HOMES THAT WORK

THE ARCHITECTURE FOR HOME WORKING PARENTS AND CHILDREN IN AN URBAN CONTEXT

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The architecture for home working parents and childeren in an urban context

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Last, but not least, I would like to thank my family for their support over the years.

Thank you,
Enjoy going through the research and design!

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DESIGN LOCATION

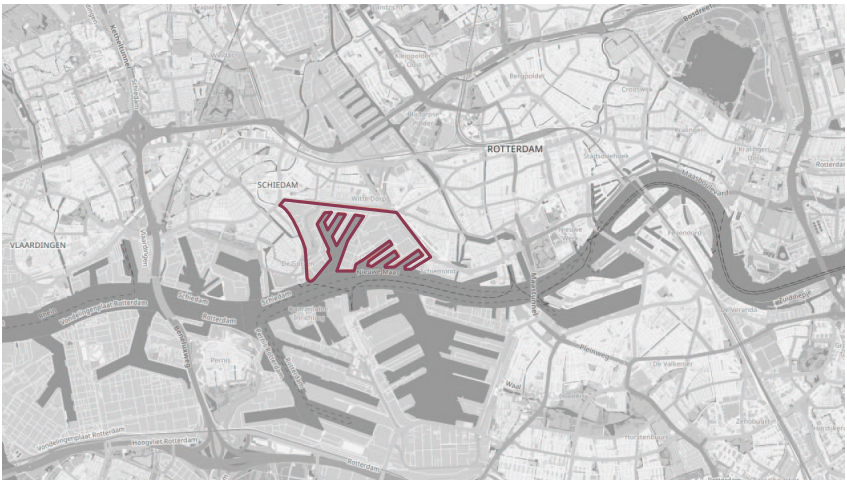
1

KAMERUN
HAMBURG

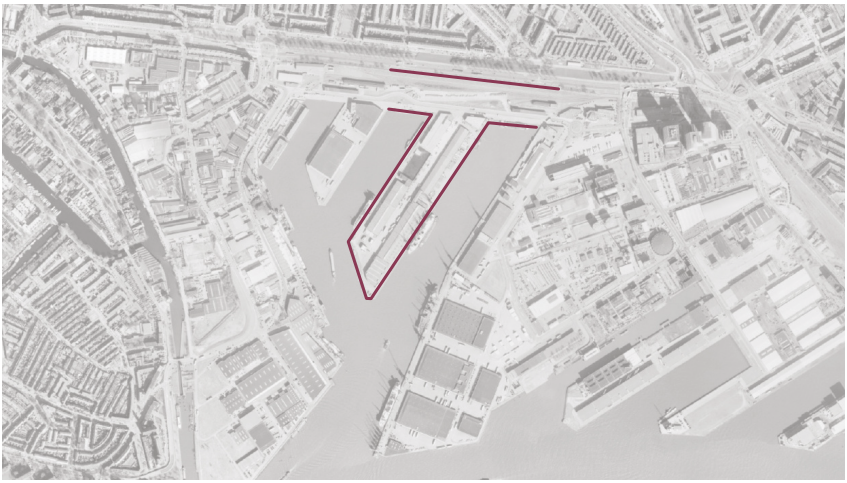
The design location for the Advanced Housing Design Graduation Studio is the M4H-area in Rotterdam. The Merwe-Vierhaven area is an old port area of approximately 100 hectares on the north side of the Maas. It was once one of the largest fruit ports in the world where the storage and transhipment of various fruit took place every day. Nowadays the area is at the start of a transformation into a living-working environment (Municipality of Rotterdam, 2019).

The municipality's objective with regard to this soon to be transformed harbour area is to create an innovative live-work environment, intended to bring creativity, innovation and making together.

This studio is focusing on the Merwehaven area within M4H, which is characterised by industrial buildings, commercial warehouses. The first task was to design a masterplan for this area that can facilities dwellings and provide space for creativity and innovation. To accomplish this, four reference projects have been transferred on the location to kick start the urban masterplan design.



Merwe-Vierhavens Rotterdam



Sub-area: Merwehaven

Current context

Proposed masterplan

Kickstart - Transfer reference projects on M4H area

Kop van Zuid - Rotterdam

FSI: 3.8

© Synchroom

LLoydpier - Rotterdam

FSI: 2.1

© TOP010

Müllerpier - Rotterdam

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Borneo-Sporenburg - Amsterdam

FSI: 2.1

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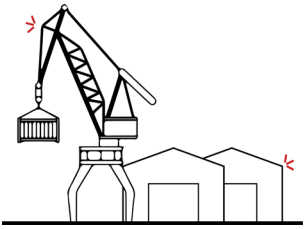
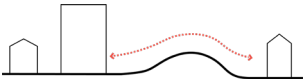
Merwe-Vierhavens Rotterdam

Concept



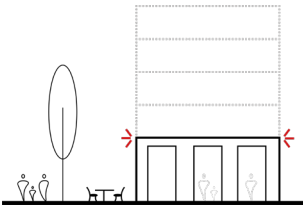
1. Preservation of the harbour identity and the characteristical elements.

•Preserve the rich variety of buildings, quays, tracks, and constructions in Merwehaven. These image-defi ning objects form the basis of the identity of the area and contribute to value development.
•A green heritage route is proposed that follows three key points in the masterplan where the monuments are preserved.



2. Implementing a strong spatial structure

• Creating good and safe connections over water and land, at all levels and for all modes of transport.
• In order to connect the harbour with the city, strong physical and functional connections will be made to the adjacent neighbourhoods.

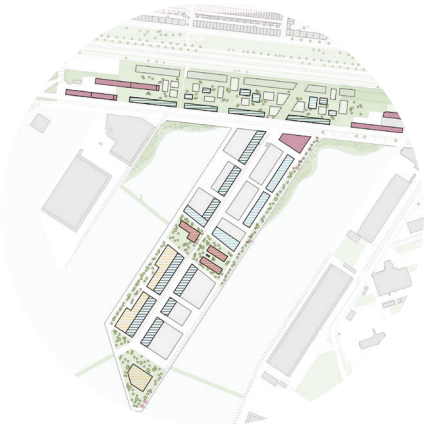


3. Create a strong programmatic structure with surrounding areas

• Creating high plinths that define the image of the street with a mix of commercial, cultural, and social facilities.
• Realizing an open innovation environment with a varied mix of companies in different growth phases.
• In addition to the green heritage route, building block setbacks along the quay provide space for greenery and leisure activities.

Preserved buildings

Programme



Car circulation & public transport

Green Heritage Route

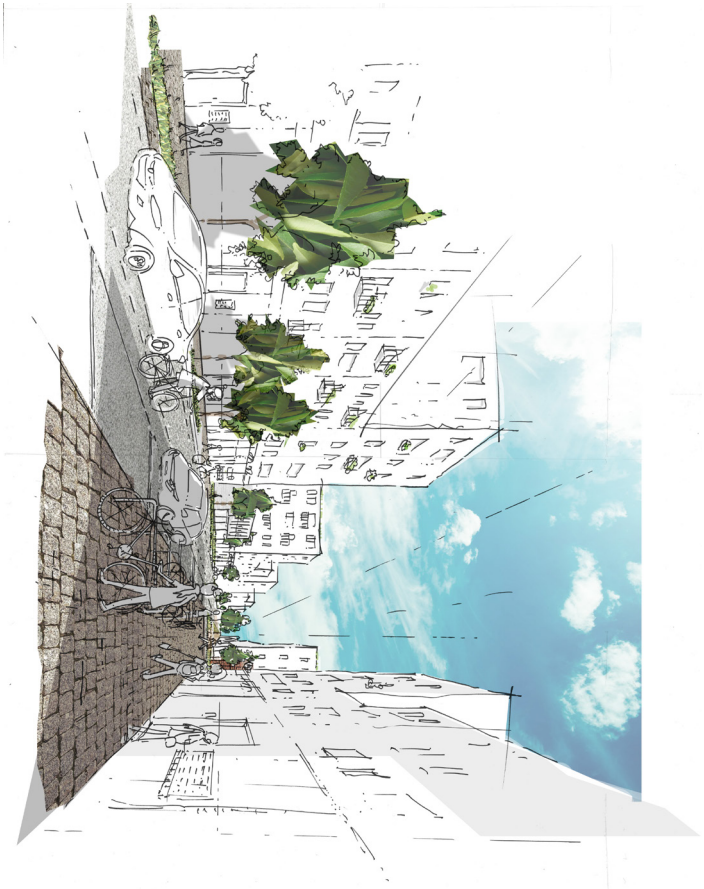
- Preserved buildings
- Work- & living mix
- Cafes & lunchrooms
- Cafes & restaurants
- Car ciruclation
- Busstop

FSI: 1.69

Urban masterplan and building plot

- Preserved buildings
- Work- & living mix
- Cafes & lunchrooms
- Cafes & restaurants
- Car ciruclation
- Busstop

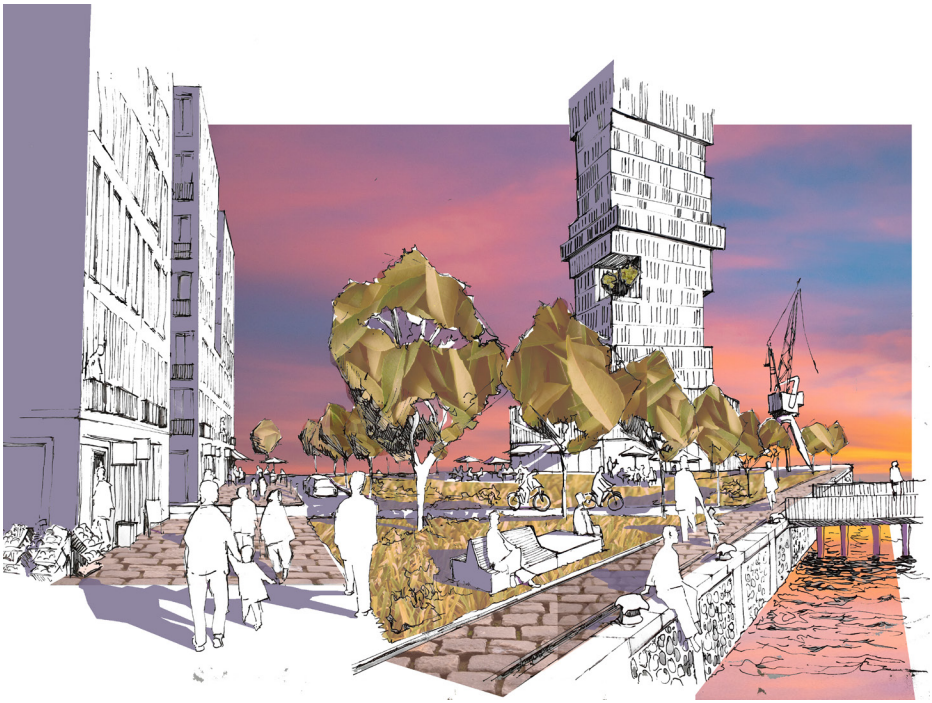
'Boulevard'



Start of Pier

Quay side (west)

Park



TOPIC RESEARCH

2

How can family life, child supervision and work-life take place at the same time, in the same dwelling – and how can dwelling design actively support such complex social relations?

ABSTRACT
This research investigates live-work patterns of various family household compositions. The goal is to understand the challenges home working parents face while doing care duties and to offer viable spatial and programmatic solutions that embrace and support wage work and care work in the same place.

The research looks into the historical development of the old building type that combines live and work; what Frances Holliss (2015) states to be a 'workhome'. The relevance and resurgence of this typology in the context of a globalized economy and informational era, which causes the home-based workforce to grow rapidly. This growth has increased after the outbreak of the Covid-19 pandemic as it imposed home-based work on a large scale. During the curfews and movement restrictions, the workplace was squeezed into a monofunctional designed dwelling and so affected the live-work balance in several ways. It decreased waged work performance due to family life distractions and bad time management. Social isolation has negatively impacted mental health as home-based workers are not able to meet colleagues or do other meaningful social activities. In turn, this amounts to an increase in work-related stress, burn-outs and impacts family life dynamics as parents are more agitated and children receive less attention than usual.

According to studies by the Netherlands Institute for Transport Policy (KiM), predominantly parents with young children are unable to concentrate on their work at home due to family life distraction (Hamersma et al., 2021). This provides an incentive to study the dual-use building to counter challenges parents with young children face working from while doing care duties and social implications through architectural design. The hypothesis is that parents that work from home need spatial boundaries from family life to perform waged work productively whilst having the ability to supervise children for care duties. In conjunction, collective play areas for children in the building contribute to mitigate distractions in the dwelling as it provides home working parents more control over the environment they work in.

To understand how family-life and work-life can take place simultaneously and in the same dwelling, two family households will be analysed on live-work patterns as each has different needs and one-size dwelling does not fit all. I will focus on single parents and the 'modern' nuclear family. The results of this research then feed into the articulation of architectural design principles and dwelling plan arrangements to accommodate adequate live-work family homes that WORK.

KEYWORDS: live-work patterns of families, home-based work, workhome, work-life conflict

DEFINITIONS:

- The term **workhome** is formulated by Holliss to describe all building types with the dual function of living and working (2015).
- Adaptability focusses on long term changes, while flexibility focusses on short-term alterations (Holliss, 2015).
- Work-family conflict is a form of inter-role conflict that occurs when the energy, time, or behavioral demands of the work role conflicts with those of the family role (Greenhaus & Beutell, 1985). According to Kossek and Lee (2017), the concept of **work-life conflict** is an extension of work-family conflict reflecting the reality that the work role may interfere with individuals, other personal life roles and interests.
- The 'traditional' nuclear family has evolved over time. The outdated concept only a household with married parents of opposite sexes and the biological children of both spouses is no longer the norm (State Institute for Family Research at the University of Bamberg, 2010). In this reserach the 'modern' nuclear family includes parents with similair sexes, step parents, adopted, step and half siblings as port of the immediate family.

Introduction

Since the beginning of the corona crisis, a new era seems to have dawned on many households, especially parents working from home. Mothers wrestle their way through spreadsheets on laptops while keeping an eye on babies and fathers bump around the kitchen table from Zoom to Zoom meetings. This is the 'new normal'.

The World Health Organization declared the coronavirus (COVID-19) outbreak a pandemic on March 11, 2020. Governments from across the world, including the Netherlands, announced lockdowns limiting all unnecessary travel and requested all non-essential employees to work from home where possible. This caused a widespread shift of office work to be carried out in the dwelling.
According to studies by the KiM Netherlands Institute for Transport Policy, about 33% of workers in the Netherlands worked at home occasionally before the pandemic and about 6% of them did this completely. As a consequence of the pandemic and the measures by the government, the percentage of home-based workers increased up to 45-56% (Hamersma et al., 2021). The pandemic has drastically accelerated the trend of home-based work and in doing so, it revealed that not everybody has the appropriate circumstances or facilities to work from home. The workplace is often squeezed into a dwelling that is not designed for the dual use of living and working. This is affecting the productivity of waged work, work-life balance and social relations (Holliss, 2015).

First, the abrupt shift towards home-based work made evident that the geographical location of a lot of work is unimportant due to new information technologies. This results in more people choosing to work at home or live at their workplace (Holliss, 2015). Studies by KiM, report that 55-70% of home workers have positive experiences working from home during the pandemic as it gives the flexibility to set schedules, save time on daily commute and parents enjoy spending more time with their children (Hamersma et al., 2021). Although the majority of workers have positive experiences working from home, job satisfaction is lower than before the corona crisis. According to Holliss (Architecture Today, 2020), the factors that impact work-life conflicts and job satisfaction are related to the household composition, the nature of the work and facilities needed, the amount of space available and the characters in the household. In other words, home-based workers want to work from home in different ways, depending on who they are, what they are doing and the circumstances they are in.

Work-family conflict is a form of inter-role conflict that occurs when the energy, time, or behavioral demands of the work role conflicts with those of the family role (Greenhaus & Beutell, 1985). According to Kossek and Lee (2017), the concept of work-life conflict is an extension of work-family conflict reflecting the reality that the work role may interfere with individuals, other personal life roles and interests.

Studies by Schieman et al. (2021) and KiM (Hamersma et al. 2020), conclude that work-life conflict decreased among those with no children at home. In contrast to those with children at home, the situation can become extreme due to interruptions by children, noise and the lack of spatial boundaries. Parents with children younger than 12 experience most disruptions working from home as these age stages demand unique daily care, supervision and education, whereas teenagers manage to do their schoolwork and care without much parental supervision (NCJ, 2015). This additional workload besides waged worked got to extreme heights during the complete lockdown as schools were closed and education shifted to home-schooling. This is not only affecting waged work productivity but also negatively impacts the quality of care and attention the children were used to get at school or day-care.

Second, it has highlighted deep-seated problems of awareness and

fixed thinking. Policies and over-regulatory requirements have a huge impact and the transformation of these requirements lags due to laws and regulations (Holliss, 2015). Due to these regulations and the unwillingness of property developers to take risks on an evolving market when similar financial gains can be maintained on standard residential layouts, habits don't shape habitats any longer. The fact that more people choose to work from home does not only affect individual lives but also the buildings and neighborhoods they live in. Contemporary dwellings are designed with a one-size-fits-all approach where inhabitants sleep, eat, rest, bring up children and rarely incorporate workplaces. According to Holliss (Brown, 2020), most contemporary housing is considered as a live-with, which is the least favorable design for home-based work as live-work is intertwined in the same place. Nevertheless, many workers appropriate buildings that are designed for a single function as places where they can both live and work. Unlike in the 19th century, where dwellings evolved to meet new innovative industrial processes, the 21st century's shift to workhome dwellings is absent and rare in the Netherlands (Hollis, 2015). It is important to question current housing plans, such as open plan living, as new live-work patterns emerge. The open plan living usually functions on the premise that homeworking parents can occupy the kitchen or living room during the day before family life comes together in the evening. During the pandemic, it became apparent that how the dwelling is used differs from its intentions as all members of the household simultaneously occupy the dwelling and increase live-work conflicts.

This problem urges to question current housing design and a rearrangement of the dwelling to support wage work and care work in the same place. With a future forecast that 67% of the workforce view they will work more regularly from home post-Covid-19 and home working parents enjoy spending more time with their children (Hamersma et al., 2021), it is worthwhile to study how challenges that home working parents face can be countered through architectural design. The outcome will be implemented in the upcoming graduation studio of Dutch Housing Design, with a design at Merwe-Vierhavens, i.e. M4H, in Rotterdam. A former harbour site that will be transformed into a live-work area where my residential live-work building for parents will be situated.

Research questions

Main question:

- How can family life, child supervision and work-life take place at the same time, in the same dwelling – and how can dwelling design actively support such complex social relations?

Sub-questions:

- What is the historical development of the workhome from the medieval period until the 21st century, and how did social-economic events impact this typology?
- What are the needs of family households that work from home regarding child-care and workspace requirements?
- How do the needs of home-based workers differ according to household composition?
- How do the spatial requirements of home-based work differ according to occupation?
- What strategies on the building scale can contribute to simultaneously meet the needs of parents that work from home and their children?

Research questions for the typo-morphological analysis:

- What spatial strategies are used in arranging live and workspaces, and what are the benefits for parents working from home whilst doing care duties?
- What are the qualities of play areas and how is it organized in the building to enable parental supervision?

State of research and source analysis

The main studies that are explored on the topic of home-based work are *Beyond Live/Work* by Francess Holliss (2015) and *Live-Work Planning and Design* by Thomas Dolan (2012). Holliss, an architect and Emeritus Reader in Architecture at London Metropolitan University, provides a historic overview of the importance of this building type as well as its future potential. The book is based on an analysis of the lives and premises of 86 contemporary UK and US home-based workers from across the social spectrum and in diverse occupations. It generates a series of typologies and design considerations for the workhome. Furthermore, it presents how the dual-use dwelling can transform our cities and its sustainable model for the future (Holliss, 2015). Thomas Dolan's work also advocates the need to return to work-based homes to underpin the ideals of a sustainable community. Dolan argues that this form of living eliminates the separation between the most important parts of our lives thus resulting in more liveable environments.

Both books provide detailed research on the need for a return to work-based living but are limited to individual dwellings and do not take into account the building scale. Strategies for workhomes on a higher density and scale and work-life conflicts caused by the pandemic are missing. To gain insights into how the pandemic has brought new developments to Holliss' work, articles, interviews and lectures will be studied.

Besides the work-related books, I will investigate the needs of urban families, focusing on childeren. In the book, *de nieuwe generatie stads kinderen* by Lia Karsten en Naoimi Felder (2016), describes the new generation of urban children based on research and personal stories. The spatial analyses provide direction for design.

Based on research and personal stories, the new generation of urban children shows how children use the city, what places they avoid and where they like to go

A varied set of sources will be used to investigate in-depth live-work patterns of family households with children: scientific and governmental reports, newspapers, data through participant observation and published drawings from architectural firms.

Scientific and governmental reports will be studied to understand the significance of work-life conflicts in different households through the analysis of quantitative data. The publications by the KiM, Netherlands Institute for Transport Policy Analysis, is used extensively as presents a summary of various studies that have been conducted before and during the corona crisis up to January 2021 (Hamersma et al., 2021). The data for the architectural ethnography will be compiled from two bodies of sources: participant observation complemented with interviews and the analysis of first-hand work-life experiences lived during the pandemic published in newspapers. For the typo-morphological analysis, dwelling plans and images will be compiled from architectural firms and articles in which building plans are presented such as DASH #15 - Home Work City.

Methodology

The various steps that I will undertake are predominantly based on a set of qualitative research to understand the topic comprehensively from different perspectives. Quantitative data from scientific and governmental reports based on surveys will be analyzed to support findings; what household composition is experiencing most issues working from home? what future expectations are on home-based work? The qualitative research is based on literature analysis of the problem, historical research, visual ethnography complemented with semi-structured interviews and typo morphological analysis.

To explore the state of research and what information of existing knowledge can contribute to my research, I will thoroughly investigate studies by Frances Holliss (2015), such as *Beyond*

Live / Work and L*ive-Work Planning and Design* by Thomas Dolan (2012). In their research, there is nothing specific on the design for parents working from home with children but the presented live-work typologies, the needs of home-based workers in relation to occupation and the consequence of social isolation are topics that can feed into this research. Also, a historical study will be done on the workhome typology as work is shifting towards dwellings due to new technologies. It is interesting to explore the correlation between historical and social-economic events and how it impacts dwelling design.

For the architectural ethnography, published newspapers will be analyzed to understand the challenges parents face working from home with children and what tips they propose to minimize distractions and interruptions. Most proposed findings are related to non-architectural solutions such as: set a schedule for work and family life, plan for interruptions, designating or alternate childcare responsibilities, good communication et cetera. Solutions that are more related to architecture are child surveillance (visual connection), setting spatial boundaries, noise, entertaining children during work hours and the arrangement of a dedicated workspace (Silverthorne, 2020) (Chung et al., 2020) (Canadian Psychological Association, 2020). These insights will be used for setting analytical criteria on typo-morphological analysis, research questions and architectural ethnography.

Furthermore, I will undertake participant observation by taking pictures of settings in which waged work and child care is performed simultaneously. The choice for single parents and the modern nuclear family, was motivated by providing a maximum variety and contrast in lifestyle patterns as each might have different needs and one size dwelling does not fit all. The aim is to map work-life conflicts and strategies that parents undertake to minimize interruptions by setting boundaries, distractions, noise et cetera. The pictures will then be analyzed through line drawings to develop architectural strategies. The ethnography will be complemented with semi-structured interviews to complement. In both cases, the focus is to understand the dynamics of child care while doing waged work: what are the challenges? how do participants appropriate the dwelling to minimize conflicts? and what architectural strategies can I develop from it.

Finally, I will perform a typo-morphological analysis on residential live-work and urban families buildings to understand the concepts that architects have used while designing and what mistakes and perfections I can learn from. This will feed into the research and the design at Merwehaven. From eleven live-work buildings, three are selected for the case study analysis based on diverse strategies applied in organizing the dual-use of live and work: IBEB Berlin by Heide von Beckerath and Ifau, Mischen Possible by BARarchitekten and CoolCube by Jvanstpijker. In addition, two urban family projects are selected: Family Scraper by van Bergen and The Family by ANA Architecten. Both projects take different approaches to accommodate families in dense urban settings and provide a range of play areas for children to play in. The family-oriented design and play areas for children can contribute to mitigating work-life conflicts in the dwelling as it can entertain children during working hours.

The five projects will be analyzed on the following general criteria: the urban morphology, circulation, public/privacy, collectivity and dwelling typologies. Additional analysis criteria for the live-work projects are: spatial organization of live-work and dwelling arrangement and work-life (child supervision, spatial boundaries between work and family life and noise). For the urban family projects: diversity and arrangement of play areas and child supervision.

Questions semi-structured interview

The main focus will be on participant observation. The semi-structured interview aims to complement observations and allow the participant to say as much as they can. The questions that will be asked are based on what is observed during the visit and the prepared questions below will be asked if needed, allowing discussions rather than straight forward question and answer format.

Q1 – What is the household composition and can you describe the family dynamics?
Q2.1 – How often do you work from home and does your partner work from home simultaneously?
Q2.2 – How do you organize this in the dwelling?
Q2.3 – How do you organize child care responsibilities?
Q3 – What are the challenges that keep you from productively performing waged work? What have you done to solve this?
Q4.1 – What are the main challenges that you face working from home with children? (child surveillance, setting spatial boundaries, noise, entertain children during work hours and the arrangement of the workplace)
4.2 – What have you done to the dwelling or workplace to facilitate waged work and care duties simultaneously?
4.3 – To what extent did these changes contribute and what is your current workplace or dwelling still lacking?

Q5.1 – Based on your experiences simultaneously working from home and doing care duties; what would be the ideal dwelling arrangement to counter challenges that parents face working from home with children?
Q5.2 – Follow up (same question but presenting options if this was not thought of): Would you prefer a flexible workplace, a dedicated workplace in the dwelling or a building with separate access? Why?
Q 6.1 – Do you intend to work from home (more often) after the pandemic? Why?

RESEARCH

RESEARCH PROBLEM

Not everybody has the appropriate circumstances or facilities to work from home as contemporary dwellings are designed with a one-size-fits-all approach. This affects the productivity of waged work, work-life balance and social relations. The work-life conflicts increase among those with children at home due to disruptions and childcare duties.

RESEARCH QUESTION

How can family life, child supervision and work-life take place at the same time, in the same dwelling – and how can dwelling design actively support such complex social relations?

HOUSEHOLDS

Urban families with home-working parents

METHODS

PEOPLE AND EXPERIENCES

- Research on work-life conflicts, simultaneously working for wages and childcare, through ethnography by observing participants and analysis of first-hand experiences in published newspapers.

ARCHITECTURE

- Research through literature study and typo morphological analysis on spatial and programmatic solutions to arrange live-work.

DESIGN

URBAN DESIGN

DESIGN BRIEF

DESIGN RESEARCH

METHODS

- Urban analysis
- Typo morphological analysis of precedent buildings
- Research through design

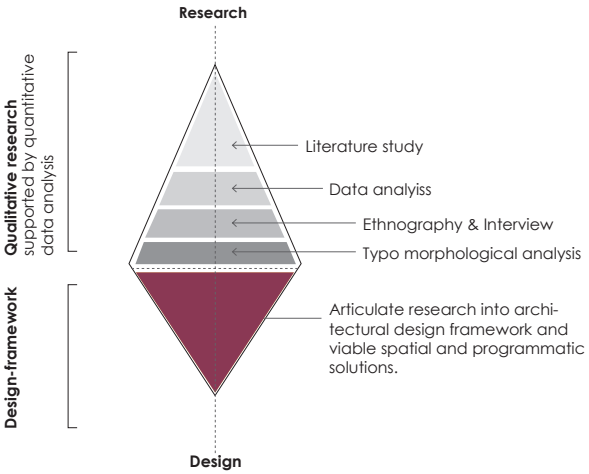
CONCLUSION

ARCHITECTURAL DESIGN FRAMEWORK

CONCEPTUAL DESIGN

DESIGN DEVELOPMENT

ARCHITECTURAL DESIGN



The diamond shape illustrates the explorative nature of the research, in which I will undertake various studies and the convergent nature of the research part, in which the findings will be condensed to architectural framework. This will be implemented in the design.

Relevance

The pandemic has made evident that there does not have to be a strict division between the most important parts of our lives as the nature of work has changed and so live-work patterns. Thus, the separation of live and work is unravelling and becoming more fluid. It is a characteristic of the current generation, with all indications that this lifestyle is here to stay and accordingly must be addressed.

Currently, the Netherlands is facing a housing shortage and Kajsa Ollongren, the Minister of Foreign Affairs, suggested a need for million new homes by the year 2030. Dick van Gameren, Professor of Dwelling at TU Delft, emphasizes the objective on the quality rather dan the quantity taking future live patterns into account (Jongeneel, 2018). During a conference with Frances Hollis in times of corona (On Air, 2020) Eireen Schreurs, one of the authors of DASH15 Home Work City, acknowledges that the current housing stock certainly does not match the unexpected and new use of home-based work and it brings design implications for the new housing stock of one million homes that is about to be built.

In the field of architecture, this means that it is important to question contemporary mono-functional dwellings design as it does not support the dual-use of living and working. This brings us to the essence of the architectural domain to puzzle on dwelling design to accommodate living demands. In the speech of Winston Churchill to the meeting in the House of Lords on October 28 1943: "We shape our buildings; thereafter they shape us," (UK Parliament, n.d.). This relation transforms mutually as habits shape habitats as well. However, this is currently lacking due to regulations and the unwillingness of property developers to take risks. This research finds it important to underscore the importance of questioning contemporary singular design while diverse lifestyle patterns emerge.

The design location for the graduation project, Merwehaven in Rotterdam has been appointed for the mixed form of living and working with recommendations for experimental typologies and architecture (Municipality of Rotterdam, 2019). The resurgence of the workhome typology in the modern city can contribute to the homogenization of areas and its sustainable and social benefits. A decrease in carbon emissions due to reduction of commuting to the workplace and the contribution to the liveliness of local neighborhoods as daily rhythms change (Municipality of Rotterdam, 2019). Hence, this research is an opportunity to investigate viable spatial and programmatic solutions that embrace and support wage work and care work in the same place and counter social isolation. Nonetheless, this research cannot ignore that working from home is not suitable for everyone. Nonetheless, this research cannot ignore that working from home is not suitable for everyone.

Limitations

The pandemic made it difficult to visit households due to the covid-19 measurements. If not possible, participants were asked to take snapshots of their work and care-related activities in the dwelling.

A form of inquiry for ethnography relies on the researcher participating in the setting or with the people being studied at least in a marginal role. In both situations, behaviors certainly change when the researcher is observing. The Hawthorne effect refers to a type of reactivity in which individuals modify an aspect of their behavior in response to their awareness of being observed (McCarney et al., 2007). This is affecting the results of the ethnographic research. Also, live-work patterns can differ significantly based on the household composition, age of the children, dwelling size, lifestyle et cetera. Thus, the research is representing a limited group of families.

Ethical consideration

The anonymity of participants (AVG) is ensured by not mentioning personal information, such as addresses and their names. Unless I have permission, all information is confidential and will only be used for this research. Participation in the interviews and ethnographic research is voluntary and the process of the research will be explained before agreeing to participate. This is to prevent discomfort and violation of the privacy of participants. At any stage of the ethnographic research or interview, it is possible to stop participation.

During the ethnographic research, the photographs that I will take of participants will be reduced into line drawings/silhouettes to ensure their anonymity. The photographs will be then be destroyed and solely line drawings that present live-work patterns will be published. For the interviews, all questions can be answered voluntarily and participants can withdraw whenever they want.

Live - Work

MEDIEVAL

Longhouse: single open space-plan

MEDIEVAL

Townhouse: ground-floor shop and living above. (third floor for children/maids)

MEDIEVAL

Merchant's house: narrow entrance passage to a large central semi-public double-height space

MEDIEVAL

Manor house: H-plan with double-height hall sandwiched between two-story wings with sub-spaces.

18TH CENTURY

Master weaver's workhome: 2nd and 3rd level arched windows lit large loop-shops, two living floors below (domestic windows).

19TH CENTURY

Smaller workhome: small upper-floor for loop-shop, below living. In common use for centuries

19TH CENTURY

Top-shops: living on the ground floor with front room for a workshop, second-floor loom-shop.

19TH CENTURY

Cottage factory: Triangular form of an urban block with workhomes around the engine. to compete with factories.

19TH CENTURY

´Cash's One Hundred': two-up/two down houses with weaving-shops above.

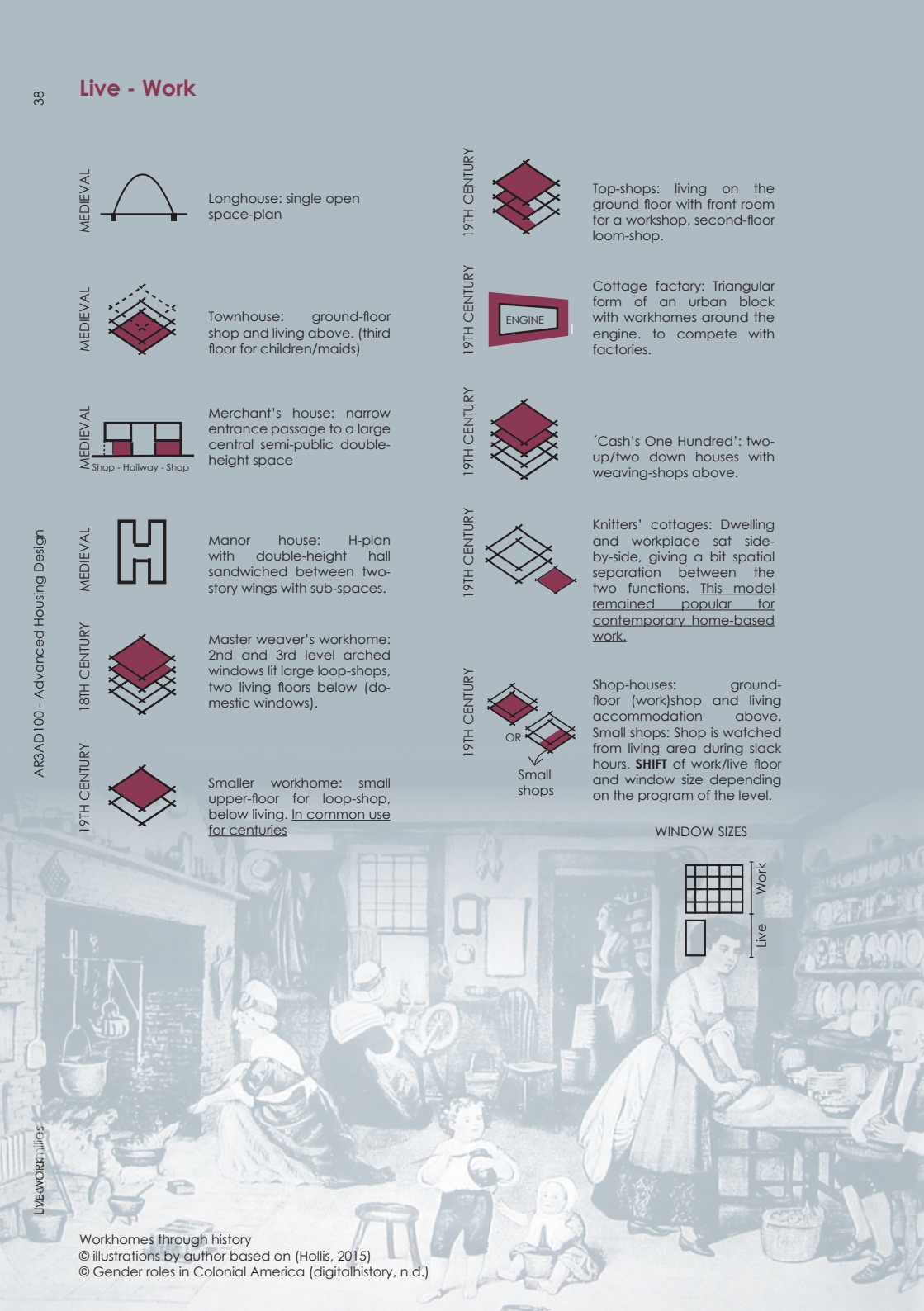
19TH CENTURY

Knitters' cottages: Dwelling and workplace sat side-by-side, giving a bit spatial separation between the two functions. This model remained popular for contemporary home-based work.

19TH CENTURY

Shop-houses: ground-floor (work)shop and living accommodation above. Small shops: Shop is watched from living area during slack hours. **SHIFT** of work/live floor and window size depending on the program of the level.

WINDOW SIZES



Workhomes through history
© illustrations by author based on (Hollis, 2015)
© Gender roles in Colonial America (digitalhistory, n.d.)

History of live-work

The dwelling that combines space for both living and working can be found in every culture and country in different forms and variations in its duality. Before the industrial revolution, cities all over the world were based around dual-use buildings. Working in the home or living in the workplace was the norm. Its origin is as old as that early man started to construct their first shelters, which has evolved throughout history into bake-house, bath-house, weaver's house, alehouse, and so forth. The buildings of that time varied and reflected the lifestyle, social status, work and were transformed according to activity and sometimes accommodated the separate functions of dwelling and workplace in distinct spaces (Hollis, 2015).

It was not until the 20th century that the shift in working from home changed drastically. The shift was predominantly an ideological opposition to the working practice by various organizations. Employers opposed home-based work as factories required employees to be at one location to increase the control they had over their employees (Holliss, 2015). This is mirroring contemporary offices. Also, social and religious conservatives believed that a woman's place is in the home. Unions further opposed this due to fear of worker exploitation being part of an unregulated workforce that contained the most vulnerable in society. Finally, social reformers were in opposition due to the poor sanitation and overcrowding in lower-class homes at the time (Brown, 2020 and Holliss, 2015). The birth of social housing during this period resulted in subsequent housing estates in favor of the high density 'Model House' of the time. The new (inadequate) homes, but hygienic environments generally arranged vertically, replaced the 'filthy' layers of public, semi-public and private space where home-based work had flourished' (Holliss, 2015).

Consequently, the term ´house´ gradually came to mean a building in which we cook, eat, sleep, bathe and watch TV, and nothing more. As result, the building that combines live and work lost its name, although it did not disappear, and fell out of sight (Holliss, 2015). 'Without a name, the knowledge of an object is lost' (Linnaeus in Holliss, 2015). In the same way, that ´dwelling´ refers to all the buildings we live in and workspace refers to all the buildings we work in, Holliss (2015) came up with the term ´workhome´ which encompasses all buildings that combine dwelling and workplace. This term is used research to define the typology for the home-based worker.

On the urban scale, the radical 'Town-country Garden City' of Ebenezer Howards', was published in 1898 and was later widely adopted throughout the world (UrbanNous, 2021). Howards called for the creation of three complete separate zones in the city for living, employment, and civic activities. Employment would be located at the periphery, civic at the center and residential zones sandwiched in-between. This solution was effective in its goal of reducing pollution from factories but simultaneously, and not accidentally, efficiently wiped out home-based work (Holliss, 2015). However, in the 1960s Jane Jacobs book '*The Death and Life of Great American Cities*' started to question the form that zoning played in urban planning. Jabos suggests that cities need diversity and this is only created when four conditions are applied: First, city districts must serve two functions to attract people with different purposes throughout the day and night. Second, blocks must have dense interaction spots to allow opportunities to interact. Third, buildings must be diverse in age and form to support a wide economic class Finally, there must be a sufficient density of people (Jacobs, 2011).

These findings were influential and resulted in the Live/Work movement (1960's) in opposition to a proposed highway cutting through the SoHo District of Manhattan Holliss, 2015). This promoted the inhabitation of the industrial buildings instead of the planned demolition, which offered both space to work and affordable living, and so supports Jacobs' theory that

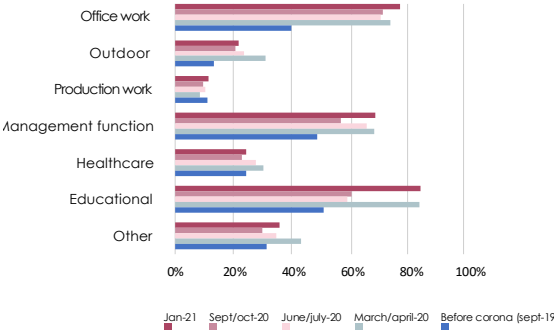
diversity benefits the city. The stain on the movement was that the increase in real estate value in the 90's resulted in these live/work units being sold by artists who once occupied them promoting the live-work typology (Holliss, 2019). Though the live-work movement spread internationally, it failed due to adverse top-down governance, property taxation, and the rapid transformation of light industrial land into residential areas functioning rarely as workspaces (Holliss, 2019)

Where, in the 17th century, housing was designed to attract the wool industry to their cities by providing suitable housing for the workforce (Holliss, 2015). In contemporary dwelling design, the emerging lifestyles and home-based work tend to be forgotten as housing is designed on basis of household demographics and tight fit principles, neglecting emerging lifestyles and so the dual use of the dwelling. Habits didn't shape habitats any longer, but the government and subsequent housing shaped habitats and so habits. The legal and regulatory requirements still have a huge impact on how we live and work and similarly, the transformation of these requirements lags due to laws and regulations (Holliss, 2015).

The nature of work has changed again. Where industrial capitalism depends on a spatial separation between workplace and dwelling, the informational era tends to bring these spheres back together (The economist, 2020). This would also mean that people are getting paid for their products or services rather than the number of hours they spend at the office and work can take place anywhere. The separation of live and work is unraveling and the pandemic, with all indications, has made evident that live-work lifestyle is here to stay.

Home-based workforce

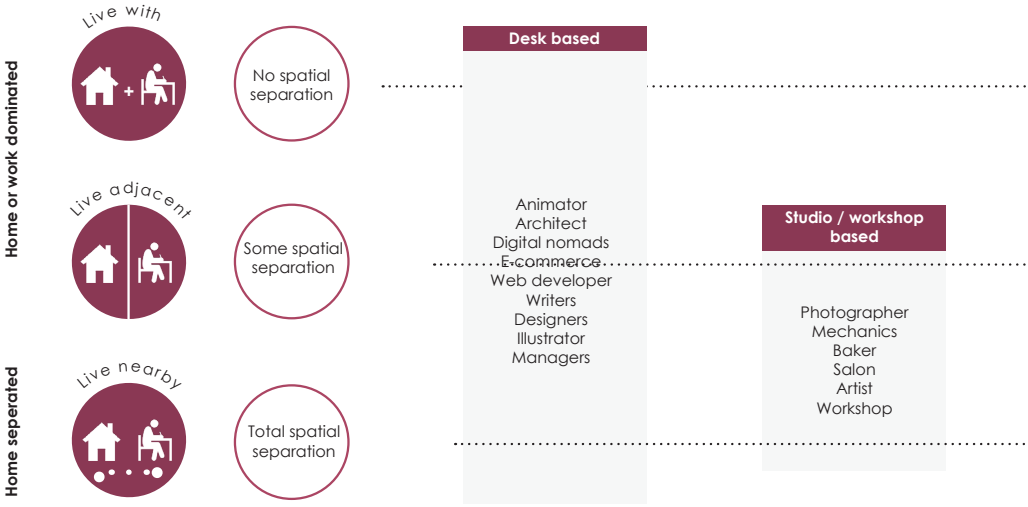
Studies by KiM (2021) state that roughly 70% of the home-based workforce works at an office or has an educational function (desk-based work). This group also views they will work from home more often after the pandemic (Hamersma et al., 2021). Whereas other groups, such as manufacturing employees, will most probably return to the factory under the 'normal' circumstances. Therefore parents that perform desk-based waged work is the focus point in this research.



Workhome

Frances Holliss (2015) describes two approaches for the arrangement of functions: one involves spaces that are specifically designed based on the activity that takes place and the other involves the flexible design of spaces that can accommodate multiple activities. In other words, one with clear separation, or at least a clear plan about separating live/work, and the other whereby live/work is more blurred and even becomes one and the same space. Regardless of the building, people inhabit and use spaces in diverse ways. Some enjoy that live/work is more intertwined and others prefer having spatial separation, whereby work is never carried out in the domestic realm and vice versa. Also, the occupation and the spatial requirements that come along with it are important. Home-based workers, that work from a laptop have different spatial demands than a painter or metal worker. The more closely this pattern of use aligns with the spatial design strategy employed in their workhome, the better for all concerned.

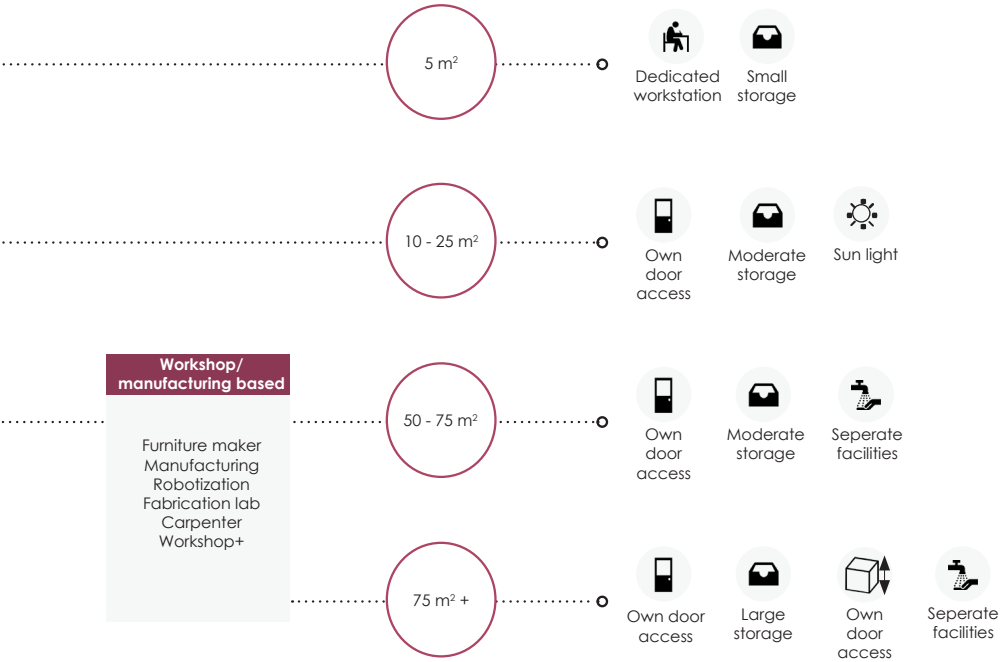
This results in three categories in the way people use the workhome, depending on the degree of spatial separation and the dominant function between dwelling and workspace: live-with, live adjacent, or live nearby (Hollis, 2015). First, the live-with, with no spatial separation between live and work. Both activities are taking place in the same space and overlap to a certain degree. Second, live-adjacent, with some spatial separation. This can be



Workhome in relation to occupation -
© Illustrations by author based on Hollis (2015)

organized horizontally or vertically with separate entrances, (and often with an interlinking doorway). Finally, the live-nearby, with a total separation of both domains within a small distance from each other. On page X, the pattern book illustrates some of these concepts.

In the Netherlands, the live-adjacent is used occasionally as it allows home-based workers to deduct taxes. The requirements are that the workspace is an independent part of the house, that can be rented to third parties, with its own entrance, toilet, and energy supply. Furthermore, there is a non-architectural criterion of earning at least 30% of the total income at the workplace Belastingdienst, 2020). One project with this unique selling point is The Doors in Amsterdam by developer Edwin Oostmeijer (image X). The IBeB project in Berlin also integrated all the three typologies of the workhome. This will be discussed in depth at the typo morphological analysis.



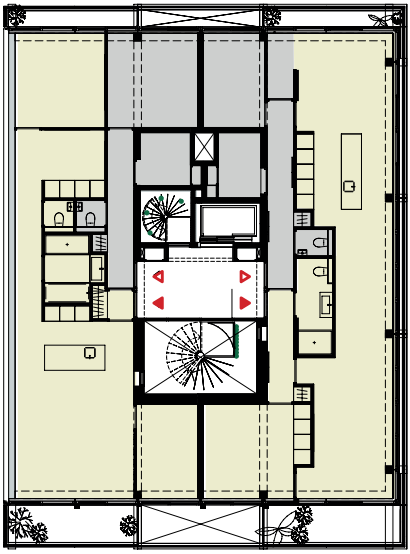
Project: The Doors
Live -adjacent

Two doors

Separate spaces

Separate facilities

Min. 30% income



© The Doors

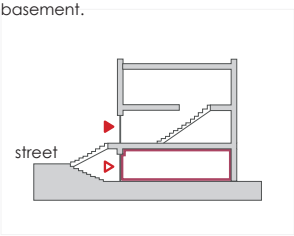
0 2 6 10m

Work-entrance
Live - entrance
Work
Live

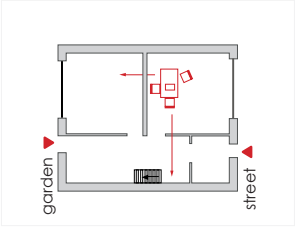
PATTERN BOOK

A series of exemplary designs have been developed as a way of illustrating the principles that underlie the design of the workhome. The families of workhomes have multiple possibilities. As an example: the basement family can also be a live-nearby typology if there is an interlinking stairway inside the dwelling.

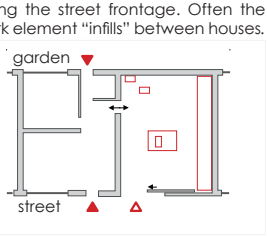
Basement - *live-adjacent*
Workhomes in which the work activities take place mainly in a basement.



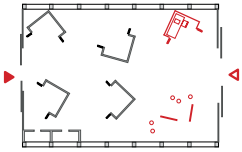
Basic workhome - *live-with*
Adaptations of an ordinary two-story house of moderate size.



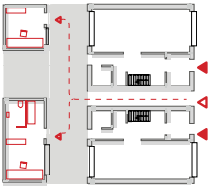
Infill - *live-adjacent*
Workhomes in which work and home elements are placed side by side along the street frontage. Often the work element "infills" between houses.



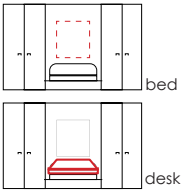
Off the Peg - *live-with*
Work-dominant plans are inspired by the idea that a workhome might be created from a combination of "off the peg" space-enclosing elements.



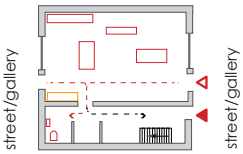
Passage - *live-nearby*
Workhomes in which the work element is in the back garden, accessible by a passageway between the houses.



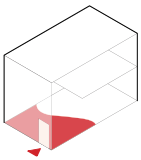
Transformable furniture
Workhomes incorporate dual-use spaces that are transformed by special furniture.



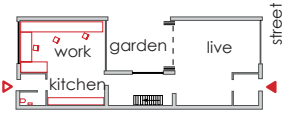
Layer cake - *live-adjacent*
Multi-storey workhomes in which work and home elements are interleaved floor by floor.



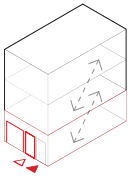
Loft - *live-adjacent*
Workhomes where the work element is in the attic. Often there is a workspace on the ground floor as well.



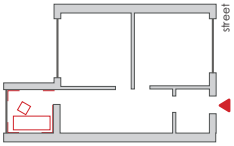
Machiya - *live-with*
Workhomes in which the work activities take place mainly in a basement.



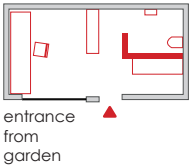
Shop house - *live-adjacent*
The traditional "living above the shop" arrangement.



Workbay - *live-with*
The commonest form of workbay is a back extension on an ordinary house, but workbays can also be front, side and upward extensions.



Workbox - *live-nearby*
A more sophisticated version of the traditional shed at the bottom of the garden. 'passage' illustrates the workbox.



Work-life conflict

Work-life conflict is an important concept in the analysis of home working parents with children as energy, time, or behavioral demands of the waged work role conflicts with domestic and childcare duties. According to Holliss (Architecture Today, 2020), factors that impact work-life conflicts and 'job satisfaction are related to the nature of the household, personality, occupation, and the amount of space available. In addition, Greenhaus and Buetell (1985), state that work-life conflict can emerge from two major aspects of the work-life interface: factors associated with the time that is required to perform work and family roles and the psychological carryover from one of the roles. The 'time' aspect can be related to the nature of work and the ability to schedule working hours as a home-based worker. The psychological carryover is an interesting addition, as it does not categorize 'job satisfaction' solely as a result of no or little work-life conflict, but also as part of the equation that minimizes work-life conflict.

1) Nature of the household: is associated with the household composition and the number of people living at the dwelling. The work role may interfere with individuals' other personal life roles and interests. The presence of children at home increases work-life conflicts. According to Katz and Piotrkowski (1983), the number of children is related to family role strain. The time that is spent on domestic and child care activities may interfere with work schedules and the total amount of family work can contribute to overload. This is especially the case for families with young children and disabled people, as it requires more (unique) care and parental supervision.

2) Personalities in the household: is an important factor as it makes individuals unique human beings. Hence, the personality traits of a person affect how he or she behaves in different situations. Sometimes behavioral expectations of one role may not be compatible with expectations of another. These incompatibilities have an interpersonal or social interaction element, which often causes behavior-based conflict (Greenhaus and Beutell, 1985). For instance, children may expect warmth, affection, and care from the parent who may have to perform a more autonomous role in the workplace. Thus, work-life conflict arises when they are competing expectations between work and the other life domains of a person.

3)Nature of the work: and the (spatial) requirements differ depending on the occupation. This can be condensed to desk-based, studio/workshop based and workshop/manufacturing workshops (page 14). The desired (spatial) needs to perform waged work productively can interfere with domestic and care duties. For instance, parents would like to work in a quiet space to work productively, but this does not align with the care responsibilities they have for their children. Furthermore, the amount and scheduling of work time are related to work-life conflict. Working long hours limits the extent to which workers are available for family activities. Overlapping schedules can cause stressful situations.

4) The amount of space available in the dwelling: as dwellings are designed to tight-fit principles and minimal space standards for people to cook, eat, bathe, sleep and bring up their children but nothing else (Holliss, 2015). It is difficult to organize a workspace in the dwelling as people are finding out now during the pandemic. One of the primary difficulties is creating spatial and acoustic separation in the dwelling. To some extent, ground-bound units with a garden, have the flexibility to create a workbox or shed in the garden as an office space. Flat apartments are more restricted and problematic (Brown, 2020).

5) Time (management): The spouses' work hours; may cause work-life conflict as one of the parents is likely to be responsible for a greater share of household and child care duties. It is difficult to coordinate their work schedules with those of their spouses, which causes time-based conflicts. The time spent in one role impedes the

fulfillment of responsibilities in another role (Greenhaus and Beutell, 1985). For instance, if a person cannot devote time to his or her family responsibilities, such as care tasks, due to working overtime.

6) The psychological carryover: from work or family duties can affect the psychological availability and energy for performing the other role. This is called Stain-based conflict (Greenhaus and Beutell, 1985). This carryover may be either positive or negative. According to Greenhaus and Beutell (Voydanoff, 1990), stressful conditions are associated with negative psychological carryover, while satisfaction in one role can increase energy and availability for the other. The strength of these relationships may be affected by the extent of responsibilities and control that an individual has over the work situation. Individuals who have control over the time and stress associated with work activities may experience fewer work-life conflicts than those without such control. In other words, demands in one role do not only restrict the performance of the other role, but can also exacerbate each other in relation work-life conflict.

Taking all points into consideration, it is important to note that providing spatial solutions through architectural design is not a guarantee for providing adequate workhomes. Factors such as personalities and the nature of work impact the relations and dynamics within the household and so the work-life balance.

Social isolement

The pandemic and social distance have led to remote working, online education, cancellation of sports events, and so showed the world how fundamental social contact is in our lives. The (physical) disconnection with colleagues, friends, family members, or even random people is causing loneliness and has negatively impacted mental health and family life dynamics. In turn, this amounts to an increase in work-related stress, burn-outs, and impacts family life dynamics as parents are more agitated and children receive less attention than usual.

Social isolation is a major problem for home-based workers. According to Frances Hollis, making work 'visible' is an important strategy to combat social isolation. Hollis in On Air (2020): 'Contemporary dwellings tend to be designed as interior spaces; very inward-looking and private, whereas has a major outward-looking aspect to it'. This is especially the case for apartment buildings as the connection with the ground floor lacks and work becomes invisible. The worker is not part of the public realm and can become socially isolated.

To counter social isolation it is important to promote social interaction. This can be done by designing an attractive and welcoming way of route between the entrance of the building block and the entrance of the individual units, as circulation spaces are often designed very bland and unpleasant. A good reference is IBeB; a relatively wide circulation space with light courts and benches. This makes the space more than a transition zone and promotes activities to take place and interaction (page 47). Also, by spatially organizing the workspace in proximity to the public, collective spaces for (visual) connections and so encourage interactions. Finally, by providing facilities and outdoor spaces in the building and neighborhood as the local environment will become more important to the home-based worker. Public parks and cafeterias will benefit social interactions and so contribute to the viability of local neighborhoods through the function mix (Makersdistrict, 2019).

© image: het parool

Young Urban Families
with home working parents

This part of the research will predominantly focus on the needs of children as one of the hypotheses is that entertaining children on the building scale will mitigate stressful situations for parents that work from home.

With the growing population, the number of squared meters used per person is increasing. Cities such as Rotterdam are facing expansion challenges as dwelling demands are increasing whilst less buildable space is available. This is causing several groups in society, regardless of their desire to stay, to move out of cities to the suburbs which is often cheaper. One of these migrating groups is young urban families (CBS, 2017). Studies by Karsten and Felder (2016), state that many young families are dissatisfied with their homes and the living environment. In general, for all families, it comes down to the question of whether the neighborhood is safe or not. Furthermore, it is essential to have safe outdoor spaces and amenities, such as schools, for children to play.

The challenge is not only to design suitable housing for urban families and their needs to ensure they will stay in the city but also their home-work demands. To specify both the needs of urban families and for home-based work, single-parents and nuclear families are chosen as target group. The choice on having families of both extremes, based on the differences: number of the household, age stages of children and their needs, occupation, income, and their personalities. Both target groups can be linked to the ethnography analysis of live-work dynamics, which is presented in the next chapter. This is to relate the dynamics and patterns that occur in the dwelling to the specific target group, and so make the challenges and needs more comprehensive, even though one situation is not representable for all families that belong to the same target group.

Affordability

Lack outdoor space

Safety

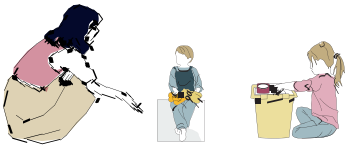
Size

Heavy traffic

Main reasons for families leaving the city: (Karsten & Felder, 2016)

Single parent with toddlers

A family in which a parent raises one or more children on his or her own. There are two categories of single-parents: The widowed or divorced parent and the single-parent by choice (donor or adoption). In one-parent families due to divorce, often both parents are still present in children's lives.
The biggest problem for single-parent families is their financial situation. The single salary restricts living preferences, puts pressure to provide for the family and so complicates the balance between work and care.



Household composition: One-parent household with a home-working mother (Maria) and two toddlers (Rick and Iris).

The character of the children: *Rick* is very shy and introverted. His mom, her sister, and the two bears are the only ones he feels comfortable with. A 'mommy's child'. Iris is in contrast to Rick more social, however, she enjoys playing at home and 'doing her own thing'.

Occupation: (Desk-based)
Personal blogger and freelance content creator for companies. The job has strict deadlines and often requires zoom meetings. Work is predominantly performed at home from her laptop.

The spatial demand for her occupation is a 'quiet' workplace with a minimum of 5m2 that also allows parental supervision.

Nuclear family

The 'traditional' nuclear family has evolved. The outdated concept of only a household with married parents of opposite sexes and the biological children of both spouses is no longer the norm (State Institute for Family Research at the University of Bamberg, 2010). In this research the (modern) nuclear family includes parents of similar sexes, stepparents, adopted, step and half-siblings as port of the immediate family.

Household composition: Two-parent household with home-working parents (Francis and Judith) and pre-school child (Isa) and teenager (Dylan)

The character of the children: Lisa and her mom are 'besties' and go out together for a drink or shopping regularly. Dylan is the 'ghost' at home as he is hardly at home. If he is, it is only to eat dinner or grab a drink to play further outside.

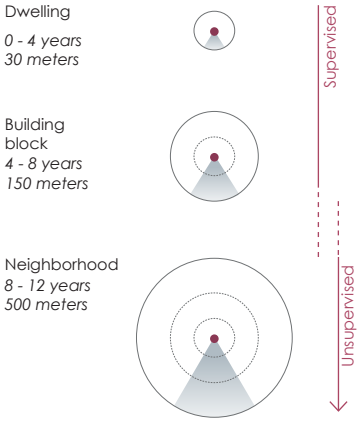
Occupation: (Desk-based & Workshop)
Francis is a commercial broker and also turned his hobby into a small business as a craftsman producing luxury lights on demand. His wife Judith is a high school teacher in geography.

The spatial demands for both parents are (shared) workplace which has a relation to family life but is acoustically separated. Francis wishes to have a nice workplace in the neighborhood as crafting in the shared office space turns his wife crazy

Growing up, step by step

Range of action
Children have a specific range of action related to their age and their wish to explore the world. It describes the maximum distance a child in this age category can cover. According to Karsten & Felder (2016), there are three separate phases:

Range of action children



0-4 years: Babies and toddlers require a lot of time and attention for daily care, and at this age, stage children are very dependent on their parents and will be in their proximity. Parents have to be constantly alert to respond to the ever-changing needs for independence on one hand, and care, structure, protection, and encouragement on the other hand (NCJ, 2015).
The action radius of 30m is mainly in and around the house. Play space inside the dwelling and directly near the dwelling to discover within boundaries.

4-8 years: This age stage is characterized by having a greater distance from parents and growing autonomy. From the fifth year, children are obliged to attend school and start to make friends, and so develop a social life. The independence outside the home is growing because at some point children will play outside or stay with friends without direct supervision (NCJ,2015).
The action range demands a radius of 150m as the world of the child slower becomes bigger to approx. the size of a building block or street. Playgrounds and courtyards will benefit their development.

8-12 years: Children develop their independence further. They take in a new position; start to detach from their parents and make connections with peers of the same sex (so-called 'peer groups'). Their actions are characterized by impulsive behavior in the here and now. This is because they are sensitive to group pressure. Later in puberty, children also come into contact with addictive substances, which makes parents worried and anxious. This requires parents to set rules and communicate about the consequences of certain behavior (NCJ, 2015)
The 500-meter radius is approximately the size of the neighborhood, which needs to be a safe environment where children can play unsupervised. Shops, the park, and primary school are usually considered part of the neighborhood and should therefore be inside the radius.

Adolescent: This phase is characterized by finding one's own identity. They take a responsible attitude and think further ahead. This leads to more control over their behavior and making evaluated choices. However, the desire to experiment remains. In this way, adolescents discover whether they are prone to addictions.
Due to the development of independence, new dynamics will arise in the family. Participation in family activities can decrease or the care duty task of parents will become more an advisory role when the adolescent is facing issues or difficulties (NCJ, 2015).

The actions range from the age of adolescents and parents are usually bigger than that of a child. Their sense of neighborhood is based on the bicycle or car distances instead of walking distances. Work is often outside of the

neighborhood, therefore accessibility is an important factor. When living and working inside the city, the proximity of public transport, bicycle paths, facilities, and shops is important. If work is outside of the city, the connection to the highway becomes more important (Heren5 & Karsten & Felder, 2016).

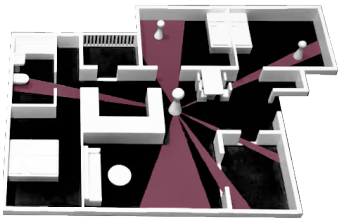
Child supervision

Supervision of children (playing outside) is very important for parents. The amount of supervision that is required depends on the age of the child. Older children need less supervision as they become more independent. On average, children are allowed to play outside independently from the age of six years old if supervision from the apartment is possible. However, above the third floor, the height difference becomes problematic as contact with the ground floor decreases. This is causing parents not to allow children to play outside (Keesom,2013). From the sixth floor up, both parents and children lose all connection to the ground floor (Karsten & Felder, 2016).

The main reason for a parent to supervise children is (the lack of) social and traffic safety in the public space. This obligatory supervision means that children are not allowed to play outside if parents their are unavailable. This is one of the reasons why children play less outside if compared to the past beyond the development of video games (Karsten & Felder, 2016). Designing a safe environment where children are able to play with limited supervision might change this. Simultaneously it will relieve some of the pressure of the parents that work from home.

The floorplan organization is also very important for supervision. A good example to illustrate this is the two plans by feminist architect Myra Wahrhaftig that was exhibited as part of the International Building Exhibition in Berlin. The ambition was to offer social housing that would no longer be an obstacle to emancipation and reconcile work, childcare, and housework - through its spatial arrangement (frauenwohnprojekte, n.d.).

The first plan is the standard apartment (Berliner Zimmer tradition), which does not allow child supervision from the dining and kitchen. In the second, Myra arranges a plan that allows both individual privacy for adults or children and collective space in an apartment where cooking and child supervision, usually but not necessarily the job of women, is located at the heart of the flat. The integrated idea of the 'corridor-free' apartment by Alexander Klein, allows supervision from the central 'workspace' (Sharmini, 2021). The same principle and spatial organization can be used for the design of parents that perform waged work from home with children.



Myra Wahrhaftig, in the exhibition „Anything goes" on postmodern architecture of the 1980s in Berlina -

Sequence of play areas

Children do not need specified playgrounds. They like to explore and create new games in the context they are situated in. A wall can be enough to function as a goal or a hole in the sand as a marble hole. According to Karsten & Felder (2016), the following points are the main places where children play from the dwelling scale to the neighborhood:

1. The dwelling:

Depending on the age of children there is a different play area inside the dwelling. Open plan living works for families with young children as they constantly have to be under supervision. In this age stage, there is no need for privacy and often the baby room is used frequently. The living space is the play area, which can cause interruptions by the child as there are no clear boundaries for play and so impacts the productivity of waged work by parents.
When children grow older, they start to cherish their small 'secrets. In this stage, a clear separation within the home becomes important by providing each member of the family a private space (bedroom) to retreat (Keesom, 2013).

An interesting concept based on a study by ANA architects (2016) and Keesom (2013), that aligns with the 'corridor-free' apartment by Alexander Klein (Shimini, 2021), is designing an oversized hallway to provide space to play, work, and as storage. Simultaneously it allows supervision depending on where the domestic (kitchen) and waged work is arranged. This concept is especially interesting for apartment buildings as it is often designed based on tight fit principles.

2. Garden, balcony, and gallery:

The private outdoor space is often too small and is mostly used by the youngest group of children between 0-4 years old. The downside of these spaces is that there are no or little possibilities to interact with other children (Karsten & Felder, 2016).
The gallery or 'elevated street' is often an interesting play area depending on the width of the circulation space. This is based on the case study analysis of The Family by ANA architects and an anthropology study at Heliport in Rotterdam. The elevated street is used to rollerskate and to interact with other children in proximity to their parents.

3. S**idewalk or inner courtyard:** As children grow older the sidewalk or courtyard will become an important place for children to play. In these spaces, children can develop their independence and social relations without parental supervision at all times. The (enclosed) courtyard indicates a natural boundary for children where to play. In general, children play here often after school until dinnertime, which overlaps the working hours of home-working parents. The design of safe play spaces can alleviate care responsibilities and interruptions by children, and so allows parents to work from home productively.

4. Playing in the neighborhood: The balcony and the courtyard become less interesting as children grow older and want to play further away from the home. Two scenarios are possible: doing activities with parents under surveillance or when the child is old enough to play outside without parental supervision. The neighborhood becomes more important, such as schoolyards. It is safe with defined spaces and familiar for both child and parent, which makes it easier for parents to allow their children to play. The distance to home must be short and safe.

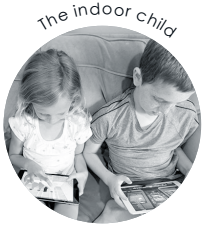
Diverse characters of children
According to Karsten (2007), the diversity in childhood has Increased over time. The four types of children:

1. The outdoor child: is often playing in the courtyard or neighborhoods, where other children can be found and there is a reasonable degree of social control. These children are outside because their range of action is greater than the small dwelling they live in, which does not provide space for play.

2. The indoor child: are children that hardly play outside. These children are a bit afraid or shy to go outside and interact with other children, such as outdoor children who can be found outside. Another influence that can shape a child into an indoor child is the parents, as they want their children to do their homework and not go outside often. These children are more or less locked up at home.

3. The sidewalk children: do go outside but in proximity to their parents. They feel safe playing outside when they are within hearing and sight distance from their parents. This mainly concerns young children who are easily satisfied with a sandbox on the sidewalk or a bicycle. Playing with other children is no problem as they are under parental supervision.

4. The backseat generation: for whom the outdoor space is primarily a transit area as they grow up in the car era and have been accustomed to sitting in the backseat. They are often overprotected and taken by car to school, sports clubs, parties, etc. In general, the backseat generation children live in the better areas of the city and occasionally play outside.



Ethnography

Introduction

In the ethnography study, I will analyze live-work dynamics of parents that work from home with children. Two cases will be presented with different household compositions and child ages. The focus on studying cases with children of different age stages is based on (in) dependence.

The first case is a two-parent household with a home working mother and toddler and the second case is a family with two home-working parents and two school-aged children. The goal of ethnography study is to gain insights into the family dynamics of parents that combine waged work and child care simultaneously and develop principles or spatial solutions to counter these challenges in the same dwelling.

The research questions for analysis:

1) How can family life, child supervision and work-life take place at the same time, in the same dwelling – and how can dwelling design actively support such complex social relations?
2) How do the needs of home-based workers differ according to household composition?

Hypothesis: Depending on the age stages of children, the live/work dynamics differ; parents with young children (babies and toddlers) must have the ability to supervise their children with some boundaries to perform waged work, whereas parents with school-aged children can have a spatial separation between family life and waged work as children demand less care.

*Both ethnography cases are based on families that live in ground-bound dwellings, which have some flexibility to some extent (garden or extension). The challenge is to understand the dynamics in order the provide spatial solutions in a more rigid apartment unit.

Method

The data for the architectural ethnography will be compiled from two bodies of sources: participant observation complemented with interviews and the analysis of first-hand work-life experiences lived during the pandemic that is published on social media.

In the case of Family Omar, participant observation is complemented with interviews. Pictures will be taken on location and analyzed. I will also make drawings of the floorplan and furnishing to present the spatial relation in regards to the activities that take place in the line drawings.

In case of Family van Modem, the analysis is based on first-hand live-work experiences that are published on youtube by the family. On their youtube account, there are multiple live-work-related videos, which allows me to compare their activities and arrangement of the dwelling over a longer period. This information is useful to understand what changes have been made in the dwelling to make living and working more appropriate. The floorplan and ethnography drawings are retrieved from the youtube videos. The line drawings are produced by taking snapshots of the most important live-work-related activities and the floorplans are reproduced based on a video in which the mother recreated their dwelling in SIMS. Both complement each other to understand the spatial arrangement of the house to the activities.

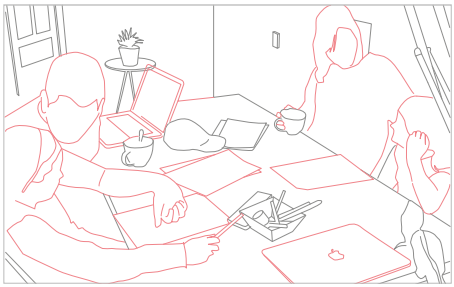
FAMILY OMAR

Household composition: Two-parent household with home-working mother and one toddler.

Dwelling: Terraced with four bedrooms

Occupation: Dental hygienist that occasionally works from home to set up her business and keep records of administration.

Spatial demands for occupation (+-): working table for laptop (flexible)



FAMILY VAN MODEM

Household composition:
Two-parent household with home-working parents and two school-aged children.

Dwelling: Semi-detached dwelling with three bedrooms.

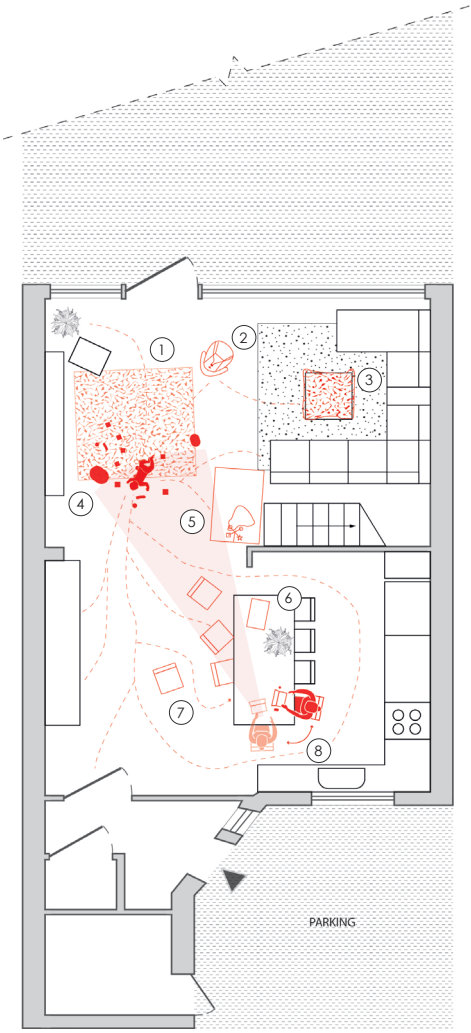
Occupation: Both parents are working full-time from home. Their work consist of producing online content on youtube: vlogs, gaming, DIY, and Q&A's.

Spatial demands for occupation (++): multiple working tables for desktop (fixed) and studio space for DIY and content creating

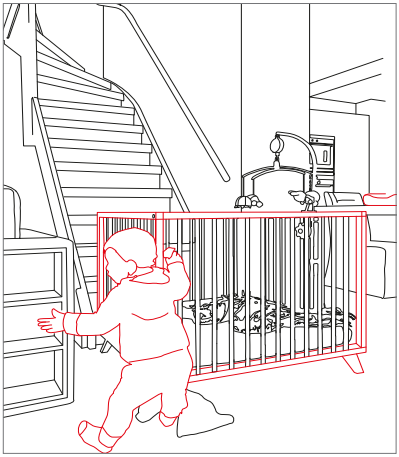
Ethnography: Toddler

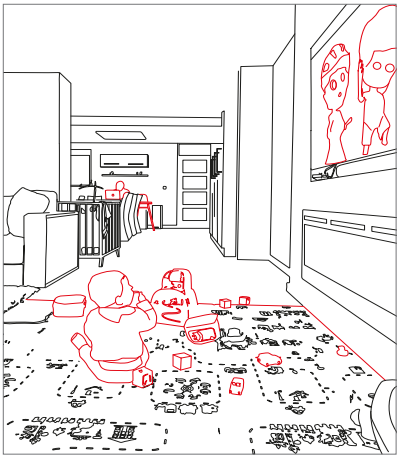
FAMILY OMAR

Ethnography date:
Monday, 27 September



1. Rubber safety mat with a playful pattern.
2. Automatic swinging chair with a safety belt to watch television.
3. Blanket to cover sharp edges of the coffee table.
4. Toys to entertain the toddler during working hours.
5. Playpen blocking stairs to prevent the toddler from going up.
6. Changing pad within reach to minimize care time.
7. The walking route of the child and the disorganization of space.
8. Mother switches her work position for supervision.





There is enough space in the dwelling to organize a separate workspace from family life, but child responsibilities demand different spatial requirements. During the ethnography study, it became apparent that child supervision, safety, entertainment, and time efficiency are important.

Supervision: The mother switches her position to be able to watch the child shortly and frequently from a distance to make sure that everything is going well.

Safety: Diminishing hazardous situations allows the parent to work with little interruptions. 'He is so curious and is very active. It demands a lot of time and energy from me to continuously stop him from going up the stairs for example. He already fell once, but it did not stop him from trying again. We ordered a stair safety gate, but it was not the right one as one side of the staircase is open and would not connect. For now, this is our temporary solution until we can find the right product.'

Entertainment: The child has a designated area to play indicated by a playfully patterned safety mat, toys, and television with cartoons. However, it does not prevent the child from exploring the dwelling as the boundary between play and the workspace of the mother is not clear (enough). The path that is taken by the child and the de-organization of the space around the dinner table illustrates this and its consequences of interruption.

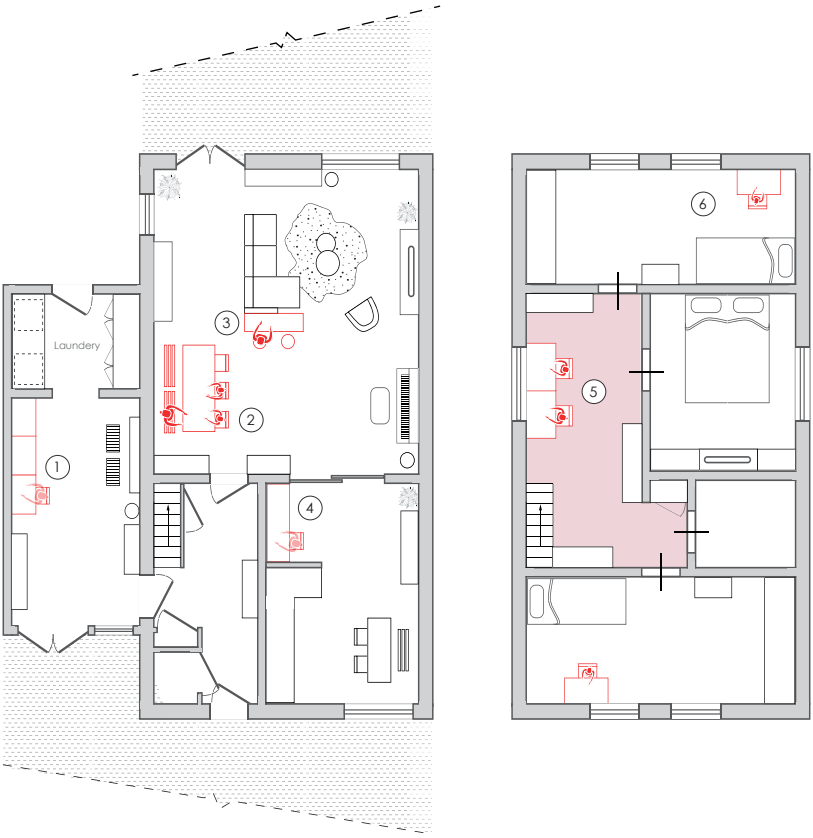
Time efficiency: Time management is important as the mother tries to have childcare-related products within reach. For instance, the changing pad was on the other side of the table, and diapers and a set of clothes were also stored on the ground level so that the child can be changed relatively quickly and the mother can continue work. Mother: 'The child room is currently only used as a storage space for his clothing.'

Ethnography: School aged childeren PI

FAMILY VAN MODEM

Ethnography date:
March 2020

World Health Organization :
Public Health Emergency Declaration on
30 January 2020



1. Craft and paint workshop, occasionally transformed into a live-stream studio.
2. The collective table in the living room is dedicated to waged work and educational activities.
3. A small separate desk allows one parent to work whilst being part of family life.
4. Small craft and edit space for in-between hours.
5. The workspaces of both parents with fixed computers are organized in the hallway on the second floor.
6. Both children have an individual desk.

At the beginning of the pandemic family life and waged work was intertwined to an extent. There are multiple workspaces scattered around the dwelling: in the living room, hallway, the niche in the kitchen, and extension. All of these spaces have their qualities and are used for long or short work periods, and have to some degree related to family life.

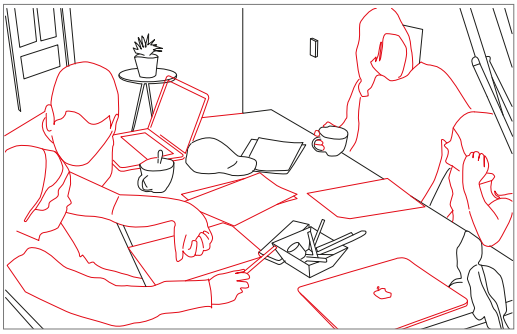
1) Collective desk: (long): the work/education table is located in the living room and has a strong relation with the domestic sphere. This is predominantly used for collective (home-schooling) and long work periods. The desk next to the couch is for shorter work periods and allows work to be carried out while being part of family life.

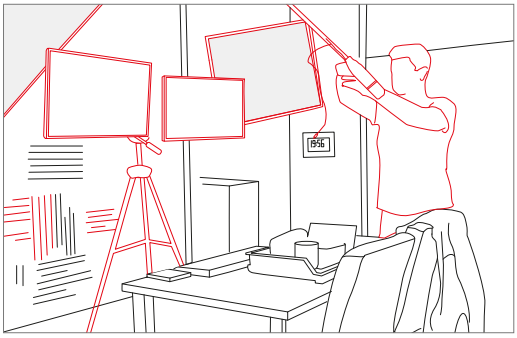
2) The hallway (short/long): In the hallway on the second floor, the main workspace of both parents is located. This space is to some extent separated from family life and allows parents to work with little interruptions and supervise children as it is organized centrally in between the bedrooms.

3) The niche (short): this space is predominantly used to finish up work (short working periods) while waiting for domestic activities. This space has a clear boundary but can be opened up to connect with family life. Also in this family household time efficiency is an important aspect as the mother is making the most out of every second she has to perform waged work.

4) The extenstion (long): This space is separated from family life. It is only possible to work there because the parents do not have to take care of their children constantly due to their independence. It allows work to be carried out productively interruptions,

Pattern: There are multiple workspaces scattered around the dwelling. These can be categorized into short and long working periods.

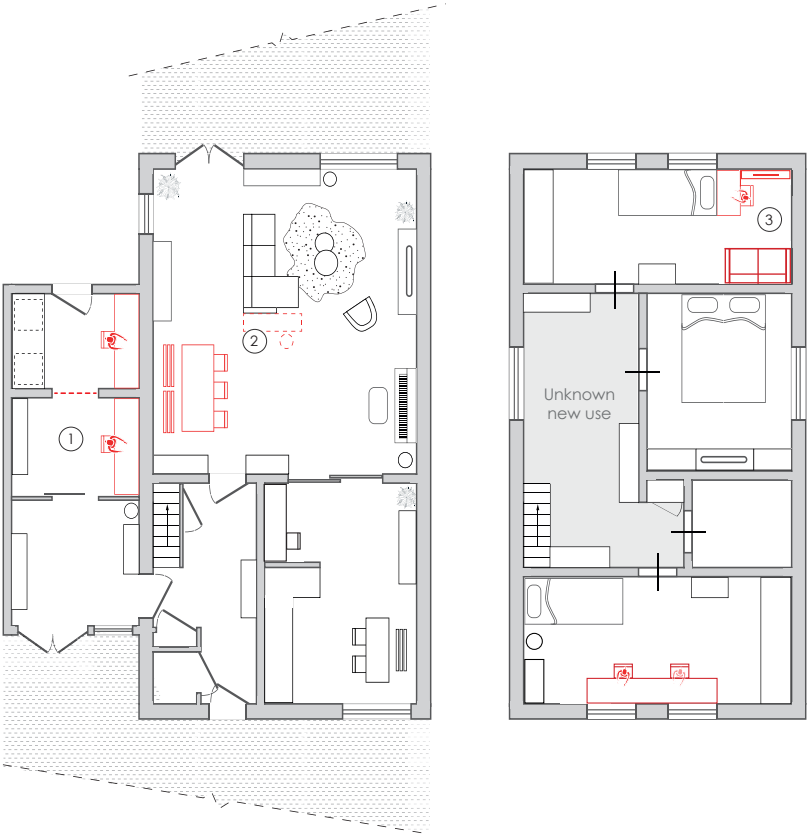




Ethnography: School aged childeren PII

FAMILY VAN MODEM

Data date:
December 2020 - August 2021



1. The workspace in the hall on the second floor has been moved to the extension. The workplace of both parents has a clear boundary and is seperated from family life (live-nearby). The sliding wall allows the parents to work collectively, but also individually without interrupting each other. The new use of the hallway on the second floor is unknown.
2. The collective workspace remains.
3. The children's bedrooms are upgraded as the needs change as they grow older and the private space will be used more intensively.

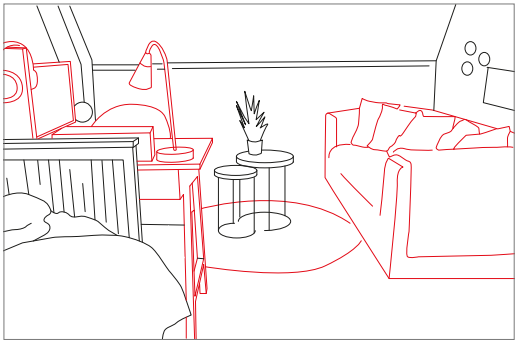
During the pandemic, the family makes adjustments to their home to make the dual-use live and work more suitable. Based on the changes, it becomes clear that parents are seeking a clearer separation between family life and waged work. The workplace in the hallway on the second floor is moved towards the laundry room. The space can be separated by a sliding wall. This allows both parents to work simultaneously without interrupting each other.

Both spaces have sound absorption panels on the wall to prevent nuisance and to have good acoustics for their occupation. The father's workspace has a dual function as the washing machines remained in what used to be a dedicated laundry room. A green screen can be pulled down to cover the laundry space in the background. This is ideal for his live streaming content or zoom calls as it can be covered with little effort.

The children's bedrooms are upgraded as well after the parents had fulfilled their working wishes. As the children grow older their demands change. One of the five wishes was to have a 'chill room' with a couch and television to chill with friends. This indicates the desire for more privacy. Furthermore, the desks are upgraded for play (videogames) and homework. The private bedrooms of the children will be used more extensively.

Live-Adjacent

The division of work and family life is only possible due to the age of children as they have a certain amount of independence. Parents do not have to work in the same space as the children do not demand a lot of care. Moreover, based on the changes that have been made at the children's bedroom, it seems that there is a desire for more independence by having a 'chill room with friends' as they mention.



- ✓ A cozy room
- ✓ Chill room with friends
- ✓ Colors: Oker / Black
- ✓ Place to game together
- ○ Nothing can be thrown away

Typo Morphological Analysis

Introduction
In this typo morphological analysis, I will investigate three live-work buildings that are chosen from a list of eleven projects. The selection is based on the dwelling size that suits family households, diversity of typologies and spatial strategies of live-work that potentially can counter challenges parents face doing waged work and care duties in the same dwelling. The Ibeb building in Berlin is composed of two live/work typologies: live-adjacent and live-nearby, which might be interesting for 'some' family household compositions. The projects Mischen Possible and Coolcube have an interesting spatial organization of the workplace in the dwelling, that enables visual contact and interaction with family life. Furthermore, two urban family projects will be analysed; The Family and Family scraper. Both projects present solutions for housing families in a dense context in different ways and provide a variety of areas for children to play whilst being supervised by parents.

The goal of the typo morphological analysis is to gain insights from the live/work and urban family housing to develop strategies for my design to counter work-life conflicts parents face doing waged and care work in the dwelling and provide children areas to play whilst being supervised.

The research questions for analysis:
1)What spatial strategies are used in arranging live and workspaces -and what are the benefits for parents working from home whilst doing care duties?
2) What are the qualities of play areas and how is it organized in the building to allow parental supervision?

Hypothesis: The spatial separation of live and work on two different levels is a solution for family households with young children that demand intensive care work. In conjunction with this, collective play areas in the building contribute to mitigating work-life conflicts in the dwelling and provide home working parents fewer distractions and more control over the environment they work in.

*Hypotheses depends on the household composition, lifestyle, age etc. Meaning that one strategy will not work for all households.

Method
The case study investigation is done through visual analysis and complemented with a textual explanation. All case studies will be analyzed on the same general criteria and two additional criteria are added that developed through literature study.

General analytic criteria:
Urban morphology
Circulation
Public/Collectivity/Private
Collective elements
Dwelling typologies

Additional analytic criteria on live-work projects:
Spatial organization of live-work
Dwelling arrangement and work-life
- Child supervision
- Spatial boundaries; work and family life
- Noise

Additional analytic criteria on Urban family projects: Diversity and arrangement of play areas
Child supervision

Mixed-Use Housing

1. Mischen Possible

Architects: BARarchitekten
Location: Berlin, Germany
Client: BPD B.V.
Completed: 2010
Dwelling Units:10

2. Cool Cube

Architects: Jvantspijker & partners
Location: Rotterdam, Netherlands
Client: Private
Completed: 2019-2020
Dwelling Units: 24

3. IBEB - Former Berlin Flower Market

Architects: ifau, Heide & von Beckerath
Location: Berlin, Germany
Client: BPD B.V.
Completed: 2018
Dwelling Units: 66

Urban Families

4. The Familiy

Architects: ANA architecten
Location: Delft, Netherlands
Client: BPD B.V.
Year: 2018 - ongoing
Dwelling Units: 94

5. Family Scraper

Architects: Van Bergen/Kolpa
Location: Rotterdam, Netherlands
Client: BPD B.V.
Completed: 2019-2020
Dwelling Units: 36

Mischen Possible

Oderberger Str. 56, Berlin–Prenzlauer Berg

Architect: BARarchitekten
Construction period: 2008 - 2010
Client: GbR Baugruppe / Mixed ownership
Ground area: 315 m²
Built area: 874 m²
Building height: 6/7 levels (split levels)
Floor area per workhome space: 30 - 128 m²
Number of dwellings: 10-14 (depending on the subdivision of units)
Communal functions: Cafe, shop, experiment room, Music room

Literature

Kleilein, D. (2010). Slow architecture (Vol. 42) [E-book]. BAUWELT. https://www.bauwelt.de/dl/796654/bw_2010_42_0014-0021.pdf

Becker, A., Kienbaum, L., Projects, A. A., & Schmal, P. C. (2015). Bauen und Wohnen in Gemeinschaft / Building and Living in Communities (Vol. 2) [E-book]. Birkhäuser. https://ebookcentral-proquest-com.tudelft.idm.oclc.org/lib/delft/detail.action?docID=4001490

BARarchitekten. (2014, September). mischen possible - Wohnen und Arbeiten in der Stadt. http://www.bararchitekten.de/downloads/oderberger_A4.pdf

Abstract
The building has five studio's and five apartments that intersect with another like a Tetris puzzle. The complex spatial structure was developed for the differentiated spatial programme, which is defined by intertwining spaces, changing room heights, small-scale areas, and combinable spaces (BARarchitekten, 2014).

The aim is was to organise living and working spaces and a high degree of flexibility by providing spaces that can adapt to changing demands (Becker, 2015). Some dwellings units can be separated to rent out, for multi-generational living or home offices (Kleilein, 2010).

Keywords: Flexiblity, Live-work, Multi-generational

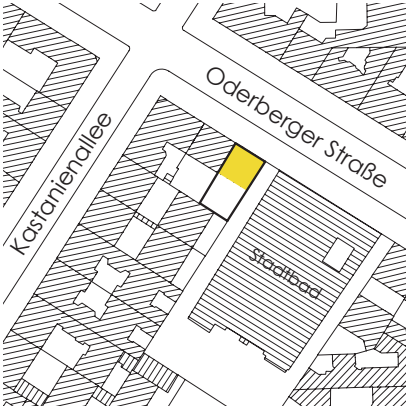
Urban morphology

© Jan Bitter

Mischen Possible at Oderberger Str.
The residential building is built against another complex with an alley leading to the garden that is part of the complex and the square in front of the Stadtbad.

© Jan Bitter

Collective garden
A collective garden is oriented to the north and is accessible for studio residents via a gallery and staircase. The dwellings above can access through the central core circulation. Below the ground floor, a music space is programmed.

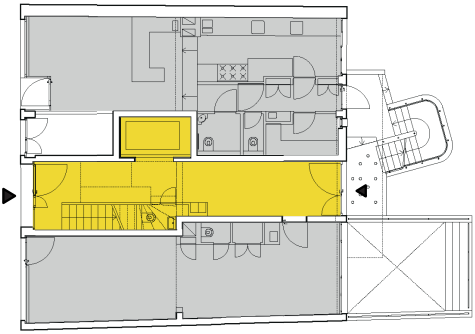


block ± 15 x 15m © BARarchitecten

Oderberger Straße is a street in Berlin's Prenzlauer Berg district (Pankow district). MIschien possible is situated at the corner of a building block.

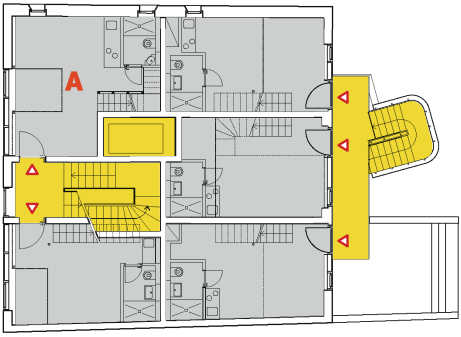
The buildings in the area are predominantly residential complexes with a height of 5 up to 6 floors and have commercial space on the ground floor. Mischien Possbile is designed similarly to fit in the urban context. Next to the building, a 'Stadtbad' is situated,

Floorplan



Ground floor plan

The main entrance of the building is programmed in between two commercial stores and oriented towards the main road. All dwellings are accessible via the internal staircase and elevator. The studios have an additional entrance from the collective garden through an external staircase and gallery. This two door access system is interesting for the division of live and work, depending on how the unit is used; live, office, live-work,



Level 01

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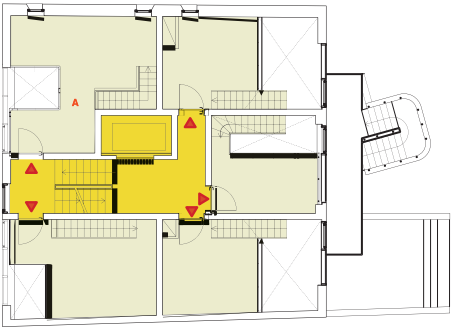
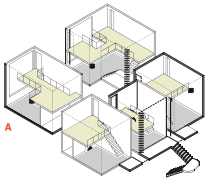


Level 02

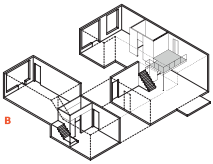


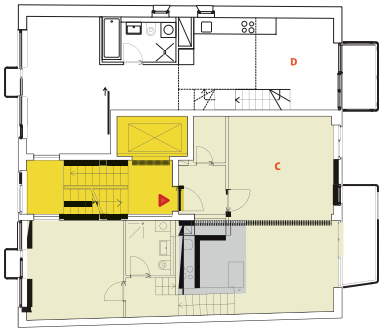
0 2 6 10m

Work-entrance
Live - entrance

Work
Live
Circulation

Level 03





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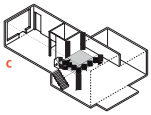

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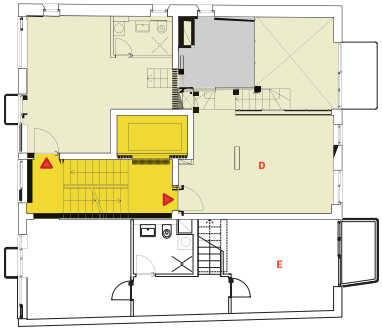
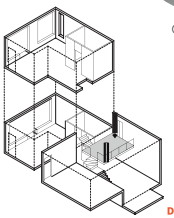
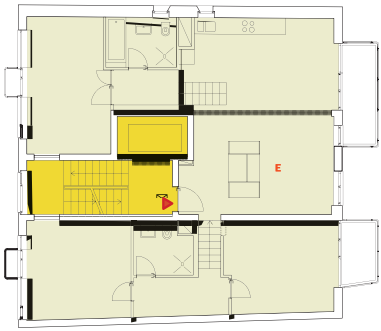
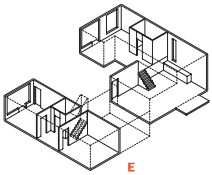


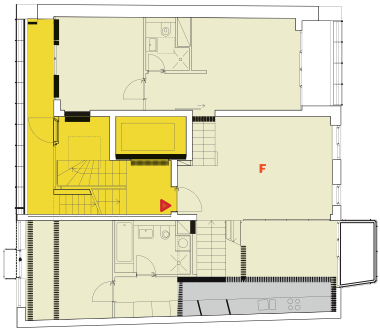
Level 05

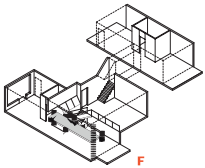






Level 06





Level 07

Each dwelling above the studios has a different plan of which level 6 and 7 can be divided into two separate units of 80m2 and 40m2. In this case, both units are then are accessible from different landings of the staircase. This enables flexibility for future use and changing live patterns.

All the dwellings have split levels, which creates interesting spaces for the dual use of live and work. In general, the workplace is organized on a higher level with a visual connection towards the living area. This principle has potential for the design of live-work dwellings for parents that work from home with children.

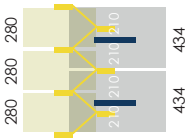
© Jan Bitter

0 2 6 10m

Work-entrance
Live - entrance

Work
Live
Circulation

Circulation



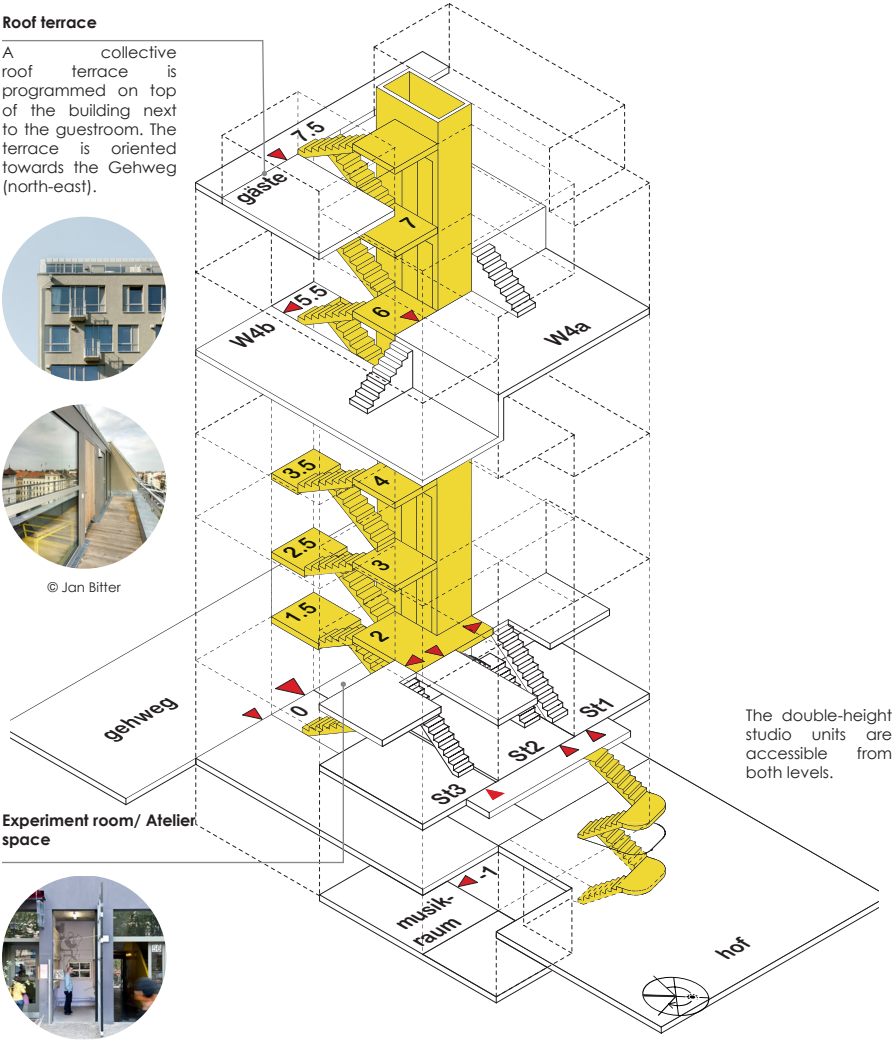
The interlocking volumes of the building are arranged around the main staircase and provide access to the different stair landings. This enables the division of the dwelling for future uses.

The ceiling height and the levels are constantly changing (2.10 to 4.34 metres) through the building, resulting in a meshwork of staircases. One reaches through the whole building and some units have internal stairs.

Roof terrace

A collective roof terrace is programmed on top of the building next to the guestroom. The terrace is oriented towards the Gehweg (north-east).

© Jan Bitter



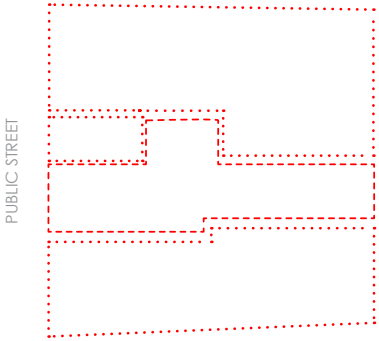
The double-height studio units are accessible from both levels.

Experiment room/ Atelier space

© Jan Bitter

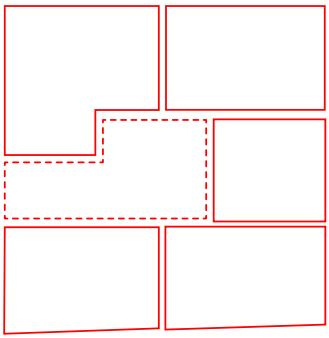
© BARarchitekten
edited by author

Public - Private



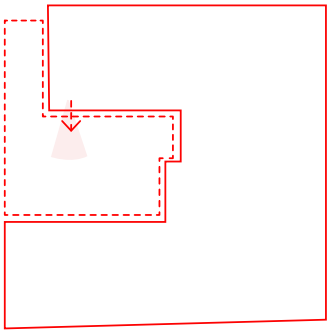
Ground floor plan

The entrance of the building is only accessible for residents (collective) and is programmed in between two public commercial stores and a small atelier space.



Level 02

The private studios are organized around the collective circulation core. The stairs have a visual connection towards the street,



Level 07

The apartments above are similarly connected leading up to a collective terrace.

Some dwellings have a visual connection towards the circulation core. This might be a window that can be transformed into a door. (referring to units that can be split).

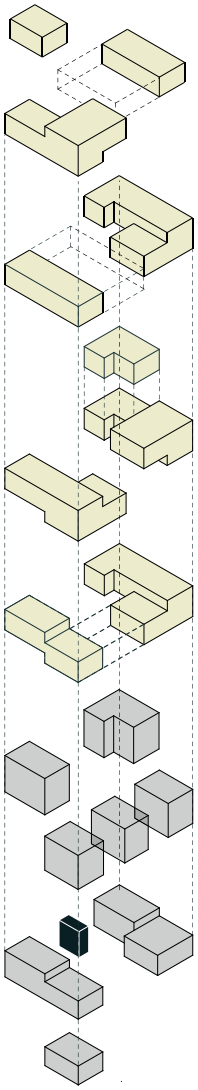
Private
Collective
Public

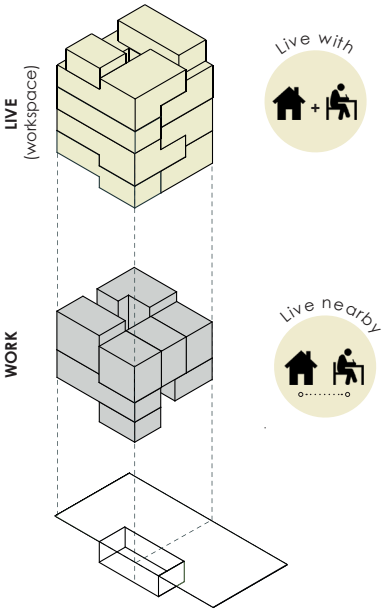
Source: Arch+

Spatial organization live-work

On the ground floor of a café, (work)shop and a 5 m2 rent-free atelier space is programmed. The studios above can be used as offices for small businesses or live-work units. The upper dwellings have split levels and some can be combined or separated depending on changing live patterns.

	m²
Guest	8
Unit 5a	78
Unit 5b	37
	115
Unit 4a	83
Unit 4b	45
	128
Unit 3a	81
Unit 3b	27
	108
Unit 2	76
Unit 1a	82
Unit 1b	43
	125
Studio A	45
Studio B	35
Studio 1	31
Studio 2	33
Studio 3	33
Café	51
Atelier	5
Shop	43
Musicspace	28
Total:	**874**





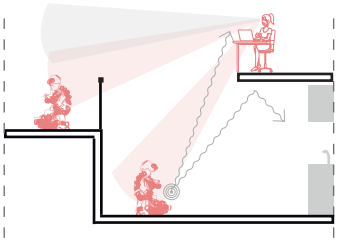
Apparments (Live-With)

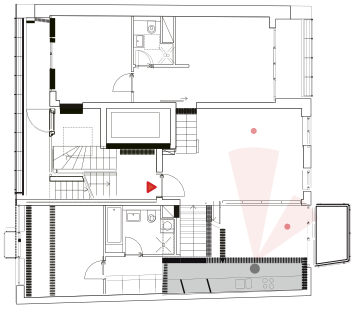
Studios (Live-Nearby),
**can also be considered as live-with depending on how it is used.*

Dwelling arrangement and work-life

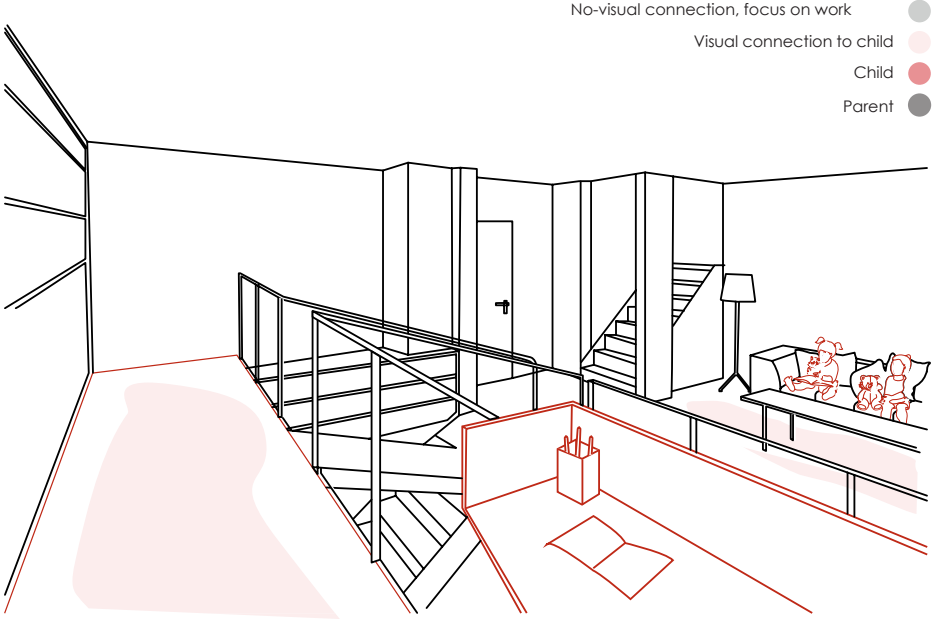
The concept of Mischen Possible is based on a high degree of flexibility by providing spaces that can adapt to changing demands. The spaces are vertically organized. The split levels, allow different activities to take place in the same space. In plan F; live and work activities are clustered in the same space but separated through height differences. The workspace is organized on the highest level and allows child surveillance, whilst partially masking the lower level to minimize distractions. This organization is interesting for parents that enjoy working from home while being part of family-life activities. However, this arrangement is not successful for everyone:

- The space is not acoustically separated and can distract parents from waged work.
- The height difference is a natural boundary for children not to enter the workspace. However, it can also cause dangerous situations as open staircases are not safe for toddlers, and so requires more parental surveillance.
- Parents have to constantly cover the height difference when care is needed. Parents often want to be efficient and spend as little time as possible on care duties during working hours (ethnography).





kitchen underneath the workplace



Cool Cube
Rotterdam, Hooidrift

Photographer: Ossip van Duivenbode

Architect: Jvantspijker & partners
Construction period: 2017
Client: private (CPO)
Ground area: 62 m² (100m² garden)
Built area: 277 m²
Building height: 3/4 levels (split level)
Number of dwellings: 1
Communal functions: -

Literature

Jvantspijker. (n.d.). jvantspijker & partners. Jvantspijker & Partners. Retrieved 21 March 2021, from https://jvantspijker.com/projects/project/127

Tapia, D. (2020, September 4). Informal Cube in Rotterdam / jvantspijker. ArchDaily. https://www.archdaily.com/884587/informal-cube-in-rotterdam-jvantspijker

SUBOFFICE. (2017, September). Bouwen aan de Hooidrift. https://www.rotterdamarchitectuurprijs.nl/2017/cpo-hooidrift.html

Abstract
Cool Cube is part of 14 terraced houses in Rotterdam West that is developed through private cooperative housing to develop different housing types as an alternative to serial housing (Suboffice, 2017).

The design of the house answers a number of the client's specific spatial demands: a gentle entrance sequence between public-private space, a living room slightly raised above street level, kitchen and dining connected to the garden, a semi-private music room and a roof terrace (Tapia, 2020).

These five ingredients have been interweaved resulting in a playful composition organized around the spacious central staircase. Large windows across the corners of the house catch light from various angles and reinforce the spatial richness of the interior (Jvantspijker, n.d.)

Keywords: Family housing, Live-work

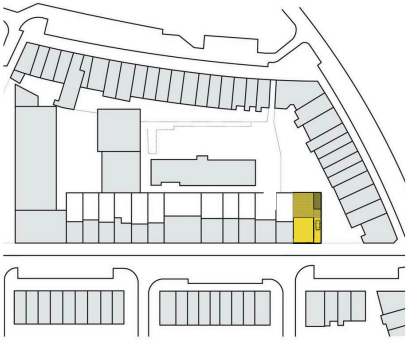
Urban morphology

© Ossip van Duivenbode

Groundbound Coolcube
The project is the end building of a modern rowhouse, in contrast to the dwellings opposite to it. The Coolcube is an exception in the street with its materialization as other buildings are built with brown brick.

© Ossip van Duivenbode

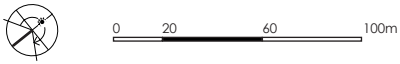
Private garden
The dwelling has a private garden of almost 100 m2, oriented towards the south-east. The kitchen and dining room is arranged towards the garden, with doors that can open up and create an indoor-outdoor dining room.



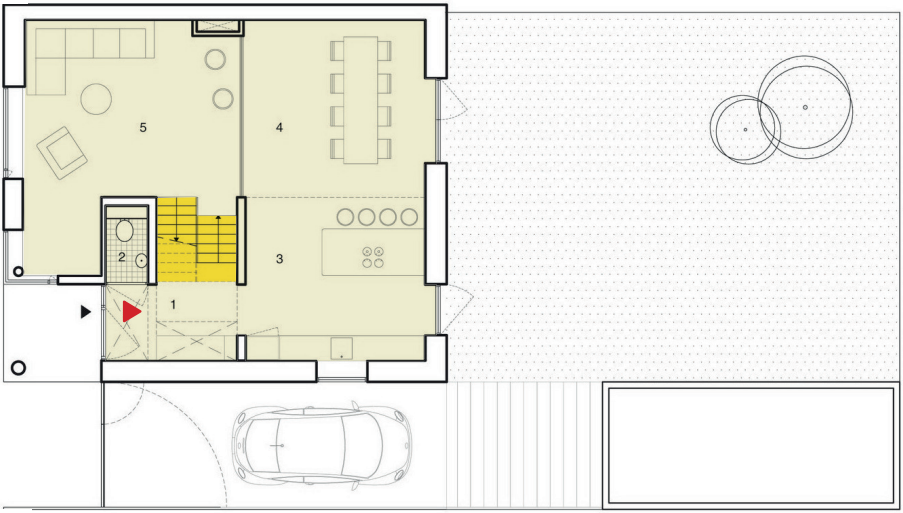
block ± 7,2 x 8,5m © Jvantspijker

The Coolcube is part of a new development with 13 modern ground bound rowhouses with a garden. The buildings together form a semi-closed urban block in which two large scale buildings are positioned (unknown what function).

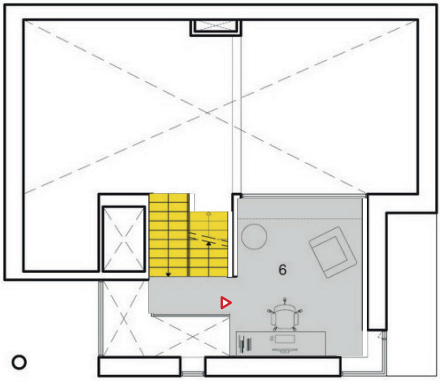
The housing in the context, beside the 13 modern houses, are predominanlty 20th century dwellings.



Floorplan



Ground floor



Level 01

The ground floor has a split-level with a living room slightly raised above street level, which makes it sheltered from the street. The kitchen and dining area are connected to the garden.

The level above, a semi-private music room is programmed with a visual connection towards the living room and dining area.

0 1 3 5m

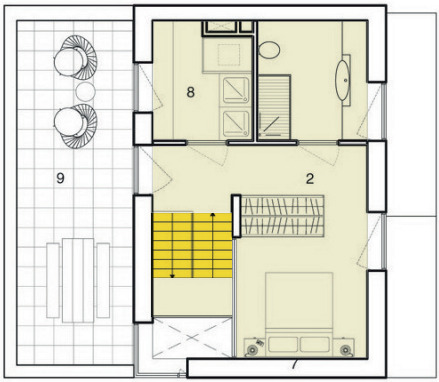
Work-entrance
Live - entrance

Work
Live
Circulation

Level 02

On level two, 3 bedrooms are programmed with each its space for a desk. This often located near the window.

This level is for the children of the household separated from the parents, with a shared bathroom.

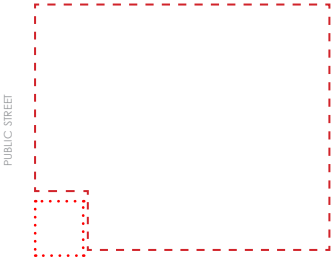


Level 03

Level three is predominantly for the parents with their private bathroom. Besides that, a deposit is programmed for laundry and also a roof terrace oriented towards the north-west direction.

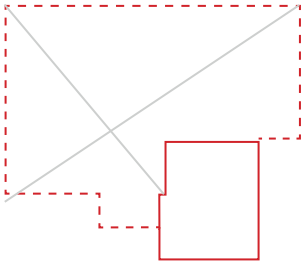
1. Entrance
2. Bathroom
3. Kitchen
4. Dinning room
5. Living room
6. Office
7. Bedroom
8. Deposit
9. Terrace

Public - Private



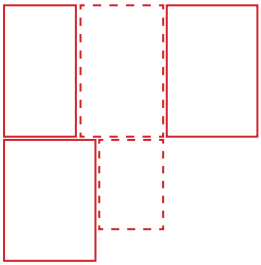
Ground floor

The living area is slightly raised above street level giving more privacy and the entrance of the building has a setback indicating a transition zone from the public towards a private area.



Level 01

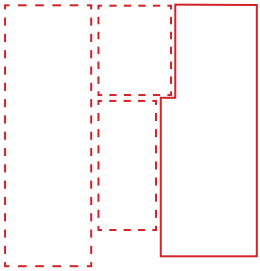
The workplace is a semi-private area as it is directly located near the stairs and has a window that visually connects to the domestic realm.



Level 02

This level has private bedrooms with a collective bathroom for the dwellers on that floor.

The private rooms are programmed on the facade sides for daylight.



Level 03

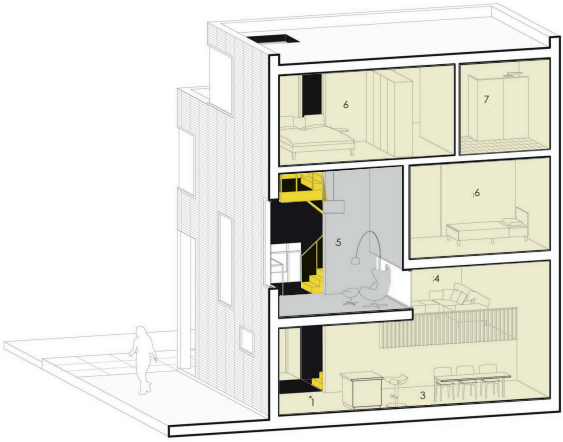
The main bedroom and the bathroom are organized towards the private garden. On the public street-side collective space are programmed, such as the roof terrace.

Private
Collective
Public

Source: Ossip van Duivenbode

Spatial organization live-work

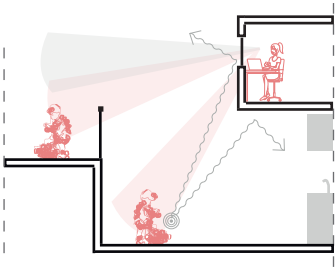
The building makes use of split levels, as a result, boundaries are created between diverse spaces. This concept might be interesting for the design of parents that work from home. The height difference can indicate children not to enter when parents work from home. The workspace has window for daylight and one towards the livingspace.

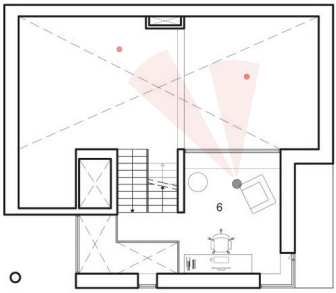


1. Entrance
2. Kitchen
3. Dining room
4. Living room
5. Office
6. Bedroom
7. Bathroom
8. Terrace

Dwelling arrangement and work-life

The design of Coolcube successfully creates a spatial and acoustic separation between live and work and the (enclosed) workspace, whilst maintaining a visual connection to the domestic sphere through a wide window. The workspace is arranged on a higher and allows child surveillance, but also children to play out of sight. The height difference remains an obstacle as parents have to go downstairs when care is needed.



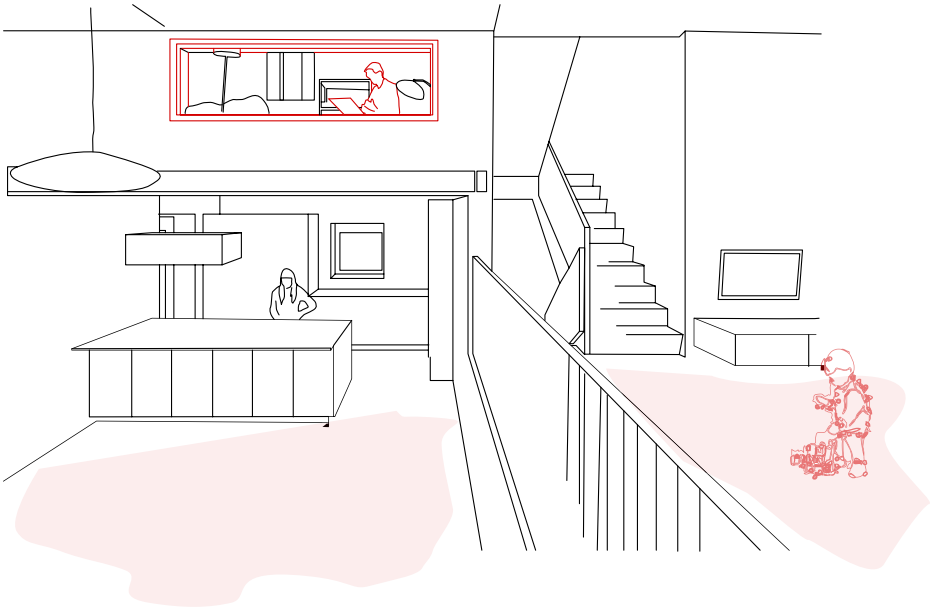


No-visual connection, focus on work

Visual connection to child

Child

Parent



Former Berlin Flower Market

Linden Str. 90/91, Berlin

Photographer: Andrew Alberts, 2018

Architect: Heide & von Beckerath, ifau
Construction period: 2015 - 2018
Client: IBeB GbR (Selbstbaugenossenschaft Berlin eG | Ev. Gemeindeverein der Gehörlosen in Berlin e.V. | Private Owners)
Ground area: 2806 m²
Built area: 12264 m²
Building height: 5 (+1) maisonette
Floor area per workhome space: 25-132 m²
Number of dwellings: 87
Communal functions: sky deck, patio garden, roof street, laundery,workspaces

Abstract
IBeb is a live-work building in Berlin, completed in 2018. The building is five storeys high and has 87 workhomes. The main idea for the project was to offer a mix of live and work units (Luco, 2021) and take into account the participation of all stakeholders in the planning process to serve the needs of future residents (HEIDE & VON BECKERATH & ifau, 2016).

Keywords: Live-work Cooperative housing

Literature

Gameren, V. D., Kuitenbrouwer, P., Schreurs, E., Hausleitner, B., Holliss, F., & Jürgenhakea, B. (2019). DASH 15: Home Work City: Living and Working in the Urban Block (Bilingual editie, Vol. 15). Nai010 Publishers.

Luco, A. (2021, March 2). Residential and Studio Building at the Former Berlin Flower Market (IBeB) / ifau + Heide & von Beckerath. ArchDaily. https://www.archdaily.com/941785/residential-and-studio-building-at-the-former-berlin-flower-market-ibeb-ifau-plus-heide-and-von-beckerath

HEIDE & VON BECKERATH & ifau. (2016, July). IBeB – Integratives Bauprojekt am ehemaligen Blumengroßmarkt. https://docplayer.org/16449258-Ibeb-integratives-bauprojekt-am-ehemaligen-blumengrossmarkt-commercial-space.html

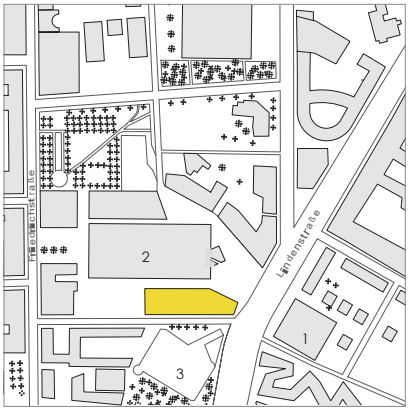
Urban morphology

© Henrik Schipper

IBeB at Lindenstraße
The shape of the building highlights the square in front of the market hall (1), which is currently used by the Academy of the Jewish Museum that stands across the road (2).

© Andrew Alberts

IBeB south facade
The longest facade (south) has deeplys recessed fronts. On the ground floor, the workshops (live-adjacent) are partially below ground level and are connected via bridges.



block ± 22,5 x 100m © DASH15

The IBeb building is situated in the historic Südliche Friedrichstadt in Berlin's Kreuzberg district, directly opposite the Jewish Museum Berlin. The building is at right angles to the prestigious Lindenstrasse and next to the auction hall of the former Blumengrossmarkt (Gameren et al., 2019).

The building shape narrows down towards the main street allowing better visual connection towards the market hall from the main street. A cafeteria is positioned here for residents and neighborhoods to meet.

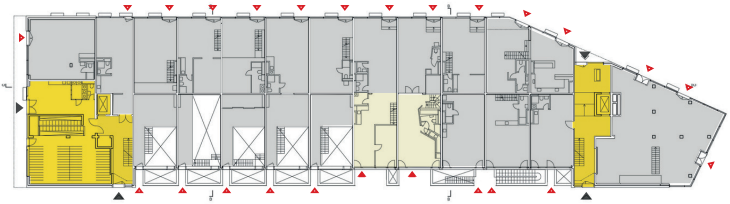
The plinth of the building in the north is transparent with space for public-oriented functions. By arranging these functions in the plinth, the building acquires a collective character that is directly visible from the ground level. In contrast, the facade is here treated differently with sunken workshops due to traffic and the position of the playground (3).

0 40 140 240m

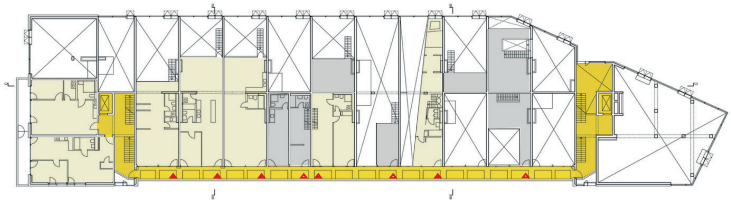
Floorplan

Every dwelling also has its workspace. Living and working are usually divided over 2 layers per combination. This means that there is still a separation between living and working, but the spaces are directly connected through an internal or an external staircase.

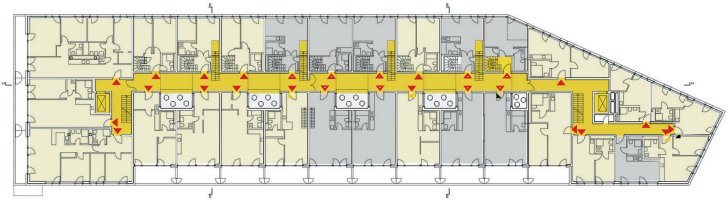
Ground floor



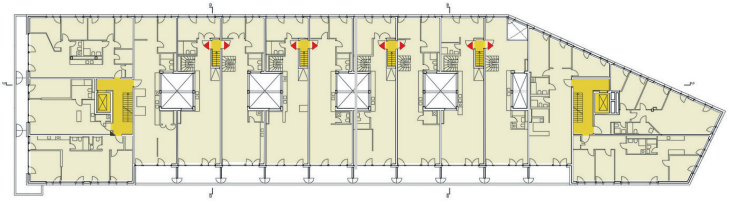
Level 01



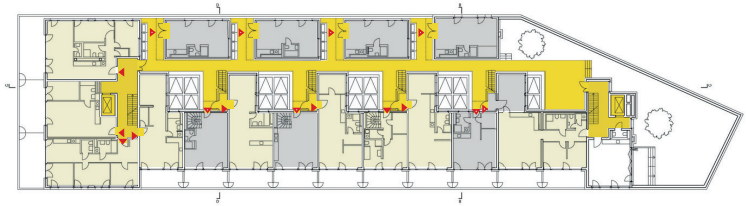
Level 02



Level 03



Level 04



0 7 21 35m

Work-entrance
Live - entrance

Work
Live
Circulation

Circulation

All ground floor units have direct access to the street. The upper floors are accessed by both public and residents by circulation cores at either end. These are connected with three horizontal 'access streets'.

On level 01 the gallery is facing south and on level two the circulation becomes an internal street, which is wider and allows collective events to take place.

Level 04 has a roof street that connects to the separateatelier spaces and the collective patio.

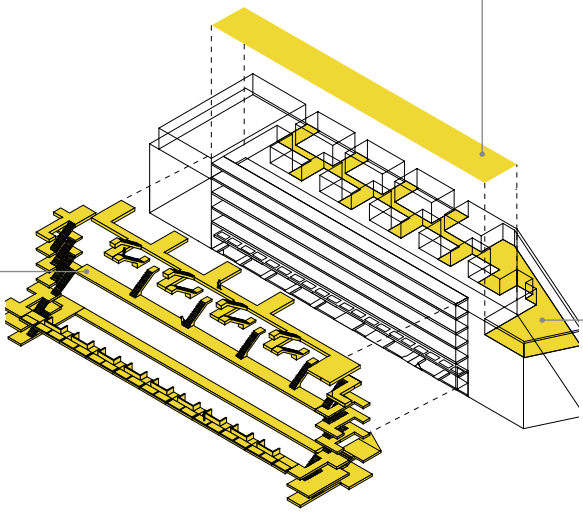
Sky deck

Sky deck on the fifth floor accessible via external stair-cases connected to the 'roof street'.

© Andrew Alberts

Internal street

The width of the central corridor enables collective use to take place. It is designed as a place to stay with benches and the light courts that carry daylight deep into the building.



Patio garden

Collective patio garden located near the live-adjacent ateliers. There is no visual connection to the context as the Jewish Museum is opposite to IBEB.

© Andrew Alberts

© DASH15

© DASH
circulation diagram
edited by author

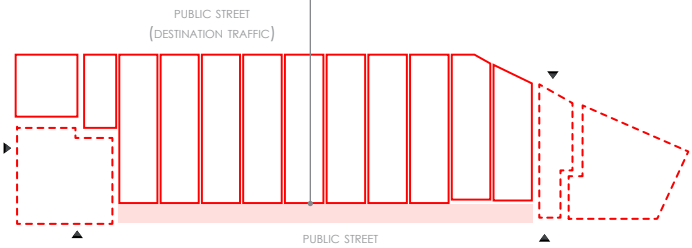
Public - Private

The private units are organized towards the facade en the collective and circulation spaces are predominantly in between. The entrance of the building is positioned on both ends of the building. On the eastern entrance, a cafeteria is organized which has a collective/public function.

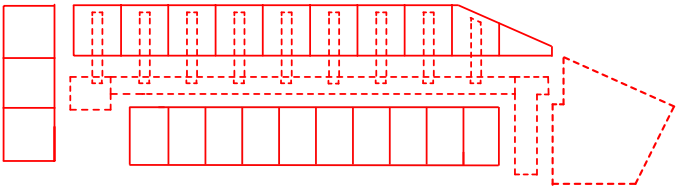
© Andrew Alberts

Ateliers on the south side of the public space is organized partially below ground level and has a patio. A bridge is stretched from the street to the entrance of the studio.

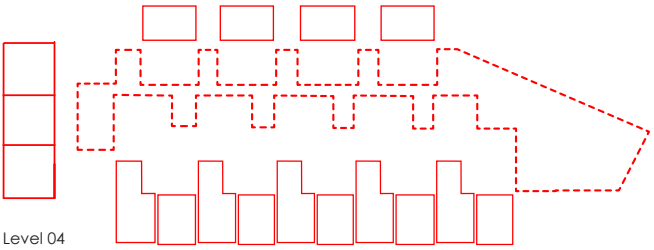
There is no direct visual connection from the ground level for privacy purposes.



Ground floor plan



Level 02



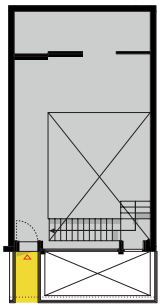
Level 04

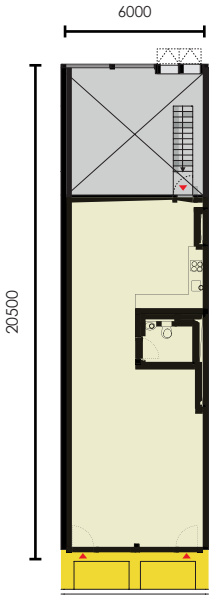
Private
Collective

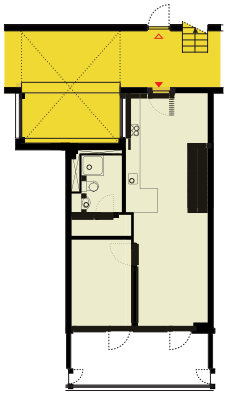
Photograpger: Jan Bitter

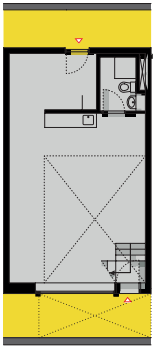
Dwelling typologies

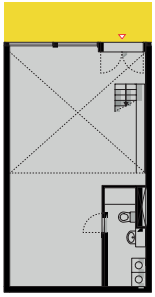
Live-adjacent workhomes have separate entrances for work and home. This introduces a degree of spatial separation that is particularly useful when the two functions have conflicting design constraints, for example where it involves interactions with members of the public, compromising a sense of privacy, or is dirty, smelly or dangerous.

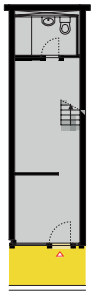












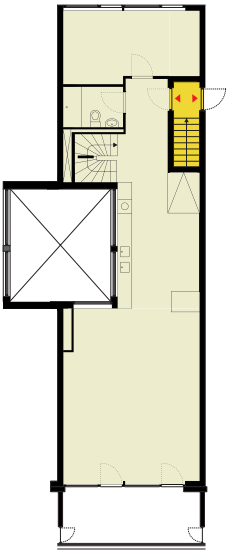
W0 | 57 m²
Souterrain atelier/ Workshop, ground floor and basement.
Live-nearby

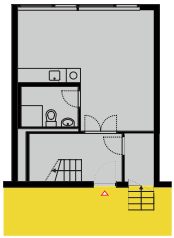
L1 + W1 | 104 m2
Atelier apartment, 'Splitlevel' and ground floor.
Live-adjacent

L2 + W2 | 85m2
Apartment and studiolo, first floor and 'Splitlevel'.
Live-adjacent

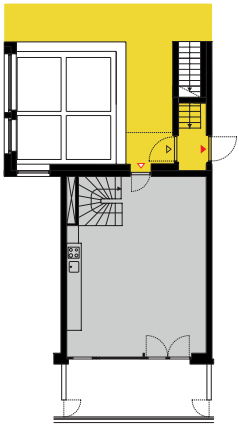
Work-entrance
Live - entrance

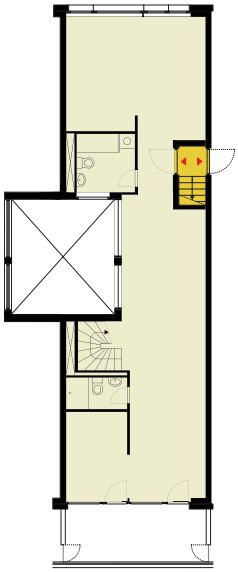
Work
Live
Circulation





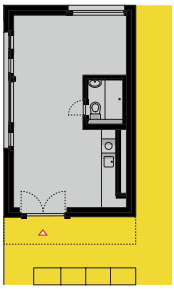
L3 + W3 | 120 - 132 m2
Maisonette, second and first floors.
Live-adjacent





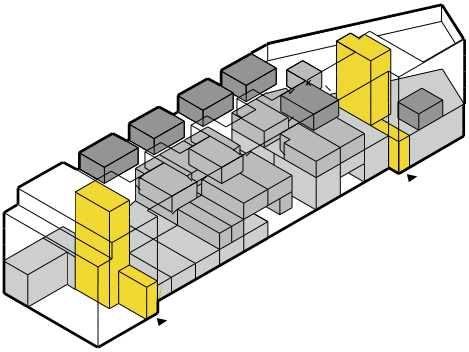
L4 + W4 | 130 m2
Maisonette, fourth and third floors.
Live-adjacent

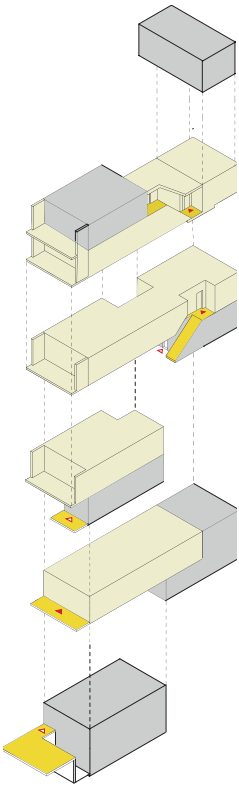
Live-nearby involves a total spatial separation between work and home. The two functions take place in separate buildings, at a small distance from each other. A common example is a shed at the bottom of a garden, used as a studio, office, workshop or even commercial kitchen.



W5 - 35 m2
Atelier, fourth floor.
Live-nearby

Spatial organization live-work





W5
35 m²
Live-nearby

L4 + W4
130 m²
Live-adjacent

L3 + W3
120 - 132 m²
Live-adjacent

L2 + W2
85m²
Live-adjacent

L1 + W1
104 m²
Live-adjacent

W0
57 m²
Live-nearby

Strategy: Live-nearby & Live-adjacent

All workshop spaces are located on the ground floor with front door access. Dedicated ateliers are located on the top floor with integrated studios located adjacent to their dwellings offering separate door access.

This is beneficial and allows minimal interruptions between living and working, especially if clients visit the workplace.

The main live adjacent work units are clustered together and accessed at level 02 while separate ateliers are located on the top floor by roof access all of which are collective accessible.

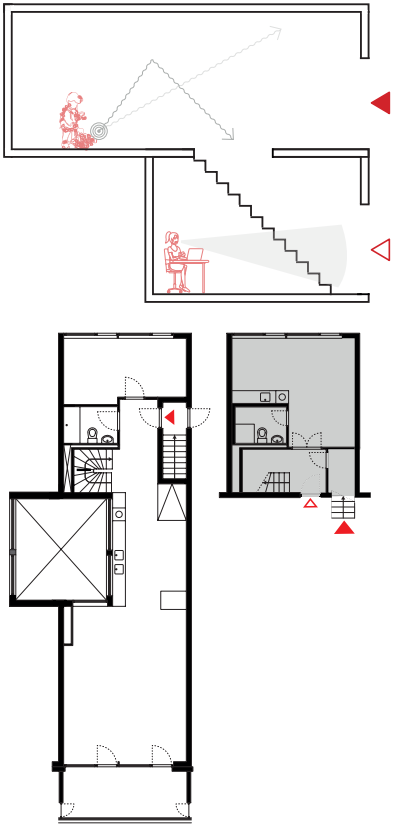
- Atelier (Live-Nearby)
- Studios (Live-Adjacent)
- Workshops (Live-Nearby)
- Circulation

Stacking diagram of various types
The units have a clear bay structure, which enables the stacking of various typologies more easily.

Dwelling arrangement and work-life

The main ambition for IBeB was to offer a mix of live and work units. Considering the study by Frances Holliss (2015), the main typologies are live-adjacent and live nearby. Both have a separation between living and working, whereby the live adjacent has an interlinking door or hallway that connects both spaces.
In unit (L3+W3), live and work is separated vertically with an interlinking staircase. The separation minimizes acoustic distraction and sets a clear boundary. The separate entrances allow parents to work from home and receive guests without entering the private sphere. However, there are some disadvantages:

- No possibility for surveillance as there is no visual connection. The units will function for families with independent children.
- Similar to Mischen Possible, parents have to continuously walk upstairs if care is needed.



L3 + W3
Maisonette, first floor. On the second floor the workplace is arranged.
Live-adjacent

© Andrew Alberts

© Andrew Alberts

The Family
Spoorzone, Delft


Render: ANA architecten

Architect: ANA architecten
Construction period: 2018 - ongoing
Client: BPD B.V.
Ground area: 2234
Built area: 11.776 m²
Building height: 9 levels
Floor area per workhome space: 54,2 - 120,4 m²
Number of dwellings: 94 family apartments, gallery and maisonette typology
Communal functions: collective street, roof terrace, DIY spaces, 56 parking spaces, bike storage

Literature

Camp, P. (2020). Daar woon ik! hier wonen wij [E-book]. Diepenmaat Uitgeverij & Ontwerp bureau. https://denhaag.raadsinformatie.nl/document/9352854/1/RIS297331_Bijlage

ANA Architecten. (2020, November 17). Betaalbare gezinsappartementen in The Family. https://www.ana.nl/portfolio-item/the-family/

Muis, R. (2021, February 16). ANA Architecten ontwerpt woongebouw voor gezinnen in Delft. Architectenweb. https://architectenweb.nl/nieuws/artikel.aspx?ID=4884

Abstract
The Family is a project that caters for families that want to live in the city and prefer a diverse living environment over the tranquillity of the suburbs (ANA Architecten, 2020).

The building offers a variety of dwellings for diverse household compositions: (tower/gallery) apartments and maisonettes. According to ANA architecten, the dwellings can be easily adapted for every family phase and different family compositions (Muis, 2021). In addition, the building offers diverse shared and collective spaces as urban living is relatively expensive (ANA Architecten, 2020).

Keywords: Family housing, Collective spaces, Play areas

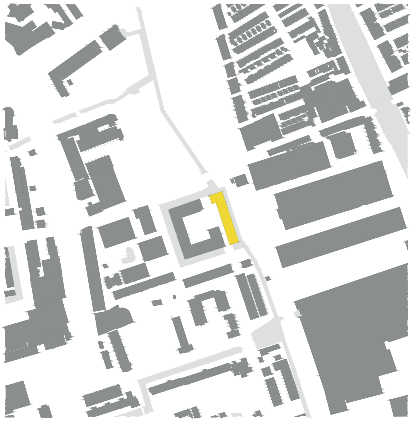
Urban morphology

© ANA

The Family at Mercuriuspad
The building is car-free and only accessible for pedestrians and cyclist from the Mercuriuspad. The entrance is highlighted with a double-height setback on which two swings are placed for children to play. Also, a platform is programmed near the water for leisure.

© ANA

Hard on the outside, soft on the inside
The facade is formal from the outside and playful towards the courtyard, offering children diverse play opportunities; on the balcony of private dwellings, widened 'street' galleries and elevated play street.



block ± 30 x 101,5m © ANA

The Family will be developed on the south side of Nieuw Delft at Mercuriusstraat. According to ANA Architecten, this is a strategic and central location for families as Delft Station is just around the corner and, school and supermarket facilities are within walking and cycling distance (Camp, 2020).

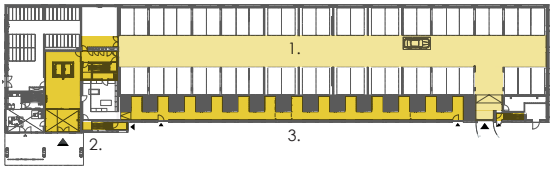
The shape of the Family block with the adjacent block forms an open urban court block that is enclosed by canals and greenery. The north entrance to the courtyard is car-free, whereas the south entrance leads to the parking that is programmed in the base of the building.

Floorplan

The main entrance of the building is at the courtyard and in the base of the building (ground floor) is predominantly functional spaces are organized, such as car parking and bicycle storage. Above the base, a safe elevated street from the public street is programmed for children to play at. This level is connected via stairs, elevators and slides so that children from levels above are connected to the area playfully.

Besides the deck, a green roof is programmed on the south (fifth floor). The building offers various spaces and atmospheres for residents to interact. A community building for families living in the city. The higher volumes are organized on the north side, allowing daylight on the play street.

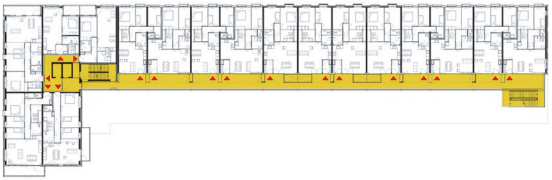
Ground floor



1. Car parking
2. DIY workspace
3. Bicycle storage
4. Collective room

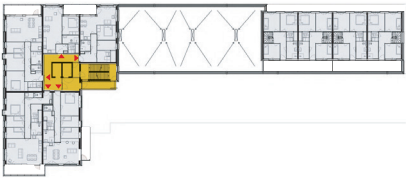
Level 01

Level 02-04



Level 05

Level 06



Building entrance
Live - entrance

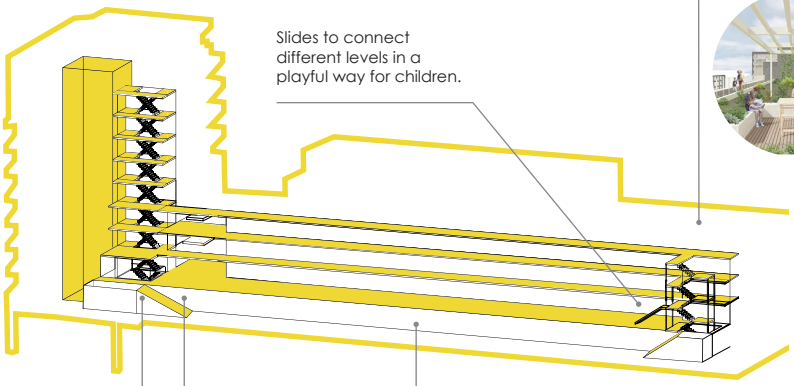
Collective
Live
Circulation
Car circulation

Circulation

The 'tower' dwellings are connected through a central core with an elevator and staircase. The other dwellings are connected via galleries, that function as elevated streets. The wide street allows appropriation of the space in various ways; children playing in front of the apartment door or parents sitting and supervising their children playing on the deck. This strategy enhances social interaction between residents.

Roof Garden

Sky deck on the fifth floor accessible via external stair-cases connected to the 'roof street'.



Collective room

Collective indoor space where residents can meet and interact. 'second livingroom'

Workshop

Collective workshop space to make bicycles etc.

Bicycle storage

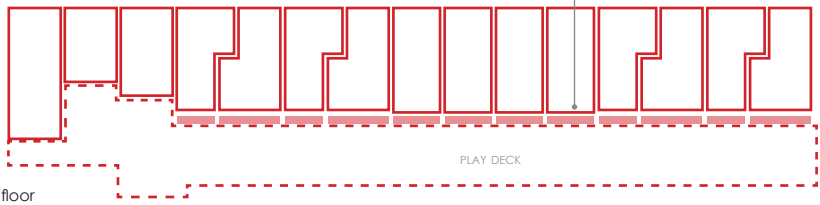
Storage underneath the elevated street. Parking is programmed behind the bicycle storage.

Renders - © ANA

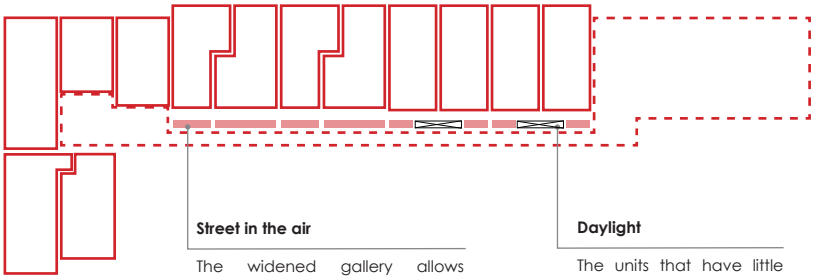
Public - Private

Set-back

The dwellings directly connected to the elevated street have a semi-private front yard.



Ground floor



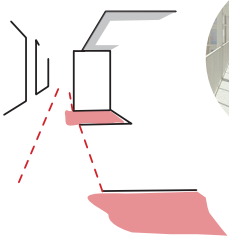
Street in the air

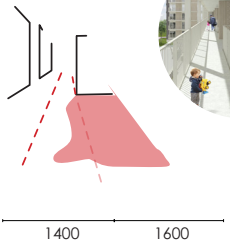
The widened gallery allows appropriation of the space available: children can play and parents can relax whilst watching their children play on the elevated street. This space is semi-private as neighbors pass by and promotes interaction.

Daylight

The units that have little facade surface due to the bay width have an opening in the gallery circulation above for more daylight. Besides a semi-private space is created.

Level 05





Private
Semi-private
Collective

ce: ANA architecten

Dwelling typologies

There are nine different dwelling typologies: 'tower' apartments, gallery apartments and maisonettes. The dwellings types are all clustered together.

Gallery apartment 1 (left)
Net dwelling size: 79,9 m2
Bedrooms: 3
Target group: family of two children

Gallery apartment 2 (right)
Net dwelling size: 79,0 m2
Bedrooms: 2
Target group: family of one child

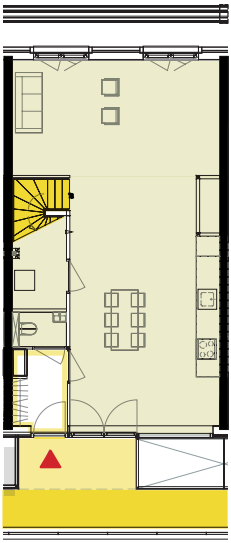
The entrance of apartment 2 has an enclosed entrance hallway, whereas apartment 1 does not due to its compact design.

The public spaces are organized at the gallery and the private in the back of the apartment. The hallway forms the separation and transition zone.

0 2 5 8m

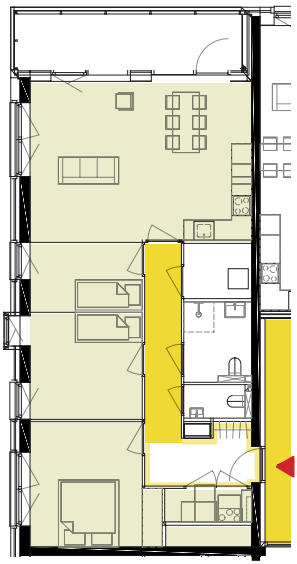
Work
Live
Circulation
Live - entrance

6450

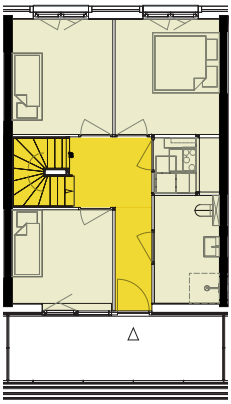


A niche at the entrance for pivacy

6900



Tower apartment 6 corner
dwelling (above right)
Net dwelling size: 92,2 m2
Bedrooms: 3
Target group: family of two children



The maisonettes are programmed on top of the apartments so that an extra gallery would not be needed and the levels are connected with an internal staircase. All bedrooms have approximately. the same size in contrast to the other typologies.

Apartment 5 maisonette (left side)
Net dwelling size: 120,4 m2
Bedrooms: 3
Target group: family of two children

Diversity and arrangement of play areas

Slides

Slides are programmed to connect the stacked dwellings in a playful way to the elevated street for children. This softens spatial barriers for childrena and allows interactions on different levels.

Play deck

The deck, with a surface of approximately 450 m2, offers children enough space for play in a safe area elevated from the public street.

The galleries are oriented towards the play deck for parental surveillance.

Roof Garden

The roof garden has a different ambience compared to the play deck and offers a more quiet environment. This is located on the fifth floor and has a south orientation maximizing sunlight incidence.

Street in the air

The width of the gallery allows children to play in front of their front door and parents can supervise them from inside the dwelling.

Renders - © ANA

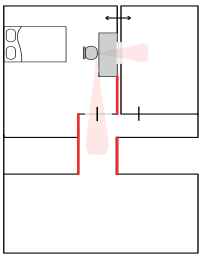
Child supervision

The apartments are organized to allow supervision from various spaces. The 'parental bedroom' is aligned with the hallway up to the living room. This is an interesting spatial organization as it allows supervision. Especially If a workplace is located in the bedroom and a window or door enables visual connection to the living room. This must be solved flexibly as the bedroom needs privacy.

The hallway is a transition zone for private functions towards the public but is also a sound barrier and can be used to indicate spatial boundaries between work and family life.

The living room and kitchen are organized towards the ciruclation space and the semi-private play area for children so parent can supervise chidlren.

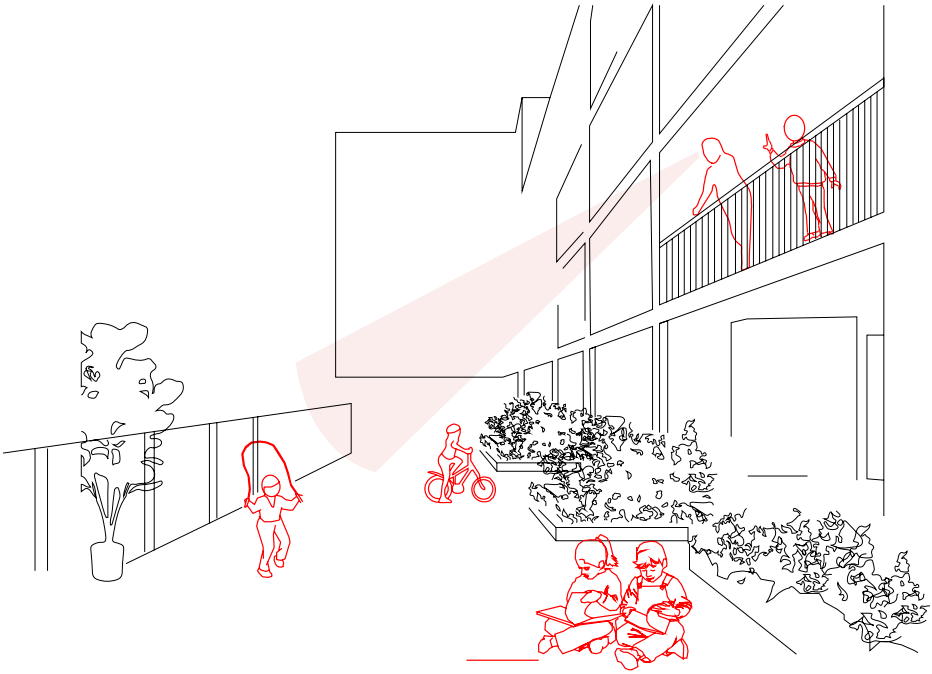
The gallery is oriented towards the play deck. Parents can surveillance playing children and signal for dinner (little effort).



Visual connection to child

Child

Parent



Family Scraper
Maasbode, Rotterdam

Architect: Van Bergen Kolpa architecten
Construction period: 2020 - ongoing
Client: BPD B.V.
Ground area: 315 m²
Built area: 21.700 m²
Building height: 22 levels
Floor area per workhome space: 50 - 225 m²
Number of dwellings: 36
Communal functions: commercial space, stacked courtyards

Literature

Klerks, J. (2017). Wonen in de skyline van Rotterdam / Living in the Skyline of Rotterdam (Vol. 1). Jan Klerks.

Van Bergen Kolpa Architecten. (n.d.). Family Scraper de Maasbode / Bouwrealisatie / van Bergen Kolpa Architecten, Dutch architects based in Rotterdam. Family Scraper de Maasbode. Retrieved 19 April 2021, from https://www.vanbergenkolpa.nl/nl/16_family_scraper_de_maasbode.html

Kootstra, J. (n.d.). Socially-oriented high-rise design in the Netherlands. https://frw.studenttheses.ub.rug.nl/3371/1/Socially-oriented__high-rise_design.pdf

Abstract
The family scraper provides an answer to the suburbanization of Rotterdam. The building is designed to create an alternative for living in the suburbs (Kootstra, n.d.).

The family scraper has three-storey townhouses positioned around a courtyard/street so that every house has a front door at the courtyard level. Besides, the units have a semi-aprivate garden that is interconnected with their neighbors. This is arrangement stacked four times on top of each other and is interesting to retain and attract more families to the city centre (Klerks, 2017).

Keywords: Family housing, Collective spaces, Play areas

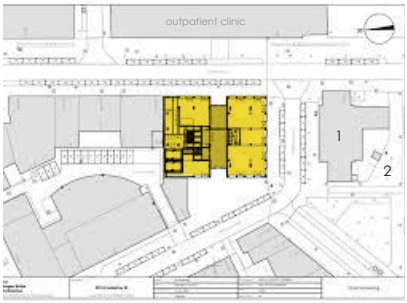
Urban morphology

© Van Bergen Kolpa

Family scraper from the public park
The building is located near a public park / play area and has a high plint with urban amenities such as an urban espresso bar and galleries.

© Van Bergen Kolpa

Family housing in the dense city of Rotterdam
The terraces continue the green outdoor space of the park in the building and provide families with (private) outdoor space.



block ± 33 x 39m

© Van Bergen Kolpa

The project is situated on the border of a modern city centre and a nineteenth-century residential area in between high and low-rise buildings, and in between cultural, social and educational facilities. To the south, directly after the church (1), an elementary school and play area and park (2) are situated. This Is ideal for families and for children to play (Van Bergen Kolpa Architecten, n.d.)

The setback indicates the entrance of the building and connects both public streets leading to a square at the west. Commercial functions are oriented towards the park, square and street.

Floorplan

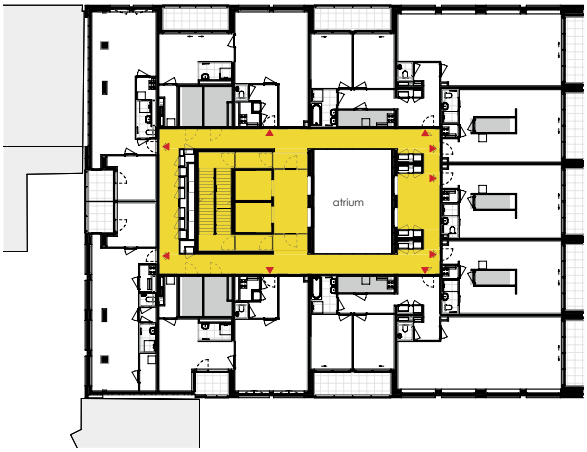
Ground floor

The entrance of the building is indicated with a setback and connects the Schiedamse Vest and William Boothlaan.

The 'backside' of the building car elevators are positioned to park on the second floor and the vertical circulation core is connected to the semi-public entrance street on the ground floor.

The commercial functions are programmed towards the street and park minimizing dead facades.

Level 04



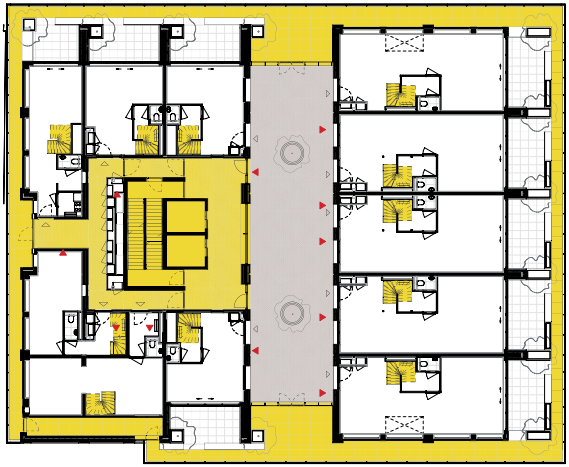
The apartments are connected via a central core. The wet functions are programmed on the backside of the apartment giving space to the live areas with daylight quality.

The four apartments in the north have external storage space accessible via the circulation space, whereas the apartments on the south have internal storage spaces in the middle of the dwelling near the kitchen.

The outdoor spaces of the apartments are loggia's and an atrium is positioned at the core for visual connection towards the ground floor street.

0 4 16 24m

Live
Circulation
Live - entrance
Street / court
Storage



The entrance of the ground-bound dwellings are connected are located at the collective street with a width of 6 meters.

This street is also connected with a route that connects to the private outdoor space of the dwellings.

Stacking three levels, approximately 8 meters, allows daylight to enter the collective street.

Level 05a

Level 05b

The height of the circulation space is two levels on which the above functions of the dwellings are organized.

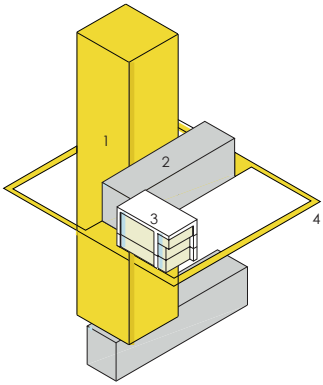
The escape stair continues but is not directly accessible via apartments on level 5c.

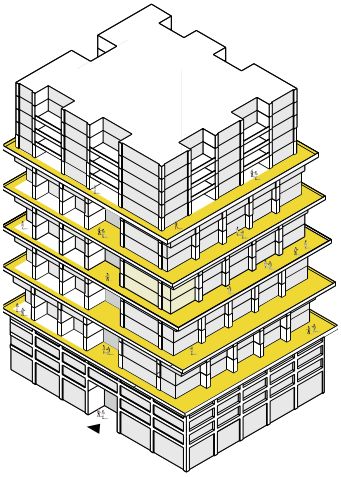
Level 05c

Circulation

The vertical circulation core connects to all dwellings directly or through the stacked collective streets. The streets also connects to the private outdoor spaces of the dwellings units.

Width
1) Circulation core: 12000 x11000mm
2) Stacked streets: 6000mm
3) Three storey ground-bound units
4) Outdoor circulation: 1200mm

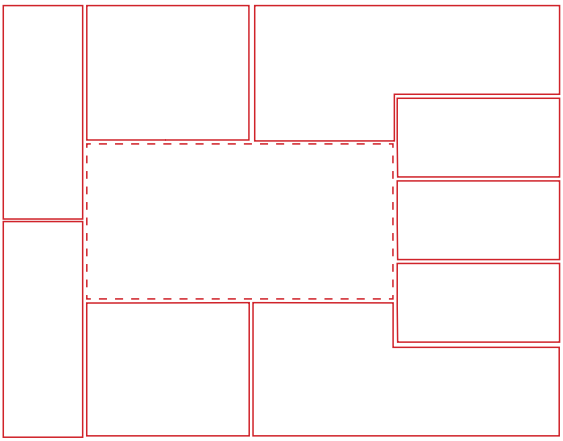




Street / court
Live
Circulation

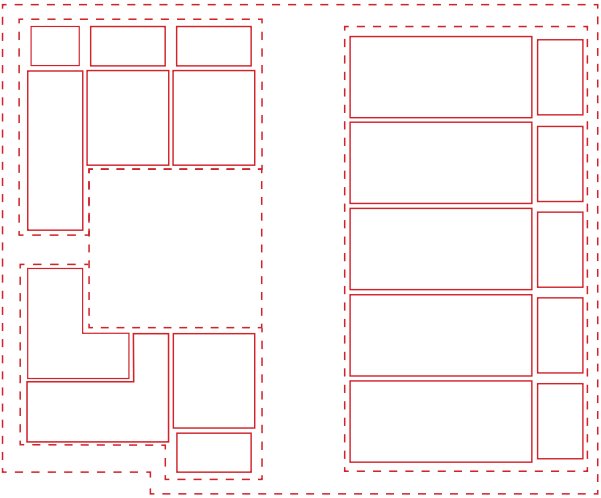
Source: van Bergen Kolpa

Public - Private



Collective circulation is positioned in the middle and connects to the private units.

Level 04



The circulation core connects to the collective street to which the entrance ground-bound units are organized. The units also have a private outdoor space that is connected with other private outdoor spaces on that level through a path of 1.2 meters wide.

Level 05a

Private

Collective

Dwelling typologies

Unit 5a

The kitchen is organized central in the dwelling and is connected to the living area and the dining area. The living area is connected towards the private outdoor space, whereas the dining area is connected near the entrance and the collective street.

Unit 5b

On the second floor, the private spaces for the parents are organized towards the backside of the dwelling (related to the collective street).
A second lounge area is programmed on the more public side of the dwelling.

Unit 5c

The bedrooms are programed towards the private garden and a workplace oriented towards the collective street.

Work
Live
Circulation

Diversity and arrangement of play areas

Sequence of spaces for children to play

The ground-bound units have a private backyard that is connected to their neighbors through a circulation gallery that goes around it.

This allows children to play with their neighbors more easily through the connection and allows interaction between neighbors.

The other side of the dwelling has an indoor street on which children can play. It offers children more space to play.

Backyard

Backyard connected

Collective street/Courtyard

Renders

Child supervision

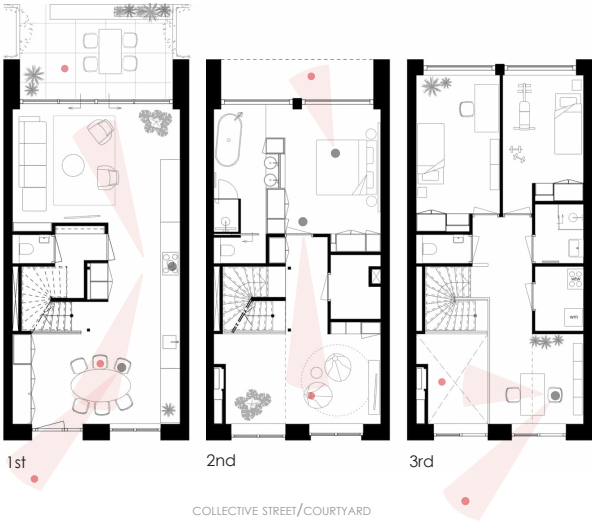
The kitchen is organized in the center of the dwelling and allows visual connection towards both the living room and dining room. The dwelling has an open plan, but there is a clear transition from living to dining.

From the living room and parental bedroom on the second floor, children can be supervised in the semi-private garden. Similarly, as in The Family, the door of the parental bedroom is aligned with the hallway and enables a visual connection with the second living room/play area on the second floor.

On the third floor, the workspace is programmed near the bedrooms of children. Depending on the age and character of children, noise can be a problem for waged work.

The workplace has a visuall connection towards the living room/play area on the second floor and collective street.

The duo-door and window (seat) enhance the relation to the collective street, it serves as a 'balustrade'.



Visual connection to child

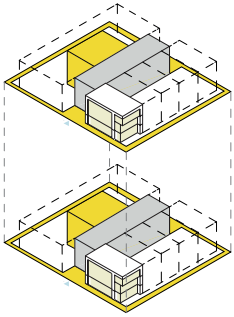
Child

Parent

Take-aways from typo morphological analysis

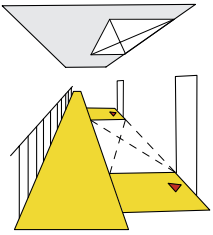
1. Stacking of ground bound units and court-yards/streets.

HIgh-rise buildings lack connection to the groundfloor, which is an important space for social interaction for both parents and childeren. By stacking ground bound units with a maximam of three levels of height, it allows parents to supervise childeren that are playing and interacting on the lower level.
A continous circulation connects the private gardens, and so increases social interaction between neighbors. Children often enjoy playing on a continuous gallery (ethnography heliport).



2. Wide galleries and openings in the gallery above for daylight

Wide galleries allow dual use as circulation space and interaction space for both childeren and parents. Designing a 'private' outdoor space in connection to the circulation space can increase social interaction.
Due to the with of the gallery, daylight can become a problem. An opening in de gallery above can solve this problem, which also gives some distance to the private space of the dwelling underneath.

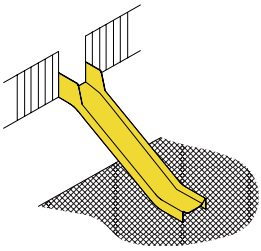


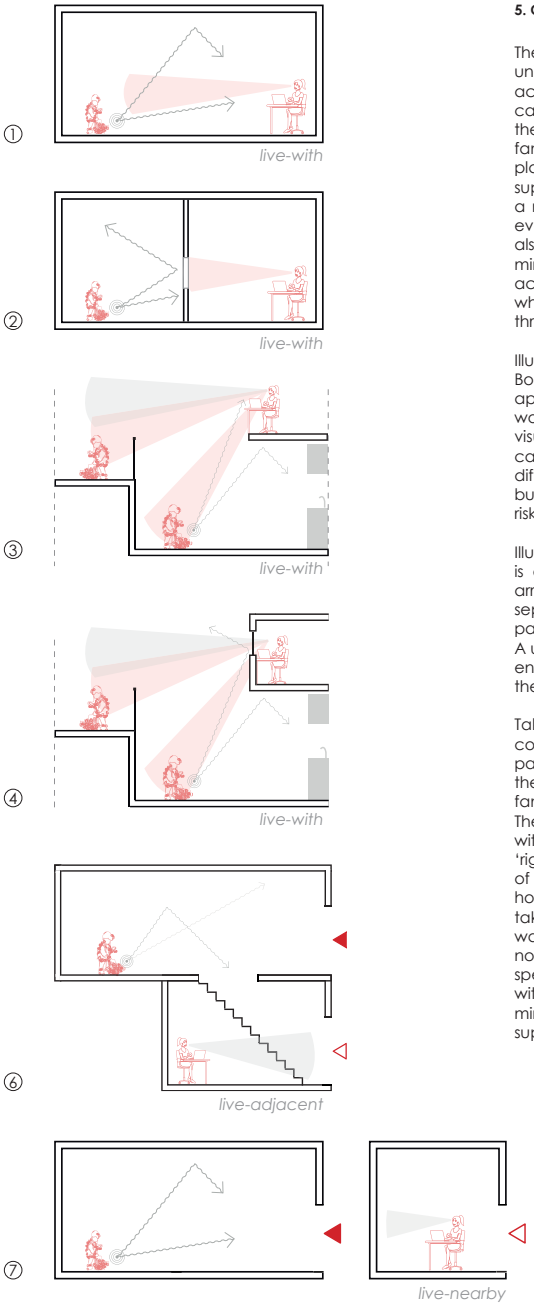
3. Sequence of play area for children: seize,privacy and indoor/outdoor.

In urban family projects, there is a sequence of play areas for childeren on various scales. Inside the dwelling, private outdoor space (balcony), the wide gallery, the courtyard, and the neighborhood.
Each is important as demands differ according to age, (in)dependence, and the character of the child. In apartment buildings, where there is often little space for play, the outdoor space should compensate for it.

4. Connect levels in a playful way for children.

The height difference is often a burden for children to play outside. Connecting levels in a playful way can solve this to increase activity and interaction on the level below and above.





5. Care and work - conflicting demands

The first two illustrations present an apparent unit. In the first one, there is no spatial and acoustic separation from family life. This can cause interruptions and dis-organization of the space similar to the ethnography case of family Omar. However, both activities taking place in the same space allow parents to supervise and take care of the children in a relatively easy way as there is no staircase evolved. This diminishes efforts for parents and also risks for children. The second arrangement minimizes interruption as there is a spatial and acoustic separation between live and work, whilst maintaining the ability to supervise through and opening in the wall.

Illustrations 3 and 4 represent split-level units. Both arrangements are very similar to the apartments (1) and (2), but allow parents to work without children to be continuously within visual sight to minimize distractions. Parents can surveil on a when need basis. The height difference is a natural boundary for children but also increased care efforts for parents and risks for children.

Illustrations 6 and 7 are both units in which there is a separation between live and work. The arrangement is based on spatial and acoustic separation. However, it does but does provide parental supervision.
A unique quality of both units is that clients can enter the workspace without walking through the private domain of the dwelling.

Taking all arrangements into account concerning care aspects of home-working parents, a tentative conclusion can be made: the live-with units are most compatible with families with young and dependent children. The live-adjacent and live-nearby match with families with independent children. The 'right' arrangement depends on the lifestyle of the family and what works for them. Some home-working parents enjoy both activities taking place in the same space, and others want to be secluded. Finally, there are also non-architectural solutions that can make a specific arrangement such as (1) work. Working with a headset with noise cancellation already minimizes acoustic distractions and allows to supervise children without barriers.

Conclusion

Designing a home where live and work take place in the same realm is a complex task, as it depends on various factors, such as; personalities, occupation, the amount of space available, nature of the household. and the age of the children. These factors impact work-life balance. The overarching challenge of living and working at home is related to not being in control. This is related to the environment you work in; cold/hot, clean/dirty, but also care duties, waged work tasks, scheduling etcetera.

To design adequate dwellings for urban families with home-working parents, it is first important to understand the needs of the live-aspect and work-aspect of life. The needs of urban families, and especially the children. The primary reason for this group to leave the city is the lack of affordable housing, outdoor space, and safety. Therefore it is important to accommodate facilities, such as parks and playgrounds, where children can play with peers in a safe environment. Second, the needs of the home-working parents. In general, the most desired organization for home-based work is having a spatial and acoustic separation between family life and waged work (Hollis, on Air, 2020). This reduces distractions so work can be carried out productively.

The research consists of two target groups, based on the mentioned factors that impact live-work; the single-parent family with dependent children and a nuclear family with independent children. Families with independent children, starting from the age of four years old, do not constantly demand supervision and care. On the contrary, they take a greater distance from their parents as they grow their autonomy. Privacy becomes significantly more important as children want to retreat to their bedroom to hang out with their peers. In this case, both work and childcare demands align with spatial separation. The spatial separation is a solution: live-adjacent and live nearby. Alterations can be made, depending on the lifestyle of a specific family.

Families with young and dependent children demand constant care, which can cause work-life conflicts, as child care demands and interests interfere with the work role. Based on the ethnography analysis and research, one crucial aspect of childcare is surveillance. Parents must have a visual connection to the child to prevent dangerous situations to occur and make sure he or she is okay. In this case, total separation between live-work will not comply. The live-with typology is a workhome with no separation, where live and work are intertwined. To minimize work-life conflicts, it is important to provide a safe and sufficient play area inside the dwelling (range of action) to entertain the children. The 'play hall' by ANA or 'corridor free' principle by Alexander Klein, are spatial solutions for this. It allows the hallway to be used as a circulation space and play area. Furthermore, if the workspace is arranged centrally similarly to Myra Wahrhaftig her design, the open space plan allows surveillance towards the private spaces as well as living spaces.

Besides, the spatial organization on the dwelling scale, it is important to take into account the scale of the building block and neighborhood. Children grow older and their range of actions increases step by step. Therefore it is important to accommodate safe play opportunities, such as courtyards, play decks, parks, and schoolyards, to promote interaction with other children. These spaces are familiar for both parents and children, which allows them to play more often outside. This is 'good for their social development and explores the 'world'. Simultaneously, it will alleviate the stressful parental care duties as children are playing outside and waged work can be performed without interruptions. Also clustering multiple families can help by sharing care tasks with other parents. This will increase social interactions in the building and neighborhood and so counter social isolation.

As a final note, it is important to state that living and working from home is not suitable for everyone. It is an emerging lifestyle that should be responded to through design.

Disbalance between the family and work aspect of life can occur if interests interfere. The main cause for home-working parents is childcare. The consequences can affect mental health and family dynamics negatively. Constantly being at home and not interacting with friends or colleagues can lead to social isolation. Therefore it is important to promote interaction.

Conclusion scheme

Range of action

Dependent chidlren

0 - 4 years
30 meters

4 - 8 years
150 meters

Independent children

8 - 12 years
500 meters

12+ years
'X' meters

Work demands

Work

The most desired organization for home-based work is having a spatial and acoustic separation between family life and waged work (Hollis, on Air, 2020). This reduces distractions so work can be carried out productively.

Childcare demands

Baby - toddler

Need:
Constant attention and parental supervision (within visual sight).

School aged - Adolecence

Needs:
As children grow older they become more independent and detach from their parents. The private space becomes more important in the dwelling.

Work-life	Workhome arrangements	
Conflicting demands		No spatial separation
Overlapping demands		Some spatial separation
Overlapping demands		Total spatial separation

Design assignment

Dwelling (dependent children)

Spatial arrangement that allows supervision and acoustic speration. Another option is an open space plan with boundaries for childeren to play in a safe environment. This minimizes distractions and care duties

Dwelling (Independent childeren)

Spatial and acoustic separation of workspace and domestic spaces. Depending on the household composition, a workspace for (both) parents and private spaces for children to retreat. This is often their individual bedroom and if possible a 'chill space with friends' / second living room out of parental sight.

Neighborhood & building

Accommodate safe play opportunities, such as courtyards, play decks, parks, and schoolyards, to promote interaction with other children. This will also mitigate stressful situations for home-working parents, increase social interaction, and so counter social isolation.

Architectural principles

FOR HOME WORKING PARENTS WITH CHILDREN IN THE CITY

THE NEIGHBORHOOD

The range of action: is related to the age of children. It describes the maximum distance a child in this age category can cover. There are three separate phases:

0-3 YEARS: 30M RADIUS
4-8 YEARS: 150M RADIUS
9-12 YEARS: 500M RADIUS

Range of action

Safety:
A safe environment where children can play with limited supervision. This relieves care tasks and allows parents to work from home productively.

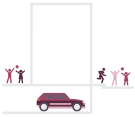
Safety

Outdoor space, play and amenities: in order for children to develop themselves, it is important to provide amenities in proximity to the dwelling, such as schools and grocery shops. Having this within walking distance eases the tasks of grocery shopping and encourages children to play outside and interact with each other.

Outdoor space & play

No/Low traffic

Traffic: is a source of safety concerns for parents and can be a reason why children are not allowed to play outside. Therefore it is important to minimize cars in the street and prioritize walk or cycle routes.



Space for play instead of parking

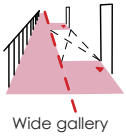
PLAY in relation to WORK
Providing safe outdoor spaces and play opportunities helps to mitigate work-life conflicts in the dwelling.

BUILDING BLOCK

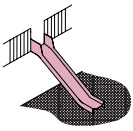
Clustering families:
Living with other families is important for both parents and childeren because these interactions create closer social networks. It can also help home-working parents to share care tasks and so work more productively.

Clustering families

Play:
The exterior space should compensate for the reduced external space for children to play. This can be organized in gardens and balconies, generally a private space, that does not promote interaction. Collective spaces, such as a gallery / 'elevated street', courtyards and sidewalks are more successful for play and interactions. The wide gallery or circulation spaces are important for social contact, which counters social isolation. To encourage interaction, and make height differences less of a burden, levels can be connected playfully.

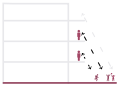


Wide gallery 'elevated street'



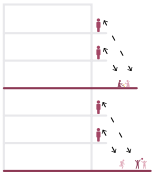
Connect levels playfully

Supervision:
Children from six years and older are allowed to play outside by themselves if supervision from within the apartment is possible. However, above the third floor this becomes problematic, because contact with the ground floor decreases.



Decrease of supervison due to height

A concept from the typo morphological analysis is stacking groundbound units (max three floors). This still allows supervision from the height level.



Stacking of ground bound units (family scraper)

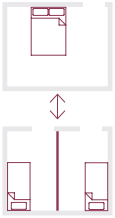
THE DWELLING

Flexibility
Families can grow in the dwelling and make adjustments that suit their way of living best, therefore flexible spaces are important. To enable spaces to be adapted to different uses, they should be designed based on the activities that could take place and their spatial requirements (dimensions). This allows one space to be turned into two separate (private) bedrooms, which is especially important in their teens.

Separate kitchen and living room
The kitchen table is often used for home-based work. Separation allows multiple activities to occur simultaneously; parents working and family activities in the living room. The space is used efficiently as it functions for two purposes.

Oversized hallway (corridor-free / play hall)
Designing an oversized hallway can be beneficial for multiple reasons: space to play, extra storage space or a place to work or study.

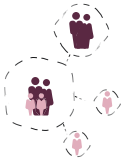
Privacy
Open plan living only works for families with small children who have to be under supervision. As they grow older the need for a clear separation within the home becomes important, providing each member of the family with a private room to retreat.



Adaptability

Dual-use

Oversized hallway



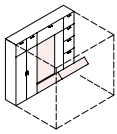
Individual spaces

Transformable furniture
Transformable furniture, such as a Murphey bed, allows a space to function for dual activities. The same space can be used as a bedroom, office space, or both.

Visibility of private life
Private aspects of life are not visible during live-streaming. zoom calls or a family member that walks by in the background. The orientation of the workspace is important.

Surveillance from the workspace:
Home-working parents must have the ability to supervise their children constantly (depending on the age of children). Preferably with some spatial separation or clear boundaries.

' Z-wall' :
The shifted wall allows one space to have a two-purpose function as a workspace or bedroom, with a minimum amount of space. The space next to it has elevated a bed and a tiny play space.



Transformable furniture

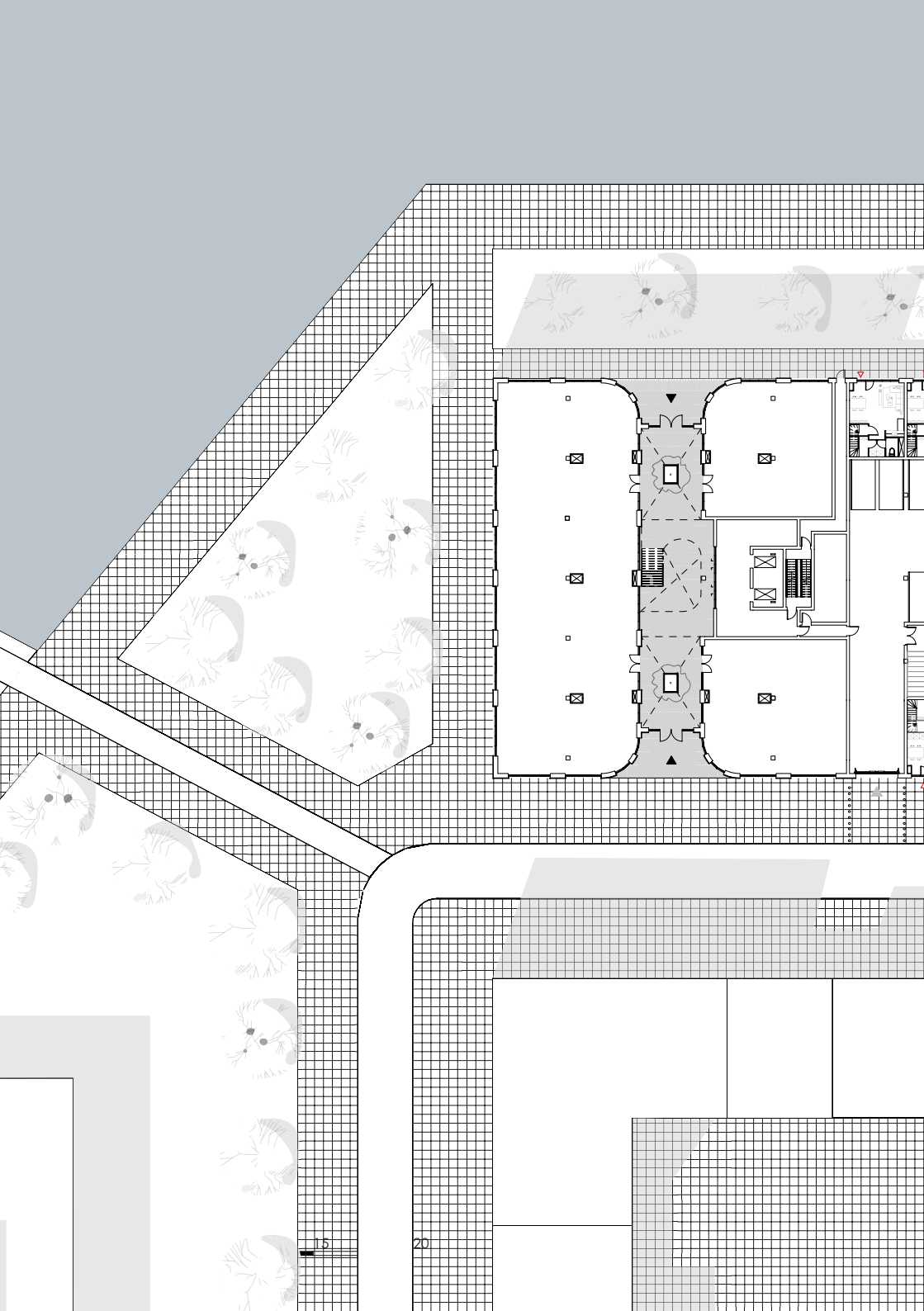
'Professional' background

Supervison & boundaries

Z-wall

BUILDING DESIGN

3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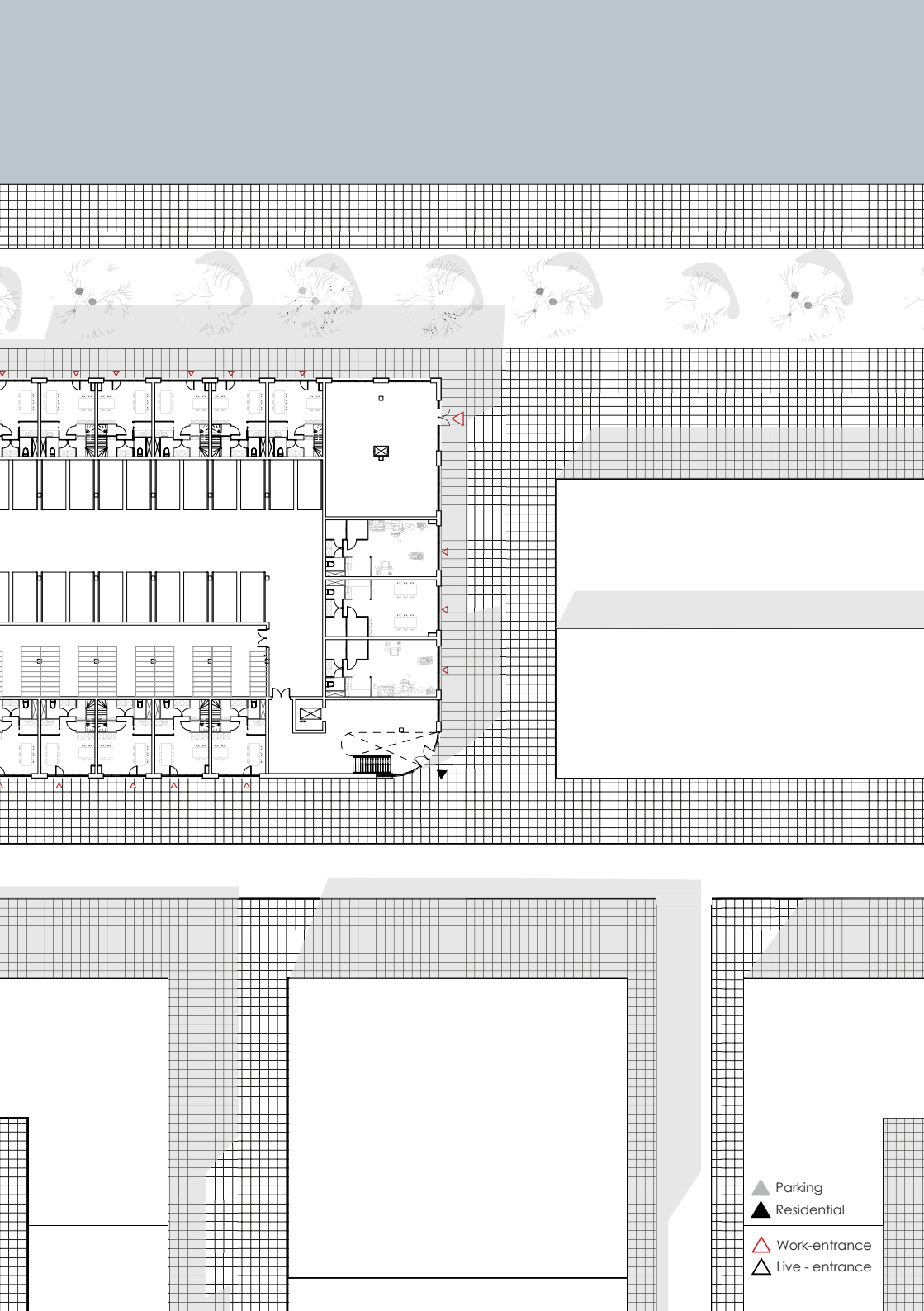
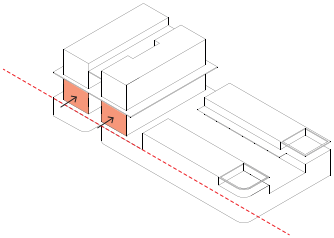
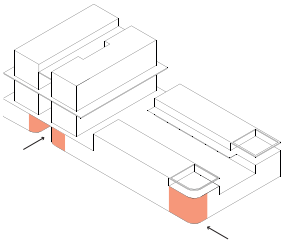

Parking
Residential
Work-entrance
Live - entrance

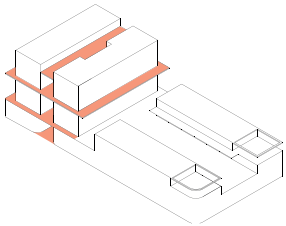
Building concept based on the context



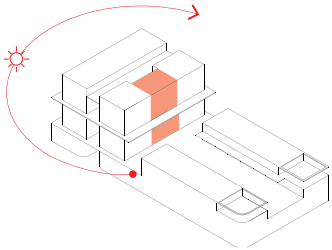
Height of ware houses and setback
'Rotterdamse Laag'



Curving the mass to highlight the
entrances



Stacking streets



Curving the mass to highlight the
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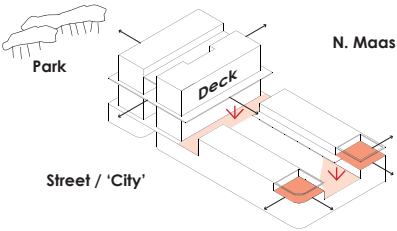
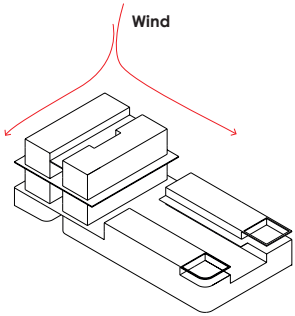
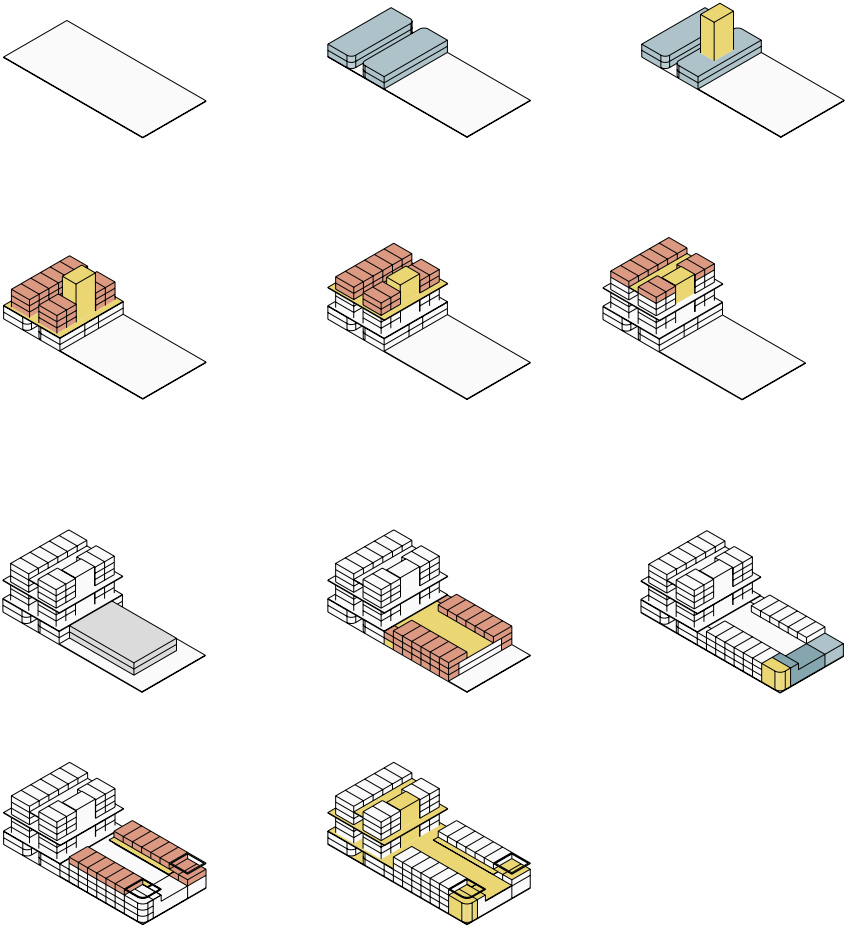


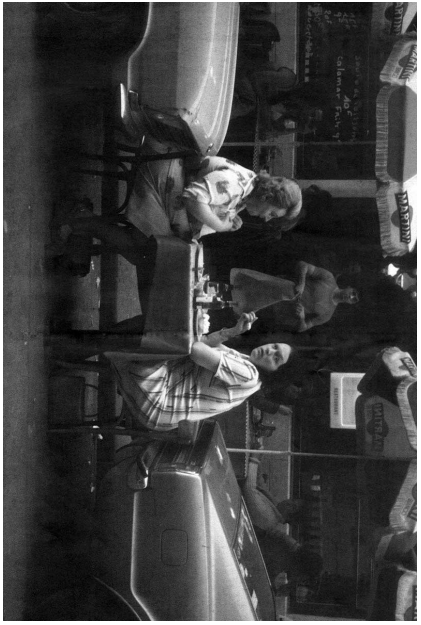
- Vlew and connections
- Lower volume to give deck 'air'



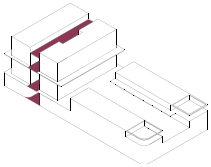
Circulation oriented toward the north for
sun path and visibility of play deck

Building programme

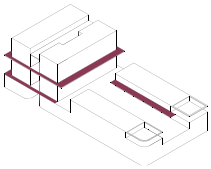




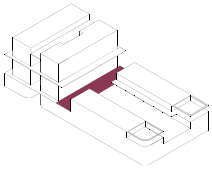
Streets in the building



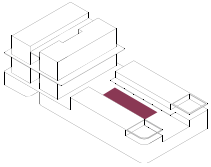
The street



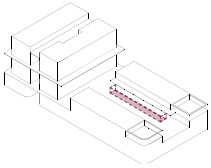
The sidewalk



The Square



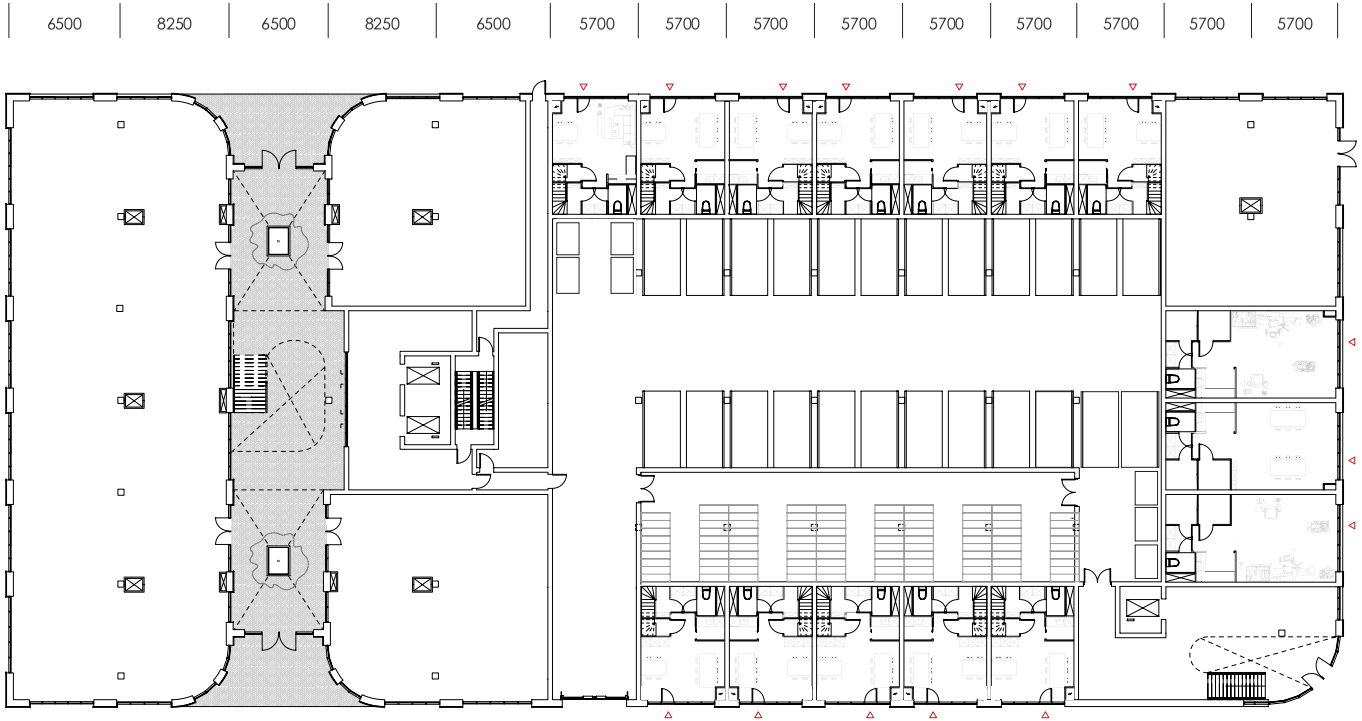
The field



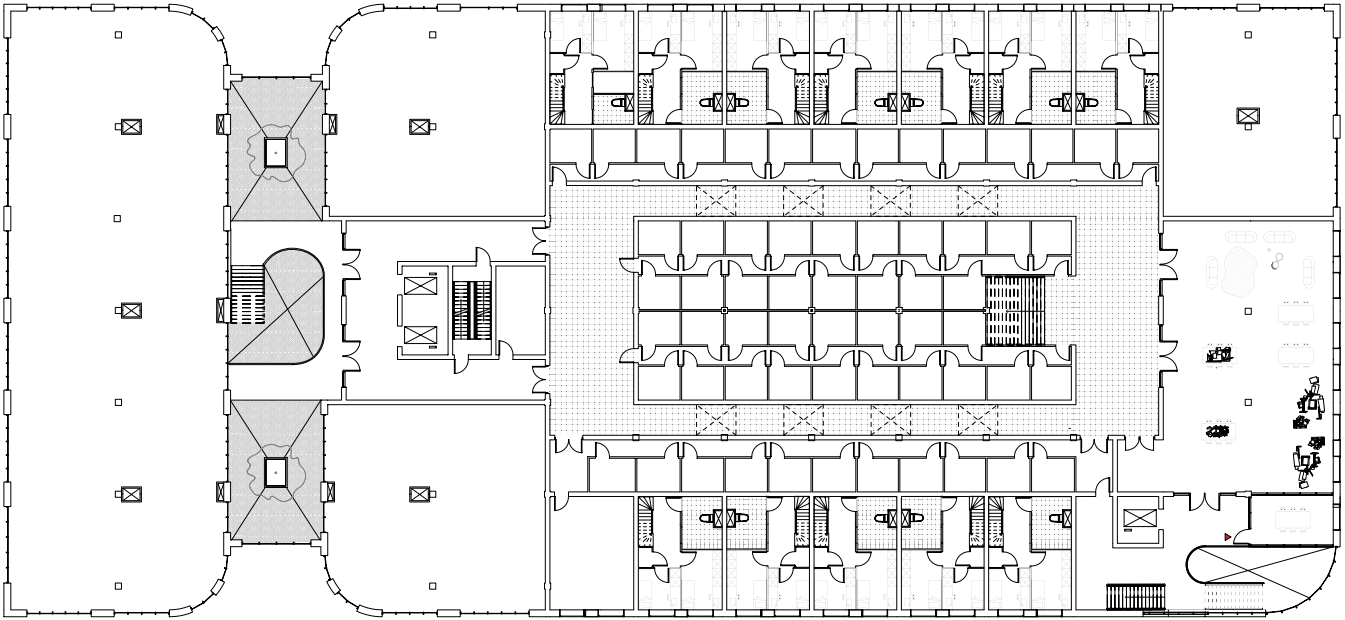
The alley

Floor Plans

Ground floor - Level 01



Level 02

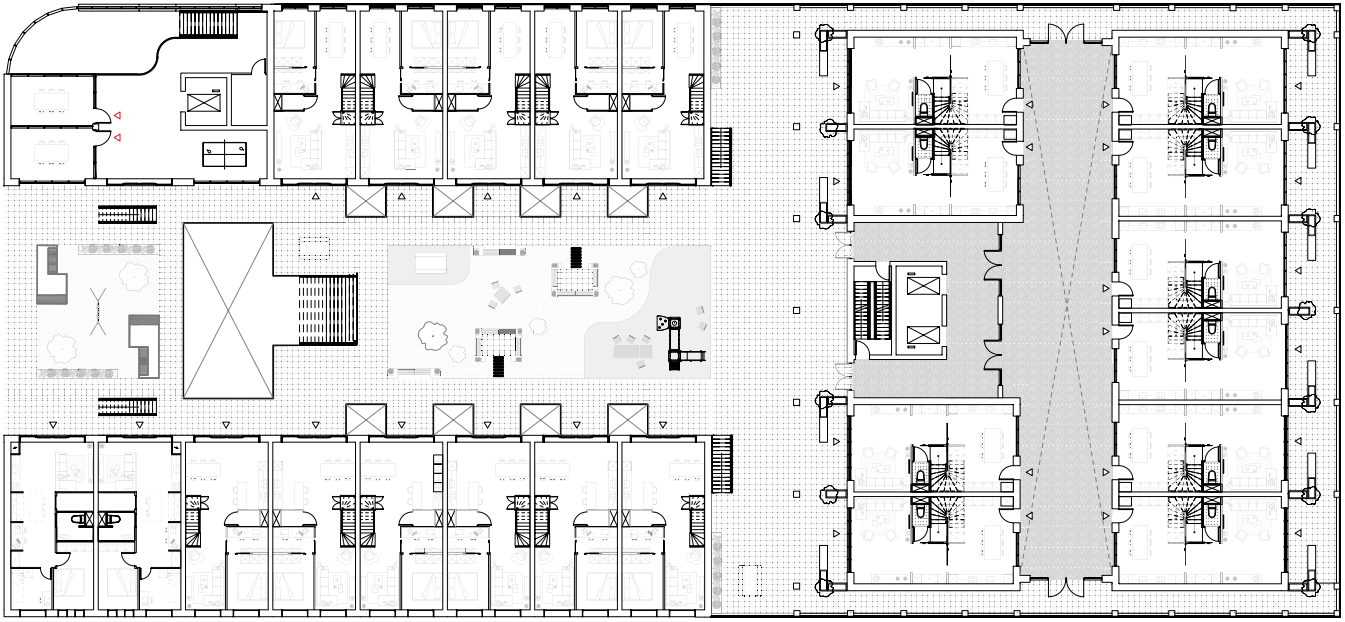


Work-entrance

Live - entrance


Riots

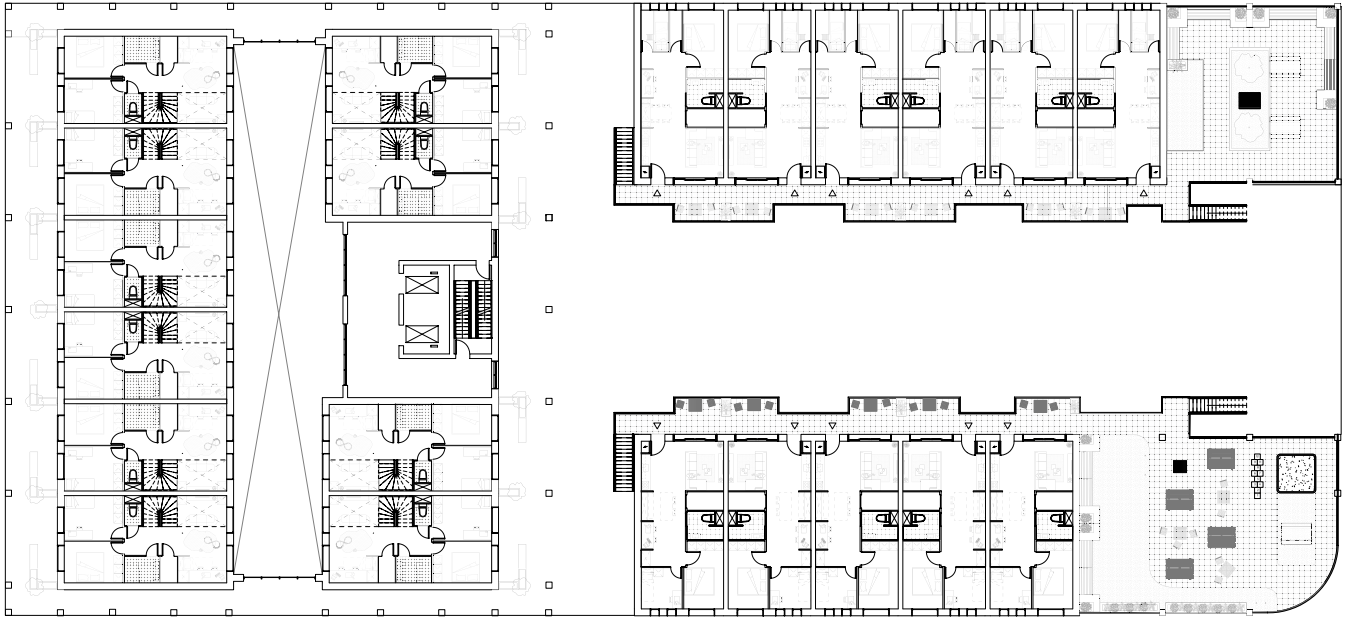

6a



Level 03


6a

Level 04



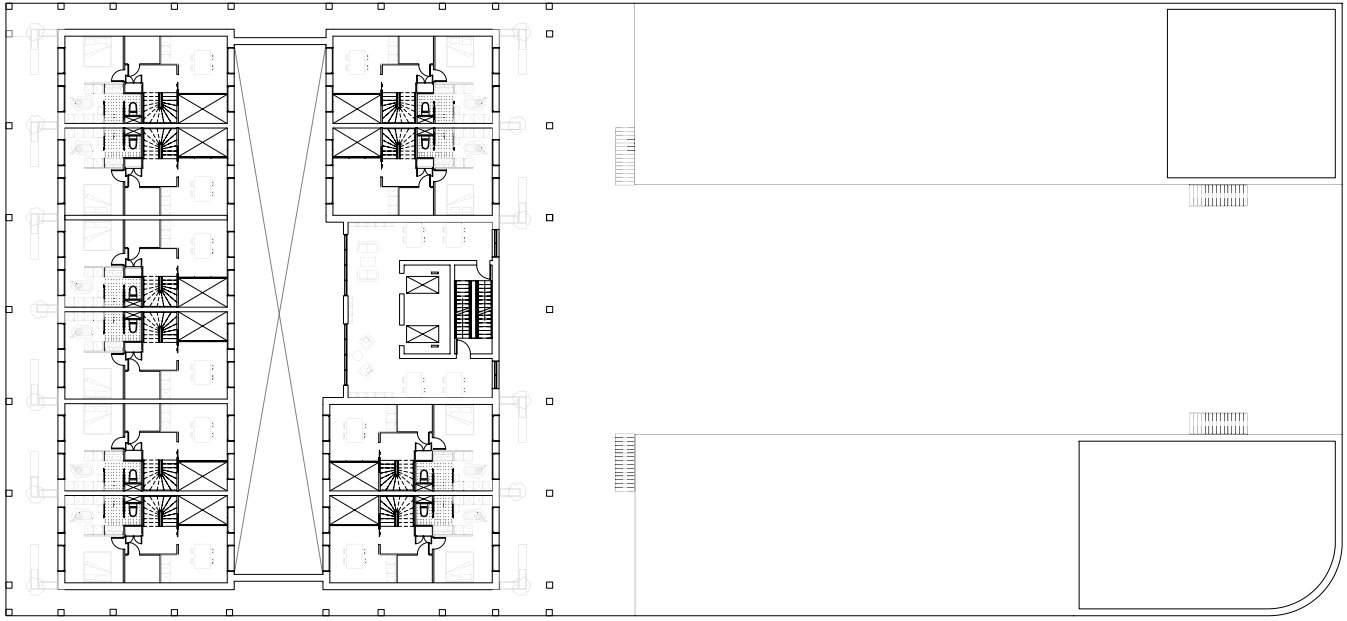
Work-entrance

Live - entrance

References Co-workspace around elevator

The central arrangement enables visual connection to the play deck and stacked street.

Level 05

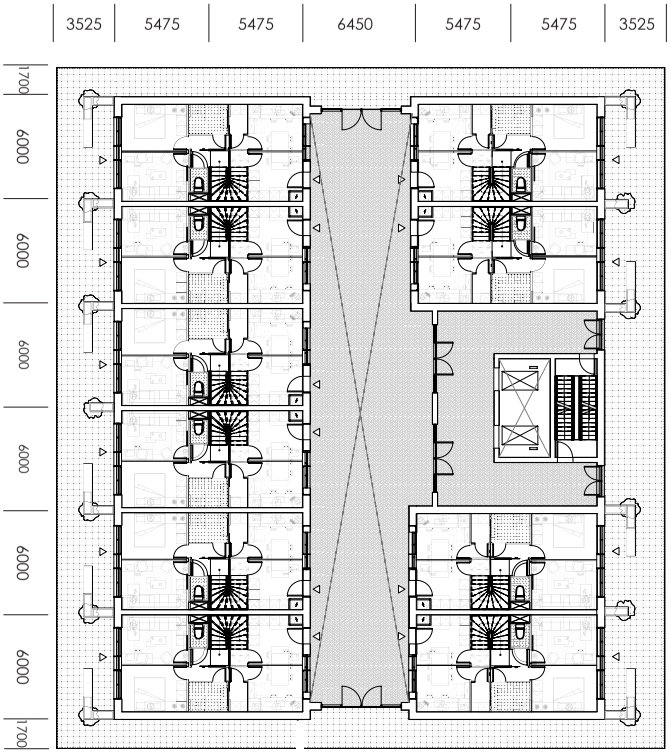


Work-entrance

Live - entrance


HAPPY BIRTHDAY
WELCOME

Level 06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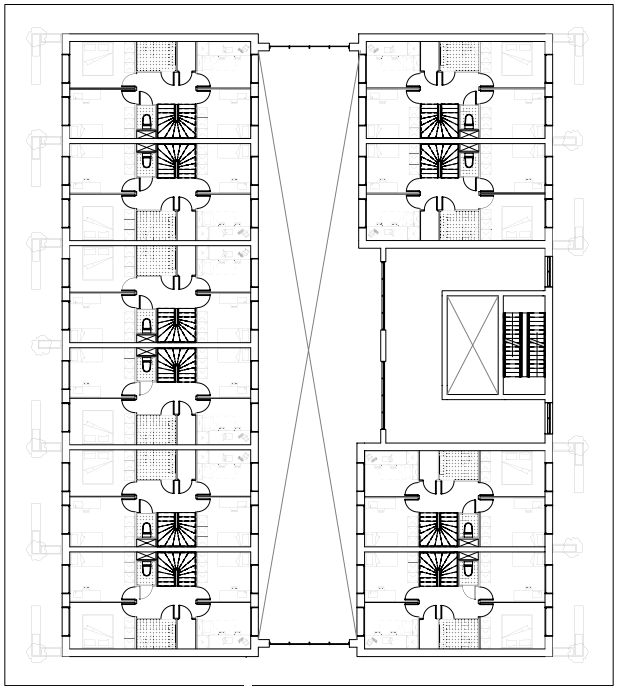
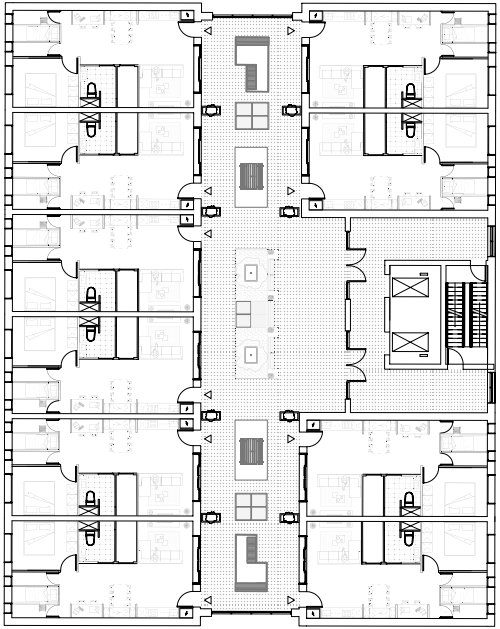
1700

Level 07



Level 08



Work-entrance

Live - entrance

Elevations & Sections

Materialisation / facade analysis context

Brick with vertical (**concrete**) column aligned with **wooden** window frame

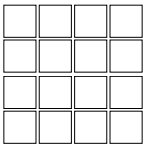
Two tone brick and sliding panel with lifting beam

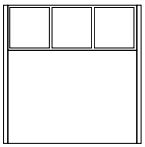
Brick with vertical (**concrete**) lines aligned with **wooden** window frame

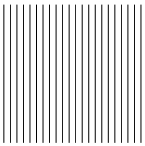
Metal container with vertical pattern. Corntenstaal: warm appearance

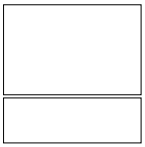
Square patterned brick and **aluminium** panels (vertical)

Two tone brick - dwelling behind the dike









PATTERNS

Facade references











South facade

North facade

East facade

Aluminium paneling and window

Aqua Grijs Zwart WF - Kameleon collectie

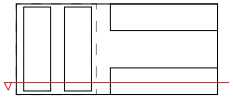
Aluminium rainwater pipe

Concrete penants

West facade

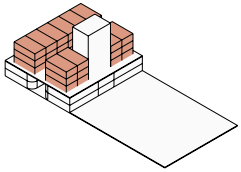
Section context

Building section

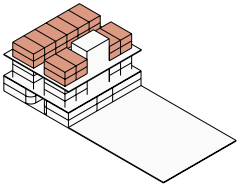


Dwelling plans

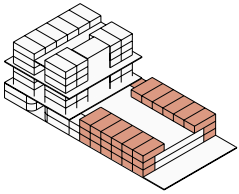
Dwelling (organization) & Targetgroups



Unit A1 (03 levels)
Amount: 10
Area: 179.5m2

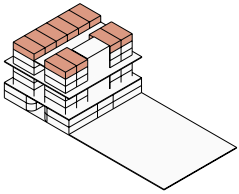


Unit A2 (02 levels)
Amount: 10
Area: 119.7m2

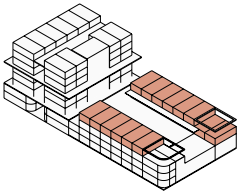


Unit B (03 levels)
Amount 12
Area: 120.5m2

Modern nuclear family



Unit C 10
Amount: 10
Area: 59.4m2

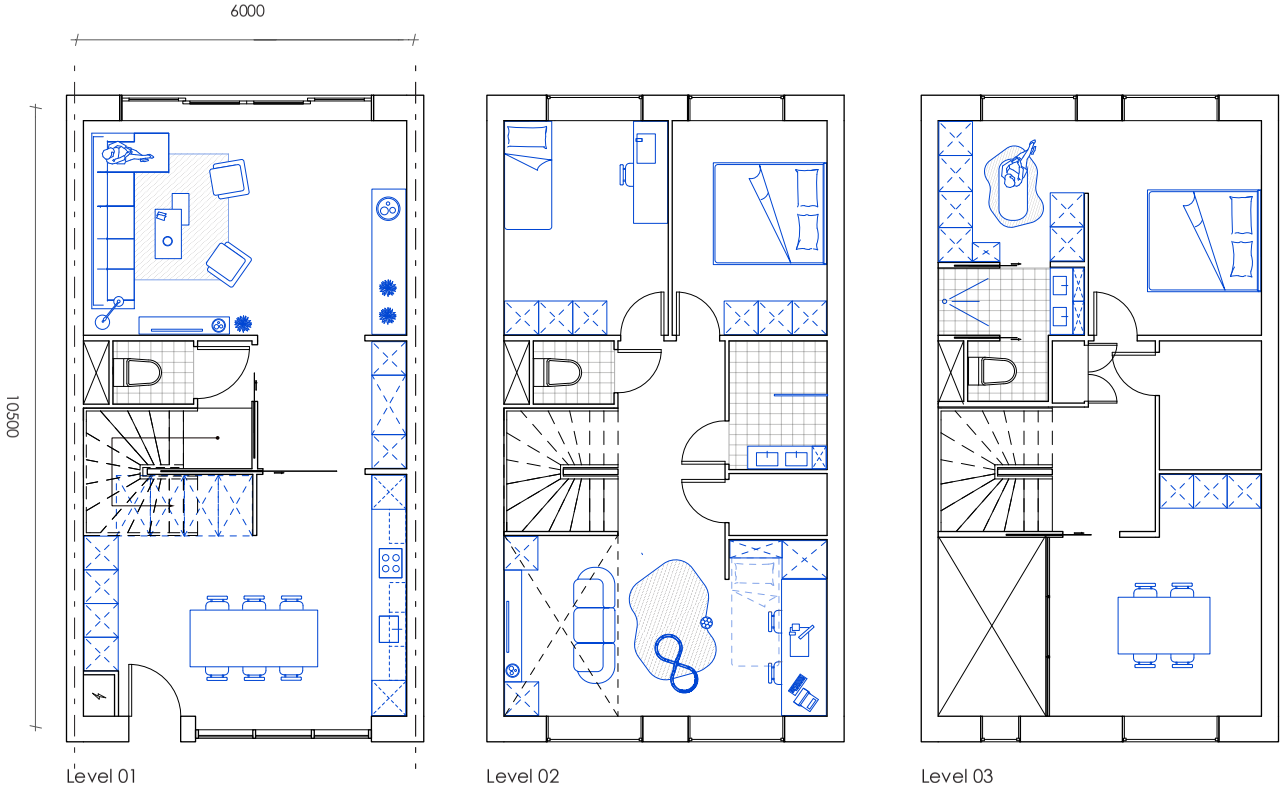


Unit C
Amount: 14
Area: 59.85

Single parent with toddlers


THE
JOB
HOERA 1 JAAR
TAKE IT
EASY
LIVE
YOUR
LIFE

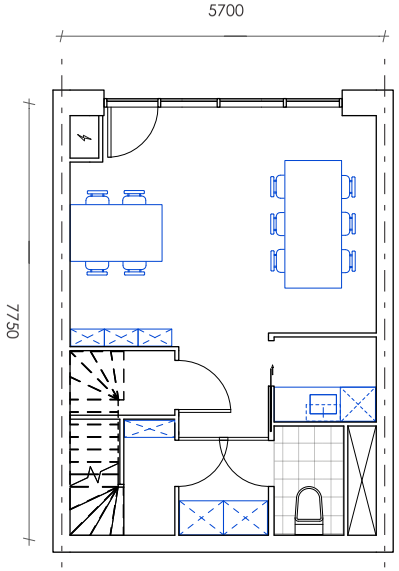
UNIT A1 (03 levels)



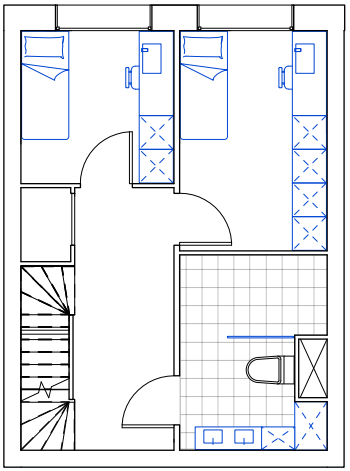

TI 196
klo 10.00
MA 25.6
klo 15.00
TI 8.9
klo 14.00
DO
THE

Ti 3.7
klo 14.00
DO
THE
JOB
LIVE
YOUR
LIFE

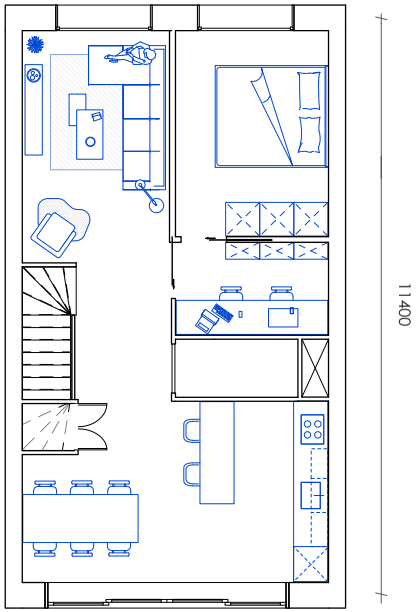
UNIT B



Level 01

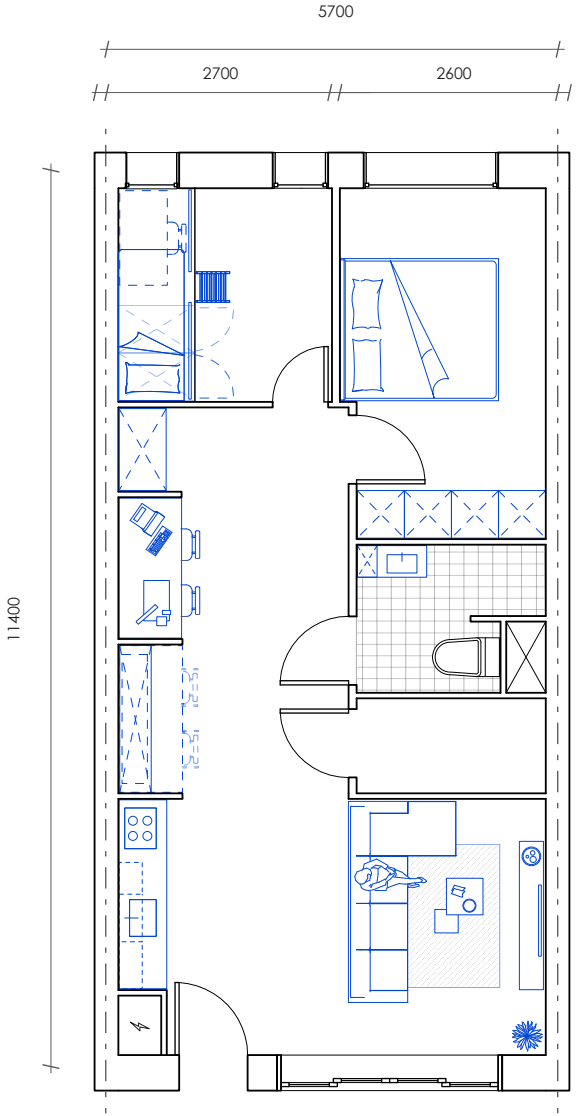


Level 02

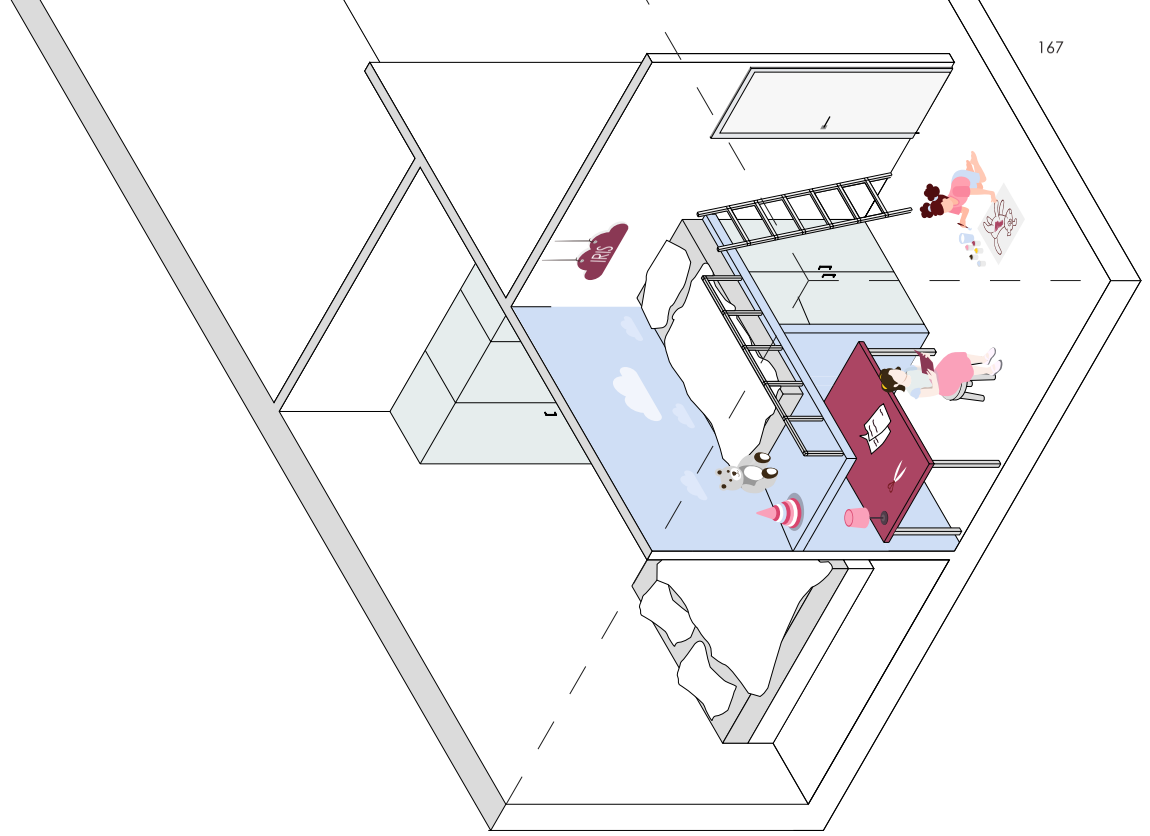


Level 03
(connects to play deck)

Unit C - variation 1

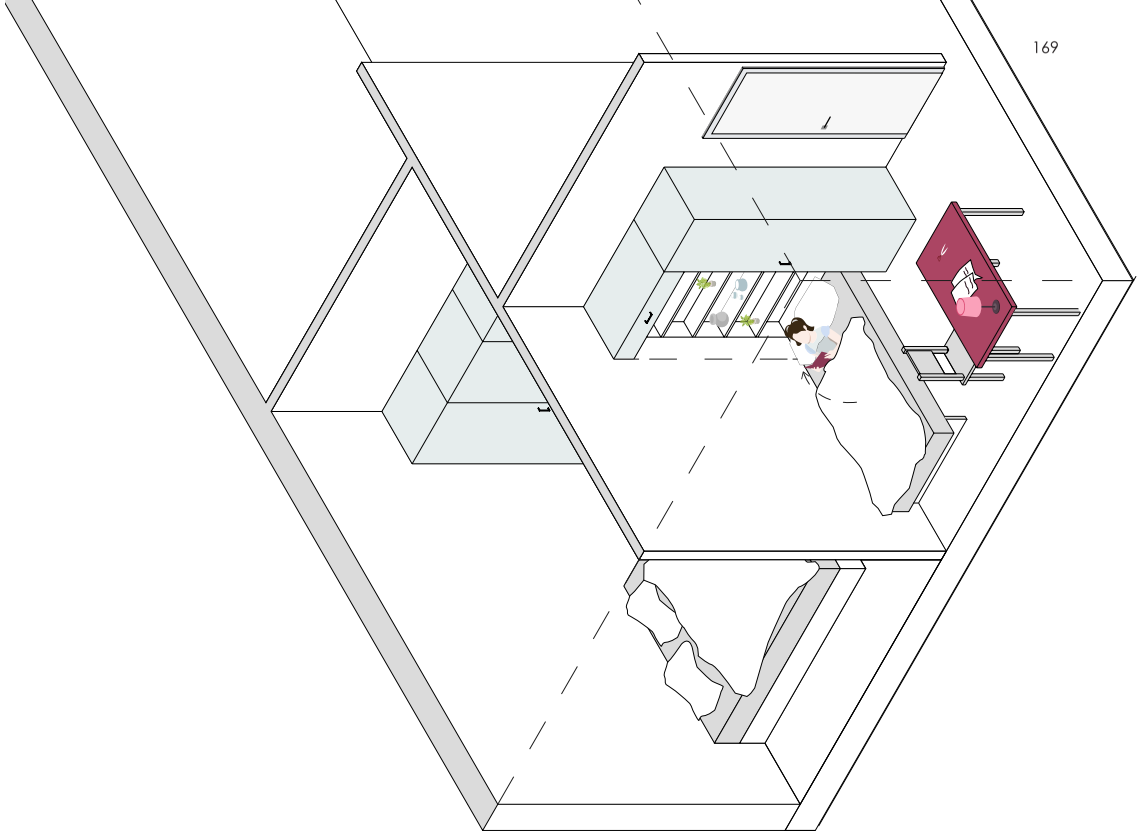


Stacking of bed and desk (Bunkbed)

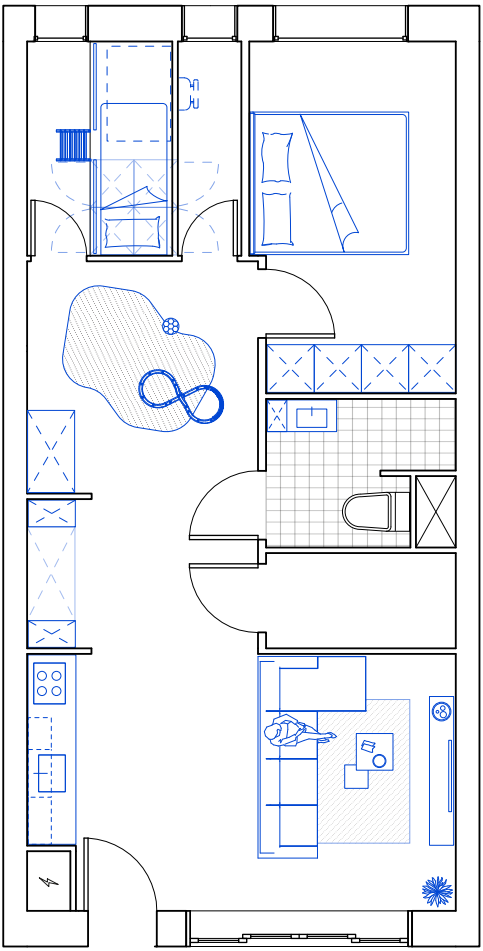


Unit C - variation 2

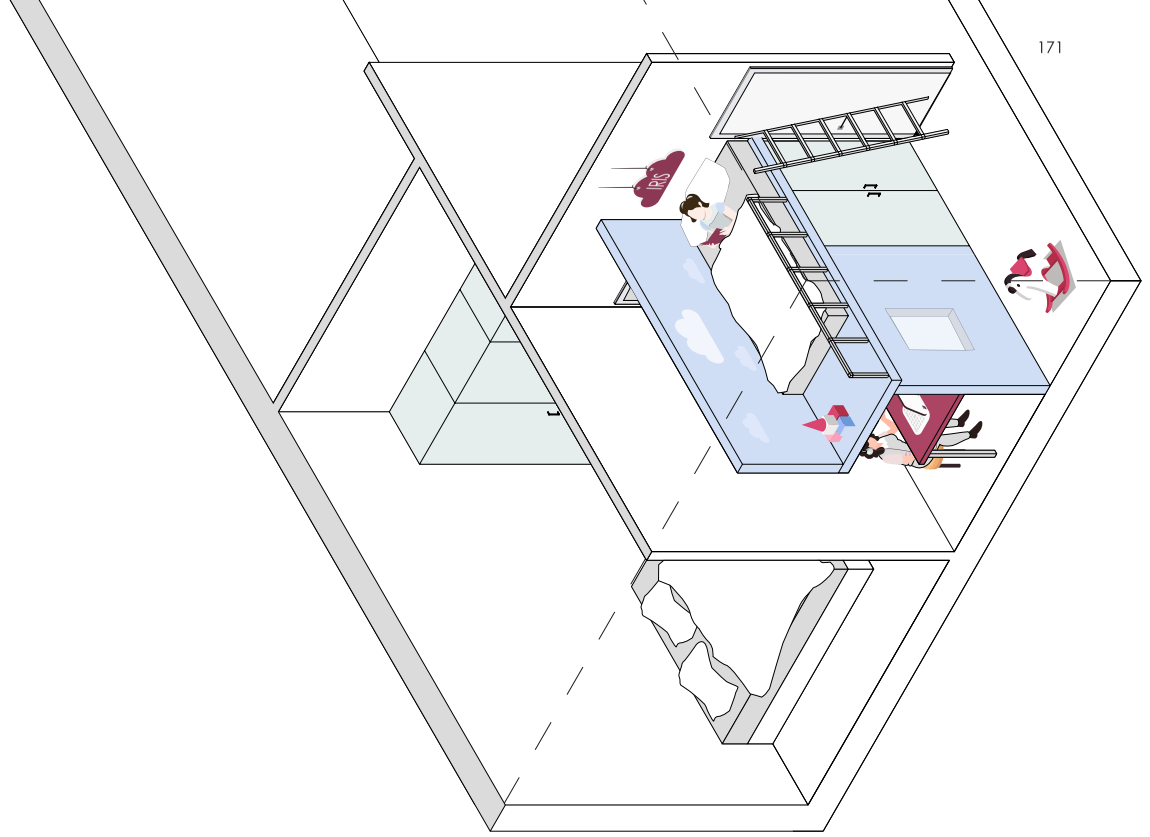
Murhpey bed and workspace



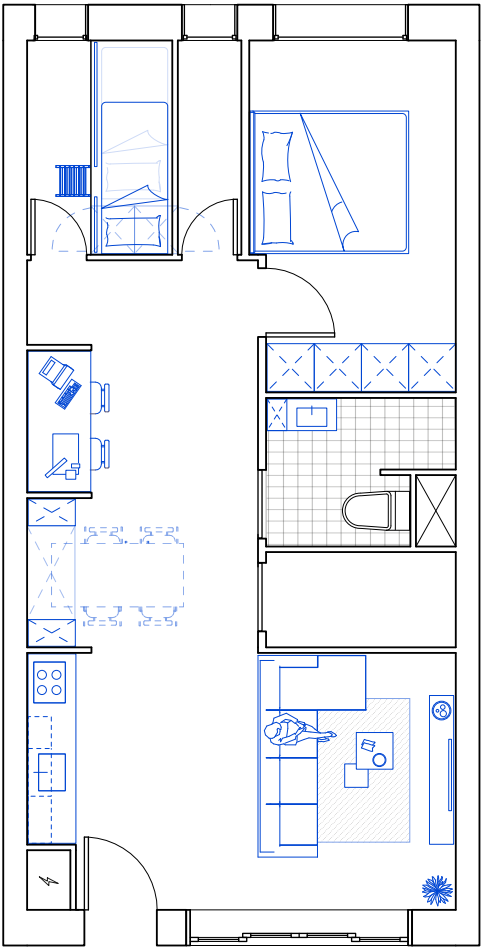
Unit C - variation 3



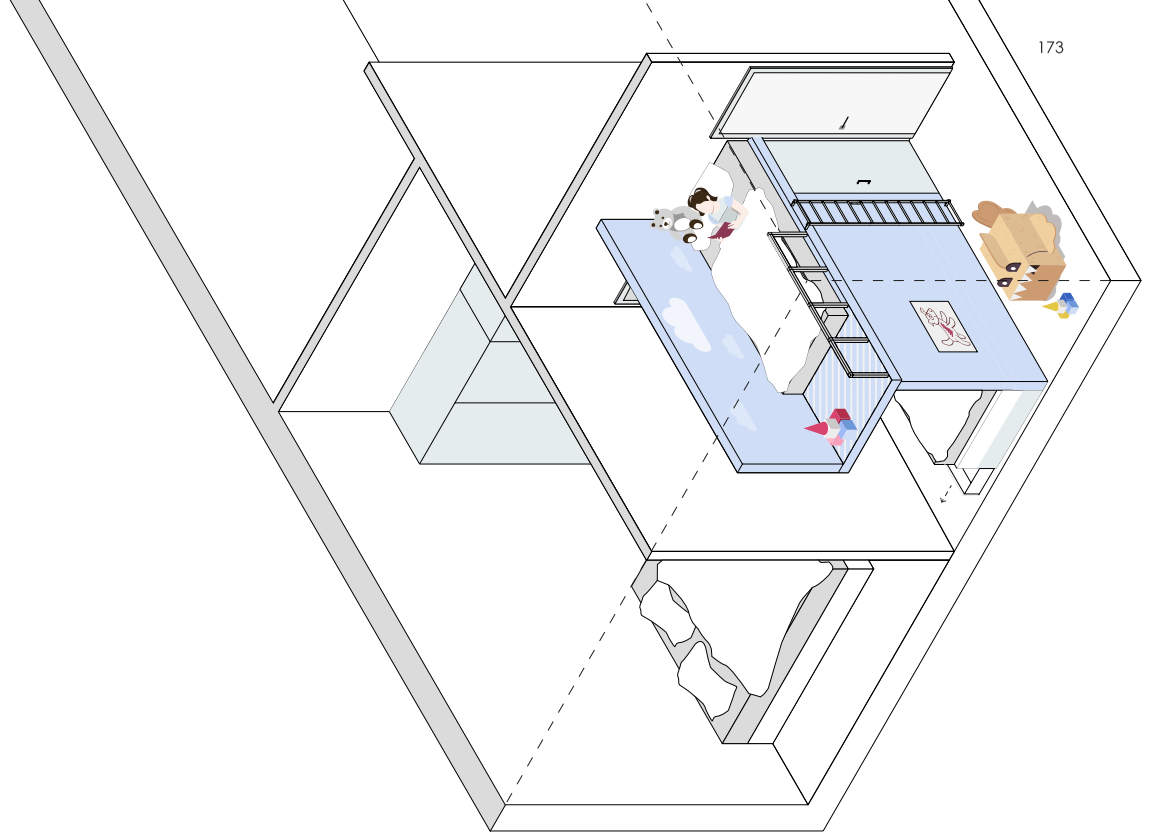
Stacking of bed and desk **in two separate spaces**


IPS

Unit C - variation 4

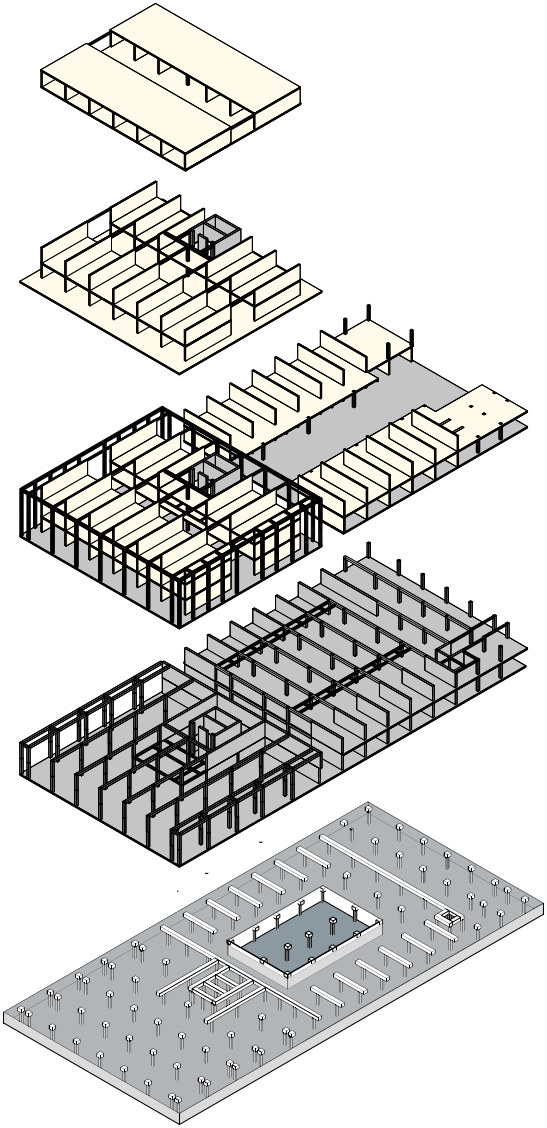


Stacking of bed and desk **in two separate spaces**



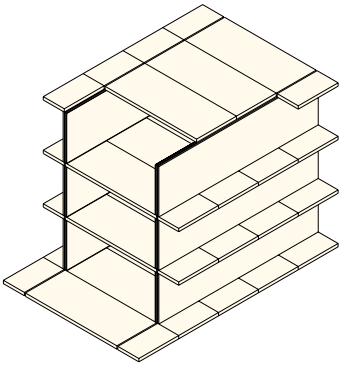
Building Technology

Building Construction

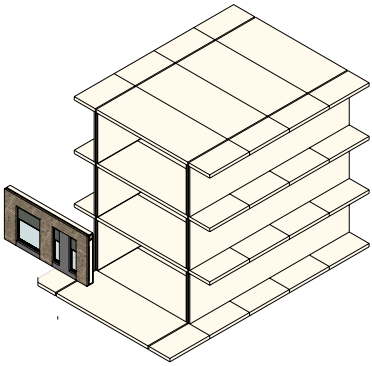


CLT
Concrete
Steel
Water basin

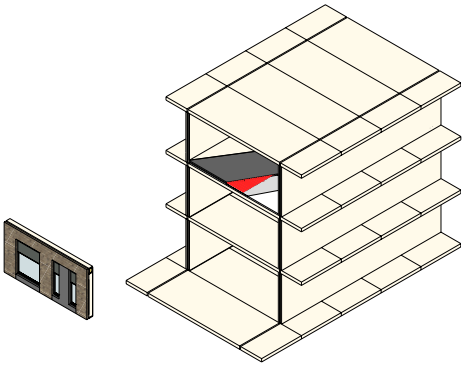
Assembly



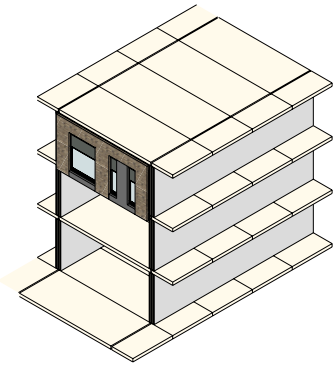
1 Build up CLT floor and wall construction.



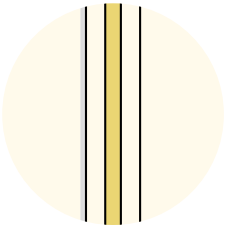
2 Placement of the facade and connection it to the floors.



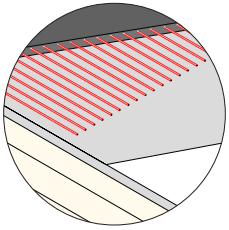
3 Building up the floor (choices made by designer)



4 Add additional isulation layer and plasterboard for acoustics and fire protection.

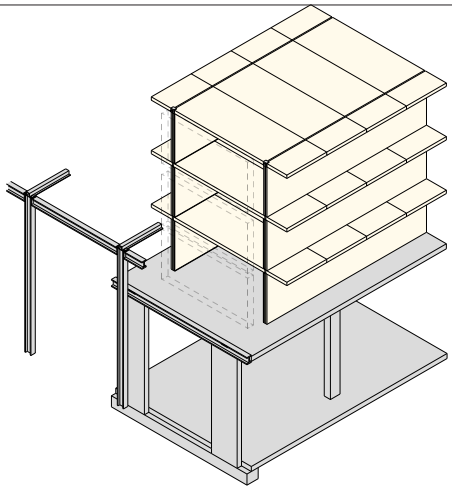


1. Layers prefab CLT
wall with insulation

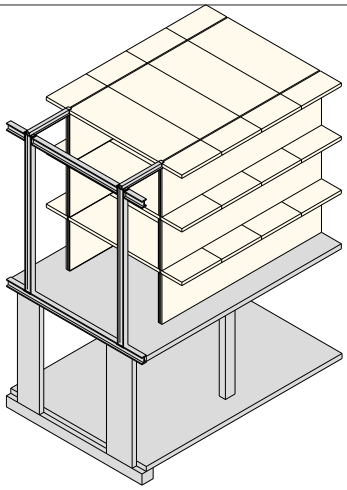


3. Floor assembly

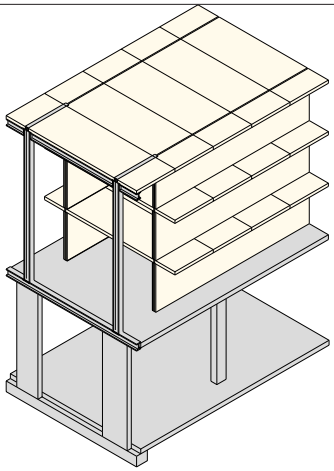
Assembly



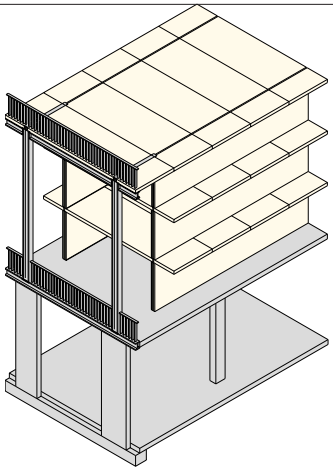
5 Connect facades to construction



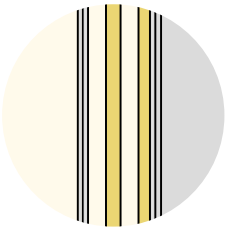
6 Build up the circulation construction after placing the facade.



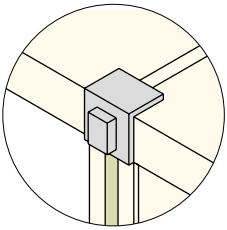
7 Place CLT floor between THQ beams (span direction).



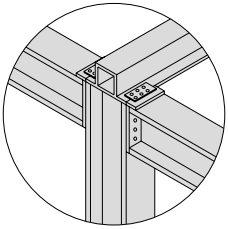
8 Placement of railing after all floor layers are stacked.



4. Additional layer of acoustic insulation and plasterboard

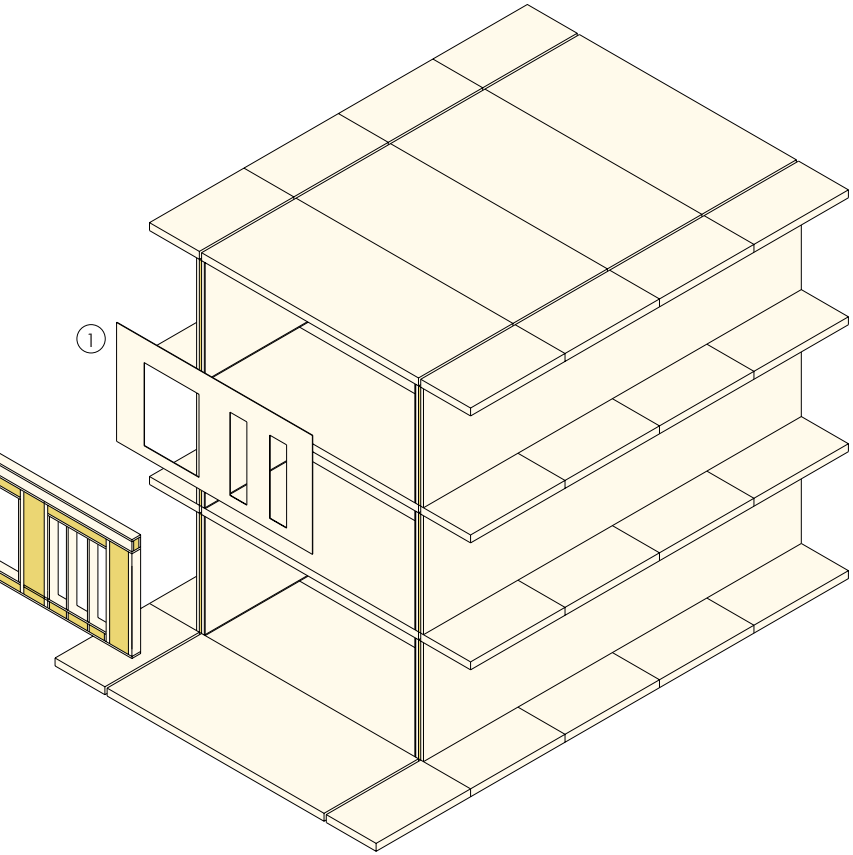


5. Connection to THQ with pin



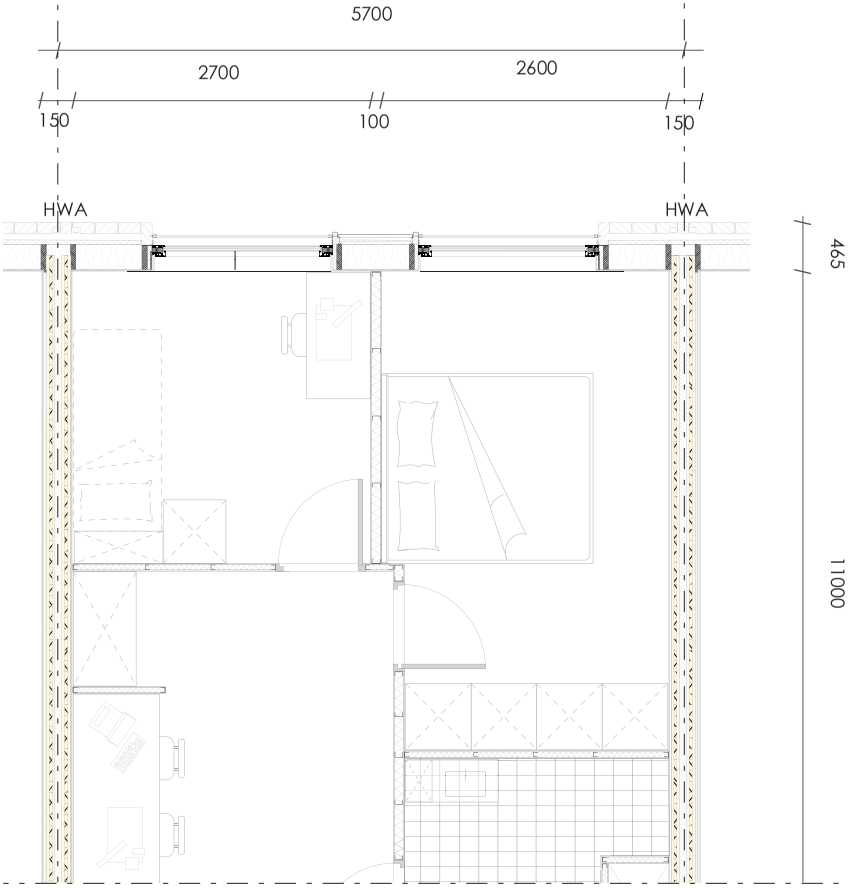
5. Connection beams and column

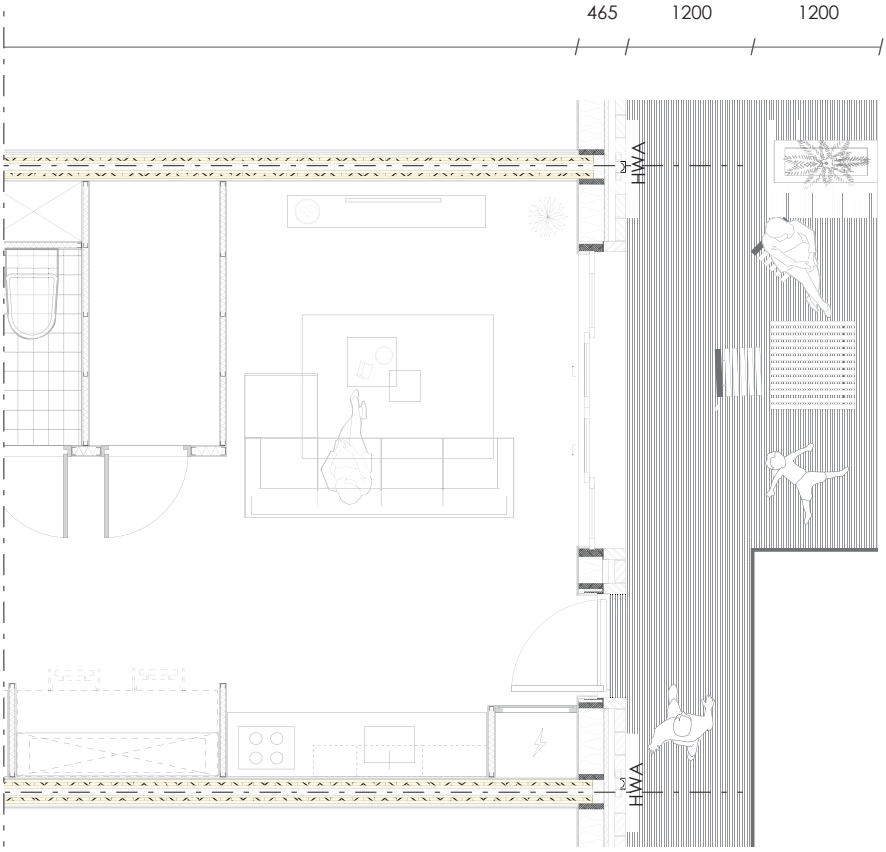
Assembly Facade



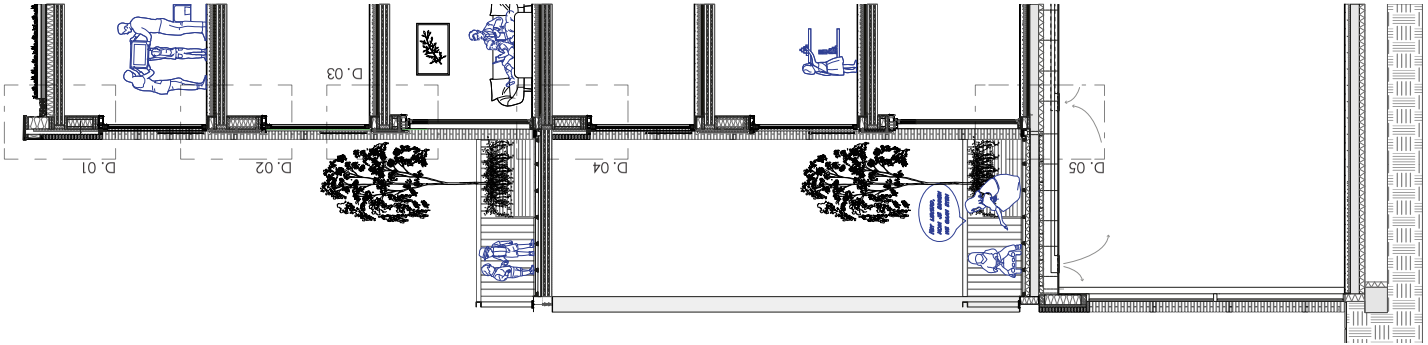
1. Pressed wood and plasterboard
2. Wood frame with insulation (lintel construction)
3. Waterproof membrane
4. WIndows and screen
5. Brick lintel
6. Aluminium cassette cladding
7. Brickwork
8. Window fall protection

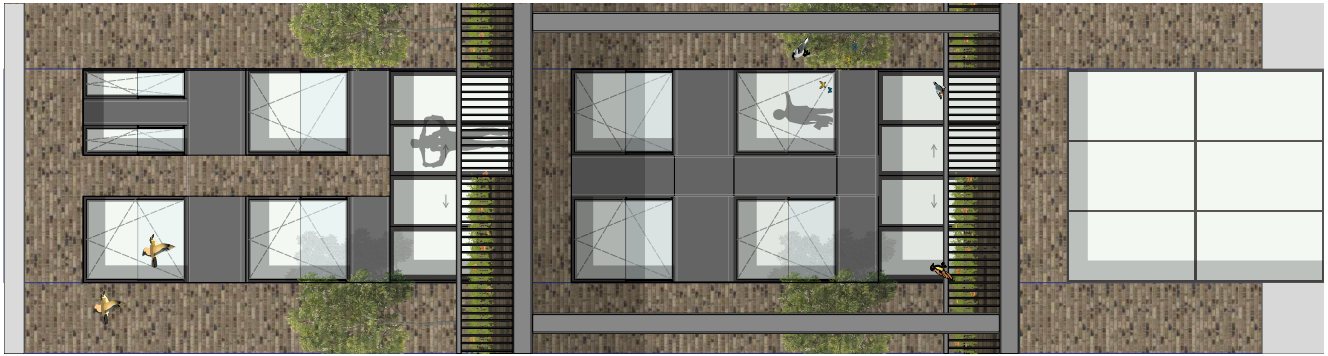
Detailed Plan Unit C



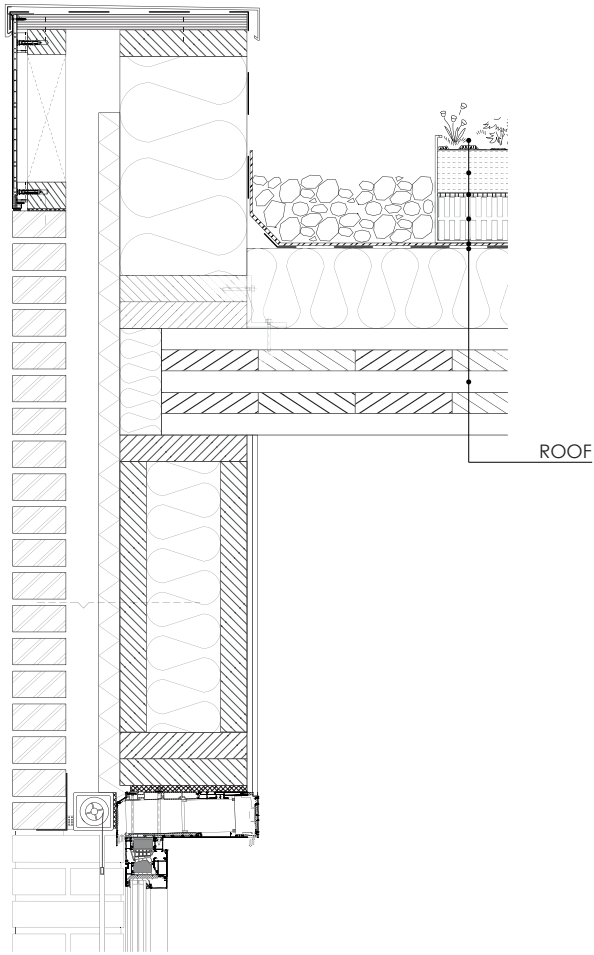

465
1200
1200
HWA
HWA

Facade fragment


D. 01
D. 02
D. 03
D. 04
D. 05

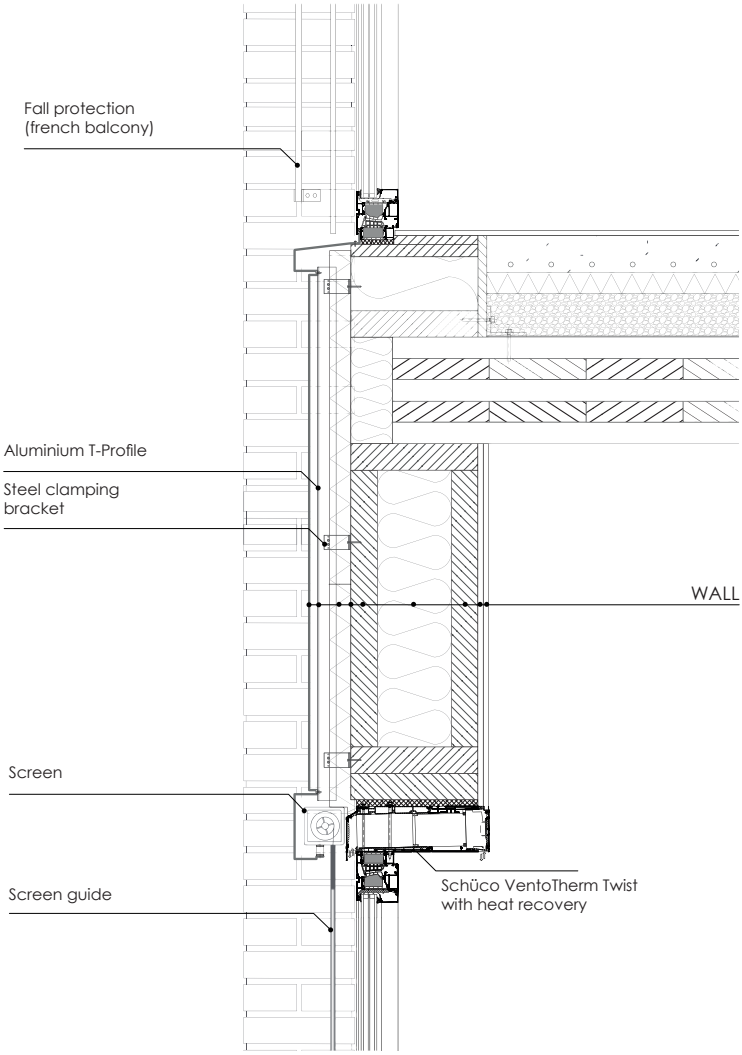


Detail 01



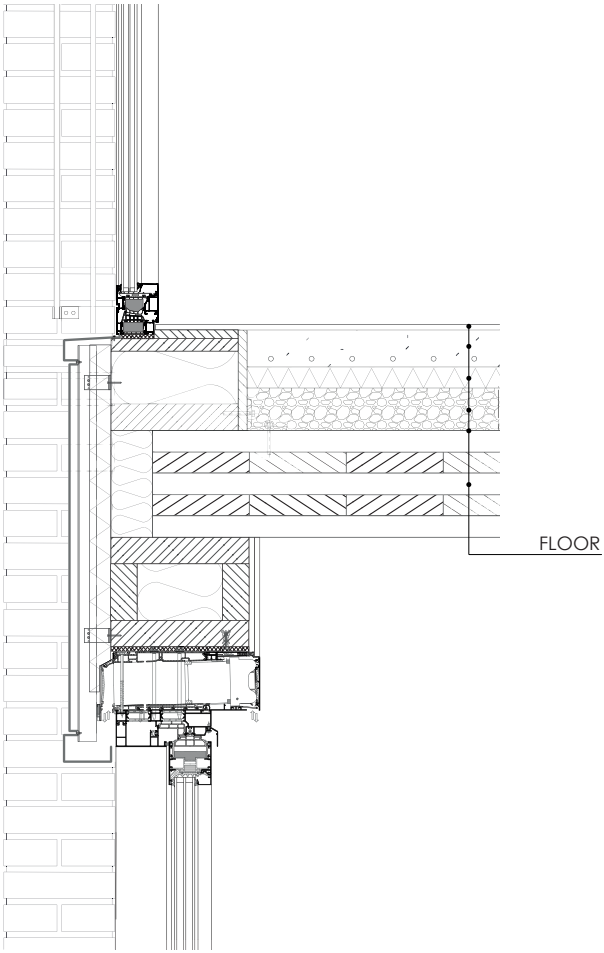
- Vegetation
- Substrate (80mm)
- Filtering Foil
- Drainage and buffer system (90mm)
- EPDM Roofing
- Root resistant sealing
- Rigid Thermal Insulation (150mm)
- CLT floor (200mm)
- Finish

Detail 02



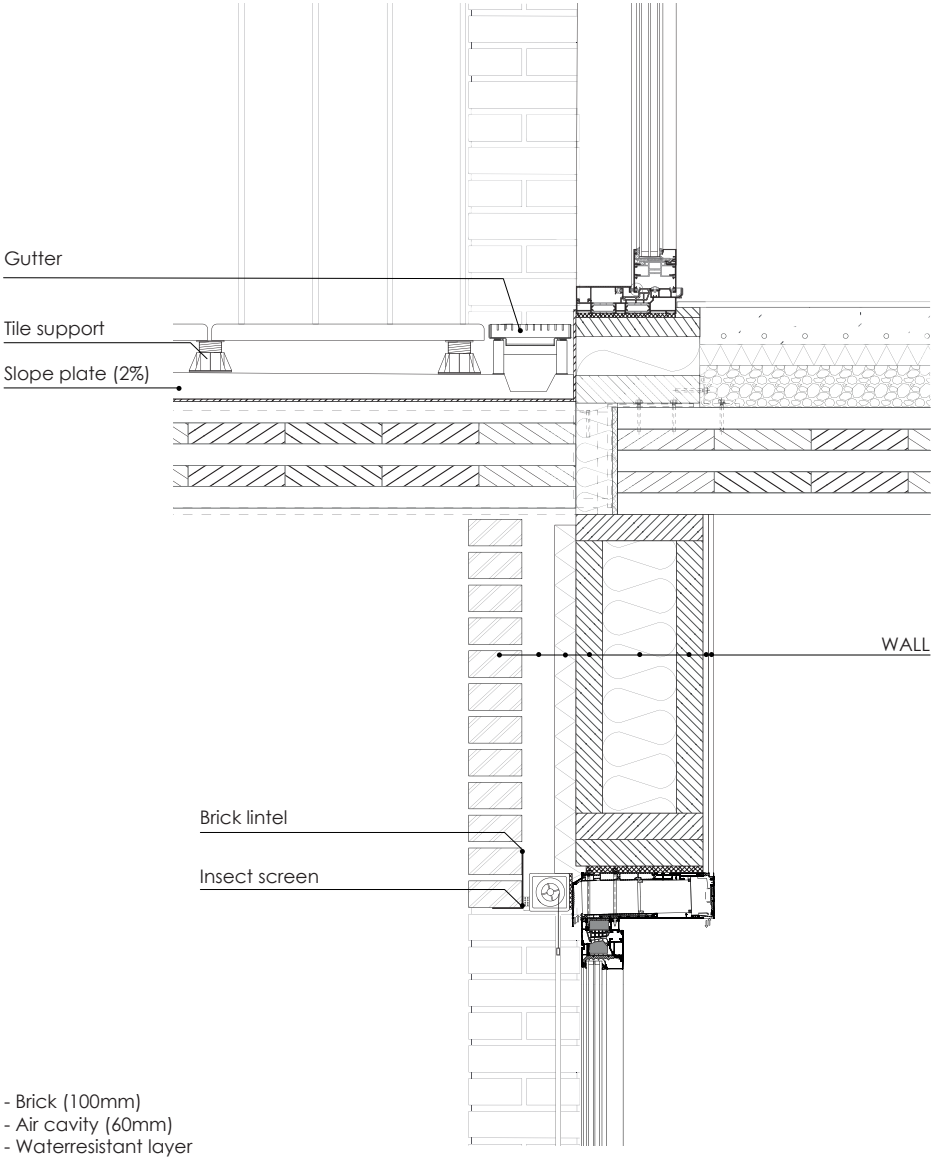
- Aluminium cassette (2mm)
- Insulation in cassette (40mm)
- Waterresistant layer
- Timber (50mm)
- Insulation (140mm)
- Timber (50mm)
- Plasterboard (12.5mm)
- Plaster (12.5mm

Detail 03



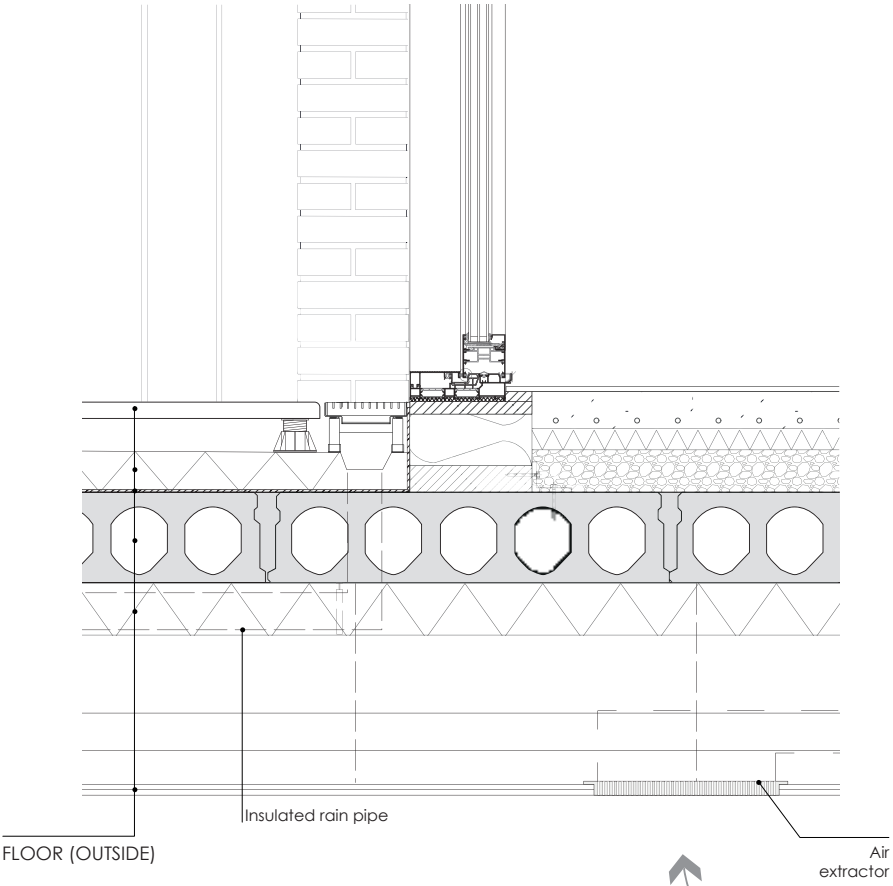
- Floor finish (20mm)
- Screed with floorheating (80mm)
- XPS insulation (30mm)
- Sand layer / chippings (80mm)
- Trickle protection
- CLT floor (200mm)
- Ceiling finish*

Detail 04



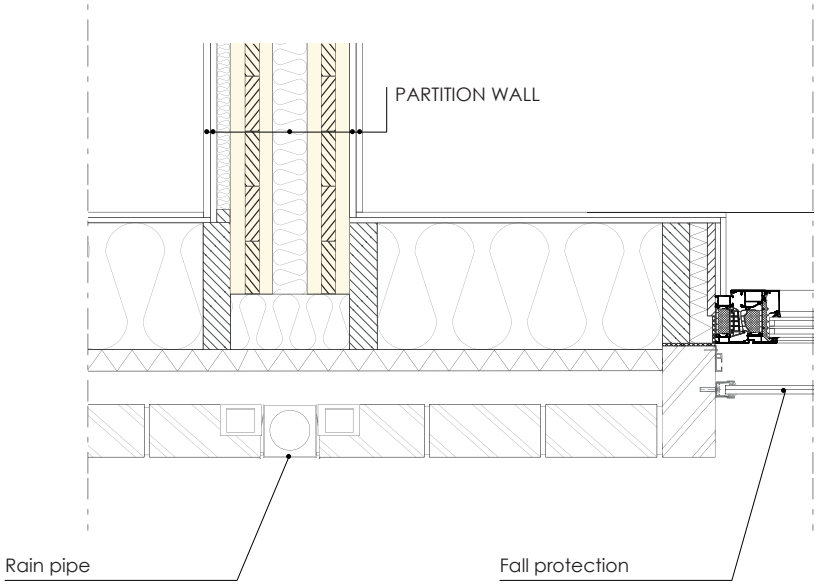
- Brick (100mm)
- Air cavity (60mm)
- Waterresistant layer
- Insulation in cassette (40mm)
- Timber (50mm)
- Insulation (140mm)
- Timber (50mm)
- Plasterboard (12.5mm)
- Plaster (12.5mm)

Detail 05



- Tile (20mm)
- Water drainage (60mm)
- Waterresistant layer
- Thermal insulation (75mm)
- Concrete floor (150mm)
- Insulation (100mm)
- Lowered ceiling (height depends on istallations)
- Plate (25mm)

Detail 06

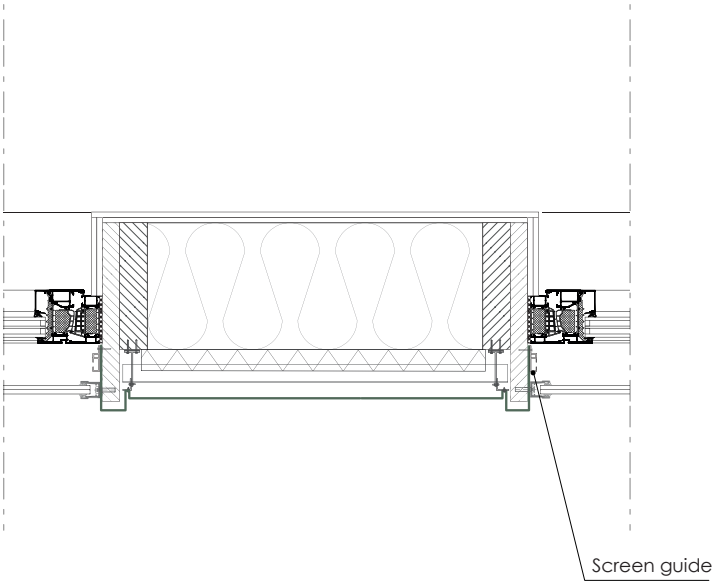


- Plaster (12.5mm)
- Plasterboard (12.5mm)
- Acoustic insulation (2mm)

CLT wall (80mm)
Insulation (64mm)
CLT wall (80mm)

- Plasterboard (12.5mm)
- Plaster (12.5mm)

Detail 06



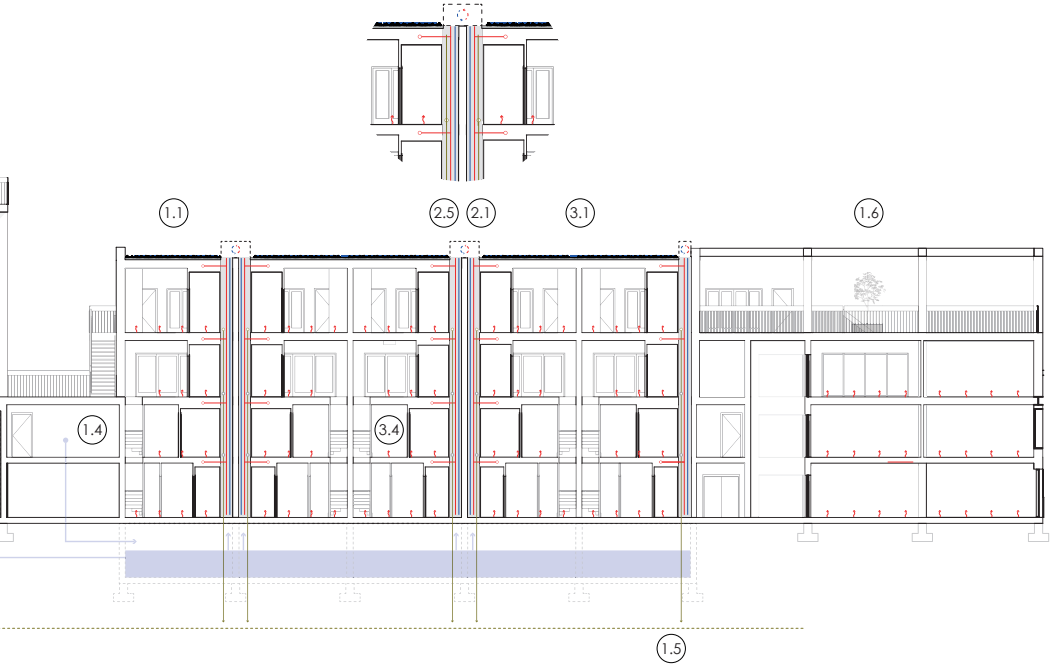
Climate

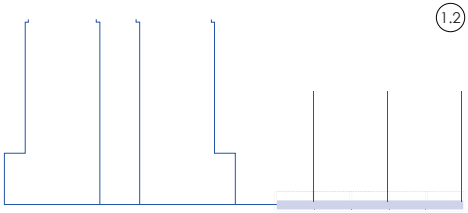
16:00
12:00
09:00
March
June
December

Climate Design Building

Rainwater management:
1.1 Rainwater absorbed by the green roof
1.2 Excess water drained along facade/shafts and collected in the basin
1.3 Re-use of filtered rainwater for irrigation of deck, flushing toilet, irrigation of public greenery, and in case of overflow direct excess water to Nieuwe Maas or sewage.
1.4 Re-use filtered greywater of collective washing machines
1.5 Sewerage
1.6 Green deck and trees in building and public space to reduce heat island effect and increase biodiversity.

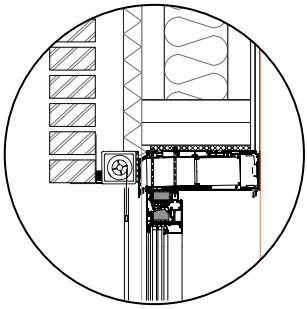
Ventilation system:
2.1 Natural supply and mechanical extraction for the residential program
2.2 Mechanical supply and extract for the commercial program
2.3 Heat pump
2.4 Mechanical extraction unit with heat recovery
2.4 Use harbour water for heat recovery
2.5 Sewerage venting
2.6 Separation inlet and outlet ventilation for clean air (smell)



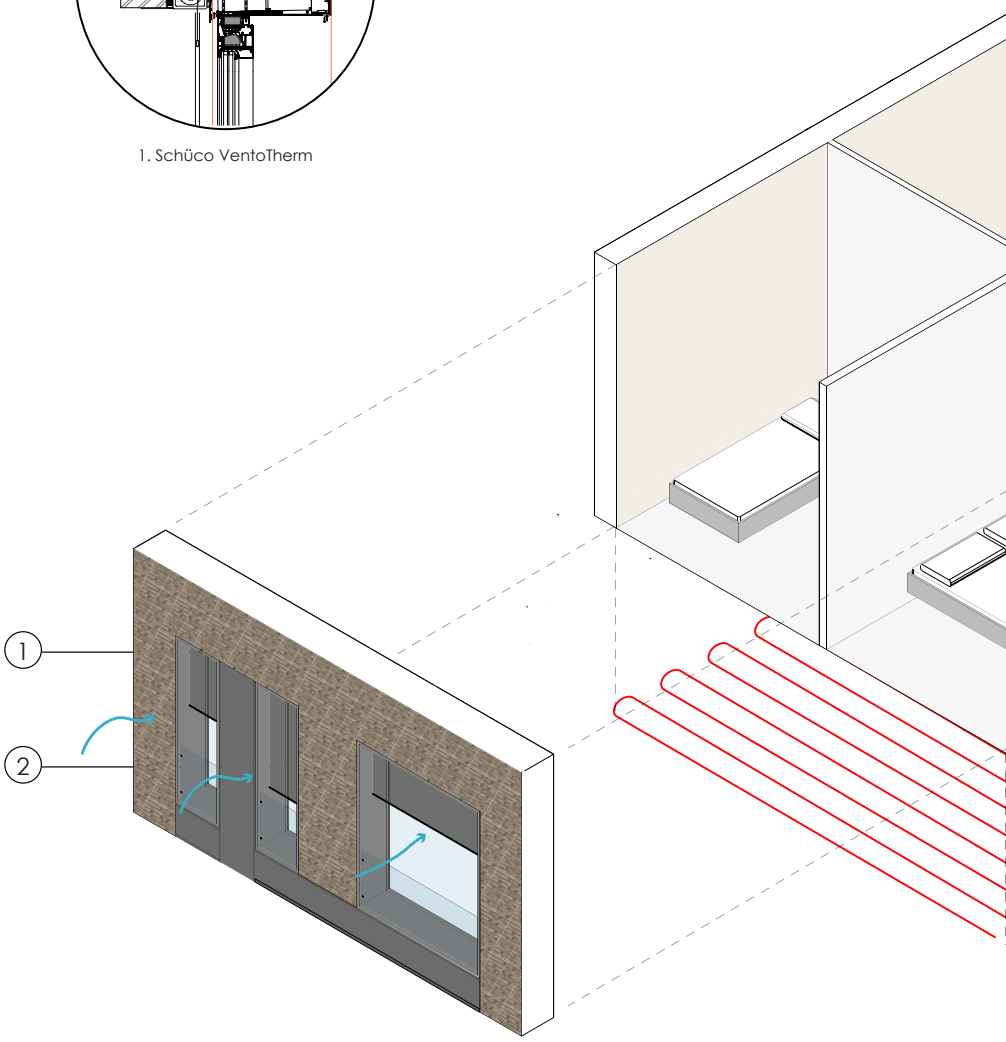


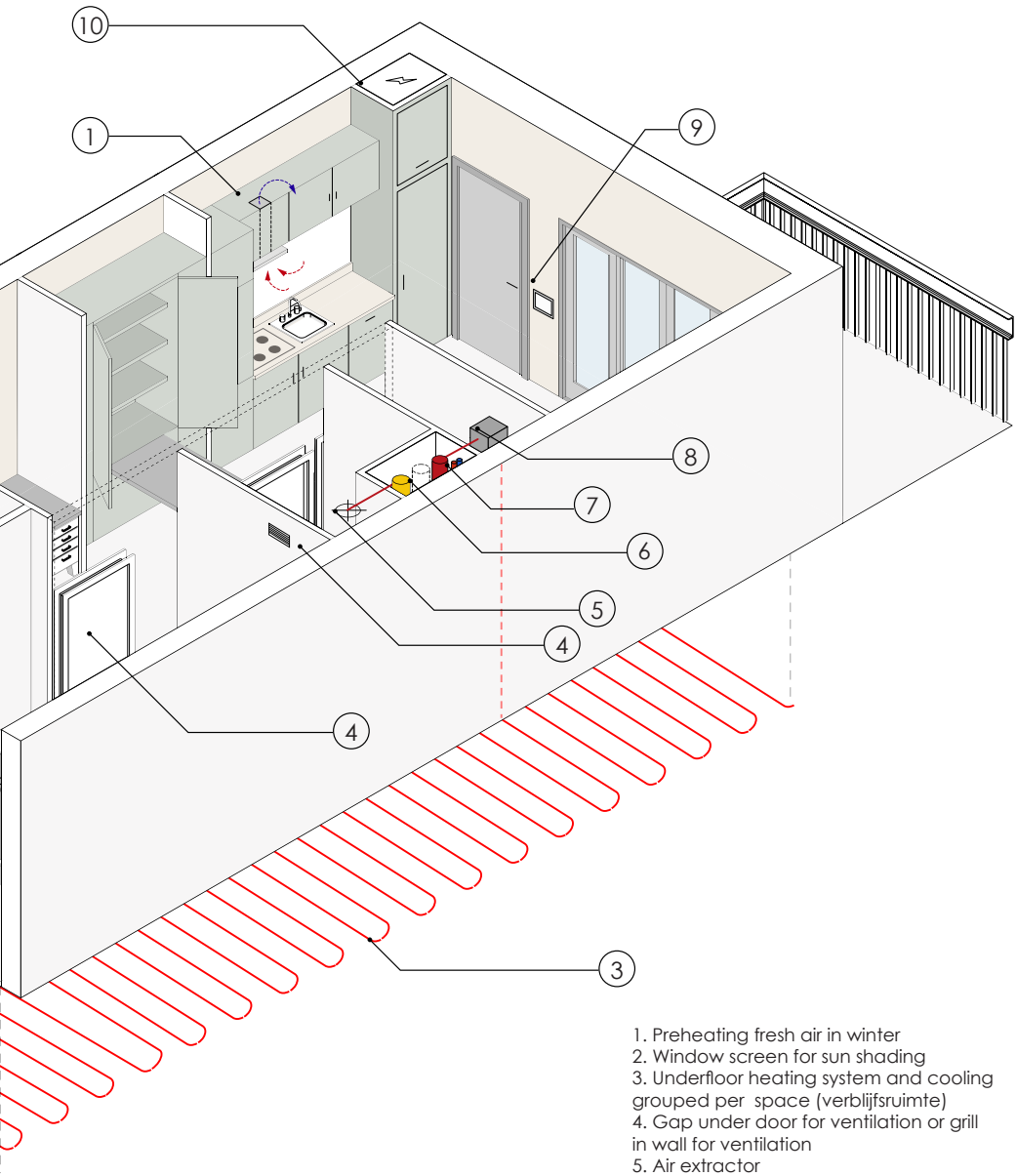
Heating and electric installations
3.1 PVT panels for heat and electricity
3.2 Sun shading (screen, trees & circulation construction)
3.3 Preheating fresh air in winter
3.4 Floor heating & cooling

Climate Design Unit



1. Schüco VentoTherm





1. Preheating fresh air in winter
2. Window screen for sun shading
3. Underfloor heating system and cooling grouped per space (verblijfsruimte)
4. Gap under door for ventilation or grill in wall for ventilation
5. Air extractor
6. Sewage
7. Hot/cold water
8. Unit Heating Pump/Boiler
9. Home control system (on demand)
10. Fuse box
11. Recirculation extractor

REFLECTION

In this chapter, I will reflect on the different types of research I did, and evaluate how the outcome informed the design.

4

Aspect 1 - Research and Design

Theoretical Research

Literature & Statistical research

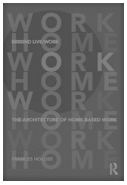
The literature research is comprised of quantitative and qualitative data that helped form the basis of my report. Governmental reports published by the Ministry of Infrastructure and Water Management provided up-to-date data on how people are struggling to work from homes that were not designed for adaptable work environments. According to the study, families with children are struggling most working from home during the pandemic. This led to the choice of urban families with home working parents as the target group of my research.

To find more information on how to design for home-based work and families in the city, I used several books:

- The book Beyond Live / Work by Frances Holliss was of particular help, as it helped me understand the history of home-based and presents a series of typologies and design considerations for the workhome that is useful for design.

-]The book 'De Nieuwe Generatie Stadskinderen' by Lia Karsten and Naomi Felder was important for the topic Urban families. The writers emphasize the importance of design for the child and present in the book what places are (not) successful and how design can accommodate the needs of (diverse) children.

Integrating both topics in my design allowed me to come up with strategies to mitigate work-life conflicts in the dwelling. The first step in that process was understanding work-life dynamics and understanding the needs of urban families.



Specific design decisions I made based on the results of this research:

The choice for the target group of urban families with home-working parents. Dependent vs Independent children (based on the impact of age on live-work dynamics).

Design for desk-based workspaces and the spatial requirements

The maximum height difference of three levels for supervision.

Various play areas for different range of actions, age stages and child characters as entertaining childeren mitiages work-life conflict in the dwelling.

Various live/work typologies: live-with, live-adjacent and live-nearby.

Historical research

As part of the target group study, I delved into the history of home-based workers and the history of the workhome. The historical research highlighted that social-economic events impact dwelling design. Up to the industrial revolution, buildings varied and reflected the lifestyle, social status, work and were transformed according to activity. From the industrial revolution, habits did not shape habitats any longer.

This part of the research did not result in design decisions directly but it made evident that there are multi-dimensional disciplines such as, policies, over-regulatory requirements, property developers, and social economics events that have a huge impact on

Typology transfer and QuickStart
One of the first design assignments of the studio was to develop an urban plan for Merwehaven at M4H based on the ambitions of the municipality of Rotterdam for that location. The group was divided into two groups that continued of the next week to develop a new masterplan based on three existing urban plans in Rotterdam: Kop van Zuid, Lloydpier, Müllerpier, and Borneo Sporenburg in Amsterdam.

The second step was a Quickstart by plotting buildings that are related to the research topic on the individual selected plot for design. I chose five projects and eventually combined the Family scraper and The family. The qualities of other projects are taken into account and integrated into the design as well. This will be discussed in the chapter typo morphological analysis.

The quickstart helped me to understand the context and the size of the plot relatively quickly. It helped me to develop a concept based on existing projects and 'built' and develop further from there.

Specific design decisions I made based on the results of this research:

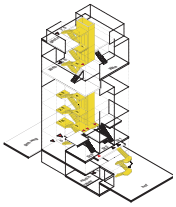
The building volume is shaped by the concept of stacking ground-bound units and a lower volume with a play deck on top.

Orientation building, dwelling units, and collective spaces in relation to the plot and context.

Concept of vertically stacking ground floor buildings and streets.

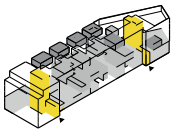
Circulation core oriented towards the north in connection to the lower play deck.

1. Mischen Possible

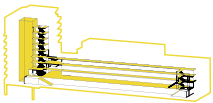


2. Cool Cube

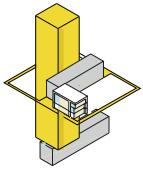
3. IBEB - Former Berlin Flower Market



4. The Familiy



5. Family Scraper



Combining Family Scraper by an Bergen Kolpa
& The Family by ANA architecten

Site research

As a group we collectively study M4H by doing a site visit, researching the history of M4H, the demographics and the building typologies in the neighbourhoods behind the dike. Furthermore, the municipality of Rotterdam gave a presentation in regards to the ambitions and challenges that are ahead for the area. They emphasized making a connection with the neighbourhoods behind the dike. As a start of the design process, it was helpful to understand and get a general idea of the context you are working in.

For the design itself, I predominantly studied the area and the neighbourhoods behind the dike for the materialisation to choose the materialisation and palette for my design. This helped me to make decisions in regards to the materialisation of the façade, brick bonds, pendants, large windows etcetera. The choices I made are an interpretation of what is applied in the context.

Brick with vertical (**concrete**) column aligned with **wooden** window frame

Two tone brick and sliding panel with lifting beam

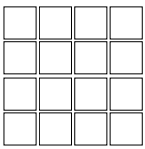
Brick with vertical (**concrete**) lines aligned with **wooden** window frame

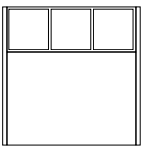
Metal container with vertical pattern. Corntenstaal: warm appearance

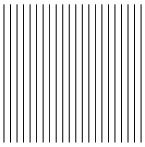
Square patterned brick and **aluminium** panels (vertical)

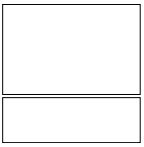
Two tone brick - dwelling behind the dike

PATTERNS









Specific design decisions I made based on the reasults of this research:

Facade: yellow brick, cross bond masonry, two tone plinth, large openings and contrast close facade vs open.

Emphasizing the two hight level through and I-Profile. 'De Rotterdamse laag' of the context (height of the warehouses).

Materialisation

Aluminium paneling and window

Aqua Grijs Zwart WF - Kameleon collectie

Aluminium rainwater pipe

Concrete 'pennant'

I-Profile

Typomorphological analysis

The use of case studies is useful when working on an architectural design as you can learn a lot from precedents. I believe that the aim of the case studies was not so much to test a theory, but rather to find examples of projects that revolve around a similar theme and/ or target group. I chose five projects related to the topic of live-work and target group of urban families.

The analysis was of great benefit for the research and design as it provides examples of how topics are tackled through design. Theories that are mentioned in books as Beyond live/ work and ´De Nieuwe Generatie Stadskinderen´ can be found in the case study designs. Aspects as, three work home typologies, dual-use circulation galleries, height for supervision etcetera. The process of analyzing the projects helped me to develop a concept for my building in terms of stacking ground-bound units and accommodating various instances of collectivity and play.

Furthermore, it helped me to develop my drawing and graphic presentation by studying the available drawings of architectural firms. It is a great way to get inspired by other projects and implement solutions or qualities in my design.

Mixed-Use Housing

1. Mischen Possible

2. Cool Cube

3. IBEB - Former Berlin Flower Market

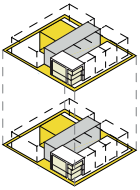
Urban Families

4. The Familiy

5. Family Scraper

Specific design decisions I made based on the results of this research:

- Dual use of circulation space due to width.
- Continuous circulation space.
- Vertically stacking of ground-bound units and streets
- Diversity of collective spaces and play
- Bay-widths of dwelling units
- Building and dwellings arrangements that allow parental supervision.
- Organization of workspaces near circulation spaces. 'Make work visible'.



Ethnographical research

At the beginning of the academic year (previous semester), I was first exposed to research through visual ethnography. I analyzed a social housing project Heliport in Rotterdam. The task was to observe and document instances of collectiveness. Practicing this allowed me to focus on details that I would never notice if I would just walk through the building casually. This form of research inspired me to perform it again to understand the live/work dynamics of home working parents.

I have compiled the data for the architectural ethnography from two bodies of sources: participant observation complemented with interviews and the analysis of first-hand work-life experiences lived during the pandemic published on youtube.

The ethnography study helped me significantly as it allowed me to understand the dynamics within the households. After the first analysis, it became apparent to me that supervision and the age of the children are important aspects that can impact waged work performance. This outcome gave me direction on what to research further. One example is to study a second case with a different household composition with older children. In the second case, different patterns occurred. This allowed me to compare both cases and draw conclusions from them.

One conclusion is the overlapping demands of home-working parents and old(er) and independent children: spatial separation. Whereas, home working parents with young and dependent children have child care responsibilities and need to supervise them constantly. Spatial separation is difficult to organize, even though it allows the parent to perform waged work more productively.

Specific design decisions I made based on the results of this research:

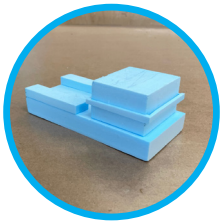
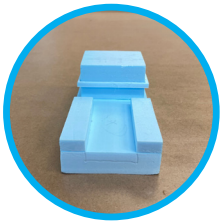
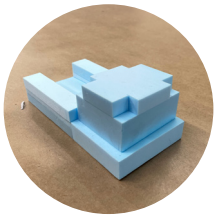
Focus on household compositions with different age stage of children and home-working parents. This resulted in single parent families with young and dependent childeren vs (modern) nuclear family with older and indepdent childeren.

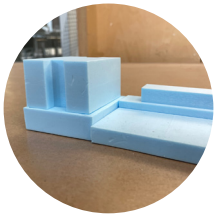
Play Hall / open plan: safe space for childeren to play and entertain themselves.

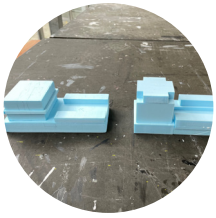
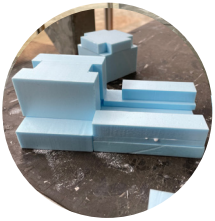
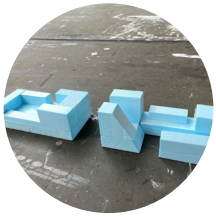
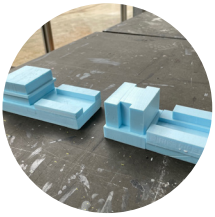
Design of dwellings for parents with dependent and independent childeren. (open plan vs spatial separation).

(Digital) Model studies
Using model studies has helped me explore different options related to volumes, openings, and dimensions of the building. It has been a helpful tool to explore possibilities and quickly review design options and the quality of spaces to determine the most appropriate solutions.

Later in the design process, digital modeling was of great significance during the entire process of my graduation. I primarily used SketchUp and Revit to quickly test several relevant options. This was vital when it came to the relation between the high part of the building and the lower parts, concerning lighting conditions. Another aspect that helped me was removing the set-back kin the facade, whilst maintaining the continuous railing towards the stair railing at the entrance. This choice led to a clearer plan, symmetry, and facades following gridlines. This helped me enormously as it simplified the floorplans and so allowed me to develop new ideas for the second level where storage units are positioned: the alley.

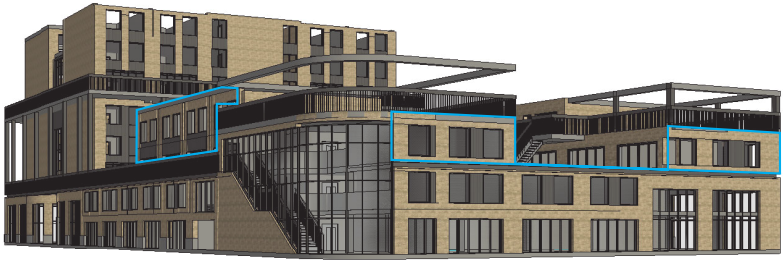






Specific design decisions I made based on the results of this research:

- The mass of the building within the urban configuration.
- Keep the high part and low parts of the building separated so that the volumes represent the diverse typologies.
- Minimum of one grid (5700mm) distance between the high part and low part of the building for day light.
- No set-back in the facade, whilst maintaining the continuous railing towards the stair railing at the entrance.



Set-back and window

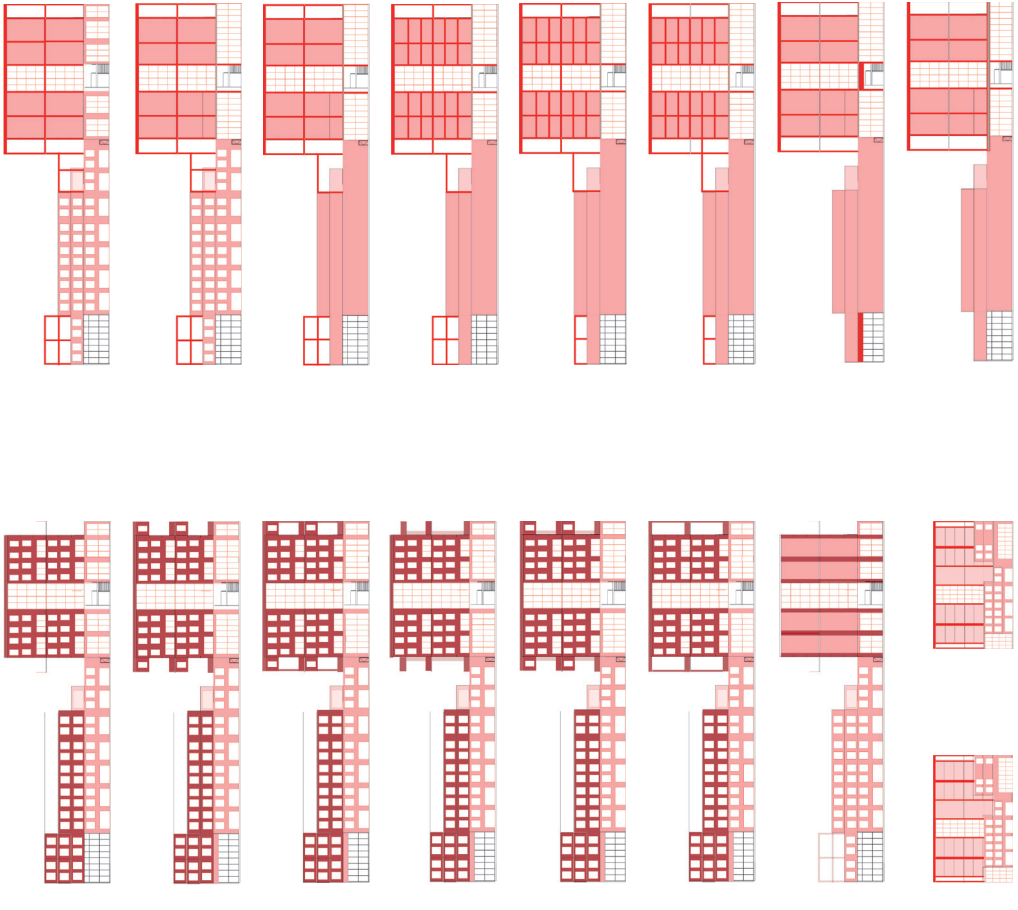
No set-back and no windows

Graphic experiments and variations
One method that helped me a lot throughout the design process is making variations through graphic experiments. At a certain point in the design process, I was not satisfied with the building volumes as it was bulky. After unsuccessfully trying to break this bulkiness through shaping the mass, I decided to try to solve it through the design of the facade.

The first experiment was bringing the two volumes together through materialization, openings, and vertical /horizontal grids. The conclusion of that study was to emphasize the verticality to make the mass look slim. Solving this uncertainty and dissatisfaction in the design allowed me to focus on other aspects of the design.

Specific design decisions I made based on the results of this research:

- Put ephazis on the verticallity.
- Blind facades similairly like flat buildings.
- Various grids in the facade
- Setback in the facade
- Concrete penant that softens the landing on the ground floor.



Aspects 2 - 5

The relationship between the graduation topic, the studio topic, the master track, and the master programme.

The question at the core of the studio is: 'How do we provide suitable, affordable housing for a diverse population? Who are the modern households? Where and how do they WANT to live?
This year's graduation studio focuses on creating innovative live-work environments in the M4H area in Rotterdam. The topic of live-work was of particular interest to me due to the work from home restrictions brought by the COVID-19 pandemic and the challenges the home-based workforce faces working in a monofunctional design dwelling. The pandemic made apparent that dwelling design lacks behind emerging lifestyles. This urges to question contemporary housing design and a rearrangement of the dwelling to support wage work and care work in the same place.
The topic ofl live-work and urban families demonstrates the evolving role dwellings play within the built environment and further ties in with the subject of the master's track. A stive towards the inclusive city.

Elaboration on research method and approach in relation to the graduation studio methodical line of inquiry. Reflections on the scientific relevance of the work.

My research report followed the prescribed methodical line proposed by the studio, comprising literature research, historical research location analysis, ethnography, and a plan analysis of five case study projects. The literature inquiry comprised quantitative and qualitative data and formed the basis of my report, helping me understand the current situation as well as the intertwined history of workhomes. It also supported the choice I make for the ethnography analysis, choosing two specific target groups and focussing on certain aspects such as supervision, age of children, occupation etcetera. The ethnography does not entirely qualify as scientific as it predominantly focuses on qualitative data of a specific household. However, if there would be a bundle of multiple studies on a similar topic, the outcome may be considered scientific due to the quantitative data that comes along with it.
Combined, the research contributed significantly to understanding the history, trends, and current situation of my topic and further helped me to understand why and what I needed to design in an attempt to counter challenges parents face doing waged work and care duties in the same dwelling.

Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results

The issue of dual-use housing for live and work is multi-dimensional. It encompasses not only the architectural discipline but also the fields of real estate management, politics, and social-economics. The architectural design itself is simply the manifestation of a possible solution.

The project results are not transferable when it comes to the physical aspects such as massing and material, as it is specifically chosen for the location of Merwevierhavens. However, the concepts as stacking ground-bound units, workhome typologies, a variety of collective spaces and play instances, and the concept of the Z-wall may be applicable outside the scope of the current project.

Discussion on the ethical issues and dilemmas encountered during research, design elaboration phases, and the potential applications of project results in practice.

The methods of my research and the topic I chose are close to studying human behaviors and their lifestyle patterns. Performing ethnography allowed me to understand live-work dynamics 'better' in a specific household. I was well aware that the two ethnography cases I analyzed are

not representative of all households that fall in the same 'bracket of the target group. People live differently based on household composition, income, lifestyle etcetera.

This make it difficult for me to translate the patterns that I have retreieved from the ethnograpgy into the disciokline of architecture design, known there are exceptions. Categorizing based on subjective aspects feels not correct and raises moral questions. Therefore I came up with two fictive households to develop and test the design solely based on the results I gathers from the research.

BIBLIO-GRAPHY

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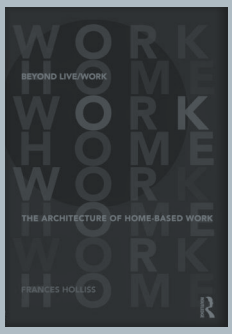
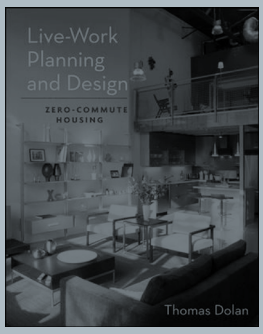
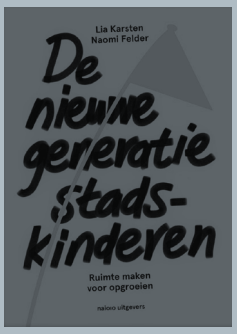

BEYOND LIVE/WORK
THE ARCHITECTURE OF HOME-BASED WORK
FRANCES HOLLISS


Live-Work
Planning
and Design
ZERO-COMMUTE
HOUSING
Thomas Dolan


Lia Karsten
Naomi Felder
De nieuwe generatie stads-kinderen
Ruimte maken
voor opgroeien
nai010 uitgevers

LIVE-WORK ARCHITECTURE:

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TYPO MORPHOLOGICAL ANALYSIS:

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5. Family Scraper:

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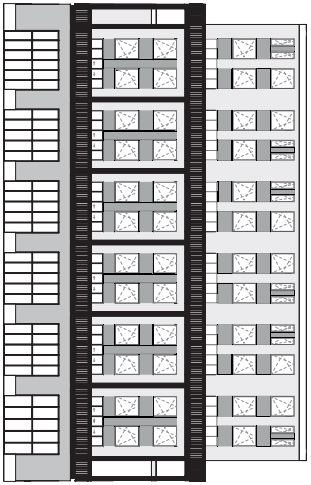
Projects that are not selected for analysis, but have interesting qualities that will be considered during the design process:

- A Haus, Berlin - Duplex architekten
- Atelierhaus Lobe-Block, Berlin - Brandlhuber+ Emde, Burlon, Muck Petzet architekten
- CRCLR House, Berlin - Hütten & Paläste
- Hybrid House, Hamburg - Bieling Architekten
- Narkomfin, Moscow - Moisei Ginzburg with Ignaty Milinis
- Piazza Céramique, Maastricht - Jo Janssen Architecten
- Pullens estate, London - Unknown
- Schiecentrale, Rotterdam - Mei architects



My initial motivation to study architecture at TU Delft was to develop skills to design architecture that hopefully will be realized. Having almost finished the master track in architecture at TU Delft, I look back at my academic experience as a journey in finding my position in the architectural field. Throughout the years, my aWmbitions have developed and my interests are broadened. I do not only want to design architecture but to design architecture for people and their changing needs.

I became aware of this mainly during the graduation research on emerging live-work patterns due to the pandemic. People increasingly spend most of their time at home as waged work is performed at the dwelling due to the covid-19 pandemic. Since the emerging lifestyle is here to stay, it is important to re-examine the relationship of live-work and carefully design dual-use spaces with an aim for users' comfort.

The final product of my graduation year is an expression of my personal development and interest as a future architect.

HOMES THAT WORK

THE ARCHITECTURE FOR HOME WORKING PARENTS AND CHILDREN IN AN URBAN CONTEXT

The research looks into the historical development of the old building type that combines live and work; what Frances Holliss (2015) states to be a 'workhome'. The relevance and resurgence of this typology in the context of a globalized economy and informational era, causes the home-based workforce to grow rapidly. This growth has increased after the outbreak of the Covid-19 pandemic as it imposed home-based work on a large scale. During the curfews and movement restrictions, the workplace was squeezed into a monofunctional designed dwelling and so affected the live-work balance negatively in several ways. This is especially the case for home working parents with young children, due to family life distraction.

With a future forecast that 67% of the workforce view they will work more regularly from home post-Covid-19. It urges to question current housing design and a rearrangement of the dwelling to support wage work and care work in the same place.

The design for Merwehaven offers suitable homes for **home working parents and children living in M4H**, and addresses the issue of young urban families leaving the city to the suburbs. Their presence is essential for the vitality and quality of life in the city.

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