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# DUALITY

a dialogue about spatiality in solid  
and filigree constructions

Elsa Alm

Examinor: Björn Gross  
Supervisor: Mikael Ekegren

Chalmers School of Architecture  
Department of Architecture & Civil Engineering

*"Duality" refers to the state of having two  
contrasting or complementary aspects,  
suggesting a balance or tension.*

Duality

Author: Elsa Alm  
Master Thesis 2024  
Building design and transformation

Examinor: Björn Gross  
Supervisor: Mikael Ekegren



**CHALMERS**  
UNIVERSITY OF TECHNOLOGY

Chalmers School of Architecture  
Department of Architecture & Civil Engineering  
Master's Programme of Architecture and Urban Design  
Building design and transformation

## ABSTRACT

Understanding the transformative process of converting an abstract design vision into functional and built structures is a fundamental aspect of architectural practice. Because of its physical form, the choice of construction method, material handling and implementation of technical detail solutions is decisive. However, architecture encompasses more than the mere construction of buildings. It is also an act of crafting experiences to enrich our lives and environments.

Deriving from this, the purpose of the thesis was to investigate the notion of architectural tectonics and the interplay between structure and space. To discuss how different constructions affect human perception and evoke spatial experience.

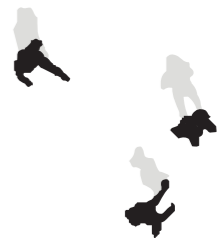
Emphasizing research by design, the questions were studied within the execution of a library, which set the stage for exploring various spatial aspirations. The investigation took place at a site in Gothenburg, where two environments of distinctly different characters meet. Signified by duality in various forms, the thesis explored how contrasting features can coexist to either

create a balance or generate tension. It delved into the significance of materials, the assembly of parts within the whole and the composition of architectural elements.

The final outcome of the investigation was a building that encapsulates the conversation between the ideal and the practical, serving as an illustration of the discourse surrounding space and structure. Centered on the two construction archetypes, solid and filigree constructions, the project showcases how two contrasting principles can cooperate in creating durable and distinctive spaces.

In conclusion, the thesis offers a critical perspective on the contemporary building industry, underscoring the synergy between design and construction and the merging of ideality and reality. By leveraging the inherent qualities of materials and embracing site-specific considerations, architects can create spaces that not only fulfill functional requirements but also craft meaningful experiences for human occupants.

Keywords: *Architectural tectonics, contextual design, solid and filigree construction*



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### STUDENT BACKGROUND

ELSA ALM

M.Sc Architecture and Urban Design Chalmers University of Technology	2022 - 2024	Part-time employment Forum Arkitekter, Gothenburg	2022 - →
B.Sc Architecture and Engineering Chalmers University of Technology	2018 - 2021	Internship Forum Arkitekter, Gothenburg	2021 - 2022

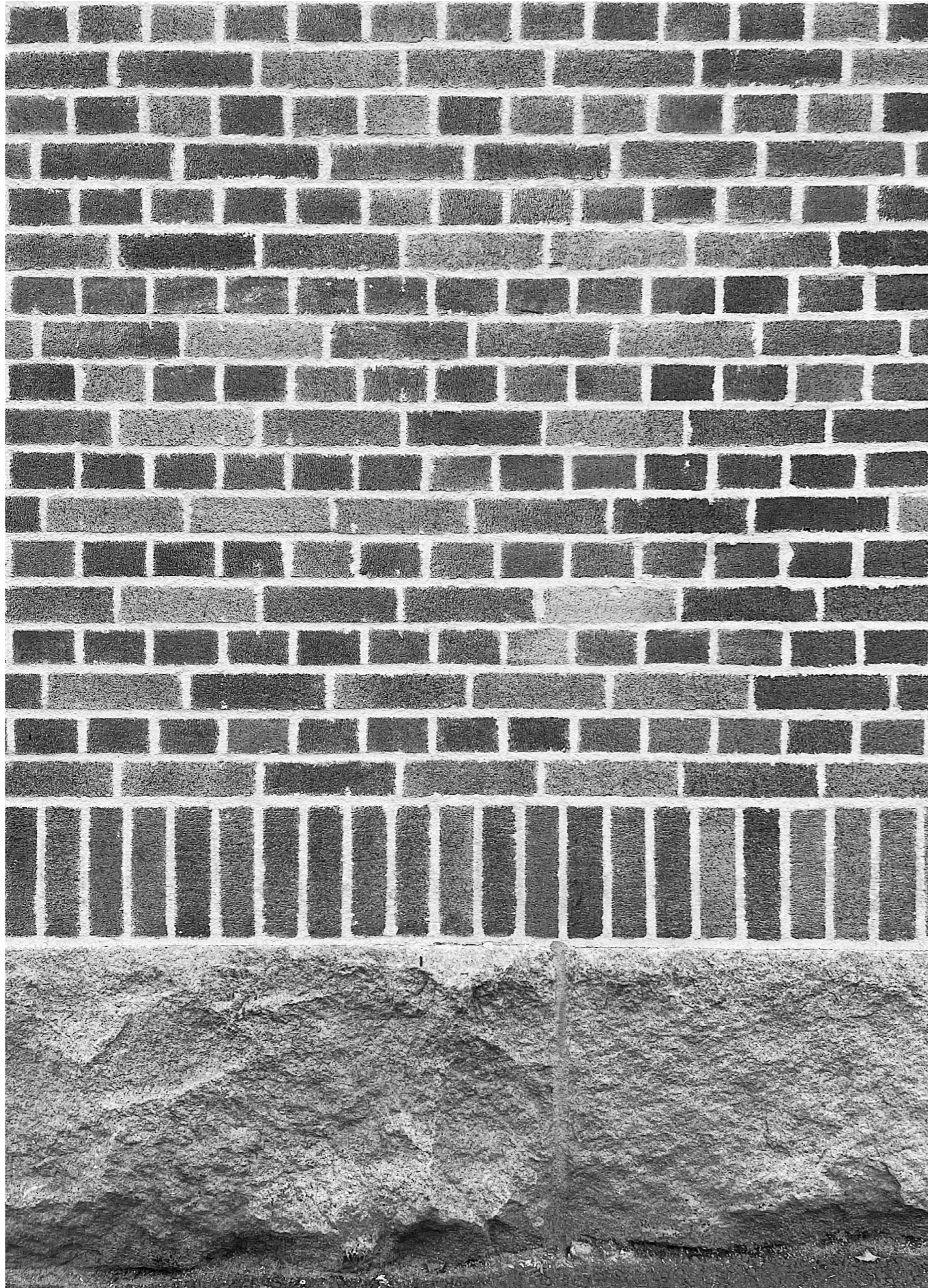


Figure 1. Brick facade in Gothenburg.

# INTRODUCTION

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FIELD OF STUDY

RESEARCH QUESTIONS

THESIS STRUCTURE



Figure 2. Walking path in Slottskogen, Gothenburg.

## FIELD OF STUDY

### PURPOSE AND AIM

Within the discourse of architecture, a constant interplay between abstract design visions and practical reality unfolds. The essence of the field lies in the transformation of ideas into tangible structures (Beim, 2004). In an ideal world, architects have the freedom to explore their creative visions and push the boundaries of form and function. The possibility to create spaces that not only serve practical needs but also reason with emotional and cultural significance and thus establish a human experience (Zumthor, 2006). However, in contemporary architectural practice, this is not the case. The realization of a design vision comes with several practical challenges and constraints. It's a navigation of budget restrictions, building standards, technical considerations, and stakeholder agendas (Beim, 2004). The transition demands a thorough reconciliation of visionary design ideas with real-world conditions, often involving compromises and indulgence in detail formation (Gustavsson, 2008).

There has been a significant shift in building design paradigms, with a growing emphasis on unique expression and architectural experimentation. A trend that occasionally leads to buildings lacking a sense of grounding in their context, showing little respect for their existing surroundings (Quirk, 2013). Current design practices tend to have a strong focus on solving intended space programs and connections between individual rooms rather than the

creation of spaces where different activities can take place and change over time. This focus on functionality may overlook the potential for architecture to shape human experiences and interactions within the built environment, thereby limiting the overall social value of the space (Spetz, 2009).

This thesis aims to initiate a dialogue on the significance of architectural tectonics in contemporary building practices. With the intention to showcase the need for harmony between vision and implementation, it underlines the importance of creating a synergy between design and construction. It further seeks to promote the strategic use of materials and contribute to the discourse on site-specific architecture, stressing the value of contextual interaction in creating cohesive built environments.

### MAJOR SUBJECT

The thesis is an investigation of structure and space. It explores how different construction methods can be utilized and interact to create varied spatial experiences, responsive to different functional needs and diverse environments. Moreover, the thesis proceeds from the usage of brick and wood as building materials, encompassing their role in both construction, aesthetic, and emotional aspects.



Figure 3. Brick wall.

## RESEARCH QUESTIONS

### MAIN QUESTION

*How can solid and filigree construction methods shape spatial experiences in a site-specific library design?*

### SUB QUESTIONS

*How can we design buildings that effectively respond to their surrounding characteristics?*

*In what ways can inherent aesthetic and structural features of different materials impact architectural design decisions?*



Figure 4. Wooden logs.

## THESIS STRUCTURE

### BACKGROUND

*"Art is a form of self-expression with absolutely no responsibility to anyone or anything. Architecture can be a piece of art, but it must be responsible to people and its context." - Quirk, 2023*

In recent years, building design has shifted towards prioritizing unique expression, blurring the lines between art and architecture. However, unlike art, which may be purely self-expressive, architecture carries a responsibility to both people and its context. While art can be influential, architecture must remain mindful of its users and surroundings. Its primary aim is to provide an inspiring experience for inhabitants while respecting its environment (Quirk, 2013).

Architecture shapes life situations by creating spaces that enable certain activities while hindering others. Architects design the form of buildings, but it's the way they're used that gives them meaning. Understanding usage patterns, embracing change, and moving beyond a focus solely on function to consider the broader situation are essential. Architecture provides the stage for interactions between events and elements, creating immediate connections between different atmospheres (Spetz, 2009).

When shaping different atmospheres, it's essential to select the construction method that aligns most effectively with the intended purpose. For instance, in scenarios where the goal is to seamlessly integrate indoor and outdoor spaces, opting for a lightweight column and beam structure over a massive brick wall can offer distinct advantages. Adapting the construction approach to meet aesthetic objectives while fostering mutual enhancement between structural elements is essential for achieving cohesive and efficient design outcomes (Deplazes, 2018).

### METHODS AND TOOLS

The thesis is mainly carried out through research by design, in which the questions are explored and demonstrated within the execution of a design project of a library. The work derives from an initial theoretical study in literature and analyses of built reference projects.

While the subject is broadly studied, the thesis aims to link theory with practical application. Therefore, the work is supplemented with studies in the form of sketches, drawings, digital as well as physical models. Iterative work with illustrations has served as crucial test-beds for explorations, refinement, and conclusions throughout the design process.

### DELIMITATIONS

The focal point in the design of the library is to illustrate how various constructions can be integrated into a building to create varying spatial experiences that reflect its contents. Therefore, the thesis does not aim to reinvent the core function of a library, however, its purpose and spatial configuration are challenged.

### READING INSTRUCTIONS

Four segments compose the thesis: Introduction, Investigation, Implementation, and Conclusion. The first part introduces the reader to the thesis and provides a background to the subject. The following segment covers theoretical studies as well as analyses of built references. Findings are further examined and tested in the next part, both as smaller iterations and within the design project itself. The concluding segment unfolds and discusses the outcomes of the thesis.



*Figure 5. Walking path in deciduous forest.*

# INVESTIGATION

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THEORETIC FRAMEWORK

CASE STUDIES

INSIGHTS

## THEORETICAL FRAMEWORK

### COMPOSING EXPERIENCES

Architecture is firmly rooted in the physical world. It is not a distant scene of abstract concepts but a tangible and immersive experience (Schwartz, 2017). The phenomenon of architectural space can be described through the metaphor of a potter molding a vessel. The vessel not only represents the physical structure but also the space within it.

Relating to architecture, the building shapes and holds space, just as a vessel stores a liquid inside its hollow form. The architectural matter occupies itself in “non-space” but shapes the space both inwards and outwards (Deplazes, 2018). In this interplay, architecture becomes a vessel for absorbing human life. Architectural space is not merely observed; it is first and foremost perceived in a physical-sensual way. This sensory interaction turns architecture into a full-bodied experience, engaging our senses, emotions, and intellect simultaneously (Schwartz, 2017).

The synergy between structure and space serves as a cornerstone of architecture. The union between the physical framework and the spatial environment creates a platform for architects to design spaces that serve their functional purposes and resonate with the people who inhabit them (Beim, 2004). This synergy brings architecture to life, making it a dynamic and

evolving art form that continuously shapes our world. It goes beyond static structures as it becomes a dynamic interplay of sensations, emotions, and interactions with space .

Architecture is thereby not just about erecting buildings. It is also about crafting experiences that enrich our lives and environments (Zumthor, 2006). Accordingly, understanding a building means not only grasping it structurally but also experiencing it with all senses (Schwartz, 2017).

### CONTEXTUAL RESPONSE

While you can actively choose to set aside a bad book or switch off a sports game on the TV if it doesn't appeal to you, interacting with architecture is inevitable. It dictates our perceptions and behaviors and shapes our lives. As architects we shape buildings, yet when constructed, they turn to form us (Mathew, n.d.).

The human way of understanding tends to seek context before we decide our next course of action or form beliefs. As the illusion of Ebbinghaus demonstrates, we interpret the size of the green circle differently depending on the adjacent circles. Similarly, buildings do not exist in isolation. There will always be a setting with features and characteristics that will affect how they are interpreted (Mathew, n.d.).



Figure 6. The illusion of Ebbinghaus.

The context thus plays a pivotal role in architectural design. A building must be anchored in its situation, both concerning the natural landscape and the human life that takes place in and around it. One can therefore argue that the context should be the starting point of architectural design, guiding architects to create structures that not only harmonize with their surroundings but also fulfill the needs and aspirations of the communities they serve. By embracing the unique characteristics of each site and engaging with its context, architects can create built environments that inspire, support, and enrich the lives of all who inhabit them (Studio Vista Architects, 2021).

### ARCHITECTURAL TECTONICS

Materials aren't just building elements. They are integral to architectural synthesis and define the aesthetic expression and identity of a structure, each holding a unique character (Hatz, 2009). The relationship between materiality and tectonic

principles in architecture is fundamental, though often overlooked in the building industry. The absence of awareness, from both professionals and the public, contributes to an acceptance of buildings that lack integration with surrounding built structures and possess reduced durability, leading to compromised longevity (Gustavsson, 2008).

Since architecture is physical, the shaping of materials becomes crucial for a building's value. Technical detail solutions are essential for both perception and practicality (Hatz, 2009). Though often seen as secondary in design, attention to detail is key to crafting a pleasant environment. The opposite result occurs when left to chance (Gustavsson, 2008).

Tectonic architecture integrates construction techniques intentionally, informed by a deep understanding of materials' technical properties. This approach imbues architectural compositions with order and purpose, whether through visible structural elements or concealed frameworks. The level of structural expressiveness varies, but thoughtful consideration of tectonic principles ensures coherence and integrity in the final design. Ultimately, this interplay between materiality and tectonics elevates architectural design, creating spaces rich in meaning and craftsmanship (Gustavsson, 2008).

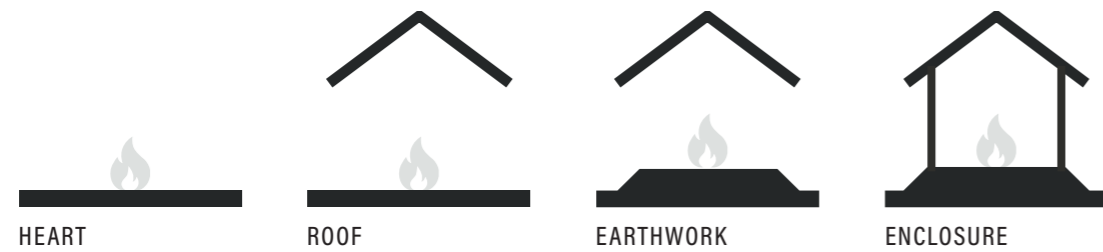


Figure 7. Semper's four elements of architecture.

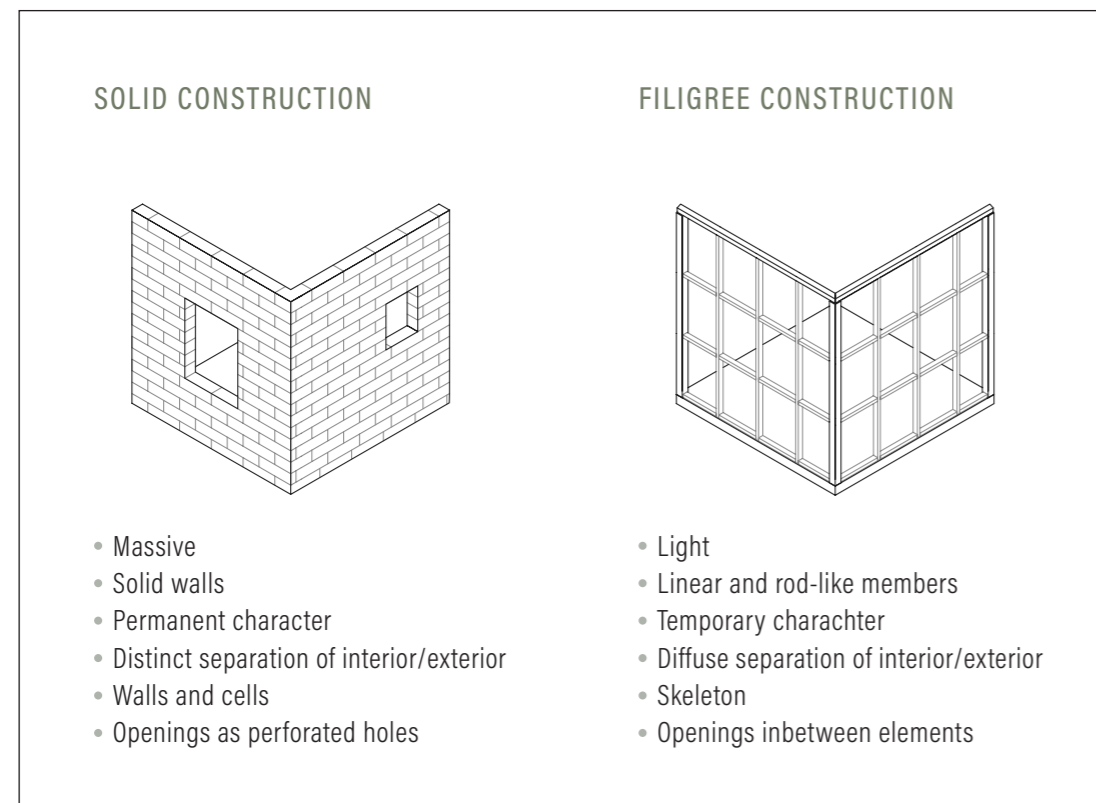


Figure 8. Attributes of solid and filigree constructions.

## SPATIAL SHAPING

The construction of a building defines the boundaries of what can and cannot be achieved. Different constructions possess unique characteristics and capabilities, allowing them to facilitate various outcomes. Consequently, comprehending the fundamentals of different constructions is crucial in making informed choices in shaping the aesthetics, function, and efficiency of a building (Deplazes, 2018).

When exploring the origins of architecture, construction archetypes serve as a fundamental starting point. It provides a lens through which we can create an understanding of the evolution of different constructions and their underpinnings (Frampton, 1995).

Deeply rooted in human history, the principles have evolved in response to the changing needs of societies. The transition from a nomadic to a sedentary lifestyle has been pivotal in shaping architectural construction archetypes (Deplazes, 2018). In the early stages of human existence, when constantly on the move, the shelters were of temporary character - simple and lightweight. As communities began to recognize the benefits of sedentary living with stability and security, a transition to more enduring dwellings took place. People sought to establish a sense of permanence, leading to the development of a more robust architecture that could withstand the test of time. The structures featured permanence - solid and stable (Frampton, 1995).

Gottfried Semper, a German architect, historian, and theorist, published a significant book called "The Four Elements of Architecture" in 1851. In this writing, Semper divided the primitive buildings

into four basic elements: the heart, the earthwork, the framework, and the enclosure membrane - each acting on different needs in relation to its surroundings (Schwartz, 2017). These are further categorized into two fundamental architectural principles: "earthwork" and "roofwork" which are also referred to as stereotomic (solid construction) and tectonic (filigree construction) (Frampton, 1995). All subsequent forms of construction can trace their roots back to these two essential approaches, even though the spectrum today is much more fluid (Deplazes, 2018).

The most apparent distinction between stereotomic and tectonic structures is the contrast between light and heavy. Stereotomic structures, most commonly associated with permanence and mass, are characterized by their solidity (Schwartz, 2017). Materials such as brick, stone, and concrete are often used to create these robust forms. In contrast, tectonic structures emphasize lightness and openness, marked by an assembly of linear and rod-like members. They reflect a more temporary character and utilize materials like wood, steel, or similar lightweight elements (Deplazes, 2018).

A significant difference between the constructions is the spatial shaping. In the stereotomic principle, the structure directly encapsulates the space and shapes the spatial boundaries. While in the tectonic principle, the structure doesn't rigidly dictate the relationship between the interior and exterior. It is open in its essence and therefore demands an additional layer to define space (Frampton, 1995).

## CASE STUDIES

### HOUSE BABANEK

Heinz Bienefeld  
Brühl, Germany



The basis of the project named House Babanek, designed by Heinz Bienefeld, lies in the juxtaposition of two construction methods (Senses Atlas, 2020). Placed side by side, a heavy brick facade and a light steel curtainwall appear in a contrasting, yet coherent expression. The building resembles a classical industrial warehouse, where the enduring, sturdy brick composition is adjacent to the sleek,

sophisticated framework of steel, featuring refined minimalistic lines. The encounter between the two contradictory elements creates an interplay of enclosure, robustness, light, materiality, and tactility. This piece of work is noteworthy in a discussion of space and structure as it consistently speaks with and against itself in all scales, from volume to detail.

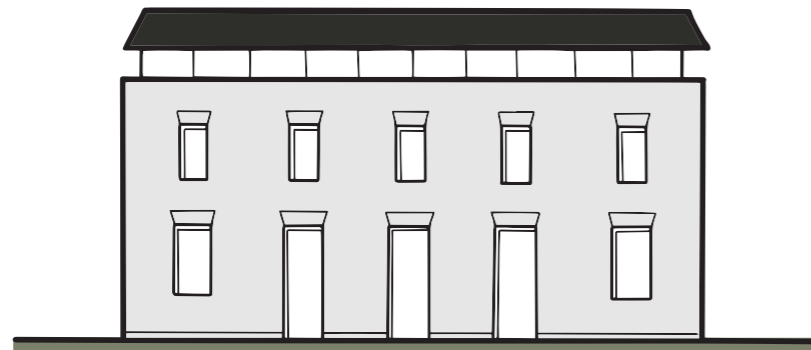


Figure 9. Illustrated facade of Babanek House.

### DE BLAS HOUSE

Alberto Campo Baeza  
Sevilla la Nueva, Spain - 2000



On the hillside, overlooking Sierra de Gredos, Alberto Campo Baeza designed a private villa in 2000 (Arquitectura Viva, 2023). The project embraces the sloping terrain and coexists with the challenging landscape, without striving to mimic it. In comparison to House Babanek, where the constructions are placed side by side, this building emerges through the composition of a tectonic volume on top of a stereotomic

foundation. The ground floor arises from the topography, housing all functions except the living room, in a comfortable indoor environment. Occasionally, well-selected windows break the solidity of the walls, offering glimpses of beautiful views. Above this volume, a roof structure with incorporated glass walls takes place, providing shelter from rain respectively wind.

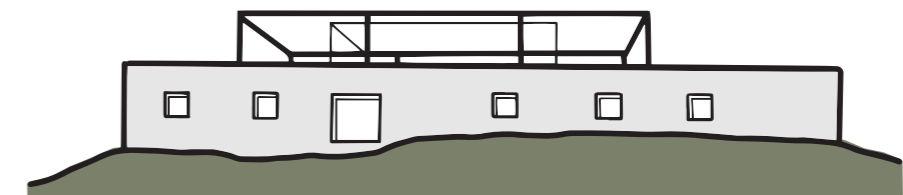


Figure 10. Illustrated facade of De Blas House.

## VILLA KJAERHOLM

Hanne Kjaerholm  
Rungsted coast, Denmark - 1962

With inspiration originating in traditional Japanese architecture, the Danish architect Hanne Kjaerholm designed a villa in Rungsted in 1962 (Hvass, 2007). Consisting of only one floor, an easily read, symmetrical floor plan was built up along an east-west axis. Using a grid layout, the arrangement of walls forms a pattern that distinctly emphasizes the contrast between the compact core in the back and the open living room towards the sea view.

An old pergola present on the site became the inspiration for the construction principle. It was resurrected in the distinctive rows of columns



made of whitewashed bricks and laminated wooden beams resting on top.

Villa Kjaerholm has a more integrated way of handling the heavy and light, compared to previous projects. Its massive walls in combination with the filigree roof provide an interesting interplay of spatial characters while also accommodating the differences of the site. The construction was inexpensive since it was designed rationally, with elements in the same shape and dimensions. With its high-quality detailing and long-lasting materials, the villa still appears wholesome today.

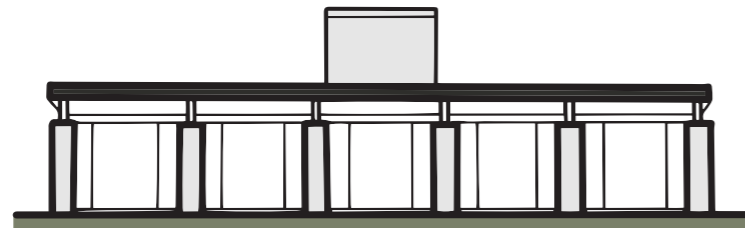


Figure 11. Illustrated facade of Villa Kjaerholm.

## INSIGHTS

### DUALITY

The investigation of theoretical literature and the examination of reference projects has led to a discovery of the potential of working with the concept of duality within architecture. Not only as a stylistic choice but also as a fundamental strategy to enhance human experiences within architectural spaces as well as to achieve a coherent development of a site.

#### TAILORED ENVIRONMENTS

When located amidst diverse outdoor settings, the built environment requires tailored treatment in different orientations to resonate with and respond to varying characteristics of the site. By embodying contrasting expressions of light and heavy, the building can dictate the depth of engagement with the surrounding environment and the connection to its context. It urges for a balance between openness and restraint, defining areas where individuals are encouraged to pause, invited to peek inside, or drawn to enter. Embracing architectural duality within a single structure fosters a dynamic interplay of contrast, impacting the shaping of the spatial experience.

#### FUNCTIONAL ADAPTATION

Duality in architectural design serves essential practical functions but also enables buildings to adapt to changing and evolving needs over time. In the shaping of social dynamics and human experiences within a library, the integration of contrasting features within the building plays a crucial role. The inherent character of a built structure can significantly influence the behavior of its occupants, nudging them towards concentration but simultaneously fostering opportunities for communal gatherings and interactions. It ensures security and privacy while also satisfying the need for connectivity and social interaction.

#### SPATIAL DYNAMICS

The built structure highly influences spatial experiences, defining both interior and exterior characteristics. Through a careful interplay of contrasts, it engages the senses and enriches architectural encounters by heightening sensory engagement and spatial awareness. However, duality in architecture extends beyond mere aesthetics. It also reflects a variation of atmospheres serving diverse functions. Buildings with diverse rooms cater to various needs and preferences, providing spaces for different activities. Moreover, they encourage social interaction and community engagement. By providing areas for both private retreats and communal gatherings, these buildings facilitate social connections and collaboration among users.



Figure 12. Göteborgs Naturhistoriska Museum.

# IMPLEMENTATION

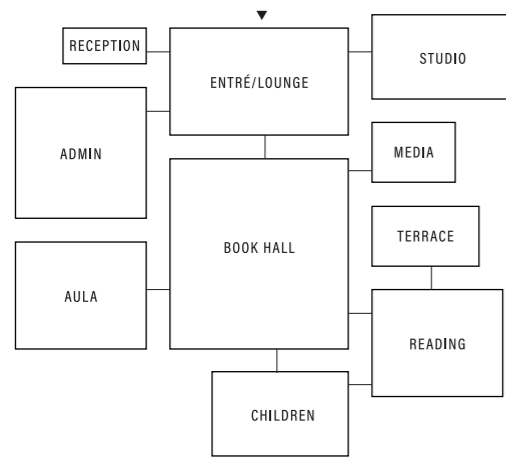
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CONTEXT

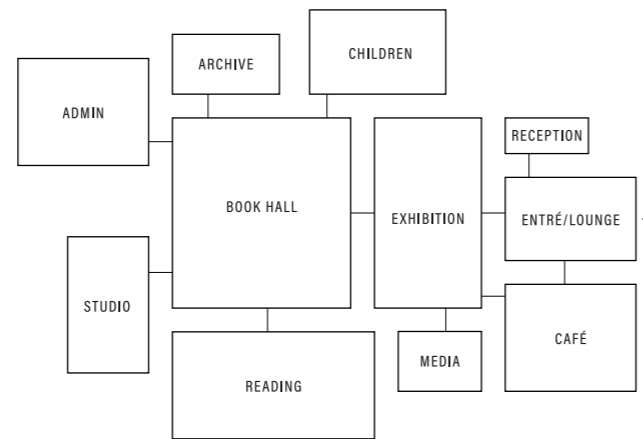
ITERATIONS

THESIS LIBRARY

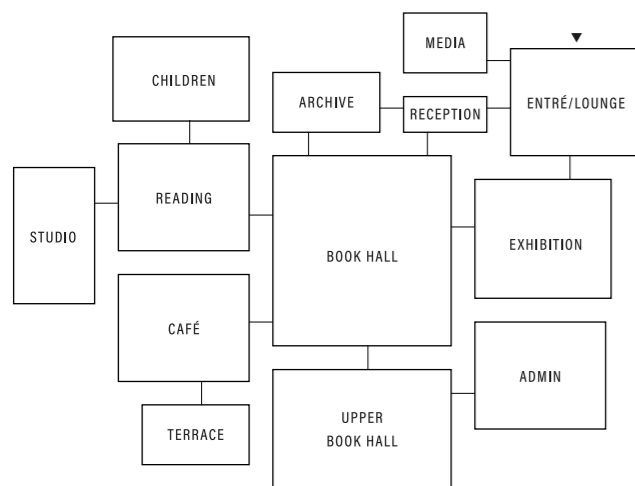
HÖGDALENS LIBRARY 850 m<sup>2</sup>



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LOMMA LIBRARY 1200 m<sup>2</sup>



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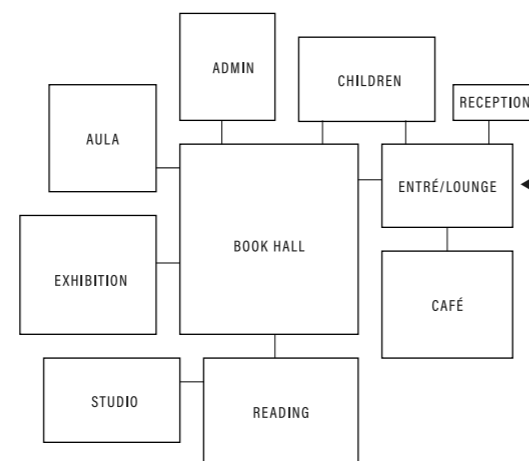


Figure 13. Spatial configuration in reference libraries.

## CONTEXT

### LIBRARY INSTITUTIONS

#### SIGNIFICANCE FOR SOCIETY

The concept of libraries has its traces far into history. As social institutions, they have long served as spaces where humans interact with and access knowledge. In contemporary contexts, the role of libraries extends far beyond its traditional one. Although its primary focus is to foster knowledge, it also serves as a vibrant communal gathering space that contributes to cultural enrichment, creativity, and innovation. They serve as freely accessible public spaces, promoting inclusivity as a fundamental principle. There is an ongoing discussion about the death of printed books and a lack of interest in libraries. However, considering its role as more than just repository for books it still plays a vital role in society as center of democracy and enlightenment (Joson, 2022).

#### SPATIAL ASPIRATIONS

Libraries serve as multifaceted spaces where diverse spatial aspirations converge to meet the needs of their users. At its core is a desire to create spaces that foster concentration and focus. Quiet reading areas - characterized by soft lighting, comfortable seating, and minimal distractions. In contrast, libraries also aim to facilitate collaboration and interaction among people. Dynamic and open areas that encourage interactions, project work, discussions, and knowledge exchange.

In its essence, it seeks a balance between solitude and social vibrancy. A space where you can unwind or concentrate, yet also socialize and engage with the community.

#### REFERENCE PROJECTS

A study of reference libraries clearly shows how the books are at the center of the building. The spatial configuration revolves around this activity, from where almost all functions can be accessed. As a complement, there are social meeting places such as a café, lounge, and gallery, often in connection with the entrance. In addition to the book hall, the libraries also contain reading areas of various types, a separate section for children, a digital library, an auditorium, and studios for workshops. Administrative and supportive functions are partly distributed at the entrance and the back of the building. The sizes of the examined libraries range from 800 m<sup>2</sup> up to 2200 m<sup>2</sup>, where the majority of the space is allocated to book halls and reading areas.

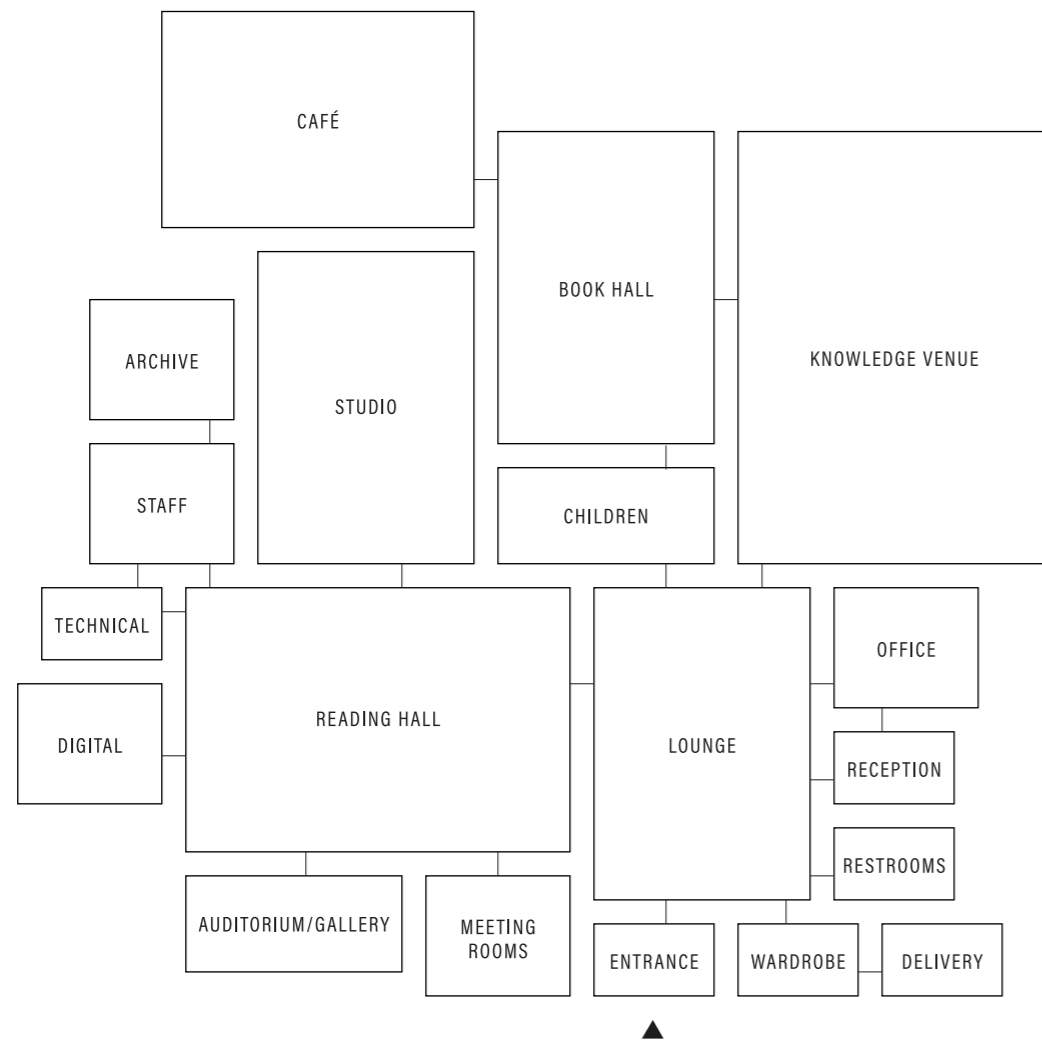


Figure 14. Spatial configuration in thesis library.

## SCOPE

### BREIF

The space program for the thesis project is based on previously presented reference libraries. It is divided into four parts: library, community, administrative area, and supporting functions. At the heart of the building lies a focus on books and activities associated with them. A flexible studio space allows for various user activities such as workshops or lectures and the auditorium/

gallery enables exhibitions, adding a cultural dimension to the library. A café encourages public activity outside the building and creates a space for social exchange. Supporting functions are discreetly integrated into the design and for staff members, secluded areas provide offices and a place for rest.

### SPACE PROGRAM

<b>LIBRARY</b>		<b>COMMUNITY</b>	
• Book hall	90 m <sup>2</sup>	• Lounge	100 m <sup>2</sup>
• Reading hall	150 m <sup>2</sup>	• Café	90 m <sup>2</sup>
• Knowledge venue	180 m <sup>2</sup>	• Studio	90 m <sup>2</sup>
• Children's section	40 m <sup>2</sup>	• Auditorium/gallery	60 m <sup>2</sup>
• Digital library	30 m <sup>2</sup>	• Meeting rooms	30 m <sup>2</sup>
<b>ADMIN</b>		<b>SUPPORTING FUNCTIONS</b>	
• Reception	15 m <sup>2</sup>	• Wardrobe	15 m <sup>2</sup>
• Office	30 m <sup>2</sup>	• Restrooms	15 m <sup>2</sup>
• Staff-room	30 m <sup>2</sup>	• Archive	30 m <sup>2</sup>
• Delivery	15 m <sup>2</sup>	• Technical room	20 m <sup>2</sup>
		<b>TOTAL:</b>	<b>1030 m<sup>2</sup></b>

## SITE

### GEOGRAPHIC POSITION

The selected project location is strategically situated at the lively crossroads of Linnéplatsen in Gothenburg, Sweden. The absence of nearby libraries presents an opportunity to establish a place for knowledge and simultaneously act as an essential community gathering space. Its central placement in the city ensures accessibility and prominence, ideal for a community-oriented facility.

The site is the endpoint for one of Gothenburg's main streets, Linnégatan, and is the entrance to the popular park known as Slottskogen. It is an important junction of the city traffic, both in terms of cars, pedestrians, cyclists, and public transport. Adjacent functions consist of residences, open green areas, stores, universities, senior housing, preschools, and office buildings.

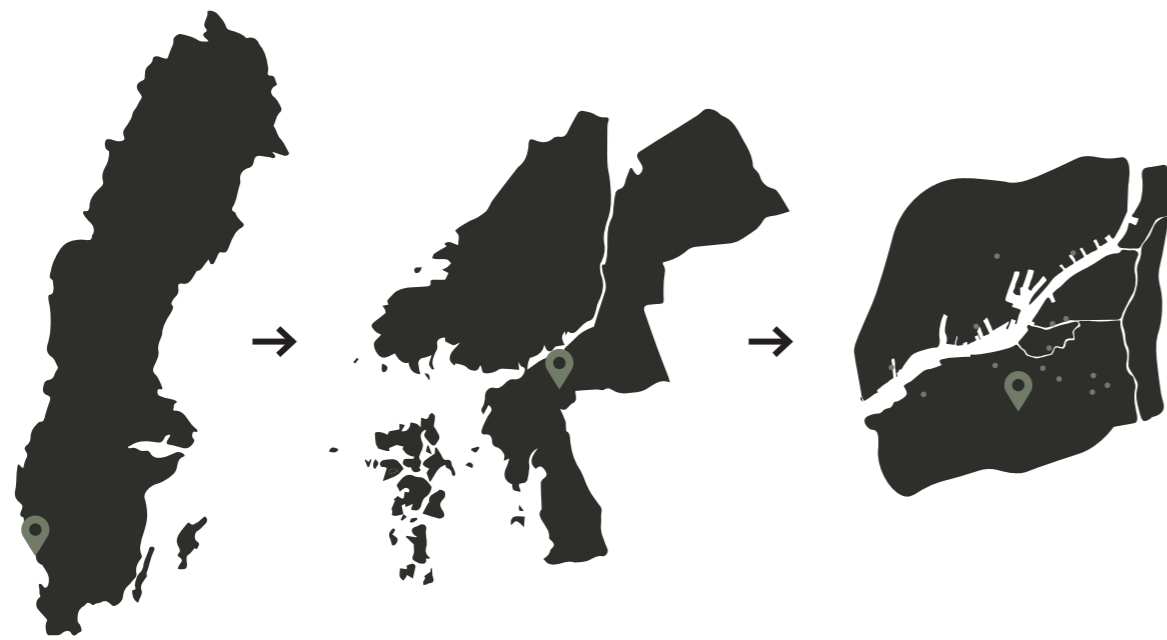


Figure 15. Geographic position of site.

### SURROUNDING FEATURES

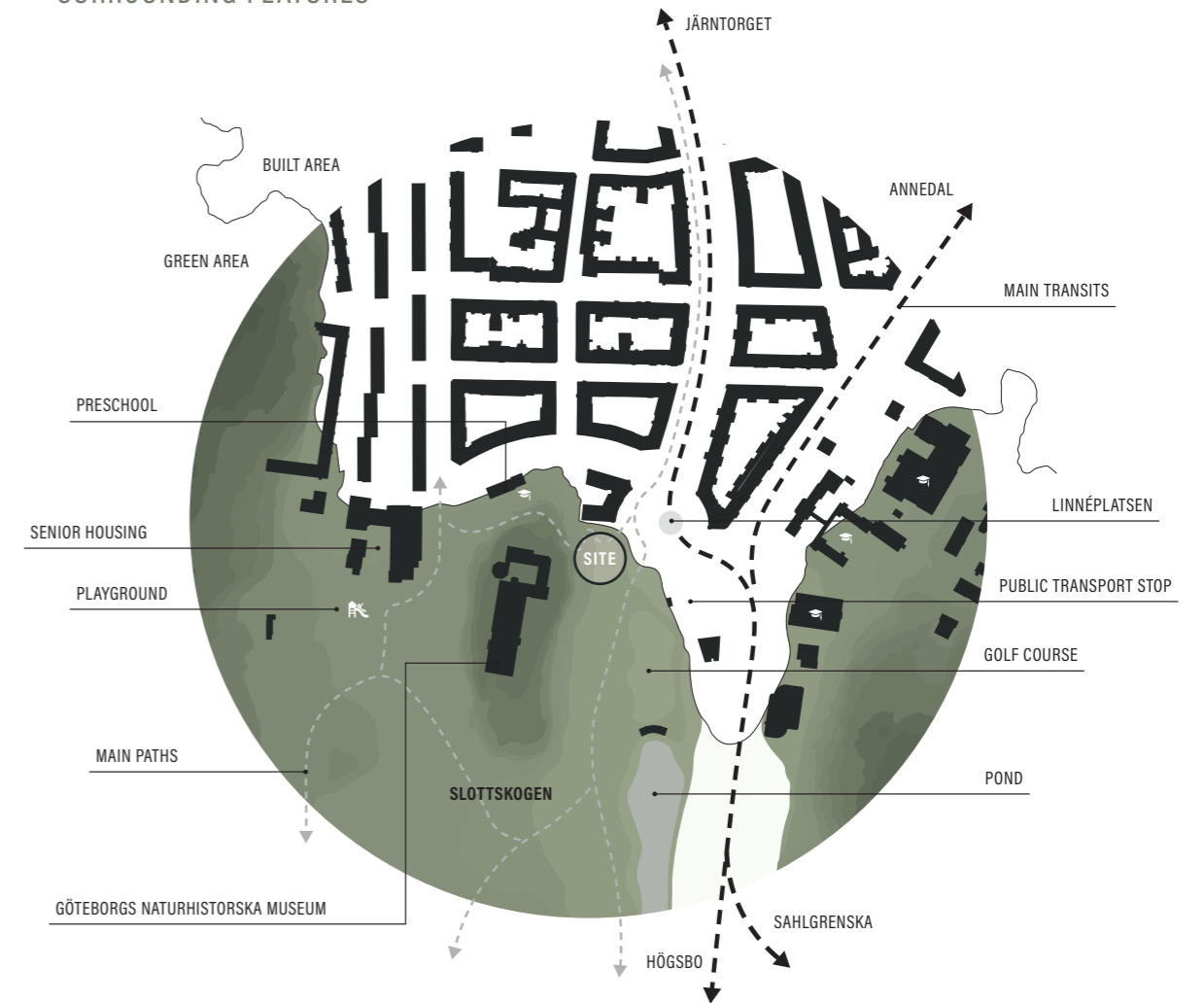


Figure 16. Overview site functions.



Figure 17 - 20. Adjacent features on project site.

## CHARACTERISTICS OF THE SITE

Positioned at the border between lush greenery and urban development, the chosen site possesses the advantage of an interplay between recreational nature and active city life.

The western part of the site showcases natural hilly terrain, distinguished by its covering of tall trees and vegetation. At its base, the slope transitions into a green park with scattered trees, defined by openness and public activity. Positioned below the hill one is immersed in the vibrance of city life, but as you ascend into the trees, the atmosphere shifts to one of serene recreation. The presence of the hill serves as a prominent background, outlining the western edge of the site and establishing an overall eastern orientation. Over the course of the day, the sun hits the park with only individual trees casting scattered patches of shadow. As evening approaches, the hill offers additional shade, contributing to a cooler atmosphere.

The opposite part of the site is characterized by grounded and robust brick building blocks. Ranging from 6 and 8 floors in height, they appear

relatively large-scale, but despite that, they have a friendly and calm expression. The facades are divided into base, body, and finish with the upper floors also serving functional purposes. Perforation is rather low, making the facades somewhat introverted, except for the ground floors, which open up for their public activities. The windows are placed in a steady rhythm and offer a variation between the different segments of the facade composition. All buildings have a forecourt that creates distance from the highly trafficked streets and movement of people but also provides space for outdoor seating and greenery.

The intersection of the two contrasting characters creates a contrasting effect where the different features enhance each other. This presents an opportunity to develop a structure that not only engages with the vibrancy of the city but also provides a serene place for recovery.

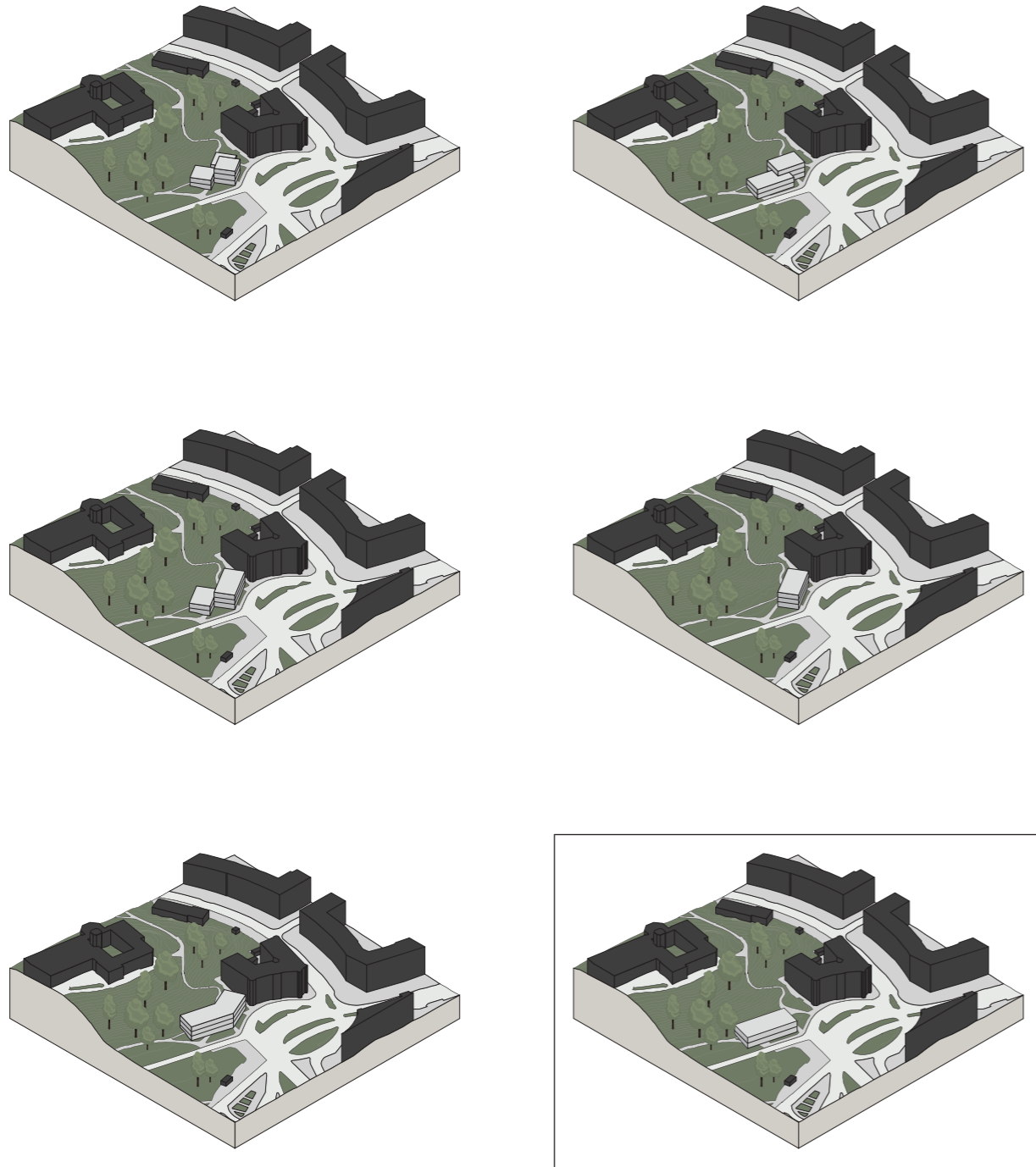


Figure 21. Volume studies on site.

### VOLUME TREATMENT

Since the library differs from the adjacent buildings in both scale and function, the treatment of the volume can not be handled the same way. It requires an approach where it speaks to the building blocks without mimicking them, and equally importantly, not appearing overly imposing in contrast to the flat park. As the site serves as a junction point of movement from nearly all directions, the building lacks a backside, which needs to be taken into consideration. Similarly, the entrance must be positioned in a manner that attracts people from various directions. The main courses of the site are towards Linnégatan, towards the public transport stop, and the path leading into the park. The volume treatment must account for the steep terrain, along with solar conditions and nearby outdoor areas.

The selected volume has a grounded and clear, rectangular shape which is placed along the park path. The positioning is intended to create an area in front of the building, allowing for an entrance zone while also providing space between the building and the terrain. As a result, the inside of the building mainly constitutes a visual connection to the vegetation of the slope whilst simultaneously creating an exterior space that directly engages with nature. With this placement, room for both shade and sun is also achieved. The elongated shape further acts as part of the entrance to the park, guiding people in without standing in the way.

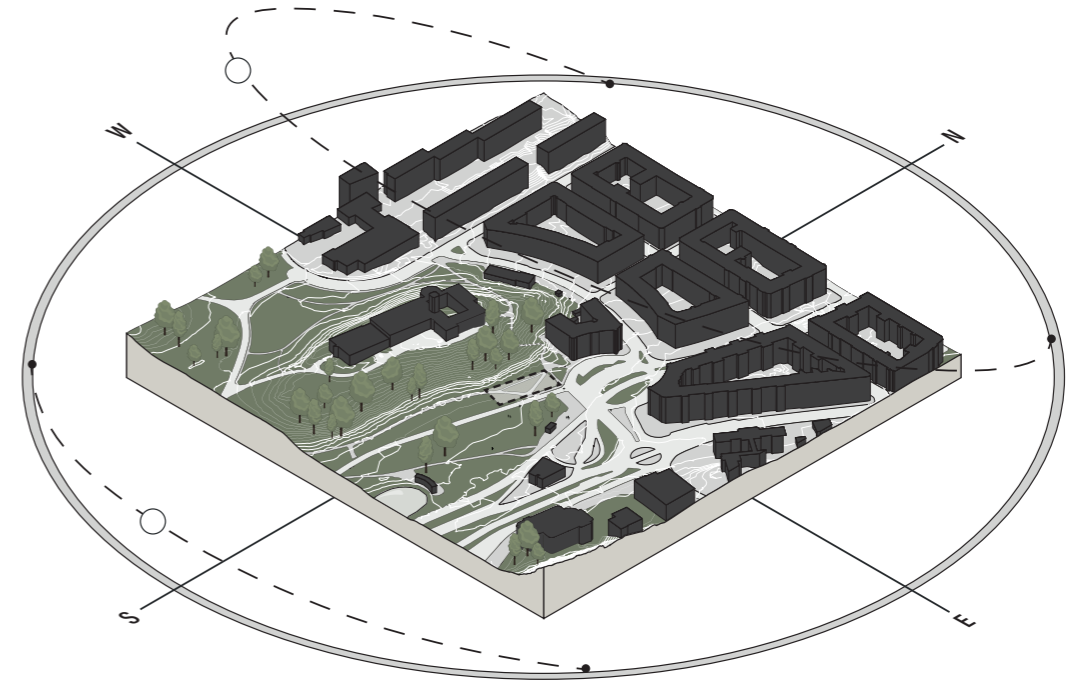


Figure 22. Site with cardinal directions and solar paths.

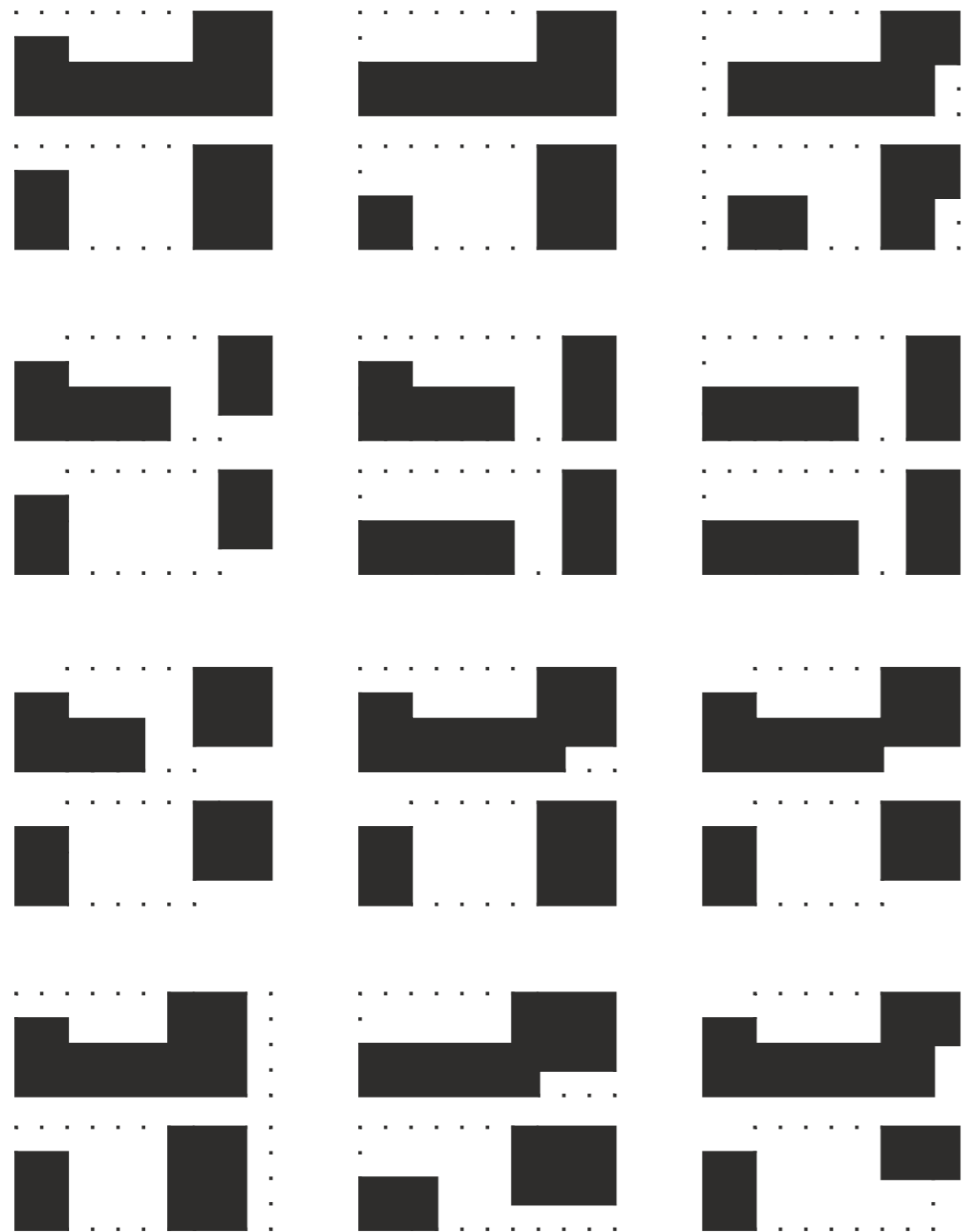


Figure 23. Contrasting volume compositions in plan.

## ITERATIONS

Alongside the design process for the proposal, graphical iterations have been carried out. As test-beds, they have played a significant role in shaping the design as idea injectors and as a basis for decision-making. All iterations are closely tied to the chosen site with varying focal points. The site can be segmented into two distinct areas: the vegetation side and the urban front. The main movements at the site indicate a meeting point, suitable for an entrance situation. These factors, combined with solar and topographical conditions, represent the primary guiding principles.

The first iterations focused on the composition of the building. To balance the contrasting expressions of light and heavy to respond to the

different characters the site offers, while also considering how it can cater to various needs and preferences for people inside the building. Following this, attention turned to the entrance situation, which evolved into an exploration of how to appear open and welcoming while remaining enclosed and stable.

Further iterations focused on the perforation rate in the facade and its impact on the expression of the building. For instance, small windows in the solid construction combined with large gaps in the filigree compared to large openings and small gaps. Additionally, iterations concerning the arrangement of wall openings, including variations in window sizes and the balance between order and freedom.



Figure 24. Guiding design principles.

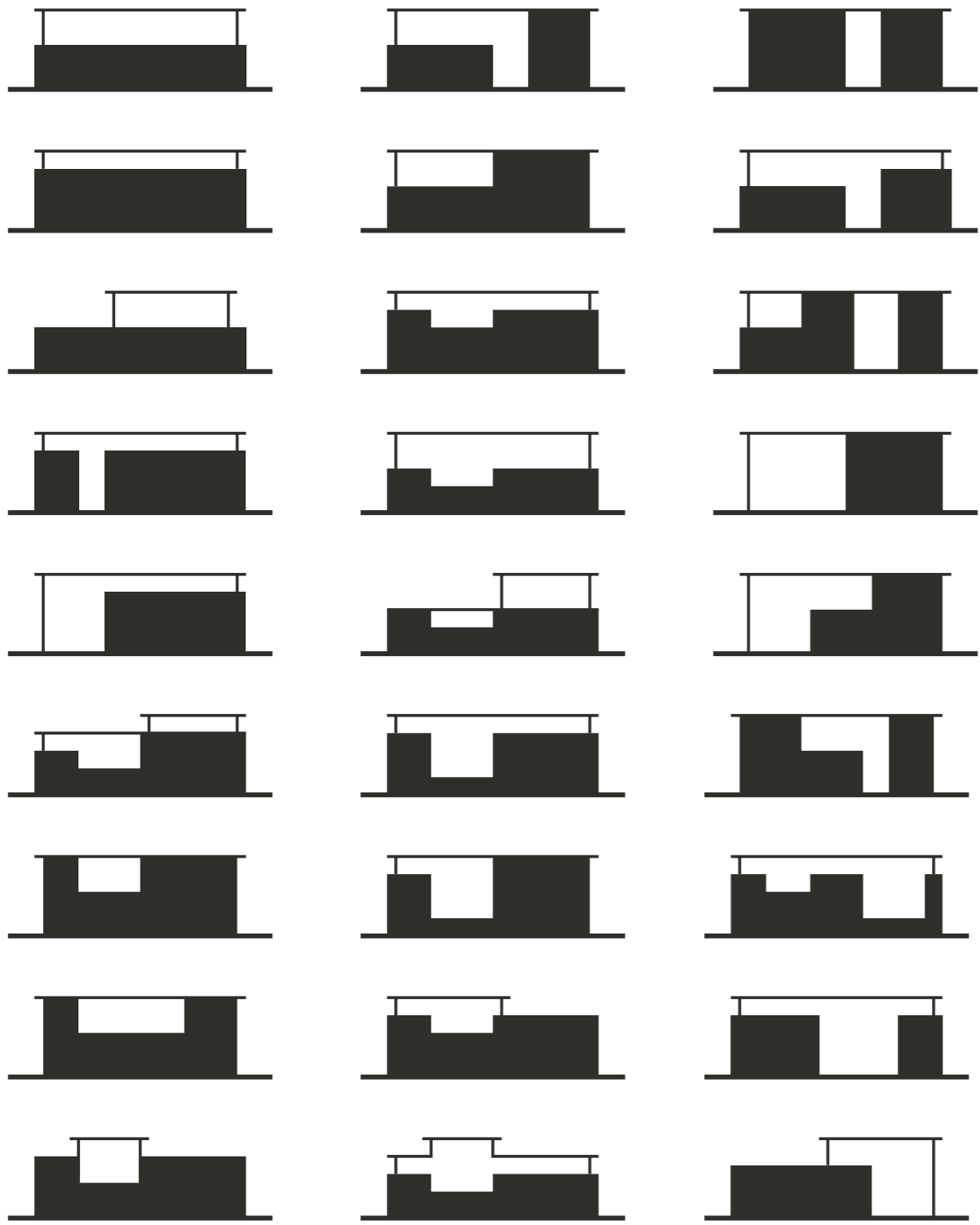


Figure 25. Contrasting volume compositions in facade.

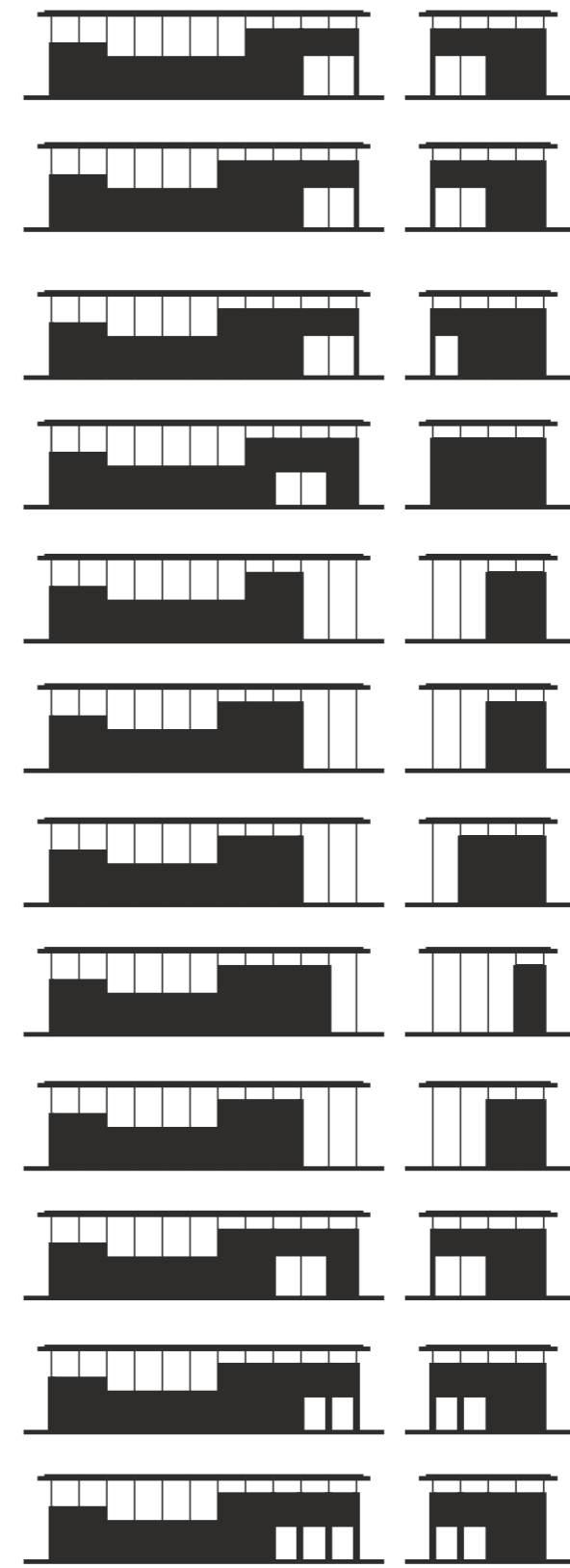


Figure 26. Entrance scenarios.

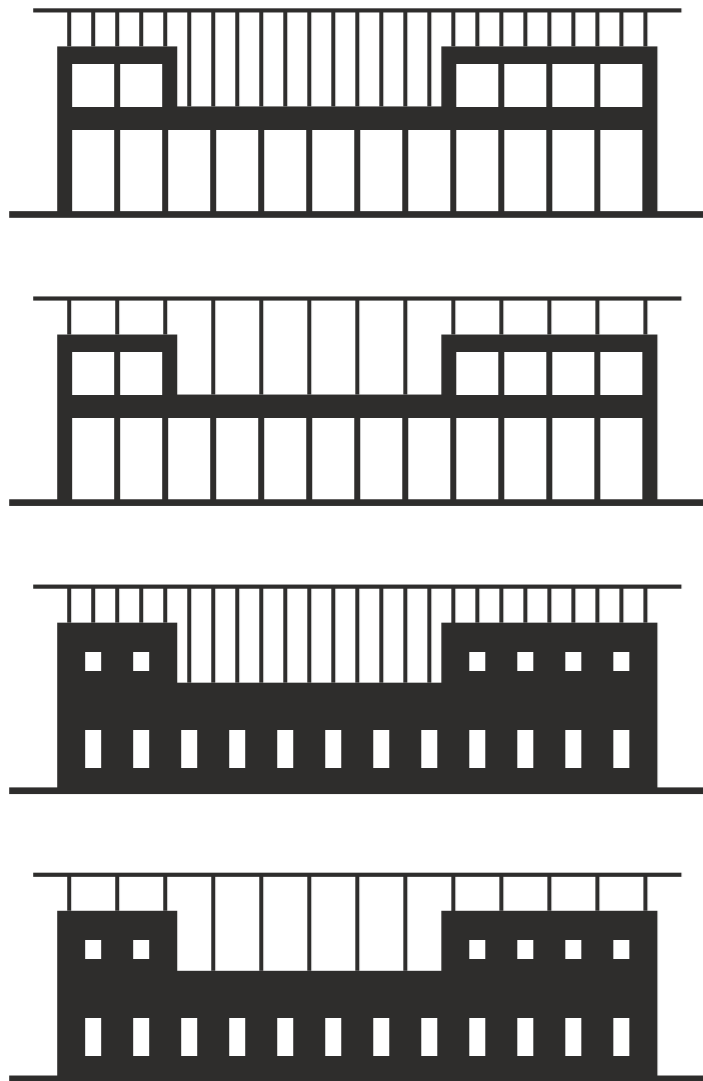


Figure 27. Levels of perforation rate.

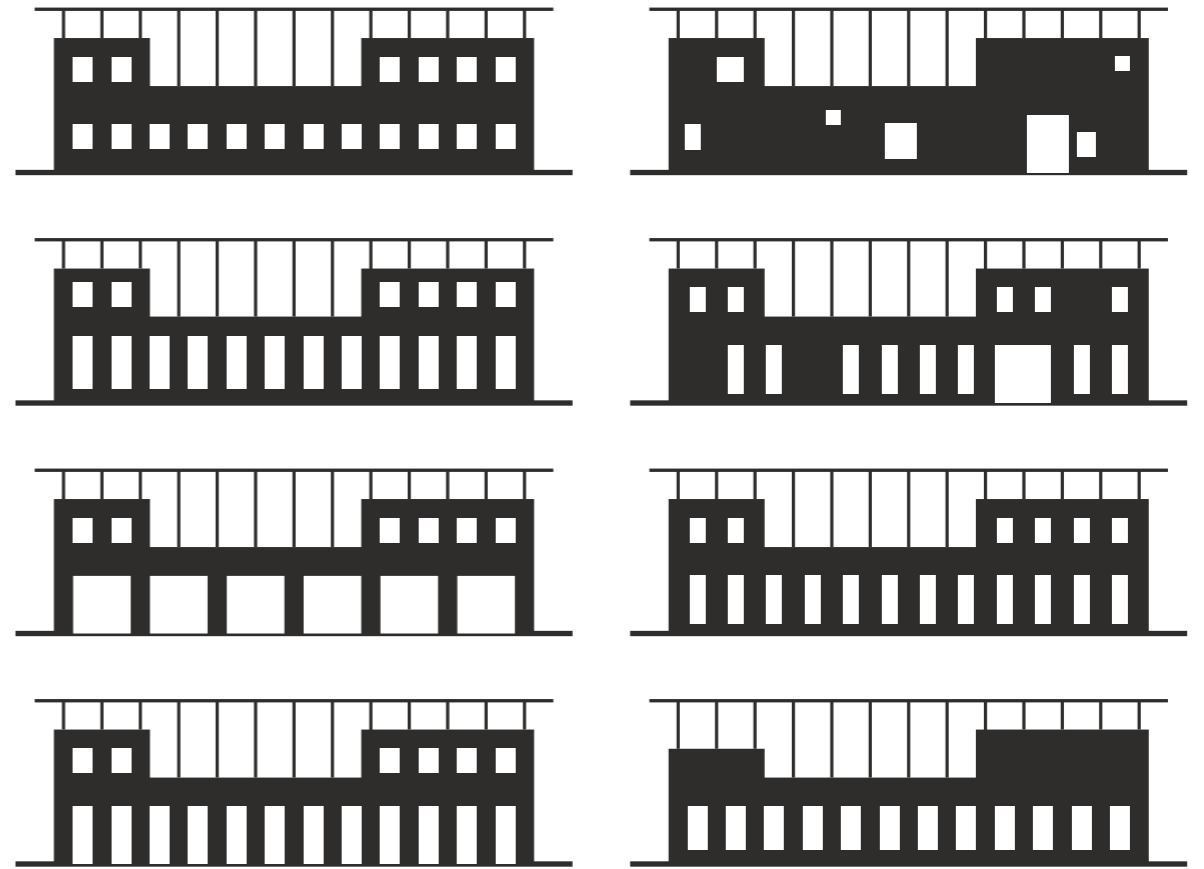


Figure 28. Arrangements of wall openings.



Figure 29. Exterior of thesis library.

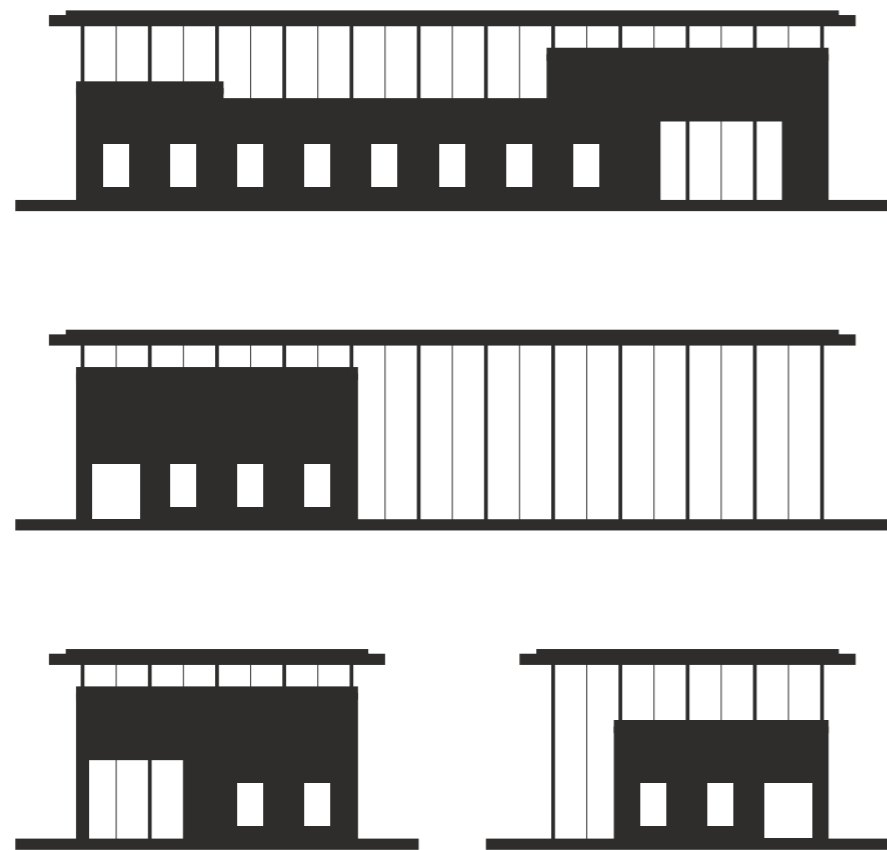


Figure 30. Final composition facade.

## DESIGN PROPOSAL

The proposed design features a two-story rectangular volume. Towards the urban side, the facade embodies solidity and stability while the side overlooking vegetation opens up to embrace nature. Within the solid part of the building, openings are integrated as voids within the wall structure, contrasting with the upper section where windows span entire sections between supporting pillars.

A sectional sequence within the upper plane, oriented towards the city, carefully shapes and directs the views experienced throughout the elongated shape. The entrance of the building is designed to capture people from multiple directions in an open and welcoming manner. The composition is held together by a protruding roof, perceived as floating above the lightweight construction it closely integrates with.

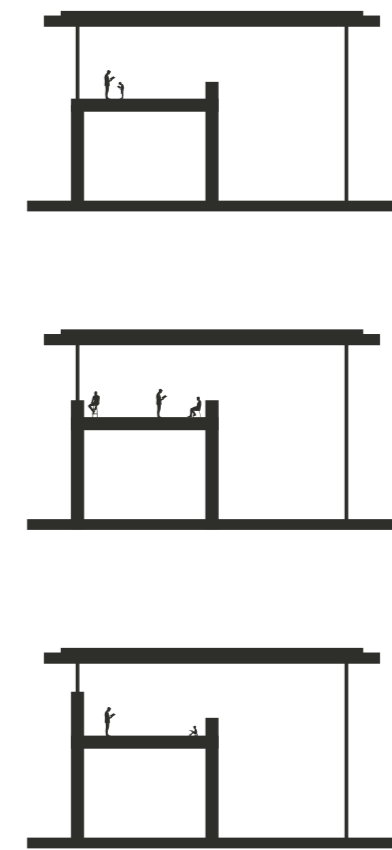
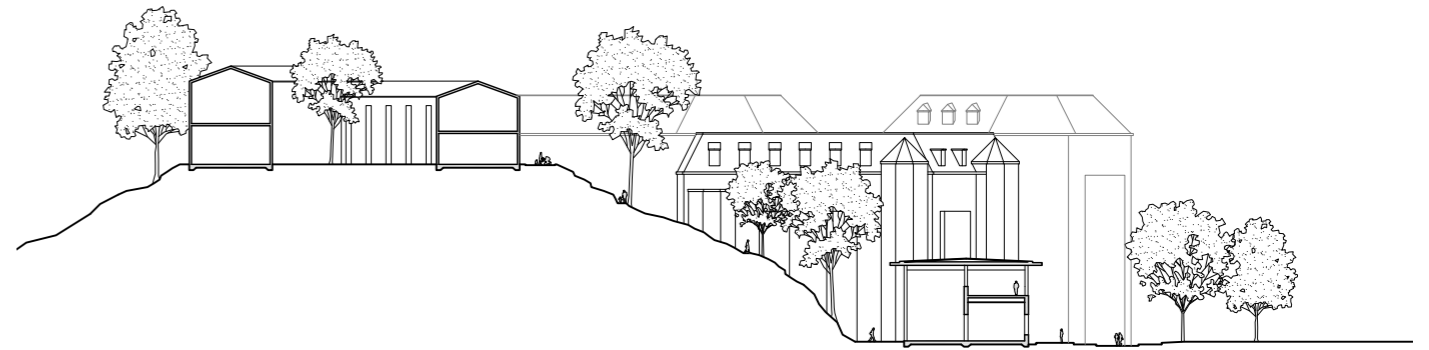
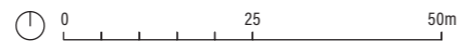


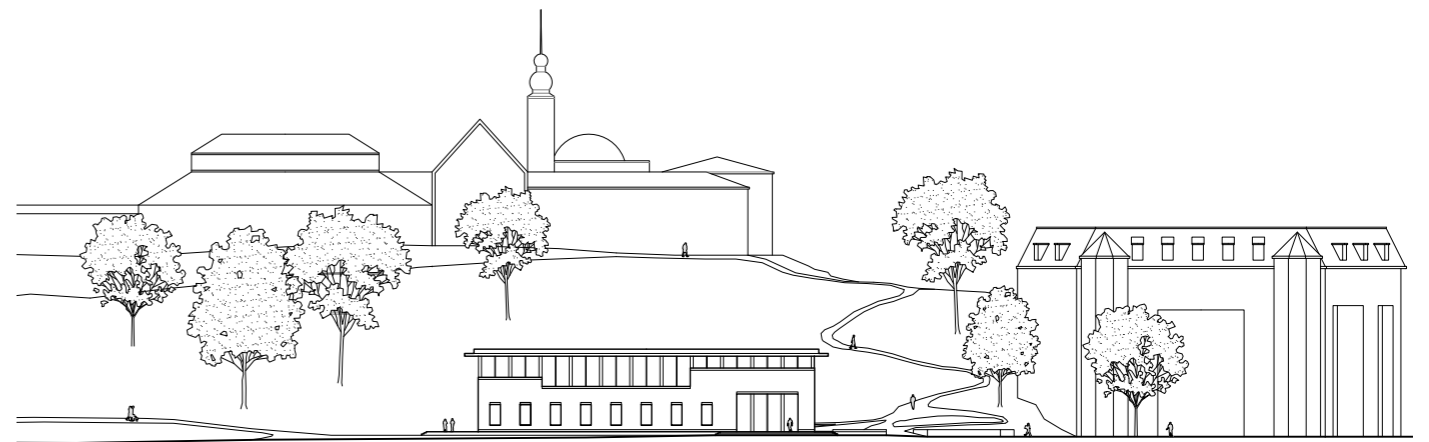
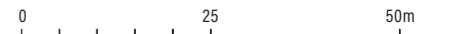
Figure 31. Sectional sequence.



SITEPLAN - 1:1000



SITE SECTION A - 1:1000



SITE SECTION B - 1:1000

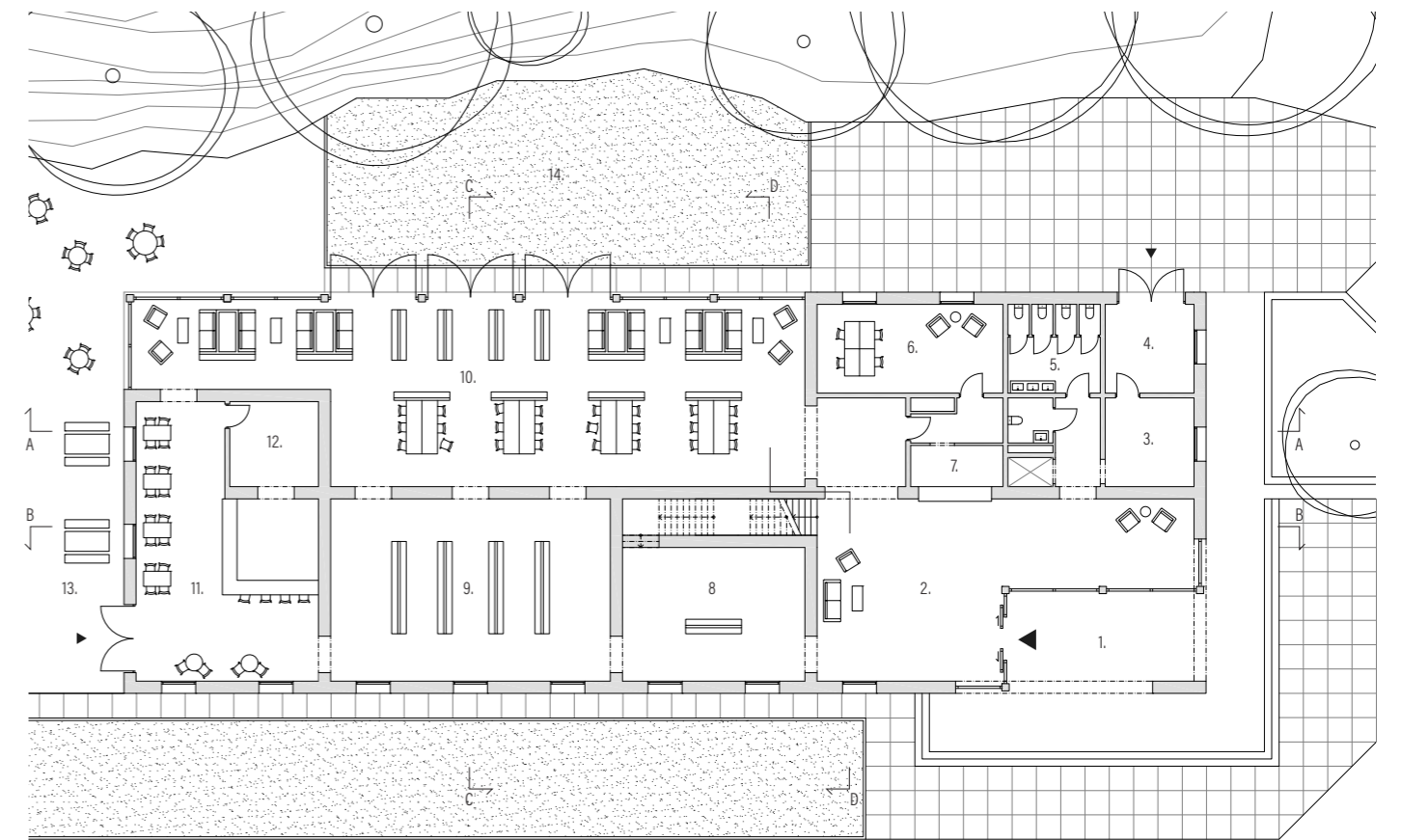




Figure 32. Entrance lounge.

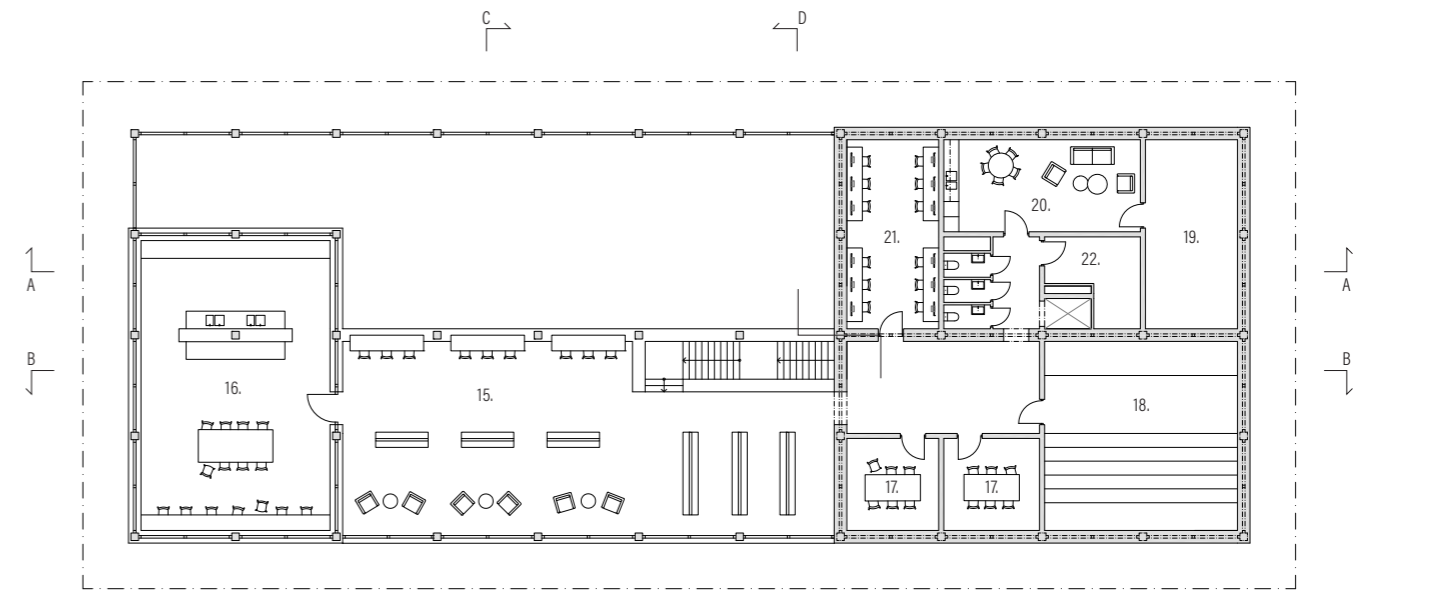


Figure 33. Workspace in reading hall.



- |                  |                       |                    |
|------------------|-----------------------|--------------------|
| 1. OUTDOOR FOYER | 6. OFFICE             | 11. CAFÉ           |
| 2. LOUNGE        | 7. RECEPTION          | 12. KITCHEN        |
| 3. WARDROBE      | 8. CHILDREN'S SECTION | 13. PATIO          |
| 4. DELIVERY      | 9. BOOK HALL          | 14. READING GARDEN |
| 5. RESTROOMS     | 10. KNOWLEDGE VENUE   |                    |

GROUND FLOOR - 1:300  
 0 5 10m



- |                        |                     |
|------------------------|---------------------|
| 15. READING HALL       | 19. ARCHIVE         |
| 16. STUDIO             | 20. STAFF-ROOM      |
| 17. MEETING ROOM       | 21. DIGITAL LIBRARY |
| 18. AUDITORIUM/GALLERY | 22. TECHNICAL ROOM  |

UPPER FLOOR - 1:300  
 0 5 10m



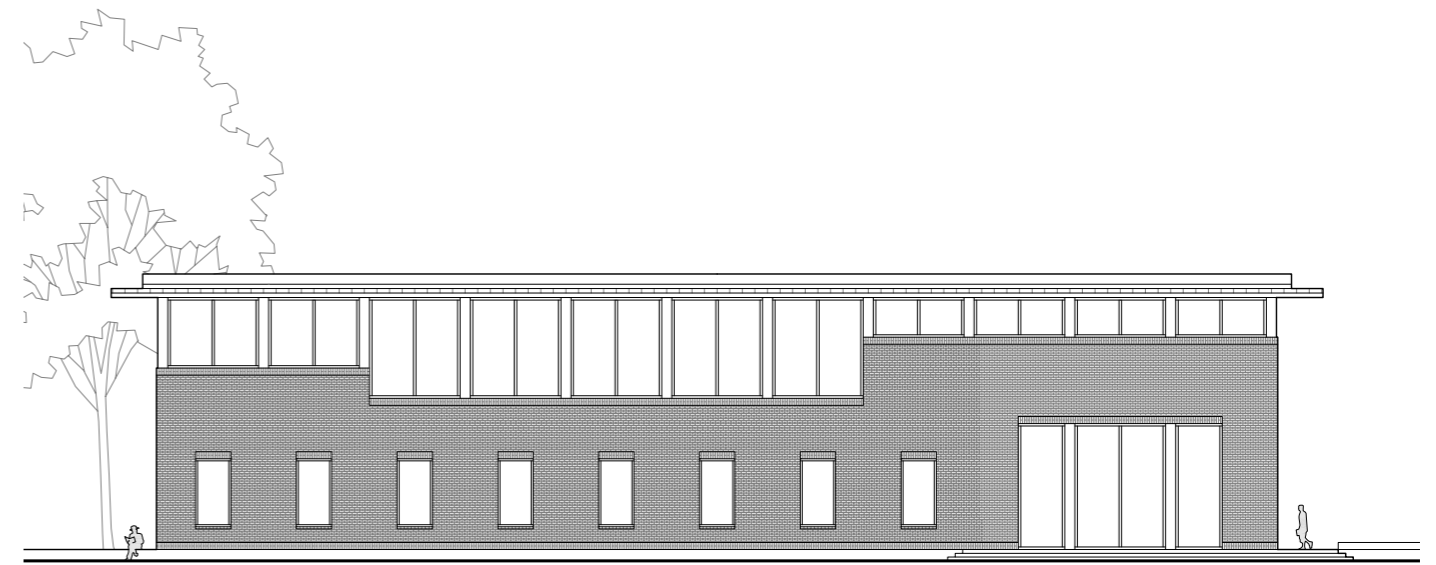
Figure 34. Knowledge venue.



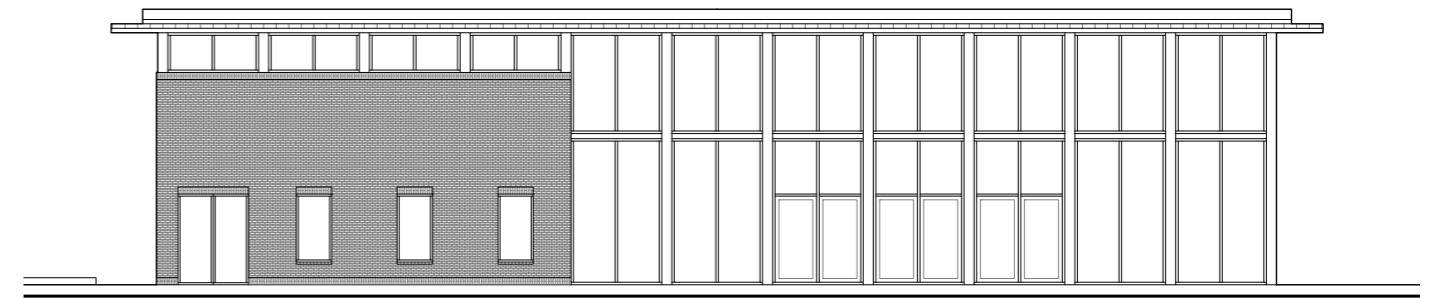
Figure 35. Entrance corner.



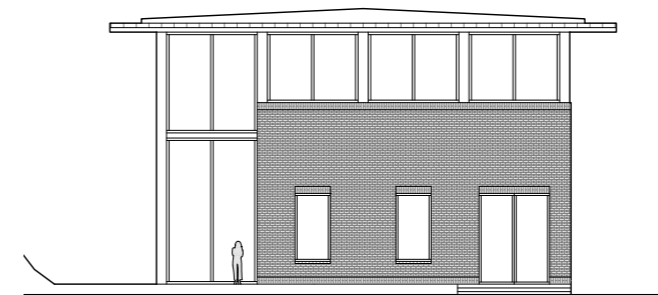
Figure 36. Patio.



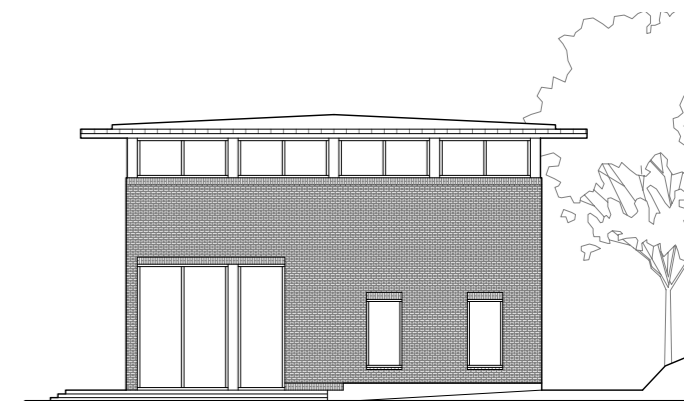
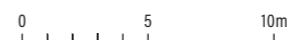
ELEVATION SOUTHEAST - 1:300



ELEVATION NORTHWEST - 1:300



ELEVATION SOUTHWEST - 1:300



ELEVATION NORTHEAST - 1:300

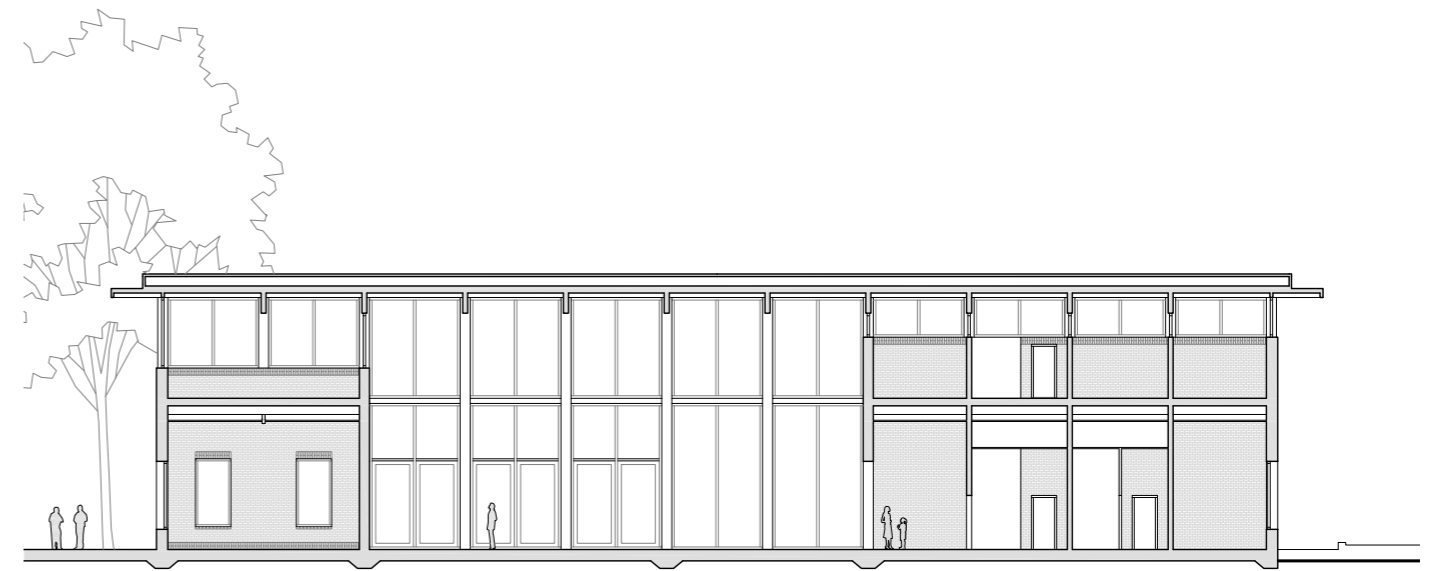




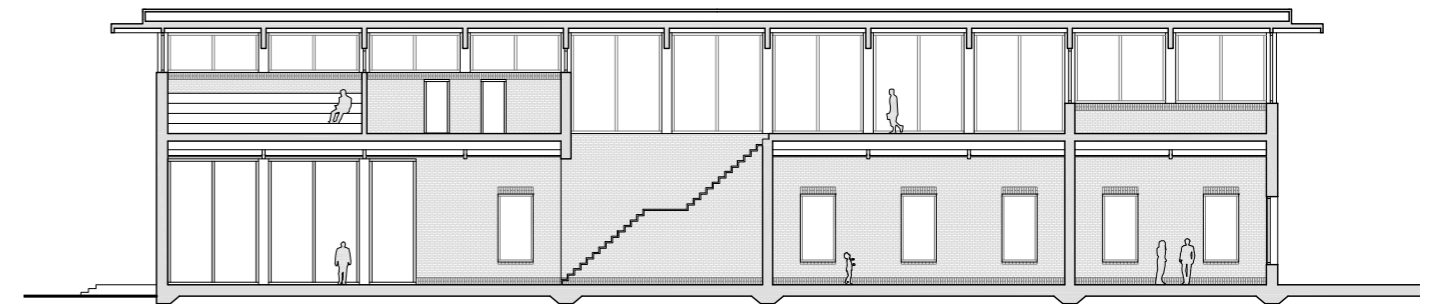
Figure 37. Studio.



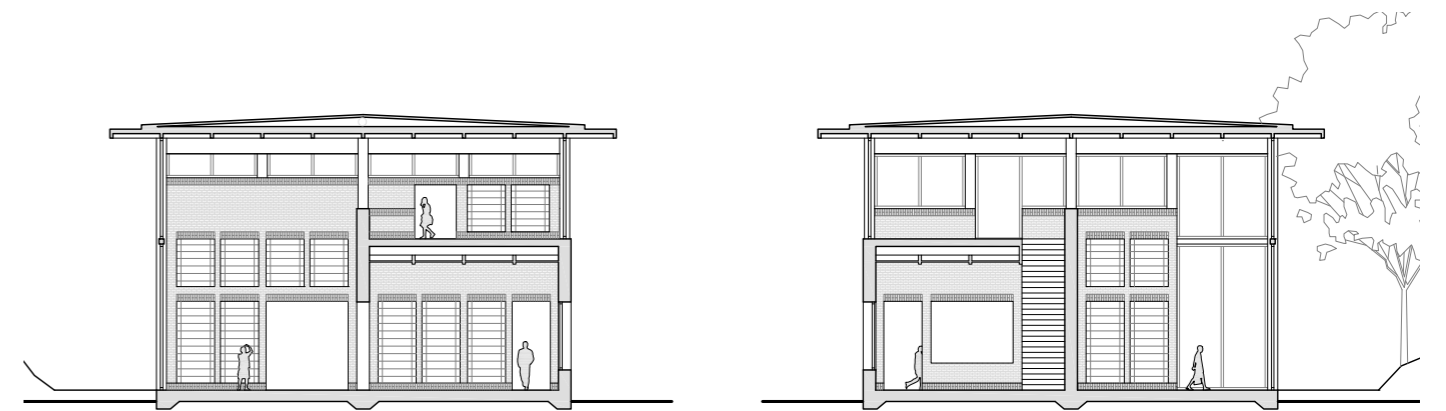
Figure 38. Café.



SECTION A - 1:300  
0 5 10m



SECTION B - 1:300  
0 5 10m



SECTION C - 1:300  
0 5 10m

SECTION D - 1:300  
0 5 10m



Figure 39. Reading hall.

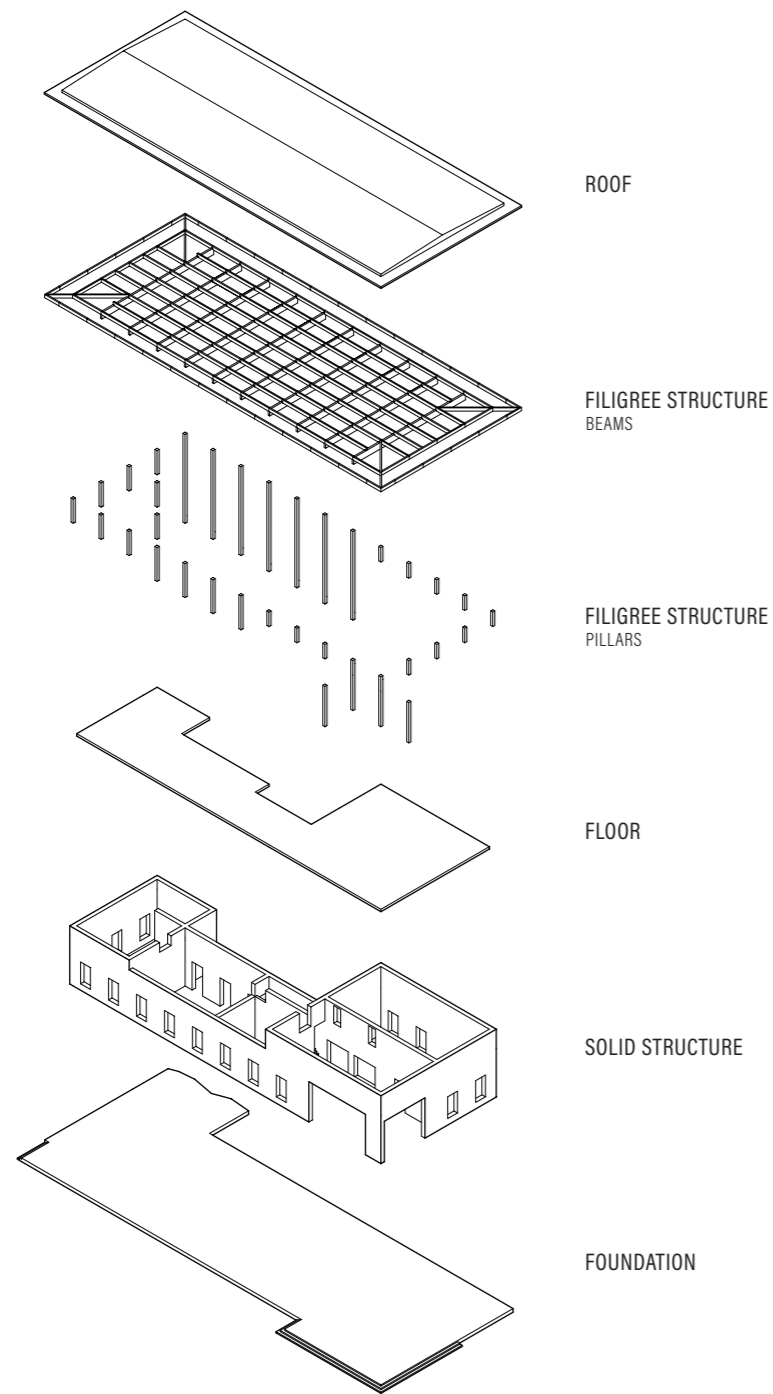


Figure 40. Building structure.

## STRUCTURE AND DETAIL

### CONSTRUCTION

The building consists of a solid construction of massive brick walls and a filigree composition of wooden columns and beams. The structure rests on a concrete slab that extends beyond the walls of the building to form an entrance staircase, a patio, and a backyard. While the solid base emerges from the ground, the filigree framework stands above, bending downwards. On top rests a metal roof in a floating expression.

The massive brick wall is mainly characterized by its expression of weight and consists of two parts of a brick wall. The windows are recessed within the structure, accentuating the solidity of the wall and from the exterior appearing as

holes within its surface. The brick has a shifting light beige tone and is laid in a bond pattern. The wall finishes with vertically laid bricks at both its lower and upper ends, adding a sense of irregularity to the surface while maintaining a coherent expression.

In contrast to the light bricks is the dark-pigmented wood. As a combination of massive wood and glulam with varying dimensions, it gives a lively yet enclosing character. The choice of wood and brick as a combination is motivated by its similar articulation of uniqueness in each component, which gives a diverse, honest, and cohesive appearance.

### MATERIALS



DARK PIGMENTED WOOD



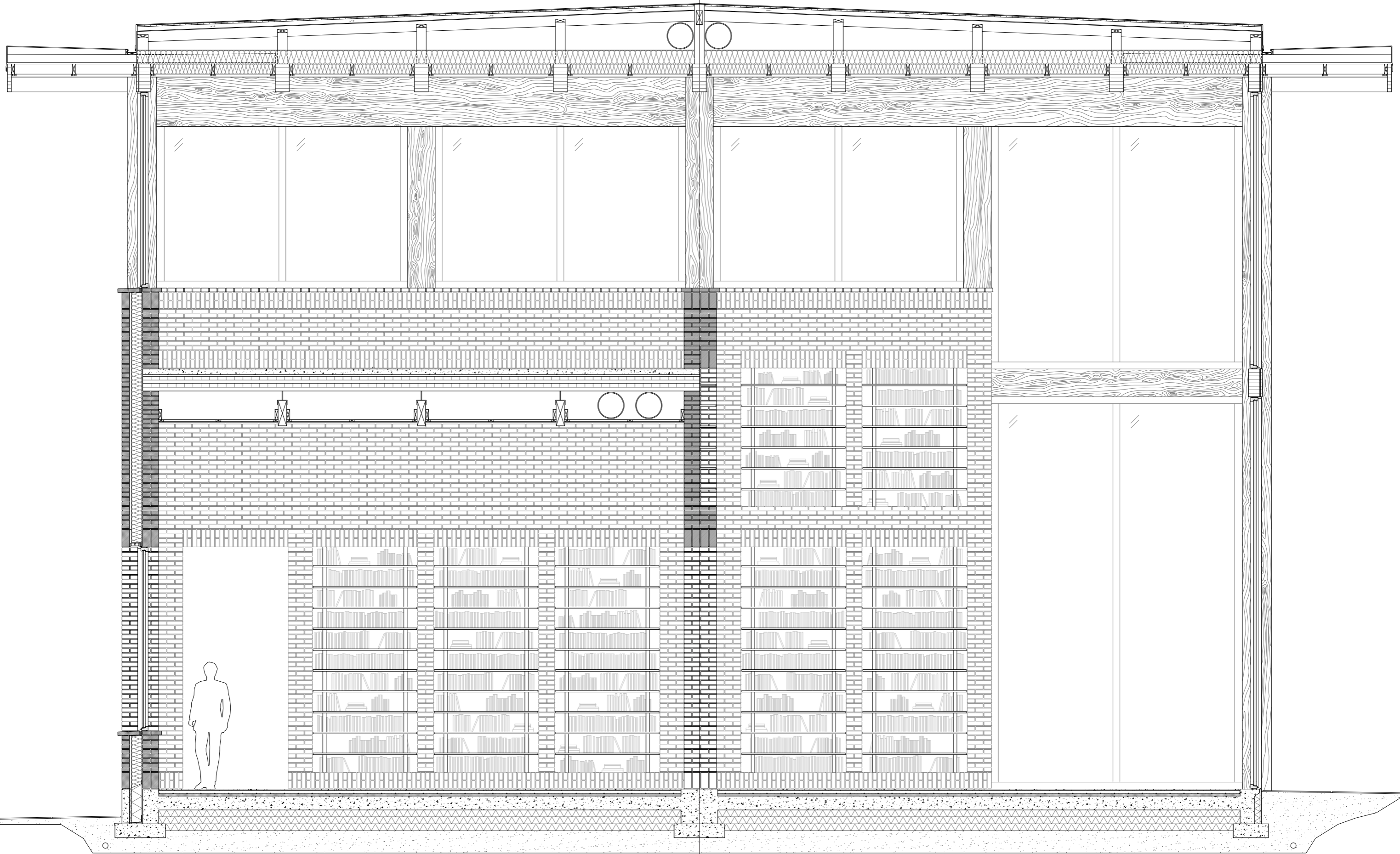
LIGHT BEIGE BRICKS



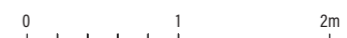
BLACK SHEET METAL

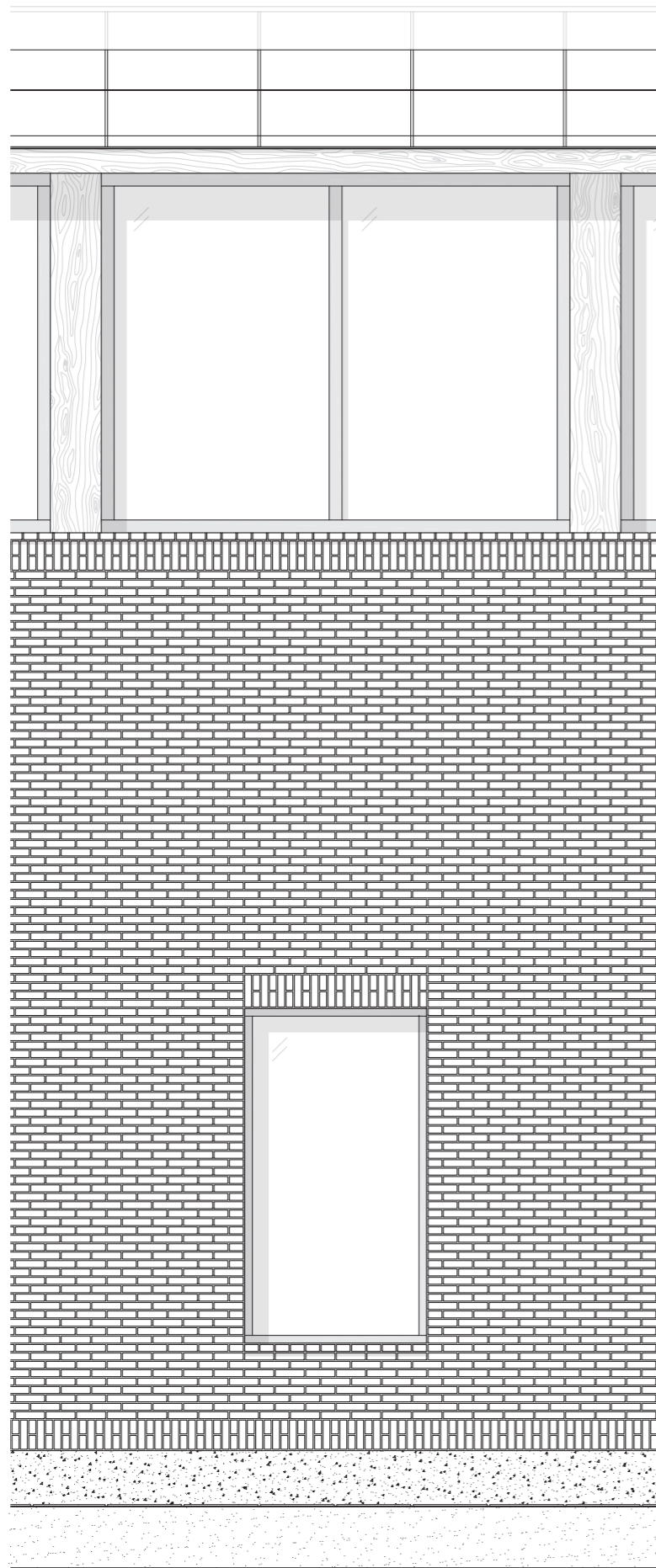


CONCRETE

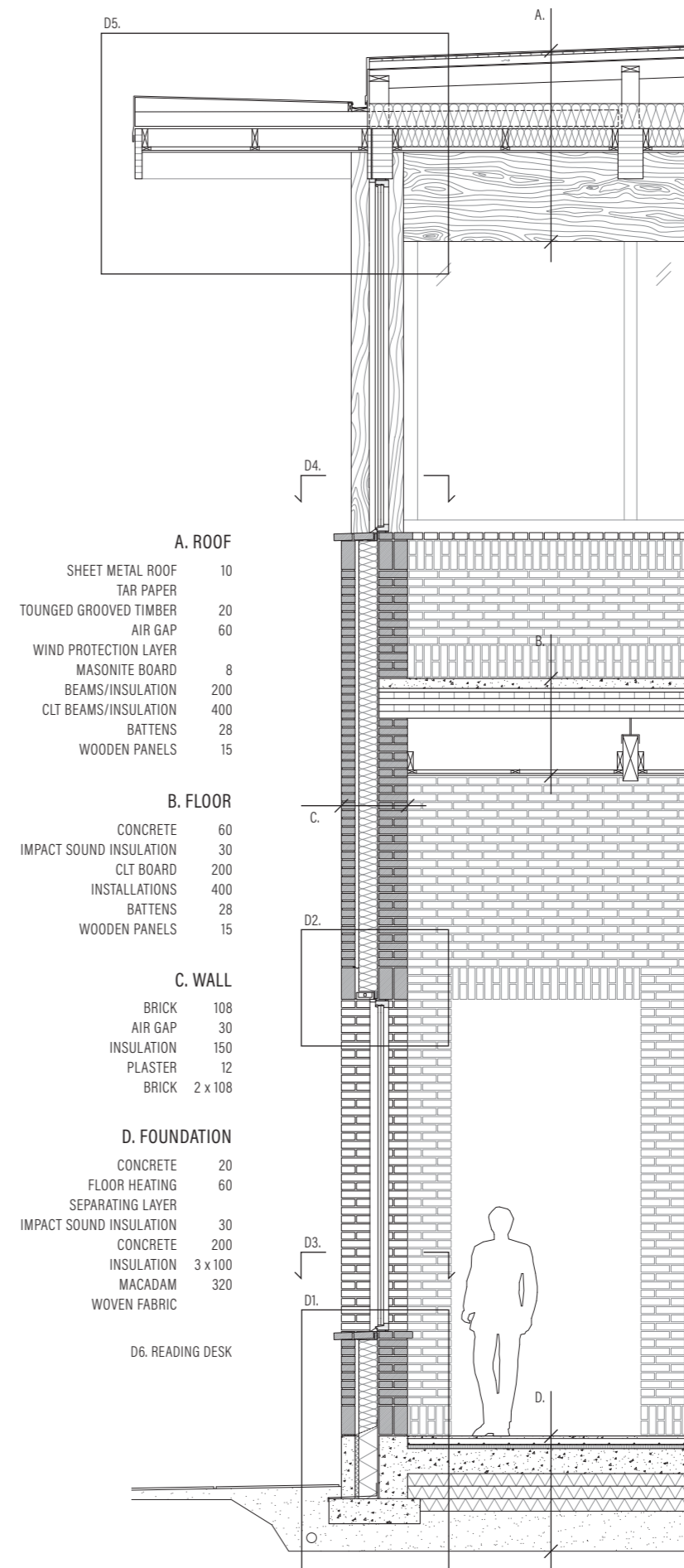


BUILDING SECTION - 1:50





DETAIL ELEVATION - 1:50



**A. ROOF**

SHEET METAL ROOF	10
TAR PAPER	
TOUNGED GROOVED TIMBER	20
AIR GAP	60
WIND PROTECTION LAYER	
MASONITE BOARD	8
BEAMS/INSULATION	200
CLT BEAMS/INSULATION	400
BATTENS	28
WOODEN PANELS	15

**B. FLOOR**

CONCRETE	60
IMPACT SOUND INSULATION	30
CLT BOARD	200
INSTALLATIONS	400
BATTENS	28
WOODEN PANELS	15

**C. WALL**

BRICK	108
AIR GAP	30
INSULATION	150
PLASTER	12
BRICK	2 x 108

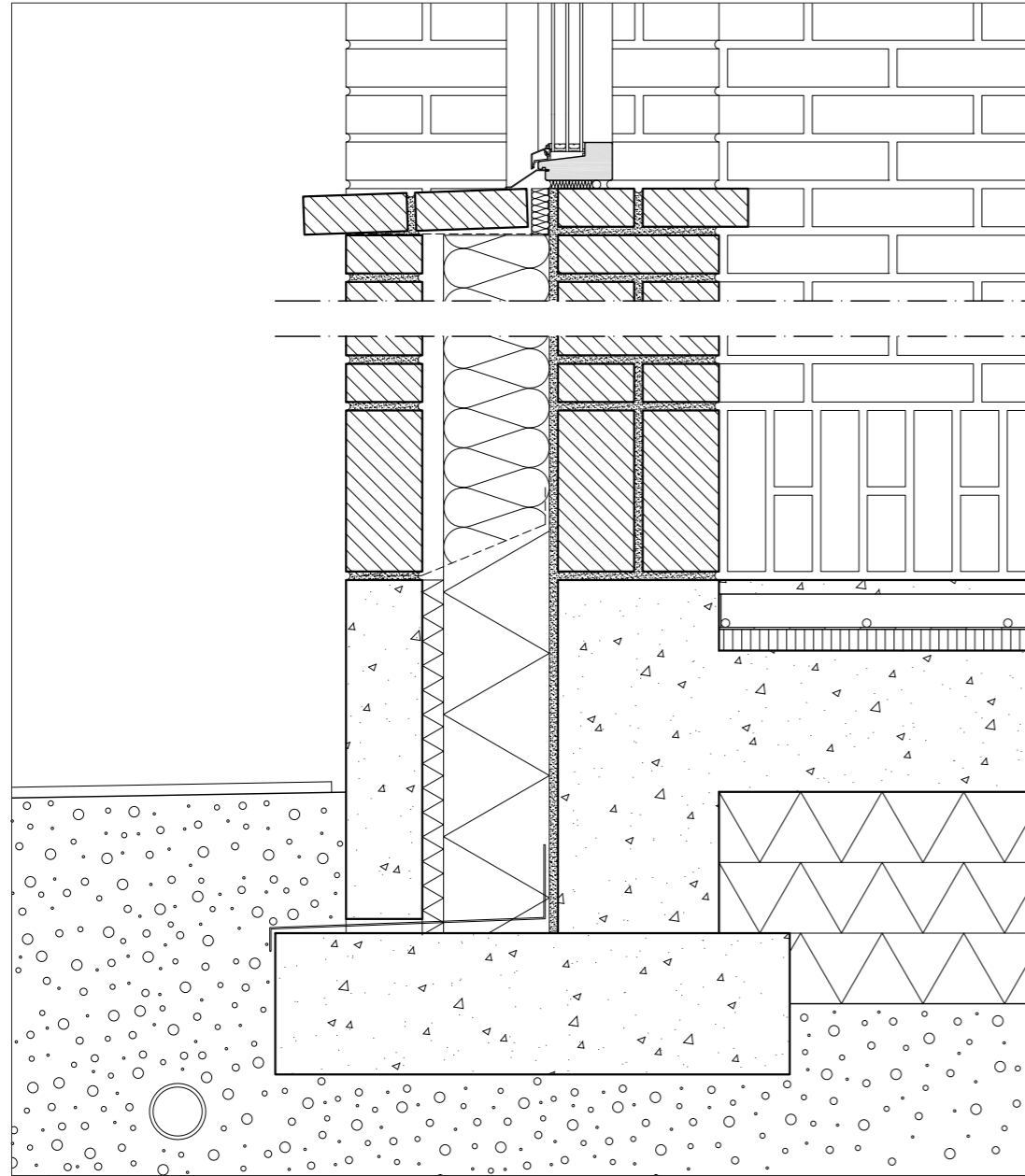
**D. FOUNDATION**

CONCRETE	20
FLOOR HEATING	60
SEPARATING LAYER	
IMPACT SOUND INSULATION	30
CONCRETE	200
INSULATION	3 x 100
MACADAM	320
WOVEN FABRIC	

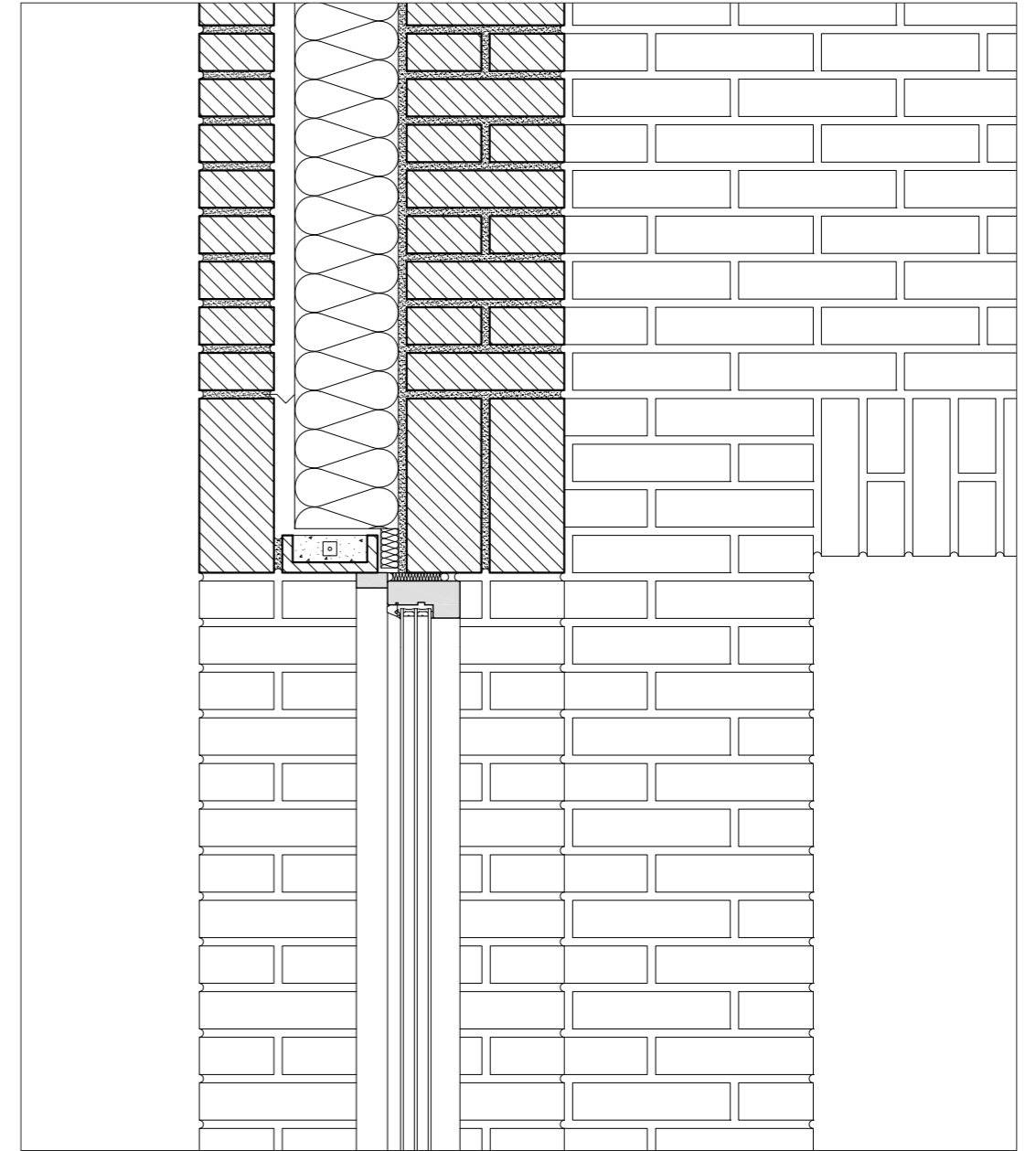
D6. READING DESK

DETAIL SECTION - 1:50



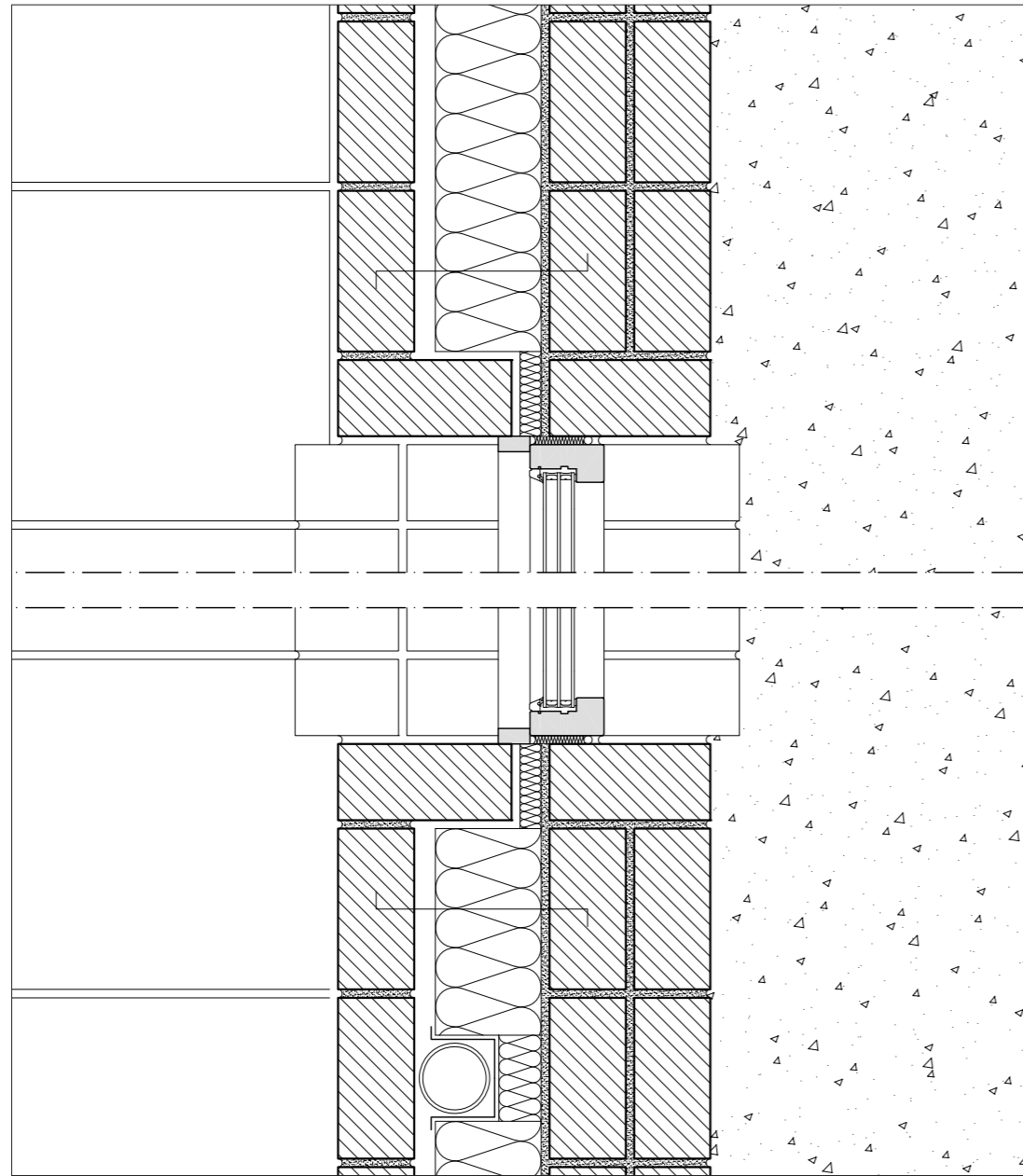


DETAIL 1 - 1:10



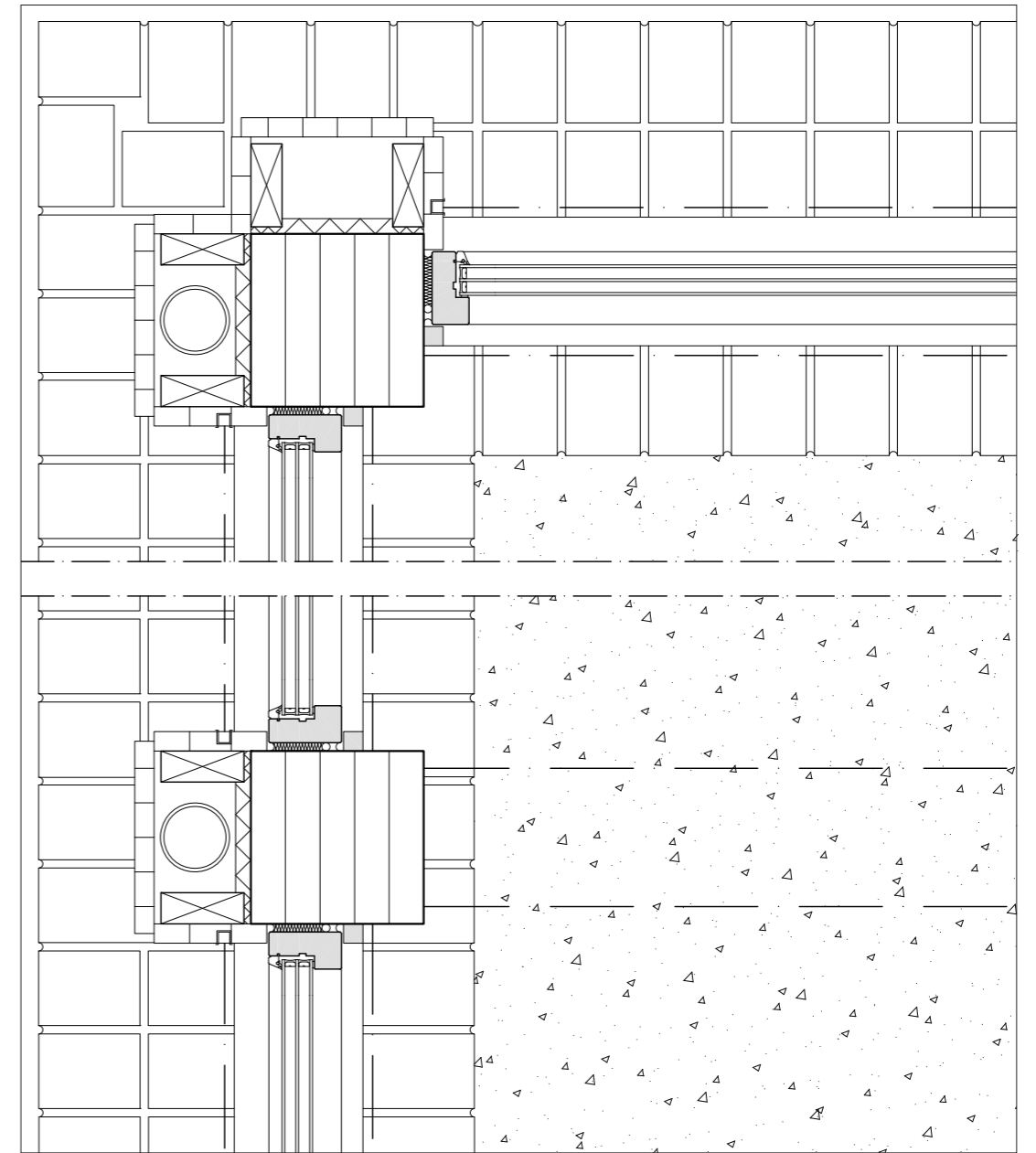
DETAIL 2 - 1:10





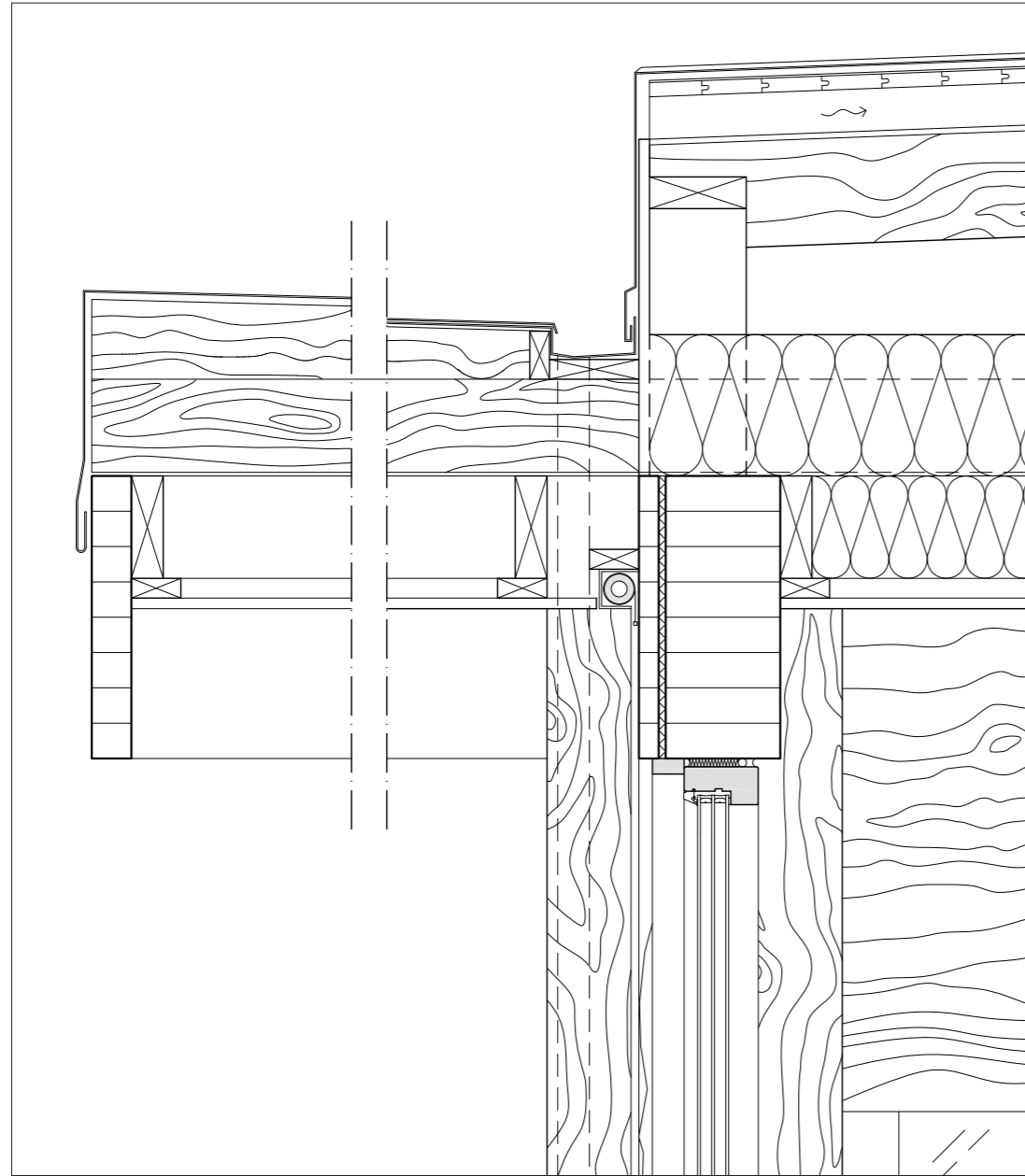
DETAIL 3 - 1:10

0 0,1 0,5m



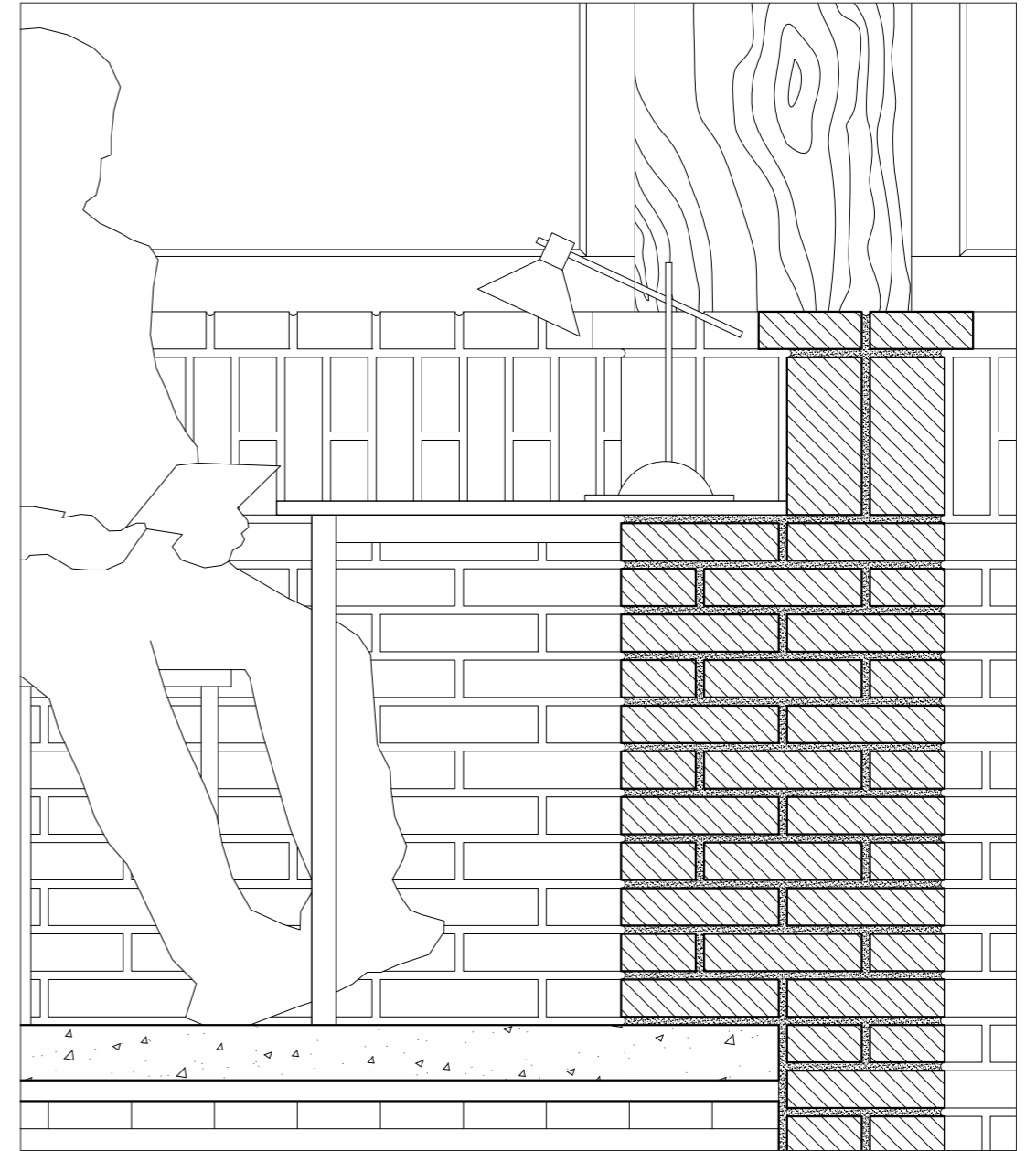
DETAIL 4 - 1:10

0 0,1 0,5m



DETAIL 5 - 1:10

0 0,1 0,5m



DETAIL 6 - 1:10

0 0,1 0,5m



Figure 41. Reading garden.

## CONCLUSION

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DISCUSSION

BIBLIOGRAPHY

## DISCUSSION

This thesis has explored the relationship between structure and space. How to craft various spatial experiences tailored to different needs and environments. It embraced duality, exploring how contrasting elements can coexist to achieve balance or generate tension.

Working with construction archetypes, solid and filigree constructions, as a starting point in the design proved to be beneficial from several points of view. From an early stage, it served as a clear framework with both possibilities and constraints and during the process, it was something to fall back on in decision-making matters. Consequently, the design became a process of choosing appropriate construction methods in different parts of the building based on specific needs and ambitions. Furthermore, activities inside the building are also placed based on the desire for the direction of focus - internally and thus enclosed or externally and thus open.

The thesis proposal uses a solid brick wall towards urban areas to improve intimacy and enclosure while choosing a timber frame in places where connection to the outdoors is wished for. During the process, a desire arose to distinctly separate the two structures while simultaneously allowing them to intertwine. To enable the unique attributes of each structure to be expressed, yet also explore the effects of their intersection. The transitions between the two create an interplay of atmospheres, enhancing the architectural essence of the spaces, and making it a sensory experience.

The choice of materials for the solid and filigree constructions, brick and wood, became a decisive factor in the design work. To use the inherent properties of the materials to their advantage and allow it to be the main aesthetic expression. Opting for a consistent expression indoors and outdoors fosters cohesion, with the interior reflecting the exterior and vice versa.

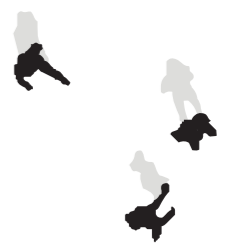
Addressing the matter at Linnéplatsen in Gothenburg proved to be challenging but also sparked a curiosity to process the composition several times. The site was chosen because it possesses distinctly different characters, which started a dialogue about site-specific architecture. The thesis highlights the importance of interaction with the nearby features and shows the potential of encompassing different structures to account for different characteristics of a site. It exemplifies how it's not merely about replicating existing features, but rather about being aware of scale, proportions, material choices, and the level of interaction between interior and exterior spaces.

To apply the theory in a practical example, the library was selected as a function based on its varying spatial requirements. This was beneficial in the work as it allowed a maintained focus on the experience of the rooms rather than the program of the building. Implementing the theory in a design project provided a deeper

understanding for the subject. By also engaging in smaller iterations in parallel resulted in grounded decisions anchored in theory.

The proposal shows a transformation from aesthetic vision to practical reality by describing the application of the built structure through technical drawings in varying scales. These drawings underscore the importance of carefully considered detail in achieving the desired architectural outcome.

In conclusion, the thesis underpins the synergy between design and construction, showcasing the potential of coexistence. It adds to the discussion of architectural tectonics by highlighting the potential of conscious use of a building structure. The proposed library creates varied and distinct spatial experiences for people to inhabit through solid and filigree constructions, while simultaneously interacting with its surroundings.



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