a rewarding experience for the participating students, who learn from their own discoveries as well as each other's, but may also offer profound insights to members of staff.
At a university level, at least in the Netherlands, there is still a tendency to consider the 'creative' act of designing as something of an enigma: an impenetrable 'black box', the inner workings of which cannot (and consequently: *need* not) be properly explained to the 'unenlightened'.

As a consequence, the didactic method for the development of design *expertise* is one of 'repeatedly doing', in the hope that the individual student will have sufficient talent to 'see' what it is about.
Alternately, in design *analysis*, students are expected to thematically explore and identify the compositional qualities of precedents on *distinguishable* levels of design: discovering *order* in *complexity*.

There is a case to be made for higher standards of objectivity and rigour in education.
For the development of analytical and creative skills – and a more *scientific* attitude to design – it would be beneficial if students and staff could make better use of theoretical models of architecture.
Let us therefore briefly consider the learning cycles of music and the didactic role of music theory.

1.1.7 Music and Theory

If we draw a comparison with another 'everyday' art form – music – we might discover opportunities for a practice-based theoretical framework on the level of architectural composition.

Music has developed steadily over the centuries into a broad panorama of musical styles and cultures. 'Classical' compositions are still treasured and performed regularly, yet at the same time we are confronted with an array of *contemporary* modes of musical expression.
Binding all of these 'branches' of music together is a generally recognised 'theoretical' framework, based upon the knowledge of classical idioms but still applicable as a reference point for the music of today.
At the same time, music theory is continually informed and 'updated', due to the innovations of newer musical 'genres' and (digital) technologies, giving fresh impulses to the consideration and the development of musical composition, arrangement, performance and production.

Such an underlying, theoretical structure need not be a hindrance to individual expression and creativity, on the contrary.
On the basis of *shared* knowledge, experience and inspiration, musicians are relatively free in their choices concerning to *what extent* they wish to adhere to the 'rules'; ignoring, emphasising or exaggerating particular aspects, for dramatic effect.

One does not have to understand music theory – or indeed to *read* music – to be able to appreciate and *enjoy* music, but a certain level of theoretical knowledge *can* help to better understand *how* the composition works and why it captures the imagination and potentially: triggers emotions.
Might an up-to-date, practice based theoretical frame of reference not also be beneficial in architecture, particularly in education and research?

1.1.8 Formal Study

Composition and perception have been the focus of the steadily evolving Form Studies curriculum at the Delft faculty of architecture though the last decades, albeit on a relatively modest scale.

During my architectural studies in Delft, my curiosities concerning the expressive means of architecture and other art forms were triggered in the context of a broad, multidisciplinary Form Studies curriculum, in which an active approach to composition and the evolvement of creative skills were high on the agenda.

After my studies – and a number of years in practice – I had the good fortune to return to the faculty and assume responsibility for the Form & Modelling Studies programme.
Developing educational themes and pedagogical approaches, as well as lecturing and researching in the context of the Form & Modelling Studies applications, has not only led to a growing awareness of the value of composition-based enquiry in architecture, but has also fuelled aspirations towards constructing a coherent theoretical framework concerning the compositional foundations of architecture, from a designerly perspective.
A brief overview...

The Form Studies group in Delft is concerned with the study of elementary conceptions of architectural *form-giving* ('vormgeving'). The education has a direct relationship with the essential themes of architecture, but with clear constraints and a conscious level of *abstraction*.

The foundational first year programme has the ambition of offering new students – who are predominantly 'absolute beginners' – eye-opening comprehensions and to stimulate an active, inquisitive approach to the issues of design composition and perception. The first year Form Studies programme consists of a sequence of specific, but interrelated exercises, gradually building up in complexity as well as the required level of precision and reflection.

Per exercise, students are required to create an autonomous compositional study in a limited time-frame, using the same, predetermined means. The resulting spatial model study, which has acquired its eventual form more or less spontaneously, is evaluated in comparison to intermediate results generated on the basis of the same task, analysed in relation to references and documented in a working folder.

The course has been complemented by a series of lectures, in which the compositional themes are introduced and illustrated on the basis of works of architecture and art from around the world through the ages.

The collection of individual results of the year programme are documented by each student in a professional portfolio, with attention to content, meaning and graphic quality.

In subsequent years, a collection of more specific exercises is offered, concentrating on expressive issues of *detailing*, contemporary *ornamentation*, as well as the systematic *analysis* of representative precedents of architectural design.
In all of these design-driven study applications, actively 'constructing' *models* is an essential attribute of study, contributing to the generation of insights and the communication of findings and results.
Such explorative modelling involves building physical models, but also increasingly 3D 'sketch' modelling and computer-aided manufacturing.

My participation in Form Studies education and research has led to the steady accumulation of what might be considered 'pieces' of a larger puzzle.
It has been my ambition to bring these pieces together and to organise and expand them, within a theoretical body of work addressing the phenomena of architectural Form.

The motivation:
To contribute to a more objective understanding of the aesthetic considerations of architecture and to stimulate the methodical – yet *creative* – investigation of architectural modes of expression.

The method:
A 'reconnaissance' of the phenomena of architectural composition; not by considering architecture *as* a science, but through the *scientific* exploration of architectural themes, with the intention of identifying significant patterns *and* variations in the domains of architectural composition.

1.2 Ambitions

1.2.1 Unravelling Architecture

Architecture is about building, with *ambition*.
Realising works of architecture involves following iterative 'cycles' of creative designing, in which the project is steadily evaluated and refined. Decisions are successively made concerning the qualities of specific components and their configurations within the context of the design as a totality as well as in its surroundings.

Designing is a developmental process involving *selection*; determining and arranging structural, material and spatial elements within complex, often even conflicting, interrelationships in such a way that they will define the built object's eventual experience and appearance.
As a consequence, the designer's attentions need to be targeted at a variety of distinguishable levels of composition, which may be technical as well as artistic.

Each facet of the project needs to be considered and articulated, in its own right as well as in the overriding context of the composition as an intricate *whole*.
The resulting *orchestration* of parts should be more than a 'sum of solutions', but rather a heterogeneous and harmonious *ensemble*.

If our aim is to reach a greater understanding of *how* works of architecture are designed and experienced, it cannot be a matter of merely *believing* in objective truths, underpinning the subjective experience of beauty, but of systematically considering specimens of architecture in order to identify the underlying *patterns* and *variations* on the level of architectural composition and perception.

The ambition of this study has been to inquisitively explore *what kinds* of elementary formal themes and characteristic relationships are brought into play during designing and subsequently trigger aesthetic responses in 'the eye of the beholder'.
To take things a step further: the idea has been to 'sharpen' the trained eye of the architectural professional by a process of thematic de-composition, allowing for the 'reading' of expressive ambitions underlying the integral, built artefact.

The question was if it might be possible to characterise – harmonic *and* dissonant – themes and to recognise aesthetic conventions, by observing which particular attributes of design are dominant, sub-dominant or – purposefully – *absent* on interrelated compositional levels.

This central question – how might we better understand and explain the phenomena of architectural composition and their perception in architectural form? – has determined the *methodology* of the research initiative.

1.2.2 Modes of Study

From the start, the ambition of the initiative was to bridge the gap between the elusive act of *designing* buildings and the actual *manifestations* of designs, as built form.
The underlying assumption has been that it should be possible to identify and characterise recurring issues of form-giving *relatively* objectively.

A crucial research consideration thereby has been to address the – reciprocal – conditions of composition and perception.
These issues have been determinants for the methodical and instrumental approaches, that have been developed step-by-step during the process of study.
A brief characterisation of the roles the two interrelated concepts within the 'tapestry' of the eventual research 'construct' as a whole:

Composition:
The reconnaissance of aspects of creative design has been directed towards the improved understanding of characteristic compositional themes in architecture, primarily on the level of formal analysis, by way of analytical de-composition and re-composition.

Perception:
The consideration of compositional aspects has predominantly been a matter of *envisioning*, by considering the physical appearance of the objects using different instruments of design, notably modelling techniques, where possible making use of interactive layers and alternative design options.

These reciprocal research characteristics have – in different combinations – given direction to the development of the project as a whole.
Which combinations were activated at which points, was determined by the study-objective at hand.

In some cases, it was predominantly a matter of gathering data and recognising characteristic issues, on the basis of observation and deduction.

In other cases, the subject-matter needed a more active and experimental, 'designerly' mode of study, informed by the working methods and instrumentation of the architectural designer.

1.2.3 Models of Study

As architectural designs need to be 'projected' through representations, the aspect of *visualisation* played an essential role throughout the research process.

From early on, the ambition was to develop modelling applications that might become instrumental in conveying the compositional aspects of studied objects, as well as serving as instruments for the identification and evocative *demonstration* of the compositional 'performances' on interrelated layers of design.
At the same time, there was an awareness that it was essential to identify and differentiate the interrelated *domains* of composition and perception.

Consequently, two distinctly different model-based research- and development trajectories have been central to the initiative:

Conceptual Models:
The intention of the thematic models, which were developed in the course of this study, was to bring a measure of clarity and structure within the 'clouds' of concepts, relating to architectural composition in the broadest sense.
Various kunds of schemes were drawn up to distinguish and cluster formal themes. These themes were subsequently categorised and defined, in an attempt to create a thematic hierarchy.
The underlying idea was that such a conceptual model might be expected to make the subject matter transparent and oversee-able. Furthermore, the idea was that the conceptions might serve as devices for thematic *identification*, as well potentially for qualitative *and* quantitative *taxonomy*.
This model-category was conceived as a thematic *structuring* device, to pin-down and elucidate particular, relevant design phenomena. On the basis of experimentation and extensive deliberation, a concise theoretical framework was eventually drawn up consisting of four elementary 'core' conceptions, each linked with three, more specific sub-conceptions.
These categories subsequently became foundational attributes of the concluding, case-based study.

Analytical Models:
In conjunction with the identification and elaboration of conceptions, an essential part of the study was directed towards the evolvement of evocative *visualisation* means, which might be used to analytically unravel the compositional attributes of selected projects. Apart from two-dimensional representation-media, such as drawings, schemes and pictures, an effort was made to operationalise three-dimensional modelling techniques.
For this reason, tests were carried out with different kinds of 'spatial' models. These included *physical* 'scale' models as well as *virtual* 3D modelling applications.
For this project, an interactive, layer-based spatial modelling instrument was developed, which is essentially an enhanced, 'dedicated' adaptation of available 3D 'sketch' software.

This spatial-modelling instrumentarium has been steadily developed, refined and conditioned for the benefit of the case-based explorations that have been carried out in the context of this study.

In the course of the project's development as a whole, there has been a reciprocal relationship between the development conceptual and analytical models.
These have both played an essential role in the process of identifying relevant themes and demonstrating compositional principles perceptually.

1.2.4 Patterns & Variations

Besides several smaller-scale conceptual and representational experiments, the most important testing-ground for the envisioned research-approach has been the integral case-study project which has been dubbed The AA Variations.

The AA Variations study is an in-depth, comparative analysis of ten dwellings, spanning roughly a century.
Ten 'samples' of architectural enterprise – representing different periods and modes of architectural composition – are studied on the basis of the previously defined 'conceptions' categories.
In the study of these ten projects, a concerted attempt is made thematically and visually identify and illustrate as many items as possible on the levels of design composition and designerly perception.

Originally, the intention was to focus purely upon the visual manifestation of the architectural *object*, in its own right.
However, the notion of a design as an *indivisible* synthesis of interrelated compositional themes led to broadening the field of enquiry of the research.
It became clear that issues that as it were 'lie below the surface' cannot be discounted and need to be taken into consideration, in order to reach a true understanding.
Consequently, including issues that 'indirectly' influence a building's exterior appearance was not only necessary, but indeed proved beneficial to the consideration of selected architectural entities and their attributes in a more *holistic* manner.

In the definitive, integral AA Variations study, each of the ten projects is documented in a concise project-file, on three differentiated, but interrelated levels: *Patterns*, *Variations* and *Perceptions.*

1.2.5 Aspirations

Fundamental to this research has been the notion that, if we wish to reach a more *objective* understanding of the aesthetic principles of architecture, there is a need for the advancement of conceptual methods and analytical instruments, in order to facilitate and stimulate the methodical investigation of architectural modes of expression.

The thematic exploration of more or less *implicit* design issues, which are not often *explicitly* addressed, has been pursued using various kinds of images and representational techniques.
Images have been included in conjunction with descriptive and analytical texts, which are underscored by explanatory notes and references and selected quotes. These are included as what might be considered 'circumstantial evidence'.

The idea:
To create an explorative treatise, which might contribute towards a greater, *shared* understanding of architectural Patterns and Variations, on the basis of an up-to-date practice-based theoretical framework identifying formal categories of design.

The objective:
To investigate which *types* of formal attributes and their combinations may be recognised as determining aesthetic properties and potentially: as recognisable attributes of aesthetic *paradigms* and paradigm *shifts* in previous eras, as well as in contemporary architecture.

The ambition:
To develop and test theoretical models for the appreciation of design composition, through a phenomenological approach, by considering attributes of design from an *architectural* perspective, making innovative use of the contemporary *imaging* instrumentation.

The wish:
To produce a relevant and stimulating document, with a visually logical, thematic organisation.
What I envisaged was neither an encyclopaedic tome, taking in 'all opportunities', nor a handbook prescribing a 'correct way' to design, but essentially: a body of work that might inform and inspire *further* study.
The kind of book I would have liked to have had as a student!





The Delft Architecture Faculty, with students Jack (l) and Robert (r), early 1970's.

2. Explorations

2.1 Lessons & Inspirations

2.2 Exercises & Experiments

2.1 Lessons & Inspirations

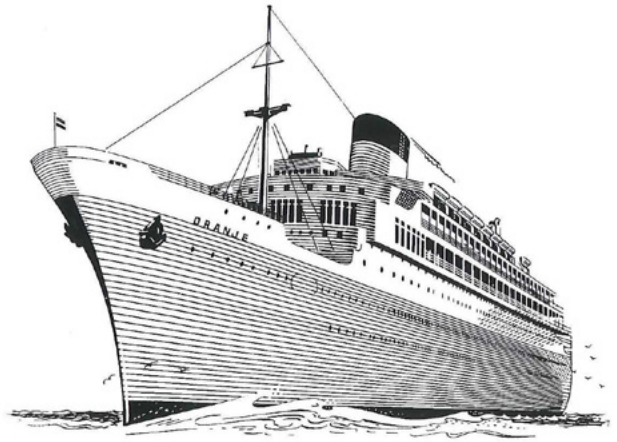
2.1.1 Patterns & Variations Foundations

This ‘Explorations’ section tries to give an impression of some of the initiatives that have been developed though my years as a student, practitioner, teacher and researcher.
These involvements have, to a large extent, been driven by personal affects and curiosities, that have been triggered by the experiences of my youth in a multi-cultural environment and my subsequent years as a student of Architecture, in Delft.

My individual interests and insights have been shaped to a large extent by the opportunities that have arisen to develop my latent talents and by formative (chance) experiences.
Before setting out along the path of the Patterns & Variations study, I feel it would be enlightening, for the proper understanding of the project and its connotations, to go into some of the developments that have contributed to shaping the initiative.
The following paragraphs are intended to give an indication of the issues that have, through time, informed my personal insights, judgements and convictions, as well as my professional interests and working methods.

In this context I have felt it justified to include some brief descriptions of what I would consider to be boundary-shifting study initiatives, in which I have been actively involved, in the context of practice, education and organisation, as well as in research.

Although some of these learning applications may appear to stand on their own, these didactic exercises and experiments have, at least in my perception, been part of the ‘bigger picture’ of this study initiative; methodically, instrumentally and conceptually.



Line-drawing of the M.S. Oranje, proud flagship of the Stoomvaart Maatschappij Nederland, which carried passengers and mail between Amsterdam and the East.

2.1.2 Formative Developments

After having been born in the Netherlands (in Aalsmeer, the municipality that forms the context of the concluding AA Variations study), my family soon moved to the tropics (first to Indonesia and then to Singapore), which is where I spent my formative years and developed my first interests in the field of architecture.

Before returning to the Netherlands to study in Delft, my expectations concerning the discipline of Architecture had primarily been informed by a career-choice brochure:

> *"The architect is usually thought of as the designer of buildings, and many people think of architecture as a matter of 'style', or the external appearance of buildings. The architect's job, reduced to its essentials, is indeed the design of buildings, and it is the creative process of design that distinguishes architecture from the mere construction of buildings. But design is itself far more than style or external appearance, and architecture as a career embraces far more than design. The architect is also a technologist, an organiser, and a key man in the whole team responsible for building.*
> *Architecture is rightly called an art, and is in many ways the greatest of the arts. But the architect, unlike the sculptor or the painter, is rarely commissioned to create a work of art, nor is he trained to create one with his own hands. He is commissioned to build a building (or a group of buildings, or even a whole town) that will solve a human problem and satisfy human needs – both practical and aesthetic."*[1]

This text still rings true to me today, but when I started my studies in architecture, in the brand-new multi-storey faculty building designed by van den Broek & Bakema, in the summer of 1971, things were quite different than I had anticipated.
The atmosphere at the institute was still tangibly 'post '68'; being highly politicised.
The dominant focus of many students and staff-members seemed to be more on matters pertaining to the global 'class struggle' than on the understanding and explanation of the essential workings of architecture.

2.1.3 Architecture in Delft

In the first years of study in Delft, the curriculum was far from cohesive and transparent.
The educational programme primarily consisted of seemingly boundless, design 'projects'.
Very little attention was given to the fundamental conditions of architecture, such as historical and cultural knowledge.

The historical developments and the appreciation of architecture were not explicitly addressed, whereby the most interesting lectures tended to be loosely thematic and phenomenological in their approach.

One of the most stimulating lecture series, offered by Joop Hardy, evocatively addressed a wide range of anthropological phenomena and indigenous art-forms, but had relatively little to say about the art of contemporary architecture.
I also found the lectures by the head of Form Studies ('Vormstudie') – Niels Luning Prak – to be particularly interesting and stimulating. Prak made an effort to adopt the largely two-dimensional schemata of the Gestalt psychologists to three-dimensional architectural and urban configurations, though to my mind (then and now), not entirely convincingly.[2]
On the whole, the lectures of my first years did not satisfy my desire for a more fundamental knowledge-base.
As a consequence, my insights concerning the developments of architecture in a historical perspective have essentially been self-taught.

Furthermore, very little attention was given in the educational programme concerning the practicalities of *building*.
I felt (and still feel) that I learnt by far the most about the procedural aspects of building, materialisation and detailing during a then compulsory, six-week practical period, in the summer months between my first and second year of study.

This learning-experience, on a traditional building-site in Aalsmeer, also allowed me to get a better impression of a number of the buildings in the municipality, some of which would later become part of the AA Variations study.[3]
Another six-week practical period, further-on in the educational programme, was spent as a member of the design-department of the architectural practice of ir. D. van Mourik in The Hague.
This internship allowed me to hone my technical-drawing and architectural presentation skills.[4]

During the first years of study, I was particularly interested in the furthering of my personal insights and skills on the level of composition and visualisation.
The opportunities for the deepening of knowledge and the sharpening of such sensitivities was primarily to be found in a number of, very diverse, free-choice exercises, offered by the teaching-staffs of Form Studies and Free-hand Drawing.

Such thematic 'excursions' allowed for the explorations of a wide variety of visualisation techniques and the development of discerning skills in various visualisation 'media', including video, endoscopy, model-making and silkscreen-printing.[5]

The teachers who 'made the difference' were particularly my Form Studies and Media mentors, who included Jacob Meier, Kees Sabee and Peter Manders (Form Studies: spatial and sculptural composition; tone, texture and colour; collage and printing) and Piet Evenblij (Multi-media and video).
The acquaintance with different design-related visualisation approaches also led to a growing interest in fields of graphic design and typography.

The connection between content and visual information was subsequently applied in the context of a research-thesis, exploring the relationships between traditional and contemporary Japanese architecture.[6]
All of the skills which were developed at the time were essentially *haptic*; computers were still non-existent in education as well as in architectural practice.

For students like myself, the most inspiring lectures in those years were delivered by then tone-setting professors Aldo van Eyck and Herman Hertzberger.[7]
Their, usually jam-packed, 'Room B' lecture-series, taking place on Tuesday mornings, were eye-openers for me in their eloquent, humanistic philosophical explorations, concerning what they saw as the role of the architect in creating generous, adaptive living- and working environments, stimulating and challenging the creative interpretations of their users.

Such lectures were built around series of selected, projected images (usually two juxtaposed slides, on occasion, in Room A, even three) that had been purposely collected to document their work as well as the backgrounds of their thinking, on the basis of imagery gathered in the context of journeys around the world. They tended to go deeply into their own built work, as well as considering projects by other, pioneering architects.[8]

In the case of van Eyck, he would include work from various ethnic cultures, such as those of the Massai and the Dogon, as well as imagery and impressions of far-off places like Yemen, Celebes and the Amazon.

These lectures not only stimulated a further interest in all *kinds* of architectural modes of expression – vernacular as well as avant-garde – but also the desire to travel and experience the works of the 'world of architecture' first-hand.

When Aldo van Eyck was approached to become the principal mentor for the concluding design thesis project, his answer was that he expected his diploma-students *"to have read what I have written."*

This led to a frantic, targeted search on my behalf, to find publications concerning his work, contributing to a deeper understanding of his thoughts on architecture.
Two of his essential conceptions, which have continued to inspire me to this day, are the notion of the 'in-between realm' and the concept of 'twin phenomena'.

Aldo van Eyck, on the various kinds of twin phenomena that may be recognised:

> *"I will mention the problem of the in-between realm.*
> *The in-between realm constitutes that place where false alternatives are no longer false, but become twin-phenomena. My idea of twin phenomena sort of loops through my thinking and anything I try to build. That is the absolute refusal to …(accept the splitting of) … twin phenomena into incompatible halves of which each half has no meaning. There are hundreds of twin phenomena which all belong together as brothers and sisters – one/family; inside/outside; closed/open; motion/rest; change/constancy; small/large; many/few; mass/space etc. – you can just carry on. So what I think we should do first of all, is to persuade these hard, narrow borderlines between one world and the next, between this place and the next place, between this moment and the next moment, between this person and another person, to persuade this narrow borderline, to loop generously into an in-between realm."*[9]

The diploma-project involved the design and presentation of a programmatically- and contextually complex project: an Integral Music Centre, in Amsterdam.
This highly-ambitious undertaking (developed in collaboration with fellow-students Kees Dwarshuis and Robert Nottrot), allowed for the 'playing on all registers' when it came to implementing acquired knowledge and skills, as well as exploiting the various media facilities, which the faculty had to offer at the time.[10]
In June 1980, the project was successfully completed and I left the faculty, after nearly nine years, to try to gain a foothold in architectural practice.

2.1.4 Learning from Practice

The early eighties were a period of economic crisis in the Netherlands and many of the established architectural practices were having difficulties surviving.
I was fortunate to be able to find work, on architect Herman Hertzberger's new Ministry of Social affairs in The Hague.[11]
In my role of creative liaison, between architect and principal, one of my tasks was the channelling of project-information towards the organisation's various 'kingdoms' in the enormous organisation and back, in the context of the bureaucratic participation process ('inspraak'), involving a wide range of staff members and technical experts.
The project allowed to me to further develop my Dutch writing skills and particularly to become proficient in the 'design' of visual information and text, for the benefit of the communication between architect and client.

I subsequently I went on to work as an associate architect, in the firm of Campman Tennekes de Jong in Gouda, specialising in the design of buildings for health, care and education.
These years allowed me to develop my professional skills of the designer's instruments for design and presentation. During this period, I had my first acquaintance with CAD (Computer Aided Design). 3D modelling was initially still used mainly for the generation of 'reliable' geometries, on which hand-drawn renderings could be made.

Around the same time, my wife Claudia had begun to work as a free-lance architect.
One of the most interesting – and intensive – commissions she had, in the late eighties, was the restoration of the iconic market-gardener's house by Duiker and Bijvoet, in Aalsmeer (1924).
I was in the opportunity to closely follow the development of the ground-breaking, near-total reconstruction of this 'young monument', which eventually became one of the central projects in the AA Variations study initiative.[12]
When the opportunity arose for a commission to realise a first substantial building, in 1988, we decided to start our own practice: Breen & Breen architecten.[13]
Whilst working on the realisation-drawings of our first project, I was approached for a position at Form Studies.
This led to me returning to the faculty of Architecture after an absence of nearly a decade, in the autumn of 1989.

Gradually, my position at the faculty became more demanding and time-consuming.
My wife and partner soon became the project-architect of the firm, specialising in buildings for the care and education of – young – children.
Though the years, I was able to contribute to the evolvement and realisation of a number of such new child-care buildings, particularly on the level of preliminary design, detailing, presentation and documentation.



New year's card image of the Rotterdamseweg project (1990), Breen & Breen.




Aerial view drawing and photographs of the De Schelp / The Shell project (2002).

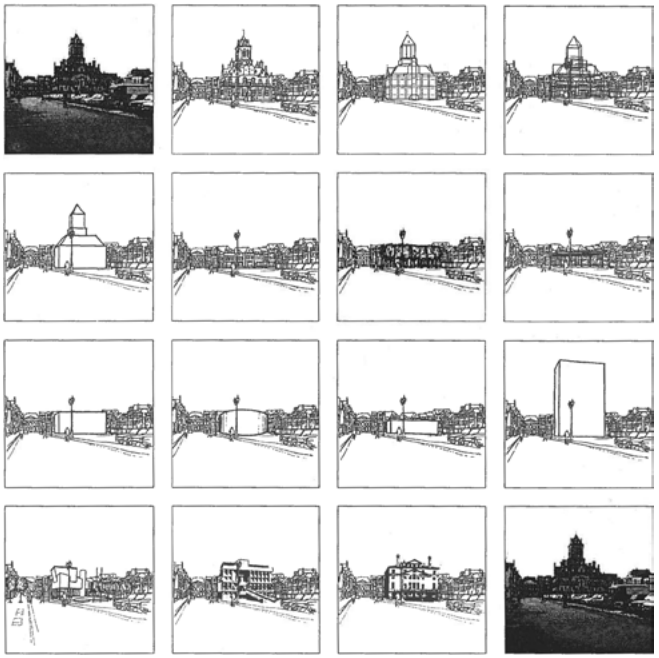
This experience contributed to triggering my awareness to the recurring themes of design, as well as the characteristic differences per project, which were brought about by project-specific conditions, as well as by aesthetic ambitions.
A brief consideration of specific design-issues, on the basis of the following four projects for the care and development of young children, with distinct similarities in their functional programmes, but also marked differences in their designerly interpretation and execution:

— Children's play-centre and community-centre, 'Rotterdam-seweg', Delft (1991);[14]
— Children's day-care centre, 'Joriaantje', project, Delft (1997);[15]
— Children's day-care centre, 'De Schelp' ('The Shell'), Delft (2002);[16]
— Children's day-care and after-school centre, 'Villa Nova', Hendrik-Ido-Ambacht (2006).[17]

Characteristic issues:

— Situation: Site, volume-positioning and orientation, exterior domains;
— Function: Spatial arrangement of groups, boundaries, transitions, routing;
— Interior: Specification of playing, sleeping and hygiene, using colours;
— Structure: Wall-based and steel-frame construction systems, cladding;
— Surface: Use of different wall-colours and surface patterns and textures;
— Opening: Window directions, sub-rhythms, closed and open corners;
— Scale: Child-oriented articulations, visual axes and differences in levels;
— Character: Open, optimistic, but not overly-playful architectural expression.

Such designing- and building experiences have given 'food for thought' in the context of the thematic consideration and characterisation of expressive design-themes, in my academic work.[18]



Early 'variations' on the basis of the town-hall and market-square of Delft (1991).

2.1.5 Research Inspirations

As a student I was inspired by the lectures of Aldo van Eyck and Herman Hertzberger.
To get a better idea of the historical periods of 'western' architecture, I was stimulated by the writings and historic image-selections of Christian Norberg-Schulz and by the generous historical retrospective 'World Architecture'.[19]
In particular, the publications of Charles Jencks captured my imagination on the level of 'multivalence' in modern architecture as well as what he subsequently considered to be the 'language' of Postmodern Architecture.[20]
Furthermore, my eyes were opened once again to the architecture of Japan, through the work of Werner Blaser, the excellent Heibonsha / Weathermark surveys on traditional Japanese architecture and by the work of the prolific photographer Yukio Futagawa, who managed to visually define nearly all of the icons of traditional- and modern architecture, around the world.[21]

My position and preferences were informed by the oeuvres of a wide range of architects, including:
- Ancient spiritual sites and buildings notably the English cathedrals of Ely, Salisbury, Wells and Durham.
- Art Nouveau: Victor Horta; Antoni Gaudí, Charles Rennie Mackintosh, The Vienna School, Henri Sauvage and arguably: The Amsterdam School;
- International modernism: Frank Lloyd Wright; Rudolph Schindler; Richard Neutra; Le Corbusier; Ludwig Mies van der Rohe; Walter Gropius; Marcel Breuer; Guiseppe Terranghi; Alvar Aalto; Arne Jacobsen; Gunnar Asplund; Hans Scharoun and Louis Kahn; Kenzo Tange and Kiyonori Kikutake;
- The Dutch Modernists: J.J.P. Oud; Jan Duiker and Bernard Bijvoet; Brinkman & van der Vlugt and Gerrit Rietveld, as well as Willem Marinus Dudok and Frits Peutz;
- The 'newer' International generation: James Stirling; Robert Venturi; Charles Moore; Richard Meier; Renzo Piano; Richard Rogers; Norman Foster; Günther Benisch; Bolles & Wilson, Arata Isozaki; Kisho Kurokawa, Fumihiko Maki and particularly: Australian architect Glenn Murcutt.

To complement the accumulated impressions and insights, via magazines and books, expeditions were carried out throughout the Netherlands and Europe (including a sketch-excursion through Northern France; giving me my first taste of Paris) and particularly by visiting the built oeuvres of Le Corbusier, Palladio (in the Veneto and Venice) and arguably my favourite city: the then steadily developing 'City of Wonders': Barcelona.[22]
When, around the middle of the nineties, I started taking my first fledgling steps into academic research, the ideas of two academics – Peter F. Smith and Auke van der Woud – were eye-openers for me at the time.
Their key-conceptions, have stayed with me during the course of this research project and which have continued to be 'guiding lights' for my and developing insights and understandings.

A text by professor Peter F. Smith that I came across more or less by chance, resonated with me in its perceptive clarity.
In the various other publications of his, which I subsequently studied, he tends to reiterate the essential truths which are captured here, but to my idea were never put quite as elegantly and poignantly as he does in this except.

Peter F. Smith, in what is for me his defining quote:
> *"The most successful buildings are those which clearly express their elements but which, at the same time, come across as wholes which are much greater than the sum of their parts. This is the primary aesthetic "dialectic" in architecture. Aesthetic success demands that orderliness wins, but not too easily. There has to be sufficient complexity to make the perception of unity a worthwhile mental achievement."*[23]

Around the same time, I came across the published inaugural address of professor Auke van der Woud (1993).
His outspoken notion of the 'unspoken' qualities of aesthetic expression and their appreciation in contemporary architecture not only supported my feelings that the issues of composition and perception in architecture had not been insufficiently addressed in education and research, but that they posed a challenge: I saw it as a call to 'do' something about it!

Auke van der Woud, on the 'unspeakable' beauty of contemporary architecture:
> *"Beauty is a very important condition in contemporary architecture, but its consideration is paradoxical. …*
> *Contemporary architecture has an unspeakable beauty ('onuitsprekelijke schoonheid')*[24]

Other architectural scholars whose work I have found particularly inspiring during the course of this study have been Juhanni Pallasmaa (who I was fortunate to meet during the Four Faces meeting in Stockholm in 2003) and Steven Holl (whom I have not met, but whose thoughts and particularly visual experiments have captured me more than his actual buildings have done).
Furthermore, the adventurous spirit at the faculty of architecture, particularly during the deanship of Prof. Hans Beunderman, led to a refreshing new wave of research. The Architectural Interventions initiatives (featuring Jan Heeling, Taeke de Jong and Theo van der Voordt) were a boost to the early phases of the initiative.
A special role has been played by my eloquent Form Studies colleague Bernard Olshoorn, who through the years distinguished himself as the 'scribe' of our group and has been a sparring partner and motivator for me throughout the years.[25]

Respected publicist and DCA-colleague Francis D.K. ('Frank') Ching delivered one of the most inspirational lectures of my career, in the context of the 2011 EAEA conference in Delft.[26]
This meeting turned out to be a 'gathering of the tribes'; of teaching-colleagues as well as (House of the Future) students, affirming the importance of inquisitive, visual exploration.

2.1.6 Visualisation Inspirations

The study of architecture is, at least in part, a matter of visual *representation*, making recognisable the aspects of design in their various combinations.
As such, research in architecture tends to not only rely on descriptions and analyses in words, but also on specialised *imagery*, developed and articulated with visualisation-instruments that allow us to interpret, document and communicate our insights and findings with others.
I would argue that creative design research is to a large extent a matter of evocative *imaging*.

In the context of this study, I have become acutely aware of the representational work of other academics and teachers.
I have tried to learn from *how* they graphically interpret the works they are trying to understand and subsequently *share* what they have recognised with others.
On this level, my own work has been informed – and indeed: *inspired* – by the designerly visualisation-methods of various colleagues, published in enlightening and stimulating articles and books.

I would hereby like to take the opportunity to highlight what I consider some representative samples of visualisation approaches, which have informed my educational work, as well as my research.
A personal 'collection' of twenty-five published studies, organised by date of publication and identified by their authors, whereby the specific visual methods are briefly characterised:

1. 1946: H. Sutterland: *Geschiedenis der Bouwkunst, Tekeningen I & II*:
   An educational collection of highly-articulate pen-drawings, with hand-written accompanying texts, on the basis of representative artefacts of the historic architectural eras, making expressively varied use of hatchings and shadings.[27]

2. 1967: Edmund M. Bacon: *Design of Cities*:
   An enlightening collection of appraisals and graphic representations of urban compositions through history, making use of drawings, to define the spatial configurations, making use of subtle colour-coded indications of enclosed- and open areas and axes.[28]

3. 1977: Henri Stierlin: *Encyclopaedia of World Architecture*:
   An anthropological drawing collection on the base of the dedicated, methodical study of a wide range of highlights of global architecture, making use of finely-executed line drawings, with indications of scale, only making use of ink, without any form of tonal infill.[29]

4. 1977: Kiyosi Seike: *The Art of Japanese Joinery*:
   An elegantly-executed study, using combinations of refined, high contrast black-and-white photographs of actual components and joints, together with artistically elementary drawings, using differences in line-thickness and dashed lines.[30]

5. 1978: Roger Sherwood: *Modern Housing Prototypes*:
   An insightful collection of, partly 'cut-open', axonometric drawings of iconic, modernist housing projects offering insights into the spatial and structural organisation, with 'De Stijl' colour effects, to accentuate dimensions.[31]

6. 1979: Francis D.K. Ching: *Form, Space, Order*:
   Exemplary, hand-drawn and hand-lettered, illustrated overview of essential design topics; thematically organised and making use of a selected historical, traditional and contemporary (twentieth century) exemplars of world architecture. [32]

7. 1980's: Steven Holl (series editor): *Pamphlet Architecture*:
   The series of thematic booklets, published by the Princeton Architectural Press over a number of years, displays a playful approach to architectural typology, using reductionist, cartoon-like isometric imagery.[33]

8. 1982: Herman Hertzberger, in: *Aldo van Eyck*:
   In his contribution to the publication marking the completion van Eyck's 'Mother House', Hertzberger identified a number of compositional themes by introducing elementary schemes; identifying issues by using one support-colour.[34]

9. 1983: Shozo Baba (ed.): *Katsura, A quintessential Representative of the Sukiya Style of Architecture*:
   An evocative, definitive documentation of the highpoint of traditional architecture, making use of puzzle-like axonometric projections, often from unusual angles of view.[35]

10. 1987: Max Risselada (ed.): *Raumplan versus Plan Libre, Adolf Loss, Le Corbusier*:
    A ground-breaking study largely based on the making of interpretive, physical models (with students) which has inspired subsequent study initiatives, notably in the Minor House of the Future.[36]

11. 1988: Rob Krier: *Architectural Composition*:
    An encyclopaedic approach, recognising – and indeed creating – 'typologies' on the basis of sketchy, atmospheric line-drawings, in black and white and most captivatingly in combination with colour, that evoke 'archetypal' compositional arrangements.[37]

12. 1996: M. Saleh Uddin: *Composite Drawing*:
    An evocative and instructive overview of mid-nineties, pre-digital visualisation methods in architectural design and presentation, highlighting the expressive potentials of combined design-media and giving insight into post-modern drawing aesthetics, particularly ins the USA.[38]

13. 1996: Daniel Castor: *Drawing Berlage's Exchange*:
    A uniquely personal pencil-drawn reconnaissance of Berlage's iconic 'Beurs' project, with intensely focused attention to characteristic, sculptural entrances, in almost Escher-like, fine-grained renderings.[39]

14. 1997: Lester Walker: *American Shelter*:
    An enlightening and highly educational reconnaissance of the aspects of American building approaches, in finely-executed line drawings with arrowed captions, making use of combinations of elevations and de-constructed axonometric views.[40]

15. 1999: S. Umberto Barbieri, Leen van Duin: *Honderd jaar Nederlandse architectuur, 1901-2000, Tendensen, Hoogtepunten*:
    A somewhat over-ambitious century overview, which is most convincing on the level of the systematic styling of its computer-generated drawings.[41]

16. 2004: Evert Kleijer: *Instrumenten van de architectuur, De composite van gebouwen*:
    A thematic reconnaissance by a departing master, on the basis of insightful, slightly 'jittery' free-hand analysis-drawings, addressing the compositional 'elements' of architectural design.[42]

17. 2005: Dick van Gameren: *Revisies van de Ruimte, Gebruiksaanwijzing voor architectuur*:
    A typological reconnaissance of spatial experience in a number of selected buildings (including own work) on the basis of schemes showing essential routing-patterns in red lines.[43]

18. 2006: Farshid Moussavi, Michael Kubo (eds.): *The Function of Ornament*:
    A sophisticated study of 'ornamental' patterns, components and connections in contemporary architecture, based on complex digital models, represented as line-drawings with tonal articulation.[44]

19. 2006: Marika Neustupny: *Curtain Call, Melbourne's Mid-century Curtain Walls*:
    An impressively methodical study of facade pattern variations, identified in modernist high-rises, built in Melbourne, with a thoroughly systematic, 'pattern grammar' visualisation approach.[45]

20. 2008: Dominik Lengyel, Catherine Toulouse: *Perspektiven Gestalten*:
    Results of education-based rendering studies, systematically juxtaposing immaculate, line-drawn perspectives with renderings directly based on these using difference in tone, with subtly-applied colours.[46]

21. 2008: Clemens M. Steenbergen: *Ontwerpen met Landschap*:
    An impressive, anthological overview of visual approaches to analysing and visualising landscape designs using a variety of digital modelling and -graphic techniques and thematic legends and colour-codes.[47]

22. 2011: Gerrit Smienk, Johannes Niemeijer: *Palladio, De Villa en Het Landschap*:
    A concise visual and -textual study of the ways in which Palladio's villas relate to their surroundings, making use of insightful combinations of (aerial) photography and schematic, digital drawings. [48]

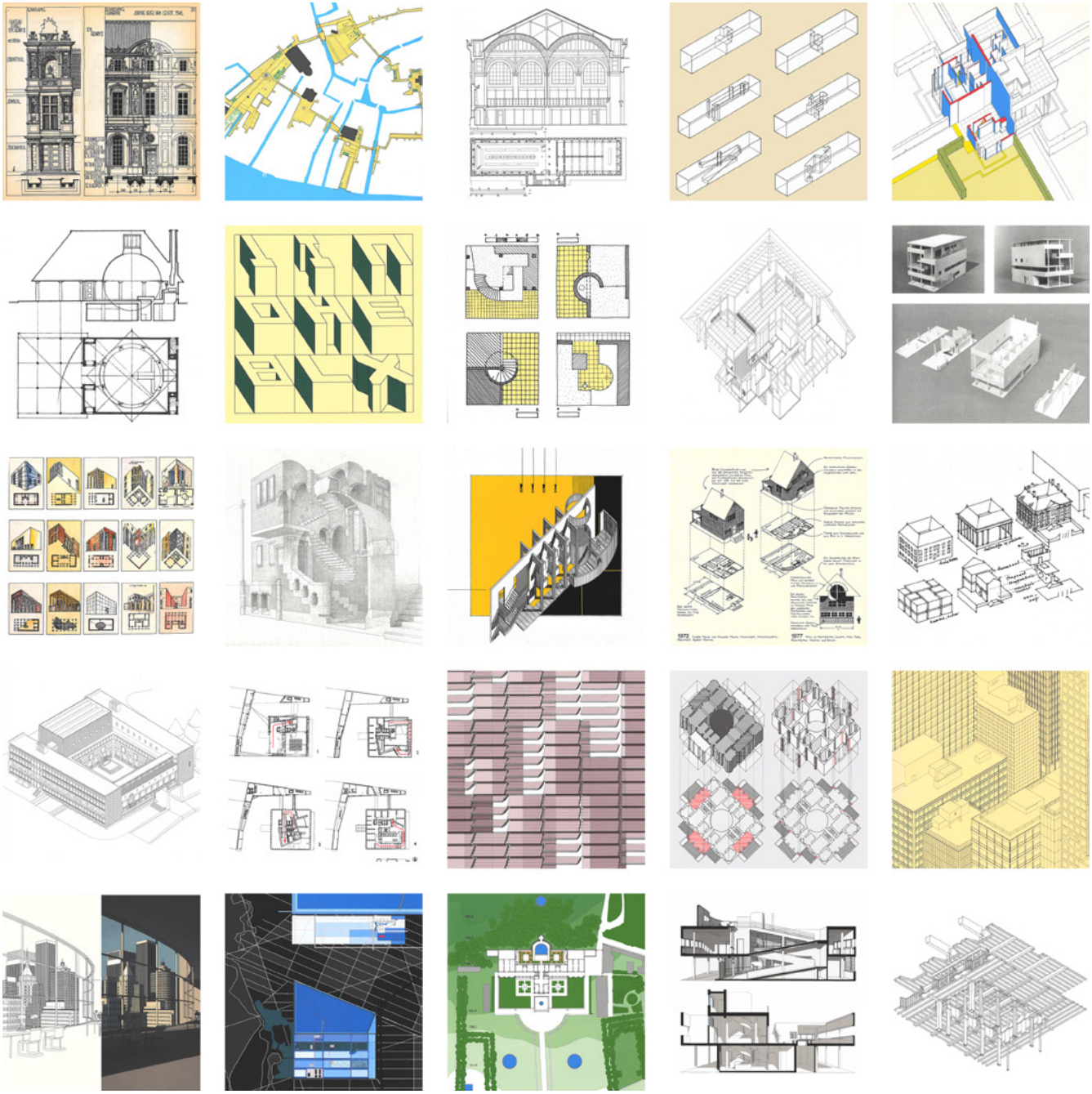
23. 2012: Steven Park: *Le Corbusier Redrawn*:
    A new oeuvre-assessment of Le Corbusier's free-standing villa projects, clearly making use of 3D modelling techniques, but offering clean perspective imagery, with only a hint of blue in the (semi)transparent window-sections.[49]

24. 2015: Peter Eisenman with Matt Roman: *Palladio Virtuel*:
    Eisenman's return to the approach he developed in his dissertation, but now making optimal use of digital model renderings, highlighting of structural themes, using red lines, in combination with photo's of 2,5D physical models.[50]

25. 2015: Mark Baines, John Barr, Christopher Platt: *The Library, The Glasgow School of Art*:
    A reappraisal of the metier of the measured, technical line-drawing, 2D and 3D, applied in the context of a reconstruction-study of the famous Mackintosh library, which was destroyed in 2014.[51]

Clearly, other 'students of architecture' may have their own personal favourites, when it comes to informational value, as well as *aesthetic* appeal.
Such books have in common that they demonstrate a dedicated application of visualisation-methods, which have been consciously adopted, developed and applied to fit with the subject-matter at hand in order to convey what lies 'beneath' the physical manifestation of the objects that are being investigated.

Each of these, for me treasured, samples of imaginative architectural exploration, essentially tries to 'tell a story' using meticulously chosen and skilfully applied visual 'media'.
From illustrative to schematic; from hand-rendered to computer-rendered; from 2D drawing to 3D model; they give an indication of the informative potentials and the shifting visual paradigms in research visualisation.
Thereby, traditional distinctions between modes of expression have become increasingly blurred. Sketch drawings may be used as analytical models and digital models may be set-up in such a way that the visual 'output' will look like (line)drawings.
It's also about 'the look' one aspires to...
The search for the proper look-and-feel of visual information has been a matter of continued consideration and experimentation, throughout this study in its broadest sense.



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Sources: the original publications by the 25 authors mentioned in the list.

2.2 Exercises and Experiments

2.2.1 Form Studies Initiatives

I joined the Form Studies staff late in 1989, at the point when my own teachers, who had previously defined the group and its identity, had either left or were in the process of doing so.[52]
At first, the Form Studies programme was determined by existing exercises, which were then up-dated and fine-tuned. However: soon a thorough shake-up of the faculty-wide educational curriculum called fore the re-framing of the section's educational aims and teaching methods.

The Form Studies education that I had become acquainted with from the beginning of my own studies had originally consisted of a curriculum of Formal Theory ('Vormleer', or even: 'Schoonheidleer'), based on historical precedents.

Before the war, the courses had been given by professor M.J Granpré Molière, who had after the war been succeeded by his disciple J.F. Berghoef (see projects AA06 and AA08). Berghoef had in turn been followed up by C. Wegener Sleeswijk in 1953.

Ir. C. Wegener Sleeswijk, in his inaugural address, *Beschouwingen over Architectonische Vormleer*:

> *"And the result of the Formal Theory study will also be that the inborn capacities of perception ('voorstellingsvermogen') will be developed. Furthermore, that the imagination will be triggered and further, that criteria will be gained to judge critically concerning one's own fantasies (fantasieën)."*[53]

The aim of such composition studies should be to not only make the acquaintance of many architectural forms, but to learn to appreciate their functional and expressive workings and their relationships. Furthermore, the aim should be to develop intrinsic capacities of imagination as well as stimulating a discerning, well-founded and critical outlook.

The – history-based – curriculum would change profoundly in the early sixties, with the arrival of new professor Niels Luning Prak (1926–2002), who was head of Vormstudie (translated in English as 'Basic Design'), from 1963 to 1987.[54]
Henceforth, the teaching programme would be modelled on the methods of the Bauhaus, whereby the teaching staff consisted of practicing artists, rather than architects (with the notable exception of Prak himself).
It is interesting to note that the previous Form Studies staff members had left as good as no written information concerning the educational program and its ambitions.
The only document I have managed to find dates from 1966: *Basic Design in the School of Architecture at Delft*. The exercises are characterised as: Graphic design; Work in foam plastic; Work in clay; Work in cardboard; Woodwork; Metalwork.

In his description of the 'Didactic Principles', Prof. Ir. N. Luning Prak paraphrases J.W. Haefele:

> *"The process of creative work, both in science and in the arts, can be subdivided into four successive stages: preparation, incubation, inspiration and elaboration."*[55]

At the time, a substantial part of the 'Vormstudie' education involve modelling exercises using materials like clay and plaster ('boetseren').
An undated folder (probably from the early seventies lists five themes: Form in relation to architecture; Formal exploration ('Vormonderzoek'); Development of creativity; Form and meaning and Media.

Soon after having arrived at the faculty, in 1990, new staff-members Bernard Olsthoorn and myself, together with 'older' colleague Willem Vogel, were able to formulate the following 'mission statement':

> *"Form Studies is involved with education, directed towards the development of knowledge and insights (and as a derivative factor: skills) in the handling of formal conceptions on the level of:*
> *— Composition: two- and three-dimensional composition techniques, coherence and contrast, complexity and reduction;*
> *— Spatiality and plasticity: expressive values of- and relationships between mass (volume) and space (form and counter-form);*
> *— Context: the relationships between forms and their surroundings;*
> *— Size and scale: the relation form and human scale, scale/absence of scale, measure, whole and detail;*
> *— Material expression and colour: qualities, expressive value and methods of application of materials (form, texture, structure, colour), treatment and detailing."*[56]

The introduction of a system of 'problem-based' learning meant that Form Study applications had to be developed in conjunction with the central themes of education which would be addressed in teaching 'blocks' in the basic years of study (year 1 and 2). In this period, Form Studies stared participating in four of the six first-year 'Blocks'.
An important contribution was developed in the context of the closing element of the second year: Block 12 – Imaging and Materialisation – focusing on issues of industrial design, materialisation and production – for which a pioneering computer-based application and a furniture-based exercise were developed and implemented.[57]
Simultaneously, dedicated exercises had to be developed in conjunction with third year Architecture projects (in Module A1 and A2).

A newly-developed, special elective course – Module D11, *Design and Presentation* – focused on various issues of design *communication*, whereby students developed skills in presenting, using a variety of multi-media applications, on the basis of a design made earlier-on in their student-years.[58]

After some time, the faculty decided to stop with the rigid Block structure of the first two years and the Forms Studies exercises were adapted, in order to fit into two foundational courses offered during the first year of study.
The D11 continued for a number of years, whilst simultaneously, various elective courses were developed in the context of the new BSc and MSc programmes.

Another re-invention took place after the dramatic fire that destroyed the van den Broek & Bakema faculty building in May 2008. Shortly before the fire I had stated in an interview that the building was robust enough to *'take a hit'* (*'kan wel tegen een stootje'*). In a subsequent article I drew a parallel with the sad demise of the favourite ship of my youth: the M.S. Oranje.[59]
After having moved to the new faculty-home in 2009, the first edition of a full-term elective course – The 'Minor' House of the Future – was introduced. This international, third-year BSc application has been offered with success over a period of some ten years.[60]

In 2012, then-dean Karin Laglas launched a radical re-organisation of the first two years of study. Beginning after the summer of 2013, the new 'Bachelor' would consist of a limited number of *integral* 'Modules', with only two modules running simultaneously.
I assumed the responsibility for the first two Form & Visualisation Modules (OV1 and OV2), each consisting of a series of thematic exercises, in three parallel 'Studies' trajectories: Form Studies, Drawing Studies and Model Studies.
An overview of the results, on the basis of experiences in the first four years was presented at the EAEA conference on Glasgow, in 2017.[61]
On the occasion of the departure of Form Studies colleague Jeroen van der Laar, a concise overview-exhibition was organised at in the faculty's BK-expo room – title: *Form/Vorm* – in January 2018, in particular giving an impression of the didactic organisation and student-results of the OV1 and OV2 Modules.

Throughout the years, the educational environment has given occasion to a variety of thematic and instrumental experiments, developed in conjunction with my research interests and ambitions. Several explorative experiments have been carried out, in the context of existing, adapted or wholly new teaching exercises.
These inquisitive 'try-outs', developed and applied in an educational context, have contributed to the generating of meaningful insight in the context of my, on-going, research project.
At the same time, the 'niches' in the educational time-frames allowed me to work on a series of studies, allowing for the development and fine-tuning of the visual modelling applications that are central to the AA Variations project.



The Architecture Building in a storm: view from the faculty of Civil Engineering.



Handout of the Form & Modelling Studies curriculum, results and facilities (2002).

2.2.2 Educational Explorations

My inquisitive instincts have given rise to a range of conceptual and perceptual experiments in the context of – Form and Modelling Studies – education.
Some of these have given cause to education- or research-based publications.
All of them have in some way or another led to exhibitions, to which I have contributed on the level of curatorship and exhibition-design.

The following paragraphs offer an indicative overview of some of the design-based and design-driven visualisation experiments that I have carried out during my years of involvement and personal development at Form and Modelling Studies BK.
Two extensive exhibitions have seen the light on the subject of 'Models in Architecture'.
The first of these extended throughout the rear-hall (and library vitrines) of the 'old' faculty building, in 2005. The second was the opening exhibit in the BK-expo space of the 'new' building.[62]
A selective overview of education-based Form Studies initiatives through the years.



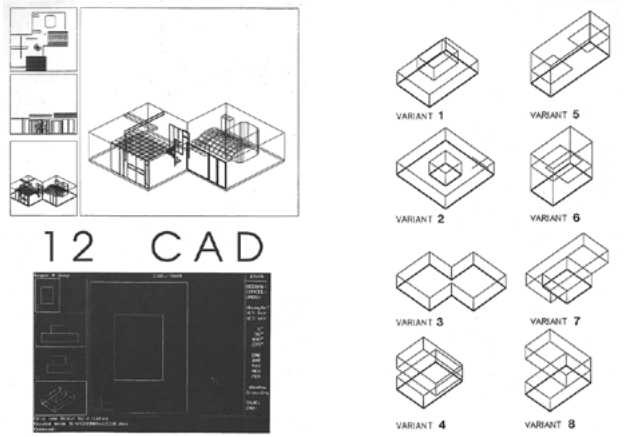


Perspective views of the Models in Architecture exhibition (H. Schouten, BK).

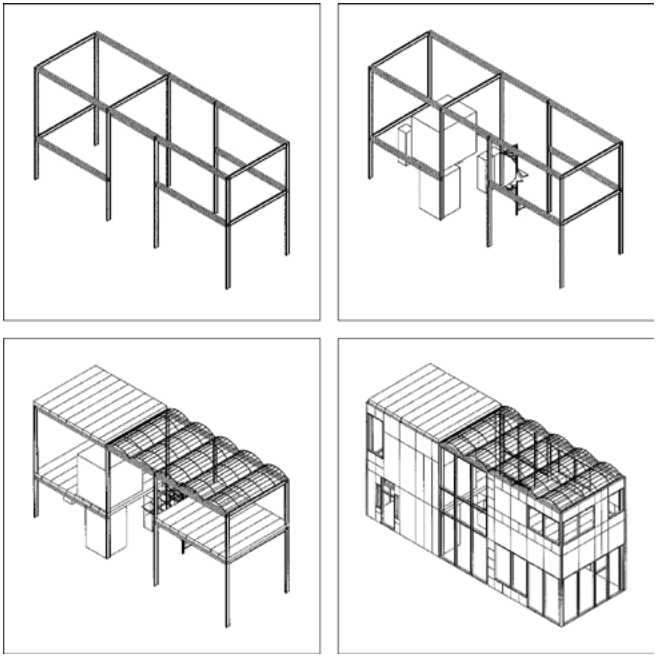


Overview of the closing session of a first year Bridge workshop (H. Schouten, BK)

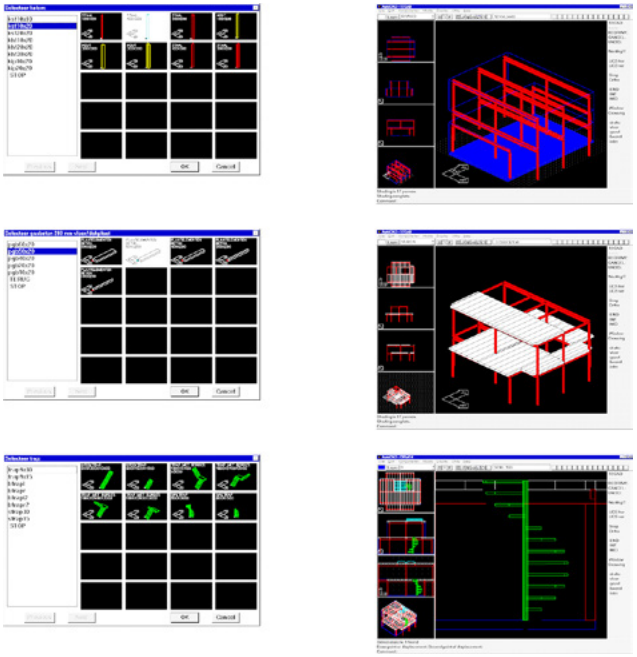
12 CAD:
The exercise, which was developed specially for the first edition of Block 12 (coordinator: Max Risselada), in 1991–92, was intended to get students, who had no prior experience of working with computers, to develop a cohesive design-proposal by using a virtual library of pre-developed components. The students could choose one out op eight basic configurations: variants with approximately the same floor-space (120 m^2), for what was to become a free-standing house, composed of prefabricated elements.
Using an early version of the AutoCad programme, with limited 3D functions, students proved to be able to come up with often surprisingly elegant spatial and material compositions.
The exercise was arguably ahead of its time as far as 3D modelling applications go, prefiguring the interests of the House of the Future model-bases studies. Furthermore, it might in retrospect be considered to prefigure the component-based working methods of later 3D modelling applications studies, notably the visual methods of the AA Variations project.
For a conference on 'Computer Aided Architectural Composition, in Bialystok, Poland in 1996, a step-by-step design process using the instrumentation was simulated and documented by making 'screen shots'.[63]



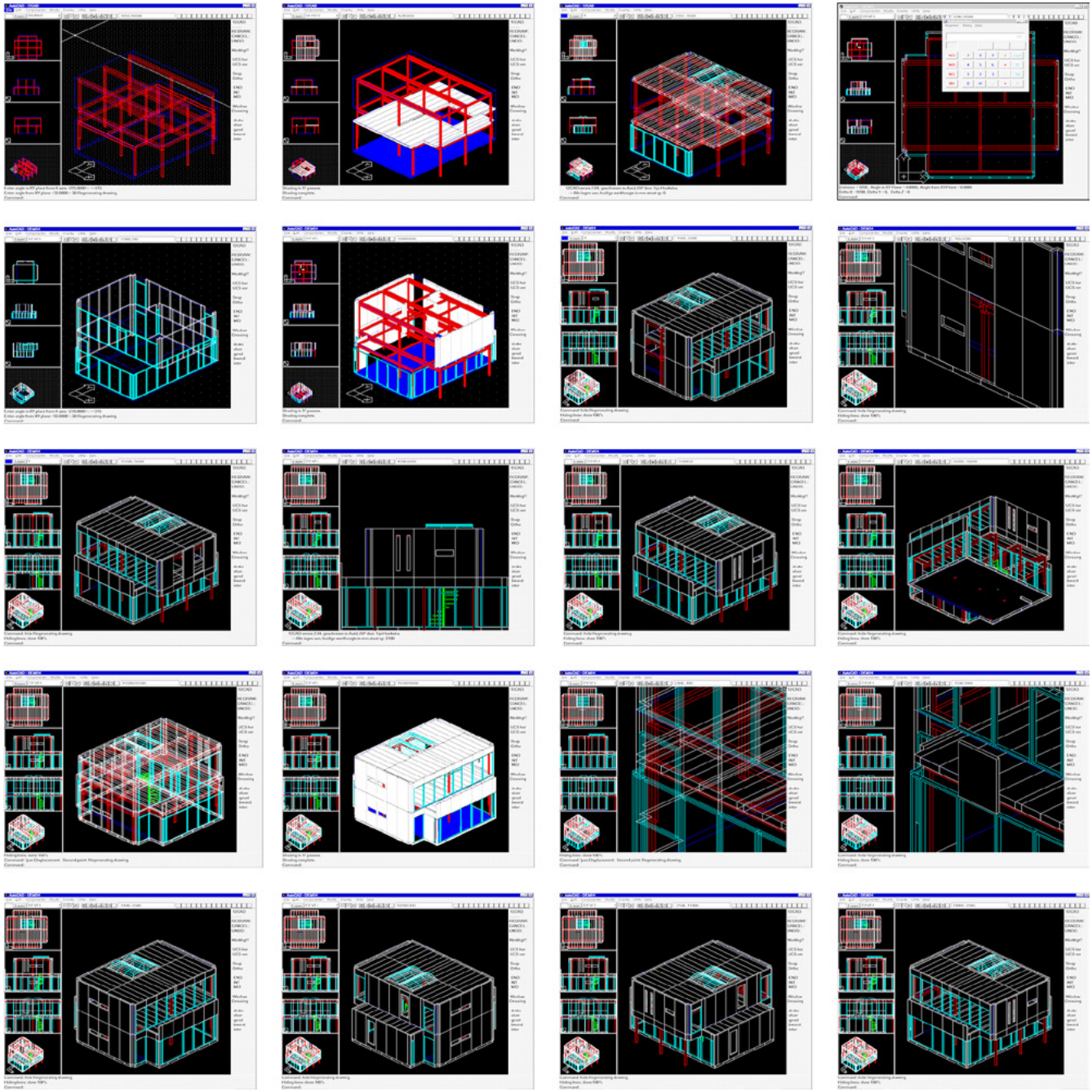
Handout for the 12 CAD exercise (Block 12), showing elementary volume options.



Student image of a 12 CAD project, showing the different 'layers' of design.



12 CAD: choice menus and implementation in the 3D computer model (1991).



Design simulation, showing the workings of 12 CAD (Breen & Stellingwerff, 1995).

The Table / The Bench / The Bridge / The Wall:
Another exercise that was developed for the first instalment of Block 12 was a model-based study on the level of design and manufacturing.
As the task required students to get actively involved in material-isation and detailing, the choice was made to set the design of a piece of furniture as the challenge.
The first 'commission' was the design of a table, which was to be modelled scale 1 : 5, with a brochure of design-information.
The Table proved to be a stimulating and captivating task and the decision was taken to hold back the results, for the benefit of an exhibition.
The first exhibition – *De Tafels* – was held in the rear-hall of the faculty in 1993, accompanied by the publication *De Tafel, als metafoor voor architectuur'*.
The series was continued with *The Bench* (1996), *The Bridge* (1999) and *The Wall* ('De Wand', 2002).[64]
The exhibition The Bridge (designed and curated by Jeroen van de Laar) attracted particular attention from research-colleagues, including Taeke de Jong, who saw the comparison-stimulating overview as a sample of 'research by design'.[65]



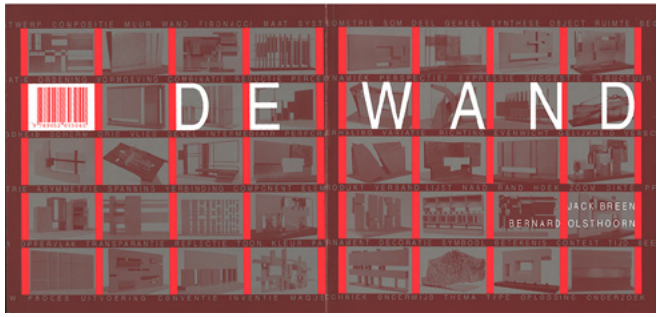






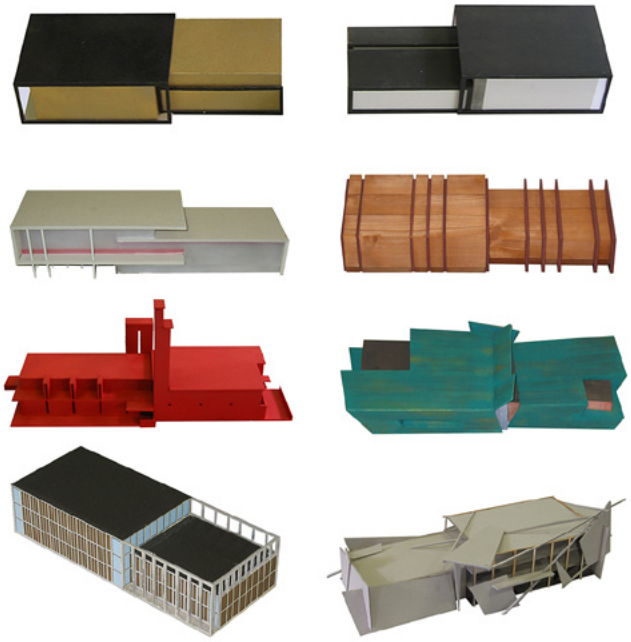




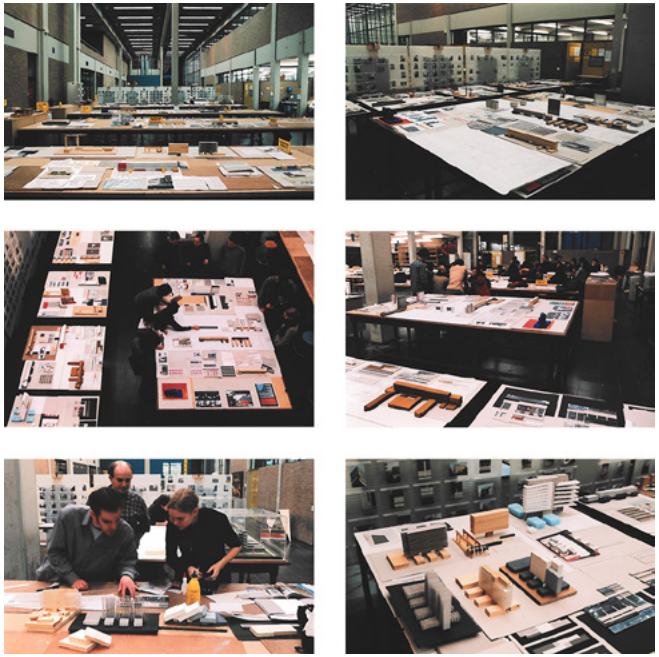


Transformations:
The experimental Transformations project was a one-off explorative study, which was largely model-based.
The task called for the re-interpretation of an existing eye-sore in Delft: an electrical transformer-building, situated along the periphery-canal on the southern edge of the historic city-centre.
As the building in its present situation was over-sized, a third of the volume might in principle be removed and the building's physical presence could be radically altered.
The students worked on the massing and materialisation of the object as a 'closed box', exploiting its expressive qualities in the daytime as well as the situation in the night-time.
The results of this design-driven experiment were of interest in the context of expressive, physical modelling, as well as the development of then-emerging, evocative computer-visualisation applications.[66]

The TUD Variations:
The exercise was developed as a design-driven group activity in the context of the D11 Module.
The task called for students to critically re-examine the familiar TU Delft environment, recognising elements that might be considered dissonant in the context of a desired campus and to come up with sculptural interventions on the levels of urban- and landscaping composition.
The uninhibited, but systematic formal decomposition of existing buildings and spaces was triggered by the study of plans and elevations of the existing buildings and the generation of physical models, exploring opportunities on the level of routing, massing, colour and texture.
Furthermore, the project triggered a keen interest on the level of facade-patterns, which would be worked out further in the context of the BK Variations study.[67]



Overview of scale models: Transformations Exercise.



TUD Variations Workshop, Form Studies Hall (old BK).

Model Studies MHotF:
One of the most 'visible' model-based applications of the Form & Modelling Studies educational programme has been the Model Studies exercise, which was developed in the context of the BSc programme's *Minor House of the Future* (MHotF).
The focus of study in this yearly exercise-cycle has been the concerted, group-based study of relevant, realised precedents.
In each instalment, a generous selection of cleverly-conceived and -executed house-designs has formed the basis for a targeted design-based study.
Thereby, the set-up was as follows: each student-group, consisting of four students, chooses one project. Consequently, the group's members become experts on the project.
The realised project is inquisitively studied in a series of rounds, by generating sketch-models, 3D computer-models, graphically elaborate posters and in the end: an exhibition-quality model (in principle scale 1 : 33).
Each year, the results of study have been exhibited at the end of the Minor-period and subsequently in the vitrines in the 'street' of BK City.[68]

Ornamatics:
The Form & Modelling Studies group was one of the first to take active steps in the direction of computer-aided modelling, which was developed step-by-step in the faculty's CAM-lab facilities.
The first, trial applications made use of early 3D printing instruments, which were subsequently complemented by 2D computer-driven laser-cutting and 2,5D computer-milling.
In order to experiment with the potentials of new computer-aided manufacturing tools, particularly on the level of new forms of *ornamentation*, Form Studies colleague Martijn Stellingwerff and myself set up a design-driven application with the playful title: *Ornamatics'*
In recurring group-exercises through the years a variety of geometrical patterning and ornamental detailing studies have been carried out, whereby three-dimensional objects were actively explored and physically modelled.

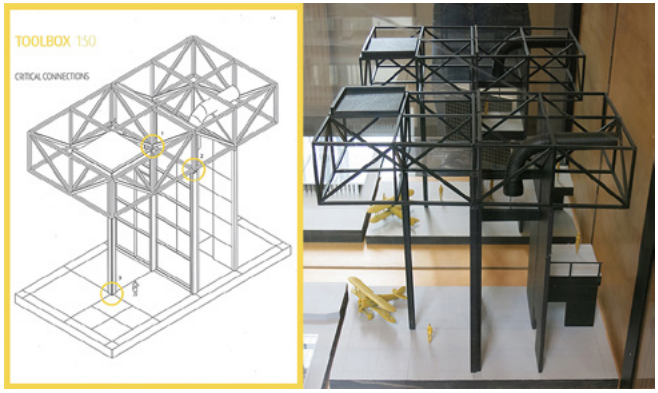
Representative results were presented on the occasion of the exhibition 'CAM lab: 10 years', in 2015.



Minor House of the Future: Form Studies and Model Studies.



Ornamatics: 3D printed Capital Designs (using mirrors).



Analytical models of the National Military Museum, Claus & van Wageningen.

Analytical Models:
The set-up of the 'Analytical Models' exercise, like Ornamatics, an MSc elective course, is to a certain extent similar to the MHotF model-application. However, in this case, more complex building-projects form the basis of a dedicated model-based analytical study.
The subject-matter has been changed regularly over the years, including: research into the buildings of Robert Venturi (in collaboration with Karin Theunissen); Aldo van Eyck (focusing in particular on his early Orphanage project and his later Estec complex). Recently, the study has focused on complex public buildings, realised in the Netherlands in the last decennium) and Complex house-designs in the context of their designer's creative oeuvre (including projects by Le Corbusier, Richard Meier and Jorn Utzon).
Besides making (series of) physical models, the student-groups create thematic, visual 'dossiers', in the form of a professionally designed book.
The essential ambition of the course is to make students more articulately aware of the compositional qualities of space, order, form and detail and to enhance their creative analysis-skills.[69]



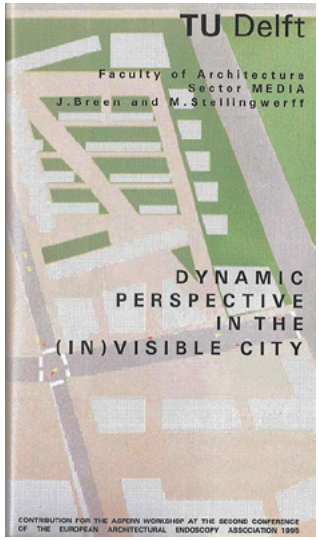
The Bridge start-workshop, year 1, week 1, 2014.

Start-workshop The Bridge:
One of the most gratifying design-driven exercises through the years has for me been the kick-off exercise which has been offered in recent years, to welcome new BSc students to the faculty.
The Bridge exercise was initially developed as a workshop for new students in the context of Block 1, with a closing presentation in the 'Block Hall' of the old faculty building.
It was given a new lease of life in September 2013, in the context of the first edition of Module OV1 (Form and Visualisation 1), in conjunction with the 'neighbouring' Module TE1 (Technique 1).
The start-project requires students to devise a simple footbridge with a total length of only three metres and a span of 2,7 metres. For this, they have to creatively work with three 'given' planar elements (in 'reality' plywood of 3 × 1.5 meters, which for the exercise consist of three pieces of cardboard), scale 1 : 10.
The results are evaluated (and rewarded) on the basis of Vitruvius' three premises: *Utilitas*, *Firmitas* and *Venustas*. In the first, most spectacular instalment, involving some 270 students, in 2013, the exercise was organised in two stages: a first individual round scale 1 : 10, followed by a second, group round scale 1 : 3.
The constructive capacities of the results were evaluated by 'destructive' testing, using weights.
This first Bridge event was documented in a short movie, which can be viewed online.[70] All of these exercises (and a number that has not been mentioned) aim to offer the students an unexpected, challenging and rewarding learning experience which might lead to a heightened awareness and stimulate further study, during their studies as well as, hopefully, beyond.

2.2.3 Research Explorations

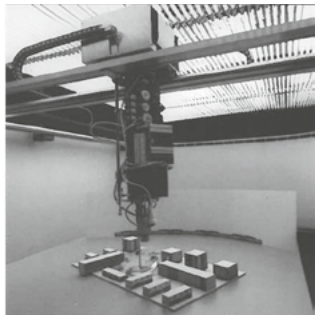
Due to the affiliation of the Forms Studies group with what was then known as the Media section, I initially also became involved in the fields of model-based, architectural *simulation*.
The Faculty in Delft then prided itself on its physical modelling facilities and its professional optical *endoscopy* laboratory. As a consequence, I contributed to a series of simulation-based workshop initiatives, mostly in conjunction with the EAEA: the European Architectural Endoscopy Association, which had been founded in Tampere, Finland, in 1993.
In the following overview, an indication is given of three such environmental simulation studies:

The Invisible City Workshop:
The international simulation workshop which had as it title 'The (in) visble city' was specially organised in the context of the second EAEA meeting, in Vienna, in 1995, which was organised by Bob Martens.
For this conference-based workshop, specialists from different institutes prepared model-based proposals for a new urban development in Aspern, outside the city of Vienna. For the Delft faculty of Architecture's contribution, we constructed two models: a physical model scale 1 : 200 (built by myself) and a digital model (created by research colleague Martijn Stellingwerff).
The study highlighted the opportunities for dynamic modes of representation and particularly the importance of visual 'texture' mapping for eye-level simulation.
The comparative study was documented in a video-production, which was presented at the conference.[71]



VHS of the 1995 EAEA presentation.

The Imaging Imagination Workshop:
The following conference-based research workshop was prepared fort the third EAEA conference, which we organised at the Faculty of Architecture in Delft.
The evocative title of the initiative: 'Imaging Imagination'.
For this professional challenge, on the basis of a fictitious urban ensemble (the casus that was set at the time in the first year urban space exercise in the Form Studies programme), physical; and digital modelling-material was prepared and sent to all of the participants. On the basis of these environmental models, different groups prepared proposals for the design of the urban setting, using either a physical model (scale 1 : 200) or a digital model. The results of these different studies were compared and evaluated on the level of content and instrumentation during a special workshop-session.
The 'optical' and 'digital' endoscopy results were systematically compared and documented in the Conference Proceedings.[72]



Endoscopic experiments using physical models, EAEA conference, Delft, 1997.



The Different View of Delft workshop in the Form Studies Hall, 'old' BK, 2004.

The Different View of Delft Workshop:
Architectural endoscopy traditionally made use of a relatively cumbersome (video) camera, to which a tube was attached with a prism or mirror, allowing for actual views – at eye-level – from a physical model. The disadvantage of this procedure was the serious loss of light and consequently depth-of-field.
As an alternative, use began to be made of mini-cameras which could also be used without a complex rigging system. Such cameras were particularly interesting in the context of 'designerly' exercises with students.
In a special workshop, organised in the context of the D11 Module, groups of students were asked to design a new setting in a museum annex for one work of art: Johannes Vermeer's 'View of Delft' For this purpose, sets of cardboard components were prepared, so that each team of two students could build a simple 1 : 50 model and design the interior, with particular attention being paid to: routing; approach and nearness to the artwork; natural lighting; tone and colour.
Using a simple mini-camera views could be checked and printed. The results of this physically imposing and insightful exercise was presented at the 2005 EAEA conference in Dortmund.[73]

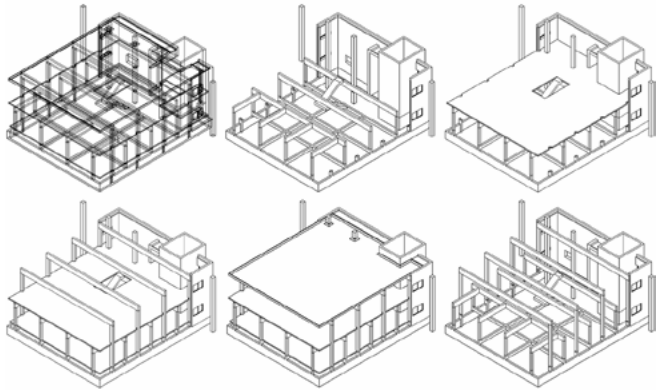
Conferences of the EAEA and DCA:
Through the years, the EAEA has managed to build up a reputation as a platform for the *envisioning* of architecture. Gradually the focus shifted; away from optical endoscopy towards various other aspects of architectural and environmental design visualisation.
At the conference at the University of Cottbus, Germany, in 2009, the decision was therefore taken to change the name to the organisation to the European Architectural Envisioning Association. In 2011, Martijn Stellingwerff and myself hosted the conference in Delft, whereby a link had been made with members of the EAEA's American counterpart: the DCA (Design Communication Association).
After a visit to the 2008 eCAADe conference, in Antwerp, I was invited to join this group's 2009 conference in Marietta, Georgia. The contact between the two groups has grown throughout the years, whereby I eventually became 'Director Europe' of the DCA. The conferences of the EAEA and the DCA have set the stage for the exchange of ideas and the comparison of results of study on the level of design visualisation approaches, both in education and in research. The meetings have given me the opportunity to ventilate new ideas and to discuss study-options with like-minded (and indeed: open-minded) colleagues. On a number of occasions, I have taken the opportunity to present intermediate results of my ongoing AA Variations initiative, as well as of various other study-initiatives which may be considered as being related to the Patterns & Variations study as a whole.

A brief description of four tone-setting design-activity based research experiments, which were developed in conjunction with the AA Variations project:

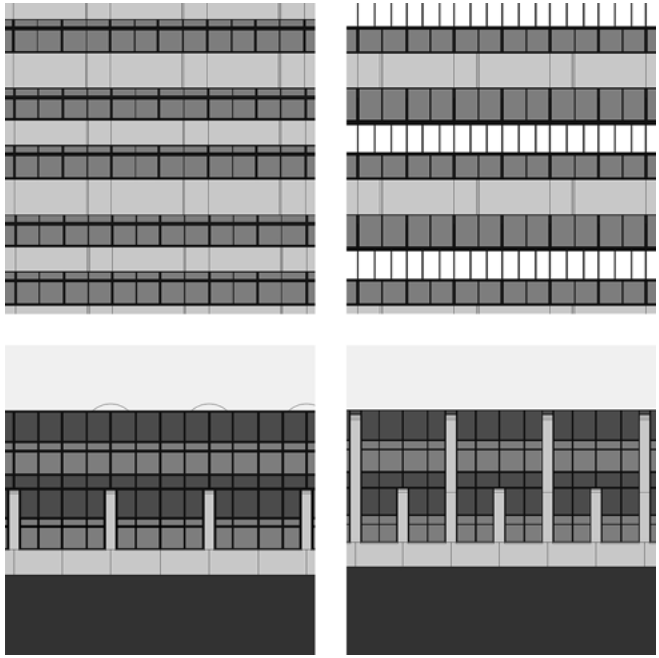
The BK Variations:
Stimulated by the TUD Variations educational experiment, a study was carried out on the basis of van den Broek & Bakema's faculty building for Architecture (1971).
On the basis of design-data, including design-drawings and photographs a project-dossier was collected and worked out.
Essentially, the building consisted of a collection of differently-articulated building volumes:

— A twelve-storey high-rise, constructed of concrete slabs and columns, all positioned inside the Brutalist curtain wall of concrete, steel and glass, seemingly suspended above the 'under-buildings';
— A collection of box-like volumes, two storeys in height, with an independent constructional system and columns positioned prominently in the facades, grouped around an axial, central 'street', with transparent facades in-between.

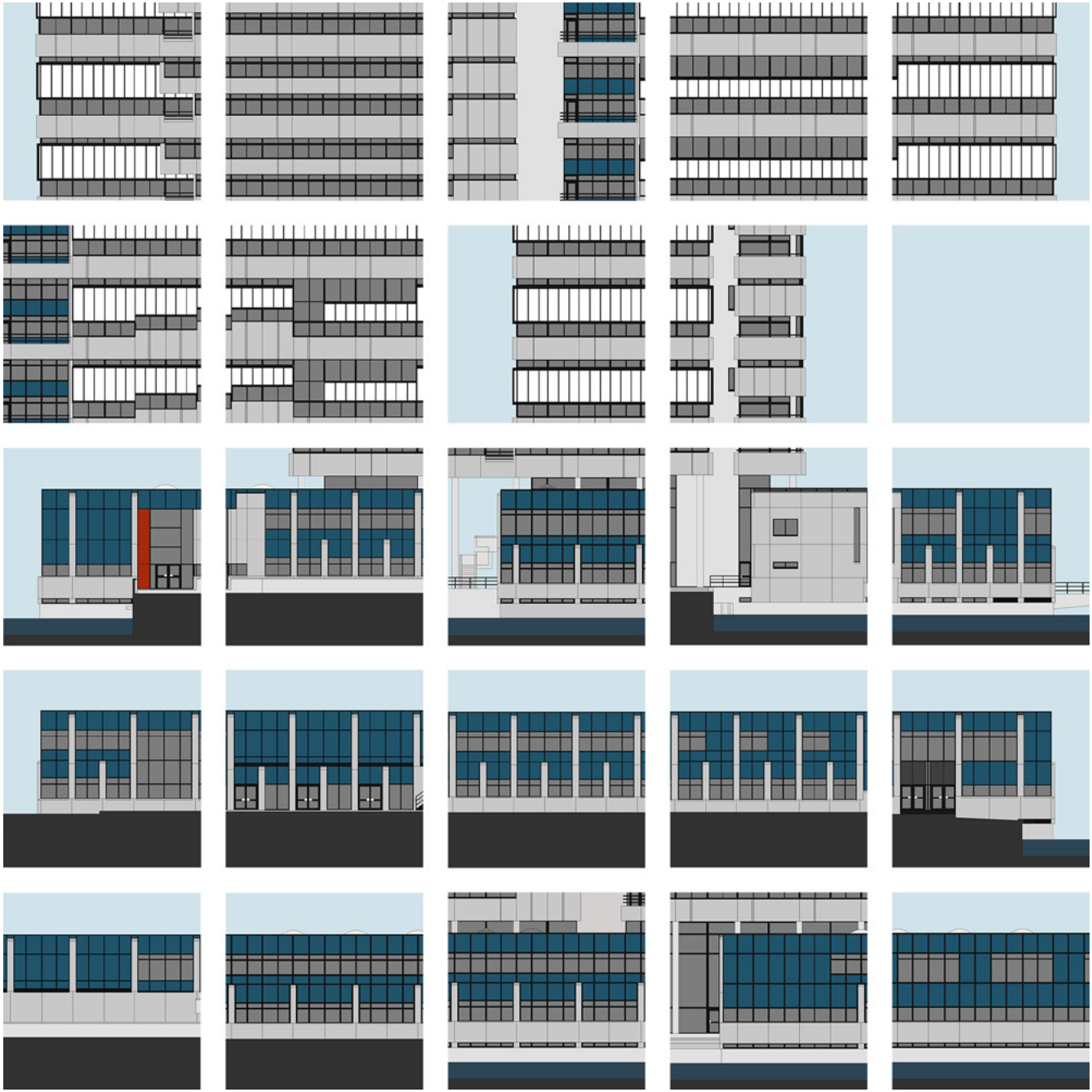
With colleague Robert Nottrot, a systematic, visual analysis was made, framing the characteristic surface patterns and their characteristic transitions and interconnections.
These images were included in the 'De Wand' publication, which became something of a collector's item, after the destruction of the building by fire, in 2008.[74]



CAD-based structural analysis of a lower BK block, (Martijn Stellingwerff).

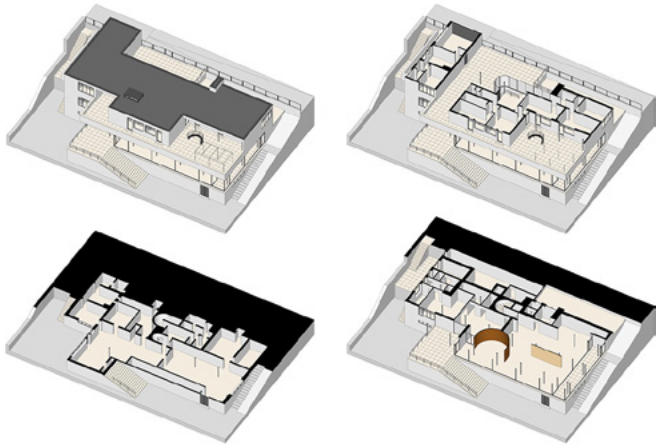


The four basic 'patterns' of the Architecture building (imagery: Robert Nottrot)

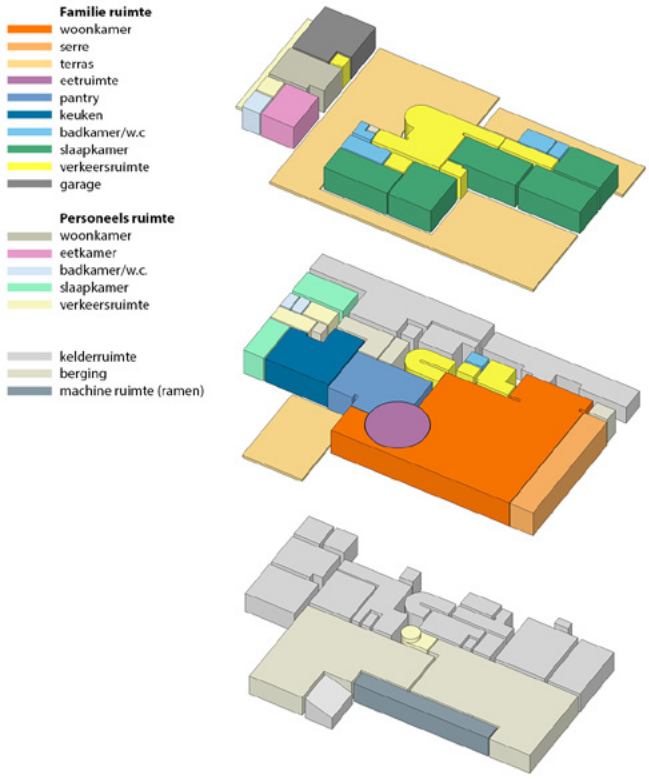


BK Variations update based on Robert Nottrot's 2002 images (Jack Breen, 2019).

The Tugendhat Variations:
The Delft Faculty of Architecture is well known for what has come to be known as the 'Delft Method' of Plan-analysis, which has been expounded in a very successful publication, originally in Dutch and later in English, entitled: *Ontwerp en analyse*.[75]
This analytical method now still plays an essential role in the faculty's BSc *Foundations* ('Grondslagen') modules.
In this case, the Tugendhat project was chosen as the subject for a plan-analysis an then taken a 'step further'.
Ludwig Mies van der Rohe's Tugendhat House, built in Brno, Czechoslovakia in 1930, is an iconic exemplar of modernist architecture.
In this luxurious private home, aspects of Mies van der Rohe's earlier houses in Krefeld and his Barcelona pavilion come together, creating an experientially-rich, layered spatial and material composition.
After it was discovered that this unconventional house was a particularly rewarding analytical study-object for beginning students of architecture, it was decided to construct a layer-based 3D model of the house and its surroundings and study the compositional aspects of the design in detail, as well as in combination.
During the study initiative, an alternative design-sketch by the architect was discovered, which suggested that the design might have turned out quite differently.
This designerly 'variation' was included in the presentation of study results and findings, which were presented at the 2010 DCA conference in Montana, USA (with Claudia Breen).[76]

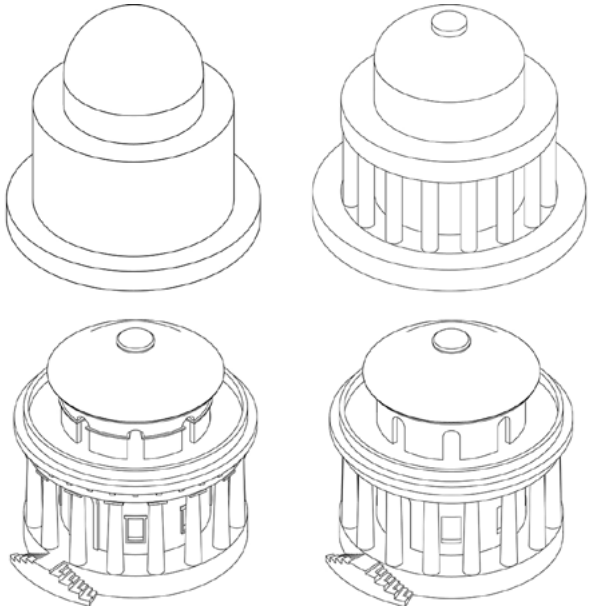


Tugendhat Variations: different 'cut-away' views of the 3D model (van Borselen).



Tugendhat Variations: 3D functional analyses (Breen and van Borselen).

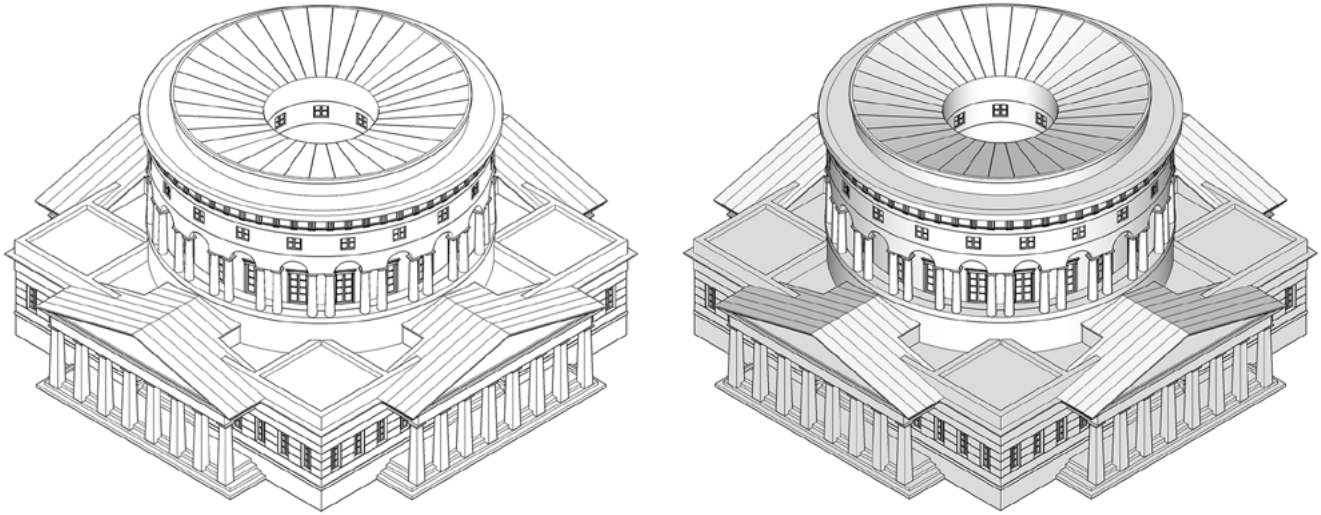
The Umgebinde Variations:
The ambition of this comparative Variations study was to create an elementary visual analysis, on the basis of a unique vernacular building type: the historic Umgebinde farmhouse, which can still be found in the borderland region of Upper Lusatia.[77]
The systematic visualisation and comparison of building variants was created using the 3D modelling procedures that were then being developed for the AA Variations study.
The results and findings were presented at the Delft meeting of the European Architectural Envisioning Association, in 2011.[78]
See: Conceptions.



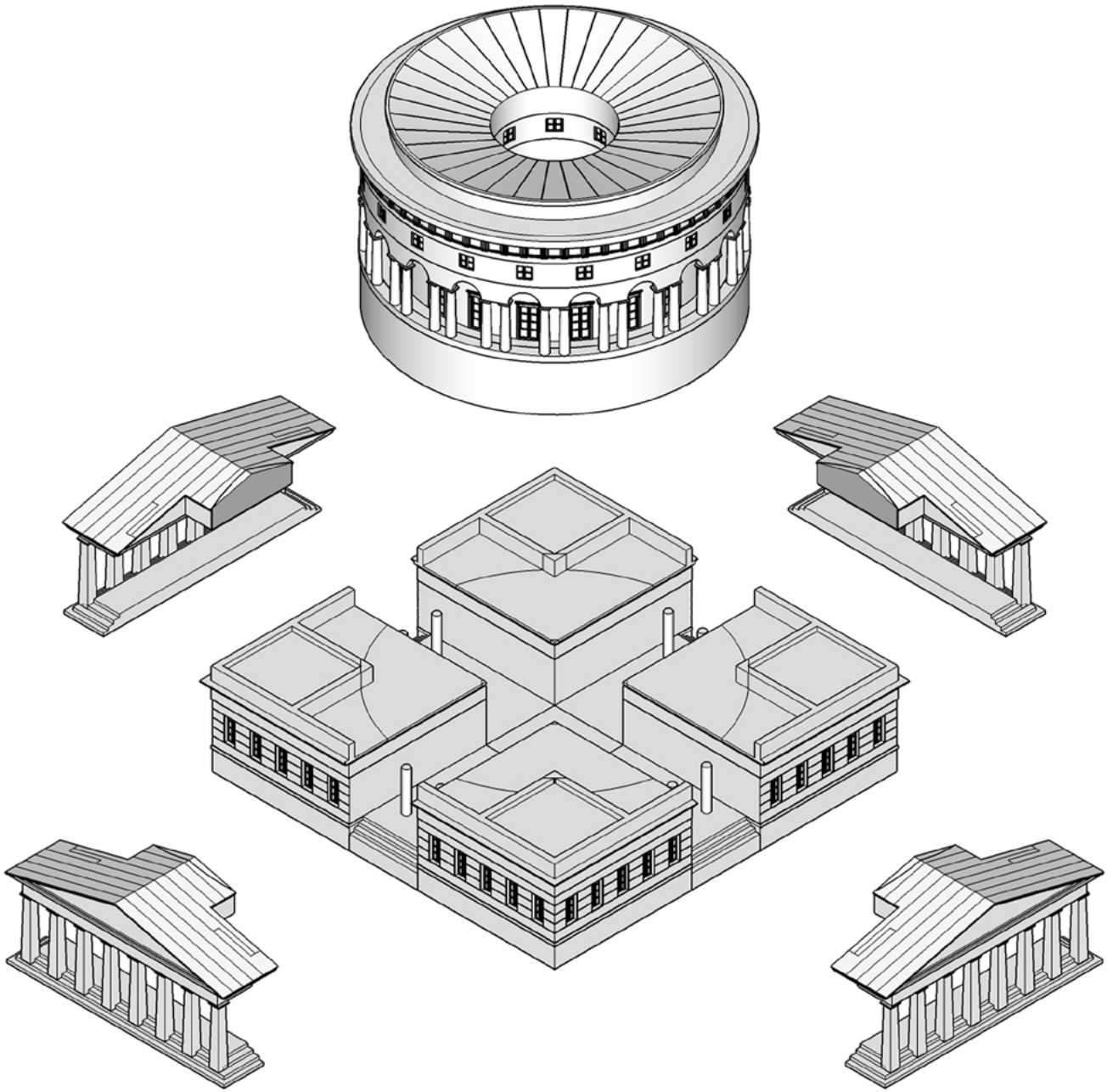
Ledoux Variations: basic analyses of the Monceau pavilion (Joran Kuijper).

The Ledoux Variations:
An encounter with the 'archaic' remains of the monumental architecture of Paestum triggered a brief parallel study entitled the Paestum Papers. This in turn led to a reconnaissance of Ledoux's monumental guard-houses, which surrounded the city of Paris before the French Revolution.
Nearly all of these, highly unpopular, peripheral check-point buildings were demolished, but a few of them have survived. On the basis of original data and documentation in-situ and studies in the salt-refining colony in La Saline, the five remaining configurations, plus the original guardhouses of the Place de l'Etoile were digitally reconstructed in as a kind of 'toolbox' of variable, stylistic components, with Bram van Borselen.
These iconic images have on occasion been used for research presentations, but to date, the results and findings of the study have not yet been published.[79]

The toolbox' aspects of the Ledoux Variations are further discussed in the 'Conception & Invention' section of the 'Paradigms' chapter.
The Umgebinde Variations is considered in more detail in the 'Conceptions' section, on the level of the specific design domains, which may be considered to be characteristic of the Umgebinde typology.
Another explorative initiative – the pivotal House in Black Variations, which has formed the basis for the 3D modelling approaches in the context of The AA Variations initiative, is discussed in the 'Instruments' section.



Ledoux Variations: renderings of the la Villette pavilion (Bram van Borselen).



1 In: *Choice of Careers 16: Architecture*, by: Central Employment Executive, Her Majesty's Stationary Office, Fifth Edition, 1968. Pg. 4.
2 Besides his teaching activities at the faculty in Delft, Joop Hardy (1918–1983) was director the Academie voor Kunst en Industrie, in Enschede. He was a contributor to Forum and was the tone-setting author of the publication *Wonen, gisteren en vandaag* (1957).
Niels Luning (N.L.) Prak (1926–2002) was head of the Form Studies department during my years at the faculty. His educational publications at the time included: *De visuele waarneming van de gebouwde omgeving,* TH Delft, Afdeling der Bouwkunde, Delft, 1973, later edition: Delftse Universitaire Pers, Delft, 1979; *Vorm en betekenis*, Delftse Universitaire Pers, Delft, 1979.
3 The practical period involved a hands-on working experience involving two, relatively nondescript detached homes, situated along the Hornweg. During my rides back and forth to the pension where I was staying my attention was caught by a late design by the locally well-known architect 'professor' Berghoef (with Klarenbeek) – which eventually joined the AA Variations collection as project AA08 – and a modernist villa by architect Aiking, which was briefly part of the study.
4 This internship was at the office of architect Dick van Mourik, who had collaborated with architect du Pon, whose early work included the first extension to the du Pon house in Aalsmeer (project AA09 in the AA Variations).
5 The silkscreen course, which was tutored by the critical yet highly-stimulating Form Studies teacher Kees Sabee, was another eye-opener for me, showing me the creative potentials of working with a technique on the basis of clearly-defined constraints and the satisfaction of realising an integral piece of work.
6 The Japan thesis addressed the traditional Shinto and Buddhist artefacts, such as the Ise shrines and the Bodyo-in as well as the princely Katsura retreat, plus the works of the rising stars of the Metabolist movement, after Kenzo Tange, notably Kionori Kikutake, Kisho Kurokawa and Arata Isosaki, who were then moving in a more Post-modernist direction.
7 Other professors that contributed to the series of lectures and symposiums they organised included Jan Rietveld and Jaques Choissy. Another 'compatriot' was Jaap Bakema.
8 The projects by van Eyck included his Amsterdam orphanage, the Van Ars church in The Hague and the Schmela gallery in Dusseldorf. Those by Hertzberger included his iconic Centraal Beheer complex in Apeldoorn, Montessori school in Delft and his student-housing and old-age home in Amsterdam. Hertzberger also presented evocative explorations of various buildings by Le Corbusier, Horta, Duiker and particularly the Maison de Verre, by Chareau (and Bijvoet).
9 Aldo van Eyck: *The Child, The City, The Artist*, in: Byggekunst, nr. 1, 1969.
10 Other mentors who had a significant influence on the evolvement of the project were Ad den Boer; Dick Dicke; Leo Tummers and acoustics professor de Lange (TH Eindhoven).
11 I started work on the project in the second half of 1980 and participated in the early phases of the design's programmatic and structural development.
In 1981, I edited the project booklet *Ministerie van Sociale Zaken, Nieuwbouw, Schetsontwerp*, August 1981. I was later called on to make a plan-brochure at the time of the building's opening (1990).
The project was published in: Jan Rutten: *Rijksgebouwen: Ministerie van Sociale Zaken en Werkgelegenheid*, Uitgeverij 010, Rotterdam, 1990, and in: L. van Duin (ed.): Architectonische Studies 7: *Ministerie van Sociale Zaken en Werkgelegenheid*, Publikatieburo Bouwkunde, Delft, 1990.
12 The restoration of the Suermondt house, as one of the first modernist villas to be restiored back to its original state, attracted considerable attention, being published in *architectuur/bouwen* (1989) and in the context of the international Docomomo network, involved in the preservation of the architectural heritage of the modernist era. See: The AA Variations, project AA05.
13 Later, due to my increasingly lesser role, what was essentially my wife's practice became a 'one woman' firm, known as Breen architecten, Delft.
14 Children's play-centre and community-centre, 'Rotterdamseweg', Delft (1991):
The situation within a building block determined the contours and massing, creating a 'void' for a sheltered playground; approaches via three entrances articulated the routing towards to entrances and the plasticity and transparency of the facade; positioning of the higher main-hall and workshop in a contrasting longitudinal volume; play of lines: verticals in windows; graphic series using glass-bricks and horizontal lines in the brickwork.
15 Children's day-care centre, 'Joriaantje', project, Delft (1997):
Overall massing, in relation to exterior domains, was largely determined by site-constraints within an open compound; use of existing terrain-levels to create a higher entrance and steps leading down from the 'communal' central activity-space and through the group spaces to the surrounding garden; articulation of groups by (partially) symmetrical placement of group-rooms, identified by curved outer walls (dropped, as an austerity-measure, by the office responsible for its realisation).
16 Children's day-care centre, 'De Schelp' ('The Shell'), Delft (2002):
The building's volume and its physical presence were largely determined by its position on an 'open' plot in a '60s modernist neighbourhood with high-rise slab-blocks; particular attention to the 'roof facade', allowing light to fall into communal spaces via curved roofs; articulation of different 'faces' using alternating brick-colours and different window-patterns, linear; mirrored and semi-random; active utilisation of axes, creating visual connections between interior spaces, as well as between inside and outside.
17 Children's day-care and after-school centre, 'Villa Nova', Hendrik-Ido-Ambacht (2006):
The volume was determined by the conditions of the free plot: opposite social housing; next to a communal playground; representative, 'public' facade towards the street, with a distinct entrance and visible vertical connections; distinctions between spaces for younger children on the ground floor and activities for older children above, with a partly-covered roof-garden and vertical light-connections; emphasis and differentiation of volumes and articulation of corners in the facades.
18 None of these buildings have been published in the professional press.
Design-data resides in the former bureau 's archive.
19 The books, which truly broadened my architectural horizon at the time and triggered a further, personal search were:
- Christian Norberg-Schulz: *Meaning in Western Architecture*, Studio Vista, 1966.
- Seton Lloyd, David Talbot Rice (eds.): *World Architecture, An Illustrated History*, Hamlyn, London, first edition: 1963. Seventh, revised impression: 1973.
20 Two influential early publications by Charles Jencks:
– *Modern Movements in Architecture*, Penguin Books, Harmondsworth, 1973.
– *The Language of Post-Modern Architecture*, Academy Editions, London, Revised, enlarged edition, 1978.
21 Werner Blaser: *Structure and Form in Japan / Struktur und Gestalt in Japan*, Artemis Verlag, Zürich, 1963.
Yukio Futagawa, with Teji Itoh (text): *The Roots of Japanese Architecture*, Bijutsu Shuppan-Sha Publishers, Tokyo, Weathermark Edition, 1963.
22 Han Meyer: *Barcelona, Stad der Wonderen.* In: Archis 6–92, Amsterdam, 1992.
23 P.F. Smith in: David Canter, David Stea

(eds.): *Environmental Perspectives: Ethnoscapes, Current Challenges in the Environmental Social Sciences*, *Volume 1;* Avebury, Aldershot, 1988. Pg. 200.

24 Auke van der Woud: *Onuitsprekelijke Schoonheid, Waarheid en karakter in de Nederlands Bouwkunst*, Historische Uitgeveij, Groningen, 1993.

25 Bernard Olsthoorn: *MORV*, Publikatieburo Bouwkunde, Faculteit Bouwkune, TU Delft, Delft, 1998.
Bernard Olsthoorn: *Raakvlakken zeven essays over architectuur en beeldende kunst*, Faculteit Bouwkunde, TU Delft, studentenyuitgave, 2014. Foreword: Jack Breen.

26 Ching's lecture in Delft was his first public address of the sort, to which he consented after I had managed to coax him into doing so. Since then he has given some more such lectures, notably at the DCA conference in Istanbul (2016).

27 H. Sutterland: *Geschiedenis der Bouwkunst, Tekeningen, I* (1941) and *II* (1946), Uitgeverij Waltman, Delft. 'Tweede ongewijzigde druk'.

28 Edmund N. Bacon: *Design of Cities*, Viking Penguin, New York, 1967.

29 Henri Stierlin: *Encyclopaedia of World Architecture*, Office du Livre S.A. Fribourg, Evergreen, 1977.
The drawings also appeared in various separate publications, focusing on different stylistic eras and domains.

30 Kiyosi Seike: The Art of Japanese Joinery, Weatherhill / Tankosha, New York, Tokyo, Kyoto, 1971, originally published in Japan under the title *Kigumi.*

31 Roger Sherwood: *Modern Housing Prototypes*, Harvard University Press, Cambridge, Massachusetts, 1978.
A revealing drawing-based, comparative analysis, with occasional somewhat surprising, almost decorative use of colour.

32 Francis D.K. Ching: *Architecture: Form, Space, Order*, Van Nosrand Reinhod, New York, 1979.

33 Steven Holl (series editor): The Pamphlet Architecture series of booklets included the following thematic issues: Pamphlet Architecture #5: The Alphabetical City, 1980; Pamphlet Architecture No. 9: Rural & Urban House Types in North America, 1982; Pamphlet Architecture No. 11: Hybrid Buildings.
The specials, published by Princeton Architectural Press, New York, made use of a method of playful, minimalist deconstruction of usually quite obscure building types.

34 Herman Hertzberger, Addie van Roijen-Wortmann, Frances Strauven: *Aldo van Eyck, Hubertus house*, Stichting Wonen, Amsterdam, 1982.
This use of no more than one tone- or colour difference is typical of Hertzberger's analytical imagery in his publications. A system of a basic, grey background with white 'subtractions' to highlight the spatial hierarchy is used very effectively in an overview of his work, in: Herman Hertzberger: *Articulations; Fascinations, Considerations, Works, Cooperation*, Prestel Verlag, Munich, London, New York, 2002.

35 Shozo Baba (ed.), Masato Oishi: *Katsura, A Quintesential Representative of the Sukiya Style of Architecture*, Shinkenchiku-Sha, Tokyo, 1983, reprinted in 1991.

36 Max Risselada (ed.): *Raumplan versus Plan Libre, Adolf Loos / Le Corbusier*, (reprint), 010 Publishers, Rotterdam, 2008.
Another interesting study-initiative at the Delft faculty of Architecture, focusing on the un-built oeuvre of Adolf Loos: 1992: Rein Saariste (ed.): *'Nooit gebouwd Loos', plannenamap van huizen ooit door Loss ontworpen, nu door studenten uitgewerkt*: an educational, design-based study, in which students at the Architecture faculty 'reconstructed' unbuilt plans by Loos, by making models.

37 Rob Krier: *Architectural Composition*, Academy Editions, London, 1988. German-language edition: *Über Architektonische Komposition*, Klett-Cotta, Stuttgart, 1989.

38 M. Saleh Uddin: Composite Drawing, Techniques for Architectural Design Presentation, McGraw-Hill, New York, 1996.

39 Daniel Castor: *Drawing Berlage's Exchange*, NAi publishers, Rotterdam, 1996.
Publication notes (back cover): "Daniel Castor both records and speculates about what Berlage's intentions could have been. His drawings, accompanied by his own witty commentaries, help to raise once again as a subject for discussion the Exchange as a design; it has been long since this 'retired' highlight of architectural history has had such an experience."

40 Lester Walker: *American Shelter*, The Overlook Press, Peter Mayer Publishers, Woodstock, New York, 1997. With a foreword by Charles Moore. German edition: 2000.
There are distinct similarities with the axonometric drawings by William Turnbull in: Charles Moore, Gerld Allen, Donlyn Lyndon: *The Place of Houses*, Holt, Rinehart and Winston, New York, 1974.

41 S. Umberto Barbieri, Leen van Duin (eds.), with Jaap de Jong, Pieter Wessemael, Willemijn Wilms Floet. Coordinator of illustrations: Sander Bijker: *Honderd jaar Nederlands architectuur, 1901-2000, Tendensen, Hoogtepunten*, Uitgeverij SUN, Nijmegen, 1999.

42 2004: Evert Kleijer: *Instrumenten van de architectuur, De compositie van gebouwen*, Uitgeverij SUN, Amsterdam, 2004.
Another 'magnum opus',which is in some ways comparable: Peter Lüthi: *Tools for design and composition: A Manual,* Chair of Architecture of the Interior, Faculty of Architecture, TU Delft, 2015.

43 Dick van Gameren: *Revisies van de Ruimte, Gebruiksaanwijzing voor architectuur*, NAi Uitgevers, Rotterdam, 2005.
There are similarities between this approach and the drawings with red-lines indicating routing – and importantly: numbered camera-views – in: Robert McCarter, Juhanni Pallasmaa: *Under-standing* Architecture, Phaidon Press Ltd, London, 2012.

44 Farshid Moussavi, Michael Kubo (eds.): *The Function of Ornament*, Harvard University Graduate school of design, Actar Publishing, Barcelona, 2006. With drawings by J. Seth Hoffman, Joshua Dannenberg, Raha Talebi and Fred Holt.

45 Marika Nestupny: *Curtain Call, Melbourne's Mid-century Curtain Walls*, RMIT Publishing, Melbourne, Australia, 2006.
The methodical study juxtaposes the patterns, detailing and materialisation of the different objects of studies in different visual combinations, including an imaginary 3D city-scape.

46 Dominik Lengyel, Catherine Toulouse: *Perspektive Gestalten, Studienarbeiten des ersten Studienjahres Lehrstuhl Darstellungslehre*, Facultät für Architektur, Bauingenieurwesen und Stadtplanung, Brandenburgische Technische Universität Cottbus, 2008.

47 2008: Clemens M. Steenbergen: *Ontwerpen met Landschap, De Tekening als Vorm van Onderzoek*, Uitgeverij Thoth, Bussum, 2008.
An almost baffling retrospective of visualisation methods and applications for the benefit of – very varied – types of reconnaissance into the domains of landscape design. With Sabine Meeks and Steffen Nijhuis.
Another interesting publication on the level of landscape design, both in the choice of its samples and its visual treatment is: G.B. Urhahn, M. Bobic: *A Pattern Image, A Typological Tool for Quality in Urban* Planning, THOTH Publishers, Bussum, 1994.

48 2011: Gerrit Smienk, Johannes Niemeijer: *Palladio, De Villa en Het Landschap*, Uitgeverij Thoth, Bussum, 2011.
A highly satisfying retrospective study in what was supposed to be a well covered field of study.

49 Steven Park: *Le Corbusier Redrawn*, Princeton Architectural Press, New York, 2012.
The imaging-process has similarities with the visual method developed for the AA Variations project, but with different (aesthetic) constraints.

50 Peter Eisenman with Matt Roman: *Palladio Virtuel*, Yale University Press, New Haven and London, 2015. Closing-piece of a range of thematic, visual studies by Eisenman from his dissertation, at Trinity College, Cambridge in 1963, onward.

51 Mark Baines, John Barr, Christopher Platt (eds.): *The Library, The Glasgow School of Art*, Mackintosh School of Architecture, The Glasgow School of Art. MSA Publications, Glasgow, 2015. Immaculate collection of line-drawings focusing on the Glasgow School's iconic library, in the context of library design in a broader context. The book is twinned by a poignant visual documentation of the Glasgow School of Art's new Reid building, by Steven Holl: Christopher Platt, Brian Carter, Mark Baines (eds.): *Form Fabric Detail*, Mackintosh School of Architecture, The Glasgow School of Art. MSA Publications, Glasgow, 2014.
Christopher Platt, on the use of such a *'coded medium'* to reveal the hidden secrets of a particular building, in a Paper in The Proceedings of the 2017 EAEA Conference, in Glasgow:
"These simple, modest, low tech drawings vividly communicate the anatomy of the architectural idea at the heart of each building. Whilst produced using CAD, they nevertheless display characteristics associated with traditional ink hand draughting techniques from previous generations. The drawings are in some ways operating as transparent filters in letting the fundamentals of Mackintosh's and Holl's design intentions shine through them, revealing each building's architectural DNA. … Paradoxically, in being both unambiguous and open to interpretation, they are also a reminder that whilst they may not have been produced by the handicraft of pen or pencil, there is nevertheless an informed human sensibility behind the actions, guiding the choice and character of those lines in an attempt to reveal the hidden secrets of each building. Those secrets, in the form of new knowledge, require the application of a coded medium, such as the hand drawing, before they reveal themselves."

52 Niels Luning Prak had left as responsible professor, meaning that the educational staff now resided under 'Media' professor Jan van der Does.
Bernard Olsthoorn and myself were brought in to replace Kees Sabee and Peter Manders. At the same time the position of model-making tutor Frans Postma had become vacant. Senior lecturer Christa van Santen, whose research was concerned with issues of light and lighting, originally stayed on, but left relatively quickly.
I eventually took over as senior staff-member, meaning that I had to define new research-goals and approaches. The only member of the original team to remain for a number of years was Willem Vogel.

53 Ir. C. Wegener Sleeswijk: *Beschouwingen over Architectonische Vormleer*, Rede, uitgesproken bij het aanvaarden van het ambt van hoogleraar aan de Technische Hogeschool te Delft, 2 december 1953, Joh. Enschedé en Zonen, Haarlem, 1953.
Weegner Sleeswijk: *"Gekend moeten worden de afmetingen en de vorm van de ruimten en van de details der omringende materie. ...*
Bij alles zal naast het 'hoe' moeten worden gezocht naar het 'waarom'." Pg. 12.
The quoted section: *"Ook zal het resultaat van de vormleerstudie zijn, dat het aangeboren voorstellingsvermogen wordt ontwikkeld. Bovendien, dat de fantasie wordt geprikkeld en verder, dat maatstaven worden verkregen om zelf kritisch te blijven oordelen over eigen fantasieën."* Pg 14.
Translation by the author.
Towards the end of his inaugural address, Wegener Sleeswijk pays due respect to his old mentor Granpré Molière. and *"Waarde en Hooggeleerde Berghoef"*, who had been responsible for the teaching of 'Vormleer' at the faculty during the previous six years.

54 On the occasion of his passing, I wrote an *In Memoriam* for the faculty's *B-nieuws*, entitled: *Een Onderzoekende Blik* (2002). In: *B-nieuws*, Faculty of Architecture, 17 juni 2002. Pg.9.

55 Prof. Ir. N. Luning Prak: *Basic Design in the School of Architecture at Delft*, Description of the Exercises of the Year 1965–1966, Technological University at Delft, 1966.
In this text, Prak paraphrases a notion by J.W. Haefele from: *Creativity and Innovation*, New York, 1962.

56 In: J. Breen: *Dynamisch Perspectief*, MB3 Onderzoeksplan, Sector Media, Vakgroep 6: Geschiedenis, Theorie, Media & Informatica, Deelprogramma B-onderzoek, November 1994, pg. 8:
"Vormstudie richt zich in het onderwijs op de ontwikkeling van kennis en inzicht (en als afgeleide factor: vaardigheden) bij het hanteren van formele begrippen inzake:
– Compositie: twee- en driedimensionale compositietechnieken, samenhang en contrast, complexiteit en reductie;
– Ruimtelijkheid en plasticiteit: uitdrukkingswaarde van- en verhouding tussen massa (volume) en ruimte (vorm en contravorm);
– Context: de relatie van vormen tot hun omgeving;
– Maat en schaal: de relatie tussen vorm en de menselijke maat, schaal/schaallosheid, afmeting, geheel en detail;
– Materiaalexpressie en kleur: eigenschappen, uitdrukkingswaarde en toepassingswijze van materialen (vorm, textuur, structuur, kleur), bewerking en detaillering."
Unpublished research-document. Translation by the author.

57 The coordinator of Block 12 was Max Risselada.
Others involved in the set-up of this legendary 'block' were Moshé Zwarts, Mick Eekhout and myself

58 The D11 module was originally coordinated by Terenja van Dijk.
Various subjects, including video, computer visualization, model-making, free-hand drawing and Form Studies contributed to the multi-disciplinary, full-time course, spanning a quarter of a study-year.
Conference Paper: Jack Breen, Hector Giró: The DXI Experience, Ten years of design visualisation developments in an educational laboratory context. In: Peter Kardos, Andrea Urland (eds.): Spatial Simulation and Evaluation, New tools in architectural and urban design, Proceedings of the 6th European Architectural Endoscopy Association, Faculty of Architecture, Slovak University of Technology Bratislava, 2004.

59 Joost Panhuysen: *"Dit gebouw kan wel tegen een stootje"*, interview with Jack Breen. In: B-nieuws, Faculty of Architecture, Delft University of Technology, April 14, 2008. Pg.6.
Jack Breen: *De ondergang van de m.s. Bouwkunde? Ooggetuigen.* In: B-nieuws, Faculty of Architecture, Delft University of Technology, May 27, 2008. Pg.8.

60 The Minor House of the Future was set up as a collaboration between the Dwellings chair of Architecture (prof. Dick van Gameren) and Form & Modelling Studies. From the beginning I had the role of coordinator, which I continued to do with pleasure for a total of nine editions.
Half of the 30 EC Module consisted of a dwelling-based design project; the other half of a Form Studies application and a – precedent-based Model Studies course. The result of each instalment were always exhibited in the new building's central Form Studies / Modelling hall: The Southern Atrium of BK City.

61 Jack Breen: *Form and Visualisation: Development, Implementation and Evaluation of an Integral, Foundational Imaging Study Programme*. In: Tom Maver, Paul Chapman, Christopher Platt (eds.): Envisioning Architecture: Space / Time / Meaning, Proceedings of the 13th Biennial International Conference of the European Architectural Envisioning Association, Mackintosh School of Architecture, Glasgow School of Art, Glasgow, 2017. Pg. 252.

62 The design, experience and research-potentials of the first Models exhibition was addressed in the 'Events' section of the 2005–2006

Yearbook of the faculty.
Jack Breen, Robert Nottrot, Martijn Stellingwerff: *The Models in Architecture Exhibition*. In: Henco Bekkering, Deborah Hauptman, Alexandra den Heijer, Julius Klatte, Ulrich Knaack, Sanne van Maanen: *The Architecture Annual 2005–2006, Delft University of Technology*, 010 Publishers, Rotterdam 2007.

63 The potentials of the 12CAD method were explored further, after the exercise had stopped, together with Martijn Stellingwerff, by simulating and documenting a design process with the program ('captured' on slide via a series of screen-shots. The results of this initiative were presented at a computation-conference in Bialystok, Poland.
Jack Breen, Martijn Stellingwerff: *A Case for Computer Assisted Creativity through Clarity, Project 12 CAD and Beyond*, in: Alexander Asanowicz, Adam Jakimowicz (eds.): Approaches to Computer Aided Architectural Composition, Technical University of Bialystok, Faculty of Architecture, 1996, pg. 45.

64 Jack Breen, Bernard Olsthoorn: *De Tafel, als metafoor voor architectuur,* 1993; *De Brug / The Bench*, 1996; *De Brug / The Bridge*, 1999; *De Wand*, 2002, Publikatieburo Bouwkunde, Faculty of Architecture, TU Delft.

65 The Bridge initiative was given a separate chapter in the Ways to Study book: Jack Breen: *Learning from the Bridge Project*, in: T.M. de Jong, D.J.M. van der Voordt: *Ways to Study, Urban Architectural and Technical Design*, DUP Science, TU Delft, 2002, pg. 483.

66 The project results were published in the faculty's yearbook:
Jack Breen: Transforming Appearances, An experimental design driven formal composition study, in: Henco Bekkering, Deborah Hauptman, Julius Klatte, Hanneke van Veldhuizen (eds.): The Architectural Annual 2004–2005, Delft University of Technology, 010 Publishers, Rotterdam. 2006.

67 The TU Variations study was documented in two different publications, one being the faculty yearbook.
— Jack Breen: *Design Driven Studies: The TUD Variations*. In: Henco Bekkering, Arie Graafland, Hans de Jonge, Jorit Sipkes, Hilbrand Wanders (eds.): *The Architectural Annual 2002-2003, Delft University of Technology*, 010 Publishers, Rotterdam. 2004.
— Jack Breen: *Casus: TUD Variaties, Wanden van de TU Delft*. In: Jack Breen, Bernard Olthoorn: *De Wand*, Publikatieburo Bouwkunde, Faculty of Architecture, TU Delft, 2002, pg. 31.

68 The resulting models and posters have, each year, been exhibited in the faculty's new Form & Modelling Studies hall (Atrium South), after which a selection would be exhibited for a longer period of time in the faculty's central 'street'.
The pedagogical and organisational experiments on the basis of the, then still new, MHotF application and its outcomes were discussed in DCA Conference Paper, in 2010.
Jack Breen: *Envisioning Futures, Reviewing an explorative educational learning and teaching initiative*. In: Henry Sorenson, Steven Jukoszek, Zuzanna Karczwska (eds.): *Crossroads Crossovers*, Proceedings of the Design Communication Association Biannual Conference, Montana State University, Bozeman, Montana, 2010, pg. 37.

69 Jack Breen: *Analytical Model Studies: Evocative Contemporary Design Interpretations*. In: Uddin, M. S., Sahin, M., Torun, A. O. & Bayazitoglu, U. C. (eds.): *Inclusiveness in Design*, Proceedings of the 2016 Design Communication European Conference, Istanbul, Ozyegin University Publications, p. 41–49, 2016.

70 The Bridge Workshop movie: > *Brug/Bridge – TU Delft 2013*.
Movie: Julian Breen. Music: Yoshi Breen. Exercise, initiative and images: Jack Breen.

71 Martijn Stellingwerff, Jack Breen: *Dynamic Perspective: Workshop Aspern*, in: Bob Martens (ed.): *The Future of Endoscopy*, Proceedings of the 2nd European Architectural Endoscopy Association Conference in Vienna, Austria, 1995, pg. 93.
Jack Breen: *Learning from the (in)visible city, Design media experiments in an educational setting*. In: Henco Bekkering, Cees Dam, Sevil Sariyildiz, Marieke van Ouwerkerk, Alex Letteboer (eds.): *The Architecture Annual 1996–1997*, Delft University of Technology, 010 Publishers, Rotterdam 1998, pg. 10, 1997.

72 Jack Breen, Martijn Stellingwerff: *Imaging Imagination, Exploring the impact of dynamic visualisation techniques in the design of the public realm*. Results of the EAEA Conference Workshop. In: Jan van der Does, Jack Breen, Martijn Stellingwerff (eds.): *Architectural and Urban Simulation Techniques in Research and Education, Developments of Analogue and digital eye level visualisation*, Proceedings of the Third Conference of the European Architectural Endoscopy Association, Delft, pg. 153, 1997.
Martin Stellingwerff, Jack Breen: *A design research experiment in brief: the Imaging Imagination Workshop*. In: Henco Bekering, Hand de Jonge, Klaske Havik, Marieke van Ouwerkerk (eds.): *The Architecture Annual 1997–1998*, Delft University of Technology, 010 Publishers, Rotterdam 1999, pg. 180.

73 Paper in Proceedings EAEA Conference Dortmund:
Jack Breen: A Room with a Different View, A Design Visualisation and Presentation Experiment Involving the (Inter)active use of Physical Models in an Educational Setting. In: Environmental Simulation, digital/analogue, New Impulse in Planning Processes, Proceedings of the 5th Conference of the European Architectural Endoscopy Association, University of Essen, Design and Planning, 2001.

74 Publication: Jack Breen: *De Wanden van Bouwkunde*. In: Jack Breen, Bernard Olsthoorn: *De* Wand, Publicatieburo Bouwkunde, TU Delft, pg.69, 2002.

75 Bernard Leupen, Christoph Grafe, Nicola Körnig, Marc Lampe, Peter de Zeeuw: *Ontwerp en analyse*, Uitgeverij 010, Rotterdam, 1993. Subsequently, several revised, Dutch and English language editions have followed.

76 My wife Claudia found that this very special house was a rewarding subject of study in the context of a project- analysis course for her first year students, which she was giving. Determining the various positions and viewpoint, on the basis of photographs and the analysis of space, construction, materialization and experience on the basis of drawings proved to be an insightful learning-experience for 'absolute beginners in architecture.
Working together with my assistant Bram van Borselen, an interactive 3D model was constructed, highlight different aspect of the design, including an alternative version. A conference Paper was presentenced at the Bozeman, Montana meeting of the DCA.
Claudia and Jack Breen: *Learning from 'Tugendhat', Case-based evolvement of architectutral insights and communication skills*, in: Henry Sorenson, Steven Jukoszek, Zuzanna Karczwska (eds.): *Crossroads Crossovers*, Proceedings of the Design Communication Association Biannual Conference, Montana State University, Bozeman, Montana, 2010, pg. 221.

77 Upper Lusatia, better known as the Oberlausitz, is an undulating borderland, situated where former East Germany, the Czech Republic and Poland come together. lly developed for this purpose.

78 Jack Breen and Bram van Borselen, *Unravelling the Umgebinde, Exploring Compositional Patterns and Variations in a Vernacular Building Type.* In: *Envisioning Architecture, Proceedings of the 10th international conference of the EAEA*, Jack Breen and Martijn Stellingwerff, editors, Faculty of Architecture, Delft University of Technology, 2011. Pgs. 101–114.

79 The idea at the time of the initial explorations was to create a toolkit of components on the level of overall form, order and detail on the basis of Anthony Vidler's work on Ledoux. Something which, given the time and facilities, I would still like to do.

3. Methods

3.1 Design & Research

3.2 Designerly Enquiry

3.1 Design and Research

3.1.1 Design Imaging

Architectural designing has to do with the constructing *new realities*, which will subsequently be experienced and perceived on different *scale* levels.
Essentially, such *altered* realities – often lasting interventions in the existing world – characteristically have a *function*, which may be utilitarian, societal or ritual, to name but a few of the aspects which may give cause to their initiation, realisation, appreciation and indeed: physical endurance.

Taeke de Jong, on the defining condition of designing:
> *"Some futures can be predicted, others must be designed"*[1]

Various scholars have carried out studies, attempting to recognise characteristic attributes and processes of designing as an activity, in architecture as well as in related disciplines like industrial design: attempting characterise, categorise and compare representative design 'paradigms'.
In the first half of the 1990's, a considerable number of scholars was actively involved in descriptive and prescriptive *design theory* research. Notable investigators included Donald Schön, Robert Oxman and Kees Dorst.[2]
The scientific approaches at the time were essentially a combination of the principles of cognitive psychology and systems theory.
The central notion of many design research contributions at the time was that designing was a matter of more-or-less logical *cognition* and essentially an activity of *problem-solving*.
Kees Dorst identified three components, which he felt might be considered to make up the 'equation': *deduction*; *induction* and *abduction*.

This concept of 'abduction', as explained by Terrence Curry:
> *"For design abduction we know what the desired outcome (value) is, but we don't know what the problem (thing) is and we don't know how we will solve it. For Dorst, the problem of designing is the problem of how to solve it."*[3]

As a designer, educator and researcher this seems to me to be an incomprehensible notion and indeed a puzzling term.
After all, the word *abductio*n is derived from the verb 'to abduct', meaning *'to remove (a person) by force or cunning, to kidnap'*.[4]
Furthermore, I would argue that the outcome of a design activity is not a 'solution', but a *proposition*.

Around the same time, various authors were busy with prospective research with links to the aforementioned methods research, but focusing in particular on issues of *computation*, often in relation to the discipline of *cybernetics*.
Tone-setting pioneers at the time were researchers like James Hennesey, William Mitchell and Richard Coyne.[5]

A considerable number of the (often inconclusive) PhD studies carried out in this period was directed towards developing cognitive 'tools' using then-topical modes of computation.
Several researchers resorted to – often reductionist – schemata to 'scientifically' order and catalogue plans.
One favourite in these approaches was Durand, whereby an idea was that method of composition might be *reversed* with the use of the computer.[6]
Another was Palladio, whereby the researchers focused on the organisation and proportion of the *plans* of his villas, rather than their – arguably much more interesting – *facades*.

A particularly popular notion, in the early phases of the CAD-surge, was that 'the computer' should be expected to take over the most generative, one might say: *creative*, actions of designing, rather than simply being developed, fine-tuned and applied as a useful *instrument*, in the hands of the creative designer or researcher.[7]

New opportunities for CA(A)D (Computer Aided (Architectural) Design) were exchanged at specialised conference platforms, such as the eCAADe.[8]
Most of the CAD-related issues that were 'in the air' at such meetings – such as computer-creativity, virtual reality, artificial intelligence, digital collaboration and computer-aided manufacturing – have either lost their glow and faded away or have become (part of) now-standard procedures.

Looking back at these – then progressive – treatises from the perspective of today, it is evident that the psychological notions concerning design methodology and the high expectations concerning cognitive computation, which were postulated and debated at the time, have not 'aged well' and that their impact on the knowledge-base of contemporary practice and education in architecture has been limited.
As a consequence, a good deal of this literature has become conceptually and instrumentally redundant.

Design-development processes may be characterised as concerted, creative *searches*: directed towards finding and conceiving suitable *combinations* of complementary and sometimes conflicting conditions – such as functional, technical *and* experiential parameters – and moulding these into a concise, consistent *whole*: a synthesis of form, space and material.
Insights concerning a design's qualities and virtues may particularly be triggered by the visual and tangible interaction with the actual, *realised* design artefact, but also by the focused 'reading' of images and models that visually *represent* aspects of the design at hand.

One of the most poignant – and *enduring* – academic works in the field of design research was published by social scientist John Zeisel.
In his influential book *Inquiry by Design*, Zeissel argued that *imaging* activity may be considered to be an essential attribute of architectural design *and* research.

John Zeissel, on the role of creative *imaging* in design:
> *"Imaging is the ability to 'go beyond the information given,' … the process of seeing something where nothing seems to have been before. This activity, often called 'real creativity' by laypersons, might most accurately be called 'imaging' after the verb to image."*[9]

Design processes tend to be unpredictable and complex; because the decisions that need to be made do not stand on their own, but are always to some extent *interrelated*.
Confronted with an array of potential options and solutions, the designer tends to develop intermediate *propositions* and – on the basis of these – make *choices* concerning the design's further development.[10]
For the potentials of an architectural design-proposal to be properly appreciated, the 'figments' of the designer's imagination need to be captured and communicated – with oneself as well as with other 'actors' involved in the design and building process – in order to be critically evaluated and developed further.

In this context, design-driven composition can be considered as a delicate 'balancing act', whereby attention needs to be given more or less *simultaneously* to a variety of aspects, on different scale levels, keeping in mind the qualities of the distinguishable parts themselves as well as their correspondence, in the context of the integral, overall composition.

3.1.2 Design Cycles

Design processes tend to be *iterative*, following a series of successive, but unpredictable, design 'loops' in which the design at hand is gradually developed from the initial 'rough' idea-sketches, towards 'fine-tuned' realisation-phase design documents.
During the process as a whole, the design information that is generated has a 'speculative' quality.

At any given point, the 'state' of the design needs to be evaluated in relation to previous steps and successively developed further, in what is essentially a process of successive creative imaging, evaluation and decision-making 'loops'.

In most cases, such a process may involve side-steps and the consideration of alternatives, whereby the designer's creative process may be characterised alternately by procedures of *divergence* and of *convergence*.

In this context, 'imaging' can be considered as a form of reflective communication with oneself (or with other partners in a design team); a way of questioning and verifying the merits of intermediate design ideas and developing new options and strategies.

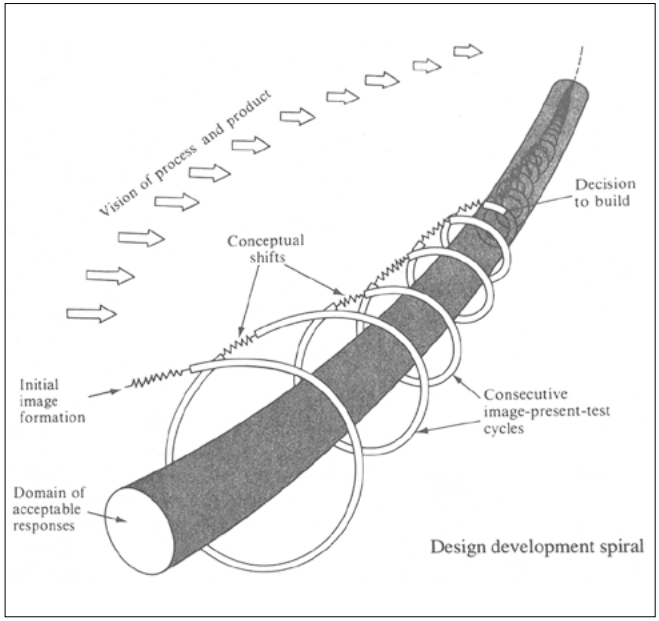
As such, the imaging process is a way of 'channelling' inspiration; the designer thinking while *doing* and reacting directly to ideas as they are being visualised, reflecting, eliminating and refining, subsequently making decisions and documenting the – intermediate – design *concept*.
In such design-driven exploration, the thinking process tends to be stimulated and activated by *envisioning* procedures, particularly by employing drawing and/or model making techniques.[11]

In *Inquiry by Design*, John Zeissel also presented a model of designing as a *process*, in which he identified the development cycles of design as a spiralling trajectory, gradually narrowing towards the project's ultimate realisation.
In his scheme the 'decision to build' is considered to be a decisive stage of the process, from which point onwards the design's development must move forward on the basis of *binding* decisions, which have been made earlier. From then onward, the design's development takes place within the constraints of, what he calls, 'acceptable responses'.[12]

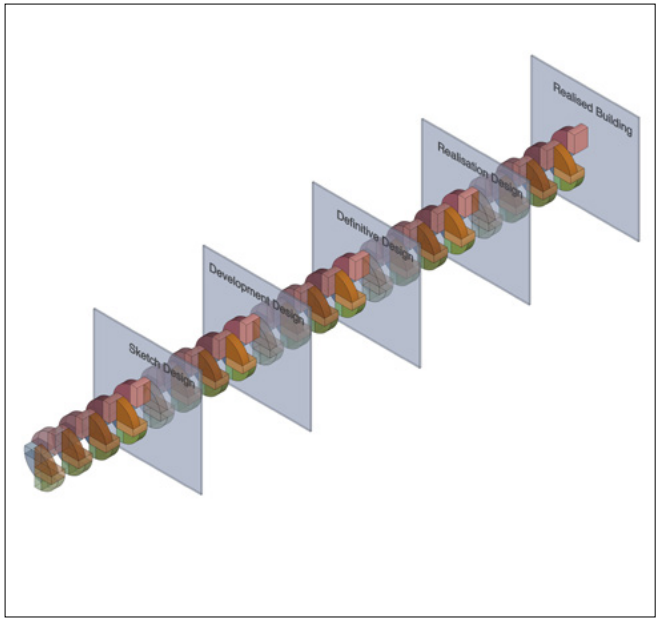
Inspired by Ziessel's scheme, an attempt was made to visually re-interpret the iterative design development cycles, with the intention of underscoring a keynote presentation at an academic meeting addressing issues of *Architectural Envisioning*.[13]
In this process-scheme, a series of iterative development loops steadily pass through four 'domains' of design decision making.
In all, five (intermediate) stages of design product presentation and evaluation are identified:

- Sketch design;
- Development design;
- Definitive design;
- Realisation design;
- Realised building.

This process-model was conceived as a dynamic sequence of design-driven generation, refection and decision-making, which was presented as an (almost mechanical) 'animation'.
Admittedly, this scheme is an *idealised* representation of the way the cycles of designing might be imagined: as an *orderly* sequence of phases, each consisting of a series of relatively 'tidy' design-cycles.
As anyone who has been involved in a design processes will know, design procedures are in reality seldom clear-cut and linear.



Design development spiral, published in 'Inquiry by Design, John Zeissel, 1981.



Interpretation of the design development spiral, J.Breen & J. Kuijper, EAEA 2013.

3.1.3 Design Decision-making

While it may be considered to be true that, within each such cycle, the designer will tend to work from 'rough to fine', becoming steadily more precise and detailed in each of the subsequent cycles, design processes also tend to be characterised by conceptual 'shifts'.

The images which have been generated in a particular cycle may give rise to what could be considered as an *essential* condition of design activity: *creative doubt*.
When a design image triggers such a sense of doubt, the designer tends to know that something is 'not quite right'.
This often means taking one or two 'steps back', before being able to make a decisive step forward within the iterative, overall process.
In design education, students seldom get to the point that their proposals might be considered 'realisable'. Instead, student-designs often only get as far as what is here considered as the 'definitive design' phase.

In research, based on *artefacts* of design – such as realised buildings – the available information that tends to come from the later phases of design – the *realisation* phase – and hence it may be difficult to get insights concerning the decision-making in the formative phases of design. Nonetheless, by closely 'reading' the artefact itself as well as data from the design-process, it can be possible to gather insightful information concerning *why* the building has become what is, as well giving an indication of what the design might 'otherwise' have become.

In the context of this research, the notion of the iterative cycles of design-thinking and decision-making has stimulated the study of the *kinds* of issues which are addressed during the composition of the built object as an entity. This has led to the development of a thematic framework of domains and sub-domains, intended to better identify what *sorts* of decisions may be under consideration, in different phases of design.
The guiding notion has been that, on the basis of such 'conceptions', it might consequently be possible to generate insightful design *alternatives*: 'variations' on *known* outcomes of design, in order to demonstrate the effects of specific but interrelated choices, on compositional as well as perceptual levels.

3.1.4 Research Approaches

The essential ambition of all research activity is to contribute to the furthering of *existing* knowledge in a particular field of human enterprise or enquiry.

A condition for any of such research initiative is that it is carried out in a transparent, methodical way that is open to critical, intellectual scrutiny.

Taeke de Jong and Theo van der Voordt, considering research:

> *"Research is a collective term to denote the furthering of knowledge through profound thought, by carrying out experiments and by identifying and collecting subject matter which is processed and analysed systematically."*[14]

When a research project is set up, it should be made clear what the *goals* of a research itinerary are and what *type* of research is going to be carried out.
In design-oriented research, it is important to specify clearly what it is the study is trying to *solve*, *discover* or *clarify*.
By clearly determining what the research project is addressing and why and what it is trying to uncover or prove, a suitable methodological 'design' can be determined and the field of study can be contextualised.
In the 'hard' sciences, the notion has long been held that success depends on the determination of a clear focus-point and the setting of well-defined, tight constraints.

Information Technologist Wim Jansen, on 'framing' research:

> *"Intensive study of a tiny bit of some item with a thousand facets, that leads to output!"*[15]

In this respect the *empirical* cycles of research remain an essential point of reference to determine the *status* of a research project.
However: design-oriented research does not necessarily need to follow the empirical cycles, in the sense of proving pre-conceived notions. Research approaches which tend to be considered the 'standard' in technical-research environments arguably do not do justice to the *complexity* of designed environments and design procedures.
As a consequence, is not always possible – or indeed desirable – to narrow down and specify precisely from the outset what it is that is being investigated and what the best approach is expected to be.

Francis Duffy, on the uncomfortable relationship between design and science:

> *"The kind of architectural research I value most fits uncomfortably with academic models of what research ought to be. … Architectural knowledge does not 'sit well' in academic structures."*[16]

More often than not, design researchers are confronted with a complex 'knot' of factors, which are simultaneously at play and which are not easily 'disentangled'.
In many cases, *unravelling* the underlying, interrelated themes and meanings within the overall composition (including the potential dominance of specific factors) might actually be the primary aspiration of design research.
In order to acquire a clear understanding concerning the *questions* a research is trying to answer or the issues it intends to make more transparent, it is often worthwhile to carry out *preliminary* investigations, before determining the targets, the status and the methods of a project as a whole. On the basis of such *explorative* studies the issues and course of action can become more clearly defined: *hypotheses* can be determined and a *methodological* approach to empirical study can be specified.

In this context, it is worth realising that most of the experiments which were previously considered in the 'Explorations' sections can be seen as smaller-scale 'excursions', consciously or subconsciously set to probe the issues which might be encountered in a bigger study and the 'apparatus' that may be necessary to make the undertaking a success.

3.1.5 Research Domains

When setting up a research project, it is of eminent importance to be aware of the type of study that one will be (or is in the process of) carrying out.
A very clear – and to my mind: useful – characterisation of methodological approaches has been given by Baarda and de Goede.[17]

They identified three *elementary* types of academic research:
- Descriptive research;
- Explorative research;
- Empirical research.

In the following paragraphs a brief overview is given of these three approaches to academic research, on the basis of Baarda and de Goede's work.

Descriptive research:
If research is being carried out on the basis of data, descriptive research is a commonly used form of design-based research. It is an approach which is particularly effective when it is the intention of the researcher to give a systematic explanation of one or more artefacts or to give an in depth account of the underlying developments and backgrounds. This method generally involves the study and analysis of source material and the analysis and documentation of design products and process data. This kind of research does not generally tend to involve the conception or empirical testing of hypotheses.

Explorative research:
If the 'what, why and how' questions are central to a research, we may speak of Explorative research. This type of research can be considered as an intermediate form, between Descriptive research and Empirical research, with links and overlaps in both directions. The point of departure is usually a set of notions or assumptions. The aim is to create insights: to identify, define and illustrate relevant phenomena, to explain their specific characteristics and effects and their interrelationships. The aim of such an approach is generally to formulate hypotheses, which may subsequently lead to more 'experimental', empirical research.

Empirical research:
In Empirical research the task is essentially to see if certain, previously determined hypotheses are correct. This usually involves creating more or less experimental conditions, with a clear methodological 'design' and systematic evaluation and interpretation of data. Even if there is no coherent theoretical framework there might still be empirical research, for instance if the intention is primarily to show a predicted effect. In such a case Baarda and de Goede suggest it might be better to speak of Evaluation research.

3.1.6 Research by Design

How might we address and methodically study the complex phenomena of design composition and perception on a theoretical level, generating insights and knowledge pertaining to the 'Four Faces' of architecture in ways that might do justice to the *practice* of architecture, contribute to relevant *research* that might fuel architectural *theory* and resonate in architectural education?[18]

In design *practice* the working *methods* as such are generally considered to be of less importance than the design *product* and its qualities.
However, in *research* a sound, transparent method is essential in order to judge the result and thereby ascertain the *validity* of the research outcome.
Although the differences between design and research might suggest that the two domains of intellectual endeavour are intrinsically *different* and that these differences cannot be expected to be resolved (as is regularly suggested), it should be recognised that there is certainly opportunity for conceptual and methodical *interaction* between these academic environments.

Designers make expert use of, often *tacit*, knowledge, insights and skills.
The acquired working methods of *designing* can potentially be made instrumental in design *research*, if it is recognised that the aim of such an undertaking is the furthering of knowledge and understanding, rather than the generation of a design.

Geoff Matthews, on the opportunities of designing for research:
> *"There is a need to reclaim design research for designers. Too much design research has been conducted by technologists, systems practitioners, historians, psychologists, sociologists, anthropologists, organisation and management theorists. Too much design research has been research into design. Too little design research has been research conducted by designers doing what they do best – designing."*[19]

An important requirement of any architectural *research* project – as opposed to a design process – is that it must be methodically *transparent*, as well as *systematic* when it comes to the ways in which insights are gathered and subsequently communicated.
The characteristically wide range and spontaneous interaction of design should not be denied, but should somehow be 'tamed' for the benefit of research.

Targeted design study may be expected to involve establishing themes, defining meanings, identifying relationships and unravelling *patterns* on the level of composition.
Essentially, this means introducing certain *constraints*, which may narrow down the field of study, without leading to reductionism or simplification.

Geoff Matthews, on the knowledge that is inherent in architectural design:
> *"Design is not only a great orchestrator of knowledges, it constructs its own peculiarly polyvalent knowledge which makes visible and realizable the possibility of change."*[20]

If we wish to reach a deeper understanding of the phenomena of architectural and environmental design, we need to objectively identify the issues which are characteristic of architectural composition and perception and to develop and apply imaginative methods to elucidate and demonstrate their effects, individually as well as in combination.

To reach a better appreciation of the of compositional aspects and considerations which are at interplay in designed artefacts, it might be opportune to operationalise the professional knowledge and methodical expertise that is characteristic of architectural design as a creative discipline.

Whilst most contemporary architectural research tends to be *descriptive* – often focusing on historical developments or the oeuvres of individual architects or groups and their underlying ideological motivations – design research might become more intrinsically involved in *how* designs come about and *which kinds* of choices determine the end product in order to understand how a designed object or environment is conceived and perceived.

In the context of Taeke de Jong's notion that some futures might be predicted, but that others need to be designed (quoted in the 'Design Imaging' section), it is worth noting that there is another meaningful field of study where design and research come together.

We might consider this as *strategic* research, whereby the aim of the research is to create the proper conditions and mind-sets for decision-making on the level of policy.
Such research makes an inventory of the status quo in a particular field, taking in account the kinds of societal, financial and managerial trends which may be considered to be at play, in order to creatively describe and envision potential strategies for future developments.
This kind of research not very common within the domains of architecture per se, but has a meaningful impact in affiliated disciplines.

Four examples of such *strategic* approaches:
- Landscape and infrastructure, such as in water-safety management and re-design;[21]
- Urban renewal and transformation; such as in the redevelopment of harbour-fronts;[22]
- Suburban densification and intervention, such as in the evolvement of growth-centres;[23]
- Corporate and cultural policy, such as in the planning and management of university campuses.[24]

3.1.7 Doctorates in Architecture

In the 1990's and early 2000's, the Faculties of Architecture in Delft and Eindhoven were determined to develop more fitting research approaches for the domains of architecture, leading to a number of cross-disciplinary initiatives.[25]

The faculty in Delft launched a concerted effort to develop study approaches in the interrelated disciplines of architecture, which were brought together under the banner *'Research by Design'*.
As a newly-arrived academic I became involved in a new research initiative entitled *'The Architectural Intervention'*.[26]
At the same time, the faculty made a concerted effort to promote the furthering of knowledge and simultaneously enhance the 'standing' of the faculty in the academic community in Delft, by making a concerted effort towards establishing more doctorates in architecture.
To kick-off this initiative, the faculty organised and hosted an international conference in 1996, entitled *'Doctorates in Design and Architecture'*.[27]

This ground-breaking international gathering gave an important stimulus to the faculty's research programmes. For me personally, the event contributed to a range of insights that have lastingly influenced my academic insights and developments.

One of the ideas that was put forward was to attract tone-setting architects, in order to get them to carry out 'doctoral studies' on the basis of their professional work. This set off a round of methodical explorations considering under what *kinds* of conditions designing might be considered to be 'scientific' research.
However, the familiar notion that architects are far more interested in design(ing) than in research proved to be more or less true, at least at the time, and the 'professional doctorates' which were envisioned never got off the ground.

Architectural practitioners have a reputation of primarily being concerned with the conception and realisation of buildings and built environments; inclined to swiftly move on to the next project and generally spending little time evaluating the precise effects of their creations after they have been built.
However, the designer's search for the right solution(s) is a venture driven by an *inquisitive* nature and a *creative* approach.

To a certain extent the kinds of study-activities which are carried out by a designer in the course of such a process might indeed be considered as research, even though the aim of the designer's way of working and thinking is to generate a feasible design proposal, not the furthering of knowledge.

In the context of the methodical study of designing as a *process* and the qualities of designs as their physical, tangible *outcomes*, it may be beneficial to develop conceptual and perceptual *models* that would help to structure intellectual enquiry and to visually characterise and communicate options, findings, insights and outcomes which – as 'evidence' – might stand up to scientific scrutiny.

Francis Duffy, on the need for scientific rigour in research:
> *"It is absolutely necessary for architects to redefine architectural knowledge in a way which commands public respect. ...*
> *We architects need to invent our own models, our own future, in our own way."* [28]

Whilst there have through the years been quite a few 'honourary' doctorates among design practioners, relatively few architects of name have actually completed doctoral theses.
Noteworthy exceptions to this rule have been Peter Eisenman (on the *Formal Basis* of architecture) and Elias Torres (on the manifestatiions of *Zenithal Light*).[29]

Proliferous architects like Le Corbusier, Herman Hertzberger, Cepezed and Steven Holl have developed their design careers as a kind of theoretical 'laboratory', methodically and meticulously documenting their oeuvre-explorations and their professional and societal convictions, which have been expounded in series of books, though not in the form of a dissertation.[30]
Other tone-setting architects, such as Oswald Mathias Ungers, Rem Koolhaas and MVRDV, have taken their design practices as departure-points for far-reaching and diverse research initiatives.[31]

Through the years, I have followed the very varied doctorate studies of several of my colleagues at the Delft faculty of Architecture and the Built Environment.[32] Furthermore, I have personally been closely involved in the explorative, designerly visualisation study 'Virtual Context', by Dr.ir. Martijn Stellingwerff.[33]

In my own research, I have tried to do justice to the qualities and the peculiarities of architectural design, in order to appreciate what we might consider to be fitting and relevant working *methods* that correspond with the investigation and activation of characteristic design themes and approaches.
This has involved giving *visual* modes of representation a prominent role by, as far as possible, carrying out investigative studies, in 'designerly' ways.
Thereby, I have I have concintiously tried to avoid creating a body of work exuding, in the words of Walter Dorwin Teague:
> *"the musty smell of doctoral theses".*[34]

3.2 Designerly Enquiry

3.2.1 Designerly Modes of Learning

My first encounter with the term 'designerly' was during the 1996 *Doctorates in Design and Architecture* conference, where it was coined by museum- and exhibition designer Geoff Matthews, who argued for a *"sea change in the way that design as a practice is viewed by practitioners"*, stating the case for a science concerned with discovering not only how things are, but how they have come to be that way.

Geoff Matthews, on the difficulty of understanding design:
> *"In design we have a peculiar problem: generally, design does not communicate anything important though its end products. The things, places, messages and systems which are the outcomes of implementing designs normally are not readily interpretable as generalised knowledge. …*
> *To recover what is beneath the inscrutable surface of the designed object one must allow the design process itself to speak and in the same operation one must facilitate the recovery of the programmatic and philosophical dimensions of design"*[35]

In his written contribution to the Conference Book, Matthews did not as yet include any references to designerly enquiry as such. However, this was amended in his extended contribution, which was included in the later Conference Proceedings, in which he referred to the work of Bruce Archer.

Bruce Archer, on the potentials for *designerly* learning:
> *"The idea of Design as a broad area of man's concerns, comparable with Science and Humanities, seems to be defensible in pedagogic terms. The idea that there exists a designerly mode of enquiry, comparable with but distinct from, the scientific and scholarly modes of enquiry seems to be defensible by the design methods literature."*[36]

Together with Nigel Cross, Bruce Archer has been at the forefront of a pedagogical movement, in the seventies, which propagated the introduction of Design(erly) teaching in the curricula of (British) General Education, alongside the Sciences and Arts. In his influential article '*Designerly Ways of Knowing*', Nigel Cross formulated four elementary 'conclusions' concerning 'Design with a capital D':

— The central concern of Design is the 'conception and realisation of new things';
— It encompasses the appreciation of 'material culture' and the application of 'the arts of planning, inventing, making and doing';
— At its core is the 'language' of 'modelling'; it is possible to develop students' aptitudes in this 'language', equivalent to aptitudes in the 'language' of the sciences – numeracy – and the 'language' of the humanities – literacy;
— Design has its own 'things to know, ways of knowing them, and ways of finding out about them'.[37]

After his original article on the nature of design research (1981), Bruce Archer returned to the topic of *'Design Curriculum Matters'* in 1991, in a probing Paper, exploring the relationships between technology, design, curriculum development, educational research and designerly approaches, in the context of *'design as learning'*.[38] The theme of designerly learning was later taken a step further, in the direction of architecture, by Allen Cunningham, in his Paper *Notes on education and research around architecture* (2005).[39]

Such *designerly* ways of reasoning are typical of architectural design. In this sense, enquiry can be considered as a special kind of problem-solving that transforms a relatively complex problem into a workable solution, which may then be effectuated, tested and judged, on the basis of a realised design 'product'.
Fundamentally, such designerly activity involves a creative process of 'envisioning' workable realities that do not – as yet – exist.
Other activities requiring such *foresight*, such as setting up a workable planning, developing an educational curriculum, or organising a sound research experiment, might also be considered as forms of designerly enquiry.[40]

On a 'creative' level, such a designerly process requires both logical and artistic consideration, involving what David Bohm would regard as "imaginative and rational *insight* and *fancy*."[41]

3.2.2 Designing Research

How can active designerly enquiry become instrumental in design education and research?
In which ways might activities, which are integrated in an academic educational environment, lead to convincing *research* products?

Designers strive towards the evolvement of proposals, usually on the basis of a predetermined context, a functional programme and economic constraints.
At the same time, they endeavour to create *authentic,* even *novel* design products which are experienced as more than a sum of separate solutions, but rather: a harmonious *synthesis* of space, form and material.

Designing is a process of *searching* for a result which the designer (as well as the client, but also official instances involved with environmental planning) considers to be 'fitting'.
However, for any particular design process there is not one 'correct' outcome.

The designer can come up with a *variety* of potential solutions, each of which would lead to considerably different environmental qualities and spatial experiences, if built.

The design-quest can be considered 'empirical' only in so far as that it tends to follow a path of *trial and error.*
Although the design process itself may not be considered to be 'scientific', the designer *does* make use of many sources of knowledge and evidence-based information, which contribute to shaping the end product.
Recurring formal themes and characteristic forms of variety make it possible to identify specific *types* of design artefacts. These can be organised systematically in design *typologies*, which may in turn contribute to the understanding and appreciation of *specific* design artefacts.

Mike Press, on the necessity of creating transparency:
> *"Research is the systematic investigation towards increasing the sum of knowledge which is reported in a form which renders both methods and outcomes accessible to others."*[42]

It has been argued that in architectural research there is a need for researchers to operate in a systematic and methodically sound way.
This is standard procedure in more or less traditional forms of analytical or comparative research, but it is perhaps of even greater importance in projects wishing to incorporate *explorative* forms of designerly enquiry as a part of the working method.
Consequently, design-oriented research projects require methods – or combinations of methods – which *do justice* to the nature of design, whilst at the same time trying to assimilate the procedures of proven scientific methods, adapting these or *designing* new, more fitting models and methods for design research.

Although in design the *evolvement* of new ideas and insights is often unpredictable and decision-making may seem relatively intuitive, the working methods may actually be *more* systematic and methodical than they are often made to seem.
Designerly enquiry calls for – and to a certain extent is even *dependent* upon – *imaginative* insights, but at the same it should be recognised that the working processes of design are relatively methodical and transparent; to a certain extent even predictable.

Architect Herman Hertzberger, on the methodical aspects of design-thinking:
> *"Designing is a complex thinking process, with possibilities and limitations, within which ideas are developed relatively systematically."*[43]

Just as designing itself is clearly not without 'method', so inquisitive research need not blindly follow preconceived paths.
The creative 'search' of the designer involves imaginative *problem solving*, using his or her imagination to develop – and indeed to predict – a *successful* final solution.

However, design solutions are expressed not so much as conceptions, but as proposed *form.*
The designer's thinking process is essentially a process of thematic *transformation*, underscored by evocative *visualisation.*

The researcher – like the designer – is dependent on evocative ideas and creative hunches, conceptual shifts and *short-cuts*, which may lead to meaningful insights, even surprises!
The consequences of these insights then have to be studied rigorously, evaluated systematically and verified analytically in order to stand up to scientific scrutiny.[44]

3.2.3 Designerly Ways to Study

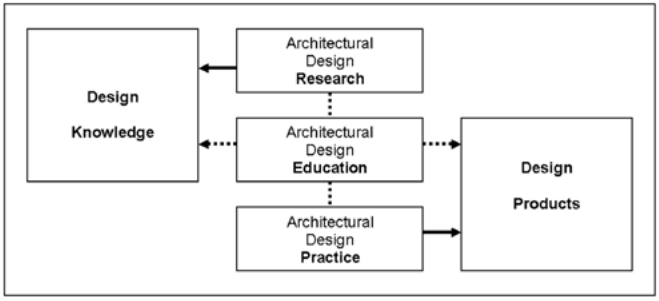
My first confrontation with the – attractively ambiguous – concept of *designerly* study was something of an epiphany, triggering my interest and indeed my enthusiasm.
What if – for the benefit of research – the 'normal' *direction* of design-driven enquiry might, as it were, be 'turned around'?

Might *design-like* activities – such as organising, structuring, composing and detailing – be operationalised in the context of research: for the benefit of reaching a better *understanding* of the motivations and processes of design?
This would imply a working method comparable to what has come to be known as 'reverse engineering'.
In such an approach, designerly aptitudes, which are a necessity for designers to make designs, might be of benefit for researchers familiar with such methods, in design-based research.

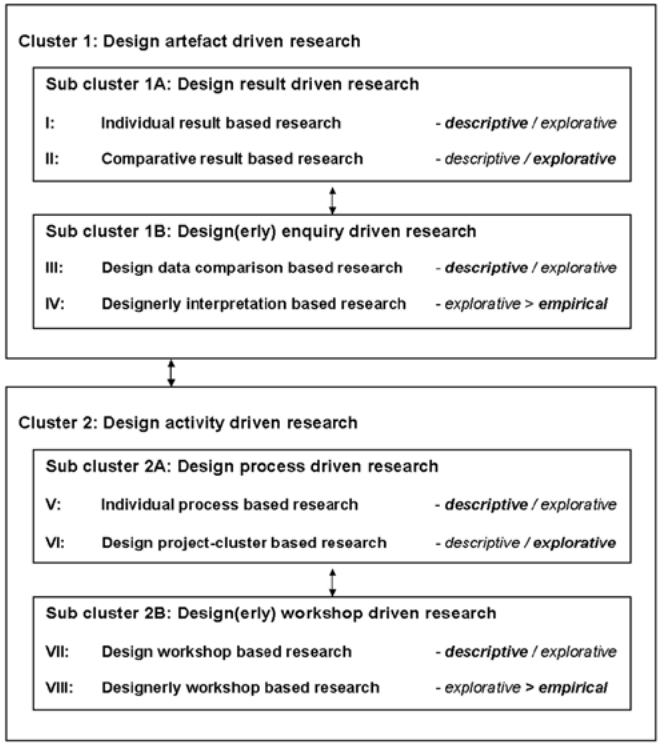
Whilst researching is arguably *not* the designer's 'greatest talent', it would be worthwhile to get those who are proficient in designerly *working methods* involved in research projects.
In this context, the term *designerly* enquiry seems appropriate, precisely because it is a concept which can denote practical designing activities, but also suggests an *'as if'* designing approach, which might be of particular relevance in design education as well as in research *experiments*.

From early-on in this study it has been my conviction that designerly enquiry – both as a subject of study *and* as a potential research activity – deserves to be recognised as one of the fundamental constituents of 'intelligent' design-oriented research.
To share this developing notion (in the first instance with my academic colleagues in the Delft Faculty of Architecture) I wrote a contribution, entitled 'Designerly Enquiry', which was included in the ambitious, faculty-broad research-anthology entitled 'Ways to Study' (2002).[45]

Well organised designerly projects can potentially help to create a kind of 'laboratory' atmosphere, in which procedures and results can be considered more or less empirically, for instance in an *educational* setting.



A comparison of orientations in research, education and practice, J. Breen, 2005.



Typological overview: artefact and activity driven research, J. Breen, 2005.

Of course the disadvantage of projects involving groups of students is their relative lack of *experience.* However, this is often compensated generously by their *candour* and lack of 'hang-ups', which can lead to refreshing viewpoints and surprising insights. Such educational projects might be considered promising in the context of design-driven research.

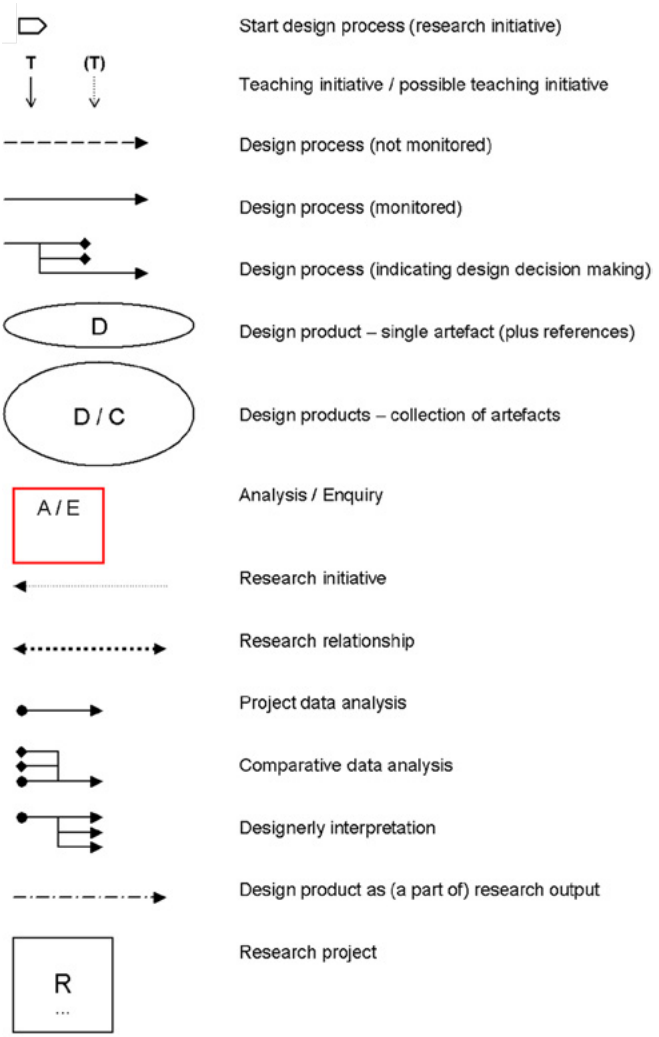
There are numerous ways in which designs or design processes may give occasion to academic research projects.
On one side of the spectrum design activity may be incorporated into the development of technical applications or product innovation. Such an approach is similar to the practice of *research and development*, which is common in industry. This kind of development-research plays a meaningful role within – technical – university environments and might be stimulated and promoted in education.
On the other side of the scale we may find the kind of research whose primary aim is to explain the *implications* of design interventions.
The focus of such study may, for instance, be functional, ergonomic, psychological, societal or philosophical. Such research generally views design results and processes from a certain 'distance' and makes use of proven methods closely linked to the acknowledged empirical cycles of research.
The results may often lead to valuable insights but are not always held in high esteem by design practitioners and teaching staff.
Between these poles the endeavour of design *composition* may be the issue of research.
Composition research can involve the *perception* as well as the *conception* of an overall design and its constituting parts.
It may be concerned with the *workings* of design results, but also the *methods* of design, including the utilisation and effectiveness of design *media* in the development process.

3.2.4 Designerly Study Potentials

Which characteristics of designerly enquiry might be considered to be pertinent for the study of architectural composition, in as education and research?
A brief overview, considering four potential categories of designerly study applications:

— Designerly reference study;
— Designerly analysis;
— Designerly visualisation;
— Designerly variation.

Designerly reference study:
In education and research, reference study can be introduced to shed a new a light on a project at hand.
Such a process involving targeted *juxtaposition* of the subject of study and one or more projects or specific design aspects, allowing for insightful *comparison* and evaluation.



Legend: Symbols used in the schemes of design-driven research approaches

This approach may include the use of precedents but also of metaphors and even the conscious development and systematic comparison for the sake of designerly analysis.

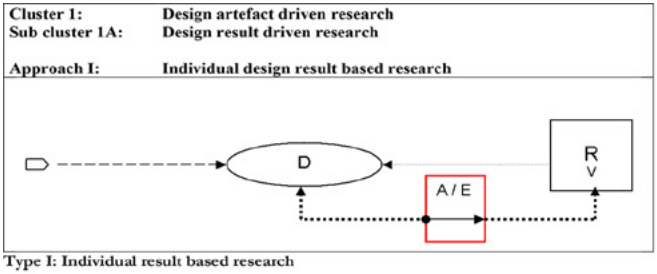
Designerly analysis:
The kind of analytical studies which designers carry out in practice can be used effectively in education by introducing targeted de-composition as a part of the set *task*.
Such an approach can create clarity when considering an integral design task, rather than offering a clearly defined 'problem'. Project-based designerly analysis (in Delft: 'plan-analyse'), involves unravelling the design-layers of precedents, making use of the instruments and methods of the designer.[46]
Such designerly analyses can lead to meaningful insights concerning a design task, or become part of a research *protocol*.

Designerly visualisation:
The active application of design visualisation techniques does not only constitute an important part of design activity, it is an essential component of education – and consequently can be made operational in design driven research.
Essentially this approach involves creating *models* of (aspects of) the project that is being scrutinised.
Different modelling approaches may make use of different 'media' including: physical models (ranging from conceptual- to detailed scale models); digital models (computer visualisations and -simulations) and two-dimensional representations (sketches, drawings, schemes, collages).

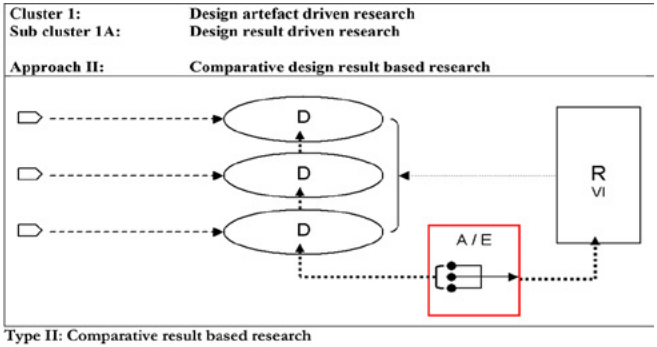
Designerly variation:
Creative variation can be used in education as a part of the design *counselling* method.
Such an approach can involve pointing out alternative themes or options, without necessarily suggesting an outcome.
Such 'could-also-be' scenarios can purposefully be developed as design *variants*, which can then be tested and discussed.
Apart from using such an approach in design tutoring, designerly variation may be introduced as part of a research *task* and the accompanying procedures.

These propositions were included in an EAEA keynote presentation in Milan, Italy (2013) entitled: *Designerly Visualisation: Conceptions, Methods, Models, Perceptions*.[47]

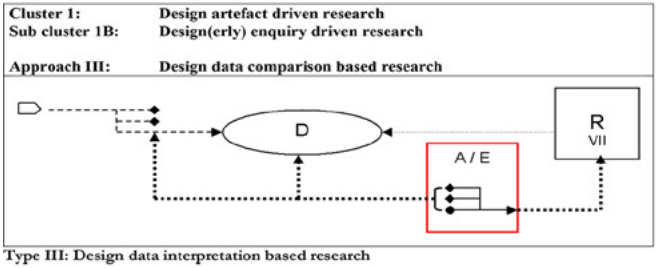
In the course of this Patterns & Variations study – and particularly in the central, case-based AA Variations project – attempts have been made to actively integrate designerly modes of study, on the levels of reference study, analysis, visualisation and variation.



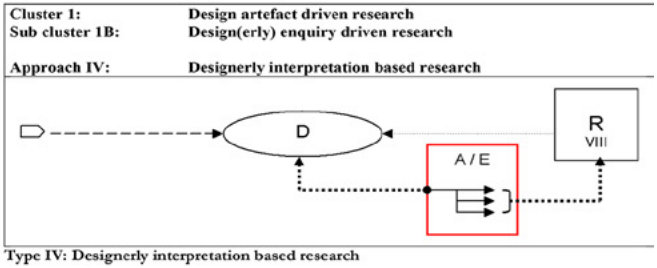
Type I: Individual result based research



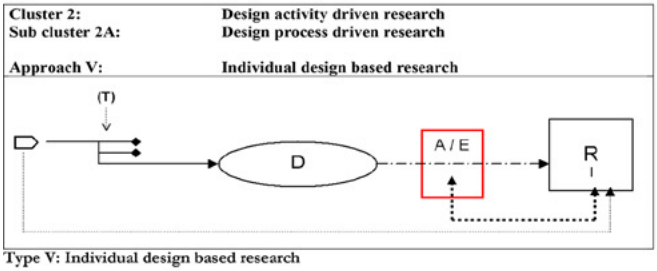
Type II: Comparative result based research



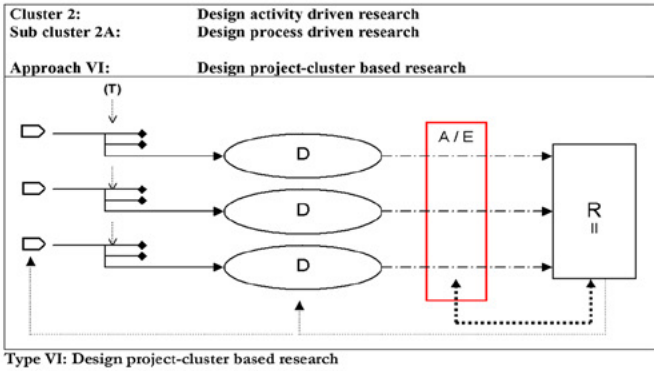
Type III: Design data interpretation based research



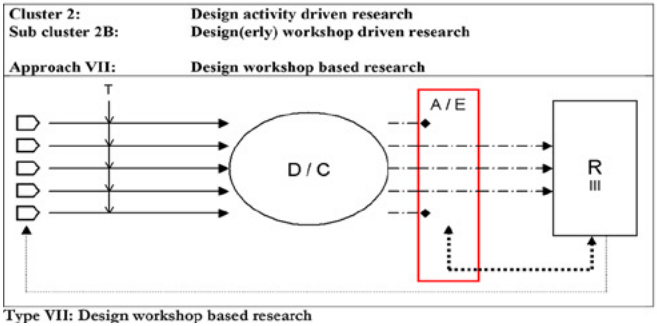
Type IV: Designerly interpretation based research



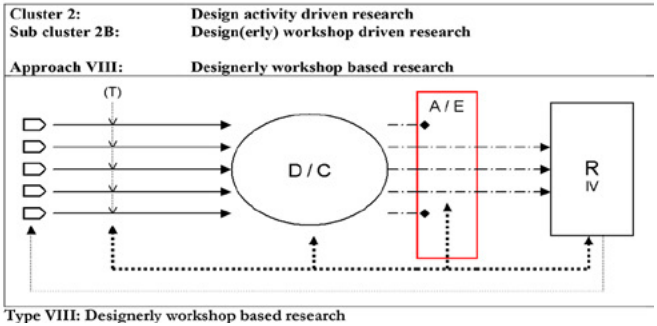
Type V: Individual design based research



Type VI: Design project-cluster based research



Type VII: Design workshop based research

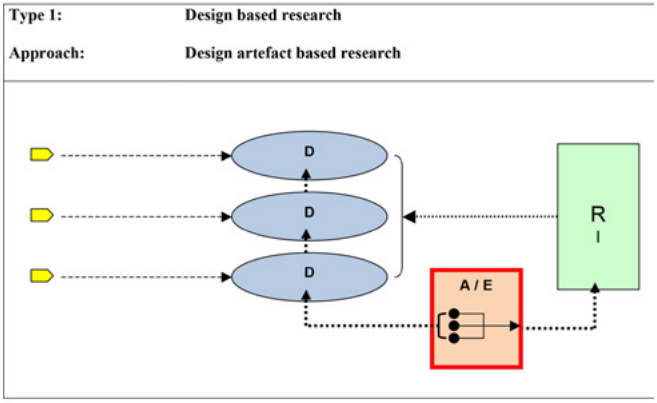


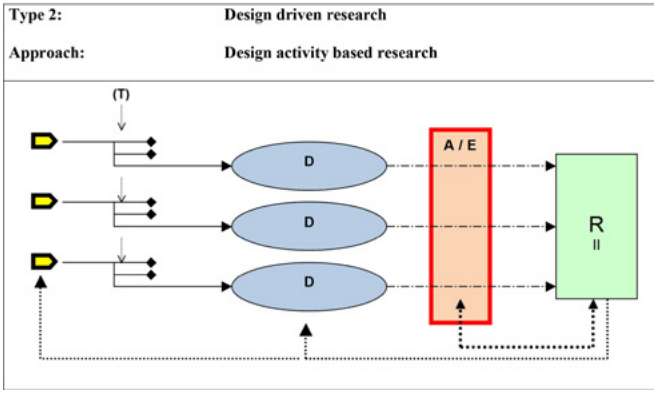
Type VIII: Designerly workshop based research

3.2.5 Design-based and Design-driven Research

In an explorative study, carried out in the context of the 'Ways to Study' initiative (2002), I tried to develop a methodological framework, in which eventually *eight* design-study approaches were identified.[48]

The research types that were identified were divided into two main clusters – *Artefact* driven research and *Activity* driven research – which were subdivided further and characterised on the basis of the predominant research characteristics: descriptive research; explorative research and empirical research.
The Ways to Study framework was subsequently fine-tuned and adapted. The results of this exercise were presented in the context of the *Design Research in the Netherlands* symposium, which was organised at the Eindhoven University of Technology (May 2005).[49]
The schemes and legend are included to give an impression of the research *process* characterisations.





Two elementary design-research approaches: PPT version, J. Breen, EAEA 2013.

In retrospect, these attempts to determine somewhat hermetic research typologies might be considered to be too fine-meshed. However, the basic principles which were identified and discussed are to my mind still meaningful.
Furthermore, the intrinsically *dynamic* qualities of design research procedures, which are suggested in the various schemes that were developed, have given me worthwhile insights concerning the methodological approaches of the study-initiatives that I have developed through the years, in Form Studies education as well as in my own academic research.[50]

In the context of this doctoral study, two elementary, operational approaches to design-oriented research have been identified:

— Design-based research;
— Design-driven research.

Design-based Research:
In design-based studies, the researcher is not actually involved in design-like activity, but attempts to understand aspects of design on the basis of one or more *artefacts* of design, such as designs which have been made earlier and which may, or may not, have been built.
In education, a proven method of acquiring knowledge and insight is the study of *precedents*, which can be analysed systematically. The object of study may be a particular design or a collection of designs, possibly belonging to an individual oeuvre or to a historic movement.
Essentially, this methodological approach involves the study of outcomes and results *after* one or more design processes have been completed. This is the core-concept of what may be considered as the 'Delft method' of plan-analysis.
This means that relevant themes and relationships need to be identified on the basis of design results and their potential effects, which are methodically examined and objectively explained.

The most 'scientific' approach would be one whereby the targets and course of action are clearly specified beforehand, allowing for the systematic evaluation of outcomes on the basis of unequivocal data, thus allowing for the drawing up of unambiguous conclusions.
However, this is hardly ever the case, as the available 'evidence' is seldom complete or unambiguous.
A design-based research project may focus on existing design *results* – as a 'given' situation – which is then described and analysed, or upon *data* from the design process, which may be interpreted in relation to what the design has become or indeed *might have* become, possibly involving a more active, *designerly variation* approach.
Such *result based* research can be structured methodically by introducing an underlying 'order' beforehand, for example by setting certain binding themes, constraints or formats, which facilitate the systematic description, comparison and evaluation of results and findings.

Design-driven Research:
In design-driven studies, the design *process* is dominant and forms a continuous line from the beginning to the end of the research initiative, which is as it were constructed around its designerly *development*.
Generally speaking, there should be a clear notion of the research ambitions from the outset so that the development process can be monitored. As such, projects of this nature can be said to be *process driven*, whereby the resulting design data that is produced is considered part of the research output. The 'content' of the research activity is largely determined – one might say initiated – by the designerly 'search' of individuals or groups of designers.
The design project(s) forming the subject of study may come from practice or be defined by educational ambitions. In this context it may be beneficial to create game-like situations with pre-defined, specific tasks and constraints, creating a 'design laboratory' situation.

In design-driven research projects – as in any other kind of research undertaking – it is necessary to specify *what* is the subject of scrutiny and to determine along what lines the research will be carried out.
In such a way, design initiatives – such as competitions or group workshops – may be set up so that they may be taken as a point of departure for explorative, or potentially even empirical research.
Design-driven studies may be expected to primarily offer insights concerning issues such as the process of design decision-making within the initiative.
However, such study initiatives may also afford the empirical testing of predetermined hypotheses or the viability of research models on the basis of systematic comparison of outcomes.

It should be stressed that these two approaches are in no way exclusive, but that they may be viewed as not only complementary, but indeed *compatible*.

In most design-oriented learning-cycles, particularly in education, we may speak of a measure of design-based analysis as well as creative designing activity, whether on the level of actually designing a building, an environment, a technical application, a procedural protocol, or simply: 'designing' media-based approaches on the level of representation and communication.
In all of these applications, the designerly activity of inquisitive and creative *imaging* plays a meaningful, indeed: enlightening, role.

3.2.6 Patterns & Variations Research Methods

Throughout the years that this study has been gradually unfolding, I have been intensely involved in various teaching- and learning initiatives.
All of these may, at least to some extent, be characterised didactically by the active use of (combinations of) *design-based* as well as *design-driven* study methods.

Some of the Form & Modelling Studies initiatives to which I have contributed have been mentioned earlier, in the 'Explorations' section. These eye-opening applications were to a large extent conceived and organised as *design-driven* activities, whereby the intention was that a level of understanding should be gained by the participating students on the basis of the *comparison* of the (sometimes abundant) results of study.[51]

Other initiatives, with a distinctive *Modelling Study* component, were set up primarily as *design-based* projects, focusing on design *precedents*.
Throughout all of these initiatives, active use was made of the 'instruments' of the designer, such as: drawings; collages; graphic design; physical- and virtual models and graphics and notably: *exhibitions*.

This integral – 'Patterns and Variations' – study has made use of various kinds of methodical study approaches.
For the gathering, evaluation and comparison of data, searches were carried out in the context of a number of archives (notably those of the Aalsmeer municipality and the national archive of architecture at the NAi (now: 'Nieuwe Instituut'), in Rotterdam).
In some cases, one can be truly lucky when digging in archive, stumbling upon unexpected, 'hidden links' or alternative design-versions.

Further research was carried out on the basis of a wide range of literature studies, making use of the excellent collection of books and periodicals in the library of the Faculty of Architecture and the 'Tresor' of the central library of the TU Delft, as well as my own, steadily-growing collection of books, magazines and documents.

These iterative searches have contributed to the *descriptive* sections of this research, as well as to the *explorative* development of thematic 'conceptions'.

Developing the conceptual framework has involved design-based enquiry, in the sense of studying designed artefacts as well as published sources (images and texts), but also personal experiences, accumulated on the basis of practice, education and judicious *observation* and *deduction*.
Creating and refining the conceptual *model* has also been a *designerly* activity, with choices being made on the basis of content as well as *aesthetic* (and even to a certain extent: *poetic*) considerations.

In a number of the explorative projects which have been mentioned earlier, as well as in the extensive AA Variations study – essentially involving the consideration of selected architectural precedents – combinations of *design-based* and *design-driven* study-methods were applied.
Thereby, active use was not only made of various *existing* design-visualisation methods, but a concerted attempt was made to develop and operationalise innovative, dedicated *3D modelling* approaches.
This involved a method of *designerly* visualisation, utilising a system of standardised *modelling-layers* and visual *protocols*, to facilitate the thematic comparison of the ten projects that have been considered (see: the 'Instruments' and 'AA Variations' sections).

The process of thematic exploration and characterisation of compositional *themes* forms a unique aspect of this study.
For the benefit of the systematic comparison of design attributes and their perceptual effects, a thematic framework of compositional issues was developed and fine-tuned step-by-step.
The integral 'conceptions' model that has been developed was subsequently tested and refined on the basis of experiments in the context of the AA Variations sub-study.

As this thematic framework is applied here for the first time, it should to a certain extent still be considered to be speculative and it would go too far to consider the comparative AA project-studies as *empirical* research.
Nonetheless, the central ambition was to methodically develop insights as *objectively* as possible.

A favourite visual method, which to stimulate the recognition of similarities as well as significant differences, is the multi-image: a collection of methodically-arranged 'portraits'.
This visual approach is inspired by the work of various artists, most notably by the impressive 'typological' oeuvre of the photographer-couple Bernd & Hilla Becher, as well as the systematic perspective-series of Dutch artist/photographer Ger Dekkers.[52]

Throughout the development of this study and its subsequent documentation, use is made of a variety of *quotations.*
These references from the domains of architecture in the broadest sense and beyond have been absorbed from a variety of sources; from the extensive body of architectural literature as well as from different kinds of media.

The textual quotes that are included, have been judiciously selected, collected, assessed and ordered over an extended period of time. They are part of a personal 'collection' of inspiring or enlightening text-fragments that has continued to grow and diversify and indeed: continues to do so.

Such 'literal' quotations are taken up in the different sections of this document as it were as short 'interviews' with respected scholars and professionals.
In this sense they are not included as 'proof' – for the notions of their authors or my own – but should rather be considered as 'circumstantial evidence', setting the tone of the explorations that have been carried out, as well as underscoring the assumptions of the gradually-unfolding conceptual levels of study.

As good as all of the illustrations which are included – photographs, schemes, sketches and model-based renderings and illustrations – are my own, or have in the course of the ongoing study been generated in collaboration with my students or, have been developed specifically for this particular purpose together with my highly-appreciated assistant and sparring-partner Bram van Borselen.

In addition, a select number of visual references are included, which have been taken from other published sources.[53]
These may, in their own ways, also be considered as 'quotations', if not in a literal but rather in a *visual* sense.
Where this is the case, I have tried to make it clear that this imagery has been 'sampled': giving an indication of their (visual) valence in the context of my discourse, while simultaneously stimulating readers to hopefully go back to the 'origins'. Thereby, a concerted attempt has been made to indicate the original sources.

These collections of literal- and visual quotes are not included to to prescribe, but rather: to inform and enhance critical *comparison* and *understanding*.

1 Taeke M. de Jong: *When is designing also research?* In: *A.C.S.A.3 Conference book Design Studies*, Delft University of Technology, Faculty of Architecture, Delft, 1992.

2 Some notable publications by the three authors who are mentioned:
– Donald Schön: *The reflective practitioner: How professionals think in action*, Basic Books, Inc., New York, 1983.
– Robert M. Oxman: *Design Inquiry: An Introduction.* In: R.M. Oxman, M.F.Th. Bax, H.H. Achten (eds.): *Design Research in the Netherlands*, Bouwstenen, Faculty of Architecture, Planning and Building Science, Technische Universiteit Eindhoven, 1995;
– Kees Dorst: *Describing Design, A comparison of paradigms*, dissertation, Technische Universiteit Delft, 1997; Kees Dorst: *Studying Design Problems*. In: Henri Achten, Kees Dorst, Pieter Jan Stappers, Bauke de Vries (eds.): *Design Research in the Netherlands 2005*, Proceedings of the Symposium held on 19-20 May 2005, Eindhoven University of Technology, 2005.
Apart from these researchers, various authors were involved in the academic domains of 'Design Methods" including:
– Andreas Faludi: *Planning Theory*, Urban and Regional Planning Series, Volume 7, Pergamon Press, Oxford, 1973;
– Richard Foqué: *Ontwerp-systemen, een inleiding tot de ontwerptheorie*, Aula-Paperback 31, Uitgeverij Spectrum, Utrecht/Antwerpen, 1975;
– Hamel, R. *Over het denken van de architect, een cognitief psychologische beschrijving van het ontwerpproces bij architecten*, AHA Books, Amsterdam, 1990
– Anton P.M. van Bakel: *Styles of Architectural Designing, Empirical research on working styles and personality dispositions*, dissertation, Technische Universiteit Eindhoven, 1995;
– Peter Paul van Loon: *Interorganisatorisch ontwerpen, een nieuwe methode voor de combinatie van deeloplossingen in bouwkundige ontwerpteams*, dissertation, Publicatiebureau Bouwkunde, Faculteit Bouwkunde, Technische Universiteit Delft, 1998.

3 Terence Curry, in: *Form Follows Feeling, The Acquisition of Design Expertise and the function of Aesthesis in the Design Process*, Dissertation, Delft University of Technology, faculty of Architecture and the Built Environment, Department of Urbanism, 2017. Pg. 199.

4 Source of the definition: *Collins Dictionary and Thesaurus* (1994).

5 Some notable publications by the three authors who are mentioned:
- William J. Mitchell: *The logic of architecture. Design, Computation and Cognition*, The MIT Press, Cambridge Massachusetts, 1990.
– James Hennessey: *Wiggiewiz in het ontwerproces = Wiggiewiz in the design process*, inaugural address, Faculteit van het Industieel Ontwerpen, TU Delft, Delft, 1993.
– Richard Coyne: *CAAD, Curriculum and Controversy.* In: *Education for Practice*, 14th Conference of the eCAADe, Division of Computer Aided Architectural Design, Lund Institute of Technology, Lund University, 1996.
Other authors who were involved in the academic domains of 'Design Computation" included:
– Kas Oosterhuis: *Arificial Intuition, Arbieiten am Computer*, Aedes Galerie und Architekturforum, Berlin, 1989.
– Alexander Koutamanis: *Development of a computerized handbook of architectural plans*, dissertation, Faculty of Architecture, TU Delft, 1990.
– Henri Achten: *Generic Representations: Intermediate Structures in Computer Aided Architectural Composition.* In: Aleksander Asanowicz, Adam Jakimowicz: *Approaches to Computer Aided Architectural Composition*, Technical University of Bialystok, Faculty of Architecture, 1996.
- Ranulph Glanville: *Cybernetic Realities*, In: *Cyber-Real design,* 5th International Conference on Computer in Architectural Design, Technical University of Bialystok, Faculty of Architecture, 1998.

6 An article arguing for this reversal of Durand's schematic progressions:
Madrazo, L: *Durand and the Science of Architecture.* In: *Journal of Architectural Education*, ACSA, Washington DC, 1994.

7 One such future-scenario, which was enthusiastically promoted by TU Eindhoven researcher Roel Daru, amounted to a kind of evolutionary *'breeding of forms'*, using digital means, as well as the identification of identifiable architectural 'working styles'.
Daru, R. & M.: *Personal Working Styles in the CAAD Studio.* In: *The New Teaching of an Architect?* The Proceedings of eCAADe '92, Barcelona, 1992.

8 The eCAADe was – and is – the most meaningful European computer-design platform. An important – American – counterpart is ACADIA (Association for Computer AidedDesign in Architecture. The most prominent Latin American platform is SIGraDI (Sociedade Iberoamericana de Grafica Digital). CAADRIA (The Association for Computer-aided Architectural Design Research in Asia) represents Asia and Oceania. Lastly, the CAAD Futures Foundation is an international platform, set up in 1985 at the Eindhoven University of Technology in the Netherlands.

9 John Zeissel: *Inquiry by Design: Tools for Environment – Behaviour Research*, Cambridge University Press, 1984. Pg. 6.
John Zeisel:
"Imaging: Imaging is the ability to "go beyond the information given. Bruner (1973) calls the process of seeing something where nothing seems to have been before. This activity, often called "real creativity" by laypersons, might most accurately be called 'imaging' after the verb to image, which the Oxford English Dictionary defines as: 'to form a mental image of: to conceive (a) something to be executed, and (b) an object of perception or thought: to imagine, to picture in the mind, to represent to oneself, as in Coleridge, 1818, "Whatever is admitted to be conceivable must be imageable," and in Browning, 1855, "Image the whole, then execute the parts"… "

10 The characteristics and consequences of design decision-making were explored by the author in an early Paper: Jack Breen: *Concepts of Choice in Design Composition and Visualisation*. In: Prof. Henco Bekkering, Prof. Cees Dam, Prof. Dr. Mick Eekhout, Jasper Baas, Alex Letteboer (eds.) *The Architecture Annual 1995-1996*, Delft University of Technology, 010 publishers, Rotterdam, 1997.

11 For the designer this is a captivating approach, which urban designer Frits Palmboom has dubbed *"Learning by making something."*
Source: professor Frits Palmboom, during a lecture to Honours students at the Delft faculty of Architecture, November 2014.

12 John Zeisel: *Inquiry by Design: Tools for Environment – Behaviour Research*, Cambridge University Press, 1984. Pg. 14.

13 Keynote presentation at the 2013 Envisioning Architecture conference of the EAEA (European Architectural Envisioning Association) in Milan:
Jack Breen: *Designerly Visualisation: Conceptions, Methods, Models*. In: Barbara E.A. Piga and Eugenio Morello, (eds): The Proceedings of the 11th EAEA conference, Politecnico di Milano, 2013.
This integral research overview was a first step towards evolving this AC3 Position Paper.

14 Taeke de Jong and Theo van der Voordt: *Criteria voor wetenschappelijk onderzoek en ontwerp*, Faculty of Architecture, TU Delft, 2001.
Quote:
"Onderzoek is een verzamelnaam voor het genereren van kennis door grondig na te denken, experimenten uit te voeren en gegevens te verzamelen en te analyseren."
Translation by the author.

15 Information Technologist Professor Dr Ir. F.W. Jansen, speaking at a research-meeting at the Faculty of Architecture, TU Delft, May 2000:
"Het intensief onderzoeken van zo'n tiny bit van een onderwerp met duizend facetten, dàt levert

output op!" Translation by the author.
16 Francis Duffy, in: *Doctorates in Design and Architecture*, Proceedings Volume 1 (State of the Art), Department of Architecture, Delft University of Technology, 1996. Pg. 9.
"The kind of architectural research I value most fits uncomfortably with academic models of what research ought to be."
Duffy, speaking during the conference sessions: "Architectural knowledge does not 'sit well' in academic structures."
17 D.B. Baarda en M.P.M. de Goede: *Basisboek Methoden en Technieken*, Stenfert Kroese, Houten, 1994.
18 Lena Villner, Abdellah Abarkan (eds.): *The Four Faces of Architecture – on the dynamics of architectural knowledge*, School for Architecture, Royal Institute of Technology, Stockholm, Sweden.
On the basis of the theme of the conference – the 'four faces' of architecture, I 'constructed' the sequence of conceptions as it has been put forward in the 'Motivations' section of chapter 1: 'Introduction'.
19 Geoff Matthews, in: *Doctorates in Design? Why we need a research culture in design*. In: *Doctorates in Design and Architecture*, Proceedings Volume 2 (Results and Reflections), Department of Architecture, Delft University of Technology, 1996. Pg. 31.
20 Geoff Matthews, in: *Doctorates in Design? Why we need a research culture in design* (see: note 13), 1996. Pg. 31.
21 An example of such strategic landscape development and realisation: Dirk Sijmons, Ytte Feddes, Eric Luiten, Fred Feddes (eds.): *Ruimte voor de rivier, Veilig en mooi landschap*, Uitgeverij Blauwdruk, Wageningen, 1917.
22 Concerning the integration of changing city-harbours: Han Meyer: *De Stad en de Haven, Stedebouw als culturele opgave, Londen, Barcelona, New York, Rotterdam*, dissertation, Uitgeverij Jan van Arkel, Utrecht, 1996.
23 A study on sub-urban transformation from the viewpoint of municipalities: Willem Jan Pantus, Botine Koopmans (ed.): *Groeikernen in Nederland, Een studie naar stedenbouw en architectuur*, Uitgeverij Matrijs, Utrecht, 2012.
24 A comparative proposition study concerning the development of university campuses: Alexandra den Heijer: *Managing the university campus, Information to support real estate decisions*, dissertation, Eburon Academic Publishers, Delft, 2011.
25 A notable initiative by the Faculty of Architecture at the TU Eindhoven was the organisation of a series of seminars, intended to 'map' architectural research in the Netherlands and to exchange insights and ideas:
– R.M. Oxman, M.F.Th. Bax, H.H. Achten (eds.): *Design Research in the Netherlands*, Bouwstenen, Faculty of Architecture, Planning and Building Science, Technische Universiteit Eindhoven, 1995;
– Henri Achten, Kees Dorst, Pieter Jan Stappers, Bauke de Vries (eds.): *Design Research in the Netherlands 2005*, Proceedings of the Symposium held on 19-20 May 2005, Eindhoven University of Technology, 2005.
26 The first publication marking the ambitions of the Architectural Intervention ambitions: Clemens Steenbergen, Arie Graafland, Henk Mihl, Wouter Reh, Deborah Hauptmann, Ferry Aerts (eds.): *Architectural Design and Research, Composition, Education, Analysis*, Faculty of Architecture, TU Delft, THOTH Publishers, Bussum, 2000.
27 AEEA Conference: *Doctorates in Design and* Architecture, 8–10 February 1996, Faculty of Architecture TU Delft.
Other notable contributions to the conference were:
– Prof. Pierre von Meiss: *At the Outer Fringes of Conventions*. In: Leen van Duin et al (eds.): *Doctorates in Design and Architecture – Conference book*, Faculty of Architecture, TU Delft, Delft 1996.
– Prof. dr. ir-arch. Herman Neukermans: *Doctorates in Architecture – Architecture in Doctorates.* In: Leen van Duin et al (eds.): *Doctorates in Design and Architecture – Conference book*, Faculty of Architecture, TU Delft, Delft 1996.
28 Francis Duffy, in: *The Value of a Doctorate in Architectural Practice.* In: *Doctorates in Design and Architecture*, Proceedings Volume 1 (State of the Art), Department of Architecture, Delft University of Technology, 1996. Pg. 17.
29 Two noteworthy 'professional' doctorates:
– Peter Eisenman: *The Formal Basis of Modern Architecture*, dissertation. Original submitted in August 1963, Trinity College, University of Cambridge. Facsimile edition published by Lars Müller Publishers with an afterword by Peter Eisenman, 2006;
– Elias Torres: *Zenithal Light*, Doctoral thesis Elias Torres Tur, 1993, Escola Tècnica Superior d'Architectura de Barcelona, Universitat Politècnica de Catalunya, published 2004.
30 Le Corbusier documented systematically documented his work in his *Oeuvre Complète.* Herman Hertzberger has lectured extensively at the Delft faculty of architecture, during his years a professor and published an influential series of *Lessons in Architecture* books as well as monographs of his realized work, including Schools and Structuralism. His methodically kept note/sketch books have been exhibited and published. Herman van Bergeijk, Deborah Hauptmann: *Notations of Herman Hertzberger*, NAi Publishers, Rotterdam, 1998.
Steven Holl has curated and edited a series of thematic booklets entitled *Pamphlet Architecture*, published by the Princeton Architectural Press.
31 In this context, Rem Koolhaas of OMA has been particularly active in the development of research-based initiatives by founding his own AMO study-centre which collaborates with educational institutions, such as the Harvard Graduate School. This has led amongst others to the *Elements* series for the 2014 Biennale (see: Conceptions) but also to an impressive study of the Japanese Metabolist movement. Rem Koolhaas, Hans Ulrich Obrist: *Project Japan, Metabolism Talks…*, Taschen GmbH, Köln, 2011.
32 Some of the doctorates that I have followed through the years have been carried out by: Jan Molema; Ottakar Macel; Mick Eekhout; Peter Paul van Loon; Alexander Koutamanis; Wouter Reh; Han Meyer; Bernard Leupen, Karel Vollers; Hans Hubers; Anthony Viddler; Alexandra den Heijer, Terrence Curry, MaartenJan Hoekstra and Brigitte Hansen.
33 Marnix Constantijn Stellingwerff: *Virtual Context, Investigating the characteristics and opportunities of digital visualization media for situate approaches to architectural design in an urban environment*, dissertation, DUP Science, Delft, 2005.
34 Walter Dorwin Teague, on the 'futility' of aesthetic research treatises (in 1946):
"I have not found the classical treatises on the subject helpful, and many of the more modern efforts have the musty smell of doctoral theses. They exist on a plane of dialectics, and never make contact with reality."
See also: Chapter 4.: 'Paradigms', concerning architectural aesthetics.
35 Geoff Matthews: *Doctorates in Design? Why we need a research culture in design* (extended version). In: Leen van Duin et al (eds.): *Doctorates in Design and Architecture – Conference book*, Faculty of Architecture, TU Delft, Delft, 1996, Pg.114. The quoted section in full: *"In design we have a peculiar problem: generally, design does not communicate anything important though its end products. The things, places, messages and systems which are the outcomes of implementing designs normally are not readily interpretable as generalised knowledge. Designed objects are generally speaking poor vehicles for the communication of useful information about the world even to most designers never mind to politicians, executives, technologists, and academics. The knowledge that is embodied in a designed object forms only the tip of a potential iceberg of insight. To recover what is beneath*

the inscrutable surface of the designed object one must allow the design process itself to speak and in the same operation one must facilitate the recovery of the programmatic and philosophical dimensions of design."

36 Bruce Archer: *A View of the Nature of Design Research*, in: *Design : Science : Method*, Proceedings of the 1980 Design Research Society Conference, IPC Science and Technology Press, 1981.

37 Nigel Cross: *Designerly Ways of Knowing*, in: Design Studies vol. 3, no 4, October 1982. Pgs. 211–227.

38 The keynote address, which was given at the 4th National Conference of Design and Technology Educational Research and Curriculum development was published in 1995.
Bruce Archer: *The Nature of Research into Design and Design Education*, Department of Design and Technology, Loughborough University of Technology, 1992.

39 Allen Cunningham: Notes on education and research around architecture. In: The Journal of Architecture, 2005.

40 An earlier paper, exploring Design-based and design-driven study approaches:
Jack Breen: *Design Driven Research*. In: T.M. de Jong and D.J.M. van der Voordt (eds.): *Ways to Study and Research (Urban, Architectural and Technical Design)*, DUP Science, Delft, 2002. Pgs. 137–146,

41 David Bohm (Lee Nichol ed.): *On Creativity*, Routledge, London, 1998.

42 M. Press: *It's Research Jim*, Co-Design Journal; Vol 2, 1995.

43 Herman Hertzberger, in: *De ruimte van de architect, lessen in architectuur 2*, Uitgeverij 010, Rotterdam, 1999. Pg. 28.
Quote: *"Het ontwerpen is een complex denkproces met al zijn mogelijkheden en beperkingen waarbinnen ideeën tamelijk systematisch ontwikkeld worden."*
Translation by the author.

44 Jack Breen: *Vista Versa, Critical Considerations on the Evolvement of Designerly Attitudes, Instruments and Networks in Design Driven Research*. Keynote address and Paper, in: Martijn Stellingwerff, Johan Verbeke (eds.): Avocaad, *Local Values in a Networked World*, Proceedings of the Fourth International CAAD Conference, Hogeschool voor Wetenschap & Kunst, Departement Architectuur Sint-Lucas, Brussel, 2004. Pg. 9.

45 Jack Breen: *Designerly Enquiry*. In: T.M. de Jong and D.J.M. van der Voordt (eds.): *Ways to Study and Research (Urban, Architectural and Technical Design)*, DUP Science, Delft, pp. 95–102, 2002.

46 Such methods of designerly analysis have been developed and applied in education in Delft over the years. A noteworthy 'manual' for the method of plan-analysis is: *Ontwerp en analyse* (1993).
See: The *Tugendhat Variations* in the 'Explorations' section.

47 For the EAEA Milano presentation: see Note 7.

48 An adapted version was published in the Proceedings of the Eindhoven Symposium in 2005.

49 Symposium Proceedings, published as *Bouwstenen 92*:
Jack Breen: *Design, Designerly Enquiry and Design Research*. In: Henri Achten, Kees Dorst, Pieter Jan Stappers, Bauke de Vries (eds.): *Design Research in the Netherlands 2005*, Proceedings of the Symposium held on 19–20 May 2005, Eindhoven University of Technology, 2005. Pgs. 33–48,

50 It is worth noting that the development of these schemes was an indirect consequence of the introduction of a – then new and promising – presentation tool: *PowerPoint*.
The methodological schemes were developed in such a way that they could be presented in – step-by-step – sequences, not only showing the scheme as a whole, but as a kind of simulation of the design-artefact or design-process driven study processes.
The attractively simple graphic capacities of early PowerPoint have since been undermined by later, 'improved' versions of the program. The idea of *sequencing* (visual or textural) information, by creating a series of 'slides' has continued to be a didactic feature of my presentations since then.

51 The various education-based exhibitions that I have organised through the years, as well as publications resulting from successful exercises (like: *The Table*; *The Bench* and *The Bridge*) have been intended to stimulate – objective – formal *comparison* and to make recognisable the enormous *diversity* of solutions, on the basis of a – deceptively – simple task.

52 One of their thematic overviews: Bernd & Hilla Becher: *Tipologie, Typologien, Typologies*, Klaus Bußmann, Münster, im Auftrag das Auswärtigen Amtes Bonn, aus anlaß der XLIV Biennale in Venedig, 1990.
In *Planned Landscapes – 25 Horizons*, artist/photographer Ger Dekkers includes an array of systematically-documenetd perspectival vieiwpoints. Each of the twenty-five 'horizons' consists of 7 square photographs taken from a methodically-shifted viewpoint.
Ger Dekker: *Planned Landscapes – 25 Horizons*, Andreas Landshoff PProductions B.V., Bentveld-Aerdenhout, 1977.
Other inspirations include the impressionistic light-study paintings by Claude Monet, on the basis of the facade of Rouen cathedral and the systematic visual collections of contemporary artist David Hockney, as well as the systematic visual variations by architects like O.M. Ungers and Rob Krier.
One project by O.M. Ungers: *Sieben Variationen des Raumes über die Sieben Leuchter der Baukunst von John Ruskin*, Verlag Gerd Hatje, Stuttgart, 1985.
Rob Krier: *Architectural Composition*, Academy Editions, London, 1988. German-language edition: Über Architektonische Komposition, Klett-Cotta, Stuttgart, 1989. See: 'Explorations'.

53 The idea of using square 'frames' was conceived as a method to identify these visual samples as being 'external' source-material. This has not been applied rigorously, as the 'readability' of visual information should not be sacrificed for the benefit of a systematic approach.

4. Paradigms

4.1 Architectural Aesthetics

4.2 Convention & Invention

4. 1. Architectural Aesthetics

4.1.1 The Perception of Beauty

The sensibility to beauty that is in all of us, as members of the human species, has been the subject of intellectual and professional debate, as well as artistic and academic study for centuries and to this day remains an issue that is as pertinent as it is elusive.

Professor Brian Cox:
> *"The world we live in is beautiful to look at, but it is even more beautiful to understand."*[1]

How this experience of beauty works – and why – has been the object of philosophical consideration since ancient times.
In his dissertation *Form Follows Feeling*, Terrence Curry evokes the two conceptions of beauty in Greek philosophy and suggest a connection to a perception of 'godly' qualities in the world and universe around us.

Terrence Curry, in his consideration of the philosophical concepts of beauty:
> *"In ancient Greek philosophy there are, generally speaking, two conceptions of beauty: the idealist (Platonic) and the classical (Aristotelean). The idealist conception of beauty and the classical conception of beauty have several things in common: they both conceive of beauty as an objective reality (not localised in the beholder); the beholder, insofar as he has access to the concept of the Beautiful, experiences the Beautiful in the object, and thus is lead to a deeper knowledge of the One; beauty is a kind of knowledge in which one takes delight in as one takes delight in the Truth. The ancient philosophers held that there is one Beauty whose existence is inevitably tied to the Good, Truth, and ultimately God (the One). Beauty in creation, in the pursuit of Beauty in the arts, as well as the profound effect that being in the presence of a thing of beauty has on the beholder, are all understood as evidence of God's presence."*[2]

Whether the uniquely special sense of beauty should be considered as a token gesture from one or more god-like entities is, to say the least, highly debatable.

Some, including myself, are inclined to consider that it is in fact the other way around: that mankind has had to 'invent' an *'über'* concept to explain the spiritually and intellectually 'moving' phenomena of the world in which we find ourselves. These attributes – natural or artificial – which we encounter in our journeys through life that 'speak to the imagination' on rational and emotional levels.

Arguably, the source of all beauty is *life*.
However, even seemingly inanimate landscapes, cityscapes and even architectural objects can arouse a sense of beauty through the ways in which they perceptually 'come to life'.

What is undoubtedly true is that any individual with a level of sensitivity may be *moved* by experiences of what Aldo van Eyck would call 'place and occasion' and that this heightened sense of awareness and wonderment can be stimulated by a level of *understanding* of the sensations of experience.

Roderick Kemsley and Christopher Platt, on the acute awareness of *place*:
> *"That sensation of place is on the continuum of containment or openness. But in these different conditions, there is a heightened awareness of self; an experience of the environment communicated through our senses and informed by our intellect. We are more aware of ourselves as well as the place that has moved us in such a way."*[3]

As members of the human species, we are experts at 'reading' the spatial and material environments in which we find ourselves. Our receptive capacities to recognise and classify information, regarding the phenomena of the world around us, is believed to be deeply rooted in our primordial senses of *survival*.

Architect and scholar Peter F. Smith, on the survival incentives of perception:
> *"The survival prospects of higher animals are dependent upon their capacity to classify information correctly. This classification capacity is closely associated with the exploratory drive. All higher animals have an appetite for stimulation, for the experience of surprises and novelty provided it is within tolerable limits. The obvious survival advantage of this is is that it causes the animal progressively to enlarge its model of the world, thus reducing the sum total of uncertainty."*[4]

We possess highly-developed capacities to register the perceptual *qualities* of natural and cultural environments.
On the basis of continuing cycles of curiosity-driven exploration, we steadily construct relatively 'orderly' interpretations concerning our place in the world, whereby novelty and surprise contribute to the triggering of dynamic states of heightened and lowered arousal.[5]

The, predominantly *visual* impressions, which we are continually taking in and processing, are instinctively evaluated, primarily on the basis of whether we find what we are confronted with to be attractive, or *not*…

If the impression is favourable, we consider what we see to be pleasing, stimulating, possibly even *delightful*.[6] The antonym to beauty is the powerful impression of something being unattractive, displeasing, disturbing, or simply: 'ugly'.[7]

Beauty is not a universally recognised, but rather *intrinsic* quality, which is considered to be 'in the eye' of the beholder.
An individual's experience of something *being* beautiful results from very 'private' perceptual procedures, involving interrelated cycles of sensory interpretation, cognitive deduction and emotional evaluation, which are as complex as they are direct.

We tend to be quick in our opinions and often outspoken in our judgements, but tend to be less secure when the argumentation *behind* such a conviction is questioned.
Nonetheless, we are inclined to mentally categorise the spatial objects that we encounter directly, on what we consider to be their qualities of attractiveness.

Possibly due to the *primal* origins of our perceptive systems, the sense of beauty tends to be aroused most directly by *natural* phenomena, such as the physical features of the natural world, its flora and fauna and particularly: other *people*. Thereby we are inclined to articulate impressions of human beauty by resorting to judgements like 'handsome', 'pretty', or even 'beautiful'.[8]
Buildings and built environments are a relatively *new* category for our perceptive senses to digest.

On an evolutionary scale, they are clearly something of a novelty and hence, something of an 'acquired' taste.[9]
Consequently, there still appears to be a spontaneous preference for works of architecture that somehow resonate on an *organic* level. This is particularly the case when built objects respond to – and *harmonise* with – the unique qualities of their natural surroundings.[10]

Architectural spaces and ensembles that echo or mimic dramatic natural environments may trigger the kinds of sensations of awe that we associate with the *sublime*.[11]
Similarly, there may be a preference for spatial configurations that invoke a 'natural' sense of *serenity*, even *spirituality*.[12]

P.A. Michelis, on the *admiration* of the attributes of works of architecture:

> *"The observer expressing his admiration for a work of architecture does so not because he is amazed that the work remains standing but because he admires the power of its architectural beauty to hold the attention. And this standing and admiring is the result of the balance of the spectator's spiritual and intellectual worlds, of which the outer reflection is the structure itself. Thus, architecture expresses the "being" of the spirit itself, the established balance of the universe which is also established in ourselves. It constructs its project according to the laws which make up the universe, and, like music, it presents the work, but in stone."* [13]

While the capacity to arouse delight may be considered to be *inherently* present in the perceived object or spatial environment, beauty is not an absolute, or 'stable' capacity.

The appreciation of something as being beautiful is rather a relative, 'fleeting' sensation. Also, the perceptual impact of a landscape or a building may become *heightened* when experienced under 'unique' conditions.
Something which might under normal circumstances be considered attractive can 'become' (more) beautiful when it is considered from a particular viewpoint or under the influence of differing temporal and emotional circumstances.[14]

The heightened awareness leading to the perceptual *recognition* of environmental beauty can be a very private affair.
However, the awareness of such a 'gift to the senses' can become *emotionally* enhanced when it is a *shared* sensation.
When experiencing something that is jointly felt to be truly beautiful, we may be inclined to give a nod, a nudge, or: to share an *embrace*.

Herman Hertzberger, on the aspects of *affect*:

> *"There is a profound connection between feelings of affection and beauty."*[15]

Particular places and buildings have acquired a reputation concerning their supposed abilities to trigger such sensations of beauty and indeed: emotional well-being.
In this sense, various 'iconic' buildings and urban configurations have become 'recognised' by connoisseurs – and even by the general public – attracting pre-informed visitors, pursuing the reward of an *anticipated* sensation of beauty.[16]

4.1.2 The Appreciation of Beauty

Whilst the experience of things of beauty may be rewarding and enlightening, beauty as a concept has continued to be considered as something of an enigma.
In his book *Essentials in Architecture*, published in 1907, John Belcher ('Fellow and Past President of the Royal Institute of Architects') makes a concerted attempt to put forward *'an analysis of the Principles & Qualities to be looked for in Buildings'.*
Belcher identifies: *Principles*; *Qualities*; *Factors* and *Materials*.
As essential Principles, he identifies two qualities: *Truth* and *Beauty*.[17]

John Belcher, on the concept of *Truth*:

> *"The first great principle that must be sought and required in architecture is truth, by which we mean harmony with the laws (whether moral, aesthetic, or scientific) on which the strength and beauty of the universe are built.*
> *Good architecture never deceives the eye, even for a moment. Nothing must appear to be other than it is. There must be no false statement or suggestion either in regard to the purpose or construction of the building, nor should there be any hiding under one external feature that which is usually expressed by another."*[18]

John Belcher, on the – complementary – concept of *Beauty*:

"The spirit of beauty, which Shelley describes as "dear and yet dearer for its mystery," is the second great principle of architecture.
It is a very elusive principle, and despite the many efforts that have been made to determine its essential nature, it still remains 'dearer for its mystery'.
Keats in well-known lines makes it one with Truth, and it is not improbable that it is related to truths that are beyond the ken of human intellect, or at any rate defy analysis.
Its power is to kindle the imagination and purity and stimulate the emotions.
A noble building of imposing mass and graceful outlines strikes deep and solemn chords in the human heart."[19]

The notion of beauty being *'dearer for its mystery'* has meant that it has come to be associated with a kind of subjective 'vagueness' and a lack objective 'clarity'. This has contributed to it largely becoming a 'hidden' agenda-point in the cultural debate, particularly in the past century.
Thereby, architects have become inclined to *avoid* the notion, which might be interpreted as a sign of romantic sentimentality and even a-professional weakness.

Architect Jo Coenen, in 2000, on the 'difficult' concept of beauty:

"In this atmosphere there is hardly any room for the open acknowledgement of beauty ('het openlijk belijden van schoonheid'). The use of words like loving ('liefdevol') and beautiful immediately qualify you as being sentimental. Such terms are abhorred and avoided. You think twice before you utter such concepts. That is a reason for the disappearance of the conception of beauty."[20]

The Dutch language has a wholly different kind of word to denote the beauty concept: *schoonheid.*
Thereby, the core concept of something being *'schoon'* (similar to the German 'schön') is not un-ambivalent, but also denotes 'Calvinist' qualities of cleanliness and purity.
As a consequence, the term possesses a kind double meaning; on the one hand the timeless, 'poetic' sense of the beauteous and on the other the suggestion of visual order and even tidiness (in German: 'Sauberkeit').

Terms to denote an impression of beauty include *'prachtig'* (from 'pracht', indicating splendour, grandeur, magnificent and even pomp) and *'schitterend'* (indicating something glittering, dazzling, gorgeous).

Other, common terms include *'gaaf'* (indicating something that is whole and well-made) and 'fraai' (giving a clue to the object's physical quality, such as it being in a splendid physical condition).
The appreciation of something being beautiful was conventionally considered to be a matter of 'culture'; a matter of 'good taste', on the basis of one's education and upbringing.

In the twentieth century Netherlands, beauty, considered as *'schoonheid'*, tended to be treated as something of an archaic concept.
In everyday language there tends to be a preference for the less 'loaded' common denominator of *'mooi'* (indicating something that is *'quite beautiful'*).
Towards the end of the century, initiatives started to be taken in the Netherlands to re-address the 'difficult', often *unspoken* conditions of beauty on the levels of architecture and landscape design.

J. Dijkstra, in 2000, on the need for a reappraisal of the concept of 'schoonheid':

"Since a number of decennia, 'beauty' ('schoonheid') has been more or less taboo. Apparently this word does not fit into the rational language of the welfare state. In its place we have introduced concepts like experiential value ('belevingswaarde') and spatial quality ('ruimtelijke kwaliteit'). Words that apparently sound more objective and hence possibly fit better into the bureaucratic jargon and in a society in which legal security ('rechtszekerheid') and accountability ('verantwoording') are becoming ever more important.
Why is this so? What actually determines beauty and ugliness and why do the opinions about these sometimes differ, or at other times not? … It is as if the right words and meanings are no (longer) available, while the need for beauty is greater than it has been for a long time.
Fortunately, we may now speak and write about beauty once again."[21]

Another contribution to the budding reappraisal of architectural beauty, in the context of the – then – reigning cultural and economic frames of thought, was offered by historian Auke van der Woud.
He challenged the typical notion of 'taste' as being something about which one cannot (and hence: *should* not) argue and pleaded the case for a more open debate and indeed *dispute* on the matter.

Auke van der Woud, on debating values of what might be considered 'mooi':

"What is beautiful? We avoid that question. Beauty is a question of taste, and there is nearly no subject that arouses so much squabbling ('gehakketak') as taste. Beautiful music, beautiful buildings: even when we have a certain measure of consensus we seek a personal point of view ('invalshoek') with which we can distinguish ourselves. …
Long ago, thinkers that philosophised about beauty said 'de gustibus non est disputandum. We are inclined to say one cannot argue about taste ('over smaak valt niet te twisten'), a strange translation that does not agree with our experiences. … But the old scholars meant something else. 'Disputare' is constructing an argument according to the objective laws of logics and rhetoric. It is pointless that I try to consider my taste as something objective and logical, because my taste is by

definition subjective. Did this mean that the philosophers remained silent about the question of 'what is beautiful? On the contrary, they even developed special theories, belonging to the philosophical domain of 'aesthetics', the science of beauty. In order to determine what was beautiful, less beautiful or ugly, they developed rules that (in theory) were universally applicable. These rules did not make the arts boring or rigid, because good artists showed that the rules could be respected whilst at the same time they were exceeded ('overschreden') – perhaps better said: they were transcended ('overstegen'). …
And what is beautiful? Beauty and ugliness are very interesting issues, but the fundamental question concerns the values of which they are an expression."[22]

Clearly, the subjective categorisation of things as being more, less or not at all beautiful does not do justice to the 'values' that have gone into shaping them.
Beauty, as such, is not effective as a selection-devise when it comes to determining the expressive qualities of the enormously diverse works of architectural artifice, in the broadest sense, which we may try to appreciate and understand.

In architecture, as well as in other 'applied' arts, aspects of beauty tend therefore to be considered in the light of the, less emotional and more intellectual, concept of *aesthetics*.
Although the notion of 'aesthetic quality' might come across as being less subjective and hence more *objective*, its connotations are nonetheless also open to debate.

4.1.3 The Concept of the Aesthetic

The *sense* of beauty is connected to inquisitive *exploration* and the pleasure of *discovery*, informed by an *understanding* that comes from an individual awareness as well as being informed by collective preference systems.

If we wish to reach a level of profound appreciation and objective understanding considering the artefacts of architectural enterprise, then the *individual* perception of beauty clearly does not stand up as reliable evidence for architectural quality in a 'scientific' sense.

The formal appreciation of architectural objects and environments is to a very large extent informed by *acquired* traits, such as one's societal and cultural awareness and intellectual sensitivity.
Individual judgements are fuelled by a dialectic between conditions such as knowledge *and* insight, learning *and* experience; relying on combinations of rationale *and* emotion, open-mindedness *and* prejudice, shared value systems *and* individual tastes.

Between the *extremities* of 'absolute' beauty and total ugliness, lies a broad expanse of diverse 'tones and colours', waiting to be discovered and appreciated.

To reach a deeper understanding of the ways in which works of architecture are *conceived* and *perceived*, there is a need to consider approaches that allow for a level of unbiased intellectual identification and classification.

As Peter F. Smith would say:
"… this is where we cross the threshold of aesthetics."[23]

Aesthetics – in the meaning of 'the study of the rules and principles of art, including architecture as an 'everyday' art-form' – may be considered as a fundamental attribute of composition and perception, on an *academic* level. However, particularly for design *professionals*, it is a 'loaded' concept.
In architectural education and practice – but also in discourse and research – the disciplines of environmental psychology, pertaining to the 'aesthetic' conditions of architecture, tend to be treated with a measure of suspicion, sometimes even outright hostility.

Walter Dorwin Teague, on the 'futility' of aesthetic research treatises (in 1946):
"In the field of aesthetics there is a large and mainly futile literature. Many very long and very dull books have been written to explain the nature of beauty, and often they have been written by men who never created a beautiful thing in their lives, not even a beautiful sentence. I have not found the classical treatises on the subject helpful, and many of the more modern efforts have the musty smell of doctoral theses. They exist on a plane of dialectics, and never make contact with reality."[24]

Whilst architecture is a very aesthetic art-form, architects themselves tend to also be wary of explicitly-formulated stylistic constraints to their creativity.
A notable example of this polemical condition was the Dutch architect H.P. Berlage, who recognised Gottfried Semper and Eugene Viollet-le-Duc as the greatest aesthetic thinkers of the previous period. His own articulations of architectural composition – notably his published *Grundlagen* lectures – were essentaill aesthetic explorations into what the architecture of the new era should be. Nonetheless, he was himself highly critical of aesthetics, as a philosophical discipline.

H.P. Berlage, on the supposedly meaningless, philosophical concept of the *aesthetic* (in 1908):
"The word "aesthetic" can quietly disappear from the world of architecture; for since we know that love and devotion are the sources of beautiful works, we also understand that aesthetic theory cannot increase our love. Books on aesthetics were invented at a time when men had a need to talk about art; because they were no longer able to create art, they wanted to talk their way out of this deficiency. Nothing beautiful has ever been created in the hands of an artist satiated with aesthetic observations. Philosophers have never been able to, by philosophizing about beauty, to reach the point at which they could produce something of beauty from their theories."[25]

In my early years as a student, particularly in the first half of the nineteen-seventies, labelling something 'aesthetic' had distinctly *negative* connotations.[26]

At the Faculty of Architecture in Delft, 'the aesthetic' was considered as an expression of archaic *etiquette*; of complying with the redundant value-systems of an 'establishment' that was out of touch with reality.
As a consequence, aesthetics was seen as a hindrance to honest – *ethical* – action and creativity.
All of the cards were on aspects of 'truth', whilst 'character' was not an issue, at least not an outspoken one.
The 'antidotes' to such aesthetic dogmas were institutionally instilled and -nurtured notions of 'authenticity' and 'originality'.

Richard Hill, in: Designs and their Consequences (in 1999):
"As the avant-garde well knows, the arrival of the aesthetic theorist is a sign that it is time to move on to something new." [27]

A distinct bias towards being original, rather than adhering to predetermined 'constraints' of culture and taste, which may be considered a typical trait of the Modern Movement was thus also instilled in the students of my generation.
As a consequence, it has taken considerable time for me to consider the issue of the aesthetic in architecture with an open mind.

Just like beauty, aesthetics is an ambivalent concept, which can be considered to mean a number of things, depending upon one's inclinations and predilections.

Four common connotations of the aesthetic, in relation to architecture:
- As a *synonym* for beauty; essentially a somewhat more 'intellectual' substitution;
- As a *safe form* of beauty; being an expression of 'acceptable' formal conventions;
- As a *reference system* for beauty; underpinning design-thinking, based on knowledge;
- As a *science* of beauty; based on psychological 'truths', in the domains of perception.

Arguably all of these qualifications have a ring of truth to them…
In the context of this study, I would be inclined to refute the first meaning.
As I have indicated, I believe distinctions need to be made between the 'primordial' experience of beauty and the more intellectual conditions of experience, on the basis of which we might be able to establish the reasons for such an appreciation.

Similarly, the scientific pursuit of knowledge relating to the responses of our 'arousal' systems to physical objects (which in experiments are often representations, such as series of photographs or schemes that need to be evaluated) is not the aim of this exploration.

While I recognise the potential validity of (experimental) aesthetics research, I have not as yet come across results and findings that have been truly enlightening, in the sense that they have brought me a deeper understanding of the fundamental conditions of architectural form-giving and appreciation.

In the context of this study, I would consider both of the middle categories pertinent, indeed *linked* attributes of aesthetic exploration.
In this sense, the priority should lie on the second, more 'normative' category, which has to do with the recognition of *embodied* compositional value-systems. This means considering the precedent-based knowledge of architectural modes of expression in architecture and deepening the understanding of the issues and effects of designerly decision-making.
On the basis of a conceptual 'framework' of conditions that contribute to aesthetic comprehension, it might then subsequently be possible to recognise relevant combinations that are representative of particular conventions and inventions and to recognise stylistic paradigms and paradigm-shifts.

I propose considering beauty as a meaningful, but subjective experience.
Aesthetics, by contrast, I would consider as an underlying, intellectual condition; as a reference system; a device for coding and de-coding; allowing for cognition *and* creativity.

Peter F. Smith, on the logical conditions of the 'dynamics of delight':
"Beauty is not arbitrary; there is a logic which informs its infinite variety of manifestations. It is not enough just to know what we like; the experience of beauty is that much richer when we know why we like it". [28]

4.1.4 Aesthetics and Design

Architectural designing is matter of the reconciliation of reciprocal conditions, such as pragmatics *and* aesthetics; reason *and* imagination.

As such, the aesthetic in architecture does not concern the spontaneous sense of beauty, as an 'authentic' feeling, but is rather the expression and recognition of the *intelligence* and *elegance* of the act of designing.

Richard Hill, on the concept of *Disegno* in architecture and aesthetics:
"In the mid-sixteenth century Giorgio Vasari put architecture alongside painting and sculpture, calling them the 'arts of design', and his grouping commonly came to be described as the 'fine arts'. We might today call them the visual arts, but it is important to note that Vasari stressed their design aspects rather than their visual aspect.

'Disegno' is ambiguous in Vasari's meaning, just as it is in English: it can mean drawing and it can mean also the form or the scheme for an object. The latter meaning is significant for Vasari because it enables him to distinguish the arts of design from other traditional crafts which involve direct manual production.
...
For architecture, the point is still an essential one: architects draw and they make designs but they are not engaged in manual work on site. Vasari's definition therefore seems to offer something more than an arbitrary naming of architecture as an art: it seems to have roots in the developing practice of architecture."[29]

Like painting and sculpture, architecture relies on the capacities of the artist to imagine what the work of art will become, being able to *envision* the finished product.
The aspect of imaginative visualisation and anticipation is an essential condition of designing.

Terrence Curry, in one of the five 'claims' he makes in his dissertation:

"A successful design is not only a coherent solution (one that "makes sense") that solves clearly defined (functional, technical, environmental, economic) criteria and constraints (that is problem-solving), but also one that induces intended aesthetic experience (a hedonistic quality/body knowledge) in the user."[30]

An important distinction is that architecture is essentially an *applied* art, whereby the realised design might be expected not just 'work' well, but one might say to *function* beautifully. In its composition, the design should define and arrange matters so as to satisfyingly facilitate its day-in-day-out *utilisation*.
Another specific quality of architecture is that it is a 'building art'; meaning that the product of design should be beautifully *made*.
The characteristics of skilful execution and durable soundness have traditionally been a matter of *craft*; which in contemporary architecture is identified as *technique*.
Perhaps the most discerning aspect is the quality of *expression*; the intention to create something that is beautiful to *look at*. Whilst traditional aesthetic paradigms were strongly connected to the *locale* – and hence with craft – artistic inventions have led to successive *stylistic* conventions.

These interrelated issues of design aesthetics are closely linked to the three prerogatives of architecture as defined by the Roman architect and academic Vitruvius:

— *Utilitas*	– Utility	(Functionality)	(Use)
— *Firmitas*	– Technique	(Construction)	(Craft)
— *Venustas*	– Beauty	(Expression)	(Art)

Each of these three levels of design pose their own aesthetic challenges.
On might also argue that the last category – *Venustas* – results from the 'artful' refinement and integration of the conditions of the first two qualifications.
Concerning the topics of the craft of design and the expression of form, I would like to include a text by Professor Ir. J.G. Wattjes, who was a practicing architect (one of his realised works was the Aalsmeer's train station), a professor in Delft and a prolific publicist.[31]
The following, in my eyes enlightening, quote is from his introduction to the impressive retrospective publication *Nieuw-Nederlandsche Bouwkunst* (1929).

Prof. J.G. Wattjes, addressing the aspects of art and craft in relation to architectural beauty (in 1929):

"Architecture is one of many arts. It owes its character as a particular art to the fact that it originates in the technique of building. Building has a practical purpose; but, while performing this useful technical labour, man is also influenced by other facets of his mind. That which is built is visible – insistently so – and makes inevitably an impression of ugliness or beauty. The feeling for beauty is, therefore, intensely active in the actual technical labour.
The purely practical problem can be solved in purely technical ways containing in themselves a rich variety of diverse and very different possible kinds of beauty. When the aesthetic side of the human mind is active in the utilitarian and technical activity which is building, when the thing produced for use is also a thing of beauty, then the craft of building becomes the art of building. As this gradation from craft to art is imperceptible, there is no sharp division between architecture as a craft and architecture as an art. The craft of building, unconscious of any artistic purpose, produces discreet beauty which is attractive precisely owing to its lack of pretence. This is natural architecture. Again, there is no sharp division between natural architecture and the art of the master builder. The transition is due to a larger degree of consciousness, and the stronger and intenser expression of the desire for beauty which results from it. Natural architecture is unconscious of artistic purpose: architecture as an art is beautiful building effected with a conscious artistic purpose."[32]

Writing at the time when some of the most prolific aesthetic paradigm-shifts were taking shape in Dutch architecture, Wattjes still sees a connection between the traditional craft of building ('natural' architecture) and the professionally-designed works of architecture (the work of the 'master builder').
The distinction is however not a hard one, there is no 'sharp division' between craft and design and the conditions are interrelated when it comes to architectural *expression*.

P.A. Michelis, on the relationships between craft and art:

"The identification of craft and art, or art and technique, and of utility and beauty means, then, not that the nature of form should be concerned as purely technical and functional, as we understand those terms today, but, on the contrary that the technical and functional nature of form should at the same time

be conceived artistically.
The Doric column, for instance, expresses not merely the function of supporting the entablature but, through its artistic perfection – its diminution, its entasis, and its fluting – a spiritual achievement, the conquest of gravity."[33]

I would argue that aesthetics is not about design *as* an art-form, but rather: about the art *of* design.
If we consequently consider aesthetics not as a prescriptive, normative system, for the attainment of some form of absolute 'beauty', but rather as a frame of thematic reference, then a major ambition should be to create more transparency within the complexity of design concerning the different 'layers' of design where beauty potentially 'resides'.
This would involve unravelling the layered arrangement of simultaneously-present attributes.
Such a *thematic* framework might make it possible to identify certain *hierarchic* qualities and consequently: facilitate the *comparison* of the attributes of design.

Herman Hertzberger:
"In the appreciation of architecture, I do not wish to recognise a hierarchy. The opinion of non-insiders is to my mind no less meaningful than that of architects and architectural historians. But, as in music, painting or cooking, the initiated can undeniably recognise more differences in quality. … The consciousness of quality is created by comparison. By placing products relative to each other. The difference is the determinant."[34]

One of the reasons for the apparent lack of conceptual transparency in design may be that there does not seem to be a consensus within the contemporary design community, concerning what it actually *is* that might be considered to make a building beautiful, or at least: 'fitting'.
Another, perhaps even more important reason for the apparent absence of an open aesthetic debate, may be that architectural designers have learnt to keep quiet about such considerations, because such a discussion makes them *vulnerable*.

Aesthetic ambition resides on different levels of a design.
Whether certain attributes are eventually included – or not – is a matter of the shared ambitions of the designer and the client.
However, designers are sometimes inclined to smuggle-in particular aspects, which are most dear to them, as 'contraband'.

To an outsider, such as a client, the pragmatic conditions of soundness and usefulness are on the economic agenda, while the aspects of architectural elegance and expression may in many cases be deemed to be less important; indeed: only acceptable to the extent that they do not affect the building costs.

Aesthetics tends to be seen as something that is added on, and as a consequence might also be left out. Architects are sometimes inclined to divert the attention towards other factors in a building process, away from those aspects that are *dearest* to them.
Martin Tuitert, on the 'hidden agendas' of design in *'Een zoektocht naar schoonheid'* (2002):
"Aesthetics, as a fundamental principle, is something that is obviously not new for architects. In the ideal situation, the aesthetic is the secret motive ('heimelijke drijfveer') for the architect. Secret…? Yes. Because in daily practice the aesthetic is clearly important and actually is a selling point ('verkoopwaarde'), but for the clients, the priority lies in the practical. Secret, because in practice you have to find functional arguments for such choices.
Those functional, practical, organisational, economic, logical arguments stand up in discussions and are your weapons in the fight for beauty, humanity, individuality and other 'priceless' qualities ('onbetaalbare' kwaliteiten). And it is possible. You can win these battles. It is a hidden fight and therefore no-one will know if you have won. Hence the subcultures, companions ('lotgenoten') in the fight, who support and criticise each other; subcultures that seem highly incestuous, and on closer scrutiny actually are.
Partners in (mis)fortune ('lotgenoten')."[35]

Designers enjoy designing because it is a challenge to their capacities to tame chaos, to recognise and define harmonic patterns and to introduce the contrasts that characterise a design.
Whilst a design's aesthetic success is not always that which the designer is rewarded for, it is nonetheless a primary incentive in the design process as a whole.

This *artistic* side of architectural composition tends to be guarded by the architects, partly because it lends them the status they need to 'stay on top', but maybe also in part because it is something of a mystery to themselves; a 'secret' aspect of the designerly quest that is guarded from the outside world.

4.1.5 Aesthetics and Education

Creating works of architecture involves addressing aspects of function, technique and art.
The conditions of functionality and technology tend to be quite well represented in the curriculum of the architectural student (at least in the Netherlands).

As architecture is to a large extent an *artistic* discipline, one might also expect aesthetics to be one of the foremost issues on the design studies agenda.
After all, for a 'building-artist', the development of an aesthetic sensibility might be considered to be one of the most important prerequisites for the articulation of formal expression and hence to play an important role in architectural education.[36]
However, design professionals and (professionally-trained) teachers of architecture tend to have a somewhat uneasy, ambivalent relationship with the realms of aesthetics.

Even though aesthetic judgement is generally recognised to be one of the *central* domains of decision-making and appreciation in architectural design, the designers themselves are inclined to be vague – sometimes elusive and at other times downright emotional – when it comes to discussing their preferences and choices in this respect. Many design academics also tend to steer clear from the subject.

Similarly, whilst in architectural education aesthetic quality is undoubtedly an eminently important issue on the level of quality *assessment*, merits and/or shortcomings in a design are seldom identified and discussed explicitly.
Whereas science tries to make concepts explicit, in contemporary design there is, or at least has been, a tendency to keep issues implicit.

Instead, conceptual development and designerly decision-making all too often still tend to be characterised as an incomprehensible 'black box', whereby the quality of design is something that you either *see*, or you don't...
In such a theory-free learning-environment, the student is not told (or shown) how to 'get things right' but instead needs to develop a sense for *unspoken* conventions and taboos, particularly concerning what is supposedly *not* right.

Juhani Pallasmaa, on what he has considered to be a general lack of *theory* in architecture:

> *"Overall, there is hardly any 'theory of architecture' at present, in the sense of a comprehensive theory that could structure the entire complex phenomenon of architecture in its historical, cultural, social, ethical, aesthetic, sensory, and technical manifestations. We have only partial theoretical suggestions and fragmentary views. Most often architectural theories are mere programmatic statements attempting to authorise a single point of view, or an intellectual preconception."*[37]

Without a 'workable' theoretical framework, underpinning the concepts of aesthetic ambition and appreciation, other ways of learning have to be found, to attain what design-academic Terrence Curry has dubbed *aesthesis* (in his words: 'the embodied knowing of designers').
In his view, the ability to 'embody a design world feelingly' pre-structures the design problem and its solutions.

Terrence Curry, in *Form Follows Feeling*, gives his interpretation of 'aesthesis':

> *"As architectural design is fundamentally about making places (buildings) for human use and habitation, which are experienced through embodied cognition, design solutions are (properly) experienced not so much as abstract ideas (concepts), but rather as tactile, actual objects. A successful design is not only a coherent solution that solves for clearly defined (functional, technical, environmental, economic) criteria but also one that possesses aesthetic qualities.*
>
> *Aesthesis (body knowledge) plays a critical role in the design process. The ability to assess the quality of an atmosphere (aesthesis) within the design process (as internal and external representations) is essential to the acquisition of design expertise. Aesthesis is the way an expert designer knows what to do, knows that an approximation of a building that never existed looks the way it was supposed to."*[38]

Teaching architecture has to do with the beginner being acquainted with the 'craft of designing', a learning-process that traditionally relies on a master – apprentice relationship, whereby teachers tend to be professionals, rather than pedagogically-trained academics.

The education of the architect-to-be involves the development of knowledge, insight and skills, on the level of Techné, as well as Aesthesis.
Furthermore, it makes use of evocative visualisation- and communication techniques, such as: drawings, schemes, models and presentations.

These 'instrumental' modes of expressions, making active use of design media, represent a particular kind of aesthetic quality and pleasure, as well as being crucial for the actual judging of designerly options and the understanding of design artefacts.[39]

William Hubbard, on individual approaches on the level of designerly judgment:

> *"One approach has always been to rely upon one's feelings, to arrange and rearrange forms on that blankness until the configuration feels right. Artists have created in this way for centuries; the methods they have used to juggle those forms have sometimes been codified, sometimes stated only vaguely or even left implicit; but always the test, at the end of the struggling, "Does it feel right to my sensibility, to my taste?" At base, the artist accepted his own sensibility as the standard against which to judge what to do, a sensibility that could have been otherwise."*[40]

In the past, students were aesthetically trained by studying iconic works of historical architecture that were somehow considered to be exemplary, often via a process of meticulous re-drawing.
Whilst the cultural reference-points may have shifted, the focused study of *precedents* is still an essential part of the future designer's education, at least in Delft.

In recent years, a conscious attempt has been made to create document-collections of works of architectural, environmental and technical design, which may considered worthy of consideration.[41]
On the basis of such a *canon* of works, which is comprehensibly but also aesthetically documented, students are then stimulated to develop knowledge, insights and skills, preferably by 'doing'.
The activity of *imaging* – by drawing or modelling – is not only rewarding on the level of the insights that are generated.

An important 'added benefit' is the creation of a personal piece of work – with aesthetic qualities – in its own right.
As such, the aesthetic drive – creating a thing of beauty – functions as a *motivator* for learning.
In my experience, it may be possible to learn *more* from a well-executed, professional piece of work – as long as there is sufficient complexity – than from a project that is so iconic and unique that it pushes the conventions of design and technology to such an extent that it becomes less effective, as an object of *learning*.
In this context, what may be more important than gaining *factual* knowledge, is the capacity to 'recognise'.[42]

The ability to perceive what information is redundant, promising or meaningful relies on the development and fine-tuning of an inquisitive spirit; for most designers: a matter of life long learning.
A designer does not need to *be* a genius, at least not all of the time, but truly creative designing arguably does involve the 'looking and seeing' of what kinds of *combinations* of factors may offer good or even *exceptional* opportunities and pursuing these further…
In this sense, the creative designer (and even the designerly researcher) may, occasionally experience *moments* of true 'genius'.

Robert Harris, on 'seeing' the solution to breaking a code, in Enigma (1995):

> *"If it is true, as someone once said, that genius is a 'zigzag of lightning across the brain', then in that instant, Jericho knew what genius was. He saw the solution lit up like a landscape before him."*[43]

Aesthetics is not as something that is 'sprinkled-on' at the end, but deservers to be recognised as a constituent condition of designerly *intelligence*, which is a fundamental quality of a project's 'orchestration' on all levels.
Architectural education cannot do without the aesthetic *spirit* as an expression of *shared* values, as well as a challenge to *individual* creativity.

As a consequence, aesthetic sensitivities need to be developed, trained and exercised; developing one's own tastes and appetites and learning to distinguish between art, craft and *kitsch*.
In this respect, the journey of discovery of the discerning, creative professional has its rewards – the joyful experience of the new – as well as the drawbacks of lowered aesthetic *pain-barriers*.[44]
Besides deepening the *respect* and *affect* for works of architecture on the level of experience and aesthetics, the development of an inquisitive mind also leads to a broadening of one's horizon, letting in all kinds of architectural works and affiliated arts, that may somehow be considered to be of *interest.*[45]

This study has intended to contribute to a more *objective* approach to the seemingly 'subjective' subject of architectural aesthetics, perhaps most importantly for the benefit of the education of the architects of the future.

4.1.6 From Inception to Appreciation

How difficult it is to properly define the notion of architectural quality in an aesthetic sense is evident from the fact that through the course of history a wide range of streams of architecture have become manifest. The supporters of a particular streams – or: styles – have contested the conviction of other movements with great conviction.

As architect, professor of building methods and government architect Tjeerd Dijkstra has indicated, architecture is, just like other cultural expressions, strongly connected with social developments, of which it is in effect a reflection. Dijkstra notes that especially in times of deep-rooted social change there tends to be a cultural reorientation, whit the founding of movements that dismiss conventional concepts and actively seek new modes of aesthetic expression. In retrospect, the game-changing results of the inventions that are representative of such changes, no matter to what style they belong, can be recognised as architectural high-points in a historical context, although it generally takes a considerable time before such recognition is forthcoming.[46]

Dijkstra, on this phenomenon of gradual recognition:

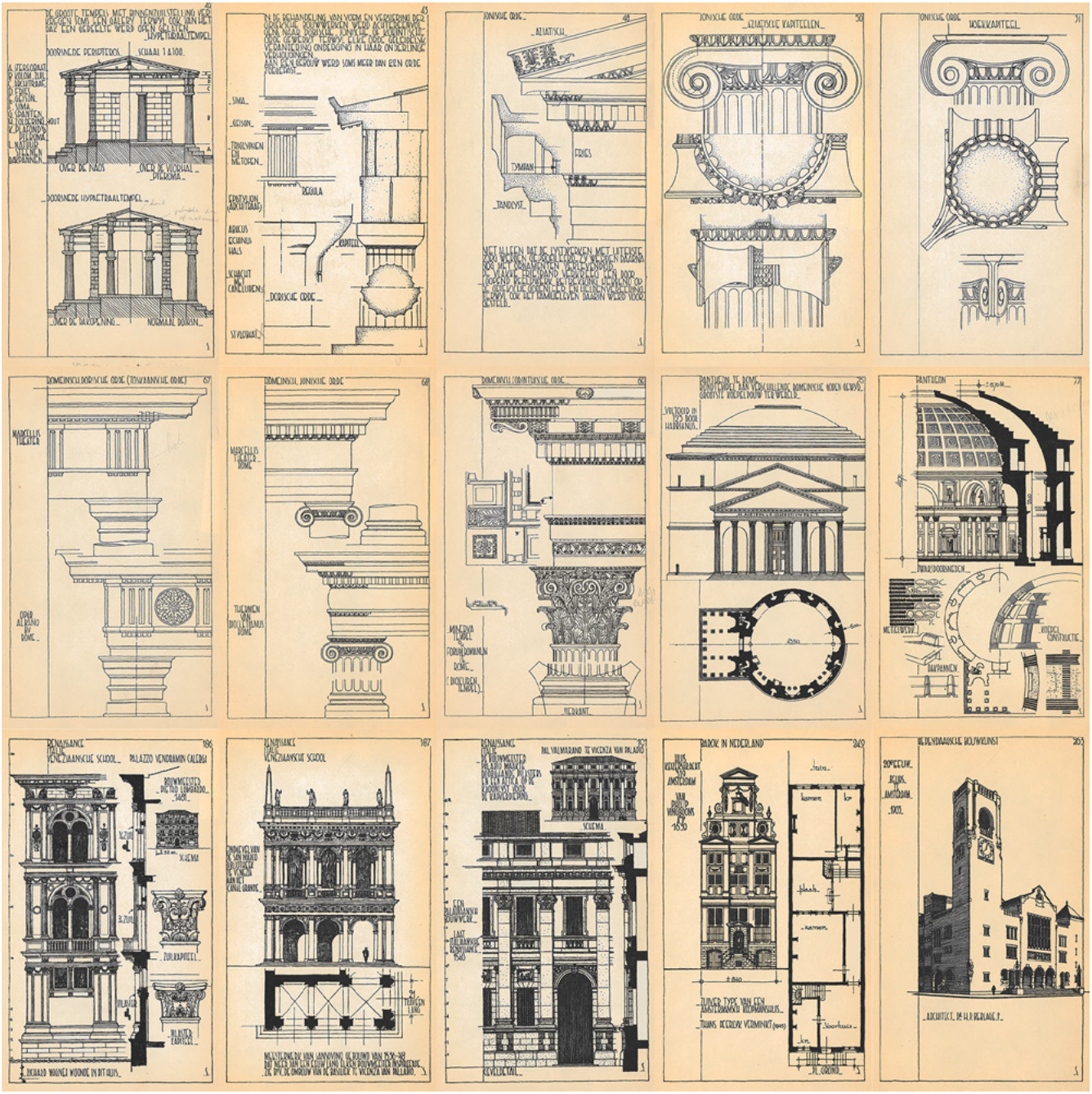
> *"Many buildings that have later been declared monuments have at their inception given occasion to vehement discussions between proponents and opponents. The fiercer such discussions have been, the larger the chance that the particular buildings will after a period of time be recognised as monuments of building art."*[47]

As he argues, it should none the less be possible to objectively evaluate the architectural qualities of such paradigm-shifting buildings for the benefit of a better understanding – and assessment – of the attributes of design and their effects.

Dijkstra, on the ambition to recognise the qualities of integral aspects of design:

> *"If architectural quality may not immediately, but eventually be recognised, than it must be possible to determine, despite all differences, which constituting parts play a decisive role and, on the basis thereof determine and define which criteria should be made operational for the benefit of assessment."*[48]

An occasion to briefly consider some exemplary architectural paradigms and paradigm-shifts of the past, in the context of this study initiative.



A collection of pages from the architectural handbooks of H. Sutterland (1941/46).

4.2 Convention and Invention

4.2.1 Paradigms and Paradigm Shifts

Designing creates the conditions for processes of environmental change, whereby 'projected' futures are developed step by step, from early concept to concretised result.
Architectural design might to a certain extent be considered empirical, in so far as designing tends to follow paths of trial and error.
If a certain approach works, or is considered to be aesthetically pleasing, this information will be passed on and put to good use.

Traditional building modes relied on the 'crafting' of materials that could be acquired from relatively close-by.
Local *artisans* acquired and mastered specialised skills in the use of specialised tools, with which such materials could be worked and assembled. Such building-masters tended to be stimulated to exploit the qualities of the available materials for decorative effect.[49]
When one is confronted with artefacts from such traditional, *tectonic* cultures, it is not so much the similarities that speak to the eye of the beholder, but rather the individual character of comparable, but unique representatives of a local 'type'.[50]
Such building *conventions* were not by nature static or restrictive. Traditional building praxis allows for 'bending of the rules' on the level of structure and ornamentation, as well as the accommodation of *innovations* on the level of technology and style.[51]

In the various disciplines concerned with designing and building human habitats, there have always been platforms for the exchange of knowledge, experience and insights. As such, new developments in the architectural profession are to a large extent informed by *precedents.*
Exemplary modes of design will be recognised and adopted by others as 'models' for design.
Such exemplars will usually not be imitated directly, as there is a deep-rooted tendency amongst building practitioners towards the evolvement of design proposals that may, at least to a certain extent, be considered *original*.

A fundamental attribute of building technique and design is *invention.* Thereby, recognised techniques and styles tend to be adopted, but at the same time 'made to fit' to contemporary requirements and aspirations.
Novel but nonetheless 'fitting' applications tend to be absorbed, becoming part of the 'new convention'. This holds for predominantly traditional building modes, but also for academically-informed product-based design.
Reasons for such adaptations may vary, including issues such as: environmental conditions; changes in a cultural context; societal and economic factors; individual preferences and – last but not least – the designer's aesthetic ambitions.

The resulting design artefacts may be perceived as conventional, familiar, possibly even predictable, fitting relatively comfortably into the 'reigning' technical and aesthetic *paradigms*.
Alternately, new formats resulting from technical or stylistic inventions may emerge, which at first tend to be perceived as surprising, even unsettling.
The recurring *cycles* of Convention – Invention – Convention are a true characteristic of *architectonic* as well as *architectural* form-giving.[52]
Such developments may be recognised as signalling aesthetic paradigm *shifts*.

The concept of such – gradually, steadily or abruptly – shifting paradigms in architecture, is considered as a useful concept to recognise characteristic combinations of compositional conceptions in a particular place, historical era or architectural oeuvre.
Other than the more 'general' concept of *style*, it allows for a more specific categorisation of themes, which may for a time become either dominant, integrated or altogether absent in architecture.
In this sense, 'paradigm' is considered as a *model* or *example* that may be recognised within certain 'circles' and tends to be adhered to: as a conceptual preference-system that is shared by members of a particular discipline, such as architecture.

Paradigm, defined in a more specific, scientific sense:
> *"A framework containing the basic assumptions, ways of thinking, and methodology that are commonly accepted by members of a scientific community, even though they may not as yet be empirically proven."*[53]

Besides being informed by historical precedents; design practitioners, teachers and students, theoreticians and researchers alike are confronted with a steady outpour of *contemporary* design solutions.
As such, they are influenced by a constantly evolving and -shifting 'state of the art', which is representative of the technological and cultural climate of architecture of the time, as expressed through realised buildings and increasingly: published projects.
The recognition, application and evaluation of design *conventions* – as well as the *inventions* that may cause them to evolve into 'new' conventions – are at the heart of the continuing learning-cycles of architectural practice, theory, research and education.[54]

Architectural discourse – and particularly education – often makes use of *related* conceptions, drawing comparisons with cultural phenomena, technical disciplines or art-forms that are somehow considered to be *comparable*.
Thereby, making use of *metaphors* is often considered to be a stimulus towards identifying specific capacities of design.

Douglas Hofstaedter and Emmanuel Sander on the power of *analogy*:

> *"We claim that cognition takes place thanks to a constant flow of categorisations, and that at the base of it all is found, in contrast to classification (which aims to put all things into fixed and rigid mental boxes), the phenomenon of categorisation through analogy-making, which endows human thinking with its remarkable fluidity."*[55]

In William Hubbard's *Complexity and Conviction*, he introduces three kinds of metaphors (which he calls 'models') that he considers to be indicative of the *'methods for making an architecture of convention'*:

— *Games* as Models for an Architecture of Convention;
— *Typography* as a Model for and Architecture of Convention;
— The *Law* as a Model for and Architecture of Convention.[56]

When attempting to elucidate the workings of complex architectural compositions, experts are often inclined to resort to such metaphorical comparisons: architecture *as* nature; the human body; clothing; cuisine; film-making, or: architecture as *music.*

4.2.2 Architecture as Music?

That the connection between architecture and music is regularly made is not surprising, as there are distinct parallels between the aspects of arrangement – indeed: *orchestration* – that are characteristic of architectural designing on the one hand and in the art of musical arrangement on the other.[57]
Such arrangements can appear to be relatively straightforward but may also make use of thematic layering, by making use of techniques like *counterpoint* (two melody-lines paying together at the same time) as well as secondary themes and rhythmic and thematic *modulations.* Both disciplines have their 'classical' traditions, which tend to be either respected or dismissed, but they also have a thriving contemporary practice, including an impressive variety of 'serious', as well as 'popular' styles, which attract a great deal of public attention.[58]

Architecture, characterised by function, construction and aesthetics, is probably the most omnipresent *applied* art-form.
Music, characterised by rhythm and melody, but also by sensuality and emotion, is an inescapable 'free' art-form, some might say: the greatest of all of the arts.
In the case of music, some stylistic conventions literally 'set the tone' for a particular period (as was the case in the fifties, sixties etc.) and were accompanied by exhilarating social phenomena bordering on tribalism, complete with aesthetic conventions and (dress) codes.
Just as musicians tend to follow established musical patterns, yet 'bend the rules' of previous examples for the sake of originality and dramatic effect, so architectural design tends to blossom on the cultural feeding-ground of the past.

A romantic notion holds that knowledge of precedents may lead to a lack of creative 'freshness' and lead to imitation. However, this should not be used as an argument for the closing of one's eyes to what has gone before. As contemporary musical practice demonstrates, creative composition frequently involves the re-interpretation of formal codes and customs that have been developed previously, but preferably in such a way that the results are experienced as simultaneously familiar *and* new, by 'playing with conventions'.

As in music, the architectural field of the nineteenth and twentieth centuries has been criss-crossed by a variety of *formal* conventions, within which various design preferences may be recognised by characteristic, stylistic modes of expression.[59]
These may be expressed on different compositional levels – such as overall form; structure and materialisation; plasticity and detailing; industrialisation and symbolism.

Such (often only implicitly recognised) conventions may be identified not only by the ways in which particular formal themes are addressed and emphasised, but equally by the formal opportunities that are consciously *avoided* and are thereby markedly absent on the level of the composition as a whole.

In the music of the song-writing partnership of John Lennon and Paul McCartney, music critic and journalist Ian MacDonald recognises the coming together of the two 'classic' conditions of art: Truth & Beauty.

Ian MacDonald, on the two 'halves' of the of this unique composing-partnership:

> *"In a less narrowly structural sense, the two represented a classic clash between truth and beauty. Seeing music as a vehicle of thought and feeling, Lennon stressed expression at the expense of formal elegance, which held no interest or value to him per se. Intuitive, he cared little for technique and nothing for the rules, which he would go out of his way to break. As a result, while sometimes obsessive and crabbed, his music rarely betrays itself and hardly ever strays unintentionally into bad taste. On the other hand, McCartney, by nature drawn to music's formal aspects yet wholly untutored, produced technically 'finished' work almost entirely by instinct, his harmonic judgement based mainly on perfect pitch and an acute pair of ears. However, while his music, at its best, is the very opposite of inexpressive, he could, entranced by his own fluency, all too easily be distracted from meaning, producing glib prettiness, vapid exercises in style, and excruciating lapses in taste."*[60]

The contemporary music-scene is extremely diverse.[61]
Musicians allow themselves to be influenced by an enormous range of precedents; choosing the inspirations for their own creative expressions from iconic oeuvres and various types of musical styles, which they meld together freely into their own paradigmatic (re)inventions.

Probably the most tone-setting reference-point for the musical climate of the last six decades has been the enormously influential *convention* of 'Rock and Roll' – a musical *invention* of the fifties, developed out of the musical tradition of the Blues – which has, in one way or another, become a benchmark for nearly all music that has been made since.
This does not mean that all music at this moment is actually *based* on R&R, but it is created with the knowledge of its existence and influence 'in the back of one's head'.

A poignant and witty characterisation of the 'science' of R&R, by Little Feat's Lowell George:
"Two degrees in be-bop, a PhD in swing,
He's a master of rhythm,
He's a Rock and Roll king."[62]

4.2.3 Architecture as Language?

Another persistent metaphor is one of architecture *as language.* The comparison between architecture and language has often been made and the metaphor of architecture *as language* resurfaces frequently in architectural debates.
Through speech and written language, we are able to express ourselves, by applying grammatical *rules* in such a way that others (familiar with the workings of these rules) can comprehend the intended meaning of a statement and vice versa.

Arguably, creating buildings can also be said to involve the application of rules. However, individual(istic) designers rarely share a consensual view of what might be considered to be a universally-recognised architectural language. Rather, designers prefer to determine their own rules, which are often developed specially, in relation to a particular project. Language or not, architecture is certainly not a free-for-all, in which radically new concepts need to be generated from scratch for each new task. On the level of composition, (often unofficial) systems of agreement can be discerned, concerning what is considered 'fitting'. To a certain extent, such conventions can be viewed as governing design in a particular era. The fact that they are frequently not articulated explicitly, but *informally* recognised, does not make them any less meaningful.

Conventions, resulting from a shared awareness of technical knowledge and historical backgrounds, are manifest on various levels of the design practice. However, most designers seem to feel that simply 'working from tradition' is stifling for professional creativity. Architects tend to strive towards original and ingenious solutions. Even when taking a recognised formal paradigm as a starting point, they are inclined to generate innovative ideas; the designer as a technical and stylistic innovator, even as a 'grammatical' inventor. In every work of architecture, we can detect the hand of its designer, as an *author.*
Dutch architect Michiel Riedijk:
"At the heart of every composition is its author."[63]

4.2.4 The Classical Language of Architecture

The most successful example of architecture, considered *as* a language, is arguably the comprehensive system of formal codes and proportion systems, often described as the *Classical Language* of architecture.
A language which, like Latin, is hardly ever 'spoken' by anyone in this day and age, but is still eminently meaningful when trying to understand the fundamentals of language and as a consequence: also for contemporary design thinking.

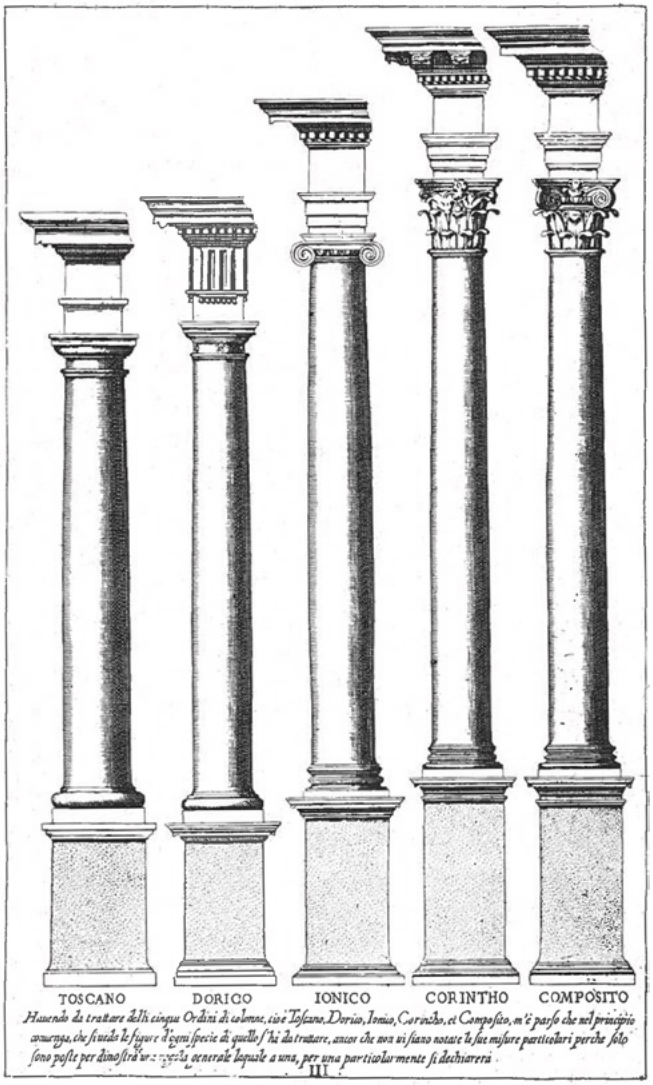
The classical language of architecture had its origins in Greek antiquity. The early Greeks erected striking temple complexes in celebration of their gods. These would initially probably have been relatively modest structures, constructed in wood. However, in time the building-masters of the early classical era devised dignified architectural compositions built in durable, articulately carved marble, with a lasting presence and appeal.

In the Greek temple type, the closed volume of the actual shrine became bordered on all sides by a row of free-standing columns. This colonnade had the function of supporting the slanting roof construction, which was fronted by a triangular pediment and 'framed' by plastically articulated cornices and architraves. The supporting pillars, which were subtly tapered upwards, ended in an expressive capital, as an intermediary between the roughly cylindrical column and the, more or less rectangular beam of the cornice.

This relatively pragmatic architectonic ensemble of building components formed the basis of what would arguably become the most enduring and influential *stylistic* architectural invention of all time: the 'orders' of Greek classical architecture; the elegantly sober *Doric*; the stately *Ionic* and the flamboyant *Corinthian*.

These stylistic formats would play crucial roles in subsequent variations, based upon the archetypal temple format, with its characteristic fronton shape and fine-tuned combinations of sculpturally carved stone elements.

P.A. Michelis, on the 'order' of the portico in the temples of ancient Greece:
"Order is victory over chaos, it is through order that one begins to emerge from the many, and the many begin to become a pleasing whole, a rhythmical alignment, arrangement and composition. The pteron of ancient Greek temples is made of porticoes, which are no more, basically speaking, than a rhythmic alignment of columns in which masses alternate with spaces; for this reason, we have the impression that the whole temple is in this way made lighter, that it has, in a sense, taken flight. It is as if the porticoes were the result not only of the cumulative alignment of the columns but also of the voids which perforate a compact wall. We thus have a perforated body which is much lighter than the wall of the cella."[64]



Giacomo da Vignola: the five orders of architecture, 1562.

The Greek orders might have remained no more than historically interesting curiosities, had their compositional merits not been recognised by the Romans, who adopted them as key figures for their own architecture and subsequently brought them to flowering as an integral part of the Roman art of building.
The three original orders, extended on either side of the scale with the 'honest' *Tuscan* and the fanciful *Composite*, became canonized components of the architectural language of their time and would come to fascinate future generations of architects and scholars.

However, it was through the 'marriage' of the *structural* inventions of the Romans – the arch, the vault and the dome – with the orders, that the architects of the Roman Empire would truly distinguish themselves from their predecessors. What was remarkable in this context was that the Roman master-builders applied the orders not only as architectural instruments, but also as organising devices for the benefit of *architectonic* unity.

John Summerson, in: *The Classical Language of Architecture* (1980):

> *"In the classical language the orders are not merely pinned on to the structure but integrated with it. Sometimes they sink right into it, sometimes they come walking out into a free-standing porch or colonnade. And all the time they control it."*[65]

This inventive fusion of innovative constructive principles with the recognised formal orders would lastingly define the palette of architecture, as well as defining the parameters for future stylistic inventions.

4.2.5 The Vitruvian Legacy

During the Renaissance, the surviving architectural artefacts of the Roman period would in turn be rediscovered, becoming the standard of reference for architectural design.

One of the reasons why the Roman building-arts once again became so influential was the preservation and distribution amongst scholars of a manual of building practice and design, written by one Vitruvius (Marcus Vitruvius Pollio, a master of architecture and theoretician from the first century B.C.).

His *Ten Books on Architecture* addressed pragmatic aspects of the building practice of his time and their (alleged) origins, but also went into the *conditions* for 'architecture'.

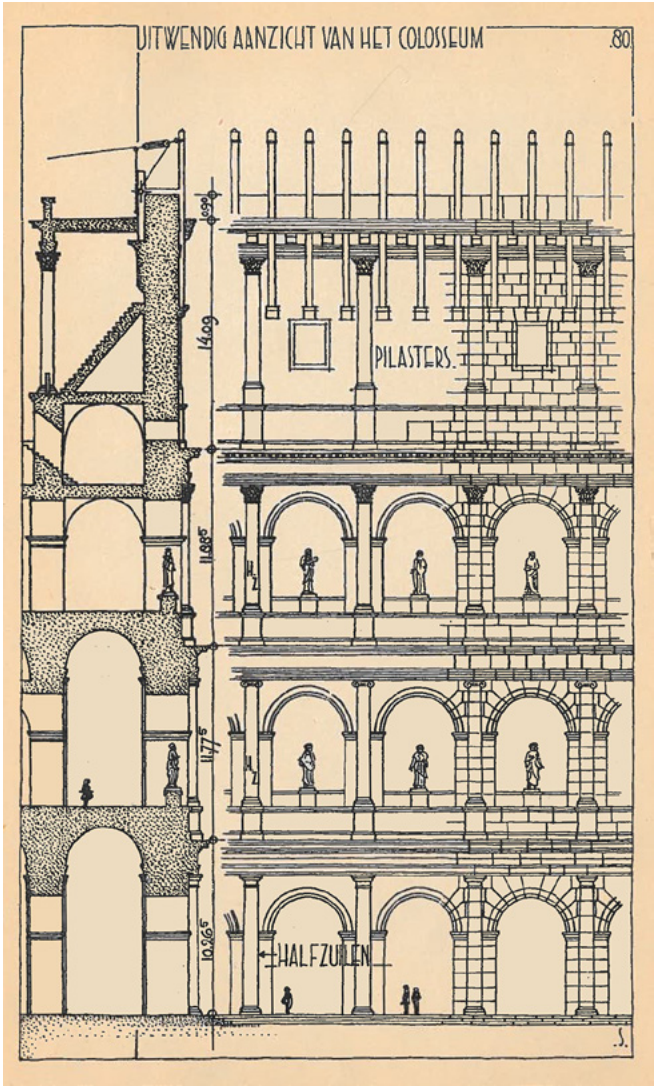
The way in which Vitruvius put forward three essential design conceptions – *firmitas, utilitas, venustas* (durability, utility, beauty) – may have suggested to some that beauty could, as it were, be added on as a 'third' aspect, once the demands of logical construction and functionality had been met.

To a certain extent this may have actually been the practice; when one visits the remains of a Hellenistic Roman city like Aphrodisias in Asia Minor, the dramatic impact of the sculptural 'outer' layer is striking.[66]
So, should sculptural articulation be regarded as the determining factor for a Roman building's aesthetic success, or is it a matter of an eloquent interplay of architectural *and* architectonic factors, a *synthesis* of Vitruvius' trinity?

In his books, Vitruvius also identifies six other, not entirely explicit, design themes. Three of these might be considered to refer to the pragmatic concerns of the practising architect – *ordinatio, dispositio, distributio* (ordinance, arrangement, economy), whilst the other three appear to denote the formal and perceptual qualities of the resulting composition – *symmetria, eurythmia, decorum* (balanced proportions, harmony, propriety).[67]

The impact of Vitruvius' treatise on generations of scholars and architects should not be underestimated. However, it is worth taking into account that, in his own time, Vitruvius may well have been considered a conventionalist; a conservative classicist. In his work he leans heavily on the Hellenistic prototypes, which he exemplifies.

At the same time it is remarkable that he does not appear to recognise the influential new technologies of his age: the arch, the vault and the dome. As has been noted, it is largely due to the integration of such innovative technical opportunities, together with the stylistic instruments of Greek antiquity, that the architects of the Roman Empire would lastingly distinguish themselves, their adventurous creations becoming the benchmarks for future generations.



The Colosseum in Rome, as a demonstration of the classic orders (H. Sutterland).

It has been argued that Vitruvius may have chosen to consciously ignore the new contributions to the architectural vocabulary because he did not consider them aesthetically fitting.

At the same time, we should recognise that he was not yet aware of a number of inventions that Roman architecture still had in store. Vitruvius lived in the first century BC, in the time of Julius Caesar and Augustus and many of the most remarkable and influential artefacts of Roman architecture, which we today admire, still had to be conceived.

The Coliseum (with its array of arches, linked with four stacked orders), the Pantheon (with its overwhelming dome, one of the most gripping experiences of the concept of space) and the Villa Hadriana (with its highly original combinations of old and new formal motives, all within one extensive, varied composition) would all be realised more than a hundred years after his death.[68]

4.2.6 Stylistic Innovations of the Renaissance

The architects of the Italian Renaissance had a great deal of respect for the achievements of the Roman building masters and for Vitruvius' writings, which they adopted as compositional models, but they also felt themselves stimulated and challenged by them, taking their newly rediscovered principles and built artefacts as departure points for their own creations.

Leon Battista Alberti's theoretical writings leaned heavily on Classical Roman architecture and particularly on the treatise of Vitruvius.

Alberti, paraphrasing Vitruvius:

> *"Beauty consists of a rational integration of proportion of all the parts of a building, in such a way that every part has its fixed size and shape, and nothing could be added or taken away without destroying the harmony of the whole".*[69]

In his built work, he inventively adapted the theme of the (originally massive) triumphal arch in his compositions for monumental facades and as a new kind of ordering device in the spatial structure of his influential church of S. Andrea in Mantua.
Donato Bramante gave an impulse to a wholly new building type, adopting the circular temple principle as described by Vitruvius, and transforming it into an ensemble consisting of a cylindrical cella, topped by a dome and circumscribed by a lower colonnade.[70]
His Tempietto in the S. Pietro cloister complex in Rome became a building format that would become widely imitated.

The most convincing – and influential – architectural innovations were arguably those where the building artist explored the boundaries of recognised conventions in order to shift them, creating something based on precedent, but experienced as new...

When, towards the end of his life as an artist, Michelangelo Buonarotti turned to architecture, he managed to transcend the architectural conceptions of his contemporaries: his Medici chapel and Laurentian library are manifestations of the architectural poetics of a sculptor.[71]

Giorgio Vasari, author of the influential 'lives' of the great Renaissance artists, stressed the importance of such invention (*invention*e, in relation to *maniera* and *designo*). In his revised second edition, with an extensive section devoted to the venerated master, he describes how the architects of his time were astounded as well as encouraged by the freedom and originality which Michelangelo afforded himself.[72]
As such, Michelangelo's inventions became conventions for the designers of the late sixteenth century and the Baroque, leading to further creative fusions of 'antique' and 'modern' formal attributes.

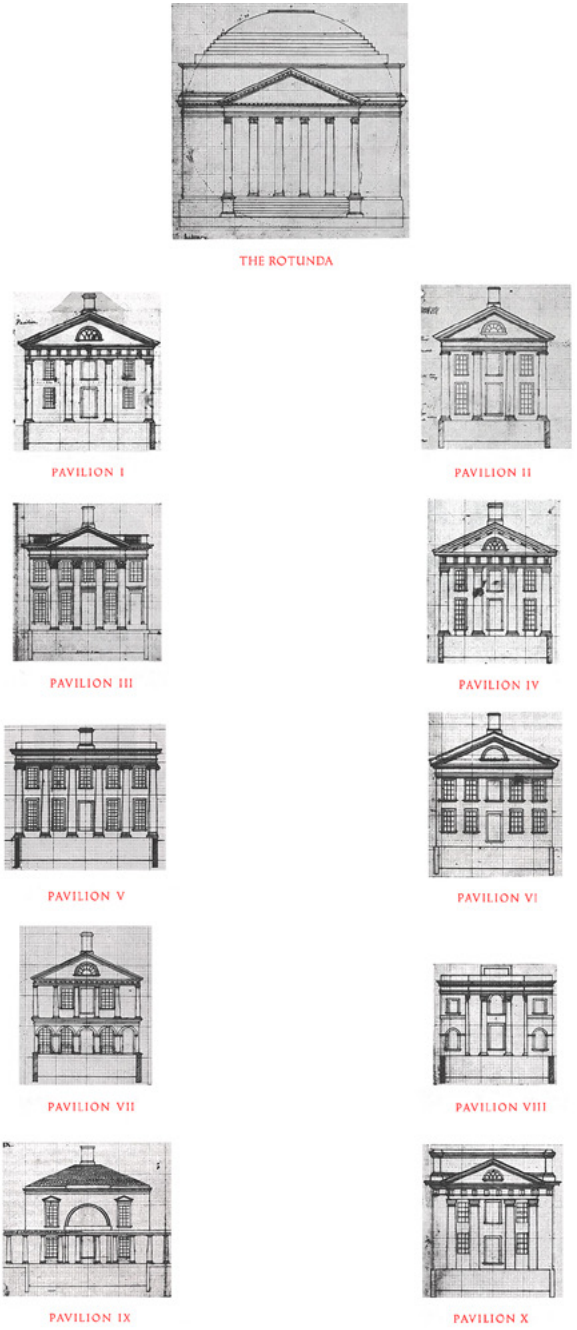
Andrea Palladio stimulated the aesthetic sensibilities of his contemporaries – as well as many later followers – with his imaginative, yet feasible 'restorations' of Roman precedents, supplemented by his own stylistic inventions.
For the facades of his Venetian churches, he developed ingeniously layered compositions, involving the intricate 'transposition' of classical temple motifs, thereby giving Michelangelo's invention of the 'giant' order a wholly new dimension.

Andrea Palladio, paraphrasing Vitruvius:

> *"As Vitruvius says, there are three things to be considered in any building, without which no edifice is worthy of praise: utility or commodity; durability; and beauty.... Beauty will be the result of a beautiful form and from the correspondence between the whole and its parts, and of the parts between themselves as well as to the whole; thus, buildings may appear as a single, well-finished body within which all the members agree, and all members are necessary for what is desired."*[73]

The work of Palladio had a lasting impact, largely due to the fact that, in his lifetime, he was able to publish an architectural manifesto, richly illustrated with designs of his own making: *The Four Books of Architecture*, printed in Venice in 1570.
The effect of this book, as well as the collected drawings of Palladio's' work by his pupil Scamozzi, was profound; besides Italy, notably in England, France, The Netherlands and Germany.
Inigo Jones introduced Palladianism to Britain, after he had visited Italy in 1614, acquiring a number of original drawings and a copy of *Quatro Libri*, which he studied intently and richly annotated.[74]

Besides Inigo Jones, several other British architects were inspired by the work of Palladio. These included Christopher Wren, James Gibbs, Charles Boyle Burlington, John Nash and Robert Adam.[75]
Architects of the Dutch 'Golden Age', who were informed by the work of Palladio and particularly by that of his follower Vincenzo Scamozzi, included Jacob van Campen, Pieter Post, Justus Vingbooms and Hendrick de Keyser.[76]



Comparison of the pavilions of Thomas Jefferson's University of Virginia.

Palladianism would also become greatly influential in the 'New World'.
Inspired by writings and drawings on Roman architecture and particularly the works of Palladio, Thomas Jefferson pursued a 'parallel' career in architecture, whereby his 'bookish' nature led to a select number of works of 'Romantic Classicism'.[77]
Jefferson's uninhibited imitations and creative adaptations of historic precedents at the University of Virginia at Charlottesville, resulted in a unique ensemble: a collection of ten pavilions, loosely quoting historic exemplars, connected by covered walkway, on either side of a monumental Lawn, with a Palladian Rotunda (the library-building) at the 'head of the table'.[78]

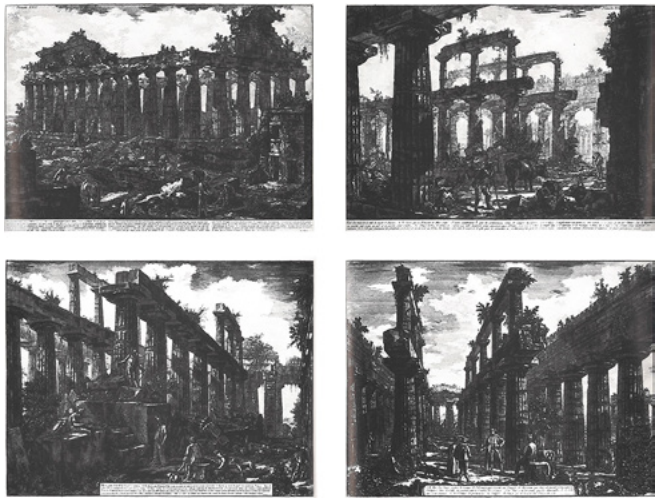
Jefferson's buildings can be considered to be a kind of built 'lesson in architecture', which would contribute to defining the stylistic paradigms of the newly-independent United States; on the level of its 'official', institutional buildings, as well as its *vernacular* architecture.[79]

4.2.7 Architecture as Science?

During the successive periods of Renaissance, Mannerism, Baroque and Classicism, architecture increasingly came to be approached as a (mathematical) science, albeit one with almost religious connotations.
The conviction that architecture should be practiced as science, whereby each part of a building, inside as well as outside, should to be integrated into one and the same system of mathematical ratios, is the basic axiom of Renaissance architecture.

According to this doctrine, an architect should not feel free to apply to a building a system of ratios of his own choosing. Such ratios needed to comply with conceptions of a higher order, whereby a building should mirror the proportions of the human body; a demand that became universally accepted on Vitruvius' authority.[80]
In this context, extensive study was made of mathematical proportion systems, such as the Golden Section and the Fibonacci sequence.[81] Detailed, prescriptive handbooks were drawn up and published, with plates and tables denoting aesthetically 'justified' measurements and proportions of building components and their spacing – intercolumniation – expressed as numeric multiples of their cross-sections.[82]

Architecture: art, science or religion?
At the end of the seventeenth century the correct interpretation of the intrinsic rules of architecture became the subject of heated debate, a discourse exemplified in the intellectual dispute between Charles Perrault and François Blondel.[83]
In their ideological juxtapositions of 'ancients' and 'moderns', artistic precedent and rational interpretation, imitation and creative licence, proportion and ornament, we can recognise the recurring dialectic: respectful adherence to convention or the scrupulous,



Giovanbattista Piranesi: etchings of the rediscovered Paestum ruins (1778).



Collage of the historic attributes of Paestum in their present state.

methodical pursuit of invention?
Despite his methodical ambitions, Perrault's writings demonstrate a philosophical ambivalence in this respect: there should be allowance for individual interpretation in architecture based on custom, but at the same time the ambition should be to establish rigorous linguistic standards, which could be set down in binding directives.

Charles Perrault on the ambivalent nature of 'scientific' proportion systems:

> *"… since most proportions in architecture are arbitrary and since there is nothing in these matters that has a positive and natural beauty, there is nothing to prevent us from altering established proportions or to stop us from inventing others that appear to be beautiful. And I claim here that once these proportions have been established, they should no longer be changed or made different in different buildings for optical reasons or because of the aspects they may have."*[84]

Whether viewed as a system of binding rules, or as the departing point for individual variation, the strength of the classical language of architecture lay in its systematic nature: formal codes, ornaments and proportions within a clear framework.
A model for design, from which mediocre designers could benefit (admittedly frequently leading to unimaginative, but seldom to truly disastrous results), but which at the same time seldom proved to be a hindrance to truly *gifted* architects.

4.2.8 From Ancient Classicism to Archaic Modernism

In the eighteenth century, a number of the original Greek examples, which had largely been hidden for western architects due to the limited access to the Ottoman Empire, were once again discovered.
This led to a preference, amongst some architects, for the 'original' Greek precedents over the 'familiar' Roman sources, resulting in a brief, rather puritanical, Hellenist movement.
Architectural theoreticians went in search of the origins of the formal vocabulary of the ancients.

Perhaps the most enticing re-discovery was the ancient Greek colony of Poseidonia, better known as Paestum, in the south of Italy.
What must originally have been a thriving community had through time been abandoned, becoming overgrown and forgotten.
The rediscovery of Paestum's ruins, in 1750, triggered a series of visits by historians, artists and architects, including Jacques Martin Soufflot , Thomas Major, Giovanni Battista Piranesi, Sir John Soane, Johann Wolfgang Goethe, John Berkenhout, Karl Friedrich Schinkel.
Henri Labrouste, who travelled though Italy in the early nineteenth century, on a six year stipend from École des Beaux Arts, thoroughly documented the remains of its three temples.[85]

Paestum was by all reckoning something of a culture shock, indeed: a puzzle...
Aesthetically, the temples of Paestum belong to the 'archaic' era. Its buildings still have a nearly 'megalithic' formal expression that would be replaced by what would in retrospect be considered as the 'correct' mode of Greek expression that would be exemplified by the 'high aesthetic' of the Parthenon.

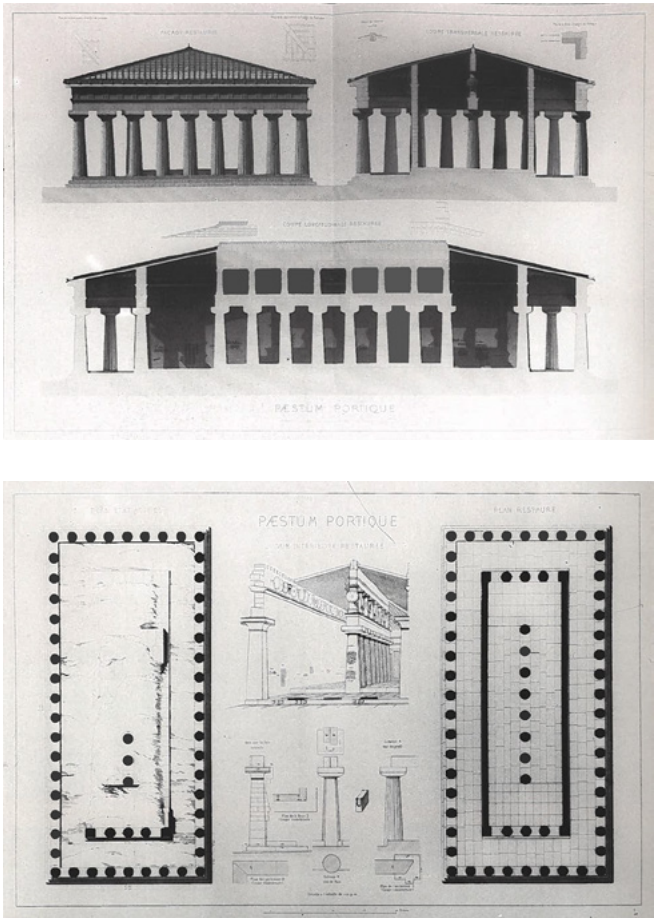
While the Parthenon is refined and disciplined in its composition and expression, becoming the benchmark for the lasting temple-format that would be aesthetically polished-up by the Romans, these buildings had a primordial quality, hinting that they might be the remnants of a more ancient, 'alternative' aesthetic.
It was shocking for some to realise that, because the Paestum temples were made of a poorer stone, they would have been finished in painted stucco and terracotta.
In particular, the so called 'Basilica', with its uneven number of columns in its frontal facades was considered anomalous, suggesting it might have been a temple for two, 'married' gods (possibly Hera and Zeus), or might not even have been a temple, but a different kind of building altogether?

On the basis of his measured drawings, the young Henri Labrouste (1801-1875), created a *'Restauration'*, trying to imaginatively reconstruct what the building *might* originally have been like.
In this 'designerly' interpretation, he suggested that the building had *not* been a temple, but would have housed some civic function and that it would originally not have had the 'normal', crowning *fronton*, for which no evidence had been found, but roofs slanting down in all directions.[86]
Back in Paris, at the École des Beaux Arts, Labrouste's classically-educated controllers apparently found what he had drawn up on the basis of his work at Paestum hard to believe and had his work checked. His explorative study, originally completed in 1829, would not be published until 1877.[87]

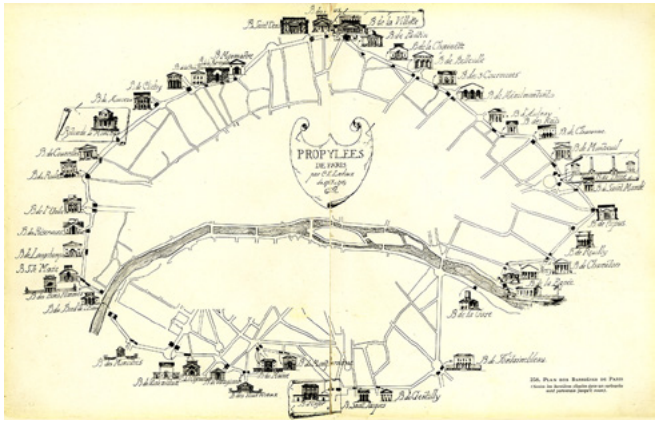
Well before Labrouste's made his systematic observations, the radical forms of Paestum's archaic, Doric architecture, with its 'exaggerated' shapes and geometries had already inspired the work of the French architect Claude Nicolas Ledoux (1736-1806).

In his work at the royal salt-works at Saline de Chaux, from 1871 onward, he experimented with a new kind of 'objective' formality, making use of a kind of reductionist classical formats, with dominant geometries and strikingly unconventional combinations of formal elements.
In the eyes of classically-trained architects, as well as the public at large, his provocatively 'modern' formal grammar must have come across as stylistically ironic, if not downright oppressive.

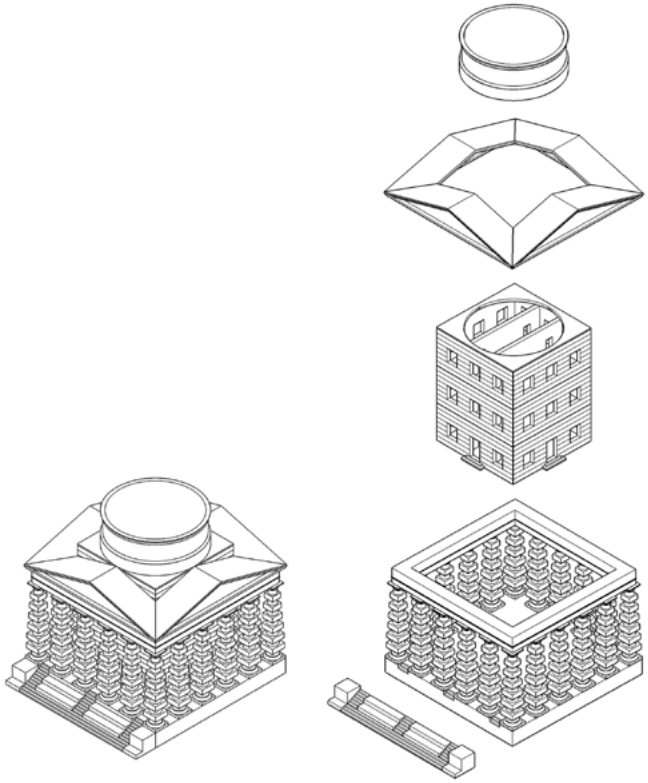
Ledoux's stylistic experiments in the Jura region were taken a step further when he was commissioned to design and build an extensive series of toll-houses, for the entry-points in the new periphery-fence that would surround the city of Paris, in 1874.



Henri Labrouste: graphic 'restoration' of the Paestum 'Portique', published 1877.



Overview of the sixty-two barrier-buildings, realised by Claude Nicolas Ledoux.



'Toolbox' de-constructon of two barrier-pavilions at the Etoile gate (demolished).

In the design of these monumental buildings, functioning as *barriers* at no less than forty-five points, he developed a kind of stylistic 'tool-box', or as Anthony Viddler has called it: a 'versatile kit of parts'.

In his work on Ledoux, Viddler characterised the Ledoux's *Barrière* 'method' as follows:

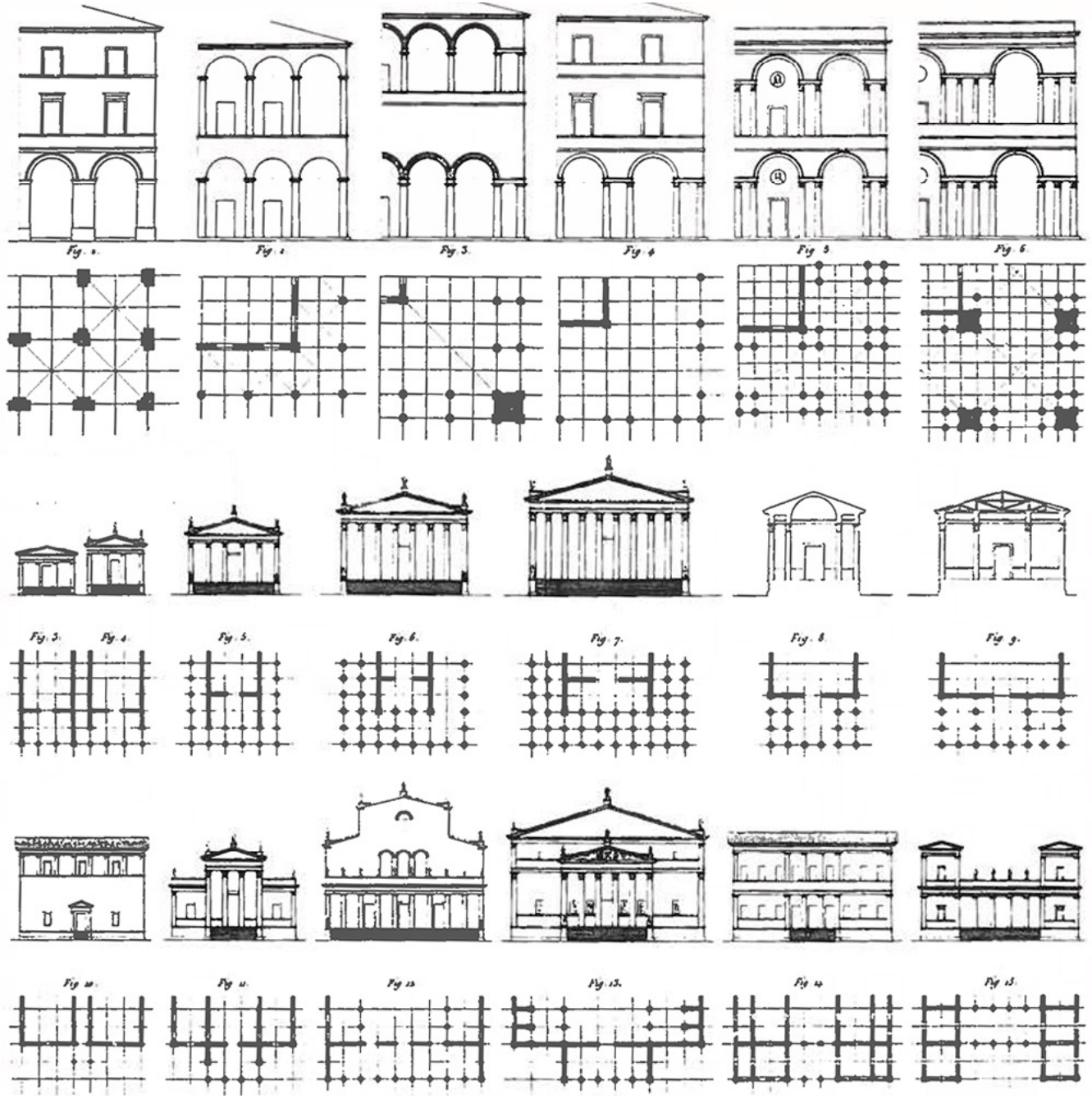
> *"The plan types that Ledoux selected were simple and few in number: temples, amphiprostyle and peripheral; the Greek cross in a square, stressing either the cross or the cube, playing all the variations on Palladio's Villa Rotonda, with central lanterns, cylindrical, cubic or domed; cubic pavilions with pediments on two or four faces; pavilions with rusticated porticoes attached; pure circular rotundas; and combinations of two or more of these plans. Ledoux also reduced the set of architectural elements to a minimum: Venetian openings for windows and doors, sometimes joined in series with single or double columns; a primitive Doric order, generally un-fluted and baseless, with an exaggerated entasis derived from Paestum; rustication, liberally used for podia, ground floors, and bases, on columns applied as reticulated alternate courses (as in the director's Building at Chaux) or rounded (as in the director's stables of the saline); and occasionally linking two columns on each side of a Venetian opening; and pediments, broken by Serliana, faintly marked low-pitched gables, formed segmentally or invaded by projecting keystone motifs. Ledoux mustered these basic elements to generate a series of single or paired pavilions that at once responded individually to the compositional and symbolic requirements of their specific sites and formed a family of structures unmistakably identified with the same institution."*[88]

The sixty-two buildings which were eventually realised, with their overbearing architectural 'presence' were recognisable symbols of the power of the king over his citizens. In turn, the people of Paris saw this as a form of arrogant oppression; turning the capital city into a de facto 'urban prison'.
This impression was underscored by Ledoux's intimidatingly grotesque (neo)classicism…

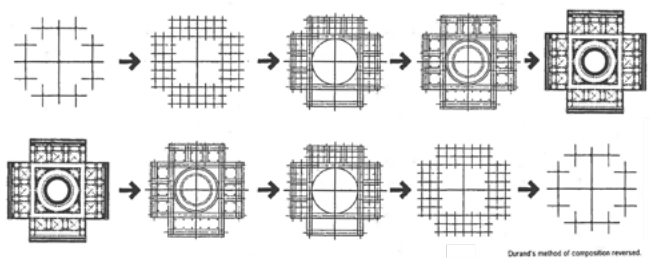
The *Barrières* have most probably been a factor of importance in the events leading up to the French revolution (1789), after which all but a limited number of the highly unpopular buildings were demolished.[89]

In retrospect, some authors have recognised in Ledoux's methods, involving stylistic and ornamental reduction with an emphasis on abstract geometries, the 'seeds' of 'autonomous' twentieth century modernism, particularly in the work of Le Corbusier.[90]

On the level of its explicit stylistic reductions, Ledoux's work might be considered rather to prefigure the formal agenda's of the Post-modernist movement of the second half of the 20th century.



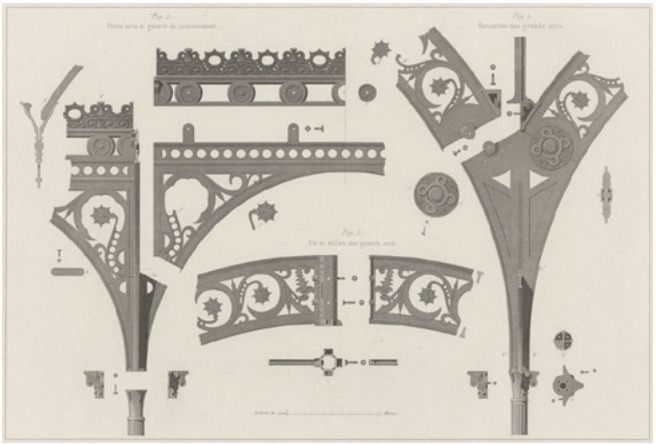
Sample illustration from J.N.L. Durand's published lessons in architecture (1819).



Durand's principles reversed for the sake of computation? (Madrazo, 1994).



Labrouste's Bibliothèque Saint Geneviève, Paris, 1850.



The advanced prefabrication and elegant connectivity of Labrouste's structure.

4.2.9 Structure and Envelopment

Whilst the tone-setting centres of architectural education, notably at the École des Beaux Arts, relied heavily on the dedicated, meticulous study of specific, historical precedents, J.N.L. Durand developed a more rationalist approach, intended to instruct *engineers* in the design of representative new buildings types.[91]

His visual methods, essentially make use of grids, guiding lines and axes, which could, as it were, be 'filled in' step by step. The approach, laid down in the early nineteenth century, may in sense be considered to prefigure the practical working methods that would become characteristic of the practice of design in the twentieth century.
The seductively *systematic* nature of Durand's schemes, from rough to fine, would come to inspire the promoters of computer-aided design, in the late twentieth century.
Authors like Mitchell (1990) and Madrazo (1994) recognised opportunities for the implementation of Durand's approach for the benefit of 'computer generated' modes of architectural composition.[92]

Another notion that became popular in the early nineteenth century, was that of the archetypal 'primitive hut' as the source of architecture.
The idea was introduced by Laugier in his influential publication *Essai sur l' Architecture*, led to penetrating investigations pertaining to the 'true nature' of architecture.[93]
At the same time, no-one appeared to pay much attention to the actual primitive huts themselves.
This changed when Gottfried Semper was confronted with a reconstructed Polynesian hut, during the first world exhibition in the Crystal Palace in London, in 1851. He was struck by the clear distinction between the modest building's construction and spatial envelopment, or: *Wand*.[94] This distinction between a building's load-bearing and enclosing structures – in the words of Semper: *'Verkleidung'* – became extremely topical.[95]

Building methods were about to change drastically.
The introduction, on a large scale, of industrially produced iron and glass would lastingly change ideas about building production and formal composition. The great constructors of the industrial era, who pioneered and championed new applications for steel and subsequently reinforced concrete, experimented enthusiastically, and their inventive structures would steadily come to dictate the architectural agendas.
Another important factor was the evolution of a variety of new building *types*.
The classical language still seemed fitting for buildings of a representative nature, but for other sorts of buildings (churches, factories, housing developments) the orders were no longer automatically a prerequisite. The (neo)classicist movements had difficulty integrating such innovations, notably the products of the Industrial Revolution: new building materials, new techniques and consequentially: new *proportions.*

Prominent exemplar of this paradigm shift can be recognised in the professional work of 'Rationalist' architect Henri Labrouste.[96] In his highly-influential Bibliothèque Saint Geneviève, in Paris, completed in 1850, Labrouste created an elegant new type of library-building on the basis of a plan that bears similarities to the Basilica in Paestum; a double-tiered structure.

In the spectacular upper-room, the articulate and decoratively refined cast-iron roof-support structure is prominently visible. The arched components are composed of separate, pre-fabricated elements which are cleverly connected. In this sense, the building expresses a technical and aesthetic refinement that was highly influential on the architects of its time, also in the Netherlands.[97]

Labrouste would go a step further in his design for the reading-room for the Bibliothèque Nationale, completed in 1868.
For this design he would develop tantalisingly slim cast-iron columns with free-form ornamental details, supporting a domed ceiling-structure with roof-lights.
The highly innovative project may be considered to prefigure the one truly-new architectural style of the late nineteenth century: *Art Nouveau.*

4.2.10 Eclecticism and Rationalism

As a whole, the nineteenth century gave rise to an eruption of formal Eclecticism, whereby historical styles – Romanesque, Gothic and Classicist typologies, as well as Exotic motifs – could be cited and mixed *relatively* freely.

The debate became focused on determining the appropriate Style – for specific building *types* – and the relationships between qualitative concepts of composition, in particular *Truth* and *Character*:
- *'Truth'* in the sense of honesty, clarity of construction and material expression: the *architectonic* aspects of Building.
- *'Character'* in the sense of appearance, expression, decoration and styling: the *architectural* aspects of Form.[98]

In retrospect, Eclecticism has suffered from a rather poor reputation in the Low Countries, particularly from the viewpoint of twentieth-century modernism.
As authors like Auke van der Woud and Geert Palmaers have argued, the stereotypes surrounding nineteenth century architecture are however not truly justified.

Geert Palmaert, in an attempt to rehabilitate eclecticism in architectural theory:
> *"Eclecticism has often been considered a mendacious and old-fashioned architecture. But is this fair judgement? It may be doubted that nineteenth century rationalism can readily be identified with twentieth century modernism. In any case, the 'modern' aspects of eclecticism, such as the avowed use of glass and steel, have been neglected.*
>
> *From the vigorous debate and theoretical background, it can be inferred that eclectic architecture was more than a flashy building practice. On the contrary, it was a well-grounded architectural theory, inspired by the belief in the universality of human cognitive powers, that sought to reconcile all existing sets of values."*[99]

In the Netherlands, Eclecticism was particularly a matter of re-interpretation (and to a certain extent: mixing) of Gothic and renaissance motifs, rather than an autonomous style.
This was particularly the case of the work of the two architects who were later considered to be the 'giants' of the late nineteenth century era: P.J.H. Cuypers and H.P. Berlage.

H.P. Berlage, in *Thoughts on Style in Architecture* (1905):
> *"The nineteenth century was the century of ugliness; our parents, our grandparents, and we ourselves have lived and are still living in surroundings more ugly than any before."*[100]

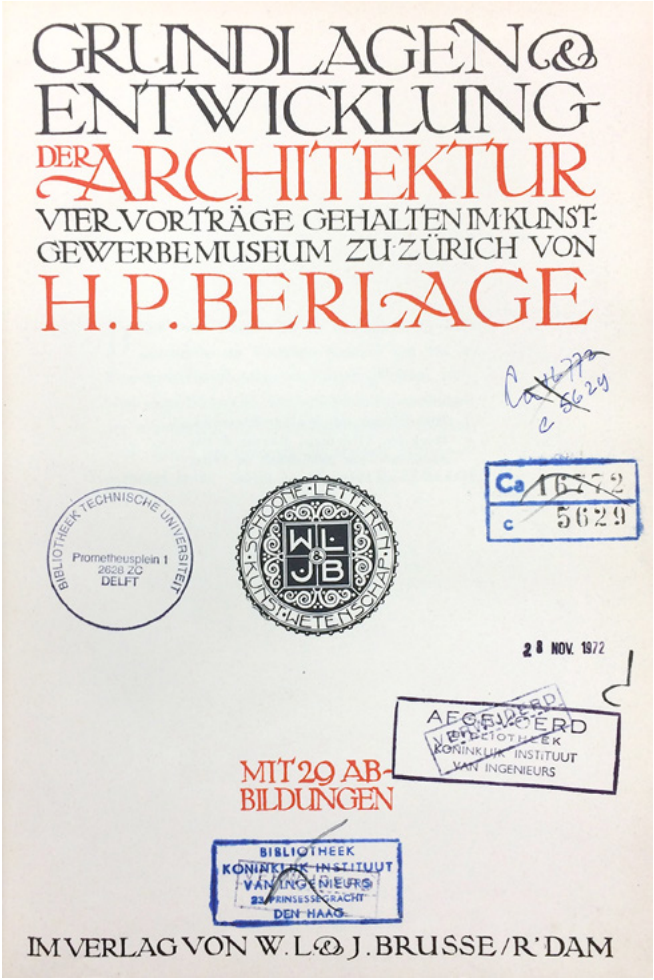
The Neo-Gothic architecture of Cuypers, became the signature style of the Dutch Catholic revival. Leaning on the reputation of Violet le Duc, he developed the, somewhat dubious, reputation of a master of logical, 'honest' construction.
While Berlage's prolific output remained in essence eclectic in expression, albeit in his later 'Rationalist' work somewhat 'stricter'. Nonetheless, particularly on the basis of his renowned Amsterdam Exchange building, with its use of brick and its 'honest' steel structure, he gained the reputation of being a grand-master of architectural 'truth'.[101]

The myth of Cuypers and Berlage, as being the 'godfathers' of what would develop into Dutch functional modernism, was carefully developed by the old masters and their disciples, as well as by the new generation of modernists, for mutual benefit.

It would become one of the most enduring paradigms of Dutch architectural history; a myth which would however be effectively deconstructed by Auke van der Woud, in his book *Sterrenstof*.

Auke van der Woud, on the conservatism of *'eminence grise'* H.P. Berlage:
> *"It is still difficult to accept that Berlage as an architect was a conservative through and through, and that his work denies or lacks what the modern movement (whether it is the Amsterdam School, De Stijl or the new Objectivity) placed at the centre: spatial experiments, unprecedented materialisation and a new expressive imaging culture ('beeldcultuur')."*[102]

The issues of stylistic convention and invention were a dominant theme throughout the nineteenth century and this debate would continue into the twentieth century.
Thereby, style came to be associated with invention and identity, as Cornelis van der Ven has tried to make clear.



The title page of H.P. Berlage's four bundled lectures (Tresor TU Delft Library).

Cornelis van der Ven, on the development and appropriation of concepts of 'style':

> *"Throughout the nineteenth century, most architectural theorists struggled with the significant question 'What is Style?'. The manifold eclectic tendencies of the nineteenth and early twentieth century were symptomatic of the architectural confusion that gave rise to this question. To indicate the correct way to follow, Ruskin discussed the concept of Style in his 'Seven Lamps' (1848); Semper developed his 'Stillehre', his books were entitled 'Der Stil' (1860); Berlage dealt thoroughly with the problem in 'Over Stijl' (1904); Van de Velde came out with 'Zum neuen Stil' (1907); Scott defined Style as 'Coherence' (1914); Steiner wrote his 'Ways to a new Style' (1914); and, to close the ranks, Van Doesburg's magazine was called 'De Stijl' (1917–31)."*[103]

4.2.11 The Impact of Modernism

Around the turn of the century, classically trained designers, such as Peter Behrens and Auguste Perret, were still applying rudimentary classicist forms in their work, but it was only a matter of time before stylistic ornamentation would be considered totally redundant, with the advent of a radical, functionalist Modernism.

The Modernist revolution did not really launch a new architectural 'language', it was more a matter of attitude: optimistically progressive, essentially economic and frequently technocratic. The rules of historical architecture were considered superfluous and were thrown out the window. The consequence of the resulting *tabula rasa* situation was that designers had to rely more and more on their individual capacities of judgment, having to develop their *own* sets of rules, often per project.
One of the difficulties of the modernist approach was that, whilst previously one could consider the interplay of distinguishable aspects, which could be attributed to the domains of truth and character; composition now became a kind of 'melting pot' of the two – character *through* truth – whereby the emphasis came to lie on unadorned, *architectonic* means of expression.
Modernist architecture clearly exhibited *rationalistic* formal conventions, which were not always acknowledged by the public at large, as well as by connoisseurs of historic architecture.

John Summerson's 'condensation' of the rationalistic debate in architecture, up to Le Corbusier:

> *"This is, of course, a grotesque simplification, indicating only some of the more obvious peaks in a great range of argument. … Again in rough caricature, one could sketch the process like this. Perrault said antiquity is the thing and look how rational; Lodoli seems to have said rationalism is the thing, down with antiquity; Laugier said up with primitive antiquity, only source of the rational; Viollet-le-Duc said up with Gothic, prototype of the rational. Eventually a voice is heard saying down with all styles and if it's rationalism you want, up with grain elevators and look, how beautiful!"*[104]

John Summerson, in: *The Classical Language of Architecture*:
"What has happened to the classical language?
The generally accepted view is that the Modern Movement killed it, and that is not far wrong."[105]

The appreciation of works of modern architecture tends to be a matter of an *acquired* taste.
Someone familiar with the methods and products of the modern movement would conceivably be struck by Mies van der Rohe's Seagram Building as an almost perfect expression of architectural order and form. On the other hand, someone with less knowledge and affection for this type of architecture could just as easily find it dull, uninspiring, even a kind of perceptual *deprivation*.
Post-war modernism would have an enormous impact, but was increasingly viewed – by the general public as well as by the architects themselves – as a restrictive straight-jacket.
The – supposedly – dominant role played by 'heroic' modernism, particularly in the Netherlands, may be considered to be another enduring myth, which has been widely expounded, particularly in architectural education.

As early as 1929, Henry-Russell Hitchcock identified two modernist steams in Dutch architecture: 'New Tradition' and 'New Pioneers'.[106]
The most prominent architectural 'streams' that were identified by Hitchcock at the time:

New Tradition in Holland:
Cuypers and Berlage, as well as de Bazel, but particularly the architects of the Amsterdam School: M. de Klerk and P. Kramer. He further mentions W.M Dudok and (in one breath) Boeienga, Mertens, Baanders and Staal.

New Pioneers in Holland:
J.J.P. Oud (after his Berlage-influenced work and his De Stijl period, being considered by far the most important of the Pioneers, followed by Rietveld. Further pioneers of note are Duiker & Bijvoet and van der Vlugt.

In time, Hitchcock might have recognised the role that would be played by Granpré Molière and his trusted Delft School compatriot J.F. Berghoef, as the true representatives of the developing *New Tradition* in the Netherlands, through their private practices, as well as their professorships in Delft.

4.2.12 Reaction and Re-invention

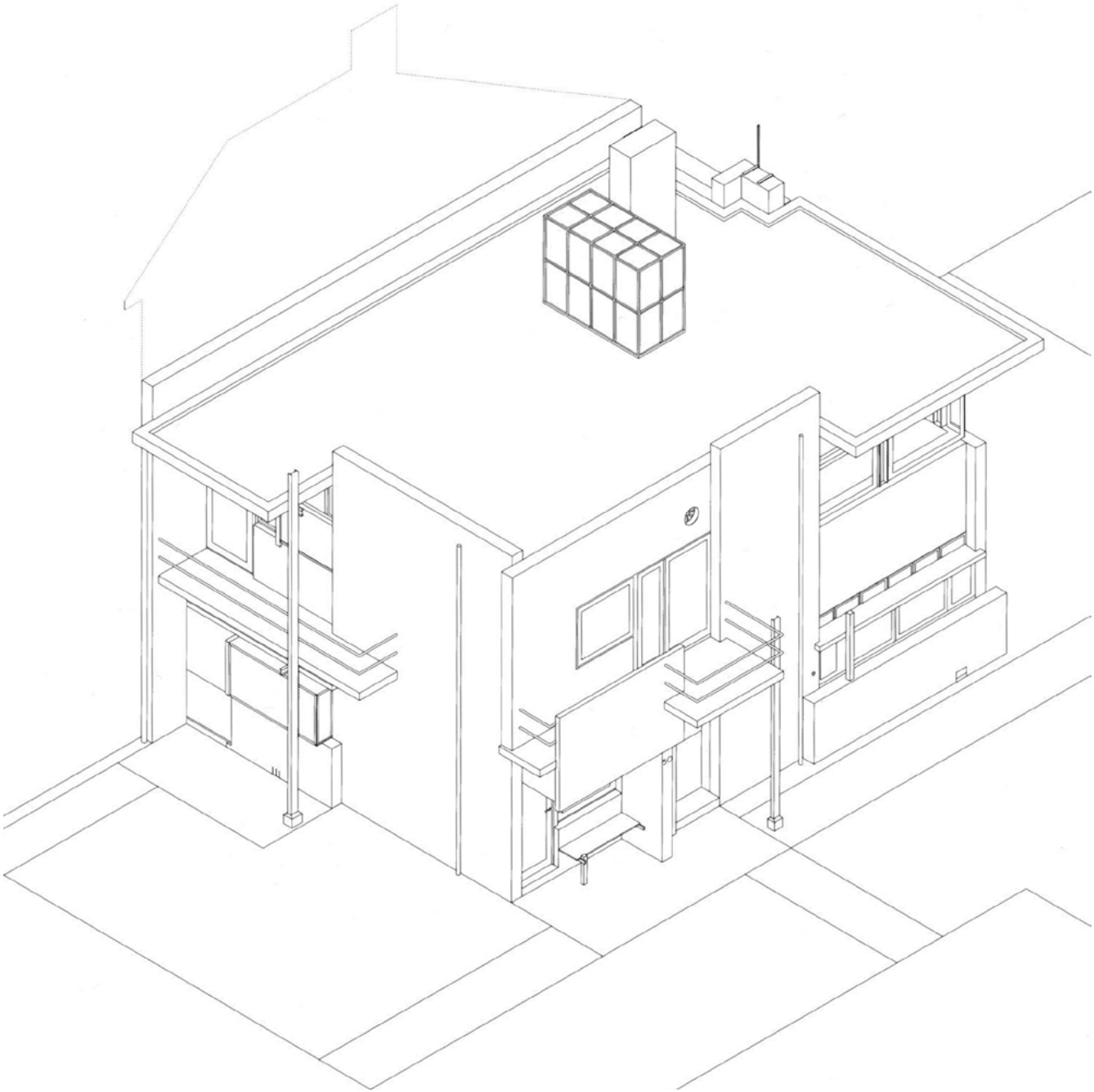
Whilst, after the second world war, there seemed to be an uncomfortable balance ('shake hands') between the architects belonging to the camps of the modernist and traditionalist, this was not really the case.
Around 1960 it appeared that the 'true' modernists had won, with architects like van den Broek & Bakema, Maaskant and OD205 securing the most prestigious commissions.

By way of reaction to this dominant, 'brutalist' corporate modernism, characterised by high levels of repetition and the use of concrete and steel, the second half of the twentieth century gave rise to a steadily changing, motley procession of 'unconventional' trends, even including ironic re-interpretations of classical templates.
Whilst the architectural landscape became increasingly dynamic and varied, there tended to be very little agreement on the level of aesthetics and style within the profession.

Towards the turn of the millennium, the design landscape might be said to be characterised by linguistic freedom: a new modernism without hang-ups, with designers allowing themselves considerable formal license, for the sake of aesthetic expression.
Collage approaches, involving the sculptural transformation of primary volumes, an emphasis on material expression and tactility and ornate surface patterns, became predominant in design, whereby traditionally *architectonic* conventions were frequently used for the sake of *architectural* effect.

After the turn of the millennium these neo-modernist experiments had largely begun to lose their shine and the influence of 'market' parties was increasingly felt. Particularly on the level of housing-production, this has led to (often superficial) reinterpretations of the more 'conventional' stylistic formats of the twentieth century, such as 'thirties' architecture and even the neo-traditionalism of the Delft School.

The twentieth century was a particularly interesting period in the context of the constantly shifting conventions, inventions, neo-conventions and re-inventions in Dutch architecture.
Looking back over the broad field of design, from the viewpoint of the early twenty-first century, an attempt has been made to re-consider the approaches that have been fuelled by due respect for conventions as well as by the timeless call of the 'spirit of invention', on the basis of a selection of built artefacts, in the case-study project entitled the *AA Variations*.



Rietveld's Schröder House (source: 'Honderd Jaar Nederlandse Architectuur').

1 From the documentary series presented by professor Brian Cox: *Forces of Nature*. Edition 4 of 4: *The Pale Blue Dot*, BBC, London, 2016.
2 Terrence Curry, in: *Form Follows Feeling, The Acquisition of Design Expertise and the function of Aesthesis in the Design Process*, Dissertation, Delft University of Technology, faculty of Architecture and the Built Environment, Department of Urbanism, 2017. Pg. 165.
3 Roderick Kemsley and Christopher Platt: *Dwelling with Architecture*, Routledge, London, 2012.
See also: the section on the theme of 'Space'.
4 Peter F. Smith, in: *Complexity, order and an architectural aesthetic*. In: David Canter, Martin Krampen & David Stea (eds.): *Environmental Perspectives, Ethnoscapes*, Avebury, Aldershot, 1988, pg. 201.
5 Peter F. Smith, on environmental exploration and classification in: Complexity, order and an architectural aesthetic (1988). Pg. 202:*a "There are two incentives behind the exploratory drive. The first involves the pleasure derived from confronting novelty and surprise and is associated with arousal and all its psychological consequences. When the new has been grafted onto the corpus of existing knowledge and the re-classification is complete, a second class of pleasure comes into operation: the reward for successful adaptation to the new information resulting in a more comprehensive model of the world and thus less chance of being taken by surprise. This second category of reward is connected with the lowering of arousal; of the suppression of its psychological effects. There is a further adaptive benefit in that this pattern of behaviour tends to enhance the capacity to process novelty. The cycle of curiosity and exploration leading to a higher state of orderliness is said by Berlyne and others to be at the root of the aesthetic experience."*
6 Beauty, definition: *'The combination of all of the qualities of something that delight the senses and mind.'*
Source: Collins *English Dictionary and Thesaurus*, HarperCollins Publishers, Aylesbury, 1994.
7 Antonyms to beauty: *'flaw, repulsiveness, ugliness, unpleasantness, unseemliness'.*
Source: *Collins English Dictionary and Thesaurus*, HarperCollins Publishers, Aylesbury, 1994.
8 There seems to be a kind of gender-based bias in this matter. For instance: 'good looking' seems to be a 'male' whilst 'pretty' or 'lovely' have a more female 'ring' to them.
9 In: *Origins of Architectural Pleasure*, University of California Press, Berkeley, 1999, Grant Hildebrand recognises three 'scenes' of survival-advantage: *nature; nature and architecture; architecture*.
10 Exemplars of built objects and environments that resonate on an organic level are: artificial landscapes and gardens, such as English and Japanese gardens, as well as vernacular Italian hill towns, but also cityscapes like Venice and even Amsterdam.
11 Patrick Healy: *Beauty and the Sublime*, SUN Publishers, Amsterdam, 2003.
12 This 'spiritual' sensation may be the result of a striking combinations of place, object, space. Such qualities may be attributable to – and indeed sensed in – the great cathedrals of the medieval era, Shinto and Buddhist shrines, but also: poetically-modern religious buildings, like Le Corbusier's Ronchamp church.
13 Panayotis A. Michelis: *aisthètikós, Essays in Art, Architecture, and Aesthetics*, Wayne State University Press, Detroit, 1977. Pg. 209.
14 Such conditions of 'heightened awareness' may be brought about by factors like: the light of a setting sun; covered in the snow or in a storm.
15 Herman Hertzberger, interviewed in *Over Schoonheid* (2000), pg. 77:
"Er bestaat een innige band tussen gevoelens van affectie en schoonheid."
Translation by the author.
16 Popularity and potential downfall pose a threat to cities like Venice, Barcelona and Amsterdam. Bali, the Taj Mahal, but also Falling Water, the Barcelona Pavilion, the Eiffel Tower, the Guggenheim Bilbao etc..
17 John Belcher, A.R.A.: *Essentials in Architecture, An Analysis of the Principles & Qualities to be looked for in Buildings*. B.J. Batsford, 94 High Holborn, 1907.
18 John Belcher, Chapter 1: *Principles. Truth*. Pg. 11.
19 John Belcher, Chapter 1: *Principles. Beauty*. Pg. 20.
20 Jo Coenen: *'Ik vertrouw het huidige tijdsbeeld niet'.* In: Marijke Beek (ed.): *Over Schoonheid, architectuur, omgeving, landschap*, Het Oversticht, Zwolle, Uitgeverij Waanders b.v., Zwolle, 2000. Pg. 76.
Jo Coenen, in 2000:
"In die sfeer is er nauwelijks ruimte voor het openlijk belijden van schoonheid. Het gebruik van woorden als liefdevol en schoon kwalificeren je direct als sentimenteel. Termen als deze worden verfoeid en gemeden. Je bedenkt je wel twee keer voordat je deze begrippen in de mond neemt. Dat is de redden voor het verdwijnen van het begrip schoonheid."
Translation by the author.
21 J. Dijkstra, chairman Het Oversticht, in his Foreword ('Voorwoord') to: Marijke Beek (ed.): *Over Schoonheid, architectuur, omgeving, landschap*, Het Oversticht, Zwolle, Uitgeverij Waanders, Zwolle, 2000, Pg. 5.
The Dutch text of the quote, in full:
"Decennialang is 'schoonheid' min of meer taboe geweest. In het rationele taalgebruik van de moderne welvaartstaat past het woord kennelijk niet. In plaats daarvan hebben we begrippen geïntroduceerd als belevingswaarde en ruimtelijke kwaliteit. Woorden die schijnbaar objectiever klinken en zo wellicht beter passen in ons ambtelijke jargon en in een samenleving waar rechtszekerheid en verantwoording steeds belangrijker worden.
Waarom is dat zo? Wat bepaalt eigenlijk mooi en lelijk en waarom verschillen de opvattingen daarover soms wel, of juist niet? In ons werk erveraren we dagelijks hoe lastig het is onze doelstellingen in concrete adviezen onder woorden te brengen. Het lijkt alsof de goede woorden en betekenissen niet (meer) voorhanden zijn, terwijl de behoeft aan schoonheid juist groter is dan lange tijd het geval was. Gelukkig mag daar nu weer over worden gesproken en geschreven."
Translation by the author.
22 Auke van der Woud: W*aar zijn de waarden?* In: Marijke Beek (ed.): *Over Schoonheid, architectuur, omgeving, landschap*, Het Oversticht, Zwolle, Uitgeverij Waanders b.v., Zwolle, 2000. Pgs. 64 & 71:
"Wat is mooi? We ontwijken die vraag. Mooi is een kwestie van smaak, en er is bijna geen onderwerp dat zoveel gehakketak uitlokt als smaak. Mooie muziek, mooie gebouwen: zelfs als we een zekere consensus hebben zoeken we naar een persoonlijke invalshoek waarmee we ons kunnen onderscheiden. Lang geleden zeiden de denkers die over schoonheid filosofeerden de gustibus non est disputandum. Wij zeggen 'over smaak valt niet te twisten', een rare vertaling die in strijd is met onze ervaring.
Maar die oude geleerden bedoelden iets anders. Disputare is een betoog opbouwen, redeneren volgens de objectieve wetten van de logica en de welsprekendheid. Het is zinloos dat ik mijn smaak als iets objectiefs en logisch zou willen beredeneren, want mijn smaak is per definitie subjectief. Hield dat ook in dat de filosofen op de vraag 'wat is mooi' zwegen? Integendeel, ze hadden er zelfs speciale theorieën voor ontwikkeld, behorend tot het filosofische terrein van de esthetica, de schoonheidsleer. Om te kunnen beoordelen wat mooi, minder mooi of lelijk was, bestonden regels die objectief, dus (in theorie) algemeen geldig waren. Die regels maakten de kunsten niet saai en star, want grote kunstenaars lieten zien dat de regels konden worden gerespecteerd terwijl ze tegelijkertijd werden overschreden – misschien beter gezegd: werden overstegen. ... En wat is mooi? Mooi en lelijk zijn heel interessante kwesties, maar de wezenlijke vraag gaat over de waarden waar ze een expressie van zijn."

Translation by the author.
23 Peter F. Smith, in: *Complexity, order and an architectural aesthetic* (1988), pg. 202:
"Classification is normally associated with equating sensory input with existing models. In terms of information this can be expressed as encountering complexity so as to achieve a higher level of orderliness – a richer mental model. … The classification routine can be adapted to judging the quality of the relationships between phenomena and this, I believe, is where we cross the threshold of aesthetics."
24 Walter Dorwin Teague: *Design this Day, The Technique of Order in the Machine Age*, The Studio Publications London, 1946. Pg. 225.
25 In: Hendrik Petrus Berlage: *Thoughts on Style 1996-1909*, *Texts & Documents*, translation by Iain Boyd Whyte and Wim de Wit, Getty Center for the History of Art and the Humanities, Santa Monica, 1996. Pg. 230.
26 When I started my studies in Architecture in Delft in the early seventies (in the wake of the uprisings of 68/69), 'esthetisch'' was considered to have the ring of a lack of un-originality and slickness.
The term 'esthetisch' was widely used for the selling of building products, which were advertised as being 'aesthetically reliable/acceptable' ('esthetisch verantwoord').
27 Richard Hill, in: *Designs and their Consequences* (1999). Pg. ix:
"Aesthetics has the reputation of snuffing out the object it studies. Wodsworth's phrase was 'we murder to dissect'. Aesthetic theory, it is suggested turns architectural pleasures, the human life in buildings and the lives of buildings themselves into dusty abstractions. As the avant-garde well knows, the arrival of the aesthetic theorist is a sign that it is time to move on to something new."
28 P.F. Smith, in: *The Dynamics of Delight, Architecture and Aesthetics*, Routledge, London, 2003. Flap-text.
29 Richard Hill in: *Designs and their Consequences, Architecture and Aesthetics*, Yale University Press, New Haven and London, 1999, pg. 1, chapter: An Art of Design.
30 Terrence Curry, in: *Form Follows Feeling, The Acquisition of Design Expertise and the function of Aesthesis in the Design Process* (2017). Pg. 30.
31 Tineke Loggers: *Wattjes en de Nieuwe Bouwkunst, Prof. ir. J.G. Wattjes (1879–1944), publicist en architect*, Walburg Pers, Zutphen, 2005.
Wattjes belonged to a category of architects that were not particularly innovative of modern themselves, but had an open eye – and mind – concerning the works of the up-and-coming architects of their time.
32 Prof. Ir. J.G. Wattjes: *Nieuw-Nederlandsche Bouwkunst / Modern Architecture in Holland*, N.V. Uitgevers-Maatschappij 'Kosmos', Amsterdam, 1929, Introduction. Pg. VIII.
NB: This evocative text is the original English translation. Besides including the text in Dutch, it was also printed in English, German and French.
33 Panayotis A. Michelis: *aisthètikós, Essays in Art, Architecture, and Aesthetics*, Wayne State University Press, Detroit, 1977. Pg. 253.
34 Herman Hertzberger, interviewed in *Over Schoonheid* (2000), pg. 78-79):
"Maar ik wil vooropstellen dat ik in de appreciatie van architectuur geen hiërarchie wil onderkennen. De mening van niet-insiders is acht ik niet minder dan die van architecten en architectuurhistorici.
Maar net zoals bij muziek, de schilderkunst of het koken kan de ingewijde ontegenzeggelijk meer kwaliteitsverschil constateren. ...
Kwaliteitsbesef creëer je door producten ten opzichte van elkaar te stellen. Het verschil is bepalend."
Translation by the author.
35 Martin Tuitert, architect in: Michiel Hogerhuis, dr. Martijn van Oorschot: *Een zoektocht naar schoonheid, Over smaak moet je twisten!*, Habiforum, Expretisenetwerk Meervoudig Ruimtegebruik, Gouda, Raad voor Ruimtelijk, Milieu- en Natuuronderzoek (RMNO), Den Haag. Pg.101.
"Esthetica als grondbeginsel is voor architecten natuurlijk niet nieuw. In het ideale geval is de esthetica de heimelijk drijfveer voor een architect. Heimelijk...? Ja. Want in de dagelijkse praktijk is de esthetica natuurlijk wel degelijk een verkoopwaarde (kijk maar naar de glossy magazines, die mooie webpages etc.; media waar esthetica goedkoop realiseerbaar is), maar de prioriteit bij opdrachtgevers (voor de gebouwde omgeving) ligt in het praktische. Heimelijk omdat je in de praktijk functionele argumenten moet vinden voor je keuzes. Die functionele, praktische, organisatorische, economische, logische argumenten houden stand in discussies en zijn je wapens in het gevecht om schoonheid, menselijkheid, individualiteit en andere "onbetaalbare" kwaliteiten. En het kan. Je kan deze gevechten winnen. Het is een heimelijk gevecht. En daarom zal niemand weten dat je gewonnen hebt. Daarom ook de subculturen, lotgenoten in het gevecht, die elkaar ondersteunen en bekritiseren; subculturen die oppervlakkig gezien een hoog incestueus gehalte hebben, en dat bij nadere bestudering daadwerkelijk ook zijn. Lotgenoten."
Translation by the author.
36 An Artist may be defined as: *'a person who displays in his work qualities required in art, such as sensibility and imagination, artistic expertise'.* In this context, Art may be given a number of – parallel – definitions, including: *'the creation of works of beauty or other special significance; the exercise of human skill (as distinguished fro nature); imaginative skill as applied to representations of the natural world or figments of the imagination; method, facility or knack'.*
37 Juhani Pallasmaa: *Eye, Hand, Head, and Heart- Conceptual Knowledge and Tacit Embodied Wisdom in Architecture*. In: *The Four Faces of Architecture – on the Dynamics of Architectural Knowledge*, Lena Villner & Abdellah Abarkan (eds.), School of Architecture, Royal Institute of Technology, Stockholm, Sweden, 2005.
38 Terrence Curry (2017), in: *Form Follows Feeling, The Acquisition of Design Expertise and the function of Aesthesis in the Design Process* (2017). Pg. 250.
39 After hearing the enthusiastic reaction of my former Form Studies colleague Bernard Olsthoorn about a particularly successful booklet made by a 1st year student, it became apparent to me that the aesthetic pleasure in such a case comes from the recognition of the creative *control* which is displayed in the work.
So: aesthetics may also be identified as the recognition of the controlled *application* of techniques, creating something that may inform, as well as be beautiful.
40 William Hubbard in: *A Theory for Practice, Architecture in Three Discourses*, The MIT Press, Cambridge Massachusetts, London, 1995. Pg. 4.
41 A recent initiative in this direction was the development of a BSc 'Foundations' (Grondslagen) course, consisting of three GR Modules, in the first and second years of study. An important aspect of the didactic approach relied on the evolvement of a stimulating documentation of plans ('Plannenmap').
42 This is a primary ambition of the precedent-based Foundations ('Grondslagen') courses in the BSc curriculum at the Faculty of Architecture in Delft.
43 Robert Harris: *Enigma*, Hutchinson Publishing, 1995.
The book evocatively portrays the intellectual work of the code-breakers at Bletchley Park, as well as the influence of early computation. The moment of 'genius' which is alluded to is the moment that codebreaker Tom Jericho suddenly sees a way to 'pick the lock' of the Enigma coding-system.
44 I first encountered the notion of aesthetic 'pain-barriers' in education and beyond from my former Form Studies colleague Willem Vogel.
45 An example of this category has for me been what became the 'Ledoux Variations'; a mode of expression that was averse to my

personal aesthetic sensibilities, but nonetheless proved to be highly rewarding on the level of compositional 'enquiry'.

46 Dijkstra explored the conditions of what he considered to be architectural 'quality' in a memorandum, which he drew up as government architect in 1985, in which he made a concerted attempt to define architectural 'quality'. The paper was eventually published in a booklet in 2001.
The original Paper: Tjeerd Dijkstra: *Een notitie over architectuurbeleid*, Rijksgebouwendienst, Ministerie van VROM, Den Haag, 1985. Printed in book-form: Uitgeverij 010, Rotterdam, 2001.

47 The original Dutch text (extended quote): *"Vooral in tijden van diepgaande maatschappelijke veranderingen die culturele heroriëntatie oproepen ontstaan bewegingen die gangbare concepten verwerpen en nieuwe wegen zoeken. Toch kan tegelijkertijd worden vastgesteld dat hoogtepunten van architectuur, tot welke stijlperiode zij ook behoren, op den duur algemeen erkend worden, ook al gaat er vaak enige tijd overheen voordat die erkenning een feit is. Vaak zelfs, en juist bij het ontstaan van nieuwe stijlvormen, gaat aan de uiteindelijke waardering een periode vooraf van miskenning of zelfs absolute verwerping. Deze is heviger naarmate nieuw ontwikkelde concepten sterker afwijken van het tot dan toe vertrouwde beeld. Veel gebouwen die later tot monumenten werden verklaard hebben bij hun ontstaan aanleiding gegeven tot hevige discussies tussen voor- en tegenstanders. Hoe feller zulke discussies zijn geweest hoe groter de kans dat de betreffende bouwwerken na verloop van tijd als monument van bouwkunst worden aangemerkt."* Pg.06. Translation by the author.

48 The quoted section: *"Als architectonische kwaliteit weliswaar niet steeds onmiddellijk, maar toch op den duur algemeen erkend kan worden, dan moet het mogelijk zijn vast te stellen welke elementen daarin ondanks alle verschillen een bepalende rol spelen, om op grond daarvan ook te bepalen welke criteria bij de beoordeling gehanteerd kunnen worden."* Pg 06. Translation by the author.

49 Tectonic culture and expression are a matter of acquire technique. Stephen Fry on talent and technique:
"Talent is inborn but technique is learned."
In: Stephen Fry: *The Ode Less Travelled, Unlocking The Poet Within* (2005), Arrow Books, London, pg. xv.

50 A characteristic regional building type is the so-called *Umgebinde Haus*, which is found in the German, Polish and Czech borderlands of the Oberlausitz (Upper Lusatia). An explorative, thematic study of this building type has informed the development of this study.
Jack Breen and Bram van Borselen: *Unravelling the Umgebinde – Exploring Compositional Patterns and Variations in a Vernacular Building Type* (2011), in: Jack Breen, Martijn Stellingwerff (eds.): *Envisioning Architecture, proceedings of the 10th EAEA Conference*, Delft, 2011.

51 The art of the engineers did not only give impulses to new building types, but also an appreciation of technology as a condition of 'truth' that should not be hidden, or even 'softened' by decoration.

52 The iterative cycles of convention and invention were addressed in a contribution to a conference on the *'Four Faces' of Architecture.*
Jack Breen: *Convention . Invention . Convention*, in: Lena Villner & Abdellah Abarkan (eds.): *The Four Faces of Architecture – on the Dynamics of Architectural Knowledge* (2005), School of Architecture, Royal Institute of Technology, Stockholm, Sweden.

53 The definition of 'Paradigm' that is used here is an adaptation of the definitions in Collin's Dictionary and Thesaurus and the on-line dictionary: Dictionary.com.

54 This section is based in part on an earlier publication, which has been adapted and expanded for this purpose.
The original article: Jack Breen: *Convention . Invention . Convention*. In: Lena Villner, Abdellah Abarkan: *Four Faces of Architecture – On the Dynamics of Architectural Knowledge*, School of Architecture, Royal Institute of Technology, Stockholm, Sweden, 2005. Pg. 87.
This concise article was written on request, after the publication of two Papers in the Proceedings of the 20th EAAE Conference, Stockholm-Helsinki, 2003:
– Jack Breen: *Convention and Invention* (pg. 25) and
– Jack Breen: *Mapping Design Media* (pg. 31), in: *Four Faces – The Dynamics of Architectural Knowledge, Book of Proceedings*, 2003.

55 Douglas Hofstädter and Emmanuel Sander: *Surfaces and Essences, Analogy as the fuel and fire of thinking*, Basic Books, Philadelphia, 2013. Pg. 20.

56 Hubbard uses the expression: '*Games as a Model for an Architecture of Convention'.*
In: William Hubbard: *Steps toward an Architecture of Convention*, The MIT Press, Cambridge Massachusetts and London, England, 1980.

57 As has been mentioned in the 'Methods' section, the link between architecture and orchestration of form and knowledge has been made by Geoff Matthews:
"Design is not only a great orchestrator of knowledges, it constructs its own peculiarly polyvalent knowledge which makes visible and realizable the possibility of change."
G. Matthews, in: *'Doctorates in Design?'* (1996).

58 To name a few 'popular' styles: *vaudeville, jazz, ragtime, boogie-woogie, gospel, blues, folk, bluegrass, country & western, rockabilly, rock & roll, rhythm & blues, pop, beat, acid, soul, funk, ska, reggae, rock, glam, prog, punk, new wave, crossover, world, house, dance, trance, garage, grunge, gothic, rap, hip hop, r&b, fusion, stoner rock, hard-style, alt-country, power-pop, k-pop* etc..

59 To name a few: *Neo-classicism; Neo-Gothic; Eclecticism; Art Nouveau; Expressionism; Art Deco; De Stijl; Constructivism; Early Modernism, Neo-traditionalism; Totalitarian Classicism; Totalitarian Traditionalism; Post-war Modernism; Brutalism; Structuralism; Post-modern Symbolism; Post-modern Classicism; Environmentalism; Critical Regionalism; Neo-vernacular; New-wave modernism; De-constructivism; Hi-tech; Blob; Super-modernism, Retro*, etc..

60 Ian MacDonald: *Revolution in the Head, The Beatles' Records and the Sixties* , first published in 1994. Pimlico edition, Cox & Wyman Ltd., Reading, 1995. In: *Introduction: Fabled Foursome, Disappearing Decade*, pg. 11.
Ian Macdonald, on Lennon and McCartney's synthesis, as two *separat*e composers:
"While the group's musical unorthodoxy quickly attracted the attention of classical critics, the latter's failure to spot that the Lennon-McCartney partnership contained two separate composers was a revealing blunder, if an understandable one. After all, if the idea that one could write and play one's own music was in itself startling in 1962-3, the notion that a song-writing team might consist, not of a composer and a lyricist, but of two independent writer/performers was unheard of. (That The Beatles included a third writer/performer, capable of what Frank Sinatra has called 'the greatest love-song of the last fifty years', testifies to their rare depth of talent)." Pg. 10.

61 Ian MacDonald, in: *The People's Music,* pg. 197:
"Before taking the argument further, a basic truth about popular music needs to be acknowledged, which is that far from signifying the same thing to everyone, it makes quite different impacts on different sections of its audience according to the dispositions of those involved. Pop music, especially the pop music made since 1963, expresses itself in three separate ways" musically, lyrically and through the aspect of tone or style expressed in attitude and appearance. For many consumers of pop, these three principles are mutually exclusive. It can be possible to enjoy pop music almost entirely on the basis of enjoying the look and feel of the way the performers present themselves, irrespective of their lyrics or music.

For others, the chief medium of appreciation is the words of the songs or the music considered independently of the words (and, conceivably of the tonal-stylistic aspect). In practice, most of the audience bases its enthusiasm on a combination of two of these components. Few pop fans are equally sensitive to all three, which is to say: the audience for pop music is a composite entity which listens in very different ways (and sometimes scarcely listens at all)."

62 Lowell George and Martin Kibbee: *Rock and Roll Doctor*, Naked Snake Music (ASCAP), 1974.
Originally from the album: *Feats Don't Fail Me Now,* by Little Feat, Warner Bros. Records Inc., Burbank, California, 1974.

63 In: Michiel Riedijk (ed.): *Architecture as a craft, Architecture, drawing, model and position*, SUN Publishers, Amsterdam, 2010. In: *Epilogue*, Pg. 27.

64 Panayotis A. Michelis: *aisthètikós, Essays in Art, Architecture, and Aesthetics*, Wayne State University Press, Detroit, 1977. Pg. 221.

65 J. Summerson, in: *The Classical Language of Architecture*, London: Thames and Hudson, 1980.

66 The city of Aphrodisias in Asia Minor, now western Turkey, was originally a Hellenistic settlement, which later became part of the Roman empire. The town was famous for the quality of its marble and the skill of its sculptors and its urban fabric was a showcase for its reputation as a centre of sculptural enterprise, as is still evident today.

67 Vitruvius' translator Ton Peters makes this distinction between terms denoting the work of the architect and the result of this labour in the recent Dutch version of Vitruvius' books.
Vitruvius, who mixes these concepts freely, does not make this thematic division. Annotations to Book 1, T. Peters, *Vitruvius, Handboek Bouwkunde*, Amsterdam: Atheneum, 1999.
Thomas Gordon Smith: *Vitruvius on Architecture*, The Monacelli Press, New York, 2003.

68 Source: H. Stierrlin, *Imperium Romanum, van de Etrusken tot de val van het Rijk*, Kerkdriel, Taschen/Libero, 2002.

69 Leo Battista Alberti, quoted in R. Wittkower, *Architectural Principles in the Age of Humanism*, Tiranti, 1952. Pg. 6.

70 Vitruvius describes the principle of the round temple in Book IV, Chapter 8 (on 'anomalous' temple forms).

71 Summerson:
"No architect – anyway no young and impressionable architect – who visited the Medici Chapel when Michelangelo had done with it, could ever feel quite the same about architecture again." See note 11.

72 Giorgio Vasari, *Le vite de' più eccelenti pittori, scultori e architettori*, Dutch translation, Anthonie Kee, Uitgeverij Contact, Amsterdam, 1998.

73 Andrea Palladio, from P. Murray: *The Architecture of the Italian Renaissance*, Thames and Hudson, 1969.

74 Source: Adolf K. Placzek, in the introduction to the 1965 facsimile edition: *Andrea Palladio, The Four Books of Architecture*, Dover Publications, New York, 1965.

75 Giles Worsley: *Inigo Jones and the European Classicist Tradition*, The Paul Mellon Centre for the Studies in British Art, Yale University Press, New Haven and London, 2007.
Ornella Selvatfolta: *Klassieke bouwwerken in Londen*, 17e-19e eeuw, Atrium, Alphen aan den Rijn, 1989.

76 Koen Ottenheim: *Schoonheid op Maat, Vincenzo Scamozzi en de architectuur van de Gouden Eeuw*, Architectura & Natura, Amsterdam, 2010.

77 John Jacobus Jr., writing about Jefferson's Library, University of Virginia, Charlottesville, 1917 (caption): *"Bookishness, the product of an amateur's background, was the weakness of Jefferson's architecture. Its is evident even in his lay-out for the University of Virginia, in which many classical styles were reproduced."*
In: Trewin Copplestone (general editor): *World Architecture, An Illustrated History*, Hamlyn, London, 1963.

78 Pendleton Hogan: *The Lawn, A Guide to Jefferson's University*, University of Virginia Press, Charlottesville and London, 1987.

79 Guido Beltramini, Fulvio Lenzo: *Jefferson and Palladio, constructing a new world*, Centro Internazionale di Studi di Architectura Andrea Palladio, Officina Libraria, Milan, Italy, 2016.
Frederick Doveton Nichols: *Thomas Jefferson's Architectural Drawings, Compiled and with Commentary and a Check List*, Thomas Jefferson Memorial Foundation, Charlottesville, 1960.

80 Wittkower expresses this sentiment as follows:
"As man is the image of God and the proportions of his body are produced by divine will, so the proportions in architecture have to embrace the cosmic order."
In: Rudolf Wittkower, *Architectural Principles in the Age of Humanism*, London: Academy Editions, St. Martin's Press, 1949.

81 Richard Padovan: *Proportion, Science, Philosophy, Architecture*, London: E & FN Spon, 1999.

82 An example of such an architectural 'recipe book': William Halfpenny. *Practical Architecture, or a Sure Guide to the true working according to the Rules of that Science*, London, 1730, reprint Benjamin Blom, New York, 1968.

83 Alberto Pérez-Gómez offers an enlightening appraisal of this dispute in his introduction of Perrault's 'Ordonnance'.
In: Claude Perrault: *Ordonnance of the five kinds of Columns after the Method of the Ancients*, Santa Monica: The Getty Centre for the History of Art and the Humanities, 1993.

84 Perrault in Part Two, Chapter VII (*Abuses in the Alteration of Proportions*). Perrault, see: note 24.

85 An overview of the eminent visitors and their findings is given in: Raspi Serra, Joselita (ed.): *Paestum – Idea e Immagine, Antologia di testi critici e di immagini di Paestum 1750-1836*, Franco Cosimo Panini Editore, Modena, 1990.

86 The unusual format of the Basilica was 'corrected' in the following two temples, but they possessed almost the same megalithic qualities. Note: the third temple (introducing an Ionic order in its interior) is of approximately the same date as the Parthenon in Athens.

87 Paestum has remained something of an enigma and several books have been published on the site and its architecture, including:
- Hans Kayser: *Paestum, die Nomoi der Drei, Altgriechischen Tempel zu Paestum*, Lambert Schneider Verlag, Heidelberg, 1958.
- Otto Hertwig: *Über Geometrische Gestaltungsgrundlagen von Kultbauten des VI. Jahrhunderts v. Chr. Zu Paestum*, C.H. Beck'sch Verlagsbuchhandlung, München, 1968.
- Friedrich Kraus: *Paestum – Die Griechischen Tempel*, Gebr. Mann Verlag, Berlin, 1976.
The project led to a brief collaboration with some students in 2009 under the name 'The Paestum Papers' but as not yet resulted in publication.

88 Anthony Viddler, in: *Claude-Nicolas Ledoux, Architecture and Utopia in the Era of the French Revolution*, Birkhäuser, Basel, 2006. Pg. 108.

89 As has been mentioned in the 'Explorations' section, the 'Ledoux Variations' gave rise to a limited visualisation study, on the basis of the few buildings that remain.
The 'toolbox' aspect has also been a matter of interest in the context of the exploration of compositional 'domains'.

90 Emil Kaufmann: *Von Ledoux bis Le Corbusier, Ursprung und Entwicklung des Autnomen Architektur,* Verlag Dr. Rolf Passer, Wein, 1933.

91 J.N.L. Durand: *Précis des leçons d'architecture, 1802-5* and *Partie Graphique des cours d'architecture*, 1821.

92 Two noteworthy publications on the issue:
- W.J. Mitchell: T*he logic of architecture, Design, computation and cognition*, MIT Press, Cambridge Massachusetts, 1990.
- L. Madrazo proposed a procedure of 'turning round' Durand's approach, in: *Durand and the*

Science of Architecture. In: *Journal of Architectural Education*, ACSA, 1994.
Also see: the 'Methods' section.
93 M.A. Laugier, *Essai sur l' Architecture*, Paris, 1753.
94 'Wand' is a word that is used in the German (and Dutch) language to denote a – not necessarily massive – vertical space-separation and may indicate aspects of its structure as well as its surface qualities.
The compositional aspects of such enveloping structures were addressed in a study which appeared in a Dutch language publication: Jack Breen, Bernard Olsthoorn, *De Wand*, Delft: Publicatiebureau Bouwkunde, TU Delft, 2002.
95 This issue of 'Verkleidung', as introduced by Semper is identified by Hans Kollhoff as an important issue in (his) present-day practice.
Original publication: H. Kollhoff, *Der Mythos der Konstruktion und das Architektonische*. In H. Kollhoff (ed.), *Über Tektonik in der Baukunst*, Braunschweig: Vieweg, 1993.
96 Pierre Saddy: *Henri Labrouste, architecte 1801-1875*, Caise Nationale des Monuments Historiques et des Sites, Paris, 1977.
97 Auke van der Woud recognizes the inspiration of the visible iron trusses in an award-winning completion –design for a post office by J.H. Leliman (1852). The 'rationalist' approach to architectural composition using iron and glass may also be recognized in Cornelis' Oudshoorn's Palace of National Industry ('Paleis van Volksvlijt') in Amsterdam (1858–64).
Source: Auke van der Woud: *The Art of Building, From Classicism to Moderinity: The Dutch Architectural Debate 1840–1900*, Ashgate, Burlington, 2001. Pgs. 36 & 51.
98 In the Netherlands architectural discourse was dominated by these aspects of "Waarheid en Karakter", as has been vividly described by historian Auke van der Woud in his book *The Art of Building: from classicism to modernity. The Dutch Architectural Debate, 1840 – 1900*. See: note 40.
99 Geert Palmaers: *Eclecticisme, Over moderne architectuur in de negentiende eeuw*, uitgeverij 010, Rotterdam, 2005. Pg. 261.
100 H.P. Berlage, in *Thoughts on Style in Architecture* (1905). In: Iain Boyd White and Wim de Wit (eds. And translation) *Hendrik Petrus Berlage*: *Thoughts on Style 1886–1909* (1996). Pg. 123.
101 Personally, I have never become convinced of the reputed ground-breaking qualities of Berlage's stock exchange, although I have tried. To me, the building's proportions are not convincing, the brickwork is heavy-handed both inside and outside and the steel structures supporting the large roofs are nowhere near as refined as the innovative arches of Labrouste's Saint Geneviève library, realised a half century before.
This is not the case with Berlage's last work – the Municipal Museum in The Hague – which I would consider to be an absolute masterwork.
102 Auke van der Woud, in: *Sterrenstof: Honderd jaar mythologie in de Nederlandse architectuur*, 010 Publishers, Rotterdam, 2008. Pg. 43.
Original Dutch text:
"*Het is nog altijd moeilijk te accepteren dat Berlage als architect door en door conservatief was, en dat zijn werk ontkent of mist wat de moderne beweging (of het nu om de Amsterdamse School, De Stijl of om Nieuwe Zakelijkheid ging) centraal stelde: ruimtelijke experimenten, precedentloos materiaalgebruik en een nieuwe expressieve architectonische beeldcultuur.*"
Translation by the author.
103 Cornelis van der Ven: *Space in Architecture, The evolution of a new idea in the theory and history of modern movements*, van Gorkum, Assen, 1978, third revised edition, 1987. Pg.241.
104 John Summerson in: *The Case for a Theory of 'Modern' Architecture.* First published in the *RIBA Journal, June 1957.* Subsequently included in: *The Unromantic Castle and Other Essays*, Thames and Hudson, London, 1990.
The extended quote of Summerson's eloquent 'condensation' of theoretical discourse, up to Le Corbusier's *Vers une Architecture*:
"It all hinges on the ancient body of Mediterranean beliefs, re-stated by Albert, and the hinge occurs in the age of Descartes. One could date its origin rather pedantically from Perrault's critique of Vitruvius. It is picked up in the 18th century by Abbé Laugier whose two essays were the standard statements for half a century. But in 1802 Laugier was attacked as a muddler by Durand who presented his students at the Polytechnique with an altogether tougher and more materialistic case. So far, the argument had proceeded against a background of belief in classical antiquity, but then, fifty years later, Viollet-le-Duc took up a new position, still rationalist but transposing the background from classical to medieval antiquity and purporting to show that the 13th century was the sole repository of rationalist principle. Viollet-le-Duc was, directly or indirectly, the inspiration of many of the pioneers of the modern movement: Berlage, Horta and Perret amongst them.
This is, of course, a grotesque simplification, indicating only some of the more obvious peaks in a great range of argument. Many more names should go in, not all of them French: there is Cordemoy; there is the mysterious Venetian rigourist Lodoli whose influence is hard to estimate because he never wrote anything down; there is Frézier, the engineer; the half-French Pugin. Again in rough caricature, one could sketch the process like this. Perrault said antiquity is the thing and look how rational; Lodoli seems to have said rationalism is the thing, down with antiquity; Laugier said up with primitive antiquity, only source of the rational; Viollet-le-Duc said up with Gothic, prototype of the rational. Eventually a voice is heard saying down with all styles and if it's rationalism you want, up with grain elevators and look, how beautiful!" Pg. 260.
105 John Summerson, in: *The Classical Language of Architecture* (1980).
106 Henry-Russell Hitchcock Jr.: *Modern Architecture, Romanticism and Reintegration*, Payson & Clarke, Ltd. New York, 1929.

5. Conceptions

5.1 Architectural Conceptions

5.1 Architectural Conceptions

5.1.1 Unspeakable Conceptions

How should one 'capture' the aesthetic qualities of an artefact of design and its experience and share the insights these yield with others?
Whilst the actual experience may be vivid and intense, 'words may fail' when trying to put such an *impression* into words.

There is a tendency to view the study of aesthetics in architecture as an *historical* phenomenon, which may be of interest when trying to understand the intellectual conceptions and motivations of philosophers and architectural theorists from some bygone era, but is of relatively little relevance when trying to understand the issues of *contemporary* design.
Whilst it can already be quite difficult to find the right words for the aesthetic qualities of historic artefacts; it is arguably even more problematic to compositional attributes of contemporary architecture.[1]

P.A. Michelis, on the 'secret' language of modern architecture (in 1965):

> *"The language of modern architecture has therefore become secret. One has to learn it in order to read it, whereas in previous ages architecture had something to say to each beholder: it offered certain images he could associate with analogous representations or situations. It was the art of poetic metaphor. And it is this art, perhaps, has been lost in modern art."*[2]

As architectural-historian Auke van der Woud has postulated, we may lack a vocabulary that is suitable for the expression and appreciation of the formal qualities and implicit meanings we are confronted with when considering the architecture of the present-day.

Auke van der Woud, addressing the 'unspeakable' beauty of contemporary architecture (in 1993):

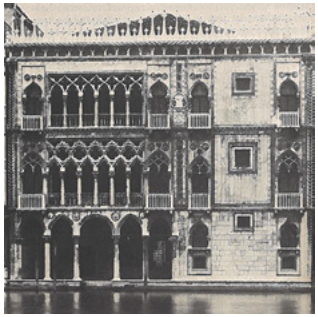
> *"Beauty is a very important condition in contemporary architecture, but its consideration is paradoxical.*
> *The first paradox is that precisely whilst visual beauty (and that is what it is about) is now so important, aesthetical judgements are as good as useless. The statement 'a beautiful building' says something about the speaker's taste, but gives no insights concerning the building itself. The question of beautiful or ugly has become trivial and is therefore hardly ever asked.*
> *The second paradox sits in the core of the architectural practice itself. Even though architects strive towards a maximum of expression in their creative originality – nowadays called 'visual quality' – they keep a safe distance between their work and that of visual artists. They do not emphasis what is evidently shared, which is to reach a maximal artistic effect, but that which distinguishes them – that architects are bound: to their client, the building industry, building technology and not in the last place to the employment of their own staff.*
> *The nineteenth century architect had as his highest ideal to be a building-artist. In our time, the old meaning-rich word 'building art' has everywhere been substituted by the empty concept of 'architecture', which is free of normative connotations.*
> *And there is the second paradox of present-day architecture: the highest aim is still a building that is a work of art, but there are no words left to define the artistic dimension in the work and neither are there concepts by which beauty can be professionally considered. Contemporary architecture has an unspeakable beauty ('onuitsprekelijke schoonheid').*[3]

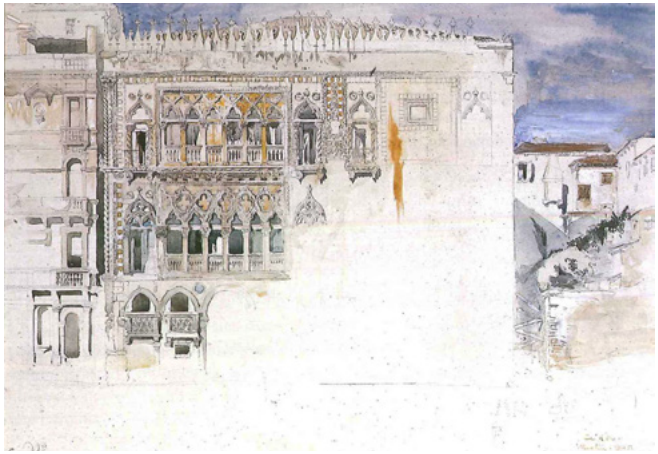
Despite the fact that there does not seem to be an outspoken consensus concerning aesthetics, in formal, structural and material composition, the aesthetic spirit is very much an issue, albeit in many cases as an *implicit* one.
In the domains of architectural discourse and critique, aesthetic preferences figure prominently. Formal judgements are postulated freely in the professional press and even in design research publications, but these are rarely underpinned by objective arguments on the basis of recognised criteria or conceptions.
An intriguing description of an exemplary building's perception in situ, whilst simultaneously addressing the shortcomings of the means of aesthetics analysis, is given by Roger Scruton, on the basis of the famous Ca d' Oro, on the Grand Canal in Venice, which he included in his influential book *Aesthetics in Architecture.*

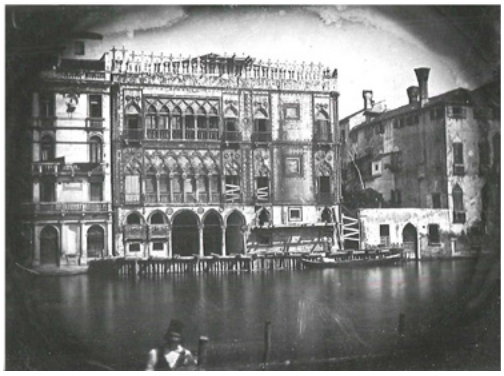
Roger Scruton, on the proportion and harmony of the façade of the Ca d'Oro, in Venice:

> *"Consider the harmonious but asymmetrical façade of the Ca d'Oro, a composition which represents the subtle rhythm of Venetian Gothic at its most delicate and refined. There is simply no way of beginning to describe the harmony of this building in mathematical terms; nothing that we could recognize as an account of its proportionality could really ignore the varied but answering detail of the windows, the ambiguous rhythm of the tracery, the striking bareness of wall against which the round-arched portal is balanced. It seems absurd, in the face of such an example, to suggest that one might abstract from the knowledge of harmonious compositions some set of rules of pure proportion, which can be applied irrespective of style, detail, and viewpoint."*[4]

In aesthetics literature there has been – which Scruton hints at – a thriving practice to overlay such elevations with a criss-crossing array of lines, to as it were 'prove' that the proportions are considered harmonious on a geometrical level and hence justify the 'status' of the object's beauty.







Images of Ca' d'Oro: Scruton; Ruskin (1845) and a photo around the same time.

Perhaps it is possible to be highly attuned, on the level of architectural composition and perception, without needing to recognise the underlying rules.
Scruton's description is accompanied by a black-and-white photo, that manages to 'fill in' the reader, but it does not manage to convey the wonder that he felt.
Apart from trying to capture the 'genius' of such a work of architecture in a piece of written text, a *picture*, be it a photograph, a drawing, a painting or a scheme, might actually be able to better convey the profoundness of the sensory encounter in 'real' life.

As an icon of world architecture, the Canal Grande facade of the Ca d'Oro is extensively documented in drawings and paintings. Most of these tend to be 'picturesque', rather than trying to analytically unravel the complex qualities, which Scruton recognises.
It is interesting to juxtapose Scruton's sense of shortcoming with an 'observation' of another scholar of Venetian art: John Ruskin (1819-1900).
Ruskin's study of the city-state's architecture was impressionistic as well as methodical. Various compositional 'themes' of the city's urban fabric – such as: windows; balconies; chimneys, columns, capitals and decorations – have been collected and ordered systematically.[5]

A crucial image is an impressive attempt at a watercolour painting of the Ca d' Oro, in 1845.
This articulate, but only partly-completed impression gives a fine rendering of what Scruton has put into words, but its reverie seems to have been rudely interrupted (which is attributed to the fact that workmen were simultaneously 'destroying the building').
It has been suggested that the building was partly hidden by scaffolding at the time and that Ruskin as it were 'painted around' these, to visually capture what he could.[6]

Of the various images of the Ca d' Oro I have come across, in travel-guides and architectural retrospectives, it is perhaps the finely-executed pen-drawing by H. Sutterland that most poignantly captures the buildings visual 'musicality' as well as the qualities of its specific water-front location.[7]

One of the most interesting studies on Venice as an architectural construct that has been carried out in recent years has been Giulia Foscari's *Elements of Venice*.
This book (and the accompanying exhibition) was produced on the occasion of the 14th Architecture Biennale, curated by Rem Koolhaas, in 2014 with as its theme: *'Fundamentals'*.

In his Foreword, Rem Koolhaas characterises Foscari's search and its outcomes:

> *"The history of an entire city has never been analysed in this way before, but this is what Giulia has done in the case of Venice: a city so rich in unique masterpieces that it seems futile to search for common patterns. …*
> *By looking through a microscope, Giulia demystifies the percep-*

tion of Venice as a static entity providing (also visual) evidence of key moments of its metamorphosis while offering an interpretation of architectural elements as products of cultural and political shifts rather than just formal experimentation."[8]

In the study, the Ca d' Oro is included as one of the 'unique masterpieces', whereby a computer-generated model image analyses the spatial arrangement of the palace, from *inside*.
Perhaps more importantly, the study makes an attempt to address the 'unspoken qualities' of architecture, by identifying twelve fundamental 'themes', which are considered to be distinguishable on the level of the – historical *and* contemporary – architecture of Venice.

The twelve themes, which were also the central themes of the 2014 Venice Biennale, curated by Rem Koolhaas*:*
"Facade; Stair; Corridor; Floor; Ramp; Roof; Ceiling; Door; Fireplace; Window; Balcony; Wall."[9]

Another author I would consider to be inspiring on the level of thematic organisation is Francis D.K. Ching.
In his visualisation-driven approach, Ching essentially works in the opposite direction to Belcher, identifying the following 'essential' characteristics:

— Primary Elements;
— Form;
— Form & Space;
— Organization;
— Circulation;
— Proportion & Scale;
— Principles.[10]

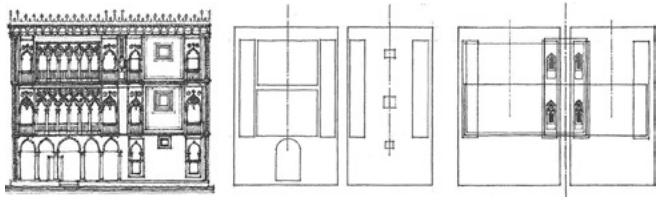
A recent attempt to provide an 'easy-to-use' visual grammar of the nearly infinite variety of the elements of architecture and the way they have been used in buildings across the ages and around the world was carried out by Francesca Prina.[11]
Her informative pictorial approach, which is attractive rather than a concise thematic overview, she recognises the following 'levels':

— The Tools of the Architect;
— Stability and Form;
— Materials and Techniques;
— Architecture and Decoration.

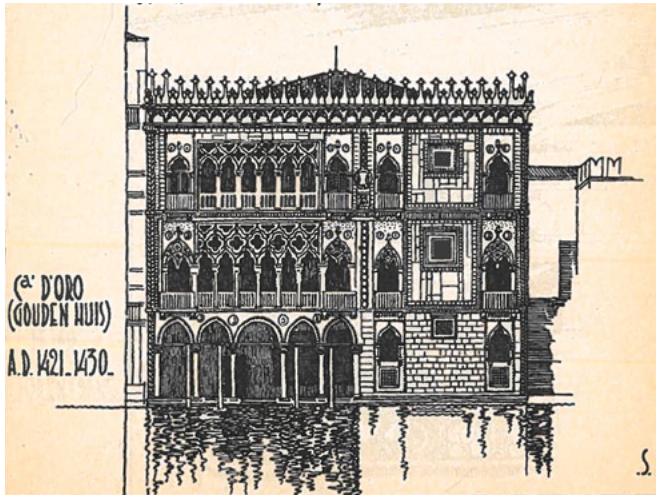
What all of these attempts at creating conceptual frameworks have in common is the aspiration to recognise order within complexity, in this context they may be considered as 'Typologies of Variation'.



Venetian palace facade variations, from 'Elements of Venice' (Foscari, 2014)



Francis D.K. Ching: scheme showing essential symmetry-variations (1979)



Ink drawing of Ca' d'Oro, by H. Suuterland, published 1946.

5.1.2 Thematic Frameworks

Some similarities might be recognised between the ambitions of the thematic analysis developed by Foscari, within the conceptual 'cadre' of the Koolhaas/AMO Biennale initiative, and my own ambitions to order and define elementary conceptions of architectural composition and perception.
However, essentially the two approaches and the categories which they identify, are distinctly different.

In this context, it is interesting to go back a good hundred years in time and to consider a to me ground-breaking thematic re-view of the 'essentials' of architecture, as they were then formulated by British architect John Belcher, in 1907.
In his overview of elementary design aspects, Belcher discerned the following categories:

- Principles : Truth; Beauty;
- Qualities : Strength; Vitality; Restraint; Refinement; Repose; Grace; Breadth; Scale;
- Factors : Proportion; Light and Shade; Colour; Solids and Voids; Balance and Symmetry;
- Materials : Stone; Wood; Metals; Brick, Terra Cotta; Cement etc..[12]

John Summerson, on the position and validity of John Belcher's work:

> *"A theory of architecture may be, like many of the treatises of the 18th century, purely encyclopaedic, without any explicit philosophical orientation at all. It may be, like Julien Gaudet's famous work, a series of discursive studies of types and elements, in lecture form, within a closed tradition whose validity is taken for granted. Or it may be of that curious kind represented by John Belcher's well-known book of half a century ago in which a list of interesting words is compiled (scale, vitality, restraint, refinement etc.) each providing the title for a short essay which gives it a glow of meaning, without ever reaching down to fundamental concepts at all."*[13]

Only recently, I came across a Dutch book in this field, entitled *Bouwkundige Compositie* and published in 1933, which was written by Dutch architect Jan Stuyt.[14]
There are somewhat disturbing similarities between the thematic frameworks that are at the core of both publications.

Whilst Stuyt does include Belcher's book in his compact overview of *'Literatuur'* and includes an opening quote from Belcher in his *'Inleiding'*, there is no further mention of the work as a source for his 'own' thematic exploration.

The question is whether this should be considered as a case of respectful adaptation or actually as plagiarism, on the level of conceptual methodology.

A comparison John Belcher's 'Essentials' and the *'Beginselen'* recognised by Jan Stuyt *(italics)*:

- Principles: Truth; Beauty;
- *Beginselen*: *Goed; Waar; Schoon*

- Qualities: Strength; Vitality; Restraint; Refinement; Repose; Grace; Breadth; Scale.
- *Kenmerken*: *Kracht; Leven; Beperking; Verfijning; Sentiment; Gratie; Breedheid; Schaal.*

- Factors: Proportion; Light and Shade; Colour; Solids and Voids; Balance and Symmetry;
- *Factoren*: *Proportie; Licht & Schaduw; Kleur; Plein & Vide; Symmetrie; Situatie – Omgeving.*[15]

- Materials: Stone; Wood; Metals; Brick, Terra Cotta; Cement etc..
- *...*

In an influential memo, drawn up in 1985, Dutch government architect Tjeerd Dijkstra formulated *five* basic conditions, which he felt should be considered as *criteria* for the evaluation of architectural *quality*.

A synopsis:

- The desire coherence between the architectural form, the to be fulfilled functions and the constructive arrangement of a building;
- The relation(ship) of the building as an object with the context of its surroundings, the contribution to the quality of the public realm;
- The clarity of the architectural concept and the way in which complexity is applied to create an intriguing composition and thereby strengthen its architectural impact;
- The way in which associative values and contemporary ideas about architecture are handled in the concept;
- The way in which measures and proportions of spaces, volumes and surface articulations are applied and how the use of material, texture, colour and light contribute to the concept and the designer succeeds in reaching, with limited means, the desired result.[16]

5.1.3 Orderliness and Complexity

As has been mentioned in the 'Explorations' section, I encountered the work of Peter F. Smith early-on in this study.
An architect by trade, Smith spent a good deal of his life trying to elucidate the aesthetic qualities of buildings and cityscapes and our responses to them.
I was initially struck by the following text, which not only resonated with my own sentiments but indicated to me what the aims for an imaginative, thematic study might be.

Peter F. Smith, on the dialectic conditions he considered as determinants for aesthetic 'success':

> *"The most successful buildings are those which clearly express their elements but which, at the same time, come across as wholes which are much greater than the sum of their parts. This is the primary aesthetic "dialectic" in architecture.*
> *Aesthetic success demands that orderliness wins, but not too easily. There has to be sufficient complexity to make the perception of unity a worthwhile mental achievement."*[17]

This, to me *revealing* characterisation of the linked conditions of 'orderliness' and 'complexity' became a fundamental aspect of this study, trying to characterise architectural *patterns* on the basis of designerly *variations*.
Furthermore, the notion of the rewarding 'mental achievement' that is a condition of recognising and categorising interrelated themes, stimulated my conception of the 'unravelling' of compositional themes.

Before discovering this particular section of text, my eye had initially been caught by Smith's deceptively-simple visual analyses of 'pattern versus complexity'; drawn on the basis of a photographic image of the city of Amsterdam.[18]
I was struck by the potentials for graphic *layering* and *reduction*, in order to *demonstrate* the dynamic perception of architectural artefacts.
My impression was that – if developed further – this principle might become meaningful in the context of the *thematic* exploration of aesthetic domains that I was beginning to envision.

I felt that this simple, 'de-constructed' schematisation of perceptual layers might be indicative of the kind of methodical approach that I had in mind.
Attempts to determine a framework of linked *conceptions*, in combination with schematic *representations*, formed the basis of a methodical approach, which would be put to use in the AA variations case-study.

At the same time, I became aware of the limitations of the layered analyses of P.F. Smith, on the basis of Amsterdam and Honfleur, as 'paradigms' of aesthetic *harmony*.
Arguably, these coherently-layered cityscapes will tend to be perceived as being attractive, but to what extent are they truly indicative of 'aesthetic success'? Is this not an expression of a romantic notion of beauty?

If we analytically consider the urban patterns and variations in modern cities – like for instance Hamburg – it becomes obvious that we are perceiving not one 'set' of patterns, but an *array* of compositional layers which are competing with each other and yet – to a certain extent – *harmonising*.[19]
Nonetheless, I feel indebted to P.F. Smith for triggering a targeted search for 'objective truths' on the level of aesthetic perception and judgement.

Peter F. Smith:

> *"It is only worth examining the experience of aesthetic pleasure if there are grounds for believing that there are objective truths underpinning the subjective experience of beauty".*[20]

In the context of this study, I have also become aware of the approaches to the interrelationships between conceptual- and visual analysis in the work of other design academics.

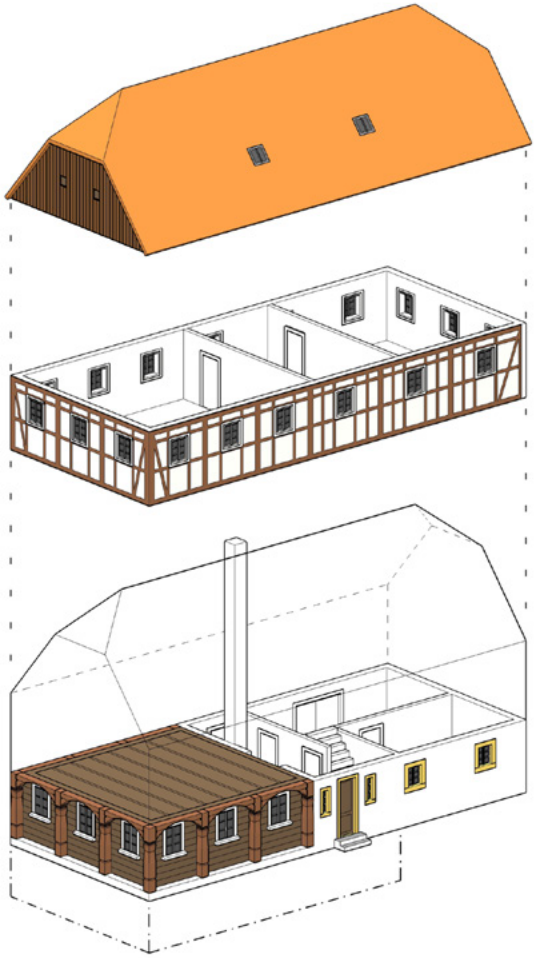
I would like to briefly highlight aspects of thematic study and representation in the work of four other authors, that have informed my – steadily developing – architectural conceptions:

- Yoshinobu Ashihara: In the work of Ashihara, concerning the 'aesthetic townscape', with which I was familiar when I first encountered the work of P.F. Smith, I was struck by the potentials for graphic *representation* as a basis for thematic visual analyses, showing the *dynamic* workings of architectural artefacts and their visual impressions.[21] In particular, his methodical, step-by-step photo-series of particular spatial ensembles and the graphic de-construction of Japanese urban cityscapes from different vantage-points (highlighting the visual 'noise' of commercial information) fuelled my notion of the 'dynamic perspective' in architecture.
- Bruno Zevi: In his systematic phenomenological study of his native Ferrara – *Saper vedere la citt*à, originally published in 1960 – Zevi not only addresses the components of the urban composition using text and photographs, but particularly with evocatively simple, logo-like schemes and visual coding-devices.[22] In this way Zevi 'reads' the elements of the city, using elementary schemes, making use of lines and dashed lines, for boundaries and axes, and smaller and bigger dots and stripes, as visual accentuations of compositional elements. On the basis of these it is almost possible to 'read' the book without understanding Italian.
- Pierre von Meiss: As Ashihara, who compares the townscapes of traditional Japanese cities with the 'Nolli' map of Rome, von Meiss uses positive – negative inversions to give an indication of the spatial organisation and experience of the Haya Sofia.[23] Furthermore, he applies a variety of visual deconstructions to identify compositional themes in classical designs (notably: Michelangelo's San Lorenzo facade) as well as contemporary

designs (such as a facade design for a house in Lausanne, by Atelier Cube). To me the most evocative of his 'variations' is a comparative study of the facade of the Zacherl-Haus in Vienna, by Josef Plecnik.[24]

— Ralf Weber: The studies on aesthetics and architectural composition by Ralf Weber and his colleagues in Dresden are interesting because they make use of visual *comparisons*, on the basis of 'designed' variations, particularly of building facades. On the basis of such 'alternatives', identifying differences on the levels of surface patterns and the groupings of elements, attempts are made to draw conclusions concerning aesthetic preferences. Whilst I have reservations concerning the methodology and valence of such 'experimental' research, the dynamically-visual approach to aesthetics research is innovative and noteworthy.[25]

The work of Peter F. Smith and other authors, like the ones I have briefly mentioned here, have informed my own initiatives and working methods in the different 'Variations' studies in which I have had the opportunity to be actively involved.



Umgebinde typology: roof, wood-frame storey, block-hut, Gebinde, stone stable.



Early, photo-edited analyses of a typical Umgebinde farmhouse..

5.1.4 Umgebinde Variations

Sometimes, one may accidentally stumble upon a unique formal 'species': a stylistically cohesive historical building *type*; still largely intact and relatively unknown in an academic context.[26]
Such a 'chance encounter', a number of years ago, triggered a lasting interest (indeed: fascination) for a very *particular* regional building phenomenon and has led to a series of analytical visualisation experiments: the 'Umgebinde Variations'.[27]

The so-called Umgebindehaus is a building type which is primarily to be found in the relatively isolated and self-contained region of the Oberlausitz (Upper Lusatia), situated in the south-eastern corner of the German state of Saxony, east of Dresden. Umgebinde houses are to be found throughout the borderland area (where Germany, Poland and the Czech Republic come together), particularly along the rivers which spring upon the undulating Oberlausitz plateau that the Umgebinde type came to flourish and is still most clearly in evidence today.
Possibly due to the out-of-the-way location, this is a building category that has managed to survive, although in the last century many artefacts have been lost due to demolition, neglect or insensitive remodelling.
Relatively little has been published about this particular building type, which in studies of Germanic farm types and wood frame houses tends to be neglected, or at best given a subordinate role. This may be due to its peripheral, somewhat ambivalent position in an 'in-between realm' of Slavic and German building cultures.

A noteworthy, comprehensive survey, assembled by Karl Bernert, was published towards the end of the DDR era.[28]
Bernert indicates that the Slavic and Germanic building traditions met around 1100 AD, probably developing into a distinctive building method between 1300 and 1400. From approximately 1600 up to the beginning of the Twentieth Century, the Umgebinde form experienced a period of vigorous growth, after which it became diminished.
Recently, the remaining Umgebinde 'collection' appears to have become recognised as a meaningful European Heritage category. As a consequence, several houses which some ten years ago were in a poor state have recently been restored, giving the 'endangered species' a new lease of life.

Like Giulia Foscari's 'Elements of Venice' study, this initiative tried to address issues that are not generally applicable, but closely connected to a particular 'locale'. The difference is that in this case focus is not on what may be recognised as being 'typical', but on compositional variations that are essentially *typological*.

What makes the collection of Umgebinde artefacts so interesting in the context of composition research is the more or less *controlled variety* of structural and expressive elements, notably: scale, measure, structure, materialisation, ornamentation, decoration and colour.

In this research, phenomenological study of the Umgebinde casus has proved to be enlightening; shedding a new light upon the compositional and perceptual issues, such as Order Variation, Unity and Contrast.
Due to the characteristic typological *constraints*, specific qualities become evident and, as a consequence, can be identified and studied, individually and in combination, relatively objectively and systematically.

What distinguishes Umgebinde buildings from others are five immediately recognisable characteristics:

— An essential 'block hut' volume;
— An articulated column- and arch structure supporting first storey (or in some cases roof);
— A massive ground floor 'stables' section, incorporating the centrally located entrance;
— A first floor wood frame structure, either visible or (partly) covered;
— A longitudinal, overall roof form with, in some cases, dormer windows.

The first research round was essentially an exploration of elementary compositional attributes and their combinations on the basis of various Umgebinde artefacts, mainly on the basis of document analysis (using photographs made on location).
The method: 'research by (hand) drawing'. The findings and conclusions were documented in a research Paper, presented during the 2003 Kansei meeting of the 6th Asian Design Conference (ADC) in Tsukuba, Japan.[29] After this the matter was more or less 'put to rest'.

The 9th EAEA conference in Cottbus, Germany offered the opportunity for a re-acquaintance with the Umgebinde phenomenon, some ten years after the first encounter.
This uplifting 'reunion' led to a renewed interest and appreciation of the casus' potential meaning. Initially, the idea was adopted to adapt the original ink drawings using digital visualisation means, potentially introducing colour.

This intention was discussed with research assistant and sparring-partner Bram van Borselen, involved in the AA Variations project making use of modelling techniques as an essential part of the research 'method'.[30] He proposed reconstructing the original visual information using digital 'sketch' modelling software (an offer he may have come to regret, considering the amount of work that was put into it). This led to a whole new – and deeper – round of designerly enquiry.

To systematically and representatively model and visualise the various compositional modifications of the Umgebinde condition, a working mode was developed by which a basic geometric model would be able to adopt specific visual qualities within a framework of interconnected layers.



Umgebinde Variations: differences in sizes, numbers, rhythms and (a)symmetries.

To identify the combinations of aspects which would be brought into interplay, a series of visual databases was drawn up, on the basis of photographs of actual buildings, on different levels', notably:

— Size and Number: basic format, geometry, rhythm;
— The characteristic, ground floor 'block hut' structure: the original weaving space;
— The 'Gebinde' structure and articulation: the colonnade around the 'block hut';
— Wood-frame first floor construction and window placement;
— Gable construction and infill-variations;
— Window shape, subdivision and decoration;
— Cladding of the first floor (and gable) using various wooden cover-constructions;
— Cladding of the first floor (and gable) using various patterns of slate covering;
— Basic roof forms with different roofing-materials and dormer windows;
— Essentially asymmetrical in set-up with (representative) symmetrical variations;
— Colouring and materialisation, as expressive means.

As the study grew into a more serious undertaking than initially intended and progressed further, the aspect of colour became increasingly significant. The idea was formed to draw up a typological 'map': a comparative overview, incorporating twenty-four 'model' objects, which might be considered as being representative of the order and variety of artefacts encountered 'throughout the field'.

The major discerning issues incorporated into the 'design' of this chart, into which the exemplars are grouped are:

— Uncovered wood-frame constructions, with distinguishing structural patterns;
— Wooden cladding surface structures with various material and formal characteristics;
— Slate element coverings, incorporating various decorative 'weaving' patterns;
— Asymmetrical, symmetrical (and part-symmetrical) variants;
— Identifying, traditional (as well as newer) colour schemes.

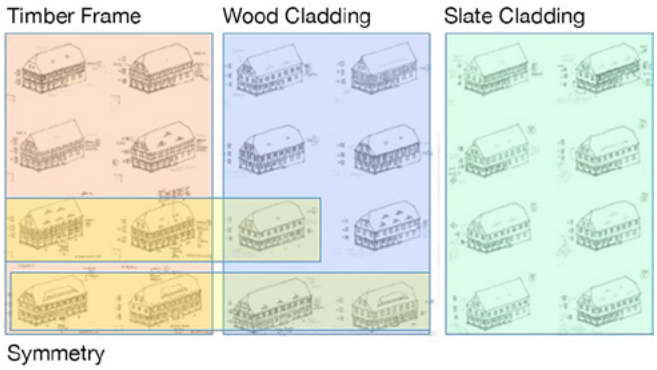
The resulting Umgebinde 'map' focuses primarily on what might be considered as the 'mature' Umgebinde style, whereby the first floor *Fachwerk* is relatively *distinct* from the underlying wooden colonnade and stone structures (as compared to earlier formats, whereby the total load bearing structure and wood frame are more entwined; such archaic exemplars can still be identified, though seldom in unadulterated form).

Cladding textures – in *wood* and subsequently (non-local) *slate* – are identified as poignant inventions on a perceptual level.
A sub-theme is demonstrating the effects of introducing *symmetry* (probably a later introduction, as new buildings acquired more 'official' functions, rather than being merely a farmhouse with stable).

Lastly, *colour* proved to have a crucial visual impact and is presented here in a kind of 'controlled randomness', using colour schemes identified on the basis of field observations. In the overview the bias is towards more or less 'traditional' colour palettes, and does not (as yet) include the kinds of newer hues and treatments beginning to become manifest in the wave of renovation and individualisation throughout the – gradually rejuvenating – Oberlausitz region.

What might be said concerning the Umgebinde style's *aesthetic* success?
The compositions are oversee-able and orderly, but never straightforward. As has been demonstrated, relatively systematic variation seems to take place on distinguishable, but interrelated levels.
An array of harmonic combinations is the result. The compositional possibilities are extensive, but not infinite.
There is a perception of compositional *variety*, yet we are simultaneously aware of a reassuring, underlying *order*.
This awareness of variation on the basis of order is in Japanese culture considered the Kansai experience.[31]

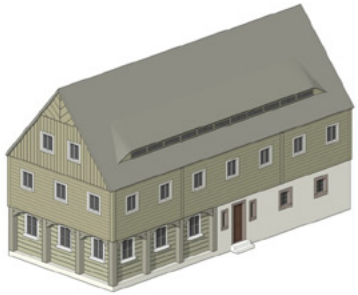
This combination of order and adventure may be precisely what appeals on such 'Kansei' levels of perception:
— Artefacts with a recognisable yet varied 'local' identity;
— Clarity of structure, plus balanced proportions and rhythms;
— Skillfully executed craftsmanship on the level of detailing;
— Modest, but articulate, 'vernacular' symbolism and decoration

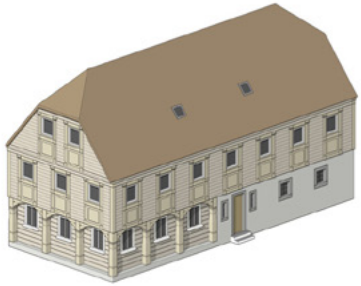


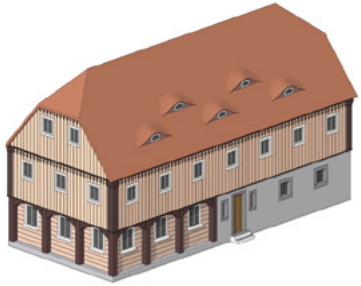
PPT: identification of essential themes in the Umgebinde collection (next pages)

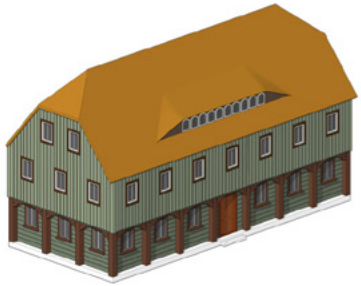
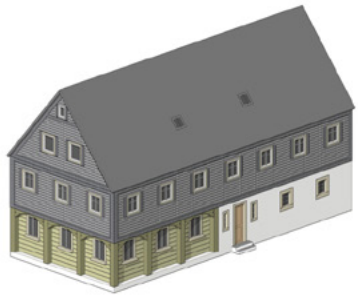


Comparison of twenty-four Ungebinde artefacts, based on in situ documentation.




5.1.5 Conceptual Model Developments

From early-on, the ambition was not only to identify and characterise essential compositional themes, but to also concisely organise these within a thematic *framework*.
The idea was that a visually condensed thematic model might make the different conceptual items oversee-able and accessible, as well as identifying them relative to each other.
In the context of pedagogical design research, models are used to represent and clarify the recognisable constituents of design development processes.

In the education-based research of faculty member and design-process researcher Elise van Dooren, she recognises five 'generic elements', which she identifies as:

— *Experimentation;*
— *Guiding Theme (Concept);*
— *Design Domains;*
— *Frame of Reference;*
— *Visual Language (Imaging).*[32]

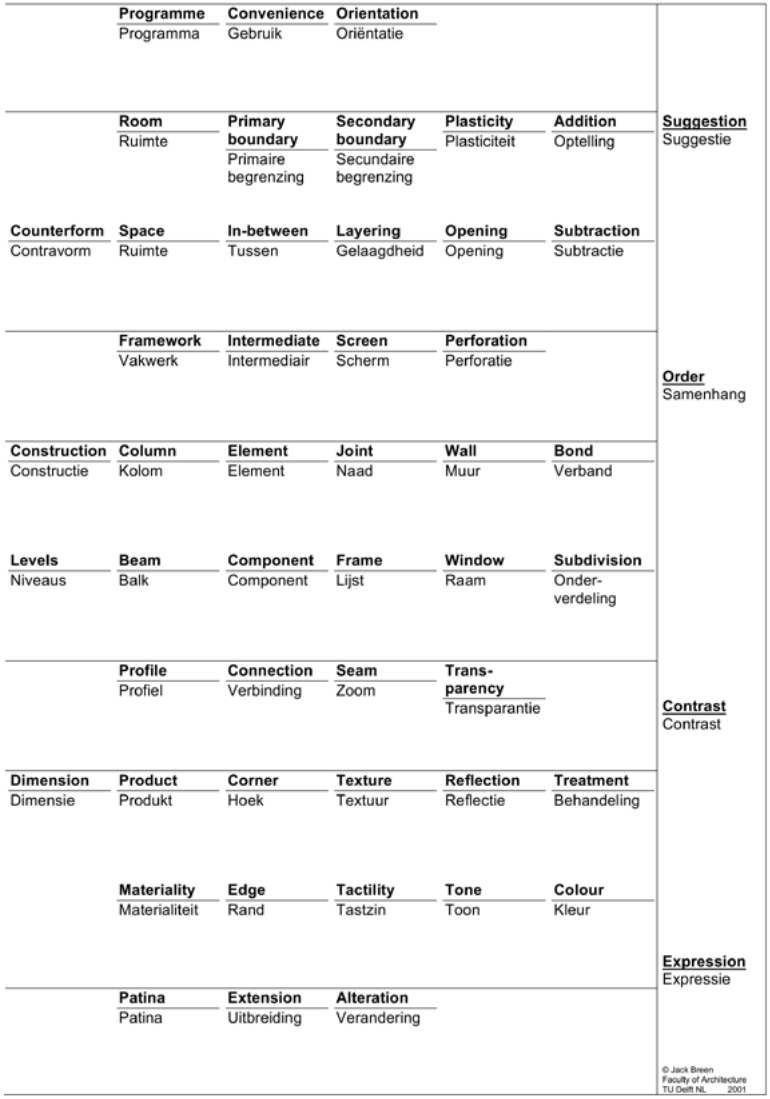
Reflecting on the academic work of van Dooren, in the context of my own studies, I felt that it might be opportune to consider the category of design 'domains' – the 'what' issues – as the *central* theme, around which the other, more 'operational' activities as it were 'circulate' in an iterative manner, in a way reminiscent of Zeissel's schematic model and my own developing framework.

In the course of the research project as a whole, different visual 'constructs' were devised to identify and access such compositional domains.
A number of model-options were developed and tested, before finally settling on the conceptual framework that eventually became the centrepiece for this study.

In the following paragraphs, a brief overview is given of four, distinguishable, conceptual model-configurations, in the order of their development:

Conceptions Begrippen		**Context** Context			**Site** Situering	**Silhouette** Silhouet	**Type** Type
	Form *Vorm*	**Reduction** Reductie			**Scale** Schaal	**Shape** Figuur	**Mass** Massa
		Combination Combinatie	**Geometry** Geometrie		**Size** Maat	**Proportion** Proportie	**Volume** Volume
Pattern Patroon		**Structure** Structuur			**Similarity** Gelijkheid	**Repetition** Herhaling	**Grouping** Groepering
	Surface Oppervlak	**Motif** Motief	**Vertical** Vertikaal		**Balance** Balans	**Juxta-position** Neven-schikking	**Symmetry** Symmetrie
		Arrangement Arrangement	**Horizontal** Horizontaal		**Direction** Richting	**Rhythm** Ritme	**Asymmetry** Asymmetrie
Variation Variatie		**Articulation** Articulatie			**Dissimilarity** Verschil	**Interspace** Spatie / Tussenruimte	**Partial Symmetry** Deel-symmetrie
	Feature Onderdeel	**Materialisa-tion** Materialisatie	**Detail** Detail		**Ornament** Ornament	**Emphasis** Nadruk	**Decoration** Decoratie
		Accentuation Accentuering			**Symbol** Symbool	**Prominence** Prominentie	**Sign** Teken
		Information Informatie			**Identity** Identiteit	**Meaning** Betekenis	**Style** Stijlkenmerk

Overview of compositional themes prepared for the TUD Variations exercise (2001), subsequently published in the 'De Wand' retrospective (2002).

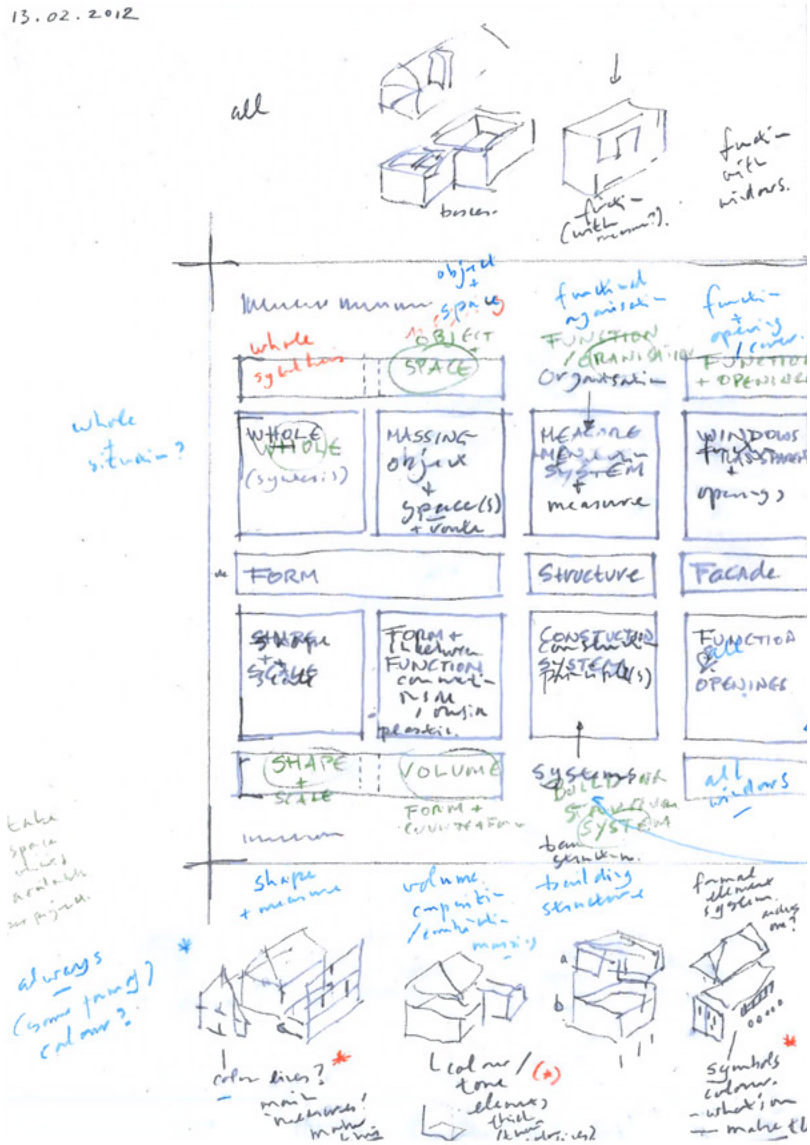


The Thematic Matrix Model:
A first attempt at a thematic arrangement was devised to coincide with the AA Variations initiative (2001), which has been discussed in the Explorations section. The scheme was handed out to the participating students at the outset of the project, so that they might be able to recognise and name particular aspects of their situation-based evaluation and transformation.
The scheme contained a number of themes, which were identified in English and Dutch, in a graphic matrix, consisting of a number of 'fields' which were organised and clustered horizontally and vertically. To create the thematic framework, use was made of relatively simple applications of Word (making use of the 'Table' options) and an early version of PowerPoint.
This, then still very 'user-friendly', sequential presentation programme made it possible to build the model up step-by-step.
The graphic version of the thematic matrix was included in the education-based Form Studies publication *De Wand* (2002).[33]

The Corner Conceptions Model:
A subsequent attempt to create a fitting graphic modus, which organised various thematic domains within a more or less three-dimensional model.
For this exercise, three elementary 'clusters' were identified, each with four 'corner' conceptions:
— A: *Form*: *Context; Geometry; Space; Volume*;
— B: *Surface*: *Structure; Wall; Arrangement; Window*;
— C: *Feature*: *Connection; Detail; Materialisation; Information*.
Subsequently, each 'corner' was used to identify a number of conceptions, positioned relative to the other corner conceptions.
A similar approach was attempted for the identification of design 'media' (see: the 'Instruments' section).
In all, the 'spatial' set-up – consisting of twelve separate layers – was too fine-meshed in its organisation and too cumbersome in its use.
After the concept was presented (March 2002), this model option was eventually shelved, although several of the issues that were identified would re-surface in subsequent conceptual modelling experiments.[34]

The Cylindrical Column Model:
Considerably later another kind of thematic hierarchy was explored and tested.
In this case, the idea was that the conceptual model would consist of a number of vertical bands, in which compositional themes could be organised in such a way that visual material, concerning projects that were being studied, could be ordered and presented.
Around that time, the focus had come to lie predominantly on the artefacts of the AA Variations study.
A test-version of the scheme (April 2010), contained hand-drawn model-based sketches of the pivotal House in Black Variations study (see: the 'Instruments' section. The scheme consisted of three 'major' double-width columns: *Form (Object); Facade (Surface); Feature (Detail)*. These were interspersed by 'connecting' columns: *Context; Structure; Texture; Information*.
The idea was that these zones might be considered to loosely represent the iterative cycles of design, being as it were rolled-up into a cylinder, whereby *Information* would overlap the previous *Context* layer and the series could, as it were, start anew.
The notion of iterative sequencing was kept in the subsequently developed 'design cycle' model.

The Design Cycle Model:
The thematic concept which would eventually become the definitive modelling principle for this research project was developed in the spring of 2012.
The basic framework consists of a simple matrix, consisting of a square, divided into four equal sections in both directions: sixteen 'fields' in all.
This square can then be divided into four quadrants (each consisting of four sub-squares) denoting the domains identified by four core-conceptions.
The core-conceptions are positioned in the four central squares, in a clockwise sequence.
After serious deliberation, these core conceptions eventually became:
— Space;
— Order;
— Form;
— Detail.



Conceptual model developmets (2012).



5.1.6 Towards thematic conceptions:

Each of these 'key' concepts is, in turn, related to three sub-domains, positioned in the outer 'shell' of the overview. As a consequence, twelve more specific conceptions are positioned in the outer ring, with a clockwise sequence indicating the iterative progression from 'rough to fine'.
In the positioning of themes, attempts have been made to create a visually and conceptually cohesive thematic construct, with sub-relationships across the scheme and along the orthogonal and diagonal lines.

In the initial phase, the idea was that there might be two such schemes – Conceptions and Perceptions – but eventually one concise overview was created containing sixteen essential compositional themes.
Each of these was subsequently accompanied by two twinned, affiliated concepts, which form an integral part of the descriptions of the central themes.
Furthermore, the scheme has been developed into a kind of logo, whereby different options and combinations can be used as visual 'markers' for the domains in the Variations studies.

The final setup has been determined after extensive probing and fine-tuning on the basis of the definitions and descriptions which are included in the 'Conceptions' section.
Test versions of the conceptual framework have been made operational in some educational initiatives in which I have been actively involved. The responses which have been generated by these activities have contributed to shaping the version, which forms the centrepiece of this study.

5.1.7 AC3 Tests

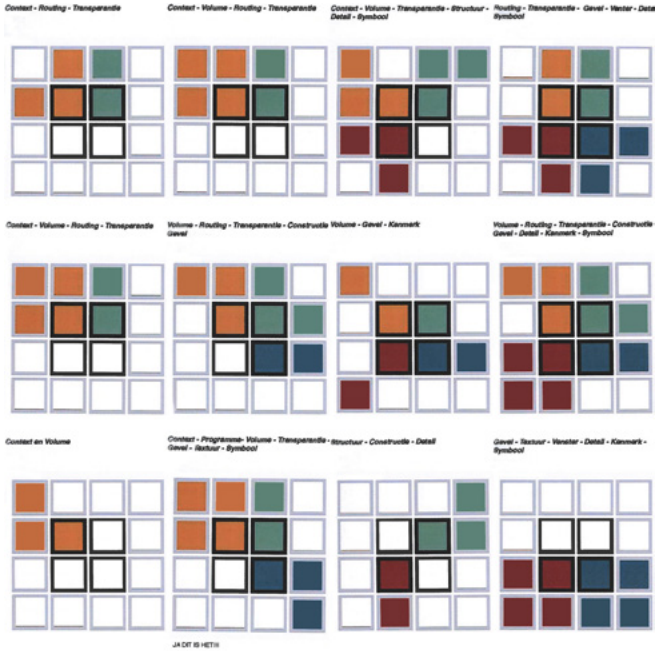
A stimulating opportunity to implement and test my conceptual apparatus arose in the context of a third year BSc Academic Skills Module entitled AC3.[35]
The AC3 study trajectory takes place in the last quarter of the third Bachelor year. It coincides with the final – most complex – design project, which rounds off the broadly-oriented, basic phase of study. In the AC3 Module, students are asked to critically reflect on the issues of design with which they find themselves confronted and particularly the qualities of the design-based choices they are making.[36]
During four instalments of the Module, students were asked to make a 'Thematic Image Dossier', on the basis of my most recent version of the conceptual framework.
In the first edition, the students made this dossier as a documentation, after the major decisions had been made. In later instalments, the conceptual themes were introduced at the beginning and students were asked to monitor and document the evolvement of their design project, during the whole study period.

The results were evaluated and marked by me, giving me a very good impression of the opportunities and potential shortcomings of the approach.
This meant that the set-up was adapted on particular levels for each successive 'round'. What became clear was that many students – some more than others – found it enlightening to recognise on what levels of design they were working, and when, and particularly on which *combinations* of themes they were focussing, making the exercise seem less like a 'black box'.
Furthermore, the idea of creating a professional piece of work – suitable for a personal *portfolio* – meant that many students 'rose to the occasion' and delivered documentations of uplifting quality.
A paradigm-shifting experience arose when I decided to include the latest version of the scheme in my lectures for the first Form & Visualisation Module (OV1).

As I used the model to indicate the relative position of the compositional exercises and their themes in the Module, I became acutely aware that something was not right: that 'Space' – as and essential theme – was not taking up the prominent place it deserved, but was positioned too much in the 'periphery'.
This discovery led to the last fundamental re-set of the conceptual model, as it is presented in the context of this study.
In the following section, an attempt is made to characterise the themes that have been identified in the course of this study.
They are presented in four sub-sections – *Space*, *Order*, *Form* and *Detail* – each containing four specific items, with a shared collection of Notes and References.



AC3: Thematic image dossier, monitoring the design for a new Kunsthal.



A student's thematic AC3 log-book of design decisions in relation to the domains.

5.1.7 The Conceptual Framework

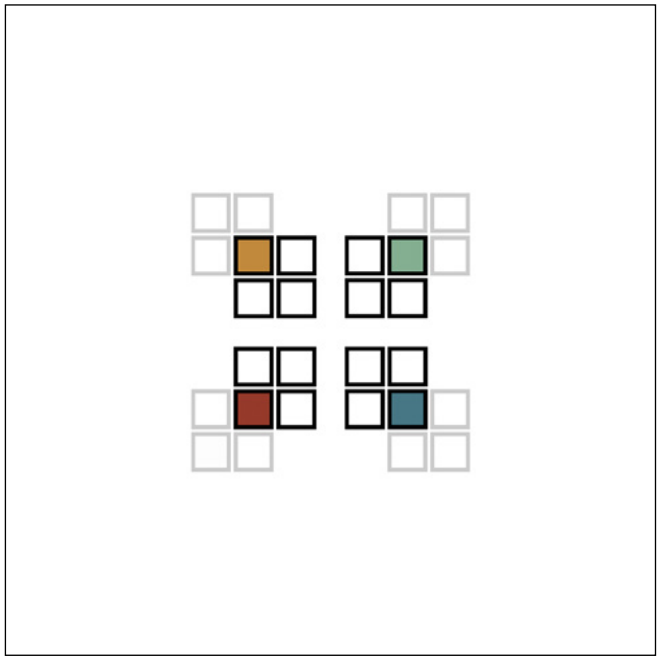
The final set-up of the conceptual model is included as a fundamental part of the research, playing a decisive role in the 'Patterns' sections of the 'AA Variations' analyses.

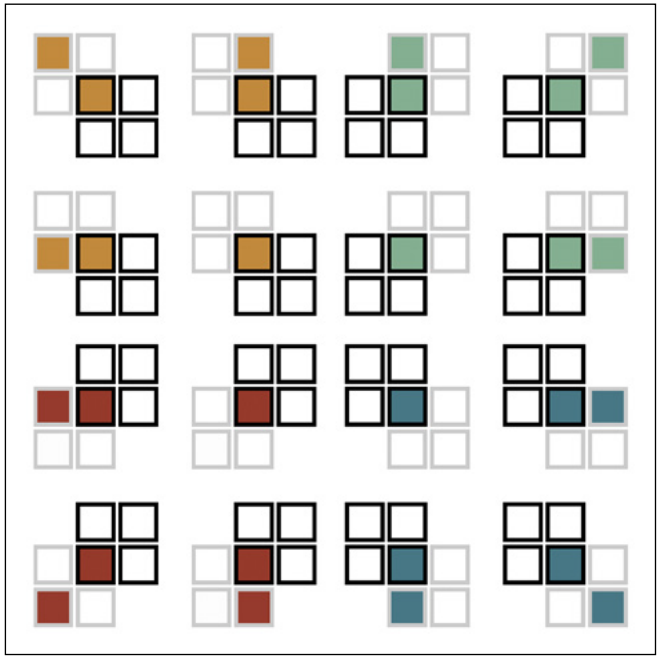
Each of the 16 'entries' is essentially organised in the same way:
- A title and identifying 'logo', which is derived from the overall scheme that was developed;
- Two definitions. NB: These definitions are my own, developed on the basis of sources;[37]
- A selection of quotes, which have been collected to form a 'setting' for the particular issue;

A textual characterisation of the elementary theme, plus two 'twinned' conceptual categories.

The sixteen 'Conceptions' layers that have been identified are categorised and characterised on the basis of the following themes:

A.	**Space:**	Dimension & Perspective Boundary & Transition
A.1	**Context**	Place & Occasion Situation & Intervention
A.2	**Function**	Programme & Layout Orientation & Routing
A.3	**Interior;**	Room & View Envelope & In-between
B.	**Order**	Balance & Tension Organisation & Construction
B.1	**Object**	Shape & Volume Massing & Plasticity
B.2	**Structure**	Measure & System Substance & Porocity
B.3	**Technique**	Material & Craft Product & Process
C.	**Form**	Harmony & Contrast Disposition & Proportion
C.1	**Facade**	Rhythm & Rhyme Distribution & Grouping
C.2	**Surface**	Tone & Colour Fabric & Texture
C.3	**Opening**	Wall & Frame Window & Division
D.	**Detail**	Elaboration & Distinction Expression & Suggestion
D.1	**Junction**	Section & Articulation Component & Connection
D.2	**Feature**	Decoration & Ornament Symbol & Information
D.3	**Ensemble**	Synthesis & Symbiosis Entity & Identity





1 In answer to John Summerson's eloquent *The Language of Classical Architecture, Bruno Sevi tried to construct The Language of Modern Architecture. To my mind this attempt failed quite hopelessly; the main conclusion being that modern architecture is essentially 'anti-classical'.* Bruno Zevi: *The Modern Language of Architecture, University of Seattle Press, Seattle, 1978.*

2 Panayotis A. Michelis: *aisthètikós*, Essays in Art, Architecture, and Aesthetics, Wayne State University Press, Detroit, 1977. Pg. 229.

3 Auke van der Woud, in: *Onuitsprekelijke schoonheid, Waarheid en karakter in de Nederlandse bouwkunst, inaugural address, Historische Uitgeverij Groningen, 1993. Pg. 5.*
Van der Woud:
"Schoonheid is in de hedendaagse architectuur een zeer belangrijke eigenschap, maar de omgang ermee is paradoxaal. De eerste paradox is dat juist nu visuele schoonheid (en daar gaat het hier om) zo belangrijk is, esthetische oordelen vrijwel waardeloos zijn. De uitspraak 'een mooi gebouw' zegt iets over de smaak van de spreker, maar geeft geen inzicht in het gebouw zelf. De vraag naar mooi en lelijk is triviaal geworden en wordt daarom ook nauwelijks gesteld.
De tweede paradox zit in de kern van de architectuurpraktijk zelf. Ofschoon architecten streven naar een maximale expressie van hun scheppende originaliteit en naar maximale schoonheid – tegenwoordig 'beeldkwaliteit' genoemd – bewaren ze een forse afstand tussen hun werk en dat van beeldende kunstenaars. Ze benadrukken niet wat evident gemeenschappelijk is, namelijk het streven naar een zo groot mogelijke beeldende, artistieke prestatie, maar wat hen scheidt – dat architecten gebonden zijn: aan hun opdrachtgever, aan de bouwindustrie, de bouwtechniek en niet in de laatste plaats aan de werkgelegenheid van hun eigen personeel.
De negentiende-eeuwse architect had als hoogste ideaal een bouwkunstenaar te zijn. In onze tijd is het oude, met betekenissen geladen woord 'bouwkunst' overal vervangen door het lege begrip 'architectuur', dat vrij is van normatieve connotaties. En daar is de tweede paradox in de huidige architectuur: het hoogst bereikbare is nog altijd een gebouw dat een kunstwerk is, maar er zijn geen woorden meer om de artistieke dimensie in het werk te definiëren en er zijn evenmin begrippen waarmee schoonheid professioneel aan de orde kan worden gesteld. Hedendaagse architectuur heeft een onuitsprekelijke schoonheid." Translation by the author.

4 In: Roger Scruton: *The Aesthetics of Architecture*, Princeton Essays on the Arts, 1979. p. 67.

5 This is the case in the 1981 edition of Ruskin's writings: Jan Morris (editor and introduction): *John Ruskin, The Stones of Venice, Faber and Faber, London and Boston, 1981.*

6 This notion is supported by another publication on Ruskin's Stones of Venice, which includes a photograph showing the building with scaffolding that appears to have been 'blotted out' by Ruskin.
Source: John Hewison: *Ruskin on Venice. 'The Paradise of Cities', Yale University Press, New Haven and London, 2009.*

7 H. Sutterland: *Geschiedenis der Bouwkunst, Tekeningen 2, Uitgeverij Waltman, Delft, 1946. Pg. 157.*

8 Giulia Foscari: *Elements of Venice*, Lars Müller Publishers, Zürich, 2014.

9 These design themes are the same as the ones which were identified by Rem Koolhaas, working with AMO/*Harvard Graduate School for Design, in the context of the 2014 Venice Biennale.
These 'attributes' of architecture have subsequently been bundled in a somewhat over-imposing publication:
Rem Koolhaas, with James Walcott, Stephan Petermann (eds.), Stephan Trübly (research and development), and Irma Boom (design and art direction): *Elements of Architecture**, Taschen Gmbh, Köln, 2018.

10 In: Francis D.K. Ching: *Arcitecture: Form, Space & Order*, Van Nosrand Reinhold, New York, 1979

11 Francesca Prina: *Architecture, elements, materials, form*, Princeton University Press, Princeton and Oxford, 2008.

12 John Belcher, A.R.A.: Essentials in Architecture, An Analysis of the Principles & Qualities to be looked for in Buildings. B.J. Batsford, 94 High Holborn, 1907. Pg. xiii.
I had earlier been aware of Belcher's book, which is kept in the Faculty of Architecture's library, however it had gone off my 'radar'. By chance I came across a (beautiful) second-hand copy on the Saturday antiques market in Delft, in the summer of 2018. I immediately recognised its relevance, in the context of my research.

13 Summerson, John: *The Case for a Theory of 'Modern' Architecture.* First published in the *RIBA Journal, June 1957.* Subsequently included in: *The Unromantic Castle and Other Essays*, Thames and Hudson, London, 1990. Pg. 258.

14 Jan Stuyt, architect: *Bouwkundige Compositie, Beschouwingen over de beginselen waarnaar gebouwen worden tot stand gebracht en de hoedanigheden die zij kenmerkend vertoonen*, Teulings' Uitgevers-Mij, 's-Hertogenbosch, N.V. Standard Boekhandel, Antwerpen, 1933.
Jan (Johannes) Stuyt was a practicing architect, who was active in the (then still predominantly Catholic) south of the Netherlands. Together with his son Giacomo, he played an important role in the initiation of the religious theme-park known as the 'Heilige Land Stichting', near Nijmegen. He died shortly after the book's publication, in 1934.

15 The order of the themes in Stuyt's 'version' is in places slightly different. What is here included as *'Kenmerken' is in Stuyt's overview denoted more fully as 'Hoedanigheden of Kenmerkende Eigenschappen'. The item identified here as 'Symmetrie' is taken up in Stuyt's thematic organisation as 'Symmetrie – Richting – Accent'. The aspects on the level of materiality are not addressed at all.*

16 Tjeerd Dijkstra, in the resume of his memorandum on architectural quality:
"In het voorgaande zijn de verschillende aspecten die bij de beoordeling van architectonische kwaliteit een rol spelen ieder afzonderlijk behandeld. Resumerend zijn dat de volgende:
— de gewenste samenhang tussen de architectonische vorm, de te vervullen functies en de constructieve samenstelling van een gebouw;
— de relatie van het gebouw als object tot zijn omgeving, de bijdrage die geleverd wordt aan de kwaliteit van de openbare ruimte die er mede door gevormd wordt, de wijze waarop de ruimten en elementen van het gebouw als object functioneren in de compositorische context van het geheel;
— in samenhang daarmee en als gevolg daarvan: de helderheid en afleesbaarheid van het architectonische concept en de wijze waarop complexiteit is gehanteerd als middel om daarmee
— zonder aan de helderheid wezenlijke afbreuk te doen – aan te sluiten op de verschillende thematieken die te onderkennen zijn in programma en situatie, om mede daardoor de compositie intrigerend te maken en daarmee de architectonische werking te versterken;
— de wijze waarop in het concept wordt omgegaan met de betekeniswaarden van architectuur zoals die leven in de sociaal-culturele context, ofwel: de wijze waarop associatieve betekenissen en actuele opvattingen over architectuur in het concept worden gehanteerd;
— de wijze waarop met maten en verhoudingen van ruimten, volumina en vlakverdelingen wordt omgegaan, de mate waarin het gebruik van materiaal, textuur, kleur en licht bijdraagt aan en volgt uit het architectonische concept en de mate waarin de ontwerper er in slaagt met weinig middelen het door hem gewenste resultaat te bereiken."
In: Tjeerd Dijkstra: *Een notitie over architectuurbeleid*, Uitgeverij 010, Rotterdam, 2001.
Pg 22. Translation by the author.

17 Peter F. Smith in: *Ethnosapes: Volume 1;*

Environmental Perspectives, D. Canter (ed.), Avebury,
Aldershot, 1988.

18 Peter F. Smith: *Complexity, order and an architectural aesthetic.* In: David Canter, David Stea (eds.): *Environmental Perspectives: Ethnoscapes, Current Challenges in the Environmental Social Sciences*, *Volume 1;* Avebury, Aldershot, 1988. Pg. 200.

19 I became acutely aware of the phenomena of compositional contrast and integration during an excursion of my department to the city of Hamburg in June 2018.

20 Peter F. Smith, in: *The Dynamics of Delight, Architecture and Aesthetics*, Routledge, London, 2003. Flap-text.

21 Three insightful publications by Ashihara:
- Yoshinobu Ashihara: *Exterior Design in Architecture, Revised Edition, Van Nosrand Reinhold Company, New York, Revised edition, 1981.*
- Yoshinobu Ashihara: *The Aesthetic Townscape, The MIT Press, Cambridge, Massachusetts, 1983.*
- Yoshinobu Ashihara: *The Hidden Order, Tokyo through the twentieth century, first published in Japanese in 1986, Kodansha International, Tokyo and New York, 1989.*

22 Bruno Zevi: Saper Vedere la Città, Ferrara di Biagio Rossetti, 'la prima città moderna europea', Giulio Einaudi editore s.p.a., Torino, 1960, republished in 1997.

23 These 'inversions' of the famous 'Pianta di Roma' by Giambattista Nolli (1784) appear in Ashihara's *Aesthetic Townscape (first published in Japan in 1979).*
Although sections which are taken from Nolli's map in both publications are not completely identical, Ashihara's illustrations are – to say the least – 'highly similar' to the Nolli manipulations by Rodrigo
Pérez de Arce (Lotus 19, 1978). These systematic transformations are addressed in:
Jan Heeling: *Over stedebouw, Een zoektocht naar de grondslagen van de stedebouwkundige ontwerpdiscipline*, Delft University Press, Delft, 2001. Pg. 15.

24 Pierre von Meiss: *Elements of Architecture, from form to place, E&F Spon, London, 1990.*
The double image of the Zacherl-Haus' surface- and window arrangements, have been taken a step further by me, by identifying sub-components using *colour, for the benefit of my first-year lectures.*

25 Three noteworthy publications by Ralf Weber and his colleagues on experimental aesthetics projects:
- Ralf Weber, Birgit Wolter, Thomas Jacobsen, Silke Vosskoetter: *Urban Space and Architectural Scale – Two Examples of Empirical Research in Architectural Aesthetics. In: Sigrun Dechêne,* Manfred Walz (eds.): *Theme: E-motion Urban Space, Proceedings of the 7th* EAEA Conference, University of Applied Sciences, Dortmund, 2005. Pg. 133.
- Catrin Hasse, Ralf Weber: *Eye Movements on Facades – An Approach to the Concept of Visual Balance in Architecture, in: Toulouse, Lengyel: Projecting Spaces, Proceedings of the 2009 EAEA Conference, Cottbus, Eckhard Richter & Co. OHG, Dresden, 2011. Pg. 65.*
- Katja Pahl, Thomas Jacobsen: *Fassadendesign – Die Auswirkungen von Gruppierung und Raster auf die Ästhetische Beurteilung von Fassaden. In: Ralf Weber, Matthias Albrecht Amman (eds.): Aesthetics and Architectural Composition, Proceedings of the Dresden International Symposium of Architecture 2004, pro Literatur Verlag, Mammendorf, 2005. Pg. 182.*

26 Having described the sensation of driving for the first time into the Oberlausitz region and being confronted with a steady succession of unfamiliar, but clearly *consistent and at the same time varied, historical building artefacts to a biologist friend, he drew the comparison with Charles Darwin 'stumbling' upon the controlled ecological environment that became the basis for his ground-breaking Galapagos case studies. Although this comparison is arguably somewhat of an exaggeration, it does give an indication that the first and successive encounters with the Umgebinde region were something of a 'private epiphany' in the context of the typological study of architectural Form.*

27 This section is in part a condensed version of a conference Paper, which was prepared specially for the 2011 EAEA conference, in Delft.
Jack Breen and Bram van Borselen: *Unravelling the Umgebinde, Exploring Compositional Patterns and Variations in a Vernacular Building Type.* In: Jack Breen, Martijn Stellingwerff (eds.): *Envisioning Architecture, Proceedings of the 10th international conference of the EAEA, Faculty of Architecture, Delft University of Technology, 2011.* Pgs. 101-114.

28 Karl Bernert: *Umgebindehäuser, VEB Verlag für Bauwesen, Berlin, 1988.*

29 Jack Breen: *The Umgebinde Variations, a case-based study of formal typologies and systematic compositional variety, in: Journal of the Asian Design International Conference Vol. 1, 6th* ADC Tsukuba, Akira Harada (ed.), Tsukuba, Japan, 2003.

30 Jack Breen and Bram van Borselen: The Model as the Method, Architectural design exploration and communication. In: M. Saleh Uddin and Christopher Welty (eds.): Bridging Communication, 2009 Design Communication Conference, DCA Proceedings, Southern Polytechnic State University, Georgia, USA, 2009.

31 *Kansei: a term particular to Japan, meaning the 'high order function of the brain, which would be the source of emotion, inspiration, intuition, pleasure/displeasure, taste, curiosity, aesthetics and creation'.*
Source: Tsukuba ADC conference introduction, Tsukuba Science City, Japan, 2003.

32 A representative Paper on the issue was written by Elise van Dooren: *Making Explicit in Design Education: Generic Elements in the Design Process, Delft University of Technology, Faculty of Architecture, 2013.*

33 Jack Breen, Bernard Olsthoorn: *De Wand, Publicatieburo Bouwkunde, Delft, 2002. Pg. 38.*

34 The set-up could count on little enthusiasm of then-promoter Jan Heeling, which stimulated a fundamental 're-think' of the thematic trajectory.

35 AC3 is the code for the third Academic Skills – *Academische Vaardigheden – Module in the integrally renewed Bachelor curriculum of the Delft faculty of Architecture.*
The AC1 application takes place toward the end of the first year of study, AC2 is offered in the second year.
The third AC Module coincides with the final design project – ON6 – in the closing (sixth) term of the three-year bachelor program.
At the time of these thematic experiments, the coordinator of the Module was Alijd van Doorn.

36 The experiences with the AC3 'Thematic Image Dossier' were documented in a Paper, which was presented at the 2014 DCA conference, in Atlanta, Georgia.
Jack Breen: *Towards Evocative, Thematic Design Dossiers. In: M. Saleh Uddin, Christopher Welty: Design & Graphic Palimpsest, Dialogue-Discourse-Discussion, 2014 Design Communication Conference Proceedings, Southern Polytechnic State University, Marietta, Georgia, 2014. Pg. 264.*

37 The definitions have been developed in relation to the overall themes of architectural composition and perception. In some cases, they have been taken from a source, but in most cases they have been adapted to serve the desired purpose.
The most important sources that have been referenced are: *Collins Dictionary and Thesaurus* (1994) and the *Oxford Thesaurus of English* (2004) and *Oxford Dictionary of English* (2010).
Further use was made of the on-line sources *Dictionary.com* and *Thesaurus.com*, as well as various Dutch *van Dale* and *Wolters*' dictionaries.

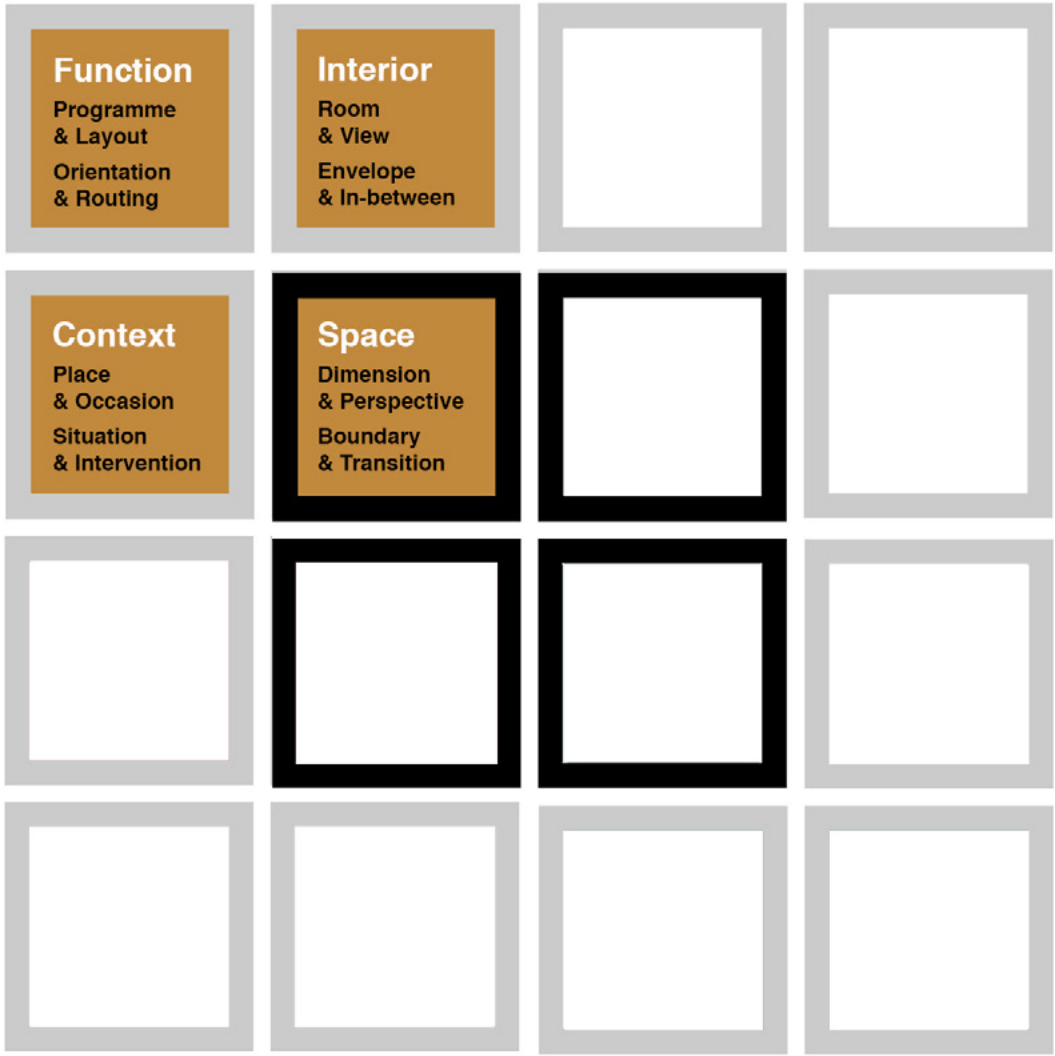
5. Conceptions

5.A. Space

5.A.1 Context

5.A.2 Function

5.A.3 Interior


Function
Programme
& Layout
Orientation
& Routing
Interior
Room
& View
Envelope
& In-between
Context
Place
& Occasion
Situation
& Intervention
Space
Dimension
& Perspective
Boundary
& Transition

Space

— *The three-dimensional realm in which all objects are located.*
— *A clearly defined, bounded, spatial entity, such as a room.*

Architecture is essentially a *spatial* art-form.
Hence, the establishment of various kinds of spatial conditions is a fundamental attribute of architectural *composition* and *perception*, in the broadest sense. However, 'space' is in itself *intangible*; it is a phenomenon that is as difficult to grasp as it is omnipresent.[1]
On the one hand, space may be considered as 'free' space; the nearly *infinite* expanse in which all physical elements are positioned and subsequently identified, primarily via the *visual* senses. In this interpretation, 'space' may be considered as being the 'substance' that surrounds the material objects that we may encounter 'in space'.[2]
On the other hand, 'space' may also denote a more *finite* environmental condition, defined by dimensional and substantial constraints. Such a spatial entity tends to be appreciated in its own right, as in a *room*.[3]
Whilst the first category, which we might consider as 'outer' space, is defined by its fundamental openness, the second category might be considered as a kind of 'inner' space, determined by properties of *enclosure.*
As *ambivalent*, linked conditions, both conceptions of space are essential, indeed reciprocal, on the level of the creation of architectural environments and their subsequent, *dynamic* experience.[4]

H.P. Berlage, quoted by Cornelis van der Ven:
"The aim of our creations is the art of space, the essence of architecture."[5]
J.J. Gibson, on the *visual* perception of space:
"The visual world can be described in many ways, but its most fundamental properties seem to be these: it is extended in distance and modelled in depth; it is upright, stable, and without boundaries; it is coloured, shadowed, illuminated, and textured; it is composed of surfaces, edges, shapes, and interspaces; finally, and most important of all, it is filled with things which have meaning. If we could account for the perception of these properties of the visual world, we should at least be well on the way to explaining the whole panorama of visual experience."[6]
Steven Holl, on the *medium* of space:
"Space is the essential medium of architecture.
Space is simultaneously many things – the voids in architecture, the space around architecture, the vast spaces of landscape and city space, intergalactic spaces of the universe.
Space is something both intrinsic and relational."[7]
Gerrit Rietveld, on *making* space:
"The reality that architecture can create is space." [8]

Dimension & Perspective

All human environments, natural as well as man-made, are experienced as spatial and physical configurations, which are perceived in *three* dimensions.[9]
Our visual impressions of the world around us are determined by the combined factors of *depth*, *width* and *height*.[10]
The dimensions of built environments have actual sizes, which are *measurable*.[11] *Depth* is perceived most explicitly in *perspective*, whereby physical objects appear to be optically diminished; when something is further away it *appears* to be smaller.[12]*Width* is determined by the relative positioning of physical elements that visually *frame* a spatial entity.[13]*Height* is most directly linked to the sense of *scale*, whereby the human body functions as a 'measure of things'; the experience of something being high or low is determined by our own height.[14]
The relationships between such relative dimensions, may be expressed as *proportions*; which are not actual quantities of measurement, but a *ratio* of sizes.[15]
The appreciation of three-dimensional conditions does not come about through passive observation, but is a matter of active perception.[16] Architectural objects and environments are experienced in what we may consider as *dynamic perspective*; an experiential quality that is to be anticipated in the design process.[17]

Boundary & Transition

Spatial impressions are determined to a large extent by varying levels of *openness* and *enclosure*.
The visual and haptic appreciation of spatial settings is determined by the presence of natural and artificial *boundaries*.
When a predominantly open space is 'subdivided', by the introduction of space-defining borders, this will result in distinctions between different domains, whose qualities may be defined by their relative levels of openness or enclosure; experienced as being outside or being inside.[18]
Such spatial borders can take the form of relatively 'hard' – *primary* – boundaries, resulting in predominantly *confined* spaces, which are almost fully separated from their environs.[19]
Alternately, the introduction of 'softer' – *secondary* – boundaries can introduce a range of subtler, *transitional* qualities; between one spatial domain and another.[20] Hence, in conjunction with enclosure, an equally essential condition is spatial experience by physical movement. Consequently, a fundamental condition of environmental 'place-making' involves the integration of clearly-defined and strategically-positioned interconnections, that allow for the *crossing* of borders.
Such transitions may create a level of transparency and an overlapping of domains, implying a broader spatial order.[21]

Context

— *The circumstances that are relevant to an event or (arte)fact.*
— *The physical and cultural conditions that affect a design.*

Works of architecture are not conceived as entities in their own right, but as constituents of a particular *context.*[22]
Primary circumstances, which will significantly influence a building's evolvement, tend to exist on the level of *topography* and *climate*.[23] Such contextual conditions set *constraints* as well as offering *opportunities*.[24]
The availability of building materials and local building *conventions* may influence what kind of building may actually be realised. Furthermore, the *stylistic* preferences in relation to time and place will play a role.
Last but not least, environmental and communal regulations, as well as financial constraints set by the client, will largely predetermine what may and what may not be built.[25]
The designer's task is to *integrate* such contextual demands into a 'fitting' design, whereby the circumstances may restrain, but also *challenge* professional creativity.[26] A design-proposal should relate to the qualities of the given site, offering durable solutions for existing demands, as well as anticipating future developments. In time, the contextual conditions may change considerably, leading to changing ideas of a building's status.
Assessing a building's original context can lead to a better understanding of its *meaning* in a historical context.[27]

Aldo van Eyck, on 'place' and 'occasion':
"Whatever space and time mean, place and occasion mean more. For space in the image of man is place, and time in the image of man is occasion. Provide that space, articulate the in-between."[28]
Christian Norberg-Schutz, on the *qualities* of place:
"When we speak of an 'inhabited landscape' we are referring to a landscape articulated by the implementation of use, i.e. an environment where the given situs has become locus. Naturally, in relation to the exterior of nature, every work of man is an interior."[29]
Brian Mackay-Lyons, on the *creation* of *place*:
"Architecture may be defined as the humanistic art of 'place-making', a constructive act that allows each of us to dwell in the world in a way that is truly sustainable in the full sense of the word."[30]
Vittorio Gregotti, on the *enhancement* of context:
"The task of the architectural project is to reveal, through the transformation of form, the essence of the surrounding context."[31]

Place & Occasion

The *realisation* and subsequent *appreciation* of a built artefact is influenced by factors of *space* and *time*, or more appropriately: *place* and *occasion*.[32]
A building's setting can be considered on different scale-levels, such as: national, regional, local and site-specific.[33]
The existing qualities of the *locale*; the opportunities it offers, as well as the challenges it poses, need to be resolved in the way the design-proposal is incorporated into its specific, urban or sub-urban surroundings. Thereby, specific situational factors, in their own right as well as in combination, need to be accommodated and integrated.
In such a place-specific design composition, various sorts of circumstantial issues may be at interplay, such as plot ownership and neighbourhood relations, typological- and stylistic conventions, as well as the ambitions of the client and the creative designer.[34]
The built result may be expected to address a variety of principal conditions and to give 'occasion' to issues like: shelter and safety; convenience and comfort; domesticity and enterprise, community and individuality. It may be experienced locally as being familiar, novel or provocative.
Its introduction will contribute to creating a renewed 'sense of place', in relation to the original 'Genius Loci'.[35]

Situation & Intervention

Where and how a designed object is *situated* is a matter of its formal composition responding to the 'micro-environment' that it will lastingly *transform*.
The 'intrusion' of a new building, whether it is a replacement for a previously-existing object or a wholly new entity in its own right, means irrevocably altering the existing *locale*.[36]
A variety of aspects may inform the designer's decision-making on the level of the 'anchoring' of a new building and the determination of its situational qualities. An essential aspect is the parcel of available land, with its intrinsic ecological conditions and the qualities of its margins, in relation to its neighbourhood.[37] Thereby, aspects like visual interrelationships and the positioning of external *routes*, between private- and public domains, may figure prominently.
The strategic placement of a built object in an existing milieu involves the optimisation of the *reciprocal* conditions of *form* and *counter-form*: the simultaneous determination of its size and ground-form in relation to its semi-private *exterior* domains.[38]
Such an *intervention* may be carried out in a site-sensitive and respectful way, but a new edifice may also be conceived as a distinctive new formal presence, that will consciously *contrast* with its surroundings.[39]

Function

— *The purpose for which something is designed or exists: utility.*
— *The appropriateness to such a purpose: suitability, durability.*

As architecture is essentially an 'applied' art-form, works of architecture are usually created to serve a particular *purpose*.[40]
The term *function* characterises the *practical* conditions of designing and building.[41] The Roman architect and scholar Vitruvius identified *utility* – 'utilitas' – as one of the three core-conceptions of architectural composition and *commodity* may be considered to be an essential attribute of architecture.[42]
The expectations on the level of a building's functionality are generally formulated at the outset of the design-initiative, guiding the development of its *spatial* organisation, its *architectonic* capacities and potentially: its *architectural* expression.[43]
The identification of new building categories, with *shared* functional characteristics, led to the *classification* of buildings into functional *types*.[44]
Creating a *Typology* essentially involves procedures of selective *reduction*; creating a kind of 'largest common denominator', on the basis of broadly-defined similarities.[45]
In *Functionalist* architecture, the aspects of utilitarian 'fittingness' came to be considered as central, even dominant, design principles.
Alternately, 'function' may also include *experiential* qualities, such as convenience, comfort and even atmosphere.

Louis Sullivan, on *form* and *function*:
> *"It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, of all things human and all things superhuman, of all true manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that form ever follows function."*[46]

Peter Blake, on the conditions of 'functionalism' (1963):
> *"'Form follows function' … In the 1920's it seemed like a strange idea, cold and forbidding; today, although widely accepted (and even more widely misunderstood), 'form follows function' continues to evoke the image of modern as opposed to traditional architecture more readily than any other slogan. Yet there is no architectural principle that can claim a more ancient and distinguished tradition. Form has followed function from the Palaeolithic cave-dwellers to the Neolithic lake-dwellers; it followed function in Roman forts and aqueducts, in medieval castles and the Great Wall of China, in 18th-century English ware-houses, and in 20th-century Manhattan office piles.*
> *Functionalism, in short, is as old as building itself."*[47]

Paul Jaques Grillo, on the issue of functional *intent*:
> *"… we care to give to the word 'function' its widest sense, of something that 'works', as fulfilling an intention."*[48]

Programme & Layout

A building's primary functions tend to be the offering of shelter and the *affordance* of basic human activities.[49]
The design of a simple dwelling may be expected to primarily facilitate the daily conditions of domestic life. However, more complex buildings may be expected to play different kinds of functional *roles*, which may be practical, representative, symbolic, or even purely experiential.[50]
A building's desired qualities of functionality of are generally specified, *before* designing starts, in a *programme of requirements*, in which the approximate measurements and the required functional 'performance' of identifiable spaces, in their own right as well as in *accordance*, are specified.[51]
Such a 'programme' serves as a guideline, which the designer will in many cases first of all translate into a *floor-plan*; an essentially two-dimensional scheme, in which the *sizes, shapes* and *proportions* of individual spaces are determined and positioned *relative* to each other.[52]
Even the plan for a relatively simple a family home, may display a distinct, programmatic *hierarchy*, whereby specific spatial entities may be reserved for family life, representation, cooking, playing, working, sleeping, service, hygiene and storage; in relation to shared *connecting* spaces and *exterior* domains.

Orientation & Routing

Even a rudimentary design-proposal will try to anticipate the *existential* qualities that will define the building's everyday experience.
In the design, specific functional entities may be positioned in such a way that they will respond optimally to the *situational* conditions, on a daily as well as on a seasonal basis.
Issues of *orientation*, which tend be taken into consideration, are the *terrain* and the influence of the position and movement of the *sun*, as well as the dominant directions of the *wind*.[53]
By interpreting the projected conditions of use, the designer may position particular spaces, with similar or affiliated modes of use, in *proximity* to each other.[54]
Other elements may be consciously *separated*, for reasons such as functionality, privacy or intimacy.
The differentiated spatial units may be connected via a system of *routing,* introducing reciprocal qualities of separation and transition. Depending on how *private* or *public* a space is meant to be, will determine its level of physical *openness* or *enclosure* with other interior spaces as well as with the outside world.
A project's dynamic organisation can be considered as a *scenographic* system, in which interrelated spaces are experienced in conjunction; within the building as well as in relation to the outside.[55]

Interior

— *An enclosed space, that is within, in relation to what is without.*
— *The inside parts of a building, considered as an integral whole.*

In order to appreciate a building's *exterior* appearance, it is worth attaining a level of understanding concerning its *interior* organisation.
As reciprocal design concepts, the 'twin phenomena' of *outside* and *inside* are intrinsically linked, whereby the one cannot be fully comprehended without the other.[56]
A primary concern of architectural designing is the determination of the qualities of a building's inner spaces, as *bounded* entities.
The phenomenon of *defined*, 'interior' space is not only characteristic of building-design, but is also a central issue of architectural design on an urban scale-level.[57]
The dimensional and physical qualities of any man-made, 'interior' domain are determined by the primarily, *enclosing* elements, in conjunction with *adjoining* spatial configurations.
Such a designed space may be relatively simple in its elementary geometries, but may also be more complex; particularly in the levels of the two-dimensional *figure* of its plan and the spatial qualities, determined by its cross-sections.
Even a relatively simple building can harbour a variety of clearly-discernible interior qualities. Thereby there can be a marked experiential difference between specific *rooms*, which are simultaneously at interplay in the interior arrangement as a whole.

Clim Meyer, on the conditions of 'space':
"What is space? Space is delimitation. Natural boundaries are mainly defined by the horizon, by water and by mountains and caves, by hills and valleys and forests.
Of quite a different nature are the boundaries established by man."[58]
Aldo van Eyck, on the condition of the in-between:
"I will mention the problem of the in-between realm.
The in-between realm constitutes that place where false alternatives are no longer false, but become twin-phenomena.
My idea of twin phenomena sort of loops through my thinking and anything I try to build. That is the absolute refusal to accept the splitting of twin phenomena into incompatible halves of which each half has no meaning.
There are hundreds of twin phenomena which all belong together as brothers and sisters – one / family; inside / outside; closed / open; motion / rest; change / constancy; small / large; many / few; mass / space etc. – you can just carry on." [59]
Martin Heidegger, in *Building Dwelling Thinking*:
"A boundary is not that at which something stops, but as the Greeks recognised, the boundary is that from which something begins its presencing." [60]

Room & View

The most customary category of interior space is the *room* or *chamber*: a primarily *enclosed* space, with distinctive spatial *limits* and clearly-defined dimensions of *height*, *depth* and *width*.[61]
When the spatial parameters on the level of *size* are varied, the *scale* of room may alternately be experienced as being *large* or *small*, *wide* or *narrow*, *high* or *low*.
Such a room may be a predominantly *confined* space, with 'hard', *primary* boundaries.[62]
Alternately, the spatial entity can be 'brought to life' by introducing a level of *transparency* within one or more of its borders.
Strategically-positioned *connective* devices, set within a space's enclosing *surfaces*, allow for a level of social communication and environmental interaction between adjoining rooms, as well as between inside and outside.
Such conditioned, spatial *permeability* allows for *natural* light to enter by day and alternately: *artificial* light to filter out at night.
Furthermore, such *openings* allow for reciprocal *views,* offering an *outlook* towards 'what lies beyond', from inside, as well as giving *insights* into the conditions of the interior spaces, from outside.[63]
A distinguishing quality of any room is the *framing* of *vistas* towards the natural landscapes and architectural ensembles that are without, from *within*.[64]

Envelope & In-between

The essential conditions of any spatial capacity can be defined by its primarily *geometry*: a combination of *points*, *lines* and *planes*.[65]
Such 'abstract' means of spatial *delineation* may be used together, to represent two-dimensional areas and planes, as well three-dimensional entity as a whole, using elementary *outlines*.[66]
A particular 'room' can be identified as a straightforward, 'box-like' volume.
On the other hand, its geometries may be more complex; forming a spatial 'construction' of interrelated, combined *shapes*.
The building's, as yet *immaterial*, spatial *envelope*, can be made recognisable by using line-drawings or wire-frame renderings, with (semi) transparent surfaces.[67]
Within this integral configuration, a variety of delineated spaces may be strategically clustered together, within the *outer* envelope; roughly corresponding with exterior geometry of the built *volume*.[68]
The clearly-bounded inner rooms may be brought in contact with outside via elementary openings. Other, more *ambivalent* spatial categories may be recognised, which we may considered as *intermediate* domains.[69]
In such *in-between* realms, the conditions of 'interior' and 'exterior' tend to *meet* and *overlap*.[70] Yet, they may simultaneously be recognised and appreciated as spatial entities in their *own* right.[71]

1 Herman Hertzberger, on the elusive nature of 'space' ('ruimte'):
"Space is more an idea than a clearly defined concept.
When you think you have formulated what it is, you have in a way already lost it."
Herman Hertzberger in: *De ruimte van de architect, Lessen in architectuur* 2, Uitgeverij 010, Rotterdam,1999.
Original Dutch text:
"Ruimte is meer een idee dan een vastomlijnd begrip. Wanneer je denkt te formuleren wat het is ben je het eigenlijk al kwijt."
Translation by the author.

2 Christian Norberg-Schultz, on spatial 'meanings'
"Man's interest in space has existential roots. It stems from a need to grasp vital relations in his environment, to bring meaning and order into a world of events and actions. Basically, man orients to 'objects', that is, he adapts psychologically and technologically to physical things, he interacts with other people, and he grasps the abstract realities, or 'meanings', which are transmitted through the various languages created for the purpose of communication."
Christian Norberg-Schultz: *Existence, Space and Architecture*, Praeger Publishers, New York, 1971.

3 The first category of space (in French: *espace*) tends be thought of as being relatively *open*, the second category of space (in German: *Raum*, in Dutch: *ruimte*), tends to be considered to be more *enclosed*, as in: *room*.

4 This idea of the 'dynamic perspective' in architectural composition and perception was foundational to the development of this study initiative, in its formative stages.

5 This is the opening quote of: Cornelis van der Ven: *Space in Architecture*, van Gorkum, Assen, 1978. Introduction, pg. XIII.
This elegantly poetic text is attributed to 'H.P. Berlage (1908)', but the source of the text-fragment is not mentioned.
From further references to Berlage it can be deduced that the origin is the publication of a series of lectures, which Berlage delivered in Zurich in 1908: H.P. Berlage: *Grundlagen & Entwicklung der Architektur, Vier Vorträge Gehalten im Kunstgewerbemuseaum Zurich*, Verlag von W.L.&L. Brusse, Rotterdam, 1908.
Van der Ven's translation gives the impression of Berlage being a sort of grandmaster of 'spatial design', but this does not seem to be the case on the basis of the original, published text. In the rambling 120-page transcription of his address, Berlage only twice touches, briefly, on the issue of 'Raum' (in the other item he makes a connection between space(s) in relation to walls and facades). Berlage's address was arguably less of a rallying-cry for the pursuit of 'the art of space than van der Ven's sound-bite suggests.
The original text, found in the original, German-language booklet on pg. 68, reads:
„Der Zweck des ganzen Künstlerischen Schaffens unser Zeit soll nun dahin gerichtet sein, jenes Ziel zu erreichen, jene Einigung zu erzielen, weil sie die Kunst des Raumes, die eigentliche Kunst der Architektur bedeutet.
Erst wenn diese Bedingung in ihrem ganzen Umfange erfüllt sein wird, kann von einer Raumkunst die Rede sein, erst dann wird Harmonie zwischen dem Ganzen und den verschiedenen Teilen, die Einheit in der Vielheit hergestellt sein."
Translation, by Claudia Breen and the author:
"The purpose of the entire artistic creation of our time should now be aimed at reaching that goal, to complete that union, because it signifies the art of space, the true art of architecture.
Only when this condition will be fulfilled in its full magnitude might one truly speak of a spatial art, only then will harmony between the whole and its different parts, unify within diversity."

6 J.J. Gibson in his ground-breaking study on visual perception: *The Perception of the Visual World*, The Riverside Press, Cambridge, Massachusetts, 1950. Pg. 3.

7 Steven Holl in: *Parallax*, Birkhäuser, Publisher for Architecture, Basel, 2000. Pg. 22.

8 This Rietveld quote is taken from a Form Studies educational publication by Bernard Olsthoorn: *Syllabus Vormstudie 1,* Publikatieburo, Faculteit Bouwkunde, TU Delft, 1990. Pg. 39.
The Dutch text:
"De werkelijkheid die de architectuur scheppen kan is ruimte." Translation by the author.

9 Niels Luning Prak identified space as a condition of 'form':
"Form – Proportion: The classification of forms (spaces, volumes, members) according to their relations of length to width to height'.
Former professor of Formal Composition ('Vormleer') N. L. Prak, in: *The language of architecture, a contribution to architectural theory,* Mouton & Co, The Hague, Paris, 1968. Pg. 32.

10 As J.J. Gibson indicated, visual experience is *immersive*, whereby there is a sense of actually 'being' in a particular environment and not just looking at a 'projection' of it.

11 A major task of the architectural 'search' involves the determination and specification of the, design-specific, *dimensional* qualities and their *relative* proportions.

12 The fact that the further away something is the smaller it seems to be, is particularly clear on the level of *imaging*.
We tend not to be aware of this effect, until the optical impression becomes a *two-dimensional* projection, as in photographs or drawings. The visual 'horizon' is always on eye-level and this is where the lines of perspective (seem) to come together in a point.
This condition forms the basis of *perspective drawing* in education. The actual distance towards something can be difficult to judge, as in the distance to the horizon.

13 As our visual *scope* is naturally limited and blurred towards the edges, we are inclined move our eyes and particularly: to turn our head, in a 'panning-motion', in order to 'take more in'.

14 Whether we experience something as large or small, high or low, narrow or broad, distant or near it is experienced in relation to the *measure* of ourselves.

15 Proportion is a matter of *relative* conditions, like measurements. Whether a space is considered to be broad or narrow; whether an object is recognized as being tall or squat etc., depends on their proportional relationships.

16 As Gibson indicated, active perception is a combination of a variety of factors including: the motion of eyes, as well a head (panning and tilting), but also: the experience of body in motion. Visual perception in this sense is a dynamic, mental 'construction'.

17 In the concept of Dynamic Perspective there is a analogy between architecture and the *scenography* of the film-maker.
As in moviemaking, the architectural designer may anticipate a built environment's perception in visual *sequences*, which can be continuous or segmented, using smooth or sharp transitions.
The concept of 'dynamic perspective' – as a *scenographic* approach – has been a fundamental concept in the Form Studies curriculum in Delft and has been introduced as a recurring theme in several foundational exercises, as well as in my first-year Form Studies lectures.

18 Cees Dam et al, on the 'liberation of space':
"When there is nothing, there is also no space. Space originates when emptiness becomes marked out, when boundaries are determined in the form of a fence, a roof or a wall. Then, a division is made between inside and outside, between sheltered and open, between building and surroundings. Such a space can be created or at least suggested with relatively simple means."
Translation by the author.
In: Cees Dam (presenter; with Christoph Grafe, Alex Letteboer, Marieke van Ouwerkerk): *Het Sonsbeek-paviljoen, Otterlo, Het vrijmaken van de ruimte*, in: *Architectuur volgens Cees Dam* (1999), Teleac/NOT, Hilversum. Pg. 15.

19 Primary boundaries may include attributes like solid walls, floors, roofs, which can then be *perforated* by openings.

20 Secondary boundaries can consist of an

array of relatively modest bounding-devices, such as differences in levels or even materials, colonnades, transparent and translucent screens and even overlapping spatial domains that as it were 'pull' different spatial entities together. The concept of *primary* and *secondary* boundaries has been developed into a fundamental concept in the Form Studies curriculum in Delft and has been addressed as a recurring theme in my first-year lectures through the years.

21 Gyorgy Kepes, on *transparency* and *overlapping*:
"If one sees two or more figures partly overlapping one another, and each of them claims for itself the common overlapped part, then one is confronted with a contradiction of spatial dimensions. To resolve this contradiction, one must assume the presence of a new optical quality. The figures are endowed with transparency; that is, they are able to interpenetrate without an optical destruction of each other. Transparency however implies more than an optical characteristic; it implies a broader spatial order. Transparency means a simultaneous perception of different spatial locations. Space not only recedes but fluctuates in a continuous activity."
Whilst Kepes primarily addresses transparency in two-dimensional composition, this potentially includes *architectural* space, as Colin Rowe and Robert Slutky recognized in 1955, according to Adrian Forty, in: *Words and Buildings* (2000). Pg. 286.
Quote from: Gyorgy Kepes: *Language of Vision* (1944), Paul Theobald, Chicago. Pg. 77.

22 In this sense 'context' is considered as: 'a setting, determined by physical- as well as *cultural* conditions'.
Adepts of 'autonomous' architecture may argue that context is less important than architectural *form* per se. However, autonomously-conceived buildings nonetheless have to 'fit' into their surroundings. If this is not taken into the equation, they may be experienced as being *dissonant* in their environmental setting.

23 The conditions of *local* geography, in particular topology and climate are determining factors of expression in *vernacular* modes of architecture.

24 Architectural designing addresses factors of expression in the 'opportunities, but perhaps more importantly: involves devising creative solutions for set *constraints*.

25 Classic constraints are communal building rules and regulations and particularly the demands of finances. As such, creative design is a kind of 'juggling' act of creative ambition and (generally: a lack of) money.

26 Local conventions tend to put pressure on designers to adhere to what 'may be expected' under *normal* circumstances.

27 The understanding of the qualities of context – original as well as present – in the AA Variations study, was one of the motivations to include 'Context' as a domain.

28 The idea of the '*eziehung zwischen die substantia humana und der substantia reum, das Gestalt gewordene Zwischen*' is discussed in: Aldo van Eyck: *Doorstep.* In: *Team 10 Primer*, edited by Alison Smithson, , The MIT Press, Cambridge, Massachusetts, London, 1974.
The issues of *place* and *occasion* are fundamental attributes of van Eyck's thinking; closely linked to his key-concept of the 'in-between' realm.

29 Norberg-Schulz continues:
"Therefore the basic quality of place may be expressed by the adverb 'within', which means that its 'being' is only something in relation to a 'without'."
Christian Norberg-Schulz in: *Architecture: Presence, Language and Place*, 2000. Pg. 190.

30 Brian Mackay-Lyons, extended quote:
"We understand place as landscape (natural and cultural), light, climate response, geomorphology, flora, fauna, and environmental sustainability. The environment is not merely the setting for human inhabitation; rather, the environment and the inhabitant are unified and synthesized in the making and experience of a place. Place is involved in the creation of atmosphere, ambiance, mood, and memory, as well as the cultivation and preservation of spaces of inhabitation, thereby forming the basis of our individual and collective identity. Architecture may be defined as the humanistic art of 'place-making', a constructive act that allows each of us to dwell in the world in a way that is truly sustainable in the full sense of the word. The connectedness to place is an essential source of authentic content – something that is now even more critical in the face of the superficial placelessness associated with global civilization."
In: Brian Mackay-Lyons (Robert McCarter ed.): *Local Architecture, Building Place, Craft and* Community, Princeton Architectural Press, New York*,* 2015. Pg. 212.

31 V. Gregotti, quoted by Adrian Forty at the beginning of his chapter on Context, in: *Words and Buildings, A vocabulary of Modern Architecture* (2000), Thames & Hudson, New York, pg. 132.
Original source: V. Gregotti: *Le territoire de l'architecture*, L'Équerre, Paris 1982. Original Italian text 1966.

32 Van Eyck differentiated between space and place as well as time and occasion. See quote 1.

33 In architectural designing, different levels of the design are studied and visualised on different 'scale levels' (Dutch: 'schaalniveaus')
Familiar drawing scales on the level of 'context' are: 1 : 1000, 500, 200, 100, 50.

34 The relationship between the client ('opdrachtgever') and the designer is a decisive; on the basis of which a designer may or may not 'rise to the occasion'.
Arguably, few great buildings have come about without a good, demanding and *stimulating* client. Notable exceptions are those where the architect had such a 'status' that the owners were 'taken by surprise'.
Examples of houses by famous architects that responded strongly to their location (though not in a way their owners envisaged) are Falling Water by Frank Lloyd Wright and the Farnsworth House by Ludwig Mies van der Rohe.

35 The concept of Genius Loci was introduced by Christian Norberg-Schulz in: *Genius Loci, Towards a Phenomenology of Architecture*, Academy Editions, London, 1980.

36 The theme of *Intervention* played a prominent role on the architectural and (sub) urban debate in the Netherlands in the late twentieth century. Particularly in the western parts of the Netherlands issues of increasing scale-levels ('schaalvergroting') and densification ('verdichting') were issues, whereby the irreversible changes in the use ('herbestemming') of the available land which had previously been reserved for agrarian purposes were discussed.

37 Clearly, in a *free-standing* building, all four sides have such qualities, although the most 'public' borderline tends to be a more prominent feature. In the case of a 'row' situation, in principle only two sides are deserving of articulation, whereby once again the most publicly *visible* side tends to attract the most attention on a compositional level.

38 Such exterior domains tend to be – preconceived – 'rest-forms', which may serve as gardens, terraces, patios and even 'outside interiors', as well as spatial domains like balconies and loggias.

39 While designers may attempt to fit a new building into the original surroundings by adhering to traditional formats, particularly on the level of scale, style, material or colour; in many cases, aspects like *up-scaling* and *densification* irreversibly alter the original *character* of the local environment.

40 Function can be defined in various ways, including: 'the natural action of a thing; to operate or perform as specified etc..
Here it is considered in its most common sense: as *purpose*, *commodity* and practical *utility'*.
Source: *Collins Dictionary & Thesaurus* (1994)

41 In architectural – design – education, particularly in the Netherlands, emphasis tended

to be placed on functional design, in the sense of designing well-organised *plans*.
During my years of study in Delft (the 1970's), functionality was dominant over other issues of building design. From around 1990 more attention was given to aspects of 'tectonic' functionality and product-design, as well as 'meaning'.
42 J.C. Loudon on the issue of a 'fittingness' in architecture:
"An edifice may be useful, strong and durable, both in reality and in expression, without having any other beauties but those of use and truth; that is of fitness for the end in view, and expression of the end in view; or in familiar language, of being suitable to the use for which it was designed, and of appearing to be what it is."
Quoted by Adrian Forty in Words and Buildings (2000), pg. 190.
This quote gives an indication of the conviction that was held amongst architects for some time (at least publicly) that a building should primarily be what it was functionally 'intended to be'. In this context, it is worth noting that an essential aspect of 'durability' is the ability to accommodate changes (in use) through time.
Original source: J.C. Loudon: *Encyclopaedia of Cottage, Farm and Villa Architecture*, Longman, London, 1833.
43 Sullivan considered 'function' less as the functionality of the building's organisation – what the building should allow the users/inhabitants to be able to do – but more as an 'organic' expression of how its parts should 'behave' relation to each other and within the whole.
44 An example of an overview-publication highlighting the central role of functionality in relation to – modern – building types is Nicolaus Pevsner's: *A History of Building Types*, Trustees of the National Gallery of Art, Washington D.C., Princeton University Press, 1976.
Pevsner identifies relatively 'new' building types such as Theaters, Libraries, Museums, Prisons, Hotels, Banks, Exchanges, Office Buildings, Stations, Factories and Greenhouses.
45 In Dutch: *'grootste gemene deler'.*
That typologies might be considered as 'poorly-fitting' – *reductionist* inventions, was eloquently voiced in the context of a PhD thesis by Helen Kruythoff (1993):
"Een typologie is een keurslijf; het zit niet lekker en niet iedereen past erin."
Source: *Stellingen bij het proefschrift 'Residential environments and households in the Randstad'* (stelling 11)
46 Louis Sullivan, quoted in: Robert Twombly, Narisco G. Menocal: *Louis Sullivan, The Poetics of Architecture*, W.W. Norton, New York, 2000. Pg. 74.
As architectural critics like Adrian Forty have indicated, Sullivan's concept of 'function' did not simply indicate *utility*, but was rather the expression of an 'organic essence'.
Nonetheless The phrase "form (ever) follows function" became a battle-cry of Modernist architects around 1930. The credo of function as 'Zweck' in the context of Sachlichkeit was taken to imply that decorative elements, or ornaments, were superfluous in modern buildings.
Sullivan himself neither thought nor designed along such dogmatic lines during his career, but the term 'stuck' and was also used to indicate that the 'purpose' of spaces should be directly and 'honestly' expressed in a built ensemble's plan and spatial composition.
47 Peter Blake (New York) in his contribution on Functionalism to: Gerd Hatje (general editor): *Encyclopedia of modern architecture*, Thames and Hudson, London, 1963 (reprinted 1975).
The interesting point of Blake's argument is that functionality (or for that matter: functionalism) is a fundamental condition of all architecture, considered as a 'building' art. The fact that the functional condition became appropriated with modernist aesthetics is relativized in this contribution.,
48 Paul Jacques Grillo, on the 'character' of function:
"The character of the activity that is to take place in a building should find its expression in the whole design: structure, planning of areas, layout of circulations, materials and decoration. There should not be any doubt about its function, when looking at it from any angle, inside or out."
In: Paul Jacques Grillo: *Form, Function & Design*, Dover Publications, Inc., New York, 1960.
The quote is from the chapter on *Composition*, with the theme *'Function + Character = Authenticity'*. Pg. 230.
49 The concept of 'affordance', in the sense of conditions that make certain activities possible – for animals as well as humans – was introduced by J.J. Gibson in his second influential study: *The Ecological Approach to Visual Perception*, Houghton Mifflin Company, Boston, 1997. Chapter Eight: *The Theory of* Affordances. Pg. 127.
50 Reasons to realise a building can differ, including: practical, atmospheric or even ritual or even – in rare cases – purely for the enjoyment of an architectural experience.
An example of the last category is arguably the Barcelona pavilion by Ludwig Mies van der Rohe, 1929.
51 In Dutch: 'Programma van Eisen (PvE)'. The programme of requirements specifies what may be expected, even: 'demanded'.
52 In Dutch: 'plattegrond'. In most cases, a number of variants is sketched out, on the basis of the programme, in relation to the available plot.
53 Determining how a building might respond to the qualities of the available site, views and the letting-in of light, privacy etc., is a kind of 'contract', specifying the expected level of 'performance'.
54 In the past, *serving* spaces tended to have their own, discreet, routing systems.
55 The specification of routing – to- and from a building's different entrances, such as the official 'main' entrance, service- and business entrances, from surrounding roads – also tends to be a primary, programmatic condition.
56 Aldo van Eyck stressed the importance of the reciprocal condition of architecture in his concept of twin phenomena, like inside *and* outside.
Van Eyck, on the interconnection of exterior and interior:
"Space is the appreciation of it.
I wish to identify a building as that same building entered. Architecture is built homecoming."
This statement by Aldo van Eyck, which was taken from a handwritten note, was included in the context of an exhibition project *Architects About* Architecture, curated by Tadeuz Barucki, Czech Republic, Ostava / Katowice, 2015, entry nr. 113.
57 Han Meyer, Jan Heeling, John Westrik and Eugene Sauren: *The composition of the town plan*, 2000. Pg. 32.
Published in: *Architectural Design and Research: Composition, Education, Analysis,* 2000.
The except in full:
"The creative input of the urban designer resolves around the juxtaposition of building volumes, the calculation of their mass, and the identification of the basic principles of each volume. Thus, the knowledge, manipulation, and processing of the building typology belong to the core activities of urban design. It is assumed that the architectural image, or at least the typology of each particular building can be determined to a large degree. Ultimately, the most important element of the end product will consist of three-dimensional images. These include scale models and bird's-eye-view perspectives, while digital technology has added numerous new possibilities to simulate the future image of the city. In this approach, the difference between urban design and architecture is merely a question of scale,"
58 In: Clem Meyer: *The Genealogy of Space*, Van Speijk, Venlo, 1997. Pg. 7.
The publication documents a study concerning the effects of colour in art and architecture.
59 Aldo van Eyck: *The Child, The City, The Artist*, in: *Byggekunst, nr. 1* (1969), also: F. Strauven: *Aldo van Eyck, Relativiteit en Verbeelding*, Meulenhof, Amsterdam, 1994.

In the quoted text fragment, van Eyck continues:
"So what I think we should do first of all, is to persuade these hard, narrow borderlines between one world and the next, between this place and the next place, between this moment and the next moment, between this person and another person, to persuade this narrow borderline, to loop generously into an in-between realm."

60 Martin Heidegger, quoted by Christian Norberg-Schulz, who is again then quoted by O'Donnell and Tuomey.
In: *Space for Architecture, The Work of O'Donnell+*Tuomey, Article books, London, 2014. Pg.51.
The used quote gives an indication of how certain 'iconic' texts (in this case a translation of Heidegger's originally German text (from 1951) are 're-produced' by different authors in their work; the re-quote in the context of this study being the last in a series (for now).
Martin Heidegger, in: *Building Dwelling Thinking.* From: *Poetry, Language, Thought*, translated by Albert Hofstadter, Harper Colophon Books, New York, 1971.
Extended English quote:
"A space is something that has been made room for, something namely within a boundary, Greek 'peras'. A boundary is not that at which something stops but, as the Greeks recognized, the boundary is that from which something begins its presencing. That is why the concept is that of 'horismos', that is the horizon, the boundary."

61 In his inaugural address as a professor of Architecture / Dwellings in 2001, Max Risselada addressed the different connotations of the concepts of Space and Room, or 'Raum', whereby he referenced Peter Collins and Adolf Loos.
Two quotes from Risselada, on this issue of defining 'space', were included in the publication *De Wand* (2002):
Max Risselada / Peter Collins:
"Als begrip heeft Raum oorspronkelijk een dubbele betekenis; het is zowel hetgeen dat omhult wordt als de omhulling zelf. Voor de historicus Peter Collins hield dit in dat het voor een Duitssprekende vanzelfsprekend was "to think of room as simply a small portion of limitless space, for it was virtually impossible for him to do otherwise". … Het is een interessante speculatie om te suggereren dat ons hedendaagse ruimtebegrip is ontstaan uit een kruising van de ruimteconcepten die in deze twee woorden – "Space" en "Raum" – lagen besloten; omsluiting enerzijds, continuïteit en afstand anderzijds."
Max Risselada / Adolf Loos:
"Over de verhouding tussen "ruimte" en "massa" schreef Adolf Loos – in zijn essay "Das Prinzip der Bekleidung" – het volgende: "De architect voelt eerst het effect dat hij wil bereiken en maakt zich dan een voorstelling van de ruimte die hij wil scheppen" en "Er zijn architecten die het anders doen. Hun fantasie – let op de woordkeuze – vormt geen ruimte, maar muurmassa ('Mauernkörper). Wat de 'muurmassa' dan overlaat zijn de ruimten."
In: Jack Breen and Bernard Olsthoorn: *De Wand*, Publicatieburo Bouwkunde, TU Delft.
These quotes were included in one of my contributions: *Wand en Ruimte: Ordening en Vormgeving*. Pg. 42.

62 Being in a confined space is experienced as sensory deprivation; hence as punishment.

63 Foreign visitors to the Netherlands were traditionally surprised how they were able to look into living-rooms at night. The most extreme form of this sort of transparency is arguably the Dutch phenomenon of the 'door-zon woning', a house-type through which the sun can as it were shine from front to rear.

64 The importance of the 'view' as a quality of a room is an issue of the awarded British film *'A Room with a View'*, by director James Ivory, 1985.

65 Essentially this involves the determination of *points* in space, connecting (straight or curved) *lines*, combined into (surface) *planes* that delineate three-dimensional *objects* and *spaces*.

66 *Outline*: 'The representation of a visible shape or form', notably as a 'scheme' or 'figure'. Source: *Collins Dictionary and Thesaurus*, 1994

67 In design representation, architectural entities are often considered as (transparent or semi-transparent) Outline figures; in (free-hand) drawings as well as in digital 3D models.

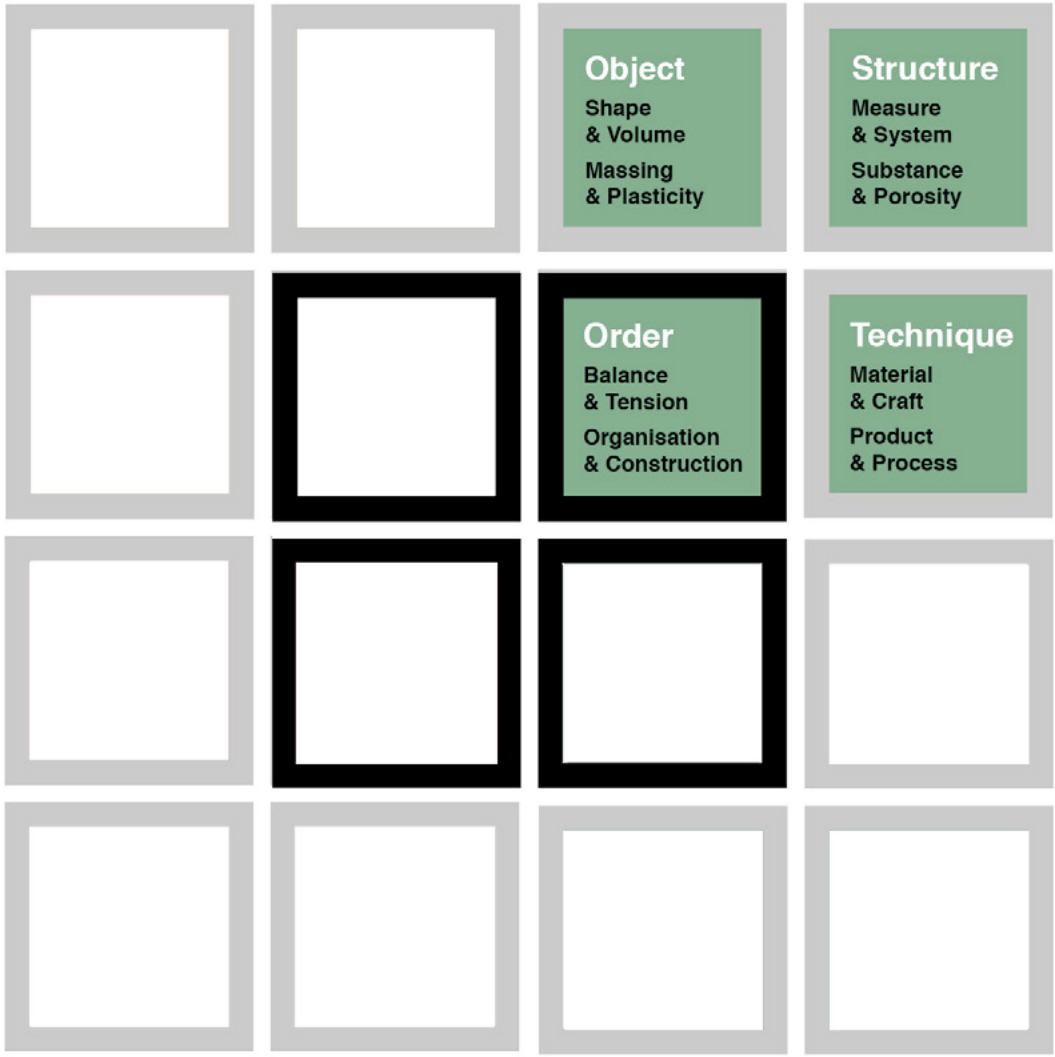
68 The term 'envelope' is used here to denote what may be considered as the 'wrapper' of a space or object, without thickness: a geometric membrane, thin until otherwise.
The idea of the light-weight outer 'shell' , as cladding constructions in modern architecture, was picked up by Alan J. Brookes and Chris Grech in *The Building Envelope, Applications of new technology cladding*, Butterworth Architecture, London, 1990.

69 Examples of such intermediate realms include: balconies, terraces, loggias, porches and porticos. They are characteristic features of vernacular as well as 'classical' architecture.

70 Martin Buber, quoted by Aldo van Eyck in the theme-number *Drempel en ontmoeting, de gestalte van het tussen*, Forum 1959, on the condition of the *in-between*:
"Kunst.... ist Werk und Zeugnis der Beziehung zwischen der substantia humana und der substantia verum – das Gestalt gewordene Zwischen.":
Buber's text was an inspiration to van Eyck in his pursuit of the condition of *the between* ('hei pavilion, Katsura villa and gardens, near Kyoto, Japan.n (free-hand drawings-rooms at d in its most common sense: as et tussen') in architecture.

71 Quoted in: F. Strauven: *Aldo van Eyck, relativiteit en verbeelding*, Meulenhof, Amsterdam, 1994. The original tekst from Martin Buber in: *Urdistanz und Beziehung*, Studia Philosohica, 1951.
The segment in full:
"Kunst ist weder Impression naturhafter Objektivität, noch Expression seelenhafter Subjektivität, sie ist Werk und Zeugnis der Beziehung zwischen der substantia humana und der substantia rerum, das Gestalt gewordene Zwischen."
The in-between is here considered as what brings together the reciprocal qualities of inside as well as outside: interior as well as exterior, yet simultaneously being a spatial *presence* in its own right.
Particularly in a building's periphery, such 'ambivalent', *in-between* realms may be experienced as 'spaces that matter'.
One of the most renowned of such 'overlapping', interior/exterior spaces, is the tea-ceremony terrace of the Shôkin-tei pavilion, Katsura villa and gardens, Kyoto, Japan.

5. Conceptions
5.B. Order
5.B.1 Object
5.B.2 Structure
5.B.3 Technique


Object
Shape
& Volume
Massing
& Plasticity
Structure
Measure
& System
Substance
& Porosity
Order
Balance
& Tension
Organisation
& Construction
Technique
Material
& Craft
Product
& Process

Order

— *The condition by which constituents are properly disposed.*
— *A methodical or harmonious procedure of arrangement.*

In design, creating *order* is a foundational objective, setting the tone for composition and perception.[1]
On the basis of ordering schemes and principles, designs can be devised relatively *methodically*, rather than in an ad-hoc fashion.[2]
For this aim, project-specific 'rules' may be devised, in order to maintain levels of *consistency* throughout the design.[3]
At the same time, there ought to be opportunity for the imaginative 'bending' of such rules, for the benefit of *experiential* and *aesthetic* effect.[4]
As in music, architectural order can introduce *metre*, underpinning the work's – spatial and material – 'melody-lines', creating opportunities for subsequent *modulations* and *variations*.
Order can be consciously brought 'to the front', leading to *explicit*, formal articulation. However, on the level of the realised building's perceptual 'presence', it frequently tends to be an *implicit*, often even perceptually *submerged*, quality.
In many cases, the ordering principles that contribute to determining the building's appearance are of a *tectonic* nature, pertaining to the aspects of elementary *structure* and the physical *assembly* of the building.
In particular architectural métiers – notably Classicism – *aesthetic* devices were used to create compositional *hierarchy* and *variety*.[5]

Ludwig Mies van der Rohe on the necessity of order:
"The long road from function through the material to form has only one goal: to create order out of unholy confusion."[6]
Vitruvius, on the matter of classical order:
"Now architecture consists of Order, which in Greek is called taxis. …
Order is the balanced adjustment of the details of the work separately, and as to the whole, the arrangement of the proportion with the view to a symmetrical result."[7]
Pierre von Meiss, after E.H. Gombrich:
"Fundamental and permanent rules seem to govern the interdependence of the elements of architectural form. Buildings and urban groupings are always more or less structured. What is this order?
Order only has meaning in relation to disorder and chaos. It has no value in itself except at its limits. Perfect order and total chaos are equally difficult situations to bear for a long period.
The works we construct are situated somewhere between the two."[8]
John Summerson, on the relativity of ordering 'rules':
"If the understanding of rule is one basic factor in the creation of great classical buildings, the defiance of rule is the other."[9]

Balance & Tension

Building-design is largely a matter of finding the right *balance* of parts within the integral whole,which may be considered as *equilibrium*, or perhaps more fittingly: *equipoise*.[10]
Balance plays an essential role in building *construction,* whereby it tends to be a primary condition of building *statics*.[11]
However, the issue of *visual* balance, within in the object as an entity as well as in its constituting parts, is one of the most eminently elusive, *compositional* issues.
The term, that is most commonly used to denote compositional 'balance' in architecture is *symmetry.*[12] This can be interpreted as *axial* symmetry, resulting in a reciprocal *mirroring* of parts. As an ordering *instrument*, it has been widely applied, particularly in historical modes of composition. Mirror symmetry tends to elevate an object to a level of *autonomy*, at least when viewed from one side.[13] In contemporary architecture, strict symmetries are less frequently applied and compositional issues tend to be approached as a visual 'balancing-act' involving *unequal*, but more or less *equivalent* interrelated parts.
In such a *eurythmic* set-up, the designer may strive towards a controlled visual *tension*. Thereby, use is often made of *partial* symmetries, on the basis of *arrayed* elements, which are integrated into the *dynamically* balanced ensemble.[14]

Organisation & Construction

An intrinsic aspect of designerly activity is the attainment of a consistent level of organisational and constructive *orderliness*.
In the context of the envisioned project, the designer needs to *identify* and subsequently *specify* the individual qualities of its constituting *parts*, as well as their levels of *correspondence*.
Thereby, the search is directed towards finding a fitting *mix* of elementary dimensions, proportions and relations.
Such a process of 'putting into order' anticipates the building's actual *realisation* and hence can be considered as a kind of virtual *construction* process.[15]
In this sense, achieving an underlying order may lead to the accumulation of a project-based 'toolbox', determining the project's soundness, stability and durability.
This characteristically involves taking decisions concerning the project's *load-bearing* and *enveloping* structures.[16]
Such 'ordering' involves carrying out systematic evaluations and making coherent choices, on the basis of shared knowledge and experience in the fields of materialisation and construction as well as organisation and realisation.
These *architectonic* considerations subsequently set the standards for the realised building's *architectural* qualities, such as its spatial experience and physical appearance.

Object

— *A three-dimensional configuration and its visual impression.*
— *The elementary composition to which cognition is directed.*

Buildings are encountered and perceived as three-dimensional *objects*, which have been positioned *in* space.[17]
Depending on the situational conditions, an individual object may come across as a more or less 'autonomous', *detached* unity, or: as a *coupled*, *semi-detached* or *integrated* entity.
Even as free-standing objects, architectural artefacts tend to be perceived as *combinations* of distinguishable parts, that have been 'fused' together to form a *composite* entity.[18]
On a higher scale-level, a project may be perceived as belonging to an *urban* or *sub-urban* composition; fitting into a larger object-commodity, like: a villa, a row, a block, an urban villa or a tower.[19]
The public appearance of most built artefacts is determined by the *visibility* of their enveloping surfaces. In many cases, particular sides of the spatial object will largely be hidden from view, whilst other 'facets' will be visually dominant.
On the level of design on an *urban* scale, architectural objects tend to be considered as *solids*, highlighting their essential *geometrical* properties and relative distances.
Similarly, it may be opportune to apply certain *reductions* on the level of thematic visualisation, when considering the *elementary* compositional characteristics of an architectural object.[20]

James J. Gibson:
"Whatever the orientation of an object to the line of regard, whether we see it from the front, the side, or the top, if the conditions for observation are adequate, it will have the same shape. Now there are two meanings for the word shape. In this context, we mean the shape which an object possesses in three dimensions and which is defined by the surfaces. We shall call this its 'depth shape'. There is also a more common meaning to the term, the shape which an object possesses when projected on a plane. This is its shape as a silhouette, or the shape which is defined by the outlines or contour. This is its 'projected shape'."[21]
Le Corbusier:
"… cubes, cones, spheres, cylinders, or pyramids are the great primary forms that light reveals to advantage; the image of these is distinct and tangible within us and without ambiguity."[22]
Herbert George:
"Sculpture is material form in real space; this is its most basic quality. Ideally, a work reveals itself slowly, unfolding as the viewer walks around it, eyes constantly moving and exploring every aspect of the form in an attempt to engage with its dimensional presence."[23]

Shape & Volume

The elementary ordering-devices that determine an architectural object's characteristic 'shape-grammar' belong to the domains of spatial *geometry*.[24]
When considering aspects of architectural *order,* the focus tends to be upon fundamental, form-defining characteristics, such as *shapes.*[25]
In this context, 'shapes' are considered primarily as two-dimensional, 'projected' figures, underlying the 'in-depth', three-dimensional shapes, which we are inclined to identify as *volumes.*[26]
Primary shape-categories are the *square*, the *triangle* and the *circle*. Derived from these 'perfect' shapes are a multitude of *rectangles* and *polygons*, with wholly different proportions, as well as a variety of *ellipses* and partly *curved* shapes.
Primary volumetric categories are the *cube*, the *pyramid* and the *sphere*. Volumetric configurations that are directly derived from these are rectangular volumes and triangular prisms, as well as cones, cylinders and sections of the sphere, such as the dome.[27]
A three-dimensional object can be 'read' as a volumetric composite, with combined geometric attributes, such as surface shapes and edges, resulting in characteristic, two-dimensional *silhouettes*. Such three-dimensional objects visually come to life, when perceived in natural light, on the level of *shading.*[28]

Massing & Plasticity

To identify basic volumetric constituents, it may be opportune to consider an object as a *monolithic* entity.[29]
Viewed in this way, the primary composition is perceived as a *sculptural* manifestation of *masses* and *voids*.
In such a 'massing' approach, the object can be considered as a *conglomerate* of integrated volumetric elements, which may be combined, connected, intersected, extracted or moulded, creating a visual 'construct', in which the constituent parts may still be recognised. Such a volumetric *transformation* approach, on the basis of primary 'solids', is visually demonstrated by Francis D.K. Ching, who recognises dimensional, subtractive and additive operations, whereby the overall composition is determined by *combinations* of such geometrical manipulations.[30]
Further articulation can take place on the level of *secondary* massing, introducing themes including recession, extrusion, perforation and plasticity.
The result of such 'sculptural' articulations on the level of primary massing and secondary plasticity can be relatively straightforward, resulting in a kind of archetypal *purity*, by making *primary* geometries dominant.[31] Alternately, the strategic interplay of volumes and voids with *planar* and *linear* constituents can be used for the benefit of visual *complexity*.

Structure

— *The arrangement and interrelationship of constituting parts.*
— *The organisation of a thing, characterised by tectonic order.*

Whilst *structure* is an essential condition of architectural designing and building, it is a 'polyvalent' concept.[32]
In its common use, 'structure' may be used to alternately denote: a particular building in its entirety; the constructional system of such a building; or lastly: the underlying *organisation* of interrelated, *tectonic* components, considered in relation to its overriding, *formal* composition.[33]
It is particularly the *third* category that is of importance. In this sense, structure as a concept represents ordering *systems* and *devices* that contribute to determining a project's spatial configuration and its constructive organisation.
In this sense, structuring is an essential attribute of design-thinking, notably on the level of the *qualification, quantification and organisation of* the constituting parts of a built *artifice*.[34]
In H. Ronner's *Baustruktur*, three elementary categories of *space-determining* parts ('raumbildender Teile') are identified: a *massive* structure; a *planar* structure and a *column-based* structure.[35]
In principle, such structuring devices may be applied throughout the project, in a 'pure' form. However, more often they tend to be used in *combination*; whereby different structural themes may be recognised to be at interplay, within a *hybrid* structure.[36]

Adrian Forty, on 'structure' (third definition):
"Structure: A schema through which a drawn project, building, group of buildings or an entire city or region become intelligible. The schema may be identified through any one of a variety of elements: the most usual are the arrangement of tectonic parts; the masses – or their negative, volumes or 'spaces'; systems of interconnection or of communication. None of these are themselves a 'structure'. The main feature of the twentieth century has been the increase in the number of elements perceived as bearing 'structure'."[37]
Stephan du Chateau, on the *relativity* of structure:
"It should not be forgotten that structure is not architecture, but a means to create architectural form. … structure is the organisation of matter in order to achieve stability. It is the organisation of the material idea."[38]
Herman Hertzberger, on the *grid* in architecture:
"The grid is in principle the base map for structure – the structure of the structure. An urban planning tool at root, it is also used as a disciplinary underlay for buildings to bring homogeneity to the spatial units. You might say it brings together under a single banner the structural elements from which those spatial elements are assembled."[39]

Measure & System

One of the primary tasks of the architect is to determine the *measurements* of spaces and elements within a concise, 'structured' arrangement.
In many cases an underlying, *modular* system, such as a *grid*, will be determined; on which the exact sizes will subsequently be based.[40] Such a system of 'ordering lines' lends 'precision' to the design.[41] On the basis of such a *framework*, building-elements may be systematically *positioned*, either *on* or *relative to*, the 'nodes' of the underlying *guide-lines*.[42]
Frequently-recurring 'measures' are the Foot, or its metric equivalent of 30 cm, and multiples thereof. Alternately, measure-systems may be based on the *spacing* of recurring, structural elements, like columns and beams, as well as openings. On the basis of the classical architecture of the Greeks and the Romans, 'scientific' ordering systems were developed, based on the systematic *categorisation* of the 'ordering' elements and their *interspaces*.[43]
The Tatami is a space-defining system used in traditional Japanese architecture.[44] In western architecture, size- and proportion systems have been based on the Fibonacci series and the Golden Section.[45] Generally, such *regulating* devices tend to be generic systems of measurement and proportion, that allow for a measure of *variation*.

Substance & Porosity

A building's essential three-dimensional presence and its different *facets* can be recognised and visualised on an elementary level by its *contours*.[46]
On the basis of such 'defining lines', distinctions can be made between its *primary* and *secondary* volumetric attributes.
An essential structuring condition is *enclosure*, which may be defined by the presence of some sort of *substance*.[47]
An equivocal condition is *porosity*, which may be brought about through the *permeability* of such a substance; by shaping and positioning *openings*.[48] Such essential conditions may be differentiated, whereby the *range* of constituent qualities can vary, from perceptually impenetrable (a solid structure), perforated (a mix of enclosure and openness); semi-transparent (screened or subdivided); to predominantly transparent (primarily open). Thereby, each building 'facet' may be considered as an entity in its own right, with a level of surface-specific *distribution.* Generally, there tends be a measure of *interaction* between a building's different 'faces' on the level of structuring themes, which are continued around corners and over edges.[49]
Further opportunities for compositional articulation and perceptual variation may be introduced by plastic dimensioning on the level of *thickness* and *depth*.

Technique

— *A practical skill, craft or art, employed for a particular task.*
— *The body of specialised building knowledge and procedures.*

The working methods of the architectural designer are informed by professional *knowledge*, in conjunction with *skills* and *procedures*.
Building *technique* has its origins in the ancient Greek concept of Tekhné, which gives expression to the relationship between *art* on the one hand and *making* on the other.[50]
Hence, technique tends to be associated with *craft*.[51]
The professional 'vocabulary' of the architectural craftsman includes the methodical application of proven *principles* of construction, as well as the anticipation of the *process* by which materials may be prepared and systematically assembled, in a logical, step-by-step sequence.[52]
The aspects of building *technology* are sometimes considered as *specialised* disciplines, belonging to the domain of the building *engineer*, but they are no less essential for the architectural *designer* as the 'creative director'.[53]
In the realised building, the attributes of technical execution may largely become *hidden.* Alternately, such aspects may be made *explicit*, being emphasised or even exaggerated for aesthetic effect.[54] Considered in this way, building technique is not just an underlying, *procedural* condition, but a determinant of the *architectural* expression of *the realised* building, which will appear after the scaffolding has been removed.[55]

Gottfried Semper, in Der Stil, on *materialisation*:
"Every material conditions its own particular manner of formation by the properties that distinguish it from other materials and that demand a technical treatment appropriate to it."[56]
Brian Mackay-Lyons, on *craft* in contemporary architecture:
"We understand 'craft' as a connection to the master builder tradition, where the art of architecture is inseparable from the embodied experience, the thinking hand, tactility, sensuality, the social act of building, material culture, building well, the building industry as the medium of architecture, and ecological sustainability. … As a part of place-making, craft often involves the rearrangement of existing craft and material traditions so as to allow new uses."[57]
Juhani Pallasmaa, on craft and building *skills*:
"I used to think that the architect's duty was to design structures and details that are as easy to execute as possible. Having realized that every serious professional has his ambition and pride, I have changed my view entirely. Skilled craftsmen and builders like to face challenges, and consequently the work needs to meet the full potential of the maker in order to provide the desired inspiration and satisfaction."[58]

Material & Craft

The way a building is conceived and constructed depends on the *materials* that are available.
Different materials have specific affordances and limitations, which have to be creatively exploited.[59]
In western Europe, quarried stone and subsequently fired bricks and roof-tiles were combined with a variety of sawed wooden elements of different sizes and proportions.
Elements with rectangular sections tended be used for columns, beams and rafters, profiled lengths for windows and door-frames and planks for floor-boards and cladding. Traditionally, such materials would be worked manually, by trained *craftsmen*, making use of specialised hand-tools, whereby most of the work would be done on location. Throughout the world, regional 'material cultures' have given occasion to the evolvement of refined, *traditional* building methods and elegant, *vernacular* building types.[60]
In traditional building, a building-master would be responsible for the construction. This required the skilful and artful *joining together* of parts; requiring expertise, dexterity and ingenuity.[61]
Increasingly, constituting elements came to be mechanically prepared in workshops and subsequently pre-fabricated in factories. After being transported to the building-site, these would then be assembled efficiently.

Product & Process

A fundamental attribute of any technique is *invention*. Novel but 'fitting' applications tend to be absorbed, becoming part of a 'new convention'.[62]
The introduction of reinforced concrete, metals, glass, plastics and composites gave rise to new fabrication approaches and montaging methods. In the industrial era, mechanisation and innovation led to the development of new specialised building products.[63] Thereby, the building process increasingly came to be considered as the *assemblage* of standardised, industrially-manufactured elements.[64] For some time, this led to excessive repetition and expressive uniformity.[65]
The introduction of computer-based platforms in design and manufacturing, as well as in process-management, created opportunities for the evolvement of dedicated building 'modules' in smaller series, as well as offering new opportunities for *ornamentation*.[66]
The aspects of building *process*, on the level of operational procedures and logistics, have become primary considerations in the early phases of architectural designing.[67]
In the realisation phase, building procedures, making strategic use of building-information technologies, anticipate the systematic assembly of 'clever' building components, which have been pre-determined down to the smallest scale-levels.[68]

1 When considering the issue of 'order' Adrian Forty recognises a *'superabundance'* of meanings.
However, for a classical scholar like Quatremère de Quincy, 'order' was considered a given, a concept that hardly needed explication.
In his *Historical Dictionary of Architecture* (originally published in 1832, English edition 1999, pg. 191) Quatremère considers 'order' as follows:
"This word, in architecture enjoys a general acceptation that needs no definition, since all synonyms, such as arrangement, disposition, etc. could not provide a clearer idea. Order is one of those primary ideas that carry within them their own explication; it serves to explain other ideas, rather than the reverse; in addition, fewer words enjoy a wider use."

2 Whilst architectural designing is sometimes *romantically* considered as an impenetrable 'black box', it is arguably in most cases a relatively methodical process, involving – more rational – problem-solving on an organisational level as well as – more imaginative – 'form-giving' ('vormgeving').
Urbanist Jan Heeling on the two basic conditions of designing:
"Design can be divided into two aspects, ordering and form-giving"
Dutch tekst: *"Ontwerpen kan onderscheiden worden in twee aspecten, ordenen en vormgeven."*
Translation by the author.
In: Jan Heeling: *Over Stedebouw, een zoektocht naar de grondstoffen van de stedebouwkundige ontwerpdiscipline*, Delft University Press, Delft, 2001.

3 Herman Hertzberger on the 'systematic' nature of designing:
"Designing is a complex thought-process, with all its possibilities and limitations, within which ideas are developed relatively systematically."
Herman Hertzberger in: *De ruimte van de architect, lessen in architectuur 2*, Uitgeverij 010, Rotterdam, 1999. Pg. 28
Dutch tekst: *"Het ontwerpen is een complex denkproces met al zijn mogelijkheden en beperkingen waarbinnen ideeën tamelijk systematisch ontwikkeld worden."*
Translation by the author.

4 Rules allow for a well-conceived game, allowing for 'regulated play', but also for surprises and excitement, though ideally *not* for cheating.
John Summerson on the *defiance* of 'rule'.
See: the opening quote from Summerson's *The Classical Language of Architecture* (1980).

5 The aspects of hierarchy and variety in Mannerist architecture – and particularly in the *'new architectural poetry'* of Michelangelo – are eloquently expressed by Summerson:
"Now on this whole idea of 'authority' Michelangelo turned his back. He was already a sculptor with a mastery of form and material transcending the antique and when he turned to architecture this same power of seeing through the dead, accepted forms to something intensely alive enabled him to transcend with absolute assurance, the Vitruvian grammar. … No architect – anyway no young and impressionable architect – who visited the Medici Chapel when Michelangelo had done with it, could ever feel quite the same about architecture again."
John Summerson: *The Classical Language of Architecture*, Thames and Hudson, London, 1980. Chapter Three: *Sixteenth-Century Linguistics*. Pg. 60.

6 From Ludwig Mies van der Rohe's speech on 21st October 1938, at a banquet marking his deanship at the Illinois Institute of Technology.
Quoted in: Matt Gibberd, Albert Hill: *ornament is crime, Modernist* Architecture, Phaidon, Press Limited, London, 2017. Pg. 96.
Further address by Mies van der Rohe at IIT, 1938:
"The idealistic principle of order, however, with its over-emphasis on the ideal and the formal, satisfies neither our interest in truth and simplicity nor our practical sense. … So we shall emphasize the organic principle of order that makes the parts meaningful and measurable while determining their relationship to the whole. And on this we shall have to make a decision. … The long path from material through purpose to creative work has only a single goal: to create order out of the godforsaken confusion of our time. But we want an order that gives to each thing its proper place, and we want to give each thing what is suitable to its nature."

7 Vitruvius, quoted by Adrian Forty in *Words and Buildings* (2000), Thames & Hudson, London. Pg. 240.

8 Pierre von Meiss: *Elements of Architecture. From form to place*, E & FN Spon, Oxon, 1990. Pg. 31.
In a footnote, von Meiss indicates that his opening text of the chapter 'Order and Disorder', is inspired by Gombrich's *The Sense of Order*.

9 John Summerson: *The Classical Language of Architecture*, Thames and Hudson, London, 1980. Pg. 27.

10 Art historian and cultural critic Simon Schrama coined this eloquently evocative phrase in the consideration of works of landscape-art in the BBC documentary *Civilisations,* 2018.
The basic meanings of the two terms in the context of this study are as follows:
- *Equilibrium*: 'a stable condition in which forces cancel one another; a state of balance; composure';
- *Equipoise*: 'a balance of forces or interests; a counterbalance or balancing force'.
Source: *Collins Dictionary and Thesaurus* (1994).

11 Generations of architecture students in Delft (including myself) have been schooled in the principles *Applied Mechanics* ('Toegepaste Mechanica') or perhaps more appropriately Building *Forces* ('Krachtswerking').

12 Symmetry can be considered as: 'similarity, correspondence, or balance among systems or parts of a system'; rather than the mathematical concept of 'an exact correspondence in position or form, about a given point, line or plane'.
Source: *Collins Dictionary and Thesaurus* (1994).

13 This is a major drawback of purely-symmetrical objects, as they become so 'perfect' in their own right, that they may easily be experienced as detonating with their – less perfectly-symmetrical – surroundings and vice-versa.

14 A good example of such a *dynamic* balance with symmetrical sub-elements and contrasting, primary colours is to be recognised in J.J.P. Oud's facade-composition for Café De Unie, in Rotterdam (1925).

15 This *designerly* method of designing, considered as iterative cycles of assembly, de-assembly and re-assembly, as it were until it all 'fits', is considered in the 'Methods' section.

16 As Summerson indicated, the ancient Romans were masters of construction and managed to 'fuse' different techniques in such novel ways, that they came to constitute *aesthetic* devices in their own right.

17 The consideration of architectural objects 'in space' rather than 'as space' resonates with J.J. Gibson's descriptions of the primary conditions of spatial vision, when he says: "*finally, and most important of all, it is filled with things which have meaning."*
See: 'Space'.

18 In the AA case study, this thematic category is made operational in order to identify the elementary compositional qualities of the overall projects, as combinations of primary volumes and voids.

19 A good example of a study making use of such elementary components is the thematic 'manual' of housing design by Leupen & Mooij from the faculty of Architecture in Delft.
A concise graphic overview identifies nine 'basic' object-formats on one page: Detached House; Clustered Low-rise; Row; Mat; Urban Villa; Infill; Slab; Block and Tower. Pg. 144.
The study also identifies three basic roof-forms: Flat Roof, Sloping Roof, Curved Roof. Pg. 282.
In: Bernard Leupen, Harald Mooij (with contributions by: Rudy Uytenhaak, Birgit Jürgenhake, Robert Nottrot, John Zondag): *Housing Design, A Manual* NAi Publishers, Rotterdam, 2011.

20 The underlying idea is that a level of *reduction* may be expected to be instrumental on a methodical level, when trying to identify – specific – geometric issues, on the level of unravelling more complex volumetric configurations.
21 James Jerome Gibson in *The Perception of the Visible World* (1950). Pg. 34.
J.J. Gibson here addresses the ambivalent relationship between shape and form (or: object /volume). As he approaches the issue from the viewpoint of *visual* perception – i.e. how and what we 'see' – he makes a choice for two types of 'shape'.
The first is as it were the conglomerate of 'shape' qualities which are embedded in the actual object that is observed; which he denotes with 'depth' shape.
The second is the 'objective' visual image; the two-dimensional, outlined visual shape that is the 'projected shape' from as perceived, from a particular vantage-point.
22 Le Corbusier quoted by Francis D.K. Ching in his influential book *Architecture: Form, Space, and Order* (edition 1996). Pg. 42.
Le Corbusier here hints that such 'pure' primary forms possess an objective, unambiguous formal beauty.
Of course, Le Corbusier's principled (and in all probability: provocative) stance concerning what he considers the 'most beautiful, purely geometrical forms is debatable. Nonetheless, such primary geometries are the basis of all volume-based compositions.
23 Herbert George: *The Elements of Sculpture*, 2014. Pg. 7.
The approach of the ordered, architectural object consisting of primary volumetric components is similar in many ways to sculptural composition. In his thematic, analytical consideration of works of sculpture, Herbert George sheds a light on issues which are directly related to sculpture, but also relevant in the light of reaching a deeper understanding of three-dimensional architectural 'objects'.
24 Spatial geometry (in Dutch: 'ruimtelijke meetkunde') is considered as a means to recognise the ordering attributes of three-dimensional objects.
25 In N.L. Prak's *The language of architecture* (1968) he tries to address the issue of the *Classification of forms*, by including a scheme of nine elementary volumes with different *proportions*. Pg. 33.
In this overview of Domains, the concepts of integral, perceptual form are addressed as a separate domain: 'Form', whereby three subthemes are identified: 'Façade', 'Surface' and 'Opening'.
26 See: the earlier quote nr. 1, with definitions of the phenomenon of 'in-depth' and 'projected' shapes, by J.J. Gibson.
27 A concise visual overview of such 'primary solids' is given in Francis D.K. Ching's *Architecture: Form, Space, and Order,* ,1996 edition. Pg. 42-46. .
28 The appreciation of an object's spatial presence is enhanced by the use of tonal *shading*, particularly by drawing.
This is an important theme in fundamental freehand drawing lessons, whereby students draw on the basis of *observation* (in Dutch: *'naar de waarnememing'*).
29 When considering architectural objects as masses, there is a clear analogy with sculpture; similar to working with a given volume of clay, or creating an object using a mould for a casting (for instance using plaster). This was a method of three-dimensional modelling that was extensively used, well into the twentieth century.
30 In *Architecture: Form, Space, and Order,* Francis D.K. Ching recognises 'primary solids' on the basis of the Circle, Triangle and Square: Sphere; Cylinder; Cone; Pyramid; Cube, from where he considers 'regular & irregular forms' in two- and three dimensions.
31 An interesting case of such an elementary volumetric composition is the so called Wittgenstein House, in Vienna, 1928.
The young philosopher Wittgenstein contributed to the *purification* of the design, staying as closely as possible to the 'original' geometrical object-qualities with a minimum of feature articulation. These were used as the basis of an earliest analytical case-study.
The Wittgenstein Variations schemes, were published in:
Jack Breen: *The medium is the method, Media approaches in the designerly enquiry of architectural compositions*.
In: The Architectural Intervention (eds.): *Architectural Design and Research: Composition, Education, Analysis*, Thoth Publishers, Bussum, 2000. Pg. 56.
32 As has been indicated, the concept of 'structure' is polyvalent, particularly in the English language, in which it has different kinds of of meanings ('valences'), which are interchangeable and partly overlap.
Koenen's dictionary of the Dutch language on 'structure':
"Structures are not reality, but constructions of the human mind, through which this reality may be better ordered and understood."
In: Koenen, M.J., J.B. Drewes: *Verklarend Woordenboek der Nederlandse Taal*, Wolters-Noordhoff, Groningen, 1979.
In Dutch: *"Structuren zijn geen realiteit, maar constructies van de menselijke geest, waardoor deze de werkelijkheid beter vermag te ordenen en te begrijpen."*
Translation by the author.
33 The aspects of tectonic arrangement are represented in the second of Forty's three categories of 'structure'.
34 Artifice is the central theme of a series of essays by Joseph Rykwert; notably addressing the consequences of craft and style in the work of Gottfried Semper.
Joseph Rykwert: *The Necessity of Artifice*), Academy Editions, London, 1982. Pg. 58.
Artifice can be considered as *'skill, cleverness', leading to a 'skilfully conceived device'*
Source: *Collins Dictionary and Thesaurus*, 1994.
35 In his book on building structure ('Baustruktur') Heinz Ronner identifies three elementary structuring principles:
Massiv-, Schotten- und Skelettbauweise.
These conceptions are illustrated using a scheme. This is a triangular model with the elementary configurations at the corners and systematically-combined examples in-between.
Heinz Ronner, Fredi Kölliker, Emil Rysler: *Baustruktur, Baukonstruktion im Kontext des Architektonischen Entwerfens*, Birkhäuser, Basel, 1995.
An adapted version of this scheme is included in the typological study of facade designs: A. Hellferich: *Typologische ordening van* gevels, 1994. Pg. 60.
The three principles in Helllferich's Dutch interpretation: *"Massieve Structuur, Schijven Stuctuur en Kolom Structuur."*
36 A classic structural and stylistic 'hybrid' was developed by the Romans, who combined their technically-innovative arches and vaults with the tectonically redundant *orders* of Greek architecture.
John Summerson on this highly successful structuring invention:
"When the Romans adopted the arch and the vault for their public buildings, they brought the orders in, in the most conspicuous way possible. … The orders are in Roman buildings, quite useless structurally but they make their buildings expressive, they make them speak; they conduct the building, with sense of ceremony and often with great elegance, into the mind of the beholder."
John Summerson: *The Classical Language of Architecture*, Thames and Hudson, London, 1980. Pg. 20.
37 Adrian Forty: *Words and* Buildings, 2000. Pg. 276.
Forty identifies the following three common uses of the term 'structure':
1. Any building in its entirety;
2. The system of support of a building and
3. A schema by which an entity becomes intel-

ligible.
His definition of the third condition – the 'schema' – is considered to be most relevant in the context of the identification of compositional conceptions and hence has been included the quote.

38 Statement by Polish / French architect Stephan du Chateau, taken from a handwritten note, included in the context of the exhibition project *Architects About* Architecture, curated by Tadeuz Barucki, Czech Republic, Ostava / Katowice, 2015, nr. 85.

39 Herman Hertzberger in: *Architecture and Structuralism, The Ordering of Space* nai010 publishers, Rotterdam, 2015.

40 Extended quote by Herman Hertzberger on the grid:
"A grid gives a great degree of freedom but is not altogether free of conditions. Neither a language nor a building order, it lays the groundwork by prescribing a certain unity of dimension and freedom of movement. In music you could say that it determines the cadence of a piece. It provides rules that enable the game but not the game itself. And it is here that we find the freedom that the rules paradoxically incite."
Herman Hertzberger: *Architecture and Structuralism, The Ordering of Space*, nai010 publishers, Rotterdam, 2015.

41 In the way structuring (grid)lines (in Dutch: 'stramien-lijnen / stramienen') are used, there are distinct similarities between architecture and *graphic* design.
A publication which explores the 'art' of the grid in this context is: Joseph Müller Brockman: *Grid systems in graphic design*, Niggli, Zürich, 1981.

42 Such grid-lines lend 'precision' on the levels of dimensioning and positioning. In the computer the grid can be used for a 'snap' function.
Before the influx of computers, gridlines were included as system-lines in technical drawings. In my own experience, around 1990, gridlines were drawn (in red ink) on the *back* of the sheet, so that they could not be accidentally erased.

43 In (neo)classicism the ancient orders – the *Doric*, the *Ionic* and the *Corinthian*; 'bookended' by the *Tuscan* and the *Composite* – were considered as a *science* in scholarly works by authors like Perrault. The underlying thesis seemed to be: as particular buildings from antiquity are considered *beautiful*, therefore their shapes and proportions should be considered to be *exemplary*, and form the basis of *prescriptive* measurement systems for 'proper' building.

44 The Tatami is a standard module (with subtle regional variations in size) on the basis of mats on which domestic life in traditional Japanese homes lakes place. A room can hence be identified by the number of its (half) tatami.
The result is essentially a 'Raum' rather tan a 'Grid' system, as the structural zones are positioned *between* the tatami-defined spaces.

45 Proportional favourites amongst architects and designers are often the 'lower' numbers of the Fibonacci sequence: 1:1; 1:2; 2:3; 3:5; 5:8; 8:13 etc..
Notable, more intricate systems like the *Modulor* and the 'golden' proportion systems of Dom van der Laan ('Plastisch Getal') can becomes so fine-meshed, that it becomes difficult to actually distinguish proportional differences.
On Dom van der Laan's proportion-system: Hilde de Haan, Ids Haaksma: *Plastisch Lexicon, Een kleine encyclopedie van de 'Bossche School'*, Architext, Haarlem, 1996.

46 The outer contours tend to define the elementary volumetric capacities, whilst various sub-lines indicate the zones of design-determining factors like floor- and room heights, which serve as parameters for the organisation of elements like transparent sections.

47 In this context, *substance* is considered primarily as apparently 'solid' matter, of which the physical makeup is determined on the level of 'materialisation'.

48 *Substance* is considered here as being the counterpart of 'porosity', the relative level of *transparency*, in relation to enclosure.

49 In the placement of structuring elements, use may be made of underlying patterns as well as *directions*, alternately emphasising *vertical* or *horizontal* relationships, as well as *continuation* over edges and around corners, in ways that underscore the effect of an integral composition as a whole.

50 A primary condition of the *craftsmanship* of designing and building, in the broadest sense, is that the end-result will be *sound*, *stable* and *durable*; in the words of Vitruvius characterised by *Firmitas*.

51 From: *tekhnè*, which can be primarily defined as *skill*
Source: *Collins Dictionary and Thesaurus* (1994).
Considered as *art*: *Oxford Dictionary* (2010).

52 Ludwig Mies van der Rohe, on the fundamentals of building:
"Architecture starts when you carefully put two bricks together, there it starts."
This quote is favourite amongst students; it is apparently even available on wallpaper.
However, it is unclear where exactly this quote comes from.
Glenn Murcutt, who himself hardly ever worked with brick, is more articulate on their potentials, as an example of the material 'vocabulary' of architecture:
"To know the process of construction, to know the building – this is our language. If you don't understand how the materials are going to work, if you don't understand the nature of materials, then you don't have an architect's vocabulary. The language of architecture also has to include the nature of materials. Louis Kahn asked about a brick: What does it want to be? A brick doesn't want to go into tension, it wants to go into compression – one brick laid upon another, on another, on another. You can put bricks into an arch, or you can use it in combination with other materials, such as steel. But the nature of brick is that it is a compressive material, and if you understand that, it becomes part of the vocabulary of your architecture. This vocabulary is extremely important."
In: *From the Beginning: Thirteen Questions, Glenn Murcutt, in discussion with Juhani Pallasmaa*, in: Brian Mackay-Lyons (Robert McCarter ed.): *Local Architecture, Building Place, Craft and Community*, Princeton Architectural Press, New York, 2015. Pg. 47.

53 Technology has to do with *logical* principles by the architect, as the creative director of a project as a whole.
Ludwig Mies van der Rohe on the applications of technology:
"Technology is far more than a method; it is a world in itself. As a method it is superior in almost every respect. But only where it is left to itself as in the construction of machinery, or as in the gigantic structures of engineering, there technology reveals its true nature. There it is evident that it is not only a useful means, that it is something in itself, something that has a meaning and a powerful form – so powerful in fact, that it is not easy to name it.
Is that still technology or is it architecture?"
In: *Architecture and Technology*. Article in *Arts and Architecture* nr.10, 1950. Pg. 30.

54 Adrian Forty, quoting Robert Venturi on discord and *exaggeration*:
"A building with no 'imperfect' part can have no perfect part, because contrast supports meaning. An artful discord gives vitality to architecture." But, he insists, "Order must exist before it can be broken" and, "Indeed a propensity to break the order can justify exaggerating it."
In: Adrian Forty: *Words and Buildings* (2000). Pg. 246.

55 My experience is that some buildings are actually more interesting to perceive before they are 'finished' (in some cases even when they are being demolished). One can see the applied logic and recognise their inner- and outer 'workings' of different kind of building products.

56 Adrian Forty, on Gottfried Semper:
"Semper stresses the opportunities that are offered by different building materials, as well as the responsibility to 'treat' them in a proper,

technical and compositional fashion."
In: Adrian Forty: *Words and Buildings* (2000). Pg.161.

57 Nova Scotia architect Mackay-Lyons voices the intentions of contemporary architects, working in the landscapes of North America, to connect to the craft of making as well as place-making. Tom Kundig is an architect working on the American West-coast.
Brian Mackay-Lyons, with Robert McCarter, in: *Afterword: The Artist, the Artisan, and the Activist.* In: Brian Mackay-Lyons (Robert McCarter ed.): *Local Architecture, Building Place, Craft and Community*, Princeton Architectural Press, New York, 2015, Pg. 47.

58 Finnish architect and writer Juhani Pallasmaa recognises that the skilled craftsman *deserves*, indeed: should *expect* to be challenged, whereby the achievement of a 'job well done' is a reward in itself.
Juhani Pallasmaa: *The Thinking Hand: Existential and Embodied Wisdom in Architecture*, AD Primers, John Wiley & Sons, New York, 2009. Pg. 63.

59 One of my Interior-design teachers, Frits Eschauzier used the German term *'Material-gerecht'* (material 'correctness') to address the 'proper' usage of different kinds of building products.

60 Peter Buchanan, on traditional and contemporary *craft*:
"Many, if not most, architects associate craft with the construction and detailing of buildings, with the handling of materials and the way materials are brought together – with what some may see as the realm of the artisan. Important as these are, this is much to narrow a notion of craft, which pertains to all aspects of architecture. … It is within this larger context that the narrower notion of craft then finds its true place, unifying the design and making it more legible." In: Brian Mackay-Lyons (Robert McCarter ed.): *Local Architecture, Building Place, Craft and Community* Princeton Architectural Press, New York, 2015. Pg. 186.

61 *Craft*: an occupation or trade requiring special skill, especially manual dexterity; to make or fashion with skill is the qualification of the craftsman, or: artisan. Core-conceptions: ability, aptitude, art, artistry, cleverness, dexterity, expertise, ingenuity, know-how.
Source: *Collins Dictionary and Thesaurus* (1994).

62 Inventors in the fields of innovative materialization and product-design included R. Buckminster Fuller, Jean Prouvé and Charles and Ray Eames.

63 *Product*: something produced by effort, or some mechanical or industrial process; a result or consequence. Core-conceptions: artefact, commodity, concoction, creation, produce, consequence.
Source: *Collins Dictionary and Thesaurus* (1994).

64 *Assemblage*: the act of assembling or the state of being assembled, also: a three-dimensional work of art that combines various objects. Core conceptions: accumulation, aggregation; collection, meeting, multitude.
Source: *Collins Dictionary and Thesaurus* (1994).

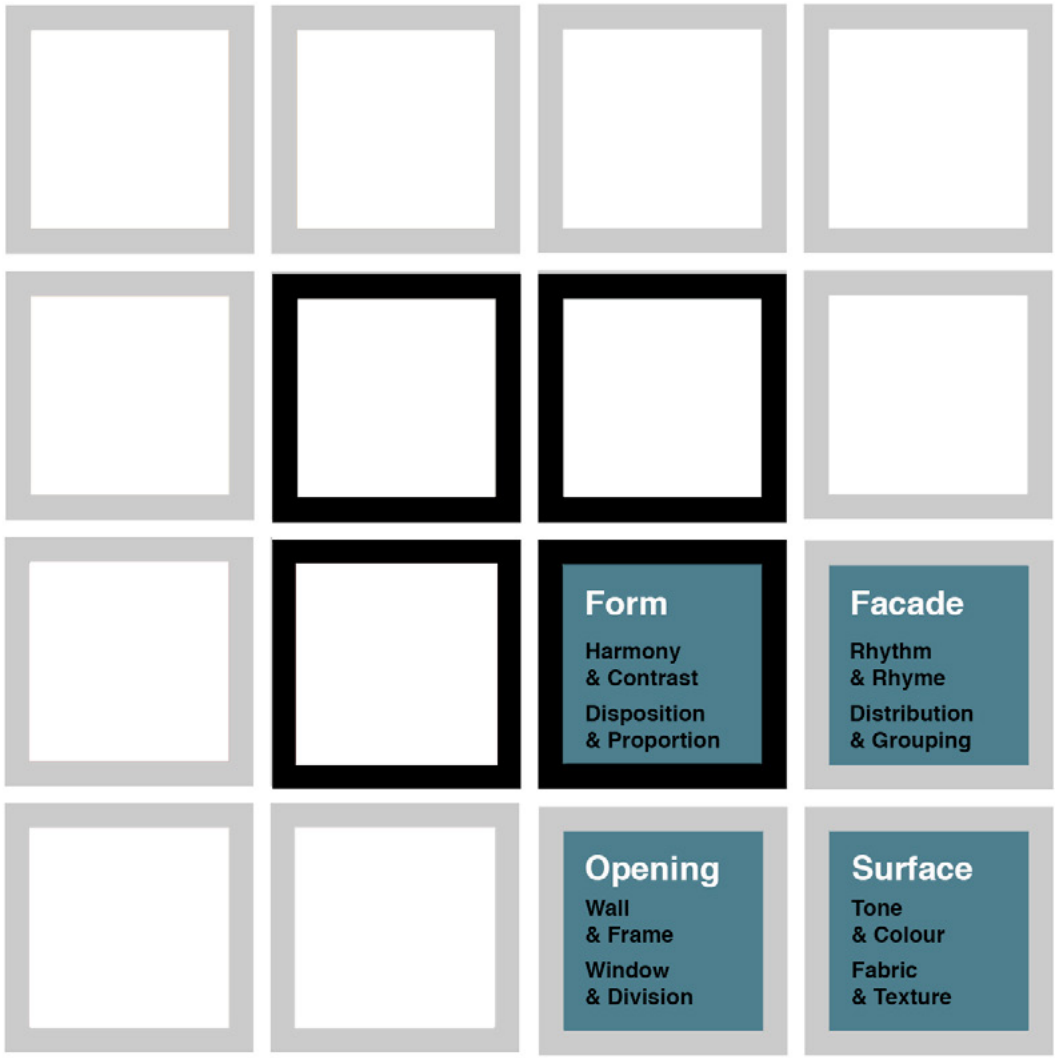
65 Gillo Dorfles, on the man-made object (in 1966):
"In the handmade object the aesthetic characteristics result from the process of the production itself and can thus be 'added' by the 'touch' of the artist. In the industrially produced object, on the other hand, every aesthetic quality is already implicit in the design for the object or in the model which will be the matrix of all the successive forms of the series. The production in series of examples all identical is something very particular to our epoch, and something practically unknown in all previous epochs. All handmade products, even when produced with the intervention of a machine, as in the case of some ancient objects produces on a lathe or with an auger, always have a limit of perfection and a margin of chance, which are unknown to industrially produced objects."
In: Georgy Kepes (ed.): *The Man-Made Object*, Studio Vista, London, 1966. Pg. 1.

66 Computation has on the one hand led to 'choice-based' approaches on the basis of online catalogues, but on the other hand has also led to practices of production-on-demand.

67 *Process*: a series of actions which produce a change or development, a method of doing or producing something. Core-conceptions: (course of) action, manner, means, method, mode, operation, performance, practice, procedure, system.
Source: *Collins Dictionary and Thesaurus* (1994).

68 New 'fabricator' Ben Morris (Vector Foiltec):
"Since time immemorial man has been using materials to craft his buildings, his tools and the objects of every day life. Over the last twenty years the rise of information technology has changed the way we conceptualise and design the objects around us, and yet paradoxically with this ever increasing power to visualise ideas we are in danger of distancing ourselves from the physical limitations and opportunities presented to us by the materials we use, and the processes by which these materials are transformed."
In: Peter Silver, William Mc Lean, Simon Veglio, Samantha Hardingham: *Fabrication, the designer's guide, The illustrated works of a selection of specialist UK fabricators*, Architectural Press, Elsevier, 2006. Foreword.

5. Conceptions
5.C. Form
5.C.1 Facade
5.C.2 Surface
5.C.3 Opening


Form
Harmony
& Contrast
Disposition
& Proportion
Facade
Rhythm
& Rhyme
Distribution
& Grouping
Opening
Wall
& Frame
Window
& Division
Surface
Tone
& Colour
Fabric
& Texture

Form

— *The aspects that distinguish an object's outer appearance.*
— *The integral arrangement and accordance of parts: Gestalt.*

The notion of architectural *form* is fundamental to the discipline, but also ambivalent.[1]
As Adrian Forty has noted, it may be precisely this inherent *ambiguity* that was *'part of its appeal'* to the advocates of modernist architecture.[2]
Ralf Weber distinguishes two meanings of 'form'.
On the one hand: form being considered as the *idea* of the object that is *'constructed by virtue of principles'*. On the other hand: form as denoting the actual, *physical* object that is *'directly given to the senses'*: the building as a physical *manifestation*.[3]
These two characterisations correspond with the German-language concepts of 'Form' and 'Gestalt'.[4]
Both options are considered here, not as opposites, but as complementary conditions of architectural form-giving and analysis.
Underlying the relationships between the object's designerly conditions and its physical appearance, we should take into consideration the layers of *spatial* and *structural* 'form'.[5]
The integral transformation from a three-dimensional 'shape' into what Aristotle considered as the 'primary substance' of the visual 'whole' is foundational to all architectural *form-giving*.[6] This notion might subsequently be taken a step further; to include the 'secondary substance' of form, on the level of the tangible *detail.*

Gottfried Semper, on 'form' as *envisioning*:
"Form is the idea becoming visible."[7]
Louis Sullivan, on the *universal qualities of form:*
"Form is everything and anything, everywhere and at every instant. According to their nature, their function, some forms are definite, some indefinite; some are nebulous, others concrete and sharp; some symmetrical, others purely rhythmical. Some are abstract, others material. Some appeal to the eye, some to the ear, some to touch, some to the sense of smell…
But all, without fail, stand for the relationships between the immaterial and the material, between the subjective and the objective – between the Infinite Spirit and the finite mind."[8]
Franz Oswald, on 'form' as a conveyor of identity:
"Architecture is spatial art. Form is less the ultimate end to that purpose, but rather a means of conferring upon places and pathways a distinctive identity, of arranging places and pathways to be utilised and to create an impression on the mind. Form is the architect's tool which he uses to fashion reality."[9]
Aristotle, on the 'substance' of form:
'By form I mean the essence of each thing and its primary substance'."[10]

Harmony & Contrast

Harmony can alternately be considered as a kind of 'inner balance', or as the *interplay* of mutually-attuned 'parts'.[11]
Particularly in the second meaning, there are parallels between architecture and *music*.
Musical composition involves rhythmic and melodic layers, in combination with interspaces, that will resonate when performed in *accordance*, on the basis of a musical theme or score. Musical arrangements can make use of various instruments and characteristically: the human *voice*.[12]
In architectural composition, the elementary 'format' is the three-dimensional, spatial *object*, which is experienced in dynamic perspective, rather than in a given sequence. Nonetheless, there are distinct similarities, particularly on the level of identifiable 'parts', which interact coherently, with room for dynamic *variation* and tonal *modulation*, in principle without 'discord', but with room for a level of 'dissonance'.
As in music, the aesthetic appreciation of an architectural composition demands that there is sufficient *orderliness* to hold the piece as a whole together, but that there is also a need for distinguishing *contrasts*, that will catch the attention. In the sense that perception is an active, indeed creative process, harmonies as well as contrasts are essential attributes.[13]

Disposition & Proportion

The formal configuration of a three-dimensional object is visually defined by its surface *shapes*, which are identifiable as *figures*, delineated by their *edges*.[14]
The design of the building's different *faces* is a matter of *disposition*: the formal arrangement of the recognisable closed surfaces and open elements.[15]
Such a design-based *juxtaposition* of parts may be based on underlying *patterns*, that introduce a measure of *accuracy* on the level of the relative placement of reciprocal elements and their interrelationships.[16] In such a process of creative organisation, different kinds of 'oppositions' are addressed, such as: substance and void; surface and depth; verticality and horizontality; enclosure and openness; lightness and darkness; framing and continuity; smoothness and tactility.
In this context, designing essentially involves the determination of *proportions*, whereby 'fitting' conjunctions have to be considered on the level of: measure and dimension; repetition and variation; rhythm and modulation; abstraction and materiality; mass and perforation; tone and colour; texture and treatment.[17]
On the level of the visual perception of the *layered* formal arrangement as a whole, such relative compositional factors simultaneously vie for *subjective* and *objective* attention.

Facade

— *The outer appearance of the different 'faces' of a building.*
— *A superficial, outward appearance or illusion of something.*

The facades of buildings are largely responsible for their *manifestation* as integral compositions.[18]
The architectural concept of the 'facade' (or: 'façade') is a fundamental attribute, but the term is not an entirely happy one, as it also tends to be associated with – possibly 'false' – *appearances*; like putting on a sympathetic 'face' to hide ulterior motives.[19]
As the architectural object tends to be compared with the human body, so the facade is associated metaphorically with its *face* and hence, with its 'personality', as expressed in the proportional *arrangement* of its parts.
Designing facades is largely a matter of the configuration of constituting elements, within the boundaries of an available surface area, with a specific shape.
The facade's depiction, as a projection in two dimensions, is denoted as its *elevation*.[20] In this sense, there are analogies with the painter's canvas. Similarly, comparisons have been made with the composer's music-sheet, waiting for a 'score'. It is particularly on the level of facade-design that architecture has been considered as being a kind of 'frozen music'.[21]
The designerly disposition of facade-elements involves the considered, compositional balancing of what are essentially *solids* and *voids*; on the level of *form* and *counter-form*.[22]

Peter F. Smith on *rhythmic* patterns in architecture:
"The human mind possesses an intrinsic tendency to group random phenomena into rhythmic patterns. … Architecture demonstrates every conceivable variation in the management of rhythm Medieval cathedral builders were expert at integrating numerous rhythms of different frequency, both in and out of phase. Renaissance architects achieved a high level of complexity in the deployment of rhythm, invariably within the constraints of the classical rule of measurement and proportion."[23]
Theo van Doesburg, on the subject of 'grouping':
"In this grouping, a mental intuition needs of course to be presupposed, for the artist not simply fall into a barren abstraction. This creative mental intuition is controlled only by a rational consciousness."[24]
Peter F. Smith on the combination of rhythm and *rhyme*:
"Rhyme derives from poetry and happens when there is similarity in couplets in terms of phonetics and meter.
In the architectural sense, for phonetics we can read 'visual features', and for meter the rhythm of visual events.
As a concise definition of rhyme we can enlist the line Gerard Manley Hopkins: 'Likeness tempered with difference', which is equally applicable to harmony."[25]

Rhythm & Rhyme

Buildings tend to display two, four or more 'faces', depending upon the object's relative simplicity or complexity, as well as the built volume's environmental placement.
One particular 'face' may be given prominence, as the *representative* facade. Alternately, a free-standing object may be considered as a dynamic, visual *continuum*.
Roofs may be exploited as expressive devices, particularly in the form of pitched, 'crowning' elements, or as flat roofs that may be largely hidden from view.[26]
As in poetry or music, the composition's underlying *metre* can form the basis for variations in *rhythm*. Elements can be arrayed on the basis of an underlying framework of *directions*, *shapes* and *interspaces,* using linear *repetition*, or by introducing variations on the level of *frequency* .[27] Such visual *patterns* need not be restricted to the facade's surface, but can in principle be thematically continued, onto the adjoining sections.
As with poetic *rhyme*, constituting parts may be experienced as being *similar* enough to be considered 'related', yet *distinctive* enough to catch and hold the attention of the 'eye of the beholder'.[28] The resulting facade-composition may come across as a simple, 'whistle-able' melody or alternately: as a complex, layered *orchestration* of parts.

Distribution & Grouping

The designing of facades involves the simultaneous *distribution* and *definition* of parts.
These constituting elements are arranged within the 'cadre' of the specified facade-section, in relation to adjacent surfaces.[29]
In methodical facade-design, it is primarily a matter of determining *open* sections, in relation to the closed *substance* of the building's outer 'shell'. The *positioning* of openings, is closely linked to its interior organisation, as well as to the building's *structure*.
Academic A. Helfferich extrapolated Ronner's structure-domains for facades, identifying three 'basic' formats: the *perforation*-, *surface*-, and *frame*-based type.[30]
Elementary surface arrangements may be created on the basis of individual openings. Alternately, distribution may involve the *grouping* of elements, on the basis of some form of *repetition*, often on the basis of an underlying *grid* or *module*.[31] Variations in surface patterns may be brought about by differentiating between *vertical* and *horizontal* directions.[32]
Furthermore, differentiations *within* a group can be used to create recognisable *motifs*. Such graphic themes may be repeated, condensed or shifted for experiential effect, whereby *modulations* may be applied to highlight sub-symmetries or to forge connections around the corners'.[33]

Surface

— *The area, size and quality of the exterior faces of an object.*
— *The visual and tactile characteristics of such an outer layer.*

The physical perception of a building is largely determined by the visual characteristics of its outer *surfaces*, which architects are inclined to consider as its 'skin'.[34]
The manifestation of a built object gradually 'unfolds' in the changing conditions of daylight, whereby the interplay of light and shadow highlights the *reflective* and *absorptive* qualities of different attributes, on the level of *materialisation*, *colouring* and *depth*.
When determining the surface-qualities of a building's different 'faces' on the level of substance, a designer can specify materials and treatments that will underline the overall *harmony* of parts or stress the *contrasts* between them.
From a distance, or in diffuse lighting-conditions, surface-articulations tend to be experienced less explicitly. However, up-close, *tactile* surface-patterns may visually come to life.
Surface-qualities affording highly different *sensory* responses, which may be down-played or emphasised as essential attributes of the building's integral composition.
Surface *textures* may vary considerably; including smooth *or* rough, flat *or* profiled, but also: transparent *and* reflective.[35]
The *haptic* response to a building's outer layers can be brought about by actual, physical interaction, but may also be a matter *suggestion*.[36]

Kathleen Martin, on the workings of *colour*:
"Colours convey feeling values, relationships and contrasts, dramas and tensions, the nature of matter and its processes and transmutations. They can suggest temperament, class, vocation and hierarchy. Colours define, differentiate and blend. While colour is a means of expression, it evolved as a factor of survival. The retina of the eye has millions of light-sensitive cells with different colour sensitivities. … Colours are generated by the play of light in many ways. The pigment of an object is made up of chemical compounds; the frequencies of light these pigments reflect (reject) rather than absorb ascribe to the object a specific colour."[37]
Jörg Kurt Grütter, on the *materiality* of surfaces:
"Visible materials, the surfaces of buildings and building sections, create architectural shells. Here the analogy of humans and clothing seems apt: they are layered, of various thickness and are opaque or transparent. They are intended to protect, hide, adorn or flaunt."[38]
Herbert George, on the *textural qualities of surfaces:*
"The surface quality of something may be experienced by hand, eye or both. Every material has a unique texture. … Through the sense or memory of touch, texture informs sight."[39]

Tone & Colour

When considering *combinations* of surfaces, a fundamental, distinguishing trait is the – relative – *brightness* or *darkness*, identified as the primary condition of *tone*.[40]
Tone is determined by the amount of light that is reflected or absorbed by the *substance* of the surface's outer layer.
Another, distinguishing factor is *colour*, which is defined by the combination of *hue* (or: tint, the primary colour), *saturation* (the purity or dilution of the original tint) and *brightness* (the tonal quality of lightness or darkness), together determining the resulting colour.[41]
Various scientific theories have been developed to explain the workings of colours as perceptual phenomena in order to predict their effects in *harmonious* or *contrasting* combinations.[42]
Particular colour-schemes resonate with local conventions, generally by harmoniously combining *analogue* or *complementary* colours, often with consciously applied, *contrasting* tints, particularly for the details.[43]
Architectural designers make use of colours, in combination, for the sake of visual unity as well as complexity. Thereby they are often inclined to develop a *palette* of preferred colours, which may be characteristic for a particular project, a representative phase in their careers, or even their oeuvre as a whole.[44]

Fabric & Texture

The visible surfaces of buildings tend to be composed of material components that have been brought together systematically in the building process.[45]
Building products generally have sizes and proportions that make them manageable, so that they can be assembled on-site, creating a structured, material *fabric*.[46]
Fabricated elements, with standardised formats, colours and surface textures, can be combined to create visual patterns, which may be exploited for *expressive* effect. These surface qualities, specified by the designer and executed by skilled craftsmen, can be regularly-spaced and visually balanced. Surface patterns may be predominantly horizontal or vertical, or incorporate textural effects, comparable to weaving patterns in *textiles*.[47]
In brickwork, standard-sized elements may be alternated with half-bricks or other materials, like stone. The resulting *bonding* patterns, in conjunction with the *seams* and *joints* between them, can be experienced as implicit or explicit visual *features*.[48]
The material qualities of constituting parts may be emphasised, for instance by them being left unfinished or treated with semi-transparent agents; or be made to appear almost 'immaterial', by applying non-transparent coverings or coatings, resulting in a level of visual *abstraction*.[49]

Opening

— *An opening in the wall of a building, to let in light and air.*
— *A framework containing openings, like a door or window.*

An essential architectural quality is the phenomenon of conditioned *openness*.
In ancient times, built objects were often monolithic structures, punctuated by *apertures* that appeared to have been 'carved out' of the surrounding mass. However, with modern construction methods, spatial structures may be 'opened-up', almost entirely.
A fundamental role of openings is to define the relationships between that which is *within* and that which is *without*, whereby different domains may give occasion to *differentiated* visual connections.[50] Generally, the level of openness is somewhere *between* full enclosure and near-total openness, whereby openings *mediate* between an extensive 'outside' and a far more intimate, room-sized 'inside'.[51] Specific openings may be considered on the level of their 'framing' of *views* of the world: outside, seen from inside, as well as, in conjunction, on the level of the composition of the *facades*, seen from outside.[52]
The primary opening-devices that directly spring to mind are doors and windows, but a wide range of secondary, space-dividing attributes that may be 'opened up' deserve to be considered, such as: gates; screens; railings and balustrades.
These image-defining properties are to a very large extent responsible for a building's visual *identity*.

The Ozark Mountain Daredevils:
"There's a window in the wall, looking out on it all."[53]
Kathleen Martin, on the archetypal meaning of 'window':
"Eyes have been called the widows of the soul and windows the eyes of the house. … Window is a transparent threshold. It is an opening in a wall of matter that lets in air, moonlight and sunlight, the colours of the world, the dark of night. The window is where inside and outside meet and cross, bringing together two worlds and their elements. Wind rattling the windowpane. The streaking of raindrops. Passing, one sees through a window an ultimate domestic scene. At the same window, another looks out 'experiencing longing, the lust for travel or escape'."[54]
Ulrich Knaack et al., on *making* openings in walls:
"Openings were originally made in the walls to allow smoke to escape. At a later stage in the development, the openings were enlarged to let light in. The method used initially to solve the problem of the weakening of the fabric of the solid wall by the creation of openings in it was to use horizontal beams as lintels. In Gothic architecture, the amount of solid masonry used in the wall was gradually reduced to allow large areas of glass to be incorporated into the walls, with the aid of constructive techniques of which the ingenuity is still impressive today."[55]

Wall & Frame

In architecture, creating openings is not just a matter of simply 'leaving out' material.
An opening needs to be conceived *and* constructed in such a way that it is accommodated within the enclosing substance; generally considered as the *wall*.[56]
Making such openings is as much a matter of *firmitas* as it is of *utilitas* and consequently: *venustas*.[57]
The procedures are analogous to the making of openings in *textiles*: whereby even something as a small and seemingly obvious as a button-hole needs to be executed with skill and precision, in order to suit its function, yet without disrupting the surrounding *fabric*.[58] Primarily, building-openings have the function of *connecting* one spatial domain with another. Doors facilitate the *movement* from one interior space to another or between inside and outside. Glazed windows allow *natural light* to enter and movable parts can allow fresh air to enter, to ventilate interior spaces.[59]
In the case of door- and window openings, an intrinsic feature is the element's *framing* construction, which creates a setting for the components that are fitted into it, as well as making a physical connection with the surrounding fabric.
The *edges* of the exterior walls may be articulated as framing devices, for structural, as well as *decorative* reasons.[60]

Window & Division

Windows, considered as the 'eyes' of a building, give *expression* to its exterior, whist simultaneously framing what can be *experienced* 'from inside'.[61]
Primarily, a window consists of a surrounding cadre, that is integrated with the substance of the surrounding wall or partition. Into this frame, *transparent* surfaces are set, usually consisting of glass panes.[62] The surrounding, *primary*, frames may be complemented by *secondary* elements. These tend to be executed using comparable dimensions and profiles, but may also consist of distinctly contrasting attributes.
The introduction of *dividing* elements, will result in sub-openings, with relative differences in *size* and *proportion*, resulting in the perceptual 'parcelling' of the vista.[63]
Secondary framing-devices may be integrated on the basis of regular or rhythmic *arrays*, partial *symmetries* or distinguishing *motifs*. These window-patterns are visually at interplay within the elevation as an entity, as well with adjoining ones.
The accommodation of *movable* parts offers opportunities for *rhythmic* accentuation, underscored by variations in dimension, proportion and particularly: *colouring*.[64] The design of window-structures, in the broadest sense, is the subject of continued, multi-disciplinary product-development and innovation.[65]

1 Adrian Forty, on the concept of architectural 'form':
"To talk about architecture without using the word 'form' may now seem inconceivable, but let us be clear about one thing: 'form' is merely a device for thought – it is neither a thing or a substance. And as a device within everyday architectural speech, its availability is of relatively recent origin, for it has only entered currency within the last century."
Adrian Forty, in: *Words and Buildings* (2000), Pg. 150.

2 Adrian Forty, on the use and ambivalent meaning of 'form':
"Loaded down as it was with the burden of representing some of the major divisions of thought in nineteenth-century aesthetics, it is hardly surprising that the term lacked clarity when it started to be widely used in architectural vocabulary in the twentieth century. Indeed, as we shall see, in its ambiguity lay part of its appeal."
Adrian Forty, in: *Words and Buildings* (2000), pg. 161.

3 Ralf Weber on the interrelated concepts of form:
"Through the course of history two major definitions can be identified from the varying uses of the term. In the first sense, 'form' has been used to describe how a particular object is constructed by virtue of principles – in other words, how its constituent parts relate to a whole configuration. In this sense (which one might call 'objective') form means order or arrangement. However, form has also been used to denote that which is 'directly given to the senses', that is, the perceptually accessible qualities of one's environment. Form here refers to the appearance of things, but not their significance or meaning. A specialised case within this second, 'subjective' use of the term is provided by the Kantian concept of form. In this view, form is a construction of the human mind based on a-priori concepts that are imposed onto a perceived thing.
Ralph Weber: *On the Aesthetics of Architecture, A Psychological Approach to the Structure and the Order of Perceived Architectural Space* (1995), Avebury, Aldershot. Preface, Pg. vii.

4 Adrian Forty on the distinction between Form and Gestalt:
"The German language (which is where the modern concept of form was principally developed) has a slight advantage over English, for where English has only the single word 'form', German has two, 'Gestalt' and 'Form': Gestalt generally refers to object as they are perceived by the senses, whereas Form usually implies some degree of abstraction from the concrete particular."
Adrian Forty, in: *Words and Buildings* (2000). Pg. 149.

5 Ted de Jong: "
Form is the perceived geometry of matter."
In: Ted de Jong: *De strukturele samenhang van Architectuurbegrippen*, Delftse Universitaire Pers, Delft, 1987.
In Dutch: *"Vorm is de waargenomen geometrie van de materie."*
Translation by the author.

6 In the context of this research, Aristotle's notion of form as 'primary substance' has led to the consideration of the matters of the 'Detail' layer as a kind of 'secondary' substance'.

7 Adrian Forty, on Semper's position on 'form':
"The first architectural writer in whose work 'form' was an important concept, Gottfried Semper, employed it in at least two senses. For Semper, 'the forms of art … are the necessary outcome of a principle that must have existed before them'; or as he put it elsewhere, form is 'the idea becoming visible' (translated by Malgrave)."
In: Adrian Forty: *Words and Buildings* (2000). Pg. 157.
The original source: Gottfried Semper: *Der Stil in den technischen und tectonischen Künsten, oder praktische Aesthetik*, 2 vols., Frankfurt, 1860, 1863.

8 Louis Sullivan: *Kindergarten Chats* (1901, 1918). In: *Kindergarten Chats and Other Writings*, Wittenborn Art Books, New York, 1976,
Adrian Forty:
"Even from this passage, it will be clear that Sullivan was primarily inspired by the 'organic form' of the German Romantics, of Goethe and Schiller, and their view that in this lay the correspondence between nature and art. As an expression of their relevance to architecture, Kindergarten Chats cannot be equalled, at any date or in any other language."
Adrian Forty, in: *Words and Buildings* (2000). Pg. 161.

9 Franz Oswald: Foreword to Pierre von Meiss: *Elements of Architecture, from form to place*, E & FN Spon, London, 1994. Pg. xiii.

10 Aristotle, quoted by Adrian Forty in *Words and Buildings, A Vocabulary of Modern Architecture* (2000). Pg. 151.
Adrian Forty, on Aristotle's 'inclusive' definition of form:
"Aristotle refused to accept that forms had any absolute existence independently of the matter of the objects in which they were found: 'Each thing itself and its essence are one and the same' (Metaphysics). Although Aristotle used 'form' in a variety of different senses, both referring to shape and idea, his most inclusive definition, and the one that most comprehensively conveys his thought, is when he says: 'By form I mean the essence of each thing and its primary substance'."
Source: R. McKeon (ed.): *The Basic Works of Aristotle*, Random House, New York, 1941.

11 Harmony may be defied as: *agreement in action, feeling etc.; order or congruity of parts to their whole or to one another; agreeable sounds; any number of notes sounded simultaneously.*
Source: Collins English Dictionary and Thesaurus (1994).

12 The aspect of layered arrangement, even 'orchestration', of the elements of form are considered further in the 'Facade' section.

13 As my Form Studies colleague Bernard Olsthoorn stressed in his work as an artist and an educator:
"Besides registering, perception is essentially creating".
In Dutch:
"Waarnemen is naast registreren vooral ook creëren"
See: the 'Ensemble' section.

14 Configuration: the arrangements of parts, particularly relating to the external form are recognised as outlines and patterns in the context of this research. Such issues may be considered visually as a compositional (inter)play of lines.

15 Quatremère de Quincy, on the subject of 'Disposition'
"Vitruvius lists 'disposition' among the five divisions of architecture. But it seems that among the Romans this word corresponded to what we would call today 'distribution', or even to the art of designing architecture; because, he says, there are three parts to disposition: 'ichnography', 'orthography', and 'scenography', that is to say, the plan, the elevation and the perspectival view.
Nowadays, we use the word disposition in a more general and more theoretical sense. One speaks of 'skilful disposition', a 'faulty' or a 'shabby disposition'; and this nearly always is to a building what configuration is to a body.
Nothing can repair a faulty disposition in a building, neither the luxury of ornament, nor the wealth of materials. Disposition is to a building what configuration is to a body."
De Quincy, after Vitruvius, in his *Historical Dictionary of Architecture*, 1832. English edition, 1999. Pg. 142.

16 Kurt Ackermann, on the concept of 'Bauform':
"Form ist das Ergebnis eines Entwurfs- und Konstruktionsvorgangs. Die Konstruktionsform entsteht als Folge des gewählten Konstruktions-prinzips, der Fügung der Konstruktionsteile und des Materials. Neben den Begriff der Form wird auch der Begriff Gestalt verwendet. Gestalt ist das als Ganzes gesehene Erscheinungsbild eines Bauwerks."
Kurt Ackermann, *Grundlagen für das Entwerfen*

und Konstruieren (1983), Karl Krämer Verlag, Stuttgart. Pg. 135.

17 In his *Grundlagen & Entwicklung der Architektur, Vier Vorträge Gehalten im Kunstgewerbemuseum Zurich* (1908), H.P. Berlage identifies a number of proportion / ratios, beginning with: 3 : 4 : 5, then on to: 1 : √2, subsequently: π : 4 and ultimately: 5 : 8.

18 It is on the level of its facades, that a building or built ensemble is perceived in its entirety. This means that the object is here considered as it might be viewed from a relative distance, in relation to other buildings and direct surroundings, rather than from close-by.

19 Due to the 'double' meaning of the term, various alternatives were considered in order to identify this compositional layer.
A more 'neutral' concept, like 'gevel' in Dutch (similar to 'Giebel' in German), was initially preferred, but it became clear that in the English language facade is the term that most directly communicates the intended meaning, in a straight-forward way.
In its spelling I have given a preference to the more neutral 'facade' over the French-origin 'façade'.

20 In Dutch, the word 'gevel' is used to denote a building's outer surfaces as well as the subject of facade-design: the elevation.
The scale-drawing of an elevation is called 'geveltekening'.

21 The idea of architecture as 'frozen music' is alternately accredited to Goethe or to Schopenhauer. In all probability, Goethe was the first to publically coin the expression.
The origin of this saying was explored in an early ASCA conference Paper.
Jack Breen: *The Concept of Choice in Learning and Teaching Composition*. In: *Proceedings of the 1995 ASCA European Conference*, Lisbon, 1995. Pg. 310.
Musician Quincy Jones is supposed to have had his own 'take':
"If architecture is frozen music, then music must be liquid architecture."

22 Pierre von Meiss identifies what he calls the "intervening in 'the geometries of voids and solids'.
Pierre von Meiss in: *Elements of Architecture*, 1991. Pg. 72.
Furthermore: he graphically demonstrates the workings of form and counter-form in a double, positive-negative analysis of the plans of the Saint Sophia, built in Constantinople, 532-537 AD. Pg. 23.
The concept of 'form and counter-form' has through the years been identified in my educational work (formal studies) as a conceptual, but particularly visual tool on the level of spatial as well as surface arrangement.
Exercises: Form and Counter-form in Interior- and in Urban Space (Form Studies curriculum, year 1).

23 Peter F. Smith in: *Architecture and the Human Dimension* (1979) George Godwin, London. Pg. 24.

24 Theo van Doesburg, here quoted in the first educational Form Studies document by Bernard Olsthoorn: Syllabus Vormstudie 1, Publikatieburo, Faculteit Bouwkunde, TU Delft, 1990. Pg. 25.
The Dutch text:
"In dit groeperen blijft natuurlijk de geestelijke intuïtie verondersteld, wil de kunstenaar niet in een dorre abstractie zondermeer vervallen. Deze geestelijke scheppingsintuïtie wordt echter steeds gecontroleerd door het redelijke bewustzijn."
Translation by the author.
What is interesting is that, as the leader of the De Stijl movement, van Doesburg was on the one hand promoting abstraction, but at the same time was aware that there needed to be level of creative 'objectivity' in the grouping of parts.

25 Peter F. Smith in: *The Dynamics of Delight, Architecture and Aesthetics* (2003), Routledge, London. Pg. 48.

26 Pitched roofs may be perceived as volumetric entities that resonate with the, generally orthogonal and vertical surfaces below. Flat roofs may be given visual attention, as planar element that are extended outwards, or they may be hidden behind visually dominant, facade-surfaces.

27 Peter F. Smith stressed the aesthetic importance of regular as well as irregular – 'broken' – rhythms as a source of satisfaction in historic environments.

28 When comparing architectural composition and poetic rhyme, the essential aspect that P.F. Smith identifies is Manley Hopkins' definition:
'Likeness tempered with difference'.
This implies there needs to be a fundamental sameness in the parts for them to be perceived as belonging together, but it is the strategic inclusion of difference that generates and accommodates perceptual interest.
Peter F. Smith: *Rhyme with Reason*. In: *Architectural Design ('Post-Modern History' number)*, Vol. 48, No. 1, 1978.

29 Such other surfaces may belong to the same object, as in its perpendicular surfaces, but in principle may also concern adjoining facades, of neighbouring buildings.

30 A. Helfferich, in his contribution to *Typologische ordening van gevels*, identifies the categories of 'Vlakkengevel', 'Gatengevel' and 'Skeletgevel', which he subsequently combines into the categories of 'Knipgevel' and 'Dubbelgevel', as well as 'Vliesgevel', which he derives directly from 'Skeletgevel'.
Ir. A. Helfferich, in: *Geveltypen: Compositiesystemen*.
In: Ir. C.T.J. van Rongen, Ir. A. Helfferich, Ir. M.C. Stellingwerff (eds.): *Typologische ordening van gevels*, Vakgroep Architectuur, Faculteit Bouwkunde, TU Delft, 1994. Pg. 60.

31 Essentially, creating a linear array is a matter of counting: A, 2A, 3A etc., whereby sections may be repeated horizontally as well as vertically. In the case of grouping, a sub-entity (B) is formed, which, in itself, may also primarily be identified by number, for instance: B = 2A, 3A, 4A etc..

32 On the basis of such underlying, graphic networks, juxtapositions may be used for the benefit of precision and correspondence. Sub-symmetries may be introduced to underscore coherence on the level of visual harmony and pronounced, semi-random punctuations may afford a level of added, visual contrast.

33 The effects of such 'grouping' exercises are evocatively demonstrated by Pierre van Meiss in a graphic 'variation' on the basis of the front-facade of Josef Plecnik's Zacherl-Haus in Vienna (1903-1905), published in his book *Elements of Architecture* (1991), pg. 52.

34 The Dutch word for surface is 'vlak, or more precisely: 'oppervlak'.
In the Netherlands, 'skin' – 'huid' – is popular amongst students and teachers of architecture, to denote a building's outermost layer. The architect's use of 'skin' for a building's outer layer is an analogous reference, corresponding with to its inner 'biological' structure, consisting of its skeleton, muscles and organs.

35 Herbert George, on different qualities of Surface, in sculpture:
"Our eyes comprehend the surfaces of objects in an instant. What we see is compromised by past experience, and so the sensual pleasures that these surfaces could bring are often diminished. … The hand can experience form in ways that the eyes cannot. But only the hand and the eyes learning to see together can reveal, for example, the surface ambiguity of the cold, smooth, hard transparency of glass."
Herbert George, in: T*he Elements of Sculpture, A viewer's Guide* (2014), pg. 36.

36 Material qualities may be exploited for effect or hidden, under a laying of 'coating'. Alternately, industrially-produced building products may be made to look like 'natural' materials on the level of their surface-treatment. Furthermore, the acquirement of a surface patina through time can give an added perceptual effect.

37 Kathleen Martin (ed.): in the item *'Color'*, in *The Book of Symbols, Reflections on Archetypal Images*, Taschen GmbH, Cologne, 2010. Pg. 636.
38 In: Jörg Kurt Grütter: *Architecture + Perception*, Niggli Verlag, Sulgen, 2012. In the section entitled: *Material and Surface / Material und Oberfläche*. Pg. 132.
The extended text-fragment:
"Different materials and their surface properties have complex influences on how a space is experienced. …
Architecture is given its final form through materials. Materials shape not only our visual perception of a space but also our haptic experience when we touch or walk on surfaces. After vision, touch is the most important human form of perception when it comes to experiencing architecture. The role that materials and surfaces play in the perception of a room or space is generally underestimated. Yet even Goethe referred to material as the most important aspect in the assessment of architecture, even ahead of purpose and aesthetic effect.
Our haptic sensation of material is determined by our experiences with our skin. Qualities like warm and cold, rough and smooth, soft and hard are known to us from early childhood, and they shape all our chaptic perceptions. Visible materials, the surfaces of buildings and building sections, create architectural shells. Here the analogy of humans and clothing seems apt: they are layered, of various thickness and are opaque or transparent. They are intended to protect, hide, adorn or flaunt."
39 Herbert George, in: The *Elements of Sculpture, A viewer's Guide*, Phaidon Press Limited, London, 2014. Pg. 56.
40 Tone is essentially the distinction between black and white, with a band of shades of grey in between. In perception, the appreciation of specific tones is subjective, as tones seems to be lighter or darker, depending on another tone with which they are juxtaposed.
41 The principles of colour in architectural composition and perception have been part of a first-year lecture which I have developed and presented over the years, entitled: *Colour: Theory and Application ('Kleur: Theorie en Toepassing')*.
42 Various renowned artists and scientist who have tried to develop theoretical models, pertaining to colour perception and application.
These have included Leonardo da Vinci (1452-1519), who developed a six-item configuration, consisting of the complementary attributes of black and white, yellow and blue and green and red.
On the basis of his experiments with the visible spectrum of light, Isaac Newton (1643-1727) identified seven primary colours.
Johan Wolfgang Goethe (1749-1832) devised a triangular model for his *Farbenlehre*, with three basic colours (blue, yellow and red) on the corners, which was developed further into a colour circle with six elementary colours (blue, green, yellow, orange, red, violet).
This scheme was then taken a step further by Johannes Itten (1888-1967), who developed a concise theoretical framework on the basis of a colour circle, with twelve sections.
43 In the colour circles introduced by Goethe and developed further by Itten, analogue colours are positioned next to each other, whereas contrasting, complementary colours are situated opposite each other. Another familiar approach is the use of similar, but subtly different monochrome colours in combination, a procedure known as 'ton sur ton'.
An example of a study concerning local colour conventions is: Rob van Maanen: *Kleurenatlas, Schets van kleur in Nederland*, Eisma, Leeuwarden, 1993.
44 In a thematic analysis of palette approaches, originally developed for a lecture on Colour, with free-hand drawing colleague Adriaan van Haaften. These included a combination of 'analogue' and 'double complementary' schemes in the work of Le Corbusier and a 'split complementary' scheme in the work of the De Stijl artists and architects.
In recent years: presented by as part of my first-year BSc module OV1 lecture series.
45 An aspect of consideration is whether a building-product can be worked and applied by hand, or if specialized machinery is necessary for assembly.
46 Hans Kollhoff makes a distinction between the German-language concepts of the *Wand*, which is related to *Gewand*, indicating a woven 'fabric', as opposed to *Mauer*, being a solid 'wall'.
Hans Kollhoff, after Gottfried Semper:
"In de woorden van Semper: 'De Duitse taal kent een woord voor het zichtbare deel van de omsluiting van een ruimte, die Wand, een woord dat dezelfde stam en nagenoeg dezelfde betekenis heeft als das Gewand, wat een uitdrukking is voor een geweven stof. Het constructieve deel van de omsluiting heeft een andere benaming, namelijk Mauer'. Met andere woorden, voor Semper zijn de uiterlijke kenmerken bepalend voor het wezen van de architectuur."
Hans Kollhoff, in: *De mythe van de constructie en het architectonische*. In: Hilde Heynen et al (ed.): *Dat is Architectuur*, 010 Publishers, Rotterdam, 2001. Pg. 634.
47 Gottfried Semper is supposed to have recognised the meaning of 'textiles' in architectural composition after having been confronted with a 'primitive' hut at the Great Exhibition at the Chrystal Palace, in London, 1851.
48 Different types of 'fired clay bricks' and their applications and effects on the level of bonding-patterns are visually explained in: Nicolas Davies, Erkki Jokiniemi: *Dictionary of Architecture and Building Construction* (2008), Architectural Press, Elsevier, Amsterdam. Pg. 460-471.
An enlightening publication, concerning the expressive opportunities of bonding-patterns in architecture, is: Koen Mulder: *Het Zinderend Oppervlak, Metselverband als Patroonkunst en Compositiegereedschap*, published by Koen Mulder ('eigen beheer'), 2016.
49 Such 'abstract' clarity does not always endure, as materials tend to weather and discolour. Treatments tend to need regular upkeep if they are not to display the effects of wear and deterioration.
50 This 'conciliating' quality is evocatively captured in a drawing by Gordon Cullen, from the series Five views of Biot, France (1967).
In the image The White Room we are invited to look out over the landscape beyond the opened doors of a French balcony, whilst at the same time being afforded an equally insightful view of the actual room itself, in the mirror on a wardrobe positioned next to it.
In: the catalogue *Gordon Cullen*, Afd. Bouwkunde, TH Eindhoven, 1976.
51 Facade openings afford the inhabitants views toward the world outside and inversely, at least to some extent, give 'outsiders', sometimes veiled, insights concerning into what happens within, particularly at night, when the interior spaces tend to be artificially lit.
52 Christian Norbert Schulz presented an elementary typology of opening-positions, on the basis of a simple, rectangular room.
In his opening-arrangements, he primarily makes distinctions between openings that are perforations of a basically closed surface, or openings that are attached to the space's walls.
Christian Norberg-Schulz, in: *Intentions in Architecture*, Norwegian Research Council for Science and the Humanities, 1963.
In: the *'Illustrations'* section, figure 47.
53 From the song *It'll Shine When It Shines*, written by John Dillon and Steve Cash.
Performed by the Ozark Mountain Daredevils, on the album also titled *It'll Shine When It Shines*, A&M Records, nr. 3654, 1975.
54 Kathleen Martin (ed.) in the item *Window*, in *The Book of Symbols, Reflections on Archetypal Images*, Taschen GmbH, Cologne, 2010. Pg. 564.
The quote in the last sentence is taken from: Jay Appleton: The Symbolism of Habitat: An Interpretation of Landscape in the Arts, Seattle, 1990.

A further segment from the 'Window' section:
"Over the centuries the opening in the wall has been screened or filled with marble, alabaster, rice paper or, sometimes, thin panes of mica or horn as substitutes for glass. Eventually able to open and close, windows contributed to the regulation of heat, light and air and acquired the meaning of an interval of time in which something can occur."

55 In: Knaack, Klein, Bilow, Auer: *Facades, Principles of Construction* (2007), Birkhaüser Verlag AG, Basel. Pg. 16.
This instalment in the 'Principles' series offers a systematic appraisal of enveloping structures, on the level of – closed – 'substance' as well as the opportunities of transparency, particularly on the level of assembly and connectivity.

56 Even if the partition is not actually a solid, massive wall but an assembled spatial divider, as in the Dutch and German 'wand', the impression tends to be one of, essentially closed, substance.

57 In architecture, openings are not only 'necessary' attributes, but to a large extent determine the appearance and the expressive qualities of a building.
In buildings that are almost entirely closed, like large department-stores, designer's have to resort to other attributes to make the exterior composition 'readable'.

58 Semper made the link with textiles, particularly on the level of weaving.
To hold the woven fabric together – and to stop it from unravelling – extra attention has to be given to the articulation of edges and seams.

59 A favourite quote of my diploma-professor Aldo van Eyck, which he used in his lectures at the Delft Architecture faculty in the 1970's, was from musician Jelly Roll Morton:
"Open up that window and let the foul air out!"
In: *Steps towards a configurative discipline*, published in *Forum*, 1962.
Also in: Aldo van Eyck: *Collected Articles and Other Writings 1947-1998*, Vincent Ligtelijn and Francis Strauven, editors, SUN, Nijmegen, 2008. Pg. 327.

60 Framing-elements in walls occur particularly above the opening, where the forces in the wall need to be accommodated; for instance, by introducing a lintel, which may be inserted as a no-nonsense, purely necessary attribute, but may also be articulated or decorated for aesthetic effect.
Similarly, the substance of the wall itself may acquire the quality of pronounced seam, for instance through the use of half-bricks, or even via other means of highlighting the edge, by introducing different colours, materials or plastic accentuations.

61 This reciprocal quality makes windows particularly complex and hence: expressive.
There are as it were two 'characters' that need to be considered and developed, on the level of its exterior as well as its interior presence.

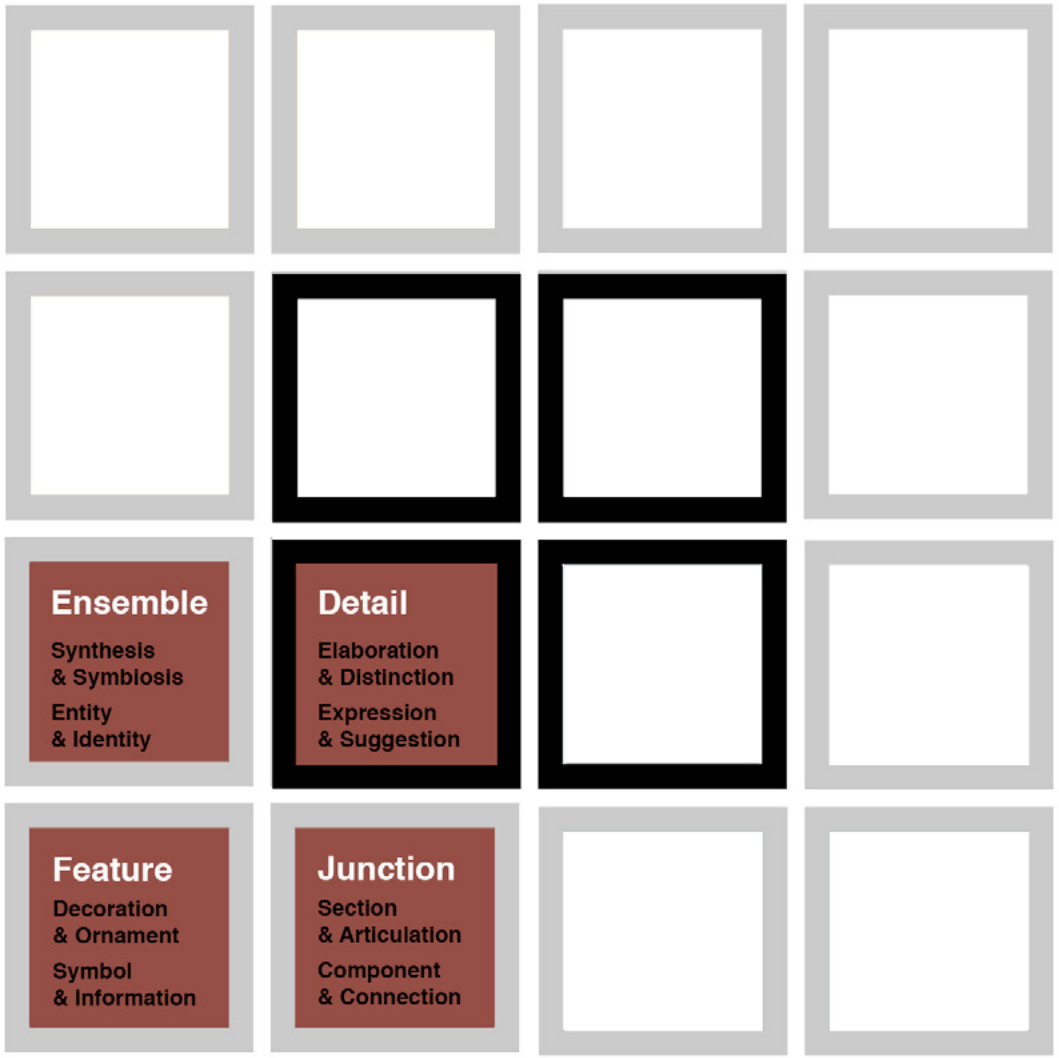
62 The materials that are set into windows may vary considerably, including elements that are transparent, translucent, semi-closed or shuttered, as well as being entirely closed, like panelling.

63 Due to such sub-divisions, the view may still be experienced in its totality, although it is actually divided-up into smaller facets.

64 Architects, but also traditional builders, frequently make use of sub-frames or movable parts to introduce a level of differentiation and/or accentuation, which may be highlighted, particularly making use of colours.

65 Sameer Kumar on the 'art' and practice of the modern facade:
"The building enclosure has become the frontier of technological innovation within architecture, driven by the growing demands of performance and aesthetics. This has precipitated the need for "facade specialists" who play a pivotal role by bringing to the practice a specialised knowledge of the various aspects of facade performance and creation. Their work straddles between architecture and engineering, design and construction, detailing and fabrication. Consequently, they resist classification according to the traditional divisions of the building industry and as a result, often go unrecognised."
Sameer Kumar (Foreword), in: Michael Lee: *The Art of Facades*, Asia One Books, Hong Kong, 2010. Pg. 3.

5. Conceptions
5.D Detail
5.D.1 Junction
5.D.2 Feature
5.D.3 Ensemble


Ensemble
Synthesis
& Symbiosis
Entity
& Identity
Detail
Elaboration
& Distinction
Expression
& Suggestion
Feature
Decoration
& Ornament
Symbol
& Information
Junction
Section
& Articulation
Component
& Connection

Detail

— *A section of a larger structure or whole, considered as a unit.*
— *The attention directed to constituent parts and their relations.*

Compared to the attributes of *order*, which may be compositionally veiled or even hidden on a perceptual level, *details* tend to figure prominently, particularly when encountered from *close-by*.
To consider the phenomenon of 'the detail' presupposes the existence of a larger entity: a *whole*, of which each specific detail forms a recognisable and meaningful *part*.[1]
Details can be considered as 'compositions within the composition', which may 'resonate' with other categories, which together make up the larger entity; on the levels of *truth* as well as *character*.[2]
Whilst a detail can to a certain extent be identified and considered separately, it never truly stands alone.
It is conceived, articulated and elaborated in relation to the design's intent in a broader sense, with which it is intrinsically *linked*.[3]
Expressive details may be considered as the distinguishing attributes of any integral, compositional *ensemble*.
On the one hand details are required to 'work' on a technical level and 'conform' to the standards of practical function. On the other, they should 'perform' on *artistic* levels, through the elegant expression of the *joining* of parts.[4]
On sensory levels, details can be articulated as design-features that activate *haptic* sensibilities, notably the faculties of touch.

Andrea Palladio, paraphrasing Vitruvius:
"Beauty will be the result of a beautiful form and from the correspondence between the whole and its parts, and of the parts between themselves as well as to the whole; thus, buildings may appear as a single, well-finished body within which all the members agree, and all members are necessary for what is desired."[5]
Richard Weston, on the *character* of the detail:
"Detailing the junctions between different materials and surfaces occupies a surprising amount of time on most architectural projects. The task is both practical and formal, as Mies van der Rohe made clear by adopting the truism 'God is in the details'. … Just as a piece of literature acquired 'character' though the choice and ordering of words, so the character of a building depended on the definition and mutual adjustment of its 'details'."[6]
Steven Holl, on the qualities of 'enmeshing' in design:
"We must consider space, light, colour, geometry, detail, and material in an intertwining continuum. Though we can disassemble these elements and study them individually during the design process, finally they merge. … Compressed, or sometimes expanded, the interlocking of light, material and detail creates over time a 'whole' cinema of merging and enmeshed experience."[7]

Elaboration & Distinction

The *elaboration* of the meeting-points between elementary constituents is a requisite condition of architectural design.[8]
On the smaller scale-levels of building composition, a design can be 'brought to life' through the manifestation of its contributing parts and their *concurrence*.
Such essentially 'tectonic' details need to be worked out logically, but may consequently also offer opportunities for *formal* expression, on tangible levels.[9]
Designing 'joints' tends to follow consequential, somewhat hierarchical principles, determined by project requirements, local conditions and the availability of building products.
The articulation of *junctions* and the exploitation of expressive *features* is to a large extent determined by their relative positions and the expression of their *connectivity*.
Such 'encounters' between reciprocal parts tend to be developed on the basis of their *sectional* and *dimensional* qualities, which may result in 'tidy', standard details, but alternately may give occasion to visual *distinction*, whereby components can be downplayed, emphasised or even exaggerated for *dramatic* effect.[10]
Such attributes may conform to local or temporal *conventions*, but they also give expression to stylistic preferences, signifying the *personality* of the creative designer.[11]

Expression & Suggestion

In architectural composition, details tend to be developed as expressive means, on *architectonic* as well as *architectural* levels.
Their physical manifestation and dimensional integration can be considered in the light of the *ethical* conditions of 'truth' and *aesthetical* consideration of 'character'.[12]
Essentially, the prerequisite of *truth* requires that the building's components 'honestly demonstrate' their *workings*.
This tends to lead to an emphasis on the *logical* coexistence of parts, which can as it were be *mentally* de-constructed and re-constructed; like a *puzzle*.[13]
Particularly before the advent of 20th century Functionalist modernism, 'character' was considered to be an indispensable attribute of building design, whereby conscious use was made of local, historical, stylistic or symbolic references, to lend a building its 'proper' identity and status.
Contemporary designers are inclined to prefer 'truthful' architectonic devices as expressive means, but they are at times also willing to resort to suggestion, making use of seemingly tectonic components, for the sake of aesthetic effect.[14]
A desire for elegant *simplicity*, whereby 'less' might be considered to be 'more', has led to reductionist approaches requiring dedicated attention, to *refined*, 'minimalist' detailing.[15]

— *The intersection of constituents within a structure as a whole.*
— *The qualities of components and their relative connections.*

Junction

Architectural detailing involves the systematic consideration of elementary building *constituents*, on the level of physical *interaction*, as well as formal *expression*.
Resolving the characteristic *junctions* between essential parts, such as walls, floors, roofs and windows, follows general as well as project-specific 'rules'. Thereby, the designer needs to specify which material elements will be used where and subsequently: how their 'encounter' will be elaborated.[16]
Detailing involves determining a 'hierarchy-of-parts', whereby decisions need to be taken per 'node', but also on the level of the whole.
A primary requirement is that such an 'act of joining' will result in a sound and particularly: weatherproof *juncture*.[17] Thereby, choices have to be made concerning which attributes will be *dominant*, on technical as well as on visual levels.[18] This is a process of identifying and resolving *critical* details, on the basis of which *systematic* detailing-standards can be determined.
The elementary *components* can then be fabricated according to the designer's specifications, or be *selected*: as building *products*.[19] Such *architectonic* detailing creates the conditions for a coherent building process and determines the inherent *architectural* expression, 'down to the smallest details'.

Charles Eames, on the meanings of *connections*:
"Eventually everything connects – people, ideas, objects. The quality of the connections is the key to quality per se."[20]
Maarten Meijs and Ulrich Knaack, on the role of components:
"Horizontal as well as vertical components form part of an entire construction and define the appearance of a building. … The designer has an impact on the functionality of the construction as a whole by determining the materials, the dimension and the composition of the component and their position. This process of optimisation forms an intrinsic part of design."[21]
Joseph Rykwert on Semper's recognition of the *seam*:
"By a curious use of word-play, Semper foreshadows his later reference to the knot as the essential work of art quite early in his textile chapter, when he considers the term 'Naht': the seam, the joining. It is, he says, an expedient, a 'Nothbehelf' for the joining of two planes of similar or dissimilar material. But the very juxtaposition of 'Noth' and 'Naht' suggests a connection. The seam is an analogue and symbol which has archaic roots, for the usage of joining originally separated planes. Here he presents the reader with a primary and most important rule of art in its simplest form: to make a virtue of necessity."[22]

Section & Articulation

Designers have to make *fundamental* decisions, concerning how elementary constituents, like roofs, walls, and windows *intersect*, relatively early-on in a design process.
The standard working-mode involves working in *sections*; as it were 'cutting though' parts of the proposed building, zooming in and fine-tuning the dimensions and interrelationships of the constituent 'parts'.
As in nature, the *transition* between one element and another involves *articulation*.[23]
The preference may be to visually 'blend' parts together, making smooth, *seamless* transitions.[24] Alternately, the interaction between different 'actors' can be exploited for visual effect by creating *differentiations*, either through the introduction of *intermediate* elements, or the introduction of recessed or extruded *seams*.[25]
Precisely how such attributes are materialised, dimensioned, profiled and positioned relative to each other is the subject of successive, *iterative* development-cycles, in which the project is worked-out, down to the smallest levels.[26]
Thereby, it is essential that the designer does not only think in two dimensions, but considers the details as *spatial* connections.[27]
Considered in such a way, detailing is a process of transforming what is a *necessity* into what may be experienced as a 'virtue'.[28]

Component & Connection

How a building's different parts will be coupled and fastened together is determined by the 'art' of *joining*.
When designing details, the underlying modes of *production*, as well as the process of *assembly* are anticipated.
This procedural capacity of design is closely linked to the integration of a building's *components*, particularly on the level of *materialisation* and *profiling.* Thereby, the conditions need to be specified concerning the detail's ability to function durably and efficiently, when it comes to essential demands like keeping out rain, wind and unwanted visitors.
Basic components, like wooden profiles, bricks, tiles, gutters, lintels and thresholds, as well as a variety of fixtures, are increasingly produced in standardised series. Apart from *fastening*, the allowance for a level of *tolerance* between parts is often an essential attribute of a connection.[29] In such specialised building *products*, the qualities of *connectivity* are as it were 'part of the package'.
Specific elements, like window-frames – traditionally with a differentiation between top-, side- and bottom profiles – that used to be 'tailor-made', have increasingly become industrially-produced, *standardised* items.[30]
A practice which has arguably led to *uniformity* on the level of tangible detailing.

Feature

— *A characteristically prominent or conspicuous aspect or part.*
— *An item that attracts attention on a visual or tangible level.*

The concept of the architectural *feature* may be considered as an *extrapolation* of the more general category *of technical* detailing.[31]
In 'traditional' cultures, architectural features tended to be considered as an expression of *craftsmanship*; an indication of the building-master's *skill*. Thereby, the modes of artisanal *embellishment* that adorned a building's structure and fabric were considered as a token of the collective, *tribal* identity of the group.[32]
An attribute of such artisanal craftsmanship is that *how* things are crafted tends not to be hidden, but rather to be appreciated as a symbol of implicit 'truths'.[33]
Skilful *elaboration* is a matter of refinement and precision on the level of technical execution, stimulating invention and in turn leading to stylistic expression.
The visual *elaboration* of structural components, on the level of connections, transitions, edges and endings, creates opportunities for their *artistic* embellishment, leading to a culture of *decoration* and *ornamentation*.[34] Thereby, there is the danger of *opulence*, rather than *elegance*, which can easily result in overabundance and visual 'overkill'.
The antonym is the subdued, expressive *purification* of features, through a process of elaborate reduction and 'minimalistic', expressive refinement.[35]

Louis Sullivan on the *role* of the ornament in architecture:
"… a building which is truly a work of art (and I consider none other) is in its nature, essence and physical being an emotional expression. This being so … it must have, almost literally, a life. It follows from this living principle that an ornamented structure should be characterised by this quality, namely, that the same emotional impulse shall flow throughout harmoniously into its varied forms of expression – of which, while the mass-composition is the more profound, the decorative ornamentation is the more intense. Yet both spring from the same source of feeling."[36]
Jörg Brent C. Brolin, on ornamentation as a *choice:*
"Design choices are rarely limited to 'ornamented' versus 'not ornamented'. There is, instead, a decorative continuum, encompassing objects that are more or less ornamental."[37]
Kurt Grütter on 'modern' embellishment:
"… if embellishment is defined more broadly as a means of satisfying our visual sensory needs, then a visible load-bearing construction (in addition to its static function) can also have a decorative effect."[38]
Dieter Rams, on *reduction* and *emphasis* in design:
"One of the most significant design principles is to omit the unimportant in order to emphasise the important"[39]

Decoration & Ornament

When comparing *decoration* and *ornamentation* in architecture, there is a fundamental ambiguity.[40]
After extensive consideration, my position is that a distinction *should* be made. Thereby, *ornamentation* might be considered as the *expressive* articulation of elements that are fundamentally *tectonic*. In this way, architectonic features, belonging to the building's structural configuration on the level of junctions, corners and extensions, are 'taken a step further', to generate visual *significance*, on an aesthetic level. [41]
Decoration, on the other hand, should be considered as *embellishment* that is *not* grounded in construction, but is rather 'added-on', for *extra* effect.[42]
With the influx of the 'modern movement', decoration *and* ornamentation were thrown on one pile and considered to be a hindrance for a new, 'honest' architecture. As such, the timeless attribute of ornamentation was made redundant; even stigmatised as being 'criminal'.[43] However, ornamentation, as the expressive *refinement* of architectural features never truly disappeared.
Even in functional-modern architecture, structural components, edges and corners tended to be articulated as *implicit* ornamental features.[44] Since the demise of 'orthodox' modernism, *explicit* ornamentation is once again 'on the agenda'.[45]

Symbol & Information

An essential attribute of architectural *features*, is that they have the capacity to convey *meanings*.
Considered in this way, expressive features do not just exist in their own right, but tend to *symbolise* something, conveying information that may be implied, or even literal.
In many cases, symbolic ornamentation is *stylistic*, whereby modes of expression from recognised movements are *referenced* or *quoted*, within the framework of the composition as a whole.[46]
Particular decorative features tend to be integrated for the sake of *convention*, symbolising collectively shared 'values', through the application of *familiar* building-details.
Alternately, features may be included that underline the *individuality* of a designer, or his or her client. Various architects have developed *signature* elements, that give an indication that a particular work belongs to the oeuvre of a specific designer or group.
Such attributes belong to the domain of sign-language, whereby *information* is strategically included in order to convey explicit or implicit messages to the beholder.
Symbols, logos, numerals and even texts may be integrated into the design or at least 'given a place'.[47]
Such stylistic or informational symbols speak to our conditioned senses and as such are almost impossible to ignore.

Ensemble

— *A whole, made up of recognisable, interrelated constituents.*
— *The degree of precision and unity between individual parts.*

One of the things that makes creating and perceiving works of architecture so challenging, is that a realised building is not simply a product of separate 'solutions' – a 'sum of parts' – but a composition in which such parts should work together 'in concert', as in an *ensemble*.
Music is a frequently-used analogy, due to the comparable themes that are characteristic of both art-forms such as: rhythm and metre; modulation and melody; harmony and contrast, as well as professional conditions like notation, arrangement, production and performance.[48] The mastery of the *synergetic* conditions of design by the creative building-designer is comparable to the work of a musical composer.[49] Not unlike music, architecture allows for creative *variation* on the basis of recognisable *themes*, which are then *scored* for one or more 'instruments', playing in harmonic or dynamic *unison*. The more layered and complex the instrumentation, the more the work of the composer involves the *orchestration* of *simultaneous* parts.[50] In architecture, as in music, concentrated experience contributes to the appreciation of the integral composition, stimulating the focus on particular aspects, as well as their interrelationships and transitions, within the intricately-crafted body of work as an artistic *entity*.

Leon Battista Alberti, paraphrasing Vitruvius:
"Beauty consists of a rational integration of proportion of all the parts of a building, in such a way that every part has its fixed size and shape, and nothing could be added or taken away without destroying the harmony of the whole."[51]
Steven Holl, on the concept of 'enmeshed' experience:
"Beyond the physicality of architectural objects and the necessities of programmatic content, enmeshed experience is not merely a place of events, things and activities, but a more intangible condition that emerges from the continuous unfolding of overlapping spaces, materials, and detail. This 'in-between' reality is analogous to the moment in which individual elements begin to lose their clarity, the moment in which an object merges with its field."[52]
Bernard Olsthoorn, on perception as a *creative* process:
"Besides registering, perceiving is essentially an act of creating. With the assistance of the information that is gathered by our senses, we construct, or 'build', an impression of reality, in what is not a passive, but an active process. Thus, our reality is to a large extent a mental construction, an interpretation, whereby a sense of relativity, the realisation that all things are in a state of constant transformation is, to my mind, absolutely essential."[53]

Synthesis & Symbiosis

What makes the art of architectural composition so complex is the *simultaneous* interplay of recognisable, individual parts, within a spatial and material entity that may be recognised as one indivisible *unity.*[54]
Creating integral works of building-art is arguably a matter of attaining a *synthesis* amongst interrelated compositional and experiential themes.[55]
As Vitruvius and Renaissance scholars after him professed, in a truly successful piece of architecture, nothing ought to be added or taken away, without undermining the *consistency* of the complex whole.[56] The perception of constituting 'parts' in relation to the overall arrangement is determined by the ways in which they are *specified* as well as *combined*.
Individual items may underscore the impression of a *harmonious*, 'orderly' whole, but may also to introduce *contrasts* that contribute to a stimulating level of visual *complexity.*[57]
Considered in this way, different categories of elements may have *symbiotic* relationships, based on mutual benefit.[58] Within the 'intertwining continuum' of the designed artefact, the perceptual qualities belonging to interior as well as exterior domains may be brought together on the level of shared 'in-between' realms, which confront as well as reconcile the properties of 'both worlds'.[59]

Entity & Identity

A realised building introduces a new *presence*, which will subsequently be experienced day-in-day out.[60]
The visual perception of a building, even though it may be recognised as an *entity*, tends to be *selective*: by dynamically processing impressions of recognisable details.[61]
The building's spatial and physical manifestation within the context of its direct surroundings, gives it its specific *identity*. However, this identity is not a 'stable' condition, due to the influence that time has on the physical artefact *and* its environment.
Through the years, its *setting* – streets, gardens and surrounding buildings – as well as the economic and cultural climate in which it must exist, may change considerably.
In some cases, a building or its designer may become recognised or even *celebrated* to such an extent, that it leads to the status of a 'monumental' building, which is considered worthy of preservation and, if necessary, *restoration*. It might come to be recognised as an aesthetically meaningful, locally respected and cherished artefact, allowing it to become older 'gracefully', with the *patina* of time.
Alternately, it may become altered, extended, neglected, abused or even demolished; to be remembered only on the basis of surviving documents and fading memories.

1 The condition of details, considered as expressions of the culture and craft of which they form a meaningful part, is particularly evident in the structure and form of traditional Japanese architecture.
Werner Blaser, on the perfection of such finely-crafted details:
"Examination of every detail of the building reveals throughout truthfulness and order: an intuitive sense of rightness in materials; spiritual discipline in construction; clarity and explicit meaning in function; and harmonious conjunction of all these elements in form. A pure and clear sense of construction is evinced. There is not an element which is not meaningfully related to the law governing the whole."
In: Werner Blaser: *Structure and Form in* Japan, Artemis Verlag für Architektur, Zürich, 1963. Pg. 13.

2 As has been mentioned, Truth and Character are issues that were central to the architectural debate of the nineteenth century, as was noted by Auke van der Woud in: *Waarheid en Karakter* (1997) / *The Art of Building* (2001).
However, 'truth' may also be considered to be an essential attribute of *detailing*, whereby 'character' may be considered as the opportunity for the inclusion of a design's 'personality' on a *tangible* level.

3 This paragraph has been taken in part from an article, which was written by the author in 2001:
Jack Breen: *Detail – Array and Arrangement*. The article, which focused on the inventive, experiential detailing of Brinkman & van der Vlugt in their Sonneveld House in Rotterdam, 1933.
It was published in: Frons Verheijen (ed.): *Vlinders in de buik … of het analyseren van een detail*, A3 Module, Bouwtechnologie, Technische Universiteit, Faculteit Bouwkunde, oktober 2001.

4 In Japanese building art, the aspect of joining is a matter of highly developed, skillful articulation.
Kiyoshi Seike, on the elementary refinement of details:
"The joiner's art, almost forgotten in the West by all but fine cabinetmakers, has had a long history in Japan, where it is still vigorously alive. The reputation of the traditional carpenter rests largely on his skill as a joiner, choosing and fashioning joints unknown in the west."
In: Kiyoshi Seike: *The Art of Japanese* Joinery, Weatherhill / Tankosha, New York / Kyoto, 1977. Rear cover text.

5 Extended quote of Andrea Palladio, after Vitruvius: *"As Vitruvius says, there are three things to be considered in any building, without which no edifice is worthy of praise: utility or commodity; durability; and beauty.... Beauty will be the result of a beautiful form and from the correspondence between the whole and its parts, and of the parts between themselves as well as to the whole; thus, buildings may appear as a single, well-finished body within which all the members agree, and all members are necessary for what is desired."*
In: Peter Murray, *The Architecture of the Italian* Renaissance, Thames and Hudson, London, 1969. Pg. 210.

6 The further quote on the recognition of the detail in *education*:
"In recognition of their crucial role, Beaux Arts teachers and practitioners developed a special kind of drawing – known as the 'analytique' – on which the interrelationships between the different parts of a building were shown at a variety of scales."
In: Richard Weston: *Material, Form and Architecture*, Laurence King Publishing, London, 2003. Pg. 148.

7 The *idea* of *intertwining* in architectural composition also implies the perceptual *unravelling* of the interrelated parts.
Steven Holl: *Intertwining, Selected Projects 1989 – 1995*, Princeton Architectural Press, New York, 1995. Pg.12.

8 *Elaboration* may be understood as: 'something which is planned with care and exactness, marked by complexity or detail', or: 'to work out in detail, to develop, produced by careful labour, as in craft'.
Source: *Collins Dictionary and Thesaurus* (1994).

9 In this light, there are distinct parallels with articulation on a biological level: like the way parts of the body are 'moulded together', yet at the same time display the pliability, of interconnected, moving parts; the 'joints', considered on an *organic* level.

10 *Distinction* may be understood as: 'the state of being different or distinguishable, differentiating', or as: 'a distinguishing *feature*'.
Source: *Collins Dictionary and Thesaurus* (1994).

11 Considered in this way, it is not 'god' (or the gods), but rather the *designer* that may be recognised on the level of a building's detailing.

12 The primary modes of architectural expression are arguably *tectonic*; how a built artefact is actually put together may to a major extent determine how it will come across visually.
In this context, there a tendency amongst designers to accentuate the parts and connections that demonstrate the 'honesty' of what is technically and functionally at (inter)play on the level of *architectural* detailing.

13 In this context there is an analogy between detailing and (Japanese) puzzles. For this reason, connectivity is often demonstrated by 'exploded' views or step-by-step montage sequences.
The idea of the *tying* (and: *untying*) of the building 'knot', or 'Knotenpunkt' in the words of hi-tech pioneer Konrad Wachsmann is a recurring theme in architectural detailing.
Konrad Wachsmann: *Wendepunkt im* Bauen, Krausskopf Verlag, Wiesbaden, 1959. Pg. 179.

14 In the neo-modern era of the late twentieth century, seemingly 'honest' material components were increasingly combined freely in visual 'collages', often (in some cases: falsely) suggesting a technically-logical build-up, for *visual* impact. This was particularly the case on the level of the building's 'skin', the visual outer 'package'.
Such material 'collaging' approaches were a distinctive trait in the early work of Dutch 'new-wave' architects, like Mecanoo, OMA, Ben van Berkel and MVRDV.

15 The most famous 'Mies' quote is: *'Less is more'*.
To which Robert Venturi replied with:
'Less is a bore'.
For my own view on the matter, see the Propositions belonging to this PhD.

16 As Gottfried Semper indicated, tectonics is a matter of bringing together planar solids and/or linear elements in an unmovable unity, whereby seemingly opposite 'pairs' may be joined in technical *and* artistic ways.
The Dutch text of Hans Kollhoff, paraphrasing Gottfried Semper:
"In Der Stil heeft Gottfried Semper tektoniek omschreven als 'de kunst van het samenvoegen van starre, staafvormige delen tot een in zichzelf bewegingloos samenstel'. … In het begrip tektoniek worden dus de op het eerste gezicht tegengestelde paren verschijning en constructie, kunst en techniek met elkaar verenigd. Juist dit maakt het zo actueel. De bouwkundige constructie is dus onlosmakelijk verbonden met de werkzaamheden van de scheppende architect en kan niet worden gescheiden van een kunstzinnige beheersing van het bouwen."
Hans Kollhoff, in: *De mythe van de constructie en het architectonische*. In: Hilde Heynen et al (eds.): *Dat is Architectuur*, 010 Publishers, Rotterdam, 2001.

17 The principles of Interconnection are largely determined by the *order* of assembly, which means that one particular element may physically *cover* (the joints of) another category of elements.

18 Different solution-principles will lead to different material- and visual configurations.
For instance: the meeting-point of a (slanted) roof and a vertical wall may be articulated in different ways, whereby either the wall or the roof become *dominant* from a visual perspective.
Alternately: a pronounced 'intermediate' attribute

– like a prominent gutter – may actually become the dominant feature.

19 The notion of the *critical* detail (in Dutch: 'kritieke' detail, rather than 'kritische' detail) was addressed by my academic colleague Engbert van der Zaag, in a lecture-series in which we both participated.
Considered in this way, it is not so much a matter of finding 'god(s)' in the details, but of pacifying the inherent 'demons'.
By resolving a 'fiendish', *critical* detail 'puzzle', other detailing solutions may, as it were, 'fall into place'.
Source: lecture-series Module AC3, 2016.

20 This quote by Charles Eames, conveying the essence of connectivity, opens a – purely visual – book of his work by Vitra, the European manufacturer and distributor of his furniture designs.
Florian Böhm, Annahita Kamali (eds.): Everything is Connected, Vitra Home Collection, 2014.
Another eloquent Eames quote – "It's all about connections" – was used on one of the identifying banners in an exhibition at the Delft Architecture faculty, curated by Max Risselada.

21 Maarten Meijs, Ulrich Knaack: *Components and Connections, Principles of Construction*, Birkhäuser, Basel, 2009. Pg. 7.

22 Joseph Rykwert, in his article: *Semper and the Conception of Style*, published in: Joseph Rykwert: *The Necessity of Artifice*, Academy Editions, London, 1982. Pg. 125.
The idea of the 'junction' of different or similar, physical parts as a 'knot' is mirrored in the jargon of Dutch architects, in which the detail is often considered as a 'builing-knot' ('bouwknoop').

23 To *articulate* may alternately be understood as: able to express oneself fluently and coherently; distinct, clear or definite, or: to be joined or to form a joint.
Source: Collins Dictionary and Thesaurus (1994).

24 This is arguably the most difficult and generally the least 'durable' of detailing solutions, as different material entities tend to 'work' under changing conditions, unwantedly demonstrating the inherent, material and dimensional, differences.
The Dutch saying *"gelijk is ongelijk"* ('equal is *un*-equal') is one of the most enduring 'truths' of the Dutch master-carpenter ('timmermans-wijsheid'). It ranks alongside the enduring myth of the precision of the carpenter's 'eye' on the level of straightness and measure ('timmermansoog').

25 Recessed joints, almost-flat bonding as well as 'overlaid' seams will result in a play of (shadow)lines on a visual level; a tried and tested way of creating surface *patterns*, which may figure prominently in the perception of the overall configuration.

26 The notion of the *iterative* cycles of design was put forward by John Zeisel in his influential *Inquiry by Design*, Cambridge University Press (1981). See: the 'Methods' section.
Particularly on the level of the detailing of representative junctions, a project may go through several such cycles, before the 'decision to build' (an important point-of-no-return in Zeisel's model) is taken.

27 A predominantly 2D approach can lead to problematic results, as I have on occasion tried demonstrated to students, on the basis of the unresolved 'coming together' of three detailing categories, in the former Postal Services headquarters in Groningen (1990).

28 In a conversation with educational colleague Engbert van der Zaag in the context of a Materialisation project, in which we were both involved, we spontaneously formulated an essential condition:
'to let the seam become a virtue'.
More poignantly, in Dutch:
'*Van de naad een deugd maken'*, which is a playful adaptation of the familiar saying 'Van de *nood* een deugd maken'.
Only recently, I found out that this notion was not original, but had already been voiced by Gottfried Semper.
Semper, paraphrased by Cornelis van der Ven, in German: *'Aus der Naht eine Tugend machen'*.
From: Semper: *der Stil,* Prolegomena. In: van der Ven: pg 115.

29 Joining is not always a matter of making a 'rigid' connection, but of implementing a level of intentional *allowance*, facilitating the 'working' of parts.
An 'invisible' seam tends to not stay that way for long, whereby, instead – undesired – seams, in the form of a cracks or fissures will tend to (re) appear.

30 Building products vary, from (partly) fabricated simple profiles to specifically developed and produced 'series', which may be chosen, ordered (increasingly: 'on-demand') and applied as 'intelligent' parts. Such products are designed to efficiently and economically accommodate the desired interactions *and* tolerances between one type of component the other.

31 In this context, the 'art of the detail' is first of all a matter of 'functionality', on the level of the technical articulation of the *junction* and subsequently, potentially an issue of *artistic* refinement.

32 Ornamentation tends to be associated with the expressive modes of 'classical' antiquity, as well as more regional, vernacular modes of expression, in which it may to a certain extent be seen as having 'tribal' connotations.

33 Vernacular works of artifice exuded a kind of 'fittingness', on the level of utility, familiarity and comfort, but they often also appealed to the sense of *touch*, in their handling of 'local' materials, with their treatments and patina.

34 In this sense, 'decoration' is considered as a verb: as the *activity* of creating a decorative feature.

35 In many cases the designing of features is a matter of avoiding opulence, by aiming for an 'elegant' economy.
When it comes to purification; 'less' only tends to become 'more' on the level of a kind of understated refinement, which may actually be considered to be a form of *reductionist* ornamentation.

36 Louis Sullivan in: *Ornament in Architecture* (1892), published in: Tim & Charlotte Benson with Dennis Sharp: *Form and Function, A Source Book for the History of Architecture 1890-1939,* The Open University Press, Crosby Lockwood Stables, London, 1975. Pg. 2.
Sullivan starts his exposé by voicing his doubts, about the *necessity* of ornamentation, suggesting a 'time out' of the use of decorative attributes.
In some publications, *only* the first parts of his text are quoted, to underscore the 'crime' of ornamentation, whereby the second section, in which he goes to the heart of the emotional, personal aspect of ornamentation tends to be 'overlooked'.
A recent example of this 'bias' is to be found in the book by Matt Gibberd and Albert Hill: *Ornament is Crime, Modernist Architecture*, Phaidon, Press Limited, London, 2017. Pg. 137
This visual 'celebration' of the modernist aesthetic features the following quote:
"It would be greatly to our aesthetic good if we should refrain entirely from the use of ornament for a period of years, in order that our thought might concentrate acutely upon the production of buildings well-formed and comely in the nude."
As has been indicated, in the second half of the text, Sullivan actually goes on to address the matter of ornamentation, which he does not appear to find superfluous, but rather: to be an *indispensable* feature of architecture:
"I believe that architectural ornament brought forth in this spirit is desirable, because beautiful and inspiring; that ornament brought forth in any other spirit is lacking in the proper possibilities. That is to say, a building which is truly a work of art (and I consider none other) is in its nature, essence and physical being an emotional expression. This being so, and I feel deeply that it is so, it must have, almost literally, a life. …" etc.
It is telling that he associates ornamentation with a *"source of feeling."*

37 Brent C. Brolin, in: *Flight of Fancy, The*

Banishment and Return of Ornament, Academy Editions, London, 1985. Pg. 239.
In this publication, as early as 1985, Brolin stated the case for the *return* of ornamentation in (post-modern) architecture.
38 The fragment on 'Ornamentation' ('Schmuck') is preceded by:
"In the long history of architecture ornamentation was a component of all structures. It blended with the purely functional elements and was part of the overall work of art. In modern architecture ornamentation, adornment, decoration, sculpture, picture fresco, stucco etc. all stand for embellishment. … Ornamentation, on the other hand, is the only artistic genre that is firmly bound to its manner of display – it cannot exist independently."
Jörg Kurt Grüter, in: *Architecture + Perception*, Niggli Verlag, Sulgen, 2012. Pg. 204.,
39 Dieter Rams, quoted in: Matt Gibberd, Albert Hill: *Ornament is Crime, Modernist Architecture*, Phaidon Press Limited, London, 2017. Pg. 182.
NB: The title 'Ornament *is* crime' is arguably somewhat manipulative, as the literal translation of Loos' text would be 'Ornament *and* Crime'.
Adolf Loos: from his 1910 lecture *Ornament and Crime ('Ornament und Verbrechen')* attacking the presiding Art Nouveau style.
First published in French in *Cahiers d' aujourd'hui*, 1913. First published in German in the *Frankfurter Zeitung* in 1929.
40 In this context, *ornament* can be defines as *'an article used to embellish or accentuate the appearance of something'*, or: *'a system, category or style of adornment or expressive identification'.*
Source: *Collins Dictionary and Thesaurus* (1994).
41 In 'classical' building-art, *architectonic* features were refined to such an extent that they developed into *architectural* features, underscoring the building's timeless, *symbolic* status.
Such stylistic components subsequently became *canonised* attributes of the (classical) 'grammar' of western architecture, as John Summerson has made clear.
His publication on the 'Classical language' of architecture was countered by a somewhat less articulate treatise, by Bruno Zevi, concerning what might be considered to be the 'modern language' of architecture.
Bruno Zevi: *The Modern Language of* Architecture, University of Washington Press, Seattle and London, 1978.
42 This distinction is not generally accepted or recognized.
In dictionaries and thesauruses, the two concepts are often treated as interchangeable.
However, I would argue that this distinction is not only defensible but also useful and meaningful in the context of thematic analysis of architectural artefacts.
43 In his famous *Ornament and Crime ('Ornament und Verbrechen')*, Adolf Loos compared ornamentation with the decorative tattoos of primitive tribes, which implied that, as they should by definition be considered 'lower' in development, their use as decoration was as it were *proof* of the objectionable status of ornamentation in general. Whilst this yielded a very successful 'sound-bite', Loos was himself not really a purist in his own work.
Source: Adrian Forty: *Words and Buildings* (2000).
44 In the Netherlands, functional modernists like Duiker and van der Vlugt, as well as 'expressive' modernists like Staal and Dudok, managed to integrate 'ornamental' features using constructive means and 'industrial' components.
45 From around 2000, new forms of ornamentation began to be introduced, coinciding with the introduction of new materials and techniques, as well as computer-based manufacturing techniques, known as CAM, Computer Aided Manufacturing.
This development led to a playful, experimental educational application at the Delft faculty of Architecture, by Martijn Stellingwerff and myself, entitled: *Ornamatics*. See: the 'Explorations' section.
46 Such 'quotations' frequently tended to be superficial (on the basis of 'hear-say' rather than knowledge) and hence were not always convincing on compositional levels.
Even before the rise of industrialisation (particularly in Great Britain), a lucrative practice of *reproduction* of stylistic components, produced in series and ordered from catalogues, took shape.
In the 'post-modern' era of the twentieth century, creative *misquotation*, for the benefit of 'wit' and (media)impact, was briefly popular.
47 Often such information refers to the time of a building's realisation (such as: 'Anno: 1903'), giving an indication of a building's age and status.
Alternately, the addition of 'contemporary', often *commercial* information, primary intended to catch attention of passers-by, can seriously disturb a building's visual 'persona'.
48 Several books and articles have been written on the relationships between music and architecture. An interesting publication by Elizabeth Martin explores the relations between the two arts, particularly on the level of their *avant-gardes*, whereby she also draws comparisons with designs by Steven Holl.
Elizabeth Martin: *Pamphlet Architecture 16: Architecture as a Translation of Music*, Princeton Architectural Press, New York, 1994,
49 *Synergism*: The working together of two or more attributes to produce an effect that is greater than their individual effects.
Source: *Collins Dictionary and Thesaurus* (1994).
50 It is this 'simultaneous' quality that informs the iterative process, involving the 're-thinking' of previous, partial solutions, on the basis of 'creative doubt', brought on by developing insights, particularly on the level of the interrelationships between 'mutual' parts.
51 Leon Battista Alberti, quoted in: R. Wittkower: *Architectural Principles in the Age of Humanism*, Tiranti, 1952. Pg. 6.
52 Steven Holl, in: *Parallax*, Birkhäuser, Basel, 2000. Pg. 56.
Holl on the issue of compositional of 'enmeshed' perception:
"We must consider space, light, colour, geometry, detail, and material in an intertwining continuum. Though we can disassemble these elements and study them individually during the design process, finally they merge. Ultimately we cannot separate perception into geometries, activities and sensations. Compressed, or sometimes expanded, the interlocking of light, material and detail creates over time a "whole" cinema of merging and enmeshed experience."
Steven Holl: *Intertwining. Selected Projects 1989 – 1995*, Princeton Architectural Press, New York, 1995. Pg.12.
53 Bernard Olsthoorn in: *P.R. Rutherford: Bernard Olshoorn*. In: *Bouw & Kunst*, Pulchri Studio, Den Haag, 1994.
The original Dutch-language text:
"Waarnemen is naast registreren vooral ook creëren. Met behulp van informatie uit de zintuigen construeren we of bouwen we een beeld van de werkelijkheid op en dat is geen passief, maar een actief proces.
Werkelijkheid is dus voor een belangrijk deel een mentale constructie ofwel een interpretatie, waarbij een gevoel voor relativiteit, het besef namelijk dat zaken voortdurend aan verandering onderhevig zijn, mijns inziens onontbeerlijk is."
Translation by the author.
54 Steven Holl, on the development from design idea to perception:
"The expression of the originating idea is a fusion of the subjective and the objective. The conceptual logic that drives a design is linked to its ultimate perception."
In: Steven Holl: *Intertwining*, Princeton Architectural Press, New York, 1995. Pg.15.
55 Elements of the overall design can be considered in *relative* isolation and this is often what the designer or design-team does first of all.
However, there is simultaneously a need to find a fitting measure of that which will be beneficial

to their 'counterparts', as in a natural *(or artistic)* environment.
In a *synthesis*, nothing can be taken out, without disturbing the integral whole, which is considered to be *more* than a 'sum of parts'.
56 This relatively minor observation by Vitruvius became expanded by scholars and practitioners of architecture like Leon Battista Alberti and Andrea Palladio, as well as being reiterated to this day-and-age.
57 This resonates with P.F. Smith's *aesthetic* notion that 'orderliness' might be expected to 'win', but that there needs to be sufficient 'complexity' to make perception a worthwhile 'achievement'.
Peter F. Smith in: *Ethnoscapes 1*, Avebury, Aldershot, 1988. Pg. 208.
58 *Symbiosi*s may be understood as: 'a close association of different elements or groups, for mutual / reciprocal benefit'.
Source: *Collins Dictionary and Thesaurus* (1994).
Japanese Metabolist architect Kisho Kurokawa promoted the notion of Symbiosis in architecture, in: Kisho Kurokawa: *Intercultural Architecture, the Philosophy of Symbiosis*, Academy, London, 1991.
In his book *Rediscovering Japanese Space* (1988) it appears that Kurokawa is primarily concerned with matters of *style*, whereby he foresees a kind of symbiosis between east and west and particularly between *modernism* and *postmodernism*.
Kurokawa, on the oppositions between phenomena in the West:
"In the Western world, change comes about through a dualistic process. Rationalism is opposed to Expressionism, hi tech by high touch, totalitarianism and centralisation are opposed by grass-roots democracy and small government. Corporate architecture stands opposed to studio architecture, and industrial and mass-produced architecture is opposed by craftsmanship and handmade architecture."
He ends positively:
"But if we regard architecture as akin to literature, if, in other words, it is a 'texte', it becomes a place for reading meanings, a pleasurable place to be and act." Kisho Kurokawa: *Rediscovering Japanese Spac*e, Weatherhill, New York & Tokyo, 1988. Pg.103.
59 In Spanish: *'Ambos Mundos'*.
60 The 'every day work of art' is subsequently encountered by those who inhabit it, as well as by regular 'passers-by', often over long periods of time. Such a familiar situation may change very gradually, but sometimes also abruptly.
61 A consideration about the *selective* nature of visual perception, included in an early research-statement.
In: Jack Breen: *Dynamisch Perspectief, MB3 Onderzoeksplan,* Sector Media, Faculty of Architecture, TU Delft, 1994. Pg. 57.
A brief return to my – originally Dutch – text:
"J.J. Gibson wrote as early as 1950 that our perception of the visual world is selective. This is particularly the case when it comes to complex impressions. We do not take in visual information in the same measure. Furthermore, perception is not static. With our eyes, we scan our surroundings, select particular elements and details and construct, in our brains, the 'reality' of which we are a part, whereby our eyes are continually busy verifying this reality and registering changes. Visual impressions are 'constructed' in our brain in complex ways, which cannot as yet be simulated by computers."
Translation by the author.

6. Instruments

6.1 Medium & Method

6.2 Analytical Models

6.1 Medium & Method

6.1.1 The Medium as the Method?

Acquiring insights into the workings of a design requires a targeted search.
This holds for the *creative* process of design, but also for the more *intellectual* process of research.
When trying to investigate the aspects of composition that shape a particular architectural design, our aim is to 'decode' the (hidden) messages to and get 'behind' their experiential impact.
To do this requires making compositional qualities explicit. This can be done via textual descriptions, but most effectively via visual means, creating insightful 'perceptions'.
Such perceptions involve the thematic probing of a design artefact, in a fashion very similar to the actual process of designing itself, making use of the 'media' of design.

Media play an important role in the conveyance of all kinds of information and this is, not surprisingly, also the case in architectural design and research.
A great deal has been written about the influences of different kinds of Media in all walks of life; how our perception of the world surrounding us has become altered by the influx of information technology and how our views are constantly being expanded *and* manipulated.

Perhaps the most lasting, and indeed 'mediagenic', statement concerning the role of different media is still Marshall McLuhan's mantra "The Medium is the Message".[1]
An archetypal sound-bite, simple, eloquent and enigmatic, comparable to Ludwig Mies van der Rohe's "Less is More".
McLuhan would later create a playful variation: *The Medium is the Massage*.[2]

Fascinating though McLuhan's claim might be, it should not perhaps be taken too literally...
Would it not be simplistic, and indeed totally nihilistic, to presume that a medium, intended to *convey* a message, and the message itself are one and the same?
This of course was not the point Mc Luhan intended to make.
Rather, he was pointing at the influence which a (mass) medium may have on our reception and conception of the message and the way the 'packaging' can conceivably become more important than the content.

The choice of a *design medium* – or combination of *media* – is a determining factor in design and research, particularly on the level of the ways in which the object(s) of study may thematically be unravelled and the insights which are thereby gained may be communicated.
Consequently, the choice of design media should be considered to be an essential aspect of the *method* of the (re)search.

By coining the somewhat provocative title, *The Medium is the Method* (and later even: *The Model is the Method*), early on in my studies, I tried to bring into focus the role that such media might be expected to play; particularly if the intention is to develop less *descriptive* and more *explorative*, creatively-evocative 'ways to study'.[3]
In the context of the 'Critical Digital' conference at Harvard, in 2008, an attempt was even made to playfully predict wholly-new, *adaptive* digital applications under the title: *The Medium is the Matter*.[4]

6.1.2 Designerly Visualisation

Both active design and designerly research require the application of *instruments* to analyse, to weigh different options and their effects and to express ideas so that they may be understood by others. Thereby, per case, suitable forms of *notation* need to be found. Besides familiar descriptive means using text, this generally involves the generation of *visual information* concerning (certain aspects of) the design.
In design-based as well as in design-driven studies, imagery tends to be more than an 'added value'. As the saying goes: "one picture is worth a thousand words".

Designing is essentially an act of *composition*: an activity that can be regarded as a form of creative *organisation*, taking place on different levels of the design, often simultaneously, for instance on functional, structural, material and aesthetic levels regarding both the overall concept and specific details as distinguishable 'parts' contributing to the composition as a whole.

Fundamental to creative composition is knowledge and understanding. One needs to acquire cultural and technical knowledge and an understanding of the effects of spatial experience and the perception of visual phenomena.
Architectural and urban plans are not created directly 'in situ', but are conceived, notated and communicated via specialised media such as drawings and models. By learning to 'read' visual information one can develop the ability to translate ideas into form.
In the search for appropriate design solutions a designer needs 'feed-back'; information to respond to, in order to be made aware of relevant *choices*, leading to design *decisions*.[5]

Design composition is a way of getting to the heart of the matter: an iterative process of observation, deduction, articulation and communication.
As has been indicated in the Methods section, this is essentially a process of creative *imaging,* as John Zeissel has indicated.[6]

The imaging process is a way of channelling inspiration; the designer thinking while doing and reacting directly to ideas as they are visualised, reflecting, eliminating and refining and subsequently making decisions and documenting the results.
Images are used to 'capture' ideas. This information can then be shared with others, generating responses to the visualised notions.
As such, imaging is a form of communication with oneself as well as with other partners in a design team, a way of questioning or verifying the merits of intermediate design ideas and developing new options and strategies.

Imaging has also played a crucial role in the Patterns & Variations research.
As a consequence, it seems justified to go into the conditions and opportunities of the instruments of architectural design and research, by going into characteristic aspects such as:

— *Designerly Exploration and Representation;*
— *Drawing and Modelling;*
— *Physical and Digital Modelling;*
— *Thematic Layering and Visualisation;*
— *Imaginative Analysis;*
— *Evaluation and Communication.*

6.1.3 Media Opportunities and Challenges

During my years as a *student* (in the seventies) and as a *practitioner* (in the eighties and nineties) I developed – then state-of-the-art – representation and communication skills.[7]
When, around the beginning of the nineties, I returned to the faculty of Architecture in Delft to join the Form Studies staff, these interests were developed further.
Our group was then part of what was called the 'Media' section, which was closely-involved with the teaching of (freehand) *drawing* and (physical) *model-making*, as well as (video-based) *presentation* and (endoscopy-based) *simulation*. When I assumed responsibility of the Form Studies curriculum and its content, I also became part of the faculty's renewing *research* programme, in which design Media played an important role.

From the outset, the idea of developing visual 'variations' became part of my working methods.
My first steps on the path of Form Studies research involved – comparative – visualisations.
A hand-drawn series of 'alternatives', on the basis of the market-square and historic town-hall of Delft was made to coincide with a one-off, context-based student exercise. A first exercise, closely linked to an educational exercise that I developed at the time, was a comparative overview of visual *manipulations* on the basis of Delft's town hall and market-square.[8]
The arrayed illustrations (which were drawn on the basis of a photographic slide) were included in my first academic papers and have subsequently been used in my first-year lectures to demonstrate the effects of formal variables in urban composition.[9]

Another early visual 'variation', carried out using similar manual drafting techniques, was made on the basis of a photograph of the Wittgenstein house in Vienna.

This designerly variation on the basis of an existing artefact, which was co-designed by philosopher Ludwig Wittgenstein, tried to visually re-create Wittgenstein's ideas about the 'purification' of the house's *facades*, including a neo-classicist alternative and a Le Corbusier-inspired variation. Furthermore, the study resulted in an early *massing* study: a volume-based 'deconstruction' of the house's elementary components.
These designerly studies were inspired by a publication concerning the house's design and realisation, by Paul Wijdeveld (1993).[10]

The illustrations of the Wittgenstein Variations were included in the first thematic overview the Architecture faculty's new research programme: *The Architectural Intervention*, published in the year 2000.[11]
In my contribution, entitled *The medium is the method*, I outlined a number of issues that I considered to be of relevance in the context of the further development of the faculty's research initiatives, as well as my own research ambitions.[12]

A representative section from the original text from 2000:

> *"Although design research is still predominantly descriptive, there is a growing tendency towards more inquisitive approaches: exploring the underlying themes, ambitions and motivations, choices, options and aspects which shape the eventual result. This type of designerly enquiry may involve methods of investigation and representation very similar to the types of procedures and techniques which are common in the activity of designing. Both professional design and designerly forms of research require the application of tools (or instruments) to mediate in the process of idea generation, analysis, decision-making and communication. In the design process, design notions need to be laid down in such a way that they may be understood fully by the individual designer as well as by other members of a design team – and subsequently be conveyed to others. This also holds for designerly forms of research. Unravelling what Steven Holl has dubbed the 'intertwining continuum' of architectural design, will involve active designerly visualisation, utilising media. When we attempt to investigate those compositional aspects which shape an architectural design and determine its impact, our aim should be to 'decode' the (hidden) messages and to get 'behind' what we see. Such research may involve moving through cycles of intellectual activity involving composition, decomposition and re-composition, in other words: analytical design variation."*

In retrospect, this can be read as a kind of 'private manifesto' for the research trajectory that lay ahead.

As the title suggested, I also imagined that existing- and emerging design-visualisation *media* would come to play an important role in such a study.[13]

An excerpt from the same contribution, on the *methodical* potentials of such media:
"As such, the researcher is not only interested in reaching results, but also in the ways in which such results might be obtained in a systematic way. The choice for a specific medium – with its own characteristic modus operandi – or a combination of media – per case and per phase – has a profound effect on the operational- and methodical organisation of a project.
Clearly, design media may not be expected to determine the outcome of a designerly activity, it is after all the designer or researcher who is in charge… However, it should be recognised that the way in which media are selected and made operational is a determining factor for the particular method of working on a project, shaping both the process and the output. To put it as bluntly as McLuhan: The medium is the method… This notion forms the central theme of this discourse as a whole."

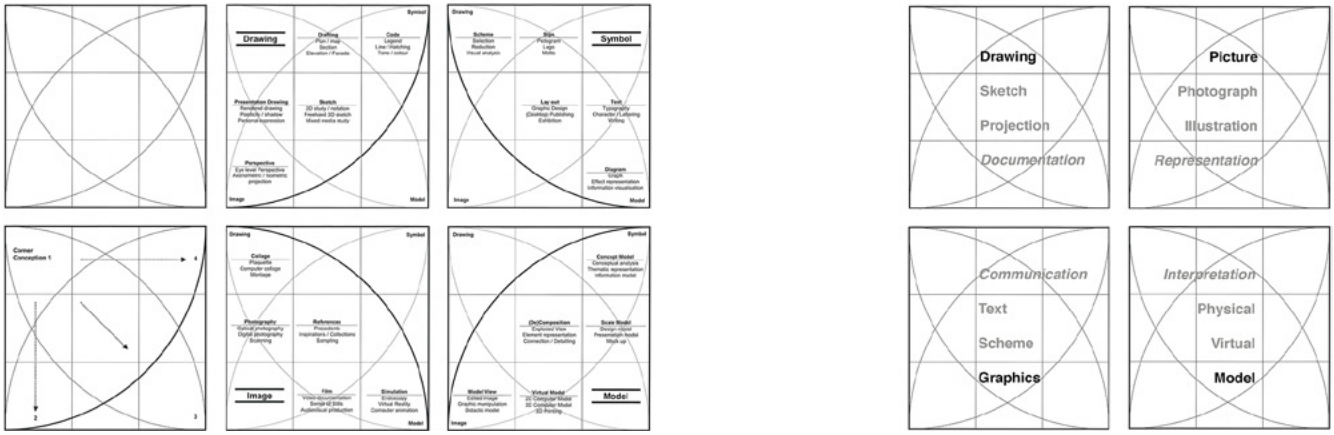
This strategy would give direction to the Patterns & Variations research project, that would evolve gradually, often piece-meal, alongside often more 'pressing' tasks of teaching, coordinating, developing and exhibiting, in the context of Form & Modelling Studies education at the faculty.

6.1.4 Mapping Designerly Media

What actually *are* the kinds of media-applications that might be expected to play an *operational* role in methodical research, carried out by design *experts*?

My first Architectural Intervention article also included an attempt at 'mapping' the potential design-based media in the context of academic research.
The published scheme included *five* core-conceptions: four at its corners (Drawing, CAAD, Model and Image) and one in its centre (Symbol).
The primary- and secondary themes that were identified at the time give an indication of the, then-expected, 'shift' towards *digital* media-applications (by including such items as 'Cad-drawing' and 'Computer-model'), but also included 'analogue' instruments (particularly: Endoscopy), which have by now become redundant.

Other attempts were undertaken to draw-up a more fitting, *inclusive* 'media map'. The results of this exercise resulted in a 'layered' *media-model*, with *four* interrelated levels (Drawing, Symbol, Model, Image), comparable to the floors of a building. This conceptual media-overview was introduced as a 'pilot' in the context of a workshop at the 2003 EAEA conference (in Bratislava) and was published in the Proceedings of the 2004 eCAADe conference, in Copenhagen.[14]



Comparison of the Instruments scheme (2002) and the later adaptation (2018).

Looking back upon such attempts, I would now argue that they may have taken things a bit far, but arguably still have an informative potential, when it comes to identifying *which* particular design-based media are at (inter)play and when.
If I was to draw up such an overview with the knowledge of today, I would be inclined to keep things rather more simple: for instance, by identifying *four* 'essential' media-categories (Drawing, Model, Picture and Graphics) with some sub-themes, to indicate basic *operations* and potential *roles*.[15]

6.1.5 Media Approaches and Combinations

Around the turn of the millennium, 'Multimedia' was a much-coined phrase, the idea being that all of the *available* (as well as the *soon-to-be-available*) design-visualisation *tools* might be expected to, as it were, 'melt together' becoming a kind of *Super-tool*.
This has not proved to be the case, which is arguably a good thing. After all, the kinds of instruments that the design-academic may wish to apply demand different kinds of acquired *skills*. Various media afford the opportunity to work on platforms, with which one is comfortable, for a particular purpose.

An overview of what I would consider to be *essential* visualisation conditions:

Physical Media
The original instruments of design, with which designers of my generation became proficient, had developed gradually over time and have only changed marginally.
They are essentially *haptic* tools, relying heavily on *eye-hand-co-ordination* and the use of dedicated *instruments* like pencils of different hardness, technical ink-drawing pens, erasers, razor-blades and sharp knives, as well as colouring-pencils, felt-pens and paints.
The basic *materials* are tracing-paper in different qualities, cardboard, semi-transparent adhesive foils, as well as pattern-foils and letters. For someone skilled in the use of such 'traditional', haptic techniques they still tend to be very direct and quick in their use, as well as often being highly effective on a communicational level.

Digital Media
From around the mid-eighties onward, computer-based visualisation-platforms started to find their way into architectural *practice* and, subsequently, into *education*.
The early CAD (Computer Aided Drawing) applications were relatively primitive, line-based 2D platforms. 3D output tended to consist of 'wire-frame' renderings (over which one could then sketch) and, often not entirely reliable, 'hidden-line' imagery.
These 'spatial applications then gradually developed into 2,5D, multi-screen platforms and eventually came to include more concise 3D visualisation options.

Whilst the output of such 'drawing+' applications was essentially quite simple, the influx of more sophisticated (but cumbersome) 'Studio' software, making use of a technique called 'texture-mapping', allowed for a level of *realism* (some would argue: *surrealism*). Using *ray-tracing* applications, *light*- and *lighting* effects could be simulated. Computer *animations* were high on the agenda for some time, but such 'filmic' sequences required immense *rendering*-capacity and hence: computer *memory* and *time*.
Such animations often amounted to no more than a speedy *fly-though*, on the basis of a poorly-articulated model.[16]
Parallel to such virtual-modelling applications, *graphic* photo-*editing* and *illustration* formats came onto the market, having a profound impact on the quality of design-presentation *imagery*, particularly in the making of professional posters, portfolios and booklets.
As 'digital' media are essentially *choice-based*, working with them requires the *anticipation* of operational- and systematic issues. Compared to physical media, this tends to make them less flexible and spontaneous to use. A frequently-experienced *drawback* is the lack of *overview*, due to the constraints of the computer-devices on which they need to run and particularly: the *interfaces* these use.

3D Modelling Media
Most of the 3D applications that were originally available had been developed for engineering- or animation purposes, rather than for architecture.
In my experience, these platforms did not really 'resonate' with the working methods of architectural designers.
Things changed quite dramatically with the introduction of a wholly-new, 'low-threshold' and open-source 3D application: *SketchUp*. This application had a resounding impact on the architectural disciplines in the first decade of the millennium, as well as opening up the opportunities for 3D modelling for non-academics.[17]
The working-methods of this ground-breaking program were kept elegantly simple: making use of satisfyingly-logical operations; using a transparent layering-system, as well as giving clear, line- and colour-based image-output. I soon recognised that *this* was the platform that the systematic visualisation-study I envisioned had been waiting for.
After an explorative case-study – the House-in-Black (HiB) Variations – had been successfully carried out, the application became the *essential* instrument of the AA Variations study.
Such 'Sketch' applications have their limitations. For complex geometries, programmes such as Rhino are arguably more suitable and for building-information modelling one now has to resort to BIM-platforms. However, for *early-design* phases and for visualisation-based *research*, their introduction has nonetheless meant a lasting breakthrough, which has not missed its effect on the AA Variations project's *methodology*.

Combined Media

As has been mentioned, true *multimedia* tools have not become the norm and hence *combining media* has increasingly become the modus operandi in architectural praxis, and as a consequence: education.

The 'old' media have *not* disappeared, as was predicted by many. Indeed, in recent years, 'old-school' skills, like freehand *sketching* and physical *modelling* – often in conjunction with *digital* illustration-platforms, have been rediscovered and given a new lease-of-life.

This has particularly been the case when it comes to physical modelling. Whereas the 'building' of 'tangible' scale models tended to traditionally be a time-consuming activity, with a high level of craftsmanship, the introduction of digital modelling techniques, notably: laser-cutting, 3D printing and computer-driven milling, have led to a renaissance of the 'traditional' spatial model.

Again, it is not a matter that the computer has replaced the traditional hand-work, but has introduced a new level of precision, when it comes to the generation of components and the exactness of their montage in the final object.

This new freedom has given rise to new kinds of 'didactic', analytical modelling. Similarly, renderings generated on the basis of 3D models, photographs, schemes and diagrams afford opportunities for post-production of graphic articulation, using various kinds of editing- and layout software.

It is safe to say that the *palette* of the creative *designer* (and indeed: the design *scholar*) have not been narrowed-down to a few digital-imaging techniques or to one mega-technique, but rather: *enhanced*, now embracing a wide *variety* of opportunities.

This means that in many cases creative visualisation involves *interactive* procedures, sometimes using just one medium, but more frequently involving the use of *different* media attributes and -procedures: in *combination*.

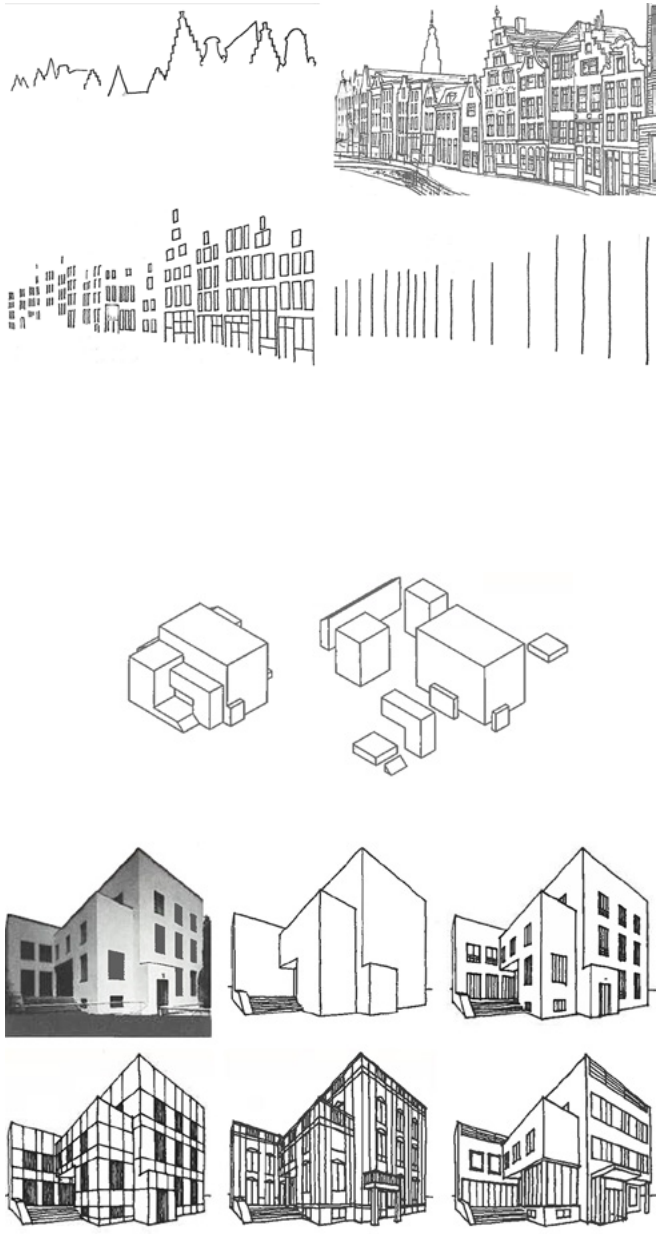
This has clearly been the case in the AA Variations project.

The central aim of the Patterns & Variations study has not only been the furthering of compositional knowledge and insights, but also the evolvement, testing and refinement of visual *instruments* for *creative* research.

The development of such applications has largely been carried out in educational exercises, such as the Minor House of the Future (MHotF) Modelling Studies exercise and the Analytical Models course mentioned earlier, but also on the basis of particular case-based studies.

An essential component of the initiative has been the development and utilisation of compositional 'variations' intended to identify the formal themes which are at interplay and to demonstrate their workings.

These visual analysis-methods were made instrumental and fine-tuned most notably on the basis of the ten case-study projects, which are visually juxtaposed and objectively compared in the AA Variations project study.



Top: Amsterdam analysis by P.F. Smith. Bottom: Wittgenstein Variations (2000).

6.2 Analytical Models

6.2.1 Models in Design and Research

Designing is a specialized, unpredictable development process which is to a large extent visually generative and reflective and, as such, predominantly *pre-linguistic*.
By *projecting* ideas, into visually 'readable' information (drawings, models, schemes, texts), these may be shared, communicated, evaluated and developed further, through the active utilisation of design *media*.
Such media deserve not only to be considered as 'tools' of designerly enquiry, but as an intrinsic part of the *method.*[18]

Whilst in the past the architectural Drawing tended to be considered as the characteristic medium of design and designerly analysis, the Model has arguably become the more prominent, central medium. This dynamic tendency has particularly been due to the influx and steady development of *digital* modelling platforms.
On the basis of such virtual models, a wide variety of 'output' may be generated, including: drawings, renderings, digital models and physical models.
Due to the unique layer-based characteristics of such modelling-techniques, different *aspects* of a design can be highlighted (or hidden) so that a variety of – distinctive but comparable – impressions can be generated and methodically compared.
This has proved to be an invaluable asset of *analytical* modelling, particularly in the context of composition research.

A brief overview of some 'model' modelling-approaches, in the context of the designerly study of architectural composition and perception:

The Mental Model:
Architects and urban designers talk and write extensively about their plans, but this all too frequently amounts to 'putting into words' what has been conceived – and visualised – beforehand.
In this context, besides textual means, imaging methods and -techniques have become an indispensable feature of the 'language' of design.
The most *direct* design medium is undoubtedly the (free hand) *drawing*. Active drawing is an efficient way of 'capturing' aspects of the transient and elusive *mental model* of the design concept.
Essentially, such design-driven delineation activities involve the *transformation* of an imagined spatial composition – or 'mental model' – into a two-dimensional graphic format.
In the process of doing this, it frequently becomes clear that the designer's mental construction is not 'fixed', but pliable and open to changes in interpretation and explorative variation.
By a process of drawing and redrawing, often by tracing over the previous proposal using transparent paper, the designer can try out alternative options, steadily but purposefully reconfiguring the mental model of the project at hand.

The Schematic Model:
In design it can be fruitful to 'isolate' particular planning features, or combinations thereof, in a schematic way, whereby a level of *reduction* is introduced to render particular issues of study redundant for the moment and make others explicit.
Apart from using models that, at least to a certain extent, represent or mimic the *architectural* qualities of design, there is a marked tendency amongst professionals to make use of *symbolic* representations, such as schemes and diagrams. These may be used to denote and access a variety of interrelated data.
Increasingly, with the use of computerised platforms, such symbolic 'data' models can be generated and represented three-dimensionally, manipulated interactively and considered from different viewpoints or conceptual levels.
By introducing 'codes' – colours, patterns or symbols – particular issues of study and their relationships may be made explicit and/or visually emphasised.
Such schematisation involves the conscious *reduction* of information, for the benefit of conceptual clarity and visual effect. An example of such an approach can be found in the emblematic cartoon-like drawings, in the work of Willem Jan Neutelings in his early years at OMA, as well as logo-like schemes and conceptual sketch-models in his later work with Michiel Riedijk.[19]

The Decomposition Model:
As it is impossible for a designer to constantly address a design project as a whole, considering all of its facets with equal attention, there is a tendency to 'decompose' the design, whereby particular constituting parts are specified and fine-tuned relative to each other.
The project is as it where 'taken apart' (and subsequently re-assembled), so that items of importance can be isolated, scrutinised and developed further in detail.
The designer or researcher is thereby able to focus on specific *parts* of the composition and on *combinations* of parts in relation to the concept as a *whole*.
In this way it becomes possible to recognise levels of priority and the room for variation.
The kind of virtual 'deconstruction' which designers practice can be used most effectively in education as well as research by making such decomposition a part of the method of enquiry.
Thereby, a particularly rewarding approach is the so-called 'exploded' model or the partly-decomposed model, simultaneously giving insights into the workings of a project's exterior- and interior organisation.

The Tangible Model:
A particular strength of design modelling is that it offers unique potentials for *spatial* interaction with the subject matter, whether this is achieved using tangible, hand-made scale models or virtual constructions.
Creating a model is in many ways comparable to a *building* process, albeit on a reduced level. Characteristically, choices have to be made concerning the levels of reduction, scale and operational aspects of the model.
In this respect, *physical* modelling confronts its maker acutely with the consequences of structure, repetition and the montage-sequence of elements. By contrast, virtual modelling tends to involve a somewhat more detached approach, whereby digital components are sometimes inclined to 'morph' before one's eyes indiscriminately.
The introduction and increased availability of computer-aided modelling and manufacturing techniques has made it possible to generate *tactile* scale-models, on the basis of virtual models, created scale 1 to 1, in the computer.

The Representational Model:
An important 'added benefit' of models, when considered as a category of design media, is that, besides being experienced directly *as* a model, it has increasingly become possible to draw qualitatively high-standing *images* from them.
Such model-generated images can consequentially be manipulated and enhanced using various *multimedia* techniques.
The results can be distributed to other actors in de design development process or to the public at large, through different communication media.
The availability of new digital modelling and –editing techniques has in recent years led to the emergence of what may almost be considered as a separate profession: the representational *renderer*. The seductive imagery which is generated for the sake of presentation brings with it the danger of manipulation, via highly convincing 'fake realities'.
Due to the steady improvement of modelling techniques, professional photographic equipment and studio lighting, as well as digital editing and photo-montage techniques, it is sometimes difficult to tell whether a published image has been taken from a realised project, or has been created by using either a physical or a virtual model.[20]

The Aesthetic Model:
A good model is a thing of beauty…
As in design culture, it is possible to recognise cycles of convention and invention in model making. This means that particular techniques, which are characteristic of the *craft* of modelling in a particular era, may be identified more or less spontaneously.
The introduction of new materials and techniques tends to generate a new 'wave' of invention, whereby successful applications will subsequently become adopted and implemented as the new state of the art: the *latest* convention.
Issues of tidiness, order and precision undoubtedly also play an important role in a model's aesthetic and communicative success.[21]
Creating a model means taking clear decisions beforehand, concerning what is – or is not – to be demonstrated, what should be explicit or even exaggerated or alternately only be hinted at or left out altogether.
The way in which a model is perceived as having been conceived and constructed intelligently and respectfully contributes considerably to its aesthetic appeal and didactic success.

Studying a design proposal in a 'model' context – either physically or virtually – can be done under relatively controlled, experimental conditions, allowing for systematic variations and objective comparisons of effects in relation to desirability.
Hence, models can be particularly effective when studying technological or environmental aspects.
Typical examples of professional model-based simulation platforms are lighting models, acoustic and climatic models and even models to test and demonstrate the effectiveness of load-bearing structures.
A particular class of this category of testing-models is the real-size component: a 'mock-up', potentially even a complete working prototype.

In architectural research, based on historic precedents and artefacts, modelling activity can be made instrumental towards creating a better *understanding* of a design's spatial organisation, structure and formal composition.
Modelling initiatives of this sort can be particularly rewarding when used as a *pedagogical* instrument in design-driven education.
One such application involves the *interpretation* – via model reconstruction – of iconic design artefacts, which may have not been built, demolished, or through time become altered to such an extent that the original qualities have been lost.

Creating a model is a way of focusing one's mental capacities by *doing*, by an active process of making, *from* the imagination.
The artefacts of modelling activity – be they conceptual or representational, virtual or physical – clearly possess the capacity to lastingly *speak to* the imagination.
In this context, various types of models can play a meaningful role, on different levels of design driven enquiry and thematic, conceptual representation.

6.2.2 The AA Variations Project: Round 1

One of the primary aims of the AA Variations study was the exploration and innovation of *envisioning*-instruments that might be of benefit for the *thematic* interpretation of architectural artefacts.
The 'core' of the research project consisted of a series of uniquely-different, but comparable, case-study projects, which gradually developed into the study 'collection'.
The definitive assortment consists of ten realised buildings, spanning a period of roughly one-and-a-half centuries, the first project: a traditional, vernacular farmhouse structure from the 19th century, the last: a rationally neo-modern dwelling from 2012).

These projects may to a certain extent be considered to be representative of significant *paradigm shifts*, aesthetic- as well as instrumental, within the steadily changing architectural 'landscape' of the Netherlands in the twentieth century.
Each of the ten realised projects was analysed in depth, whereby particular attention was given to thematically *identifying* and methodically *documenting* specific compositional attributes.
As a consequence, a central issue of the study became the evolvement and implementation of designerly *instruments* for the benefit of imaginative analysis.

Various visualisation-media were considered and applied, including: original drawings and documents, plans and elevations, perspective- and axonometric views, (original and contemporary) photographs, analytical sketches and (physical and digital) models.
The original building-data was used to gather meaningful insights concerning the development of the particular projects and the professional visualisation-tools which were used in their time.
In some cases, planning-phase drawings were rudimentary, showing distinct differences between the initial drawings and the realised, architectural object.
In other instances, definitive designs had been worked-out down to the smallest details.
Alternative design sketches, discovered in archives, on occasion shed a light on the *underlying* design considerations and the decision-making processes of the individual architects, working on a variety of scales.

With the influx of computer-aided drawing-techniques and eventually the implementation of integral, building-information modelling-systems, planning documents have become steadily less ambiguous, but arguably also display less 'character' on the level of visual communication.
In order to methodically and *imaginatively* interpret the selected case-study projects, various visualisation-methods were considered, tested, developed and fine-tuned.
In the initial phases, different computer-aided modelling platforms were tried out, in order to explore the compositional attributes of the test-projects. Most of the original modelling software that was tried out – including applications like AutoCad, Architrion and 3D Studio Max – were not able to 'deliver' on the desired levels of interactivity and the clarity of visual output.
The kind of imagery that I envisaged should have the visual qualities of the 'clear line' drawings of Hergé and his counterparts.[22]

It was only when the SketchUp software became available that it became possible to evolve the envisioned concise, layer-based 3D modelling approach, which was subsequently used to thematically analyse each project on twelve compositional 'patterns' levels.

On the basis of an integral project-model, a variety of images could be created, including axonometric projections, perspectives, exploded views, sectional sequences and combinations thereof.
From then on, Bram van Borselen became my assistant and sparring-partner. He has, whenever possible, continued to contribute on the level of 3D modelling as technical- and compositional analysis.

Initially, the 3D models which were constructed (of four of the AA projects) were still in black-and white. A first presentation of results – at the 2009 DCA conference in Marietta, Georgia – led to the introduction of colour and experiments with sectional cutting.

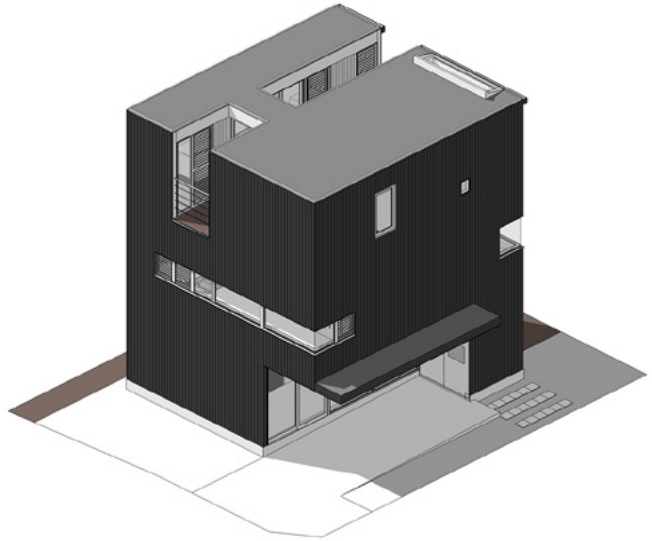
Other visualisation-approaches were made instrumental in the course of the explorative study.
These included traditional sketching and drafting, digital photo-editing, graphic reduction and deconstruction, as well as visual collaging.
The images that were generated in these ways were used to identify particular features and to indicate *alternative* versions of the projects, as 'variations'.

Eventually, a 'time-out' from the AA Variations projects was taken, which resulted in the development of consistent visualisation principles and -standards for the project.
The 'laboratory' for this instrumental 'benchmarking' was the project-study that came to be known as the 'House in Black Variations'.

6.2.3 The House in Black Variations Project

The House in Black ('HiB') Variations experiment proved to be an essential step in the development of the model-based instrumentation that would be put to full use in the AA Variations case-study initiative.

The project which formed the basis of this study was designed and built by the Japanese architect Manabu Chiba, realised in 2001, in a residential neighbourhood of Tokyo.
The trigger for the initiative was a beautifully-executed physical model, built by Saynzo Osinga, in the context of a BSc Modelling Study elective, on the basis of an article in Japan Architect.[23]





House in Black Variations: Axonometric and perspective views of the 3D Model.

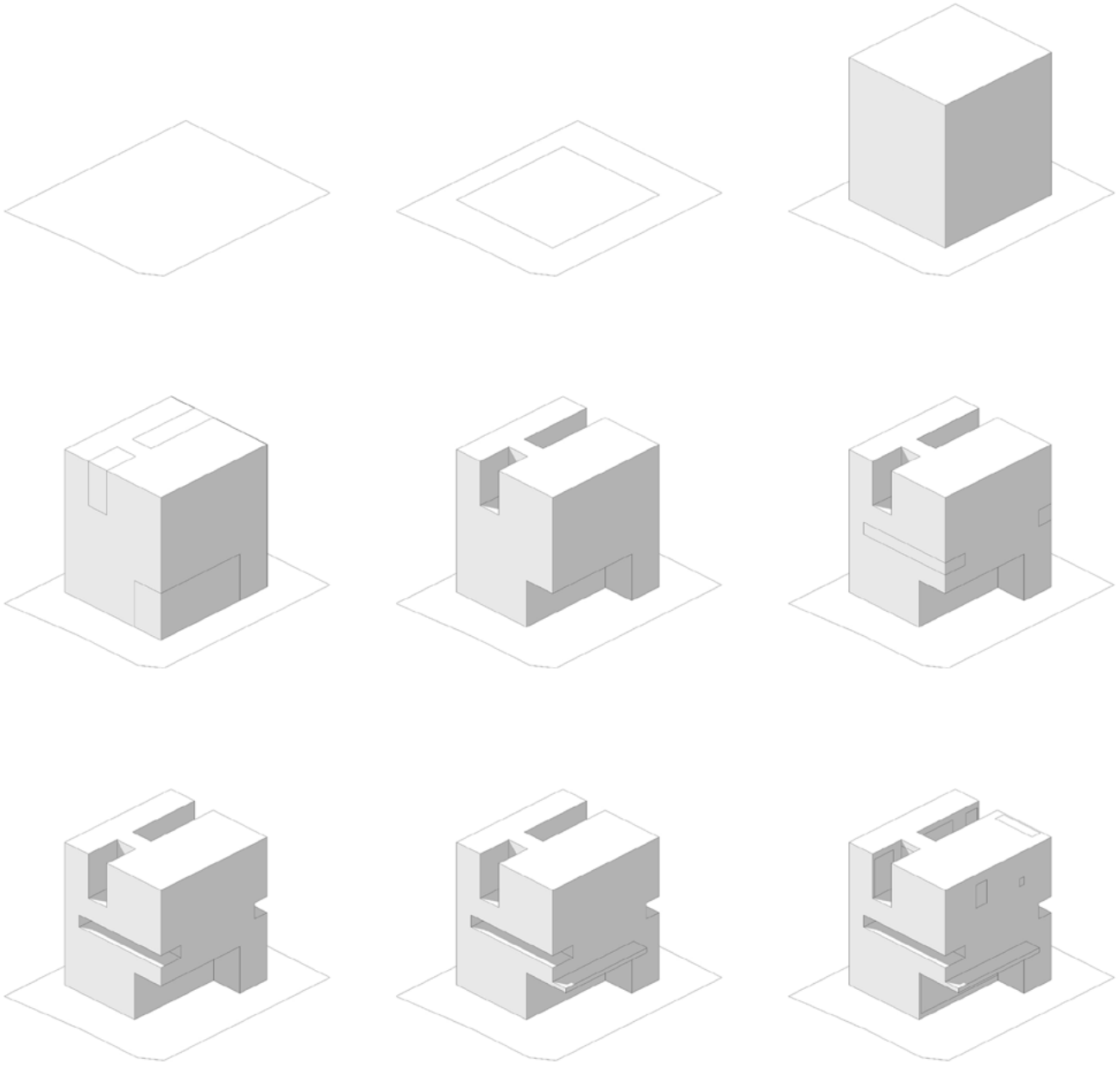
Excepts from the 2001 Japan Architect article:

"The site is in front of a large river on the outskirts of an up-market residential district in Tokyo. Across the street to the north there is a small stream, and houses run along a gentle slope rising beyond. There are pockets of greenery in the surroundings and the existing trees on the site have also been retained. This is a relatively quiet residential area with mostly two-story houses. This is a residence for a young couple. The first floor has music studios and parking, the second floor has a living room, kitchen and other spaces, and the third floor has a bedroom, a bathroom and a roof terrace. The dense intermeshing of mass and void in this building is a response to the surrounding environment. In other words, it clearly expresses the density of the area and creates a relationship which works with that density.
Because the building is of a small scale, the hierarchy of the horizontal and vertical directions becomes ambiguous, that is, the plan and section were essentially considered equally and without discrimination between them. The resulting space expresses this concept, and there is not much difference between the vertical and horizontal relationships of the rooms.
The interior was arranged in such a way as to avoid any special hierarchy following from the composition of scale and functions. Openings and voids in various places connect places unexpectedly. As a result, not only the sizes of the rooms, but also the relationships between them are made more complex, and there is a fluid relationship with no sense of termination at any distinct point."

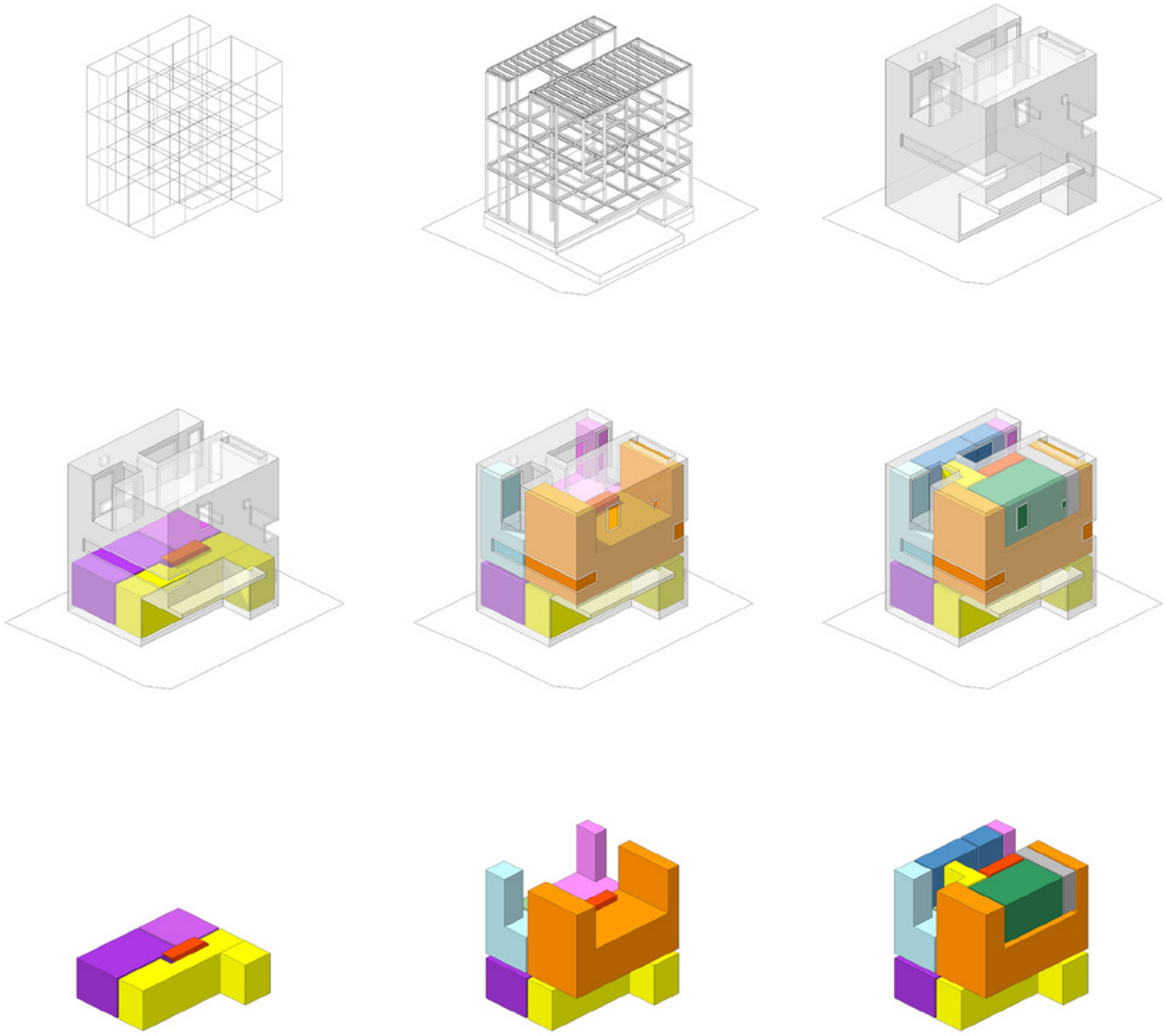
The house has acquired some critical recognition, and has been featured in contemporary Japanese architecture publications, including a retrospective of the work of Manabu Chiba, as well as in *The Architectural Review*.[24]
Finding the house on the basis of the satellite views of the vast city of Tokyo was like looking for a needle in a haystack, but eventually proved to be possible on the basis of the characteristic H-shape of its roof.
The project proved to be a very useful study-object, due to its compactness combined with its spatial, sculptural, functional, experiential and structural complexity.
The House in Black project-based study stimulated the development of more refined 3D model-based applications; setting new standards for the following rounds of thematic model-based representation in the AA Variations study.

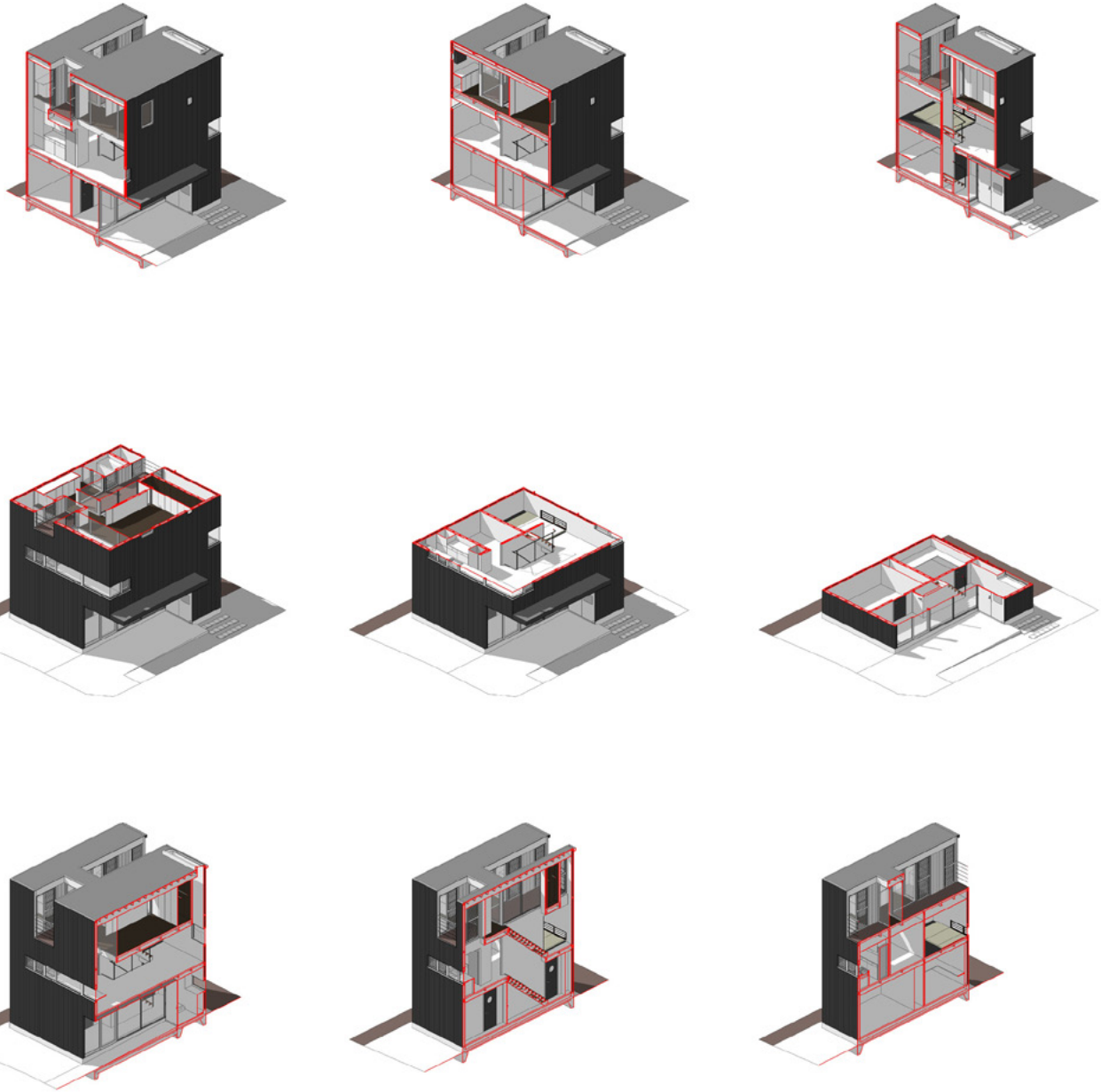
A brief overview of some of the most noteworthy 'inventions' of the HiB Variations Study:

Interactive, Layer-based 3D Modelling:
The most essential instrumental refinement that was developed in the course of this project is the use of interactive visualisation-layers on the basis of a transparent, thematic 'library'.
This set-up meant that different types of components could be modelled and articulated as components in their own layers, relative to other thematic attributes.



House in Black Variations: step-by step massing and plasticity analyses.





House in Black Variations: different sectional ‘cut-away’ interior explorations.

In this project, the interactive layering-system was still generated more-or-less spontaneously, whereby different attributes of design were organised on the basis of project-specific themes, rather than on a more general, conceptual framework.
In the subsequent rounds of the AA Variations study, the system became gradually more attuned to the thematic structure, which was simultaneously being developed.

Thematic Model-based Deconstruction:
The 'storage' of different types of building-information, in their own layers, meant that different kinds of project-views could be generated, by turning specific layers on and off.
In such a way, the project model as an integral entity could be de-constructed in a variety of ways, particularly on the level of the building's elementary geometry and the build-up of the facades and their components. The geometrical, 'massing' variants were essentially developed as a step-by-step series of volumetric solids, from simple to more sculpturally complex. These could then be put in sequence. The modelling-based facade representations were more directly linked to the complex model as a whole. Thereby, elements like the load-bearing, steel structure, window-sections and cladding could be shown in their own right, as well as in different combinations.

Function-based Visual Ordering:
The HiB project was a testing-ground for the identification of the functional aspects that inform the overall spatial- and material composition. Two elementary approaches were tried out, whereby the use of colour as a functional coding-device was a central element. Thereby, various colour-combinations were tried. Eventually a 'palette' was determined which was also used in the Tugendhat Variations project. For the AA Variations study, a somewhat more subdued colour-collection was eventually settled on as a 'legend' for the comparative visualisation of the ten projects.
In the one approach, the functional domains were applied as 'fields, on the floors of the plans of the building's three storeys. In the other, the functions of the different rooms were identified as seemingly-solid, coloured blocks.
This visual method proved to be most informative to clarify the surprisingly complex spatial organisation of this house.

Transparency and Semi-transparency:
Aspects like the aforementioned functional composition-levels could be shown in different ways, depending on whether the surrounding elements were visualised as being opaque, semi-transparent or fully transparent (using 'wire-frame' lines to show the overall contours).
In this way, the functional set-up could for instance be visualised on its own or in combination with other compositional elements, like the steel structure.
The option for semi-transparency was intriguing, as it allowed for the successive showing (at least to a certain extent) of elements further back in the model, together with those at the front. This system-feature was tested for the depiction of window-frames, being used in what would become the Opening layers in the AA study's Patterns sections. Semi-transparency was subsequently developed further in the context of the AA study's Interior layers.

Section-based Viewing Series:
One of the standard appliances of SketchUp 3D-modelling software is the sectional 'cutting' tool. Like the cutting-principle that is at the basis of a standard, 2D section-drawing, this allows for the modeller to virtually slice through the model in different directions. Viewing the model in perspective- or axonometric modes allows for a visual impression combining exterior- and interior views. This is particularly rewarding in the context of education. Showing such sectional variations of the HiB project in lectures to first-year students, most of them 'absolute beginners' when it came to 3D modelling, demonstrated not only the potentials of the computer-program, but also the spatial aspects which may simultaneously be at work in a design.
The section-tools were also used in the AA Variations visualisations, notably in the Ensemble sections, whereby the application would be taken a step further.

Perspective and Axonometric Views:
Using 3D-modelling software means that the project 'exists' virtually, scale 1 : 1, in three dimensions and that the object of study can be viewed dynamically from a variety of viewpoints and in different visual modes.
The most common views tend to be in perspective from an aerial viewpoint, but different observation-points and angles-of-view can be chosen and saved as viewing-standards. This is particularly handy when a series of comparable visual impressions is being generated, on the basis of a particular project or, as in the case of the AA Variations, taking in different projects.
When creating the first series of comparative 3D views on the basis of the HiB project it became obvious that the juxtaposition of images generated in full-perspective view tend to create visual 'noise' due to the restlessness of the, in reality vertical lines which are skewed in perspective.
It became clear that for the purpose of systematic comparison it was better to opt for – visually more 'objective' – axonometric views.
This became the visualisation-standard for the Patterns sections of the AA Variations study.

As an added benefit, the image-series which was created on the basis of the House in Black study has been used by me in recent years, in the context of my first year lecture series, to accompany the second OV1 – massing-study in combination with differences in tone – as well as in a hand-out to explain the operational functionality of SketchUp.

6.2.4 The AA Variations Project: Round 2

The AA Variations project as a whole has been a major development-study for the evolvement and application of a wide variety of visualisation-approaches.

Intermediate results and findings from the AA project have, through the years, been presented at a number of conference-platforms dedicated to the exchange of knowledge and experience in the fields of architectural representation, notably the DCA (Design Communication Association, USA) and the EAEA (European Architectural Envisioning Association).

The first overview of results was presented at the 2009 DCA conference (in Atlanta, Georgia) and subsequently an updated- and extended version was presented at the 2009 EAEA conference (in Cottbus, Germany).[25]
Particular results were at times included in other such conference-presentations, notably at the 2015 EAEA conference (in Lodz, Poland).[26]

The AA Variations initiative has turned out to not only be a project that tried to recognise and elucidate relevant compositional themes and their manifestation in specific, case-study projects. Building upon the experience gathered in the HiB Variations expertiment, the project has also become a testing-ground for suitable *means* of visualisation, whereby different media applications were tried out and applied, often in *combination*.

Some 3D modelling applications that were developed specifically for the AA Variations study:

Semi-transparent Envelope Modelling:
One of the unexpected benefits of the available 'semi-transparency' settings became an essential part of the visual method of the AA Variations' Patterns sections.
On the basis of the HiB experiments with function-based visual modelling, the interior spaces of the ten houses were modelled separately as 'room-volumes, with function colours. This already gave a very telling impression of the functional arrangement. If a translucent 'envelope', representing the buildings outer layer, with essential openings for the windows-sections was placed over this, it became poignantly clear which categories of rooms 'looked out' in which directions.
This effect was dramatically – and informatively – enhanced when the outer envelope was rendered in a semi-transparent mode, whereby the functional colours could still be recognised (through the 'walls and roofs'). The added-value of the distinction between semi-transparent hues and full-colour in the openings, gave a simultaneous impression of room situation and -orientation towards the surroundings.
This approach has been structurally applied in the 'Function' and 'Interior' domains of the 'Patterns' sections.

High Definition Detail Modelling:
An essential thematic domain that was identified in the study was *Feature*, including the subcategories of *Detail*, *Ornament* and *Ensemble*. For visual analyses on the level of Detail and Ornament, a method was developed using cut-out sections from the 3D model. These were then juxtaposed within an overall outline-configuration. On the basis of one particular project – the de Klerk house (AA04) – this approach was taken a step further.
Alongside the detail-sections, which were based *directly* on the existing, integral SketchUp model, a *separate* model was constructed of the essential details in their own right, in a much higher visual 'resolution'.
Compared to the, relatively abstract, *Critical Details*, these *Tangible Details* managed to fully convey the articulation of material components like windows, roof-tiles and bricks.
Whilst the experiment yielded evocative and insightful results, the procedure was considered a 'step too far' for the other nine case-study projects.[27]
This approach is discussed in the 'Visualisation' section of project AA04.

Sectional Model Combinations:
As has been mentioned, one of the opportunities of the 3D modelling SketchUp software was the opportunity to 'cut' though the model, creating section-views on the basis of a chosen plane in one of the three model-dimensions. This application was pioneered in the explorative HiB Variations study and developed further in the context of the AA Variations study. Perhaps the most appealing application of this opportunity was developed for the *final* Patterns image per project: for the *Ensemble* layer. Thereby the idea was to visually 'extract' a corner-section of the model as a whole, so that the viewer might be offered an image that would afford *simultaneous* views of the projects *exterior* as well as its *interior*.
To make this possible, it proved necessary to create two *separate* model-sections and then *combine* the two into one *composite* model-visualisation.
After experiments on the basis of the Engel project (AA10) had proved successful, this approach was used to model the 'Ensemble' images for all of the AA projects.

Model-generated Illustrations:
As the AA Variations project progressed, so the modes of visualisation of the twelve different 'Patterns' diversified.
In some cases, the type of view which was generated for a Patterns 'layer' corresponded almost directly with the rendered image, as it was generated using SketchUp, but increasingly, the model-images became hybrids of different techniques, such as the combine sections discussed earlier.
Particularly for the 'Object' and 'Structure' images, which were fine-tuned relatively late in the visualisation process, reductions on the level of shading were applied for the sake of visual clarity and coding-devices, making use of coloured and dashed lines were added in later, by making use of Illustrator software.

In order to bring the twelve different views per project visually 'up to par' as much as possible, the choice was made to add thicker, outer contour-lines for the sake of recognisability as a relatively small, printed image.

While 3D-modelling was arguably a break-through method for the AA Variations study as a whole, it was not the only technique which was used.
In some cases, explorative physical study-models were made by students (in the context of a BSc elective course) and early experiments were carried out with computer-generated 3D printing.
In addition, various graphic means, such as schematic representations, were developed.
Other experiments were carried out on the basis of (digital) photographs of models, or on the basis of pictures taken from the actual buildings.
Last, but not least, 'old fashioned' sketching, using pencils and crayons as well as coloured fine-liners, was often a quick and evocative way 'to get behind' certain aspects of the project that were under consideration; often being used as try-outs for subsequent steps of 3D-modelling.

Some other exploration-approaches which were considered and applied:

Comparative Tracing:
Early-on in the study, a more-or-less spontaneous variation-exercise was carried out on the basis of the project by architect Visser (AA02). In this case, a simple printed *photograph* was *traced-over* by hand, using a fine-liner pen. In a series of free-style drawings, various 'options' were explored, by creating fundamental variants on the basis of the given artefact.
The drawings included variations on the level of: basic geometry; roof-forms; surface patterns and textural articulations.
The impact of such an exercise is at its greatest when the images that have been generated are *juxtaposed* in such a way that differences (and similarities) can be visually *compared*.[28]

Thematic Sketching:
By drawing over 2D drawings (such as plans and particularly: elevations) as well as photo-images on tracing-paper, it was often possible to get an impression of the structuring elements, underpinning the overall composition of a particular project.
Using pencils and pens of different thickness, one could try to identify the 'hidden lines', particularly on the level of building modules, rhythm, recurring sizes and proportions, primary and secondary sub-divisions as well as directions: vertical, horizontal and diagonal.
In some case, such drawings were then worked out further as digital illustrations (using Illustrator or Photoshop software). In some cases, they just proved to be useful for the sake of understanding and hence were not developed further.
Particularly the highly-complex de Klerk project (AA04) was a stimulating study-subject for such free-hand, graphic explorations.

Translational Drawings:
When the decision was taken to include a historic, nineteenth-century artefact (AA01) as the starting-project of the series, it appeared that there were no reliable – scale – drawings that could be used as the basis for a 3D computer-model.
Using a rudimentary plan and *photographs*, that had been taken on location, a set of pencil-drawings was then constructed on the basis of the available data. These were then scanned and imported into the 3D *digital* format and translated into an integral SketchUp model.
When historic drawings were discovered, concerning the state of such farmhouses at the beginning of the 1800's, another set of front facade drawings was made – incorporating traditional 'cross' windows – to give an indication of what the building might *originally* have looked like.[29]

Photo-edited Collections:
In 2005 a selection of the AA Variations projects was introduced to the students following an elective BSc model-making course. For the first time, emerging computer-driven manufacturing-instruments – 2D laser cutting and 3D printing – could be used in the course. A team of two students analysed and physically-modelled the market-gardener's house designed by Duiker & Bijvoet (AA05). Photographs of the model they made (and one of an earlier structure-model) scale 1 : 50 were subsequently used to create a series of variations, using photo-editing software. These showed different *interpretations* and *transfigurations* of the house, from one viewpoint. An overview of *fifteen* different images was made, which was presented at the 2006 eCAADe conference (in Volos, Greece).[30]
This comparative overview has now been expanded, to include a total of *twenty* images, and is discussed in the 'Visualisation' section of project AA05.[31]

The developments on the level of Conception and Perception are brought together in the documentation of the ten projects, together making up the integral AA Variations case-study.
Particularly in the 'Patterns' sections, a concerted attempt has been made to present the projects as objectively and systematically.

The projects are all shown on the same scale and using similar coding formats.
For the comparative plan-sections in the 'Introduction' section and in the 'Function' and 'Interior' analyses in the category 'Space', the same functional colour-codes are used for each of the ten projects, to facilitate comparison.
The colour-code legend is included in the introduction to the ten AA Variations project-files, at the end of the 'Casus Aalsmeer' section..

1 Marshall McLuhan: *Understanding Media: The extensions of man*, McGraw-Hill, New York, 1964.
2 McLuhan favoured a provocative approach and was not averse to the occasional pun, as is illustrated by the title of a later book: Marshall McLuhan with Quintin Fiore and Jerome Angel: *The Medium is the Massage*, Bantham, New York, 1967.
3 Jack Breen: *The Medium is the Method, Media approaches to the designerly enquiry of architectural compositions*. In: *Architectural Design and Research: Composition, Education, Analysis*, C. Steenbergen et al (ed.), THOTH publishing, Bussum, The Netherlands, 2000. Pg. 56.
4 Jack Breen and Julian Breen: *The Medium is the Matter, Critical Observations and Strategic Perspectives at Half-Time*. In: Kostas Terzidis (ed.): *What Matter(s)? First International Conference on Critical Digital*, Harvard University Graduate School of Design, Cambridge, Massachusetts, 2008. Pg. 129.
5 J. Breen, *The Concept of Choice in Learning and Teaching Composition*. In: Proceedings ACSA 1995 European Conference, Lisbon, published by ACSA, Washington DC, 1995.
6 J. Zeisel: *Inquiry by Design: Tools for Environment – Behaviour Research*, Cambridge University Press, 1984. See also: the 'Methods' section.
7 The visualisation-skills which had been developed through the years of study – including sketching, technical drafting, perspective-drawing and various kinds of representational techniques (including aquarelle painting), conceptual- and scale modelling, as well as graphic applications (including silk-screening and photography) – all came together in a final diploma-design for an Integral Music Centre (1980). Subsequently, five years of liaison- and representation activity in the context of a large-scale Ministry-complex, three years as an associate-designer in an architectural office and two years in private practice (Breen&Breen) led to the furthering of representation-techniques, including early computer-visualisation experiments.
8 This variations-overview was published, as a 'grid' of 16 comparable images, in the Architecture Faculty's retrospective *The Architecture Annual 1995-1996*, published 1996 by 010 Publishers, Rotterdam.
My contribution: *Concepts of Choice in Design Composition and Visualization*. Pg. 146.
9 The series of Delft Variations was also used on the cover of the first research programme of the Media section, with the theme 'Dynamic Perspective'.
10 Paul Wijdeveld: *Ludwig Wittgenstein, Architect*, Thames & Hudson, London, 1993.
11 The Architectural Intervention overview: Clemens Steenbergen, Arie Graafland, Henk Mihl, Wouter Reh, Deborah Hauptman, Ferry Aerts (eds.): *Architectural Design and Research: Composition, Education,* Analysis THOTH Publishers, Hilversum, 2000.
12 Jack Breen: *The Medium is the Method, Media approaches to the designerly enquiry of architectural compositions*, 2000. Pg. 56.
13 Excepts taken from the above article, pgs. 59 and 61.
14 The EAEA 2003 article:
Jack Breen: *Towards a Virtual Design Media Museum? The 2003 EAEA Workshop Initiative Reviewed*. In: Peter Kardos and Andrea Urland (eds.), *Spatial Simulation and Evaluation, New tools in architectural and urban design*, Proceedings of the 6th Conference of the European Architectural Endoscopy Association, Faculty of Architecture, Slovak University of Technology, Bratislava, 2004. Pg. 122.
The eCAADe 2004 article: Jack Breen: *Changing Roles for (Multi)Media Tools in Design, Assessing Developments and Applications of (Multi)Media Techniques in Design Education, Practice and Research*. In: Bjarne Rüdiger, Bruno Touray & Henning Ørbaek (eds.), *Architecture in the Network Society, Proceedings of the 22nd Conference on Education and Research in Computer Aided Architectural Design in Europe*, The Royal Danish Academy of Fine Arts, School of Architecture, Copenhagen, 2004, pg. 530.
15 This reinterpretation of the earlier Media 'maps' was carried out for the benefit of a DCA Paper for the 2018 conference at Cornell University. Title: *Visualising Variations, Designerly Explorations in Architectural Composition*.
16 In the context of a Visualisation and Presentation module (the so-called 'D11') through the years, I witnessed a great number of such well-intended but perceptually 'poor' animation-attempts. The most successful projects tended to integrate filmic qualities, like the use of different 'scenes' and the use of diagrams and sub-texts. Often, a procedure making use of a kind of 'serial vision' (in the words of Gordon Cullen) tended to be most effective for the subject-matter, as well as for the beholder.
17 SketchUp was released in August 2000 as a freely-accessible, easy-use 3D modelling package. After it proved to be highly successful, its developers @Last Software were bought-out by Google, which made a connection with Google Earth and resold the rights in 2012.
18 The role of design media as a form of 'method' in design and research, was explored in:
Jack Breen: *The Medium is the Method, Media approaches to the designerly enquiry of architectural compositions*, in: *Architectural Design and Research: Composition, Education, Analysis*, C. Steenbergen et al (ed.), THOTH publishing, Bussum, The Netherlands, 2000.
19 Neutelings Riedijk Architects: *At Work*, 010 Publishers, Rotterdam, 2005.
20 Presented at the 7th EAEA conference Dortmund: Jack Breen: *The Model Image, Changing Perspectives for Architectural Modelling in the Context of Design Imaging.* In: Sigrun Dechène, Manfred Walz: Theme motion-emotion, Urban Space. Proceedings of the 7th EAEA Conference in Dortmund, Fachochschule Dortmund, 2006. Pg. 49.
21 The issue of a model's quality was particularly important in the days when (predominantly: urban) models were viewed using endoscopes, which tended to mercilessly confront viewers with skewed model-geometries, shoddy execution and unwanted 'details' like glue-rests etc..
22 I grew up with the adventures of Hergé's Tintin (in the Netherlands: 'Kuifje') and have been an avid reader and collector of graphic novels by him and his followers, such as Edgar P. Jacobs (Blake & Mortimer) and Henk Kuijpers (Franka).
23 Magazine article in Japan Architect: *Chiba Manabu architects: House in Black*, in: *JA volume 43 – autumn 2001*. Pg. 54.
24 Further House in Black Publications:
- Magazine Article in *The Architectural Review*: 23 November 2011: *House, Tokyo, Japan, Architect: Manabu Chiba*, brief article by Ray Ryan, 2011.
- Book article: *2001, House in Black, Manabu Chiba* in: Takeshi Ishido, Satoru Komak (eds.): *Contemporary Japanese Houses 1985 –* 2005, TOTO Shuppan, Tokyo, 2005. Pg. 324.
- Chapter in Manabu Chiba retrospective: *Manabu Chiba: Rule of the Site*, Publisher: Nobuyuki Endo, TOTO Shuppan, Tokyo, 2006. Pg. 216.
25 The DCA 2009 article: Jack Breen with Bram van Borselen: *The Model as the Method: Precedent-based Architectural Design Exploration and Communication*, in: M. Saleh Uddin, Christopher Welty (eds.): *Proceedings of the 2009 Design Communication Conference*, Southern Polytechnic State University, Marietta, Georgia, 2009, Pg. 6.
The EAEA 2009 article: Jack Breen: *Unravelling Form and Space in Architecture, Visualisation Approaches in Design Artefact Study Initiatives*, in: Lengyel Toulouse (eds.): *Projecting Spaces, Conference on architectural visualization, 9th international EAEA conference 2009*, Eckhard Richter & Co, Dresden, 2011. Pg. 89.
26 Contribution to the EAEA 2015 conference: Jack Breen: *Thematic Visualisation Studies: The AA Variations.* In: Anetta Kepczynska-Walczak (ed.): *Envisioning Architecture: Image, Perception and Communication of Heritage*, Monographs,

Lodz University of Technology, Lodz, 2015. Pg. 309.

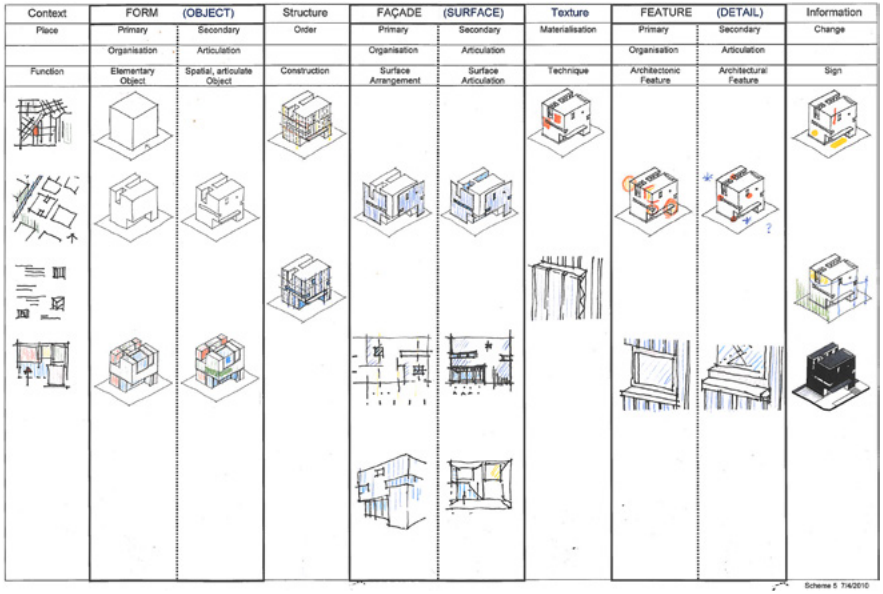
27 The results of this research 'detour' were included in a conference paper for the 2012 EAEA conference in Oklahoma.
Jack Breen: *Visualizing Contemporary Ornaments: Form and Modelling Studies and Ornamentation in Perspective.* In: Jeff Williams (ed.): *Graphic Quest: the search for perfection in design communication, Proceedings of the 2012 Biannual Conference of the Design Communication Association*, Oklahoma State University, 2012. Pg. 35.

28 The separate sketches have been brought together, as an overview, for the first time, for the benefit of this publication.

29 The later drawing was informed by a scheme by farming-historian van Berkheij (1811) and on the basis of information concerning historic window-frames, which can still be found in the Netherlands and even in the Hudson Valley, NY state, USA.

30 The AA05 overview was presented by Martijn Stellingwerff at the 2006 eCAADe conference, in Volos, Greece. Conference Paper: Jack Breen and Martijn Stellingwerff: *De-coding the Vernacular, Dynamic Representation Approaches to Case-based Compositional Study*, in: *Communicating Space(s), education and research in computer aided architectural design in Europe*, Proceedings of eCAADe 2006, University of Thysaly, Volos, Greece, 2006. Pg. 656.

31 The collection has recently been enhanced and expanded, to include *twenty* images, presented for the first time in the Conference Paper which has been prepared for the 2018 DCA conference.
Title: *Visualising Variations, Designerly Explorations in Architectural Composition.*



House in Black Variations: Thematic test-scheme (J. Breen).

7. AA Variations

7.0 AA00

Casus Aalsmeer



Aalsmeer, in the centre of Holland: tourist map from 1887 (Wagner & Debes, Leipzig).



7.0 AA00 Casus Aalsmeer

7.0.1 A Brief History of Aalsmeer

The municipality of Aalsmeer is a typically Dutch, sub-urban living environment, which even in this day and age is something of an oasis, in the midst of the expansive reclaimed lands and water-systems that surround it.

What was originally a tight-knit, almost insular, rural community has, though time, become absorbed in the networks of progressive and irreversible change that have come to characterise the development of the western part of the Netherlands or, more precisely: *Holland*.

During the first millennium, most of Holland, including what is now the Aalsmeer area, was an impenetrable, peaty marshland that had not been brought into cultivation.
Around the beginning of the 12th century, a combination of rising sea-levels and the intrusion of river-water, due to the silting-up of the original mouth of the river Rhine ('Oude Rijn') at Katwijk, meant that these lands became increasingly boggy.

A break-though was brought about by the 'invention' of the typically Dutch irrigation ditch ('sloot').
The consequence was that the thick, water-saturated package of peat could now be drained, which opened up opportunities for agrarian exploitation, but also led the to the steady subsistence of the land.

Aalsmeer was founded in 1125 by the counts of Holland ('Graven van Holland') when initiatives began to be taken to reclaim the impenetrable marshy lands.
The settlement belonged to the countess Petronella, who ceded the gains to the abbey of Rijnsburg.

When, in 1134, a storm-tide invaded much of northern Holland ('Kop van Noord Holland'), the salt water made farming there as good as impossible.
The countess then repatriated the West-Frisian inhabitants in the Aalsmeer region. They brought with them their own dialect, which has remained in use in Aalsmeer's West-end well into the twentieth century.[1]
The land was initially cultivated for mixed-use farming, with a combination of sheep and cows, as well as the growing of different grains.

Throughout the nine centuries of its existence, Aalsmeer and its surroundings have steadily and dramatically changed.
A series of maps (one per century) is included to give a graphic indication of the dramatic changes in the regional topology.
These are reproduced courtesy of the local historical association: *Stichting Oud Aalsmeer*.[2]



Aerial views of Aalsmeer in the 1950's. KLM Aerocarto.
Source: Aalsmeer Municipal Archive

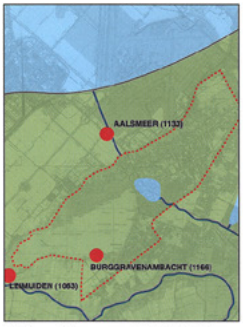
The 13th and 14th centuries brought about a series of changes within the region.
Aalsmeer was positioned more-or-less on the border of two spheres of power: the county of Holland towards the west and the domains belonging to the bishop of Utrecht ('Het Sticht') to the east.

The pioneering village-community had trading connections, across the Haarlemmermeer, with the major commercial centre of Haarlem, which acquired city-rights in 1245, to the north-west.
It would take until 1340 for the fledgling urban centre of Amsterdam, to the north of Aalsmeer, to get its own city-rights.
The continuing subsistence of the lands meant that they steadily became wetter and as a consequence were less suitable for agriculture. They were henceforth mainly used for the rearing of cattle, that grazed in the fields in the summer and were kept in farm-house stables in the winter.
Around 1400, this led to the development of a new type of farm-house, the *Hay-house* ('Hooihuis'), with a prominent pyramidal stable-volume at the rear, with an attic for the storage of hay, and a somewhat narrower living-volume at the front.
The opportunities for the exploitation of the peaty underground as a source of fuel ('turf'), led to a steady transformation of the countryside. The digging of turf ('turfsteken') involved the removal of the fibrous top-layer, which was then dried on interjacent acres ('turfakkers'). The removal of the top-soil meant the that the land was taken over by the ground-water, meaning that many of the exploited stretches of land gradually changed into shallow lakes ('plassen'). The turf was sent by ship to cities like Haarlem and Amsterdam, which had developed a profitable brewing industry, after the introduction of hop-beer.
In the 15th and 16th centuries, rising sea-levels and regular storm-tides led to the joining-together of three existing lakes – Spieringermeer, Leidsemeer, Haarlemmermeer – gradually becoming one enormous, untamed water-mass.
The lands behind the dikes became steadily more waterlogged, leading to the controlled practice of regularly pumping them dry, using windmills.

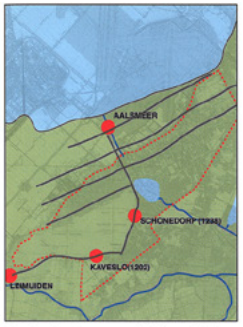
After Martin Luther had initiated the reformation in 1517, the protestant group of Anabaptists ('Wederdopers') were mercilessly persecuted throughout Europe.
From around the Netherlands, members of the sub-group of the Mennonites ('Doopsgezinden') settled in the relatively secluded area of Aalsmeer, where they felt relatively safe, forming a local milieu that has through time maintained its own identity.[3]

The lively, inquisitive attitudes of members of the community towards matters of religion and tradition, culture and craft, as well as education and enterprise have given the enclave of the '(Menonieten) Buurt' its very distinctive ambience, which can be recognised to this day.
The village-church of Aalsmeer was the last catholic church to be built in Holland (in 1549) before the reformation got its grips on the country.
The Protestant uprising ('Beeldenstorm') of 1566 would subsequently lead to the 80-year war.
During the conflict, Aalsmeer supported the besieged city of Haarlem, which eventually fell into the hands of the Spanish (supported by the still catholic city of Amsterdam), after a major sea-battle on the Haarlemmermeer, in 1568.

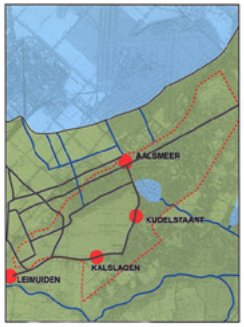
In the 17th and 18th centuries, the 'water-wolf', of the Haarlemmermeer posed an increasingly serious threat to the village and its outlying farmlands to the south-west and north-east.
In the meantime, the reclamation of the surrounding Hornmeer and Stommeer lakes offered new polder-pastures for the grazing cattle.
The stretch of land between the village and the lake continued to become steadily narrower and in 1730 the dike separating the Haarlemmermeer and the West-end lake was breached; meaning that from then on the dike-road of the west-end ('Uiterweg') became a dead-end road.
The precious, remaining 'high ground' land was no longer used exclusively for the rearing of cattle, but was increasingly brought in culture for the growing of trees and plants, including strawberries, which were sold in the city, in the summer-months.



De twaalfde eeuw: 1100 tot 1199



De dertiende eeuw: 1200 tot 1299



De veertiende eeuw: 1300 tot 1399



De vijftiende eeuw: 1400 tot 1499



De zestiende eeuw: 1500 tot 1599

Map series showing the development the Aalsmeer region through the centuries.

At the time, Aalsmeer was hardly more than an island, being surrounded on all sides by steadily encroaching stretches of open water, which were the result of the digging away of layers of turf, which was used as fuel for the breweries and houses in the cities. Most notorious was the vast lake known as the Haarlemmermeer. This threatening body of, frequently very wild, water seriously threatened the community's very existence.

The lake had by now become so threatening – coming to within 170 metres of the village church, originally at the centre of the village – that the state ('Staten van Holland en West-Friesland', led by 'stadhouder' Willem IV), dictated that a protective structure should be built along the banks of the lake.
The decision was taken in 1766 and the entire protective-barrier project was completed in 1777.
Without this undertaking, the community would almost certainly have been obliterated by the increasingly ferocious power of the water.[4] Around the beginning of the nineteenth century, the village and the traditional farmsteads that were part of it, extending along two prominent dike-road axes, would have been no more than a relatively small 'speck of light' in what Auke van der Woud has described as the vast 'Empty Land', stretching out between its, then still walled, medieval cities.[5]
The 19th century Netherlands were still essentially a nation of farmers, traders and craftsman-builders. Well into the second half of the century, it remained a country of water and wind, a situation that seemed to suit most of its inhabitants fine.
Partly due to its very limited access to coal (due in part to the secession of the Belgian Netherlands) the task of collectively keeping its polder-lands sufficiently dry and allowing the machinery its commerce to work relied almost entirely on the proven principles of wind-power, generated by an enormous number of windmills. Ships were either sailed by the wind or, if need be, drawn by horses or simply rowed by hand.
Only after the prestige-project of the reclamation of the Haarlemmermeer, completed in 1852, using (imported) steam engines and the extraction of coal in the southernmost province of Limburg, did the 'industrial' era grudgingly arrive in the Netherlands.[6]

The village and the outlying wooden farms, with their thatched roofs, were regularly threatened by fire.
A prestigious farm known locally as 'Topsvoort' was destroyed in 1827 and subsequently re-built in the form of a more 'modern' longhouse structure.

It was constructed by master-carpenter Joost Timmer, who in 1825 had also built another new farm of the same type, which that would later become known as Dahlia Maarse (project AA01).[7]
In 1844, the village centre was almost entirely destroyed by an all-consuming fire, after which wooden buildings covered with thatching would increasingly be replaced by brickwork structures with ceramic roof-tiles.

A decisive change was brought about by the reclamation of the Haarlemmermeer, which fell dry in 1852. The resulting mega-polder meant that a major part of the inhabitants' former fishing-grounds were lost and that transportation to the surrounding cities, by boat, was now no longer across the lake, but from on now had to navigate along the canal.
The reclamation triggered a wave of further polder-initiatives, whereby several of the surrounding man-made lakes ('turfplassen') were drained. In quick succession, the Schinkelpolder (1858), the northern Legmeerpolder (1874) and the southern Legmeerpolder (1882) were completed.
In 1866 a concession was granted for the reclamation of the West-end lakes, supported by a royal decree, in 1891. After several protests, the plans for reclamation were shelved, for the time-being.

Around the beginning of the twentieth century, the situation in and around Aalsmeer had stabilised and a new era of agrarian and commercial development was beginning to take shape.
The new century would give rise to a profound change in the agrarian situation in Aalsmeer.
Dairy-farming on the 'high grounds' and in the newer polders, was replaced by market-gardening, growing fruit-trees, as well as decorative bushes and increasingly flowers, eventually making it the prime flower-growing and -trading centre of the Netherlands.



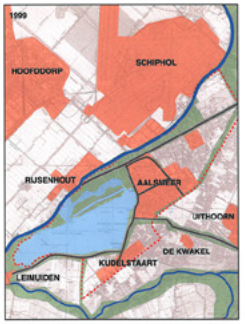
De zeventiende eeuw: 1600 tot 1699



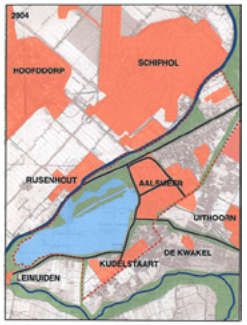
De achttiende eeuw: 1700 tot 1799



De negentiende eeuw: 1800 tot 1899



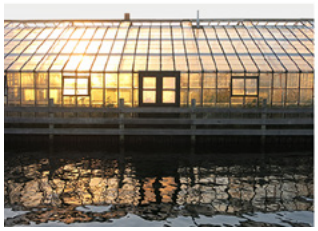
De twintigste eeuw: 1900 tot 1999



De 21ste eeuw: 2000 tot .....

Source: 'Reis door de tijd', Stichting Oud Aalsmeer (2003).






The Westend lake, with lilac-growing islands and traditional greenhouses.

Due to the creation of the Haarlemmermeer-polder, the threat of water from the community's western side had disappeared, although transportation of people and goods still took place almost exclusively via water.
The strategic connections along the ring-canal, surrounding the still relatively new polder running along the municipality's entire north-western flank, meant that the connection with the surrounding cities of Amsterdam, Haarlem and Leiden was no longer via open water, but that travellers were henceforth reliant on scheduled steam-boat connections.[8] Nonetheless, as Geert Mak has described, bulk-transportation of goods still largely relied on the use of sailing ships, well into the first decennia.[9]

At the beginning of the twentieth century, all of the plots of land were essentially still islands, bordered on all sides by ditches. All of these were in principle used for the transportation of goods and livestock, using flat-bottomed boats and barges. To reach the inhabited plots from the roads, there were a large number of movable, pedestrian bridges, which could easily be pushed open by an approaching boat. The bridge could then be swivelled back into place from the side of the private land, or from the street-side bank, using a hook on a long pole. Nearly all of these characteristic bridges have in recent years disappeared, being replaced by static bridges, allowing for the entry of road-traffic.

Around 1900 nearly all agricultural activity was still on open land, which soon began to change with the appearance of heated glass-houses. Around 1950, the plots were still a combination of glasshouses and open fields, with the biggest flower-growing complexes in the polders in the east. By around 1970 the flower culture was almost exclusively under glass.
A special case is the growing and marketing of Syringa lilacs ('Seringen') is a time-honoured practice in the Aalsmeer region.

The compact lilac-bushes were (and still are) mostly grown on the islands along the canal and between the smaller and larger sections of the West-end lake.
To get the flowers to bloom, the bushes are carefully dug up and transported via water and temporarily placed in a heated greenhouse, in order to get them to flower. After the flowering stems have been harvested, the bushes are then returned to their island-habitats, for a period two years, before being made to flower again.[10]






The principle of Aalsmeer's typical swivelling footbridges demonstrated.

Slowly but surely, Aalsmeer became more connected to the 'outside world'.
In 1883 the fist telegraph-line was established, followed in 1890 by a first telephone-line.

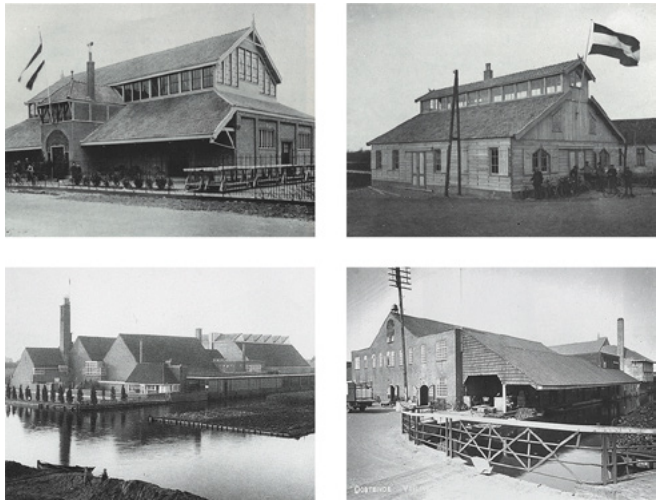
A train-connection with Haarlem opened in 1912, followed in 1915 by a link with Amsterdam-south (Haarlemmermeerstation).
The steady expansion of the railway network and the introduction of new modes of transportation, notably the bicycle and gradually the motor-car, meant that attitudes to transportation changed.
Furthermore, the railways proved to be an important boost for tourism and water-sports.

The sizable West-end-lake environment started to steadily develop as a recreational facility, leading to the growth of shipyards and water-sports facilities.
Well-off city-dwellers discovered the enclave, which had by now become easily-accessible via major roads, and established week-end-houses.

After the founding of the Nieuwe Meer sailing-club, directly opposite the new railway station, in 1912, several yacht-clubs and shipyards, began to appear. The recognition of the economic importance of the lake eventually lead to the town-council's decision *not* to reclaim the large- and small 'pool' ('Grote en Kleine Poel') of the West-end lake, in 1921.

In 1916, a military airfield was established at Schiphol, on the other side of the Ring-canal, followed in 1920 by commercial services, operated by the KLM.
The flower-growing industry, now making use of centrally-heated glasshouses, started booming and the growing, international flower-trade began to take to the air.
Around this time, several cooperative ventures were established, including two cooperative flower auction facilities: Bloemenlust, in the East-end, and the Central Aalsmeer Auction (CAV), initially in the village's Marktstraat.

The modest, wooden auction buildings were replaced by industrial-scale trading-facilities, completed respectively in 1922 (Bloemenlust, designed by Michel de Klerk) and 1926 (CAV, on the south-eastern edge of the village, designed by J.F. Staal).



Old and new flower auction buildings: CAV (left) and Bloemenlust (right).









Historic steamboat transportation networks and pre-war railway connections.



Educational illustration (‘Schoolplaat’), Frits Rackwitsz, 1930.



‘Uitbreidingsplan Aalsmeer’ by Ingenieursbureau Op ten Noort en Scheffer.

Staal’s striking new CAV auction complex figures prominently on a special educational illustration (‘schoolplaat’), by artist Frits Rackwitsz, entitled ‘Flowerfactories in Aalsmeer’ (‘Bloemen-fabrieken te Aalsmeer’), printed in 1930.
The didactic collage features all of the elements of the national flower-village: the West-end lake; greenhouses and chimneys; steamboats and barges; the station and the water-tower as well as two Fokker airplanes in the sky.[11]

The twentieth century would see a gradual shift, away from relatively small-scale flower-growing, towards industrial-scale production and international flower-trade.
The fusion of the two cooperative flower-auction enterprises (becoming the VBA: Verenigde Bloemenveilingen Aalsmeer), in 1972, would lead to the founding of a new complex, to the south-east of the centre, which at the end of the twentieth century would become the largest trade-building in the world.

To accommodate motorised traffic, the ditches along the main roads – the Oosteinderweg and Uiterweg – were gradually filled-in along their, northern sides.

From 1934 onward, the municipality would be cut in two by a busy provincial road, which would eventually be partly rerouted, in 2010.
After the Second World War, train services were gradually stopped, being replaced by regional bus-services.
With the arrival of jet-planes at Schiphol, around 1960, and the growing popularity of air-travel, the noise-levels have become a steadily-growing problem. Because of the approach-routes to Schiphol airport, large sections of Aalsmeer could not be developed for housing. An exception was the off-centre Nieuw Oosteinde / Boomgaard development (including project AA10).

Around the turn of the century, a large number of planning- and building activities were taking shape in what became considered as the Haarlemmermeer region, as is evident in the Atlas van Nederland in 2005, presented in 1997. In this ‘map of the future’ Aalsmeer remains relatively unscathed, with urban developments planned in the east (Nieuw Oosteinde), to the west of Kudelstaart and in the direction of Uithoorn.[12]

The conditions for the further development of semi-urban housing, mainly closer to the village-centre, were determined in a municipal planning document (‘Beeldkwaliteitsplan’) in 2004, which distinguished the categories: ‘Water living’; ‘Village living’ and ‘Formal living’.[13]

Although Aalsmeer is in many respects ‘typically Dutch’, its ‘insular’ qualities – geographically as well as culturally – make it unique enough to consider it as a ‘model’ community in its own right.
Furthermore, a good deal of its building-stock is of such quality – architecturally speaking – that it was felt this warranted its consideration as a ‘paradigm’ of Dutch architectural culture, particularly in the context of the twentieth century.



Two photographic comparisons of the Uiterweg, early- and late 20th century.

In the first decennia of the twenty-first century, Aalsmeer has arguably lost some of its authenticity, but it has nonetheless managed to maintain a good deal of its original character.

Aalsmeer has steadily become more and more interconnected with the 'world around it', but there is nonetheless still a strong sense of its 'genius loci' and the local awareness of its special place in the world is considered with pride (and some prejudice) by those who are descendants of its original inhabitants.

Even though I never actually grew up in Aalsmeer, merely stating the fact that I was *born* there has opened up a number of doors for me, which I feel might otherwise have remained closed.



The Haarlemmermeer region, incl. Aalsmeer (bottom), Map of the 'Future' (1997).






Historic farmhouses along the Uiterweg (West-end).






Early twentieth century and contemporary dwellings along the Uiterweg.






Wooden houses and waterside work-sheds along the Oosteinderweg (1998)






Towards the East-end: vernacular dwellings along the Oosteinderweg (1998).










1	2
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7.0.2 Architectural Paradigms and Highlights

For a relatively small municipality, Aalsmeer harbours a surprising number of notable architectural artefacts, many of which have, in the last decades, acquired the status of listed buildings; either as municipal- or as national 'monuments'.[14]
Besides an impressive collection of traditional historic buildings – most of them dating back to the 18th and 19th centuries, Aalsmeer is particularly interesting due to an impressive variety of buildings that have been realised in the twentieth century.
A number of these paradigm defining, or indeed –shifting, buildings have been taken up in the collection of (market-gardener's) houses that forms the basis of the in-depth AA Variations study.

The oldest buildings that have survived in Aalsmeer are brick buildings, which are to be found in the old village centre.
The village church is the oldest of these, dating back to the 16th century. Two relatively modest one-storey brick structures, topped by a pitched roof, dating from the18th century, housed the municipality's administration and the local militia. Three historic windmills have managed to survive, two outside the town and one in the village centre, which respectively date back to 1752, 1778 and 1863.
The other, older (national) monuments are traditional farmhouses, which were mostly built in the 19th century.
Of the ten listed building in this category, two are historic homesteads belong to the category of the original, West-Frisian 'hay house' type [2]. The others are all Frankish 'longhouses', which were initially typical of southern Holland [1]. These include the monumental farmhouses, locally known as Topsvoort and Dahlia Maarse (project AA01), attributed to master-builder Joost Timmer.[15] All of these monumental farm-buildings are to be found along the Uiterweg.

A number of early 20th century houses, built in a loosely Eclectic style that was popular at the time, have become listed as municipal monuments, including works by the following designer/builders:

— Volkert Visser: Local architect/builder Visser was responsible for the Villa Pomona [3], along the Oosteinderweg (1901), as well as the local icon Terra Nova (1903, project AA02).
— J.N. Munnik: An architect probably practicing in Amsterdam, designer of the romantic ('Neo Hollands') Polderhuis (1905) and the double-villa Het Witte Huis [4] (1913).
— J.W. Luik: A prolific, local designer-builder, who is represented in the register of municipal monuments with five projects, including: the old flower-auction building in the village (1912); a buther's shop [5] the Hilverda office and warehouse [6] (1913) and a later villa which seems to have been inspired by the Amsterdam School (1925, Stationsweg 24 [7], situated next to project AA09);
— Prof. ir. J.G. Wattjes: in the service of the railroad-company, 'outsider' Wattjes designed the village's monumentally-eclectic main railway station [8] (1912, a national monument).

Sources: local publication 'Aelsmeer' and JB.

It is worth realising that such projects' tectonic and stylistic refinement and status were by no means the norm, as becomes clear when their drawings are compared with the very rudimentary planning-permission drawings for an extremely simple wooden house (1909).

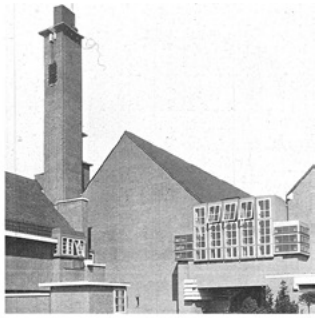
The market-gardeners' houses were generally quite modest, often lightweight constructions without deeper foundations, executed in wood, with elegantly-sober flower-sheds and greenhouses, along the water, at the rear.[16]

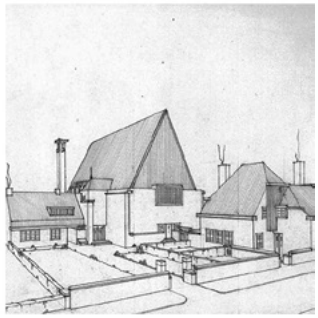
A number of particularly noteworthy historic monuments belong to the characteristic Amsterdam School and the Expressive Modernism that evolved out of this.
This relatively short, but stylistically dynamic period (from around 1920 to 1928), demonstrates a number of paradigm-shifts.
Projects of the expressive 'school' were designed by architects from outside the community, mainly from the nearby city of Amsterdam:

— Michel de Klerk: The flowr-auction building Bloemenlust, in the east-end, along the Oosteinderweg [9] (1921–22) and the market-gardener's home with workspace, built close-by for the Barendsen family [11] (1923, project AA04).
— J.F. Staal: De Klerk's colleague and friend Frits Staal realised two representative building-projects: a Mennonite Church with an integrated dwelling (Doopsgezinde kerk), in the village-centre's Zijdstraat [12] (1926-27) and an impressive second flower-auction building near the village centre (Veilinggebouw CAV) on the van Kleefkade [10] (1926).
— Dick Greiner: This architect, originally belonging to Amsterdam School, realised an expressively modern clubhouse and yacht-house building, De Nieuwe Meer [13] (1926, a municipal monument), most probably inspired by de Klerk's De Hoop yacht club, in Amsterdam.
— Hendrik Sangster: An architect who was specialised in the design and construction of water-towers built an eye-catching, free-standing structure, on the edge of the West-end lake [14] (1926–28). In its expressive concrete and brick structure, the commanding tower has echoes of the Amsterdam School, as well futuristically decorative features. It may arguably be considered to be Sangster's masterpiece and has recently been ranked the 'most beautiful building' in the municipality, in an informal local survey.[17]

Besides these works, which may be considered to belonging to the 'New Tradition', there are some iconic buildings designed by 'New Pioneers'.

A number of these are works were realised by architects who were in some ways stylistically 'in transition' and hence representative of aesthetic paradigm-shifts.






9	10
11	12
13	12
14	

Sources: NAi, Bouwkundig Weeklad, JB.

This category includes works from the following, well known Dutch 'modernist' architects:

— J.J.P. Oud: The house designed for Gerrit Oud in the east-end, along the Uiterweg is the work of a young, impressionable architect; influenced by the work of H.P. Berlage and probably Frank Lloyd Wright (1912, project AA03, demolished). It prefigures Oud's early modernist phase, with the De Stijl movement.
— Jan Duiker and Bernard Bijvoet: The modest market gardener's house with an integrated flower-shed which the two architects built for the Suermondt family has acquired something of an iconic status in the literature of the Modern Movement. The house marks the transition from their earlier Wright-inspired work (mainly in The Hague) to the 'heroic' functionally modern phase and is their last collaboration [15] (1924, project AA05, restored).
— Jan Gerko Wiebenga: In the period that Wiebenga (who had worked as an engineer/designer with van der Vlugt and Duiker and Bijvoet) was head of Aalsmeer's municipal works-department, he managed to realise three projects which were considered (and indeed still are) paradigm-shifting in the predominantly traditional community: a handwork school ('Naai en Knipschool', 1925); a secondary school in the town centre [16] (ULO school, Schoolstraat, 1932) and a private home for the family of municipal secretary Wentzel (1931, project AA07). Of these projects, the ship-like ULO school was the most ambitious and renowned of Wiebenga's architectural work.

Wiebenga was head of the Public Works-department of Aalsmeer from 1928-31, during which time he was responsible for the effectuation of the first phase of Extension-plan for the municipality ('Uitbreidingsplan Aalsmeer', originally drawn up by Ingenieursbureau Op ten Noort en Scheffer). During the time that he was in the service of the municipality, the professional periodical *Het Bouwkundig Weekblad* published a special edition on the architectural developments of the Aalsmeer municipality.[18]

The publication included a number of villas by up-and-coming local architect J.F. Berghoef.
Along with another local architect, W. Maarse, he was responsible for an impressive number of characteristic dwellings, built in and around the municipality before the war.

After the Wall Street Crash and the subsequent international depression, the flower-growing and exporting businesses of Aalsmeer were severely hit, as can be seen by the severe drop in requests for building-permissions in the local archive.[19]
This malaise would continue until well after the second world war, after which building activity steadily picked up.

Some of the works by 'new-tradition' architects Berghoef and Maarse:

— Johannes Fake Berghoef: Before the war, Berghoef was still looking for his own architectural style. He eventually developed a relatively free-style neo-vernacular modus, resulting in a number of recognised pre-war projects, mainly freestanding houses. Apart from the Keesen house (1926, project AA06, a national monument), these include a double market-gardener's house below the Stommeer dike (1935), as well as his own house and practice 'Dijksteen' [17] (1936) and a house for a doctor with a private practice out front [18] (1940), both along the Stommeerweg.
— Willem Maarse: Local architect Maarse's early work incude a compact wooden house along the Uiterweg. A noteworthy early design was a characteristic free-standing house along the Uiterweg [19] (1926, opposite Dahlia Maarse, AA01). He was further responsible for a shop with dwelling in the Zijdstraat (1927) and two identical houses along the Oosteinderweg for the de Vries brothers [20] (1930), fronting their shipbuilding enterprise.
— J.F. Berghoef and H. Klarenbeek: A major section of the post-war work designed by (by then 'professor') Berghoef and his partner Klarenbeek, consisted of churches and public buildings. These included a Dutch-Reformed church along the Hortensialaan (1953) and a Reformed church ('Gereformeerde kerk') along the Ophelialaan, as well as the new town-hall ensemble (1962). The office also realised a considerable number of traditionally-modern dwellings, including the van Staaveren house (1958, project AA09).

In the first half of the twentieth century, the East-end, which had originally been thinly-populated, became steadily more developed and the through-road was widened to accommodate motorised traffic in the direction of Amsterdam.
The Oosteinderweg was bordered on both sides by relatively traditional, detached and semi-detached houses. From around 1970, the remaining open plots between these houses were steadily filled-up, with new villas, bungalows and commercial buildings.

Up to 1945, the West-end was still a relatively tightly-knit enclave, dominated by the still-remaining traditional farmhouses, interspersed with smaller market-gardeners' dwellings.
The 'Buurt' was still to a large extent inhabited by descendants of a limited number of 'original' families – notably the Keessen, Maarse and Eveleens 'clans' – who intermarried to such an extent that inbreeding became a serious problem.
It was only in the winter of 1947-1948 that the northern ditches along the Uiterweg were filled-in and the road was as at last broadened.[20]

After the war, the architectural practice of Berghoef and Klarenbeek played a dominant role in the municipality's development. Even after Berghoef's influence began to wane, the local building-standard essentially remained (pseudo) traditionalist in style: with pitched roofs.
Only a few noteworthy modernist exceptions, with flat roofs, were realised.

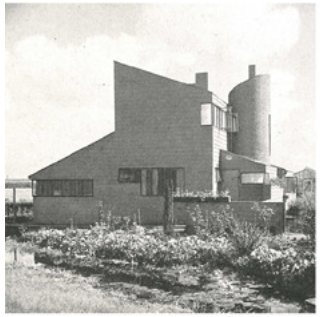
An exemplar of such late-sixties modernism is a striking villa along the Hornweg, with a characteristic, seemingly-suspended horizontal roof-volume, designed by locally-active architect H.R. Aiking, from Amsterdam.
His modernist Stokman house, from 1968, drew a negative response from the 'Welstandscommissie' and an alternative plan, with sloping roofs, was even drawn up.
Eventually, the proposal (which did not conform to the 'Bestemmingsplan Landelijk gebied') was given special dispensation by the municipality and eventually built in 1970 [21].[21]
Other a-typically neo-modern villas include the du Pon house-extensions by Baneke van der Hoeven's (1995 and 2002, project AA09), Villa Röling, in Kudelstaart along the Westend lake, by Paul de Ruiter [22] (2006) and the rationally modernist Nieuw Oostende house by Engel architects (2012, project AA10).

Towards the end of the twentieth century, the special position of Aalsmeer in Dutch twentieth century architecture began to be recognised, particularly after the restoration of a number of the municipality's landmark buildings.
On the occasion of Architecture Day ('Dag Van de Architectuur') 1995, an article was published in *NRC Handelsblad*, showcasing Aalsmeer as 'a course in twentieth-century building' ('een cursus 20ste eeuws bouwen').[22]

However, steadily but profoundly, things began to change, as a more 'general' kind of corporate architecture started to make its appearance, with the project-based new housing development Nieuw Oostende and some relatively large-scale, neo-eclectic building-projects (with shops and apartments) in the village centre.

In recent years, the once tightly-controlled aesthetic planning-rules have been 'loosened' considerably, giving rise to an array of imposing, often oversized villas for the new financially-powerful ('kapitaalkrachtige') elite, including the nouvelle-chic of the Dutch media-industry.

This is particularly in evidence in the West-end, along the once rustic and secluded Uiterweg, the identity of which has in recent years dramatically and irreparably changed.










15	16
17	18
19	20
21	22

Sources: NAi, Bouwkundig Weekblad, JB.

7.0.3 The AA Variations Collection

The collection that forms the basis of the AA Variations study took shape gradually; eventually becoming a conglomerate of ten realised architectural objects.

All of the ten projects are free-standing dwellings, mostly market-gardener's homes, with a combination of living and working functions.
The projects were selected primarily on their architectural qualities, which meant that they did not have to be truly exceptional, but that they did need to demonstrate a sufficient level of *complexity*, to make studying them a worthwhile intellectual activity.

The ten AA projects are considered to loosely represent some recognisable *trends*, in the Dutch architectural scene during the twentieth century.
At the same time, they are representative of the more prominent periods of building *activity* within the municipality as an entity.
This means that the early twentieth century, as well as the twenties and early thirties, are relatively well spoken for, whilst the forties and early fifties – which saw very little building activity – are absent.
Similarly, the sixties, seventies and eighties are as good as absent because relatively few tone-setting detached houses were built in this period.
The projects that are included from the nineties and early twenty-first century can hardly be considered typical for the building-production within the municipality as such, but are more indicative of the broader context of architectural developments in the Netherlands.

The opening project is a traditional farmhouse from the nineteenth century, which is included to make a connection with the earlier conventions and crafts, as well as serving as a paradigmatic reference-point for some, more contemporary interpretations (notably projects AA04 and AA06).
An interesting project from the late 1960's (a neo-modernist villa by architect Aiking) was initially studied and modelled, but was dropped from the collection, because the design as a whole proved to be insufficiently interesting and challenging; as was a project from the 1980's, which was also excluded, due to its lack of architectural quality.

The project-data, which has served as the basis of study was gathered – iteratively – in a variety of ways.
Nearly all of the projects have been visited and documented photographically – from outside and inside – on a number of occasions.
This was not the case with the late Berghoef project (AA08), which could not be entered during my successive visits and was demolished in the course of the study-period.
The project by Oud (AA03) had already been demolished well before the study kicked off. Eventually it proved possible to contact previous inhabitants, leading to interesting discoveries and *speculations*.
Building drawings for most of the projects were retrieved early-on in the process, from the building-department archive of the Aalsmeer municipality.
For the last two projects, (digital) drawing files were received directly from the architects.
No original drawings exist of the first, historic project (AA01) and as the available documents were not conclusive, drawings were made on the basis of available data and documentation.

Further searches in the archives of the Dutch Architectural Institute – the NAi – in Rotterdam, have unearthed very interesting archival documents, which have shed a new light on a number of projects, notably AA03, AA04, AA06 and AA08, and their design histories.

Valuable information has been gathered on the basis of oral histories through the years. With individual members of the historically conscious (and indeed: *proud*) Aalsmeer community, as well as with its highly active local-history association – *Stichting Oud Aalsmeer* – and its numerous, thematic publications.

The welcoming receptions and enthusiastic responses I received from several of the AA Variations houses' inhabitants – especially Ms Jellie Barendsen, who lived her whole life in the exceptional house designed on the initiative of her father by Michel de Klerk (AA04) – have helped to motivate and fuel the study; expanding its scope and simultaneously deepening my respect and affect for the 'model' village of Aalsmeer and its inhabitants.

Nr. Project name	Date Designer(s)	Style / Paradigm:
AA01 Dahlia Maarse	1825 J. Timmer	Traditional Vernacular Craftsmanship
AA02 Terra Nova	1903 V. Visser	Regional Eclecticism Art Nouveau
AA03 G. Oud House	1912 J.J.P. Oud	Late Rationalism Proto-Modernism
AA04 Barendsen House	1923 M. de Klerk	Expressionism Amsterdam School
AA05 Suermondt House	1924 J. Duiker B. Bijvoet	Early Modernism New Objectivity
AA06 W. Keessen House	1926 J.F. Berghoef	Neo-Traditionalism Early Delft School
AA07 G. Wentzel House	1931 J.G. Wiebenga	Pre-War Modernism Functionalism
AA08 Van Staaveren	1958 J.F. Berghoef H. Klarenbeek	Modern Traditionalism Late Delft School
AA09 Du Pon House	1995 & 2002 G. Baneke C. v.d. Hoeven	New-Wave Modernism 90's Pluriformity
AA10 Nieuw Oosteinde	2012: M. Engel	Rational Neo-modernism 21st Century Digital Design

7.0.4 The AA Variations Case Studies

All of the ten selected projects are documented extensively, as specific case study projects.
Each project is analysed, described and visualised in depth in its own right using the same methodical framework, using different levels, to facilitate the thematic comparison of relevant compositional aspects.
Each of integral case-based AA Variations studies can be considered as a more or less autonomous project File.
The ten files are numbered in chronological order, from AA01 to AA10.

Each project-file is annotated using a project-specific list of Notes and References, plus a – chronological – overview of the representative Sources; consisting of documents and texts that have fuelled the particular, project-based research.
The published sources are also included in the overall Bibliography, included at the end of the study document.
Some project-files are larger than others, simply because there was more to be discovered.

Each of the ten project-files is divided into three main sections:

— Patterns;
— Variations;
— Perceptions.

An overview of these recurring, thematic study-categories, which are used as methodical structuring-devices, in each of the ten project-files:

Patterns:
The first section of each project-study begins with a concise introduction, in which a basic overview is given of the particular project's origins and developments.
In the introduction sections of the ten files, an attempt has been made to make them comparable, in the amount of textual information and essential visual data offered.
Following this brief introduction, each project is systematically characterised on the basis of four categories, each subdivided into three explicitly articulated compositional 'layers'.
The four essential categories and the twelve conceptual layers are derived directly from the thematic framework of designerly themes described in Section 5: 'Conceptions', as follows:

— Space : Context; Function; Interior;
— Order : Object; Structure; Technique
— Form : Facade; Surface; Opening
— Feature : Detail; Ornament; Ensemble

These formats are strictly adhered to in theme-specific, condensed texts, which correspond directly to systematically developed, 3D model-based imagery.

Variations:
After the Patterns overview, each project is explored further on the basis of three information-categories, intended to give the reader more specific insights concerning the project:

— Development;
— Experience;
— Visualisation.

On the Development level, the history of the building's evolvement on the level of its background, design process and actual realisation.
The Experience paragraph is intended to give the reader a better understanding of the actual, realised project on the level of its physical experience and its development through time.
Lastly, the Exploration category tries to give an idea of the ways in which the project was – visually – considered in the context of the study and the imaging instruments which were developed and tested, on the basis of this particular casus.

Perceptions:
In the last section an attempt is made to reach a deeper understanding of the cultural connotations of the project at hand – then and now – by taking the following 'views':

— Position;
— Discourse;
— Aesthetics.

In the Position section, the artefact is 'situated' in the context of its place and time, as well as in the context of the designer's realised oeuvre and contemporaries.
Furthermore, on the level of Discourse, the object is considered critically as a cultural phenomenon within the cultural climate in which it was conceived and received.
Lastly, an attempt is made to characterise the project as an expression of Aesthetics, on the levels of stylistic convention and invention, as well as though the identification of expressive traits.

Patterns:

0.	**Introduction**	Identification of the project on the level of its context and history.
A.	**Space**	
A.1	**Context**	Elementary qualities of the object on the level of place and occasion.
A.2	**Function**	Explanation of the plan's prgrammatic components and layout.
A.3	**Interior**	Organisation and orientation of rooms in relation to the exterior.
B.	**Order**	
B.1	**Object**	Essential characteristics on the level of shape, direction and volume.
B.2	**Structure**	Organising principles that underlie the composition as an entity.
B.3	**Technique**	Application of principles on the level of materialisation and montage.
C.	**Form**	
C.1	**Facade**	Arrangement of surface-shapes and positioning of primary elements.
C.2	**Surface**	Articulation of the object on the level of structure, pattern and colour.
C3	**Opening**	Proportions and positioning of con necting elements such as windows.
D.	**Detail**	
D.1	**Junction**	Principles of relative positioning, connectivity and articulation .
D.2	**Feature**	Specifically characteristic ornamental and informational elements.
D.3	**Ensemble**	Identity and interaction of defining spatial and material components.

Variations:

1.	**Development**	Explication of the procedures of design and physical realisation.
2.	**Experience**	Three-dimensional exploration of the artefact in its surroundings.
3.	**Visualisation**	Imaging- and modelling experiments, on the basis of the project.

Perceptions:

1.	**Position**	Placement and development of the realised object in era and oeuvre.
2.	**Discourse**	Cultural considerations relating to the design artefact and its author.
3.	**Aesthetics**	Expressive qualities and on the level of composition and perception.

7.1.5 Imaging the AA Variations Projects

Each of the ten projects is analysed systematically, on the basis of the same categories of compositional and perceptual themes.

Besides making use of descriptive texts, extensive use is made of visual material, to identify characteristic traits and demonstrate their workings in the context of the specific project being considered.

In the Patterns sections, all of the ten projects are schematically visualised and compared on the basis of the twelve, previously identified and specified compositional layers (see: Section 5: Conceptions).
The visual material which is included in the subsequent Variations and Perceptions sections varies per project, depending upon the visual data that has been uncovered in the course of research as well as upon the explorative- and illustrative material that has been specifically gathered and generated for the purpose of the AA Variations study as a whole (see: Section 6: Instruments).

Patterns:

0.	**Introduction**	Positioning of the project: identifying image-cluster and basic data.
A.	**Space**	
A.1	**Context**	Scheme: Elementary geometries and situational qualifications.
A.2	**Function**	Scheme: Functional layout of plans within the project contours.
A.3	**Interior**	Scheme: Interior organisation, within a semi-transparent envelope.
B.	**Order**	
B.1	**Object**	Scheme: Elementary volumetric composition, with shapes and axes.
B.2	**Structure**	Scheme: Volumetric composition with openings and basic grids.
B.3	**Technique**	Scheme: Constructive organisation, indicating montage principles.
C.	**Form**	
C.1	**Facade**	Scheme: Formal composition of the whole project, without colour.
C.2	**Surface**	Scheme: Formal composition of the whole project, with the colours.
C.3	**Opening**	Scheme: Position and sub-division of all of the window-openings
D.	**Detail**	
D.1	**Junction**	Scheme: Selection of most elemen tary connective building sections.
D.2	**Feature**	Scheme: Selection of characteristic, expressive building sections.
D.3	**Ensemble**	Scheme: Combination of the whole project with interior cut-outs.

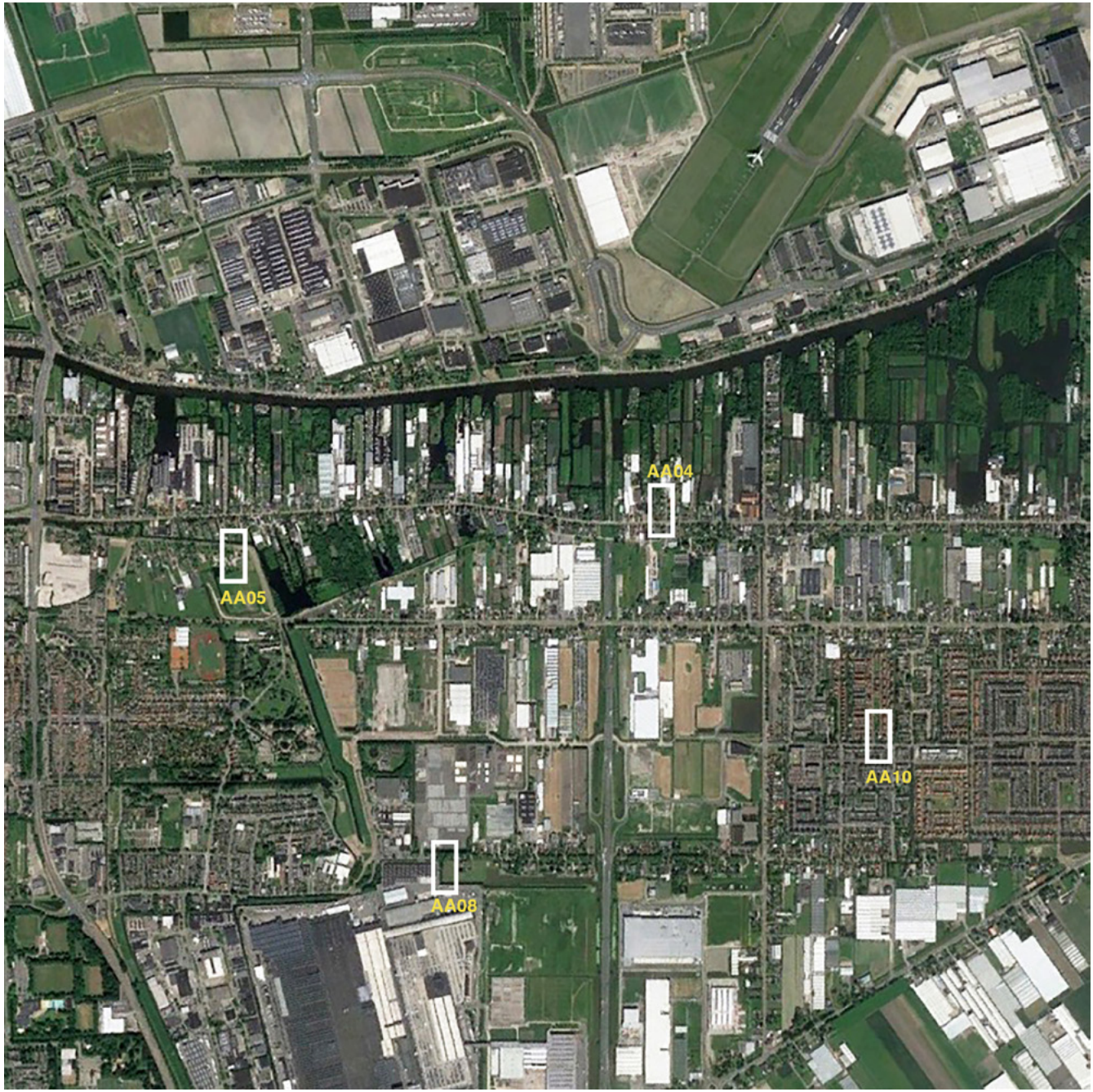
Variations:

1.	**Development**	Drawings and models of the original design and its developments.
2.	**Experience**	Collections of photographs, on the basis of the physical artefact.
3.	**Visualisation**	Documentation of representation e experiments, specific to the project.

Perceptions:

1.	**Position**	Visual reference material, on the basis of the designer's oeuvre.
2.	**Discourse**	Visual reference material, on the basis of comparable projects.
3.	**Aesthetics**	Visual reference material, to clarify aesthetic characteristics.


AA02
AA06
AA03
AA01
AA09
AA07

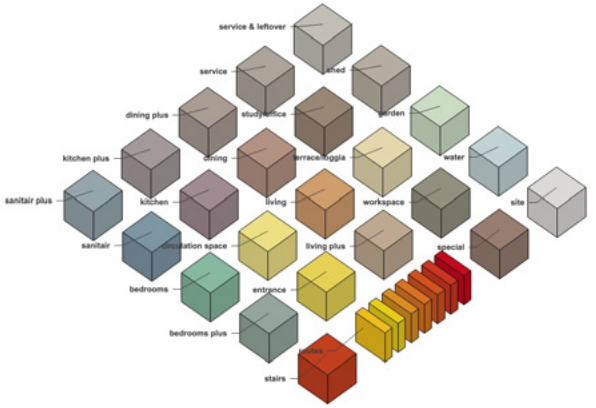

AA04
AA05
AA10
AA08

7.1.6 Comparing the AA Variations Projects

Before each project is considered in detail, a comparative overview is given of the ten case-study projects.

These consist of a collection of two plan-sections per project, shown on a scale of 1 : 400.
These images have been generated on the basis of the 3D model files.
On the ground floor an indication is given of the project's setting, the first floor section gives an indication of the interior organisation.
Functional colours are used to give an idea of the particular function (see: Colour Legend).
The specific orientation of each project is indicated.

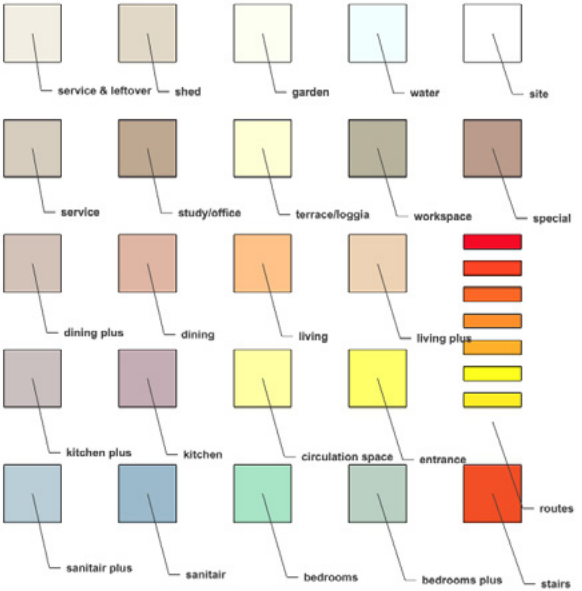
In the following AA Variations case-folders, each project is introduced by a series of thee satellite views, which have acquired online via Google Earth. Each project is shown in its context, viewed from a height of 1,6 km, 0,4 km an 0,1 km.



Spatial representation of the AA Variatial Functional Colour Scheme

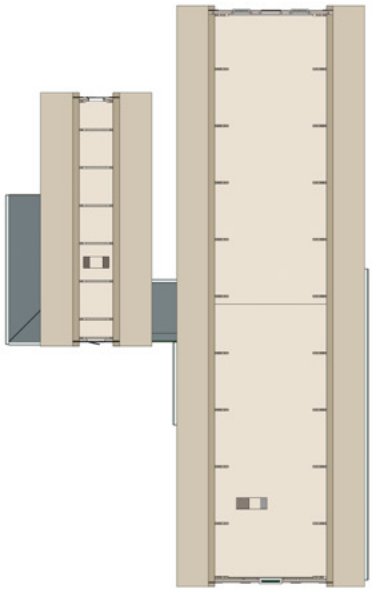


'Last Round' of the AA Variations Projects, en-route to Utrecht, March 2nd 2018.

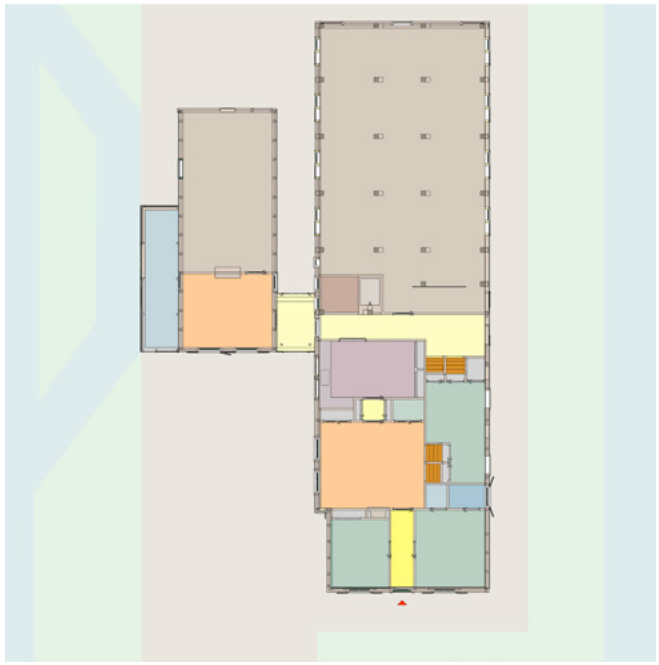


2D representation of the AA Variatial Functional Colour Scheme

AA01

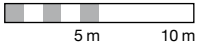


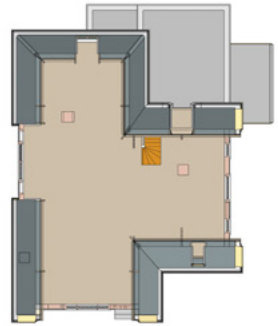




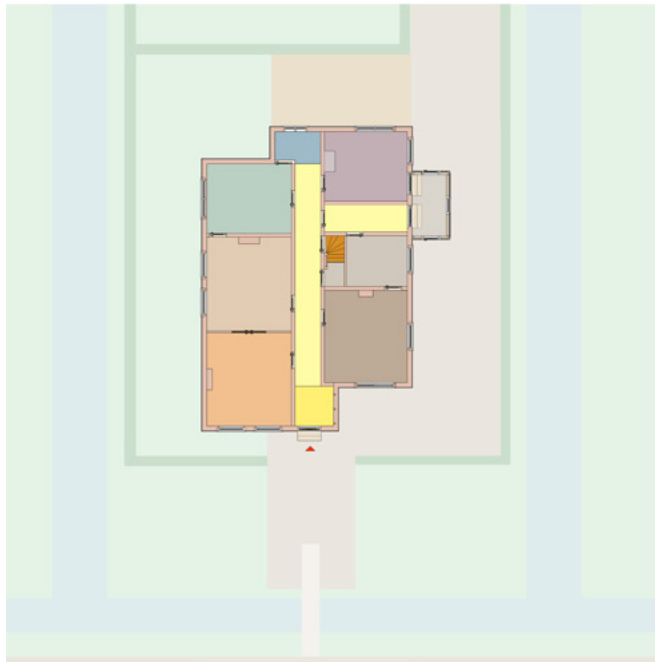
J. Timmer, 1825.

AA02



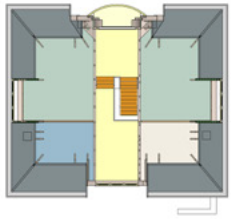




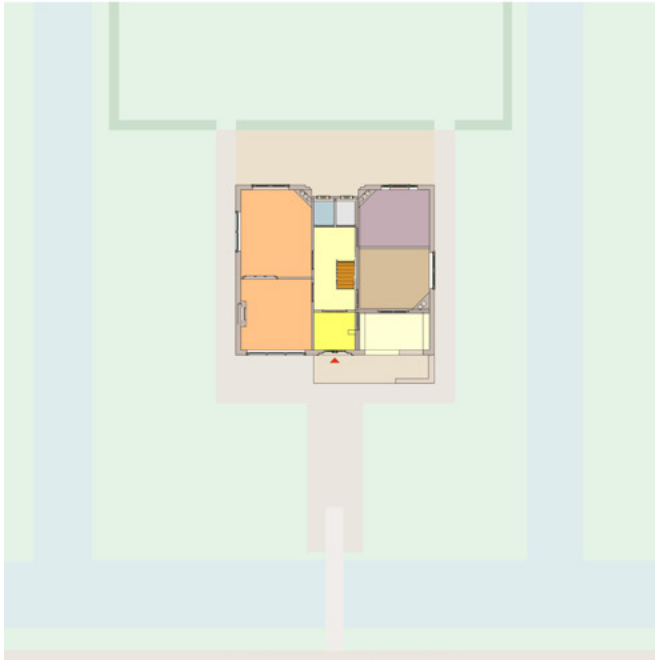


V. Visser, 1903.

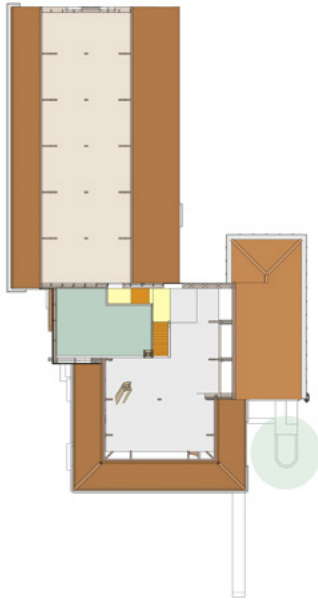
AA03



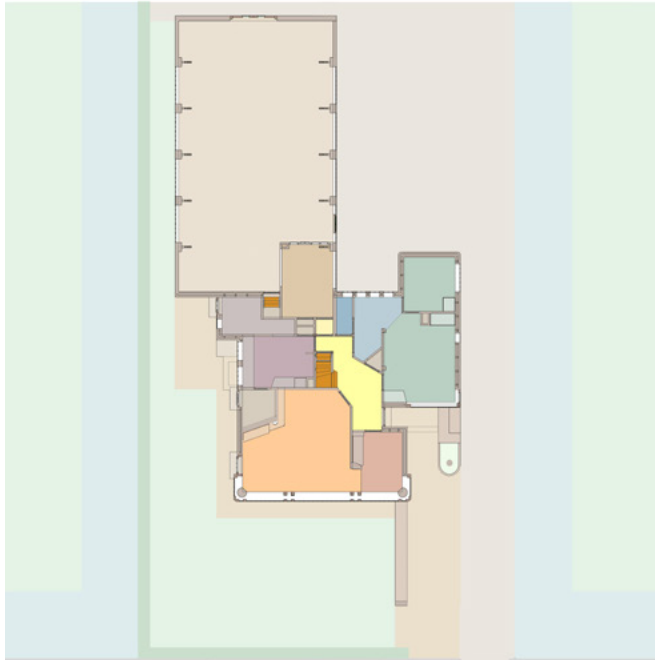




AA04



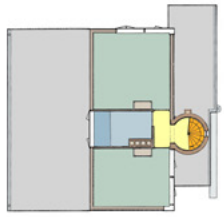




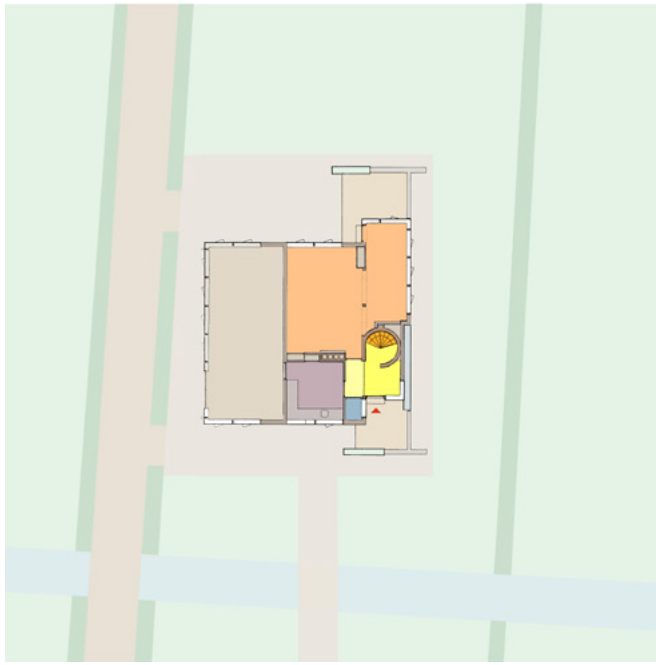
J.J.P. oud, 1912.

M. de Klerk, 1923

AA05

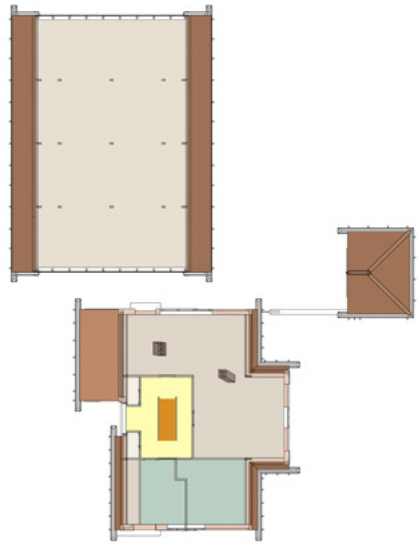






AA06





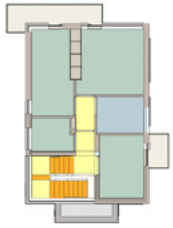




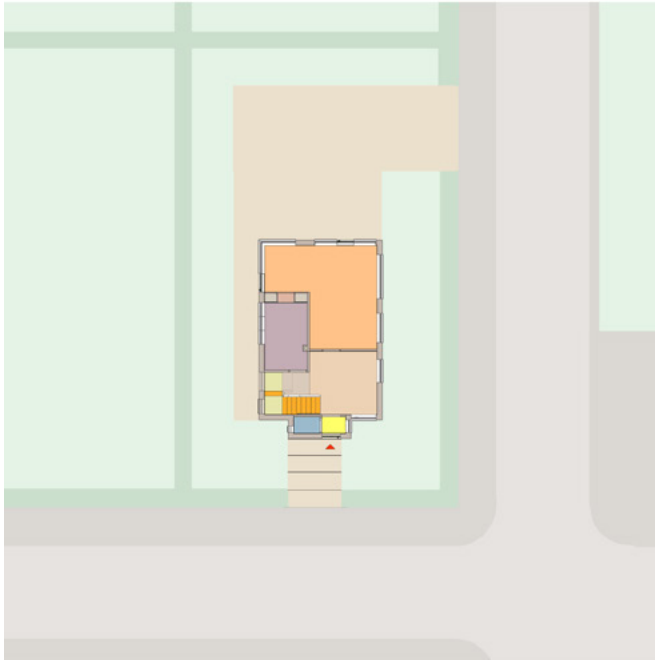
Duiker & Bijvoet, 1924.

J.F. Berghoef, 1926.

AA07



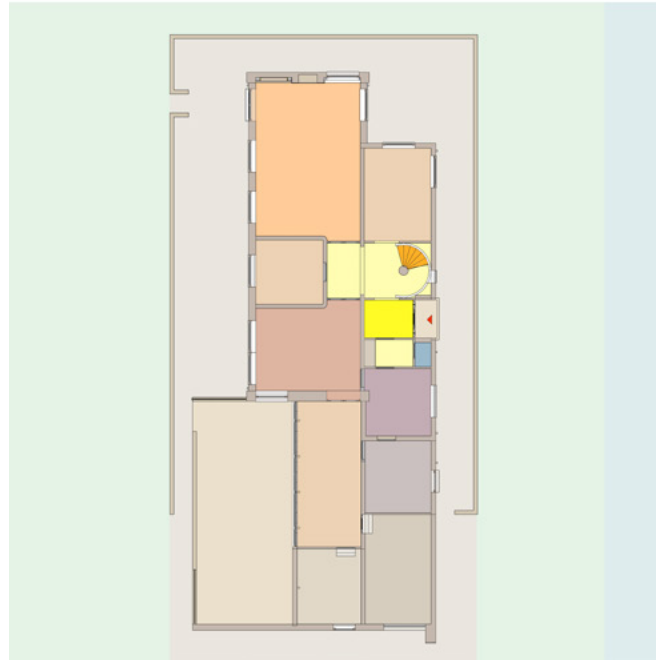




AA08



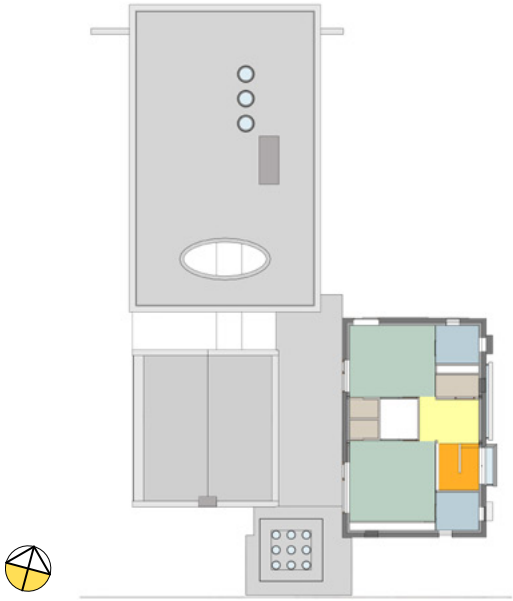




J.G. Wiebenga, 1931.

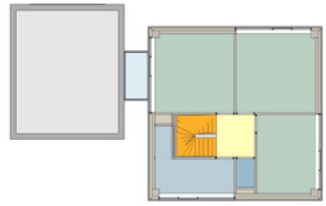
Berghoef & Klarenbeek, 1958.

AA09

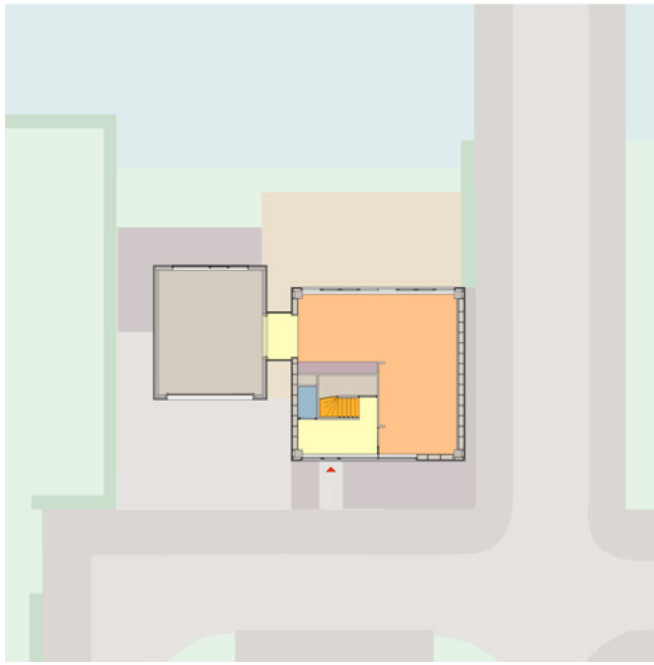


AA10









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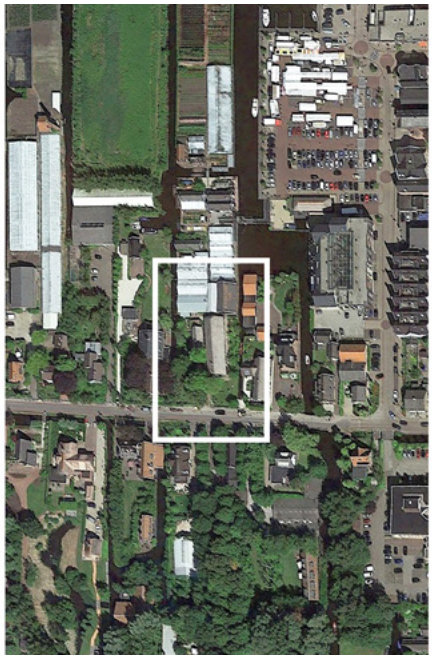
1 This local dialect, known as 'Buurts' was apparently similar to the Frisian dialects of northernmost Holland and the island of Texel. The enclave originally also had its own traditional costumes ('klederdacht').
Source: Dirk Verzaal: Het Voormalige Buurtse of Aalsmeerse Dialect. In: M.J. 't Hart (ed.): Aelsmeer, beknopte geschiedenis van een opmerkelijk dorp, Stichting 'Oud Aalsmeer', 1992. Pg. 256.
According to the author, the last 'native speaker' died around the end of the twentieth century.
2 Many of the historic facts which are included here have been gathered on the basis of publications of the Stichting Oud Aalsmeer, including a variety of articles in the quarterly magazine *Oud Nuus* (dialect for 'Old News'). The two most prominent sources are:
- M.J. 't Hart (ed.): *Aelsmeer, beknopte geschiedenis van een opmerkelijk dorp*, Stichting 'Oud Aalsmeer', 1992;
- Jan Willem de Wijn (ed.): *Reis door de tijd, Aalsmeer, Kudelstaart en Calslagen door de eeuwen heen*, Aalsmeerse Historische Reeks nr.4, Gids van de tentoonstelling Historisch Centrum Aalsmeer, Stichting Oud Aalsmeer, May 2004.
3 The Mennonites are the oldest still existing 'Baptist' church. In 1540 the movement was named after the catholic priest Menno Simons (1496-1561), from the Frisian Witmarsum, who converted to Anabaptism. Members of this protestant sect reject infant baptism and a central church organisation and in most cases refuse military service, public office and the taking of oaths. Source: *Collins English Dictionary & Thesaurus* (1994).
4 The history of this decisive, protective measure is documented in: Jan Willem de Wijn& Hans Alderden: *De redding van Aalsmeer, Deltawerken 1765–1777*, Aalsmeerse Historische Reeks, nr. 11, Stichting Oud Aalsmeer, mei 2015.
5 Auke van der Woud: *Het Lege Land, De Ruimtelike Orde van Nederland 1798-1848*, Meulenhoff Informatief, Amsterdam, 1987.
6 In *Het Lege Land,* Auke van der Woud gives a revealing account of the political intrigue surrounding the reclamation of the Haarlemmermeer, and the then revolutionary application of steam-power for such an enormous undertaking. Pg.280.
7 These farms of the Southern Holland type, brought the living-quarters and stables together under one roof, with separate, additional haystacks. The cows in the stables faced inwards towards an alleyway, rather than outwards, as was the case in the older, Frisian-model stables.
8 As a published article, concerning a professional visit to the proud firm of Terra Nova (see project AA02) makes clear, the boat would have stopped at the western part of the village, close to the ferry-connection with the Haarlemmermeer polder. An important firm like Terra Nova had its own stop, along the canal at the rear of its orchards.
Source: Cees van Dam: *Een bezoek aan de firma W.J. Keessen Jr. in 1907,* in *Oud Nuus,* Jaargang 48, nummer 189, December 2017. Pg. 4.
9 In his book *Het ontsnapte land*, Geert Mak re-traces a trip that his father made on board on a sailing-freighter in 1912, making a round-trip through Holland, from Vlaardingen to the Zaan-area and back. In his account he draws comparisons between the situation then and around. What is becomes clear after reading Mak's account of the situation in both 1912 and 1997 now, is how much has subsequently changed, since he made his trip.
Geert Mak: *Het ontsnapte land,* Uitgeverij Atlas, Amsterdam, 1998 (Boekenweekgeschenk), reprinted 2001.
10 The characteristic, local 'seringen' cullure is described by Marion de Boo, in an article in NRC Handelsblad (2000): *Terug naar Aalsmeer.*
11 Everyone familiar with Aalsmeer immediately recognizes that the image is not a correct portrayal of the actual situation, but a relatively free interpretation, reorganizing the basic elements for educational impact.
The history and content are discussed in detail in: Theodore van Houten: *Vertekend beeld: Aalsmeer op een schoolplaat*, in: *Oud Nuus*, nummer 148, oktober 2007. Pg. 17.
12 In: De Nieuwe Kaart, Atlas van Nederland 2005, published 1997. Map, scale 1:75.000: Haarlemmermeer. Pg.51.
13 Not without humour, the authors of *'Reis door de tijd'* characterise these development-plans as follows:
"Ontwikkelaars en architecten onderscheiden Water wonen, Dorps wonen en (omdat het beestje toch een naam moet hebben) Formeel wonen."
14 The information about the national monuments ('Rijksmonumenten') and municipal monuments ('Gemeentemonumenten') has been taken from the municipal archive, accessed via the internet.
The lists and project-data are not always complete and correct.
15 These traditional farmhouses are considered in the AA Variations project AA01.
16 This kind of vernacular architecture seems to have been an inspiration for Duiker & Bijvoet's Suermondt house, which – for cost reasons – was also built without a pile-foundation. See: project AA05.
17 The oeuvre of water-tower architect Hendrik Sangster is featured in two books: *Op eenzame hoogte* (2008) and *Hendrik Sangster: Ingenieur-Architect, Watertorens and ander Werk* (2013), as well as in an overview of Dutch water-towers: *Watertorens in Nederland* (1994).
18 See also: Project AA07.
19 In my early rounds of reconnaissance in the context of the AA Variations projects I made a number of visits to the archive and it was striking to discover how just about *all* – private – building activity dried up from the beginning of 1930 onwards.
20 Mrs. Leni Keesen (1936), member of the Buurt's Terra Nova 'affiliation', remembers that several families had handicapped children ('lammen').
She also recounted how the Uiterweg was only broadened due to the fact that in the winter of 47-48 the lake and canal were frozen-up. Because the gardeners could not get supplies of fuel for their greenhouses, the municipality decided to fill-up the northern ditches, so that barrels of oil could be rolled, along the broadened road, to the various enterprises.
21 The first drawings for the Stokman house by H.R. Aiking, architect BNA, are from 1968.
In June 1969 the 'Welstandscommissie' advice was as follows: *"Hoewel de commissie dit voorstel, op zichzelf gezien een bepaalde kwaliteit wil toekennen, meent zij dat het in de aangegeven situatie niet zal passen. Zij beveelt aan langs de Hornweg een beleid vol te houden waarbij de karakteristiek van de hoofdvorm van de bebouwing mede bepaald wordt door met pannen kappen gedekte bouwlichamen."*
In February 1970 the proposal is eventually accepted by 'Burgermeester en Wethouders Aalsmeer'.
During my six-week practical-work period on an Aalsmeer building-site, in 1972, I frequently cycled past the house, with a characteristic combination of light, glazed bricks and varnished hardwood.
I was suitably impressed and originally included it in the AA Variations study collection.
The house has since lost most of its rural charm, due to the building of a raised motorway – the bypass of the provincial through-road, completed in 2010 – along its south-facing garden.
22 Bernard Hulsman: *Een cursus 20ste eeuws bouwen: Toonzaal Aalsmeer.* In: *NRC Handelsblad* (Weekagenda, Culture Section), June 29th 1995.

7. AA Variations

7.1 AA01
J. Timmer
1825






HISTORISCHE
TUIN







Introduction

This historic farmhouse, built in 1825, is one of Aalsmeer's oldest traditional buildings, most of which are to be found in Aalsmeer's 'West-end', along the Uiterweg.

The more or less self-contained West-end enclave, known locally as 'De Buurt' ('The Neighbourhood'), was originally inhabited predominantly by descendants of West Frisian settlers, together with a considerable Mennonite population.[1]
The complex is situated a short distance south of the original village centre, on a long and narrow stretch of fertile land, surrounded on all sides by water. To the north of the plot lies the Brandewijn canal ('sloot'), which formed the western border of the village and made a connection between the West-end lake and the Haarlemmermeer.

In 1775, a protective dike was completed along the rear of the plot, which managed to halt the steady 'eating away' of arable land by the unruly lake. Roughly a quarter century after the realisation of the farmhouse, the lake was pumped dry using steam power in 1852, becoming the modern Haarlemmermeer polder. Since then, the rear-end of the plot looks out towards the surrounding ring-canal.

The farmhouse faces the Uiterweg, originally a narrow dike-road, with ditches on either side, leading westward. The plot was approached by crossing a ditch along the road, via an extra-wide swivelling bridge, allowing for cattle to be walked out via the road to the nearby Stommeer polder to graze.[2]
This ditch has since been filled in.

In Aalsmeer, two types of historic farmhouses were traditionally in evidence, which is indicative of its position in the border-area of northern and southern Holland. One of these is the so-called 'Hay-house'; an adapted West Frisian type.[3] Most of the remaining farmhouses however belong to the 'Longhouse' type, which was characteristic of southern Holland.

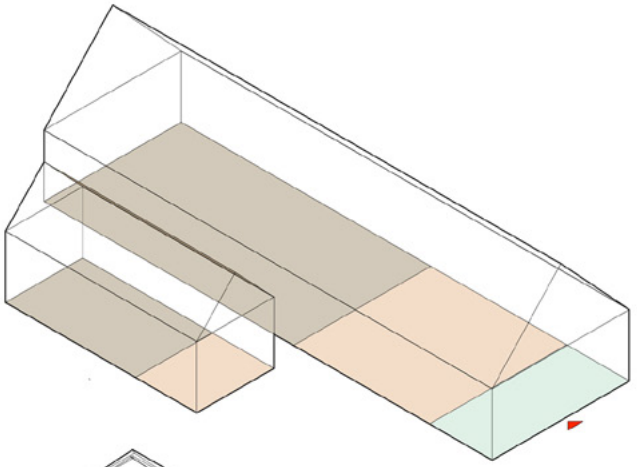
This particular double-house was built by Joost Timmer, a master carpenter and windmill builder from nearby Oude Wetering, who is also known to have realised another monumental farmhouse in the neighbourhood, known as the 'House with the Whale Jaws'; built in 1827 after the original farm had been destroyed by fire.[4]
In the early twentieth century the farmhouse became the representative home of the Maarse family, who specialised in the growing of Dahlia flowers, giving the building its local nickname: 'Dahlia Maarse'.[5]

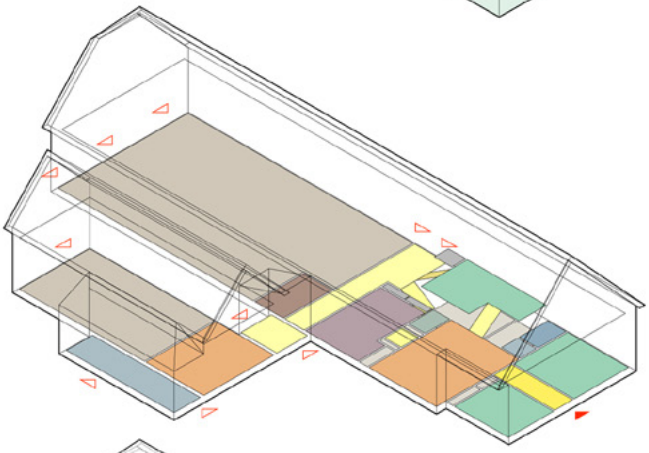
The essentially wooden structure appears to have been adapted and altered through the years, whereby more representative brickwork facade-sections and newer windows were incorporated.
The ensemble now has the status of a national monument and forms part of the local Historic Garden complex.[6]

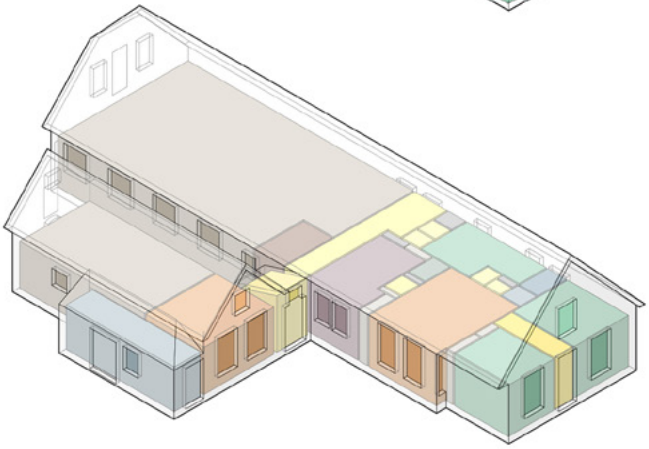
AA01	: Information		
Project	: Dahlia Maarse : Uiterweg 32, Aalsmeer		
Architect	: Joost Timmer		
Style	: Traditional Vernacular : Craftsmanship		
Year	: 1825		
Ground-plan	: 365 m^2	Floor-plan	: 710 m^2
Volume	: 2295 m^3	Ratio V/F	: 3,2 m











A1. Context

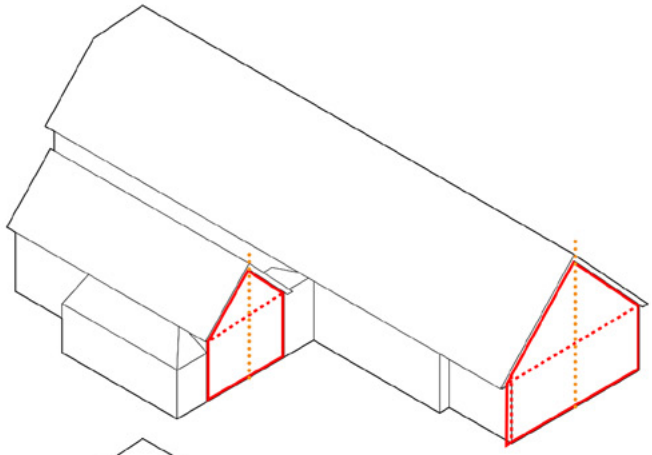
The first of the AA study-projects is a relatively large-scale, historic farmhouse.
The main volume contains a dwelling section (including living- and sleeping rooms), situated on the more public side, as well as a lofty stables-section at the rear, opening up to what originally were grazing-pastures. Positioned on the western side of this main-building is a relatively autonomous, juxtaposed 'summer-house', with additional living-spaces at the front and stables at the rear. It was connected directly to the network of ditches and canals, which were essential for the transportation of agrarian products and cattle, as well as for fishery.
Compared to other farmhouses, the building is set relatively far back on its plot. The front-yard was originally reached from the Uiterweg dike-road via a movable bridge.

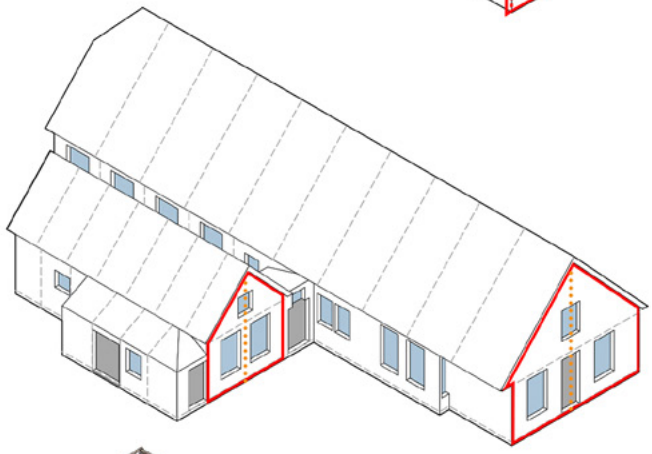
A2. Function

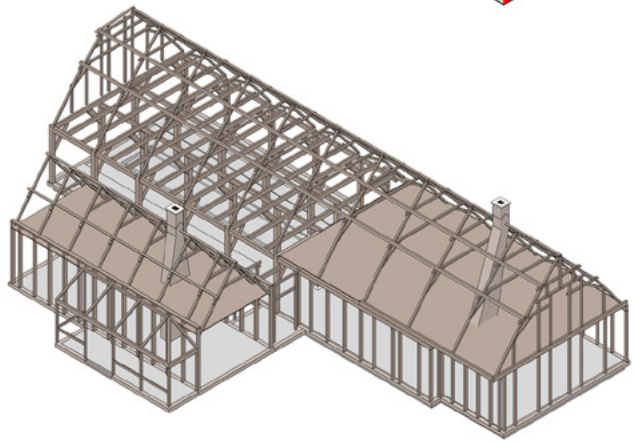
There is a clear distinction between the relatively straightforward stable-spaces at the rear and the more complex living- and working areas, facing the main road. The largest part of the main volume would originally have been reserved for the cows, whilst the stable in the functionally more flexible secondary volume would have been reserved for the farm horses. Between the main stable and the kitchen, a space for cheese-making can still be identified. A sunken cellar on the cooler northeast side would have been used for storage.
At the heart of the house, facing southwest, is the family kitchen, connected with a representative living room. Bedrooms are situated on the road-side and above the cellar.
The lofty spaces above would have mainly been used for the storage of supplies of hay and farm equipment.

A3. Interior

The main house faces the street, with a representative front entrance, opening up to a corridor between two bedrooms, that leads onwards to the living section.
Familiar visitors would generally enter via the central connection between farm- and summerhouse sections, approached via the generous front garden. An intermediate space connects all of the major functional elements, in particular the open-plan stables and cheese making area, with stairs leading down to the cellar. The three zones of the rhythmically parcelled cow-stable have doors leading directly outward at the rear.
The working-area opens up to the spacious family kitchen. All of the rooms, except for the 'up-room' above the cellar, have the same height. The windows primarily look out towards the west-facing garden and the main road.







B1. Object

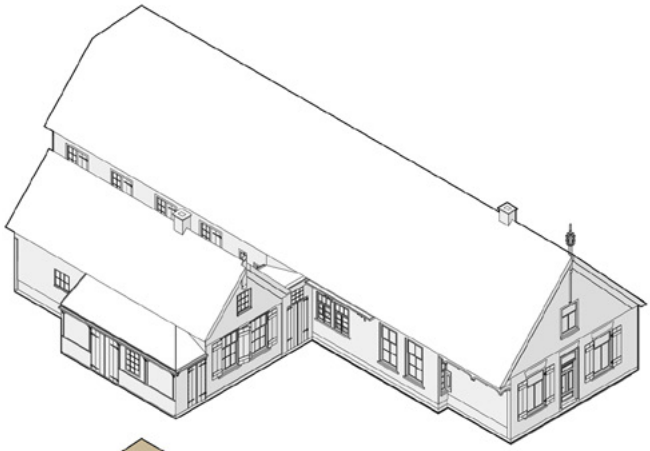
The main farmhouse has a width of approximately 9,3 meters, while the summerhouse-annex measures some 5,2 meters.
Both of these juxtaposed objects are essentially ‘extrusions’ of a simple, symmetrical section, consisting of a rectangular base, with a triangular roof-volume above.
A notable variation of this basic shape is apparent at the front side of the main house, where a volume has been ‘subtracted’ under the overhanging roof, suggesting that the original farmhouse may have been extended forward at a particular time.
The two main volumes are linked by an unobtrusive connecting element. Towards the south, a water-shed sub-volume has been attached. On the level of secondary massing, the roof coverings, consisting of thick packages of thatching, come across as volumetric entities in their own right.

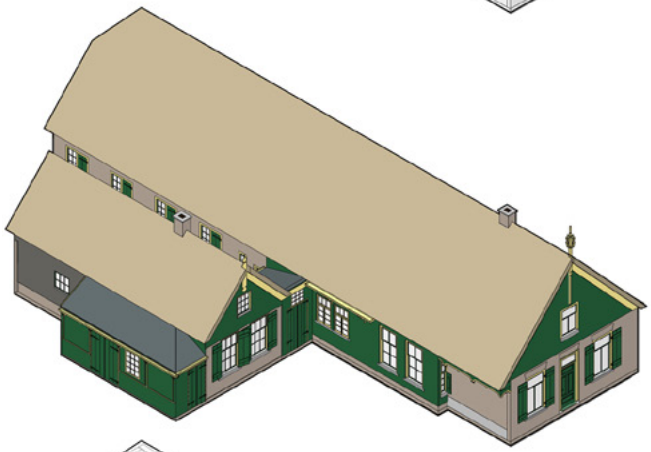
B2. Structure

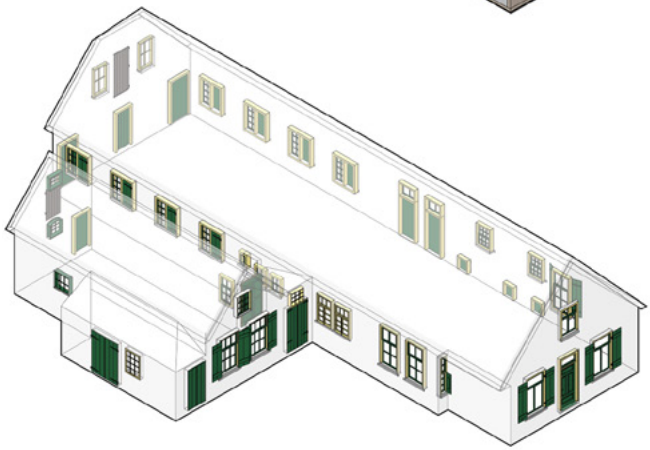
The linear main-volume is organised on the basis of a regular system of the load-bearing wooden columns and beams, supporting the attic and roof.
The structuring-system is most consequently applied in the original stables, measuring some 9 by 16 meters wide.
This free space is functionally and constructively divided into three zones. Interspaced by robust columns that support the hayloft above. The organisation of the smaller volume follows the same principle, but here the smaller span is not subdivided.
In the dwelling section, the structural organisation is more hybrid, possibly due to later extensions and alterations.
Apart from the brick foundations and cellar the architectonic order is determined by the regularly-spaced symmetrical trusses and lightweight wooden facades, with grouped openings.

B3. Technique

The ensemble of main house and summer house was constructed following proven building-principles, combining primary and secondary load-bearing systems, all executed in timber.
The elegantly efficient, traditional construction-system is still clearly in evidence in the stable- and kitchen areas of the main house.
Robust wooden columns, with diagonal supports for stability, carry primary beams, running in the longitudinal direction. The columns also support the triangular roof trusses, with integrated horizontal floor-beams. Per section, two intermediate beams further support the floorboards of the hayloft. The roof-trusses carry the roof-ridge and horizontal supporting beams, which together carry the thick package of roof-thatching. The outer walls are primarily built up as integrated wooden frameworks.







C. Form

C1. Facade

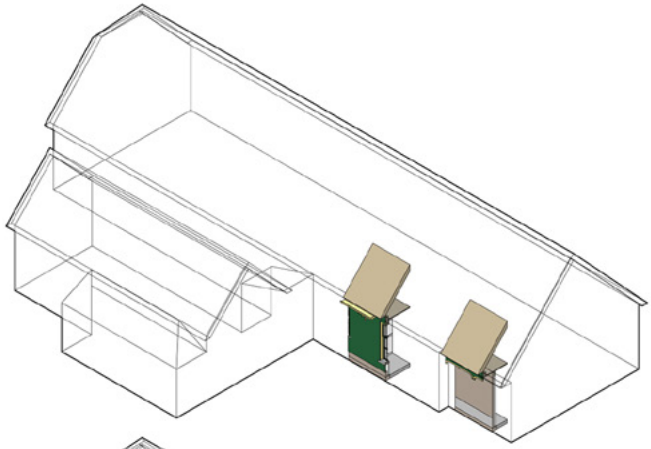
Both building volumes have outer structures consisting of wooden frameworks, covered in horizontal wooden planking.
Nonetheless, in places brickwork is used, which appears to have been introduced later on. This is particularly the case in the lower sections of the two representative, strictly symmetrical, street-facing facades. At the front of the main house, the brick outer layer is wrapped around the wooden inner-structure.
The long facade on the northeast gives a clear indication of the original, enveloping surface-structure, with a variety of openings, taken up in the wooden exterior cladding. This approach is also in evidence in the surfaces of the kitchen- and living-room section, oriented towards the sunny southwest.
The stable-walls facing west are executed in brickwork of a more recent date.

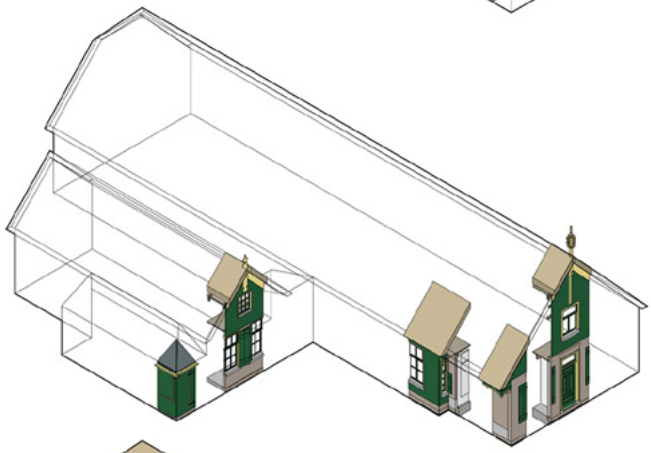
C2. Surface

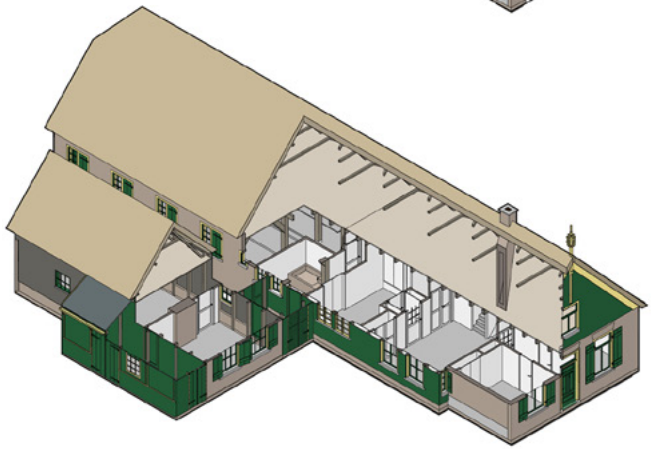
The monumental front facades give a representative impression, whilst in the more varied side elevations a motley collection of materials and finishes is in evidence.
The lower sections of the two prominent ‘faces’ are executed in brickwork with ‘cross’ bonding.
The main colour used for all exterior cladding and the movable window-parts is a traditional dark green. Wooden planking with horizontal grooves also covers the triangular upper sections.
The shading of the cladding has varied in recent years and the window-frames have alternately been painted white and creamy yellow. Green planking may also have been used for the rear sections, but planks with a greyish, tar-based finish and brickwork have recently been applied. Crowning both building volumes are the distinctive, voluminous parcels of thatching.

C3. Opening

The various outer sections along the building’s extensive circumference are punctuated by windows and doors, with different subdivisions and with shutters in the main facades.
The window-openings might originally have been traditional cross-windows, filled-in with an array of smaller windowpanes. In the second part of the nineteenth century these may have been replaced by sliding windows.[7]
Most of the windows now have vertical proportions, sub-divided in a 1 : 2 ratio: with a smaller upper-window above a sliding lower-window. There are various types of sub-divisions, most notable are the kitchen-windows. On both sides of the main stable, the windows have a symmetrical frame but an asymmetrical infill. One side is glazed, the other has a ventilation-opening with bars, which can be closed with a shutter







D1. Junction

On the level of detailing, the building as a whole demonstrates a number of connective principles, particularly where the thatched roofing meets the exterior walls.
In most of the longitudinal sections, the roofs form a distinctive, but straightforward overhang. Along specific parts of the ensemble's dwelling sections, zinc-lined wooden gutters, with articulate, decorative supports were applied
The exterior surfaces, which may have originally been clapboarded, in the current state are covered with wooden planks with horizontal rebate joints. At the rear of the stables and on the southwest-facing elevations, brickwork is now used in combination with tarred planking. The representative brickwork in the lower front-facades appears to have added on at a later date; folding around the existing, wooden sub-structure.

D2. Feature

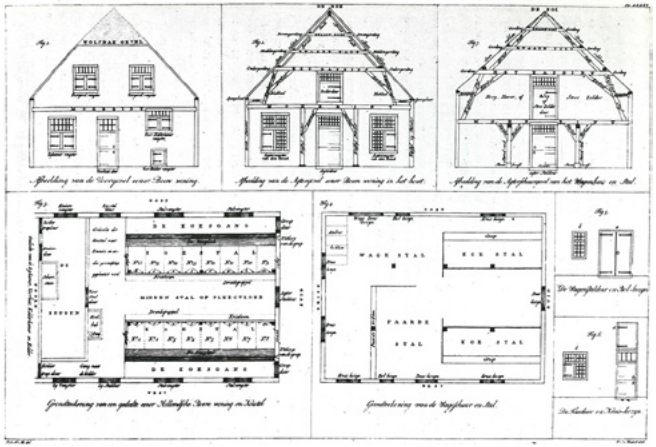
The corners of the facades and the peaks of the roofs are expressively articulated with ornamental features that underscore the building's identity and emphasise its local status.
The symmetries of both building-volumes are symbolically highlighted by distinctive crowning elements, giving each house its own identifying 'signature'.
A noteworthy, distinguishing feature of the main house is the way in which the lower front-wall has, as it were, been moved inward, allowing for direct visual contact between the living-room and the street. The cantilevered roof-section is here embellished with decoratively-painted wooden arches.
On the ground-floor, all of the windows facing the street have shutters. The characteristic waterside-shed has removable, rhythmically-arranged, wooden panels, with decorative borders.

D3. Ensemble

The dominant element of the rather grand main farmhouse is counterbalanced by the secondary summerhouse volume. Together they manage to come across as a stylistic whole, outside as well as inside.
The connecting element forms a spatial axis, between the front room of the sub-house and the 'service zone' of the main house, where the original stables (now in use as an exhibition space for the historic association) are connected with the kitchen, cum living space. There is a discrete connection between the kitchen and the more intimate living room. The bedrooms at the front of the house are wholly private. Although much has been altered since it was first realised, the house and garden have maintained their distinctive character, offering a glimpse of what life here might have been like, about a century ago.



Etching of a landscape with three farmhouses along a road, by Rembrandt, 1650.



Scheme of a typical Southern Holland farmhouses, Le Fracq van Berghey, 1811.

Development

This historic farmhouse was built, around 1825, by master-carpenter and windmill-builder Joost Timmer, apparently replacing a smaller farm of the 'hay-house' type.[8]
No original building-drawings – if indeed these were ever made – appear to have survived. For this reason, rudimentary plans and elevations have been drawn up by hand, based in part on measured drawings of the farm's dwelling-section by local architect Dick Kuin.[9]

From medieval times onwards, traditional farmhouses in the Netherlands tended to be constructed following clearly defined, regional (proto)types. Aalsmeer was situated in an area where, around 1800, two traditional typologies overlapped; one might say: 'coexisted'…
The first of the traditional types – the so called 'Hooihuis', of which only few exemplars remain – was characteristic of the region. It consisted of a relatively autonomous rear section, with stables topped by a hay-attic, fronted by a somewhat narrower living section.
The origins of the 'longhouse' building type also go back to medieval times. It is a building-format that was informed by Saxon and Frankish building modes.
At the time of its realisation, this farmhouse and others which were being built around the same time in the West-end area by master-carpenter 'Joost Timmer' might have been a-typical; something of a novelty.

Jan Lunenburg in 'Monumenten van Bouwkunst':

> *"The Old-Aalsmeer building style was based upon Frisian building traditions. Obviously, as Aalsmeer is situated in the middle of the original Frisian cultural domain, which stretched from Flanders to Schleswig-Holstein. In these territories several remains of houses and farms have been found in recent years, that indicate that the Frisian housing-culture existed in the Early Iron-age. Through time, from the east and the south, Saxon and Frankish influences made their way into the border-areas. On Aalsmeer's 'upper-land', the Frisian style was in fashion into the nineteenth century, but in the 17th century reclamations of the Stommeer- and Hornmeer polders, Southern Holland-style farmhouse were already being built. The big difference between the Frisian and the 'Dutch' types is that in the first type the cows were stabled facing outward, whereas in the latter their heads faced inward"*[10]

This particular farmhouse, especially the large main-house, is a representative exemplar of the Frankish 'Hall' type of southern Holland. A rather straightforward building-type, which in principle has all of its functions under one roof, with by far the most space reserved for the stables and the family living-quarters at the front, incorporating a storage-cellar, on its northern side. The combination of a main farmhouse with a summerhouse is atypical.
The distinctive difference between the two farmhouse-types is in

the organisation of the stables. In an article about 'Uiterweg 32' in a locally-published historic brochure, these different organisation-principles are explained.[11]
It is conceivable that when this farm was built around 1825, the longhouse type of southern Holland would have been considered more efficient and hence: more 'modern'.

The integral set-up here consists of a main volume, largely consisting of the original cow-stables, plus the main domestic functions, coupled with a more-or-less autonomous secondary volume: the 'summer-house', with accommodation for season-workers and what would originally have been the horse-stables at the rear.
These two elementary volumes have been joined together with a makeshift connecting element. The summer-house has a veranda-like structure with removable closed panels ('walhok'), attached to its southern side. This would originally have served as a kind of boat-house, being connected to a branch of the longitudinal canal.
A milk and cheese cellar was integrated into the farmhouse structure. Having been built on wooden piles, this cellar has kept its position whilst the surrounding house-structure has through time subsided some 30 centimetres.
The fact that the farm was built relatively far back from the road, may have been due to the presence of a large chestnut tree, which apparently survived into the early twentieth century.[12]
Such wooden houses and windmills were at the time ubiquitous throughout the western Netherlands. They were relatively light constructions, that were well-adapted to an unstable underground. They were assembled systematically by skilled craftsmen and could be stabilised or even taken apart and reassembled if necessary. The original set-up is most evident in the stables at the rear of the main house. The secondary 'summerhouse' may have been built using material from an original, smaller farmhouse.

It is likely that the structure that was actually built by Joost Timmer would have been somewhat more modest in size and, in all probability, quite different in appearance.
A drawing from 1811, published by physician, poet and scholar Johannes Le Fracq van Berkheij (1729-1812), as part of his 'National History', clearly illustrates the organisation-principle of the traditional farmhouses of (southern) Holland ('Hollandse Boerenwoning').[13]
In this unique document, the living-section is still very rudimentary, being identified only as 'kitchen' ('keuken'), with stairs leading down to a (half-sunken) cellar. Above the cellar there would have been a raised 'upper-room' ('opkamer'). This organisation can be identified in the front elevation.
In his scheme, about two-thirds of the plan is reserved for the actual stables, with about one-sixth each being allotted to working-activities, like cheese-making, and the actual dwelling-section.
It is likely that the original roof-form would have been of the (half) hipped type ('zadeldak met wolfseind').[14]
If the main farm-house was originally built according to the principles described by Le Fracq van Berkhey, it may have been considerably shorter, with an up-room above the cellar facing the street (see: 'Visualisation').

It is probable that the original main-house was extended forward, possibly in one or two phases.
It seems likely that the original main-house underwent such an extension, possibly by its new market-gardening owners, to accommodate more domestic rooms. Another motive might have been to give the building a more 'representative' air.



Pencil drawings of the four 'faces' of the Dahlia Maarse farmhouse, Breen, 2010.






Dahlia Maarse: a series views around the front of the main farmhouse building.






Views of the waterside shed, summerhouse and connection with the main house.

Experience

By 1921, the building had lost its original farming function.
The long stretch of arable land behind the house, which had originally served as pastures and then for the growth of trees, was henceforth used for the cultivation of flowers, notably dahlias, giving the house, henceforth owned by the Maarse family, its lasting local house-name: 'Dahlia Maarse'.[15]

The monumental (both in scale and heritage status) farmhouse is currently the figurehead of Aalsmeer's integral 'Historic Garden' museum complex, which has been set up with the intention of maintaining old agrarian methods and keeping alive traditional species. The centre offers guided tours and demonstrations for visitors, including exhibitions of the local historic society in the former stables.
The private part of the house was up to recently inhabited by a member of the local-history society, who managed to maintain much of the house in a more or less 'original' state.

Exterior:
On the one hand, the ensemble comes across as a distinctive entity, however on closer observation it becomes clear that, particularly on the level of upkeep, there are some marked differences in appearance.
If one approaches the double-house from the street-side, the volumes are arranged in an L-shape, around a frontal court-yard with impressive chestnut-trees. Here it is the juxtaposition between the front of the summer-house and the side of the main-house that catches the attention.
Whilst the windows of the minor house have a division of 3 x 3, the two windows of the living room each have a 2 x 3 division.
The two windows of the kitchen between these are wholly different, with a somewhat fussy collection of sub-frames that do not come across as original.
Going to the front, one is confronted by the transition of the recessed brick wall, allowing for street-views from the living-room though a special window. This is undoubtedly one of the most curious – and indeed unique – features of the house. The intervention has been exploited for the decorative articulation of the roof-overhang, with ornamental, painted pseudo-aches.
The windows in the front-facade are different from the other main-windows, with a vertical subdivision with a ratio of 1 : 2, whereby only the lower window has a single, vertical divider.
The long wood-clad northern wall, painted dark green, gives a good indication of what may have been the house's original condition. The position of the north-facing cellar is indicated by the higher-positioned windows belonging to the 'up-room'. Small openings with bars and shutters allow for the ventilation of the cellar.
Further down, there are two doors (one for the farm's work-zone and one opening directly into the stables-area. Here, the articulate roof-gutter stops and the cladding changes, no longer being sealed in opaque green paint, but now dyed a tarry brown-black,

as is the case with all other wooden coverings at the back.
Four characteristic, semi-symmetrical stable-windows are set into the wall. The position of these windows corresponds directly with the constructive organisation of the stable inside.
The same type of window appears in the opposite stable wall, but here the wooden wall-structure has been replaced by brickwork, as is the case in the lower rear facade, with three barn-doors,
A special element is the entirely wooden water-shed (the only element with a tiled roof), attached to the summerhouse on its south-western side.
This sub-pavilion, with panels that can be opened up to a branch of the longitudinal ditch, running along the ensemble's southern side, comes across as an almost frivolous 'folly'.
It is doubtful if this element in its current form was part of Joost Timmer's original set-up.



Exterior and interior of the stables section and the summerhouse roof structure.

Interior:
The waterside 'veranda' on the southern side is currently used for storage and serves as a sub-entrance to the 'summer-house', the front of which (during my first visits) harboured a collection of objects and documents belonging to the local historical society.
From here, one is able to cross over to the central work-area, situated between the stables and the domestic rooms, still including a basin that was originally used for cheese-making.
The stables, with their impressive pine-wood construction ('gebint'), resting on square columns, free-standing as well as integrated into the facade structure, give a 'metre' to the distinctive spatial organisation of the stables, with the central corridor originally reserved for feeding and the two outer zones for the cows, with gutters for dung on the outsides.
This space is currently used for regularly-changing exhibits, which can be entered from the public museum-complex at the rear.
From the stables-area one would originally enter the sizable, central farm-kitchen and then, via an in-between zone, be allowed into the representative family living-room, with windows facing west, plus its distinctive narrow window, looking directly towards the street.
The generously proportioned family-room has a representative air, with decorated fireplace, built-in closets and what would originally have been a bedstead. An ornate birdcage is supposed to date back to 1751, making it considerably older than the farm-building itself.[16]
From the main-room, steps lead towards the up-room and down to the sizable cheese-cellar.
A passageway between two front-facing bedrooms leads to the 'official' front door, positioned symmetrically in the street-facing elevation.
Altogether, this still largely original ensemble has a cosy, slightly shabby feel and manages to conjure up an atmosphere of times-gone-by.[17]



House interior: the main living-room and the connection from the kitchen area.






Characteristic details: openings of the water-shed, house, cellar and stables.






Articulation of the characteristic 'shift' in the western side of the main house.

Visualisation

This historic farmhouse-ensemble was taken up in the AA Variations collection relatively late.
Together with the last, twenty-first century, project (AA10) it as it were 'bookends' the central section of - eight - twentieth century design-artefacts.

Because the project was originally built in the first half of the nineteenth century, it could in some ways be considered *hors concours*, were it not for the fact that it serves as a meaningful reference-point for the collection of architect-designed twentieth century buildings.

Up to around 1900, traditional farmhouses such as this one were still a predominant presence in Aalsmeer, particularly along the Uiterweg, where the remaining traditional farmhouse buildings that have managed to survive can still be found.

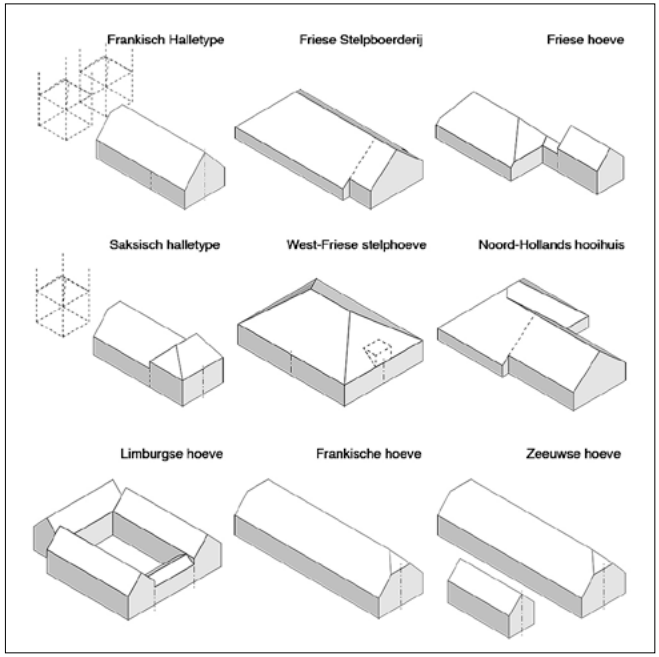
By the middle of the twentieth century, many of the original farmhouses had disappeared, often destroyed by fire or demolished to be replaced by new, more suitably-modern market gardeners' homes (see: AA2, AA3 and AA6).
As a consequence, the few remaining historical structures have acquired a considerable local stature. In addition, these archetypal farmhouses have served as cultural reference-points for some latter-day designers, notably de Klerk (AA4) and Berghoef (AA6), who figure prominently in the context of this study.

In retrospect, the AA1 project has proved to be an inspiring and challenging study-project, due to the ways in which timeless, designerly issues such as orientation, construction and expression can be identified. In this context, the project offered opportunities for thematic, model-based visualisation studies, comparable to those of the of the other nine AA projects.

On the basis of the body of visual data that has been accumulated in this project-study, four visual 'variations' are discussed and illustrated:

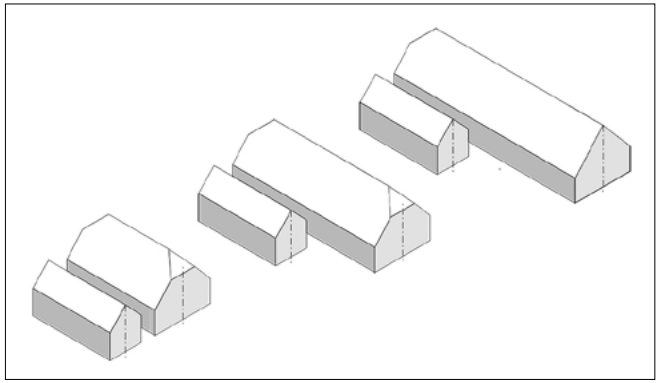
— Typological Variations;
— Volumetric Variations;
— Elevation Variations;
— Detail Segment Variations.

Typological Variations:
As has been mentioned earlier, two regional types were in evidence in the area around 1825: the (Frisian) Hay-house and and the (Frankish) Longhouse, which gradually came to replace the first category.
These are the two types of traditional homesteads which in the first half of the nineteenth century might have been considered 'typical'. However, throughout the Netherlands one could find different 'families' of farmhouses, including: Frankish; Saxon; Frisian and West Frisian types, as well as the southern courtyard-type of Limburg.[18] On the basis of a typological study of Dutch 'Boerenhoeven', published in 1942 by J.J. Vriend, an overview was created of the various traditional farm types of the Netherlands, focusing in particular on possible variations concerning this specific project.[19] The Hay-house may in all probability be considered to be a local adaptation of the Westfrisian ('Stolp') type and is not featured as a separate category in Vriend's overviews of national farmhouse types.The diagrammatic images which were generated depict the basic, volumetric characteristics of the regional farmhouse-types, with an indication of possible, separate hay-lofts, as well as some elementary growth-scenarios for the AA01 project, which clearly belongs to the Frankish type of southern Holland.



Typological overview of traditional Dutch famhouses, based upon Vriend, 1942.

Volume Variations:
It is to a certain extent speculative how this particular grouped composition may have originated; whether the whole set-up was built in one go, or if the configuration as we see it now 'grew' through time.
As there does not seem to be conclusive evidence on the matter, it seemed worthwhile to create a concise 'designerly' variation, in which the 'growth-options' are visualised as volumetric scenarios. The first diagram gives an indication of a fictitious situation, in which an autonomous stable volume is positioned next to the volume of the (summer)house. In this variation, the volume of the actual stable- and workspace-section is indicated as one volume, in which the characteristic wooden construction – 'gebint' – is still in evidence.
The second image also shows the two elementary volumes of the longhouse and the summerhouse, side by side. This scheme indicates the original main-house as it may actually may have been built, which would already have included the cellar. In this option, the main building would principally have been a stables-structure, with a kitchen and living room and a single bedroom above the cellar.
The summerhouse may have been used as an extension of the actual family activities, or to accommodate a farmhand or (season) labourers. The third diagram shows the whole ensemble in which the structure has been extended towards the road, accommodating two extra bedrooms.
This is more or less as the building stands today, including the two sub-volumes and the notable, sculptural 'subtraction' from the main body, towards the front.



Three possible development stages: from stable to representative farmhouse.



Interpretation drawings: comparison of the possible early state with the present .



Details and features of the AA01 project: axonometric and perspective views.

Elevation Variations:
When the decision was made to study and model this particular project, as part of the integral AA Variations study, it appeared that as good as no reliable graphic documentation, on the basis of which digital 3D models might be constructed, was available.
Having only discovered a rudimentary and incomplete measured plan of the dwellings-section, the author decided to revamp some old-school drawing skills and to 'reconstruct' the artefact, in plans and elevations, using pencil and paper on the basis of the available material and a series of photographs, which had been taken in situ.[20]
The exercise proved to be stimulating and insightful, an experience of "thinking by drawing."[21]
By physically transforming visual impressions into drawn form, the essence of the built artefact could, as it were, be absorbed. At the same time, the enterprise offered an insightful – and aesthetically rewarding – working experience.
Furthermore, this exercise fuelled the notion that the front-facade of the original main-house might originally have been further back and that it may have been extended forwards, in the direction of the road, at a later date.
Inspired by the discovery of the 'National History' drawing, published by Le Fracq van Berkhey in 1811, an extra pencil-drawing was subsequently made, to give an impression of what the house might originally have looked like, shortly after is realisation, if it were built in such a late-medieval form.
This option is considered in the 'Volume Variations' and discussed in the 'Aesthetics' section (Perceptions).[22]

Detail Segment Variations:
As part of the thematic 'Patterns' analyses of the ten AA projects, particular 'segments' were identified, that give an indication of project-typical 'Junctions' and 'Features', which for this particular project also proved to be an interesting and insightful exercise.
Essentially, two 'critical' details were identified, indicating the conditions that are at play where the thatch-covered roofs connect with the two types of vertical elements: composite wooden structures and solid brick walls.
Furthermore, a larger number of characteristic segments with an ornamentally-specific quality were identified. These include the two expressive front-gables and the 'special' corner-transitions, in particular the feature of the narrow front-facing window of the living-room and the corresponding cantilevered roof-structure.
In the 'Patterns' sections these details are relatively small, due to the standardised scale for all ten projects. For this reason, it is interesting to visualise them in a way that allows more 'sense' of detail. In this case the total segment-collection is visualised both as a collection of axonometric components as well as in perspective.
To stimulate the awareness of their relative position within the building as a whole, a wire-frame outline has been included.

Position

This historic building is a representative of what we have come to call Vernacular architecture.

In his book *Architecture Without Architects*, Bernard Rudolfsy introduced terms for such more-or-less 'spontaneous' products of the global building-culture such as 'non-pedigreed architecture' and even 'sophisticated *minor* architecture'.

Bernard Rudolfsky:

"Architecture without architects' attempts to break down our narrow concepts of the art of building by introducing the unfamiliar world of non-pedigreed architecture.
It is so little known that we don't even have a name for it.
For want of a generic label, we shall call it vernacular, anonymous, spontaneous, indigenous, rural, as the case may be."[23]

An historic building such as this is in a way a kind of 'time machine', as it takes us back, affording tangible insights into the archetypal building-methods and living-conditions of the past.
It is a regional representative of the traditional 'Houses of Mankind', which in the view of Colin Duly may be considered as cultural expressions of what were originally tribal value-systems and -identities.

Colin Duly:

"The house plays an intermediary role between man and his world, and everywhere deserves recognition as a powerfully revealing cultural and aesthetic phenomenon." [24]

Christian Norberg-Schulz considers the archetypal agrarian houses of Europe as an expression of local customs, which are at the origin of the 'art of place' and which, up to not so long ago, "*characterised the various regions of the countries of Europe, endowing each with an emblematic character".*[25]

Norberg-Schulz:

"What constitutes the nature of building traditions?
I will begin by saying that a building tradition manifests itself in two fundamental ways.
From a distance, farms and villages appear as distinct figures set against the backdrop of a landscape, and this effect depends particularly upon the grouping and the essential form of the unities, while the roof serves a fundamental role. From close up, on the other hand, the building type appears as a structure, i.e. as tension and rhythm.
In both cases, it is the protagonist of an image of the place and endowed with a characteristic imprint.
It is with this image that people have identified for centuries; and even though the use of the place might be different, unconscious identification endowed the inhabitants – through its figure – with a common identity, to the point that they could say: "I am from Puglia" or "I am from Tuscany."[26]

This particular farmhouse can be considered as the expression of a historical, regional identity, as if it were saying: "I am from Holland", or more specifically: "I am from Aalsmeer."

In this context, the Dutch traditional farmhouses are in many ways fundamentally similar to other European vernacular farmhouse types.
In a study of the typological characteristics of the very specific case of the 'Umgebinde' farmhouses of the Oberlausitz, in the borderland of Eastern Germany, Poland and Czechia, which I carried out together with Bram van Borselen, a systematic, visual survey was made of the recurring designerly themes that may be considered to be typical of this unique, vernacular building type.

On the topic of the 'Umgebinde Variations', I wrote in 2011:

"The compositions are concise and orderly, but never straightforward. As has been demonstrated, relatively systematic variations seem to take place on distinguishable, but interrelated levels. An array of harmonic combinations is the result, whereby the compositional possibilities are extensive, but not infinite. There is a perception of compositional Variety, yet we are simultaneously aware of a reassuring, underlying Order." [27]

Such houses tend have 'original' features, which in the case of this building may date back to 1825, but also additions and alterations, which are more typical of the building-practices – and indeed: 'tastes' – of later years.



A map with typical Dutch farmhouses, indicating the 'heartland' of Holland.

Discourse

Around 1900, such traditional farmhouses were beginning to be appreciated as prototypical exemplars of an 'honest' architecture and hence as study-material for the present-day 'building-master'. This was demonstrated by an influential book of drawings by architect Herman van der Kloot Meijburg (1875–1961), published in 1908.[28]
In this anthology, with eighty free-hand drawings of various traditional farmhouses, he attempted to more or less systematically, categorise the historic farm-buildings of the Netherlands.[29]

Van der Kloot Meijburg:
"What makes our farmsteads and -cottages, such as they stand there in an embrace of greenery, so attractive and bestows them with such a high value, is in the first place their clear and sober formal language ('vormenspraak') and harmony with the surrounding nature. They do not attempt to be more than they are; they do not show off ('pronken') with unmotivated additions ('aanhangsels'), but simply and honestly their inner core is brought outwards; nothing is superfluous, nothing affected or contrived ('gekunsteld of gezocht'), but rather a logically thought-out consequence of demands posed by dwelling and enterprise. With great naturalness and naivety these demands are resolved"[30]

In his texts, he acknowledges the underlying, geometrical simplicity of various regional farm-types, but in his choice of subject-matter, as well as in his drawing-method, he displays a clear preference for the picturesque. From a cultural perspective it is fortunate that a number of the traditional homesteads have been preserved. Due to their protected status as (national or municipal) monuments they continue to serve as respected (though somewhat expensive in upkeep) reminders of a time that once was, but which is slipping away ever faster.

Henco Bekkering, on the significance and meaning of tradition,
"The function of the past resulted in form, which acquired significance.
The significance now associated with the form has become the function for society.
As a result of the mechanism of tradition these significances continue to play a role in the collective consciousness of society (which they do by their very definition).[31]

The durable conservation of nationally listed historic buildings like this one is a matter of a national cultural heritage policy, that is not without problems.

This becomes evident when one considers the differences in treatment of the outer facades and the multitude of window-types in the present building. The somewhat ad-hoc approaches, when it comes to conservation and maintenance, have an influence on the quality and appreciation of historic artefacts.

One might ask the question, which building deserves to be maintained:

— The market-gardener's home as it would have been around the middle of the twentieth century, complete with all of its alterations, or:
— The original, purely wooden Frankish farmhouse, with near-original facades and windows.

Whilst the last option might be the most interesting in an historic context, it would mean a costly, integral re-construction. This would no doubt prove economically problematic. Hence, we may have to be satisfied with maintaining what there is, as concisely and effectively as possible.
As a functional artifice, a house like this needs to be lived-in to survive and that means concessions have to be made to present-day living-standards and that the daily upkeep requires dedicated, continued attention.

As 'one of the survivors' from a distant era, the historic building now contrasts considerably with the steady influx of newer (pseudo)homesteads, mostly built by affluent newcomers.
These imposing, often ill-proportioned mansions, taking the place of non-listed older houses, tend to be retro-traditional in design, but with the comforts, security features, amenities and detailing of today.
As a consequence, the character of the once a tight-knit, almost insular, community of 'de Buurt' has in recent years steadily and lastingly changed.
A development which appears to go on unchecked, at an ever-increasing rate…



Documentation drawings of Dutch farmhouses by H. van der Kloot Meijburg, 1917.

Aesthetics

The aesthetic appeal of such emblematic, traditional farmhouses may be due to a number of factors. An attempt will be made to identify the most essential aesthetic attributes of this particular case-study project.

In this case, I would like to identify two issues that may be particularly worthy of consideration when addressing the project's aesthetic qualities:

— *Location*: the position and presence of the built artefact in its (original) surroundings;
— *Tectonics*: the skilful- and expressive application of (traditional) building techniques.

A major quality of such historic, vernacular buildings is their fittingness to place; the perceived symbiosis between landscape and man-made artifice.
An aspect of this condition – which Norberg-Schulz identified as 'Genius Loci' – is their clarity of purpose: the archetypal, domestic combination of agrarian enterprise and family dwelling.[32]

Christian Norberg-Schulz, quoting Maria A.C. Otto:
"Presence means being here, that which is in no place does not exist."[33]

Binding the composition's inherent sensibility to place and to utility together is the elegantly essential 'figure' of the house, with its clearly identifiable shape-grammar of elementary volumes and a 'human' scale, as it were 'grounded' in its (original) surroundings.
As a consequence, the distinctive – tectonic – expression of locally-available materials and their skilled workings, coupled with restrained, artisanal ornamentation, surface textures and traditional colour schemes give such compositions a satisfying, experiential 'tactility'.
The combination of a sense of respect for their old-age and their lasting durability though time may be considered to be essential factors that contribute to the enduring appreciation of historic farmhouses like a this one and its neighbours.
In this context, the 'design' of this particular farmhouse, as one of a small but significant collection of local artefacts, may be perceived as being representative of a more or less 'stable', tradition-based practice of building which, in essence, can be traced back several centuries in time.

Auke van der Woud:
"The first four decennia of the nineteenth century are, as far as building activity is concerned, the still before the coming and lasting storm. This period is grosso modo the same as the late eighteenth century. By far most of the designers were working as a master-craftsman ('ambachtsbaas'), who stood at the head of a craft-based building firm. Only a few individuals would be able to exist solely by making designs."[34]

'Design' in this context should not be considered so much the work of aesthetic expression of an individual, creative designer but rather as a manifestation of a shared, tectonic culture and of creative, professional craftsmanship.

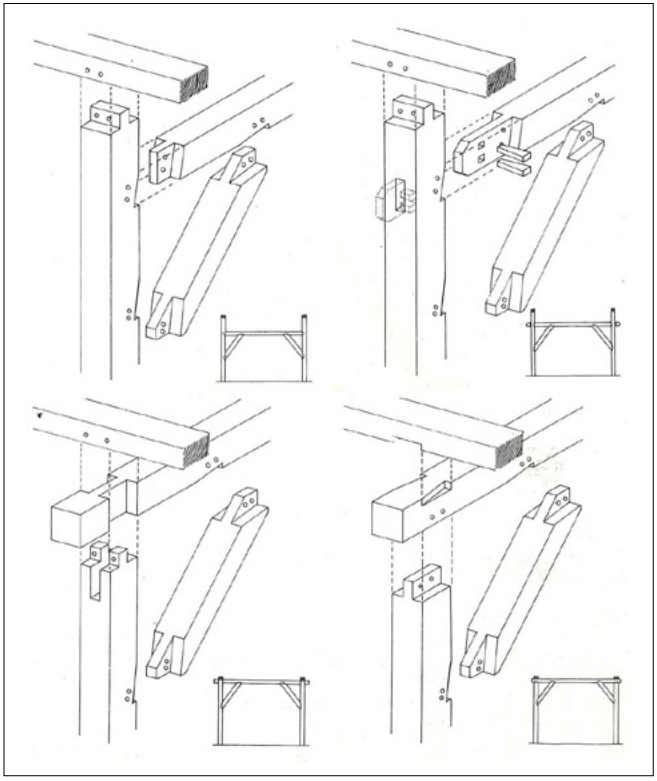
J.F. Berghoef in 1947, on the role of the traditional building-master:
*"In the past, the master in the building discipline – with us that was usually the master-carpenter – was responsible that a house got its form: he determined the general set-up, organisation and facades, the configuration of the rooms and their finish, he specified the measurements, chose the materials and the building method and the process of realisation was under his guidance. Not much was drawn, it usually came down to simple plans, elevations and some sections, all on a small scale. …
In such a building-practice ('bouwerij') there is a good deal of generation-to-generation experience, often from father to son, hence a good deal of tradition."*[35]

One might consider such regional building-traditions as being exemplary of a 'folk' art, that might be considered 'inferior' to explicitly-designed building artefacts.
However, this would not do justice to the 'designerly praxis' which is at the core of such tradition-based architectural manifestations. Such buildings were conceived on the basis of a steadily developing and adapting collective awareness and subsequently realised translated using creatively-applied building-knowledge and skills.

In his book on tectonics, Kenneth Frampton quotes philosopher Adolf Heinrich Borbein:
"Tectonics becomes the art of joinings. 'Art' here is to be understood as encompassing tekné, and therefore indicates tectonic as assemblage not only of building parts but also of objects, indeed of artworks in a narrower sense. With regard to the ancient understanding of the word, tectonic tends toward the construction or making of an artisanal or artistic product."[36]

Perhaps the most appealing tectonic feature of such buildings is actually hidden from the public view, as it can only be experienced inside, particularly in the original stables. Here one experience 'the art of joinery' first-hand, getting an impression of the skilful woodworking and systematic assemblage of the articulate 'gebint'- and roof-structures.
One of the most enduring qualities of built artefacts such as this one is that we can recognise the dedicated work of individuals whose insights and skills were grounded in an evolving culture of traditional craftsmanship. Even in a relatively puritanical community such as the one this house was built in there would in all probability have been respect and appreciation for the building-craftsman and his artful accomplishments.
The ethical conditions and aesthetical rewards of technical craftsmanship – *the desire to do a job well for its own sake* – are considered by Richard Sennet as a 'template for living'.





Detailling principles of 'gebint' stuctures, from: 'Boerderijen Bekijken', 1985.

Richard Sennet:

> *"Pride in one's work lies at the heart of craftsmanship as the reward for skill and commitment. Though brute pride figures as a sin in both Judaism and Christianity by putting self in place of God, pride in one's work might seem to remove this sin, since the work has an independent existence. … Craftsmen take pride most in skills that mature. This is why simple imitation is not a sustaining satisfaction; the skill has to evolve. The slowness of craft time serves as a source of satisfaction; practice beds in, making the skill one's own. Slow craft time also enables the work of reflection and imagination – which the push for quick results cannot. Mature means long: one takes lasting ownership of the skill."*[37]

To highlight the role of creative innovation in craft, Sennet quotes C. Wright Mills:

> *"The labourer with a sense of craft becomes engaged in the work in and for itself; the satisfactions of working are their own reward; the details of the daily labour are connected in the worker's mind to the end product; the worker can control his or her own actions at work; skill develops within the work process; work is connected to the freedom to experiment; finally, family, community, and politics are measured by the standards of inner satisfaction, coherence, and experiment in craft labour."*[38]

Originally, most of the traditional farmhouses would have been humble abodes; more or less open-spaced structures with no proper foundations, offering shelter to both inhabitants and live-stock, under an all-enveloping thatched roof and with only a few, shuttered, openings.[39]
Technical innovations like waterproof cellars, improved chimneys and glazed windows gradually brought more efficiency, hygiene and personal comfort.[40]

The facade-structures of such early buildings might originally have consisted of an infill of twigs and clay, which would gradually have been replaced by a covering of wooden planking.
A characteristic of the 'Dutch' farmhouses such as this one, is the application of technical conventions on the level of carpentry, in particular in the execution of expressive outer claddings.
Originally these would probably have been applied in a clap-board fashion, gradually being replaced by more modern, rebated, planking. Large sections of this particular house are clad in a kind of proto-rebate with very broad (tree-sized) planks. Later-on, representative sections were given a more durable – and representative – brickwork outer-layer.

The original windows of this house may have been stoutly-proportioned, shuttered 'cross' windows, with relatively small pieces of glazing.[41] This type of widow-frame and infill would around 1800 have been the design-convention, throughout the Netherlands, but probably also in the colonies.[42]
If, as has been suggested earlier, the original main-house would have been shorter, the 'upstairs-room' above the cellar would have

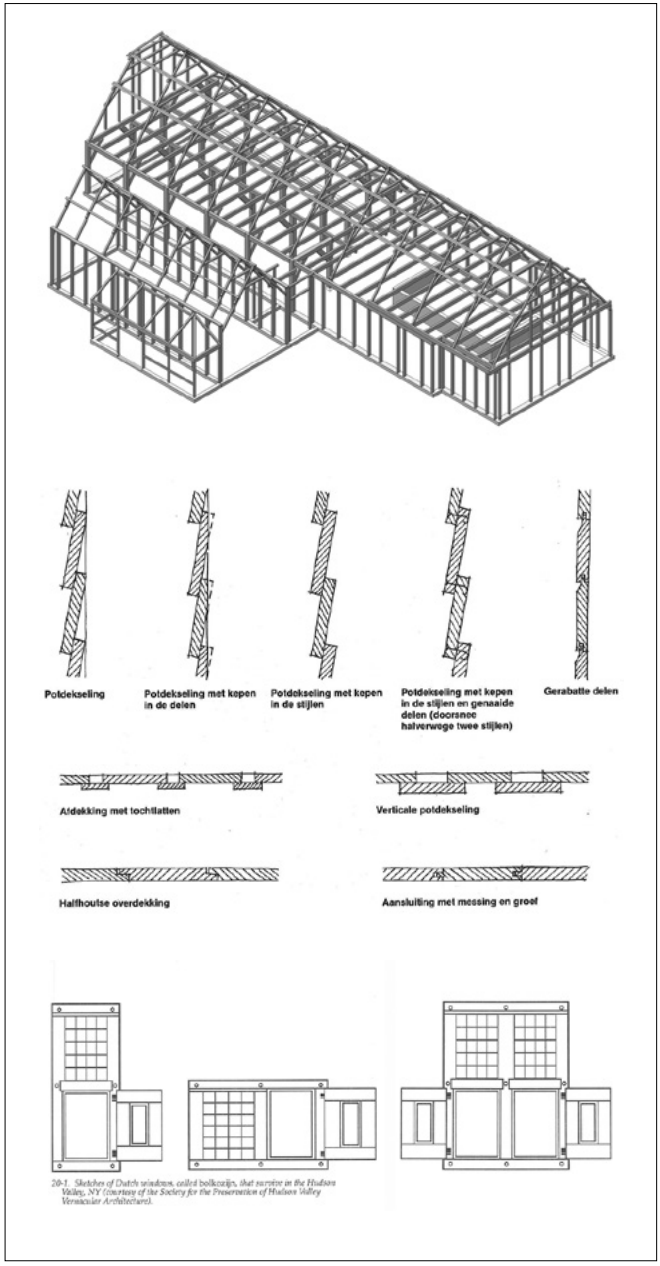
looked out via the, asymmetrical, facade, directly facing the street. An alternative sketch-drawing of the front facades gives an indication of what the building might have looked like had this actually been the case.

Around the end of the 19th century the original cross-windows with half-shutters would have been replaced by more modern window-frames with sliding components and larger sections of glazing, possibly as part of the extension.
If the original farmhouse was indeed extended in the direction of the street, with the addition of the two front-rooms, this may have resulted in the distinguishing – indeed unique – feature of the 'jump' in the south-facing wall under the overhanging roof of the main-building, with a narrow living-room window looking out towards the street.
The subsequent introduction of stylistic refinements would have further contributed to the identity and stature of each individual farmhouses, within its local community.

A particular feature of farmhouses such as these would have been the signature element of the articulated vertical 'top-sign' ('top-teken'), crowning the joining together of the thatched roof-sections at the front.
Such symbolic ornamentation underlines the particular identify of a built object. In this case, both the main house and the summer house have their own, relatively modest, decorated top-ends.
The symbols ('zinnebeelden') and their characteristic constituting elements may be more or less abstract geometrical forms or stylised figurative shapes. Applications vary in different regions, whereby the origins of such articulate building features are believed to go back several centuries in time.[43]

The farmsteads that are known to have been built by Joost Timmer, as well as their traditionally-built neighbours, all have quite specific ornamental characteristics, whereby mildly neo-baroque and neo-classical decorative motifs can be recognised as being at interplay.
Whether these decorative elements are in any way original is disputable. It is likely that technical refinements and distinguishing, expressive features might have gradually been integrated, during the century or so after they were first built.

The aesthetic appeal of a imposing farm-dwelling such as this one may attributable largely to the way such houses manage to, physically and emotionally, make a connection with the past, through their archetypal shapes-grammars, construction-principles and 'authentic' materials.
These aspects are experienced on the level of the ambiance of place and purpose; as well as on the basis of their personality and patina.
A capacity for *adaptation* may be considered to be one of the enduring success-factors of traditional farmhouses around the globe, on the basis of the sense of appreciation and inspiration they manage to instil, up to this day and age.



The elementary building-components of traditional wooden farmhouses such as this one, indicating various cladding options and traditional Dutch window-types.

Their characteristic, tangible qualities of place-bound expression, traditional craftsmanship and *gradual* transformation were recognised and articulated by philosopher Martin Heidegger, in his reflections on 'Building, Dwelling, Thinking'.[44]

Adam Sharr, on Heidegger's interpretation of the traditional farmhouse phenomenon:

> *"Heidegger claimed that both 'drafted' its inhabitants' occupation, and became a memorial to it. To him, the residents' dwelling was recorded over time in the fabric of the building and the paraphernalia of their lives placed there. For the philosopher, buildings are rich in insight, comprising a 'workshop of long experience and incessant practice'. To him, the configuration of a building reports physically the understanding involved in its construction and use. It offers tangible insights into the thoughts of its builders, should people choose to look for them. In this model of architecture, buildings are memorials to the engagements of mind and place involved in their construction and alteration over time. Every structure bears the imprint of successive layers of dwelling."*[45]

Although some might see them as archaic and superfluous (as was the case in the first half of the twentieth century when many such buildings had to make way for more 'modern' building-formats, not only in Aalsmeer), built artefacts such as this one deserve to be considered with respect, not in the least because of their *educational* potentials.
In his foreword to the book on traditional Dutch farmhouses by Herman van der Kloot Meijburg (1908); Henri Evers (1855–1929), architect and professor in Delft from 1902–1926, whose future students would later include J. Duiker & B. Bijvoet (AA05) and in all probability J.J.P. Oud (AA03), took the opportunity to make a declaration concerning the issues of soberness of form and economy of execution that would become central to the Dutch architectural discourse in the twentieth century.

Henri Evers:

> *"Appreciation of simple architectural beauty is a sign of the times and the pursuit of an honest translation of the practical requirements of life in a sober, sensitive form, a characteristic of contemporary architecture in the city and the land.*
> *The building-masters search for a compact, strictly economical art-form and attempt through study of the simple, beautiful architecture-types of the past, to strengthen their aesthetic insights."*[46]



The identifying 'jump' in the western facade, seen from outside and from inside.



A collection of traditional 'top-signs', from: 'Zinnebeelden in Nederland', 1941.

[1811] Le Francq van Berkheij, Johannes: *Natuurlijke Historie van Holland*, 1769-1811.
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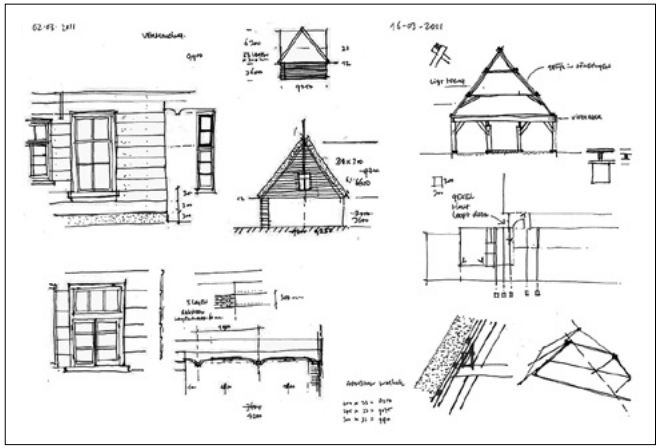


Explorative sketches by Bram van Borselen, as a preparation for the 3D model.

1 Also: 'Baptist'. In Dutch: 'Doopsgezind'.
2 The unusually broad bridge with protective railings can be recognized on an old photograph of the farmhouse which is kept in the archive of the local historical society; 'Oud Aalsmeer'.
3 Of the Hay-house type ('Hooihuis'), only two original buildings remain within the borders of the Aalsmeer municipality, both situated along the Uiterweg.
4 The article on Uiterweg 32 in *'Reis door de tijd'* states that Timmer came from the neighboring village of Leimuiden and speculates that because he came from South Holland he would have had a preference for this local building-type.
5 After the flower-growing family-business that moved here in the first quarter of the twentieth century. The sign with the Maarse name is still to be found on the front facade.
6 The so-called 'Historische Tuin'. In this historic gardening-complex, an attempt is made to uphold the original tree- and flower-growing techniques. The original cow-stables to the rear of the house are used for regularly-changing historic exhibitions.
7 Source: *Reis door de tijd* (2004): page: 'Uiterweg 32: een grensgeval'.
8 In his 1962 article in *De Aalsmeerder*, Jan Lunenburg mentions that the new farm, built for the Keessen family was built for a sum of 8000 guilders. Building started in 1824 and project was completed in 1826. The wood from the original house would according to him have been used for a shed at the rear, some suggest the material was re-used to build the summer-house.
9 The plan of the dwelling-section was the only file which was made available after contacts with the local archive, prompting my initiative to make my own drawings. In Dick Kuin's measured drawing, the diagonal hatching indicates the area of the semi-submerged cellar. I later received digital copies of elevation drawings, from Kuin himself.
10 In section C. of his '*Monumenten van bouwkunst'* (1992), entitled '*De oude huizen en boerderijen'*, Jan Lunenburg writes in: *Aelsmeer* (1992), pg. 148-149:
"De Oud-Aalsmeerse bouwstijl was geënt op de Friese bouwtraditie. Uiteraard, want Aalsmeer ligt midden in het oude Friese cultuurgebied dat zich uitstrekte van Vlaanderen tot Sleeswijk-Holstein. In deze gebieden zijn vooral in de laatste tientallen jaren talrijke restanten van huizen en boerderijen opgegraven, waaruit blijkt dat de Friese huiscultuur al in de Vroege ijzertijd bestond. In de loop der tijden drongen vanuit het oosten en zuiden Saksische en Frankische invloeden in de rand- en grensgebieden door. Op het oude Aalsmeerse bovenland bleef de Friese stijl tot in de vorige eeuw in zwang, maar in de 17e eeuwse droogmakerijen Stommeer en Hornmeer werden al Zuidhollandse boerderijen gebouwd. Het grote verschil tussen de Hollandse en de Friese stallen is dat in de Hollandse stallen de koeien met de koppen naar het midden gestald werden en in de Friese met de koppen naar de buitenkant."
Translation by the author.
11 An explanation of this practical development is also given in *Reis door de tijd* (2004).
12 The chestnut trees currently standing in front of the house are thought to be offshoots from the original specimen. Source: *Reis door de tijd* (2004).
13 The historic drawing is included in the publication *De Nederlandse Boerderij in het Begin der 19e Eeuw* (1967) pg. 40. It is also included in *Boerderijen bekijken* (1985), pg. 28. This book includes a short biography of Le Francq van Berkheij, who was a physician and poet, living in Warmond, South Holland. He spent his life documenting regional farming practices.
14 This type of roof is identified in the 'Dakvormen' sheets of the TH Delft (1954) and is what Le Francq van Berkheij indicates in his illustration.
15 The original name-plate, on the left of the front-facade reads: "Fa. K. Maarse Dz. Jr."
16 Source: the article *Het huis van Maarse*, in: *De Aalsmeerder Courant* (1962).
17 In a conversation I had with Mrs. Leni Keessen (1936), who regularly visited the house in her youth, she called the house in its current state "spooky".
18 At a late stage of the research, a map of the Netherlands with 'typical' farmhouses was discovered in a TH Delft brochure (1961) concerning results of a study-project, led by lecturer A.J.H. Haak and carried out with a number of students, including Urbanism professor-to-be J. Heeling
19 In the context of Vriend's two books on the 'Building Arts of our Country' *('De Bouwkunst van ons Land'*), published in in 1942, the historic farmhouse-types are addressed in a special chapter, with small illustrations that served as inspirations for this sub-study.
20 The documentation-drawing which was found eventually proved to have been made by local architect Dick Kuin, for a planned renovation which was not carried out. It only shows the dwelling-section and give hardly any information concerning the stables-section. Eventually, some elevation drawings were discovered, made by Kuin, which have also been included in the booklet *Reis door de tijd* (2004).
21 The idea of 'thinking by doing' – or in this instance, by *drawing* – is one of the core aspects of designerly enquiry, in this context to reach a better understanding, rather than creating a design proposal. The idea of thinking by drawing is promoted at the Delft faculty of Architecture by professor Frits Palmboom, who coined the phrase in a lecture to MSc students (2015).
22 The juxtaposed illustrations of the existing and alternative facades were included in a Paper for the 2018 DCA conference at Cornell University, Ithaca, USA. Title: *Visualising Variations, Designerly Explorations in Architectural Composition*.
23 Rudolfsky, Bernard, in: *Architecture Without Architects, A short introduction to Non-Pedigreed Architecture*, Academy Editions, London, 1964, Preface.
24 Colin Duly, in 'The Houses of Mankind' (1979), Pg. 9 &16:
"Where there is a strong element of tradition, it is a mistake for builders to deviate from it, and those who do are likely to suffer the sanctions also laid down by custom. The resulting similarity between houses is by no means dull but, rather, is harmonious and attractive: the style is often a vivid response to tribal man's psychic inheritance, of demons, gods, mystical inhabitants from the 'other side', and of ancestors who never 'really' left home."
25 Christian Norberg-Schulz in Architecture: *Presence, Language and Place* (2000), pg. 231:
"Not much time has gone by since that form of architecture characterised the various regions of the countries of Europe, endowing each with an emblematic character".
Furthermore: *"Vernacular architecture is at the origin of the art of the place as a response to the question of living, or inhabiting. … Being in a place entails the comprehension of the existing environment as an interaction of quality. This comprehension is – in a poetic sense – naturally linked to the use of the place. Practical matters and art are characteristics of popular art, which expresses everyday experience in its totality, and does not accept a separation between thought and feeling."*
26 Norberg-Schulz, pg. 232.
27 The conference Paper *'Unravelling the Umgebinde'* was published in the Proceedings of the 2011 European Architectural Envisioning Association, organized the Architecture faculty of the TU Delft.
28 Herman van de Kloot Meijburg: *'Tachtig Schetsen van Boerenhuizen in Nederland'*, 1908.
29 Van der Kloot Meijburg was one of the initiators of a national Open-air Museum, in which vernacular buildings would be collected and conserved for future generations by rebuilding them in a thematic theme-park.
Source: *Boerderijen bekijken* (1985), pg. 32.
30 Van der Kloot Meijburg on pg. 1-2:
"Wat onze oude boerenhoeven en huisjes, zooals zij daar staan in eene omarming van groen,

zoo aantrekkelijk maakt en zulk eene hooge waarde verleent, is in de eerste plaats hun klare en sobere vormenspraak en harmonie met de omgevende natuur. Zij schijnen niet meer dan zij zijn; zij pronken niet met ongemotiveerde aanhangsels, maar eenvoudig en eerlijk wordt de inwendige kern naar buiten vertolkt; niets is ie er te veel aan, niets gekunsteld of gezocht, doch alle vormen zijn logisch gedacht en een uitvloeisel van eischen door bewoning of bedrijf gesteld. Met grote natuurlijkheid en naïviteit worden die eisen opgelost."
Translation by the author.

31 Henco Bekkering: *Meaning and Tradition.* In: Arie Graafland (series ed.), Deborah Hauptmann (guest ed.): *Cities in transition*, 010 Publishers, Rotterdam, 2001.

32 Christian Norberg-Schulz introduced the term in his book *Genius Loci* (1980).

33 In Norberg-Schulz's book *Architecture, Presence, Language, Place* (2000), at the beginning of the 'Customs' chapter, pg. 231. Originally in: M.A.C. Otto: *Der Ort*, Freiburg/Munich, pg. 13.

34 Auke van der Woud, in: *Bouwen in Nederland 600 – 2000*, Bosma, Mekking, Ottenheym, van der Woud (eds.), Waanders Uitgevers, Zwolle (2007):
"De eerste vier decennia van de negentiende eeuw zijn wat bouwactiviteiten betreft de stilte voor de aanzwellende en aanhoudende storm. Deze periode laat grosso modo hetzelfde beeld zien als de late achttiende eeuw. Het overgrote deel van de ontwerpers was werkzaam als 'ambachtsbaas', die aan het hoofd van een ambachtelijk bedrijf stond."
Translation by the author.

35 Ir. J.F Berghoef, in: *'Over de Architectonische Vorm en zijn Betekenis'* (inaugural address at the TH Delft,1947), pg. 9:
"Vroeger zorgde de meester in het bouwvak – bij ons was dat veelal de meester timmerman – dat het huis zijn vorm kreeg: hij bepaalde de hoofdopzet, indeling en gevels, de vorm van de vertrekken en de afwerking, hij gaf de maten aan, koos de materialen en de uitvoering stond onder zijn leiding. Veel werd er niet aan getekend, het bleef meestal bij plattegronden, gevels en enkel doorsneden, alle op een kleine schaal. ... In zo'n bouwerij steekt een goed deel ervaring van geslacht op geslacht, vaak van vader op zoon, een goed deel traditie dus."
Translation by the author.

36 In: Kenneth Frampton: *Studies in Tectonic Culture* (1981). Pg. 4.

37 Richard Sennet in: 'The Craftsman' (2008). Pg. 295.

38 Originally in: C. Wright Mills, *White Collar: The American Middle Classes*, Oxford University Press, New York, 1951.
In *The* Craftsman, Pg. 27, Sennet states that this statement may seem *"impossibly idealistic."* However, this sentiment may be at the core of what we sense when we are confronted with an exemplar of craft-based creative enterprise such as a traditional, wood-construction farmhouse building.

39 Etchings by Rembrandt show traditional farmhouses which he documented around 1650. Source: *Rembrandt, 'Alle etsen van Rembrandt, afgebeeld op ware grootte'*, Gary Schwartz, Maarssen, Unieboek, Haarlem, 1977.

40 In this case, the street-facing large windows with a sliding lower section and relatively large pieces of glass are probably the result of later modernisations.

41 The cross-form window-format, dating back to medieval times, can be clearly recognized in the analytical drawings of the traditional farmhouse published by Le Francq van Berghey (1811).

42 Interestingly, Allen G. Noble, in his book *Vernacular Architecture, a Global Survey* (2014) makes it clear that this building-attribute (Noble mentions it as being a so-called 'bolkozijn') can still to this day be recognised in the historic, vernacular buildings that are to be found in the Hudson Valley, NY State, USA.
The elementary drawings, which are featured in his book, have been photo-edited for the benefit this study, to include the symmetrical cross-window, that would have been a representative feature of traditional 'Dutch' farmhouses like this one, around that time.

43 Particularly, the symbolic elements marking the tops of the roofs ('geveltopteken') probably go back to ancient times. Their supposedly 'Germanic' origins led to a particular interest in their rune-like features, during the early years of the German occupation.

44 Martin Heidegger: *Building, Dwelling, Thinking*. In: *Poetry, Language, Thought*, translated by A. Hofstadter, Harper and Row, London, 1971.

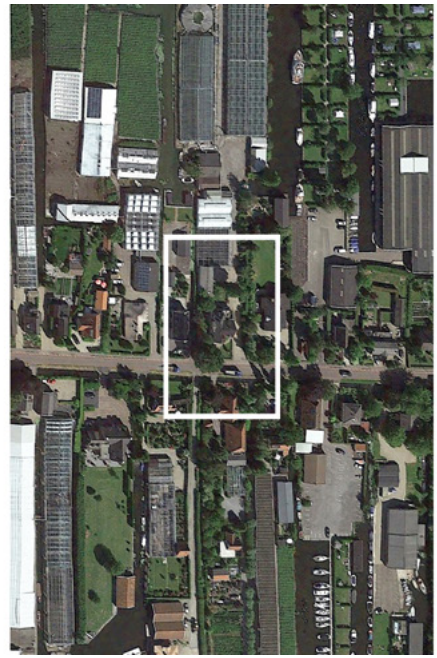
45 Adam Sharr: *Heidegger for Architects*, Routledge, London and New York, 2007.

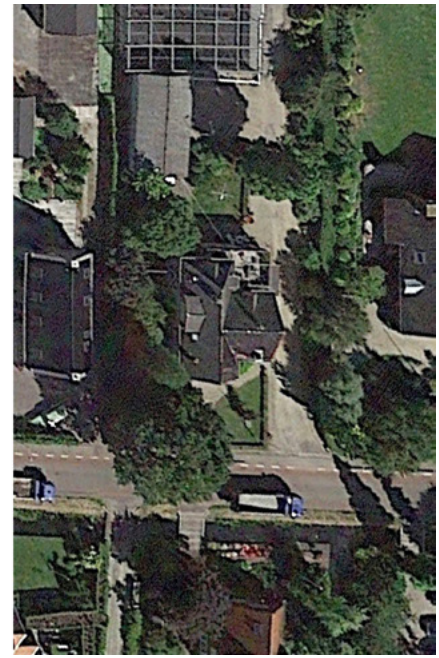
46 Henri Evers, in his foreword to the illustrated book by Herman van de Kloot Meijburg (1908): *'Tachtig Schetsen van Boerenhuizen in Nederland'* indicates the respect for this *'often so characteristic architecture-type'* which is appreciated by authors like Baillie Scott, Voysey and Muthesius.
In his 'Voorrede', he writes:
"Waardering van eenvoudig architectuur-schoon is een teeken des tijds en streven naar oprechte vertolking van de practische eisen des levens in soberen, gevoeligen vorm, een kenmerk der hedendaagsche architectuur van stad en land. De bouwmeesters zoeken naar een beknopten, streng economischen kunstvorm en trachten door de studie van eenvoudige, schone architectuurtypen uit het verleden, hun esthetisch inzicht te versterken."
Translation by the author.

7. AA Variations

7.2 AA02
V. Visser
1903













Introduction

The locally renowned 'Terra Nova' villa was built in 1903, after a plan by Volkert Visser.[1]
The project was designed and built for the Keessen family, who had been active as market-gardeners and traders along the Uiterweg for several generations.[2]

The family business was founded in 1837 when a plot of land about two-thirds of the way along the Uiterweg was acquired by 'W. Keessen Jr. & Zonen – Boomkweekers', an enterprise specialising in the growing and selling of fruit-trees. The young trees were distributed, primarily via water, increasingly throughout the Netherlands.[3]
The firm subsequently specialised in the growing of decoratively-formed bushes and trees, which from 1870 onward were exported throughout Europe and as far as Russia and the United States.
The name Terra Nova came about when, in 1898, a sizable plot of reclaimed land became available when an existing water-pool was filled-up with earth from the Haarlemmermeer polder (completed in 1852).
From this 'new land', the firm henceforth took as its trade-name Terra Nova, which is also associated locally with this family home, built alongside the entrance to the growing-fields. After a number of visits by queen Wilhemina to the complex, the by then prestigious firm became 'Royal Terra Nova', in 1910.

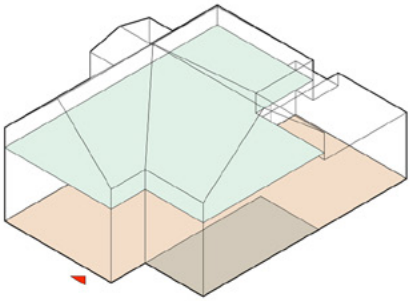
Precious little is known about Villa Nova's designer, V. Visser, except that he built (at least) two houses in the municipality. Another eye-catching house which he designed – named 'Pomona' and executed in an eclectic Chalet-style along the Oosteinderweg – had been completed two years earlier. He belonged to a new generation of locally-active architects, who surfaced around the turn of the century, including J. Munnik and J.W. Luik.
Between 1900 and 1914 they designed several representative homes in the economically-developing community, a number of which have become municipal monuments.[4]
Whether Visser was a professionally-trained architect is doubtful. It is probable that he may actually have been a draughtsman-builder, possibly a local contractor.

The representative house, with its integrated office, must have been perceived as ground-breaking at the time, next to the archetypal wooden farmhouses which still lined the narrow Uiterweg dike road.
An important economic impulse came with the building of railway connections to Hoofddorp, Amstelveen and Uithoorn, from 1910. Aalsmeer's station was designed by Ir. J.G. Wattjes (1912).
From 1927 onwards, the firm started growing their produce in modern glasshouses, a practice which would come to dominate the cultural landscape of Aalsmeer, well into the twenty-first century.

AA02	: Information		
Project	: Terra Nova : Uiterweg 222, Aalsmeer		
Architect	: Volkert Visser		
Style	: Regional Eclecticism : Art Nouveau		
Year	: 1903		
Ground-plan	: 165 m^2	Floor-plan	: 295 m^2
Volume	: 1080 m^3	Ratio V/F	: 3,2 m

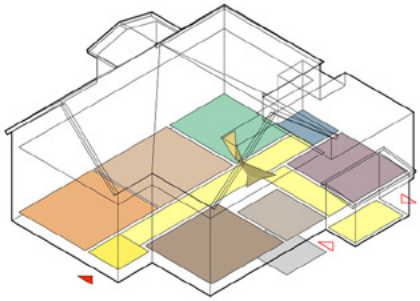






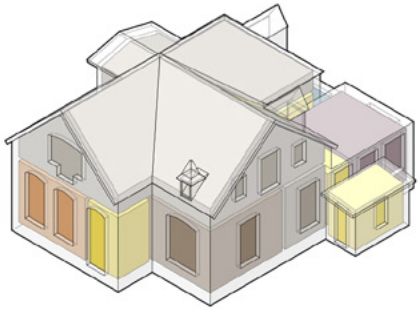
A.1 Context

The representative Terra Nova family-home and office, was built for the esteemed Keessen family market-gardening enterprise.
At the time of its realisation, the Uiterweg still had canals running along both sides and longitudinal ditches separating the agrarian plots.
In comparison with the traditional farmhouses, which were then still characteristic of the neighbourhood, Terra Nova must have been perceived as highly modern ‘intervention’, in its style, execution and materialisation. An integrated office-space looks out towards the main road, whereby visitors and staff could enter the building via an unobtrusive annex, alongside the commercial route towards the tree-growing plots behind. On the other three sides, the ground-floor dwelling is surrounded by a private garden, with a terrace at the rear.



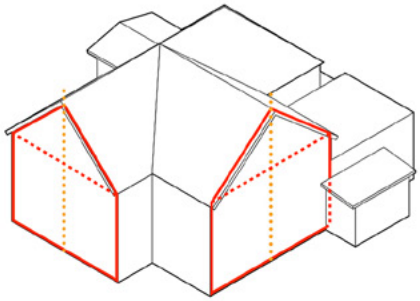
A.2 Function

A central hallway connects the various functions on the ground floor, with the main family-rooms being oriented towards the west and the commercial spaces towards the east.
The formal front-room and representative front-entrance face the street.
The entrance route that would however have been used most, went via the shed-like sub-volume, from which separate (front) doors lead to the office-spaces and the family-kitchen. The most public business-space, built above a cellar and serving as an administration room, had a ticket-window for payments, towards the hallway. The room is connected to a representative office-space, opposite the salon. A family living room was situated in the middle of the house, with the master-bedroom behind. The living-spaces and kitchen did not have a direct access to the garden.



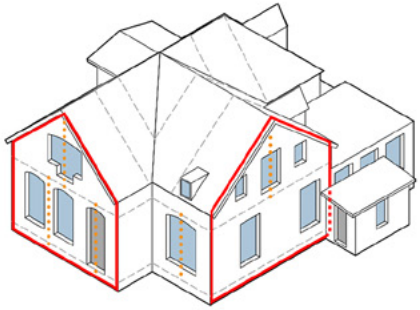
A.3 Interior

While the ground-floor organisation was clearly specified in the official drawings, this was not the case with the upper roof-storey, which was later been given its own infill and in time functioned as a separate apartment.
The spacious rooms on the ground floor were strategically positioned, with openings determined by their orientation and purpose. Like the main living room, the office-space faced the street, but also looked-out towards the thoroughfare to the fields and growing-houses at the back.
The living-rooms were separated by sliding doors. All of the rooms, including the master bedroom, had openings facing south-west. The kitchen looked out onto the path and the rear-garden.
The top rooms, under the pitched roofs, looked out via the two main facades and through a dormer-window facing west.



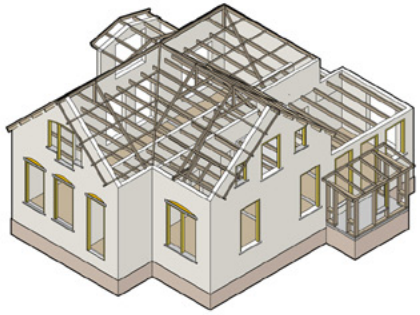
B.1 Object

Viewed from the street-side, the family-home primarily comes across as a straightforward, rectangular volume, placed perpendicular to the street, with a symmetrical pitched roof.
This primary element is intersected by a second one, positioned at a right angle, representing the business-section.
In actual fact, the apparent geometric clarity is not carried through towards the rear, where the body of the house and its roof are oddly narrowed-down and orthogonal volumes, containing the kitchen and services, appear to have been added-on, almost as an afterthought.
The understated entrance-pavilion was nonetheless an explicit a part of the original design. Towards the front and the sides, the roofs are cantilevered outwards, giving an added level of plastic articulation to the volumetric composition as a whole.



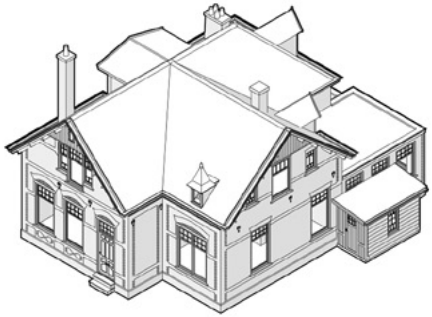
B.2 Structure

The building is organised as a relatively systematic hybrid of linear and vertical elements, with pitched roof-surfaces, whereby solid walls support the beams of the ground-floor and the first-floor, as well as the three-dimensional roof-structure.
While the two near-symmetrical main-facades offer visual balance, the structural system makes use of parallel zones, two with a span of approximately 4,6 meters, divided by a corridor that is about 1,5 meters wide. In this way, the load-bearing construction has been resolved efficiently and economically.
The structural organisation of the roofs is distinctly different, consisting of a framework, which is constructed from the outer walls upward.
A system of diagonal beams and horizontal ridges is used, in combination with the two triangular, upper wall-sections.



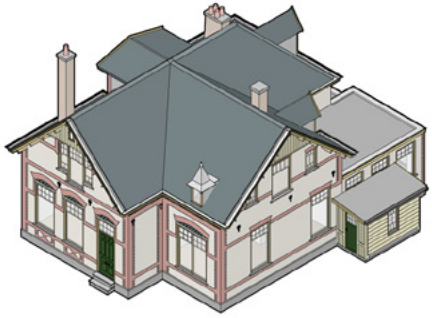
B.3 Technique

Differing distinctly with the traditional farmhouses, the building was constructed with a sturdy foundation, on wooden piles, supporting loadbearing brick walls.
The foundations and the outer walls are all one brick thick. Half-brick walls, running in the length of the building, give added support to the wooden beams of the ground floor and first floor.
From the tops of the two main-facades inward, roof-ridges run in two directions, meeting roughly above the centre of the living-area. Rafters and diagonal beams offer added stability where the two triangular sections meet, as well as in the hipped section at the rear.
Secondary girders, which are extended outwards to highlight the main facades, support wooden planking covered with roof tiles.
The kitchen and toilet-extension have simple, horizontal roofs.



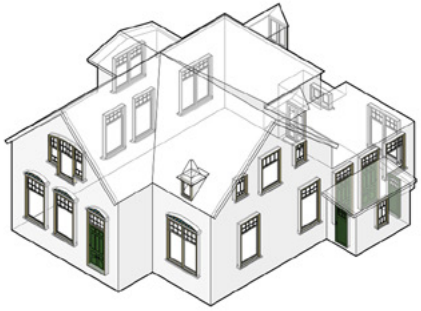
C.1 Facade

In the compositional arrangement of the two most representative, individual ‘faces’ of the building, symmetries and partial-symmetries play an important role.
The attention to the balancing and juxtaposition of window-openings, in combination with horizontal lines in the brickwork, is most evident in the eastern- and southern facades and the middle section of the west-facade.
The exterior of the building was realised using sand-lime brick, a then-modern product, manufactured industrially in the north of the Netherlands. This type of smooth brick-format was popular for some time, due to of its near-white tone, complemented by a wide range of pastel colours, allowing for decorative surface articulations.
The roofs were covered with modern, relatively flat, ceramic roof tiles with a greyish-blue colour.



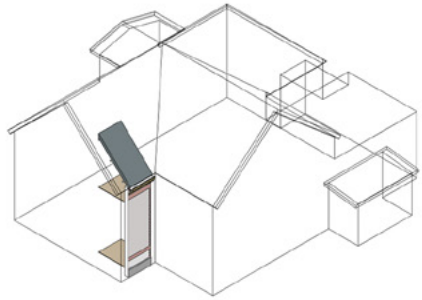
C.2 Surface

It is particularly on the level of the textural articulation and decoration of the building’s exterior ‘fabric’ that the project is compositionally and perceptually brought to life.
The outer wall-surfaces are all materialised using regularly-shaped sand-lime bricks, applied in a stretcher bond, making use of two colours: a creamy white and a pinkish pastel.
Throughout the facades, the pink bricks are used as ordering and accentuating devices, forming horizontal bands that visually partition the different ‘faces’ and highlight the placement and division of windows.
Furthermore, distinctive upright courses above the windows and corner treatments, suggesting pilasters, visually ‘frame’ the surfaces.
Below the front-windows and under the gutters, the coloured bricks are also used to form decorative patterns.



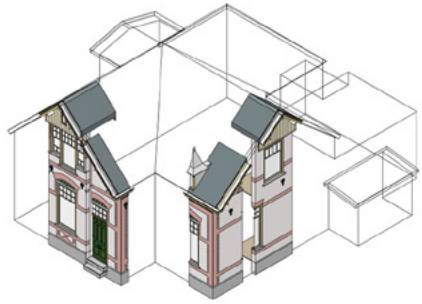
C.3 Opening

Throughout the building’s various facade sections, a variety of window-formats and subdivisions figure prominently, in their own right as well as in combination.
The window-frames are vertical in proportion, particularly in the ground-floor openings, corresponding with the relatively high rooms behind. The basic division is approximately 1 : 2, with a larger, vertically-movable window-element below and a skylight with fine-meshed subdivisions in the glazing above. This theme reappears above the main door. The openings are topped by structural- as well as decorative brickwork lintels.
In the street-facing facades, some window-elements are grouped to form a larger whole. The most prominent is the upper window-ensemble, which has stylistic undertones of the, then still quite fashionable, Art Nouveau movement.



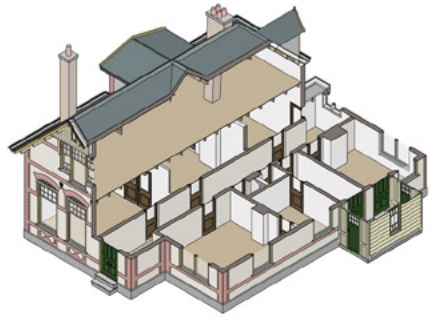
D.1 Junction

Where the slanting roof-surfaces, covered in relatively flat tiles, meet the expressive wall surfaces of sand-lime brick with complementary bonding colours, a moulded gutter has been introduced, serving as an intermediate element.
The connections between the walls and the roofs and between the walls and the windows have been articulated to form pronounced architectural features.
Ornamental gutter-supports are regularly spaced and below are decoratively 'seamed' by a band of brickwork, with a geometric figure, per section.
In the two facades with pitched gables, the horizontal roof-beams are extended, creating an overhang, with a triangular 'shield' of wooden planking.
Architectonic elements, such as the lintels above the windows, are used to give the front of the house a representative, 'public' appearance.



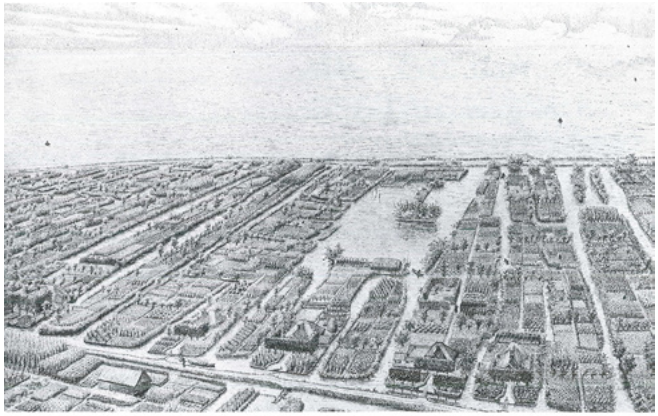
D.2 Feature

Particularly in the street-facing facades, ornamental attributes lend character, underscoring the status of this eminent market-gardeners home. Decorations are strategically applied throughout; whereby special attention is given to the most representative, public 'faces'. The openings in the two facades facing the road have emblematic arches, whilst the lintels above the windows in the side-facades consist of relatively simple upright courses. The windows in the top sections of both pitched facades are symmetrically placed, with somewhat 'fussy' subdivisions. Towards the rear, the embellishments become steadily more austere in execution.
In recent years, the divisions of some windows and their colours have been altered.
On the level of 'information', the firm's proud 'royal' emblem still attracts attention.



D.3 Ensemble

Both as a family-home and as a 'flagship' for the prestigious firm, the villa was clearly intended to impress, in its volumetric 'presence', its state-of-the-art materialisation and its affluence of ornamental detailing.
Spatially, the ensemble has a hierarchical organisation.
After entering the 'official' front door, visitors would be able to directly access the 'salon', without having to go further into the more private domains. Via the entrance-shed along the path leading to the gardening complex, one entrance led directly to the family kitchen, whilst another led to the hallway of the firm's administration.
Visitors would first be confronted with a payment-counter, before being allowed to enter the representative office-spaces, with decorative fixed furnishings, underscoring the enterprise's status.



Kwekerijen aan de Uiterweg met in het midden de later bekende - hier nog grotendeels uit water bestaande - Koninklijke kwekerij 'Terra Nova'. Situatie ca. 1840, de Haarlemmermeer is nog water.

The Terra Nova site around 1840, with the Haarlemmermeer and a still open pool.



Boomkweekerij „Terra Nova". (Kantoor en toegang tot de Kweekerij).



The Terra Nova house, shortly after completion and in the present condition.





The western side of the house, seen through the vegetation: winter and summer.

Development

The Terra Nova building, approximately halfway along the 2,4 kilometres long dead-end road of the Uiterweg, was – and is – a landmark project.[5]
Originally, this had been one of several connecting-roads and -paths running south-west to north-east. Due to the digging-up of the age-old packages of turf, the landscape steadily changed, becoming a conglomerate of ditches, pools and lakes, including the West-end lake.

When the ever-expanding Haarlemmermeer breached the separating stretch of land in 1727, the 'Buurt' effectively became a peninsula.
It seemed to be only a matter of time before the the village and the remaining lands and would also disappear, but a protective dike, built along the shore of the lake between 1765 and 1777, eventually saved the village and surrounding lands from 'drowning'.[6]

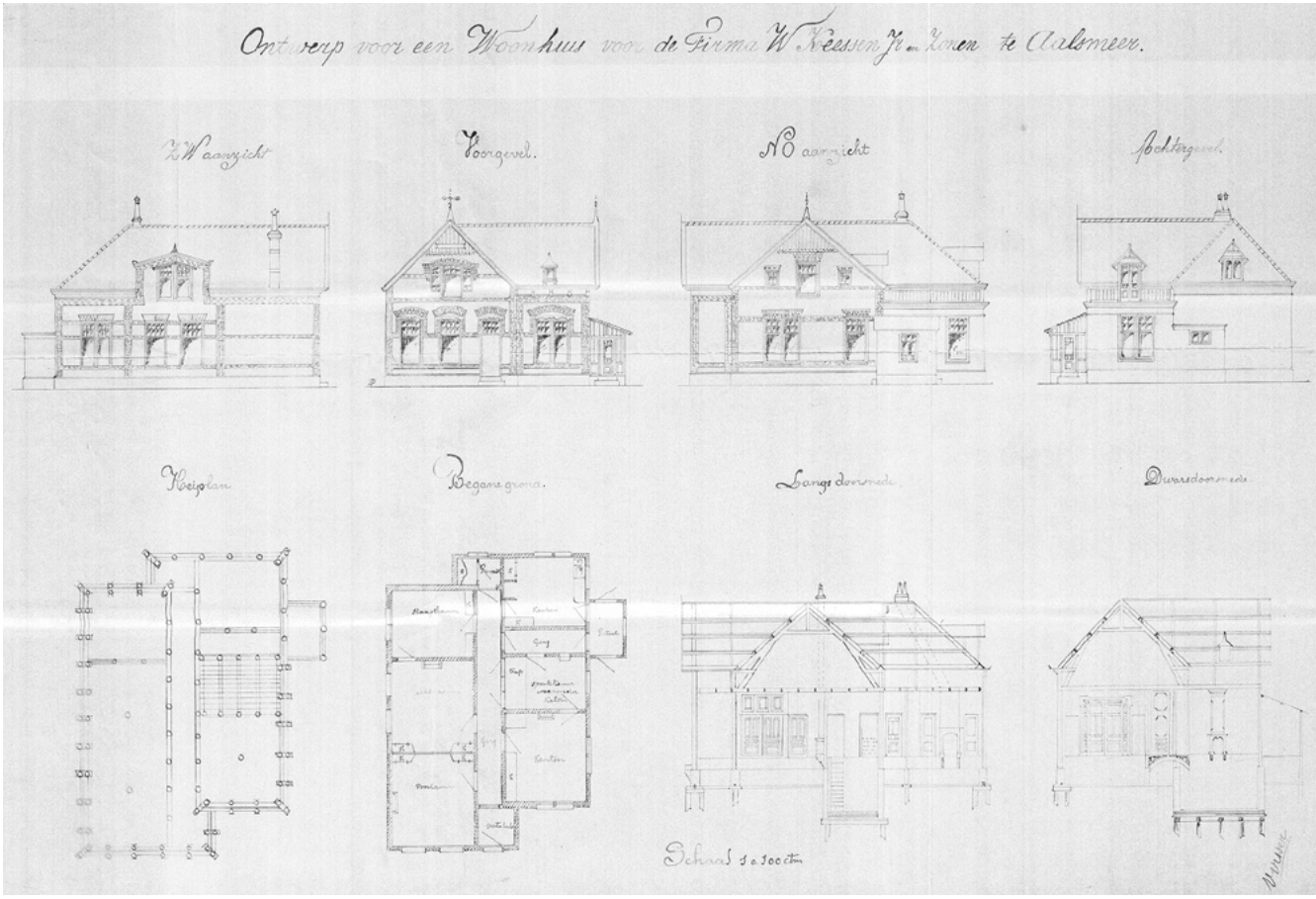
It was in this situation that W. Keessen and his sons started a fruit-tree growing business, in 1837. With the filling-in of a major water-pool, with soil from the reclaimed Haarlemmermeer polder, the enterprise was able to expanded.
By 1903 the 'Terra Nova' firm had become so affluent and prestigious that it was able to build an impressively-modern, representative artifice in front of its lands, facing the narrow Uiterweg, still bounded by water on either side, as can be seen in historic photographs.
Between the existing, traditional farmhouses and the modest labourers-homes, the new building must have made quite an impact at the time,

Very little is known about the building's design- and building process.
Responsible for the design of the house (and probably also its execution) was Volkert Visser, whose signature can be found on the original planning-permission drawing.[7]
Nothing appears to be known about Visser, except that two years earlier he had built another local icon, Villa Pomona, an eclectic chalet-style dwelling in the East-end, with low-pitched roofs.
Like Terra Nova, this was a representative home that fronted a major market-gardening enterprise.
It is likely that the Keessen family were suitably impressed by the project to give the commission for their own representative new building to Visser.[8]

In the set of building-permission drawings, the ground-floor living- and office spaces are specified, but potential subdivision of the top floor is kept open.
The document, which was found in the municipal archive of Aalsmeer, contains eight sub-sections, drawn scale 1 : 100: a plan of the foundations and a plan of the ground floor; two cross-sections and four elevations.

The pen-drawing's execution is quite sketchy, with primitively-embellished lettering.
The drawings do quite clearly represent the dwelling's lay-out and structure, but the elevations are relatively ambivalent and differ on a number of points, when compared to the realised project.

Technically speaking, the house must have then been state-of-the-art.
The structure has a sound foundation, with wooden piles down to the supporting sand-layers below.
The outer walls are a double-brick in thickness (not yet executed with a ventilating cavity) and are executed using a then-novel industrial building-product – sand-lime stone – with two contrasting tints, which were used for decorative effect.[9]



Print of the original drawing for the Terra Nova project, scale 1 : 100, showings plans, elevations and sections, signed by V. Visser, archive Aalsmeer municipality.



Aerial view of the Uiterweg, with Terra Nova in the centre, opposite project AA06.









Terra Nova: a selection of photographs, taken during the first visit, 1998.

Experience

The Terra Nova project became part of the AA Variations exploration on the advice of Mrs. Jellie Barendsen, when I was on a visit to the de Klerk house (AA4) in the east-end.
She drove me all the way to this local landmark in the west-end, giving me a first acquaintance with the Keessen family and allowing me to experience the house in its near-original state.[10]
At the time, the house's owner allowed me to explore the house's exterior and gave me a glimpse of its interior, particularly the Terra Nova office.

In the years since then I have regularly revisited the house, but was no longer in the opportunity to go inside. I never actually visited the upstairs-apartment (with its own external stair-case at the back), so no information about the top-floor organisation has been included in the digital model that has been made for this study.

More than a century after it was built, the house still has a striking 'presence' in the in sequence of free-standing buildings, lining the Uiterweg.
Significantly, the office of the Terra Nova firm has though the years managed to maintain much of its original detailing and atmosphere.
The villa has up until now been inhabited by the Keessen family, in recent years, with the parents living downstairs and a son and his family living in a roof-apartment on the first floor.

When walking around the building, the two-tint brickwork treatments catch the eye.
In the south-western facade the pink tint is used to accentuate the central section, which rises up to front a large dormer-structure.
The two colours are not only used to create lines and patterns.
On closer observation it becomes evident that the same two, contrasting, colours were also used in the bonding, to make the individual bricks stand out.

Where there is a transition in the coloured bricks, the bonding-colour is also switched-around. Through time, some of the – unbaked – bricks have clearly begun to weather and in places are largely worn-away. Whilst from a distance the house still looks to be in a relatively good state, closer up the wear-and-tear wrought by time and by heavy motorised traffic, becomes evident.

During my first encounter, the window-frames were painted an ochre-yellow with creamy-white infill-frames, with a green front-door.
In later years, the window-frames and the front-door were painted a burgundy-red, with white sub-frames.

The street-facing windows on the ground-floor have stone lintels, above which are arches decorated with alternating square tiles, yellow in blue, topped by arced lintels executed in pink brick.

Around the sides and the back, the lintels are horizontal, without further embellishment.
The official front door has a decorative wrought-iron grille in the Art Nouveau style.
Above the door is the royal coat of arms. An enamel sign on the corner proudly declares: ‘Koninklijke Kwekerij “Terra Nova”’.

By the early twenty-first century, the economic- and cultural climate had started to change quite dramatically, whereby the opportunities for labour-intensive and time- and energy consuming ventures such as the growing- and trading of flowers, plants and trees, on such a location, started to become increasingly difficult.

In December 2016 the once esteemed, highly-respected Terra Nova firm closed its doors, marking the end of an extended period of development and the termination of 180 years of commercial gardening-activity.

The latest developments (2017) are that the owners intend to demolish nearly all of the existing greenhouses in order to economically re-develop the property directly behind the Terra Nova villa, by building fifteen new recreational dwellings.[11]



A collection of details, as characteristic features of the Terra Nova project.



A series of recent photographs, exploring the elements of the house’s front. The colours of the woodwork have been altered since the first visit in 1998.

Visualisation

Document-research in the municipal archives led to the discovery of the original building permission drawings by Volkert Visser, which are quite rudimentary and in particular aspects differ from the actual, built artefact.

The house became the first project to be explored using digital software, but the results of these early explorations were not convincing.
After initial 2.5D digital modelling attempts, using the Architrion and AutoCad 2000 programs, had not produced the desired results, a layer-based 3D model was eventually constructed, using the 'Sketch' modelling approach, developed simultaneously for the other AA Variations projects.

On the basis of the original planning-documents, conceptual test-sketches were made early-on in the study and eventually the definitive 3D digital model.
The project was analysed thematically using SketchUp software, actively using 'Layer' options.

This method was pioneered in the House in Black Variations study and consequently became instrumental in the 3D modelling of all of the AA case-study projects.
In order to be able to analyse the building, a 3D model was constructed on the basis of the building permission drawings, in combination with photos of the villa in its recent state.

As explorations, four visual 'variations' are considered and illustrated:
— Fine-liner Variations;
— Facade Drawing Variations;
— Elevation Analysis Variations;
— Detail Segment Variations.



Comparison of elevation drawings, making use of different colours and hatchings. Illustrations based upon the digital 3D model, by Bram van Borselen.



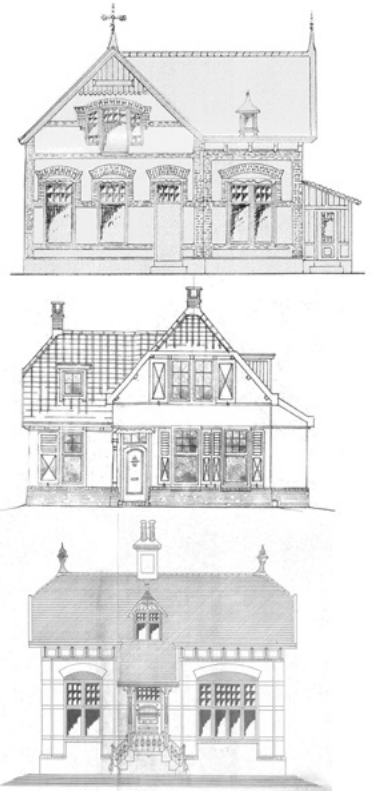
A series of explorative sketches, using pencil and coloured fine-liners, Breen.

Fine-liner Variations:
The first encounter with this project, in 1998, led to considerations as to how designerly 'variations' might be generated, on the basis of visual impressions.
A first, spontaneous, reconnaissance was carried out, simply using transparent paper and a fine-liner pen. This was essentially a matter of 're-drawing', creating a series of images based on one 'analogue' photograph.
In this explorative series, the elementary geometries, roof forms and surface articulations of the Terra Nova project were explored and extrapolated, with the intention of identifying characteristic formal themes.
These hand-drawn sketches identified differences in the window-openings, surface lines and tonal accentuation.
For the benefit of this study, the original sketches have been combined into one integral variations-overview on the basis of the Terra Nova casus.
From this initial exercise, the idea grew to systematically develop model-based variations, making use of digital modelling formats.



Early exploration sketches, based upon a photograph of Terra Nova, Breen, 1998.

Facade Drawing Variations:
In the preliminary study phase, in 1998, explorative research was carried out in the archives of the municipal building-services departments.
This yielded sets of copies concerning three iconic local building-projects from the early twentieth century, which were initially considered for analysis.
These three projects are compared here, on the level of drawing-quality:
— 1903: Villa Nova, Uiterweg 222; V. Visser, scale 1 : 100;
— 1905: Het Polderhuis, Stationsweg 15, J.N. Munnik, scale 1 : 100;
— 1913: Hilverda office and annex, Stommeerweg 4, J.G. Luik, scale 1 : 50.
If we consider the drawings of the main elevations, we can recognise similarities in the basic approach of the three designers, but also differences in execution.
Visser's drawings come across as quite primitive in their expression and linear qualities.
By comparison, the drawings made by Munnik are subtler and more precise in style.
Luik's drawings, which were made roughly a decade later, consist of a sheet with only three elevations, drawn on a more detailed scale. The drawing-quality is not particularly sophisticated and the decorative lettering is very pronounced and somewhat crude.
All three designers appear to have had particular difficulty finding a fitting graphic mode for the depiction of the glazing in their windows.



Comparison of front elevations: the Terra Nova, Polderhuis and Hilverda projects.



Comparison of 2D elevation experiments, using lines, colours and patterns.





Identification of typical detail- and feature sections, showing parts with contours.

Elevation Analysis Variations:
Similarly, some later 'Order' and 'Structure' explorations were carried out using simple drawing-media.
In this case, the facades – particularly the front elevation – were re-drawn over a print of a 2D view, taken from the digital model.
Using coloured pencils and fine liners, an attempt was made to visually identify essential sequences, rhythms, proportion, symmetries and partial-symmetries, which were at interplay in the facade, considered as a surface-composition.
Furthermore, different tests were carried out to determine which colours should actually be used in the 3D model, as well as in potential 2D analytical schemes, using different combinations of colours and hatchings, with graphic 'illustrator' software.
In these visualisation-experiments, several options for the depiction of roof- and brickwork directions and glazed window-openings were tried out and evaluated systematically.
Eventually, the decision was taken to 'tone down' the intensity of the colours substantially.

Detail Segment Variations:
The most prominent visual features of the realised project are to be found in the front- and side facades; particularly where the building-fabric of the outer walls 'go around' the, explicitly articulated, corners, as well as at the point where the two roof-ridges are visually brought forward and then decoratively emphasised.
The externally-positioned gutters are supported by regularly-spaced consoles. This facade zone has been treated as a decorative band, with a series of two-tone emblems, that have been taken up in the bricklaying pattern.
The roof-gutters can be identified on the level of expressive detailing.
To clarify the workings of such compositional elements, segments were taken from the overall model for the sake of added insight.
Here the same perspective-view is shown twice: as an integral impression, plus as a collection of detail-segments, positioned in a corresponding wire-frame outline.

Position

The villa is generally considered to belong to the 'stream' of Eclecticism.[12]
Essentially, Eclecticism is what replaced the 'official' style of neo-classicism from around 1800 onwards.

A defining trait is the use of decorative motifs from a range of different styles, often in combination. [13]
Architectural publicist Owen Hopkins recognises the following stylistic categories as all belonging to the overall domain of Eclecticism: Gothic Revival; Orientalism; Beaux-Arts; Arts and Crafts; Art Nouveau and Art Deco.[14]
The emerging 'multi-style' was henceforth regarded as a dominant 'movement', lasting into the twentieth century, eventually being replaced by Modernism and Neo-traditionalism.

In the Netherlands the 'grand masters' of eclecticism – P.J. H. Cuypers and H.P. Berlage – were in retrospect given an almost mythical status, being considered as the front-guard of functional modernism.[15]
Other key-players on the national stage, associated with the Architectura group, were K.P.C. de Bazel, W. Kromhout, H.J.M. Walenkamp and J.L.M. Lauweriks, plus Eduard Cuypers.
In retrospect, N.L. Prak considered eclecticism as part of a recurring, stylistic *conflict-cycle*, including classicism and modernism.[16]
On an international level, Neil Levine recognises the beginnings of the modern movement with the early work of ground-breaking architects like Frank Lloyd Wright, Peter Behrens and Auguste Perret. He picks up the H.R. Hitchcock's notion of eclecticism as a 'New Tradition', as well as his distinction between an 'eclecticism of taste' and an 'eclecticism of style'.[17]

Henry-Russell Hitchcock:

> *"The New Tradition in architecture appeared as soon as architects turned from the eclecticism of taste to the eclecticism of style with the intention of founding a rational and integrated manner. … All fell back readily into the revivalism from which in intention they had hardly altogether departed. There was therefore in architecture no such transitional movement as those in building and engineering.*
> *Yet in Gromort's treatment of late nineteenth century eclecticism of taste it is easy to see how that served in a sense as such a transition. It was the sort of training needed to familiarise architects widely with all the various architectural motifs which the past had developed."*[18]

In the still very rural community of Aalsmeer of around 1900, all of this would in all probability have seemed very far away…
In this context, the Terra Nova villa may be considered to be representative of the *regional* eclecticism of its day. In the rural building-practice, influences of various architectural styles and decorative motifs – such as neo-renaissance, neo-gothic, neo-vernacular and art-nouveau, as well as interpretations of international vernacular types, such as romantic 'alpine architecture' – were allowed to mix-and-mingle relatively indiscriminately.

If we look at the list of municipal monuments from the first quarter of the twentieth century in Aalsmeer, works by three 'local' building-masters can be recognised, alongside Ir. J.G. Wattjes' monumental Aalsmeer station-building (1912):
As has been indicated in the AA Variations introduction, a number of representative local buildings, realised in the first fifteen odd years of the century, can be recognised.

These may be attributed to three 'architects':

V. Visser:
- 1901: Villa Pomona, a somewhat exotic 'Chalet', Oosteinderweg 129 (extended);
- 1903: Terra Nova, the proud flagship-house of a notable market-gardening family.

J.N. Munnik:
- 1905: Het Polderhuis, a romantic villa in 'Neo Dutch' style, Stationsweg 15 (demolished);[19]
- 1913: Het Witte Huis, an impressive two-family villa, Stommeerweg 18 and 20.[20]

J.W. Luik:
- 1912: The original flower-auction building, Markstraat 19, (altered, now the local library);
- 1913: Hilverda office and workspaces, Stommeerweg 4, still vaguely Jugendstil (renovated);[21]
- 1914: Butchers-shop Maarse, Zijdstraat 68, with an impressive, semi-circular shop-front;[22]
- 1925: Market-gardener's home, Stationsweg 24, a well-crafted, expressive villa (preserved).

Very little is known about the building-masters that were responsible for these works, who nonetheless were able to realise locally-appreciated landmarks, contributing to the architectural identity of the then steadily-growing village.
Nothing of substance has so far been found concerning Volkert Visser.
The assumption is he would have been a local designer-builder.

J.N. Munnik (1979–1960) would probably have been from Amsterdam. On the basis of historic documentation, it appears that he was born in Amsterdam and was supposed to have set up his own practice – as an 'Architect BNA' – in 1917 in The Hague.[23]
This means that, around the time he built his two projects in Aalsmeer, he might have still been working in an office, whilst at the same time realising projects as a free-lancer. He signed the sheet of drawings for the Polderhuis project with: 'J.N. Munnik, arch.'.

Munnik would have been about the same age as J.F. Staal and about five years older than Michel de Klerk, who would then have just started his own practice, after years spent working for Eduard Cuypers' office.

According to the authors of *Moderne monumenten in de Meerlanden* (1986), J.W. Luik was a municipal building-supervisor ('opzichter'), who apparently also did private design-work. He would probably have been trained as a building-technician, rather than as a designer.

When considering the Aalsmeer projects in their time, it is interesting to note that Luik's, still eclectic, lightly Art Nouveau Hilverda building was realised around the same time as J.J.P Oud's Wright-inspired, family house; as late as 1912 (AA03). Furthermore, that his later 'tuinderswoning', along the Stationsweg (1925), situated next to the du Pon house (AA09), was built *after* both the de Klerk house (AA04) and the Duiker house (AA05).
What is evident about the designers of these locally-appreciated houses is that, around the first decade of the twentieth century, they primarily worked within a regional context, but were – at least to some extent – informed and influenced by aesthetic conventions and inventions on a national scale.





The only other Aalsmeer project attributed to V. Visser: Villa Pamona, 1901.





The Polder-huis (J. Munnik, 1905) and the Hilverda firm building (J.W. Luik, 1913).



H. van der Kloot Meijburg's systematic, critical appraisal of country-houses, 1917.

Discourse

As has been mentioned, it is doubtful if Terra Nova's design is the work of an academically-trained architect.
This doubt is due in part to the ad hoc-ism of the building's spatial- and volumetric design, as well as its over-abundance of decorations.

The sketchy ink-drawings may have served primarily to get planning-permission, as they differ considerably from the actual, built object.
Whether the realised, final project is the result of further design-work and supervision by Visser, or if the plan has, as it were, been 'filled-in' by experienced building craftsmen, on the basis of his rudimentary drawings, is not clear.
It is very likely that building-master Visser would have been a local contractor, as was then the norm. In this case he would probably not have been a carpenter (such as Joost Timmer), but rather a bricklayer by trade.[24]

The realised building is soundly executed, but not particularly elegant.
Although the structural organisation is consistent, the spatial setup is formal and rigid, with little interaction between interior spaces and the exterior domain.
It is neither technically, nor stylistically innovative, suggesting an adherence to the tectonic and decorative conventions that would then have been the norm in the building-practices of the region.
It is particularly the building's local reputation, due to its imposing presence, its turn-of-the century decorations and its generally good upkeep that may have contributed to it acquiring the status of a municipally-listed building.

It would be interesting to know what kind of reception the Terra Nova project might have had in its time. In this context, it would be particularly informative to know what an influential architecture-critic like Herman van der Kloot Meijburg might have made of it.

In 1917, van der Kloot Meijburg published a book on the 'Building-art in the City and on the Land' – with 400 photographs – in which he rigorously compared the documented exemplars of what he considered to be 'good' and 'bad' architecture.
I suspect that he may have preferred the more 'honest' representatives of Vernacular architecture, the subject-matter of his book on Dutch farmhouses from 1908, which he would probably have considered to be more 'fitting in their surroundings'.

It is highly conceivable that he would have dismissed the stylistically unrestrained Terra Nova project as being *obtrusive* ('opdringend'), *tasteless* ('smakeloos') or even – one of his favourites – *ostentatious* ('pronkzuchtig').[25]

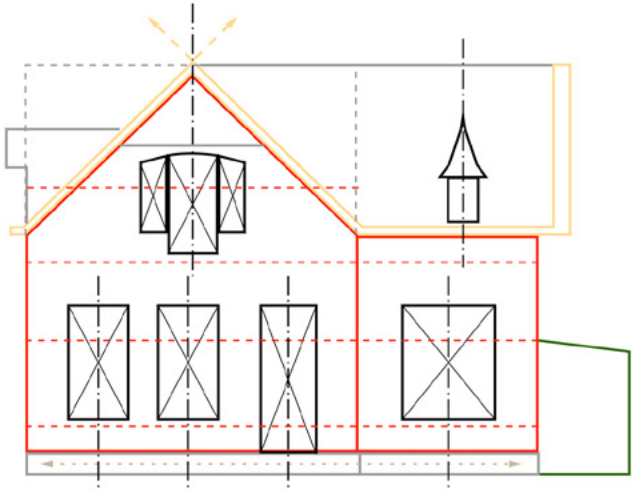
It is probable that van der Kloot Meijburg and his contemporaries would not have been happy with the self-education of local designer-builders though publications like Bouwfragmenten and the impact they may have had on the resulting wave of fanciful architecture proliferating the Dutch countryside (see: 'Aesthetics').

In his critical review of the building praxis since the turn of the century, he makes an appeal for better modes of education, for the building-masters ('bouwmeesters') of the future.

He foresees a new civil architecture ('burgelijke bouwkunst') in urban and rural areas, brought forth by a new generation of 'educated' building-masters.
Thereby he may possibly have foreseen the coming professional work by young men like J.J.P. Oud, Duiker & Bijvoet and J.F. Berghoef.

Van der Kloot Meijburg:

> *"Building education will, to a much higher level than has been the case up to now, also be occupied with the rural building-art ('bouwkunst') down to the most modest forms …*
> *The brutalisation, which now characterises the building-art of the cities and countryside, will then make way for a new beauty ('nieuwe schoonheid'), which perhaps will stand higher than mankind has ever witnessed."*[26]



Elemenary compositiona scheme of the elevation's shapes, lines and elements.



Surface-patterns, made using sand-lime bricks. Source: 'Huisjes van Zand', 2005.

Aesthetics

The aesthetic appeal of this representative villa is determined to a large extent by its local status, as a symbol of a proud agrarian culture.
Furthermore, the building undoubtedly possesses expressive qualities, that catch the eye and, at least to some, may speak to the imagination.

Essential aesthetic attributes, which to my mind deserve to be considered, may be identified on the level of:

— *Fabric*: the 'textile' articulations of the building's exterior, brick-work, surfaces;
— *Decoration*: the skilful exploitation of various tectonic features, for ornamental effect.

One of the characteristic traits of this early twentieth-century villa is the combination and modulation of the volumetric entities, which form the basis of the materially-articulated whole.
On a secondary level of plasticity, the overhangs of the roofs as well as other secondary elements, such as windows and chimneys also play a distinct role.

Formal themes, particularly symmetry, are initiated in the street-facing facades, but are not continued consistently 'around the back', whereby the underlying order seems to have been compromised and boxlike volumes appear to have been added-on more or less indiscriminately.

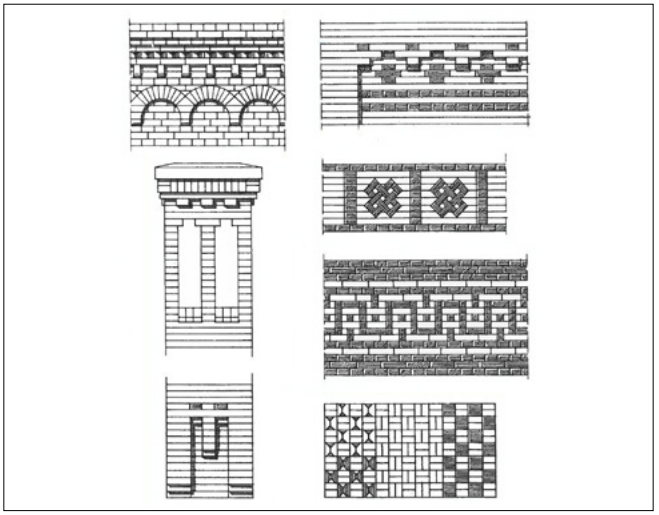
One of the most evocative aspects of this particular building is the 'textile' quality of its outer surfaces, making use of, then modern, sand-lime bricks.[27]
The way the half-brick bonding in the exterior walls, using cream- and pink coloured bricks, is exploited to create ordering lines and patterns is reminiscent of weaving-techniques. The introduction of decorative emblems, notably under the gutters and the front windows, is somewhat similar to embroidered cloth.
Furthermore, the way the corners are articulated, as pink-brick 'pi-lasters' with slightly 'frayed' edges, due to the use of whole bricks, results in the impression of a rather stoutly executed 'seam'.
However, there is a certain ambivalence in the formal arrange-ment, whereby the interplay of the characteristic horizontal lines does not truly manage to become a 'binding' theme.
Different elevations seem to be framed more or less as elements in their own right, rather than that a true formal synthesis is achieved around the building.
As a consequence, on closer observation, the composition comes across as somewhat impromptu, indeed: fragmentary.

As has been indicated, the house is affluently embellished, with a range of decorative features that exploit the expressive potentials of the building components that are used and their inter-connec-tions.

These are clearly conceived as features, to enhance the building's outward arrangement, offering a representative impression to the 'outside world'.
This decorative treatment is not entirely convincing, as these enhancements do not seem to be applied in a truly consequential way, but rather as embellishments for the 'public' elevations, which are 'tied together' via intermediate surfaces, but more or less fizzle-out towards the rear.
The decorative components are in some cases rather garish and do not always contribute to the perception of an elegant whole.

Niels Luning Prak on the stylistic pluriformity of architecture:

> *"The increase in number and variety of the clients for architects had an influence on design. Since the late Middle Ages there had been a contrast between conservative and innovative architects; a contrast sharpened in the Renaissance when artist-architects naturally assumed the innovative role and the craftsman-architects the conservative one. … As more and more people from different social strata started to employ architects, this stylistic unity disappeared, because the clients had different stylistic requirements. The nineteenth century is dominated by the 'battle of the styles', and twentieth-century architecture – though sometimes schematised into 'modern' versus all the others – is also stylistically pluriform."*[28]



Nederlandse Kalkzandsteenfabrikanten: catalogue of bonding-patterns, 1907.

At the turn of the century, explicit ornamentation would have been considered the norm: an indication of the affluence of the owner and the technical skills of the builder.
The nineteenth century had given rise to the publication and distribution of a great number of architectural Handbooks, intended to inform both the educated practitioner and the cultured layman. Such 'self-help' books served to educate the craftsman-builders concerning the 'elements' of architecture.[29]

The conception of a building being a professionally-executed conglomerate of craft-based, expressive 'fragments' is underlined by the so called *Bouwfragmenten* series, which was published from 1896 to 1917. These periodically distributed, loose-leaf prints of drawings (specially made by a team of contributing 'bouwkundigen' and 'bouwmeesters') contained exemplary 'samples' of representative building fragments; meant to inform, inspire and perhaps even: to be copied.
A form of aesthetic 'education' of which a cultural monitor like van der Kloot Meijburg would most likely have been extremely critical…

It is probable that many locally-practicing 'architects', like Volkert Visser, would to a large extent have been aesthetically self-taught as well as being informed via drawings in publications like Bouwfragmenten.[30]

An aesthetic issue worthy of consideration is the influence of the Art Nouveau movement (in the Netherlands often characterised as 'Jugendstil').



An indication of typical imagery from the 'Bouwfragmenten' series, early 1900's.

I would be inclined to argue that Art Nouveau should not be considered as being part of the broad 'main current' of Eclecticism, but deserves to be recognised for what it was: a truly original 'new' style.
At the time of this building's realisation, Art Nouveau was still a vital phenomenon amongst the *beau monde* in Brussels (where Victor Horta was realising some of his best works) and The Hague (where a successful architect like Jan Willem Bosboom was highly active, up to around 1905).[31]
Such stylistic novelties did not go unnoticed, as is evident in the illustrations in the Bouwfragmenten series, published and distributed around this time.

Arguably, Art Nouveau was not an expression of an 'eclecticism of style' but, in the context of the general 'eclecticism of taste' would have easily – though somewhat superficially – been absorbed by local designer-builders like Visser and Luik.

Perhaps precisely because of its over-abundance of 'character' and its inherent shortcomings on the level of 'truth', this project is of interest as a sample of the evolving designing-and-building practice around the turn of the nineteenth and twentieth centuries.

The Terra Nova villa is a self-consciously proud representation of the enterprise and optimism of its builders and, despite its shortcomings, an emblematic project, particularly when it is considered in the context of the developing agrarian community of Aalsmeer's West-end, at the beginning of the twentieth century.
At the same time, it marks the transition from an essentially nineteenth century practice of designer-builders, towards the era of the professionally-trained, 'modern' architect.

Petra Brouwer in *De wetten van de architectuur*:

> *"An end had come to the impossible task of the nineteenth-century architect to develop a contemporary 'beautiful' building-art on the basis of historical aesthetics. But the idea of the history of the building styles as a process remained. And thus the historical judgement that the most important quality of architecture lay in being representative of its own time. From the end of the nineteenth century onwards the architect was condemned to be modern."*[32]



A selection of 'prescriptive' building elements from the 'Bouwfragmenten' series.

[1896–1917] *Bouwfragmenten, bijeengebracht door J. de Haan*, Overtoom 254, Amsterdam, periodic folders of architectural drawings.
[1903] Visser, V.: original building permission drawings for the Villa Nova project ('Ontwerp voor een Woonhuis voor de Firma W. Keessen Jr en Zonen te Aalsmeer'), 1903, scale 1 : 100, municipal archive Aalsmeer, 1998.
[1905] Munnik, J.N.: original building permission drawings for the Polderhuis project ('Plan voor een Woonhuis te Aalsmeer'),1905, scale 1 : 100, municipal archive Aalsmeer, 1998.
[1913] Luik, J.W.: original building permission drawings for the Hilverda project ('Ontwerp Pakhuis met Kantoor voor den Heer J.H. Hilverda'),1913, scale 1 : 50, municipal archive Aalsmeer, 1998.
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[1992] Havinga, S.J.: *Jonge monumenten 1900-1940*. In: M.J. 't Hart (ed.): *Aelsmeer, beknopte geschiedenis van een opmerkelijk dorp*, Stiching 'Oud Aalsmeer', Aalsmeer, pg. 309,1992.
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BOOMKWEEKERIJ.
PRIJSCOURANT
VOOR HANDELAREN
W. KEESSEN Jr. & ZONEN.
AALSMEER.
BAUMSCHULEN
W. KEESSEN Jr. & ZONEN.
EN-GROS VERZEICHNISS.
Augustus 1881.


Koninklijke Kweekerij „Terra-Nova"
W. KEESSEN Jr. & ZONEN
AALSMEER, Holland.
PRIJSLIJST
„BUXUS & TAXUS".
1912/1913.

International brochures of the W. Keessen / Terra Nova firm, 1881 and 1912/13.

1 The original building-permission drawings, which were found in the municipal archive, give quite a sketchy impression of what the planned project was to look like. After having acquired the necessary planning permission, the building's appearance was clearly developed further.
2 The history of Terra Nova is a part of Aalsmeer's local heritage and has been expounded via various folders brought out by the firm and more recently via the internet.
As Mrs. Leni Keessen (1936) has indicated that Terra Nova was not just an agricultural enterprise, but a 'handelskwekerij', meaning they also bought-up produce from other (smaller) firms, for the purpose of – national and international – trade.
3 A good impression of the local situation and the state of firm, with its enormously varied species of trees, bushes and flowers is given in an article from 1907, discussed in *Oud Nuus* (2017).
4 In the article *Jonge monumenten 1900–1940*, published in *'Aelsmeer'* (1992).
5 The length of the road as it exists is some 2,4 km, measured from the corner where both the Uiterweg and the villages main shopping street – the Zijdstraat – begin.
The changing of the original thoroughfare to its current condition is discussed by Jan Willem de Wijn in *Oud Nuus*, nr. 180 (2015), pg. 12.
6 The developments leading to the realisation of this protective dike and its effects is described in *De redding van Aalsmeer* (2015).
7 Above the plans, sections and elevations, scale 1 : 100, the title reads: *"Ontwerp voor een Woonhuis voor de Firma W. Keessens Jr en Zonen te Aalsmeer."* There is no date.
8 It is possible that Visser also designed (and built) another house for one of the Keessen brothers (at Uiterweg 86), but this has not been corroborated.
Mrs. Leni Koopman has suggested that Volkert Visser might have come from the tree-growing village of Boskoop, with which the Keessen brothers, as traders, would have been familiar. However, evidence to support this hypothesis has not (yet) been found.
9 See: 'Aesthetics'.
10 Mrs. Barendsen also introduced me to the owners of the house on the opposite side of the Uiterweg: an early work by J.F. Berghoef (AA6), originally also built for other members of the extended Keessen family.
11 In the local Nieuwe Meerbode periodical of June 2nd 2017:
"Ode aan tuinbouwhistorie:
De eigenaren van dit tuinbouwbedrijf hebben plannen ontwikkeld om de voormalige tuinbouwgronden aan de Uiterweg 222 om te toveren tot recreatiegebied. De kassen gaan plaats maken voor maximaal vijftien grondgebonden recreatiewoningen en enkele gemeenschappelijke voorzieningen. In totaal wordt 23,500 vierkante meter aan kweekgronden aan de agrarische bestemming.
Circa 8.000 vierkante meter aan vrijkomende kassen gaan gesloopt worden. Aan de voorzijde van het terrein zal een kas behouden blijven. Het betreft een relatief nieuwe kas die dienst zal gaan doen als centrale verblijfsruimte. Met deze kas willen de eigenaren een ode brengen aan het verleden en een verbinding leggen met de rijke tuinbouwhistorie van het Uiterweggebied. Ook het bedrijfsgebouwtje dat dateert uit omstreeks 1893 aan de Ringvaart blijft behouden als beeldbepalend element."
12 In his article on 'Jonge monumenten' in *Aelsmeer* (1992), S.J. Havinga gives a brief characterisation of Eclecticism. Whilst he does not explicitly mention Visser's two 'entries', he identifies buildings by his contemporaries Munnik and Luik as belonging to this 'movement, pg. 310.
13 The *Dictionary of Architecture and Building Construction* (2008) defines Eclecticism as: *'a name given to a style of European and American architecture from the 1800's characterised by the use of decorative motifs from a range of different styles'.*
14 In: *Architectural Styles, A Visual Guide* (2014), pg.122.
15 This myth is effectively de-constructed by architectural historian Auke van der Woud, who considers it something of a fairy-tale ('sprookje'), in his book *Sterrenstof* (2008).
16 Niels Luning Prak on the position of eclecticism in the stylistic conflict- cycles of architecture:
"A person who knows that the road to a certain desirable goal is blocked, turns to wish-fulfilment in dreams. Analogously, the architecture of a society divided against itself becomes a dreamland, an image of the state desired.
Three different types of dreamland were tried out one after the other: Classicism, Eclecticism and Modern Architecture. The evolution runs a similar course in each of them. It begins with the image of a harmonic cosmos, symbolized by the 'absolute' forms of the Philenban solids and simple figures. As the dream does not come true, an effort is made to overcome its unreality by the use of violent forms and optical tricks which would thrust belief down the throat of the spectator, and by an extension of the action-radius of the symbol. When this is seen not to work either, the symbolic apparatus is exchanged for another and the whole process starts anew."
In: *The language of architecture* (1968), pg. 45.
17 Neil Levine in: *Modern Architecture: Representation and Reality* (2009), pg. 310:
"The opposition of a single, unified historical source as in Pugin to the multifarious approach of Labrouste served as the basis for Henry-Russel Hitchcock's distinction between the "eclecticism of taste" and the "eclecticism of style" that underwrote his path-breaking 'Modern Architecture: Romanticism and Reintegration' (1929). For Hitchcock, the "eclecticism of style", where different styles [were] used together on one building" was the foundation for the "New Tradition", the early modern architecture of Frank Lloyd Wright, Peter Behrens, Auguste Perret, and others."
18 In: *'Modern Architecture: Romanticism and Reintegration' (1929)* reprinted by Hacker Art Books, 1970. Pg. 90.
19 The Polderhuis was locally considered as being on a par with the Terra Nova building. Local author S.J. Havinga did not consider it as belonging to the 'eclectic' style, but rather as being 'Neo-Hollands'. In: *Aelsmeer* (1992). Pg. 310.
20 Description in *Moderne monumenten in de Meerlanden* (1986), pg. 89:
"Recht tegenover het oude kerkhof staat dit huis, dat eerst ergens in Amsterdam gestaan schijnt te hebben. Daar werd het afgebroken. Hier, het oude materiaal gebruikend, opgetrokken. Afgaande op de bouwstijl zou dit goed kunnen. Het bezit een eclecticisme, met gothische ornamenten, zoals in Amsterdam tussen 1874 en 1880 ook werd gerealiseerd. (De witte laag zou wel eens heel wat oud materiaal kunnen bedekken.)"
21 Description in *Moderne monumenten in de Meerlanden* (1986), pg. 88:
"Aan dit op zich niet onaardige huis is alles nog eclectisch. Dit in tegenstelling tot het acht jaar eerder gebouwde onlangs gesloopte polderhuis dat er schuin tegenover gesitueerd was. Ontwerper en gemeentelijk opzichter Luik blijkt, evenals zijn opdrachtgever de familie Hilverda, niet erg gecharmeerd van het neohollands."
22 Description in *Moderne monumenten in de Meerlanden* (1986), pg. 90:
"Deze gewaagde winkelpui, ontworpen door gemeentelijk opzichter J.W. Luik, heeft iets van Jugenstil meegekregen in een Nederlandse baksteen-interpretatie. Het is heel bijzonder dat de voorzijde nog nagenoeg oorspronkelijk is."
23 Source: *Historisch Documentatiecentrum voor Nederlands Protestantisme (1800 – heden)*, Vrije Universiteit, Amsterdam.
24 Up to this day, small-scale local building contractors – even if they would take responsibility for a whole project – tended to be either bricklayers ('metselaars') of carpenters ('timmermannen') by profession, whereby other disciplines tend(ed) to be sub-contracted.
25 Herman van der Kloot Meiburg, himself a practicing architect, more or less systematically

documented built artefacts by taking photographs on location.
In his book entitled *Bouwkunst in de Stede en op het Land* he applied a method of systematically juxtaposing two projects (one of which he judged to be satisfactory and the other – usually more recent artefact – unacceptable…
Some of the judgments he makes in the subsection 'Het Boerenhuis':
- Positive: '*eenvoudig, aantrekkelijk, fraai, in de omgeving passend, mooi gegroepeerd, harmonisch geheel, eigen karakter, mooi, bescheiden, zeer kunstvol, goed gevormd, stemmig, goed en rustig geteekend, hoogst aantrekkelijk karakter'*;
- Negative: '*opgesierd, dor, leelijk, wanstaltig, brutaal, pretentieus, slecht gevormd, geesteloos, slecht gevormd, hinderlijke botheid, karakterloos, slecht gevormd en slecht ingedeeld, verloochend karakter, smakeloos, bont en slecht gevormd, pronkzuchtig, hinderlijke zinlooze opschik, parvenu-achtig, verwarrend, onsamenhangend, opdringend, banaal opgesierd, gedachtenloze opeenstapeling van slecht gevormde bouwdetails'*.

26 Herman van der Kloot Meijburg, in his 1917 publication *'Bouwkunst in de Stad en op het Land'*, pg. 133–134:
"Verschillende talentvolle bouwmeesters van onzen tijd hebben op het land reeds huizen gebouwd, die de oude in menig opzicht overtreffen. … Het bouwkundig onderwijs zal, in veel hoogere mate dan tot op heden het geval was, zich ook moeten bezighouden met de landelijke bouwkunst tot in haar bescheidenste vormen, zooals ook aan de burgelijke bouwkunst in de stad tot in al haar geledingen de volle aandacht moet worden geschonken. … De verwildering die thans de burgerlijke bouwkunst in stad en land kenmerkt, zal dan plaats maken voor een nieuwe schoonheid, die misschien hooger zal staan dan de menschheid ooit te aanschouwen kreeg."
Translation by the author.

27 Sand-lime bricks were an innovative industrial product produced in the north-eastern provinces of the Netherlands. Instead of working with fired clay, the basic substance consisted of ground seashells. The array of colours made this a successful 'modern' building product.
At the time this building product was still very new, having come on the market in 1900. The sand-lime bricks were popular until 1925, when their use went out of fashion.
The book on *Huisjes van zand* (2005) showcases a variety of built artefacts, nearly all realised in the northern provinces of Friesland and Groningen, but also highlights Terra Nova, which is given a prominent illustration (on pg. 23).

28 From: Niels Luning Prak: *Architects: The Noted and the Ignored* (1984). Pg. 40.

29 An interesting overview of such architectural publications and their impact is given in Petra Brouwer's book *De wetten van de bouwkunst* (2011).

30 The illustrations show some representative pages from *Bouwfragmenten* editions, which came out around the time of Terra Nova's design and were discovered in the collection of the TU Deft Library (Tresor).

31 The work of Victor Horta is well-documented.
The oeuvre of Jan Willem Bosboom is documented in a book by Ben Moritz, published by Uitgeverij Ulysses, The Hague (1981).

32 From Petra Brouwer: *De wetten van de bouwkunst* (2011), pg. 343:
"Aan de onmogelijke opdracht van de negentiende-eeuwse architect om op basis van de historische schoonheidsleer tot een eigentijdse schone bouwkunst te komen was een einde gekomen. Maar het idee van de geschiedenis van de bouwstijlen als historisch proces bleef bestaan. En daarmee het historisch oordeel dat de belangrijkste kwaliteit van de architectuur gelegen was in haar representativiteit van een eigen tijd. Vanaf het einde van de negentiende eeuw was de architect veroordeeld modern te zijn."
Translation by the author.

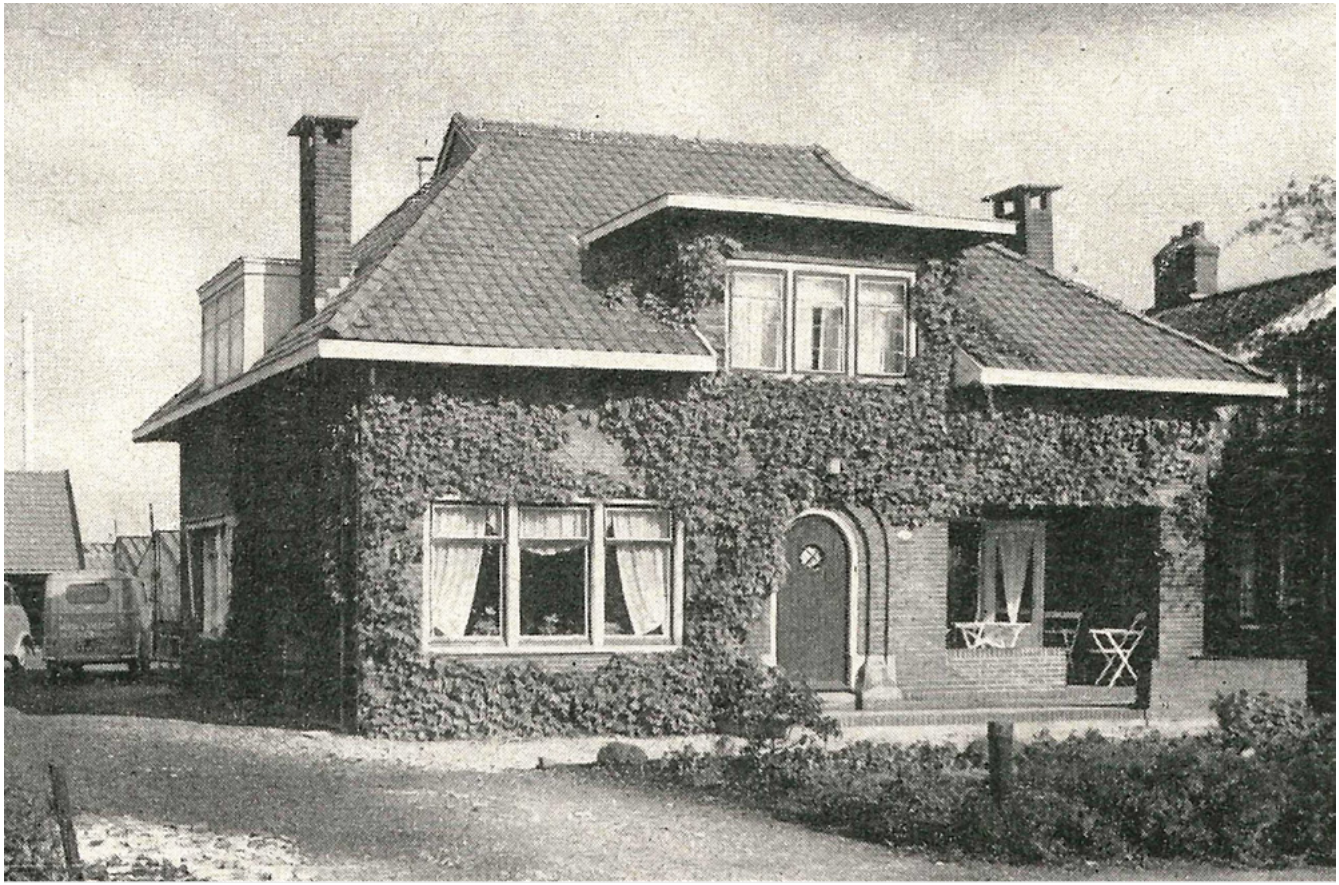
7. AA Variations

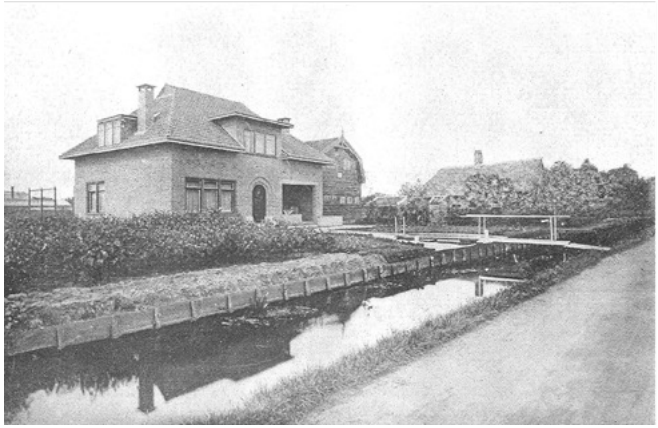
7.3 AA03
J.J.P. Oud
1912













Introduction

The free-standing 'Oud' house, built along the Uiterweg in 1912, was an early work by architect J.J.P. Oud.
Jacobus Johannes Pieter Oud (1890-1963) grew up in Purmerend, where he realised his first project, a town-house, at the age of sixteen (1906).[1]

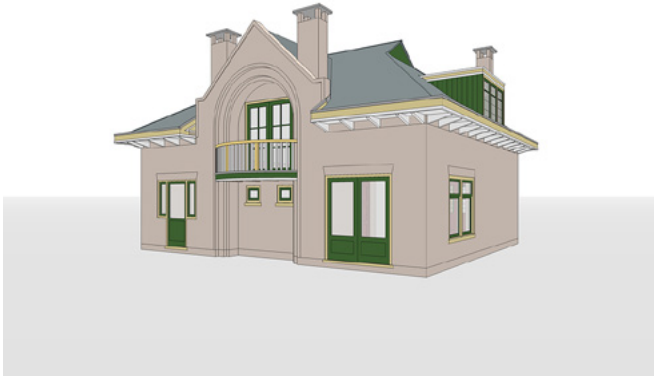
Oud was educated at the School for Applied Arts and Design 'Quilennius' (1903–1906) in Amsterdam.[2] The emphasis at the school lay upon the aesthetic issues of architecture and the applied arts. Whilst there, the young Oud became acquainted with H.P. Berlage, who would have a profound impact on his early career.
At the time of the Aalsmeer project, Oud (then twenty-two years old) was practicing as a professional architect in Purmerend, where he had already managed to realise an impressive collection of projects, largely for members of the industrious and locally-influential Oud family.[3]
The first professional commission outside the Purmerend region was this design for his uncle Gerrit,[4] who had purchased a plot of arable land in the West-end of Aalsmeer to start a flower-growing and -trading enterprise.
The house's design was clearly informed by the work and teachings of his mentor Berlage, as well as by the publication *Das Englische Haus*, by Hermann Muthesius.[5] The work also appears to have been inspired by the early work of Frank Lloyd Wright, which was then being promoted by H.P. Berlage, after his journey to America in 1911.[6]

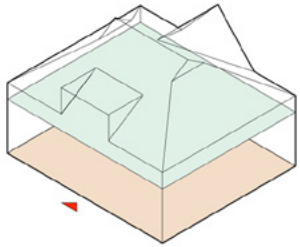
Shortly after realising this project, Oud moved to the city of Leiden, where he would collaborate with W.M. Dudok.[7]
In Leiden's more 'worldly' cultural climate, he became acquainted with the artist H.H. Kamerling Onnes, through whom he would become involved in the Villa Allegonda project, and Theo van Doesburg, with whom he would found the De Stijl movement.
Leaving his formative years behind him, Oud soon became one of the foremost modernist architects in the Netherlands, with an extensive international network and reputation.[8]

This transitional project in Oud's oeuvre was situated along the Uiterweg, on the same side as the Dahlia Maarse farmhouse (AA01), about 150 meters down the road.
Through time, the house became almost hidden from view, by an abundant overgrowth of ivy. By 1950, the ditch along the northern side of the path had been filled-in and the road had been broadened.
From around 1960 onward, the house underwent a series of major alterations, including the application of contrasting colour-schemes.
In 1988 the distinctive villa was demolished, making room for a new, pseudo-traditional farmhouse-style dwelling ('boerderette').
NB: The scheme of the original Oud house has been photo-edited into the aerial view.

AA03	: Information		
Project	: G. Oud House : Uiterweg 54, Aalsmeer		
Architect	: J.J.P. Oud		
Style	: Late Rationalism : Proto-Modernism		
Year	: 1912		
Ground-plan	: 95 m^2	Floor-plan	: 190 m^2
Volume	: 510 m^3	Ratio V/F	: 2,7 m

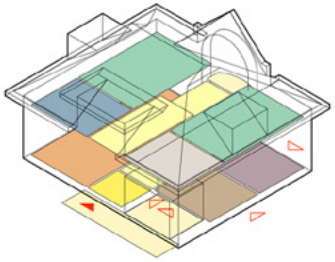






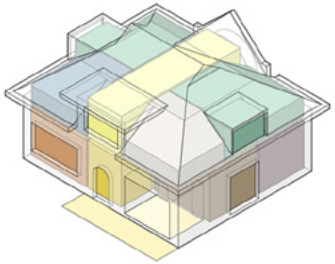
A.1 Context

The freestanding ‘cottage’, which Oud designed for Gerrit Oud and his family was situated on one of the fertile island-plots in the West-end, replaced an existing two-family house with shed.[9]
Positioned at Uiterweg 54, on the northern side of the road, it had more or less the same footprint as the original wooden structures, being placed somewhat further back.[10]
The compact house had a nearly-square ground-plan. The ground-floor was reserved for family rooms and an office with a street-facing loggia.
Private rooms were positioned upstairs, under an all-enveloping roof. A swivelling footbridge, crossing the ditch along the dike-road, connected with a path leading to the front-entrance. Apart from a modest private terrace-area around the back, the plot was used entirely for the growing of flowering plants.



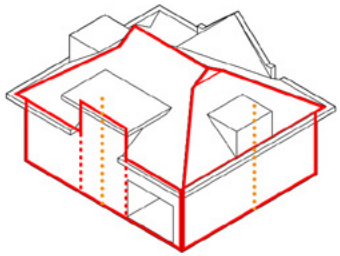
A.2 Function

A near-symmetrical layout determined the programmatic organisation, with functional zones positioned to the left and right of a central axis.
The spacious main-hallway connected the domains on the ground floor as well as the top floor.
The zone facing west harboured an ‘en-suite’ salon and family room. Towards the eastern side was an office, opening onto a street-facing loggia and oriented towards a separate work-shed.
The family kitchen could be reached via the main hallway, with its entrance under the landing of the stairs. The staircase led up to a generous platform above the toilet, with an external balcony oriented towards the rear-garden, then further upwards towards the first-floor landing. The upper rooms, under the roof, including three bedrooms and a bathroom were lightweight infill-structures.



A.3 Interior

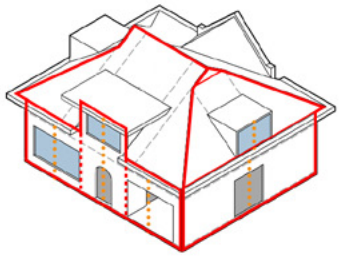
For such a relatively modest house, the spatial configuration was experientially rich, with monumental undertones.
The spatial sequencing of the generously-proportioned central hall would have been a particularly prominent feature, with the route sweeping upward, taking a turn on a sizable platform and ending in the room above the entrance, facing the street.
The living room and the salon, connected by semi-transparent double sliding-doors, formed a spatial entity, with openings in three directions. The kitchen was entered discreetly, via a lowered in-between space under the landing.
The loggia at the front formed a sheltered ‘outer room’, whilst the exterior terrace at the rear was oriented towards the near-symmetrical ‘presence’ of the rear facade, with a central balcony above a recessed seating area.



B.1 Object

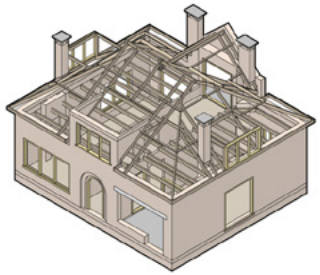
The geometrical configuration is characterised by a controlled interplay between rectangular volumes and slanted roof-surfaces.
The apparently simple, extruded rectangular 'mass' of the ground floor is vertically articulated by higher central elements at the front and the rear: an orthogonal volume towards the street and a pitched shape towards the garden.
The composition is characterised by primary symmetries in two directions and by secondary differentiations on the level of massing.
Notable elements are the 'subtracted' loggia at the right-hand side of the front elevation, the expressively cantilevered, horizontal gutter bands, as well as strategically-placed dormer volumes, above.

The walls of the main entrance and the central section at the rear were sculpturally accentuated by semi-circular motifs.



B.2 Structure

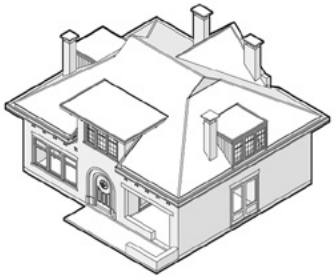
The structural organisation of the design is characterised by a distinct, geometric 'primary' order, with consciously applied, contrasting 'secondary' elements.
The elementary division of the volume into three zones serves as a primary structuring device. These zones determine the interior arrangement and correspond fully with the load-bearing system.
The central zone, between the domestic functions, is given prominence in the near-symmetrical front and rear elevations.
The emphasised central sections interact with the geometry of the pyramidal roof volume, which is stretched outwards on all sides.
The visually lighter dormer volumes and distinctive chimneys are integrated symmetrically into the roof surfaces.
Asymmetrical accents in the outer openings create a subtle tension within the underlying balance.



B.3 Technique

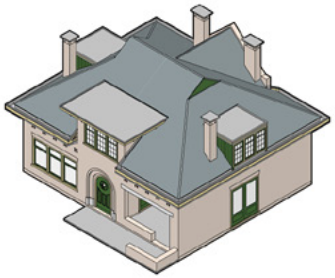
The construction essentially consists of load-bearing brick walls, supporting two wooden floors and the crowning roof structure, which is pitched in four directions.
The structural walls are supported by a brick foundation, resting on wooden piles. They consist of a load-bearing inner wall, a ventilated cavity and a climatic outer layer. Wooden beams span the three constructive zones, carrying the wooden floors of the ground floor and first floor.
The brickwork shell is perforated by openings and is extended upwards in the middle-sections, at the front and the rear. The roof-construction consists of pitched rafters with horizontal girders, covered with wooden planks, with cantilevered gutters.
Strategic openings in this logically-elegant roof-structure allow for the insertion of dormer-volumes and chimneys.

C.1 Facade



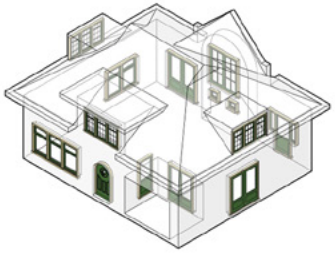
The impression of the house is determined by its stout brickwork facades, with strategically aligned and subdivided openings, topped by slanting roof surfaces with pronounced gutters.
The roofs have an angle of nearly 45 degrees, but due to the way these are 'folded around' at the corners and are accentuated by distinct horizontal bands, the visual impression is one of a less-steep roof.
Symmetries in two directions, underscored by four prominent chimneys, determine the elementary composition of the object and its facades, most notably in the middle-sections.
The front and rear elevations demonstrate a 'balancing of unequal parts' in the placement and division of openings: the front-room window versus the 'subtracted' loggia at the front; the double living-room doors versus the kitchen 'motif' at the rear.

C.2 Surface

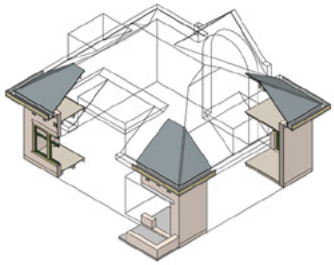


As the only documentation of the original building consists of drawings and black and white photographs, it is impossible to determine with certainty what the original colours and surface-textures would have been.
On the basis of original photographs it is possible to identify a running-bond in the brickwork, which may have been a (reddish) brown colour.
The roof-tiles appear to be modern, relatively flat 'cross' tiles, with an alternating surface pattern. The colours may have been terra-cotta or alternately a bluish-grey. It is particularly difficult to determine the colour-schemes of the windows and wooden surfaces. The window-frames do not appear to have been white. A likely option would be a creamy yellow, offset by dark green or possibly red or blue. This creates opportunities for speculative 'variations'.

C.3 Opening

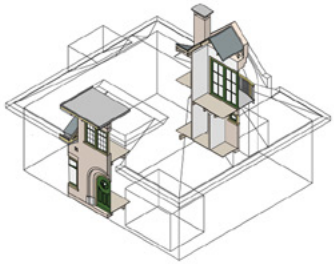


The four sides of the building are characterised by 'groupings' of windows and door-sections, divided into twos or threes, with the notable exception of the monumental front door.
In the front facade, the main window-frame is divided into three equal parts, with relatively low upper openings. The doors and window-sections in the side-facades are both divided in two, whilst the dormer windows above and at the front are divided into three, with fine-meshed subdivisions.
The rear facade has a generous double-door, opening onto the 'centrepiece' of the balcony, underscored by the punctuations of the small, secondary windows of the toilet and the storeroom. Openings to either side, the double-doors of the living-room and the single door with side-windows of the kitchen, complete the rear elevation as an entity.



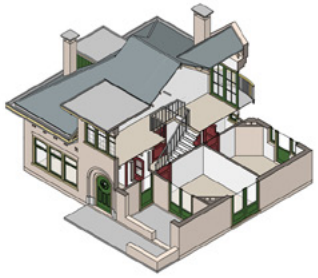
D.1 Junction

The connection between the walls and the roof-package forms a ‘critical detail’ for the project as a whole.
Expressive gutters encircle most of the building as an ‘extruded seam’, visually distinguishing the ‘elevated’ roof volume. These prominent, outwardly extended gutter-zones have regularly-spaced, cantilevered supports, compositionally combining horizontality (gutters) and rhythm (supports). The effect of this expressive device is enhanced by the way the gutter-supports are continued around the corners, on both levels.
This motif is repeated in the central front-section, lending the street elevation a representative air.
As a contrast, the dormer volumes on either side are executed as straightforwardly simple, orthogonal volumes. In the central section at the rear, the walls are moulded into a gable.



D.2 Feature

Besides the distinctively articulated gutters, other prominent features contribute to the identity of the house, in particular where the central sections, at the front as well as the rear, are monumentally accentuated.
By introducing a series of ornamental motifs and arched brickwork frames, the middle-section, with its eye-catching, rounded door is highlighted, suggesting mass and distinction.
Similarly, plasticity is applied in the brickwork of the central facade-section at the rear, here even more strikingly. A two stories high vault, topped by an arch, visually pushes the facade inwards, creating room for a filigree balcony and a terrace-niche, in which an integrated bench is accommodated.
This powerful ornamental ensemble is emphasised further by the integration of two symmetrically-placed chimneys.



D.3 Ensemble

Despite its relatively modest size, the house displays pronouncedly monumental traits, in its spatial organisation as well as in its architectural ‘presence’.
An experientially-rich interior-feature would have been the central hallway with the stairs: an axis twisted upwards via a generous subfloor.
In the interior spaces, materials and colour appears to have played an important role, with brickwork fireplaces, integrated furnishings and coloured glass-work in the doors. It is suggested that architect Berghoef later determined the colours for the upstairs rooms.
The distinctive ‘in-between realm’ of the southward-facing loggia was later closed-in. After both the interior and the exterior had been drastically altered, the house had lost nearly all of its original character and was eventually demolished in 1988.



The two presentation drawings by Oud, showing the house's main facades.

Development

After the young Jacobus ('Ko') Oud had finished his secondary education at the Quilennius school in Amsterdam, he worked for the architectural practice of J.Th.J. Kuypers and J. Stuyt (the latter being a native of Purmerend, who had originally suggested the Quellinus school to Oud's family) from 1907 to 1908.
The following two years he was educated as a drawing-teacher, whilst further developing his technical drafting skills.[11]

Oud subsequently attended lectures at the Technical College in Delft (1910-1912), although he was not enrolled as a regular student.
The emphasis of curriculum at the department of Architecture ('Bouwkunde') at the time was still very much directed towards matters of Civil Engineering. Apparently Oud did not really fit in with the 'normal' students.[12]

In early 1912, he went to Munich for three months where, on the recommendation of Berlage, he worked as a trainee in the office of Theodor Fischer.
After returning to Purmerend, he once again picked-up his own private practice. Later that same year he received the commission to design Gerrit Oud's new family-home in Aalsmeer.

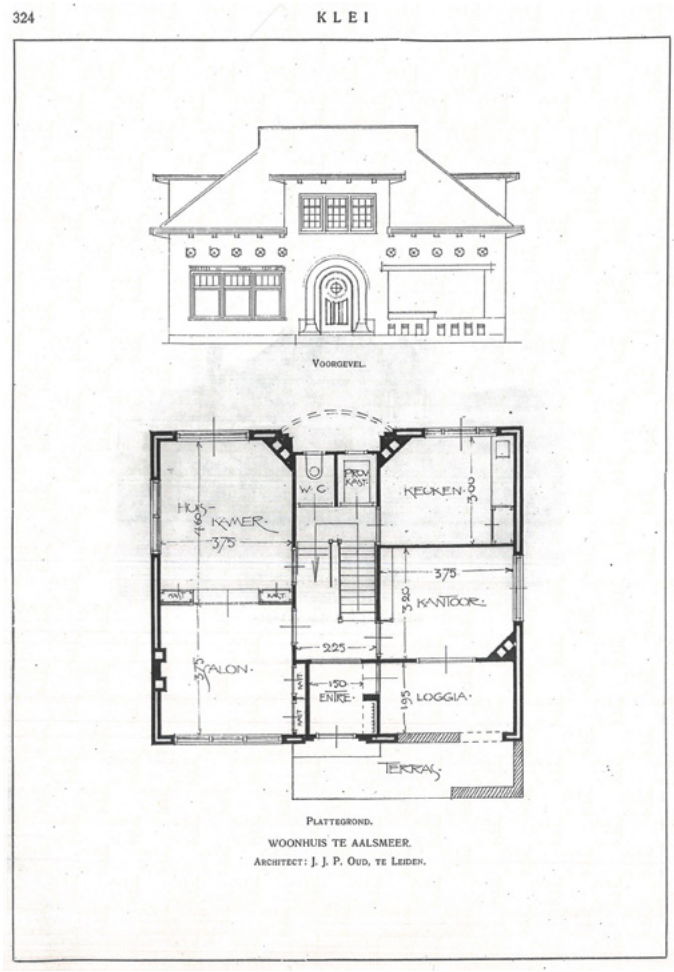
Little is known about the design of the house.
The only documents that have been found, in the National architecture archive in Rotterdam (NAi), are working-drawings that would have formed the basis for its realisation.
It is impossible to say if there were any alternative, preliminary project-designs.

By local standards, the brickwork house was extremely modern: it was built on 110 wooden piles, using double-brick outer walls, with a ventilated 5 cm cavity between the interior and exterior layers.[13]
After the project's realisation, Oud took the initiative to prepare presentation-drawings and photographs were made, which were subsequently published in *Bouwfragmenten*, *Klei* and *Nordische Baukunst*.[14]

The elevations which were published in *Klei* suggest that he may have originally intended to also realise the two 'minor' dormers, on either side, with cantilevered gutters, similar to the ones of the main roofs and the central volume at the front. It is possible that these details were simplified, for cost reasons.
These drawings were also included in printed, folded A3 promotion-sheets, discovered in Oud's archive at the NAi.
Under the illustrations was printed: 'Architect: J.J.P. Oud, te Leiden')

The particular elevation-drawing may have later underscored Hans Esser's conviction that the design must have been inspired by the work of Frank Lloyd Wright.[15]

The article in *Klei* further suggested that the balcony at the rear was originally intended to have been deeper, extending further into the main volume of the house, creating a loggia above the toilet and the storeroom. Apparently the client gave preference to a more generously-proportioned interior sub-floor, between the two sections of the stairs.[16]
Everything indicates that the planning as well as the building of the house went very quickly.
Oud would have only just returned from his internship in Munich when he drew-up the design.
Building contractor P. Hulsbos apparently managed to finish building the project without any problems in less than six months.[17]



Elevation and plan of the Gerrit Oud House, as published in 'Klei', 1913.





Photograph showing the rear side and garden of the recently completed house,



Aerial photograph of the Uiterweg with the G. Oud house at the bottom (1950).



Aquarel of Mrs. Weima's parents with the house, by Hans den Hollander, 1985.

Experience

The distinctive, self-consciously modern brick house would have stood out amongst the wood-frame farmhouses, which were then still ubiquitous in Aalsmeer
By local standards, the villa along the Uiterweg would have been quite unique.
It appears to have had a formative influence on the youthful J.F. Berghoef (see AA06 & AA08), who reputedly decided to opt for a study of Architecture in Delft (instead of Maritime Engineering as he had originally intended) after having visited the house in 1920.

In his 'memories', Berghoef noted:

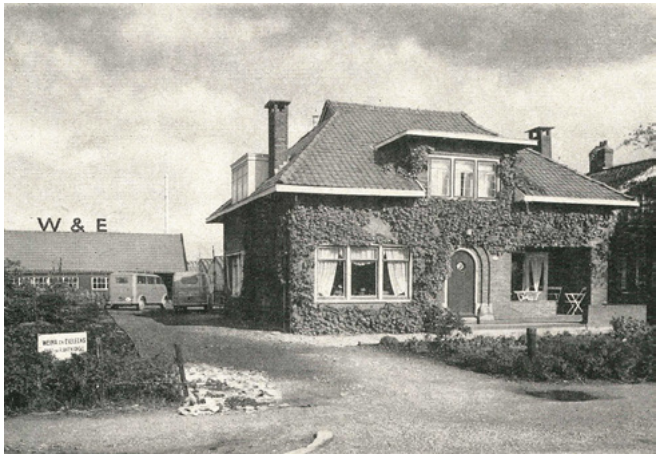
> *"On a market-gardening plot in Aalsmeer, in the second decennium, one of the earliest works of architect Oud was realised: Lloyd Wright-like, as I was to understand later, and a striking appearance between the old gardeners' homes."*[18]

After some years, Gerrit Oud quit his flower business on the Uiterweg.
He subsequently started a new flower-growing enterprise with modern glasshouses, on a sizable plot to the east of the village. There he lived in a houseboat for some time, before commissioning the up-and-coming local architect J.F. Berghoef to design his new home, at Oosteinderweg nr. 23 (1928).

After the departure of Gerrit Oud, the house was inhabited from 1918/19 by the Ravestein family, who apparently maintained the house in it original condition. In 1954 the Weima family, of the flower-growing firm of Weima & Eveleens, moved into the house.
One of the most informative publications relating to this specific project was a thoroughly-researched article about the house by one of the family's daughters, Mrs. Henny Weima, published in 1984 in the local-history journal *Oud* Nuus.[19]
At the time of the publication of this article, the house had already been drastically altered. The characteristic chimneys were gone, the loggia at the front was closed-in and the outer-walls were painted-over in light colours.[20]

In December 2016, with the assistance of members of the local archival-society, I managed to trace Mrs. Weima, who was kind enough to exchange information about the house's last days.
In the four years after the appearance of her publication, the house had apparently deteriorated further. By 1988, the greenhouses of the firm of Eveleens and Weima, behind the house, were still standing but already dilapidated. The house itself was in a poor state and hardly recognisable, being almost entirely overgrown with ivy. It turned out that, just before its demolition, a documentary-video had been made, which offered additional insights into the organisation of the house and the various alterations it had undergone.[21]In addition, an aquarelle-portrait of Henny Weima's parents, in front of the house in its 1980's guise, surfaced, giving a clear impression of the house with the filled-in front-loggia.[22]

Mrs. Weima's personal 'Oud-huis' archive also included three brochures of the Weima & Eveleens company, which proudly featured the house as a business-frontispiece, a practice somewhat similar to the iconic Terra Nova villa[23].
These photographs as it were 'filled the gap' concerning the project's changing appearance in its later years.
The insights which were generated in this last stage of document-based study are discussed in the 'Visualisation' overview, as 'Colour Variations'.



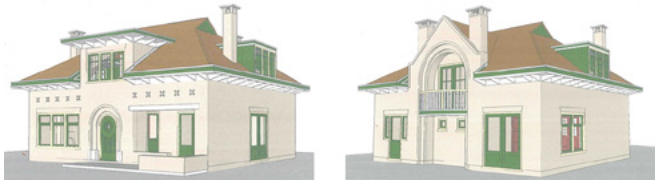
Photograph of the house, as it was included in the W&E firm's brochure of 1957.



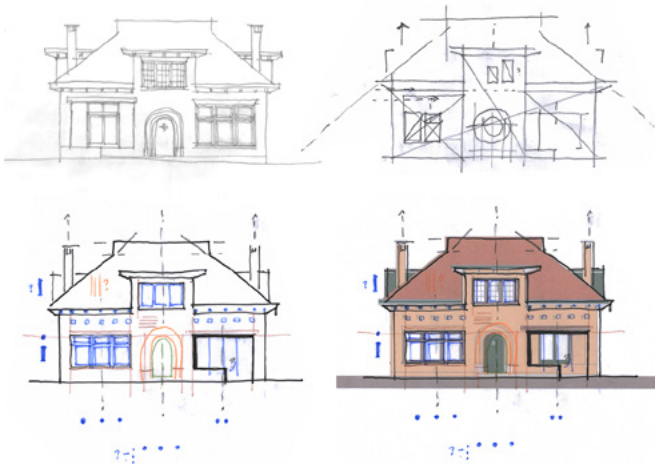
Photograph of the house, as featured on the cover of the W&E catalogue, 1966.



Screen shots from the video, featuring Mrs. Weima, documenting the Weima family history and the demise of the Oud House, made together with Tom Offerman, 1986.



Images of the first 3D model (3D Studio Max), made by Robert Nottrot.



Explorative elevation sketches of the front elevation, by Jack Breen.

Visualisation

The project by J.J.P. Oud is the only one of the ten case study projects that had already been demolished well before it was included in the AA Variations collection.
Despite the fact that the realised project may in some ways be considered to be 'minor work' in the context of J.J.P. Oud's extensive oeuvre as a whole, the design seemed worthy of study, as it marks his transition from a more-or-less traditional, locally-oriented practitioner to the high-profile De Stijl and Modern Movement architect he was soon to become.

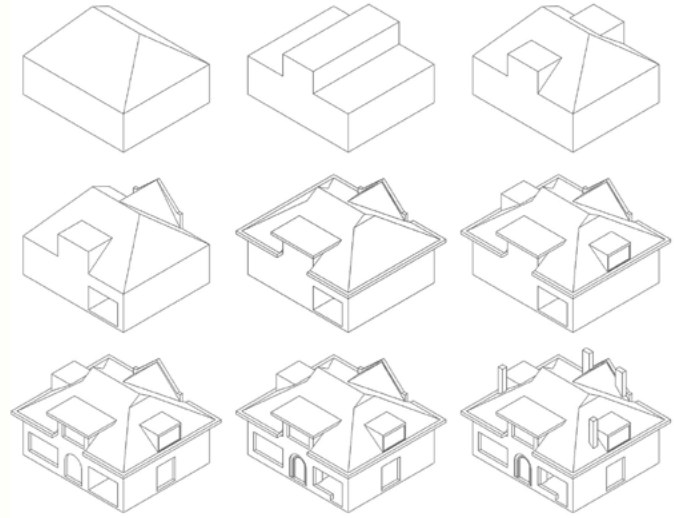
After approaching Umberto Barbieri, who had been responsible for a retrospective of Oud's work, at the faculty of Architecture in Delft, I received a collection of copies from the *Bouwfragmenten* series, published in 1915.
This relatively rudimentary visual information formed the basis for the first phase of the study.
Making use of this data, Form and Modelling Studies colleague Robert Nottrot generated a first 3D computer-model, using 3D Studio Max.
The geometries of this first, explorative model subsequently formed the basis for the multi-layered *SketchUp* model that was developed further along, in the context of the integral comparative study, with the assistance of Bram van Borselen.

Initially, information came primarily from the article concerning the project and its subsequent development, by Mrs. Henny Weima (1984).[24]
The study of this project posed particular challenges, as data was limited and relatively ambiguous.
As a consequence, the designerly enquiry of this case-study project had – and has – a certain speculative quality.
As a study artefact, the project played an important role in the development of the conceptual framework and the methodological visualisation of the 'Object' and 'structure' levels of the 'Patterns' sections.
The visual method which was developed on these levels then became instrumental in the identification of these the compositional qualities for all of the ten AA projects.

The following visualisation-variations are considered in more depth and illustrated with a collection of designerly study-documents:

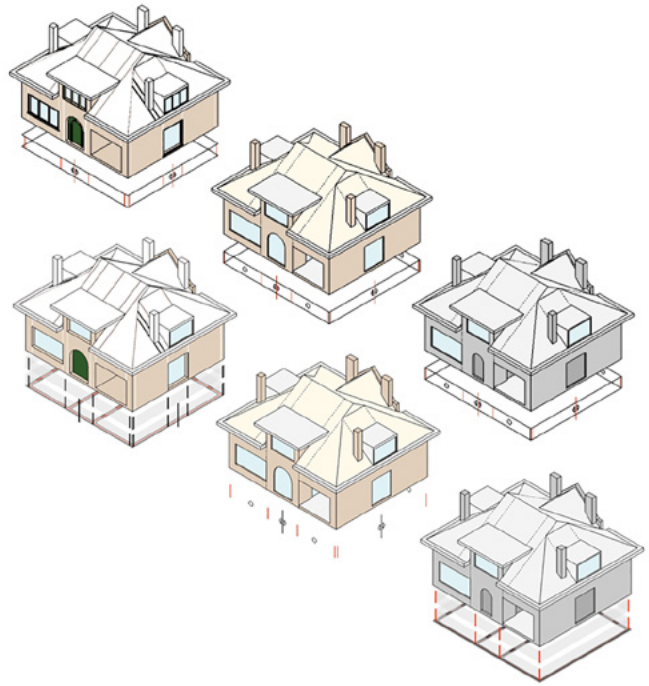
— Volume Variations;
— Structure Variations;
— Colour Variations;
— Blaricum (1916) and Katwijk (1917) Variations (included in the 'Aesthetics' section).

Volume Variations:
Due to the relative complexity of the composition, considered as a volumetric entity, it proved to be worthwhile to construct a series of special, layer-based, analytical models to interpret and illustrate the underlying geometrical qualities of the design.
These sub-models were developed step-by-step and are included here as a series of eight images.
They highlight the underlying division into three parallel zones, as well as the 'massing' themes and the sculptural qualities that may be recognised:
- Elementary volumes: primary base and roof, orthogonal interpretation, merged volumes;
- Volumetric articulation: secondary in- and extrusions, gutter-bands; dormer volumes;
- Plastic articulation: openings, entrance treatment, chimney placing.
Such sculptural themes figure prominently, in the front facades as well as in the distinctly-different rear-side of the house.

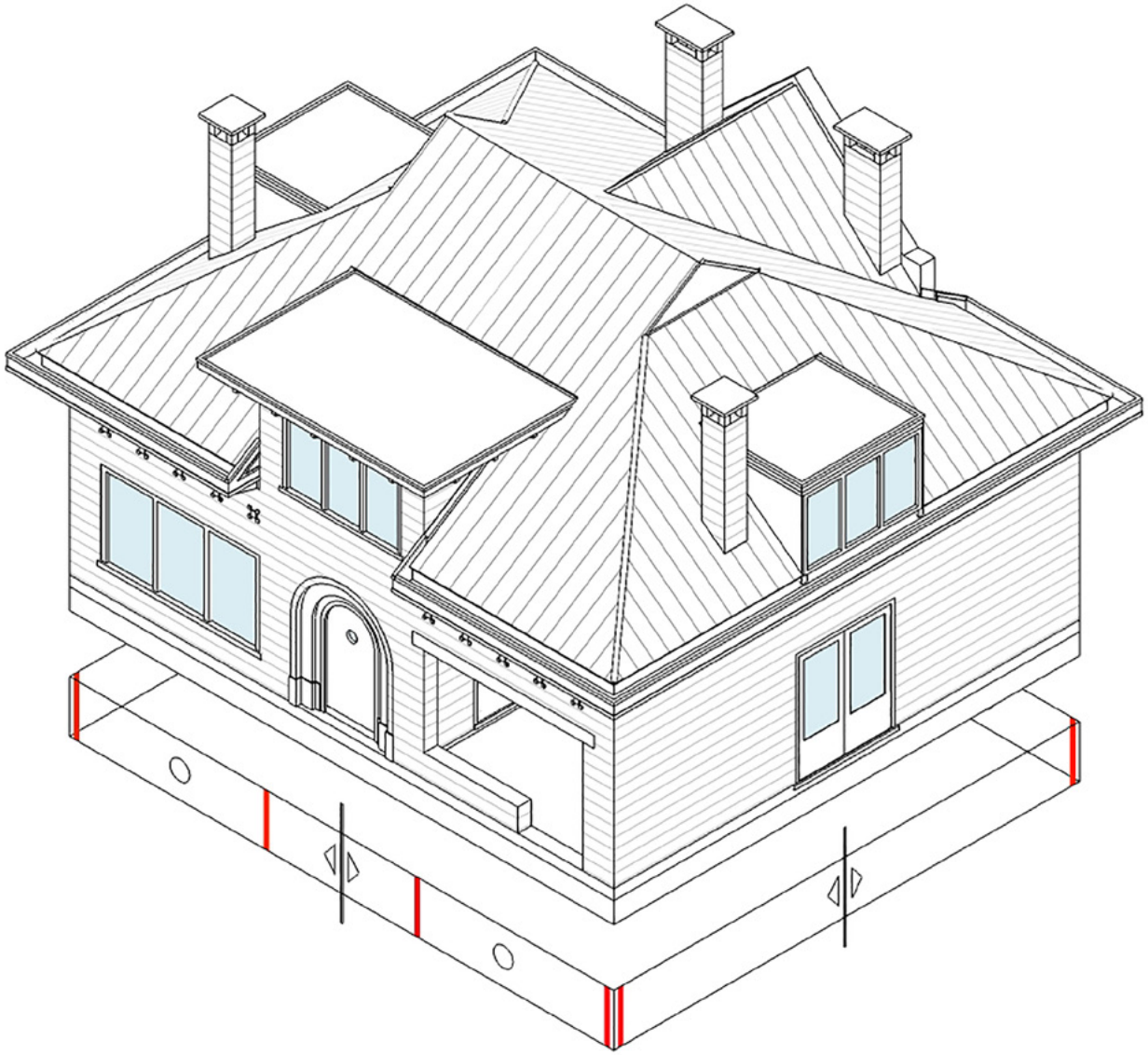


Volume variation sequence, showing basic massing and volume articulation.

Structure Variations:
When trying to determine the proper approaches to the graphic representation of the interrelated 'Patterns' analyses, the 'structure' category proved to be one of the most challenging – and as a consequence: interesting…
The question was how much – or rather: how *little* – information should be represented simultaneously in the 3D model and its 2D representation, both thematically and visually.
On the basis of the AA03 casus, a series of scheme-tests were carried out, first as freehand sketches and subsequently as model variations, employing a variety of colours, textures, hatchings and symbols, whereby the idea was to develop a 'standard' that might be adopted for the other nine AA projects.
Several variants were developed and considered, to concisely 'code' the identified thematic levels, of which a number of test-versions are shown here.
In these studies, different pattern-layer representations were considered in combination:
— Object and Structure;
— Structure, Facade and Opening.
A crucial aspect turned out to be the actual (limited) size of the illustration and its visual resolution. Thereby it became clear that certain visual codifications, which might work on a larger scale, or as 2D elevation analyses, tended to 'get lost in translation'.
After several formatting experiments, the decision was taken to reduce the number of thematic factors and to create a more explicit link between the imagery of the Object and the Structure levels.
This in turn led to a fine-tuning of the textual analyses for these two characteristic aspects for all ten AA study projects and a general 'sharpening' of the model-based, 2D illustrations.



Model-based visualisation tests, identifying structuring aspects of the design.



Model-based structural variation using colour codes, symbols and hatchings.

Colour Variations

Because, from the outset, there were very few images of the realised project – only some early black-and-white photographs and line drawings – the issue of Colour proved to be something of an enigma.

In the original 3D model by Robert Nottrot, the roof had been texture-mapped in a reddish hue with a lighter, brownish colour for the brickwork facades.

Nothing was known about the colours of the frames, windows and doors, which were coloured a creamy yellow and green, while the gutter-supports where highlighted in white.

In the interactive 3D model, which was later developed, the roof was first rendered in an orange-red and then later given a greyish-blue colour, on the basis of a note in the original building specifications, which suggests that the roof-tiles were to be executed in 'blue cross tiles'.[25]

In retrospect, it is questionable whether the blue tiles were in fact used, as a description of the project in 'Klei' from 1913 specifies hard grey-brown ('miskleurig hardgrijs') bricks and red roof tiles ('tuiles du Nord').[26]

Despite the fact that there can be no certainty about the original colour-scheme, the 3D model was rendered with a grey roof, white window-frames and green windows and doors. As a 'variation' a version was also made with yellow frames and gutter-bands, with green as well as red windows and doors.

Photographs indicate that after some time the house was largely overgrown and through the years was altered step-by-step.

According to Mrs. Weima's article, the outer walls had been painted white around 1960 and later a creamy yellow. The loggia had by then been closed-off with a big (and comparatively higher) new window, which according to her 'brought the house out of balance'.

Of particular interest were the pictures of the house that were made in the 1950's and '60's.

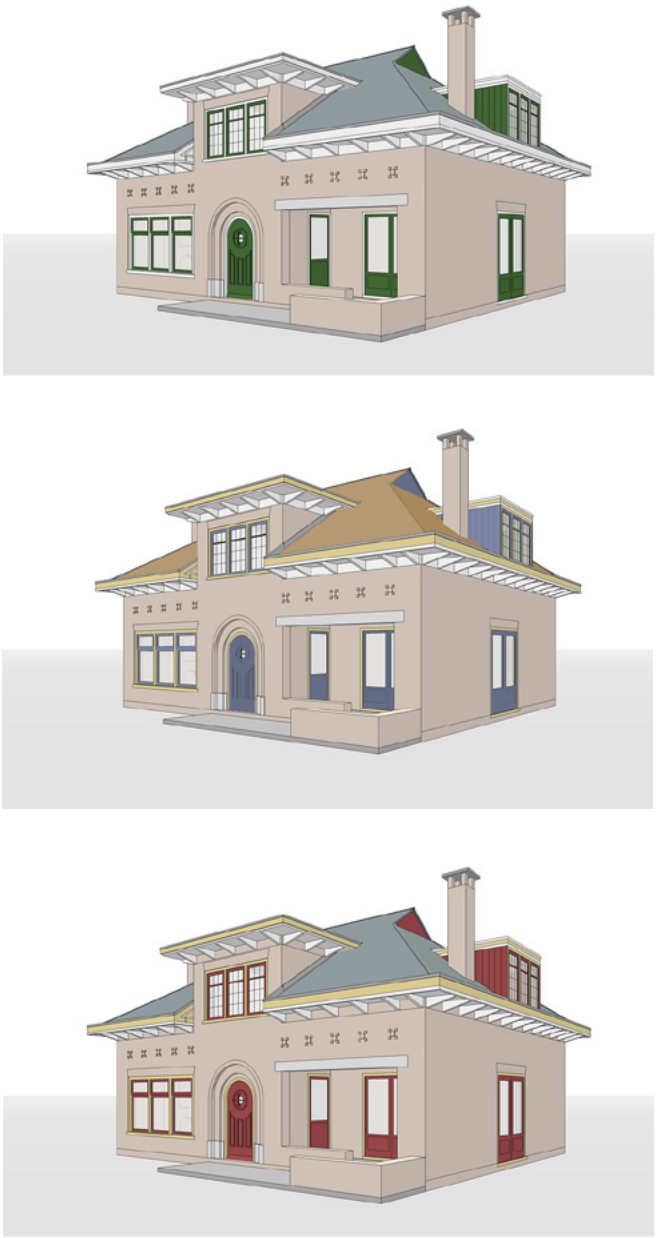
Whilst in the brochure-picture of 1954 the house still looks more-or less as it might have done shortly after its completion, the image of 1966 shows a dramatically different 'presence'.

The house appears to have been 'upgraded', to make it look more 'modern', one might say: more 'De Stijl-like'. The walls are white below the reddish, chimney-free roof and the window-frames are painted a greyish blue, with white moveable parts (including the front-door).

A 'palette' which might have resonated with Oud's later oeuvre…

Later-on, the walls seem to have been pained a creamy yellow. The window-frames at that time appear to have been painted brown, as was 'en vogue' at the time.[27]

This would have more or less been the state in which the – by now wildly overgrown – house was, at the time of its demolition.



Three hypothetical colour variants, showing different schemes in perspective.

Position

J.J.P. Oud was not only a prolific architect, but also a passionate theoretician and active net-worker.
He lectured in the Netherlands and abroad, published in national- and international periodicals and had an intensive correspondence with colleagues around the world.
As Hans Ibelings emphasises, these various activities enabled him to be the 'creative director' ('regisseur') of his own reputation.[28]

This appears to have already been the standard-procedure around the time that Oud built – and published – his projects in Aalsmeer, Blaricum and Katwijk, for which special drawings and representative photographs were made, which were suitable for professional distribution.[29]

Drawings and photographs of these three projects were given considerable attention in professional publications at the time and resurface, in different combinations, as representatives of Oud's early phase, in retrospective publications addressing his life and work.[30]

These three projects may be considered to be exemplary of the gradual paradigm-shifts taking shape within the steadily-developing personal style of the ambitious, young J.J.P. Oud.[31]

An overview of representative works from Oud's early oeuvre, in which he worked as a professional architect in his native Purmerend:

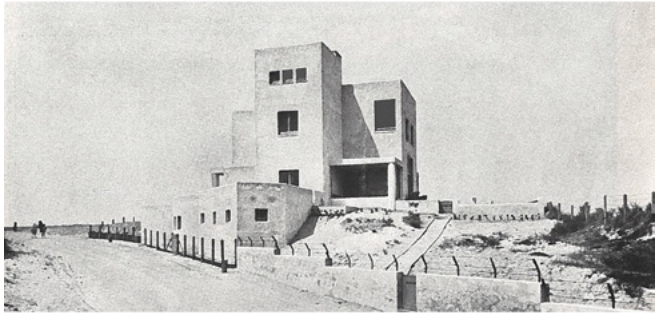
— 1906–07: Oud-Hartog House, Purmerend;
— 1911–12: Building Complex, 'Vooruit', Purmerend;
— 1912: Beerens House, Purmerend;
— 1912: Brand House, Beemster;
— 1912: G.J. Oud House, Aalsmeer [1];
— 1912: Schinkel Cinema, Purmerend.

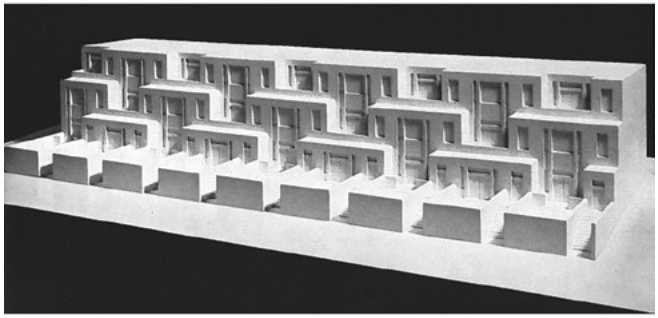
Subsequently, after moving to Leiden in 1913, Oud worked with W.M. Dudok and soon became one of the tone-setting architects of the De Stijl movement, with Robert van 't Hof, Jan Wils and later Gerrit Rietveld.
His works from this period include:

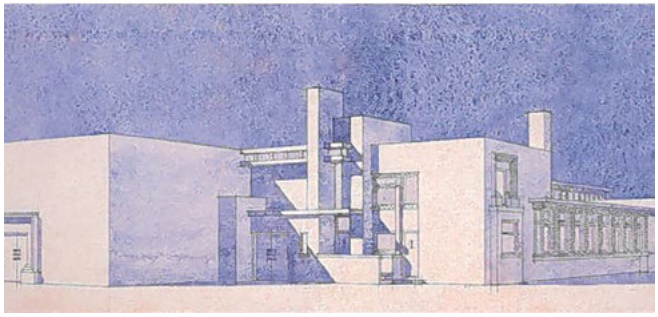
— 1915–16: Essen-Vinkers Villa, Blaricum [2];
— 1914–15: Social Houseing, Leiderdorp (with W.M. Dudok);
— 1916–17: Leidsch Dagblad Building, Leiden (with W.M. Dudok);
— 1916–17: Villa Allegonda (with M.Kamerlingh Onnes) [3];
— 1917: Seafront Terrace Housing, Scheveningen (project) [4];
— 1917–19: De Vonk Holiday Hostel (with Theo van Doesburg);
— 1919–20: Factory and Warehouse, Purmerend (project) [5].











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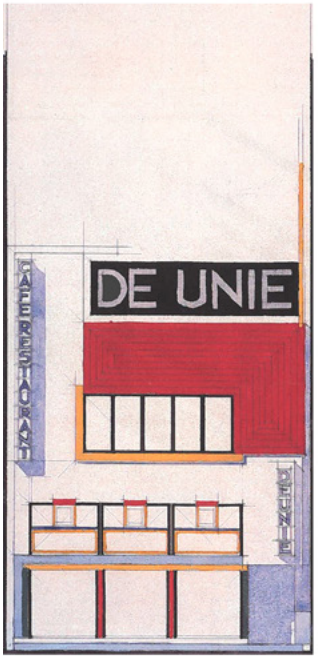
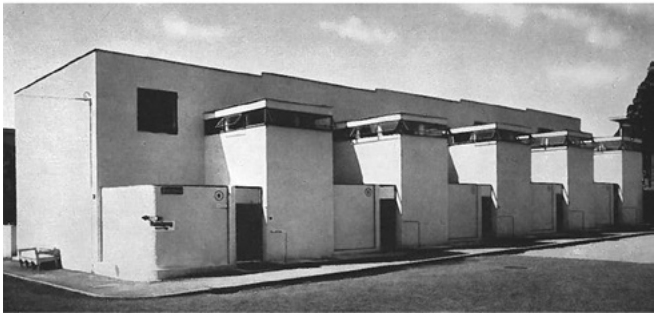
Sources: "J.J.P. Oud, Poetic Functionalist' / NAi.











From his subsequent position as municipal architect of the city of Rotterdam, Oud manages, within only a few years time, to design and build a collection of exemplary Functionalist artefacts:

— 1920–24: Tussendijken Municipal Housing, Rotterdam;
— 1922–24: Oud-Mathenesse Municipal Housing, Rotterdam;
— 1924–27: Hoek van Holland Housing Scheme, Rotterdam [6];
— 1925: Café de Unie, Façade and Floor Plans, Rotterdam [7];
— 1926: Competition Design for the new Rotterdam Exchange;
— 1925–30: Kiefhoek Housing and Church, Rotterdam [8];
— 1926–27: Row Houses in the Weissenhofsiedlung, Stuttgart [9];
— 1927–28: Extension and Interior Design Villa Allegonda.

In this period Oud would also develop as a polemist and international publicist.
His influential *Holländische Architektur*, first published in 1926 and then in an expanded second edition in 1929, contributed to his reputation of being an essential player in the pioneering and developing, progressive architecture of the Netherlands.

The first version of the book included illustrations of the work of P.J.H. Cuypers and H.P. Berlage and the architects of the Amsterdam School (notably including a drawing of de Klerk's first project for his flower auction in Aalsmeer), as well as more modern architects such as J.B. van Lochem, W.M. Dudok, G. Rietveld and himself.

The second imprint included his Hoek van Holland scheme, the Rotterdam exchange project and his Weissenhof housing project, as well as work by M. Stam, Brinkman & van der Vlugt and Duiker & Bijvoet (Zonnestraal).[32]

After completing his series of highly-influential modernist projects, the mood and aesthetic that had seemed so typical of Oud's work begins to shift once again.
He starts to evolve a more 'classical' mode of expression and begins to re-introduce ornamentation in his work.

In particular, his design for the headquarters for the BIM (Shell) in The Hague (from 1937) is emblematic of this change. He is vilified by his former Functionalist compatriots and viewed with renewed interest and respect by the members of the more neo-traditional architectural community.

During this phase of his career, he steadfastly develops a new vocabulary, expressed in a limited number of prestigious buildings and ocean liners, in which the design of the interior and its furnishings increasingly plays a central role.

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Sources: "J.J.P. Oud, Poetic Functionalist' / NAi.

An overview of some representative works of J.J.P. Oud's later works:

— 1936–38: Interior Designs SS Nieuw Amsterdam [10];
— 1937–38: Interior Designs MS Zaandam and MS Noordam;
— 1937–42: Head Office BIM, The Hague [11];
— 1942–57: De Spaarbank, Rotterdam;
— 1946–57: National Monument on the Dam Square, Amsterdam;
— 1949–56: Tweede Vrijzinnig Christelijk Lyceum, The Hague [12];
— 1952–60: Bio Convalescent Centre for Children, Arnhem [13];
— 1956–63: Netherlands Congress Centre, The Hague.

After leaving De Stijl, Oud did not realise any more freestanding houses.
His output consisted mainly of housing projects, public buildings and interiors.
In the 1920's he did make designs for some villa's – notably the Kallenbach House project in Berlin (1921-22) and the House for Mrs. H.H. Johnson project in Pinehust, North Carolina (1931) – but none of these were built.

In his later years, Oud did again make designs for a number of homes, however none of these were actually realised. One of the most curious of these projects is the design for a double house for the De la Court family (1950): a rather unhappy marriage of tradition and modernism, within one project.[33]

In 1955 Oud received an honorary doctorate from the Delft Technical College.
The chairman of the promotion committee, professor J.F Berghoef, gives him the official recognition *'appropriate to his prominent position within the Dutch architectural establishment'*.

Berghoef tactfully praises the *'purity of his intentions and the clarity of expression thereof in his work."*[34]











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Sources: "J.J.P. Oud, Poetic Functionalist' / NAi.

Discourse

Generally, it is agreed that at the time of his Aalsmeer project, Oud was still strongly influenced by Berlage.[35]
Furthermore, he was clearly inspired by the phenomenon of the English 'country house', elements of which are arguably in evidence in his houses in Aalsmeer and Blaricum.[36]
Around the time of the Aalsmeer house's realisation, Oud wrote an article on Hermann Muthesius' illustrated writings and his designs for country houses, which was published in 1913.[37]
But, in retrospect, various architects and scholars, including J.F. Berghoef, Hans Esser and indeed Oud himself have indicated that the design of the villa in Aalsmeer was, in effect, influenced by the early work of Frank Lloyd Wright.

Many years later, in a letter which was written in 1951 to B. Schindler, whom he was trying to interest in the publication of a book of his work, Oud would characterise his early projects as *"works which were more of interest for the evolution than for itself."*

Of this period, Oud writes:

> *"My first house I built at the age of 16. It was influenced by English domestic architecture. I was attracted at that time especially by its appearance, not yet by its essential meaning. A bit later modern architecture in Germany fascinated me, principally out of the reason though I remember that the works of Peter Behrens told me more than only utterly pleasure. A cinema in Purmerend (…) gives proof of it. In this period Berlage lectured on the works of Frank Lloyd Wright which impressed me very much: a house in Aalsmeer was the result of it."*[38]

The authors of a retrospective of Oud's work, on the basis of his archive at the NAi, see this as a way of 'reconstructing' his main influences *in hindsight*: a 'misremenbrance' on his part, due to the fact that after the second World War Muthesius was virtually forgotten, while Frank Lloyd Wright was considered a major success in post-war Europe.[39]

It is, however, almost certain that the impressionable young Oud was one of the first in the Netherlands to have become acquainted with the work of Wright, through his direct contacts with Berlage and his family.
He may have been an invited guest to a private slide-presentation on the subject of Berlage's American journey of 1911.
This 'sneak preview' may have given an impulse to the design of the house in Aalsmeer, on which Oud would have started working around that time.
Another opportunity to become acquainted with the works of Wright might have been a public lecture by Berlage, organised by Architectura et Amicitia on the January 30th at Artis.
A generously-illustrated synopsis of this exposé was published in *Bouwkundig Weekblad*, February 10th, 1912.
Berlage's book on his American travels would be published in 1913.[40]

If this were the case, it would make Oud's Aalsmeer house the fist Wright-inspired project to be realised in the Netherlands, well before the two Villas by Robert van 't Hof, which are generally considered to be the first Wright-influenced artefacts in the country.[41]
This theory is supported by Hans Esser, who considered the position and development of Oud in the context of his developments in the early years of De Stijl. He recognises the influence of Wright in an elevation-drawing of the Oud house, with its stressed horizontals in the 2D representation. Furthermore, he pays particular attention to the semi-circular arch around the main entrance, which he compares to the entrance of the Dana House in Oak Park, a project which was included in Berlage's *Reisherinneringen* and would in all probability have been included in his lectures on the subject.[42]

Oud was a companion of Jan Wils (1891–1972), who had also become familiar with Wright's work through Berlage.
Their contact with Berlage at the time was intensive: Wils worked in Berlage's office from 1914 to 1918. Oud, who had worked on his own since 1906, was a frequent visitor to the Berlage home, where both young architects would meet frequently.
As a consequence, their thoughts about architecture were strongly influenced by their mentor.
However, things were to change dramatically, in 1917.
They both found a new spiritual haven ('geestelijk onderdak') in the artist-group De Stijl, which was founded that year by Theo van Doesburg, together with Oud, the painters Piet Mondriaan and Vilmos Huszar and the poet Anthony Kok.
The painter Bart van der Lek, the sculptor Georges Vantongerloo and the architects Jan Wils and Robert van 't Hof joined soon after.

The common goal of the De Stijl artists and architects was the development of a new aesthetic awareness ('schoonheidsbesef'); thereby the Subjective in art had to make room for the Objective: from the Individual towards the Universal.
The New Art had to concentrate on three elementary values: Space, Light and Proportion.
The means: Abstraction through the use of 'pure' surfaces and essential geometric forms, as well as the primary colours plus white, black and grey.[43]

During the period that he was actively involved in the De Stijl movement, Oud would briefly work in an idiom that may also be considered to be reminiscent of the vocabulary Frank Lloyd Wright: in his designs for an 'entrepot' and a factory building in Purmerend of 1918–19.
His 'sculptural' approach also shows parallels with the designs for the Rijksacademie van Beeldende Kunsten by two other young architects who were influenced by Berlage and Wright: Jan Duiker and Bernard Bijvoet (1917–19).[44]

Despite the fact that the Purmerend projects were not built, their impact was considerable, as the perspective-drawings by Oud were adopted by van Doesburg as visual icons, demonstrating what he felt De Stijl stood for.

It can be questioned if Frank Lloyd Wright's formal grammar fundamentally influenced the working styles of young architects like Duiker and Oud, or that it was more a matter of him showing them their *opportunities*. If this were the case, it might be a matter of them using Wright's, already impressive, oeuvre as a jumping-board ('springplank') for the development of their *own* architectural convictions and their careers.

In the case of Oud and van Doesburg, it was not so much the compelling horizontality and spatial complexity of Wright's work that captured their imagination, but rather the issue of *Cubism*, or in the words of van Doesburg: 'neo-plasticisme'.[45]

By 1921, Oud was not only distancing himself fully from his own earlier work, but emphatically pointing in the direction of a more 'objective' architecture, which anticipates the will *"in every aspect to be the opposite of the building-art of these times."*
In his manifest concerning 'the building-art of the future and its architectural potentials' he argues that new techniques, in particular the use of reinforced concrete, offer the opportunities to reach *"a new architectural plasticity, which in combination with the expressive potentials of steel and glass – on a purely constructive basis – will create the opportunities for the evolvement of a building-art with optically-immaterial, almost floating, perceptual characteristics."*[46]

The recurring theme is *purity* ("zuiver(heid)") and he is critical of the outcomes so far.
He includes an illustration of his Purmerend factory proposal, of which he writes in the caption: *"… the decorative element has not yet been fully vanquished ('overwonnen')."*
He is equally critical of van 't Hof and Wright, of whom he includes a picture of his Robie House, to demonstrate the *"optical neutralisation of exterior weight"*, but of which he also comments that it is: *"in its massing still romantic."*[47]

He concludes his densely-polemic contemplation as follows:

> *"So the tendenz of architectural development points towards an art of building, in its essence more bound to the material than before, which will in its appearance rise above this: being liberated from all impressionistic sentiment ('stemmingsbeelding'), in the fullness of light, and developing towards a purity of proportion, a paleness of colour, and an organic clarity of form, which though the lack of all things inessential will be able to transcend classical purity."*[48]

Within De Stijl, Oud had begun to find it increasingly difficult to accept what he considered to be the dogmatic principles of the movement and particularly: the dominant role of van Doesburg.

In 1921 he distanced himself from De Stijl and began to develop a new, more personal formal language, becoming one of the foremost pioneers of the 'New Architecture'.

Oud promoted the notion (some might say: *myth*) that Cubism had been the dominant theme in the development of modern architecture, a condition for which he himself felt largely responsible. Whilst he admitted to respecting Wright, it was the issue of Cubism – to which Wright had shown the way – that had duly been extrapolated by Oud *himself*.[49]

In his contribution to the series of Wendingen retrospectives on the work of Wright, curated by Wijdeveld and published in 1925, Oud paid homage to what he considered to be the 'enigmatic' genius of Wright:

> *"Where it is a peculiarity of our day, that even the work of the cleverest nearly betrays how it grew to be such as it is, with Wright everything is, without being at all perceptible any mental exertion to produce. Where others are admired for the talent with which we see them master their material, I revere Wright because the process by which his work came into being remains for me a perfect mystery."*

He continues, by outlining what he himself sees as the premises for a new form-synthesis:

> *"The need of number and measure, of purity and order, of regularity and repetition, of completeness and finish, properties of the organs of modern life, of our technique, our traffic, our hygiene: inherent also in the state of society, the economic conditions, the mass production, find their precursors in cubism."*[50]

In the last phase of his career, Oud once again began to actively 'curate' his aesthetic oeuvre as a whole and to seek renewed international recognition. Thereby he focuses in particular on his position in De Stijl.
Although his range was by now 'essentially restricted to the Netherlands', he continued to probe the functional – and artistic – conditions of architecture.
However, around this time, his work was seen primarily as a typically Dutch phenomenon and he was unable to re-establish his former international reputation and standing.[51]

Aesthetics

The G. Oud project in Aalsmeer is the work of a young and impressionable architect in transition, whose aesthetic 'palette' was still a hybrid mix of ideas, influences and notions.

If we consider the aesthetic developments of Oud, around this time as well as in the coming years, we may identify two 'linked' compositional phenomena:

— *Convention*: the professionally-controlled application and integration of then-recognised themes;
— *Invention*: the search of an ambitious young form-giver for new, more 'fitting' aesthetic paradigms.

In its distinctive massing and subtly contrasted symmetries, Oud's Aalsmeer house does display parallels with the work of Berlage.
At the same time, the house's layout and the prominent presence of chimneys suggests an affinity with the style of the English country house.

Yet, particularly in the composition of the roof, with its extended awnings ('luifels') and the brickwork arches at the front and the rear, the house genuinely seems to have been, at least in part, informed by his recent acquaintance with the early work of Frank Lloyd Wright, which was then still a novelty in the Netherlands.

The influence of Berlage on the Dutch cultural climate around the turn of the twentieth century cannot be underestimated.
However, the mythological status he would come to acquire, as being the visionary pathfinder of Dutch functionalist modernism, does not deserve to be taken as a 'given', but should to be treated with a measure of relativism.[52]

Aesthetically speaking, the 'Rationalism' preached by Berlage came down to a kind of 'tidying up' of previous, eclectic building-formats.
One might argue that in the work of Berlage around this time – and in the work of younger architects whom he influenced, like Oud – 'orderliness' was the dominant factor and that the attributes that aimed to offer additional, visual 'complexity' were somewhat contrived.[53]
Rather than being truly 'modern' Berlage was still essentially – tectonically as well as aesthetically – grounded in nineteenth-century building-conventions.

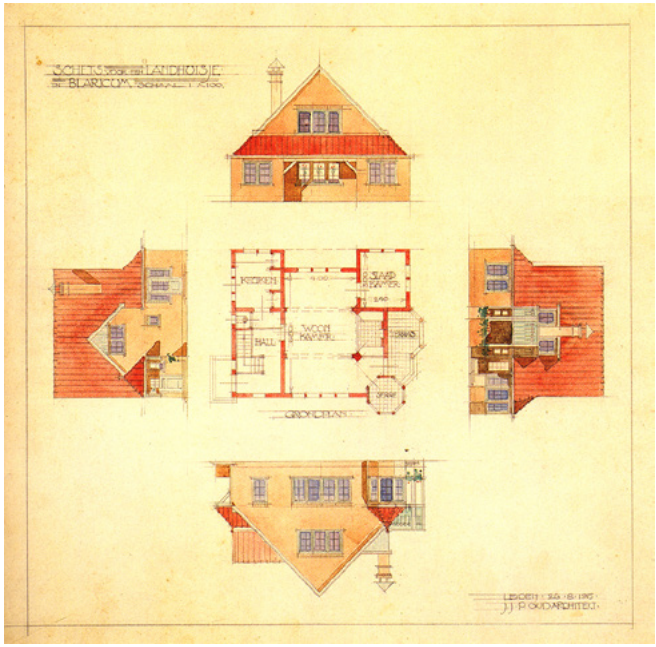
In his early career, as a country-architect in Purmerend, Oud had managed to seriously master and exploit such conventions, but he was not satisfied with their expressive capacities.
He was searching for *new* expressive means in his work, which was around this time still characterised by an 'eclecticism of style'. In the words of Henry Russell Hitchcock, one might say he was looking for a New Tradition.[54]







The three projects considered to be representative of Oud's early development.



Plan and projected elevation drawings of JJP Oud's Blaricum house project, 1915.



Four elementary 3D model-based analyses of the Blaricum house.

Within the scope of a few years, Oud experimented with formal motifs in his city-houses, geometrically vernacular motifs in his country-houses and with expressionist themes in his Schinkel cinema-complex, built around the same time as the Aalsmeer house (1912). The last building is a somewhat atypical outing for Oud, who never truly ventured close to the expressionism of the Amsterdam School. If anything, it is more in line with the architecture of the Secession architects from Vienna and might have been informed by his experiences in the office of Theodor Fischer, in Munich.

After moving to Leiden in 1913, Oud's stylistic sensibilities became expanded by his collaborations with his old acquaintance W.M. Dudok and by the restless kindred-spirit of his new friend Theo van Doesburg.
More-or-less by chance – though his acquaintance with the Kamerlingh Onnes family and his subsequent collaboration on the Villa Allegonda project – Oud became aware of a wholly new mode of 'abstract' architectural expression, which he came to characterise as 'Cubism'.

From here on, cubist-modernism would become the central theme, which he would come to consider more-or-less as his 'own' invention.
His restlessly inquisitive nature would eventually lead him on to an architectural expression with explicit, primary-level ornamentation (in the controversial BIM-building of 1937, in Den Haag), but after the war he would return to a more-or-less abstract (albeit less 'immaterial') modernist aesthetic.

In retrospect, Oud's Aalsmeer house can be seen as a meaningful step forward in his formative years, a point where reigning aesthetic paradigms were beginning to shift and his personal style started to develop in earnest.

In this context it is interesting to comparatively consider two, subsequent projects from his early 'invention' years:

— The Essen-Vinkers Villa, Blaricum, 1915–1916;
— The Villa Allegonda, Katwijk aan Zee, 1916–1917.

As part of the AA03 study, a small 'detour' was made to these two projects, which were realised by Oud after completing this house, in the period that he was living and practicing in Leiden.
Both works were considered in relation to the Aalsmeer house, as they might throw a light on his development towards his De Stijl phase, which Günther Stamm considers to have properly started with his Scheveningen-boulevard housing project of 1917.[55]

Despite the fact that the two projects are situated quite close together in time, they are distinctly different.
In the project of the Essen-Vinkers villa in Blaricum (1915-1916) the geometric qualities of the composition are somewhat reminiscent of the house in Aalsmeer – double symmetries which are offset by

contrasting elements – but here the geometrical arrangement is even more pronounced.

Whilst an earlier version of the project still comes across as more or less traditional, with a mansard roof, the realised project is characterised by an eye-catching roof composition (covered in a clear-cut package of thatching) with prominent chimneys and sculptural variation throughout the ground-floor facades.[56]
The seemingly 'romantic' cottage has a geometric sharpness and a lightness of touch, suggesting that Oud was beginning to steadily move away from his original mentors; Muthesius and Berlage.
The project was reconstructed as a 3D model on the basis of an intriguing drawing, with its elevations drawn in four directions around a (mirrored) plan-projection.[57]

By contrast, the Villa Allegonda project in Katwijk aan Zee (1916–1917) can be seen as a precursor to his more radically-modern De Stijl phase (1917–1921) and beyond…
This project involved the drastic remodelling of an existing villa, situated on a sand-dune, overlooking the North Sea and the mouth of the Old Rhine river.

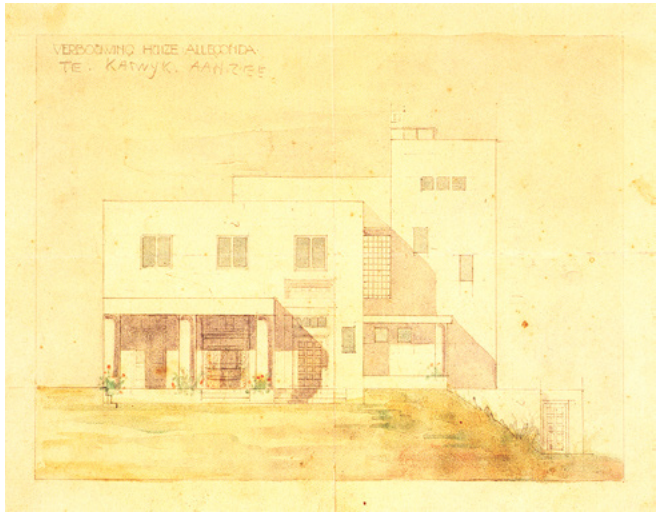
It was an initiative of Menso Kamerlingh Onnes, the father of his newly-acquainted artist-friend, Harm Kamerlingh Onnes, who was inspired by Northern African vernacular architecture.
Oud and Kamerlingh Onnes sr. collaborated on the project, whereby it is open to debate to what extent the design might be considered as being Oud's, or whether he was principally involved on a technical level, as a draughtsman, interpreting Kamerling Onnes' radically-exotic vision.[58]

Whilst Oud always remained modest about his contributions to the project, its cubic massing and abstract materialisation may be expected to have contributed towards the development of what later became his 'poetic functionalist' phase.

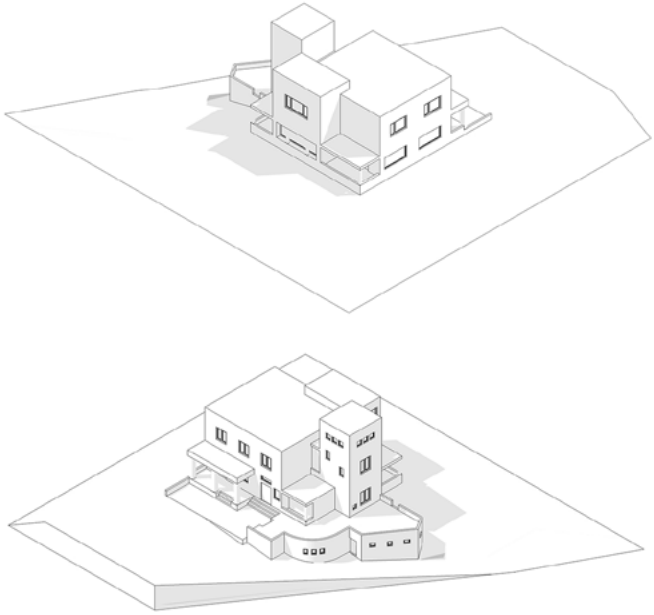
In 1927–1928 he was given the opportunity to extend and remodel the exterior and interior of the villa into a true modernist 'Gesamtkunstwerk', complete with his own furnishings.[59]
Whilst the building managed to survive the war, from 1961 onward, it became a pale shadow of its original self, as the somewhat sleazy 'Hotel Savoy'.
In 2017 the complex finally changed hands, after which the new owner has managed to restore the house back to its near-original state.

Despite the various stylistic side-tracks that Oud took throughout his career, he would essentially stay true to the 'cubist' aesthetic that he co-founded and so actively disseminated.

After the war, he resisted the increasingly-dominant aesthetic of the so called Delft School, and was strongly opposed to the notion of a 'synthesis' of the picturesque, neo-traditionalist movement and the modern movement ('het Nieuwe Bouwen').[60]



Facade drawing of the Villa Allegonda project, Katwijk aan Zee, 1917.



Massing- and situation studies on the basis of the Villa Allegonda project.

In his later years, he would try to return to his original metier: the shapes, forms, rhythms, tones and colourings of 'abstract' modernism.

Oud's reputation was arguably not only founded on the quality of his built oeuvre, but also on the aesthetic qualities of his *imagery*. He conscientiously paid attention to all aspects of visualisation and demonstrated an inquisitive, adventurous approach to draughting, presentation drawing, photography and graphic design.

His skill as a professional draughtsman can be attributed to his artistic education and his technical training. However, throughout his career he continued to 'push the envelope' when it came to project visualisations, such as the rotated drawings for Blaricum house and the evocative perspectives for the Purmerend factory project, which became an icon of the early De Stijl period. Apart from making essential realisation-phase drawings, from the Aalsmeer house onward Oud would also produce special drawings of his projects, which were suitable for distribution in printed form.

It would appear that he also saw to it that his realised work was professionally – and artistically – documented in high-quality photographs, a factor that undoubtedly played an important role in the international appreciation and acclaim of his 'cubist' work. His influential publications on the new architecture of the Netherlands demonstrate a knowledge of graphic design. In addition, he was himself responsible for several covers and posters. For these – and notably for the Café de Unie project – he designed his own, expressively modern, lettering.

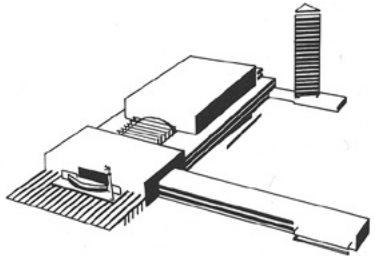
This continued dedication to graphic quality, but also his connection with music, is evident in his last publication, highlighting his role in the De Stijl movement, which was printed shortly before his death.

In *Mein Weg in De Stijl* (1961) Oud wrote:

"The desire for abstraction requires melody.
Pure abstraction is like religion without humanity.
Humanity means living in the flowing continuum of daily existence.
The flow and rhythm of daily existence demand melody from architecture."[61]



Cover of J.J.P. Oud's publication of his De Stijl developments, published in 1960.



Essential representation of Oud's last project: the Netherlands Congess Centre.

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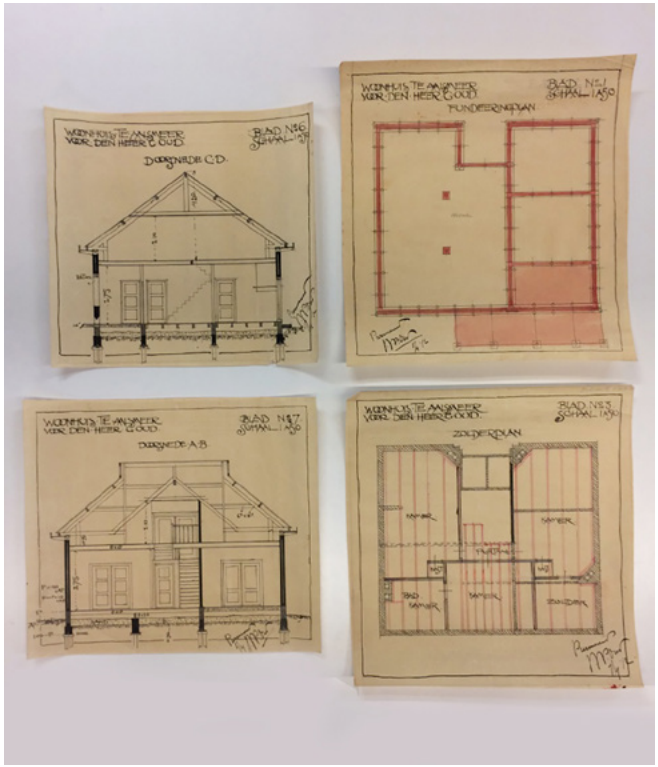


Collection of four original drawings of the G. Oud project, NAi archive Rotterdam.

1 The first realized (town)house is still to be found in Purmerend, at Venediën 7. The windows on the top two floors are strictly symmetrical, with a prominent central window element, corresponding with the asymmetrical, but equally strict ensemble consisting of a door and two windows, on the ground floor.
2 'Kunstnijverheidsschool Quellinus'.
3 A concise overview of the results of Oud's prolific early career is given in the booklet *J.J.P. Oud, Purmerender (wereldberoemd eigenzinnig architect)*, Jack Otten, 2001.
4 Umberto Barbieri identifies the client as Oud's younger brother Gerrit. However, it is known that he would later become a banker, making this seem unlikely.
Mrs. Weima suggests that it would have been an uncle in the extensive Oud family of Purmerend. Gerrit Oud would become a prominent and representative member of the Aalsmeer's market-gardening community.
5 Hermann Muthesius was not only influential with his groundbreaking series on English domestic architecture, but also though publication of his own design products, mostly realized in the surroundings of Berlin.
6 Berlage would most probably have introduced his students to the work of Louis Sullivan and Wright before the publication of his 'Reisherinneringen' in 1913.
7 Oud and Dudok had become acquainted in Purmerend and met up again in Leiden, where they would work together on a working-class housing project in Leiderdorp (1914-15).
8 In a letter written in 1951 to Dr. B. Schindler in London, whom he is trying to interest in a publication of his entire oeuvre, Oud mentions the house on the Uiterweg as one of the exemplars of his *"works which were more of interest for their evolution than for itself"*. Source: Henny Weima.
9 Source: a copy of the original planning-permission drawing, received from Oud-expert Umberto Barbieri. Although the orientation is not specified in this document, the lay-out of the drawing suggests that the house was indeed situated towards the north of the dike.
10 The exact location of the house was for some time something of a mystery.
In all, three different house numbers are mentioned in various publications, including 45 in the NAi overview and 59 in Barbieri's monograph. Both of these numbers relate to present-day plots on the southern side of the dike road, on the side of the main lake. However, in an article by Mrs. Henny Weima, who inhabited the house after it had been vacated by Gerrit Oud, she gives the number 54. This appeared to be confirmed by a copy of the original building permit, which suggests a location to the north of the Uiterweg dike.
Later archive study in Aalsmeer (2016) corroborated the notion that the house was situated on the Ringvaart side of the Uiterweg, at nr. 54.
11 In 1908 Oud enrolled at the 'Rijksnormaalschool voor Teekenonderwijs' and in 1910 acquired a diploma for Technical Drawing.
12 Source: Hans Oud's dissertation on the life and work of his father (1984). Pg. 16.
13 Source: *Klei* 1913, which specifies dimensions of 0,11 – 0,05 – 0,11 (meters).
14 The project-documents were published in these three periodicals. See: Sources.
15 Source: *De beginjaren van De Stijl, 1917–1922.*
16 This interior feature of the house which not only made a serious impression on Mrs. Weima, but also on the impressionable young Berghoef.
17 Information on the basis of Mrs. Weima's document-studies concerning the building of the house.
18 In his 'Herinneringen' dictated to Mrs. J.E. Klein-Berghoef, he noted: *"Op een Aalsmeers kwekersbedrijf was in het tweede decennium een van de vroegste werken van architect Oud verrezen: Lloyd Wright-achtig, zoals ik later begreep, en een opvallende verschijning tussen de oude kwekershuizen."*
19 The article, included in the march 1984 edition of *'oud nuus'* was signed: Henny Weima, Kinshasa, 6 november '83'. This led to the assumption that the author might no longer live in the Netherlands and that it would not be possible to track her down.
20 A black-and-white photograph, later discovered to be a promotional postcard for the firm of Eveleens & Weima shows the starkly floodlit house at night, with ghostly white walls.
21 Apart from the demolition of the chimneys and the addition of a large new window, in what been the front loggia, there was a kitchen extension at the back and an opening in the rear balcony for a staircase that had for some time given access to a separate apartment, on the first floor.
22 The portrait of Mr. and Mrs. Weima in 1985, executed in a combination of aquarelle- and airbrush techniques, was made by local artist Hans den Hollander.
23 Source: the Weima & Eveleens 'Prix-courante' from the years 1957, 1959 and 1966. These document the transformation of the house's exterior from near-original to a mid-sixties towards its 'neo modern' guise.
24 Information concerning the project and its evolvement was given in an article by Mrs. Henny Weima: *Het Oud-huis aan de Uiterweg*, in: *Oud Nuus* (1984). A copy of the article was sent to me by my uncle Huib de Vries, who has been an active contributor to the Aalsmeer historic society.
At a later date during the study, contact was made with Mrs. Weima, who allowed me to look into her personal collection concerning the house.
25 The job-description for the building, signed by G(errit) Oud specifies:
"Het dak te bedekken met blauwe kruispannen voorzien van zinken gooten met de noodige leiding naar de te metselen regenbak groot 5 m3."
It is unclear whether this specification was drawn up by the architect, the client or the building contractor, P. Hulsbos (source: Mrs. Weima).
26 The article titled 'Woonhuis te Aalsmeer' in 'Klei', November 1913 specifies the following:
"De muren zijn opgetrokken als spouwmuren (0,11 – 0,05 – 0,11), waarbij voor den buitensten halven steen miskleurig hardgrauw (Waalformaat) werd gebruikt. De roode pannen zijn: Tuilles du Nord."
It is difficult to know for sure what the brick industry jargon 'miskleurig hardgrauw' would have exactly denoted.
One might question if things were in effect not the other way round: reddish bricks and greyish clay roof-tiles.
27 A black-and-white photograph of the spot-lit house, taken at night, already indicates the whitewashing of the outer walls. The illustration which was included in Mrs. Weima's article was found in the NAi's Oud archive (2016) as a promotional postcard for the firm of 'Weima & Eveleens'.
28 Hans Ibelings on Oud in *Architecten in Nederland* (2005):
"Behalve een begenadigd architect was Jacobus Johannes Pieter Oud een gedreven theoreticus en actief netwerker. Vanaf 1918, toen hij ging werken bij de Rotterdamse woningdienst, ontwikkelde Oud zich niet allen tot, zoals hij nu te boek staat, prominent architect, maar eveneens tot een begaafd auteur en polemist. Hij hield lezingen – ook in het buitenland –, publiceerde in nationale en internationaal vaktijdschriften, en voerde intensief correspondentie met collega-architecten in binnen- en buitenland.
Zijn wijdverbreide activiteiten stelden hem in staat de regie te voeren over zijn eigen reputatie. Zorgvuldig geselecteerde afbeeldingen van zijn werk vergezelden zijn lezingen en publicaties."
29 In the Oud's personal archive at the NAi, I found similarly-formatted, printed pages, each with plans and pictures, for all three projects.
30 If we look at the appearance of the three projects in different retrospectives of Oud's work, it becomes clear that despite its mixed authorship, the Villa Allegonda tends to always

be included as an illustration.
The other two projects seem to be interchangeable: Wiekart (1965): Blaricum; Stamm (1985): Blaricum; Plan (1981): Aalsmeer; Engelbert-Dockal (2006): Aalsmeer and Blaricum.
31 In the NAi publication, Taverne et al state that Oud was known as 'Bob' to his friends, however his son Hans Oud, in his dissertation on the subject of his father's life and work, mentions his informal name as being 'Ko'.
32 Whilst Oud's publication typically only included work by Dutch architects, the book *Internationale Architectur* by Walter Gropius (facsimile edition 1981 by Florian Kupferberg Verlag, Mainz), highlighted projects by Berlage, 'Brinkmann und van der Vlugt', Dudok, Bijvoet & Duiker (the 'Chicago Tribune' design, alongside Gropius' own entry), Rietveld and particularly Oud.
One of his included projects is the Villa Allegonda of 1917, which is attributed to: "Entwurf: M. Kamerling Onnes, Architect: J.J.P. Oud, Rotterdam."
33 Source: *J.J.P. Oud, Poetic Functionalist*. Pg. 480.
34 Berghoef's speech was published in Bouwkundig Weekblad, 4 october 1955. Berghoef is not entirely uncritical of Oud's oeuvre, but he states:
"Toch zijn beiden exponenten van eenzelfde tijd en het tijdsbeeld zou scheef getrokken worden als men een van beiden zou elimineren. Het gaat om de zuiverheid der intenties en om de zuiverheid van zijn intenties en de klare uitdrukking ervan in zijn werk eren wij Oud,"
35 In a letter to Dr. B. Schindler in London, in 1951, Oud wrote:
"Beginning to know Berlage himself and his works better and better at that time I became convinced of the fact that a new harmony in the world could only be achieved by unity in the products of architecture. Every architect had to design, I thought, in one manner: which manner had to be, as it seemed to me, the Berlagian manner (…) combined with a renewed interest for the English domestic architecture the lust for Clarity and Purity resulted from it."
Source: article *Het Oud-huis aan de Uiterweg*, Henny Weima (1984).
36 In his *Museumjournaal* article of 1977, Günther Stamm compares Oud's houses of this period:
"Zijn huizen in Aalsmeer (1912), Blaricum (1915) of de ontwerpen voor De Geus in Broek-in-Waterland (1916) zijn te beschouwen als de romantiserende variant in zijn vroege werk. Ver doorgevoerde symmetrie, uitspringende balkons en erkers, gemodelleerde schoorstenen die steeds weer doorbroken worden, verraden de invloed van de gangbare opvattingen van die tijd. Voorbeelden van Engelse architectuur assimileren zich hier met de opvattingen van Kropholler en P. Kramer, zonder dat Oud echter in de formalistische excessen van deze laatsen vervalt. Ouds ontwerpen spreken ons aan door hun pretentieloze vormgeving, welke in die Jaren bij het Hollandse landhuis bepaald niet algemeen was."
Mrs. Weima also offers an, English language appraisal of the two houses, which she attributes to G. Stamm:
"In the Gerrit Oud house in Aalsmeer, 1912, as well as in the Van Essen-Vincker House of 1915 in Blaricum, one encounters the impact of Muthesius' publications on the English country home. The charming informality in Blaricum contrasts with the proper bourgeois appearance of the Oud house. The architect experiments with both end of the formal spectrum and attempts a synthesis between English standards and his native tradition."
It does not seem that this text was indeed written by Stamm in the *Museumjournaal* and the proper source has not as yet been found.
Nonetheless, the poignant text is included here as 'circumstantial evidence'.
37 J.J.P. Oud: *Landhäuser von Hermann Muthesius*, in Bouwkundig Weekblad, 33 (1913). Pg. 589.
38 Source: 'Brieven en publicaties' section in Mrs. Weima's article.
39 In the project-description of the G.J. Oud house in *J.J.P. Oud, Poetic Functionalist*, p. 72, they write:
"Such 'inventions' but above all the 'clear and well organized' overall ground plan of the house point to Oud's growing interest in the work of Hermann Muthesius, to whose country houses he devoted a first, short article in 1913. In 1951, when Oud was trying to reconstruct the main influences in his architectural development, Muthesius was supplanted by Frank Lloyd Wright: "In this period Berlage lectured on the works of Frank Lloyd Wright which impressed me very much: a house in Aalsmeer is the result of it." This 'misremembrance' no doubt had something to do with the fact that after the Second World War Muthesius was virtually forgotten while Frank Lloyd Wright was a major success in post-war Europe."
40 In this period Oud appears to have been part of the 'inner circle' of the family, partly due to his friendship with Berlage's daughter Corrie, who was a fellow student at the Quellinus School.
In his contribution to the *Americana* book, entitled *Variaties of een thema,* Auke van de Woud mentions that Oud had been invited to such an evening, which was corroborated by Oud's widow, Mrs. J.M.A Oud-Dinaux.
41 Robert van 't Hof realized two villas in Huis ter Heide, the Summerhouse J.N. Verloop (1914/15) and the more famous Country house A.P. Henny (1915/19).
Source: Evelien Vermeulen: *Robert van 't Hof*, in: *De beginjaren van De Stijl 1917–1922* (1982).
42 Hans Esser, after discussing Oud's entrepot and factory projects in Purmerend of 1918:
"Niet alleen bij de fabriek, maar ook bij eerdere ontwerpen is de invloed van Wright aanwijsbaar. Een tekening van een woning uit 1913 laat een ingangspartij zien in de vorm van een ronde gelede bakstenen boog die bijna letterlijk is overgenomen van het Dan House in Oak Park bij Chicago (afb.). Oud had waarschijnlijk een afbeelding daarvan gezien in Berlage's Amerikaansche Reisherinneringen, een boekje dat dat jaar werd gepubliceerd. Hij liet het bij deze ene ontlening. Pas in 1918 is er sprake van een hernieuwde belangstelling voor Wright. Oud wijdde toen niet alleen een publikatie aan hem in De Stijl, maar nam ook in zijn ontwerpen bepaalde formele aspecten als lange vensterreeksen en vooruitstekende luifels over."
Source: Hans Esser: *J.J.P. Oud*, in: *De beginjaren van De Stijl 1917-1922*, 1982.
43 Source: Auke van der Woud in *Americana.*
44 It is interesting to note in the publication of Wright's influence on the Netherlands – *Amerikaanse dromen* – Duiker and Bijvoet's project is included but neither the Purmerend projects, nor the Aalsmeer house are shown.
In Auke van der Woud's *Americana* article, entitled *Variaties op een thema*, Oud's entrepot design and de Klerk's Wassenaar project are shown. Duiker & Bijvoet's Kijkduin villas are also included.
45 Herman van Bergeijk writes in his introduction to *Amerikaanse dromen*:
"In Nederland werd het ideëengoed van Wright door enkele meer radicaal gezinde architecten zoals Theo van Doesburg, J.J.P. Oud en Jan Duiker gebruikt als springplank voor hun eigen opvattingen over een nieuwe bouwkunst. Anderen lieten hun ontwerpen beïnvloeden door de vormenrijkdom die de architectuur van Wright bood. Weer anderen pakten zijn draden op en hebben deze vervolgens in andere richtingen gesponnen."
Auke van der Woud writes, in *Americana*:
"Vooral door amerikaanse en italiaanse architectuurhistorici is wel gesteld dat zijn werk van fundamentele betekenis is geweest voor de ontwikkeling van de nieuwe nederlandse bouwkunst die in de eerste wereldoorlog begon; dit wil zeggen: van fundamentele invloed op het ontstaan van De Stijl en de Amsterdamse School. De stelling is boeiend in zijn eenvoud, maar in

grote trekken onjuist. Het is volkomen duidelijk dat er binnen deze twee groeperingen een zeer sterke belangstelling voor Wright bestond, maar belangstelling tonen en invloed ondergaan zijn verschillende begrippen. En daarbij: de groepen bestonden uit individuen, de ene architect was alleen sterk in Wright geïnteresseerd, de ander werd door hem beïnvloed."

46 In the transcription of his lecture to the 'Opbouw' group entitled *Over de Toekomstige Bouwkunst en Hare Architectonische Mogelijkheden*. In Bouwkundig Weekblad, pg. 159, he writes:

"In gewapend beton daarentegen is homogene samenstelling van dragende en gedragen delen, zoowel als horizontale uitbreiding van belangrijke afmetingen en zuivere vlak- en massabegrenzing mogelijk. Maar bovendien kan, in afwijking van het oude steun- en laststelsel, waarmede van beneden naar boven ook uit *(d.w.z naar voren) gebouwd worden. Met dit laatste is de mogelijkheid geschapen tot een zuivere bouwkunstige plastiek, die in combinatie met de uitbeeldingsmogelijkheden van ijzer en spiegelglas – op zuiver constructieve basis – aanleiding kan zijn tot het ontstaan eener bouwkunst van optisch-immateriële, haast zwevende, verschijningskarakteristiek."*

Translation by the author.

47 Illustrations with captions on pages 151 (Oud), 157 (Wright) and 158 (van 't Hoff).

48 In the same article, on page 160, he writes:

"Samenvattende valt te concluderen, dat een zich rationeel op de moderne levensomstandigheden baserende bouwkunst, in elk opzicht een tegenstelling zal vormen tot de tegenwoordige bouwkunst. … Zoo wijst de tendenz der architectonische ontwikkeling naar een bouwkunst, die in wezen meer aan het stoffelijke gebonden is dan vroeger, in verschijning daar meer boven uit zal zijn: die zich, los van alle impressionistische stemmingsbeelding, in volheid van licht, ontwikkelt naar een zuiverheid van verhouding, een blankheid van kleur, en een organische klaarheid van vorm, die door het ontbreken van elke bijkomstigheid de klassieke zuiverheid zal kunnen overtreffen."

Translation by the author.

49 In *J.J.P. Oud, Poetic Functionalist* (2001), pg. 72, the authors characterize Oud's 'image-forming and myth-making' concerning the matter as follows:

"It was also tied up with the myth, carefully nurtured by Oud, that although the American had carried out some important groundwork, the road to modern architecture ran via the aesthetic of Cubism and that it was Oud himself who had set the ball rolling in that direction."

50 In J.J.P. Oud's article: *The influence of Frank Lloyd Wright on the architecture of Europe*, in: *Wendingen* (1925). Reprinted in: *Amerikaanse dromen* (2008), pg. 185.

51 The last years of Oud's career are what the authors of *J.J.P. Oud, Poetic Functionalist* (2001) dub 'struggle for a 'Fresh Architecture'.
They write:

"In this respect there is a parallel with the fortunes of former fellow-modernists like Gropius and Mies van der Rohe in that, like them, Oud 'arrived', socially and financially, after the war. But there the comparisons end, for Oud's role in the further development of international modern architecture was played out. Though he did everything in his power to return to this stage, he did not succeed. Henceforth his sphere of influence was effectively restricted to the Netherlands; from now on it was mainly developments in Dutch architecture that determined his work."

52 In his book *Sterrenstof* (2008), architectural historicist Auke van der Woud effectively deconstructs the systematically-cultivated, mythical status of P.J.H. Cuypers and H.P. Berlage in this respect.

53 This comparison is made in the light of P.F. Smith's observation the for the benefit of 'aesthetic success' Orderliness needs to win, but not too easily. Indeed, that there should be sufficient Complexity to make Order(liness) work on a perceptual level.

54 In Hitchcock's *Modern Architecture, Romanticism and Reintegration* (1929), pg. 90,

55 In his article on the early work of Oud, published in *Museumjournaal*, 1977, Günther Stamm calls for a reappraisal of the stylistically diverse and highly productive, formative phase of his career, whereby he considers the cubic Scheveningen project to be the decisive point of Oud's transition.

56 Drawings of the first plan were included in the concise retrospect of Oud's oeuvre by Umberto Barbieri, in the context of a series of monographs by 010 Publishers, in 1987.

57 This drawing suggests a roof covered in red roof tiles rather than the thatching that is shown in the original photographs.

58 In the NAi retrospect of Oud's work by Taverne et al (2001), the position of this project in the context of his De Stijl status is elaborated as follows:

"Among this suite of iconic buildings is one project that Oud himself consistently exclude because he had played such a minor role in the architectural design: Villa Allegonda. Nonetheless, during the 1930's crisis increasingly 'identified' the villa as an important 'prototype' of the Modern Movement in architecture, the missing link between Adolf Loos's Villa Stein in Vienna (1910) and Le Corbusier's first white villas in the vicinity of Paris. Oud steadfastly rejected this honour, probably as he regarded the Villa Allegonda as an example of painter-designed architecture."

59 The extension and renewed interior design for the Villa Allegonda is documented in Elisabeth Reinhartz-Tergau's *J.J.P. Oud, Meubelontwerpen en interieurs* (1990).

60 In: *De Delftsche School en Synthese in de Architectuur* (1946).W.W. Norton & Company, New York, 1966.shed under teh of Modern Art,

61 Translation of the – originally German – text, as it was included in the section on J.J.P. Oud, in the *Encyclopedia of Modern Architecture* (1963).

7. AA Variations

7.4 AA04
M. de Klerk
1923













Introduction

The striking market-gardener's home, built for the Barendsen family in 1923, is a significant artefact of the expressionist Amsterdam School, which was highly influential in the Netherlands from around 1915 to 1930, particularly in-and-around Amsterdam.
The building was designed by the movement's most renowned architect and artist: Michel de Klerk (1884-1923). The house is the last project he realised.

Mr. A. Barendsen was a local market gardener of some renown, specialising in the growth and trade of orchids.
In 1922, he commissioned de Klerk to design his new home with an integrated workspace, which intended for the handling, sorting and packaging of flowers that were grown in the greenhouses behind.

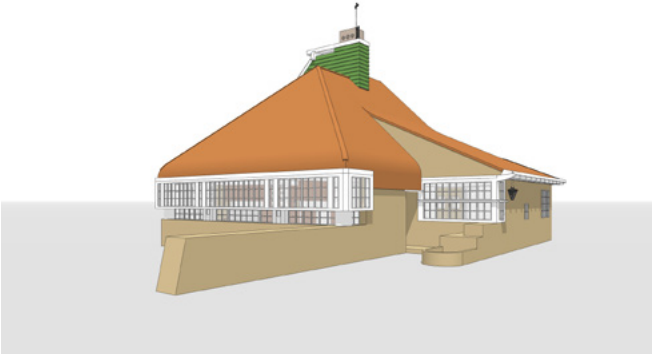
The building-site was situated close to the recently-completed co-operative flower auction building in the eastern part of Aalsmeer: Bloemenlust, also designed by de Klerk (1920-1922). Barendsen was one of the board members and was well-acquainted with the work of Michel de Klerk, whom he admired.
Although de Klerk was most renowned for his public housing projects, he appears to have taken on this relatively modest commission with enthusiasm.

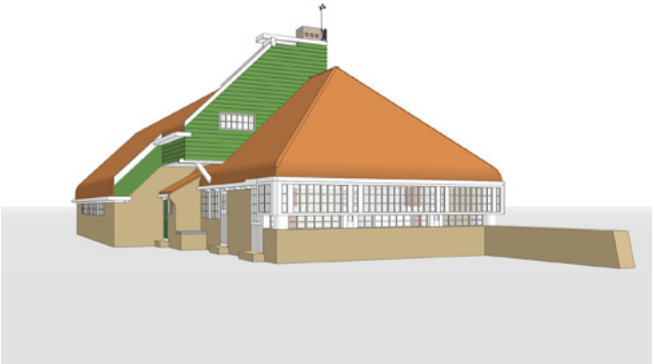
The project seems to have been a matter of shared ambition, with both Barendsen and de Klerk striving towards an expressive and representative architectural 'statement'.
From late 1922, de Klerk drew up a series of preliminary designs and around March 1923 he submitted the final design, after which the elevations were worked out in detail and the interior elements were developed further.
The house was completed on the basis of these detailed drawings around the time of his untimely death, in November 1923.

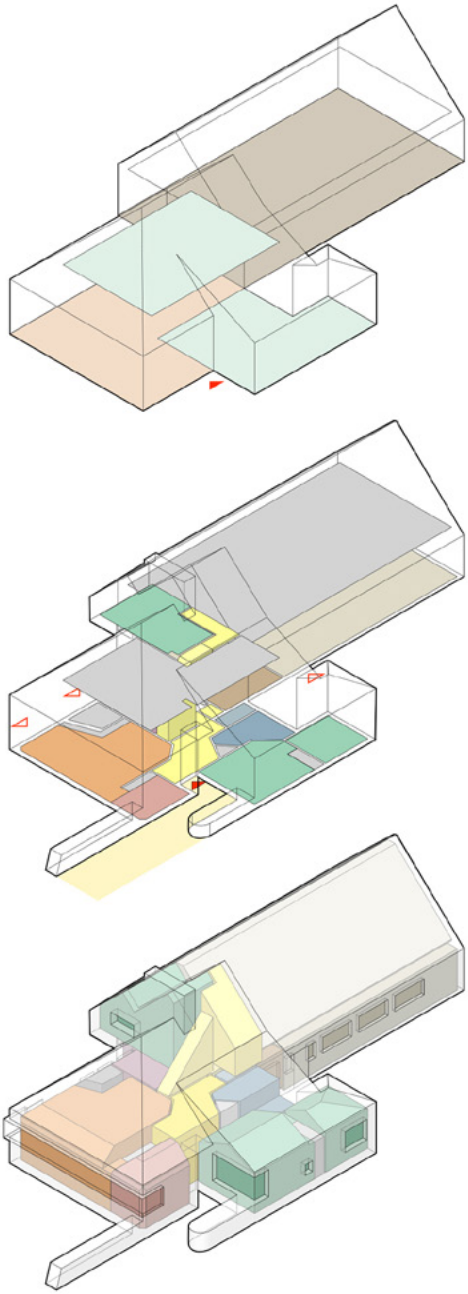
The house is situated a good distance from the village centre, along a main road leading eastward (the Oosteinderweg), then a dike-road bounded on both sides by water.
The site for the new development was a long and relatively narrow island-plot, stretching from the road to the ring-canal of the Haarlemmermeer polder ('de Ringvaart'). At the time of the design, all of the surrounding lands were criss-crossed by ditches and transportation over water was still the norm, particularly for goods relating to the flower trade. Through time, the boundary ditches surrounding the plots have largely been filled-in.
The Barendsen development was the first to make a direct connection with the road, opening the plot up to motorised transportation, which could access the flower-growing complex along the eastern side of the house.

The dwelling-section looked out towards the street, across a front garden, while the flower-shed was oriented towards the greenhouse-complex at the rear.

AA04	: Information		
Project	: Barendsen House : Oosteinderweg 125, Aalsmeer		
Architect	: Michel de Klerk		
Style	: Expressionism : Amsterdam School		
Year	: 1923		
Ground-plan	: 245 m^2	Floor-plan	: 405 m^2
Volume	: 1125 m^3	Ratio V/F	: 3,0 m







A.1 Context

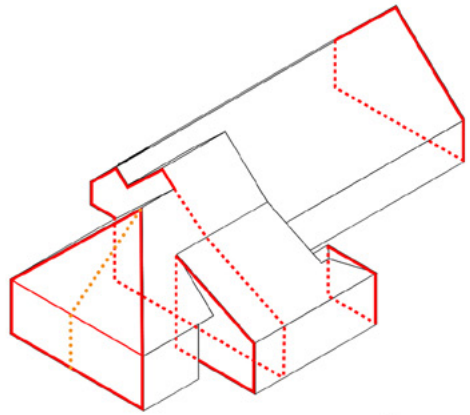
The commission called for the design of a family home, as well as an integrated flower-shed, positioned in front of a new greenhouse complex.
The site consisted of the southern part of a long and narrow plot of fertile land, surrounded by ditches. De Klerk's proposal appears to have been inspired by the traditional house-and-stable type, whereby the body of the house was shifted eastward relative to the shed, allowing for a private garden, oriented towards the southwest. The home's approach-route was situated on the eastern side, whereby the architect appears to have integrated an existing tree, as a marker towards the entrance.
On this public side of the house, a thoroughfare was created towards the greenhouse- and distribution facilities, which could be reached by motorised vehicles, as well as via water.

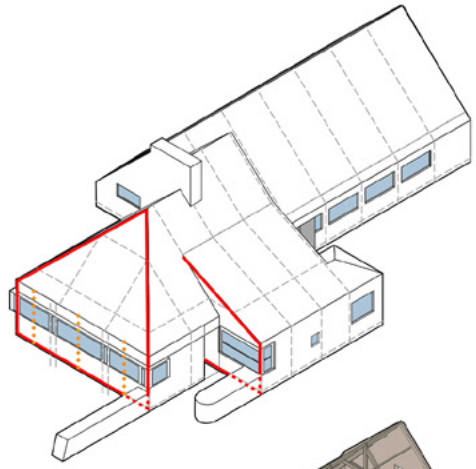
A.2 Function

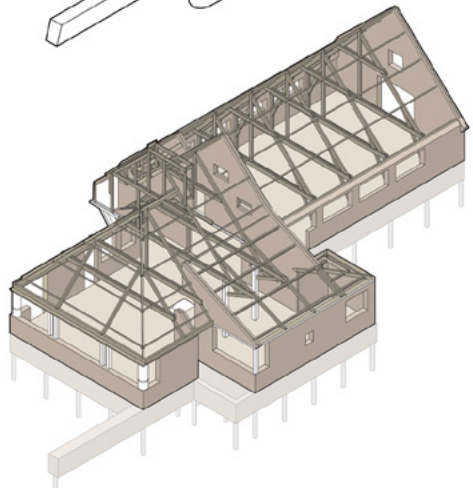
The design makes a clear distinction between the commercial workspace and the spatially diverse living-section, almost exclusively situated on the ground floor.
The house is reached via an eloquent approach route, starting at the gate and progressing along a protruding outer wall, along the dining room window, turning at the main bedroom window and entering via a recessed doorway. The diagonal hallway-space opens to the living rooms on one side and to the sleeping-rooms and sanitary elements on the other. There is a connection to an office, in a corner of the flower shed.
The kitchen area, with a scullery annex plus a room for storing coal, is positioned at the end of the hallway. Under the centrally-located stairs, leading up to the attic and a spare room, there is a stairway down to a storage cellar.

A.3 Interior

Within its external contours, the house harbours a remarkably diverse collection of interior spaces.
The functional programme has not simply been translated into a conglomerate of rectangular rooms, but has been transformed into a dynamically varied spatial ensemble, whereby each particular room appears to have been considered as a unique spatial entity, yet in relation to the spaces surrounding it.
Similarly, the visual relations between the enclosed spaces and their surroundings have been treated in distinctive ways. Some of the openings consist of relatively simple 'punctuations' in the enclosing walls, but other visual connections – such as the bay window enveloping the family rooms and the main bedroom's corner window – visually enhance the design's experiential qualities, inside as well as outside.







B.1 Object

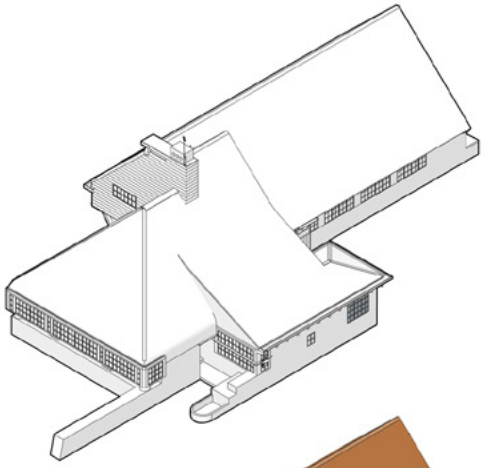
The building comes across as a distinct spatial entity, with a high level of volumetric differentiation.
The project has a footprint of some 250 m^2, with approximately one half reserved for the dwelling and the other for workspace.
The angular roofs, with a gradient of approximately 45º, figure prominently within the formal ensemble as a whole. The relatively autonomous house at the front and the shed at the rear are fused together via a highly differentiated intermediate zone.
The relative shift between these two parts results in a third roof ridge.
The three elements are brought together with a sculptural, cantilevered element that masks as well as emphasises the connection.
Furthermore, the bedroom-wing is extruded eastward, merging subtly with the main body of the house with a 22.5º roof-angle.

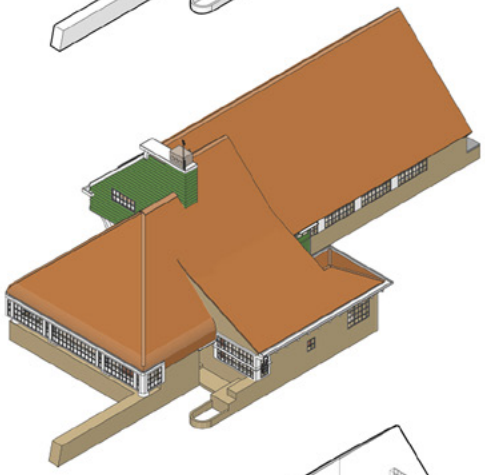
B.2 Structure

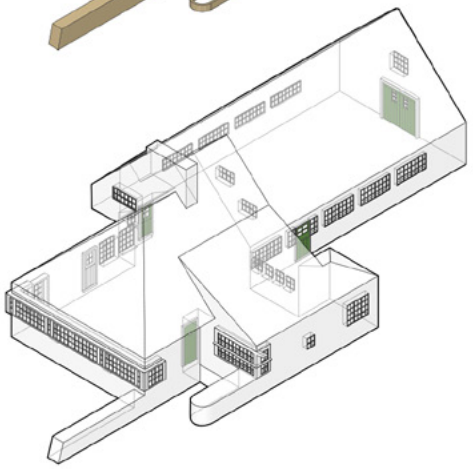
The project seems to consist of a collection somewhat spontaneous of design solutions, it is clearly possible to discern an underlying order.
Whilst the building's construction is in many ways exemplary of the building conventions of its day, an attempt has been made to inventively stretch tectonic constraints.
The structural organisation of the project is most clearly in evidence in the load-bearing structure of the floors and the all-enveloping roof system. Wooden beams, with a span of approximately five meters, introduce a 'metre' that allows for variation, as well as contributing towards holding the composition as a whole together.
The rear of the house-section is bounded by a solid wall, towards the shed at the rear, and is connected to the pyramidal front section via an intermediate zone.

B.3 Technique

The design makes use of relatively traditional, but then state-of-the-art, building techniques.
The building is a systematically varied hybrid of load-bearing brick walls and wooden beams and frameworks.
The entire building has a brick foundation, supported by wooden piles. While the workspace-area is filled in with sand and covered by a paving-surface, the foundations the dwelling-sections are sunk deeper into the ground, allowing for a ventilated zone and a sizable cellar, under the beams supporting the floors.
In the shed, integrated wooden trusses create an uninterrupted span of some eight meters. The roof- and floor structures of the front and middle sections are worked out as variations of this system, whereby the roof-girders also support the floor of the attic-space above the main living-room.







C.1 Facade

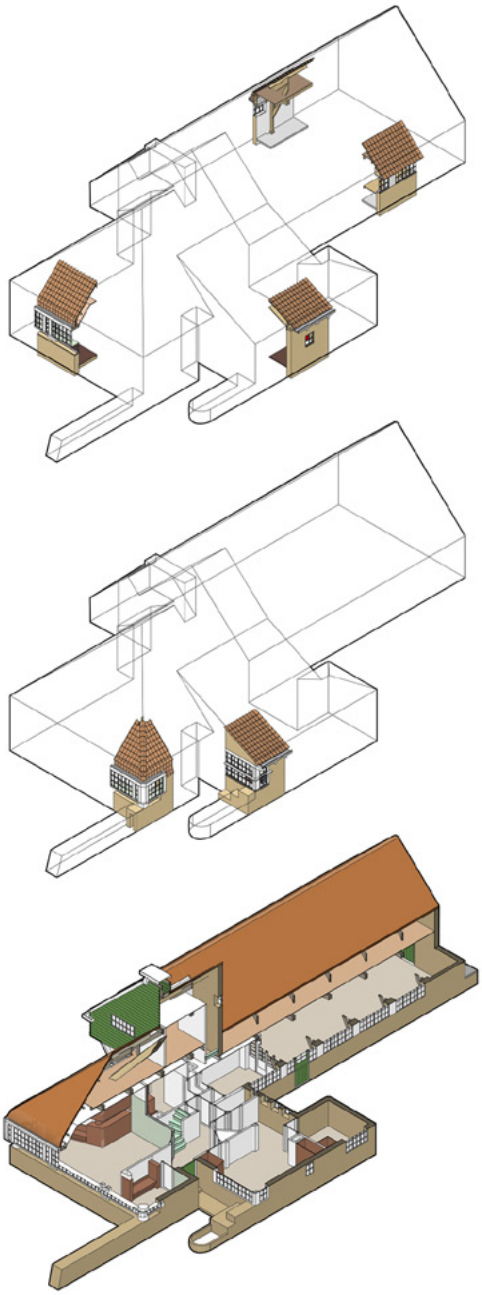
The differentiated interior-organisation is enveloped, using brick-work, roof-tiles and wooden planking.
These surface materials contribute to creating a diverse, but co-herent exterior arrangement. The lower walls are mainly executed in a double layer of brickwork, forming a solid plinth around the building.
The walls curve around the back of the bedrooms and give a mas-sive appearance to the rear of the house and the shed. The roofs are covered with ceramic roof tiles, which visually pull the complex spatial composition together. Lightweight wooden structures, covered with wooden cladding, are introduced in the top sections towards the west. Arrayed window-elements are strategically posi-tioned around the facades, Highlights are the protruding bay-win-dow at the front and the corner-window of the bedroom.

C.2 Surface

The building's surfaces are articulated using a relatively simple colour 'palette', which was specified by the architect on a colour-ed-in print of the facades.
Four basic groups of colours are identified, which figure most notably at the front of the building.
The brickwork was executed in a double-stretcher bond. Originally a dark brown in the scheme, actually executed in a lighter, yellow-ish grey tint, giving a less 'heavy' tonal impression.
All roof-surfaces were covered in terracotta roof tiles. All of the window-frames and the two garden doors were painted white. While the frames all have the same smooth finish, differences in dimensioning and profiling create a variety of tactile surface-struc-tures. The linear, wooden cladding and the main doors were painted a contrasting, traditional dark green.

C.3 Opening

The openings in the different facades are clearly articulated on the levels of shape, rhythm, proportion and their relative positions.
All of the fenestration-elements consist of prefabricated steel win-dow frames, with a basic 5 : 4 ratio. On the basis of this 'metre', elements are grouped into patterns, which are assembled to form different configurations. The window-motifs are characterised by repetition and modulation.
In some cases, such steel components are placed directly into wall-openings, but particularly in the more representative sec-tions, groups of elements are artfully combined, on the basis of the underlying format.
In the compositionally layered bay-window at the front and the corner-window of the master bedroom, such grouped elements are framed by stoutly-dimensioned wooden sub-structures.



D.1 Junction

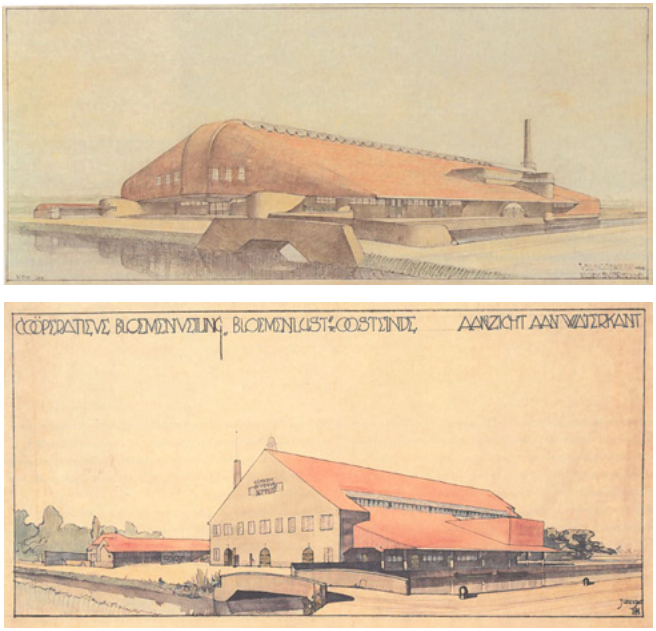
On the level of detailing, the design demonstrates a professional playfulness, anticipating the sensory impact of the interrelated components within the composition as a whole.
Around the circumference of the building, various connective principles are applied, particularly where vertical planes meet pitched roof-sections.
In the workspace-annex, different detailing principles are applied on either side. In the frontal living section, a clear distinction is made between the detailing of the central part, with its all-enveloping windows and the bedroom wing.
Where the steep pyramidal roof-surface meets the distinctive bay-window volume, the roof tiles are suggestively curved downwards. The less-severely pitched bedroom-roof is visually connected with the wall via an articulate, cantilevered gutter-element.

D.2 Feature

Various decorative features contribute to the specific identity of the architectural composition as a whole, whereby the detailing is sometimes kept relatively reserved and at other times becomes explicitly ornamental.
A prominent feature is the striking bay-window ensemble, which is developed simultaneously on two levels: a lower one, in which the corner columns are visually brought outward, with the window sections positioned between them and an upper one, in which the same column is now inside the transparent showcase, which is folded around at both sides. The main bedroom-window also ‘turns the corner’, but here the top-beam of the window’s frame, supporting diagonally bonded brickwork, is suggestively extended to accommodate the gutter construction behind and is highlighted by a decorative hanging lamp.

D.3 Ensemble

The qualities of the exterior composition can only be appreciated through the simultaneous understanding of the many-faceted and dynamically-experienced interior arrangement.
The ‘orchestration’ of the whole is characterised by a symbiotic relationship between the interior spaces and their outward appearance, expressed in the building’s exterior composition.
Behind the rhythmic, predominantly horizontal window-sections, lies an almost ‘organic’ interior composition, with a variety of geometrically-moulded living-spaces.
Interior fixtures in the main rooms and in the interconnecting hallway domain, such as doors and inner walls, have their own particular articulation and treatment. Throughout, dominant parts are visually at interplay with sub-dominant formal elements and strategically integrated ornaments.



Perspectives of de Klerk's first and second designs for the Bloemenlust project.

Development

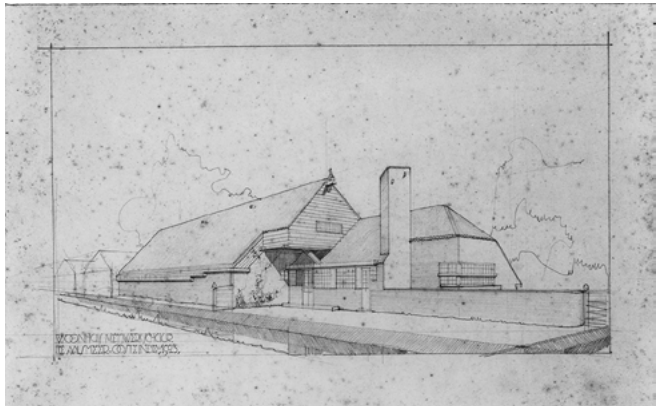
For de Klerk, this was his second project in Aalsmeer, having previously realised the cooperative auction-building Bloemenlust, completed in May 1922.
De Klerk had received the commission for the new flower-trading complex in 1920.
He had initially drawn up plans for a sweeping, organic 'shell', that would bring together all of the functions under one enormous, organic roof.
In all probability, this daring plan was considered 'too much of a good thing' (both aesthetically and financially) by the Calvinistically inclined members of the building-committee and possibly the municipality as well.
Eventually a starkly austere building was realised, whose only ornamental feature was a brickwork relief in the street-facing fronton.[1]
The end-result is hardly typical of the Amsterdam School and particularly: of the work of de Klerk around that time.

Mr. Barendsen, who was a board-member of Bloemenlust, ran a successful and respected orchid-growing business in the East-end of Aalsmeer. He had built up good relationship with de Klerk, whose work he admired, being particularly impressed by the housing surrounding the Henriëtte Ronnerplein, in Amsterdam: the 'Dageraad' project.[2]
In the second half of 1922, Barensden granted de Klerk the commission for a family home with workshops, to be realised at the front of his gardening-complex, only a short distance from the auction-building.
For de Klerk, and possibly also for Mr. Barendsen, the Bloemenlust project had not been a particularly happy one. It may be that – for both the client and the architect – there was an element of *revanche* to this project.

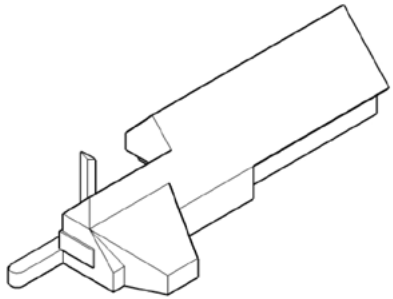
On the basis of original design drawings, that were kept by Mrs. Jellie Berendsen and are now in the collection of the NAi, it becomes clear that the design took some time to develop.
We can recognise a number of design-variations, before the proposal was ready for realisation.
These design proposals consist of different combinations of plans and sections and in some cases evocative perspective drawings. It also becomes clear that various functional layouts were considered and that there were successive shifts in the relative placement of the dwelling elements and the flower-shed within the sculptural composition as a whole.

Although the early drawings are not dated, an attempt has been made to construct a logical sequence in the line of development and to identify the elementary qualities of these design variants.
In all, six different configurations can be recognised.
On the basis of these documents four distinct planning-phases have been identified, whereby in two of these sub-phases (A and B) are recognised.

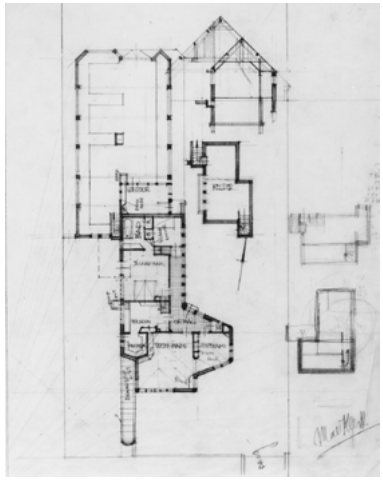
On the basis of the limited information, an elementary 3D model was constructed of each of the six designs-concepts. These are presented in combination with the drawing-files from the NAi archive.
The development of the design, as it is presented here, is based on the designerly interpretation of the visual material, particularly on the development of the functional organisation towards the final solution.
Arguably, this sequence constitutes a calculated guess, on the basis of de Klerk's drafting work. It amounts an interpretation, which in my professional opinion is feasible, but not proven.
Other combinations of phases 1 to 3 are conceivable.
Phases 4A and 4B are well documented and dated and as such may be considered as being fixed.

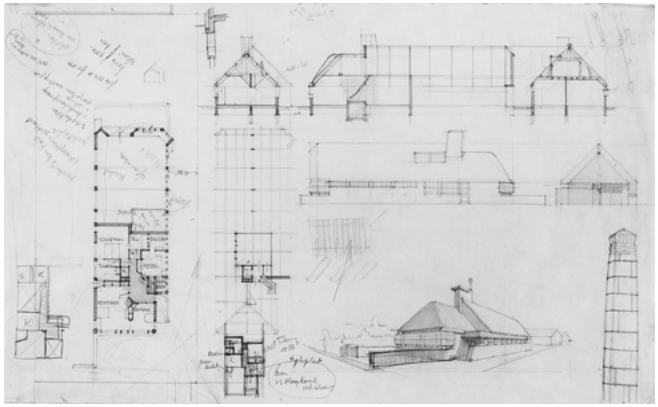


Perspective drawing of the design proposal, phase 1 (source: NAi).



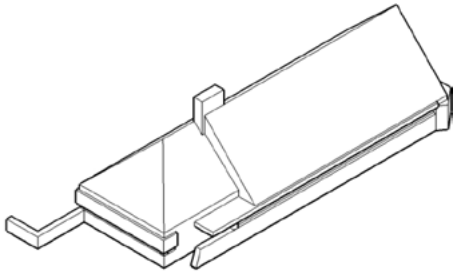
Design phase 1:
In front of a relatively autonomous flower-shed, a distinct living-element is positioned and connected with an extended section of the main volume.
The organisation is somewhat similar to the traditional, Frisian farmhouse type.[3]
The 'front house', containing a joined living- and dining room plus a kitchen, highlighted by a prominent chimney, is connected with the workspace via an intermediate section containing two bedrooms and a bathroom. The entrance is on the northern side, at the rear of the extended living-room cluster. The various rooms are connected with a linear hallway.
As in the later plans, there is a linear garden-wall, extending towards the street, shielding off the narrow southward-facing garden. According to the plan-drawing, this element would double as a storage for fuel. The wall extends almost all the way to the (then still existing) dike-ditch at the front, where a garden-entrance is suggested.
Part of the rear shed is extended forward and cantilevered over the connection with the house. This element is very similar to the solution in the definitive design, which may mean that this proposal is actually of a later date, or that de Klerk later returned to this theme.

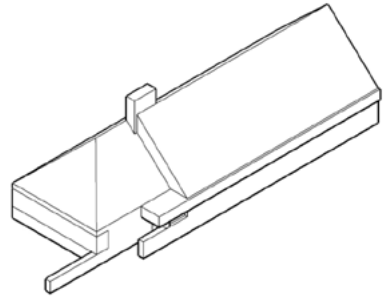


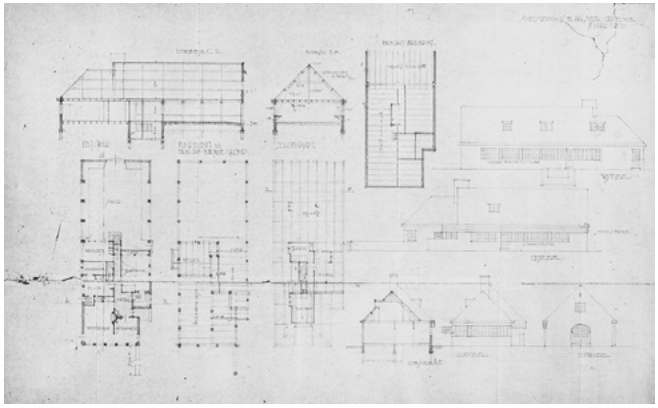


Collection of early drawings of design phase 2 (NAi).

Design phase 2A:
The total plan is almost rectangular, but the house-section at the front is narrowed-down on the northern side, creating a clear entrance-area under an extended overhang, which is similar to the eventual entrance-design, even though the interior organisation is still quite different. The lay-out of the living- and dining room are somewhat similar to the final plan, with a distinctive, enveloping bay-window, but in this case, the space is L-shaped and the kitchen and scullery are on the other side, across the central hallway. The two bedrooms are on the garden-side and the bathroom is here situated internally, against the divider-wall with the workspace, which – as in the other proposals – has an articulate, sculptural rear-façade. A prominent, central chimney marks the front- and rear volumes. The cross-section already gives an indication of the tent-like ceiling treatments of the living spaces. In this plan there is still a low wall, jutting out from the southern corner, enveloping the garden. However, on the drawing a new guiding wall has been forcefully sketched-in, giving an idea of the final plans.



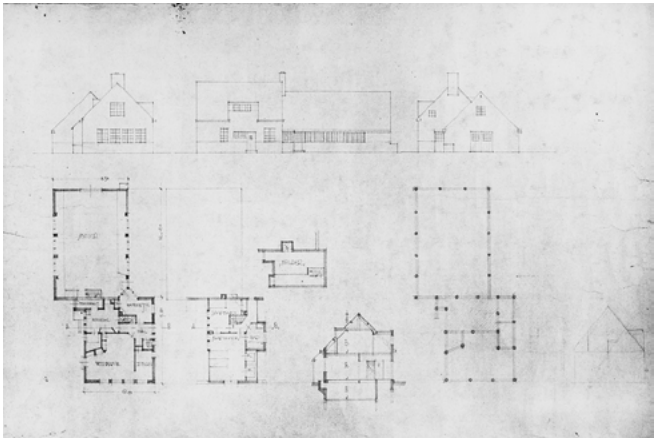




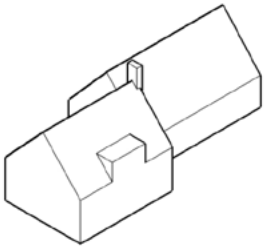
Plans and sections of probably the second development of phase 2 (NAi).

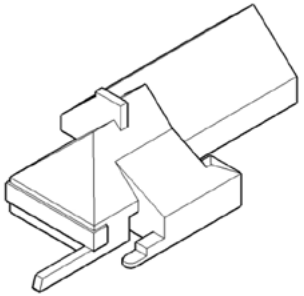
Design phase 2B:
The long garden-wall, leading towards the entrance, is included in this variant, which as far as the elementary massing is concerned is roughly similar to the previous variant, with the volume of the house shifted left, relative to the central axis of the shed and the chimney working as a connecting element between the two ridges. The plan is less complex than the previous proposal. Instead of the distinctive bay-window, the front rooms here have a series of simple windows, which run around the corners on two sides and on the roofs there are a number of standard-looking dormer windows. Similarly, the rear facade of the shed is kept simple, with a single double-door.
A corridor runs down the middle of the ground-floor, with the master-bedroom now towards the north and a bathroom next to the entrance.
On the garden-side are the kitchen, scullery and a small office, connected with the shed. Up the stairs, two small bedrooms are situated under roof-ridges.

Design phase 3:
The proposal considered here as the fourth option is even more radically simplified and in no way suggestive of the expressionist style of the Amsterdam School that is so characteristic of de Klerk. It has been considered that it may have been a counter-proposal from another architect (perhaps the young J.F. Berghoef, a good friend of the family and then studying architecture). However, this does not seem likely, not only because the lettering in the drawings seems to be identical, but because the interior-arrangement is still in many ways reminiscent of the earlier proposals and the final organisation. Here, the front house is a simple rectangular volume topped by a symmetrical roof that is actually higher than the shed, which is moved to the left, seen from the street. The interior organisation of the living- and dining room is similar to that of the other plans, as is the kitchen with a small scullery, protruding outwards. Next to the main entrance, a small office is positioned in the font volume, while the two bedrooms and are upstairs. It may be that on the basis of this 'minimal' option, Mr. Barendsen decided that this solution was too austere and that it was after all a 'real de Klerk' that he wanted.



Drawings of a more austere version of the design, probably phase 3.

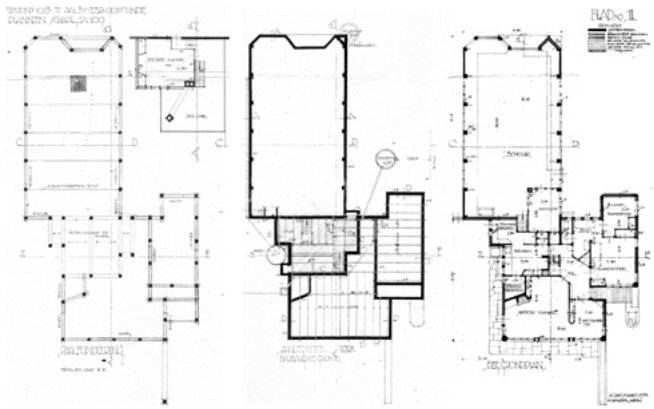




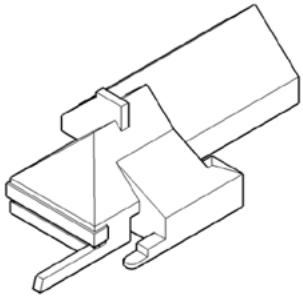
Design phase 4A:
The matter of the house's layout seems to have been resolved in an elementary sketch, that carries two signatures, one of which is de Klerk's.[4]
In the near-complete design, submitted to the Aalsmeer municipality for approval in March 1923, everything is basically 'in its place'. The layout echoes the previous simple proposal, but here the volume of the house is topped by its characteristic, pyramidal roof, which no longer houses official bedrooms. Instead, two bedrooms, connected with a bathroom, occupy a new annex on the eastern side of the main volume of the house.
The living- and dining room at the front are enveloped by a generous bay-window, with massive, rounded columns on the corners. The kitchen looks out onto the western garden and is bordered by an integrated coal-shed on one side and an extended scullery on the other, both with external doors.
As in the first plan that has been discussed, the volume of the shed is partly extended forward, allowing for an extra room, and cantilevered over the scullery, forming a connecting element between house and workspace. At the rear, the flower-shed is still sculpturally articulated, as in variants 1 and 2A



Perspective rendering from the final phase, with a different bay-window.



Near-final plan, proposal as submitted to the municipality (Aalsmeer archive).

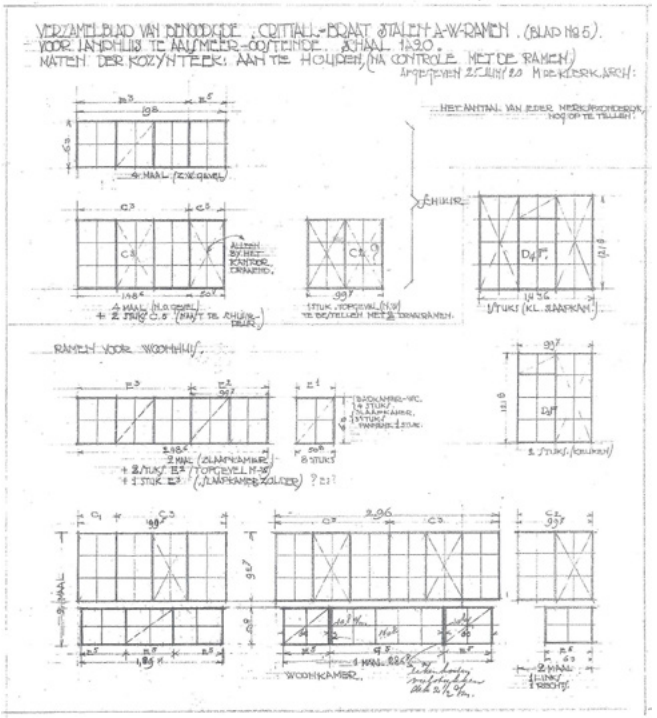


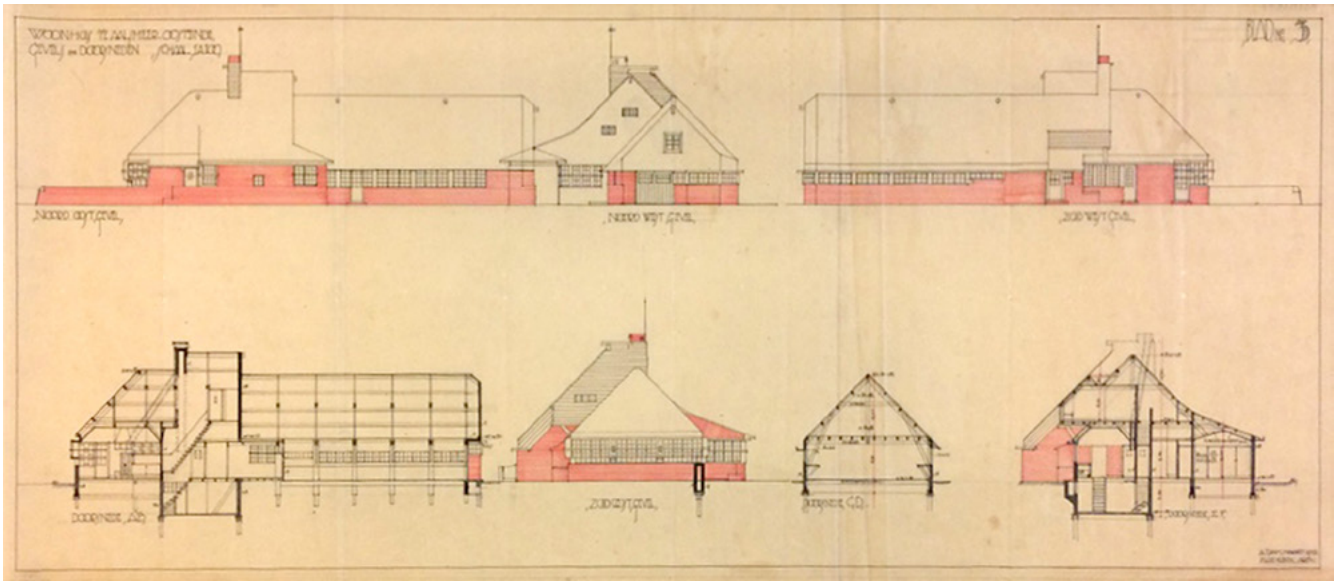


The fold-out 'bestek' with the essential building-specifications (Karssing family).

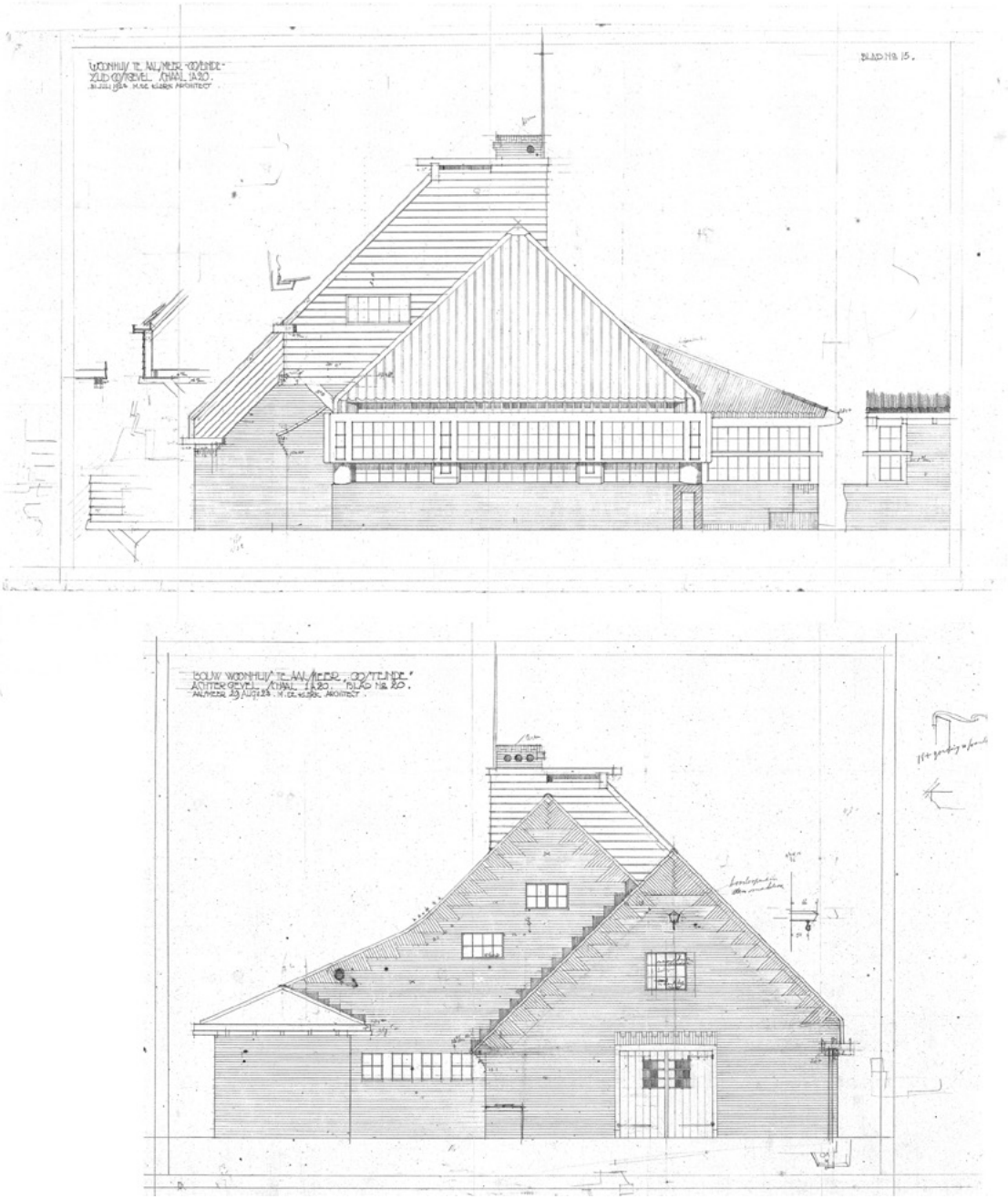
Design phase 4B:
After the building-permission drawings had been handed in, the plan was fine-tuned, in the design of its exterior as well as the interior.
The technical specifications and qualities of materials were meticulously specified in a building-contract (*'bestek'*, in April 1923) and the exact sizes and proportions of the steel windows were determined.
Anticipating the building phase, all four sides of the building's exterior were drawn out precisely, on scale 1 : 20. These impressive pencil-drawings give detailed information concerning the actual execution, such as the directions of the bonding and the relative sizes of the wooden components and their connections (see: illustrations). Two meaningful alterations can be identified in comparison to the previous 1 : 100 drawings (phase 4A).
The first change is the 'sharpening' of the eye-catching bay window at the front. Whilst the permission-drawings suggested a more rounded-off volume, the protruding element now becomes more orthogonal, one might say: more 'modern'. The middle section becomes relatively wider and a distinctive, protruding horizontal line, similar to the one on the bedroom-window disappears, resulting in a more direct visual presence.[5]
The second change is at the rear, where the rather complex plastic articulation, with a double bay-window and a slanting tiled roof for the rear of the workshop, is simplified considerably.
These elevation drawings were completed at the end of July 1923 and it is probable that building would have commenced directly after the summer vacation.
In the mean time, de Klerk and his office continued work on the interior elements of the project.
In the months of August and September, detailed drawings were made of the fixed furnishings of the house, including the cupboard-divider between the sitting-room and dining corner, the 'cosy corner' seating-element with integrated cupboards by the fireplace and the hallway and kitchen. The building-process would probably have been well underway at the time of de Klerk's untimely death, on the 24th of November 1923.

Realisation:
Apparently some aspects of the interior still had to be finalised and Mr. Barendsen reportedly asked the advice of J.F. Staal, who suggested involving his wife, Margaret Staal-Kropholler.
It is unclear what may have actually been her involvement and there is no mention of her work on the project in her professional biography.[6]
What is certain is that she designed the impressive iron lighting-element in the living-room (1926). Whether she was also responsible for the exterior lamp, next to the main bedroom, is doubtful, as this already seems to be in place on the photograph published in the Wendingen-special of de Klerk's realised work (1924).
Staal himself – who wrote Mr. Barendsen admiringly that *"when one visits the house, one no longer wants to leave"* – became involved with a first extension to the Bloemenlust auction building (1926), despite his extremely negative opinion of the built artefact. He would later go on to build a Baptist church in the village-centre (1926–1927) and a second major auction-building, the Centrale Aalsmeerse Veiling (1926–1928).[7]
The building-process was followed with interest by architecture-student J.F. Berghoef, who made photographs of the house around the time of its completion. He was well-acquainted with the Barendsen family and some years later designed a garage/shed across the path, which still exists.[8] He would also become involved in the further extension of the Bloemenlust auction building, setting up his first office on the premises. Also, at a later date some minor alterations to the Barendsen house were carried out by his office (the refurbishing of the upstairs-room and the design and instalment of a new front-door, as late as 1966).[9]

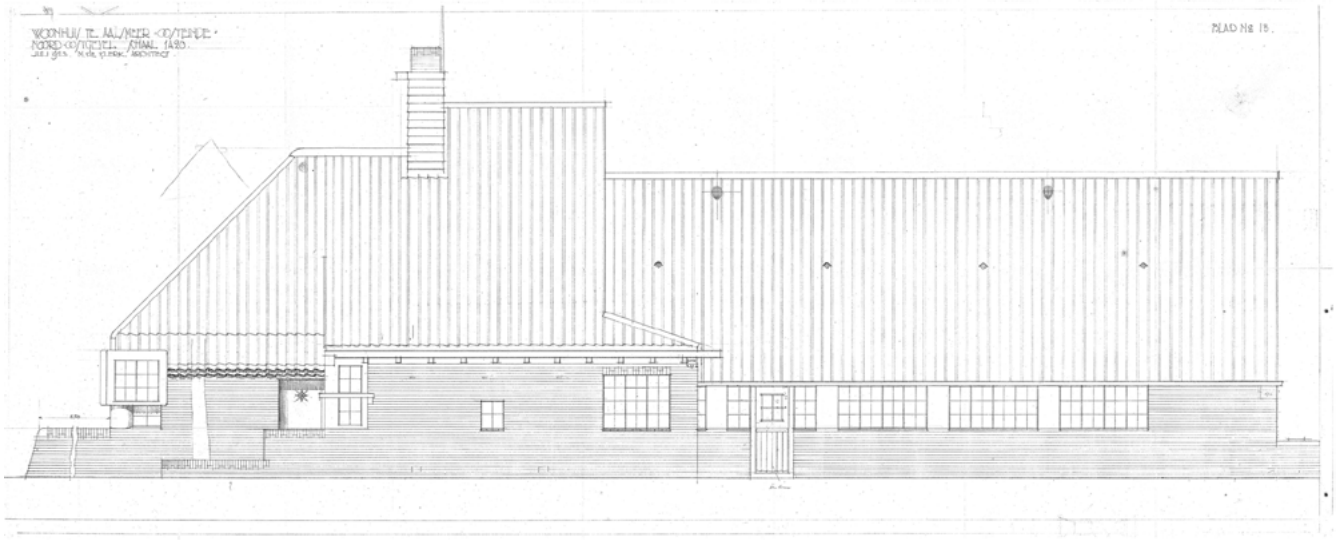


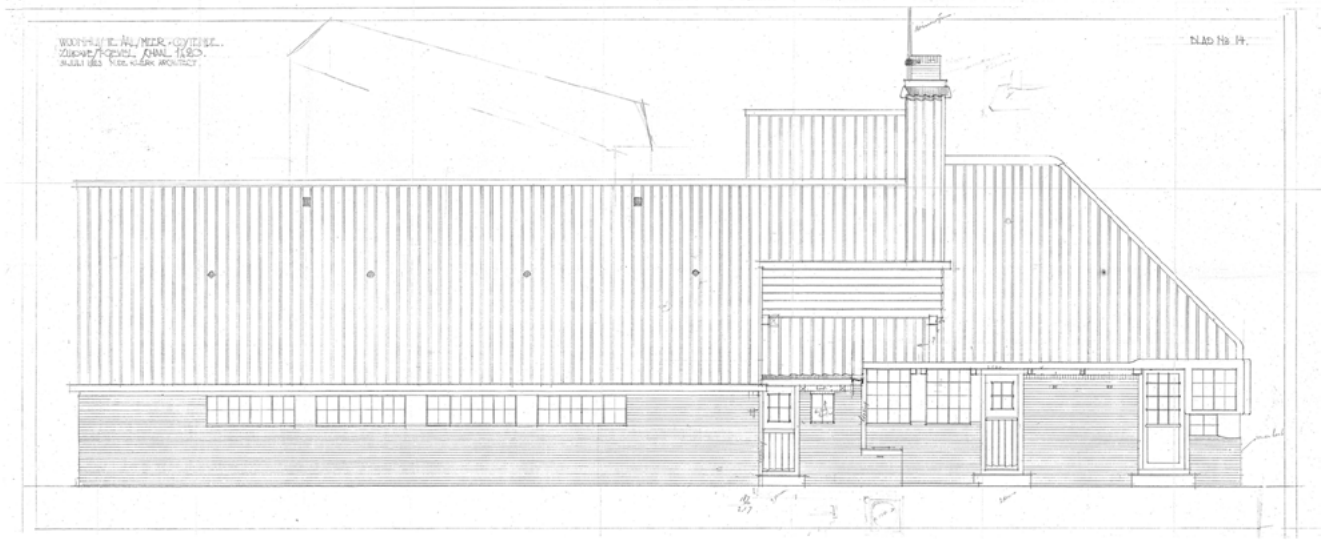


Steel window specifications sheet (top) and ink-drawing (source: NAi).



Prints of pencil drawings scale 1 : 20 of the final elevations(front and rear).





Prints of pencil drawings scale 1 : 20 of the final design: the two side-elevations.





















Original pictures by J.F. Berghoef and documents (sources: D. Kuin / Barendsen).











Slide images of the fist visit to the house, with Claudia Breen (1986).

Experience

I first became aware of the de Klerk house during my period of practical work, on a building-site in Aalsmeer, after my first year of study in Delft, in the summer of 1972.
I later received a newspaper-clipping from my grandmother, on the occasion of the house becoming a municipal monument.

The first true encounter with the house was at the end of the eighties, around the time that my wife became involved in the restoration of the Duiker & Bijvoet house (project AA05).
When we stopped to have a better look at the house, taking some pictures from the street-side, we were approached by Mrs. Jellie Barendsen, owner of the house and daughter of Mr. Barendsen.
She asked me did I know when the house was built? After a brief moment, making a calculated guess, I answered: “1923”?
This was apparently convincing enough for us to be invited into the house for an acquaintance of its miraculous, perfectly preserved interior.
Since then, the house has continued to be of interest to me and I have returned on several occasions, in the time that Mrs. Barendsen was still alive as well as after her death, when the house became inhabited by the Karssing family.
For the benefit of this study I have particularly made use of the photographs taken during two visits in 1998 (in February and July), as well as during a two visits with Bram van Borselen, in 2007.
These form the basis for the following dynamic reconnaissance of the house’s exterior and interior.

Exterior – Street Side:
The first impression of the house, situated to the north of the long, straight Oosteinderweg, is one of horizontality, due to the pronounced bay-window, with its rhythmic patterning.
Apart from that, the house is not particularly noticeable, visually hugging the ground, with roof-surfaces that are pulled downward.
The middle section, with its crowning pyramidal roof, faces the street across a front garden behind a low fence that has up to recently been kept in the original state.
The core of the house is offset on either side by distinctly different building components.
Coming from the west, it is the long extension of the workshop with its red roof-tiles that catches the eye. Where this meets the front-house, the protruding, cantilevered volume with its green wooden-clad surface rises up to the central chimney. Underneath, there is a sunny terrace looking out onto the private garden.
Coming from the east, it is the secondary volume with the bedrooms and the long brick wall, leading to the entrance that attract one’s attention. Strategically positioned in the approach-route, a tree had been integrated into the design. Behind the bedroom annex, one can glimpse the volume of the business-section at the rear.
Elements still remain of the original gates, which have largely had to make way for a broader entrance for traffic towards the enterprises at the back.





Mrs Barendsen in her garden and the terrace beside the kitchen (1998).

Exterior – Rear Side:
The impression at the back is dramatically different from the public side, facing the street.
It is dominated by the long, regularly spaced shed-section, which despite some alterations (a garage door at the side and the main doors at the rear moved off-centre) has still largely maintained its original character.
A distinctive visual element is the high brick wall that forms the rear of the actual house.
It is punctuated by relatively small openings that emphasise its mass.
By contrast, the bedroom-section has a pitch that is less steep than the main roof.
Its outer wall is wrapped-around, to form something resembling a small pavilion, with extended gutters and rounded corners in the brickwork.
Facing the backyard, the workspace does not have gutters, except above the office-entrance.
On the other side, the roof curls downwards towards a gutter that was used to collect rainwater, stored in a well next to the kitchen.






Views of the house from the street (1998).






In-between realm approach to the house entrance, with the tree.






Window- and gutter articulations towards the rear, with ornamental lamp (1998)






Views of the workshop-section of the building from the side and the rear (1998).






Living-room and kitchen with Mrs Barendsen (1998).








Visit to the house in 2009, with Bram and Joyce.

Interior – Ground floor:
The entrance is reached via an artfully-designed sequence of sculptural brickwork elements, including a seat-height volume where the visitor turns left towards the recessed front-door. Directly ahead there is a wardrobe, to the left a door with a side-window, leading directly into the dining-corner.
From this point, the routing continues into the heart of the house. Next to the landing of the stairs, there is a diagonally positioned entrance to the main living-area. After entering, there is a partition-wall towards the dining-room, to the right a built-in cabinet with an integrated seating-element (the 'cosy-corner'), next to the fireplace. Via the cabinet, there is a direct connection to the kitchen ('doorgeef-kast').
Enveloping the frontal living-section as a whole is the double-zoned bay-window.
In the lower section the windows are placed between the structural supports. In the outwardly-extended upper part, these come free and are articulated as decorative components.
The most westerly double-column, in the middle of the living room, has an expressive lighting-fixture forming the focal-point of the room.
Despite the abundance of glazing there is no sense of exterior and interior flowing into each other, but there is rather the sense of being inside a finely-spun cocoon.
Back in the diagonal section of the hallway there is a built-in cupboard, to the right of which is the entrance to the master-bedroom. The room has a distinctive corner window on one side and opens up to a bathroom on the other side. The secondary bedroom is accessed via the main bedroom, or through the bathroom.
Going around the staircase, there are sluice-doors towards the office on the right and the door to the cellar on the left. At the end of the hallway is the entrance to the kitchen.
The functionally-organised kitchen has two annexes, a closed one for coal on the left and an open scullery on the right, which is extended outward.
All of the rooms have their own specifically shaped, tent-like ceilings. The white stucco surfaces are visually continued downwards until they reach a horizontal border, under which the walls would originally have been wallpapered.[10]
The different functional zones are identified by colour-schemes in the furnishings and wooden elements: the living- and dining area a bright moss-green and oxblood-red; the hallway ochre-yellow; the kitchen-elements a clear blue and the bathroom and bedrooms a rosy-beige.[11]
The door-openings have semi-transparent glazing in a wave-pattern.

Interior – Upstairs and workspace:
The central staircase is reached from the central hallway via a platform that is two steps up.
From here a long, straight staircase goes steeply up, under two arches. It reaches a spacious landing that has an open connection to the dramatic attic-space under the front roof, dominated by a brick chimney-shaft twisting towards the rear.
To reach the cantilevered extra room (which was converted by Berghoef at a later date) one has to first go down a flight of stairs and enter via a small hallway.
From the top-room it is once again down to reach the spacious attic above the main workspace (now a family-room).
Down a simple flight of stairs is the original flower sorting- and packing space, with workbenches that are integrated into the trusses supporting the floor and roof.
In a corner on the side of the house is a transparent office (with woodwork painted blue) and another staircase leading down to the spacious cellar, under the house.



Views of the upper storey and workshop space (2015).

Condition:
Mrs. Barendsen was an emancipated, socially-active, single woman who took pride in keeping the house in which she grew up in an immaculate condition.[12]
Since her death, the house has been inhabited by the Karssen family who have done their best to maintain the house as well as possible. Nonetheless, they have turned the once-tranquil heirloom into a busy family-home. As a result, many of the living-spaces and particularly the workshop have become cluttered, so that it is at times difficult to recognise the 'original' Barendsen house.
Particularly on the outside, the changes that have made in recent years are not an improvement.
The once lush front-garden has received a formal treatment, vaguely resembling a cemetery.
Around the house, views are blocked by various garden-fences.
Importantly, the tree next to the main entrance – an integral feature of the original design – has been removed and the characteristic hanging lighting-fixture on the corner has sadly disappeared.
Recently, the original garden-fence at the front has been replaced with a nondescript industrial product.



Recent photographs of the house and its surroundings.

Visualisation

Precisely because the de Klerk house is so complex – perhaps the only house in the study that comes close in this respect is the Baneke, van de Hoeven house, AA09 – it proved to be a very rewarding project to unravel thematically and analyse visually. Of the 10 AA case-study houses, it was the most important 'laboratory' for design-based visualisation experiments.

The house was one of a selection of Aalsmeer houses which were the subject of a BSc Modelling Study exercise in 2004, which resulted in a number of physical study-models developed by the participating students.

After some early digital-modelling experiments, the house has been systematically modelled, in a multi-layered SketchUp file. Initially this was a black-and-white model, images of which were included in a presentation at the DCA in 2009. Soon colour was included and experiments were carried out making use of sectional analyses and detailed building-segments.
The AA04 digital model is the most complex in the series of projects which have been under consideration, eventually consisting of a total of 39 interactive 'layers'.
Furthermore, on the basis of the digital 3D model, 2D analytical visualisation studies were developed, initially sketched-out by hand and consequently using Illustrator software.

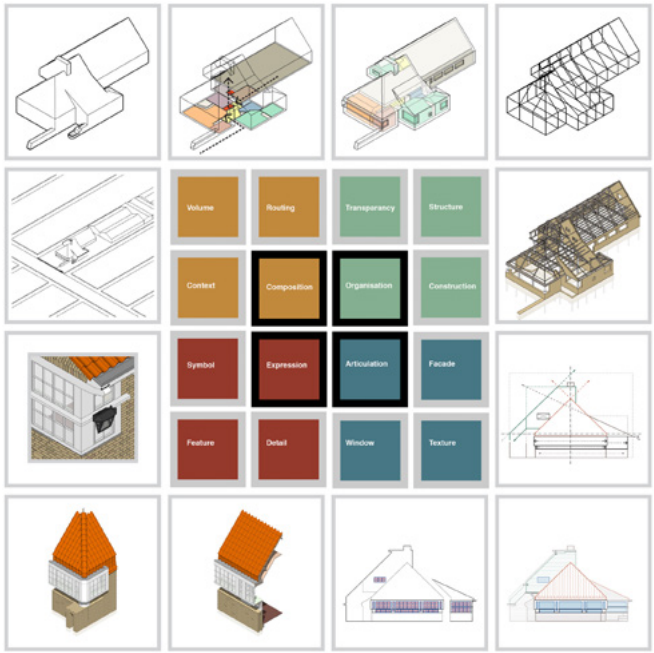
The de Klerk casus formed the basis of a pilot for the 'Patterns' files for the ten projects.
In a trial-version, the project was unravelled on the basis of 12 × 3 sub-categories.
Simultaneously, project AA10 was analysed using the essential 12 categories.

On the basis of this experiment, it was decided that the 'extensive' approach was not suitable for all of the ten AA projects. From then onward, each of the projects was systematically visualised using 12 categories (4 central themes, addressed in 3 sub-themes). Subsequently, the decision was made to address more specific issues per project in the 'Variations' sections, on the level of 'Visualisation'.

Because of the overwhelming variety in spatial conditions, structural solutions, material articulations and ornamental details, it proved worthwhile to 're-construct' the AA04 artefact in the form of a digital model. In the process of study, based on original drawings and old as well as new photographs, several visits proved necessary to 'unravel' the composition's varied qualities.

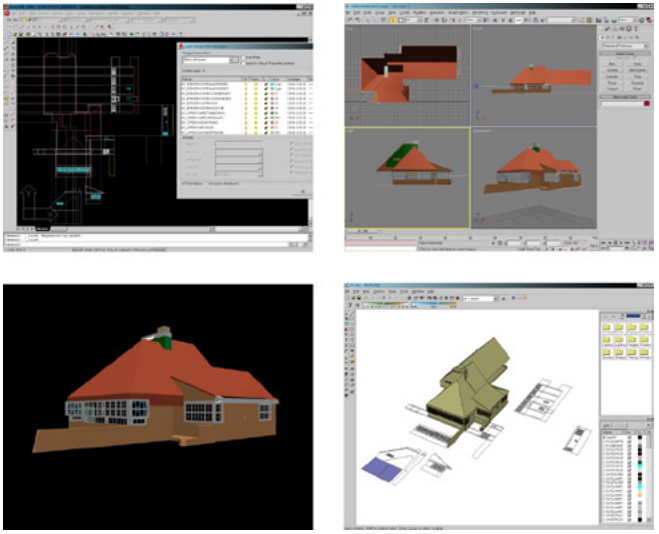
Using visual data, which has been generated though the years, eight AA04 Visualisation-variations are considered and illustrated:

— Early 3D Model Variations;
— Physical Model Variations;
— Situational Variations;
— Massing Sequence Variations;
— Functional Sequence Variations;
— Constructional Sequence Variations;
— Sectional Sequence Variations;
— Rhythm & Proportion Variations;
— Tone & Colour Variations?;
— Detail-section Variations.

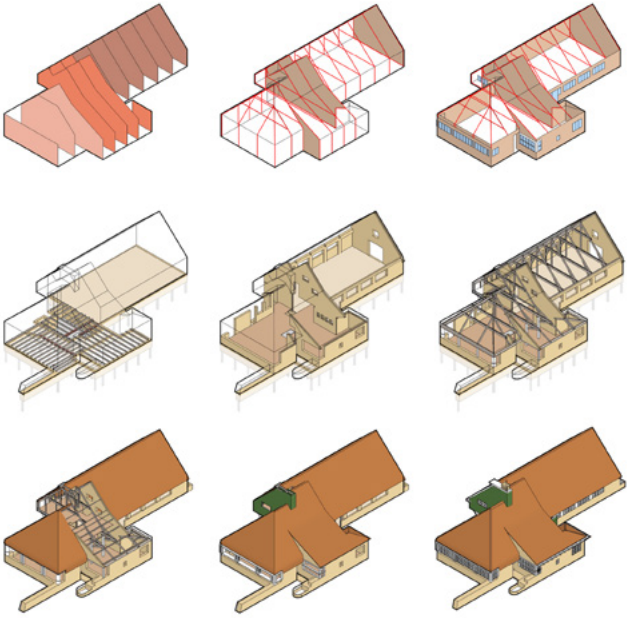


Early thematic scheme exploration (Jack Breen and Bram van Borselen).

Early 3D Model Variations:
In the early stages of the study I was given an opportunity to take part in a compact staff-course, concerning (then) state-of-the-art computer-visualisation applications.[13]
At the time, true 3D modelling, using digital platforms, was still in the early stages of development.
For this visualisation experiment, 2D drawing files were prepared in AutoCad, which were then imported into the 3D visualisation medium of the time: 3D Studio-Max. This meant that the original facade sections which had as it were been generated 'lying down' were *rotated*, now as it were standing upwards, and then given depth and colour.
The ambition was to model the second-to-last design phase – described earlier as Phase 4A – in which the bay-window at the front was still visually divided in two by a horizontal band at half-height and the side sections were filled in with leaded glazing.
Because it was only a very brief, introductory exercise the model was far from complete. As such, the perspective does not show a camera-view of a finished total model, but rather a kind of 'decor' which only gave the illusion of a building, seen from a particular point.
On the basis of this reconnaissance, other applications were tried out.[14]
Eventually, when SketchUp came onto the (free) market, this became the software of choice.
This was partly due to the quality of the 'clear line' (rather than texture-mapped) renderings that could be generated, as these were considered to be visually more 'objective' in the context of a methodical, comparative study.

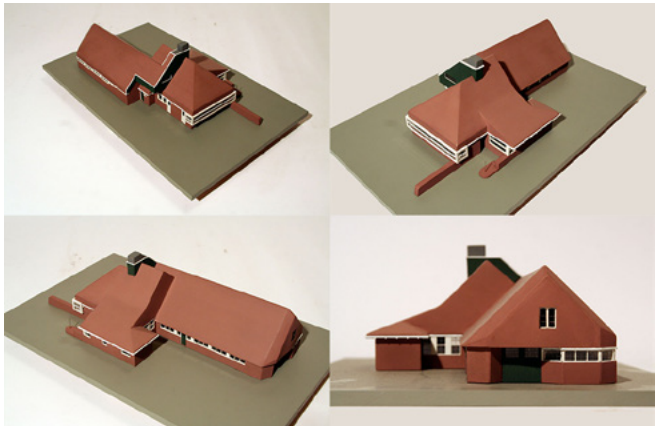


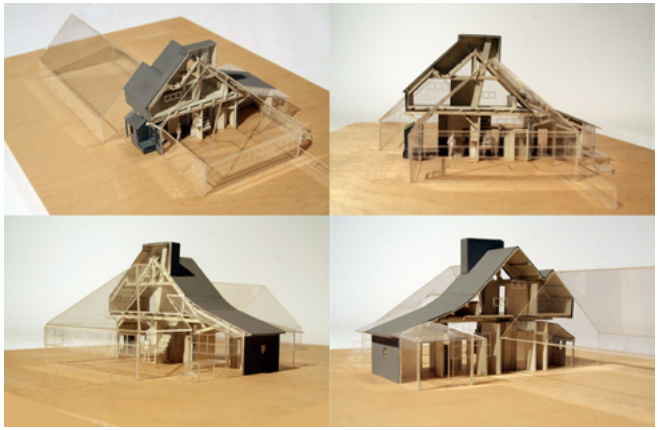
Early computer modelling, combining AutoCAD and 3D Studio Max (J. Breen).

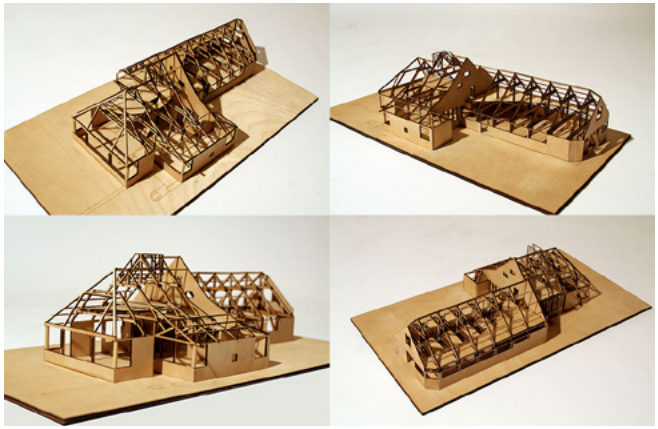


Layering experiments with SketchUp, showing structure, technique and colours.

Constructional Sequence Variations:
Similarly, generating a step-by-step sequence of the building process may help give an idea of how the structural organisation of the house should be considered in the light of its building-process. To achieve this, it is necessary to anticipate the development of the house in the layering-system of the central 3D model file.
This involves identifying different types of virtual building-materials in identifiable parts of the building. If there is a clear organisation, it is possible to activate or de-activate particular levels to create an intermediate building-phase image. If these are put into a logical sequence, an idea can be given of the building's tectonic composition.
This method of sequential visualisation proved to be particularly informative in projects where the building's material order and its method of construction were to a large extent responsible for the composition and perception of the product as a whole, such as AA01 and AA10.

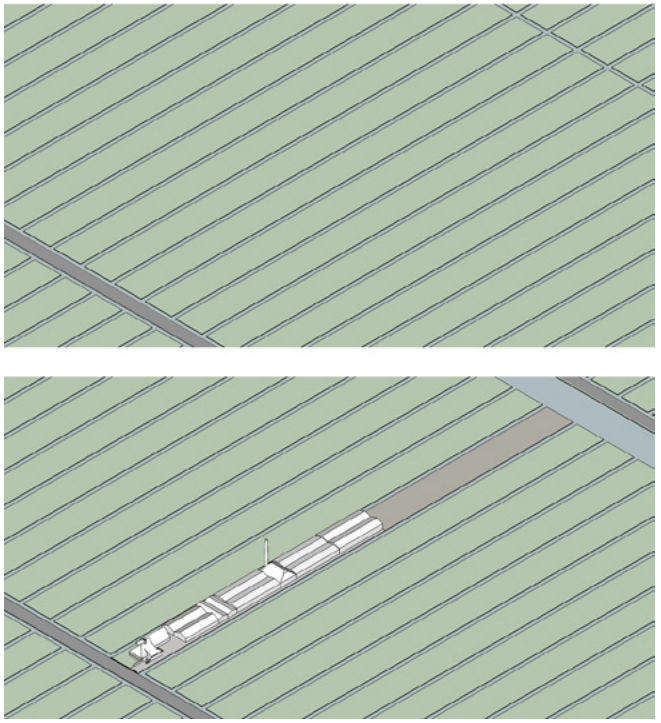




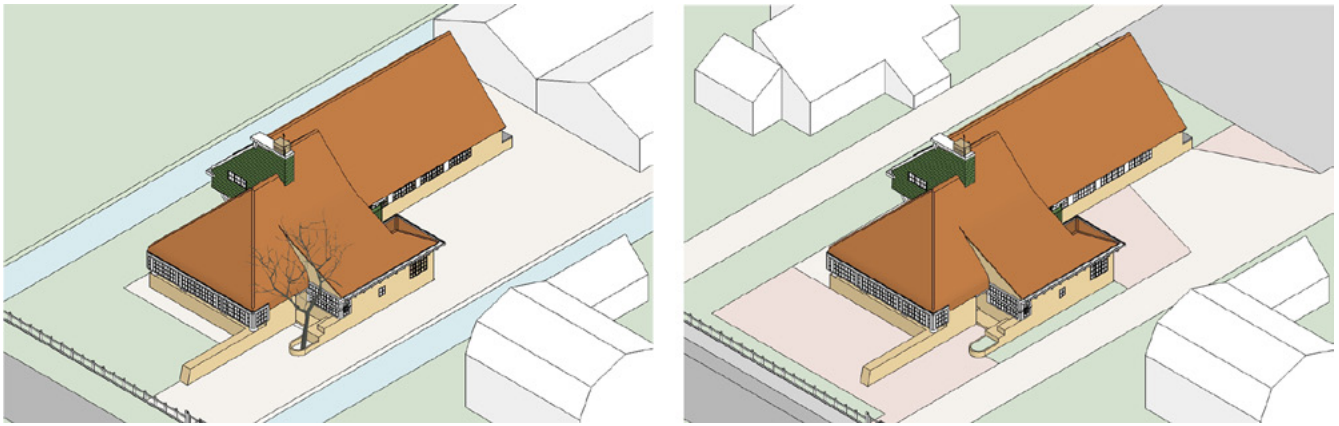


Physical Model Variations:
At an early point in the study, it was thought that it might be worth getting students involved in the interpretation of some of the AA projects.
Together with Form & Modelling Studies colleagues Robert Nottrot and Martijn Stellingwerff, it was decided to use a then-existing BSc elective course at the faculty.
The aim of the course was to help students develop their physical modelling skills by creating 'didactic' models on the basis of precedents in architecture, usually dwellings.
In this case, a selection of AA projects had been prepared, including (beside the de Klerk house): the Duiker house (AA05) and the first and second Berghoef houses (AA06 an AA08).
The idea was to also try to operationalise new digital manufacturing techniques which were then being explored and which would, under the leadership of Martijn Stellingwerff, become the faculty's tone-setting CAM-lab facilities.[15]
Besides purely manual skills, two new techniques were made operational.
The first of these was 3D printing. All of the students were asked to make a small de-composition model of de Klerk's Aalsmeer house, which would then be printed. One group would later go so far to make a 3D printed version of de Klerk's not realised design for a House in Wassenaar (1923).
The second new technique was laser-cutting, which could be used for the fabrication of the larger presentation-quality models.
Three groups went on to model the de Klerk house each with a particular focus:
— The entire house as an entity (the colouring of walls and roofs remains an issue);
— The complex middle-section of the house (with the other parts only hinted at);
— The load-bearing structure of the house (the system of structural walls and beams).
What was interesting was that each study-group determined their own 'focus', concerning what they wished to make explicit and how.

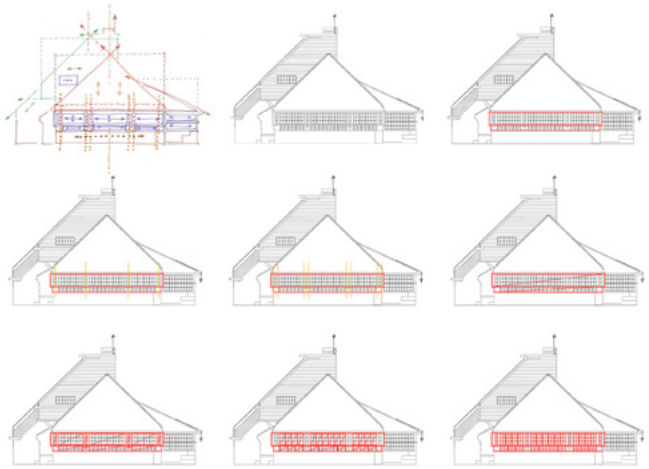
Situational Variations:
Typical for all of the market-gardener's houses on Aalsmeer's 'high ground' is their situation: facing a central dike-road axis, at the front of relatively narrow and generally very deep agrarian plots.[16]
Originally, the intention was to model all of the houses in their context for the 'Patterns' images.
Although this ambition was subsequently shelved, this visual variation offers an impression of these situational modelling-experiments by focusing on the de Klerk casus.
The first visualisation-level is what may be considered to be an idealised overview.
In this case, a regular polder-grid has been modelled with fields and the kinds of ditches ('sloten') that are typical of the Dutch water-landscape. These smaller canals, connected to larger water-networks, in this case the Ring-canal of the Haarlemmermeer polder, are important for irrigation, but as has been mentioned, also for transportation.
A second view shows the introduction of the Barendsen house and its greenhouse complex behind and indicates that this was one of the first houses whereby the dike-ditch on the northern side of the road was filled in, to allow for a broader road.
Aerial photographs indicate part of the longitudinal gutter was also filled in to allow the two halves of the Barendsen business to function together as one.
The model-view from close-by gives an indication of the house on the combined lot, shortly after the house's completion.
The second image is a graphic interpretation of the house in it's more cluttered current environment.



Situation principle study, indicating the original house and the greenhouses.

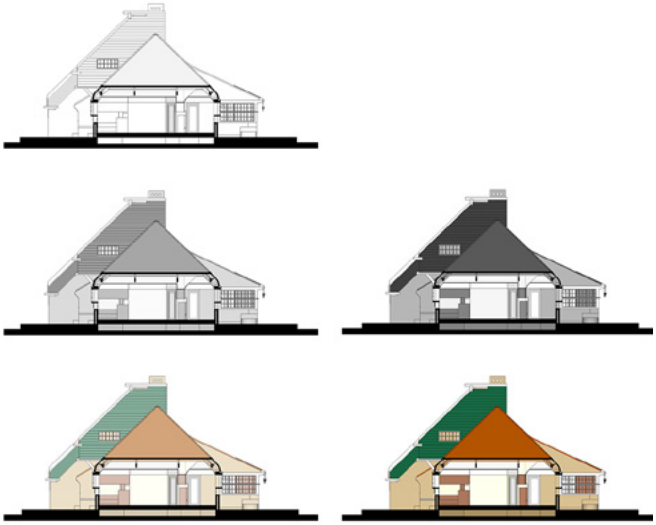


3D model comparisons of the house in its original- and present surroundings.



Size, rhythm and proportion explorations, on the basis of the front facade.

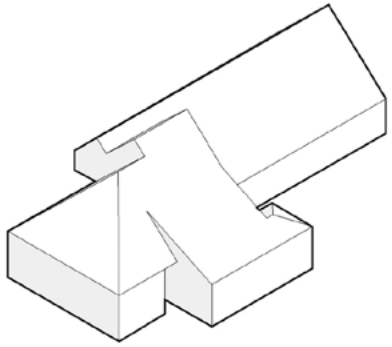
Rhythm & Proportion Variations:
A particular imaging-challenge was the visualisation of the 'Object' and 'Structure' layers for the 'Patterns' sections.
How much should or should not be shown?
Which information is essential and which is perhaps highly interesting but will in effect become unreadable in the relatively small 3D image that is available?
In-depth experiments were carried out on the basis of three of the ten projects: the de Klerk House (AA04); the Engel house (AA10) and particularly the Oud house (AA03).
For the sake of legibility, it was eventually decided to leave *detailed* information on the level of Rhythm and Proportion out and to keep the coding of the 'Object' and 'Structure' imagery as straightforward as possible.
However, the visual data gathered in the course of the particular project-based enquiries is considered meaningful un the context of the 'Visualisation' chapter.
To get a good idea of the richness of the compositional themes, on the level of shape-grammar, rhythm and proportion, it proved worthwhile to view the project in 2D, on the basis of the elevations, as planar compositions.
The first round of exploration was essentially done by drawing: tracing over the printed elevations and coding the surface-organisations, using different colours and symbols. This was done on the level of overall geometry and the interplay of lines and directions.
In another step, the window-sections were considered, whereby the proportions of the interrelated parts were indicated by drawing in their *diagonals*.
Whilst it proved to be tricky to translate something which is created more or less spontaneously by hand into a digital format, the 2D illustrations – both the original sketch versions and the definitive analytical images – of the front and side elevations manage to evocatively capture essential aspects of the intertwined compositional themes of de Klerk's project.



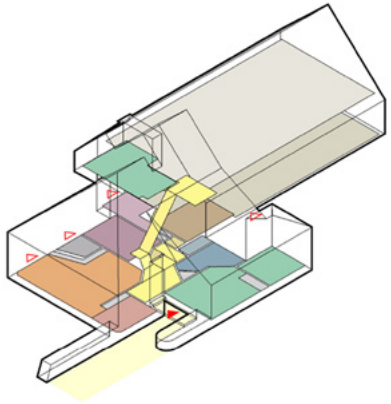
Tone and colour experiments, on the basis of a cut-away view.

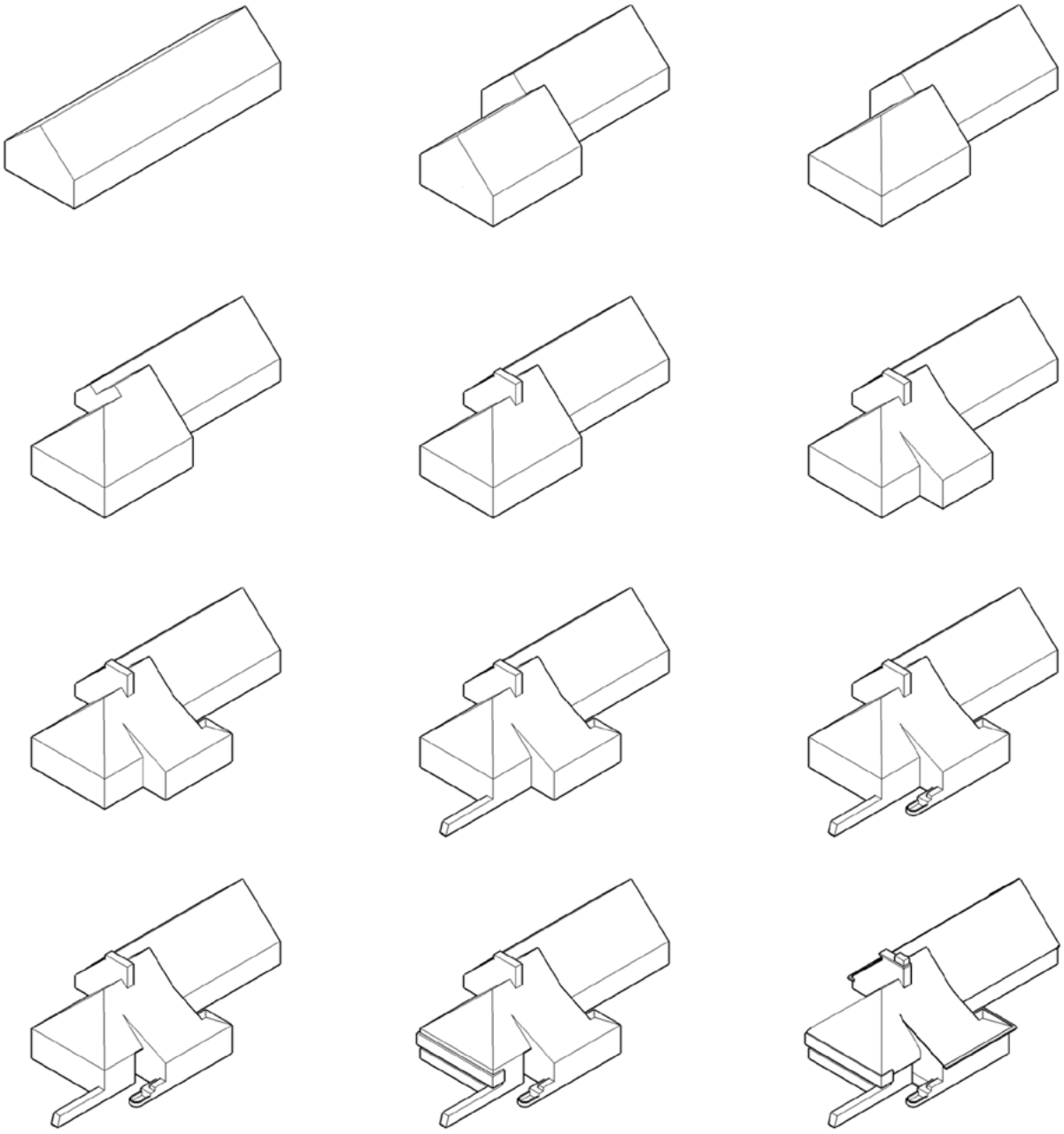
Tone & Colour Variations:
The use of colour is a determining aspect of the communicative value of a model, be it physical or digital.
This came to the fore in the physical modelling experiments, where there is often a tendency to over-emphasise colour, in the model of the house itself as well as in its surroundings.
A rule-of-thumb in physical model-making is that just as the building itself is scaled-down, so (at least to a certain extent) should its colour-scheme.
As in the 'Function' layers, the choice of colours proved to be a critical factor.
This is also the case when modelling the building as a whole.
Initially, there was a tendency to use colours that were to saturated and dark. After a series of tests, it proved to be opportune to tone-down and lighten particular colours for the sake of readability in a printed 2D format.

Massing Sequence Variations:
Particularly on the level of volumetric composition, the de Klerk house is complex and polyvalent, which makes it interesting to interpret the artefact on the level of massing, involving sculptural themes such as division, relative displacement, addition, subtraction and intervention as well as smaller-scale articulations on the level of plasticity.
Such an elementary massing-study was carried out on the basis of the project with students in the kick-off exercise of the physical modelling-application, mentioned earlier. Here the outcome was basically taken as a given and it was a question of how far one can go in the decomposition process on the basis of identifiable, isolated parts. The students came to significantly different conclusions in their 3D models.
One of the most interesting interpretations involved modelling the rear volume with a kind of connecting-device which can be 'slotted' into the element at the front. On the basis of the integral 3D model, developed for the Patterns analyses, a kind of animation of massing elements was created, comprising of a series of a dozen 'steps' from simple and straightforward to gradually more complex and detailed.
One of the most surprising discoveries was that in order to shed a light on the volumetric composition as a whole, it is actually worthwhile to consider it as a series of sections. By highlighting the planar sections on the basis of the structural build-up, one can get a better idea of how the building's volume gradually 'morphs' from front to rear.

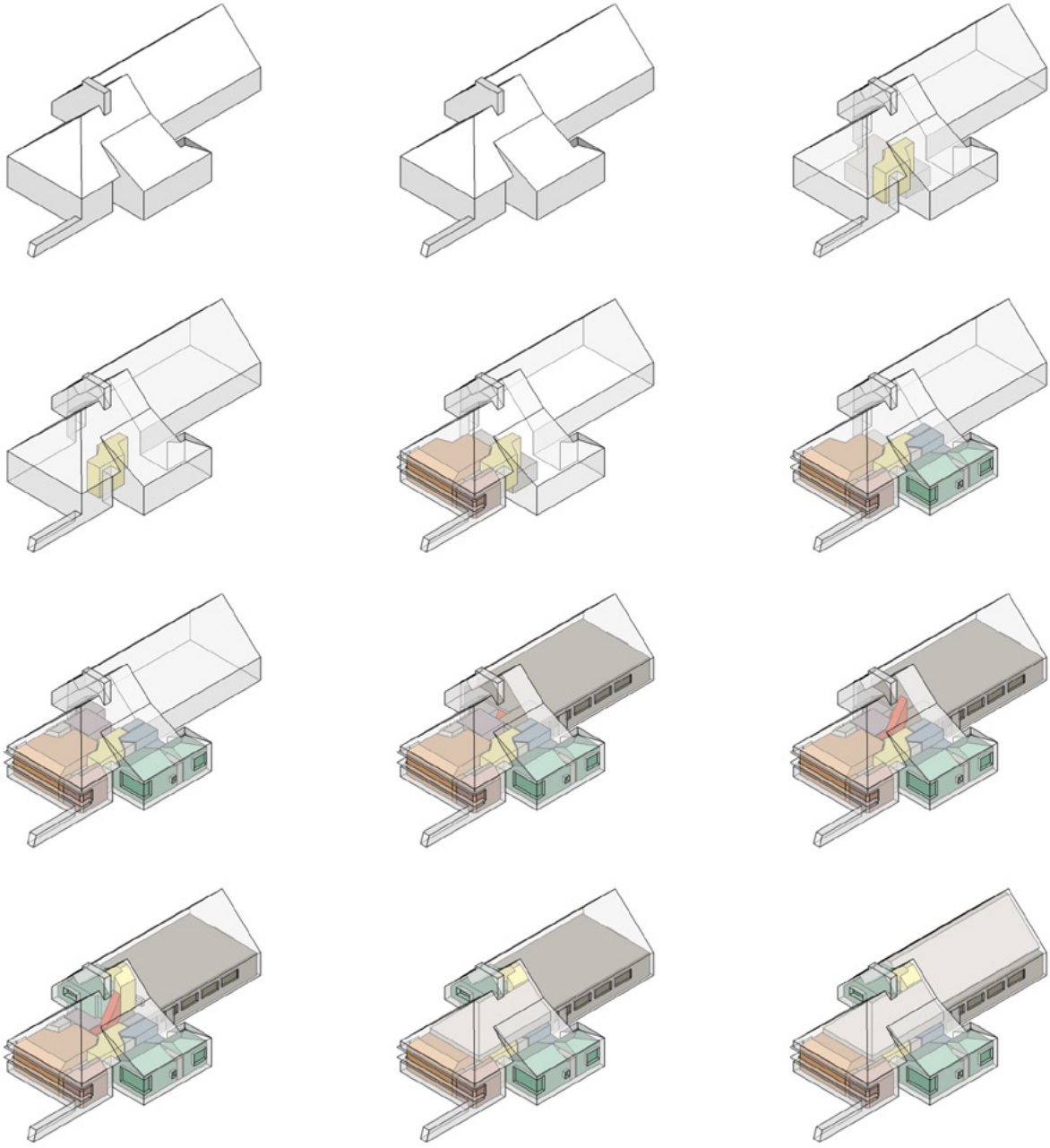


Functional Sequence Variations:
A totally different approach towards understanding the composition as a whole is to consider its functional arrangement.
The de Klerk house was an important testing-ground for the development of a functional coding-system making use of colours. Initially, this meant arranging the floor-plans on their relative layers in the building. A system which was then adopted and fine-tuned for all of the ten projects.
A next step was to consider the different rooms as identifiable volumes, within the outline of the building as a totality. This approach was taken to another level when the 'enveloping' outer form was considered as a semi-transparent shell and to make openings where the rooms actually 'look out'. The difference in saturation of the basic, functional colour gives an indication of the relative enclosure or openness of each separate spatial component.
For the 'Patterns' sections per project, a choice had to be made which coloured rooms should be included in the Interior section, for the sake of readability.
This mode of representation does not allow for the specification of routing and more hidden private domains. This can be alleviated by not just generating one image, but creating a sequence – as in a step-by-step animation – of the various rooms which are within, giving an indication of how they might (or might not) be reached by a visitor. The following images give an impression of how such a series might work.

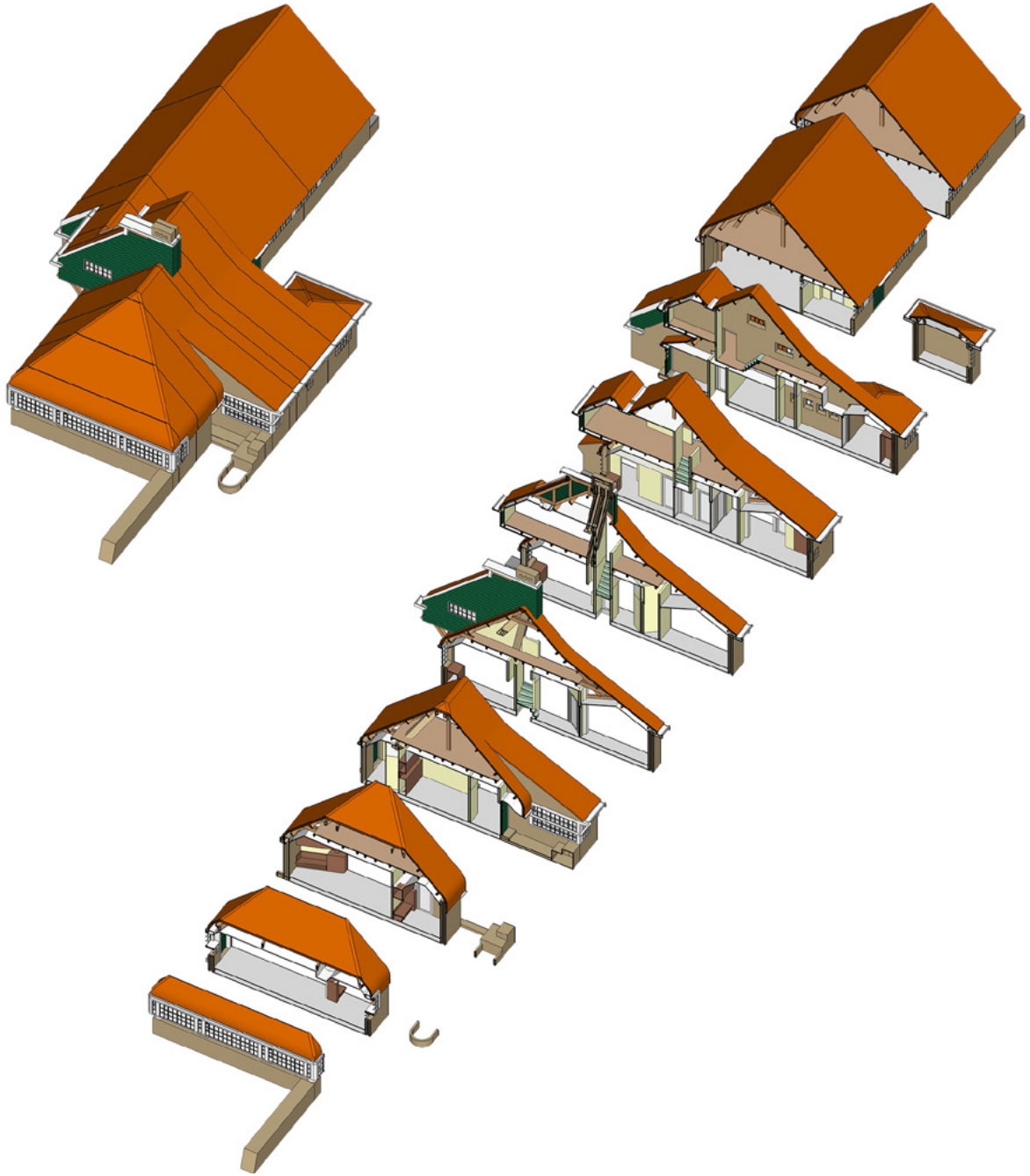




Step-by-step massing and plasticity variations.



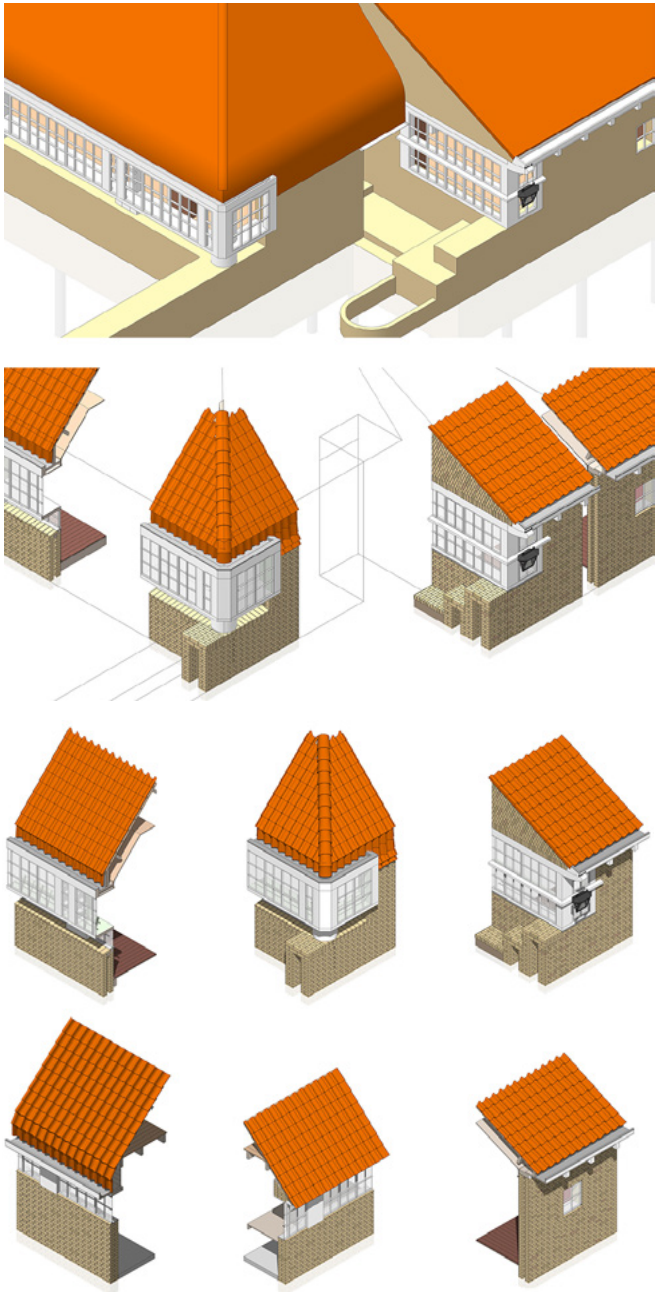
Step-by-step function and routing variations, using semi-transparency.



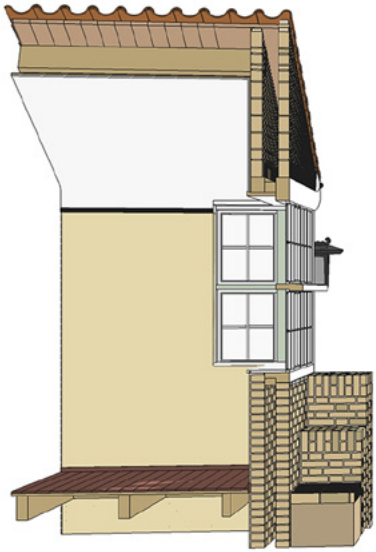
Deconstruction of the 3D model by applying sectional cuts.

Sectional Sequence Variations:
The potentials of one of the 'standard' modelling-tools was discovered when work was started on the first 3D modelling test-project – which came to be known as the House in Black (HiB) Variations, it is the 'Section' tool. This application allows for the generation of different views into an 'opened-up model', either from a birds-eye view or as an easy-to-read central perspective.
The difficult-to-comprehend de Klerk project seemed to be an interesting object of study for this application. This meant that, whilst the focus had up to now been mainly upon the building's exterior appearance, it was necessary to – at least to a certain extent – model the insides of the house.
A test-version of the sliced-up house was prepared. The slices could then either be considered in their own right or in combination. By, as it were, taking off one section at a time, the different layers of the house might then be visualised in sequence, from the front to the rear, or in the other direction.[17]
Such an approach does mean that some elements need to be 'mended' per section, in order to get something resembling a reliable impression. In particular, the walls in a 3D model tend to have no 'mass', but are generally essentially empty, only bordered by paper-thin surfaces with colour, only to be 'viewed' from one side. To create an architectural section-view these virtual voids need to be 'filled up'. One of the applications which was subsequently pioneered is the combination of two section-views (each cut is a particular dimension and direction) and 'melding' these together to get a composite view, combining interior and exterior.
This method has been used to generate the model-images for the 'Ensemble' layers in the 'Patterns' sections of all ten projects.

Detail-section Variations:
With a project that is as complex and challenging as this one, there is a danger of getting 'carried away'. This was arguably the case when detailed 'segments' of the project were developed by Bram van Borselen during the study.
The high-definition detail-segments that were generated are essentially digital objects in its own right, modelled from scratch, even though they were intended as sections of the AA04 project's 'Junction' and 'Feature' levels.
What was considered to be interesting was to compare the smooth – as it were 1 : 100 – overall model sections with intricate, component-based detail-sections, which one might imagine to be something like scale 1 : 5.[18] These 'parts' come across as compositions in their own right, shedding a light on the meticulous attention to material articulation by de Klerk, down to the smallest expressive levels. Subsequently, it also proved to be a challenge to accurately model and colour the reciprocal, interior qualities. These 'parts of a greater whole' are indicative of the professional dedication of the designer, but also of the expressive potentials of such in-depth modelling approaches. Such in-detail segment modelling seemed fitting for this project, but not for all of the projects. A special case was the Engel house (AA10) where this method was used to generate a series of comparative corner-variations.



Comparison of essential details in the model and as special section-models.





Interior views on the basis of detailed 3D model sections, Bram van Borselen.

Position

Michel de Klerk (1984–1923) was recognised as being a uniquely-gifted, wholly original designer and a dedicated, prolific craftsman-builder: the 'Rembrandt' of the modern architecture of his time.[19]
Despite his unassuming and modest nature, he became the figurehead of what, around 1915, came to be known as the Amsterdam School.
De Klerk was highly respected by his admirers and even his more critical contemporaries were inclined to recognise his genius.

His work is featured in many retrospectives of twentieth century architecture.
For this particular overview, use has been made of the Amsterdam School overview by Maristella Casciato (1996), the NAi retrospective of de Klerk's life and his work (1997) and the insightful overview of his career in the context of the De Schip museum project in the Spaardammerbuurt, Amsterdam (2012), as well as various publications concerning the movement as a whole and fellow Amsterdam School architects such as Johan Melchior van der Meij (1878–1949), Pieter Lodewijk Kramer (1881–1961), Jan Frederik Staal (1879–1940), Margaret Staal-Kropholler (1891–1966) and Hendrik Theodorus Wijdeveld (1885–1987).
To give an impression of de Klerk's life, oeuvre and stature, quotes from various published sources are included.

Frans van Burkom, on the position of Michel de Klerk:

> *"Michel ('Sam') de Klerk was the eye of the storm that, around 1916, began to rage within Amsterdam's architecture society Architectura et Amicitia. He determined the idiom of the Amsterdam School. His design- and drawing talents were seen by companions like Wijdeveld, Staal, Blaauw and Kramer as utterly indescribable."*[20]

Wilhelm Holzbauer:

> *"The built oeuvre of Michel de Klerk extends over a period of little more than ten years. In many ways it is in his works, the so called "Amsterdam School" of architecture comes to its fullest bloom. Undoubtedly this fact was recognised by the fellow architects of that controversial movement. At the time of his tragically early death at the age of 39 in 1923 de Klerk had acquired a unique stature within the group whose endeavours were guided by a highly moralistic and and socially aware consciousness."*[21]

Michel de Klerk was born on the 24th of November 1884 in Amsterdam's Jewish quarter.
He was the youngest of the 25 children of Joseph Leman de Klerk, then 75 years old. Michel was born out of his second marriage to Rebekka Roeper, who was 43 years his younger.
When his father, who had been employed as a diamond-cutter, died shortly before Michel's second birthday, it was difficult for his mother to make ends meet but fortunately she was helped out by the older children.

During his primary school years, Michel's drawing talents – particularly his skill at drawing portraits – blossomed.[22] After his primary school he was apprenticed to a butcher, but this was no success, as he spent all of his spare time drawing. After one of his drawings had been seen by the architect Eduard Cuypers in 1898, he immediately employed the young Michel.[23]

In the Cuypers practice and amongst his friends, de Klerk came to be called 'Sam'.
The story goes that when he joined the – catholic – Cuypers firm he was asked for his name and confession. When he stated he was Jewish and called Michel, he was given the more 'appropriate' name *Sam*.

His son Joost knew no better than that his father was called Sam and was astounded to read in the obituaries that his father's actual name was Michel.[24]

Alice Roegholt et al, on de Klerk's apprenticeship in Eduard Cuypers' office:

> *"The architectural practice of Eduard Cuypers was located at his place of residence at Jan Luijkenstraat 2–4, straight across from the Rijksmuseum which had been built by his uncle Pierre Cuypers. Michel de Klerk was only thirteen years old when he started working at the practice as a young 'pencil sharpener'. His first commissions involved touching up sketch plans drawn by the architects who worked there. Later, he would also act as a foreman for the office's building projects, including for example, the construction of a sanatorium in Hoog-Laren in 1902 and 1903.*
> *The Cuypers practice – or rather the studio – had a huge impact on Michel de Klerk's development. At the time, Eduard Cuypers was a renowned architect who designed a large number of buildings in the Netherlands, and also later in the Dutch East Indies. He considered it essential that the architects working for him pursued a wide range of interests. To that end he allowed them access to his library and had a portfolio of magazines circulating among his staff. Cuypers also published a magazine of his own entitled Het Huis Oud & Nieuw devoted not only to the work of his studio but also to popular arts and crafts, ranging from carved wood art from the Dutch East Indies to hand-painted Delft pottery and Hindeloper chairs. In addition, it focused on Dutch architectural traditions such as the various types of wooden houses in the nearby Zaanstreek region, some of which had a king post against the ridge beam of the roof. This king post was regarded as a link between heaven and earth.*
> *It is clear that Michel de Klerk drew a good deal of inspiration from this magazine. Also, it is quite likely that he contributed illustrations, but we cannot be sure, since illustrations by members of Cuypers' own practice were always published anonymously."*[25]

In Cuypers' 'atelier for architecture', de Klerk forged close friendships with other young apprentices, who would become the 'faces' of the Amsterdam school: Piet Kramer (1881–1961), Chris La Croix (1877–1923), Jo van der Meij (1878–1949), Berend Boeyinga (1886–1969).
He became proficient in the subjective style-concepts of the late 19th century, with an emphasis on the articulation of function with 'character'.
Stimulated by Cuypers, he followed courses, in which he was trained as an architectural draughtsman, at the 'Industrieschool van de Maatschappij voor den Werkenden Stand' in Haarlem (1901–1906).

During his years at the Cuypers office, de Klerk was stimulated to take part in competitions and study commissions, including: designs for a factory (1903); a sanatorium (1904); a school (1904); a country house with artist's studio (1905); three country houses (1905); a country house with stables (1906); a railway station (1906); a commission for a steam laundry (1906); a café-restaurant (1907); a club house [1] (1907); workers' dwellings (1908); a library annex (1908); sketches for his own home (1908) and a seaside hotel [2] (1910).[26]

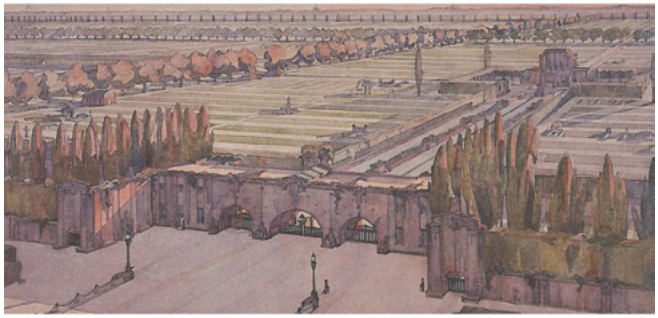
His friend Jo van der Meij had in 1906 won the prestigious Prix de Rome competition, earning a stipend to travel around Europe to study. In four year's time, he travelled to North Germany and Denmark (1907), Italy (1908), France (1909) and France and England (1910).
The drawings he made on his journey were exhibited each year at the Royal Academy in Amsterdam and were an inspiration to his peers and his young colleagues.[27]

De Klerk stayed at the office of Eduard Cuypers until March 1910, leaving the bureau when he married Lea Jesserun, who had previously joined the firm as a secretary.
Together they travelled to Denmark and Sweden, as an extended honeymoon lasting nearly a year, with de Klerk making numerous travel sketches and studies, not only of buildings but of all sorts of arts and crafts.
The extensive trip had a profound influence on de Klerk's architectural outlook, because it was in these Scandinavian countries that he was encountered a or him completely new romantic architecture. While in Sweden, de Klerk found time work, submitting a completion-entry for a funeral-chapel and cemetery, with the motto 'Reincarnation' [3] (1911).

De Klerk only worked for himself during a period of some 13 years; from 1911 until the end of 1923.
He never actually started his own architectural practice, but preferred to work on his own, usually in the bureau of his friends Herman and Jan Baanders, who rented him a private workspace, allowing him to make use of their practices' facilities. Herman Baanders (1976-1953) was not only a good personal friend, but like Cuypers, was inclined to treat him like a protégé.[28]

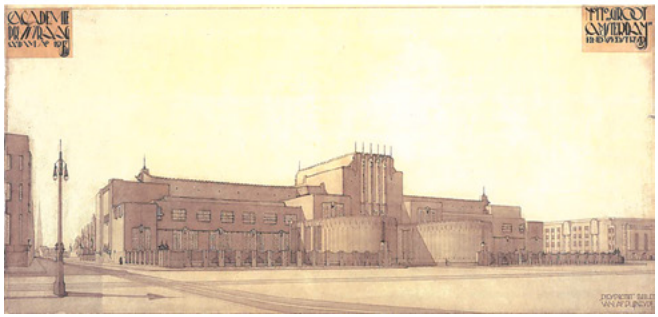


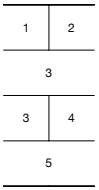








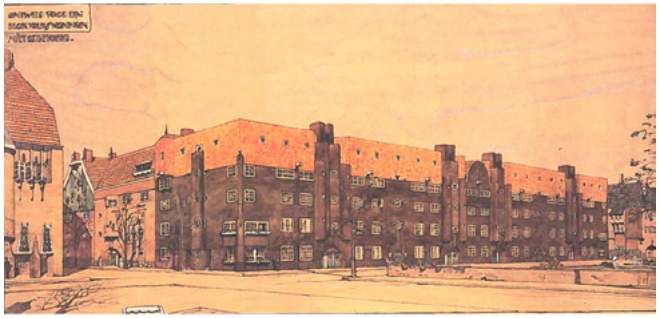




Sources: 'Michel de Klerk' / NAi.











While working for the Baanders practice as a draughtsman, he secured his first serious commission: the so-called *Hillehuis* [6] (1911-1912).

Alice Roegholt et al, on this pivotal project in the young Michel de Klerk's developing career:

> *"De Klerk's first major project was to design the Hillehuis at Johannes Vermeerplein in the Museumplein neighbourhood. Building contractor Klaas Hille and his partner G. Kamphuis initially approached the Baanders practice, but when de Klerk (who worked there as a draughtsman) came up with an innovative design, the Baanders brothers decided to pass the project over to him. What made the Hillehuis so ground-breaking was that the building's facade was interpreted as a whole with the floor-plans of the interior barely visible from the outside. It was no longer about individual houses but about the total work. De Klerk played with shapes and ornamentation as can be seen in the detailed doors and chimneys and in the various forms of brickwork ornamentation. Hillehuis, as the building came to be called, was in fact the beginning of what would become the Amsterdam School style of architecture. It established de Klerk's name as an architect and earned him many other commissions."*[29]

Another formative event for what would become the Amsterdam School, was without a doubt the realisation of the Scheepvaarthuis [7] (Shipping House,1912-1916), a high-profile, collective office-building, housing the headquarters of six Dutch shipping-companies.
When the young Jo van der Meij received the commission for the design of the building's architectural features (in collaboration with the firm of Van Gendt, which was responsible the general layout of the concrete structure and the installations), he asked his friends Michel de Klerk and Piet Kramer to join him.
The building was conceived as an ode to the history of Dutch shipping and particularly to the cultural and economic ties to the colonies of the Netherlands. The expressionist force, the exuberant wealth of detail and the integration of symbolic sculpture and exotic craft-work made a deep impression on contemporaries. The realised 'Gesamtkunstwerk', so different from Berlage's rationalism, became the first publicly recognised paradigm of the Amsterdam School style of architecture.[30]

With three architects collaborating so closely, it is not clear who designed which parts of the building's facades and interior components. Van der Meij was formally in charge and responsible for the exterior but it seems likely that de Klerk and Kramer had an important influence on the result as a whole. De Klerk was particularly involved in the design of the omnipresent sculptures and he designed and, amongst others, furnished the boardroom of the Netherlands Steamship Company (NSM).
Principal-architect van der Meij apparently felt that the Kramer and de Klerk had become too influential and in 1914 he terminated their collaboration.

The project became a critical benchmark for de Klerk's own stylistic ambitions, foreshadowing his more controlled handling of plasticity and materiality in the work that was to follow.

Henry-Russell Hitchcock, on de Klerk's development:

"The extreme point of the fantastic in the work of the Amsterdam school was the Scheepvaarthuis of van der Meij built in 1913, where no plain surfaces are left in the riot of textures and abstract embellishment. But de Klerk himself was increasing in sobriety down to his death and his peculiar power of manipulating brick surfaces was most fully manifest where he indulged it least."[31]

The breakthrough, for what was still a loose affiliation of kindred spirits, came with the jubilee-exhibition of the Architectura et Amicitia fellowship, in 1915.
In the room-of-honour in the Amsterdam Municipal Museum ('Stedelijk Museum'), work by Michel de Klerk was exhibited alongside that of H.P. Berlage.
Whilst Berlage was trying to break with historicist design modes and strove for a new architecture, it was de Klerk who was recognised as a man with truly novel architectural ideas. Alongside his public housing projects, his competition-design for a funeral-chapel and cemetery (1910) and the presentation-drawings for water-tower which he had made previously in the context of a competition (1912), attracted attention.

Together with van der Meij and Kramer, he was seen as a designer with a poetic sense of beauty and imagination. The exhibition triggered a period of growth and flowering for what architect Jan Gratama (1877–1947) dubbed the 'Amsterdam School'.

De Klerk achieved renown with his designs for housing-blocks in Amsterdam-West.
At the request of the Public Works Department, an urban plan had been drawn up by Jo van der Meij (also working as an aesthetic advisor to the municipality) for the development for the as yet unbuilt part of the Spaarndammerbuurt.
After various deliberations, a master-plan was approved in 1913.
Contractor Klaas Hille and his business-partner G. Kamphuis were given the lease for a municipally-owned building site at the Spaarndammerplantsoen. Evidently pleased by his work on the Hillehuis, they asked de Klerk to make the design.

De Klerk made an integral proposal [8] (1913–1914), with attention to the entrances, but also to the interior organisation and even the rear elevations. He treated the block and its components as a whole, with a diversity of materials. The project was carried out in complete accordance to his ideas.
De Klerk was then asked by Hille to develop a second block (1914). This did not lead to a serious project, partly due to the economic situation after the start of the First World War. However, under the inspired leadership of the new, socialist alderman Floor Wibaut, social housing was given an important impulse.

The initiative was taken up by the housing corporation Eigen Haard, a move which was stimulated by the newly-appointed Housing Department director, Arie Keppler [9].[32]

Alice Roegholt et al, on the second Spaarndammerplantsoen housing project:

"Completed in 1918, the second block has an obvious kinship with the first block, but its yellow bricks and red roof tiles make it even more exuberant. Again, the windows and the entrances are richly ornamented, with the odd parabolic shape reappearing too. Striking features are the coping stones and brick bonds representing elements from the natural world, including fish bones, toadstools, and shells. Architect Frits Staal once stated that looking at the block 'gives a liberating and uplifting sense of happiness'. In Wendingen, architect Piet Kramer wrote that in the 'astounding boldness of the materials used' and 'remarkable detailing', the blocks at Spaarndammerplantsoen had a humbling effect on other architects'.[33]

De Klerk's crowning achievement in the Spaarndammerbuurt – and possibly the high-point of his entire career – is the highly complex third block, commonly known as 'The Ship' [10].
Due to the shape of the site, a largely unbuilt triangular site at the tip of the Spaarndammerplantsoen, director Arie Keppler was in doubt about the opportunity to build quality dwellings there.

He sought the advice of de Klerk, whose ideas had made such an impression on him, and he asked Eigen Haard to develop another project with the Klerk, who received the commission in 1917.
The realised complex (1921) came to be considered as a 'palace for the working classes'.

Paul Groenendijk and Piet Vollaard:

"The crowning glory of Amsterdam School architecture, Eigen Haard consists of three blocks of housing in the Spaarndammer quarter. … The original intention was to build all three (blocks) around the public gardens. After the south block had been positioned there the third block was given a new, triangular site overlooking the railway line. This block, soon nick-named 'Het Schip', was built between 1917 and 1920 and apart from the school on Oostzaanstraat is entirely the work of De Klerk. His Expressionist style, quietly active in the first two blocks, is here fully unleashed. A staggering variety of form and a sense of detail evidencing consummate craftsmanship raise each part of the brock to a sculpture in its own right without in any way weakening the whole. Organised symmetrically, the block is in five storeys except at its lower southern end, where a cylinder marks the entrance to the post office, Long, horizontally accentuated facades along Zaanstraat and parts of Oostzaanstraat have been kept relatively tight en less busy. Facades on Hembrugstraat are similarly less-tall but then in the middle are set back to create a small triangular square dominated by a tapering tower. … Restored in 1999-2001, the post office now hosts a museum (Museum Het Schip)."[34]



Michel de Klerk's Het Schip project, photo collage by Jack Breen.

Alice Roegholt et al, on the definitive Spaarndammerplantsoen housing project:

"The third block at Spaarndammerplantsoen known as The Ship was the 'best of both worlds' in that it marks a transition from finely executed detail to a purified total composition. What makes his building so spectacular is the manner in which the detailing relates to the main composition. Attracting admirers ever since its completion, The Ship not only stands out as the highlight of De Klerk's architectural career, but also forms the highlight of the Amsterdam School style as a whole."[35]

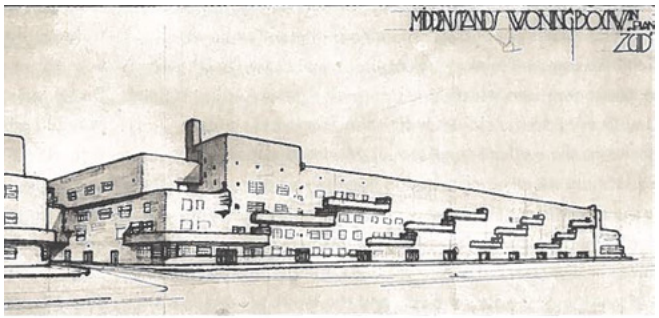
Earlier, in 1917 and early 1918, de Klerk took part in a prestigious competition for the design of a new State Academy of Fine Arts (Rijksacademie voor Beeldende Kunsten) in Amsterdam [5].
From a total of 114 entries, de Klerk's initial proposal was one of the ten prize-winners of the first round and one of five selected for the second round.
In the second round he thoroughly revised his plans and facades. His final entry received second prize, with the first prize and building-commission going to the, then still largely unknown, young architects B. Bijvoet and J Duiker.
The media-offensive by de Klerk's disappointed supporters, notably C.J. Blauw and J.P. Mieras, may have contributed to the decision to eventually scrap the project in 1920.

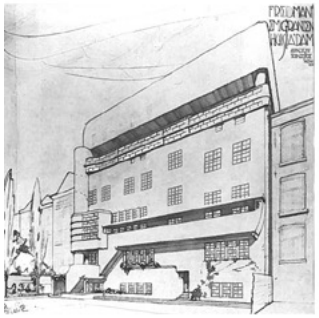
In 1918 de Klerk was chosen by the housing association De Dageraad, initiated by the workers' cooperative of the same name, to design a housing-project in a north-easterly section of Berlage's extension plan for Amsterdam South.
He got his friend Piet Kramer involved and together they designed one of the most remarkable and multifaceted housing complexes of the era [13].
The designs were made in 1918–1920 and realised between April 1920 and November 1923. Particularly notable elements are Kramer's sculptural, cascading corner articulations and de Klerk's series of semi-villas facing the Ronner- and Swartze squares.

Jaqueline Storm on the Dageraad project:

"The Dageraad-complex in the Pijp, which de Klerk designed with his close friend and fellow-thinker Piet Kramer, is perhaps the most complete work of the Amsterdam School. The houses on the Thérèse Schwartzeplein, the Henriëtte Ronnerplein and in the Pieter Lodewijk Takstraat may be less exuberant than those on the Spaarndammerbuurt, but here too the plastically-formed facades immediately catch the eye."[36]

De Klerk and Kramer would subsequently be involved in facade-designs for housing along the Amstellaan (now Vrijheidslaan).
In this project, as was more and more becoming the case, de Klerk was not involved in the design of the actual dwellings, but merely the designer of their urban *exterior*, in order for the project to be passed by the aesthetic committee overseeing the development of Plan South (the so-called 'Welstandscommissie').[37]













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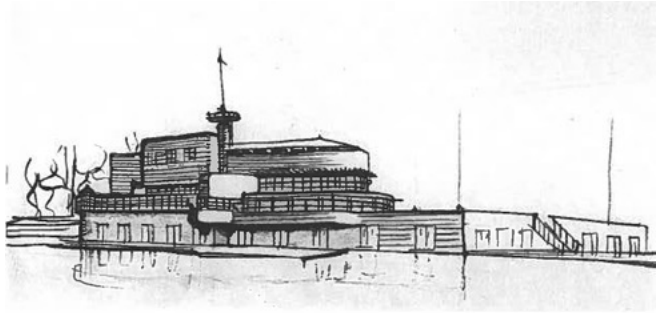
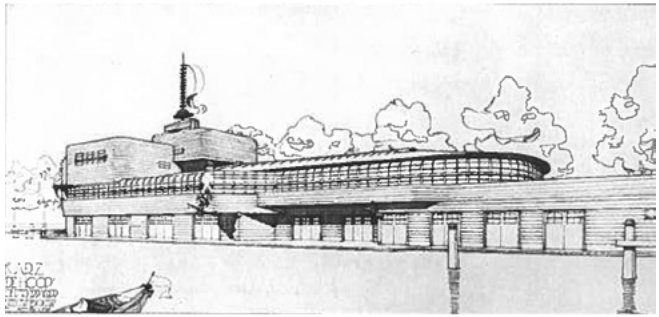
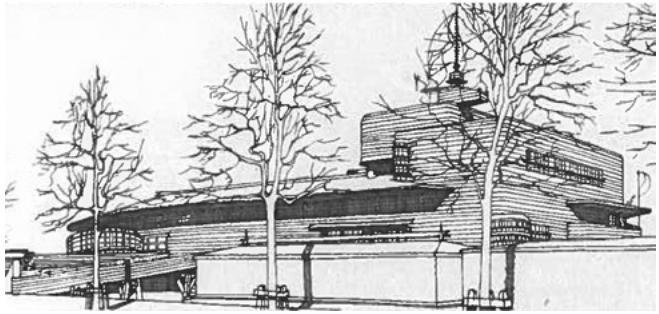
Sources: 'Michel de Klerk' / NAi / J. Breen.









In the design, which was made from April to May 1921 and realised in phases in 1922-1923, de Klerk introduced a running pattern of ascending balconies, with small round bay-windows as connecting elements, which he extended around the corners towards the rear and accentuated with semi-circular glazed pavilions[11].[38]

De Klerk's housing projects are to a large extent the outcome of the utopian social-democratic building politics of the time.
The Housing-law ('Woningwet') of 1901 had created the opportunities for the initiation of subsidised building to improve the housing situation of the working classes. Socially engaged, vigorous administrators, such as the first social-democratic alderman F.M. Wibaut (with the characteristic, political slogan *"Wie bouwt? Wibaut!"*) and his right-hand man and driven 'fixer' A. Keppler, were responsible for an impressive social-housing boom, producing working-class dwellings of exceptionally quality, functionally as well as aesthetically.[39]
The maintenance and preservation of such exemplary housing projects is also due to a large extent to highly-motivated social-democratic activists, like alderman Jan Schaefer (1940-1994), who was instrumental in preserving such social-housing icons as the Eigen Huis complex.

Eberhard van der Laan (1955–2017), social-democrat and former mayor of Amsterdam:

> *"The administrators and architects of the time can be typified as driven idealists, they managed to reach a great deal and were certainly not devoid of realism. The workers should be able to live in attractive surroundings where they should feel at home. The lyrical, sculptural new style of design was not limited to buildings. Interiors, jewellery, furniture and housing utensils made the Amsterdam School synonymous with 'total art for the community'. Throughout all of the Netherlands and the former Dutch East Indies we can find buildings for private clients and authorities."*[40]

From 1920, de Klerk became involved in other kinds of projects, including and emigrants' home [12].
Probably the most iconic of his later design-achievements is the club-building for the Royal Rowing and Sailing Club De Hoop, on the eastern side of the Amstel river, designed in 1922 and constructed in 1922-1924.

Sigrid Johannisse on the De Hoop project:

> *"Characteristic of this work, and almost nowhere so fully realised as here, is the building as a dynamic total form. The eye of the beholder finds rest nowhere and is drawn along the various sides in attempts to grasp the whole. The most important cause for this effect is that De Klerk has not constructed the building from separate facades, but has assembled it from volumes, which are grouped around an imaginary core, accentuated by the flagpole. These volumes are mutually joined by corners in the form of bay windows or so-called continuous light strips, consisting of rows of linked windows.*

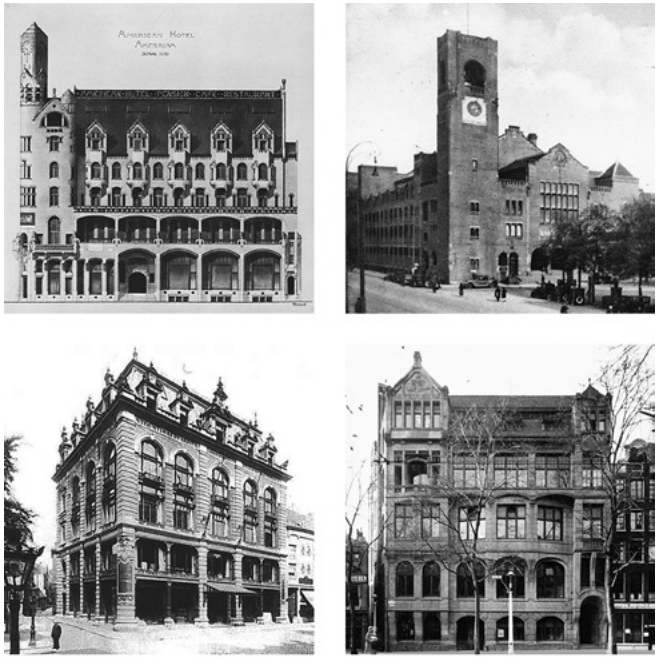
Michel de Klerk's De Hoop Watersports project.

At moments where a horizontal direction in the composition threatens to predominate, De Klerk places a strong vertical accent, which also forms a connecting element between two volumes. For example, this function is fulfilled on the Weesperzijde side by the flagpole and the vertical light strip, which belongs to the stairway. The result is a continuous movement, which defines as it were the building as a three-dimensional whole. De Klerk is therefore no longer concerned with separating the usual defining characteristics of a building, such as roof and facade and end walls, from each other, and using them as architectural elements." [41]

Alice Roegholt et al, from the 'The Ship' team:

"The building was designed in such a way that it appeared to float above the waterline. Echoing the shape of the wherry boats used at the club the building was given a long pointed bow, which was however positioned perpendicular to the hull. Like The Ship, the clubhouse had various elements that blended together to form a unity. Furthermore, the exterior harmonised perfectly with the interior. Visitors were to experience pleasure upon entering the building and a great deal of attention was therefore paid to the design of the interior and the entrance gate. Critics responded by saying the clubhouse was too beautiful and that sports-people would consequently be unwilling to take to the water. De Klerk's design also attracted international attention, with the German architect Erich Mendelsohn – himself renowned for his Einsteinturm in Potsdam – describing it as an important masterpiece. Sadly, the clubhouse was demolished at the behest the German occupiers during World War II, and only the gate and the wherry bow have survived."[42]

The last design by Michel de Klerk that was to be realised and which still exists, relatively unchanged to this day, is the Barendsen House in Aalsmeer (1923).



Kromhout's American Hotel, Berlage's exchange and Eduard Cuyper's projects.



3.10 Staff of the architectural office of Eduard Cuypers (in chair), in Amsterdam, including Michel de Klerk (with folded hands, center right back row), Joan van der Mey (third from the left), Pieter Lodewijk Kramer (far right), Guillaume la Croix (left of De Klerk), and André Vlaanderen (arm resting on the back of Cuypers' chair), 13 April 1906. Collection of Het Nieuwe Instituut, Rotterdam.

Group photograph: Eduard Cuyper with his design staff, including de Klerk (NAi).

Discourse

The Amsterdam School was a product of the architectural debate which evolved around the end of the nineteenth century and the beginning of the twentieth century.
After Neo-Classicism had been played out as the predominant style for official buildings around 1840, the architecture of the Netherlands became the playing-field of a mixture of Neo-Gothic and Dutch Renaissance styles and conventions.
Rather than adhering strictly to stylistic formats, the architects resorted to a more eclectic approach, informed by new materials and techniques. Recurring issues in the professional discourse were Truth, Character and Style.[43]

Two building-masters who had a profound influence on the development of a generation of young architects that would come to define the – expressionist *and* Functionalist – movements of the first third of the twentieth century were H.P. Berlage (1856–1934) and Eduard Cuypers 1859–1927).

Eduard Cuypers was trained as an architect in the office of his uncle Pierre Cuypers (1827–1921) where, like Berlage who also worked there for some time, he became acquainted with the constructive rationalism of Viollet-le-Duc.[44]
Both of them started their own offices at around the same and would become prolific builders.
Neither of them opted for the Neo-Gothic of the older Cuypers, their work was inclined more towards the Neo-Renaissance mode of expression that had been introduced by Isaak Gosschalk around 1870. Initially, their work was very similar.[45]

Eduard Cuypers (1859–1927) became a highly successful society-architect in Amsterdam.
Like other high-end architects like Abraham Salm, he worked in an adventurously eclectic style and did not try to make principled choices, but had an inquisitively 'freestyle' approach.
His work in Amsterdam included the Amsterdamsche Bank on the Herengracht, his own home with offices on the Jan Luijkenstraat and the revolutionarily modern shop-house for H.F. Jansen & Son, on the Spui.

Architectural historian Auke van der Woud on Cuypers' Spui building (1892):

> *"… an example of the 'realistic' aesthetics of the eclectics expressing architectural truth and character in a new way. Historical ornaments, still thought necessary, embellish an efficient glass and iron architecture, but do not conceal it."*[46]

During de Klerk's years with the office of Eduard Cuypers (1897–1910) three exemplary public buildings were completed in Amsterdam:
— The American Hotel and Grand Café, by W. Kromhout (1901);
— The Amsterdam Stock Exchange, by H.P. Berlage (1903);
— The Algemeen Dagblad building, by Ed. Cuypers (1903).

De Klerk and his colleagues in Eduard Cuypers' office would probably have been impressed by Pierre Cuypers' Rijksmuseum (1876–85) and Central Station (1882–89), but would not have felt inspired by its Neo-Gothic aesthetic.
In the course of the nineties, Berlage had gradually set his course towards the stylistic objectivity of his Stock Exchange building (1896-1903), which would make him world-famous. Berlage's highly acclaimed exchange building would undoubtedly have been the subject of discussion, but for the younger generation in Eduard Cuypers' office, its stark, rationalistic expression would probably not have been considered inspirational. In comparison to Cuypers' Spui building, completed more than ten years earlier, the 'Beurs' may actually be considered to be more traditional, managed to systematically avoid references to architectural precedents. Berlage made his choices as a matter of principle, whereas Cuypers chose for innovation within a more conventional formal grammar.
A building that would in all probability have been closer to the hearts of de Klerk and his colleagues was the American Hotel building by W. Kromhout (1864–1940), an impressive demonstration of fluid massing, rhythmic plasticity and controlled, but expressive, ornamentation.[47]
Around the same time as the Stock Exchange, in 1903, Cuypers' office completed a new office-building for the Algemeen Dagblad newspaper.
The building's plastically-modulated main facade on the Nieuwezijds Voorburgwal bears more semblance to the Kromhout project than to Berlage.[48]

At the Cuypers atelier, the young de Klerk not only became acquainted with a broad range of architectural work, but also became skilled in interior design.
Inspired by his teachers and Cuypers professional eclecticism, he would come to develop his very particular formal grammar and his inclination towards the use of precious and colourful materials.[49]
His growing appreciation of all kinds of arts and crafts, particularly exotic forms and patterns from the Dutch East-Indies may have sown the seeds for his own expressive style, that is organic and dynamic, but not truly in the vein of the, then still popular Art Nouveau style.

Vladimir Stissi:

> *"From the end of 1911 onward, De Klerk seemed to have found his own style. References to historical styles have almost disappeared and traditional 'added' ornamentation was disappearing slowly. The quantity of ornaments gets hardly any less, but they are increasingly at the service of a coherent three-dimensional total image, so that the designs become more controlled. …*
> *In addition, both detail forms and composition schemes in De Klerk's work from this period have parallels in contemporary and historical architecture from at home and abroad (from Baroque and Classicism to German Jugendstil, British Arts and Crafts and even Dutch Rationalism).*

However, it is rarely possible to trace the exact sources, also as De Klerk's final designs usually have little to do with it anymore. Thus, it is also possible to find a theoretical frame of reference for his approach, especially in housing, but he clearly and consciously transcends this. It is precisely De Klerk's new and individual creativity which explains the confusion characteristic of many reactions to his work."[50]

The young Michel de Klerk took a critical view of the architectural vision of Berlage, who was widely admired at the time, and his use of sculpture in his designs.

Alice Roegholt et al, on the meaning of sculpture in the work of Berlage and de Klerk:

"Just like De Klerk, Berlage had a love of traditional craftsmanship and in his buildings he collaborated with a multitude of artists, including Richard Roland Holst. On this point, however, De Klerk felt that Berlage was distressingly limited, being "too exclusively technical and utilitarian". As an architect, De Klerk wanted to go much further; he believed architecture should be about the art of building. While the sculptural art on Berlage's buildings served an exclusively decorative purpose, De Klerk integrally incorporated it into the accentuation of his buildings."[51]

In 1916, the architect's weekly *Bouwkundig Weekblad* marked the occasion of Berlage's sixtieth birthday with a double tribute-edition.
One of the contributors was de Klerk, possibly on the basis of the A. et A. exhibition of the year before.
In his piece, de Klerk is unreservedly critical of Berlage, whom he reproached for leaving insufficient room for the architect's individual creativity.

De Klerk in his Berlage contribution:

"I would like to respond to your request to give my opinion of Berlage's work, but I first have to say that I have never spoken to Mr. B in person and thus my insight is based only on his buildings and writings. …
To my mind, Berlage has not been a leader for at least ten years. He is not acutely aware of, or at least he has never really shown us that he is completely aware of what is spanking new, the sensational and shocking, the impressively imposing (with which mechanical technology, nowadays, surprises us again and again), which characterises the actual modern. It had been expected that Berlage would excel in reinforced concrete construction, for example, yet he uses that brand-new product uncharacteristically, as a hidden help-material, just as every other Dutch architect has done.
Berlage does nor understand the play and language of forms, while these have produced the actual beauty, through all the styles, no matter how diverse. As in most Dutch architects, his work too lacks entirely the character and expression, both in its incorporation of material, and in its obvious function. His city houses do not differ in essence and in characterisation from his country houses or public housing, his office buildings are little different than his association or shop buildings, they all lack that special exceptional aspect, the characteristic expression of their function.
The achievement of Berlage's work is then only in the honesty and straightforwardness which radiates from his work, the naked acceptance of soberly made demands.
To resume: although Berlage's appearance was certainly of value to the purification of the profession, he was yet unable to exercise any influence on architecture as an art, as a stylistic phenomenon. His sphere of activity was too narrowly bordered, too exclusively technical and utilitarian, to be in any way a bearer of culture.
M. de Klerk"[52]

In 1942 J.J. Vriend made note of the response to de Klerk's unusually critical appraisal of Berlage by architect J.J.P. Oud, who was in 1916 still *"unaware of new objectivity etc."* as he remarks.
In retrospect, Vriend considered Oud's reaction to de Klerk's utterances as a matter of foresight (*"vooruitziende blik"*).

Some excepts from J.J.P.Oud's riposte to de Klerk's criticisms of Berlage:

"I recognise here the collision between two streams, which become more and more pronounced in the architecture of this day, the general and the exceptional directions. And I cannot refrain from speaking out, to what extent I consider this exceptional direction a danger for the art of building.
Because the beauty of this direction, which might be "twinklingly new" and "sensationally shocking" carries in it the seeds of decay. "Was glänzt ist für Augenblick geboren. Das Echte bleibt der Nachwelt unverloren". And the foundations of this art I consider to be false and illegitimate."[53]

In 1916, de Klerk was still only responsible for the Hillehuis (1912) and had recently completed an Amsterdam School-style villa in Hilversum, Bileken house (1914), similar in scope if not expression to Oud's Villa in Aerdenhout (1916). Around the same time, other expressionist villas were being designed and built by a number de Klerk's Amsterdam School compatriots, in Park Meerwijk in Bergen, North-Holland (1916-1918).[54]

By 1916, Oud was living in Leiden and becoming acquainted with Theo van Doesburg, who would in 1917 found De Stijl, but had yet to get involved in the ground-breaking Villa Allegonda collaboration.

Arguably, de Klerk's critical remarks, in the context of a festive tribute to Berlage, were not particularly tactical and Berlage's role was far from being played out…

The next year he would be a prominent member of the jury for the Royal Academy competition, in which de Klerk was only able to secure a second place.

As a kind of elder statesman, Berlage remained influential as a mentor the new generation in the first decennia of the twentieth century. Particularly though his promotion of the work of Frank Lloyd Wright, he inspired the young architects who would pioneer functional modernism, such as J.J.P. Oud, B. Bijvoet and J. Duiker. At the same time, his ground-breaking plan for the Amsterdam South extension created the conditions for a new urban architecture by the young architects associated with the Amsterdam School, whom he supported, though not without criticism, particularly when it came to what he considered to be excessive embellishment.
At the same time, some felt that, in particular de Klerk, had managed to eclipse the work of the old master.

Henry-Russell Hitchcock, on the work of de Klerk, in relation Berlage:

"Perhaps the most influential in distinguishing the work of the Amsterdam school from the mere imitation of Berlage was M. de Klerk in his work in the extension of Amsterdam just before and during the War. On the basis of Berlage's rationalism and his dependence on fine brickwork, de Klerk developed a highly personal style which became at once very popular with the younger generation of architects. His buildings, arranged in blocks or even in groups of blocks, are monumental only in size and are largely devoid of any features which resemble traditional architectural features. At the same time the massing and grouping shows a certain dependence on tradition.
The great quality of his manner rests in the amazing skill with which the brickwork is used to enhance the effect of the surface by variations in the direction of the course and the size and shape of the brick. There are even/// for strong emphasis occasional planes hung with roof tiles. The focal features, whimsical and generally curved in plan, are used to break up the functionally regular design with abandon and even with humour, something that is hardly found elsewhere in architecture.
But not only are the surfaces rich like textiles, the windows which break them so piquantly are similarly varied in shape and size and reduced in size by means of small panes and prominent muntins. Thus by the brick texture and the strategic placing of windows and abstract ornamental features the flat surfaces of these buildings are given a life and plasticity which is seldom found in the more solid and more monumental work of Berlage even though it was even sought by him as early as the Beurs."[55]

J.J.P. Oud remained highly critical of the Amsterdam School 'direction', but recognised de Klerk's unique talent in his influential overview of contemporary Dutch architecture.[56]

Oud, in the first edition of his *Holländische Architektur* (1926):

"Even though the the influence of Berlage upon the evolution of the Amsterdam School cannot be denied, so this is in truth more of an indirect than a direct nature, whereby the rise of the movement of the Amsterdammers appears to have been more of a sidelong insemination by Berlage's art, than to have come forth from it. In its characteristic manifestations, the work of the Amsterdam School is in the end so peculiar and eccentric ('vreemdsoortig en buitenissig'), that it is as good as impossible to point out any similarities with the modes of existing architecture, from earlier or later times. …
Even when one is in principle totally opposed to the essence of this architecture, which is an affront all of the essential principles of building as an art, even then one may recognise that in the best instances, in particular in the work of de Klerk, it has brought to the fore a more than average and particularly noteworthy talent."[57]

De Klerk was not a classically trained architect, he discovered the workings and opportunities of architectural form-giving gradually, first working as an apprentice and then developing his own modes of architectural expression through the act of drawing.
He was knowledgeable about standard building techniques, but functional arrangement and structure were not his strongest points. As he worked on a plan, he would frequently work in perspective, using eye-level as well as birds-eye views, 'sensing' his way around where the project might be going as a spatial entity in iterative cycles.
It was in his uninhibited, spontaneous exploration of the envisaged building as a spatial and sculptural entity that he excelled and captivated his colleagues. Through his exceptional powers of creative imaging, he came to be seen as a visionary and – despite his modest and unassuming nature – a leader…

Wijdeveld on de Klerk:

"He drew with urgency and lust, out of duty and as recreation. He was at once the most childish and the most powerful of us all and he played with shapes in the unfettered realm of his fantasy. He reached where others saw nothing, acted where others merely thought and was so ardent in his desire to give, that when denied the opportunity to express his architectural spirit on a large scale, he fulfilled this urge in one street, doing so in a manner that would have served an entire city."[58]

It could be argued that in effect, de Klerk 'was' the Amsterdam School, the 'prophet' who, according to Wijdeveld, *"laid an innovative foundation for architectural forms."*
The authors of the *The Ship* publication recognise a 'touch of mystery' in his late work and refer to the reactions to the De Dageraad project, by influential critics Wattjes and Mieras.

Prof. ir. J.G. Wattjes (1879-1944) wrote in 1924 that the project had made *"an overwhelming impression"* on him. Any possible criticism he had concerning other housing projects in Plan South were apparently dispelled upon beholding De Dageraad, leaving only room for enjoyment and admiration of art:

"such rich imagination and such restraint in form! Such a grand and monumental objective and how lovingly detailed."

Architectural critic J.P. Mieras (1888–1956) in the *Bouwkundig Weekblad* in 1923:

"Is it baroque, is it expressionism, is it an act of bravura, is it a profession of faith, is it recklessness or is it proof of mastership?"[59]

Although by 1923 de Klerk was an architect with a considerable reputation, the times had changed.
As Frans van Burkom indicates, the days of integral building-commissions such as those of Eigen Haard and De Dageraad were over.
The architects of the Amsterdam School were increasingly commissioned to only draw the facades for commercial development projects, for which the plans had already been determined. This was the case with the Amstellaan project and would be the standard practice for de Klerk's colleagues in years to come.

De Klerk saw no opportunity for the continuation of his collaboration with Kramer and is supposed to have pulled out of designing for public housing in disappointment.
He did manage to secure a number of private commissions, notably the design for the De Hoop clubhouse, but he was disturbed by the narrow-minded and short-sighted attitudes of his building-clients, like those of the Aalsmeer auction house, and distraught by the termination of building projects such as the Friedmann's emigrant's house (1920-1923) and the villa in Wassenaar, on which, according to van Burkom, he had worked with heart and soul.

The Barendsen house was under construction and he had started work on an important commission for the De Bijenkorf department-store in The Hague, on the recommendation of his friend J.F. Staal.
However – according to van Burkom – de Klerk had, with an inclination towards melancholia, become increasingly embittered and depressed and mentally and physically worn out.
He was felled by pneumonia on the eve of his 39th birthday.[60]

To what extent de Klerk was truly a 'man out of time', around November 1923, cannot be verified…
On the evidence of the Aalsmeer house and the projects nearing completion, such as De Hoop and Dageraad, his spirit still seemed very much alive and his design-skills certainly still seemed to be progressing.
To those who were close to him, his death apparently came unexpectedly and the news was met with a shocked, heartfelt sadness.

De Klerk scholar Susanne S. Franck, on de Klerk's passing:

"De Klerk died suddenly of pneumonia on the eve of his thirty-ninth birthday. Three days later, on the afternoon of November 27, 1923, a cortege of family and friends, state and city officials, architects and artists, construction workers, and many others accompanied de Klerk's casket past the Academy of Fine Arts to the cemetery, Zorgvlied (Where Sorrow Flees). The populace of Amsterdam was fully aware that it had lost prematurely a man with talent and humane qualities. They remembered him most for having been involved with major architectural problems confronting their expanding city and for having upheld traditional standards in his profession."[61]

One of de Klerk's friends, the respected architect K.P.C. de Bazel died of a heart-attack on his way to de Klerk's funeral. Thus, in December 1923, *Bouwkundig Weekblad* paid respect not only to de Klerk but also to another grandmaster, whose magnum opus, the Nederlandse Handel-Maatschappij in Amsterdam, would only be completed well after his passing (1926).

Excepts from de Klerk's A. et A. and B.N.A. necrology in *Bouwkundig Weekblad*:

"Gone is the sprit, which guided that hand from which came the works that so captivate us. …
Our great building artist. Architect of Genius."[62]

Wijdeveld wrote a rambling lament, in which he celebrated de Klerk's short, intense life and growth and asked himself:

"why him? why now?"

He wondered what had been the effects of the 'heavy load of collapsing ideals' and what might have been his '*un-outspoken promises'.*
He expressed the feeling that, in de Klerk, 'spirit and heart had been united and that he had been pure, like a child'.63

Other tributes came from various dignitaries, like alderman Wibaut, who stated that the most beautiful aspect of his work was

"the love, purity, passion and utter harmony between the biggest lines and the tiniest details", but notably also from a woman who wrote in a letter published in Het Volk that it was a privilege to live in one of de Klerk's buildings and to have her children grow up there.[64]

Wilhem Holzbauer:

"There are few movements in the development of modern architecture who were at once as popular and esteemed as the "Amsterdam School" and its architects by the people who were most confronted with it: the users, the tenants. …
Michel de Klerk, in pursuing architecture as an art, was able, through his art, to reach into the hearts of the people he built for."[65]

Sigrid Johannisse and Vladimir Stissi:

"De Klerk's sudden, early death meant an abrupt end to his oeuvre, in the full bloom of his development and in the middle of the most turbulent period of twentieth century architectural history. His work must therefore not be seen as a rounded whole. The Amsterdam School was only one of the many movements in Europe which portrayed themselves as 'modern. Despite the big differences of opinion among themselves, there was intense exchange between all these movements to begin with. Everything was still passible, and norms and values still had to be estab-

lished. The members of A et A were well aware of movements like Dada and De Stijl and were very familiar with the work of international modernists like Le Corbusier and Oud, even if they were not always impressed by it. Their quest for spatial architecture could never have taken place while being ignorant of the other modern movements. This architectural wealth, which has been missing for more than fifty years after the 'victory' of the functionalists, was partly due to the daring and innovational spirit of De Klerk."[66]

Wilhelm Holzbauer indicated that at the time of de Klerk's death the architectural world in the Netherlands was *"firmly divided into two camps: the romantic versus the rational, the picturesque versus the machine-made, the individualistic against the corporate image."* He sees in the representatives of the Amsterdam School a highly idealised 'monumental desire' which they hope will be victorious over what he calls the 'mechanised and technoid' way of building. However, he recognises that, with the death of the movement's figurehead, the momentum was beginning to slip away. He cites J.J.F. Staal, whose words he feels proved to be prophetic.

J.J.F. Staal in his eulogy:
"What we see is that the architecture of de Klerk has no followers"[67]

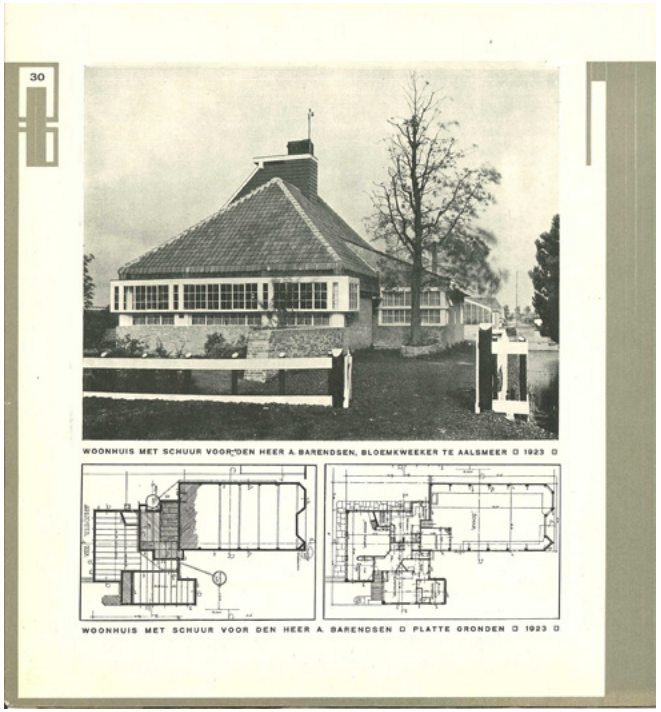
After de Klerk's death, to help his widow, a fund was established to buy his drawings.
His work was featured in a series of five thematic numbers of *Wendingen*, highlighting the different aspects of his oeuvre: travel sketches; unbuilt projects; portraits; built projects and furniture and interiors.
His life's work also figured prominently in the 1925 exhibition in Paris, in the Dutch pavilion designed and curated by J.F. Staal. Another notable contribution was by Le Corbusier, who exhibited his Plan Voisin, in his own Esprit Nouveau pavilion. A proposal which could find no grace with architecture student J.F. Berghoef.[68]

Theo van Doesburg protested that the 'truly modern' Dutch art movement – De Stijl – was inadequately represented. Possibly on his instigation, two highly critical articles appeared in *Wasmuths Monathefte für Baukunst*. One of these, titled *'From the Amsterdam Chamber of Horrors'*, denounced the *'extravagances and un-business-like expressionism'* of the Amsterdam School. Werner Hegeman objected to the *'architectural opulence'* in the work of de Klerk, whom he described not as an architect, but as a *"gifted, undisciplined and insane draughtsman"*.[69]

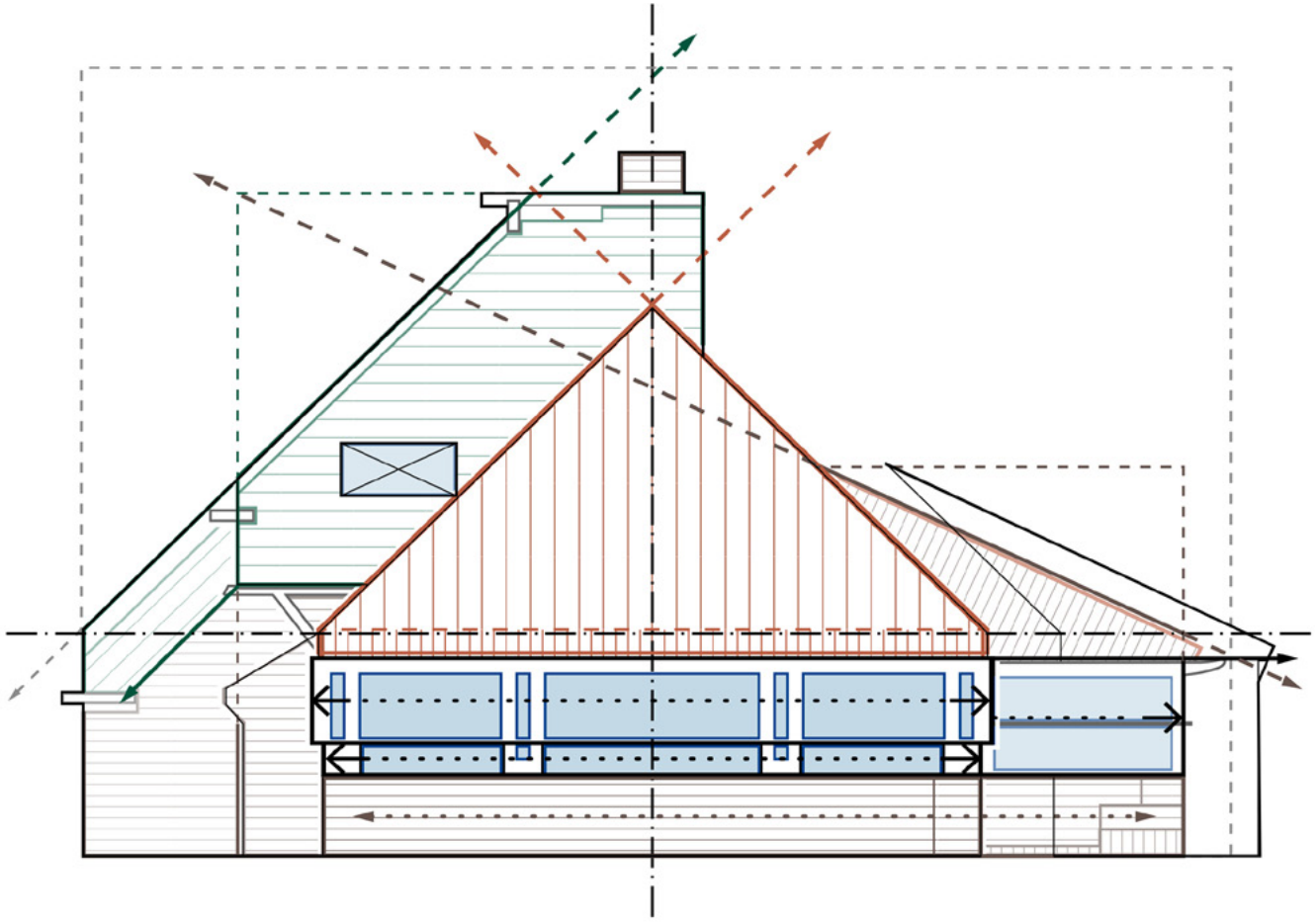
The Bijenkorf competition was eventually won by J.F. Staal, but his design was considered too modern and the commission eventually went to Piet Kramer, who arguably created one of the last great works of the Amsterdam School (1926). W.M. Dudok would eventually be able to realise an expressively modern Bijenkorf building, somewhat similar to Staal's vision, in Rotterdam (1930).

How might de Klerk's style have developed, had he lived longer? Would he have gone in the direction that Staal and Dudok would take, or might he even have gone the way of the poetic-traditionalists, like Granpré-Molière and Eschauzier?
His design-work in the period before his death, in particular De Hoop, the Barendsen house and his design for a villa in Wassenaar, suggest a new kind of refined elegance and formal lightness in his work that may have been inspired by his acquaintance with the work of Lloyd Wright (first published in Wendingen in 1920) and his contacts with Mendelsohn.
And: what would he have made of Gerrit Rietveld's Schröder house in Utrecht (1924) and Duiker & Bijvoet's Suermondt house, nearby in Aalsmeer (1925)?
It is impossible to say, but what seems certain is that his growth as a designer would have continued to develop and ripen, had he lived.[70]

Granpré Molière, reflecting upon de Klerk's life and work:
"His work is like an exotic plant, with a short-lived growth and flowering, in full splendo



The Barendsen House in the memorial Wendingen publication of the built work.



Analytical scheme of the house's front facade (Jack Breen & Bram.van Borselen).

Aesthetics

Stylistically, de Klerk's Aalsmeer house may be considered to be exemplary of the Amsterdam School movement in architecture, which can be identified by recurring compositional themes, such as: sculptural massing, rhythmic sequencing, plastic modulation, material expression, expressive detailing and the use of exotic, decorative motifs.

If we try to assess the aesthetic quality of de Klerk's oeuvre – and particularly this house – I would be inclined to identify the following two themes:

— *Synthesis*: the ambition to create a unique but concisely harmonious entity: a 'Gesamtkunstwerk';
— *Symbiosis*: an intrinsic drive to fine-tune and organically integrate *all* of the expressive parts.

The expressive paradigms that we associate with this typically Dutch style of early twentieth-century architecture may now seem evident, but at the time of the evolvement and realisation of this particular project, de Klerk's personal style was still developing. So: to what extent can this built artefact be considered as an indication of what might have followed in years to come in his own work, as well as in the context of the steadily changing movement he so largely defined?

If we consider de Klerk's aesthetic development over the previous ten years, we can recognise a gradual evolution in his work, with stylistic paradigm shifts:

— In the collaborative Scheepvaarthuis project, there is a profusion of abstract decoration and figurative sculpture, which covers the entire building structure both inside and outside;
— In the three-stage development of the Eigen Haard ensemble, we can witness a gradual transition from material differentiation and symbolic decoration to plastic moulding and rhythmic articulation, coupled with strategic, ornamental contrasts;
— In the integral De Dageraad ensemble, the material differentiations become more subdued, whilst the volumetric massing and moulding of the wall- and roof surfaces becomes more pronounced;
— In the final phase, notably in the De Hoop project, there is more emphasis on dynamism, in the rhythmic treatment the horizontal window-bands and the cladding of the juxtaposed volumes, whilst ornamentation becomes less explicit.

In the Aalsmeer house – and in the Wassenaar villa-project, developed around the same time – these developments were taken a step further.
This may partly due in part to the sub-urban setting of the projects, whereby de Klerk seemed to be searching for the expressive means that are fitting for such free-standing objects in their rural surroundings.[71]

In the Aalsmeer house, de Klerk attempts an interpretation of vernacular land-house types, whilst developing contemporary modes of expression on the level of space, order, form and detail.

A central issue in the design is the ambition to distinguish as well as integrate two main volumetric components: the dwelling- and workspace elements.
The diversified ensemble is brought together under an all-enveloping roof-structure, which works as a visually-binding element in the manifestation of the building as a whole.

The home is reached via an articulate exterior route, via an extended 'in between realm' towards the entrance, then into a central corridor, around which a variety of living spaces is concentrated. Each specific room is given its own individual treatment, expressed in a variety of ceiling-forms.
The integral composition of the functional living-spaces can, as it were, be read as a cluster of 'tents', each with its own orientation and outlook, as well as characteristic interior elements such as hearths, built-in cupboards and fixtures.

Some excerpts from a 2009 DCA paper, on the subject of de Klerk's Aalsmeer house:

> *"The composition is ambitious, complex and perceptually adventurous: a strategic collection of geometric forms, held together by a very characteristic pitched roof construction. … Structurally, the building is far from systematic, with apparently 'ad hoc' solutions on the level of construction, with the flower shed as the most 'straightforward' element."*[72]

In actual fact, on the level of formal order, the composition is less whimsical than it may at first appear to be. Underlying the complex volumetric entity, lies a basic, structuring 'metre', which corresponds with the spans of wooden beams. The resulting sectional modules contribute to holding the composition as a whole together and at the same time allow for spatial variation, with the building as it were *morphing* steadily from front to rear.

The 'figurehead' of the ensemble, as it is experienced from the street, is its compositional centrepiece: housing the main living-spaces, topped by a pyramidal roof, whose surfaces are extended downwards in typical Amsterdam School fashion towards an eye-catching window section.

The front facade as a whole can be read as a 'balancing act', whereby the symmetrical mid-section is offset on either side by dissimilar, but none-the-less 'equivalent' sections, each with facade themes that are continued around the building's sides. Whilst the composition of the front elevation as such is asymmetrical, throughout the project de Klerk makes extensive use of sub-symmetries, particularly in the dimensioning of the window-frames and their sub-divisions.

A further quote concerning the project, from the 2009 DCA paper:
"The complexity in the interior is mirrored in the building's facades. Rather than having one binding theme, the facade-composition seems to change character constantly around its periphery, albeit with a skilfully expressive vernacular treatment. Visually captivating is the long bay window 'wrapped' around the front facade, bringing together different interior domains. … Although the windows have diverse treatments – subdivisions, corner articulations, measurements and profiling – the expressive affluence – bordering on 'overkill' – is kept in check by a measure of order and repetition in the window frames."

On the one hand, it is possible to recognise an ambition towards aesthetic articulation, indeed differentiation, whenever the opportunity arises. At the same time, there seems to be a tendency towards purification, particularly in the window-sections, whereby repetition is subtly enhanced by the use of sub-rhythms and the grouping of elements.
The front elevation, with its recessed band of lower-windows and the dominant, outwardly-extended bay-window volume above, is in the final project eloquently sub-divided into three sections, with a 2 : 3 : 2 ratio. Connecting these interrelated 'curtain-wall' sections are transparent, vertical zones, created by splitting the intermediate roof-supports in two.
On the inside, these signature elements are used for the building's most explicit exercise in spatial and stylistic ornamentation, whereby this structural invention is expressively articulated as a characteristically Amsterdam School feature.[73]

Around the periphery of the house, every part is a testimony of its creator's refined attention, in its own right as well as in synergetic combination with the other parts.
The solid exterior walls, the wooden cladding and the tiled roof-coverings are treated as clearly-defined material textures. The colour-palette is kept relatively basic: white and traditional green for the woodwork, yellow-grey bricks and terracotta roof-tiles.
Architectonic attributes, such as edges, openings and connections, are 'celebrated' as visual articulations, not as added-on decorations. The detailing – outside as well as inside – is meticulous, whereby each component is tailor-made, but never overly-exuberant.
Thus, although architectural 'character' prevails, it comes about through the truthful articulation of the constituting, architectonic, elements.

Nonetheless, on the level of its orchestration as an integral whole, there is a sense of ambivalence…
The design addresses so many architectural themes *simultaneously* that it almost comes across as a design-laboratory: a testing-ground for structural and aesthetic variations, possibly the generation of new ideas. As such it can be 'read' as a manifestation of de Klerk's inquisitive and inventive spirit, a conglomerate, like a kind of neighbourhood, of the various kinds of expressive themes he was working on at the time.

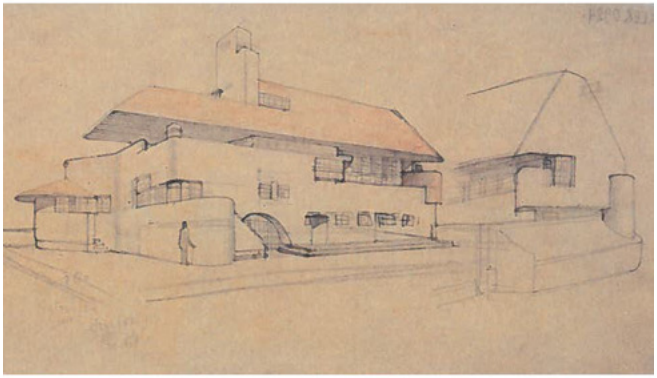
Compared to his earlier, more hermetically-organic Hilversum house of 1914, this building has a dynamic, almost ship-like, quality that is in some ways reminiscent of the De Hoop project and may have been inspired by his acquaintance with Mendelsohn.[74]
This approach can also be recognised in the design for a villa in Wassenaar, which was developed more or less in conjunction.[75]
On the level of massing, proportion and transparency there is an air of lightness and a sharpness of delineation in these projects.
It is conceivable that de Klerk's encounters with the work of Frank Lloyd Wright may, at least to some extent, have inspired this last paradigm-shift in his oeuvre.[76]

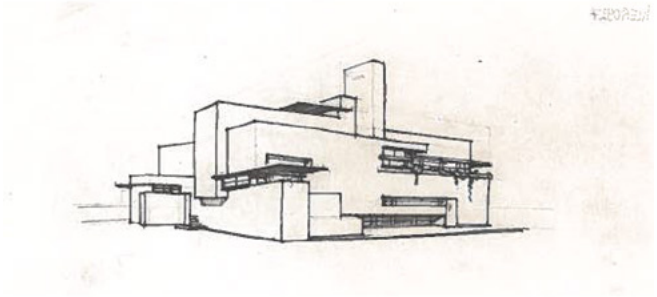
Despite the building' relatively modest in scope and scale, the Barendsen house has an aesthetic 'density' that makes it into a unique *Gesamtkunstwerk*.
Due to the overwhelming variety in spatial conditions, structural solutions, material articulations and ornamental details, the spatial and material ensemble is so experientially rich that it is not always easy to comprehend.
Far from coming across as the final work of a disillusioned man, the project seems less constrained and fussy than his earlier work, but refreshing and joyful, heralding new things to come…

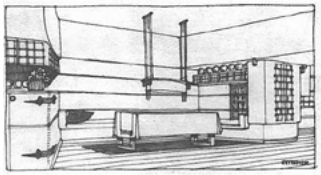
Whether one considers the house beautiful or not is ultimately a matter of taste.
The realised building is clearly the work of a building-master, at the height of his professional- and creative skills and appears to have been conceived with the ambition of creating a thing of beauty in a day-to-day sense.
Through the years, its proud owners felt that they were the privileged guardians of an exceptional work of spatial art, which they treasured.[77] The house, in particular its sunny living-room ensemble, had a profound impact on de Klerk's friend J.F. Staal and in all probability de Klerk's new direction gave an impulse to his own stylistic developments.[78]

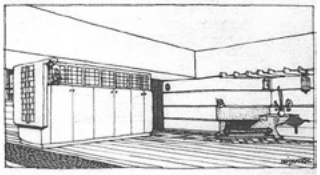
Whether it should be considered as a masterpiece, within de Klerk's oeuvre and indeed the twentieth century architecture of the Netherlands, is open to debate.[79]
However, to me it seems justified to state that this virtually-hidden and often-overlooked architectural 'gem' deserves to be appreciated as an enduring manifestation of Michel de Klerk's authentically inventive and generous spirit.
Its aesthetic richness and experiential variety makes it an eloquently-versed 'lesson in architecture', worthy of continued, design-based study.[80]











Perspectives: de Klerk's un-built Wassenaar villa project ('Michel de Klerk' / NAi).

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1 Project-information: the NAi publication: *Michel de Klerk, Architect and artist of the Amsterdam School, 1884–1923* (1997). Pg. 269.
2 This particular interest in the late project of de Klerk (with Kramer) in Berlage's Southern extension plan is mentioned in the NAi overview on the basis of an interview with Mrs. Barendsen, who also mentioned this to me on one of my visits to the house.
3 In *De Bouwkunst van Ons Land* (1942), J.J. Vriend identifies the *'Friesche hoeve van het Hals- kop- en romptype (bouwboerderij)'*, with a front-house, connected via an intermediate section with the main shed. In: Part 2: *Het Platteland*. Pg. 31.
4 It may be that the second (condensed) signature was actually that of A. Barensen. This seems possible, though it is in no way certain. Another scribble might possibly indicate '5, jan'(uari), in which case previous design variants would have been drawn up in late 1922. If this is the case the definitive plans would have been worked out from that point onwards, to be handed in for building permission in March 1923.
A copy of the sketch – taken from the NAi archive – is also included in J. Kok's *Nulmeting* (2003).
5 The first model-study which was made (by the author) around 2004, using 3D Studio-Max software in conjunction with AutoCad tried to recapture the second-to last project, with the horizontal line still in place and decorative, leaded sections in the side-windows. See: 'Variations'.
6 Margaret Staal-Kropholler: see: Sources.
7 J.F. Staal on Bloemenlust: *"dit met alle denkbare bouwkwalen behept stuk ongeluk, deze onmogelijke sta-in-de-weg voor menselijke vreugd, deze houten pelerine om alle levenloze architectuur, … deze hangbuik, deze waszak, deze stopverven ruïne..."* This did not concern the architect but his patrons and the municipality. In the Bonas publication *Jab Frederik Staal 1979-1940*.
8 The blueprint of the garage is dated 'Februari, 1928'. Collection of the author.
9 Data and detail-drawings: in ir. Joop Kok's *Nulmeting* (2003).
10 Mrs. Leni Keessen (see: AA02), who frequently visited the house in her youth, remembers these wallpapers as busy and rather dark in tone.
11 Joop Kok in his *Nulmeting* (2003): *"De comfortabele, bijna nieuw-zakelijke functiecombinaties zijn gekarakteriseerd door verschillende kleurprogramma's. Het houtwerk in woon- eetkamer helder mosgroen en gedempt bruinrood (oxblood), de hal okergeel, de keuken in zijn kasten en houtwerk lichtblauw, de slaapkamers en verlaagde badkamer rosig beige."*
12 In one of the talks I had with her through the years she told me that she remembered de Klerk visiting the family and even sitting on his lap. She was acutely aware of the unique cultural value of the house. Eventually, she left the house to the Karssen family, who had helped after her during het final illness, under the supervision of the local Mennonite church ('Doopsgezinde kerk'), rather than the Stichting Hendrik de Keyser.
13 The brief course was given in 2004 by members of our faculty's Technical Design and Computation group (TO&I) by Ernst Janssen-Groesbeek and Paul de Ruiter. The three applications which were introduced were: AutoCad, 3D Studio Max and Photoshop.
14 Some of the other packages ('paketten') which were considered were Architrion, PointLine and Piranesi.
15 Ten years of Cam-lab BK was celebrated with an exhibition in our new BK City working environment in 2013.
16 This goes for the historic farmhouse (AA01), Terra Nova (AA02), the Oud house (AA03), the de Klerk house (AA04) and the first Berghoef house (AA06).
17 This visualization-approach and the impressions which can be generated in such a way were presented in a broader context at the 2009 conference of the EAEA (European Architectural Envisioning Association) at the bi-annual conference in Cottbus, Germany and included in the Proceedings.
18 This imagery concerning the de Klerk house was first published in a contribution on the subject of visualization of contemporary ornaments, in the Proceedings of the 2012 DCA conference in Oklahoma. See: Sources.
19 The notion of de Klerk as a contemporary 'Rembrandt' is put forward in …, but was apparently quite widely used to denote his talents. Amsterdam alderman Wibaut is supposed to have typified him as such in a meeting in which he defended the high costs of third Spaarndammer project. Source: an exhibition on the oeuvre of de Klerk in the post office of 'The Ship' (2015).
20 Frans van Burkom (FvB) in the lemma on de Klerk in *Architecten in Nederland, van Cuypers tot Koolhaas* (2005):
"Michel ('Sam') de Klerk was het oog van de storm die omstreeks 1916 begon te woeden binnen het Amsterdamse architectengenootschap Architectura et Amicitia, Hij bepaalde het idioom van de Amsterdamse School. Zijn ontwerp- en tekentalenten werden door kompanen als Wijdeveld, Staal, Blaauw en Kramer gezien als geniaal en onbeschrijfbaar ('men kan slechts stamelend zwijgen,' aldus Wijdeveld."
21 Wilhelm Holzbauer in his text to Futagawa's photographic essay of two of de Klerk's most renowned housing complexes (1980).
22 During his life, de Klerk became a recognized portraitist and after his death *Wendingen* published a special edition on his portrait art, series VI, 1924 no. 7.
23 One story is that while still at school, Michel had to stay behind and spent his time making a drawing of his teacher, who was sitting quietly reading at his desk. The teacher was so impressed that he hung the drawing up in the class where it might have been spotted by Cuypers. The other option is that, in the period that Michel was working for his brother-in-law butcher, he was also taking drawing lessons from Louis van der Tonge and that Cuypers would have spotted Michel's work at his atelier. Source: the publication *Het Schip* (2012).
24 Joost de Klerk: *"Ik geloof niet dat hij tussen die slagerij en het architectenbureau nog andere banen heeft gehad. In elk geval werd hij weldra op het bureau van de gebroeders Jozef en Eduard Cypers als loopjongen aangenomen. Daar het een Roomse firma was werd hem gevraagd of hij ook katholiek was. Hij antwoordde, dat hij jood was. Dat vormde blijkbaar geen bezwaar, maar toen zij hem naar zijn voornaam vroegen en hij vertelde dat hij Michel heette, werd er vastgesteld dat dat niet kon: een jood heette Sam. En van dat ogenblik werd hij Sam genoemd. Zij gehele vriendenkring kende hem onder die naam en ook mijn moeder noemde hem zo. Toen hij stierf zag iedereen met beduusdheid in de overlijdensadvertenties dat hij Michel heette. Mijn moeder was op dat bureau secretaresse en zo hebben ze elkaar leren kennen."*
In: Joost de Klerk: *Mijn vader 'Sam' de Klerk*. See: Sources.
25 Text in: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 19.
26 Data: the NAi overview *Michel de Klerk, architect and artist of the Amsterdam School, 1884–1923*, TU Delft Library.
27 The Prix de Rome adventure of van der Meij, along with his young wife Sara, is the subject of the book *Joan, De Prix de Rome reizen van een Amsterdamse School-architect 1907–1910* (2016).
28 In the biographical lemma on de Klerk (2002), Frans van Burkom wrote:
"Het vriendschappelijke contact met Baanders was van blijvende aard, en deze zou de jonge architect – bijna als een tweede Cuypers – blijven protegeren. Baanders verhuurde de Klerk een werkkamer met de mogelijkheid desgewenst gebruik te maken van de technische faciliteiten van zijn eigen bureau. Hiermee stelde hij hem in staat zijn werk zoveel mogelijk ongebonden te blijven verrichten. Van de leiding van een bureau, met verantwoordelijkheid voor vaste medewerkers, wilde de Klerk weinig weten. Steeds was er bij

hem blijkbaar de angst niet aan verplichtingen te kunnen voldoen, en hoewel hij later in aanmerking kwam voor vele opdrachten, nam hij alleen aan wat hij – liefst alléén aankon. De overige opdrachten schoof hij door naar anderen, wat als zeer collegiaal werd gewaardeerd."

29 Text in: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 53.

30 Susanne S. Franck in her study on de Klerk (1984): "It was due to the animated effects of its structural and sculptural parts that the Scheepvaarthuis was heralded as one of the earliest paradigms of Amsterdam School architecture. Ignoring the fact that it was Berlage who had brought the idea of vigor to the fore, critics were to suggest that van der Meij had completely violated Berlage's principles." See: Sources.

31 In Henry-Russell Hitchcock's *Modern Architecture, Romanticm and Reintegration* (1929), pg.126. Hitchcock recognizes the exercise of more control in the work of de Klerk towards his death, which he wrongly dates 1925.

32 The brother-in-law of Wibaut. There was initially criticism of this appointment, but the responsible committee ultimately agreed because they saw Keppler as the best man for the job.

33 Text in: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 68. See: Sources.

34 A selection from the text on the Eigen Haard projects (entry F08) in the Architectural Guide to the Netherlands (1900–2000), pg. 275 (2006).

35 Text in: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 48.

36 Jacqueline Storm, in: *Michel de Klerk, architect* (1997):
"Het Dageraad-complex, dat de Klerk samen met zijn boezemvriend en geestverwant Piet Kramer ontwierp, is wellicht het meest complete Amsterdamse School-bouwwerk. De huizen op het Thérèse Schwartzeplein, het Henriëtte Ronnerplein en in de Pieter Lodewijk Takstraat zijn weliswaar minder uitbundig dan die in de Spaarndammerbuurt, maar, maar ook hier springen de plastisch vormgegeven gevels in het oog."
Translation by the author.

37 In 1918, de Klerk would serve, with K.P.C. de Bazel (1869-1923) on a committee of the Nationale Woningraad, to help draw up a list of architects deemed suitable for housing commissions. In 1921-1922 he was a member of Amsterdam's aesthetic committee: the *'schoonheidscommissie'*.

38 It has been suggested that these rounded elements formed the inspiration for the rounded endings in Oud's Hoek van Holland project of 1924-1927.

39 *"Who builds? Wibaut!"*

40 Mr. E.E. van der Laan, then mayor of Amsterdam, in the foreword to: *De Amsterdamse School, Verbeelde Idealen* (2011):
"De bestuurders en architecten van die tijd zijn te typeren als bevlogen idealisten, ze kregen veel voor elkaar en waren zeker niet gespeend van realisme. Arbeiders mochten wonen in een fraaie omgeving waar zij zich thuis konden voelen. De lyrische, plastische nieuwe stijl van ontwerpen beperkte zich niet tot gebouwen. Interieurs, sieraden, meubilair en huisraad maakten de Amsterdamse School synoniem voor 'totaalkunst voor de gemeenschap'. In heel Nederland en het voormalige Nederlands-Indië vinden we bouwwerken terug van particulieren en overheid."
Translation by the author.

41 Sigrid Johannisse on the De Hoop project in the NAi retrospective (1997). Pg. 291.

42 Text in: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 79.

43 The issues of *Truth* ('Waarheid') and *Character* ('Karakter') were recognized as central themes by Auke van der Woud in his groundbreaking study of Dutch architecture between 1840 and 1900 (1997/2001).

44 Source: Hans van Dijk's *Architectuur in Nederland in de twintigste eeuw* (1999).

45 Source: Vincent van Rossem's article on Eduard Cuypers (2015).

46 In Auke van der Woud's *The Art of Building* (2001), illustration caption pg. 201.

47 The evolvement of the new American Hotel would probably have been followed with extra interest by the staff of Cuypers' office, as it replaced an earlier American Hotel project on the same site, by Ed. Cuypers and C.A.A. Steinigeweg (1879-1883).
Source: Auke van der Woud (1997/2001).

48 It is likely that de Klerk would in some way have been involved in this project, either as a draughtsman or as a supervisor on the building-site.

49 In his biographical piece on de Klerk (2002), Frans van Burkom characterised de Klerk's apprenticeship as follows: *"Op het bureau werd hij intussen doorkneed in een zeer brede ontwerppraktijk, zowel op het gebied van architectuur als de binnenhuiskunst. Beinvloed door zijn leraren en Cuypers' eclecticisme, ontwikkelde De Klerk zijn eigenzinnige vormtaal en zijn voorkeur voor kostbaar en kleurig materiaalgebruik."*

50 Texts from the closing paragraph of the introduction to the chapter *1911–1917, The first years as independent architect*, pg. 161, in the NAi overview *Michel de Klerk, architect and artist of the Amsterdam School, 1884–1923* (1997).

51 Text in: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 41.

52 In: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 36.

53 In *De Bouwkunst van ons land* (1942), J.J. Vriend wrote:
"Architect J.J.P. Oud, in 1916 nog onbewust van nieuwe zakelijkheid enz., had met zijn reactive op de Klerk's uitlatingen een vooruitziende blik. Hij schreef: "Ik vind hier de botsing tuschen twee stroomingen, die zich meer en meer in de bouwkunst van deze tijd gaan openbaren, n.l. de algemene en de bijzondere richting. En ik kan niet na laten hier uit te spreken, hoezeer ik deze bijzondere richting een gevaar acht voor de bouwkunst.
Want de schoonheid dezer richting, die dan "tintelend nieuw" en "sensationeel schokkend" moge zijn, heeft de kiemen van het bederf in zich. "Was glänzt ist für den Augenblick geboren. Das Echte bleibt der Nachwelt unverloren. En de grondslagen van deze kunst acht ik valsch en onecht." Pg.177.
Vriend: *"In de groep Oud c.s. zou ook later de Amsterdamse school haar felste bestrijding vinden. Dr. Berlage zelf had daarentegen groot respect voor de Amsterdamse fantasten, anders dan Dr. Jos. Th. Cuypers, die naar aanleiding van ingekomen gevelplannen van De Klerk ontslag nam als lid der schoonheidscommissie. Het rumoer om déze strijdvragen is verstomd; zij zijn vervangen door andere. Doch de tijd heeft reeds bewezen, dat Ouds inzichten juist waren.".*
Translation by the author.

54 The architects of the Bergen villas were: J.F. Staal, C.J. Blauw, P.L. Kramer, M. Kropholler and G.F. La Croix. In 1921, Kramer would build an atelier for a painter there.

55 Henry-Russell Hitchcock in chapter 10, *The New Tradition in Holland* (1929). Pg. 126.

56 According to Hitchcock, around 1929, Oud was "unquestionably the most important architect in Holland."

57 J.J. Oud in the Dutch version of his retrospective *Holländische Architektur*, which would be published in 1926, but which he dates "End of 1922 / beginning 1923":
"Hoewel ook de invloed van Berlage op de evolutie der Amsterdamse School niet te ontkennen is, zo is deze toch meer van indirecte dan directe aard, dat wil zeggen de beweging der Amsterdammers schijnt in haar opkomst meer zijdelings door de kunst van Berlage bevrucht, dan uit deze voortgekomen. In haar kenmerkende verschijningsvorm is het werk der Amsterdamse School ten slotte zo vreemdsoortig en buitenissig, dat zij met het uiterlijk der bestaande architectuur uit vroeger als uit later tijd, dat zij maar weinig punten van overeenkomst meer kan aanwijzen. …
Ook wanneer men principieel geheel en al

afwijzend staat tegenover de aard dezer architectuur, welke de grondbeginselen der bouwkunst in elk opzicht geweld aandoet, dan nog kan men erkennen dat zij in de beste gevallen, in 't bijzonder in het werk van de Klerk, een meer dan gewone en zeer opmerkelijke begaafdheid tentoon gespreid heeft."

58 Text in: *The Ship, Worker's Palace*, published by Museum Het Schip (2012). Pg. 53.

59 Quotes from Wattjes and Mieras: taken from the publication by Museum Het Schip (2012). Pg. 77.

60 Frans van Burkom in his contribution to Biografisch Woordenboek (2002/2013):
"Hoewel ook zijn stijl versoberde – onder invloed van buitenlandse architecten als E. Mendelsohn an F. Lloyd Wright – pasten zijn bewerkelijk-kostbare bouwprincipes steeds minder in een tijd die naar zakelijk functionalisme streefde. De dagen van de alomvattende opdrachten van 'Eigen Haard' en 'De Dageraad' waren voorbij. Het voortzetten van de samenwerking met Kramer in andere projecten had ook om die reden weinig zin, en de Klerk moet zich teleurgesteld hebben teruggetrokken uit de volkswoningbouw.
De Klerk kreeg nog wel particuliere opdrachten – waaruit ondermeer de fraaie verbouwing van het verenigingsgebouw van de Koninklijke Roei- en Zeilvereniging 'De Hoop' aan de Amstel voortkwam. In zijn laatste jaren werd hij, melancholiek in aanleg, in toenemende mate verbitterd en depressief. Dwarsgezeten door beknibbelende opdrachtgevers – zoals bij het gebouw van de Bloemenveiling in Aalsmeer uit 1920-1922 – ondermijnd in zijn zelfvertrouwen door het uitblijven van met zijn faam en talent overeenstemmende prestigeprojecten, of gekwetst door op het allerlaatste moment afspringende opdrachten – zoals 'Villa Wassenaar' in 1923, waarin hij, bijna als een kind, zijn hele ziel en zaligheid had gelegd – voelde hij zich totaal afgewezen. De wereld wilde hem niet meer en had daarom voor hem afgedaan. Van deze diepe gekwetstheid leek niets de Klerk meer te kunnen redden, ook de enorme opdracht voor de Haagse vestiging van warenhuis 'De Bijenkorf' niet, hem via zijn vriend, de architect Frits Staal, in 1923 toegeschoven. Hij begon er nog wel aan, maar stierf, uitgeput, aan een longontsteking op de avond van zijn 39ste verjaardag."

61 Susanne S. Frank, ending the chapter on *Later Works*, pg. 81 in: *Michel de Klerk 1884–1923, An Architect of the Amsterdam School* (1984).

62 Excerpts from the Necrology published shortly after de Klerk's death in *Bouwkundig Weekblad* by Architectura et Amicitia (A. et A.) and the Organisation of Dutch Architects (B.N.A.):
"En weg is zijn geest, die de hand bestierde en leidde, en waaruit de werken kwamen, die ons zoo boeiden.
De bouwkunst heeft een groot verlies geleden. Wij voelen dit niet, nù alleen in onzen droefheid om zijn heengaan, wij voelen dit als een waarheid. Deze waarheid is te zien willen wij zelfs niet overlaten aan ons nageslacht. Wij getuigen er zelf van en bekransen zijn baar met lauweren, en wij schrijven op de wuivende linten: "Onze grootschen bouwkunstenaar" "Den genialen architect" A.etA., B.N.A."
Translation by the author.

63 Wijdeveld, in his *In Memoriam M. de Klerk 1884–1923*, which he included in his *1885–1985, Mijn Eerste Eeuw* (1985), pg.50:
"Hier bloeide het even kort en heftig opwaarts, hier bloedde het leven snel en droevig heen en in onze starende ogen ligt de vraag: waarom juist hij? Waarom juist nu? Zou hij de zware last der ineengestorte idealen niet hebben kunnen torsen, was hij een die ging met nog vele onuitgesproken beloften, was hetgeen hij bracht teveel voor ons, was de spanning te groot, was deze schok de vonk van zijn genie die oversprong naar gewesten, waar zijn wezen ruimer beweging vindt, is de meedogenloze macht der natuur toch geordende, berekende wijsheid? ...
Hij herkende het machinale niet als het alléén zaligmakende, omdat de grondtoon van zijn wezen niet uit het brein, maar uit het warme mensenhart voortkwam. Bij hem vloeiden samen geest en hart, zo ongerept, zo blij, zo edel, dat hij rein kon blijven van alle smetten, die de wereld rijkelijk in zich draagt. Hij ging als een kind door de hem aangrijnzende werkelijkheid, maar in zijn werk bruiste de golfslag van een rijpe kunstenaarsziel, die in haar branding, het witte schuim hoog opjagend, de ogen van velen verblindde."

64 In the overview by museum The Ship (2012). Pg. 83.

65 Wilhelm Holzbauer in his text accompanying Futagawa's photographic essay of two of de Klerk's most renowned housing complexes (1980).

66 Closing paragraph of the introduction to the chapter *1920–1923, Architecture as spatial art*, pg. 262, in the NAi overview *Michel de Klerk, architect and artist of the Amsterdam School, 1884–1923.*

67 Wilhelm Holzbauer in the Global Architecture housing-document on Eigen Haard and De Dageraad (1980). Pg. 2.

68 See: project AA06.

69 In the overview by museum The Ship (2012). Pg. 125.

70 After his death, his widow Lea was offered a job as a secretary at Architectura et Amicitia. She did not however survive World War 2, dying in the concentration camp Auschwitz in 1942, as did their son Edo, who died in Sobibor in 1943. Only their son Joost survived the war (he died in 2003). It is doubtful if Michel de Klerk would have managed to outlive the war.

71 There are some stylistic similarities with the, not-executed, Friedman's emigrant's house project in Amsterdam (1920, perhaps until 1923), but here the challenge was to develop an autonomous architectural entity in a rural setting, rather than an urban intervention.

72 Excepts from the DCA conference Paper: *The Model as the Method* (2009).

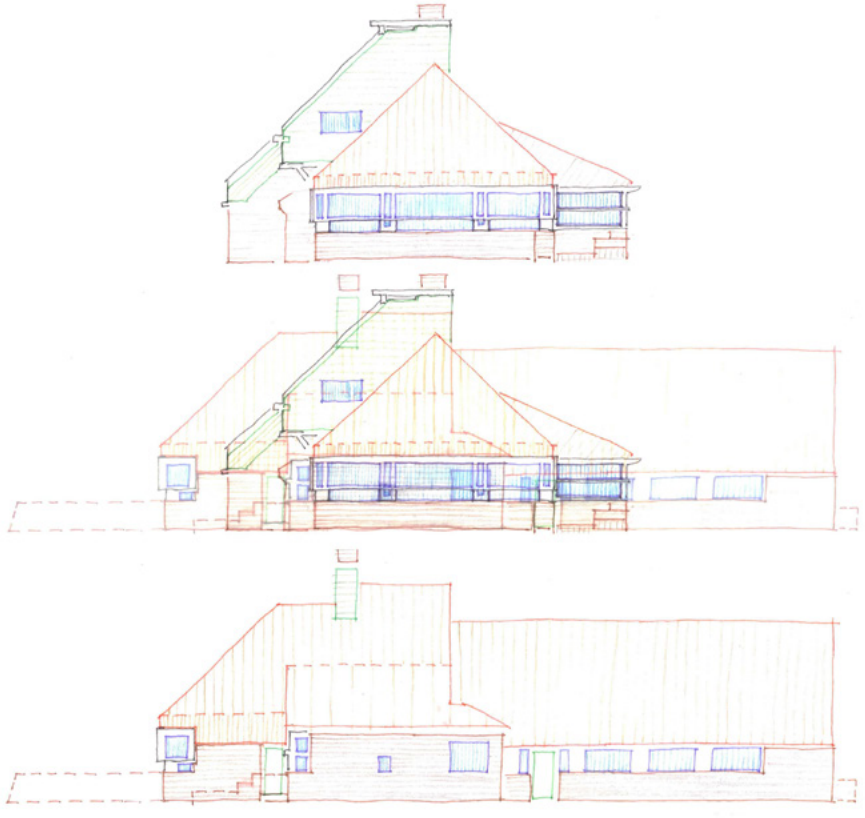
73 The most southern of these double-columns – the focal point of the family living room that takes up two-thirds of the all-enveloping window – was later enhanced by the lighting-object designed by Margaret Staal-Kropholler (1926).

74 Mendelsohn's drawings imaginary large-scale projects as well as the Einsteinturm, were featured in a 1920 edition of Wendingen.
Mendelsohn visited de Klerk and was highly complimentary of the De Hoop projects.
Susanne S. Frank in het study of the life and work of Michel de Klerk, pg. 80.:
"Despite earlier doubts about work being done by the Amsterdam architects, Erich Mendelsohn, who probably saw the building during the summer of 1923, on his second lecture tour in Holland, declared that this edifice was an architectural masterpiece."

75 There is sometimes confusion concerning de Klerk's work in Aalsmeer. The first design for the Bloemenlust building is often included in publications as an auction-building in Amsterdam (notably in the Wendingen special of his unrealized work and this mistake is frequently repeated).
The coloured-in perspective drawing of the villa in Wassenaar is included in the *1900 – 2000 Timeline* by Risselada et al (2002) as: 'Roland Holst house, Aalsmeer'.

76 Not being intimate with H.P. Berlage, de Klerk may have missed the first round of exposés about Wright's work on the basis of Berlage's American journey, which particularly focused on the Larkin Building. However, in the Wendingen publication of 1921, photographs were included of Wright's first Taliesin project with its characteristic, cantilevered prairie-style roofs.
The Wassenaar project also featured such an extended roof, though with steeper proportions. One of the facades is very similar to the original design for the rear of the shed in Aalsmeer. De Klerk also sketched a more 'cubic' design-variant for the project.
Source: the NAi retrospective of de Klerk's work (1997).

77 On my first visit to the house with my wife Claudia around 1990, under the guidance of Mrs. Barendsen, I was struck by the house's unique atmosphere and personality.
I have considered it one of the most beautiful buildings I have encountered ever since.
78 J.F. Staal is known to have visited the house and to have written Mr. Barendsen, voicing his praise (source: Mrs. Jellie Barendsen).
Sigrid Johanissen in the NAi retrospective (1997), pg. 301:
"With the sun shining in between noon and three o'clock in the afternoon the living room is the most beautifully designed interior place and can be said to be a realised illustration to Staal's statement that anyone who is inside the house, will no longer want to leave."
Source: the BONAS retrospective of J.F. Staal's work (2015).
79 My own opinion on the matter is that this is indeed one of the masterpieces of Dutch twentieth century architecture, but this may be due to a level of bias, coming from being so closely involved with the project over a longer period of time.
Like a wholly different 'icon' of modern architecture – Ludwig Mies van der Rohe's Villa Tugenhat – it is not 'perfect', but nonetheless, to my mind *nonetheless* … a masterpiece!
80 Due to its adventurous design and experiential qualities, the house is on a par with other icons of modern dwelling-design in the Netherlands, such as the Rietveld-Schröder house in Utrecht by Rietveld (1924) and the Sonneveld house in Rotterdam by Brinkman & van der Vlugt (1933).
Potential eye-openers for (first year) students, as well as for academics and professionals!

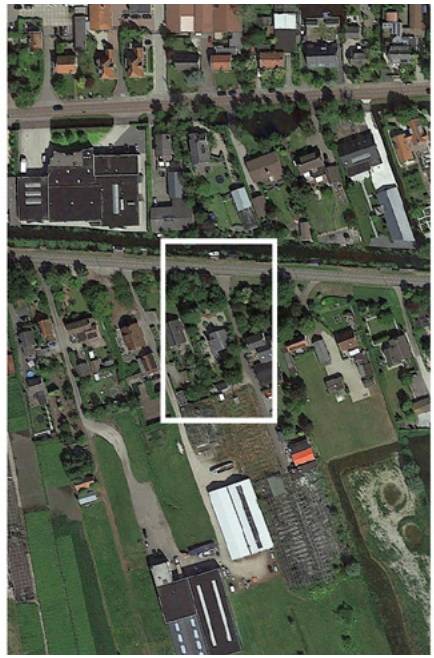


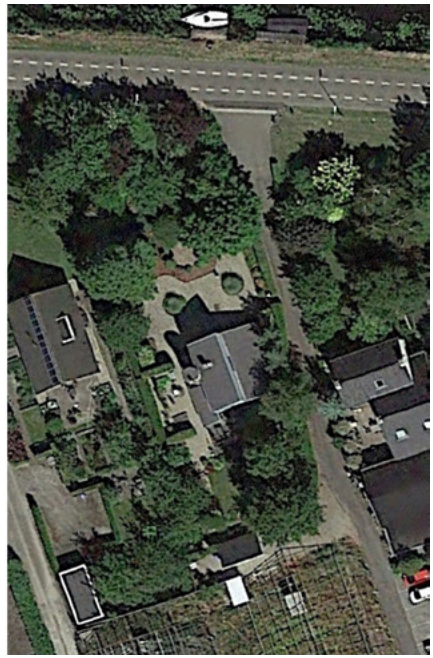
Hand-sketches of the house's elevations on transparent paper (Jack Breen).

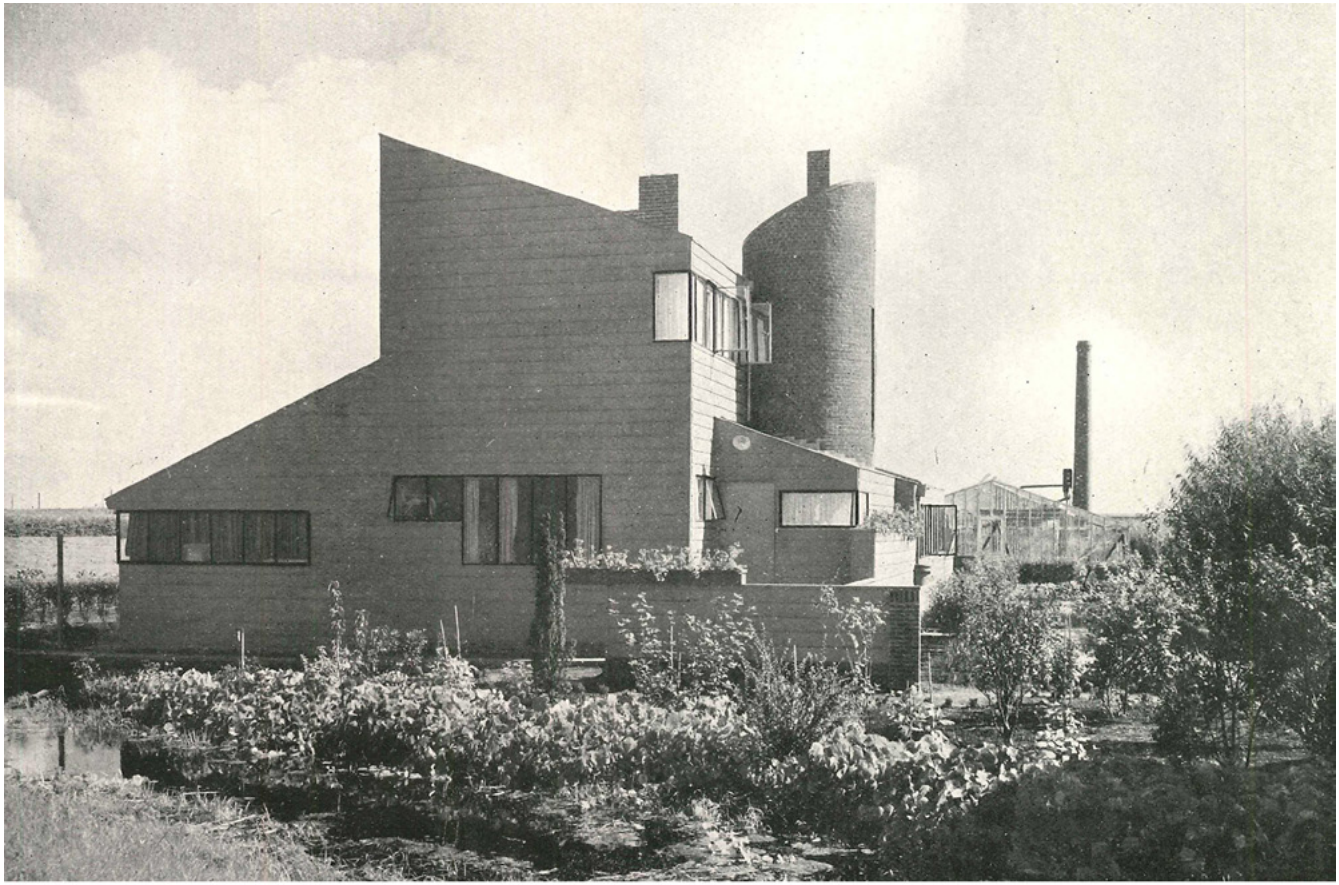
7. AA Variations

7.5 AA05
Duiker & Bijvoet
1924













Introduction

The market gardener's home that was designed by Johannes Duiker (1890–1935) and Bernard Bijvoet (1889–1979) for A. Suermondt in 1924 is an atypical exemplar of early-modern, 'functionalist' architecture.
This modest, but noteworthy transitional work has through time acquired a somewhat iconic status, not only in the oeuvres of Duiker and Bijvoet, but in context of the Modern movement as a whole.

Bijvoet and Duiker both studied architecture at the Technical Highschool (TH) in Delft, where they became close friends.[1] Having graduated in 1913, they joined the firm of professor Henri Evers, working on the realisation of the new Rotterdam town hall.
After establishing their own architectural practice, in The Hague in 1916, they took part in the 1917 design competition for a new State Academy of Fine Arts in Amsterdam.[2]
Their proposal, with a highly symmetrical layout, distinctive open and closed surfaces and striking vertical and horizontal lines, shows the influence of H.P. Berlage, as well as clearly being inspired by the work of Frank Lloyd Wright.[3]
After being selected for the second round, they succeed in winning the coveted first prize and building commission, with the second prize going to Michel de Klerk.[4]

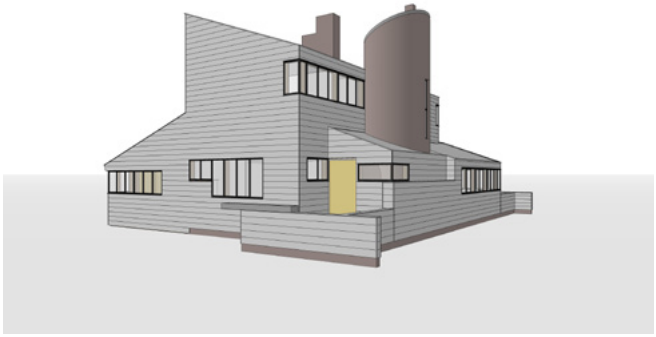
In 1919 'Bijvoet en Duiker B.I.' moved their office to Zandvoort, where they continued to work on various projects in The Hague.[5]
They realised a number of housing projects, notably a highly differentiated villa-development with 126 dwellings close to the sea in Kijkduin (1921–1923), inspired by Wright's Prairie Houses.
In 1921 they submitted the first design for a Technical School in Scheveningen, which is stylistically reminiscent of the Academy project.[6]

To the disappointment of the architects, the prestigious academy commission was shelved by the government in 1921 and never built. Some time earlier, H.P. Berlage, who had been on the jury of the academy competition, had introduced the two up-and-coming architects to the Union of Dutch Diamond Workers, who were active in their campaign to combat Tuberculosis.[7] In 1919 explorative work started on what would eventually become the extensive Zonnestraal TBC aftercare-colony in Hilversum, the first substantial step being the design for an industrial laundry facility in Diemen (1924–25).

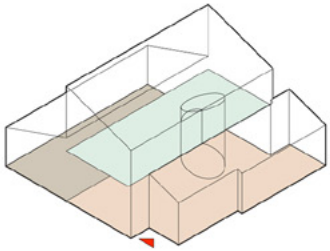
Duiker and Bijvoet received the commission to design a house with an integrated flower-shed for A. Suermondt, who moved to from The Hague Aalsmeer, to start a flower-growing enterprise on a plot of land in the Stommeerpolder.
The first plans were drawn up in 1924.[8] The house was completed in 1925, the year in which Duiker and Bijvoet would go their separate ways.[9]

AA05 : Information

Project	: Suermondt House : Stommeerkade 64, Aalsmeer		
Architects	: Jan Duiker : Bernard Bijvoet		
Style	: Early Modernism : New Objectivity		
Year	: 1924		
Ground-plan	: 100 m^2	Floor-plan	: 140 m^2
Volume	: 430 m^3	Ratio V/F	: 3,0 m

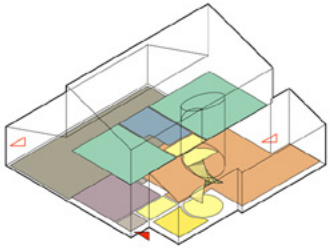






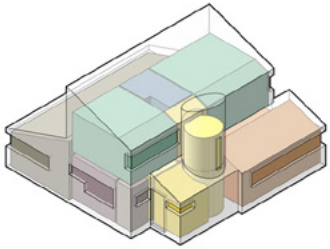
A.1 Context

The house, with a footprint of approximately 100 m^2, is situated on a long, narrow polder-land plot measuring 19 × 290 meters.
The front of the house faces a dike along the drainage-canal of the Stommeerpolder.
For passers-by, eyelevel corresponds with the first-floor windows.
At the rear, the house looks out on a garden, facing south-south-west, originally with an extensive greenhouse-complex behind.
Low cost, light-weight building and self-sufficiency appear to have been guiding themes.
When the plan was commissioned, the site was not yet connected to the water-mains, leading to the idea to collect rainwater from the roof in a well, which could then be pumped up into a tower-reservoir. Eventually this system was not implemented, as a municipal water supply was installed before the project was built.



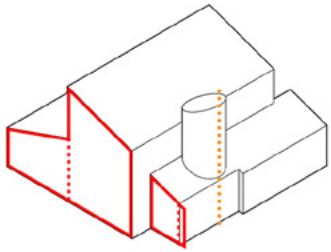
A.2 Function

The house consists of four interrelated spatial components, each with its own programme profile:
A: A one-story element, measuring roughly 4 × 9 meters (the flower-shed/workshop space);
B: A two-story element, also measuring roughly 4 × 9 metres (ground floor: living room, kitchen and toilet; first floor: two bedrooms separated by a dressing room, now the bathroom);
C: A one story element, measuring about 2,5 × 9 metres (containing the entrance-area and a parlour joined to the main living room), shifted rearwards 1,3 metres relative to the other two volumes, creating two terraces, marking the public- and garden entrances);
D: A two-story cylindrical stair-tower, inserted between entrance and parlour, connecting the two levels of the main house.
These four parts are brought together in one overall composition.



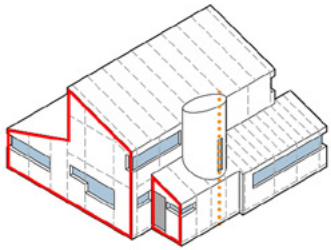
A.3 Interior

An essential distinction is made between the utilitarian ‘shed’ (with a rectangular, open floor-plan, pitched roof and horizontal openings on three sides) and the more spatially-diverse living section.
The rectangular main living room, facing south, is spatially interconnected with an adjoining conservatory space, offering uninterrupted views towards the west and south, with a door leading to the rear terrace.
The in-between space of the main hallway, with the toilet, connects the living area and kitchen. It serves as the house’s entrance, opening up to a front terrace, with a corner window facing both west- and northward.
From here, the spiral staircase in the tower leads up to a first floor landing, giving access to two bedrooms, each with partly-slanting ceilings and openings wrapped around the corners.



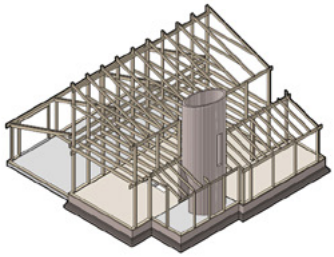
B.1 Object

The modest house, with an overall volume of some 430 m^3, comes across as an abstract sculpture.
The street-side silhouette is characterised by roof-angles of 21 degrees, similar to the surrounding greenhouses and flower sheds.
On the level of massing, the strategic collection of relatively autonomous volumes comes across as a heterogeneous entity.
While the two major volumes (the shed and the main living section) are joined together seamlessly, the third volume is shifted and plastically articulated.
The contrasting mass of the cylindrical tower creates a visual counterbalance within the volumetric ensemble as a whole.
Due to the interplay of the pitched roof-lines and the 'wrapping' of the constituting surface-parts, with as good as no explicit articulations, the overall effect is one of balanced tension.



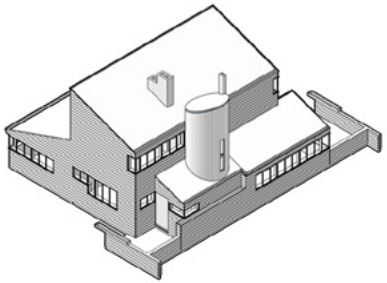
B.2 Structure

Despite the fact that the volumetric composition is markedly asymmetrical, a level of visual harmony is achieved, on the basis of underlying, geometrical parameters.
One ordering instrument is the basic 'metre' of the skeletal wood-frame construction, with a regular spacing of 50 centimetres (A).
To a large extent this remains hidden from view, but serves to organise the composition as a whole and becomes evident as the basic measurement of the steel-frame windows and in the vertical load-bearing elements, which subtly modulate the open sections in the external elevations.
Another compositional device is the pitch of the roof forms, which is consequently applied in all volumetric components, including the tower. These angles are instrumental in creating a level unity, albeit with controlled variation.



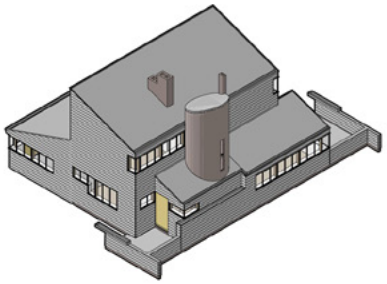
B.3 Technique

The building's design is controlled by its elementary, architectonic components: its wood-frame construction and its all-enveloping outer layer, contrasted by a brickwork tower.
The wood-frame structure of the house rests upon a brick foundation (with only a very basic founding layer in the shed).
The module of 0,5 meters (A) determines the spacing of the wooden beams in the floors and roofs.
In the two-storey high vertical sections, between the house and the shed and in the west-facing elevation, the spacing is 2A (1 m).
In other exterior walls, the load-bearing posts are 3A (1,5 m) apart, corresponding with the basic size of most window elements.
The main portals in the shed are spaced 6A apart (a span of 3 m).
The front and rear facades are offset relative to the constructive framework by a factor 0,5A.



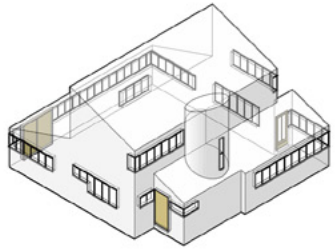
C.1 Facade

The building's exterior appearance is determined by sharply defined 'faces', with closed surface-sections, punctuated and accentuated by carefully positioned bands of windows.
On the one hand, the elevations can be considered in their own right, with the dimensions and positions of openings being determined by the functional requirements of the spaces behind.
On the other hand, the surface-arrangements acquire a visual continuity by the ways in which closed and open parts are 'wrapped around' at the corners.
In the front- and rear facades, the strategically placed openings punctuate the fabric of the curtain wall. The horizontal window-bands of the flower shed and the conservatory are connected around the corners. This corner-theme is repeated in the upstairs windows and in the hallway, next to the entrance.



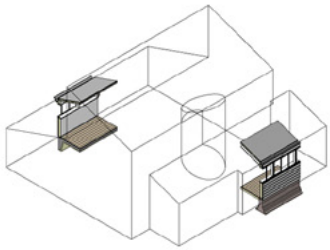
C.2 Surface

Apart from the tower and the relatively nondescript bitumen-covering of the roof-surfaces, the characteristic texture is that of the horizontally-aligned wooden planking, offset by the regularly spaced and finely dimensioned steel-framed windows.
This outer layer visually 'pulls together' the sculptural ensemble, whereby the horizontally-applied wooden rebate-planks result in an almost abstract, graphic pattern.
The groove-joint between the planks results in an array of horizontal furrows around the 'corpus' of the house as a whole. The resulting shadow-lines create a subtle, but explicit, texture and lend a vertical 'measure' to the facade openings.
The brick tower is executed like the, then omnipresent, chimney-stacks. Specially made small bricks are laid-out radially, creating a half-bond surface pattern.



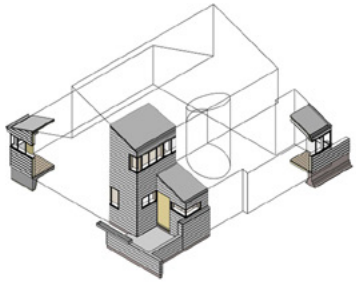
C.3 Opening

The original drawings suggest window-sections with explicitly dimensioned primary frames and much thinner, secondary window sections.
In the realised object, only horizontal bands of standardized steel components have been incorporated into the outer surfaces of the curtain walls. These vary in length, on the basis of the A (= 0,5 m) module. The most frequently-used subsections are 3A, in accordance with the construction (total lengths: 3A, 6A, 9A etc., 4A in the upstairs bathroom). The heights and proportions are determined by the interior requirements, with subtle variations introduced only by the slightly broader profiles of the moving parts.
These bands of fenestration are visually continued at the corners, demonstrating the distinction between the building's load-bearing structure and its outer 'skin'.



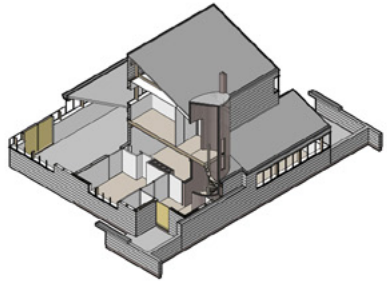
D.1 Junction

Two ‘critical’ details set the tone: the point where the outer wall meets the pitched roof (the front and rear facades) and the intersections between the slanting and vertical sections (the side facades). All vertical sections consist of wooden frameworks, based on the A-module grid, with intermediate supports placed between the main posts. The windows are set almost flatly into the rebated wooden planking that covers whole volume.
In the front and rear elevations only a discreet zinc trim marks the transition between the roof and the facade.
This visual sharpness of form is also achieved in the western elevations, where the gutters (which in the initial design were still articulated as marked triangular extrusions) are visually kept ‘inboard’, giving the house its abstractly-geometric outer appearance.



D.2 Features

The geometric ensemble is articulated without explicit ornamentation or symbolism, with roof-lines as sharp edges and ‘immaterialised’ surfaces, with painted wood and steel, only offset by brickwork.
The recessed joints in the cladding encircle the house, with only a discreet corner-post as a ‘seam’. Similarly, the windows run smoothly around the corners, emphasising the building’s lightness and transparency. Due to the ‘moving outward’ of the front- and rear sections by a factor 0,5A, load-bearing posts do not ‘interfere’ with the corners, which are distinguished by an intermediate window-size, measuring roughly 0,6A. The main entrance is highlighted by an almost uninterrupted, horizontal 2A + 2A corner window. Doors and service-elements are discreet in execution and lighting fixtures are industrial quality.



D.3 Ensemble

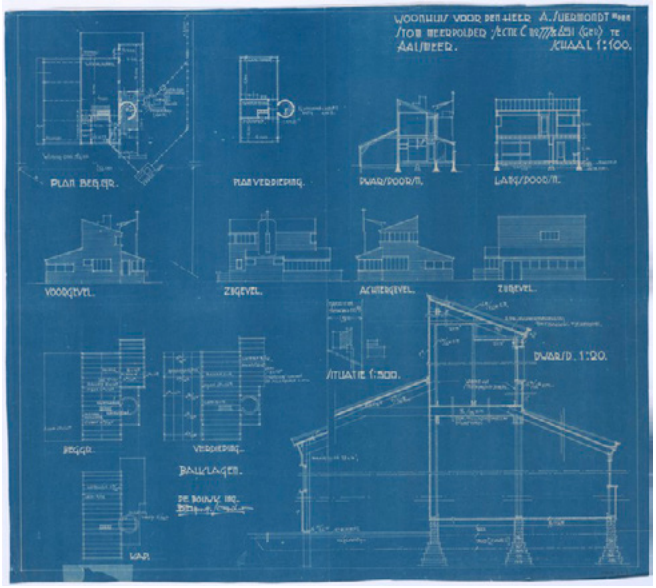
The building shows distinctly different ‘faces’, corresponding with the conditions of the interior spaces with their differences in outlook and daylighting-requirements.
The front- and rear facades are identified by their distinctive, composite shapes, whereby the more or less autonomous, utilitarian flower-shed has window-bands around the front, side and rear.
The visual complexity of the house-section results from the shifting of the conservatory volume and the insertion of the cylindrical tower. The confrontation of these elements is somewhat ambiguously resolved on the level of plasticity and detailing.
The functional composition was ‘anchored’ in its surroundings by two bounded verandas, with uncharacteristically playful flower-boxes that were unfortunately not reconstructed during the restoration.

Development

When considering the Suermondt house on the level of composition and perception, four designerly project 'variations' may be identified, which will be viewed as parallel 'realities' of the same project. The following four manifetations can be identified::

- Initial design proposal: the plan that was submitted in 1924 – in: 'Development';
- Realised project: the house as it was eventually built in 1925 – in: 'Realisation';
- Drastically altered artefact: the sorry state of around the mid-1980's – in: 'Condition';
- Reconstruction of the built project: the restoration in the late 1980's – in 'Reconstruction'.

The design proposal, represented on a blueprint Bijvoet & Duiker submitted to the town council for the planning permission in October 1924, gives the distinct impression that the plan was not yet fully developed and may have been drawn up in some haste.[10] The visual information is ambiguous and differs considerably, when compared to the built artefact, notably on the levels of construction, arrangement of the facades and articulation of the gutters. The very sketchy drawings suggest that the designers had not yet resolved certain critical design issues, indicating certain aspects could still have gone one way or the other.

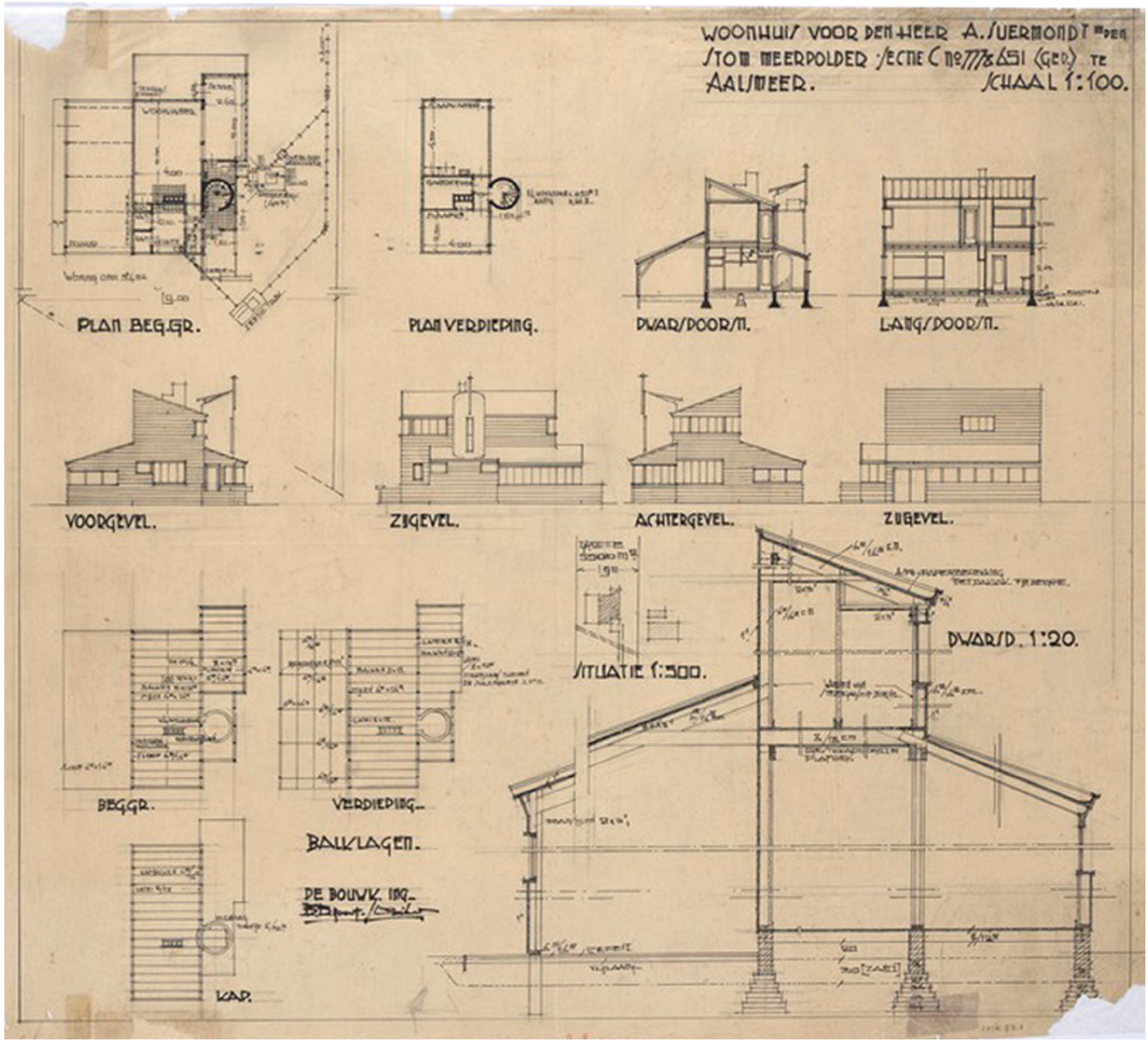


The blueprint of the building-permission drawings (Archive Aalsmeer).

Inconsistencies:
The drawings suggest a profound framing of window sections, suggesting integrated, vertical wooden posts where a column might be expected, with what would probably have been steel windows placed further back. In the rear facade this structural articulation is expressed in the upper window section, however in the windows below, such structural ordering elements are left out. In the facade of the conservatory there appear to be no structural elements whatsoever, neither in the elevations, nor in the plan. The uninterrupted array of horizontal window-frames that is drawn in the elevation of the conservatory seems to prefigure the facade treatment for the house as an entity, as it would be built.
The corner solutions are generally still very ambiguous. For instance: in one elevation, the shed-windows appear to be connected around the corner, but on the other this seems not to be the case. Next to the entrance a vertical and a horizontal window appear to meet on the corner, a confrontation which clearly still had to be resolved.
The rear elevation suggests the bedroom windows being wrapped around both corners, not only towards the west, but also to the east. This is underscored by the plans, but is not expressed in drawing of the side elevation.

It is difficult to fully imagine what the house would have turned out like had it been built on the basis of the still largely incompatible drawings of the original plan.[11]

Realisation:
The design concept was based, in part, on the idea that rainwater would be collected and stored in a tank in the tower. For this purpose, the original plan indicated a special 'pump room', situated next to the stairs and accessed from the conservatory. As this facility became redundant during the planning phase, the western elevation, originally with a part-symmetrical tower section alongside a subtly protruding, transparent conservatory was changed, morphing into a plastically accentuated ensemble.
The pronounced primary frames with secondary distributions, as suggested in the drawings, were 'purified', being replaced by unadorned bands of windows on all sides, consisting of standardized steel window-profiles and adhering to a strictly regular module of 50 centimetres (A), with the notable exceptions of the 0,6A segments highlighting the column-free corners.
Similarly, the somewhat quirky triangular extrusions marking the connections between wall and slanting roof were all but erased from the realised project, with only a somewhat dissonant relic of this original feature surviving in the gutter-detail of the flower shed.
The effect of these design refinements is that all vestiges of decorative articulation were purged, resulting in a more 'abstract', proto-modern volumetric entity. It is tempting to think this may have been the work of Jan Duiker, fully taking charge of the commission and introducing a more 'industrially' Functionalist expression that would become the signature of his creative output from then onwards.



The original of plan-drawing (collection NAi).



Photograph taken some time after realisation (source: 'Het Landhuisje', 1933).



Documentatin of Peter Smithson's re-encounters with 'heroic' projects (1967).

Condition

By all accounts, the project was executed on a very limited budget, whereby concessions were made that would give rise to particular practical problems and lead to a series of increasingly detrimental alterations. As the result of all these changes, by the second half of the twentieth century the building was no more than a shadow of its original self.

In this context it is worth realising that the modest building's cultural standing can largely be attributed to two photographs, taken shortly after the house's completion, which give a good impression of what the built project actually looked like.[12]

Another photograph, taken some time after completion, already shows that the tower, which would most probably from the outset have given problems with rainwater, had in the meantime been clad in a layer of hard-baked paving stones and also suggests that the wooden surfaces had in the mean time been painted a darker tint.[13]

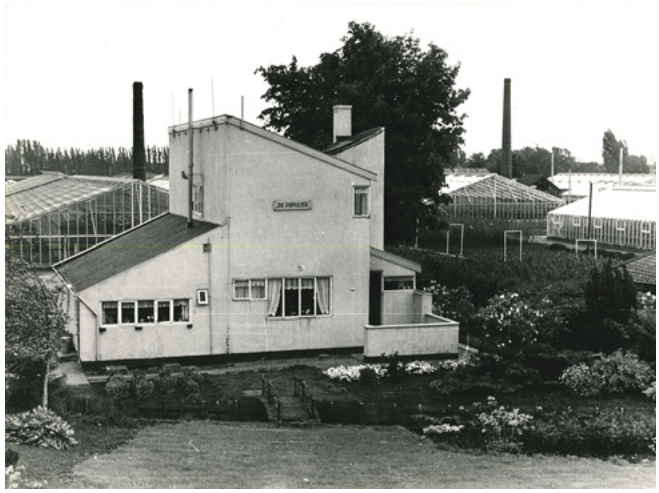
During the second world war a family moved into the shed of the house known locally as 'De Populier', which for some years served as a separate dwelling due to the housing shortage.[14]
A photograph, which was probably taken around 1960, shows that the wooden cladding had been entirely covered with a layer of stucco and that the windows in the workshop had already been replaced by wooden ones.[15] The steel windows of the house were still in place, but apparently in poor condition and would soon be replaced by mismatching, wooden window elements.

After the Smithsons had identified the Bijvoet and Duiker house as an iconic project in their overview of the *Heroic period of Modern Architecture* (1965), Peter Smithson made a trip to re-view the projects in their then-current state. His findings were published in *Heroic Relics* (1967).
He considered what he encountered to be *"a travesty"*.[16]

Transmutation

Some technical shortcomings and subsequent transformations:
Tower: The foundations of the house consisted of a simple brick footing, without supporting piles. This proved sufficient for the house's wood frame construction, but not for the stone tower. When, due to leakage problems, the tower was covered in heavy paving stones, this part of the building became even heavier and gradually sank some 12 cm into ground, pulling the surrounding wood-frame construction down with it.

The major aspects of change were:
- Shed: The shed-section had no proper foundations or flooring and had a roof supported by trusses spaced 6A apart (4A in the original plan). In part due to heavier roof covering, the secondary beams proved too thin to carry the load and sagged through quite dramatically. As the bases of the posts had rotted away, the shed structure as a whole was in later years effectively hanging onto the construction of the main house.
- Facades: The 'flat' detailing of the facade elements, poor quality of the planking and the lack of a proper damp-shield between outside and inside apparently lead to leakage problems. In time, the horizontally applied wooden rebate-cladding was hidden behind a layer of stucco on chicken mesh. Both the stucco surfaces and the stone tower cladding were subsequently painted in a light tone.
- Roofs: The original, fine roof trims were replaced by conspicuous wooden planks. In later years the bitumen-clad roof surfaces were covered with an extra layer of ceramic roof tiles, forming an added burden for the lightly-dimensioned roof structures, which was particularly noticeable in the shed.
- Windows: Through the years, all of the original steel windows were replaced by wooden ones, with very differently dimensioned and frames, discordant divisions and moving parts, painted in garish colours.
- Colours: Originally, the facades appear to have been painted light grey, later a darker bluish-green. The later stucco covering was painted in a light greenish-grey tint, later white, whilst the edge-planks of the roofs and the wooden windows, were in later years painted in starkly contrasting colours: first red and then blue.[17]



The house (known as 'De Populier') in the earlys sixties (photo by Jelle Jelles).



Slide images of the state in the mid 1980's, before restoration plans were made.

Reconstruction

In the mid 1980's, the house was bought by Mr. and Mrs. Frits and Elly Koopman, who were attracted by its spatial qualities and saw potentials, but were originally not aware of its architectural heritage and indeed, its monumental status.
They became fascinated by the house's history and consequently decided to undertake a thorough renovation, with the ambition of returning the house to its original condition.

Having been designated a national heritage project in 1986, the 'Duiker house' was one of the first so-called 'young monuments' to undergo a thorough restoration.
At the time, the Dutch state authority for the conservation of monuments and historic buildings had hardly any experience with the restoration of projects of the modern era.[18]

The modus operandi, when it came to 'monumental' buildings, still very much tended towards preserving the present state of the project at hand, rather than bringing back to life the original qualities that were at the heart of their cultural status.

For projects of the Modern Movement, most of which had suffered irreparable changes though the years, this approach did not really work, as it was more a matter of getting back to what originally made the building so meaningful. This meant that in this restoration ground-breaking work had to be done to change attitudes and to establish new procedures.

Initial renovation studies were carried out from 1984 onward by Ir. Henk Oortwijn. After the house had officially been designated a monument, the owners expressed the desire to recreate the original as closely as possible. They felt there was a risk that compromises might be made that were not in character with the original state and asked Dipl. Ing. Claudia Breen to also become involved. Both architects collaborated on the basic plans and project specifications, after which Claudia Breen drew up the definitive restoration drawings and oversaw the reconstruction process as a whole.

This restoration project became a balancing-act between the desire to keep what was still 'original' on the one hand and the desire to capture the projects original 'intentions' on the other in such a way that it would result in a liveable, durable house, which also had to be realised on an extremely tight budget.

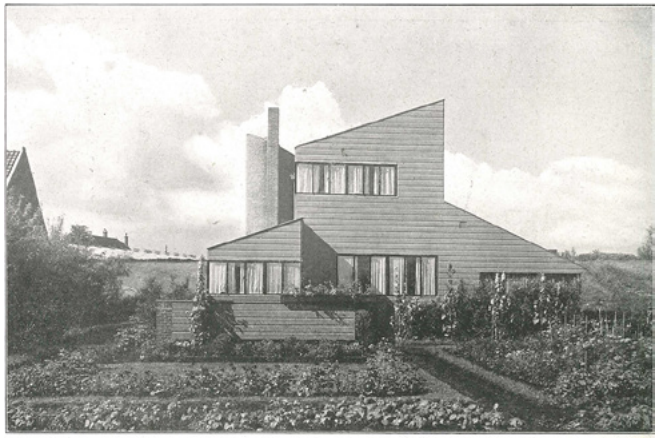
An overview of the renovation strategies in relation to the different building parts:

— Tower: The first plan for the tower proposed replacing it with a wooden structure, covered in vertical planking. As this was not considered to be in character, a proposal was made to replace it with a wooden structure with a thin brick outer layer. Eventually, the decision was taken to maintain the original tower. After removing the added layer of bricks, the bonding was restored and the surface was impregnated, which only partly redressed the damp-problems.
— Shed: The under-dimensioned load-bearing structure was removed in its entirety, after which a concrete plate-foundation was made in situ. A new roof construction was created using double beams for strength, supporting structural, insulated sandwich panels.
— Facades: The existing facades were stripped, whereby the outer stucco layer and the original rebated planks were removed. The wooden structure of the house was re-used as a whole, whereby a new package of integrated insulation and a damp-shield were installed and covered in specially fabricated rebate planking, enveloping the building as a whole.
— Roofs: All roofs were covered in hard insulation, covered with bitumen roofing. All roof trims and the integrated gutters and the top of the tower were carried out in zinc.
— Windows: The steel windows were fabricated especially in the UK. To test the detailing, a shed was first built in the garden, using all of the detailing principles for the renovation of the main house. A study was carried out to compare the effects of steel windows with double- or single glazing. A combination of cost factors and aesthetic considerations eventually led to the windows being carried out with their original dimensions and details, using single glazing.
— Colours: As the original pictures were all in black & white, it was open to interpretation what the original colour scheme might have been. Study of the original planking revealed a weathered outer layer of darkish green paint, covering what would have been the original (under)layer in light grey. This tone seemed to resonate best with the first known pictures and was chosen for the new outer finish. The only remaining steel window (in the tower) showed traces of dark blue and black paint. Eventually black was chosen for all of the steel windows and yellow for the exterior doors.

The reconstruction process was completed at the end of 1987, after a half year of work. The project was published in 1989.[19] It was subsequently published and exhibited in the context of an international network promoting the protection and rejuvenation of modernist architecture.[20] The experience and insights gained during this pioneering restoration contributed to the furthering of rejuvenation initiatives.[21] A number of major works of Functionalist architecture, notably including Duiker's architectural heritage, were restored in the following years.[22]



Step-by-step series of the reconstruction of the house (photos: Jack Breen).



Frequently published photograph showing the rear of the house (1925).

Experience

As an object, the house comes across as a dynamic balancing act of angular shapes and volumes, which together create a certain visual harmony, without using symmetry.
The perception of the house as a whole is determined on the one hand by its sculptural 'presence' as a volumetric entity and on the other hand by the controlled order of the expressive 'skin', stretched around its contours.

The visual expression of the facades is determined by the composite geometries of its four 'faces' and by the interplay between the closed surfaces and window sections: Form and Counter-form.
On either side of the visually dominant, single-pitched two-storey segment that forms the central element of the house, lower volumes enhance the overall composition by visually 'rhyming' with the pitch of the roof.
It is significant that this play of angles is also taken up at the top of the stone tower, resulting in a kind of crowning gesture to the composition as a whole.



The house hidden from site behind a wall of green.

Situation:
Situated amidst a lush garden, the well-maintained house, complemented by highly contemporary furnishings inside and outside, in its current state looks fresh and new: as if it had been designed and built only recently and not more than 90 years ago!
Positioned at the foot of a dike, the house attracted the regular attention of passers-by.
When the new owners felt they were becoming too much of an 'attraction', they planted shrubs and trees for the sake of privacy.
As a consequence, the project has for a number of years been 'easy to miss'.
The house is in no way 'familiar'. In its shape-grammar and materialisation it does not conform to traditional composition modes, neither is it the kind of flat-roofed 'cubist' composition, we have come to associate with Functionalist architectural expression.[23]
In 2018 the dike was thoroughly renovated, meaning that the greenery has (at least for now) largely disappeared, whereby the iconic house is again recognisable from the Stommeerpolder's dike-road.

Interior:
Inside, the house is compact but spacious, with a fine-tuned interaction between the interior spaces and their surroundings. Each room has its own interior qualities, with views generally towards two sides, due to the transparent corners.
This effect is most pronounced in the simple workshop space, which would originally have had an almost panoramic view towards three sides.
The living room area is a 'fluid' spatial ensemble, consisting of a more intimate central living-room, interconnected with a transparent, linear conservatory space, giving access to the rear garden. Originally the borders between inside and outside would have been 'softened' by the in-between realms of two semi-enclosed terraces.
Due to the fact that these have not yet been rebuilt since the reconstruction, the sharp geometric composition of the house comes across as more pronounced – even more 'abstract' – than the original.

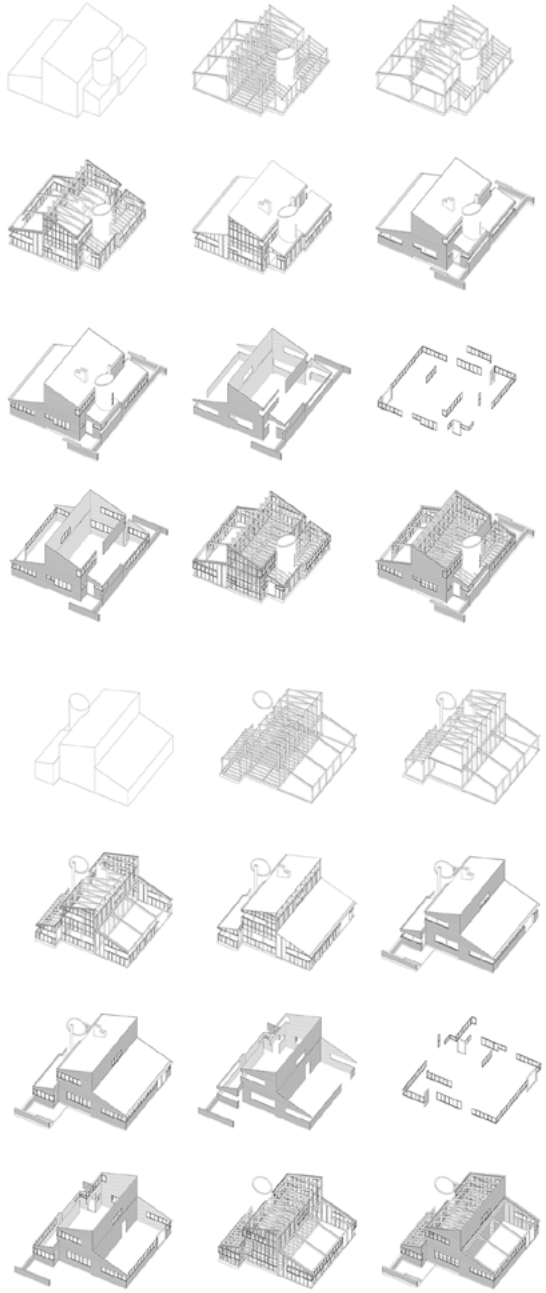


Exterior views of the house in its present state (2015).

Exterior:
Perceptually, the balancing of parts results in a somewhat ambiguous visual ensemble: do we experience the building as a comprehensive whole, or a conglomerate of strategically interrelated members? Perhaps it is both…
The recurrent roof angles (approximately 21 degrees) are reminiscent of the architects' earlier Wright-informed work, but also appear to consciously 'echo' the vernacular grammar of the surrounding, utilitarian wooden flower-sheds and glasshouses. The tower appears to mimic the chimney-stacks, which would have been omnipresent in the area at the time.
With its unique combination of a load-bearing timber construction and wooden cladding, complemented by finely proportioned steel windows, the house is a somewhat anomalous manifestation of *Plan Libre* principles. Although the structural elements are integrated in the arrangement of the outer walls, the actual columns have been moved subtly inward from the front and rear facades, resulting in the very characteristic 'open' corners. These corners, clear-cut as they are, lend the house an almost ornamental quality. This theme of the column-free corner would be further explored to great effect in Duiker's later buildings, such as the Open Air School and the Zonnestraal complex.



Interior views of the living-room and conservatory ensemble.



Early 3D Model variations: clustered views from the street-side and garden-side.

Visualisation

In hindsight, this research initiative might be considered to have started during the restoration project of the Duiker & Bijvoet house, in the second half of the 1980's.
Working in architectural practice at the time, I had not yet set out on a career in academia. However, the opportunity to follow first-hand the process of deconstruction and reconstruction of this house and to document the steps this involved, fuelled fledgling insights that kick-started this study project.
In this sense, the house may be considered as a 'model' for architectural enquiry, both compositionally and methodically.

The consideration of this inspiring design artefact has involved a number of cycles of model-driven, explorations and has in this sense contributed to the evolvement of insights, procedures and instruments, in the context of design-based teaching as well as designerly enquiry.

The first steps of study foreshadowed the methodical utilization of computer-aided modelling.
At the time, the opportunities of digital technologies were still limited but, since then the potentials for methodical exploration and systematic representation have been steadily pursued, applied and evaluated.

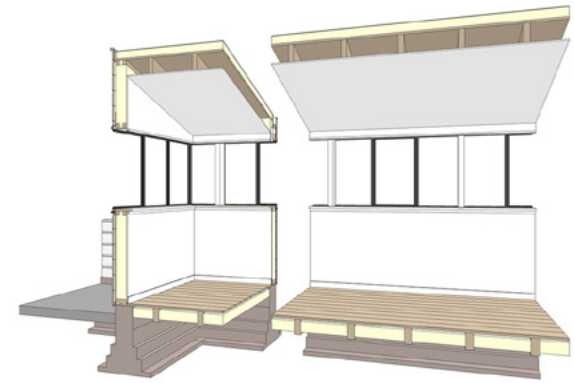
The Duiker & Bijvoet projects was one of the first to be modelled in three-dimensional 'Sketch' software. Initially these models were in black and white, but increasingly colour was used to identify *thematic* aspects of the ten selected projects.

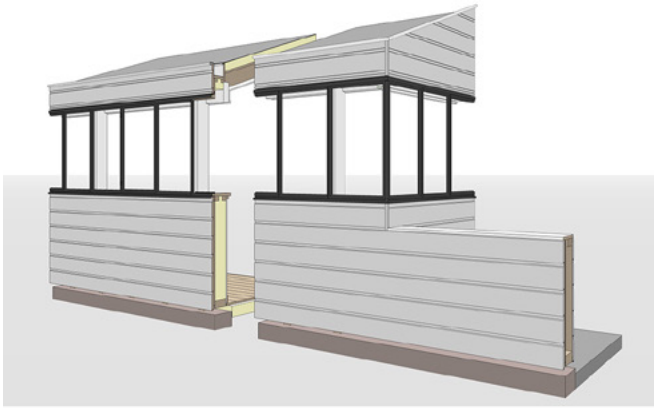
The last step in this on-going form and modelling studies exploration is represented in the thematic model visualisations shown in the 'Patterns' section. However, other representational approaches have been developed, tested and fine-tuned through the years, to a large extent on the basis of this case-study project.

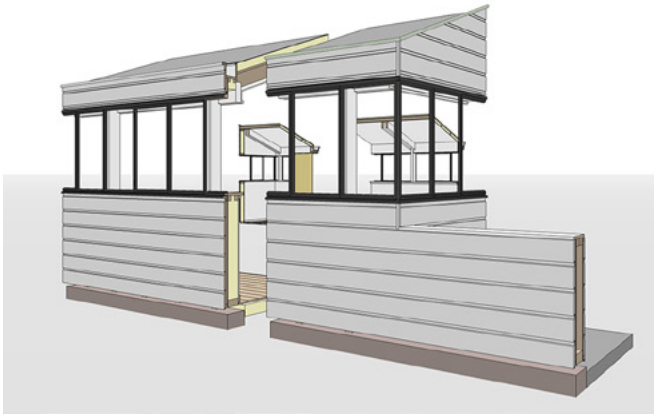
On the basis of the collection of visual data that has been accumulated considering the AA05 casus through the years, five 'variations' are briefly considered and illustrated:
— Physical Modelling Variations;
— Photo Editing Variations;
— Shape & Proportion Variations;
— (De-)Construction Variations;
— Detail Segment Variations.

Detail Segment Variations:
As with the other AA Variations projects, a choice was eventually made to show the house's features on the level of 'Junction' and 'Feature' by using cut-out sections.
These were primarily intended to be effective in a kind of spatial 'collage' of parts, presented in a standard axonometric view.
However, later on in the project's evolvement, these sections were re-considered in a higher 'definition', whereby aspect of the interior-finishing also could be included.
For these detail-models the connective principles of the re-constructed project were taken as the basis, meaning that the balloon-frame structure now includes insulation on the roofs and in the walls.
Particularly when perspective views that combine interior- and exterior sections are combined, can a good impression be gained of the building's actual 'build-up'.

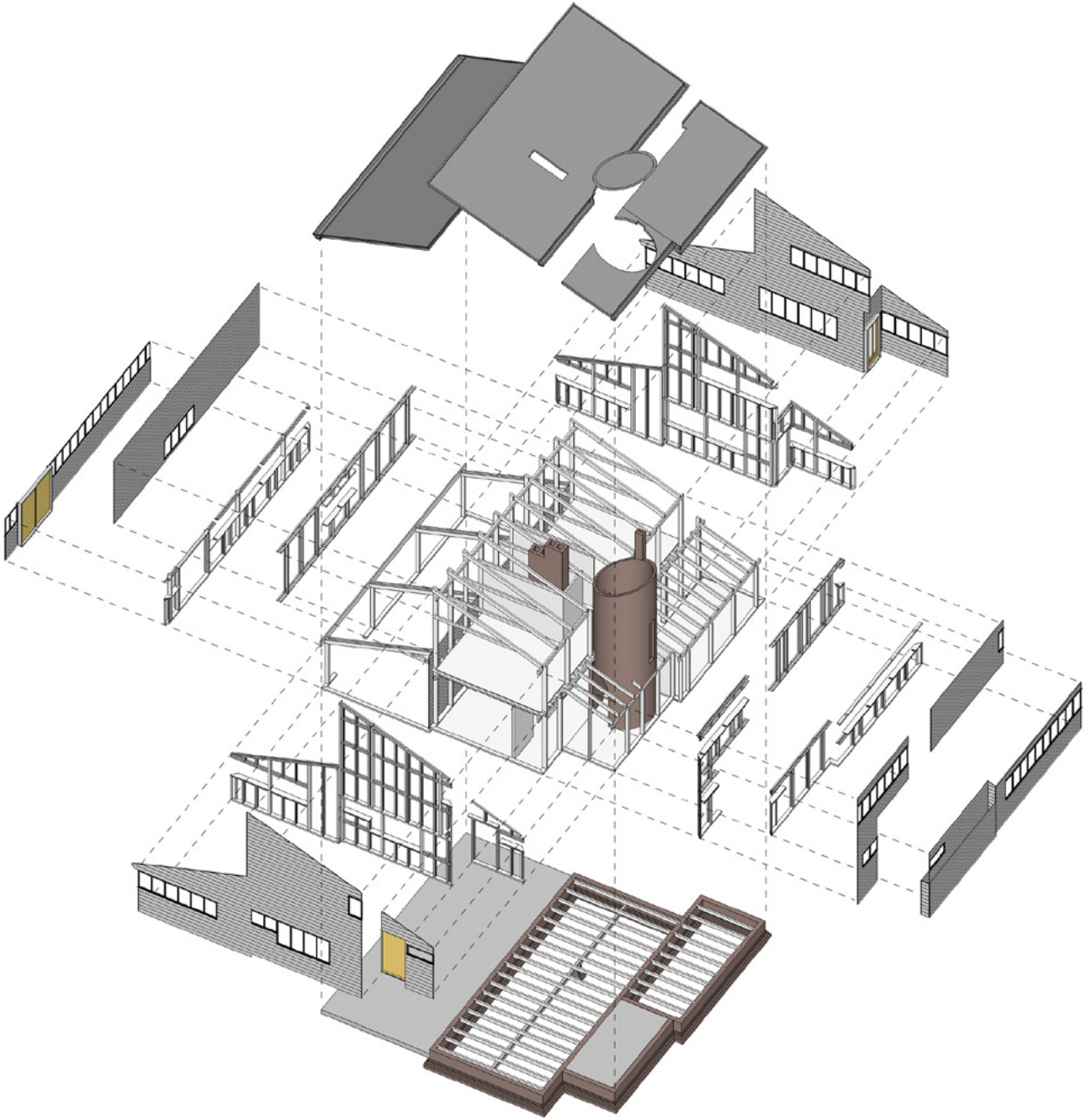
(De-)Construction Variations:
The project was a test-case for the – layered – 3D modelling approach, which was developed specifically for the case-study initiative.
Structured layering allowed for the opportunity to visualise the physical construction of the house, in an animation-like sequence. Similarly, the consequential use of layers allowed for virtual deconstruction. Thereby, particular layers could be isolated and shown as compositional elements in their own right: like the window-bands and the lineage in the wooden outer surfaces.
These experiments contributed to the eventual visualisation-mode for the 'Opening' sections, whereby the building is presented as a semi-transparent volume, so that the windows and doors on all sides may be included in one image.
Considerable study was put into the generation of an integral 'exploded view' of the building, in order to give insights concerning the assemblage of building-parts, in one systematically-arranged overview-image. The sculptural qualities of the house as an object were explored using different platforms: 2D drawing, photo editing and 3D digital modelling.





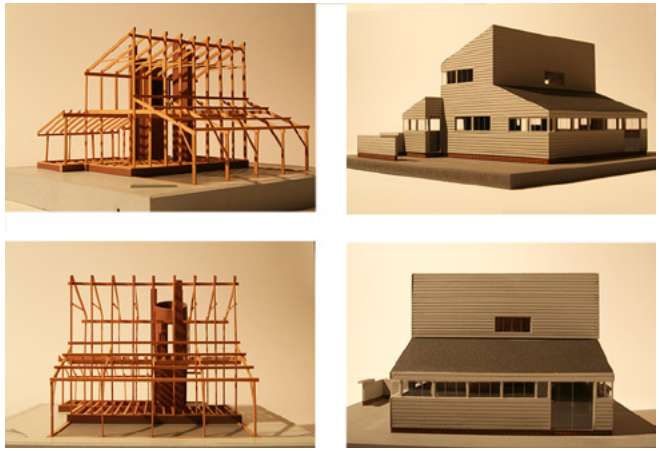


3D Model sections in combination: exterior and interior views.



Exploded view of the house, on the basis of the 3D Model (Bram van Borselen).

Physical Modelling Variations:
In the context of the exhibition accompanying the Duiker Group's publication, in 1982, and the subsequent exhibition, a scale-model was made of the house. This physical 'wire-frame' model was made to show the wood-frame construction of the house.
In the model, the entrance-corner appears to be entirely cantilevered, but this is nor correct, as in actual fact the door-post acts as an added support.
In the context of a student-exercise (2002) a model was made of the entire house, to the same scale. This was a pioneering model-application, as for the first time digitally-driven laser-techniques were used to create the characteristic – grooved – surface textures. In this model, the students decided to 'correct' the (outwardly-extended) gutters of the work-space and executed them as the (concealed) gutters that are in evidence in the rest of the project.



Comparison of physical structure model and exterior models.

Photo Editing Variations:
On the basis of photographs of these two physical models, a number of visual 'variations' were created using Photoshop.
These visual explorations, using photo-editing software, included colour variations, simulations of the different phases of the house's existence, as well as explorative pattern- and proportion studies.
By combining images created with different media (old- and new elevation drawings, manipulated model-photographs, schematic interpretations and even design-fantasies) into one overall variations-overview, different aspects of the house's original- and later properties can be visually compared in an evocative way.
The original image-collage consisted of 15 'slides'. Later on during this study the collection has been enhanced, taking in some newly-elaborated images including the state of the house around 1960.
The variations overview as it is presented here juxtaposes 20 visual interpretations of the project.
Initially, other photographs of the second physical model were transformed using photo-editing platforms.
Similarly, colour options were tried out and compared.
To get to grips with the different sizes and proportions – particularly in the window-bands – traced, schematic drawings were made to identify the rhythms and motifs that are characteristic of the realised design.
Photo-edited imagery was used to explore the counterbalancing of different shapes and directions on the basis of the front-elevation. These studies subsequently informed the 3D thematic model, being developed and fine tuned in conjunction.

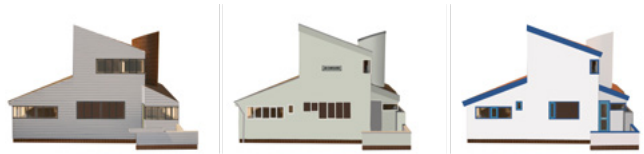


Photo-edited variations of different 'states' of the house through time.

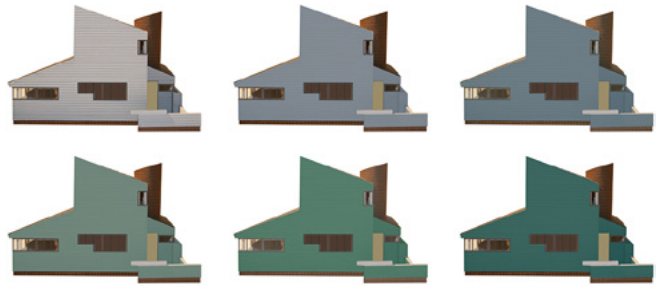
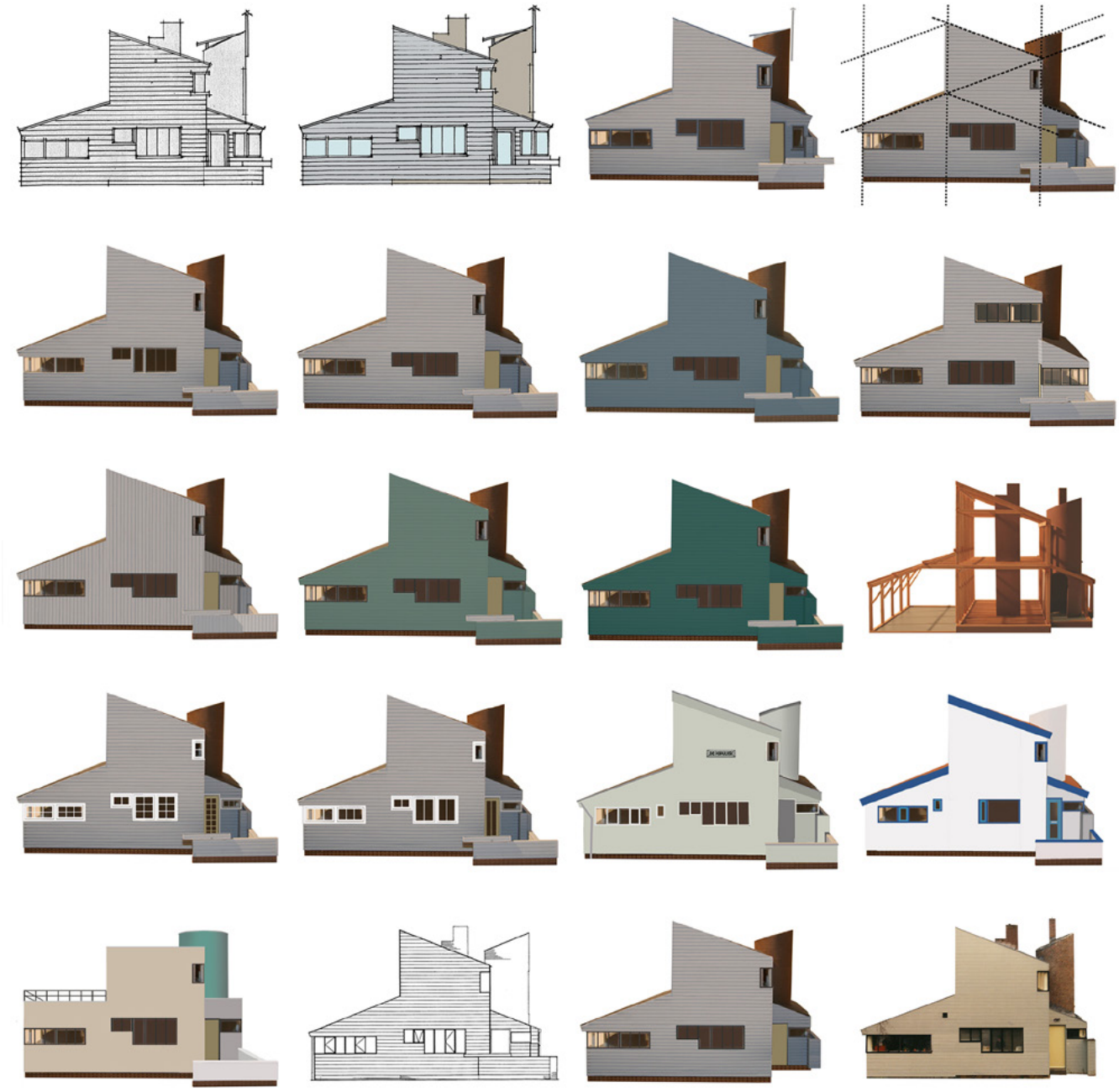
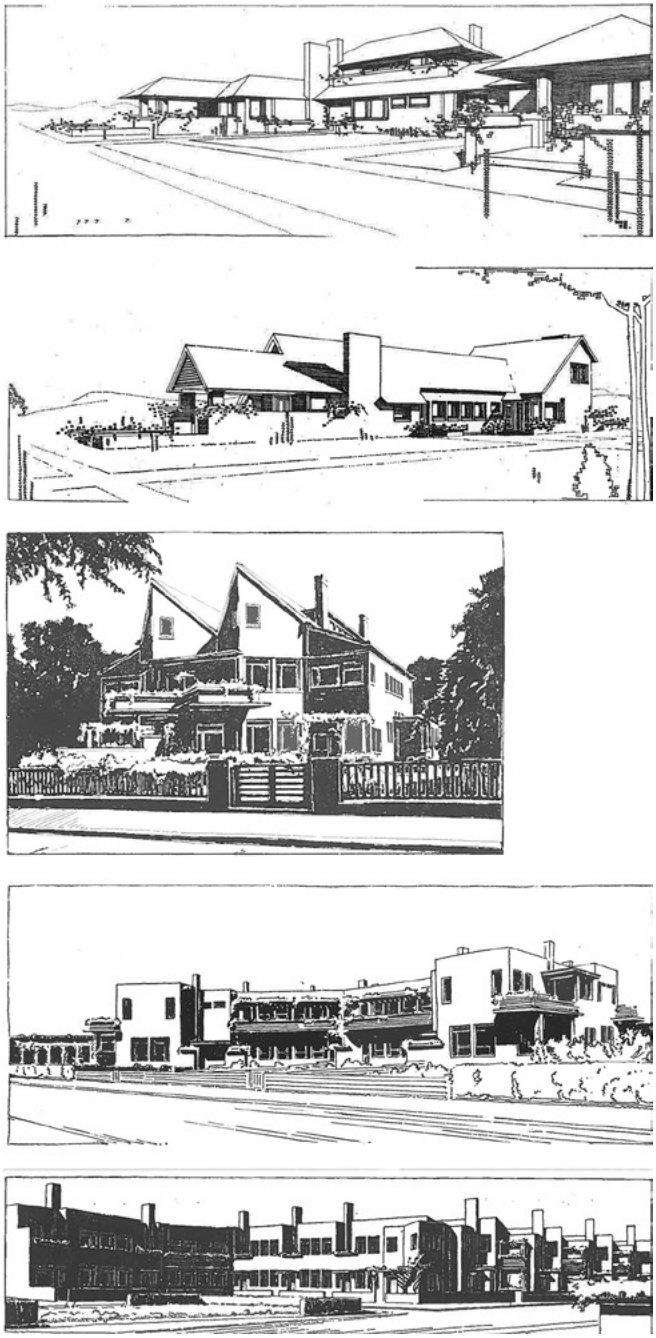


Photo-edited colour variations studies, on the basis of the physical model.



Overview showing 20 photo-edited model- and drawing variations (Jack Breen).



Early projects in The Hague: Kijkduin (top two); Stadhouderslaan and van Oldebarneveldlaan (bottom two). Sources: 'Duiker in Den Haag' / NAi.

Position

The market gardener's house in Aalsmeer marks a critical juncture in the joint work of Duiker and Bijvoet, being developed and built during a turbulent period in both their professional careers and their personal lives.

Duiker and Bijvoet had both got married on the same day – May 23rd 1919 – after which both couples moved to the coastal village Zandvoort.[24]
They had bought three small villas in a row of five, on the edge of the sand dunes. Each moved into one of these houses, setting up office in the third house. Here they continued work on their various projects in The Hague, a home for the elderly in Alkmaar (the result of a competition they had won and completed in 1921) as well as working on the drawings and documents for the Rijksacademie project [1].
Due to the post-war recession in the Netherlands – and possibly the resistance to their proposal – the commission was shelved in 1921 and would never be built.
From 1919 onwards, they had been involved in the fledgling Zonnestraal initiative, but around 1924 there was still very little progress. Another prestigious design commission, for a technical school in Scheveningen, for which a first design had been made in 1922 was put on hold in 1924.
Disappointment and financial uncertainty, possibly in combination with character differences, appear to have contributed to the dissolution of their professional partnership.

Around 1924–25, personal issues may also have contributed to a rift between the two friends and their families.
Tensions in the marriage of Duiker and his wife Hermien led to their eventual divorce in the summer of 1925. Duiker had started a new relationship with neighbour Lucie Küpper and together with her children they moved from Zandvoort to Amsterdam in August 1925.[25]
Earlier that same year, Bijvoet had become acquainted with architect Pierre Chareau in Paris.[26] He decided to quit the Netherlands and to join Chareau's office[27], moving to Paris in September 1925 with his wife and daughter, also taking with him Duiker's first wife and two children.[28]

How might Duiker and Bijvoet have worked on the commission for a humble marker gardener's house in Aalsmeer, in the midst of this turmoil?
The only surviving documents suggest that towards the end of 1924 the project was still very much a 'work in progress'. The first design proposal differs considerably from the built artefact, which would probably have been completed in the first half of 1925.[29]
It is open to debate to what extent is the 'purification' of the design is attributable to Duiker, Bijvoet, or to both in equal measure. However, it seems justified to assume that Duiker played a significant role in determining the definitive, realised project. Herman van Bergeijk argues that, throughout his various professional col-

laborations, Duiker appears to have consistently been the 'leading designer', the one who took the initiative and would give occasion to the most original solutions.[30]
Jan Molema suggests that, of the two partners, Duiker seems to have been the one who was most keenly-involved in the fine-tuning of their designs, as well as the physical realisation of their projects, on-site.[31]

Although there is no conclusive evidence to underscore this supposition, it seems defensible to assume that it was particularly the hand of Jan Duiker that defined the final plan as we have come to know it. Indeed, it does seem to foreshadow the work he would be realising largely on his own over the coming years.
Together with the soap factory in Diemen [2], which was developed in more or less the same period, it is generally viewed as a logical step in his creative development, prefiguring the string of the Functionalist master-works that were to follow in the next decade.

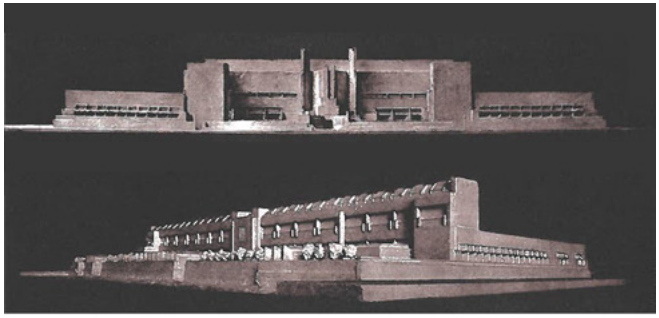
After moving to Amsterdam, Duiker would go on to create an impressive stream of compelling Functionalist works.
A number of these projects – particularly those which had been initiated together – he still accredited to 'Duiker & Bijvoet', but there is very little evidence that Bijvoet, then living in Paris and only returning to the Netherlands infrequently and briefly, was actively involved in the development and subsequent realisation of these projects.

The most prominent projects of Duiker's career between 1925 and 1935: [32]

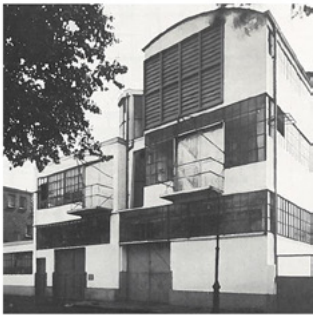
1926–28: Zonnestraal sanatorium complex in Hilversum [3];
1927–28: Nirwana apartment building in The Hague (with Wiebenga[33]) [4];
1927–30: Open Air School in Amsterdam [6];
1929–31: Technical school in Scheveningen (second, definitive project) [5];
1933–34: Cineac cinema complex in Amsterdam [7];
1934–35: Winter department store in Amsterdam.

It is worth noting that in 1928, whilst he already seemed to be in his profoundly 'modern' phase, Duiker produced a plan for a block of 14 dwellings in The Hague, as an extension to the earlier Kijkduin enclave. The project, with slanting roofs and pronounced chimneys, comes across as a step back in his development, but was accompanied by a 'variant': a more radically modern proposal, eloquently composed of rectangular and part-curved elements, which was more in accord with his contemporary work in Diemen and particularly Hilversum.[34]

In the summer of 1933 Jan Duiker was diagnosed with cancer in his lower jaw and underwent intensive medical treatment. He managed to work on through 1934, gradually becoming weaker and eventually passing away in February 1935, still aged only 44.















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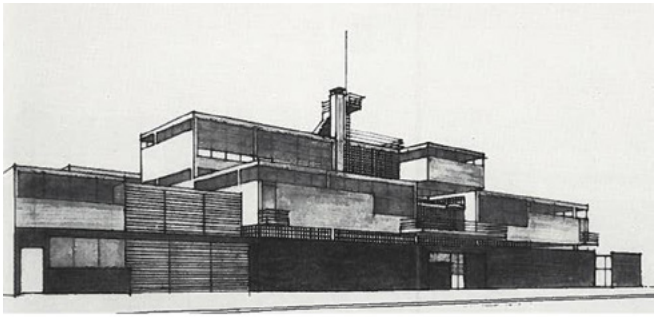
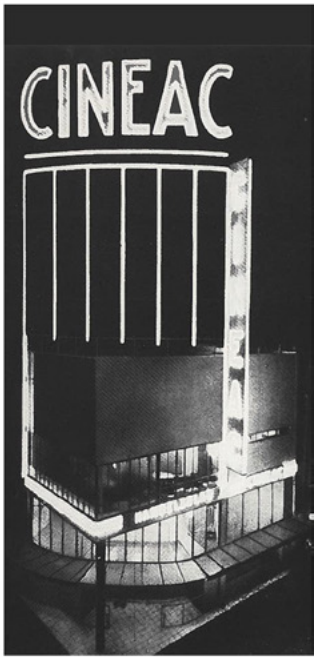
Sources: publications by Jelles, Molema et al and the NAi.













Duiker's last design – the Gooiland hotel- and theatre complex (1934–36) – was completed by Bijvoet, who signed the drawings *'J.Duiker, B.Bijvoet'* [8].[35]

Bijvoet would return to the Netherlands with his extended family from France after the war.[36] In 1946 he started an architectural firm in Haarlem with G. Holt, eventually specialising in the design of theatres.[37]

By the time of his death, Duiker had become recognised, particularly by his peers, as a true master of Modern architecture, an innovative and poetic functionalist, with Zonnestraal as his crowning achievement.[38]
At his funeral, Zonnestraal's chairman and driving force, Jan van Zutphen, remembered him as being gifted, yet modest and deeply human.[39]

Van Zutphen:

> *"His genius, which never disturbed his modesty and goodness, has sadly been relinquished. His spirit and inspiration will continue to speak through his work."*

In her essay *The Creation of Art from Construction and Technique*, Ida Jager positions the creative work of Duiker in an artistic and humanistic context, suggesting that what we recognise in his work is that Duiker *"constantly had humanity in his mind as a kind of religious ideal."*
Furthermore, she attempts to position his remaining artefacts in relation to the renewed interest in his work, around the end of the twentieth century,

Ida Jager:

> *"At the time of his death in February 1935, his reputation was already fixed and secure as a 'master of building' – a man of genius who had fulfilled Berlage's prediction that the professions of architect and engineer would shortly be united. It was widely acknowledged that Duiker's buildings and his personality stood for a fresh and broad approach to life as well as architecture, combining modern beauty with experiment. …*
> *The rhetoric of the time allowed Duiker to be seen, like De Klerk of the Amsterdam School before him, as a godlike figure who together with his inseparable companion Bijvoet had fought the good fight for the new architecture. Among his obituarists, engineers like Van der Steur and Friedhoff were a little more precise. They observed that Duiker always combined intuition and feeling with his technical skill, and that the simple sobriety of his version of 'New Objectivity' was always balanced by a certain refinement."*[40]

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Sources: publications by Jelles, Molema et al and the NAi.

Discourse

From the perspective of today, Jan Duiker was one of the most important architects of the 'Nieuwe Bouwen' movement, who continues to influence and inspire new generations of architectural designers.[41]
Through time, the characteristic 'Duiker' house in Aalsmeer has acquired a special position in the oeuvre of Jan Duiker and indeed: the catalogue of modernist architecture.
It has acquired this reputation largely in retrospect, in the light of what Duiker would achieve in the fruitful years after its completion.

How should we consider this somewhat anomalous project; what might be its cultural and compositional 'meaning' in the context of the very dynamic architectural era in which it was conceived and built, as well as in the historical perspective of today?
Although in its day, not a great deal was written about the project, the original photographs were published quite extensively. We may presume that it was relatively well-known and it appears to have even have enjoyed some renown. The house was published in a in a retrospective of 'New Architecture' in 1928, by architect Sevenhuijsen.[42] Furthermore, it was featured in a major overview of 'New-Dutch' architecture by Prof. Wattjes, published in 1929, in which it was allotted a full page, next to the Zonnestraal sanatorium.[43]
It appeared again in a publication on 'the cottage and the farmhouse', part of a thematic series of booklets on 'modern architecture in the Netherlands', which also included de Klerk's Barendsen house.[44]

What is noteworthy about these three publications, which all consider Architecture as a 'Building Art' – *Bouwkunst* – is that the later distinction between modernism and expressionism/neo traditionalism does not yet seem to be made. The represented work can still predominantly be associated with output of the architects of the Amsterdam School and the more modern expressionism that evolved out of this, such as the work of Dudok, Greiner and eventually Staal.
It might be that the relative success of Duiker and Bijvoet's Aalsmeer house is precisely a matter of its stylistic *ambivalence*: on the one hand relating to the architectural shape- and massing issues of the expressionists, on the other hand representative of a more modern search for a more predominantly *architectonic* expressive character, involving ornament-free detailing.
These were essential traits for the developing Modern Movement, an approach and mentality that in the Netherlands came to be known as *New Objectivity* ('Nieuwe Zakelijkheid').

It was particularly Duiker who was in pursuit of what Rietveld would later characterise as an *'unusually honest'* architecture."[45]
The building-art they envisaged asserted issues of lightness and transparency, flexibility and efficiency, economy and elegance. At its core was an optimistic, innovative spirit, seeking answers to the questions of their day and age and giving form to these, in an architecture that is essentially precedent-free.

Auke van der Woud:
"Precisely because they were aware of the dynamism of the modern age, architects like Rietveld and Duiker had no interest in building for eternity. By considering a building as something temporary, they liberated themselves from traditions and monumentality – two aspects that had always been dominant normative values of architecture. This liberation led to the precedent-free architectural reality of the twentieth century."[46]

Kenneth Frampton draws a comparison between Duiker and two other influential modernists of the era: the rigidly 'materialist' Mart Stam and the more spiritually-inclined Leendert van der Vlugt, figurehead of the Opbouw group.

Kenneth Frampton:
"Stam's extreme materialism served to isolate him from the Functionalist Opbouw group, already established in Rotterdam by 1920. Despite their commitment to the 'Nieuwe Zakelijkheid', Opbouw members such as Brinkman and van der Vlugt and their industrialist client Kees van der Leeuw sought to transcend 'objectivity' through a concern for universal 'spiritual' values. This they expressed through their participation in the Dutch theosophical movement and through their building, in 1930, of a small retreat at Ommen for Krishnamurti and his followers. Similar spiritual aspirations were inherent in the work of Johannes Duiker and Bernard Bijvoet, who departed from their initial Wright-ian manner in the boarded house they built at Aalsmeer in 1924."[47]

Jan Duiker had a progressive, pioneering attitude to architecture. He was a socialist, but not dogmatic. The 'cosmic order' he aspired to was an expression of order and harmony: a matter of intellectual and spiritual 'economy'.[48]
The ambition he shared with other, like-minded architects of the modern 'movement' was to contribute towards resolving societal issues whilst implementing the latest technical developments, with an open eye for beauty.

Herman van Bergeijk:
"The traditional ornament and its symbolism may then have disappeared, but something new has come in its place. Constructive connections, new materials and their authentic applications, small refinements on the level of detailing, these all contribute towards ensuring that a building does not only have a functional or rational character, but that it transcends purity through the distinguishing qualities of its building order, which should not be confused with cosmic order."[49]

From the early 1960's there was a renewed interest in the work of Duiker as a pioneer of the modern movement in the Netherlands. This was given an impulse by a retrospective overview of his work in Forum, appearing in two parts in 1972.[50]

The publication of this oeuvre-study by J.E. Jelles and C.A. Alberts included the, then almost forgotten, project by Duiker & Bijvoet in Aalsmeer. This unique house increasingly began to be recognised as an integral part of Duikers' oeuvre, whereby the Smithsons identified the project as something of a ground-breaking work of the 'heroic' period of Modern architecture.[51]

In his authoritative book on the evolvement of Dutch architecture between 1900 and 1940, Giovanni Vanelli offers an eloquent appraisal of the project.[52]

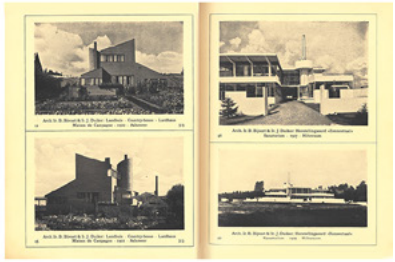
Vanelli:

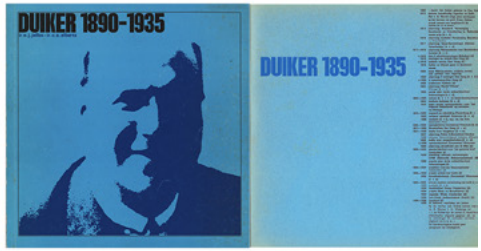
"The country-house along the Stommeerkade in Aalsmeer (1924–25) is compact in its setup, yet distinctly different on all sides and is exemplary in its seeming simplicity.
A preference for clearly defined volumes, highlighted by distinctive surface articulation and material choices, goes hand in hand with a pursuit for expression in the constituting parts that, each after their own function, contribute to the integral whole."

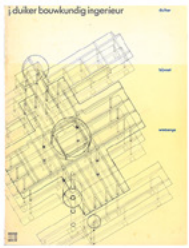


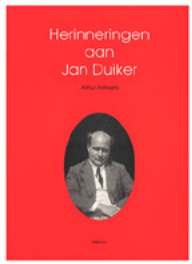










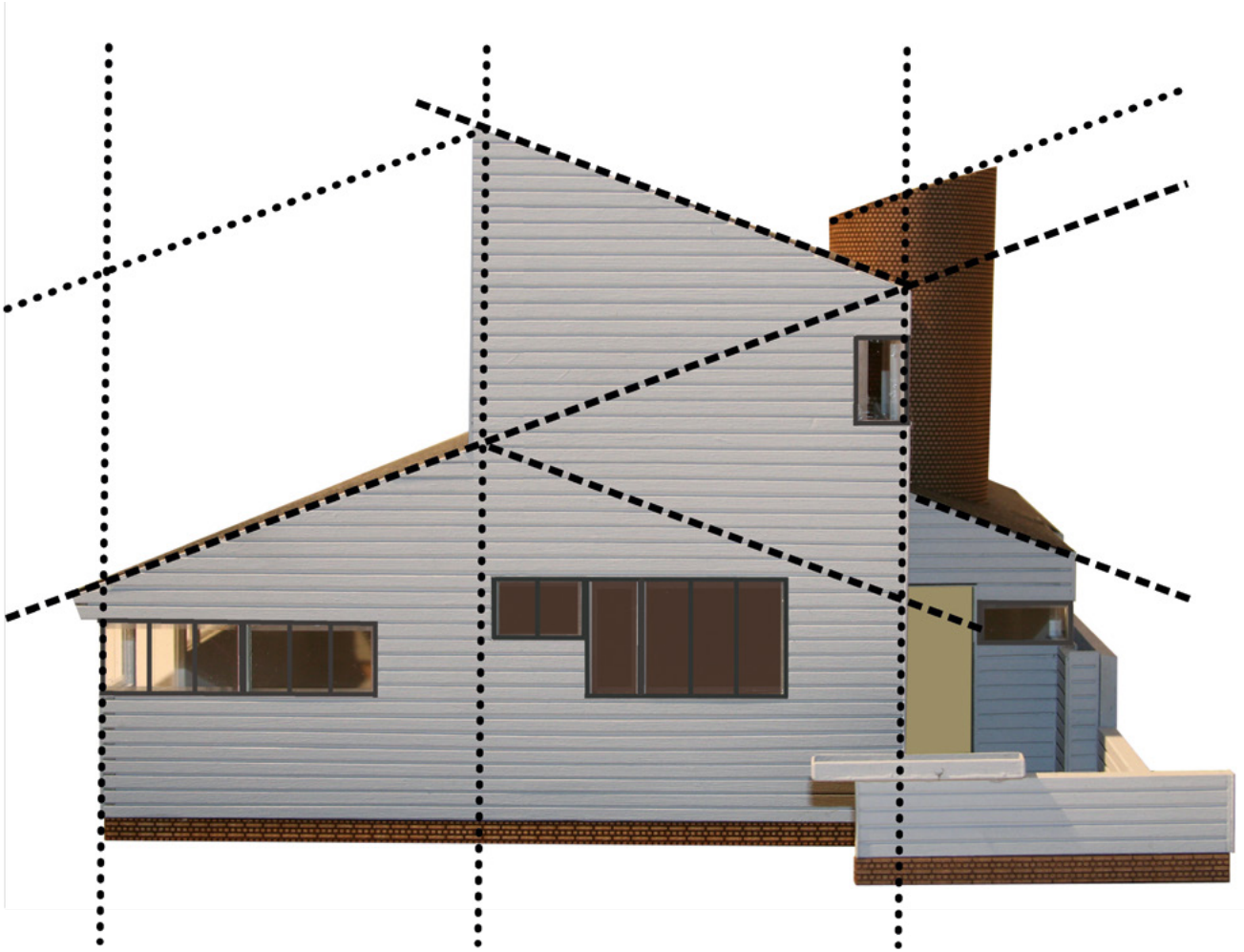












Aesthetics

When it was built, the Suermondt house was a sample of a wholly new kind of architecture, which was on the one hand novel and unfamiliar, yet on the other hand managed to resonate with more conventionally-inclined peers and colleagues.
Its success might have been due to the combination of its, somewhat reassuring, overall form (still with slanting roof-surfaces) and its uncompromising 'sharpness' of design and execution on the level of metre, proportion and materialisation, as well as its – physical and visual – 'lightness'.

The project's attraction may also be due in part to the fact that there is a tangible link with the 'vernacular' architecture of the wooden houses, sheds and greenhouses which the architects may encountered in the area and subsequently translated into a 'sharpened' modern version.
Urbanism professor Henco Bekkering even went so far as to consider the house as a vernacular work, in which he recognised a prototype for later post-modernist architects, like Robert Venturi.

Henco Bekkering, in his inaugural address (1999):
> *"In 1924, Jan Duiker made a 'vernacular' design for a house for a market-gardener in Aalsmeer, which through its interpretation and subtle commentary of traditional form could nearly have been the work of Venturi."*[53]

On an aesthetic level, I would be inclined to recognise two 'twin-phenomena' which by Duiker are not treated as opposites, but as 'harmonious' compositional counterparts:

— *Balance*: the attainment of a kind of physical and perceptual equilibrium, without symmetry;
— *Tension*: a liveliness of form of the object as an entity, complemented by a clarity of detailing.

The house's design marks a distinct transition-point in the development of its authors, in all probability particularly in the aesthetic development of Jan Duiker, who seems to have been professionally 'coming of age' around this time.
This is borne out in the 'purification' of the concept between the first drawings and the realised artifice, as well as by the ground-breaking evolution of Duiker's work in the coming years.

Whilst the building still vaguely echoes the two architects' earlier Wright-inspired buildings, this project is more radical, one might say more 'abstract' in its composition and physical presence.
A major attribute of the house is what might be called its 'shape-grammar': the a-symmetrical silhouettes of the front- and rear elevations, which are spatially and experientially brought to life in the elementary massing of its volumetric components. Within this, already quite unusual, formal ensemble, an important role is further played by the contrasting, massively-executed round tower. A visual balancing-act that demands perceptual attention.

Another important attribute is the building's 'skin', which has been visually draped over its lightweight wooden construction. In this context one might rightly speak of an early application of the 'curtain wall' (in Dutch: 'vlies-gevel').

The outer 'fabric' of the house consists of an all-encircling surface-composition, making use of only two 'graphic' elements: a wooden 'casing', with a fine-grained horizontal surface pattern, plus horizontal bands of fenestration with a regular, vertical sub-rhythms.

These two compositional attributes are orchestrated in unison, never stopping at the corners, stressing the themes of lightness, transparency and continuation.
The plastic three-dimensionality and transparency of these corners is strengthened by the consequentially applied inward-placement of load-bearing elements.

The dynamic impressions of an overall harmonic balance tempered with fine-tuned tensions on the level of form and feature were easily destroyed, as Peter Smithson recognised: with the whitewashing of the tower that was meant to contrast, the removal of the carefully-detailed steel windows which were replaced by banally-executed and -inserted wooden frames and the covering-up of the *'horizontal siding that sheathed the house'*.[54]

On the level of – shifting – aesthetic paradigms, it may be interesting to draw comparisons with two other iconic projects, realised at roughly the same time:

— Michel de Klerk's Barendsen House in Aalsmeer (AA04), realised in 1923 and
— Gerrit Rietveld's revolutionary Rietveld - Schröder House in Utrecht, also from 1924.

In size and execution, Duiker and Bijvoet's project may be looked upon as something of a 'poor cousin' compared to de Klerk's house, which seems to be far more ambitious in its formal and material complexity.[55]

It is likely that Bijvoet and Duiker were informed by de Klerk's Aalsmeer house and may have seen it as a benchmark for their own, more modest undertaking, rising to the occasion by implementing the clarifying refinements that would define their realised project's 'imperfect perfection'.

These two projects might be very different, but they can nonetheless be considered as complementary 'minor masterpieces', created by architects who, each in their own way, displayed a recognised capacity for 'genius'.

In this sense, the two projects also represent a confrontation between two *cultures* of architectural design:
The practically trained and artistically formed craftsman, excelling in expressive detailing- and drawing skills (de Klerk).
The academically educated, technically- and scientifically informed, 'objective' engineer-designer (Duiker).

For both 'streams' of architecture the two projects mark a junction, the point where:

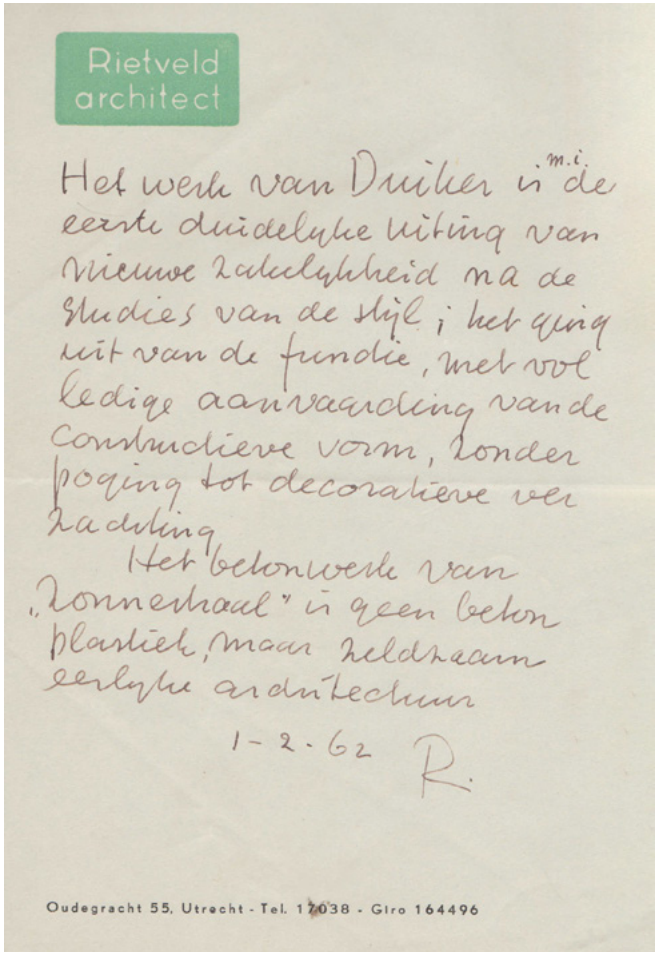
— The Expressionist Amsterdam School movement (in part due to the loss of de Klerk's leading role) would begin to transform into a more 'reduced', more mundane version of itself, whilst at the same time giving occasion to the rise of the neo-traditionalist Delft School. Thereby, the Barendsen house marks the untimely conclusion of Michel de Klerk's inquisitive and productive, inspired and inspiring life in architecture.
— The Functionalist movement begins to truly spread its wings, for the duration of a brief but nonetheless highly adventurous period of pre-war Modernism. Thereby, the Suermondt house represents a professional and aesthetic *paradigm shift* in the work of Jan Duiker, prefiguring the highly creative 'mature' phase of his short career, in which he would become recognised as one of the true masters of the Modern Movement.

It is worth realising that at the time that Duiker and Bijvoet were busy 're-inventing' themselves, Gerrit Rietveld was actively collaborating with his 'muse', Mrs. Schröder, to realise an unprecedented, and uninhibited masterpiece, which would become a kind of flag-ship of the De Stijl movement.
A year later J.J.P. Oud would complete the De Café de Unie project in Rotterdam, referencing the earlier De Stijl movement, whilst at the same time looking forward toward less decorative, more 'objective', purely 'cubic' modes of expression.

All three dwelling-projects – the de Klerk house, the Duiker house and the Rietveld house – have not only been saved for posterity but still possess an arresting poignancy and clarity of form. Speaking for myself, each has a striking visual identity that manages to charm and captivate, on each successive encounter.[56]

Gerrit Rietveld in 1962, looking back on the *"unusually honest architecture"* of his fellow-pioneer in the early Modern Movement, Jan Duiker:

> *"The work of Jan Duiker is (in my view) the first clear expression of new objectivity ('nieuwe zakelijkheid') after the experiments of de stijl; its point of departure was function, with the full acceptance of the constructional form, without any attempt at decorative softening."*[57]



Handwritten letter by Gerrit Rieveld, concerning the work of Jan Duiker (source: Herman van Bergeijk).

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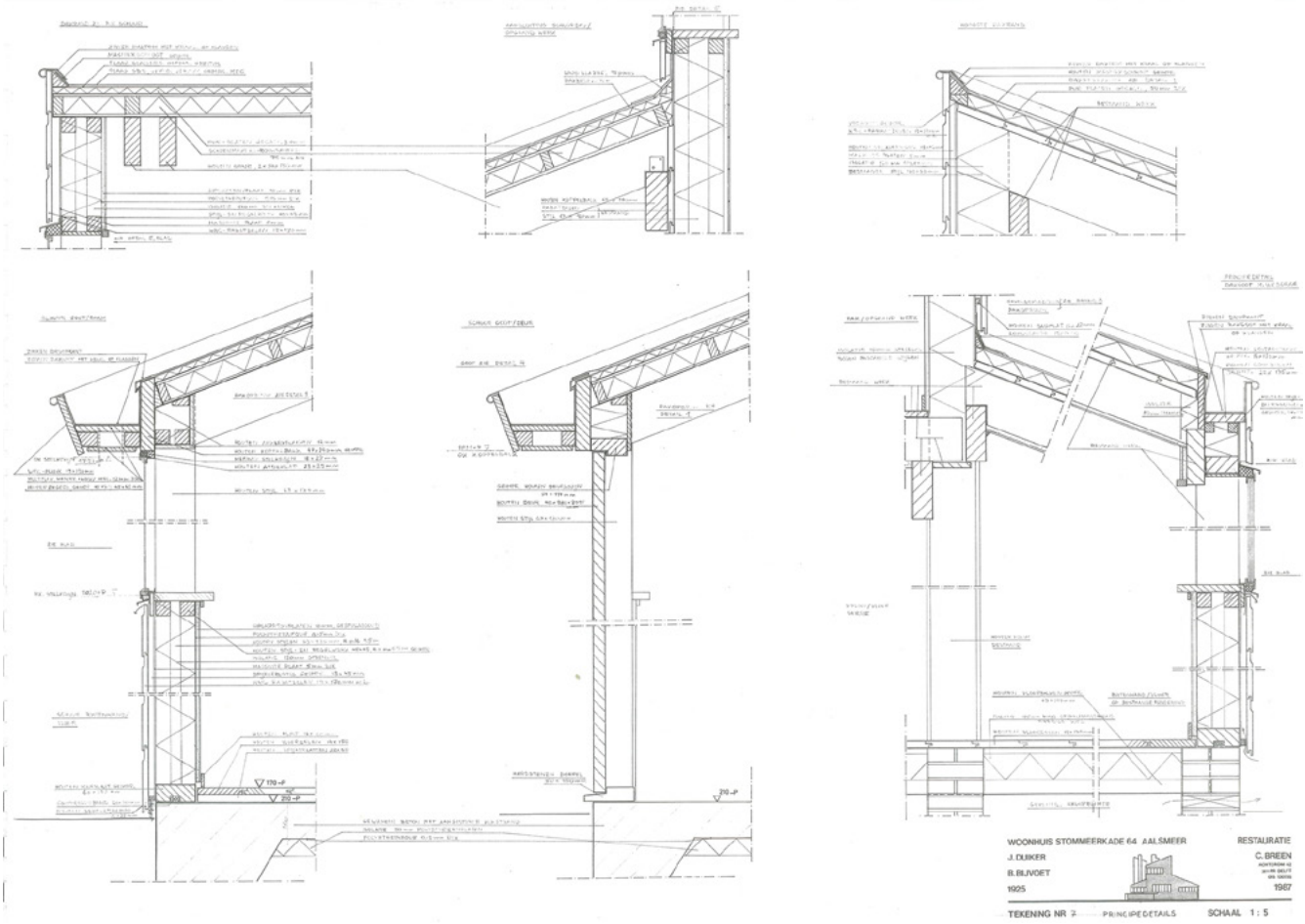


Collection of elementary detail-drawings for the restoration (Claudia Breen).

1 In the Netherlands, a distinction is made between Bouw*kunst* (building art) and Bouw*kunde* (building-skill and knowledge: technology). Whilst study at the building academies traditionally emphasized the artistic aspects of architecture as a discipline, the faculty at Delft, as part of the 'Technische Hoogeschool' (TH), now 'Technische Universiteit' (TU), addressed the technological conditions of architectural designing and building.

2 Rijksacademie voor Beeldende Kunsten, Amsterdam. The plan was to be a strategic element in H.P. Berlage's southern extension plan for Amsterdam, being situated where the new development would meet the nineteenth century neighbourhoods around the historic centre, the location of the current Hilton Hotel.

3 Giovanni Fanelli suggests that in their completion design, Duiker and Bijvoet actually managed to transcend the work of their mentors with a *"purely rational formal grammar"*. On the level of detailing he sees a connection with the Neoplasticism of the De Stijl Movement. Particularly in the entrance sections, there appear to be similarities between Duiker and Bijvoet's project and the factory and warehouse designs by J.J.P. Oud from 1919-20, published by van Doesburg in De Stijl in 1920.
Fanelli:
"In opzet en interieur is de invloed van Berlage en Wright duidelijk overwonnen in een persoonlijke, zuiver rationalistische vormentaal. De details doen sterk denken aan het neoplasticisme."

4 The first price amounted to a sum of 7.500 Guilders plus a design commission. The second prize for Michel Klerk – 5.000 guilders – was a disappointment for the promoters of de Klerk's work, such as Amsterdam School architect C.J. Blauw, who publicly criticized Bijvoet and Duiker's plan, which he considered to be too restrained and which would therefore 'feel empty'.
Source: Manfred Bock, Sigrid Johanisse, Vladimir Stissi: *Michel de Klerk, Architect and Artist of the Amsterdam School, 1884–1923*, NAi Publishers, Rotterdam, 1997

5 In their early career together the two architects still tended to put Bijvoet's name first and to emphasize their status as building engineers: 'Bouwkundig Ingenieur' (B.I.).
The drawing for the house in Aalsmeer is signed: 'De Bouwk, Ing. B.Bijvoet, J.Duiker' (signatures). On a later professional card, around 1930, Duiker would call himself 'j. duiker, architect-ingenieur' (in: *Herinneringen*).

6 The design for the Academy was published in a special theme number of Wendingen in 1921.

7 ANDB: Algemene Nederlandse Diamantwerkersbond. The initiative was taken by the 'Koperen Stelen Fonds', an organisation that collected money, initially from the sale of rest material of diamond cutting and polishing, for the benefit of the workers in the diamond industry.

8 The letter from B. Bijvoet – J. Duiker, 'Bouwkundig-Ingenieurs' in Zandvoort, addressed to the municipality of Aalsmeer requesting a building permit, is dated October 28th 1924. The building permit was issued on November 20th 1924.

9 Bijvoet moved to Paris with his family and Duiker's recently divorced wife Hermien and her and Jan Duiker's two children.

10 The drawing has been reconstructed on the basis of copies made from the sole surviving blueprint, which is in the collection of the Aalsmeer municipality's archive. The drawing includes plans, sections and elevations scale 1 : 100, a technical principle section scale 1 : 20 and a situation sketch 1 : 500.

11 The Duiker group made an attempt to redraw the plans and facades, but the dimensions of the frames are less pronounced and the discrepancies in the drawings are not resolved convincingly.

12 The two pictures show the front and rear facades of the house. The image taken from the front was, included in 'Nieuwe Bouwkunst in Nederland' by A. Sevenhuizen, published in 1928 and has appeared in several subsequent publications.

13 The third photograph was published in the retrospective *Het Landhuisje en de Boerderij* of 1933, part of the series *Moderne Bouwkunst in Nederland*.

14 In all probability referring to the big poplar tree, then standing in the west of the garden.

15 According to H. Oortwijn, the photograph was taken around 1960 by ir. E.J. Jelles.
This is the state in which the author would have first become aware of the house, aged about 7 years.
Because of its distinctive profile and facade composition, viewed from the dike above, the house managed to make a lasting impression, indeed fascination to this day. To my memory the facades were painted a light greenish yellow and the windows would have been off-white.

16 The initial article on the *Heroic Period* was first published in *Architectural Digest* in December 1965. The second article, concerning the *Design Relics* was also published in AD, in December 1967.
Concerning the house and its condition, Peter Smithson writes:
"The original brick stair tower has been painted white, the carefully detailed windows have been replaced and the horizontal siding that sheathed the house has gone, leaving a travesty."
He includes a photograph which he took from the dike.

17 The greenish-grey tone is what I remember from my first encounters with the house, in the 1960's.

18 The Dutch equivalent to a 'National Trust' was at the time known as the 'Rijksdienst voor Monumentenzorg', based in Zeist. The organization is currently named 'Rijksdienst voor het Cultureel Erfgoed' (national authority for Cultural Heritage).

19 Claudia Breen: *Restauratie tuinderswoning in Aalsmeer, Houtskeletbouw van Duiker en Bijvoet gereconstrueerd*, in: Achitectuur/Bouwen (1989). Translation by the author.e Looorof. ir. J.G. Wattjes (1879–1944), publicist en architect82.s busy and ratehr rade.14.Nonetheles

20 Driving forces of the DOCOMOMO platform in the Netherlands were from the outset Hubert Jan Henket and Wessel de Jonge, who played an important role in the rejuvenation of monuments of the Modern Movement in the Netherlands.

21 Some argued that such a restoration might be considered as 'improving' upon the original, whilst at the same time maintaining elements that might better have been replaced. The 1989 article on the restoration in Architectuur/Bouwen was accompanied by a critical note concerning the restauration policy of the state by A/B editor Wim van Heuvel: *Een opnieuw verbeterd jong monument?*

22 Since the projects completion of this project, the Zonnestraal sanatorium, the Nirwana flat, the Gooiland complex and the Cineac cinema have also been restored.

23 It could be that another aesthetic format was considered, but was judged not to be acceptable in this rural context.
Duiker expert Jan Molema has informed me that the project was financed by the Suermondt family for their son, in the hope that this would be a suitable profession for him. The family lived in The Hague opposite Duiker & Bijvoet's double villa on the Stadhouderslaan, with its characteristic triangular geometries, which may have informed expectations concerning the formal concept for the Aalsmeer house.

24 On May 23rd 1919, Duiker married Hermina (Hermien) Valken (according to Arthur Hoffmans, after an engagement of some 11 years). The same day, Bijvoet married Jacoba (Co) Ezerman. Duiker left The Hague directly after the marriage, to be joined shortly thereafter by Bijvoet. Source: Bergeijk, pg. 59.

25 Lucie had moved into one of the houses in Zandvoort with her husband and two children, Edith and Arthur, in the summer of 1920.
Lucie and Jan appear to have found each other and both their marriages were terminated in the summer of 1925. They would move to Amster-

dam, marrying in 1926 and living in a number of apartments that not only offered room for Duiker's office, but also for his Steinway piano. Lucie collaborated closely with Duiker in the practice, acting as his secretary and administrator. Memories of the happy liaison and the period leading up to Duiker's early death were documented by Arthur Hofmans, the son of Lucie in his published Memories of Jan Duiker (source: Herinneringen).

26 Bijvoet and Chareau apparently met at the Exposition Internationale des Arts Décoratifs et Industriels Modernes which was held in Paris from April to October.
Source: Brian Brace Taylor: *Pierre Chareau, Designer and Architect*, Benedict Taschen, 1992.

27 Bijvoet would collaborate with successful Art Deco architect and furniture designer Pierre Chareau on the cutting-edge design for the 'Maison de Verre', the Paris home and practice for doctor Dalsace (1928-1932) and would further work with French architects Beaudouin and Lods.
In French publications, his name is generally spelt 'Bijvoët'.
During the war he took refuge in the Dordogne region.

28 In September 1925, Bijvoet with his wife Co and daughter Wimmy, together with Hermien Duiker-Valken and her two children, Loise and Fokke, moved to Paris.

29 As discussed earlier there are distinct differences between the drawings and the realized project. The building permit was issued on November 20th 1924, with the specific condition that the building should be completed six months later, i.e. before the summer of 1925.

30 Herman van Bergeijk in his biographical overview:
"Nog een opmerking: wij gebruiken de naam Duiker 'ongediscrimineerd', in zoverre dat we aanvankelijk het bureau Bijvoet en Duiker bedoelen, later Duiker met/zonder Bijvoet, weer later Duiker en Wiebenga. Altijd bedoelen we echter het bureau waarin Duiker de leidinggevende ontwerper was en de aanzet gaf tot de meest originele oplossingen."

31 Duiker expert Jan Molema has confided in me that to his mind Bijvoet was the one who preferred working in the office and had a certain *'joie de vivre'*, whilst Duiker was the one who was most meticulous, and the more outward-looking of the two, having the strongest connection with the contractors and the building site.
Source: conversation, July 2016.

32 Data: Duikergroep TH Delft, 1982.

33 The Nirwâna flat complex was Duiker's attempt to put his fascination for high-rise building into practice. It was developed in collaboration with Wiebenga, who was inspired by the efficiency he had encountered during his stay in the United States.
The ambitious project, which originally foresaw in a series of towers eventually only resulted in one 'prototype' of modest height and put a strain on the relationship of both designer/engineers.
IN 1930 Duiker would publish a book on the subject of high-rise building: *Hoogbouw*, W. L. & J. Brusse's Uitgeversmaatschappij N.V., Rotterdam, 1930 (reprint: 1981).

34 Source: *Duiker in Den Haag*, pg. 146.

35 According to Duikers' stepson, Arthur Hoffmans, vists by Bijvoet had been quite rare, but that he came from France to visit Duiker on a number of occasions at the end of 1934 and the beginning of 1935 to help out and to discuss the Gooiland project, which he would later complete.
Source: 'Herinneringen', pg. 72.

36 Bijvoet lived in France for twenty years with his own family, plus Duiker's first wife and two children, before returning the Netherlands after the war. In December 1945 Bijvoet's marriage to Co Bijvoet-Ezerman was dissolved. In October 1946 he married Duiker's first wife Hermien (source: 'Herinneringen').

37 In 2017, Duiker-expert Jan Molema, working together with Suzy Leemans, published a retrospective interpretation of Bijvoet's life and work.

38 Duiker was an active member of the of group of modern architects called 'De 8', founded in 1927 in Amsterdam. Duiker contributed to their magazine as an editor. De 8 had a lively interaction with their modernist counterpart 'De Opbouw', founded in 1925 in Rotterdam.

39 Jan van Zutphen:
"Zijn genialiteit, die zijn eenvoud en goedheid nimmer verstoorde, is helaas gedoofd. Zijn geest en bezieling spreken blijvend uit zijn werk."
Source: 'Herinneringen' by Arthur Hofmans.

40 Ida Jager: *The Creation of Art from Construction and Technique'* in: *Duiker in Den Haag*, 1999.
This is a summary of the opening chapter of the book: *'Bouwkunst-schepper door constructive en techniek.'*

41 Erik Mattie:
"Duiker was probably one of the most inspiring architects of the Nieuwe Bouwen."
Quote from: Jan Derwig, Erik Mattie: *Functionalism in the Netherlands*, Architectura et Natura, Amsterdam, 1995.

42 Aug. M.J. Sevenhuijsen: *Nieuwe Bouwkunst in Nederland*, 1928. Sevenhuizen appears to have been the architect of the three villas Duiker and Bijvoet purchased in Sanvoort (on the basis of project-images in van der Kloot Meijburg's *Landhuisbouw in Nederland*, 1921.

43 Prof. Ir. J.G. Wattjes: *Nieuw-Nederlandsche Bouwkunst*, 1929.

44 Nr. 7 in the series entitled 'Moderne Bouwkunst in Nederland' thematic issue: *Het landhuisje en de boerderij*, 1933. Apart from the Barensen house, the issue also included de Klerk's villa in Hilversum from 1914, which was also included in the book by Wattjes.

45 Except from Gerrit Rietveld's letter of remembrance, after the death of Jan Duiker.
Source: Herman van Bergeijk.

46 Auke van der Woud, on the Open Air School. In: A. Van der Woud: *Sterrenstof. Honderd jaar mythologie in de Nederlandse architectuur*, 010 Publishers, Rotterdam, 2008.
Quoted in Herman van Bergeijk's Duiker retrospective:
"Het gebouw is een van de pregnantste iconen van het het modernisme, een van de krachtigste representaties van de 'bevrijding' die de moderne beweging wilde laten zien. […] Het is een draagstructuur voor het moderne leven, niet meer en niet minder. Juist omdat ze de dynamiek van de moderne tijd voelen, hadden architecten als Duiker en Rietveld geen interesse in bouwen voor de eeuwigheid. Door een gebouw als tijdelijk op te vatten, bevrijdden ze zichzelf van tradities en monumentaliteit – twee onderwerpen die in het waarden- en normensysteem van de architectuur altijd voorop stonden. Door die bevrijding ontstond de precedentloze architectonische werkelijkheid van de twintigste eeuw."
Translation by the author.

47 Kenneth Frampton on 'The New Objectivity: Germany, Holland and Switzerland 1923-33', in: *Modern Architecture: a critical history*, 1980.

48 In the sleeve-notes of his book on Jan Duiker, Herman van Bergeijk writes:
"Groot belang hechtte Duiker aan 'geestelijke economie'. Nieuwe wetenschappelijke inzichten, ontdekkingen en efficiënte productiewijzen wezen de weg naar zijn modernistische architectuur, die hij beschouwde als een uiting van een kosmische orde."

49 Herman van Bergeijk, on Pg. 32:
"Het traditionele ornament en de symboliek daarvan mogen dan wel verdwenen zijn, er is iets nieuws voor in de plaats gekomen. Constructieve knooppunten, nieuwe materialen en hun eerlijke toepassing, kleine verfijningen in de detaillering, dit alles draagt eraan bij dat een bouwwerk niet slechts een functionele of rationele uitstraling krijgt, maar de puurheid overstijgt in het bijzondere van haar oplossing, in de bouworde, die overigens niet moet worden verward met een kosmische orde."
Translaion by the author.

50 In: *Forum voor Architectuur en daarmee verbonden kunsten*, nrs. 5 and 6, 1972, published on behalf of 'Architectura et Amicitia'. The retrospective would appear in book-form in 1976.

51 In 1965 the project had been included in an issue of *Architectural Design*, curated and edited by Alison and Peter Smithson, later to appear in book-form in 1980.

52 Quote from Giovanni Fanelli's description of the house in his influential book on modern Dutch architecture 1900-1940.
Fanelli's original text (adapted by Wim de Wit for the Dutch language publication):
"Het landhuis aan de Stommeerkade in Aalsmeer (1924-25) is compact van opzet maar tegelijk aan alle zijden totaal verschillend en is voorbeeldig in zijn schijnbare eenvoud. De voorliefde voor bouwvolumes, die juist in hun oppervaktewerking opvallen vanwege een weloverwogen materiaalgebruik, gaan samen met een zoeken naar expressiviteit in de verschillende delen die, elk naar eigen functie, het geheel tot stand brengen."
Translation by the author.

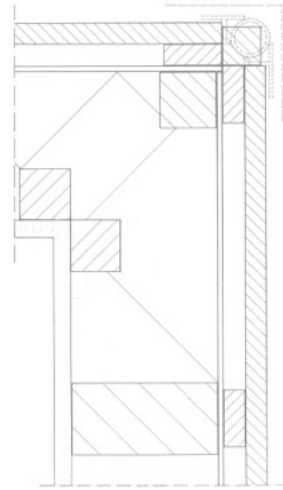
53 Professor Henco Beekering, in *Voetlicht op het Stedebouwkundig Ontwerpen in Het Fin De Sciècle*:
"Jan Duiker maakte in 1924 een 'vernacular ontwerp voor het huis voor een tuinder in Aalsmeer, dat met zijn interpretatie van en subtiele commentaar op de traditionele vorm bijna van Venturi had kunnen zijn." Delft University Press, 1999. Pg. 40. Translation by the author.
In the published booklet, Bekkering includes an illustration of the house as well as the Loosdrecht villa by Rietveld, from 1941.
It is arguably possible to note parallels between the Duiker house and the houses of Robert Venturi (and possibly those of Charles Moore), but as far as I am aware there is no evidence that this house served as an inspiration for the American post-modernist architects.

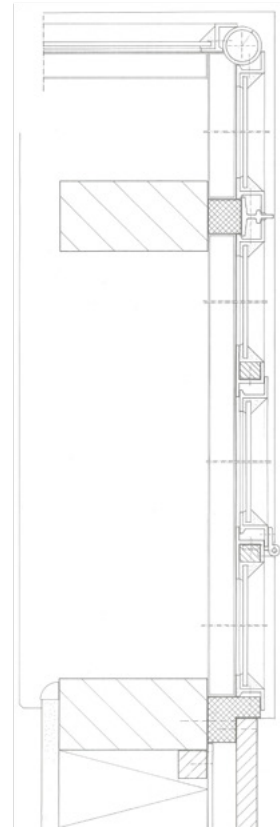
54 Peter Smithson in the AD article: *Heroic Relics*, in: *Architectural Design* (1967).

55 In her dissertation study on de Klerk, *Michel de Klerk 1884-1923, An Architect of the Amsterdam School*, published in 1984, Suzanne S. Frank suggests Bijvoet and Duiker's design may have been inspired by the De Hoop clubhouse:
"In 1922 when de Klerk's drawings of the Hoop were published Bijvoet and Duiker designed a house in Aalsmeer (completed c. 1925), whose exterior treatment of siding, cylindrical stair well mass, and controlled window grouping suggest a knowledge of some of the ideas de Klerk worked out in the second housing block at Spaarndammerbuurt and the Hoop, which was de Klerk's last building."
She includes the two well-known pictures of their house in Aalsmeer, but without further explication.

56 On my last 'round' of the Aalsmeer projects, on a beautiful late-winter day (March 2nd 2018), I was briefly re-acquainted with the collection of remaining projects.
In all honesty, the projects by de Klerk and particularly Duiker & Bijvoet project 'stood out.'
The experience was rounded-off fittingly when I then travelled on to Utrecht and by-chance also re-encountered the Rietveld-Schröder House.

57 Gerrit Rietveld in a note dated '1-2-62', handwritten on his 'Rietveld architect' office paper:
"Het werk van Duiker is (m.i.) de eerste duidelijke uitdrukking van nieuwe zakelijkheid na de studies van de stijl; het ging uit van de functie, met volledige aanvaarding van de constructieve vorm, zonder poging tot decoratieve verzachting.
Het betonwerk van "Zonnestraal" is geen beton plastiek, maar zeldzaam eerlijke architectuur, 1-2-62, R"
Translation by the author.
This quote came to my attention during a promotional-lecture by Herman Bergeijk, on the occasion of the presentation of his new book on Duiker, at the faculty of Architecture in Delft (2016).
He was good enough to forward me a scan of the original document.

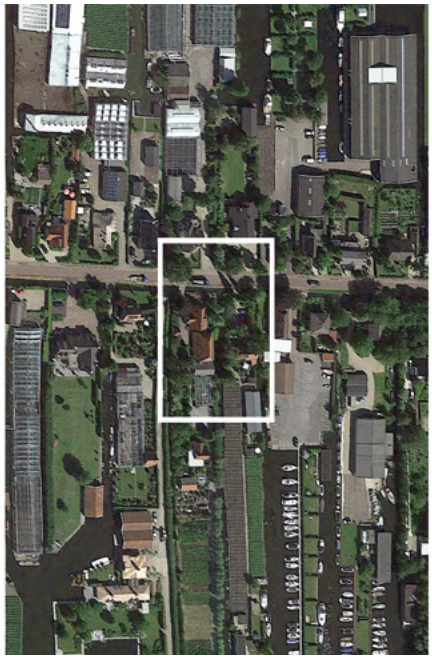


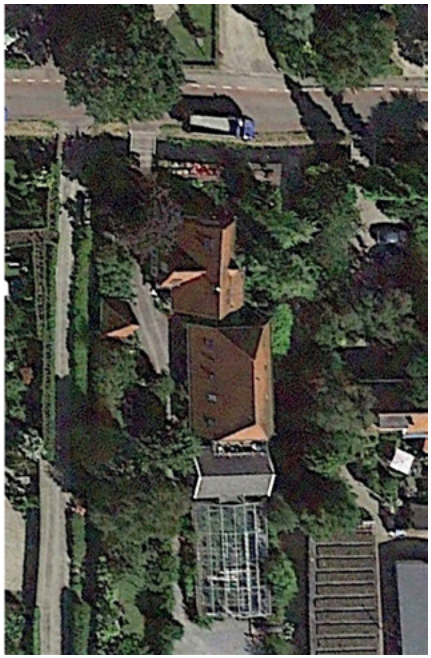


7. AA Variations

7.6 AA06
J.F. Berghoef
1926













Introduction

The three-piece ensemble of detached house, flower-shed and waterside work-shed, built in 1926, is one of the earliest realised works by architect J.F. Berghoef.

Johannes Fake Berghoef (1903–1994) was born and raised in Aalsmeer and was familiar with the local, vernacular architecture, which was then still a predominant local phenomenon.[1]
A year before finishing his secondary school (HBS) in Amsterdam, a visit to the house built by J.J.P. Oud (AA03) made him decide to study Architecture, rather than Maritime Technology.
From that moment on he began to draw houses, rather than ships, becoming engrossed in the work of Hermann Muthesius.[2]
He then went on to study Architecture at the Delft Polytechnic ('Technische Hoogeschool') in 1921. In his first year, Berghoef became acquainted with the early works of Frank Lloyd Wright. Other favourites in his first three years of study were Mackintosh, Voisy, Baillie Scot and *'last but not least'* Lutyens.[3]

At the beginning of his fourth year in Delft (September 1924) Berghoef made the acquaintance of a new professor at the faculty: M.J. Granpré Molière (1883–1973), who would become the leading figure of the neo-traditionalist 'Delft School' movement, in which Berghoef would come to play a major role.[4]

In 1925, while still enrolled as a student at the TH Delft, he decided start his own architectural practice in his home-town of Aalsmeer. The free-standing market-gardener's house with integrated sheds that he designed for W. Keessen and his family was in all probability his first integral design to be realised.[5]

The new structure was situated on the south-eastern side of the Uiterweg dike-road, directly opposite 'Terra Nova' (AA02), on a long plot of fertile land, which opens up at the rear-end to the minor section of the West-end lake.
The ditches which surround the property on all sides would have been used extensively for the transportation of plants and flowers over water.

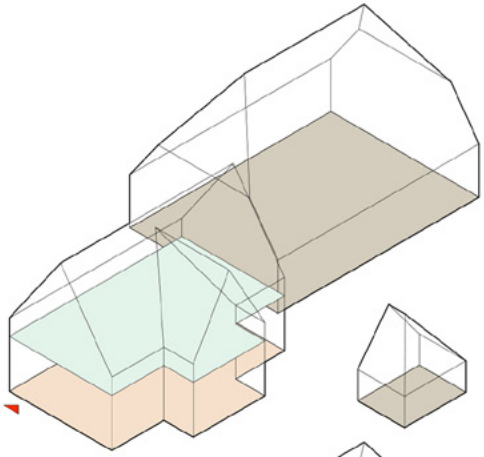
An important market-gardening product at the time would have been lilacs ('seringen'), which would be brought in from the outlying islands to flower in the greenhouses situated behind the house.[6] The main flower-shed and a water-shed ('walhok'), surround the front of the commercial zone behind the house. Both are situated along the water, with side-openings giving direct access for flat-bottomed barges, moored alongside.

The main living-spaces of the house are oriented towards the south-west.
The front-entrance would originally have been reached from the main road via a swivelling foot-bridge. Later this was replaced by a fixed bridge, for the transportation of goods by road, on the other side.

AA06	: Information		
Project	: W. Keessen House : Uiterweg 207, Aalsmeer		
Architect	: Johannes Fake Berghoef		
Style	: Neo-Traditionalism : Early Delft School		
Year	: 1926		
Ground-plan	: 250 m^2	Floor-plan	: 450 m^2
Volume	: 1155 m^3	Ratio V/F	: 3,4 m

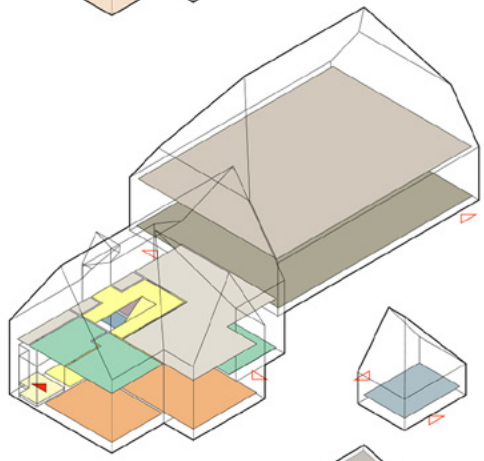






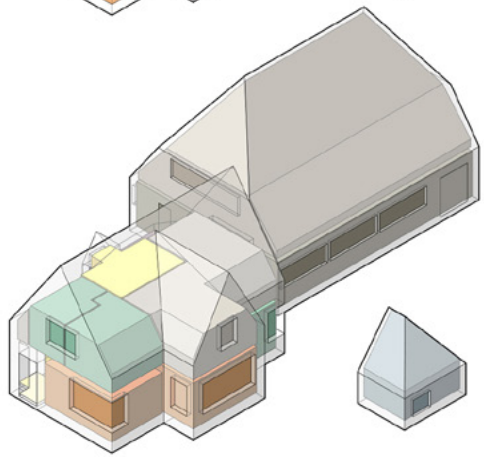
A.1 Context

The integral ensemble of family home, workspace and water-side-shed replaced and old farmhouse. The site was a relatively narrow island-plot, on the southern side of the Uiterweg dike, surrounded on three sides by canals and facing-out onto the smaller ‘pool’ of the West-end lake.
As is indicated in the drawings, the house-entrance would have been reached from the road by a narrow, via a pedestrian bridge. Transportation of plants and other goods to and from outlying fields and from the work-shed to the auction would have been over the water. Both utility-buildings opened up to the longitudinal canals as well as to the main yard.
In the house, most of the family functions were situated on the ground floor, with the living rooms facing west and the entrance and the service-spaces oriented towards the east.



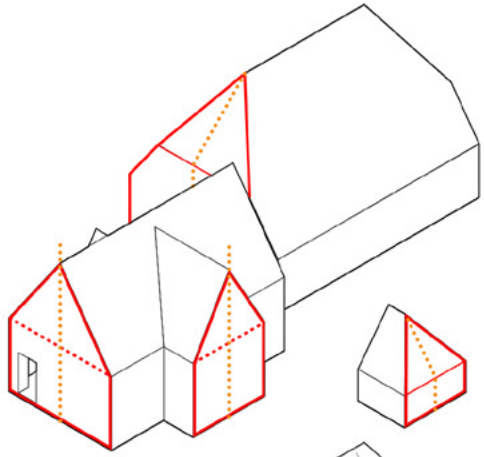
A.2 Function

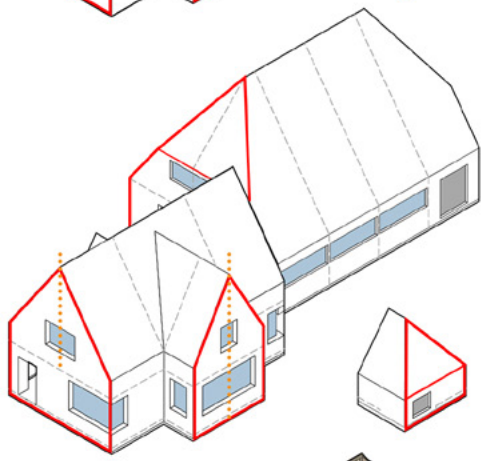
Compared to the Barendsen house by the Klerk, which attempts to integrate all functions within one sculpturally-modulated ensemble, the main functional components have here been given their own particular buildings.
In the house, the main living functions are concentrated on the ground floor: living room, dining room, kitchen, plus master bedroom. The upper floor originally had two bedrooms and a multifunctional attic space, subsequently turned into bedrooms and a bathroom. The flower-shed is an open-space, multifunctional workspace connected to the yard and a loading-dock for flowers and plants. The iconic waterside storage- and workspace represents all water-activities: washing, fishing and the upkeep of boats, which were essential to the day-to-day workings of a flower growing and -trading enterprise.

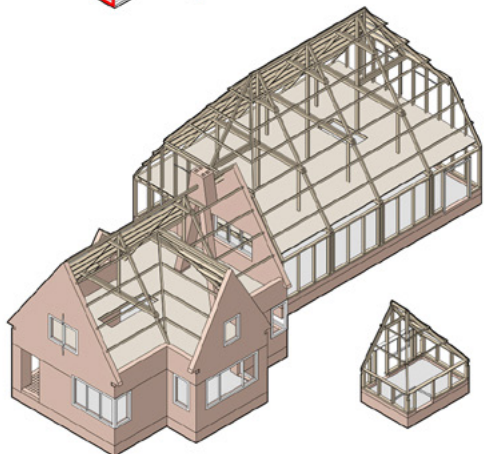


A.3 Interior

The main house has an elegantly logical interior arrangement, with the major family functions clustered on the ground floor.
The ‘official’ entrance leads via a vestibule to a hallway with stairs, connected to the main family rooms: the kitchen, orientated towards the northeast, with a rear entrance, and the centrally-situated living room, connected with a ‘sitting room’ at the front and the master bedroom ate the rear.
These rooms were oriented towards a private garden, facing the afternoon sun. This domain was bounded by water and a low wall connected with the watershed.
The first-floor spaces are determined by slanting roofs and have their openings in the vertical, brick facades.
The flower shed consists of a lofty open space with openings along both sides and an attic with front- and rear openings.







B.1 Object

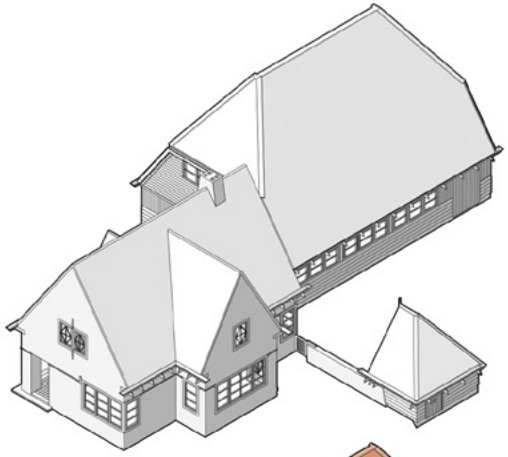
The design consists of an integral arrangement of three independent, but strategically aligned volumes, each with its own distinctive shapes.
The house is built-up as an elementary composition of rectangular and triangular elements; with a roof-pitch of 54°.
On the level of massing, the main body (with a width of just under 7 m) intersects with a perpendicular section (width: just under 5 m). Prominent vertical surfaces create ‘faces’ to three sides.
Towards the east, an entrance is sculpturally ‘subtracted’ from the main body of the house and the ‘extruded’ kitchen-area, with a mildly-sloping roof (34°), is integrated. The two service-buildings – the prominent main-shed and the minor water-shed – correspond with the main house, but these have very different sizes and proportions, and partly-pyramidal roof volumes.

B.2 Structure

The house essentially consists of a system of load-bearing brick walls with wooden substructures, supporting the two floors and the roofs.
The house’s ground-floor is divided into three parallel zones, which correspond with the spatial arrangement, measuring approximately 3,5, 4,8, and 3,3 metres from front to rear.
The roof-structure is supported by the brick outer-walls and by two intermediate wooden trusses. The exterior walls have pronounced openings facing southwest, with open corners at the front and at the rear. The upper wall-sections are punctuated by secondary windows. Both of the sheds are constructed entirely in wood. The bigger volume is subdivided into four 3,35 meters wide structural zones. These determine the primary load-bearing system, as well as the rhythm of the facade-openings on both sides.

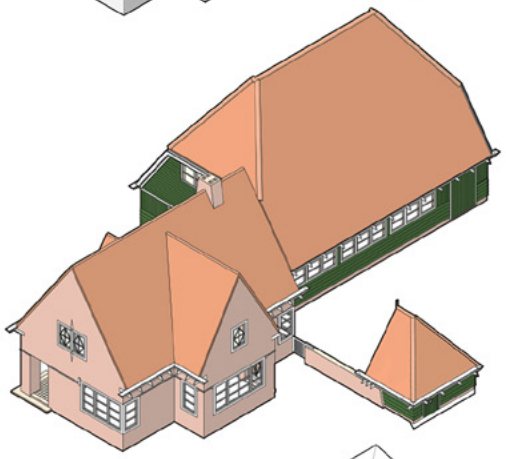
B.3 Technique

On the level of its technical execution, the design makes use of then-standard building-procedures, adapted for aesthetic effect.
The house’s load-bearing brick walls have a representative outer layer. Apart from two parallel inner walls and a perpendicular wall, supporting the hallway section, the construction consists entirely of wooden beams and planks. Corner-supports are integrated into the distinctive window frames.
The wooden shed is an adaptation of historical prototypes, typical of the area. An elegant truss-system creates a column-free span of some 10 meters. Each truss-section consists of intertwined single- and double beams. The resulting framework supports both the double primary beams and single secondary beams.
The waterside shed is expressively articulated as a ‘miniature’ of the main volume.



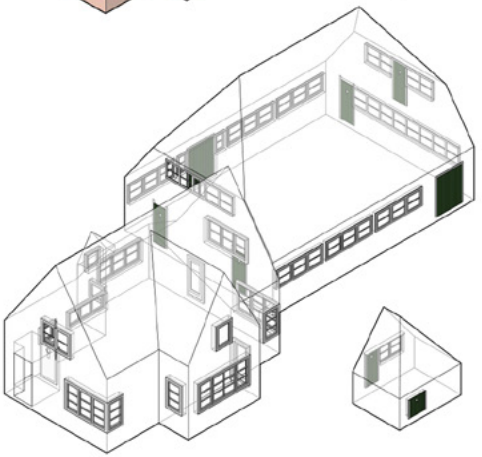
C.1 Facade

On the level of geometry and surface-arrangement, the terracotta tiled roofs are characteristic of all three elements.
On the level of materialisation and articulation, there is a clear distinction between the house (brickwork) and the service-buildings (wooden planking).
Around the periphery of the house, a line in the brickwork visually connects, and modestly articulates, the tops of all ground-floor windows and doors. Window-sections are grouped together with systematic subdivisions.
The work-shed is not treated as an afterthought, but is given a surface treatment that is clearly different from the main house, yet precise and varied in its execution, with regular patterning in the window sections. The manifestation of the water-shed is mainly determined by the shape of its notable, low-hanging roof.



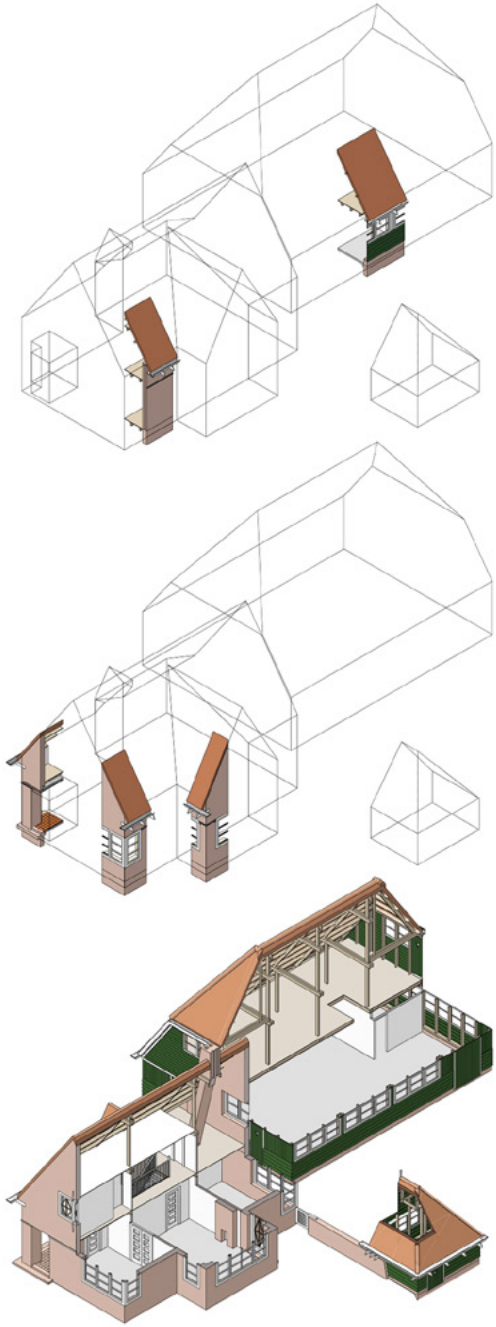
C.2 Surface

The house is characterised by the 'fabric' of its brickwork, offset by strategically positioned and partitioned window-sections.
The walls are executed in reddish-brown brickwork with a running bond, plus a standing bond above the windows and the entrance.
Around the house, a line is spun using a dark-grey stone, one brick high, subtly jutting out some two centimetres.
As a contrast, the shed 'looking over its shoulder', has a controlled variety of surface textures.
All of the wooden surfaces of the sheds have been painted dark green, but the planking-patterns vary: horizontal but overlapping in the lower sections; vertically aligned above and horizontal without overlap in the upper sections.
Throughout, all of the wooden window-frames and moving parts, with the exception of doors, are painted white.



C.3 Opening

The windows are treated as an expressive theme throughout, whereby clear distinctions have been made on the level of framing and subdivision.
The stoutly dimensioned window-frames of the house seem to be exaggerated for dramatic effect. There is no distinction between movable- and static windows-sections.
The dimensions of the window-frames in the shed are less pronounced. There were originally two recurring themes on the level of subdivisions. The first was to use fine horizontal strips, dividing the openings into sub-sections: two in the kitchen windows; three in the main windows. This pattern is consequently repeated in all of the shed's window-sections. The original decorative lozenge-motifs, in the hallway area, the upper windows and the doors have disappeared (now only remaining in the kitchen-door).



D.1 Junction

On the level of detailing, main attributes are the connections between the vertical surfaces and the roofs. The connection between pitched roof and wall is made via triangular gutters, regularly-placed with angular endings. These form a recurring, ‘signature’ theme throughout the project as a whole.
Further characteristics are the windows and their placement in the outer surfaces. In both the house and the shed, the detailing is as good as ‘flat’, with hardly any plastic differentiation between the snugly-fitting window-frames and the outer ‘skin’.
In the workshop the horizontal window-sections are positioned in a band, interspersed by the constructive zones, and are surrounded by wooden planking.
In the house’s three ‘faces’, the brickwork is continued upward until it meets specially profiled end-tiles of the roof.

D.2 Feature

For the most part the detailing is ‘honest’, with hardly any frills. Eye-catching features are the triangular gutters, particularly where they end and go around the inner corners. The same detail is also adapted to the wooden structures of the main shed and even the considerably smaller water-shed. This lends the ensemble and a level of identity, even status.
Further, subdued ornamentation is introduced where the extruded line in the brickwork connects with the stout window-frames.
The diagonal window subdivisions, in the hallway- and upper walls would originally have been a characteristic feature. Furthermore, there is an emblematic decoration, highlighting the symmetrically-placed upper window, facing the street, which comes across as somewhat ‘added on’.
Small triangular openings are taken up in the wooden shed-doors.

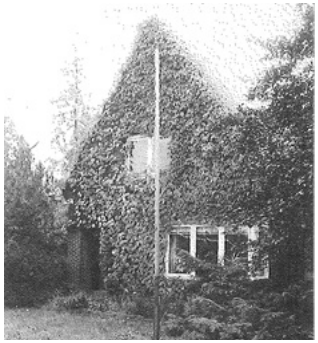
D.3 Ensemble

The ground-floor of the house was conceived as a representative interior arrangement, complete with integrated furnishings. By comparison, the interior arrangement of the top floor was less specific, with lightweight wooden volumes built into the open space, under the enveloping, wooden roof-structure.
The visual interaction between the three juxtaposed volumes would have been even more pronounced when de low garden-wall was still in place, highlighting an exterior sitting-area, connected to the main living room and indirectly to the kitchen.
In recent years, the owners have built a transparent connection between the kitchen and the workshop, which serves as the everyday entrance to the home.
The ‘hidden gem’ is the unique ‘walhok’: a finely articulated ‘closing piece’, reminiscent of the Amsterdam School.[7]





Photos of the original farmhouse and Berghoef house (source: Hansen family).





The House in the 1980's and 1990's, before the reconstruction of the windows.

Development

The new house, with its interrelated work-sheds, replaced a single-volume, traditional wooden farmhouse-building.[8]

From the beginning, the decision appears to have been taken not to build a functional arrangement under one roof, but to subdivide the project into three distinct, but interrelated parts:
- The family-home at the front;
- The main work-shed behind it, along the water to the left (seen from the street);
- A water-shed along the water on the right-hand side.
- What is quite special is that these 'service' buildings were designed by the same architect and that the whole project was realised in 'one go'.

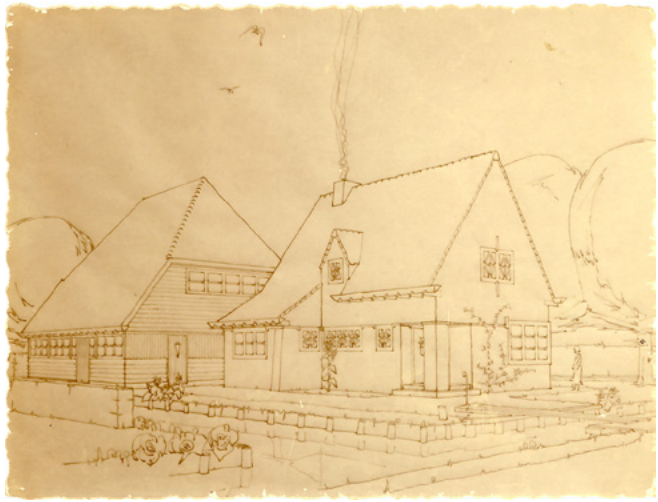
An original situation-drawing, submitted to the municipality for permission, gives an indication of the building's seting relative to the dike-road and the various ditches ('sloten') as well as the ownership-situation at the time.[9]
The main sources for the project-based modelling study were the excellent, original planning-drawings ('bestektekeningen') scale 1 : 100, which were retrieved from the archive of the municipal building-department, early-on in the study.
These 'contract' drawings are meticulously drawn with very fine lines.
Compared to the more rudimentary drawings produced by Berghoef's office around 1930, these suggest the attentive hand of the academically trained young Berghoef himself, rather than that of a technical draughtsman.[10]
Berghoef also produced perspective drawings, showing the house viewed from the north, looking from the Uiterweg. The line-drawing shows the house's kitchen side and entrance loggia, connected with the dike by a swivelling foot-bridge.[11]
The perspective gives a good indication of what the definitive design was to look like, complete with the characteristic lozenge-shaped sub-divisions in the windows, which have since disappeared.

For a considerable time, I was under the impression that this house was the result of a relatively straightforward design process. However, it turned out that this was not actually the case… When later consulting the project-files of the Berghoef archive at the NAi, I perchance stumbled upon another Berghoef file, with a non-existent address along the Uiterweg.[12]

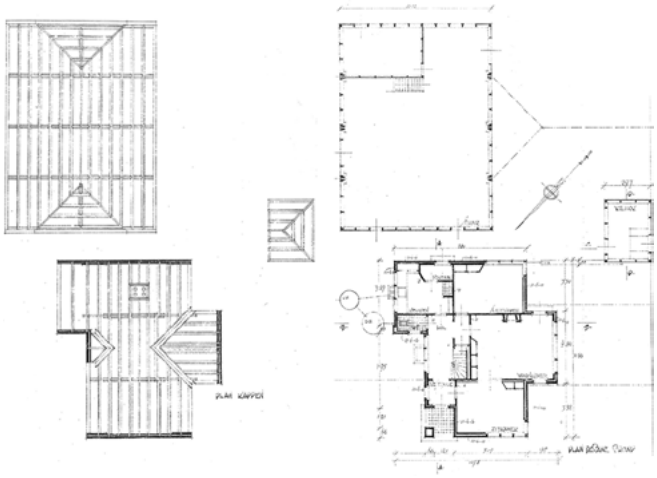
In this 'ghost' file, I found a large collection of alternative design-sketches for this particular project, as well as perspective drawings for a 'house with an office', which in all probability depict a design made in the context of his studies at the TH Delft.[13]
As for the Keessen house itself, the fleeting, undated sketches offer insights into a series of fundamental design-variation studies, carried out before the actual project was resolved.

Although the ‘footprint’ of the house, the functional and spatial organisation of the ground-floor, as well as characteristic feature-principles such as the gutters, appear to have been resolved quite quickly, Berghoef was apparently still wrestling with the overall composition of the street-facing house, particularly on the level of massing.
The early sketches show a design that still seems to be more directly inspired by de Klerk’s Barendsen house, a project with which he was very familiar.
In his explorative design-proposals, he conceives the ‘body’ of the house as a combination of elements: a main section with a symmetrical, triangular roof-profile, juxtaposed with a narrower and lower frontal element, with a pyramidal roof. This element is shifted relative to the main volume, towards the left.
Various permutations of this theme can be recognised (with the main work-shed and the water-shed remaining more-or less unchanged).[14] See: ‘Aesthetics’.

Eventually (possibly under the growing influence of his new mentor in Delft, Granpré Molière), there is a shift towards a more restrained geometrical composition, now with axial symmetries in two directions.
After studying several options for the window-motifs, the design appears to have been resolved and the detailed drawings for the exterior as well as the interior were worked out, so that it could be built within a period of six months.[15]



Photograph by Berghoef of one of his presentation-sketches (source: D. Kuin).



Segment of the plan-drawings scale 1 : 100 (source: archive Aalsmeer).



Comparable, recent view after the reconstruction of the main windows (1998).



Aerial view of the complex, positioned opposite the Terra Nova project (AA02).









Series of views around sides and front of the house, showing renewed windows.

Experience
To this day, the house exists in a particularly good condition, which is due to the dedicated maintenance by its owners, past and present.
Through time, certain changes have been made that have alerted the building's appearance and experience to a certain extent, but generally speaking it largely remains true to its original character.

One of the major changes is the matter of approach. Whereas originally the only public access consisted of a footbridge, leading directly to the front door, the plot is now entered via a static, much wider bridge leading directly past the main living rooms.
The original distinction between a 'front yard' domain, belonging to the family home, and a 'rear yard', belonging to the flower-growing and merchandising enterprise, has all but disappeared.
A remnant of the original, low brick wall can still be recognised.

Different than in the de Klerk project – where the wall as it guides the visitors to the entrance – here the wall was meant to strengthen the relationship between the constituting parts and to differentiate between the private garden and semi-public work-domain.
With the disappearance of the swivelling bridge, the slightly monumental entrance has become redundant, underscoring the local custom whereby – familiar – visitors tend to 'come around the back', via the kitchen.

With the broadening of the Uiterweg and the influx of (busy) motorised road-transportation, the entrance to the plot of arable land shifted towards the east. At the same time, the relationship with the water has shifted from enterprise towards organised leisure, particularly water-sports.

During the twentieth century, the windows were altered, whereby all intermediate frames were removed. In addition, the house was for many years entirely overgrown with ivy, making it as good as unrecognisable.[16]
Fortunately, in the late nineties, the current owners cleared away the overgrowth camouflaging the house and took the effort to bring back some of the most characteristic features, which had in due time been lost, whereby in the lower sections the original subdivisions in the windows have successfully been restored.[17]

I made my first acquaintance with the house around 1998, when Mrs. Jellie Barendsen insisted on driving me from her home (de Klerk, AA04) to Terra Nova (AA02) and then also introduced me to the Hansen family, inhabiting what she considered to be Berghoef's first house.
I was given a tour of the house and was allowed to wander around e extensive plot, which juts out into the minor section of the West-end lake.

Exterior:
The external appearance of the main house, as built, is characterised by the brickwork 'faces', with axial symmetries and 'over-dimensioned' window-frames, with much thinner subdivisions.
An aspect that is still reminiscent of the de Klerk house is the way in which the volume of the kitchen has been moved outward from main mass of the house. It is treated as a 'lean-to', moulded onto the main body in a way which is quite similar to the sleeping-section of the Barendsen house, also oriented eastward.
Furthermore, there is an attempt to introduce a level of articulation and modest ornamentation, particularly in the line in he brickwork running around the house, connecting the upper parts of the windows.
The main shed is also reminiscent of the workspace section of the Barendsen house.
It has a broad span, consisting of a wooden-truss construction with double supports placed behind the facades (rather than double beams, as in the Barendsen house) enveloping a column-free, flexible-use workshop domain.
The 'hidden jewel' is the modest but exuberant watershed, which is so finely articulated that it comes across as a tribute to de Klerk and a kind of parting gesture towards the Amsterdam school movement.

At the time of my first visit, the interior was conventional in its colouring and decorations.
In recent years an attempt has been made by the owners to bring back some of the partly-hidden, original interior-features.

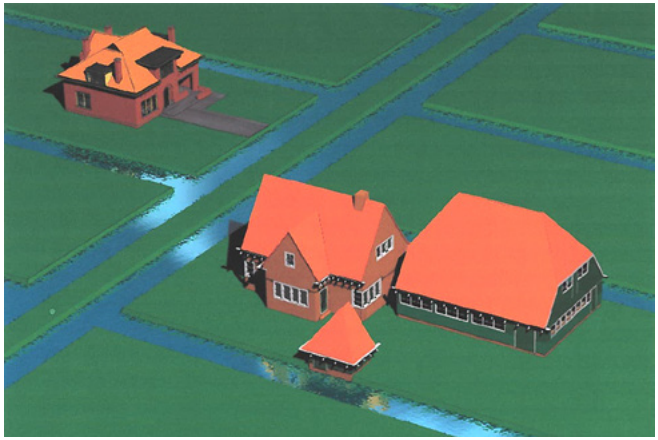


Interior views of the shed and the living-section, looking towards project AA02.

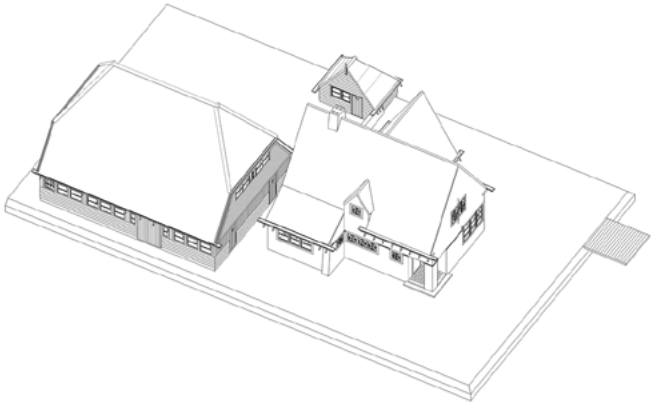


Views of the line-articulations in the brickwork and the characteristic gutters.

Looking around the house's courtyard, showing the waterside shed ('walhok').



Early computer rendering by Robert Nottrot, juxtaposing projects AA03 & AA06.



Early black-and-white 3D model of the project (Bram van Boreseln).

Visualisation

As has been mentioned in the previous section, my first encounter with the house was in the late nineties, shortly after the ground-floor windows had been updated and the original subdivisions had been re-introduced.
On the basis of this first encounter, the decision was made to include the project as an 'early Berghoef', which could be analysed and compared with a considerably later work by the architect: the van Staaveren house of 1958 (AA08).

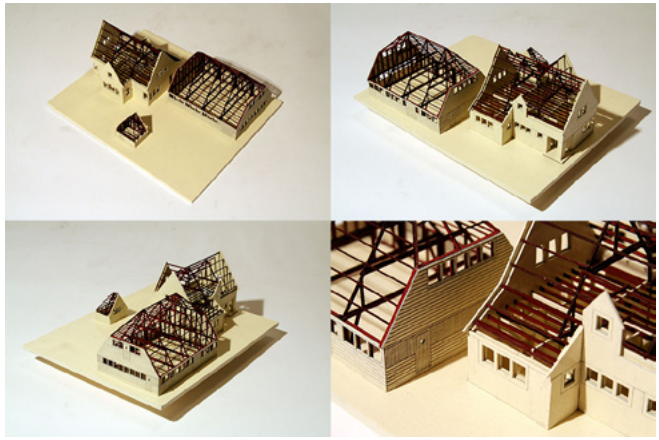
On the basis of photographs, made in- and around the house during the first visit, as well as the building-permission drawings that were retrieved from the local archive, a series of analytical studies of the built artefact was carried out.
These exercises included explorative 3D model studies as well as physical modelling studies with students, carried out in the context of an educational application.
Eventually, the entire ensemble was modelled anew, using 3D 'Sketch' software, in the context of the comparative, thematic analyses which could be included in the 'Patterns' sections.

Gradually, the 3D model of the project became more-and-more sophisticated, so that various types of visual impressions could be 'extracted' from the basic 3D model file.
On the basis of the body of visual data that has been generated and collected though the years, five Visualisation Variations are considered and illustrated:

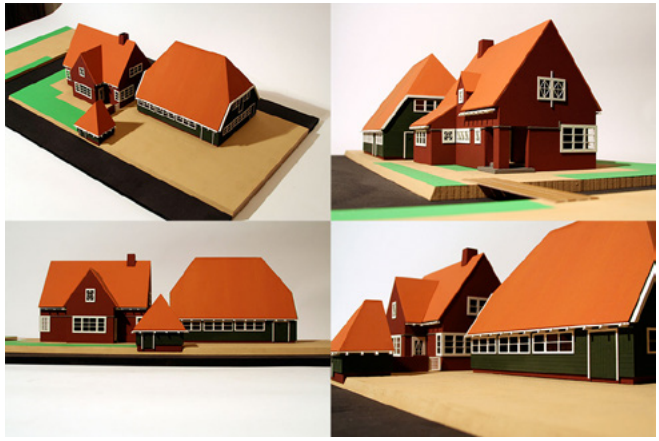
— Early 3D Model Variations;
— Physical Model Variations;
— Exploded View Variations;
— Volumetric Variations;
— Detail Segment Variations.

Early 3D Model Variations:
In the early stages of the study, various 3D visualisation programmes were considered.
Apart from 2D+ AutoCAD, programmes like Architrion, Arkey, Point Line, Piranesi and 3DStudio (Max) were tried and tested using some of the projects that then made up the AA 'collection'.
In the context of this reconnaissance, my design- and model-building colleague Robert Nottrot virtually modelled two AA projects in 3DStudio: the Oud house (AA03) and the first Berghoef project (AA06). The two projects were visualised in a fictitious juxtaposition along an idealised Uiterweg (2001).
Although these experiments led to interesting results, modelling in this format proved cumbersome and the possibilities for thematic layering were considered to be too limited.
Furthermore, is was felt that particularly the technique of texture-mapping was not ideal.
Eventually, the introduction of, then wholly new and innovative, 3D modelling 'sketch' software (i.e. SketchUp) meant that both projects were re-modelled, on the basis of the earlier 2D and 3D files.

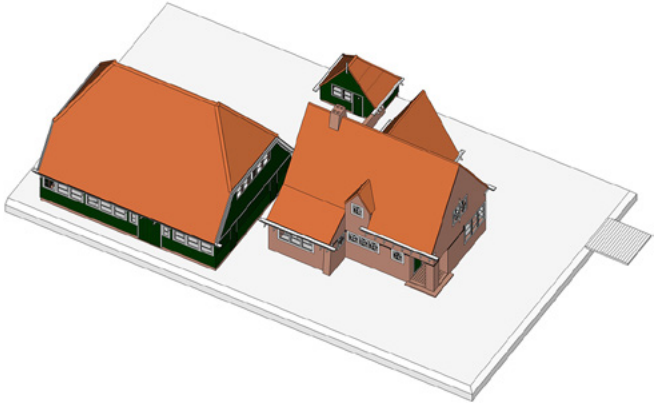
Physical Model Variations:
Whilst the study was progressing, the opportunity arose, in the spring semester of 2004, to explore some of the projects in a BSc elective course on the subject of architectural model-making.[18]
The ambition of this course was to let students make 'didactic' models of a chosen project, in such a way that the model might explain the workings of the design to interested professionals and students.
Students were stimulated to make active use of the faculty's, then brand-new, CAM-lab facilities, including 3D printing and laser-cutting techniques.
Two student-groups opted to unravel and model the first Berghoef house.
One group decided to concentrate on the clarification of the ensemble's structural organisation. Eventually they created a 1 : 100 model monochrome basic model, with coloured elements signifying the load-bearing constructive parts.
The other group tried to model the actual appearance of the collection of three buildings, giving an indication of actual materials and colours. The detailed 1 : 50 ensemble-model conveys a good impression of the project's architecture, although the colour scheme might have been 'toned' down. The model succeeds in giving an evocative impression of the design as it was built, complete with all of the original window-divisions.



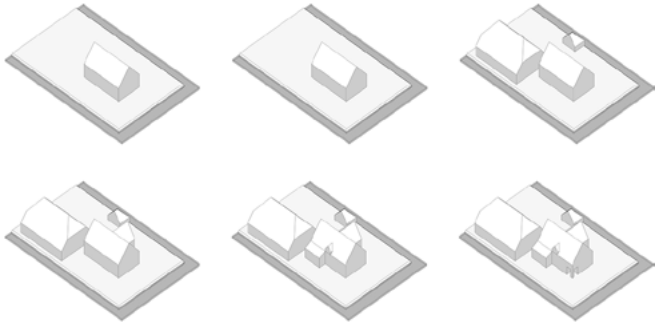
Physical model by students, highlighting the house's construction.



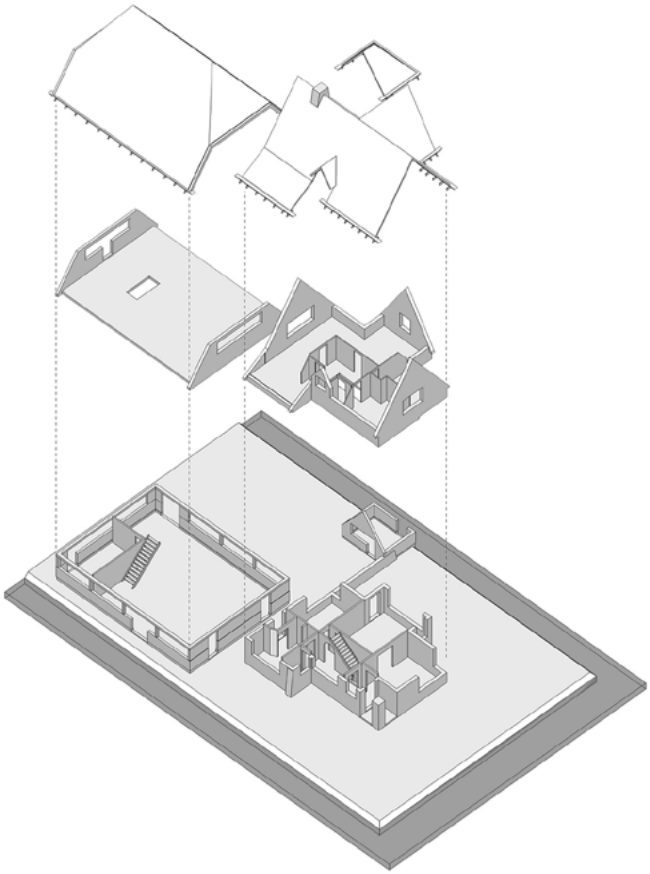
Physical model by students, showing the exterior using – too powerful – colours.



Comparison: coloured version of the 3D SketchUp mpodel.



Collection of step-by-step volume and massing variations.



Early de-constructed model, showing the essential spatial organisation.

Volumetric Variations:
Around the same time that the first exploded view was generated, an elementary sequence was created of the ensemble as a volumetric composition.
A step-by-step, reduced representation of the complex as an object was made, intended to give insights into the main issues on an 'object' level.
Eventually, the 3D model became far more detailed, but up to quite late in the study it remained an issue how the 'Object' and 'Structure' levels should be visualised in the respective 'Patterns' sections.
Various visual formats were tried out, most of which had the problem of either trying to include too much information in a relatively small picture or seeming to be too 'realistic', rather than offering a *thematic* interpretation.
Eventually, a clear-cut volumetric model-image of the AA06 project, without a suggestion of light and shadow, proved to be the most effective and became the definitive standard for the 'Object' and 'Structure' levels for all of the ten AA case-study projects.

Exploded View Variations:
One of the most challenging opportunities of layer-based 3D digital modelling proved to be the creation of so-called 'exploded view' imagery.
In such a visualisation-approach, the building is as it were methodically pulled-apart, to demonstrate the characteristic compositional parts, whilst indicating their interaction.
Creating such an interpretation is a matter of finding the right means per project, whereby elements can as it were be pulled apart upwards or outwards (or: a combination of both).
For the AA06 casus, an exploded model was constructed relatively early in the study-process, when the basic 3D model was still black-and-white.
In this project-representation, the still relatively rudimentary basic model has been 'cut' horizontally on the level of the ground-floor, after which the top-floors have been moved upwards and then topped by the roof-surfaces and gutters.

Detail Segment Variations:
Although the digital 3D models of the ten projects were primarily made with the idea of them being presented as thematic analyses, in an axonometric view, it also proved to be interesting to create eye-level perspectives, on the basis of the completed model.
Such eye-level views give an uncluttered, 'clean' impression of the outside of the building, which is comparable to the views that may be generated from a physical model.
What proved to be particularly interesting was to create perspective views on the basis of the 'Detail' and 'Feature' layers, which consist of strategically-chosen 'segments'.
Using a perspective mode, two 'composite' perspective images were created, allowing for insight concerning the essential detailing and ornamentation, within the context of the overall design.



Segment variations, showing combinations of exterior and interior views.



Position

In the years that the young Johannes ('Jo') Berghoef was still in secondary school (HBS), commuting by local train between his native village of Aalsmeer and Amsterdam, he had an eye-opening experience, when he chanced to visit the house that J.J.P. Oud had built, some eight years earlier, in the municipality's West-end.

Berghoef, in his 'memories', on his encounter with J.J.P. Oud's Aalsmeer house:

> *"In the second decennium, one of the earliest works by architect Oud had been built for a flower-growing firm in Aalsmeer: Lloyd Wright-esque, as I would later understand, and a marked appearance amongst the old market-gardener's homes.*
> *In the summer of 1920 I had the opportunity to see the interior: it was wholly different from the normal houses in our village and the stairs in particular were so special, that I enthusiastically told about it to an uncle and sketched for him a plan and section. After a while he said: "Why do you actually want to study shipbuilding and don't you choose architecture?"*[19]

On his eighteenth birthday, Berghoef received Muthesius' *'Landhaus und Garten'* and, after he acquired his HBS diploma, enrolled at the faculty of Architecture ('Afdeling Bouwkunde') at the TH Delft, beginning his studies in September 1921.
Alongside his involvement in the basic study curriculum, he spent a good deal of time in the faculty's library and (according to his own remembrances) became absorbed in various publications concerning 'Small Country Houses and Cottages', as well as becoming obsessed by the early works of Frank Lloyd Wright.
The complexity of the design-tasks was built up gradually, starting with modest dwellings and country homes and progressing to smaller and larger public buildings.[20] His design-professors in the third and fourth years were Prof. ir. J.A.G. van de Steur and Prof. Henri Evers.

In his early years in Delft, he would regularly return to Aalsmeer, where in 1923 he closely followed and photographically documented the building of the Barendsen House by Michel de Klerk (1923).[21]

At the beginning of Berghoef's fourth year of study (in September 1924) he was introduced to a new professor at the faculty: M.J. Granpré Molière (1883–1973).
Stimulated by his fellow-student Hans van de Laan, Berghoef started following the professor's first year lectures and soon joined a special study group, the Bouwkundige Studie Kring (Architectural Study Circle).[22]
The mild-mannered, but apparently very charismatic Granpré Molière had a profound impact on Berghoef and his colleagues.
After some time, Berghoef became his student-assistant.
In his inaugural speech, the new professor directly addressed the student-population and emphasised the aesthetic conditions of 'the art of building'.[23]

Despite stating that architectural education could no longer be taught on the basis of formal schemes or styles, he soon became the leading figure of the neo-traditionalist 'Delft School' movement.[24]

Marinus Jan Granpré Molière (1883–1972) had previously studied architecture in Delft.
After a number of years in practice, he joined the faculty as a professor in 1924, teaching architecture and urbanism.[25]
He was a man with outspoken, traditional ideas about architecture and urbanism. According to him, a building should have a clearly recognizable, humble form, based on universal, even 'eternal' standards.
The notion of beauty was an important issue in his thoughts and teachings.
Religion, in particular due to his conversion to Catholicism, further defined his ideas.

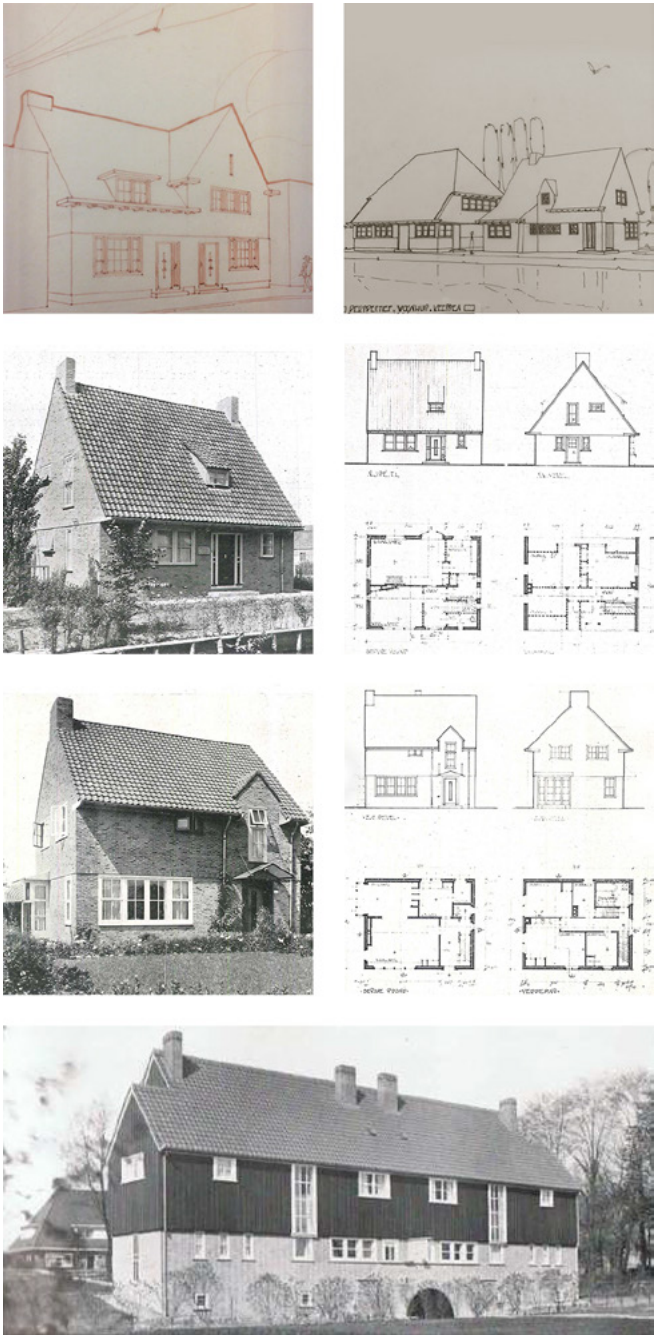
The cultural climate at the Technische Hogeschool during these years was still very conservative and Granpré Molière played a central and influential role within the architectural debate. His theories formed the basis of the architectural movement which became known as the Delftse School.

Of his designs, the garden city Vreewijk in Rotterdam is best known. Further projects included the town hall in Renkum and his master-plans for the villages in the Noordoostpolder.
Together with like-minded students, Berghoef became actively involved in the select companionship of the Bouwkundige Studie Kring (B.S.K.). Granpré Molière was the chairman and the meetings took place in his house. Later-on, Berghoef took upon him the position of chairman.

Berghoef was particularly impressed by Granpré Molière in the role of design-tutor:

> *"In each project that was put before him he would carefully seek out what was potentially in it, what it was that the designer was consciously, but usually subconsciously, trying to achieve. That might at first come across as hesitation, but then he would unerringly point out mistakes, signal missed opportunities and then, usually, conclude with a word of encouragement, now and then a small joke."*[26]

In 1925 Berghoef journeyed through France. While in Paris he visited the influential 'Exposition Internationale des Arts Decoratifs 1925'.
The Netherlands were represented with a brickwork, Amsterdam School-style, pavilion by J.J.F. Staal.
Berghoef was particularly impressed with the pavilions of Sweden (with drawings of Ragnar Österberg's Stockholm town hall) and the Austrian pavilion by Josef Hoffman (including a generous selection of work from the Weiner Werkstätte).



He was less taken-in by Le Corbusier's 'Pavillon de l' Esprit Nouveau' and was particularly unsettled by his provocative 'Plan Voisin'.
After returning to the Netherlands he decided to set up his own office in Aalsmeer, starting his practice on January 2nd 1926, while still studying at the TH Delft.

His first built projects in Aalsmeer were realized within a few years' time. His output consisted mainly of neo-traditionalist designs, influenced by Muthesius and the English 'cottage style' and increasingly by Granpré Molière.

In retrospect, the period of the late nineteen-twenties tends to be seen as the start of the heroic period of functional modernism, characterised by a progressively optimism.
However, at the same time there was a steadily-growing movement of tradition-inspired dissent, championed by Granpré Molière.
Under his influence, Berghoef became one of the principal advocates of what came to be known as the 'Delft School' of design.

A characterisation of the Delft School, by Ids Haagsma and Hilde Haan:

> *"… there were architects who felt increasingly disenchanted by the many changes that were taking place. They tended to look for the preservation of spiritual en sometimes religious values. Traditions were emphasised by them and against the growing internationalisation they highlighted national facets. In this they were more or less strengthened by a sudden, but prolonged economical slump from 1929 onwards, which for many marked the ending of the optimistic expectations for the future. This was further underscored by the increasing international tensions. … In response to the ongoing societal changes, Granpré Molière and his supporters sought a new kind of certainty. As early as 1925 the trend can be recognised, but from 1930 onwards the Delft School draws ever more support. The aspiration is towards reaching a new truth in architecture, a reason why impermanent movements were being disclaimed. Beauty is truth and the notions of such beauty was largely founded in the building-traditions of the eighteenth century."*[27]

J.F. Berghoef was well-acquainted with the Barendsen family and in 1928 he drew the plans for a wooden garage-building, situated across the path from the Barendsen house, which still exists.[28]
He went back to further his studies in Delft, but soon returned to Aalsmeer when he received the commission for the second extension (after the first, by J.F. Staal) of de Klerk's Bloemenlust auction-building.

In the building he set up his architectural practice, collaborating first with ir. Moquette, a colleague from his first year, who had finished his studies in four and a half years, and then with his, recently graduated, friend ir. S.J. van Emden, who for some time became the 'chef de bureau'.[29]

Overview of Berghoef's early projects in Aalsmeer (Bouwkundi Weekblad / NAi)

Berghoef soon acquired a certain status as a rural architect ('plattelands-architect'), having a position within the Aalsmeer community somewhat comparable to that of a local doctor.[30]
In 1930, he felt that he could leave the execution of the projects at hand to his assistants.[31] On the instigation of Granpré Molière he set out on a journey of architectural discovery, which would take him though Southern Europe and especially taly.[32]

Granpré Molière is supposed to have told Berghoef:

> *"You already have an entire practice behind you, of a rural and good Dutch character; I think it is time for you to deepen your knowledge of truly urban and monumental architecture and that you find in Italy."*[33]

When, upon his return, the stream of commissions began to dry up, on account of the global economic crisis, he was happy to return to the TH in Delft to work as a student-assistant to Granpré Molière.[34]
In 1938, despite still not having graduated, he became actively involved in design-teaching, influencing the outlook of a younger generation of academically-trained designers.[35]

Hans Ibelings on Berghoef's professional profile around this time:

> *"Johannes Fake Berghoef was a real traditionalist. …*
> *As a beginning architect he designed and built mainly houses in and around Aalsmeer, the subtle forms of which makes them hardly noticeable between the surrounding buildings. These family homes always have a simple set-up and a more or less traditional form, with sloping, tiled roofs and brick facades."*[36]



Pages from Granpré Molière's 'Schoonheidsleer' lecture-visualisations (1939-40).

Discourse

One of the formative experiences for Berghoef as an architecture student was the realisation of the house for the Barendsen family, with whom his own family were on friendly terms.
During one of the discussion-evenings with older students ("bouwkundeavonden") he put forward photos and drawings of the market-gardeners' house by de Klerk, which were characterised by Berghoef as:

"a striking ('markant') Amsterdam School building-work ('bouwwerk') which is very well adjusted to its inhabitants as well as its surroundings."

Berghoef on the reception which the de Klerk's project evoked:

"Zwiers correctly aired some reservations concerning some constructive inconsistencies; on the whole the work was appreciated by the older students. Towards the end of the discussion, van den Broek charged in, looked at one thing and another and didn't have a good word for the project! …
Van den Broek's criticism of the finely-honed ('fijnzinnig') market-gardener's home bothered me ('zat me dwars')." [37]

The dismissal of (then diploma-student) Jo van den Broek can be considered to be indicative of the growing rift between the 'abstract' modernist students on the one hand and more traditionally-inclined students on the other.
Berghoef, whose outlook was, in his own words, informed by Lloyd Wright, Lutyens, Mackintosh and the 'decorative cubism' of Dudok and the Amsterdam School, was developing a strong preference for 'more simple, timeless and 'humane' ('menswaardige') modes of architectural expression.[38]

Berghoef's position on the modern architecture of this time:

"In the early years of the century, abstract modernism began: it became a play of lines and surfaces, the spaces within and without began to flow over into each other, every weight and building-mass was confiscated. In the twenties this was followed by the New-Objectivists ('Nieuw-Zakelijken') of 'de 8 en Opbouw', who followed Le Corbusier as their undisputed leader."[39]

Instead of looking to trendsetting modernists like Le Corbusier, students like Berghoef became dedicated followers of Granpré Molière.A major stimulus for the students who were starting to become a 'school' around their professor, was his, by now renowned, Vreewijk garden-city in Rotterdam-south (1922).

Berghoef felt that Vreewijk came across as:

"a green and quiet village, with alternately wide spaces and intimate streets with housing, everything saturated with a mild humanity". The design of the modest dwellings seemed to him of a "natural completeness ('natuurlijke volkomenheid') and the playful variations and the well-kept hedges, green borders and foliage make the village adventurous and pleasant ('verrassend en aangenaam').

After spending a full day there, awaiting his exam-results, he was lastingly impressed by what he considered to be a unique living-environment and a paradigm for working-class housing ('volkshuisvesting').
The Vreewijk project would become a benchmark for the rural architecture of the Delft School architects and particularly for the early oeuvre of Berghoef, in Aalsmeer.

The W. Keessen project, the first free-standing house Berghoef realised, is clearly a transitional work.
The young architect appears to still be searching for a personal style … through building.
While the inspiration of de Klerk is evident, the architecture of this house, particularly in comparison to its direct inspiration, comes across as balanced and meticulous, but also somewhat rigid. Despite the designer's obvious skill in the execution of its parts, the ensemble is compositionally not entirely convincing.

In the steady stream of projects that would follow over the next years, Berghoef began to realise a well-received, body of professional work.[40]
An example of the next step in his early development is the new house that Berghoef designed for Gerrit Oud, along the Oosteinderweg (1928).
This elegantly simple dwelling is featured prominently in a special edition of *Bouwkundig Weekblad*, highlighting the urban- and architectural developments of Aalsmeer, with contributions by ir. J.G. Wiebenga (then head of the municipal works-department) and ir. H.T. Zwiers (1929).

The retrospective includes work by Staal (the new C.A.V auction-building and the church in the village-centre), de Klerk (only the interior of the Bloemenlust auction-building), Wiebenga (drawings of his Naai- en Knipschool), Duiker and Bijvoet (Suermond house) plus projects by another successful local architect, W. Maarse.
The illustrated article features no less than seven houses that are attributed to Berghoef.[41]

Ir. H.T. Zwiers on the work of Berghoef in the Bouwkundig Weekblad special (1929):

"Especially the work of the young candidate b.i. Berghoef, who due to his busy workload continually had to postpone his graduation, impresses with a healthy and honest soberness. It shows clear affinity with the work of Prof. Granpré Molière and is like it averse of imposing monumentality and excessive outer display; the worthiness of this work is rather the awareness of its relative self-importance."[42]

After becoming a professor in 1924, Granpré Molière had converted to Catholicism in 1927 and his rhetoric became steadily more religious in content and tone.

Having freed himself from his own confessional background, Berghoef initially had some reservations when he was asked to join the B.S.K., but the two of them soon had a strong rapport, particularly in their shared aversion to Functionalist modernism.

Giovanni Fanelli:
"In their writings, the architects are fiercely opposed to every notion of architecture that is alien to them. Most of their attacks are aimed at the architects of the New Objectivity ('Nieuwe Zakelijkheid'), because in this direction – they feel – the emphasis lies entirely on materiality and technique (the profane), whilst the form (the spiritual) is neglected entirely. Additionally, the functionalists strive towards the fusing of interior- and exterior space, something that is opposed to the ideas of the Delft School, in which the exterior should, through its beautiful form, be an expression of the space that lies behind.
Furthermore, the social convictions of the functionalists ('the architect serves society') are fiercely dismissed, as one ought not as one human to serve another, but should ultimately only serve God."[43]

During the years of the recession, most of Berghoef's commissions were relatively modest dwellings and he did not have the opportunity to realise any projects on a monumental scale.

When in 1937 the town council of Amsterdam organised a public competition for the design of a new town hall, to be built on the Frederiksplein, he decided to take part with his study-friend J.J.M. Vegter (1906–1982) with whom, in the early thirties, he had made a kind of 'pilgrimage' to the German traditionalist Paul Schmitthenner, whose controlled, tradition-inspired formal grammar was an inspiration to both of them.[44]

In 1938, the results of the first round were announced, whereby four designs – by J.F & A. Staal; M. Duintjer & A. Komter; H.T. Zwiers plus J.F. Berghoef & J.J.M. Vegter – were selected for a closed second round. After this round, in 1939, two teams were selected for the decisive third round: Duintjer-Komter and Berghoef-Vegter.

Whilst the proposals of Berghoef and Vegter may have appealed to the architects and decision-makers who had a preference for neo-traditionalist modes of expression, including its champion, Granpré Molière, who was a prominent member of the jury, the design went so far back in time and was so ambivalent in its execution that it was the object of severe criticism.[45]
The proposal's hierarchical, pseudo-medieval monumentality infuriated the more progressively-inclined architects and students, including Aldo van Eyck.[46]
Eventually, due to the German occupation, the plans were shelved and the project was postponed until after the war.
In the early years of the war, two meetings were organised by *Architectura et Amicitia* in Doorn, the first meeting taking place in 1941, the second in 1942.

In both meetings, Granpré Molière was the keynote speaker. The contributions to the first session were brought together and published by Berghoef, who also contributed a 'synopsis'.[47]

The second session was moderated by modernist architect ir. W. van Tijen (1894–1974). Other speakers included Auke Komter and even Gerrit Rietveld, who identified what he considered to be the four 'origins' of architecture: Purpose; Material; Method and Form.[48]

Berghoef, in his 'summary', on the characteristics of the – 'typically Dutch' – house:
"A house is a world in itself, no two are identical, the architecture is typically civil ('burgerlijk'), that is: self-conscious, sound and sober; the last goes for all our architecture, from the most simple cottage up to the patrician house, the churches included. The houses abide each other well; despite the individuality of different premises, together they still form a whole, which is varied and fetching, thanks to a mutual diversity. In our streets and along our canals we see expressed, that which has here been designated as 'juxtaposition' ('nevenschikking'): a recognition of the right of each to live in a place in life that comes forth from a tolerant outlook on the one hand and self-awareness on the other."[49]

Berghoef's idealistically romantic stance can be read as a reaction to what he considers to be the threat of a soulless, 'abstract' way of building.
He proposes an intellectual re-interpretation of the architectural modes that had previously been passed-on from artisan-to-artisan: a kind of re-creation of the vernacular architecture of the skilled, traditional craftsman of bygone times, but then thought-out and worked-out down to the smallest detail.
This design philosophy relies on the re-interpretation of 'archetypical' forms, with a calculated, somewhat Calvinistic tidiness, in combination with pseudo-spontaneous 'chance' elements, for the sake of 'character'.
The ambition to develop such an 'academic' neo-vernacular style is criticised by J.J. Vriend, who characterises it as a contrived, *archaistic* ('archaïserend') approach.

J.J. Vriend, about the new 'school' (1942):
"A new variation on the old melody is being struck by the young school of Granpré Molière. One reflects upon the essential values of Dutch building-art: the simple clarity of the primary forms, the use of characteristic materials and constructive craft. Essentially this is the same starting-point of the Berlage school, yet when we consider a land-house or home of this 'archaistic' building style ("archaïserenden" bouwstijl) we see profound differences. … The archaically-inclined work is warmer and more humane. The craftsmanship-approach in itself may be good, but more is needed to take the next step: towards the beautiful and sensitive detail."[50]

Aesthetics

The house is one of the first professional statements of a young and impressionable architect, still busy developing his own aesthetic 'palette'.
When considering the design, we can imagine Berghoef trying to draw-up an accomplished piece of professional work, whilst at the same time attempting to find his expressive bearings and develop a *personal* style.

As aesthetic themes in this formative work I would be inclined to identify the following, complementary categories:

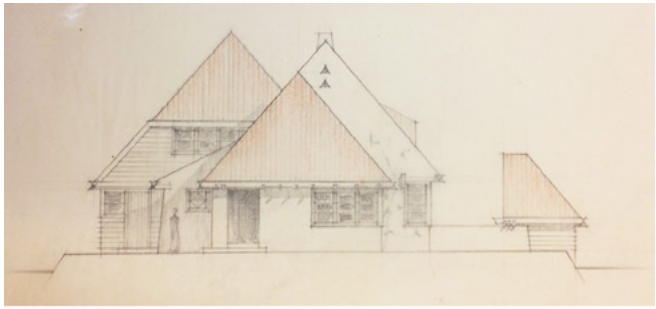
— *Order*: the attainment of a level of correspondence throughout the composition as a whole;
— *Complexity*: the introduction of elements that might lend 'character' on the level of expression.

As Berghoef indicated, he had been very impressed by de Klerk's Barendsen house (1923) and, on the level of global massing, there are distinct similarities between the two projects.
However, instead of creating one integrated, volumetric building-ensemble, containing all of the functions under one roof, like de Klerk, Berghoef chose to strategically group the three programmatic components, like a 'family' of elements, loosely arranged around a yard.
The idea that this project may have been inspired by the architecture of the Amsterdam School, and in particular by the de Klerk house he was familiar with, is borne out by one element of the ensemble: the small water-shed, which gives an indication of how the entire project might have otherwise turned out.

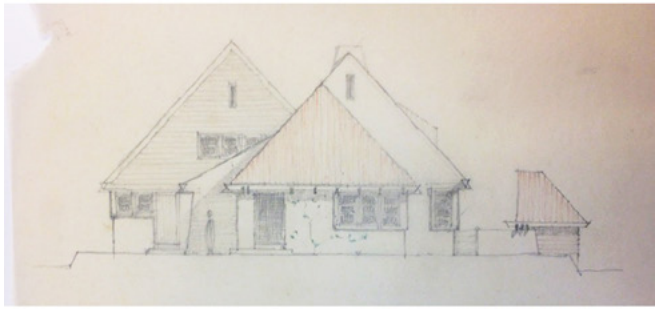
What has become evident, on the basis of the recent search in the archives of the NAi, was that this design can indeed be seen as a formative work, representative of a period of transition.
We can see Berghoef's personal style developing during the design process, from a de Klerk-inspired, more-or-less Amsterdam School aesthetic, towards a more reduced neo-vernacular style, which may have been informed by the contacts with his new mentor, Granpré Molière.
Of the three constituting elements, the small watershed undergoes hardly any changes during the design process and as such may be considered to represent Berghoef's expressive inclinations at the beginning of his work on the project.
The large work-shed, partly overlooking the house, also seems to have been a relatively stable component. It was conceived as a free-standing, stable-like structure, free of intermediate columns.
During the intermediate stages of design, it is mainly its roof-form which is subtly varied, in response to the expressive development of the family-house at the front.
The basic functional arrangement appears to have been resolved relatively quickly, but subsequently the sketches suggest a series of designerly development-rounds focusing upon the massing composition of the house's volume in relation to its roof-forms.
Initially, the idea seems to have been to create a main-house with a symmetrically-pitched roof, fronted by a narrower element with a half-pyramid roof with a lower ridge, shifted relative to the main body of the house.
This theme is very similar to the elementary set-up of de Klerk's Barendsen house at the front, though considerably more subdued. The consequence of this arrangement would have been that the gutters would have run around the front of the house. In the sketches, these are identified as decorative features with a different sub-rhythm, distinguishing the hollowed-out entrance, very similar to the grouping of supports which is still in evidence in the water-shed. The front of the work-shed forms part of these variations, with alternately a flat front elevation and a semi-pyramidal top-end, similar to the realised exemplar.
Different gable-window shapes are tried out, in the house as well as the shed, are standing rectangles and (series of) triangles.

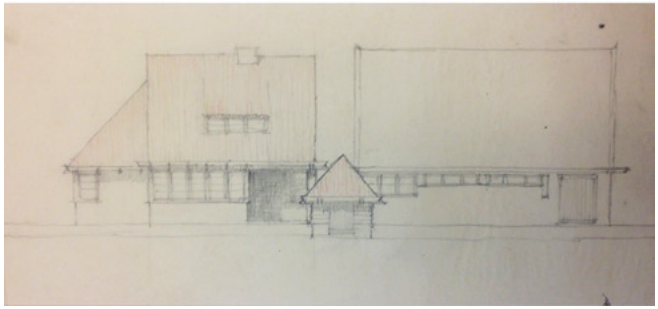
Eventually, this massing-motif was dropped and a double-axial composition is adopted, with three near-symmetrical, brickwork facades and roof-ridges stretching in two directions.
There is a possibility that this compositional shift was, at least in part, prompted by local architect W. Maarsse's house at Uiterweg nr. 9 (also of 1926) with its arresting double-symmetries.[51]
The windows towards the street and the west are folded-around at the corners, another reference to the de Klerk project, though not as dramatically articulated and more massive in execution.
Different options for the infill of the window-openings were considered, including a cross-division, but eventually the characteristic sub-division into three parts is chosen.
Prominent decorative features are the triangular gutters with slanted supports, which serve as a distinctive visual 'seam' between the roof surfaces and the vertical walls.
A discreet outward-extended line in the brickwork connects the window-sections around the house's circumference.
The 'stone' house is offset against the two wooden service-buildings, which are clad with planking in two directions. The colour-palette is kept simple and subdued: pink bricks with traditional-green and white woodwork. Almost as an afterthought, decorative motifs are introduced into the windows at the top and in the hallway/kitchen section.[52]

The design of this formative piece is accomplished, but an identifiable stylistic 'signature' is not yet recognisable. In the coming years, Berghoef builds a number of country-houses in- and around Aalsmeer, which are aesthetically similar, but far from uniform in their stylistic expression and articulation.
At this point in his career, three types of aesthetic 'devices' are explored and developed: slanted roof forms; gutters and window divisions.
While in the development of the Keessen house we can recognise a 'paradigm shift' from the Amsterdam School towards a more elementary formal language.









Design sketches project AA06. Source: NAi.

It is in the works that he realises in the following years that the influence of his new 'master' Granpré Molière truly becomes evident.

Marisa Melchers on the aesthetic foundations of Granpré Molière's architectural teachings:

> *"Central to Granpré Molière's aesthetics is the pursuit of a hierarchical order, whereby metaphysical, unchangeable 'eternal values' played a leading role. The personal artistic input, but also the functional and technical content of the design should serve the objective, higher values of the design."*[53]

On the basis of studies by Cor Wagenaar (1991), Melchers identifies three aesthetic 'layers':

— A clear three-dimensional volume, preferably perceptible from at least three sides;
— The attainment of a predominantly closed image in the two-dimensional wall surfaces;
— The creation of harmonic relations between oppositions, like volume and space and mass and light.[54]

The elementary 'format' in Berghoef's early houses is the traditional house-shape, with one or more symmetrically-pitched roofs. In the Keessen house, the roof angles are relatively steep (54 degrees). This format is comparable to the work of successful local architect, W. Maarse, whose signature roof-gradient was generally around the 70 degrees.

In this period, the roof-angles vary considerably, from relatively steep pitches towards more 'classical' proportions, but there does not as yet seem to be a clear preference.
The more roof-shape of this project resurfaces in projects like the house for doctor Oei along the Stommeerweg (1940), where the prominent chimney in the main, street-facing facade, makes a distinctive appearance.

In the new house for Gerrit Oud, along the Oosteinderweg (designed in 1927 in collaboration with ir. Moquette), the 'simple shed' volume that would become the recurrent, volumetric theme in Berghoef's post-war house-designs, is first applied whereby the roof-angles become more subdued: approximately 45 degrees.[55]
The G. Oud house demonstrates a somewhat studied, ad hoc-ism in the design of its facades, a theme that would continue to be a characteristic of Berghoef's house-designs in the coming years. His designs would henceforth have steadily less explicit ornamentation. The gutters gradually become simpler, often consisting of functional metal supports, with a minimum of decoration.
In some instances, different material textures are introduced, such as tarred wooden cladding for the top-floor of the double-house for the brothers Maarse, situated below the Stommeerweg (1935), or thatched roofs, in a holiday-house along the West-end lake (1933). The theme of the less-pronounced roof-shape would return in later pre-war projects like 'Dijksteen' (1935), a first dike-house designed for his own family, with angles of about 35 degrees.

Granpré Molière's students would have been aware of the themes explored by their master in his own designs, in which recurring themes are the balancing of unequal parts with a measure of controlled ad-hoc-ism; a kind of fundamental tidiness, which is contrasted by consciously inserted, semi-spontaneous 'chance' elements, for the benefit of the project's individuality.
A particularly poignant demonstration of the combination of a simple, basic house-volume with a consciously impromptu surface-arrangement is the house which Granpré Molière built in 1918 for D. Nijland in Wassenaar, which can be seen as a precursor to the work of Berghoef and his contemporaries.[56]

The compositional themes explored by Berghoef and his fellow-travellers in the thirties were informed by Granpré Molière's teachings on architectural aesthetics ('schoonheidsleer'), which he introduced as the "secret of building".[57]
The lecture-notes of the foundational course for the year 1939-1940, which may have been collected by Berghoef as the professor's personal assistant in the latter years of the decennium, contain a historicist selection of traditional, classical and medieval schemes, with no reference to modernist architectural modes of expression whatsoever.

In the closing paragraph of the document of his lecture-cycle, Granpré Molière discusses the difference between inconsistency ('wisselvalligheid') and coincidence ('toeval'), illusive traits that may be considered as expressions of architectural personality and character.[58]

Granpré Molière:

> *"It becomes evident that "inconsistent" and "coincident" should not be considered as being equal. Inconsistent is what comes about out of a potential which may be considered as being contrived. The coincidental comes forward through an ambition ('doelstreving'), which has not been targeted in such a way."*[59]

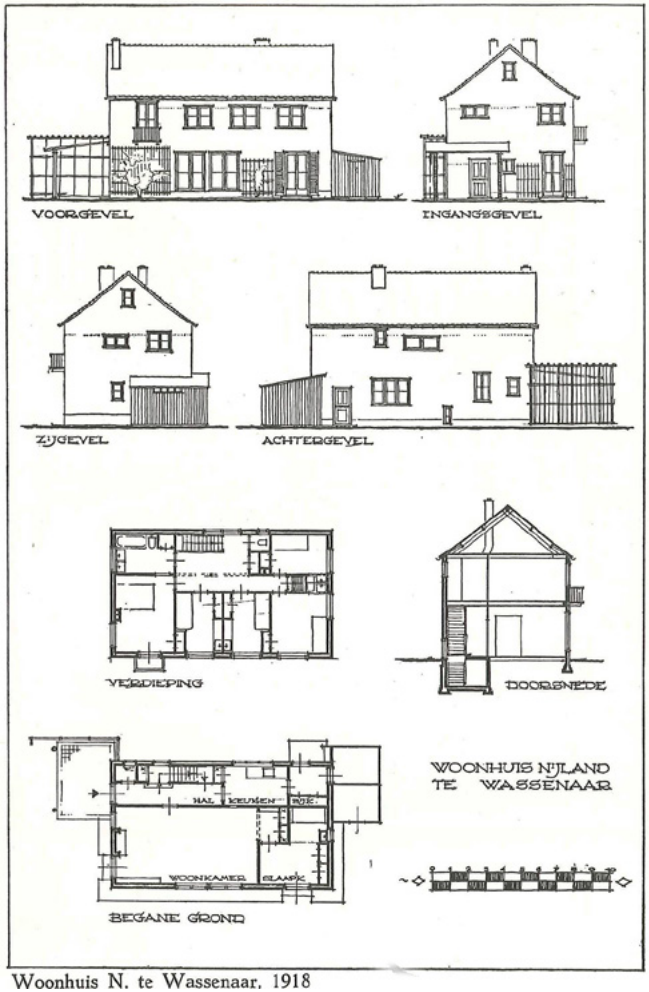
In the Keessen house, Berghoef's facade-designs are still predominantly symmetrical, with articulate semi-open corners. In the houses he designs in the following years, he introduces more 'coincidence' into their surface-arrangements.

The subdivisions of facade-openings also change considerably. Whilst in the Keessen house, after different motif-experiments, he eventually settles for a subdivision, per window-frame, into three horizontal sections, he later develops a certain preference for an orthogonal, cross-shaped sub-divisions (from the Oud project onward) and he gradually begins to further emphasise (even exaggerate) the dimensions of the outermost window-frames.

Overall, a process of stylistic reduction and accentuation, coupled with a level of controlled adventurousness, is discernible in Berghoef's steadily developing pre-war house-designs, which may be considered to be representative of the somewhat academic, pseudo-vernacular aesthetic of the early Delft School.







Woonhuis N. te Wassenaar, 1918

Granpré Molière's – for the Delft School 'prototypical' – Nijland house..

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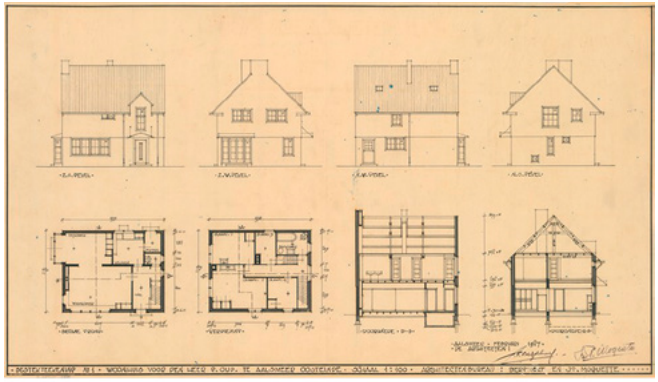






J.F. Berghoef: the new Gerrit Oud House, Oosteindeweg, 1928.

1 Berghoef documented a number of Aalsmeer's traditional farmhouses, many of which were soon demolished, particularly after the second world war. Plans of these vernacular buildings have been used in the standard-work on the farmhouses of northern Holland, L. Brandts Buys.: *De landelijke bouwkunst in het Hollands Noorderkwartier* (1974), as well as in the local historical publication *Aelsmeer* (1992).

2 On his 18th birthday, Berghoef was given Muthesius' 'Landhaus und Garten' and from then on he was busy drawing houses rather than ships, as was noted down in his memoirs.

3 In Berghoef's *Herinneringen* (1994). Pg. 7.

4 Granpré Molière: *"Onderwijs op den grondslag van een vormschema, van een stijl is niet mogelijk; onze cultuur was nooit langdurig aan een vorm gebonden, maar nu zijn de slingeringen zoo veelvuldig, dat zich een algeheele ommekeer schijnt te voltrekken in het tijdvak van leerling tot architect. De modern vormen kunnen aan het onderwijs geen basis geven; de leerling zal deze wellicht evenmin toepassen als die der middeleeuwen, want als hij tot rijpheid is gekomen, liggen ze achter hem, evenzeer als de middeleeuwen, mogelijk veel verder."*

5 Berghoef notes that he started his office on the 2nd of January 1926. The building permit, dated 25th of July 1926, stipulates that the project needs to be built within a period of a half year. Source: copy municipal building permit for Uiterweg nr. 119, Section H, No. 119.

6 The firm of the Hansen family, who currently occupy the house, is one of the last to practice this typical, time-and labour consuming flower-growing practice.

7 A 'Walhok' is a typical waterside work-shed, which could be accessed from the land as well as from the water.

8 This information was given by the current owner, Mr. Hansen, who also supplied a digital copy of a photograph of the original building, which would in many ways have been similar in set-up to the Dahlia Maarse farm-house (AA01).

9 The situation-drawing (scale 1 : 300) indicates that around that time, in that part Aalsmeer, every second plot seems to have been built upon. The drawing for the new development by 'Den Weled. Heer W. Keessen. A. W.zn.' specifies that the front of the house will be 11,6 meters from the middle of the dike roads (with neighboring house respectively 13,0 and 12,15). The municipal building permission was granted on the 7th of July 1926.

10 Besides working on the design for the Keessen house, Berghoef appears to have also been working on a project for another client, designing a double townhouse, with shops, along the Zijdstraat, in the centre of the village. Three different design-drawings of this project are included in Jennifer Bosch-Meyer's dissertation (pg. 253 and 254).

11 The perspective drawing was known from a photograph of it, probably taken and printed by Berghoef himself, in the personal archive of local architect Dick Kuin. The original drawing has been discovered more recently in the national architecture archive of the NAi.

12 This 'missing link' in the design process: the discovery of a file in the archive of a fictitious address: instead of Uiterweg 207 (BERX 6), this was a folder in the 'supplements' section for folder was the address Uiterweg 307 (BERX s64).

13 The drawings, perspectives as well as 2D drawings for this simple, highly symmetrical *'landhuisje met kantoor'* show monumental corner-articulations, but there is no situation-drawing, suggesting it is a study-project and not designed for a specific location.
In her dissertation, Jennifer Bosch-Meyer includes the perspective as 'Project Huis Keessen, Uiterweg 207 in Aalsmeer, 1926' (pg. 255), but it seems highly unlikely that this was indeed a preliminary design for this particular project.

14 This design-search is discussed in more detail in the 'Aesthetics' paragraph of the Perceptions section.

15 A maximum building-period of six months after the passing of the building permission was included, as a standard clause, in the official minutes, issued in the name of the mayor and the municipal secretary.

16 In the inventory of representative modern buildings in the region, *Moderne monumenten in de Meerlanden* (1986), a photograph is included of the – as good as entirely overgrown house. Pg. 102.
The accompanying caption states:
"Vermoedelijk het eerste gerealiseerd woningontwerp van de toen 23-jarige Berghoef, verborgen achter klimop. Behalve de reeds verworven vakkennis zal ook de invloed van zijn vader, wethouder in Aalsmeer, ervoor gezorgd hebben dat hij in deze gemeente vanaf dit jaar vele woningen op zijn naam zou zetten."
A significant house by another successful local architect is included (pg. 104): W. Maarse's still poignant, steep-roofed house at Uiterweg nr. 9, also of 1926.

17 Whilst the horizontal subdivisions have been brought back in the lower windows, the lozenge-shaped subdivisions in the upper windows and kitchen/hallway windows have not, arguably with good reason. This feature is still present in the back-door of the kitchen, now opening up into a relatively new, connection between house and shed.

18 The third year physical modelling course entitled: Maquette-oefening 'Het Presentatiemodel', code: BK6805.

19 Berghoef in his Herinneringen (1994), pg. 6:
"Op een Aalsmeers kwekersbedrijf was in het tweede decennium een van de vroegste werken van architect Oud verrezen: Lloyd Wright-achtig, zoals ik later begreep, en een opvallende verschijning tussen de oude kwekershuizen. In de zomer van 1920 werd me de gelegenheid geboden het interieur te zien: het was geheel afwijkend van de gangbare binnenhuizen in ons dorp en het trappenhuis was in mijn ogen zo bijzonder, dat ik er enthousiast van vertelde aan een oom en hem een plattegrond en doorsnede voorschetste. Na een poosje zei hij "Waarom wil je eigenlijk scheepsbouw studeren en kies je geen architectuur?"
Translation by the author.
This anecdote was included in Berghoef's address for the awarding of an honorary doctorate of J.J.P. Oud at the T.H. Delft, October 1955.

20 Source: J.F. Berghoef's *Herinneringen*, pg. 9.

21 The photographs of the de Klerk house, in the collection of local architect Dick Kuin, who for some time worked in the Berghoef bureau, are supposed to have been taken (and probably printed) by Berghoef.

22 Hans van de Laan would later become known as the architect-priest 'Dom' van de Laan.

23 M.J. Granpré Molière in his inaugural lecture.

24 Granpré Molière:
"Onderwijs op den grondslag van een vormschema, van een stijl is niet mogelijk; onze cultuur was nooit langdurig aan een vorm gebonden, maar nu zijn de slingeringen zoo veelvuldig, dat zich een algeheele ommekeer schijnt te voltrekken in het tijdvak van leerling tot architect. De modern vormen kunnen aan het onderwijs geen basis geven; de leerling zal deze wellicht evenmin toepassen als die der middeleeuwen, want als hij tot rijpheid is gekomen, liggen ze achter hem, evenzeer als de middeleeuwen, mogelijk veel verder."

25 During his fist five years he still combined his professorship with his practice. When his tenure was extended with a period of ten years, he dedicated himself exclusively to academia.

26 Berghoef in his memories, pg. 23:
"Toch waren G.M.'s assistenties voor mij de onbetwiste hoogtepunten van zijn docentschap. Hij zocht bij ieder hem voorgelegd project zorgvuldig naar wat erin stak, waarnaar de ontwerper bewust, doch meestal onbewust op weg was. Dat leek vaak op aarzeling, maar dan wees hij feilloos fouten aan, signaleerde gemiste kansen, en besloot doorgaans met een bemoedigend woord, af en toe een grapje."
Translation by the author.

27 Ids Haagsma and Hilde de Haan in the introductory article to the retrospective *'Wie is er bang voor nieuwbouw…'* (1981): *'De veranderende aanblik van Nederland'*, pg.17:
"Bovendien waren er in toenemende mate architecten die verontrust raakten door de vele veranderingen die zich voltrokken. Zij zochten veeleer het behoud van geestelijke en soms ook religieuze waarden. Tradities werden door hen benadrukt en tegenover de toenemende internationalisering belichtten zij nationale facetten. Zij werden daarin min of meer gesterkt door een plotselinge maar langdurige economische inzinking die zich vanaf 1929 voldeed en die voor velen een eind maakte aan een optimistische toekomstverwachting. In de loop der jaren droeg daaraan ook de toenemende internationale politieke spanning bij. ... Tegenover de maatschappelijke veranderingen zochten Granpré Molière en zijn aanhangers een nieuwe zekerheid. Al in 1925 valt die trend waar te nemen, maar vanaf 1930 krijgt de Delftse School steeds meer aanhang. Gestreefd werd naar een eeuwige waarheid in de architectuur, reden waarom vergankelijke stromingen werden afgewezen. Schoonheid is waarheid en veel van die schoonheid ontleende men uit het achttiende eeuwse bouwen."
Translation by the author.
28 Drawings: collection of the author.
29 Source: Berghoef's *Herinneringen*, pg. 15.
30 This comparison is made in the special edition of the *Bouwkundig Weekblad* (1929), but also by J. Krüger in his contribution to *PLAN* (1983) on the occasion of Berghoef receiving the BNA-kubus award.
31 Berghoef states in his 'Memories' that he felt the projects could be realized without him. It is interesting to note that – compared to the amount of attention he gives de Klerk's Barendsen house – he is not at all explicit about his own, formative, early work.
32 The journey took him to Milan, Verona, Venice, Ravenna and Bologna, together with Granpré Molière and his B.S.K. study friend Han van Epen. He then travelled on alone to Florence, Sienna and San Gimignano. It would result in a lasting love for the landscape and culture of Tuscany.
33 According to Berghoef, in his *Herinneringen*, pg. 16, Granpré Molière had told him:
"Je hebt al een hele praktijk achter de rug, van landelijk en goed Hollands karakter; ik vind dat je er aan toe bent om je in echte stedelijke en monumentale architectuur te verdiepen en die vindt je in Italië."
Translation by the author.
34 It is meaningful to realize how serious the impact was on the flower growing community of Aalsmeer. Compared to the 'boom' of the early twenties – resulting in a great number of requests for planning permission – the building activity soon began to dwindle and gradually came to a halt.
Source: my own explorations in the municipal archive in the late 1990's.
35 Berghoef was a student-assistant in Delft from 1935 to 1938 and in 1938, in the absence of Granpré Molière, was responsible for a course in architectural design.
36 Hans Ibelings in *'Architecten in Nederland'*:
"Johannes Fake Berghoef was een echte traditionalist. … De traditie was voor hem een vanzelfsprekend uitgangspunt. Als beginnend architect ontwierp en bouwde hij vooral woonhuizen in en rond Aalsmeer, waarvan de subtiele vormgeving vaak nauwelijks opvalt tussen wat eromheen staat. Deze woonhuizen hebben altijd en eenvoudige opzet en een min of meer traditionele vorm, met hellende dakpannen en gevels van baksteen."
Translation by the author.
37 Berghoef in his *Herinneringen*, pg. 10:
"Op een van die avonden bracht ik foto's en tekeningen mee van een kwekershuis c.a. dat architect de Klerk voor een bevriende familie in Aalsmeer ontworpen had. Het huis was in 1923, het jaar waarin de Klerk overleed, tot uitvoering gekomen: een markant "Amsterdamseschool-bouwwerk", dat zich zeer wel naar de bewoners als in de omgeving voegde."
38 Berghoef in his *Herinneringen*, pg. 10:
"Tegen het slot van de discussie stoof van den Broek binnen, bekeek het een en ander en had er geen goed woord voor over! Hij was toen bezig met afstuderen en had daarbij o.a. een watertoren ontworpen: keihard, in de vorm van een betonnen kubus op dito poten, waar de toenmalige hoogleraren tegenaan zaten te kijken, terwijl onder de studenten heftig gediscussieerd werd of je zoiets "wel kon maken": ik vond van niet. Daar overheen kwam nu zijn oordeel over de Klerk's werkstuk, wat me nogal dwars zat: Lloyd Wright, Lutyens, het decoratieve kubisme van Dudok, de Amsterdamse School, kon ik waarderen, al ging onbewust en aarzelend zoekend mijn voorkeur uit naar eenvoudiger, tijdloze en – voor alles – naar menswaardige bouwerij. De betonnen kubus op poten bleef daarvan in mijn ogen ver verwijderd: en van den Broek's kritiek op het fijnzinnige kwekershuis zat mij dwars."
Translation by the author.
39 J.F. Berghoef, on early-modern abstract aesthetics in his article *'Architectuur en stedebouw: Spiegel van de samenleving'* (1981) in: *Wie is er bang voor nieuwbouw…*, pg. 75.:
"In de beginjaren van deze eeuw begon het abstracte bouwen: het werd een spel van lijnen en vlakken, de ruimten binnen en buiten gingen in elkaar overvloeien, elke massiviteit en zwaarte werd aan het bouwen ontnomen. In de jaren twintig volgden daarop de Nieuw-Zakelijken van 'de 8 en Opbouw', die Le Corbusier als hun onbetwiste meester volgden."
Translation: the author.
40 Bernard Colenbrander in Berghoef's In Memoriam in ARCHIS (1994):
"Berghoef was concerned with the rearrangement of the traditional order in two fields in particular: firstly, that of housing and secondly, that of the monumental building. Before the war, a vast number of free-standing houses large and small were realised (particularly in the area around Aalsmeer) which illustrates how Berghoef had familiarised himself with the regional characteristics of the Dutch countryside, but not only with that: there are clear echoes of his revered contemporaries Schmittheimer and Tessenow."
41 The work of W. Maarse Jr. is wrongly attributed to Berghoef.
42 H.T. Zwiers, in his part of the special Aalsmeer edition of the *'Bouwkundig Weekblad' (Architectural Weekly)* of 28th September 1929, pg. 312:
"Vooral het werk van den jongen cand. B.i. Berghoef, die door drukke werkzaamheden zijn afstuderen telkens moet uitstellen, treft door een gezonde en eerlijke soberheid. Het toont duidelijk verwantschap met het werk van Prof. Granpré Molière en is evenals dit wars van gewichtige monumentaliteit en heftig uiterlijk vertoon; de waardigheid van dit werk is eerder het besef van slechts betrekkelijke eigen belangrijkheid."
Translation by the author.
43 Giovanni Fanelli, in his retrospective *Moderne architectuur in Nederland 1900–1940*, pg. 176:
"In hun geschriften besrtijden de architecten van de Delftse School zeer vurig elke architectuuropvatting die hun vreemd is. De meeste aanvallen zijn gericht tegen de Nieuwe Zakelijkheid, omdat door de architecten van deze richting – zo menen zij – alle nadruk wordt gelegd op het materiaal en de techniek (het stoffelijke), terwijl de vorm (het geestelijke) volledig genegeerd wordt. Bovendien streven de functionalisten naar een in elkaar overlopen van binnen- en buitenruimte, wat volstrekt strijdig is met de ideeën van de Delftse School, die vinden dat het exterieur door zijn fraaie vorm een uitdrukking moet zijn van de erachter liggende ruimte.
Ook de sociale opvattingen van de functionalisten ('de architect dient de maatschappij') worden fel verworpen, omdat men als mens niet een ander mens kan dienen, maar zich alleen in dienst kan stellen van God."
Translation by the author.

44 Johannes Jacobus Margaretus Vegter (1906-1982). Hans Ibelings mentions their mutual visit to Schmitthenner in his item on Vegter in *Architecten in Nederland* (2005).

45 Joseph Buch, in his *Een eeuw Nederlands architectur,1880–1990* (1993), pg. 256:
"Een van de wegen die Granpré Molière bewandelde om zijn invloed te doen gelden was dat hij zijn studenten en vrienden zo veel mogelijk steunde bij hun werk. Een zeer bekend voorbeeld daarvan is de nationale prijsvraag voor het nieuwe stadhuis van Amsterdam in 1936. Granpré Molière, die in de jury zat, zorgde ervoor dat het ontwerp van J.F. Berghoef en J.J.M. Vegter, twee van zijn volgelingen, gekozen werd. Het ontwerp ging zo ver terug in de geschiedenis en op zo'n ondeskundige wijze dat het direct een voorwerp van spot werd, maar de macht van hun beschermheer was zo groot dat hen in 1954, toen de locatie naar het Waterlooplein verplaatst werd, gevraagd werd hun ontwerp aan te passen aan dit nieuwe, aan het water gelegen terrein."

46 In his *In Memoriam* of Berghoef in ARCHIS (1994), pg. 12, Bernard Colenbrander documents Aldo van Eyck's response:
"Frances Strauven describes how in 1939, having come over from Switserland for the Easter holidays, Van Eyck was confronted in the Stedelijk Museum by Berhoef and Vegter's entry for the competition for the Amsterdam town hall. The effect was a 'deep revulsion', for the 'hideous, superlative monumentality' of the project unequivocally proclaimed 'the type of absolute hierarchy which he had opposed ever since he began to think".

47 J.F. Berghoef: *Samenvatting*, in: *De Kenmerken der Nederlandsche Bouwkunst, Zes voordrachten en een samenvatting*, Genootschap Architectura et Amicitia, Amsterdam, 1941. Pg. 87-95.

48 G. Rietveld: *De Vier Oorzaken: Doel. Materiaal, Werkwijze en Vorm van Bouwkunst*, in: *De Architectuur, Vijf voordrachten en een samenvatting,* Genootschap Architectura et Amicitia, pg. 16–21, 1942.

49 Berghoef in his synopsis of the first A. et A. meeting held during the occupation years, in 1941 in Doorn, pg. 92-93:
"Elk huis is een wereld op zichzelf, geen twee zijn er eender, de architectuur is typisch burgerlijk, dat is: zelfbewust, gedegen en sober; het laatste geldt voor al onze architectuur, van 't eenvoudige huisje tot en met de patriciërswoning, de kerken incluis.
De huizen onderling verdragen elkaar goed: ondanks de individualiteit van elk pand vormen zij toch een geheel, dat afwisselend en boeiend is, dank zij de onderlinge verscheidenheid. In onze straten en grachten zien wij uitgedrukt, wat hierboven met "nevenschikking' werd aangeduid: een erkennen van ieders recht op een plaats in het leven, voortkomend uit een tolerante levensbeschouwing eenerzijds en een zelfbewustheid anderzijds."
Translation by the author.

50 J.J. Vriend in *'De Bouwkunst van ons Land, Het Platteland'*, pg. 85 (1942):
"Een nieuwe melodie werd aangeslagen door de jonge school rond Granpré Molière. Men bezint zich op de wezenlijke waarde van onze Hollandsche bouwkunst: de eenvoudige klare hoofdvormen, met het gebruik van de karakteristieke materialen en ambachtelijke constructies. In wezen is dit hetzelfde uitgangspunt, dat ook de Berlagiaansche school verkondigd had. Toch zien we bij het beschouwen van een landhuis of woning van deze "archaïserenden" bouwstijl diepgaande verschillen. Vele werken van de Berlagiaansche school, en vooral die uit de vroege periode vertoonen een zekere starheid en droogte die het gevolg is van een doctrine: het tot elken prijs vasthouden aan de technische zuiverheid van het ambachtelijk detail. … Daarentegen is het werk van de archaïserende school warmer en vooral menselijker. Het zuiver ambachtelijke kan in zich zelf goed zijn, toch was er juist méér noodig om dezen volgenden stap te bereiken: het schoone en gevoelige detail."
Translation by the author.

51 The W. Maarse house of 1926 is a local monument, which is included in *Moderne monumenten in de Meerlanden*, pg. 104 (1986).
The accompanying text:
"Een mooi huis van een architect die in Aalsmeer voor Berghoef nauwelijks onderdeed. De overeenkomsten waren zo groot, dat het Bouwkundig Weekblad Architectura dit huis, alsook het winkel-woonhuis (Zijdstraat 50), aan Berghoef toeschreef in 1929."

52 These lozenge-shaped subdivisions in the windows have through time disappeared.
The only exemplar to survive is the kitchen-door, at the back of the house.

53 Marisa Melchers, considering *Granpré Molière* as an architect and urban designer in the context of the design of religious buildings in *Het nieuwe religieuze bouwen* (2015):
"Centraal in Granpré Molière's esthetica stond het streven naar een hiërarchische ordening, waarbinnen metafysische, onveranderlijke 'eeuwige waarden' een leidende rol speelden. De persoonlijke artistieke inbreng, maar ook de functionele en technische inhoud van het ontwerp stonden ten dienste van de objectieve, hogere waarden van het ontwerp."
Translation by the author.

54 Marisa Melchers in *Het nieuwe religieuze bouwen* (2015):
"In de esthetica van Granpré Molière kunnen drie grondregels worden onderscheiden. Ten eerste het belang van het driedimensionale volume, dat zoveel mogelijk van drie zijden zichtbaar diende te zijn. Een tweede regel was het streven naar naar een gesloten beeld in tweedimensionale muurvlakken van gebouwen. ... De derde richtlijn was het scheppen van harmonie tussen de tegenstellingen, bijvoorbeeld tussen volume en ruimte en massa en licht."
Translation by the author.

55 The house contrasts distinctly with two identical houses next to it along the Oosteinderweg, designed by W. Maarsse for the brothers de Vries, with characteristic, sharply-pitched roofs (1930).

56 In the collection of writings and projects by Granpré Molière, collected by his 'friends and students' in 1949, two projects are included which demonstrate this ambivalent approach on the level of order, balancing of unequal parts and pseudo-chance: the Nijland house in Wassenaar (1918) and the design for Granpré Molière's own house in Wassenaar (1947).
These projects were apparently considered to be exemplary, and compositional issues can be recognised here that would surface in Berghoef's later work, notably in the van Staaveren house (1958).
Source: *Woorden en Werken* (1949).

57 The opening sentence of the first *Schoonheidsdsleer* lecture, on October 2nd 1939:
"Behandeld zal worden: "Het geheim van het bouwen"."

58 Prof. Ir. Granpré Molière: *Schoonheidsleer,* lecture-documentation TH Delft, pg. 68 (1940).

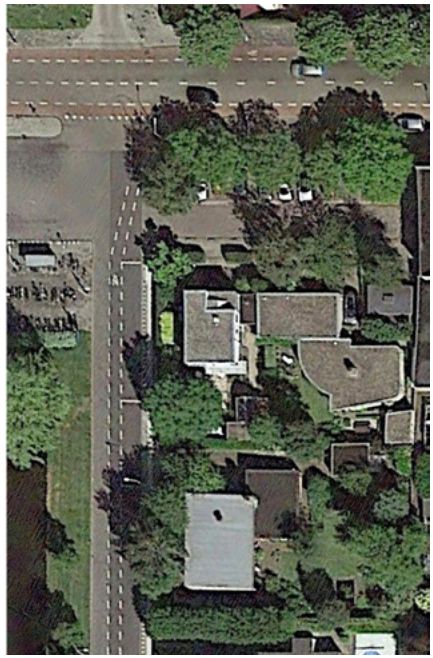
59 The closing paragraph of the *Schoonheidsleer* lecture-series:
"Ook blijkt dat "wisselvallig' en "toevallig" niet gelijkgesteld mogen worden. Wisselvallig is datgene wat voortkomt uit een potentie welke daar onder ander op is aangelegd. Het toevallige komt tevoorschijn uit een doelstreving, welke daar niet op is gericht."
Translation by the author.
Although it is difficult to fully comprehend the intellectual intentions in Granpré Molière's somewhat mystic texts, like this one, an attempt was made by the author to give a meaning to this elusive condition, which forms a kind of 'hidden agenda' in the expressive vocabulary of the Delft School architects.

7. AA Variations

7.7 AA07
J.G. Wiebenga
1931













Introduction

The strikingly-modern family home, which architect and engineer ir. Jan Gerko Wiebenga (1886–1974) designed for municipal secretary Wenzel and his family in 1930, was (and indeed still is) a conspicuous anomaly, in its predominantly rural surroundings.

Wiebenga was born and raised in the Dutch East Indies. After returning to the Netherlands aged 17, he finished his secondary education and, despite wanting to become an architect, studied Civil Engineering in Delft.[1]
After completing his studies at the beginning of 1912, he worked as a constructor, becoming an expert in the field of reinforced concrete.[2]
Alongside this more technically-oriented work, he started teaching architecture at the Royal Academy in The Hague in 1916, eventually becoming course-coordinator. From there he moved to Groningen in 1922, becoming director of an intermediate technical school (MTS).
Whilst his initial task was to thoroughly reorganise the curriculum, he was also asked to design a wholly new educational complex. In order to realise this ambitious project, within the pre-set timeframe of just over a year, he invited architect Leendert van der Vlugt (1894–1936) to collaborate on the design.[3] The transparent, proto-modern technical school, the first of its sort to have a reinforced concrete structure, was a breakthrough for the Functionalist movement.[4]

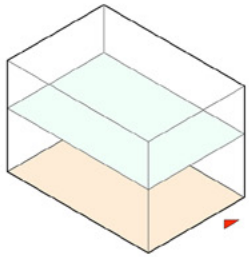
As a recognised expert in concrete-engineering, Wiebenga then became involved in a number of tone-setting projects, as an engineer.
From 1926, after the departure of Bijvoet to Paris, he worked with Jan Duiker on the development of the Zonnestraal sanatorium in Hilversum (1928). Around the same time, van der Vlugt invited him to become involved in the technical design of the Van Nelle factory in Rotterdam (1929).
Together with Duiker he studied the opportunities for high-rise buildings, jointly taking the initiative for the innovative Nirwâna apartment-complex in The Hague, completed in 1929.
In 1928 Wiebenga and Duiker had both become members of the architecture platform ‘de 8’.
The same year he moved to Aalsmeer, to become director of the municipal works-department, designing a sports-complex and two schools.[5]
Furthermore, he accepted the private commission for the Wenzel family house, which was realised in 1931, after his departure to lead the planning-department of the city of Zwolle.

The free-standing house was designed for Mr. and Mrs. Wentzel and their children.
It was one of the first buildings to be realised in the new planning-development in the Hornmeer polder, to the south of the village – ‘Plan Zuid’ – on the corner of the Ophelialaan and the Hortensialaan.

AA07	: Information		
Project	: G. Wentzel House : Ophelialaan 70, Aalsmeer		
Architect	: Jan Gerko Wiebenga		
Style	: Functionalism : Pre-War Modernism		
Year	: 1931		
Ground-plan	: 65 m^2	Floor-plan	: 125 m^2
Volume	: 400 m^3	Ratio V/F	: 3,2 m

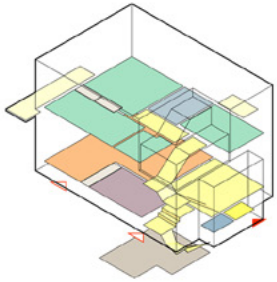






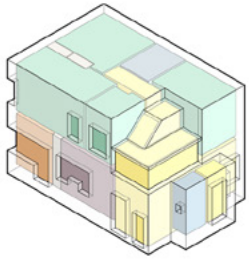
A.1 Context

The free-standing house is located on a corner plot, with a bus-stop out-front, along an outstretched green axis, which forms the centrepiece of the western part of the new Hornmeerpolder housing-development.
The functionalist design for a representative family home was designed to include living-spaces, a kitchen and a study, also serving as a reception-area for visitors to the municipal secretary, on the ground floor. The bedrooms and a modern bathroom were situated on the first floor. The compact, orthogonal volume was designed to have views towards the streets on two sides and particularly towards a south-facing private garden.
In due time, a one-storey house was built on the adjoining plot, attached to the north-eastern facade, whereby the direct views towards the rear of the house were obstructed.



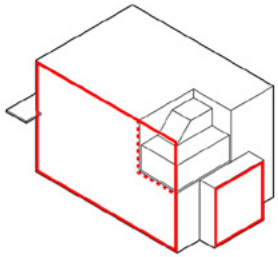
A.2 Function

The house is reached via a distinguished, stepped platform, giving access to a small vestibule, with a toilet, opening up to a spacious entrance hall, also serving as a reception and study-space.
From here there is a primary entrance towards the L-shaped, private living/dining room.
A separate service-entrance from the rear garden connects with the entrances to the kitchen and to the cellar, situated below the platform of the stairs. The cellar had a separate coal-storage, with its own opening from the garden.
A transparent volume houses the distinctive staircase, which makes a smooth connection to the first-floor landing, giving access to four bedrooms and a centrally situated bathroom.
The largest two rooms open up to the main balcony, the room closest to the stairs has its own, smaller balcony.



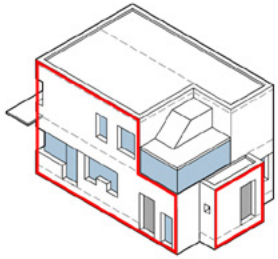
A.3 Interior

With the exception of the slanted sub-volume that identifies the stairs, all rooms are rectangular in shape and have views via relatively large openings, mainly towards the garden. There is more privacy on the road-sides, with openings that are discreetly proportioned and positioned.
On the ground floor, the hall-space looks outwards in two directions. The main living room is visually oriented towards the rear garden, with an open corner toward the southeast. This family-room is comparatively closed towards the street, with a long window positioned higher-up in the wall. The upstairs-spaces, connected by a compact hallway, all consist of rectangular rooms, with strategically placed openings. As a contrast, the connecting-space containing the staircase is extremely transparent, looking out in two directions.



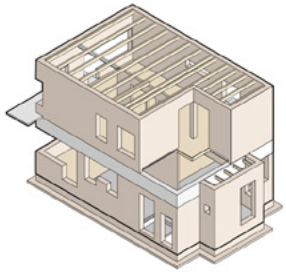
B.1 Object

The elementary composition consists of a rectangular volume, measuring roughly 6,5 × 9,5 × 6,5 meters. This cubic entity is enhanced, on the level of plasticity, by three characteristic 'secondary' articulations. The first of these is the 'addition' of an entrance-volume, oriented towards the north-west.
The second, perhaps most distinctive, feature is the pronounced stairs-section. Here, a corner-portion of the overall volume appears to have been 'subtracted', after which a transparent volume, including a slanted roof-section visually highlighting the rising stairs, has as it were been 're-inserted'.
Lastly, the seemingly-solid 'mass' of the built object is contrasted with the introduction of two thin balconies, one towards the street and one evocatively extended outwards over the south-western corner.



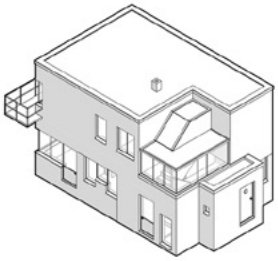
B.2 Structure

The building comes across as a more-or-less monolithic volume, with a marked distinction between the brickwork ground-floor and the seemingly 'lighter' upper volume, suggesting a *plan libre* structure. In actual fact the load-bearing structure closely follows the spatial organisation of the different rooms.
The two longer outer walls support the beams of the floors and the roof, whereby an intermediate wall, positioned at approximately 2/5th of the width, in combination with some steel beams, offers intermediate support.
A hidden feature is a concrete beam in the house's circumference, accommodating the two cantilevered balconies.
Although there is a measure of correspondence, the placement of individual windows appears to be dictated primarily by the conditions of the interior and daylight-requirements.



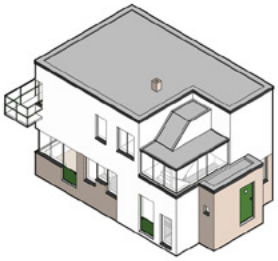
B.3 Technique

Technically, the building is a hybrid of brickwork, concrete, steel and wood.
Its foundations are of reinforced concrete, cast in-situ, supported by wooden piles. The plan is divided into four quarters. One section contains a cellar, above which are the stairs. The lower floors are executed partly in concrete (the hall and kitchen) and partly in wood. Above the foundations, the construction consists of brick cavity-walls, which together with an inner-wall and some steel beams, support the wooden structures of the floors and the roof.
Around the periphery, an integrated concrete beam, corresponding with the plasterwork outer layer, supports the first-floor structure and accommodates the thin, cantilevered balconies.
Furthermore, this beam allows for the free placement of the generous ground-floor windows.



C.1 Facade

Although the facades of the house essentially consist of brick cavity walls, the visual impression is of two semi-autonomous volumes: a lower one rising out of the ground in brick, plus an ‘immaterial’ upper-volume, as it were positioned freely on top.
In actual fact, this visual distinction is not quite as clear-cut as it appears.
The plastered top section actually includes the beam, which is in evidence in the ground floor rooms, which from the outside therefore appear to be lower than they actually are.
In contrast, the secondary entrance-block indicates the true floor height. Because the beam-zone is also visually ‘pulled around’ the transparent stair-section, the windows here are less high than originally planned. At the rear the whitewashed upper surfaces are ‘pulled downwards’, towards the ground.



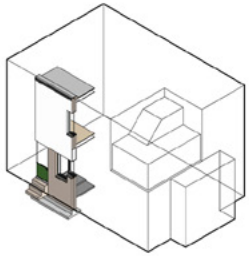
C.2 Surface

The most characteristic surface-textures are the smooth white plaster and the yellowish-brown brickwork, offset by painted steel window-frames and borders of ceramic tiling.
The plasterwork that covers the upper walls needs regular upkeep, to maintain its near-abstract, smoothly uninterrupted surface. The brickwork of the lower walls is executed in a half-brick bond, using a relatively light stone, which has in time acquired a patina.
The steel window-frames and door-sections were pained a relatively ‘traditional’ dark green. This is probably the original colour, which has recently been changed to grey.
Under the windows and around the top-edges of the vertical planes (with the exception of the transparent stairs section) black ceramic tiles are used, creating a pronounced, somewhat heavy-looking ‘seam’.



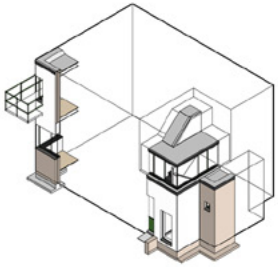
C.3 Opening

Although the positioning and subdivision of the steel windows comes across as a rather loose ‘scattering’ over the different elevations, a level of correspondence between the juxtaposed openings in the top and lower sections is in evidence, per facade section.
Although there does not seem to be a clear ‘metre’ underpinning the placement and dimensioning of the windows, most window-sections have a height of about 1,41 meters. A frequently applied width is 73 cm for the windows and 99 cm for the doors, with narrower doors to the balconies. A recurring motif is a frame combining the ‘module’ of 73 cm with a section that is approximately 2/3 this width. In all, the design displays a playful mix of window-sizes and proportions, with occasional sub-symmetries and inversions between the upper and the lower parts.



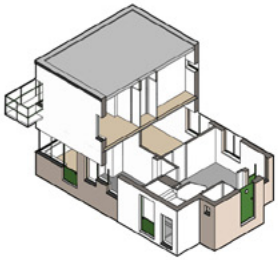
D.1 Junction

As far as detailing is concerned, the basic theme is one of a vertical ‘stacking’ of components: the concrete foundation, supporting a brick cavity wall, with freely placed window-sections under a concrete beam, supporting another double-wall section with windows visually ‘cut out’ of the surface, topped by row of pronounced tiles.
The openings in the ground-floor are varied and in places pronounced, including a dynamic, horizontal window (with an uninterrupted opening of 2,33 meters) towards the street.
Between the window-sections, care is taken to include sufficient, closed wall-sections, in order to support the periphery beam and the upper walls. Wooden floor- and roof beams, rest on the longitudinal inner wall, with extra steel beams for bigger spans, and on the concrete periphery-beams along the sides.



D.2 Feature

As the house was clearly intended to be an exemplar of a no-frills, ‘functionalist’ architecture, it is not surprising that there are no explicit ornaments. However, there are a number of articulations that may be considered to be representative of the designer’s utilitarian ambitions.
Amongst the most pronounced attributes of the modest house are the two eye-catching balconies, particularly the larger one towards the rear, which highlights corner-windows, unhindered by constructive supports. The articulate balcony-railings are explicitly detailed, with an ‘industrial’ expression.
The thin roof of the sub-volume housing the stairs, which is visually ‘supported’ by a band of glazing.
Other functionalist attributes include the representative letterbox and the ‘maritime’ porthole-window in the front door.



D.3 Ensemble

The house comes across as a clearly-defined entity, which upon closer scrutiny is plastically articulated for visual effect, particularly by exploiting the relationships between interior- and exterior spaces.
Notable ‘in-between’ features are the somewhat monumental entrance-platform and the expressive treatment of the openings between the family-rooms and the secluded garden, as well as the articulation of the ‘public’ and ‘private’ routes towards and through the house, most notably the dynamic domain of the stairs.
As the house has only changed marginally through time, particular interior features have been kept, including the essential attributes of what would originally have been an innovative, exceptionally-modern kitchen, which was of particular interest to the owners, as well as to its designer.



Aerial photos with the house at the edge of the Hornmeer development (1933).



Aerial view of the house in its present surroundings (centre, corner plot).

Development

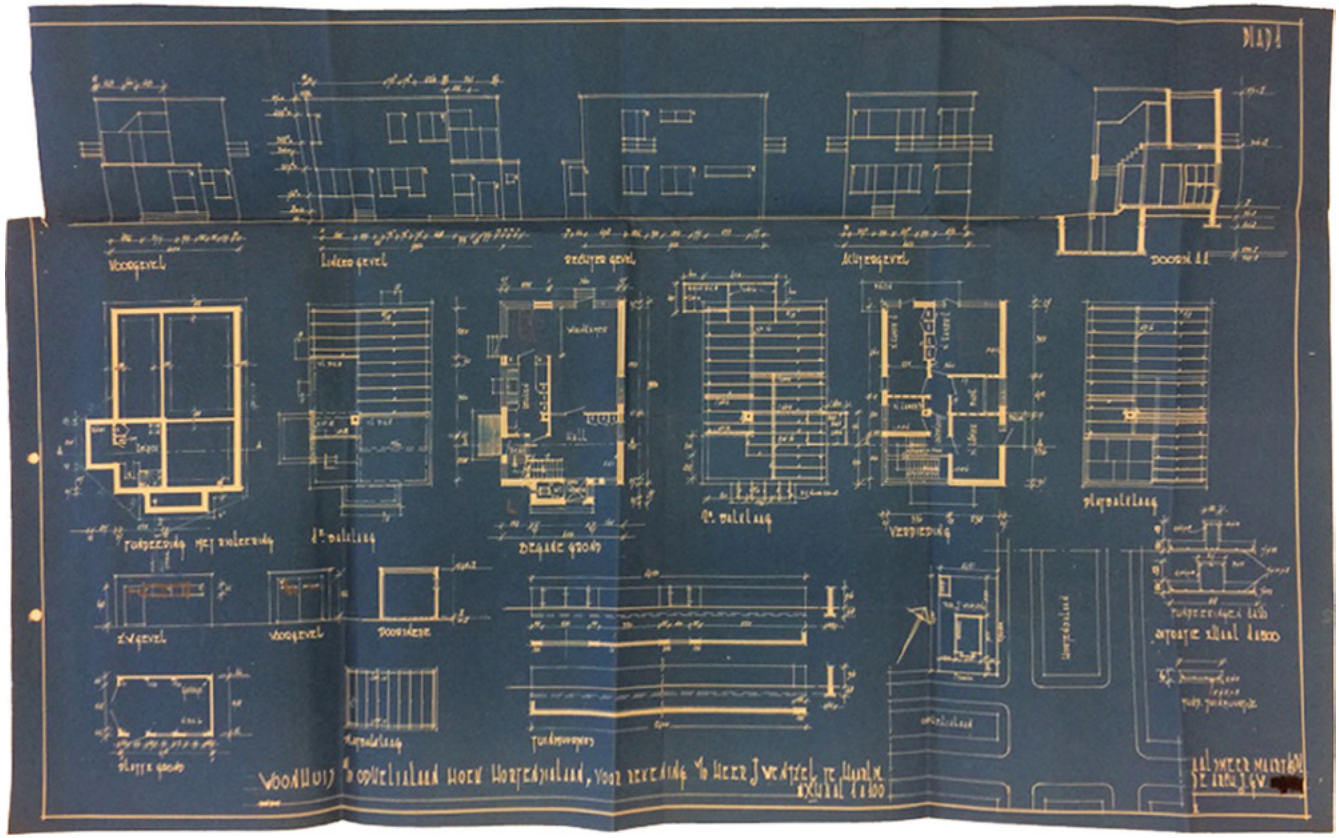
The Wenzel family's choice for Wiebenga to design their new Functionalist house must have been somewhat controversial in the predominantly traditional community.
Up-and-coming local architect Berghoef is reputed to have been particularly disappointed at not having being offered this representative commission.[6]

Wiebenga and his wife had moved to the United States In 1924, where he studied modern building-innovations and worked as an engineer and as a designer.
The stay was cut short due his wife's health problems and in 1925 he returned to the Netherlands. Wiebenga felt inspired by his experiences in the New World, particularly where it came to efficiency and modern appliances, such as kitchens. This led to his collaboration with his Functionalist compatriot Jan Duiker, on what was intended to be a ground-breaking, modern service-apartment building: the Nirwâna-complex the The Hague.
When Wiebenga came to Aalsmeer, the 'Nirwâna-flat' was still under construction and, together with Jan Duiker, he had just become a member of the 'De 8' group.

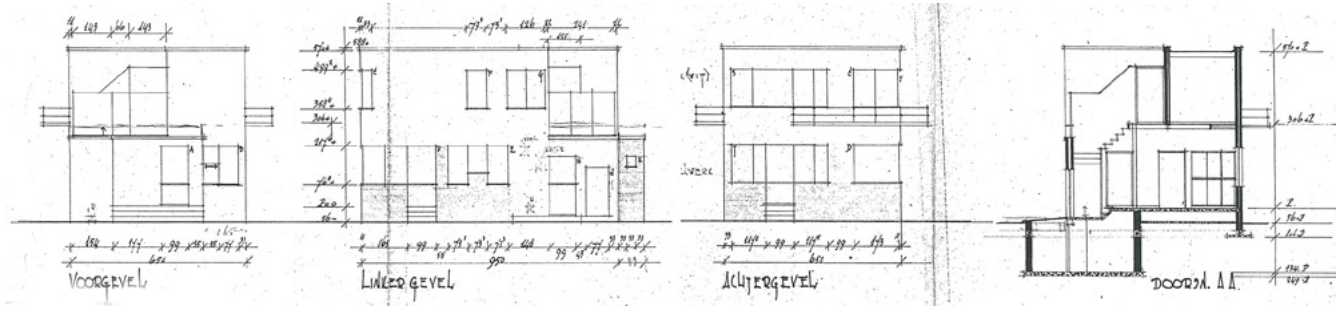
In his years as a municipal-architect in Aalsmeer he would realise a sports-complex two innovative secondary schools.[7]
At the time of the house's development, Wiebenga was still director of the municipal works department (1928–31) and Mr. Wentzel was the municipal secretary.
Apparently, Mr. Wenzel and his wife were taken in by Wiebenga's commitment to efficiency and innovation, as was expressed in his earlier work. Indeed, Wiebenga and Wentzel became close friends and it may even be that he designed the house without expecting a commission-fee.[8] The design was developed in close collaboration with its owners, in particular with Mrs. Wenzel, who later described Wiebenga as her 'building companion' ('bouwkameraad').[9]

Some early sketches, found in the archive of the NAi, suggest that the design-development was not as straightforward as it might seem, but that Wiebenga explored various options.[10]
The complete, but relatively rudimentary building-permission drawings specify the design as it was to be realised.
Because Wiebenga had already moved to Zwolle when building commenced, in the summer of 1931, the realisation process was trusted to an overseer, who apparently was not very familiar with the modern building-techniques that were required.[11]

As the plot of the house had previously been a polder canal, the underground was not considered to be sufficiently stable for the simple foundation that had originally been envisioned and the decision was taken to build the entire house on a foundation of wooden piles, at an extra cost.
In hindsight, this has proved to be a good decision, as there have been no notable subsidence problems through the years and the house still looks almost 'as good as new'.[12]



Blueprint of the building-drawings from 1931 (collection NAi).



Four items from the drawing above: three elevations and a section over the stairs.



Characteritic feature: one of the thin, cantilevered balconies with steel railings.

Experience

Due to the dedication of the original owners and one of their sons who subsequently lived in the house with his family, the building has been consequently and conscientiously maintained.
Hence, the house has managed to preserve many of its original qualities, and has remained in a close-to-original state up to this day.

It is possible to get a good impression of the original condition of the house from the photographs, which were made shortly after its completion and were published in an article, attributed to Prof. Wattjes, in *Het Bouwbedrijf* in 1935.
For the article, Wiebenga supplied numbered presentation-drawings and an explanatory text, which was taken up almost ad-verbatim in the article.[13]

One of the unique spatial features of the house is the entrance-hall, with its dynamic staircase-ensemble that would have doubled as a study for Mr. Wentzel. Here he regularly received professional visitors, who would enter via the 'official' entrance facing the Ophelialaan.

On a photograph, taken from the front living room (with a piano next to the door) one can recognise the municipal-secretary's desk, next to the letterbox.
The delivery of all goods would normally have been around the back of the house.
A back-door, on a lower level than the rest of the house gave direct access to the cellar-door.
Coal could be delivered directly to an underground storage, next to the central boiler.
On the other side of this rear-hallway, there was a niche for groceries, next to the door to the actual kitchen, which also had a dumb-waiter to the cellar-storage directly below.









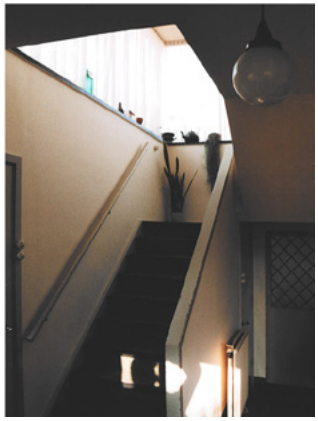
Dynamic parspective: street and garden views of the exterior

The kitchen itself was advanced for its time, inspired by American examples and fine-tuned to the daily chores of the housewife.
A particularly modern aspect was the integral work-area, stretching along the rear facade, with separate taps and a gutter underneath.
The kitchen was directly-connected to the dining-area via a door and a set of intermediate-cupboards ('doorgeef-kast') for food and dishes, on either side of the connecting door, with an upper-window over the full width of the kitchen.
The dining-corner had a divan, positioned between the table area and the living section, which could be used in a multifunctional way during the day.

The lay-out of the family-rooms was organised in such a way that they would have an optimum of sunlight.
The morning sun would bring light into the kitchen and the dining-corner and, as it turned, would bring light into the living-room via a horizontal window, positioned higher-up in the wall, towards the street.
In the late afternoon, direct sunlight would fall into the hallway/ reception area.

The original photographs proudly display the modern appliances and the comfortable main-rooms, which had discreetly-modern furniture.
Via the transparent sub-volume housing the stairway, with glass on two sides, one would reach the upper floor. The most private section consisted of a master-bedroom and a children's room, both with access to the cantilevered corner-balcony and with a modern bathroom close at hand.
Closer to stairs there was a smaller (guest) bedroom and at the end: a room with its own balcony, that might have been intended for a maid, but was used as a hobby- and sewing room.



Relationships between interior spaces and between inside and outside.








Characteristic facade details of the Wentzel House.

Characteristic of the house's design are the relationships between inside and outside.
A notable feature is the corner-window at the rear, crowned by a dramatically cantilevered concrete balcony – only 8 cm thick – with steel-pipe railings.
As far as we can tell, the steel windows and balcony-railings have always been painted green. Since many years the long horizontal window in the street facade and the living-room door to the garden have had a leaded window-infill with decorative green glazing. This minor, but nonetheless eye-catching, addition is one of the few elements that might be considered somewhat 'out of character'.

After having lived in the house for several years, Mr. and Mrs. Wenzel moved into a one-storey house on the adjoining plot, which, to the dismay of Wiebenga, was connected to the original house with a shed, meaning that free views of the rear of the house were obstructed.
The house has since been inhabited by one of their sons, who has zealously upheld the exterior: the thin balconies, the steel windows and particularly the white stucco outer surfaces. As this plastering covers both the upper wall and the concrete periphery-beam it has been quite a task to maintain a smooth, crack-free surface.

In 2016 the house was sold. The new owners brought with them their own furniture and decided to paint the steel windows a darkish grey rather than the, probably original, green.



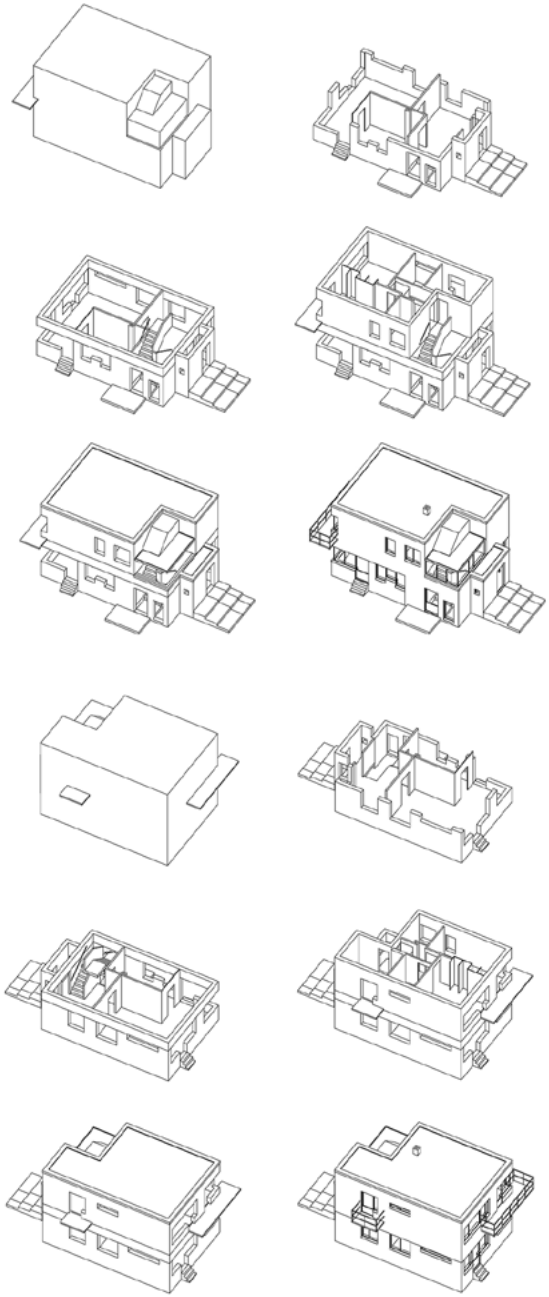
Views from the inside domains towards the street and the garden.



The late Mr Wentzel, showing the details of the house's multifunctional entrance.



Images of the physical model by B. van den Dolder and M. Voet (H. Schouten, BK).



Early 3D modelling experiments: views from the garden- and street sides

Visualisation

Whereas the Duiker & Bijvoet house, realised some five years earlier, is an innovative adaptation of traditional formats and materials, offset by modern steel windows and a stone tower, the house by Wiebenga can be seen as an authentic exemplar of modernist housing-design.

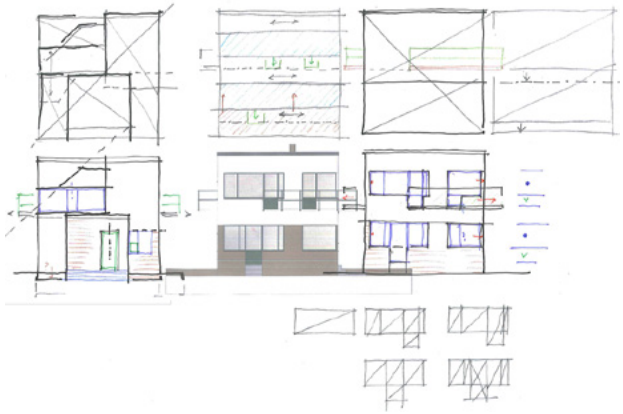
In the context of this study, the project forms the 'closing-piece' of the central cluster of four 'interbellum' projects, being considered here together with the projects by de Klerk, Duiker and Bijvoet and the early Berghoef, as a representative of pre-war Functionalist architecture.

A valuable source of information was the study of Wiebenga's life and work as an 'apostle' of the 'Nieuwe Bouwen' movement, by Jan Molema and Peter Bak, and the accompanying exhibition of his work in 1987, for which a physical model of the house was made.[14]
Furthermore, several visits to the house and the use of data belonging to the Wentzel family contributed to the thematic exploration this case-study project.

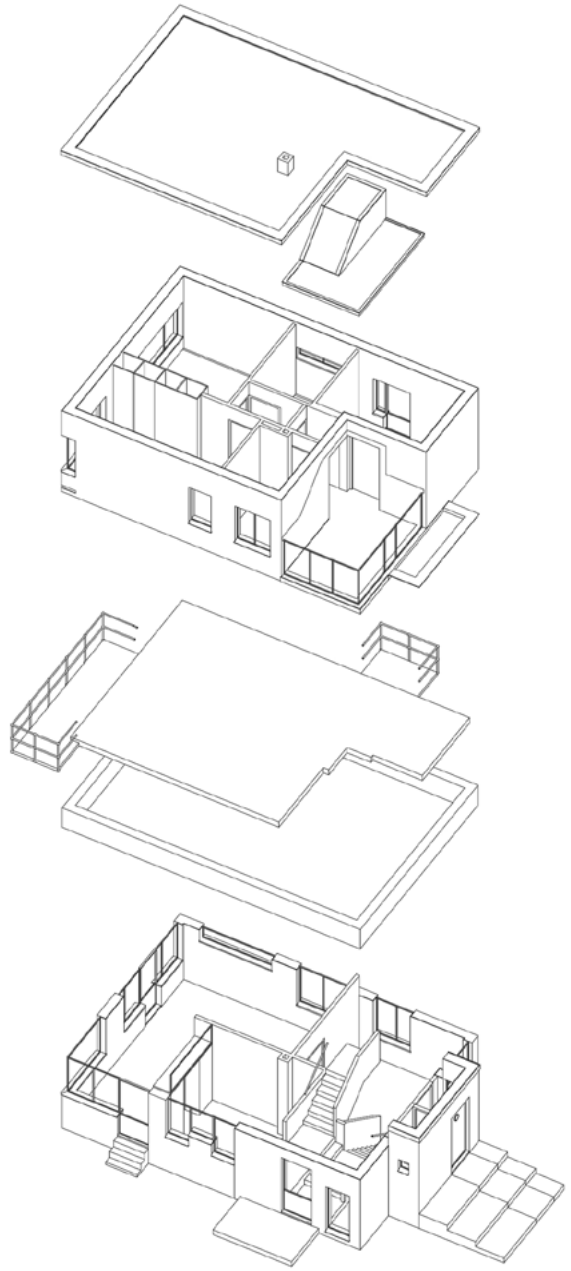
As with the other projects, various modes of 3D modelling and 2D representation have been considered and applied in the investigation of this artefact.
After initial computer-modelling experiments, the Wiebenga project was one of the first to be modelled using three-dimensional 'Sketch' software. Initially, the models were black-and-white. Colour was integrated for more visual expression, as well as being used as an instrument to identify thematic issues, such as functional categories.

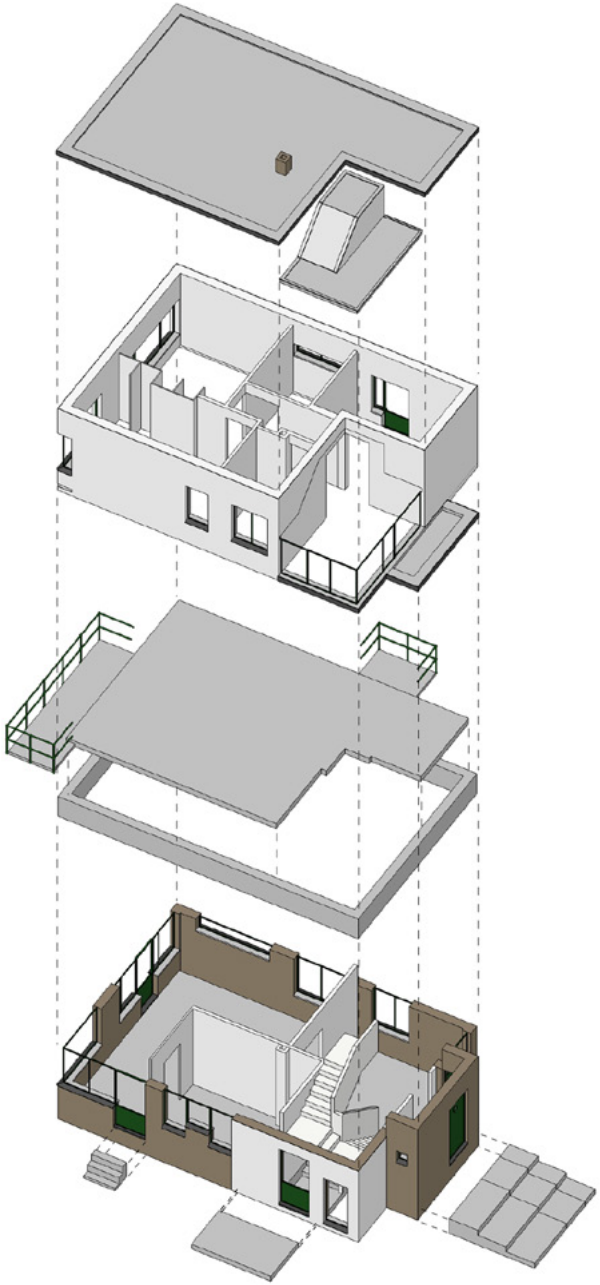
The results of five visualisation variations are briefly considered and illustrated:
— Volumetric Variations;
— Elevation Variations;
— Deconstruction Variations;
— Detail Section Variations;
— Dr. Dimmel Variations (dicussed in the 'Aesthetics' section).

Elevation Variations:
The sculptural and expressive qualities of the house were explored using different platforms: physical 2D sketch-drawings and 3D digital-modelling.
Which technique is more suitable for which kind of exploration depends on the subject of study…
To get a better idea of the organisation of the different facades, it proved to be informative to view the project in 2D.
On the basis of the four different elevations, hand-drawn studies were made, which offered insights concerning the different sizes- and proportions of the various windows.
An indication is given of the 2D analytical sketch-approach, based upon 2D renderings from the digital 3D-model.
The insights that were generated in such a way, formed the basis of the brief analysis, which is given in the 'Opening' paragraph of the AA07 'Patterns' section.



Volumetric Variations:
In the initial stages of analysis, a series of 3D model images was generated, showing the elementary volumetric characteristics of the project, on the level of massing and spatial organisation, as well as issues such as geometry, plasticity, openings and rhythm.
These first studies were still carried out using a simple black-and-white model-environment.
A comparable sequence was made from two different view-points, showing the building's elementary organisation from two different sides.
Such elementary, formal interpretations and comparisons are not possible in the standard 'Patterns' sequences, as these were eventually conceived as always being 'taken' from one side and from one pre-selected vantage-point.
Before the choice for a suitable view-point was made, several experiments were carried out, in order to see which standard-view would reveal the most characteristic traits of each particular project.





Exploded views of the house: in black an white (previous page) and using colour.

Deconstruction Variations:
The consistent, methodical use of layers in the constructed 3D model allowed for the virtual de-construction of the building as a whole.
Particularly enlightening in this case was a vertically-arranged 'exploded view' of the building.
From above, this 'deconstructed model' gives insights into the essential compositional components of the project in four steps:

— The flat-topped roof and the special roof-section above the stairs;
— The spatial organisation of the first floor, distinguishing the outer walls and the spatial partitions;
— The principle of the intermediate, concrete circumference-beam and cantilevered balconies;
— The spatial organisation of the ground-floor, highlighting the L-shaped room, hallway and stairs.

Subsequent studies revealed that the first-floor was not constructed in concrete, but as a combination of wood and, where necessary, steel beams.
Recently discovered photographs, which were made during the building of the house, suggest that the concrete beam was probably not the full width of the outer wall – as was expected and would fully explain the white plasterwork down to the level of the ground-floor windows – but may in fact have been cast in situ only in the zone of the inner-wall and the cavity, and might not have included the outer wall.[15]

Detail Section Variations

One of the major advantages of an integral 3D computer-model is that it can be viewed from different directions and in different ways, notably as perspectives, or in axonometric views.
For the systematic comparisons of the ten projects in the ‘Patterns’ sections, the choice was eventually made for a standardised approach using axonometric views, as these tended to give a more objective overview of – comparable – thematic visualisations. Thereby, it was important that the images should remain readable, even as relatively small-size illustrations.
However, eye-level views, rendered in perspective, give a wholly-different impression of the project, more-or-less as it is (or was), but may also be used to highlight particular features, such as exterior and interior detailing.
The perspectives show distinctly different aspects of the house, giving an impression of the following compositional – and hence: perceptual – themes:

— The elementary volume, with the notable articulations of the stairs and the balconies;
— The differentiation of the surfaces, due to the use of brickwork and white stucco surfaces;
— The rhythmic effect of the steel windows, as series and as punctuations of the ‘solid’ walls.

This same perspective-approach was also used to create another kind of ‘de-constructed’ image.
In this case, the ‘segments’ of the Detail and Ornament levels of the AA07 Patterns study are shown in eye-level perspective, viewed from the outside, as well as from the inside.



The 3D model in perspective: as a whole plus as exterior and interior sections.

Position

Jan Gerko Wiebenga was a key-player in the Dutch Modern Movement, though not as a leader or a trend-setter, but rather as a skilled engineer and a dedicated, creative team-player.
Hence, the authors of the first retrospective of his life and work, Jan Molema and Peter Bak, emphasised his role of a constructor and characterised him as a kind of apostle, who was true to the 'faith' of Functionalist modernism (*"Apostel van het Nieuwe Bouwen"*).[16]

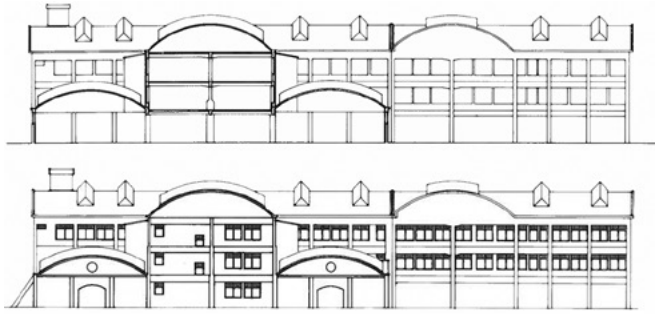
Wiebenga would probably not have been very happy with this label, as he liked to see himself not only as a technically-skilled collaborator, but as a serious architect, in his own right.

An overview of most significant projects in Wiebenga's oeuvre:[17]

— 1912+ : Factory buildings Société Ceramique, Maastricht (construction design) [1];
— 1922–23 : Technical Schools complex (MTS), Groningen (with L.C. van der Vlugt) [2];
— 1925–26 : Van Nelle factory (with Brinkman & van der Vlugt, construction design) [3];
— 1926–28: : Zonnestraal Sanatorium, Hilversum (with Duiker & Bijvoet, construction);
— 1927–28 : Nirwâna apartment building in The Hague (with J. Duiker[18]) [4];
— 1929–30 : Naai en Knipschool, Aalmeer [5];
— 1930–32 : ULO-school der gemeente Aalsmeer, Aalsmee [6]r;
— 1931 : Wentzel-family House, Aalsmee [7]r;
— 1931–33 : Open-air swimming pool and sports complex, Zwolle [8];
— 1931–34 : Extension of the Sophia Hospital, Zwolle (with J. van der Linden) [9];
— 1935 : Dr. Dimmel house (competition project) [10].

After finishing his secondary education, Wiebenga had decided that he wanted to become an architect. However, his father insisted on him studying Civil Engineering, because he felt his son had too little 'business sense'.

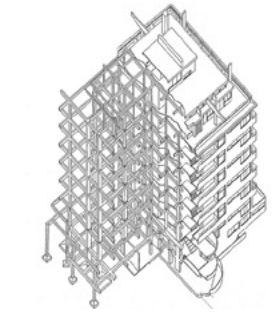
Having completed his studies in Delft, he worked extensively as a structural engineer, becoming a recognised expert in the design and calculation of reinforced concrete constructions.
After he had started teaching architectural principles, at the Royal Academy in The Hague, he moved to Groningen to teach at the local Technical School (MTS). There, he was soon given the opportunity to realise a building that would be a breakthrough, not only in his career but for the budding Functionalist movement as a whole: the new Technical and Industrial School complex in Groningen.
It is quite amazing that he not only managed to reorganise the curriculum, but also managed to design – and build – a wholly new educational complex in record time.













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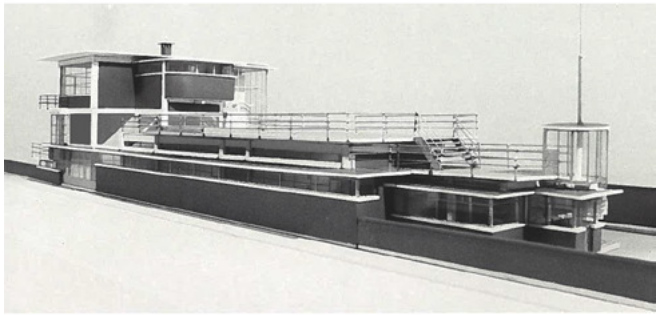
Sources: 'Jan Gerko Wiebenga' / NAi.

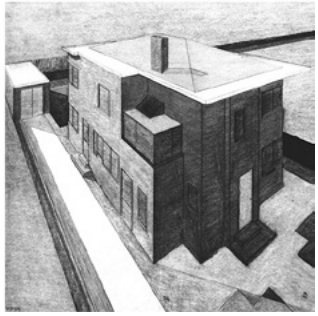












To be able to do this, he approached Leendert van der Vlugt, who worked as a co-architect on the project. This was a working-relationship which was somewhat similar to his later collaboration with Jan Duiker, with whom he worked on the Nirwâna apartment complex.

Wiebenga was at his best when he could reach a synthesis; combining the roles of initiator, designer and constructor.
In this sense it was in his years in Aalsmeer, that he was (briefly) able to truly 'rise to the occasion'…

As the director of the public-work department, Wiebenga contributed to an urban extension and a sports-park development, but most importantly: he designed and built two noteworthy school-buildings, both with reinforced concrete as their load-bearing structure.

The so-called Naai en Knipschool (1929–30), strategically positioned at the end of the axis of the new Hortensialaan, is strictly symmetrical. Its modest monumentality is somewhat reminiscent of his earlier MTS project in Groningen.
The larger and considerably more complex ULO-school (1930–32), was built on a plot along the Dorpstraat, in the village centre. It consists of a dynamically-organised ensemble, reminiscent of maritime architecture. Its expressively-lean concrete structure was filled in with red bricks and steel windows and was complemented by Wiebenga's signature cantilevered roofs and (ultra-thin) balconies.
This photogenic building is probably his most renowned and most extensively-publicised project.

In the relatively small-scale Wentzel family house design, Wiebenga was (with the help of the clients, particularly Mrs. Wentzel) able to articulate issues of utility, efficiency and hygiene, but also of personality, family-life and comfort.
The house was – and is – a landmark in its sub-urban surroundings and continues to be viewed with a measure of respect and even pride.

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Discourse

When trying to determine the position of Wiebenga in the context of the modern movement in the Netherlands, one of the questions that always arises is: should he be considered to be more important as an engineer, or as an architect?
During his career, Wiebenga fought extra hard to earn the recognition that he felt his architectural work deserved.
He must have felt a certain frustration that people were inclined to see him as a talented technocrat, rather than a gifted, creative designer.[19]

In 1922, when he was working on the MTS building in Groningen, he received criticism from municipal architect Mullock Houwer, who had himself opted-out of the commission, but continued to critically follow the project's development.
In his response, Wiebenga stated his position, arguing that *"the outer qualities (of a building) should as fully as possible represent that which is within."*

He characterised the changes in the discipline of architecture as follows:

> *"One must not forget, that in architecture, important changes are taking place, changes, which support the tendencies towards soberness of our time, but which do not find their basis solely therein. When one reads the texts of eminent predecessors like Otto Wagner, Peter Behrens, van de Velde, Berlage etc., and views their works, as well as those of the younger generation, such as Mendelsohn, van 't Hof, Oud etc., who in many ways can be seen to be furthering the works and thoughts of those before them, then one comes to the conclusion that a wholly new concept of beauty is developing, with a broader foundation than this report, ... so that a unity will take shape of a higher order, because: of a greater synthetic value, than alluded to by the report."*[20]

Clearly, for Wiebenga it is not only a matter of efficiency and rationality, brought about by new building methods. In the wake of his MTS project, he tried to express his views that the aim should be the attainment of a new kind of 'pure beauty' in architecture.

Wiebenga:

> *"It is a beauty, which no longer comes to expression through ornamentation … but above all through a great purity of proportion, through a sensitivity of line and the well-considered application of colour … a beauty, which in architecture we are only now beginning to appreciate; a beauty furthermore, which will become to be by itself, as long as it is not hindered without reason."*[21]

Wiebenga was seldom given a free-hand to reach his ambitious goals and in several cases he was required to collaborate with other (in a historical context: more esteemed) architects, who were inclined to work with him for his practical- and technical talents.
He was recognised for his mastery of matters of organisation and efficiency and his imaginative exploration of the possibilities for building construction, particularly in reinforced concrete.

What is important to realise is that, with his technical skill and vision, he in turn influenced their thinking about issues of architectural space and form.

As a constructor, Wiebenga was always looking for the minimum, trying to dimension constructions as lightly an elegantly as possible, a trait which was often not understood or appreciated by his clients and particularly: their advisors.
In the period that he worked in Zwolle he built an extensive swimming-pool complex, but his plans for a slender diving-board structure in concrete were frustrated.
Similarly, his first design for the new extension of the Sophia hospital (1931) was met with opposition and he was subsequently forced to work together with another ('accredited') architect, J. van der Linden.
Throughout the realisation of the project (built 1932–34), Wiebenga had to fight for what he believed to be true and desirable, as well as possible, but he was regularly forced to make compromises.

In January 1933, during the time that Wiebenga was busy in Zwolle (1931–34), Mr. Wentzel wrote his 'Dear friend Wiebenga' from Aalsmeer:

> *"But believe me, I have often thought of you. Often I am with you with all of my heart and hope fervently, that your many good qualities and the genius of your mind will win from the mistakes, which you will make due to your impulsive character and your sometimes boundless imagination, which may make you forget reality and specially to not take into account, that you live in a threatening world ('booze moeilijke wereld') which tends to mock those who want something new, mercilessly targeting their vulnerable side. And in a cunning, un-sparing conflict you are oh so vulnerable!"*[22]

This personal dilemma in the professional life of Wiebenga is underscored by Jan Molema:

> *"Here we find one of the strongest points of this advocate, this apostle of the Nieuwe Bouwen: his drive to design. A decision-maker, often a 'Dr'aufgänger'. This was also Wiebenga's weak point, due to which he never managed to hold one post for a longer period of time, no matter how great his building successes were; and also because of this. Wiebenga's career was particularly varied and colourful and led to many a misconception. The often polemic stance he took in his writings but also in his ways of working has contributed strongly to this notion. Wiebenga belongs to those architects whom, amongst colleagues, was not held in high regard, because a civil engineer 'just is' supposed to be lacking in any sense of beauty and would only have eyes for constructive aspects."*[23]

Wiebenga is often portrayed as being somewhat tactless and overbearing (*'gelijkhebberig'*), frustrated by the fact that he is condemned to being considered 'only' to be an engineer, rather than an architect.
However, when he was back in Aalsmeer from Zwolle, for the opening-ceremony of the ULO-school (1930–32), Wiebenga also showed his 'poetic' side when he took the opportunity to discuss the ambivalence of 'the wall' in architecture.

Wiebenga, quoting Robert Frost:
"Before I build, I would like to know
What I was walling in, or walling out,
Something there is that does not love a wall,
That wants it down."

He continued:
"None of the truly great things in life can be enclosed by a wall. Someone can fence-off a field, but never the soft winds, which blow across it, nor the glow of the sunset, that falls upon it. And yet would his field without the wind, the sun, the floating cloud, which bursts loose in a blue dust of rain, be without value'.[24]

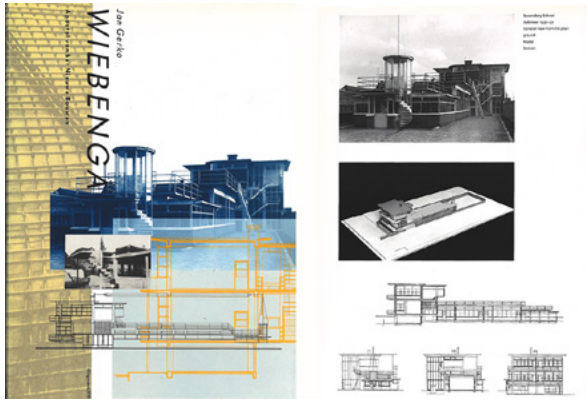
After leaving Zwolle to return to The Hague, in 1934, he more-or-less stopped practicing architecture.
However, as one of the core-members of the 'de 8' group, he still participated in a critical discussion, in Avergoor in 1937, which would eventually lead to his breaking with the association.[25]
During this meeting, there was to be an exchange of ideas, concerning the role of formal aesthetics ('vormgeving') in the Nieuwe Bouwen movement.

Following a position-statement by increasingly baroque modernist S. van Ravesteyn (1889–1983), Wiebenga pleads for he realisation of an *'unspeakable beauty'* ('onuitsprekelijke schoonheid'), on the basis of technical, material and functional considerations.[26]

Wiebenga, in his last 'de 8' meeting:
"No work of art is characterised solely by elements of functionality or beauty, but only through a harmoniously happy combination of both elements simultaneously."[27]



The article on the house (Prof. Wattjes ed.) in 'Het Bouwbedrijf' (1935).



J.G. Wiebenga retrospective (J. Molema and P. Bak eds., 1987)

A**esthetics**

To what extent did Wiebenga succeed in harmoniously realising his design-premises in this project?
Though modest in ambition and design, the house can be 'read' as a clear demonstration of Functionalist ideals and aesthetics, from the overall, formal configuration, down to the characteristically modern details.

Aesthetically, the built artefact can be considered on various levels, but I would consider two themes as being essential to the understanding of this design and its visual and tactile presence:

— *Function*: the conscious expression of day-to-day conditions as explicit design-attributes;
— *Form*: a tendency towards 'pure', elementary modes of expression, or need-be: suggestion.

Initially, the house comes across as a seemingly-straightforward, box-like, two-storey volume.
On the level of massing, there is a minor addition to one of its shorter sides (the entrance) and a 'bite' seems to have been taken out of one corner, on the first floor (highlighting the staircase).
Although the first-floor volume comes across as a seemingly 'floating', the construction itself is relatively traditional, as the house has been executed in brickwork throughout.
Visual characteristics are the extremely thin, gravity-defying balconies, particularly the one above the corner-window at the rear. These cantilevered balconies, which are only 8 cm thick, have no-nonsense, 'industrial' steel railings. As in the work of Duiker and Bijvoet, windows are, where possible, 'folded around' to visually 'lighten' the corners.

A notable compositional attribute is the more or less 'autonomous' corner-element housing the staircase. This accentuating feature (reminiscent of the work of Brinkman & van der Vlugt as well as Duiker) is used to visually identify and highlight the most dynamic part of the building, the 'functional' element of the stairs, in a conspicuously-expressive fashion.
Whilst the material treatment and detailing of the staircase emphasises its lightness and transparency, a pronounced rim, consisting of horizontal tiles with a dark finish, caps the main body of the house.

As an exemplary manifestation of pre-war Functionalist modernism, the compact but visually-powerful detached house comes across as a balancing-act between conventional building techniques as well as functional and formal invention, whereby efficiency is a guiding theme.[28]
Hence, it is perhaps in its respectfully-utilitarian interior organisation – and related to this: its carefully choreographed visual relations, from the inside environment to the outside world – that the project is at its most satisfying, even more so than in its outward appearance.

Compositionally, there is a lot going on in this modest, modernist project (in some ways comparable to Duiker and Bijvoet's Suermondt house), but the project as a whole is not entirely consistent in its design and execution.

The somewhat ad-hoc quality of the Wentzel house, considered as a whole, may be due in part to financial limitations, but may in some ways also be a consequence of its designer's alternately over-ambitious and dogmatic nature.

After leaving Zwolle, Wiebenga would move back to The Hague in 1934, where he tried to revitalise his private practice.
This was no easy task, as the international financial crisis was being felt and there were very few commissions to be had, particularly for modernist architects.

As a member of the Functionalist group 'de 8' he took part in a competition for the design of a free-standing house for 'Doctor Dimmel', in Eindhoven (1935). Although this project was considerably larger in programme than the earlier Wentzel house, the design is clearly inspired by the project in Aalsmeer.
The design for a two-story house (with a lightly-pitched roof over the largest part of its volume) is reminiscent of the Wentzel house in its distinguished main entrance, the spacing of the steel windows – particularly the windows of the modern kitchen, which gets a lot of attention in his proposal – but perhaps most of all: the distinctly-similar 'ornament' of the staircase-section, with a near-identical roof-treatment.

Wiebenga's 'signature' element also returns in a design for eight identical villas, in Hook-of-Holland, also from 1935.[29]
Arguably, the later projects lack the visual economy and formal clarity of the Aalsmeer project.
The elementary 3D model of the Dr. Dimmel proposal gives an idea of the similarities – but of also the differences – between these design-proposals and the 'original' house.

The Wentzel house fits into the broad aesthetic category of the 'white villas' that are so characteristic of the 'international' modern movement.
There are echoes of the works of other modern masters, such as Le Corbusier, Terragni and Neutra, but also of Brinkman & van der Vlugt, van Loghem and Rietveld, to name but a few…

Although this modest house may lack the scope and indeed the *souplesse* of some of its more 'iconic' counterparts, it remains in all respects an admirable, truly *modern* house.

As such, it can be seen as a representative of one of the most enduring aesthetic paradigms brought forth by the Functionalist movement: the 'Elegant White Box', a format that is being imitated and extrapolated to this day.

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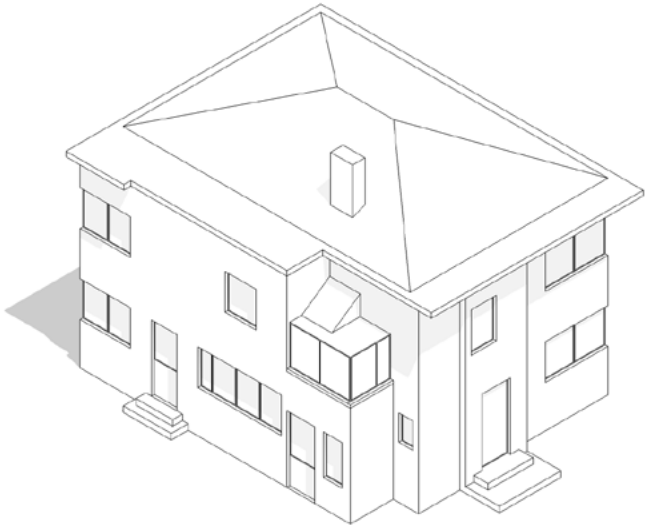


3D model reconstruction of the Dr. Dippel competition entry (1935).

1 Wiebenga had decided that he wanted to become an architect, but his father insisted on him studying Civil Engineering, because he felt his son had too little 'business sense'. Source: Molema.
2 Working for the concrete company of Stulemeijer en co., Wiebenga was construction engineer of a number of noteworthy early concrete buildings, amongst them factory-buildings of the Ceramique complex in Maastricht (from 1912).
3 Van der Vlugt was a member of the Rotterdam-based architecture-group 'De Opbouw' would join the J.A. Brinkman (after the death of his father Michiel Brinkman) to work on van Nelle Factory project, to which Wiebnga contributed.
4 Jan Molema, in: *'The New Movement in the Netherlands'*, pg.120:
"His best work was truly top-notch and he acquired international renown in avant-garde architectural circles. His Groningen Technical School (in collaboration with L.C. van der Vlugt) is generally seen as the first Functionalist building in the Netherlands."
5 The Naai en Knipschool and the internationally renowned ULO school project. Both are constructed in concrete with facades in brickwork with steel windows. The first is a somewhat monumental, symmetrical closing piece of a green central axis of the Hortensialaan in the new Hornmeer development. The dynamically organised ensemble of the ULO school was built on a plot in the village centre: in the Schoolstraat.
6 Source: Gert Wentzel.
Berghoef was nonetheless in later years a frequent visitor to the house, at least to the hall/workspace where Wiebenga met with professional visitors after office-hours to discuss new building-initiatives.
7 Source: Jan Molema in *Jan Gerko Wiebenga* (1987).
8 The family-album of the Wentzel family contains a photograph of Wiebenga, with the caption:
"Ir. Jan Gerko Wiebenga … was van 1927–1931 directeur gemeentewerken in Aalsmeer en vertrok daarna in dezelfde functie naar Zwolle. Paps en hij werden verknochte vrienden. Toen hij belangenloos als architect het ontwerp van ons huis maakte, kwam hij meer in aanraking en sloot ook vriendschap met Mams, die over de inrichting intensief met hem meedacht, daartoe ook geleid door het Amerikaanse boek "De Denkende Huisvrouw", door Wiebenga aanbevolen, die ook in de Ver, Staten had gewerkt."
9 The article about house in *De Huishouding* (1935) concentrates on the role of the 'lady of the house' and her symbiotic relationship with the architect. Wiebenga would continue pay particular attention to the kitchen and service areas in his designs.
10 Source: freehand-sketches found in the NAi archives in 2016.
11 Source: The Wiebenga family.
12 Another quote from the Wentzel family album:
"1 juli 1931. Er moest geheid worden, wat niet de bedoeling was! De diepe kelder had een modderige bodem. Dit bleek een oude sloot te zijn. God zij dank achteraf, want daarom staat ons mooie huis noch waterpas."
13 In the Wiebenga archive at the NAi, textsheets were found which were in all probability typed by Wiebenga himself.
He characteristically uses a 'y' for the Dutch letter 'ij', which was corrected in the printed text – in which he makes reference to the room-numbers in the presentation drawings he supplied.
The professionally-made photographs are also in the collection of the Wentzel family.
14 The original model, which could be criticized for the (too light) colours of the steelwork, remained in the collection of the TU Delft Architecture faculty (see photographs).
After the fire that destroyed the building, the model was lost, but later another version was made.
15 Snap-shot photographs of the building process: Wentzel family collection.
16 The sub-title of the book *Jan Gerko Wiebenga* is *'Apostel van het Nieuwe Bouwen'* (1987).
17 Source: *Jan Gerko Wiebenga* (1987).
18 The Nirwâna flat-complex was Duiker's attempt to put his fascination for high-rise building into practice. His collaborator, Wiebenga, was inspired by the efficiency he had encountered during his stay in the United States.
The ambitious project, which originally foresaw in a series of towers eventually only resulted in one 'prototype' of modest height and put a strain on the relationship of both designer/engineers. In 1930 Duiker would publish a book on the subject of high-rise building: *Hoogbouw*, W. L. & J. Brusse's Uitgeversmaatschappij N.V., Rotterdam, 1930 (reprint: 1981).
19 Tellingly, Wiebenga is not included in the overview *Architecten in Nederland, van Cuypers tot Koolhaas* (2005).
20 In Jan Molema's opening address of *Jan Gerko Wiebenga,* pg. 8, Wiebenga answers the remarks by Mullock Houwer as follows (except):
"Immers is hierin niet opgenomen dat het uitwendige zoo volkomen mogelyk een beeld te geven heeft over de architectuur van het inwendige. … Men moet niet vergeten, dat zich op bouwkundig gebied belangryke veranderingen aan het voltrekken zyn, veranderingen, die wel door de zuinigheidstendenzen van onzen tyd ook nog gesteund worden maar die daarin geenszins hun basis vinden. Wanneer men de geschriften van erkende voorgangers als Otto Wagner, Peter Behrens, van de Velde, Berlage, enz. leest, en hunne werken ziet, wanner men van de geschriften en werken van jongeren als Mendelsohn, van 't Hof, Oud enz. Die in zekeren zin als verder doorgevoerde uitwerking der beginselen der vorengenoemde te beschouwen zyn, kennis neemt, dan komt men tot de konklusie dat er zich een volledig nieuw shoonheidsbeeld aan het ontwikkelen is, breeder gefundeerd nog dan de opvattingen van dit rapport, … zoodat ene eenheid ontstaat van hoogere orde, want: van grooter synthetische waarde, dan door het rapport bedoelde."
Translation by the author.
21 On pg. 10 of *'Jan Gerko Wiebenga…'*, concerning *'zuivere schoonheid'*:
"Het is een schoonheid, die niet meer door ornament tot uiting komt, - men kijke daarop even de voornoemde beweeglijke voorwerpen aan – maar bovenal door een groote zuiverheid van verhouding, door gevoeligheid van lijn en weloverwogen aanbrengen van kleur (men zie niet over het hoofd dat de maquette kleurloos wit is), een schoonheid, die wij in de architektuur eerst thans beginnen te kennen; een schoonheid bovendien, die vanzelf worden zal, mits men zonder reden hun ontwikkeling niet kunstmatig belemmere."
Translation by the author.
22 On pg. 137 of *Jan Gerko Wiebenga*, Mr. Wentzel writes concerning possible problems with the ULO school and the apparently even greater problems in Zwolle:
"Beste vriend Wiebenga, … Je bent zoo ver weg, anders had ik je zoo graag moed ingesproken. Maar ik heb evengoed veel aan je gedacht, hoor. Vak ben ik met m'n geheele hart bij je en hoop dan zoo, dat je vele goede eigenschappen en je geniaal verstand het zullen winnen van de fouten, die je wel zal maken door je impulsief karakter en je soms matelooze fantasie, die de werkelijkheid weleens doen vergeten en er vooral geen rekening mee houden, dat leeft in een booze moeilijke wereld, die vooral degenen, die iets nieuws willen, bespot, het leven moeilijk maakt en onbarmhartig in hun zwakke zijden treft. En voor een geraffineerde meedogenlooze strijd ben jij o zoo kwetsbaar!"
Translation by the author.
23 An appraisal of the position of Wiebenga by Jan Molema in his introduction to *Jan Gerko Wiebenga,* pg. 8:
"Hier vinden wij een van de sterkste punten van deze voorvechter, deze apostel van het Nieuwe Bouwen: zijn voortvarendheid in het ontwerpen. Een beslisser, menigmaal een 'Dr'aufgänger.

Het was tegelijkertijd Wiebenga's zwakste punt, waardoor hij nimmer lang dezelfde post behield, hoe groot zijn bouwkundige successen ook waren; en ook vaak juist daarom. Wiebega's loopbaan was bijzonder afwisselend en kleurrijk en leverde menig misverstand op. De meestal polemische stellingname in zijn geschriften maar ook – naar de overlevering wil – in zijn werkzaamheden heeft daar flink toe bijgedragen.
Wiebenga behoort tot de architecten die niet onder collega's niet voor vol worden aangezien, omdat een civiel ingenieur 'nu eenmaal' van ieder gevoel voor schoonheid gespeend is en slechts oog voor de constructieve kanten zou hebben."
Translation by the author.

24 On pg. 96 of *'Jan Gerko Wiebenga…'*:
"De oude boer in het gedicht van den Engelschen dichter Robert Frost had gelijk:
Before I build, I would ask to know / What I was walling in, or walling out, / Something there is that does not love a wall, / That wants it down.
Of vrij vertaald:
Alvorens ik bouw, zou ik willen vragen, / Wat ik door de muren insluit, of uitsluit, / Er is iets, dat niet houdt van een muur, / Dat hem wil neerhalen.
Geen van de werkelijk grote dingen in het leven kan worden besloten binnen een muur. Iemand kan een veld afperken, doch nooit de zachte winden, die er overheen blazen, noch den gloed van den zonsondergang die erop valt.
En toch zou zijn veld zonder den wind, de zon, de drijvende wolk, die losbarst in een blauwe stof van regen zonder waarde zijn."
Translation by the author.

25 After leaving Zwolle, Wiebenga would return to The Hague. He would work for some time for the military and as constructor-advisor. After the war he works on some, utilitarian commissions and traditional (housing) projects. He died in The Hague on January 1st 1974.,

26 It is interesting to note that this notion of an 'unspeakable' beauty is introduced once again by historian Auke van der Woud in 1993, in his inaugural address titled: *Onuitsprekelijke schoonheid.*
In a festive address at the TH Delft, in 1952, neo-traditionalist J.F. Berghoef would coin the term *'Het Onzienlijke in de Bouwkunst'.*

27 Wiebenga, quoted in *Wiebenga, apostel van het nieuwe bouwen*. Chapter: *'Wiebenga in Aalsmeer en zijn betekenis voor het Nieuwe Bouwen'*, pg. 78:
"Geen enkel kunstwerk wordt of door doelmatigheids- of door schoonheidselementen alleen gekarakteriseerd, maar slechts juist door een harmonische gelukkige combinatie van beide elementen tegelijkertijd."
Translation by the author.

28 Publication of his book on efficiency in the home, 1931: J.G. Wiebenga: *'Rationeele woningbouw'*, Nederlandsch Instituut voor Efficiency; no. 62, Purmerend, October 1931.

29 The projects are included in the retrospective of Molema and Bak, in the closing chapter: *'Terugkeer naar Den Haag en afscheid van de architectuur'*, pg. 125–126.

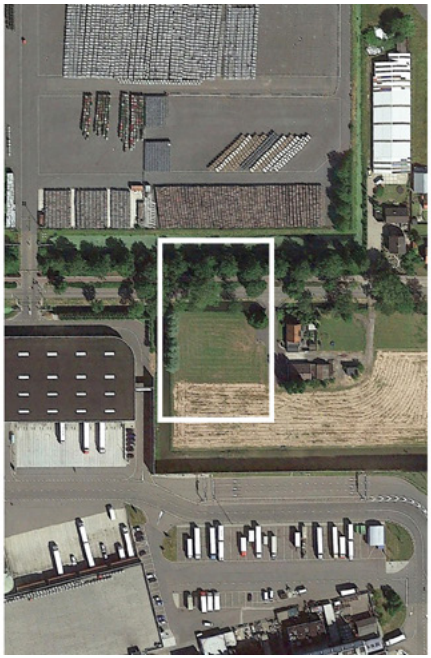


Pages from the Wentzel family photo-albums (1931+).

7. AA Variations

7.8 AA08
Berghoef & Klarenbeek
1958













Introduction

The van Staaveren family home was designed by J.F. Berghoef (1903–1994), in collaboration with his professional partner H. Klarenbeek (1915–1997), a good thirty years after his first project in Aalsmeer (AA6).
This generously-proportioned villa can stylistically be considered to be representative of Berghoef's post-war oeuvre.

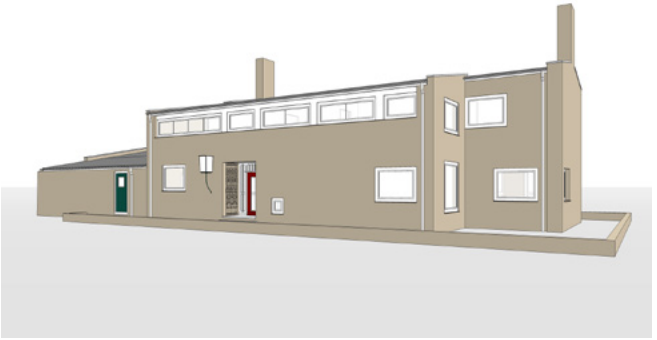
In the pre-war period, he had already managed to realize an impressive collection of houses, particularly in and around Aalsmeer.[1]
A large-scale design-project had been the competition entry for a new town-hall for Amsterdam. Working together with his study-friend J.J. Vegter (1906-1982), he eventually managed to win first prize in 1938, but in 1941 the project was cancelled.[2]
During the occupation-years, traditionalists and modernists came together in informal study groups to discuss for the rebuilding of the Netherlands after the war and the divide between them was bridged to a certain extent.

In 1947 Berghoef was granted a professorship in Delft. Unlike Granpré Molière, he remained active in practice and continued to build up a steadily-growing oeuvre. In the late nineteen-fifties, 'Professor Berghoef' was a prolific architectural practitioner, with a considerable status, particularly in his native Aalsmeer.
The van Staaveren house was designed with his partner Hein Klarenbeek, who may have played a decisive role in the evolvement of the realised project.
The house was situated along the Hornweg, a polder road with drainage-ditches along either side, in the agrarian south-eastern corner of the municipality. It fronted an extensive modern greenhouse complex, for which Berghoef had previously designed the boiler-house.[3]
The programme called for a number of representative living-spaces and a considerable number of bedrooms, for the extensive van Staaveren family. The longitudinal house-volume was positioned parallel to the road, lending the flower-enterprise an air of grandeur.
The roadside facades were kept relatively closed. At the rear, the house opened up to a sunny private garden, between the building and the greenhouses beyond.

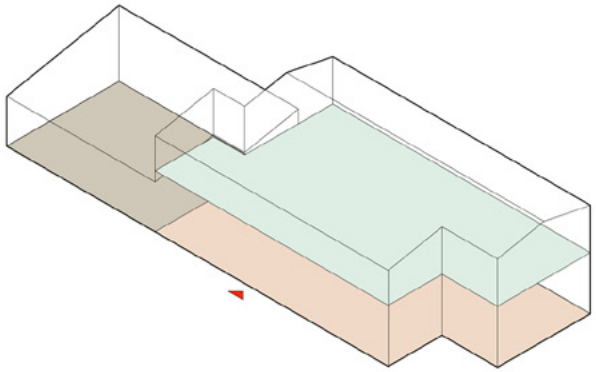
The originally omnipresent greenhouses in this part of the Hornpolder gradually became diminished and eventually were taken over by the steadily-expanding, international flower-auction complex.
In its last years, the by now isolated house became increasingly run down. In 2010 it was eventually demolished, creating free space for potential new developments.
In the series of aerial photographs (taken in 2015), the house has already disappeared.
A 'ghost' of its original presence, taken from an earlier reconnaissance (in 2004), has been montaged-in.

AA08 : Information

Project	: Van Staaveren House : Hornweg 30, Aalsmeer		
Architect	: Johannes Fake Berghoef : Hein Klarenbeek		
Style	: Modern Traditionalism : Late Delft School		
Year	: 1958		
Ground-plan	: 250 m^2	Floor-plan	: 415 m^2
Volume	: 1375 m^3	Ratio V/F	: 3,3 m

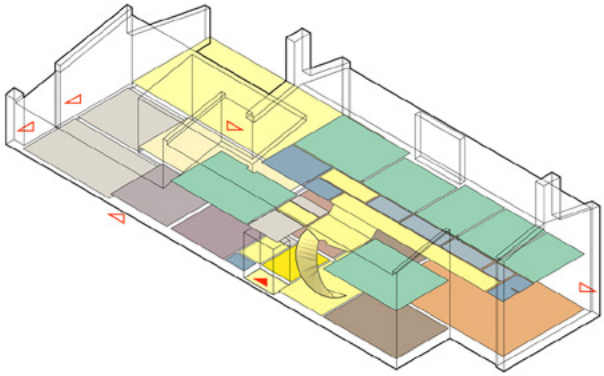






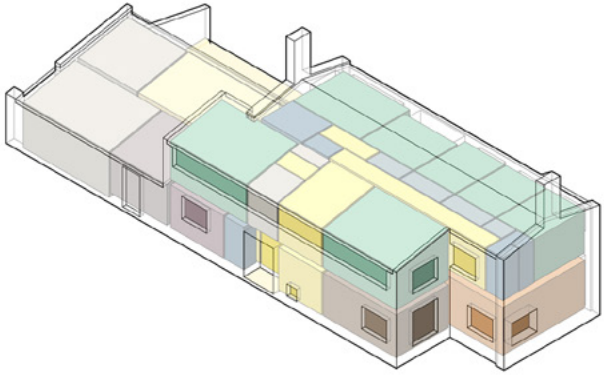
A.1 Context

The van Staaveren family home, designed by Berghoef & Klarenbeek, was situated along the long Hornmeer polder-road, on one half of a double-plot, with a shared entrance-way.
The rather 'grand' family home (overall length: 29,5 m), is stretched along the road and its narrow ditch, taking up nearly the full width of the available site.
The design consists of a two-story main 'corpus', with living spaces on the ground floor and bedrooms above, integrated with a one-story annex, containing the service areas.
A clear distinction has been made between the more public side of the house, facing north-northwest, with a relatively narrow garden zone and a path leading to the entrance, and the more private side, with a garden facing roughly south-southeast, originally looking towards the extensive greenhouse-complex.



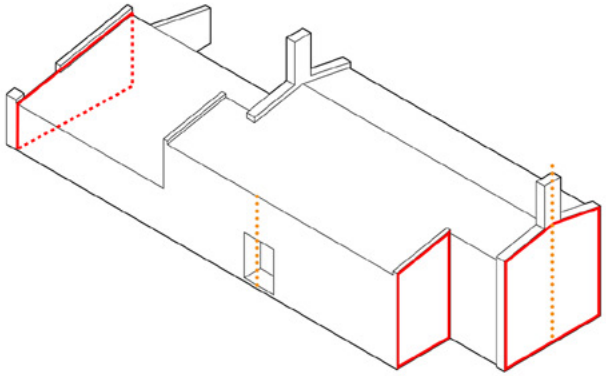
A.2 Function

The representative building was designed on the basis of an extensive functional programme.
As an indication: the first floor contains no less than seven bedrooms, organised along a long corridor. The storey is accessed via the landing of the stairs, on the street-side, with a bathroom, toilet, shower and storage.
The ground floor is no less impressive, with a large living-room (45 m2), a secondary living-room and a private study.
Two entrances give access to the house. The 'official' entrance-route follows the long facade into a recessed hallway and the in-between space with the stairs, then onto the central axis that connects all family rooms. A family dining-room is centrally situated, opposite the kitchen. The 'informal' entrance leads via a kitchen-annex, towards the actual kitchen and the conservatory.



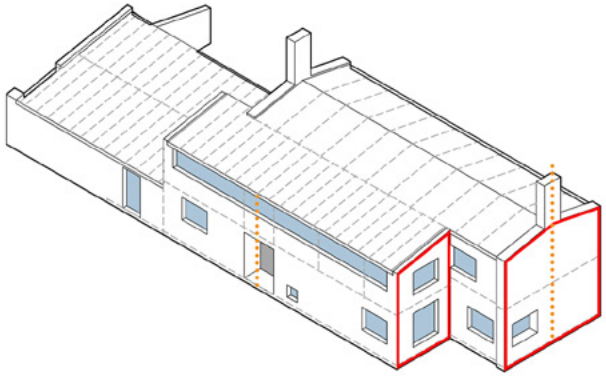
A.3 Interior

The house is spatially organised as a traditional *Raumplan*, with distinctly defined rooms, primarily looking out towards either the front- or the rear garden.
The main-sitting room has three generous openings towards the south, but also apertures punctuating the massive walls to the west and the north. The dining room opens up to the garden as well as towards the main terrace, which borders on an interior patio space with a slanted roof and a high, transparent facade facing southwards. In the bedrooms that are oriented towards the north, the ceiling slants downwards towards linear bands of windows.
The other five bedrooms, two steps up in the main body of the house, are aligned along a corridor, all primarily oriented south.
One room has its own balcony, set strategically into the monumental rear facade.



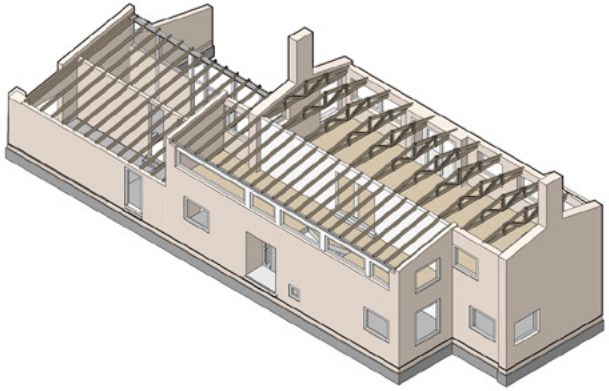
B.1 Object

Despite the house's powerful 'presence', on the level of massing there is an certain ambivalence,
Within the integral volumetric composition, a dominant main body can be discerned, which is smoothly connected with a lower volume with a horizontal lineage, along the street. These two parts are 'pulled together' under one lightly pitched roof-surface (slant: approximately 15°).
The main volume is highlighted at either end by a 'massive' end wall and monumental chimney, but at the same time is 'fused' with the linear element. This double-object is connected with a lower extension, which is nonetheless treated as an integral part of a dynamic whole. Seen from the garden the impression is much more one of two distinct volumes – one primary and one secondary – which appear to have been placed next to each other.



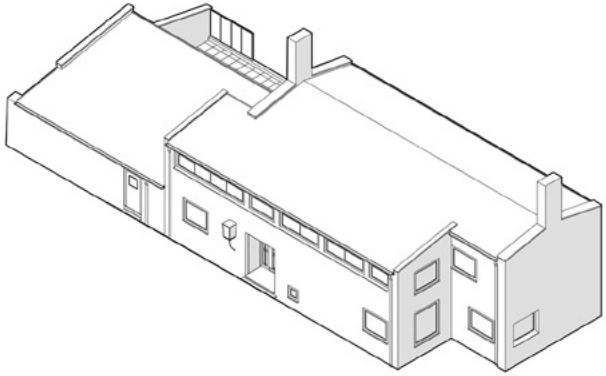
B.2 Structure

The building is a systematically-varied hybrid, with technical solutions adapting to the dimensions of the rooms.
The structural organisation follows the brickwork outer enclosure. This outer shell is supplemented by a secondary system of load-bearing walls and beams.
The impression the main corpus is one of a more or less autonomous entity, with massive end-facades supporting monumental chimneys. However, this suggested dominance is relative, as becomes apparent in the lower volume towards the street. This is on the one hand treated as a secondary structure, yet at the same time as an extension of the 'core', brought together under one roof. The theme of the roof slanting towards the street is echoed in the lower section. The walls are perforated by a variety of window-types, modulated for dramatic effect.



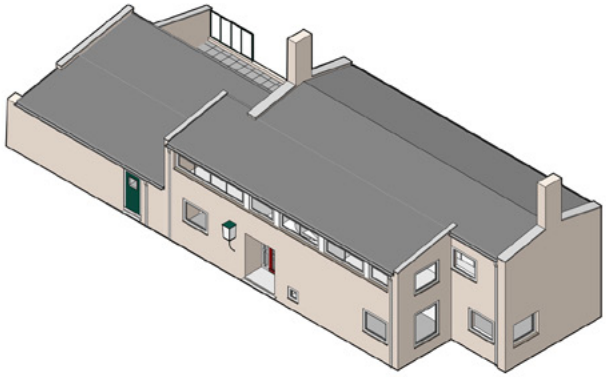
B.3 Technique

The spatial composition is underscored by a constructive system, in which the floors and roofs are mainly supported by wooden beams. Each space is in principle assigned two load-bearing walls, supplemented by steel girders if needed.
All living-spaces in the 'main' house and its integrated annex have wooden floors, supported by beams approximately 0,65 m apart. The floors of the main living-rooms on the ground-floor have an intermediate foundation.
The service-areas have concrete floors and the winter-garden has a tiled terrace-floor. The pitched roofs of the main building-volume are supported by triangular wooden trusses, spanning the full width, which are placed approximately 1,5 m apart. The secondary zone, which is some 3,5 m wide, has roof-beams placed 0,8 m apart, supported by walls and steel beams.



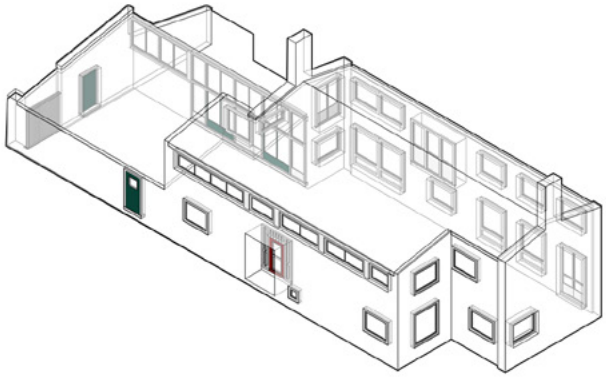
C.1 Facade

The realised project, characterised by enveloping brick facades and mildly-sloping roofs, shows two distinctly different ‘faces’.
On the street side, the building comes across as a monolithic – yet dynamic – volumetric entity, punctuated by seemingly-random openings and topped by an eye-catching, window-band.
This stretches along the whole of the first floor, highlighting the horizontality of the facade.
The garden-side facades are more monumental in their organisation, with pronounced sub-symmetries. Here, the elevation of the main house is divided into five sections: three parts together on the left, interspersed by an off-centre element with balcony, then a segment with grouped windows on the right.
As a contrast, the regularly-structured, transparent patio is articulated making use of sub-rhythms.



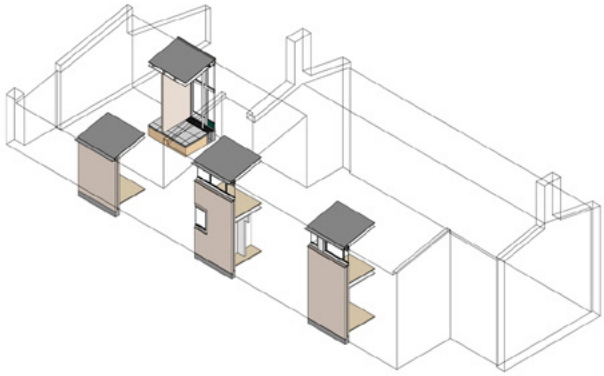
C.2 Surface

The visual impact of the ‘massive’ house is underscored by its fabric of light-brown brickwork, which is in evidence throughout. The brickwork is executed in a ‘free-bond’ pattern, visually accentuating the solidity of the enveloping surfaces.
The dimensions of the end-walls are visually emphasised, making them look thicker than they actually are, in correspondence with the two crowning chimneys.
The wall-surfaces are combined with white window frames, zinc gutters and neutral-grey, bitumen roof surfaces. In the longitudinal facades these are positioned almost level with the wall-surfaces, with exceptions in the ‘thicker’ end facades.
Window-frames as well as moving parts were all painted white.
Only the doors have been given some colour: a dark green for service doors, red and white for the main entrance.



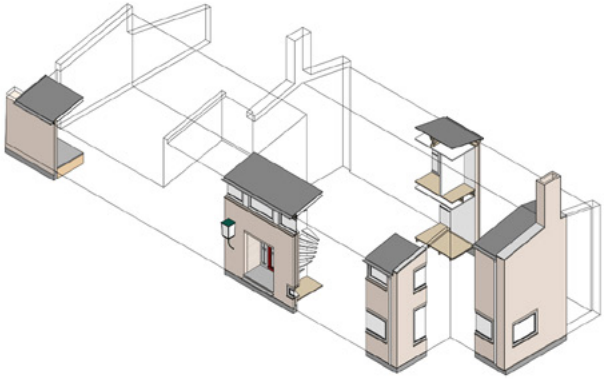
C.3 Opening

Compositionally, windows and doors are emphasised as expressive features of the house.
Materialisation and detailing are characteristic of the era (and typical of Berghoef’s work in his late Delft School phase), with heavily-dimensioned, wooden windows, positioned only slightly back in the walls.
Inside these frames, much thinner steel windows were originally positioned, containing moving parts and fixed sub-windows.
The proportions are a characteristic, whereby a relatively large number of windows have the same size and shape (‘type B’), with a slightly-oblong format: approaching a square, but subtly wider than high. The elevation of the contrasting winter-garden, looking out on the terrace, is executed as an ‘industrial’ curtain-wall with repeated, vertical, window-sections and steel windows and doors.



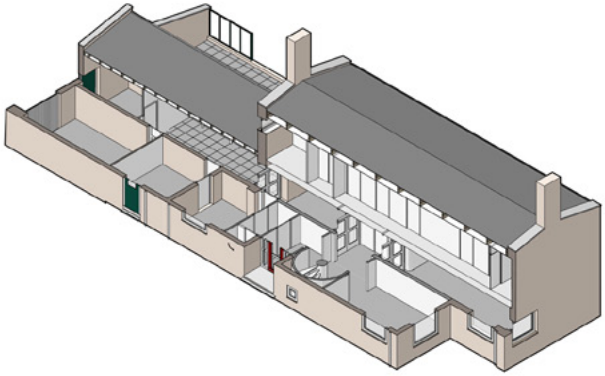
D.1 Junction

The detailing of the house is kept sober, whereby elementary architectonic components and their connections are exploited for expressive effect.
Floors and roofs are supported by inner walls, which are enveloped by a brickwork outer shell. The bonding throughout is horizontal, with the exception of vertical courses that form visual seams above the windows and below the balconies.
Vertical courses also form an intermediate zone for the slanting tops of the end-walls, which are discreetly covered with zinc.
Gutters are standard, also carried out in zinc, without the articulate supports that are in evidence many of Berghoef's earlier houses.
Windows are fitted snugly into the walls, with a minimum of adornment. Thinly-dimensioned secondary window-frames were originally set into the stoutly-profiled primary frames.



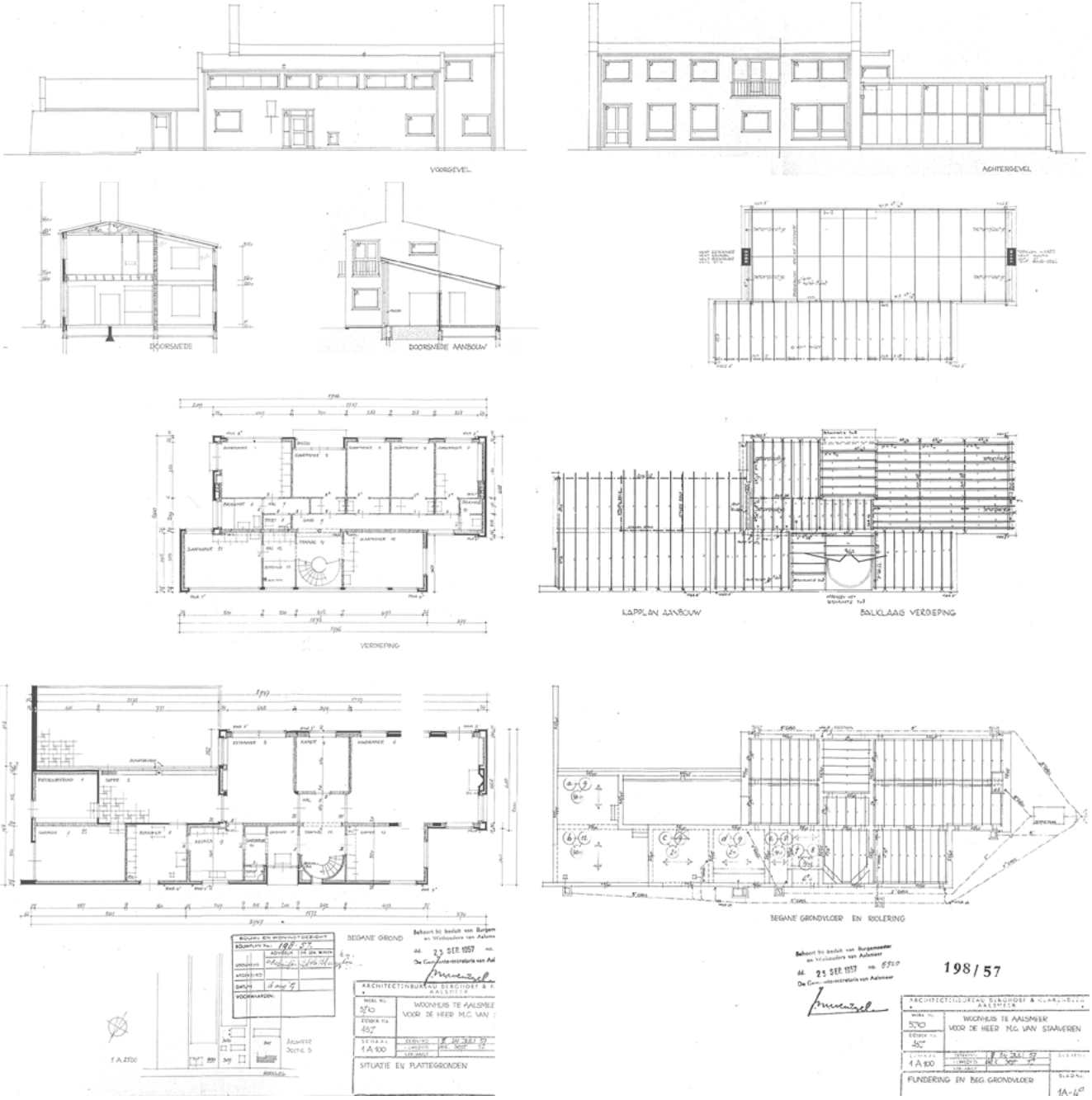
D.2 Feature

The project comes across as being self-consciously subdued, but there are some noteworthy, distinguishing features.
On the level of plasticity, the end-facades have been visually 'thickened', suggesting mass and creating a niche for the vertical gutters. This theme is not repeated in the lower sub-volume on the street-side.
Special attention has been given to the recessed main entrance, with decorative brickwork-and-cement patterns and a 'framed' entrance-door.
Other traits include the subtly-decorative railings of the first-floor balconies, at the rear and facing east. Of particular significance is the characteristic lamp, to the left of the entrance. This 'signature' element, here in the large format normally reserved for representative public buildings, identifies the house as an 'original Berghoef'.



D.3 Ensemble

The predominantly longitudinal set-up of the house is recognisable on different levels, notably in the hallway-axis of the first floor, the sequence of interconnected salon-spaces on the ground floor and the sweeping window-rhythm that borders the top of the front facade. A second orientation, perpendicular to this dominant direction, is introduced in the main entrance-section, with a series of in-between spaces plus the centrally-placed stairs.
Many of the interior fixtures were designed as integrated features. Examples are the chimney and built-in cabinets in the end-wall of the rather 'official' main living-room. The transparent conservatory space, which could be accessed freely from the living-area, but also via the garage and shed, opened up to a semi-enclosed sun-terrace, with integrated windscreens.



Collage of items from the A2 size 1 : 100 building-permission drawings (1958).

Development

The representative van Staaveren residence was designed and built for a successful market-gardener and his extensive family.[4] By local standards the house must have been considered grand and perhaps even imposing.

At the time, Berghoef was active both as a practicing architect and as a professor in Delft.
In his office in Aalsmeer he worked together with his partner, Hein Klarenbeek.
To what extent which of the two architects was responsible for the design of this house is difficult to assess.

On the basis of the photographs of the project found in the Klarenbeek archive in the NAi, it seems likely that he would have been seriously involved in the design of the project.
However, as the senior partner, Berghoef would most likely have had the last 'say' in particular matters.

What is clear is that on the level of spatial and stylistic composition, Berghoef and his office had moved a long way from his earliest work in Aalsmeer.
The house can be considered an artefact of the late Delft School and the Dutch architectural design practice in the '50's and '60's.
The municipal building-permission for the realisation of the house was given, on the basis of a set of five drawings, in September 1957.[5]

Construction would in all probability have started in the autumn of 1957 and continued into the spring of 1958.
The set of building-drawings, scale 1 : 100, which was retrieved from the municipal building-department's archive seem conclusive.
They give a good description of the plan as a whole.
It is on the basis of these concise drawings a model-making study was carried out and the digital 3D model of the project could be constructed.

For some time, it was thought that the design was the outcome of a relatively straight-forward development-process.
However, a later search in NAi archives yielded a project-folder with a surprisingly diverse collection of design-documents.[6]
Most of these consist of execution-phase drawings, specifying the overall plan (generally drawn in ink) as well as a variety of details (often rendered in pencil).

Hidden between all of these 'definitive' documents, a collection of (undated) design-sketches (mostly in pencil) emerged. These have yielded insights concerning a significantly number of alternative design proposals, indicating the house might have turned out quite different…

What appears to be the first design-proposal seems to be from an earlier date, perhaps made in the years after the war, possibly even before.

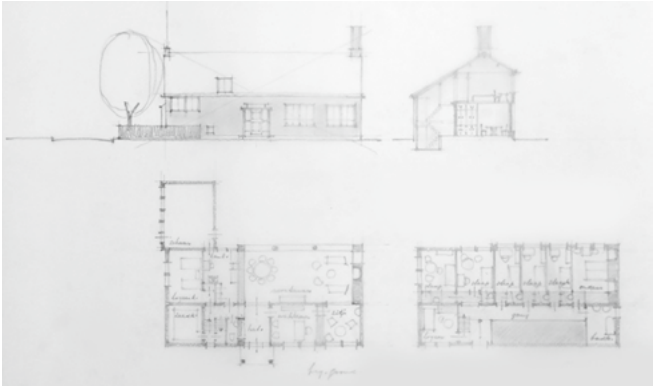
The two sheets of pencil-drawings of this proposal give a distinctly different impression than the house as it was built, whereby the expression is on the whole more neo-vernacular.
Here the front-façade is still kept low – one storey – with a relatively steep roof with only a minor dormer-window. At the rear, the pitched roof-section is kept shorter, meaning that the facade here has a height of nearly two storeys.

All of the rooms are packed into a single volume, with only a minor volume with utility-spaces extending into the rear garden. One of the drawings is signed with a clear monogram, including a B, suggesting the sketches might have been made by Berghoef himself.[7]

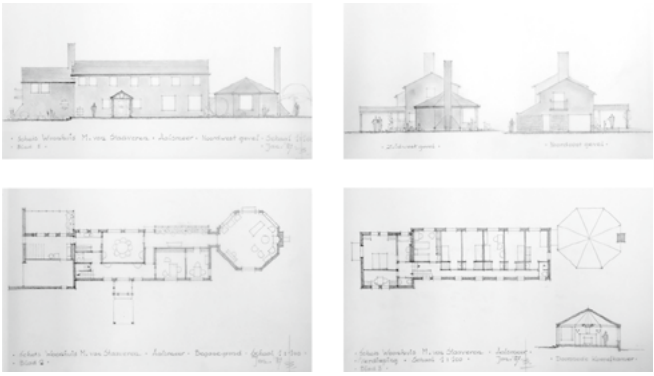
The design project seems to get properly underway in January 1957, with a series of pencil sketches scale 1 : 100, this time with another 'signature', consisting of a 'B' with a distinctive vertical stroke.
Here, the project has grown considerably, both in size and complexity.

The main volume towards the street now has a frontal wall which is a full two storeys high, with rhythmically-arranged openings and an entrance with a modest portico.
The main volume is bounded on the left side by a slightly lower sub-volume, also with a pitched roof, and an almost autonomous octagonal, pavilion-like volume on the right. At the rear, the facades are mainly closed, with regularly-spaced openings, but also including sections resembling a greenhouse-style curtain-wall treatment.

In the coming months, the design starts to gradually resemble the final version, although there are several variations on the level of the interior organisation and particularly the spacing of the openings in the front- and rear facades.
A recurring theme for some time is a slanted sub-volume on the left, of which the tilted end-wall is the only remaining element in the realised project.



First design proposal,probably by Berghoef (undated, collection NAi).



Intermediate design proposal, plans and elevations (collection NAi).

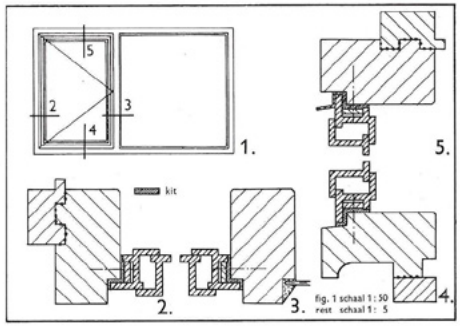
Once the design seems almost resolved there are apparently still serious doubts about the window-arrangement in the street-facing facade.

A total set of drawings is produced in April 1957.
In this set, there are *two* drawings of the front elevation, with the same number, one with the sweeping top window that is so typical of the realised project and one with a semi-random distribution of perforations.
Through these variation-drawings we are given an insight into a crucial decision-moment in the development of the house.
Here, perhaps the most characteristic feature of the house, as an integral composition, is resolved (see: Aesthetics).

After this step has been taken, the office goes into ‘production mode’, generating an impressive collection of working-drawings, including a large number of highly articulate detail-sketches, mainly rendered in pencil.

One of the most characteristic details is the way the windows are articulated and have been set, relatively fatly, into the outer walls.
In the main window-frames the wooden profiles are as it were ‘turned on their sides’, meaning that they are relatively un-deep but broad, creating an ‘oversized’ appearance. Inside these stout frames are set much-thinner steel window frames for the actual, fixed- and moving, glazed sections.
A somewhat unconventional treatment in today’s eyes, but as was discovered in a building handbook by Jellema, a tone-setting author of books on building-technique, not an altogether unusual practice at the time.[8]

Fig. 5.4
Stalen raam in een houten kozijn



Principle of a wooden outer frame, with a steel inner-window (Jellema).

Experience

I first became professionally aware of the house in the summer of 1972, during a period of practical work, on a building-site further along the Hornweg.
Cycling back and forth along the long, tree-lined road, two houses in particular caught my attention:

— The van Staaveren house by Berghoef and Klarenbeek (1958);
— The sweeping neo-modernist villa by architect H.R. Aiking (1968–1968).

Later-on in my studies, I encountered the van Staaveren house in the book *Het eigen huis*, by architect J.W. du Pon (1961).[9]
When the idea began to take shape to carry out a comparative study of a collection of Aalsmeer houses, the Berghoef and Aiking houses were considered as candidates, alongside the other, obvious contenders: de Klerk (AA04); Duiker & Bijvoet (AA05) and Wiebenga (AA07).

In February 1998, I made a first, targeted visit to the house, which I documented in a series of photographs.
At the time, the original glasshouse complex behind had already gone, although there were still some smaller commercial buildings at the rear. A dominant environmental entity was already the imposing flower-auction complex a bit further behind.
At the time, a notable feature was the monumental heating-plant building of the gardening-complex, which had also been designed by Berghoef & Klarenbeek (1947).
This unique building, which we might now consider an item of industrial heritage was demolished not long after.



Street views of the house, already with plastic infill-windows (situation 1998).

Exterior:
At the time, the house was still in use, though it did not seem to be inhabited by a family.[10]
Although most of the house and its garden were still intact, the windows in the walls had already been radically changed, whereby the original steel infill-windows had been replaced by cheap-looking plastic windows with wholly different divisions and dimensions than the originals.
During a later visit in 2008, with my assistant Bram van Borselen, the process of deterioration had gone a step further, and we both suspected that the house's days were numbered.
The garden was overrun and, looking in through the windows, we could see that the ground-floor was entirely empty.
Arguably the most notable 'Berghoef' feature – the monumental entrance-lamp – had been removed.[11] After driving by some months later, out of curiosity, I found that all traces of the house had been completely erased. All that was left was a pristine, green lawn.
Later on, an imposing wall-structure was built along the ever-expanding auction-complex behind.



Routing towards the entrance, with the characteristic 'Berghoef' light-fixture.






Professional black and white photos from the Klarenbeek archive (NAi).

Interior:
I was never in the opportunity to actually be inside the house. The only direct impressions were gained by peaking-in through the windows. An impression of the somewhat official air of the original interior of the ground-floor could be gained from the two interior-photographs in the du Pont book.
A good impression of the original state of the just finished house was gained on the basis of a collection of professionally-made black-and-white photos from 1958, which managed to find in Klarenbeek's personal archive, kept in the collection of the national architecture archive at the NAi / Nieuwe Instituut.[12]
In Berghoef's oeuvre, the house is in a way positioned between the, generally modest, houses he built in- and around Aalsmeer through the years and his more representative, larger projects that his office was realising throughout the country at the time.
It exudes a kind of formality and status, even *grandeur*, befitting a medium-sized public building, like a small town hall or (somewhat Calvinistic) social club, rather than a family home.
A brief appraisal of the house around 1961, by architect du Pon:

> *"This dwelling, robust in its set-up and with an allure that may be considered rare, as well as its differentiations of living space, including a winter-garden for plants and a generous sheltered terrace, makes nearly al gradations of living possible. Also, the organisation of the bedroom-floor is very well conceived; there is a distinct division between the part reserved for guests and that of the inhabitants. Wardrobes and washbasins in the children's' rooms are taken up in an in-between space ('sluis') which creates a good separation between the room and the corridor."*[13]





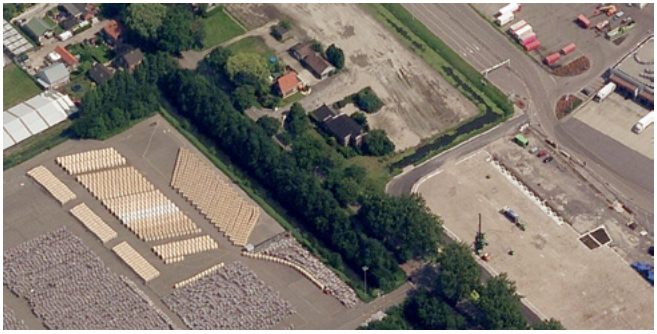

The rear side of the house with the original boiler house (1998).






Late visit to the house with Bram, shortly before its demolition.





Aerial photos of the house in later years, surrounded by flower-auction activity.



The remaining empty plot.

Visualisation

The van Staaveren house was one of the first to be considered as a study project, in the context of the gradually developing explorative enquiry initiative.

The other Berghoef project from 1926 (AA06) was included relatively late, as a counterpart for this late work. Originally, the idea was to also include the project by Amsterdam architect Aiking, but this was eventually dropped.

In the context of the overall study, several modelling and drawing experiments were carried out, on the basis of the house. These included early digital modelling tests as well as physical modelling studies, carried out in an educational setting.
Eventually, 3D ‘sketch’ modelling became the essential ‘tool’ for the thematic modelling all of the AA projects then being considered.

The first experiments were in black-and-white. After some time, colour was brought into the equation. Gradually, the 3D modelling system became more-and-more sophisticated, so that various types of visual impressions could be ‘extracted’ from the basic 3D model files.

On the basis of the visual data that has been produced on the concerning this project though the years, six visualisation variations are considered and illustrated:

— Volumetric Variations;
— Physical Model Variations;
— Exploded View Variations;
— Rendering Variations;
— Elevation Variations;
— Detail Segment Variations.



Results of the Presentation Model exercise: interpretations by four groups.

Physical Model Variations:

The very first studies of the house consisted of freehand sketches, which were followed-up by a first digital 3D modelling explorations, using the Architrion programme, whereby experience was gained in the use of component-based modelling.

However, the results were not considered satisfactory and a reconnaissance of other modelling platforms was carried out.

In the mean-time, the project was included in the selection of AA projects that were the subject of a one-off educational exercise: a BSc elective course entitled 'The Presentation Model' (2005).

Other projects which could be chosen by the participating pairs of students were: the de Klerk project (AA04); the Duiker & Berghoef project (AA05) and the first Berghoef project (AA06).

This particular house was popular with students, and no less than four study-groups chose it for their project-study.

In the end, each group chose for a different approach and emphasis.

The four studies can essentially be characterised as follows:

— One group attempted to model the entire house as an entity including colour. In this case the students modelled the (then still) existing artefact, with the renewed windows. Because the colours were not 'scaled down' they are arguably too dominant a factor in the presentation model.

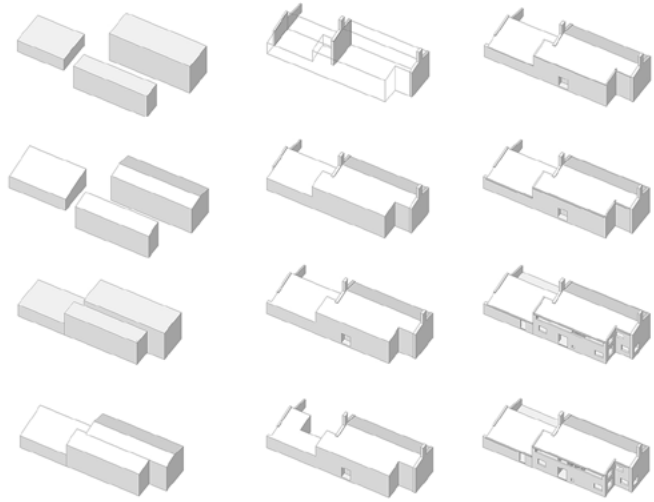
— Another group decided to model the project on a larger scale, without using colour. The final model thereby accentuates the rhythmic- and plastic articulations of the design, rather than mimicking its material expression.

— A group decided to visually 'pull apart' the three main elements of the house and to juxtapose these around a 2D, laser-cut plan. Each of the three parts was worked-out in such a way that insights could be gained about its exterior expression as well as its interior organisation;

— A third group worked in a more-or-less similar vein by choosing not to include colour. However, rather than bringing the different elevations together into a three-dimensional object, they decided to 'unfold' the different sides of the house into a long 2,5D band.

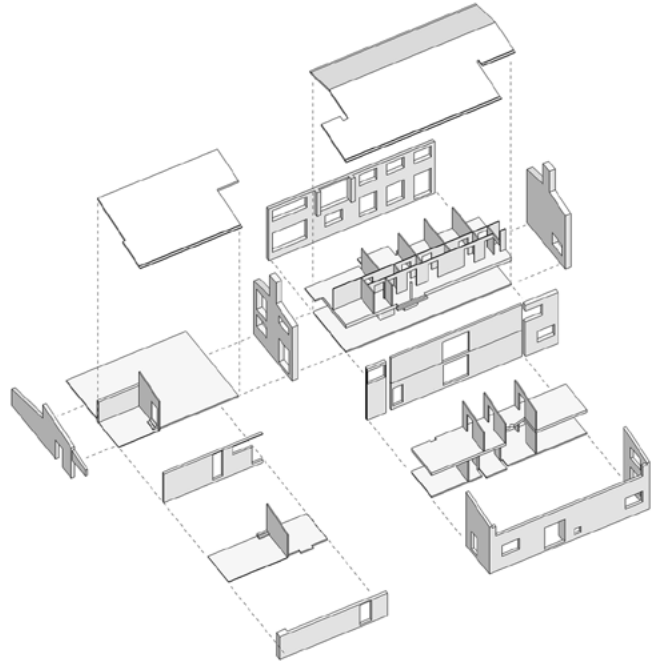
An interesting thing about such a precedent-based modelling-study is that students learn insights concerning architectural composition (from their own study as well as from the results of the other groups) as well as (digital and physical) modelling skills.

Volumetric Variations:
The composition as a whole can be read as a hybrid of interacting volumes.
Sometimes parts are brought together and even melded together, in other cases building elements remain relatively autonomous.
Quite early in the study – when the 3D modelling analysis was still in the black-and-white phase and thematically less structured – a progressive series of volumetric studies were made.
The step-by-step sequence begins with a collection of three essential, rectangular volumes (loosely corresponding with the main house and its frontal zone, plus the winter-garden/garage annex) which are then brought together and connected as volumes with slanted upper-surfaces.
In the second round, the integration of secondary volumetric elements (such as the – seemingly – thick end-walls, chimneys and the sculpturally recessed entrance) are visually explored.
Lastly, volumetric articulations (such as overhanging roofs and their dimensions plus primary openings) are integrated into what has now become a wall-structure. The exercise does not as yet take into account elementary features, such as windows and doors. The results are presented as a collection of twelve 'stills' in what might also have been developed as an animation.

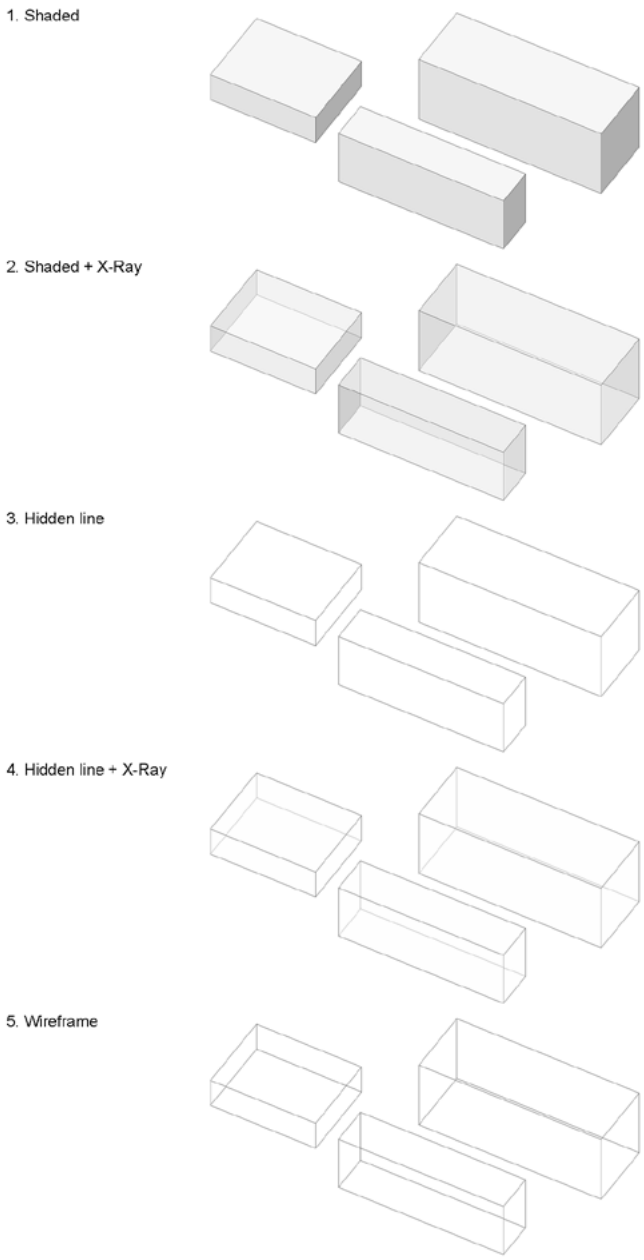


Early 3D model-interpretations: analyses on the level of massing and plasticity.

Exploded View Variations:
A proven method to gain insights into a building projects' spatial- and elemental composition is to construct an 'exploded-view' drawing.
Such drawings can be made by hand (in my experience, one of the most rewarding hand-drawing exercises with first-year students is to get them to visually take apart and draw a given, composite object) or by using 3D digital modelling techniques.
The exploded model which was made relatively early on, using SketchUp, is essentially based upon the model set-up that forms the last step of the previous volumetric variations series.
In this case, the components of the elementary model have been strategically pulled apart and re-arranged.
Thereby the house can be read as a 'montage' of parts, which are here de-constructed, but which can mentally be brought together and taken apart again, like a three-dimensional puzzle.
Such an exploded model-image is in many ways similar to the (often step-by step) instruction-drawings, which one gets when buying a piece of furniture that is taken from the store in a 'flat package' and then needs to be assembled at home.
The challenge, when creating such decomposition-views, is to keep the constituting parts relatively simple and to graphically lay the constituting parts out in a logical and instructively evocative way.
Thereby, a choice needs to be made whether one wants to try to 'catch' everything in one insightful, overall image or if one might opt to build a series, simulating a kind of building-process in phases.



Exploded model view, showing the elementary spatial organisation of the house.



Five elementary visualisation-options compared: elementary volumes.

Rendering Variations:
In the course of the 3D model-based study of the AA08 project, several experiments were carried out on an instrumental level.
In particular, various modes of representation on the basis of the integral computer-models were developed, tested and compared.
For the benefit of the volumetric comparisons, a series of systematic view-variations was developed and tested, making use of the following viewing-options:
— Wireframe;
— Wireframe & X-ray;
— Hidden line;
— Shaded & X-ray;
— Shaded.
One of the 'tools', which had been systematically applied in the earlier House in Black (HiB) Variations and the Tugendhat Variations, was the sectional 'slicing' option.
By applying such a cut in a horizontal plane, the spatial organisation of the house – on the ground floor as well as the first floor – could be elucidated in ways that could not be gained on the basis of plans and sections alone.
Another domain of experimentation was colour. The house was rendered in black-and-white as well as using colours in order to get different impressions.
Initially, there was a tendency to use a colour-scheme with too much saturation and subsequently the decision was taken to 'scale down' the colours for the sake of readability. A step in this direction was already set in the slice-renderings, by introducing semi-transparent filters.

Elevation Variations:
One off the most distinctive aspects of this particular house is the difference between the frontal (street-facing) and rear (garden-facing) facades. It is almost as if two different architects are responsible for the two 'faces' of the house.
The front-side is dominated by horizontality – in the brickwork, the sweeping top-window and the linear gutters – whilst the rear-side is more 'stately', one might even say 'classical' in its approach – with a measured, almost graphic interaction between grid and module, as well as proportion and plasticity.
To analyse and compare such differing, but interrelated arrangements, it proved opportune to resort to these compositional layers in 2D – elevation – mode.
Several sketches were drawn to try to visually capture the characteristic themes, making use of colour- and or proportion schemes, in order to identify the relative measures of parts, particularly by drawing-in the diagonals of surfaces and windows.
On the basis of 2D prints, such issues were explored further graphically, using photo-editing software.

Detail Segment Variations:
As with the other projects, a choice was made to try to elucidate the ‘Junction’ and ‘Feature’ layers in the overall ‘Patterns’ section by as it were cutting out characteristic ‘segments’, to visually explain the building’s essential detailing principles as well as the specific highlights.
To do this, parts were literally ‘taken out’ of the basic 3D model. After this, the segments did need to be ‘worked-up’ in order for them to visually convince as a combination of cross-section and surface-image.
In particular, the ‘hollow’ spaces between the two-dimensional surfaces needed to be ‘filled’ to create an illusion of substance. In some cases, including this project, an attempt was made to ‘zoom in’ and give an impression of actual materials – such as bricks – by applying so-called ‘texture’ mapped surface patterns. For the sake of visual clarity (particularly in print) such visualisation-options were eventually not used. However, particular items – such as the decorative brickwork ornamentation in the niche of the main entrance – were modelled.
These can be experienced more close-up in the perspective views of the project, showing only the most characteristic detail segments.



Representative model segments, showing the project as a whole.



Hand-drawn analysis of the main elevations: patterns, rhythms and proportions.



Segments highlighting the entrance-section and the horizontal window-band.

Position

From the middle of the nineteen-twenties to the middle of the nineteen-fifties, Marinus Jan Granpré Molière (1883–1972) was the undisputed leader of a conservative movement, which opposed modernist architecture in the Netherlands.

As a prominent professor at the technical university (Technische Hogeschool) in Delft, he used his political influence to secure as many commissions as possible for those who shared his convictions.[14]

The Delfts School was not an official group of like-minded architectural practitioners, but after the mid 1930's came to be synonymous with all Dutch architects who used pictorial or traditional elements in their work. In this context, the label was actually used disparagingly by the modernists to pigeon-hole and dismiss whoever they considered to be reactionary and anti-modern.

According to Joseph Buch, the term is applicable to architects who either:
Were actually accepted by Granpré Molière and received political support from him and his friends or:
Tried to reach a synthesis between traditional forms and ornaments and modern programmes, but then primarily on a visual level.[15]

In his book on Dutch architecture between 1900-1940, Giovanni Fanelli considers the 'school' as a loose affiliation of traditionalists including: Berghoef; van Emden; Froger; van Kranendonk; N. van der Laan; Vegter; E.H. and H.M. Kraayvanger; Koldewey; van Moorsel; Peutz; Siebers; Eschauzier; van der Steur; Versteeg, A.J. Kropholler and even J. Gratama, as well as architect Friedhoff of the monumental Enschede town hall (1930–1932).[16]

It is doubtful that all of these architects would have felt comfortable with the Delft School 'label'.
For instance: whilst the personal style of F.A. Eschauzier (1989-1957) may seem similar to that of prominent Delft School architects, he did not consider himself to be a part of this traditionalist movement and he was also well acquainted with modernists like G. Th. Rietveld, W. van Tijen and J.J.P. Oud.[17]

J.F. Berghoef clearly belonged to the inner circle of the 'official' Delft School and contributed significantly to its public profile in the two decennia following the second world war.

During the crisis-years (1930–1940) there were few commissions and the 'struggle for life' had meant that ideological issues had become less pronounced.
During the occupation-years, traditionalists and modernists came together in informal study groups to discuss for the rebuilding of the Netherlands after the war.

Berghoef participated in a number of meetings that anticipated to the rebuilding of the Netherlands after the war years.
The A. et A. meetings in Doorn attracted a sizable group of participants from all denominations; in the words of Berghoef: *"those from Delft as well as orthodox New-Objectivists."*[18]
Berghoef became involved in the first stages of the rebuilding of the bomb-damaged inner-city of Middelburg, in Zeeland. In addition, he participated in a study-group addressing the housing-shortage ('Kerngroep' voor de Woningbouw').[19]

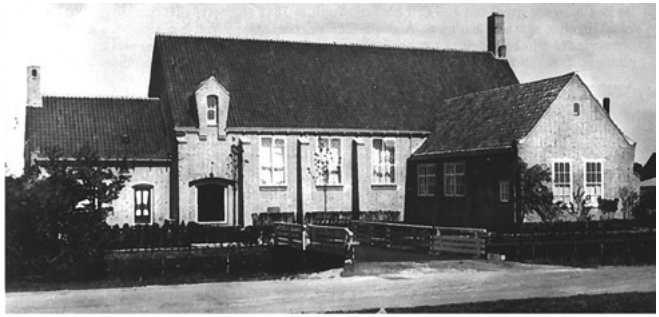
He managed to keep his office running until the autumn of 1944, after which normal work became impossible. In the last year of the war he gave shelter to Granpré Molière and his wife in 'Dijksteen', his house with office, at the edge of Aalsmeer.

Berghoef collaborated with a number of (junior) partners through the years, but he may be considered to have been the principal designer in his office.[20]
Between 1945 and 1965, he was seen as a prolific architectural practitioner, with a considerable status, particularly in his native Aalsmeer.
The map of the Aalsmeer area, which was made to accompany the exhibition of the work of Berghoef in the Aalsmeer town hall in 1991, has no less than 90 entries![21]

In 2016, Jennifer Bosch-Meyer successfully defended a dissertation concerning the life and works of J.F. Berghoef.[22]
In a descriptively analytical PhD study– *Nicht fur die Ewigkeit, Der Architect Johannes Fake Berghoef (1903–1994), zwischen Kontinuität and Erneuerung* – she makes a typological survey of the tone-setting projects that were realised by the architect and his office.

In her study, Bosch-Meyer distinguishes a number of general themes within Berghoef's overall oeuvre, on the basis of the following typological distinctions:
- Churches: religious building according to Berghoef;
- Town halls: designing the house for the community;
- The office building, as a 'new' building assignment;
- Housing, in the countryside and in the developing city;
- The reconstruction of the city of Middelburg.

A large section of the dissertation is devoted to church-buildings, which were realised by Berghoef in collaboration with his partner H. Klarenbeek (1915–1997).













An overview of the specific projects by Berghoef, which the study identifies and discusses:

Churches (with H. Klarenbeek):
- N.H. Oosterkerk, Oosteinderweg, Aalsmeer (1931–1933) [2];
- Chr. Gereformeerde kerk, Lijnbaan, Aalsmeer (1936) [1];
- Moriakerk, Markt, Westkapelle (1951);
- Pauluskerk, Sijzenlaan, Den Haag (1951);
- Zuiderkerk, Hortensialaan, Aalsmeer (1953) [3];
- Johanneskerk, Bonedijkstraat, Vlissingen (1955);
- Triumphatorkerk, Ophelialaan, Aalsmeer (1956) [4];
- Johanneskapel, Bosbesstraat, Den Haag (1959) [6];
- Markuskerk, Jan Luykenlaan, Den Haag (1950, 1954, 1960).

Town halls:
- Town hall competition, Amsterdam (1936–1964) {7] and [8];
- Town hall, Wieringerwerff (1955);
- Town hall, Aalsmeer (1961) [9];
- Town hall, Hengelo (1963) [10];

Office buildings:
- Nederlandse Heidemaatschappij, Arnhem (1950–1966) [13];
- Ziekenfondsgebouw, Alkmaar (1952);
- A.N.W.B. Headquarters building, Den Haag (1966) [11];
- Waterschapsgebouw, Groningen (1966).

Housing projects:
- Private houses in- and around Aalsmeer (1920's and 1930's);
- Housing in the Wieringermeerpolder (1933–1949);
- Private housing in the post-war period (1940's and 1950's);
- Standardised housing in Amsterdam (1948–1951, 1955–1960), including the Sloterhof-appartment building [12].

Reconstruction of Middelburg:
- Renewal of the historic inner city and abbey-complex (1943–1960) [14].

Bosch-Meyer positions Berghoef as fundamentally a modern architect, for two reasons.
Firstly, she argues that, after the pioneers like Oud and Rietveld, he belonged to the second generation of modern architects.

This is in her conception a group that sought a way between the extremes of modernism and tradition. Secondly, she states that Berghoef undoubtedly applied modern techniques and materials.

She signals a renewed interest in architects like Berghoef and states that in a more recent historical context, his architecture should be considered as *modern tradition* or *traditional modernism*.[23]
In her dissertation, she positions Berghoef as a 'man in the middle'; as *a revisionist.*

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Sources: Stichting Oud Aalsmeer / Jennifer Bosch-Meyer / NAi.

Jennifer Bosch-Meyer, in the conclusion of her extensive study on Berghoef:

"Renewal, continuity, clarity and multi-functionality were foundational to the designed- and realised architectural work of Berghoef. As a Revisionist, he used building tradition as a source of inspiration, in order to reach a way of building he felt to be suitable for the future. Thereby there was no pretension about universal validity or building for eternity. The priority in his work was always purpose- and function-based, focusing on social, economic and cultural demands. The work of Berghoef shows that architects like him were trying to find their own middle-way, a path between the black-and-white stereotypes that have come to dominate historical discourse."[24]

Besides being an influential architect, Berlage was involved in matters concerning the education of building practitioners. During the war years, Berghoef played a prominent role in a study-group considering the future of architectural education, laying the foundations for curricular renewal after the war in a report (*'Rapport voor de Architectenopleiding'*). The definitive version of the report was published shortly after the war by the Dutch association for architects (B.N.A.), after which Berghoef became the chairman of the B.N.A.'s educational forum ('Opleidingsraad').[25]

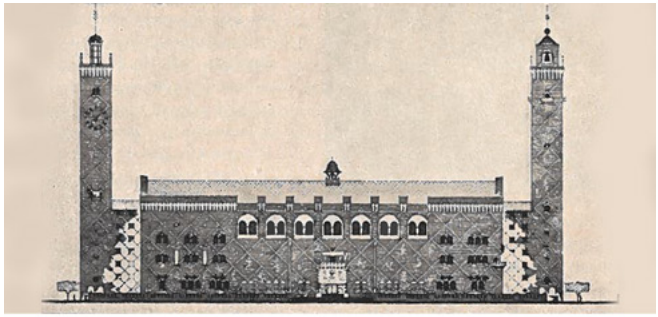
After the liberation, Berghoef was considered for a professorship in Delft.[26]
This meant that he had to first-of-all acquire the title of 'B.I.' ('Bouwkundig Ingenieur': Building Engineer).
On the basis of a portfolio of his professional work, he at long-last (nearly 25 years after having started his architectural studies) acquired his academic diploma.[27]

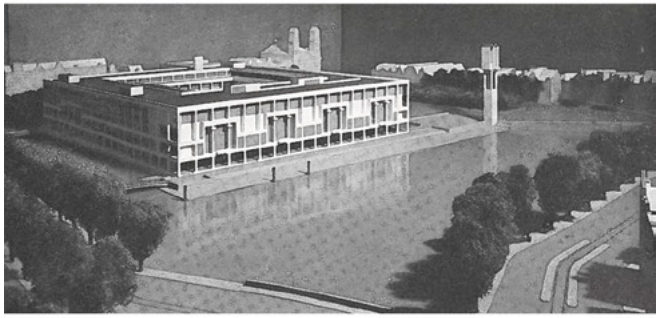
A year later, in 1947, he was awarded a professorship, assuming the chair of Architectural Composition ('Bouwkundige Vormleer'). He agreed, on the condition that he would be allowed to keep practicing as an architect. This was eventually agreed upon and formalised in a 'gentleman's agreement'.[28]

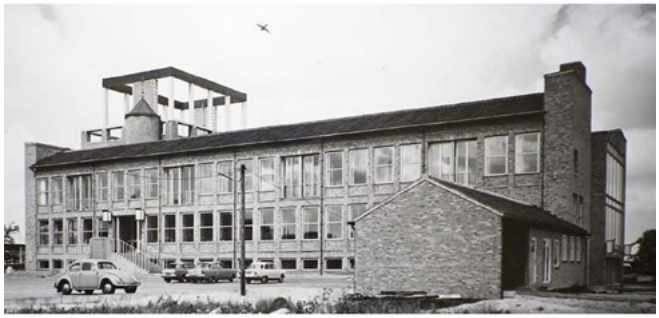
In his inaugural address, concerning 'architectural form and its meaning', he did not actually go very deeply into the aspect of architectural 'form' per se and even less into compositional and perceptional 'meaning'.[29]

Bernard Colenbrander:

"For almost fifty years, Berghoef was attached to the Delft University of Technology, first as a student of Evers and Klinkhamer, later as assistant to Molière, and later still, as professor and successor to Molière. The essence of his contribution to education comprised amending the academic method – which meant that third year students were eminently capable of making a detailed plan of a facade according to 'beaux arts' but were at a loss when it came to a simple, functional issues – and making staff and students alive to the potency of simple, quasi-nameless architectural devices."[30]









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Sources: J.J. Vriend / Jennifer Bosch-Meyer / NAi.









Berghoef was involved in various aspects of architectural education throughout his professional life. Building on his personal experiences with Granpré Molière as a teacher, he appears to have developed a dedicated and collegial, somewhat formalistic attitude to the teaching of design.

In his later years, he came to be considered somewhat 'old-school'.
As I arrived at the faculty too late (1971), I do not have any personal experience of Berghoef as an educator.
Indeed: it was his somewhat tainted reputation that was still in the air when I arrived.
However, his personal and professional manner appears to have been appreciated by many of his students (and colleagues), as being charming and stimulating.

Ir. J. Krüger:

"As a professor, Berghoef was for many students a master, a teaching-master ('leermeester'), from whom one could learn the essence of building. He was more than willing to share his knowledge and skill, to stimulate the evolvement of hidden qualities and to be open for consultation with his students. For the staff, the assistants, these were also highly interesting times, not in the least due to the mutual friendship and hearty collaboration."[31]

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Sources: J.J. Vriend / Jennifer Bosch-Meyer / NAi.

Discourse

During war, the divide between the traditionalists and modernists seemed, at least to a certain extent, to have been bridged and there was a general feeling of optimism and hope for a new consensus: for 'shake hands' architecture…

Berghoef himself felt that in the years after the war there was a 'collegial understanding' between the architects belonging to the modernists and traditionalists fractions.
According to him, the representatives of both movements where – at the very least – 'on speaking terms'.[32]

The architects of the Delft School were, in the eyes of many, given a disproportionately large role in the reconstruction on a national scale, prompting J.J. Vriend to write a critical article entitled *'Dictatuur van het Delftse Bouwen'* ('dictatorship of the architecture of the Delft School').[33]

Granpré Molière became involved in the reconstruction of the centre of the city of Groningen and, over a number of years, Berghoef would gradually restructure the bombed centre of Middelburg in a sensitive, neo-historicist style.[34]

J.J.P. Oud warned against a possible 'synthesis' of modernity ('het Nieuwe Bouwen') and neo-traditionalism ('de Delfsche School') and predicted that any such integration would only benefit the traditional movement and would cost the architects of the 'Nieuwe Bouwen' movement dearly.[35]
He also tried to disclaim the commonly-held notion that 'abstract' modernism – generally associated with progressive socialism and even communism – should be considered less 'spiritual' than the Delft School, which in his eyes positioned itself as the sole representative of a (religious) 'higher order'.[36]

Berghoef's publications (often transcriptions of speeches or lectures) tended to be paternalistic in tone and, like those of Granpré Molière, to be delivered in a rambling, sermon-like style, regularly following side-tracks with old-school philosophical references and biblical undertones, though somewhat less severe than his Catholic mentor.[37]

Prof. J.F. Berghoef addressing the TH Delft in 1952:
*"From the examples I have given it may have become clear to you, that we ask more from a building than that it offers sufficient shelter, than that it is proper in its use, soundly constructed and easy to maintain; a building must naturally satisfy such practical demands. But that is not enough: we require of a building that it be beautiful ('schoon') and that it possesses character.
Beauty means that it is an intact whole ('gaaf geheel'), that it is harmonic, well proportioned and noble in its dimensions, pleasant in its materials and beneficent in its colour and that it relates fittingly to the surroundings."*[38]

Berghoef, paraphrasing Virtuvius:
"… know then, that the building is most beautiful, wherein the parts, differentiated after their nature, act individually, whilst they are still through harmony proven to be brought together as a beautiful unity."[39]

Berghoef's approach to architecture was not explicitly religious, although in 1952 (in a festive address celebrating the 110th anniversary of the TH Delft) he did cultivate the notion of the 'mystery' which is to be experienced in the religious architecture of the medieval period.

The spiritual sensation which he recognised in the 'ecstatically tall' cathedrals he considers to be the expression of something that is not actually visible, but can only be 'felt', a condition for which he coins the phrase *'unseeable'* ('*onzienlijk'*). He further touched upon the issue of 'modern devotion', which he primarily considered to be a typically Dutch, ethnic characteristic.[40]

Granpré Molière's thoughts on architecture were more explicitly grounded in Godly devotion and spirituality and he was particularly hostile towards abstract, Functionalist modernism.
In his closing address as a professor at the TH Delft, in 1953, he expressed his deep-rooted worries about what he considered to be a technocratic, modernist aesthetic, whose central thesis he stigmatised as:
"The beauty of building supposedly lies in the effective appliance of building-elements. Every added sign pollutes such architecture."[41]

Granpré Molière:
"Contemporary art-philosophy consists mainly of constraining slogans. L'art pour l'art was a slogan. And a fiction; because nothing moves itself. Functional building-art I consider to be a slogan. And a fiction; because its is not from below, but from above that all things are moved. Abstractivism I see as a slogan. And a fiction; because art is a reconciling capacity."[42]

In 1959, J.J. Vriend would look back upon the influence of Granpré Molière:
"In 1925 prof. ir. Granpré Molière had started with his attempts to give the (in his idea) chaotic and unchristian building a spiritual-philosophical aesthetic as a foundation, something which had never been attempted, at least not in a more-or-less closed system. This course of events also meant a powerful headwind for the generally humanist idea of Functionalism, which had between 1925-37 enjoyed an international reputation. The influence of Granpré Molière has penetrated deeper than most would initially have imagined; the name Delft School was then used hardly or not at all. Conceptions like monumentality, representation, architectonic accordance etc. were for the new-builders ('nieuwe bouwers') a form of contraband."[43]

In the post-war years, Dutch architects were involved in a large number of reconstruction and renewal projects, whereby the architects of the original modernist camp concentrated largely on urban housing and corporate projects, whilst the neo-traditionalists set the tone in suburban- and rural areas, as well as being dominant in the realisation of representative public buildings, such as churches and town halls.

Amidst a steady output of designs, Berghoef collaborated with Vegter in a new round of the Amsterdam city-hall project, this time for a new location along the Amstel river (1958).
The compact, relatively rational project was positively received by J.J. Vriend, but the definitive version attracted considerable criticism and was never built.[44]

Perhaps being liberated by the departure of the dominant Granpré Molière, as well being stimulated by the increased professional contact between the professors and staff belonging to the two dominant fractions at the TH Delft, Berghoef's work started to gradually become less neo-vernacular and more modern in expression and execution, developing into a kind of 'Modern Traditionalism'.

Berghoef, looking back in 1981:
> *"In the first years after the war, the traditionalists continued with traditional building-crafts for churches, official buildings as well as private houses: for the building of bungalows, this way of building has continued up to the present day. But in order to address the pressing needs for new houses and the utilitarian demands of commerce and industry, they had to bow their heads to industrial means of production. In actual fact, several of the traditionalists had around 1950 been converted to the 'new building' ('nieuwe bouwen') movement. Particularly in the building of one-family row-houses, the compromise of partial prefabrication and montage was applied, in combination with brickwork outer walls, wooden fronts, frames, windows and doors, possibly with wooden cladding, becoming the norm for modernists as well as traditionalists, in many variations, with the distinction that the progressives tended to work with flat roofs and the conservatives with pitched roofs."*[45]

In the post-war reconstruction ('wederopbouw') era, Berghoef became involved *contre coeur* in industrialised systems-building.[46]
Possibly informed by his contacts with his co-professors and his acquaintance with the later work of Le Corbusier (notably the Unité d' Habitaition), this resulted in the acclaimed Sloterhof building, a complex of maisonette apartments built on pilotis, visually suspended above the water, near the Amsterdam Lelylaan Station (1955–1960).

His involvement with monumental architecture was still informed by his interest in Italian renaissance architecture as well as by the increased use of new building- and prefabrication techniques.
Notable projects of his latter years, as a respected practitioner, are the ANWB headquarters building in Wassenaar (1958–1962) and the town hall for Hengelo (1948–1963).

In 1955, Berghoef was chosen as the chairman of the committee that was responsible for the awarding of an honorary TH Delft doctorate to architect J.J.P. Oud.
In his official address, Berghoef praised Oud's achievements as a pioneering architect of the modern movement, as well as referring to having been inspired by a work of Oud's formative years.[47]
However, he drew a critical comparison between Oud's 'Elysian purity' and the convictions of those at the faculty (including himself) who, accepting mortal imperfection, sought a natural, higher order, whilst honouring Oud's 'true intentions' and his 'purity of expression'.[48]

Within the Delft faculty of Architecture, in the '50's and '60's, there was a carefully maintained balance between traditionalist and progressive professors.
All of the 'directions' were represented, with chairs for professors van den Broek, Wegener Sleeswijk, Van Eesteren, Eschauzier, Holt, Duintjer and others, together forming a 'colourful pattern', in the words of architect Ir. J. Krüger.
According to him, the ideological differences did not form a hindrance for the objective evaluation of students' work.[49]

In 1963, Van den Broek's parner Jaap Bakema and Berghoef's old friend and former colleague Sam van Embden joined the faculty as 'professional' professors ('buitengewoon hoogleraren').

According to van Embden (professor in Delft from 1963 to 1969) there was a general consensus amongst professors and staff, concerning the basic criteria for the judgement of 'formal qualities' and the recognition of functional and constructive clarity, on the basis of professional ethics ('vakfatsoen').
At the same time he was aware that there was an un-outspoken ambition amongst the architects on both sides of the spectrum to define a – contemporary – architectural *style*, as an expression of the 'Zeitgeist'.[50]

In his work and private life, Berghoef tried to combine what may be considered as a 'modern devotion' with a kind of 'evolutionary' socialism.[51]
As Krüger remarks, the aim was to create humane living-conditions in combination with a *"love and gratefulness for what the spirit might receive".*[52]

In the words of Berghoef, architecture should be considered to be about more than just creating a sheltering environment:
> *"The true meaning of building lies in the creation of a specific, own world."*[53]

The cultural stance of Berghoef, as viewed by Jennifer Bosch-Meyer:

"Berghoef was a Revisionist who was inspired by Tradition, in the sense that Revision is considered to be the middle-road between Conservatism and Revolution. In this position he pursued a level of continuity whilst at the same time turning against a too-fast and forceful turnover of the existing condition. While he was not opposed to renewal, he gave the social function of architecture and the translation of what he saw as the needs of modern society a central place."[54]

In Berghoef's early years of as a professor, this would have been considered a contemporary stance. His revisionism was neither conservative nor revolutionary, but rather a way of elegantly bridging the gap between extremes: on the one hand being inspired by historic precedents and at the same time looking for 'fitting' answers for contemporary questions.
However, the times were changing and the Delft School began to be considered passé.
At the faculty in Delft, the growing and increasingly politically-aware student-population started to consider him as a somewhat archaic representative of the 'old establishment'.
The general mood at the faculty was in transition, in part due to the influx of a more 'proletarian' student population, coming from social classes that had previously not been in the opportunity to follow higher education.
Furthermore, the members of the 'sixties' generation wished to free themselves from the social- and religious *mores* of their parents' generation.
Berghoef and his revisionist counterparts were increasingly seen as representatives of the conservative, anti-Marxist old-guard, which needed to be replaced.[55]

Berghoef about the the 'cultural revolution' of 1968:

"In the middle of the nineteen-sixties the birth-boom plunged into the third study-year. … The first semester of '68 started with problems: something was brewing, a group of students that quickly gathered support, insisted on openness of the faculty meetings, which had since day-and-age been limited to the professors. Soon access to the meetings was demanded for all students and staff-members and at last also for members of the administrative staff and the facility department. As a crown on the "democratisation" a system of "one man, one vote" was installed. …
My last lecture-series was quite well attended, due to which I still have good and pleasant memories of my last year in Delft."[56]

In his recollections Berghoef tries to keep a gentlemanly, diplomatic poise, somewhat understating the sentiments of a period that must have been difficult for him personally. The attacks, led by a core of revolutionary students, must at times have felt like a kind of pogrom. The desire to 'cleanse' the faculty of reactionary fractions is expressed in a resulting 'analysis' ('analiese'), published by the student-body of the faculty – Stylos – in 1970.

This book, entitled *'de elite'*, includes a detail-photograph of his A.N.W.B. headquarters building in The Hague, which in the caption is characterised as *'Heil Hitler Architectuur'*.[57]

Bernard Colenbrander, in his *In Memoriam* in ARCHIS:

"One has to concede Berghoef's critics that he made it difficult for them not to make fun of him. This is due to the unctuous representation in his texts and lectures of a past charted by the great historian Huizinga, in which everyone knew their place while 'playing', without there being much need for discussion. Apparently, in Berghoef's thinking, buildings were merely 'stone witnesses' which anonymously reflect the context and the possibilities of the craft rather than a personal artistic drama. In the reality of his oeuvre, however, little remains of that medieval Schwärmerei. Berghoef is inescapably modern in the cultivated consciousness with which he effected a personal connection with tradition, thereby influencing the structure of tradition itself. … Tradition, in short, is a dynamic phenomenon." …
"In 1969 he finally bowed out, concerned, as it behoves an old man, not only about the 'motions' that made life hell in that 'hip' period for anyone wishing to practice their profession without too many ideological side-tracks, but also about the by then unsteady ground beneath the feet of the designer. You could best compare it to 'the natural phenomena of floods and landslides', he said at his leave-taking."[58]

Berghoef was arguably less 'comfortable' in his larger – public – projects, than in his more modest, fine-tuned dwellings.
In his work, there seems to be a kind of intimidation when it comes to more complex, 'important' buildings which, according to him *"subconsciously ask that it is representative for the game that is played within."* An architectural representation of truth and character of which Berghoef seemed to be aware that contemporary building-masters, like himself, were not truly capable.[59]

His churches tend to be somewhat rigid and sobering, rather than spiritually uplifting, and there is an air of formalism and officialdom to the larger-scale secular buildings.
It is my considered opinion that it is in the design of 'the house' that he (and indeed his mentor Granpré Molière) managed to excel and touch upon something timeless…

Granpré Molière:

"Man comes to himself in the world. One becomes a person in society. One becomes civilised in a civilisation. One becomes wise in a dwelling"[60]

From the late sixties onward Berghoef was as good as forgotten, but since the nineties, there has been a gradual, critical reappraisal of the tradition-inspired movement and particularly of Berghoef, as one of its figureheads.
After his death, it would be for his 'sophisticated' houses (most of which were built in and around Aalsmeer) that tended be noted and remembered.

An excerpt from Berghoef's *In Memoriam*, in the Dutch architecture Yearbook (1995):

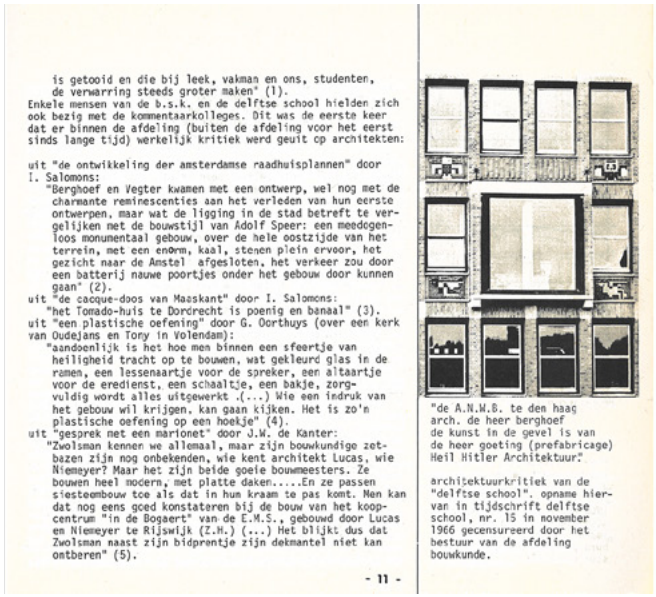
> *"Johannes Fake Berghoef (born 1903), one of the last representatives of traditionalism, died on 9 March. In his native town Aalsmeer he built a large number of traditional, sophisticated houses."*[61]

It is arguably this combination of tradition and modernity, in combination with his professional dedication and signature sophistication, that have made so many of his houses lastingly appreciated.

J.F. Berghoef, in 1952, on the position and meaning of the house in architecture:

> *"There are thus buildings, which besides an abstract, purely architectonic beauty, as it were possess a psychic charge, though which they begin to mean something.*
> *This meaning then is only arresting, when it is of a universal human scope. …*
> *A modest house can captivate because of the human dignity that is expressed in it."*[62]





is getooid en die bij leek, vakman en ons, studenten, de verwarring steeds groter maken" (1).
Enkele mensen van de b.s.k. en de delftse school hielden zich ook bezig met de kommentaarkolleges. Dit was de eerste keer dat er binnen de afdeling (buiten de afdeling voor het eerst sinds lange tijd) werkelijk kritiek werd geuit op architekten:

uit "de ontwikkeling der amsterdamse raadhuisplannen" door I. Salomons:
"Berghoef en Vegter kwamen met een ontwerp, wel nog met de charmante reminescenties aan het verleden van hun eerste ontwerpen, maar wat de ligging in de stad betreft te vergelijken met de bouwstijl van Adolf Speer: een meedogenloos monumentaal gebouw, over de hele oostzijde van het terrein, met een enorm, kaal, stenen plein ervoor, het gezicht naar de Amstel afgesloten, het verkeer zou door een batterij nauwe poortjes onder het gebouw door kunnen gaan" (2).
uit "de cacque-doos van Maaskant" door I. Salomons:
"het Tomado-huis te Dordrecht is goenig en banaal" (3).
uit "een plastische oefening" door G. Oorthuys (over een kerk van Oudejans en Tony in Volendam):
"aandoenlijk is het hoe men binnen een sfeertje van heiligheid tracht op te bouwen, wat gekleurd glas in de ramen, een lessenaartje voor de spreker, een altaartje voor de eredienst, een schaaltje, een bakje, zorgvuldig wordt alles uitgewerkt .(...) Wie een indruk van het gebouw wil krijgen, kan gaan kijken. Het is zo'n plastische oefening op een hoekje" (4).
uit "gesprek met een marionet" door J.W. de Kanter:
"Zwolsman kennen we allemaal, maar zijn bouwkundige zetbazen zijn nog onbekenden, wie kent architekt Lucas, wie Niemeyer? Maar het zijn beide goeie bouwmeesters. Ze bouwen heel modern, met platte daken.....En ze passen siesteembouw toe als dat in hun kraam te pas komt. Men kan dat nog eens goed konstateren bij de bouw van het koopcentrum "in de Bogaert" van de E.M.S., gebouwd door Lucas en Niemeyer te Rijswijk (Z.H.) (...) Het blijkt dus dat Zwolsman naast zijn bidprentje zijn dekmantel niet kan omtberen" (5).

- 11 -

"de A.N.W.B. te den haag
arch. de heer berghoef
de kunst in de gevel is van
de heer goeting (prefabricage)
Heil Hitler Architektuur."

architektuurkritiek van de "delftse school". opname hiervan in tijdschrift delftse school, nr. 15 in november 1966 gecensureerd door het bestuur van de afdeling bouwkunde.

Publication 'de elite': description of ANWB building as 'Heil Hitler-architectuur'



Granpré Molière's town-hall, Oosterbeek (1956-1966).

Aesthetics

Considered as a whole, there is a kind of duality to the van Staaveren project.
The project-data suggests there may have been a level of competition between the office's design-partners: Berghoef and Klarenbeek. To what extent the design should be considered to be the responsibility of the one or the other, or the result of both men working in unison, is open to speculation.[63]

In this context I am inclined to put forward two compositional themes that may be considered to have bearing on the design and its aesthetic expression:

— *Dynamics*: the sweeping linear quality as expressed in its massing and particularly framing;
— *Duality*: the ambivalence between formality and a level of pseudo-randomness in the design.

In the late forties and fifties, the divide between the modernist and traditionalist aesthetic modes had gradually become less pronounced.
Particularly in the design of detached country-houses, modern architects like van Tijen and Bodon worked in a vein that was not very different from their counterparts who belonged to the Delft School.
At the same time, the architecture of the traditionalists became less pseudo-vernacular and more 'modern' in expression and materialisation.

Whilst, before the war, the buildings of Berghoef and his compatriots tended to have distinctive, relatively steep, pitched roofs, in the fifties the profiles of the buildings started becoming less pronounced.
The somewhat austere volumetric compositions now had relatively low-pitched roofs, which were more 'classical' than traditional in proportion.
These roofs were no longer covered exclusively with ceramic tiles (or thatching), but were increasingly covered in more 'abstract' bitumen surfacing.
Brickwork was still the norm for the vertical outer surfaces, but increasingly concrete elements and window-sections in steel and aluminium were integrated into the designs.
Compared to individual houses, the larger-scale projects tended to become more 'official' in character and expression, in their spatial organisation and massing, as well as their detailing and ornamentation.

This medium-sized project, which may be considered to be representative of Berghoef's late work, is the product of his collaboration with H. Klarenbeek.
It no longer comes across as a cosily historicist country-home, but instead has a representative air, exuding a 'status' befitting a small town-hall or corporate building.[64]

In this context it is interesting to consider Joseph Buch's outspoken critique of a representative building, realised by Granpré Molière around the same time as the house in Aalsmeer.

Joseph Buch in *Een eeuw Nederlandse architectuur 1880/1990* (1993):

> *"Another important building by Granpré Molière is the town hall of Oosterbeek, from 1956–1966. Here it is not a matter of ideology. To a large extent the incoherent impression which the façade makes is the result of the kind of incorrect classical proportioning on which the Delft School relied in such instances. This building displays even more explicit clichés, which are typical of the post-war architecture of the Delft School: the undersized balcony, kitsch-details like lanterns and the attempt to make the walls seem heavier than they actually are through to the use of extra-thick window-frames."*[65]

All of the 'critical' features that Busch recognises are arguably in evidence in this project. The undersized balcony; the signature, ornamental light-fixture and the oversized wooden window-frames, in this case with thinly-proportioned steel sub-frames as an infill, can also be recognised.
Arguably, the design of Berghoef & Klarenbeek's house is less severe and demonstrates a 'lighter touch' in its execution than the somewhat uncomfortable hybrid by Granpré Molière.

Nonetheless, there is a level of ambiguity in the van Staaveren project, particularly in the building's overall massing.
As the design-process sketches demonstrate, the end result was not a clear-cut solution, but was the subject of quite an extensive search, involving compositional balancing on the levels of volumetric unity and diversity.

On the one hand, there seemed to be a tendency to create an archetypal corpus, expressed as a clearly defined volumetric entity – a kind of honest 'simple shed' – highlighted by monumental chimneys on either side. On the other hand, the composition was evidently also conceived as an ensemble of distinguishable volumetric entities, which were melded together into a somewhat monolithic 'whole'.

Particularly at the rear, the relatively monumental main-volume remains dominant.
Here, the facades are developed on the basis of an underlying grid, with formal modulations in the grouped windows and doors, with distinctive sub-symmetries in the compositional components.
The controlled, monumental composition of the elevation, framed by exaggerated end-walls topped by monumental chimneys, is sculpturally articulated with a recessed section, with a somewhat official-looking balcony.
This formal ensemble is offset on the right-hand side by a more modern, almost industrial-looking winter-garden.

On the street-side, the approach is altogether different, whereby the theme of the main building-volume is relativized, by using a more 'dynamic' formal grammar.
Here, the dominant component is a horizontally-organised section, which seems to have been extruded forward; out of the central volume.

The frontal section is counterbalanced on the right-hand side by the main volume, with its end-wall and chimney, and on the left by a linear, lower volume, with a similarly-pitched roof surface.
Here, the placement of windows in the outer walls is more randomly-organised.
The important exception is the long band-window of the first floor, which is perhaps the most striking feature of the house.

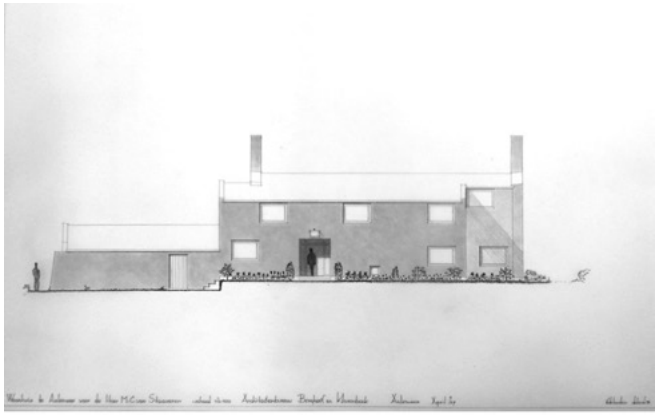
This horizontal band of glazing gives the house a powerful, modern appearance. It is rhythmically subdivided by broader elements, corresponding with the interior arrangement and the recessed main-entrance.

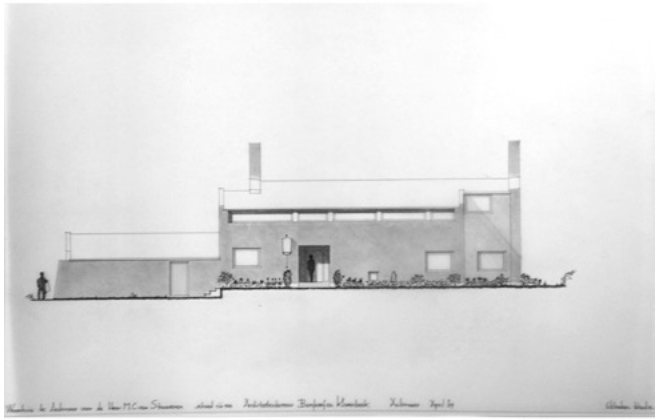
As a recently-discovered alternative design for the front facade demonstrates, this sweeping gesture was not a given, but – to my mind *luckily* – was eventually chosen as the solution in the final design.
It is interesting to speculate if the choice between the two 'options' for the front-elevation was made by senior partner Berghoef.
If so, it can be read as an expression of the lighter, more modernist touch he was at the time also developing in his larger-scale projects.[66]

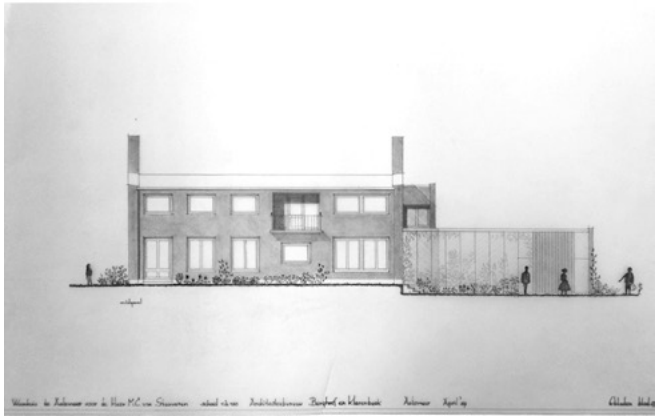
Arguably, it was this eye-catching 'gesture' that gave the house a kind of visual power, setting it apart.
It was certainly this characteristic feature that caught my attention, in my early years as a student, and eventually led to the decision to include the project in the AA Variations study.
Probably due to this aesthetic intervention, the project was picked-up and published relatively extensively.[67]

The entrance is 'decorated' on the left by a representative lighting-fixture. This lamp was by then the bureau's signature feature, clearly identifying the building as a 'true Berghoef'.[68]

Particularly in his designs for houses, Berghoef contributed towards determining the aesthetic norms for new buildings, in his native Aalsmeer, but also in various other rural municipalities and suburban villa-enclaves around the country.
Such aesthetic paradigms were subsequently formalised as preferences in local building rules and regulations ('bouwverordeningen', 'bestemmingsplannen') and upheld by aesthetic commissions ('schoonheidscommissies', later known as 'welstandscommissies') judging the 'fittingness' of design-proposals in their local context.







Design sketches with the crucial choice of the front facade. Source: NAi.

This meant that in many municipalities – including Aalsmeer – it was difficult, if not impossible, to build in a modernist vein, i.e. with flat roofs.

Nonetheless, by this time (1958) the dominance of the Delft School paradigm was no longer a given and not all clients were charmed by the certified, 'rural' aesthetic.
Architects like Rietveld, Salomonson, Haan and Bijvoet & Holt were, around the same time, realising tone-setting – 'modern' – country-houses.[69]

An interesting case in Aalsmeer was a house that was built further along the Hornweg (at nr. 126), by local architect H.R. Aiking (1970).
Particularly on the street-facing side this house, with a cantilevered roof-volume, clad in wooden strips, seemingly hovering above a lower wall extending in front a sheltered garden-terrace still makes a distinct impact.[70]
It remains one of the very few modern-style buildings in the municipality (see: Casus Aalsmeer).

To this day, the aesthetic 'norm' in Aalsmeer is still predominantly of a (pseudo) historic, retro-traditional character.

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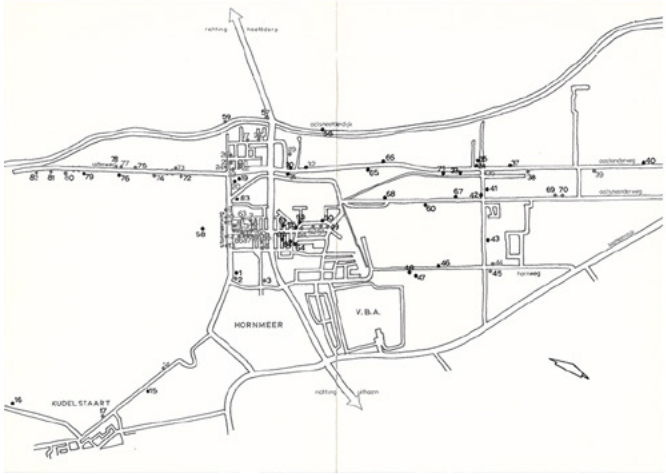


PLATTEGROND AALSMEER

1. woonhuis J.F. Berghoef Stommeerweg 131
2. woonhuis Stommeerweg 135
3. 4 burgerwoningen Hortensialaan 97 t/m 103
4. Nederlands Hervormde Kerk Hortensialaan 5-5
5. woonhuis met praktijk Ophelialaan 60
6. dubbel woonhuis Hortensialaan 14-16
7. 3 winkelhuizen Hadleystraat 44 t/m 48
8. dubbel woonhuis Stommeerweg 45-47
9. woonhuis met praktijk Stommeerweg 72
10. woonhuis Stommeerweg 46
11. woonhuis Stommeerweg 68
12. woonhuis Stommeerweg 104
13. woonhuis Stommeerweg 106
14. woonhuis Kudelstaarseweg 104
15. volkswoningbouw Kudelstaarseweg
16. woonhuis Herenweg
17. jachthaven Kostelstaarseweg 226
18. dubbel woonhuis Stommeerweg 61
19. gemeentehuis Raadhuisplein
20. winkels & woningen Raadhuisplein
21. verb. oude veiling Marktstraat 19
22. woonhuis Marktstraat 21
23. winkelcomplex v. Cleeffkade
24. dubbel winkelhuis Zijlstraat 78-80
25. showroom/garage Weteringstraat 2
26. winkelpand Zijlstraat 43
27. dubbel woonhuis Dorpstraat 41-43
28. woonhuis Dorpstraat 83
29. Christelijk gereformeerde kerk & kosterwoning Lijnbaan 3-5
30. woonhuis Oosteinderweg 5
31. woonhuis Oosteinderweg 10
32. woonhuis Oosteinderweg 23
33. woonhuis Oosteinderweg 234
34. Bloemenveiling Bloemenhuis Oosteinderweg 247
35. dubbel woonhuis bij Bloemenhuis Oosteinderweg 245-245A
36. pontkantoor Machineweg 1
37. pastorie Oosteinderweg 273
38. woonhuis Oosteinderweg 330
39. woonhuis Oosteinderweg 410
40. woonhuis Oosteinderweg 457
41. woonhuis met slagerij Machineweg 35A
42. dubbel woonhuis Machineweg 36-38
43. 12 woningen Machineweg 115 t/m 131C
44. dubbel woonhuis Hornweg 191-193
45. woonhuis Hornweg 186
46. woonhuis Hornweg 101
47. ketelhuis Hornweg 52
48. woonhuis Hornweg 20
49. Nederlands Hervormde Kerk Ophelialaan
50. woonhuis Sportlaan 89
51. dubbel woonhuis Sportlaan 74-76
52. 3 woonhuizen Sportlaan 40-42-42A
53. woonhuis met slagerij Sportlaan 15
54. dubbel woonhuis Ophelialaan 169-171
55. woonhuis Sportlaan 11
56. woonhuis & werf Aalmeerderdijk 125
57. winkel & woonhuis Aalmeerderdijk 2-2A
58. vakantiewoning Kleine poel
59. woonhuis Aalmeerderdijk
60. dubbel woonhuis Aalmeerderweg 123-124
61. 12 woningen Begoniastraat
62. 52 woningen Begoniastraat
63. 30 woningen Hadleystraat
64. woonhuis Kastanjelaan 28
65. woonhuis Oosteinderweg 90
66. 4 woonhuizen Oosteinderweg 119 t/m 121 B
67. dubbel woonhuis Aalmeerderweg 187-189
68. woonhuis Aalmeerderweg 45
69. woonhuis Aalmeerderweg 301
70. woonhuis Aalmeerderweg 305
71. woonhuis Oosteinderweg 216
72. woonhuis Uiterweg 35
73. woonhuis Uiterweg 100
74. woonhuis Uiterweg 95
75. woonhuis Uiterweg 160
76. woonhuis Uiterweg 207
77. dubbel woonhuis Uiterweg 242-244
78. woonhuis Uiterweg 246
79. woonhuis Uiterweg 349
80. dubbel woonhuis Uiterweg 337
81. woonhuis Uiterweg 367
82. woonhuis Uiterweg 383
83. woonhuis Stommeerkade 4
84. woningbouw Spoorlaan
85. woonhuis Hortensialaan 53
86. woonhuis Ophelialaan 23
87. woonhuis Ophelialaan 44
88. dubbel woonhuis Ophelialaan 50-52
89. woonhuis Ophelialaan 62
90. Groenekruisgebouw Ophelialaan 68

Map of Aalsmeer, showing the various buildings realised by Berghoef (D. Kuin).

1 Source: the map that was drawn up by Dick Kuin for the Berghoef exhibition, which he curated and organized.
2 Johannes Jacobus Margaretus Vegter (1906-1982), worked together with J.F. Berghoef on the Amsterdam town hall completion projects, although they did not share an office.
Vegter was government-architect ('rijksbouwmeester') from 1958-1971 and had his own practice in Leeuwarden, in the north of the Netherlands.
3 This 'ketelhuis' was included in the regional retrospective *Moderne monumenten in de Meerlanden* (1986). By then the concrete structure with a brick infill was apparently in a poor state. I photographed it during my first, targeted visit in 1998. Soon after it was demolished.
4 The van Staaveren family is said to have included a number of daughters, who would at the time of realization have lived at home. It is likely the family also had at least one live-in maid.
5 The prints of the drawings in the municipal archive – numbered 1A-1A to 1A-5a – are dated 24th of July 1957 and bear the signature-stamp of the municipal secretary Wentzel (see AA07).
6 The Berghoef project (with the address Hornweg 24 and dated 1957) is filed under: BERX 437.
7 This is not a given, as the symbol clearly contains a B on the right, but a more cryptic section on the left, which might be interpreted as an inverse K (for Klarenbeek?).
8 Jellema et al: in *Bouwkunde 9b, bouwkunde in een kort bestek* 6th edition, 1986).
The principe is identified in Fig. 5.4, *'Stalen raam in een houten kozijn'*, pg. 95.
9 Ir. J.W. du Pon b.i. was an architect who initially worked in the style of the Delft School (such as the first extension to the du Pon house (AA09) and in the sixties became more involved in brutalist-modern architecture.
His book *Het eigen woonhuis* (1961) gives a good impression of the general trends on the level of villa-design around 1960.
10 My impression was that it was being used as a pension for (seasonal) workers in the local flower-growing industries, or some similar function.
11 I later learnt that local architect and political activist Dick Kuin had taken the initiative to remove the typical lighting-fixture (used as the front-page illustration of his exhibition-brochure of 1991) for 'safe-keeping'.
12 The file number of Klarenbeek's various documentations, including the van Staaveren house, in the NAi archives: KLAR.1 10622077.
13 In the words of Ir. J.W. du Pon b.i. in: *Het eigen woonhuis* (1961), pg. 21:
"Dit woonhuis, fiks van opzet en van allure in een weinig voorkomende mate, maakt met zijn gedifferentieerde woonruimte, met een plantenserre en met een ruim beschut terras bijna alle schakeringen van het wonen mogelijk. Ook de slaapverdieping is zeer verzorgd van indeling; er is een duidelijke splitsing tussen het deel voor de gasten en dat van de bewoners. Kasten en wastafels in de kinderkamers zijn opgenomen in een sluis die een goede separatie tussen kamer en gang vormt."
Translation by the author.
14 Joseph Buch in *Een eeuw Nederlandse architectuur 1880/1990* (1993), pg. 253:
"Niettemin was Marinus Jan Granpré Molière (1883–1972) van het midden van de jaren twintig tot het midden van de jaren vijftig de onbetwiste leider in de strijd tegen de moderne architectuur in Nederland. In zijn positie als vooraanstaand hoogleraar aan de Technische Hogeschool in Delft wendde hij al zijn politieke invloed aan om zoveel mogelijk opdrachten terecht te laten komen bij diegenen die zijn opvattingen deelden. Hiermee had hij zoveel succes dat Van Tijen in 1974 een list kon publiceren, waaruit bleek dat het aantal opdrachten dat de traditionalisten in het kader van de wederopbouw kregen werkelijk buiten alle proporties was en dat men ronduit van een Delftse dictatuur kon spreken."
15 Joseph Buch, in: *'Een eeuw Nederlandse architectuur 1990-1990'* (1993), pg. 257.
16 Giovanni Fanelli in: *Moderne architectuur 1900-1940* (1978), pg. 174:
"Architecten die men tot de Delftse School kan rekenen zijn: Berghoef, van Emden, Froger, van Kranendonk, N. van der Laan, Vegter, E.H. en H.M. Kraayvanger, Koldewey, van Moorsel, Peutz, Siebers, Eschauzier, van der Steur, Versteeg. A.J. Kropholler, die altijd de trouwe navolger van Berlage blijft kan men in deze tijd ook tot de Delftse School rekenen; evenals J. Gratama die, nadat hij een tijdlang aanhanger is geweest van de ideeën van Berlage en vervolgens een tijd in de stijl van de Amsterdamse School heeft gewerkt, uiteindelijk vooral via zijn belangstelling voor religieuze architectuur bij de Delftse School terechtkomt."
17 Source: the first chapter of Jouke van der Werf's retrospective: *F.A. Eschauzier* (1999). Pg.9.
18 Berghoef in his *Herinneringen*, pg. 30.
19 The initiative was taken by van Tijen and Berghoef and included Merkelbach and van Emden.
After the war the group was extended, including van de Broek, van Eesteren and Komter.
Source: Berhoef's 'Herinneringen'.
20 The authorship of Berghoef's projects is not always clear. In many cases he tends to be identified as the sole architect, other projects are attributed to him in collaboration with others, alternately: Vegter and Klarenbeek and later: Hondius and Lamers.
21 A good indication of the extensive body of work that he built up in Aalsmeer is the special map which was drawn up for the exhibition of his work in Aalsmeer in …, curated by local architect Dick Kuin.
22 Source: Dissertation Jenifer Bosch-Meyer (2016).
23 Observations taken from the summary of the *van Eesteren talk nr. 13*, organized by the van Eesteren Museum, Amsterdam (2012).
24 Jennifer Bosch-Meyer, in the closing paragraph of the summary accompanying her dissertation (2016):
"Erneuerung, Kontinuität, Deutlichkeit und Multifunktionalität waren die Grundlagen für Entwurf und ausgeführter Architektur von Berghoefs Arbeit. Als Revisionist verwendete er die Bautradition als Inspirationsquelle, um zu einem zukunftsträchtigen Bauen zu gelangen. Dabei bestand kein Anspruch seiner Werke auf Allgemeingültigkeit oder gar Bauen für die Ewigkeit. Der zweck- und funktionsgebundene Anspruch seiner Werke auf sozialer, ökonomischer und kultureller Ebene hatte stets Vorrang. Das Werk Berghoefs zeigt, das Architekten versuchten einen eigenen Mittelweg zu finden, zwischen dem Schwartz-weiß-Bild, das die Geschichtsschreibung versucht zu beschreiben."
Translation by the author.
25 In his *Herinneringen* (1994), on pg. 31, Berghoef notes:
"Er was nog een samenwerkingsverband ontstaan: de studiegroep voor de architectenopleiding; die betrof zowel de Delftse- als de H.B.O.-opleidingen. Aan de Amsterdamse H.B.O. was ik vóór en in de eerste bezettingstijd 7 jaren als docent verbonden geweest, terwijl het 3-jarig assistentschap in Delft, gevoegd bij een ruim 15-jarige praktijkervaring als zelfstandig architect: waarbij Delftenaren en H.B.O.-ers als bouwkundig-tekenaars en stagiaires gefundeerd hadden, me veel deden nadenken over de pro's en contra's van beide opleidingen. Over die problematiek sprak ik met Abs van der Steur – door de Kulturkammer van zijn functies als voorzitter van de B.N.A. zowel als van het Bestuur van de Amsterdamse H.B.O. ontheven. Samen met Rector H. Van Helvoort en collega Holt produceerden we in een aantal samenkomsten, gespreid over twee jaren. "het Rapport voor de Architectenopleiding". Direct na de bevrijding in mei '45 werd onze studiegroep uitgebreid met twee leden en door de B.N.A bevorderd tot "Opleidingsraad van de B.N.A.", terwijl het geschrift, aangevuld tot "Rapport over de architectenopleiding benevens uitwerking van het leerplan voor de opleiding uit de praktijk",

als eerste naoorlogse officiële publicatie van de B.N.A. werd uitgebracht. Tegelijk stelde de B.N.A. een "opleidingsraad" in. Als voorzitter van de "Opleidingsraad" heb ik de problematiek van de eerste zomer, speciaal in Delft, van nabij meegemaakt."

26 Berghoef in his *Herinneringen* (1994), pg. 35:

"Als voorzitter van de Opleidingsraad voor de Architectenopleiding werd ik door de twee bij de opzet van het nieuwe studieprogramma betrokken. Na de eerste bespreking in de zomer van '45 polste G.M. me "of ik naar Delft wilde komen". Maar aangezien onze opdrachtenportefeuille goed gevuld leek meende ik, op dat moment in de verwachting dat de wederopbouw snel van start zou gaan, daarop niet te kunnen ingaan."

27 Berghoef continues:

"In het voorjaar van '46 nodigde de Afdeling me uit om een portefeuille uit mijn praktijk samen te stellen als basis voor afstuderen; het bij de wet vereiste mondelinge examen werd een humoristische séance. Bij het dankwoord kon ik de Afdeling slechts kwalijk nemen dat ze mij het 25-jarig studiejubileum net niet gegund had."

According to a popular anecdote at the faculty in Delft, in his 'examination', the traditionalist candidate was asked to explain the meaning of 'reinforced concrete'.

28 Berghoef in his *Herinneringen* (1994), pg. 31: *"Toen dan ook in de zomer van '46 de Afdeling me dringend voorlegde om de vormleer in het eerste en tweede studiejaar te doceren, stemde ik toe, zij het op voorwaarde dat ik mocht blijven practiceren. ... Vandaar dat de benoeming pas in '47 haar beslag kreeg, op basis van een gentleman's agreement tussen de Minister en de docent. De colleges en oefeningen betroffen "vormleer en ontwerpen."*

Enkele jaren later werd de leeropdracht uitgebreid tot "architectuur", wat o.a. inhield dat de docent beschikbaar was als mentor voor het afstuderen.

Toen G.M. in 1953 wegens het bereiken van de 70-jarige leeftijd afscheid nam, verschoven mijn werkzaamheden naar het derde studiejaar: "het woonhuis", dat ik allengs uitbreidde met "en woonomgeving". Daarnaast werd het college "ontwerpen" meer omvattend."

29 His inaugural address: *Over de Architectonische Vorm en zijn Betekenis* (1947).

30 Bernard Colenbrander in his *In Memoriam*: *J.F. Berghoef (1903-1994)*, in: *ARCHIS* 5 (1994). Pg. 12.

31 Ir. J. Krüger in: *Berghoef: een architect met schippersbloed*, in: *Plan* (1983), pg. 9:

"Als hoogleraar is Berghoef voor vele studenten een meester, een leermeester geweest, bij wie men het bouwen kon leren. Hij was van harte bereid om kennis en kunde door te geven, om sluimerende krachten te stimuleren en open te staan voor overleg met de leerlingen. Ook voor de staf, de assistenten, zijn het hoogst interessante tijden geweest, niet in het minst door de wederzijdse vriendschap en hartelijke samenwerking."

Translation by the author.

32 Berghoef in his *Herinneringen* (1994), pg. 31: *"Samenvattend meen ik – en ik heb ervaren – dat een goede collegiale verstandhouding tussen de verschillende architectengroeperingen, speciaal tussen de Nieuwzakelijken en Delftenaren, tijdens de bezettingsjaren gegroeid en, vooral ook in het persoonlijke vlak, na de oorlog overeind gebleven is. Al hebben de architectuurcritici niet afgelaten na 1945 de D.S. in het verdomhoekje te zetten: collegiaal zijn de architecten on speaking terms gebleven en vaak meer dan dat."*

33 The article was originally printed in 1946 in *De Groene Amsterdammer*, and would be reprinted in *'Reflexen, nederlands bouwen na 1945'*, (1959), pg. 15.

34 In Middelburg, Berghoef worked together with restoration-architect and planner De Lussanet de la Sblonière.

35 J.J.P Oud in the *Bouwkundig Weekblad* (1946):

"Tracht men naar synthese van het z.g. Nieuwe Bouwen en de Delftsche School, dan zal de winst éénzijdig voor de Delftsche School blijken. De Delftsche School is en was nooit anders dan synthese. Synthese van wat geweest is; verbinding, in dit geval compromis, van alle verloren gegane en nu opnieuw nagestreefde aantrekkelijkheden."

"De vollere ontplooiing van het Nieuwe Bouwen zoekt, moet grondslag blijven vinden in een kern, die sociaal en zakelijk van aard is. Van daaruit werd van de aanvang af naar geestelijke uitbeelding gestreefd, en van daaruit wordt ook nu weer naar vrijer vormgeving in geestelijk verband gezocht. De Delftsche School brengt vergeestelijkte waarden vóóraf en wendt zich eerst daarna naar het doel, dat oorsprong had moeten zijn. De uitgangspunten zijn anders.

Men late zich niet verleiden visuele overeenkomsten voor innerlijk samengaan aan te zien. Er ligt een wereld van verschil tusschen beide. En men houde voortdurend en goed in het oog: synthese van het Nieuwe Bouwen en de Delfsche School betekent alleen voordeel voor de Delftsche School. Bij ieder samengaan laat het Nieuwe Bouwen een veer!"

36 J.J.P. Oud in the same *Bouwkundig Weekblad* article:

"Het is ook niet zóó, dat alléén de Delfstche School één zou zijn met bepaalde godsdienstige opvattingen; dat zij door Hooger Verband voorsprong op het Nieuwe Bouwen zou hebben. Het zou een drogreden zijn als men het aldus voor wilde stellen."

37 Marisa Melchers in her *Het nieuwe religieuze bouwen* (2015), concerning the *'original but hard-to-access'* intellectual work of Granpré Molière:

"In het overzichtswerk Bouwen in Nederland 600-2000 (2007) hebben G. Andela en K.Bosma waardering voor diens 'oorspronkelijke, maar moeilijk toegankelijke denkwerk'."

38 J.F. Berghoef in his address to the academic community of the TH Delft: *'Het Onzienlijke in de* Bouwkunst', January 12th, 1952. Pg. 9-10:

"Uit de gegeven voorbeelden zal het U duidelijk geworden zijn, dat wij van een gebouw meer vragen dan dat het voldoende huisvesting biedt, dan dat het goed bruikbaar, hecht geconstrueerd en makkelijk te onderhouden zou zijn; aan de practische eisen behoort een gebouw natuurlijk te voldoen. Maar dat is niet genoeg: wij verlangen van een gebouw dat het schoon zij en dat het karakter bezit.

Schoon wil zeggen dat het een gaaf geheel is, dat het harmonisch is, goed geproportioneerd en nobel van verhoudingen aangenaam van materiaal en weldadig van kleur en dat het zich passend verhoudt tegenover de omgeving."

Translation by the author.

39 J.F. Berghoef in *'Het Onzienlijke in de Bouwkunst'* (1952). Pg. 24:

"Moge ge die titel niet zo bijzonder waarderen, weet dan, dat het bouwwerk het schoonst is, waarin de delen, naar hun aard gedifferentieerd, zelfstandig optreden, terwijl zij toch in harmonie tot een schone eenheid blijken saamgevoegd."

Translation by the author.

40 In his *'Het Onzienlijke in de Bouwkunst'* lecture (pg.12) he traced this 'national trait' back to medieval times:

"Zodra in de veertiende eeuw het Nederlandse volkskarakter begint uit te kristalliseren, treedt hier een eigenaardige vroomheid op, te karakteriseren met: werkheiligheid. In het volbrengen van de menselijke en maatschappelijke plichten tegen de achtergrond van het Eeuwige en in de harmonie daarmede, meent men hier God het meest te dienen. Dat uitte zich al vroeg in de Moderne Devotie."

41 On page 11 of his farewell speech (1953) Granpré Molière parodies modernism as follows:

"Het bouwwerk werd een vertoning van technisch kunnen. De theorie kwam er bij te hulp; ik geloof zelfs dat ze eraan vooraf ging. Er ontstond een nieuwe architectuur-filosofie met een nieuwe grond-stelling.

Deze stelling luidt: de schoonheid van het bouwen is in de doelmatige toepassing der

bouw-elementen gelegen. Elk toegevoegd teken verontreinigt de architectuur."
Translation by the author.

42 Granpré Molière in the transcript of his final address in Delft (1953), pg 14:
"De hedendaagse kunst-filosofie bestaat in hoofdzaak uit beperkende leuzen. L'art pour l'art was een leuze. En een fictie; want niets beweegt zichzelf. Functionele bouwkunst beschouw ik als een leuze. En een fictie; want niet van onder, maar van boven worden alle dingen bewogen. Abstractivisme zie ik als een leuze. En een fictie; want de kunst is een verenigend vermogen."
Translation by the author.

43 J.J. Vriend in *'Reflexen, nederlands bouwen na 1945'*, Moussault's uitgeverij, Amsterdam, 1959, pg. 131:
"In 1925 was prof. ir. M.J. Granpré Molière zijn pogingen begonnen om het (volgens zijn opvattingen) chaotische en onchristelijke bouwen een geestelijk-wijsgerige esthetiek als fundament te geven, hetgeen nooit eerder beproefd was, althans niet als een min of meer gesloten systeem. Deze gang van zaken betekende tevens een sterke tegenwind voor de algemeen humanistische gedachte van het functionalisme dat tussen de jaren 1925-37 een internationale reputatie genoot. De invloed van Granpré Molière is dieper doorgedrongen dan het menigeen aanvankelijk toescheen; de naam Delftse School werd toen ook niet of nauwelijks gebruikt. Begrippen als monumentaliteit, representatie, architectonische rangorde, enz. waren voor de nieuwe bouwers een vorm van contrabande.
Translation by the author.

44 The town hall plan of 1958 was discussed by Vriend in an article entitled *Het laatste raad-huis ontwerp voor Amsterdam* (originally 1958, published in book-form in 1959). Eventually a new competition was held in 1964, with an entry submitted by J.J. Vegter (probably without Berghoef). The competition would be won by Austrian architect Wilhelm Holzbauer, who would eventually collaborate with architect Cees Dam to realis the so-called 'Stopera' (a combination of town hall and opera).

45 J.F. Berghoef, overlooking the technical- and aesthetic developments in his article *'Architectuur en stedebouw: Spiegel van de samenleving'* (1981), published in: *'Wie is er bang voor nieuwbouw…'*, pg. 73:
"De traditionalisten continueerden in de eerste tijd na de oorlog het ambachtelijke bouwen voor kerken c.a., overheidsgebouwen en ook voor particuliere woonhuizen: voor bungalows vooral bleef deze bouwwijze tot op vandaag de dag gehandhaafd. Maar om in de dringende behoefte aan woningen te voorzien en om aan de utilitaire eisen van handel en industrie te voldoen moesten zij toch het hoofd buigen voor de industriële bouwproductie. Trouwens, verschillenden van hen werden omstreeks 1950 tot het 'nieuwe bouwen' bekeerd. En met name voor eengezinsrijenwoningen werd het compromis van gedeeltelijke prefabricage en montage, in combinatie met bakstenen buitenspouwmuren, houten puien, kozijnen, ramen en deuren, eventueel ook houten buitenbeschietingen, door modernen zowel als door traditionalisten gehanteerd, in talloze variaties, maar met het onderscheid dat de vooruitstrevenden doorgaans met platte, en de behoudenden met hellende daken werkten."
Translation: the author.

46 The Amstelhof and Sloterhof projects were realized using the so-called Airey-system.

47 Berghoef in his speech on the occasion of the honorary doctorate ('erepromotie') of J.J.P. Oud, as published in Bouwkundig Weekblad (1955), pg. 435:
"Persoonlijk wil ik hier dankbaar erkennen dat een van Oud's bescheiden, vroegste werken 35 jaar geleden in mij de neiging tot de bouwkunst heeft gewekt en mijn keus voor dit vak bepaald heeft."

48 Berghoef in his speech, addressing Oud and the members of the faculty:
"Als vertegenwoordiger van een Afdeling, welker leden individueel of collectief het wel eens moeten ontgelden, mag ik mijn twijfel dienaangaande wel uitspreken, al kan ik de controverse begrijpen en aanvaarden.
Er is een verschil van uitgangspunt bij hem, die in vrijheid nieuwe wegen zoekt en hen, die daarbij het waardevolle van de overlevering behouden willen. Er is een verschil van instelling bij hem, die in volle aanvaarding kind van zijn tijd wil zijn en hen, die aan de eigen tijd normen menen te moeten stellen. En er is een wezensverschil tussen hem, die via het rationele en perfecte Elysese zuiverheid de expressie van een hogere werkelijkheid zoekt en hen, die, de stoffelijke onvolmaaktheid aanvaardend, in de natuurlijke orde der dingen naar reflecties van een hogere orde reiken. Toch zijn beiden exponenten van eenzelfde tijd en het tijdsbeeld zou scheefgetrokken worden als men een van beiden zou elimineren. Het gaat om de zuiverheid der intenties en om de zuiverheid van zijn intenties en de klare uitdrukking ervan in zijn werken eren wij Oud."

49 Ir. J. Krüger in *Berghoef: architect met schippersbloed* (1983), in *Plan*:
"Nogmaals richten we de aandacht op de afdeling Bouwkunde te Delft. Het gonsde na de oorlog van leven, zowel bij de studie als in het studentenleven. De wederopbouw van Nederland vroeg alle inspanning en men gaf die gul en graag. De BSK bloeide, nu onder Sam van Embden die het voorzitterschap veertien jaar heeft bekleed.
De kenmerken van het onderwijs sloten hier voor een belangrijk deel bij aan. Alle richtingen in de Bouwkunde werden successievelijk vertegenwoordigd. Nieuwe benoemingen, onder wie de hoogleraren Van den Broek, Wegener Sleeswijk, Van Eesteren, Eschauzier, Holt, Duintjer en anderen zorgden voor een bont patroon. Het tweede belangrijke gegeven – zich verdiepen in elkanders inbreng en zich kunnen inleven in andere meningen – leverde belangwekkende resultaten op.
Het bleek mogelijk, dat bij het beoordelen van studie- en examenwerk, de docenten van diverse kleuren een hoge mate van objectiviteit opbrachten. ... Zonder meer bleek het mogelijk, dat verschillende docenten, onafhankelijk van elkaar, tot hetzelfde inzicht, en dus hetzelfde cijfer kwamen betreffende de kwaliteit van het beoordeelde werk."

50 In: Prof. Ir. S.J. van Embden: *Ascese van de vakintegriteit* (1983), published in *Plan*:
"Gemeenschappelijk hadden beide kampen allereerst de grote aandacht voor de vormkwaliteit als zodanig. Dat bleek óók te gelden voor die radicale figuren die in een van de kampen voor wie de term 'vormkunst' zonder meer gold als een vonnis zonder appel. In de praktijk immers gingen aan beide kanten alle meningsverschillen vrijwel uitsluitend toch juist over die vorm, over de geest die daaruit sprak, de associaties die zij opriep, en over de bedoelingen van de ontwerper die men eruit meende te kunnen lezen. Elk werkstuk werd bejubeld of verguisd, aanvaard of verworpen, op grond van zijn vormverschijning.
In de tweede plaats waren beide partijen het stilzwijgend ook nog zeer wel eens over de basiscriteria voor die beoordeling, criteria die samen waren te vatten in de eenvoudige eis van 'vakfatsoen', dwz de eis dat elk produkt van mensenhand in zijn vorm eerlijk en herkenbaar verantwoording zou afleggen van het waarom, waartoe en hoe het tot stand werd gebracht; de bekende eis van functionele en constructieve zuiverheid. ... Een derde onuitgesproken gemeenschappelijk geloofspunt was duidelijk van heel andere aard: het berustte op een gevoel als had men als generatie de 'opdracht' om te werken aan het ontwikkelen van een herkenbare, nieuwe en vooral eigentijdse, architectuurstijl, zoals blijkens de architectuurgeschiedenis alle vroegere cultuurperioden die immers ook gekend hadden. Architectuurstijl als herkenbare uitdrukking van de 'tijdgeest': overheersende sociale en culturele idealen, krachten en machten: de architectuur werd dus altijd gezien als de uitdrukking van iets anders, iets dat aan de architectuur voorafging. Het architectuurdebat tussen beide

kampen ging dan ook eigenlijk in de eerste plaats om die geestelijke inhoud waaraan de nieuw te ontwikkelen moderne architectuur uitdrukking zou moeten geven."

51 The idea of 'Modern Devotion' being one of the conditions which were typical of the Dutch national spirit ("volkskarakter / volksgeest") is brought forward by Berghoef in his synopsis of the first A. et A. meeting during the occupation years, in 1941 in Doorn, pg. 91.
In his *'Het Onzienlijke in de Bouwkunst'* lecture (1952) he also considered this 'national trait' (see previous note).

52 In: Ir. J. Krüger: *Berghoef: architect met schippersbloed* (1983), published in *Plan*:
"Richtsnoer was steeds het creëren van een humaan leefmilieu en dit verweven met liefde en dankbaarheid voor wat zijn geest mocht ontvangen"

53 Berghoef in *Het Onzienlijke in de Bouwkunst* (1952), pg. 6:
"Wij bouwen om beschutting tegen het klimaat te vinden, in primitieve omstandigheden tevens voor bescherming tegen wild en schadelijk gedierte, tegen onverlaten en vijanden. De wezenlijke zin van het bouwen ligt echter in het creëren van een specifieke, eigen wereld." (pg. 6)

54 Jennifer Bosch-Meyer in her dissertation on the life and work op J.F. Berghoef (2016), pg. 343:
"Berghoef war ein durch die Tradition inspirierter Revisionist. In dem Sinne, dass Revision den Mittelweg zwischen Konservatismus und Revolution bedeutet, d. h. er verfolgte sowohl eine Kontinuität, richtete sich aber gleichzeitig gegen eine zu schnelle und gewaltsame Änderung des bestehenden Zustandes. Doch er war der Erneuerung in keiner Weise abgeneigt, sondern stellte die soziale Funktion von Architektur und deren Anknüpfung an die Bedürfnisse des modernen Menschen zentral."
Translation by the author.

55 A good impression of the turmoil at the faculty is sketched in a study by state of the faculty around 1968,
Marinke Steenhuis: *Deining in Delft* (2009). Another book that captures the politicized state of the faculty around 1968 is *de elite* (1970).

56 Excepts from Berghoef's *Herinneringen*, pg. 36:
"Tegen het midden van de 60-er jaren stortte de geboortegolf het 3e studiejaar binnen." ...
"Het eerste semester in '68 begon met problemen: er broeide iets, een groepje studenten, dat zich snel aanhang verwierf, drong aan op openbaarheid van de Afdelingsvergaderingen, die zich van ouds tot de hoogleraren beperkten. Kort daarop werd toegang geëist tot de vergaderingen voor alle studenten en stafleden en tenslotte ook voor de leden van de administratieve staf en de huishoudelijke dienst. Als kroon op de "democratisering' werd het "one man, one vote" ingesteld." ...
"Mijn laatste collegeserie vond een redelijk gehoor en de assistenties bleven druk bezocht, waardoor ik ook aan het laatste Delftse jaar toch goede en prettige herinneringen bewaar.
De grote verhuizing van "Bouwkunde", van Oude Delft 39b – waarmee ik me door een 3-jarig assistentschap en 22 en een half jaar docentschap verknocht voelde – naar een nieuw gebouw Berlageweg 1, ver buiten de veste is me bespaard gebleven."
Translation by the author.

57 On page 11 of *'de elite'* (1970), under a photograph of a section of the facade, it reads:
"de A.N.W.B. te den haag arch. de heer berghoef de kunst in de gevel is van de heer groeting (prefabricage) Heil Hitler Architectuur."

58 Bernard Colenbrander: *J.F. Berghoef (1903-1994)*, in: *ARCHIS* (1994).

59 In: J.F. Berghoef in *'Het Onzienlijke in de Bouwkunst'* (1952), pg. 20:
"In West Europa verrezen de kathedralen met hun extatisch rijzige interieurs, als voorportalen van de hemel, met hun omhoogstuwende west-fronten en torens, triomfantelijke getuigenissen van een brandend geloof en teken van eerbied voor het Onzienlijke. …
Ik zeide U reeds dat de bouwmeester desnoods met de allereenvoudigste middelen volstaan kan om het Onzienlijke te duiden. Dat is een troost in een tijd als deze, waarin middelen zo beperkt zijn. Of onze architecten evenwel zover zullen reiken is een vraag, die wij niet antwoorden kunnen.
Tenslotte is alle kunstenaarschap een gave, dat wil zeggen dat wij de ontvangenden zijn."

60 Granpré Molière, in: *De Eeuwige Architectuur,* pg. 44 (1957):
"De mens komt dus tot zichzelf in de wereld. Men wordt een persoon in de maatschappij. Men wordt een beschaafd mens in een samenleving. Wijs wordt men in een Woning,"
Translation by the author.

61 The *In Memoriam* in the Yearbook 1994-1915 emphasizes his house-designs in Aalsmeer. Further mention is made of his design, with Vegter, for the Amsterdam town hall, his membership of the Core group during the war, his initiation of the 'Doorsnee leergangen', his housing experiments with the Airey system and his town hall in Hengelo.

62 Berghoef in *Het Onzienlijke in de Bouwkunst* (1952), pg. 17.
"Er zijn dus bouwwerken, die naast een abstracte, zuiver architectonische schoonheid een als het ware psychische lading bezitten, waardoor zij iets gaan betekenen. De betekenis wordt pas boeiend, zodra ze van algemeen menselijke strekking is. Het subjectieve vermag gewoonlijk maar kort de aandacht van de beschouwer gespannen te houden, het verveelt spoedig en blijft onder de maat; dat geldt eigenlijk voor alle kunst, maar in 't bijzonder voor de bouwkunst, die nimmer voor een ogenblik bestemd is.
Een bescheiden huis kan ons boeien doordat de menselijke waardigheid daarin volkomen tot uitdrukking gebracht is."
Translation by the author.

63 It seems justified to assume that Klarenbeek would have been a major player in the development of the house's final design, because his personal archive in the NAi contains a portfolio of professionally-made photographs of the house. However, it is likely that, as the 'senior' architect, Berghoef would have been involved in the most important decision-making concerning the design.

64 Klarenbeek was largely involved in medium-sized projects, such as churches. My grandfather, H.S. de Vries was a member of the building committee of the Triumphator church in Aalsmeer (1956), once expressed to me his disappointment at having seen so little of Berghoef himself during the project's development. He remembered that at the opening, Berghoef complained the they had not planted a (chestnut) tree on the church's forecourt as had apparently specified earlier on.

65 Joseph Buch in his *Een eeuw Nederlandse architectuur* (1993), pg. 255:
"Een ander belangrijk gebouw dat op naam van Granpré Molière staat is het raadhuis van Oosterbeek, uit 1956-1966. Hier is geen sprake van een ideologische kwestie. Voor een deel vloeit de onsamenhangende indruk die de gevel maakt voort uit een verkeerd van klassiek proportionering waarop de Delftse School in zulke gevallen aanspraak maakte. Dit gebouw vertoont nog meer expliciete clichés die typerend zijn voor de naoorlogse architectuur van de Delftse School: het ondermaatse balkon, kitsch-details zoals lantarens en de poging om de muur zwaarder te doen lijken door extra dikke vensteromlijstingen."
Translation by the author.

66 In the archives of the NAi, two nearly identical drawings – with the same number! – were discovered, suggesting that a fundamental choice had to be made, probably before showing the design-proposal to the client. The more 'standard' proposal consisted of a punctuated mass, with a semi-random window-arrangement. The more 'radical' alternative had the sweeping, horizontal band of fenestration, running along under the horizontal roof-line.

67 The project figures prominently in the book by du Pon, as well as in the Plan article,

published on the occasion of Berghoef being awarded the BNA-kubus. It also appears in Bosch-Meier's dissertation as a characteristic house-design in Berghoef's oeuvre.

68 Whether one considers Berghoef's characteristic lamps as a kitschy feature (as Jennifer Busch.Meyer probably would) or as an eloquent, symbolic attribute is perhaps a matter of taste. Fact is that such lamps were consciously applied as a mark of status. An important public building or church would usually be adorned with two of the larger-size standard light-fixtures (to either side of the main entrance), whereas a more modest house might have a single, smaller-edition Berghoef-lamp. This relatively large, representative house was highlighted using the most representative type of lamps, albeit with only one.

69 An idea of the stylistic diversity and interaction is given in publications by Jan Henselman, architect, such as: *Landhuizen en Bungalows* (1957) and *Villa's en Buitenhuizen* (1965), as well as in Ir. J.W. du Pon's *Het Eigen Huis* (1961).

70 The original drawings, as well as the alternative proposal for the Aiking project were discovered in the Aalsmeer municipal archive (copies: collection of the author).
The house was for some time considered as one of the AA Variations projects and was in fact 2D modelled in some detail, but was eventually dropped because of a lack of quality in the less prominent rear- and side facades.



7. AA Variations

7.9 AA09
Baneke & van der Hoeven
1995 & 2002













Introduction

This representative private dwelling has acquired its present form in stages.
The original house was a modest, free-standing market-gardener's dwelling, which was built around 1900. This house was acquired by the du Pon family around 1960 and extended with a weekend house, designed by architect ir. J.W. du Pon.[1]
After the adjoining greenhouse plot had been purchased in the early nineties, the house was dramatically transformed by Baneke, van der Hoeven architects. The first extension is from 1994–95 and the definitive, second extension is from 2000–2002.

Casper van der Hoeven (1951) and Guus Baneke (1952) were educated at the faculty of Architecture in Delft, both graduating in 1999. After working in different offices, they teamed up, starting their own practice in 1984.
The early work of the, then up-and-coming architects, was optimistically inquisitive, inspired by modernist prototypes, but with an open, adventurous attitude to materialisation and sensory experience. Recurrent, defining themes in their work at the time were: *imagination*, *innovation* and *seduction*.[2]
The integral project, as it stands, can be considered to be representative of the 'New Wave' in Dutch architecture, which had developed in the eighties and reached its peak in the nineties and the early years of the 21st century.

The project is situated close to the Nieuwe Meer yacht-harbour, on the southern side of the busy Stationsweg / Stommeerweg thoroughfare, which extends eastward, from the south of the original village, along the West-end lake, towards the hamlet of Kudelstaart.

The public side of the house, with a bus-stop out front, is largely shielded off from the road.
A landscaped forecourt creates a visual buffer on the right, which is counterbalanced by a solid-looking, cubic volume, on the left.
On the more private side, the house is opened up, overlooking a generous garden, with views towards the relatively enclosed, minor section of the West-end lake.[3]

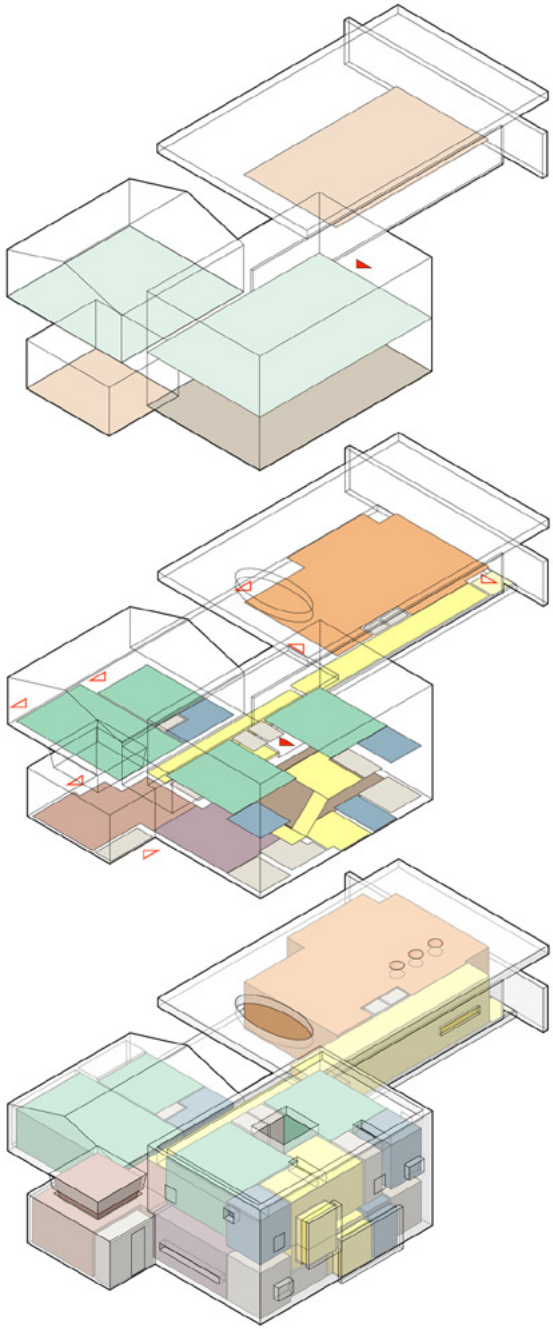
The first intervention was a dynamic, predominantly horizontal extension towards the west, with a dominant axis running between the two existing volumes, connecting a new living room with a dining-room, crowned by a distinctive 'lantern'.
By comparison, the second extension, which replaced the original house and was completed some seven years later, comes across as an impenetrable 'black box'.

Characteristic traits throughout include: consciously-applied contrasts between openness, semi-openness and enclosure; a playful, adventurous attention to detailing and material textures and an experientially rich and varied interior arrangement, with alluring natural-lighting effects.

AA09	: Information		
Project	: Du Pon House : Stationsweg 32, Aalsmeer		
Architect	: Guus Baneke : Casper van der Hoeven		
Style	: New-Wave Modernism : 90's Pluriformity		
Year	: 1995 & 2002		
Ground-plan	: 300 m^2	Floor-plan	: 375 m^2
Volume	: 1405 m^3	Ratio V/F	: 3,8 m







A.1 Context

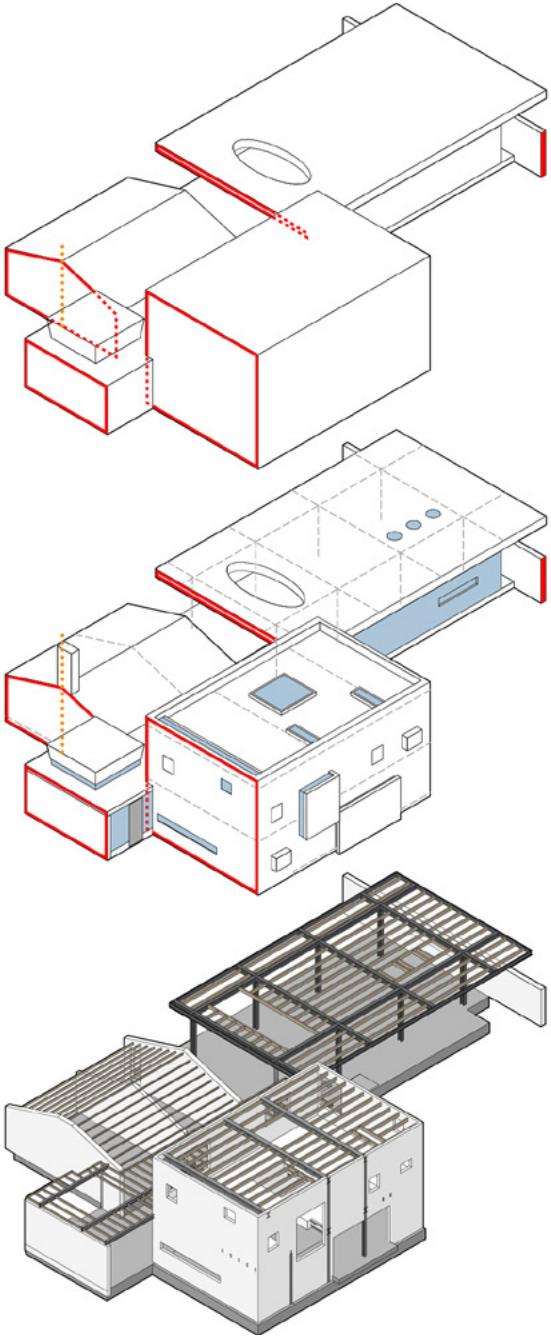
The project is situated close to the village centre, along a major traffic-axis, along which a number of representative houses have been built through the years.
The plot is bounded, on the eastern side, by a busy road, from which a large section of the house is discretely hidden by hedges, a landscaped approach-zone and private parking-spaces.
On the western side, the house has a generous waterside-garden, oriented towards the extensive West-end lake environment and bounded by a connecting boat-canal.
The original house was first extended around 1960. This ensemble was then extended further in 1995 with a one-storey living-room section and a dining area. In 2001, the original house was demolished and a rectangular volume containing a study, kitchen, services and guest-rooms was strategically integrated.

A.2 Function

The first extension to the existing house was a discreetly connected addition, containing two rooms and a bathroom.
The subsequent intervention introduced a connecting-axis parallel to the street, intersecting the two existing volumes.
On the side of the original living-cluster a new dining-area was introduced. On the other end, a spacious, representative living-area was created, with partly-covered terraces, looking out towards the garden and the green lake-environment beyond.
The new, official entrance was reached via a sheltered, landscaped forecourt.
After the children had left home, the original house was replaced by a rectangular volume, containing an open kitchen, a representative study/office with storage spaces and a toilet. The first floor houses two new guest-rooms, each with its own bathroom.

A.3 Interior

The generously-proportioned house demonstrates a variety of spatial qualities, from relatively closed rooms to more ‘fluid’ spaces, with varying visual connections to the front- and rear gardens.
The first extension, including an eloquent *plan libre* living-room pavilion, is characterised by dynamic routing and shifting levels of (semi)transparency. Interior and exterior spaces overlap, creating ‘in-between’ realms.
Outwardly, the latest addition comes across as an autonomous, closed volume, but on the inside it is a veritable ‘Pandora’s box’, with a diversity of intermediate views, between rooms as well as towards the surroundings.
Daylight penetrates the interior spaces directly and indirectly, via the outer walls as well as from above, filtering through the upper levels down into the ground-floor spaces.



B.1 Object

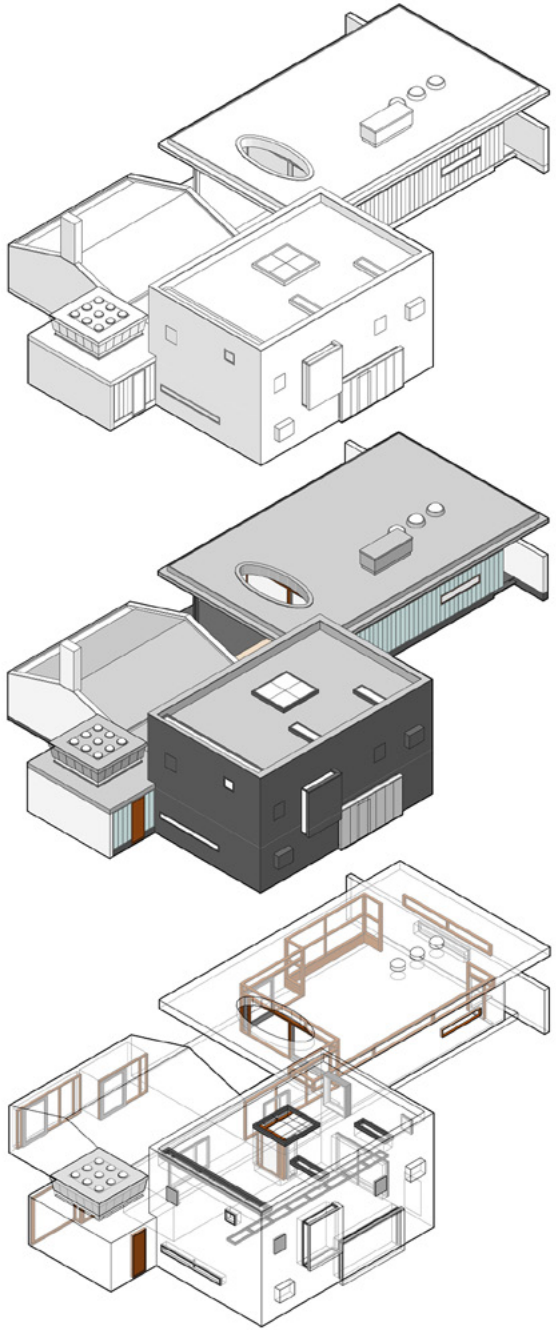
On an elementary level, the composition consists of a conglomerate of interconnected ‘pavilions’, with considerably different shapes, which are nonetheless integrated as volumes.
The original market-gardener’s home from around 1900, was situated parallel to the road and had a traditional pitched roof. It was complemented by a relatively autonomous volume, with a less-steep roof.
When the adjoining gardening-plot became available, the architects were able to realise the first intervention, by introducing a pavilion with a visually dominant, horizontal roof form, surrounded by (semi)transparent screens and complemented by a rectangular sub-volume. The final addition consists of a distinctly contrasting, cubic ‘mass’. This apparently simple box is enhanced by secondary surface-articulations and -perforations.

B.2 Structure

The three main elements have their own spatial- and structural organisations.
The original summerhouse is divided into two unequal sections, which correspond with the plasticity of the garden facades.
In the first new extension, the two most important structuring devices are the seemingly ‘floating’, roof-sections. The most prominent roof, supported by free-standing columns, allows for the interplay of interior and exterior spaces. The second linear element serves as an intermediate between the existing volumes and is extended outwards to highlight an entrance. At the other end is a garden-room, with a playful lantern.
The closed volume consists of an autonomous box-like volume, which is structurally sub-divided into three zones. Its outer surfaces have seemingly-random perforations and plastic accentuations.

B.3 Technique

The first extension was a modestly executed entity, with parallel load-bearing walls, supporting wooden beams.
By comparison, the two more recent additions are structural hybrids, making use of combinations of steel profiles and wooden beams.
The first ‘pavilion’ has a planar roof-structure, consisting of a framework of steel girders, supported by eight steel columns. Alternately closed, translucent and transparent elevations, placed below are freely positioned. In the second addition, this theme is reversed. A load-bearing wall circumscribes the spatial set-up, which is structurally divided using steel girders, supporting wooden floor-beams. Strategically placed cut-outs allow light to filter down to the first and ground floors. The outer walls have a variety of smaller- and larger openings and extrusions.



C.1 Facade

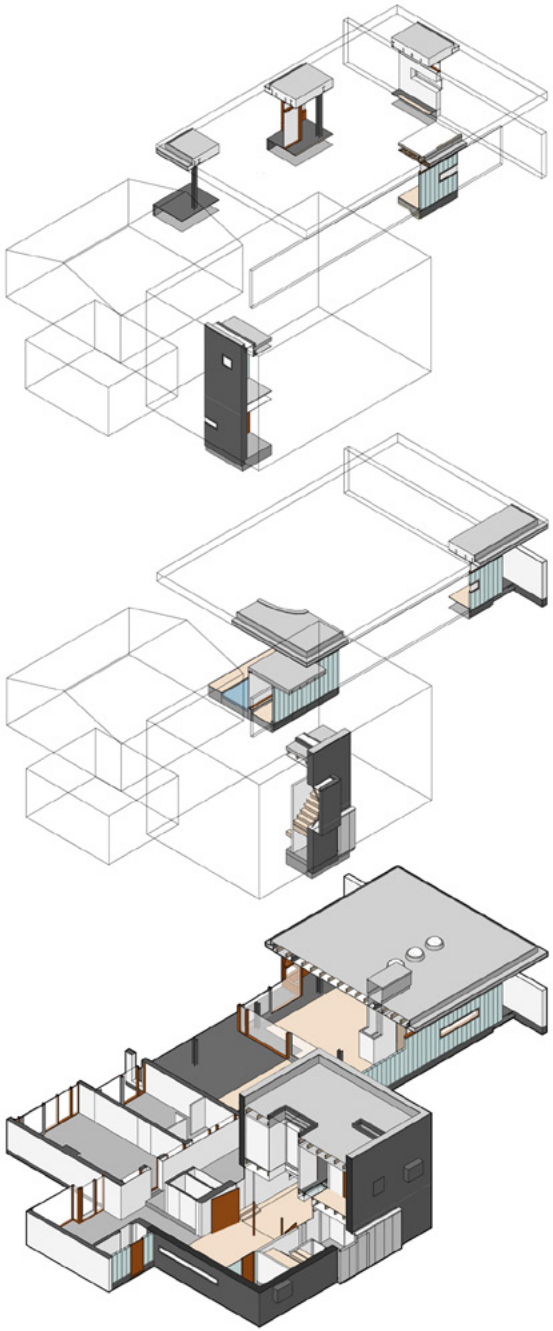
Towards the street, the dominant visual theme is the juxtaposition of the predominantly linear, semi-transparent pavilion-section and the prominently positioned, closed volume.
On the side of the front garden, a semi-transparent glass screen, kept free from the horizontally accentuated roof by a transparent zone, is punctuated by a 'suspended' horizontal window.
In the closed block, the distribution of smaller and larger openings is seemingly random, but fine-tuned to the functions of the spaces behind.
On the private side, the impression is altogether different.
To either side of the summer house, displaying its own sizes and proportions, there are transparent sections. These consist of interconnected, wooden window-frames, culminating in a symmetrical bay-window section, highlighting the main living room.

C.2 Surface

On the level of surface patterns, the two interrelated design-components can be read as adventurous explorations of visual and tactile opportunities, whereby differentiations and even oppositions between parts have been exploited.
The first Baneke & van der Hoeven intervention consists of a 'collage' of surface-patterns and textures: stucco mimicking concrete; vertically arrayed, green-tinted glass elements; varnished hardwood; galvanised steel and zinc roof-trimmings.
The second project-phase is visually dominated by the 'heavy', anthracite-coloured bricks, applied in a half-brick header pattern ('tegelverband'), alternately using smoother and slightly-protruding rougher bricks, topped by a standing-bond 'seam'.
This wall-treatment is also applied to window-shutters, alongside sections covered with zinc.

C.3 Opening

The architects' aesthetic ambition and inventive spirit is demonstrated in the ways in which a variety of window-themes is explored.
One of the most eye-catching features is an elongated, translucent-glass screen, separated from the overhanging roof by a transparent zone. This hardwood window-band then meanders further, over the end-wall and around all of the living-room section.
The openings in the street-facing block are partly hidden from view by brick-fronted shutters and screens. Apertures are not confined to the vertical surfaces, but include a wide array of roof-light openings. With the exception of the generous oval cut-out in the roof, above the covered terrace, most roof-lights do not figure in the exterior. Instead, they come to life in the interior, as roof-openings and vertical light-shafts.



D.1 Junction

Both parts demonstrate their own adventurous approaches on the level of detailing, whereby the connections between more-or-less standard building products are creatively exploited for dramatic effect.
In the first extension, the roof is a visually dominant presence, which is articulated as a volume with a finely dimensioned, expressively tapered rim. The planar elements, framing different ceiling-sections, are visually connected with closed and translucent wall-elements via a band of varnished, Iroko-wood frames.
In the second extension, this detailing-theme is turned around, whereby the emphasis lies on the visual 'substance' of the wall, hiding the floors and roofs that lie behind.
Openings in these 'tactile' surfaces are either straightforward or have shutters, covered with similar brickwork-patterns.

D.2 Feature

The composition is reminiscent of modernist prototypes, geometrically as well as spatially.
On the level of expressive detailing it abounds, with *trouvailles* that may be considered exemplary of the uninhibited 'collage' approach of the neo-modernist Nineties architecture in the Netherlands. The massive block is juxtaposed with the implicitly ornamental, 'open' sections, with highlights like the tapering 'light-crown' above the dining-room.
On all levels, the architects 'bend the rules' of the professional building standards, in order to achieve an almost understated sense of elegant luxury and for the benefit of experiential and tactile differentiation. Dimensional and material contrasts abound: extended vs. closed corners; transparent vs. translucent glass; stucco vs. wood; colour vs. natural stone.

D.3 Ensemble

A guiding theme throughout the composition is the interplay between issues like interior and exterior, as well as private and semi-private. Thereby, the orientations towards the contrasting busy public street-side and the more tranquil water-facing garden are exploited for a variety of experiences, underscored by the landscaping-design.
Seen from the road, the inner qualities of the house are all but hidden from view, due to the treatment of the facades. This is underscored by the Japanese-style front garden, through which the main entrance is reached indirectly via an architectural route, with cherry trees and pivoting screens.
The rooms, facing the panoramic garden have overlapping spatial domains, which are accentuated by differences in surface treatments: smooth vs. structured; cultivated vs. robust.



Aerial view of the location around 1950: view from the south..



Aerial view of the current situation, including the house, from the north.

Development

This final version of the house is the result of a sequence of architectural interventions, which have been played-out over three decennia.

The original house was situated on a relatively narrow parcel of land between the Stationsweg and the Brandewijnsloot.
It was conveniently situated for boating-enthusiasts, close to the Nieuwe Meer yacht harbour, and in 1959 it was bought by the du Pon family.

The first step in the transformation of the ensemble took place around 1960, when architect du Pon extended the existing, traditional house with a holiday-home.

The existing house was extended with a second volume, designed by the owner's nephew, architect Jan Willem du Pon, in the style of the Delft School.[4] After the death of Mr. du Pon, the house was bought by the present owner, who has since lived there with his family.

Subsequently, the house has undergone two sweeping transformations at the hands of Baneke, van der Hoeven architects.
In the first of these interventions (completed in 1995), the then existing dual entity was enhanced with a spacious neo-modernist extension and a thorough remodelling of the garden (completed 1995). In the second transformation, the original house was replaced by a seemingly massive, two-storey block on the street-side (completed in 2002).

The first extension, by Baneke, van der Hoeven, became possible when the glasshouses on the adjoining plot of land were to be demolished.

In 1993, alerted to the fact that the municipality considered building a road across the plot and then joining it with the western edge of town, crossing the Uiterweg, the opportunity was taken to acquire the neighbouring land and to develop an extension-plan for the house.

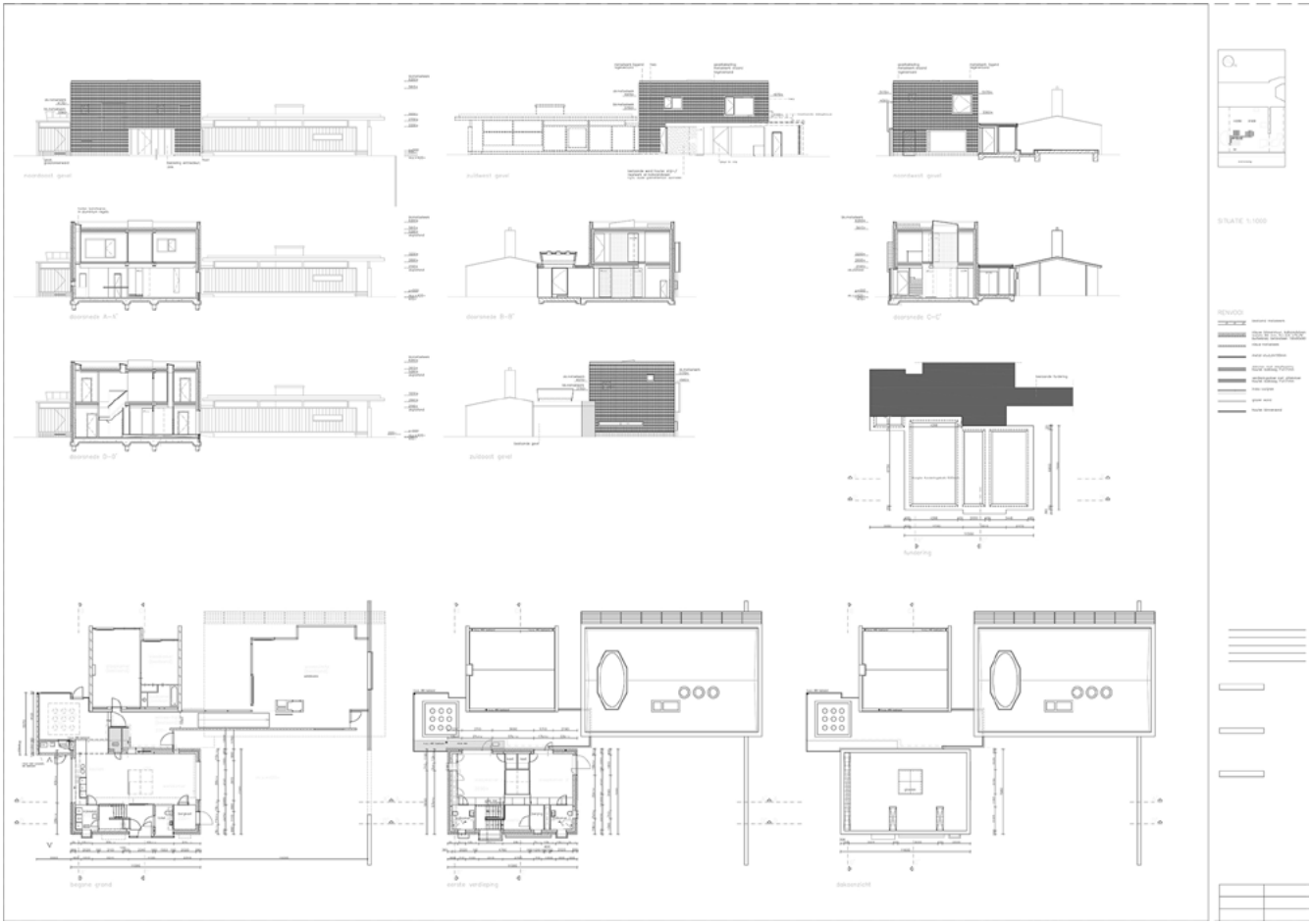
The basic design was drawn up by Baneke, van der Hoeven, with whom the owner had previously worked on a Showroom complex in Uithoorn (1994).[5]
The road-plan was subsequently shelved and building-permission was granted.

The design foresaw in the creation of a representative main living-space on the one end and a dining-room on the other. These were to be connected by a passageway, doubling as a visual screen towards the busy road.
The Japanese-style landscaped front garden was an integral was part of the design, which was drawn up in 1994. This first extension was completed in February 1995.

After the two children, who had been living in the front house (with the parents in the garden house), had left, the decision was taken to demolish the somewhat run-down original house and to replace it with a new volume on the street side.
Together with the old house, the existing garage was demolished and a new, secondary entrance was created, connecting with the dining/kitchen area, via an entrance/storage space, in which the semi-transparent glass panels of the long screen on the other side made a come-back. On the ground floor, the two-storey addition was designed to accommodate a wholly new kitchen and an office/conference space looking out towards the front courtyard. Both of these functional elements were to have integrated storage spaces on the street side. On the upper floor, two guest-rooms, each with a bathroom and storage-room, positioned on either side of a centrally situated light-well.



Schemes showing the step-by-step transformation (BvdH, 2002).



CAD drawing of the second phase of the transformation of the house.

Experience

The intention of the architects was to create an experientially rich, highly diverse architectural ensemble, with a unique interior 'scenography', underscored by different kinds of visual relationships between inside and outside.
There are various ways in which natural light filters into the distinguishable interior spaces, through openings in the facades as well as in the roofs.

The following short description of the building was given by the architects, after the completion of the second project-phase, in 2002:

> *"On the road-side of this dwelling-project, an orthogonal anthracite-coloured volume has been placed, which in its elevations gives no clues about the functional programme behind. The facades are only "cut open" in a few places ('momenten') so that light can penetrate and whereby at night mysterious lit bands appear. Parallel with the front elevation of this part, the staircase, bathrooms, storages etc. are positioned in one long zone. These spaces form a sound-buffer between the street and the dwelling. In this building volume there are linear and square openings in the roof, which allow light to fall in different ways. The outwardly closed-looking box "tingles" ('tintelt') with light in the interior. The dining-room forms the ending of a long corridor along a second patio with a pond which eventually ends in the entirely glazed living-room. Here, the view over the garden and the West-end-lake forms the counterpart of the busyness of the street surrounding the built volume on the roadside."*[6]

On the basis of the elementary computer-model, it is possible to generate perspective views of the building which may offer insight into the composition as a whole from different orientations.
However, these do not fully do justice to the *actual* experience, particularly in relation to the house's direct surroundings, which form part of the design as an entity.
As a consequence, it is opportune to briefly consider the project from different 'viewpoints' on the basis of photographic impressions.

Exterior – Street Side:
The house is situated between a historic gardener's home (a late design by local architect J.W. Luik, 1925) and a 'geometric', neo-modernist villa (by architect Hoogeveen, 2001).[7]
On the left-hand side, there is a paved forecourt, used for parking, with a secondary entrance, to the dining/kitchen section.
The layered, anthracite 'mass' of the latest addition is prominently positioned, relatively close to the pavement.
The surfaces are perforated by small windows, some with brickwork shutters and in other cases executed as extruded sections in zinc, with glazed intermediate zones.
The landscaped garden on the other side is entirely different. The forecourt is largely hidden from view by lush vegetation and has the air of a shaded, Japanese garden, with textured flagstones, bamboos, grasses and cherry trees, which dramatically change the atmosphere when they are in full bloom in spring.
A swivelling gate-section affords the entrance to a semi-public forecourt, leading along the greenish-glass wall to the 'official' entrance, next to the new office's window.
A horizontal window is set into the translucent curtain-wall and offers a direct view towards the living-room.
The visually-dominant glass screen is topped with varnished hardwood window-frames, which are continued around the pavilion as well as over a grey stucco-covered wall, with zinc borders.
Above this all, the zinc-edged surface of the roof seems to float freely.






The two elements of the house, situated between the neighbouring buildings.






The anthracite cubic volume facing the street, with its material textures.






The changing impressions of the house's forecourts, in different seasons.






The secluded front garden, with the route towards the main entrance.

Exterior – Garden Side:
At the rear, there is a grassy garden-expanse, interspersed with clusters of bushes, hedges, bamboos and birch trees, extending to the waterside.
The garden offers views towards the lake and to the Nieuwe Meer yacht-club.[8]
On the other side there is a cluster of historic wooden work-sheds, which were originally part of the glasshouse-complex.
On this side, the three clearly-distinguishable sections of the house are aligned: the new living room with its dominant roof and its end-wall extending outwards; the relatively nondescript summerhouse extension, with its mildly-sloping bitumen-covered roof, and the transparent dining-room, topped by an almost frivolous 'lantern'.
The varnished wooden window-frames of the main living room, placed on a dark brickwork plinth, are a pronounced feature.
The hardwood, particularly the added cladding in the garden-facing bay-window, contrast with large sliding doors painted purple, steel columns and the metallic roof-edge.
The 'salon' facade is pulled inward under the roof, creating a covered veranda-platform with a large, oval roof-light.
The original drawings suggest that on this sunny side the roof would have had fixed horizontal sunscreens, but these have not been realised.
Along the transparent corridor, linking this section with the older, whitewashed summerhouse is a bamboo-surfaced terrace, along a narrow pond.
From the dining-room, a paved path and a perpendicular pond, connects the house with a garden-terrace, situated close to the waterside.

Interior – Living Area:
The main living-room, looking out towards the trees along the water on one side and the summerhouse volume on the other, is a generously dimensioned open-plan space, with three seating areas, separated only by furnishings.
A dominant feature is the long stucco-covered wall which is extended outward both at the front and at the rear.
Between the top of this wall-volume and the horizontal surface of the cantilevered roof there is the band of hardwood window-frames, which runs around the entire space, eventually making a connection with the 'block' of the summerhouse.
The end-wall itself is punctuated by a horizontal window.
Above, the ceilings are covered in white stucco, with strategically placed, round roof-lights.
Towards the outside – and in the zone of the longitudinal axis – the ceiling is covered with naturally-coloured wooden slats.
A total of eight steel columns, painted dark-grey, support the visually suspended roof.
Of these six are free-standing H-shaped profiles, one is hidden in a closet-volume and one, outside in the pond, is round (doubling as a water-pipe).
Most of the floor is covered with parquet, but along the edges – particularly in the in bay-window, as well as outside – the covering consists of dark-grey flagstones.
Towards the main axis of the house, with its translucent wall of vertical glass-panels, the living room is bounded by a volume containing cupboards and a fireplace, which is connected to the facade with a milk-glass panel.
The most complex piece of detailing is towards the front garden, where the surfaces of the end-wall and the translucent screen connect.
Here there is a recessed outer space, with a door at the end of the hallway.
For once, a transparent section of glass directly next to it, makes a break in the band of the wooden frames, which otherwise top all of the lower facade sections.



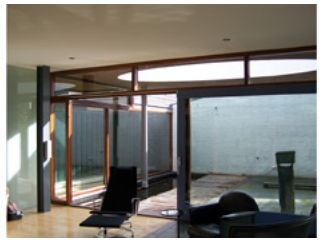



De different vistas of the house and its surroundings on the garden-side.






The main living-section and terrace with the exterior light-well.



Dynamic perspectives of the main living room, towards terrace and garden.






Views of the main living space, oriented towards the garden and fore-court.

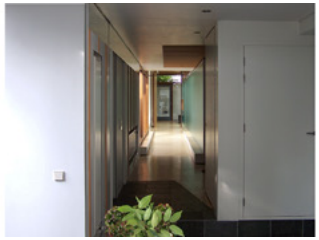
Interior – The Axis:
Both inside and outside, the dramatic corridor that connects all parts of the building comes across as a sweeping gesture.
Towards the front garden the dominant element is the translucent wall, made up of double U-shaped industrial-glazing elements.
The transparent element of the horizontal window is positioned as an incision into this 'fabric'.
The steel supports keeping the window-frame in place can be seen thought the green glass above and below.
The array of vertically-placed components is stretched towards the main entrance, where the space widens.
This dynamic compositional element runs the full length of the building, re-appearing next to the dining-room, which was also part of the first extension.
Before it gets that far, the corridor is steadily transformed: first running along the volume containing the hearth, then the translucent glass section – where the floor begins to slant downward along the terrace-pond – and on towards the volumes of the summerhouse and the furthest part of the first extension.
On the way, the ceiling is lowered to coincide with the roof of the entrance and the hallway.
After passing an 'official' entrance to the study, the corridor is then narrowed once more, where there is a large, normally opened partition-door, before widening again; becoming the dining-room.
This airy space is oriented towards the garden and is topped by a crowning element with nine round roof-lights, visually 'lifted up' by a horizontal band of glazing.

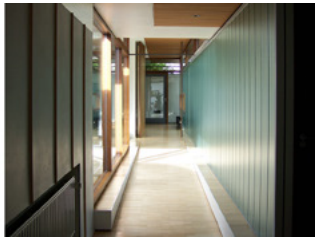
Interior – Closed Block, ground floor:
The latest addition to the house is a veritable 'treasure box', crammed with architectural features: a profusion of experiential qualities that are not easily comprehended.
On the ground floor, the main office / conference room has a central entrance towards the entrance-hallway. At the same time, it opens up to the new kitchen, via large connecting-doors that are normally kept open.
The kitchen itself has an open connection towards the family dining-room, forming an L-shaped spatial ensemble.
The kitchen and office are on the same level, the hallway and the spaces in the service-zone towards the street are up two stairs.
The flooring of the family-room is black natural stone, which is continued into the office and around the walls, framing a central parquet surface. The kitchen-furnishings are executed in mint-green and stainless steel.
In the outer wall there is a long horizontal window whilst, at the same time, light filters down from above, though a high light-shaft.
Between the office and the kitchen there is a large milk-grass surface, corresponding with a central roof-light behind.
The main view of the office is towards the front courtyard-garden, via a big, recessed window with a steel column in the middle.
In the direction of the street, the treatment hints at the approach to the first floor, with translucent-glass panels, that give varying light-conditions, depending on the conditions of the service-spaces behind.
Over the full length, light also filters down from the upper floor, though a series of hard-glass flooring sections.
A relatively nondescript white door, set into a solid white wall, leads up to the staircase. Here there is also a toilet, with light falling dramatically from above, as well as through sidelights in an extruded volume. This element is highlighted by zinc covering on the outside.





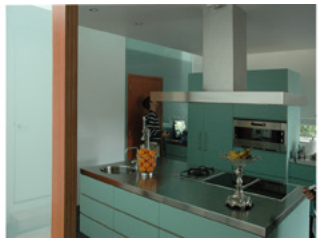

Impressions of the translucent screen towards the street and along the axis.

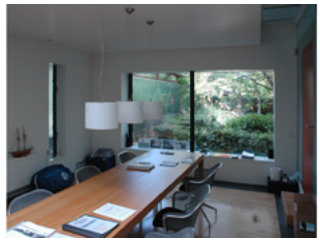


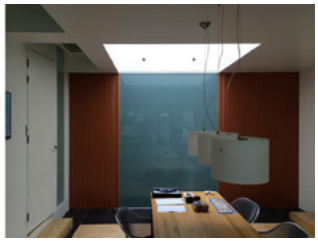
The garden and the main axis, viewed from the side of the dining-room.






The dining room an kitchen, in relation to the study-space.



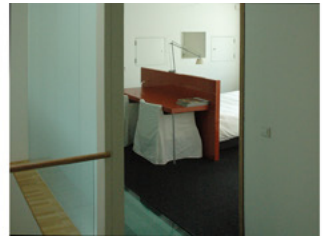
The study space / office with its different views and natural lighting effects.

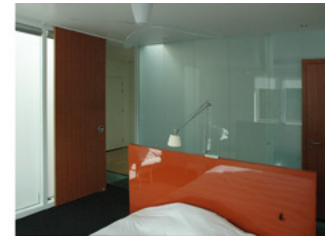
Interior – Closed Block, first floor:
The stairs are in two halves and lead along a screen that has been cantilevered outwards, allowing light to filter in via intermediate strips of glass. Viewed from the inside, this screen, which is playfully connected to the main body of the house with diagonal steel tubes, seems light, but on the outside it is covered in the same dark-grey brickwork as the rest of the facade.
The stairs are lit-up from above at the point where they reach the upper floor, on a square landing with a wooden surface. It corresponds with the centrally-situated light-well, which is shielded-off by a closed, white partition. Here, one is encountered by the transparent 'threshold', running the full length of the block. It is executed in fully-transparent glazing, originally offering views directly down, into the ground-floor domains.[9]
The two guest-rooms are situated on either side of the central 'vide'. They are accessed via wooden doors, which slide in front of milk-glass panels, behind which there is the vertical light-space. The bedroom-floors are covered with dark carpeting and have an integral interior design, with a combined bed-and-desk element. Towards the street-side, the guest-rooms have translucent wall-sections. These give a suggestive impression of the spaces behind: such as the guest-bathroom, but also of the light-shaft reaching down to the ground-floor toilet (in the room looking towards the west) and the staircase (seen from the room towards the east).
The outer walls of the bathrooms are punctuated by relatively small light-openings, situated higher and lower in the wall-surfaces. The two bedrooms look out over the roof-scape of the original summerhouse and the first extension.






'Zenithal' and secondary daylight-qualities, along the stairs to the top-floor.

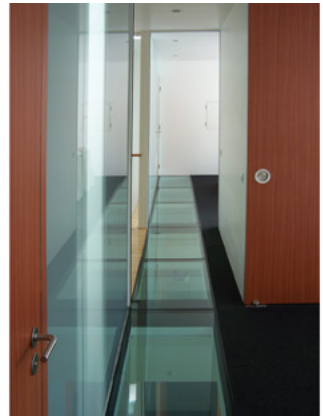
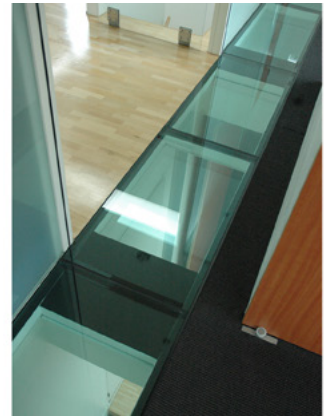


Landing of the first floor with different views though the guest-rooms.






Relationships with outside and the semitransparent transit zone.


Light filtering down though the central light-well and the glazed floor-zone.

Visualisation

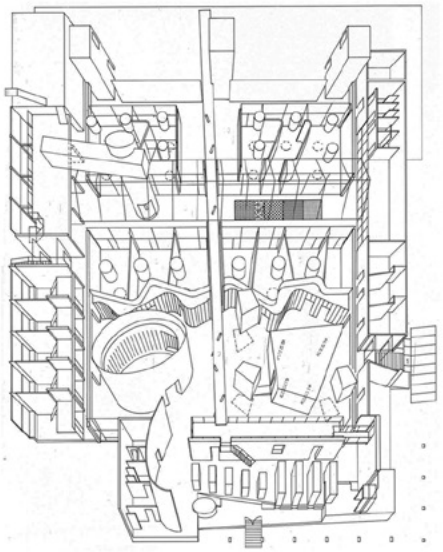
The project has interested me for a number of years, having visited the building-site during the realisation of the first extension, in the mid-nineties, and witnessing its further development through time, from a distance.
Being an extension of a – then still existing – home, it was originally not considered to be fitting as a case-study project, in the context of the AA Variations study initiative.
However, after the completion of the pronouncedly contrasting second phase, my curiosity was again aroused and the project was considered for inclusion, as a contemporary project, at the end of the series.

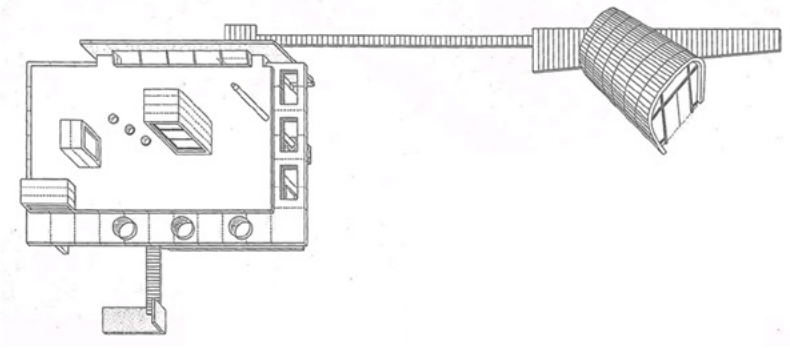
During an excursion to Aalsmeer, with my research assistant Bram van Borselen, in October 2007, I had the opportunity to explore and photographically document the house thoroughly.
On the basis of these impressions, it was decided to include the project in the study.
Making use the of digital drawings of the second phase, which were supplied by the Baneke, van der Hoeven office, a first, elementary 3D model was constructed in 2007/8.
At this point, all of the AA project-models were still without colour and it was in this black-and-white form that (together with projects AA04, AA05 and AA07) the project was included in a conference Paper, which was presented at the 2009 Design Communication Association in Atlanta.[10]
For the benefit of the actual presentation, explorative experiments with colour were carried out and an attempt was made to create dynamic interior impressions, using a series of successive model-sections.[11]
Subsequently, the model was enhanced, giving an indication of the actual colours and materials (notably: transparent and translucent glass).
In conjunction with the other projects (particularly AA04: de Klerk), the colour-scheme for the interpretation of the functional programme was fine-tuned and worked out in a 2D+ 'Function' layer and a 3D 'Interior' layer and characteristic connections were considered and worked out for inclusion in the 'Junction' and 'Feature' layers of the 'Patterns' section.

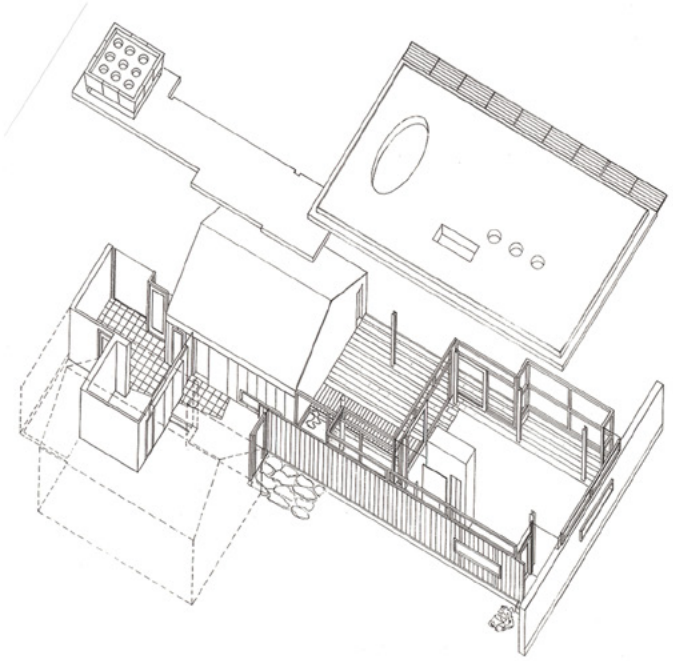
On the basis of the collection of visual data that has been generated though the years, four Visualisation Variations are briefly considered and illustrated:

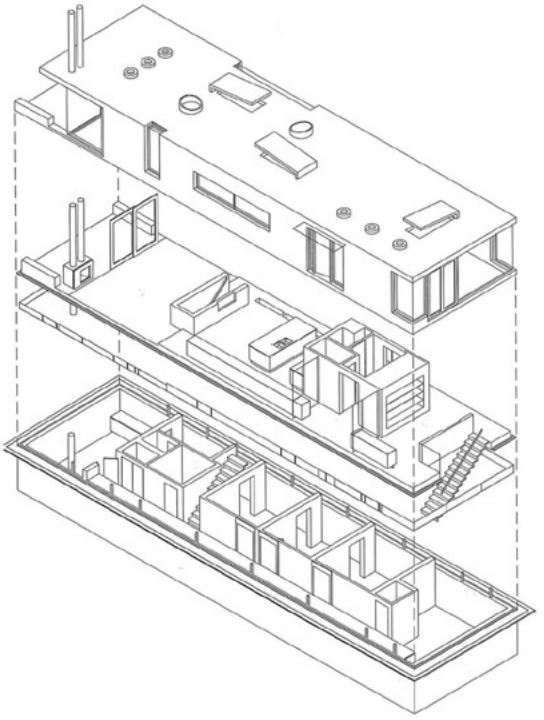
— Axonometric Variations;
— Daylight Variations;
— 3D Modelling Variations;
— Sectional-sequence Variations.

Axonometric Variations:
One of the most evocative visual means, in the work of Baneke van der Hoeven and their contemporaries around the same time, is the use of axonometric projections.
These are generally used to visually 'open up' a design, giving an indication of the workings of the interior spaces and their interactions with their surroundings.
Throughout the seventies, eighties and nineties practitioners and students made active use of axonometric drawings, usually in the form of planometric- and isometric projections.[12]
Such drawing-modes were widely used in presentations and publications and had a profound, communicational, but also aesthetic impact.
The planometric drawing, which was made as a presentation-drawing for the first-phase extension, highlights Baneke, van der Hoeven's architectural intervention and only hints at the existing parts of the house.
An added value of this drawing is the 'exploded view' effect, whereby the roof section is suggestively lifted off. It is clearly a hand-made drawing, created by simply turning the plan on the drawing-table at an angle and extending the lines denoting vertical surfaces upward, resulting in a highly effective, insightful drawing.
This sort of drawing is representative of the work of architects in the nineties, but also into the new millennium, when digital means began to be implemented to reach a similar effect.
In the accompanying collage of 3D drawings, visualisations from four of the office's projects are juxtaposed:
the Showrooms in Uithoorn (1994);
the Aalsmeer House phase 1 (1995); the Waterhouse in Loosdrecht (1996) and the Houseboat in Loenen (2006).

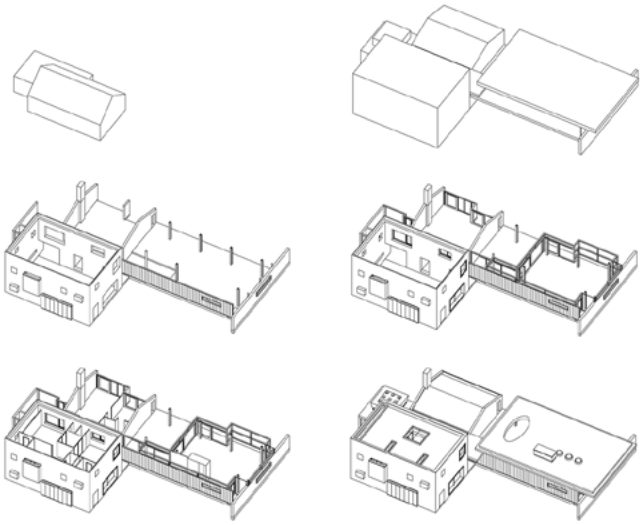




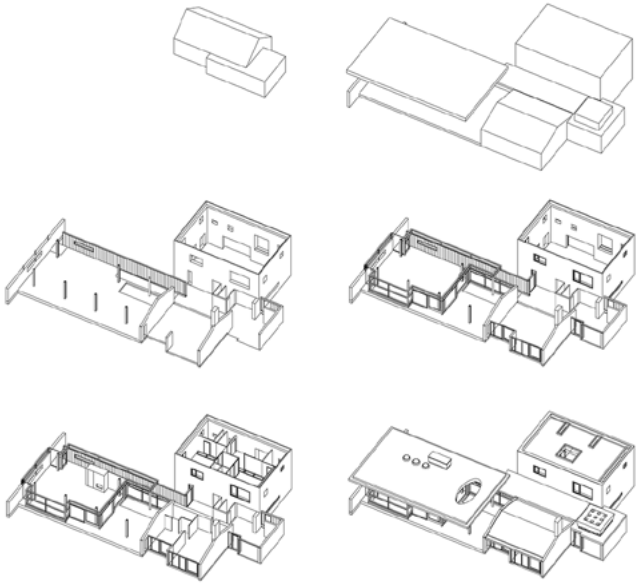




Axonometric variations: Uithoorn, Aalsmeer, Loosdrecht and Loenen projects.



Early model-based simulation of project qualities, viewed from the street-side.



Early model-based simulation of project qualities, viewed from the garden-side.

3D Modelling Variations:

Baneke and van der Hoeven are from the generation of architects who were skilled in the use of manual drawing- and presentation techniques and their practice only gradually began to make use of digital visualisation techniques.

The first, mid-nineties, phase was still drawn by hand. For the second phase, working-drawings were made using 2D CAD formats.

The three steps of the project's development are visually explained in a project-booklet, which was made by the architects in 2002.

A central ambition of this study was to identify compositional aspects as independent, interactive layers in the 3D model.

In particular, this project and the de Klerk house (AA04) were used to develop and test operational opportunities and to interpret the functional programme using colour schemes.

Eventually, one standard was developed, which was used to denote the programmatic 'content' of each of the ten AA projects systematically. These were then worked out as the 'Function' and 'Interior' layers per project.

Similarly, the basic model was used to highlight the role of the various kinds of openings – framed windows and -bands, translucent zones, perforations and roof-lights – to give an indication of the role played by these formal attributes in the, twinned, parts of the overall composition.

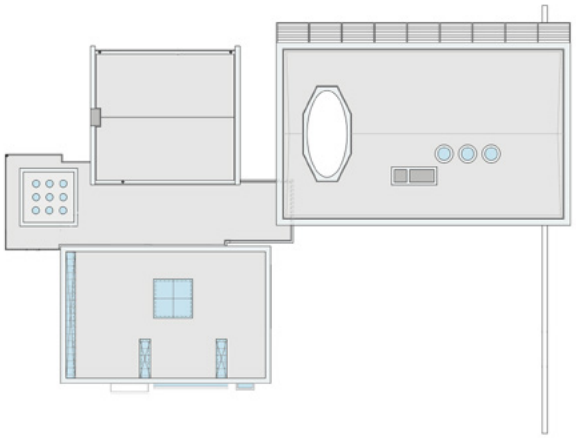
A particular study was made of the most significant details, in particular the expressively articulated edges and corners in the predominantly horizontal pavilion of the first phase, with the characteristic overhanging roof, with a two-step rim that visually reduces the thickness of the actual package. Eventually these sections were enhanced with details of the second-phase block and divided over the 'Junction' and 'Feature' layers.

Originally, the standard axonometric view was from the north-west, but in a later stage the orientation was shifted to the north-east, as this allowed for more concise analytical views.

Sectional Variations:
As is indicated in the 'Experience' section, a project like this is so complex that it is hard to 'read' via normal 2D drawing formats.
One of the advantages of 3D 'sketch' modelling software is that, once a virtual model has been constructed, various kinds of – perspective or axonometric – views can be generated.
One of the most evocative applications, which was pioneered in the explorative House in Black study, is the use of sectional 'cuts' whereby an impression can be generated which is similar to a central-perspective drawing.
In this case, the section stays intact but seemingly has perspective 'depth'.
Such section-series can be made in different directions, yielding substantially different impressions.
In preparation for the conference-presentation at the 2009 DCA meeting, an experiment was carried out to see if it might be possible to create a kind of (step-by-step) visual sequence, as it were 'going through' the building.
In the standard situation, the point-of-view remains the same, whereby the distance is kept to the gradually-diminishing interior.[13]
Alternately, the viewpoint can be made to 'keep up' with the subsequent section views, which gives an impression of 'moving forward, as in an animation.
The illustration shows five such section-views in sequence, as it were moving from west to east:
— Outside-view of the living-room section;
— Inside the living-room, looking down the axis;
— Further along the axis, alongside the patio;
— Through the summerhouse and the new block;
— Arriving at the new kitchen and dining-room.
In 2009 these images were still quite rudimentary and experiments were carried out to 'liven-up' the surroundings with photo-editing software.
After the model had been developed further, a new version of the series was created.



Sequence of cut-away views, from living-section (top) to dining-room (bottom).

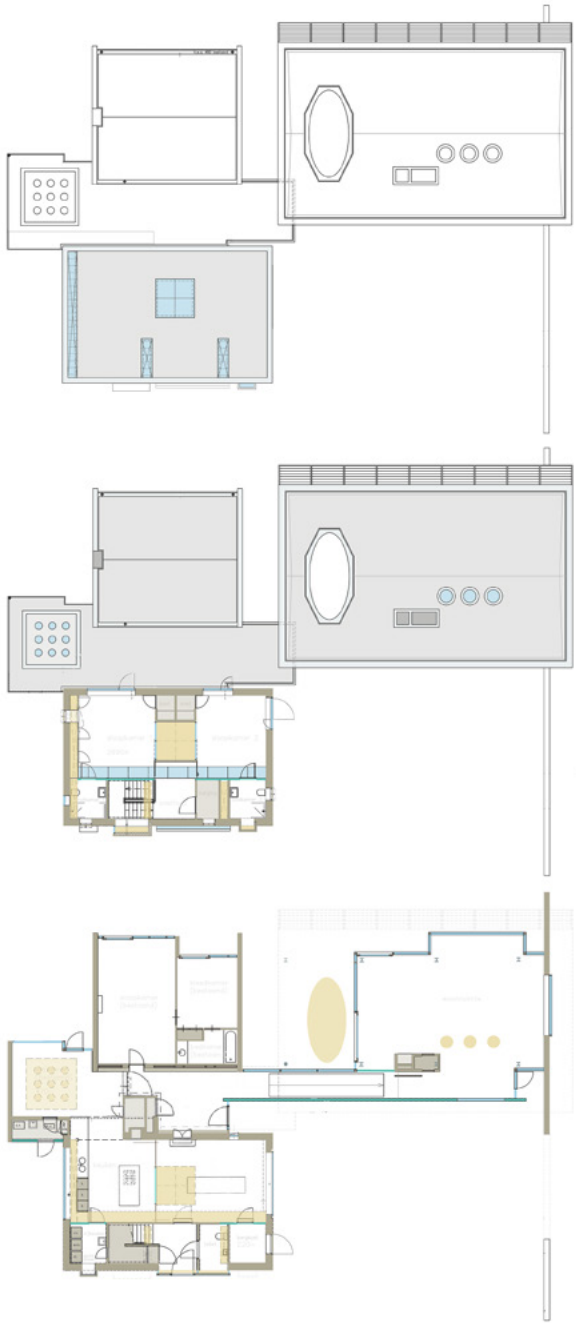


Roof-view of the project as a whole, showing different light-openings.

Daylight Variations:
Because it is difficult to put into words what the scenographic effect of natural lighting is for the experience of the house, it seemed opportune to try to visually interpret the placement of openings – in the vertical as well as the horizontal surfaces of the realised artefact. The abundance and variety of apertures in the project is already hinted at in the 'Opening' layer of the 'Patterns' section and in the previous 'Experience' paragraphs.
To allow for a better understanding of these qualities, an attempt was made to 'code' them, using the plans of the design as they were documented after the finalisation of the second phase of building. The plans show the roof sections with their different perforations.
On the lower floors – particularly in the closed block – an indication is given of the spatial containment and proliferation of such 'zenithal' light down to the ground floor.[14]
This predetermined play of light from above is also demonstrated using shades of yellow. Furthermore, the open and translucent window sections are 'coded' in the plans using blue for transparent windows and turquoise for translucent screens.



Different ways in which light filters down from above in the new part of the house.



Plan-analysis, showing the various ways in which natural light enters the house.

Position

Casper van der Hoeven (1951) and Guus Baneke (1952) belong to the generation of architects that were born after the war, grew up in the sixties, studied architecture in the seventies and entered architectural practice in the eighties.
This 'younger' generation would have a profound effect on the Dutch architectural landscape.

During the decennium in which they studied in Delft, the Dutch architectural scene had begun to shift significantly.
The dominance of the large architectural firms like Van den Broek en Bakema, Groosman Partners and OD205 and their somewhat detached, corporeal Brutalism, started to become less dominantly influential.

As a reaction to the large-scale, 'top down' approaches, initiatives for public participation flourished, particularly in urban 'infill' projects. The results of this grassroots activism were often small-scale and adaptive to the existing urban fabric, with a loosely neo-historic aesthetic.
This kind of 'cozy' architecture drew fire from critical practitioners and academics, notably from architect and urbanist Carel Weeber, who called for a more rationalist approach, based on 'Formal Objectivity'.[15]

At the architecture faculty in Delft, designing was once again 'on the agenda'.
In their influential 'Room B' lectures, members of the Forum group, like Aldo van Eyck and Herman Hertzberger, acquainted students with the work of architects like Rietveld, van der Vlugt, Duiker, Bijvoet and Chareau, as well as with indigenous architectures from around the world.

In the curriculum, there was a renewed interest in the work of pioneering architects and designers like Eames, Mies van der Rohe, Aalto, Niemeier, Terranghi, Scarpa as well as for (traditional and new) Japanese architecture.
Internationally acclaimed architects, like James Stirling, visited the faculty to lecture.[16]

Teachers like Max Risselada and Rein Saariste, working with groups of students, explored the houses of Adolf Loos and Le Corbusier and the work of Scharoun and Prouvé, which led to exhibitions and publications.[17] Furthermore, revolutionary, avant-garde movements like the Russian Constuctivists were rediscovered as utopian visions and studied as architectural prototypes.[18]

At the same time, at the Eindhoven TH, a loose affiliation of students around Dick Apon and Geert Bekaert, who had amongst others developed an interest in the work of the Tendenza group and the Tessin architects, eventually became recognised as the Eindhoven School.[19]

To get an impression of the *Zeitgeist* at the Delft faculty of architecture, I feel it might be informative to include two quotes from architect, designer and publicist Thijs Asselbergs.

Thijs Asselbergs, about the tone-setting teachers in Delft at the time:

> *"You had different streams. Department 13 was very important for me. In it were Aldo van Eyck, Herman Hertzberger and Joop Hardy. What was being done there I found very interesting in the sense that it placed the people in the centre. On the other hand, it was also a bit fussy and cozy ('tuttig en kneuterig'). It might for instance be about the place for the milk bottle next to the front door. More interesting I found department 8 with Jaap Bakema. With the credo 'From Chair to City' ('Van Stoel tot Stad') he was occupied with design on all levels: from the saucer under a coffee cup to the design of the urban plan Pampus, with infrastructure, engineering, urban silhouette and all. Bakema I see as one of my mentors ('leermeesters'). He was also the one who confronted me with CIAM and TeamX, as well as the constructivists, of whom particularly the buildings of Melnikov, which I got to see during a study trip in 1980, made a big impression on me. My plan was to do my diploma project with Bakema, but unfortunately he died prematurely. I then chose for Izak Salomons as my design-mentor. He acquainted me with the task of designing dwellings, while from Niek de Boer I learnt a great deal about urban context."*[20]

In Delft and Leiden, the young Rem Koolhaas, who had co-founded the OMA office in 1975, lectured on the radical visions of Constructivist Leonidev.[21]
Through his publications, notably his highly influential treatise on *Delirious New York* (1978), and his radical competition-entries, particularly his plan for the extension of the Dutch parliament (1978), this 'new kid on the block' became a flag-bearer for change and the OMA office in Rotterdam soon became a training-ground for tone-setting young architects, who would go out into the world to start their own careers.

In the eighties, Koolhaas was for some time a guest-professor in Delft. After his tenure had ended, a group of staff members organised a symposium with the theme 'How modern is Dutch architecture?'. In his polemic, opening-address, Koolhaas juxtaposed the more Calvinist Dutch modernism of Rietveld with the seductive modernism of Mies van der Rohe.

Rem Koolhaas:

> *"I remember a visit to the Schöder house with Gerrit Oorthuis when Mrs. Schöder was still alive. It was without doubt impressive, moving, quietening. But it did not take long before I could not suppress the feeling that, in comparison to the houses of Mies van der Rohe, I found the Schöder house much less impressive. Mies, where lasvicuous sofas stand next to sandblast-*

ed windows. Where obscene red-velvet curtains hang beside onyx, where nothing is always placed next to something, where the massive stands next to the suspended ('waar de zwaarte staat naast het zweven').[22]

The renewed academic interest in the formal approaches of 'heroic' modernism had, via excursions, studies and exhibitions involving groups of students, stimulated a lively inquisitiveness amongst the younger generation, who would go on to extrapolate these influences in their own work.
The resulting, freely neo-modernist style that began to surface in the eighties would later to be dubbed *teacher-modernism* (*'onderwijzersmodernisme'*) by critic and publicist Hans van Dijk.

Hans van Dijk:
"But most notable was that there was once again being spoken, with tangible emotion ('navoelbare ontroering') about buildings like Van Nelle, Zonnestraal, the Schröder house or the Amsterdam orphanage, ànd about the preceptors ('leermeesters'), from Berlage to Van den Broek, from Duiker to van Eyck."[23]

Thijs Asselbergs, on Koolhaas and Bakema, plus the impact of the Centre Pompidou:
"As an architect I have nonetheless ben formed by Rem Koolhaas. In 1978 I read Delirious New York for the fist time and I was very impressed. Subsequently, I had the opportunity to follow his lectures, perhaps the best present ever. …
For me, Koolhaas and Bakema are inseparably connected. It was Koolhaas who enriched Bakema's conceptual legacy ('gedachtegoed'). To this he added the central idea of the 'scenario'. 1977 was also an important year, because Piano and Rogers then realised the cultural centre for the Parisian neighbourhood of Les Halles. Centre Pompidou turned my world upside-down. The engineer-artists made a run-down neighbourhood into an exciting and dynamic environment. The Pompidou Centre was a machine for interaction which radically infiltrated the old-fashioned, sand-coloured fabric of Les Halles and changed everything. When I saw that, I knew for sure that I would become an architect."[24]

Both Baneke and van der Hoeven graduated under the supervision of Carel Weeber, in 1979.[25]
In an interview, published in 1997, Caper van der Hoeven confirmed the formative role played by their teachers in Delft.

Casper van der Hoeven:
"From Weeber and other tutors, like van Duin and Risselada, we learnt how you can take a programme of requirements apart and give form to each of the different parts. In particular circulation is an important aspect. We take the pieces apart in order to confront them with each other in a new way." [26]

One of the events which signalled the coming change was the Kruisplein housing competition (1981), in which many recently-graduated architects participated, amongst them van der Hoeven.[27]
The fact that a group of students – who would henceforth call themselves Mecanoo – were not only able to win the completion, but to also realise a tone-setting building was a signal for other young architects.
Mecanoo – and its different offshoots – would continue to play a prominent role in the coming years and continue to be a benchmark for colleagues as well as for next generations of architects.[28]
The advent of a new – 'undogmatic' – modernist approach was accompanied by trend-setting exhibitions and publications, notably: the *Biennale Jonge Nederlandse Architecten* (1983).[29]
Some years later, the balance concerning what had so far become of the 'young generation of Dutch architects' would be made with the overview *Modernisme zonder dogma*, in the NAi (1991).[30]

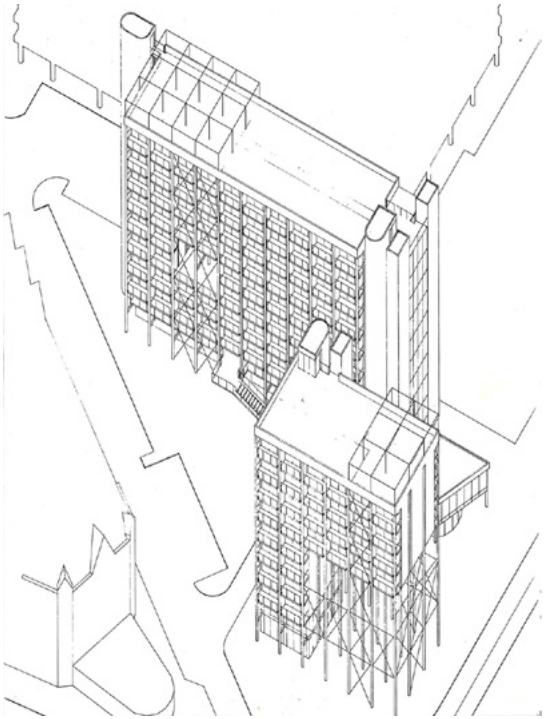
Another influential teacher around this time was Rein Geurtsen, who manage to evocatively deconstruct urban compositions in plan-variations.[31]
After his studies, van der Hoeven would apply such graphic decomposition skills in a morphological study of Amsterdam as an urban structure ('stedelijk bouwwerk'), published in 1985.[32]

Economically, the early eighties were a period of recession, which caused a significant dip in building activity. This meant that a number of the larger architectural firms found themselves in difficulty, having to slim-down or even close down. At the same time, the early eighties witnessed the rise of the growing group of 'younger' architects.

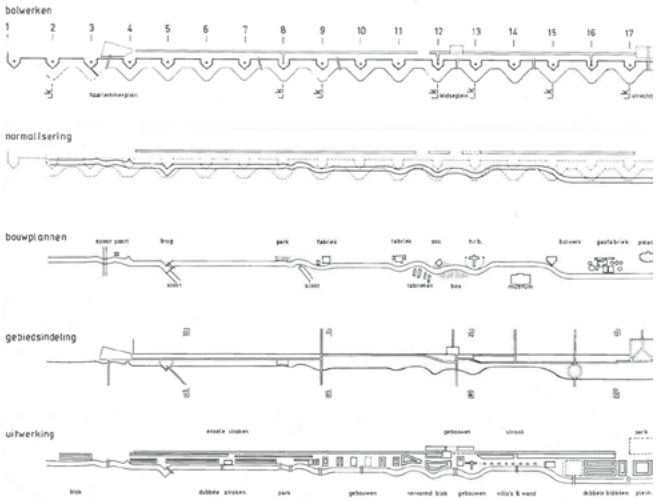
A major stimulus was the enlightened policy of the newly-appointed Government-architect ('Rijksbouwmeester'), architect and professor in Delft, Tjeerd Dijkstra.

In his years in office at the Rijksgebouwendienst (1979–1986), he did much to clear the way for the new generation. Dijkstra had no taste for *"weak compromise-architecture"* and dared to take risks, awarding commissions to up-and coming young architects.[33]
These projects were generally modest in size and budget, but the outspoken results, as well as their publication in the professional press, came to define the cultural climate and the architectural discourse of the time.

Guus Baneke and Casper van der Hoeven started their own office in 1984.
The architects' first published project was the extension of a laboratory-building in Wageningen (1986).[34] On the occasion of the completion of a second extension, in 1990, Janny Rodermond wrote an article in *de Architect*, assessing their career so far and characterising their professional approach.



Casper van der Hoeven's Kruisplein competion entry (1981).



Excerpt from 'Amsterdam als Stedelijk Bouwwerk' (1985).

Janny Rodermond:

"Guus Baneke and Casper van der Hoeven belong to the generation of 'young' architects, who together rediscovered designing, after the architecture as a form-giving discipline had nearly left the stage in the seventies. Ex government-architect Tjeerd Dijkstra offered them the opportunity to demonstrate their capacities in a utilitarian project, by giving them the commission for the design of an extension to the building of Erfelijkheidsleer at the Agrarian university in Wageningen. What speaks particularly from the work of Baneke and van der Hoeven, is a nearly uncomplicated pleasure in the making of architecture."[35]

In the article, three decidedly-different early projects by the architects are discussed:

— The new extension to the laboratory-complex for Hereditary Science in Wageningen;
— An intricate extension for a luxurious 30's villa, in the 't Gooi region;
— The transformation of a sluice-watch house into a weekend-retreat in Friesland.

Rodermond tries to position the – "optimistic and inventive" – work of the two architects in the Dutch architectural framework of the time. She recognises traits of van Eyck as well as OMA and sees parallels with the (early) work of Sjoerd Soeters and Koen van Velsen.

Janny Rodermond:

"Perhaps most characteristic for Baneke and van der Hoeven is actually the freedom with which they move amongst the clichés, trends and dogmas of the often so inflated world of architecture."[36]

On the occasion of an exhibition of projets by the architects, in Haarlem in 1997, their professional work was characterised in an article in Cobouw, entitled *Architecture is not about function but about seduction*, in which their design 'mantra' is reiterated several times:

Cobouw:

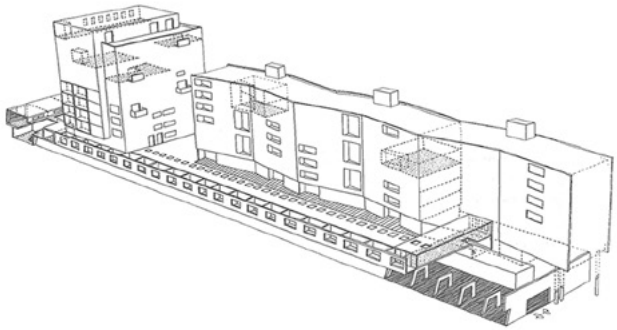
"They have developed an oeuvre with its own signature ('handschrift'). They show demonstratively that for their generation architecture can once again be seductive and stimulating ('prikkelend') – an art in its own right, with its own rules.
… architecture needs to be compelling ('meeslepend'), their work revolves around seductive power ('verleidingskracht'). This does not mean that they are artists who rely solely on their feelings. They see themselves as engineers who – in their workshop – analyse what the best approach is per commission."











Caper van der Hoeven, in the interview that forms the core of the article:

"We take the pieces apart in order to confront them with each other in a new way. This confrontation must trigger amazement, emanate seductive power. This approach goes further than just showing how a building works, is put together. A building has to function adequately, obviously, we have built several laboratories and they just have to make sense. But the function of a building is not the most important for the architecture – it is about seductive power."[37]

In the article, van der Hoeven states that he has not only learnt from Weeber, but also from Koolhaas. He is not sombre about the prospects for the architectural discipline, but is aware of the relative status of their office's amongst the 'major players'.

Casper van der Hoeven:

"We see that architecture is gaining importance. Everybody wants architecture. The danger is that clients only want 'names'. In the Randstad these have to be international architects, in the province architects of national importance that have been encountered in the magazines. The pitfall is that in this way architecture becomes a political box-of-tricks, which is determined by fashion."[38]

An overview of some of the representative (published) works by Baneke, van der Hoeven:

— 1992: Agrotechnion Complex, Agrarian University, Wageningen [1];
— 1994: Showrooms, renovation and transformation, Uithoorn [2];
— 1997: House with a Boathouse, Loosdrecht [3];
— 1997: Anderson Consulting Offices, interior design, Amsterdam [3];
— 1999: Housing Koningin Wilhelminaplein, Amsterdam [4];
— 2004: Housing and Offices Complex, Amsterdam Slotervaart;
— 2004: Zeeland Port Authorities Building, Terneuzen;
— 2006: Houseboat, Loenen aan de Vecht [5];
— 2006: Netherlands Embassy, Managua, Nicaragua [6];
— 2008: Office Accenture, interior design, Amsterdam [7];
— 2009: Housing VOC Cour & Westerkaap I & II, Amsterdam [8].

Baneke, van der Hoeven did not break though to the head-group of internationally-influential practices like OMA and Mecanoo, nor did they quite attain the status of the 'rising stars' 80's and 90's, like: Jo Coenen; Koen van Velsen; Benthem & Crouwel; Cepezed; Wiel Arets; Ben van Berkel; Willem-Jan Neutelings and Kees Christiaanse.

However, they arguably did belong to the group of thoroughly successful 'midfield' practices that might have been considered to be of 'national' importance, including offices like: Paul de Ley; Van Herk & Nagelkerke; DKV; Tangram; Faro; Karelse & van der Meer; Hoenders partners; DP6; Min2 etc.. Such offices that built extensively, throughout the Randstad as well as in the provinces.[39]

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Sources: De Architect, Archis, Bouw, BvdH.

The ‘mission statement’, which is still on the website of Baneke architecten BNA (excerpts):

“The level of ambition of the office is determined by the professional combination of intelligent solutions to functional programmes, architectural seductive power and healthy pragmatism. …

In the works of the office an important role is played by the ‘driving manipulation’ of the programme of requirements. By continually holding this programme against the light when it comes to its content and opportunities, frequently unorthodox solutions are found on the level of functionality. A guiding theme is the finding of a spatial concept. In the development of dwelling-plans we take as a premise that simple ground-plans, in combination with a certain spatial surplus (‘overmaat’) is the best guarantee for flexibility and hence for value in the future.”[40]













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Sources: De Architect, Archis, BNA, BvdH.

Discourse

The Aalsmeer project is exemplary of the optimistic 'new wave' in the architecture of the last quarter of the twentieth century and the beginning of the twenty-first century; a period in which architecture was high on the cultural agenda and Dutch architecture – and design in general – drew international attention.[41]

In the architectural discourse of this era, an important role was played by the professional press, particularly by architectural magazines.
Existing Dutch periodicals, like Bouw and De Architect, had played an increasingly active role in the dissemination of new works of architecture.
Around 1985, these publications began to broaden their fields of attention and to gradually change from rather sober, black-and-white documents to full-colour journals, introducing thematic issues with commentaries and interviews.
Under the editorship of Hans van Dijk, the influential periodical *wonen-TA/BK* was transformed into *ARCHIS*, a tone-setting periodical, addressing issues of architecture, urbanism and the visual arts, with an international allure.[42]
Other well-read magazines, like *Architectuur/Bouwen* and *Items* closely followed the contemporary developments in the fields of architecture, technology and product-design.

Another major impulse to the recognition of architecture in the cultural climate of the Netherlands was the founding of the national Architecture Institute (Nederlands Architectuurinstituut, NAi) and its new museum-building in Rotterdam (1993), the outcome of a major competition.[43]
The NAi became closely-linked to another important media-initiative: a yearly, bilingual publication, offering a representative overview of newly-completed buildings as well as the discussion of societal and professional trends (first published 1988).
The collection of Yearbooks not only gives an interesting overview of the evolvement of Dutch architecture over some thirty years, but also offers insights concerning the 'appearance' of the new practices on the architectural scene.

A concise overview of the new generation of academically-trained architects, making their appearances on the national stage, on the basis of the first fifteen editions of the Yearbook:[44]

— 1988: Mecanoo, OMA, J. Coenen, W. Arets, S. Soeters, K. de Kat, P. de Ley, H.J. Henket, G. Daan;
— 1989: Dirrix & van Wylick, Duinker & van der Torre, van Herk & de Kleijn;
— 1990: Girod & Groeneveld, Lafour & Wijk, R. Uijtenhaak, K. van Velsen, F. Verheijen;
— 1991: K. Christiaanse, Cepezed, M. van Schijndel;
— 1992: B. van Berkel, H. van Heeswijk,, H.J. Henket;
— 1993: Benthem Crouwel, A. Zaaijer;
— 1994: L. van der Pol, F. & P. Wintermans, *Baneke & van der Hoeven*, C. Nagelkerke;
— 1995: DKV, Meyer & van Schrooten, Claus & Kaan, Maarten Min / Min2, F. van Dongen;
— 1996: W.J. Neutelings, van Samsbeek & van Veen;
— 1997: West 8 / A. Geuze, R. van Zuuk, Marx & Steketee, E. van Egeraat, MVRDV;
— 1998: K. Oosterhuis / Nox, M. Nio, D.J. Postel, M. Riedijk, Karelse Van der Meer;
— 1999: Molenaar & van Winden, D. van Gameren & B. Mastenbroek, Geurst & Schulze, NL Architects;
— 2000: Köther & Salman, J. Körmeling, Drost & van Veen;
— 2001: Onix, TANGRAM, VMX;
— 2002: M. Rohmer, Atelier Kempe Thill, MADE, SAAS, KCAP.

Realised projects by Baneke, van der Hoeven architecten were published in two of the Yearbooks and included in several of the professional publications, over a number of years.

Janny Rodermond on the themes in the architects' early work (1990):

> *"The work of Baneke and van der Hoeven is rich in colours, forms and materials. Because in all of their buildings or renovations, no matter how small, there is also a great deal of attention to the workings of light and space, there is much to be seen and experienced. But the work is also difficult to position. Due to the exuberant use of all kinds of design-means, an own conception or style seems to be lacking. Style after all demands a certain demarcation in the used architectural devices, a selection made on the basis of more or less explicit theoretical preconceptions. Such constraints are not to be found in this optimistic work. Baneke and van der Hoeven apparently do not want to exclude any means beforehand, to reach the desired effects. The effects which they do attain certainly come across as being well-conceived. The work is not dogmatic, but also not pragmatic, in the sense of being subordinate to purely technical, financial or functional demands. It is the experience, the atmosphere of buildings and space is central to their designs, which thereby transcend the purely functional character. What, in the end, is characteristic of their work is a truly sensual approach, aiming towards sensory experience."*[45]

A 'label' that became popular in the early nineties was *Collage Architecture*.
The description *'collage-like architecture'* was applied to Baneke, van der Hoeven's Agrotechnion project (1992), published in *Bouw.*[46]
The term was widely used to describe the work of Mecanoo, particularly in reference to Henk Döll's influential Almelo Public Library project (1994).[47] This approach was not confined to the Netherlands but gained prominence in the work of international architects, such as Günther Benisch, Bolles/Wilson and Lapeña Torres.[48]

Architects who may be considered to have followed this collage-approach were informed by pre-war architectural modernism, but also by contemporary art and design, particularly furniture-design. Relatively quickly, their work, which had at first been involved with a kind of quirky complexity in layout materialisation and colouring, became more precise, indeed precious.

The idea of modernism being considered as a 'style', which may be approached with a professional playfulness – rather than as a conviction – was voiced in conjunction Francine Houben's Rotterdam villa (1992).

Egbert Koster in *de Architect*, discussing the Mecanoo villa:

"Architectural interplay: The whole dwelling lets itself be read as an enthusiastically played architectonic act, whereby the designers have, with obvious pleasure, distanced themselves from the obsessive restrictions of programmes and judicial regulations, to simply work out the project with pleasure. Serious themes such as building typologies, circulation principles and flexible ground-plans – important themes in the work of Mecanoo – have hereby been substituted with self-imposed game rules."[49]

Baneke, van der Hoeven's first extension-project in Aalsmeer, realised a couple of years later, has a *plan libre* spatial composition, with undertones of the villas of Le Corbusier, Mies van der Rohe and Niemeyer, as well as being in some ways reminiscent of traditional Japanese architecture.
Furthermore, references to OMA's breakthrough Kunsthal project (1993) may be recognised, notably in the translucent glass wall, the overhanging roof-surface and the ambivalent interplay between interior and exterior.

Compared to their earlier work, there seems to be a level of reduction in the architects' compositional themes around this time, but without wanting to lose evocative, sensory qualities.
Baneke and van der Hoeven became aware of a change in their approach, as is expressed in the 1997 interview.

Casper van der Hoeven:

"We recognise a shift in our work: less emphasis on forms and colours, more on the space itself. But such a space never becomes sterile or abstract – it needs to stay compelling ('meeslepend').[50]

The Aalsmeer project was not picked up by the professional press. However, it did receive an exceptionally *negative* critique, in an article by Hilde de Haan and Ids Haagsma, entitled *An impractical illusion of light and space*, published in the progressive, culturally-engaged *De Volkskrant* newspaper.

Some excepts from the Volkskrant review:

"Seldom does the outside of a house so unerringly reflect its content, because this extension of a family home in Aalsmeer by Casper van der Hoeven and Guus Baneke is held together by illusions, by dodgy promises which are sold under the pretence of Architecture."
…
"So the family ended up with Baneke and van der Hoeven. Young building-masters who, in the slipstream of ground-breakers like Rem Koolhaas, consider the wishes of their clients subordinate to their architectural ambitions." …
"But what the architects are primarily involved with was: 'the staging of an exciting, cohesive spatial narrative ('spannend, samenhangend ruimtelijk verhaal')." …
"The designers have also consequently made the new room seem as abstract ('onaards') and immaterial as possible. The boundaries between inside and outside are continually denied."
…
"In this building, so much has been attempted, there has so breathlessly been striven towards grandness, that simple, everyday qualities have been forgotten." …
"This makes the house something of a quirky boyhood dream ('stoute jongensdroom'), which, with the smallest adaptation to normal dwelling, may dissolve into a dingy disillusion." [51]

Art for Art's sake?
De Haan and Haagsma's sneering criticism takes as its – prejudiced – departure-point the misconception that the owners would (or indeed: should) have wanted something else than they got and that they were manipulated by their architects.
This, however was not the case, as the client was well aware of the consequences of the initiative and remains convinced to this day of the project's qualities. He did not hesitate to take the same architects on-board when the opportunity arose for a second transformation.[52]

The Aalsmeer project's first phase had followed a critically acclaimed Showroom-complex for Freetex fashion in Uithoorn (1993). This project was included in the yearly overview of noteworthy projects in the yearbook *Architecture in the Netherlands 1993-1994*.[53] Mr. du Pon was well-acquainted with this project and for this reason approached the architects to design a sweeping house-extension.
Shortly after, one of the company's directors commissioned the architects to design a private house on a marshy plot, near Loosdrecht (1997). This house, with its 'theatrical', natural lighting was positively received by critics, being featured in *ARCHIS* as well as the yearbook *Architecture in the Netherlands 1996–1997*.[54]

A description of the Loosdrecht project, by the architects:
"In a marshy terrain with alders, poplars, willows and birds, which is hardly accessible, a house was built in 1996 on a long plot of land. The house consists of a rectangular one-storey building volume in which a garage and a garden-room as well as a series of living-spaces are situated. These spaces are positioned between a folded ground-floor with several levels end a roof-surface with large overhangs. This roof-surface is perforated in a number of places with round and rectangular holes, so that daylight lights up the spaces in a theatrical way. These light-openings have zinc-covered elements above of different height and volume, steel barrels, a glazed light-street and perforated metal screens with which the interplay of light is articulated. Because the orientation of these elements varies in relation to the position of the sun, the light-conditions in the interior vary from diffusely embracing to clear and shadowy.[55]

Arguably, the Aalsmeer house, as it stood at the end of the decennium, was still 'missing something'. The contrast between the older parts and the new extension was such, that a true harmony had not yet been achieved. This was to change with the introduction of the second extension, which would result in the definitive transformation of the ensemble. The second phase is a column-free, seemingly-solid 'mass', with articulate surface-textures in layer-cake ('spekkoek') brick patterns, with apparently-random punctuations and extrusions, accentuated by zinc cladding. Whilst the use of the same brickwork-fabric on the shutters might come across as somewhat gimmicky, the object as a whole is meticulously designed and executed. The real adventure of this 'Pandora's box' is hidden from view: a hard-to-grasp, complex interior, in which natural light penetrates from different directions and in different ways: though windows, translucent screens, roof-lights and transparent floor-zones (see: 'Visualisation').

The project was published in a special, thematic edition of *Bouw* – addressing the issue of contemporary free-standing homes – and was included in the *Guide for Contemporary Architecture in the Netherlands* (2004). However, possibly due to the fact that so little of its actual qualities were evident to viewers from the outside, it was no longer included in a later edition (2009).[56]
The theme of 'porosity', the strategic intrusion and manipulation of daylight filtering into interior spaces in a variety of ways, is one of the themes that makes the contemporary dwelling-designs of Baneke, van der Hoeven so compelling. This signature design-theme would make a come-back in a later project by Casper van der Hoeven: a water-villa in Loenen aan de Vecht (2006).

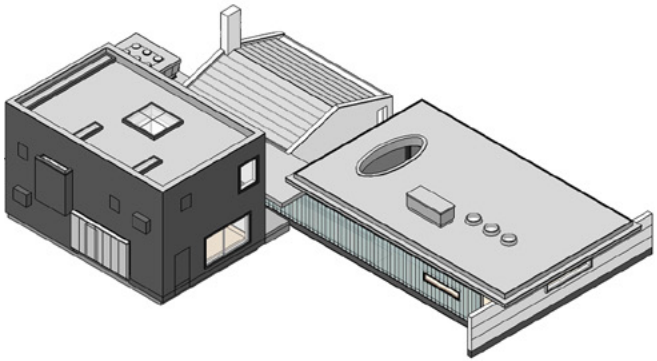
A description of the Loenen houseboat-project, by the architects:
"This houseboat lies in the river Vecht, which meanders though the green heart in the vicinity of Amsterdam. Perforations of different shapes and sizes, in the roof and in the elevations, make it possible for light to penetrate into the centre. Each of these 'windows towards the world' creates a panorama of the nature beyond."[57]

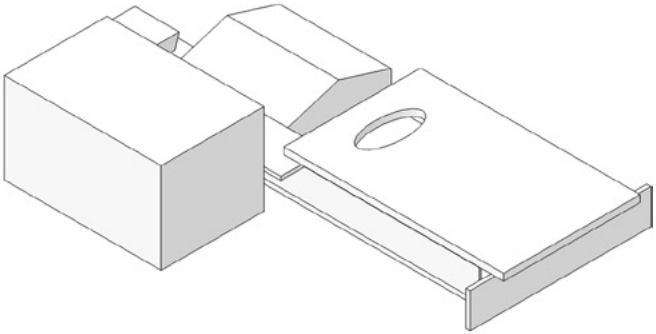
The Baneke, van der Hoeven team was a highly creative and professionally productive practice, but they did not score the kind of 'hit', that would have identified them as trend-setters of the nineties era and possibly reaching 'Superdutch' status.[58]

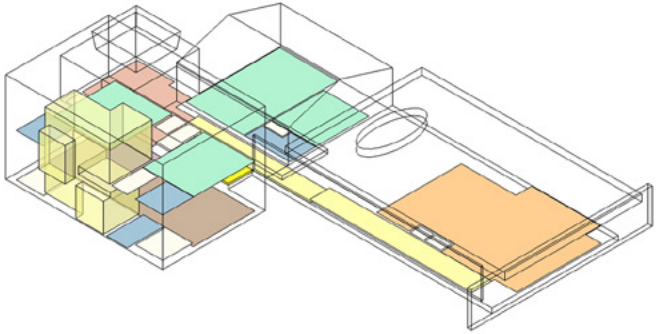
Medium-sized architectural practices like Baneke, van der Hoeven were hard-hit by the economic crisis of 2008 and the enduring building-slump that followed soon after.
Many of the newer offices that had come of age in the 'golden years' of the eighties and nineties had to be dramatically downsized to survive. In several cases their creative-directors had to go 'back to the kitchen table'.

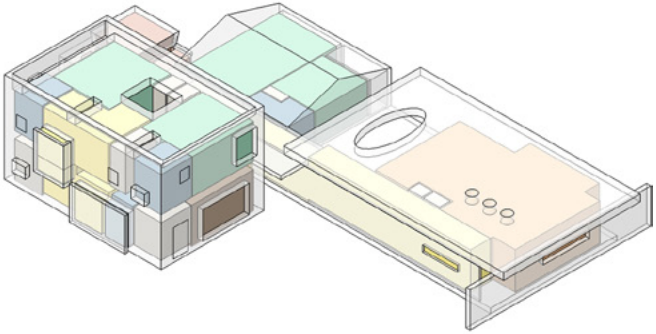
After the last of the projects that had been commissioned before the crisis had been realised, no significant new work appears to have been forthcoming.
At the same time, all kinds of rules and regulations and financial constraints were becoming more and more dominant, making the work of an architect steadily less attractive as a *creative* occupation.

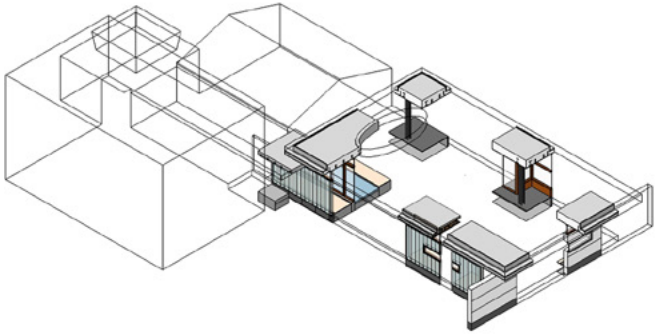
According to the owner, both extensions were primarily designed by Casper van der Hoeven.[59]
He left the firm in 2010, which since the 1st of May 2011 is known as Baneke architecten BNA.[60]

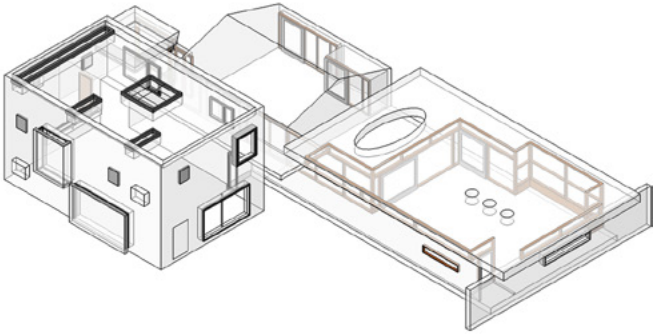












Model-based interpretations, showing the different levels of experience.

Aesthetics

If we consider the period of approximately 30 years in which the Dutch Yearbooks have been published (1987–2017), it is possible to distinguish two 'halves':

— An optimistic, anything-goes 'first half' (1987–2002) and
— A more pragmatic, market-oriented 'second half' (2002–2017).

In an overview of the architecture in the Netherlands in the 20th century (published in 1995), Hans Ibelings characterises the two last decennia of the twentieth century as follows:

— 1980–1990: 'the rediscovery of modernism';
— 1990> : 'pluralism'.[61]

These aspects do seem to resonate, if we try to reconsider the cultural climate and the collection of aesthetic paradigms that have loosely been dubbed 'the 90's Style'.
Precisely because a wide variety of compositional issues were being explored at the time, alongside each other, I would be inclined to summarise the aesthetic themes of the era as follows:

— *New-wave Modernism*: the uninhibited re-interpretation of modernism, as a *stylistic* phenomenon;
— *Pluralism*: the diversity of interests as well as the striving for rich experiential, sensorial effects.

One could say that these aesthetic paradigms were being established in the eighties and becoming fully operational in the nineties – which might in retrospect be considered to have been a decennium of diversity.

Considered in this light, the nineties were without doubt an activating, indeed *liberating* intermezzo, in which the Netherlands were put on the map as a creative 'laboratory' for architectural expression.
Precisely this extended decade was also Baneke, van der Hoeven's most productive period.

The younger generation managed to change the landscape of contemporary Dutch architecture from around 1985 onward.[62]
They did not however form a cohesive, stylistic 'movement', but rather may be considered as a broad stream, with swiftly-flowing currents running alongside- and sometimes through each other.[63]

In the early period, three such 'streams' can be identified:
— A mildly post-modern group (Jo Coenen, Sjoerd Soeters, Mart van Schijndel, Wim van den Berg);
— A more product-oriented group (Cepezed, Benthem Crouwel, Thijs Asselbergs, Fons Verheijen);
— A mildly eclectic neo-modern group (Mecanoo, OMA, DKV, Koen van Velsen, Ben van Berkel).

Gradually, the explorations of new expressive modes, developed by the individual architects who were nonetheless very aware of each others' doings, came to be recognised as a kind of 'free-style' modernism.
The implicitly neo-modern aesthetic generally meant: orthogonal volumetric compositions.
Yet: these were generally less 'abstract' than the exemplars of the 'heroic' era of modernism (1925-1935), which formed an inspiration, but were seldom quoted directly. Generally, there was an atmosphere of formal playfulness and a desire for originality, with room for personal expression and shared excitement.
The 'new-wave' modernists allowed for the integration of dynamic shapes and volumes, as well as surprising combinations of colours and textures, of transparency and translucency, of material expression and tactile experience.

In a first presentation of my intermediate AA study results, delivered at the 2009 DCA conference in Atlanta, Georgia, I included my first findings concerning modelling experiments for four of the projects under consideration: AA04; AA05; AA07 and AA09.

The conference Paper included the following appraisal of the Baneke, van der Hoeven project:

> *"The house is interesting because it can be read as a manifestation of changing aesthetic paradigms whilst managing to convince as an – experientially rich – compositional whole.*
> *The end result of the two latest interventions is a synthesis of different building parts, which are 'held together' by the long linear axis of a central hallway. With the exception of the new 'block', the house is only one storey high.*
> *For the most part, the perception of the design is characterised by horizontality. This horizontality is accentuated by the central axis, which opens up to the new living area on the garden side. This corridor is also visible from the street side, though closed to direct views by vertical, translucent glass elements.*
> *The overall effect is one of a consciously orchestrated clustering of architectural elements and spatial continuity throughout the interior, punctuated by changing views of the exterior. There is considerable variety in spatial conditions and experiential sequencing as well as generous exploitation of (contrasting) material qualities and attention to expressive detailing.*
> *In several ways this 'new' house can be seen as a counterpart of the expressionist de Klerk house. The 'style' here however is convincingly contemporary, an adventurous mix of somewhat eclectic 'fin-de siècle' Neo Modernism and 2000+ 'Sculpturalism'."* [64]

The house in Aalsmeer is a unique exemplar of neo-modernism: a composition of 'opposites that attract'.
The *Plan Libre* set-up of the first intervention is symbiotically counterbalanced by the unconventional *Raumplan* of the compositional closing-piece.

Though the house is a richly-varied whole, it does not come across as opulent, but rather as adventurous and elegant.
The architects' design-approach was creative also methodical, whereby standard building-products were meticulously combined and ornamental effects were not shunned, but instead used for dramatic effect.
Although the building does not resemble the works of Aldo van Eyck, it expresses a pronounced awareness of *reciprocal* design themes, or 'twin Phenomena', notably: Openness and Enclosure; Horizontality and Verticality; Harmony and Contrast; Materiality and Abstraction; Unity and Diversity.

In this *pluriform* design-composition, constituting elements are consciously taken 'to another level' wherever possible, whereby the attributes are seldom simple and straightforward, but rather *ambivalent* or even, in the words of Charles Jencks: "multivalent".[65]
The perceived 'joy of detailing' is stimulating on a sensory level, although in some places bordering on 'overkill'.
On an aesthetic level, the house might in time come to be considered to be one of the distinguished exemplars of the second modernist era of 20th century Dutch architecture.
Considering the free-standing villas that have been included in the national yearbooks on Dutch architecture in the first 15 years, I would choose the following projects for a kind of 'Top 25'; a kind of 'imaginary museum'.[66]

Viewed in this perspective, the house in Aalsmeer has already started to become a 'thing of the past' and as such: a representative of what can now be considered a 'historical' era.
As a hidden gem of 90's-era architecture, the house would in principle deserve to be appreciated by a wider audience, without having to become a 'museum'.

The house is treated with due respect by its inhabitants and is still in excellent condition.
It has the potential – like the Van Schijndel House and potentially: the Houben House – to join the network of 'iconic' modernist houses, whose spatial and cultural content deserve to be 'read' and (perhaps on occasion) experienced by truly-interested professionals and particularly: students.[67]
A kind of 'Millennium de Klerk': a lesson in the *opportunities* of architecture!

The list of 25 projects, from the period 1987–2002:

1. 1987: House with Studio, Langezwaag, Gunnar Daan;
2. 1988: Two Dwellings, Schilderswijk, The Hague, Alvaro Siza / Mecanoo;
3. 1989: Villa with Patio, Rotterdam, OMA / Rem Koolhaas;
4. 1989: Villa with Surgery, Berg aan de Maas, Rien van Wylick;
5. 1990: Double Villa, Tanthof, Delft, Cepezed / Jan Pesman;
6. 1990: House De Realiteit, Almere, Teun Koolhaas;
7. 1991: Kralingse Plas House, Rotterdam, Mecanoo / Francine Houben;
8. 1991: Dream House, Villa in Vugt, Paul Verhey;
9. 1991: Villa Oosterwijk, Jo Coenen;
10. 1992: Villa Psyche, De Fantasie, Almere, René van Zuuk;
11. 1993: Van Schijndel House, Utrecht, Mart van Schijndel;
12. 1994: A Dutch House / Villa with patio, Het Gooi, OMA / Rem Koolhaas;
13. 1996: First Row of Vinex Villas, Ypenburg, The Hague, Topos;
14. 1996: House with Boathouse, Loosdrecht, Baneke, van der Hoeven;
15. 1996: Glass House, Almelo, Dirk Jan Postel / Kraaijvanger. Urbis;
16. 1997: Double House, Utrecht, Bjarne Mastenbroek and MVRDV;
17. 1998: Frisian House, Gaastmeer, Gunnar Daan;
18. 1998: Möbius House, Het Gooi, UN Studio / Van Berkel & Bos
19. 2000: Van Tongeren House, Zoetermeer, Molenaar & van Winden;
20. 2000: Hedge House, Wijlre, Wiel Arets;
21. 2001: Laminata, House of Glass, Leerdam, Kruunenkerg Van der Erve;
22. 2001: Housing Exhibition Dwellings, 'Gewild Wonen', Almere, Carel Weeber;
23. 2001: Villa Daelmans, Lanaken (B), Jo Coenen;
24. 2002: Summer House, Rijnsaterswoude, Molenaar & van Winden;
25. 2002: Du Pon House, Aalsmeer, Baneke, van der Hoeven (1995 & 2002).



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The 25 projects. Sources: 'Architecture in the Netherlands' Yearbooks 1987-2002.

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Woonhuis Aalsmeer
Baneke Van der Hoeven architecten, Amsterdam
Een doos vol licht
Peter Visser
Woonhuis Aalsmeer
Architectenbureau Hoogeveen, Amstelveen
Tegenstelling
Peter Visser

Articles about the two neighbouring Aalsmeer houses in 'Bouw' (2003).

1 Ir. Jan Willem du Pon (1922–2008) was influenced by the Delft School and later realized several larger scale projects, on occasion in collaboration with ir. Dick van Mourik (1921–2018).
2 Imagination, Innovation and Seduction are terms that were used by the architects to characterise their attitudes and approaches. These issues are considered in more detail in the 'Perspectives' sections.
3 The garden is actually situated along a siding of a modest canal, known locally as the 'Brandewijnsloot', that connects the West-end lakes with the Haarlemmermeer polder's so called 'Ringvaart', running along the historic village centre. Though the trees the northern section of the so called 'Kleine Poel' can be seen.
4 Du Pon authored the book *Het eigen huis* (1961), in which he included three projects by Berghoef in Aalsmeer, including the van Staaveren house (AA08). He would go on to build large scale modernist projects for corporations such as IBM (in (Uithoorn) and CBS (in Voorburg), with van Mourik.
5 The Showrooms-project in Uithoorn was published in the Architecture in the Netherlands Yearbook 1993-1994 , see: Sources.
6 Project-description on the Baneke, van der Hoeven website. Translation by the author. Original Dutch text:
"Uitbreiding en verbouwing woonhuis, Aalsmeer. Opdrachtgever: Particulier 1994-1995 en 2000-2002.
Aan de straatzijde van dit woonhuis is een rechthoekig antracietkleurig volume geplaatst dat in de gevel niets prijsgeeft van het achterliggende programma. De gevel is op een aantal momenten slechts "opengesneden" waardoor licht kan toetreden en 's avonds mysterieuze verlichte stroken ontstaan. Parallel aan de voorgevel van dit deel zijn in één lange strook trappenhuis, badkamers, bijkeuken etc. geplaatst. Deze vormen een geluidsbuffer tussen straat en woonhuis. In dit bouwdeel bevinden zich langwerpige en vierkante gaten in het dak waardoor licht op verschillende wijze de ruimte wordt binnengebracht. De van buiten zo gesloten lijkende doos "tintelt" in het interieur van het licht. De eetkamer vormt het uiteinde van een lange gang langs een tweede patio met waterpartij die uiteindelijk in de volledig verglaasde woonkamer eindigt. Hier vormt het uitzicht over de tuin en Westeinderplas de tegenhanger van het straatgewoel bij het bouwblok aan de straat."
7 The project is featured in the same theme-issue of *Bouw* from 2003, also by Peter Visser, with the title *Tegenstelling* (Opposition) (see: Sources).
8 A design by Amsterdam School architect Dick Greiner from 1926.
9 The effect of total transparency appears to have been 'softened' by the appliance of (anti-slip) strips. This was recognized during a later visit to the house, in 2016.
10 The 2009 DCA conference took place at the Southern Polytechnic State University in Marietta, Georgia.
11 These images were included in the PowerPoint presentation shown during the conference.
12 In the planometric view, the 2D plan is essentially 'drawn upward'. Here the angles of the plan remain 90 degrees, with the verticals drawn at an angle. In the orthographic or isometric projection-mode, the angles are not 90 degrees, but the ground-form is skewed, giving a somewhat more realistic impression.
Source: Adriaan van Haaften: *Freehand, sketching skills for students of architecture*, Publikatieburo Bouwkunde, Delft, 2001.
13 This method was applied in a series of interior views of the AA04 – de Klerk – project that were subsequently published in the Proceedings of the 2009 EAEA conference in Cottbus.
14 *Zenithal Light* is the title of a book by Elias Torres Tur (of Lapeña Torres architects, documenting his Doctoral Thesis, which was read on December 10th 1993. His study comprises of an impressive visual database of vertical lighting phenomena in architecture. Published by: Collegi d'Architectes de Catalunya, Barcelona, 2004.
15 Carel Weeber coined the – consciously insulting – phrase 'Nieuwe Truttigheid' for the 'adaptive' movement.
16 A lecture series in 1977– with four invited architects: J. van Stigt; E.J. Jelles; J. Stirling and G. Grassi – , organized by Max Risselada and Harm Tilman, resulted in a published documentation: *aktie onder architektuur, het ontwerp van 4 architekten*, Afd. Bouwkinde, KWG-A, 1977.
17 A groundbreaking study was *Raumplan versus Plan Libre* by Max Risselada et al (1987).
18 Frits Palmboom (Werkgroep Risselada): *'Doel en vermaak' in het Konstruktivisme, 8 Projecten voor woning- en stedebouw* (1979).
19 The convictions and early projects of the Eindhoven 'School' were documented in a special edition of Forum, nr. 33/4, January 1990. Members of the group included: Jo Coenen; Bert Dirrix; Peter van Hulten; Frank & Paul Wintermans; Rudy Uytenhaak; Sjoerd Soeters; John Körmeling and Martien Jansen.
20 Thijs Asselbergs, interviewed in: *aTA/ architectuurcentrale Thijs Asselbergs* (2008):
"Je had daar verschillende stromingen. Vakgroep 13 was voor mij erg belangrijk. Daarin zaten Aldo van Eyck, Herman Hertzberger en Joop Hardy. Wat daar werd gedaan, vond ik heel interessant in de zin dat het de mensen centraal stelde. Toch was het ook wel een beetje tuttig en kneuterig. Dan ging het bijvoorbeeld over het plekje voor de flessen melk naast de voordeur. Interessanter vond ik vakgroep 8 met Jaap Bakema. Met het credo 'Van Stoel tot Stad' was hij bezig met vormgeving op alle niveaus: van een schoteltje onder een koffiekopje tot de vormgeving van het stedenbouwkundig plan Pampus, met infrastructuur, ingenieurswerken, stedelijk silhouet en al. Bakema zie ik als een van mijn leermeesters. Hij was ook degene die me confronteerde met CIAM en TeamX, maar ook met de constructivisten, waarvan vooral de gebouwen van Melnikov, die ik op een studiereis in 1980 te zien kreeg, grote indruk op me maakten.
Mijn plan was af te studeren bij Bakema, maar helaas overleed hij voortijdig. Ik koos daarop Izak Salomons als mentor. Die wist mij heel vertrouwd te make met de woningbouwopgave, terwijl ik van Niek de Boer veel leerde over stedenbouwkundige context."
Pg. 165. Translation by the author.
21 In the late seventies, Rem Koolhaas gave a series of lectures on the work of Leonidev at the Leiden University, which I was in the opportunity to attend with a small group of fellow-students.
22 Rem Koolhaas, opening address in: *Hoe modern is de Nederlandse architectuur?*, 1990:
*"Ik herinner me een bezoek aan het Schr*öderhuis met Gerrit Oorthuis toen mevrouw *Schöder nog leefde. Het was ontegenzeggelijk indrukwekkend, ontroerend, stil makend. Maar het duurde niet lang of ik kon me er niet aan onttrekken het Schöderhuis in vergelijking met de huizen van Mies van der Rohe een stuk minder indrukwekkend te vinden. Mies, waar wulpse sofa's staan naast gezandstraalde ramen, waar obsceen roodfluwelen gordijnen hangen naast onyx, waar niets altijd geplaatst is naast het iets, waar de zwaarte staat naast het zweven."* Translation by the author.
23 Hans van Dijk: *onderwijzersmodernisme*, in: *Hoe modern is de Nederlandse architectuur?*, Bernard Leupen, Wouter Deen, Christoph Grafe (eds.), 010 Publishers, Rotterdam, 1990.
Koolhaas:
"Maar het meest opvallend was dat er met navolgbare ontroering werd gesproken over gebouwen als Van Nelle, Zonnestraal, het Schröderhuis, of het Amsterdamse burgerweeshuis, èn over de leermeesters, van Berlage tot Van den Broek, van Duiker tot van Eyck."
Translation by the author.
24 Thijs Asselbergs, in: *aTA/* (2008):
Pg. 165. Translation by the author.
25 Although they were diploma-students of prof. Carel Weeber, they were 'products' of the new interest in architectural design and were probably influenced by the studies of tutors like Leen van Duin and Max Risselada as well as by

the teachings of Aldo van Eyck and the other 'Forum' architects.

26 Guus Baneke recognizes the role played by his teachers in his formative years at the faculty, notably Max Risselada, Tjeerd Dijkstra, Carel Weeber and Leo Tummers. He claims to have been relatively unaware of the work of Rem Koolhaas at the time. Source: interview 2017. Another impulse came from his involvement with the 'Bouwes Wat Anders' protest-initiative in Amsterdam, which led to the publication of a book on *Amsterdam as an Urban Building-project'* (1985). See: Sources.

27 In the booklet of the Kruisplein Prijsvraag, the project by Casper van der Hoeven – motto: 'Moblile Home' is included in the selection of 33 projects that were selected in the second round. Van der Hoeven received one of two runner-up prizes for his entry, which did not make it into the selection of 5 projects for the third round, which was won by Mecanoo, with its motto: OZOO. The competition and its impact were later discussed in a booklet published by the Delft faculty of Architecture: Leen van Duin, Arie Graafland: *beoordeling van vorm*, Publikatieburo Bouwkunde, Delft, 1991.

28 Of the original group who won the Rotterdam Maaskant prize in 1987, Henk Döll, Roelf Steehuis, Chris de Weijer and Erik van Egeraat all went on to form their own practices.
Only Francine Houben remains of the original team. Dick van Gameren, who worked at the office at the time, later became a partner.
Sichting Rotterdam-Maaskant, Sjoerd Cusveller (ed.): *Mecanoo, vijfentwintig werken*, 010 Publishers, 1987.

29 Hans van Dijk: *Biennale Nederlandse architecten 1983*, in *Wonen TABK*, Stichting Wonen, Van Loghum Slaterus, Deventer, September 1993.
The 'young architects' who were featured were: Hans van Heeswijk; De Nijl; Wolf Schijns; Dirk van As; Arne van Herk; Jo Coenen; Madeleine Stijginga, Niek van Vugt; Dolf Dobbelaar, Herman de Kovel, Paul de Vroom; Ben Tenge; Martien Jansen; Jaap Pontier, Ton Voets; Frank Wintermans, Paul Wintermans; Koen van Velsen; Frits van Dongen, Kas Oosterhuis; Lucien Lafour; Sjoerd Soeters; Manfred Kausen; Jan Benthem, Mels Crouwel; Dolf Floors; Cepezed; John Kormeling.

30 Hans Ibelings: *Modernisme zonder dogma, Een jongere generatie architecten in Nederland*, Nederlands Architectiuur-instituut, Rotterdam, 1991.
The trend-setting practices who were selected: Wiel Arets, Wim van der Bergh; Jan Benthem, Mels Crouwel; Ben van Berkel; Bert Dirrix, Rein van Wylick; Paul Dobbelaar, Herman de Kovel, Paul de Vroom; Frits van Dongen; Mecanoo; Willem Jan Neutelings, Frank Roodbeen; Jan Pesman; Koen van Velsen.

31 An example of Geurtsen's approach are found in the analytical publications he made in the context of an idea-competition for the 'Locatie Zuidpoort' in Delft, 1988.

32 Casper van der Hoeven & Jos Louwe: *Amsterdam als Stedelijk Bouwwerk, een morfologische analyse* (1985). See: Sources.

33 Dijkstra: *Geen behoefte aan slappe compromis-architectuur*, interview Janny Rodermond, in: *de Architect, themanummer Rijksgebouwendienst*, Ten Hagen, Den Haag, mei 1985,

34 Cees Swinckels: *Laboratorium voor Erfelijkheidsleer Wageningen: Contrastrijke uitbreiding met speels, kleurrijk interieur*, in: *de Architect*, Ten Hagen, Den Haag, mei 1986.

35 Janny Rodermond: *Werk van Baneke en van der Hoeven, Optimistisch en vindingrijk*, in: *de Architect*, Ten Hagen bv, Den Haag, maart 1990.
"Guus Baneke en Casper van der Hoeven behoren tot de generatie 'jonge' architecten, die gezamenlijk het ontwerpen herontdekten, nadat de architectuur in de jaren '70 als vormgevende discipline bijna van het toneel verdwenen was. Ex-rijksbouwmeester Tjeerd Dijkstra gaf hen de gelegenheid hun capaciteiten te tonen in de utiliteitsbouw, door het bureau de opdracht te verlenen de uitbreiding van het gebouw voor Erfelijkheidsleer van de Landbouwuniversiteit van Wageningen te ontwerpen. Wat uit het werk van Baneke en Van der Hoeven vooral spreekt, is een haast ongecompliceerd plezier in het maken van architectuur."

36 Concluding sentence of the same article:
"Misschien is het meest kenmerkend voor Baneke en Van der Hoeven nog wel de vrijheid waarmee ze zich bewegen tussen de clichés, trends en dogma's van de vaak zo opgeblazen architectuurwereld."
Translation by the author.

37 Article: *Architectuur draait niet om functie maar om verleiding*, in: Cobouw February 14th 1997.
"Zij hebben een oeuvre ontwikkeld met een eigen handschrift. Zij tonen demonstratief dat voor hun generatie architectuur weer verleidelijk en prikkelend mag zijn – een kunst op zich, met eigen regels. ...
Van der Hoeven – Van Weeber en andere docenten, zoals van Duin en Risselada, hebben wij geleerd hoe je een programma van eisen uit elkaar kan halen en de onderdelen elk op een specifieke manier vorm kan geven. Ook de circulatie is een belangrijk onderdeel. We halen de delen uit elkaar, om ze daarna op een nieuwe manier met elkaar te confronteren. Die confrontatie moet de verbazing prikkelen, verleidingskracht uitstralen. Die aanpak gaat veel verder dan alleen maar te laten zien hoe een gebouw werkt, hoe het in elkaar zit. Een gebouw moet adequaat functioneren, allicht. We hebben veel laboratoria gebouwd en die moeten gewoon kloppen. Maar de functie van een gebouw is niet het belangrijkste voor de architectuur – het gaat om verbeeldingskracht."
"Architectuur wint aan belang, merken wij. Iedereen wil architectuur. Het gevaar is dat men slechts – namen – wil. In de Randstad moeten het internationale architecten zijn, in de provincie moeten het architecten van nationaal belang zijn die ze aan hebben getroffen in tijdschriften. De valkuil is dat op die manier architectuur een politieke trucendoos wordt, die modisch wordt bepaald."
Translation by the author.

38 In the same article: *"In die nadruk op programmatische aspecten van architectuur vertonen Baneke en van der Hoeven dat ze niet alleen van Weeber, maar ook van Koolhaas hebben geleerd."*

39 This list is not all-inclusive but indicative and has been made on the basis of a survey of the Dutch Architectural Yearbooks 88/89 to 08/09.

40 Texts taken from the entry 'Buro' on the website of Baneke architecten, 2017.
"Het ambitieniveau van het buro kenmerkt zich door een professionele combinatie van intelligente oplossingen voor functionele programma's, architectonische verleidingskracht en gezond pragmatisme.
Per project wordt een ontwerpteam samengesteld waarin de projectarchitect van het begin tot het einde de sturende en aanspreekbare persoon is. ...
In de werken van het buro is een belangrijke plaats ingeruimd voor een 'sturende manipulatie' van het Programma van Eisen (PvE). Door het PvE telkens opnieuw tegen het licht te houden op haar werking en mogelijkheden, worden veelal onorthodoxe oplossingen gevonden voor het functioneren van het programma. Leidraad hierbij is het ontwikkelen van een ruimtelijk concept. Bij de ontwikkeling van woningbouwplannen hanteren wij het uitgangspunt dat simpele plattegronden, in samenhang met een zekere overmaat, de beste garantie voor flexibiliteit en daarmee voor waarde in de toekomst."
Translation by the author.

41 A celebration of the Dutch Design phenomenon was Aaron Betsky's: *False Flat, Why Dutch Design is so good*, Phaidon, London, 2004 (with Adam Eeuwens).

42 ARCHIS closely followed the contemporary developments in the Netherlands, but also became more-and-more internationally oriented.

From January 1993, under the head-editorship of Geert Bekaert, it started publication as a bilingual (Dutch as well as Enlish language) edition.

43 The six designs of the first round – by Jo Coenen, Benthem Crouwel, Hubert-Jan Henket, Rem Koolhaas / OMA, Wim Quist and Luigi Snozzi – were documented in the publication Zes *Ontwerpen voor het Nederlands Architectuurinstituut*, 1988.

44 In principle, individuals and offices have been included who have appeared two or more times.

45 Janny Rodermond: *Werk van Baneke en van der Hoeven, Optimistisch en vindingrijk*, in: *de Architect*, Ten Hagen bv, Den Haag, maart 1990.
"Het werk van Baneke en Van der Hoeven is rijk aan kleuren, vormen en materialen. Omdat in alle gebouwen of verbouwingen, hoe klein ook, bovendien veel aandacht besteed is aan de licht- en ruimtewerking, valt er heel veel in te zien en te beleven. Maar het werk is ook moeilijk te plaatsen. Door het uitbundig hanteren van allerlei ontwerpmiddelen lijkt een eigen opvatting of stijl te ontbreken. Stijl vereist immers juist een afbakening in het gebruik van architectonische middelen, een selectie gemaakt op basis van al dan niet geëxpliciteerde theoretische uitgangspunten. Een dergelijke afbakening is in dit optimistische werk niet te vinden. Baneke en Van der Hoeven lijken van tevoren geen enkel middel te willen uitsluiten om de gewenste effecten te kunnen bereiken. Want er is wel degelijk sprake van doelbewust nagestreefde effecten. Het werk is niet dogmatisch, maar zeker ook niet pragmatisch, in de zin van ondergeschikt aan puur technische, financiële en functionele eisen. Juist de beleving, de sfeer van gebouwen en ruimten staat centraal in hun ontwerpen, die daardoor het puur functionele karakter overstijgen. Wat uiteindelijk kenmerkend is voor hun werk is een zeer sensuele, op de zintuigelijke beleving gerichte benadering."

46 Egbert Koster in an article on the Agrotecnion project in *Bouw*: *"De collage-achtige architectuur van het 'Agrotechnion', weerspiegelt de diversiteit van de functies die in het pand zijn ondergebracht. Guus Baneke en Casper van der Hoeven (...) hebben, zonder het totaalbeeld uit het oog te verliezen, elke onderwijs- en onderzoeksactiviteit een eigen plaats en expressie gegeven."* In: *Eenheid en verscheidenheid*, Egbert Koster, in: *Bouw*, September 1992, pg. 119. See: Sources.

47 The Library by Mecanoo was included in the *Architecture in the Netherlands Yearbook 1994-1995*.

48 Notable projects: Gunther Benish & partner's German Post and Communication Museum, Frankfurt (1990), Bolles/Wilson's Frankurt nursery school and Münster city library (1993) and Lapeña Torres's Balearic houses and urban redevelopments, such as the Ibiza castle works (1993).

49 Egbert Koster in: *Modernisme als stijl*, in: *de Architect*, Ten Hagen, Den Haag, april 1992:
"De hele woning laat zich lezen als een enthousiast gespeeld architectonisch spel waarbij de ontwerpers zich genoeglijk hebben onttrokken aan de beklemmende beperkingen van programma's van eisen en wettelijke regelgeving om louter voor hun eigen plezier aan het werk te gaan. Serieuze thema's als verkavelingsmodellen, gebouwtypologieën, ontsluitingsprincipes en flexibele plattegronden – belangrijke thema's in het werk van Mecanoo – zijn hierbij vervangen door zelfopgelegde spelregels."
Translation by the author.

50 Quote from the interview with Casper van der Hoeven in the Cobouw article *Architectuur draait niet om functie maar verleiding*, 1997:
"In ons werk treedt een verschuiving op: minder nadruk op de vormen en de kleuren, meer op de ruimte zelf. Maar die ruimte wordt nooit steriel of abstract – het moet meeslepend blijven."
Translation by the author.

51 De Volkskrant, April 21st 1995, Hilde Haan, Ids Haaksma: *Een onpraktische illusie van licht en ruimte*. The Dutch article as a whole:
"De straatgevel doet al denken aan een schimmenspel. Het is een scherm van groen matglas – met eén lang horizontaal raam erin – waarop iedere beweging die erachter plaatsheeft als een mysterieus gebeuren wordt geprojecteerd. Zelden weerspiegelt de buitenkant van een gebouw zo feilloos de inhoud. Want deze uitbreiding van een woonhuis in Aalsmeer, naar ontwerp van Casper van der Hoeven (1952) en Guus Baneke (1952), hangt aan elkaar van illusies, van schimmige beloftes die onder het mom van Architectuur aan de man zijn gebracht.
De opdracht was simpel. Een gezin wilde uitbreiding van haar woning die al uit twee verschillende delen bestond: een tuindershuisje van rond de eeuwwisseling en een doorzonwoninkje met schuine kap dat in de jaren vijftig tegen het eerste huisje was aangebouwd.
Men wilde vooral een grotere woonkamer en was niet te beroerd daarvoor een echte architect te vragen. Zo kwam men bij Baneke en Van der Hoeven terecht. Jonge bouwmeesters die, in het kielzog van baanbrekers als Rem Koolhaas, de wensen van hun opdrachtgevers ondergeschikt achten aan hun architectonische ambities. Zeker, die grotere woonkamer kwam er, en wel op zo'n manier dat, volgens de ontwerpers, het 'ruimteverslindende karakter van de late twintigste-eeuwer' onverbloemd wordt getoond.
Maar waar de architecten zich in eerste instantie mee bezig hielden was: 'de enscenering van een-spannend, samenhangend ruimtelijk verhaal.' Haaks op de as van de achter elkaar gebouwde woninkjes maakten ze daarom een lange as van nieuwbouw die het oude deel als het ware doorsnijdt. Het ene uiteinde van deze as is een nieuwe keuken die pal tegen de oude huisjes is aangebouwd. Aan de andere kant strekt de as zich uit als een gang die langs een terras met vijver voert en dan zijdelings uitmondt in het nieuwe woonvertrek. Hier wordt het echte schimmenspel gespeeld, met glas en licht alom aanwezig. Want dat is wat de architecten van de nieuwe woonkamer wilden maken: een illusie van licht en ruimte. Niks genoeglijke verblijfsruimte met weidse blik over her achterliggende water, maar een 'meezuigende' ruimte naar een diagonaal uitzicht', ofwel een zo lang mogelijke route die onweerstaanbaar naar de verst van de ingang gelegen plek leidt: een erker rechtsachter in de glazen woonkamer vanwaar men schuin uitkijkt naar het eigen terrein.
Op zich biedt zo'n benadering wel verrassende elementen. Zo is wel degelijk een voelbare spanning ontstaan tussen de beslotenheid van het oude gedeelte en de openheid van het nieuwe deel. Consequent hebben de ontwerpers ook de nieuwe kamer zo onaards, zo immaterieel mogelijk willen lijken.
De grenzen tussen binnen en buiten worden voortdurend ontkend. De enige stenen wand steekt ver uit buiten de glazen voor- en achtergevel, en is ook, door een glasstrook, losgehouden van het plafond. Eenzelfde spel wordt op de grond gespeeld, waar de stenen van het buitenterras ook de rand van de woonkamer bekleden. Tevens loopt het overkragend dak van de nieuwbouw over in de luifel van het terras, zij het een luifel met een enorm rond gat erin.
En daar zit dan tevens de zwakke kant van het verhaal. Want wat is de functie van een luifel met een gat erin? In dit gebouw is zoveel gewild, er is zo hijgerig naar grootsheid gestreefd, dat simpele, alledaagse gegevens zijn vergeten.
Dat de bewoners op hun overdekte terras alsnog in de regen zitten, is tot daaraan toe. Erger is het dat de tand des tijds is ontkend en bij de minste verwering het spannende ruimtelijke verhaal – bijvoorbeeld van de naar buiten doorgestoken witte binnenmuur, of van de zich naar binnen uitstrekkende stenen buitenvloer – voorgoed wordt verstoord.
Dit maakt dit huis tot een stoute jongensdroom, die bij de kleinste aanpassing aan normale bewoning al verwordt tot een rommelige desillusie."
Translation excepts: by the author.

52 During the latest visit to the house, the owner reasserted that he knew very well what he was doing. The project of the house was more

an exciting experiment in architecture for both client and architect than a takeover. For this reason, Casper van der Hoeven was again called on for the design of the second phase when the occasion did arise.

53 According to van der Hoeven, the showrooms for a fashion-firm were designed and installed in the former Loreal factory. For the Yearbook article, see: Sources.

54 For the Architectural yearbook and *ARCHIS* articles, see: Sources.

55 The description of the project is from the 2017 version of the *Baneke architecten BNA* website: *woonhuis en boothuis, Loosdrecht, 1995*. This would indicate that van der Hoeven started with the marsh-house project directly after the extension in Aalsmeer.
Baneke, van der Hoeven:
"In een moerassig terrein met elzen, populieren, wilgen en vogels, dat nauwelijks toegankelijk is, is in 1996 op een langwerpige bouwkavel een woonhuis gesitueerd. Het woonhuis bestaat uit een éénlaags rechthoekig volume waarin naast een garage en tuinkamer een reeks verblijfsruimten zijn opgenomen. Deze ruimten zijn geplaatst tussen een gevouwen begane grond vloer met meerdere niveaus en een dakvlak met grote overstekken. Dit dakvlak is op een aantal plaatsen met ronde en rechthoekige gaten geperforeerd zodat daglicht op theatrale wijze de ruimte doet oplichten. Deze lichtgaten zijn voorzien van met zink beklede opbouwen van verschillende hoogte en omvang, stalen trommels, een glazen lichtstraat en geperforeerde metalen roosters waarmee de lichtval wordt verbijzonderd. Doordat de oriëntatie van deze elementen ten opzichte van de zonnestand verschilt, wisselt het licht in het interieur van diffuus en omfloerst naar helder en schaduwrijk."
Translation: by the author.

56 The 'chaotic collage of villas' included projects by contemporary colleagues: Hoogeveen, Jacco D. de Visser, Zaanen Spanjers, Diederen Dirrix van Wylick, and Molenaar & van Winden.
The house was featured in the 2004 edition of the *Guide for Contemporary Architecture in the Netherlands*.
It was no longer included in: Paul Groenendijk, Piet Vollaard: *Architectural Guide to the Netherlands (1980-Present)*, 010 Publishers, Rotterdam, 2009.

57 Website Baneke architecten: *woonark, Loenen aan de Vecht,* 2003-2005:
"Deze woonark ligt in de rivier de Vecht, welke meandert door het groene hart in de buurt van Amsterdam. Perforaties in het dak en in de gevels van verschillende vormen en afmetingen zorgen ervoor dat het daglicht tot in het centrum kan binnendringen. Elk van de 'ramen naar de wereld' creëert een panorama van de natuur."
Translation: by the author.
Baneke, van der Hoeven won a silver award in the category 'Single Family Housing' at the Biënnale Miamy+Beach 2005.
The water-villa attracted critical attention and was featured in the *de Architect* in April 2006.

58 The term 'Superdutch' was introduce by Bart Lootsma in 2000, in the context of an Engish-language retrospective about Dutch architecture in the last two decennia of the 20th century.
The practices that are selected as being internationally relevant are: Wiel Arets, UN Studio (van Berkel & Bos), Erik van Egeraat, Atelier van Liseshout, Mecanoo, MVRDV, Neutelings Riedijk, NOX, OMA / Rem Koolhaas, Oosterhuis.NL, Koen van Velsen and West 8 (Adriaan Geuze).

59 Information about the building stages and design: taken from an interview with the current owner, Mr. A.G. du Pon, in 2016.

60 Source: the renewed website of Baneke architecten.

61 In: *Nederlandes Architectuur avn de 20ste eeuw*, Hans Ibelings (1995).

62 The year 1985 is used as a turning-point in the retrospective *Double Dutch,* by Bernard Hulsman and Luuk Kramer (2013).

63 Casper van der Hoeven is vehement that, at least for him, he was not aware of being part of a 'new modernist movement' and that he never truly felt involved in the 'architecture-world' in that sense.
Source: interview 2017.

64 The DCA is the Design Communication Association, a primarily American platform for architectural visualization experts and educators.

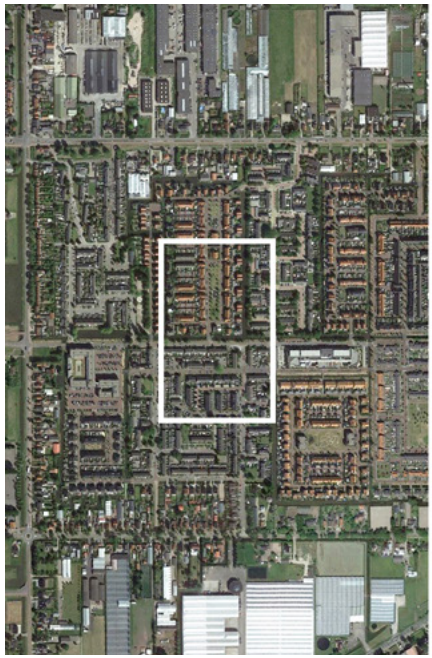
65 As students, Baneke, van der Hoeven would have been familiar with the work of the influential critic and polemicist Charles Jencks.
He introduced the concept of 'multivalency' (which interestingly he recognizes in particular in the work of Aldo van Eyck) in his groundbreaking *Modern Movements in Architecture* (1973).
No less influential was his *The Language of Post-Modern Architecture* (1977).

66 It is fair to note that, perhaps due to its two phases, the du Pon house was not actually published in the Yearbooks.
Nonetheless I felt that this project deserves to be included in such a 'list'.

67 'Iconic Houses' is an international network 'connecting architecturally significant homes from the 20th century', which are in some form open to the public, for instance as 'house museums': *iconichouses.org*.

7. AA Variations

7.10 AA10
M. Engel
2012













Introduction

The last house to be considered in the AA Variations study is a free-standing family-home with an adjoining workspace, designed by Engel architects and completed in 2012.

Engel architects is a contemporary, medium-sized architectural practice, at the time based in Amsterdam.[1]
The architectural practice was founded in 2005 and is headed by Maarten Engel, who studied architecture at the Academy of Building Arts in Amsterdam and at Delft University of Technology.[2]

In the first part of the 21st century, the firm realised various types of building-projects – mostly housing – including neo-modern villas and dwelling-complexes, renovations and commercial projects, such as a showroom and an office building.[3]
The office's ambition is to 'design from a logical perspective and develop rationally-organised and functional buildings, which fit clearly into their given surroundings'.[4]

The house, designed for the Bakker-Mol family, was to fit onto a remaining, free plot in Aalsmeer's 'Nieuw Oosteinde' development. Due to the fact that large parts of Aalsmeer lie under the approach-routes to Schiphol airport, sections of the municipality cannot be appropriated for housing because of noise levels. As a consequence, the opportunities for new housing developments have, over the last decennia, been quite limited.

The Nieuw Oosteinde development is a relatively new, self-contained suburban enclave, situated in the eastern part of the municipality, near its border with Amstelveen.
Over a period of approximately 15 years, the predominantly agrarian landscape, adjoining a small-scale neighbourhood from the 1960's, was steadily transformed into an integral 'Vinex' location for some 1700 dwellings, including schools, medical facilities and a shopping complex.

As the latest addition to the development as a whole, the house forms a 'closing piece', which is strategically positioned, marking the entrance to the first phase of the Nieuw Oosteinde development: the 'Boomgaard' section, from the central traffic-axis.
The realised building is exemplary of the austere design-approach that was characteristic of the 'financial crisis' era from 2008, which resulted in relatively little planning- and building activity in the Netherlands.

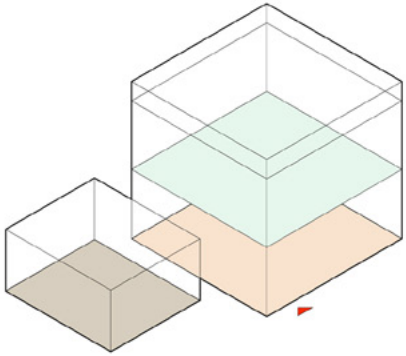
In order to realise the dwelling and connected workspace within the specified financial framework, the choice was made to make use of an industrial building-system, in combination with standardised building-products.

The free-standing, self-consciously (neo)modernist building is eye-catchingly stark, with a dominant, cubic geometry and a material expression that contrasts considerably with its surroundings.

AA10	: Information		
Project	: Nieuw Oosteinde House : Boomgaard 105, Aalsmeer		
Architect	: Maarten Engel		
Style	: Rational Neo-Modernism : 21st Century Digital Design		
Year	: 2012		
Ground-plan	: 125 m^2	Floor-plan	: 215 m^2
Volume	: 880 m^3	Ratio V/F	: 4,1 m

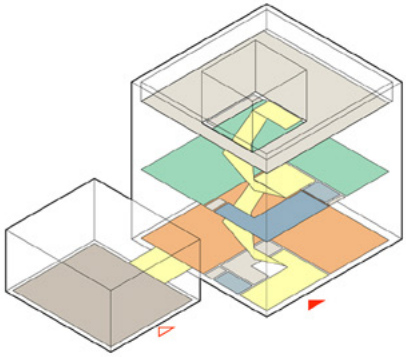






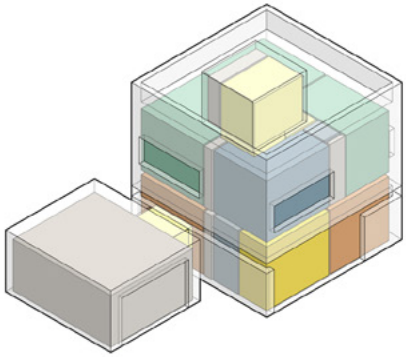
A.1 Context

The project was designed for the last remaining ‘free’ building plot, on the edge of a neighbourhood that had been completed about ten years before.
The site is bordered to the south by a central canal and the major traffic axis of the development.
To the north it looks out over an outstretched, communal green-area. The urban-planning rules called for a visual ‘ending’ to this open space, by introducing an object that would mark the entrance, via a bridge, to the Boomgaard neighbourhood.
As a consequence, the architect conceived the project as a kind of ‘bridge-master’s house’.[5] The freestanding, cubic ensemble, consisting of a dwelling with an attached workspace-volume, fits relatively snugly onto the available plot, allowing for a modest green zone around the project and a private terrace along the water.



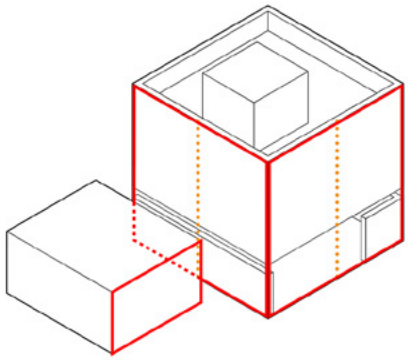
A.2 Function

The elementary volume contains two clearly-defined functional groups: the domestic programme on the more ‘public’ ground-floor and all of the private rooms on the level above.
The entrance, on the park-side, gives access to a hall, containing a toilet as well as the central stairway.
From here one enters a spacious living-section, with an open kitchen and a dining-area facing south. The space is connected to the terrace and to the sub-volume, which functions as a workplace and distribution-centre for the family’s florist business.
The first floor is divided into four quadrants, around the central hallway and the stairwell. Three bedrooms and one bathroom are rationally distributed and identified by differently coloured doors.
The roof-terrace functions as an ‘outdoor room’, complete with its own pantry.



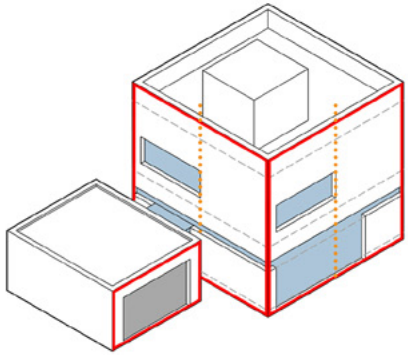
A.3 Interior

There is a marked difference between the ground-floor rooms and those situated on the first floor.
The spacious family-room on the ground floor is essentially an open, L-shaped domain, which is unusually high by modern standards: almost four metres.
The ground-floor’s bounding elements are separated from the upper volume by a transparent zone, running around the building.
The qualities of openness and enclosure are determined by the levels of privacy as well as the views towards the surroundings.
The first-floor is divided into four distinct rooms, which all have the same openings, systematically arranged in a ‘windmill’ pattern.
The untypical height of the floors becomes evident in the unarticulated staircase, which winds up, first to the landing of the bedroom-layer and then onward to the roof ‘garden’.



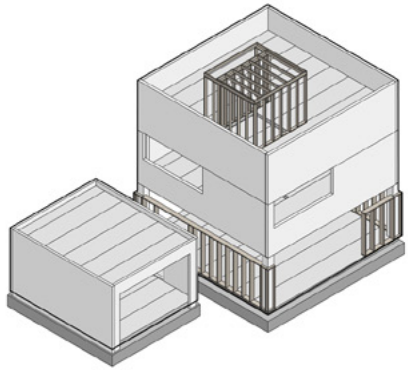
B.1 Object

The built object has a footprint of some 125 square meters and a volume of approximately 880 cubic metres, most of which is taken up by the visually dominant ‘corpus’ of the main house.
The basic geometry is rigorously orthogonal and essentially consists of a ‘perfect cube’ of 9 x 9 x 9 metres. This elementary volume is subdivided into a seemingly massive upper volume, visually suspended above the ground, and a predominantly transparent lower section.
The outer surfaces of this ‘plinth’, have strategically-placed infill-elements, which are separated from the upper part by a transparent band, continuing around the volume as a whole.
A roof terrace is ‘extracted’ out of the upper mass and a small roof-pavilion is placed on top. The adjoining workspace is treated as a more-or-less autonomous, secondary volume.



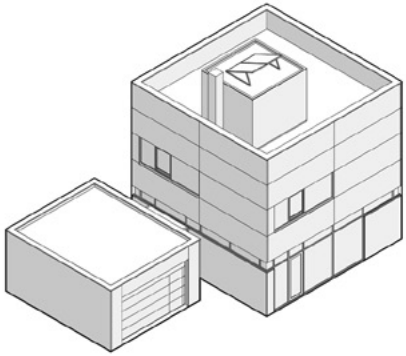
B.2 Structure

The organising geometry is 9 x 9 x 9 metres, whereby each of the surfaces is divided vertically into two sections of 4,5 meters and horizontally into three, with an underlying grid of approximately 1,5 metres
The ratio of the top- to bottom sections is 2 : 1; with the upper volume expressed as a clear-cut, ‘solid’ of six meters height.
The transparent lower-section is 3 meters high, with supporting columns at the corners.
The four ground-floor elevations all share a transparent horizontal band of 0,5 m above a variable zone that is 2,5 m in height.
Transparent sections are positioned between closed elements, with wooden cladding that is ‘wrapped-around’ at the corners. All doors and fixed windows, on the ground floor as well in the upper windows, are dimensioned on the basis of a 1,0 meter vertical grid.



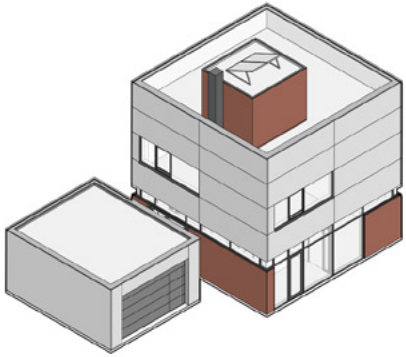
B.3 Technique

To be able to realise the desired programme as cost-efficiently as possible, use was made of an industrial building system in prefabricated concrete, more frequently used for larger-scale utilitarian building projects.
The structural ‘skeleton’ consists of prefabricated columns, in combination with solid wall panels with integrated beams, supporting concrete floors and roof panels.
The system allows for rapid montage ‘in situ’.
For the outer layer, use was also made of standardised, insulated concrete cladding-elements, which are fastened onto the constructive inner slabs. The step-by-step montage principle of this industrial building-package is also in evidence inside the house, where the untreated-concrete components are in sight, particularly on the first floor and in the annex of the garage/workspace.



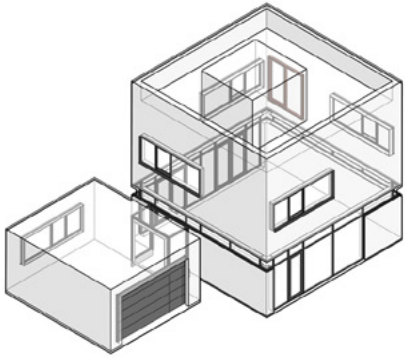
C.1 Facade

The architect saw it as a challenge to explore the opportunities of an ‘industrial’ component system not only as a means to realise a functional and affordable home, but also as an expressive device.
The facade-arrangement of the, 6 meters high and 9 meters wide, upper section makes use of a repeated motif, determined by its horizontal panels of 4,5 x 1,5 meters, with one opening per face.
This prefab-concrete cladding system is combined with aluminium windows and doors.
The semi-transparent zone (2,5 meters) with the window-band above (0,5 meters) of the ground-floor (4,0 meters high) display a controlled level of variation, on the basis of an underlying 1 metre rhythm.
Partitions in the ground-floor facades and the roof-terrace pavilion are executed as ‘infill’ elements, covered with horizontal planking.



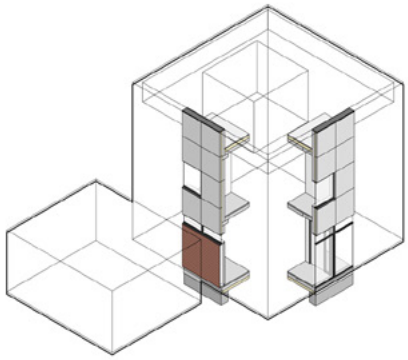
C.2 Surface

Whilst the cubic composition echoes early-modern architecture in its geometry, its materialisation is self-consciously twenty-first century.
The ‘palette’ is limited and clearly defined. The two prominent compositional components are variations in grey.
The ‘monolithic’ upper-volume displays the medium-grey of prefabricated concrete panels. These elements are smooth and flat, showing a subtle differentiation due to the casting-quality and have a gradually-acquired patina. All opening-sections consist of standard aluminium profiles, coated anthracite, whereby differences between fixed- and moving parts are not distinguished.
As a contrast, the partitions on the ground-floor facades and the rooftop pavilion are clad in conspicuous, purple hardwood (Padoek) cladding, giving an explicit, material expression.



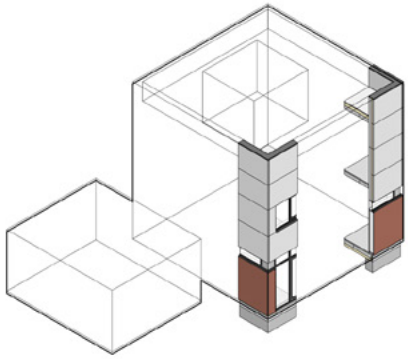
C.3 Opening

Besides the joints of the concrete-panels, it is particularly on the level of rhythmic variation and the relative proportions of the windows that the composition is brought to life.
One compositional theme is the sideward-placement of the openings in the upper sections, which relativizes the otherwise dominant symmetry of the overall cubic form.
The basic ‘measure’ underpinning all windows is 1 meter. Whereas a 4-meter section might have followed a regular rhythm of A.A.A.A, the design demonstrates a preference for variations on an A.A.B signature, whereby B = 2A.
This motif, which is repeated four times in the upper part of the building as well as in the shed, also forms the basis of the subtle variations in the sequencing of the lower facades, whereby the movable parts articulate the underlying repetition.



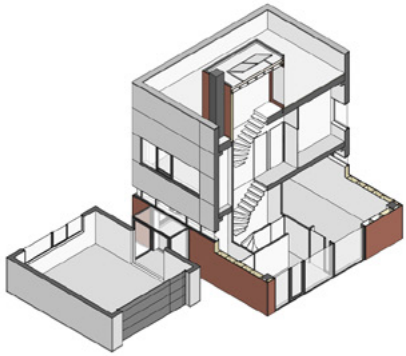
D.1 Junction

Essentially, the built configuration is composed of three structural systems, which are brought together following logical detailing-principles.
The prefabricated concrete system serves as the rigid and stable construction, whereby 'industrial' panels are used as the outer envelope. These concrete components are visually counterbalanced by the lightweight wooden 'infill' constructions. Between these are the sections with glazed windows and doors, positioned in frameworks of standard aluminium profiles, that roughly correspond with the insulation-cavity between the pre-cast concrete inner- and outer layers. The transparent surfaces are modulated on the basis of the functional placement of static- and open-able parts.
The 'catalogue' detailing corresponds with the rational and economical nature of the design.



D.2 Feature

One of the most characteristic aspects of the project is the way in which the three groups of surface-materials – concrete, wood and glass – 'go around the corners'.
The corner-transitions of the concrete-panels offer an indication of the actual dimensions of the outer building-components.
By contrast, the wooden planking-sections are continued around the corners with a visual 'thickness' that is a consequence of the necessary inclusion of the corner-columns.
The horizontal window-band between these two material groups appears to run around the building in one uninterrupted, sweeping gesture. However, where the corner-columns are positioned, a grey glazed panel, hinting at transparency, masks the constructional element behind. Compositionally, this *essential* corner-articulation comes across as a compromise.



D.3 Ensemble

In the exterior, the constituting volumetric components, industrial detailing and transparency underscore the near-abstraction of the cubic composition.
The starkly orthogonal composition contrasts considerably with the surrounding houses, which were built around the turn of the century in a somewhat Scandinavian, neo-vernacular style, with a rich variety of pitched roofs, materials and colours.
In the interior, it is particularly the light and lofty ground floor, with its flowing spatial experience, highlighted by the transparent, circumference window-band and the high ceilings, that is a characteristic quality. The connection with the workspace is entirely-glazed zone. The exterior domains have 'graphic' treatments in their floor-surfaces. This finesse is relativized by an increasingly-busy terrace-zone.





Development

The projected family-home plus workspace annex had to be realised within the constraints of a strict building-budget of some € 250.000,– amounting to € 300,– per cubic meter, excluding tax and interior appliances.
To make this work, Engel architects collaborated with specialists in the field of prefabricated-concrete building-systems.

By making use of a utilitarian concrete-component principle, the building-time could be minimised and by further making use of standardised building products, like aluminium exterior windows and -doors and off-the-shelf interior doors and -stairs, the house could be realised very quickly, in a durable and cost-efficient fashion.

The basis for the design is its elementary, cubic geometry of 9 x 9 x 9 meters, which is then ordered- and articulated in a highly systematic way, on the basis of an underlying measurement- and dimensioning system.
A characteristic of the design as a whole – and partially its facade-structure and surface-articulation – is the interplay between the measurement-systems of the 'concrete' upper part on the one hand and the 'lightweight', more transparent lower section on the other.

The variations in the design are methodically developed and meticulously integrated on the basis the following system of project-specific sizes and ratios:

— A ratio of 1 : 1 introduced by the 4,5 m long concrete cladding elements, visually dividing the upper volume into two halves;
— A ratio of 3 : 1 in the concrete panels, measuring approximately 4,5 × 1,5 m each;
— A ratio of 2 : 1 distinguishing the upper and lower sections, resulting in a 6 m top section and a 3 m lower zone;
— A ratio of 1 : 5 in the lower openings, resulting in a 0,5 m transparent 'band' running around the volume as a whole and eye-level openings with a height of 2,5 m.

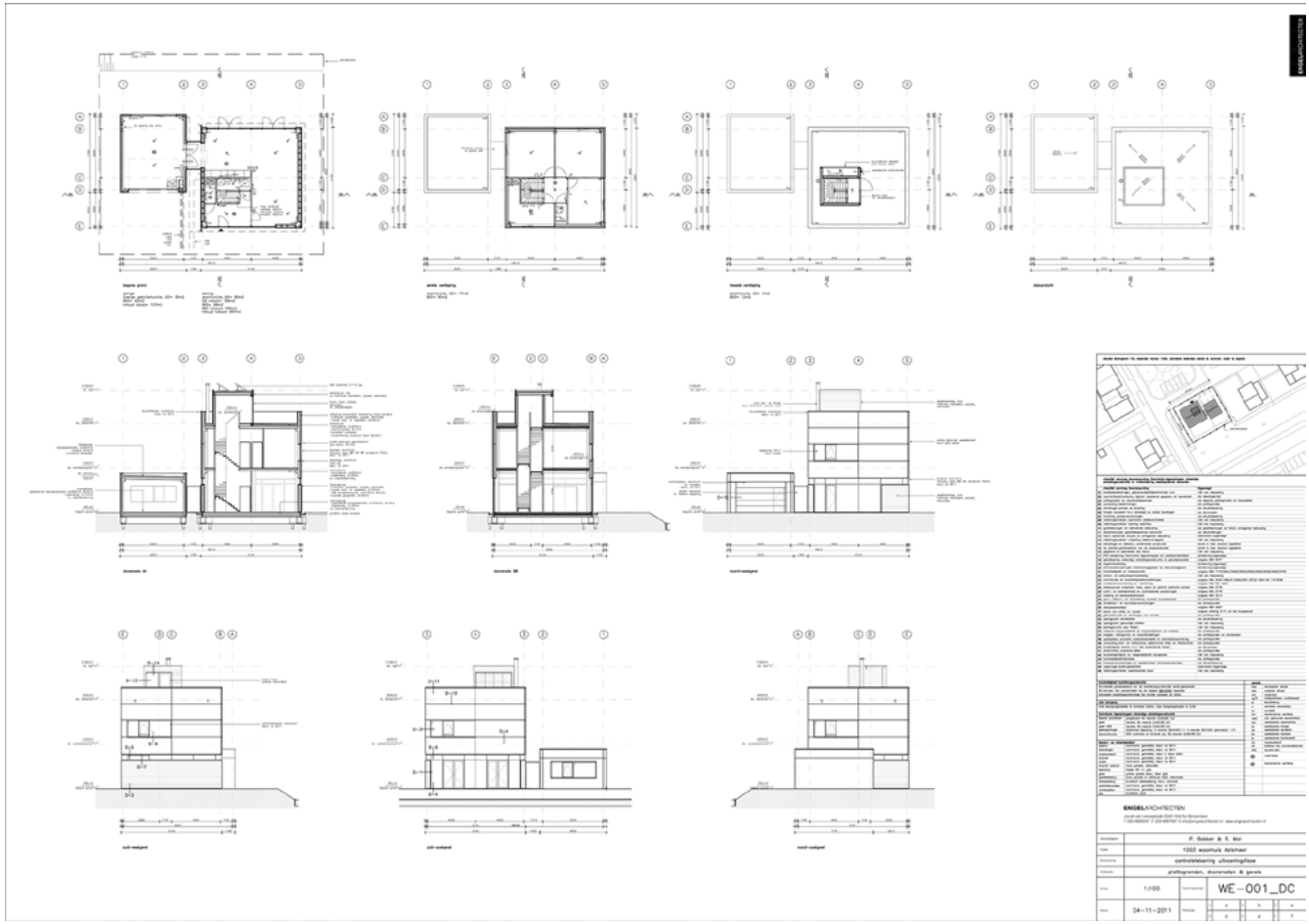
An underlying grid of 1 m as the basis for the vertical subdivision of all windows and doors. The basic 'measure' is 4 m per half-section, resulting from the fact that these sections fit between the wooden partitions which at the corners are 0,5 m wide (4,5 – 4,0 = 0,5 m). These sizes are also at the basis of the windows in the 'concrete' sections.

In the lower opening-sections, the proportions determined by basic 2m openings, interspersed by 1m sections for windows and doors (which then also, somewhat unfortunately, result in an extra subdivision of the upper band). This approach results in a standard 'motif' for all of the upper windows of 1 : 1 : 2 meters.

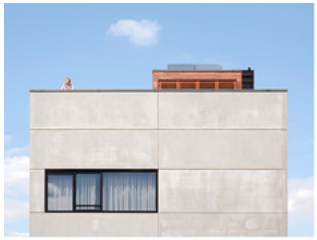
Two aerial views of the developing neighbourhood: without and with the house.

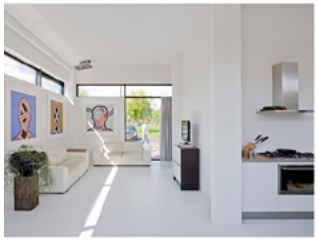
As the building-drawings demonstrate, the workings of all of its constituting elements and their connections had been thoroughly anticipated, integrated and specified, down to the smallest details, well before the actual building-process commenced.

This level of building-control was achieved by working in an integral, 3D Building Information Modelling (BIM) environment, employing clearly specified, industrially-produced components, whose dimensions and specifications could be retrieved online and uploaded directly into the integral design.



Digital profect-file of the Engel architecten project.








Professional publicity photos of the house (source Engel architecten).

Experience

The free-standing object is an eye-catching ‘connecting-device’, in a very specific urban configuration.
Due to its special location, it can be viewed freely from three sides and as a consequence: looks out in three, wholly different directions.
The subtly-articulated relationships between the house’s lofty and spacious ground-floor and its direct surroundings are arguably the building’s most prominent features.
Alternately, when one is up on the, somewhat artificial, roof-terrace it is possible to experience the whole neighbourhood discretely from above.

After only a few years, the building still looks ‘as good as new’, although the flatly detailed concrete panels of the upper section, which are open to wind and rain, have acquired a distinctive patina.
The originally bright-red wooden cladding has increasingly become dull and – during the last visit – was somewhat shabby-looking.
Also, the originally ‘abstract’ treatment of the private surroundings of the house, has begun to show signs of wear. The increasingly ‘cosy’ terrace area, along the water, has gradually become more cluttered. As a consequence, the lower window-sections of this part of the house have become somewhat hidden.






The house as the ‘closing-piece’ of the Nieuw Oosteinde neighbouhood.

Exterior:
The house's most 'public' side is on the side of the longitudinal canal that runs parallel to the suburban development's most important traffic-corridor.
From here the 'perfect' cube is reflected in the water, creating a powerful visual effect.
Next to the main-body of the house the workshop/garage comes across as a bit of an 'afterthought': a chunky concrete box, stuck into the ground, with a window that looks like it is a left-over from the main building.
Coming over the bridge and turning into the green-zone beyond, the powerful geometry of the house can be experienced in 'dynamic perspective. Up close, one passes one of more 'closed' lower facade-sections, entirely covered in somewhat 'busy' hardwood rebate-planking. This wooden wall-segment is folded-around to a quarter of the house's width, to reveal another transparent section, looking into the living-room on the right and opening up into the hallway-space on the left.
The encircling window-band, above these comes across as a distinct 'cut' between the two contrasting, materially-textured surfaces.
The workshop-annex is on this side rather nondescript, with a bland, industrial garage-door.
From a distance, the 2 : 1 ratio of the elementary cubic volume expressively comes across and the 5 : 1 ratio in the lower section is also clearly readable. However, the wooden box-element on top of the building comes across as something of an oddity, that distracts from the 'purity' of the overall composition.

Interior:
The ground-floor has essentially been conceived as an 'open-plan' living space, curled around the inner core, that houses the double-flight of stairs.
The family-area is in its entirety encircled by the 0,5 meters high transparent zone, under which – depending upon the orientation and the desire for privacy – strategically-positioned facade-sections either close-off or open-up the space to their direct surroundings.
The ground-floor living-area is higher than might be expected, due to the floor-height of around four meters. This means that a zone of white-painted industrial concrete actually forms the uppermost boundary of the generous space.
A nearly full-height cabinet-element has been integrated into the design as a 'pivot' between the front- and rear sections of the family-room.
Going up the double staircase, one reaches a neutral central corridor, giving access to four, more-or-less identical rooms: three bedrooms and one bathroom, each with its own, coloured door.
From here the stairs wind-up further, towards the roof terrace.
The crowning 'upper room' is bedecked with green artificial grass.
From here, one can look out over the axial arrangement of the neighbourhood for which the house has been conceived to be a kind of watch-tower 'closing piece'.






Minor House of the Future students on excursion: on top of the Engel house.






Different interior-views: first floor and ground floor.

Visualisation

The project by Engel architects was added to the AA study-collection relatively late, becoming the 'coda' to the series that up to then had concluded with the Baneke, van der Hoeven project (AA09).
The opportunity came about through my participation in an excursion, organised by students in the context of an educational application of which I was the coordinator.[6]
The choice was made after a subsequent chance-encounter with a popular, free-distribution magazine, in which the project was published.[7]

One of the reasons that the new house seemed to be of interest was that it highlighted a more recent urban development within the municipality of Aalsmeer; a matter that had not as yet been addressed.
As a detached family home, with an integrated 'business' section (the 'garage' extension functions as the commercial workspace for family's flower-arranging enterprise), it seemed to fit quite well into the AA study collection, consisting predominantly of market-gardeners' homes.

Furthermore, its compositional qualities and contemporary architectural expression – plus the fact that it had a geometry and scale comparable to the Wiebenga house (and the House in Black) – suggested that it might be a project worthy of comparative study.
The AA10 project proved to be a meaningful addition to the research-initiative, particularly on the level of systematic modelling and visual representation.

On the basis of the development-cycle of design conceptions and perceptions, the study of the project contributed to fine-tuning the conceptual layering-system, the choices of colours and model-based imaging (notably the use of cut-out sections and detail-fragments), which would then be applied methodically throughout; in the analyses and representations of the other AA case-study projects.

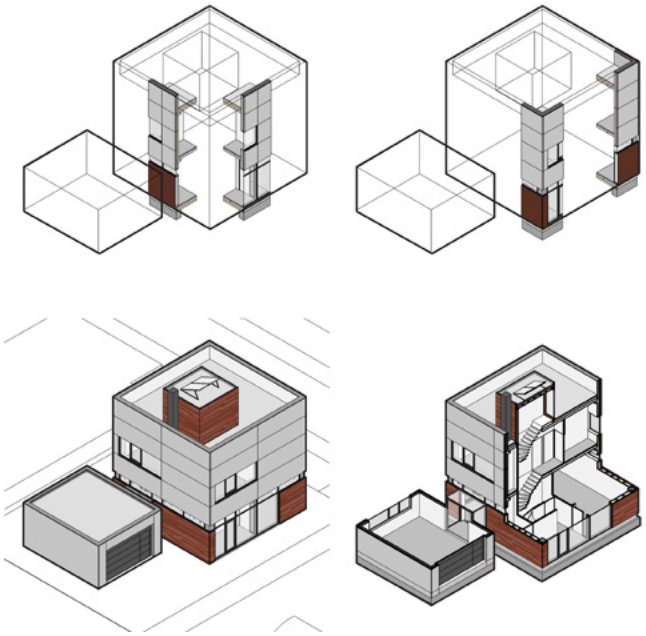
Apart from some hand-sketching, in order to explore the structural patterns underlying the facade compositions, all visualisation studies were carried out in a 3D digital modelling environment.
The thematic organisation and presentation of visual data, resulting from the developed 3D modelling approach, was presented for first time as a feature of an integral exhibition at the faculty, entitled 'Models'.[8]

The working-method, involving the subdivision into 12 distinct 'Perceptions', was pioneered and steadily refined in the various steps of study that this particular project underwent.
Initially, a cyclic organisation was proposed and worked out (see representations of some development stages) but whilst this setup was considered effective in a lager-scale 'exhibition' format, it was thought to work less-well in the context of the projected book.

Eventually, for the Patterns sections, a systematic framework was developed, consisting of four interrelated thematic 'files': a page each for: 'Space; 'Order'; 'Form' and 'Detail', each subdivided into three 'steps'.
In the context of the AA study as a whole, the AA10 casus was ground-breaking on the level of thematic exploration and representation, which in turn influenced the way in which the other projects were subsequently (re)considered and eventually presented in the different 'Patterns' sections

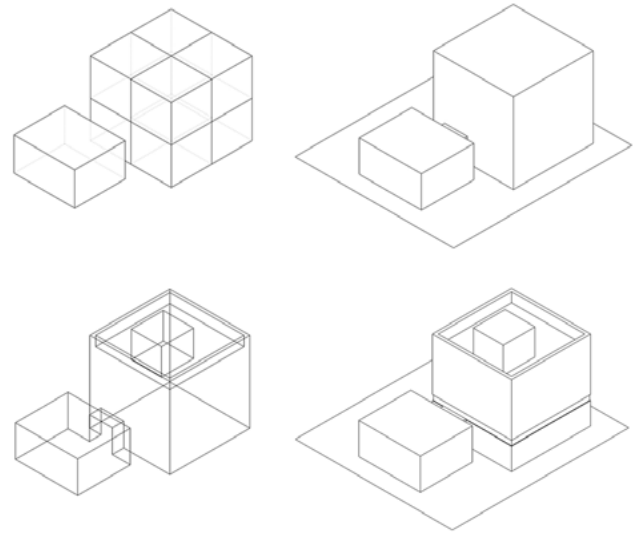
The following visual 'variations' are intended to give an indication of the insights that were generated in the context of the methodical model-based, thematic exploration of the AA10 case-study project:

— Volumetric Variations;
— Construction Variations;
— Detail Section Variations;
— Corner Variations (included in the 'Aesthetics' section).

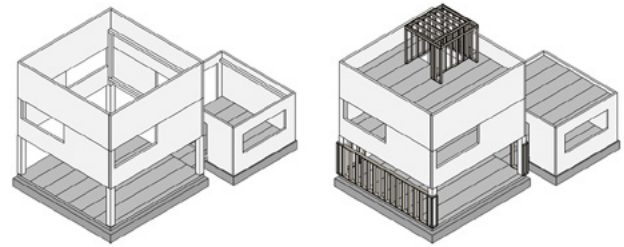


Explorative 3D model-based cut-away experiments.

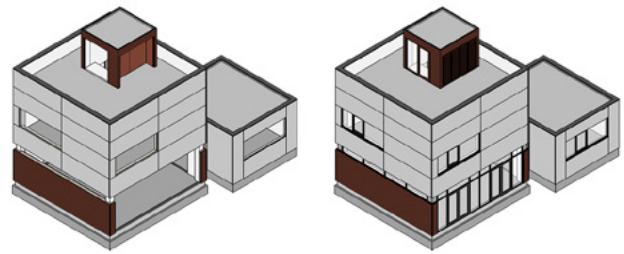
Volumetric Variations:
Like Chiba Manabu's House in Black, the project at first seems simple, but on closer scrutiny demonstrates considerable, albeit tightly-controlled, compositional variation, notably on the level of massing and plasticity.
The dominant formal element is the underlying 'pure' cube, offset by a clearly sub-dominant, but nonetheless strategically-positioned secondary volume.
Considered in its own right, the cube is less singular than it would at first appear.
Firstly, there is the compositional subdivision into a 'solid' upper section and a (semi) transparent lower section.
The impression of the concrete upper part as an entity is largely a matter of suggestion, as the roof 'garden' is as-it-were extruded from the perceived volume.
Similarly, the lower section suggests a truly open space, with only the four corner-columns and the sub-volume of the vertical axis as physical elements.
This 'Plan Libre' space is in actual fact higher than imagined, because it is extended upward into the 'mass' above. It is then articulated further by the wrapped-around upper window-zone and the strategically placed partitioning-elements that define the actual – eye-level – openings.
On the level of secondary massing, the recessed window-sections add a measure of plasticity.
Within the enveloping volume, the functional plans of the different floor-levels and the 'enveloped' spaces and their openings can clearly be identified.



Model-based explorations of elementary dimensions.

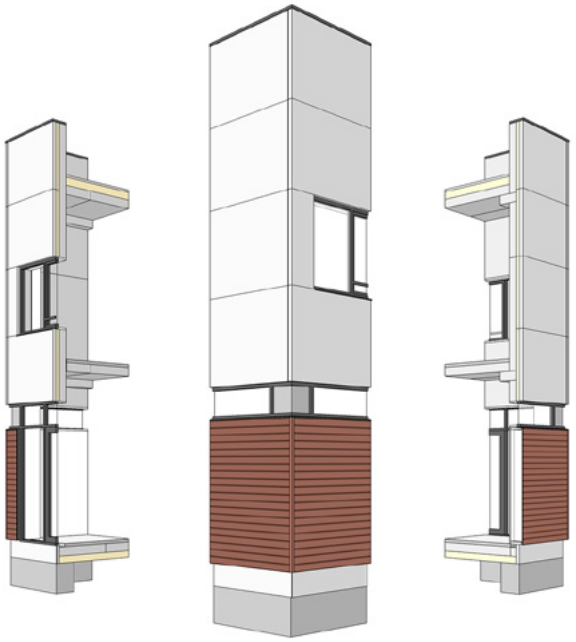


Construction Variations:
A quality of working with layer-based 3D modelling systems, such as the particular application developed for this study, activating particular layers in combination and then potentially manipulating them further in the 3D environment or using 2D illustration-software, is that this may offer insightful views concerning a building's *construction*.
One successful approach is to create an 'exploded-view' on the basis of the constituting parts.
This has been put to effect in project-study AA05 (in which the elements were as-it-were pulled outwards) and with casus AA07 (in which the elements were de-constructed vertically).
In this case, it is particularly the building-process, that is fundamental to the project's design, that is worthy of simulation.
As a consequence, an attempt was made to model the project as an 'assemblage' of building components in a building-sequence.



Assemblage principle: prefab load-bearing construction and cladding elements.

Detail Section Variations:
The AA10 project proved to be a particularly interesting casus for the development and testing of – combined – model-section views.
In earlier project-studies (notably AA04, de Klerk and AA09, Baneke, van der Hoeven) the value of such 'cut away' section-based visualisations, generated on the basis of the integral 3D model, had already become evident.
This model-based visualisation method is particularly effective when trying to reach a better understanding of the project as a complex whole.
What was attempted for the first time, with this project, was to combine two or more such axonometric views into one integral, visual whole.
By 'merging' two different spatial sections, imaginative insights could be generated, underscoring the interrelationships between the interior spatial organisation and the exterior appearance.
This method was subsequently applied for each of the ten AA projects, becoming the last model-view for the 'Ensemble' analyses in the 'Patterns' sections.
Another, potentially insightful approach that was pioneered is the combination of detail-sections on the level of 'Junction' and 'Feature' viewing these in perspective, rather than as an axonometric projection.







Different segment-variations assembled (see also: 'Aesthetics').

Position

Engel architects is representative of a generation of computer-literate designer/entrepreneurs, who were formed by the architectural climate of the 'new-wave' nineties and have managed to successfully ride-out the enduring financial crisis that decimated a large part of the previously-thriving Dutch architectural community.

At the time that the Nieuw Oosteinde project was realised, the global credit-crisis had begun to hit the Dutch economic scene with a vengeance.
Nowhere were the effects of this crisis felt stronger than in the building-sector. Whilst up-to-and-including 2008, the building-market (and hence: the architectural sector) was supposed to be 'booming', things soon ground to a halt.
The consequence was that a large number of previously-successful offices found themselves in dire straits. Some projects, which were already underway, could still be completed, but various initiatives that were being counted on, were cancelled.
A large number of architectural firms – particularly somewhat older- and less adaptable ones – were forced to radically down-size, many collapsed altogether.
If we try to get an idea of the top-end of the architectural 'scene' at the time – by scouring the Dutch Architectural Yearbooks for 2011–2012, 2012–2013 and 2013–2014 – we may recognise two categories of projects, which were then highly topical:

— Representative, larger-scale, often long-term projects (frequently involving re-use or extension);
— 'Precious' inventions, often relatively unique, compact, but inventive building-interventions.

Twelve 'representative', larger-scale projects from the years 2011, 2012 and 2013:

2011 : Dok architecten: Renovation Maritime Museum, Amsterdam;
: Erik van Egeraat: Extension Drents Museum, Assen;
: Rapp+Rapp: De Kroon high-rise building, The Hague;
: Soeters Van Eldonk: Zaanstad Town Hall, Zaandam;
2012 : Molenaar / Hebly Theunissen: Justus District, renovation, Rotterdam;
: Cruz y Ortiz: The New Rijksmuseum, Amsterdam;
: Benthem Crouwel: Stedelijk Museum Amsterdam, Amsterdam;
: Delugan Meissl: EYE Film Institute, Amsterdam;
2013 : diederendirrix architecten: Anton Building, renovation, Eindhoven;
: OMA: De Rotterdam, high-rise building, Rotterdam;
: MVRDV: The Glass Farm, mixed-use building, Schijndel;
: Neutelings Riedijk Architects: Rozet, library- and arts centre, Arnhem.

Twelve 'precious', relatively small-scale projects from the years 2011, 2012 and 2013:

2011 : Fact Architects: Glandorff - Blom House, IJburg, Amsterdam;
: Dick van Gameren architecten: Villa 4.0, Naarden;
: Hans van Heeswijk: House Rieteiland, Amsterdam;
: Koen van Velsen: Paleis Het Loo entrance building, Apeldoorn;
2012 : denieuwegeneratie: Dutch Mountain house, Huizen;
: GAAGA: Stripe House, Leiden;
: Abbink X De Haas: Between the Shets/ Damast House / Studio, Amsterdam;
: Bureau SLA / Overtreders W: Noorderparkbar, Amsterdam-North;
2013 : M3H architecten: Wenslauerstraat Houses ('huisjes'), Amsterdam;
: nine oaks: Noord-Sleen House, Noord-Sleen, Drenthe;
: Onix: Stair House, Almelo;
: Architectenbureau Paul de Ruiter: Villa Kogelhoff, Kamperland.

The relatively young and technically-adaptive design-practice of Maarten Engel managed to weather the crisis-years relatively well. Examples of Engel's growing neo-modernist oeuvre include the Villa Blauwestad (Northeast Groningen, 2010) and Villa Kerkebosch (Zeist, 2015).
A project that, similarly, uses prefabricated concrete as an expressive material, although on a grander scale, is Studio Architecture's Villa-B project (Oostvoorne, 2013).[9]

The theme of the 'floating box' – strategically positioned in the typically-Dutch (water) landscape – can also be found in modern houseboat-designs, such as the water-home project of Baneke, van der Hoeven (Loenen aan de Vecht, 2005) and Piet Boon ('hart van Nederland').[10]
Another, representative 'box-project' in the Aalsmeer area, is Paul de Ruiter's elegantly-proportioned Villa Röling, built in the Kudelstaart enclave of the municipality, overlooking the Westend lake (2008). It consists of a transparent ground-floor with a seemingly-suspended upper volume, clad in partly-movable wooden lattice-work.[11] A more recent project by Paul de Ruiter and his office is his iconic Villa Kogelhof, built on Noord Beveland (2013).[12]
A recent addition to the – increasingly recreation-based – cultural landscape of Aalsmeer is a modern houseboat, designed by Kodde architecten, Amsterdam (2015). It is situated alongside a piece of leisure-land on the northern side of the Uiterweg, in one of the backwaters of a former market-gardening complex.[13]
Such contemporary projects have proved to be particularly interesting in the context of architectural education: as precedent-based model-study driven learning-application, notably in the BSc elective Minor 'House of the Future'.[14]

Discourse

Increasingly, attractive plots in- and around Aalsmeer (particularly along the Uiterweg) have been taken over by imposing exemplars of the 'free-market' development-sector.
This has given rise to consumer-oriented aesthetic 'formats', often 'retro' in expression but totally 'now' in their material execution and comfort-levels.

In this context, this house is an a-typical sample of the self-build culture that has slowly-but-steadily caught on in the Netherlands.
Specialised firms and popular publications target the 'happy few', who are in the opportunity to build their own home.
Browsing though the specialised magazines, targeting the segment of society that is in opportunity to build their own home ('eigen huis'), one comes across a number of advertisements for specialised building-firms, offering 'turn-key' solutions 'under architecture'.
Such choice-based consumer-developments have been fuelled to a large extent by the influx of new computation and communication techniques.
In the context of this study, the Engel-project is also of interest because it marks a meaningful transformation of working methods, in the *practice* of architecture as well as in its *education*.

From around 1980, computation began to play an increasingly important role in the architectural office. At first, this primarily involved calculating and drafting with the computer, via unrelated software applications. Subsequently computer-modelling, using texture-mapping techniques, became an important attribute of design communication and presentation. Virtual reality experiments for some time showed promise, but as yet failed to deliver the 'fully-immersive' experiences that were envisioned.

These instrumental developments coincided with a significant, technique-based stream of architecture that has been identified as (Hi) 'Tech'.
Essentially, technical developments were fuelled by the ambition to innovate on the level of architectonic design and production. An important factor was the distinction between load-bearing structures and enveloping structures, plus the evolvement of new methods of product-design and production. In such 'tech' approaches the accent lies on issues of inter-connectivity and assemblage of cleverly-conceived *components*.

At the faculty of Architecture of Delft University of Technology, such montage-oriented methods were high on the agenda around the fin de siècle and professors like Mick Eekhout, Moshé Zwarts and Alan J. Brookes tried to stretch the technical boundaries on the levels of invention and innovation, particularly in space-structures and (glass) facades.
A group of product-oriented designers (including Cepezed, Benthem Crouwel, Thijs Asselbergs, Zwarts & Jansma) tried to actively 'push the envelope' in architecture.[15]

Around the turn of the millennium, many CAD/CAM professionals foresaw integral applications, with the kind of interactivity of computer-game applications, which would drastically change the field of architecture.
One of the contributions to the ongoing discussion at the time, was a playful 'online dialogue concerning new-media perspectives', which I developed together with my colleague Robert Nottrot in 2000, entitled 'Project α2Ω'.
The guiding idea: *"a virtual space in which the building is actually 'built'."*

A brief except:

> *"… All bits and pieces are, as it were assembled there. All layers concerning the physical aspects of the building's design sharing this specific interface. A real building in a virtual world. … I'm suggesting that you (and other participants through their own entrances to the system) would construct a building in Space with gravity, light, materials, geodetic conditions. Sound, Heat, Wind, even Time?…"*[16]

The working-methods of the architectural discipline have changed dramatically due to influx of various modes of, increasingly ubiquitous, computer-based imaging- and networking platforms, frequently used in combination.
This change has taken place within a relatively short time-frame.
Traditionally, the architect was the 'drawing master' who possessed specialised skills, belonging to the gradually-acquired *craft* of the designer.

If we look back at project AA09, in the first phase (in the nineties) the art of hand-drawing was still a matter of importance, with the deliberate, visual abstraction of axonometric projections and 'exploded' views.
By the time of the second phase (in the early years of the 21st century), 2D computer-drawing had become the norm.
Project presentations became the domain of professionals creating renderings that seemed so 'real, that the term 'virtual surreality' was popular for some time.

By comparison, the BIM technology of today comes a long way towards a practice of virtually 'constructing' a design in a digital working environment, although the interfaces do not yet allow for 'immersive' interaction with the project that is under development.
Mastering such techniques requires the development and steady perfection of insights and skills, which we might consider as a *new* kind of craftsmanship.
Craft, not in a 'traditional' sense, but in a thoroughly-contemporary perspective: the designerly 'craftsmanship' of component-based assemblage, in a fully-digitised, creative working environment.
Such new working methods still require what Richard Sennet identified as an *"intimate connection between hand and head."*

Sennet:

"Craftsmanship may suggest a way of life that waned with the advent of industrial society – but this is misleading. Craftsmanship names an enduring, basic human impulse, the desire to do a job well for its own sake.
Craftsmanship cuts a far wider swath than skilled manual labour; it serves the computer programmer, the doctor, and the artist; parenting improves when it is practiced as a skilled craft, as does citizenship. In all these domains, craftsmanship focuses on objective standards, on the thing itself. Social and economic conditions, however, often stand in the way of the craftsman's discipline and commitment: schools may fail to provide the tools to do good work, and workplaces may not truly value the aspiration for quality. And though craftsmanship can reward an individual with a sense of pride in work, this reward is not simple. The craftsman often faces conflicting objective standards of excellence; the desire to do something well for its own sake can be impaired by competitive pressure, by frustration, or by obsession. …
Every good craftsman conducts a dialogue between concrete practices and thinking: this dialogue evolves into sustaining habits, and these habits establish a rhythm between problem finding and problem solving."[17]

By the second decade of the new century, the introduction of integral BIM modelling-techniques, making active use of online catalogues, has contributed to innovative – product-based – approaches.
On the one hand, this allows for a tighter control of costs, on the other hand it has also led to a more 'collaborative' working-relationship between designers, developers, calculators and builders.

The consequence of this practice is that the architect has few remaining 'secrets' and that there is an increased pressure to concretise building decisions early-on in the development process and to make snappy decisions, primarily on the basis of financial considerations.

We are arguably witnessing what might be considered as a second *shift* in the 'craft' of the architectural design discipline. Whereas the architects before 1900 tended to be trained in the refined translation of tectonic convections and the integration of decorative motifs, which would be executed by skilled craftsmen, the architects of the twentieth century were particularly driven towards the realisation of 'unique' solutions, complete with project-specific inventions on the level of form, technique, utility and expression.

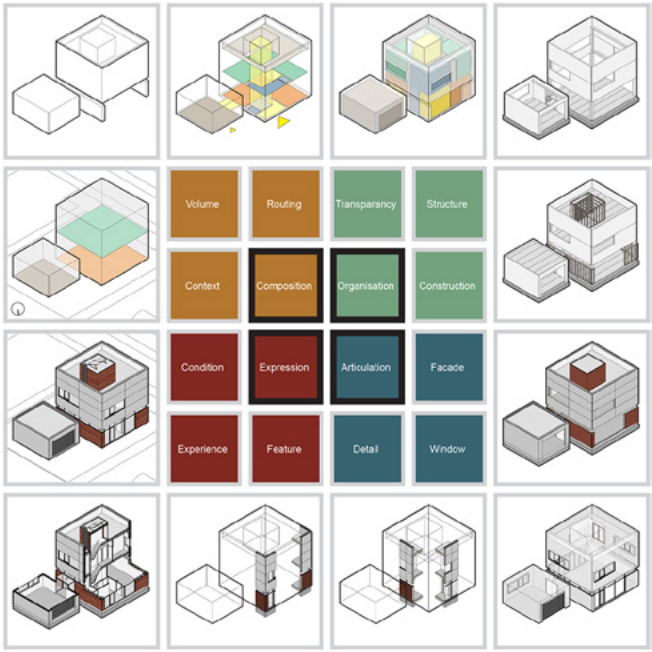
By comparison, the early twenty-first century architectural landscape is determined by the skilled application of a variety of digital techniques, whereby the working-methods are increasingly product-driven and choice-based.

An indication of what might be considered to be paradigm-shifts in architectural craftsmanship:

— The 19th century: the era of the craftsman as an artisan:
— The 20th century: the era of the craftsman as a designer:
— The 21st century: the era of the craftsman as system-operator.

Although the Nieuw Oosteinde house was designed by a professionally-trained architect, it is arguably indicative of a gradual, but seemingly irreversible transition, whereby the role of the 'traditional' architect has become diminished.

A transition that marks the passing of what, in retrospect, may be considered to have been the 'Architects' Century'.



Thematic AA10 collection, presented in the 'Models 'exhibition, BKexpo, 2014.

Aesthetics

Technically and stylistically, the realised building is a 'product' of its time, displaying the consequences of product-based design, making optimal use of online-technologies and economic, 'market' factors.
The project demonstrates a creative ambition as well as a skilful and controlled combination of available resources.
The house offers a 'tailor-made solution', whilst making optimal use of industrially-fabricated products, which have been developed for an increasingly international, networked 'building-market'.

Although various compositional- and experiential themes may be recognised as being at interplay in the realised building, I would like to identify and briefly discuss two particular aesthetic themes:

— *System*: the efficient assemblage of articulate, predetermined elements within a 'whole';
— *Styling*: the integral 'construct' of this whole and the visual expression of its integrated parts.

As an integral composition, the house exudes a kind of 'imperfect perfection'.
On the one hand, the cubic ensemble, with its somewhat understated annex, evokes a measure of modernist sentiment in its geometry, but on the other hand, in its materialisation and dimensioning, it comes across as being truly contemporary: a product of the building-culture of the early 21st century.
The project is self-consciously 'no-nonsense' in its conception and execution, having an added sophistication due to the precision of standardised, industrial components and a feeling of luxury due to the open-plan living-section with its surprising height.
Aesthetically, the understated annex comes across as a 'poor cousin', next to the powerful, geometric presence of the main-house.

Essential aesthetic themes are balance & tension, expressed in the elementary symmetry of the volumetric object, contrasted by consciously applied asymmetries within each elevation as an entity, lending the perceived building one might say: *just enough* visual complexity.
Pragmatic expression as an intrinsic part of the design ambition.

Fittingly, there is no explicit ornamentation whatsoever. The accent lies on the themes of volumetric geometry, measure and proportion, as well as an understated emphasis on surface textures.

The ever-returning compositional theme of 'the corner' might have given occasion for a level of 'ornamental' articulation.
As has been mentioned in the 'Feature' section of the 'Patterns' analyses, one of the most eye-catching – albeit somewhat frustrating – compositional qualities of this building is the way in which the corners have been articulated.
Occasion for the brief consideration of a 'variation', which was carried-out to playfully address this theme…

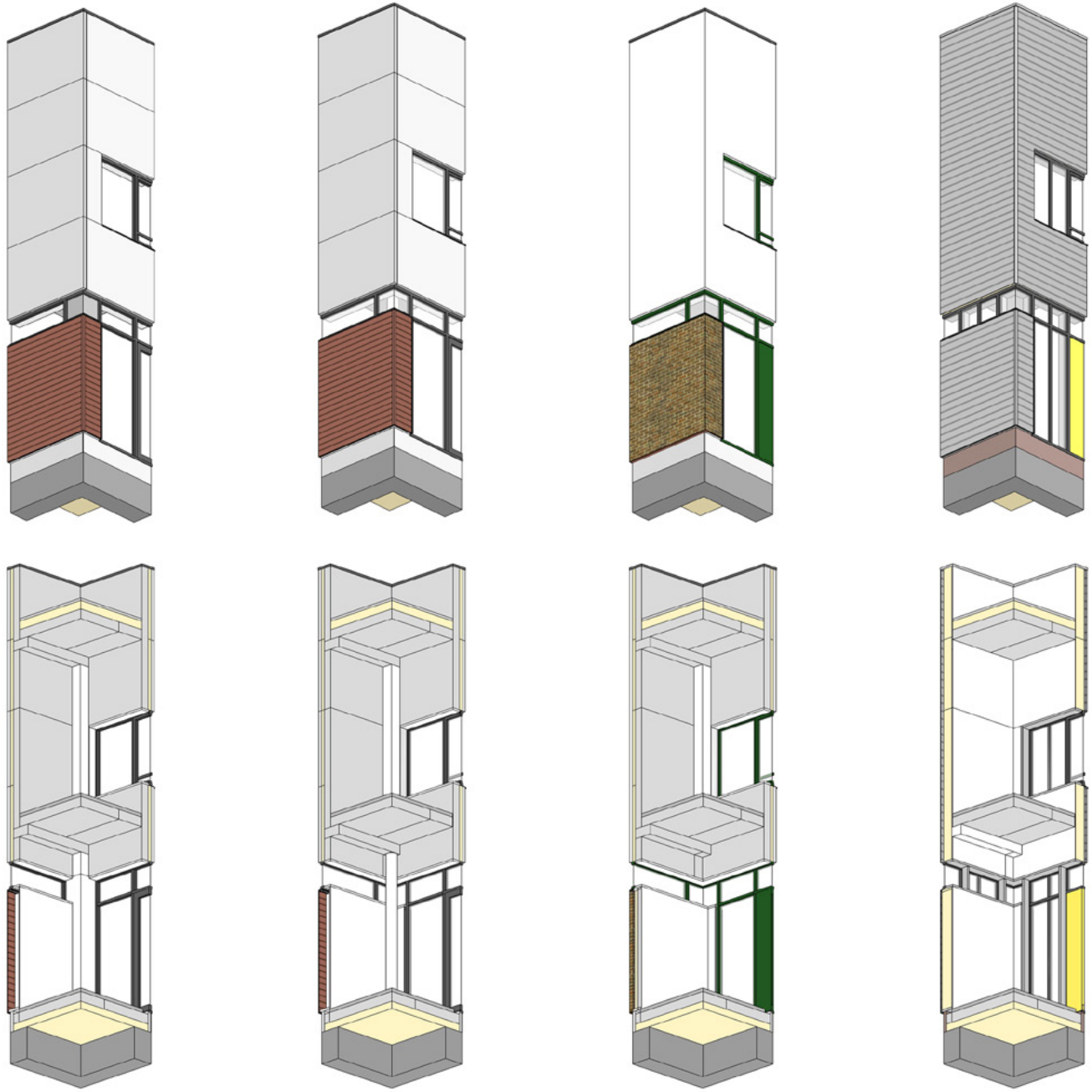
Corner Variations:
In keeping with the rather austere, no nonsense approach of the project with its standardised construction system, the corners of the lower floor are reserved for concrete columns.
This in itself is a logical choice and it means that the rest of the floor-plan is entirely free of constructive elements, but it also means that the, perhaps intended, effect of the upper building-volume to seemingly 'float' above the rest is frustrated.
At the corners, the horizontal window-bands are visually folded around the four 'legs' in a way that suggests a desire to hide them, by using grey-painted glass.
In the light of the various ways in which de Klerk, Duiker and Wiebenga have exploited their – open – window corners for dramatic, ornamental effect, this solution comes across as somewhat of a missed opportunity, indeed a compositional compromise.
It therefore seemed worthwhile to close-off with some 'variations' on this Corner theme, inspired by the solutions that went before.
The idea behind these model-based variations was to see 'what might have been', should the column placement and the outermost cladding of the building have been resolved in a distinctly different way.
Four variations on the same theme are juxtaposed, whereby aspects of two other AA Variations projects have been picked up.

The sequence is as follows:
— The corner of the Engel house as it has been executed;
— The corner of the Engel house with an 'open' corner, with a slender column, placed inside;
— The same corner translated in a way that is similar to the
— Wiebenga house (AA07);
— The same corner translated in a way that is similar to the
— Duiker house (AA05).

Engel architects' Nieuw Oosteinde house can be appreciated as an eloquently-sober artefact that is representative the cultural and economical climate of the 2010's.
In this sense, one might consider it to be an 'exception that confirms the aesthetic conventions of its time'.[18]

Up to recently, the majority of detached houses tended to adhere to neo-traditionalist formats, with pitched roofs and 'original' materials, in some cases including romantic features such as thatched roofs.

In recent years, other 'retro' styles have gained popularity. The architects of the early twenty-first century no longer appear to be seeking a 'new' style, that expresses the mood of times, like the pre-war modernists, the neo-traditionalists and the new-wave modernists.



Corner variations, inspired by Wiebenga (AA07) and Duiker (AA05).

'Style' in this day-and-age is not so much a matter of conviction, whereby a particular designer will work in a specific aesthetic *idiom*, but has increasingly become more a matter of 'styling' on the basis of precedents: the now-iconic movements and projects of the 'heroic' past, but also the developments of the late twentieth century.

Some – currently – popular 'neo-formats':
- Neo Vernacular styling;
- Neo (neo) Classicist styling.
- Neo Thirties styling;
- Neo Delft School styling;
- Neo Modernist styling;

In the Netherlands, the 'market' has become increasingly influential, having' filled-up the gaps' that have come into being in the architectural discipline in the 'difficult years'. Particularly when it comes to larger-scale developments, architects are expected to respond to 'what is called for'.
Why invent, when there is more than enough already out-there, which can be creatively 'cut, copied and pasted'?

Aimee Mann:
"Say hello to my new creation.
Because it's better than real,
It's a real … imitation."[19]

In the 'pure' as well as the applied arts, 'originality' has become less of an *essential* issue and 'citation' – as well as blatant *imitation* – have increasingly become norm.
As a consequence of what might, in a positivist sense, be called a 'new tradition', retro-traditionalism and watered-down 20th century adaptations have become the norm and *nostalgia* reigns.[20]
As music-critic Ian MacDonald recognised, a 'nostalgia industry' had come to dominate the music-scene of the late-20th and early-21st century, whereby the inventions of the Golden Era of popular music culture – the 60's and 70's – were recycled relatively indiscriminately and 'reworked' using digital sequencing- and production software, for the indiscriminate consumer of the present.

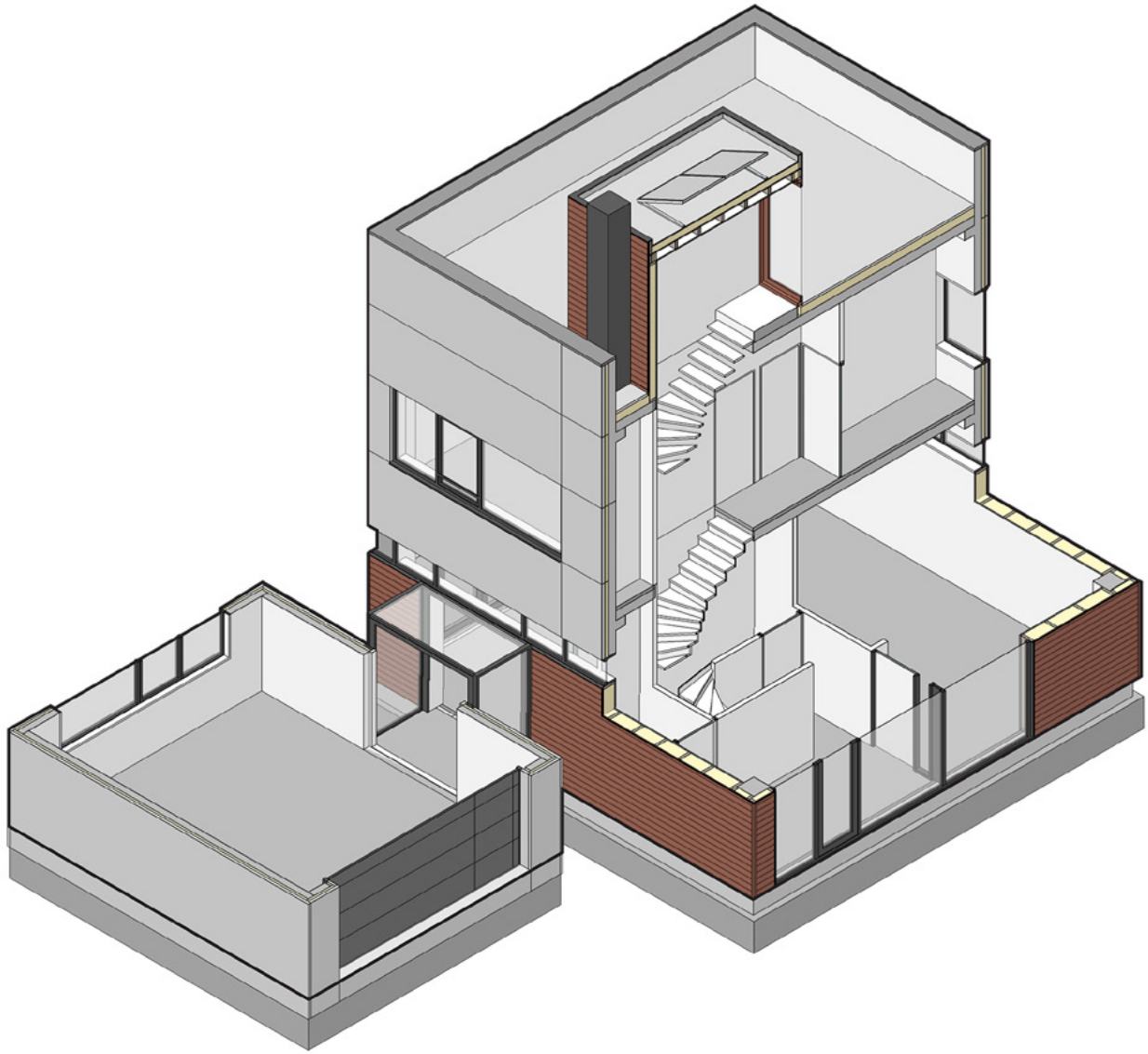
Ian MacDonald in *The People's Music*:
"Development has largely ceased to be a subject of art, which focuses on static states of situation and personality around which action (or inaction) is disposed for its own sake. Ours is increasingly an adolescent civilisation living chiefly for the thrill of the present; hence the popularity of the nostalgia industry, which essentially preserves the past thrills of earlier present moments as an array of cultural triggers and mood associations. If the actual present becomes insufficiently stimulating, past presents may be called up and re-experienced."[21]

As a part of the (post)crisis developments, the role of professional architects seems to be in a state of flux.
As a consequence, individual houses tend to increasingly be 'designed' by combinations of project-developers and building-contractors, rather than by architects.

That aesthetic preferences have steadily shifted from (neo)modernism to 'retro-style' architecture-formats, which appear to be dictated by capital-driven entrepreneurs, who apparently believe they are in-the-know as to what "the public wants."
In the nostalgia-driven building-market of the 2010's, re-adaptations of '30's formats have been the favourite, albeit with contemporary materialisation, detailing and conveniences.

Contrasting with this retro-historic mainstream is a relatively popular aesthetic sub-category that might be characterised as Rational Neo-modernism, of which the Nieuw Oosteinde house can be considered a representative.

With its combinations of strictly-orthogonal geometries and sculptural mouldings, as well as its articulations on the level of technical detailing and surface-expression, the project is – in essence – a product of a uniquely twentieth-century aesthetic: Functionalist Modernism.



Combined cut-away rendering of the Engel project.

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1 At the time of completion of this project. The office has since then moved to Hilversum, with commissions now mainly in the Gooi region and surrounding areas.
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3 Source: The architects' website: www.engelarchitecten.nl/
4 Mission statement, taken from the Engel Architecten Website.
5 Article:, Marije Smit, *Verrassende betonnen kubus*, in 'Kavel & Huis', Interdijk B.V. (2013). Architect Maarten Engel, in the interview that is part of the article:
"Als zodanig vervult het ontwerp een belangrijke functie …
Op de kavel moest iets opvallends gebeuren, dat was duidelijk. Een brugwachtershuis, direct naast de brug, bijvoorbeeld."
6 The excursion took place in the fall of 2012, in the context of the third year BSc Minor entitled 'House of the Future', of which I was then the coordinator.
7 The 'Kavel & Huis' magazine targets potential builders of individual homes on 'free' plots of land. The house by Engel architects was included in the February – March edition, 2013.
8 The exhibition, entitled 'Models', was organised and curated by the author in June 2014 to highlight the opening of the new Expo facility at the Delft faculty of Architecture.
9 The Villa B project was published extensively in the life-style periodical *Excellent* (2013).
10 The minimalist project is published in the book 'Piet Boon 3', Terra Lannoo, Houten, 2011 and figures on the website of Piet Boon® as 'Dutch Floating Home (The Black Beauty Box)', no situation or date given.
11 The Paul de Ruiter project in Kudelstaart was modelled in the BSc application House of the Future (2016-17), faculty of Architecture, TU Delft. See: Sources.
12 The Paul de Ruiter Villa Kogelhof project was modelled in the BSc application House of the Future (2016-17), faculty of Architecture, TU Delft. See: Sources.
13 The Kodde architecten Aalsmeer houseboat project was modelled in the BSc application House of the Future (2017–18), faculty of Architecture, TU Delft. See: Sources.
14 The model-based study-method has been inspired by earlier studies by faculty-member Max Risselada, notably in his *Raumplan versus Plan Libre* project (1987).
15 See also: project AA09, Baneke, van der Hoeven (in the 'Position' section).
16 Jack Breen & Robert Nottrot: *Project 2Ω.* In: *the Proceedings of the eCAADe18 conference, 2000*, pg. 295.
17 In: 'The Craftsman', page 9, the published text, the end of this section reads:
" … and these habits establish a rhythm between problem solving and problem finding."
In the quotation, I have taken the liberty of turning the last two concepts around.
18 "Een uitzondering die de regel bevestigt".
19 Aimee Mann in: *Frankenstein* (Aimee Mann, John Brion).
On: *I'm with stupid*, Geffen records inc., 1995.
20 The book *The new tradition, Continuity and tradition in Dutch architecture* (2009) addressed the consequences of this cultural phenomenon relatively early-on.
21 In the post-millennial era, nostalgia has become a trait of several art-forms, besides architecture notably in contemporary ('popular') music as cultural critic and music-writer Ian MacDonald has poignantly expressed.
Ian MacDonald, in: *The People's Music*, Pimlico, London, 2003. Pg. 208–209.



The Engel project, in a popular self-build publication.

8. Evaluation

8.1 Results & Findings
8.2 Conclusions & Perspectives
8.3 Epilogue
8.4 Propositions

8.1 Results and Findings

8.1.1 The AA Collection

In its defining phase, this endeavour was part of a research programme entitled 'The Architectural Project and its Instruments', which was initiated by the Architecture department of the faculty of Architecture and the Built Environment.[1]

The notion of the 'project' is central to architectural design, research and education.
By making them part of a *project*, the thematic- and instrumental reconnaissance initiatives, which have shaped the study as a whole, have acquired an well-arranged and manageable format.
The 'architectural project' initiative, involving inception, conception and realisation, has formed the basis of a series of precedent-based studies, which were intended to explore, enlighten and inform.

If I were to make a (closing) exhibition, on the basis of the various projects that have gone into this study and the results it has generated, I would introduce a *thematic* hierarchy, on the basis of the dialectic relationship between education and research.
Thereby, a significant 'in-between' realm would be reserved for the fields where these two *overlap*.
The tasks related to devising and implementing a foundational Form Studies curriculum would be the most specific representative of the composition-based *didactic* line and the model-based precedent studies (such as the House of the Future and Analytical Models) would be represented in the middle-ground, alongside education-based research initiatives, such as the BK-, Tugendhat- and Ledoux Variations.

The project-study that was carried out on the basis of the Umgebinde casus would thereby be a representative of a more-or-less 'pure' form of exploration-based *descriptive* research; the subject-matter of which might arguably have been sufficiently substantial to have warranted a PhD study in its own right.

Naturally, the ten Aalsmeer projects would represent the *core* of the Patterns & Variations project, in the sense that they have given opportunity for a variety of *interrelated* research approaches: thematic, schematic, experiential, historic, cultural *and* aesthetic.
Although the AA projects were originally chosen mainly on the basis of 'gut feeling', it is in retrospect quite remarkable how *representative* they have turned out to be.

The interesting thing about *each* project (albeit some more than others) is the way in which recognisable and distinguishable compositional 'patterns' can be identified and addressed. As it has turned out, these creations – and their creators – could be 'positioned' in relation to the changing cultural climate of architectural developments in the Netherlands and in some cases: beyond.

In the context of this study, these projects have, in the long run, yielded more insightful information than was originally foreseen.
This may be due, at least in part, to the compositional *qualities* of the projects themselves, but in all probability may also be attributed to the *method* of reconnaissance that was developed and applied: by trying to uncover, identify, visualise and describe as *much* as possible.

As such, the choice of the ten projects may in retrospect be considered to have been an intuitive 'lucky shot', but may just as well be seen as an indication that just about *any* set of projects may be worth studying, as long as there is sufficient *complexity*, making the act of designerly *unravelling* a challenging endeavour and the *interpretation* of the findings a rewarding mental achievement.[2]

In this sense, I would argue that architectural research does not always have to focus on 'great' works of architecture, on the contrary.
If the ambition is to understand the architecture of an era, it may actually be possible to learn *more* from professionally designed, well-crafted buildings than from the *exceptional* buildings of the period, no matter how 'iconic' or 'canonical' they are considered to be.

8.1.2 Conceptions

One of the most ambitious aspects of the Patterns & Variations study was in all probability the intention to develop a conceptual *framework*.
The underlying notion was from the outset that the creation of such an instrument would lead to a greater clarity concerning designs and designing, on the level of reference-study and interpretation, particularly for the benefit of students of architecture, but also for practitioners and other professionals involved in design-deveopment processes.
Furthermore, the idea was that such a thematic structure might lead to more *transparency* on the levels of architectural discourse and potentially: designerly decision-making.

A frequently-aired sentiment is that works of architecture are *so* complex – and design processes *so* unpredictable – that creating a 'toolbox' of compositional attributes should not only be considered futile, but indeed: *undesirable*.

Part of this may have to do with the 'mystique' of the architectural designer, as a combination of technical expert and creative artist, whilst at the same time protecting the 'business-side' of the profession from unwanted, uninitiated *intruders*.

Architects have been able to maintain the protection of their 'guild' quite successfully, particularly as long as the technical knowledge and visualisation-skills of the discipline remained their, more or less *exclusive* domains.
With the general availability of parametric, digital applications, the availability of industrial-component databases and the popularity of 3D visualisation tools, the architect's acquired traits have increasingly become less unique.

One might argue that 'decoding' the aesthetic conditions of architectural designs would only make matters worse for the architectural profession and hence: should *not* be attempted.
On the other hand – and that has been the guiding theme of this initiative – doing so might be expected to contribute to making architectural conceptions and appreciations more objective and hence: more *scientific*.

As has been described in the 'Conceptions' section, the development of a thematic framework has been a painstaking, *iterative* development process.
In some ways the 'definitive' set-up, as it is presented in the context of the outcome of this study, might still be considered to be an *intermediate* result: part of an ongoing 'work in progress'.
However, this would not do the product of persistent study justice. Although it is highly conceivable that other researchers would come up with a wholly *different* conceptual format and collection of themes, as has been the case in the past, I feel that this result deserves to be appreciated as a concerted attempt to create an intellectual body of work that is – at least, in its own right – *consistent* and potentially: *relevant.*

I have come to realise that the visual format that I have developed to identify the different conceptual 'layers', using a graphic 'logo-like' scheme, developed specifically for the purpose of visual *identification*, may be a crucial attribute of the conceptual construct. These visual 'codes' contribute to the recognisability of the design-attributes that I have tried to define and classify.

As is described in the introduction to the Conceptions overview, the 'outcome', which is presented in this study and has been systematically applied in the context of the AA Variation project, has gone through a large number of permutations, before I felt satisfied – and indeed: *confident* – enough to bring it out 'in the open', in the context of my PhD study.
Before this was done, several experiments were carried out on the basis of test-versions in a relatively limited-scope as well as in the context of education-based exercises.

The experiences, which were gathered on the basis of these try-outs, have strengthened me in my conviction that the thematic structure which I have developed has potential; at the very least as a frame-of-reference for analysis-based study approaches.
Furthermore, I can in principle foresee uses for such thematic categories in the context of decision-making and policy-making involving different 'actors' in planning and building processes.
Further opportunities might arise in the context of computational building-information modelling and analysis.

Most importantly, the way these categories have been made instrumental in this study – in the Patterns segments of the AA Variations project – suggest to me that they may prove to be of lasting value in the context of further design-based *and* design-driven study-initiatives.

8.1.3 Patterns

The envisioning approaches that were developed for the 'Patterns' levels of the AA Variations project were also developed in step-by-step, *designerly* cycles.
Spatial, structural and visual patterns play an important role in architectural design-activity as well as in the perception of the built object that is the outcome.
The 'power of pattern' is an essential attribute of architecture and I would almost go so far as to say that, even more than space-makers, architects are essentially package- and pattern makers.

In this case, the search for relevant 'patterns' should be considered in the sense of identifiable, recurring *themes*.
To bring these to life was predominantly a matter of finding and fine-tuning the correct *visual* means, which would not only 'work' in conjunction with a compact textual description, but also within the constraints of a graphic 'format', out of necessity using relatively small, printable images.

As has been explained in the 'Instruments' section, different 3D modelling-versions were developed and evaluated, before a concise visualisation approach, using different visual 'codes' for the comparable conceptual layers, was settled on.
This involved successive rounds of developing and testing – for each of the twelve compositional (sub)themes, often on the basis of one or a few of the AA projects – before the decision to determine a visual format, for a particular thematic layer, was eventually taken. Thereby, one of the most characteristic designerly issues was one of visual *reduction*: allowing for the accentuation of what needed to be identified, whilst consciously leaving out what was visually redundant or would end up being insufficiently readable, no matter how 'interesting'.

Throughout these rounds of model-based development, Bram van Borselen was not only my assistant, but also my 'sparring partner'. A new 'hunch' of mine would be discussed and tried out, in the 3D model or in special 'illustration' applications on the basis of the multi-layered 3D SketchUp model, after which the concept would be printed out, evaluated and developed further.
Once a 'standard' had been set for one of the twelve Patterns layers, this approach would then be implemented, on the level of the visualisation of the specific aspects, relating to all ten projects.

This iterative – two steps forward, one step back and then one or two steps forward again – process meant that graphic means were developed to concisely and systematically 'image' the ten, wholly different architectural artefacts, on the elementary compositional levels of Space, Order, Form and Detail; each subdivided into three, more specific imaging-domains.

The ambition was that the combination of a schematised project-representation, together with a compact, analytical text, would be more than 'one plus one', but that they would complement and enhance each other, making the projects themselves accessible in their own right, as well as making them systematically and evocatively *comparable*.
The imagery, which is now represented in a 'final' version of the AA Variations study, has for a considerable time been the subject of a dedicated 'work in progress'. The intermediate steps of thematic visualisation – a number of which have been included in the 'Visualisation' sections, per project – demonstrate that things might have turned out quite differently…

As the project's initiator and 'creative director', I must confess I still regularly feel an inclination to keep 'fine-tuning' particular aspects.
However, I have by now learned to suppress these instincts, for the sake of 'finishing the project'.
Having said this, I would in all honesty confess that the 'Patterns' overviews, considered as a visual collection, are the dearest to me of all of the initiative's results and in my eyes represent the most *characteristic* attribute of my Patterns & Variations study as a whole.
To reach this point, the 'Conceptions' layers, as well as the 'Patterns' images and descriptions, were developed separately, as well as in conjunction.
During the course of the project there has been a steady interchange of thematic notions and visual approaches, which have made the study challenging enough to stay interested, motivated and focused.

I hope that the sense of inquisitiveness, urgency and joy, which has always been at the heart of the intertwined Conceptions and AA Variations projects, may come across in the documentation of the body of work as it is presented here.

8.1.4 Variations

The idea of creating designerly 'variations' as an instrument for intellectual design-research, to shed light on the compositional attributes of designs and their interrelated workings, has been one of the driving forces of this targeted 'search'.
Thereby, the underlying notion was that *if* we might be able to recognise – and even: *generate* – 'alternative realities', in the sense of what a project might *otherwise* have become and *why*, we might actually be able to better understand the compositional qualifications of specific design artefacts *as they are*.[3]

Such 'variations' are a characteristic part of the iterative 'loops' that are typical of design processes, eventually leading up to the definitive proposal that forms the basis for the realised, physical entity.
Comparison and evaluation of design 'options' is also central to design-tutoring in education, whereby the presented 'end-version' of the project is assessed by the project-mentor in relation to the learning *process*.
In some cases, preliminary design-studies of projects may be discovered, which give an *indication* of what might have otherwise have been the outcome of the design process.
On the basis of such, sometimes rudimentary and inconclusive data, insights may be gained and impressions can be generated, giving scholars a better understanding concerning the shifting conceptual, programmatic, technical and aesthetic preferences of the designers.

With some the AA Variations projects, such *alternate* designs have proved to be particularly evocative, leading to a better understanding of the eventual, built and experienced project.
Examples of AA Variations projects where the uncovering of design 'substitutes' has led to a deepening of understanding were especially the projects by: de Klerk (AA04); Duiker & Bijvoet (AA05) and Berghoef (AA06 and AA08).
The Baneke van der Hoeven project (AA09) proved to be enlightening due to its *successive* design phases.
Other projects, demonstrating the potentials of designerly variation, were driven by comparisons between the different aspects *within* one building (notably in the BK Variations study on the basis of the 'old' Faculty of Architecture building) or within a collection of more-or-less *similar* projects, such as the Ledoux Variations and the Umgebinde Variations).

A major aspect of study – particularly in the context of the determination of visual 'standards' for the Patterns comparisons – has been the exploration of visualisation methods. A wide range of imaging probes has eventually led to the evolvement of the visual method, which has been applied in the 'Patterns' sections. Although various test-versions have consequently fallen by the way-side, they are not without merit in their own right and for that reason a number of these envisioning-experiments have been included in the 'Visualisation' sections of the individual projects.

Some, more specific, visualisation 'variations' that I would consider worthy of mention and potentially of further development can be characterised as:
- *Volume* variations and *proportion* variations (particularly on the basis of de alternative de Klerk designs, AA04);
- *Coding* variations (notably on the basis of the 'Object' and 'Structure' layers of the J.J.P. Oud project, AA03);
- *Photo-editing* variations (visual manipulations on the basis of photographs of physical models of the Duiker & Bijvoet project, AA05)
- *Daylight* variations (colour-coded schemes, made using digitised plan-drawings of the Baneke van der Hoeven project, AA09).

These are but a few of the variation-approaches that might be explored further. In the course of my years as a teacher of design composition, incorporating physical and digital modelling applications, I have regularly been surprised by the border-shifting and eye-opening *trouvailles* of uninhibitedly inquisitive and *creative* students.
I would hope that the educational environment, in which I have felt both comfortable and challenged, will continue to be used as a creative 'laboratory' for such variations-studies.

8.1.5 Perceptions

Making design-driven decisions and design-based judgements relies on the evolvement of 'reliable' information, which may be textual, numerical or visual.
The last category, as has been argued, may be considered to be an intrinsic part of virtually every design-oriented study enterprise.
As has been indicated in the Introduction, visual perception plays a crucial role in the cognitive evaluation and artistic appreciation of the attributes of built objects and environments.
In order to believe what we *think* we understand, we need to *see* that it is so.

There is another level of perception that deserves to be considered. This type of perception is not primarily visual in nature, but is grounded in the cultural 'climate' in which something is appreciated. Such kinds of culturally-determined viewpoints are an expression of the aspects of time and place, as well as upbringing, education and personal experience.

On the basis of the AA Variations initiative, I have become more acutely aware of the importance of this 'cultural' category than I had anticipated at the beginning of the project.
Judgements concerning the technical, functional, experiential *and* aesthetic qualities of a realised architectural object or environment are determined by *combinations* of – personal – tastes and preferences as well as – collective – conventions and value-systems.
As a consequence, the appreciation of a work of architecture can change considerably through time.
A project which is considered to be provocatively 'different' at the moment of its completion can later be viewed as a representative piece of artistic endeavour that is characteristic of a bygone era, acquiring an 'iconic' status and, in some cases, even becoming highly valued.

Originally, the AA Variations project-survey was not intended to go much further than the Patterns comparisons.
As the study broadened and deepened, more qualities relating to the projects were uncovered, on the basis of document- and literature studies, than had originally been foreseen.
These discoveries contributed to the 'colouring in' of previously unknown aspects, concerning the projects themselves as well as the professional- and personal 'networks' of their creators.
This added information shed a light on the local, national *and* international conditions in which they came into being, leading to a better appraisal from a present-day perspective.

As the study progressed, the impression that the selected works might ibe considered to be *representative* of a larger cultural-historical 'whole' steadily began to grow.
As will be discussed in the 'Conclusions' section, the ten projects – some more than others – came to be viewed as 'representative samples', which that are *illustrative* of the shifting paradigms within the most prolific Dutch architecture of the twentieth century.

This growing awareness has been triggered by a series of findings on the level of the documents concerning the architects themselves as well as their oeuvres in a wider context, in the light of the 'positions' they are considered to represent, in the context of architectural discourse, debate and critique.
Furthermore, what has become apparent on the basis of the literature- and document studies, is that we are now inclined to pigeon-hole certain architects on the basis of the historic and stylistic status their work has through time acquired. In actual fact the groups were far less self-contained and clearly defined than they now seem to us.

On the contrary, there was a lively contact and exchange of ideas between representatives of different 'fractions'. Due to the increasingly important professional media, the architects of different 'convictions' were relatively well informed about the works of their counterparts. In many cases this informed their own work and in some cases led to profound 'paradigm-shifts' within their oeuvres.
This raises the question how would a number of the architects in the study – particularly de Klerk and Duiker – would have developed further, had they lived to a ripe old age instead of being 'extinguished' far too early, in what seems to have been a highly-promising career?
Would their work in due time have become more 'modern' or 'traditional'? Would they have kept up the level of creativity and invention that we now appreciate in their work?

In this sense, considering these case-study projects has had the effect of clearing away some of my personal 'cobwebs', leading to a less absolute, more open-minded and unbiased appreciation of the varied manifestations of the creative spirit in architecture.

8.2 Conclusions and Perspectives

8.2.1 The Genius of Architecture

The ability to conceive and create buildings, in the broadest sense, is one of the distinguishing traits of the modern Homo Sapiens, the *thinking*, human species.
Architecture, as the result of such typically human enterprise, may be considered as the *'joy of building*'.[4]

The targeted action of envisioning and realising wholly new – *artificial* – surroundings, out of a combination of necessity and opportunity, is a matter of human *ingenuity.*[5]
The resulting 'enveloping' structures may offer shelter and safety, but also afford a variety of activities; ranging from collective to highly intimate. They need to be consciously 'shaped' and will consequently give form and meaning to our daily existence as well as our special occasions.[6]
The conditions of architecture are determined by the capacities of *making*, hence 'traditional' architecture is closely related to building as a *craft* (or: as an applied *combination* of crafts). When the expressive qualities of such craftsmanship are recognised as being of a refined excellence and/or controlled originality, we may speak of building-art or: 'architecture'. As the 'higher form' of building, architecture is the expression of a collective, creative 'spirit', combined with the applied knowledge and originality of the individual, which may be recognised as an act of *genius.*[7]

An essential characteristic of works of architecture is their relative *complexity*; an aspect I have tried to thematically address in the course of this study.
Yet, complexity in itself is not a quality. On the contrary, complexity often needs to be tamed and controlled so that – on occasion – it may be given a 'free reign'.
Works of architecture have their particular *place,* which bring with them a level of affordance and dynamic, sensory experience.
One of the primary intentions of a design is the specification and delineation of *space*, by establishing a strategic collection of distinguishable, yet connected spaces.
The counterpart of space may be considered as *form*, being that which 'encapsulates' these spaces, within an enclosing arrangement that makes use of expressive issues like openness, transparency, materiality and colour, to determine its characteristic 'faces'.
Underlying these compositional attributes there should be a level of *order* in which the elementary spatial geometries, measurements and methods of building are determined.
It is essential that the 'parts' of a composition are made to match, making them come across as 'fitting together'.

In the consideration of the various works of architecture that have been included in this study, I have made use of a number of 'coupled' phenomena, to identify the various choice-levels that figure prominently in architectural composition and perception.

On the tangible levels of perception, we may recognise the opportunities of *detail*, as expressions of that which is necessary and that which underlines the true character of the building.
These 'layers' of design and experience are not equivalent; there is ample room for formal hierarchies, emphases and discernible *contrasts*, on different compositional levels.
Thereby a distinction deserves to be made as to whether a building or built environment is actually 'trying' to contribute something positive or is merely a thing that 'takes up space'.

Buildings and built environments – good, acceptable, bad or terrible – are by now nearly everywhere. Irreparable damage is increasingly being done to landscapes and cityscapes around the world by simplistically 'grand' *iconic* buildings, which express little concern for their surroundings.
Such buildings try to appeal the 'homo videns' of today, trying to seduce the *visual* senses, on sensorial as well as sensual levels.
Journalist Bas Mesters, considering the impact of the *Grandi opera*, as monuments of exuberance notes that *iconic* structures tend to resort to easy-to-read 'gestures', which may work from a distance (or on a digital format), but seldom convince on the level of the integral composition as a whole. Whilst such grandiose works may aspire to visual 'identity', their uninhibited, single-themed exhibitionism is their weakest link and the 'illusion' is seldom kept up on all levels of composition and execution.[8]

To my idea, as in a piece of musical orchestration, the quality of the composition in its entity is not a matter of a simple, continuously-repeated *melody* or a dominant, resonant *beat*, but rather: a matter of the *interplay* between all of the parts.
It is when the interplay between the parts is confined to the built object itself, to the point of exclusion from their context that they fail…
The same arguably goes for other works of 'everyday' art like literature, theatre, film-making, graphics, gardening, cooking, designing and building. In a 'complete' work of human enterprise, *all* of the elements are necessary; needing to be in their proper place and articulately specified *relative* to each other.
I would argue that in architectural composition *'there are no minor parts'…*

British author Jane Gardam, on the importance of all of the roles:
> *"If a film, a book or a piece of music is well composed, the smaller roles are just as important as the bigger ones."*[9]

Recognising the levels of thought and attention that have gone into determining each-and-every level of a building's composition; *that* is where we may become aware of the *true* 'genius' of architecture.

8.2.2 Truth and Character

One of the most interesting notions that have come to figure in the 'art of building' are the 'twinned' concepts of *truth* and *character*.[10] These concepts were originally considered in the context of this study as the guiding concepts of *nineteenth* century architecture, but were soon recognised as issues of design relating to *all* eras; including the twentieth and twenty-first centuries.

Constructing the thematic framework involved the identification and relative positioning of what I consider to be 'core conceptions'.
At the same time, it became clear to me that, in order to characterise their potentials and effects, it was worth resorting to 'twin phenomena', to help 'frame' the elementary concepts.
Although it was not thought of as a rule, I am inclined to recognise a *trend*, insofar as the first of the interrelated – twinned – concepts is relatively more pragmatic and business-like – such as 'truth' – and the second tends to be more conceptual and hypothetical – such as 'character'.

To me, perhaps the most resonant exemplars of truth and character are two of the oldest – wooden – structures of Japan:

— The Horyu-ji temple complex, in Nara, first built in 607 AD; as a demonstration of the Japanese art of 'perfecting' the, originally Chinese, Buddhist architecture and:
— The double shrines of Ise – the Naiku and the Geku – as the defining representatives of the animistic Shinto tradition; reconstructed every twenty years since (at least) 685 AD.[11]

The two complexes are representative of the 'truth' of Japanese master-carpentry, while being paradigmatic of two distinctly different – *cultural* and *stylistic* – 'characters'.

A number of non-identical 'twins' have been included in the conceptual framework – like 'harmony' and 'contrast', whilst others, which have not been included – like 'coherence' and 'differentiation', can be imagined.
As Aldo van Eyck indicated when he originally launched his idea of the twin-phenomena: *"you can just carry on".*[12]

The first time I included a short list of such *coupled* phenomena was in my contribution to the catalogue of the *'De Wand'* exhibition, in 2002.[13] The twin-phenomena have since then been a regular fixture of my Form Studies lectures.

In the Keynote paper I prepared for the 2013 EAEA conference Milan, I included a list of likely 'twins'.[14]
When this paper was adapted and expanded for the 'Position' Paper, which I drew up for the AC3 – Academic Skills – Module, in 2014, a slightly different list was included, which is now again enhanced.[15]

The following 'collection' of twin-phenomena combines items from earlier lists:

— Order and Complexity;
— Unity *and* Variety;
— Truth *and* Character;
— Harmony *and* Contrast;
— Structure *and* Materiality;
— Convention *and* Invention;
— Coherence *and* Differentiation;
— Balance *and* Tension;
— Totality *and* Detail;
— Reduction *and* Complexity;
— Expression *and* Suggestion;
— Tectonics *and* Aesthetics;
— Science *and* Art.

What to me is essential, is that these aspects do not relate to just one 'level' of design, but that they can potentially be recognised on different *scale* levels.
The scales of design tend to be used as structuring devices in architectural education and research.

As an example, characteristic disciplines, roughly linked to their scale, as they are considered and addressed at the Delft faculty of architecture:
— Large: Planning and design of urban and regional ensembles;
— Medium: Building design (commonly identified as 'Architecture');
— Small: Interior design, materialisation and expressive detailing.

With separate roles reserved for:
— Technique: Building technology, construction and product innovation;
— Procedures: Real estate, management and policy assessment.

The following overview gives an indication of the interrelated levels of architectural design, whereby a suggestion is given of the attention and formal themes and their elative 'scales', in design processes:

— Level	: Design scale:	Theme:
— Context	: 1 : 1000 / 1 : 500	Place
— Form	: 1 : 200 / 1 : 100	Object
— Structure	: < >	Organisation
— Facade	: 1 : 50 / 1:20	Arrangement
— Technique	: < >	Articulation
— Detail	: 1 : 10 / 1 : 5	Feature
— Information	: 1 : 1 / Legend	Symbol

As I have tried to postulate in the previous paragraphs, it is my conviction that a in truly successful building-design *all* such thematic- and scale levels should be addressed.

I would argue that a building is only as good as its 'weakest link'; technically as well as aesthetically.
Furthermore, I would argue that the issue of 'truth' in architecture should also be considered to be closely related to the concept of *moral* truth.

During my years of study there was a strongly-felt, shared conviction that we might be in the opportunity to improve the world; by creating better architecture.
As Herman Hertzberger put it during a lecture at the 'old' faculty of architecture in Delft: a design ought to be a *"sample of a better world".*[16]

Some years after stating the ambition of creating samples of a better world, Hertzberger, speaking on the occasion of an InDeSem meeting at the 'new' faculty, stated that 'nowadays', Diploma projects were more beautifully presented than ever before.
When the audience in Room A began to applaud, he recounted:

> *"You are clapping too early, because the point I want to make is that it doesn't Mean anything".*[17]

I am inclined to go along with my old mentor Hertzberger, at least to a certain extent.
The idea of 'building a better world' is not aired all too often nowadays, at least not without irony.

Thijs Asselbergs, on the inventive spirit aimed at making a 'better world' (interview in 2008):

> *"Right up to this day I primarily consider myself as being a building-engineer, an inventor, an assembler of materials and spaces. This I combine with my societal interests.*
> *My aim is: to improve the world with architecture. I create buildings en urban places. In doing this I want to offer people better surroundings so that they will be able to live and work more pleasantly. …*
> *Styling I see as the devil. Some architects are capable to pour a sauce over things in an OMA- or Mecanoo style, whereby there is no renewal whatsoever. This is not my thing. These architect are not inventive; they work opportunistically according to a 'you ask; we make' ('u vraagt wij draaien') principle. To me, architecture is about making things, about bringing people together. It is a matter of 1 + 1 = 3. It is your duty to offer the client a new, added value."*[18]

Whilst, in the eighties and nineties, architecture was considered as a cultural domain with *political* implications and ambitions, architecture in the present 'deregulated', commercialised climate, is an art-form that is preferably left to the power-play of the 'market'.
In this situation, architectural ambition has increasingly become something of a 'trivial pursuit'.

The 'star' architects of today all too often try to, somewhat desperately, redefine architectural character on the level of a building's iconic qualities.

Landmark buildings have become tools for corporate and city 'branding' using a variety of heavy-handed formal means, such as: stacking, twisting, sculpting, cantilevering and exaggerating of the buildings primary formal elements, which are then visually (over)emphasised by the explicit use of colours, patterns, textures, reflections and highly artificial 'green' elements.

On the level of 'character', we seem to be living in the era of architectural character as a 'gimmick'.
This trend is particularly strong in contemporary Dutch Interior Design: whereby the 'trick' of ironically combining design classics with garish irony has led to 'mooi' becoming *moooi*.[19]

At the same time, the 'tastes' of the upwardly-mobile financial classes have contributed to the almost unchecked growth of what can only be characterised as Kitsch.
The architects of the late twentieth-century 'new wave' still displayed a playful mastery in the combination of industrial 'products'.

On the level of 'truth', the last vestiges of craft have as good as disappeared, particularly when it comes to details and fixtures.
The standardised products of a limited number of 'global players' – which can be ordered easily and directly via online platforms – have increasingly become the norm, leading to an overwhelming cacophony of 'sameness'.

8.2.3 The Architects' Century

The original idea was that this study would address the compositional qualities of a limited number of twentieth-century design artefacts.
It soon became clear, however, that – even if the primary focus would concern buildings of that era – it was necessary to also look at other periods, in order to position the considered works in a broader, technical *and* cultural context.
From this broader perspective, I would like to draw some conclusions, concerning what I have come to view as the 'architects' century' of the Netherlands.

The profession of the architect is arguably as old as building itself, although in earlier centuries the initiator as well as the director of 'works' would have essentially been a master-builder: a skilled and well-informed *craftsman*.
The notion of the master-builder no longer being a hands-on craftsman, but a technically *and* artistically schooled 'designer', may be considered to have originated in late-renaissance Italy, around the time that Brunelleschi was building his innovative sacred buildings, notably the dome of the Florence cathedral.[20]

The practice of – recognised – architects being involved in the design and realisation of *representative* buildings has continued, up to this day and age.
However, in parallel to these 'official' works of architecture, building-design was largely a matter of *tradition*, whereby the conventions tended to be more or less stable, with changes taking place quite gradually, but with a level of refinement and invention.
Just as invention cannot be recognised without there being convention, so convention cannot thrive without invention, otherwise it would amount to no more than a cliché.

Henco Bekkering, on the adaptive and instructive capacities of traditional prototypes"

> *"Tradition should be understood as a way of doing things, focused on action. Tradition provides a basis for the manner in which a system can accommodate change without the necessity of forgetting, without 'breaking with the past. …*
> *That is why the past must be revered: not to resurrect it, nor to repeat it or to copy it, but to use it as a multiple source."*[21]

Thijs Asselbergs, on the importance of tradition as a source of appreciation *and* regeneration:

> *"In the built environment it is all a matter of tradition and renewal, of durability and transience. We want to work carefully, so that our buildings will age gracefully and, with a minimum of effort will endure lastingly.*
> *The aging of our surroundings offers us a visual history. Buildings and streets carry within them the stories that together form our culture. At the same time, transience is also a satisfying condition. It offers the perspective of finiteness and the opportunity for renewal."*[22]

As a contrast, Rem Koolhaas:

> *"The most interesting thing about architecture is arriving in new worlds rather than returning to old ones."*[23]

In the 19th century, Dutch architects were involved in the design of tone-setting buildings, such as churches, museums, stations, factories, department stores and stately homes; but the production of 'normal' buildings, especially outside the cities, was still largely in the hands of skilled craftsman-builders.
Around the beginning of the twentieth century, the role played by architects began to expand, particularly in the design of *dwellings*.
In the Netherlands, a major impulse was the acceptance of the Dutch Building Law ('Woningwet'), in 1901, which stimulated the development of quality housing for the working classes.

Due to the ambition to realise large numbers of affordable homes, younger architects – like the new generation of Amsterdam School designers, among them Michel de Klerk – were able to realise ground-breaking works.
The requirement that designs should conform to aesthetic standards, which were upheld by professional critics, led to the recognition of the pivotal role of the architect; at least for the building's *exterior*.

In Dutch architecture the – universal – language of architecture is applied in a typically Dutch – environmental, cultural, economic, technical *and* educational – context.
Professionally-trained architects also began to play a crucial role in the design of the built environment outside the cities, as is demonstrated by the architectural quality of building-works in the casus-village of Aalsmeer.
As architecture was seen more-and-more as a meaningful cultural and economic phenomenon in the Netherlands, so the nation became the playing-field of some of the most eloquent architectural paradigms and paradigm-shifts, which were not lost to the world.
During the twentieth century as a whole, the Netherlands was recognised as belonging to the international vanguard of architectural invention and intervention.

One of the most prominent and productive eras, within the century as a whole, was arguably the *Interbellum* period, particularly during the years between the first world-war and the international economic crisis; in which expressionism, modernism and neo-traditionalism blossomed next to each other.

Another trend-setting period can be recognised around the last decennium of the twentieth century, in which the Netherlands were seen as a testing-ground for neo-modern and postmodern architectural inventions, predominantly carried out by a generation of academically-trained 'younger' architects.

One of the characteristic factors of Dutch architecture in the twentieth century has been the attention the discipline received in the media.

In the first decennia of the century, works of architecture featured prominently in avant-garde periodicals like *Wendingen* and *De Stijl.* In addition, authors like Professor Wattjes published extensively in professional magazines as well as extensive overviews of recent work in books like *Nieuw-Nederlandse Bouwkunst*, by Uitgeverij 'Kosmos'. Furthermore, the thematic series *Moderne Bouwkunst in Nederland* reached a large, interested audience.

After the war, magazines like *Bouw* and *Plan* highlighted the architecture of the reconstruction ('wederopbouw') era and magazines like *Forum* and *Wonen/TABK* represented the new 'Zeitgeist'.
From around 1980, the Dutch architectural press took on 'colour' with tone-setting publications like *ARCHIS*, *De Architect, Architectuur / Bouwen* and *Items*.

Thijs Asselbergs, on the founding of the design-magazine *Items* and the activities it generated:

> *"In 1981, together with my fellow students Jan Pesman, Hans Kamphuis and Peter-Paul van Wissen, I started the magazine Items. That was an important learning experience. We learnt to practice journalism and to make a periodical and Items was a generator for all kinds of activities. It meant that we gained access to the big names of our time like Quist, Hoogstad, Hertzberger and van Eyck and resulted in all kind of interesting work. …*
> *We were also able to organise the renowned 'Evenings of design' ('Avonden van het vormgeven'), in which designers who were featured in Items, were invited to discuss their work."*[24]

One of the most telling and visible exponents of the interest in architecture was the Dutch architecture institute, the *NAi* (now 'demoted' to the non-concept of a 'Nieuwe Instituut').
A role which should not be underestimated – not only in the Netherlands but internationally – was played by Dutch design publishers, notably *010 Publishers* and *NAi Publishers* in Rotterdam, both of which have recently had to join forces.

Many of the proud architecture magazines have since disappeared or have had to seek a continued existence 'on-line'.
The renewed interest in architectural and research at the faculty of Architecture in Delft resulted in a series of yearly excellent publications *The Architectural Annual, Delft University of Technology*. This initiative has sadly been discontinued.

The remaining flag-bearer of this tradition is the aforementioned *Architecture in the Netherlands Yearbook*, but the public interest and the urgency of the architectural debate has 'flattened' considerably.

Since the turn of the century, the Netherlands are no longer an architectural nation to reckon with. This is in part due to the changing economic situation, which has had a profound impact on the cultural climate, which has steadily become less adventurous and ambitious.

In the latter years of the 1970's, nothing was *really* allowed, but just about *everything* seemed to be possible in the Netherlands.
From around the late 2000's onward, everything *seems* to be allowed, but *hardly anything* is possible, without complying all kinds of rules and regulations; with a maximum of fuss and bother ('rompslomp').[25]
A central role is played by the members of a 'management' caste, that have infiltrated all walks of life and enterprise. Dutch managers ('leidinggevenden') tend to be either autocrats or bureaucrats. The worst are a combination of the two.

I would argue that the demise of what I would, in retrospect, consider to have been the Dutch 'architects' century' has been brought about by a combination of factors, the most important of which have been excessive *capitalism* – the cause of the international *credit* crisis – and the influx of *computation*.
In particular, the monetary crisis, which lasted for almost a decade from 2008, has decimated the offices run by architects who started practicing in the eighties and nineties.[26]
A few internationally-recognised firms still continued to build – largely outside the Netherlands. At the same time: *'its lonely at the top'*.[27]

The severe reduction of state-subsidised housing funds, in combination with an increasingly *laissez faire* attitude towards the aesthetic quality of the built environment, has meant that the 'mid-field' of the architectural profession was hard-hit and many of the adventurous smaller and medium-sized design-practices have disappeared.
Their place has since been taken in by new offices, with their own ambitions and ideals, which are beginning to make a mark.
For the firms that have been able to weather the storm, the conditions under which they need to function have changed quite dramatically. Nowadays, architects generally have to work in close conjunction with financiers and building contractors – from the beginning of the project – and have consequently lost a good deal of their previous, creative autonomy.
This trend has steadily but surely been taking place over the last two decades and has also become recognisable in the Dutch Architectural Yearbook series.

The Yearbooks of the last ten or so years offer a diverse, but also rather inconsistent, overview of the 'state of the art' of Dutch architecture.
As Jaqueline Tellinga and OMA architect Reinier de Graaf note in a highly insightful article in the 2017/2018 edition of the *Architecture in the Netherlands Yearbook* series, there has been a radical change-over in the profession, whereby social housing – designed by architects – has as good as disappeared as a published category.
What remains, consists mainly of re-use projects.
They argue that, whilst it may still be possible to assemble a collection of 'unique' projects to fill a decent Yearbook, this cannot hide the *malaise* in the architectural profession.[28]

Jaqueline Tellinga and Reinier de Graaf, on social housing projects in the Yearbooks:

"The first Architecture in the Netherlands Yearbook appeared in 1988. More than half of all projects in this edition concerns social housing. Proudly on the cover was an urban regeneration project by Mecanoo. Alvaro Siza is pictured sitting cosily on the sofa with inhabitants of The Hague's Schilderswijk neighbourhood. This yearbook counts exactly one social housing project. What has happened to Dutch housing?[29]

The authors give a thorough account of the fundamental changes that have taken place in the Dutch housing market, particularly due to the financial crisis of 2008-2016. They see that private initiatives for the building of houses blossomed during the 'meagre' crisis years, but that this development has been as good as halted due to the reappearance of 'Big Money' in the field of housing development and exploitation. They indicate that the Dutch housing market is extremely attractive for international capital looking for a 'safe haven'.
They recognise that the Netherlands has a very competent occupational group of architects and that enough interesting work might be expected to fill future yearbooks. However, they signal that the crux is longer term development on the level of entrepreneurship and ownership (*"Maar de crux is het opdrachtgeverschap en het eigenaarschap op termijn."*).[30]
Their proposal is that there should be substantially more room for informal, individual- and group-based initiatives, for the benefit of tone-setting architectural quality.[31]

The authors' conclusion, on the opportunities of learning from the crisis:

"The logical alternative is to let people invest directly in their home. The lessons of the crisis may be redeemed by creating ample room for the many small-scale and directly-involved initiators, so that a numerically meaningful flow of building activity can gain momentum which will in the long run guarantee a stream of appealing editions of the Architecture in the Netherlands Yearbooks."

The omnipresence of computational platforms in the architectural practices of today has also changed the ways of working considerably.
While the architects who were at the forefront of the 'new wave' of nineties neo-modernism were essentially skilled in 'old school' design techniques, their offices now rely on designers and design-assistants who are fluid in different digital applications.
The influx in recent years of so-called Building Information Management (BIM) systems means that all levels of a design are 'linked' with each other from the outset – on the level of 3D geometries, building products and costs – whereby all information is necessarily shared with the other 'actors' involved in the building process.
The introduction of SketchUp made 3D modelling logically simple and accessible to non-experts.
The subsequent introduction of Building Information Modelling (BIM) Platforms has once again resulted in things becoming unnecessarily complicated and hence inaccessible for the uninitiated. One might go so far as to say that the new design 'craftsman' is the computer-literate system administrator.
As a consequence, the previously close-guarded 'secrets' of the architectural profession have become available to consultants, financiers and contractors, who have thereby discovered that, in quite a few instances, they can do *without* the architect.
This trend is clearly visible in the building production of the second half of the current decennium, particularly in recent – large *and* small scale – housing projects.
The consequences of these changes have lastingly altered the economic and creative playing-field for Dutch architects.

Thijs Asselbergs, on what might be considered as the 'core' concept of Dutch design (in 2008):

"It is important to always work with great inventiveness. Especially in situations whereby budgets are limited, such as housing- and care projects. As an architect I stand firmly in that Dutch tradition. Here it is all about attaining much for a little money ('Hier gaat het erom voor weinig geld veel voor elkaar te krijgen')."[32]

Looking back over the 'extended' twentieth century, I believe it is possible to recognise a number of periods of development, each lasting approximately 15 years.
The notable exception is the period of stagnated building production, spanning the years of the great depression and the Second World War, as well as the early years of post-war reconstruction: together spanning some 25 years.
To my mind, two distinct 'golden eras' may be recognised: the highly innovative – and pluriform – periods of 1915 – 1930 ('Invention') and 1985 – 2000 ('Re-invention').

The 15-year cycles (with the longer 'depression' period) of the extended 'Architects' century:

Before 1900	:		Eclecticism
1900	–	1915	:	Transition
1915	–	1930	:	Invention
1930	–	1955	:	Stagnation
1955	–	1970	:	Consolidation
1970	–	1985	:	Revision
1985	–	2000	:	Re-invention
2000	–	20..?	:	New Eclecticism

If we consider the architectural production and quality in the Netherlands in the first two decennia of the 21st century it would be fair to state that a considerable part of the *elan* and *esprit* of the previous century does seem to have become diminished, though not eclipsed.

My perception is that from 2001 onwards, the Dutch architectural scene has gradually moved into a kind of 'New Eclectic' era. This is hardly the *'radical eclecticism'* that was predicted by Charles Jencks, but rather a kind of eclectic *pragmatism*, based *not* on the styles of the 'ancients' as was the case up to a good *century* ago (Classicism, Romanesque, Gothic and Renaissance) but instead almost entirely on the wide variety of works of architecture created throughout the twentieth century, notably including the last two decades.
Thereby, stylistic consistency ('stijlvastheid') does not seem to be a central concern, instead the shared notion seems to be one of 'anything goes'.

What the status of the architectural output of the last 15 years (and indeed: the coming years) will turn out to be in a historical context, will need some time and distance to be assessed.
Has a 15-year cycle drawn to a close, or are we at present still in the middle of an extended 'depression' period? Only time will tell…
Whilst the twentieth century was arguably the architects' century in the Netherlands, the architectural profession has changed dramatically. Without wanting to be negative, I am inclined to say: *not* for the better.
It is an open question whether the previous reputation of the Netherlands as a pathfinder on the level of architectural developments on an international will be re-established.
Certainly, the slogan pasted onto the cover of the *Architecture in the Netherlands Yearbook 2017-2018*, optimistically proclaiming: *'A New Dawn'*, seems to be somewhat premature.

8.2.4 The Inquisitive Eye

Architectural configurations appeal to our sensory capacities. Whilst all of the senses are 'spoken to', it is the *visual* senses that are particularly – and very *directly* – activated.
The key to education is not knowledge concerning the subject-matter, but understanding what your pupils do *not yet* understand (and why), and to gently coax them towards developing an interest.
I would argue that (design) education is about creating memorable *insights*.

One of the most essential aspects of Form Studies education is that the student begins to develop a 'capacity to see'.
By setting relatively simple, but challenging, designerly tasks, the participant in the specific exercise can be stimulated to look intently, not from one viewpoint, but in a *dynamic* perspective.
In this way, looking becomes *seeing* and from that point on, the phenomena that can be recognised in one's own piece of work begin to be 'recognised' in other contexts; notably on the basis of design *precedents*.
On the basis of such experiences, the 'mind's eye' also becomes trained, beginning to recognise patterns in the kinds of design-themes that are at play; registering and storing such information relatively methodically.
Similarly, a discerning visual sense may be considered to be an essential attribute for those who wish to reach an objective understanding of the conceptions and manifestations of architectural composition.

On the occasion of the passing away of Form Studies professor Niels Luning N.L. Prak, I wrote an appreciation in the faculty periodical entitled *An Inquisitive Eye* ('Een Onderzoekende Blik').
The closing characterisation of Prak was as follows:

> *"Sharp-witted, creative, humorous, angular, whimsical, obstinate, restless, often contrary*
> *Artistic assayer and fussy organiser. Teacher and researcher. Father."*[33]

Reading this again after more than fifteen years I feel that I have myself come 'full circle'.
What remains and what I may share with Prak and with my respected colleagues through the years, is what I would consider the notions of the 'dynamic perspective' and 'the inquisitive eye'.

Architectural research can focus on different aspects of the architectural disciplines and the artefacts they bring forth.
As a consequence, the methodical *construct* of one particular study initiative or another may vary considerably.

As architecture is not only a *spatial*, but also a largely *visual* artform, it would seem logical that *visual* data should play a central part in the procedures of research-based study and consequently: the *communication* of results and findings.

Although architecture itself is arguably *not* a science, the academic study of its conditions and their consequences should at least be carried out in *scientific* ways, whereby discoveries deserve to be documented as objectively as possible, but also – where possible – *demonstrated.*

The notion of *unravelling* architectural objects in *words*, but also using explanatory *imagery* was central to this particular undertaking, from its outset.
It is therefore tempting to claim, in retrospect, that, in this case at least, 'the medium *was* the method'.
However, that would not do justice to the other essential – albeit less 'visual' – research attributes, such as:

— The searching for *data* in collections, libraries and archives and the subsequent interpretation of findings;
— The experiential exploration of buildings *in situ*, or on the basis of project *documents* as well as:
— The reading, selecting, transcribing and translating of *written* information, resulting in *textual* analyses and explications, as well as *visual* explorations.

I would argue that, at least in a *design-based* study such as this one, the one cannot do without the other and that – ideally – *text* and *image* should go 'hand in hand'.
In this light, the medium should not be considered to be *all* of the method, but perhaps *half*.
In my considered opinion: a half that is nonetheless *indispensable* in the context of the *iterative* cycles of *seeing* and *understanding*.

In the words of Dutch soccer-legend Johan Cruijff:
"You only begin to see it when you understand it."
In Dutch:
"Je gaat het pas zien als je het doorhebt."

Understanding by seeing is a matter of active recognition and selection.
In our daily lives, the steady stream of perception relies on a largely spontaneous process of identification and selection of which we are hardly aware.

In practice, education and science, such selection – and subsequently: interpretation, characterisation and evaluation – needs to become a conscious process that is as objective and transparent as possible.

Only then can we speak of meaningful insights and indeed: the generation of knowledge.
To do this involves the recognition of recurring themes, or: patterns.
We can recognise these when we take the effort to look closely and begin to 'see' the relationships between the *elements* of composition and perception.

Christopher Alexander, in The Timeless Way of Building (1879):
"When we look closer, we realize that these relationships are not extra, but necessary to the elements, indeed a part of them. … When we look closer still, we realize that even this view is not very accurate. For it is not merely true that relationships are attached to the elements: the fact is that the elements themselves are patterns of relationships."[34]

It is through our exceptional, inquisitive sensory system that we may 'see' the patterns within the elements and the similarities and variations between them.
This is our continuous journey of observation, discovery and the reward of understanding, which is one of the most existential traits of the human search for quality and meaning.

Christopher Alexander, on the sense of being alive:
"The search which we make for this quality, in our own lives, is the central search for any person, and the crux of any individual's personal story. It is the search for those moments and situations when we are most alive."[35]

8.2.5 Perspectives

There are two kinds of dissertations.
The first is the kind you do when you are at the beginning of an academic career.
The second is the kind you do when you round off your academic career. This dissertation belongs to the second category.

What kinds of qualifications should a researcher of architectural composition have?
In the introduction to the highly informative book of collected essays by P.A Michelis, John. P. Anton characterises the author with the following quote from Roman Galeffi:
"Roman Galeffi quite aptly characterised Michelis as combining "the sensitivity of the artist, the technical learning of the architect, the deep insight of the historian, and the synthetic power of the philosopher."36

This study views the subject-matter and its place in the world from perspective of an architect with a keen interest in all of the arts. It is the work of someone who not is a philosopher and – even though there is a considerable amount of 'history' in the study – also not a historian.

It is the work of an 'architect by trade', who has gradually and painstakingly assembled his personal body of knowledge, insights and experiences, on the basis of a professional life in practice, education and education, as well as just 'being' in the world and viewing its phenomena with an 'inquisitive eye'.
It may be a 'gift' if you are an 'observant child', but it can sometimes be a disadvantage to see everything!
Also, it not always easy – for oneself, but particularly for one's loved ones – if 'good enough' is never good enough.37
A dissertation such as this one is not so much a test of one's academic knowledge and skill, but rather a test of one's intellectual resilience and emotional endurance.

Time for a closing moment of reflection:
What might be the value of all of this body of work?
What might be the potentials for further initiatives?

Through the years, the Patterns & Variations project was very much a work in progress, and in papers relating to the study I regularly ended with the punchline 'to be continued…'.
Now, for the first time, I am inclined to consider the integral piece of work as something that is finished.
I will try to make some closing remarks concerning what I would like to consider to be the perspectives for the undertaking.

Curiosity that has motivated me from the start and has kept me going up to this point.
It has been a very personal journey of discovery and as such the price that I have paid as well as the rewards I have gained are ultimately my own.

I feel that the essential inquisitiveness that has been central to the study is ultimately not just my own, but that 'deep down' they represent questions that others who are active or interested in the field of architecture would like to see answered.
Whether the end-result actually gives any pertinent answers or actually raises more questions is up to others than myself to judge.
In this sense I have felt particularly encouraged by my promoters, initially Jan Heeling and then Henco Bekkering and Tom Avermaete, who have gently but decidedly nudged me in the direction of a conclusion. I am not sure if they in any way foresaw where the expedition would end – and how – but they have stuck by me, particularly during the last, decisive year.

The years that I have been involved in teaching have essentially been a learning experience. As such, the job I have had meant largely creating my *own* challenges, in an environment that was on the one hand free, but on the other was populated by influential colleagues who were *not* necessarily waiting for the answers I was hoping to hear; indeed, would have preferred that some of the questions would not to have been posed.
Even when working with my closest colleagues, quite a few issues tended to be considered implicit, rather than being explicitly formulated or debated.

Only with the changing academic climate at the faculty, in the last ten or so years, has the study of elementary *formal* issues begun to be recognised as being more than 'instrumental', indeed *fundamental*. I am inclined to consider this partly as my legacy, but have no illusions that what I have managed to help create will remain the way it has become.

A lot of my energy has gone into building a transparent, logical and stimulating *didactic* organisation.
Whilst I never had any actual education in the field of pedagogy, I have found that my insights, built upon my experiences and critical observations *in* education – as a school-child, a student and a teacher – have motivated me to develop and expound educational exercises that stimulate individual as well as shared *discoveries.*

As I have indicated, there has always been a reciprocal relationship between the two sides of my task, even though my education tasks always tended to take first place and the research was generally left over for the 'niches' in my working weeks and in my holidays. During my last year at the faculty, I was able to concentrate fully on completing the study.

What might be the 'perspectives' for this designerly study?

I would be gratified if the issues that I have addressed would in some way inform other design-oriented research.
It would be rewarding for me if this body of work might 'find a place' amongst architectural academics and students, as a point reference and possibly as a stimulus for other inquisitive, explorative study initiatives.
In this context, I could imagine that my in-depth analyses of the ten AA Variations projects might be a point-of-departure for similar project-based studies, not just in Delft, but potentially around the world. A kind of on-line collection – one might say a virtual 'museum' – of noteworthy architectural artefacts, particularly of projects that no longer exist.
From the outset, its has been my aim to identify and define the compositional issues that are not often objectively addressed in architectural education and research. It would be good if the 'conceptions' that have been central to this initiative and have determined its outcome, could in some way become instrumental in the context of further academic study.
I hope that this endeavour may stimulate other scholars in the pursuit of the deepening of knowledge and the furthering of a 'practical theory' of architecture. I do not expect that my thematic framework of compositional themes will be to everyone's liking, hence I would welcome suggestions for improvements and indeed: applaud wholly different conceptual constructs.
What would be truly rewarding would be if the results of this exploration would somehow form the basis for critical reflection and deliberation in the context of other doctoral studies.
Besides the limited printed edition, the open-source digital document of the Patterns & Variations study will hopefully reach interested individuals who are welcome to pick up on my research's ambitions, inspirations, experiments, methods, instruments, results, findings and conclusions.

My essential Patterns & Variations conclusions:

— To reach a more fundamental understanding of the aspects of architectural composition and their perceptions in built objects and environments, it is essential to create initiatives that allow for the recognition of the patterns of design, through targeted comparison;
— Such objective comparisons may be stimulated in by creating thematic exhibitions, preferably accompanied by a thematic catalogue, stimulating the interpretation of the essential aspects of design choices, amongst students as well as staff members;
— To reach a deeper understanding of the interrelated formal themes that are at interplay in any designed artefact, designerly modes of enquiry deserve to be appreciated as being central to creative design-oriented education, but no less towards evocative, design-based research;
— Architectural composition-research should target the elucidation of the potential effects of individual design decisions, by identifying elementary conceptions of design and demonstrate their workings though the active generation of design variations;
— Such design conceptions may be instrumental when carrying out targeted, in depth, case-based precedent studies, on the basis of realised design-artefacts with sufficient complexity to make their unravelling a creatively and intellectually rewarding enterprise;
— Methodically and imaginatively studying works of architecture is essentially a matter of envisioning, whereby the application – and development – of visualisation instruments is a key factor for the evolvement of knowledge, insights and skills in architectural education and practice, but no less in research and theory.

8.3 Epilogue

Little Feat:

"I'm taking my time,
So please don't rush me.
I've got to sort out some things
I didn't know existed."[38]

One might say that I have 'taken' my time to complete this project.
Time that might have been 'better spent' doing other things, but also time which I felt was necessary to learn what I had to learn in order to 'get the job done'.

I realise now that it has been some fifty years since I first considered going to university, to become an architect.
Around that time, the 'inquisitive child' in me started to develop into a serious 'observer' of architecture and that has never really stopped.

This study has – on and off, in parallel to the various tasks to which I also felt dedicated – lasted some twenty-five years, from its very first conception to what I consider to be its completion.
Although I have been 'based' throughout in the city of Delft, the study has allowed me to make contacts and to visit people and places around the world.
These experiences have fuelled my inquisitive nature and – slowly but surely – deepened my understandings.

Since returning to the Netherlands, Delft has become a home to me and my family, but I have always remained something of an 'outsider'.
I have seen the relatively reserved, but 'open' Dutch society change into a multi-cultural, internationally oriented nation with a somewhat brusque informality, as well as a multitude of hidden agendas and power-games.
This has not deterred me from pursuing my own path in what I look back on as an adventurous expedition, into the domains of architecture.
While I feel a part of Dutch society and culture I have always maintained a certain, critical reserve.
Finding a 'good place to think', overlooking the sea, has literally broadened my horizon.

I realise all too well that, what has been a labour of love, it has been a heavy load for those who are closest and dearest to me. The only way that I feel I might be able to compensate those to whom I have paid too little attention while I was busy with *'something more important'*, is to round off the seemingly never-ending process and put it 'to rest'.

I am grateful for the support I have had, as well as the encouragement I have felt to 'finish it'.
In the closing phases of the project I came across a notation of a piece of advice from my son Yoshi, which was jotted down a number of years ago:

"You should be able to put a point behind your question-mark."[39]

In Dutch:

"Je moet wel een punt achter je vraagteken zetten."

It is this 'point' I am now I am now trying to make.
Nonetheless, in retrospect, I feel that 'my project' has needed the time it has taken, to get to to where it is now. After all: taking the time to think is *never* a waste of time.

It has been both a pleasure and a chore, but I feel gratified that it seems now to be done!
Even though there are still 20 million things that are 'left undone'.

Lowell George:

"It comes from confusion,
All the things I left undone.
It comes from moment to moment,
Day to day,
And time seems to slip away.
But I've got twenty million things to do,
Twenty million things,
All I can think about is you,
With twenty million things,
Twenty million things to do."[40]



Delft / Mascarat, 2019



8.4 Propositions

1.
Furthering knowledge and understanding of architectural and environmental design requires the identification of characteristic compositional themes and the development and application of imaging instruments, to objectively analyse and demonstrate the effects of designerly choices.
(This dissertation)

2.
An essential condition of architectural design (and hence: design-oriented research) is creative doubt.
(This dissertation)

3.
Aesthetics is not about the definition or judgement of 'beauty', but rather about the recognition and appreciation of conventions and inventions, on the levels of composition and perception.
(This dissertation)

4.
If the aim is to understand the architecture of an era, more may actually be learnt from mediocre, but well-crafted buildings than from the exceptional buildings of that period, no matter how 'iconic' or 'canonical' they are considered to be.
(This dissertation)

5.
Less is more … difficult.

6.
Music is the greatest of all expressive art-forms

7.
Teaching is a civilised form of seduction.

8.
A picture is worth quite a few words, but a thousand is an exaggeration.
I would say: about 200…

9.
If you want to think wide, you should sit facing the horizon.
If you want to think clearly, you should go for a walk.
If you want to think straight, you should go for a run.

10.
The most beautiful thing in life is to witness the evolvement of new life.

1 The *Architectural Project and its Instruments* programme was initiated in the Architecture Department's research plans. The aims and intentions were formulated in a research plan entitled *Research Portfolio Architecture 2005-2011.*

2 Here, again a link is made with Peter F. Smith's notion of architectural perception as being a concerted activity, with the discovery and elucidation of aesthetic qualities as a 'reward'. See also: the 'Principles' section.

3 This idea of recognizing what a project has become in the light of what it might *also* have become is also recognised and addressed by Terrence Curry, in his dissertation (…//). See also: the 'Principles' section.

4 The idea of the 'joy' of building as the core of architecture is similar to the notion as the joy of *cooking* as the centrepiece of cuisine. A reference: the enormously influential American cook-book *The Joy of Cooking*, by Irma Rombauer, first published in 1931.
The 1975 edition, accredited to Irma S. Rombauer and her Daughter Marion Rombauer Becker, was published by Bobs-Merril, Scribner.

5 *Ingenuity* may be defined as: 'inventive talent, skilful cleverness'.
Source: Collins English Dictionary and Thesaurus, HarperCollins Publishers, Glasgow, 1994.

6 The – now famous – quote from Winston Churchill: "First we shape our buildings and then they shape us."

7 Genius may be defined as 'the distinctive spirit of a nation, era, language etc'. and 'a person with exceptional ability, especially of a highly original kind'.
Genius may also indicate 'the guardian spirit of a place', as in: genius loci.
In this passage, it is particularly the *first* meaning which is inferred.
Source: Collins English Dictionary and Thesaurus, HarperCollins Publishers, Glasgow, 1994.

8 Bas Mertens, writing on the occasion of the collapse of section of the iconic motorway bridge in Genoa, Italy, August 2018:
"Is the homo videns, who desires direct effect and spectacle, not taking over from the homo sapiens (the thinking man)? Icons are venerated on a huge scale. Living grandly and compellingly in the here-and-now, with instant satisfaction, seems to be the motto of our times."
Translation by the author.
A more extensive version of the Dutch text:
"De Italiaan houdt van spektakel, is visueel georienteerd, is een maker, zo wil het stereotype. Het is een kijkende mens, een homo videns. Italianen laten zich graag voorstaan op hun esthetische vermogens, willen zich onderscheiden en zijn trots op hun 'made in Italy', op de schoonheid en kwaliteit ervan. Het doel van het maakwerk is het moment van de ovatie, van het applaus, van de oplevering. Het schitterende moment waarop iedereen kan zien en zeggen: Bellissimo! Incredibile! Hai visto? …
Maar hoe typisch Italiaans is dat eigenlijk nog, zou je je kunnen afvragen. Is Italië niet een uitvergroting en voorloper van wat zich nu op wereldschaal laat zien? Is de homo videns, die uit is op direct effect en spektakel, de homo sapiens (de denkende mens) niet overal aan het verdringen? Iconen worden op grote schaal aanbeden. Groots en meeslepend leven is het parool, instant bevrediging, in het hier en nu. Popsterren en voetballers worden jaar in jaar uit heiliger. En de kathedralen van deze tijd – de wolkenkrabbers – jaar in jaar uit hoger. Hoe goed is er nagedacht over de effecten van dit alles en het onderhoud van morgen? Ik ben benieuwd hoe onze bouwkundige wonderen, onze grandi opere, er over zestig jaar bij staan in Abu Dhabi, Beijing, Moskou, Londen of Rotterdam."
In: *Grandi Opere, lust voor het oog, monumenten van overmoed*, NRC Handelsblad, 16 augustus, Opinie pg. 9. Translation by the author.

9 The quote is taken from an article in the culture-section of the Dutch 'quality' newspaper *NRC Handelsblad*, highlighting the re-discovery of a generation of self-conscious British female writers: Jane Gardam, Elizabeth Jane Howard, Penelope Fitzgerald and Elizabeth Taylor.
An excerpt from the original, Dutch language article, by Judith Eiselin, entitled: *'Het verhaal van de thuisblijvers'*, in: NRC Handelsblad, 20 juli 2018:
"Hun meesterschap is tegenwoordig een zeldzaamheid. Onder hedendaagse auteurs lijkt een mode te heersen van afgemeten proza, rechtlijnig als een filmscript. Er is één ik-figuur, een outcast, met één duidelijk probleem. De handeling wordt helemaal uitgeschreven, zonder iets aan de lezer te laten. Het is in alle facetten eenduidig."
The Jane Gardam quote:
"'Naar mijn idee zijn er in het leven geen bijfuren' zei Gardham in Trouw. 'Net als bij insecten heeft iedereen een eigen plek en functie in het bestaan. Als een film, boek of muziekstuk goed is gecomponeerd, zijn de kleine rollen even belangrijk als de grote'."
Translation by the author.

10 The inclusion of the terms was inspired by the book on the Dutch architecture scene in the nineteenth century entitled *'Waarheid en Karakter'*, by Auke van der Woud.
These twinned phenomena were not used as the title of the English-language edition, which was called *The Art of Building* (2001).

11 I contributed a 'lemma' on the Ise shrines, for the first year plan-documentation ('Plannenmap') for the Module GR2 (Fundamentals 2). Jack Breen: *Ise Shinto Heligdommen*. In: *GR2, Openbare ruimte en publiek gebouw,* Faculty of Architecture and the Built Environment, TU Delft, Delft, 2014.

12 See: the discussion about this notion and the van Eyck quote in the 'Explorations' section.

13 Jack Breen: *Wand en Ruimte, Ordening en Vormgeving*, in: Jack Breen and Bernard Olsthoorn: *De Wand,* Publicatieburo Bouwkunde, Faculteit Bouwkunde, TU Delft, 2002, pg. 55.

14 The EAEA Keynote Address: Jack Breen: *Designerly Visualisation, Conceptions, Methods, Models* (2013).

15 AC3 Position Paper November 2014
Jack Breen: *Designerly Study: Models and Methods*, unpublished manuscript.
The AC3 imitative and its impact is discussed in the 'Conceptions' section.

16 Statement by then-professor Herman Hertzberger, made in the context of an educational meeting in the old BK building.

17 Herman Hertzberger in a Room A lecture in: the new BK bulding.

18 Thijs Asselbergs, interviewed in *aTA/ architectuurcentrale Thijs Asselbergs*, Uitgeverij 010 (2008):
"Tot op de dag van vandaag voel ik me vooral een bouwkundig ingenieur, een uitvinder, een assembleur van materialen en ruimten. Dat combineer ik met mijn maatschappelijke belangstelling. Mijn doel is: de wereld verbeteren met architectuur. Ik maak gebouwen en stedelijke plekken. Daarmee wil ik mensen een betere omgeving bieden zodat ze prettiger en beter kunnen leven en werken. … Styling vind ik de duivel. Sommige architecten presteren het om ergens een saus overheen te gieten in OMA- of Mecanoo-stijl, terwijl ze nergens een wezenlijke vernieuwing realiseren. Daar heb ik weinig mee op. Deze architecten zijn niet inventief, ze werken gemakzuchtig volgens het 'u vraagt wij draaien' principe. Architectuur gaat voor mij over het maken van dingen, het samenbrengen van mensen. Het gaat over 1 + 1 = 3. Het is je taak om de opdrachtgever een nieuwe toegevoegde waarde te bieden."
Pg. 163. Translation by the author.

19 'Moooi' is a trendy design and production firm, stationed in Amsterdam, which has become one of the market-leaders in the 'new' Dutch design, incorporating inspirations from modern furniture design, with an ironic, humourous 'twist'.

20 This artistic and technical feat has been the subject of several books, including the highly-readable book by Ross King: *Brunelleschi's Dome, how a Renaissance genius reinvented architecture*, Bloomsbury, London, 2013.

21 In: Henco Bekkering,: *Meaning and Tradition.* In: Arie Graafland (series ed.), Deborah

Hauptmann (guest ed.): *Cities in transition*, 010 Publishers, Rotterdam, 2001. Pg. 425-426.
This characterization of tradition was put forward by urbanism professor Bekkering, during the PhD defence of MaartenJan Hoekstra, Delft, 21st of June, 2018.

22 Thijs Asselbergs in *aTA/ architectuurcentrale Thijs Asselbergs* (2008)
"In de gebouwde omgeving gaat het om traditie en vernieuwing, om duurzaamheid en vergankelijkheid. We willen zo zorgvuldig werken dat onze gebouwen mooi verouderen en met minimale inspanningen oneindig lang meegaan. Het verouderen van onze omgeving biedt ons een visueel geheugen. Gebouwen en straten dragen de verhalen in zich die samen onze cultuur vormen. Tegelijkertijd is vergankelijkheid ook een prettig gegeven. Het biedt het perspectief van eindigheid en de gelegenheid tot vernieuwing."
Pg. 167. Translation by the author.

23 Koolhaas quote from: Arie Graafland, Jasper de Haan: *A Conversation with Rem Koolhaas.* In: Michael Speaks (guest-ed.): *The Critical Landscape*, The Stylos Series (Arie Graafland, Jasper de Haan series eds.), 010 Publishers, Rotterdam, 1996.

24 Thijs Asselbergs in *aTA/* (2008):
"Zo begon ik in 1981 met studiegenoten Jan Pesman, Hans Kamphuis en Peter-Paul van Wissen het tijdschrift Items. Dat was een belangrijke leerschool. We leerden journalistiek bedrijven en een blad maken en Items was een generator van allerlei andere activiteiten. Het betekende dat we toegang kregen tot alle grote namen van onze tijd zoals Quist, Hoogstad, Hertzberger en van Eyck en leverde ook allerlei ander interessant werk op. ...
Ook organiseerden we de roemruchte 'Avonden van het vormgeven', waar ontwerpers die in Items aan bod kwamen, werden uitgenodigd om over hun werk te discussiëren."
Pg. 165. Translation by the author.

25 This distinctive shift is particularly recognisable to those who came to the country as 'outsiders', lifted up by its 'can-do' spirit, which has largely evaporated.
Around 2010, I started noticing the regular use of the term *"Dat kan tegenwoordig niet meer (zo)".*

26 A typical example of the hard-hit mid-section of architectural firms is the office of Baneke van der Hoeven architects (project AA09), who have stopped existing as a partnership, due to the economic situation and the changing cultural climate.

27 The internationally-oriented architecture firms now include practices like OMA, Mecanoo, UNStudio and MVRDV. Their offices are largely inhabited by vast groups of ill-paid (if at all) 'interns', from around the world.

28 Jaqueline Tellinga and Reinier de Graaf: *Verspil nooit een goede crisis / Never waste a good crisis*. In: Kirsten Hannema, Robert-Jan de Kort, Lara Schrijver (eds.): *Architecture in the Netherlands Yearbook 2017-2018*, nai010 publishers, Rotterdam, 2018. Pg. 110-115.

29 *"Het eerste jaarboek Architectuur in Nederland verschijnt in 1988. Trots prijkt op de omslag een stadsvernieuwingsproject van Mecanoo. Meer dan de helft van alle projecten in die editie is sociale woningbouw. Alvaro Siza zit gezellig op de bank bij bewoners in de Schilderswijk. Dit jaarboek telt welgeteld één sociaal project. Wat is er gebeurd in de Nederlandse woningbouw?"*
Pg. 110.
Translation by the author.

30 This section, which is taken from the lucid text, is included here in Dutch because I feel the quality of the English translation which is given in the Yearbook is seriously lacking. Pg.114-115.
"Dat de woningbouw tijdens de crisis vooral bestaat uit kleinschaligere domeinen is logisch, in de zin dat – mocht het misgaan – het risico beperkt blijft. Maar er is nog iets anders, iets opmerkelijkers. Een groot deel van deze recente architectuurproductie is afkomstig van bijzondere nieuwe samenwerkingsverbanden en kleinschaligere initiatieven, allemaal met een directe en eigen betrokkenheid. Daarin verschilt 'Dutch housing' met de vorige eeuw.
Onder het motto 'verspil nooit en goede crisis' is dit het moment waarop we onszelf opnieuw moeten uitvinden. We zullen moete erkennen dat er tijdens de crisis een ingrijpende waardeverschuiving heeft plaatsgevonden. Het idee dat iedereen gebaat is bij een gestandaardiseerde woning is ontkracht. Het idee dat allen professionele partijen de grootschalige woningbouwproductie ter hand kunnen nemen, is eveneens ontkracht. Inmiddels zijn er complete straten en wijken door de mensen zelf gebouwd. Dit elan verdient opvolging!
Echter, deze creatieve bouwstroom waarbij de eigenaren en ontwikkelaars betrokken zijn, droogt op. Nu de economie weer aantrekt, storten ontwikkelaars zich opnieuw op de schaarse bouwgrond en blokkeren de ruimte voor eigen initiatieven. Sinds de opleving van de economie doet zich een gigantische vraag naar woningen voor die uitgerekend is op 70.000 woningen per jaar. Nu het geld er weer is, zoekt het zijn weg. Als vanouds kopen ontwikkelaars zich tijdig in, zodat zij bij de verdeling van de ontwikkelrechten vooraan staan. ...
Maar, anders dan in de vorige eeuw, heeft ook het internationale geld de Randstad ontdekt. Internationale beleggers zien de Nederlandse woning als een veilige en lucratieve haven voor hun overtollige geld. Aangezien kabinet-Rutte III vooral huurwoningen in de vrije sector voor de middengroepen wil, zullen de (internationale) beleggers-fondsen de huisbazen van de toekomst zijn. Hun focus is aantrekkelijke dividenduitkeringen en effectieve jaarrendementen. Voor deze fondsen is de woning een verdienmodel, geen primaire voorziening. De komende tendensen waarin architecten gaan participeren maken nieuwsgierig. Nederland heeft een zeer capabele beroepsgroep van architecten. Er zal vast en zeker een productie uit voortkomen die de jaarboeken gaat vullen. Maar de crux is het opdrachtgeverschap en het eigenaarschap op termijn. Dat is niet af te lezen aan woningplattegronden en innovatief materiaalgebruik. Want, en passant, zal zich met de keuze voor beleggers in de middeldure huurwoningen een scherpe verschuiving in vermogensvorming voordoen. Woningeigenaren beschikken over een vermogen, huurders niet. Huurders kunnenlastiger sparen, want hun woning wordt nooit hun bezit. Met de toenemende druk op de stad worden de woningeigenaren almaar rijker zonder enige economische tegenprestatie. Hun kinderen maken een uiterst fortuinlijke start in het leven en generatie op generatie zal deze kloof toenemen. In de regio's die economisch achterop raken verdampen de waardes van de woningen. Het is maar net in welk nest en in welke regio je wordt geboren. Wanneer een leven van werken nimmer de revenuen van bestaand fortuin zal evenaren, worden sociale klassen opnieuw bepaald door vererving. Afkomst, en niet verdienste zal doorslaggevend zijn. Voor generaties opgegroeid in de twintigste eeuw is het moeilijk voorstelbaar dat sociale mobiliteit en emancipatie geen vanzelfsprekendheid meer zullen zijn. Het is noodzakelijk dit vraagstuk nu serieus te nemen, want er is veel kapitaal op de wereld dat een veilige haven zoekt. De Nederlandse woningmarkt is hiervoor extreem aantrekkelijk."

31 The authors: *"Het logische alternatief is om mensen zelf direct te laten investeren in hun woning, De lessen van de crisis kunnen verzilverd worden door volop ruimte te maken voor de kleinschalige en direct betrokken initiatiefnemers, zodat er numeriek een waardevolle bouwstroom op gang komt die in lengte van dagen garant zal staan voor nog vele aansprekende afleveringen van het Jaarboek Architectuur in Nederland."* Pg. 115.

32 Thijs Asselbergs in *aTA* (2008):
"Het is belangrijk om altijd veel inventiviteit aan de dag te leggen. Ook in situaties waarin de budgeten beperkt zijn, zoals bij woningbouw en zorg. Als architect sta ik helemaal in die Nederlandse traditie. Hier gaat het erom voor weinig geld veel voor elkaar te krijgen."
Pg. 166. Translation by the author.

33 Breen, Jack: *Een Onderzoekende Blik, Prof. ir. Niels Luning Prak 8.8.1926 – 1.6.2002.* In: B-nieuws, Faculty of Architecture, Periodiek, 2 wekelijkse uitgave, 17 juni 2002.
The original text:
"Scherpzinnig, creatief, humoristisch, hoekig, grilling, eigenzinnig, onrustig, vaak tegendraads. Artistieke keurmeester en pietje precieze regelaar. Docent en onderzoeker. Vader."
Translation by the author.
Reading this back, after more than fifteen years, it seems as if the text is not only about Prak, but also about myself.
34 Christopher Alexander: *The Timeless Way of Building.* Oxford University Press New York, 1979. Pg. 88
35 Christopher Alexander: *The Timeless Way of Building.* Oxford University Press New York, 1979. Pg. 41
36 Panayotis A. Michelis: *aisthè*tikós, Essays in Art, Architecture, and Aesthetics, Wayne State University Press, Detroit, 1977. Introduction, pg. 7.
37 I am inclined to say, perhaps somewhat simplistically:
There are two kinds of dissertations. The first is the kind (that) you do when you are at the beginning of an academic career. The second is the kind (that) you do when you round off your academic career. This dissertation belongs to the second category. This thesis was originally considered for my Propositions.
38 Excerpt from the song *Takin' My Time*, text by Bill Payne.
Extended text selection:
"I'm taking my time, so please don't rush me,
I've got to sort out some things I didn't know existed.
I've been her before, I know where the traps lie.
I can only take what is there, 'cause the rest doesn't matter."
The song is featured on Little Feat's first album and was written and performed by the band's keyboard-player, Bill Payne.
From the album *Little Feat*, by Little Feat, Warner Brothers Records, Inc., 1970.
39 'Point' is considered here as a 'full stop' at the end of a piece of text.
40 Excerpt rom the song *20 Million Things*, by Lowell George.
Extended text section:
"If it's fix a fence, fender dents,
I've got lots of experience.
Rent gets spent,
(With) All the letters never written, that don't get sent,
It comes from confusion, all things I left undone.
It comes from moment to moment, day to day,
And time seems to slip away.
But I've got twenty million things to do, twenty million things
All I can think about is you,
With twenty million things,
Twenty million things to do."
The song is featured on the solo-album by Little Feat's frontman – guitarist, singer and songwriter Lowell George – and was released posthumously, after his untimely death.
From the album *Thanks I'll Eat it Here*, by Lowell George, Warner Brothers Records Inc. 1979.

9. Information

9.1 Bibliography
9.2 Acknowledgements
9.3 Colophon

9.1 Bibliography

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9.2 Acknowledgements

This book is dedicated to my grandparents, Hendrik Sijbrand (Henk) de Vries (1897-1995) and Catherina Antje (Trien) de Vries-Verbeek (1900-1988). Their openness, generous hospitality and enthusiasm have made them my role-models as a child, student, parent and grandparent.
I was born on a houseboat, moored just behind their house in Aalsmeer, next to my grandfather's shipyard. Consequently, I have deep-rooted memories of the smell of peaty water, wood, steel and paint, as well as having a lifelong fondness for everything that has to do with ships.

At the age of three my family moved to the topics, first to Indonesia, then to Singapore, which is where I grew up. My secondary education, at a British military school, was built upon the foundations that had been laid in my Dutch primary school.
During these impressionable years, I developed and pursued my personal interests in the fields of language, literature, history, geography, mathematics, music and art. Having joined the school as an outsider, with inherent language-deficiencies, I gradually 'moved up trough the ranks', going from one class (and group of friends) to another. As a consequence, I became acquainted with an impressively diverse range of teachers and teaching methods. These experiences have contributed to a life-long interest in the field of pedagogy and have taught me how (not) to teach.

During my adolescence in Singapore, there was a gradual, but steadily growing awareness of the world of architecture that surrounded me, particularly: the typical neo-classicism and art-deco of the former British colonists; the traditional Straits-Chinese shop-houses and the vernacular rice-farmers' houses of the Malay countryside. Furthermore, I began to be critically aware of the global-modernist architecture of the sixties.
A key experience was a journey to Japan, which I made with my father in 1967. In the course of this visit, I was introduced to the highlights of traditional Japanese architecture in and around Kyoto. This proved to be an eye-opener, triggering a life-long interest in all things Japanese.

Being someone with an apparently broad range of talents (and hence: different subjects at school) did not make it easy to decide what should be my field of study, after I would complete my final examinations. Eventually, on the basis of my combined of interests and aptitudes, I was advised to pursue a career in the field of architecture. During my last years in Singapore and vacations in the Netherlands, notably in my native Aalsmeer, I became more consciously aware of the expressive qualities of architecture and the different senses of 'place'.

As my most important inspirations during the 'history-free' phase of the early seventies at the architecture faculty in Delft, I would count a number of professors and tutors.

Throughout my studies, I had a special connection with the staff members of Free-hand Drawing and Form Studies. A formative role was played by Jacob Meijer, Peter Manders and especially Kees Sabee. My interests in the direction of design-visualisation Media were stimulated by video-tutor Piet Evenblij and faculty photographers Hans Schouten and Hans Kruse.
Aldo van Eyck and Herman Hertzberger were important influences, in particular during the intensive Diploma project phase, with Robert Nottrot and Kees Dwarshuis, eventually joined by my future wife, Claudia. Other influential project-tutors were Ad den Boer and Leo Tummers.

I left the faculty in 1980, after having completed the 'Triade' project.
My subsequent years of working in practice have significantly contributed to shaping my outlook concerning the elementary conditions of architectural composition and sharpened my design-visualisation skills, which could be put to good use in our private practice: Breen & Breen architecten in Delft. I am thankful for the opportunity the city of Delft afforded us, as beginning practitioners, to realise our first project, which was completed in 1990.

A decisive move in my professional life was the return to the faculty of Architecture, late in 1989, to join the Form Studies staff.
In my years at the faculty I have had the opportunity to work together with a large number of dedicated individuals. Form & Modelling Studies colleagues Bernard Olsthoorn, Robert Nottrot and Martijn Stellingwerff have been particularly inspirational in the context of this research project.

Throughout my years as a teacher and academic I have tried to reach a deeper understanding of the aspects of composition and perception. In the context of this on-going explorations I have picked up the challenge to pursue the opportunities for evocative and analytical representation and communication.
The exploration of various kinds of imaging approaches - often in combination - have become essential conditions of my work as an educator and researcher, whereby I have tried and tested various design-visualisation opportunities, for the benefit of enquiry and understanding.
During these years I have had the privilege to work with a range of excellent craftsmen and -women in what I consider to be one of the best Model Study facilities in the world.
There has always been a stimulating connection with the colleagues of the faculty's 'facility' departments, often working in the shadows and with too little recognition, who make the faculty of Architecture in Delft such a stimulating place to work and create.
I would like to express my particular gratitude to the Architecture department and its secretariat, for their support throughout the last years, most specially: dedicated department secretary Amber Leeuwenburg.

The world-class library of the faculty of Architecture, TU Delft, has been of eminent importance for this research project, not only due to its truly excellent collection of architectural publications, but also because of the hospitality, flexibility and support of its staff members, notably Henco Huijbrechts.

My appreciation for the staff of the National Archive for Dutch Architecture and Urban Design, in the NAi (now: Nieuwe Instituut) in Rotterdam. During a number of visits I was able to carry out targeted searches in their collection, which on a number of occasions yielded surprise 'catches', that led to new insight in the context of the AA Variations study project.

Early on in the AA Variations study I paid a number of visits to the building-archive of the municipality of Aalsmeer (1998). With the help of the archive supervisor, Mr Gratama, I was able to dig up several original building permission drawings of the projects that became central to the case-based study.
A special mention is due to the highly motivated and active local historic society – Oud Aalsmeer – who through the years have been responsible for a number of insightful thematic publications and the highly-informative periodical Oud Nuus.

I am especially grateful for the welcome I have been afforded by the owners of the AA Variations houses. The most important of these was undoubtedly the late Mrs Jellie Barendsen, who allowed me to visit the Barendsen house (AA04) on a number of occasions and who stimulated me to pursue the study of a number of other Aalsmeer projects (notably AA02 and AA06).
I thank the inhabitants of the various Aalsmeer houses, who have allowed me to visit and document their homes, for the benefit of this study:
— Mr Hans Alderden (AA01);
— The Keessen family (AA02);
— Mrs Henny Weima (AA03),
— The Karssing family (AA04),
— Mr and Mrs Frits and Elly Koopman (AA05);
— The Hansen family (AA06);
— The Wentzel family (AA07);
— The du Pon family, Casper van der Hoeven and Baneke architecten (AA09);
— The Bakker-Mol family and Engel architecten (AA10).

Furthermore, special thanks go to local architect and Berghoef-expert Dick Kuin, who has not only been most forthcoming but has lent me a number of photo-prints of prof. Berghoef (AA04, 06 and 08).
Lastly, I would like to express my gratitude to my uncle Huib de Vries, an important source of information and a giver of useful tips; in his own right author of a number of historical studies concerning Aalsmeer and particularly the de Vries (De Vlijt) shipyard.

A thesis:
If you want something done well and you know how to do it, you should do it yourself.
If you want something done well but you don't know how to do it yourself, you should work together with someone whose skill you recognise and whose creativity you respect.

In this light, I express my special gratitude to Bram van Borselen and Joran Kuijper, both of whom have been my students and student-assistants and have subsequently become excellent Modelling Studies tutors, as well as my indispensable sparring-partners, concerning the instrumental and conceptual aspects of my research.

Bram van Borselen is responsible for the evocative digital 3D modelling that became such an essential part of the study. Alongside our joint educational tasks, we were able to free enough time to work on the AA Variations project files, as well as projects such as the Tugendhat Variations, Ledoux Variations and Umgebinde Variations. Although he is now actively working in practice, he has been willing to fine-tune the imagery for the final versions of the AA Variations files.

Joran Kuijper was one of the star students of my treasured 'Minor House of the Future' and as a student-assistant did invaluable work for the new OV1 and OV2 modules, which I conceived and coordinated. He contributed to the Ledoux Variations and Bernard Olsthoorn's book *Raakvlakken*. Besides being a teacher and researcher, he has a unique talent for all matters relating to typography and graphic design. In the project's last months, we have had the opportunity to work intensely together on the 'building' of this book.

I am proud of having both of them alongside me as my thesis assistants.

My sincere gratitude goes to my two promotors – Professor Henco Bekkering and Professor Tom Avermaete – for the support they have given me towards completing this project, as I approached (and overflew) the date of my retirement. Without their belief, dedication, support and subtle pressure, including the setting of deadlines, this project would never have come so far.

I wish to express my affectionate thanks to the most important person in my life, Claudia, who has always been my most stimulating critic and has eventually 'come aboard' as my reader.
I am proud of our three gifted children, who have grown up with a father who was always busy working on his 'project'.
At last they can read and see what it has all been about...
Together with my grandparents, I would like to dedicate this book to our grandchildren (present and future).

To conclude my acknowledgements, I wish to express my appreciation for the *cultural* climate in which I have been able to grow up and have been challenged to experience, explore and create.

Although architecture has become my primary interest, I have felt stimulated by all kinds of artistic disciplines, including: drawing, painting and printing; photography, graphics and typography; sculpture, exhibition design and cinema; as well as various kinds of crafts, such as weaving, carpentry and cooking.

However, for me the most life-affirming of all art-forms remains *music*.
A 'primal' art that relies on imagination and composition, metre and melody, rhythm and harmony, order and arrangement, technique and expression, meaning and emotion and ultimately: live performance and hence: audience appreciation and participation.

I have through the years been inspired by a wide range of musicians, a number of whom I have been privileged to have encountered in exceptional performances: John and Paul, with of course George and Ringo (*A Hard Day's Night*, McCartney: GelreDome); Nick Drake (-), Ray Davies (Vredenburg); Van Morrison (Heidelberg), Lowell George (Little Feat: Ahoy); Elvis Costello (Zuiderpark), Aimee Mann (Melkweg) and Neil Finn (Finn family: Paradiso).

Neil Finn, in the closing lines of his album *Out of Silence* (2017):
"I know that we came closer to believing that we're through.
I know different."

9.3 Colophon

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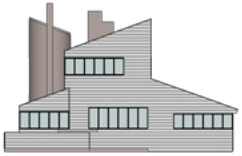



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