

# From Structure To Ownership: An Open Building Approach



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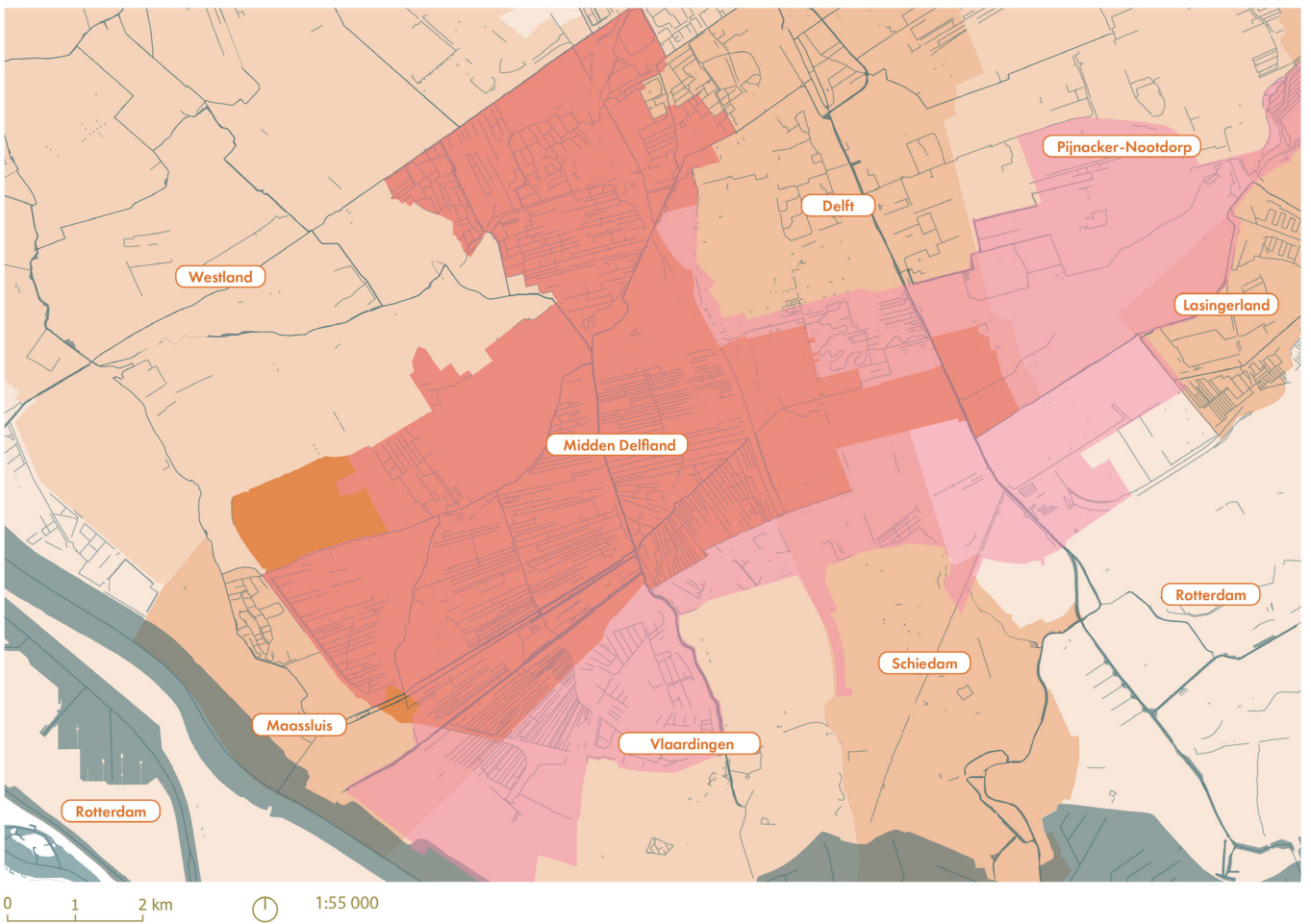
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# 01 Introduction



## Problem statement

The Netherlands is facing increasing pressure due to a structural housing shortage. While protecting the ecological footprint and open landscapes is important, more housing must also be built. This tension is particularly evident in the Randstad. Where demand for urban living is growing, expansion into the countryside is difficult to justify politically, ecologically and socially. The Midden-Delfland study area, enclosed between Delft, Rotterdam and The Hague, is one such area with large green structures. As a result, the area has been under pressure from economic growth and urbanisation for decades. At the same time, the Midden-Delfland area is surrounded by one-sided industrial estates with storage, logistics and production facilities. Areas such as these are often the economic drivers of the region, but they are characterised by low spatial utilisation, poor quality of life and a monofunctional use. In most cases, these areas are expanding, with car parks, infrastructure and warehouses increasingly taking over the landscape. This creates some confusion; on the one hand, it is said that there is little space for housing, while on the other hand, large areas of urban land are not being sufficiently utilised for residential and urban development. This situation raises a spatial issue that impacts the contemporary architectural dialogue on reuse, densification, and accessible living environments: How can housing be added to an environment designed for logistics and productivity without the two systems interfering with each other? The complex balance between an urban production landscape (freight traffic, parking, loading and unloading) and an urban living environment (health, greenery, safety) is the guiding principle within this graduation project. Instead of framing industry as a problem that must make way for a residential area, this research examines the role of industry as a starting point for a new urban area. The intention is not to replace the area as a whole, but to restructure and densify the existing area. As a result, the industrial estate becomes not only a business area, but also a potential driver of urban context, functional meaning and collective space.

## Relevance

The social relevance of this research lies in the dual challenge of landscape conservation and the declining affordability of housing. By adding housing to existing industrial estates, pressure on green spaces can be reduced and areas such as Midden-Delfland can be clearly positioned as an ecological buffer between surrounding towns. This approach is applicable to similar areas throughout the Netherlands, where industrial estates can be transformed into mixed-use residential and working environments.

At the same time, housing affordability is declining in structural terms. The existing dichotomy between buying (with interest and debt) and renting (without wealth accumulation) excludes a growing group from home ownership. In both cases, housing is treated as a financial product that must yield a return in the short term. Rental properties are designed for immediate lettable, whilst owner-occupied homes are designed on the basis of value appreciation and mortgage logic.

This approach is not only socially problematic but also has spatial consequences. Homes are built as fixed end products, with rigid private boundaries, little flexibility and limited scope for change or community in the long term.

For this reason, phased living is seen as an alternative to housing that evolves over time. Over time, families expand, which means more space must be available; so rather than moving to a larger house as a first-time buyer, it makes sense to view housing as a gradual process in which households can expand, refine and adapt their home over the years. This shifts the focus from immediate handover or completion to long-term engagement and personal customisation.

Thanks to this alternative, housing is not viewed as a static end product, but as open systems that evolve in dialogue with residents' financial means, stage of life and spatial housing needs. The architecture supports this gradual development by integrating a load-bearing structure with flexible fittings, meaning that gradual change is not an exception but an integral part of the design (Habraken, 1972).

The substantive significance of this project lies in shedding light on the interaction between architecture and time, also known as phased living. By employing phased living as a design strategy, this research contributes to architectural reflection on flexibility, affordability and the role of architecture as a framework that adapts to a changing spatial context, as opposed to representing a static end product.

## Objective and motivation

The ultimate goal of this project is to design a spatial and architectural framework for repurposing industrial sites into family-oriented, affordable residential environments with high residential density, without losing the character of industrial zones. The design approach is layered programming, whereby logistics and parking remain active at ground level, while at the same time an elevated residential layer is created with communal outdoor space, greenery and homes. Building above a logistics function requires solid construction, shared access and careful organisation of communal spaces. These spatial approaches are complex in nature and require capital investment that is not immediately profitable. For this reason, such interventions are difficult to justify within a short-term financial logic. This is one of the reasons why industrial areas may not be attractive as potential residential locations, even though their spatial potential and strategic location are obvious. This is also why a different ownership logic principle must be applied to such locations. In this case, the phased housing principle is viewed from a design perspective in which ownership is approached as a process over time. In contrast to achieving short-term returns, long-term use is the guiding principle

## Research and design questions

How can phased housing make homeownership more affordable and flexible for first-time buyers while combining housing with logistics on the same site?

### *Subquestions*

What technical and spatial design approaches are essential for integrating housing with an active logistics infrastructure within a coherent design?

How does phased housing function as a tool that allows economic and spatial development to take place in parallel over time?

In what ways does phased housing help to lower financial barriers and increase flexibility for first-time buyers in the housing market?

## Scope

The scope of the research focuses on a specific case study in the industrial area of Berkel en Rodenrijs, adjacent to Midden-Delfland. Research is being conducted on two spatial scales: a master plan in which green structures and infrastructure are partially reoriented, and an architectural translation of an industrial plot that serves as a model for transformation. The plot in question, which is used as a parking area for lorries and for loading and unloading, will retain these functions. As a result, the ground level cannot be used for residential purposes, which means that it will be transformed into a layered spatial organisation. This residential level combines accommodation, living and greenery and spatially connects the residential environment and industrial programme. Within the phased, the residential floors serves not only as a separation, but as a collective space in which responsibility, use and ownership are intertwined.

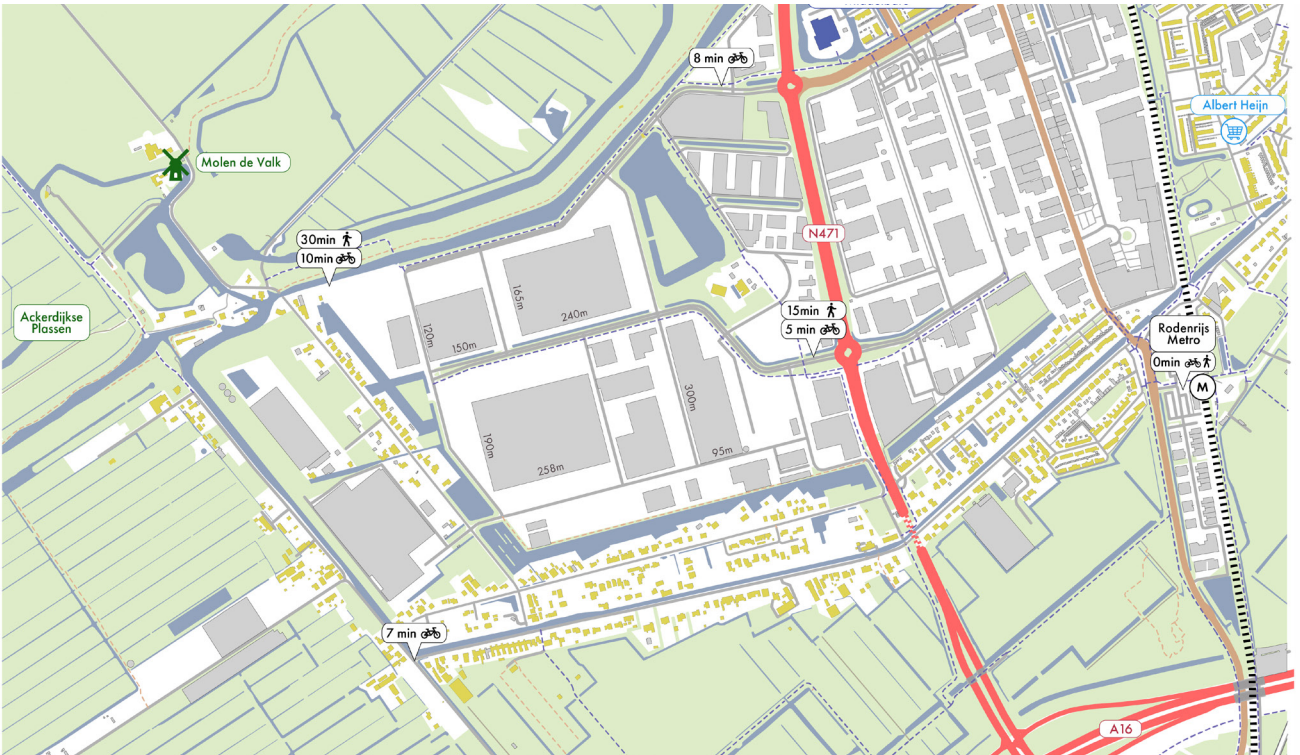
A system replicable across many areas



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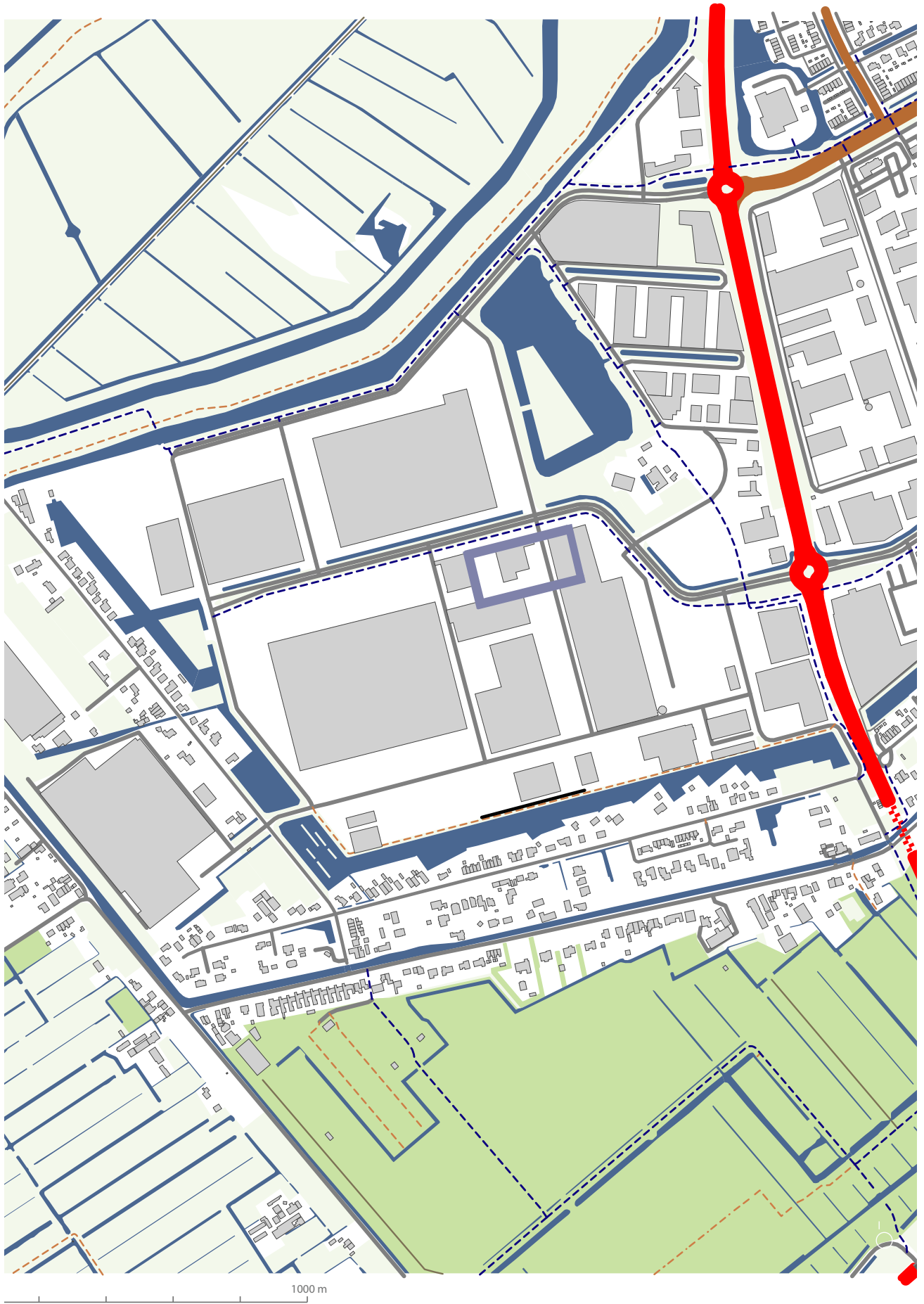
Connectivity study area; Bedrijvenpark Rodenrijs



Bedrijvenpark Rodenrijs



Major roads



Plot choice

# 02 Approach

why?

## Issue

This graduation project explores the tension between single-purpose industrial zones and a structural housing shortage. These industrial zones take up a lot of space, but contribute little to affordable housing or quality of life. The aim is to protect green landscapes while making good use of industrial areas.

## Hypothesis

This research and design assume that a phased housing approach can lead to an architectural strategy in which living above a logistical infrastructure is made possible. By focusing on spatial flexibility, financial growth and collective responsibility, a model is created in which living and industry can coexist in a sustainable way, while at the same time protecting the surrounding green landscape.

What?

How can phased housing make homeownership more affordable and flexible for first-time buyers while combining housing with logistics on the same site?

What technical and spatial design approaches are essential for integrating housing with an active logistics infrastructure within a coherent design?

How does phased housing function as a tool that allows economic and spatial development to take place in parallel over time?

In what ways does phased housing help to lower financial barriers and increase flexibility for first-time buyers in the housing market?

Typological studies

Adaptive housing models

Case studies

Spatial analysis

Modular design studies

Ownership analysis

Collective gradients

Life-cycle scenarios

Private gradients

How?

This

Design solutions for housing above logistics infrastructure, where architecture serves as an open framework for sustainable use and living modular both financially and spatially.

## Design and research strategy

The graduation project uses a design-based research process in which theoretical approaches, architectural experiments and site research are applied in parallel. The research does not take a predetermined typological answer as its starting point, but rather shapes the spatial conditions, ownership framework and architectural outcomes through a step-by-step design process. Within this approach, the design serves both as a theoretical framework and as a design outcome.

The central design approach incorporates the principle of industrial intensification and co-location as a frame of reference, whereby existing industrial buildings and areas are not pushed aside, but are spatially densified and organised in a stacked manner (We made that, 2020). The focus is therefore on how industry and housing can function simultaneously, rather than on relocating functions and freeing up space for housing.

The masterplan adopts the principle of phased living as its design lens. Phased living should not be interpreted here as a financial instrument, but rather as a home that can be adapted over time to suit one's own needs as these evolve alongside one's financial circumstances. This consequently has direct implications for the architectural approach to the building. From an architectural perspective, this principle calls for a spatial layout that evolves over time. This creates a different relationship between the home and its occupant. This approach forms an integral part of the design strategy and guides choices regarding typology and structure.

## Methods: Research and Design

This research combines various methods, which in turn complement each other and provide more insight into the subject at hand.

### *Site and Field Research*

The chosen plot, located in the industrial area of Berkel and Rodenrijs, was investigated in various ways, namely in terms of use, logistics operations, dimensions, noise exposure, and spatial barriers. The analysis gives particular focus to freight traffic, loading and unloading activities, the domination of parking at ground level, and how these processes can operate in tandem. An important notion is that this examination does not eliminate these processes. Rather, the main goal is to gain a better understanding of the spatial reality within which architecture can operate.

### *Case Study Research*

During this analysis, certain reference projects were chosen that operate in a complex, collective, and long-term use manner. A strong example is Kalkbreite (Zurich), illustrating that building on top of infrastructure demands a different understanding of ownership and management frameworks compared to conventional housing. Therefore, these cases are analysed to gain further insight into their approach to spatial principles, including robust structures, collective circulation, and a focus on use value over short-term financial optimization returns

### *Design as Experiment*

In addition, the design serves as an experimental framework. Combined with diagrams, mass studies and typological variations, this provides a method for investigating how phased living and logistical processes can be interwoven. The central question that is continually addressed here is: does this spatial composition enable a phased living principle that allows for long-term sustainable use?

## Theoretical framework

The theoretical framework of this research follows three interconnected lines, namely ownership as a dynamic process, open and adaptive architectural structures, and functional integration.

Understanding ownership as a phased and time-based condition is in line with theories supporting the notion that architecture is shaped by social, economic, as well as institutional relations (Till, 2009).

When comparing traditional housing models to phased housing models, the difference lies in the fact that traditional models are purchased as a finished product, whereas the latter focuses on building over time as financial resources become available or simply when more space is needed. As a result, the phased housing model acts as a spatial catalyst: space is created gradually over time rather than being fixed immediately, enabling shared spatial management and adaptability.

This concept aligns with the theory of Open Building, which states that a building is not a static final product (Habraken, 1972; Kendall & Teicher, 2000), but rather an architectural framework that supports change. Within this approach, transformation in the form of decoupling structure, use, and infill is carried out while maintaining and not disrupting the entire system. This makes it a core principle of the phased housing model, in which the layout of homes evolves gradually over time.

Moreover, another valuable reference point is the work of We Made That (2020), which demonstrates that functional mixing is only possible and beneficial in the long term when spatial complexity is taken into account and carefully designed. This paper builds on that argument by suggesting that a corresponding ownership model should be incorporated within such spatial complexity.

## Architectural Translation: Spatial Framework

In this context, the architectural proposal is based on a layered spatial structure, in which logistics, parking facilities and infrastructure on the ground floor remain unchanged and continue to function as an integral part of urban processes. This layer therefore does not consist of residual space, but rather forms an important part of the urban system as a whole. On top of this layer, a raised residential level has been placed, forming a communal space within the residential area.

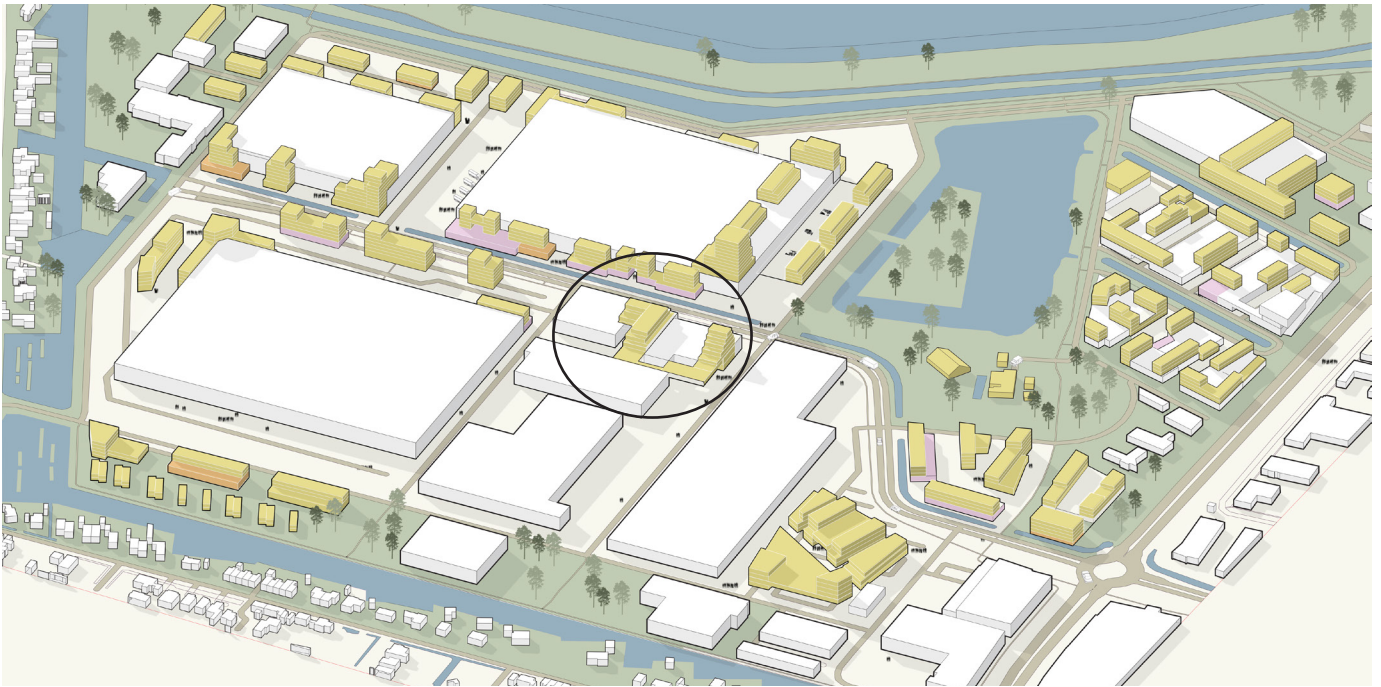
Within this layer, an integrated community is created by bringing together residential, living and green spaces. This, in turn, enables the creation of a buffer zone between industrial processes and residential life.

## Expected Output and Planning

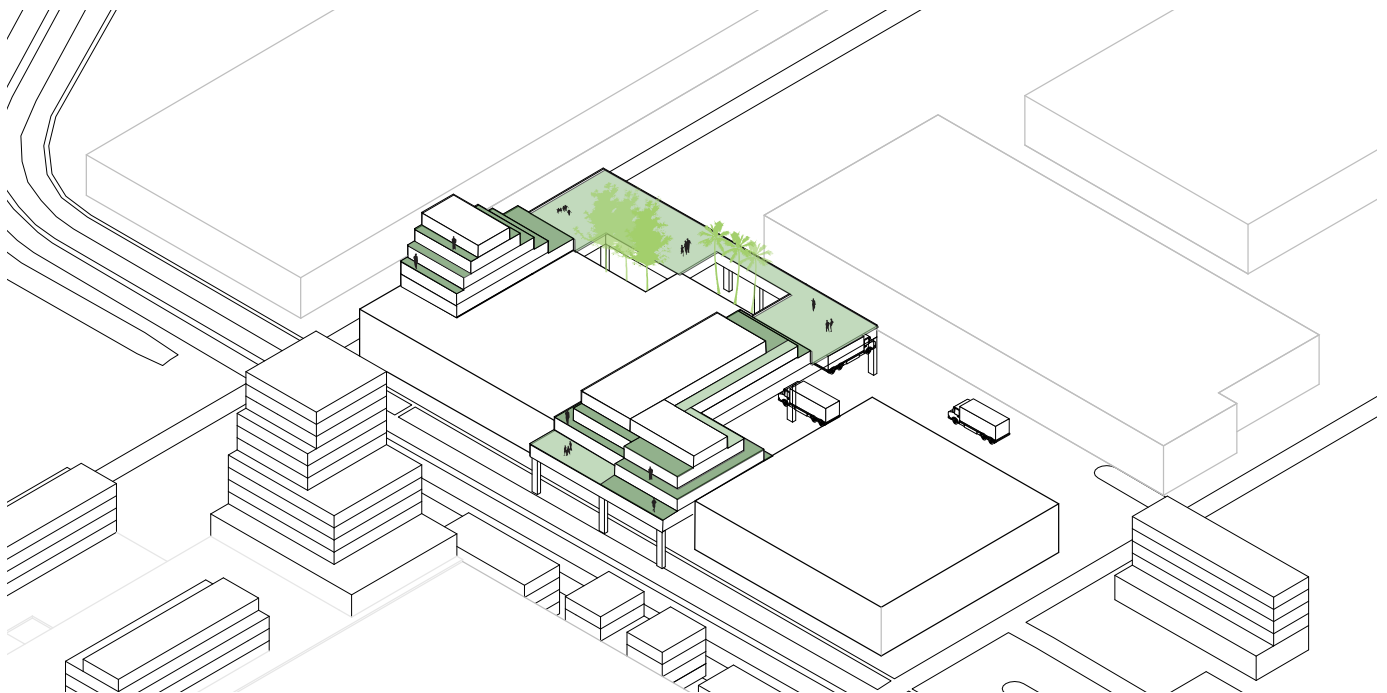
This research consists of the following expected output and planning:

- a master plan for the urban-industrial interface in which the co-location of housing and logistics is spatially structured;
- an architectural design in which a single industrial plot functions as a prototype for housing on top of active logistics;
- and last but not least, a series of spatial diagrams and typological studies demonstrating the relationship between phased housing models, the corresponding collectivity, and architecture.

In the following phases (A2 and A3), the further development and translation of spatial experiments into concrete floor plans, sections, and structural principles will be explored. The design process takes an iterative approach, in which theory, site conditions, and architectural decision-making play integral and mutually reinforcing roles.



Masterplan



Plot and design in the Masterplan

# 03 Results

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## Research

As discussed earlier in the graduation report, the site is located in an industrial estate, namely the Rodenrijs Business Park. Developing this site can reduce pressure on green areas such as Midden-Delfland and make use of land that is already zoned for urban development. Furthermore, significant investment has already been made in business parks outside the city, where infrastructure has been built and functional spaces created, but where there is simultaneously a lack of social interaction. In other words: this is a valuable site that is currently being used for a single purpose. By adding housing, the area can be revitalised and given a livelier character, making it more attractive to work there. At present, the area is mainly characterised by warehouses and distribution facilities, which contributes to an uninviting atmosphere.

The selected plot at the Rodenrijs Business Park is situated between two commercial buildings, namely Intveen Truck Painting BV and the Nonpaints.com (CROP) distribution centre. The latter specialises in an online shop for paint and automotive supplies. Both sites experience heavy goods traffic: at CROP, there are multiple loading and unloading operations throughout the day, whilst at Intveen, truck cabs are being painted. This means there is an active logistics infrastructure that cannot easily be relocated or restricted without disrupting business operations.

For this reason, an alternative design approach is necessary, ensuring that neither residents nor businesses are inconvenienced by each other's activities. One possible solution is to construct buildings on stilts, thereby maintaining the logistics functions at ground level. Furthermore, this approach can be financially attractive for the developer, as the land does not need to be purchased outright, but a leasehold arrangement can be utilised.

A relevant example is the Boomgaardsstraat Kuhne, where the building was constructed above an existing car park and partly over a through road (Van Helleman & Van Helleman, 2019). Another example is the floating residential/commercial building on Mauritsstraat, also by Kuhne. Both projects were built on virtually no building land and thus realised in a so-called 'non-place' in the air (Co, n.d.).

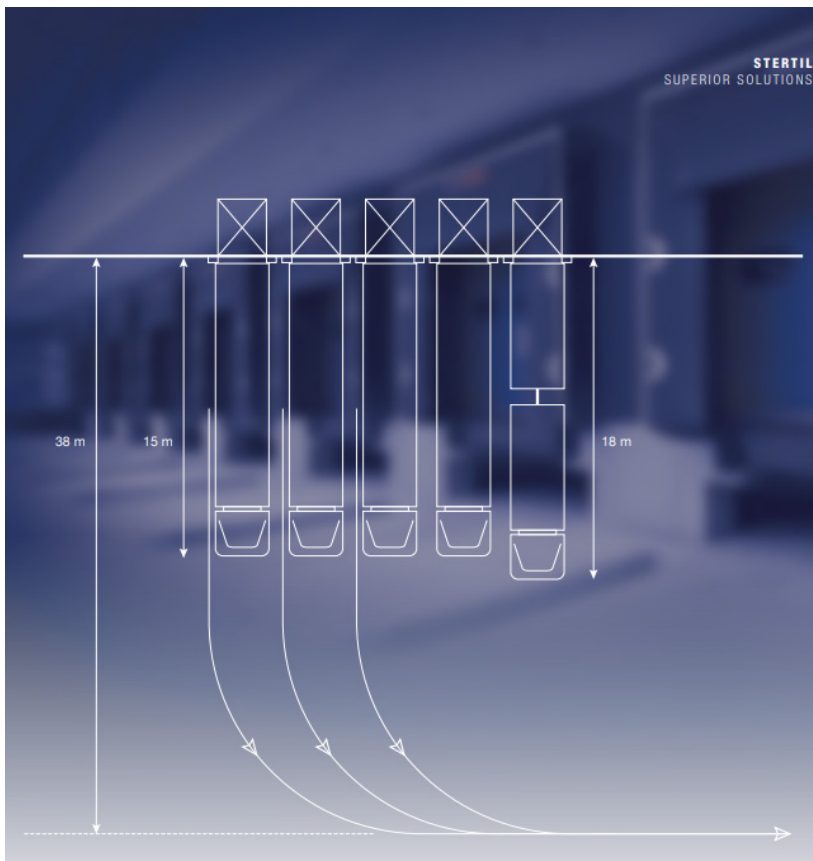
Having taken this into account, consideration was given to where the lorries enter the site and the exact location of the loading and unloading areas. To avoid creating an obstruction to the active logistics infrastructure, a study was conducted into the turning circle of a lorry and translated into a grid system that serves as the spatial basis for the plan. Taking into account a lorry that is 16.5 metres long with a turning circle of 21 metres, this has been marked out on the site (STERTIL DOCK PRODUCTS, n.d.).



Boomgaardstraat Kuhne (Co, n.d.)



Mauritsstraat (Van Helleman & Van Helleman, 2019)



(STERTIL DOCK PRODUCTS, n.d.).



### 3.2 Target group, concept and funding mechanism for phased housing

The target group for which the design is intended consists of first-time buyers (aged approximately 25–35) on middle incomes who are excluded from the housing market. These young first-time buyers earn too much to qualify for social housing, yet they also lack the financial means to rent a property on the private market or to buy a home. Looking at the housing market, it is clear that prices are high, borrowing capacity is minimal – particularly for first-time buyers – and waiting times for social housing are considerably long. Consequently, the usual routes to securing suitable accommodation are not realistic for a large group of households.

It is typical for young first-time buyers that their housing needs are modest at this early stage of life, whilst their financial capacity increases over time. However, the housing market requires them to finance a ready-to-move-in property, resulting in high upfront costs and investments in spaces that are not yet needed.

Consequently, this project proposes an alternative model in the form of phased living within a shell-based model. Unlike purchasing a traditionally completed home, residents buy a primary structure, known as the 'shell', in which the essential elements and the main load-bearing structure are included in the shell, whilst the remaining interior finishes are to be fitted out by the residents themselves. This lowers the financial barrier to entry when purchasing a home, as the buyer only fits out the part of the house that is actually being used at that time. The costs can therefore be spread over time, whilst still allowing the home to be arranged according to the buyer's own preferences.

This approach is rooted in the Open Building principle, initiated by Habraken, which distinguishes between the 'structure' (load-bearing framework) and the 'fit-out' (the interior design). Thanks to this strategy, it is possible to make homes adaptable, meaning that residents can make changes over time and adapt them to their needs. In this context, flexibility is seen not only as the efficient organisation of space, but also as a tool for responding to dynamic lifestyles, family structures and income (Habraken & Teicher, 1972).

This approach is in line with contemporary concepts, including incremental housing. Here, homes are defined as a temporary minimum standard, with the opportunity for later expansion based on the residents' financial means and needs. In this approach, the dwelling in question is not viewed as a finished product, but as a phased process that develops step by step (Aravena & Lacobelli, 2012; ).

Within this project, this principle is applied to the spatial layout by means of a ceiling height of 5.4 metres. Thanks to this height, a mezzanine floor can be added at a later date. This allows the living area, for example, to be increased from 60 m<sup>2</sup> to 85–90 m<sup>2</sup>. This means that residents can adapt their own home to suit their changing circumstances, such as a growing family or simply shifting living preferences. As a result, the home is not a fixed end product, but an adaptive system that changes over time.

A key component of this model is the use of refinancing, whereby an increase in financial capacity is linked to spatial development. In principle, interested parties purchase a shell property and finance only the part that is actually used. A property with a potential value of €500,000 is, in principle, only used and financed to the tune of €300,000. This lowers the barrier to entry and is in line with the user's financial position.

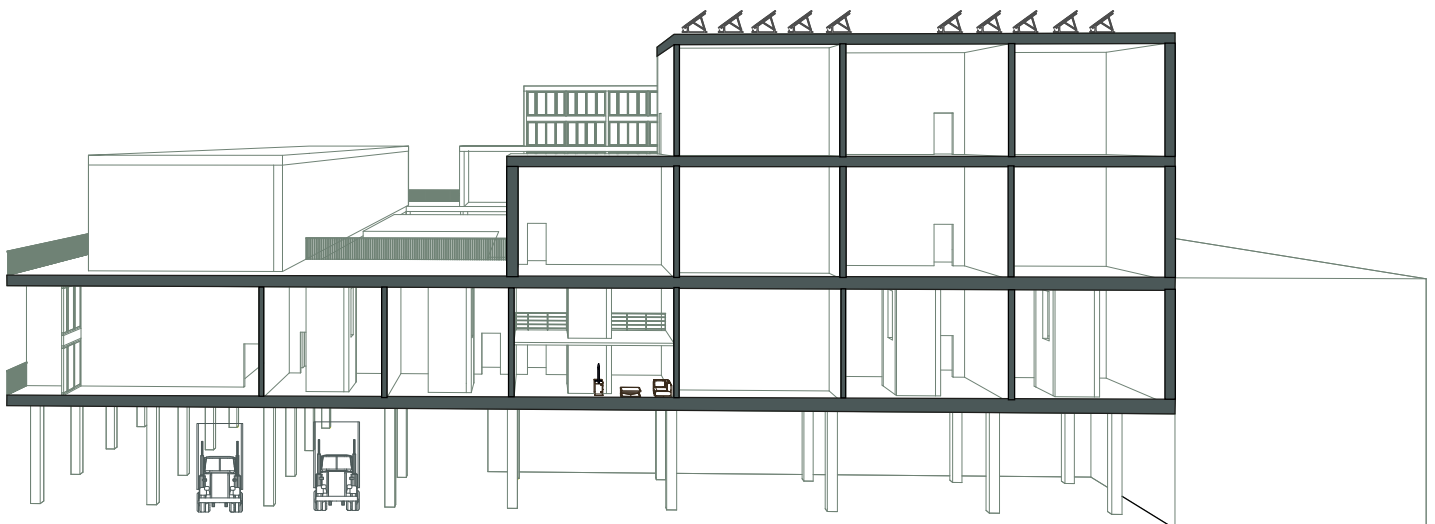
Financial circumstances change over time. For instance, income may rise, housing preferences may change, and the value of the property may increase as a result of phased completion. At that stage, refinancing becomes possible, whereby the existing mortgage is replaced by a larger loan based on the increased market value of the property and the occupant's financial situation. The equity created can be used to fund the residents' needs and to continue the home's development, for example by adding a floor or creating extra rooms.

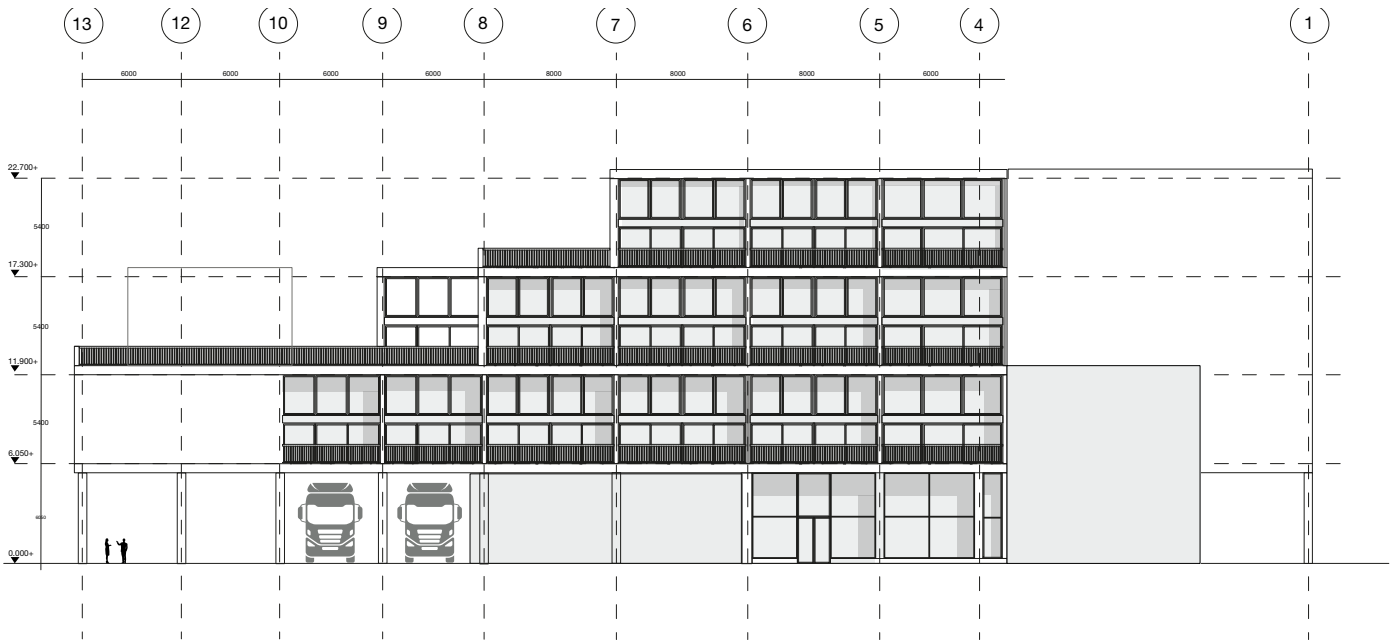
This incremental process can occur repeatedly throughout the various stages of occupancy, revealing a direct link between spatial development and financial growth. In contrast to rent-to-buy schemes, where ownership increases gradually, in phased housing the property grows alongside the household, both in terms of use and value

The effectiveness of this model lies in spreading risks and costs over time. Residents start with what they can afford initially and gradually expand their involvement in line with the stage of life they are at and their financial situation. This not only lowers the barrier to entry but also leads to a more flexible and sustainable housing model, where the home grows with the occupant both spatially and financially, rather than the other way round. This approach is shaped by design choices and adaptability in use.

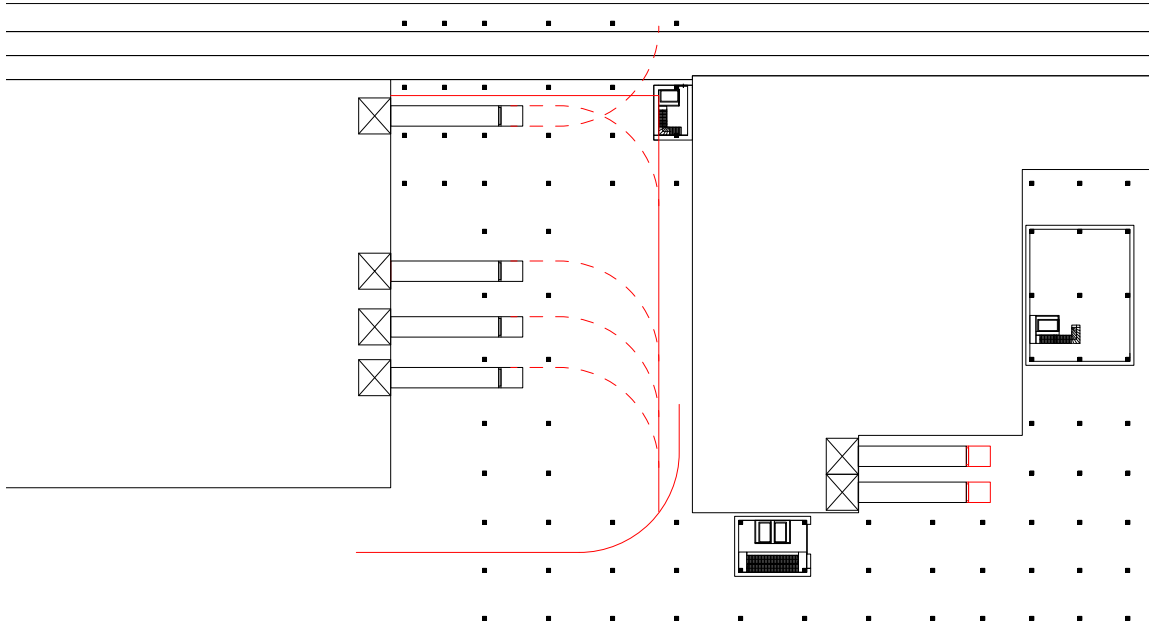
### 3.3 Materialisation

The choice of materials for the building stems both from the spatial and functional requirements of the site and from the aim to create a distinct spatial character. Situated on the main road of the masterplan, the building occupies a central position and acts as a prominent architectural feature within the industrial area. The building is supported by a structure on concrete piles. The solid substructure fits within the industrial architectural context of the area, where heavy logistics and freight traffic are a dominant feature. The massive concrete piles thus reference the surrounding sheds, which are mostly enclosed structures. The building on the piles creates a contrast through its lightweight and sustainable timber structure, consisting of CLT load-bearing walls and floors. CLT was chosen for its lighter mass, demountable and circular properties. Furthermore, CLT also makes it possible to achieve larger spans, given that the concrete piles are sometimes as far as 8 metres apart. Thanks to this design decision, the building is flexible and easier to adapt over time, whilst also contributing to a reduced ecological footprint. The façade features green wooden slats and aluminium window frames. This colour was deliberately chosen, as the surrounding buildings are mostly monotonous, closed-off and grey sheds. Furthermore, the green tones reference the surrounding landscape of Midden-Delfland, which has come under pressure over the years due to urbanisation. This building serves as a statement within the masterplan and demonstrates that an alternative approach is possible, whereby a monofunctional industrial estate is transformed into a mixed-use environment, and it is positioned as a landmark.

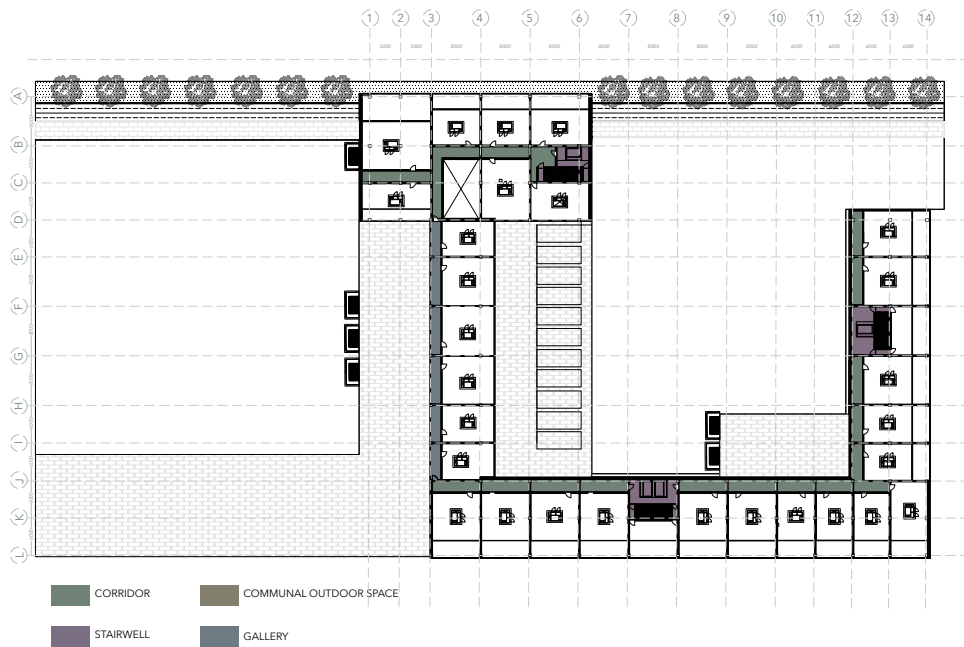




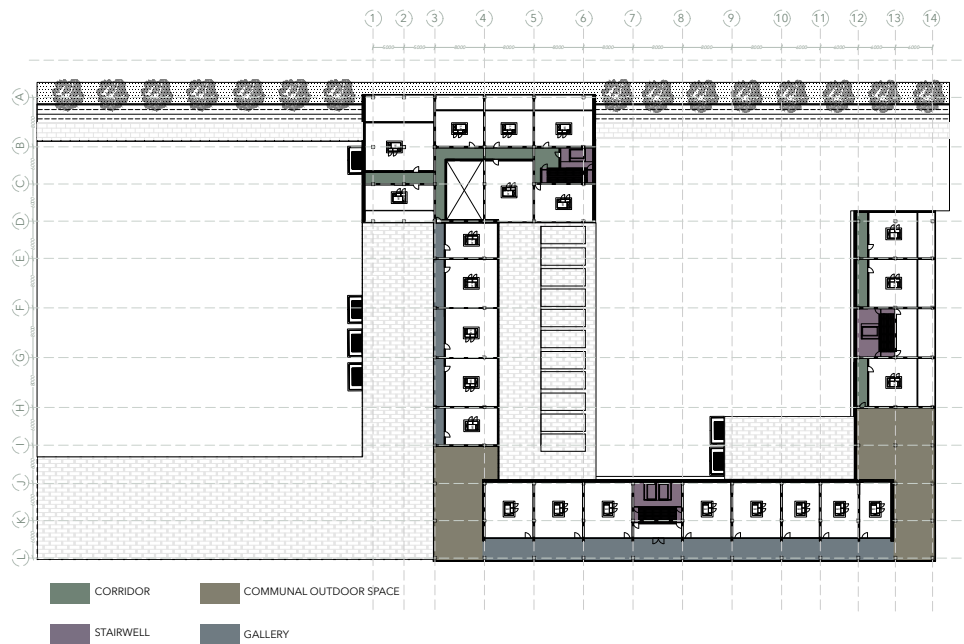
West Facade



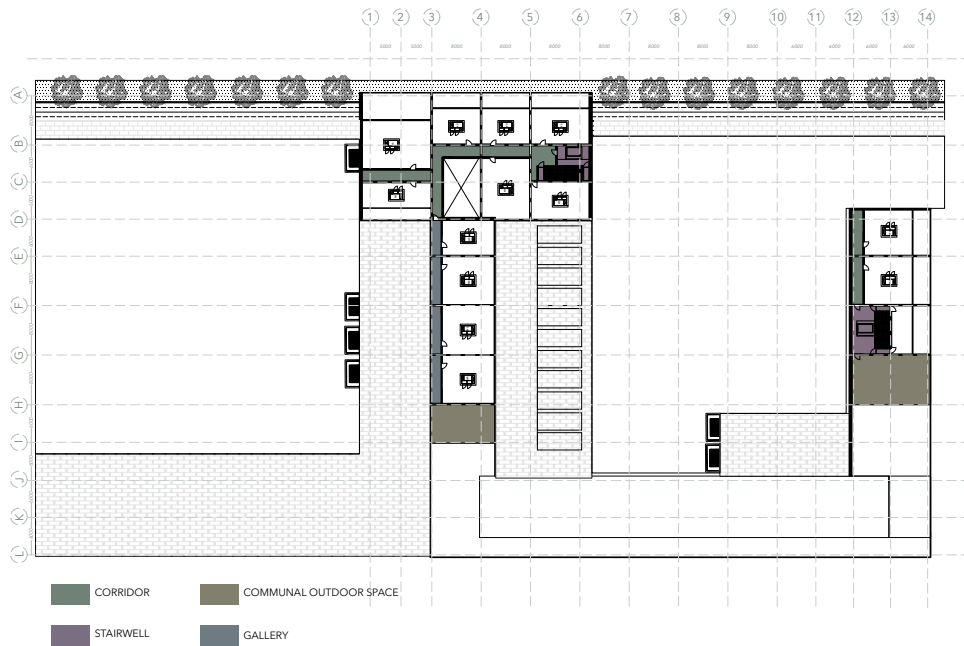
Ground floor



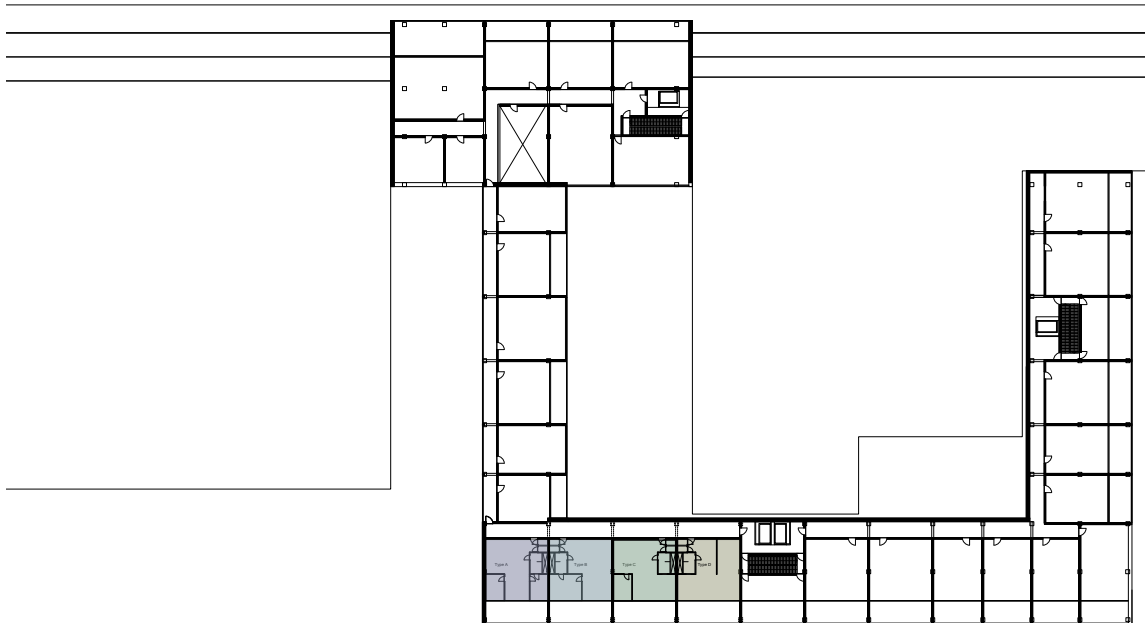
1st floor



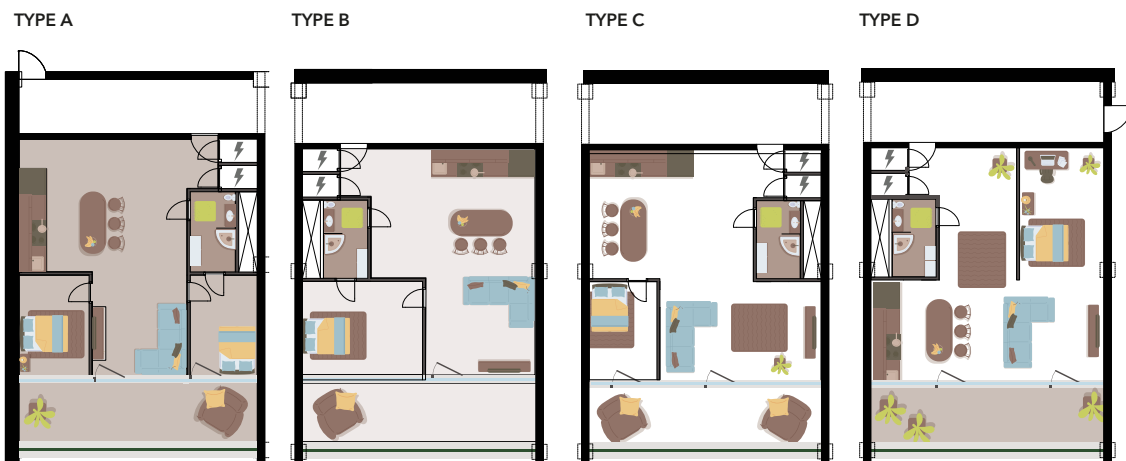
2nd floor



3th floor



Typologies



A shell property that you can layout to your own taste, although the bathroom and utility room must remain in their designated locations

# 04 Conclusion and discussion

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This project examined the relationship between industrial densification, affordability and phased housing development from the perspective of the Dutch housing crisis. The research was prompted by the finding that the Netherlands is facing two spatial challenges that are increasingly at odds with one another. On the one hand, there is a growing demand for affordable housing within the urban fabric, particularly in the Randstad region. At the same time, the aim is also to preserve open landscapes and ecological buffer zones, including Midden-Delfland, from further urbanisation.

At the same time, many industrial sites adjacent to urban areas are not being used to their full potential and are characterised by monofunctional land use, despite their existing infrastructure and strategic location. For this reason, this project has explored a challenging approach, investigating whether industry and housing can coexist within a coherent spatial framework. This means we aim to transition from single-use land to mixed-use land. The design focuses on the question of how phased housing can serve as both an architectural and financial instrument, with first-time buyers as the target group. However, housing above a logistics infrastructure presents certain challenges. To begin with, the site on which construction is taking place is situated between two sheds. Logistical activities take place between these sheds, including freight traffic, logistical manoeuvres and loading and unloading operations. For this reason, ground-level construction is not possible within the selected plot, and column-supported construction was introduced to promote a minimal footprint, enabling both residential and industrial uses to coexist. At the same time, many industrial sites adjacent to urban areas are not being used to their full potential and are characterised by monofunctional land use, despite their existing infrastructure and strategic location. For this reason, this project has explored a challenging approach, investigating whether industry and housing can coexist within a coherent spatial framework. This means we aim to transition from single-use land to mixed-use land. The design focuses on the question of how phased housing can serve as both an architectural and financial instrument, with first-time buyers as the target group. However, housing above a logistics infrastructure presents certain challenges. To begin with, the site on which construction is taking place is situated between two sheds. Logistical activities take place between these sheds, including freight traffic, logistical manoeuvres and loading and unloading operations. For this reason, ground-level construction is not possible within the selected plot, and column-supported construction was introduced to promote a minimal footprint, enabling both residential and industrial uses to coexist.

In addition to the homes being situated on a raised communal living platform, consideration has also been given to creating a raised ground level. For instance, there are large communal spaces where greenery, social interactions and traffic flow are organised. As a result, the residential level serves not merely as an isolated housing complex adjacent to industry, but as a design interwoven with urban structures that anticipates the logistical conditions of the site. It has also been noted at this location that architecture alone is not enough. To attract people here, it must also be financially attractive, given the high house prices and the location. It has therefore been observed that within current housing production, homes are delivered ready to move into but require high investment from the outset. The financial capabilities of first-time buyers are overwhelmed by this, creating a gap between this group and the way in which homes are currently marketed and built. In reality, it often emerges that the homes purchased feature spaces that are currently unnecessary at this stage of life. For this reason, phased living has been introduced in this project, whereby the home evolves in line with the wishes and needs of the residents. Phased living is approached as a financial and spatial process that unfolds step by step. This means that instead of delivering a ready-made home, a shell home is delivered, in which the load-bearing structure and key infrastructure form the basic framework of the home. The resident can decide on the interior fit-out over time, allowing them to respond to their own housing needs at that particular moment.

This design principle is aligned with the principles of 'Structure and Fittings', whereby a distinction is made between the structural framework and the fittings without disrupting the overall architectural structure. As the homes are delivered as shell-only units, they are considerably cheaper compared to a traditional housing model. Another major advantage is that the homes can evolve in line with the buyer's financial resources and spatial living requirements. This principle is reflected in the design through a floor-to-floor height of 5.4 metres, with a core situated within the home. Within this core are the service shaft and the wet rooms of a home, and a mezzanine floor can be installed. The homes vary in shell area from 60 to 80 m<sup>2</sup> and, thanks to the increased height, can be extended to 100-120 m<sup>2</sup> by installing a mezzanine floor. As a result, the home does not function as a static object, but rather as an adaptive architectural system that evolves in line with the occupant's needs.

This approach makes buying a home more accessible, particularly for first-time buyers. Residents invest in the space they actually need, with the option to expand later and without high upfront costs. Through phased construction and refinancing, the home grows in line with needs and costs can be spread over time, which may also help alleviate pressure on the housing market through this approach to building. Whilst the project has a significant financial component, the architectural aspect is equally important, particularly in terms of flexibility and adaptability, whereas in traditional construction the layout of spaces cannot be altered.

This project is based on long-term use, adaptation and change over time. In response to the first sub-question: "What technical and spatial design approaches are essential for integrating housing with an active logistics infrastructure within a coherent design?", the spatial and technical aspects are of critical importance for the successful integration of industry and housing. Above all, the logistics infrastructure must not be disrupted. For this reason, the structure is built on columns, taking into account loading and unloading activities and the manoeuvring space required for lorries. The grid and the main supporting structure can be derived from this. In addition, it is important that the 5-8-metre spans are well supported; CLT floors and load-bearing walls have been chosen as the material, which, thanks to their lightweight nature, two-way spanning (structural flexibility) and demountable properties, contribute to the project. CLT combined with concrete columns ensures that large spans can be achieved whilst maintaining ground-level access for logistics. Thirdly, the project emphasises the priority of communal use within the mixed-use environment. The elevated residential deck serves not only as an enclosure but also as a connecting urban layer designed to soften the transition between industry and residential areas. Through wide galleries and communal spaces, including shared terraces and play areas, the aim is to create a high-quality living environment where industry is not seen as a nuisance, but as an integral part of the fabric. Addressing the second sub-question, the project demonstrates that economic and spatial growth can go hand in hand.

Unlike traditional housing, where layouts are fixed and flexibility is virtually impossible, phased living allows the home to evolve in line with the resident's wishes and financial circumstances. Furthermore, there is also a link between the rising value of the home, the increase in usable floor space and the scope for refinancing. As a result, the architecture forms part of an ongoing development over time, as opposed to the initial completion of the building. Residents do not need to move, as the home can adapt to changes in household composition, financial circumstances and lifestyle patterns. Consequently, moving is unnecessary, and the homes contribute to the continuity of housing. With regard to the third sub-question, we conclude that phased housing makes a significant contribution to first-time buyers' ability to purchase a home, as the initial investment is reduced and costs can be spread over time.

We must bear in mind that this approach to building is not universally applicable, as the housing market revolves around profitability and the timely delivery of standard housing models. For this reason, it is important to foster collaboration between the local authority, the architect, the developer and the bank in order to play a significant role in addressing the housing crisis. Although the project demonstrates that architecture alone can promote new housing models, in which the relationship between adaptability, ownership and use can be redefined. This design therefore shows that architecture is not complete once the design has been delivered and the building erected, but that it can undergo changes at a later stage and that this is an integral part of the design. In conclusion, we can state that industrial areas offer many opportunities, and it is a shame not to integrate these areas - which are often located on the outskirts of cities and have good accessibility - with urban residential structures. Significant investment has often already been made in the area regarding roads and accessibility, which makes residential construction cheaper as there is no need to transform an entirely new area. Furthermore, it is often the case that these areas are unattractive places to work; one need only look at the Rodenrijs business park, which is full of gigantic, monotonous sheds with closed façades. By adding residential buildings and commercial facilities, a certain vibrancy is brought to the area, which also makes working there more attractive. This creates a win-win situation for both residents, who can live more cheaply, and employers, who can potentially earn more and find it easier to recruit staff in the area.

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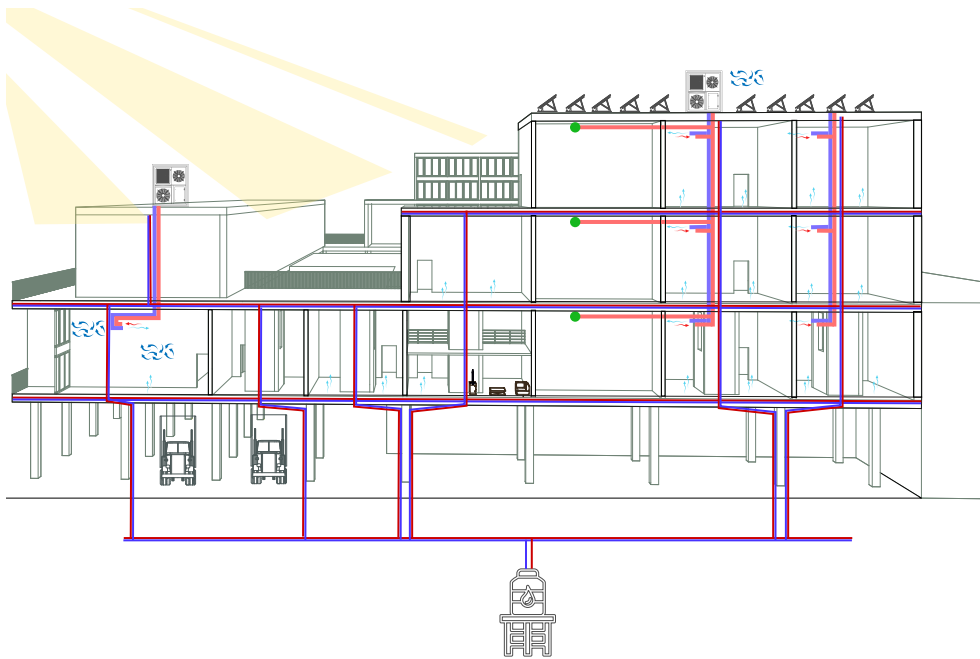
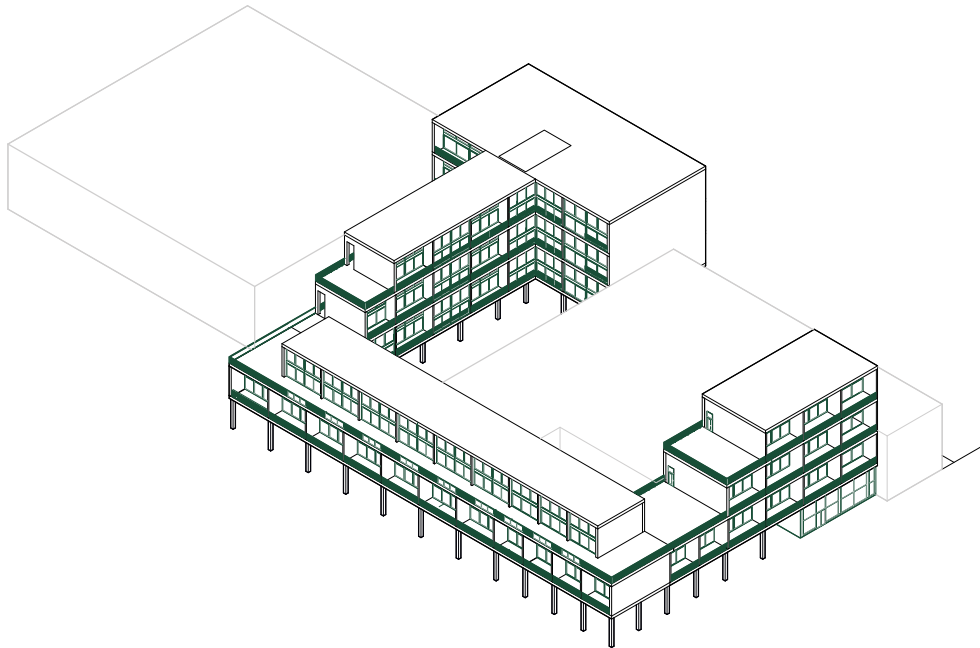
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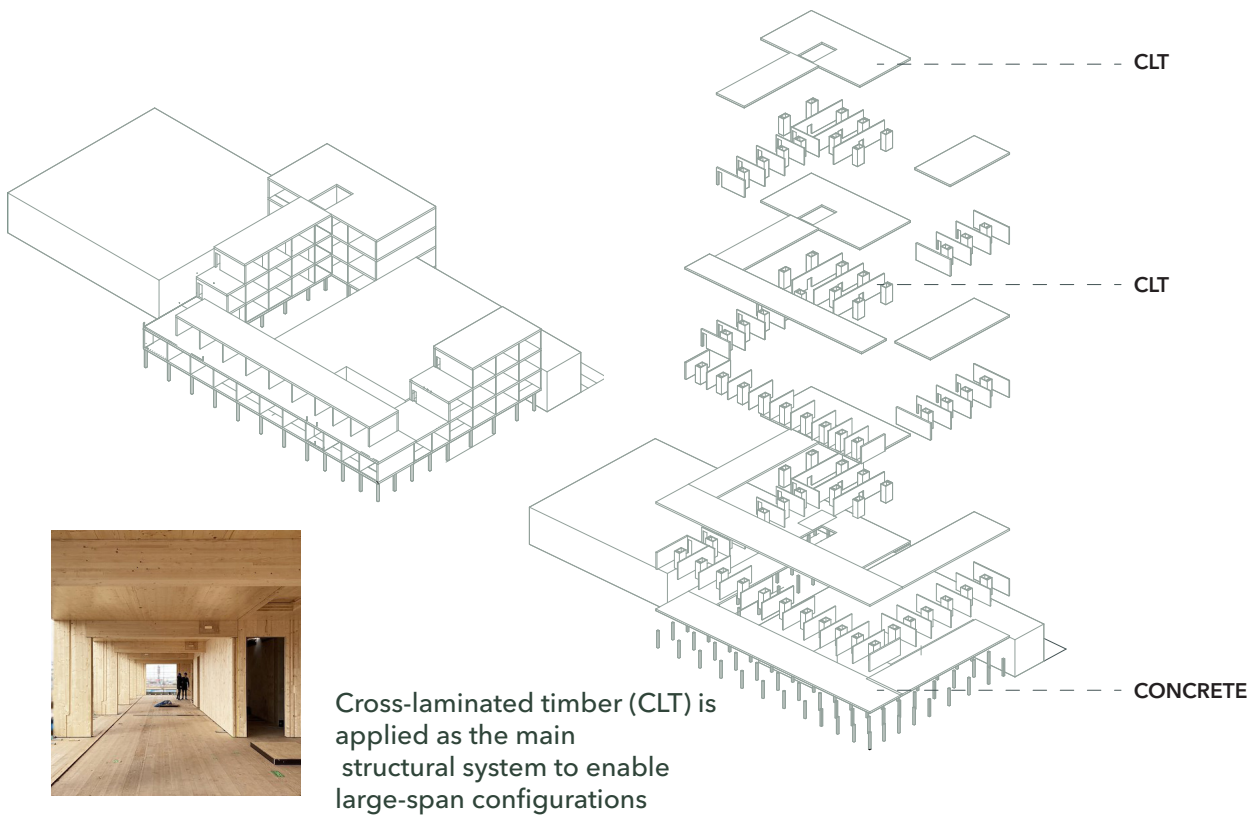
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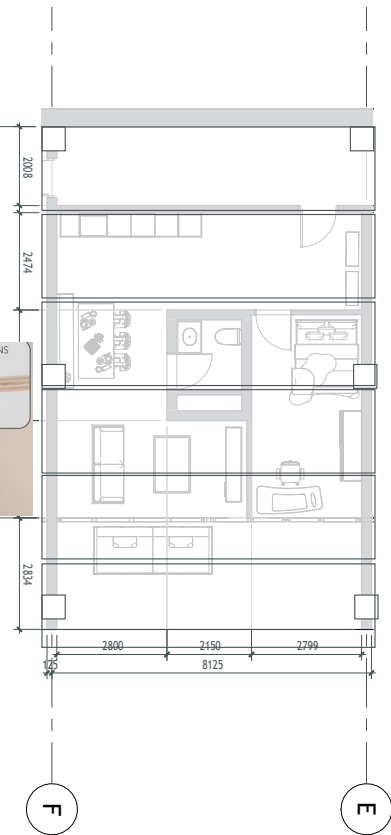
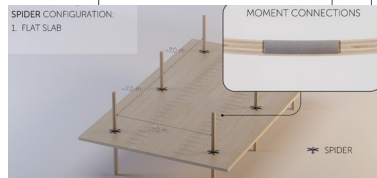
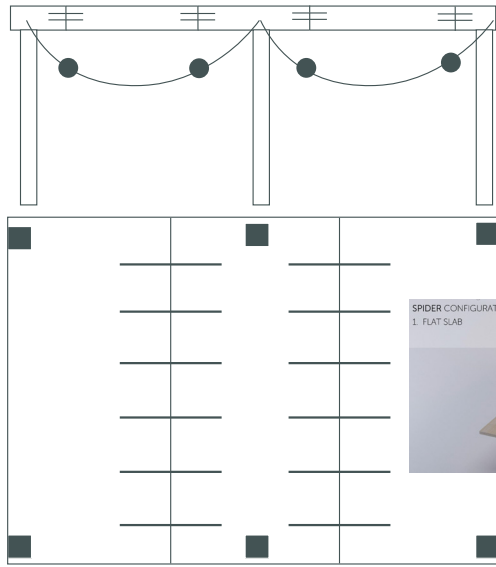
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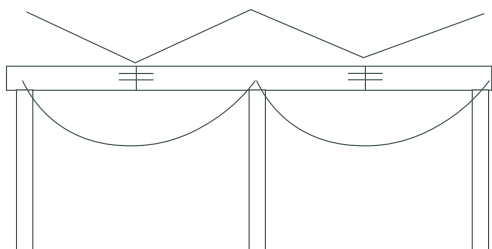


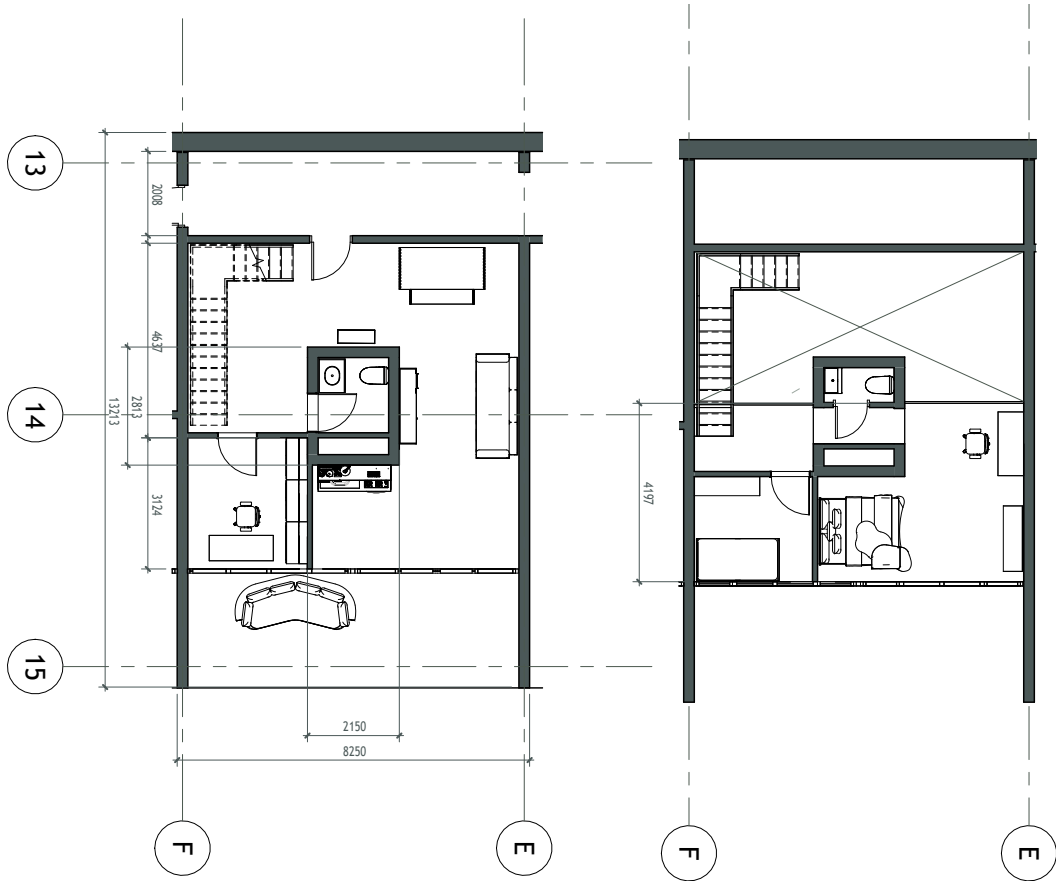


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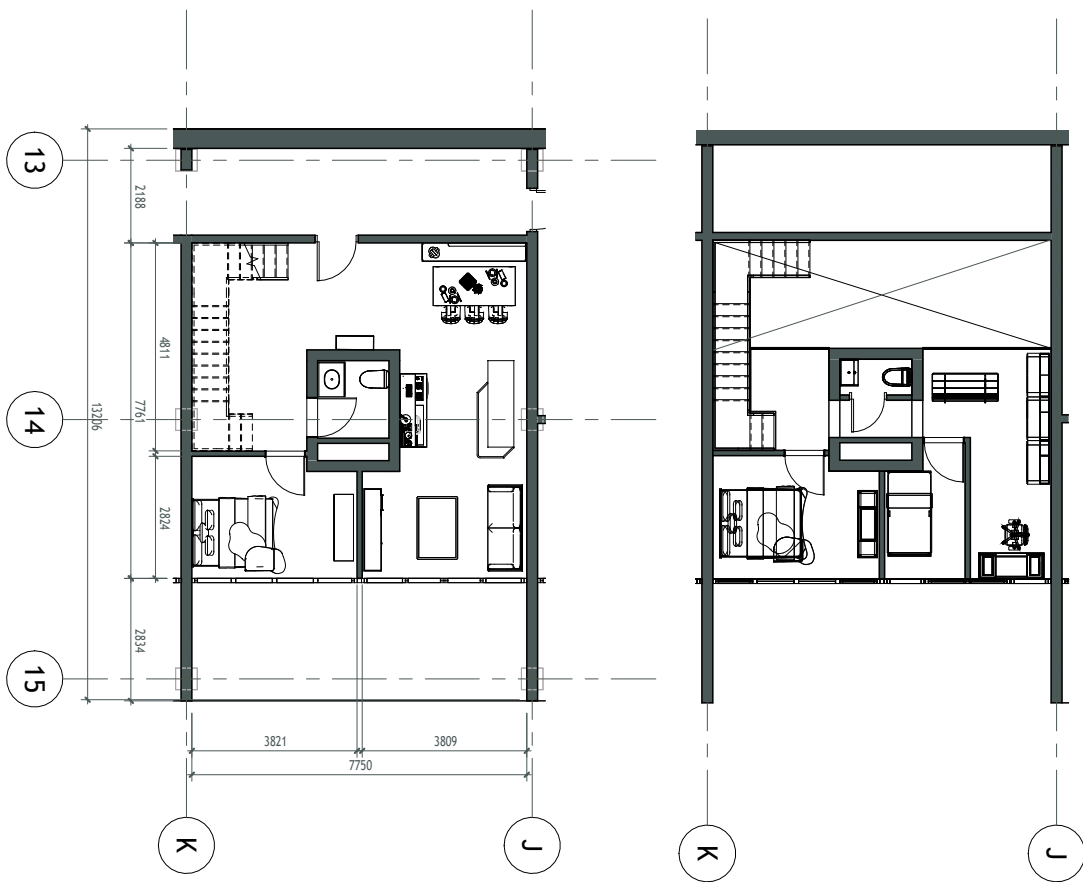


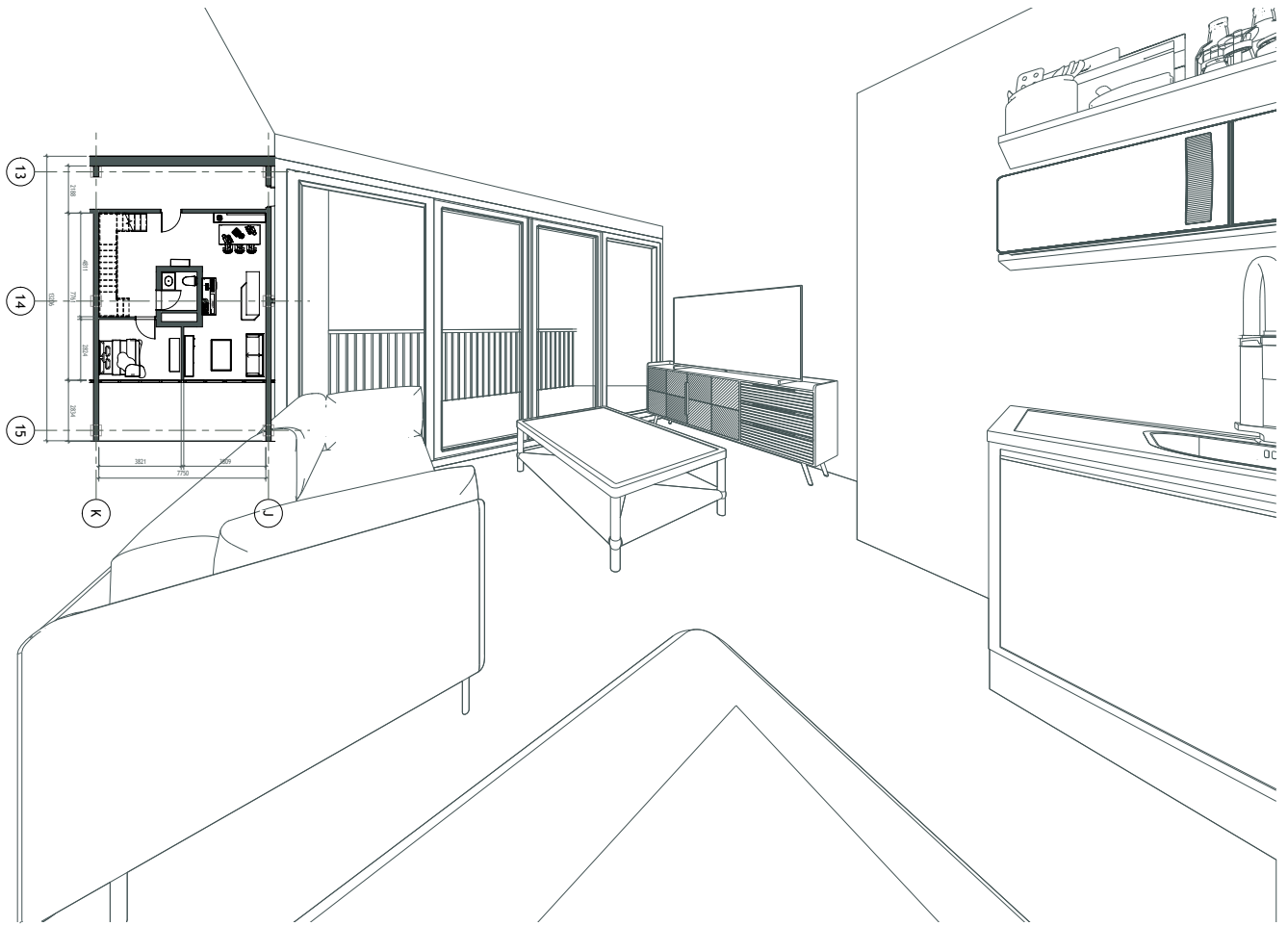
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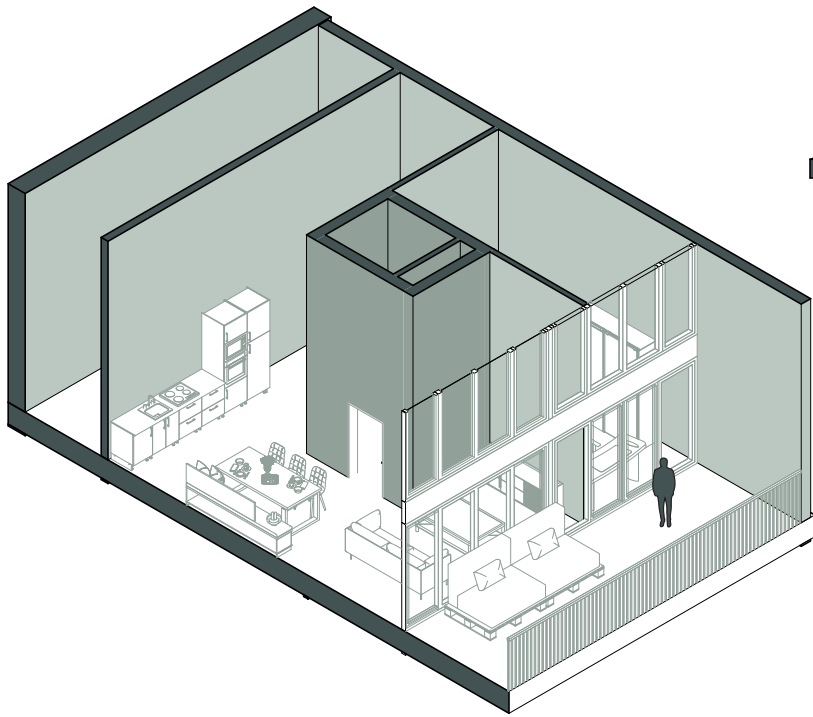




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