time is the architect

existing buildings as evolving landscapes

abstract

In a world that is constantly changing, architecture and the building practice are typically rigid and static. The landscape architecture approach inherently copes with dynamics. The notions of palimpsest and process are explored regarding the case studies of river Aire, Marker Wadden and Park Frankendael. These principles are translated to architecture, specifically to the transformation of existing buildings. The theory is combined with research on contemporary building practices, such as site-derived architecture, wabi-sabi, adaptive reuse and building for uncertainty. The case of Keileweg 26-28 is used to explore the research findings by design. The half-vacant building has an eventful history and a variety of actors. This results in a building that grounds on the palimpsest, embraces decay and has space for life and unpredictability.

KEY WORDS | time, transformation, landscape, reuse, more-than-human, transience, Rotterdam

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panta rei | everything flows

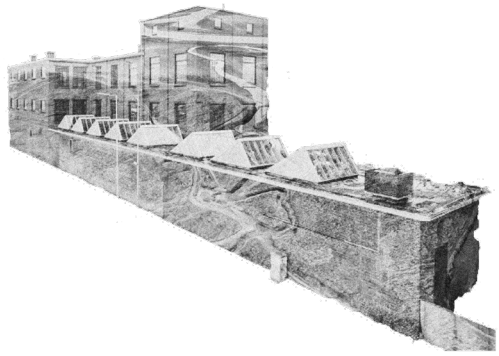
foreword

After months of reading, discussing, analysing, experimenting, writing and drawing, this graduation project has come to an end. This project gave me the opportunity to explore a frustration I had experienced during my studies: the rigidity of architecture. Although I admire the beauty of architecture, most of these built structures seemed to be at odds with all natural systems. As soon as I began studying landscape architecture in Delft and Oslo, I felt I was coming into touch with what it means to design on this earth. Through the sensory experience of being outdoors, working with natural elements and embracing change, my perspective on design broadened. Many people asked me why I hadn't simply chosen landscape architecture – a valid question, one I asked myself too – but for me, that would not be a solution to the current problems in architectural practice. I firmly believed that architects could learn from landscape architects and their different, yet comparable, toolkit. The influence of time on landscapes and buildings has brought these two disciplines to a common ground. A place from which both landscapes and buildings can develop. The stories of spaces are endless. I am curious to see how they will unfold.

MANIFESTO

DYNAMIC LANDSCAPES = DYNAMIC BUILDINGS

The world is always evolving, and our buildings should evolve alongside with it. It is time to shift our approach to existing buildings.
Buildings should be approached as dynamic landscapes. Buildings should be allowed to evolve. Eventually, time is the architect.



VALUE PALIMPSEST

No tabula rasa. Work from existing structures. Use the existing material.

EMBRACE DECAY

Growth arises from decay. Co-design with processes.

SPACE FOR UNPREDICTABILITY

Design the beginning instead of the end. Create a framework for transience.

VASTGOED > VERANDERGOED

index

Figure 0.1 | Velute Structure made from river clay and a collection of found objects with various timelines and traces. *(by Floor van der Vleit.)*

introduction

If we look around us, we can see a world that is constantly changing. Not only by the constant development of human intellect, but mostly due to natural processes and the passage of time that contribute to an unpredictable dynamic. This continuous change is made visible in Fisk's map of the Mississippi River (figure 0.2). The variety in swirls and colours that all represent the same river but at different moments in time, show the behaviour of the water body and how this continuously changes. Although change is hard to grasp and can bring uncertainty and doubt, this is the situation we all live in and the situation we must build from.

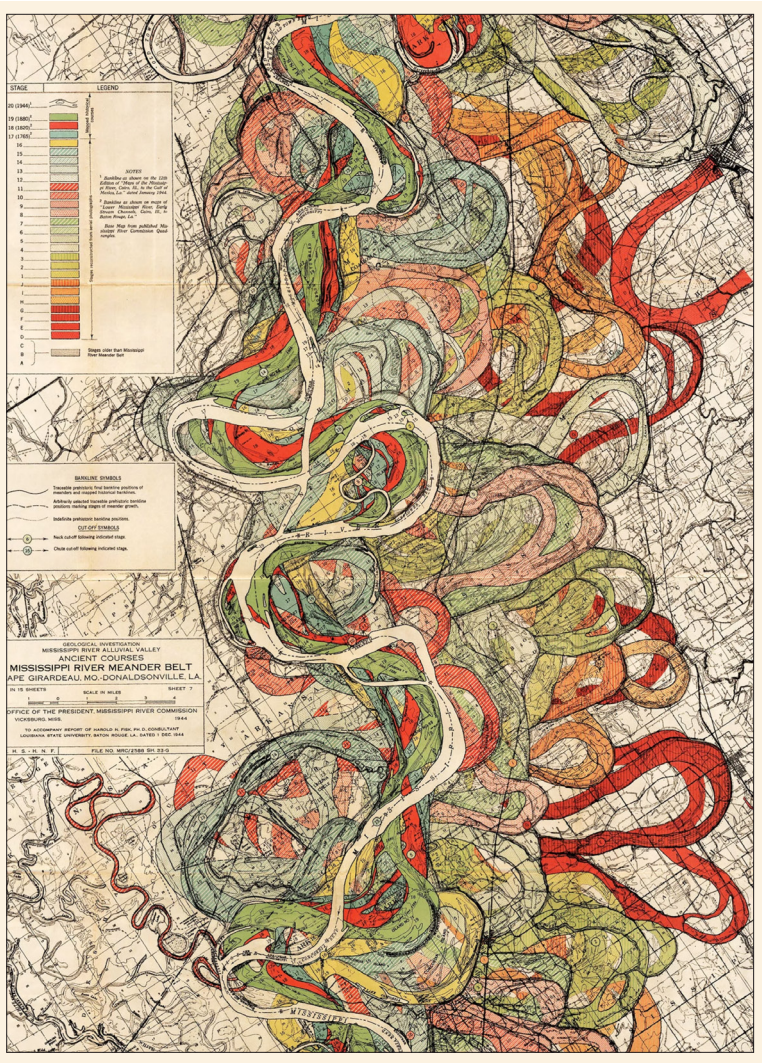


Figure 0.2 | Mississipi River. The changes of the meandering are showed by the mapping of the historical floodplains. (Harold Fisk, 1944)

The building practice happens within these dynamic environments. However, time and change are rarely a subject in the architectural practice, which involves working against the tendencies of the natural world instead of with them (Leatherbarrow, 2004). That is why architecture is generally seen as a very static discipline, assumed to be about solidity or strength (Pihlmann & Dickinson, 2025). The timeline seems to stop when a building is completed. From that moment on, everything is done to preserve a certain image (Truwant & Rodet, 2023).

This creates friction. After all, how can a static image be expected to endure in a dynamic environment? Besides this fundamental conflict, this friction lies in the heart of a bigger societal question: the sustainability issue. In the current global economy, due to an increasing demand, there is a growing scarcity of building materials (UIA, 2022). At the same time, while the building industry already contributes significantly to the carbon emissions (UNEP, 2025), a lot of materials and energy are wasted by demolishing existing buildings to make space for new designs (figure 0.2). Besides, housing crises affect cities globally, including the Netherlands, while there are many vacant buildings (CBS, 2025). Instead of tearing the existing down, there is an increased need for the transformation of existing real estate into housing, especially in urban areas. An approach that embraces change and transformation instead of demolition is thus required for a sustainable future building industry.

While architecture is essentially static, the practice of landscape architecture is fundamentally about transforming existing landscapes. In this neighbouring discipline, natural processes are used as a starting point and time plays a leading role (Section of Landscape Architecture, 2022). This research explores how architects could act more like landscape architects or gardeners and treat existing buildings and materials with a different methodology, with care, and guided by the following research question:

Figure 0.3 | **Demolition of housing block at Gardesiaweg, Rotterdam.** Piles of material are wasted by demolition practices. (By author, 2026)

How can existing buildings be approached as dynamic landscapes in order to embrace temporality?

With this question, the fundamental principles from landscape architecture regarding temporality will be translated to a richer architectural approach towards existing buildings.

Central to this main question is the first sub question, from which the other sub questions consecutively build from:

a. how is the passage of time approached within landscape architecture?

Initially, the focus is on understanding the approach of landscape architects regarding the transformation of dynamic landscapes. This question focusses on the landscape architecture notions of palimpsest and process and the attitude towards change and transience. The approaches are translated to the analysis and transformation design of existing buildings. This conversion is essential to the research project.
Building on this sub question, the concept of temporality within the transformation of buildings is split into two divisions: the life that happens in and around the building, and the material from which the building is constructed. The next two sub questions are related to this subdivision and continue from the (translated) landscape architectural principles.

b. how can space be created for more-than-human life within uncertain circumstances through open-ended design?

This second sub question brings the unexpected, uncertain and unpredictable nature of this research forward. The essence of time is that there is a history we can try to discover and understand, and at the same time there is a future that we are not yet aware of. To embrace temporality in design, there is a need for the consideration of living processes and uncertain future circumstances. This does not only involve the uses and practices of humans, but also other life forms and ecosystems at different scales.

c. how can the passage of time influence the use of materiality?

Architectural materials differ from the natural materials and elements that landscape architects work with. The materials are originally made to withstand natural elements but will weather or deteriorate at some point in time. This sub question involves around the indication on how building materials react to the passage of time and how the building materials or elements can be reused or

from research to design

repurposed in sustainable transformation design.
While the aim for this research is finding a more integrated methodology to approach existing buildings and is thus not specifically linked to a certain site, the core of this new approach will be extremely site specific. Every building brings its own characteristics and limitations. For this graduation project a transformation assignment in the dynamic urban environment of the harbours of Rotterdam is conducted. The choice for an urban environment is based on the idea to confront the tension between the architecture of buildings and landscapes. This way the project would not become a landscape architectural design project, but a translation of landscape architectural values and methods into architectural design.

Figure 0.4 | **Merwe-Vierhavens.** Harbour area in Rotterdam and the building on Keileweg 26 (black).

Figure 0.5 | **Map of the situation of the river basin in Holland, Zeeland and West-Friesland in 1300 from the Geschiedkundige Atlas van Nederland**. The organic shapes of the river are still visible. (By C.L. Brinkman, 1890).

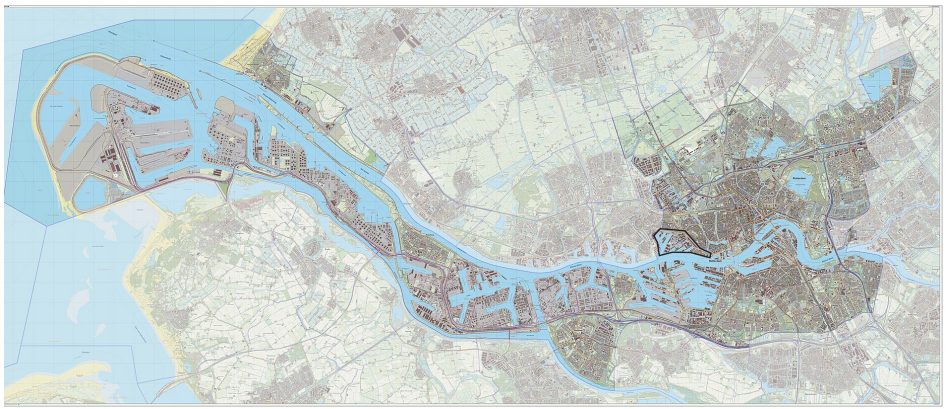


Figure 0.6 | **Rotterdam and the harbours in 2014.** The river bed has been transformed into a productive urban landscape. (Jan-Willem van Aalst, 2014)

The plot at Keileweg 26-28 (fig. 0.7) is used as a case study to experiment with these values and methods. The building is located next to Keilehaven in the Merwe-Vierhavens (fig. 0.4). Rotterdam is a port city that has been growing and expanding its harbours for centuries (fig. 0.5 and 0.6). This harbour area in Rotterdam by the tidal river Nieuwe Maas is a part of redevelopment plans for the expansion of the city. The framework for this development of the area of Merwe-Vierhaven is based on the idea of a 'makers district' (DELVA et al., 2019). Thus, a building that is meant to change over time fits in the development plans. The creative industries in the neighbourhood with locations such as Brutus, Katoenhuis and Keilepand are planned to be mixed with housing. While certain heritage is meant to be preserved, multiple buildings will probably be demolished to be able to build new housing blocks.

Currently, the art studios of members of Kunst & Complex are housed within one of the buildings, but it used to be an old factory and house different functions over time. It is half vacant and a municipal monument. The site is easily accessible for frequent site visits. The specific plans for the development of the plot have still been up in the air during this project.

The outcome of the research questions will inform the transformation design of this existing building into a flexible place where humans and other life can live in coexistence with natural processes and the effects of the passage of time. This results into the following design question:

How can the building at Keileweg 26 be transformed with a flexible program following the values and methods of landscape architectural design?

This question is built on three sub design questions that relate to the preceding sub research questions. These questions will guide the analysis of the plot and the transformation design:

Figure 0.7 | Keileweg 26-28. The plot that is being used as case for the design of this project. (By author, 2026.)

a. How is the buildings' palimpsest expressed and how can this be approached by design?

b.What actors and processes have been present in and around the buildings and how can their influence be approached by design?

c. What materials are present in the building and how can these be used to transform the buildings in a way that embraces change and sustainability?

Figure 0.8 | **Construction of Van Brienenoord pavillion.** Superuse Studios repurposes building materials (Kamphuis, n.d.)

Figure 0.9 | **Ecokathedraal by Louis le Roy.** Embracing the process of time. (Unknown, n.d.)

Figure 0.10 | **Danish Pavilion of Biennale Venezia.** Deconstruction. (Pihlmann Architects, 2025)

approach

interdisciplinary approach

Essential to this research is the conviction of value to interdisciplinary cross-fertilization. Societal change and transformations ask for a widened outlook on architectural practice. With more focus on environmental questions, this research is thus based on the principles of landscape architecture, a discipline that inherently prioritizes the site over the program (De Wit & Bobbink, 2020). Currently architecture is still considered an essentially static discipline (Truwant & Rodet, 2023). Although the modernist tradition of purism still determines the view on aesthetics of a freshly completed design, over time this image simply does not last in the same conditions (Leatherbarrow, 2020). As landscape architecture is fundamentally site-specific, and landscapes are naturally dynamic, architects can learn from the landscape architectural design approaches.

Although the aim of this research is to apply the principles from landscape architectural practice to architectural issues, which might blur the boundaries between these disciplines, traditionally they were seen as essentially different from each other (Leatherbarrow, 2004). The relatively young profession of landscape architecture, originated from garden design (Jørgensen et al., 2020), has had the opportunity to mature separately from architecture, but was still influenced by the long tradition of architecture practice and seen as its offspring. However, instead of approaching these disciplines as the same or different, and thus absorbing or separating them, with this research I aim to continue with David Leatherbarrow's (2004) suggestion to discover their relation in the fullest range of complexity by investigating and addressing their similarities and common ground.

Specific for this research is the grounding in the four key principles that were developed by the section of landscape architecture at Delft University of Technology: palimpsest, perception, process and scale continuum (Section of Landscape Architecture, 2022). Although these notions are not based on reciprocal exclusivity, the focus of this research will be on the ideas about palimpsest and process. These principles are specific for the practice of landscape architecture and involved with the temporality or the passage of time.

Time is thus an essential element to landscape architecture. However, the passage of time and the effect of time on materiality is more widely discussed. First of all, the Japanese idea about aesthetics, called wabi-sabi, is about experiencing the beauty of imperfections, impermanence, and incompleteness (Koren, 2008). The natural process of decay becomes embraced in this outlook on aesthetics.

The Ecokathedraal by Louis le Roy (0.9) plays with the embrace of decay and incompleteness. This ongoing project is a key inspiration for this research. Besides, this project responds to the discourse on the circularity strategies regarding reuse and repurpose using discarded materials. Currently, there is more attention to the reuse of materials and to the preservation of the existing. The Danish pavilion in the Biennale Venezia in 2025 by Søren Pihlmann explored the building materials on site by presenting them as separate resources (fig. 0.8). Another studio that addresses the resource scarcity is the Dutch firm Superuse studios that makes use of often wasted materials for their designs (0.10). At the same time, the initiative of HouseEurope! is promoting to stop demolition and focus on renovation. That forms the context of this project. A project in times with a search for new approaches in architectural design.

Figure 0.11 | **Layered drawing.** Process of figuring out temporal representations. (By author.)

Figure 0.12 | **Series of film stills.** A large model was used to show the development of a space over time. (By author.)

temporal representation and narrative

Designing with time asks for a different way of representing. For designers to express their ideas, visual representation is used. By showing the ideas in drawings and models, they can be tested, communicated and eventually worked with in the realization phase. Plans, sections, elevations, visualizations, and collages all show what will be where and thus spatially represent the design. These forms of spatial representation are highly developed within landscape architecture practice due to the strong roots in architectural traditions.

However, this way of representation is still relatively static and with the dynamic nature of landscape architecture a second type of drawing is necessary: temporal representations (Van Dooren, 2017) Although diagrams, series and small multiplescan express the passage of time, they do not necessarily do so. To express the dynamics of landscape architecture, drawings can clarify how the design develops over time. According to landscape architect Noël van Dooren, temporal representations such as films, comics, timelines and scores depict all relevant aspects of time. His doctoral thesis Drawing Time (2017) brings more attention to this way of representation and questions if these techniques can help to speculate on (un)certain development within architectural projects.

During the process of this project, multiple 'drawing' techniques have been tested to express the passage of time. First, creating drawings with multiple layers: 1) the existing, 2) the intervention, and 3) the following process (fig. 0.11). These drawings could be elaborated by adding layers of multiple scenarios for number 3 or by adding successive drawings of spatial development due to the process that would take place. Furthermore, series of drawings and a short film were made to show temporal processes (fig. 0.12). The film was most effective to create the experience of time passing and including scenarios, and to express the passage of time with more than just visuals, but also by adding sound.

However, another way of expressing the processes that shape a space is the use of narratives. These types of narratives are stories and interpretations that were woven into the physical environment (Potteiger & Purinton, 1998). Three types of narratives can be distinguished: a) a frozen moment in time, b) a linear narrative of a series of moments, and c) the continuous narrative that expresses multiple moments from a single point of view (fig. 0.13). Narratives are different from biographies, as they tell a certain story from a specific angle. However, the biography can help to recognize developments, characteristics and patterns.

By exploring the narrative of the chosen persona, this can result into an increased empathy towards them. Architect Laura Muyldermans and academic Bart Decroos used a building as a protagonist for their exposition Register van Bouwbiografische Portretten (Archined, 2026). This personification created a sense of slowing down and a moment to reflect, which resulted into a sense of meaning to building and renovating and the uncovering of our objectification of the built environment.

Throughout this project, the use of narratives in the form of short stories or poetry has brought a lot of information about landscapes and more-than-actors to the surface in a condensed and expressive manner. Narratives of a broad range of actors on site were formed after many site-visits and examinations. This empathy has influenced the final design beyond the standard human-centric gaze. The narratives eventually also expressed the story of the transformation of various spaces throughout the building.

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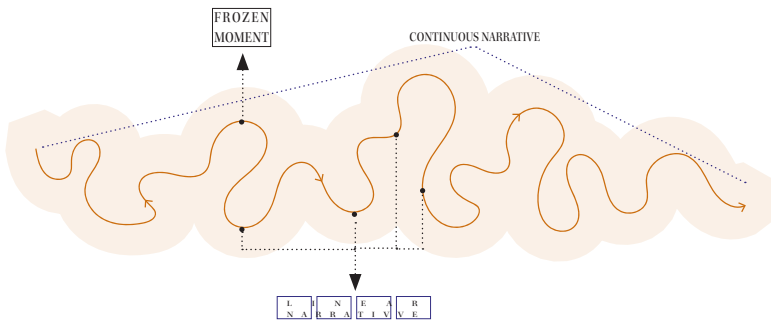


Figure 0.13 | **Narratives.** Three types of narratives can be used. (By author.)

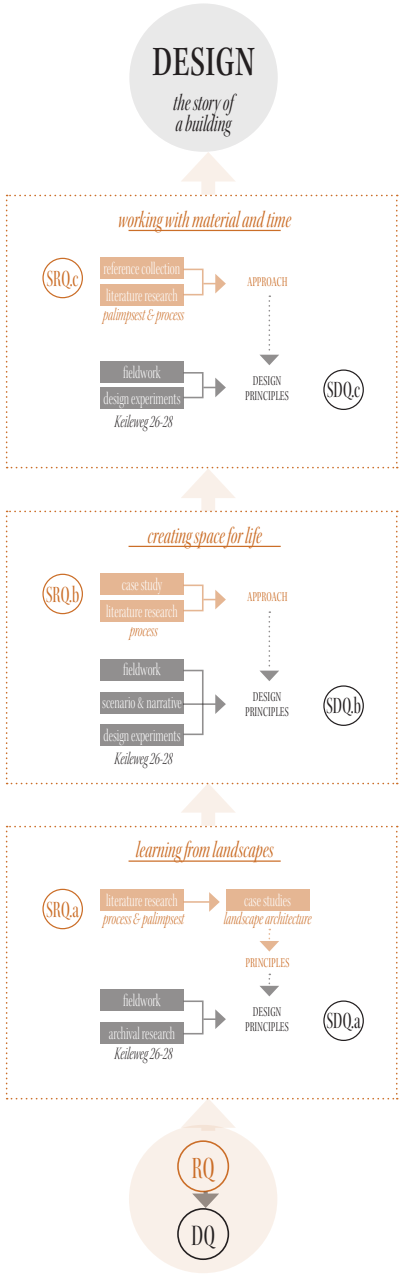


Figure 0.14 | **Project framework.** The three sub chapter build on each other towards the final design. (By author.)

methodology

To build on the existing approaches and answer both the research and design questions, this report is subdivided into four chapters: I) learning from landscapes, II) creating space for life, III) working with materials and time, and IV) the story of a building (fig. 0.14). The core of this research is the translation of landscape architecture principles to architecture. This is be done by the investigation of literature and case studies from the discipline of landscape architecture, but also by bringing literature and cases from both disciplines together and finally testing and expressing the findings through the transformation design of Keileweg 26-28. This design was informed through broad examination of the site by multiple site-visits, conversations with the artists from Kunst & Complex and archival research.

The first chapter includes an overview of landscape architecture theory in the realm of time and temporality. This includes the exploration of 'process' and 'palimpsest' through three various landscape architecture projects as case studies: the renaturing of river Aire, the design of Marker Wadden and the transformation of Park Frankendael. The outcome of these case studies will be a set of approaches on how to design with dynamic landscapes, regarding palimpsest, process and attitude. Then, these principles were used for an analysis of the plot of Keileweg 26-28 and for the transformation design, regarding the palimpsest.

The second chapter continues with the exploration of dynamics and process in relation to design through literature research and starts with the case study of the first ecocathedral by Louis le Roy in Mildam, which has been visited during this project to grasp a better feeling of the place. This is followed by the analysis of the actors and their uses and practices at Keileweg 26-28 and the design approach regarding change and transience.

The third chapter is about the materialisation of time and the use of building materials, bringing the notions of palimpsest and process together. During the project a collection of references and experimentations have been made to explore the materialisation of time. This work has been bundled in an extra booklet: A matter of time. The analysis of the materiality of the building started by recording the initial conditions with photography, sample taking, tracing the materials with charcoal and making imprints with clay. This and more site analysis, next to the booklet A matter of time, literature research, and further examination of cases and references led to the further development of the transformation design of Keileweg 26-28.

Finally, in the last chapter, the final design is presented and elaborated with presentation drawings and explanatory diagrams. This concludes in the conclusion, discussion and a final reflection of the project and its process. This resulted into the creation of a manifesto for a shift in attitude and approach towards existing buildings that refrains from rigidness and embraces change and transience

Figure 1.1 | **Tidal Park Keilehaven.** The changes in water levels create a dynamic experience of the harbour. (Floor van der Vliet, 2026)

part I learning from landscapes

If we want to approach buildings as dynamic landscapes, the first step is to understand how to design with those dynamic landscapes. Landscape architects have mastered this over last centuries. That is why this chapter evolves around the first sub question of this research:

how is the passage of time approached within landscape architecture?

The heart of this question is about understanding the difference in timelines between architecture and landscape architecture projects. The project timelines of buildings are generally short: initiation, design, construction and then the result. The result is usually a static image that is being maintained as much as possible, in contrast to landscape designs that usually only start to exist when the construction is finished, which makes their timelines much longer and unpredictable. If we want to approach buildings as dynamic objects as well, we first must ground ourselves in the ideologies of landscape architects.

Figure 1.2 | **Tidal park Keilehaven.** Landscapes are continuously changing through time. (By author, March (above) and May (below) 2026.)

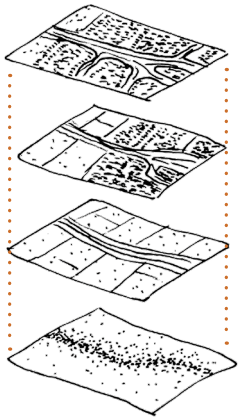
grounding in landscape

Landscape architecture is a "discipline of designing many types of outdoor environments at different scales" (Jauslin, 2019). The landscape is the architectural subject or spatial construction. The terms 'landscape' and 'architecture' stand for very different qualities. Although the name suggests that landscape architecture discipline has branched off from architecture, it actually developed from horticulture and garden design (Jørgensen et al., 2020).

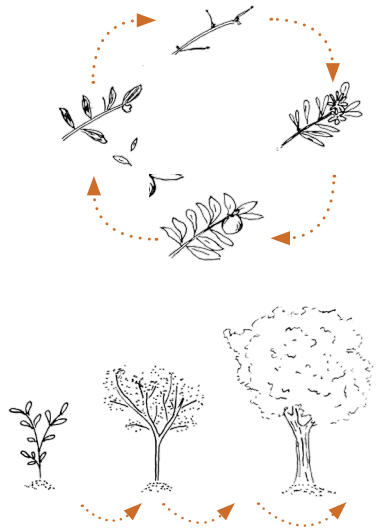
Nowadays landscape architecture evolves around more than horticulture and garden design. Landscapes are not the same as what we call 'nature', which is about 'every not man-made thing' (Oxford Dictionary, 1989, p. 825), as landscapes are sceneries "composed of all the features of an area of land including both the natural and the man-made" (Oxford Dictionary, 1989, p. 699) and usually just reflect or express human's ideas on nature (Corner, 1992). Landscape architecture a highly situated phenomenon that forces designers to work with every location's unique quality.

Even landscape designers sometimes try to fix their spatial vision through strict maintenance, especially at heritage site. However, the aspect of temporality distinguishes landscape architecture from buildings and other spatial artforms, and this quality should be embraced. James Corner expressed this in his writing on Representation and Landscapes (1992):

"...landscape is a 'living biome that is subject to flux and change by natural processes operating over time. The dynamic action of erosion, deposition and the effects of growth and weather continually transform the structure and pattern of the shifting landscape. The same landscape may be experienced in radically different ways when it is in flood, engulfed in fog, covered with snow, or burning with fire, meaning that the qualities of space, light, texture, and ambience are ever subject to change. (p. 148)"



PALIMPSEST



PROCESS

PERCEPTION

SCALE CONTINUUM

Figure 1.3 | **Key notions of landscape architecture**: The section of landscape architecture at TU Delft has developed these notions towards the initiation of the master track. (By author.)

key notions

Key to this research are the four principles that are used within the Landscape Architecture Section at Delft University of Technology (Section of Landscape Architecture, 2022): palimpsest, process, perception and scale continuum (fig. 1.3). These concepts can be used and researched separately but can also be connected.

Palimpsest is about historical layers that are still visible today, while process is about the passage of time in a linear or cyclical way. Perception is about the complex ways we can experience a landscape or any other space, with not just our eyes but all our senses (Section of Landscape Architecture, 2022). This is related to the idea of spatial sequencing (Marot, 1999), which connects movement and spatial relations. As movement is connected to temporality, perception and time are also connected. The concept of scale continuum is about relational thinking through multiple scales, from proximity to distance, including the context of the specified site (Section of Landscape Architecture, 2022). However, for this project I focus on the first two, as these are especially specific for the continuously evolving landscapes and involve the passage of time.

palimpsest

The notion of palimpsest relates back to old pieces of parchment with writing that has been partially removed and is covered with new writing (Cambridge Dictionary). Because of the method the parchment was reused kept the original writings still partly visible. This is how palimpsest can be considered within analysis and design (of landscapes) as well. An existing site that has become obsolete, will be reused or transformed without the idea of tabula rasa, but with the notion that the original layers of time can still be traceable in the new design. Theorist Sébastian Marot (1999) has written about this idea within his first step of studies and projections of site-based landscapes: anamnesis. Daniel Jauslin (2019) also used this categorization to explain and understand the four core principles of landscape design. It views a current state as an expression of ancient culture (Marot, 1999) or an integration of history into the present (Jauslin, 2019), in other words a sense of temporal continuity (Girot, 1999).

process

Landscapes can be envisioned as dynamic processes of becoming instead of products (Marot, 1999). A variety of different processes, linear or cyclical, influence the development of a landscape (design). This asks for an approach that prepares the design site for an unforeseen future (De Wit & Bobbink, 2020). Since processes are inherently connected to temporality and the passage of time, these dynamics invoke an idea of incompleteness (Marot, 1999).

Figure 1.4 | **River Aire.** Renatured Swiss river by Superposition. (Fabio Chironi, nd)

Figure 1.5 | **Marker Wadden.** Newly developed islands in Markermeer, the Netherlands. (Peter Leenen, nd)

Figure 1.6 | **Park Frankendael.** Transformation of the Frankendael estate in Amsterdam. (Buro Sant en Co, nd)

casestudies

The notions process and palimpsest are guiding for the case study analysis of three very different landscape architecture projects: a renatured river, newly developed islands and a transformed urban park. The case studies give insight into how landscape architects work with temporality in their designs.

River Aire

Geneva, Switserland

ATELIER DESCOMBES RAMPINI + SUPERPOSITIONS 2002-ONGOING

a story of a river

Flowing down from the hills of Mount Salève to the valleys around Geneva is the river Aire. The originally dynamic and alluvial river found its meandering course through the farmland (fig. 1.7), but strong flooding in 1878 made men try to contain the river. A strict channel was created that confined the river's dynamics for over one hundred years (Superposition, n.d.) (fig. 1.8 & 1.9).

However, the case of river Aire clearly showed that this approach that decreased the permeable surface bordering the river, increased the flood peaks (Superpositions, 2014). Thus, in 2001 a competition was held by the State of Geneva to restore the original shape and performance of the river. This was eventually done by the group Superpositions, a coalition of architects, engineers and biologists, with the ambition to recreate the complex morphology of the river by renaturing in a controlled manner (Landezine, 2018).

Instead of removing the canal that held historical and cultural value and digging out a new or similar meandering riverbed within the completely changed environmental conditions, the designers dug out a framework with diamond shaped piles of soil next to the existing canal. The water flows through this set framework in one direction and finds a new meandering because of the interaction between the framework and the processes of erosion and sedimentation. This four-phase plan started in 2002 and is still ongoing (Landezine, 2018).

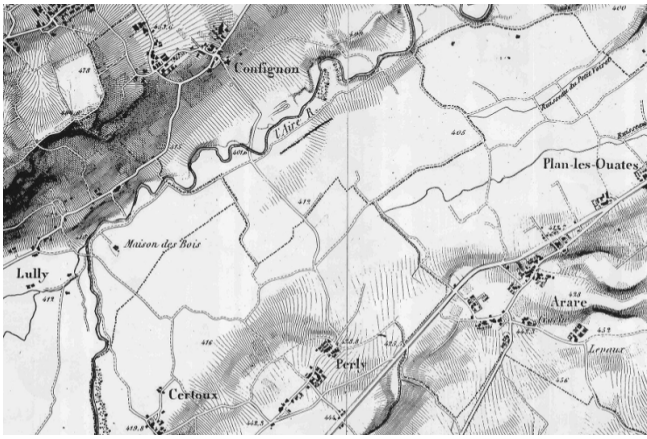


Figure 1.7 | **River Aire.** Flowing from the Salève range in France onto the Plaine de l'Aire, a broad basin through which the Aire is naturally unconfined and alluvial. (Carte Dufour, 1871)

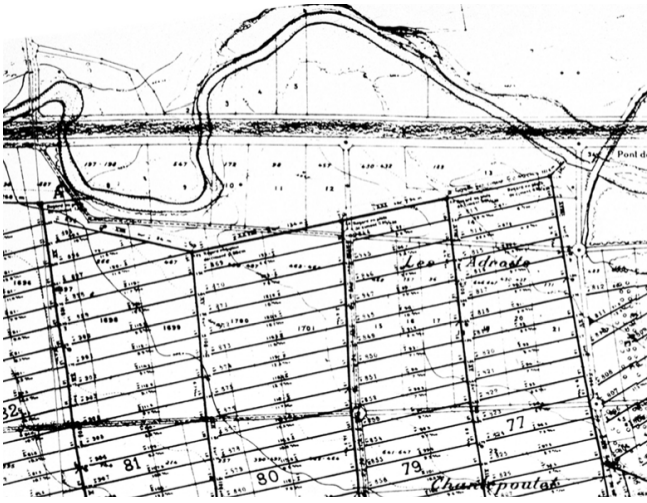


Figure 1.7 | **River Aire.** Plans for confinement of the natural meandering. (Unknown, n.d.)

Figure 1.9 | **Aerial photo of river Aire.** Agricultural lands surround the confined riverbed before renaturation. (Unknown, n.d.)

Figure 1.10 | **River Aire.** Two years after the construction of the grid the river had formed a new meandering. (Fabio Chironi, 2015)

Figure 1.11 | **Plan.** The transformation was focused on a larger area. (Superpositions, n.d.)

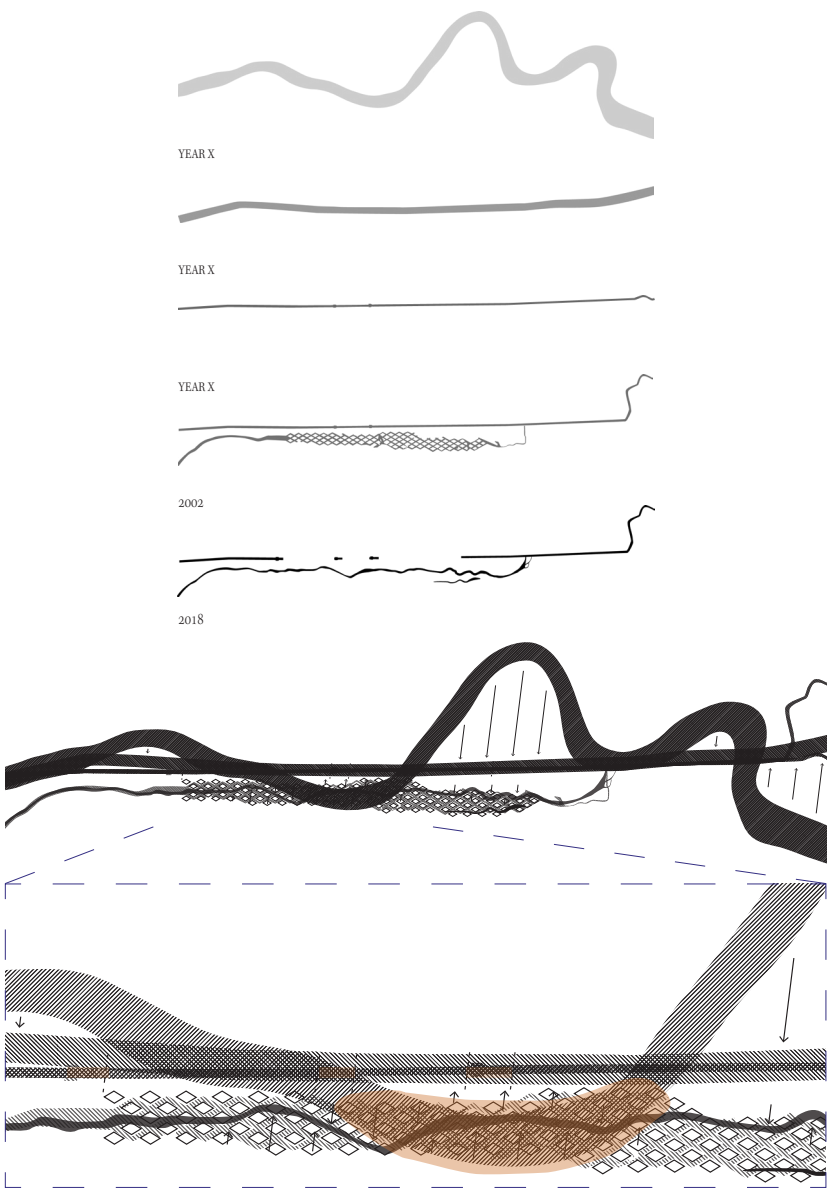


Figure 1.12 | **Palimpsest.** Historical development of river Aire and the traces in the current design of Superpositions.

palimpsest

The designers learned about the life of the river from archival drawings (Superpositions, 2014) A rich palimpsest was discovered. Instead of using these layers by trying to exactly replicate the original meandering or by removing the existing layer, the designers have created a new layer that responds to the complete layered palimpsest. It responds by learning about the previous complex meandering, and by creating circumstances that make such meandering possible. The original does not become visible by copying it but changes the character of the new meandering where these layers intersect as the different soil types in combination with erosion and sedimentation influence the flow patterns.

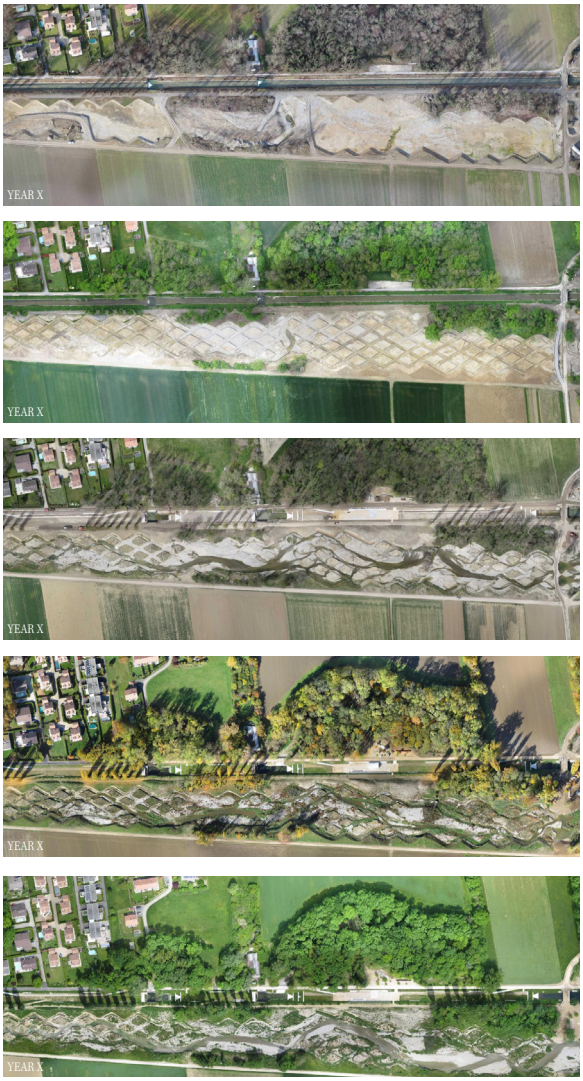


Figure 1.13 Process. Natural development of the river, including erosion and sedimentation, since constretion of the desing by Superpositions. (Easytomap, 2013-2015)

process

This project explains the power of natural forces or processes. The character of these forces made autonomous morphogenesis easier than expected. The designers laid out clear artificial interventions based on measured constraints and guided by a singular direction of the water flow. Placing this into the natural situation and giving time to the natural forces was enough to nudge the river into finding a new meandering. The successive courses of erosion and sedimentation were crucial for this process.

River Aire

Flowing down
Downstream from hills
through valleys
Many years my path could change
Nothing stopping me, nothing in my way
My body touching the land
Gliding softly
rougher when it rains
The land was my friend
A friend for play

Someday I was strangled
Cut off from my routine
Walls kept me in place
Pretty looking, yes,
yes, very sick

Now I have changed my course again
As diamonds became my friend
for play
Sometimes you can see me, sometimes I disappear
But you will hear me
Playing with the pebbles
Laughing when it rains

Figure 1.14 | From grid to meandering. Through the process of erosion and sedimentation the river finds a new path.

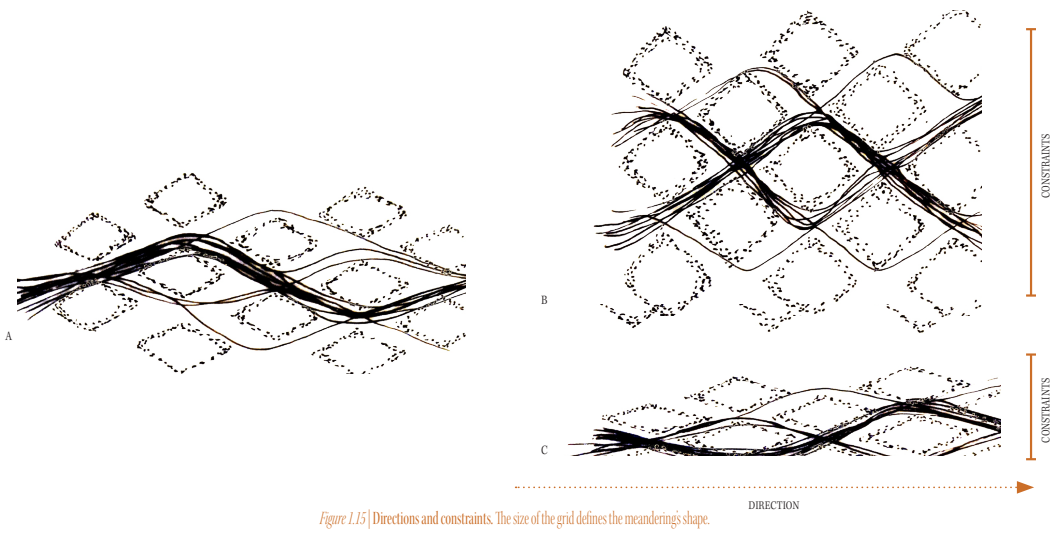


Figure 1.15 | Directions and constraints. The size of the grid defines the meandering's shape.

lessons from a landscape

This case teaches us about how both palimpsest and process can manifest in landscape architecture, but also about the approach of the designers towards the amount of definition that should be put into landscape projects. The long timeline of the river's history and the long duration of a landscape project like this creates a rich array of different historical layers and various processes that can act as a backbone or even as co-designers. The art is than to know how much to act as a designer.

Designing with a river shows how confinement, like channelling, leads to uncontrollable situations, like flooding. By creating space for the character of the river to unfold naturally on the other hand, the consequences of floodings will be diminished due to the flood retention of permeable riverbanks. The more confined the design, the freer the river will be to design. As this is also the case in other situations when designing with landscapes and natural forces, a laissez-faire approach can be advocated.

Marker Wadden

The Netherlands

VISTA + PALMBOUT + ZIEGLER|BRANDERHORST + BOSKALIS + NATUURMONUMENTEN 2017 -2023

a story of new nature

The project of Marker Wadden is part of the Netherlands' long history of water management. Originally, the country had a large saltwater inlet of the North Sea, the Zuiderzee. However, due to a big flood, the sea was closed off with the Afsluitdijk in 1924 (Ministerie van Infrastructuur en Waterstaat, 2026), which formed the freshwater lake IJsselmeer. Later, in 1976, Markermeer was created by a new dam, Houtribdijk. Although this lake was initially meant to be drained to create another polder, this never happened and the Markermeer stayed the way it was (Britannica Editors, 2025).

However, the artificial lake developed ecological problems. The fine clay and silt layer on the bottom of the lake easily gets stirred by water currents, which makes the water cloudy and limits plant growth. Without plants and varied habitats, fish, birds and other wildlife declined. That is why Natuurmonumenten initiated the project of Marker Wadden to regenerate the ecosystem of the lake (Natuurmonumenten, n.d.) The newly formed islands create a burst of life in this former dead lake.

palimpsest

The palimpsest did not influence the design of the archipelago. Historical developments of ecosystem disruption have led to the need for this revival project and historical maps (fig. 1.16) teach us that there were some islands in the Zuiderzee, such as Marken and Urk. However, the actual spatial design was not influenced by visible traces of landforms on the location of the current Marker Wadden. Palimpsest was not a design aspect in this case.

Figure 1.16 | **Old map of Republiek der Zeven Verenigde Nederlanden.** IJsselmeer and Markermeer used to be the Zuiderzee/Zuyder zee. (Johannes Janssonius, 1658)

Figure 1.17 | **Aerial photo after construction of the dams.** The Marker Wadden were created by moving soil. (Natuurmonumenten, n.d.)

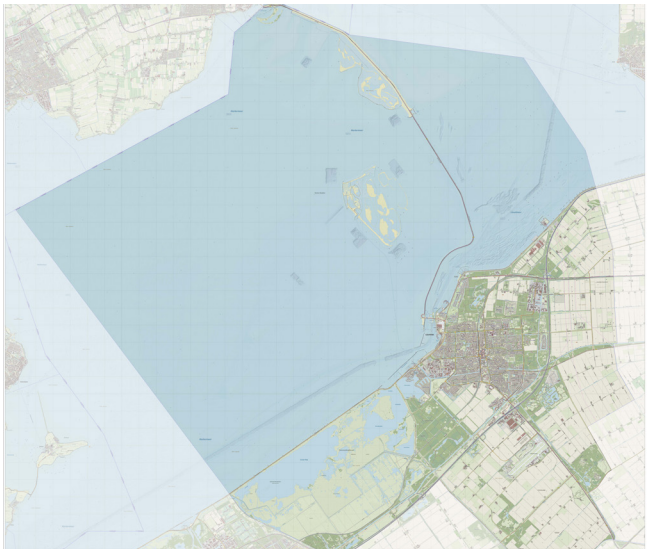
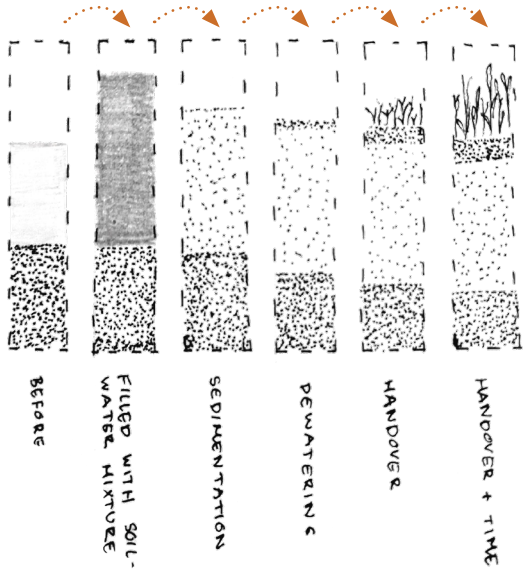


Figure 1.18 | **Current map of Lelystad.** The Marker Wadden are located in the Markermeer. (Opentopo, n.d.)

Figure 1.19 | **Aerial of Marker Wadden**. The Marker Wadden have evolved to a lush archipelago. (Sentinel, 2018)



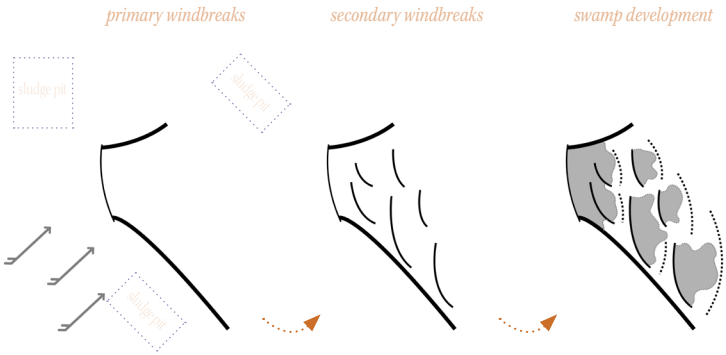


Figure 1.20 | Process. The placement of dams and gradual land formation.

process

Instead, the design of this case was influenced by natural processes. Islands were formed by swamp development behind two primary windbreaks or dunes that were constructed from the dredged soil from nearby in the lake. The process of land formation by dredging causes an extraordinary transformation by simply intentionally moving soil. The zoning of these windbreaks is based on the southwest and northwest wind directions to create shelter from the waves of the Markermeer (Vista, 2022). These dunes create island behind them by the process of sedimentation, while keeping them sheltered from the process of erosion. The shelter also causes water level differences that create a dynamic environment in which inner water bodies are not isolated from the outer water body. Thus, the designed intervention kickstarts the process of land formation and emergence of new ecosystems (fig. 1.22).


MAY 2019


JUNE 2019


SEPTEMBER 2019


DECEMBER 2019


JUNE 2020


AUGUST 2020


APRIL 2021


OCTOBER 2021


FEBRUARY 2022


JUNE 2022


JANUARY 2023


JULY 2024

Figure 1.21 | **Gradual and seasonal change.** The landscape looks different every year and every season. (Natuurmonumenten, 2019-2024)

lessons from a landscape

The story of Marker Wadden teaches us the value of the simple act of transforming by moving material around, which replaced a previously lifeless situation with a lively archipelago.

Furthermore, similar to the previous case study, knowledge of existing processes has been crucial for devising this plan, its design, implementation and ultimate success. Because of the design intervention, the landscape starts to change. Through sedimentation islands form behind the dams (fig. 1.22). This results in different uses of the actors on site. The processes that come with these new uses will then again shape the space and cause continuous development.

Marker Wadden

I am young
I am lively

My waters are still
While waves surround me

Before me death was close to home
So the work was done to get me here
The mud was mulled
Dykes were built
Now I now longer look pale
But brown, red, yellow and green
Every season a new face

I breathe with the rhythms of the wind
Sometimes s l o w and still
No footsteps on my bridges
But when the sun touches my fresh flowers
And birds chirp their songs
I know
I am alive
Once again

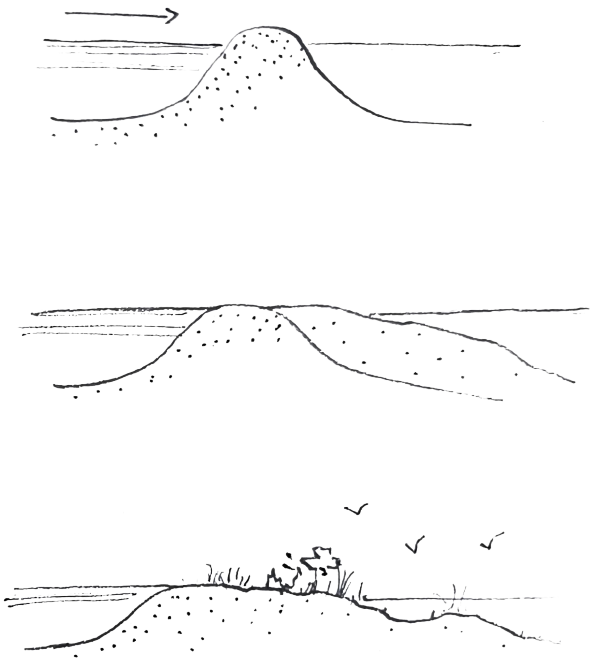


Figure 1.22 | **Evolving landscape.** Processes of land formation, erosion, sedimentation and tidal changes shape dynamic landscapes.

Another aspect that should be considered is the fact that such processes are very dynamic and nature never stands still, but also that such processes take time. Thus, there might be multiple variations in a short period, but the real development happens over a longer time span (fig. 1.21).

Finally, this project shows the value of creating a dynamic environment and thereby altering the previous human error of causing a static situation with no future.

Frankendael

Amsterdam, The Netherlands

BURO SANT & CO 2000-2008

a story of an urban park

Park Frankendael is an urban park located in Watergraafsmeer, a neighbourhood in Amsterdam. Simultaneously with the urban developments of the area, the park has undergone many transformations throughout the years. Watergraafsmeer used to be a part of Diemermeer, a polder on the outskirts of Amsterdam, that was divided into multiple parcels with country estates, of which Huize Frankendael is the only left (Rijksdienst voor Cultureel Erfgoed, n.d.). The original Frankendael estate dates to the 17th century, with the house rising in the 18th century, and is located along the axis connecting Amsterdam to Diemen (fig. 1.26).

Developments of the park involve the expansion of the estate, but also an additional horticultural school Linnaeus and municipal tree nursery in the 19th century. In 2002 the area was transformed into a park by Buro Sant en Co to limit further urban expansion and deal with hydrological issues in the neighbourhood. Nowadays the park is a place with a variety of leisure activities and a place where I spent a lot of time during my childhood.

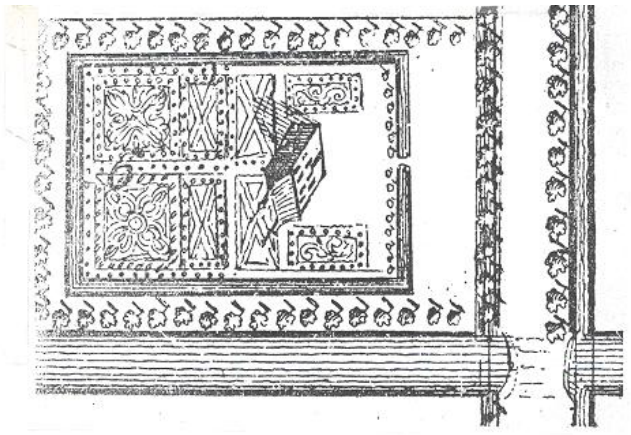


Figure 1.23 | **Frankendael estate.** Watergraafs or Diemermeer in the 18th century. (Peter van den Berge, 1719)

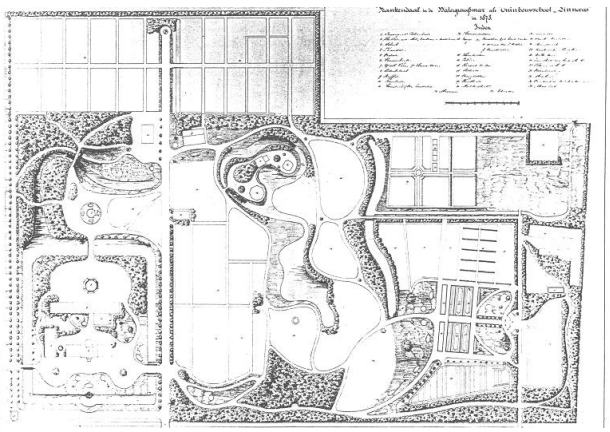


Figure 1.24 | **Hortocultural school.** Frankendael drawn by students of the school in 1873. (Leonard Springer, 1898)

Figure 1.25 | **Frankendael park.** Design by Buro Sant en Co. (Sant en Co, 2016)

Figure 1.5 | **Palimpsest.** Historical development of river Aire and the traces in the current design of Superpositions.

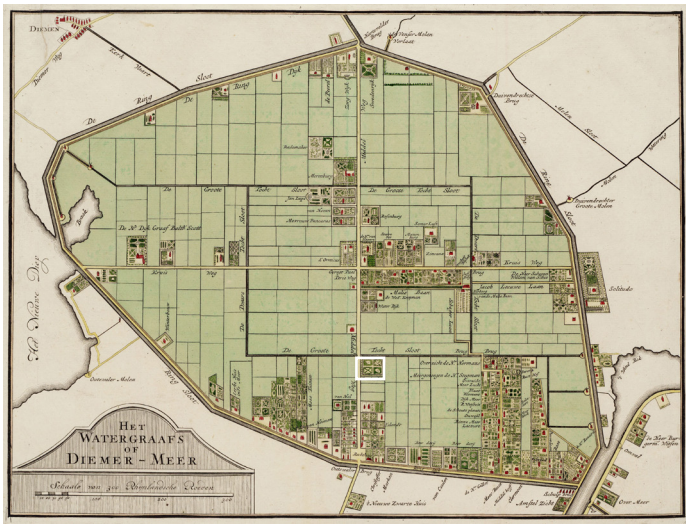
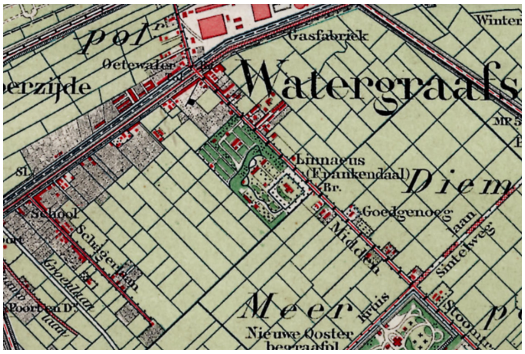


Figure 1.26 | **Watergraafs or Diemer Meer.** The Frankendael estate was built in the polder structure. (Daniel Stoopendaal. 1725)

palimpsest

This case is a clear example of how palimpsest influences landscape architecture design. This can be explained by investigating the historical developments. During the 18th century the estate was surrounded by a baroque garden typical of that time, with a clear composition of symmetrical axes, oval shapes and parterres (fig. 1.23). The expansion of the estate was executed in a romantic style (fig. 1.24), including organic shaped waterbodies and follies, which was a proper response to the 19th century's developments of industrialization. Around the same time the horticultural school was established, including an orchard and a greenhouse.

When Buro Sant en Co designed the current urban park, extensive historical research was conducted that influenced the transformation of the site. First of all, the original polder structure organizes the basic form of the park, embedding it in the rational framework that organizes Watergraafsmeer (see image). Sant en Co responded to this polder grid by forming water bodies in this grid that also function as water reservoirs for the neighbourhood.



1900

1960

2000

2025

Figure 1.27 | **Park Frankendael development.** The context of the site changed through the years, including the park itself. (Topotijdreis, n.d.)

The other historical layers show traces in remnants of spatial order, such as the organically shaped structures of the romantic estate expansion, but also with quite literal remnants, such as the greenhouse, the chimney and the folly ruin (fig. 1.28). Although the ruin is still a folly without any other use, the other remnants have gained a different function and thereby build on from the palimpsest. Besides building on these historical layers, the design of the curved path through the park expresses the contemporary layer with urban recreational use (fig 1.30).

Figure 1.28 | **The folly and the chimney.** Former elements gain new functions. (Gemeente Archief Amsterdam, n.d.; Floris Lok, 2012; Jo Haen, 2022.)

process

The process of time is always present in landscape architecture projects, due to the exposure to natural elements and processes such as sun, wind and plant growth and therefore also in Park Frankendael. However, this case does not show a clear incorporation of how to design with such processes.

Park Frankendael

My features form a rich palette
A blank canvas not once
My story reads in the patches of my quilt

Early days were rich and famous
Never have I lost that touch
My gardens are still loved
First there were many
Now I am the only one

Those days the city felt far away
But closer it came
My earth became grounds for teaching
Not just a pretty face
Productive sure I was

When the city came even closer
My grounds were spared
I could lay back
Retired I may seem
Though I am never still
My story is still in me
I still teach and play
Many surround me
I am not the only one

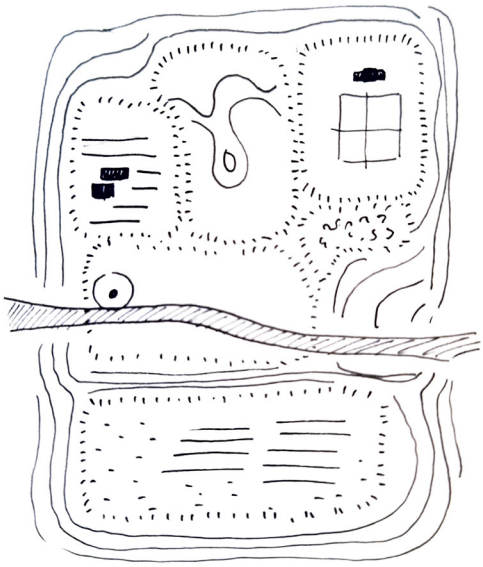


Figure 1.29 & 1.30 | **Design for coherence and contemporary functions.** Former elements gain new functions. (By author, Buro Sant en Co, 2016)

lessons from a landscape

This final case teaches us the value of historical research. Knowledge about historical developments can inform decision-making regarding designing with the notion of palimpsest. However, designers do not have to become historians and should only respond to the current situation instead of responding to historical layers that have disappeared.

This design shows that the structure of a former layer can inform the basic form of the transformation as a grid underlay. Another way of designing with historical traces is by responding to specific elements. Just by keeping them the way they were in a new situation or by giving new meaning to them, just as the chimney became part of a playground and a defining landmark in the park. By adding this successive layer, a design can create coherence between the separate layers of structures and elements and welcome contemporary use into the old structures.

landscape principles

Landscape architecture has many aspects, but from this research scope a few design principles can be considered regarding temporalities. These principles can also be translated to architectural design when buildings are approached in a similar way as dynamic landscapes.

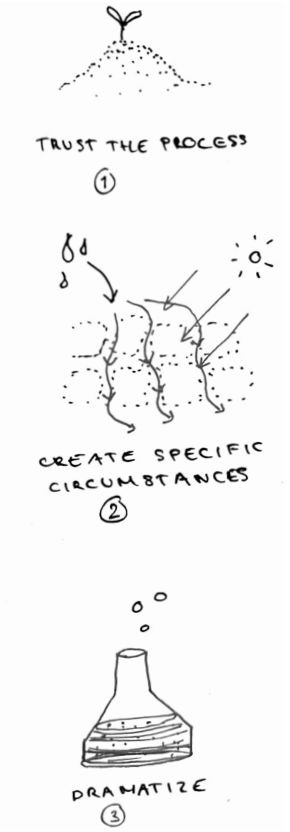


Figure 1.31 | **Park Frankendael.** Baroque garden as viewport to previous times. (Huize Frankendael, n.d.)

palimpsest

Designing with a layered landscape can be done on multiple levels, from the lowest to the highest level of intervention: 1) preserving, 2) highlighting, and 3) reacting. Each following level of engagement with the palimpsest is adds up to the previous ones. The approaches can also be combined in a design, by intervening with the various existing structures and elements in different ways.

1. Preserve

This is the number one rule in the field of heritage, historians, archaeologists and other types of preservation sciences. The logic is simple: by not removing the old, we will not forget about it and will have to find ways of coping with it. In landscape architecture this is the simplest step in treating the historical layers. The site is not to be treated as a tabula rasa, but with respect to the historical layers and developments that are still visible. In typical architecture heritage practices, the preservation of material forms windows to a certain historical time, such as the baroque garden in the middle of Park Frankendael (fig. 1.31). However, in landscape architecture, while the material is always transforming through time, the basic form of the place would be preserved. If the basic form of an existing building is distinguished, retaining this can still allow for the material to transform and develop.

2. Highlight

Although the first principle is simply about not removing the historical layer, this principle intervenes by specifically pointing something out (from a specific time). Typical ways of showing something implicit is by adding (contrasting) material, creating a sense of coherence, or by (partial) removal of something else. RAAAF's intervention with their project Bunker 599 shows the effectiveness of cutting open an existing structure to showcase the previously hidden interior (see image).

3 React

The third level of intervening with a palimpsest is reacting to it by giving new meaning to the site. The execution of this response can be either contradicting or reinforcing. This is much related to the chosen type of use or program, but also to the aesthetics of the design. The response can be done on the level of the larger forms and structures or of the smaller materials and elements. For example, in Duisburg Nord Landscape Park by Latz+Partner the industrial structures were given new meaning for a clean water system (fig. 1.34).

process

The palimpsest continues to grow by interventions and by natural processes. Designing with these processes can be done in three levels of manipulation: 1) trust the process, 2) create conditions, and 3) dramatize. These approaches are successive but can also be used simultaneously in a complex design.

1. Trust the process

The first level of designing with processes is by simply trusting the process. Natural processes will always form and transform space, such as seen in the quick transformation of the river Aire case. Human interaction is not necessary for change over time. Everything is always moving and developing. While this approach seems to be about simple doing nothing, it can also be guided by appointing specific, confined physical spaces or moments in time.

2. Create conditions

A second level of manipulation is to create specific conditions that allow certain processes to happen. In landscape architecture this is about natural elements, but also about creating certain directions or constraints, such as the placement of the dams in the Markermeer (fig. 1.17), which can also be translated into architectural transformations.

3. Dramatize

To clearly express certain processes, the designer can dramatize by either contrasting or reinforcing the process by manipulating the conditions. In RAAAF's project Deltawerk// the natural process of plant growth from the concrete structures was reinforced by the enhancing the porosity (fig. 1.36).

Figure 1.32 | **Bunker 599.** The structure was sawed open to show the interior space. (RAAAF & Allard Bovenberg 2013)

Figure 1.33 | **Cultuurpark Westergasfabriek.** Industrial heritage transformed into a park. (Gustafson + Porter, 2006)

Figure 1.34 | **Waterpark in Landschaftspark Duisburg.** Industrial heritage transformed into a park. (Latz + Partner, 2002)

Figure 1.35 | Spiral Jetty. Land art of mud, rocks and salt constructed in 1970. Utah. dramatizing the landscape dynamics. (Robert Smithson. 2013)

Figure 1.36 | **Deltawerk**//. Land art in Waterloopbos expresses the power of nature on rigid structures. (RAAAF & Jan Kempenaers, 2018)

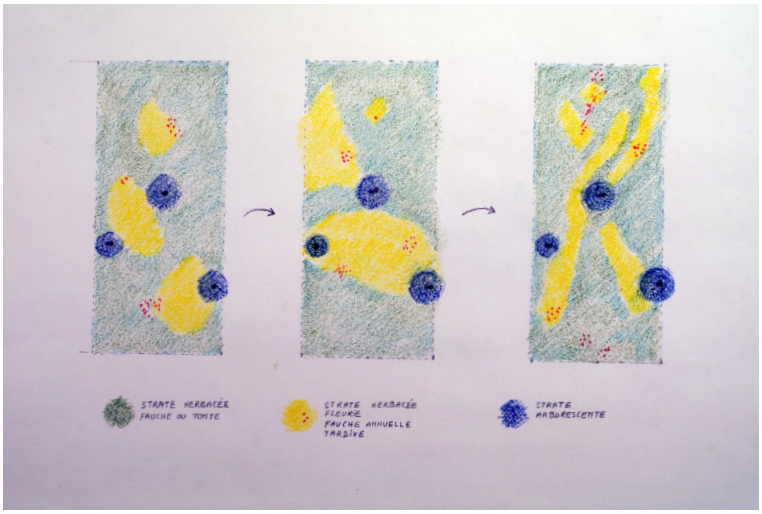


Figure 1.37 | **Jardin en mouvement.** Sketches showing the gardener's appraoch. (Gilles Clément, 2024)

attitude

Except for conclusions about ways of dealing with the time-based notions of palimpsest and process, the theory and case studies also informed about various attitudes regarding designing with time. Although landscape architects design with dynamic landscapes, there are multiple ways that is being coped with temporalities.

1. Design the result

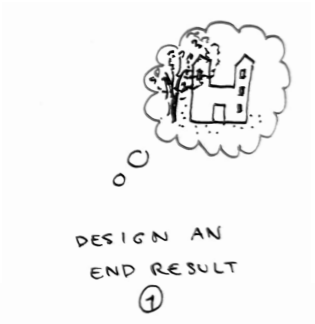
The attitude is typical for architecture. It is not open-ended, but fixed and rigid. Although the process of getting to the end result in landscape architecture takes time and a lot of maintenance, this does not stop after the result has been reached in order to maintain a certain image. Thus, this attitude is not in line with the philosophy of this project.

2. Create a starting point

Instead of designing the result, this can be turned around by just creating a starting point. The reaction to the palimpsest and the created conditions will then transform through time into something beyond the control of the designer, such as the grid from the river Aire project. The design is open-ended.

3. Act as a gardener

Another open-ended design attitude is the one of the gardeners. Instead of focusing on an end result or a begin, the user or designer keeps altering the space depending on how it develops over time. This attitude asks for a strong level of engagement of the designer, or for the right conditions for the actors in place to keep the space in development. This is a typical approach for the designs of French landscape architect Gilles Clément (fig. 1.37).



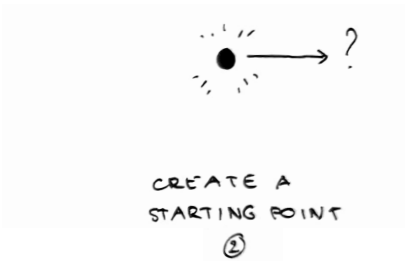
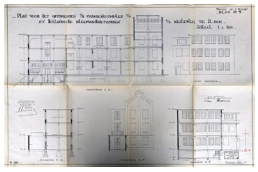


Figure 7.38 | Kelleweg 26-28. (Floor van der Vliet, 2026)

the case: Keileweg 26-28

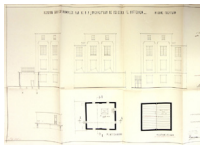
To be able to translate the landscape architecture approach towards architecture, the site and buildings at Keileweg 26–28 in Merwe-Vierhaven, Rotterdam, has been selected as a design case. This sub-chapter explains the historical development of the site and the influence of the palimpsest on the design. It begins by examining the history of the site in relation to its surroundings and the remaining traces, before going on to explain the design approach.

1926. Group photo in front of the factory. (Stadsarchief Rotterdam)



1941. Construction drawings for new factory by Dirk Dürrer. (Stadsarchief Rotterdam)

1933. Picture from the factor (Stadsarchief Rotter



1950. Construction drawings for roof transformation by Dirk Dürrer. (Stadsarchief Rotterdam)

1915 | Hollandsche Maatschappij voor Gecondenseerde Melk

1925 | N.V. Hollandsche Kleefmachinefabriek

1930 | Factory expansion by architect Dirk Dürrer

1936 | Construction of detached office building next to the factory

1947 | N.V. Inverpak Industriële Verpakkingen

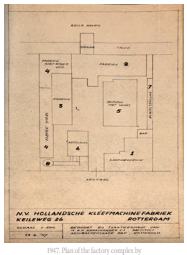
1912 | Construction of Keilehaven

1941 | Expansion of the old factory with a second story and a shed-style hall

1950 | Expansion of the old factory and transformation of the roof of the tower house by Dirk Dürrer

1922. Aerial view of Nieuw-Mathenesse and the harbor area. (Aviodrome Luchtfotografie)

1924-28. Picture of the backside of the factory. (Stadsarchief Rotterdam)



1947. Plan of the factory complex by E.H. Kraaijvanger (Stadsarchief Rotterdam)

1953. Aerial picture from the harbour area. (Aviodrome Luchtfotografie)

1912. The plan for the new harbours 'bewesten Delfshaven'. (A.O. Burgdorffer)

1924-28. Picture of the factory taken from the Gas Factory (Stadsarchief Rotterdam)

1953. Factory worker inspecting glue. (Stadsarchief Rotterdam)

1955. Street view from N.V. Inverpak (

timeline | *1915 - 2026*

ry complex.
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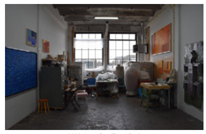
1983. Vacant office building. (Stadsarchief Rotterdam)

1990. Photo of the old chimney. (Stadsarchief Rotterdam)

2026. Climbing plant on facade. (By author)



2026. An atelier. (By author)

1965 | Construction of the paper warehouse by architect Ernest Groosman

1982 | N.V. Inverpak goes out of business

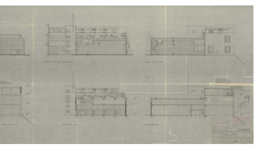
1987 | Stichting Kunst & Complex was granted the use of the buildings

1995 | Eastern part of Keilehaven filled in

2005 | Closure treetwalking zone

2024 | Tidal park Keilehaven by De Urbanisten

1960 — 1970 — 1980 — 1990

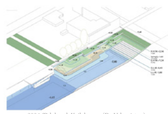


1961. Construction drawings for new paper warehouse by E.F. Groosman (Stadsarchief Rotterdam)

H.A. Voet)

1983. Ladies behind the windows of Plaza Rossa, a bit further down on Keileweg. (De Jong & Van Es)

1994. Construction of streetwalking zone at Keilweg. (Robert Vos)



2024. Tidal park Keilehaven. (De Urbanisten)

2008. Replacement of steel window frames. (Stalku Geveltechniek)

1850

1900

1915

1940

1980

2025

Figure 1.39 | Merwe-Vierhaven. Development of the area 1850-2025. (Topotijdreis, n.d.)

historical development

Rotterdam is a harbour city and always expanding its harbours along the Nieuwe Maas. The Merwe-Vierhaven area used to be next to a polder area, until the municipality of Rotterdam decided to build harbours here (fig. 1.39) The area was a general cargo port but became more industrial later. In 1912 Keilehaven was constructed. The harbour reinvented itself multiple times after the Second World War and is currently more of a creative harbour, with half of the harbour drained at the start of this century.

The site of the building ensemble is located by the water and built right after the construction of this harbour area in 1912. The first elements of the ensemble at Keileweg were first constructed as a factory for the Gecondenseerde Melkfabriek in 1915, which was taken over by Kleefmachinefabriek, later renamed to N.V. Inverpak, in 1925. After bankruptcy of the factory the buildings were handed over to Kunst & Complex, an artist collective that loaned the building for their ateliers since 1987. The building never became an erotic centre as was planned by some, but still houses the artists today, although in different arrangements. Currently half of the building is vacant, and the site is split in two by fences

.

The context of the site has changed over the years. The site used to be crammed between other properties and directed to the water and the street on both sides of the plot. When the east side of the harbour was filled in, a road connected both sides, which resulted into Keileweg 26-28 becoming a corner building. The harbour has also been developed. De Urbanisten have transformed the waterside to a tidal park, which attracts new life to the site.

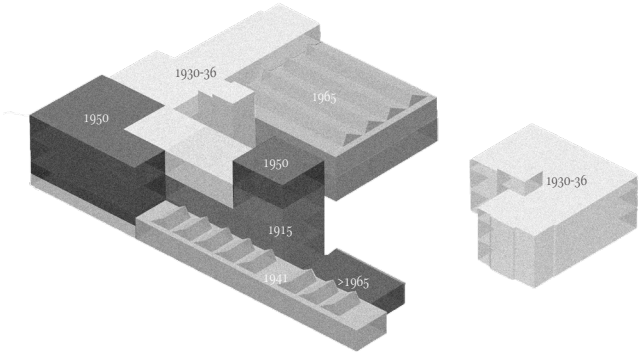
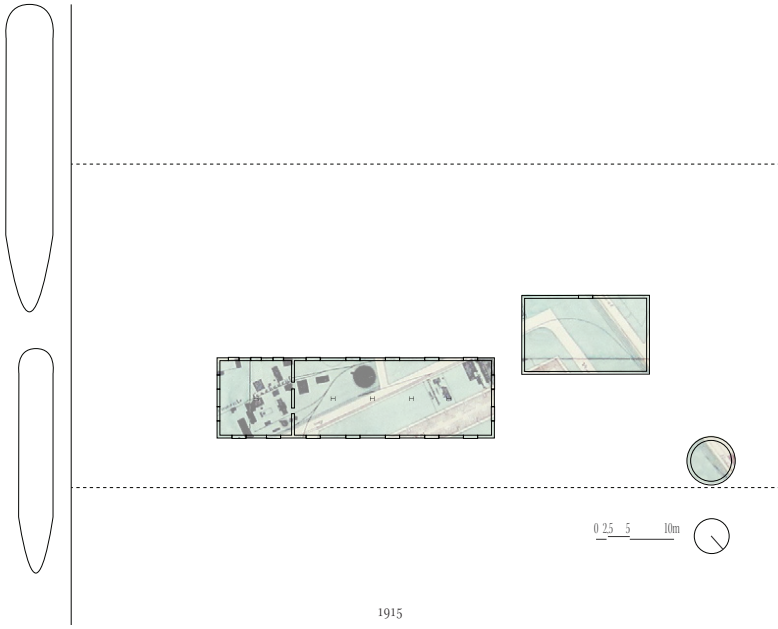
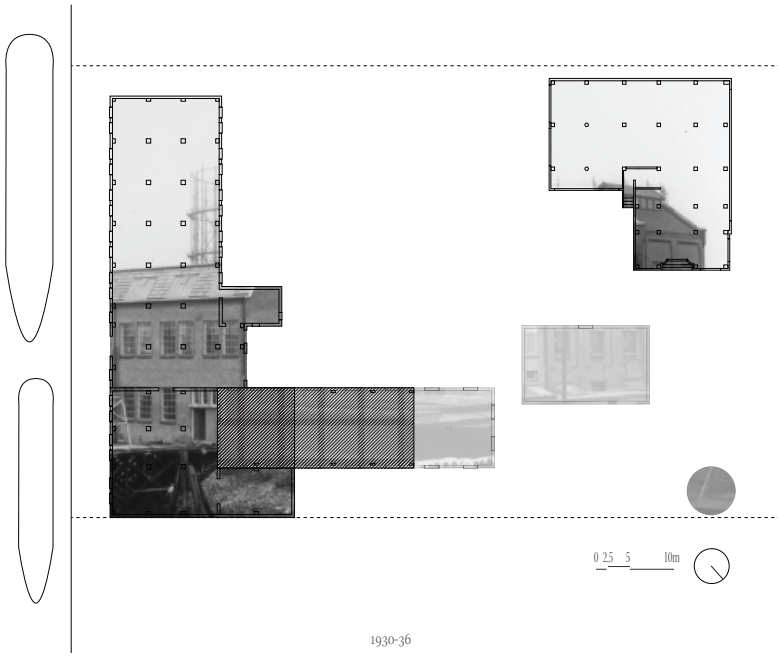


Figure 1.40 | Keileweg 26-28. Development of the site.

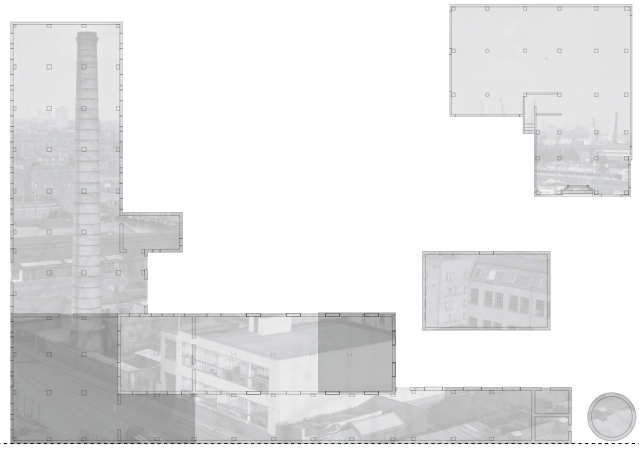


1915

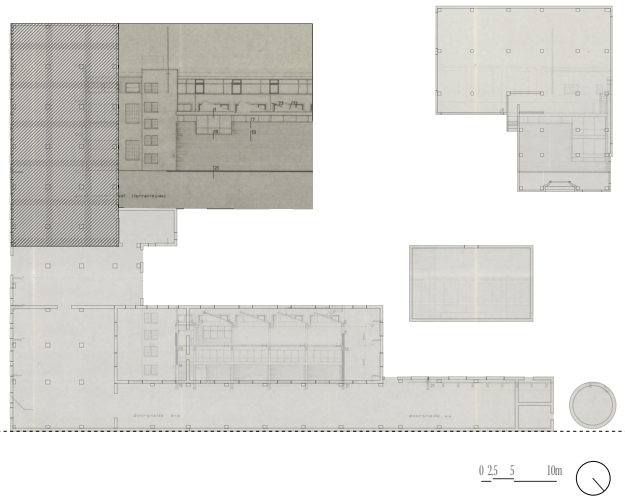


1930-36

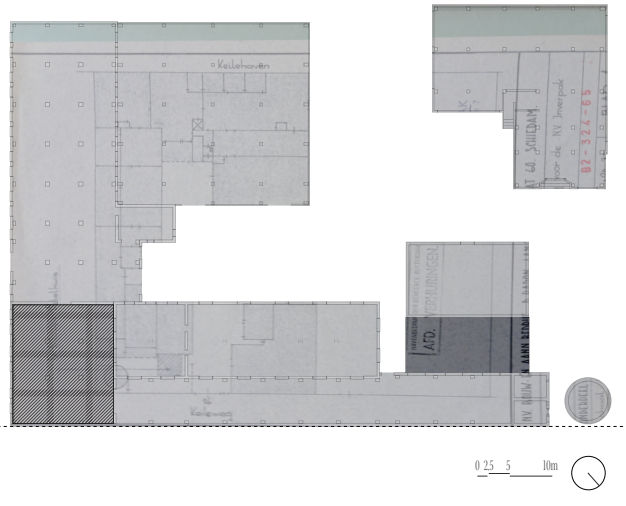
1941



1950



1961



1965-1967

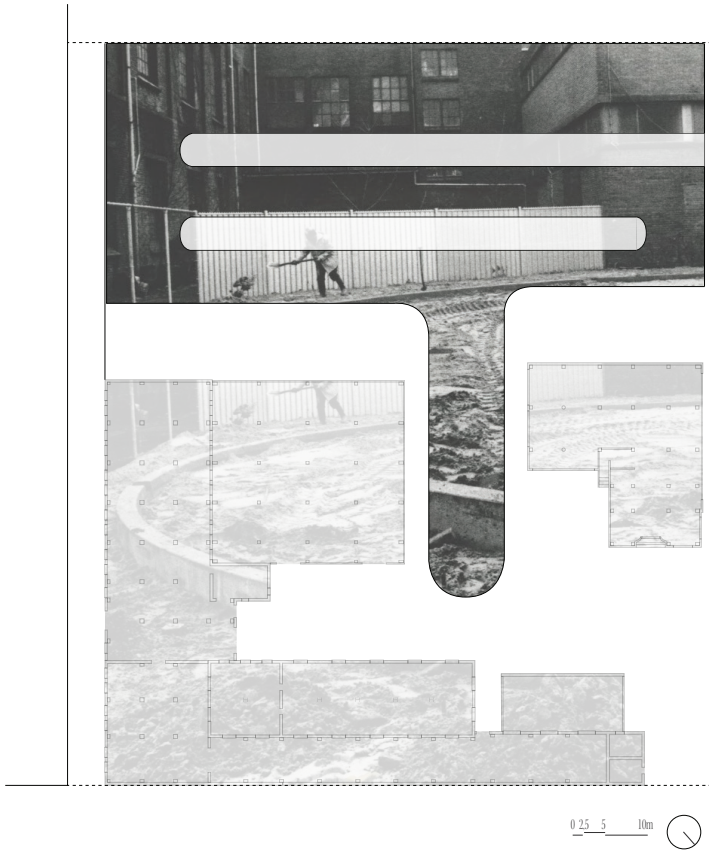


Figure 1.41 | Seven maps of Keileweg 26-28. Development of the site.

development of the site

Archival research shows the architectural historical developments of the buildings on site (fig. 1.41). In 1915 the factory started with the construction of the main factory hall, a boiler room and a large chimney. When the factory was taken over by the new owners, the building expanded towards the waterside and with an additional office building on the side of the street. In 1941 a shed hall was built in between the factory hall and the border of the property. The lack of light was resolved with skylights. After the Second World War, the building expanded again with addition floors and a basement, connecting the structures into a solid structure. In 1961 an additional paper storage hall was built in the courtyard, with a shed roof resembling the hall from twenty years prior. In 1994 a parking lot was constructed. Currently this parking lot serves as storage.

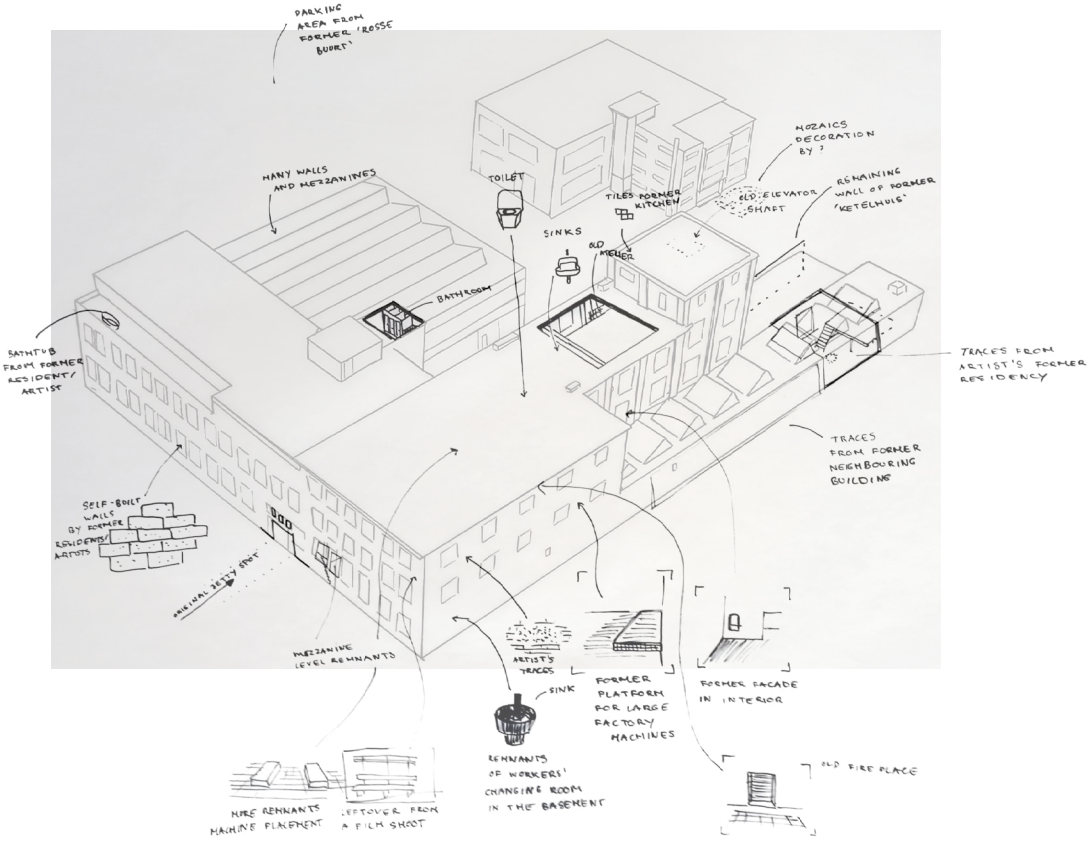


Figure 1.42 | Traces or palimpsest. Site analysis

palimpsest

Knowing about the historical developments gives a context to what is represented through the visible layers of the palimpsest.

structures

As concluded before, preserving the historical layers is not just about the material, but also about the basic form or structure. In the case of Keileweg 26-28 this basic form is influenced by the development of the harbour and its functionality. The composition of the ensemble and of the building is focused on the waterside (fig. 1.43), because of its history with mooring cargo ships. Besides, because of the factory function the building has a specific open grid structure, high windows and ceilings and saw-tooth roofs that are strong characteristic traces (fig. 1.44).

elements & traces of use

Besides the larger structures or gestures, specific spaces or elements also show previous layers and uses (fig. 1.42). Industrial elements such as machinery platforms, but also the location of bathrooms for the workers of the factory show the industrial heritage. Newer elements, such as built in walls and structures, and traces of use by the artists express a different time layer of the historical development of the building. The spaces show the passage of time by the visible traces of alterations and transformations.

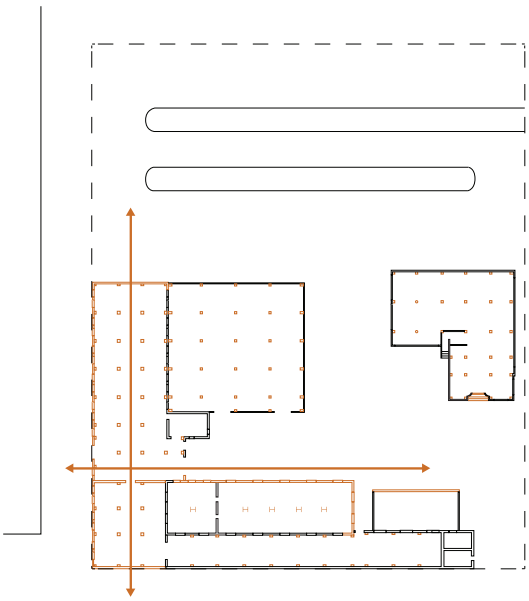


Figure 1.43 | Palimpsest. Structure from the plan.

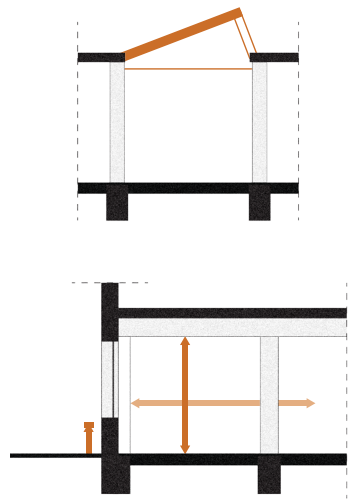


Figure 1.44 | Palimpsest. Structure from the section.

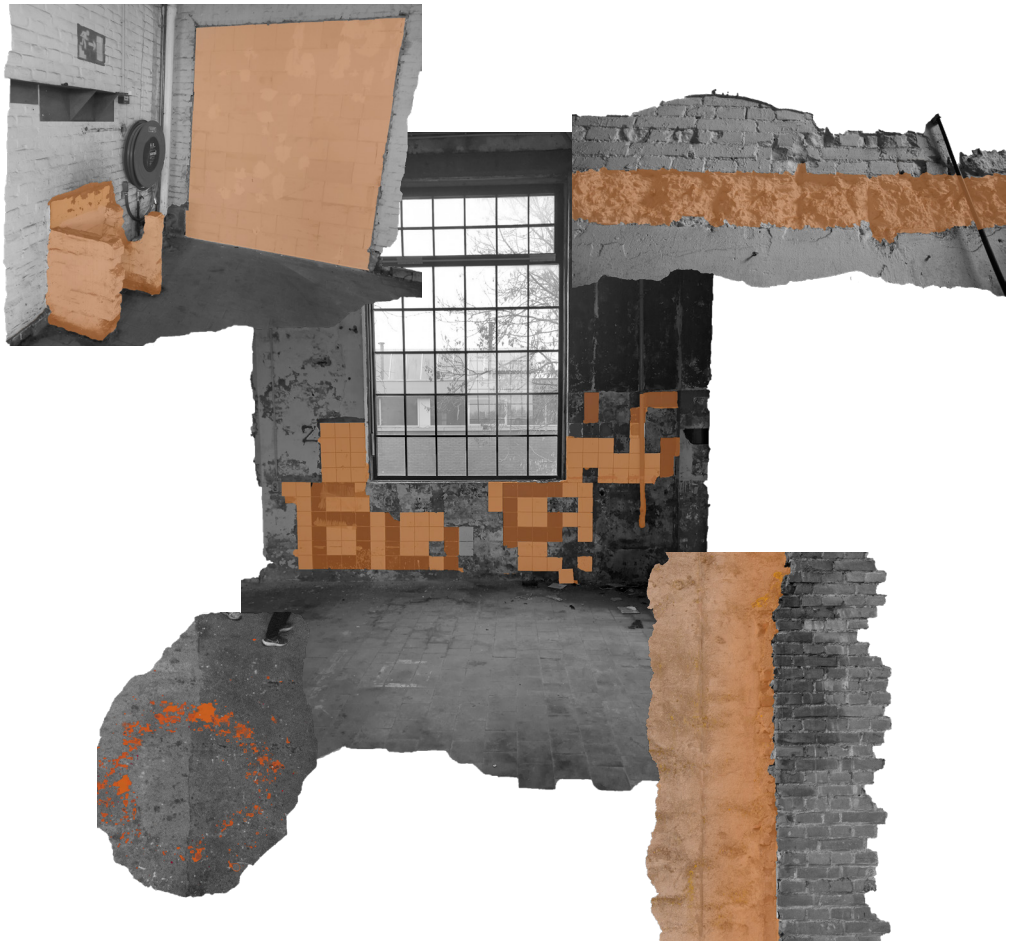
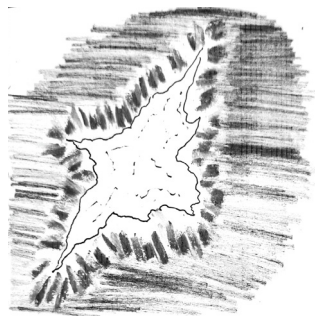
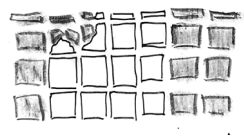


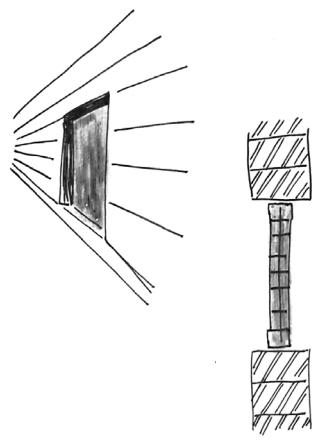
Figure 1.45 | Palimpsest. Traces from previous times.

design approach

The design approach starts with the first approach: preserve, out of respect towards the heritage. The basic structure of the building will be preserved and used to bring coherence in the transformation. The traces of the palimpsest will not be removed or covered up completely. Additions will not completely blend in the existing but rather contrast to indicate the different layers. Besides the additions, partial removal will contribute to the indication of certain spaces or elements within the coherence of the design strategy.







conclusion

This chapter started with the sub question: *how is the passage of time approached within landscape architecture?* The approaches regarding the notions of palimpsest and process, but also the attitude of the designer matter to working with the passage of time. This is mostly about the acceptance and the embrace of what layers, practices and stories the site brings, instead of forcing a fixed design or treating the design site as a tabula rasa.

figure 2.1 | Interior of Keilewag 26-28. An empty space open for various futures. (Floor van der Vliet, 2025)

part II creating space for life

The common ground between architecture and landscape architecture is designing spaces for perception. What types of uses or practices might occur within these spaces differ from space to space and from time to time. This dynamic variability is characteristic for life. Life is ever-changing and unpredictable. This chapter evolves around dynamics and ways to allow that through design. Thus, this chapter will try to answer the second sub question:

how can space be created for more-than-human life within uncertain circumstances through open-ended design?

The first part of the chapter introduces the bigger theme of dynamics through space and time, addressing an eco-centric lens and the case study of the Ecokathedraal by Louis le Roy, followed by a plead for a change in attitude and the introduction of open-ended design. The chapter continues with and overview of the actors with their uses and practices on the design site through time, leading to the design approach and design interventions.

case study | *ecokathedraal*

Mildam, the Netherlands

LOUIS LE ROY 1964 - ONGOING

a story of an ecocathedral

In 1964, garden designer Louis le Roy (1924-2012) bought a piece of land in Mildam, Friesland. This was going to be the site for the first ecocathedral. This plot that was viewed as chaotic and neglected, has been appointed as national monument in November 2025. Not with a typical function, such as garden, but to protect the function of 'process' (Rijksdienst voor Cultureel Erfgoed, 2025).

Le Roy was convinced that humans are a part of nature, and that human interventions are 'ecological' (Vollaard, 1999). A few years after buying his plot in Mildam, a large pile of demolition waste (fig. 2.2.) was dumped on this plot on his own request (Le Roy, 2000). He started moving, ordering and stacking the bricks and stones without any cement by hand, leaving the pieces that were too heavy to carry. Then he randomly planted trees and seeds on site to give a headstart to the natural processes. The simple, but time-consuming, process of stacking elements on a piece of land was about experiencing and showing what a single person can achieve, while letting natural processes intertwine with the human process. The Ecokathedraal became an ongoing research and design project about time, nature and the builder. Even today, years after Le Roy's death, people continue stacking pieces of demolition waste and growing the eco-cathedral.

lessons from an ecocathedral

Ecocathedrals are structures that can develop themselves throughout space and time (Le Roy, 2000). This project is an example of open-ended design and how the architect can act as a catalyst of processes instead of as the strict director of space. The Ecokathedraal forms an alternative for the human-nature relationship in public space. It shows that humans should not only be perceived as either passive observers or destroyers of nature, but as a part of an ecological system with various processes. The human process of land formation in this case concerns the process of stacking debris, which is dependent on the carrying capacity of a person. In the meantime, everything transforms, dies and grows again.

Figure 2.2 | Dumped street tiles and bricks. Discarded material used for Ecokathedraal. (Louis le Roy, 2000)

Figure 2.3 | Drawings of Ecokathedraal development. (Louis le Roy, 2000)

Figure 2.4 | Photos from Ecokathedraal visit in December. (Floor van der Vliet, 2025)

Figure 2.5 | **Ecokathedraal.** Mosses cover both brick structures and organic matter. (Floor van der Vliet, 2025)

dynamics and uncertainties
of life and more-than-human processes

Time can be envisioned as an open horizon (Le Roy, 2000). As an endless sea of possibilities. Whatever happens can be caused by many different actors and happenings. In chapter 1 the notion 'process' was introduced. A process sets something of that causes gradual change over a certain period of time. The presence of processes makes spaces dynamic.

Processes are always initiated by a type of actor, whether biotic or abiotic, the wind or person, and are expressed or experienced differently in a variation of scales. Ecosystem thinking is based on the idea of interconnectedness between those multiple actors and scales. Within existing buildings, such as the ensemble of Keileweg 26-28, not only humans, but also other life-forms engage with the space and its material. The actors influence each other and the development of the site, increasing the complexity of spatial dynamics. This approach is in line with the shift from anthropocentrism to ecocentrism, 'from ego to eco', placing humans from the top of the pyramid to a place in a web of many other actors (fig. 2.6). This philosophy is key to this project that is intended to decrease the boundaries between the humanised world with buildings and the dynamic changes of the natural world.

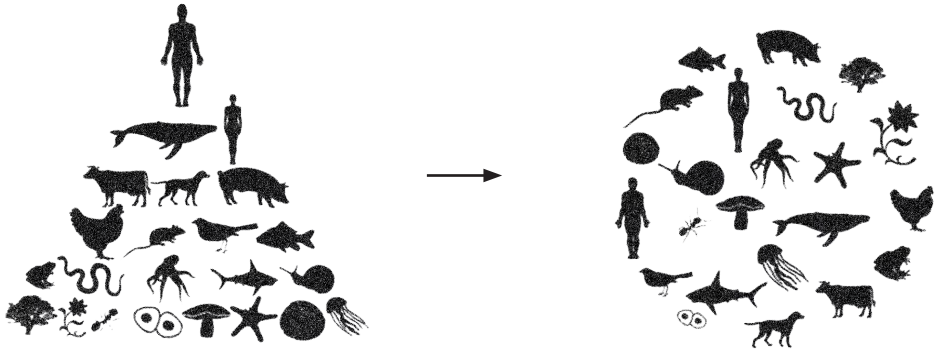


Figure 2.6 | From ego to eco.

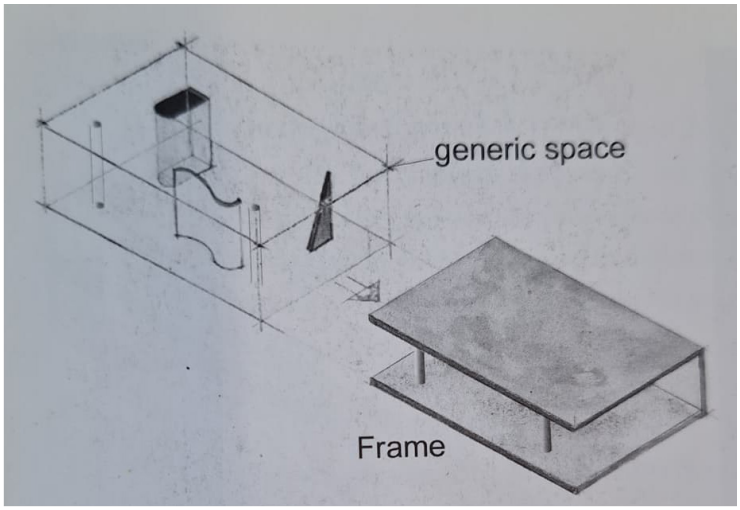


Figure 2.7 | **Frame and generic space.** The frame allows generic space to take form. (Leupen, 2006)

Figure 2.8 | **Parc aux Angeliques, Bordeaux.** The framework embraces change to happen undirected. (Michel Desvigne Paysagiste, 2017)

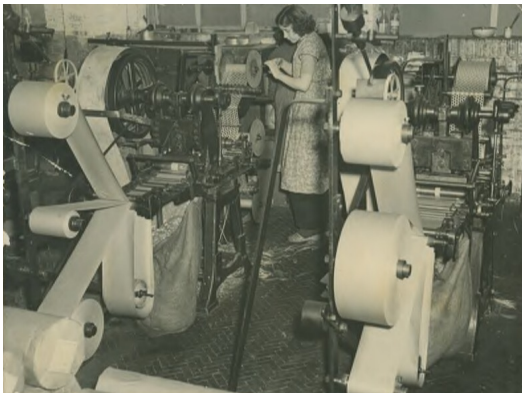
creating space for life

When spaces are always developing, 'always under construction' and 'never finished' (Massey, 2005, p. 9), this transience should not be opposed but embraced. This is where open-ended design enters. Open-ended design is about designing without a predetermined result in mind.

In chapter 1, three examples of design attitudes were mentioned (see p. 59). The second (creating a starting point) and third (acting as a gardener) approach are in line with the open-ended design attitude. This type of attitude is inherent to landscape architecture and the dynamic character of the design sites (De Wit & Bobbink, 2020). This approach can and should also be applied to the transformation design of existing architecture, because, as David Leatherbarrow states, 'unforeseen changes are inescapable in works that last' (p. 9, 2020), which definitely includes meant-to-last buildings.

Within architectural discourse the idea of open-endedness has been researched already. Flexibility and changeability in buildings have been approached in multiple ways already. For example, Bernard Leupen (2006) uses the term polyvalence regarding the multiplicity of the use of spaces as a continuous process. According to his research, these generic spaces should be formed by a frame of permanence. As changefulness and unpredictability are a given, the permanence of structures or frameworks can enable this freedom (Leupen, 2006). By this design approach, the spatial organisation can only direct certain programs, uses or processes, but never specifically determine them. This agrees with Urszula Kozminska's statement that architecture can only define order, but not the actual unfolding (Kozminska & Allen, 2024).

Another way of approaching open-endedness in architecture is enabling growth. By increasing the variation of spaces through a range of sizes and conditions, such as porosity, a rich array of processes and developments can unfold in a building and lead to a biodiverse habitat. To direct certain specific programs or processes, the (minimum) requirements of the needed circumstances should be established. Just as gardeners make sure their plants at least have the right amount of light, water and nutrients.



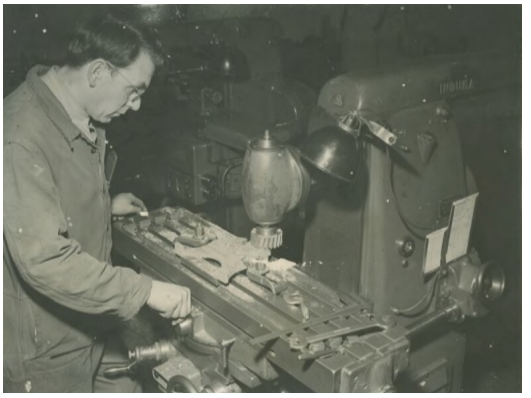


Figure 2.9 | **Factory life.** Archival photos of uses and practices of Keileweg 26-28 from Stadsarchief Rotterdam. (Fritz Foto. 1926; Unknown. 1953; Unknown: 1957 Unkown. 1960)

uses and practices at Keileweg

historical development

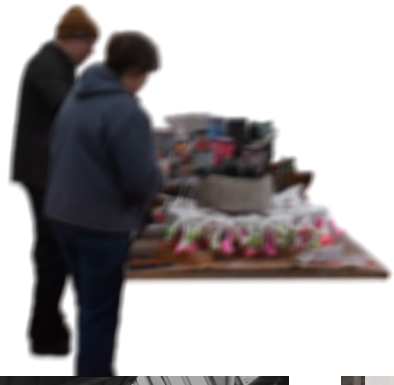
The uses and practices of a place are determined by the actors. Historically the ensemble at Keileweg was built by people as the first factory of the Merwe-Vierhaven area. The layout was intended to facilitate the factory work and the workers. The location by the water was perfect for shipping and receiving goods. The building was placed right on the quay to limit the distance between ships and the building as much as possible. The floor-to-ceiling height is almost 5 meters, to ensure that larger machinery was able to fit within the spaces. The later built paper warehouse has saw-tooth roof, that shields the storage space from direct sunlight, while allowing plenty of indirect light to get into the building, which is a typical aspect of factory and storage buildings. The yellow-bricked office building on the other hand is located by the street and includes larger windows and a collection of smaller spaces for more administrative types of activities. The balcony of the older building was added later as well, to create an outdoor space for the workers next to the cafeteria on the top floor.

When N.V. Inverpak had gone bankrupt, there were plans for the creation of an erotic center. Prostitution was already happening in the area but was met with a lot of criticism and protest. However, the area around the buildings was still transformed into a looped parking area as a streetwalking zone, where cars could stop by the sex workers. After many years, the street prostitution at Keileweg ended in 2005, but the road on the site is still visible.

Meanwhile, since 1987 the artists of Kunst & Complex have inhabited the site. Previously, they could make use of the entire site for a very low price. People tend to shape spaces to their own liking. The creatives that worked and sometimes even lived in the building created many structures for privacy, storage, exhibition possibilities or other functions related to their personal work and living spaces.

Currently, the artists are still renting the building from the municipality of Rotterdam, but for a higher price than previously. Most artists have thus relocated their studios into smaller spaces of the building. In 2021, the buildings were sold to developers, but the plans seem to have stagnated and resulted into vacancy of half of the old factory building.

Figure 2.10 | **Prostitution at Keileweg.** Archival photos of uses and practices of Keileweg 26-28 from Stadsarchief Rotterdam. (Fotomuseum. 1983; Robert Vos. 1994)



Homo sapiens

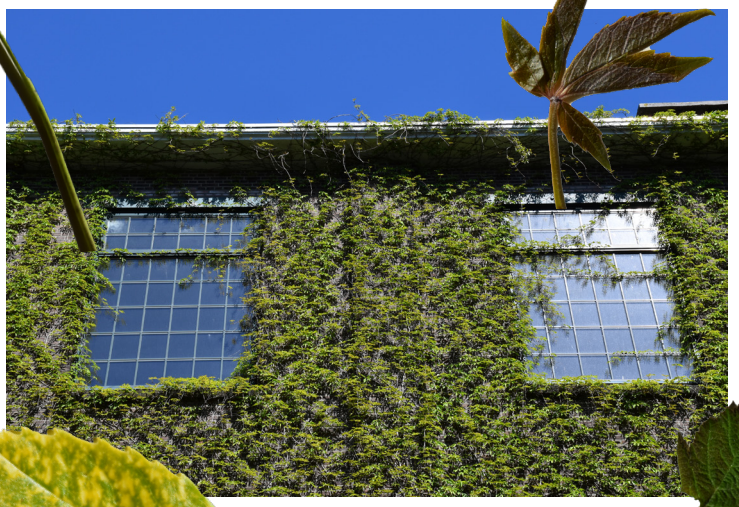
In my studio I feel at home
Surrounded by material
To create
Something new
Chaos is my playground
I need the space
To make, to build, to cook, to live
My desires form my surroundings
I thrive where I create
I create where I am

Figure 2.11 | **Kunst & Complex.** Uses and practices of Keileweg 26-28 since 1987. (Unknown, n.d.; Kunst & Complex, n.d.; Jeroen Kuster, n.d.; Floor van der Vliet, 2026)

ENGLISH IVY | HEDERA HELIX L.
CLIMBING AND GROUND COVER PLANT (>20M)

Parthenocissus quinquefolia
My fingers reach great
heights
My hands cover the surface
To green the brown brick walls
Green in spring, but in autumn I am
red
You better like that

CREEPER | PARTHENOCISSUS QUINQUEFOLIA
CLIMBING PLANT (<12M); RUDERAL



SPOTTED LAUREL | AUCUBA JAPONICA THUNB.
EXOTIC PLANT; DRY AND SHADY GARDENS

PRUINOSE BRAMBLE | RUBUS PRUINOSUS ARRH.
INVASIVE SPECIES; TASTY FRUITS; THRONS

the other actors

Besides humans, other living beings should be considered as actors in the story of Keileweg 26-28 as well. All actors have different practices. The next pages work as an overview, giving a wide view of the other type of actors and their practices at Keileweg 26-28, including their narratives.

TAXUS |TAXUS BACCATA
CONIFEROUS; THICKET SPECIES

MAPLE | ACER CAMPESTRE
DECIDUOUS TREE

OAK |QUERCUS ROBUR
DECIDUOUS TREE; OAK NUTS

BLACK POPLAR | POPULUS NIGRA
DECIDUOUS TREE; MOIST SOIL; SUPERFICIAL ROOTS; FAST GROWTH

Betula pendula

Shining, do I stand
Slender, tall, openly crowned
Letting light touch the ground
Friends below me share the soil
Sometimes rough
But not enough
My seeds as dangling hair
Blow away thin in air
The sound of sneezing is never far
But still, I am a real star

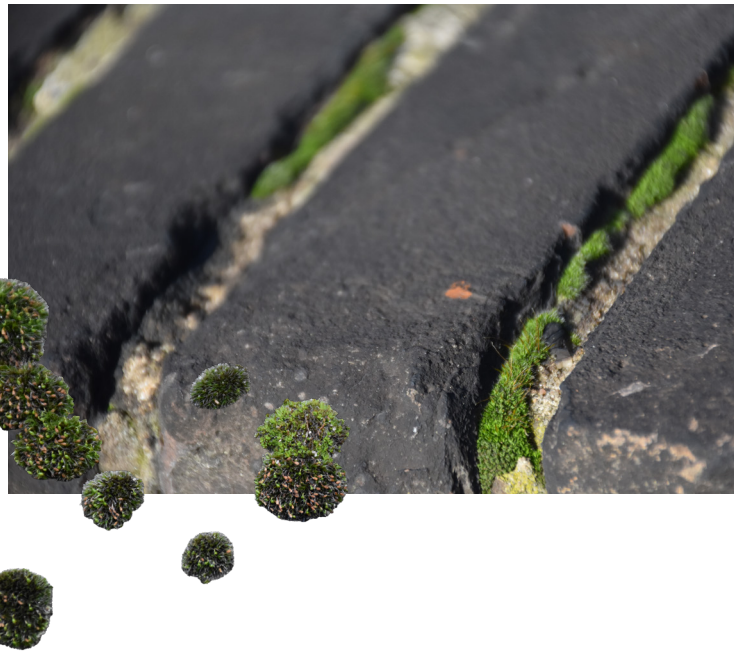
YELLOW LICHEN | XANTHORIA PARIETINA
PIONEER SPECIES, NUTRIENT RICH ROUGH SURFACES

Xanthoria parietina

My brightness colours the darkness
From trees to stones
From forests to cities
Your nitrogen is my friend
My range is large
My leaves are small
Leave me where I am
And I shall tell you all

Bryum argentum

I am soft, I am tender
You might know me
But not my name
I green the grey
Covering the cities
And close to humans
I thrive in darkness and moisture
The heat of the sun will never kill me
But do not try to move me
I always find my own spots



SILVERY THREAD MOSS | BRYUM ARGENTUM
NITROPHILOUS SPECIES

EGYPTIAN GOOSE | ALOPOCHEN AEGYPTIACA
INVASIVE EXOCITC BIRD

Egyptian goose

Since the 60s I have belonged here
Always with my loyal partner
Greater than a simple duck
My feathers golden as the sun
Our nesting hidden from your eye
Close to the waterside
You like to watch
But please don't touch
When my babies are around
You will hear my calling sound

CRUCIFERS | BRASSICEAE
CABBAGE FAMILY; YELLOW FLOWERS; INSECT POLLINATION

REED GRASS | APHRAGMITES AUSTRALIS
WATERSIDE PLANT

PIGNUT | CONOPODIUM MAJUS
WHITE FLOWERS

GROUND IVY | GLECHOMA HEDERACEA
CRAWLER, MOIST SOIL, PURPLE FLOWERS

Glechoma hederacea
I cover the grounds
With purple and flowers
And sweet, sweet smell
I am small
But bees will find me
In April I blossom
In winter I withstand
Evergreen and everywhere
That is me and my flair

Brown rat
I am quiet
I am small
You don't like me
But I want all
Everything you leave around
I will probably have found
Hidden in cool and dark
I shy away but make my mark

PERIWINKLE | VINCA MINOR
SHADOW PLANT, MINIATURE SHRUB, BLUE FLOWERS

ASH | FRAXINUS EXCELSIOR
DECIDUOUS TREE

BLACK ALDER | ALNUS GLUTINOSA
DECIDUOUS TREE. CATKINS DEEP ROOT NETWORK. MOIST SOIL

Alnus glutinosa
Moist and wet
That is where I am at
By the water, I shelter others
Planted as a pioneer
I have seen too many park over
here
I hear the cat calling is over now
Now my catkins should find some ground

HAWTHORN | CRATAEGUS MONOGYNA
DECIDUOUS TREE; MOIST SOIL; WHITE FLOWERS

Seagull
White and grey
As the foam of the waves
You will think of the sea
When you hear me scream
Close to people I make new nests
Feeding from your scraps
Hidden on your roofs
I spread my wings to rob you fools

DANDELIONS | TRAXACUM
YELLOW FLOWERS; WIND POLLINATION

BERRY | RIBES
UNKOWN SPECIFIC SPECIES

CARNATIONS | CARYOPHYLLACEAE
PINK FLOWERS

GREATER CELANDINE | CHELIDONIUM MAJUS
YELLOW FLOWERS

CRACK WILLOW | SALIX EUXINA
DECIDUOUS TREE> MOIST SOIL

habitat

The analysis and narratives of the other life forms at Keileweg 26-28 gave a broader understanding of the various actors' needs. Each type of actor has different needs and ways of using space. Most at least need a comfortable place to grow with water and nutrition. To enhance biodiversity and maximize the variation in processes, a variety of conditions or 'habitats' should be created. Similar to the difference in biodiversity between a mowed and monocultural field and a wild and poly- or permacultural field, can a variation in conditions within a building enhance the multiplicity of actors and uses.

These conditions can be created in multiple scales, from micro to macro, and from inside to outside. The gradient between inside and outside forms a rich variety of circumstances that are exposed to the elements from a little to a lot (see image). Besides, the actors that shape the space will create new conditions as well. A climbing plant on a wall, a tree, or a bag of organic waste can all become the habitat for other actors.

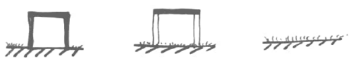


Figure 2.12 | **Conditions.** Indoor-outdoor gradients.

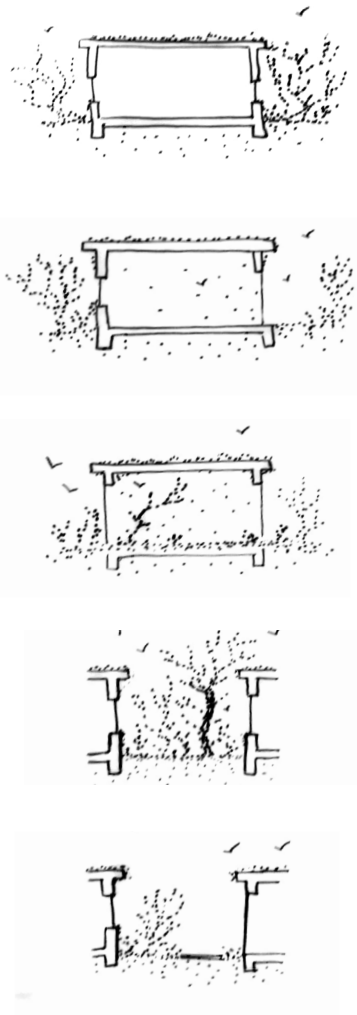


Figure 2.13 | **Conditions.** From indoor to outdoor

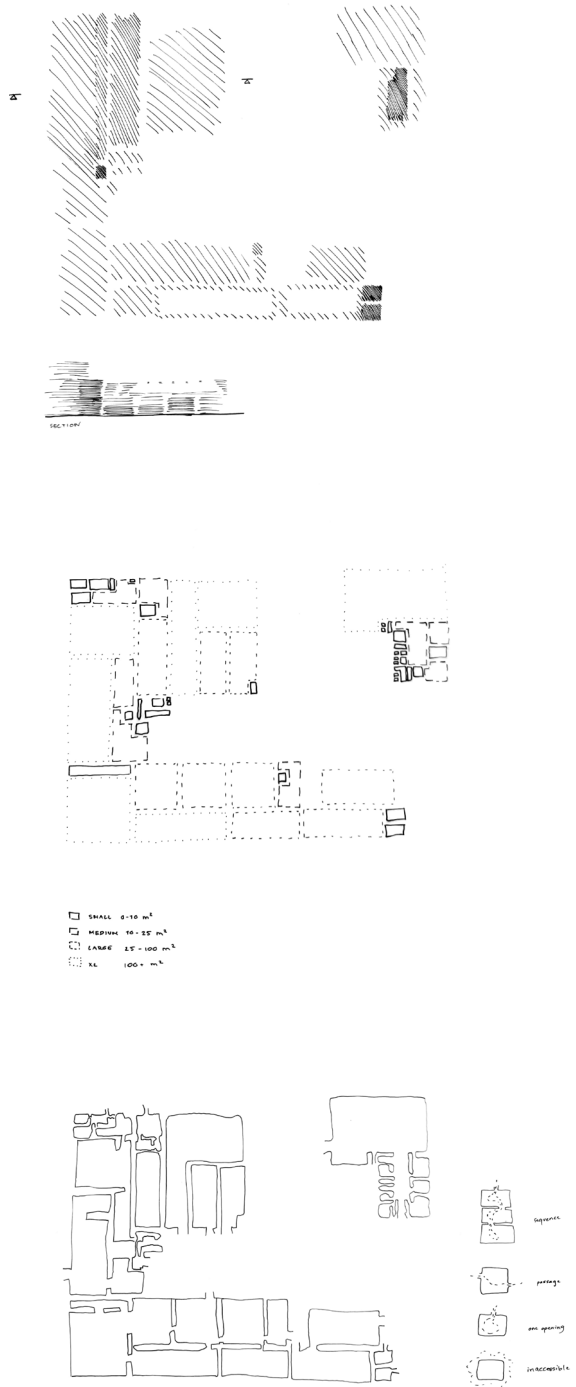


Figure 2.14 | Site-analysis. A variation in conditions within the building: light-dark, size, accessibility.

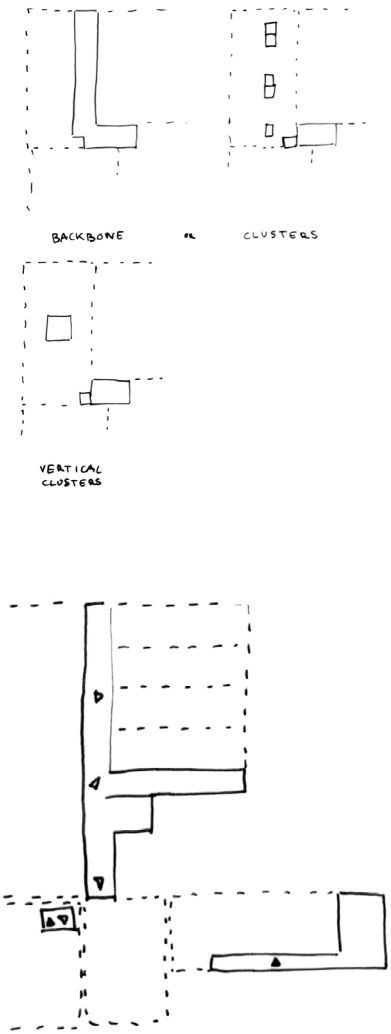


Figure 2.15 | Framework: accessibility. Experiments and design.

design approach

The buildings at Keileweg 26-28 consist of a large variety of spaces, from light to dark, from small to large and from open to enclosed. Three possible scenarios of uses and practices were explored, that ranged from human and rigid to natural and dynamic. Instead of designing for these specific scenarios, a framework is developed that facilitates a wide range of uses and practices, responding to the needs of the various actors in and around the site.

A frame of permanence forms the backbone of the design and organizes the spatial relations and the structure of development. The liberties and constraints are defined through the existing load bearing structure, the altered circulation space and the designated openings. This spatial organisation frames the variation in conditions throughout the buildings as a guiding thread. These conditions are determined by the levels of indoor-outdoor, light-dark, accessible-inaccessible and the presence of minimal requirements for certain uses or practices (such as water, heat and electricity). The conditions will be manipulated but originated from the current situation. The increasement of the porosity of spaces and elements will welcome and enhance natural processes and thereby dramatize their effect. Thus, the approach regarding process (see chapter 1) in this design ranges from creating conditions to dramatizing.

The attitude towards the process of construction and design is by offering a starting point that focusses on the frame of permanence, while at the same time embracing the idea that designers can act as gardeners and respond to what processes arise. Thus, allowing that the interaction with the designed framework will become a patchwork of various interpretations of the formed conditions.

conclusion

This chapter started with the sub question: *how can space be created for more-than-human life within uncertain circumstances through open-ended design?* Central to this question is the outcome that humans should not be considered the only important actor. However, the design should also not focus on creating the perfect specific conditions for other life-forms but rather create a wide array of conditions that welcome a multiplicity of uses and practices.

Open-ended design can be approached from a starting point or as a gradual process of intervention, just as stated in chapter 1. The chaotic uncertainty of transience can be steered with a frame of permanence that defines the liberties and constraints. This framework should build on the existing structures and elements found on site.

Figure 3.1 | Detail of weathered concrete. The building at Keileweg 26-28 is already experiencing the effects of time ont material. (Floor van der Vliet, 2025)

part III working with material and time

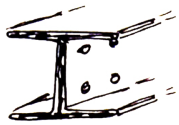
The passage of time materializes all around us, either by leaving historical traces creating a palimpsest or by the effect certain processes have on a material. In architecture, these materializations of time are usually spoken of as obsolete or as decayed, always associated negatively. However, landscape architecture teaches us that material is alive and always changing, and thus that growth can arise from decay and in other words that something new can be built from the obsolete. While the previous chapters informed about the bigger historical story, the actors and the uncertainties, within this chapter we zoom in. This chapter is all about materials. It answers the third sub question of this research:

how can the passage of time influence the use of materiality?

The first part of this chapter investigates the way materials react to the passage of time. The second part is about an acceptant attitude towards decay. The final part continues with how architects can work with materials in transformation design with this different attitude and by embracing their ability to respond to the passage of time.

landscape

building



elements

processes

erosion *land formation*	WIND	*erosion* *collapse*
flooding *sedimentation* *erosion* *meandering* *life provision*	WATER	*flooding* *leakage* *erosion* *life provision*
warmth *drought*	SUN	*warmth* *drought* *light*

Figure 3.2 | Materiality in landscapes and architecture.

the effect of time on material

"Matter is the raw, brutish stuff from which things are made. It is what constitutes material properties, making them perceptible to our senses. Materiality is the quality of being material and is best understood through the tactile and bodily perception of things, senses distinct from any form of secondary or objective deduction." - James Corner (1992, p. 148)

Everything we can see is made of matter, from water and air to wood and metal. The matter that we use to create things with, is what we call material. There are many different materials that all have their own properties and qualities. The way materials respond to time depends on these inherent qualities, but also to the processes they encounter.

These processes can be set in motion by different actors, both biotic as abiotic. The cyclical and linear processes landscapes and buildings encounter have differences, but also a lot of similarities (fig. 3.2). The material that landscape architects and architects work with also have both differences and similarities. While landscape architects work with soil, water and plants, architects work with building materials and elements. However, bricks are still subject to the same continuous processes as rock formations. And just as fallen branches are supposed to deteriorate and create fertile soils, will wooden window frames start to decay after some time, creating fertile soils for lichens and fungi (fig. 3.4-3.7). The effect of time can be seen as weathering, or in other words as material change (Leatherbarrow, 1993).

Figure 3.4 & 3.5 | **Material in nature.** Life grows on rocks and decaying wood. (Tanne Brouwer, 2026; Floor van der Vliet, 2026)

Figure 3.6 & 3.7 | **Material for construction.** Similar processes weather building materials as in natural settings. (Floor van der Vliet, 2026; Beccy Boxer, n.d.)

Figure 3.8 | **Tree rings.** Unintentional monument. (Floor van der Vliet, 2026)

Figure 3.9 | **The Sexton's House.** A blue, tile-covered bathtub from the 1960s in Snedsted exposed to the effects of time. (Mo Michelsen Stochholm Krag, 2014-2021)

shifting the attitude

The architect's attitude towards material change is intrinsically rigid, as architecture is historically assumed to be about solidity (Pihlmann & Dickinson, 2025). The negative outlook on material changes and the negative assumptions with weathering and decay prevent existing buildings from being approached as dynamic landscapes. The first step to change is recognition. In this case it is about recognizing the similarities between landscapes and buildings and thus the need for change in attitude. The attitude of the gardener is acceptant of how the garden moves with time (Clément & Tiberghien, 2015). The French landscape architect Gilles Clément compares hard landscaping to architecture as it tries to withstand time, or 'at least a certain time', while gardens will always be in transformation:

> *"The visible, solid, piece of work, built from inert substances, confronts the attacks of time ... with no other solution but to give in to them. But if discreet, organic, composed of living matter, it will discover ways of transforming itself without heading towards a ruin. The garden is such a creation. Providing that in that place the gardener has not played at being an architect."* (p. 161)

While Clément denies that the garden will degrade into a ruin. The ruin has also a romantic appeal that can evoke emotions (Krag, 2025). As Urszula Kozminska's work Time Matters encapsulates, age has value. Architecture professor and writer David Leatherbarrow considers ruins as buildings in their extreme condition of decay (Mostafavi & Leatherbarrow, 1993). He imagines a building as a mortal body, that undergoes inevitable gradual change, as the effects time have on a human's skin. Just as wrinkles are the effect of many stories, emotions and memories. The materialisation of time can thus be understood as an unfolding drama, encapsulating lived time, filled with memories of time and space. Due to this age value, by not covering up or even explicitly showing the materialisations of time, unintentional monuments can be formed (see images). The conclusions from the first chapter on how to work with the landscape architecture notions of process and palimpsest can thus also be used on a material level.

This attitude resembles the Japanese philosophy of wabi-sabi that finds beauty in imperfection, impermanence and incompleteness (Koren, 1994). Although processes are continuous, the materialisation of time forces us to be present, as we can only be in the moment and experience expressions of time frozen. Architecture's task, according to Leatherbarrow (2020), is to connect us to where and when we are. While this sounds quite ambitious, artist and writer Leonard Koren describes the material qualities that are related to wabi-sabi philosophy in his first book (1994) as:

suggestive of natural processes
irregular
intimate
unpretentious
earthy
murky
simple

While time is a grand subject, these characteristics emphasise that wabi-sabi philosophy is not about greatness but rather grounding by simplicity. Danish architect Søren Pihlmann mentioned that we should rethink of what constitutes as comfortable (Pihlmann & Dickinson, 2025). The wabi-sabi characteristics agree with this idea. Instead of overengineered solutions to promote the highest level of comfort and covering up so-called faults (Kozminska, 2025) the focus should go back to simplicity and admiration of the imperfect.

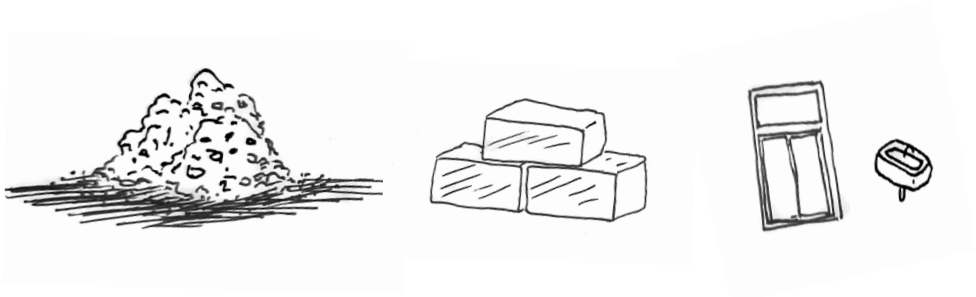


Figure 3.10 | **Unbuilt materials.** Debris - building product - custom product.

Figure 3.11 | **Building and unbuilding.** Part of analysis of present materials at Keileweg for reuse and repurpose.

working with materials and time

site-derived architecture and unbuilding

First, when transforming an existing building, just as a landscape, site specificity is key. Not only in terms of actors and use, but also regarding its materiality. Jane Hutton's book Reciprocal Landscapes (2020) discusses the fact that materials are continuous and shapeshifting fragments of habitats and cultural landscape, and thus much more than interchangeable and placeless commodities. Site-derived architecture is grounded in this idea. As resources are finite, Søren Pihlmann notes that when transforming an existing building, we must find value in the existing materials and initial conditions (Pihlmann & Dickinson, 2025). Just as the process of dredging soil, relocating it and using the soil to make dams that laid the foundation for the Markerwadden (see chapter 1), can an architectural built structure be deconstructed to reuse the elements for a newly built structure.

Pihlmann's work (fig. 3.12 & 3.13) shows the value of 'unbuilding'. This term comes in line with circularity approaches and closed-loop systems such as reuse and repurposing where waste is used as a resource. The Dutch Superuse Studios is one of the architecture firms that harvests materials (fig. 3.14 & 3.15) from demolition projects (Superuse Studios, 2025). However, this idea is centuries old and can still be seen in structures built with spolia (fig. 3.16). The repurposing practice of spoliation is another way of engaging with the palimpsest by not removing old traces but reusing them for a different purpose. Thus, the design process does not start from a blank canvas, but from what is found and becomes, as Japanese architects Fuminori Nousaku and Mio Tsuneyama call it (2024, p.56) 'a bricolage of waste'.

After unbuilding, instead of demolition, the 'unbuilt materials' can divided in three groups (Team Vintage Verstedelijking, 2019) (fig. 3.10):

- *bulk material as debris*
- *building products to be transformed or reused*
- *custom products to be reused or repurposed*

These groups differ in amount and type depending on the site and structure. Therefor it is necessary to firstly experience and analyse the initial situation regarding the material qualities. After deconstructing or unbuilding certain structures, the materials should be ordered and stored close to or on the site to allow for their reuse or repurpose (Team Vintage Verstedelijking, 2019). Material stations such as the Grondstoffenstation by Superuse Studios in Rotterdam (fig. 3.17) or larger regional material hubs, such as proposed by Team Vintage Verstedelijking as part of spatial design explorations for regional development in South Holland.

However, probably not all necessary building materials will be found on site, nor in nearby demolition sites. But instead of immediately reaching for newly fabricated materials, in order to prevent more waste (Nousaku & Tsuneyama, 2024), biodegradable, recyclable or ultra-durable should be used.

In order to enable the process of building and unbuilding on site, and decrease the amount of building waste, architects should design for easy assembly and disassembly of these various material groups. Next to that, detailing with a larger margin could allow or even welcome the use of discarded materials, including their imperfections, from demolition sites.

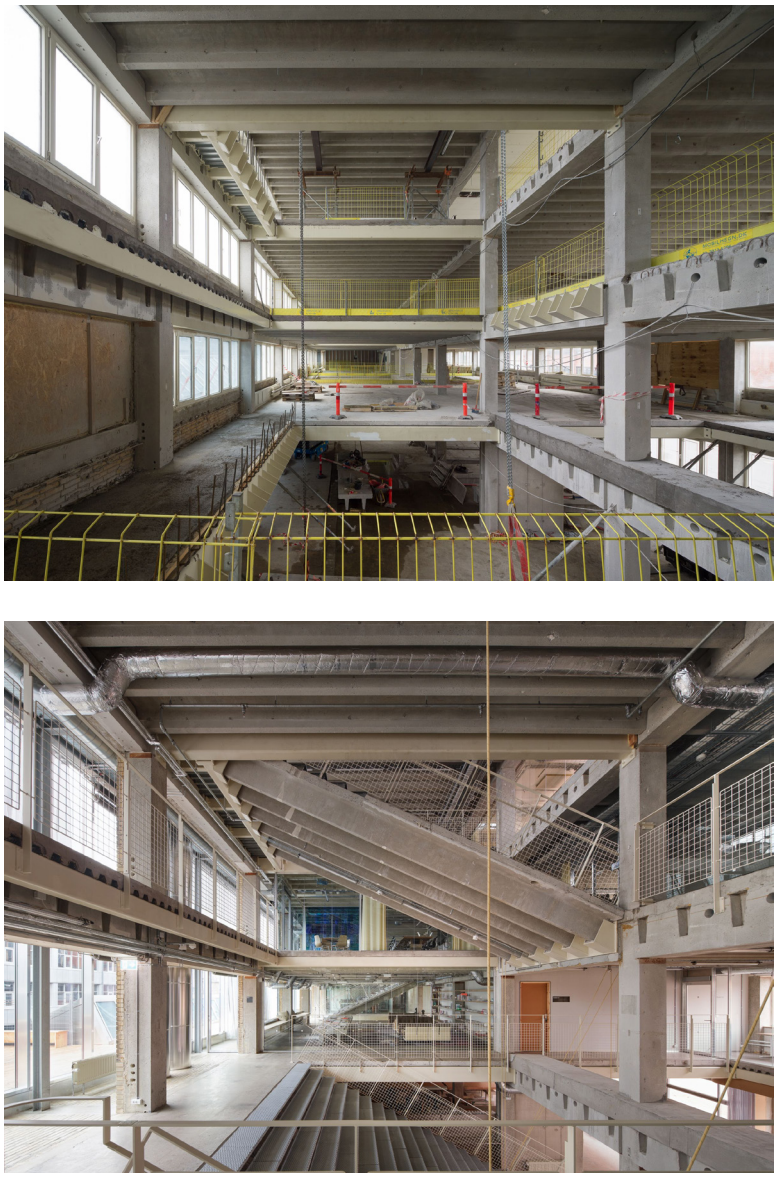


Figure 3.12 | **Thoravej 29. Copenhagen.** Transformation project by Pihlmann Architects that allows the building to recycle itself. (Hampus Berndtson. 2025)

Figure 3.13 | **Unbuilt materials from Thoravej 29.** Materials are harvested from the site. (Hampus Berndtson, 2025)

Figure 3.14 | **Buitenplaats Brienenoord.** Superuse Studios harvests materials in close proximity to the design site. (Frank Hanswijk. n.d.)

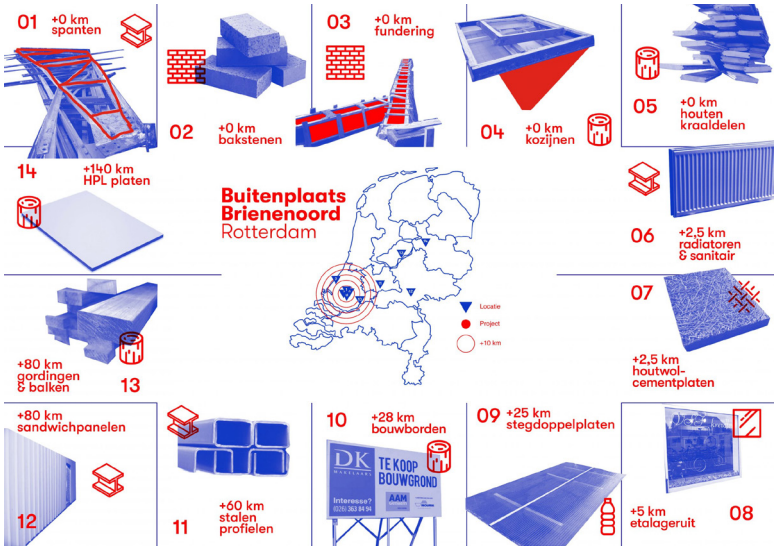


Figure 3.15 | Harvest map Buitenplaats Brienenoord. Superuse Studios. 2020.

Figure 3.16 | **Plecnik House, Ljubljana.** Facade including spolia. (Floor van der Vliet , 2026)

Figure 3.17 | Grondstoffenstation, Rotterdam. (Frank Hanswijk, 2023)

Figure 3.18 | **Detail of facade of Keileweg 26-28.** Layers of material and algae growth. (Floor van der Vliet , 2026)

detailing with room for process

Besides the process of unbuilding and building, multiple time connected processes arise and influence built structures (fig. 3.18 & see booklet A matter of time). Ultra-durable or very resilient materials like stone and metal have a relatively long lifetime of high performance and can create a sense of permanence or order. However, these materials usually require a lot of energy during production. Biodegradable materials, such as soil and wood, on the other hand cannot sustain durability once exposed to the elements. However, if decay should be embraced and seen as fuel for other types of growth, the way of using and combining these materials should be reconsidered.

The variation in timelines of different kind of materials should be considered when combining and connecting different material groups. Designing for easy (dis)assembly enables the replacement of decayed materials. Besides, an increased margin contributes to embracing the various processes that might alter the material shape and qualities.

Figure 3.19 | Building material analysis. Organisation of debris, building materials and custom elements. (Floor van der Vliet , 2026)

material analysis and imagination
of Keileweg 26-28

The building materials on the design site consisted mainly of stony materials, such as brick, concrete, cement blocks and ceramic tiles (image). Next to that, but to a lesser extent, wood, metal and plastics are present.

Wooden planks, ceramic tiles, metal structures and other elements found on site that are more easily disassembled can be used as building products. The building-specific products, such as the window frames and sanitary elements, can be reused as well. However, once unbuilt mostly would result in a large amount of debris, instead of building materials or blocks, due to the large number of stony materials. Masonry includes 'gluing' blocks together with mortar. The practice of taking a masonry wall apart piece by piece is highly labour intensive, thus the common practice is still the use of the sledgehammer or saw, resulting in the large amount of debris. This confirms that design for disassembly increases the versatility and reusability of deconstructed structures.

Although piles of debris are a downside for versatility and reusability, the pieces can still be used in various ways, in varying degrees of porosity. In dense structures, they can be used as spolia, stacked or poured into a new structure (fig. 3.16), or as pieces to be rammed into a rammed demolition waste wall (fig. 3.25). Stony materials have a rough texture (fig. 3.22 & 3.23) that absorbs and slows down the water flow from the surface and allows algae and other small organisms to nestle on the walls (fig. 3.26 & 3.27). Thus, even dense walls can be more than just rigid structures and invite processes to materialize.
Next to that piles of stone debris can just as organic waste become a habitat for

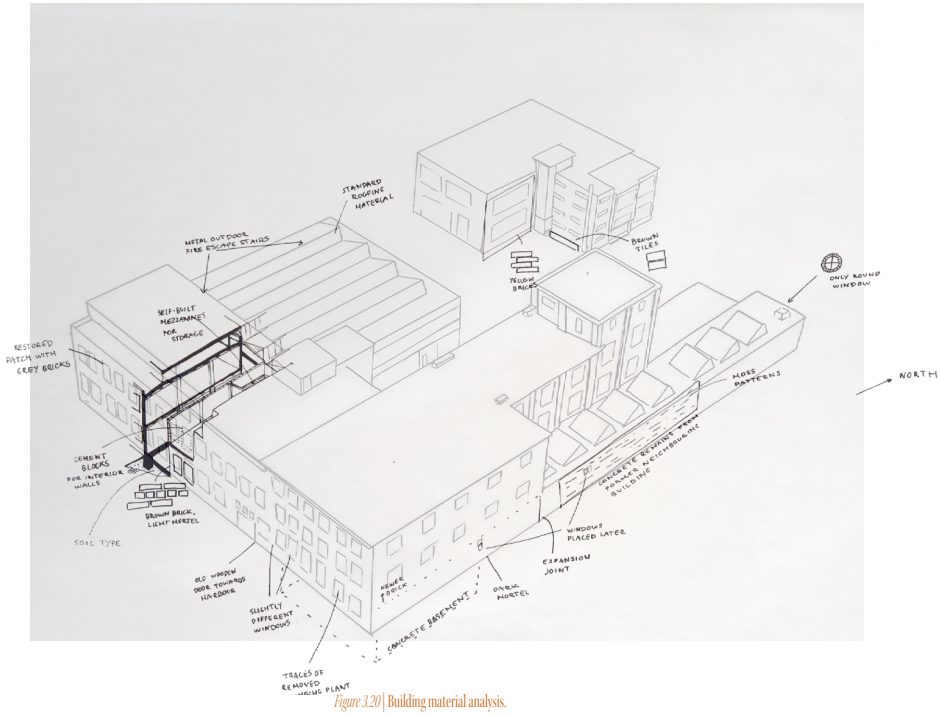


Figure 3.20 | Building material analysis.

Figure 3.21 | **Bricks.** Building material analysis Keileweg 26-28. (Floor van der Vliet , 2026)

Figure 3.22 | **Texture.** Facade materials of Keileweg 26-29 have a rough texture.

Figure 3.23 | **Texture.** Facade materials of Keileweg 26-29 have a rough texture, welcoming algae and lichen.

Figure 3.24 | **Building materials.** From debris to custom products, all can be repurposed or reused.

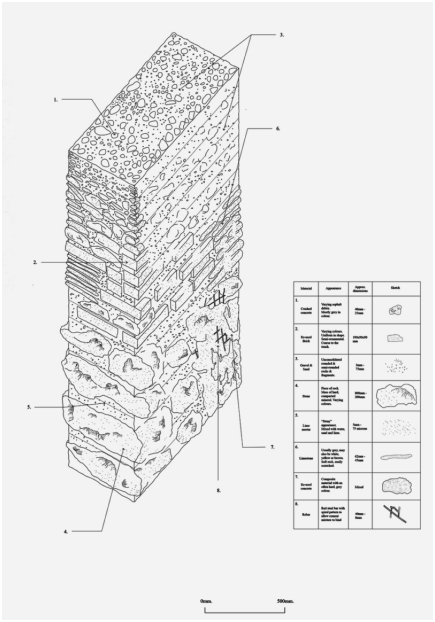


Figure 3.25 | **Demolition waste wall.** A possible building solution to large piles of debris. (Robert Luke Johnstone. n.d.)

Figure 3.26 | **Algae on concrete facade of Keileweg 26-28.** Rough material as habitat for growth. (Floor van der Vliet. 2026)

growth (see chapter 2). Landscape architect Geert Meysmans even used this principle to transform and renature a previous parking lot in Brussels (Cattoor & Dewaelheyns, 2020). The site was initially covered by concrete slabs, but Meysmans implemented different strategies of dealing with this concrete slab (fig. 3.29) and thereby altering the conditions steering natural plant dynamics and promoting or inhibiting human activity. Next to the building at Keileweg, the recently completed Keilehaven Tidal Park by the Urbanisten also includes gabions filled with broken sidewalk tiles (De Urbanisten, n.d.) (fig. 3.28) not only because of the saving of raw material, but also because of their ecological advantages. Although this project has only been completed in 2024, slowly life is starting to use the space and grow along the riverside. Life is growing from decay.

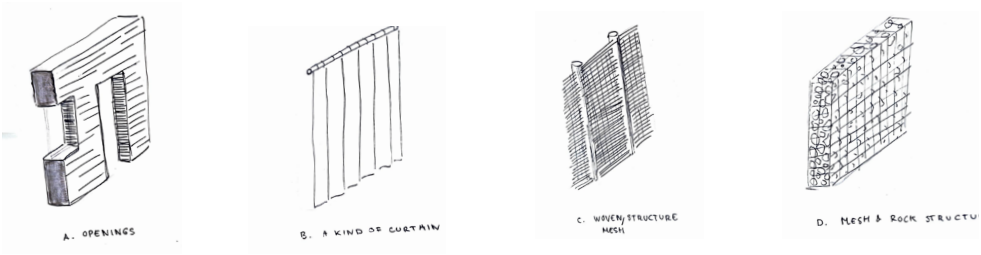
The demolition waste from the other development projects in Merwe-Vierhaven could serve the development of Keileweg 26-28. Circular building material distribution initiatives such as the nearby located Buurman (Buurman Rotterdam, n.d.) already promote this approach of reuse and repurposing. However, as one of the processes that could arise on the project site is building and unbuilding, the currently unused area of the original parking lot could be transformed into a material storage and working station (fig. 3.30).

Figure 3.27 | Mosses. Pieces of moss from the design site.

Figure 3.28 | **Gabion with discarded stone.** Tidal Park Keilehaven. (Floor van der Vliet, 2026)

Figure 3.29 | **Renaturalisation of inner-city parking lot.** Shattered concrete. (Geert Meysmans, 2013)

Figure 3.30 | **Unused space at former parking lot.** This terrain could house a material storage and working station.. (Floor van der Vliet, 2026)



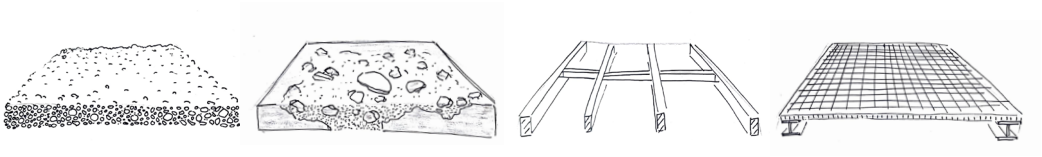


Figure 3.31| **Porosity.** Design explorations of horizontal and vertical surfaces.

design principles

This results into the following design principles regarding the materialisation:

1. reuse of site-derived materials

The site itself can be used to harvest materials and thereby recycle itself. This is in line with the approach regarding palimpsests, as the existing is being valued. As there will be mostly debris from the unbuilt cement blocks, bricks and concrete, these materials will be processed as rammed demolition waste structures for more dense walls, while the more porous walls can be constructed with gabions. These gabions can at same time order the discarded materials by size and quality.

2. design for easy (dis)assembly

In order to assist the process of building and unbuilding, the design will allow easy assembly and disassembly, especially for the elements or structures that will be more exposed to temporalities. The use of carriable elements will increase the workability. And detailing with tolerances will assist the flexibility of material choice.

3. resilient vs transient

To design a patchwork of various conditions, a variation of porosities and materials will be used (fig. 3.31). Depending on the permanence or changeability of the space and the elements, either ultra-durable and resilient or biodegradable and transient materials will be used.

conclusion

This chapter started with the last sub question: *how can the passage of time influence the use of materiality?* The notions of process and palimpsest can be understood on the level of materiality as well. Site-specificity has a big role in this approach. This starts with the embrace of the existing and of the process of decay. The understanding that growth arises from decay, brings a lot of new possibilities to the building practice. Material timelines can be used to create specific conditions or frameworks. The value of the existing can be expressed by site-derived architecture. By designing for easy disassembly, the building and unbuilding processes will be assisted. This way of using materiality, results in a bricolage of materials, that is rough, full of imperfections and in constant flux.

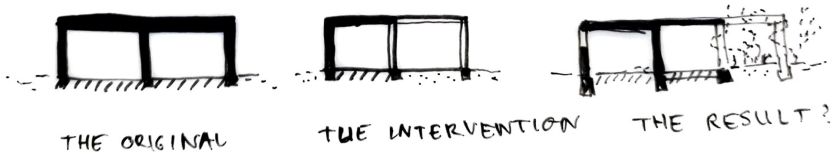
Figure 4.1 | Still from stop motion about the passage of time in the building (Floor van der Vliet & Daan van der Vliet, 2026)

part IV the story of a building

You have reached the final chapter, of this report at least. The previous chapters have all been building up to this. This chapter answers the main design question:

How can the knowledge about palimpsest and process as developed in landscape architecture be employed to transform the buildings at Keileweg 26-28 in a way that embraces change and sustainability?

The sub research and design questions come together in a transformation design. The story of the building's evolvement will start with an introduction to the building's uses and practices, and its relationship with the context. This progresses into recommendations regarding the architect's responsibilities when designing with an approach that creates space for change and transience, followed up by a detailed design elaboration and user's guide. The chapter ends with the conclusions to this project and a reflection.



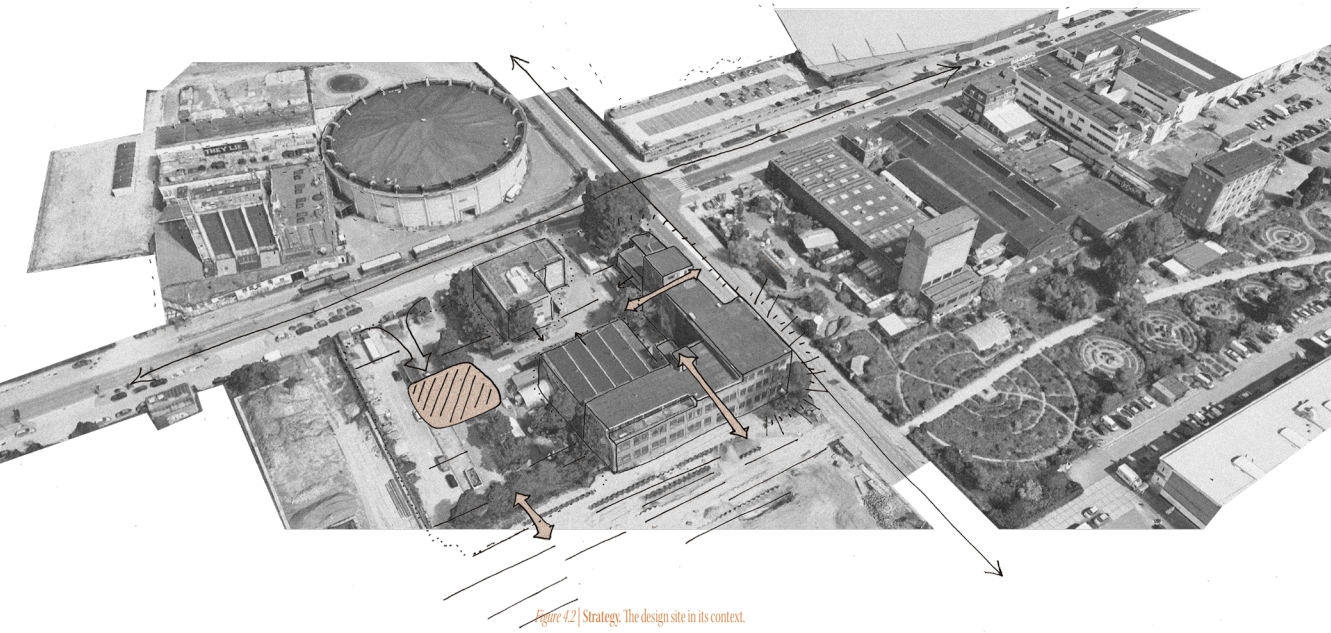
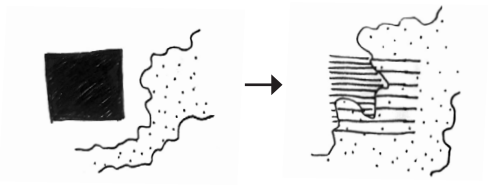


Figure 4.2 | Strategy. The design site in its context.

a new chapter

Located on the edge of the water of the former cargo harbour Keilehaven, by the newly constructed tidal park and in an area that is developing into a maker's district, the building's role and purpose will evolve. The idea of a fixed program is too static for the design approach of this project. However, the building will have space for people and other life to create a home but also engage with the public and tell a story. The corners of the site will be opened and made accessible to welcome visitors, while other parts of the building can be more private. The courtyard will be easy to access through the new entrances on all sides of the plot. On the former parking lot, a material storage and workshop will be built to accommodate (un)building processes and to store demolition waste from the site and redeveloped plots in the vicinity.



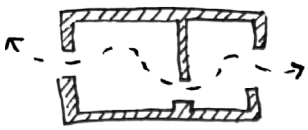
Instead of seeing the boundaries of the building as rigid, the dynamics of the landscape will penetrate the rooms and diffuse the edges of the built and the natural. The public corner of the building will have an increased degree of porosity that accelerates the natural processes of decay, while the façade will be propped up to maintain the visual continuance. The public display of transience is meant to welcome instead of resist natural processes, while at the same time educating and convincing the public the value of approaching existing buildings as dynamic landscapes.

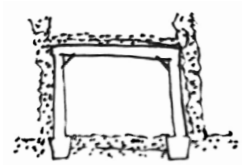
Figure 4.3 | **Blurring the boundaries.** By treating existing buildings as evolving landscapes the rigid boundaries will be blurred.

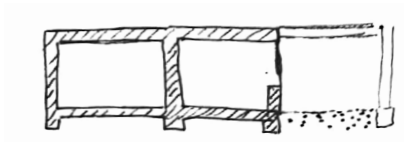
Figure 4.4 | **1:500 model.** The clay base melts into the wooden building blocks.

the actors and the architect

The actors of the story will not be limited to humans but include other lifeforms as well (see image). The plots 'program' will evolve through the processes instigated by a diverse range of actors. However, the architect's responsibility is to accommodate for these actors. There are three basic aspects of the architect's responsibility: 1) defining accessibility, 2) assuring safety, and 3) creating the right conditions.

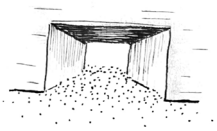




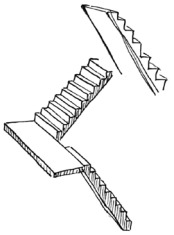


defining accessibility

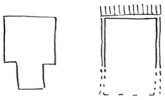
A certain frame of permanence will be created by manipulating the accessibility of spaces. This frame is designed from the existing structures. The public corners and the courtyard will be opened with new passages to welcome visitors and processes, while other spaces will be only accessible by staircases and hallways, to ensure privacy and therefor other types of use. As these liberties and constraints form a frame of permanence, the material is resilient. Metal structures and meshes shape this accessibility frame. However, as the wooden additions to these structures are more sensitive to processes, the workings of the accessibility frame are dependent on the use and maintenance of the spaces. In other words, if no people make use of the stairs, they will decay and therefor limit the accessibility of the spaces on upper floors, leaving space for other processes. One enclosed garden will not even be accessible in the first place.



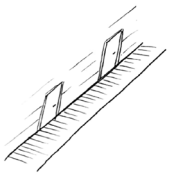
PUBLIC PASSAGE



STAIRS



(DOOR) OPENINGS



HALLWAYS

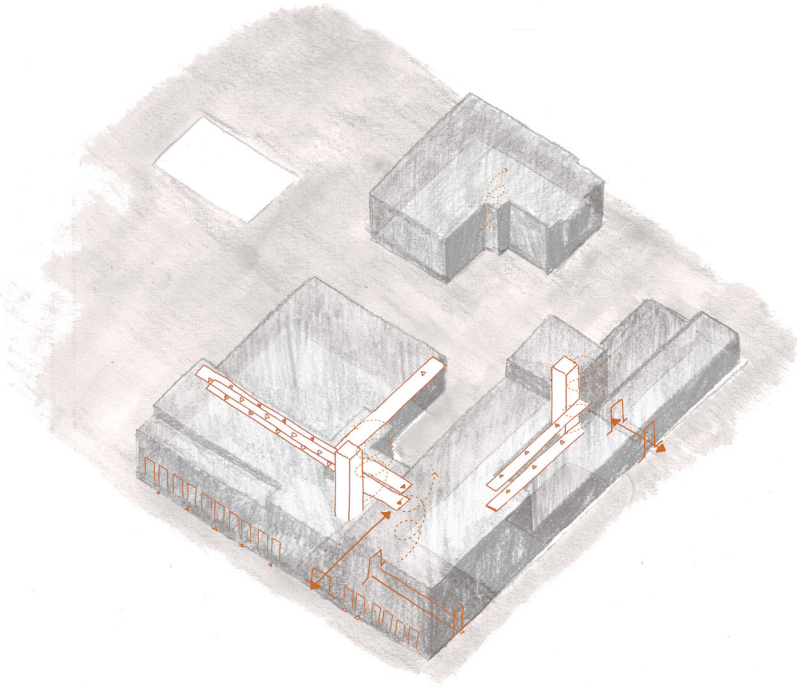


Figure 4.5 | Defining accessibility

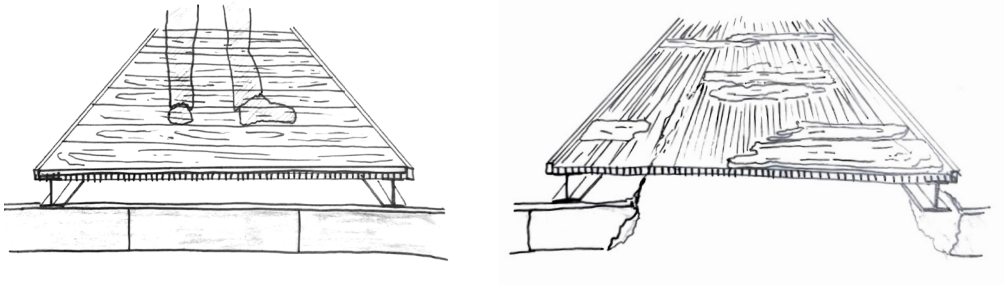
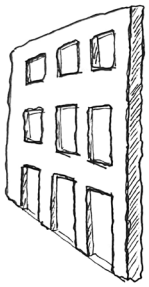


Figure 4.6 | **Walkway detail.** As the building slowly decays, the walkway stays intact.

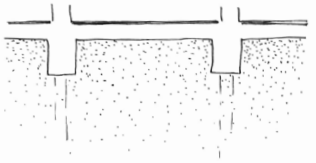
Figure 4.6 | 1:200 floor plans.

ensuring safety

Although accessibility is important to direct certain developments, safety is the most import. As the approach embraces decay, this requires specific attention to where and how this can be managed. The foundation and load bearing structure is built for heavy machinery and is made from resilient materials (brick, concrete and steel) which will even endure outdoor circumstances for over a hundred years with proper maintenance. However, in order to preserve the image of the factory for as long as possible, without it completely collapsing, the façade of the corner of the building that is especially exposed to the elements will be held upright with scaffolding. Besides, if decay causes unsafe environments, struts or braces in combination with nets will prevent collapse and falling debris.



THE PUBLIC FACADE



THE FOUNDATION

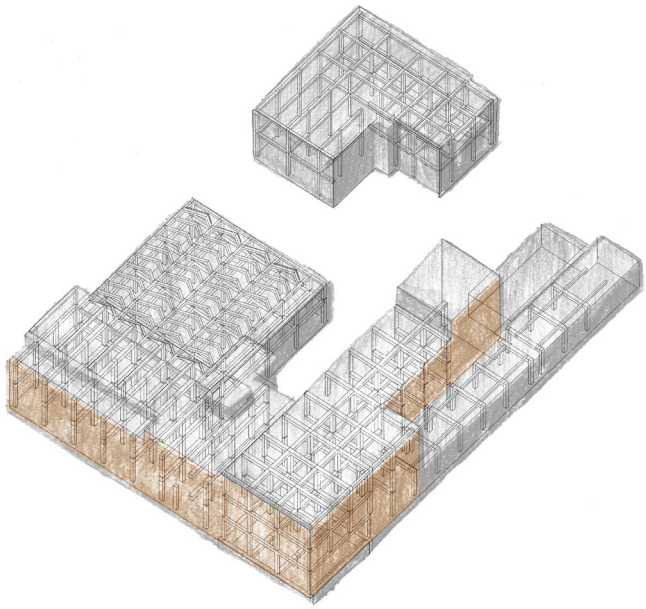


Figure 4.7 | Ensuring safety

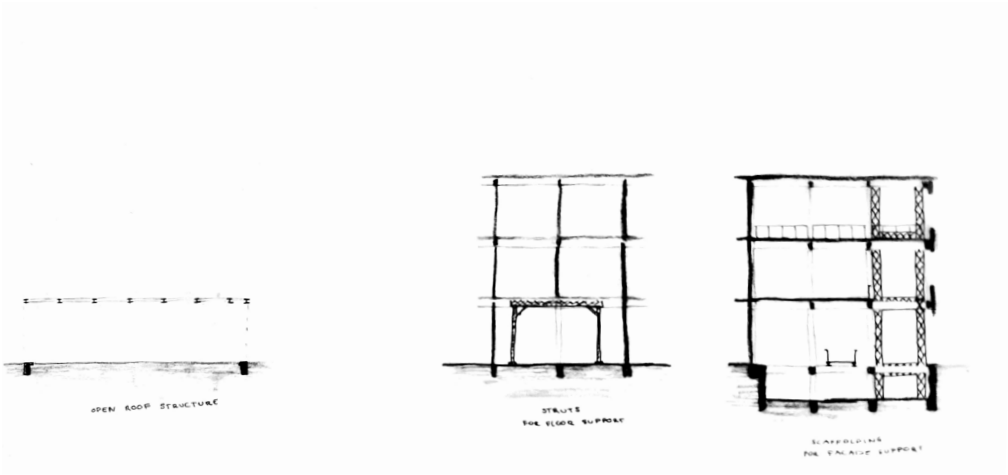


Figure 4.8 | Safety. Three load-bearing systems.

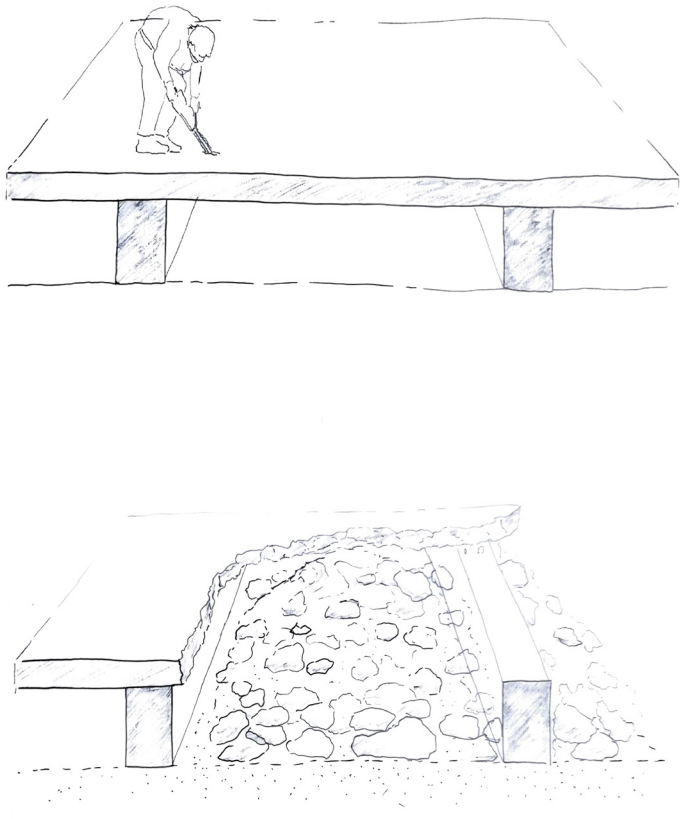


Figure 4.9 | **Increasing porosity.** Concrete floor slabs will be demolished in order to welcome life. The load-bearing structure stays intact.

Figure 4.10 | Accessibility. Hallway with rammed demolition waste wall structure and metal mesh hallway floor.

Figure 4.11 | **Safety.** Barrier in front of opened floor structure for increased porosity.

creating conditions

The accessibility and safety structures hold a patchwork of various conditions together. The courtyard and public corners have increased in porosity, to dramatize the processes, while in more private spaces service cores with the minimal requirements create the possibility for the inhabitation by humans. The individualisation of space is being encouraged, with movable staircases and minimal infill. The material storage and workshop space facilitates the process of building and unbuilding, including spaces with a gradient in porosity.

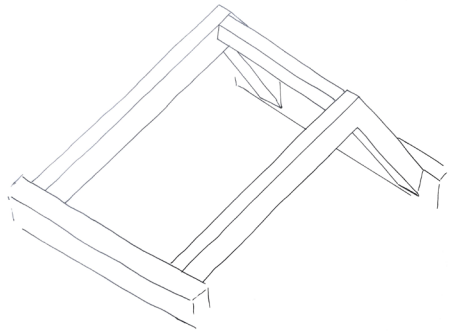


Figure 4.12 | **Stills from stop motion.** Conditions are created for growth.

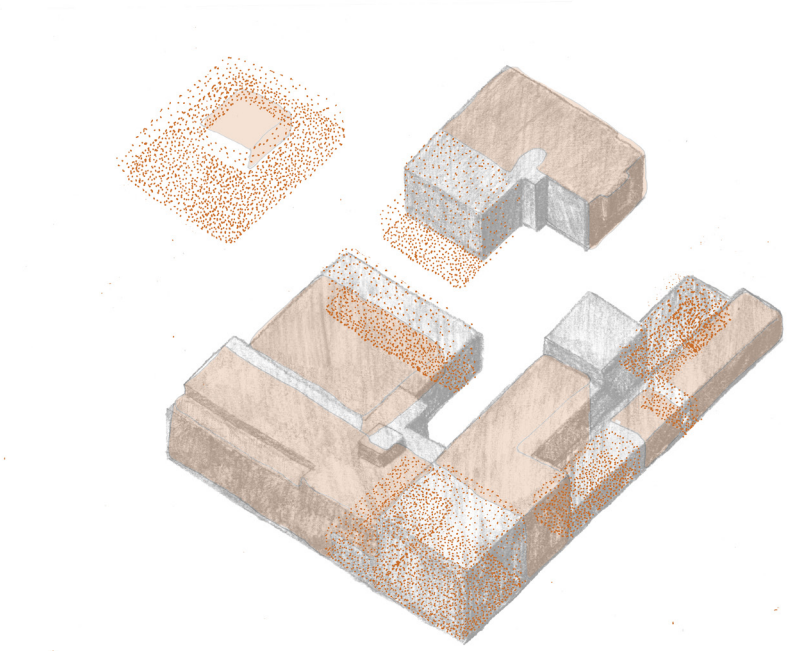


Figure 4.13 | Creating conditions

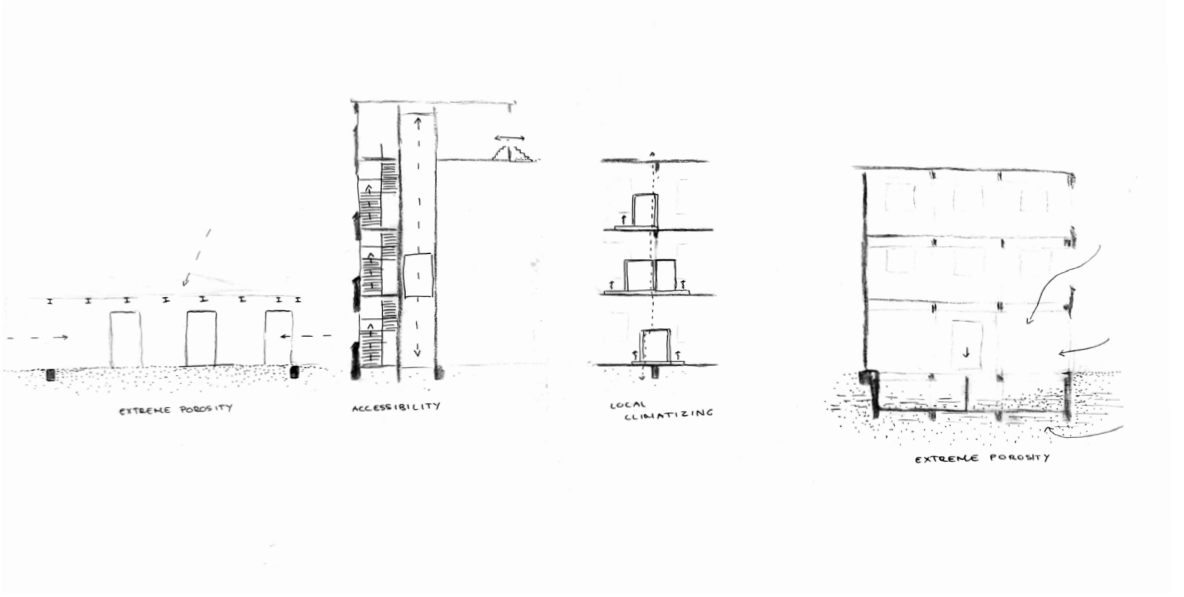


Figure 4.14 | Conditions. Enabling different processes.

Figure 4.15 | **Chiseled wall.** The rough texture invites lichens and mosses to attach.

Figure 4.16 | 1:200 section.

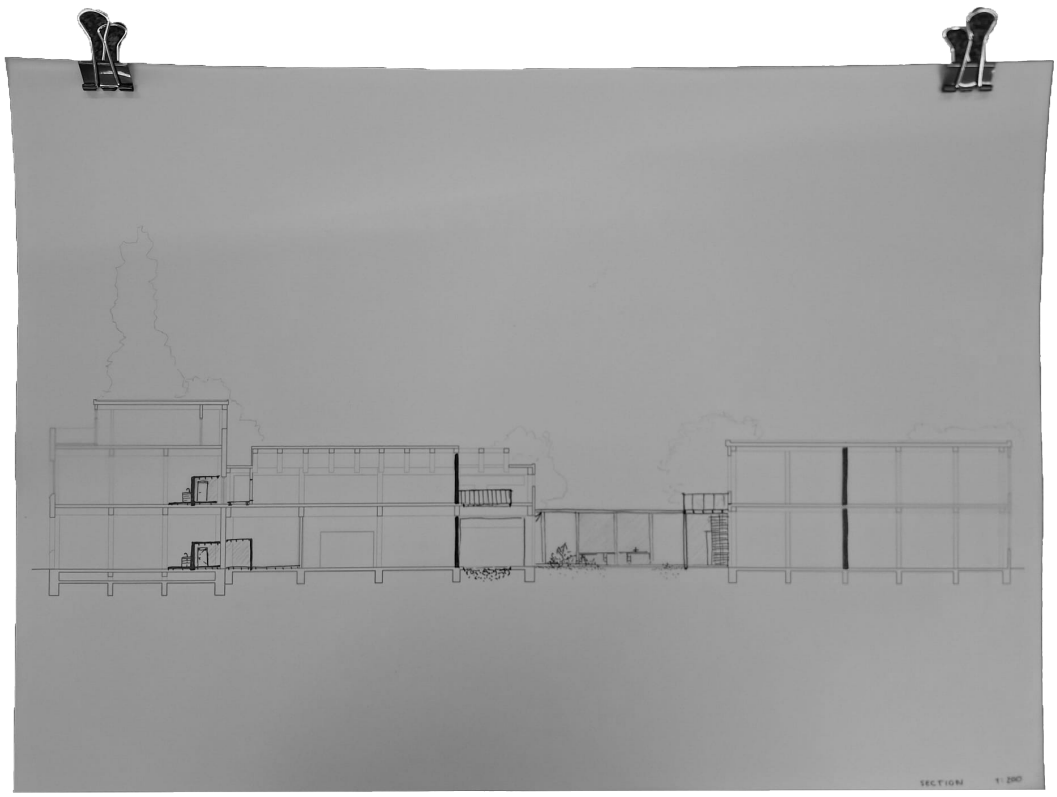


Figure 4.17 | 1:200 section.

Figure 4.18 | **Increased porosity.** Removed roof, wall and floor elements open up the space for different uses and processes.

Figure 4.19 | **Accessibility.** Openings created in the structure increase the accessibility and porosity.

Figure 4.20 | **Building material collage.** The building will become a bricolage.

attitude and expression

The framework of the design, including the manipulation of accessibility, the increased level of safety, the dramatized public corners, and the additional material storage and workstation are supposed to be constructed as a starting point for change over time. What exactly happens within these spaces is up to the actors and the passage of time.

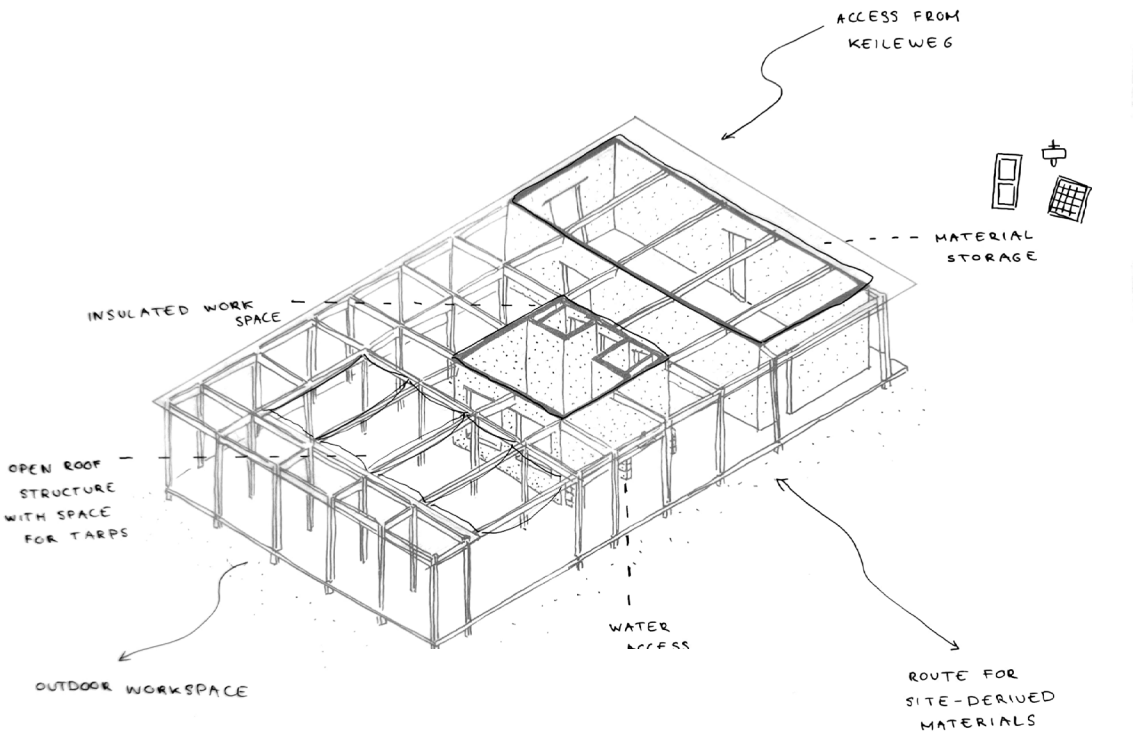
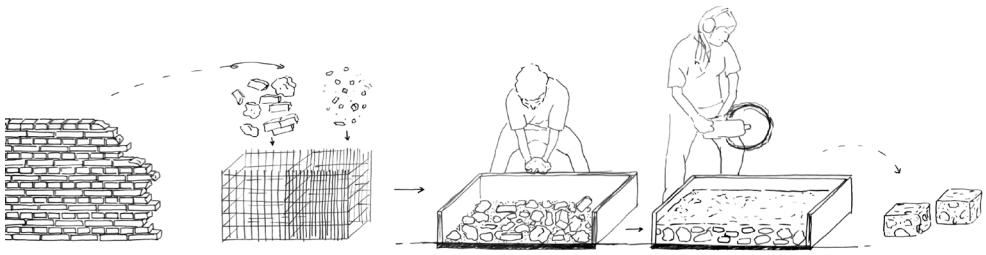


Figure 4.21 | **Material storage and working station.** On the former parking lot space will be created to enable the building - unbuilding process



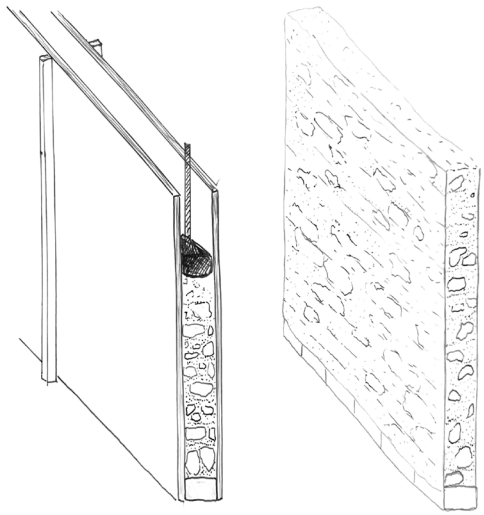


Figure 4.22 | **Making process.** The demolition waste can be used for rammed earth walls and blocks.

Figure 4.23 | **1.200 ground floor plan.** Before interventions.

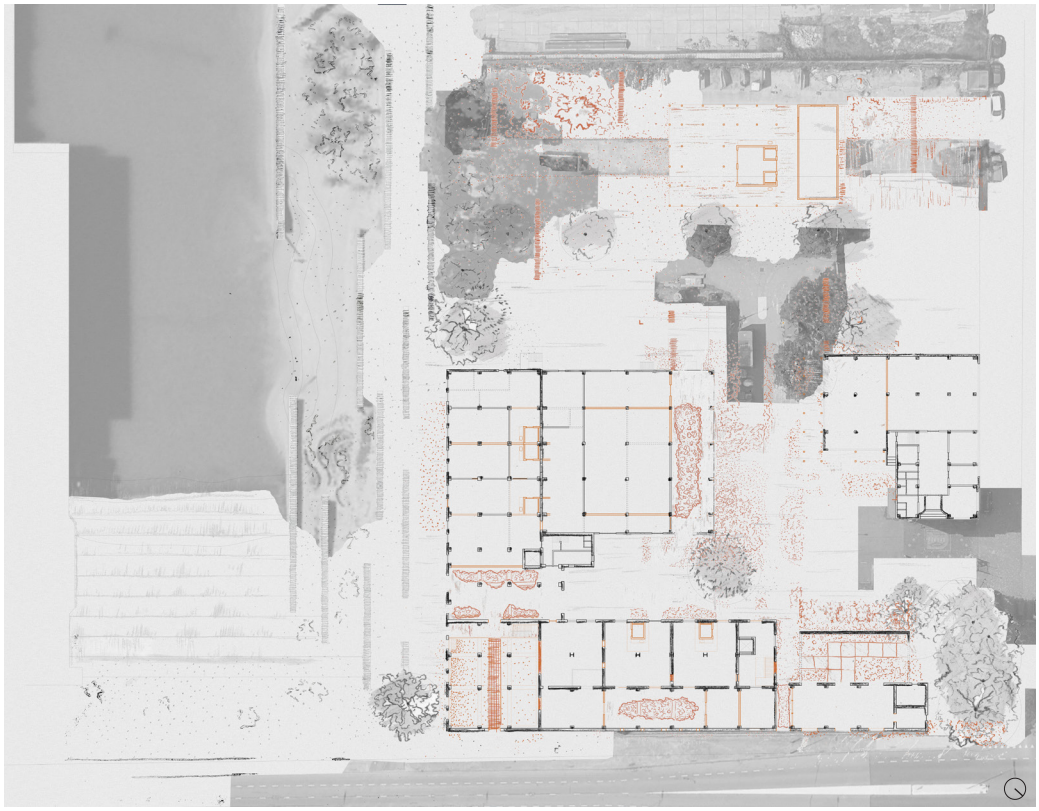


Figure 4.24 | **1:200 ground floor plan.** Including various interventions.

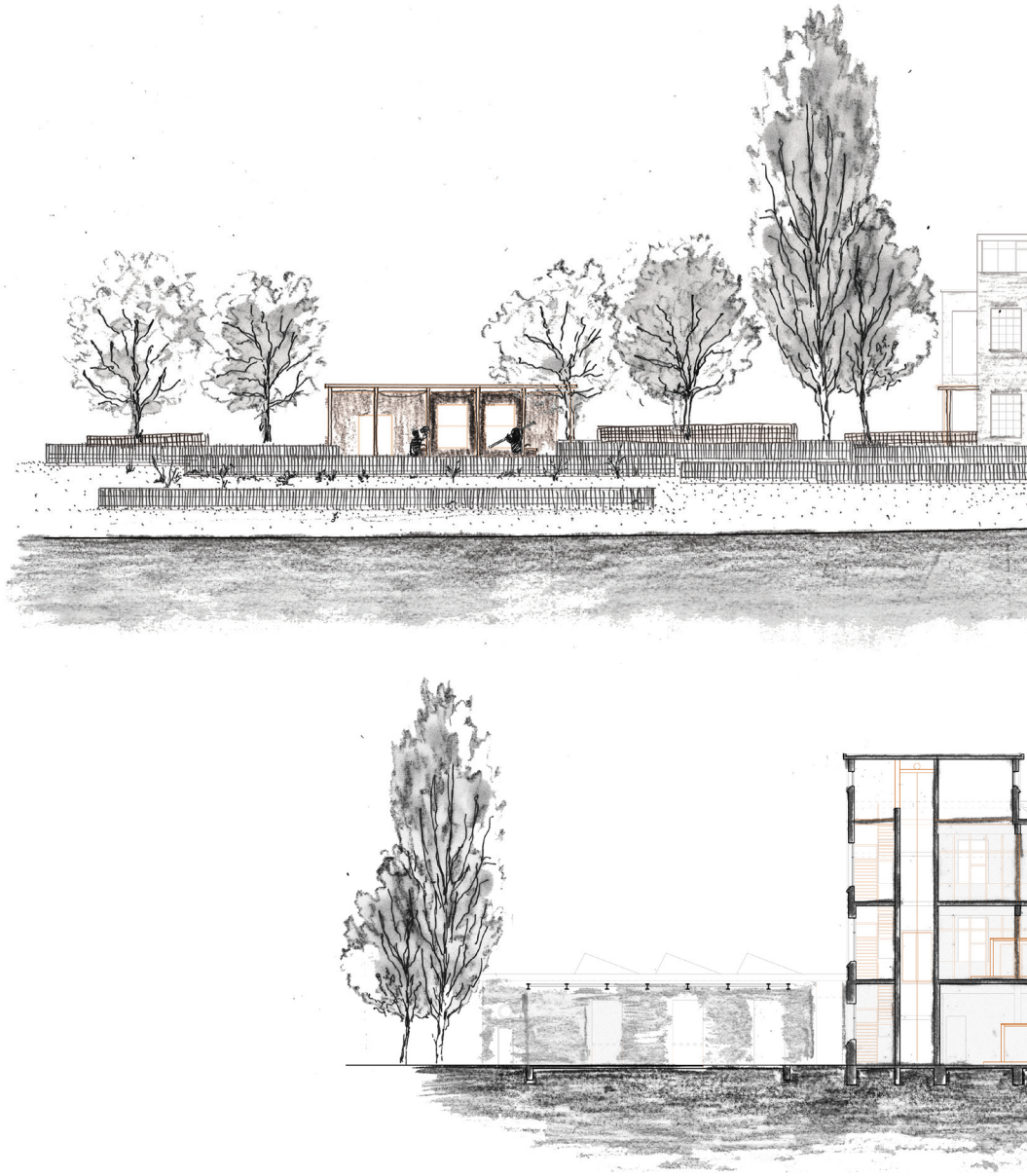


Figure 4.25| 1:200 elevation and section, including various interventions.

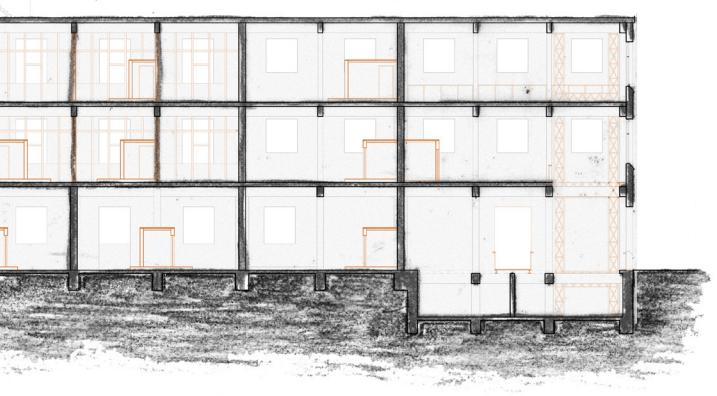


Figure 4.26 | **Stills from stop motion.** Various futures can await a space.

the storyboard

In order for this concept and approach to work in the setting of Rotterdam in the 21st century, the estate of Keileweg 26-28 should be legally owned by a trusting foundation. This foundation would guarantee the management method that embraces decay, instead of the building needing to be listed as national monument such as the Ecokathedraal. The board of this foundation should include guardians for the other life forms, such as the Zoöp of Nieuwe Instituut in Rotterdam. This would allow all users of the building to inhabit the space and act simultaneously. The foundation's articles of association could include the following guidelines:

cohabitation

All types of users/actors are welcome. Treat the other with care and respect. The time that living spaces can be used is indefinite. The condition of the space determines the use. While the interior of the space can be altered, this should not significantly hinder the neighbouring spaces.

safety

The building is meant to evolve. To ensure safety, once an interior space is exposed to the elements, regular check-ups should be done. Once the structure of the ceiling/roof starts to deteriorate, a mesh or net should be suspended, and struts should be placed to ensure the safety of life above and below the structure. Once an area of the building is no longer safe to enter for humans, this should be accepted. Other actors get to inhabit the space.

building and unbuilding

The framework of the development is set. The demolished materials can be sorted, stored and worked with on-site. Walls can be built with rammed demolition waste wall blocks. The permanent structures are made from metal, while the transient structures must be constructed from biodegradable materials, such as timber and straw. The additional structures are not supposed to completely cover the existing surfaces but must added for specific conditions.

gardening with the building

Rather than imposing a design, users should react to the present happenings in and around the building and work from there. The palimpsest and the processes should lead the development.

Eventually this approach could be scaled up. Other heritage in the area could be approached in a similar way. This could result in the creation of larger networks, connecting habitats and ecosystems to increase the biodiversity of Merwe-Vierhaven (fig. 4.31).

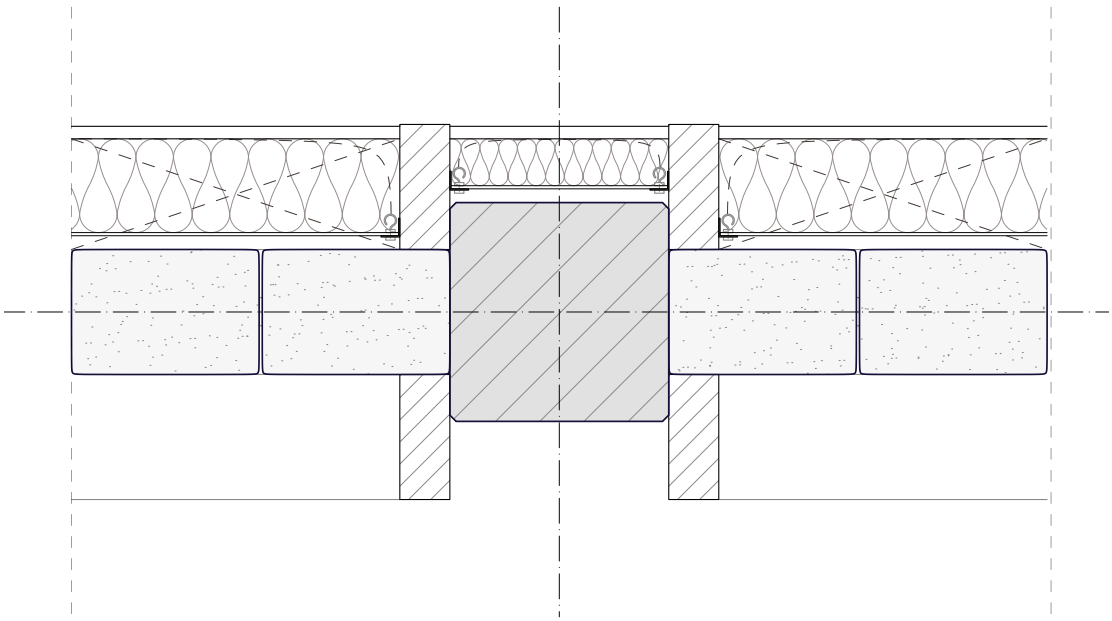


Figure 4.27 | **Detail A.** New wall: existing concrete column, timber framework, rammed demolition waste blocks, metal mesh, reed insulation, loam finish

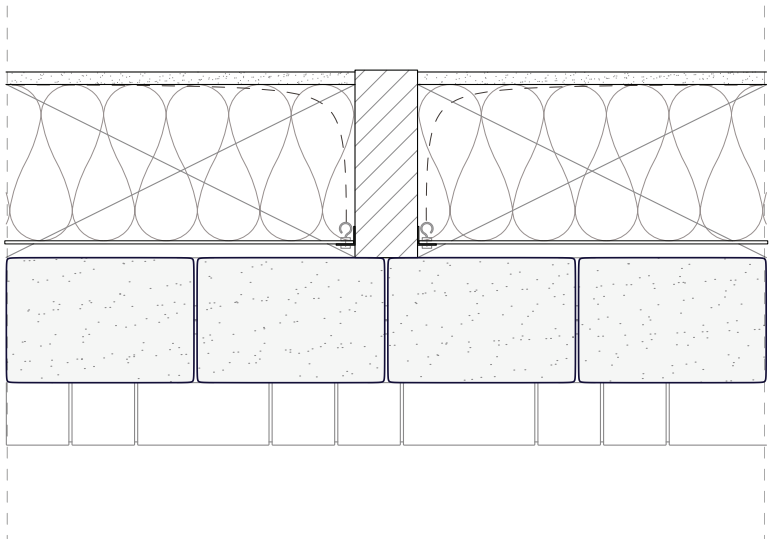


Figure 4.28 | **Detail B.** New wall: rammed demolition waste wall, with brick top layer, timber framework, rammed demolition waste blocks, metal mesh, reed insulation, loam finish

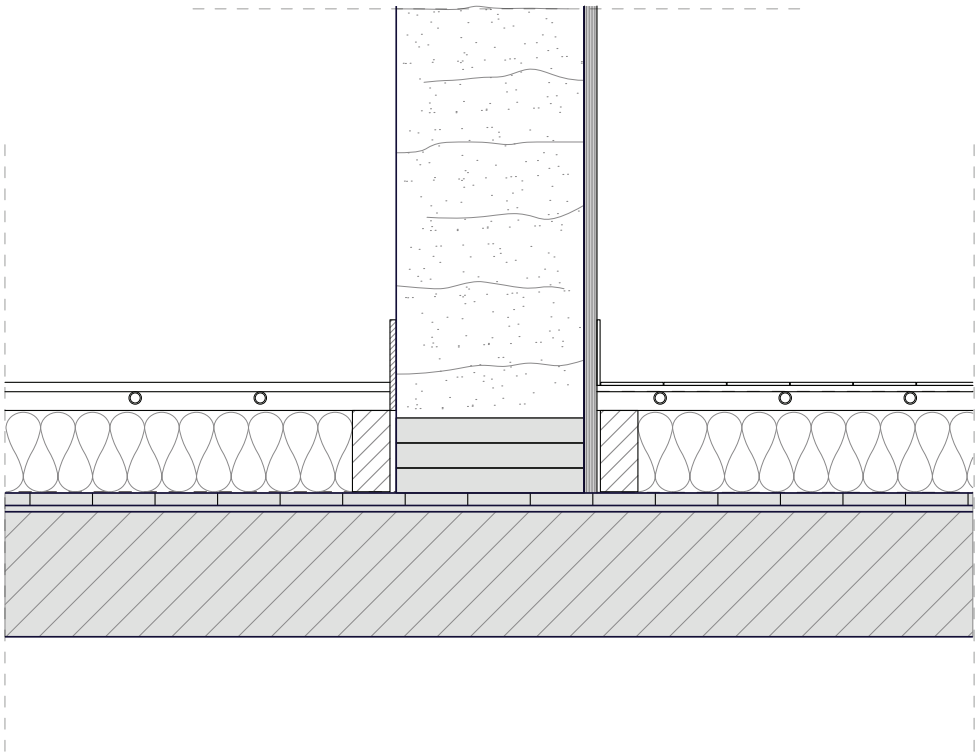


Figure 4.29 | **Detail C.** Service core wall-floor: existing concrete floor slab with tiles, timber floor structure, insulation layer, dry underfloor heating system, wooden floorboard; rammed demolition waste wall, concrete plywood

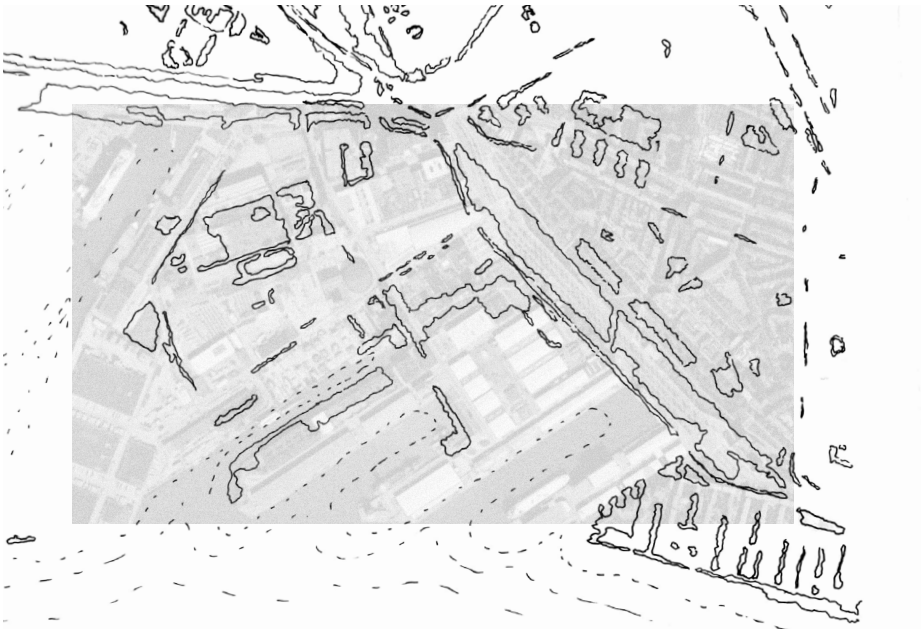


Figure 4.30 | Merwe-Vierhaven. Present.

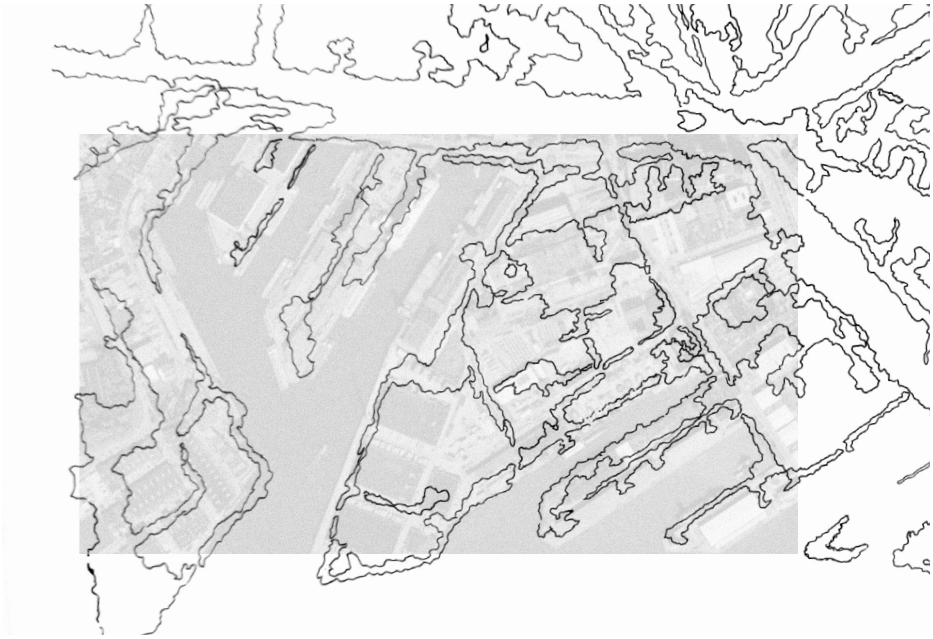


Figure 4.31 | Merwe-Vierhaven. Future.

Figure 4.32 | Stop-motion intro.

conclusions

conclusion

This research and design project started from a fascination with landscapes and continuous change, with the main research question: How can existing buildings be approached as dynamic landscapes in order to embrace temporality? The chapters of this report have all answered the separate sub questions and this final chapter has expressed how this research translates into design. This has all resulted in a manifesto (see p. 7) advocating a different approach to existing buildings.

value palimpsest

Landscape architecture is inherently site-specific and works from the existing structures or the palimpsest. By approaching existing buildings as dynamic landscapes, this palimpsest should be analysed in order to build on what is already on site. This should not only be confined to the borders of the plot, but also to the larger context, as spaces are always part of a bigger ecosystem.

Although the transformation design of Keileweg 26-28 does not radically react to these existing structures or elements, it is transformed by reusing the existing material to giving new meaning and possible futures to the spaces and structures. The newly constructed tidal park and the development of the area have contributed to the design and embedded it in the larger context.

embrace decay

As landscapes are continuously evolving, landscape architects and gardeners have always worked with growth and decay. Although architecture is typically static, to approach buildings in a dynamic way, decay should be embraced instead of resisted. Decay expresses age, which can be used to understand the positioning of a building in its context. The weathering of materials, organic growth and presence of other life should be accepted. On top of that, these processes should be used as co-designers. As the case studies showed, the design intervention is only the start of the development of a space. The ecosystems that are formed will induce new processes, uses and practices and continue to evolve the space. So instead of resisting these processes, their presence and qualities should be acknowledged and included.

At the site of Keileweg 26-28, this decay is especially expressed to gain more awareness about the presence of various actors and processes. These processes are dramatized in the spaces that are directed towards the public street, while at the same time respecting the historic image of the building.

create space for unpredictability

This leads to the final point of the manifesto. As decay is embraced, and other actors of various processes are acknowledged, unpredictable futures should be expected. The classic ego of the architect must be toned down, as designing for a specific end result should be let go of. Instead, architects should design a starting point or find ways to engage with the plot over a longer stretch of time and embrace the process. However, the value of architectural design in this approach is in the creation of a sense of coherence and expression that elevates the experience of space and temporality.

The uses and practices of the actors in and around the site can be facilitated by providing material for growth. At Keileweg 26-28 this resulted in a patchwork of various conditions and porosities, including service cores and chiselled surface, which is held together by a framework of permanence that has been built on the basic form of the building and gives the liberties and constraints to certain developments. To assist the processes that go hand in hand with site-derived architecture, the detailed plan is designed for easy assembly with tolerances for flexibility.

Thus, existing buildings can be approached as dynamic landscapes. This approach emphasizes that unused or vacant architecture does not have to be demolished to make space for new construction. To allow for change, transience should be embraced and spaces should not be designed with specific, static programming, but as a playground of various conditions. To conclude, while architects have the ability to create space for all the stories of life, time will eventually be final architect, as everything always evolves.

Figure 4.33 | 1:50 presentation board.


PLANTED
BETULA PENDULA
VINCA MINOR
CONVALLARIA MAJALIS

Figure 4.34 | Stop-motion outro.

discussion

This project brings together two neighboring disciplines. The intersection of the principles of landscape architecture and of contemporary architectural practice encourages a shift in attitude toward existing buildings. Rather than valuing only the historic and preserved layers, as is common in traditional heritage philosophy, this approach also embraces uncertainty, transformation, and the effects of natural processes, use, and occupation over time.

The research also reveals a gap in the current vocabulary surrounding these processes. Terms such as "weathering" and "decay" are often associated with decline or failure, despite their potential to contribute positively to design. Processes should not merely be tolerated, but understood and integrated in design. This suggests either the need for a new vocabulary or a gradual redefinition of these terms beyond their negative connotations.

reflection

This project was mostly focused on translating landscape architectural principles to architecture practice. This required deep research into the notions of palimpsest and process with case studies. The process of this project was difficult due to the unknown outcome, as change and uncertainty were in the core of the design questions. The design outcome is therefore less specifically defined as desired. Although the scale of the design site brought a lot of complexity that informed the research, a smaller scale would have made real specific design interventions possible that fit with the idea of site-derived architecture.

The process also involved the study of narrative and temporal representations. The influence of narrative added more to the project than expected, especially regarding the increased empathy towards more-than-human life. Besides, the effect of film as form of temporal representation was especially surprising. The effect of light, tactility and sound in combination with the stop-motion expressed the vision clearly.

The final result shows an exploration on layering, collaging, envisioning and letting go. This is consistent with the idea that architecture is not just about composition and form, but about layers and processes. The final drawings express the non-linear timelines and welcome the actors to engage with the transformation process, because eventually they will use the space.

literature

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glossary

Architecture is a discipline and profession that evolves around buildings and the built environment. Architecture also relates to the built and designed structures by architects. Historically architecture is static and rigid, meant to last and not change or evolve. This project argues this approach by showing how architecture can be treated as dynamic landscapes and thus also evolve over time.

Basic form refers to the guiding geological and topographical forms and structures of landscape architecture. In architecture this can be distinguished as the basic spatial logic behind a design.

Decay is the outcome of gradual weathering or deterioration. Decay is usually experienced as a negative term, although decay can be the foundation for new growth.

Dynamic means constantly changing, developing or evolving. Landscapes are dynamic.

Ecocentrism is the ethical belief that recognizes the value in all of nature, including biotic and abiotic individuals, groups and even whole ecosystems.

Ecokathedraal is a structure that can develop itself through space and time, first developed by Louis le Roy. The ecocathedral in Mildam, the Netherlands, is listed as a national monument to preserve the process of time on the plot.

Evolving is gradually developing over a certain amount of time.

Landscapes are scenery compositions of natural and man-made elements. Landscape is not the same as nature. Landscapes are dynamic and always evolving due to the natural elements and processes.

Landscape architecture is a discipline and profession that involves the design of landscapes ranging from scales of gardens to parks and regional plans. The designs involve natural elements and processes and thus are inherently open-ended.

Material is the matter that can be used to create or build something.

Materiality is the quality of being material, which has specific perceivable characteristics, such as tactility.

Matter is anything that has mass and takes up space, both visible and invisible.

More-than-human is a concept that describes the non-anthropocentric gaze and challenges the idea that non-human life is of lesser value and thus refers to an increased value of multi-species cohabitation.

Nudging is gently manipulating something into a certain direction or outcome.

Open-ended design does not have a planned ending so it may develop in various ways.

Palimpsest is an old piece of parchment with a visible layering of previous writings, which can be translated to the temporal layering of landscapes as well. This is one of the four key notions for analysis and design of the Section of Landscape Architecture at TU Delft.

Perception is about the bodily experience of a space through the physical senses. This is one of the four key notions for analysis and design of the Section of Landscape Architecture at TU Delft.

Processes are continuous series of happenings that can be linear and progressive/successive or cyclical and recurring, which makes them inherently connected to the passage of time and dynamics. This is one of the four key notions for analysis and design of the Section of Landscape Architecture at TU Delft.

Scale continuum is about relational thinking and contextual coherence, from proximity to distance. This is one of the four key notions for analysis and design of the Section of Landscape Architecture at TU Delft.

Spolia are reused and repurposed building materials, often stones, in new constructions or architecture.

Static means not changing, permanent and rigid.

Temporality refers to the progression and organisation of time.

Time is the fourth spatial dimension and the continuous progression of existence that occurs in an apparently irreversible succession from past, through the present and into the future.

Transience is the quality of being temporary and impermanent.

Unbuilding is a term that refers to the gentle and ordered deconstruction of architectural structures in order to repurpose the disassembled elements for new construction.

Weathering is the gradual process of deterioration by natural elements such as water, sun, wind and life.