DESIGN MENTOR: HENK BULTSTRA

TECHNICAL BUILDING DESIGN MENTOR: FLORIAN ECKARDT

THEORY & DELINEATION MENTOR: SIEN VAN DAM

CHAIR: NATHALIE DE VRIES

Max Tomás Douma
5083591
TU Delft 2025
Research Journal
Public Building

RESEARCH JOURNAL

A STORY ABOUT CONTINUITY

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Max Tomás Douma

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Max Tomás Douma
Student number	5083591

Studio		
Name / Theme	Public Building / Public Condenser	
Main mentor	Henk Bultstra	Project Design
Second mentor	Florian Eckardt	Technical Building Design
Third mentor	Sien van Dam	Theory & Delineation
Argumentation of choice of the studio	The choice of this studio is driven by a passion for combining architecture and design with a human-centered approach, where a social problem forms the foundation of the design. The idea of truly immersing myself in the lives of the residents within the project area to develop a meaningful design was intriguing. This studio seemed like the ideal opportunity to explore and implement these ideas.	

Graduation project	
Title of the graduation project	Urban Continuum_A Story About Continuity
Goal	
Location:	Copenhagen - Sønderbro - Sundholm
The posed problem,	In contemporary urbanism, there is a growing recognition that cities must be resilient and adaptable to remain livable. Climate change, demographic shifts, and evolving cultural patterns ask for more flexible approaches to architectural and urban design (Holling, 1973; Brand, 1994). *'In our neighborhood, we have the artists, the kids and the crazies."* Sundholm is a fragmented neighborhood with a very clear but often disconnected identity. Sundholm. A place where Denmark sends its problems to disappear. Out of sight, out of mind seems to be the approach. Surrounded by walls with access gates, big windowless facades of

	apartment buildings, and forgotten spaces. Sundholm exists as a place where the seemingly unwanted layers of Copenhagen are placed. But beneath its bad reputation lies a delicate coherence. An intricate combination of cultures, identities, and characteristics that make this part of Denmark unique. The identities present in Sundholm are not weaknesses, they are its greatest strengths. And, like the neighborhood itself, these identities are fluid. They are constantly shifting and evolving. Not only when walking through the area, but also as time passes. Many traditional urban renewal strategies focus on homogenization, but in Sundholm, this would make the very character of the area vanish and would go against the wishes of the residents.
research questions and	Main question: How can architecture embrace change as a defining characteristic rather than an obstacle? Sub-questions: 1. How can a Public Condenser establish a shared, yet fluid, identity in a fragmented urban context? 2. What are the architectural strategies that support a sense of continuity? 3. How can spatial boundaries be used to enhance, rather than erase, identity?
design assignment in which these result.	Instead of imposing a top-down vision of identity, the Public Condenser creates a setting where residents can shape their environment over time, creating an architecture that reflects both the past and the emerging future of the neighborhood. By integrating seasonal adaptability, adaptive re-use, material transformation, and evolving light conditions, this project redefines the relationship between architecture and identity, making change a central design principle rather than an afterthought. The findings of this project will not only influence the design of Sundholm's Public Condenser but also offer a model for future urban interventions that try to work with, rather than against, the fluid nature of cities.

Process

Method description

Research by design, design by research: Morphology Analysis: Mapping physical barriers, typologies, and transitions. Environmental and Seasonal Analysis: Light studies: Evaluating daylight and seasonal shifts to integrate adaptive lighting strategies. Microclimate mapping: Studying wind patterns, temperature variations, and solar exposure. Material and Vegetation Adaptation: Testing materials that transform over time and identifying seasonal vegetation that emphasizes change and continuity.

Prototyping allows for the exploration and testing of adaptive architectural elements, such as responsive facades, dynamic lighting, and modular spaces. It enables the evaluation of how these elements interact and can give an idea on how they will react to changing environmental and social conditions in Sundholm.

Interviews: Interviews offer insights into the strategies and challenges of incorporating light into design.
Precedents: Casestudies provide a clear view on solutions that have already been thought of. In this case the key focus areas are on spatial transformation, material adaptability, integration of light and vegetation, and community participation.

Literature Review: Research of concepts of (urban) identity (for example Kevin Lynch, Aldo Rossi and Manuel Castells), theories on adaptive architecture and resilience, precedents of public condensers and participatory urbanism and studies on seasonal adaptation and material transformation

Historical and Policy review: To give a clear image of how the neighborhood has become the way it is and to incorporate important data from the municipality.

Literature and general practical references

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Reflection

What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The relation between my project, the graduation topic (Public Condenser) and the master program is that all three have taught me that architecture serves only as a dynamic mediator of sorts and is never a project on its own. Within the studio, the assignment for the Public Condenser is used as a design strategy to approach a solution to a perceived problem in Sundholm. Architecture functions here as a medium to help finding this solution. My project aims to reconnect Sundholm with Copenhagen and recreate a sense of continuity that it now lacks. In this case we are talking about rhythm, re-connection, flexibility (for future change) and creating an urban oasis in the middle of it all. A place where time finally moves forward instead of the current stagnation in now experiences. My project intends to dive deeper in this approach. The proposed architecture program with the mandatory courses and different studios teaches the different ways to address such an assignment. It all revolves around the notion that architecture is a means to and end and not an 'end' in itself.

How do you assess the value of your way of working (your approach, your used methods, used methodology)?

The design project addresses adaptive and resilient design by creating architecture in a neighborhood that restructures the area itself and its surroundings. It re-connects a forgotten place while incorporating progressive architectural methods and approaches

reuse in a different way than it is normally viewed. Instead of fixed-function buildings, the Public Condenser evolves with its users, challenging traditional ideas of permanence in architecture. It offers innovative ideas for sustainable urbanism and flexible/changing design, particularly relevant for architects and urban planners working on dynamic urban areas like Sundholm. During the project I shifted a lot my opinion about what I considered as the 'core concept' for designing, but my ideas around the neighborhood remained unchanged. The area was fragmented, forgotten and neglected, but it had a lot of unused potential. This potential was yet to be unveiled, but it was there. Whilst a couple of adjustments had been made by the municipality to make the area a better place, it was just not enough. And it is there where I feel I can make a difference with the project. The idea of (re)using elements of 'Fabrikken building' as a starting point for designing has been important throughout the year. However, I've figured out that the most important thing is that my way of thinking during the design process has been inversed over time. Usually, I start with ideas and then I try to put those ideas into a context. However, the key for developing this design remained cloudy to me for a long period. It was really frustrating at times. But in this case I really learned to understand the effectiveness of having multiple perspectives by the tutors in different sectors of expertise. The way of tutoring has been different than in my previous projects, and this experience has been way more enlightening.

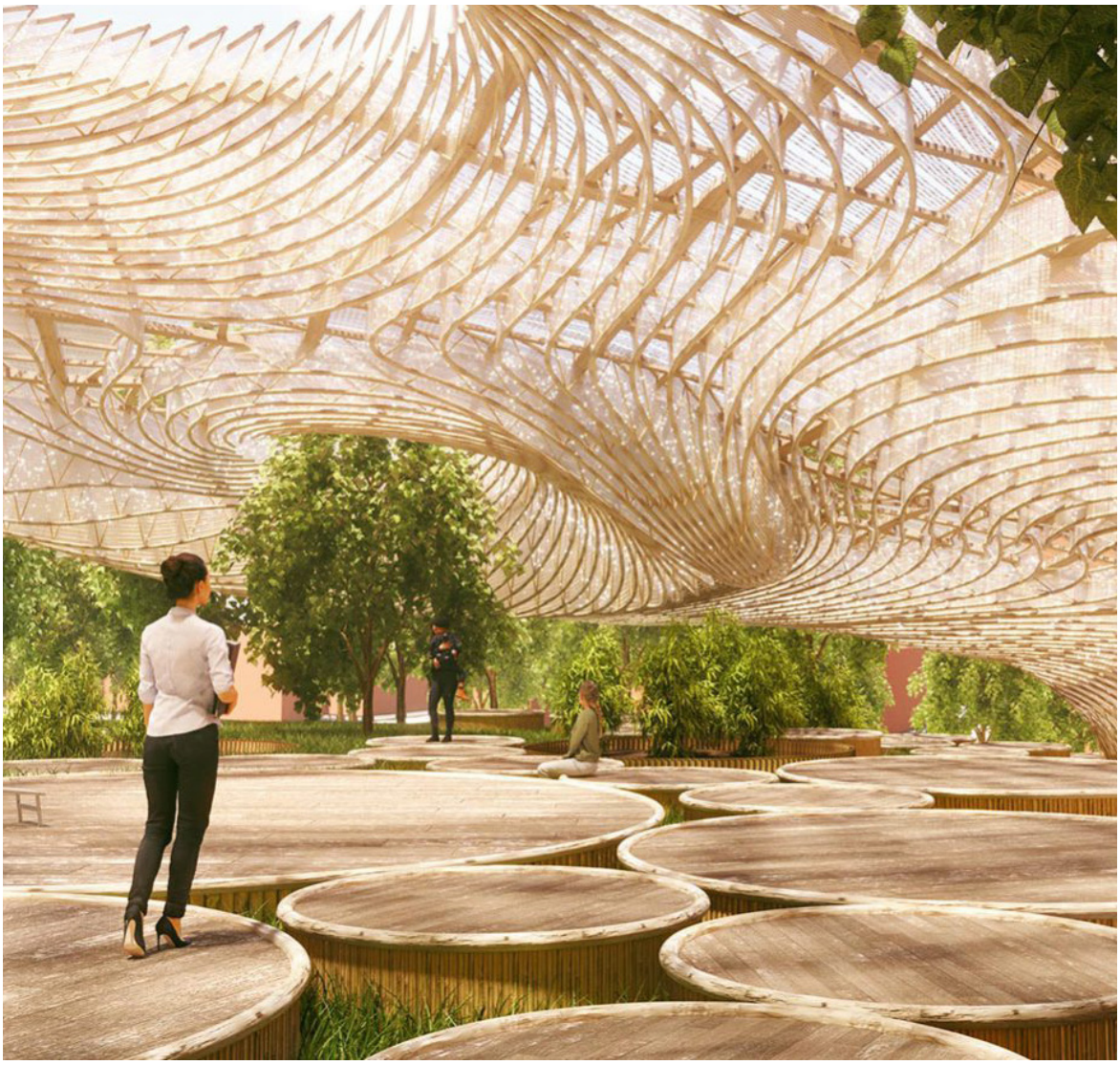
What is the academic and societal value, scope and implication of your graduation project, including ethical aspects?

The project itself is about designing for a neighborhood in the southern part of Copenhagen called Sundholm. Sundholm is an area where the so-called 'problems' of society are put away. Homeless shelters, housing for drug addicts, youth detention centers, and housing for migrants have all found their place here. While the area was built for 'problem solving', it made it into an area going into disrepair. In the past couple of years, the municipality has partly acknowledged their mistakes and put up a target group to find out how to establish a healthier living space for the inhabitants, alongside a project to transform the central factory into a place for artists to rent a small studio for their work. These changes and ideas are of course a small step in the right direction, but there still is a lot to be done. Social Relevance: The project addresses the challenge of connection in a fragmented neighborhood like Sundholm without erasing cultural and social differences. It creates a form of continuity by re-involving the neighborhood. By acknowledging and enhancing diversity rather than forcing uniformity, the Public Condenser promotes inclusivity, interaction, and adaptability. In this way a stagnated area can be re-connected and made future proof. A sense of continuity is created. It can be looked at as a model for creating spaces that encourage social cohesion, important in today's context of increasing migration and urbanization. Scientific Relevance: This research explores urban resilience through architecture, integrating concepts like adaptability and participatory design. By using tools such as light and vegetation, the project contributes to sustainable architecture and public space theory. It creates a view on how architecture can be used as 'glue' between fragmented communities, supporting dynamic identities in rapidly changing urban environments.

How do you assess the value of the transferability of your project results?
The diverse dynamics within the project really worked well for me and gave me clarity on how to approach future projects. The Public Condenser promotes inclusivity, interaction, and adaptability. My project creates a sense of continuity. It can be looked at as a model for creating spaces that encourage social cohesion, important in today's context of increasing migration and urbanization. In this way a stagnated area can be re-connected and made future proof.

INTRODUCTION.

In this research journal the process of the Public Building Graduation Studio is shown week by week. The most important parts of the different steps will be eleborted. This research journal explores strategies to enhance community integration and living quality in the Sundholm neighborhood, focusing on elements that go further then traditional urban design. By looking at factors as light, greenery, noise, and sustainable materials, this journal is meant to understand how these elements influence daily life and how targeted design solutions can address existing challenges. Central to this research is the concept of the Public Condenser (a multifunctional, community-centered space designed to bring people together and improve overall well-being). Through mapping, prototyping, and resident interviews, this research journal investigates how design can create a more connected and sustainable environment in Sundholm, creating a model for similar urban areas.



Render by Mamou Mani (2017)

ABSTRACT.

In contemporary urbanism, cities must be resilient and adaptable to remain livable. Climate change, demographic shifts, and evolving cultural patterns demand flexible approaches to architectural and urban design (Holling, 1973; Brand, 1994). Sundholm exemplifies these challenges as a fragmented neighborhood with a clear yet disconnected identity. Often viewed as a space where Copenhagen's "unwanted layers" are placed, Sundholm reveals a delicate coherence next to its reputation. a blend of cultures, identities, and characteristics that are fluid and ever-changing. Traditional strategies of homogenization risk erasing the unique character of the area, contradicting the wishes of its residents.

The proposed Public Condenser embraces Sundholm's fluid identity, transforming its fragmented nature into a strength. Instead of imposing a static, top-down vision, the design creates a setting where residents can shape their environment over time. The project's core concept revolves around continuity. Instead of trying to completely reshape the neighbourhood, the idea is to build on the strengths the area already has. There are already good initiatives to make Sundholm a better place, but thease ideals must be exploited and followed through. By continuing this trend, we continue the progress of Sundholm as a whole. A central open pathway connects these clusters, promoting interaction while maintaining flexibility.

The design integrates principles of seasonal adaptability, adaptive reuse, material transformation, and evolving light conditions. It redefines the relationship between architecture and identity, making change a central design principle rather than an afterthought. By celebrating multiplicity, continuity and embracing whats already there, this project aims to serve as a model for future urban interventions. The findings will not only shape Sundholm's Public Condenser but also inspire approaches that embrace the ever-evolving nature of urban life.

B R I E F.

Entrance & Orientation	250–300 m^2
Main entrance hall:	100–120 m^2
Information counter:	40–50 m^2
Reception:	50–70 m^2
Lockers:	60–70 m^2
Adaptive Exhibition & Event Space	600–800 m^2
Flexible gallery/event space:	300–350 m^2
Temporary installations:	150–200 m^2
Flexible cultural & workshop space:	150–250 m^2
Multi-Use Community Space	600–800 m^2
Public lounge:	150–200 m^2
Café:	150–200 m^2
Workshop rooms:	150–200 m^2
Urban agora:	150–200 m^2
Learning & Innovation Hub	500–700 m^2
Studio spaces:	150–200 m^2
Innovation lab:	100–150 m^2
Study spaces:	100–150 m^2
Library:	100–150 m^2
Sundholm archive:	50–100 m^2
Solarium & Observatory	400–500 m^2
Solarium:	150–200 m^2
Observatory (kinetic):	100–150 m^2
Pavilion(s):	100–150 m^2
Vegetation	900–1,100 m^2
Self-sustaining green space (Eco-Cathedral):	300–400 m^2
(Vertical) garden:	250–300 m^2
Green walkways:	200–250 m^2
Adaptive roof (walkable):	150–200 m^2
Miscellaneous	100–200 m^2
Storage:	30–50 m^2
Technical space:	30–50 m^2
Sanitary facilities:	40–60 m^2
Circulation (~30% of total space):	1,000–1,200 m^2
Total Surface Area Approximately:	4,250–5,100 m^2

S I T E .

The Sundholm site is special when looked at the common urban fabric of the rest of Copenhagen. The open space is mostly utilised as parking space or infrastructure. There are a lot of open sightlines directly through the neighborhood, but because of the high buildings close to the road it is quite dark. The sightlines from north to south however contain solely closed sighlines. High apartment buildings with narrow passageways dictate this part of Sundholm. There are a lot of possibilities to use the abundance of space in the area.

In the photographs on the other page you can see the panoramic views of the area and where the photos were taken. This will give a quick overview of the project site before diving into the research.

Panorama 1 of Sundholm by Max Douma (2024)

Panorama 2 of Sundholm by Max Douma (2024)

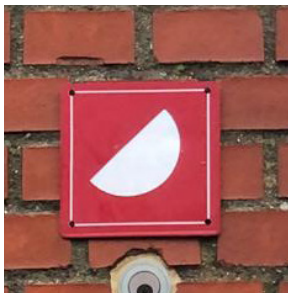
Panorama 3 of Sundholm by Max Douma (2024)

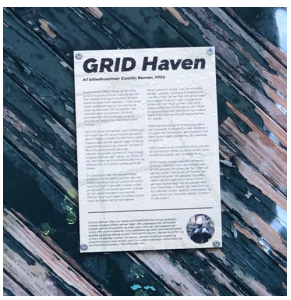
S I G N S .

To truly understand a neighborhood, it's essential to look beyond just buildings and the urban fabric. While observing the people themselves gives important insights, there are also subtle, often overlooked clues that reveal a deeper sense of place. Insights that traditional methods might miss. By examining these "hidden" elements, you get a unique, less conventional perspective on the area's character.

In this case, I focus on the diverse signage scattered throughout Sundholm. The signs found here, whether official, handmade, or improvised, reflect the daily lives, values, and personalities of the residents. They provide a glimpse into what people care about, what they want to communicate, and how they use their own space. Signs may mark gathering spots, communicate rules or warnings, express creativity, or even signal a form of resistance or individuality.

In the photos on the following page, you'll see examples of signage that are particularly characteristic of Sundholm. These small details offer a window into the neighborhood's identity, giving us an authentic sense of place through the often-overlooked language of everyday objects.



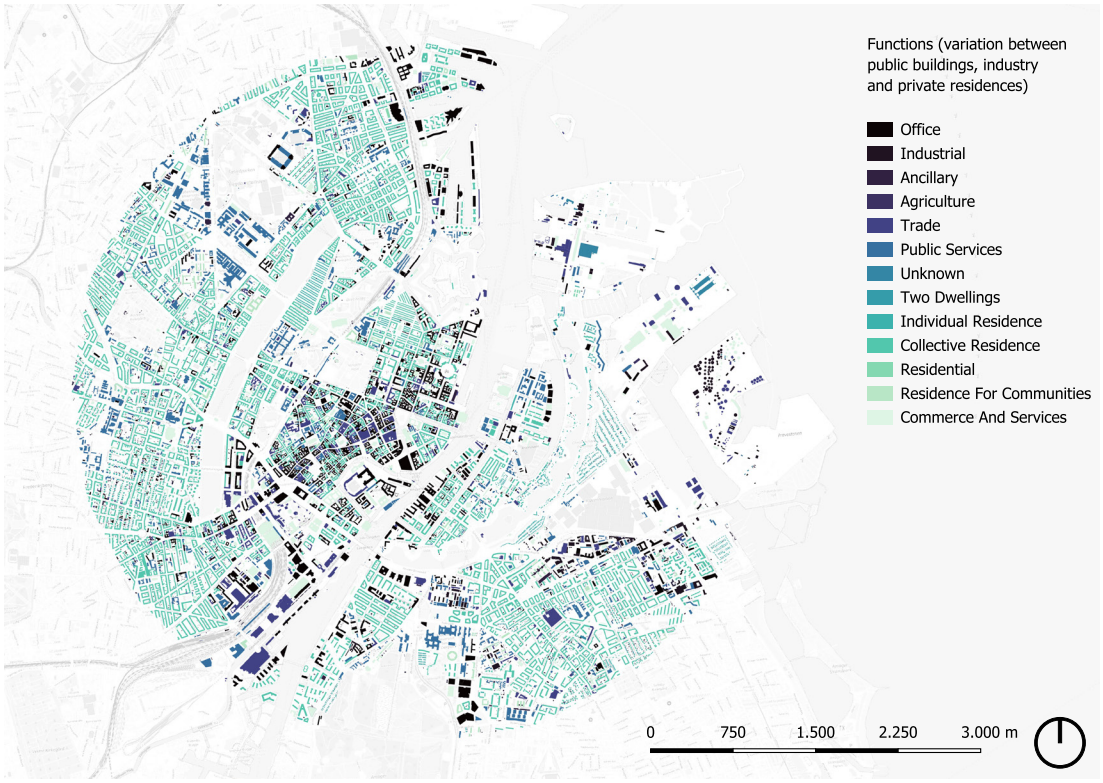


Signs in Sundholm by Max Douma (2024)

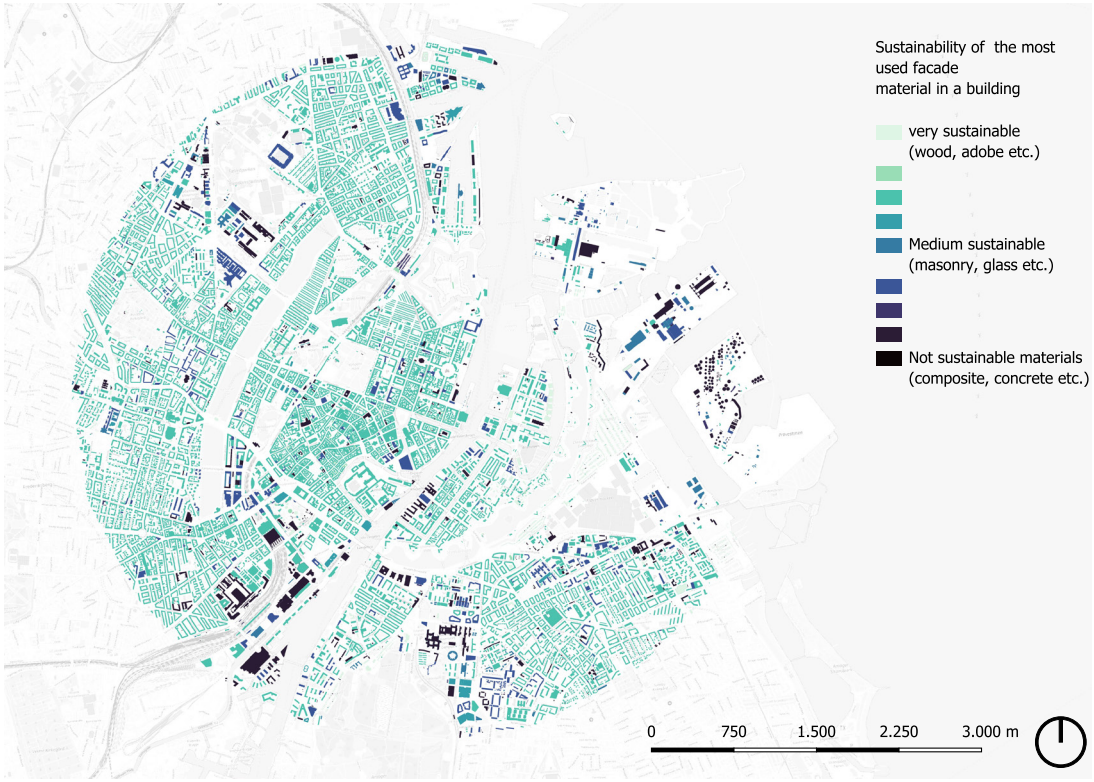
SUSTAINABILITY.

Copenhagen is making big advancements in using sustainable materials to cut down on construction emissions and to reduce waste. The city focuses on locally sourced and recycled materials, like reclaimed bricks and concrete from older buildings, to lessen the need for new resources and reduce the carbon footprint of new projects. Wood, especially CLT, is popular for its renewable qualities and ability to store carbon, and it's now used in many residential and office buildings as a greener alternative to steel and concrete.

When looking at the map of sustainability you can clearly see the current state of use of sustainable materials. The most visible exeptions are the more industrial sites around the centre of Copenhagen. However, this map only shows the facade material use. Copenhagen is known for sustainable renovations, but data on the use of structural materials (read: building materials minus renovation materials) is hard to find. So in this case, the map does not say and show everything.



Functions map by Max Douma (2024)



Sustainablility map by Max Douma (2024)

Max Tomás Douma
Planet Research

C A R B O N.

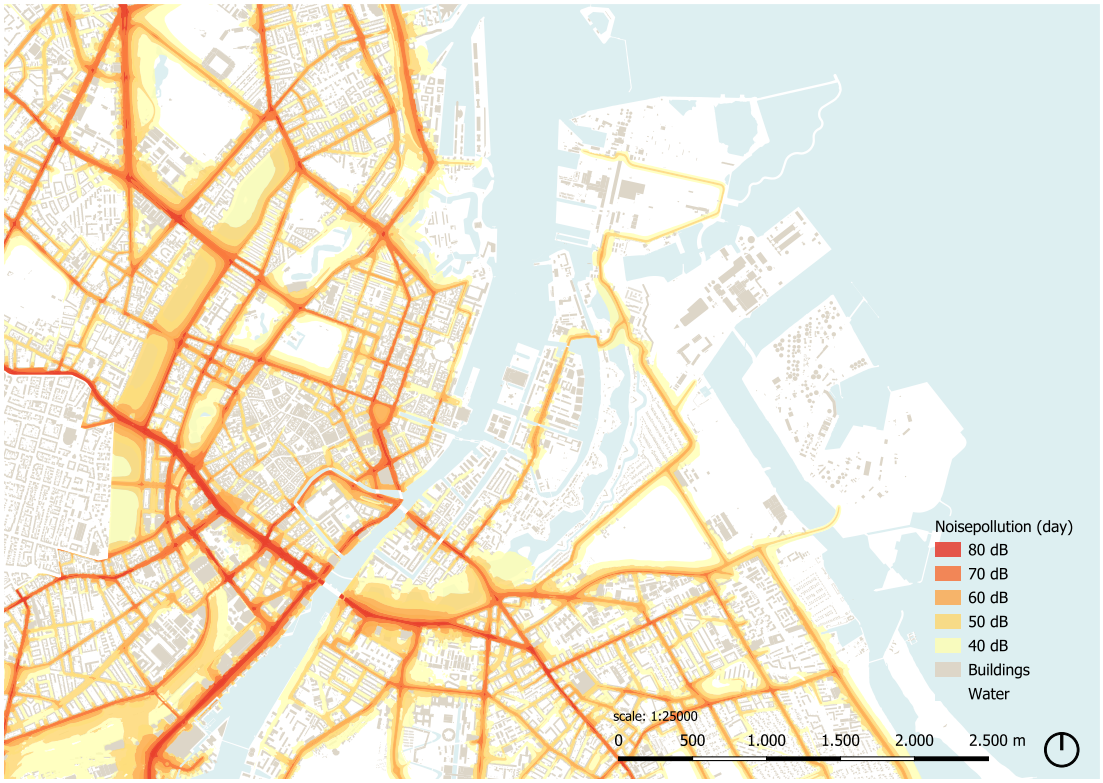
While Copenhagen is celebrated for its ambitious sustainability goals, there are challenges and criticisms that creates questions around its green reputation. For instance, the city's fast urban development has raised concerns over increased carbon emissions from construction and a reliance on materials with high embodied carbon, like concrete and steel. Also, housing costs have risen as new, eco-friendly developments seem to target higher-income residents and pushing lower-income residents out of the city center and reducing social diversity. Another problem is with Copenhagens carbon goal, which some say is very reliant on carbon offset schemes instead of direct reductions. Copenhagen's waste-to-energy plant, for example, is marketed as a green solution, but it relies on a steady stream of waste and has been criticized for discouraging waste reduction and recycling. These factors are suggesting that while Copenhagen has made impressive steps toward sustainability, there remain significant social and environmental challenges to address in achieving total urban sustainability.

Embodied carbon map by Max Douma (2024)

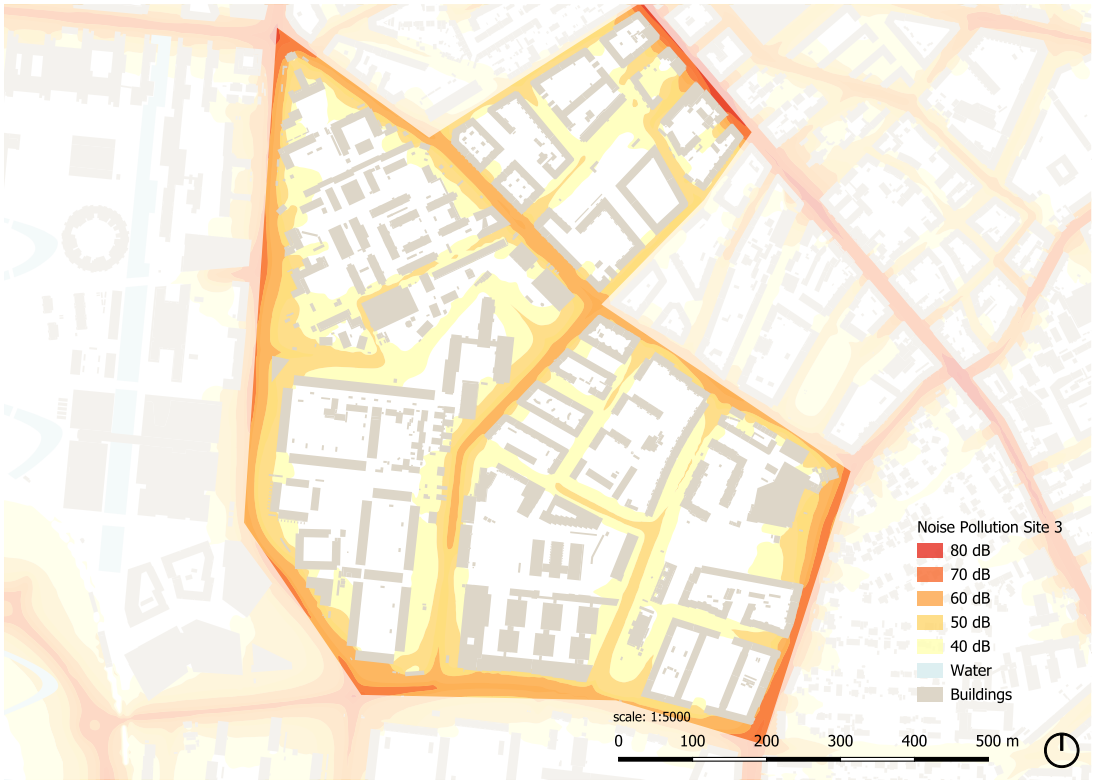
N O I S E .

Noise and noise pollution are ongoing issues in Sundholm, affecting the daily comfort and quality of life for residents. With a mix of residential, commercial, and sometimes industrial activities in the area, there is a constant background of sounds from traffic, nearby businesses, and public spaces. This steady noise can make the neighborhood feel crowded and restless, especially in areas close to busy roads or active spaces. The current level of noise pollution means that there are few quiet areas where residents can relax or have a peaceful moment. This lack of calm spaces can impact residents' ability to rest, concentrate, and enjoy their surroundings. In some spots, especially near main roads, the noise levels are high enough to discourage people from spending time outdoors or using public spaces.

Overall, noise pollution in Sundholm contributes to a more stressful atmosphere, with limited areas where people can escape from the sounds of the city. This constant noise can affect residents' well-being and makes it harder for the neighborhood to feel like a welcoming place to live.



Noise map in Copenhagen by Max Douma (2024)



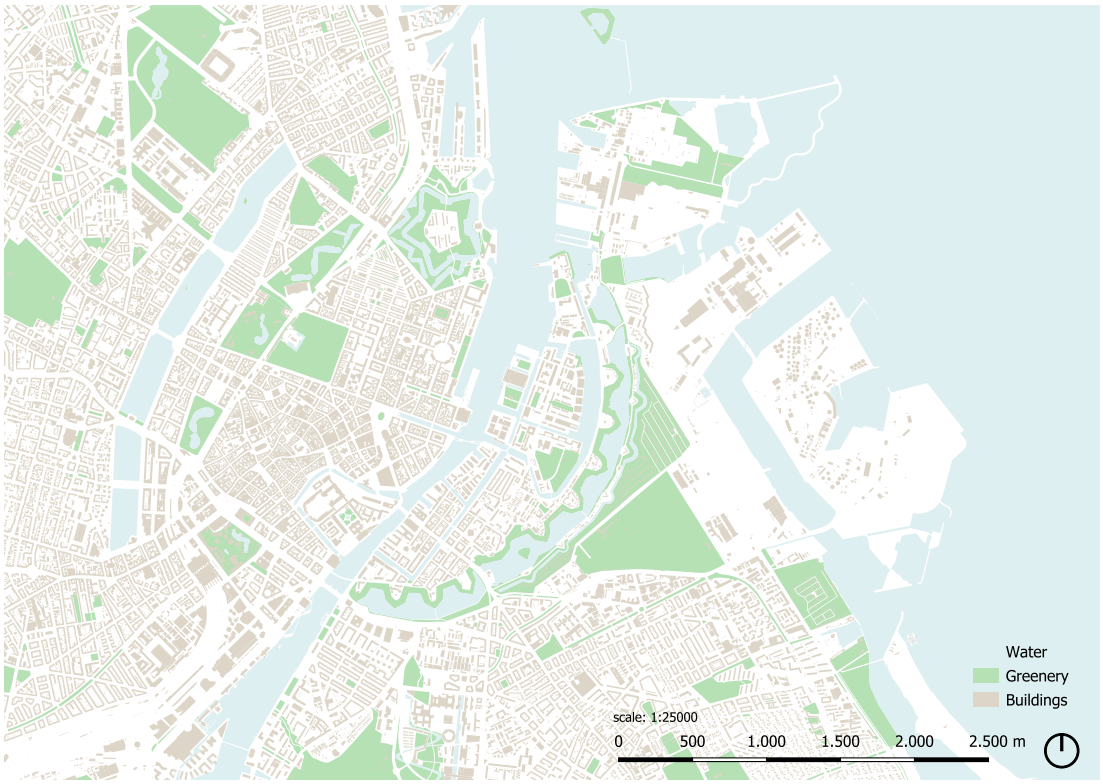
Noise map in Sundholm by Max Douma (2024)

GREENERY.

In this case we're talking about qualitative green instead of every green patch in the neigborhood. With qualitative green functional vegetation is meant. The area itself is scatterd with small patches of grass and dirt. On maps this is indicated as green spaces, but a more accurate term is greenwashing. The places of this vegetation where true meeting places are created is what we refer to as qualitative green. Spaces like parks, playgrounds and picknick places.

The current greenery in Sundholm is limited and doesn't play a strong role in the daily lives of residents. While there are a few green spots, they feel disconnected and aren't actively used by the community. These small patches of grass and scattered trees don't offer much space for relaxation, socializing, or outdoor activities, leaving the area without a central green space that invites people to spend time outside. The lack of greenery also means that Sundholm doesn't benefit from the positive effects that more plants and trees could bring, such as cleaner air, shade, and better management of rainwater. As a result, the neighborhood feels more like a functional, urban area rather than a lively, inviting place. The few existing green spaces aren't enough to support community activities, and they don't add much to the sense of comfort or natural beauty that greenery often brings to a neighborhood.

Overall, the current state of greenery in Sundholm leaves the area feeling somewhat bare and underdeveloped, with few places for residents to gather, relax, or enjoy nature.

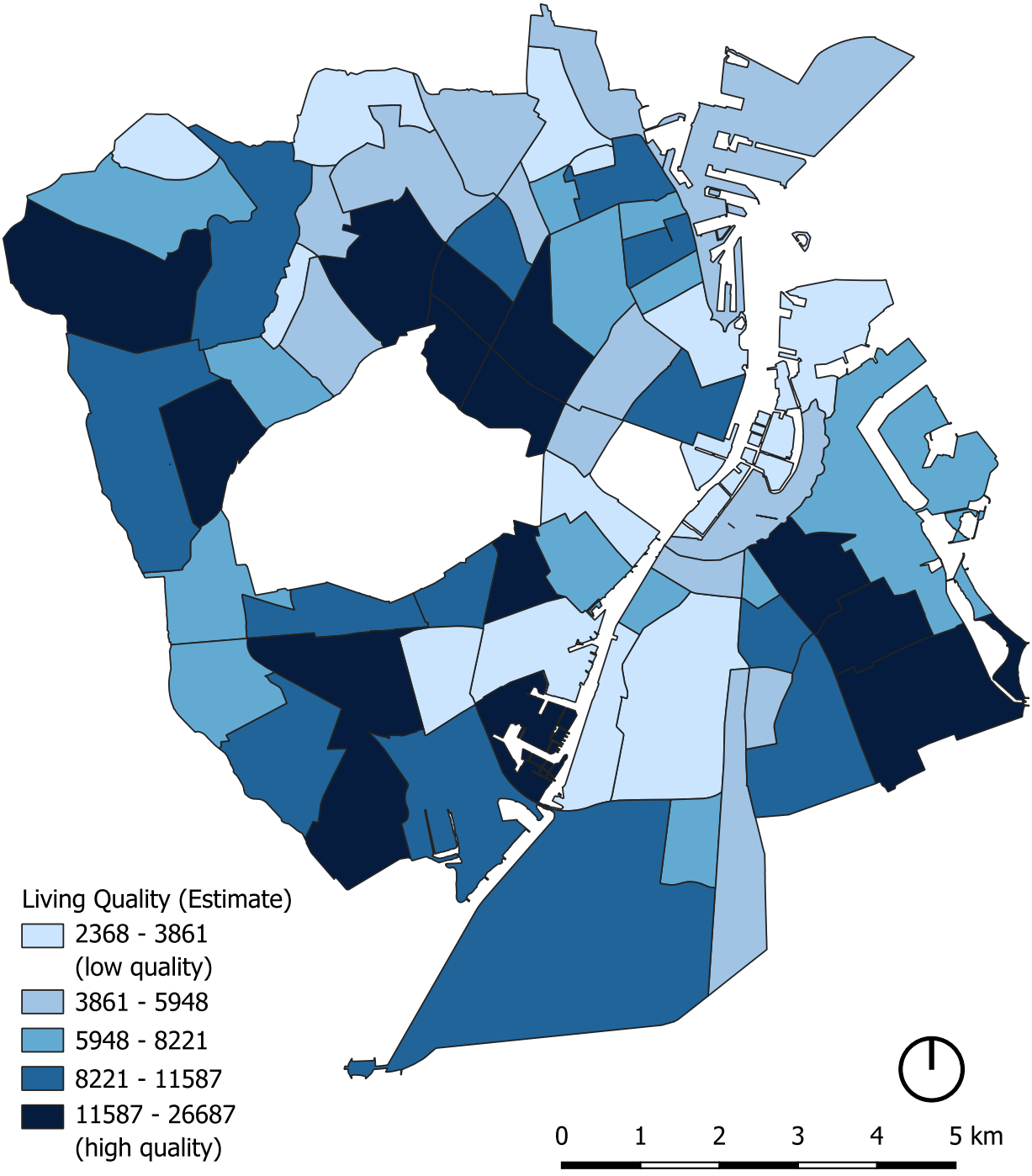

Water
Greenery
Buildings
scale: 1:25000
0
500
1.000
1.500
2.000
2.500 m


Trees
Greenery
Buildings
Water
scale: 1:5000
0
100
200
300
400
500 m

Max Tomás Douma
Planet Research

LIVING QUALITY.

Living quality is not necessarily a planet topic, but it is an important part of my research. Living quality I have made an estimate of living quality based on those 4 identifyers. Physical environment is about the quality of houses, green and water in the area. The acces to amenities is about how accesible amenities are, not the distance per se. The social hohesion is the conncetion to the neighborhood and the health and safety is about subjective opinions and health data. By combining datasets around these pillars I created a map with an estimate of the living quality of which I could base this part of the research. It is important to know that this map does probably not contain a perfect conclusion of living quality, because there are a lot of factors that could not be integrated (for example because the data does not exist). This map can give you an idea of the situation in the neighborhood, but there are factors missing.


Living Quality (Estimate)
2368 - 3861
(low quality)
3861 - 5948
5948 - 8221
8221 - 11587
11587 - 26687
(high quality)
0
1
2
3
4
5 km

Max Tomás Douma

QGIS Workshop

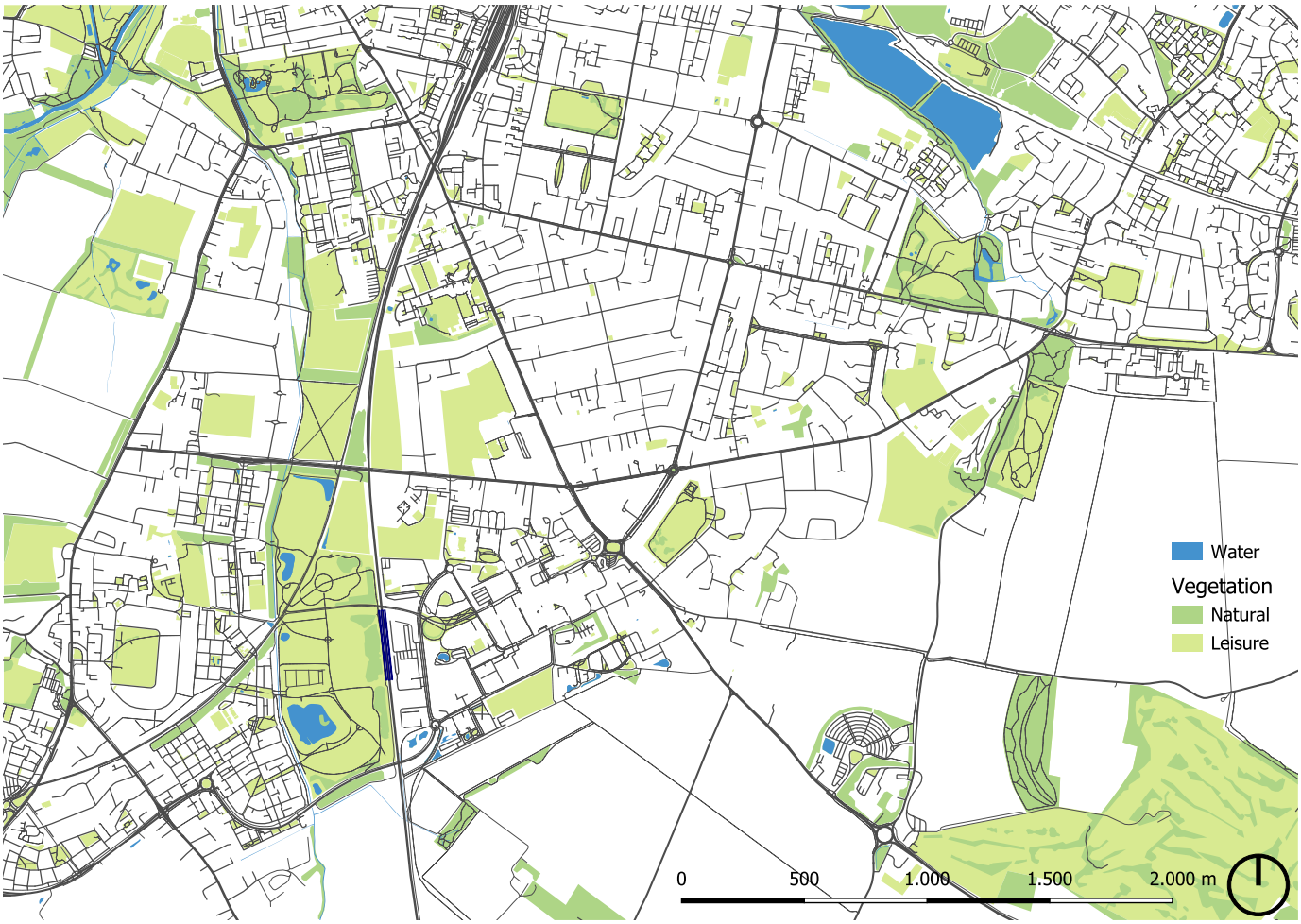
W O R K S H O P.

In the workshop provided by Angela Rout about 'Mapping in Architecture' we gained experience about the difference in mapping, types of data, cartography symbology and how to implement science-thinking. We did this with the help of pre-supplied data and a lecture. The most important conclusions (taken directly from the lecture) are:

ESRI
- Proprietary (expensive)
- More outputs options
- Analytics options
- User Friendly
- Intense Support Infrastructure

QGIS
- Open source
- Free
- Less advanced analysis tools
- Netherlands open data API and plugins
- Helpful to have some programming background (not necessary)
- Many YouTube Videos, resources in the faculty

Science-thinking
- Careful, rigorous collection of data that has a location attribute
- Focus on precision, accuracy, data organization and structure
- Adding new data is tedious
- Available data can be "locked"
- Analysis tools are based in science methods
- Data is 'open' but 'sacred' - requires specialists
- Location is everything



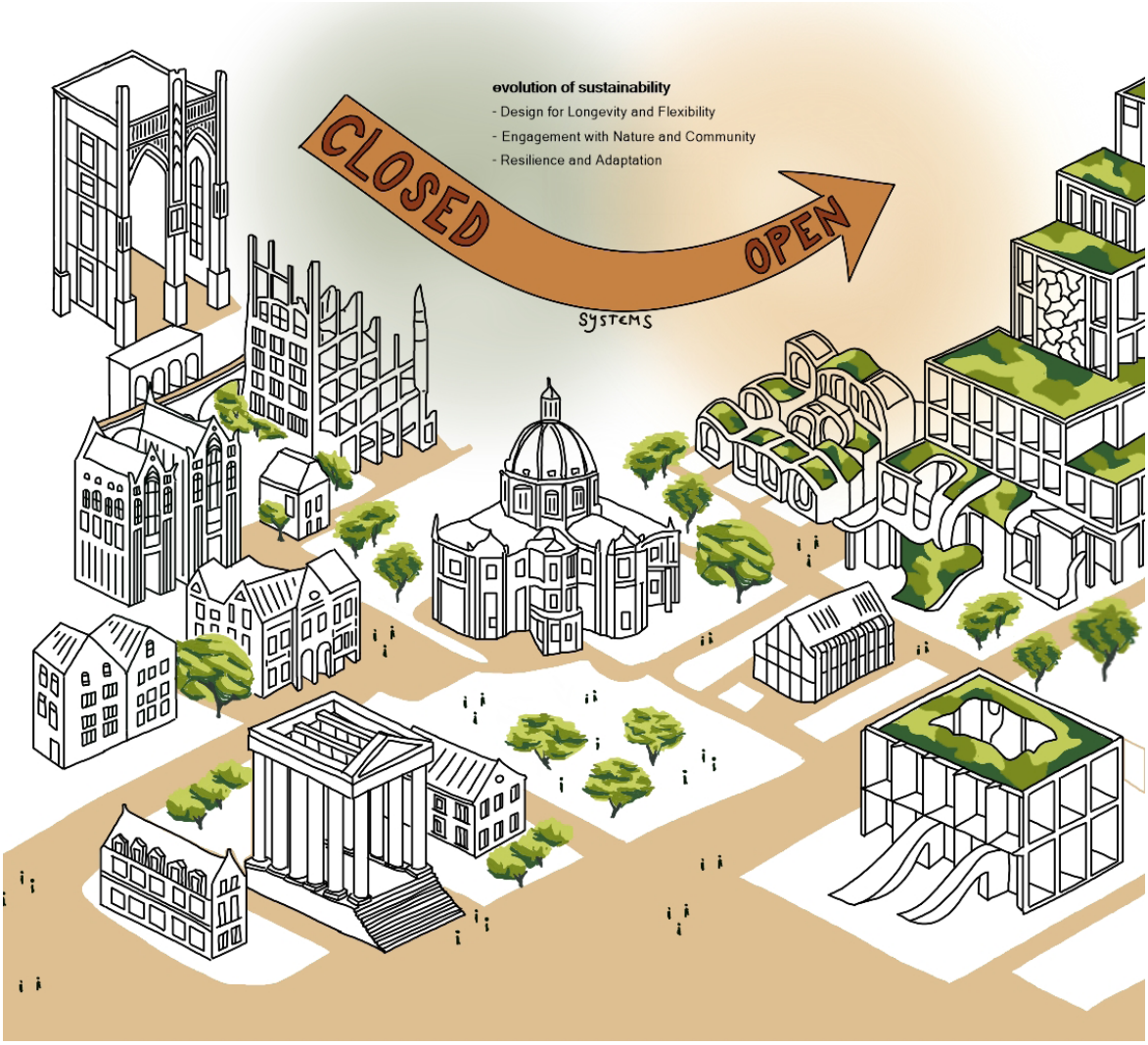
QGIS Map by Max Douma (2024)

Max Tomás Douma

Assignment 1

EVOLUTION.

the illustration is in contrast with closed systems, which are rigid solo-purposed. The open systems are dynamic and responsive. This shows how sustainable architecture and urban planning can evolve to better work with the complexities of modern urban life. The evolution of sustainability in architecture and urban design is shown by illustrating how cities and buildings can be planned, built, and managed in a way that is more adaptable, resilient over time. Sustainability is closely intertwined with the evolution of these systems. In a closed system, the concept of sustainability often has its limits by rigid planning, uniformity, and over-determined design that do not take the future changes or unforeseen needs into account. Structures are build with a specific purpose and lifespan and they lack flexibility. This means buildings can not adapt for environmental changes for example. Isolation from natural systems like bodies of water also shows the lack in flexibility. In an open system, sustainability is seen as a dynamic process. This means that this system incorporates flexibility, adaptability, and resilience to achieve ecological and social balance.



Drawing by Max Douma (2024)

Max Tomás Douma

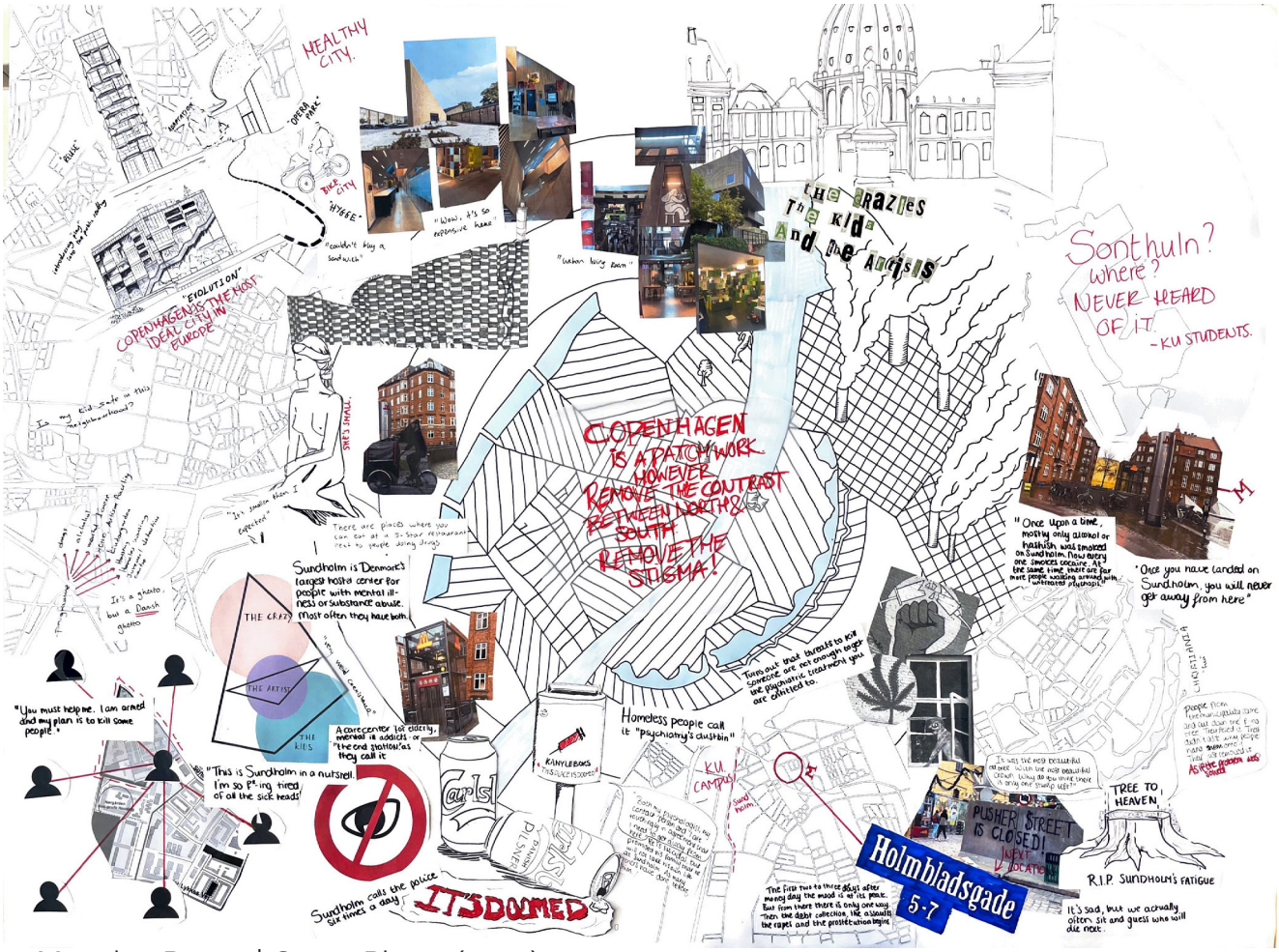
Assignment 2

M A P P I N G.

In this pre-trip asigment, we were asked to create a diagram in which we would display how we viewed Copenhagen based on data online. After the citytrip, we could adapt or re-create this map after visiting the site ourselves and have seen the situation with our own eyes. The map, as shown on the next page, in made up from a base drawing with a patchwork structure. This patchwork symbolizes not the different parts of Copenhagen, but more the perceived division of the city. Where does it feels the boundaries are. The map is buid up of layers, to symbolize the layered structure of Copenhagen and Sundholm. On the next layer the most important landmarks are shown. This creates a more experience-based view of the city. After this layer, Sunholm is described. This is done by small pieces of text from interviews and own experiences. The map is finished with some visualized conclusions about the area, photo's and drawings about key-points of Sundholm and a statement about the current situation of the neighborhood in red.

Max Tomás Douma

Assignment 2



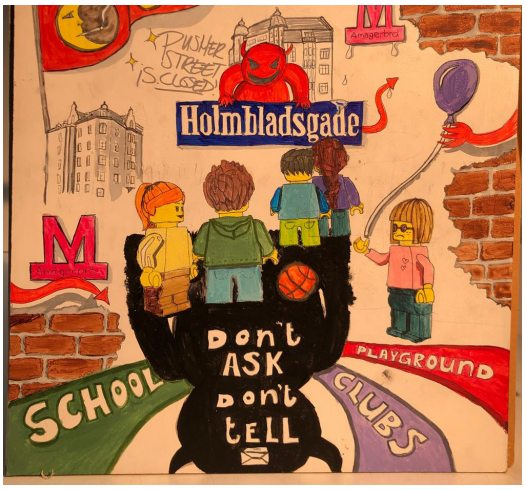
Mapping Poster | Group Planet (2024)

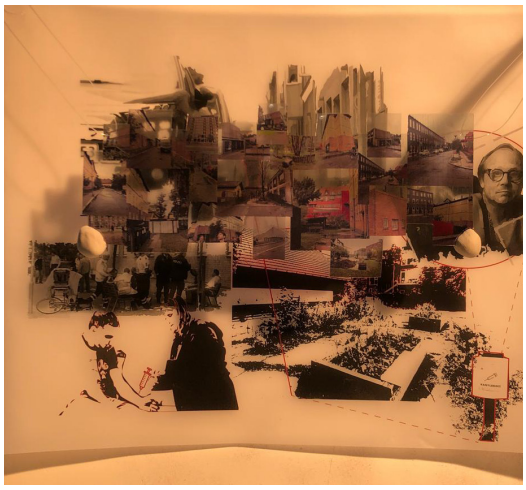
Max Tomás Douma

Assignment 3

D I A G R A M S .

In this assigment we tried to visualize the Sundholm area in the form of a diagram. This diagram has more of a loose character. It has to show a collaction of data, without actual maps and numbers. Instead of three different diagrams, we decided to integrate elements for the different diagrams into one combined piece. It is a cube with three painted sides and one multi-layered street view (seen on the photographs). These closed sides show how the neighborhood is perceived from the outside. The problems like the drug-use and reputation are shown. The sides can however open up. When opened up different schematical maps of the meighborhood can be seen plus a hanging, black box in the middle. This black box can be viewed as the black box in a plane; it contains the secrets of the area. The box has holes in it. When lights shines through, it lights up different parts of the area. These parts are for example, the common places for the kids, the crazies and the artists. This is a sentence from an interview with one of the reseidents we found quite a clear representation of the Sundholm neighborhood.





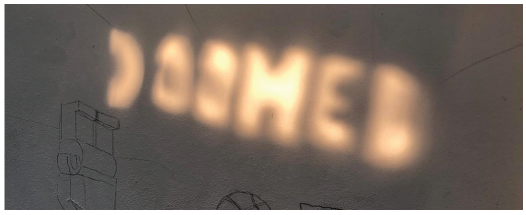


Diagram of Sundholm | Group Planet (2024)

Max Tomás Douma

Assignment 4

HYBRIDITY.

The Sundholm area in Copenhagen is in need of a hybrid building in the form of a public condenser. While the area may have a negative reputation from an outsider's perspective, a closer look shows an unexplainable coexistence among the diverse groups of residents. Designing a public condenser in this neighborhood requires a careful balancebetween the current community while also acting as a catalyst for improvement, all without losing the area's unique identity. The building needs to represent not only the physical structure of the neighborhood but also its cultural and social dynamics. In Sundholm, different groups live together in a unique state of coexistence, not separated but 'living apart together,' as you would say in Dutch. This makes a hybrid building an ideal solution, offering a space where different groups can coexist peacefully without forced interaction. The central factory building, currently serving as studio space for local artists, will serve as the perfect foundation for this project. It has played multiple roles for the local community in the past, but each functioned separately. The factory has a strong symbolic value for the neighborhood, acting as a recognizable landmark. Instead of erasing or replacing this significant structure, the design will build upon it, keeping its identity while eventually planning for adaptation (in the future). This approach enhances the current situation, enabling the building's potential to evolve and adapt itself to the community. The new and adapted factory building will function as a hybrid by incorporating multiple uses within a single space, blurring the boundaries between public and private, formal and informal. By maintaining and improving the original structure, the building can adapt to the evolving needs of the residents while keeping Sundholm's distinct identity. Sustainability is central to this hybridity: instead of demolishing and starting from scratch, the design repurposes the existing structure, reducing waste and reusing materials in an environmentally friendly way. It is es-

sential for this hybrid public condenser to integrate seamlessly into the existing fabric of the neighborhood, both structure-wise and functionality-wise. The community must see the changes and adaptations as a continuation of 'their' landmark. The building needs to be perceived as part of the neighborhood's identity, making the transformation feel natural. Because of the complexity of this human aspect, the project is hard to cassify as one type of hybridity. Instead, it is a combination of both fabric and craft hybrid. The design will be woven into the neighborhood's fabric by incorporating elements from surrounding buildings, but it will also incorporate a fresh perspective. It will represent a positive change for the residents while preserving the unique character of Sundholm. In summary, the public condenser will represent the neighborhood's complexity, giving function as a hybrid structure that respects Sundholm's identity while providing a platform for future growth and innovation in a neighborhood that was once a forgotten place in Copenhagen. It will be a space where diverse groups can coexist, reinforcing the unique mix of people, cultures, and functions that make Sundholm and specifically Sonderbro special.

"Hybridity in architecture involves designing structures that utilize different materials to create unique buildings and spaces"

Max Tomás Douma

Assignment 5

SUSTAINABILITY.

Hybridity

The key point of the Sundholm Public Condenser is to create a hybrid within the sustainability aspect. First of all, I want to create a hybrid of architectural strategies: The use of a compact shape with a high building mass and the use of a complex shape with a low building mass. The public condenser will be a combination of a newly built structures mixed with a renovation of an existing one. The new building additions will feature compact shapes with high thermal mass materials, such as concrete and masonry. These materials are used to absorb, store and gradually release heat. The main renovation structure (the factory) will keep its skeleton. This will be the central part of the building. The preserved plan will be transformed into an open plan space. This complex structure with low-mass materials (steel construction, open facade) gives a lot of natural ventilation and natural light in the biggest open part of this building. In this way there is les need for artificial lighting and mechanical ventilation. With the careful use of for example the masonry in the primarily visible parts of the condeser we can also reflect the newly found neighborhood identity in the stucture. (Research Plan 2) Sustainability is not something only in the energy-sense, but also in the people-sense. The sustainable environment is something that needs to be created and preserved also for the residents.

Daylighting

As a core element in the subject of sustainability in the Public Condenser I will use daylighting. (research plan 1) When light is used in a correct and innovative way it can function as a powerful designtool. The first thing to come up is energy efficiency and the reduced carbon footprint. The relience on artificial lighting decreases during day time hours which lead to energy savings. Less energy consumption leads to a lower footprint. There is also the advantage of thermal performance. Strategic use of natural light contributes to passive heating and cooling. Good orientation of windows allow sunlight to warm spaces during colder months, reducing the need for mechanical heating. Well lit spaces also have a better indoor environmental quality, resulting in better occupant health and well-being. Natural light enhances visual comfort, reduces glare, and supports circadian rhythms, which are good for physical and mental health. Well-lit environments can lead to better productivity and satisfaction with occupants, particularly in workplaces. To conclude the benfits of daylight; the options in design increase when succesfully using the daylight. Design options around biophilic design are more possible and even when thinking about the economic part, it can be beneficial (oprational costs etc.).

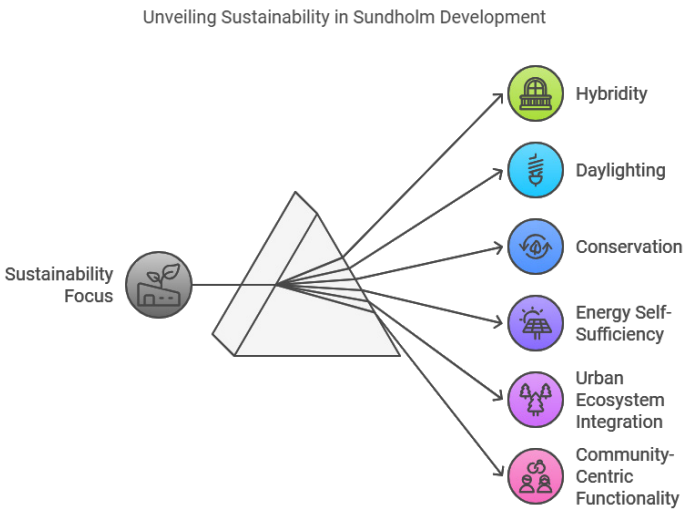
Conservation
The central aspect of the sustainability scheme of the public condenser is the focus on conservation. This means that the emphasis lies on the use of the building. In this case we're talking about the residents' use of the condenser, but also a little bit about the renovation process. By renovating and keeping the central stucture, we not only display the importance of keeping the neighborhoods identity, but we also save on material costs and open up to possibilities in energy-saving methods. By incorporating daylight-use strategies, we can further improve the energy-use and human well-being (human sustainability).

Material Options for Central Sustainability Enhancements

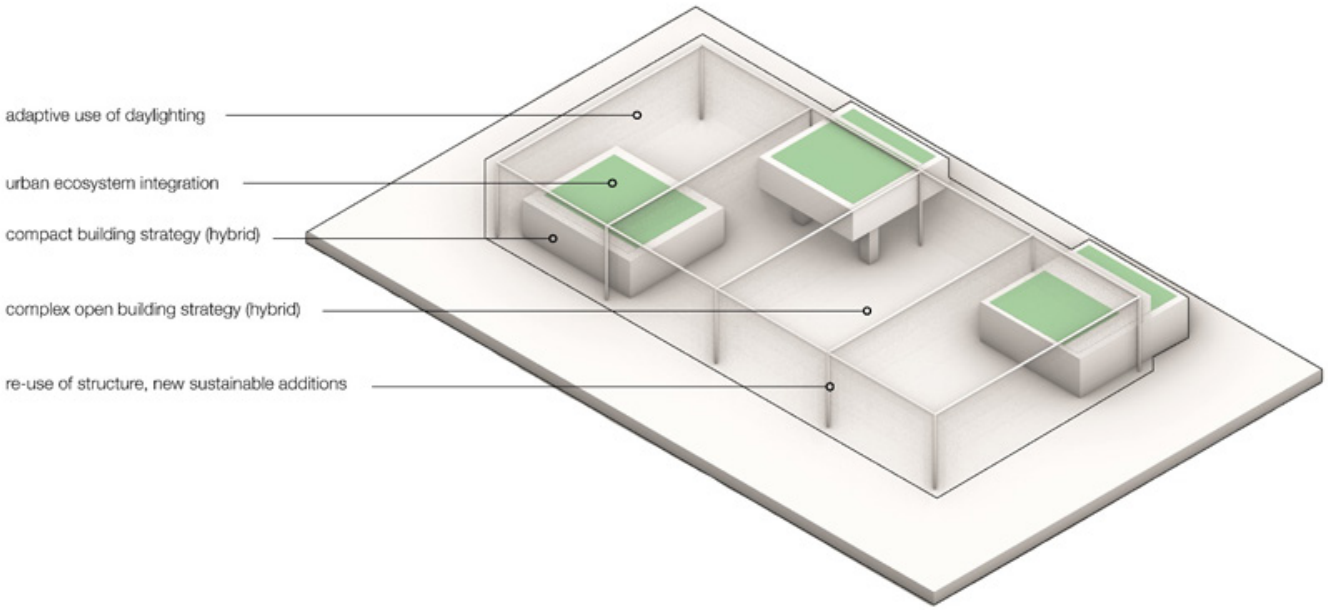
1. Energy Self-Sufficiency
Incorporate solar panels and passive heating in the compact additions while utilizing cross-ventilation and use effect cooling in the open-plan factory. (effect cooling in this case by effectively using vegetation to aid in the cooling of the open spaces.)

2. Urban Ecosystem Integration
Introduce green roofs, vertical gardens, and water recycling systems to enhance biodiversity and resource efficiency.

3. Community-Centric Functionality
Transform the factory into a sustainability hub with spaces for education, workshops, and public engagement, with attention to resource circularity and social inclusivity.



Sustainability Diagram | Max Douma (2024)



Sustainability Diagram 2 | Max Douma (2024)

References

Therme Vals by Peter Zumthor

This project uses high thermal mass materials like stone and concrete to store and release heat and a high mass strategy. The design integrates the surrounding environment while emphasizing the tactility of the materials and energy conservation.

The Crystal by Wilkinson Eyre Architects

This is a hub for sustainability and education. the Crystal shows a community-centric functionality where daylighting is a very important part of the design. It features spaces for public engagement, exhibitions, and workshops. This alligns with Sundholm's goals of creating a sustainability-focused hub for the neighborhood.

The Factory by Ellen van Loon

This space was repurposed from an industrial structure and it reflects the adaptive reuse of an existing structure. The open-plan design shows a sense of flexibility while it keeps the focus on preserving industrial heritage and the project's identity conservation goals.

P I N - U P.

During the pin-up the combination of our group work is shown and we could explain our vision on the planet part of Copenhagen and Sundholm. The poster on the next page combines the work and efforts of the four people in our group and it shows the conclusions we found including an important time-line on the left side.

COPENHAGEN

PLANET ANALYSIS

TIMELINE

2008 Cobe wins the competition of the masterplan for Nordhavn

2009 The City of Copenhagen has named itself the first CO2-neutral city in the world. With the monocentric governance approach that relied on technological innovation instead of focusing on the behavior change. The goal is zero emission in the city of Copenhagen and the first capital in the world to be completely CO_2 neutral

2014 A report by the London School of Economics recognized Copenhagen as a leader in the green economy, highlighting its success in becoming a compact and transport-efficient city compared to others like Stockholm and London.

2019 compared to the CO_2-emission in 2005, has the City of Copenhagen reduced the emission with 75%

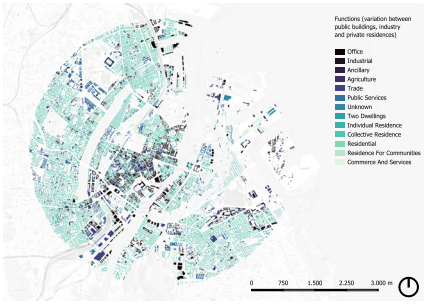
2020 The city still needs to decarbonize around 33% to get to zero emission in 2025

2024 The City of Copenhagen is currently at 80% of a complete neutral CO_2 emission

2025 The City of Copenhagen is the first capital to be completely neutral CO_2 emission

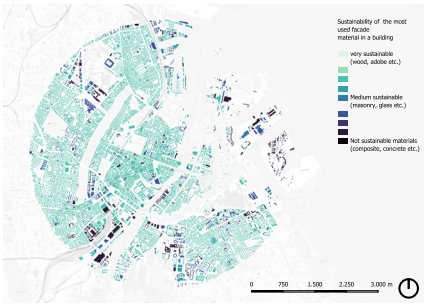
2035 The goal for 2035 is to continue with the goals for 2025 and even achieve climate positivity with the CO2 emission within the boundaries of the city. They want to demonstrate other cities how to work ambitiously to tackling the global climate crisis. Reducing the consumption based emission to 5 ton CO2 per citizen and as a subgoal halving the CO2 emission from the city through import.

COPENHAGEN

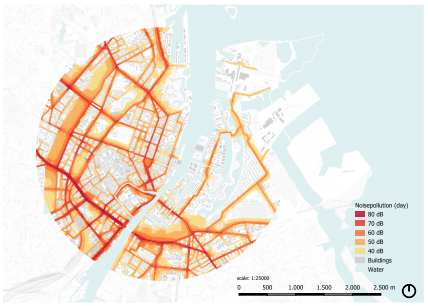


FUNCTIONS

GREEN

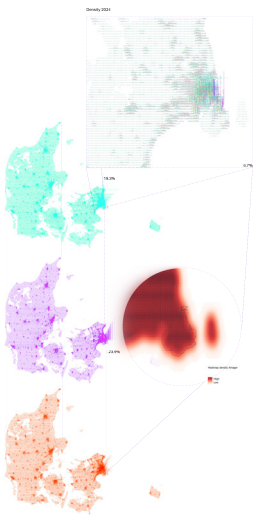


SUSTAINABLE MATERIALS



NOISE

BUT WHAT ABOUT SUNDHOLM?



FINGER PLAN DESNITY MAP 2000-2020

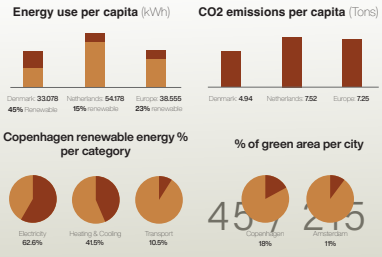
CONCLUSIONS

Thoughts:

- Attachment to nature can trigger senses and memories for new ways of living and therefore a healthier way of living.
- There is unexplainable coexistence between children and addicts. Kindergartens and Juvenile detention centers. The coexistence of the drug users and the families and younger generation. Our aim is to not disturb this coexistence but enhance and grow it.

Urban planning in a wider scale of the area needs sensitive attention. MASTERPLANNING the whole of Sundholmskvarteret, not just Sundholm.

Overall:
Evolution for this neighborhood is to adapt. Adapting to coexistence with the communities will result in a safer and better functioning neighborhood.



Max Tomás Douma

Research Plan v1

Key-words: Light, Well-being, Integration, Adaptability, Identity, Connection, Interaction.

INTRODUCTION.

Light has always been a cornerstone of architectural design, determining how we perceive and interact with the built environments. Light, when effectively used, can almost be seen as an actual material. It can shape space, create depth, and emphasize texture. But it's not just the light itself that can accomplish this; the combination with shadows and darkness is equally important. Together, light and shadow create contrasts that transform how we understand and feel within a space. When these qualities are well integrated, they become powerful design tools that can positively impact functionality, enhance aesthetics, and shape human experience within buildings. This research plan, aligned with the Public Condenser in the Public Buildings studio, investigates the different effects of light in the specific context of a public condenser for Sundholm (a district of Copenhagen). The focus is on how light (and its dark counterpart) can define spaces in ways that support functionality and human interaction in a qualitative public space. Furthermore, the research is trying to find out how this public condenser can be used as a sustainable, hybrid space for the residents within Sundholm's unique urban fabric. Light, used in a good way in and around the site, can help create a public condenser by creating an environment that can function as a sort of 'bridge' that fixes the community's needs, enhances social interaction, and creates spaces that are not only functional but connecting with all who share them.

Sundholm is unique in its unexplainable coexistence of diverse social groups. Kindergartens, juvenile detention centers, and community facilities for young families share the same space as centers for addiction rehabilitation and support for vulnerable adults. This community is an unusual but existing balance of generations, lifestyles, and needs. The aim of this research is to explore how light can be used to respect, support, and enhance this coexistence, creating an environment where different groups are encouraged to interact without disturbing the balance that exists. But how does a public condenser fit in? First of all; Sundholm is an area that knows a lot of problems. Within the research we will focus on the living quality. Under living quality we can subtract four main factors. The physical environment, the acces to services, the social cohesion & community sense and health & safety. Where light can affect human behaviour, perception and patterns, it can not actually change the physical environment, only how we percieve it. This means the first two factors of living quality can not be improved with an innovative use of light alone. This is where the public condenser comes in. Combined, the two different parts of the architectural equasion can try to approach a solution to the current situation of Sundholm and can maybe act as a prototype for other, similar, situations. To give an insight in the current area: Well-Being and living quality in the neighborhood are lacking compared to the rest of Copenhagen. There are a lot of different architectural adaptations to be done to try to improve the individual and collective well-being of the residents, but in a neighborhood where every individual target group is pratically divided (phisically and in feeling) are a lot of these initiatives and improvements as divided as the residents are. The use of light and its dark counterpart will not be the solution to a better overall well-being of the people, but a tool to bridge the divisions between the vast selection of elements that can improve Sundholm as a whole. It can function as the glue to reconnect an seemingly broken or incoherent part of Copenhagen together with a public condenser.

R E L E V A N C E .

QUESTIONS.

To approach the issues around the Sundholm neigborhood there are a couple of questions to be asked. Of which the most important one (primary question) is: "In what ways can light be manipulated to highlight architecture and spatial transitions within a public condenser, contributing to a unique identity and a better living quality for Sundholm?"

To further adress the situation it is necessary to combine the primary research question with a couple of sub-questions. These important questions will be the following:

1. In what ways can natural light be altered and used?
2. How can natural light enhance the functionality of a public condenser in a mixed-use, socially diverse area like Sundholm?
3. How does natural light influence human behavior, social interaction, and well-being in environments where there is a unique coexistence between residents in a neighborhood?
4. How does the different use of natural light influence the different target groups?
5. What strategies can be used to integrate natural light, allowing the space to serve different groups' needs over time without disrupting the area's social balance?

Photo by @Archdekk (2022)

1. To analyze the impact of light on a building, including spatial organization and usability in a public condenser.
2. To explore the aesthetic role of light in creating architectural form, materiality, and an identity.
3. To see how we can create spaces that feel meaningful and cohesive within Sundholm's social context and how we can alter/enhance the social- and living quality.
4. To find out the best way fof incorporating light into a public condenser with a focus on sustainability, resilience, and adaptability (for the future).
5. To find out what different strategies and uses for light different target groups need and want within the public condenser.

G O A L S .

"In what ways can light be manipulated to highlight architecture and spatial transitions within a public condenser, contributing to a unique identity and a better living quality for Sundholm?"

METHODOLOGY.

To accomplish the goals of the research a couple of different methods are used. First; **Case Studies:** In-depth case studies of buildings renowned for their innovative use of light (for example: The Therme Vals or The Chapel by Peter Zumthor and the Louvre Abu Dhabi by Jean Nouvel). This will provide insights into how natural light is integrated into design. Another method that will be used is interviews with architects. **Architect Interviews:** Interviews with architects will offer insights into the strategies and challenges of incorporating light into design. This can also include reviewing existing interviews on light usage and design in similar contexts. This will include existing interviews with architects such as Steven Holl on the use of natural light in public spaces (like the St. Ignatius Chapel and the Nelson-Atkins Museum of Art) and Tadao Ando with his philosophy on light and shadow. Literature review will also be a part of the research, in particular researchpaper and other scientific readings. **Literature Review:** By studying current research and papers on the use of light and shadow, strategies for effective integration of natural light will become clearer. Also, the research will incorporate user observations. Next to user observations of for example residents and users of the space in Sundholm (from interviews), also my own experiences will be taken into account. **User Observations:** Observational studies will be conducted in buildings in both the Netherlands and Copenhagen, with notes, photographs, and sketches documenting findings. While this method is somewhat subjective, it is valuable for exploring human interaction and responses to architectural space. Lastly, mapping and prototyping of the area will help shed a better view on the rearch topic. **Mapping and Prototyping:** This will provide a better understanding of the Sundholm area and give a structured, practical and visual approach to understanding the area's existing conditions, needs and potential solutions. This is essential to combine the data on light to the public condenser.

D E S I G N.

In the Public Condenser, light is not just a design-element but an important strategy that directly supports its purpose as a catalyst for community integration and improved living quality. By combining lighting design with the building's functions, defining spaces, safety, distinctive identity, and sustainability, light becomes a powerful tool for transforming the experience and impact of the Public Condenser in Sundholm. To translate this into my specific Public Condenser there are a couple of different factors that have to be taken into account. Light as an aspect on its own is not always good or bad. How its implemented is the key in this situation. There always has to be a good balance of elements to make this determination. When looking at the impact of light on social interaction for instance, the ideal situation would seem to be; a lot of light and a high level of interaction in and around the building. But what if you experience a high level of interaction, in combination with low lighting. is that not as good? To be short, it is different. In the building there has be a balance between the different spaces with different uses of light. The most important part is to note that light and shadow as a tool do not function as a one size fits all solution. (Fournier & Wirz-Justice, 2010, 44-49) The strategies need to be carefully adapted to the target groups, location, seasonal changes and cultural differences.

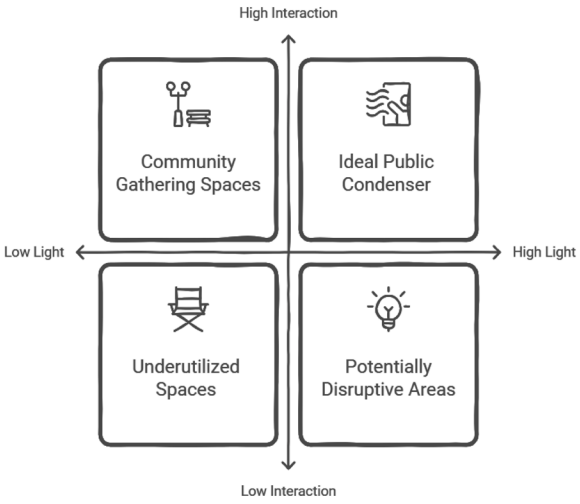


Diagram 1, Max Douma (2024)

Photo by Bohlin Cywinski Jackson (2017)

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figure 1, Light and Shadow Exposition (2018)

figure 2, Field Chapel by Peter Zumthor

Research Question

How can we re-introduce common identity into a fragmented area?

Follow Up

What is identity?

Identity

Typology. Identify identity fragments of typology. What defines a particular part of the area?

Detailing. What are the different important details on the buildings and around the neighborhood?

Signage. What does the signage in Sundholm say about the neighborhood and and what does it signify?

Culture. What different cultural aspects define Sundholm?

People. Identify the different needs for the different demographics in the neighborhood and the significance.

Significant Places/Buildings. Show the important buildings and places that define the Sundholm area.

What to do with the identity of Sundholm? Ignore, enforce, strengthen, re-create, add, combine?

Re-create. This is done by enforcing current boundaries and enforcing the urban identity divide. The identity-less space is defined and used to recreate Sundholms' identity.

Options

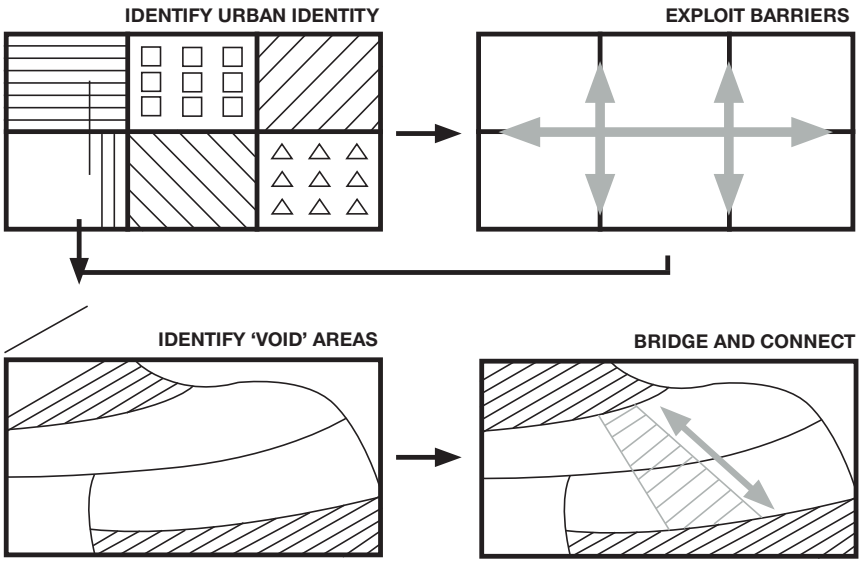
Light. Utilise the light as a method to translate identity elements.

Vegetation. Use vegetation to enhance the existing boundaries.

Symbology/Signage. Use symbology and signage to both translate identity elements and to enhance the boundaries.

Goal

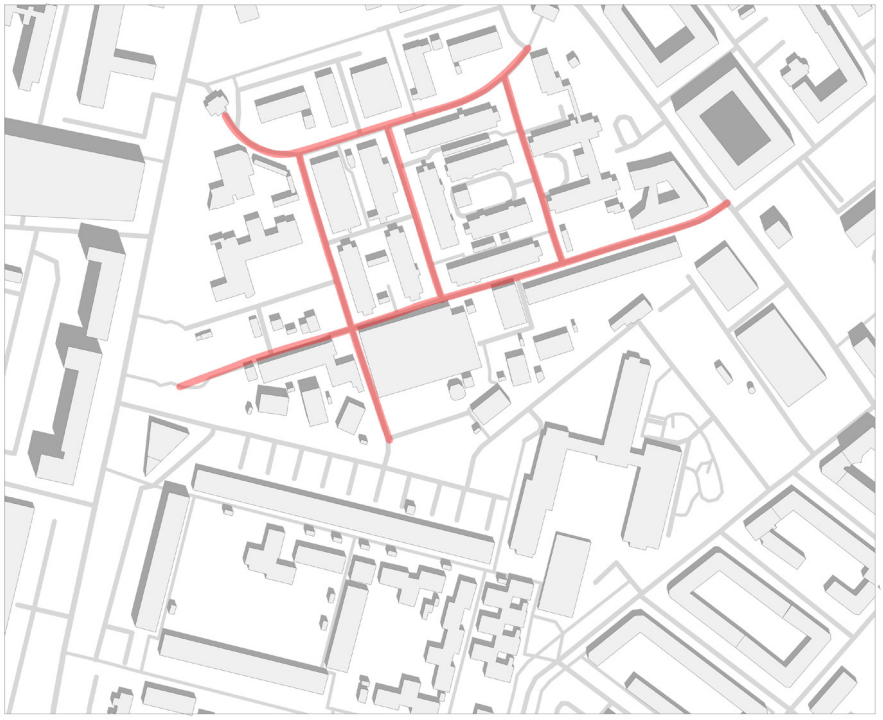
Condensing the neighborhood by creating a 'anti-identity.'



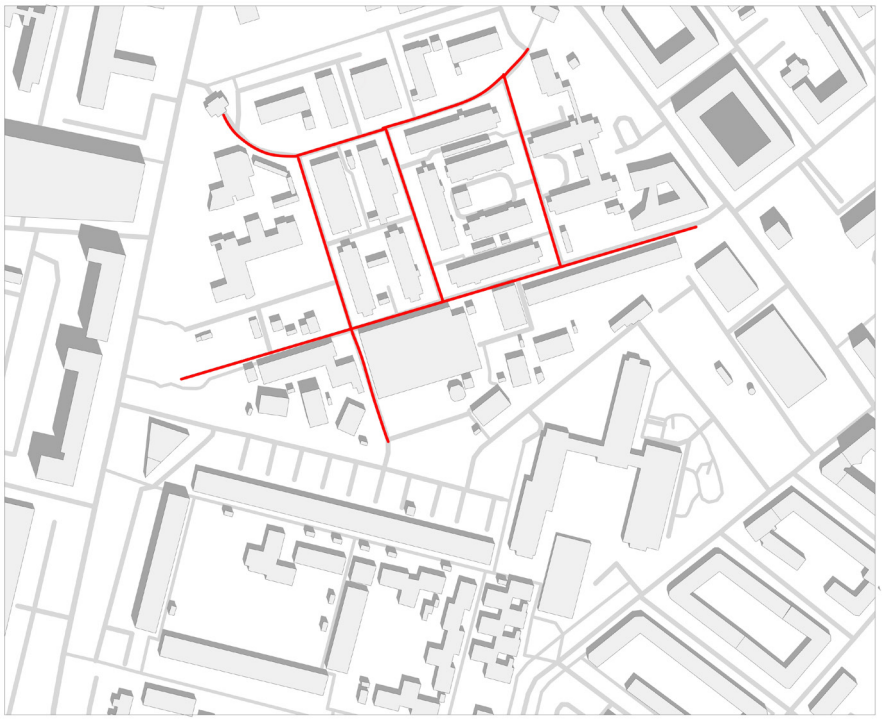
In Sundholm we cannot just combine elements to create a big 'melting-pot' of identities. From research and interviews we learn that that is NOT the way to go in this neighborhood. We have to find another way to CONDENSE.

We use the 'identity-less space' to (re)create a new urban identity. By working around these spaces and not only keeping, but enhancing the separation space (to emphasize the differences) we create a new type of identity. A anti-identity of sorts.

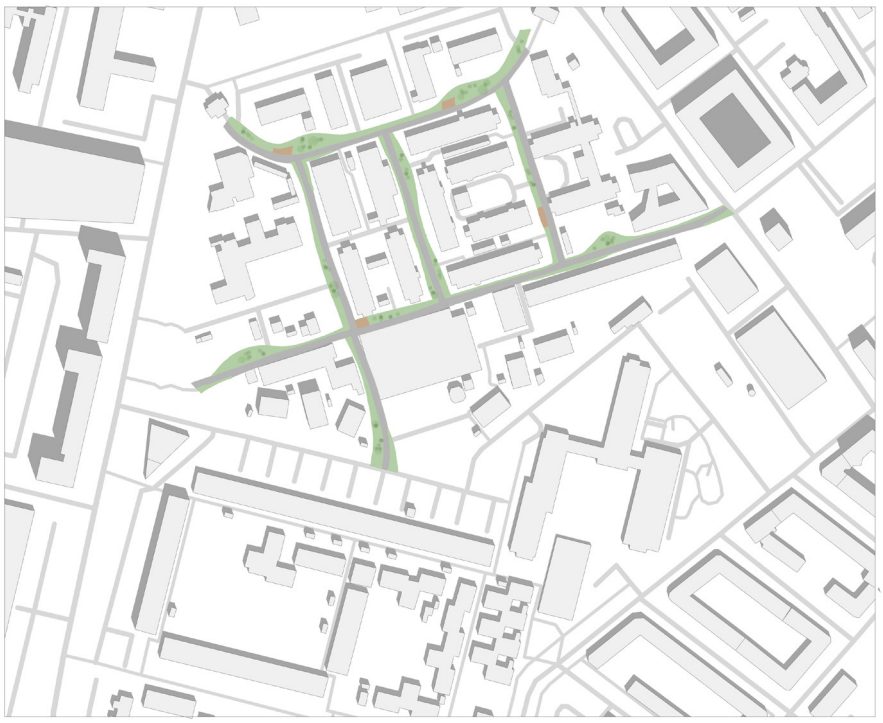
Current situation



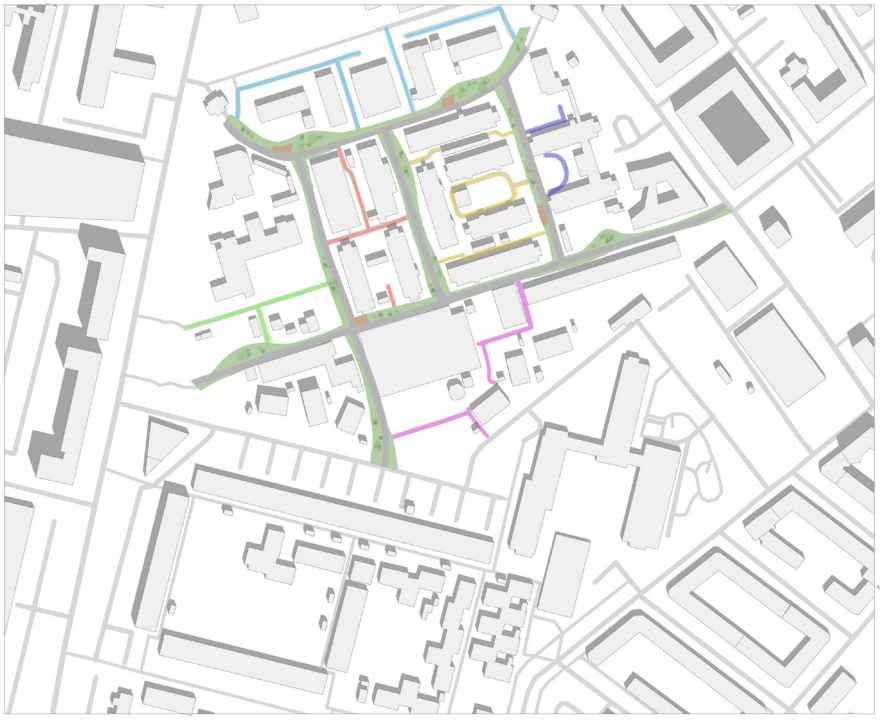
Identify urban identity and typology



Divide neighborhood



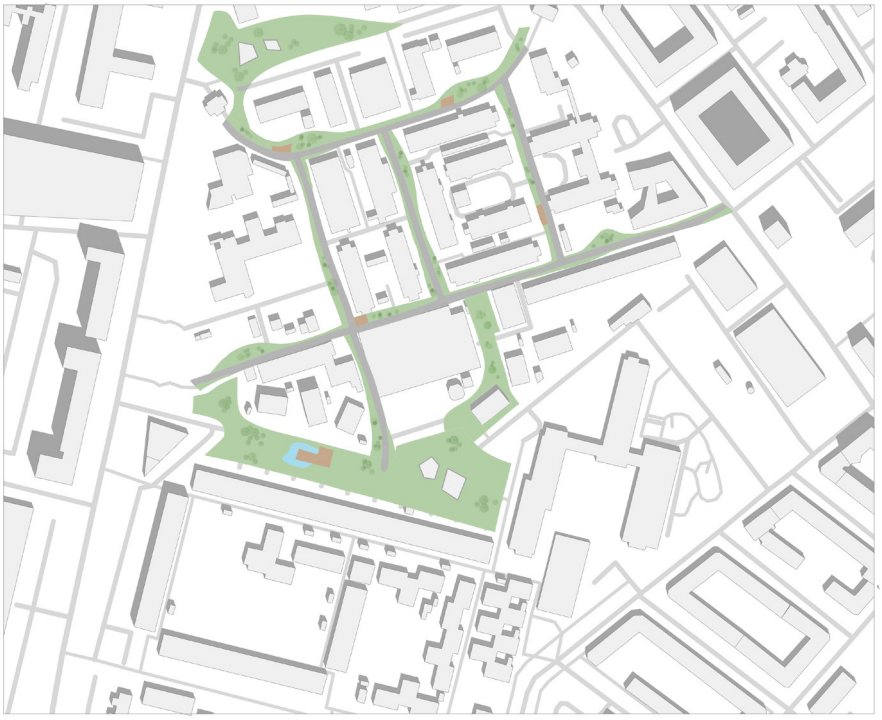
Make division clear, but enhance accessibility



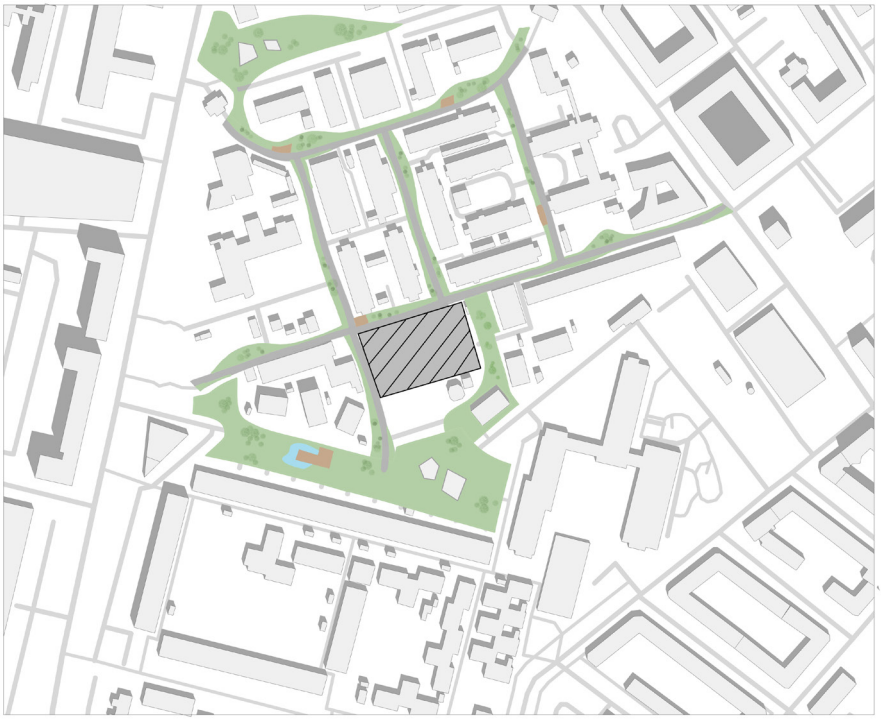
Create signage to enhance typologies within parts of the neighborhood

Identify un-used space (without identity)

Connect this space through the neighborhood



Enhance area with special design of vegetation and light



Put the Public Condenser in this newly created 'anti-identity'

Max Tomás Douma

Tutoring | Option 1

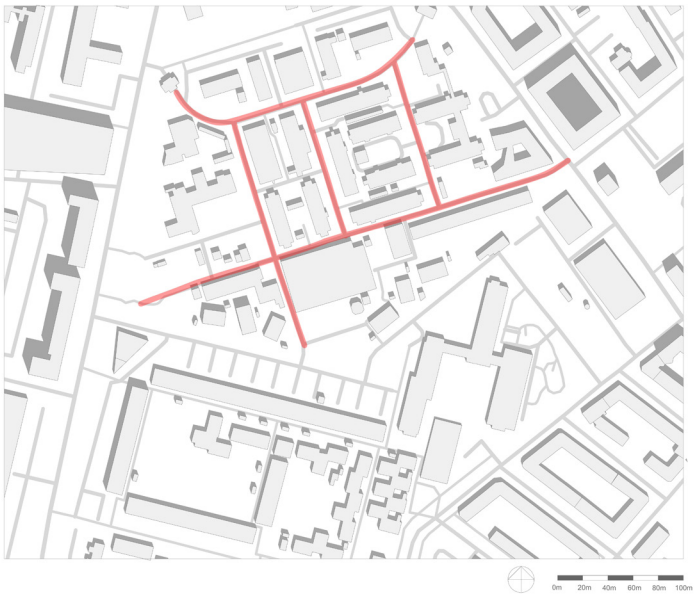
I D E A .

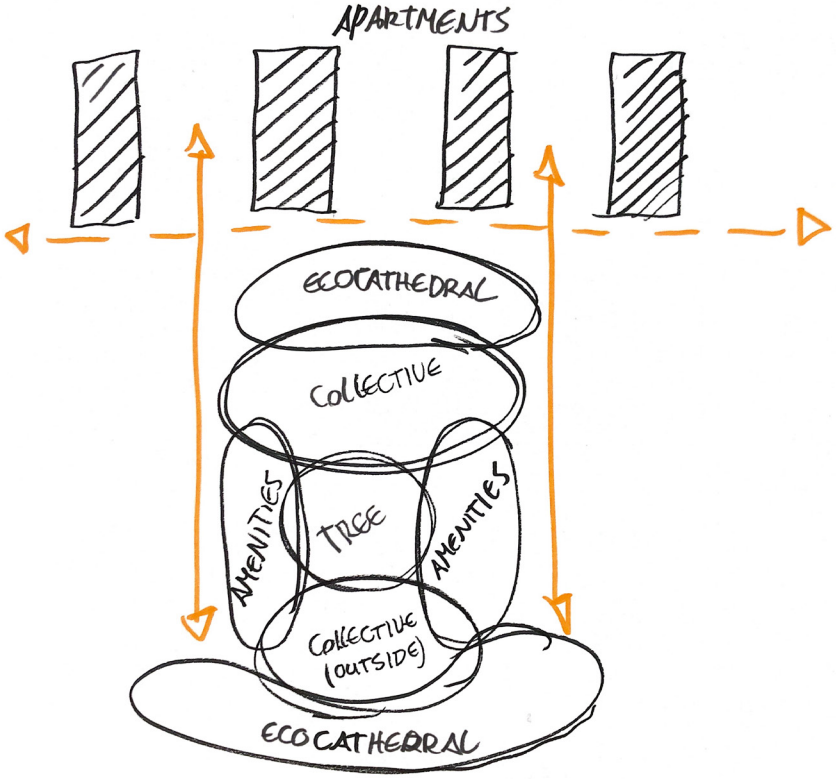
'Embracing Fluidity: A New Identity for Sundholm'
The Sundholm Public Condenser project embraces the fractured identity of the neighborhood, not by forcing a merger of differences into a single homogeneous identity, but by building on the unique characteristics and boundaries that define Sundholm's diversity. Instead of creating a "melting pot," we celebrate the changes and contrasts that you encounter as you move through the area.

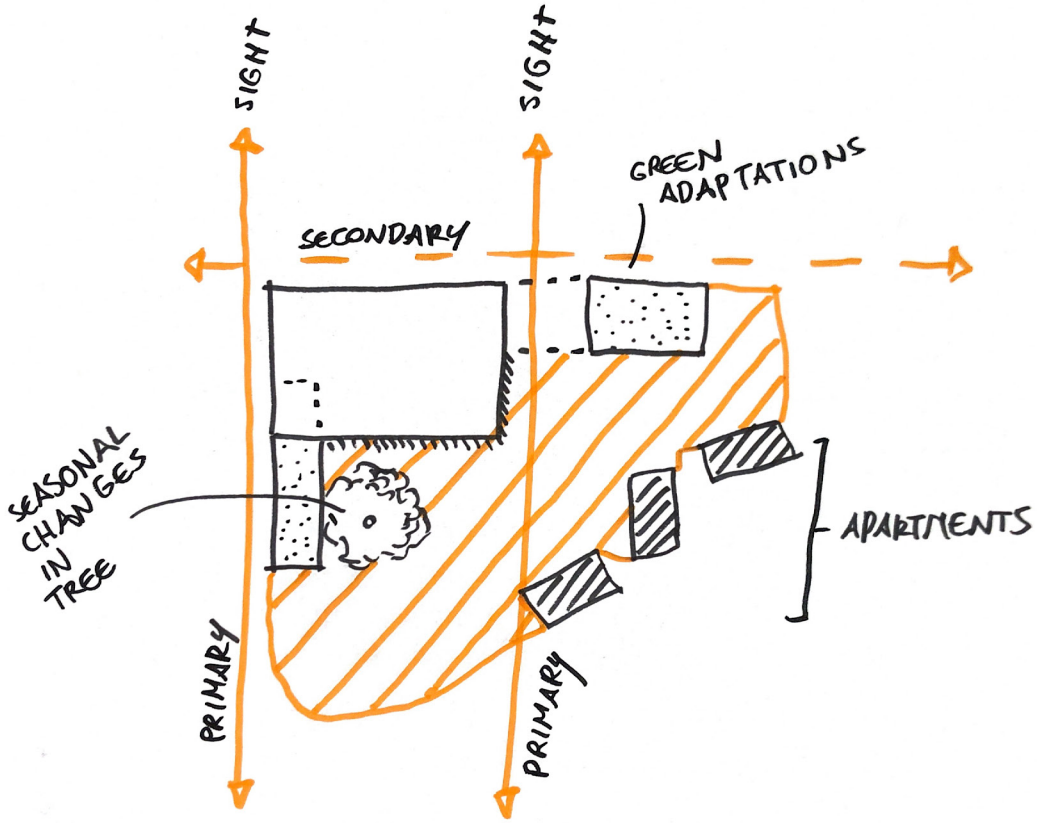
Key elements:

Enhancing Boundaries: The most significant boundaries between the distinct areas of Sundholm are not erased but emphasized. These boundaries are creatively connected to the Public Condenser, making them focal points of interaction and identity.

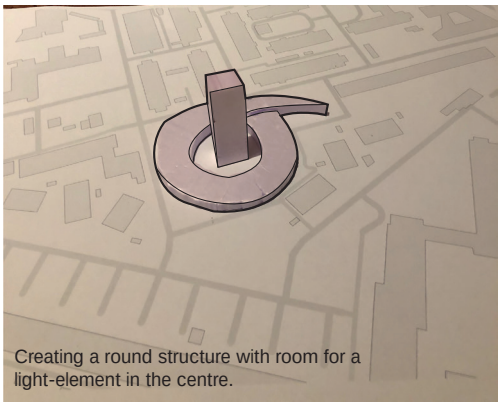
A Dynamic Public Condenser: The Public Condenser is designed around the idea of fluid, ever-changing identity. It evolves with time, using vegetation, light, and symbolism to reflect the neighborhood's dynamism. A central feature is a tree that transforms dramatically with each season, symbolizing perpetual change.
The Ecocathedral: Behind the Public Condenser lies an "ecocathedral"—a space where nature and architecture coexist harmoniously. This area is left to evolve organically, without human interference, serving as a living metaphor for the fluid identity of the neighborhood.
An Overlapping Identity: The project does not aim to destroy or homogenize existing identities but creates a new, shared identity that celebrates change and fluidity. This shared identity becomes the connective tissue that acknowledges diversity while fostering a sense of belonging.



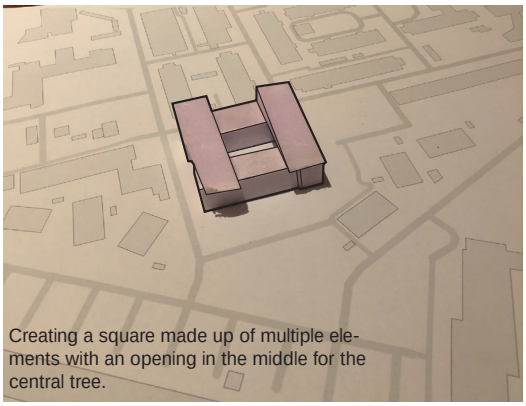

APARTMENTS
ECOCATHEDRAL
COLLECTIVE
AMENITIES
TREE
AMENITIES
COLLECTIVE (OUTSIDE)
ECOCATHEDRAL


SIGHT
SIGHT
GREEN ADAPTATIONS
SECONDARY
SEASONAL CHANGES IN TREE
APARTMENTS
PRIMARY
PRIMARY

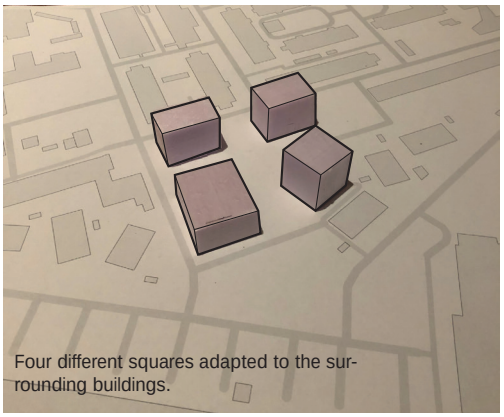
Tutoring | Option 1



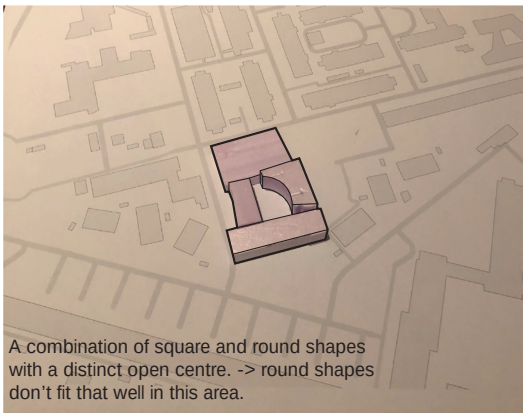
Creating a round structure with room for a light-element in the centre.



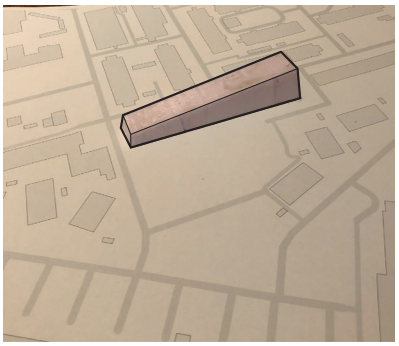
Creating a square made up of multiple elements with an opening in the middle for the central tree.



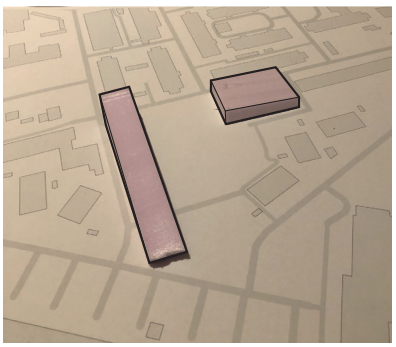
Four different squares adapted to the surrounding buildings.



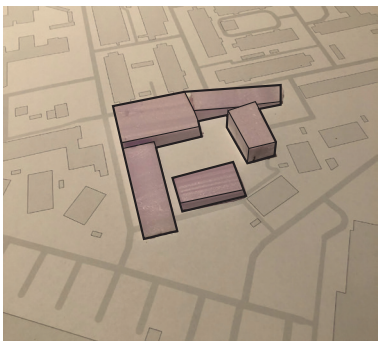
A combination of square and round shapes with a distinct open centre. -> round shapes don't fit that well in this area.



A sloping volume to work with the movement of the sunlight.

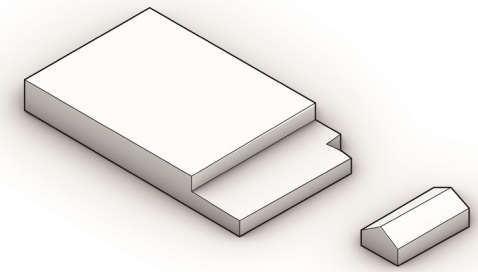


Multiple volumes to give the impression of a central area through negative space.

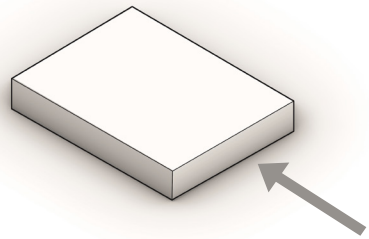


Integrating the existing structure of the factory in the negative space. The final idea for the mass does not include the two extra structures.

M A S S I N G .



1.



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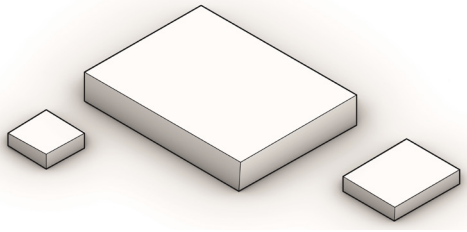
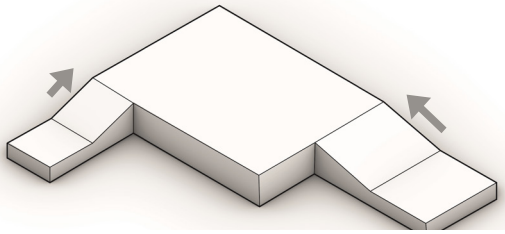
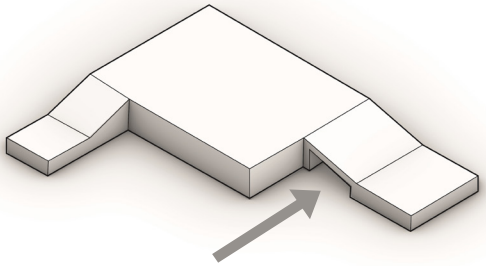
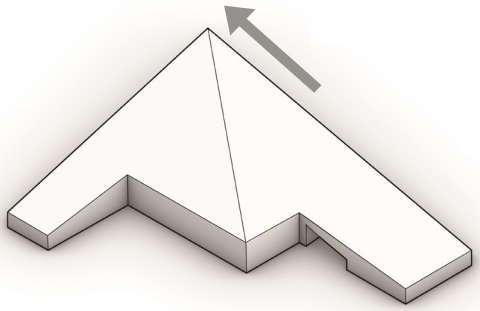




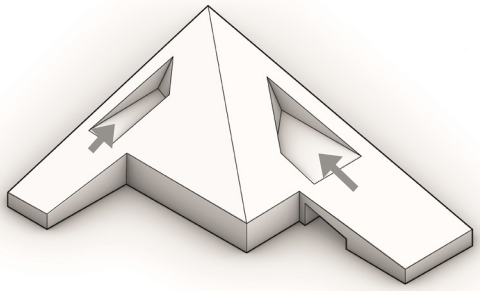




5.

Mass Studies | Schematic

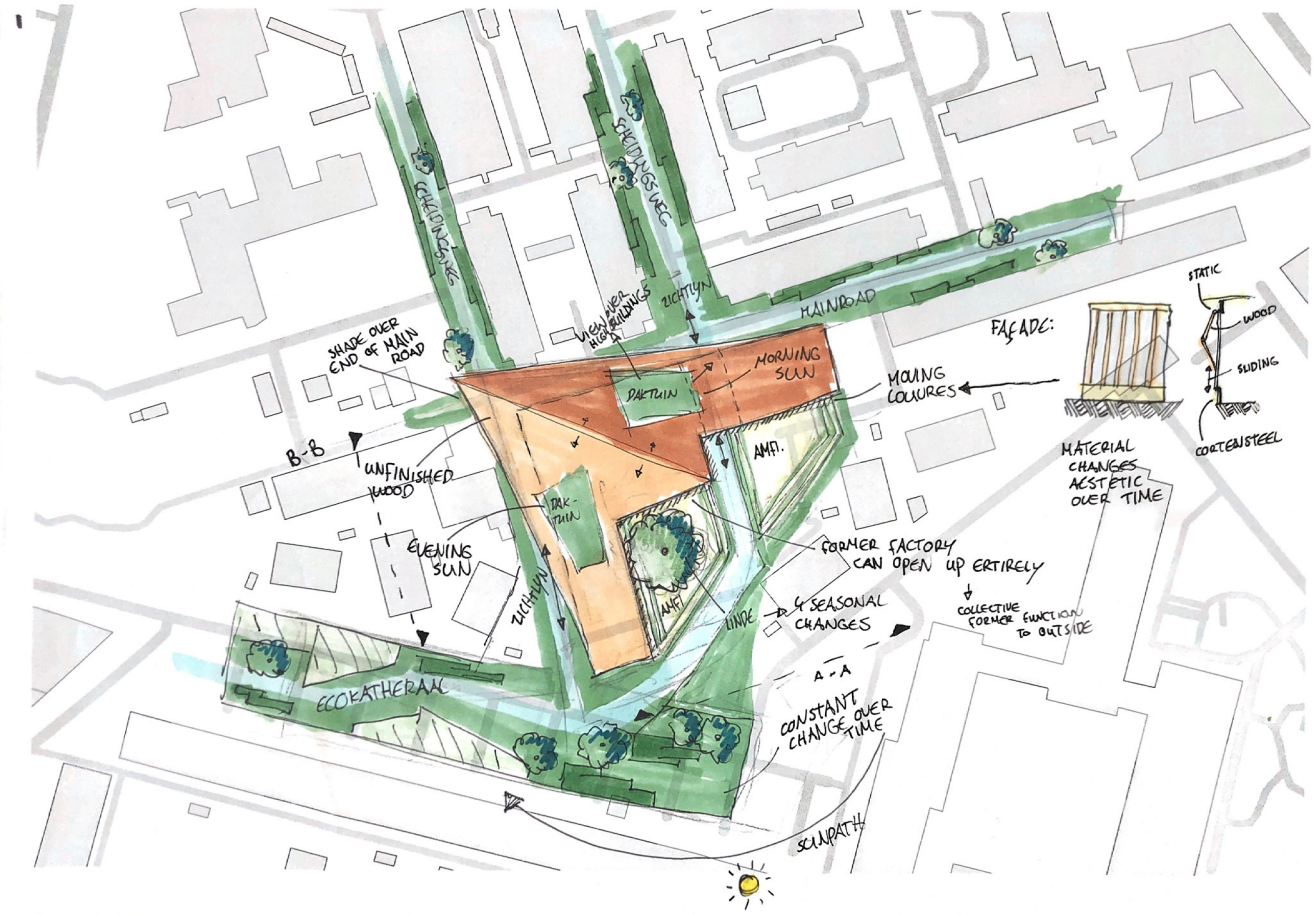
1. Current situation.
2. Removing the lower part of the factory and shortening the outer shell. The barn to the east will be demolished, and the wood will be reused for the facade.
3. Adding two encompassing volumes. One to define the space around the tree, and the other to create an open sightline along the factory.
4. Creating height differences and a pathway to the roof, adjusted to the sun's trajectory.
5. Pushing a passage through the eastern volume to establish a direct sightline from the secondary roads.
6. Designing a two-part roof structure that splits the building into a morning and an evening light section.
7. Creating openings for visitors and residents to experience the changing light conditions throughout the day.

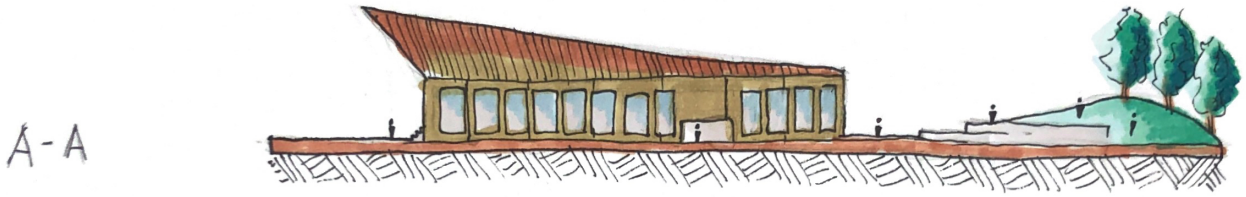


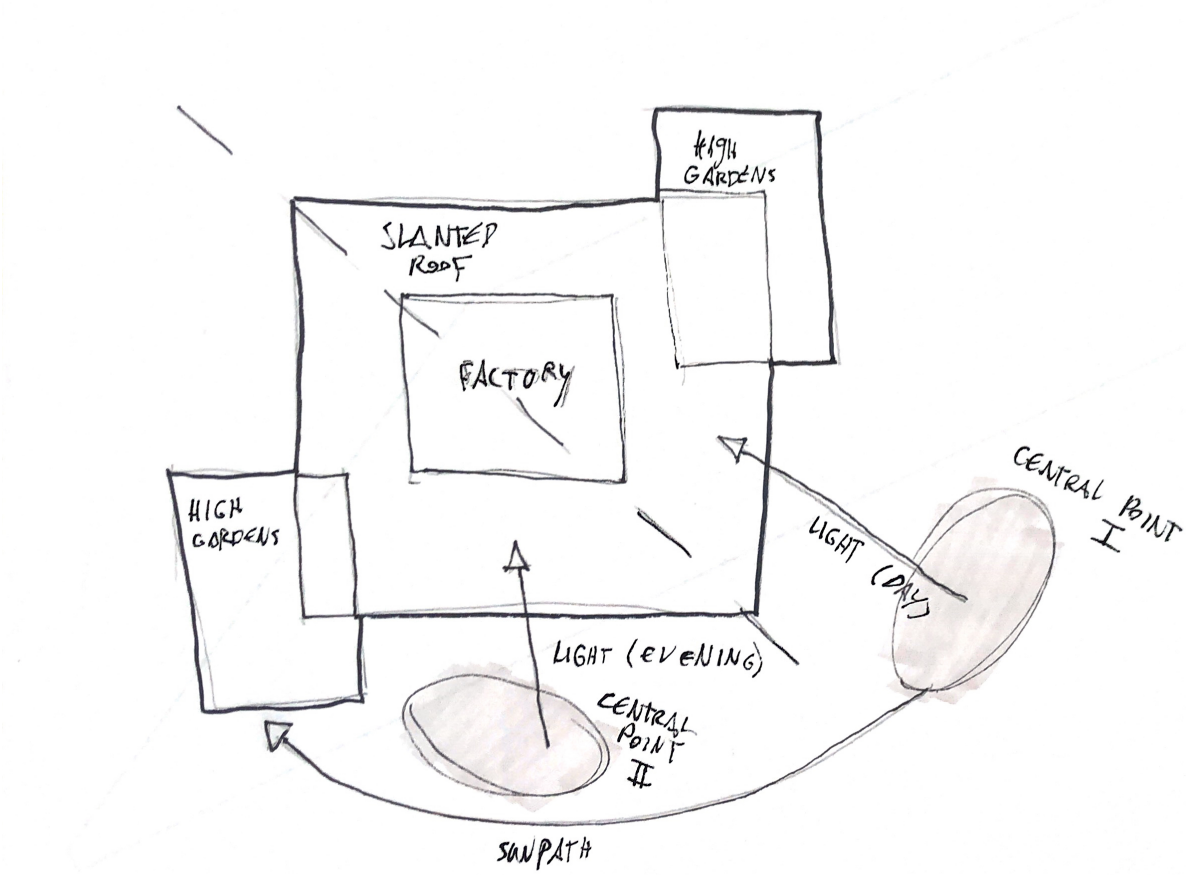
7.

Max Tomás Douma

Tutoring | Option 1





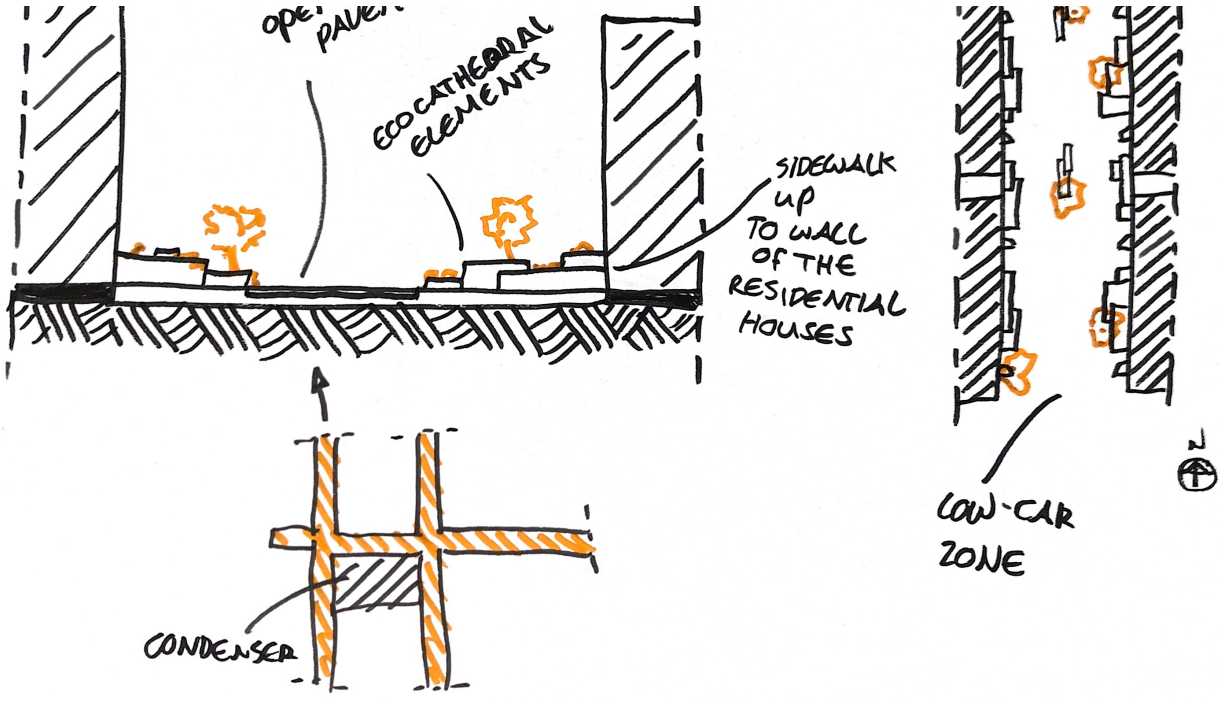


The central structure divides the 'morning-side' and the 'evening-side' thorugh a spilt in the roof-structure. On this roof there are spaces to walk and enjoy the view on the different times of day. The low side of the slope is on the sun-side of the building. The streets in front have an overhang from the roof. In the center there is a tree. The tree is in the middle of a lower parts of the garden behind the building. This garden functions as a amphitheater. The tree in question is a berk. This tree had significant different characteristics during the different seasons. This aspect will draw the attention to the adaptation of the seasons. The facade is completely made of re-used wood and the lower factorystructure still stands.

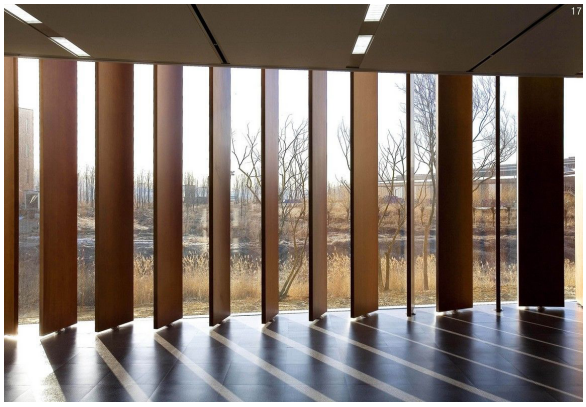
OPTION 1.

Max Tomás Douma

Tutoring | Option 1



Tutoring | Option 1



Facades | Option 2

Louvres turning east-west instead of up-down.

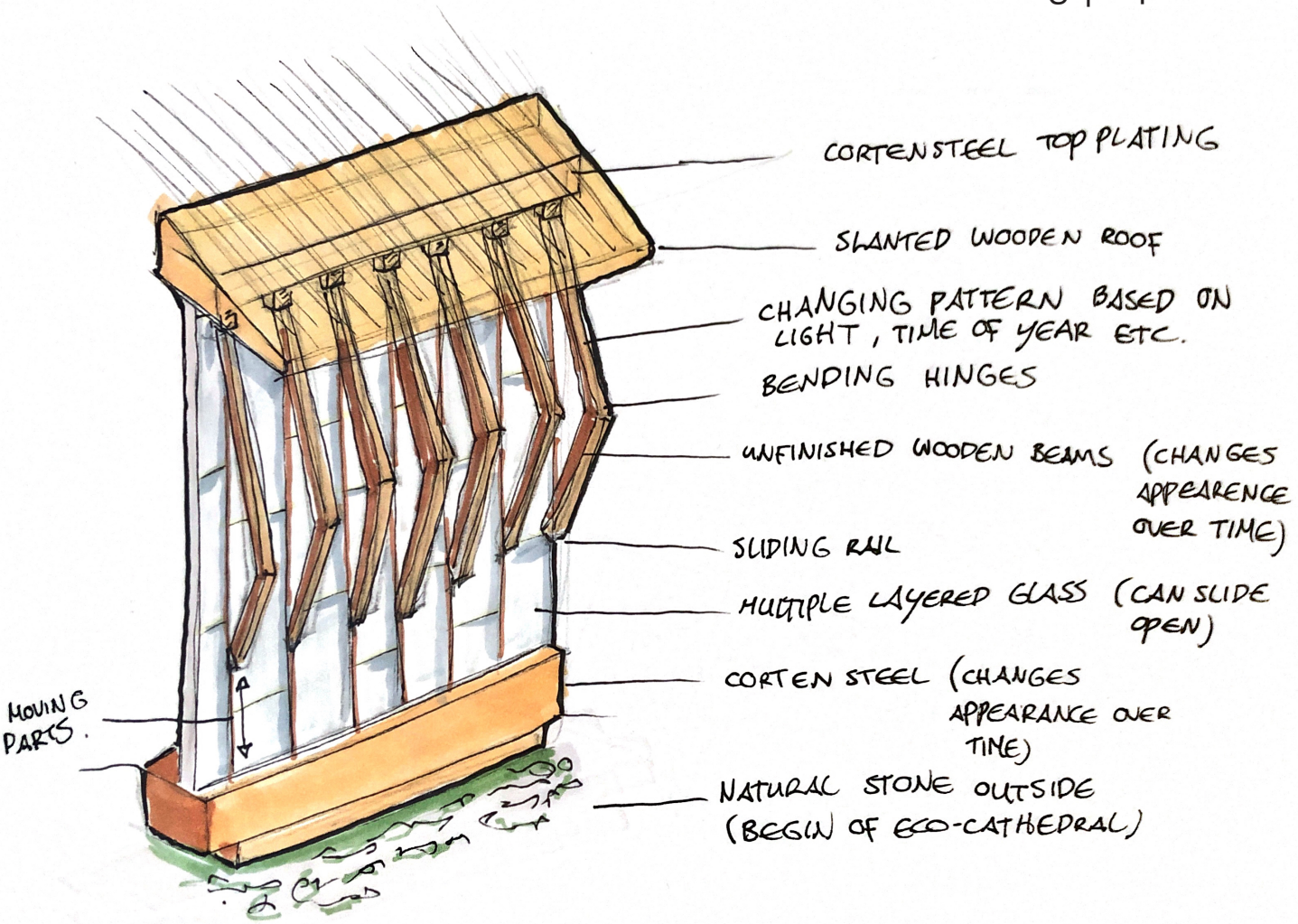
Pro: Sliding glass inside easier (to connect the collective space inside to the natural amphitheater outside)

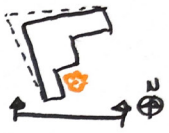
Con: Takes away the changing facade elements on the solar-side of the building

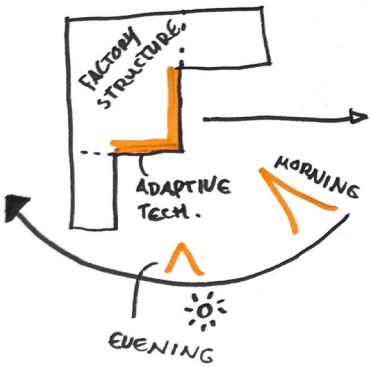
-> Can be used on the other side of the buidling

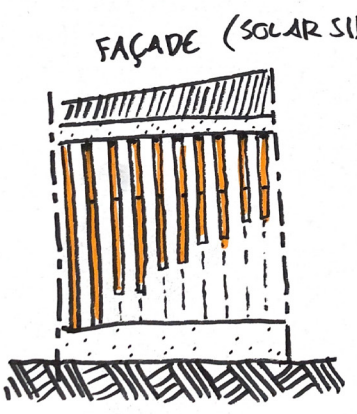
FACADES.

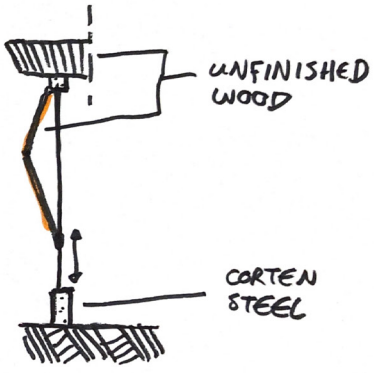
1. Light Control & Seasonal Adaptation – The facade elements adjust to regulate natural light penetration, providing shade in summer while allowing warmth in winter to optimize indoor comfort. **2.** Ventilation & Climate Responsiveness – Open or closed configurations allow for natural airflow, reducing the need for mechanical ventilation. **3.** Visual Transformation & Identity – The ever-changing facade creates a fluid architectural expression, symbolizing the shifting identity of Sundholm. **4.** Material Sustainability – Using reclaimed wood from the demolished barn reinforces the concept of reuse and circularity, embedding a piece of the neighborhood's past into its future. **5.** User Interaction – Some elements could be manually adjustable by visitors and residents, fostering a more interactive relationship with the building.


CORTEN STEEL TOP PLATING
SLANTED WOODEN ROOF
CHANGING PATTERN BASED ON LIGHT, TIME OF YEAR ETC.
BENDING HINGES
UNFINISHED WOODEN BEAMS (CHANGES APPEARENCE OVER TIME)
SLIDING RAIL
MULTIPLE LAYERED GLASS (CAN SLIDE OPEN)
CORTEN STEEL (CHANGES APPEARANCE OVER TIME)
NATURAL STONE OUTSIDE (BEGIN OF ECO-CATHEDRAL)
MOVING PARTS.

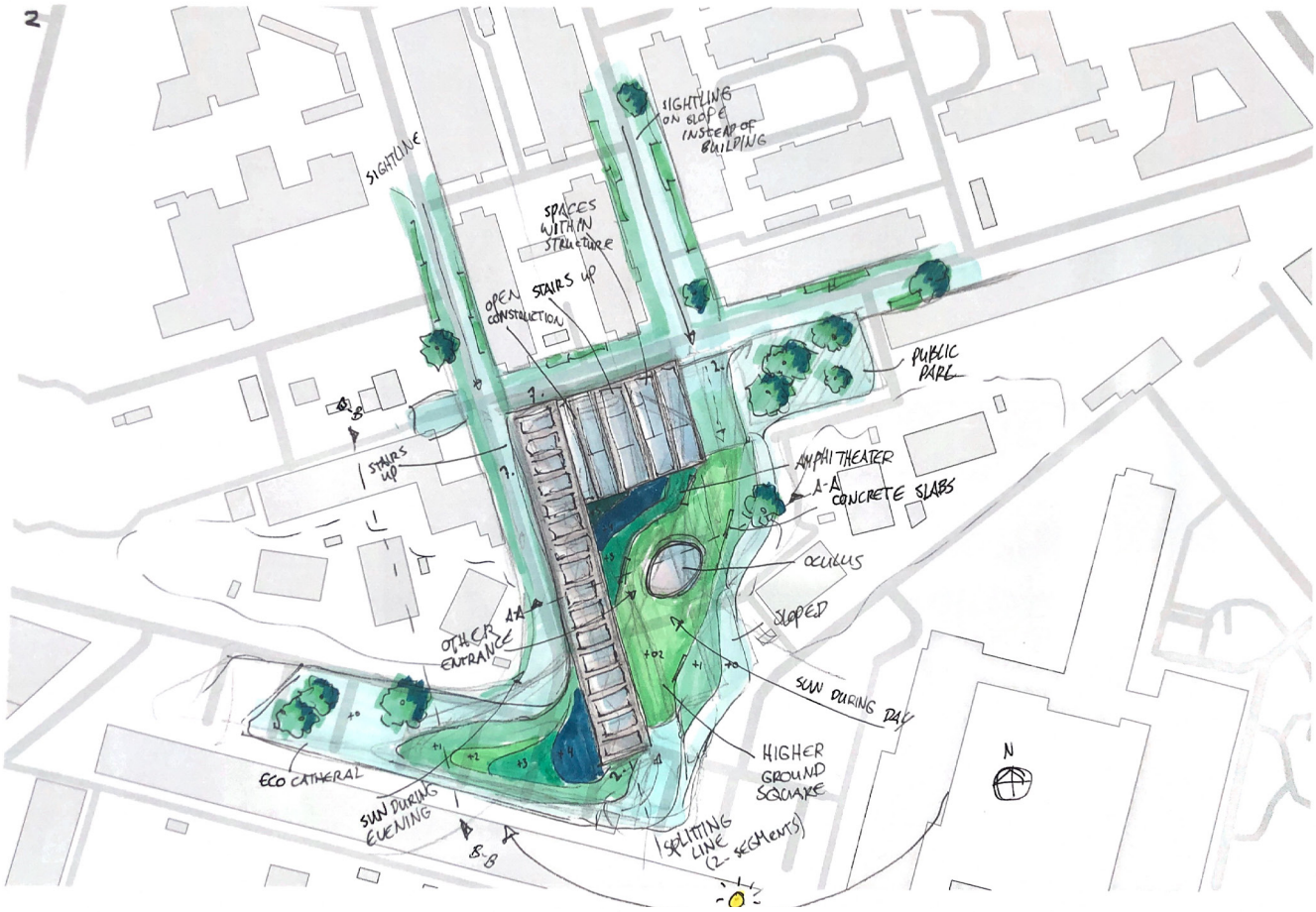

N

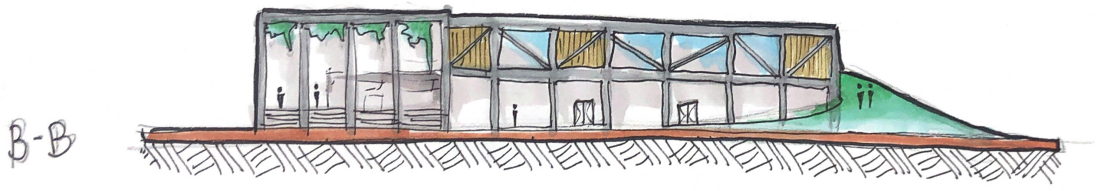

FACTORY STRUCTURE.
ADAPTIVE TECH.
MORNING
EVENING

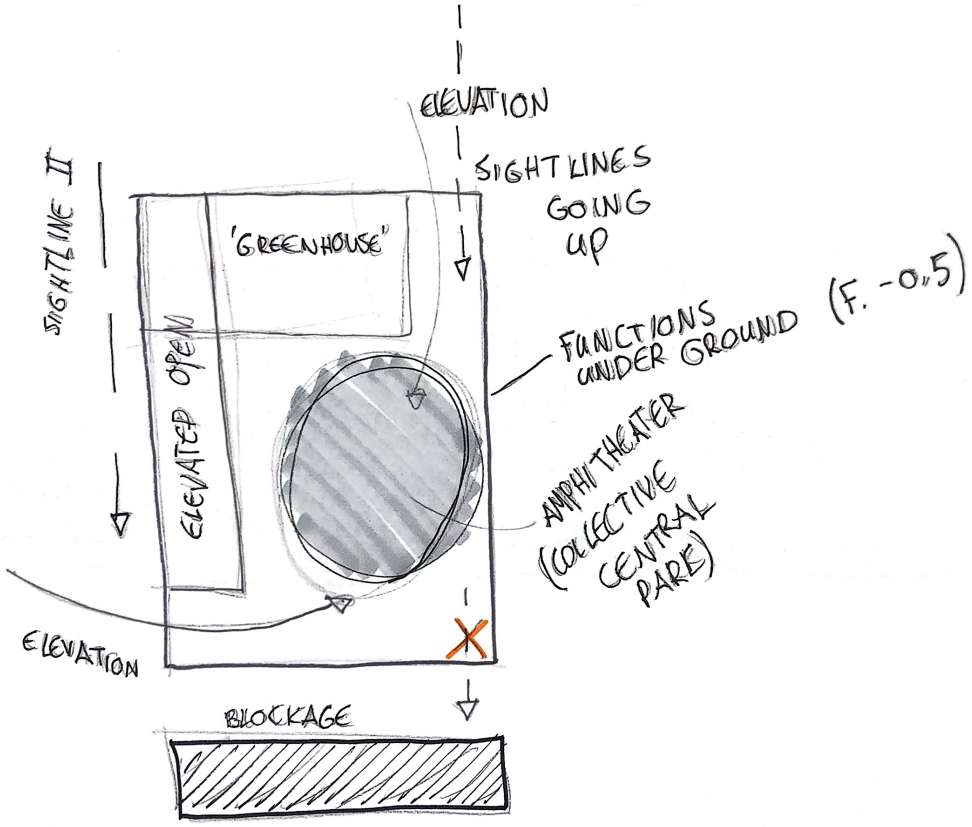

FAÇADE (SOLAR SIDE)


UNFINISHED WOOD
CORTEN STEEL

Tutoring | Option 2



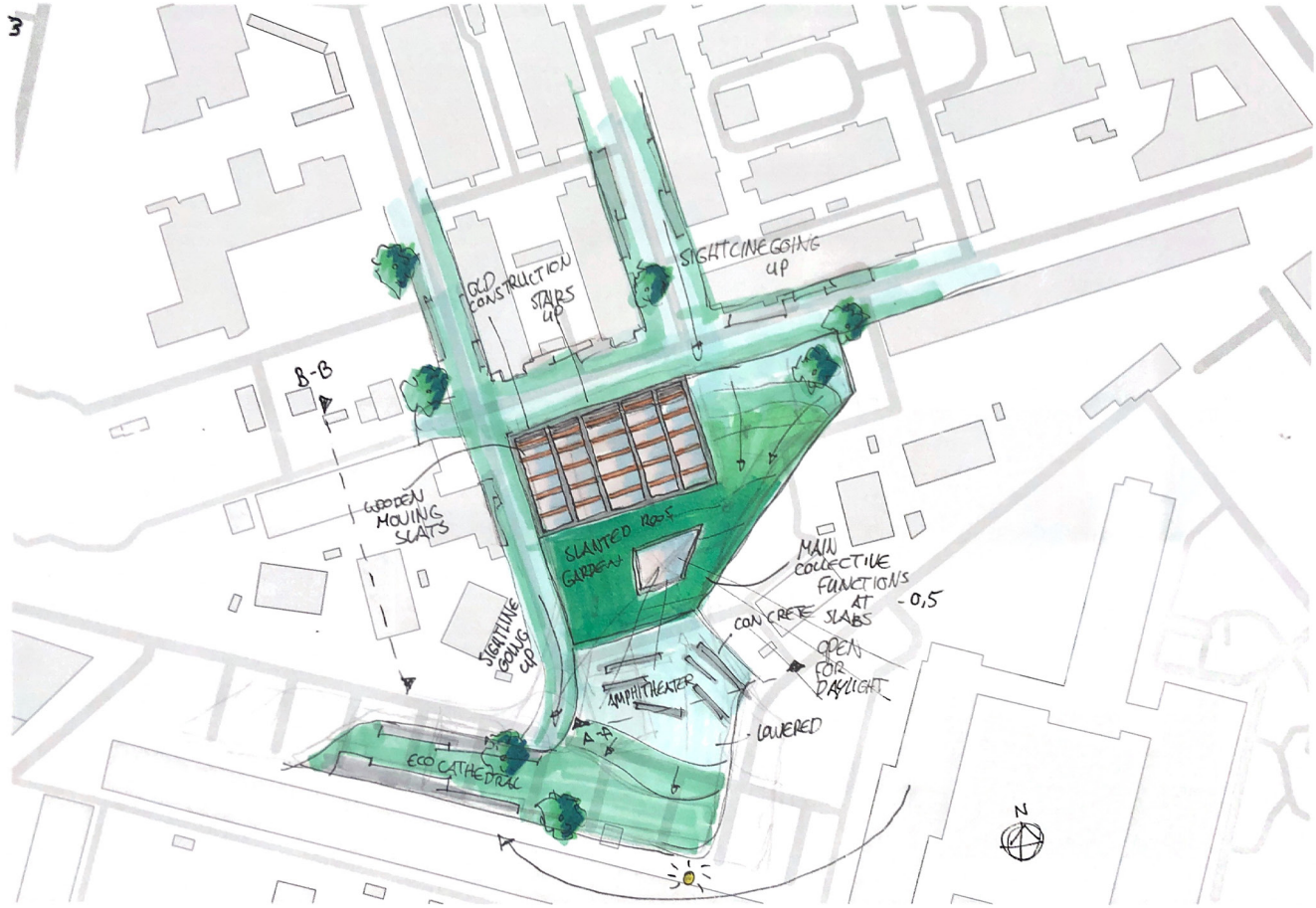


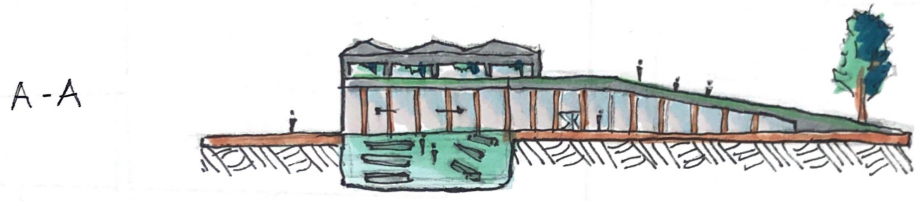


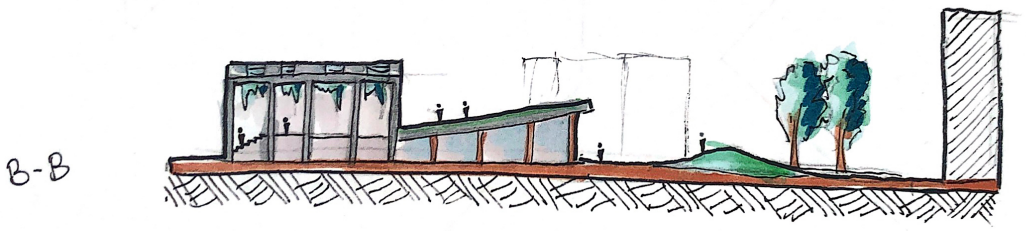
This second option is about underground functions. The oculus in the center is the main part. During the day the light inside (under ground) changes within the rooms with lowered walls. The surrounding nature shapes itself to the building. The roof is walkable slightly slanted. The structure of the factory stays mostly intact, with the exception of the most outer parts and the facade. The primairy part of the building is a long narrow structure with two sides. The left and right side divide the day en evening. This also results in a division in functions accordingly. It also contains skylights to look 'over and out' of the neighborhood. The condenser focusses mosly on the change in sun and light during the day and night.

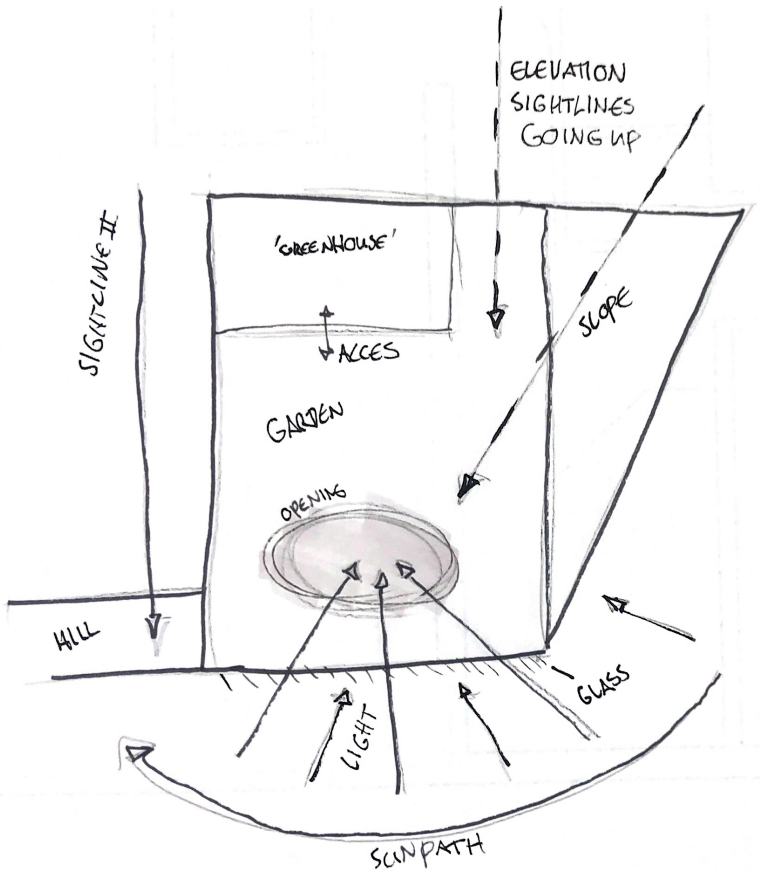
OPTION 2.

Tutoring | Option 3





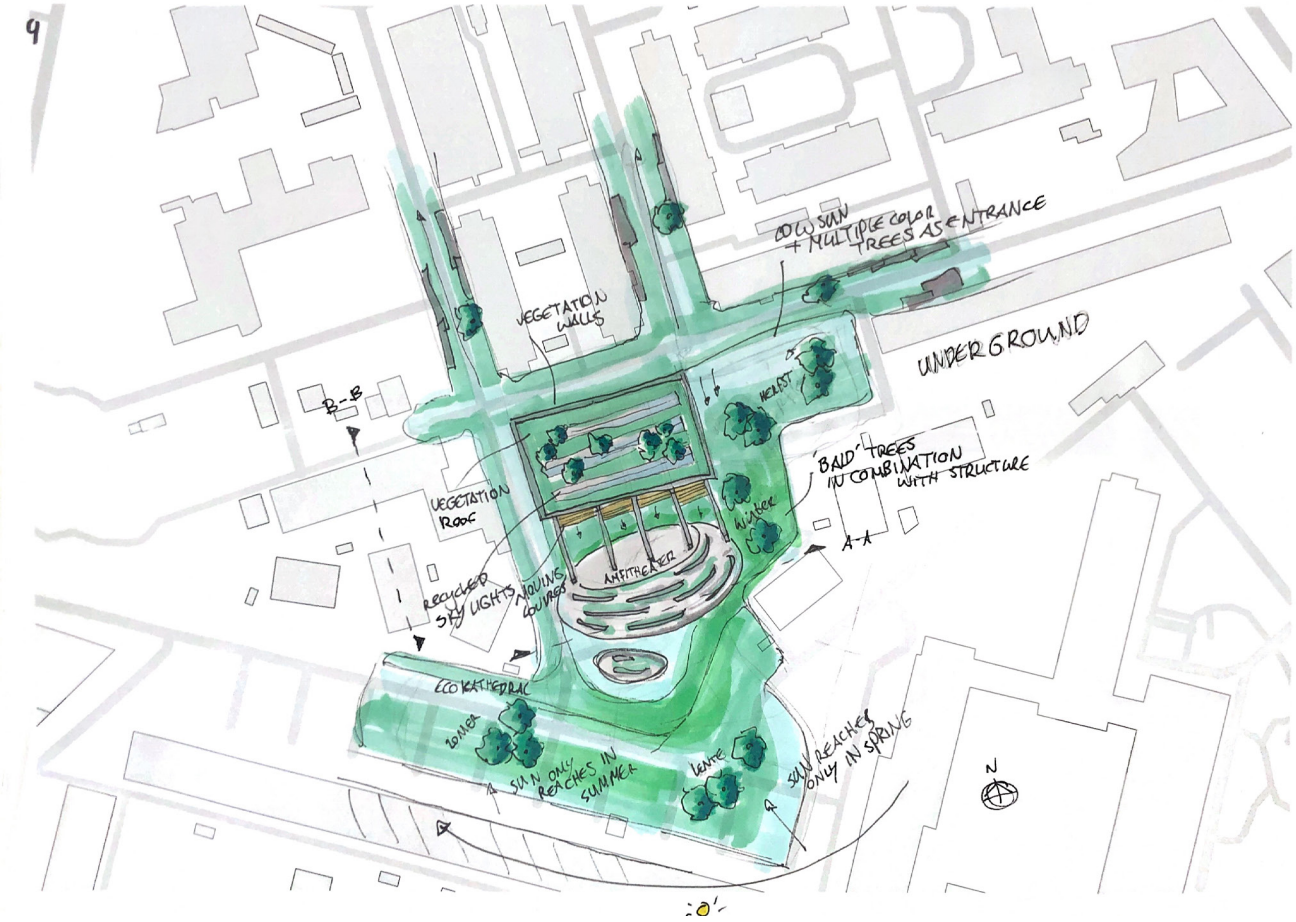




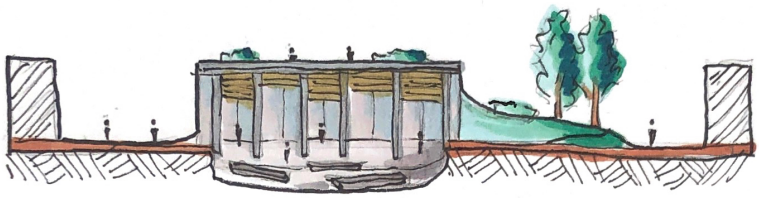
This options is mostly about extending the sightlines from the road to a higher level so the area looks more open. The current structure of the old factory remains, but is now used as a vertical garden and the inside is pulled up. It has the looks of a modern day mechanical temple. The central part is the 'oculus.' This is an opening in the construction of the roof which changes its light-inlet during de day and the year, depending on the sun. The entire roof can be used as a walkable garden and is slightly slanted. On the space that is currently occupied by a parking lot, you can find the ecological structures known as an 'eco-cathedral.' This functions also as a barrier between the building and the contrasing blockade.

OPTION 3.

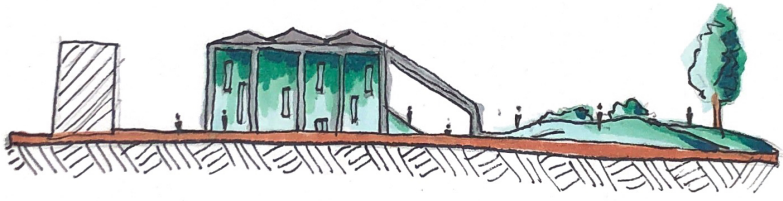
Tutoring | Option 4

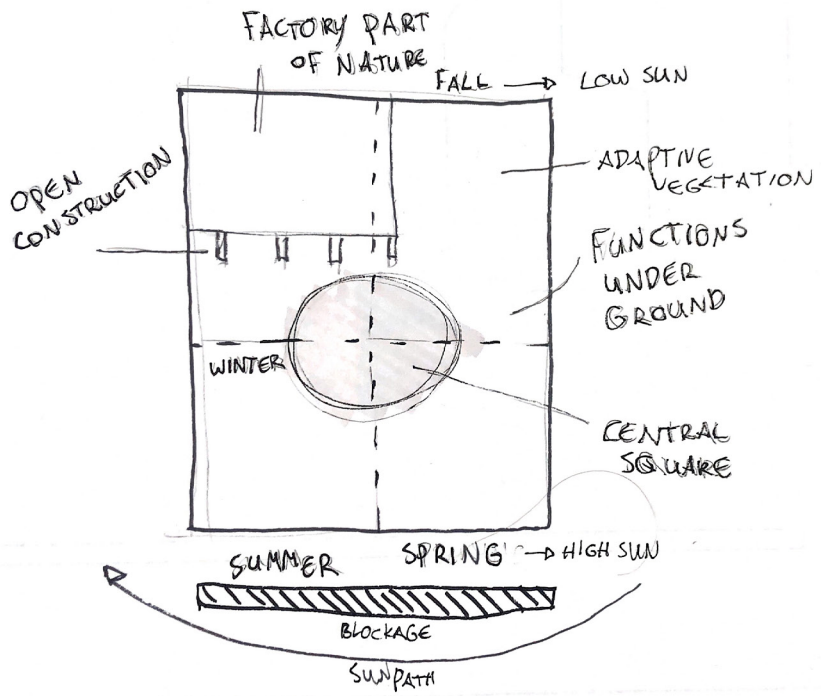


A-A



B-B

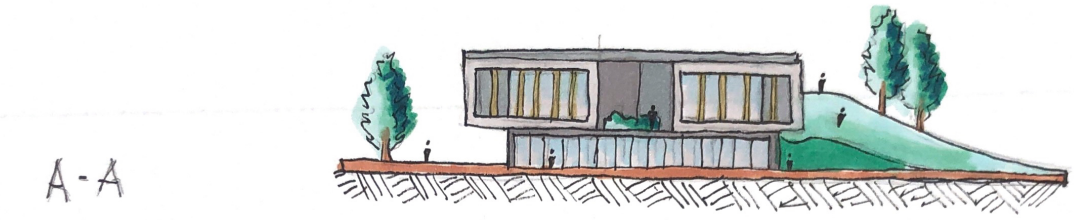


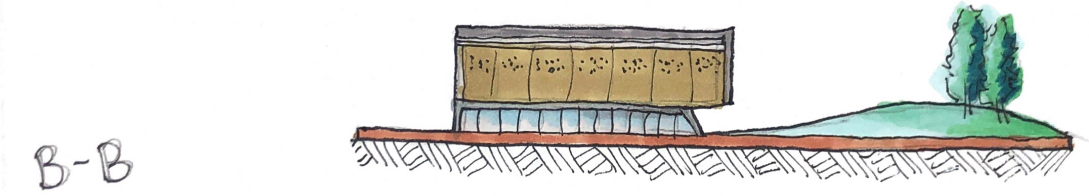


This option is completely centered around the former factory building. The internal structure is kept along with the glass paneling on the roof. The landscaping around the building make this options blend in with its surounding environment. The backside has an extension of the factories' structure. These beams have a shading system that can be retracted back into the building. The beams are anchored in the the central 'agora' or the amphitheater. The rest of the functions are located underground. The reason for this is the sightlines that now reach over the apartment building in the back. This makes sure that the space in front of the public condenser looks less closed of then it currently does.

OPTION 4.

Tutoring | Option 5





Max Tomás Douma

Tutoring

OASIS - 2800: Embracing Multiplicity

De Sundholm buurt is een gefragmenteerde wijk waar diverse culturen, sociale klassen en opleidingsniveaus samenkomen. De wijk kent een strakke, geordende structuur met rechtlijnige woonblokken, maar het leven van de bewoners weerspiegelt een veel organischere en dynamische ordening.

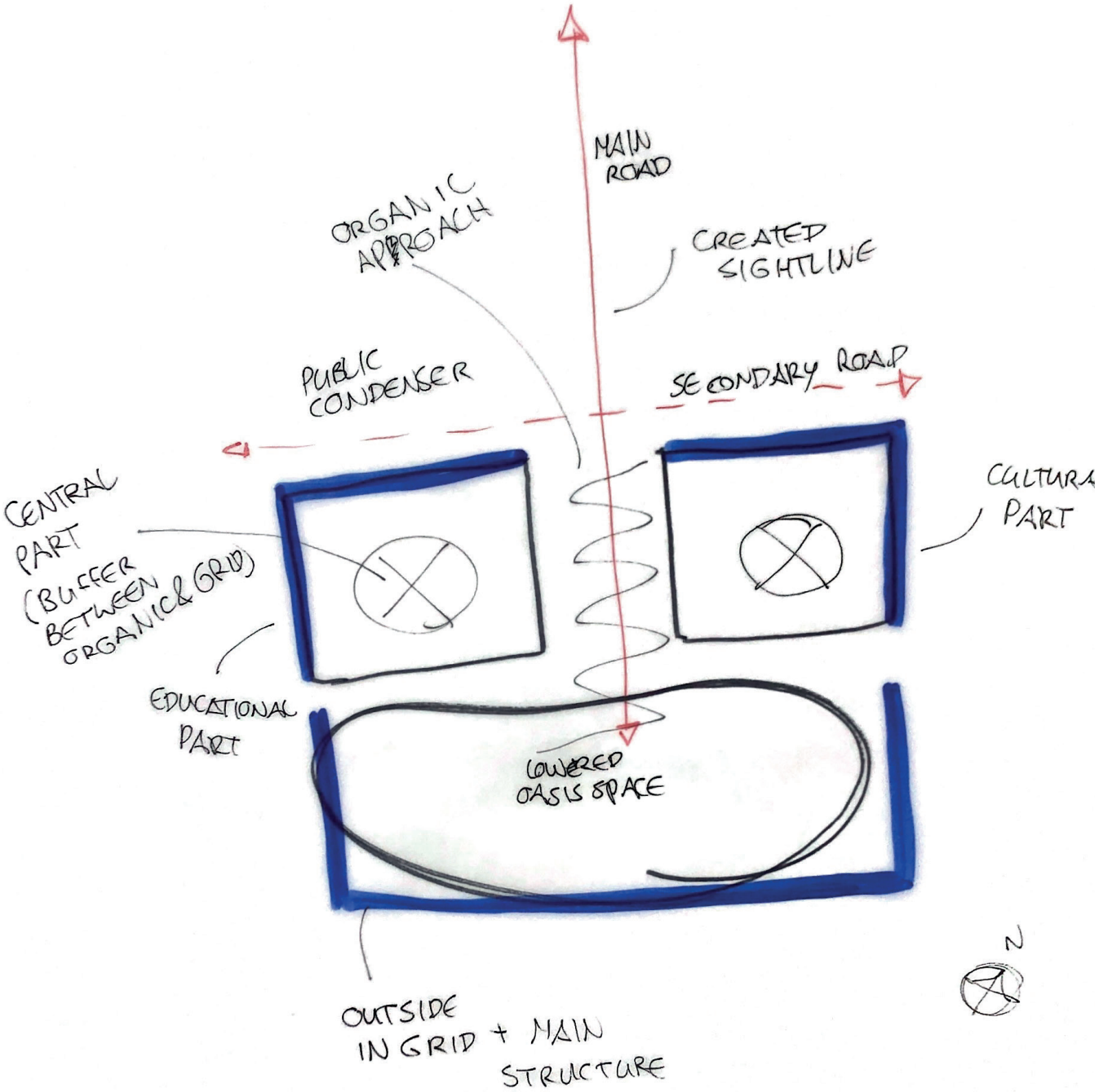
Om deze diversiteit te benutten en verbinding te creëren, wordt een bestaand fabrieksgebouw getransformeerd tot een Public Condenser. Dit gebouw vormt een ontmoetingsplek waarin drie kernfactoren samenkomen:

Cultuur – Een ruimte waar bewoners hun culturele identiteit kunnen uiten en delen.
Educatie – Een brug tussen studenten en buurtbewoners, waarbij educatie een kans biedt op ontwikkeling en sociale integratie.
Essentiële buurtfuncties – Een buurtcafé als sociaal knooppunt, gezamenlijke eetgelegenheden en het gebruik van producten uit de eigen moestuin.
Het architectonische ontwerp benadrukt het contrast tussen orde en organische dynamiek. De hoofdstructuur en de buitenzijde van het gebouw volgen een strak grid, geïnspireerd op de oorspronkelijke fabriek. Naarmate men zich dieper in het gebouw begeeft, wordt de indeling vloeiender en organischer, met natuurlijke vormen en vegetatie.

De lager gelegen buitenruimte, toegankelijk via een opengetrokken verlengde hoofdstraat, versterkt dit concept door een organische overgang tussen gebouw en wijk te creëren. Een deel van deze organische architectuur en vegetatie wordt doorgetrokken in de buurt om de ingang van het gebouw visueel te markeren en de interactie met de wijk te stimuleren.

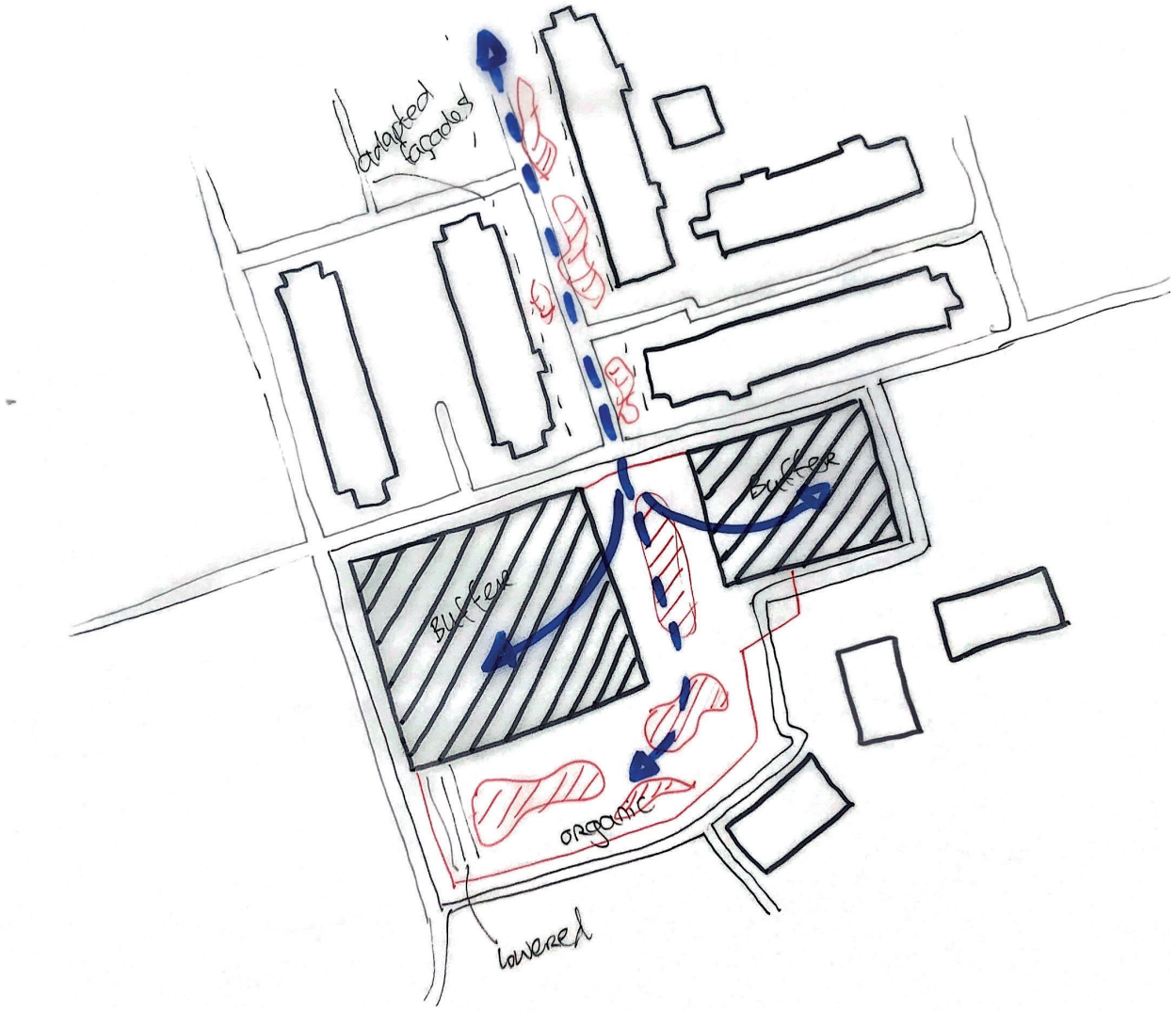
Met deze aanpak wordt de wijk teruggegeven aan haar bewoners, terwijl tegelijkertijd een brug wordt geslagen tussen diverse groepen en culturen.

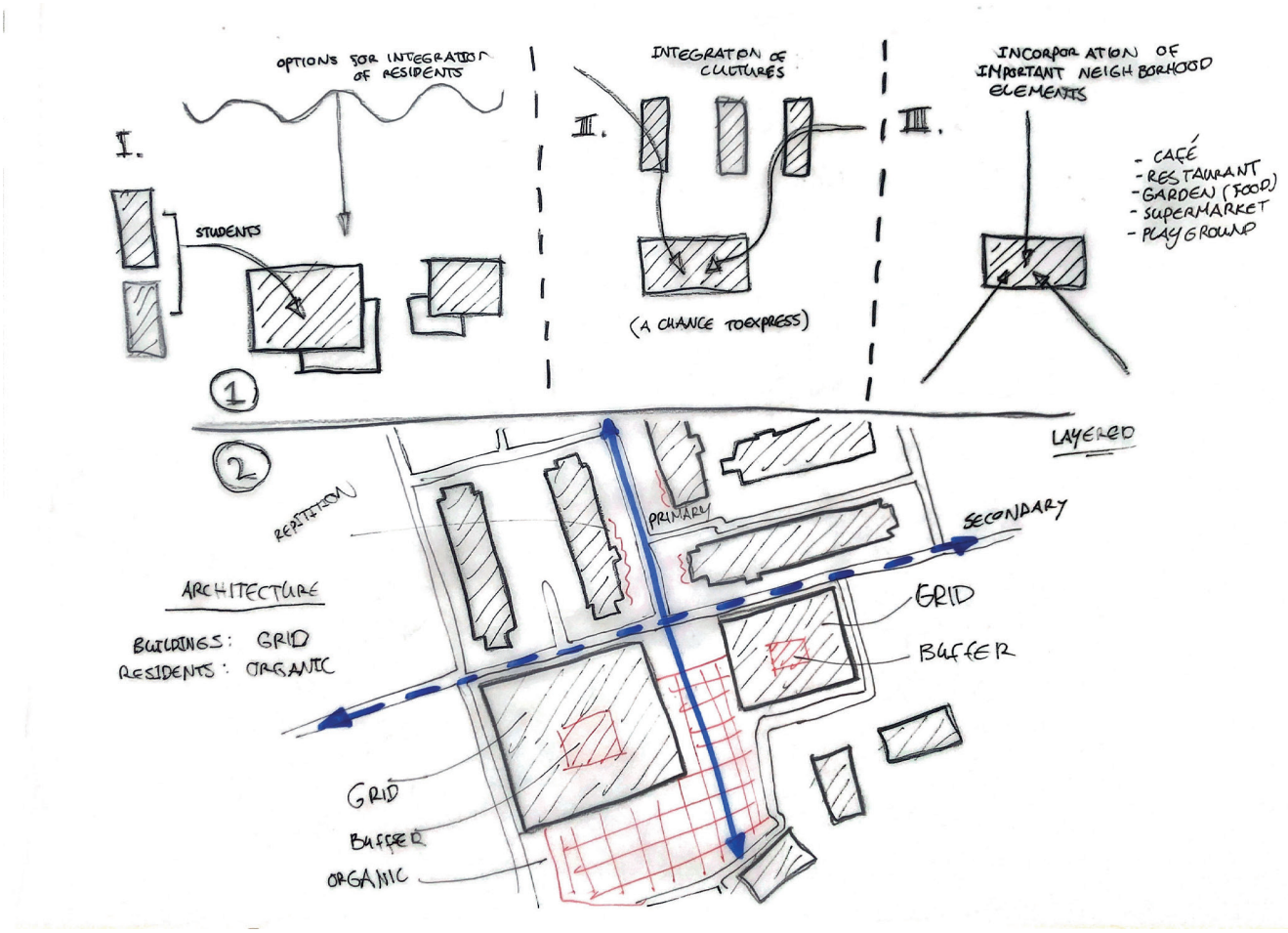
Thema	Omschrijving
Onderzoekstitel	Embracing Multiplicity
Gebouwnaam	OASIS - 2800
Locatie	Sundholm buurt, gefragmenteerde wijk met diverse culturen en sociaaleconomische achtergronden.
Hoofdconcept	Public Condenser – Een transformatie van een bestaand fabrieksgebouw om diversiteit te omarmen en de buurt te verbinden.
Drie Hoofdfactoren (Multiplicity)	
1. Cultuur	Ruimte voor bewoners om hun cultuur uit te drukken en te delen.
2. Educatie	Studenten betrekken bij de buurt en bewoners toegang geven tot educatie.
3. Essentiële elementen uit de buurt	Café als buurtcentrum, gezamenlijke eetgelegenheid, moestuinproducten gebruiken
Stedelijke Context	
Wijkstructuur	Strakke, geordende woonblokken in een grid.
Bewonersleven	Chaotischer, organischer, minder gestructureerd dan de bebouwde omgeving.
Architectonisch Concept	
Gebouwvormgeving	Contrast tussen een gestructureerd grid en organische vormen.
Exterieur & Hoofdstructuur	Strak grid geïnspireerd op het Fabrikken gebouw.
Interieur & Centrale Ruimte	Organisch, reflecteert de dynamiek van de bewoners.
Lager Gelegen Buitenruimte	Toegankelijk via een opengetrokken verlengde hoofdstraat, met organische vormen en vegetatie.
Overgang naar de Wijk	Een stukje organische architectuur en vegetatie wordt doorgetrokken in de buurt om de ingang te markeren.


MAIN ROAD
ORGANIC APPROACH
CREATED SIGHTLINE
PUBLIC CONDENSER
SECONDARY ROAD
CENTRAL PART (BUFFER BETWEEN ORGANIC & GRID)
CULTURAL PART
EDUCATIONAL PART
LOWERED OASIS SPACE
OUTSIDE IN GRID + MAIN STRUCTURE
N

Max Tomás Douma

Tutoring




OPTIONS FOR INTEGRATION OF RESIDENTS
I.
STUDENTS
1
INTEGRATION OF CULTURES
II.
(A CHANCE TOEXPRESS)
INCORPORATION OF IMPORTANT NEIGHBORHOOD ELEMENTS
III.
- CAFÉ
- RESTAURANT
- GARDEN (FOOD)
- SUPERMARKET
- PLAYGROUND
2
LAYERED
REPETITION
PRIMARY
SECONDARY
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BUILDINGS: GRID
RESIDENTS: ORGANIC
GRID
BUFFER
GRID
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ORGANIC

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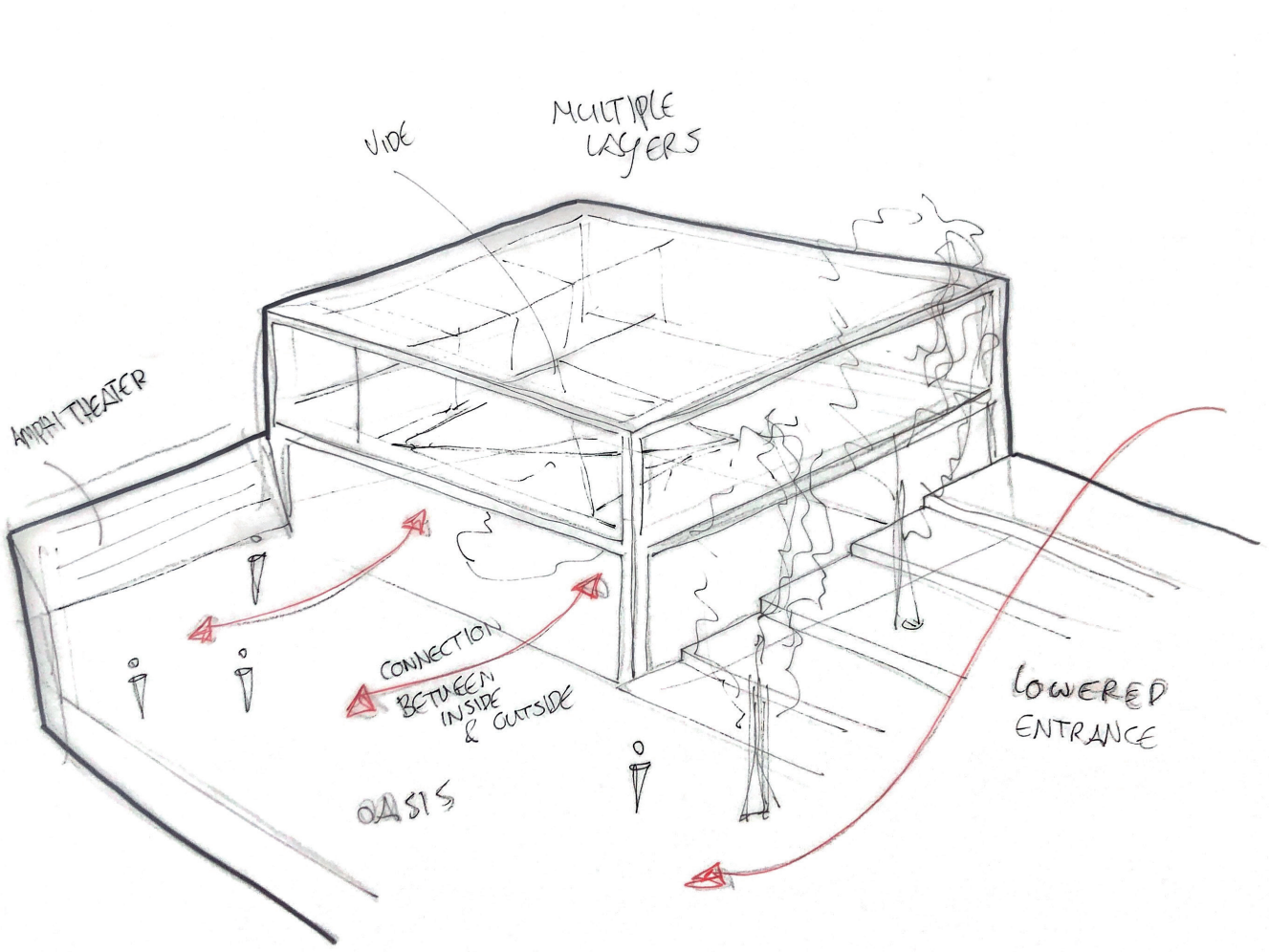
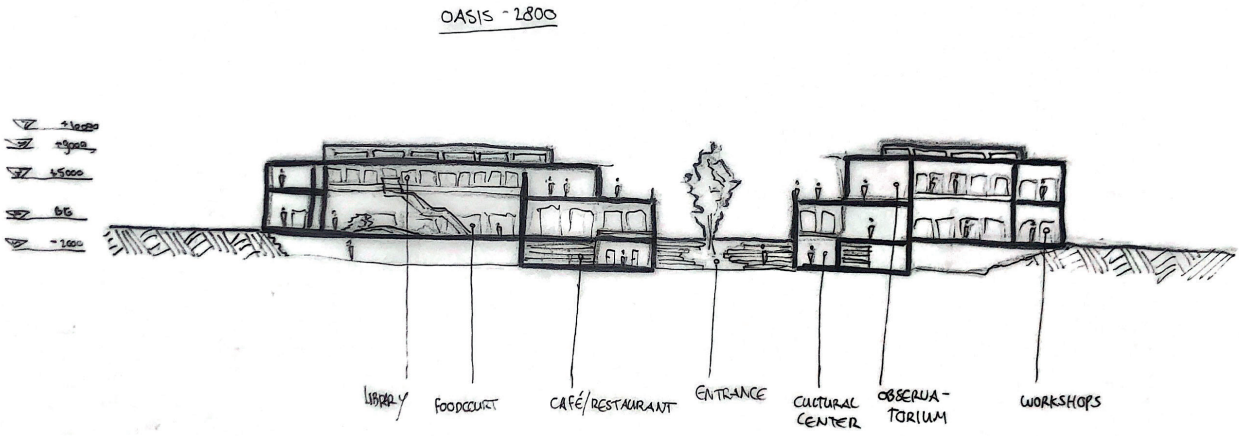
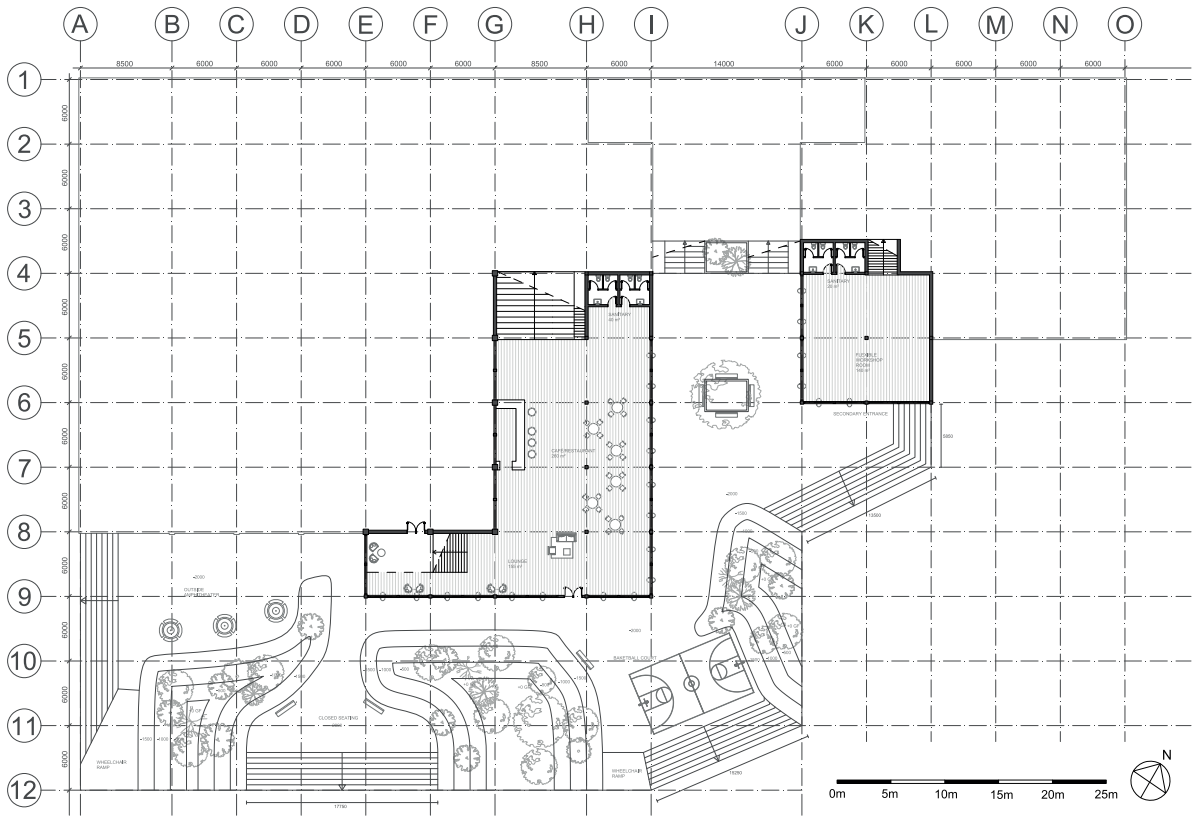
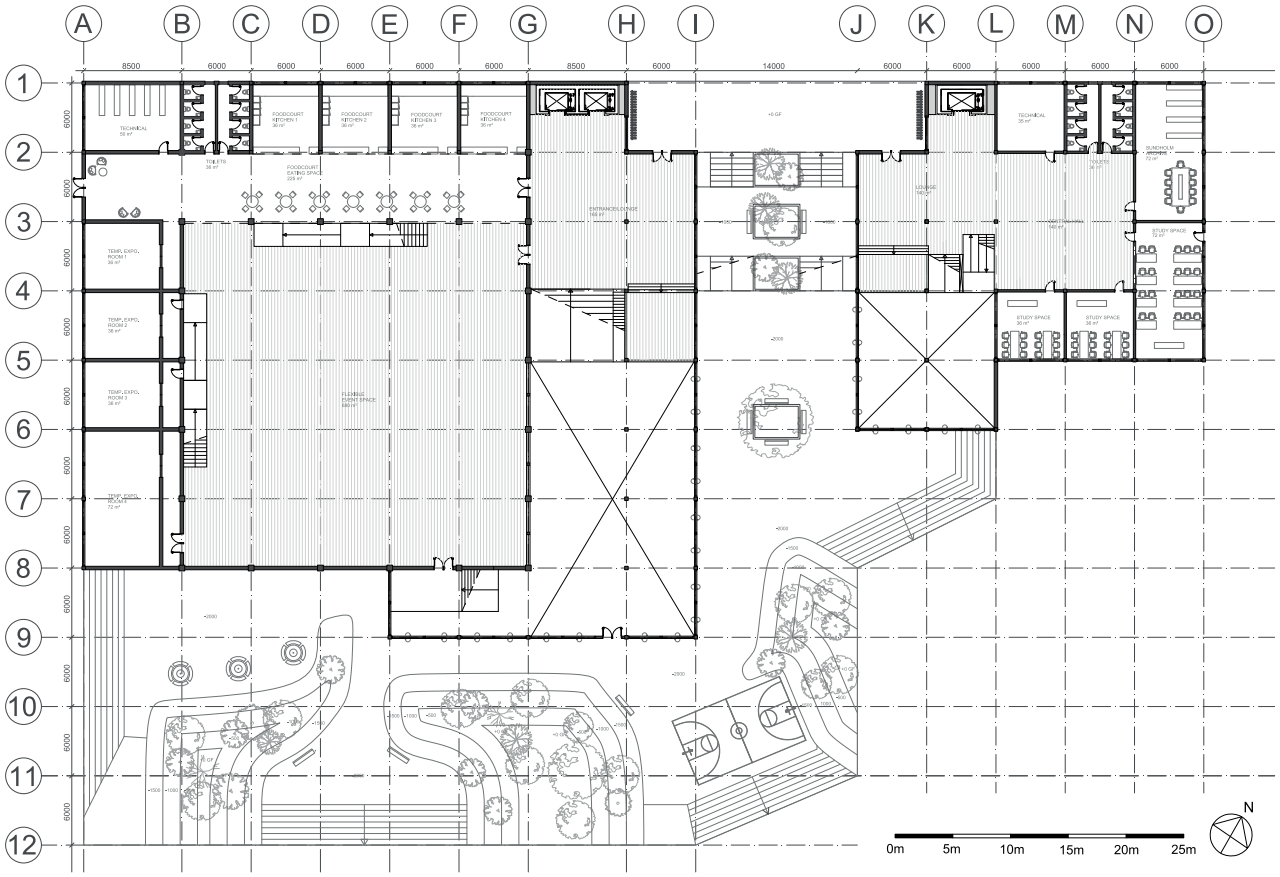



OASIS - 2800
LIBRARY
FOODCOURT
CAFÉ/RESTAURANT
ENTRANCE
CULTURAL CENTER
OBSERVA-TORIUM
WORKSHOPS

Max Tomás Douma

Tutoring

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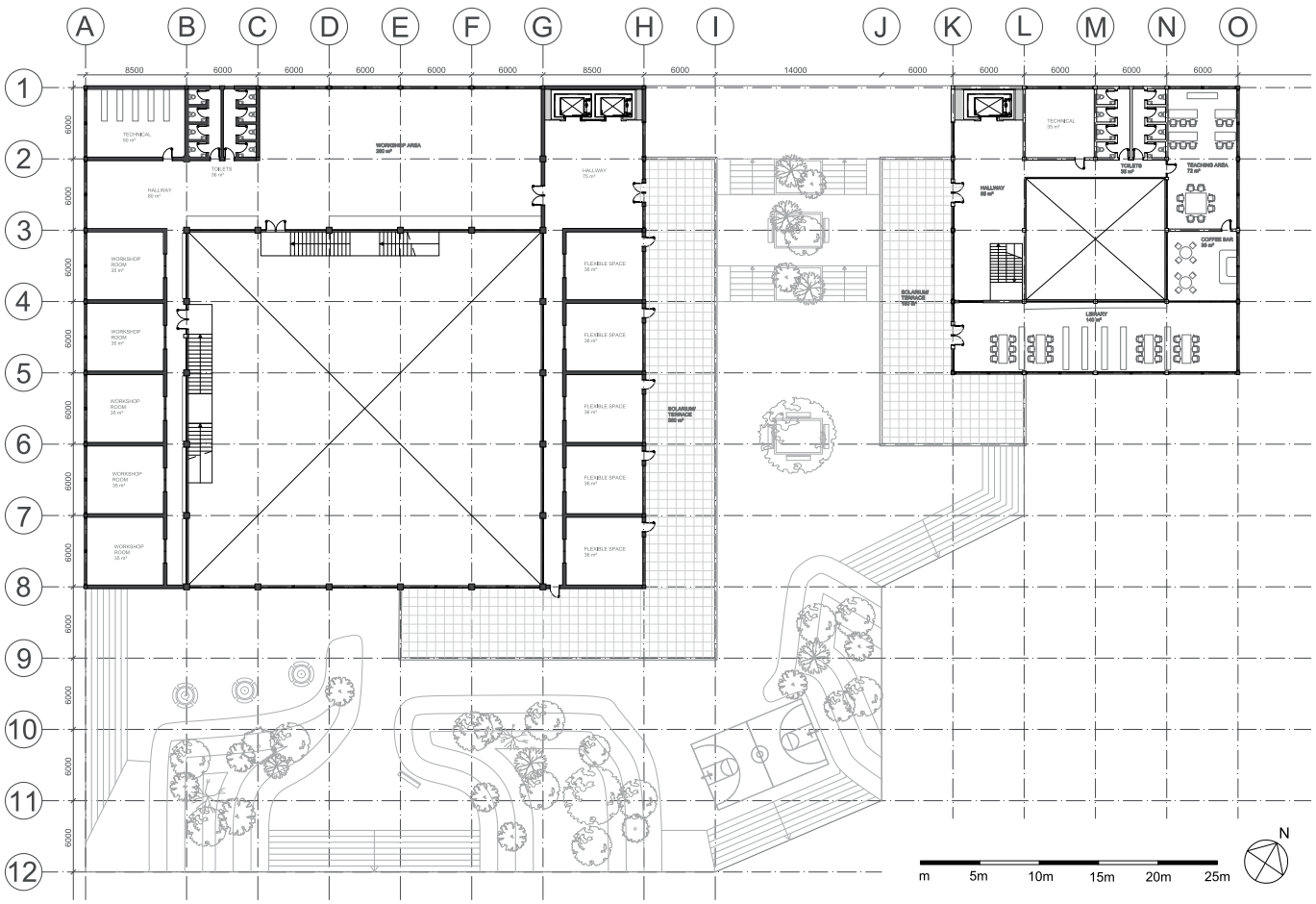
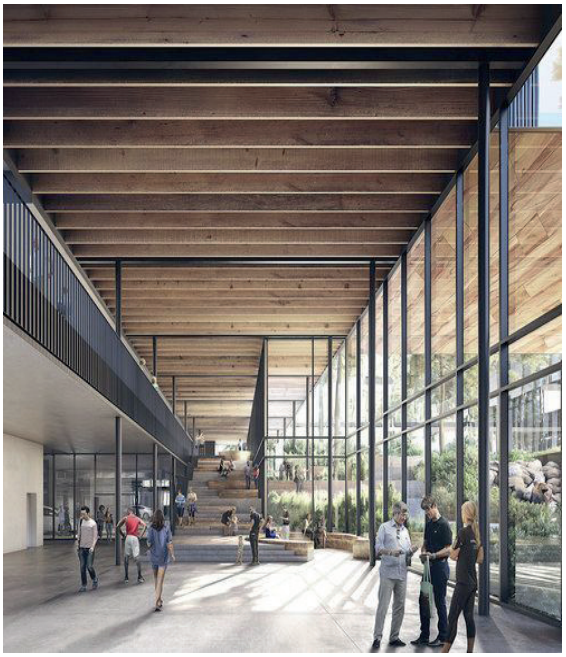
Max Tomás Douma

Tutoring





Grid Architecture in
Main Structure

SUMMARY.

1. Habraken (1998): Advocates for adaptable frameworks that empower users to modify spaces, fostering participatory resilience and reducing obsolescence.
2. Hertzberger (1991): Promotes polyvalent spaces that serve multiple functions, accommodating uncertainty and fostering inclusivity.
3. Holling (1996): Differentiates engineering resilience (returning to equilibrium) from ecological resilience (absorbing change and reorganizing), emphasizing adaptive designs.
4. Kronenburg (2007): Highlights flexible architecture using innovative materials and transformable spaces to respond to changing needs and conditions.
5. Schneider & Till (2007): Focus on flexible housing that anticipates lifestyle and structural changes to ensure long-term relevance.
6. Mehaffy & Salingaros (2017): Call for designs aligned with ecological principles, promoting self-organization and sustainability.

Integrated Themes

1. User-Centric Adaptivity: Empower users to shape environments (Habraken, Hertzberger).
2. Systemic Resilience: Integrate ecological principles (Holling, Mehaffy & Salingaros).
3. Design Flexibility: Emphasize adaptability in architecture (Kronenburg, Schneider & Till).
4. Sustainability: All authors stress adaptability for long-term resilience and livability.

Information from:

Habraken, N. J. (1998). The Structure of the Ordinary: Form and Control in the Built Environment. MIT Press. Hertzberger, H. (1991). Lessons for Students in Architecture. 010 Publishers. Holling, C. S. (1996). "Engineering Resilience versus Ecological Resilience." Engineering Within Ecological Constraints, National Academy Press, 31-44. Kronenburg, R. (2007). Flexible: Architecture that Responds to Change. Laurence King Publishing. Schneider, T., & Till, J. (2007). Flexible Housing. Architectural Press. Mehaffy, M. W., & Salingaros, N. A. (2017). Design for a Living Planet: Settlement, Science, and the Human Future. Sustasis Press.

Problem

The Sundholm neighborhood is fragmented and lacks cohesion.

Question

How can we re-introduce common identity into a fragmented area?

Factors

Lack of a Cohesive Identity. The area lacks clear visual or functional characteristics that distinguish it and create a sense of place.

Disconnected target groups. Residents, visitors, and users of various functions perceive the area as fragmented and miss shared spaces for interaction.

Illogical flow of movement. The area is poorly organized, with unclear routes and connections that disrupt navigation and user experience.

Lack of spactial connectivity. The physical layout of the public space does not align with the surrounding functions and fails to provide natural transitions between different zones.

Visual and physical barriers. Obstacles and poorly designed transitions create separations rather than connections.

Insufficient social interaction. The area does not facilitate encounters and interaction between different user groups.

Lack of inviting atmosphere. The area feels dark, unattractive, and unsafe, limiting its appeal to users.

Underutilized potential of light. Light is currently not strategically employed to improve orientation, atmosphere, and overall experience.

Opportunities

Rich Industrial Heritage. Transform existing industrial buildings into cultural or multifunctional spaces, keeping the area's historical identity while adding modern functionality.

Proximity to Urban Infrastructure. Enhance connectivity to make the neighborhood more accessible and sustainable and to attract businesses.

Culturally Diverse Community. Build inclusive public spaces and community programs that celebrate and connect the area's multicultural population and identity.

Open Spaces and Green Potential. Develop urban gardens, parks, and recreational areas to enhance livability and promote sustainability.

Existing Creative and Artistic Community. Create a hub for creativity with studios, galleries, and performance spaces, drawing visitors and utilizing local talent.

Educational Institutions. Use nearby schools or universities to create innovation hubs, research labs, or collaborative learning spaces.

Existing Social Services. Strengthen the social support network by expanding services that cater to the community's needs, making Sundholm a model for inclusive urban living.

Affordable Housing. Maintain and renovate affordable housing while integrating sustainable practices, attracting a broader range of residents and preventing gentrification.

Physical Situation

A neighborhood with a clear, tight plan. Straight housing volumes along long streets. Same charateristics among buildings.

After Further Accesment

The neighborhood consists of a lot of different cultures, target groups and people, among of whom would be considered; 'problem groups.'

Factors

Use Diversity as a Strength. The diversity of different groups is being used as a strength instead of a weakness. The character of the neighborhood will be reflected in the Public Condenser.

Create Contrast. As a main concept, there will be a contrast between the grid and the organic architecture. The grid exemplefies the order and the clear structure of the area. The organic architecture on the lower part stands for the more chaotic and lively characteristics once you've experienced the neighborhood more then just a glance. The outside will repeat the same aestethic as the long streets and buildings, but as you further approach the central lowered center or 'oasis,' you will experience more organic round forms and vegetation.

Embracing Multiplicity. In the neighborhood, a Public Condenser is placed that will incorporate different elements that combined will function as a connector in Sundholm.

Functional Multiplicity. In the neighborhood, the level of education is low. The students living next to Sundholm have no reason to be in there. An educational Hub will be formed to create opportunities and workspace.

Cultural Multiplicity. An important aspect is preservation of current important parts of Sundholm (the Fabrikken structure, the café, the store etc.) and to create a platform for the residents to express (in the spirit of the former artistic functions of The Fabrikken.

Sustainable Multiplicity. With an eye on the future the skin and floors of the building will be modular. There is also a lot of open spce meant to be reconfigured. The form of the structure is based on the sun, energy usage and waterstorage.

SENSORY.

Designing with light is an essential element in creating engaging, functional, and supportive architectural spaces. Light goes beyond visibility; it shapes mood, affects perception, and interacts with other sensory inputs to impact our mental and physical well-being.

Multisensory Interaction and Perceptual Influence: Light interacts with other sensory elements like sound, touch, and temperature, creating a multisensory experience that forms how a space feels and functions. For instance, warmer lighting tones are often perceived as physically warmer, creating a sense of coziness, while cooler tones can make a space feel chilly. Designers can use this effect (crossmodal) to enhance comfort or create atmospheres suited to a space's function, whether it's a relaxing lounge or a dynamic workspace. Lighting also interacts with visual textures and colors within a space, affecting how materials are perceived. Soft, diffuse lighting can make surfaces feel more welcoming, while bright, direct lighting highlights textures or architectural details, making them stand out. The interplay between light and material can shape an occupant's experience by drawing attention to specific features or creating a desired spatial hierarchy within the design. **Emotional and Cognitive Impact:** The influence of light on our mental and emotional well-being is profound, especially in northern climates where natural light can be scarce during winter months. Studies show that poor lighting can contribute to Seasonal Affective Disorder (SAD) and feelings of fatigue or low mood. By optimizing natural and artificial light to mimic daylight cycles, architects can mitigate some of these negative effects and create spaces that support mental health and daily rhythm. Cognitive functions like focus, productivity, and alertness are also tied to lighting. Bright, well-balanced lighting can improve concentration and reduce eye strain, making it particularly important in workspaces and learning environments. This extends to residential spaces as well, where lighting schemes that adapt to the time of day can support the body's natural circadian rhythms, promoting better sleep and overall health. **Creating Atmosphere, Identity, and Mood**: Light is a powerful tool for setting the mood and defining the character of a space. Different lighting intensities, colors, and positions evoke specific emotions and atmospheres. For example, soft, warm lighting can make a room feel intimate and inviting, suitable for lounges or quiet areas, while brighter, cooler lighting may feel energetic and is often better suited to spaces meant for activity and social interaction. In public spaces, dynamic lighting that changes with time of day or events can create a unique sense of identity and atmosphere, making the space memorable and engaging. This is especially relevant for cultural venues, event spaces, or community centers where lighting can be adapted to the function or theme of the space. Such design strategies give buildings a distinct character, creating places people want to visit, linger in, and remember.

Malik Architecture

IDENTITY.

In architectural design, light is an important factor in creating spaces that functions on both practical and emotional levels. Natural light, with its variability and dynamic qualities, provides architects with a powerful tool to shape not only how a space is perceived but also how it feels. While artificial lighting can be easily manipulated, natural light offers a richness that connects occupants to environmental rhythms, thereby contributing to the depth and authenticity of the space. This study examines methods for integrating natural light into architectural design to elevate the sensory experience, enrich the space's identity, and align with cultural context.

The relationship between architecture and natural light has deep historical roots, with light being used to define space and volume, emphasize textures, and create contrast. Contemporary approaches to light in architecture often draw from cognitive science and psychology, exploring how light can have emotional and psychological resonance. The building features a central courtyard where light filters down from above, creating a rhythm of bright and shadowed spaces. This contrast enhances the spiritual ambiance and connects the space to Ottoman architectural traditions. Cansever's strategic use of light and shadow underscores the building's identity, encouraging a reflective experience for its occupants. influence mental states, emotions, and physical well-being. Studies have shown that light influences spatial readability by defining boundaries, directing attention, and creating hierarchies within a structure. Furthermore, light's role in the aesthetic perception of a space emphasizes its power to evoke mood and emotional resonance.

Case Studies: Behruz Cinici: In Cinici's work, such as the Turkish Parliament Mosque and Middle East Technical University's Faculty of Architecture, light is used to guide movement and create hierarchy. Cinici's designs show how varying levels of illumination can direct attention and make spaces more navigable. Thin slots and courtyards allow light to transition seamlessly from bright to dim, creating moments of pause and enhancing spatial readability.

Turgut Cansever: The Turkish Historical Society Building exemplifies Cansever's integration of natural light to create emotional and psychological resonance. The building features a central courtyard where light filters down from above, establishing a rhythm of bright and shadowed spaces. This contrast enhances the spiritual ambiance and connects the space to Ottoman architectural traditions. Cansever's strategic use of light and shadow underscores the building's identity, encouraging a reflective experience for its occupants.

Spatial Perception and Safety: Lighting plays a crucial role in how people perceive space and their sense of safety within it. Well-designed lighting can make spaces feel more open and accessible, reducing feelings of confinement or disorientation. Bright, evenly distributed lighting can expand a space visually, while lighting zones can create intimate or focused areas within a larger environment. Proper lighting design is critical in urban spaces to promote safety, especially in high-traffic areas, pathways, and entry points. Poor lighting can lead to discomfort, disorientation, or even a heightened sense of vulnerability. By carefully illuminating public areas, designers can ensure spaces feel safer and more inviting, encouraging social interaction and a sense of community.
Social and Community Benefits: Thoughtfully designed lighting can foster social interaction by making public spaces more welcoming and accessible. In a community center or gathering area, for instance, lighting that's too harsh or too dim may discourage people from spending time or engaging with others. Balanced lighting, on the other hand, can encourage people to linger, interact, and use the space more fully. In neighborhoods, street lighting and well-lit communal areas help create a sense of safety and connectivity, encouraging residents to spend more time outside and interact with their community. This is especially important in urban areas where light can act as a unifying element, supporting a shared sense of place and belonging.
Sustainability and Health Benefits: Sustainable lighting design considers both environmental impact and occupant well-being. Optimizing natural light through smart positioning of windows, light shelves, and reflective surfaces reduces the need for artificial lighting, helping to conserve energy. This approach not only supports a building's environmental goals but also contributes to the comfort and health of its users by reducing artificial light dependency. Indoor spaces with ample natural light have been shown to improve mood, boost productivity, and enhance overall well-being. Sustainable lighting strategies that prioritize daylight access can lead to better health outcomes for occupants, fostering a healthier indoor environment that promotes long-term social and cognitive benefits.
Conclusion: In architectural design, light is not just a technical requirement but a fundamental tool that interacts with the full sensory experience of a space. When applied thoughtfully, it enhances spatial perception, supports emotional and cognitive well-being, and creates atmospheres that align with a space's purpose. By considering the multisensory effects of light, architects can design spaces that are more inclusive, engaging, and supportive of human health. Incorporating light into a multisensory framework creates not only functional spaces but environments that actively contribute to social, mental, and physical well-being, setting the foundation for architecture that truly serves its occupants.

Information from:
Charles Spence, "Senses of Place: Architectural Design for the Multisensory Mind," Cognitive Research Principles and Implications 5, no. 1 (September 18, 2020), https://doi.org/10.1186/s41235-020-00243-4.

Sandor Hadi: Known for designing functional yet aesthetically coherent spaces, Hadi uses light to reinforce form and function. The National Reinsurance Building in Istanbul, with its unique form, maximizes side lighting, creating vibrant interiors that remain insulated from street noise. In the Istanbul University Library, light is introduced from the roof and side openings, promoting a sense of peace that aligns with the library's purpose. Hadi's work demonstrates how thoughtful use of natural light can enhance function while contributing to the overall aesthetic value of a building.

Spatial Readability: Natural light can make spaces more intuitive to navigate. Introducing light from strategic points can help define spatial boundaries and create a sense of hierarchy within an open plan. Emotional Impact: Light's varying intensity throughout the day can affect mood. Architectural spaces should be designed to harness these changes, bringing vibrancy in communal spaces and calm in private areas.

Cultural Context: Light can carry symbolic meanings based on cultural traditions. Integrating these considerations into design can create spaces that resonate on a deeper level with their users. Aesthetic Coherence: Light adds texture, color, and warmth, enhancing the material quality of interiors. The play of light and shadow offers a non-static element that brings architectural features to life.

Conclusion: Natural light remains one of the most influential yet nuanced tools in architectural design, offering far more than basic illumination. Through thoughtful integration, architects can use light to create spaces that are readable, aesthetically engaging, and culturally resonant. The case studies of Cinici, Cansever, and Hadi illustrate diverse approaches to leveraging light as a core design element that shapes both form and experience. A strategic use of natural light can elevate architectural spaces to more than just built environments, making them places that inspire, engage, and connect people to their surroundings.

Information from:
Ilker Fatih Ozorhon and Turkan Ulusu Uraz, "NATURAL LIGHT AS a DETERMINANT OF THE IDENTITY OF ARCHITECTURAL SPACE," Journal of Architecture and Urbanism 38, no. 2 (July 8, 2014): 107–19, https://doi.org/10.3846/20297955.2014.916513.

Turkish Parliament Mosque | Behruz Cinici (1966)

Turkish Historical Society Building | Turgut Cansever (1966)

LIGHTING.

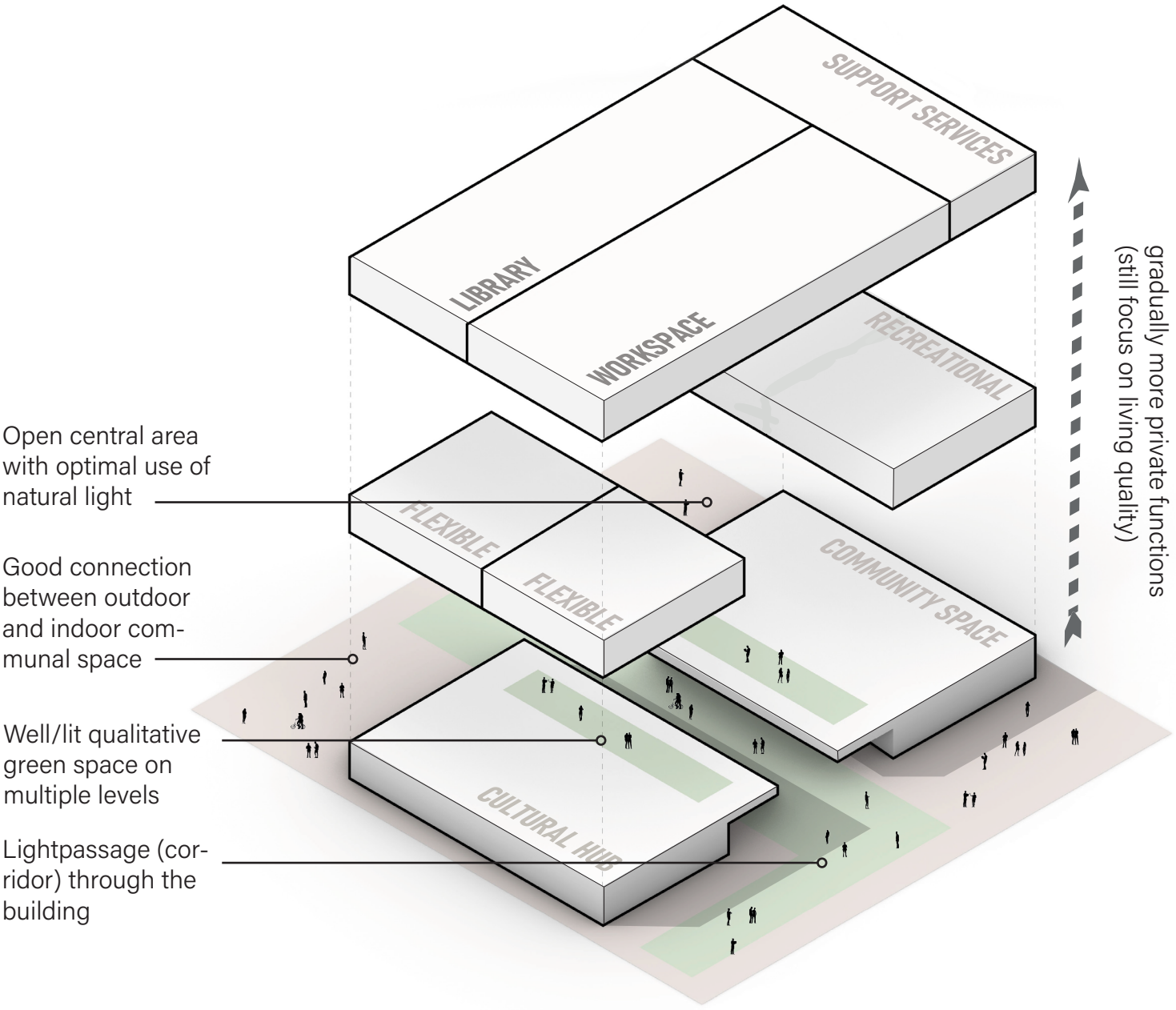
Advantages of Natural Lighting:
Enhances well-being, productivity, and energy efficiency. Regulates circadian rhythms, improves mood, and can lead to significant energy savings by reducing the reliance on artificial lighting.
Maximizing Daylight:
- Orientation and Window Placement: Buildings are oriented to maximize exposure to daylight, with carefully placed windows, clerestories, and light shelves to illuminate interiors evenly.
- Daylight Distribution: Techniques like light shelves reflect sunlight deeper into spaces, balancing illumination without causing glare.
Controlling Heat and Light: - Shading Devices: Overhangs, louvers, and other shading solutions manage light levels and prevent overheating.
- Glazing Options: Use of double-glazing and low-emissivity coatings to reduce heat gain while allowing light penetration.
Visual Comfort and Aesthetic Appeal:
- Natural light reduces eye strain and enhances visual comfort, creating inviting spaces with dynamic light and shadow interplay.

Sustainable Architecture:
- Energy Savings and Carbon Reduction: Natural lighting cuts energy costs and reduces carbon footprints, aligning with sustainable design principles.
- Biophilic Design: Connects occupants with nature, enhancing mental health and productivity.
Examples and Implementation:
- Skylights, Floor-to-Ceiling Windows, and Interior Courtyards: These features allow ample sunlight, offering views of nature and creating open, airy spaces with improved air quality and energy efficiency.
Architectural Integration:
- Principles for Sustainable Lighting: Includes the use of renewable energy, eco-friendly materials, and passive solar design.
- Adaptive Technologies: Incorporating smart glass, insulation, and automated lighting controls to balance natural and artificial lighting for efficiency and comfort.

Natural light in design is essential not just for energy efficiency but for creating sustainable, health-focused environments.

Information from:
architecturecourses, “Natural Lighting in Architectural Design,” architecturecourses.org, 2022, https://www.architecturecourses.org/learn/natural-lighting-architectural-design.

National Reinsurance Building | Sandor Hadi (1992)



Function diagram by Max Douma

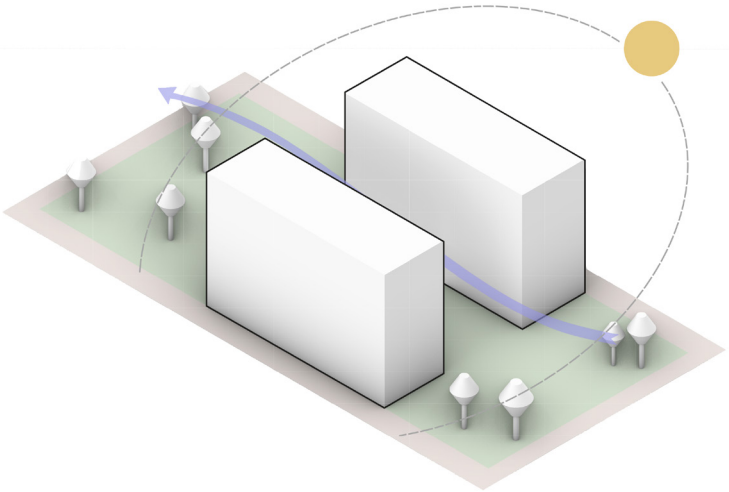


Diagram 1
- Corridor of light
- Clear routing through and around the condenser
- Open sightlines
- Seasonal adaptations

diagram by Max Douma (2024)

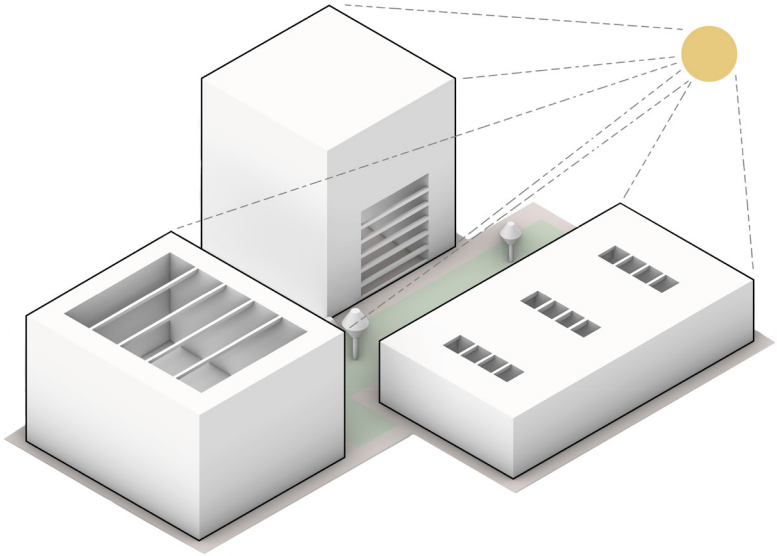


Diagram 2
- Intergration of the light-design between internal & external infrastructure to improve connections

diagram by Max Douma (2024)

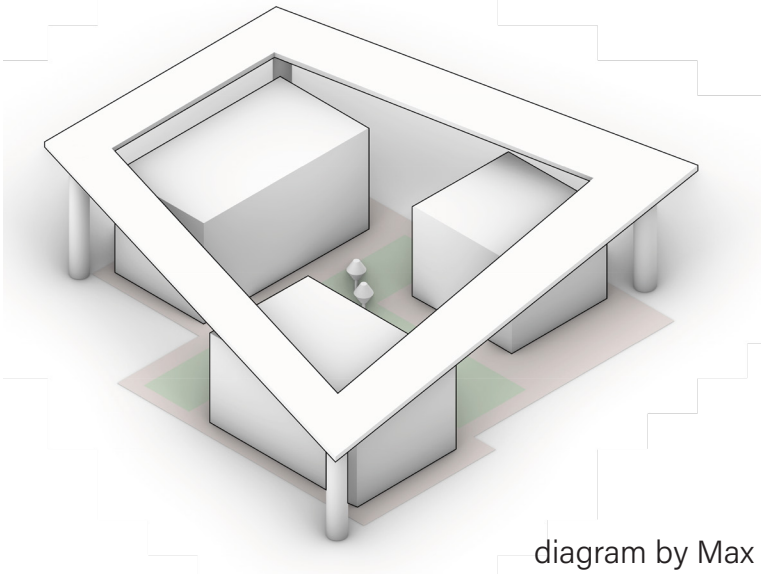


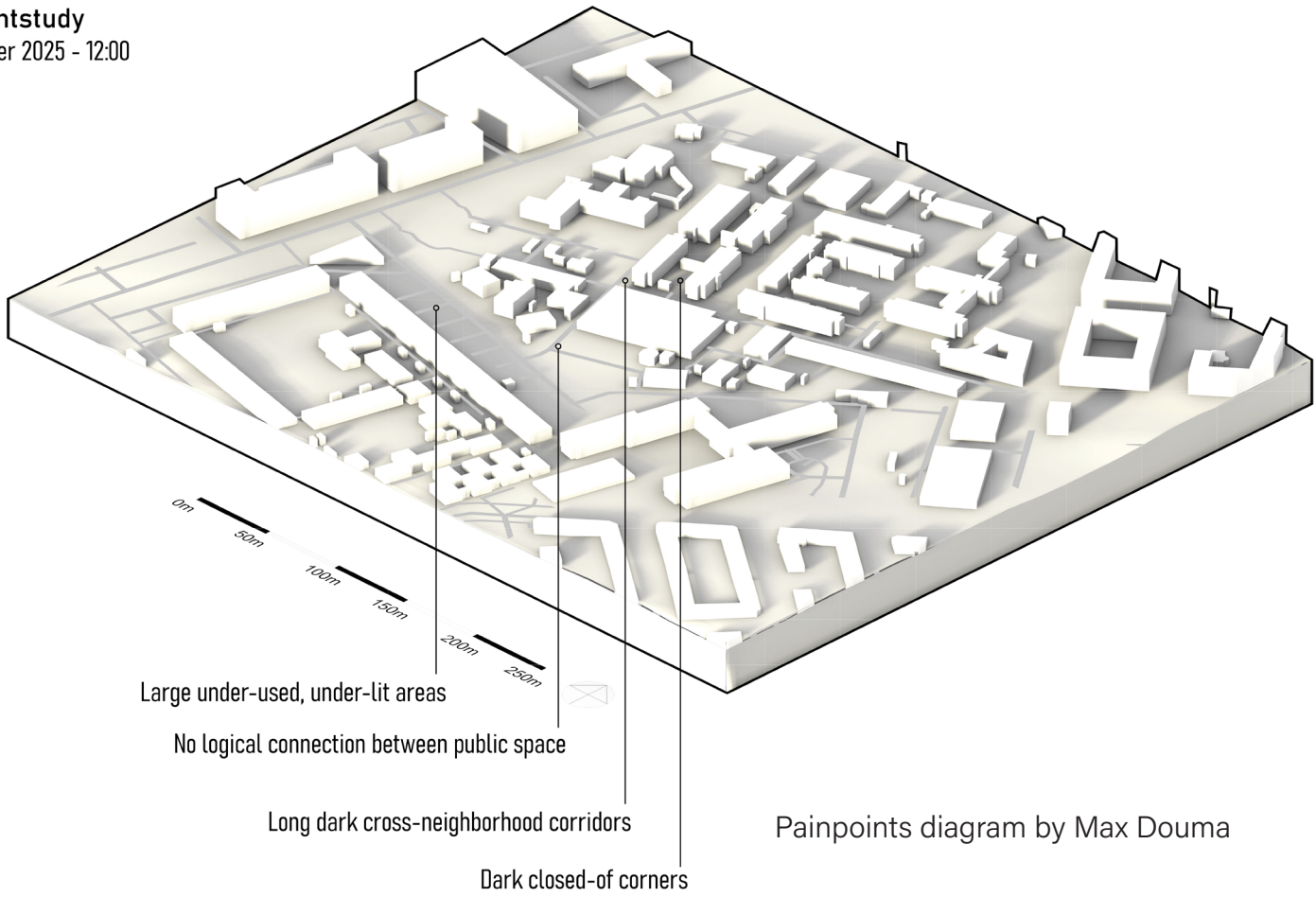
Diagram 3
- Lightplan adapted to target groups
- Design based on function combined with light/shadow
- Integration of light and human perception

diagram by Max Douma (2024)

Initial drawing of Sundholm by Max Douma

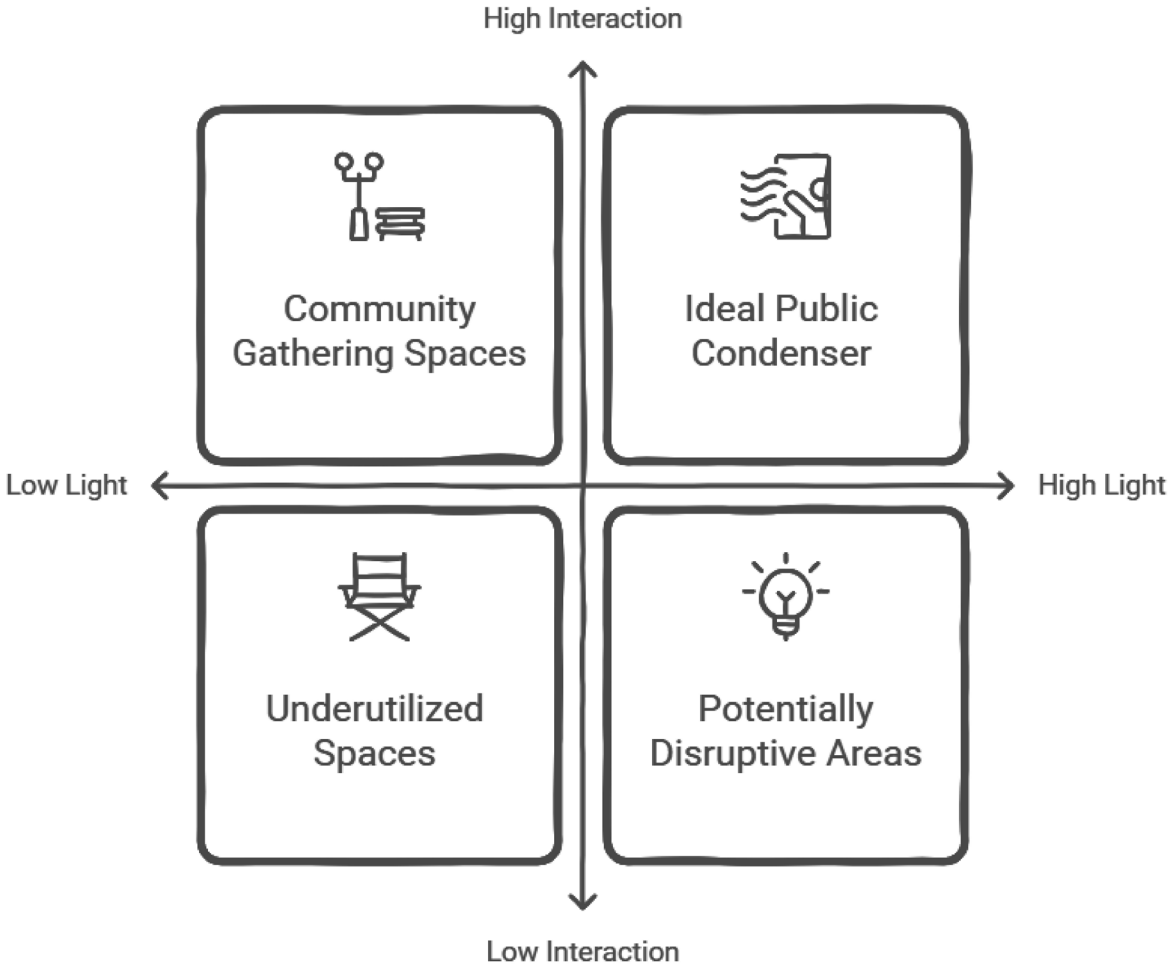
Drawing of Sundholm after photoshop by Max Douma

Lightstudy
Winter 2025 - 12:00



Painpoints diagram by Max Douma

Impact of Light on Social Interaction in Sundholm



Goals diagram by Max Douma

GOALS.

Enhancing Living Quality and Sense of Place
The Public Condenser in Sundholm would improve residents' quality of life by centralizing community amenities, green spaces, and recreational areas, creating a vibrant, accessible hub. This multifunctional space would make daily life more convenient, promoting social interaction and providing a healthier, nature-integrated urban environment that fosters well-being.

A Prototype for Broader Urban Challenges
While tailored to Sundholm, the Public Condenser is a replicable prototype for similar urban areas lacking green spaces and cohesive infrastructure. Its adaptable, modular design can be applied to various neighborhoods, addressing shared urban challenges with a flexible model that supports sustainable growth and community cohesion.

Fostering a Sense of Progress and Community Pride
The Public Condenser signals a commitment to Sundholm's development, enhancing residents' pride and encouraging active participation in the community's future. By offering spaces for social connection, relaxation, and learning, the building becomes a symbol of positive change and neighborhood pride, empowering residents and setting a precedent for future urban projects.

Balance of Elements
There needs be a balance of elements where the use of light functions as a glue. In the diagram you see some options between the different uses. There needs tob e a balance between these elements to let the new Sundholm function at its best.

Max Tomás Douma

P2 Presentation

Location

Where is Sundholm?

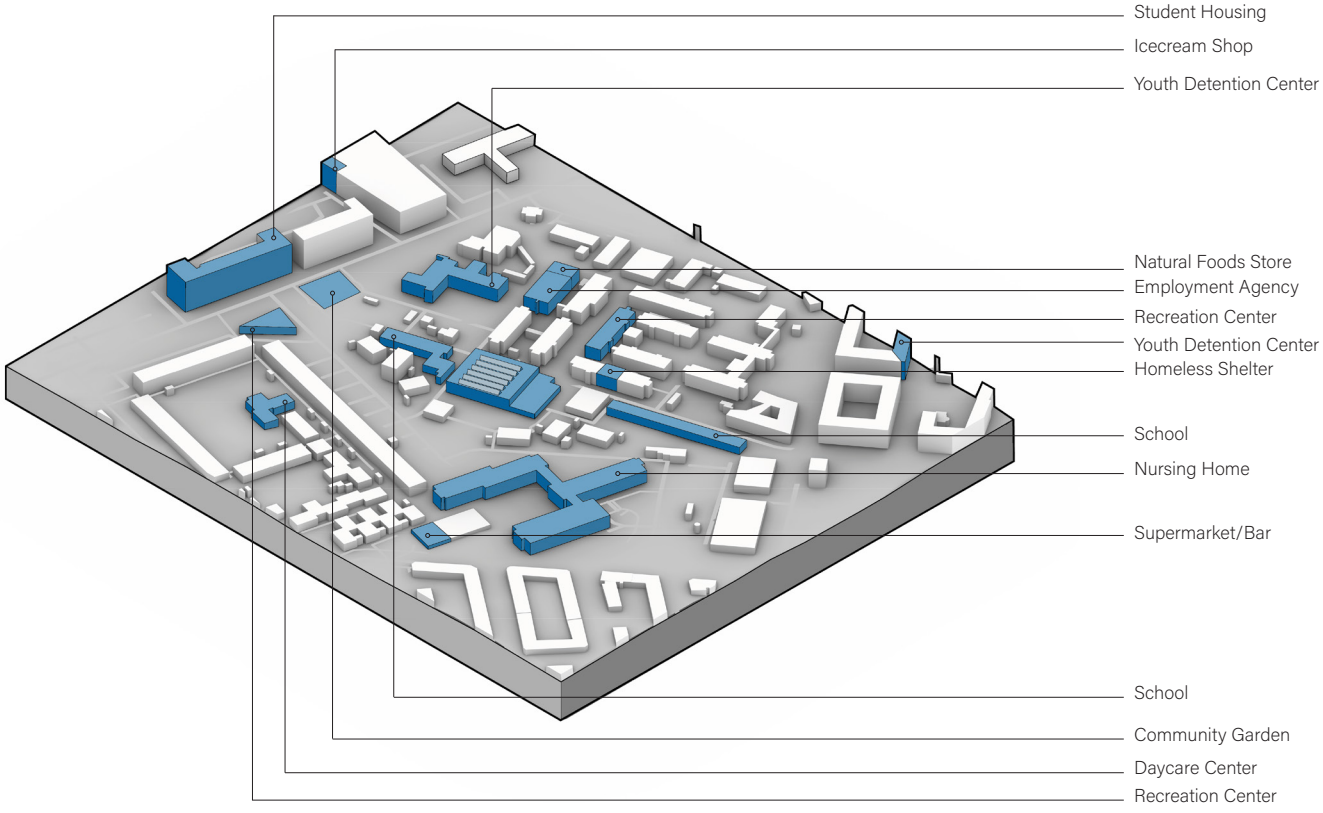
DENMARK | DANMARK

COPENHAGEN | KØBENHAVN

SUNDHOLM | SUNDHOLM

Site

The designated area for the poject
and the chosen space



Max Tomás Douma

P2 Presentation

Problem

The problem statement from Sundholm explained

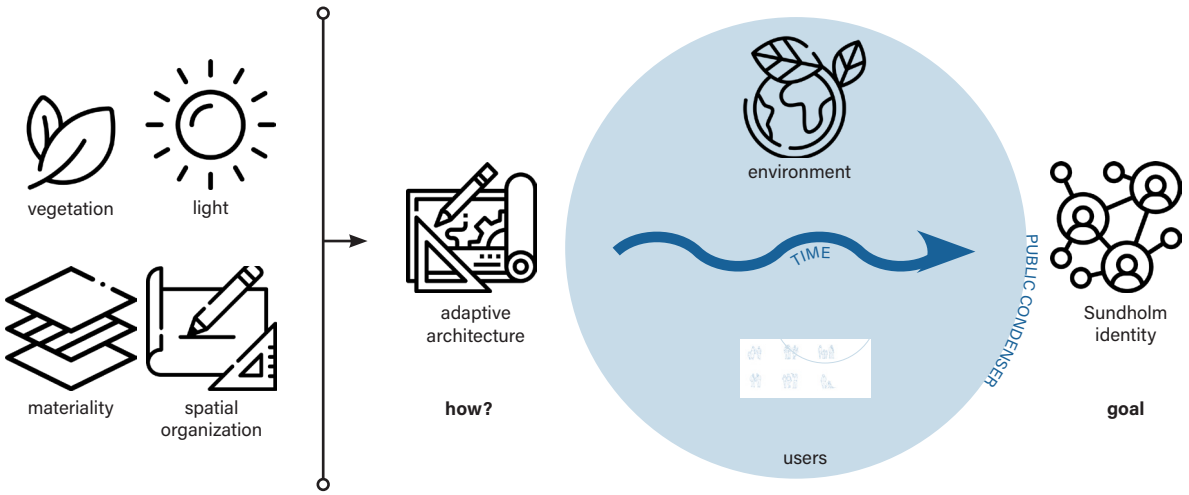
typological divides
The neighborhood of Sundholm can be divided by cultural differences, but also in typological characteristics. There are seven distinct parts.

The fragmented and fluid identities of Sundholm are currently disconnected, resulting in social and spatial divides that hinder cohesion and adaptability within the neighborhood's urban fabric.

Concept

What will be accomplished and how does it show in the project?

"How can architecture embrace diversity and change as defining characteristics rather then an obstacle?"



The Sundholm-identity is a fluid, adaptive one. (urban & cultural) It is not static, but rather dynamic. This unique characteristic element of the neighborhood needs to be reflected in the Public Condenser. The building adapts to the users and environment and in time, a common identity is created. A place for all.

Max Tomás Douma

P2 Presentation

Target Groups

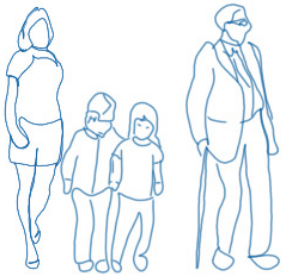
The different target groups among the residents and their needs

Vulnrable & Marginalized Groups:
- Homeless
- Substance users
- Mentally ill
- Problem youth

Need:
- Safety & Support: Access to hygiene facilities, shelter, therapeutic spaces, and social reintegration programs.

Immigrant & Multicultural Communities:
- Refugees
- Asylum seekers
- Ethnic minorities
- Int. workers & students

Need:
- Cultural representation and integration: Spaces for networking, cultural expression, and language or skill-building programs.



Low Income & Social Housing:
- Families with children
- Elderly residents

Need:
- Community and recreation: Affordable activities, intergenerational gathering spaces, relaxation zones, and accessible green areas.

Creative & Alternative Communities
- Artist & designers
- Activists
- Community organizers
- Urban Farmers

Need:
- Work and exhibition opportunities: Studio spaces, networking areas, event venues, and cultural hubs.

Students & Young Professionals:
- Students from local universities
- Young professionals

Need:
- Learning and collaboration: Study areas, access to archives, research facilities, and networking opportunities.

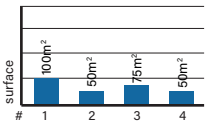
Business & Entrepreneurs:
- Social enterprises
- NGO's
- Local business owners

Need:
- Green initiatives and business support: Urban farming spaces, business incubators, and community-driven economic platforms.

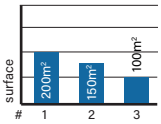
Functions

Quantitative/Qualitative Brief

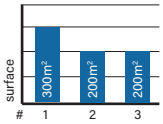
Entrance & Oriëntation (250 - 300 m²)
1. Main entrance hall
2. Information counter
3. Reception
4. Lockers



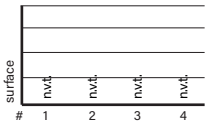
Solarium & Observatory (400 - 500 m²)
1. Solarium
2. Observatory (kinetic)
3. Pavillion(s)



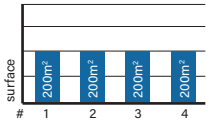
Adaptive Exhibition & Event Space (600 - 800 m²)
1. Flexible gallery/event space
2. Temporary installations
3. Flexible cultural & workshop space



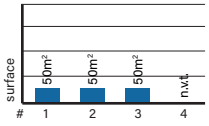
Vegetation (900 - 1100 m²)
1. Self-sustaining green space (Eco-Cathedral)
2. (Vertical) garden
3. Green walkways
4. Adaptive roof (walkable)



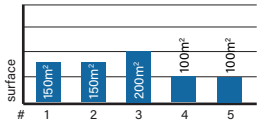
Multi-Use Community Space (600 - 800 m²)
1. Public lounge
2. Café
3. Workshop rooms
4. Urban agora



Miscellaneous (100 - 200 m²)
1. Storage
2. Technical space
3. Sanitary facilities
4. Circulation (~30% of space)



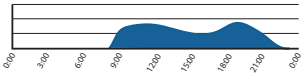
Learning & Innovation Hub (500 - 700 m²)
1. Studio spaces
2. Innovation lab
3. Study spaces
4. Library
5. Sundholm archive



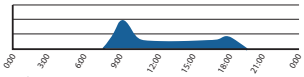
Peak Activity

Time schedules per function based on the most used moments a day

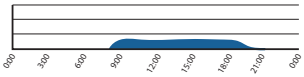
Entrance & Oriëntation (250 - 300 m²)



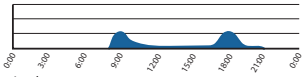
Main entrance hall



Information counter

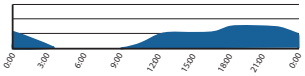


Reception

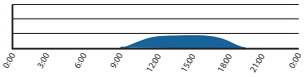


Lockers

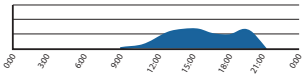
Adaptive Exhibition & Event Space (600 - 800 m²)



Flexible gallery/event space

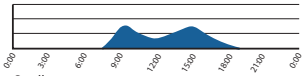


Temporary installations

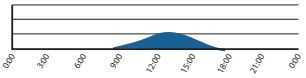


Flexible cultural & workshop space

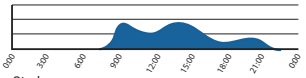
Learning & Innovation Hub (500 - 700 m²)



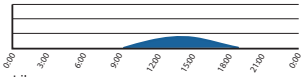
Studio spaces



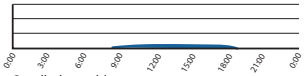
Innovation lab



Study spaces

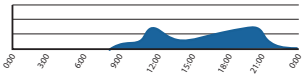


Library

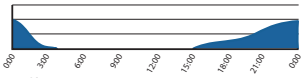


Sundholm archive

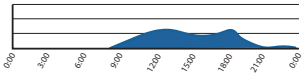
Multi-Use Community Space (600 - 800 m²)



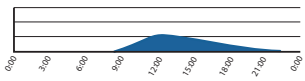
Public lounge



Café

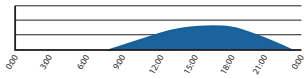


Workshop rooms

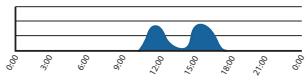


Urban agora

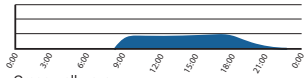
Vegetation (900 - 1100 m²)



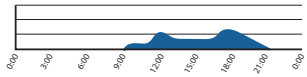
Self-sustaining green space (Eco-Cathedral)



(Vertical) garden

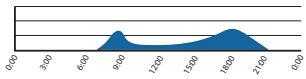


Green walkways

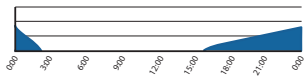


Adaptive roof (walkable)

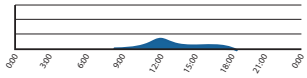
Solarium & Observatory (400 - 500 m²)



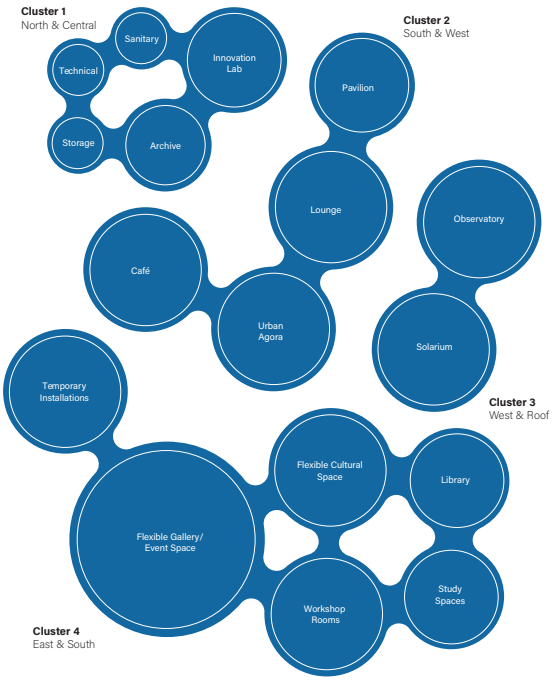
Solarium



Observatory (kinetic)



Pavillion(s)



Schematic Zoning

Plan based on vegetative- and lighting needs & seasonal adaptation

Cluster 1: Low Light & Controlled Environment
Sundholm Archive (low light, temperature-controlled space)
Innovation Lab (requires artificial lighting control for precise work)
Technical Spaces (limited daylight needed)
Storage (minimal light exposure required)
Sanitary Facilities (neutral location with no direct sunlight reliance)

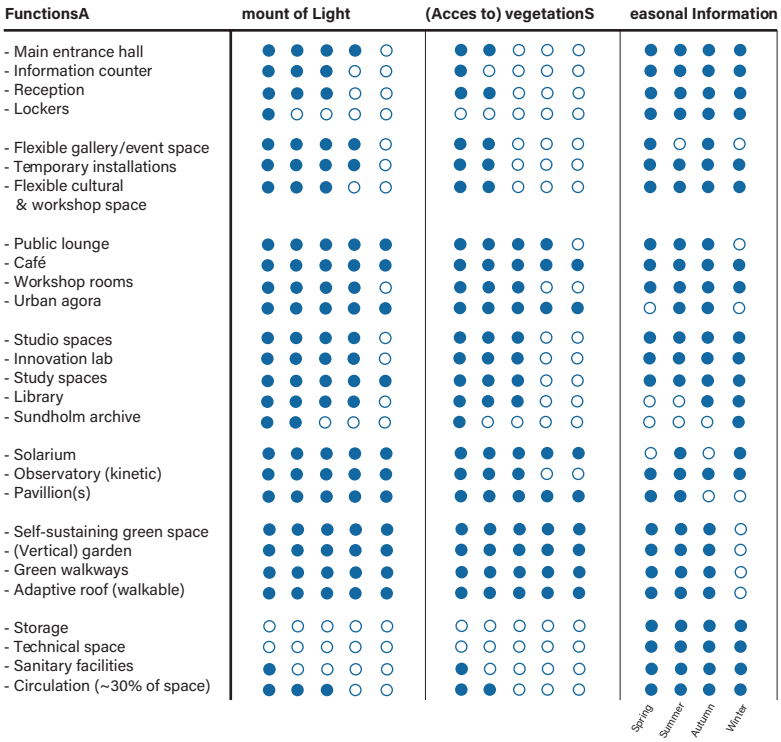
Cluster 2: High Sunlight & Outdoor Interaction
Urban Agora (social space benefiting from open sun exposure)
Public Lounge (integrated indoor-outdoor transition)
Café (maximizing outdoor terrace use)
Pavilion(s) (outdoor meeting points)

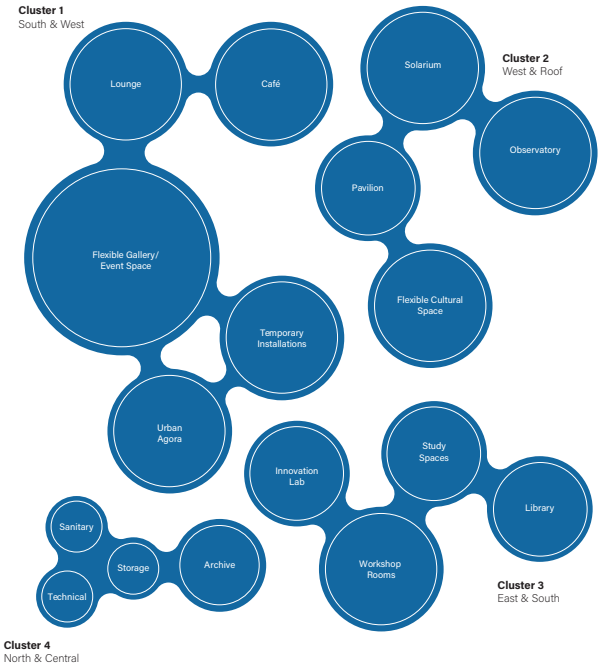
Cluster 3: Adaptive & Experimental Spaces
Observatory (kinetic) (requires direct view of sky, positioned on rooftop or isolated)
Solarium (seasonal adjustment to collect maximum sunlight)

Cluster 4: Moderate Light & Green Integration
Flexible Gallery/Event Space (adjustable indoor-outdoor use)
Temporary Installations (changing displays need adaptable lighting)
Flexible Cultural & Workshop Space (integrating natural light & plants)
Workshop Rooms (midday sunlight benefits productivity)
Study Spaces (indirect sunlight from the East for comfort)
Library (soft natural light required, East-facing to reduce glare)

Characteristics

Needs of different functions with vegetation, light and season





Schematic Zoning

Plan based on peak activity and function throughout the day

Cluster 1: Midday (11:00 - 16:00) Public & Activity
Public Lounge (active meeting space, benefits from bright daylight)
Café (social space, best in midday sun with terrace access)
Flexible Gallery/Event Space (natural light benefits exhibitions, adaptable shading needed)
Temporary Installations (requires strong but adjustable daylight)
Urban Agora (outdoor activities & discussions, benefits from open-air exposure)

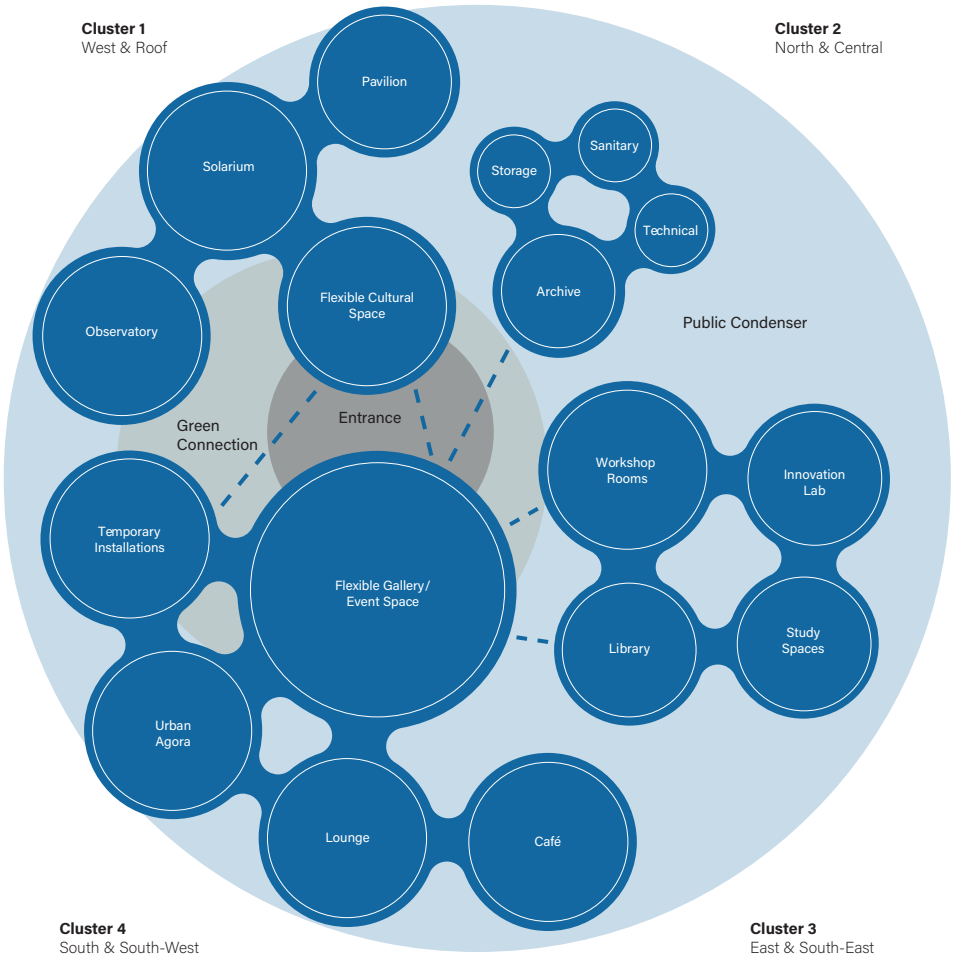
Cluster 2: Evening (16:00 - 00:00) Cultural & Observatory Spaces
Observatory (kinetic) (requires clear western sky exposure for optimal star viewing at night)
Solarium (absorbs heat during the day, provides passive warmth in evening)
Pavilion(s) (outdoor spaces best for sunset views and late social use)
Flexible Cultural & Workshop Space (adaptable for events and night-time activities)

Cluster 3: Morning & Daytime (8:00 - 16:00) Social & Workplaces
Study Spaces - morning productivity, soft daylight needed
Library - quiet space, benefits from indirect morning sun
Workshop Rooms - learning & creative activities peak in the morning
Innovation Lab - scientific & research activities, benefits from focused daylight

Cluster 4: All day, Low-Light & Controlled Environment
Sundholm Archive (temperature & humidity controlled, minimal daylight exposure needed)
Storage (functional, low-light area, close to technical spaces)
Technical Spaces (no direct daylight required, optimal for back-end building functions)
Sanitary Facilities (can be centrally placed, doesn't depend on sunlight)

Max Tomás Douma

P2 Presentation



Schematic Zoning

Combination of all factors

Cluster 1: Evening Activities & Observatory Zone
Observatory (kinetic) (requires minimal light pollution, placed high with clear western exposure)
Solarium (absorbs heat during the day, provides passive warmth for evening spaces)
Pavilion(s) (gathering spaces that benefit from evening ambient light)
Flexible Cultural & Workshop Spaces (night-time performances, film screenings, or community events thrive here)

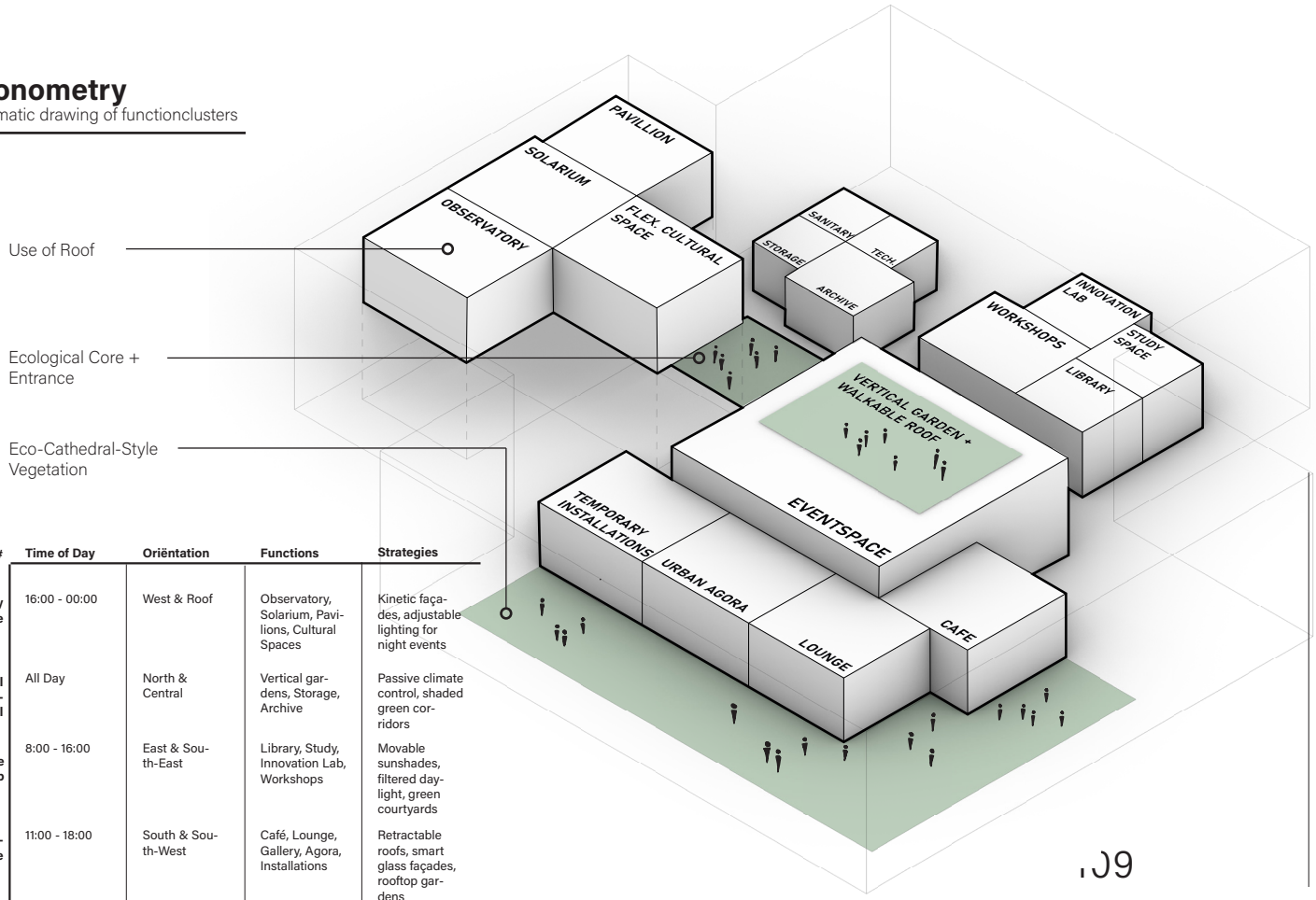
Cluster 2: The Ecological Core & Technical Space
Storage, Sanitary Facilities, & Technical Spaces (require stable, climate-controlled zones)
Sundholm Archive (historical preservation requires controlled lighting and stable temperatures)
Core (connection of technical spaces to entrace and traffic core, connection to adaptive green spaces (in- and outside)

Cluster 3: Morning Light & Knowledge Hub
Library (benefits from soft morning light, avoids harsh glare from direct midday sun)
Study Spaces (quiet, low-energy space best used early in the day)
Innovation Lab (experimentation & focused work thrive in bright morning conditions)
Workshop Rooms (hands-on learning benefits from stable daylight exposure)

Cluster 4: Midday Social & Cultural Exchange
Public Lounge (social hub, thriving on warm daylight exposure)
Café (optimal placement for midday energy & outdoor seating)
Urban Agora (semi-outdoor area best activated in peak social hours)
Flexible Gallery/Event Space (art & cultural events depend on adaptable lighting conditions)
Temporary Installations (requires flexible daylighting options for seasonal exhibits)

Axonometry

Schematic drawing of functionclusters



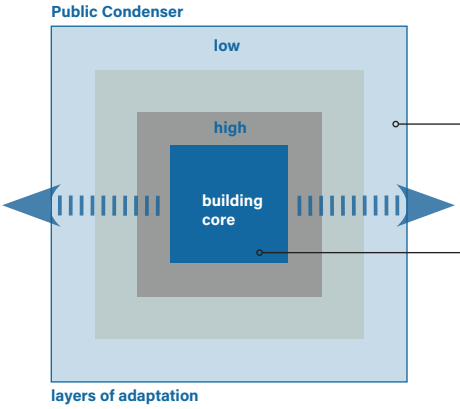
Cluster #	Time of Day	Oriëntation	Functions	Strategies
Observatory Zone	16:00 - 00:00	West & Roof	Observatory, Solarium, Pavilions, Cultural Spaces	Kinetic façades, adjustable lighting for night events
Ecological Core & Technical	All Day	North & Central	Vertical gardens, Storage, Archive	Passive climate control, shaded green corridors
Knowledge Hub	8:00 - 16:00	East & South-East	Library, Study, Innovation Lab, Workshops	Movable sunshades, filtered daylight, green courtyards
Cultural Exchange	11:00 - 18:00	South & South-West	Café, Lounge, Gallery, Agora, Installations	Retractable roofs, smart glass façades, rooftop gardens

Max Tomás Douma

P2 Presentation

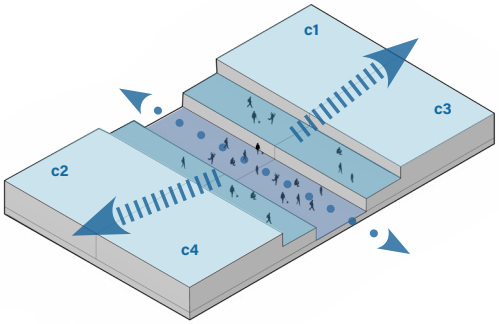
Concept & Massing

an axonometric drawing of a more concrete massing plan and function development

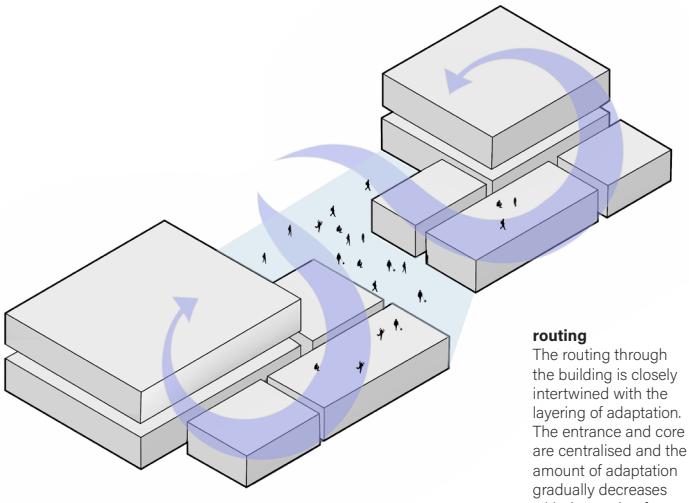


building edge
The further you come from the building core, the more function or targetgroup specific the space is. The versatility and level of adaptation becomes lower.

building core
The heart of the building is extremely versatile. It adapts to its surroundings and to its users. The space can be reconfigured and changed. Also factors such as light and vegetation are most prominent here.



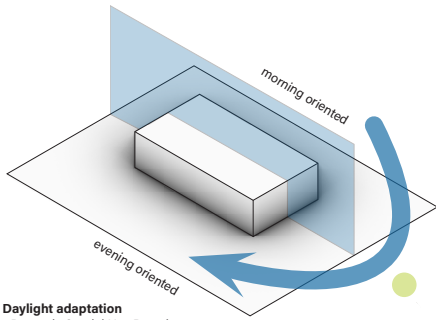
connection to core
The central open pathway connects the different clusters with each other. This central part is also the most versatile and adaptive in space and use. The more specific space is located further from the centre.



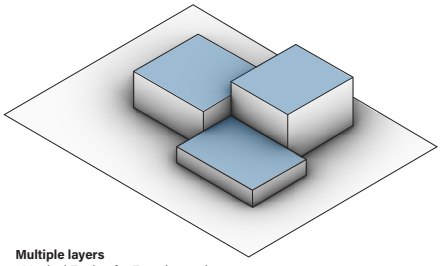
routing
The routing through the building is closely intertwined with the layering of adaptation. The entrance and core are centralised and the amount of adaptation gradually decreases with the routing further up.

Schematic Concept

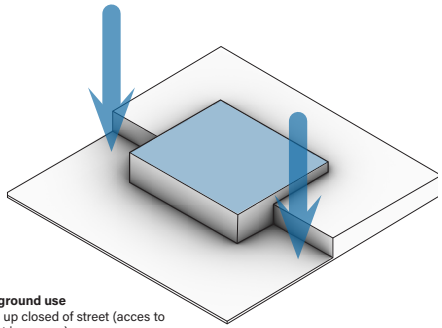
Concept drawings about design



Daylight adaptation
- Dynamic Spatial Use Based on Natural Light Cycles
- Directional Light and Program Zoning for Optimal Functionality



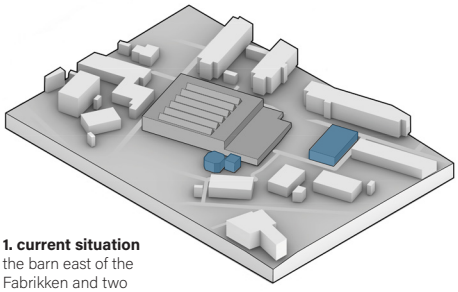
Multiple layers
- Vertical Zoning for Function and Adaptability
- Layered Climate Adaptation & Environmental Filtering



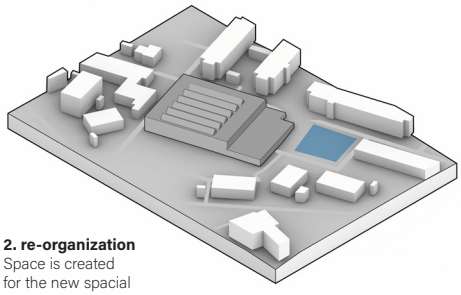
Underground use
- Open up closed of street (acces to sunlight increases)
- Block direct view of big apartments from the front of the building

Urban Strategies

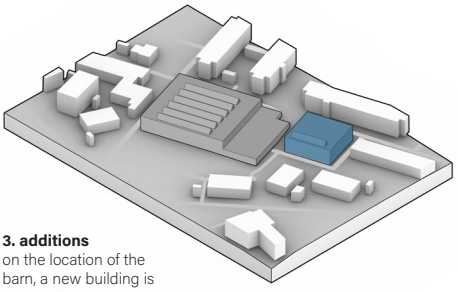
how do the current buildings relate to the new urban situation and the Public Condenser?



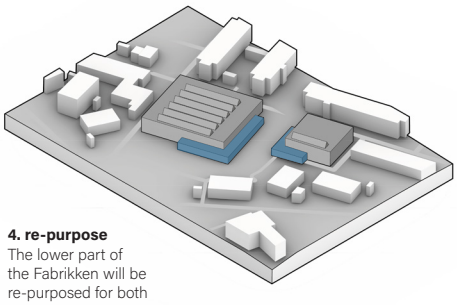
1. current situation
the barn east of the Fabrikken and two smaller logistics buildings are removed.



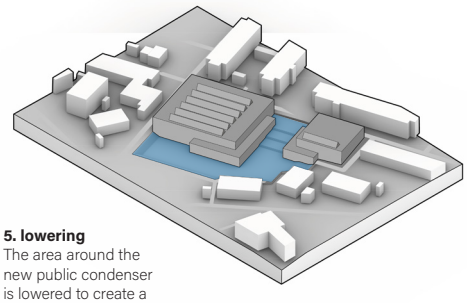
2. re-organization
Space is created for the new spacial reconstruction of the Fabrikken terrain.



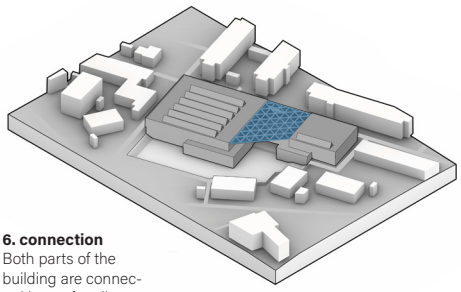
3. additions
on the location of the barn, a new building is placed with the same characteristics as the Fabrikken.



4. re-purpose
The lower part of the Fabrikken will be re-purposed for both buildings' entrances and 'smeared' along the structure.



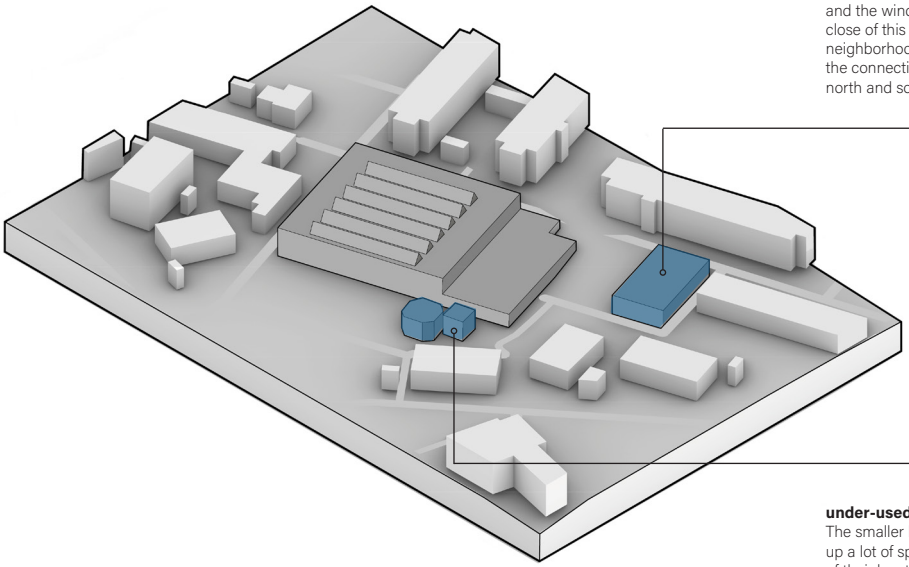
5. lowering
The area around the new public condenser is lowered to create a multi-layering and a coherent centre.



6. connection
Both parts of the building are connected by roof, walkways and a central green walkway.

1. Current Situation

the reason for demolishing certain buildings



disconnection
The plot of the building and the windowless facade close of this part of the neighborhood and disrupt the connection between north and south.

under-used
The smaller buildings use up a lot of space because of their location. The area behind the Fabrikken is useless and functions momenttarily only as parking space and neglected vegetation.

Max Tomás Douma

P2 Presentation

2. Re-Organization

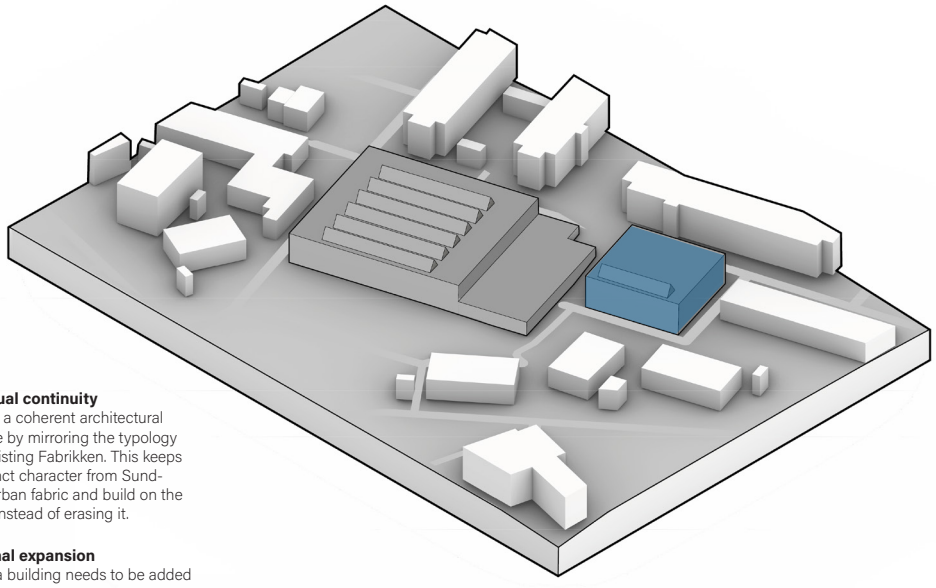
unveiling the potential of area's in Sundholm that are now greatly mis-used

1.

retrieving potential
Momentarily there are a couple of places with great potential around the Fabrikken terrain. They have been functioning as parking space, storage or neglected vegetation. These spaces are also in important connective urban fabric. These area's have to be re-organized and their land-value retrieved.

3. Additions

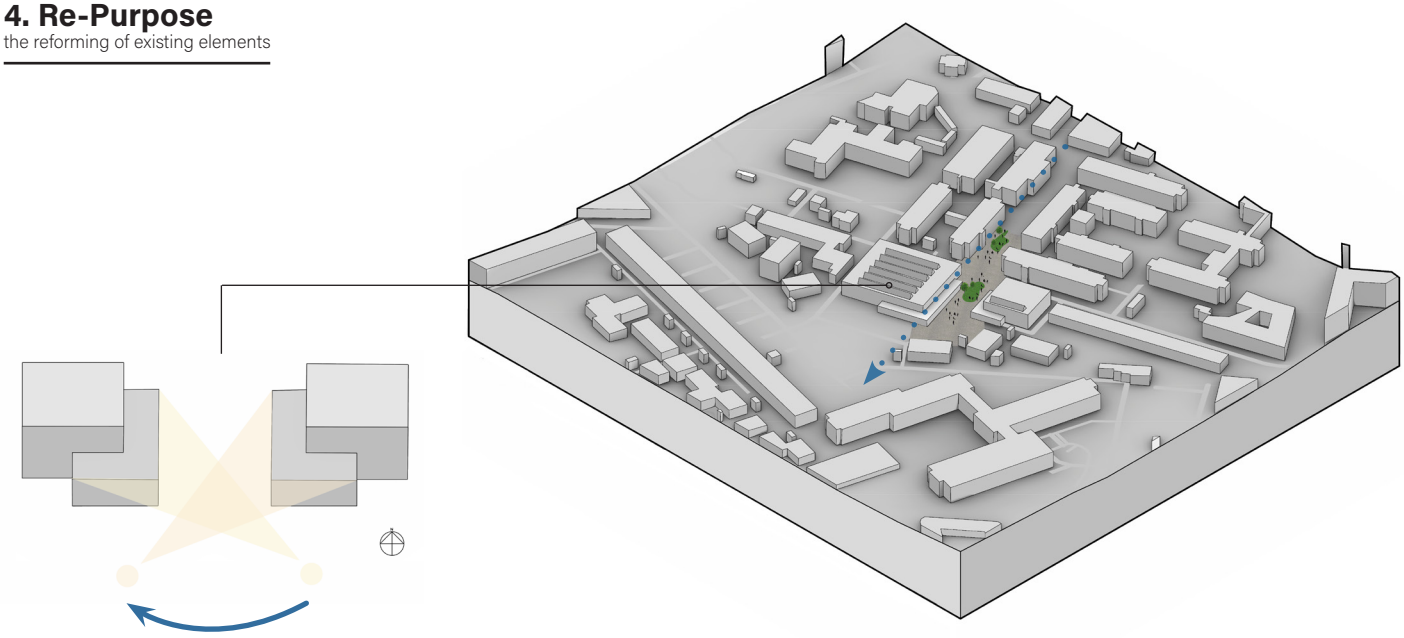
why do we need extra buildings as addition to only renovate the Fabrikken structure?



contextual continuity
Maintain a coherent architectural language by mirroring the typology of the existing Fabrikken. This keeps the distinct character from Sundholm's urban fabric and build on the identity instead of erasing it.

functional expansion
The extra building needs to be added to account for the 4500 square meters of active surface in the new renovated building. With only the current Fabrikken structure, the area will not suffice.

4. Re-Purpose
the reforming of existing elements

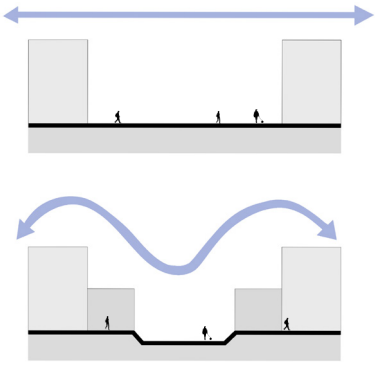


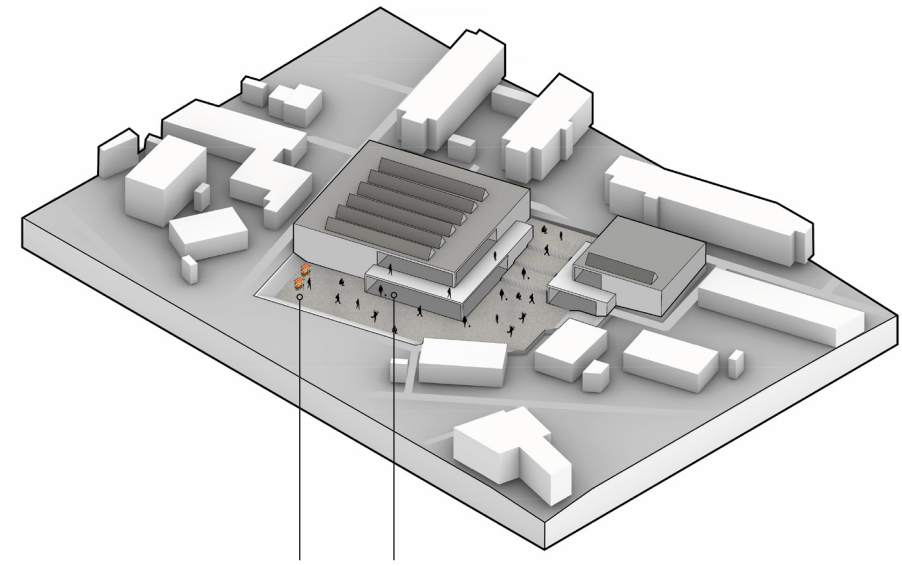
daylight adaptation
The building will be layered in angles to optimize the use of sun. In this composition the outside and inside space will benefit most of the 'rare' direct sunlight. In this setup, the functionclusters are also easily placed.

open sightlines
The sightlines from the main acces road to the Public Condenser are opened to create clear sightlines. This is done enhance accesibility and visibility, creating a stronger connection with the surrounding urban fabric.

activate corridor
After opening the area and sightlines to and through the building, the zone in this axis will be activated. The connection between the northern and southern part of the neighborhood will be better accessible.

5. Lowering
the idea behind creating a multiple layered area for the Public Condenser.





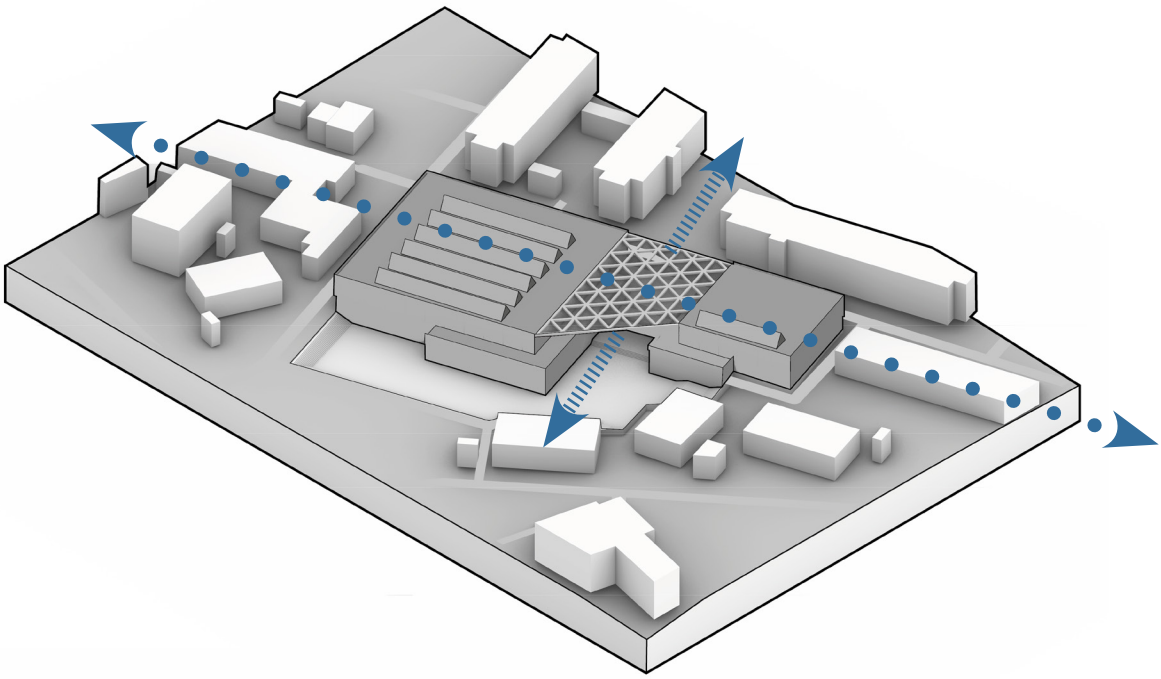
re-think hight contrast
With lowering certain areas, the contrast in the streetscape between high buildings and low streets will 'soften' the neighborhood. This transition space will function as a buffer between the urban contrasts.

activation of outdoor space
With lowering the surrounding space, the outside area can be activated. The stairs can be used as sitting space for activities as markets or an amphitheater. The space is now actively collaborating with the building.

combine in- & outside
The boundaries between inside and outside are dissolved. The space inside can be adapted to extend to the outside agora of the building. This creates a versatile and morphing (changing) space.

6. Connection

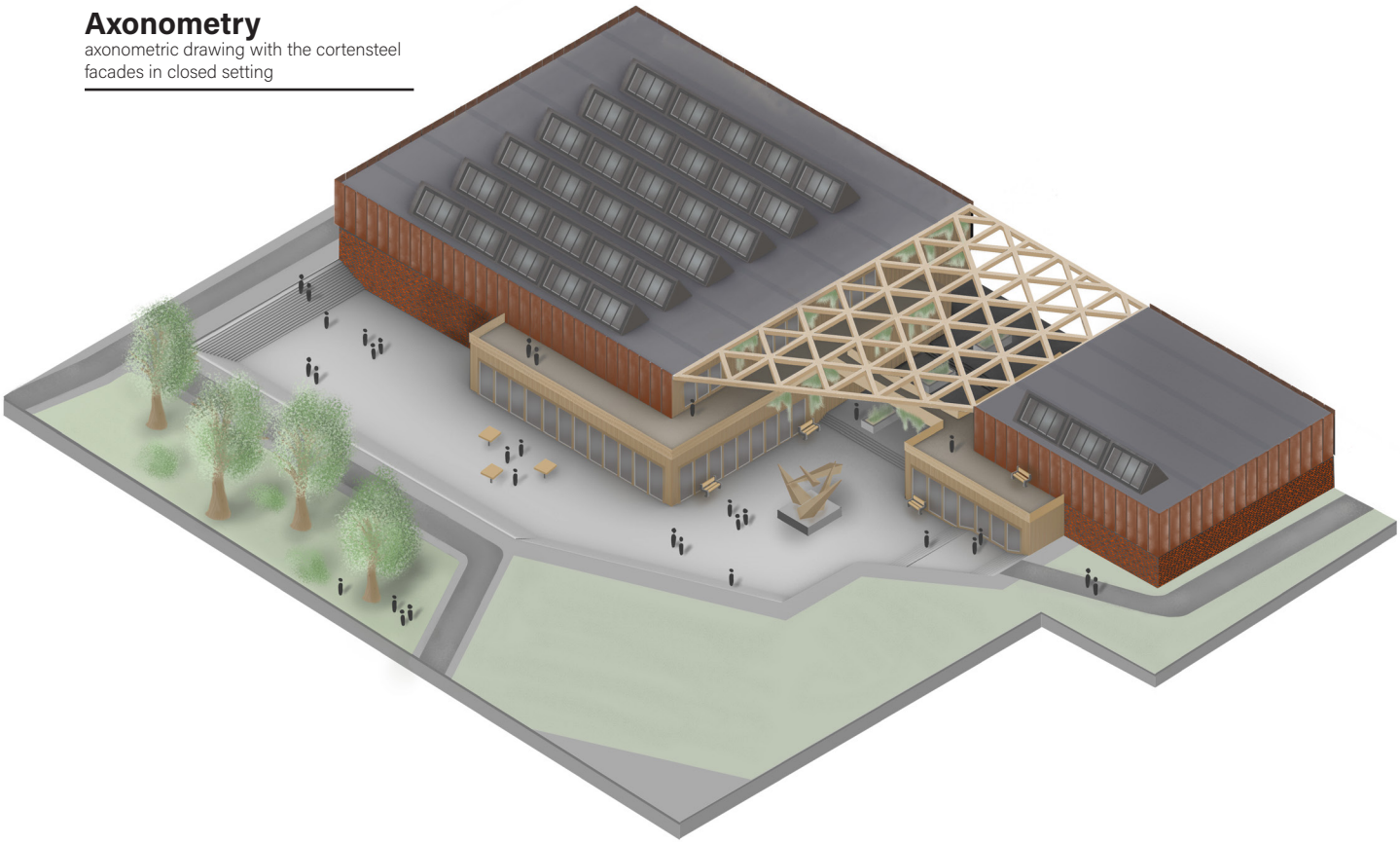
how do the current buildings relate to the new urban situation and the Public Condenser?



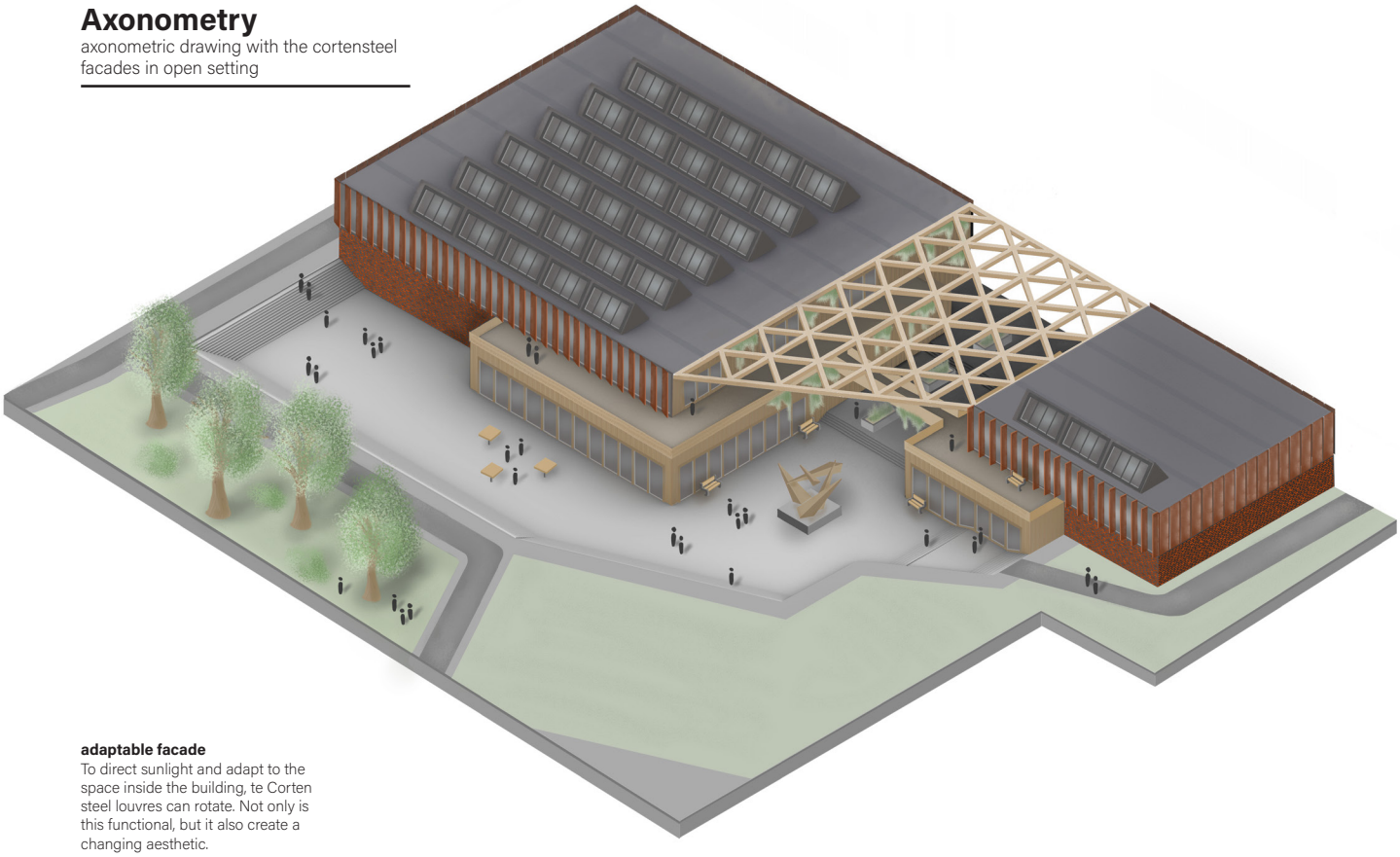
green corridor
Both parts of the building are connected to create the corridor 'through' the building. This corridor connects the primary streets to the back part of the neighborhood. This newly activated space is symbolized by vegetation and green (green corridor)

landmark element
Making a full landmark (contrasting building) in the neighborhood is out of place and not wanted, but to symbolize the condenser it is a good idea to add a recognizable element without erasing the existing character.

Axonometry
axonometric drawing with the cortensteel facades in closed setting



Axonometry
axonometric drawing with the cortensteel facades in open setting



adaptable facade
To direct sunlight and adapt to the space inside the building, te Corten steel louvres can rotate. Not only is this functional, but it also create a changing aesthetic.

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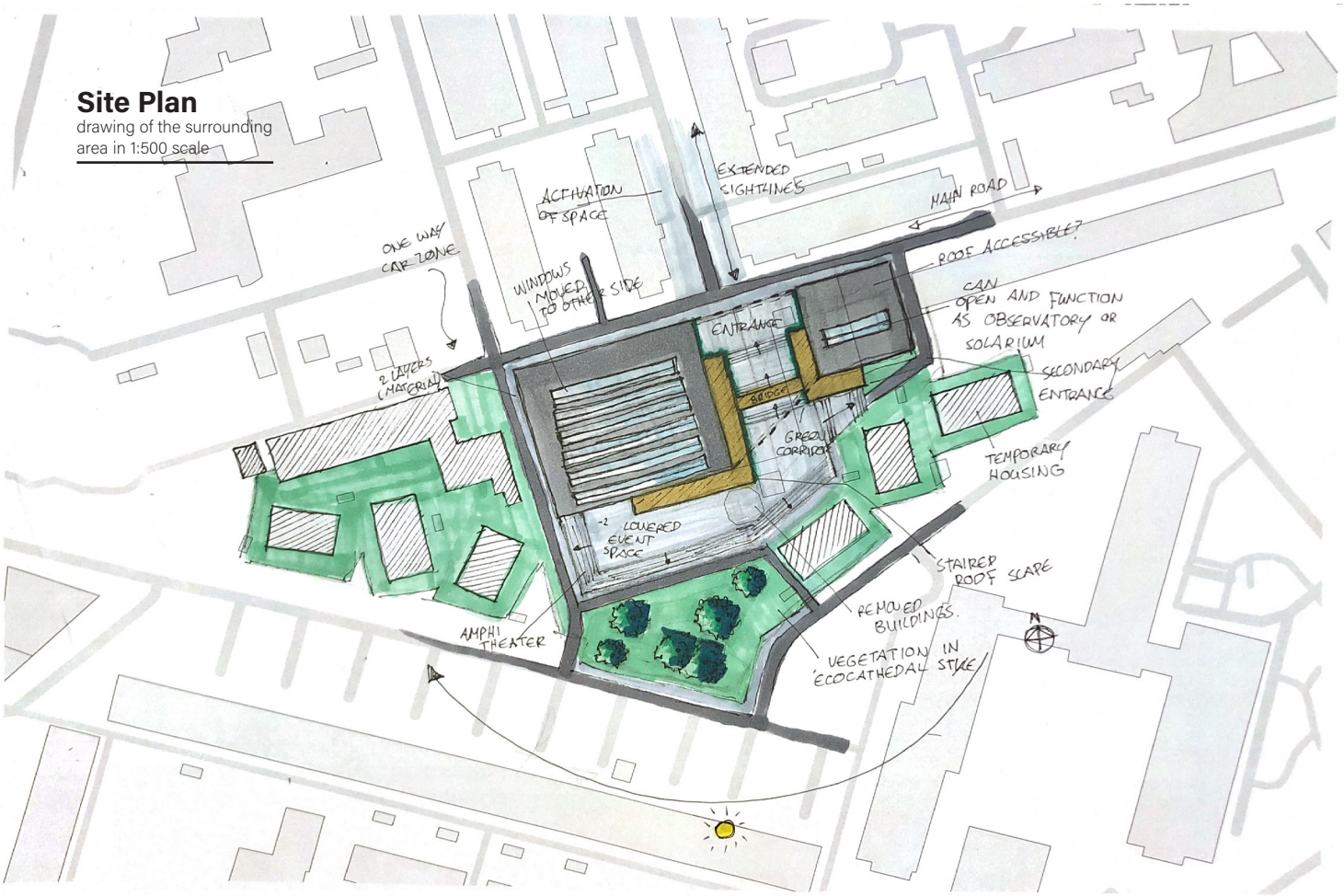
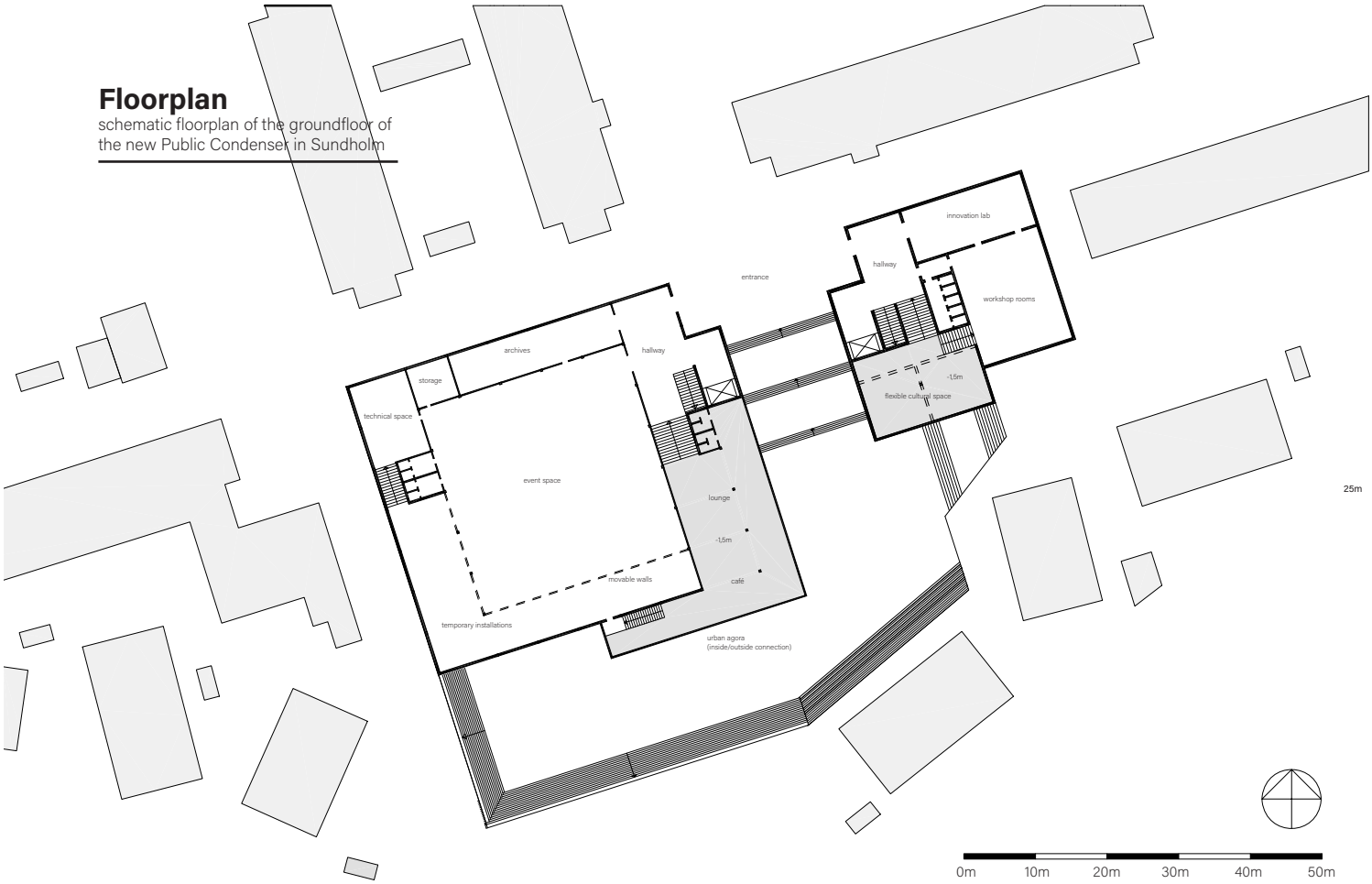
P2 Presentation



Floorplan

schematic floorplan of the groundfloor of the new Public Condensek in Sundholm



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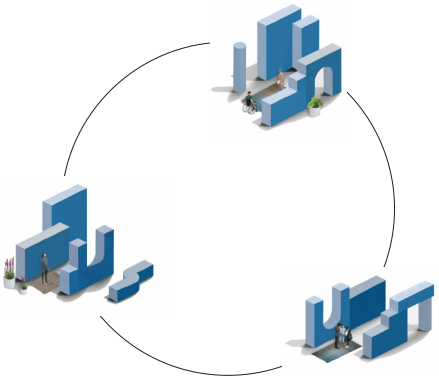
P2 Presentation

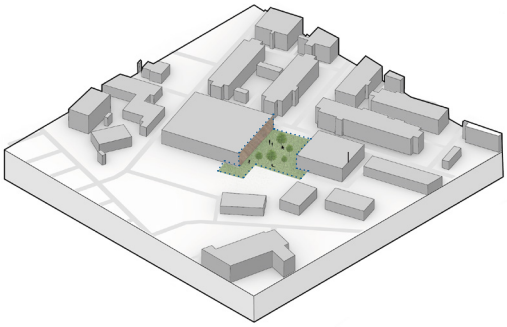
Materials (1/3)

concept of the use of materials

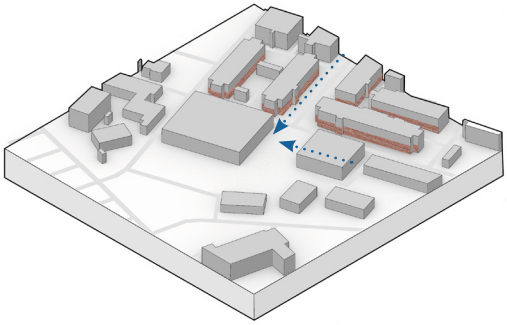
1. Locally Sourced Materials
Reduced environmental impact through minimized transportation emissions, while supporting local economies and ensuring regional authenticity in design.



2. Adaptive Materials
Materials that change aestetic over time by factors as: Weather(ing), (daily) use or function (change).



3. Organic Core
The core and entrance of the building needs to stand out in function and in material. It will have a organic aesthetic and vegetation. This also symbolizes the new created 'life' by the activation of the center.



4. Integration of Streetscape
The character of the neighborhoods structures needs to be (partially) represented in the Public Condenser.

Materials (2/3)

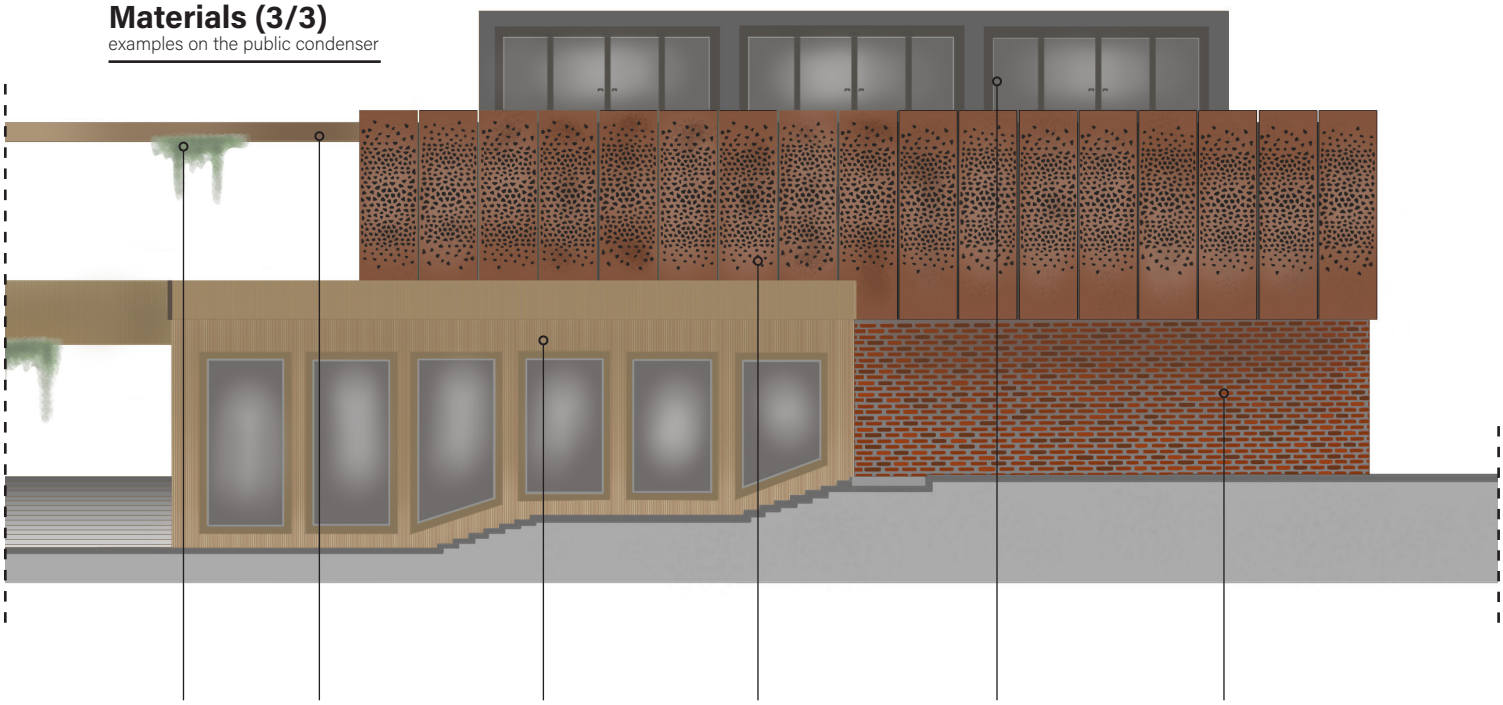
choice of materials based on aesthetics, concept and sustainability

Material	Adaptability	Sustainability	Durability	Aesthetic Versatility
Exterior ▪ Wood (thermally modified) ▪ Corten steel ▪ Recycled brick ▪ Concrete ▪ Dynamic glazing ▪ Living facades (vegetated panels)				
Adaptive material options ▪ Bioplastics ▪ Photovoltaic glass ▪ Thermochromic panels ▪ Shape memory alloys ▪ Piezoelectric Surfaces ▪ Chameleon Paint ▪ Phase change materials (PCM's)				

	Information	Application
Exterior		
▪ Wood	Changes visually over time, sustainable, tactile.	Facades, louvers, or kinetic elements to adjust light and ventilation.
▪ Corten steel	Changes to a rustic aestetic over time.	Cladding, sculptures, or structural elements.
▪ Recycled brick	Industrial character, mimics Sundholm.	Facades, pavements, or structural cores.
▪ Concrete	Industrial character, duarable, possible improvements.	Walls, pavements, or structural cores.
▪ Dynamic glazing	Adjusts transparency to control light and temperature.	Windows, skylights, or observation points.
▪ Living facades	Integrates greenery, enhances biodiversity, evolves with the seasons.	Vertical gardens or integrated into shading systems.
Adaptive material options		
▪ Bioplastics	Renewable, biodegradable, and suitable for custom forms.	Modular interior elements or facade panels.
▪ Photovoltaic glass	Integrates solar energy with see-though facades.	Skylights or facade elements.
▪ Thermochromic panels	Change color based on temperature.	Facades or surfaces to indicate environmental conditions.
▪ Shape memory alloys	Metals that change shape in response to heat or electric currents.	Suitable for movable components.
▪ Piezoelectric Surfaces	Generate energy from vibrations or footfalls.	Suitable for pathways or high-traffic areas.
▪ Chameleon Paint	Changes color based on ambient temperature or lighting conditions.	For interior of exterior walls, floors and ceilings.
▪ Phase change materials	Regulate indoor temperatures by absorbing or releasing heat.	Walls, floors, or ceilings.

Materials (3/3)

examples on the public condenser



1. Vegetation
Vegetation on multiple levels. It will be integrated on the facades on vegetative panels and on the facade elements.

2. Wooden Beams
A wooden roof structure to connect both parts of the building. The beams are also used a medium for vegetation.

3. re-cycled Wood
Recycled wooden slats on the lower parts of the structure. These also indicate the organic central entrance.

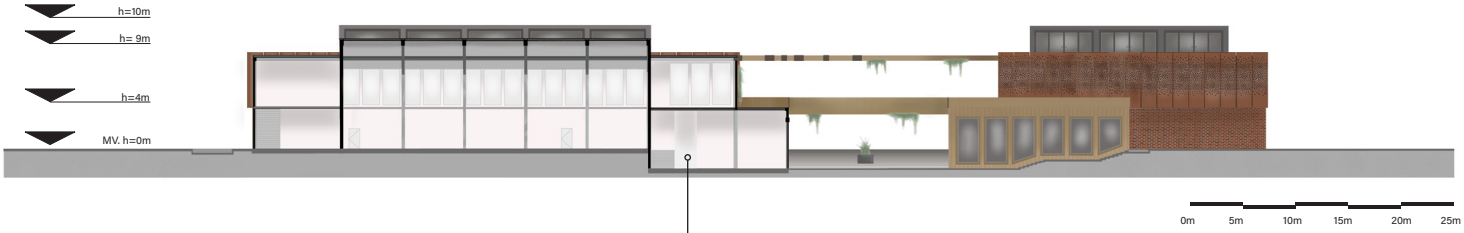
4. Corten Steel
Corten steel facade elements cover the existing facade, but are dynamic and can open to reveal the brick. The pattern lets light in.

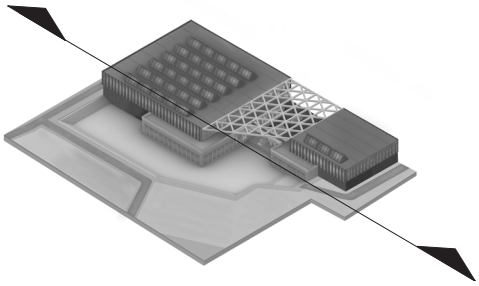
5. Dynamic Glazing
The glass structure on the roof structure can open and serve as a sky observatory and solarium.

6. Recycled Brick
The brick used in this facade comes from the Sundholm neighborhood itself to keep the character. It is cleaned of white paint.

Section A

cross-section of the primary building with visible facades on the secondary structure

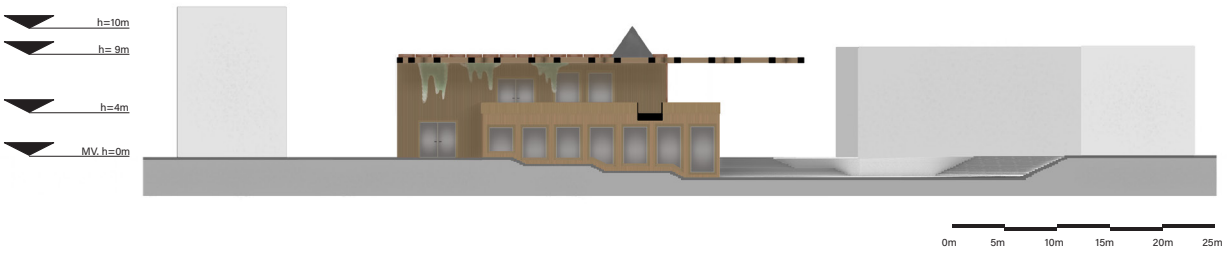


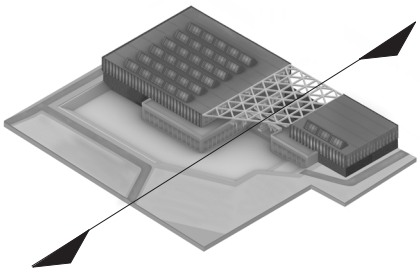


lowering existing building
A part of the current Fabrikken building will be lowered. This is done to keep enough space in the different layers of the building and keep inside and outside intertwined. The construction of the current building stays and only a small part on the edge will face this challenge.

Section B

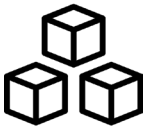
cross-section of the green walkway/entrance with visible facades on the secondary structure





5 Pillars

in what ways the the 5 primary concepts shown in the Public Condenser



Multiplicity

Respect for Fragmented Identity: Building integrates Sundholm's diverse identities without homogenizing them, preserving the area's unique character.

Functional Diversity: The further from the core, the more specific and user-oriented the spaces become, ensuring inclusivity for all target groups.

Green Corridor & Landmark Element: The building serves as both a connector and a recognizable symbol of Sundholm's layered identity.

Hybridity

Multi-Functional Core: The central organic hub accommodates diverse uses and user needs, transitioning seamlessly between public and private, social and individual.

Combining In- & Outdoor Spaces: Dissolving boundaries between indoor and outdoor areas enhances flexibility and creates morphing spaces.

Dynamic Materiality: Adaptive materials like thermochromic panels and living facades symbolize hybridity in form and function.

Sustainability

Locally Sourced Materials: Reduced environmental impact and support for local economies while maintaining regional authenticity.

Vegetation Integration: Green facades, rooftop gardens, and vegetative panels contribute to CO2 absorption, insulation, and improved microclimate.

Adaptive Re-Use: Using a big part of the current structure to keep the character and reduce material waste and carbon footprint.

Dynamic Glazing & Solar Optimization: Efficient daylighting reduces energy consumption, while solar-adaptive materials promote passive heating and cooling.

Resilience

Adaptive Zoning: Spaces respond to changing needs throughout the day, seasons, and over time, making the building future-proof.

Material Durability: Use of corten steel and weather-adaptive materials ensures long-lasting structural resilience.

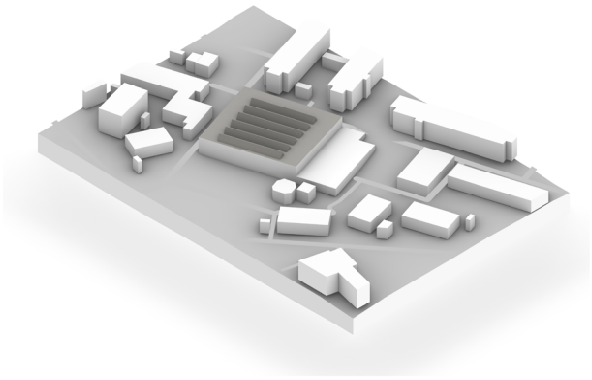
Modular Growth: Building components are designed for phased development and repurposing to accommodate neighborhood changes.

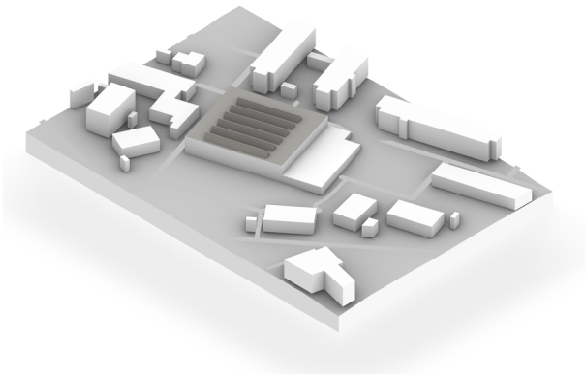
Healthiness

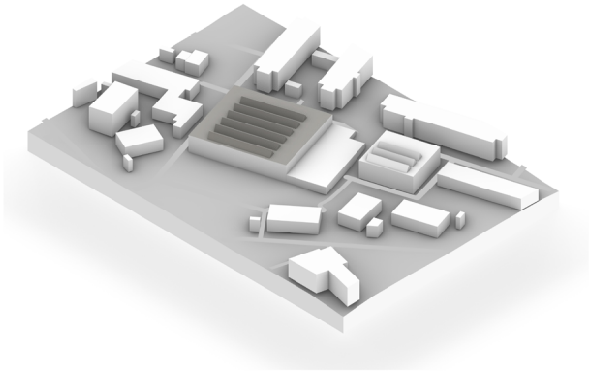
Biophilic Design: Integration of greenery enhances mental well-being, reduces stress, and improves air quality for residents and visitors.

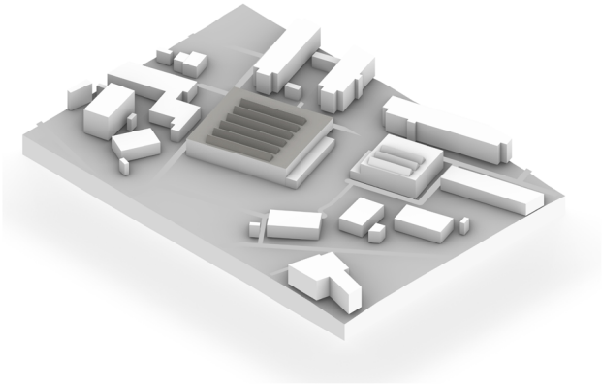
Daylight Optimization: Layered daylight strategies combine functions with their special lighting needs, creating a fitting environment for its users.

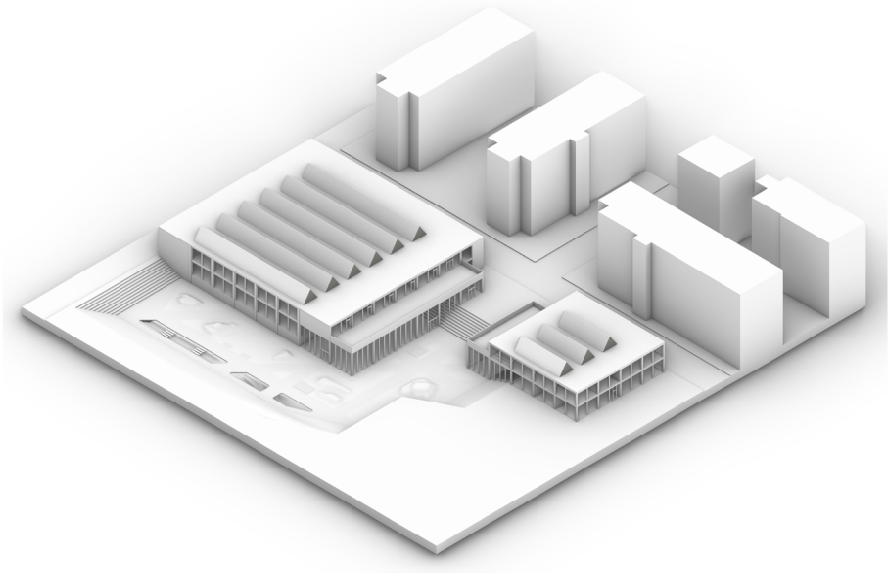
Adaptive Outdoor Spaces: Stairs and lowered areas create functional outdoor environments for relaxation, markets, or amphitheaters.

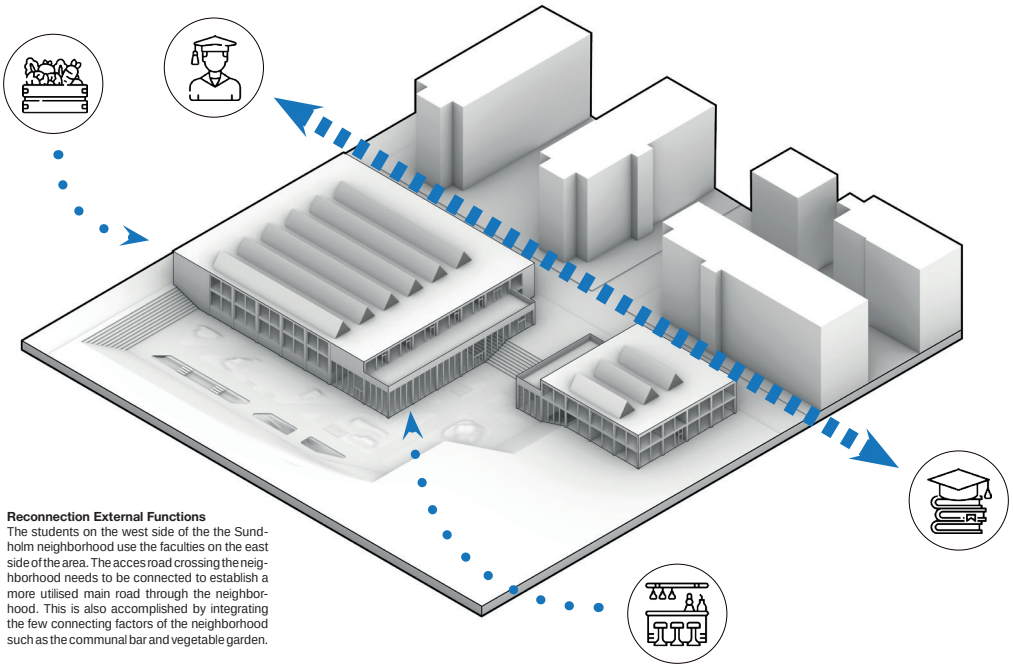




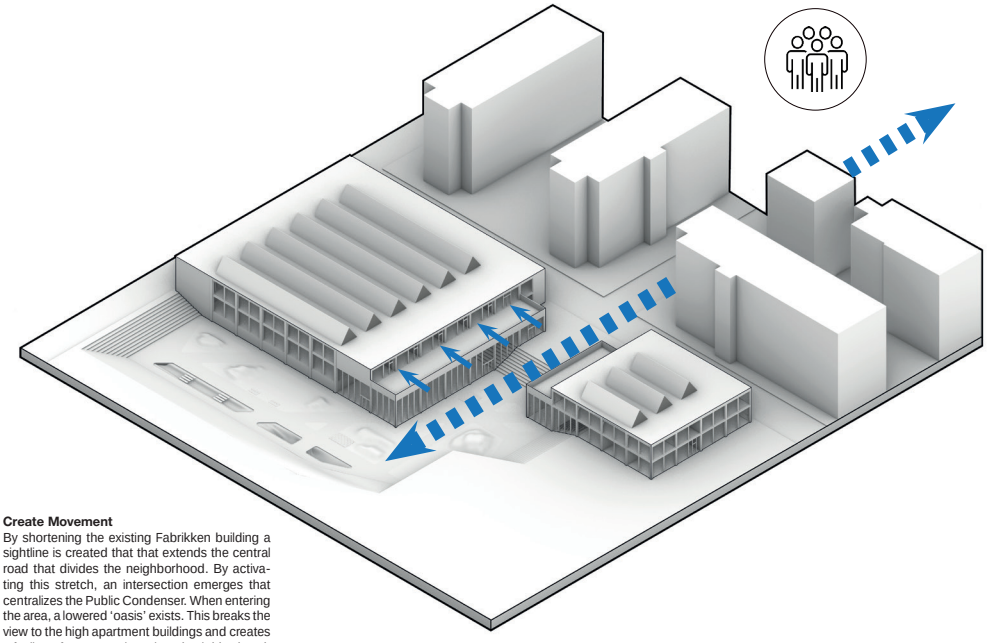








Reconnection External Functions
The students on the west side of the the Sundholm neighborhood use the faculties on the east side of the area. The acces road crossing the neighborhood needs to be connected to establish a more utilised main road through the neighborhood. This is also accomplished by integrating the few connecting factors of the neighborhood such as the communal bar and vegetable garden.



Create Movement
By shortening the existing Fabrikken building a sightline is created that that extends the central road that divides the neighborhood. By activating this stretch, an intersection emerges that centralizes the Public Condenser. When entering the area, a lowered 'oasis' exists. This breaks the view to the high apartment buildings and creates a feeling of openness in a closed neighborhood.

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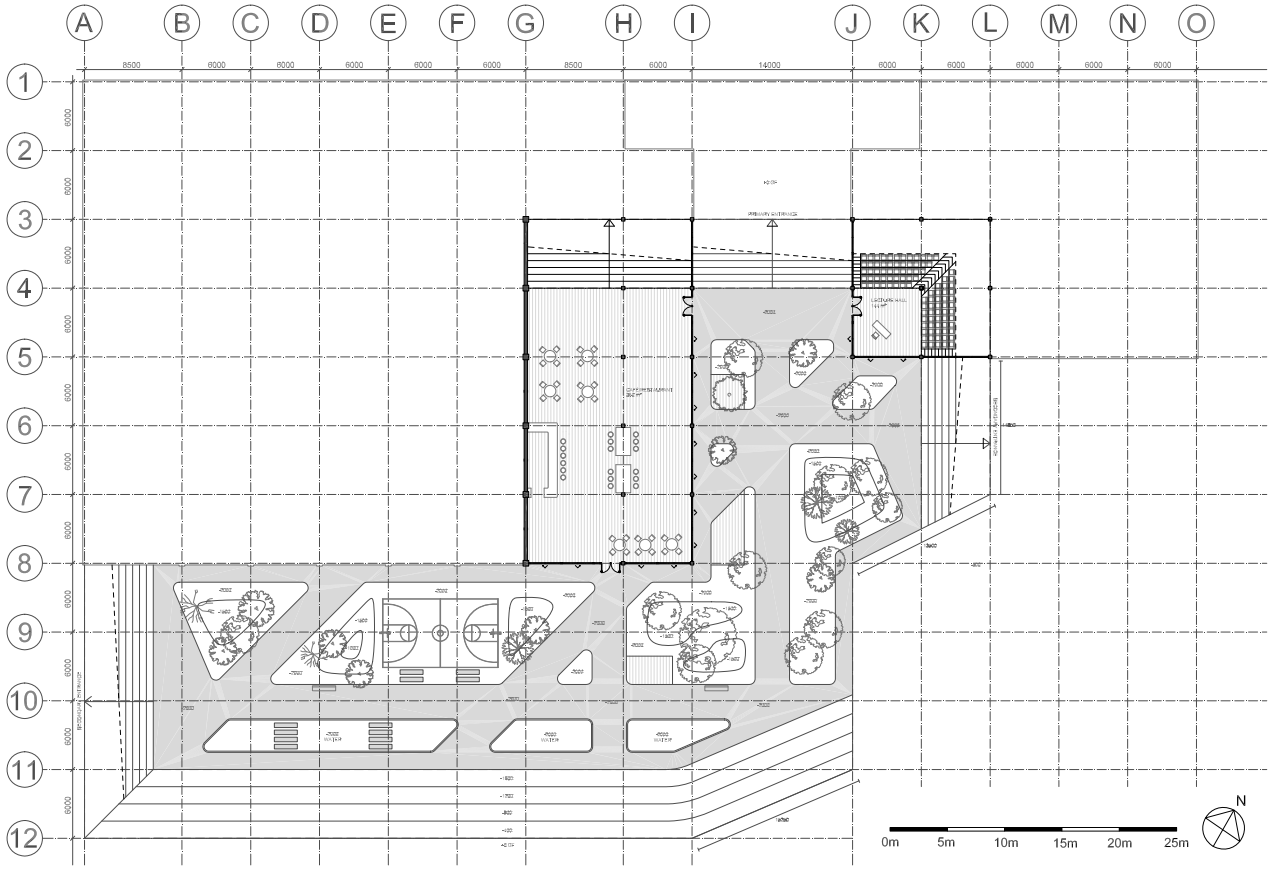
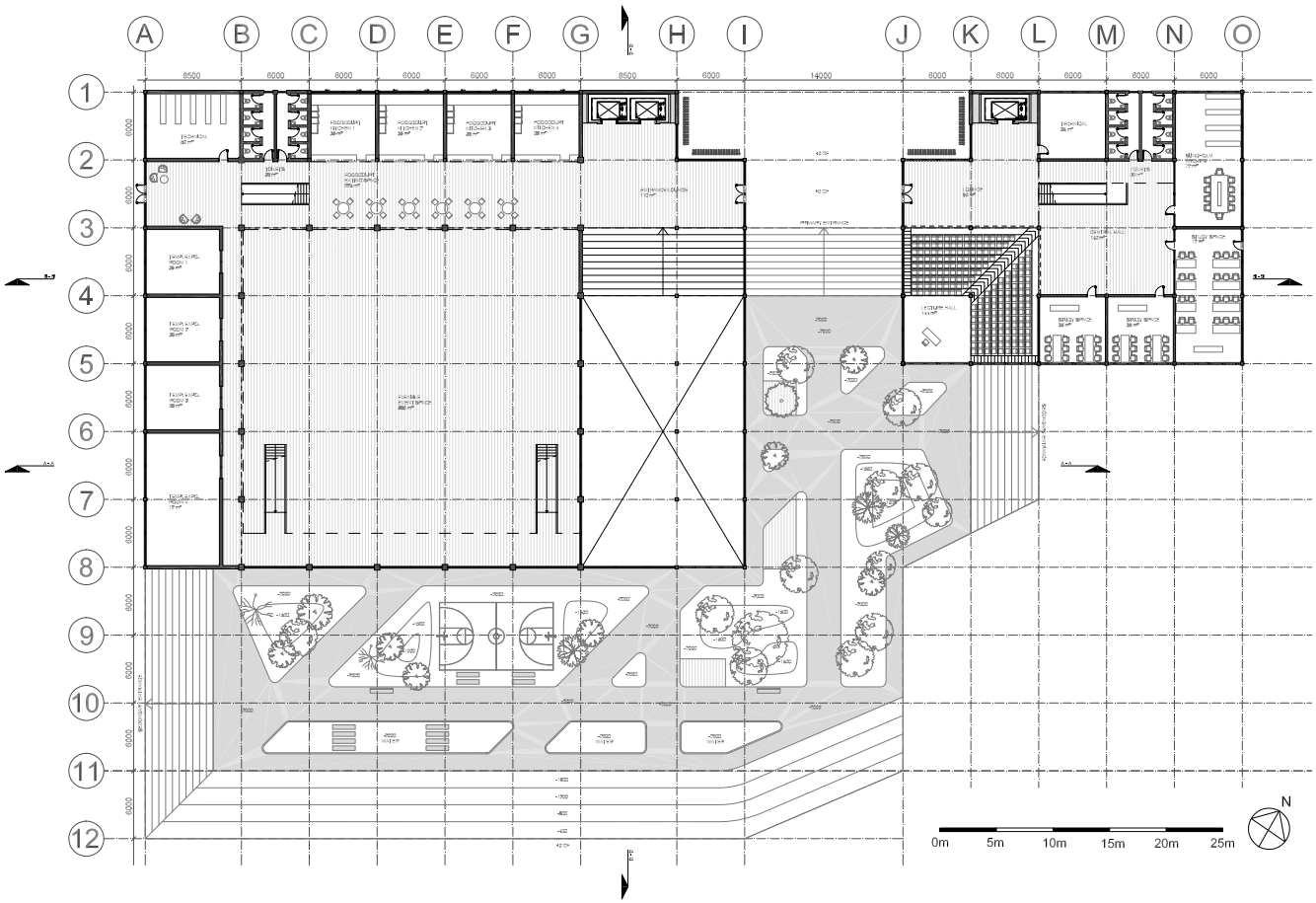
P3 Presentation

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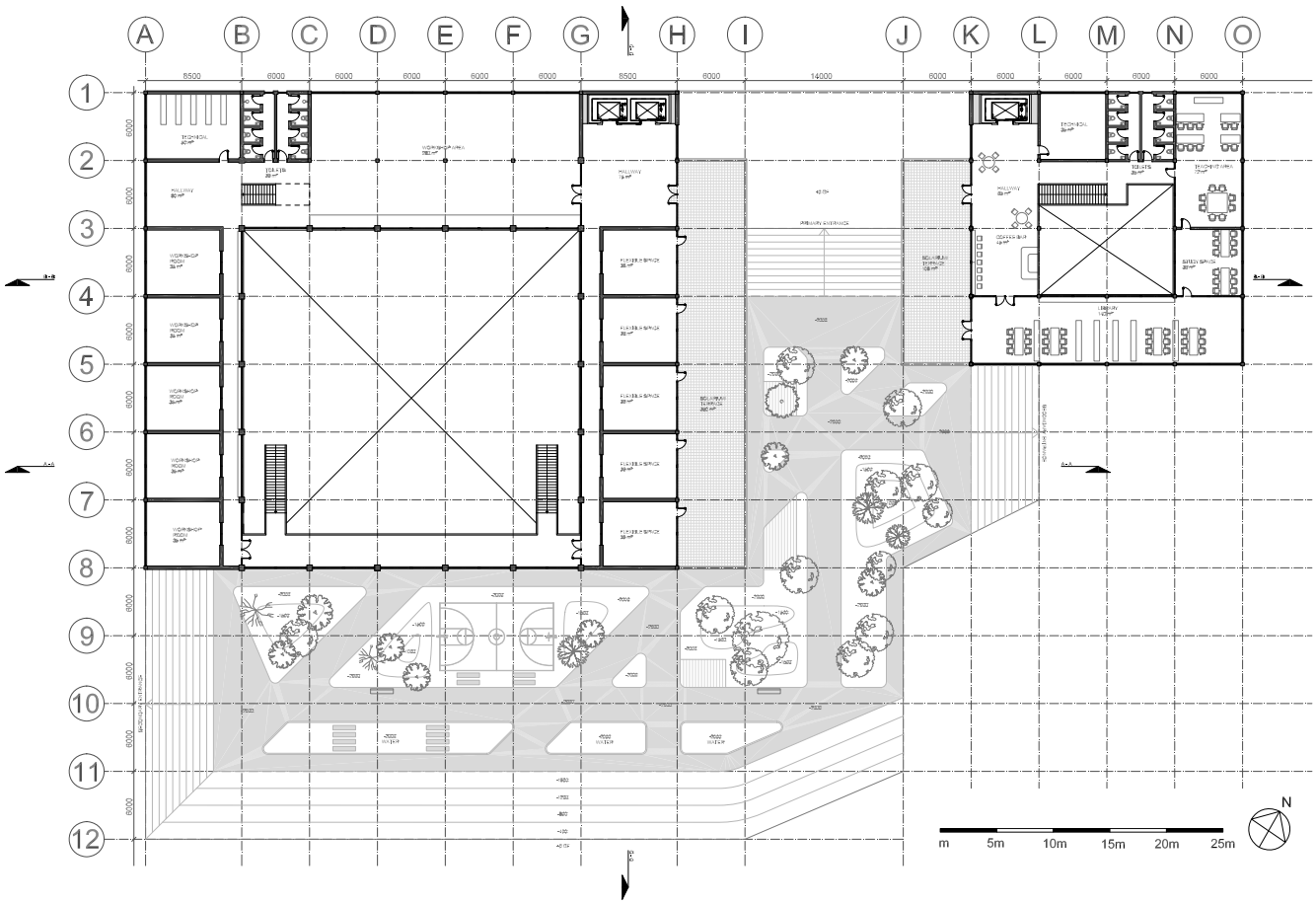
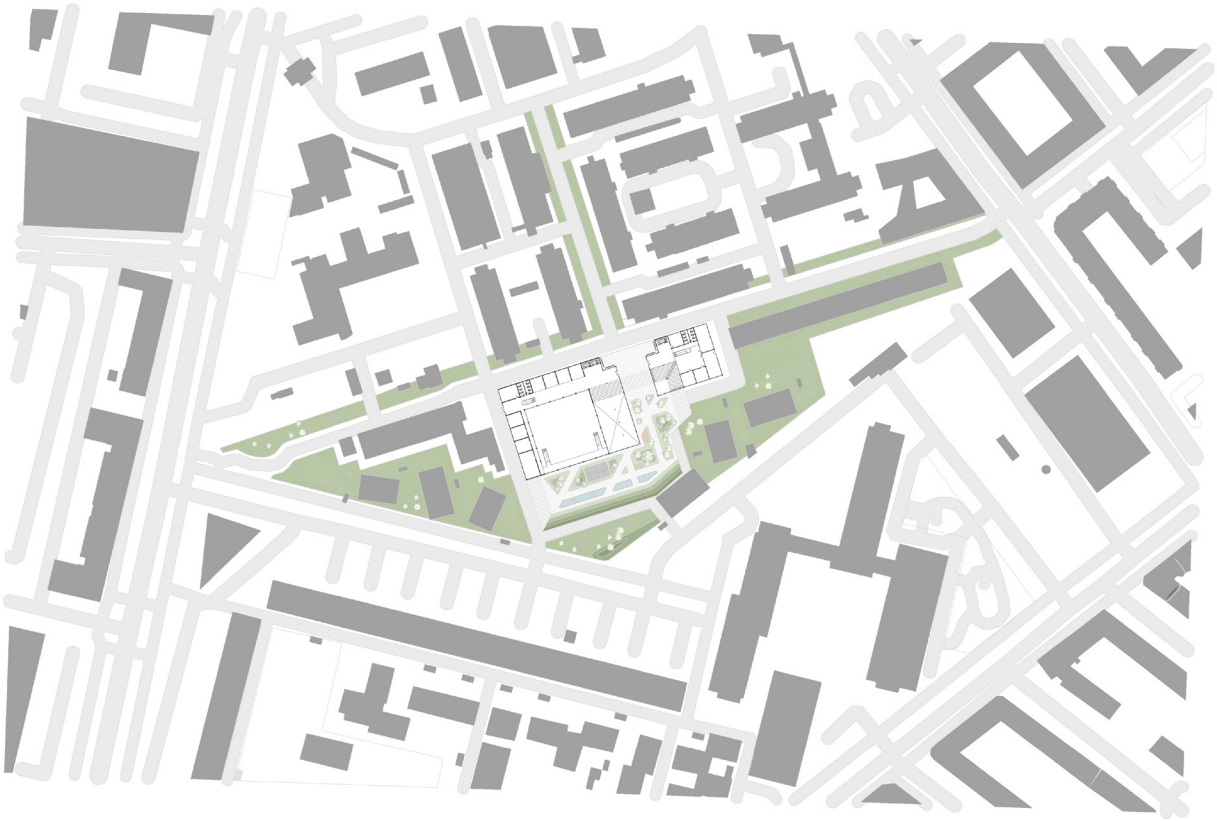
Max Tomás Douma

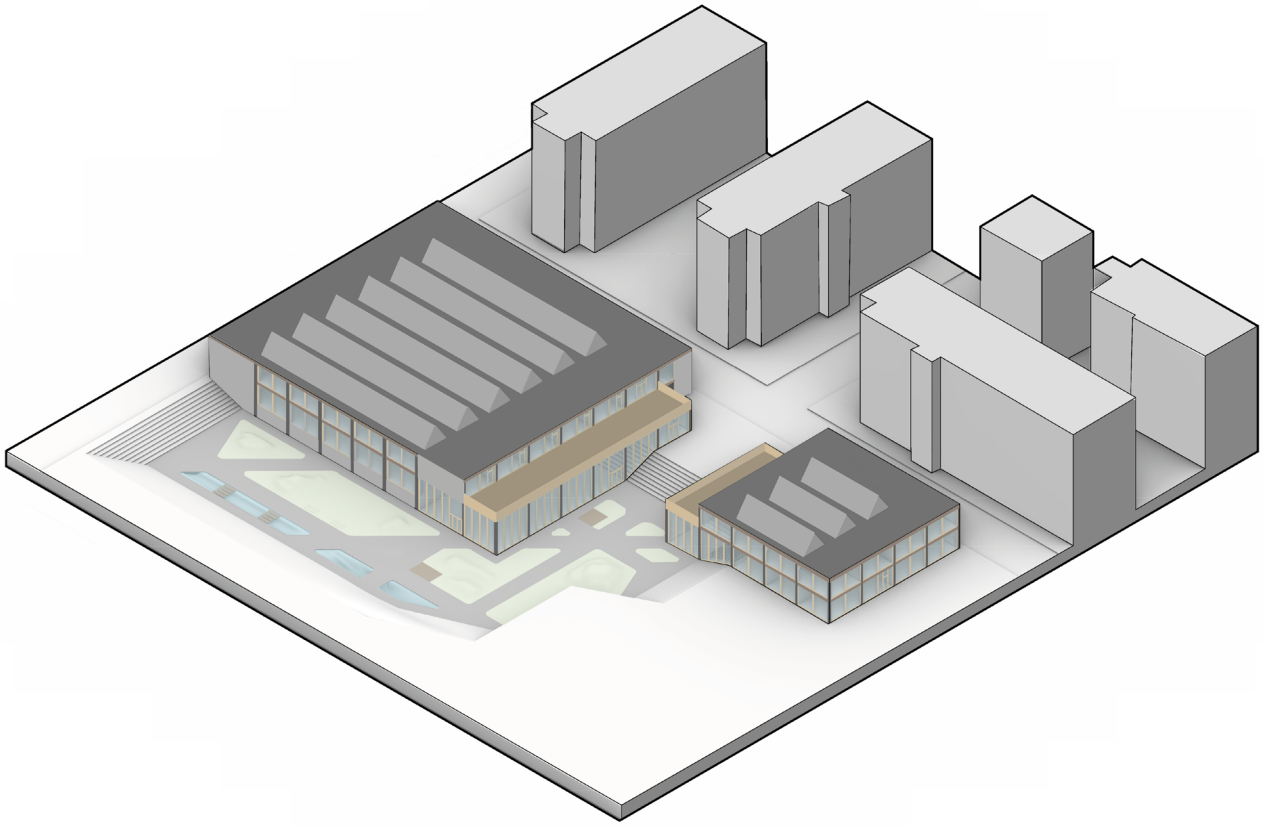
P3 Presentation

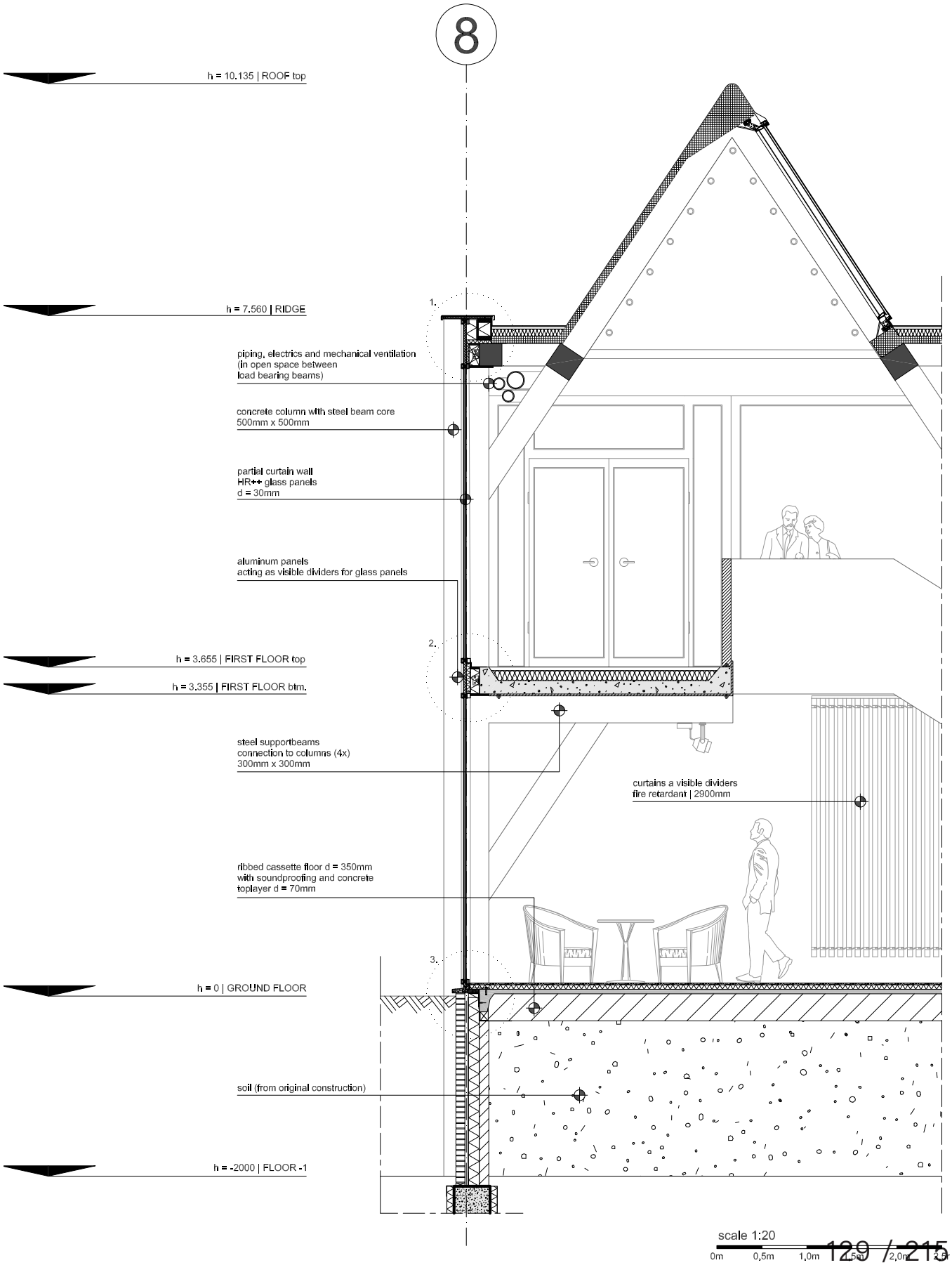


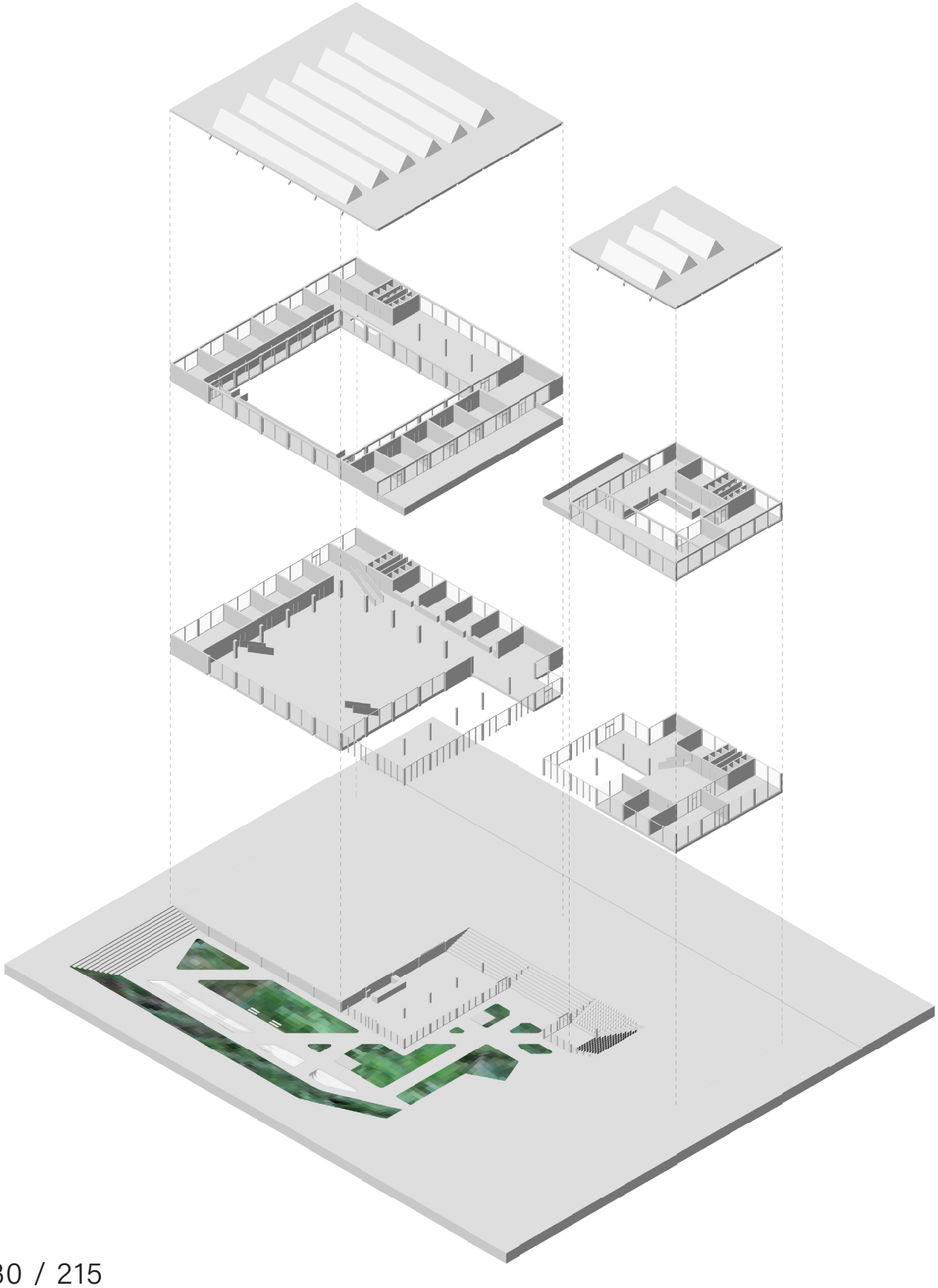


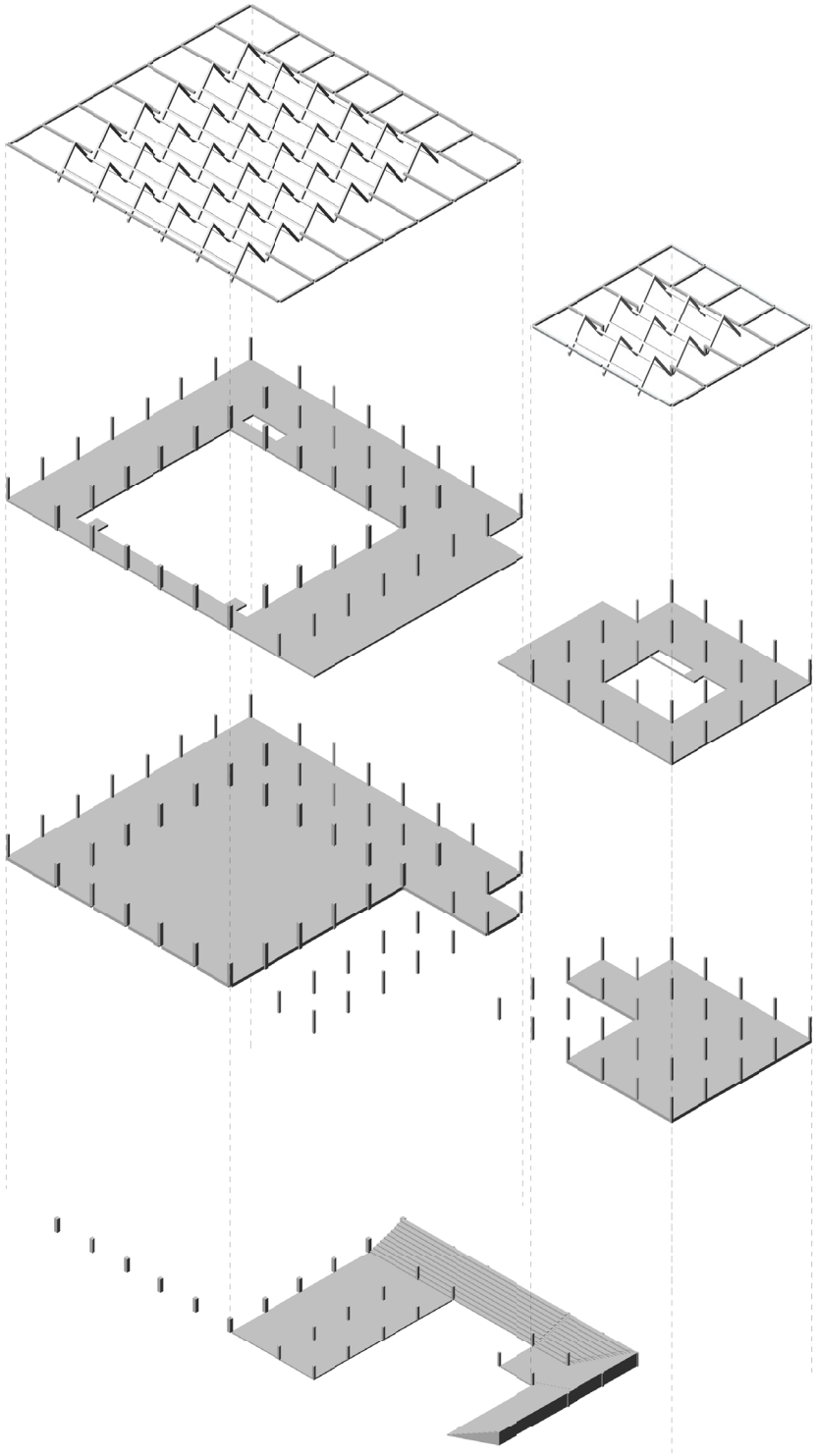
Max Tomás Douma

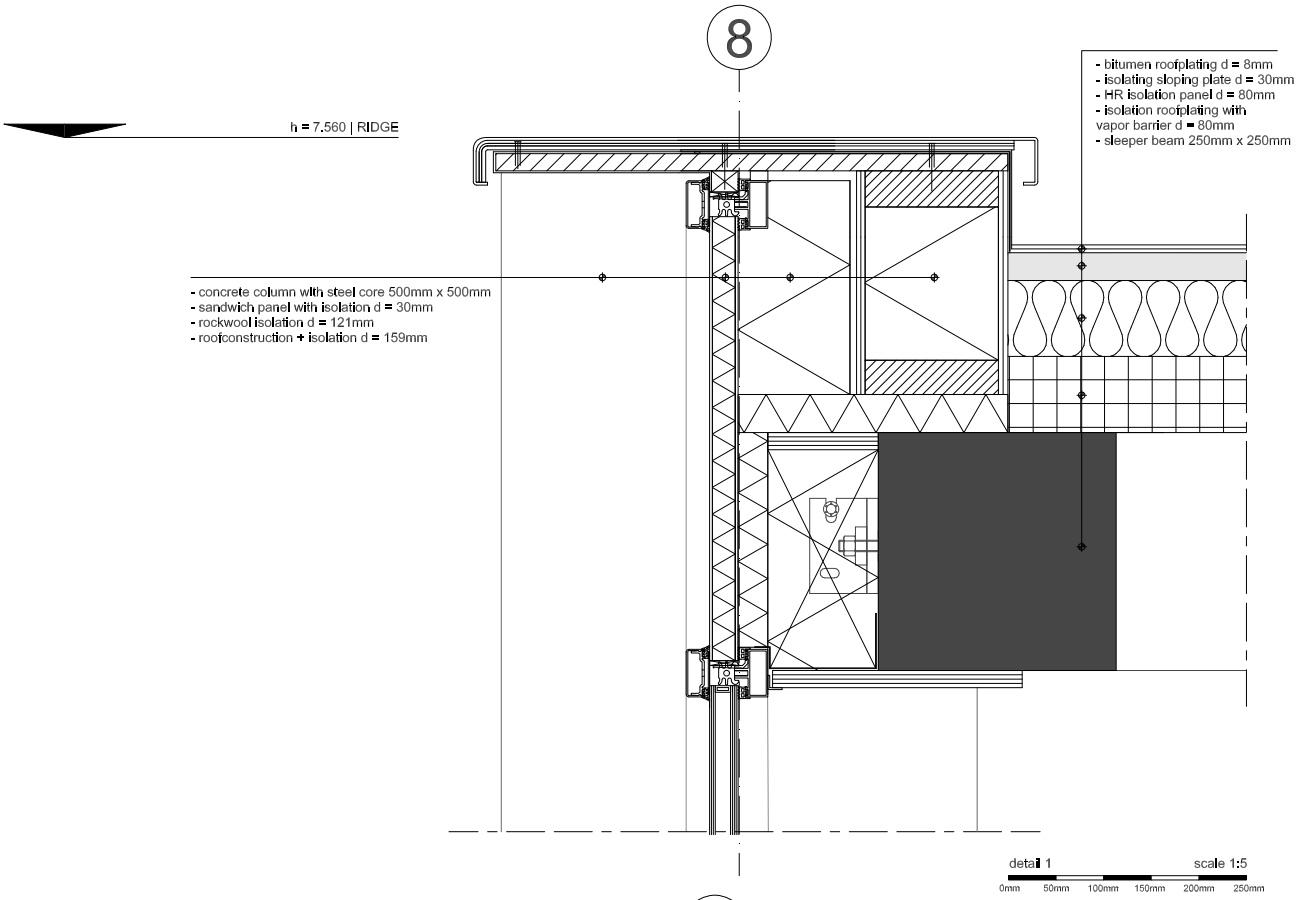
P3 Presentation

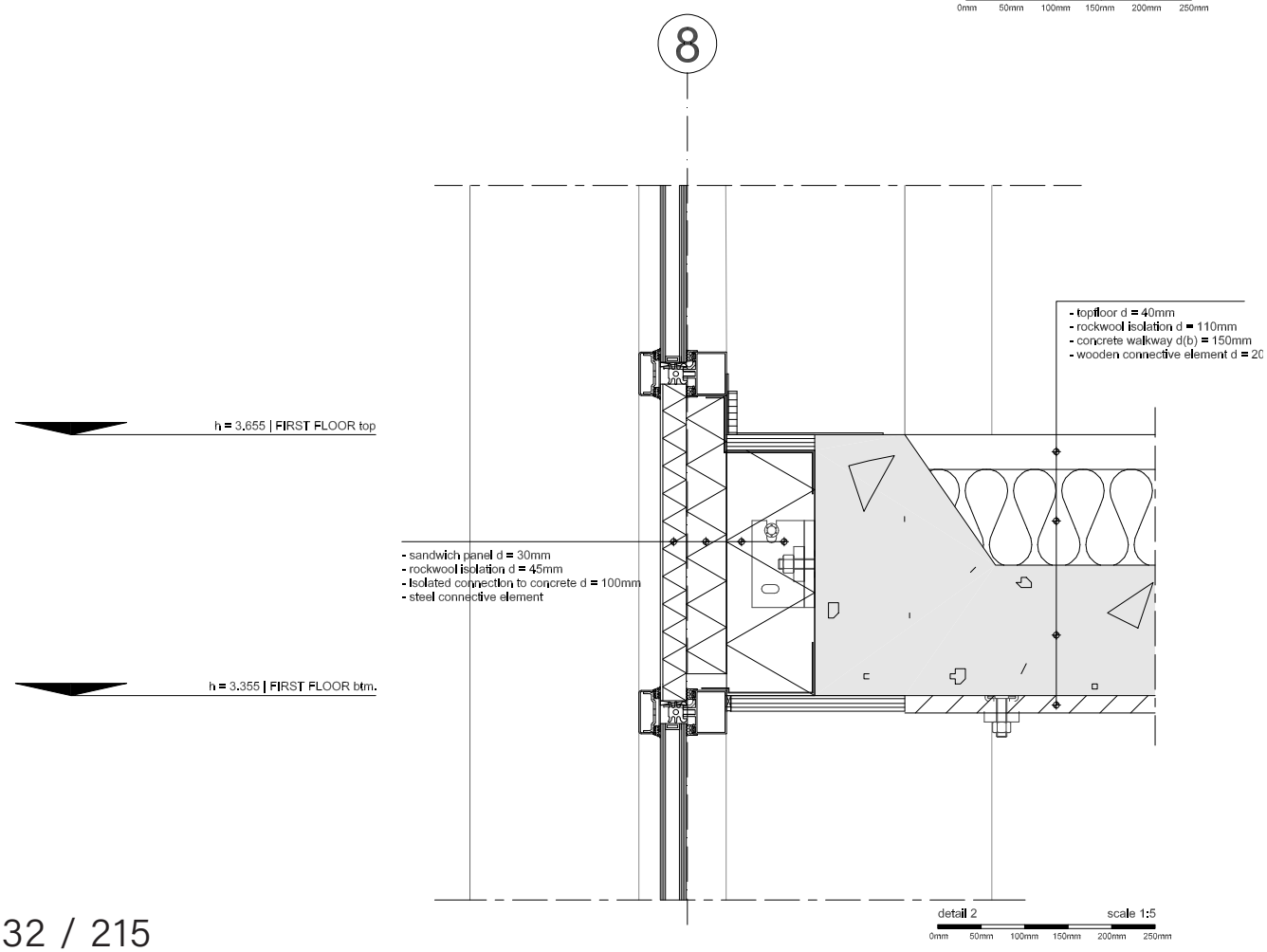


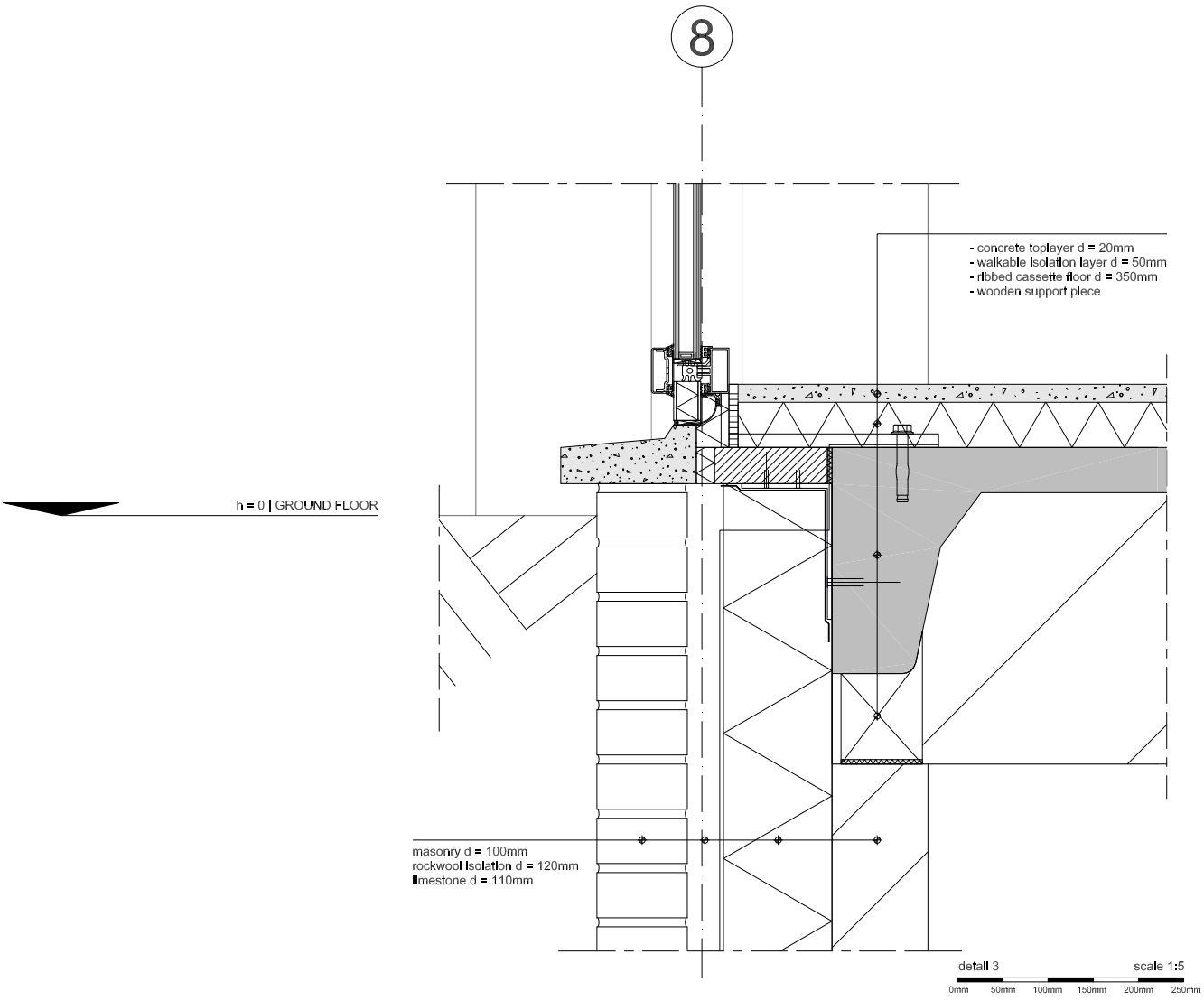

8
h = 10.135 | ROOF top
h = 7.560 | RIDGE
piping, electrics and mechanical ventilation
(in open space between
load bearing beams)
concrete column with steel beam core
500mm x 500mm
partial curtain wall
HR++ glass panels
d = 30mm
aluminum panels
acting as visible dividers for glass panels
h = 3.655 | FIRST FLOOR top
h = 3.355 | FIRST FLOOR btm.
steel supportbeams
connection to columns (4x)
300mm x 300mm
curtains a visible dividers
fire retardant | 2900mm
ribbed cassette floor d = 350mm
with soundproofing and concrete
toplayer d = 70mm
h = 0 | GROUND FLOOR
soil (from original construction)
h = -2000 | FLOOR -1
1.
2.
3.
scale 1:20
0m
0,5m
1,0m
1,5m
2,0m
2,5m





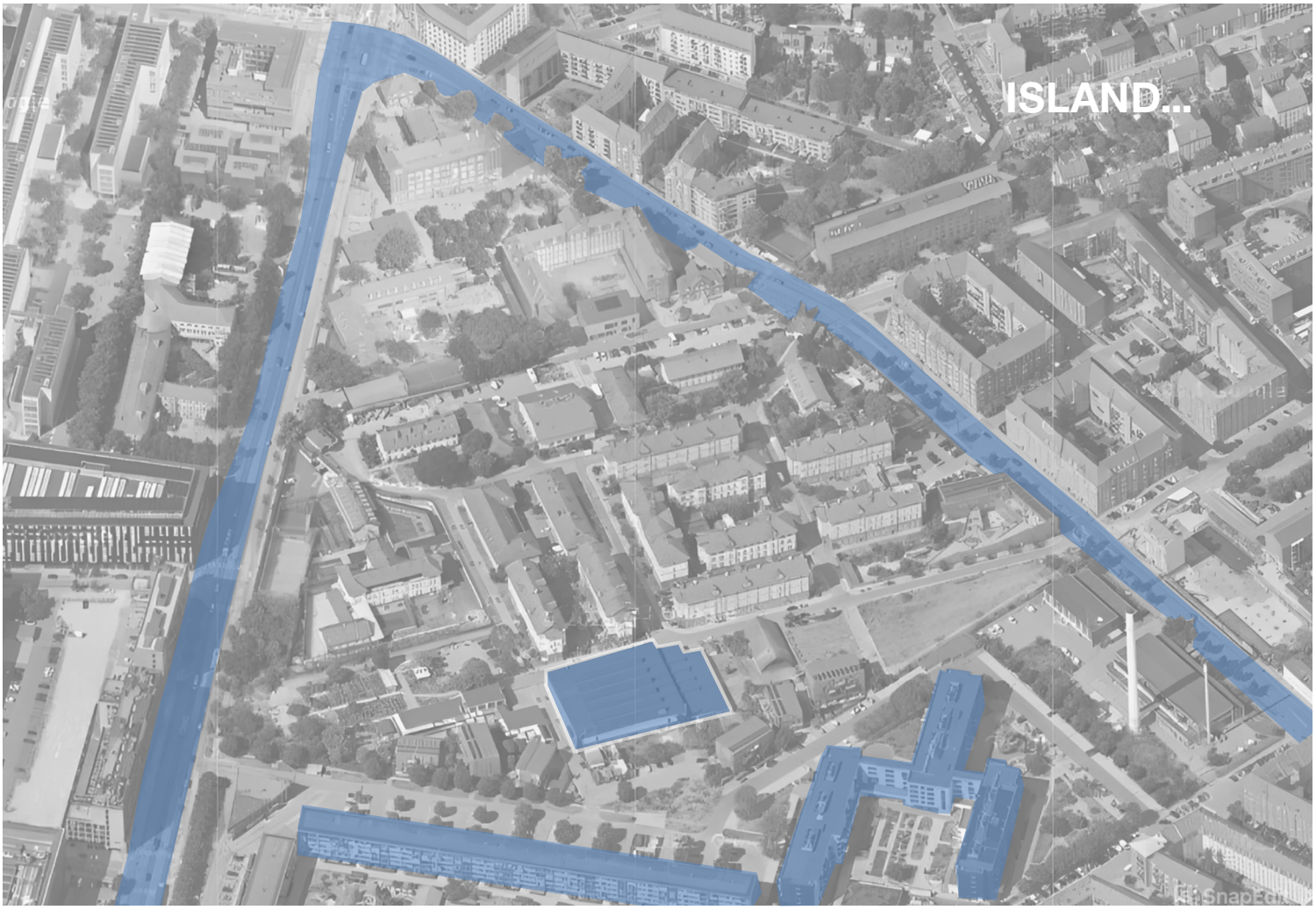

8
h = 7.560 | RIDGE
- bitumen roofplating d = 8mm
- isolating sloping plate d = 30mm
- HR isolation panel d = 80mm
- isolation roofplating with vapor barrier d = 80mm
- sleeper beam 250mm x 250mm
- concrete column with steel core 500mm x 500mm
- sandwich panel with isolation d = 30mm
- rockwool isolation d = 121mm
- roofconstruction + isolation d = 159mm
detail 1
scale 1:5
0mm 50mm 100mm 150mm 200mm 250mm


8
- topfloor d = 40mm
- rockwool isolation d = 110mm
- concrete walkway d(b) = 150mm
- wooden connective element d = 20
h = 3.655 | FIRST FLOOR top
- sandwich panel d = 30mm
- rockwool isolation d = 45mm
- Isolated connection to concrete d = 100mm
- steel connective element
h = 3.355 | FIRST FLOOR btm.
detail 2
scale 1:5
0mm 50mm 100mm 150mm 200mm 250mm

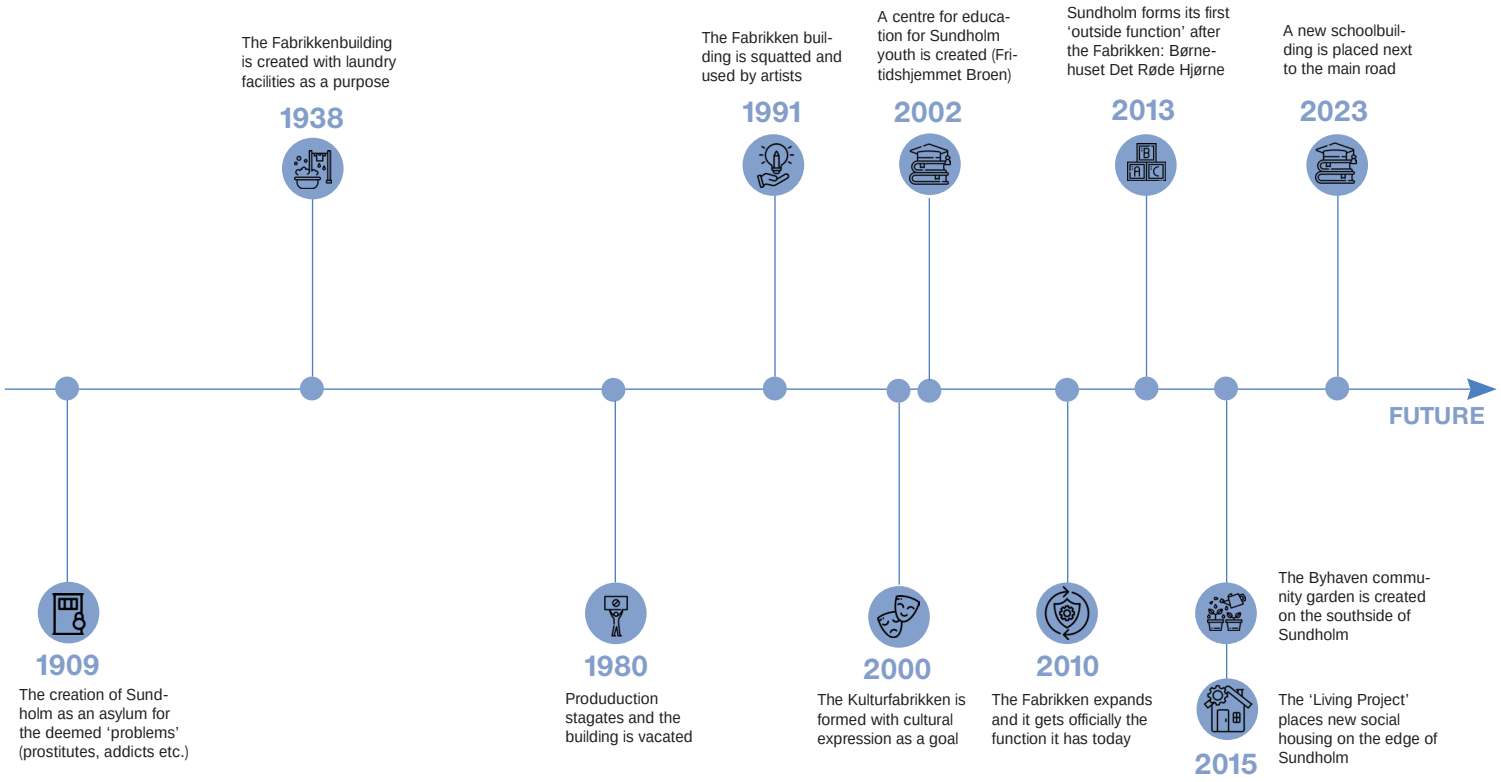

8
- concrete toplayer d = 20mm
- walkable Isolation layer d = 50mm
- ribbed cassette floor d = 350mm
- wooden support piece
h = 0 | GROUND FLOOR
masonry d = 100mm
rockwool Isolation d = 120mm
limestone d = 110mm
detail 3
scale 1:5
0mm 50mm 100mm 150mm 200mm 250mm

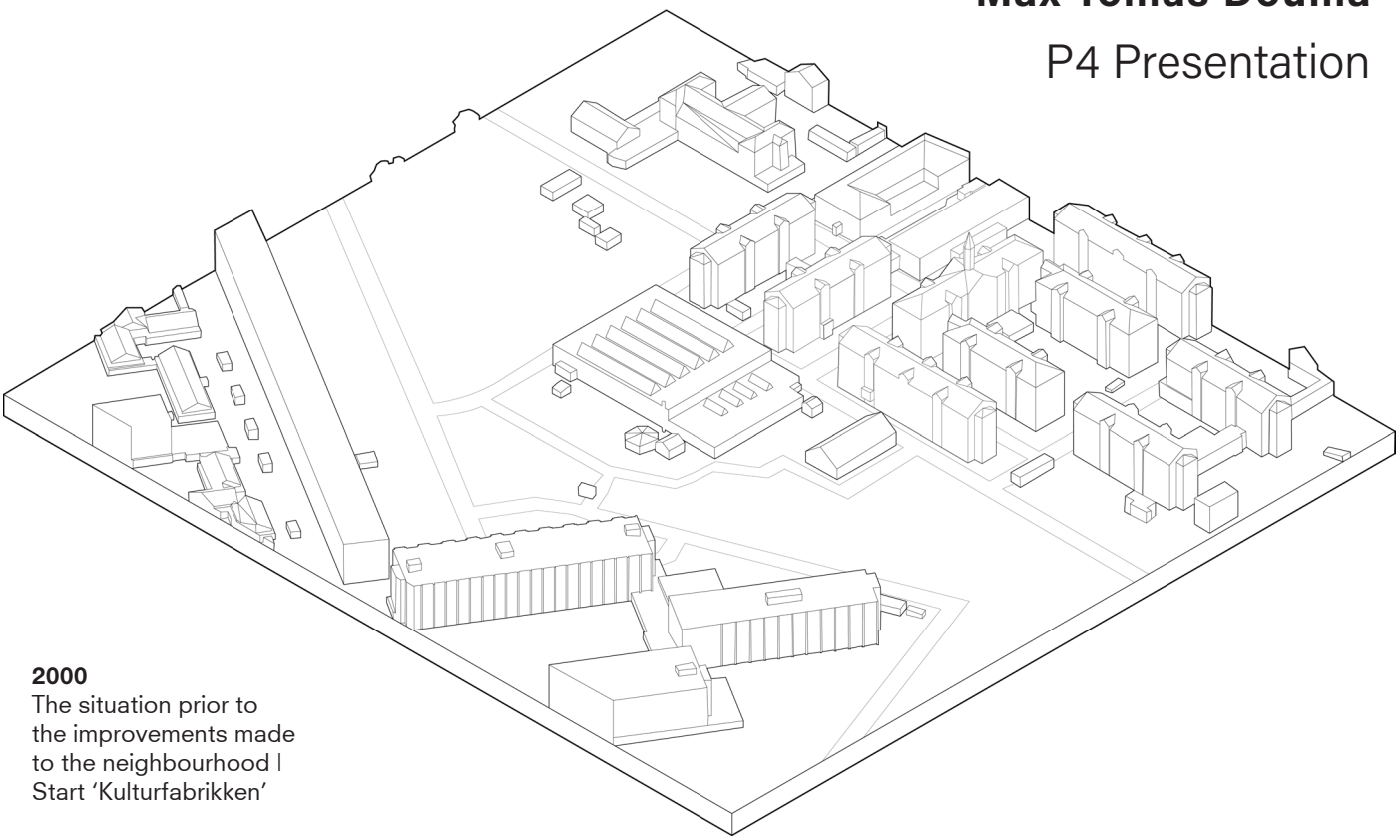
Max Tomás Douma

P4 Presentation

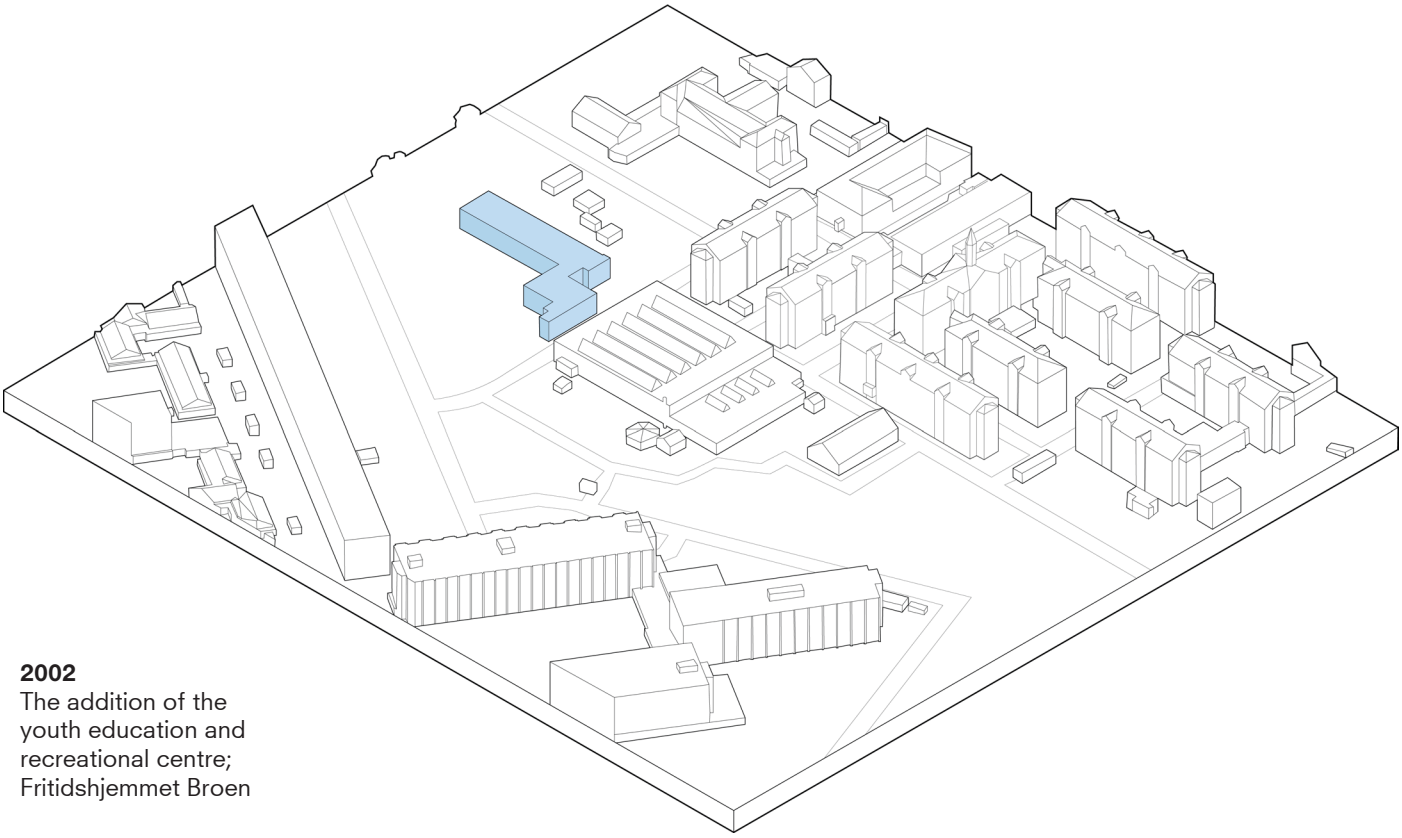



WITHIN AN ISLAND

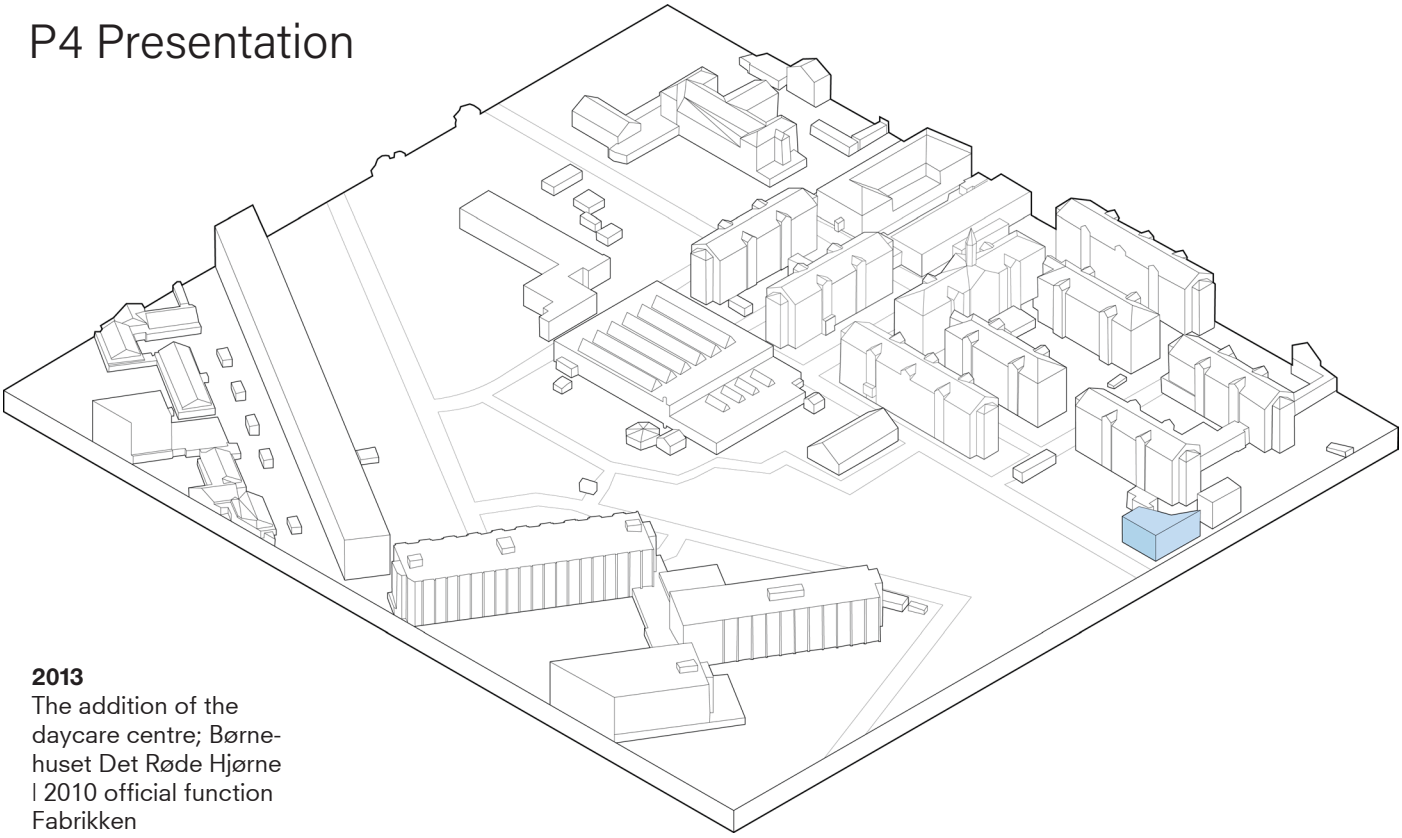

1909
The creation of Sundholm as an asylum for the deemed 'problems' (prostitutes, addicts etc.)
1938
The Fabrikkenbuilding is created with laundry facilities as a purpose
1980
Produduction stagates and the building is vacated
1991
The Fabrikken building is squatted and used by artists
2000
The Kulturfabrikken is formed with cultural expression as a goal
2002
A centre for education for Sundholm youth is created (Fritidshjemmet Broen)
2010
The Fabrikken expands and it gets officially the function it has today
2013
Sundholm forms its first 'outside function' after the Fabrikken: Børnehuset Det Røde Hjørne
2015
The Byhaven community garden is created on the southside of Sundholm
The 'Living Project' places new social housing on the edge of Sundholm
2023
A new schoolbuilding is placed next to the main road
FUTURE



2000
The situation prior to the improvements made to the neighbourhood | Start 'Kulturfabrikken'

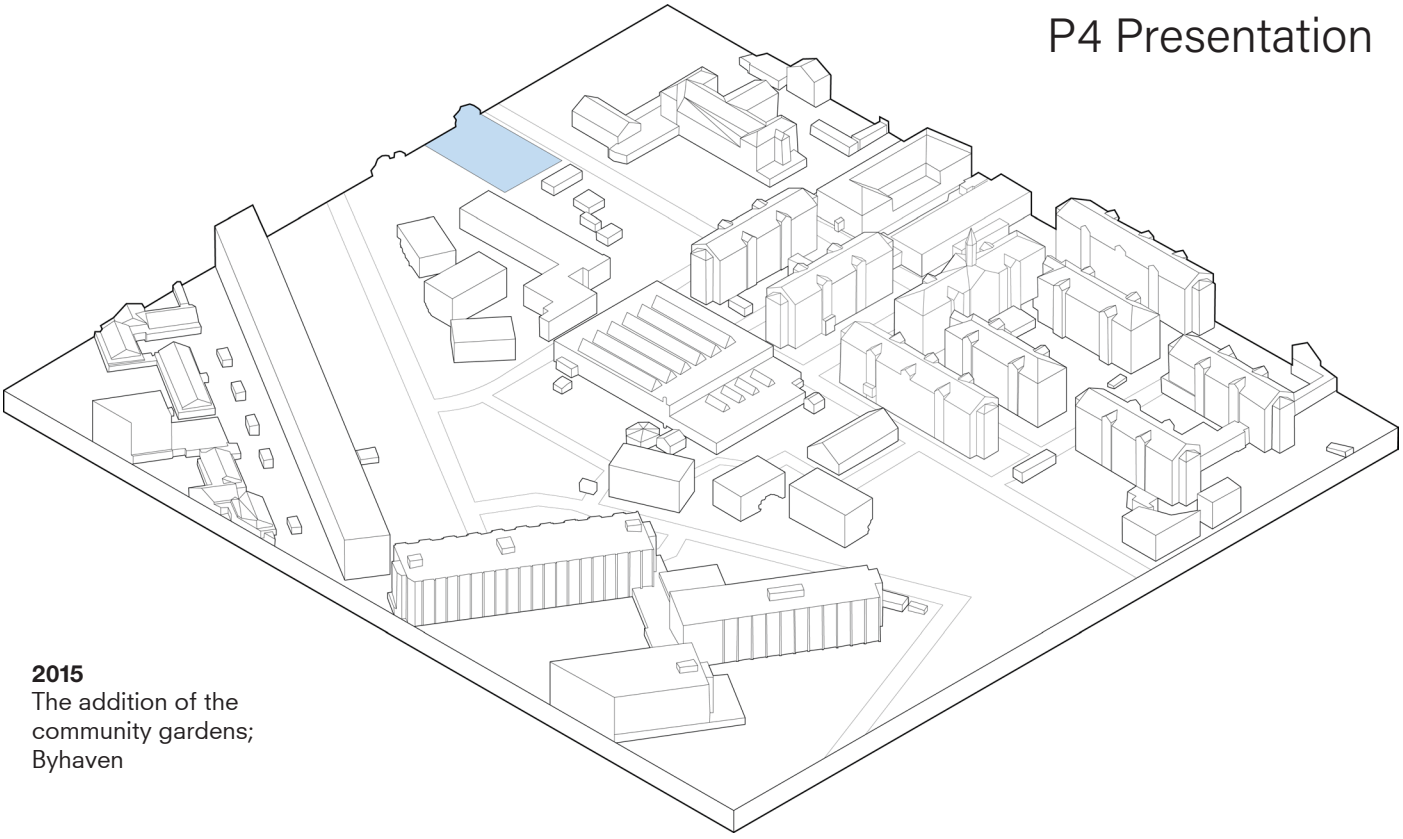


2002
The addition of the youth education and recreational centre; Fritidshjemmet Broen

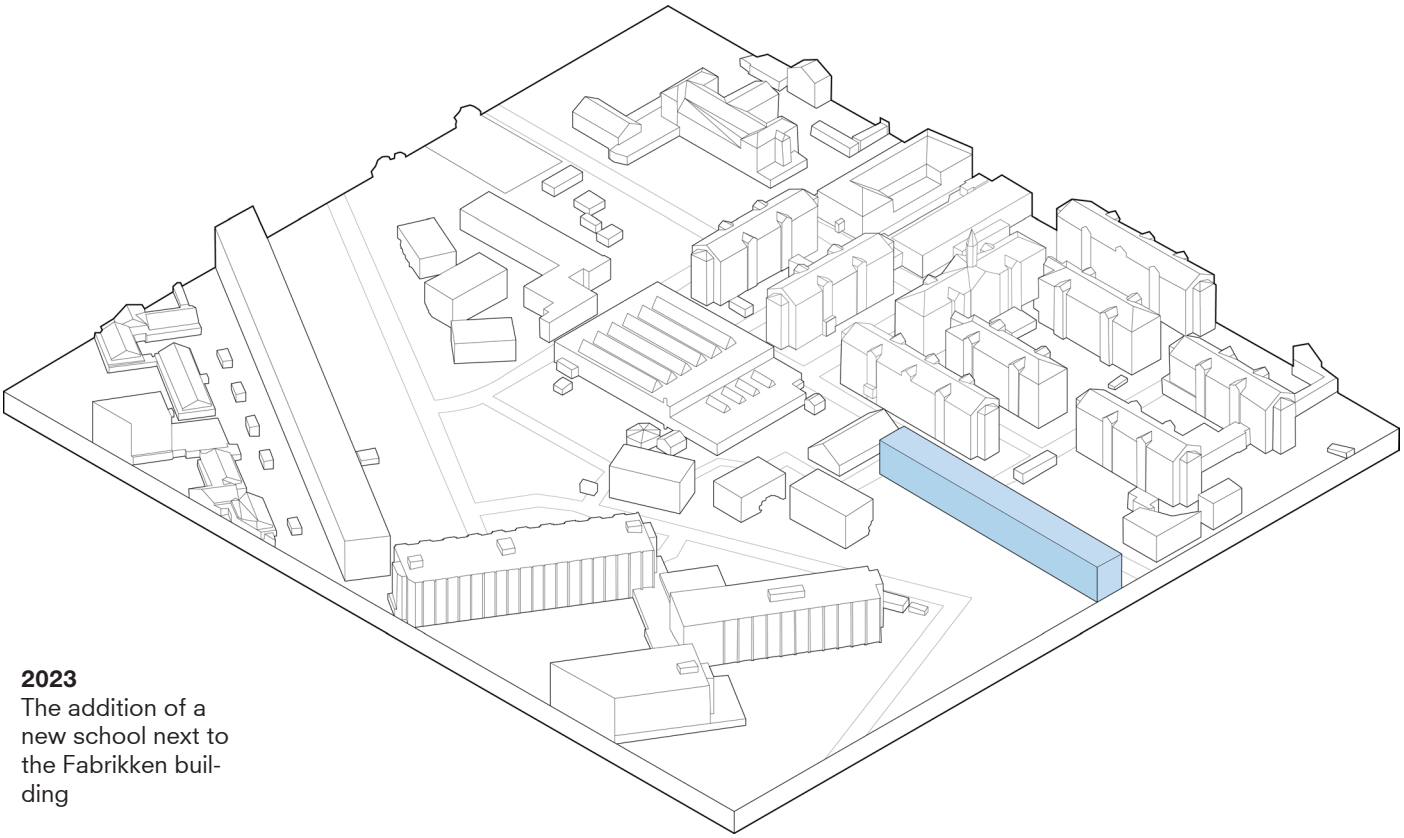


2013
The addition of the daycare centre; Børnehuset Det Røde Hjørne | 2010 official function Fabrikken

2015
The addition of the social housing ensemble; The Living Project



2015
The addition of the community gardens; Byhaven



2023
The addition of a new school next to the Fabrikken building

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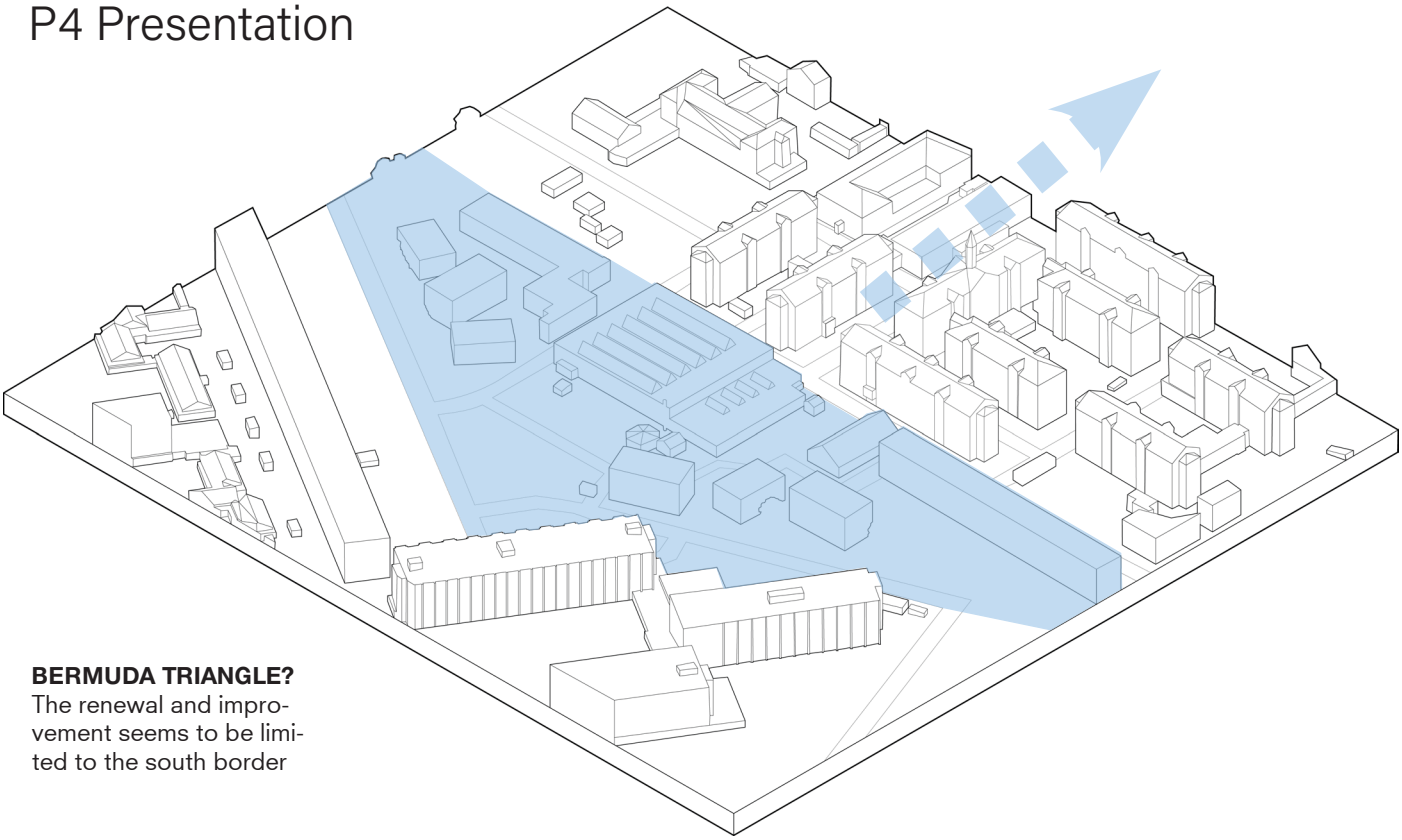
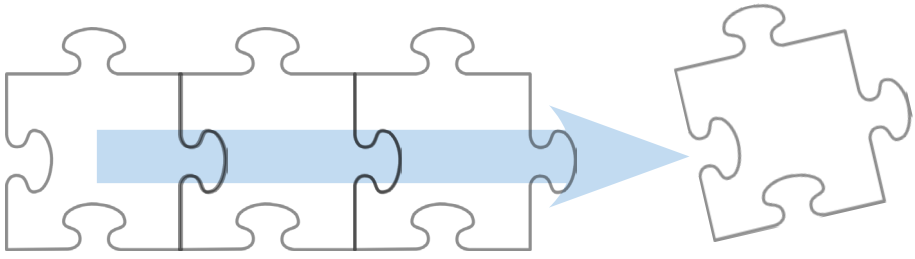
P4 Presentation

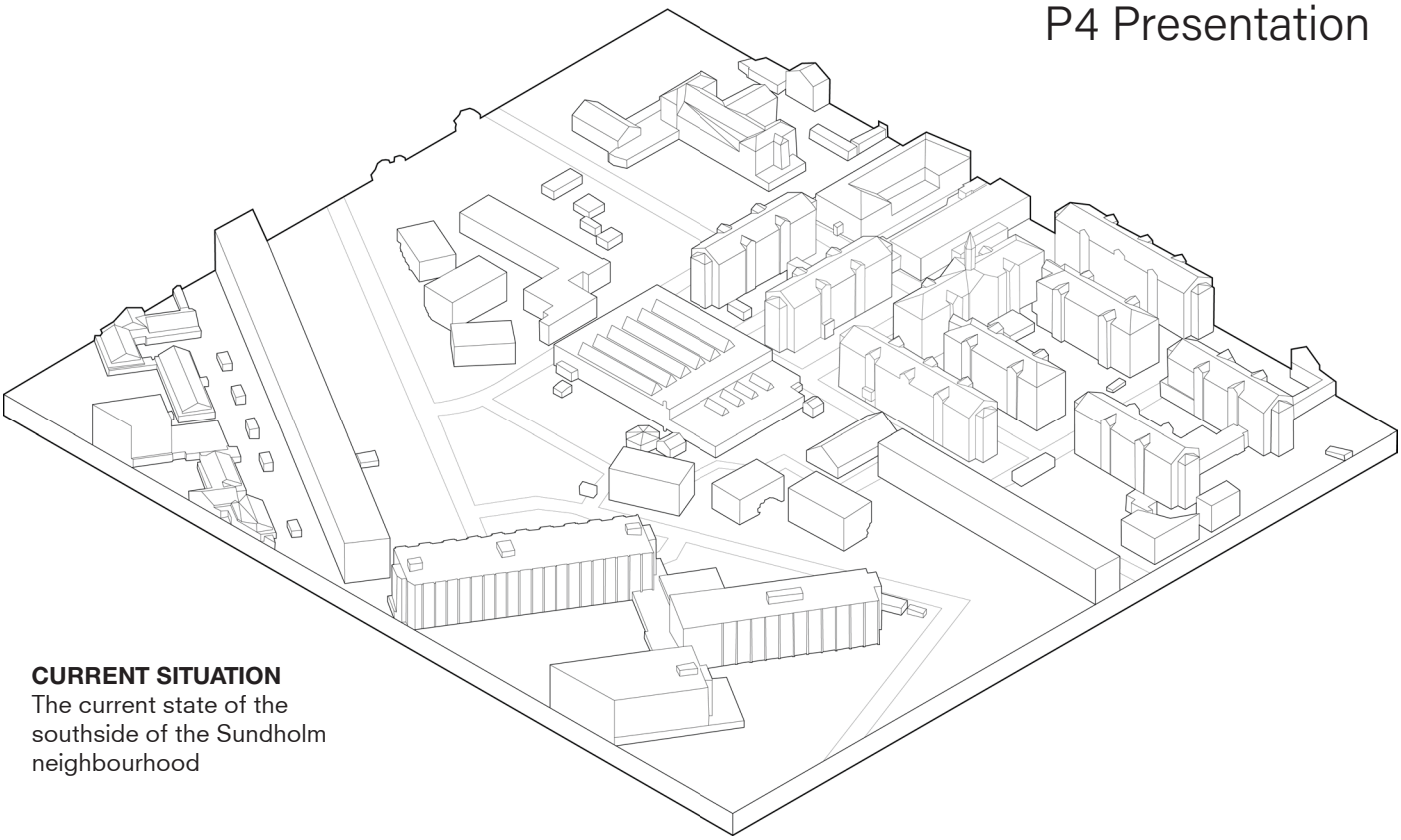


BERMUDA TRIANGLE?
The renewal and improvement seems to be limited to the south border

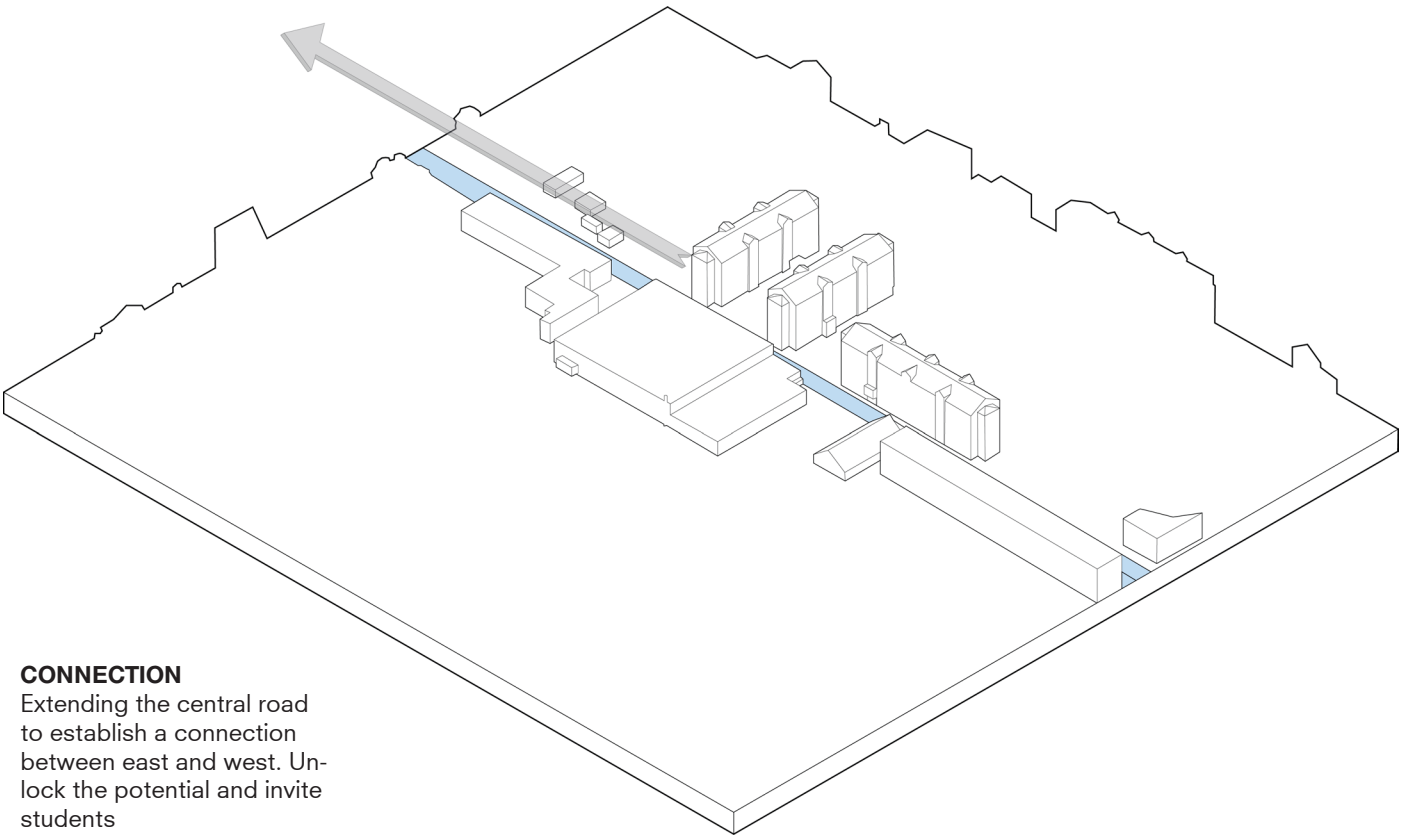
NOT RE-DO...



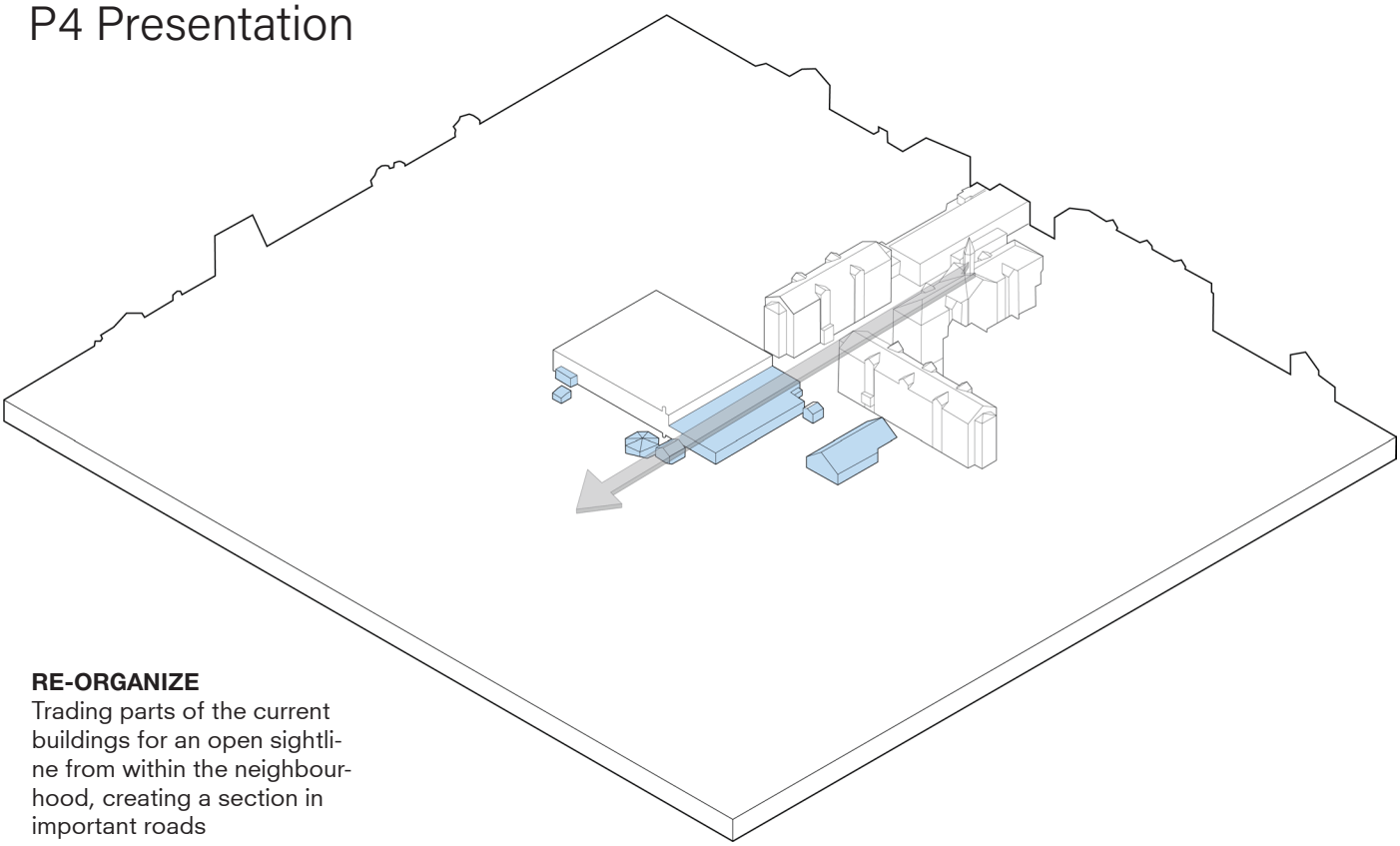
BUT IMPROVE AND EXTEND



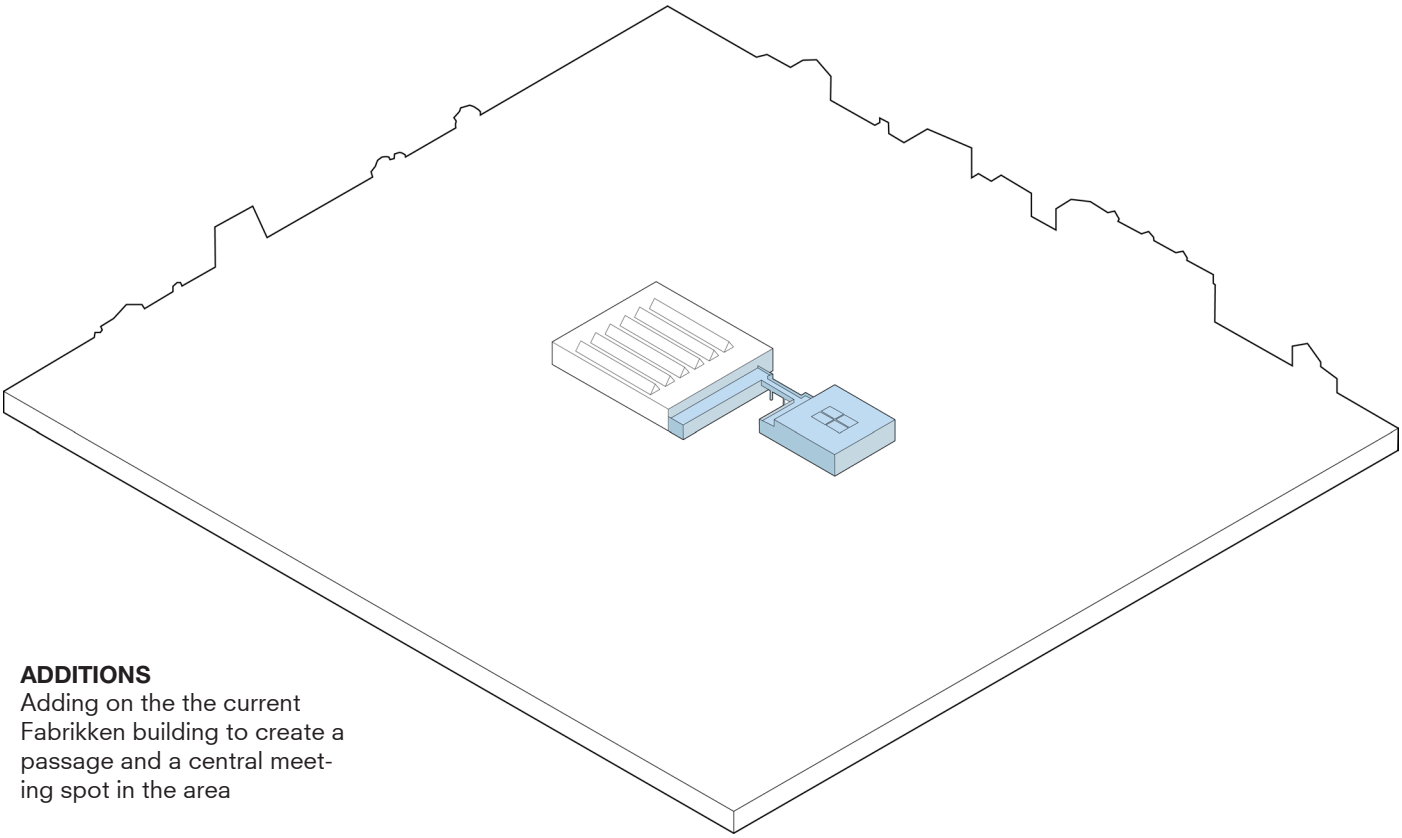
CURRENT SITUATION
The current state of the southside of the Sundholm neighbourhood



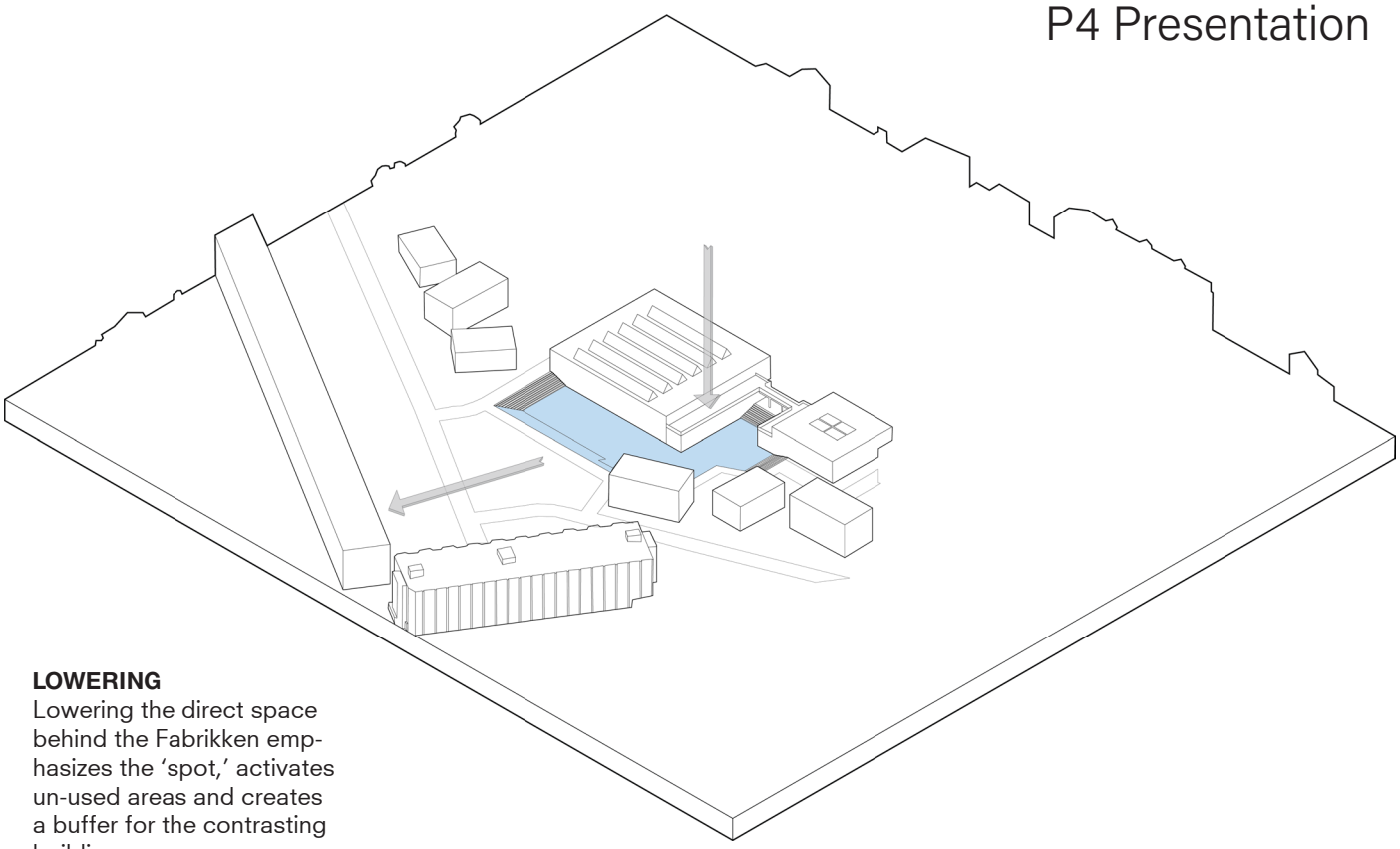
CONNECTION
Extending the central road to establish a connection between east and west. Unlock the potential and invite students



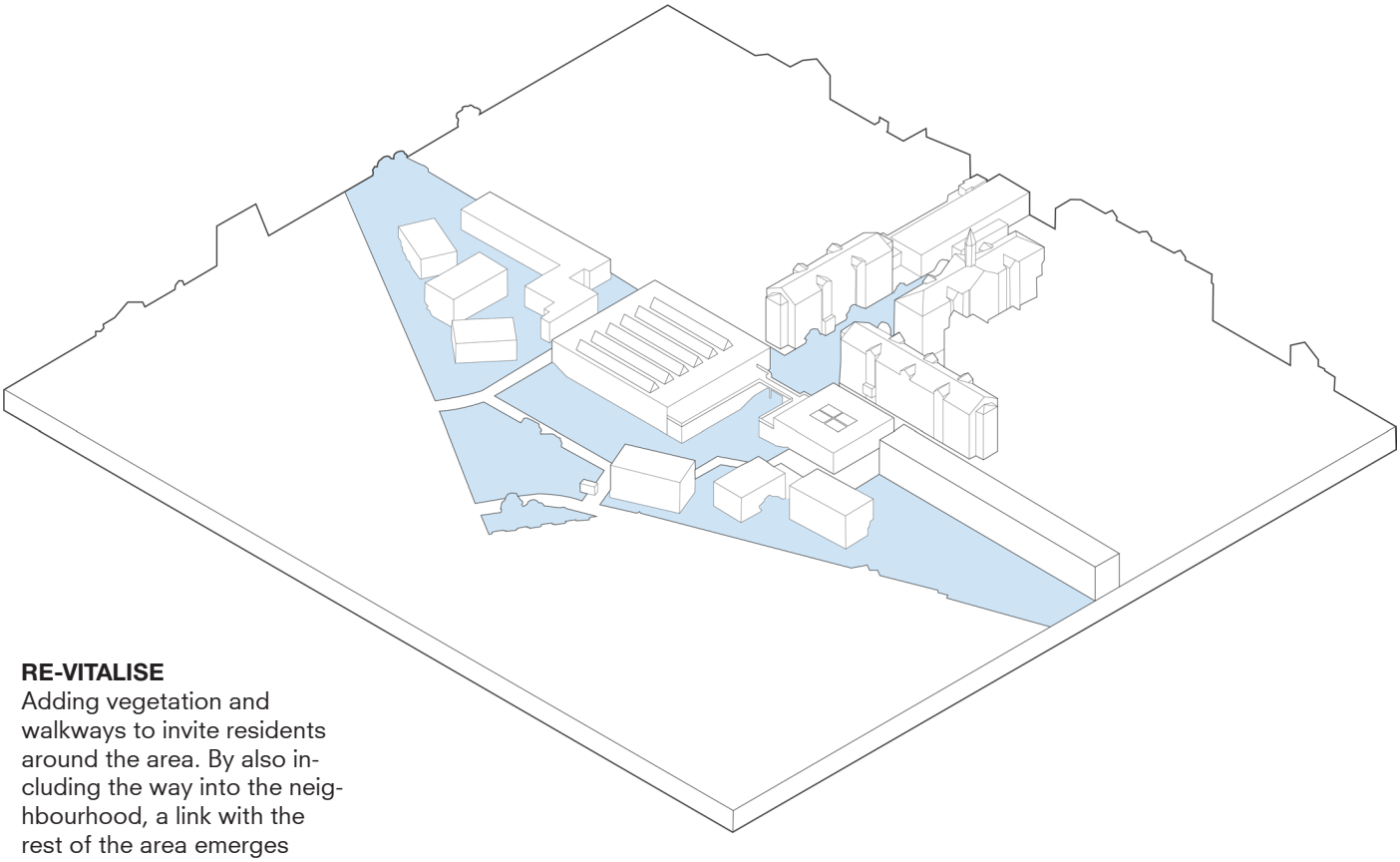
RE-ORGANIZE
Trading parts of the current buildings for an open sightline from within the neighbourhood, creating a section in important roads



ADDITIONS
Adding on the the current Fabrikken building to create a passage and a central meeting spot in the area



LOWERING
Lowering the direct space behind the Fabrikken emphasizes the 'spot,' activates un-used areas and creates a buffer for the contrasting buildings.



RE-VITALISE
Adding vegetation and walkways to invite residents around the area. By also including the way into the neighbourhood, a link with the rest of the area emerges

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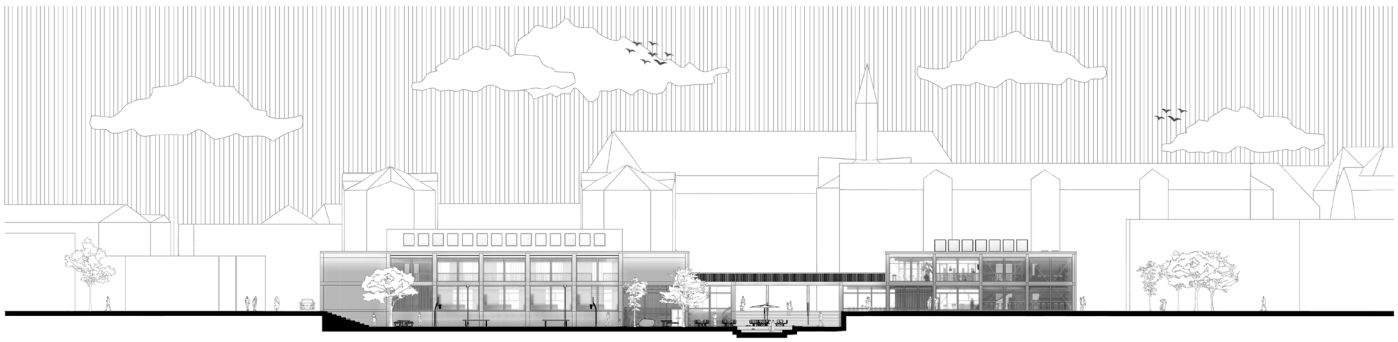
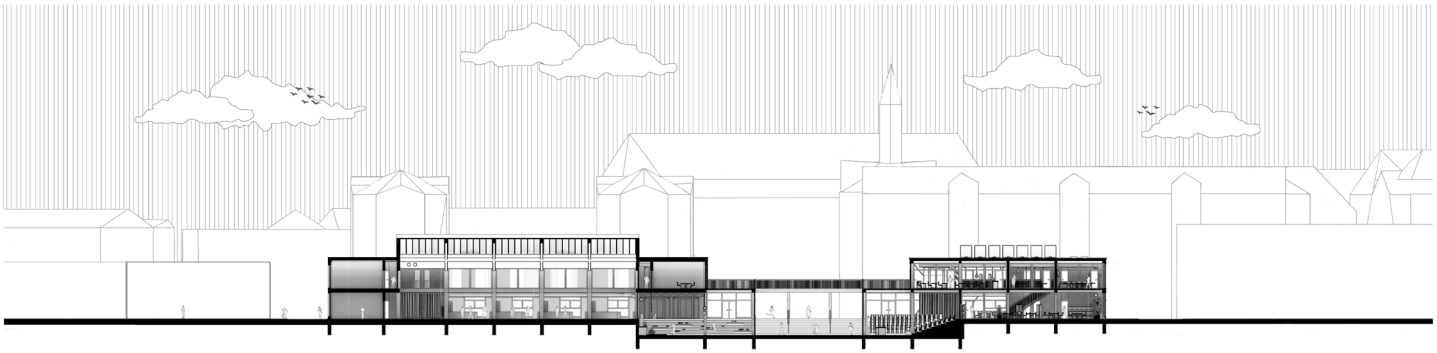
STUDENTS
On the east there are faculties and students housing. Integrating them is a must. Not only as a 'walk-through'

CENTRAL ROAD
Connection on this road not only goes east-west, but it is the acces node to the Fabrikken and it has an active dynamic as well

PARKS
Finishing the south border of the area with a connecting stretch of green as a final 'glue'





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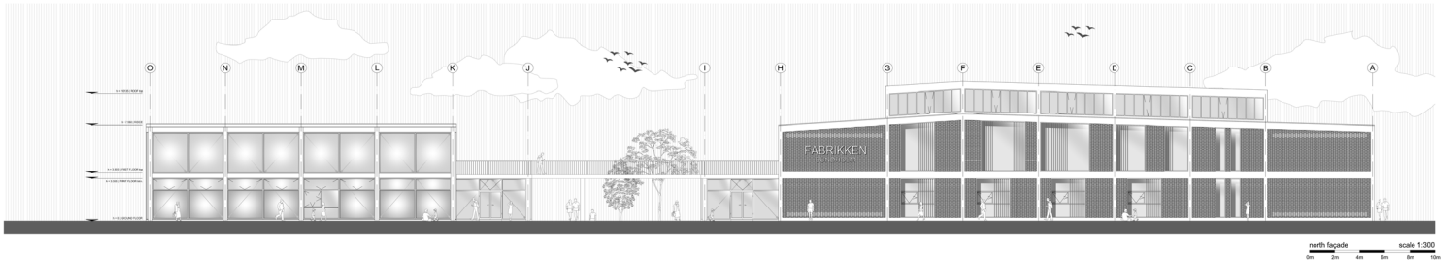
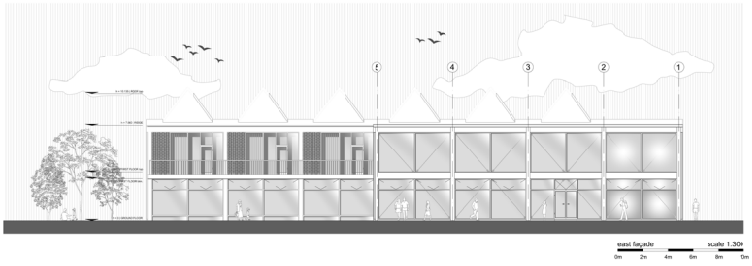
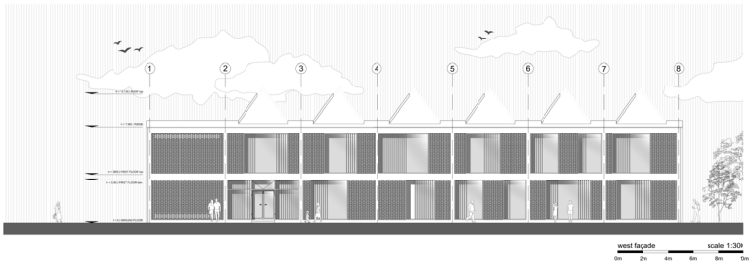
P4 Presentation

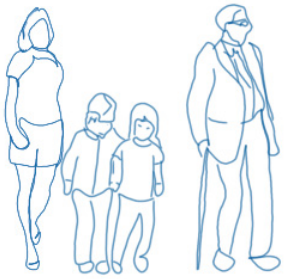



5
4
3
2
1
west façade
scale 1:30
0m 2m 4m 6m 8m 10m


1
2
3
4
5
6
7
8
west façade
scale 1:30
0m 2m 4m 6m 8m 10m

Creative & Alternative Communities:
- Artist & designers
- Activists
- Community organizers
- Urban Farmers

Need:
- Work and exhibition opportunities: Studio spaces, networking areas, event venues, and cultural hubs.



Low Income & Social Housing:
- Families with children
- Elderly residents

Need:
- Community and recreation: Affordable activities, intergenerational gathering spaces, relaxation zones, and accessible green areas.

Immigrant & Multicultural Communities:
- Refugees
- Asylum seekers
- Ethnic minorities
- Int. workers & students

Need:
- Cultural representation and integration: Spaces for networking, cultural expression, and language or skill-building programs.

Students & Young Professionals:
- Students from local universities
- Young professionals

Need:
- Learning and collaboration: Study areas, access to archives, research facilities, and networking opportunities.

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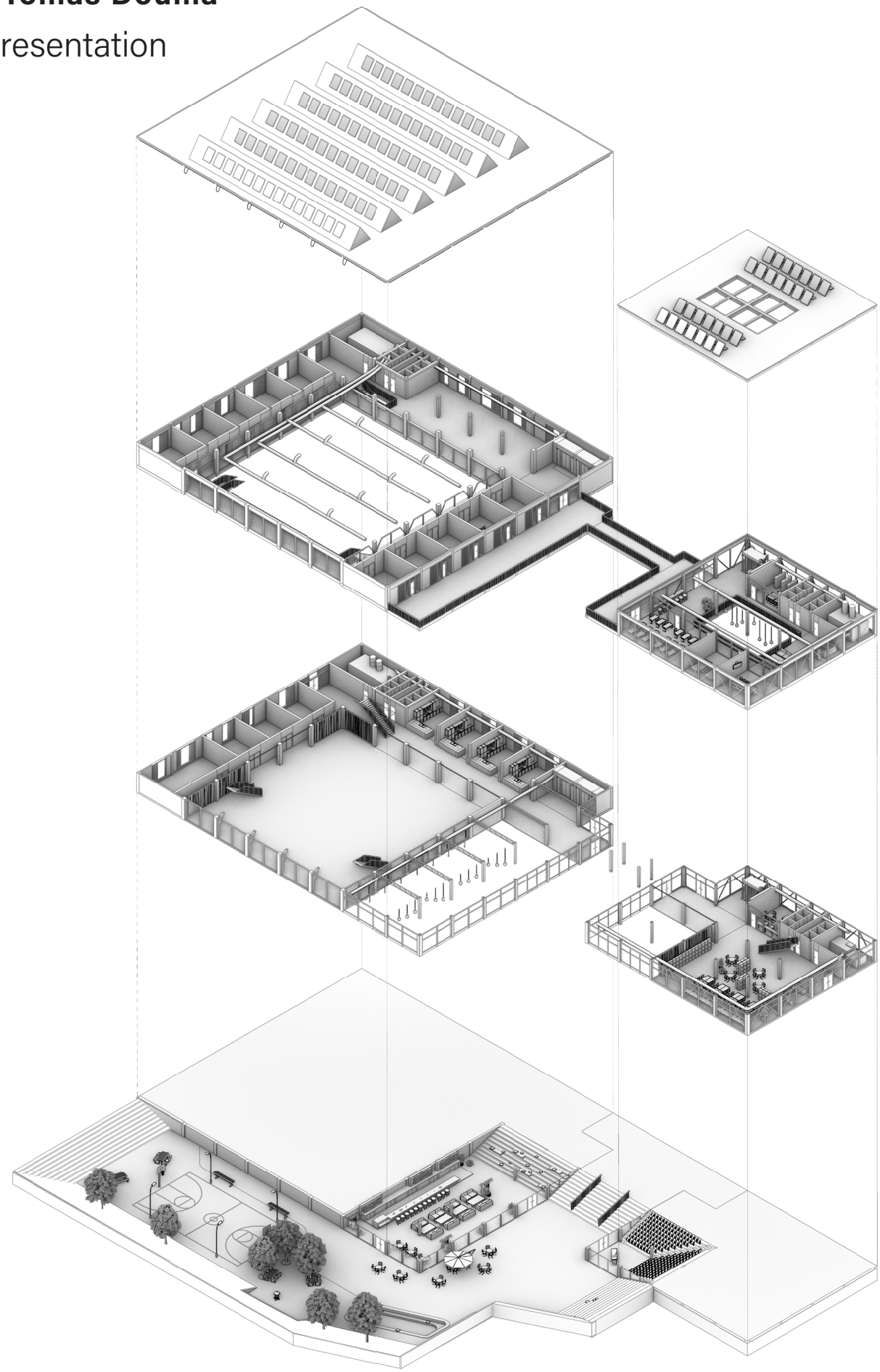
P4 Presentation



ROOF

1. Flat Roof (Steel Construction)
2. Flat Roof (Wooden Construction)
3. Rotating Solarpanels
4. Stationary Solarpanels
5. Skylights (North Oriented)
6. Skylights (Horizontal, Slightly Sloped)

FIRST FLOOR

1. Technical space	50 sqm + 36 sqm
2. Toilets	36 sqm x 2
3. Small Workshop Space	36 sqm x 5
4. Workshop area	280 sqm
5. Flexible Workspace	36 sqm x 5
6. Hallway	80 sqm x 2
7. Solarium/Terrace	360 sqm
8. Lounge	72 sqm x 2
9. Study Space	36 sqm x 4
10. Archive	36 sqm

GROUND FLOOR

1. Technical Space	50 sqm + 36 sqm
2. Toilets	36 sqm x 2
3. Kitchen	36 sqm x 4
4. Foodcourt	225 sqm
5. Flexible Event Space	580 sqm
6. Flexible Exposition Space	36 sqm x 5
7. Coffee Bar	36 sqm
8. Library	216 sqm
9. Entrance	200 sqm

SUNKEN FLOOR

1. Café	340 sqm
2. Lecture Hall	144 sqm
3. Sitting Pit	60 sqm
4. Sports Field	200 sqm
5. Recreational Area	
6. Outside Terrace	
7. Central Square	

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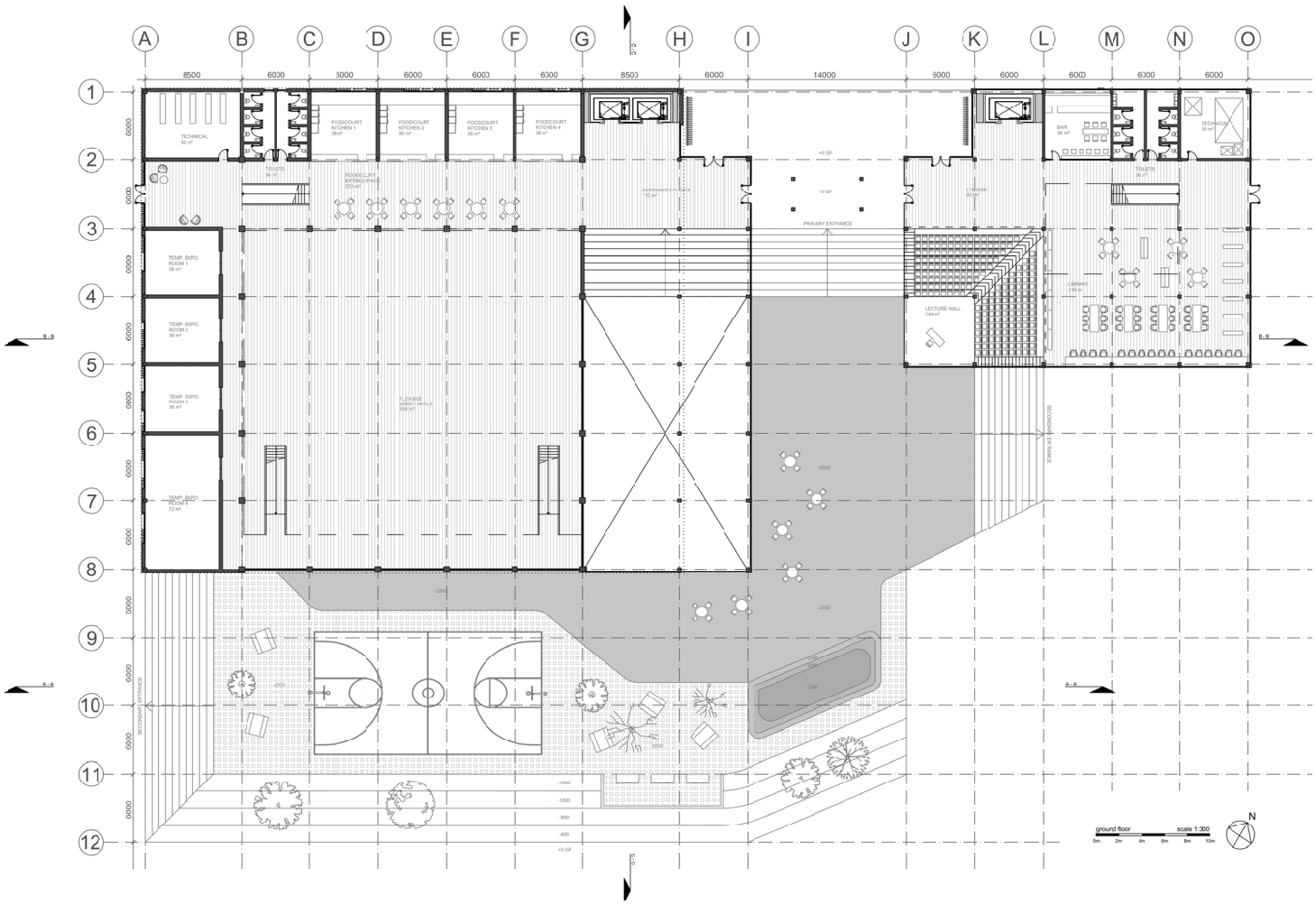

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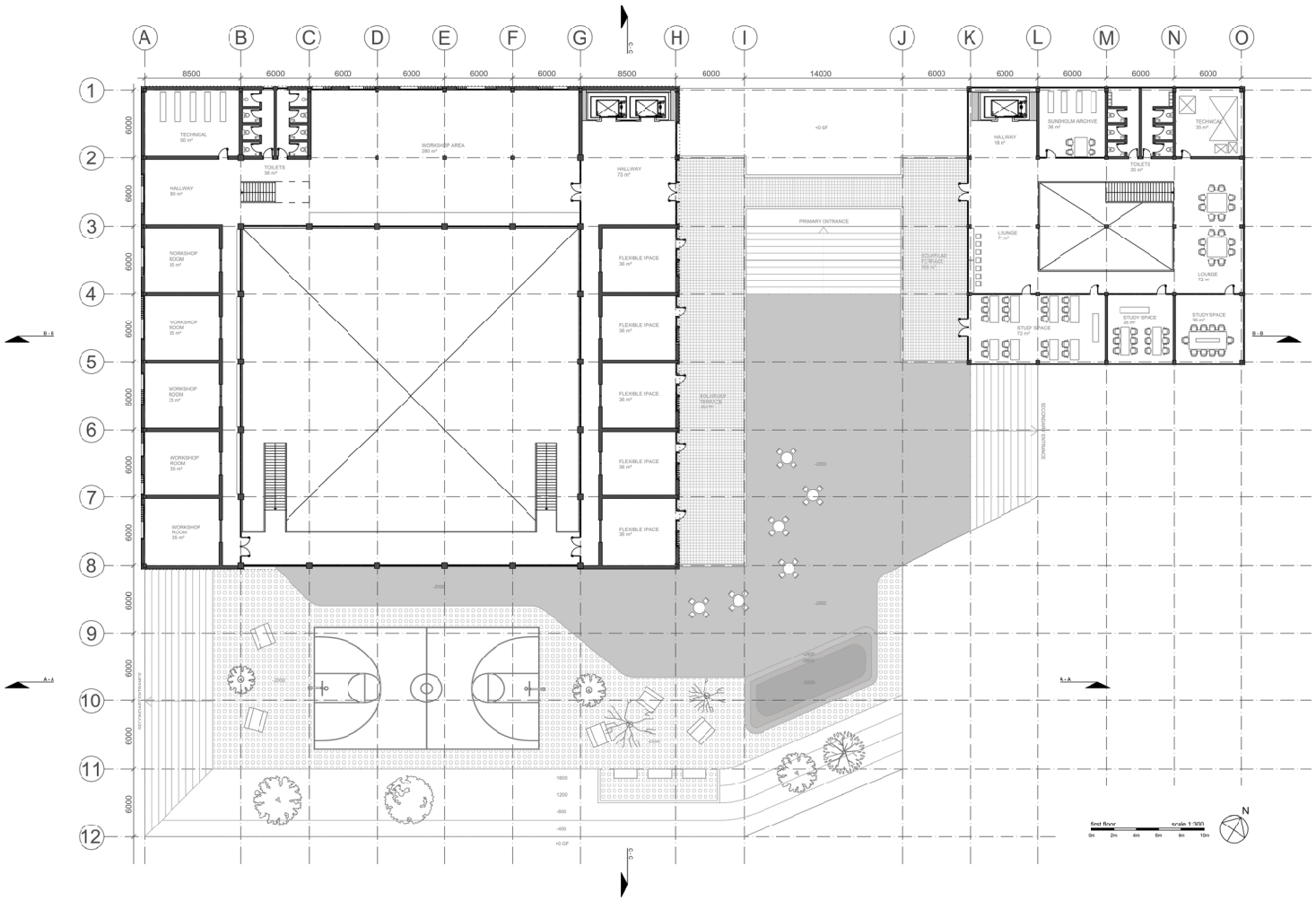

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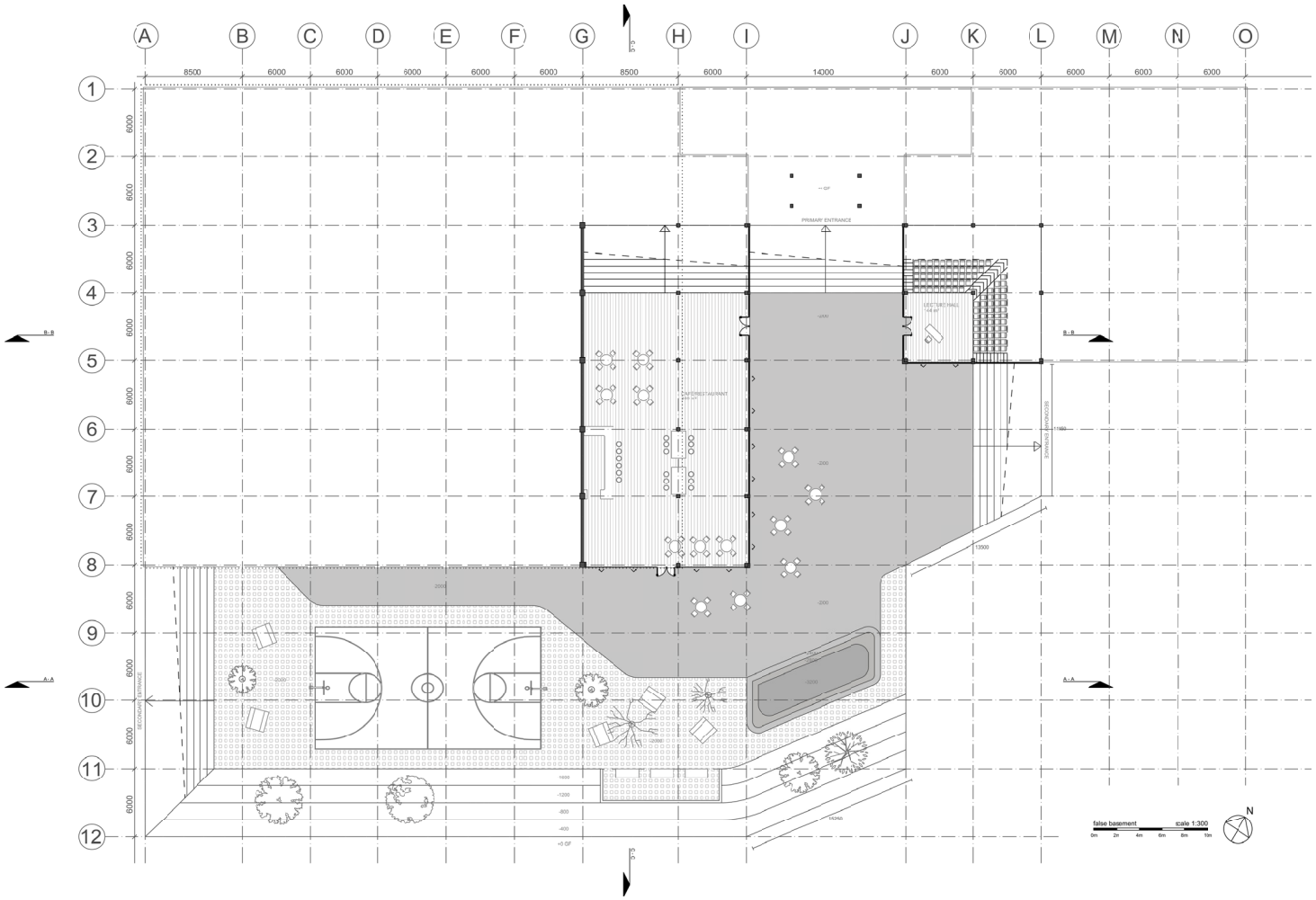

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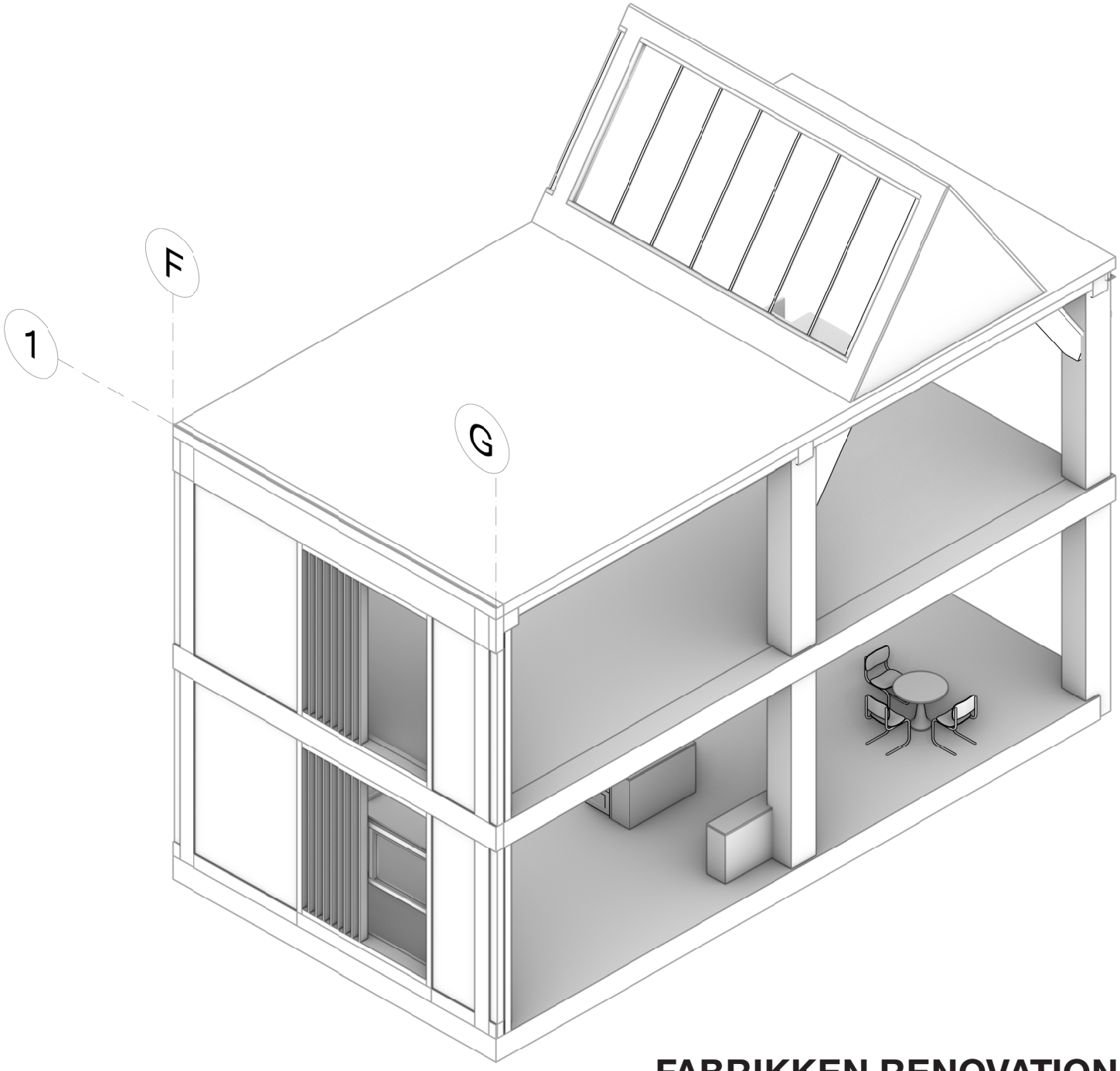
P4 Presentation



FABRIKKEN RENOVATION

The materials on the renovation of the Fabrikken have the same industrial aesthetic. Concrete, brick (like the neighbourhood) and steel are prominent

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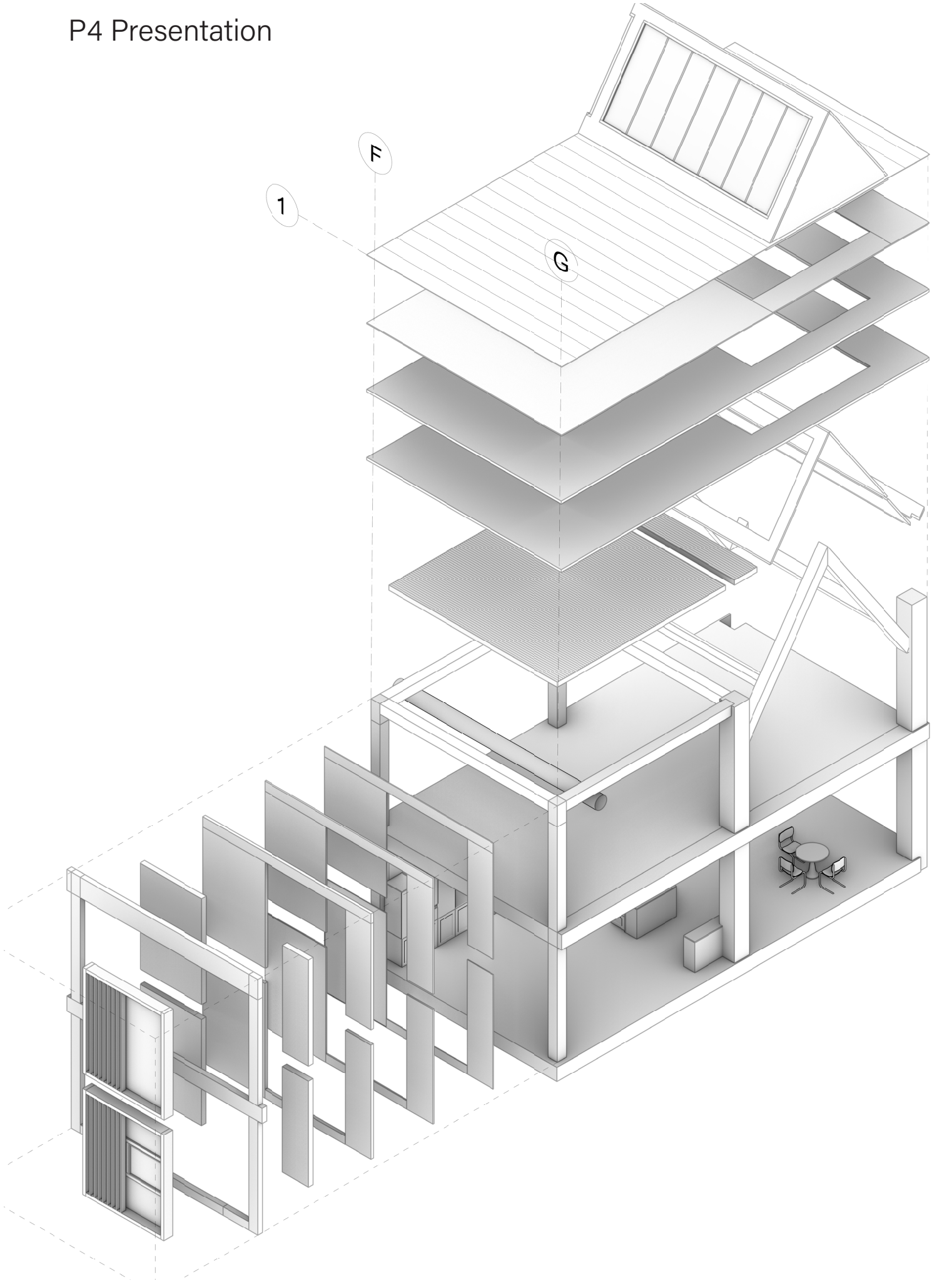
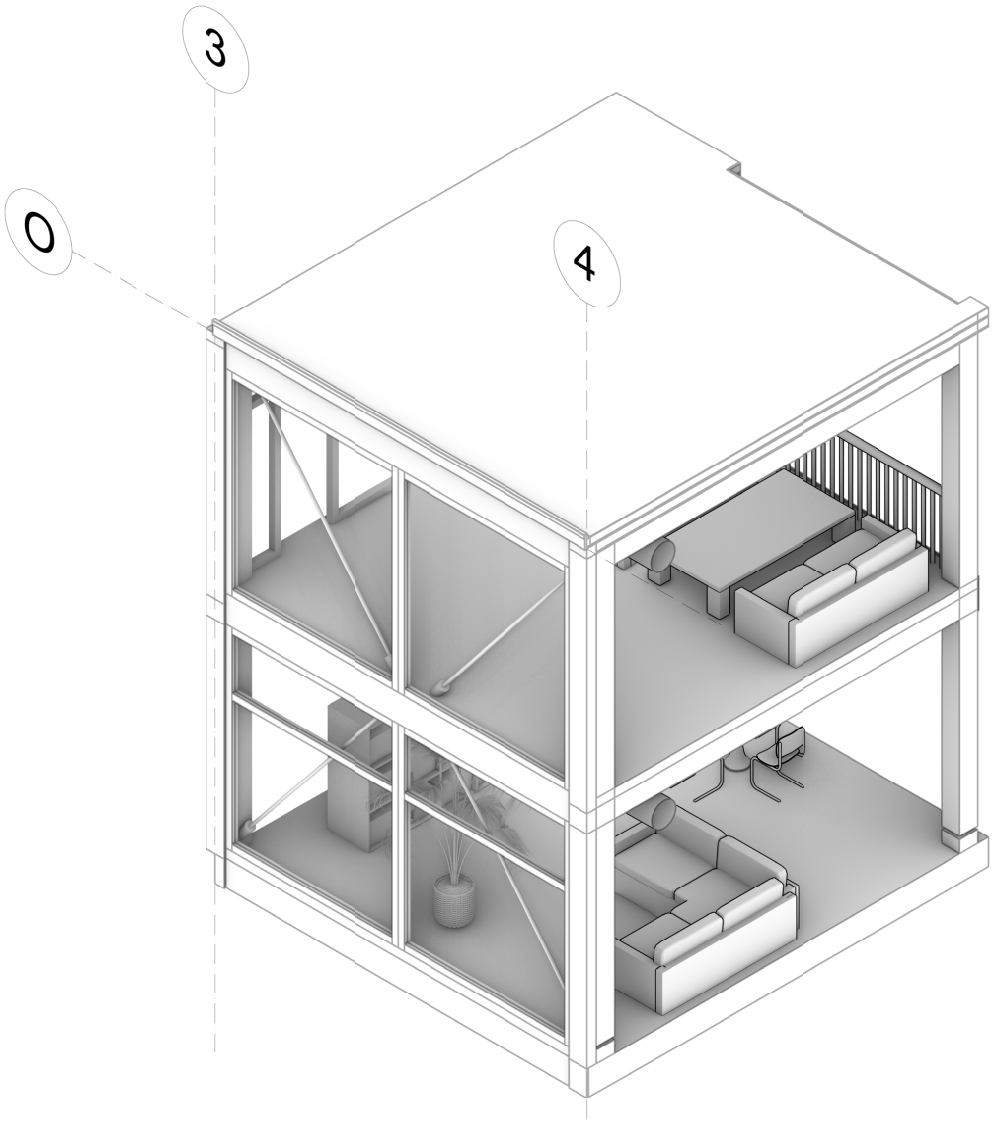
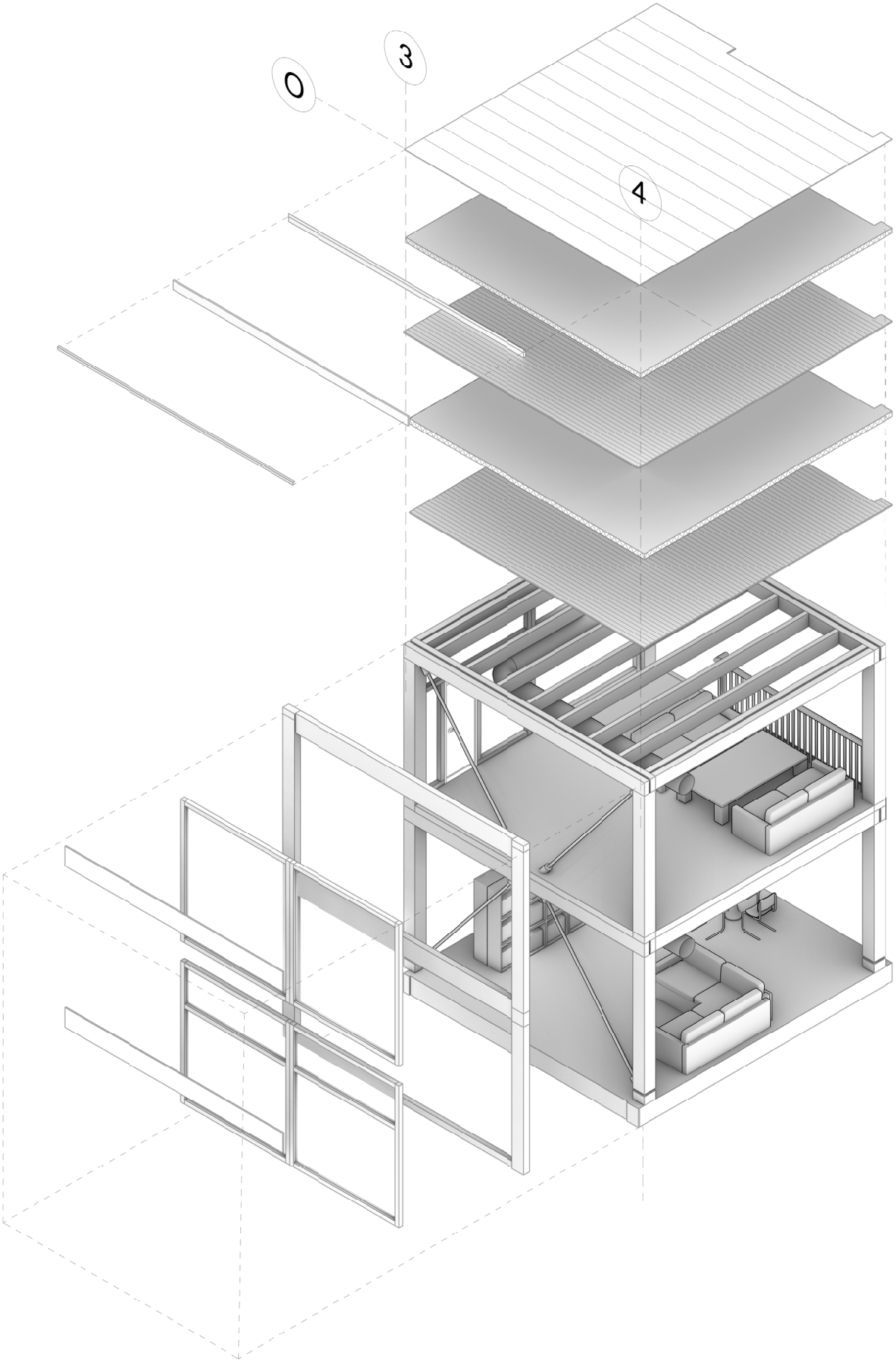
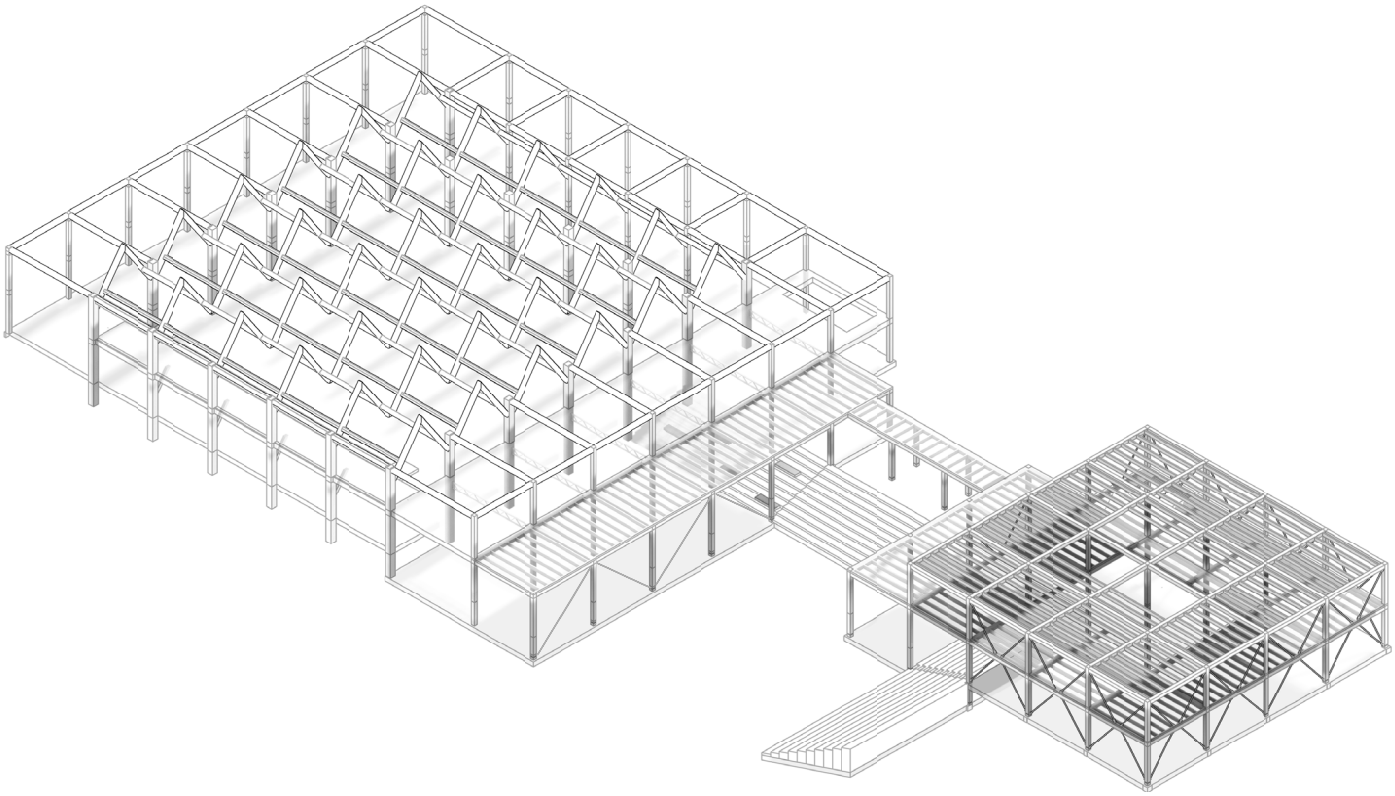
P4 Presentation

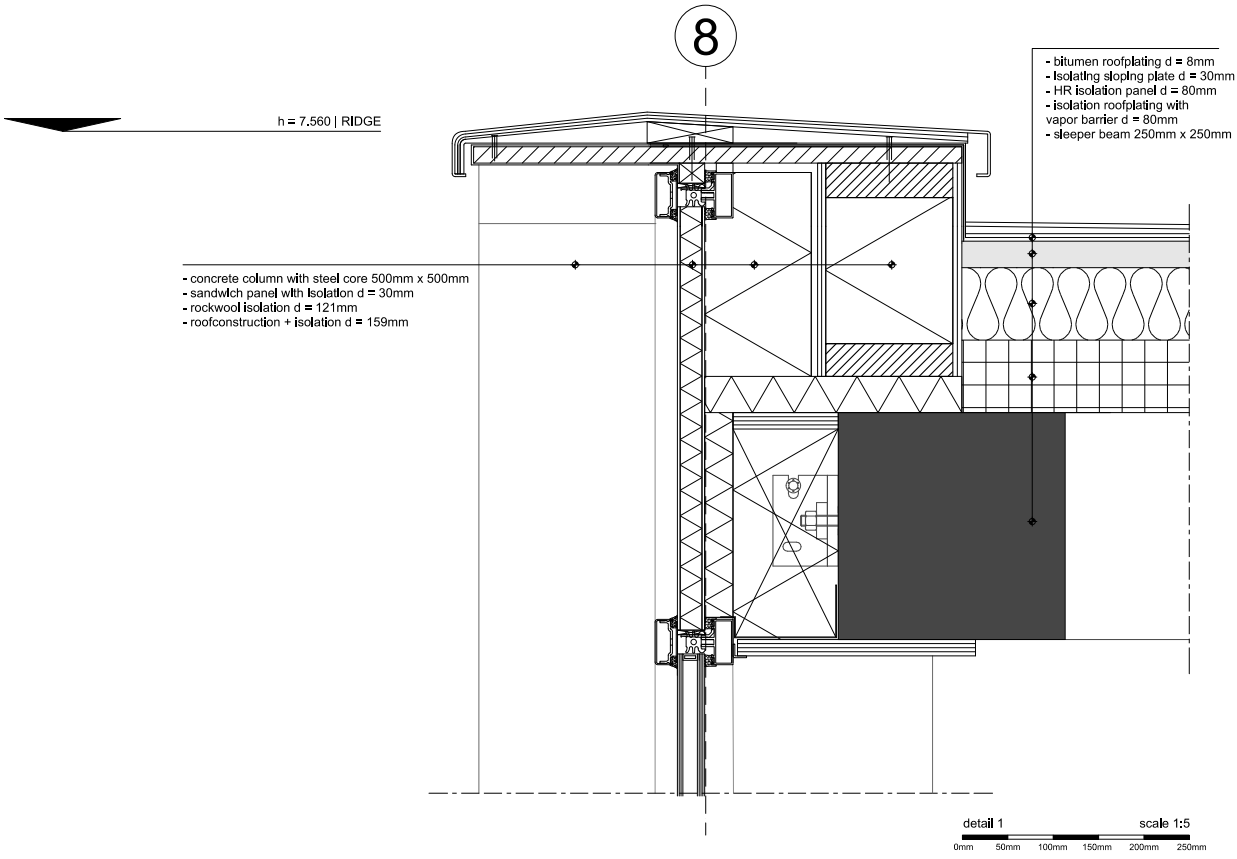


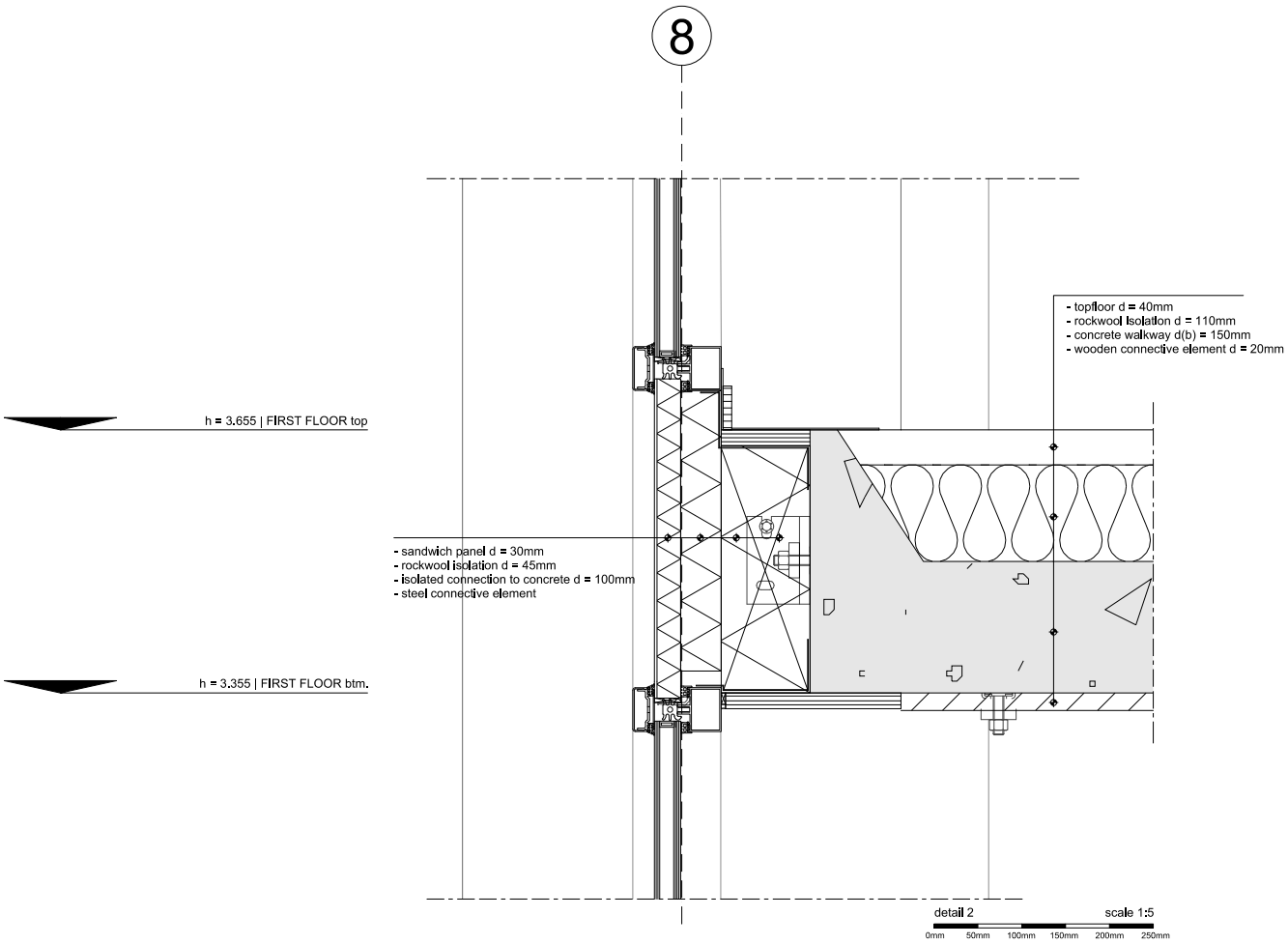


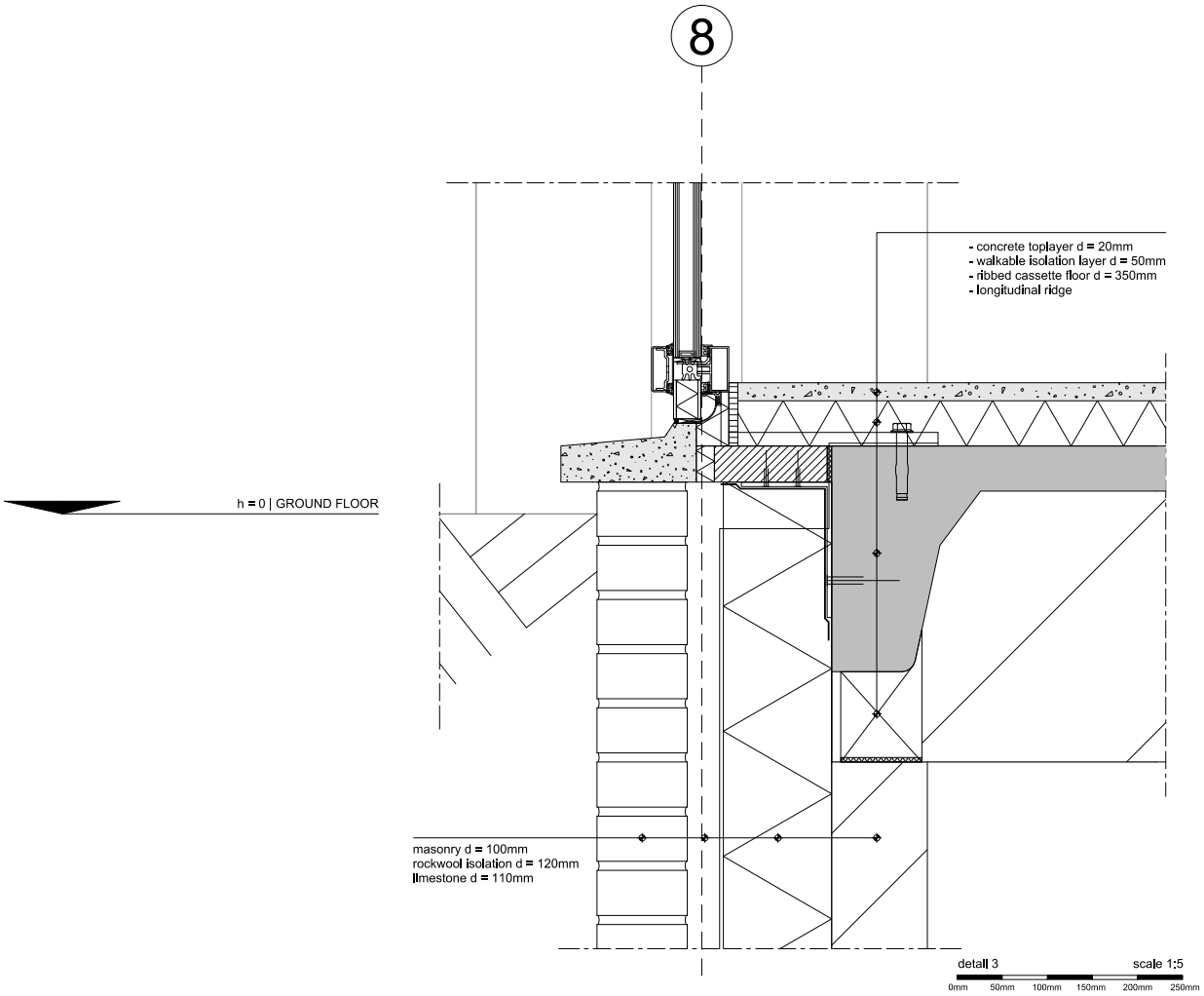
NEW BUILDING
The new addition follows the same grid, structure and measurements, but the materials fit the new progressive ideas from the Danish government. Wood is prominent

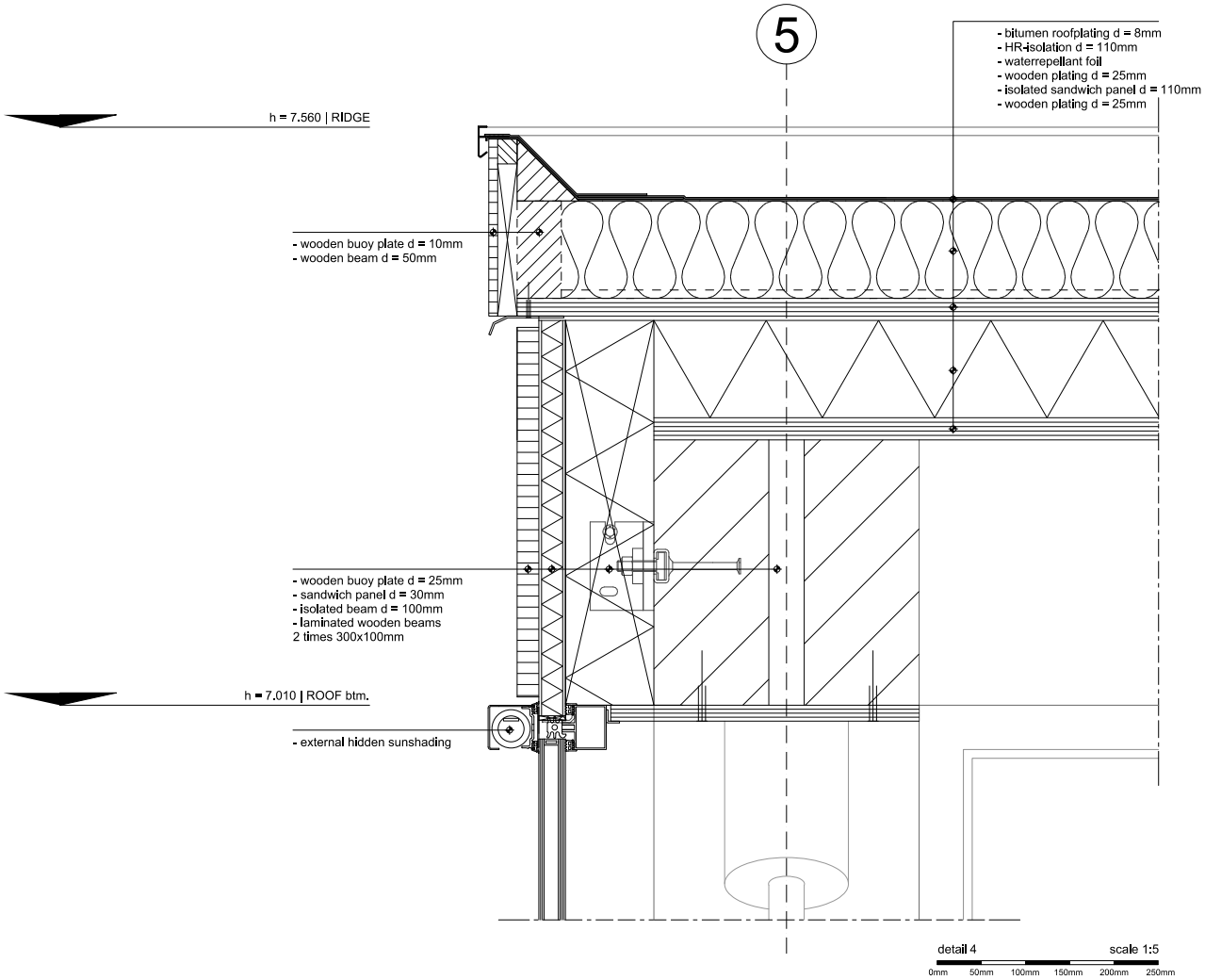

0
3
4

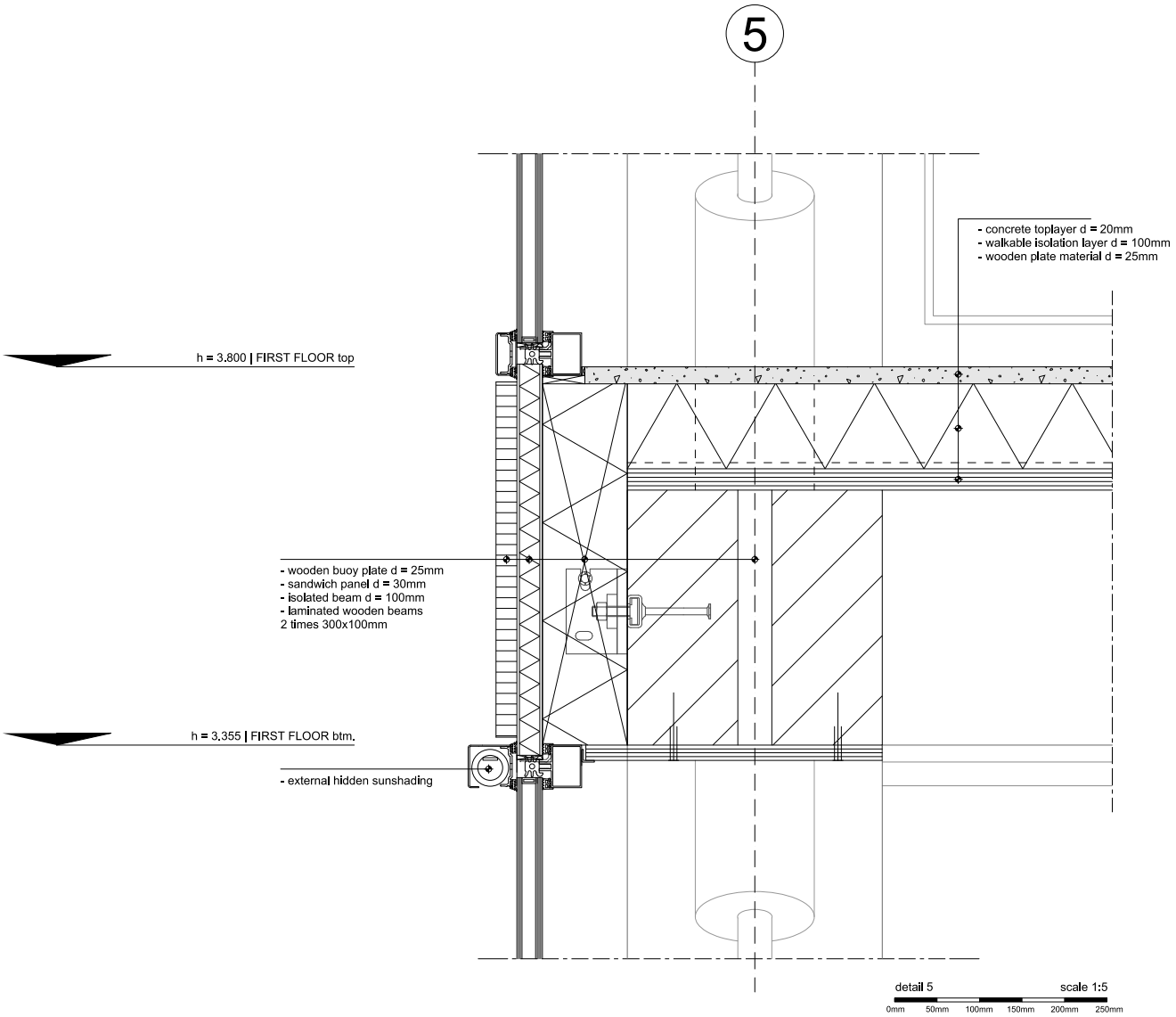


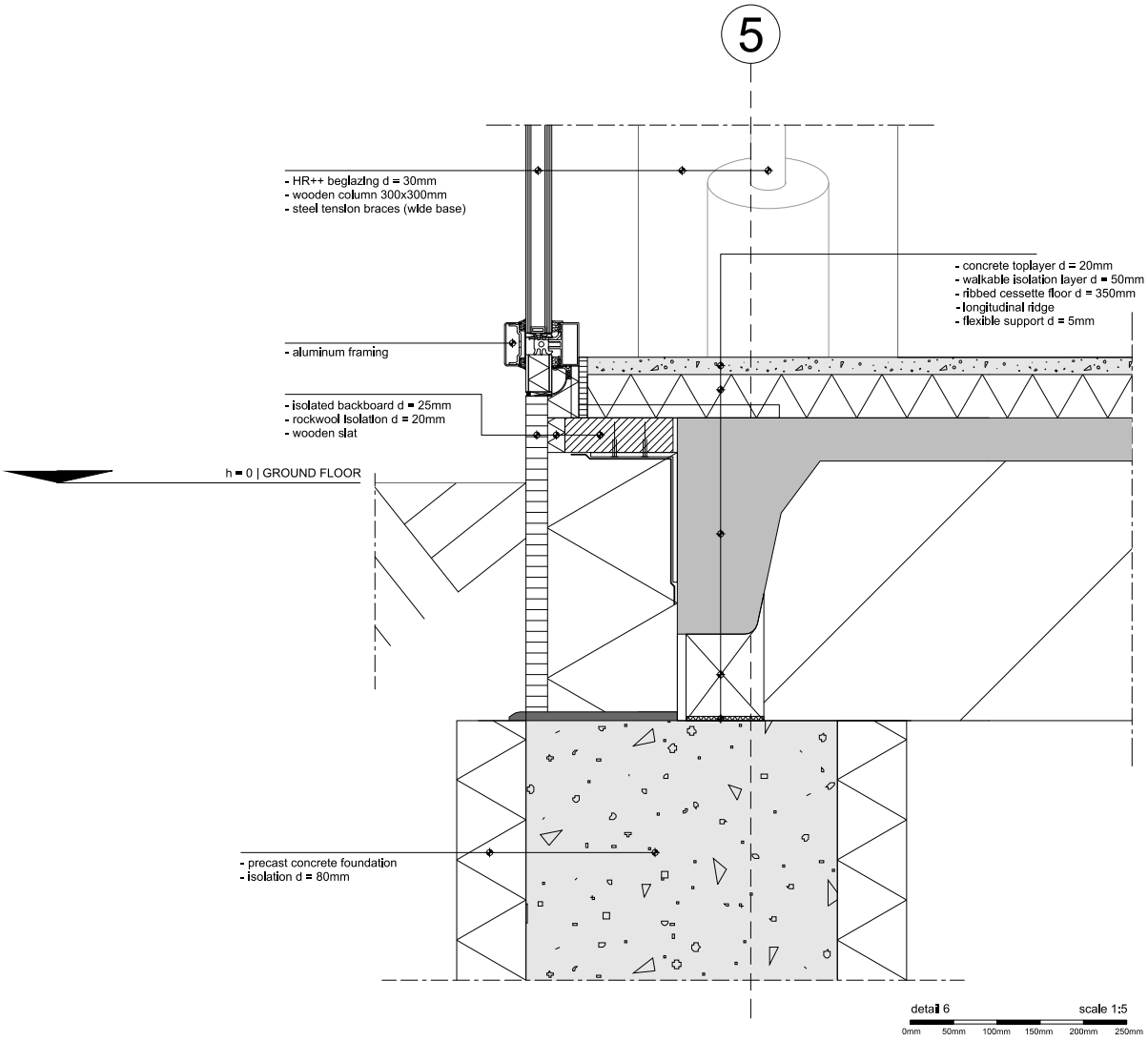

8
h = 7.560 | RIDGE
- bitumen roofplating d = 8mm
- Isolating sloping plate d = 30mm
- HR isolation panel d = 80mm
- isolation roofplating with
vapor barrier d = 80mm
- sleeper beam 250mm x 250mm
- concrete column with steel core 500mm x 500mm
- sandwich panel with Isolation d = 30mm
- rockwool isolation d = 121mm
- roofconstruction + isolation d = 159mm
detail 1
scale 1:5
0mm
50mm
100mm
150mm
200mm
250mm

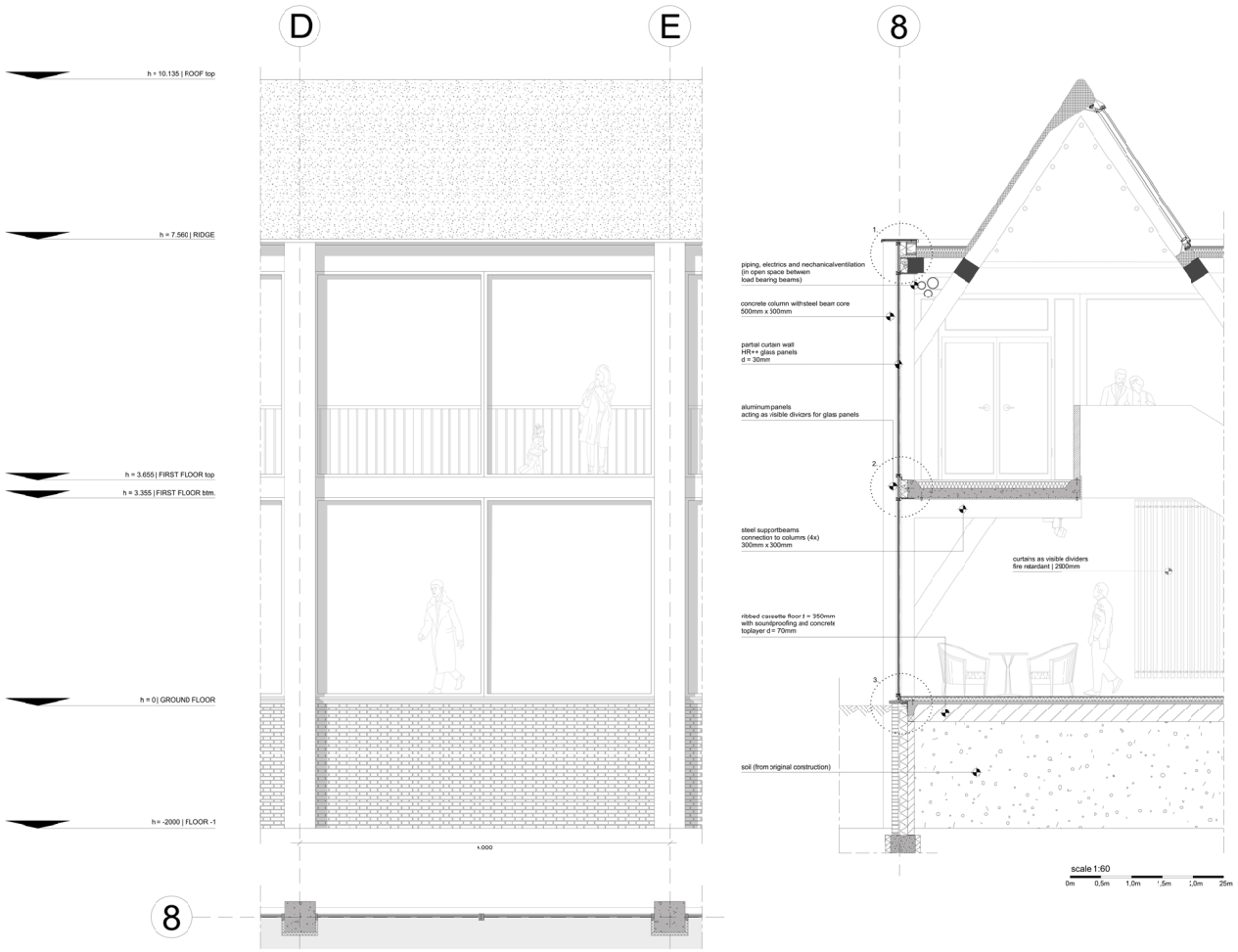

8
- topfloor d = 40mm
- rockwool Isolation d = 110mm
- concrete walkway d(b) = 150mm
- wooden connective element d = 20mm
h = 3.655 | FIRST FLOOR top
- sandwich panel d = 30mm
- rockwool isolation d = 45mm
- isolated connection to concrete d = 100mm
- steel connective element
h = 3.355 | FIRST FLOOR btm.
detail 2
scale 1:5
0mm
50mm
100mm
150mm
200mm
250mm

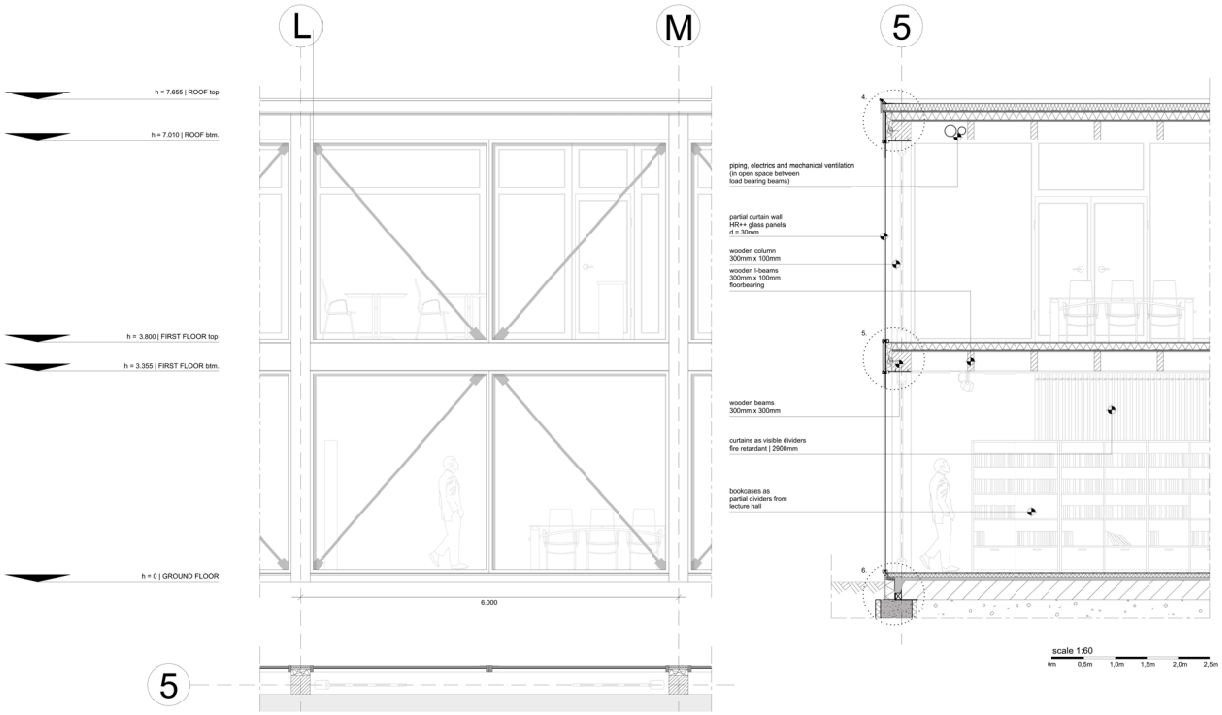

8
- concrete toplayer d = 20mm
- walkable isolation layer d = 50mm
- ribbed cassette floor d = 350mm
- longitudinal ridge
h = 0 | GROUND FLOOR
masonry d = 100mm
rockwool isolation d = 120mm
limestone d = 110mm
detail 3
scale 1:5
0mm 50mm 100mm 150mm 200mm 250mm

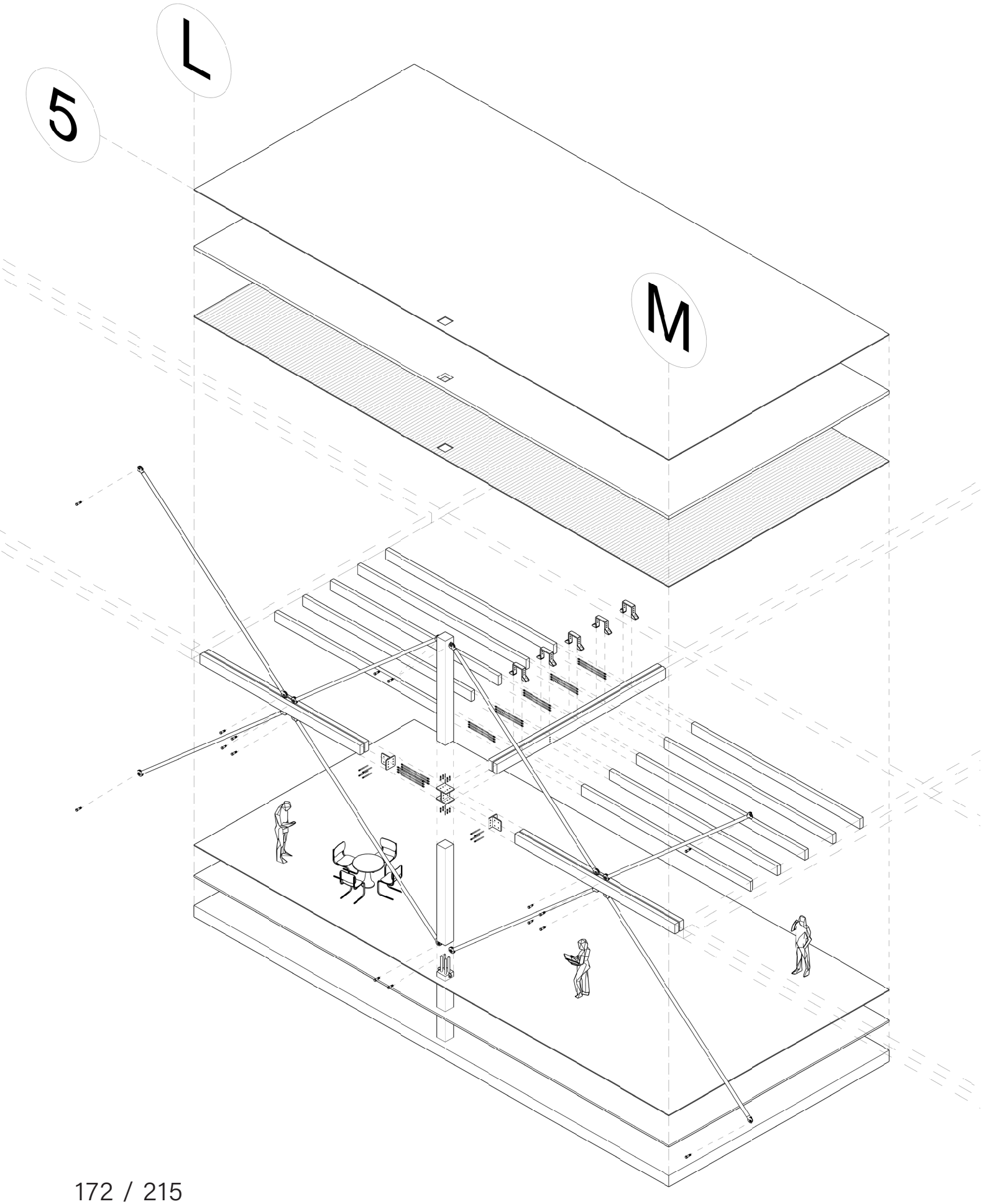

5
- bitumen roofplating d = 8mm
- HR-isolation d = 110mm
- waterrepellant foil
- wooden plating d = 25mm
- isolated sandwich panel d = 110mm
- wooden plating d = 25mm
h = 7.560 | RIDGE
- wooden buoy plate d = 10mm
- wooden beam d = 50mm
- wooden buoy plate d = 25mm
- sandwich panel d = 30mm
- isolated beam d = 100mm
- laminated wooden beams
2 times 300x100mm
h = 7.010 | ROOF btm.
- external hidden sunshading
detail 4
scale 1:5
0mm 50mm 100mm 150mm 200mm 250mm

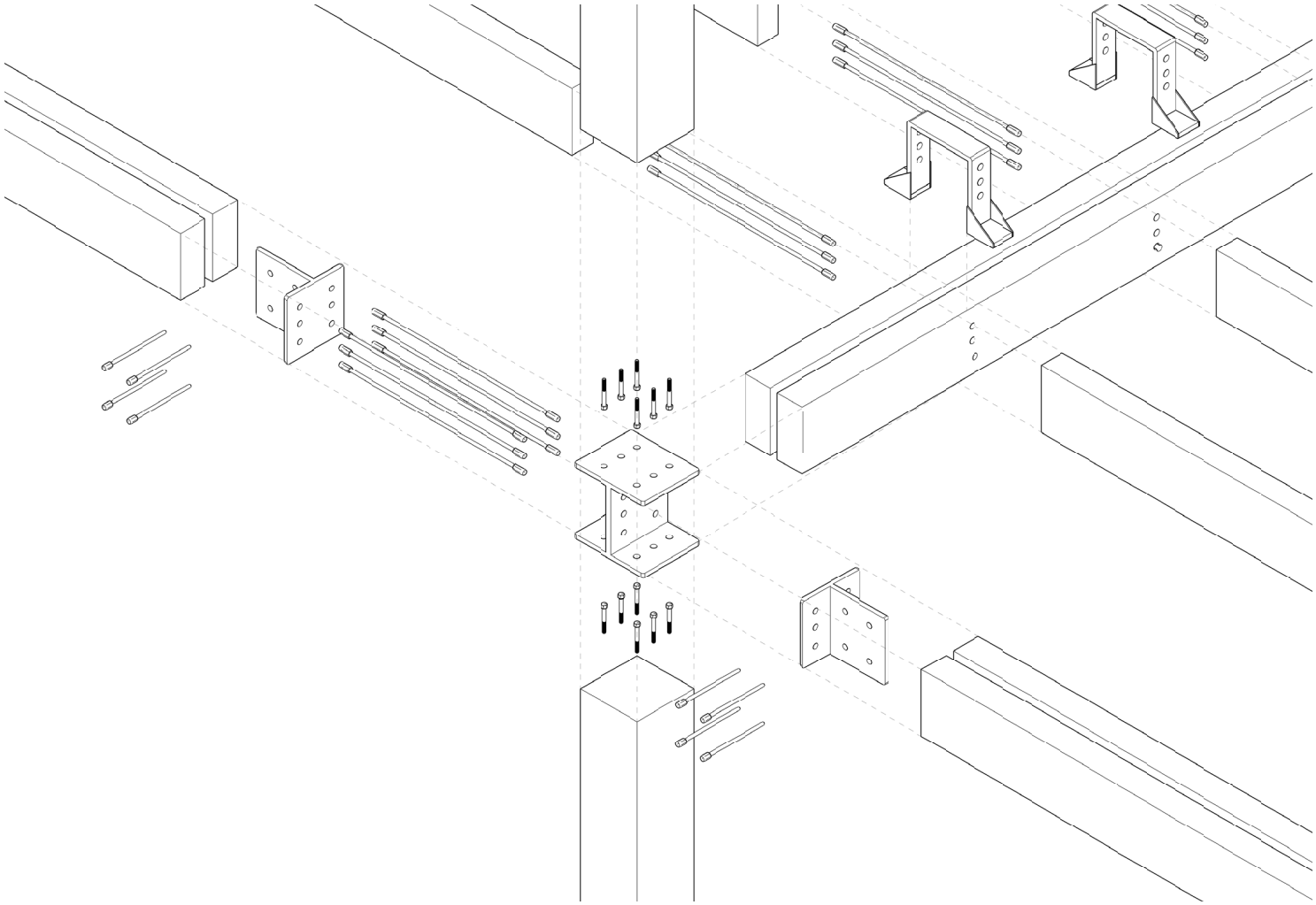

5
- concrete toplayer d = 20mm
- walkable isolation layer d = 100mm
- wooden plate material d = 25mm
h = 3.800 | FIRST FLOOR top
- wooden buoy plate d = 25mm
- sandwich panel d = 30mm
- isolated beam d = 100mm
- laminated wooden beams
2 times 300x100mm
h = 3.355 | FIRST FLOOR btm.
- external hidden sunshading
detail 5
scale 1:5
0mm 50mm 100mm 150mm 200mm 250mm

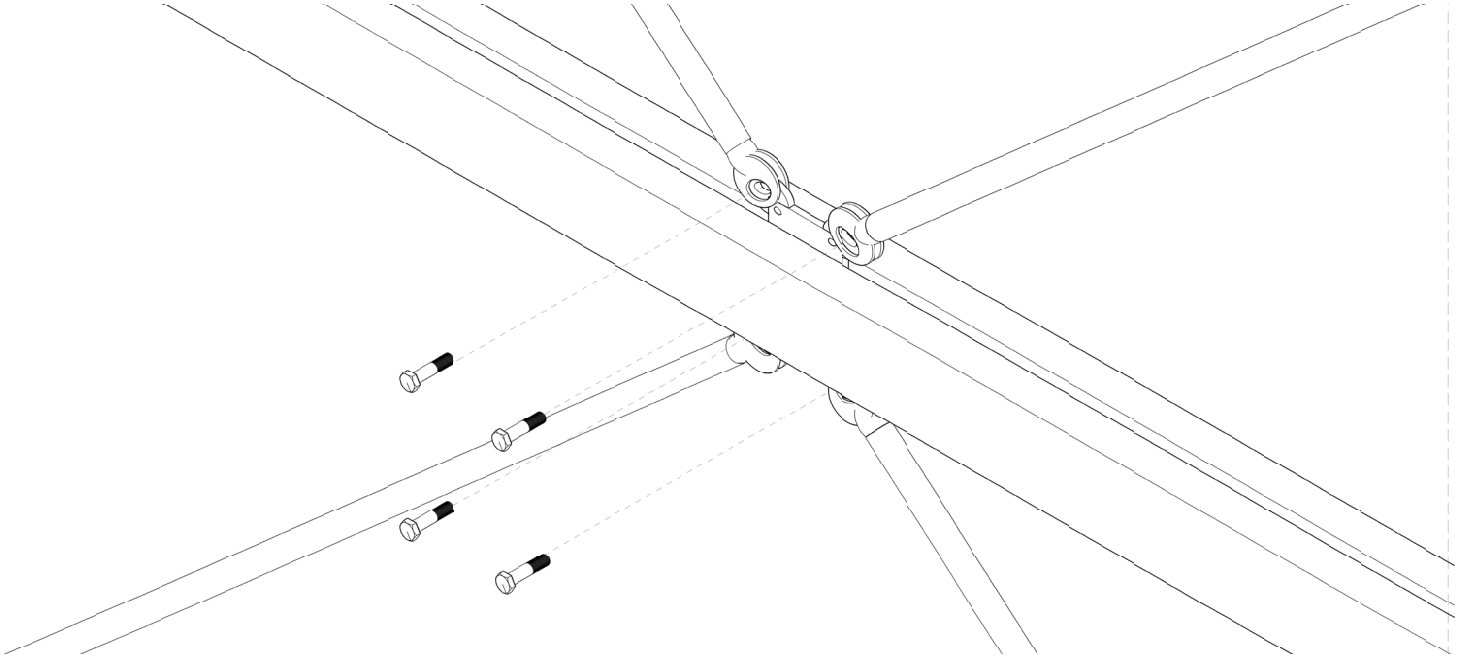

5
- HR++ beglazing d = 30mm
- wooden column 300x300mm
- steel tenslon braces (wide base)
- concrete toplayer d = 20mm
- walkable isolation layer d = 50mm
- ribbed cessette floor d = 350mm
- longitudinal ridge
- flexible support d = 5mm
- aluminum framing
- isolated backboard d = 25mm
- rockwool Isolation d = 20mm
- wooden slat
h = 0 | GROUND FLOOR
- precast concrete foundation
- isolation d = 80mm
detail 6
scale 1:5
0mm 50mm 100mm 150mm 200mm 250mm

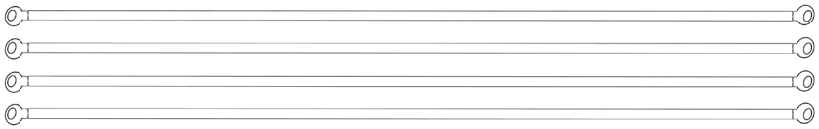

D
E
8
h = 10.135 | ROOF top
h = 7.560 | RIDGE
h = 3.655 | FIRST FLOOR top
h = 3.355 | FIRST FLOOR btm.
h = 0 | GROUND FLOOR
h = -2000 | FLOOR -1
6.000
8
1.
piping, electrics and nechanicalventilation
(in open space between
load bearing beams)
concrete column withsteel beam core
500mm x 500mm
partial curtain wall
HR++ glass panels
d = 30mm
aluminum panels
acting as visible divicors for glass panels
2.
steel supportbeams
connection to columns (4x)
300mm x 300mm
curtains as visible dividers
fire retardant | 2900mm
ribbed cassette floor ± 350mm
with soundproofing and concrete
toplayer d = 70mm
3.
soil (from original construction)
scale 1:60
0m 0,5m 1,0m 1,5m 2,0m 25m


L
M
5
h = 7.655 | ROOF top
h = 7.010 | ROOF btm.
h = 3.800| FIRST FLOOR top
h = 3.355 | FIRST FLOOR btm.
h = (| GROUND FLOOR
6.300
5
piping, electrics and mechanical ventilation
(in open space between
load bearing beams)
partial curtain wall
HR++ glass panels
d = 30mm
wooden column
300mm x 100mm
wooden I-beams
300mm x 100mm
floorbearing
wooden beams
300mm x 300mm
curtains as visible dividers
fire retardant | 290mm
bookcases as
partial dividers from
lecture hall
scale 1:50
0,5m
1,0m
1,5m
2,0m
2,5m


L
5
M







Structural Cables
In between the glulam beams there is a small open space. The steel structural cables thread though this opening, merging with the structure

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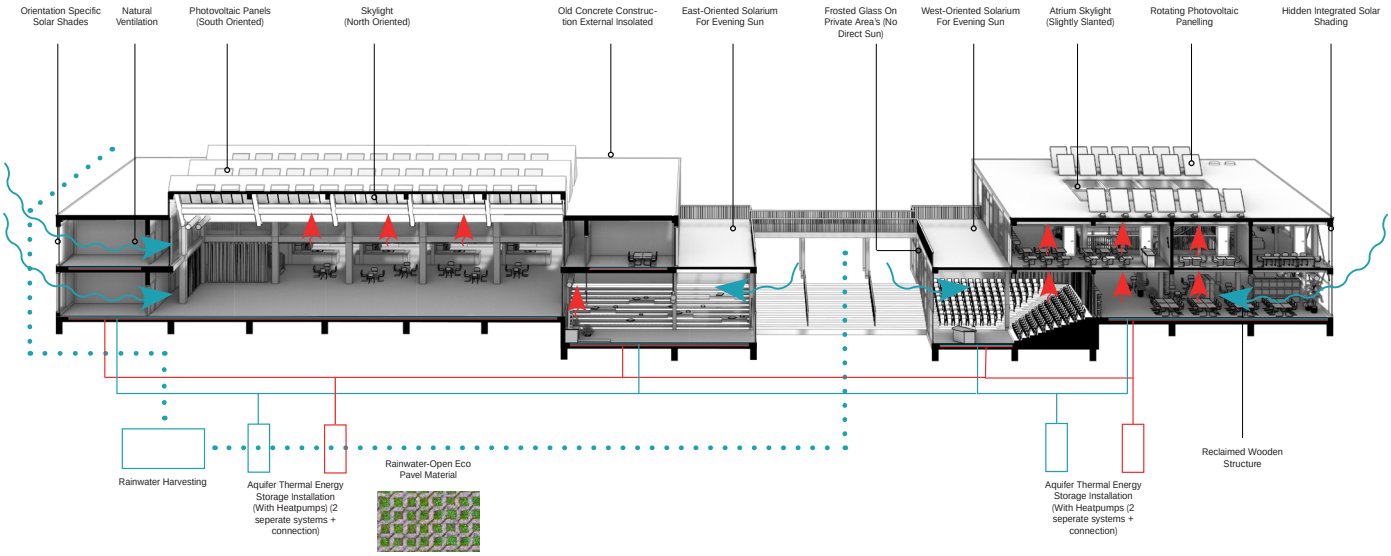
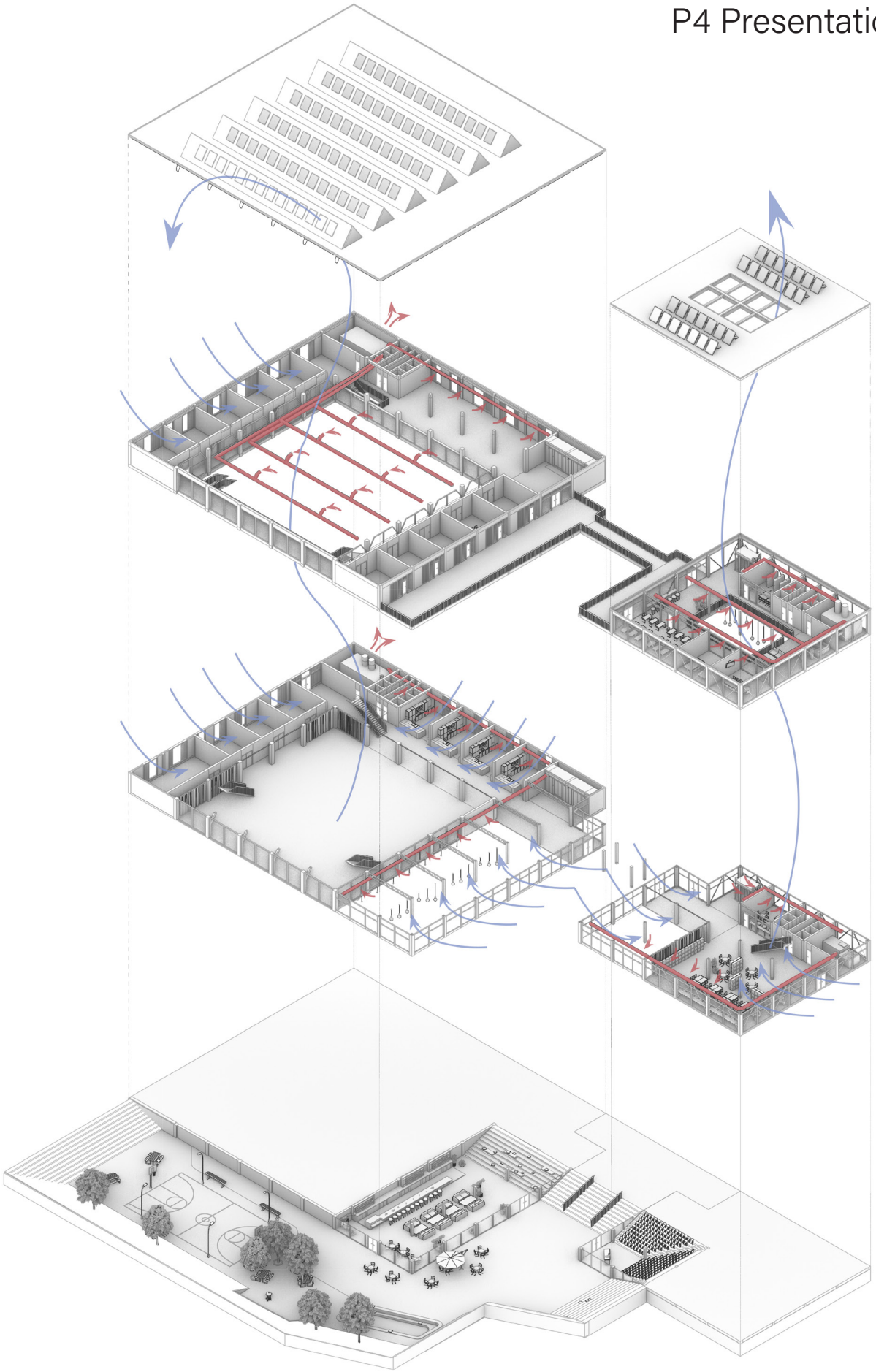
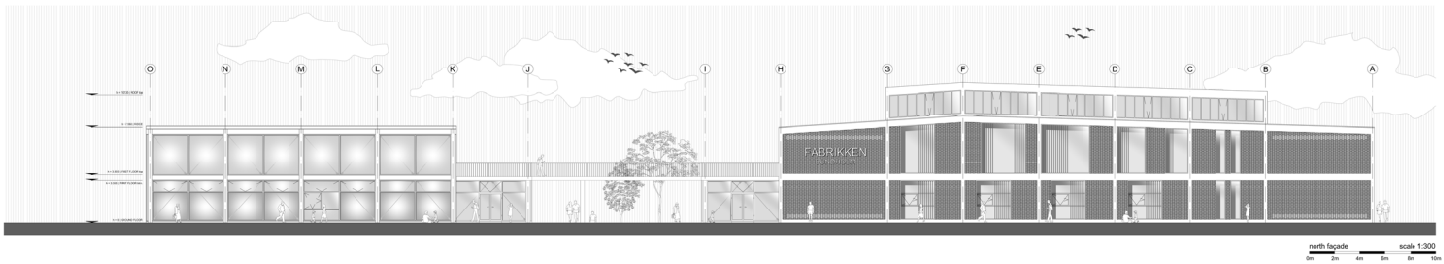
P4 Presentation

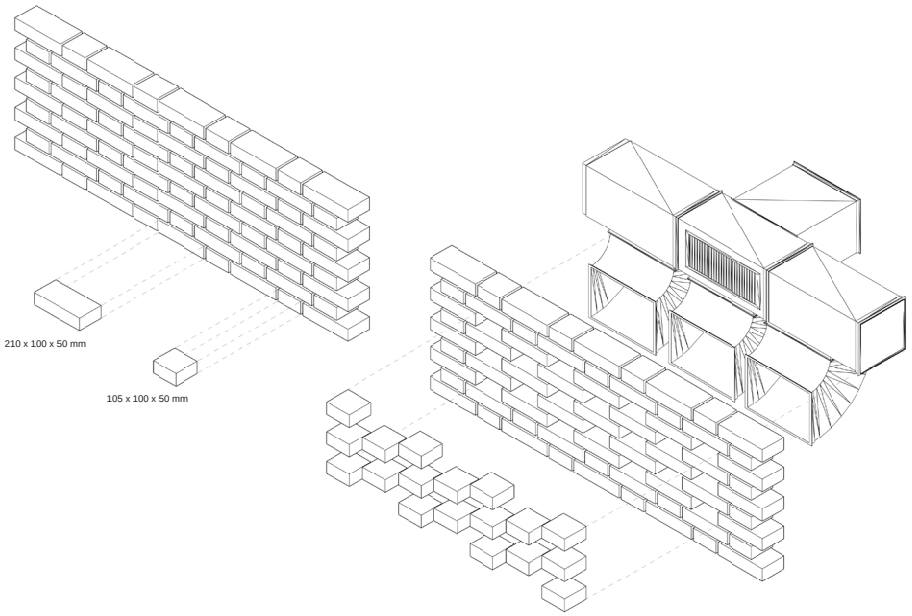




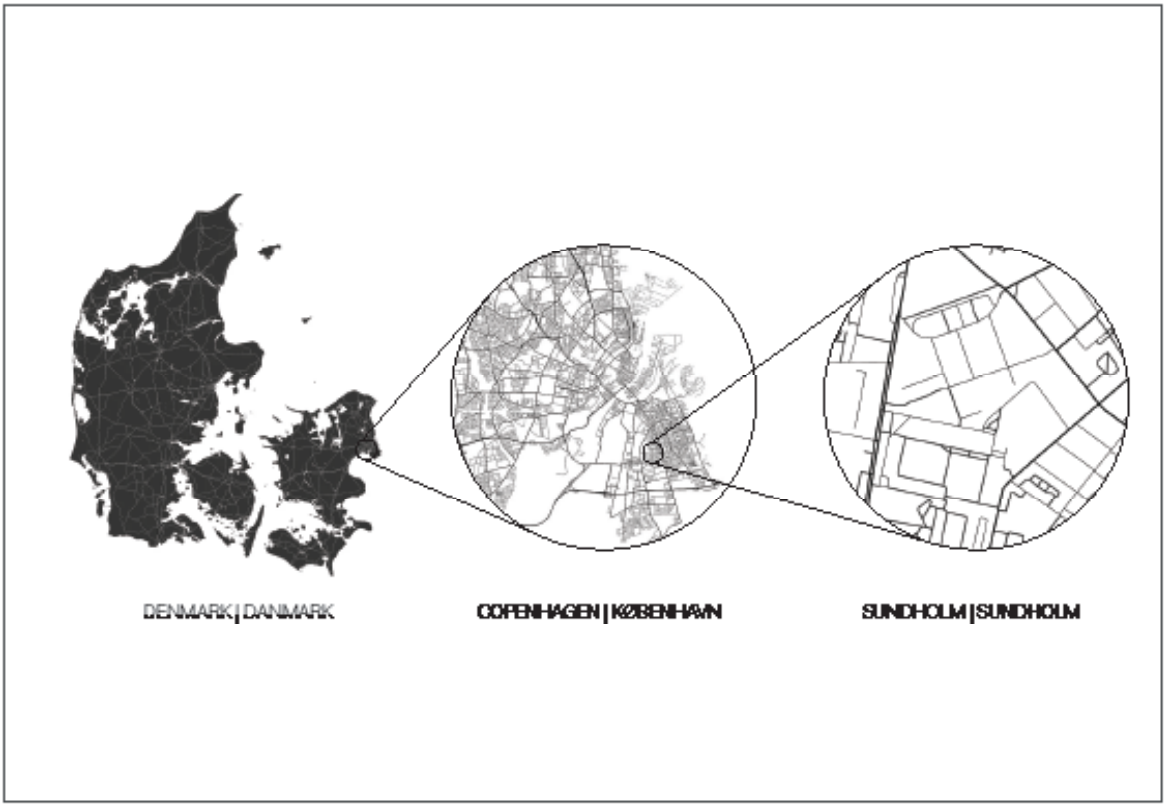
Max Tomás Douma

P4 Presentation





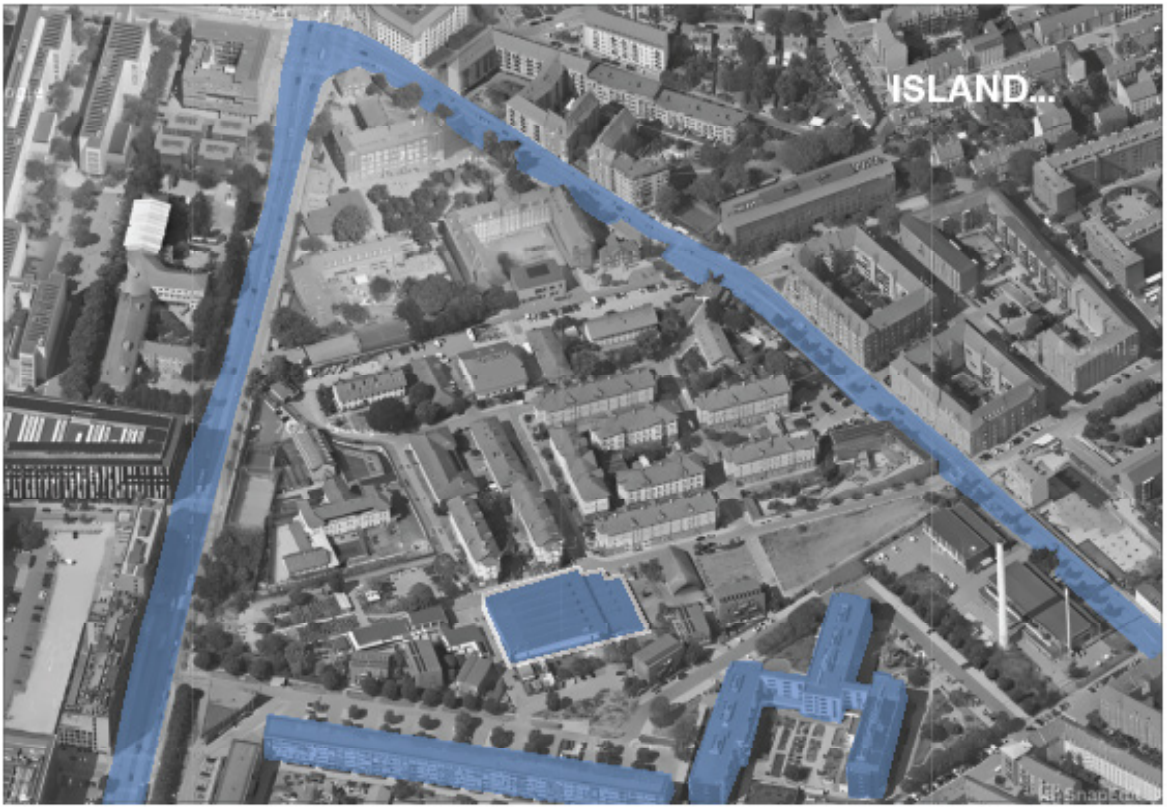

MAX TOMÁS DOUMA
FABRIKKEN
SUNDHOLM
URBAN CONTINUUM
– A STORY ABOUT CONTINUITY –


DENMARK | DANMARK
COPENHAGEN | KØBENHAVN
SUNDHOLM | SUNDHOLM

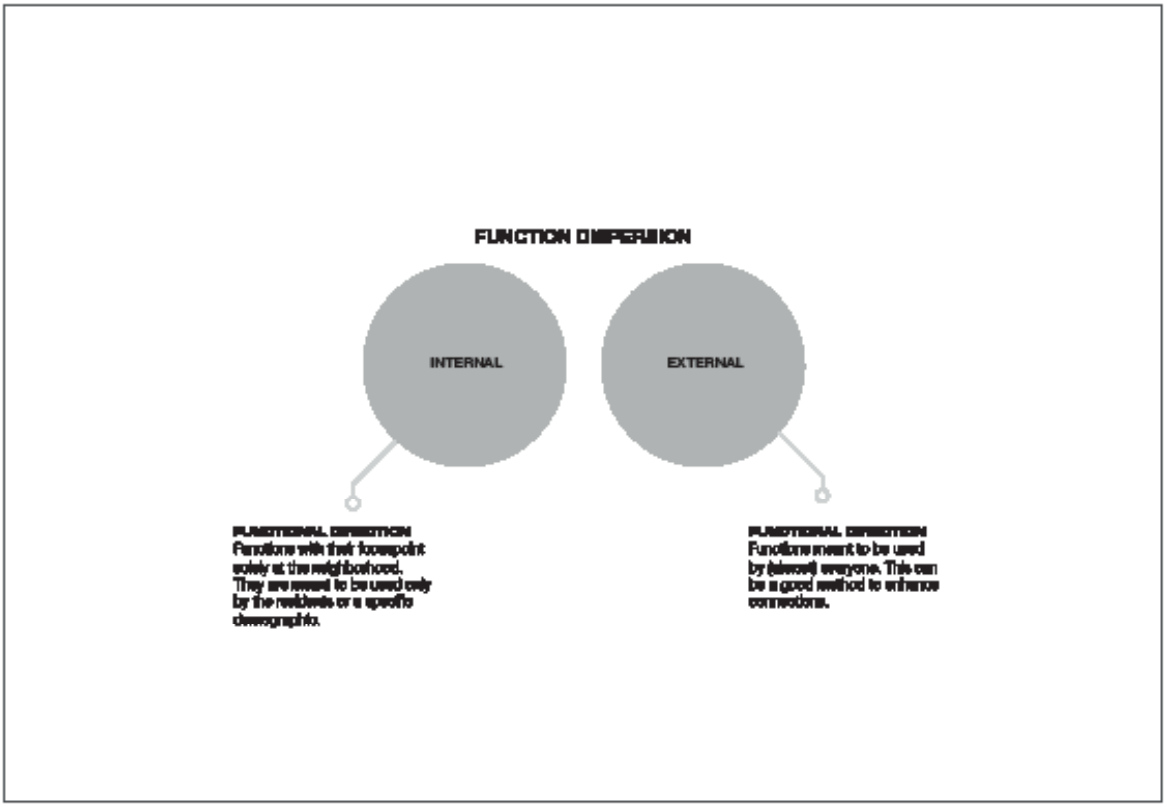
Max Tomás Douma

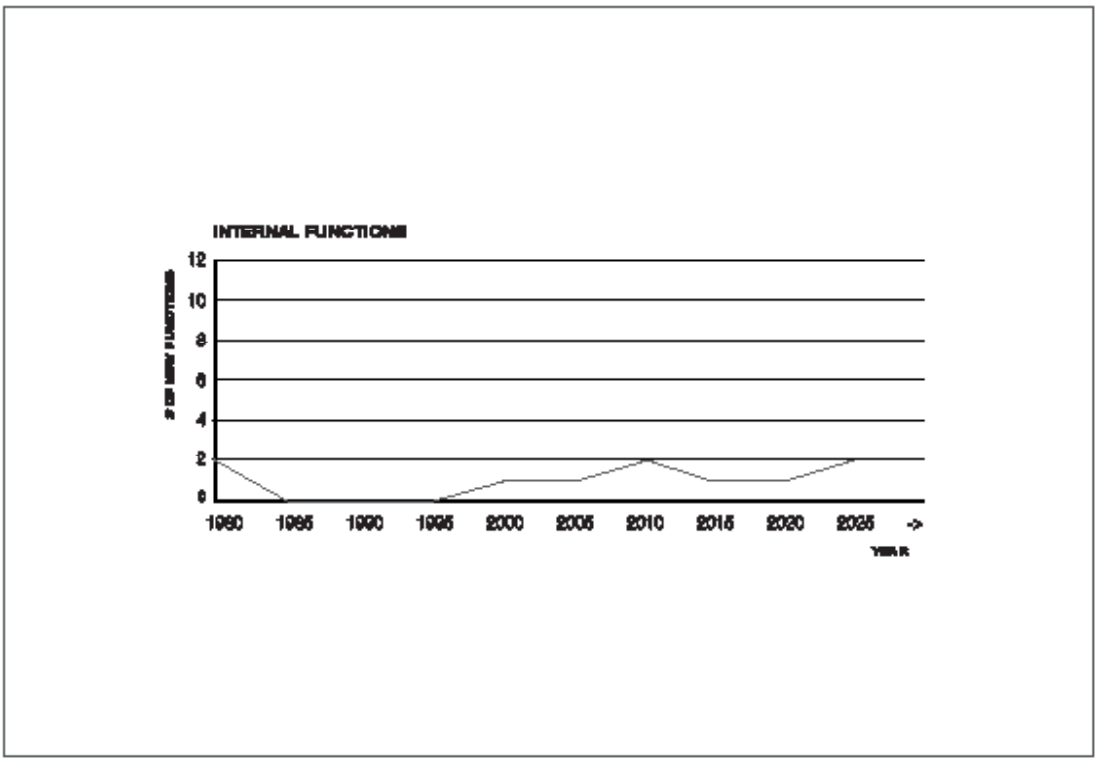
P5 Presentation

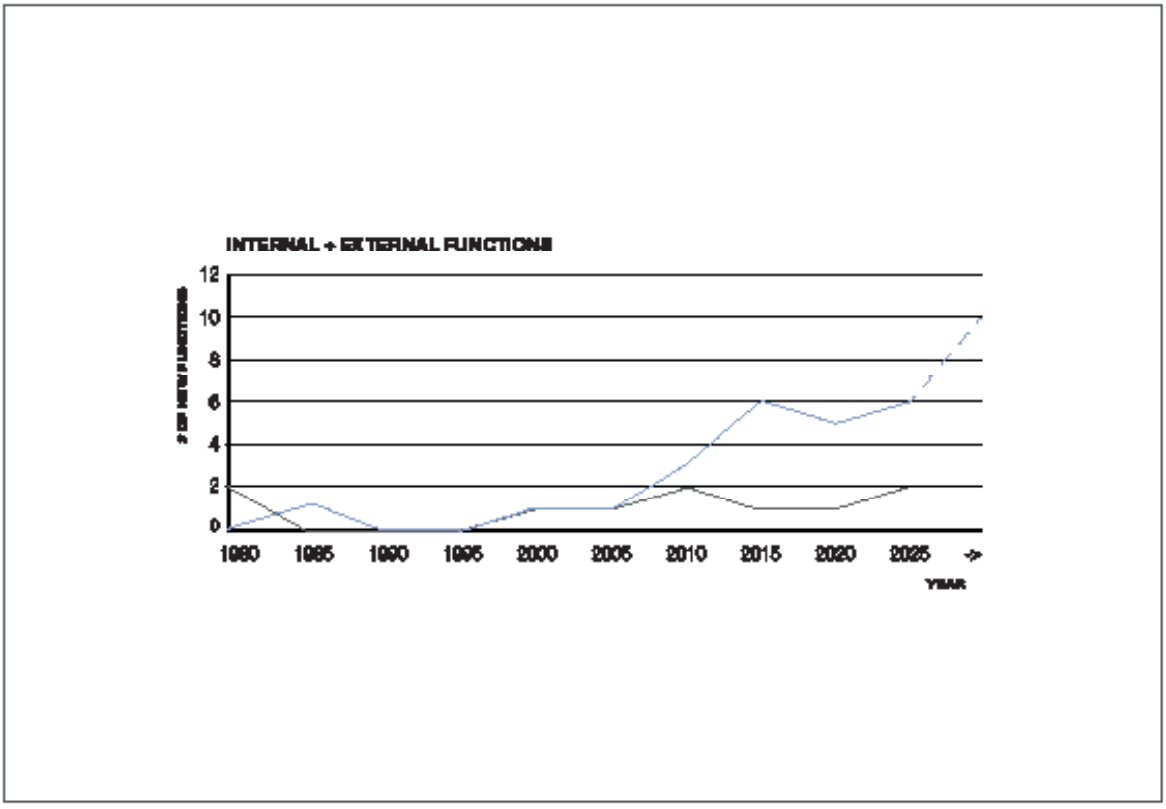
CSBA, 2021

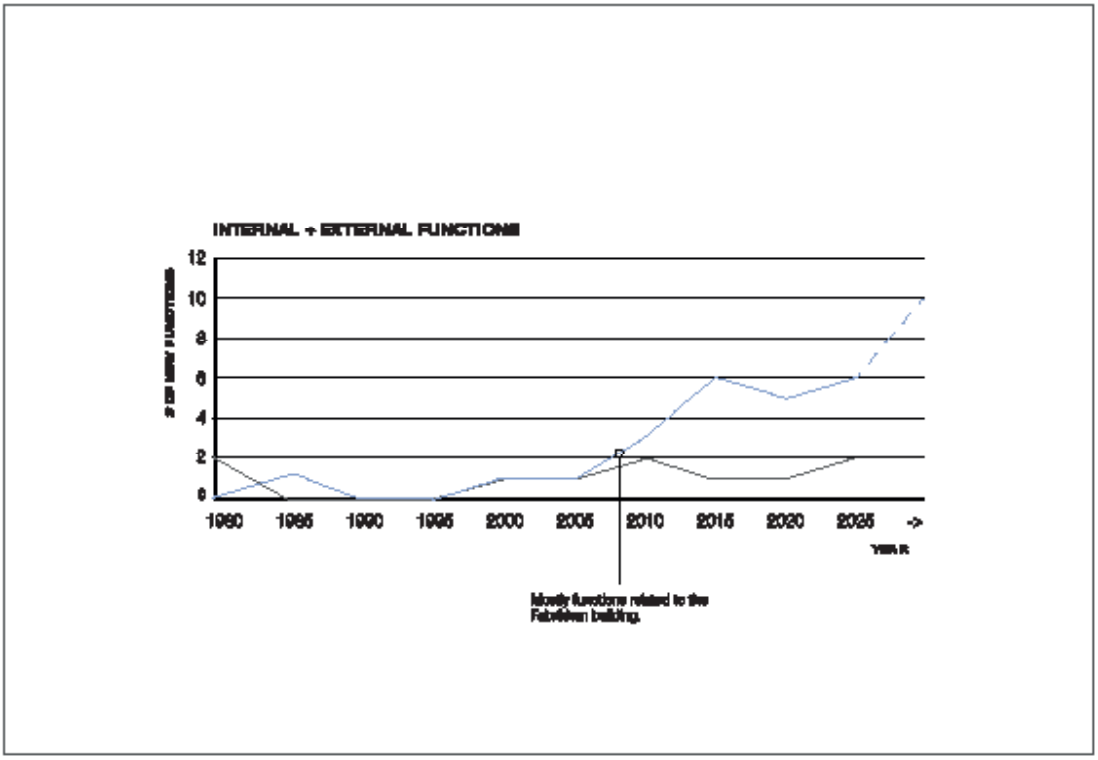


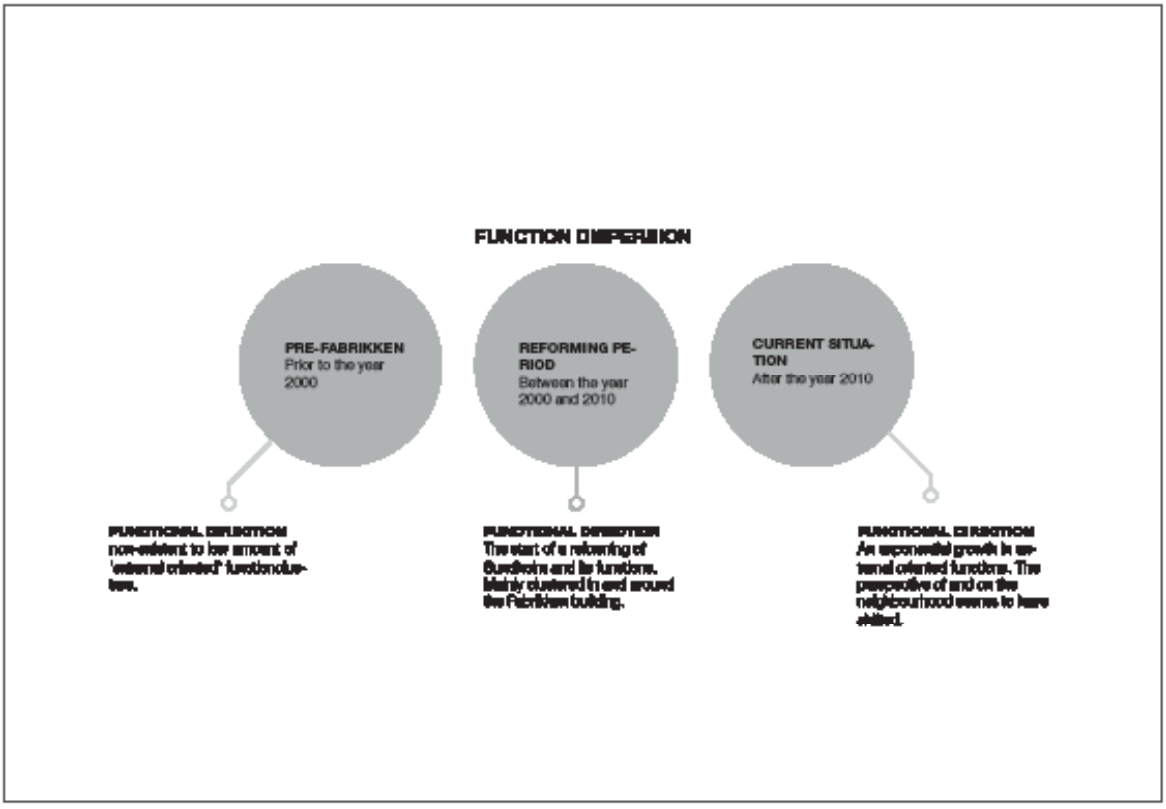

WITHIN AN ISLAND

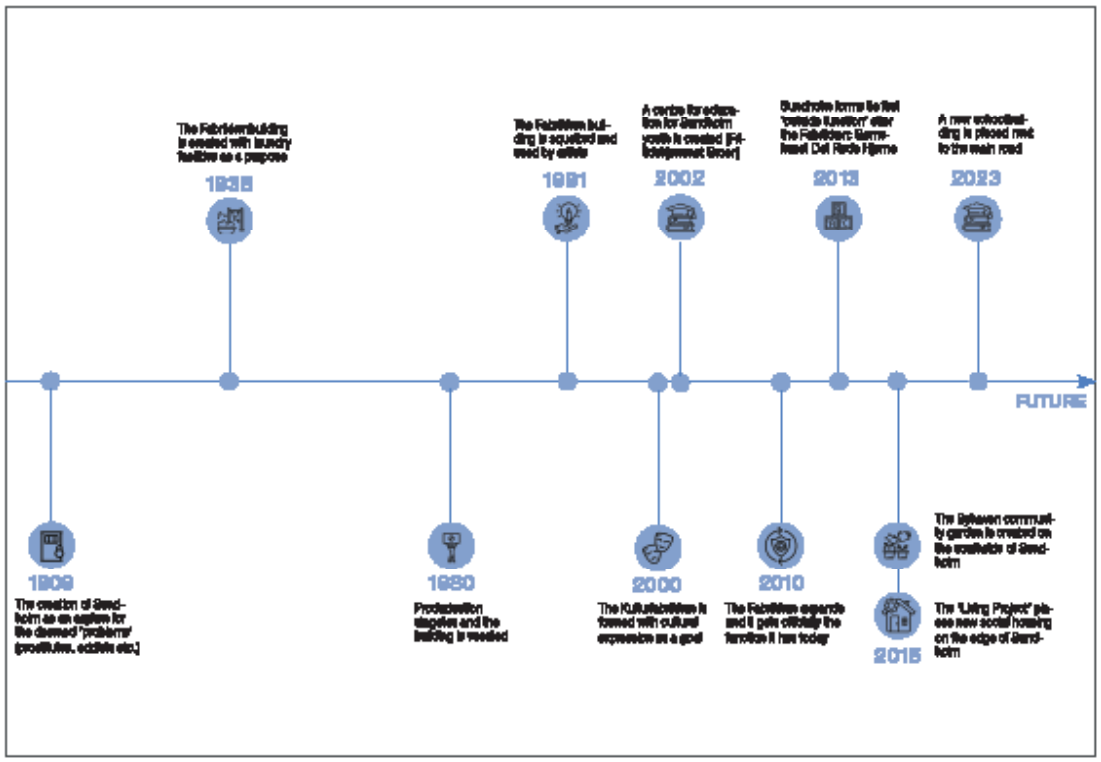

FUNCTION DISPERSION
INTERNAL
EXTERNAL
FUNCTIONAL DIRECTION
Functions with their focuspoint solely at the neighborhood. They are meant to be used only by the residents or a specific demographic.
FUNCTIONAL DIRECTION
Functions meant to be used by (almost) everyone. This can be a good method to enhance connections.

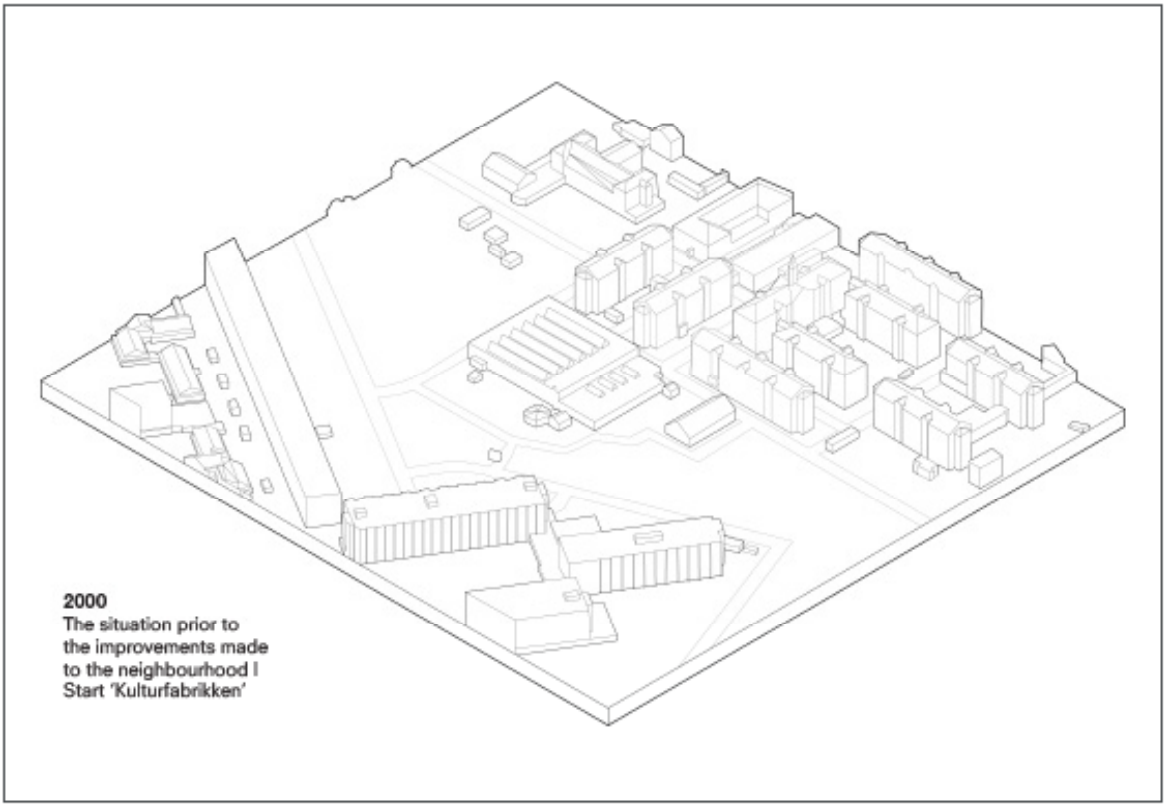

INTERNAL FUNCTIONS
12
10
8
6
4
2
0
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
->
YEAR


INTERNAL + EXTERNAL FUNCTIONS
12
10
8
6
4
2
0
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
->
YEAR

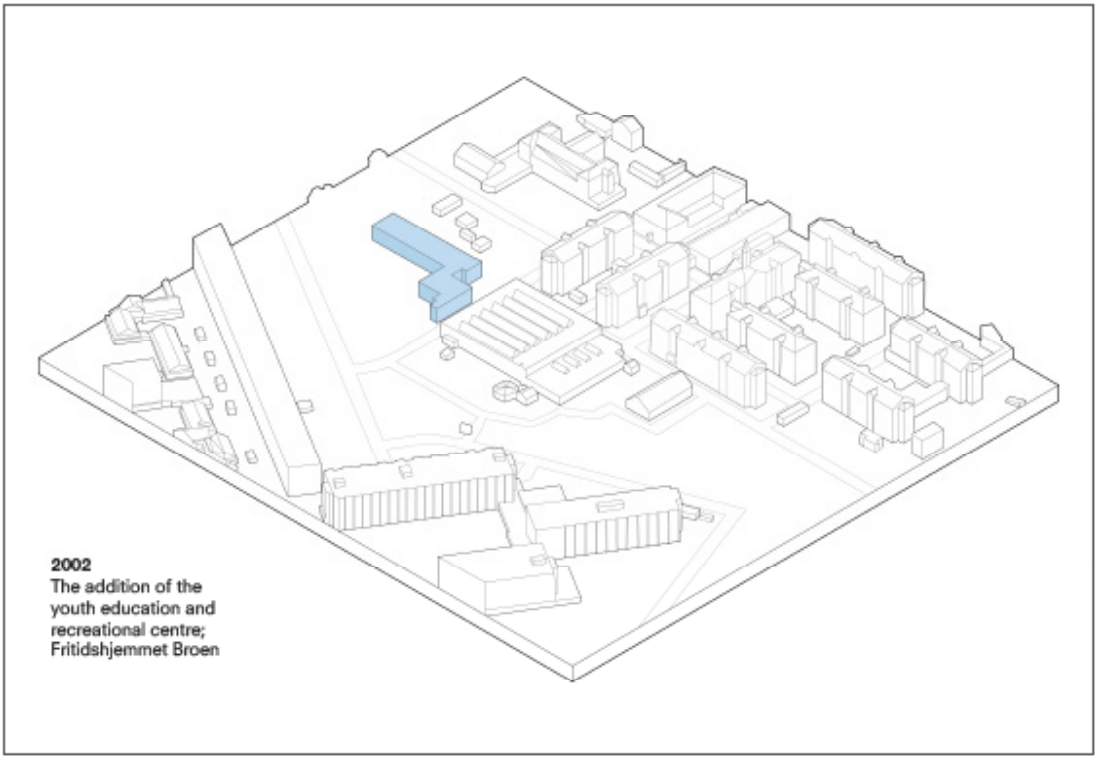

INTERNAL + EXTERNAL FUNCTIONS
12
10
8
6
4
2
0
1990
1995
1990
1995
2000
2005
2010
2015
2020
2025
->
YEAR
Mainly functions related to the Fabrikken building.

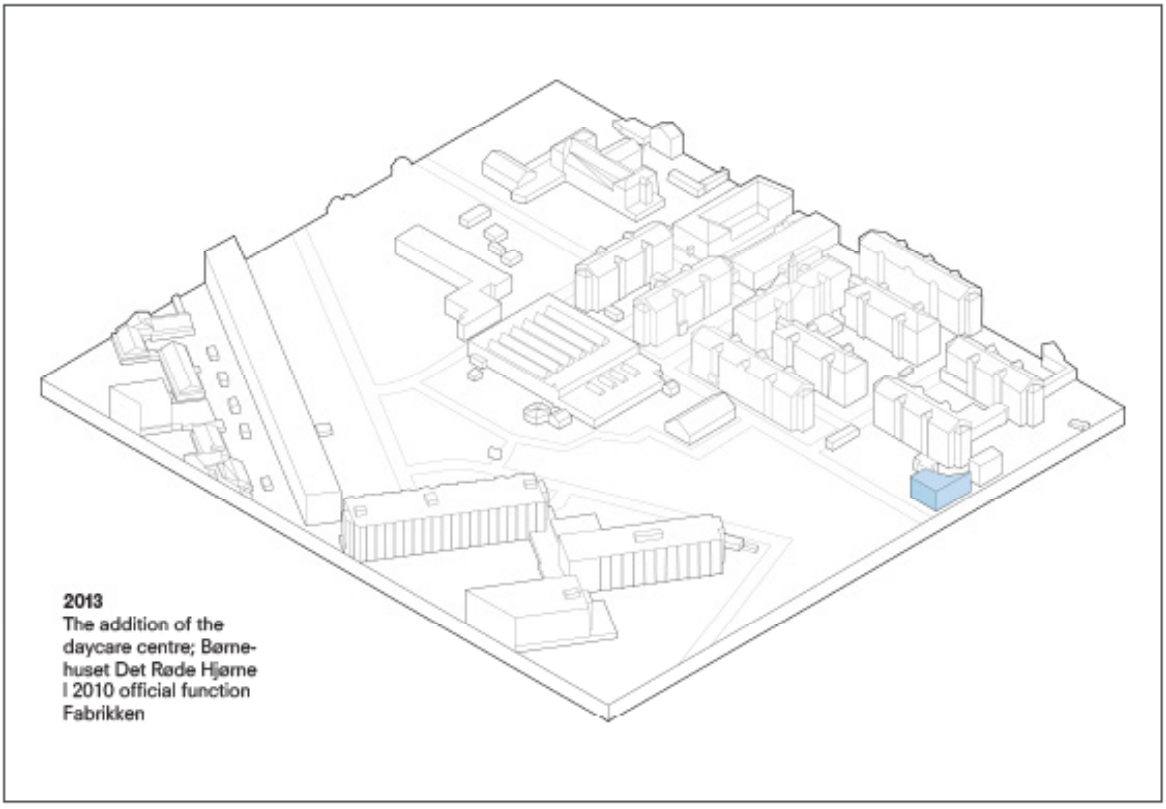

FUNCTION DISPERSION
PRE-FABRIKKEN
Prior to the year 2000
REFORMING PERIOD
Between the year 2000 and 2010
CURRENT SITUATION
After the year 2010
FUNCTIONAL DILUTION
non-existent to low amount of 'external oriented' functionalities.
FUNCTIONAL DISPERSION
The start of a relocating of Gustavia and its functions. Mainly clustered in and around the Fabrikken building.
FUNCTIONAL EXPANSION
An exponential growth in external oriented functions. The perspective of and on the neighbourhood seems to have shifted.

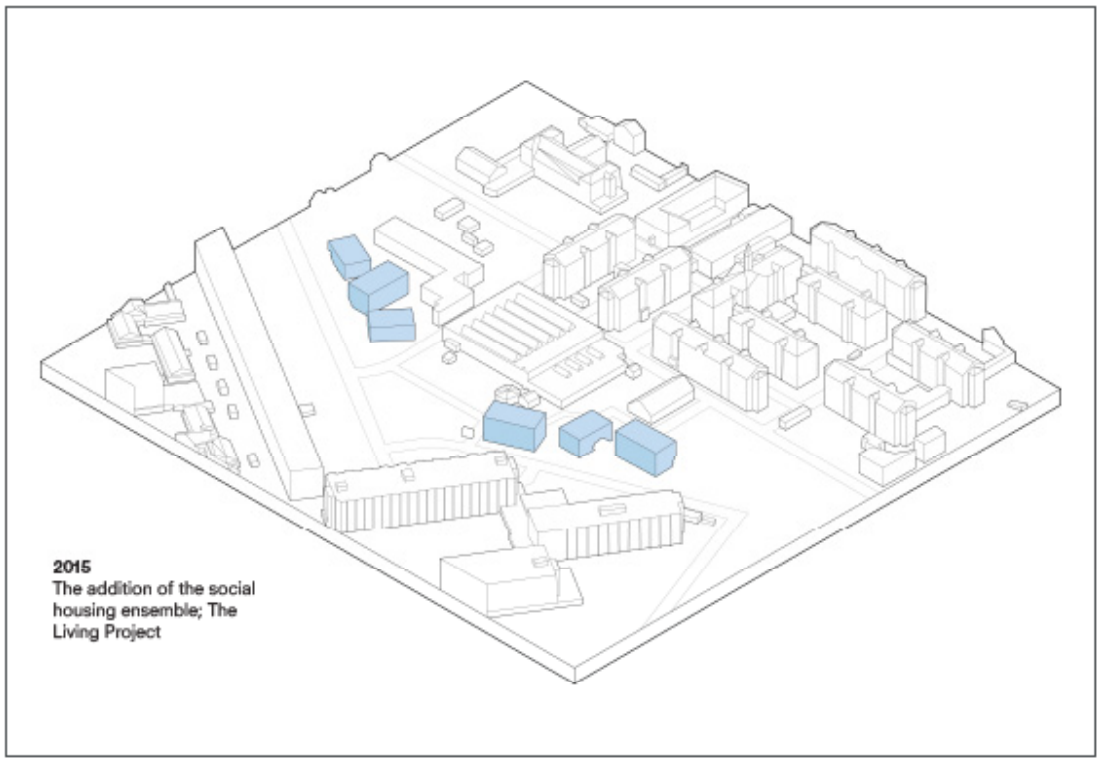




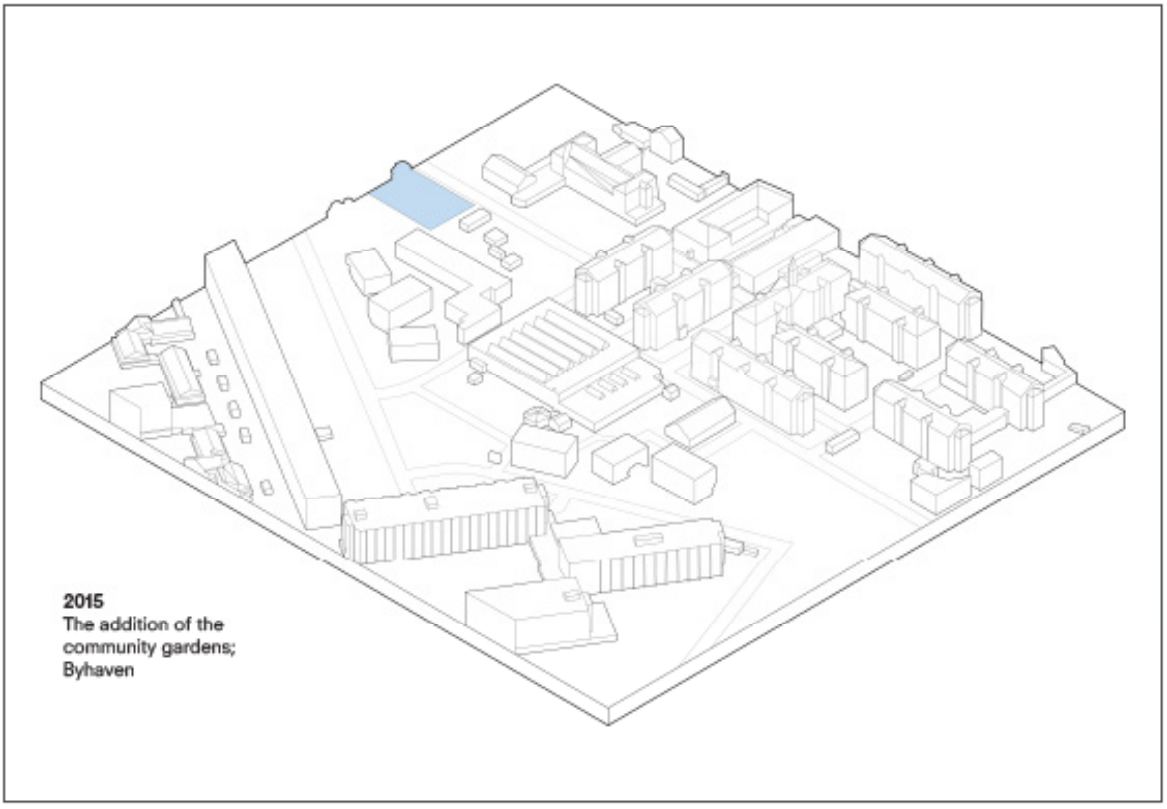
2000
The situation prior to the improvements made to the neighbourhood I Start 'Kulturfabrikken'


2002
The addition of the
youth education and
recreational centre;
Fritidshjemmet Broen

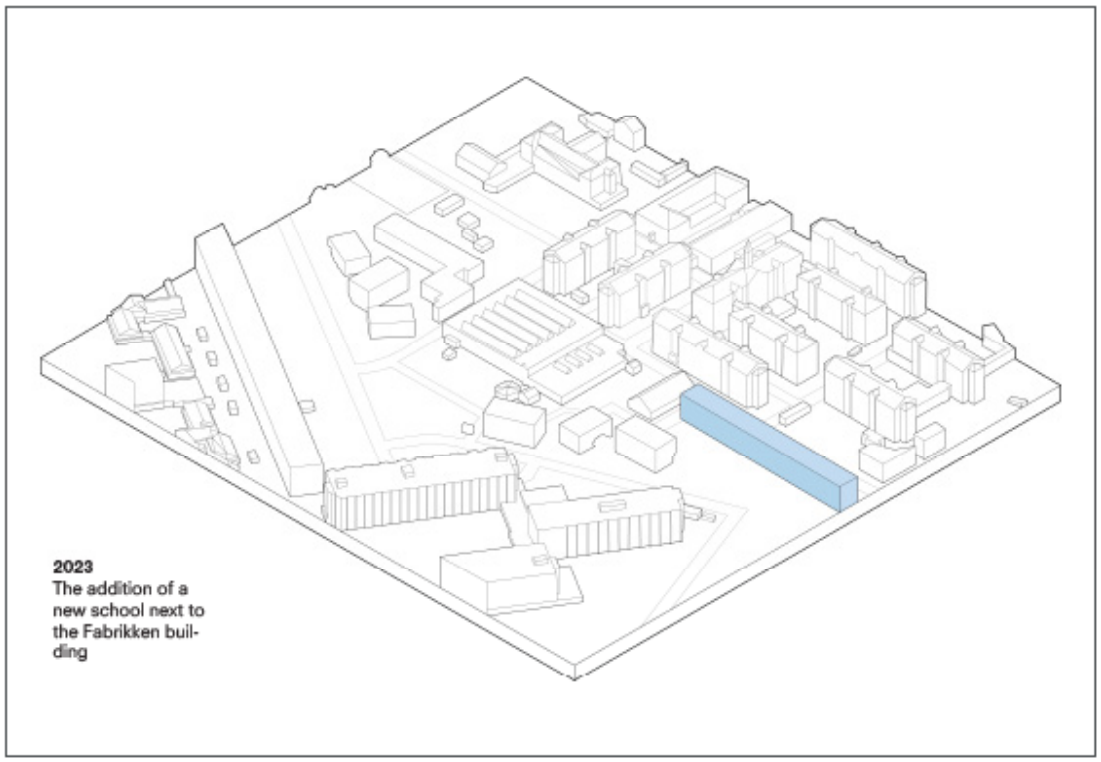

2013
The addition of the
daycare centre; Børne-
huset Det Røde Hjørne
I 2010 official function
Fabrikken

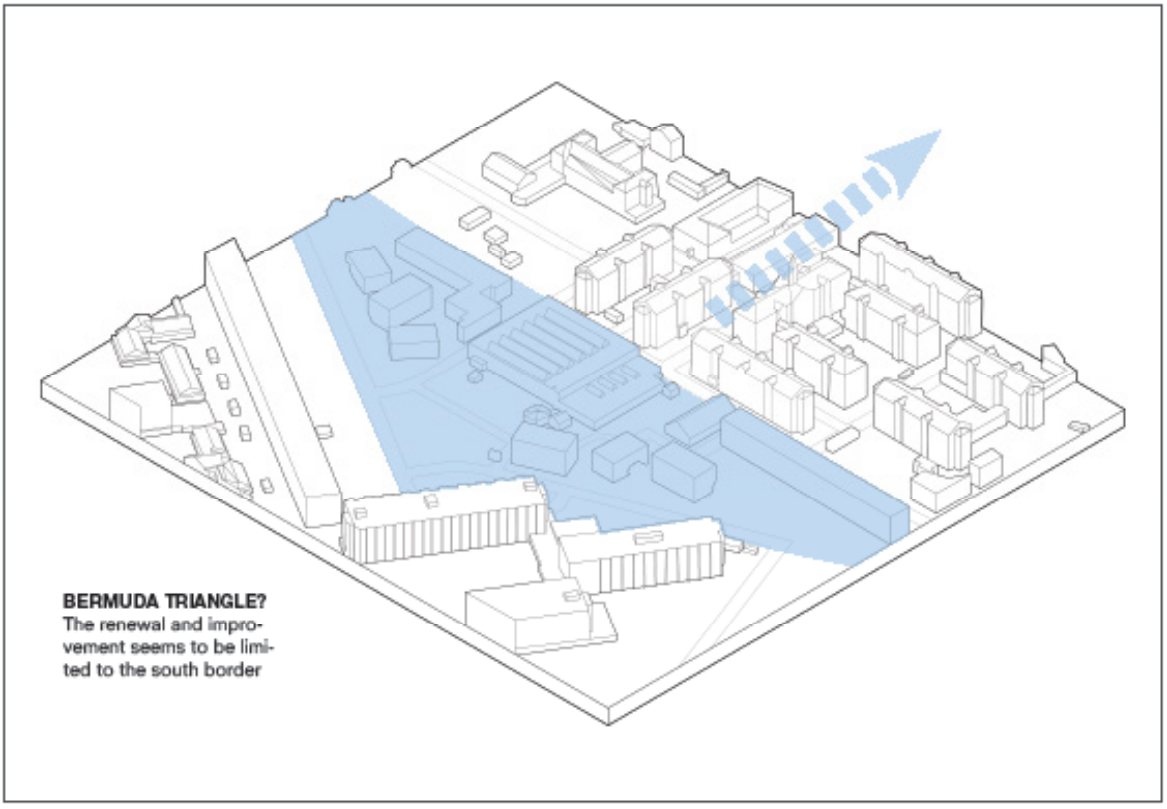


2015
The addition of the social housing ensemble; The Living Project

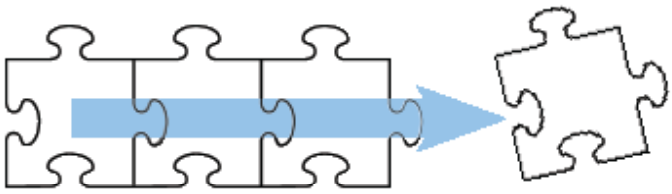


2015
The addition of the community gardens; Byhaven


2023
The addition of a new school next to the Fabrikken building


BERMUDA TRIANGLE?
The renewal and improvement seems to be limited to the south border

NOT RE-DO...



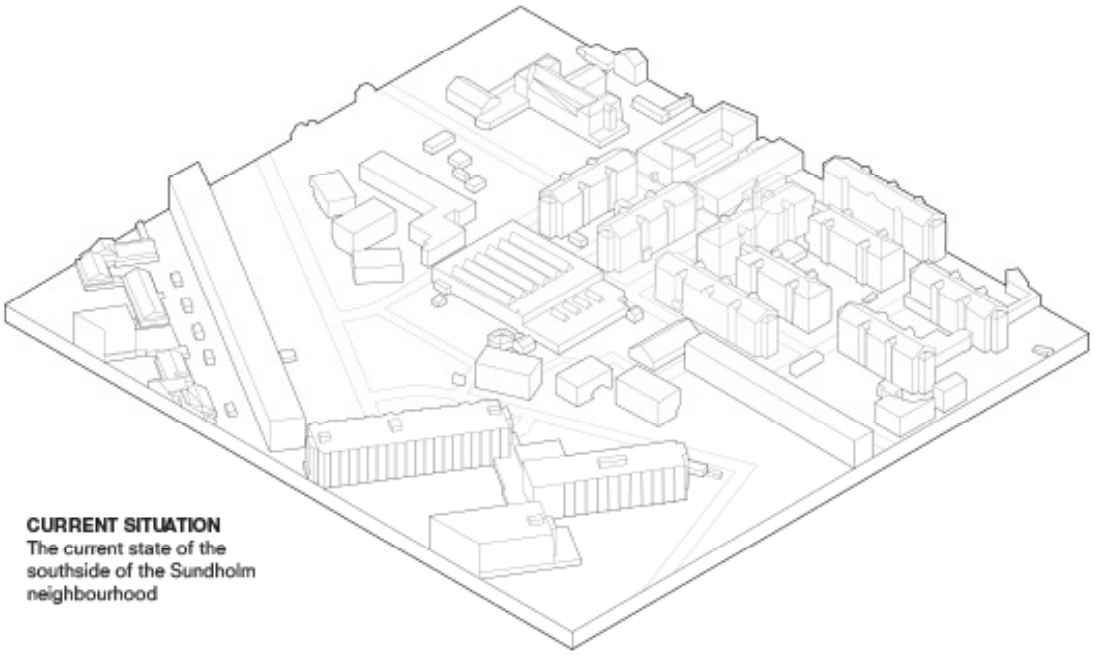
BUT IMPROVE AND EXTEND

'How can architecture embrace change as a defining characteristic rather then an obstacle?'

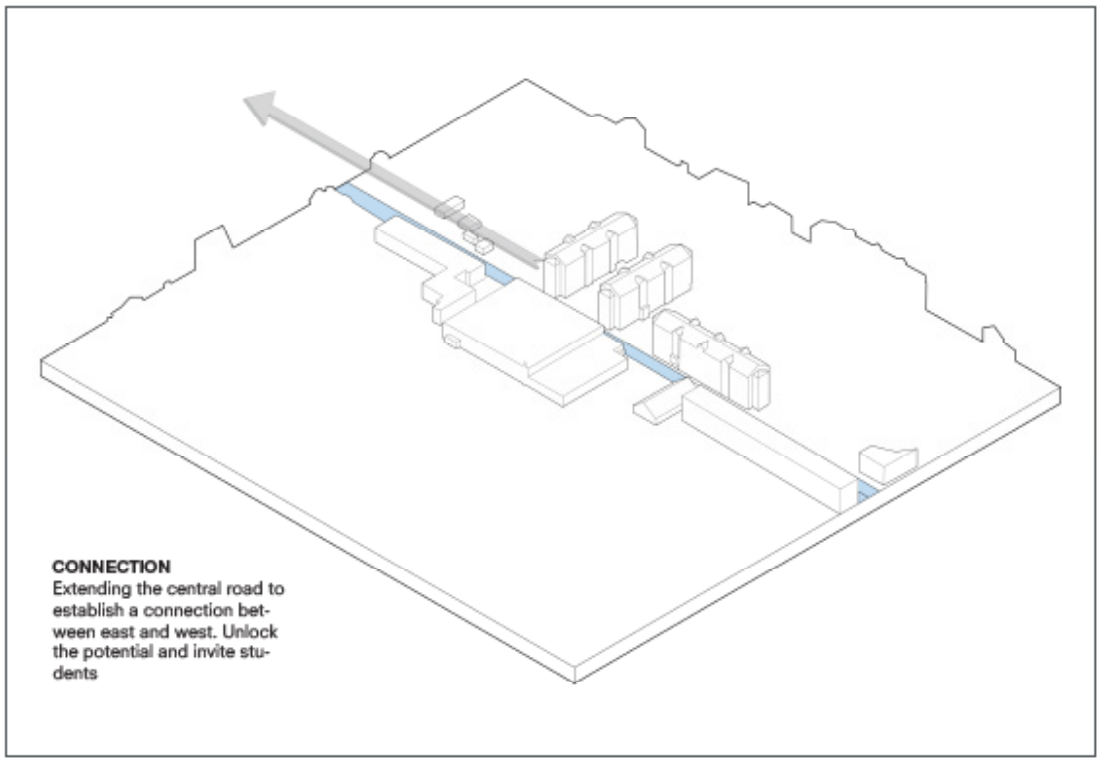
MACRO
– ON AN URBAN SCALE –

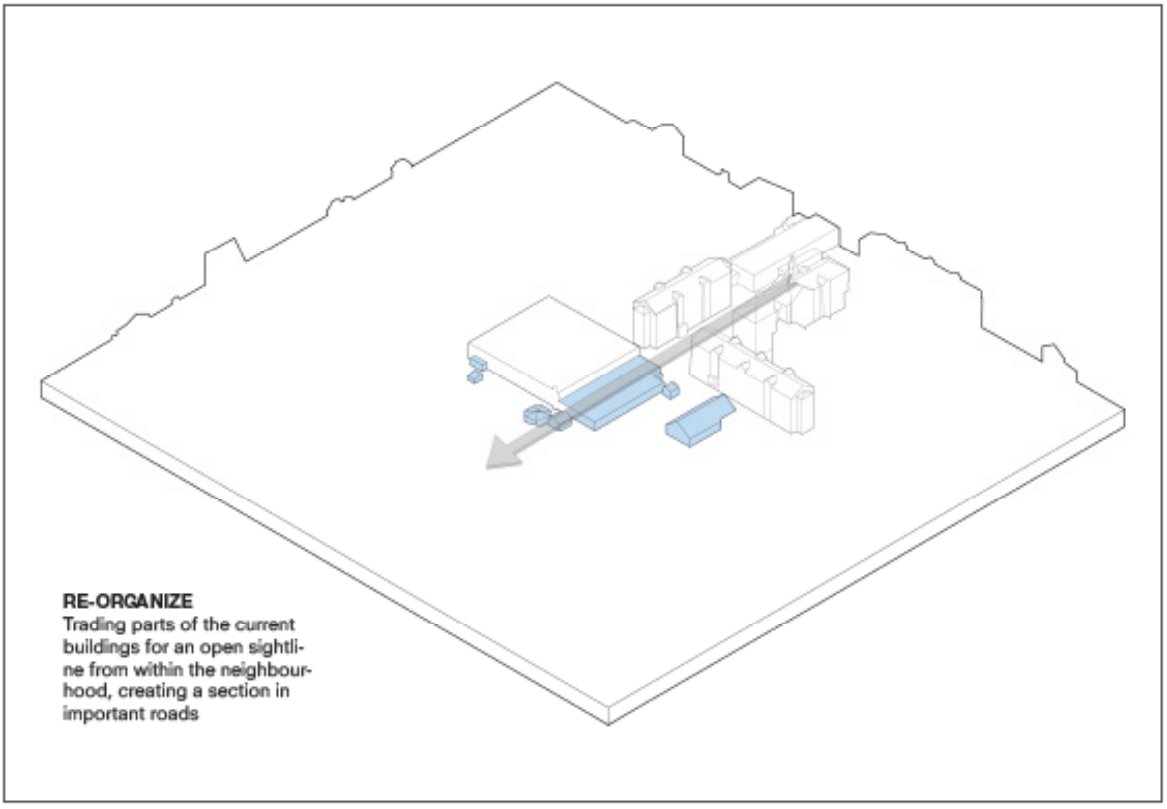
CONNECTION

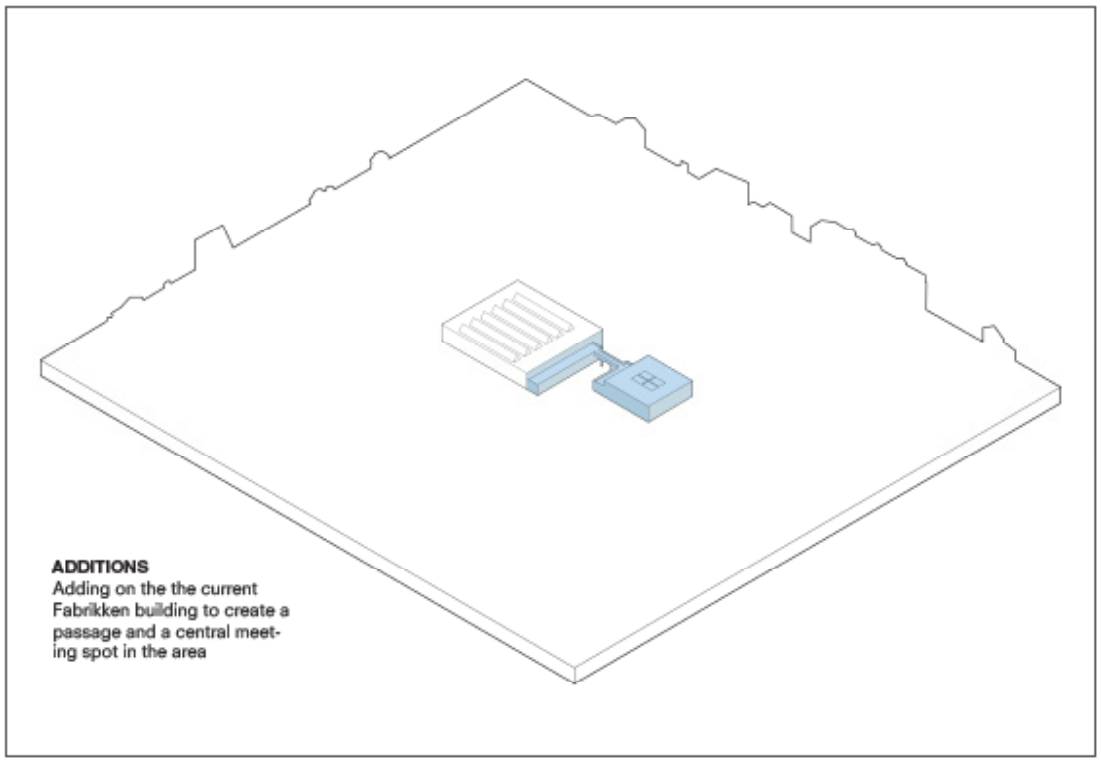
CENTRAL SPOT

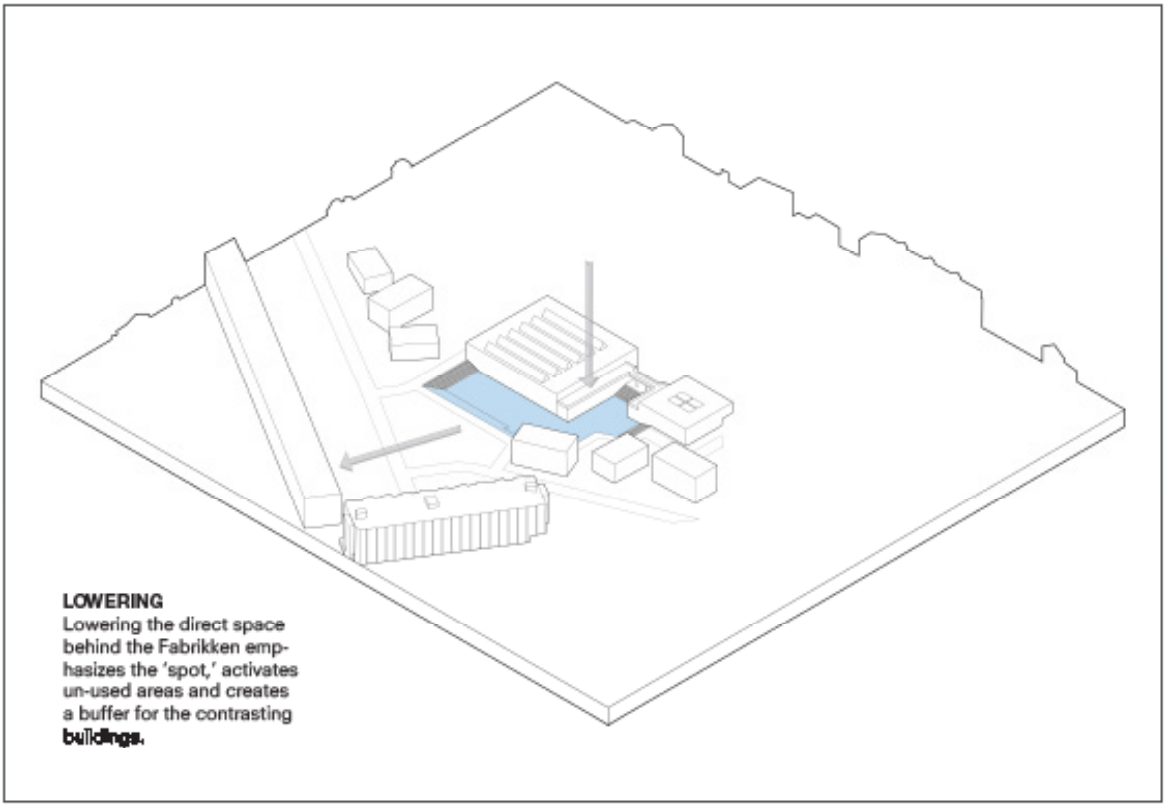


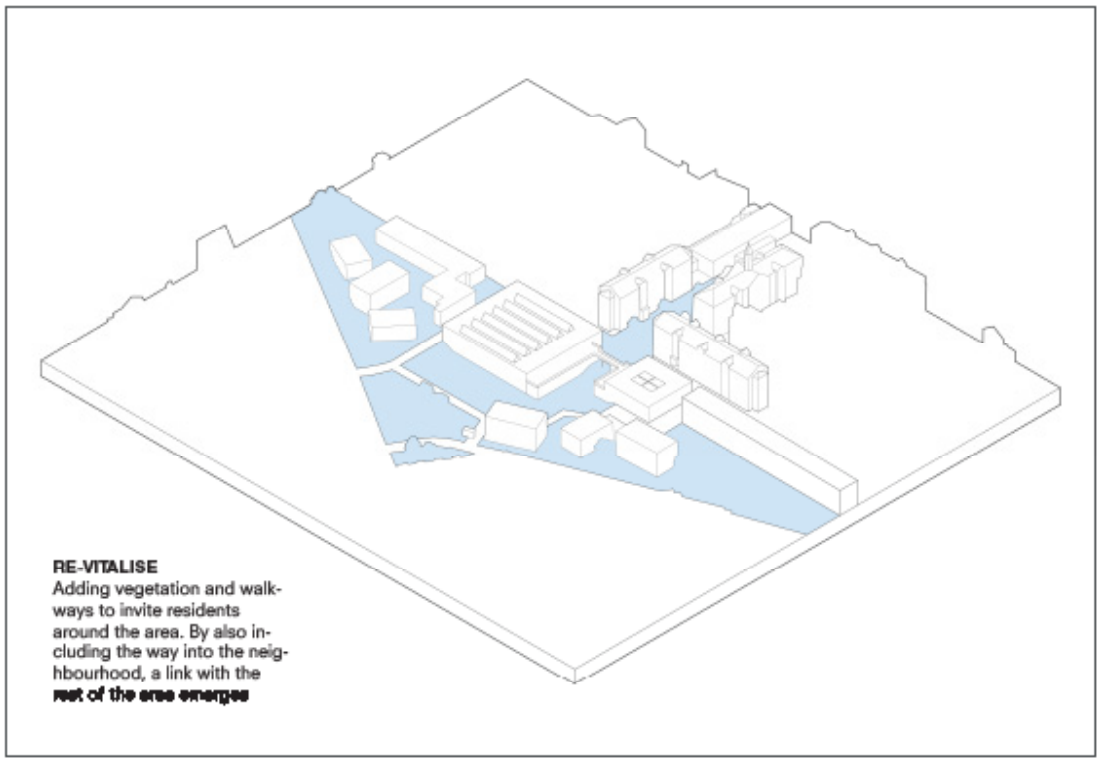
CURRENT SITUATION
The current state of the southside of the Sundholm neighbourhood

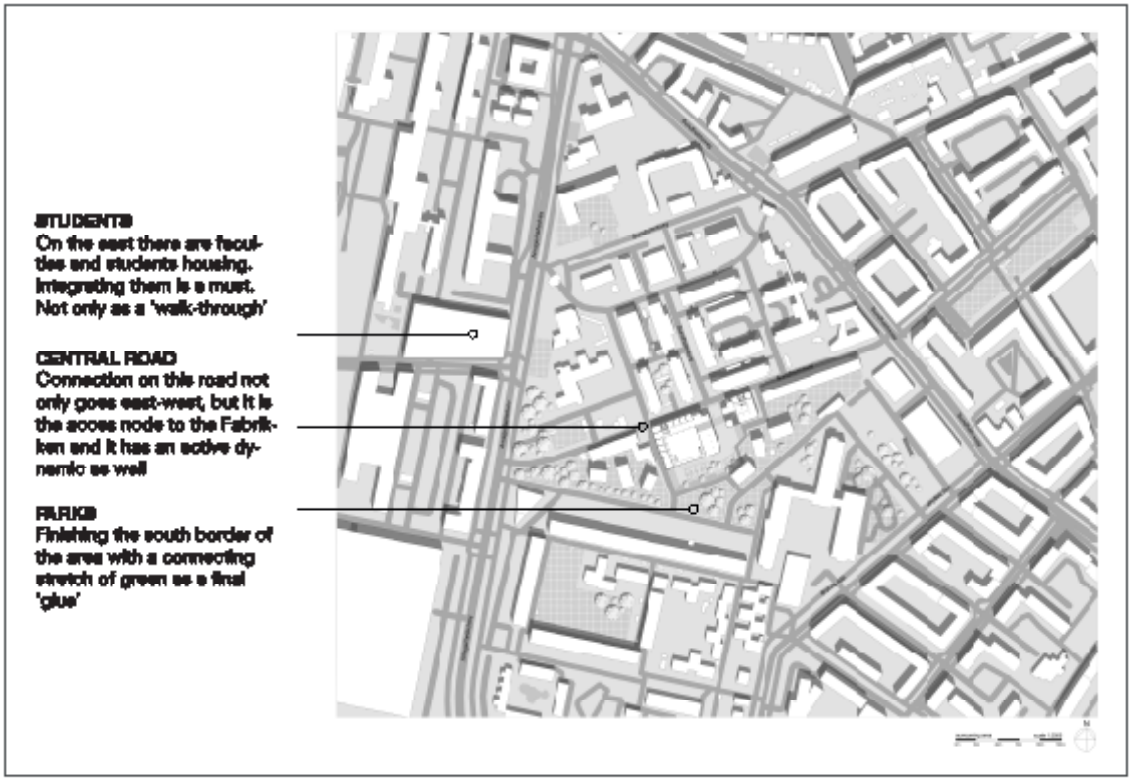

CONNECTION
Extending the central road to establish a connection between east and west. Unlock the potential and invite students

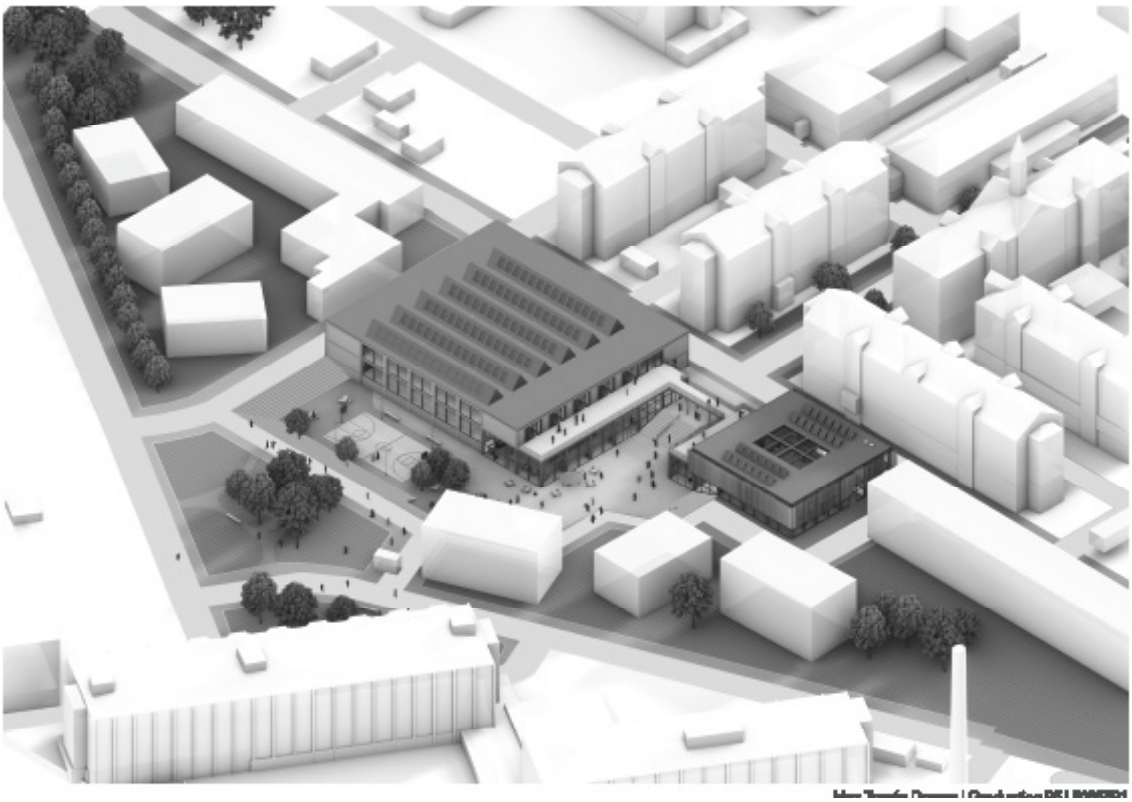

RE-ORGANIZE
Trading parts of the current buildings for an open sightline from within the neighbourhood, creating a section in important roads

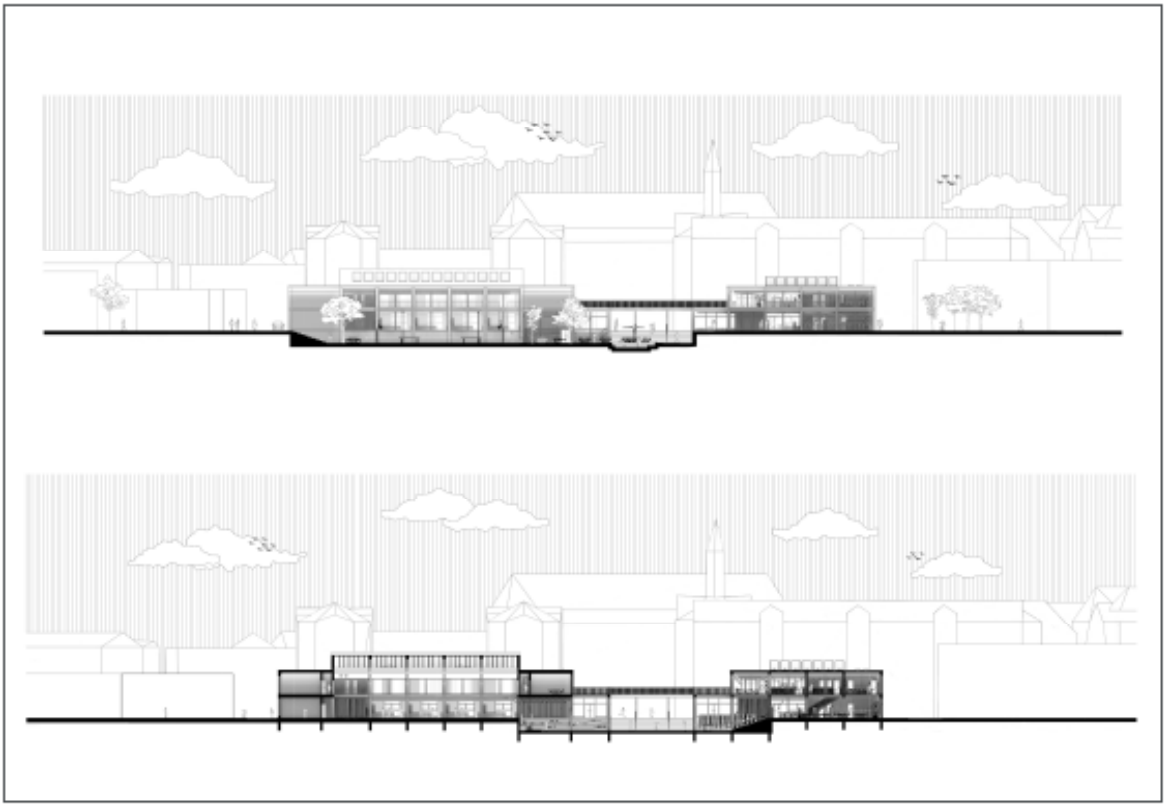

ADDITIONS
Adding on the the current Fabrikken building to create a passage and a central meeting spot in the area

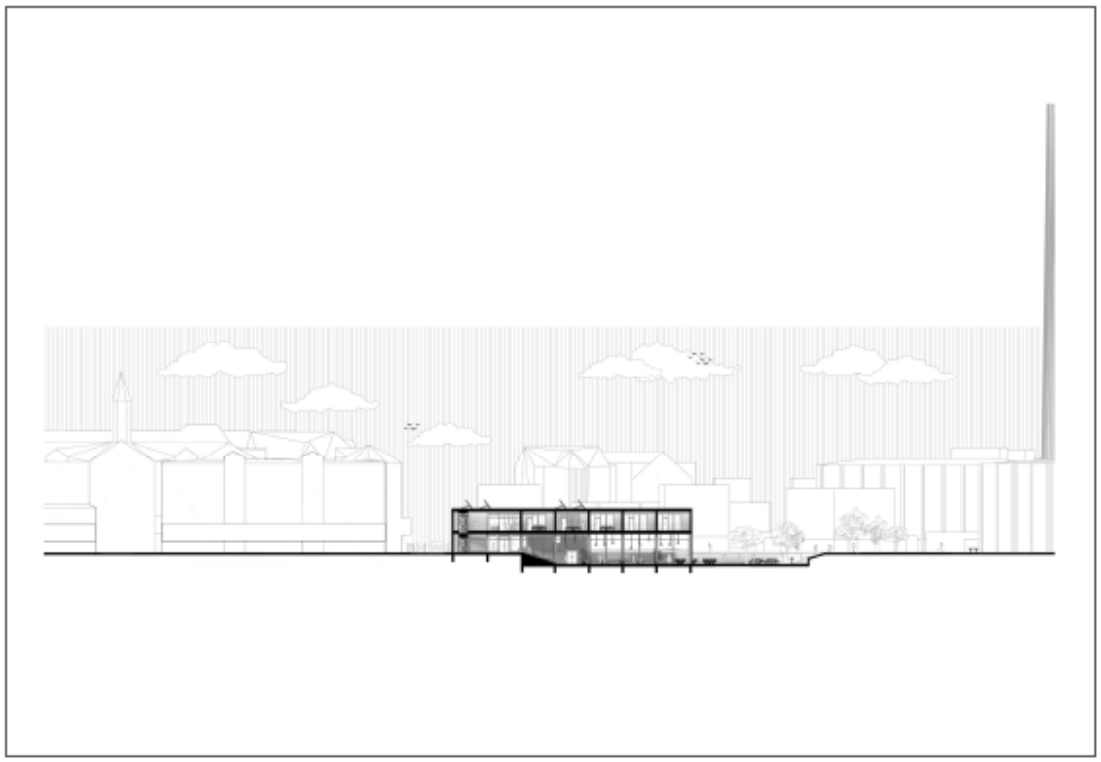

LOWERING
Lowering the direct space behind the Fabrikken emphasizes the 'spot,' activates un-used areas and creates a buffer for the contrasting buildings.


RE-VITALISE
Adding vegetation and walk-ways to invite residents around the area. By also including the way into the neighbourhood, a link with the rest of the area emerges


STUDENTS
On the east there are faculties and students housing. Integrating them is a must. Not only as a 'walk-through'
CENTRAL ROAD
Connection on this road not only goes east-west, but it is the acces node to the Fabriken and it has an active dynamic as well
PARKS
Finishing the south border of the area with a connecting stretch of green as a final 'glue'



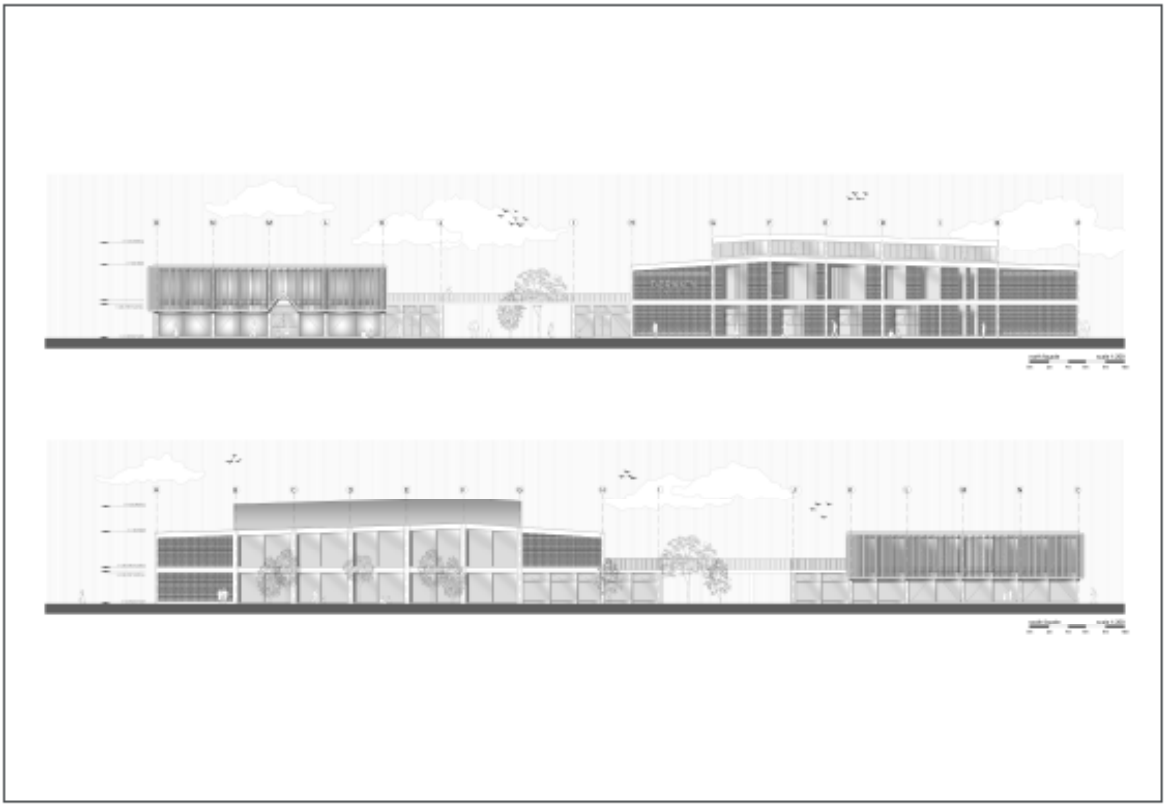




Max Tomás Douma | Graduation P5 | 30/09/2021

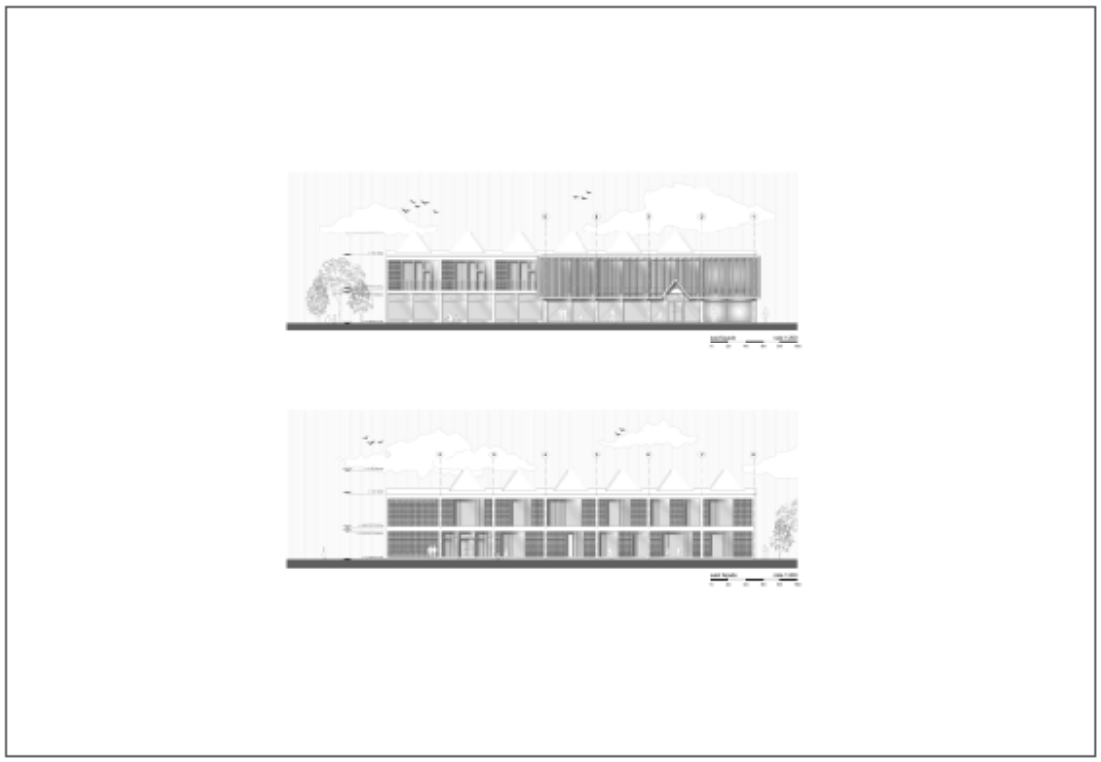
MESO
– ON AN ARCHITECTURAL SCALE –

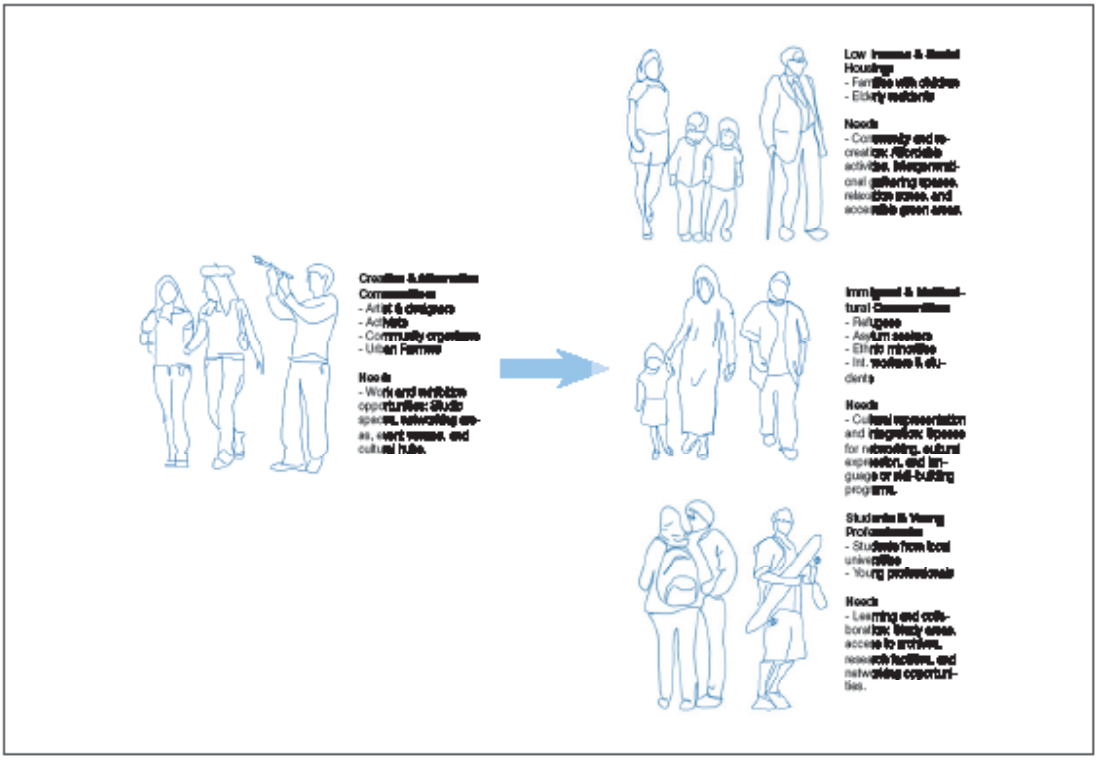

KEEP & ENHANCE
Iconic Skylights
Structural Grid
Functions
ADD
Continuous Sightlines
Infinite Wandering
Connective Elements (Stairs)



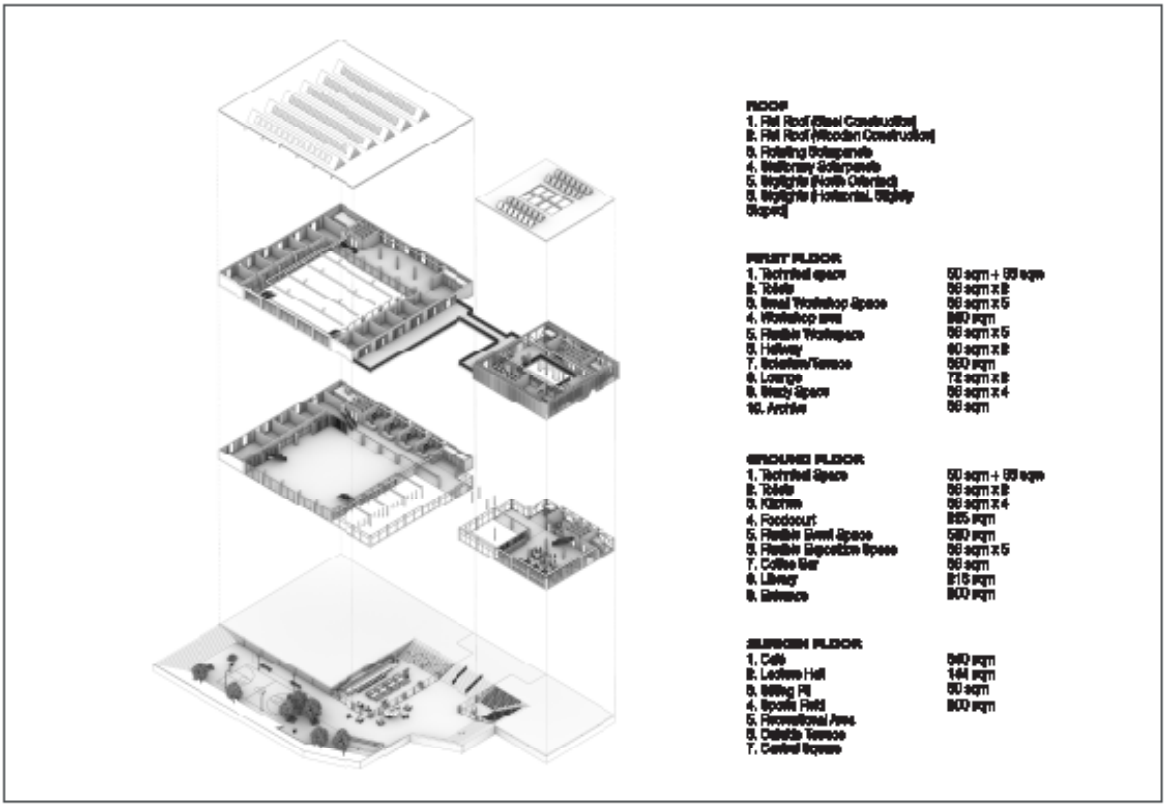
Max Tomás Douma

P5 Presentation



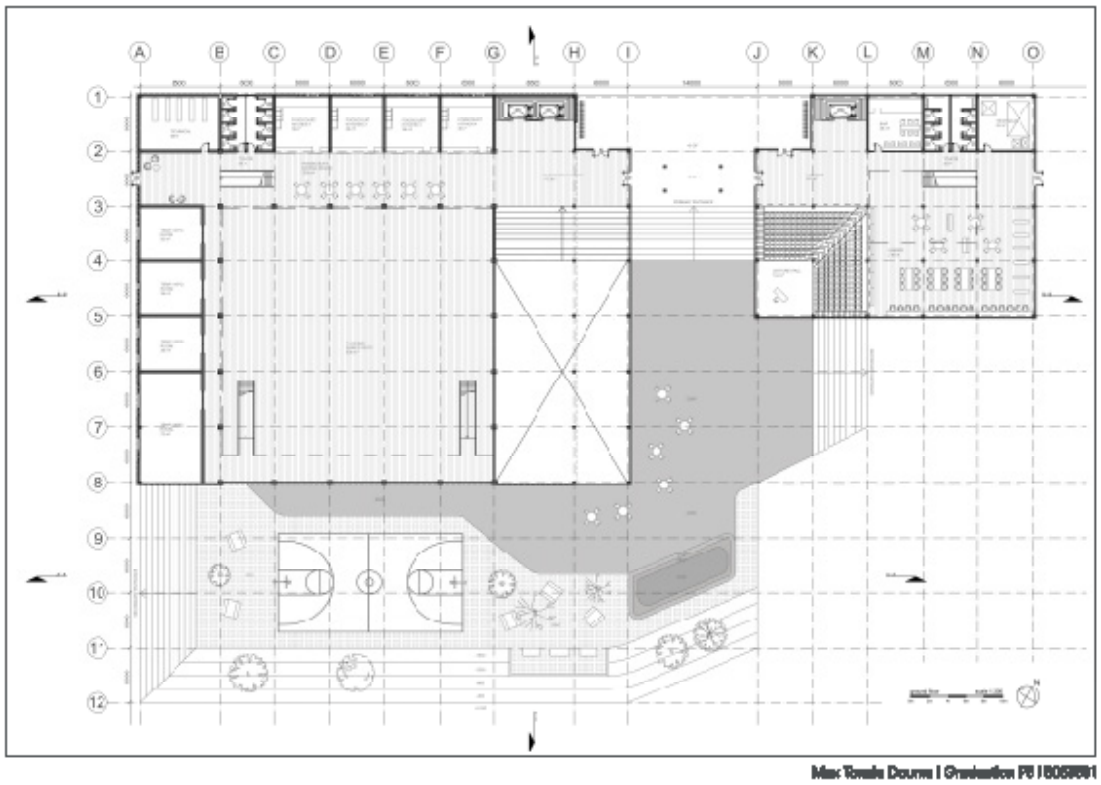


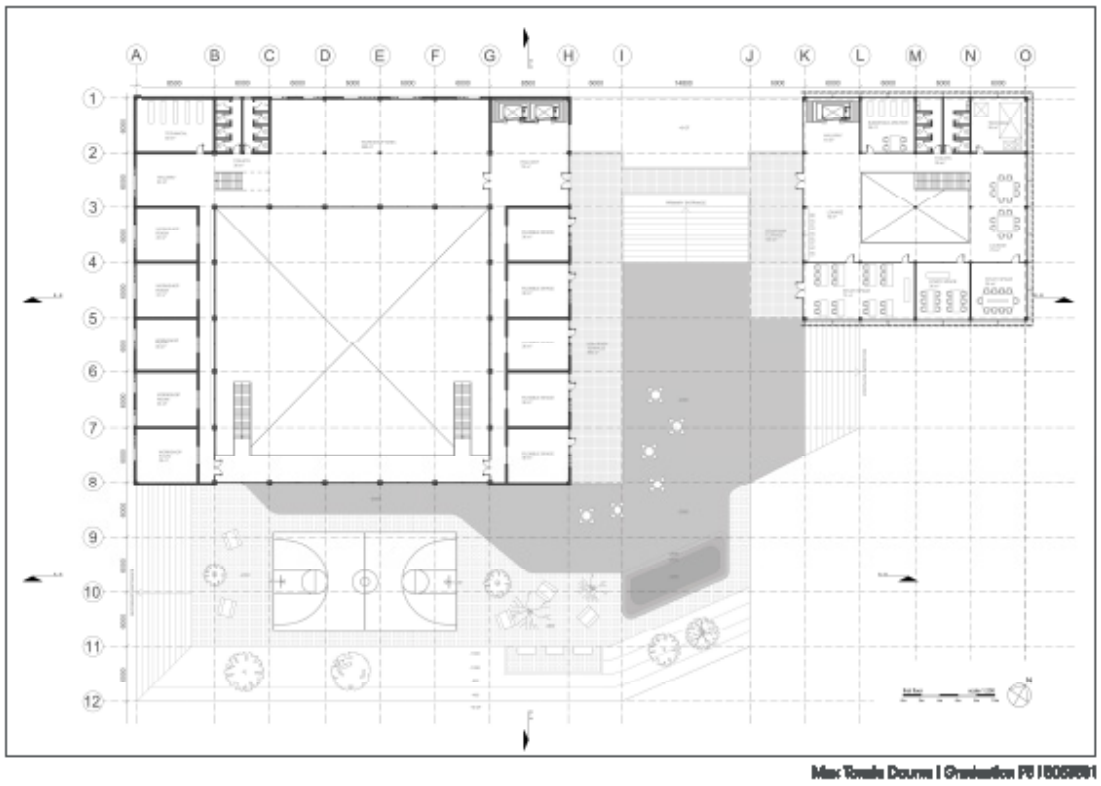
Max Tomás Douma | Graduation P5 | 6055691



Max Tomás Douma

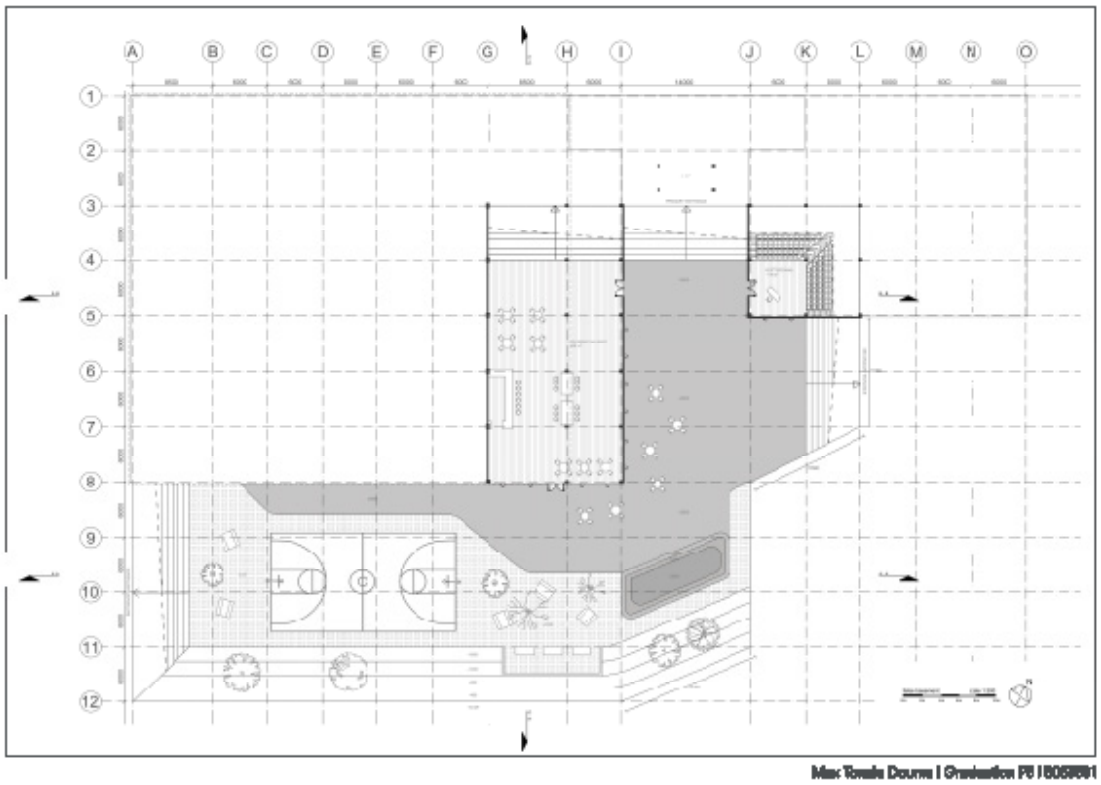
P5 Presentation

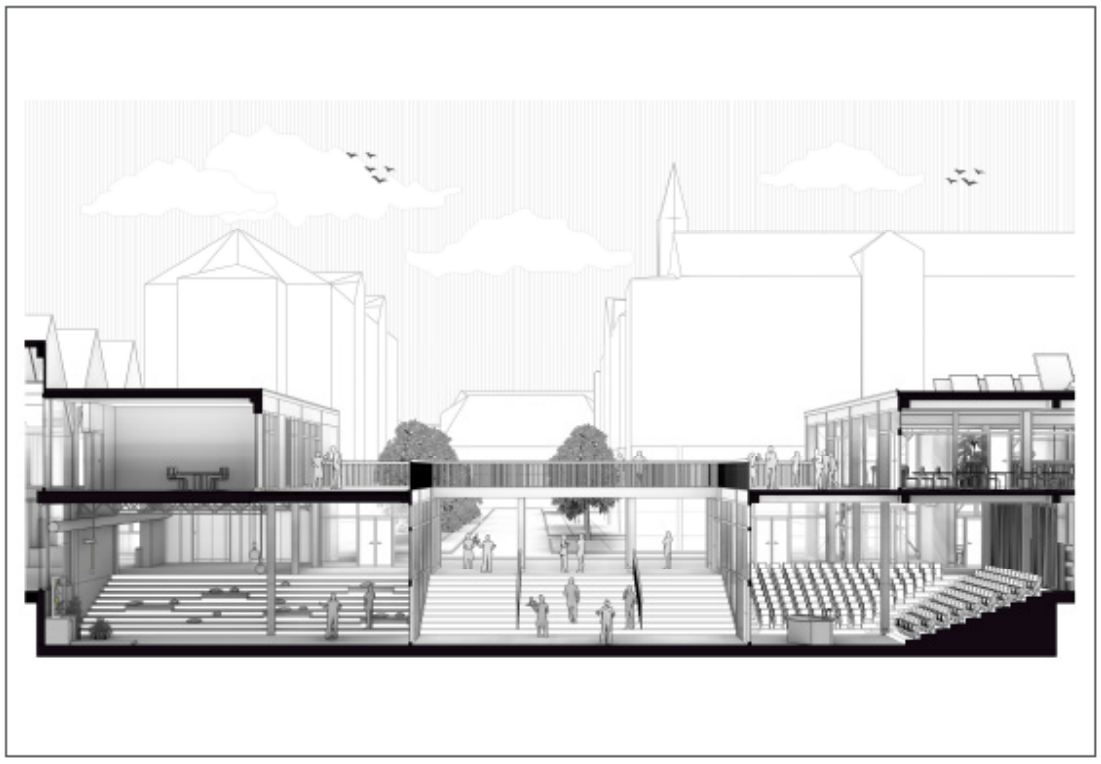



A B C D E F G H I J K L M N O
1 2 3 4 5 6 7 8 9 10 11 12

Max Tomás Douma

P5 Presentation



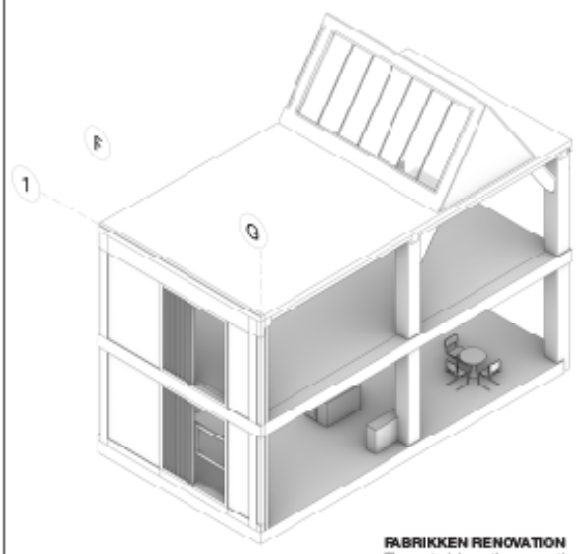


MICRO
– ON A DETAILING SCALE –

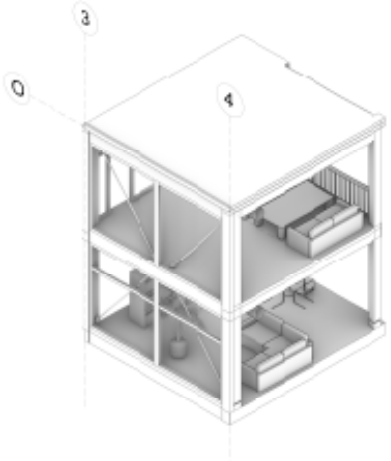
FLEXIBILITY

FUTURE PROOF

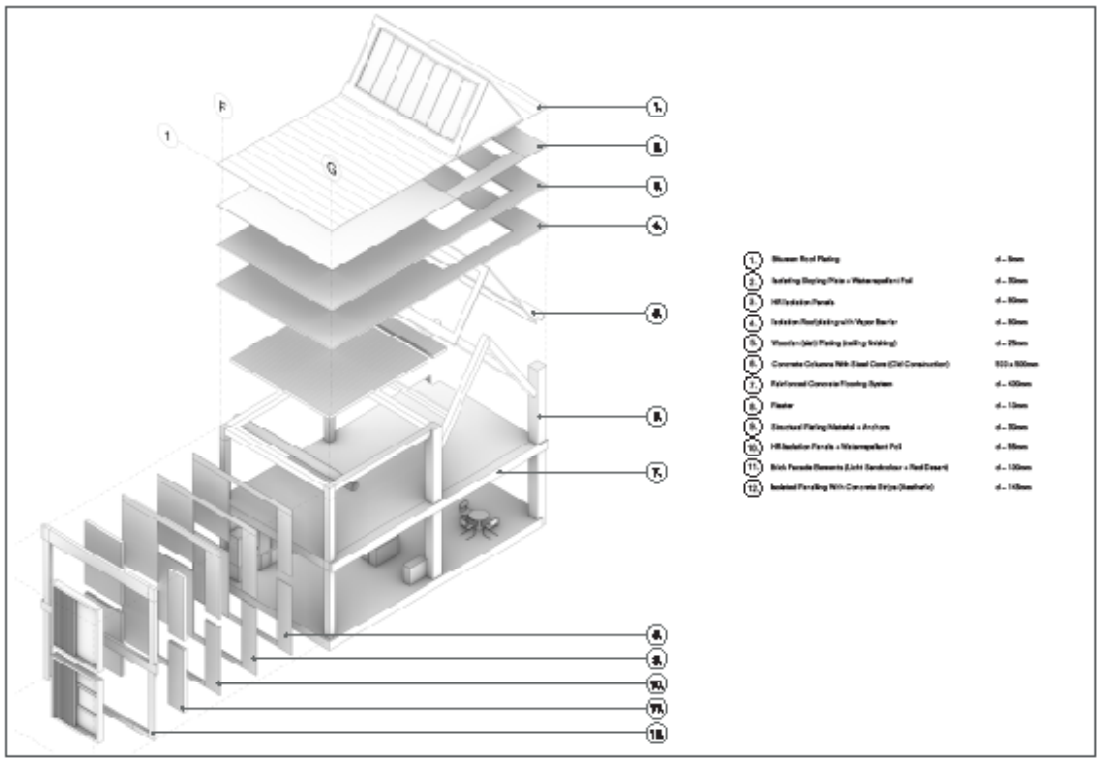
Max Tomás Douma | Graduation P5 | 5055991

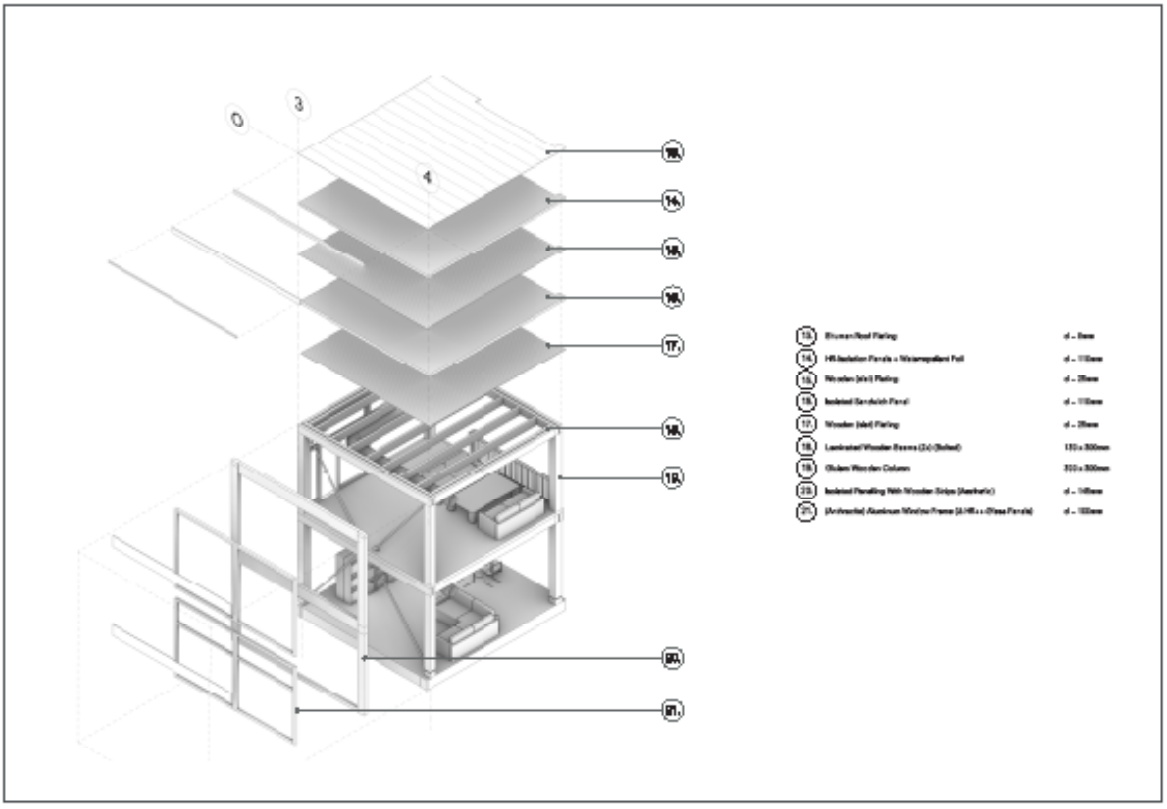


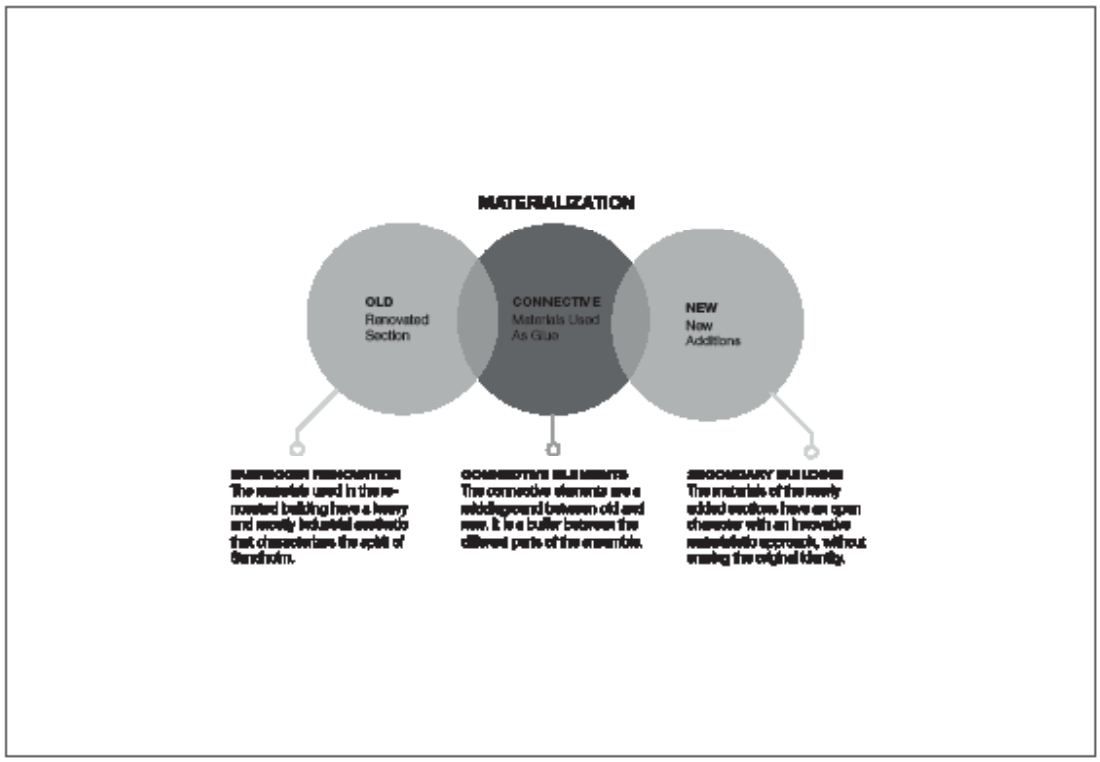
FABRIKKEN RENOVATION
The materials on the renovation of the Fabrikken have the same industrial aesthetic. Concrete, brick (like the neighbourhood) and steel are prevalent

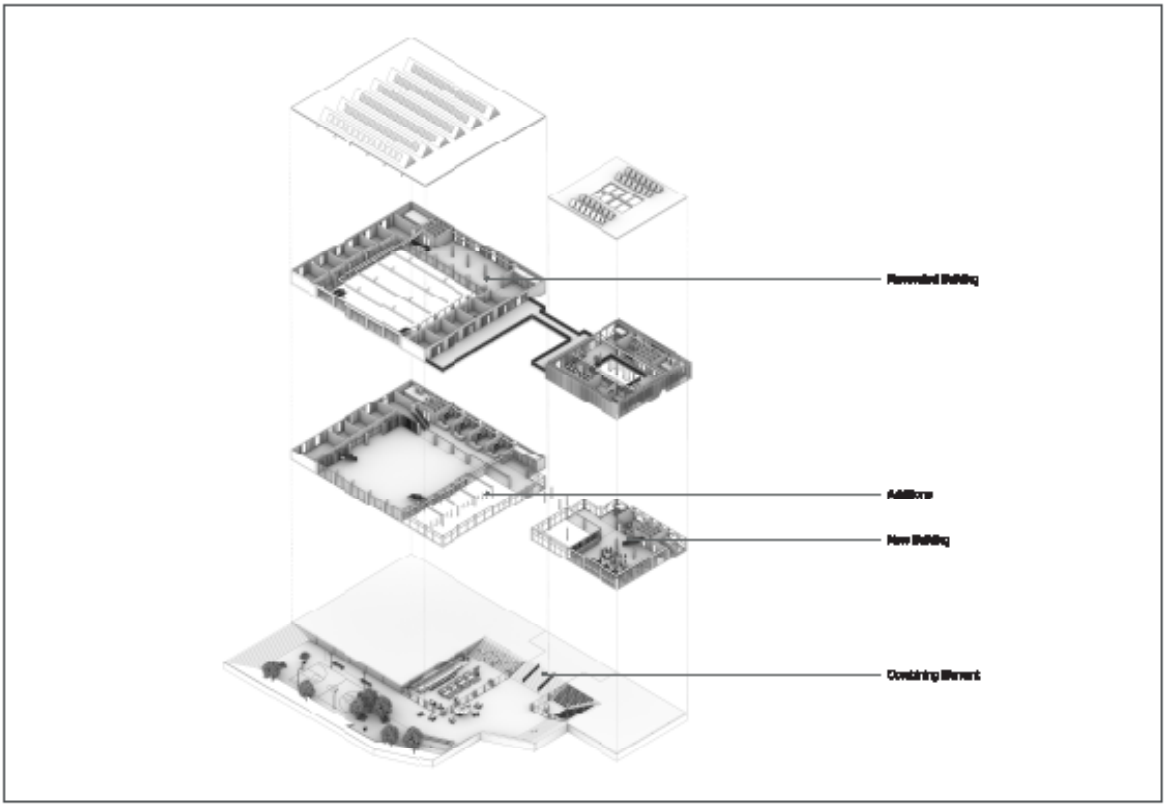


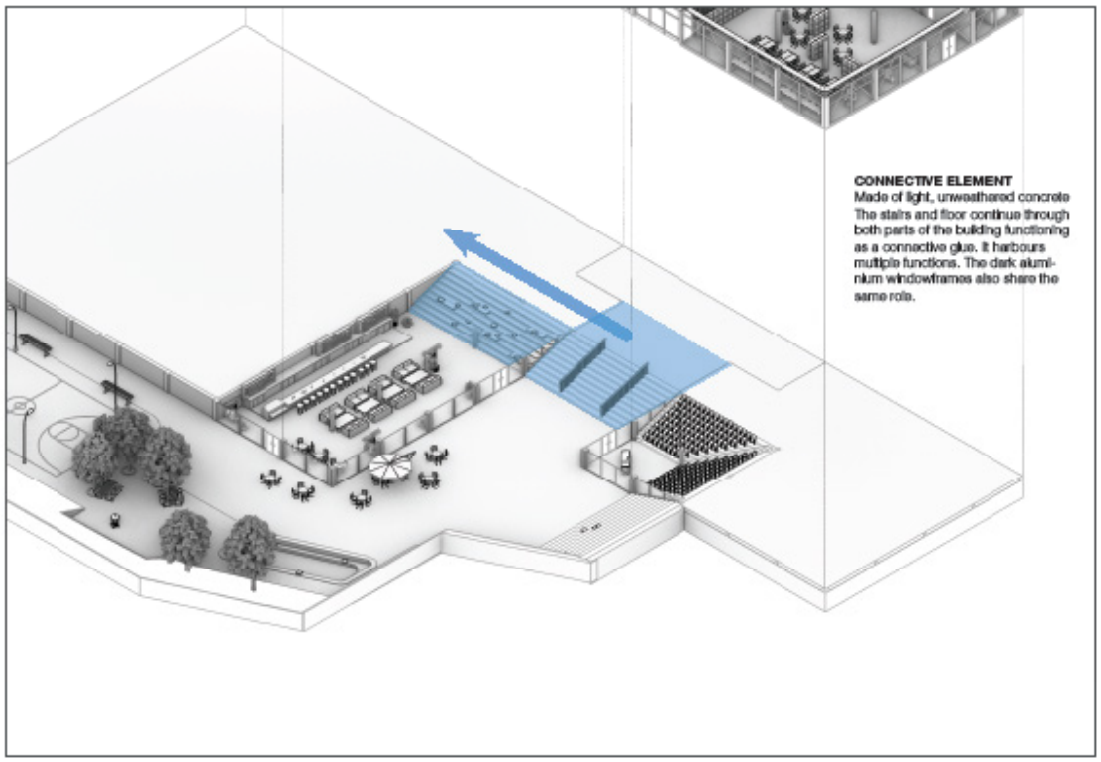
NEW BUILDING
The new addition follows the same grid, structure and measurements, but the materials fit the new progressive ideas from the Danish government. Wood is prevalent

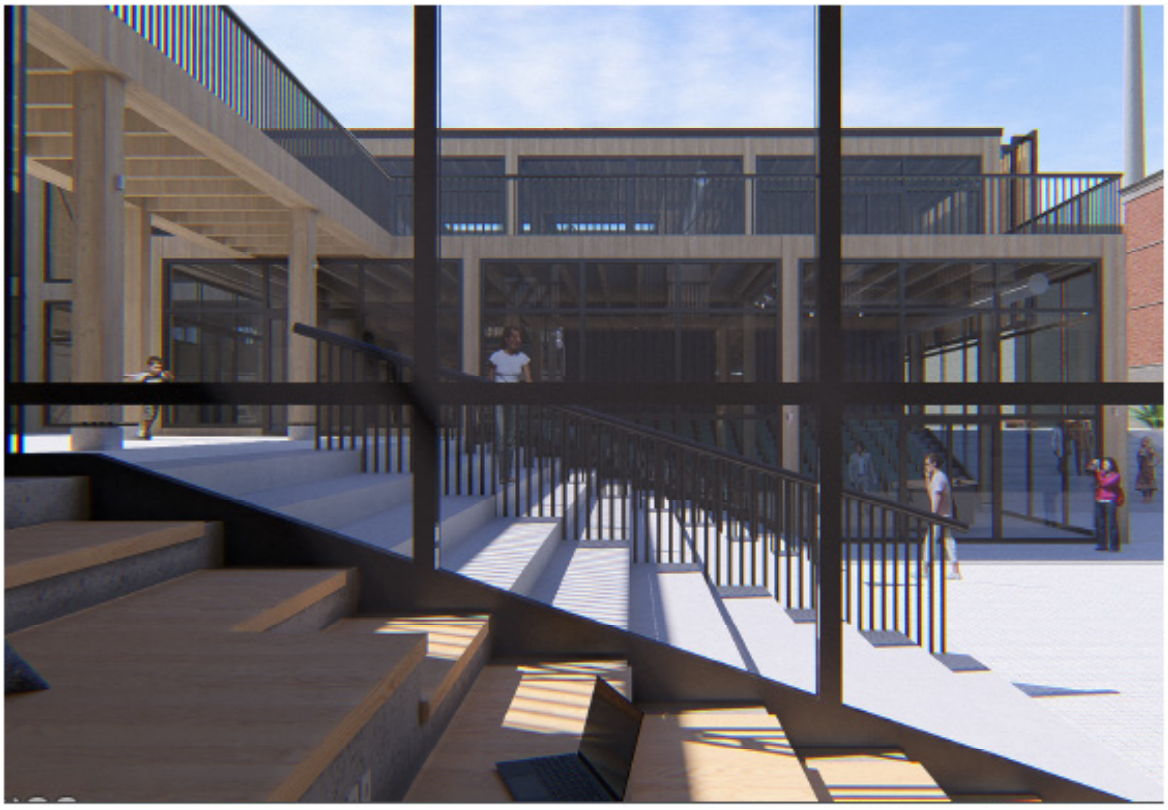


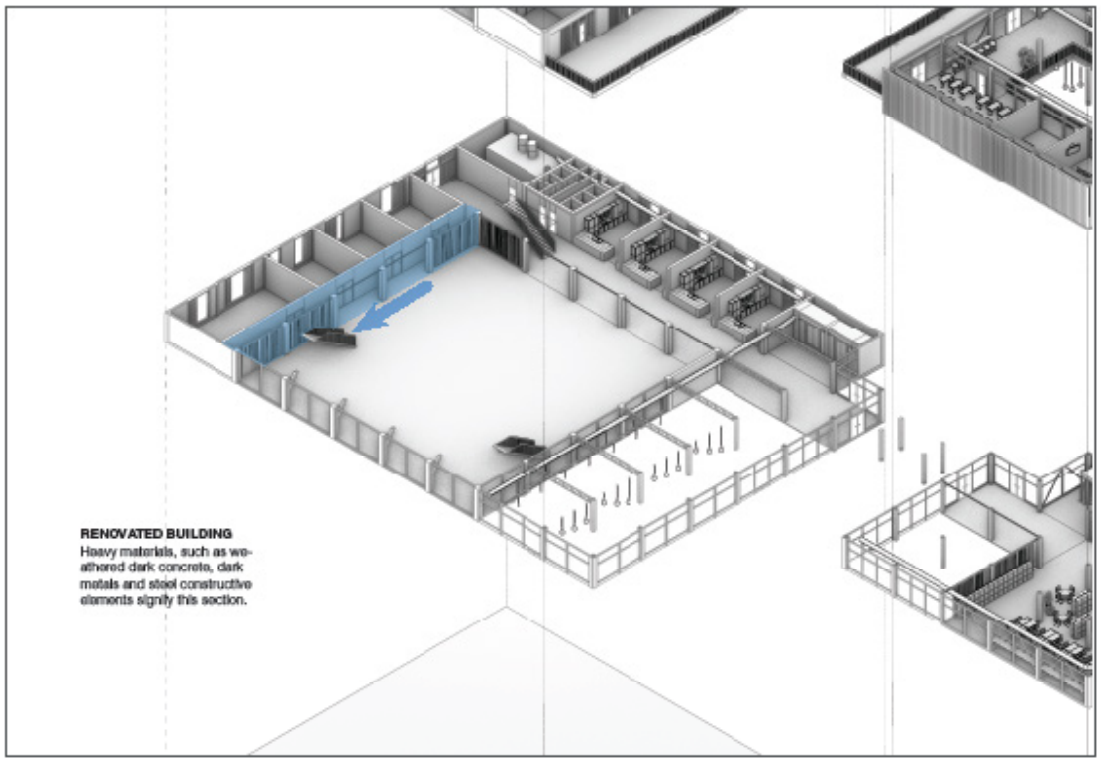


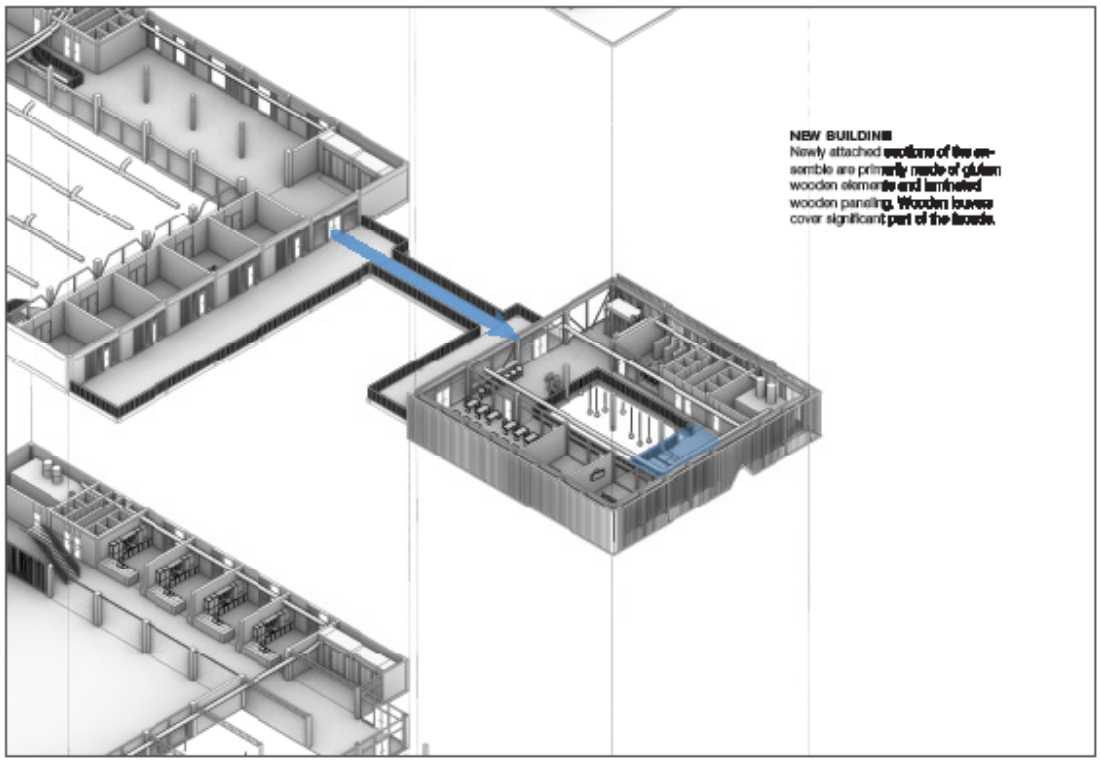

MATERIALIZATION
OLD
Renovated
Section
CONNECTIVE
Materials Used
As Glue
NEW
New
Additions

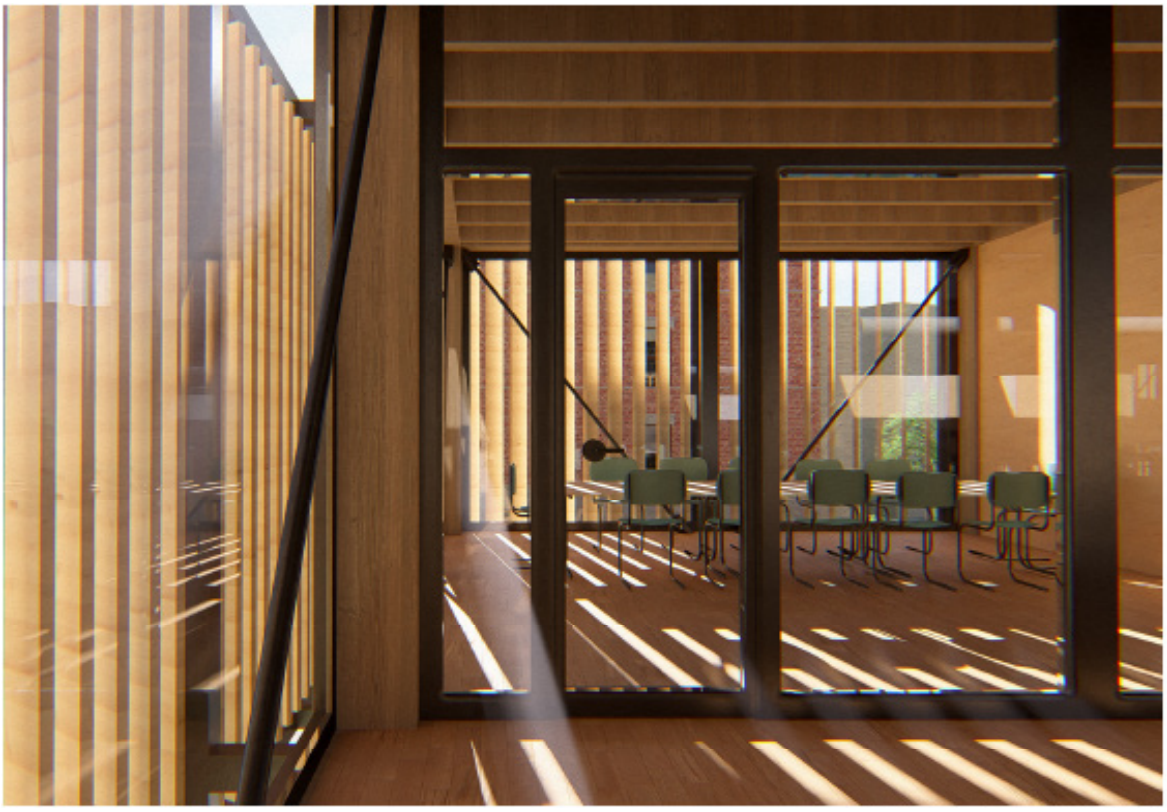

Renovated Building
Additions
New Building
Connecting Element

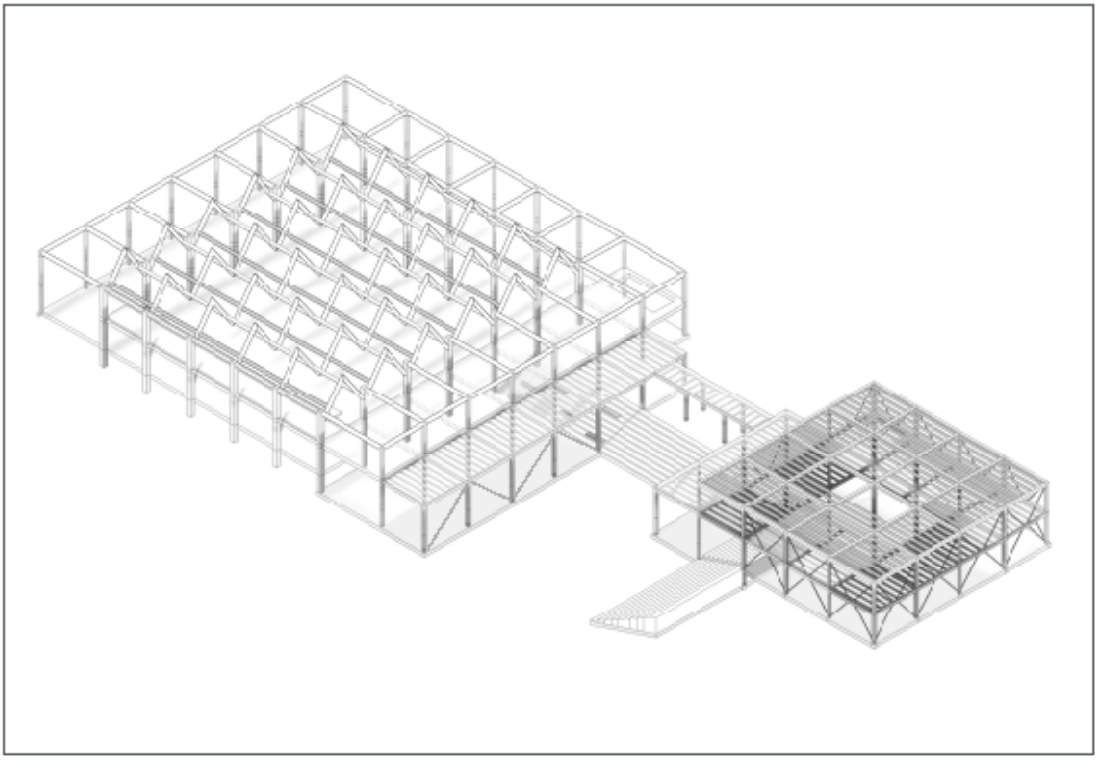

CONNECTIVE ELEMENT
Made of light, unweathered concrete
The stairs and floor continue through both parts of the building functioning as a connective glue. It harbours multiple functions. The dark aluminium windowframes also share the same role.

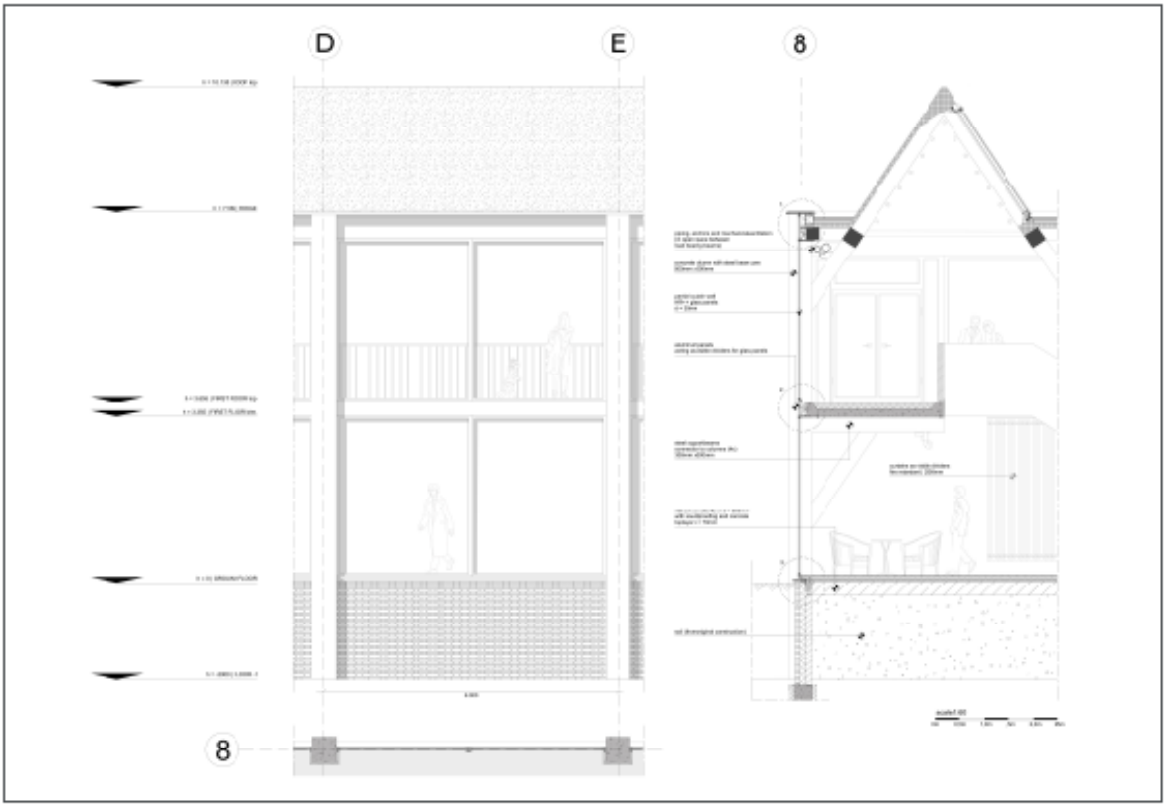



RENOVATED BUILDING
Heavy materials, such as weathered dark concrete, dark metals and steel constructive elements signify this section.


NEW BUILDING
Newly attached sections of the ensemble are primarily made of glulam wooden elements and laminated wooden panelling. Wooden louvres cover significant part of the facade.



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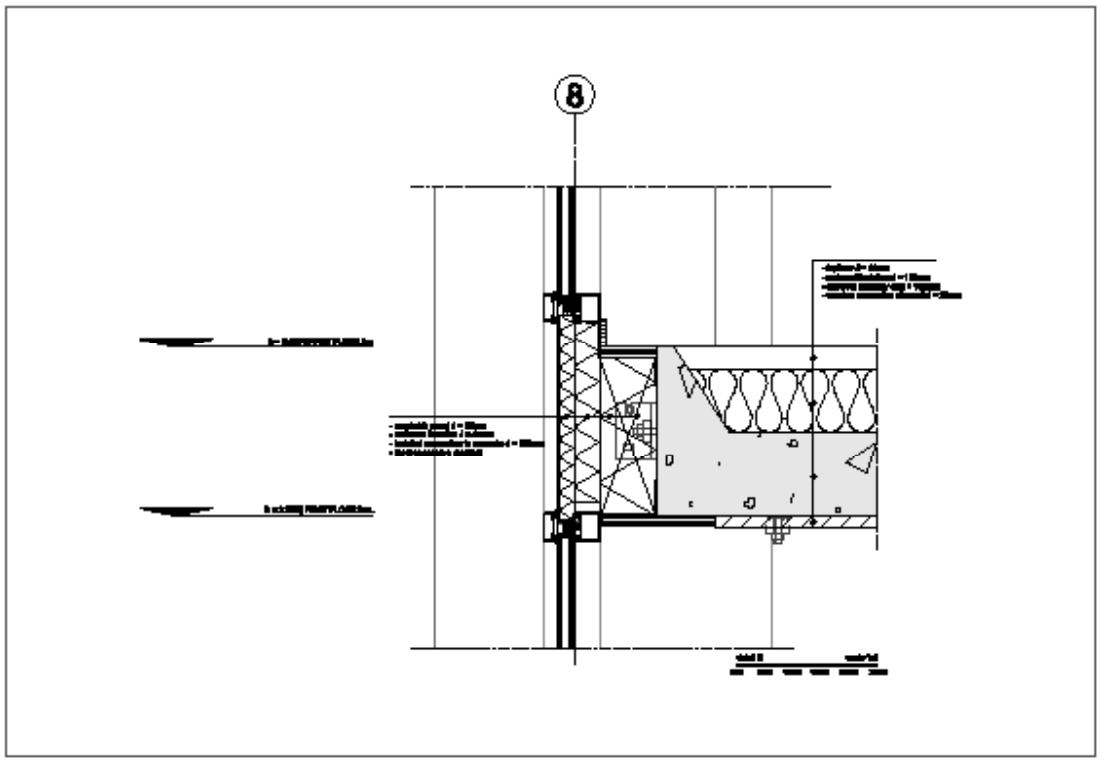
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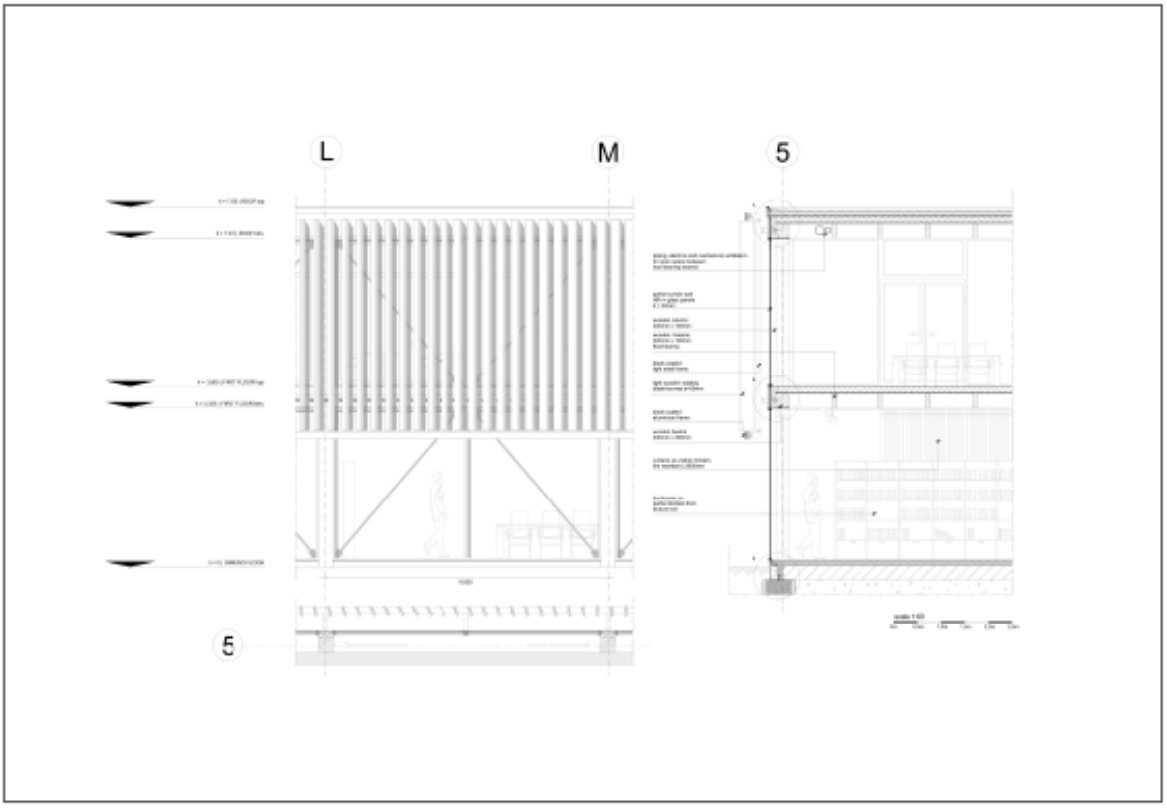
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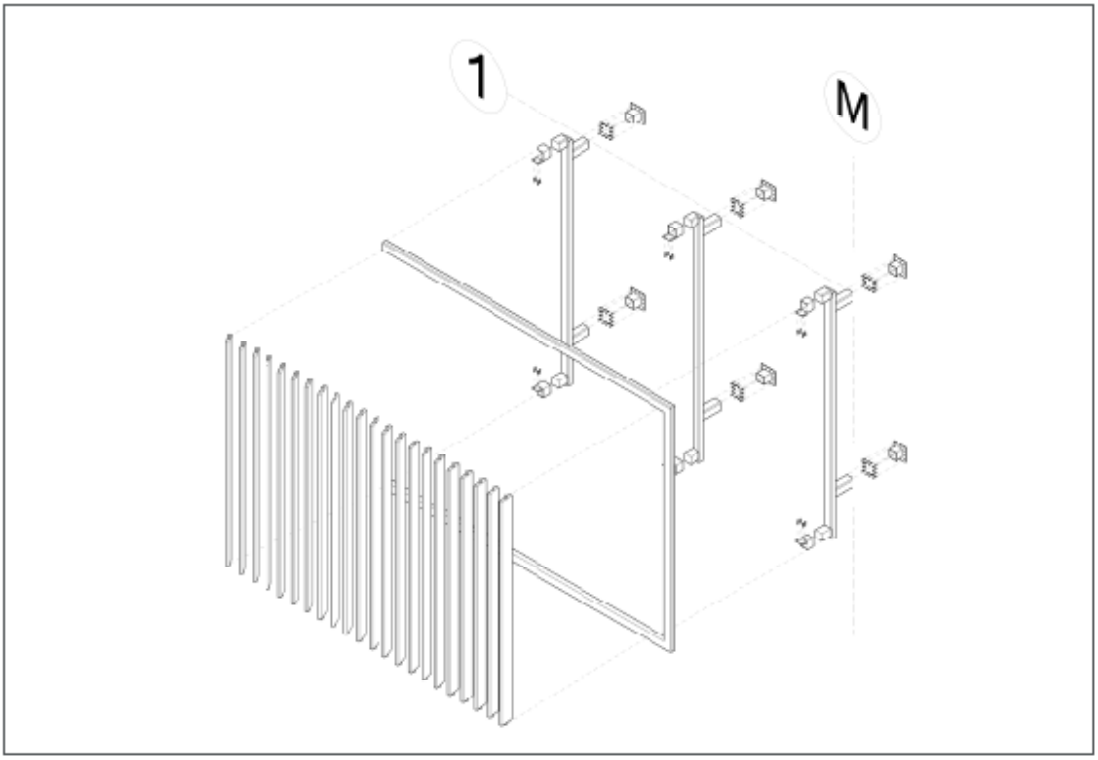
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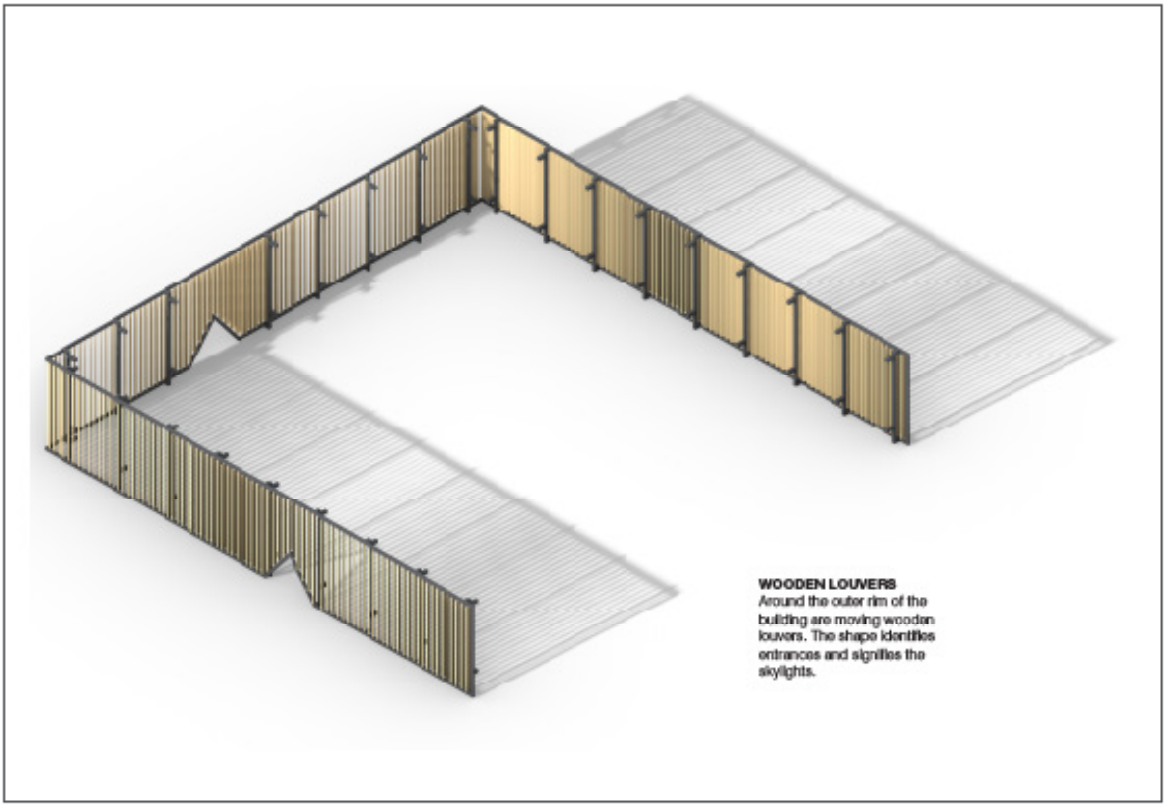
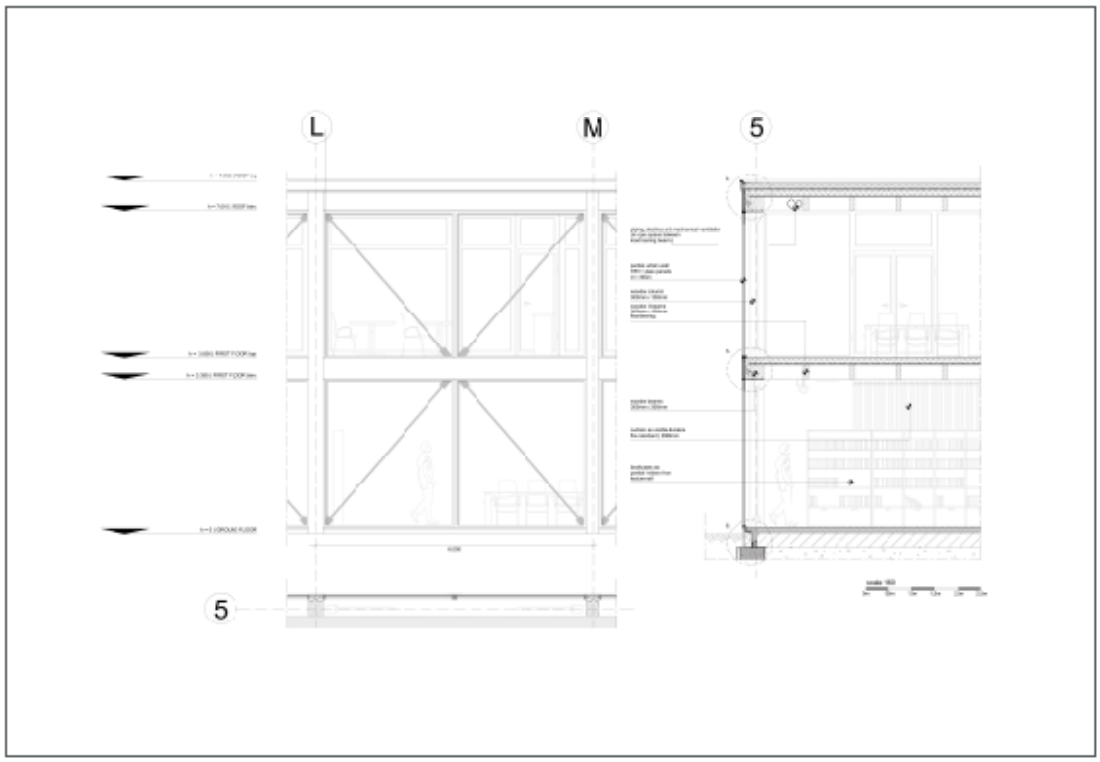

WOODEN LOUVERS
Around the outer rim of the building are moving wooden louvers. The shape identifies entrances and signifies the skylights.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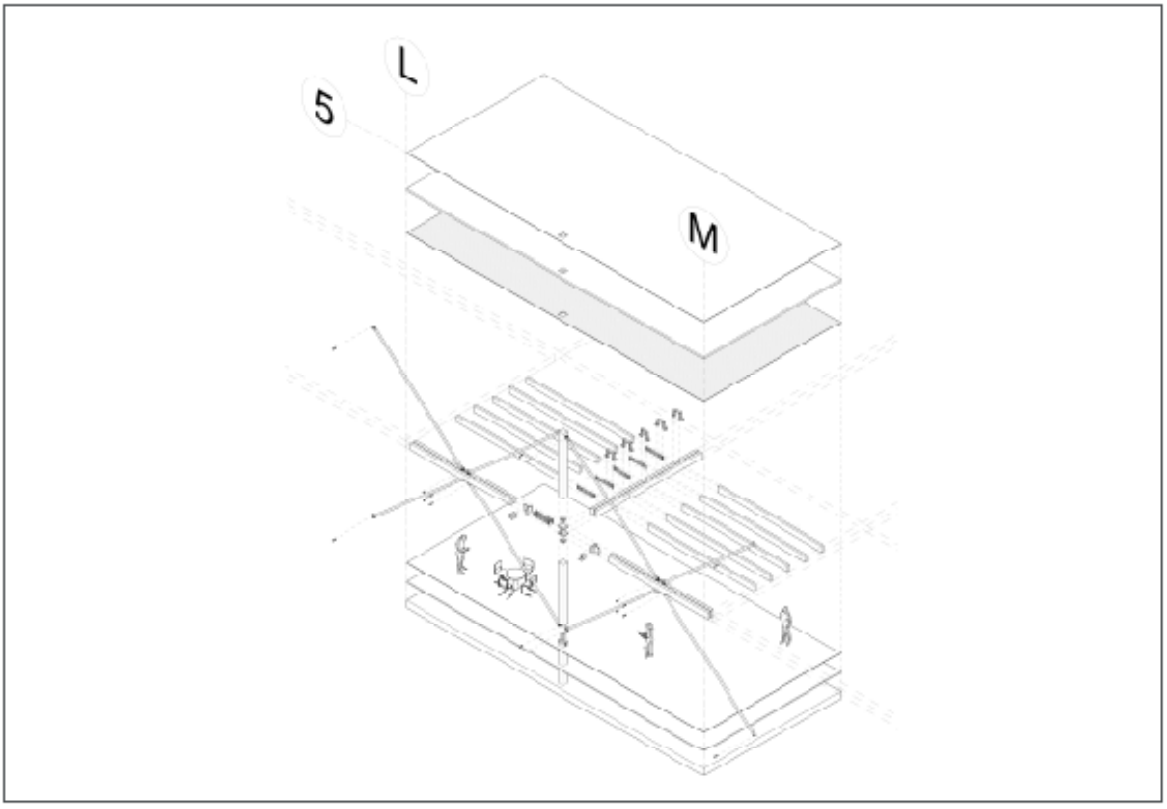
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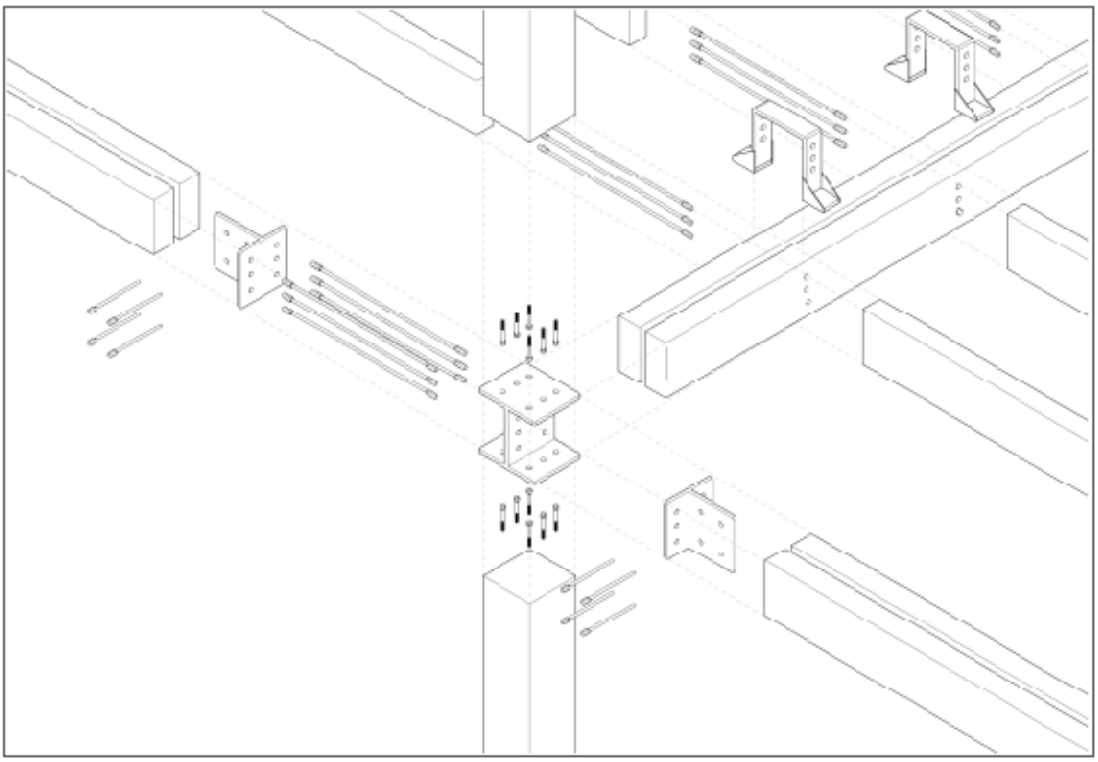
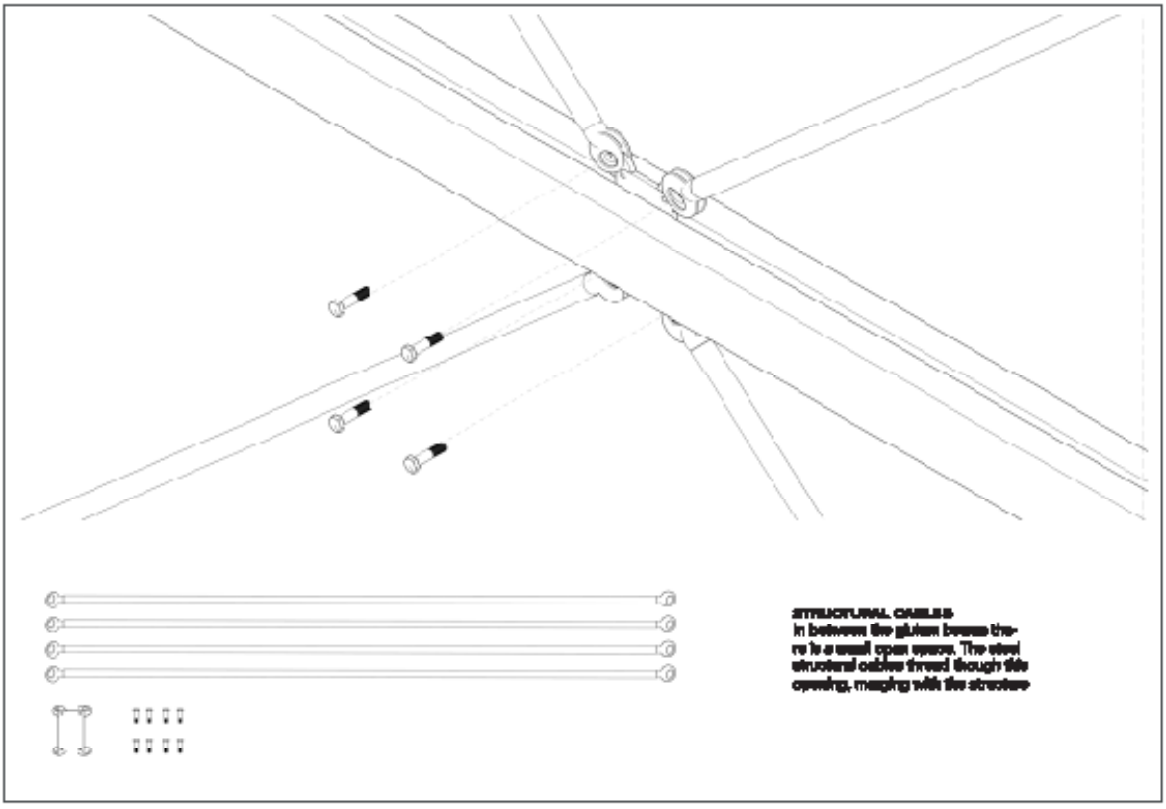
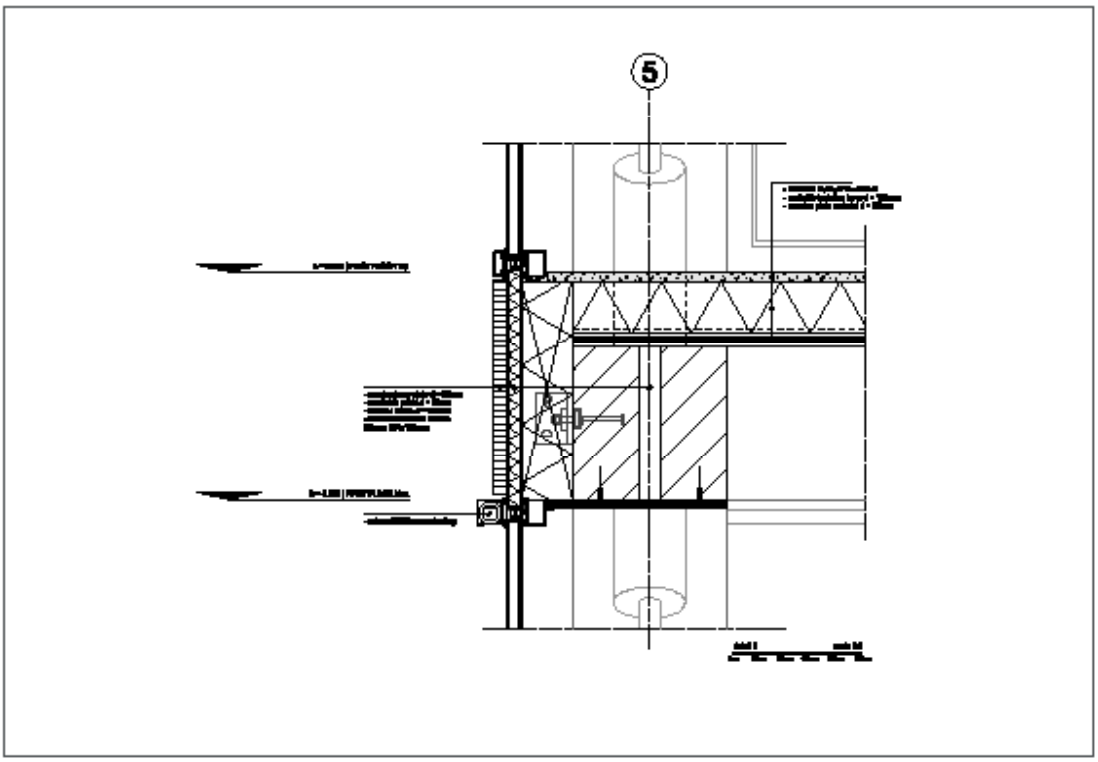



STRUCTURAL CABLES
in between the glulam beams there is a small open space. The steel structural cables thread through this opening, merging with the structure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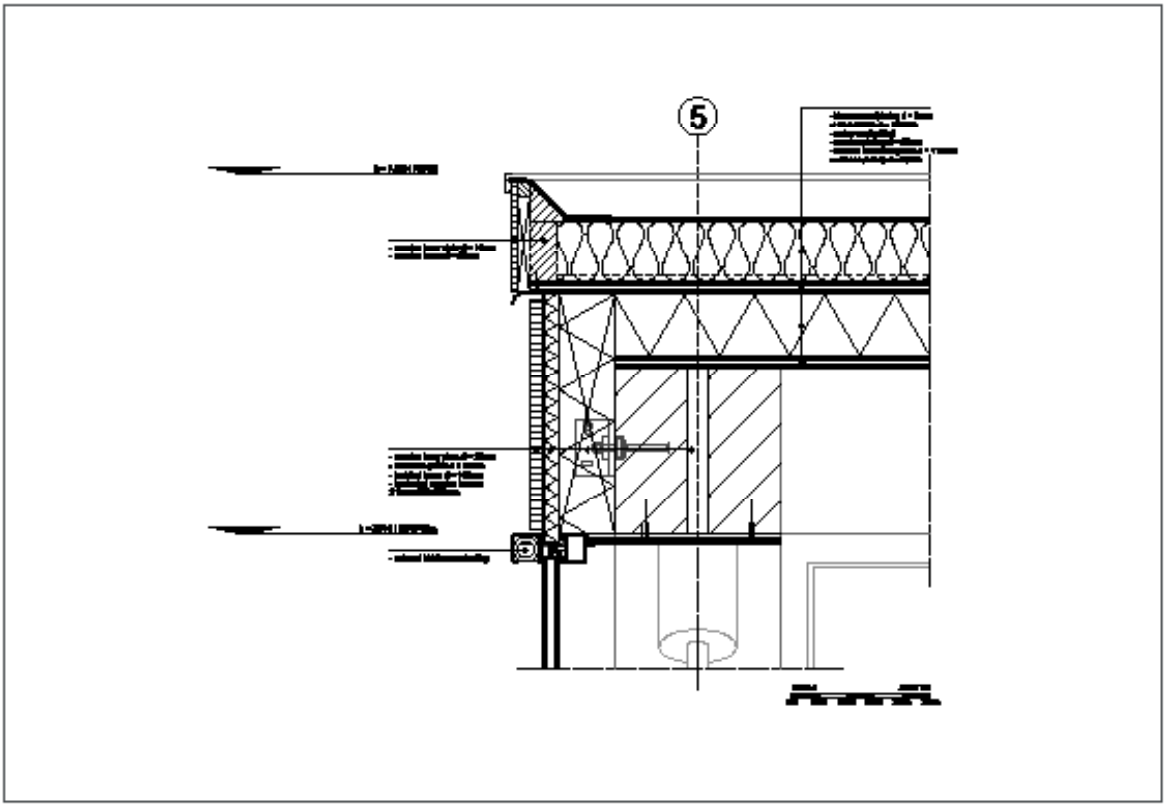
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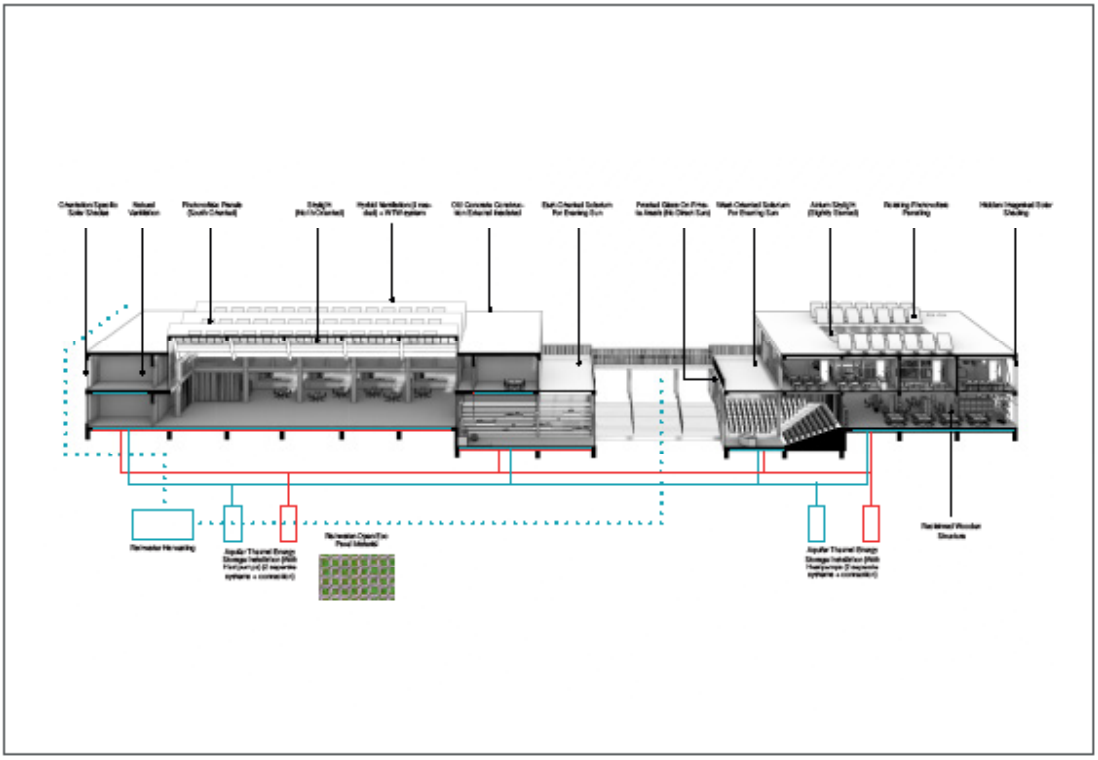
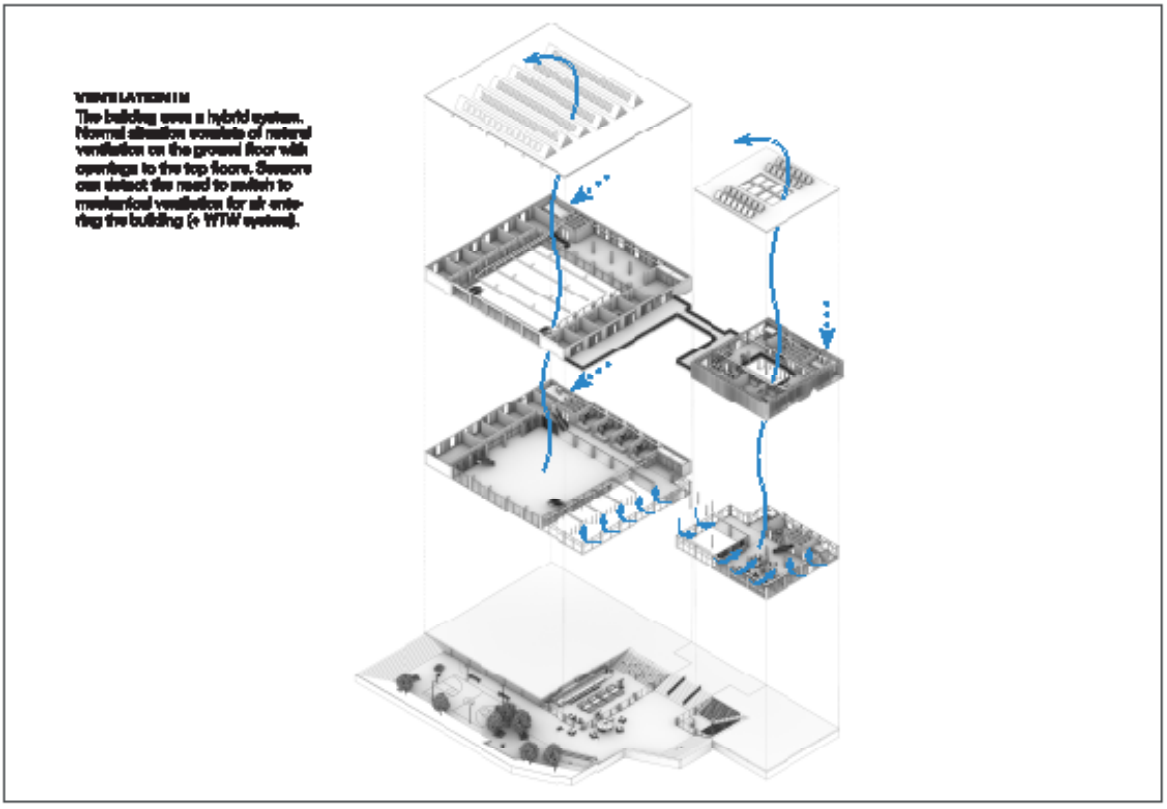
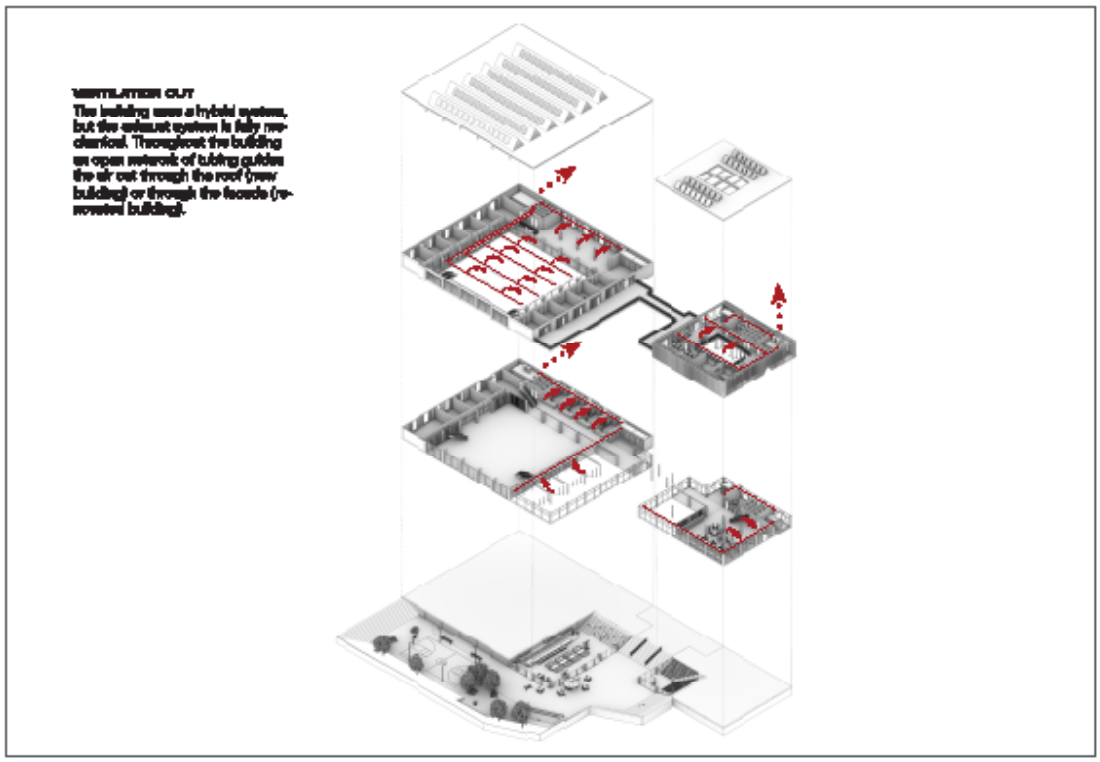
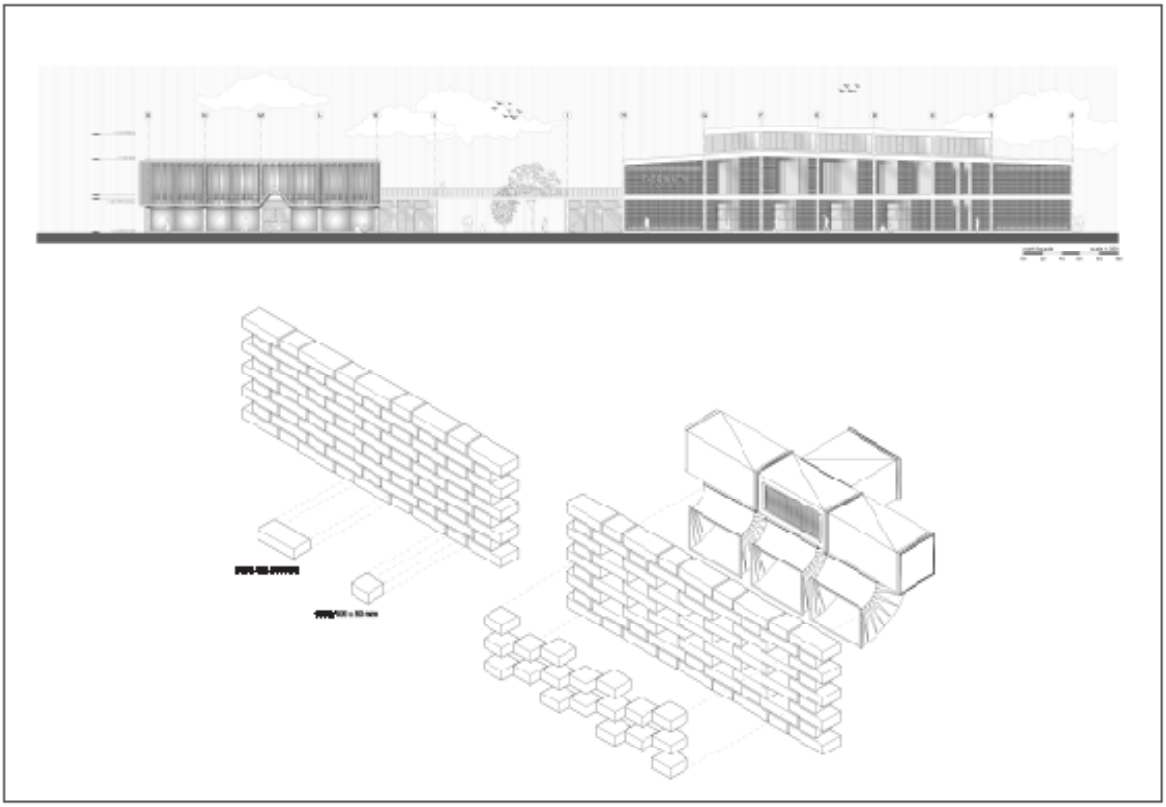





VENTILATION CUT
The building uses a hybrid system, but the exhaust system is fully mechanical. Throughout the building an open network of tubing guides the air out through the roof (new building) or through the facade (renovated building).



Max Tomás Douma

P5 Presentation