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Balancing heritage and innovation in
the Dutch polder dwelling architecture

Master of Architecture

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The bridge between past and future is built through craftsmanship.
Once driven by necessity and tradition now by a conscious pursuit of quality, context and meaning.

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Abstract

This research investigates how contemporary design can integrate modernization and efficiency while preserving the historical value, cultural identity, and unique essence of traditional Dutch polder landscapes and their dwellings. Grounded in a qualitative methodology, the study employs a multifaceted research strategy including exploratory, descriptive, correlational, comparative, historical, and case study method. These approaches facilitated a layered understanding of spatial, architectural, and cultural dynamics in the polder landscape, with Midden-Delfland serving as the principal case study.

The study explores how design principles derived from historical research and grounded theory can guide the creation of architecture that respects tradition while meeting modern needs. Through comparative analysis and narrative interpretation, vernacular forms and typologies were examined and reimagined to develop a unified set of contemporary design principles.

The findings culminate in a three-part design framework: [1] urban planning strategies that align future-oriented development with polder logic and environmental systems; [2] architectural massing techniques that reinterpret vernacular typologies using durable, symbolic forms; and [3] detailing approaches that combine traditional craftsmanship with digital innovation to enhance experiential and cultural value. This triadic approach offers a resilient and context-sensitive blueprint for modern architecture in heritage landscapes.

Ultimately, the research proposes that the preservation of the Dutch polder's architectural character lies not in replication but in reinterpretation—through craftsmanship that bridges past and future, tradition and innovation. This vision champions an architecture that is both deeply rooted and forward-thinking, ensuring the continued evolution and recognizability of the polder landscape.


MAASLANDSE DA

Introduction

The rise of modernism brings a shift in architecture, construction efficiency leads to standardizations and rising costs result in a reduction of rich detailing. Combine these influences, and the character of polder architecture in the Netherlands gradually fades away.

Architecture has long reflected cultural identity, evolving alongside societal and technological developments. Throughout history, the tension between traditional and modern architectural approaches has sparked debate, particularly regarding how to preserve historical authenticity while embracing innovation. In the Netherlands, this discussion becomes particularly relevant within the unique context of polder landscapes. Man-mad land reclaimed from water, which carries deep historical, cultural, and environmental significance.

While global discourse on vernacular and contemporary architecture has produced a wealth of research, much of it focuses on regions outside the Netherlands, leaving a gap in understanding of how Dutch polder landscapes and dwellings can integrate modernization without losing their historical character. Given the increasing pressure of urbanization, climate adaptation, and efficiency-driven construction, exploring how Dutch architectural heritage van be preserved within contemporary design is a pressing issue.

This research seeks to contribute to this conversation by examining the bridging between traditional and modern values in architectural dwelling design in the polder and tries to give a solution to:

problem statement

In contemporary urban design, the push for modernization and efficiency is increasingly overshadowing the historical and cultural significance of traditional polder landscapes and dwellings. Modern architectural visions and ideologies often prioritize sleek, uniform designs that neglect the unique identity, soul, and heritage of these regions.

This emphasis on contemporary design approaches poses a significant threat to the historical value and essence of polder architecture, leading to a gradual erosion of their distinctive identity.

Decisions made or imposed by municipalities often fail to integrate the cultural and historical context of these areas, risking the loss of the specific and recognizable architectural heritage that defines these regions. If left unaddressed this trend could, over the course of a long time, result in the permanent disappearance of the cultural legacy embedded in these landscapes and dwellings.

main research question

Working towards the solution on the problem statement, the main research question is used as a guide. this one being as follows:

> *In what way can contemporary design integrate modernization and efficiency while preserving the historical value, cultural identity, and unique essence of traditional Dutch polder landscapes and its dwellings?*

To work towards an answer on this question, structure is given by the division of the research in three main parts, in each part converging towards the more specific answers:

literature review

The first section of this report elucidates the relevance of this study. It explores how this research constitutes a valuable addition to existing theoretical frameworks and from which perspective the central research question has been formulated.

theoretical basis

The second part of this report establishes a theoretical foundation for addressing the central research question. This section primarily examines general perspectives on residential architecture, juxtaposing historical principles with those of modern approaches. This comparison aims to provide insight into how both ends of the spectrum respond to design challenges. Ultimately, the focus shifts toward identifying an overarching vision that bridges these divergent viewpoints. This section is structured around the following guiding questions:

Which design principles for dwelling architecture can be defined through the historical lens?

Which design principles for dwelling architecture can be defined through the modern lens?

How can the historical- and modern design principles be unified to form a basis for a contemporary dwelling design assignment?

By answering these questions, and stating the unified design principles, the basis has been made to start focussing on the Dutch polder context.

sub questions

The third and final part of this report addresses the polder-specific aspect of the central research question. It explores what defines the vernacular residential architecture unique to the Dutch polder landscape, and how this can be translated into a contemporary design context. In order to answer this, the section is structured around the following sub-questions:

1 What can be defined as Dutch polder landscapes, its specific vernacularity in dwellings and why does it hold such an importance in history?

2 In what ways can craftsmanship be employed in contemporary architecture to align the detailing of Dutch polder dwellings with contemporary times?

the final conclusion

Ultimately, the conclusion answers the main research question by synthesizing theoretical, contextual, and design findings. It articulates how the proposed principles balance modernization with the preservation of cultural and spatial identity in the Dutch polder landscape.

a disclaimer

This research was originally written in Dutch by the author, Ronald Vink. AI [ChatGPT] was used selectively to enhance phrasing, vocabulary, and readability in English, without altering the analytical content.

Overview Structure

The research is characterized by a threefold approach to conducting research. The focus in answering the main question lies in polder-specific information. As this study progresses, it becomes increasingly polder-specific.

Chapter 1 of this booklet focusses on the research itself. In this part, the main research question will be answered, this will be done as follows:

Initially, the research is approached from a "broad vernacular design perspective", examining the principles at the intersection of historical and modern design and how these can be integrated into unified proposition for contemporary design principles. However, this broad perspective alone is not sufficient to answer the polder-specific question. The second component establishes the foundation: the "analytical context-aware perspective." This section provides the contextual basis that, together with the design principles, enables the work to be concluded in "modern craftsmanship".

This marks the finalization of the research itself. After this information is established, **chapter 2** of this booklet will take this information and progress in the case-study of the studio.

This case study builds upon the prior polder-specific analysis by focusing on a designated site in Midden-Delfland, the Netherlands. Through this site-specific investigation, a foundational basis for the design project is established, culminating in the formulation of the central design question to be addressed within the studio assignment. In addition to this contextual analysis, a 'goal-oriented design perspective' is explored to further refine and reinforce the design question, providing a clear point of departure for the subsequent design process.

All elements examined form the foundation for the design developed in this studio. **Chapter 3** presents the outcome of this design task, in which urban planning, architecture, and technology converge.

This structure has been summarized in figure 1.

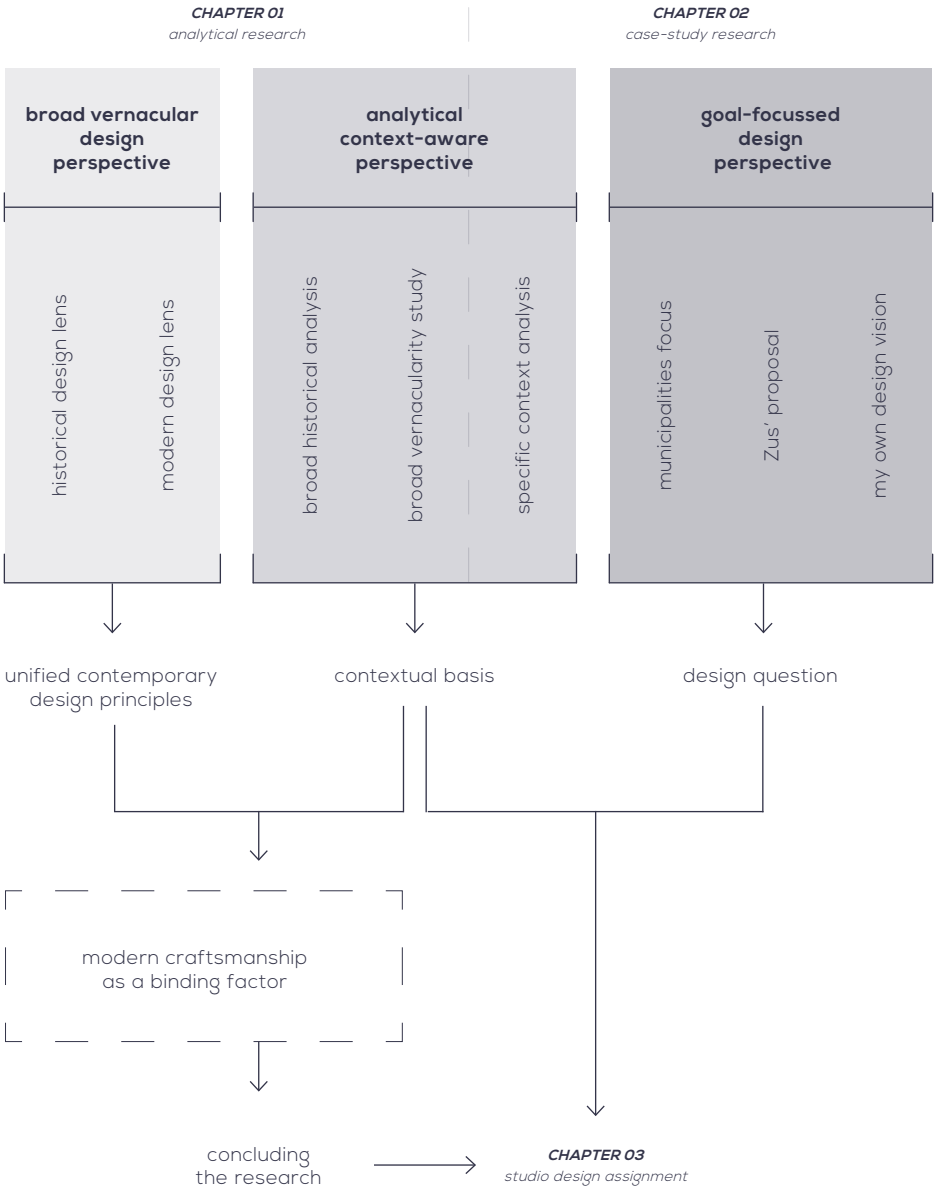

figure 01 · Research scheme

Table of Contents

chapter 01

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analytical research

Literature review

introduction

This literature review aims to explore the existing body of research on the integration of historical and modern values in architectural design, with a specific focus on Dutch polder landscapes and dwellings. The primary goal of this review is to identify gaps in the current literature, where this research can contribute the ongoing conversation. The central question in this research will be:

In what way can contemporary design integrate modernization and efficiency while preserving the historical value, cultural identity, and unique essence of traditional Dutch polder landscapes and its dwellings?

To address this, the review will first delve into the ongoing debate between traditional and modern architecture, examining the contrasting perspectives and challenges that arise when attempting to blend the two. The review will then analyze the contradictions present in the current architectural practices and the tension between progress and preservation. Following this, the literature tries to bridge the gap between traditional and modern architecture, focusing on strategies that successfully integrate both. Finally, the review will shift towards vernacularity studies, highlighting the lack of research addressing the Dutch context.

While much of the existing literature has explored projects and vernacularity in other regions abroad and has engaged with general discussions on traditional versus modern architecture, there is a clear gap in studies that specifically examine how Dutch cultural heritage in the polder can be preserved and integrated within the contemporary architectural design. This review seeks to shine a light on this under-explored area, ultimately paving the way for further research on how to design with respect to the unique cultural and historical context of Dutch polder landscapes.

the debate on traditional VS modern architecture and their approaches

The problem statement states that there is a constant contradiction in historical- and modern architecture. It is important to know how these approaches relate to each other before the focus in this research will go deeper into the boundaries of designing with polders.

The relation between these design approaches is best described as total opposites. To showcase this, the discussion between Barend Koolhaas en Léon Krier in March 1999 will be taken as a lead in the explanation of the different design approaches. [Loomis, 2015]

LEON KRIER

Krier in this matter is a vocal critic of modernism and a proponent of traditional architecture and urban planning. He is known for advocating for the "traditional city" as a human-scale, sustainable, and livable environment. His ideals are rooted in classical architecture, small-scale design, hierarchical spatial structures, and a harmonious relationship between buildings and the landscape. Examples of his work include Poundbury [the model village in England, built in collaboration with King Charles III]. [Architecture Enthusiast, 2024; Krier, 1998]
According to Krier, modernism has led to anonymous, functional, and human-unfriendly architecture that fails to consider human scale or cultural roots. [Krier, 1998]

BAREND KOOLHAAS

Barend Koolhaas is often associated with the progressive, innovative approach of OMA [Office for Metropolitan Architecture], the firm founded by his uncle Rem Koolhaas. This movement is known for experimenting with forms, large scale structures, and embracing the dynamic nature of the modern city. Barend Koolhaas frequently defends the complexity, hybrid nature, and fragmented character of contemporary cities. Barend Koolhaas views Krier's traditional vision as nostalgic and unrealistic in the context of today's rapidly changing society.

The essence of the discussion revolves around four main topics, which will be outlined in the schematic representation on the following page [figure 02]. This scheme is a summary in which the author of this report summarized the statements based upon the described information in the main source [Loomis, 2015] and the sources within this section of this literature review. This scheme will serve to highlight and compare the perspectives of Krier and Koolhaas, illustrating their differing viewpoints on each of these key issues.

The controversy between these two thinkers reflects a broader debate in the architectural world regarding the role architecture should play today. Supporters of Krier advocate for a return to simplicity and human values, [Thompson-Fawcett, 1998] while the Koolhaas movement continues to experiment with innovation and change. [Koolhaas & Mau, 1997] Their discussion also encompasses political, economic, and cultural dimensions.

Krier being associated with conservative and monarchist values. He criticizes modernism for its perceived coldness and inhumanity, advocating for a return to traditional urban forms that he views as timeless and human centered. He emphasized the importance of human scale and the integration of classical design elements.

While Koolhaas is more often views as progressive and future oriented. He embraces the complexity and chaos of the contemporary city, seeing it as a source of inspiration and innovation. He argues that cities are in a constant state of evolution and that architecture should reflect this dynamism, without clinging to nostalgic ideals.

The debate between Koolhaas and Krier represents a profound discourse within architecture regarding the direction and values of urban development. Koolhaas, a leading figure in modernism and renowned for his innovative and often provocative designs, stands in stark contrast to Krier, a steadfast advocate of traditional architecture and urbanism. [Mumford, 2002]

The discussion touches upon broader themes such as the role of tradition versus innovation, the human scale in urban design, and the ethical responsibilities of architects in a rapidly changing world. The debate remains relevant to contemporary discussions about the future of urbanism and architecture.

TOPIC	tradition vs modernity	human scale vs abstraction	aesthetics vs ethics	the city as an organism
KRIER	Criticizes modernist architecture as cold, detached, and disconnected from cultural context and tradition.	Emphasizes human scale, simplicity, and timeless designs.	Architecture is ethically bound to tradition and community.	Views cities as hierarchically organized, harmonious systems.
KOOLHAAS	Views tradition as limiting and incapable of responding to the realities of globalization, urbanization, and technological advancement.	Explores large-scale structure, abstract forms, and experimental solutions suited to the megacities of today.	Architecture as a medium for innovation and disruption, where ethics do not necessarily align with traditional values.	Considers cities as chaotic, dynamic entities that architecture should engage with, rather than attempt to control.

figure 02 · overview statements debate

the contradiction in the present [2025] time

This debate being left in the past time? Not at all. That the debate on whether we should engage in modern- or traditional architecture is still ongoing these days is proven by the vivid discussion in the restoration of the Notre-Dame Cathedral in Paris, France. The 2019 fire and subsequent plans for its restoration ignited global discourse on whether to preserve its original form or modernize elements for better functionality. [Wadekar, 2020] Supporters of historic architecture argue for maintaining authenticity, rooted in heritage and cultural significance, while modernists advocate for innovative design solutions that incorporate contemporary materials and technology, potentially ensuring longevity. This conflict makes the architectural world to look back to the discussion Krier and Koolhaas had many years ago.

"This debate, however, between architectural classicism and modernism is not merely a matter of aesthetic preference, but also involves profound ethical considerations. Classicism, with its emphasis on heritage, beauty, and cultural continuity, offers a sense of stability and historical depth. Modernism, with its focus on functionality, progress, and innovation, addresses the practical needs of contemporary society and promotes social responsibility." As written by JAS. [JAS, 2024] JAS continues: "In the contemporary architectural landscape, the most compelling designs often arise from a synthesis of these two traditions. By drawing on the strengths of both Classicism and Modernism, architects can create buildings that are not only aesthetically pleasing but also ethically responsible. This integrated approach allows for the creation of a built environment that honors the past while embracing the future, ensuring that architecture continues to enrich the human experience in meaningful and sustainable ways." [JAS, 2024]

the bridging approaches

That there is an urge to work with both architectural approaches gets strengthened by Mann [Mann, 1985] in his article "Between traditionalism and Modernism: Approaches to a Vernacular architecture." In his article, Mann explores the tension and interaction between traditional architecture and modern design principles. He examines how vernacular architecture [structures built using local materials, techniques, and cultural influences] can adapt to contemporary needs while preserving historical and regional identity.

This exploration by Mann highlights a broader architectural ambition: to transcend the duality between traditionalism and modernism by seeking approaches that synthesize the strengths of both. Rather than viewing tradition and innovation as opposing forces, these perspectives recognize their potential for mutual enrichment, where local identity, cultural continuity, and ecological sensitivity coexist with technological advancement and contemporary functionality. The following three visions exemplify this integrative mindset, each offering a distinct strategy for unifying traditional and modern architectural approaches.

CRITICAL REGIONALISM, AS DESCRIBED BY FRAMPTON [1983]:

Described, here in a summarized way, as a call for architecture that rejects the global, standardized model and instead embraces local contexts, traditions, and culturally specific while still benefiting from modern technology and design principles. It seeks to create an architecture that is both timeless and rooted in the local environment, reflecting the needs and identities of its community.

This vision encourages authenticity, contextual sensitivity, and environmental relevance, with the architect serving as an intermediary between global forces and local traditions. [Frampton, 1983]

ECO-VERNACULAR APPROACH, AS DESCRIBED BY MANN [1985]:

A fusion of traditional vernacular wisdom and modern sustainable architecture. It balances the local knowledge of climates and materials while integrating environmentally conscious innovations, creating architecture that is both culturally significant and ecologically responsible. This approach

addresses both the human en environmental needs of communities, providing a framework for building structures that are adaptive and resilient in the face of modern challenges. [Mann, 1985]

HYBRID-ADAPTIVE APPROACH, AS DESCRIBED BY MANN [1985]:

By integrating traditional forms with modern technologies, this approach allows for the adaptation of existing buildings and architectural styles to meet contemporary needs without losing their cultural significance. It promotes sustainability through adaptive reuse, blending local knowledge and modern innovations to create environmentally responsible and context-sensitive designs. Ultimately, this approach fosters a harmonious balance between tradition and innovation, allowing architecture to evolve in a way that is both culturally meaningful and environmentally sustainable. [Mann, 1985]

clear vision on vernacularity globally,
but a missing context in the Dutch polder

Vernacularity in architecture, as described by Rudofsky [Rudofsky, 1966], as an organic and tradition-driven form of building that emerges from collective human experience rather than individual artistic expression. He viewed vernacular architecture as a natural, time-tested response to local environmental, social, and cultural conditions, built by ordinary people without formal architectural training.

Henry Glassie dives deeper in the phenomenon of vernacular architecture. His work, as reviewed by McCleary [McCleary, 2002], encourages a more inclusive and people-centered approach to architecture, acknowledging the wisdom embedded in everyday buildings. Rather than treating vernacularity as merely functional, Glassie emphasizes its deep connection to human identity, social practices, and historical continuity. He views it as an expression of the values, beliefs, and needs of the people who create and inhabit these spaces.

This vernacularity is directly connected to the literature described in the prior elements in this literature review. And when a deeper look is taken into the application of this approach or ideas, many examples come to the forefront.

Ghisleni describes on Archdaily [Ghisleni, 2025] multiple projects arranged by their materials, as shown below [figure 3].

STRAW

Community center.
Zumbaqua Ecuador [Pintos, 2024]

EARTH

Interactive Living Museum.
El Alto Bolivia [Luco, 2024a]

Cultural center.
Accra, Ghana [Abdel, 2024a]

Cultural center.
Thailand [Abdel 2024b]

BAMBOO

Forest temple.
Brazil [Caballero, 2024]

Luna Beach Club.
Indonesia [Luco, 2024b]

Centre for inclusive Growth
& Competitiveness for Tapni.
Manipal India [Negoro, 2024]

figure 03 · overview vernacular projects

What becomes evident in these examples is that the focus consistently lies on projects located outside the Netherlands. As is common in architectural research, reports, and academic analyses, the emphasis often falls on regions in the Global South and Southeast Asia. This is reflected in projects such as Hassan Fathy's *New Gourna Village in Luxor, Egypt* [Williams, 2024], a pioneering experiment in sustainable architecture through the use of

mud brick. Although much of the village was eventually abandoned, recent UNESCO-led restoration efforts have revived key structures, including the mosque and theater. Similarly, the case study *The Vernacular Architecture of Kerala: A Case Study of the Mishkal Mosque of Calicut, India* emphasizes the significance of environmental and cultural context in architectural design. [Harvard University, 2023] Through the example of the Mishkal Mosque in Calicut, the study illustrates how traditional practices can inform sustainable, climate-responsive solutions. Another example can be found in Kulkarni's article *10 Examples of Contemporary Vernacular Architecture*, which presents a global overview of projects that merge traditional building methods with modern design approaches, featuring examples from India, Denmark, and China. [Kulkarni, 2024]

Together, these studies highlight a notable absence of vernacular examples rooted within Dutch cultural and environmental contexts. Even when Dutch vernacularity is acknowledged, as in the work of Stanford Anderson [Anderson, 1999], it is often referenced only to underscore broader themes, rather than being critically explored or applied in depth. This points to a significant gap in the architectural discourse: the underrepresentation of the Dutch polder landscape as a site for vernacular innovation.

conclusion

In conclusion, this literature review highlights a significant gap in the current research regarding vernacular architecture in the Dutch polders, an area that remain underexplored despite its rich historical and cultural context. While numerous studies have examined the relationship between modern and traditional architecture, few have provided a comprehensive approach that bridges these two within the unique Dutch polder.

Furthermore, the concept of vernacularity within the Dutch polders has yet to be fully explored, leaving a void in understanding how local building traditions have evolved and adapted to both environmental and societal shifts over time.

By addressing the lack of Dutch vernacular theory and the lack of a unifying design method for contemporary, context-aware, dwelling design, this research aims to contribute new insights into the intersection of modern and traditional architectural practices in the Dutch polders, offering an understanding of how vernacular architecture can lead to fitting contemporary design solutions.

Methods

This research adopts a qualitative methodology, which enables an in-depth exploration of varying perspectives, insights, and conceptual frameworks throughout the design process. [Creswell, 2009; Denzin & Lincoln, 2017] By prioritizing depth over breadth, this approach supports a layered understanding of the relationship between contemporary and traditional architectural paradigms. Several research strategies were employed within this qualitative framework to ensure a holistic and robust investigation. [Groat & Wang, 2013]

Exploratory and descriptive approaches: At the foundation of this study lies exploratory research, particularly suited for topics with limited pre-existing knowledge. [Stebbins, 2001] It was employed to investigate the spatial and cultural context of the municipality of Midden-Delfland, helping to clarify the central research question and guide the selection of subsequent methods. Complementing this was descriptive research, used in the early stages of the study to systematically outline and categorize historical and modern design elements. [Babbie, 2020] This approach facilitated the construction of a clear comparative framework between past and present architectural practices.

Correlational and comparative methods: To analyze the dynamic interaction between historical and contemporary design approaches, correlational research was utilized. This method enabled the study to investigate how various elements of past and present design correlate, even without establishing direct causation. [Babbie, 2020] Building on this, comparative research was employed to examine architectural similarities and differences across various polders. [Esser & Vliegenhart, 2017] This method was crucial in both the formulation of the unified proposition for contemporary design principles and the mapping of vernacular architectural characteristics.

Historical and case study research: Historical research formed a vital part of both the exploratory and descriptive phases. This method provided insight into the development of Dutch polder landscapes and the historical architecture specific to Midden-Delfland. [Tosh, 2015] By uncovering past conditions and construction practices, this method helped contextualize the design traditions addressed in the study. To conclude the research process, a case study was conducted within Midden-Delfland, focusing

on a specific urban and architectural design intervention. This case study offered concrete, real-life insights into how the proposed design principles could be applied in practice. [Yin, 2017]

Data collection methods: Data were gathered from a variety of sources to ensure a comprehensive base for analysis. Online information gathering included academic databases and relevant websites, supplemented by printed resources such as books from university libraries and the architectural firm KOKON. [Groat & Wang, 2013]. Additional insights were drawn from video materials to support and expand upon the written data. Throughout the process, content was selectively filtered, ensuring only data relevant to the research objective were retained. Importantly, the design process itself also served as a source of knowledge, generating new insights not available in existing literature.

Qualitative data analysis methods: The data collected were analyzed using several qualitative techniques tailored to the nature of the research. Content analysis was employed to systematically categorize textual data and distill the key design principles. [Krippendorff, 2019] Thematic comparison and grounded theory were used in parallel to identify recurring patterns within the architectural and historical material [Braun & Clarke, 2006; Charmaz, 2014], supporting the development of grounded insights that are directly tied to the data. Finally, narrative analysis was used to interpret the stories and theoretical positions behind various architectural visions, enriching the foundation upon which the unified design principles were established. [Drake-Clark, 2009]

Historical Approach

Which design principles for dwelling architecture can be defined through the historical lens?

This section of the research takes a broader analytical perspective on the historical approach to design, aiming to understand both the reasons behind its development and its practical applications.

Historical in this research can be defined as early 20th-century functionalist Dutch rural architecture characterized by traditional craftsmanship, modest scale, and regional adaptation to polder landscapes and agricultural needs.

It begins with a review of the relevant literature through the eyes of important architects in this approach, providing an insight into the theoretical foundations of this design approach. Following that, the research will examine and compare these approaches and see how these historical concepts can define design principles. These will define in conclusion the historical lens which, furtheron in the research, will play a significant role in the unified principles.

The historical design approach is not merely about preservation or replication; it is an active dialogue between past and present, a still evolving conversation between tradition and innovation. [Rossi et al., 1982] Rather than "simply" preserving or replicating historical forms, architects engage with history in ways that interpret, adapt, and transform it to meet contemporary needs. This approach recognizes history as a layered and dynamic presence, where past and present coexist in tension and dialogue. [Tschumi, 1994] By embracing complexity, material authenticity, and contextual sensitivity, architecture can create spaces that honor historical narratives while remaining firmly rooted in the present and the future. [Leatherbarrow & Mostafavi, 2002]

To get a deeper understanding of this historical approach, four main figures within this ideology of architecture will be pointed out in this following section.

Walter Benjamin

Create historical aware, social, and critical reflective architecture

photo source · Wikipedia [bijdragers, 2024]

Benjamin's vision of historical architecture is deeply rooted in this critique of modernity, his concept of history, and his understanding of memory and culture. Central to Walter Benjamin's thinking is the idea that the built environment is not merely a collection of physical structures, but a dynamic and evolving cultural tex, one that can be "read" to uncover the layered complexities of history, memory, and social transformation. In works such as The Arcades Project [Benjamin et al., 1999] and his essay "Theses on the Philosophy of History" [Benjamin, 1968], Benjamin presents architecture and urban space as material embodiments of cultural consciousness, shaped by—and reflective of—the forces of capitalism, modernity, and collective memory.

His approach challenges linear, progressive narratives of history. Instead, he advocates for a more fragmented and dialectic view of history, where moment from the past appear as "dialectical images" [Lipton, 2006]. These images are fleeting, intense, and often contradictory, offering the potential for revolutionary reinterpretation. In architecture, this perspective suggests that buildings and urban spaces are not static but carry multiple layers of meaning, reflecting various historical moments, ideologies, and social struggles. [Benjamin et al., 1999;Buck-Morss 1991]

Modernity, for Benjamin, is not a break from the past but an active engagement with it. [Benjamin and rice, 2009] He critiques modern architecture's focus on innovation, which he sees as detached from historical context. The attempt to distance new architecture from tradition risks losing

Summarized Architectural Vision

Architecture as text

Fragmented & Dialectic history

Engagement with the past

Aura & Authenticity

Architecture as ideological Space

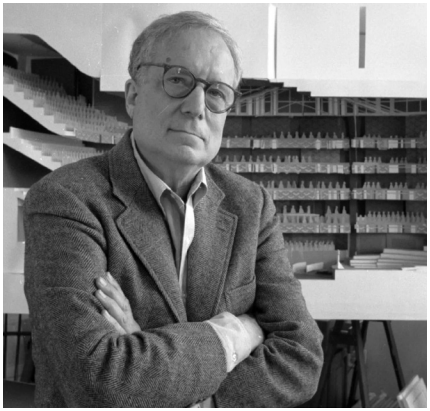
Urban spaces as collective memory

Critical interpretation of space

the "aura" [the unique, authentic presence] that has historically given art and architecture their cultural significance. In this way, Benjamin's critique of modernist architecture touches on its commodification and the way mass production and mechanical reproduction have altered the value of art, including the built form. [Lipton, 2006]

Benjamin's ideas also bring to light the political dimension of architecture. The build environment is not only a site for aesthetic expression but also a stage for ideological struggle. Architecture, especially in the context of modern cities, embodies power relations and cultural conflicts. Urban spaces and buildings serve as repositories for collective memory, though that memory is often fragmented and contested. [Buck-Morss, 1991] Thus, the architecture of the contemporary urban environment can be seen as an active, evolving representation of historical power struggles, with architecture and urban spaces reflecting and shaping social hierarchies. [Gilloch, 2002]

In essence, Benjamin's vision of historical architecture reframes cities and buildings as active participant in history. The built landscape is a complex text that, when read critically, reveals the tensions and contradictions of the past. Architects and urban dwellers, therefore, are not mere creators or consumers of space: They are interpreters of the urban historical and political meaning, shaping the present through their engagement with the layers of history embedded in the urban environment. [W. Benjamin et al., 1999;Buck-Morss, 1989;Gilloch, 2002]



Robert Venturi

Create expressive, contextual, and symbolical rich architecture

photo source · The New Yorker [Saval, 2018]

Venturi, a key figure in postmodern architecture, offers a significant shift in architectural thought through his critiques of modernism and his embrace of historical context, symbolism, and complexity in design. In this work "Learning from Las Vegas [1977], co-authored with Denise Scott Brown and Steven Izenour, Venturi challenges modernist ideals by asserting that architecture should not only serve functional needs, but also engage with the symbolic and emotional aspects of the built environment. The authors critique modernist architecture's rejection of ornament and symbolism, arguing instead for an approach that incorporates signs, symbols, and visual communication, which can offer deeper meaning and relevance to a wider audience. Venturi proposes a more inclusive approach to architecture, advocating for designs that reflect popular culture and are responsive to the needs and desires of ordinary people, exemplified by the symbolic excess and neon signs of Las Vegas. [Venturi et al., 1977]

Venturi's "Complexity and Contradiction in Architecture" further develops his critique of modernism, advocating for an architecture that embraces complexity, contradiction, and diversity of form. [Venturi, 1977] He criticizes modernism's reductionist approach, which seeks pure, simple forms that fail acknowledge the rich, multi-layered experiences that architecture can convey. Venturi argues that buildings should accommodate both visual richness and multiple interpretations, and that contradiction in design, such as combining simplicity with ornamentation or traditional forms with modern elements, adds vitality and depth to the architecture.

Summarized Architectural Vision

Symbolsim & Visual communication

Complexity & Contradiction

Integration of historical references

Contextual & Inclusive design

Rejectin modernist reductionism

Blending tradition with innovation

Architecture as a cultural expression

Through these works, Venturi stresses that historical references should not be discarded but integrated into contemporary design in a meaningful way, his postmodern vision of architecture rejects the dogmatic principles of modernism, favoring instead an approach that acknowledges the complexity of the human experience and the cultural, historical, and social contexts in which buildings exist. By doing so, Venturi's work shifts architectural thought towards a more inclusive, context-sensitive approach that appreciates the value of both tradition and innovation in creating buildings that resonate with the public. [Venturi, 1966]

Kenneth Frampton

Create regional sensitive, material grounded architecture

photo source · Knoll [Knoll, n.d.]

Kenneth Frampton's historical design approach is deeply rooted in his advocacy for Critical Regionalism, a concept he developed to. Counteract the homogenizing tendencies of globalized modernism. Combining his Essay "Towards a critical regionalism: Six points for an architecture of resistance." [Frampton, 1983] and "Modern architecture: A Critical History" [Frampton, 2020] gives an insight in his approach:

Frampton does not reject modernism outright but argues that is should be anchored in local culture, geography, and climate rather than being applied universally. He believes that architecture must respond to regional condition rather than blindly following international trends. [Frampton, 1983]

Unlike purely visual or aesthetic approaches, Frampton emphasizes the tectonic nature of architecture, how a building is constructed and the materials it uses. He sees the process of construction as a meaningful act that connects buildings to their cultural and environmental context. This opposes the idea of architecture as a mere consumer product, highlighting instead the importance of material authenticity and structural expression. [Frampton, 2002]

He criticizes the loss of identity in contemporary architecture due to the forces of global capitalism and mass production. His historical approach emphasizes a critical engagement with the past, aiming to preserve cultural continuity while encouraging innovation. [Frampton, 1983]

Summarized Architectural Vision

Contextual modernism

Tectonic expresion

Resistance to homogenization

Sensory Engagement

Phenomenological Experience

Social & Political Responsibility

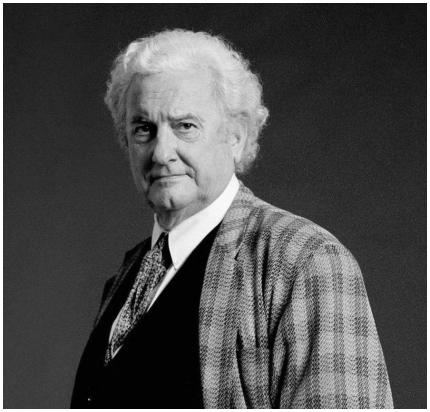
Balance between Tradition & Innovation

A key aspect of Frampton's design philosophy is that architecture should engage all the senses, not just the vision. He emphasizes the importance of light, shadow, material textures, and the relationship between a building and its landscape, reinforcing a deeper experience of space. [Frampton, 1983]

Frampton's ideas align with phenomenology [the study of appearances of things, or things as they appear in our experience [Husseri et al., n.d.]], particularly the works of Martin Heidegger and Juhani Pallasmaa. He argues that architecture should create authentic experiences rather than being reduced to superficial form-making.

For Frampton, architecture is not just a technical discipline, it carries social and political significance. His approach encourages architects to resist corporate-driven, profit-oriented designs in favor of structures that serve societal and environmental well-being. [Frampton, 1983]

His historical perspective leads to a balanced approach between tradition and modernity. His ideal design methodology includes the use of local materials and craftsmanship, responding to climate and topography, avoidings excessive ornamentation while still maintaining regional identity, and creating spaces that enhance human experience rather than just serving as objects of visual consumption. [Frampton, 1983]



Leon Krier

Create timeless, social, and contextual architecture

photo source · Arquitectura Viva [Fernandez, 2024]

Léon Krier is a prominent architect and urban planner renowned for his critique of modernist architecture and his advocacy for traditional, human-scale urbanism. Krier's architectural philosophy emphasizes the importance of classical principles and the reconstruction of traditional European city models. He critiques modernist designs for prioritizing efficiency and functionality over the well-being of inhabitants, which often results in environments that lack character and fail to foster community. Instead, Krier promotes urban spaces that integrate mixed-use development and encourage social interaction, reflecting his belief that architecture should serve human needs and be rooted in the social, cultural, and historical contexts of its place. [Lynch, 2020]

Krier's approach stands in stark opposition to modernist architecture, which he views as impersonal and disconnected from human scale. Modernist designs often prioritize efficiency, functionality, and the separation of urban functions—residential, commercial, and recreational spaces—leading to sterile environments that do not foster a sense of community. Krier critiques these segregated spaces, arguing that they fail to reflect the diverse needs and interactions of people. Instead, he advocates for mixed-use developments that encourage social interaction and foster a strong sense of place. Krier believes that urban spaces should be designed to enhance the well-being of their inhabitants, not just to optimize for efficiency. [Architecture Enthusiast, 2024]

Summarized Architectural Vision

Human-scale design

Mixed-use Development

Classical & Traditional architecture

Pedestrian-friendly environments

Community-centered urbanism

Critique of modernist fragmentation

Durability & Sustainability

In stark contrast to modernism, Krier champions traditional architecture, which he believes offers a more humane and contextually appropriate approach to design. He emphasizes the use of classical forms, proportions, and materials that resonate with human scale and cultural heritage. [Krier & Schwarz, 2020] For Krier, traditional architecture is not just a stylistic choice but a reflection of enduring human values and social structures. His designs often incorporate elements such as courtyards, arcades, and public squares, which promote social interaction and provide a sense of continuity with the past. [Krier, 2009] Krier's work integrates these elements to create environments that support community life, offer visual harmony, and stand the test of time.

Léon Krier's work represents a powerful critique of modernist architecture and a compelling vision for a more human-centered approach to urban planning. His designs emphasize the importance of mixed-use, pedestrian-friendly neighborhoods, rooted in classical architectural principles, and constructed with sustainable, durable materials. By integrating traditional forms and values with modern needs, Krier's architecture fosters a sense of community, social interaction, and cultural continuity, offering a timeless alternative to the often impersonal, fragmented spaces created by modernist design. [Krier, 2009]

summary

The historical approach to contemporary architecture highlights the importance of blending past architectural principles with modern needs, providing a nuanced critique of the disconnection often created by modernism. [Krier, 2009;Frampton, 1983] It challenges the linear narrative of architectural progress, proposing that the built environment is a complex, evolving text that reflects not only technological advancements but also the cultural, political, and social forces of its time. [Benjamin and rice, 2009] Rather than disregarding tradition, this perspective encourages a deeper engagement with history, seeing buildings and urban spaces as active participants in the ongoing narrative of human culture. [Venturi, 1977]

By embracing complexity, contradiction, and symbolism, contemporary architecture can move beyond the reductionist tendencies of modernism. It becomes a space for emotional and cultural resonance, inviting a broader range of human experiences. [Venturi, 1977] Architecture is not merely functional but symbolic, and its design should respond to the layers of meaning embedded in the urban environment. This approach ensures that buildings remain connected to the historical and ideological forces that have shaped them, providing a deeper understanding of their significance. [Krier, 2009]

Moreover, the historical approach highlights the need for architecture to be deeply contextual, responding to local culture, geography, and climate. Rather than applying universal design solutions, it calls for sensitivity to the specific conditions of a place, ensuring that architecture remains relevant and meaningful within its environment. By respecting local craftsmanship, materials, and environmental factors, contemporary designs can honor regional identity while embracing innovation. [Krier, 2009]

Finally, the integration of traditional forms and human-scale design within contemporary architecture fosters a sense of community and belonging. It critiques the impersonal and fragmented nature of modernist spaces, advocating for designs that promote social interaction and reflect enduring human values. In this way, architecture can serve as a bridge between the past and the present, creating spaces that are both timeless and responsive to the evolving needs of society. [Frampton, 1983]

historical design principles

To provide a comprehensive overview of how these theories can be applied in residential architecture, the previous sources of information have been examined, analyzed, and categorized alongside one another.

The various perspectives on architecture and urban planning are integrated in Figure 4, in the "Historical Design Principles".

By analyzing the theory, a clear distinction can be made in the information. Therefore, Figure 4 presents two parts for each principle. First, the principle itself is outlined, summarizing the theory briefly. In addition, for each section, a design approach is provided, which is an element derived from the theory, distilled into its practical application.

This diagram is organized according to the author's interpretation. The analysis of the theory allows for a potential categorization, with titles chosen to align with the respective principle. The titles are additions that are not linked to specific sources, while the content can be traced back to the preceding sections.

Historical design principles

figure 04 · overview historical design principles

layered historical engagement

principle

Architecture should reflect multiple historical moments, blending past and present to create a dynamic, evolving design.

design approach

Integrate elements from different historical periods into a cohesive modern design, allowing buildings to "speak" through their history.

embrace complexity & contradiction

principle

Design should accommodate complexity, diversity, and contradiction, combining both minimalist and ornamental elements.

design approach

Create buildings that incorporate symbolic, decorative, and functional aspects, reflecting diverse human experiences and cultural meanings.

human scale & social interaction

principle

Architecture should prioritize human experience, fostering environments that promote social interaction and community engagement.

design approach

Design pedestrian-friendly spaces, mixed-use developments, and communal areas that encourage public engagement and connection.

material authenticity

principle

Use authentic materials that reflect the local context and maintain a connection to traditional craftsmanship.

design approach

Incorporate local or regionally specific materials and construction methods in ways that enhance both aesthetic and environmental quality.

contextual sensitivity

principle

Design should respond to the local culture, climate, and geography, ensuring that buildings are contextually relevant.

design approach

Use local materials, construction techniques, and climate-responsive design elements to tie the building to its environment.

reinterpretation of tradition

principle

Tradition should not be merely replicated but reinterpreted and adapted to contemporary needs and technologies.

design approach

Adapt historical architectural forms or motifs in new, innovative ways that resonate with modern sensibilities while respecting the original meaning.

architectural narrative & symbolism

principle

Architecture can communicate cultural and historical narratives through its form, materials, and symbols.

design approach

Integrate local cultural references or historical symbolism into the design, creating buildings that embody stories or collective memory.

b

Modern Approach

Which design principles for dwelling architecture can be defined through the modern lens?

Theoretical Basis

This section of the research takes a broader analytical perspective on the modern approach to design, aiming to understand both the reasons behind its development and its practical applications.

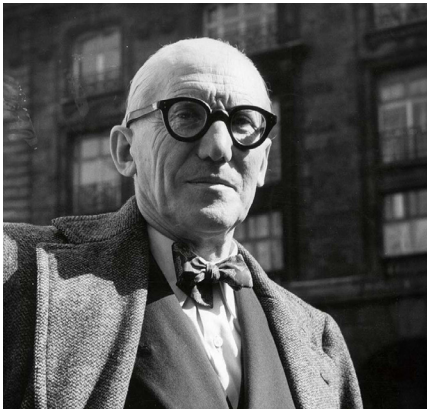
Modern in this research can be defined as post-war to contemporary residential design emphasizing functionalism, simplicity, innovative materials, and integration with the landscape, while addressing evolving lifestyle and sustainability needs.

It begins with a review of the relevant literature through the eyes of important architects on this approach, providing insight into the theoretical foundations of this design approach. Following that, the research will examine and compare these approaches and see how these historical concepts can define design principles. These will define in conclusion the modern lens which, further on in the research, will play a significant role in the unified principles.

The relationship between modern and traditional architecture has been a topic of ongoing exploration among some of the most influential pioneers of the 20th century. While modern architecture often represents a break from the past, many of its leading figures did not fully reject traditional design principles. Instead, they engaged with tradition in various ways, reinterpreting or adapting old concepts to suit the changing needs of the modern world. [Le corbusier, 1986; Neumeyer, 1991; Wright, 1954] These architects, while pushing the boundaries of architectural innovation, drew on historical ideas, reimagining them through the lens of modern technology, material, and societal shifts.

While some sought to distance themselves from past architectural styles, others aimed to harmonize modern needs with traditional forms and cultural values. [Venturi, 1966] Through this dialogue, modern architecture emerged not as a rejection of history, but as a reinterpretation of it, adapting those ideas for a new era. [Heynen, 2000]

To get a better view on the modern approach and how it positions itself towards the historical values, the subject is viewed through the eyes of 5 leading architects within this ideology.



Le Corbusier

Create rational, social, and innovative architecture

photo source · KPA [Nasir, 2025]

Le Corbusier was critical of traditional, historical architectural styles, particularly the ornamentation and rigid forms of classical architecture. He believed that modern architecture should be a response to the needs of the machine age and to the changing lifestyle of people in the industrial era. However, he didn't completely disregard tradition; for instance, he appreciated classical proportions and the concept of "the villa" as an archetype for his designs. His work often reflected a balance between modernity and classical harmony. [Curtis, 2020] His Villa Savoye reflects a reimagined version of traditional domestic architecture, emphasizing functionality and the use of modern materials like concrete and glass [Kroll, 2024]. He articulated several foundational principles that have profoundly influenced architectural design:

"A house is a machine for living in.", Le Corbusier famously stated. Emphasizing that buildings should function efficiently to meet the human needs, similar to how machines operate. This perspective underscored his belief in prioritizing functionality and efficiency in architectural design. [Architecture, Philosopy of Internet Encyclopedia of Philosophy, n.d.]

Summarized Architectural Vision

Functionality & Efficiency

Purism & Minimalism

Balance between Modernity & Classical proportions

Innovative use of modern materials

Integration of Nature & Light

Urban planning & Community Design

Elevated & Open floor plans

Purism and Minimalism: He advocated for stripping architecture of unnecessary ornamentation, focusing instead on the expression of materials and the building's function. This approach is evident in his emphasis on balance, purity, and the use of the golden ratio in design. [Mathur, 2022]

Urban planning and social impact: Le Corbusier's vision extended beyond individual buildings to urban planning. He proposed the "Unite d'Habitation" concept, envisioning large apartment blocks that offered spacious housing, social spaces, roof gardens, and amenities. This idea aimed to create self-sufficient communities that enhanced social interaction and improved living conditions. [Le Corbusier: Style and Philosophy of the Architectural icon, n.d.]

Frank Lloyd Wright

Create modern yet timeless architecture with respect for identity

photo source · F.L.W. building Conservancy [2024]

Wright's vision of architecture was a balance between tradition and modernity, emphasizing innovation while respecting timeless principles. He rejected the rigid, ornamental European historicism of the 19th century, believing that architecture should evolve to mee the needs of contemporary life rather than remain bound to outdated styles. [Impact – Frank Lloyd Wright foundation, 2024]

At the core of Wright's philosophy was the concept of organic architecture, which sought harmony between the built environment and nature. [Gomez, 2023] Influenced by Native American structures and the simplicity of Japanese design, he championed the use of natural materials and the seamless integration of buildings with their surroundings. His designs prioritized open, flowing spaces, rejecting the compartmentalized layouts of traditional architecture.

Rather than embracing the industrial aesthetics of his European modernist contemporaries, Wright envisioned distinctly American architecture. One that reflected the vast landscapes and cultural identity of the United States. His Prairie Style homes, with their horizontal lines and deep overhangs, echoed the open plains of the Midwest, while his masterpiece "Fallingwater", demonstrated how modern engineering could be used to enhance a structure's relationship with nature. [Fallingwater, 2024] His understanding, and his use of, structure and materials from nature as is called biomimicry is most significant. [Frank Lloyd Wright foundation, 2021]

Summarized Architectural Vision

Harmonizing with nature

Spatial fluidity

Regional identity

Biomimicry & Natural materials

Balance between Tradition & Modernity

Integration of Structure & Function

Human-centered design

His approach did not dismiss tradition entirely; instead, he sought to reinterpret it through modern construction techniques and functional design. [Sheldrake, 2020] By mering contemporary innovations with enduring principles of spatial harmony and craftmanship, he created a unique architectural language that continues to inspire architects today. His legacy in his ability to bridge the past and the future, proving that modern architecture can honor tradition while embracing progress.

Walter Gropius

Create functional, socially progressive architecture

photo source · The economist [2019]

Gropius, as the founder of the Bauhaus school, sought to redefine the relationship between tradition and modernity in architecture. While he rejected the ornamental historicism of past styles, he did not dismiss the value of traditional craftmanship. Instead, Gropius believed that the principles of craftsmanship, such as precision, material integrity, and functionality, should inform modern industrial design.

In "The New Architecture and the Bauhaus, Gropius argues that industrial production was not inherently opposed to craftsmanship but could evolve from it. [Gropius, 1935] He saw mass production as an opportunity to extend the ideals of good design to a broader audience, making functional and aesthetically refined objects accessible to all. Rather than imitating historical forms, he sought to synthesize their lessons into a new architectural language that embraced simplicity, efficiency, and utility. [Gropius, 1955]

His philosophy got elaborated further in Hans Wingler's "The Bauhaus", noting that the Bauhaus curriculum was structured to bridge the gap between traditional craft training and industrial production. [Wingler, 1969] This approach was rooted in the belief that the modern world required a new aesthetic, one that was not weigher down by past ornamentation but was instead guided by rational design principles.

Summarized Architectural Vision

Synthesis of Craft & Industry

Form follows function

Embracing mass production

Rational, minimalistic aethetic

Integration of modern Materials & Techniques

Hollistic design approach

Evolution, not rejection of tradition

Reyner Banham, in "Theory and Design in the First Machine Age", underscores Gropius's insistence that modern architecture must abandon decorative excess in favor of clarity and purpose. [Banham, 1960] This perspective was not about discarding history but about learning from it, understanding the functional logic behind traditional craftsmanship and applying those insights to contemporary design challenges.

Gropius's break from the 19th-century historical styles got contextualized by Barry Bergdoll in "European Architecture 1750-1890", emphasizing his commitment to an architecture that was shaped by modern materials and construction methods. [Bergdoll, 2001] Gropius saw industrialization as a means of achieving greater artistic and social progress, rather than as a force that eroded creative integrity.

Ultimately, Gropius's vision was not a rejection of tradition but an evolution of it. He believed that modern architecture should retain the discipline and structural logical of craftsmanship while embracing the possibilities of new technology. In doing so, he laid the foundation for a design ethos that continues to influence contemporary architecture and industrial style.

Mies van der Rohe

Create timeless architecture

photo source · Die Originale [2020]

Mies's Approach to architecture is best understood as an evolution of tradition rather than a complete break from it. While not as focused on the direct relationship between modern and traditional architecture as some of his contemporaries, Mies acknowledged the classical influences that shaped his design philosophy, particularly the principles of proportion, balance, and harmony. [Bergdoll, 2001] These timeless ideas remained integral to his work, though he reinterpreted them in a modern context.

He views modern architecture as a natural extension of classical principles, embracing clarity, openness, and the purity of form His designs referenced classical ideals such as symmetry and spatial harmony [Banham, 1980], while stripping away decorative elements that characterized earlier architectural styles. [Glaeser, n.d.] Through the use of modern materials like steel and glass, Mies emphasized simplicity, creating a progressive architectural language grounded in transition.

His famous phrase "Less is more", encapsulates his belief that true beaty lies in eliminating unnecessary ornamentation and distilling architecture to its essential components. [Johnson, 1976] Mies's work, such as the Farnsworth House and the Barcelona Pavilion, exemplifies this approach, where geometric purity and attention to proportion resonate with classical ideals, realized through modern engineering's transparency and openness.

Summarized Architectural Vision

"Less is more", Minimalism & Clarity

Modern materials, Classical proportions

Timeless architectural principles

Transparancy & Open space

Structural Honesty

Continuation of tradition through innovation

Emotional resonance through simplicity

Kenneth Frampton emphasized that Mies's modernism was informed by a respect for classical order and proportion, as his designs adhered to a rational structure despite their modern materials. [Frampton, 2020] Mies's use of steel and glass allowed for flexibility and openness, but the underlying design remained rooted in classical principles.

Jean-Louis Cohen further explains that Mies sought to reinterpret traditional values through modern materials, creating spaces that were not only functional but emotionally resonant. [Cohen, 2007] For Mies, modernism was not opposed to tradition but was a continuation of it, blending classical ideals with modern technology to create a new architectural language. His work represents a synthesis of tradition and innovation, refining classical principles through modern design.

Louis Sulllivan

Create a balance between modern functionality and artistic expression

photo source · Chicago Architecture Centre [n.d.]

Sullivan's architectural philosophy was a bridge between traditional and modern design. As one of the leading figures of the Chicago School, Sullivan is best known for his principle that "form follows function", a statement that directly challenged the highly ornamental historic styles that dominated the 19th-century architecture. [Sullivan, 1986] However, rather than rejecting tradition entirely, Sullvan sought to develop a uniquely American architectural language. One that balanced modern innovation with deep understanding of structural and ornamental principles. [Twombly, 1986]

In "The autobiography of an idea" 1924, Sullivan articulates his belief that architecture should express its purpose rather than rely on borrowed European forms. He criticized historicism for being disconnected from the needs of contemporary society, yet he did not dismiss ornamentation outright. Instead, he argued that ornament should be an organic extension of a building's structure, rather than an applied decorative layer. This idea is particularly evident in his skyscrapers, where intricate detailing coexists with modern steel-frame structures.

Summarized Architectural Vision

Form follows function

Integration of Ornament & Structure

Modern materials with traditional proportions

Organic evolution of architecture

Balancing effiency with artistic expression

How Sullivan's design balanced functionality with artistic expression is highlighted by Hugh Morrison in "Louis Sullivan: Prophet of Modern architecture" [1936]. His buildings, such as Wainwright Building [1891], emphasize verticality, reflecting both modern construction techniques and traditional architectural principles of proportion and hierarchy.
His skyscrapers were modern in function and technology but carried forward traditional ideas of harmony and ornamentation. Sullivan maintained a structured, expressive approach to design, while moving beyond the European revivalist styles, as gets contextualized by Robert Twombly in "Louis Sullivan: His Life and Work". [Twombly, 1986]

Ultimately, Sullivan's work represents a synthesis of modern efficiency and traditional artistic expression. His belief that architecture should evolve organically from its function, rather than imitate the past, laid the foundation for the modernist movement while still acknowledging the value of historical architectural principles. [Sullivan, 1986]

summary

The modern design approach in architecture is characterized by a shift away from historical ornamentation and a focus on functionality, simplicity, and innovation. It emerged as a response to the industrial era, seeking to align architecture with the technological advancements and social changes of the time. [Corbusier, 1986; Keck & Wright, 1933, McMahon et al., 1938]

A core principle of modern design is that function dictates form. Buildings are designed for efficiency, prioritizing practicality and human needs over decorative traditions. Ornamentation is minimized, replaced by clean lines, geometric forms, and material integrity. This minimalist approach finds beauty in clarity and precision, rather than excessive decoration [Gropius, 1935].

The relationship between architecture and nature is another key consideration. Modern design often incorporates open floor plans, large windows, and natural materials to create a seamless connection between indoor and outdoor environments. This reflects an emphasis on integrating structures with their surroundings rather than imposing rigid forms onto landscapes. [Corbusier, 1986; Keck & Wright, 1933]

Technological innovation plays a crucial role in modern architecture. Advances in materials such as steel, glass, and reinforced concrete have allowed for greater flexibility, openness, and efficiency in design. Prefabrication and mass production have further expanded the possibilities for accessible and functional architecture, making high-quality design available to a broader audience. [Corbusier. 1986]

Modern design may reject past styles, but it doesn't completely dismiss tradition. Instead, it reinterprets classical principles like proportion and balance using contemporary materials and methods. This approach respects structural logic while embracing new possibilities for form and function.

Ultimately, modern architecture prioritizes the needs of contemporary society over historical imitation. It aims to balance innovation with enduring design principles, creating efficient, meaningful spaces. This philosophy continues to shape how we design and experience the built environment today.

modern design principles

To provide a comprehensive overview of how these theories can be applied in residential architecture, the previous sources of information have been examined, analyzed, and categorized alongside one another.

The various perspectives on architecture and urban planning are integrated in Figure 5, in the "Modern Design Principles".

By analyzing the theory, a clear distinction can be made in the information. Therefore, Figure 5 presents two parts for each principle. First, the principle itself is outlined, summarizing the theory briefly. In addition, for each section, a design approach is provided, which is an element derived from the theory, distilled into its practical application.

This diagram is organized according to the author's interpretation. The analysis of the theory allows for a potential categorization, with titles chosen to align with the respective principle. The titles are additions that are not linked to specific sources, while the content can be traced back to the preceding sections.

Modern design principles

figure 05 · overview modern design principles

purpose-driven design

principle

Architecture should be designed based on functionality, prioritizing the building's purpose over unnecessary stylistic elements.

design approach

Every design decision should enhance the efficiency, usability, and experience of the space, ensuring that form aligns with the function it serves.

minimalist aesthetic

principle

Design should focus on simplicity, eliminating superfluous details and emphasizing clean lines and open spaces.

design approach

Remove decorative elements and focus on the essential structure and materials, allowing the design to communicate its function with clarity and directness.

innovative materiality

principle

Architecture should leverage modern advancements in materials to enhance design flexibility and structural innovation.

design approach

Use materials such as glass, steel, reinforced concrete, and composites to create open, adaptable spaces, enabling new forms and efficient, lightweight structures.

adaptable spaces

principle

Spaces should be open, flexible, and capable of evolving over time to serve diverse functions.

design approach

Design layouts that promote fluid movement, eliminating rigid compartmentalization, and ensure spaces can adapt to various needs over time, fostering long-term functionality.

honest expression of structure

principle

The architectural framework should be exposed and celebrated, rather than hidden behind finishes or false facades.

design approach

Use raw materials and reveal construction methods, allowing the structural elements to be part of the design narrative and conveying honesty and authenticity in the building's form.

harmony with nature

principle

Modern architecture should embrace and integrate with the natural environment.

design approach

Incorporate large windows, organic shapes, and sustainable landscaping that create a seamless connection between interior and exterior spaces, using materials that harmonize with the context.

sustainability & efficiency

principle

Design should prioritize sustainability, energy efficiency, and environmental responsibility.

design approach

Implement passive design strategies, energy-efficient systems, renewable materials, and environmentally-conscious construction methods to reduce the building's environmental footprint.

community-centered design

principle

Architecture should be responsive to the urban context and serve the needs of the broader community.

design approach

Prioritize walkability, accessibility, mixed-use functionality, and public engagement in the design process to create spaces that foster social interaction and contribute positively to the urban fabric.

Unified Contemporary Approach

How can the historical- and modern design principles be unified to form a basis for a contemporary dwelling design assignment?

Throughout architectural history, the relationship between modern and historical design approaches has been a subject of extensive discourse, as analyzed, reviewed, and discussed in the prior chapters in this research. While modernism emphasizes innovation, functionality, and technological advancements, historical architecture is deeply rooted in cultural identity, craftsmanship, and traditional aesthetics. Bridging these contrasting philosophies has been a persistent challenge in architectural design.

This chapter will explore how contemporary design can successfully integrate elements from both points of view, with a particular focus on the Dutch polder landscape. Two key studies provide a broader theoretical foundation for understanding a potential outcome. These studies, which will be combined with the gained information in this research, are "DASH – Living in a New Past" [van Gameren et al., 2017] and "New Urbanism". By examining these perspectives, this chapter starts with understanding the bigger picture of the aim to bridge tradition with modern visions. It demonstrates how architecture can respect historical context while integrating modern technologies and sustainable principles within the Dutch polder landscape.

DASH – LIVING IN A NEW PAST

"DASH #06, living in the New Past" [Van Gameren et al., 2017] writes about the architectural philosophy that blends traditional and modern design elements, advocating for a more integrated approach. Rather than a complete break from the past. It draws inspiration from historical forms, materials, and aesthetics while incorporating contemporary techniques to create spaces that are both functional and meaningful. As Dirk Baalman stated in this edition of DASH: "What is lacking is the resolution of the "character" within a program/design, which demands much more precise research of the design challenge and a genuine curiosity about the response a skilled designed provides to a design." [Van Gameren et al., 2017] To bring back this character in the design, the approach fosters a dialogue between the past and the present, allowing for hybrid designs that respect cultural heritage while staying relevant to modern needs.

To define the key approaches as written about in "DASH #06, living in the New Past", the author of this report read thourgh the entire publication and summarized the theory into 6 main approaches. This has been done by interpreting the theory and forming conncetions between the found elements.

Hybridization of Old and New: DASH encourages architects to combine historical design elements with contemporary ones. Instead of purely adhering to either traditional or modernist styles, it calls for a synthesis that brings together aspects of the past with the innovation of the present. This results in architecture that feels timeless and relevant.

Contextual Sensitivity: A significant aspect of DASH's approach is the consideration of the context in which a building exists. This includes the historical, cultural, and environmental aspects of a location. The design process involves understanding and respecting the history and identity of the place while creating spaces that respond to contemporary needs. Materiality and Craftsmanship: DASH places importance on the use of traditional materials, such as brick, wood, and stone, but also reinterprets these materials through modern technologies and techniques. The craftsmanship of these materials is respected but enhanced with contemporary methods, creating a sense of continuity and innovation.

Reinterpretation of Traditional Forms: Rather than copying historical forms directly, DASH advocates for reinterpreting and transforming traditional shapes and motifs to suit modern functions and aesthetics. This approach allows for the preservation of cultural heritage while enabling architecture to evolve with the times.

Sustainability: DASH's design philosophy also incorporates sustainability, not only in terms of energy efficiency but also in creating buildings that are adaptable and long-lasting. The reuse of materials, the integration of nature, and creating spaces that endure over time are all part of this sustainable approach.

Emotional and Cultural Connections: DASH stresses that architecture should create emotional connections with its users. This means considering how design can evoke feelings of belonging, identity, and history while simultaneously offering modern conveniences and comforts.

Blurring Boundaries Between Interior and Exterior: The approach also includes breaking down the barriers between the interior and the exterior of buildings, creating seamless transitions that foster a deeper connection with the environment. This might involve large windows, open spaces, and the use of natural light to blur the lines

NEW URBANISM

New Urbanism plays a crucial role in infill development by applying principles that seamlessly integrate new structures into the existing urban fabric, enhancing the character of older neighborhoods while preserving a sense of continuity and community [Taotiadmin, 2024]. By bridging the gap between traditional and modern architecture, it promotes human-scale design, walkability, and a strong sense of place, drawing from historical urban patterns while responding to contemporary needs. The movement values mixed-use neighborhoods, well-defined public spaces, and classical architectural elements that create a timeless aesthetic rooted in vernacular and regional styles, reflecting local culture and climate [Bess, 2014].

At the same time, New Urbanism embraces modernity through the use of sustainable technologies, innovative construction methods, and modern materials, allowing for contemporary architectural expression as long as it respects principles such as scale, proportion, and the integrity of the public realm [Steuteville, 2016]. This thoughtful integration of old and new fosters architectural harmony, ensuring that developments contribute to rather than disrupt the surrounding context. Tools like form-based codes further support this vision by encouraging visual and functional coherence while still allowing stylistic diversity.

Ultimately, New Urbanism does not reject modernism; rather, it weaves its most valuable aspects into a framework that prioritizes human experience, livability, and the enduring character of place.

unified proposition for contemporary design principles

To develop a comprehensive understanding of how the theories discussed can be effectively applied in residential architecture, the author, Ronald Vink, has undertaken a systematic examination, interpretation, and cross-analysis of various sources using a dialectical method. This approach involves engaging with two opposing but complementary perspectives: the thesis, which values traditional architecture's layered historical engagement, contextual sensitivity, human scale, material authenticity,

and reinterpretation of tradition; and the antithesis, representing modern architecture's focus on purpose-driven design, minimalist aesthetics, structural honesty, sustainability, and adaptable spaces. Through this dialectical process, the synthesis transcends the limitations of each position and results in an integrated design framework that draws on the strengths of both.

This synthesis extends beyond the material in Section C by incorporating insights from Sections A and B, collectively forming the foundation for the unified design framework presented in the following section.

Figure 6, titled "Unified proposition for contemporary design principles," visually unites diverse architectural and urban planning perspectives into a coherent model. This diagram reflects the author's interpretative analysis, organizing the theoretical insights into a structured set of ten guiding principles. These principles are not simply extracted but carefully distilled through thematic categorization, balancing the rich complexity and symbolism of traditional design with the clarity, efficiency, and sustainability of modern approaches.

For each principle, Figure 5 presents two layers: a theoretical summary that encapsulates the core idea and a corresponding design approach that translates the concept into practical application. The titles within the diagram are interpretative additions by the author, intended to clarify and contextualize the principles; while these headings are original, the underlying content remains firmly grounded in the referenced theories and prior research.

These principles do not function merely as stylistic guidelines but rather as a holistic framework for forward-looking architectural design. Rooted in cultural memory, ecological responsibility, and architectural craftsmanship, they address the complex challenges of building within heritage-rich contexts. This unified framework offers a roadmap toward architecture that is simultaneously modern in execution and deeply connected to tradition, harmonizing historical richness with contemporary needs for adaptability and sustainability.

unified proposition for contemporary design principles

figure 06 · overview unified proposition for contemporary design principles

temporal continuity & evolution

principle

Architecture should embody a dialogue between past, present, and future, maintaining a layered historical engagement, adding advancements.

design approach

Integrate historical architectural motifs and material techniques with contemporary design language, allowing buildings to evolve as a living continuum of history and innovation.

balanced complexity & simplicity

principle

Design should harmonize intricate traditional detailing with modern minimalism to create depth and visual balance.

design approach

Utilize ornamentation and symbolic elements in a restrained manner, allowing craftsmanship to coexist with clean lines and functional clarity.

symbolism & functional expression

principle

Architectural design should communicate cultural narratives while maintaining purpose-driven functionality.

design approach

Incorporate historical references and symbolic elements into the form, spatial organization, or façade treatment without compromising the efficiency and adaptability of spaces.

human-centric & community-oriented

principle

Architecture should prioritize human experience, fostering spaces that encourage social interaction, inclusivity, and well-being.

design approach

Design pedestrian-friendly environments, mixed-use spaces, and adaptable interiors that promote community engagement while ensuring accessibility and comfort.

flexibility & longevity

principle

Architecture should be adaptable to future changes, ensuring longevity without losing its connection to historical and cultural identity.

design approach

Design open, modular spaces that can evolve while maintaining core architectural values, allowing buildings to accommodate shifting functional demands over time.

sustainable synergy with nature

principle

Built environments should harmonize with natural surroundings, combining ecological responsibility with aesthetic and functional excellence.

design approach

Use biophilic design, passive cooling, green roofs, and natural ventilation while integrating traditional site-planning principles that respect the landscape.

contextual harmony & environmental integration

principle

Architecture should respond to its physical, cultural, and social context, seamlessly blending with its surroundings while utilizing contemporary sustainability practices.

design approach

Use regionally inspired forms and materials while integrating passive design strategies, sustainable energy systems, and climate-responsive solutions.

material authenticity & innovation

principle

A fusion of traditional craftsmanship and modern materials should create structures that respect heritage while embracing technological advancements.

design approach

Combine local materials like stone, wood, and brick with advanced materials such as glass, steel, and composites to achieve both authenticity and structural efficiency.

structurcal honesty & expressive form

principle

Exposed structures should celebrate both traditional craftsmanship and contemporary construction techniques, showcasing the beauty of both worlds.

design approach

Highlight raw materials, visible joinery, and expressive structural elements while integrating modern engineering solutions to create visually and functionally compelling spaces.

adaptive reinterpretation of tradition

principle

Traditional architectural elements should be reinterpreted rather than replicated, ensuring cultural continuity in a modern form.

design approach

Abstract and modernize vernacular forms, proportions, and spatial arrangements while utilizing current design methodologies and technologies.

Dutch polder

What can be defined as Dutch polder landscapes, its specific vernacularity in dwellings and why does it hold such an importance in history?

This research will propose a way to design with the Dutch polder context, therefore it is of importance to understand the definition of Dutch polders, how did they come to existence, what is in short, the history of the polders and which kinds of dwellings or buildings can be found in the polder landscape?

The Dutch polders and their specific dwellings are namely distinctive elements of the Netherlands' architectural and ecological heritage. To design in harmony with this heritage, it is important to identify the true vernacular architecture within the polder. Given the variety of dwellings from different time periods, distinguishing authentic vernacular elements from later developments is key. Ultimately this part will conclude where this vernacularity lies.

general Dutch polders

To understand the vernacular significance of the polder and its architecture, it is essential first to define what a "Dutch polder" is. A polder refers to a low-lying tract of land reclaimed from a body of water—such as a lake or the sea—through human intervention, primarily by constructing dikes and draining water. This land reclamation process has been fundamental in shaping the geography of the Netherlands, where much of the territory lies below sea level [Polder, 2025; Hoeksema, 2007]. The country contains around 3,000 polders [Polders in Nederland, 2016], which can broadly be classified into three main types. The first, reclaimed land, involves converting water-covered areas like lakes, marshes, or swamps into dry land using methods such as pumps, drainage canals, or traditional windmills. The second, embanked land, consists of areas protected by surrounding dikes that prevent flooding from nearby rivers, seas, or lakes; this enclosed system allows for careful water level management through controlled drainage and pumping. Lastly, cultivated land refers to natural or undeveloped terrain that has been transformed into productive farmland by improving soil quality, planting vegetation, and draining excess water to make it usable. Together, these forms highlight the intricate human-engineered relationship between land and water that defines the Dutch polder landscape.

historical significance

The creation and management of polders have been central to the development of the Netherlands, shaping both its landscape and its societal structures. Polders are feats of hydraulic engineering, using continuous water management and control systems. These prestations of hydraulic engineering, which date back to the medieval period [Van shoubroek & Kool, 2010], have allowed the Dutch to control and harness water in a country that lies largely below sea level. The history of polders in inseparable linked to the country's struggle against water and its ongoing efforts to adapt its environment to the needs of its people.

The origins of the Dutch Polder landscapes can be traced back to the 12th century, when the Dutch began draining marshes and lakes for agricultural use. Initially the process of land reclamation was rudimentary, but as the country's engineering knowledge progressed, more sophisticated techniques emerge. The construction of windmills for pumping water, which

became iconic in the Dutch landscapes, marks one of the most important technological advances in this regard. These windmills were used to pump water from the reclaimed land into surrounding dikes and canals, keeping the land dry and usable for farming and habitation [Van de Ven, 2004]

The ability to manage water, especially in the low-lying regions of the Netherlands, became a crucial factor in the country's economic development. By the 16th century, the Dutch had expanded their expertise in water management, and the creation of large-scale polders became commonplace. The technique used in this period is shown at figure 6, where the system of the mills is explained briefly [Van shoubroek & Kool, 2010]. This example takes Alblasserwaard as an example to explain the complex system. In the following centuries the land levels lowered in the polders and the system got more complicated, as shown in figure 7, in which the situation from the 18th century and onward is explained.

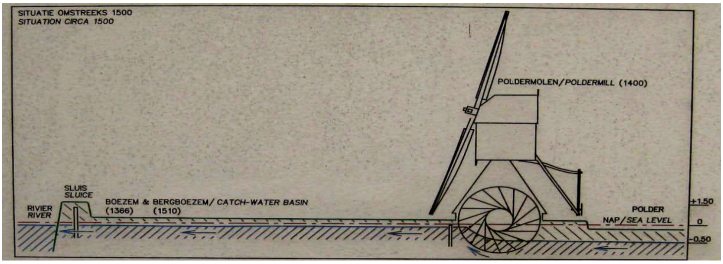


figure 06 · windmill alblasserwaard around 1500

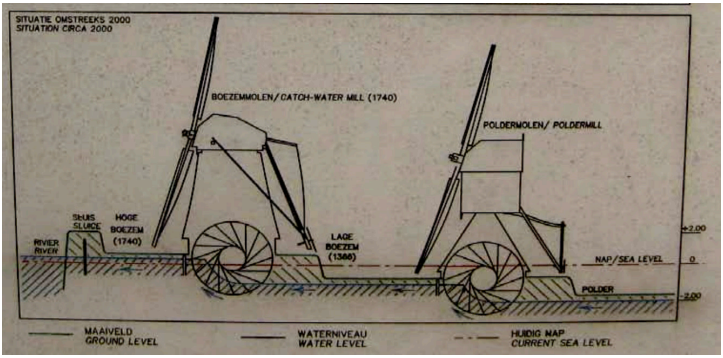


figure 07 · windmill alblasserwaard towards 2000

The system of polder landscapes was particularly important for the country's burgeoning agricultural industry, as it provided fertile land for farming, which was essential for feeding the population and sustaining economic growth. Additionally, the construction of polders facilitated urban expansion and the establishment of new settlements, further contributing to the social and cultural development of the Dutch people [van de Ven, 2004].

Polders also played a key role in the Dutch Golden Age during the 17th century, a period marked by significant advancements in trade, science, and art [De vries & van der Woude, 1997]. The Dutch republic's success in reclaiming land from the sea was a symbol of the country's technological bravery and ingenuity. It reflected the spirit of innovation that characterized the Dutch as they navigated challenged posed by their geographical environment. In fact, the creation of polders allowed the Dutch to develop prosperous agricultural export economy, which was closely ties to the rise of global trade during this period.
The importance of polders extended beyond their economic contributions, as they also served to define the national identity of the Netherlands. Over time, the reclamation of land became not only means of survival and prosperity, but also a source of pride. The relationship between the Dutch people and their polders symbolizes their mastery over nature, showcasing their resilience and resourcefulness in the face of environmental challenges. The management of polders became a symbol of Dutch commitment to progress and sustainable land use [Lambert, 1971]

To this day, polders remain a key feature of the Dutch landscape and a testament to the country's historical relationship with water. The innovative techniques developed centuries ago continue to influence modern-day water management practices, ensuring that the Netherlands remains one of the most advanced nations in terms of flood control and environmental sustainability. The history of polders serves as a crucial chapter in understanding the evolution of Dutch society, economy, and culture, and their importance continues to be felt in the present-day as the Dutch tackle new challenges posed by rising sea levels and climate change.

The importance of these polders is not limited only to the Dutch culture, people, and technologies. These landscapes, like "de Beemster polder, Noord-Holland", are recognized by UNESCO as a World Heritage Site stands out to the world as a remarkable example of human ingenuity and sustainable land management. [Ministerie van Onderwijs, Cultuur en Wetenschap, 2023] These polders symbolize the Netherlands' historical struggle and ultimate triumph over water. An aspect of the Dutch landscape that should be valued, now and in the far future.

Dwellings in the Dutch polder landscape

To examine and identify the different dwelling categories in the Dutch polders, 3 polders will be taken as a study area. Each one being part of a main type of polder, as explained in the introduction of this chapter. The polders taken as study areas are:

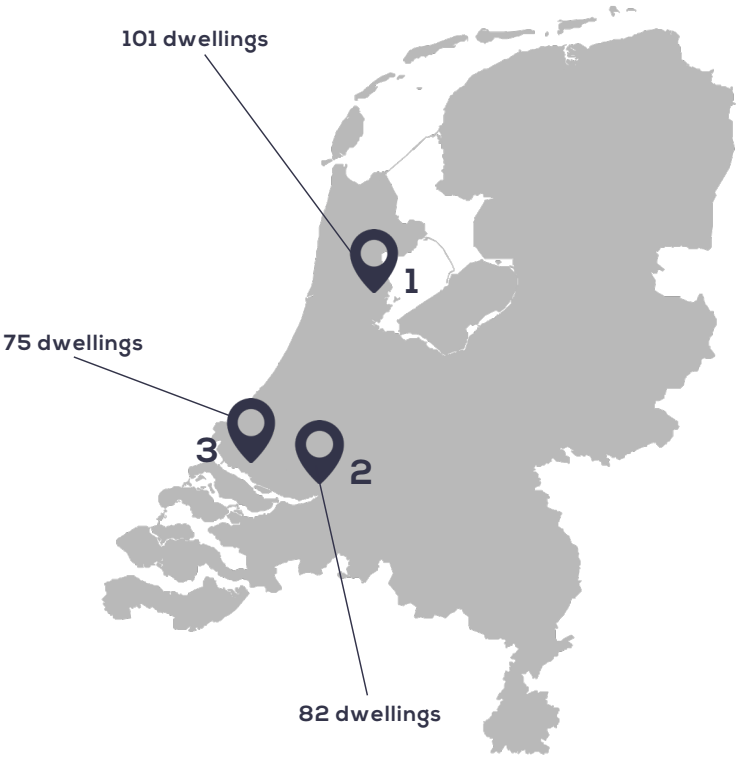


figure 08 · study polder locations

1.

De Beemster, start of reclaiming 1607
Reclaimed land [Bode, 2017].

2.
Alblasserwaard, start of embanking 1277
Embanked land [Nicolaashoeve Beemster, 2021].

3.
The polders in Midden-Delfland, start cultivating around the 15th century
Cultivated land [Historie, n.d.].

Within these polders, an analysis is conducted regarding the typology of dwelling architecture. The results of this analysis can be found in figure 9 on the next page. The photographs utilized in this analysis were created by the author using Google Maps.

	BEEMSTER	ALBLAS
ancient farmhouse [pre - 20th century]		
modern farmhouse [20th century - present]		
ancient linth dwellings [pre - mid 20th century]		
late 20th linth dwellings [1950 - 1980]		
modern linth dwellings [21st century]		
ancient water dwellings [pre - mid 20th century]		
modern water dwellings [21st century]		

SSERWAARD

MIDDEN DELFLAND

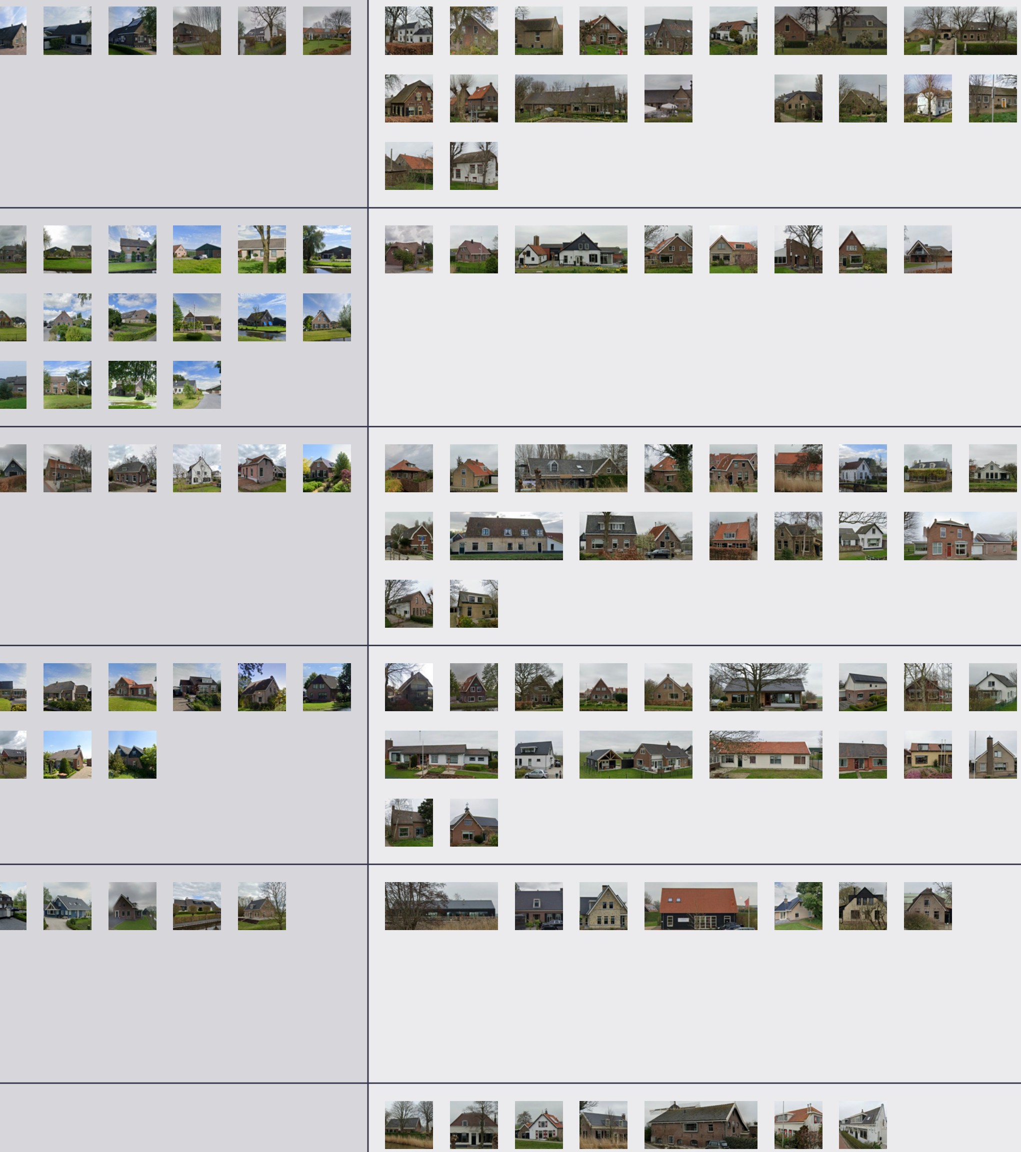


figure 09 · dwellings analysis division

The conducted analysis shows that the dwelling types within the Dutch polder can be concluded in 5 main typologies, which will be elaborated with detail and information regarding the architecture after the matrix on the next page.

figure 10 · ancient farmhouse

ancient farmhouse [pre - 20th] century]

Main types of these ancient farmhouses are the Hall house farm [hallenhuisboerderij] and the pyramid-shaped farm [stolpboerderij]. Featured detailed craftmanship that balanced functionality with traditional aesthetics.

key architectural elements

VOLUME

long and low, perpendicular volumes

ROOF

thatched roofs, in the most ancient farms

tiled roofs, in the younger ancient farms

pyramid shaped roofs

extended eaves

decorative ridge beam

Dutch "Wolfseinde

FACADE

brickwork in flemish or Dutch bond patterns

wooden cladding on the first floors facade

decorative brick bands:

- horizontal rows of lighter-colored bricks creating ornamental striptes

low and sturdy walls:

- to withstand strong winds in the open polder

wall anchors

WINDOWS AND DOORS

small, simple doors

small, deep-set windows:

- designed for insulation and protection against storms

shutters:

- wooden, often painted in green, red, or black with traditional patterns
- functional as weather protection and security

figure 11 · modern farmhouse

modern farmhouse
[20th] century - present]

These farmhouses reflect a shift from traditional rural craftmanship to functional, standardized designs, with increasing industrialization and suburban influences. However, in the late 90's, early 2000's, elements of rural heritage were reintroduced in more contemporary, toned-down ways.
This period can be divided in:
1950-1980s: Simple, functional farmhouses with small windows, stand brick facades.
1980-1990s: more variation in materials, larger windows.
2000-2010s: a revival of rustic aesthetics, with wood, glass, and sustainability integrated into modern farmhouse designs

key architectural elements

VOLUME

smaller, two layered, dwellings

not specifically perpendicular to the road

carport replacing barns:

- standalone barns were less common, withc attached carport or garages replacing them

ROOF

lower-pitched gable roofs:

- unlike steep thatched roofs of historic farms

clay-tiled roofs:

- often in red, brown, or anthracite colors

Dutch "Wolfseinde"

non-refined finish of eaves and gutters

asymmetrical roofs [1980s]

Overhangs for weather protection

FACADE

brick facades:

- simple red, yellow, or brown brick

- standardized Dutch bond brick patterns, with minimal decorative detailing

minimal ornamentation [1950s - 1980s]

wood panelling [1990s - 2010s]:

- horizontal or vertical timber cladding was reintroduced as a modern nod

WINDOWS AND DOORS

functional, simple doors

traditional smaal windows [1950s - 1980s]

larger glass sections [1980s - 1990s]:

- mainly in the living rooms, often overlooking the farm landscape

figure 12 · ancient linth

ancient linth- and water dwellings [pre - mid 20th century]

Dwellings in a traditional settlement pattern in the Netherland, where houses are built in a linear arrangement along roads, dikes, or waterways. These dwellings were characterized by practicality, durability, and a strong connection to the surrounding farmland. The dwellings are mainly modestly ornamented, and they formed linear, elongated settlements with deep, narrow plots extending into the countryside.

key architectural elements

VOLUME

positioned close to the road or waterway
various in rotation
low, elongated profiles
narrow volumes
small attached barns or storage rooms

ROOF

steeply pitched gabled roofs
thatched roofs [pre - 19th century]
tiled roofing [19th - mid 20th century]
Dutch- or simple gable
Dutch "Wolfseinde"
weathervanes added to the ridge

FACADE

brick facades:

- red, yellow, or brown bricks, depending on regional clay sources
- Flemish and Dutch bond brick patterns

decorative brickwork:

- white-painted brick band or relief details added

wooden elements:

- painted wooden shutters in green, black, or red
- decorative bargeboards on gable ends

gable stones:

- engraved nameplates or symbols

WINDOWS AND DOORS

central entrance with symmetrical windows
small windows
ornate door frames and transom windows

figure 13 · late 20th linth

late 20th linth- and water dwellings [1950 - 1980]

In this period, linth development evolved from traditional rural houses into more standardized, suburban-style homes, influenced by post-war reconstruction and later modernist trends. These dwellings were larger, more functional and designed for comfort. Still following the linear, road-orientated layout of the earlier examples, except that they were set back slightly more from the road, with small gardens, driveways, and garages.

key architectural elements

VOLUME

orientated towards the road

two layered dwellings

volume density increased:

- built on formed, divided, farmland

simply, boxy, and symmetrical volumes

attached garages and carports

ROOF

lower-pitched gable roofs

- unlike older steep-roofed farmhouses, these had moderately sloped roofs

ceramic roof tiles:

- red, brown, anthracite, or black tiles

asymmetrical roofs

overhanging eaves

FACADE

brick facades

simple, unornamented facades

prefabricated and industrialized materials:

- introduction of concrete panels, stucco finished, and fiber cement sidings

white or beige plastered facades

wooden facade panels

WINDOWS AND DOORS

simple, functional entrances

little, to no decorative, detailing

small rectangular windows [1950s - 1970s]

bigger aluminum or pvc framed windows [1980s - 2000s]

figure 14 · modern linth

modern linth- and water dwellings [21st century]

In the 21st century, dwellings alongside the linth have evolved into a blend of contemporary aesthetics and traditional Dutch linear settlement patterns. Modern homes in these areas reflect a mix of minimalist design, sustainable materials, and a stronger connection to nature, while maintaining the historical ribbon-like development.

key architectural elements

VOLUME

symmetrical volumes

combined volumes

multiple orientations

two layered dwellings

ROOF

diverse roof styles:

- traditional pitched gable roofs, with shaper angles and minimalist detailing
- thatched or tiled roofs are both in use, in different colors
- Dutch "Wolfseinde"
- diverse roof forms

FACADE

minimalist brickwork and mixed materials

- while brick remains a primary material, modern homes often incorporatie mutes tones

large glass surfaces

- higher and bigger windows are being used

symmetrical facade designs

WINDOWS AND DOORS

more open and inviting entrances

larger windows that accentuate the verticality

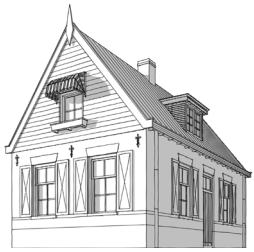
with and without shutters

simply ornamented windows

vernacularity in Dutch polder dwellings

Among the five previously discussed housing types found throughout the Dutch polder regions, not all possess historical origins. Through an analysis of these typologies, with particular attention to the vernacular dwellings that are characteristic of the polder landscape, two can be identified as both original and historically authentic: namely, the ancient farmhouse and the ancient linth and water dwelling.

ANCIENT FARMHOUSE
[PRE - 20TH] CENTURY]



ANCIENT LINTH- AND WATER DWELLINGS
[PRE - MID 20TH CENTURY]

But what is it that makes these dwellings truly characteristic of the Dutch polder regions? In order to address this question, the identified housing types have been systematically analyzed for their defining features. The comparative matrix presented in Figure 9 serves as the foundation for this analytical framework. The results of this investigation reveal that five distinct architectural elements recur across these dwellings, each contributing to their typological relevance within the polder context. These elements are as follows:

TIMBER FRAMING AND MORTISE-AND-TENON JOINERY

In traditional Dutch farmhouses, such as the stolpboerderijen of North Holland, timber framing constitutes the primary structural system of the building. These frameworks were typically constructed using mortise-and-tenon joints—a time-honored carpentry technique in which wooden components are interlocked without the use of metal fasteners. The successful execution of this method demands a high degree of craftsmanship, particularly in terms of precision joinery and an in-depth knowledge of wood species and their behavior over time.

As Janssen notes in his detailed study of historical timber construction in the Netherlands, mortise-and-tenon joinery was a central feature of traditional wooden architecture, especially in farmhouses and agricultural buildings. These joints were typically secured using wooden pegs, and their placement was adapted to the internal logic of the structural grid, reflecting a deep-seated vernacular building tradition [Janse, 1989].

Moreover, research into timber-framed structures in the Northern Netherlands prior to 1600 reveals that unlike in many neighboring regions, Dutch builders often avoided decorative elements such as jetties or diagonal braces, opting instead for a more utilitarian, rectilinear framing logic. [Van Tussenbroek, 2017] This utilitarian approach aligns closely with the practical and land-bound ethos of the polder landscape. Mortise-and-tenon joints, often reinforced with hardwood pegs, provided both stability and longevity, contributing to the enduring presence of these farmhouses in the Dutch countryside. [Sanders, 2024]

THATCHED ROOFING AND ROOF CONSTRUCTION TECHNIQUES

Thatched roofs are a hallmark of many farmhouses in the Dutch polder regions. The construction of a thatched roof is a specialized craft, wherein the thickness, pitch, and detailing must be meticulously calibrated to ensure water resistance and long-term durability. This roofing method evolved in direct response to the wet climatic conditions typical of the polder landscape and continues to require highly skilled artisanship.

In the Netherlands, reed farming and thatching have been integral to rural life for centuries. Thatching is a traditional roofing technique that involves constructing a roof with dry vegetation such as straw, water reed, sedge, rushes, heather, or palm branches. The vegetation is layered to shed water away from the inner roof. Since the bulk of the vegetation stays dry and is densely packed—trapping air—thatching also functions as insulation. It is an ancient roofing method used in both tropical and temperate climates . [Wikipedia contributers, 2025]

In the Netherlands, thatched roofs are particularly prevalent in areas with abundant reed beds, such as the Weerribben-Wieden National Park. These regions provide the necessary materials for thatching and have a long history of reed farming and thatching craftsmanship. [Holland stories, 2024]

The durability of thatched roofs in the Netherlands is influenced by various factors, including the quality of the materials, the skill of the thatcher, and the specific climatic conditions of the region. Proper maintenance and periodic rethatching are essential to ensure the longevity and effectiveness of thatched roofs. [Wykes & Winston Churchill Memorial Trust, 2010]

DECORATIVE BRICKWORK AND FACADE ORNAMENTATION

In Dutch polder architecture, brick [crafted from locally sourced clay] was not merely a structural necessity but a canvas for architectural expression. Traditional rural dwellings frequently exhibit refined masonry techniques, where façades incorporate rhythmic brick bonds such as kruisverband (Flemish bond) or klezoorverband, alongside stone accents at corners and lintels to emphasize structural articulation. These patterns were not decorative excesses but an extension of craft, reflecting a longstanding tradition of regional masonry expertise and attention to detail.
[De vree, n.d.; Jones, 2025; Wienerberg, 2019]

During the late 19th and early 20th centuries, a broader architectural revival across the Netherlands encouraged the return of decorative and polychrome brickwork. Particularly evident in urban housing, this movement coincided with the European Gothic Revival and Amsterdam School, celebrating artisanal techniques through expressive façades with intricate detailing and chromatic variation. [Meijers, 2013]

WROUGHT-IRON WALL ANCHORS AND WOODEN SHUTTERS

Wrought-iron wall anchors, also known as anchor plates, served a dual function in Dutch vernacular architecture. While primarily structural, used to stabilize masonry walls, they were frequently shaped into decorative forms, including scrollwork, rosettes, or initials, showcasing a blend of utility and ornamentation. [Bucher & French, 1996; Harris, 2000]

Similarly, traditional wooden shutters in the Netherlands, often painted in historically resonant colors such as deep green, black, or red, served both functional and aesthetic purposes. They provided protection against the elements and contributed to the architectural rhythm and regional identity of Dutch dwellings. [Compass Rose Design, 2020]

VERGEBOARDS AND RIDGE ORNAMENTS

In traditional Dutch architecture, particularly in rural and vernacular buildings, the edges and apexes of gabled roofs are often adorned with decorative wooden elements known as windveren [vergeboards] and makelaars [ridge ornaments].

Vergeboards: These are the boards attached along the sloping edges of a gable roof. Functionally, they protect the roof's vulnerable edges from wind and rain. Aesthetically, they contribute to the building's silhouette and often feature decorative carvings or motifs that reflect regional craftsmanship. [De Vree, n.d.]

Ridge Ornaments: Positioned at the apex where the two vergeboards meet, the ridge ornament serves both structural and decorative purposes. Structurally, it can help join and stabilize the vergeboards. Decoratively, ridge ornaments are often elaborate, featuring symbols that convey information about the inhabitants, such as their profession, beliefs, or social status. [De Vree, n.d.]

These ornamental elements are particularly prominent in regions like North and East Netherlands, where they are more exuberant compared to the simpler versions found in the West. [Bas B, 2018]

the common denominator

What unites all the elements of the traditional vernacular Dutch polder dwelling—whether it is the mortise-and-tenon joints in the timber frame, the thatching, the brickwork, or the wrought-iron wall anchors and wooden ornamentation—is the craftsmanship of the makers. Every detail reflects the care invested in the construction. This craftsmanship was driven not only by aesthetic considerations but also by a practical engagement with the landscape, the climate, and the materials at hand.

In the polder, as discussed in the preceding elements, craftsmanship was not always decorative, but mainly born out of a necessity. The often functional, yet detailed forms of the buildings in this landscape result from a design philosophy where sustainability, precision, and adaptation to the environment were central. Whether it is the small decoration of a ridge ornament on the roof or the subtle color nuances in the brickwork of the façade, all elements demonstrate that the buildings were crafted by human hands, with expertise and attention to detail.

Thus, craftsmanship is not merely a connecting factor between the various dwelling types, but it fundamentally constitutes the foundation of vernacular architecture in the polder. It is the silent force that has ensured the longevity of these buildings over generations—a cultural heritage of wood, stone, reed, iron, and, above all, human skill.

e

Craftsmanship

In what ways can craftsmanship be employed in contemporary architecture to align the detailing of Dutch polder dwellings with contemporary times?

The Dutch polder dwellings, characterized by their vernacular elements such as timber framing, thatched roofs, and decorative brickwork, present a rich architectural heritage. As contemporary architecture evolves, there arises a pressing need to bridge the gap between tradition and modernity. The integration of craftsmanship into contemporary design offers a way to respect the historical and cultural significance of these structures while incorporating modern advancements. In this context, it becomes essential to explore how the delicate balance between traditional craftsmanship and modern technological innovations can be achieved to maintain the distinctive qualities of Dutch polder dwellings while responding to contemporary architectural challenges.

Firstly, craftsmanship in its definition will be explored, providing a foundational understanding of its role in architectural practice. Following this, an analysis will be presented on why the value of craftsmanship began to diminish in the 1950s, 60s, and 70s, a period marked by industrialization, mass production, and a shift in architectural priorities. After the analysis of the loss of craftsmanship, the contemporary methods of craftsmanship will be examined, highlighting modern approaches that merge traditional techniques with innovative digital technologies. These methods will be discussed in the context of how they can be implemented in contemporary architecture. Finally, these insights will be used to rethink and reinterpret the vernacular elements of Dutch polder architecture, proposing ways in which traditional craftsmanship can be revitalized and adapted to meet current standards for sustainability, technology, and cultural relevance.

craftsmanship in architecture

Craftsmanship in architecture refers to the careful process of transformting theoretical designs into tangible structures thourgh the skilled application of both knowledge and hand-on expertise. It embodies the thoughtful integration of a building with its context, ensuring that every element resonates with its surroundings and purpose. This approach not only emphasizes the physical construction but also the cultural and emotional narratives embedded within the design, rsulting in spaces that are both functional and meaningful [Bhatt n.d.].

How this [traditional] craftsmanship influences the architecture had been investigated by Uli Matthias Herres in "Spuren des Handwerks: Der Einfluss handwerklicer Herstellung auf die Architektur" [Herres, 2016]. Within his research, 3 key finding could be indetified:

1. KNOWLEDGE INTEGRATION

Herres identifies two distinct yet interconnected forms of knowledge in craftsmanship:

•Explicit knowledge refers to formalized, teachable knowledge, such as construction techniques, engineering principles, and material properties. This knowledge is often documented in blueprints, guidelines, and technical manuals.
•Implicit [tacit] knowledge is acquired through hands-on experience, intuition, and years of practice. It includes the ability to "feel" how a material behaves under stress, make fine adjustments without measurements, and recognize potential weaknesses in a structure before they manifest.

By integrating both types of knowledge, craftsmanship in architecture ensures that structures are not only technically sound but also aesthetically refined and deeply responsive to their environment. This interplay of knowledge is particularly relevant in carpentry, where master artisans pass down skills through apprenticeships, reinforcing a tradition of learning through doing.

2. DIRECT MATERIAL INTERACTION

Unlike industrialized construction, which often separates the architect from the builder, craftsmanship emphasizes physical engagement with materials. This hands-on approach allows for:

- Material Sensitivity: Craftsmen develop an intimate understanding of wood, stone, metal, and other materials, allowing them to make real-time adjustments based on the unique characteristics of each piece.
- Aesthetic Quality: The direct shaping and assembly of materials often result in a more refined and expressive architectural outcome, adding a level of detail and uniqueness that mass production cannot achieve.
- Structural Integrity: By working directly with materials, craftsmen can ensure precise joinery, load-bearing optimization, and long-term durability of structures.

Herres's case studies suggest that buildings crafted with such direct material interaction often exhibit a stronger sense of authenticity and quality compared to purely machine-made constructions.

3. CONCEPT OF ADEQUACY

Herres introduces the idea of adequacy in craftsmanship, meaning that the evaluation of craftsmanship is not based on rigid, universal standards but rather on context-specific balance between effort and result. In other words:

- A well-crafted building is not necessarily the most complex or labor-intensive, but one where the level of detail and labor aligns appropriately with its function, materials, and cultural context.
- Over-engineering or excessive ornamentation may be unnecessary in some cases, while in others, additional craftsmanship effort may be justified to achieve cultural, aesthetic, or functional significance.
- This perspective shifts craftsmanship from being judged solely on precision or perfection toward a holistic assessment of purpose, function, and material appropriateness.

This concept is particularly useful in sustainable architecture, where resources must be used efficiently without unnecessary waste or excessive labor. It encourages a context-aware approach to craftsmanship, ensuring that materials and techniques are chosen based on relevance rather than adherence to outdated or impractical standards.

As the craftsmanship unfolds in theory, the question arises: What is the role of the architect in this matter? Is his article "Knowledge is Architecture: Draughtsmanship or Craftsmanship?" Eric Crevels examines the role of the architect in comparison to craftsmanship. The skill of the architect is identified as "draughtsmanship". This enables the translation of symbolic, functional, and material knowledge into various forms of representations, such as sketches, technical drawings, or models. This expertise is a guide in construction. Not to be mixed up with craftsmanship. This role focusses on the physical act of building and material manipulation [Crevels, 2021].

The role of the architect, of architecture in its whole, should involve a collaborative interplay between design and construction to fully realize the built forms. Crevels states that the age-old separation between the architect and the craftsman persists, despite the calls from theorists like Juhani Pallasmaa to integrate mind and hand in the architectural practice.

the decline of craftsmanship

That the Craftsmanship has been in decline over the years, cannot be unseen. This research states those facts several times, in the modern design principles, in the Dutch polder architecture, and at the beginning of this chapter in summary. The loss of craftsmanship can be attributed to several interrelated factors that have evolved over time [Turaga, n.d.]:

1. INDUSTRIALIZATION AND MECHANIZATION

The industrial revolution introduced mass production techniques, leading to the replacement of skilled craftsman with machines. This shift prioritized efficiency and cost-effectiveness over the detailed, handcrafted work that characterized traditional architecture [understanding the lost art of architectural craft, 2022].

2. MODERNIST ARCHITECTURAL PRINCIPLES

The International Style of architecture, which emerged in the 1920s and 1930s, is characterized by minimalism and functionalism, often deliberately avoiding ornamentation and traditional detailing. This approach was driven by a desire to create designs that reflected the industrial age, emphasizing efficiency and simplicity. Critics have argued that such designs can feel impersonal and lack the rich craftsmanship of earlier architectural styles [Mintz, 2024].

3. ECONOMIC- AND TIME CONSTRAINTS

The contemporary demand for rapid and cost-effective construction has further marginalized traditional craftsmanship. The focus on speed and budget often results in standardized designs that lack the uniqueness and quality associated with handcrafted elements [ltd & ltd, 2025].

4. EDUCATIONAL SHIFTS IN ARCHITECTURE

There has been a noted decline in the emphasis on manual skills and traditional craftsmanship within architectural education. This educational shift has contributed to a generation of architects less engaged with the tactile aspects of building [Djabarouti & O'Flaherty, 2020] [Fava, 2019].

the revival of craftsmanship

That the decline of craftsmanship has been present, should be a given from the past. This research focusses on how to design, with the historical character and context, in the contemporary world. Therefore, the question arises: How can Craftsmanship be revived to strengthen the contemporary design approach?

The body of the answer has been given by Hank Reisen in his report "Pattern and Fabric: The role of Craftsmanship in contemporary Architecture.". In this report, Hank explores the significance of craftsmanship in the context of modern architecture. Key elements from his point of view try to gap between traditional craftsmanship and modern technological advancements, ensuring that craftsmanship continues to play a vital role in shaping future architectural practices. Jeff link adds to this from a digital point of view with his article on "5 ways architects are redefining Craftsmanship for a post digital age". The key components are converged in 4 main elements [Reisen, 1983]:

1. INTEGRATION OF DIGITAL AND TRADITIONAL METHODS

Modern techniques allow for highly personalizes and intricate designs, anabling architects to push the boundaries of what is possible while still maintaining a level of craft that reflects human touch and attention to detail. Digital tools, such as 3D printing, CNC machining, and parametric design, can enhance and complement traditional craftsmanship. In this precision and efficiency go hand in hand, without the loss of the intent of the designer and craftsman.

Guy Martin [Link, 2017] sees the digital craft as a improvement, without the loss of the designer's intent. He says: "We can't build a cathedral how we used to, so how do we take craft skills and transport these to the digital realm? I see machine and digital tools as an extension of the hand, not just a generative tool or something abstracted."

So, it is not simply replacing the tradition with modern digital tools, it should be viewed as an extend of craft traditions in new ways.

2. MATERIALITY & INNOVATION IN FABRICATION

Engaging directly with materials, testing their limits, behaviors, and aesthetics, deepens architectural understanding and fosters an iterative design process where making informs thinking [Crevels, 2022]. Experimentation with new and sustainable materials enhances both functionality and sensory experience, reinforcing craftsmanship's role in contemporary architecture. Prioritizing sustainability, architects now focus on local resources and low-energy techniques to create contextually meaningful designs [Reisen, 1983]. Bridging the gap between design and fabrication, innovators like Wes McGee challenge traditional workflows, advocating for a seamless integration of digital tools and hands-on making to eliminate inefficiencies in construction [Link, 2017].

3. COLLABORATION & INTERDISCIPLINARY APPROACH:

Craftsmanship in architecture will be future proof through collaboration, bringing together architects, artisans, engineers, and fabricators to foster innovation. Knowledge sharing between these disciplines ensures that traditional techniques evolve alongside modern advancements [Reisen, 1983]. Drawing from Michael Polanyi's concept of tacit knowledge, where sketching, model-making, and hands-on experimentation cultivate intuition about form and space [Crevels, 2022]. It critiques the growing divide between design and construction, advocating for architects to reclaim their role as makers. By engaging directly with materials through prototyping or self-building, architects can forge a deeper connection to the craft of architecture.

Alvin Huang, founder of Synthesis Design + Architecture, connects craftsmanship to the resurgence of bespoke design in contemporary culture. [Link, 2017] He notes that while mass production once defined consumer habits, there is now a renewed appreciation for unique, personalized objects—whether in food, fashion, or architecture. Digital fabrication plays a key role in this shift, "enabling mass customization rather than mass production". This approach allows for crafted, one-of-a-kind designs that reflect individual identity while embracing technological advancements in making.

Timeless craftsmanship emphasizes durability and the creation of buildings that remain culturally and architecturally relevant over time. Not only suitable for the owners at this moment, but also made-to-fit for future inhabitants. Future architecture will prioritize structures that not only endure physically but also adapt to evolving needs. Repairability and adaptability are essential, ensuring that buildings can be modified and maintained without losing their integrity or function [Reisen, 1983].

contemporary craftsmanship in the Dutch polder

To address the sub-question of this section, it is pertinent to examine how the distilled vernacular elements identified in the historical dwellings of the Dutch polder [as discussed in the previous section] can be juxtaposed with contemporary architectural techniques. This comparison offers insight into potential synergies between tradition and innovation. How can these two domains be interwoven to ensure that historical architectural features are meaningfully integrated into contemporary design challenges within the polder landscape?

The following sections outline the various components through which contemporary techniques can be applied. These findings are the result of a dual analysis: one of specific modern methods, and the other of vernacular architectural elements. By synthesizing these two strands, the author has developed a personal interpretation that informs the proposed integration strategies.

TIMBER FRAMING AND MORTISE-AND-TENON JOINERY

Digital tools: Contemporary technologies, such as Computer Numerical Control [CNC] machines and robotic machining, have revolutionized timber construction by enabling precise fabrication of traditional joinery methods like mortise-and-tenon connections. These digital tools allow for accurate and efficient cutting of complex joints, preserving the aesthetic and structural integrity of traditional craftsmanship while reducing labor intensity. [Larsen, 2025]

Sustainable engineered timber materials: The development and use of engineered timber products, such as cross-laminated timber [CLT] and glued-laminated timber [glulam], have enhanced the sustainability and performance of wooden structures. [Simon, 2020] These materials offer increased stability, strength, and durability compared to traditional solid wood, making them suitable for modern construction demands. Additionally, engineered timber products contribute to environmental sustainability by sequestering carbon dioxide and reducing the carbon footprint of buildings. [Pearl, 2024] The Financial Times notes that engineered timber, particularly CLT and glulam, is gaining popularity in construction for its aesthetic, environmental benefits, and simplicity. [Wustemann, 2024]

By integrating digital fabrication techniques with sustainable engineered timber materials, architects and builders can honor traditional timber framing methods while meeting contemporary construction standards and environmental goals.

THATCHED ROOFING AND ROOF CONSTRUCTION TECHNIQUES

Innovations in techniques: Modern advancements have introduced new materials and methods to traditional thatching practices. [Carlos, n.d.] For instance, the use of sustainable and recycled thatching materials, such as synthetic thatch made from recycled plastics, offers increased durability and fire resistance while maintaining the aesthetic of natural thatch. Additionally, contemporary tools and machinery have been developed to enhance the precision and efficiency of thatching. According to Premier Guarantee, integrating modern construction techniques with traditional thatched roofing requires careful consideration to ensure compliance with building regulations and to maintain the integrity of the thatched roof. [Premier Guarantee, 2023] Parametric design: Parametric design has emerged as a powerful tool in

modern architecture, allowing for the creation of complex and efficient structures. [Budjarini, 2023] In the context of thatched roofing, parametric design enables architects to model roofs that are optimized for environmental conditions while preserving traditional aesthetics. For example, the Stalk Tree-Hugger project in Jakarta features a parametric tensile structure with a light steel-timber thatch roof, demonstrating how parametric design can be utilized to create innovative and functional thatched roof structures. [By.arr, 2023]

By integrating modern materials and parametric design techniques, architects can enhance the performance and sustainability of thatched roofs while respecting and preserving traditional craftsmanship.

DECORATIVE BRICKWORK AND FACADE ORNAMENTATION

Digital fabrication: Modern technologies such as CNC milling and 3D printing have revolutionized the way decorative brickwork and facade ornamentation are designed and produced. These digital fabrication methods allow for the creation of intricate and precise patterns that were previously labor-intensive or impossible to achieve by hand. For instance, the Arabesque Wall project demonstrates the capabilities of algorithmic design and 3D printing in producing complex ornamented walls with over 200 million individual surfaces, showcasing a level of detail that surpasses traditional craftsmanship. [Oh, 2023] Additionally, digital fabrication enables architects to reinterpret traditional brick designs with a modern aesthetic, maintaining the texture and complexity of handcrafted bricks while achieving higher precision and scalability. This approach not only preserves the cultural heritage embedded in traditional masonry but also adapts it to contemporary architectural practices. [Kaarwan, 2025]

Sustainable materials: The construction industry is increasingly focusing on sustainability, leading to the development and use of recycled and bio-based materials in facade construction. For example, Pretty Plastic Panels are made from 100% recycled PVC waste, offering a durable and fire-resistant cladding option that mimics the appearance of traditional materials. [FRONT, 2025]

Furthermore, initiatives like Eco-Block utilize recycled glass and construction waste to produce environmentally friendly bricks. These bricks not only reduce landfill pressure but also possess air-purifying properties by catalyzing pollutants into non-hazardous substances.

A study published in the Journal of Cleaner Production evaluated the environmental performance of photocatalytic Eco-Blocks produced with recycled materials. The research demonstrated that these Eco-Blocks could reduce life cycle emissions of NOx [Nitrogen oxides are harmful air pollutants formed during combustion that contribute to smog, acid rain, and respiratory problems.] [Green, 2025] by approximately 17% to 21% compared to conventional blocks, highlighting their potential in mitigating air pollution. [Hossain et al., 2021] The integration of such sustainable materials ensures that modern facades can maintain the visual impact of traditional brick architecture while significantly reducing environmental footprints. This approach aligns with the growing demand for eco-conscious building practices that do not compromise on aesthetic and structural qualities. [Subramanian, 2025]

By combining digital fabrication techniques with sustainable materials, architects and builders can create facades that honor traditional decorative brickwork while meeting contemporary standards for precision, scalability, and environmental responsibility.

WROUGHT-IRON WALL ANCHORS AND WOODEN SHUTTERS

Digital techniques: Modern digital fabrication methods, such as laser cutting and CNC machining, have revolutionized metalworking by enabling the creation of intricate designs with high precision. These technologies allow artisans to produce complex wrought-iron components that maintain the aesthetic of traditional craftsmanship while benefiting from enhanced accuracy and efficiency. For instance, the Institute for Advanced Architecture of Catalonia [IAAC] highlights how laser cutting facilitates the production of detailed patterns in various materials, merging innovation with traditional art forms. [Hernandez et al, 2023]

Interdisciplinary craftsmanship: The collaboration between architects, craftsmen, and engineers has led to innovative approaches in designing and producing wooden shutters. By combining traditional woodworking skills with digital fabrication techniques, such as CNC machining and laser cutting, it is possible to create shutters that are both aesthetically pleasing and functionally superior. These technologies allow for precise cuts and intricate designs, enhancing the visual appeal of the shutters. Moreover, the use of sustainable and durable wood species, along with weather-resistant finishes, improves the longevity and performance of the shutters in various

environmental conditions. This interdisciplinary approach ensures that the shutters maintain their traditional charm while meeting modern standards for durability and sustainability. [RBH, 2024]

By integrating digital fabrication techniques with traditional craftsmanship, it is possible to enhance the design, functionality, and sustainability of architectural elements like wrought-iron wall anchors and wooden shutters. This fusion of old and new methods ensures that these features continue to contribute to the aesthetic and structural qualities of buildings in a contemporary context.

VERGEBOARDS AND RIDGE ORNAMENTS

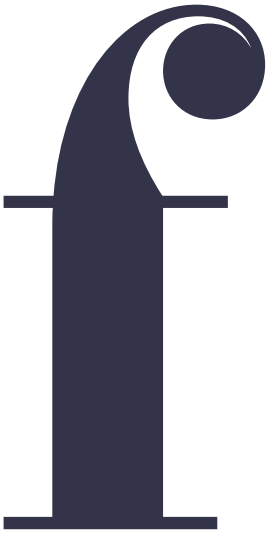
Parametric design: Parametric design enables designers to create complex geometries and patterns that are both aesthetically appealing and structurally functional. [3D print magazine, 2018] Through the use of parametric software, traditional ornaments, such as vergeboards and ridge ornaments, can be optimized for contemporary applications. These techniques offer the opportunity to incorporate variations in patterns or symbols specific to a region or building, thereby preserving the traditional appearance while exploring new aesthetic possibilities.

3D printing technology: 3D printing technology enables the precise replication or redesign of detailed, handcrafted ornaments. This is particularly valuable in the restoration of historical buildings, where the original ornamentation is often damaged or lost. According to an article in 3D Print Magazine, 3D printing provides an efficient and cost-effective solution for reproducing complex ornaments, preserving the artisanal character while accelerating production. [3D print magazine, 2018]

By combining parametric design and 3D printing technology, architects and designers are able to integrate traditional ornaments into contemporary construction projects in innovative ways, optimizing both aesthetic and functional aspects.

conclusion

In contemporary architecture, craftsmanship can be employed to align the detailing of Dutch polder dwellings with modern times by integrating both traditional and digital techniques. By combining time-honored craftsmanship methods, such as joinery and thatching, with modern digital tools, architects can leverage the advantages of both worlds. Digital technologies enhance precision, efficiency, and repeatability, while the handcrafted elements preserve the cultural and historical significance of the structures. This approach is not merely a solution based on digital design alone; it is a collaboration between the two disciplines, where both traditional craftsmanship and modern technology work in harmony. This synergy allows for the preservation of the aesthetic and functional qualities of historical polder architecture, while simultaneously offering a fresh, modern interpretation that meets contemporary standards for sustainability and technological advancement.



Concluding section

The concluding section of this research reflects on the key insights derived from the study and summarizes the strategies discussed throughout the work. It emphasizes the importance of balancing heritage with future development in the Dutch polder landscape. The conclusion synthesizes the application of unified proposition for contemporary design principles, the revaluation of vernacular architectural elements, and the integration of modern craftsmanship as a comprehensive framework for resilient and future-oriented design. This section also highlights the foundational sources in the bibliography, underscoring the theoretical and practical basis that supports the proposed approach. Through this final reflection, the main question of this research will be answered.

Discussion

The research presents a multidimensional strategy for integrating modernization and efficiency with the preservation of historical and cultural values within the Dutch polder landscape. By employing a layered approach being urban planning, architectural massing, and detailing, it becomes evident that sustainable and meaningful development is possible without sacrificing regional identity or architectural integrity. However, the translation of theoretical design principles into practical applications raises several critical considerations.

First, while the unified proposition for contemporary design principles offer a valuable framework for reconciling heritage and modernity, their implementation is highly context-sensitive. For instance, temporal continuity & evolution and contextual harmony require designers to possess an in-depth understanding of local history, material traditions, and spatial patterns. This dependence on regional knowledge can complicate broader scalability. Moreover, municipalities may interpret these principles differently, potentially leading to inconsistency in application or dilution of their intent.

Second, the integration of vernacular architectural elements into modern architectural massing demonstrates how typological reinterpretation can yield buildings that are both contemporary and culturally anchored. Yet, this approach risks falling into superficial mimicry if not grounded in a thorough design rationale. There is a fine line between respectful abstraction and imitation. The success of symbolic reinterpretation hinges on the architect's ability to distill the essence of traditional forms without defaulting to nostalgia or ornamental replication.

Third, the revaluation of craftsmanship in the detailing phase highlights a critical tension between artisanal quality and industrial efficiency. The use of hybrid craftsmanship, combining traditional techniques with digital tools, offers a promising pathway to reconcile these demands. However, the availability of skilled artisans and the economic viability of handcrafted or semi-crafted architectural elements may limit their widespread adoption. Furthermore, digital tools can enhance precision but risk flattening the tactile and idiosyncratic qualities that give vernacular details their expressive richness.

Additionally, the research suggests that sustainability should not be treated solely as a technical metric, but as a cultural and contextual value embedded in landscape and form. This reframing opens up a broader understanding of ecological responsibility, one that includes material cycles, maintenance culture, and lived experiences. However, it also introduces complexity into the design process, as architects must navigate environmental performance standards alongside cultural stewardship.

Lastly, while the proposed strategies are framed within the Dutch polder context, their conceptual structure, anchored in craftsmanship, contextual responsiveness, and adaptive reinterpretation, may be generalised to other geographies facing similar challenges of cultural continuity in the face of modernization. Nonetheless, such generalisation would necessitate careful cultural translation and locally grounded research.

FUTURE DIRECTIONS

Further research could focus on empirical case studies where the unified design principles have been applied in real-world polder projects. This would allow for the evaluation of their spatial, social, and environmental impacts. Additionally, interdisciplinary collaboration with environmental scientists, sociologists, and heritage experts could deepen the understanding of how design can mediate between ecological resilience and cultural identity. Technological innovation, particularly in digital fabrication and sustainable materials, also warrants further exploration, especially in its capacity to democratize craftsmanship and reduce ecological footprints.

In conclusion, while the fusion of modern design with vernacular integrity is a complex endeavor, this study demonstrates that through deliberate design thinking, historical depth and contemporary relevance can coexist within the evolving Dutch polder landscape.

Conclusion

The contemporary design challenge within the Dutch polder landscape demands an approach that honors its heritage while simultaneously anticipating future developments. The key to achieving this balance lies in the application of the unified proposition for contemporary design principles, the revaluation of vernacular architectural elements, and the integration of modern craftsmanship. This three-piece strategy, urban planning, architectural massing, and detailing, forms a holistic framework for resilient and future-oriented design.

1. URBAN PLANNING: CONNECTING CONTEXT AND FUTURE

At the urban scale, the integration of modernity and heritage is realized through the synergy of **contextual harmony & environmental integration** and **sustainable synergy with nature**. Polder landscapes are not merely considered as scenic backdrops but as active, formative components of design. New residential developments or adaptive reuse strategies within these landscapes must acknowledge the rational parceling of the polders, historical water management systems, and the rhythm of agrarian structures. Within this framework, **temporal continuity & evolution** plays a crucial role: urban plans must carry traces of the past, respect the existing spatial logic, and anticipate climate adaptation and energy transitions. Sustainability, in this context, is approached not only from a technical perspective but also as a cultural imperative—preserving the landscape's livability and recognizability.

2. ARCHITECTURAL MASSING: TYPOLOGIES AND MATERIALITY

The design of architectural massing within the polder landscape requires a nuanced balance between tradition and innovation. **Flexibility & longevity** ensures that buildings can adapt to evolving housing needs, while **symbolism & functional expression** allows for meaningful reinterpretations of historic typologies, such as the North Holland stolpboerderij, into contemporary housing forms. Massing strategies that draw on archetypal models yet are abstracted and optimized create a new architectural language that is both rational and contextually resonant.

The principle of **material authenticity & innovation** entails the use of traditional materials—wood, brick, and reed—in modern, refined applications. Solid volumes, linear roof profiles, and restrained ornamentation are reinterpreted with attention to **structural honesty & expressive form**, granting new expressive potential to the archetypal simplicity of the polder dwelling.

3. ARCHITECTURAL DETAILING: A CONTEMPORARY TRANSLATION OF CRAFTSMANSHIP

Detailing forms the essence of the relationship between people, buildings, and their context. This is where **balanced complexity & simplicity** comes to the fore: rich detailing inspired by historical precedents—such as mortise-and-tenon wood joinery, carefully laid brick patterns, and carved vergeboards—is paired with the clarity and precision of digital fabrication. **Adaptive reinterpretation of tradition** does not imply the replication of historic forms, but rather their reinterpretation within a contemporary design and production culture.

Modern craftsmanship plays a pivotal role in this process. By combining traditional techniques [e.g., thatching or wrought-iron anchoring] with digital tools and parametric design, a new form of "hybrid craftsmanship" emerges. This approach not only enhances the experiential and cultural identity of the architecture but also supports sustainability and constructional efficiency.

FINAL VISION

The bridge between past and future is built through craftsmanship—once driven by necessity and tradition, now by a conscious pursuit of quality, context, and meaning. It is not merely the materials or forms themselves that shape the future of the polder landscape, but the ways in which they are reimagined and engaged with. Through the synthesis of a contextual urban framework, respectful architectural massing, and precise, meaningful detailing, a contemporary architectural response emerges that is both modern and timeless. In doing so, the unique character of the Dutch polder landscape is not only preserved but passed on—enriched, sustained, and redefined.

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chapter 02

TU Delft

casestudy research

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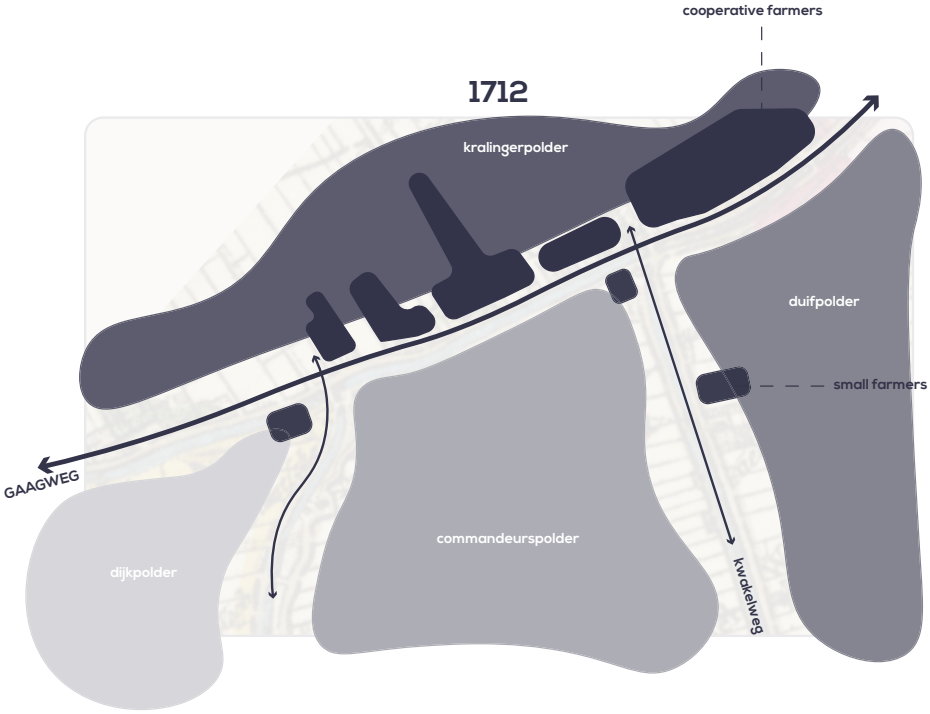
Contextual Analysis

To establish a solid foundation for the design within this studio assignment, context-specific research has been conducted in addition to the more generic research as shown in chapter 1. This was done to identify an appropriate location for the design, to understand the composition of the surrounding environment, to explore how the site has been shaped by its history, and to assess the current conditions.

This section presents the findings of that contextual analysis. It begins with a historical investigation of the area, followed by a photographic report documenting the present-day situation. By examining municipal visions and policy documents, a well-informed choice for the design location could be made. The selected site is described in terms of its spatial characteristics, values, and qualities.

Finally, the plan developed by ZUS—which served as the starting point for this design brief—has been critically examined. This analysis explores how its core ideas and intentions can be incorporated or reinterpreted within the framework of this research, forming the conceptual basis for the proposed design.

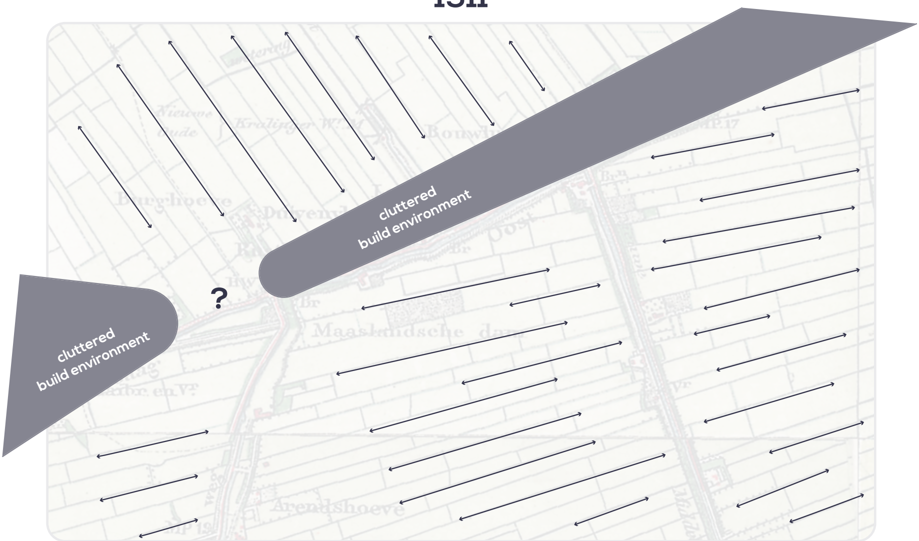
1712


cooperative farmers
1712
kralingerpolder
duifpolder
small farmers
GAAGWEG
commandeurspolder
dijkpolder
kwakelweg

1911


wetering
Nieuwe
Oude
Kralinger Wr M
Bouwlust
Landlust
weg
Burghoeve
Duivenvlugt
Rusthoff
St
MP 13
HW
Br
Maaslandsche dam
Gaag
Draaibr. en Vr
Oost
MP 17
Br
Vr
Arendshoeve
weg
MP 12

1911


cluttered
build environment
?
cluttered
build environment

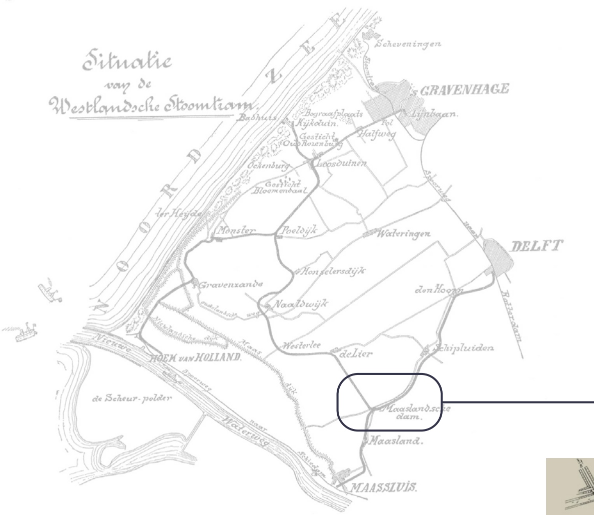
Start of WSM

The WSM (Westlandsche Stoomtram Maatschappij) was established in 1882. Initially, this had no direct impact on the context under investigation. However, in 1912, the company decided to expand its network, resulting in a rail line passing through the village of Maasland.

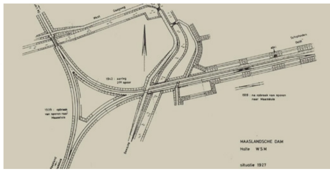
The area examined in this document became a key junction within the broader system. The corner near the "Maaslandse Dam" developed into a switching and turning point, constructed in the shape of a triangle—this is illustrated on the following page.

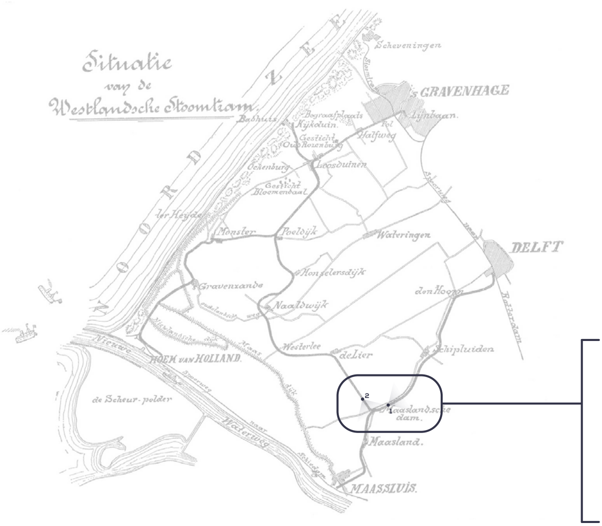
The arrival of the railway significantly altered the landscape structure of the area, marking a major shift in the spatial organization and function of the context.

01 . 1882 - 1932
02 . 1883 - 1968
03 . 1883 - 1951
04 . 1888 - 1928
05 . 1912 - 1938
06 . 1912 - 1968


Situatie
van de
Westlandsche Stoomtram
Scheveningen
's GRAVENHAGE
Lijnbaan
Badhuis
Begraafplaats Kijkduin
Gesticht Oud Rozenburg
Pol Halfweg
Ockenburg
Loosduinen
Gesticht Bloemendaal
ter Heyde
Monster
Poeldijk
Wateringen
DELFT
Honselersdijk
Gravenzande
Naaldwijk
den Hoorn
Westerlee
de Lier
Schipluiden
HOEK van HOLLAND
de Scheur-polder
Maaslandsche dam
Maasland
MAASSLUIS


WSM Wijziging situatie Maaslandsche Dam
tramspoor, ongewijzigd
id. toegevoegd
id. vervallen


MAASLANDSCHE DAM
Halte WSM
situatie 1937


Situatie
van de
Westlandsche Stoomtram
Scheveningen
's GRAVENHAGE
Lijnbaan
Badhuis
Begraafplaats Kijkduin
Gesticht Oud Rozenburg
Pol Halfweg
Ockenburg
Loosduinen
Gesticht Bloemendaal
ter Heyde
Monster
Poeldijk
Wateringen
DELFT
Honselersdijk
Gravenzande
Naaldwijk
den Hoorn
Westerlee
de Lier
Schipluiden
HOEK van HOLLAND
de Scheur-polder
2
1
Maaslandsche dam
Maasland
MAASSLUIS

1

2

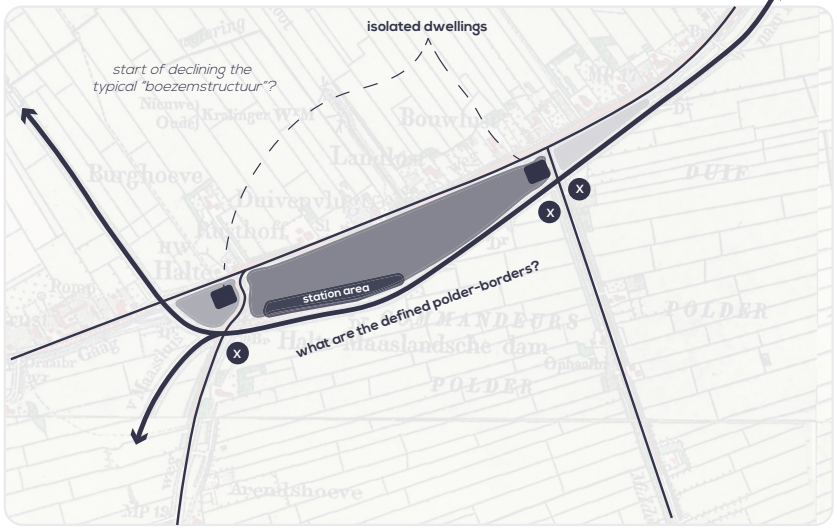
WSM Architecture

The architecture associated with the stations is highly distinctive and visually defining, as clearly illustrated below. Several of these station buildings can still be found throughout the Westland region. They carry significant historical value and contribute strongly to the area's unique character and identity.

1912


Nieuwe
Oude
Kralinger W^M
Bouwlust
Landlust
Burghoeve
Duivenvlucht
Rusthoff
HW
Halte
MP 18
Oost
Gaag
DUIF
POLDER
COMMANDEURS
Halte Maaslandsche dam
POLDER
Arendshoeve
MP 19

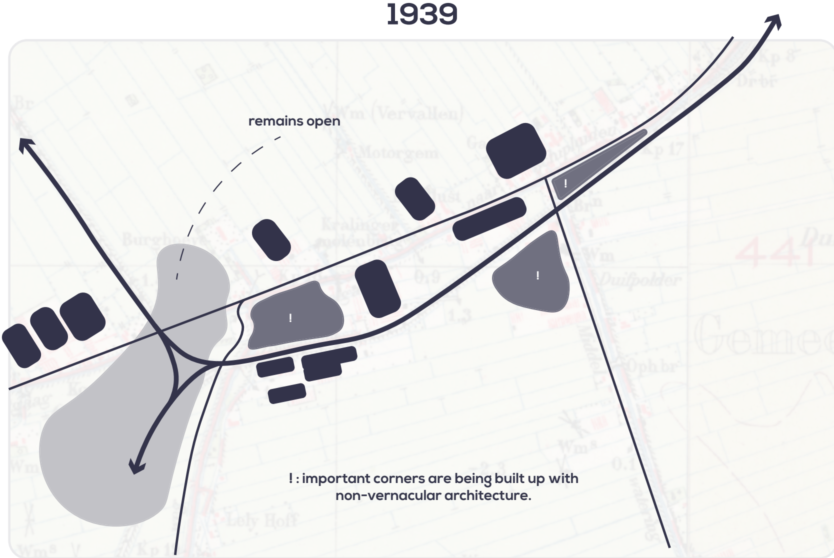
1912


introduction of WSM railtrack
isolated dwellings
start of declining the
typical "boezemstructuur"?
station area
what are the defined polder-borders?

1939


Wm (Vervallen)
Motorgem
Gaaglust
Schipluiden
Kp 17
Kp 8
Dr br
Landlust
Kralinger molenbrug
Burghoeve
Kp 18
Oostgaag
0,9
1,3
Wm
Duifpolder
441
Gemee
Kp 21
1.4
Br
Koning's Rust
Kp 10
Gaag
Md Sn
1.9
Middel
Oph br
Wm
Wms
0.1
-2.3
-1.0
Lely Hoff
Kp 19
wateringweg

1939


remains open
! : important corners are being built up with non-vernacular architecture.

Decline of WSM

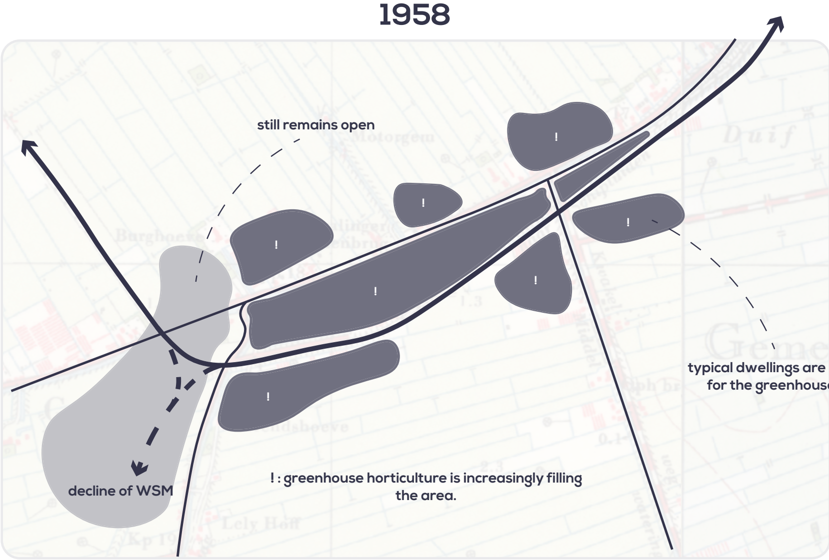
The WSM experienced a long period of prosperity, but eventually fell into decline. Various segments of the route were shut down over time. However, the section that runs through the context under study remained in use for a considerably longer period. This was largely due to the strong connection to Delft, which proved highly beneficial for the region's greenhouse horticulture industry.

01 . 1882 - 1932
02 . 1883 - 1968
03 . 1883 - 1951
04 . 1888 - 1928
05 . 1912 - 1938
06 . 1912 - 1968

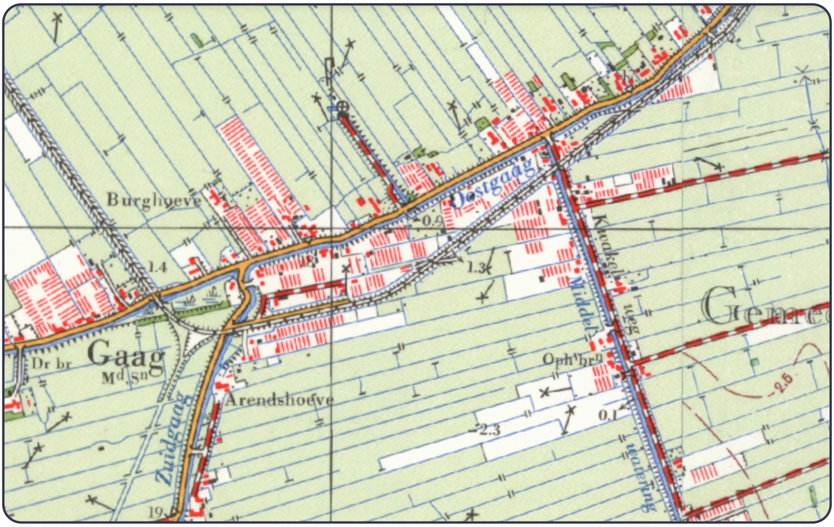
1958


Motorgem
Burghoeve
Kp 18
Kp 17
Arendshoeve
Lely Hoff
Kp 19
Gaag
Duif
Geme
Middel

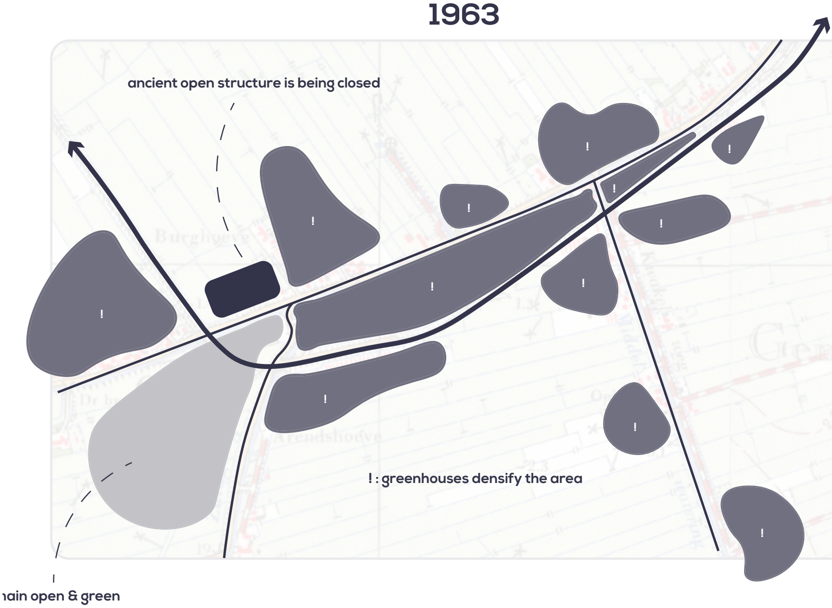
1958


still remains open
typical dwellings are build for the greenhouses
decline of WSM
! : greenhouse horticulture is increasingly filling the area.

1963


Burghoeve
Oostgaag
Gaag
Arendshoeve
Zuidgaag

1963

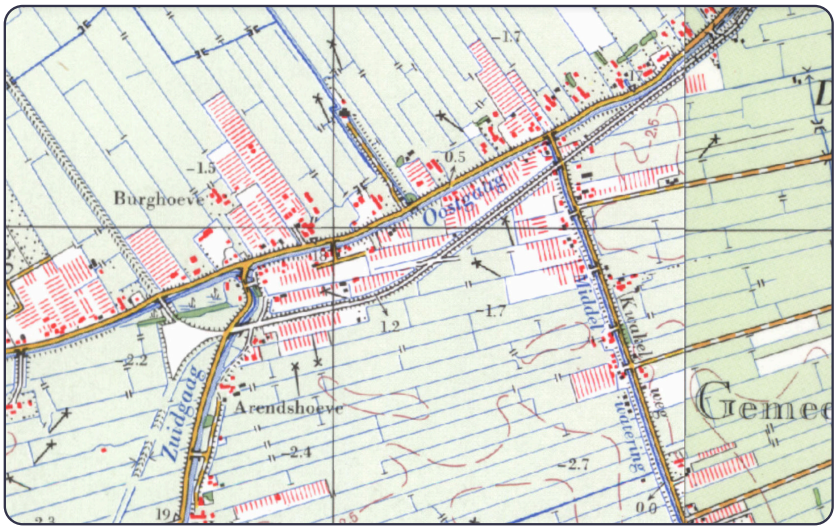

ancient open structure is being closed
! : greenhouses densify the area
ıain open & green

Ending of WSM

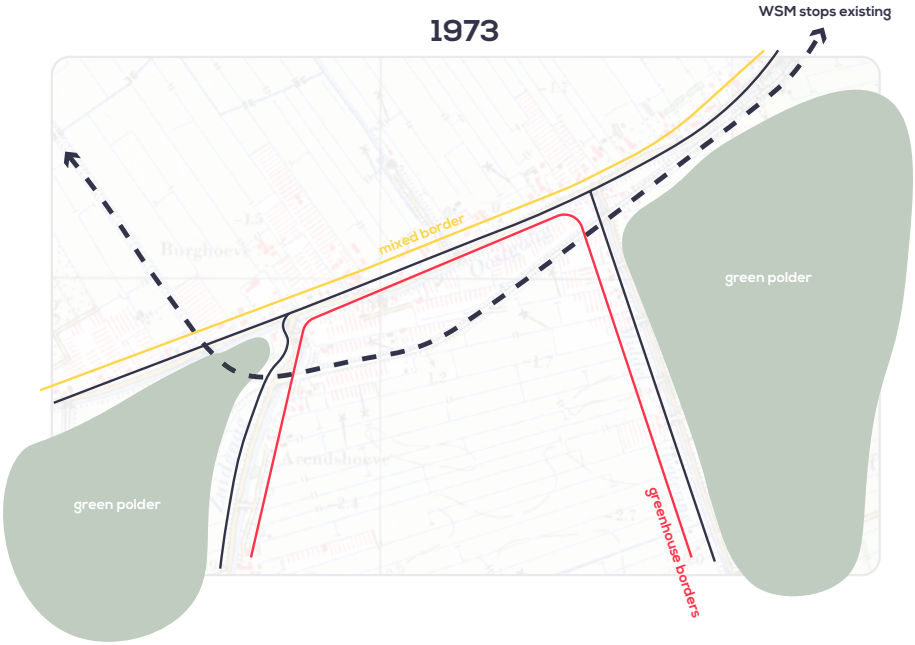
Eventually, the WSM ceased to exist, and the rail tracks were decommissioned. In the studied context, the rails were removed, but the constructed embankment remained. In the years that followed, it was decided not to dismantle the embankment, but instead to repurpose it as a bicycle path—one that still exists to this day.

01 . 1882 - 1932
02 . 1883 - 1968
03 . 1883 - 1951
04 . 1888 - 1928
05 . 1912 - 1938
06 . 1912 - 1968

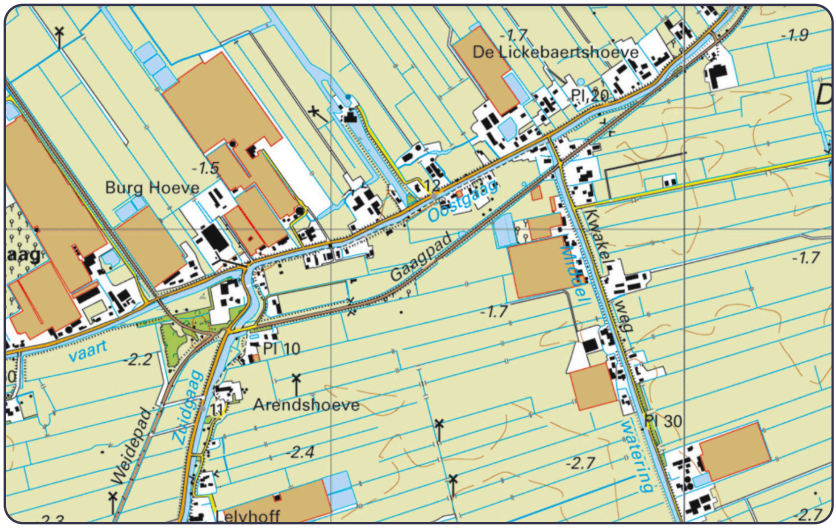
1973


Burghoeve
Arendshoeve
Zuidgaag
Oostgaag

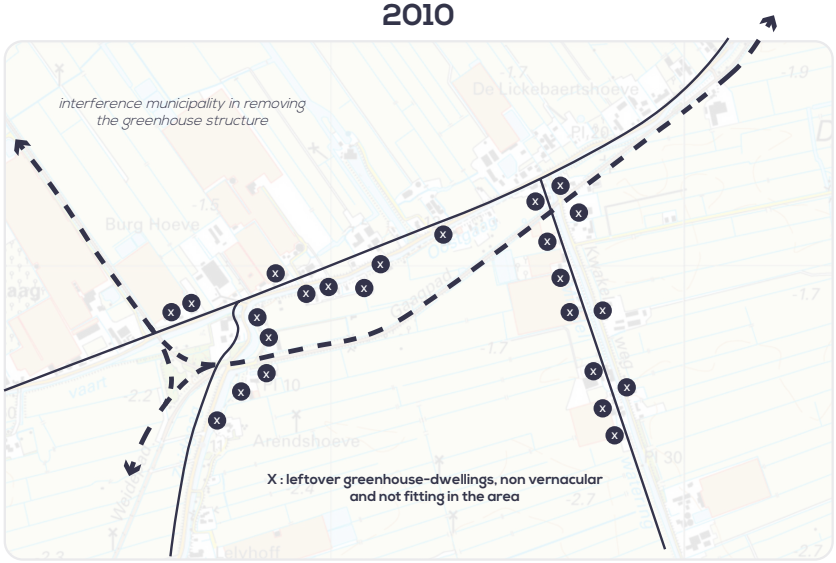
1973


WSM stops existing
mixed border
green polder
green polder
greenhouse borders

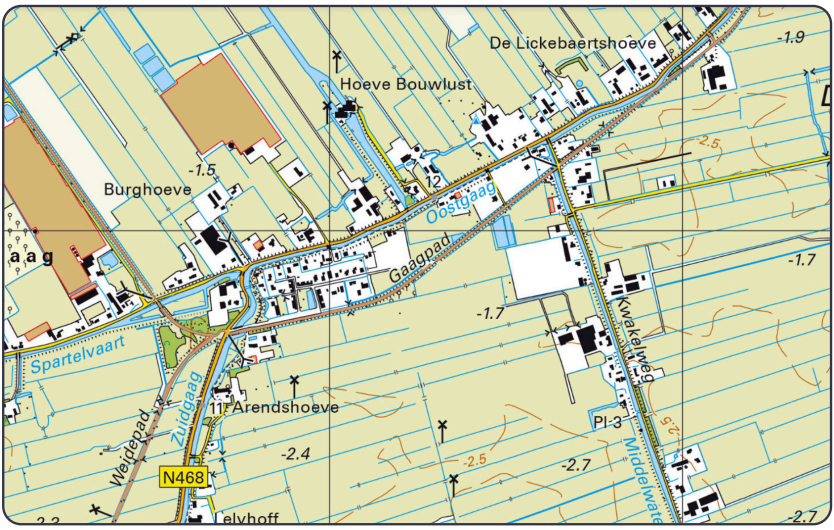
2010


De Lickebaertshoeve
Pl 20
Burg Hoeve
Oostgaag
Gaagpad
Kwakkelaarsweg
Arendshoeve
Pl 10
Pl 30
Zuidgaag
Weidepad
vaart
watering
Lelyhoff

2010


interference municipality in removing
the greenhouse structure
X : leftover greenhouse-dwellings, non vernacular
and not fitting in the area

2023


De Lickebaertshoeve
Hoeve Bouwlust
Burghoeve
Oostgaag
Gaagpad
Kwakelweg
Spartelvaart
Zuidgaag
Weidepad
Arendshoeve
N468
Middelwatering
-1.9
-1.5
-1.7
-2.4
-2.5
-2.7

2023

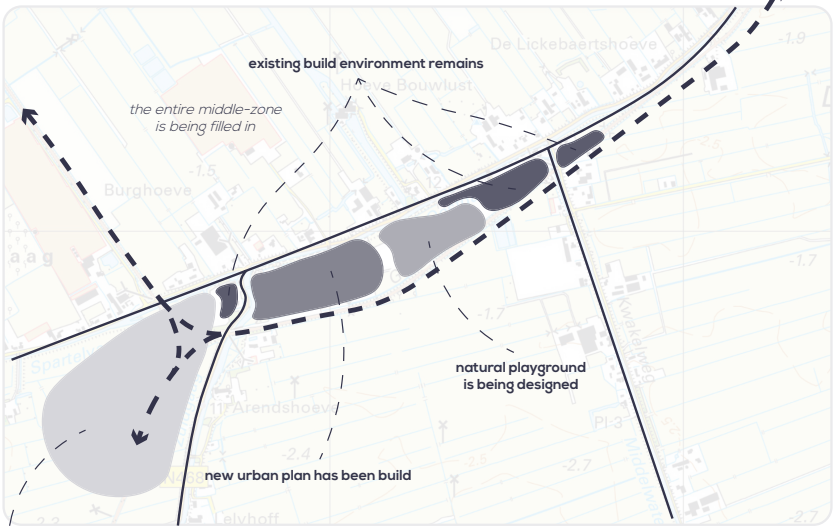

existing build environment remains
the entire middle-zone is being filled in
natural playground is being designed
new urban plan has been build
remain open & green

Photo Report Context

The current situation is illustrated on the following pages. The map shown below indicates the various photo locations and viewing directions taken along the historical WSM rail track. These ten selected points provide a clear impression and atmosphere of the surrounding environment.


1


2


3


4


5


6


7


8


9


10

Polder Sides

Particularly noteworthy is the municipality's vision regarding the edges of the polders and the associated patterns of development. Traditionally, polders are structured in a clear and logical manner. However, when examining the context under study, it becomes evident that the northern edge of the polder has undergone significant transformation.

The arrival of the WSM (Westlandsche Stoomtram Maatschappij) led to the isolation of a portion of the polder, effectively disrupting the spatial continuity. As a result, the typologies proposed by the municipality for the various polder edges no longer align with the conditions of this isolated section.

Below, the municipal vision on the treatment of polder edges and their corresponding built forms is presented (in Dutch).

2.4 Karakteristiek van de polderranden en bebouwingslinten

Het patroon van de ontginningsgeschiedenis is nog steeds afleesbaar in de bebouwingslinten. Het Gebiedsprofiel Midden-Delfland maakt onderscheid in boezemlinten langs de hoger gelegen boezemvaarten en polderlinten op het niveau van het maaiveld van de polder. Veel bebouwingslinten en de verspreide bebouwing op de kreekruggen en op de nog hier en daar aanwezige terpen, zoals terpdorp 't Woudt, hebben een hoge cultuurhistorische waarde. Karakteristiek is de herkenbaarheid van de hoogteverschillen en de manier waarop de vorm van de bebouwing daar op inspeelt. Kenmerkend voor Midden-Delfland is het verschil tussen de voorkant (ontginningsbasis), achterkant en zijkant van een polder. Het bebouwingslint aan de voorkant bevat de oudste bebouwing. Meestal is deze rand ook het meest dicht bebouwd en het meest waardevol.
De zijkanten van een polder zijn meestal onbebouwd of er staat bebouwing van recente datum met een specifieke functie, zoals bijvoorbeeld tuinderswoningen.
De achterkanten van de polders zijn slechts spaarzaam bebouwd.


Noordvliet (zijkant)


Oude Leede (voorkant)

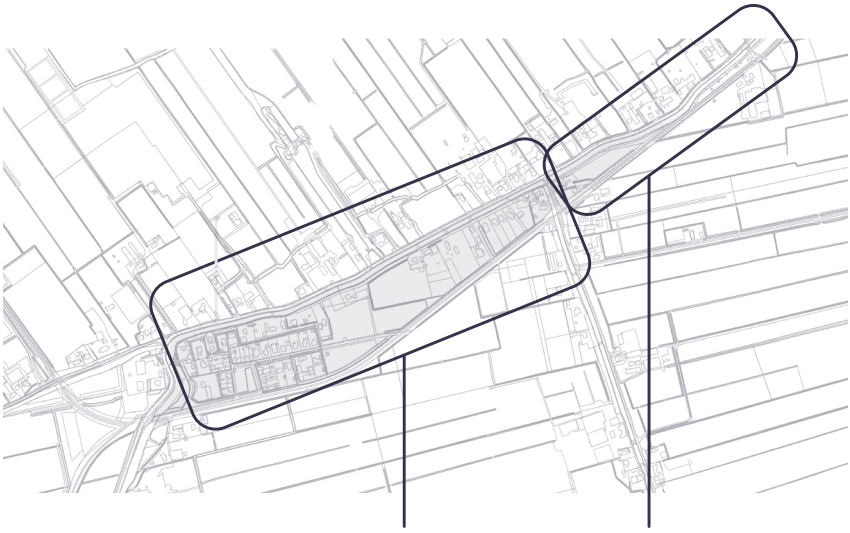

Westgaag (voorkant)


Middelwatering (achterkant)

65 Omgangsvormen met een landschap van stand

Polder Linths

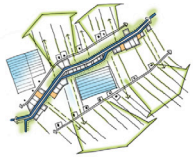
In addition, the municipality provides various guidelines concerning the orientation, building typologies, and density of development across different spatial structures within the surrounding area. The map shown below clearly illustrates how the isolation of a portion of the polder—caused by the historical WSM railway—has resulted in a distinctly redefined spatial structure.



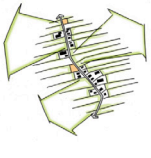
Rand Droogmakerij (Oude Leede)

Polderlint (Negenhuizen)

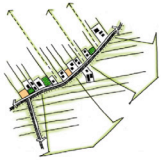
Boezemlint (Oostgaag)



Principe voor bebouwing rand droogmakerij



Principe voor bebouwing polderlint



Principe voor bebouwing boezemlint

Polder typology

The study also highlights the preferred land-use typologies for the area, as defined by the municipality. Below is the original Dutch description of the zone in which the context under research is situated.

MAASLAND

Stedebouwkundige typologie

1. Stedelijk ingericht gebied

1.1 Algemeen
- functie: gemengd of wonen
- niet-planmatige en planmatige ontwikkeling
- vaak eenvoudig of op pré-stedelijke structuur geënt stratennet
- stenen straten, geen voortuinen
- voornamelijk aaneengesloten bebouwing
- bebouwing deels complexgewijs, complexgrootte variabel

1.2 Stedelijk villagebied
- functie: wonen
- ligging in stedelijke context
- planmatige ontwikkeling
- stratennet royaal van opzet met soms bijzondere patroon- of vormkenmerken
- stenen straten met veelal ondiepe voortuinen
- bebouwing aaneengesloten of vrijstaand op geringe onderlinge afstand
- twee of meer bouwlagen hoog

2. Niet-stedelijk ingericht gebied

2.1 Algemeen
- functie: gemengd of wonen
- niet-planmatige en planmatige ontwikkeling
- vaak eenvoudig of op pré-stedelijke structuur geënt stratennet
- regelmatige voortuinen
- weinig aaneengesloten bebouwing
- bebouwing voornamelijk niet complexmatig

2.2 Tuinwijkachtige ontwikkeling
- functie: wonen
- planmatige ontwikkeling
- stratennet soms met bijzondere patroon- en vormkenmerken
- groene straten, voortuinen
- voornamelijk half open blokken, strokenbouw
- bebouwing complexmatig

2.3 Villagebied
- functie: wonen
- niet-planmatige en planmatige ontwikkeling
- stratennet vaak met bijzondere vormkenmerken
- groene straten, tuinen rondom
- voornamelijk losse bebouwing
- bebouwing voornamelijk niet complexmatig

3. Gebied zonder woonfunctie

3.1 Industriegebied
- functie: industrie / bedrijvigheid / handel / verkeer
- inrichting en bebouwing vaak in samenhang met specifieke locatie en/of functies

3.2 Groen gebied
- functie: openluchtrecreatie (park, sportterrein, begraafplaats, enz.)
- voornamelijk onbebouwd terrein
- inrichting en bebouwing vaak in samenhang met specifieke locatie en/of functies

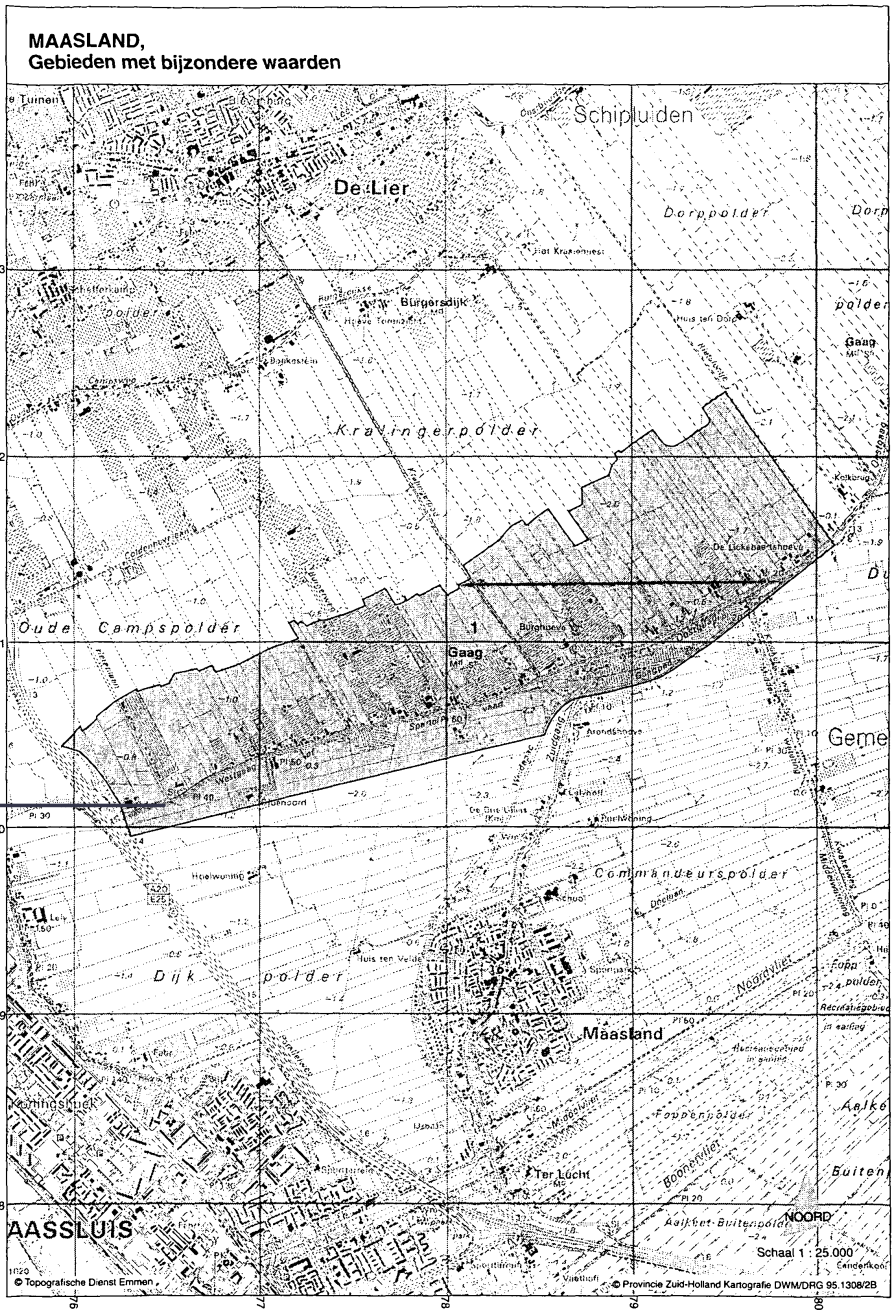
4. Ander gebied
- functie:

Na 1945 gereconstrueerd gebied

Gebieden met bijzondere waarden

1 Gaag

MAASLAND,
Gebieden met bijzondere waarden



Gates of Midden-Delfland

With this contextual understanding in place, it becomes essential to identify where meaningful interventions can be made within the existing spatial structure through a new design proposal. One particularly compelling element that emerges from the research is the concept of the Gates of Midden-Delfland. To explore this, the perspective is slightly broadened beyond the immediate study area.

This municipal concept designates specific locations around the edges of Midden-Delfland as "gates"—transitional zones intended to serve as access points to the region's green recreational and residential landscapes. These gates aim to promote recreation and strengthen the identity of Midden-Delfland as a rural and ecological zone, while simultaneously discouraging car traffic from penetrating deeper into the area.

Why is this relevant? It offers a strong conceptual foundation for the selection of the design site, which will be further explained on the following page.

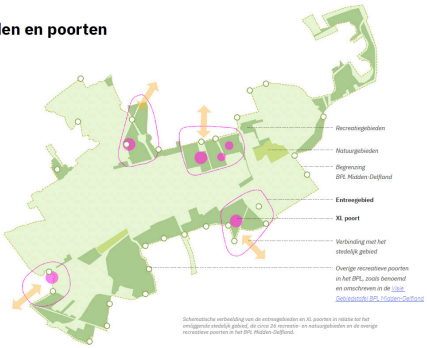
WAT

3.1 Definitie entreegebieden en poorten

De vier **entreegebieden** zijn weergegeven met rose lijnen op de kaart hiernaast. Dit zijn plekken met bestaande recreatieve kwaliteiten, waar een uitwisseling is tussen 'stedelijk' en 'landschappelijk'. Ze vormen strategisch gelegen entrees naar het BPL Midden-Delfland en zijn gebieden waar (aspecten van) het BPL Midden-Delfland beleefd kan worden. In en rond het BPL worden de entreegebieden gecomplementeerd door andere natuur- en recreatiegebieden en recreatieve bestemmingen, zoals het Kraaijenest, Maassluise Poort, Broekpolder, De Tempel, Groenzoom en Belevenisboerderij Schieveen.

De voorzieningen in een entreegebied concentreren zich in één of meer **XL poorten** (roze stippen op de kaart hiernaast). Dit zijn gebieden waar de recreatie het meest intensief zal zijn en waar tevens een relatief hoge padendichtheid aanwezig is. Daarbuiten verspreiden recreanten zich door het entreegebied, naar het aanbod dat bij hen past. Door de XL poorten te ontwikkelen als aantrekkelijke bestemmingen, kunnen in de entreegebieden veel mensen worden opgevangen, waardoor het op andere plekken in het BPL rustig(er) kan blijven.

Naast de poorten in de entreegebieden waar in dit document een ontwikkelrichting voor wordt geschetst, zijn er nog meer *recreatieve poorten* die verspreid in en rond het BPL Midden-Delfland liggen (groenwitte stippen op de kaart), zoals gedaud



Schematische verbeelding van de entreegebieden en XL poorten in relatie tot het omliggende stedelijk gebied, de circa 26 recreatie- en natuurgebieden en de overige recreatieve poorten in het BPL Midden-Delfland.

WAT

Ieder entreegebied een eigen ruimtelijke identiteit
De entreegebieden kenmerken zich - net als de omliggende natuur- en recreatiegebieden - door een ruimtelijke afwisseling van open, waterrijke en beboste delen. Toch heeft ieder entreegebied een eigen ruimtelijke identiteit, welke bij het ontwikkelen van de entreegebieden versterkt kan worden.

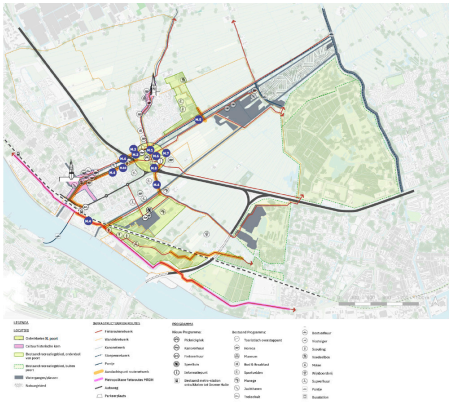
- Entreegebied Schipluiden ontleent haar identiteit als "historische parel" aan de aanwezigheid van de historische kern van Schipluiden, met haar pittoreske dorpsgezicht en voormalige kerk en buitenplaats Op Hodenpijl aan de Gaag.
- In Entreegebied Maasland wordt de identiteit in sterkere mate bepaald door het water in en nabij het gebied. Trekvaarten verbinden het entreegebied als 'waterparel' ook letterlijk met BPL Midden-Delfland, onder meer via de Foppenplas.
- Entreegebied Abtswoudse & Ackerdijkse bos heeft een besloten karakter en kun je indentificeren als 'spiderbos', wat contrasteert met het open landschap van BPL Midden-Delfland. Binnen het entreegebied heeft het Abtswoudse bos een sterk natuurlijk karakter en wordt het Ackerdijkse bos meer cultureel gekarakteriseerd door de aanwezige kunst.
- Entreegebied Schieknoop is sterk afwisselend van karakter in open, besloten en waterrijke delen. Het entreegebied is een kleinschalige afspiegeling van het landschap van BPL Midden-Delfland, mede door de zichtbare verkavelingsstructuur. Het gebied onderscheid zich van de andere entreegebieden door het rustige en natuurlijke karakter dat hier vanuit de stad het open landschap in gaat: 'van klein tot groot: natuur overal'.

HOE

Ruimtelijke maatregelen
Om met het entreegebied goed invulling te geven aan de gewenste ontwikkelrichting, kun je denken aan onderstaande ruimtelijke maatregelen. Deze zijn terug te vinden op de kaart hiernaast:

- *M.1 XL poort aan het water*
- *M.2 Kanoverhuur*
- *M.3 Waterrijke delen*
- *M.4 Routes het landschap in*
- *M.5 Oversteken over de Vliet*
- *M.6 Wandelnetwerk door entreegebied*
- *M.7 Pad Hoogland-waterpark*
- *M.8 Aantrekkelijk parkeerterrein*
- *M.9 Kleinschalige verblijfsrecreatie*
- *M.10 Wandelverbinding tussen de vlieten*

In de Actielijst op pagina 51 worden de ruimtelijke maatregelen toegelicht. Hierbij worden zowel de meest essentiële projecten gedaud voor het goed functioneren van het entreegebied, als een aanzet gemaakt voor quickwins. Per maatregel worden ideeën gegeven voor de koppeling aan andere opgaven en/of lopende projecten, inclusief een eerste indicatie of het een maatregel is voor op de lange of korte termijn.



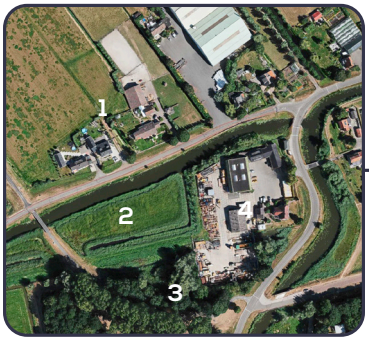
Pearls of Midden-Delfland

The gates described in the previous section are further enhanced by the concept of the Pearls of Midden-Delfland. These "pearls" represent key locations that positively contribute to the entrance, recreational experience, or overall perception of the region. Typically, these sites are either ecologically valuable or situated at prominent, highly visible points within the landscape.

One such pearl is located within the context of this study: the corner at the intersection of the former WSM railway. This provides a strong initial rationale for selecting this site as the focus of the design process.

This location presents a unique opportunity to reinforce the identity and value of a "pearl." At present, however, the site falls far short of embodying this concept. Rather than enriching Midden-Delfland, it currently lacks the qualities and vitality associated with a pearl, as illustrated in the images below.

CURRENT SITUATION




1


2


3


4

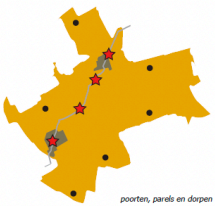
locaties poorten

Uit de veelheid aan locaties blijkt dat het nog niet duidelijk is waar de poorten moeten komen.

Naast de poorten aan de randen van het gebied is tijdens de workshops gesproken over een aantal 'parels' in het gebied, zoals Op Hodenpijl, de Lickebaertshoeve en het kruispunt bij Maasland/ Maaslandse Dam. Deze 'parels' vormen een belangrijke verrijking voor het gebied en vullen het concept 'poorten' goed aan.

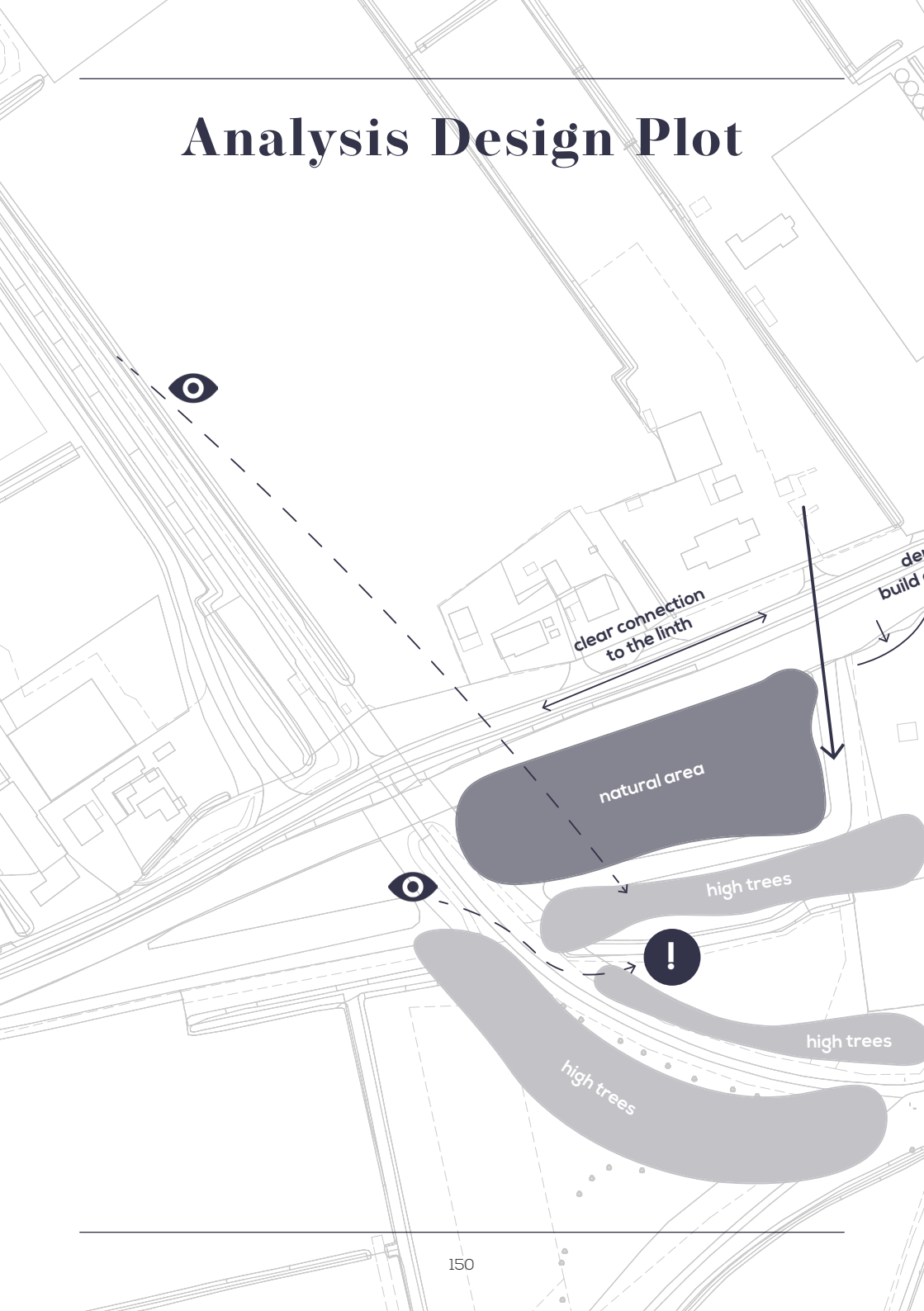
Voor wat betreft de poorten wordt aan de volgende locaties gedacht:

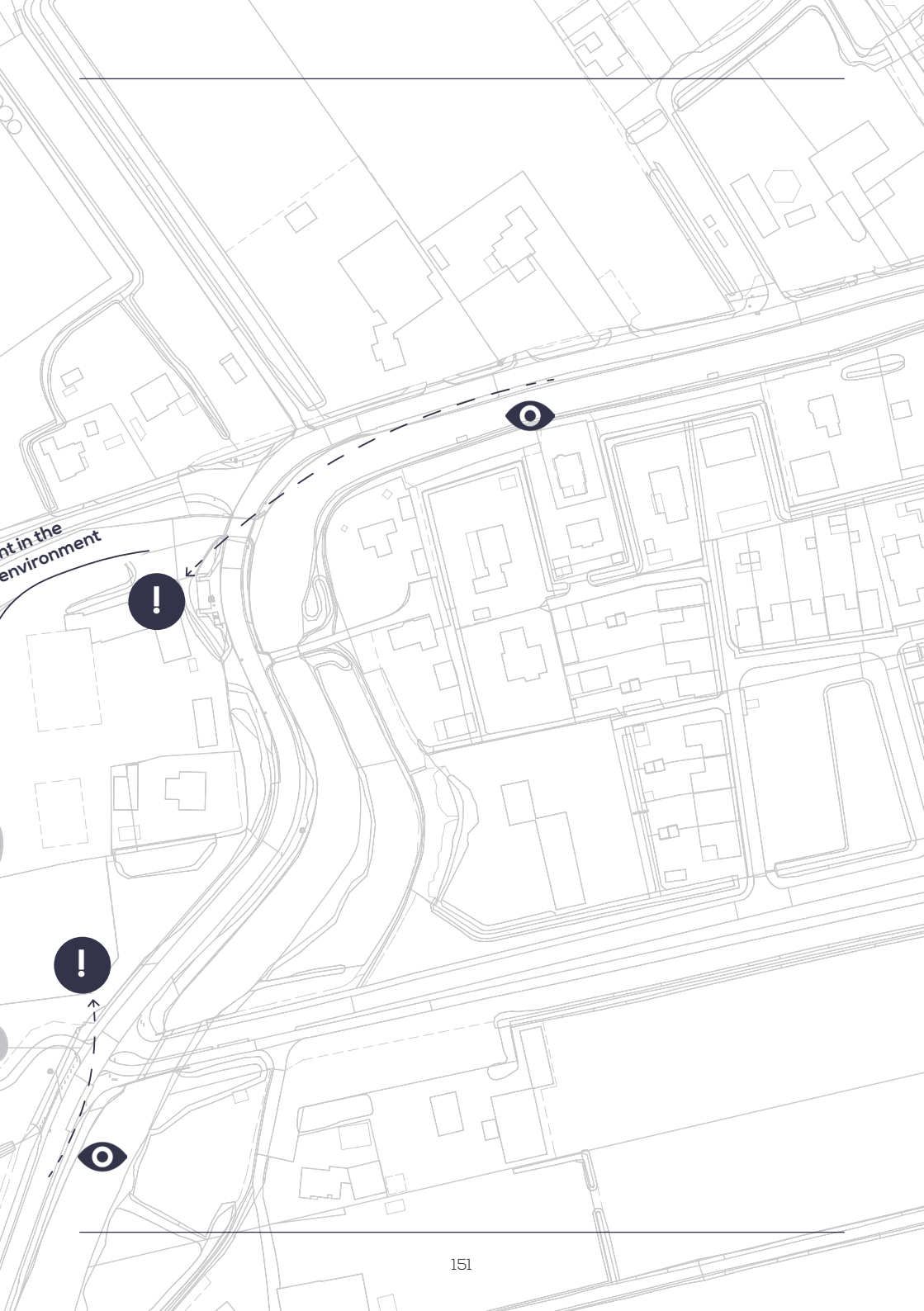
- Westland bij de Wollebrand: glas/ Westlandse producten
- Westland bij Zweth: vertrekpunt rondvaart door het Westland (op een historische schuit)
- Westland: op de overgang tussen geconcentreerd glas en het open gebied
- Den Haag: toekomstig eindstation tramlijn 17 in Wateringse Veld
- Rijswijk: verbinding naar Den Haag en Zwethzone
- Schipluiden: Op Hodenpijl, agrarisch en historisch, geen poort wel een centrale plek in Midden-Delfland, aanvullend op concept 'poorten'
- Delft: station Delft-Zuid
- Delft: recreatie en techniek of water en techniek
- Delft: verbinding over A13 en Schie voor verbinding met oostkant Delflanden en verbinding met Delftse Hout. Bij afslag Delft Zuid/ Technopolis: koppeling tussen binnenstad Delft, Delflanden ten oosten van A13 en Midden-Delfland
- Schiedam/ Delft: bij Kethel en Tanthof aan uiteinde Harreweg en en Abtswoudseweg;
- Delft/ Midden-Delfland: een poort gesitueerd over de A4, ter hoogte van de viaduct bij de golfbaan
- Delft/ Delfgauw: op lange termijn, toekomstige verbinding naar Delftse Hout.
- Overschie: fiets en water
- Schiedam: thema natuur, koppelen aan de groene zone tussen Spaland, de Woudhoek en het bestaande natuurcentrum
- Vlaardingen bij Vlaardingse Vaart: thema waterpoort met regionale betekenis: verbinding voor pleziervaart en binnenwater (boezemwater) naar het buitenwater (de Nieuwe Waterweg)
- Vlaardingen bij station Vlaardingen-West: thema dagrecreatie: verblijf aan de Krabbeplas
- Maassluis/ Maasland: thema waterrecreatie (o.a. kanoën, bootverhuur), 2 mogelijke locaties: 1. aan de Boonervliet, 2. bij afrit A20 ter plaatse van pannenkoekboerderij 't Sonnetje
- Maassluis (bij de Lickebaertshoeve): concentratie van recreatieve routes en koppeling van Midden-Delfland en Haven Rotterdam
- Maasland: 'centrale plek' bij kruispunt wegen ter hoogte van Maaslandse Dam



poorten, parels en dorpen

Analysis Design Plot




nt in the
environment

Vision of the Municipality

SCENARIO A
"contemporary living"

SCENARIO B
"natural living"

SCENARIO C
"rural living"

SCENARIO D
"village living"

RESIDENTS VISION:

- Focus on a mix of young, middle age, and old
- Young and old should be evident, to accommodate the problematic groups
- Families should be accommodates
- Focus on small, local entrepreneurs [start-ups]

ARCHITECTURAL VISION:

- Homes with a historic appearance, authentic and social character
  - Preservation of atmosphere and identity
- Farms with multi-use:
  - Care homes
  - Age-friendly apartments
  - Social communities
- Environmentally friendly building methods
- Green roofs, facades
- Water retention within the parcels of land
- Green energy [e.g. solar panels

NATURAL VISION:

- Nature should be included in the designs
- Green landscape designed as a park-like structure
- Water retention swales
- Shared green facilities

URBAN VISION:

- Not many more roads to add in the natural areas, preferably not more than one

Vision of ZUS

AGRICULTURAL INNOVATION AND SUSTAINABILITY:
The plan emphasizes integrating advanced agricultural practices within the urban framework, promoting sustainable food production that coexists with urban development.

GREEN INFRASTRUCTURE ENHANCEMENT:
It proposes the enhancement of green spaces and ecological networks, aiming to increase biodiversity and improve the quality of life for residents.

CLIMATE RESILIENCE AND WATER MANAGEMENT:
The design includes strategies for effective water management, addressing challenges such as flooding and drought, and enhancing the area's resilience to climate change.

CULTURAL AND HISTORICAL PRESERVATION:
The proposal seeks to preserve and celebrate the region's cultural and historical identity, ensuring that development respects and enhances the area's heritage.

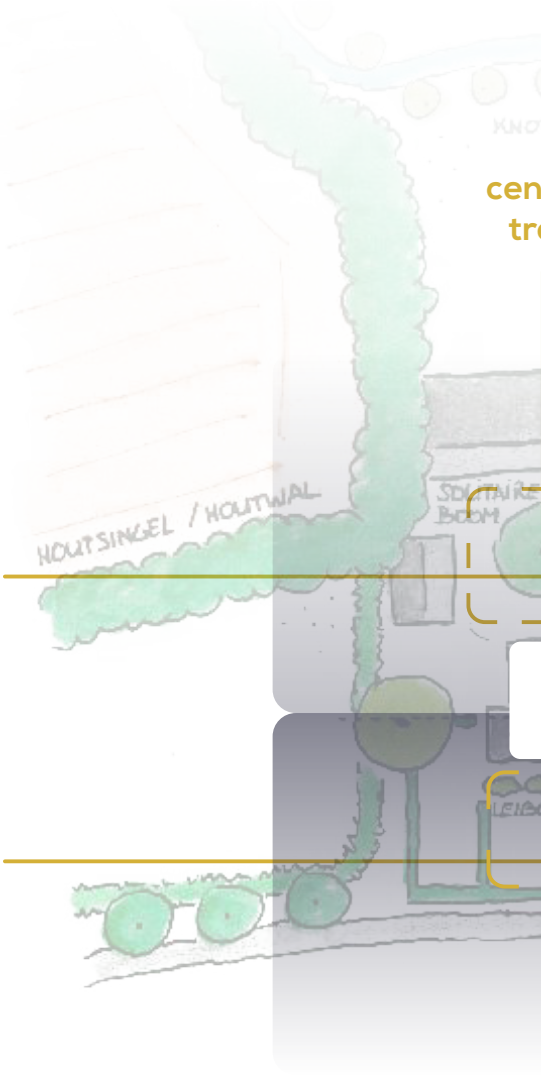
SUSTAINABLE URBAN DEVELOPMENT:
It advocates for a balanced approach to urban growth, incorporating sustainable building practices and renewable energy solutions to create a livable and environmentally friendly urban environment.

h Historical Farmyard Analysis

The design location has been selected, and in the following chapter [3], an urban plan will be developed based on the preceding contextual research. This section focuses more specifically on how the urban plan can be articulated at the parcel level.

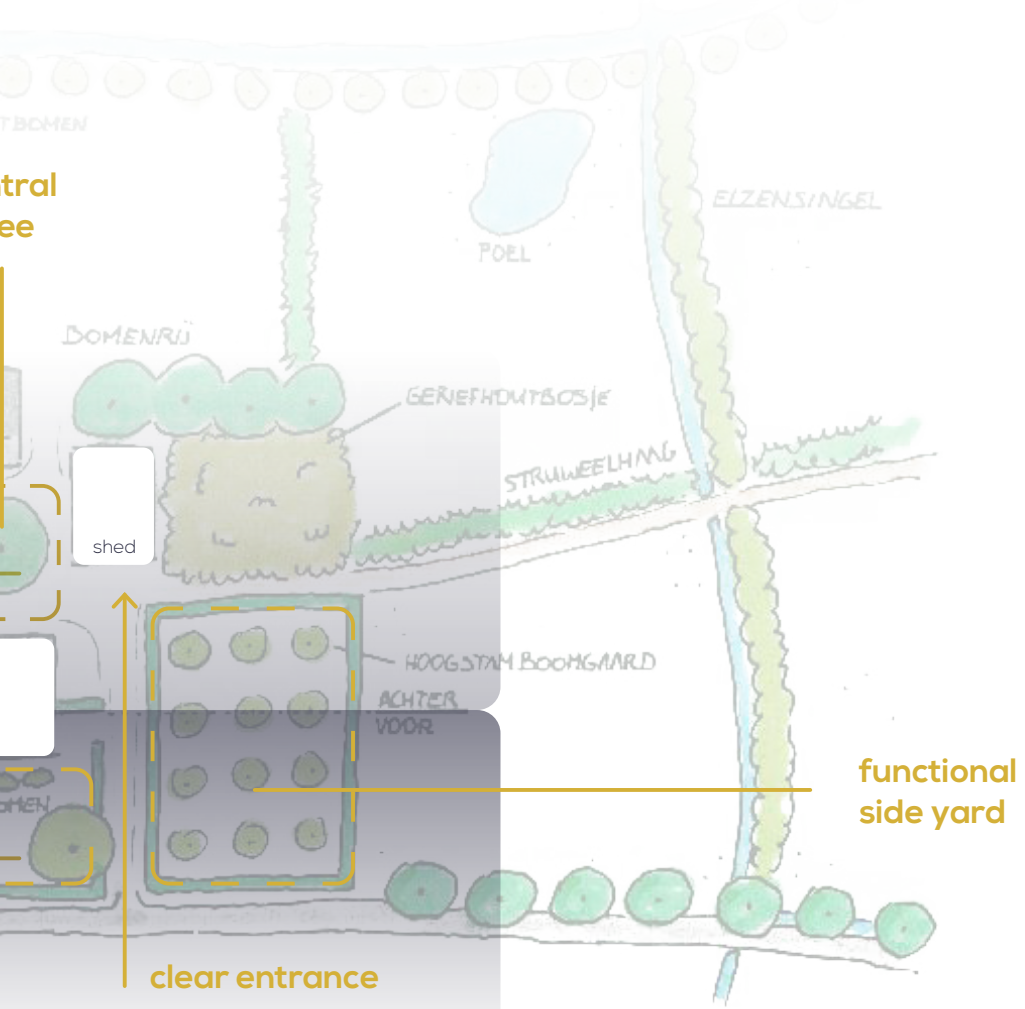
The rich historical agricultural environment offers valuable insights into how a meaningful connection with the context can be established. As demonstrated in Chapter 1, a context-sensitive design approach is crucial. This part aims to deepen and strengthen that connection through detailed spatial organization and subdivision.

Conclusions on this analysis can be seen on the next page.



private, non-representative back yard

representative front yard



[Reference photo: Gemeente Beuningen]

i

Architectural Analysis

In this chapter, it is notable that the focus increasingly converges toward a finer level of detail. This section provides more specific information to support this process.

The foundational research into the broader context and parcel subdivision has been established, and it is now essential to develop a clear vision for how these elements can be translated into architectural form. The subsequent chapter [3] presents the decision to concentrate on the design of the station area, which will also be the primary focus of this section.

As previously mentioned, the WSM played a significant role in the historical development of the context. This historical reference will be incorporated into the architectural design to strengthen the connection with the site's heritage.

The following pages illustrate the architectural character of the area and highlight its defining features.

Historical References


Maasland
(Tram-station)


MAASSLUIS

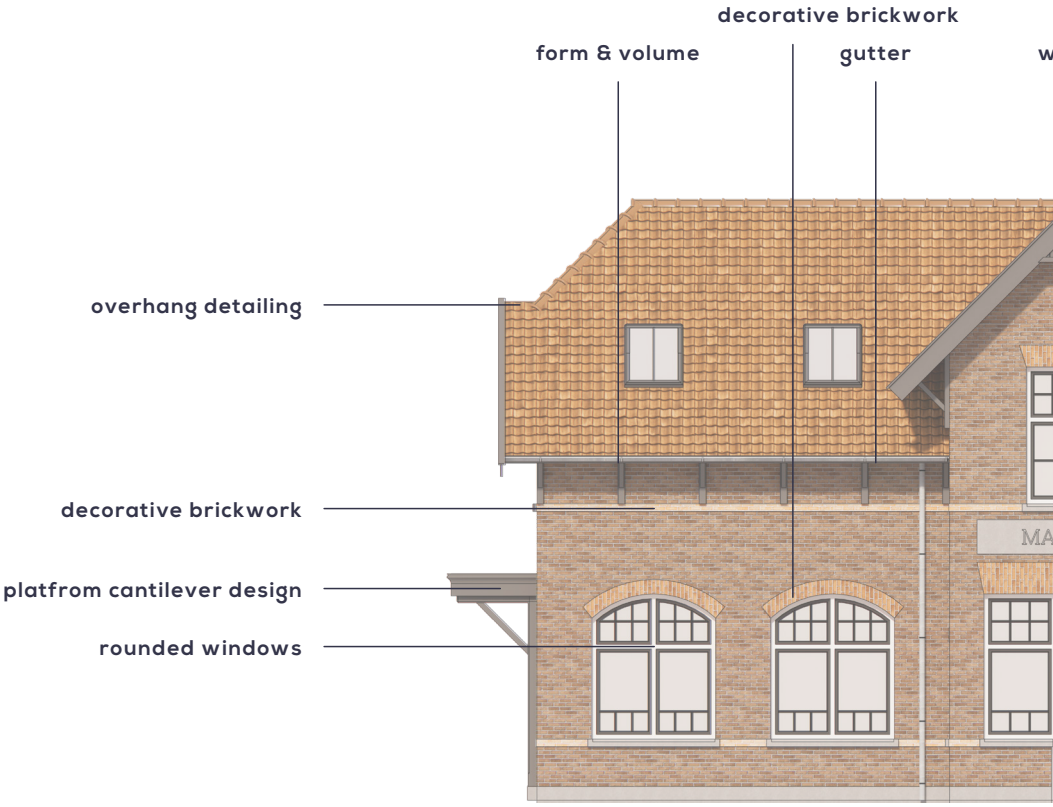

Schipluiden
Station


Poeldijk — Station der W. S. M.


MAASLANDSE DAM

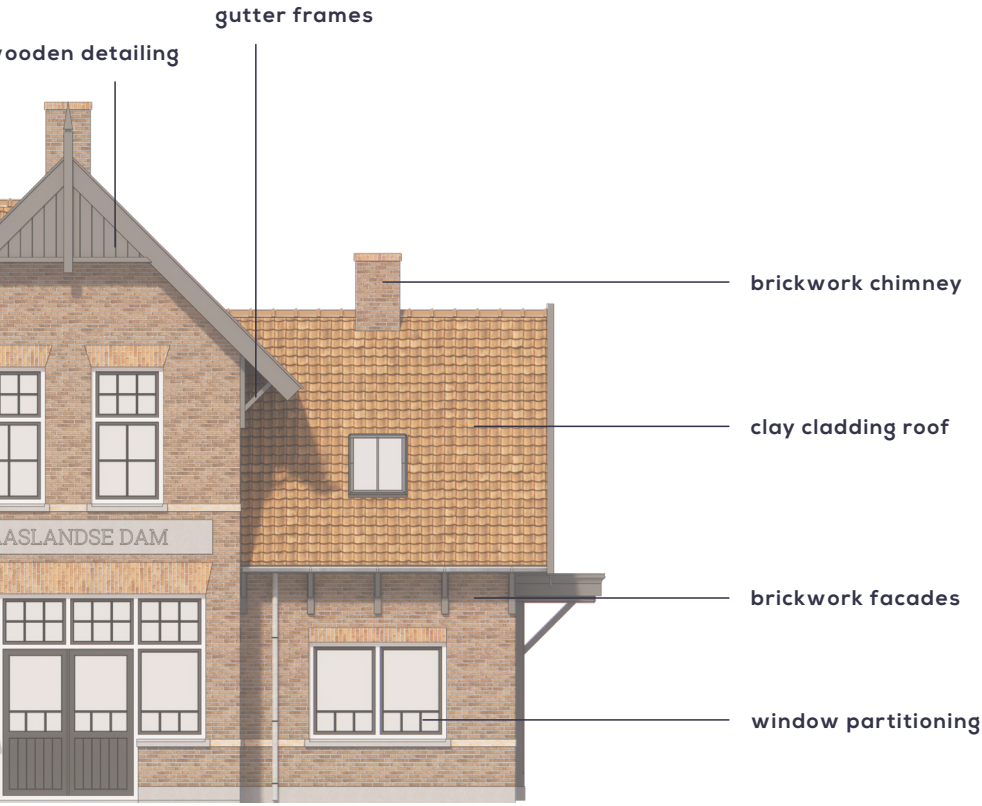
A key question that emerges from the research is: what exactly gives these buildings their distinctive character? Undoubtedly, they possess a strong sense of identity. A close examination of the architecture reveals that this character results from a combination of various elements. The diagram below identifies these contributing components.

As highlighted in Chapter 1, Section E – Craftsmanship, character is often derived from the quality of workmanship. This insight can be directly applied to the architectural elements distilled from the historic WSM station buildings.



All of the identified elements were crafted by skilled artisans, executed with care, expertise, and attention to detail. This dedication to craftsmanship is the very essence of the character that continues to resonate today.

This understanding provides a compelling rationale for integrating these principles into the design process, as will be explored further in Chapter 3.



chapter 03

TU Delft

studio design assignment

Urban Design

The previous two chapters have laid the foundation for the urban design proposal. First, the research phase led to the formulation of ten design principles. It is essential to determine which of these principles are applicable to the urban design phase. The conclusion of this analytical phase, presented on the following page, summarizes which elements have been incorporated to ensure that the design is coherent, comprehensive, and contextually appropriate.

The various spatial structures, informational components, and architectural strategies derived from the previous chapters have been integrated into the plan in a carefully considered manner. This section will elaborate on these distinct subcomponents, highlighting the key values associated with each area.

Finally, a conclusion will be drawn regarding the next phase of the process: which specific part will be further developed through architectural design?

unified proposition for contemporary design principles

figure 06 · overview unified proposition for contemporary design principles

temporal continuity & evolution

principle

Architecture should embody a dialogue between past, present, and future, maintaining a layered historical engagement, adding advancements.

design approach

Integrate historical architectural motifs and material techniques with contemporary design language, allowing buildings to evolve as a living continuum of history and innovation.

balanced complexity & simplicity

principle

Design should harmonize intricate traditional detailing with modern minimalism to create depth and visual balance.

design approach

Utilize ornamentation and symbolic elements in a restrained manner, allowing craftsmanship to coexist with clean lines and functional clarity.

symbolism & functional expression

principle

Architectural design should communicate cultural narratives while maintaining purpose-driven functionality.

design approach

Incorporate historical references and symbolic elements into the form, spatial organization, or façade treatment without compromising the efficiency and adaptability of spaces.

human-centric & community-oriented

principle

Architecture should prioritize human experience, fostering spaces that encourage social interaction, inclusivity, and well-being.

design approach

Design pedestrian-friendly environments, mixed-use spaces, and adaptable interiors that promote community engagement while ensuring accessibility and comfort.

flexibility & longevity

principle

Architecture should be adaptable to future changes, ensuring longevity without losing its connection to historical and cultural identity.

design approach

Design open, modular spaces that can evolve while maintaining core architectural values, allowing buildings to accommodate shifting functional demands over time.

sustainable synergy with nature

principle

Built environments should harmonize with natural surroundings, combining ecological responsibility with aesthetic and functional excellence.

design approach

Use biophilic design, passive cooling, green roofs, and natural ventilation while integrating traditional site-planning principles that respect the landscape.

contextual harmony & environmental integration

principle

Architecture should respond to its physical, cultural, and social context, seamlessly blending with its surroundings while utilizing contemporary sustainability practices.

design approach

Use regionally inspired forms and materials while integrating passive design strategies, sustainable energy systems, and climate-responsive solutions.

material authenticity & innovation

principle

A fusion of traditional craftsmanship and modern materials should create structures that respect heritage while embracing technological advancements.

design approach

Combine local materials like stone, wood, and brick with advanced materials such as glass, steel, and composites to achieve both authenticity and structural efficiency.

structurcal honesty & expressive form

principle

Exposed structures should celebrate both traditional craftsmanship and contemporary construction techniques, showcasing the beauty of both worlds.

design approach

Highlight raw materials, visible joinery, and expressive structural elements while integrating modern engineering solutions to create visually and functionally compelling spaces.

adaptive reinterpretation of tradition

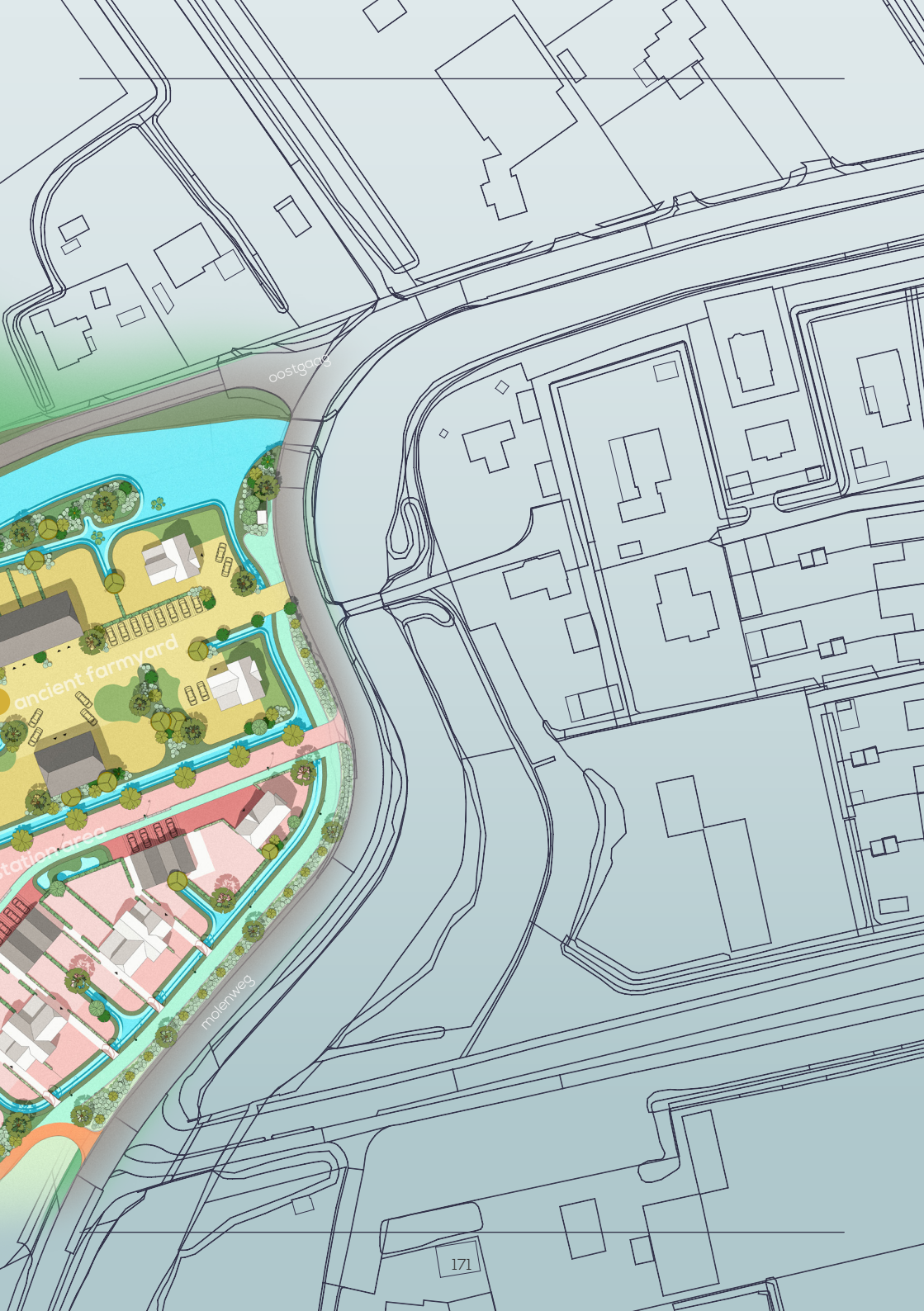
principle

Traditional architectural elements should be reinterpreted rather than replicated, ensuring cultural continuity in a modern form.

design approach

Abstract and modernize vernacular forms, proportions, and spatial arrangements while utilizing current design methodologies and technologies.


1
new farmyard
westgaag
2
natural court
3
4
5
public space


oostgaag
ancient farmyard
molenweg
171

1. New Farmyard

new design & preservation

design principles

connection to the historical farm structure

ridge direction in a fitting orientation

filling in the gap left in history

spacious plots, like typical farmyard

privacy focussed

references

2. Natural Court

new design & the linth

design principles

continuing the linth structure in a modern way

ridge orientation fitting

integrating nature

changing setbacks

room for varying architecture

less clear plot boundaries

natural water drainage

references




3. Ancient Farmyard

new design & preservation

design principles

connection to the historical farm structure

ridge direction in a fitting orientation

filling in the gap left in history

spacious plots, like typical farmyard

privacy focussed

references

4. Station Area

new design & adaptation

design principles

new orientation

adapting orientation of the existing road structure

all-sided volumes

entrepeneureal zone

privacy focussed

car-focussed,
but bike orientated

natural water drainage

references

5. Public Space

new design & adaptation

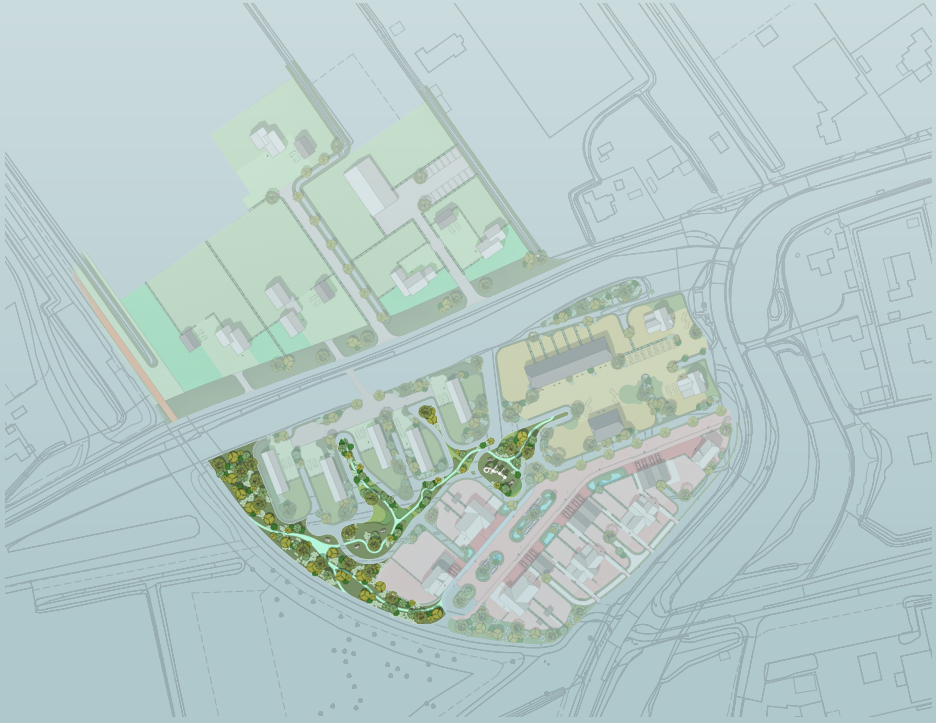
design principles

integrated nature

educational

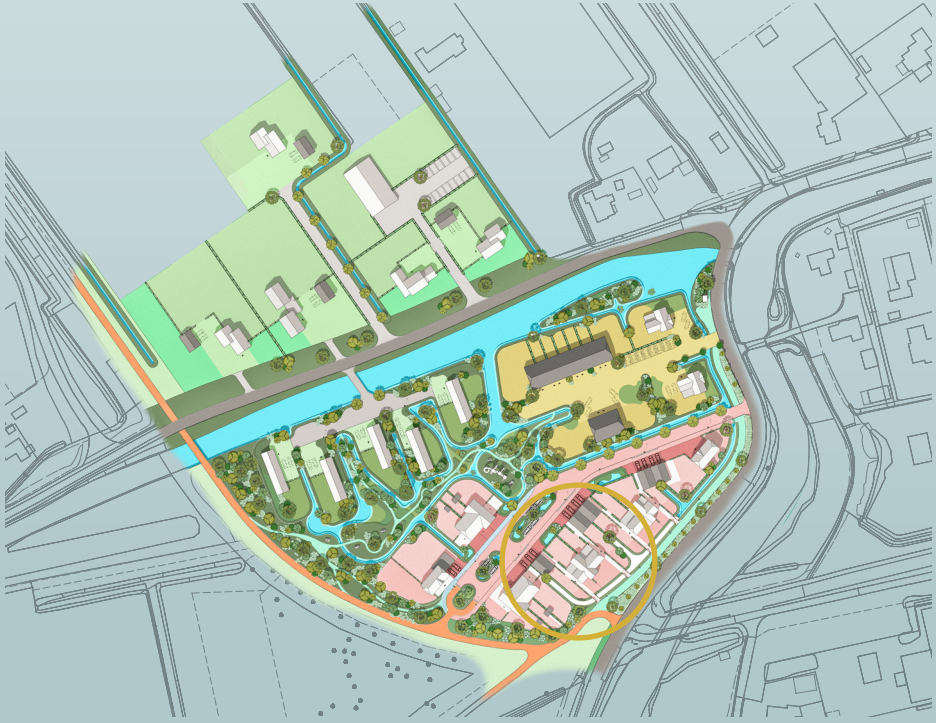
water-driven

connecting the different
theme areas



Architectural Focus

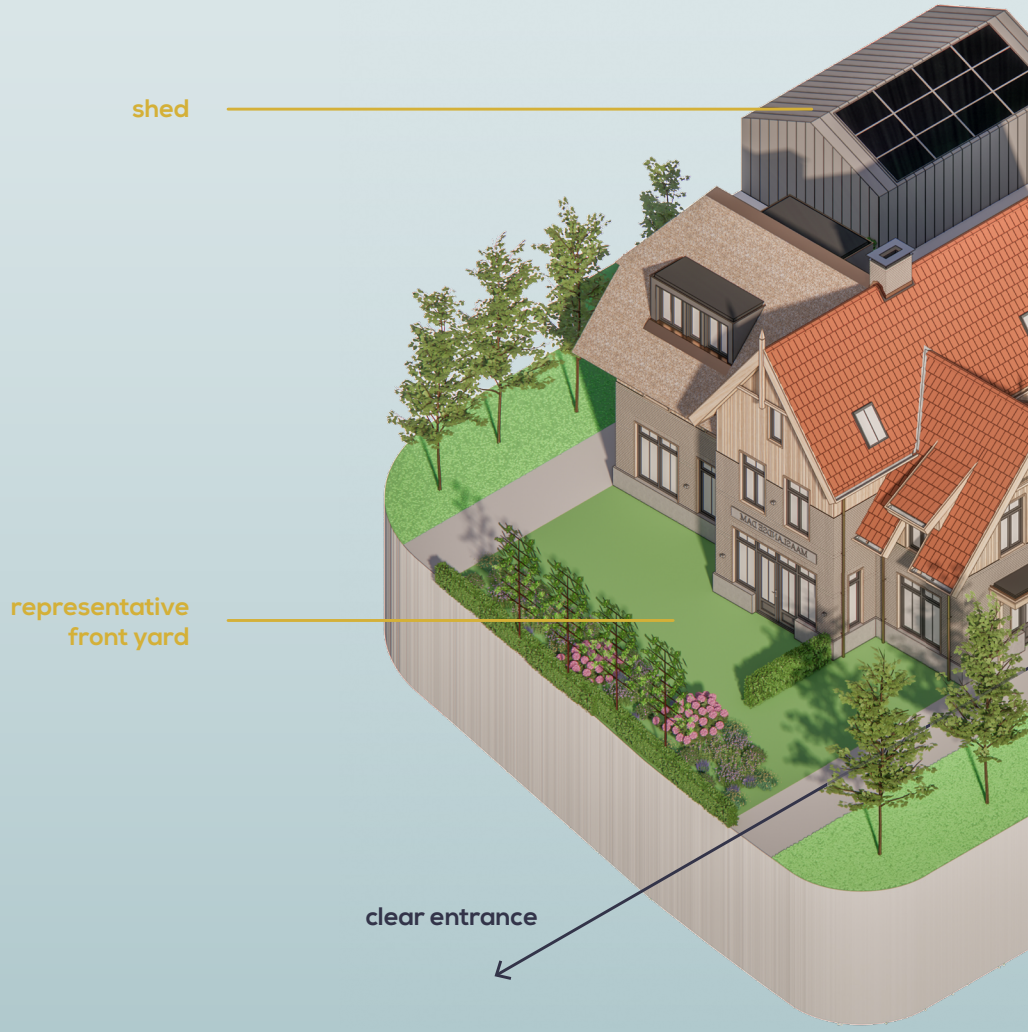
Within the urban design proposal, a deliberate decision was made to focus on a specific housing typology. The station area was selected as the focal point, with particular attention given to the development of semi-detached housing. This typology proved to be the most compelling for further elaboration, both in terms of conceptual vision and its alignment with the overall design principles and spatial objectives.

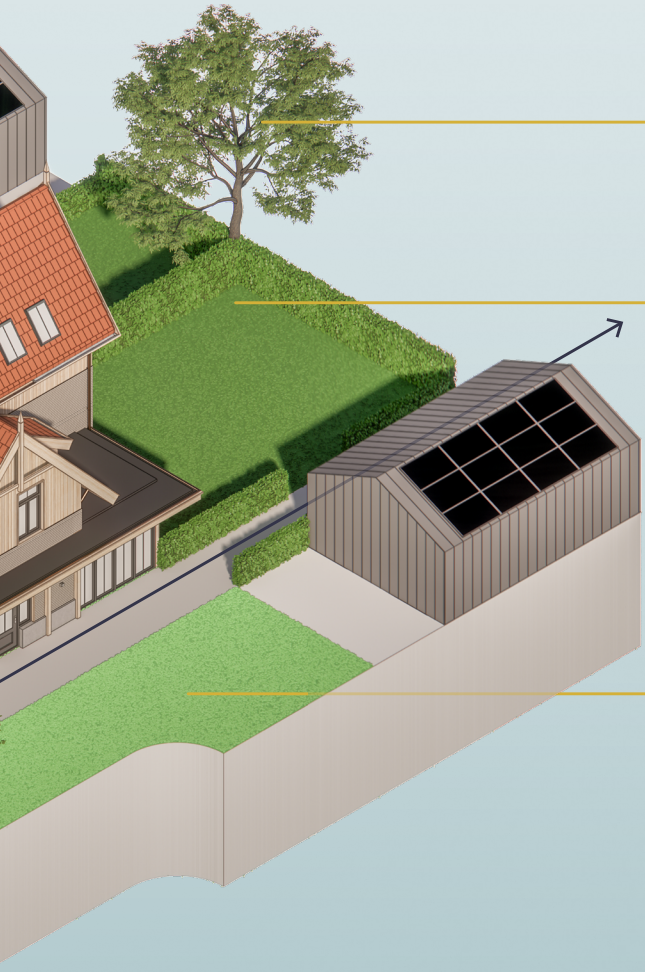


Plot Design

The urban design proposal zooms in on the station area, with a particular focus on the semi-detached housing typology. To establish a foundation for the architectural development of this area, it is essential to first examine the plot layout.

Chapter 2, Section H – Historical Farmyard Analysis, presents several key principles that inform the organization of plots. These principles also serve as the basis for the design of the semi-detached dwellings. This section illustrates how the plot design incorporates these core values into a coherent spatial framework.


shed
representative
front yard
clear entrance



central
tree

private, non-representative
back yard

functional
side yard

1 Sustainability Vision

Before delving into the architectural detailing, it is necessary to first zoom out and revisit the underlying principles that guide this project. These principles aim to align the design with both the core values of this studio and the broader challenges faced in contemporary architectural practice. Central to this is the question: how can housing be designed in a way that is truly sustainable, and how can we minimize its environmental impact?

This section presents my personal vision on this matter, a foundational framework that has informed all design and technical decisions throughout the project. Every choice made has been anchored in this vision, allowing it to flow consistently through the entire design process, from the initial concept to the final outcome.

Fundamentally, there are five core values that underpin the design. These are:

Adaptability:
The dwellings must be future-proof—not only in terms of aesthetic appearance but also in functional use. Every technical consideration has been evaluated with this aspect in mind, ensuring that the housing can respond effectively to evolving demands over time.

Minimal Material Use:
The design of the homes, as well as the overall masterplan, prioritizes minimizing material consumption. The challenge lies in optimizing the structural design to reduce material use across all dimensions without compromising performance.

Biobased Material Selection:
Materials are chosen based on their origin and ecological footprint. They should contribute positively to the environment both during production and throughout their lifecycle.

Demountability:
The use of responsibly sourced materials alone is insufficient. The design also ensures that each material can be disassembled and reused, promoting circularity in construction.

Vapor-Permeable Construction:
Creating a healthy and comfortable indoor climate is essential. A vapor-open building envelope is therefore a fundamental principle, allowing for natural moisture regulation.

Together, these five principles form the foundation of the overarching sustainability vision for the project:

REGENERATIVE ADAPTIBILITY

Architecture should not only reduce harm but actively regenerate its environment and remain relevant through time.

The design process embraces adaptability, material honesty, and circular thinking to create buildings that are **open to change**, **light in footprint**, and **rich in ecological value**.

Every design choice, from structure to skin, aims to **extend a building's lifespan**, **support material reuse**, and **foster a healthy indoor climate**. This approach does not treat sustainability as a technical add-on, but as an integral driver of form, function, and detail.

Architectural Design

All gathered information and insights from the previous chapters, as well as the first section of this chapter, have culminated in a final architectural design. The process begins by juxtaposing the initial design steps, highlighting the progression from historical vision to contemporary interpretation.

Subsequently, the analysis returns to the foundation of the research. The Unified Proposition for Contemporary Design Principles once again serves as the guiding framework, helping to identify which elements are specifically applicable to the architectural design phase. Based on these principles, this section presents the façade elevations, floor plans, and sectional drawings that embody the core values of the project.

Historical reference

The preceding research outlines the architectural references that have informed the design. In this initial phase, these references were adopted in a relatively literal manner in order to gain a clearer understanding of the defining elements that shape the character of the design. The architectural characteristics were then adapted to align with the spatial and volumetric requirements defined by the urban design framework.

south-east elevation

south-west elevation

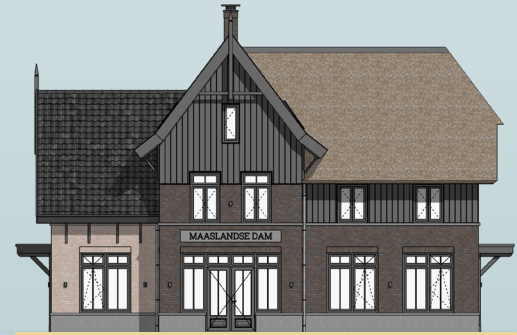
north-west elevation

north-east elevation

Initial Interpretation

As established in Chapter 1, reproducing historical architecture in its original form is no longer feasible within the context of contemporary construction practices. Therefore, it becomes essential to reinterpret these historical elements and translate them into a contemporary architectural language. The initial attempt at such a reinterpretation is presented below. In this version, traditional elements have been redesigned in a way that allows them to be realized using current materials and techniques.

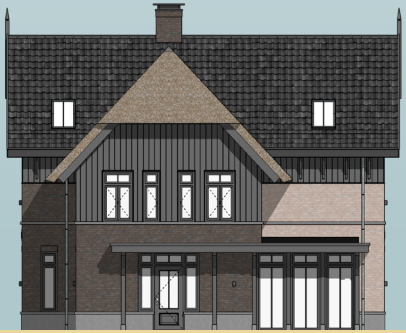
However, the resulting design still carries a distinctly classical appearance, which stands in contrast to the conclusions drawn in Chapter 1. In order to better align the architectural outcome with the research findings, a decision was made to further develop the design beyond this initial version, this time guided more explicitly by the principles outlined on the following page.



south-east elevation

south-west elevation

north-west elevation



north-east elevation

unified proposition for contemporary design principles

figure 06 · overview unified proposition for contemporary design principles

temporal continuity & evolution

principle

Architecture should embody a dialogue between past, present, and future, maintaining a layered historical engagement, adding advancements.

design approach

Integrate historical architectural motifs and material techniques with contemporary design language, allowing buildings to evolve as a living continuum of history and innovation.

balanced complexity & simplicity

principle

Design should harmonize intricate traditional detailing with modern minimalism to create depth and visual balance.

design approach

Utilize ornamentation and symbolic elements in a restrained manner, allowing craftsmanship to coexist with clean lines and functional clarity.

symbolism & functional expression

principle

Architectural design should communicate cultural narratives while maintaining purpose-driven functionality.

design approach

Incorporate historical references and symbolic elements into the form, spatial organization, or façade treatment without compromising the efficiency and adaptability of spaces.

human-centric & community-oriented

principle

Architecture should prioritize human experience, fostering spaces that encourage social interaction, inclusivity, and well-being.

design approach

Design pedestrian-friendly environments, mixed-use spaces, and adaptable interiors that promote community engagement while ensuring accessibility and comfort.

flexibility & longevity

principle

Architecture should be adaptable to future changes, ensuring longevity without losing its connection to historical and cultural identity.

design approach

Design open, modular spaces that can evolve while maintaining core architectural values, allowing buildings to accommodate shifting functional demands over time.

sustainable synergy with nature

principle

Built environments should harmonize with natural surroundings, combining ecological responsibility with aesthetic and functional excellence.

design approach

Use biophilic design, passive cooling, green roofs, and natural ventilation while integrating traditional site-planning principles that respect the landscape.

contextual harmony & environmental integration

principle

Architecture should respond to its physical, cultural, and social context, seamlessly blending with its surroundings while utilizing contemporary sustainability practices.

design approach

Use regionally inspired forms and materials while integrating passive design strategies, sustainable energy systems, and climate-responsive solutions.

material authenticity & innovation

principle

A fusion of traditional craftsmanship and modern materials should create structures that respect heritage while embracing technological advancements.

design approach

Combine local materials like stone, wood, and brick with advanced materials such as glass, steel, and composites to achieve both authenticity and structural efficiency.

structurcal honesty & expressive form

principle

Exposed structures should celebrate both traditional craftsmanship and contemporary construction techniques, showcasing the beauty of both worlds.

design approach

Highlight raw materials, visible joinery, and expressive structural elements while integrating modern engineering solutions to create visually and functionally compelling spaces.

adaptive reinterpretation of tradition

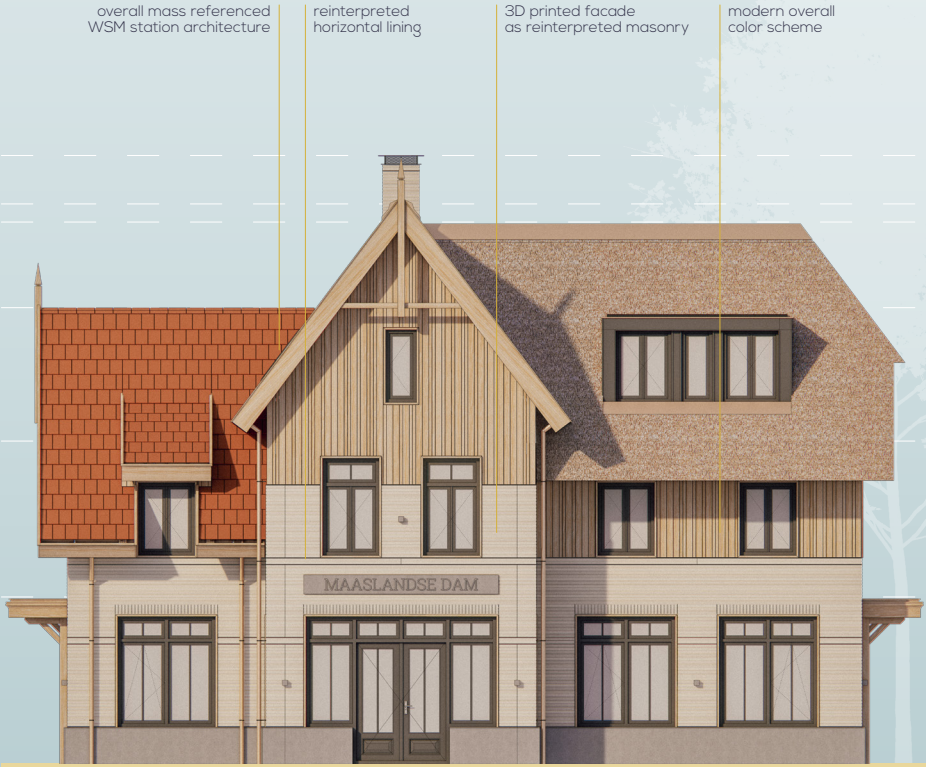
principle

Traditional architectural elements should be reinterpreted rather than replicated, ensuring cultural continuity in a modern form.

design approach

Abstract and modernize vernacular forms, proportions, and spatial arrangements while utilizing current design methodologies and technologies.

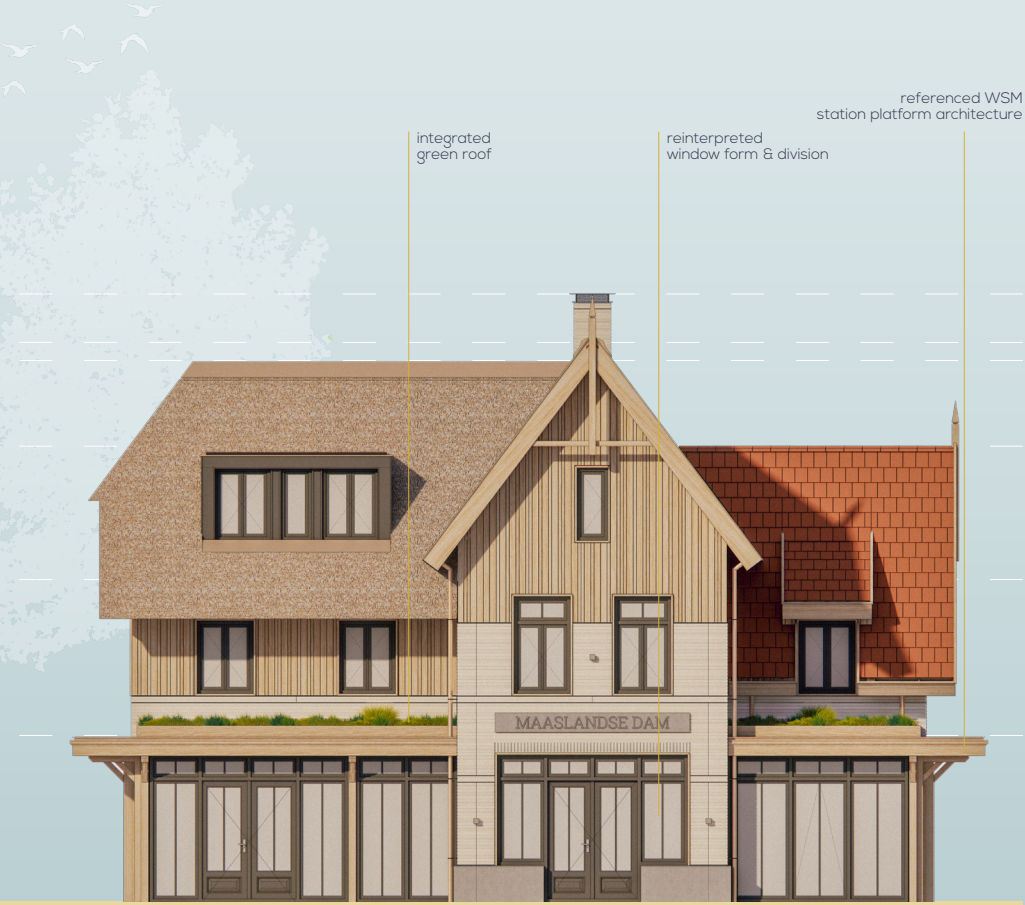
Elevations



south-east elevation

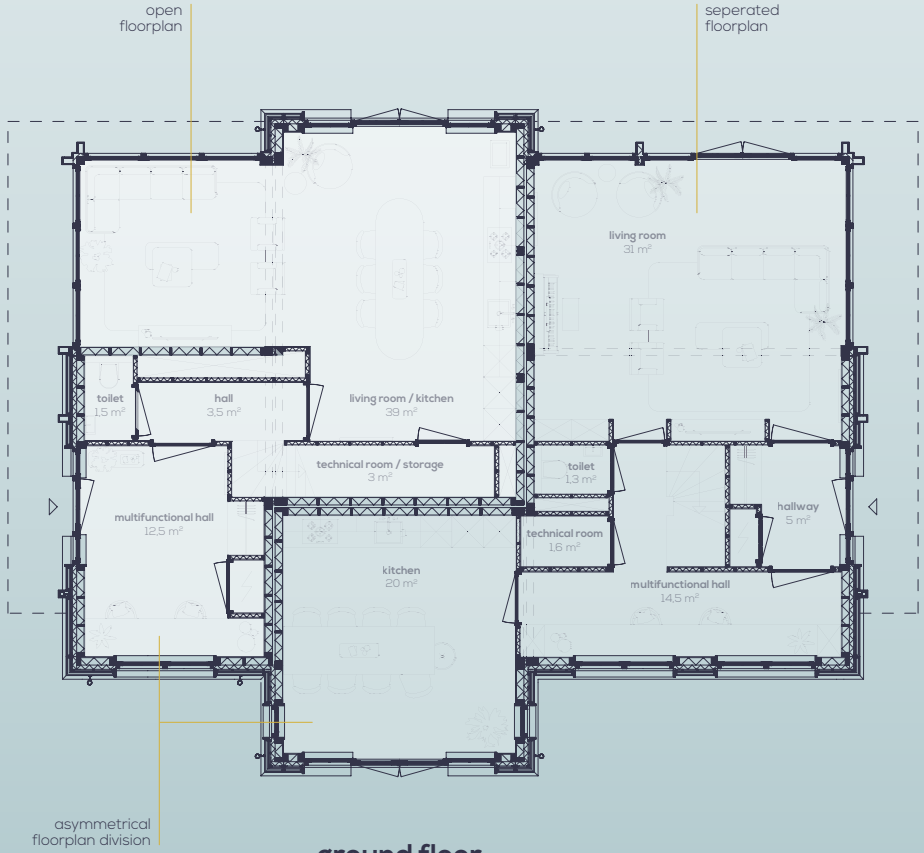
north-east elevation

south-west elevation



north-west elevation

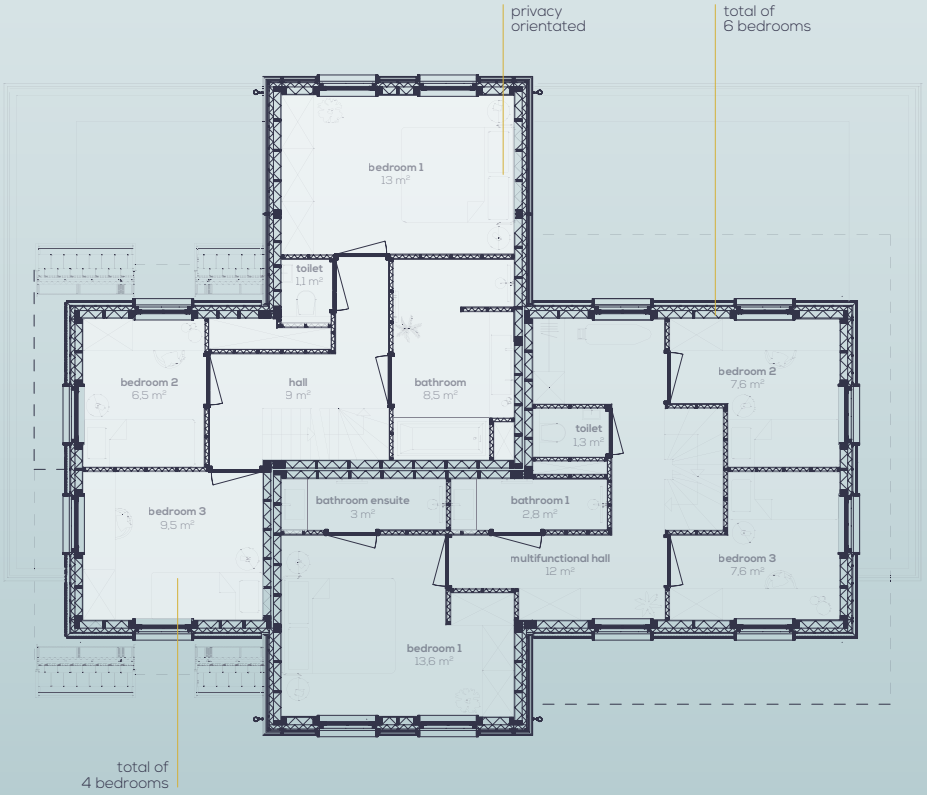
Floor Plans & Section



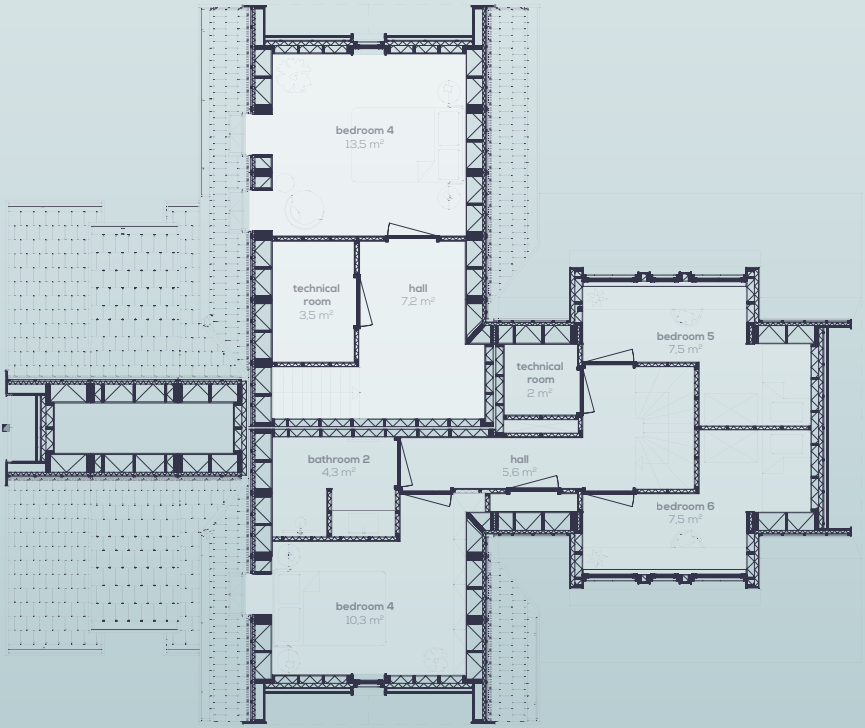
ground floor

dwelling A
212 m²
[gross area]
175 m²
[net area]

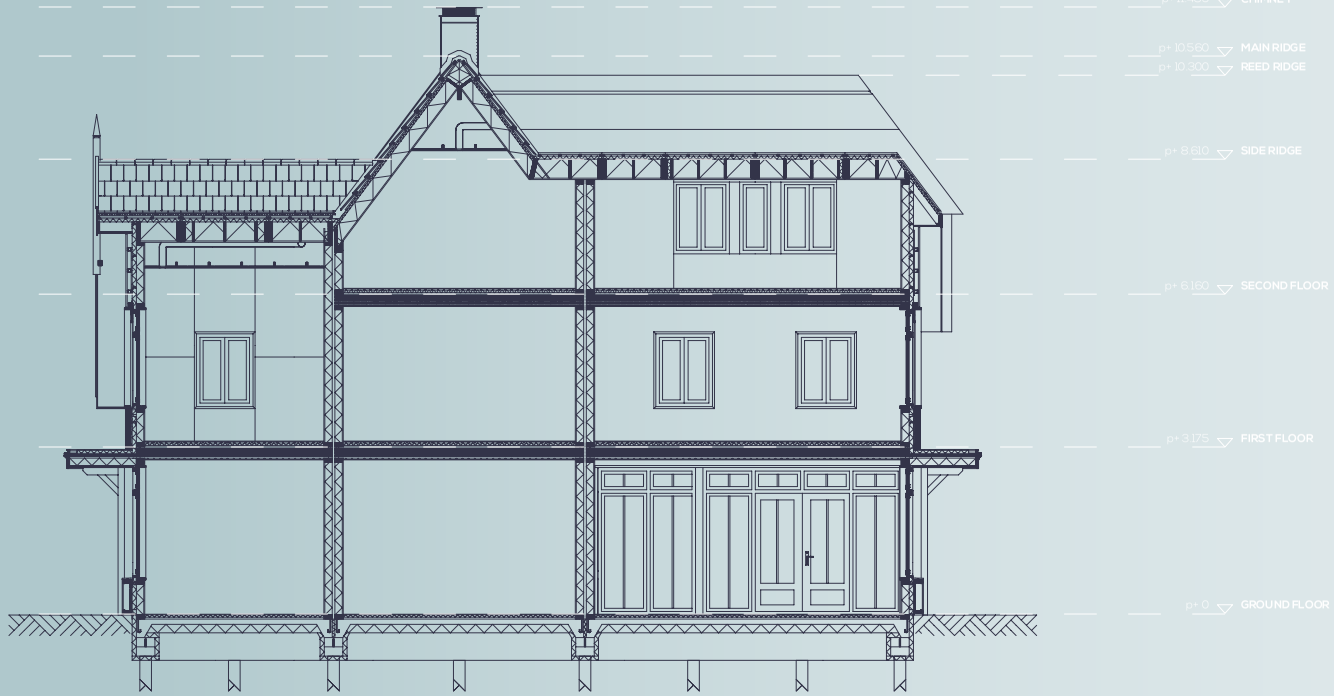
dwelling B
170 m²
[gross area]
140 m²
[net area]



first floor



second floor


p+ 11.485
CHIMNEY
p+ 10.560
MAIN RIDGE
p+ 10.300
REED RIDGE
p+ 8.610
SIDE RIDGE
p+ 6.160
SECOND FLOOR
p+ 3.175
FIRST FLOOR
p+ 0
GROUND FLOOR

Rendering 1

Rendering 2

n Technical Design

This entire document progresses from a broad, urban scale towards increasingly smaller scales, moving from the site plan to architectural design. This section, which also serves as the final part, focuses on the smallest scale addressed in this project—the detailed and technical development of the design. The preceding chapters, including the research, contextual analyses, and architectural design, have laid the foundational groundwork for this stage.

To establish a solid basis for this final phase, the analysis begins by revisiting the Unified Proposition for Contemporary Design Principles. From these principles, the specific elements applicable to the technical development are identified.

Subsequently, all design components are presented sequentially in order of relevance and integration.

unified proposition for contemporary design principles

figure 06 · overview unified proposition for contemporary design principles

temporal continuity & evolution

principle

Architecture should embody a dialogue between past, present, and future, maintaining a layered historical engagement, adding advancements.

design approach

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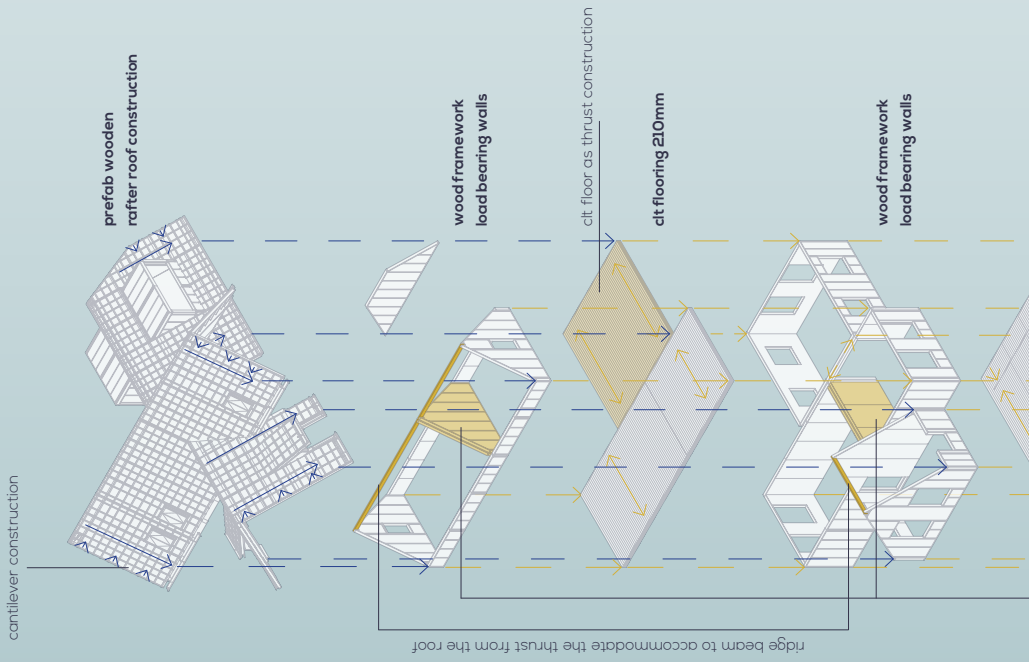
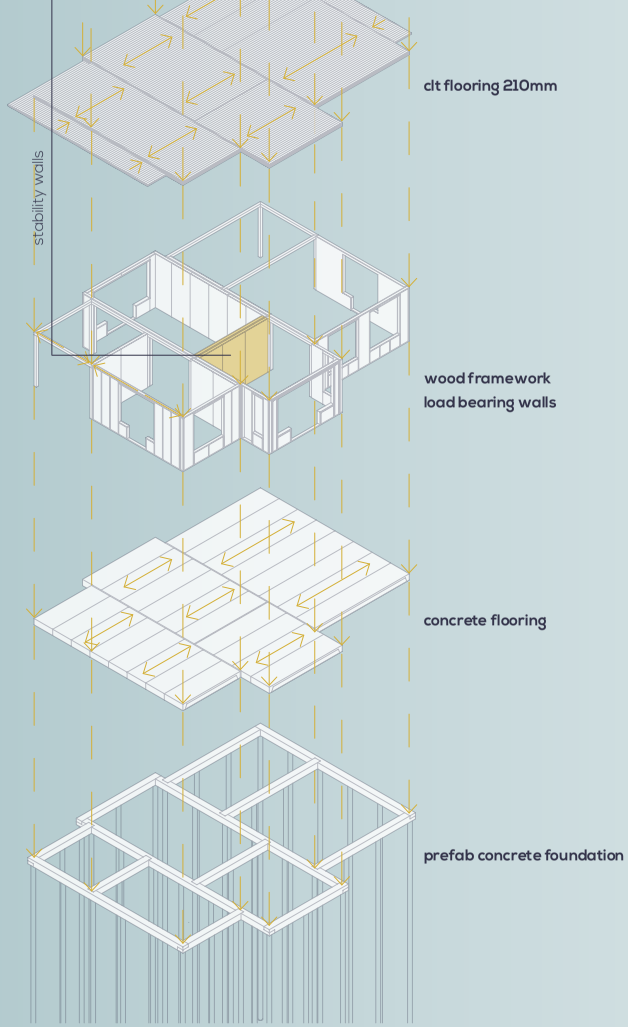
Structural Design

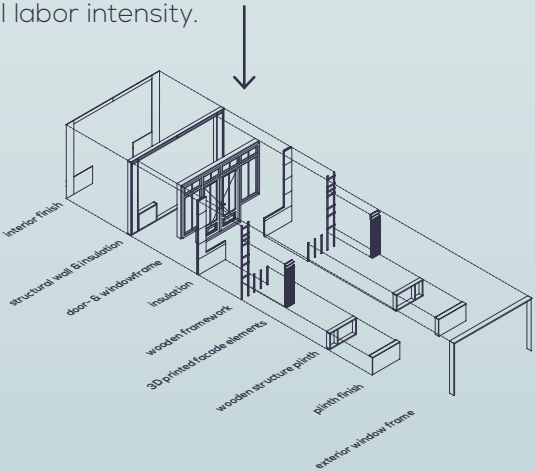


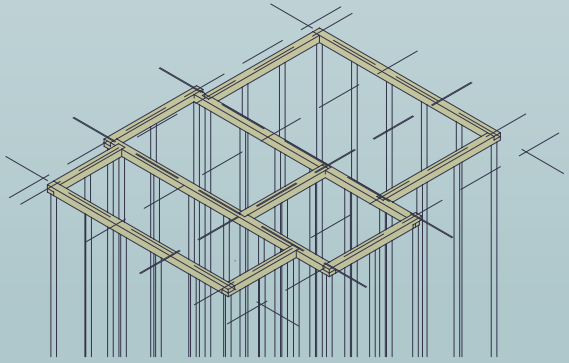

stability walls
clt flooring 210mm
wood framework
load bearing walls
concrete flooring
prefab concrete foundation

Building Sequence

The applied modern craftsmanship is clearly reflected in the construction sequence. Throughout the entire process, there has been a strong focus on extensive prefabrication, shifting as much work as possible to the factory setting. Prefabricated foundations, floor components, façade elements, and interior walls are delivered as modular puzzle pieces, which are then assembled on-site with minimal labor intensity.

This approach enables extensive digital preparation and high-detail fabrication in the factory environment. Consequently, the time- and labor-intensive tasks required on-site are significantly reduced, as demonstrated in steps 9 to 11. It should be noted that this constitutes only a small portion of the overall construction process.





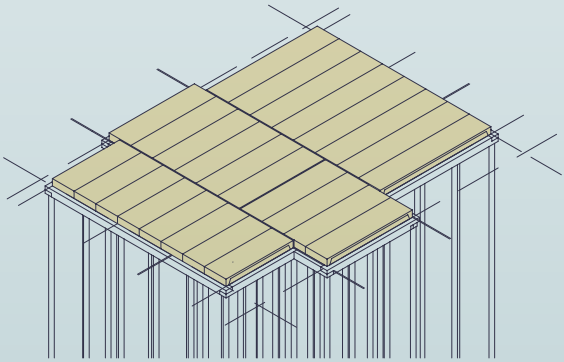
1

prefab

prefab concrete foundation

2

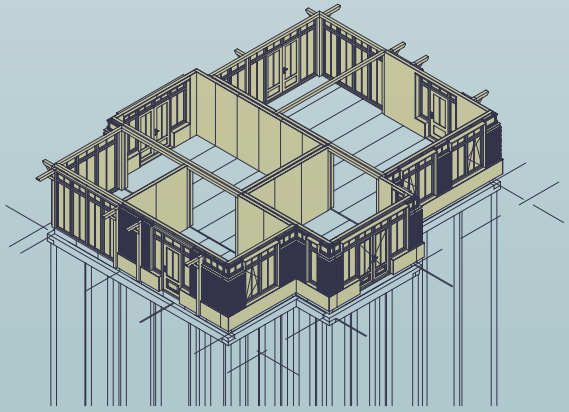
prefab



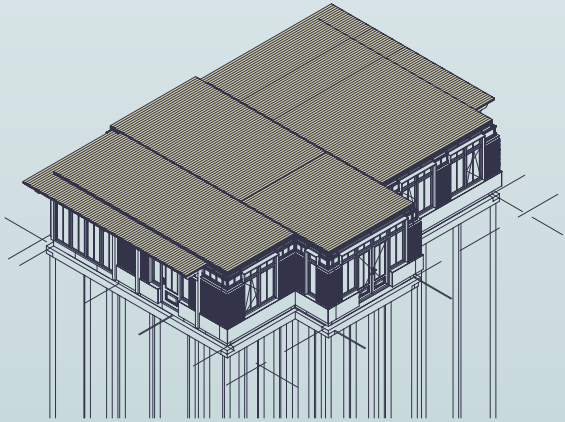
concrete flooring

3

prefab



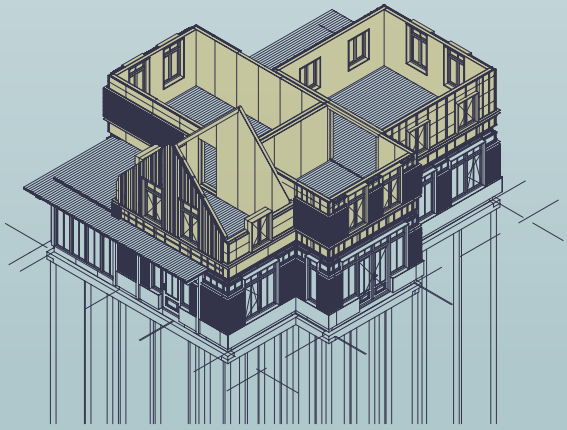
prefab wooden framing ground floor



4

prefab

CLT flooring



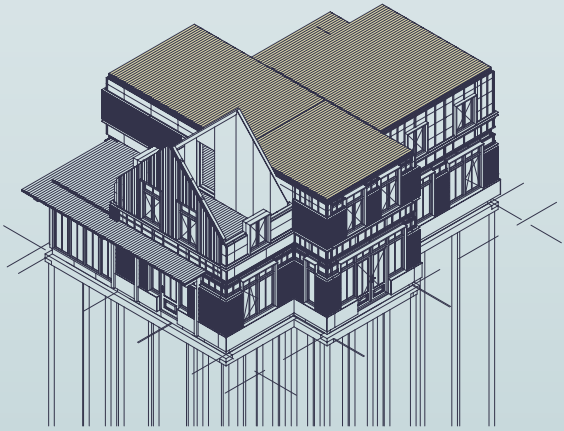
5

prefab

prefab wooden framing first floor

6

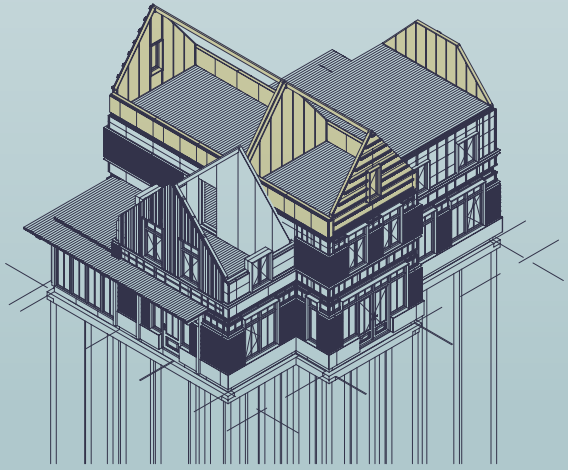
prefab



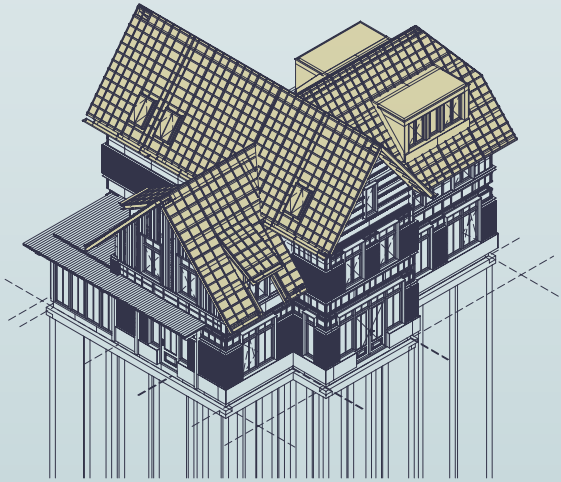
CLT flooring

7

prefab



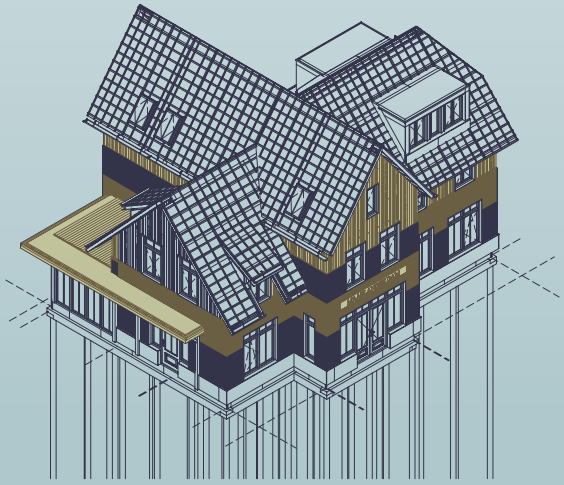
prefab wooden framing second floor



8

prefab

prefab wooden roof construction



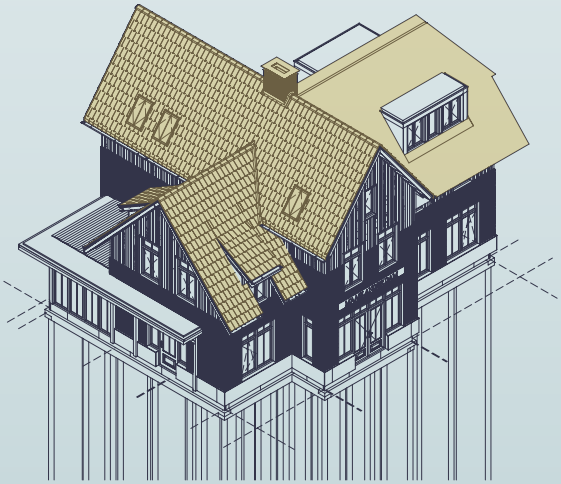
9

on-site

facade finishing

10

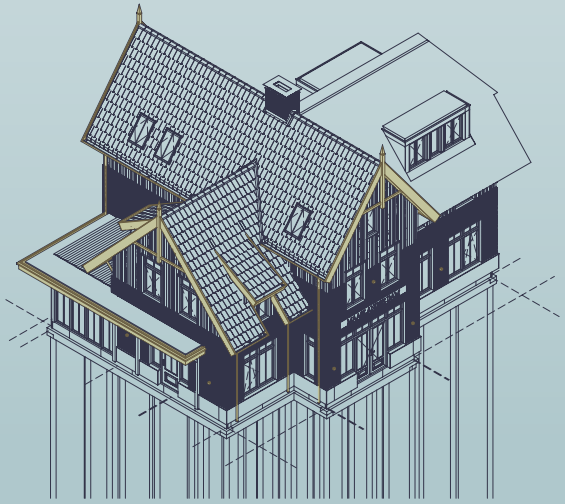
on-site



roofing materials

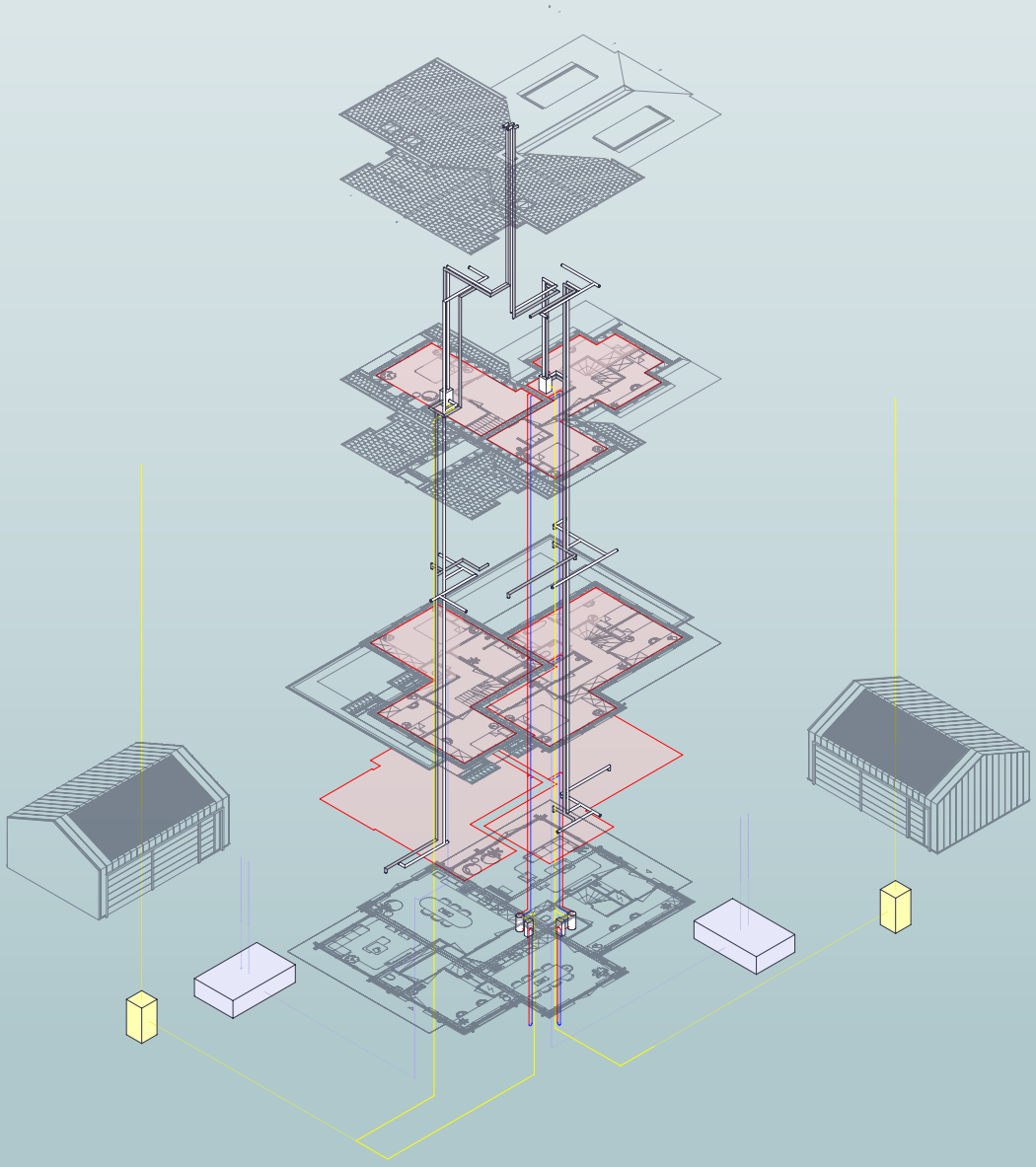
11

on-site



finishing & detailing

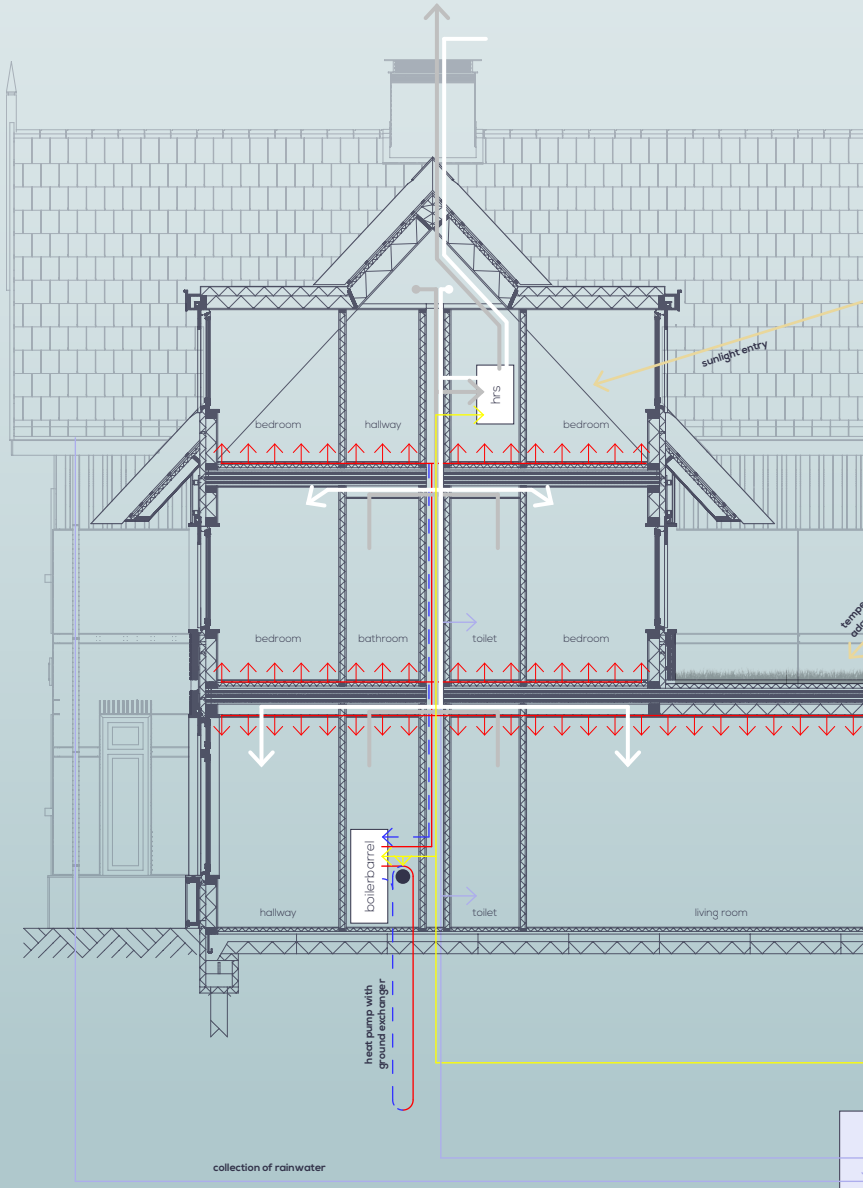
Climate Design



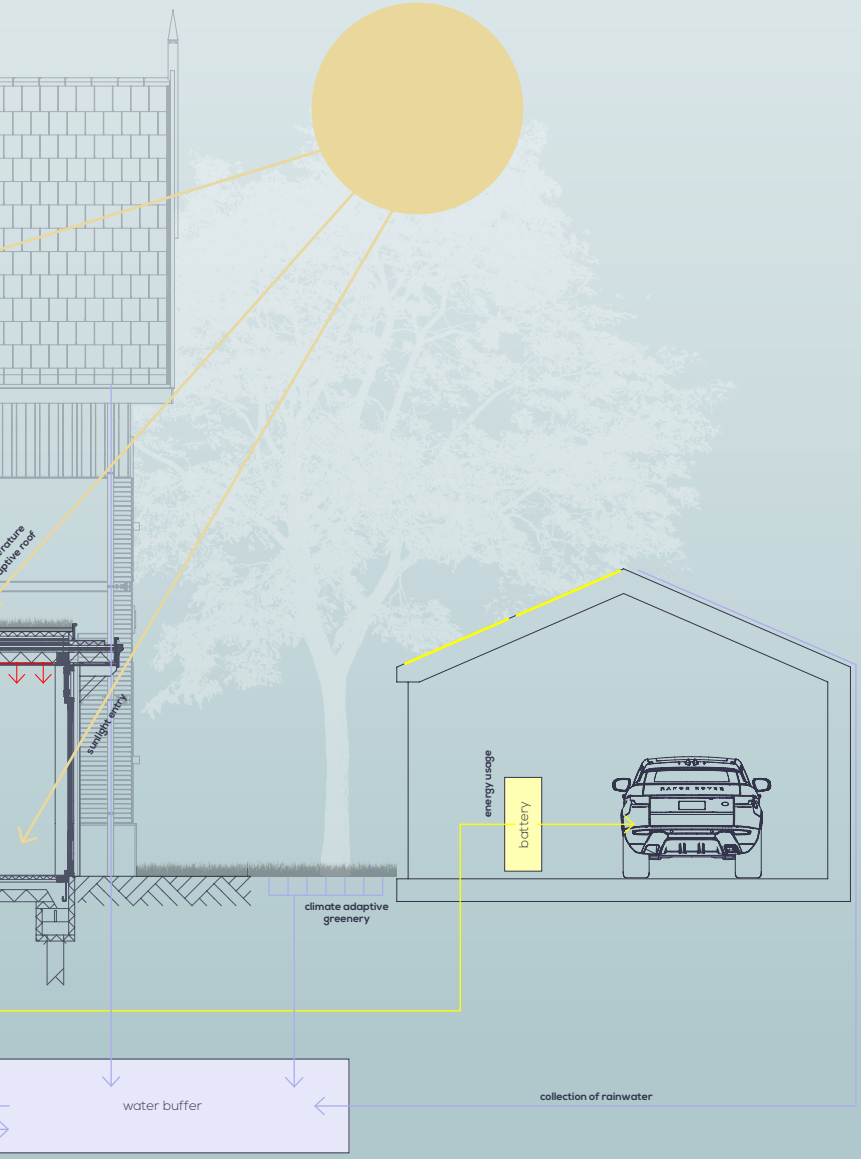
VENTILATION REQUIREMENT PER LIVING SPACE

	DWELLING A					DWELLING B			
	function	surface	dm³/s	m³/h		function	surface	dm³/s	m³/h
0	multifunctional hallway	14,5 m²	10,15	36,54	0	multifunctional hallway	12,5 m²	8,75	31,5
	living room	31 m²	21,7	78,12		living room & kitchen	39 m²	27,3	98,28
	kitchen	20 m²	14	50,4					
1	multifunctional hallway	12 m²	8,4	30,24	1	bedroom 1	13 m²	9,1	32,7
	bedroom 1	13,6 m²	9,52	34,27		bedroom 2	6,5 m²	7 [min.]	25,2
	bedroom 2	7,6 m²	7 [min.]	25,2		bedroom 3	9,5 m²	7 [min.]	25,2
	bedroom 3	7,6 m²	7 [min.]	25,2					
2	bedroom 4	10,3 m²	7,21	25,96	2	bedroom 4	18,5 m²	9,45	34,02
	bedroom 5	7,5 m²	7 [min.]	25,2					
	bedroom 6	7,5 m²	7 [min.]	25,2					

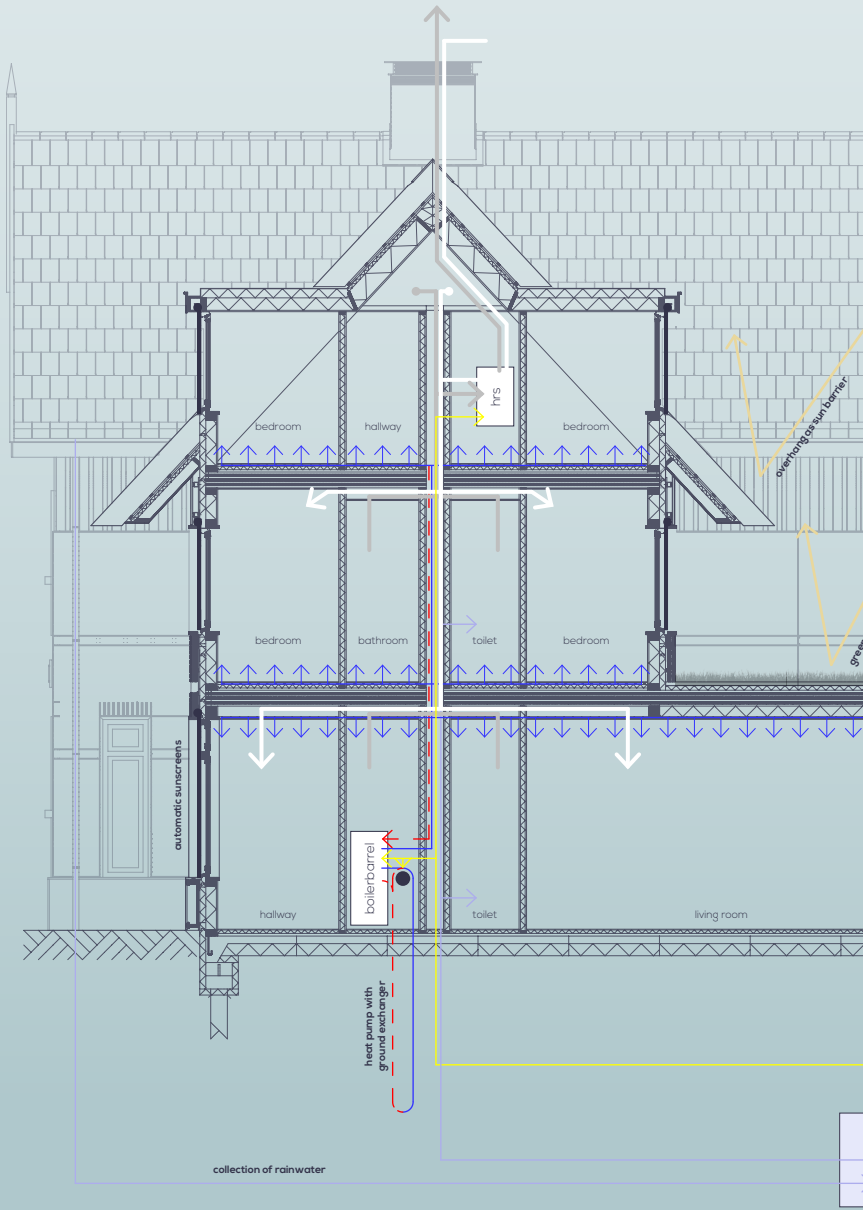
winter situ


sunlight entry
hrs
bedroom
hallway
bedroom
bedroom
bathroom
toilet
bedroom
boilerbarrel
hallway
toilet
living room
heat pump with ground exchanger
collection of rainwater

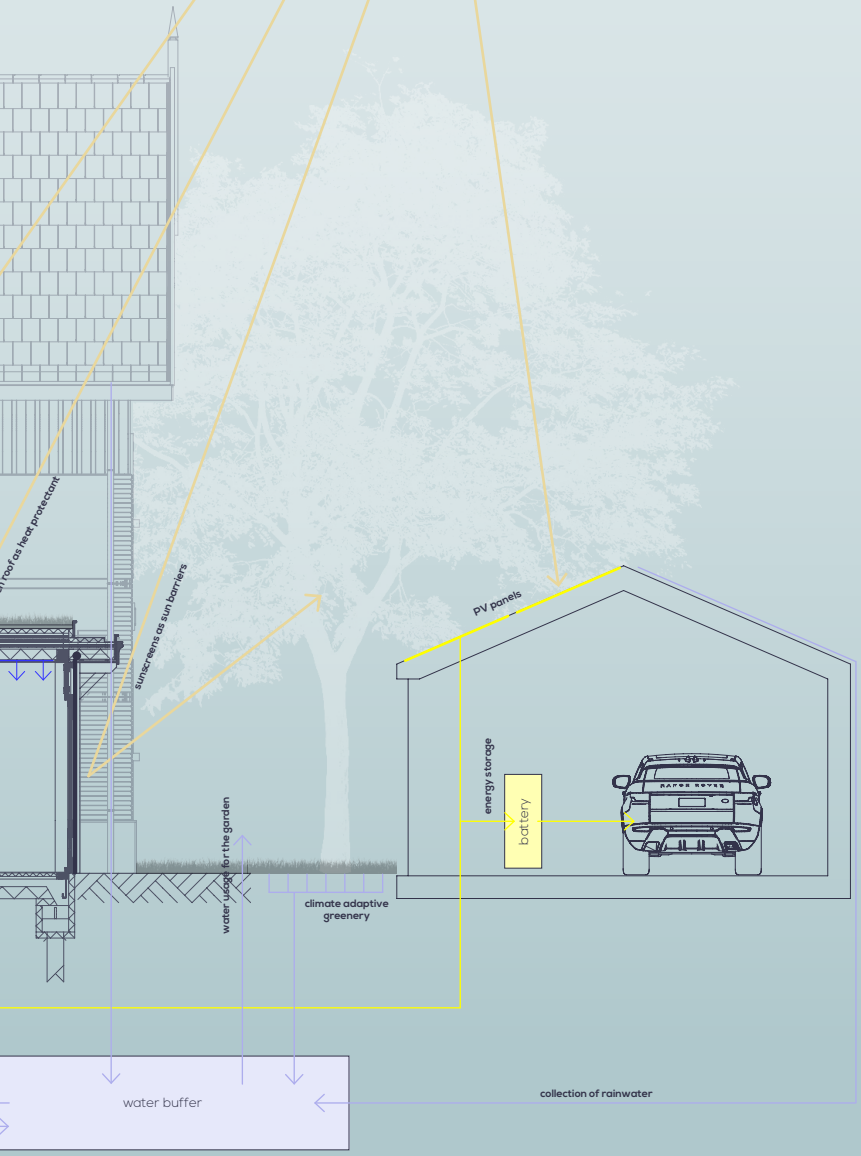
ation


sunlight entry
energy usage
battery
climate adaptive
greenery
water buffer
collection of rainwater

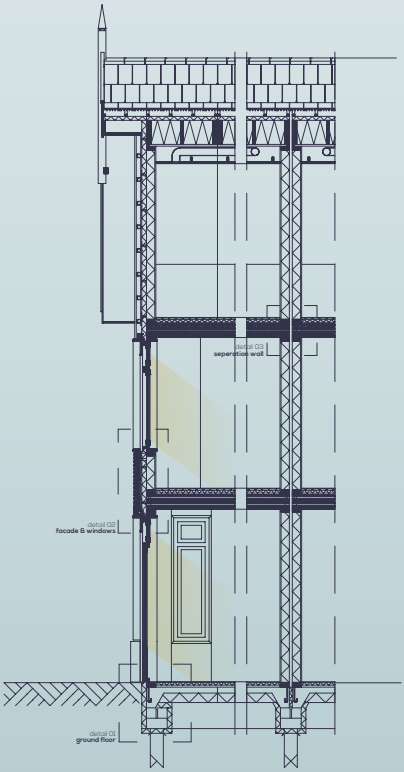
summer situ


bedroom
hallway
hrs
bedroom
overhanging as sun barrier
bedroom
bathroom
toilet
bedroom
automatic sunscreens
boilerbarrel
hallway
toilet
living room
heat pump with ground exchanger
collection of rainwater

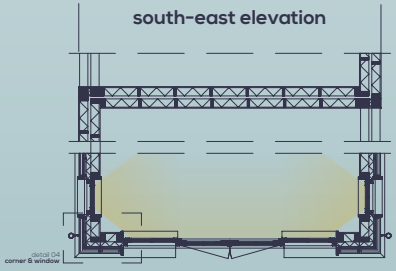
ation


roof as heat protectant
sunscreens as sun barriers
PV panels
energy storage
battery
water supply for the garden
climate adaptive greenery
water buffer
collection of rainwater

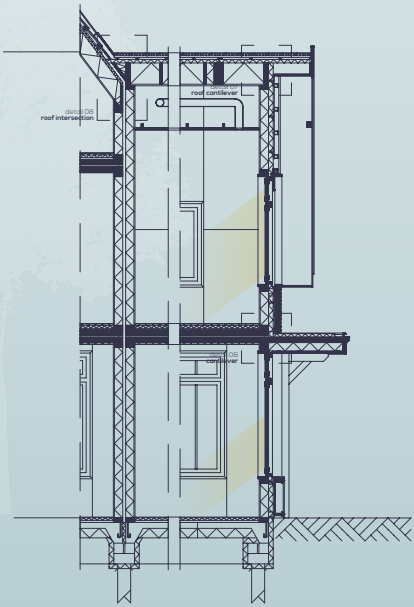
Fragment Design

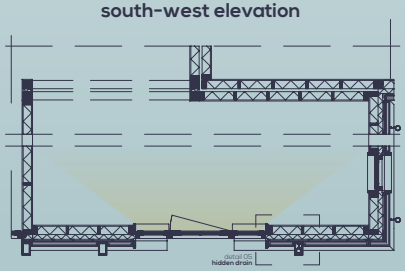


south-east elevation



south-west elevation

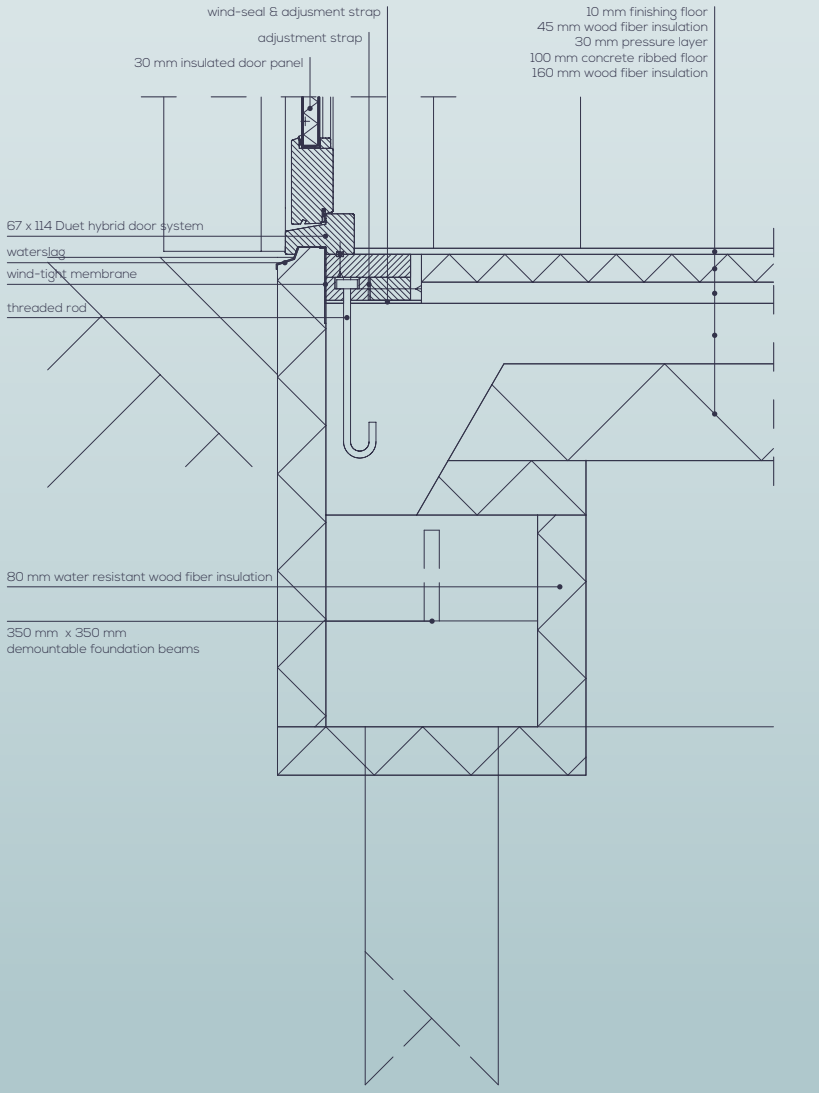




Detailed drawings

DETAIL 01

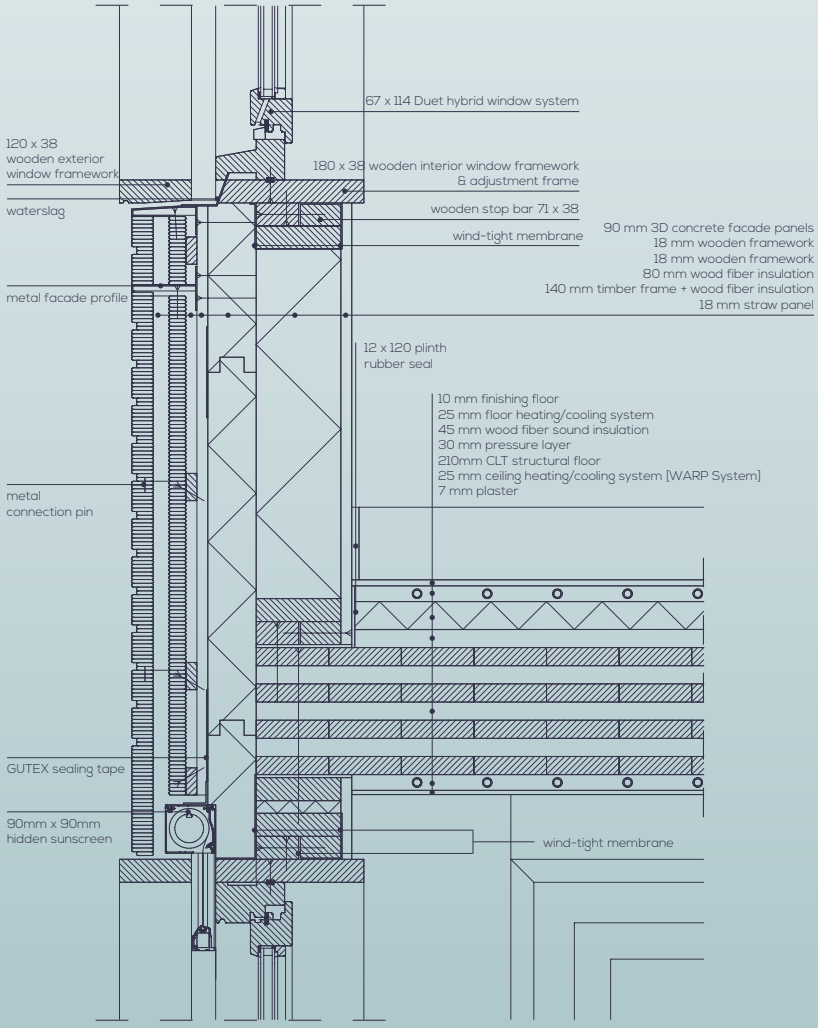
1:5



ground floor

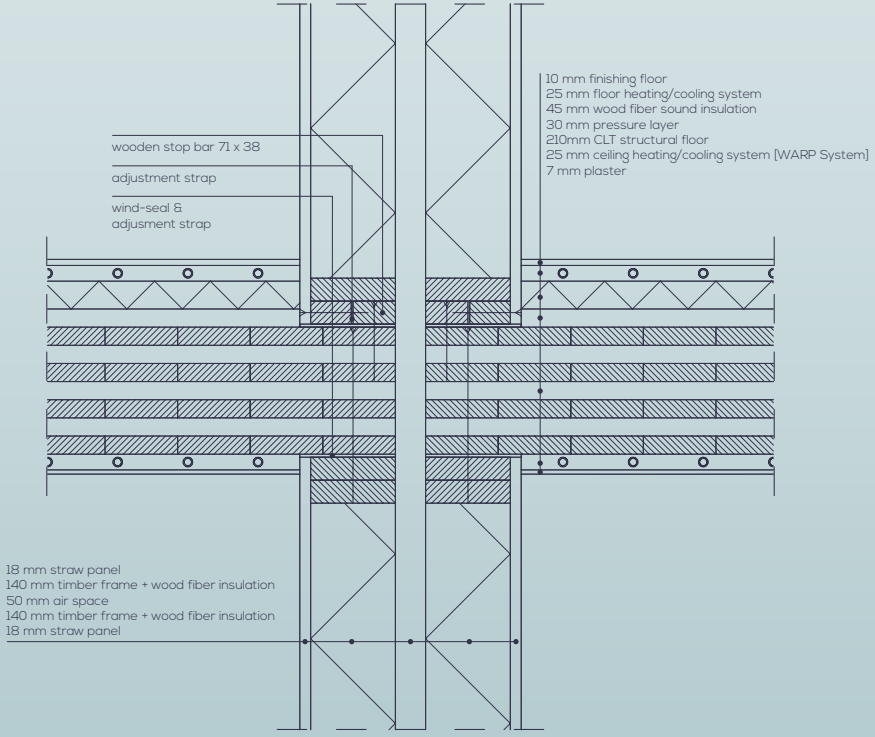
DETAIL 02

1:5


67 x 114 Duet hybrid window system
120 x 38
wooden exterior
window framework
180 x 38 wooden interior window framework
& adjustment frame
waterslag
wooden stop bar 71 x 38
wind-tight membrane
90 mm 3D concrete facade panels
18 mm wooden framework
18 mm wooden framework
80 mm wood fiber insulation
140 mm timber frame + wood fiber insulation
18 mm straw panel
metal facade profile
12 x 120 plinth
rubber seal
10 mm finishing floor
25 mm floor heating/cooling system
45 mm wood fiber sound insulation
30 mm pressure layer
210mm CLT structural floor
25 mm ceiling heating/cooling system [WARP System]
7 mm plaster
metal
connection pin
GUTEX sealing tape
90mm x 90mm
hidden sunscreen
wind-tight membrane

DETAIL 03

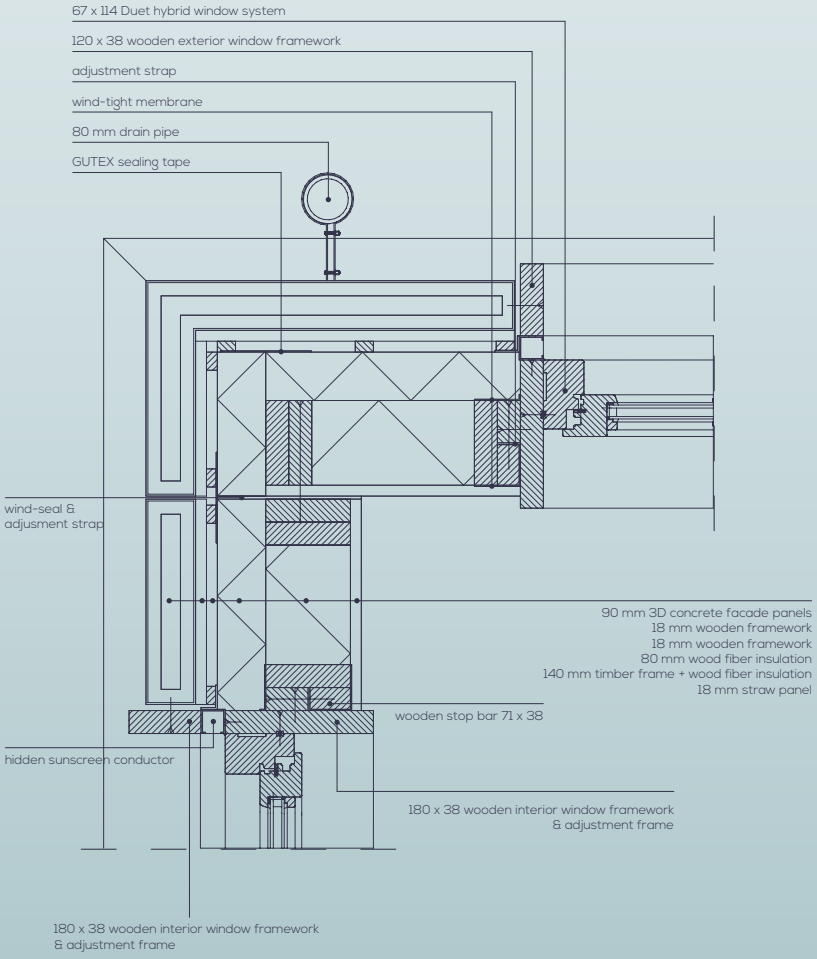
1:5



seperation wall

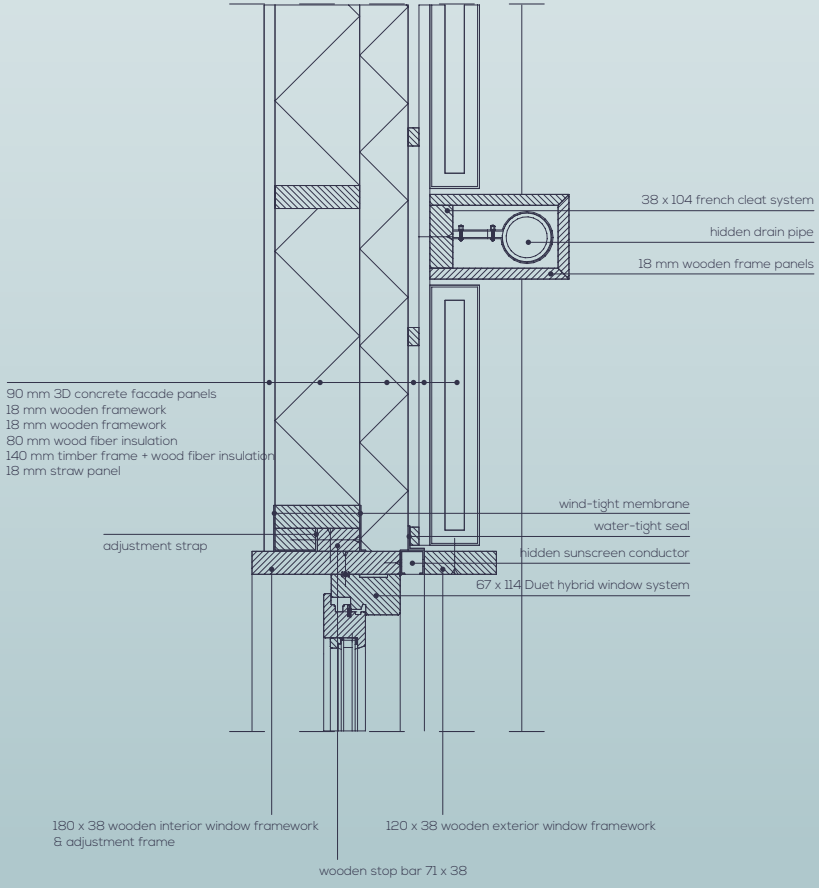
DETAIL 04

1:5


67 x 114 Duet hybrid window system
120 x 38 wooden exterior window framework
adjustment strap
wind-tight membrane
80 mm drain pipe
GUTEX sealing tape
wind-seal &
adjusment strap
90 mm 3D concrete facade panels
18 mm wooden framework
18 mm wooden framework
80 mm wood fiber insulation
140 mm timber frame + wood fiber insulation
18 mm straw panel
wooden stop bar 71 x 38
hidden sunscreen conductor
180 x 38 wooden interior window framework
& adjustment frame
180 x 38 wooden interior window framework
& adjustment frame

DETAIL 05

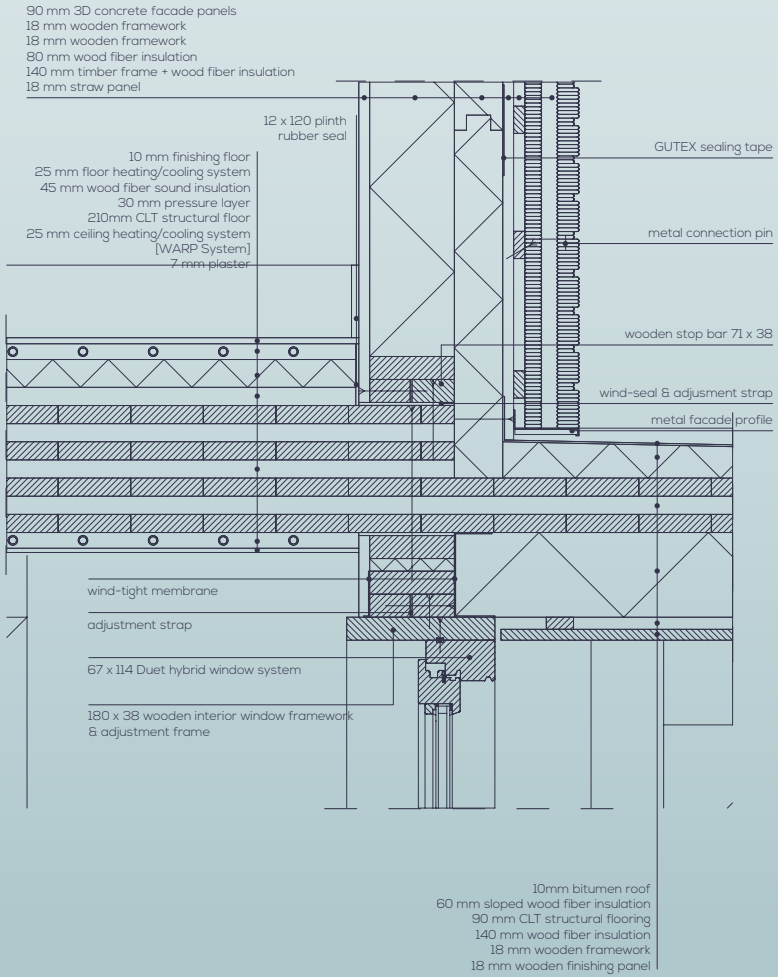
1:5



hidden drain

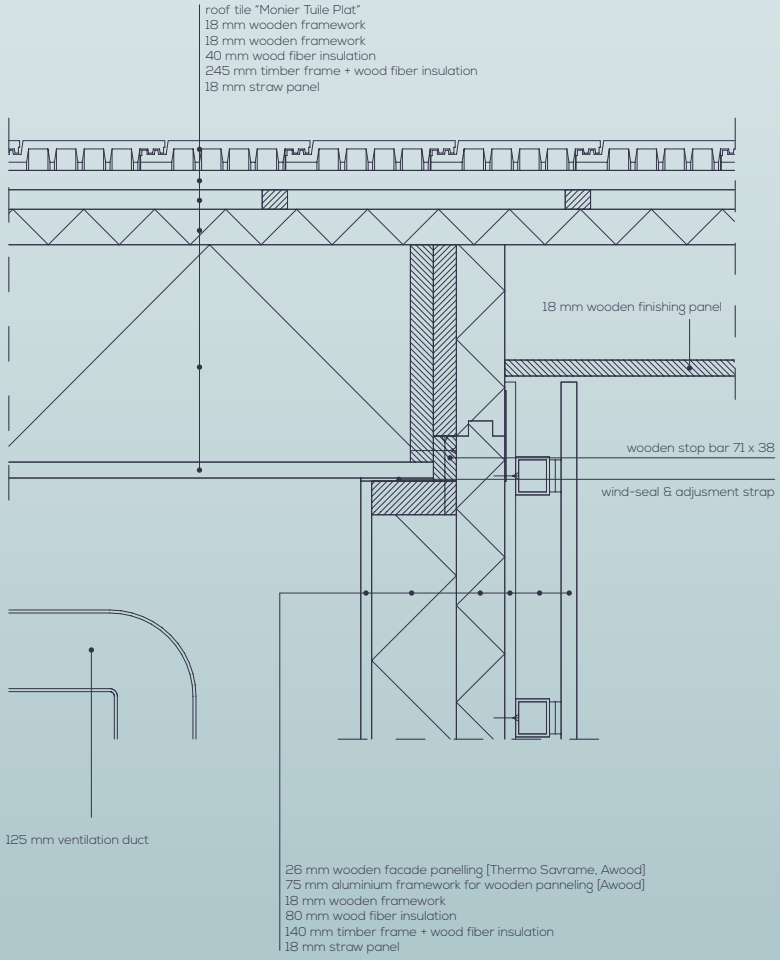
DETAIL 06

1:5


90 mm 3D concrete facade panels
18 mm wooden framework
18 mm wooden framework
80 mm wood fiber insulation
140 mm timber frame + wood fiber insulation
18 mm straw panel
12 x 120 plinth
rubber seal
10 mm finishing floor
25 mm floor heating/cooling system
45 mm wood fiber sound insulation
30 mm pressure layer
210mm CLT structural floor
25 mm ceiling heating/cooling system
[WARP System]
7 mm plaster
GUTEX sealing tape
metal connection pin
wooden stop bar 71 x 38
wind-seal & adjusment strap
metal facade profile
wind-tight membrane
adjustment strap
67 x 114 Duet hybrid window system
180 x 38 wooden interior window framework
& adjustment frame
10mm bitumen roof
60 mm sloped wood fiber insulation
90 mm CLT structural flooring
140 mm wood fiber insulation
18 mm wooden framework
18 mm wooden finishing panel

DETAIL 07

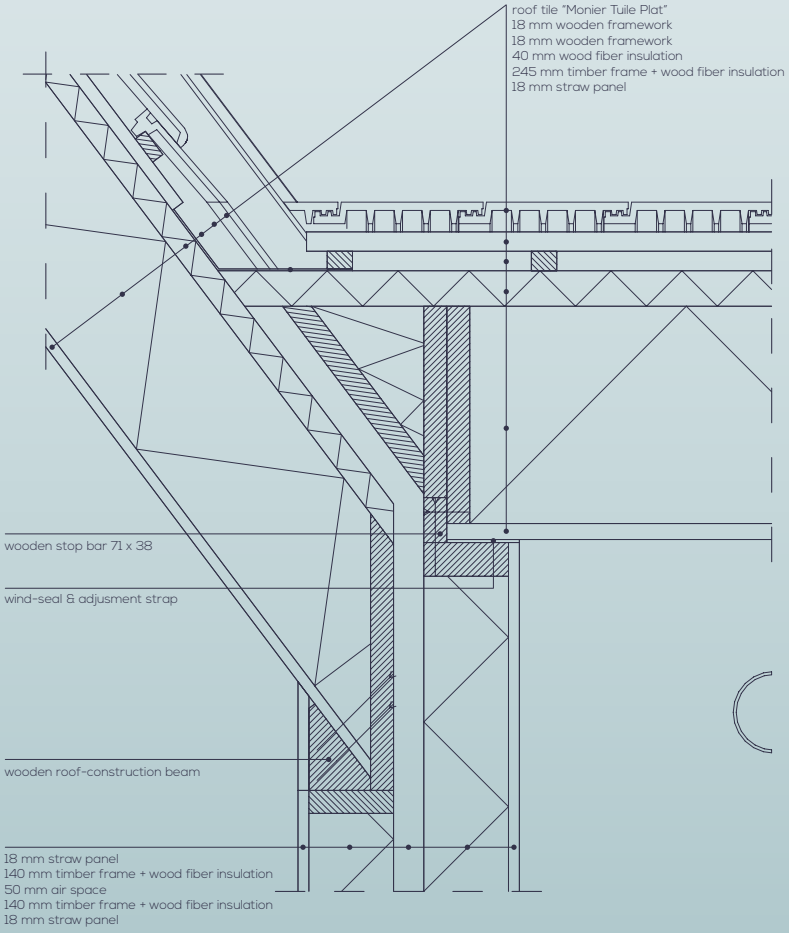
1:5



roof cantilever

DETAIL 08

1:5



roof intersection


MAASLANDSE DAM

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ronaldvink90@gmail.com

I have greatly enjoyed working on this research and design process. My fascination with historical architecture, combined with the challenge of entering the professional field as a contemporary architect, has, in my view, come together in a highly engaging and meaningful way. This graduation project has been an invaluable learning experience and lays a strong foundation for further exploration within the rich tradition of Dutch [polder] architecture.

Of course, this journey would not have been possible without the guidance and support of the faculty involved in the process, under the supervision of Olv Klijn, Ruurd Kuijlenburg, and Brook Haileselassie. I am sincerely grateful for their input and mentorship. The process has been both stimulating and enjoyable, but above all, profoundly educational.

Behind the scenes, the architectural firm KOKON [architecture & urban design] and my colleagues there have provided indispensable support in terms of knowledge and vision, enabling me to bring the final outcome to fruition. I extend my thanks to them as well.

Lastly, I would like to extend my sincere thanks to everyone who, in any way, directly or indirectly, contributed to this process. Your support, encouragement, and insights have been appreciated.

Through the synthesis of a contextual urban framework, respectful architectural massing, and precise, meaningful detailing, a contemporary architectural response emerges that is both modern and timeless.

To be conti · **NEW** · ed

Crafting the future through echoes of the past

Ronald Vink

Master of Architecture . Advanced Housing Design . sept 2024 - june 2025

tutors : O. Klijn & R. Kuijlenburg & B. Haileselassie . date of submission : june 2025