

THE RELATION BETWEEN CONSTRUCTION AND SPATIAL EXPERIENCE

*“AN INVESTIGATION
OF HOW TO USE
A SOLID AND
FILIGREE CONSTRUCTION
FOR A LIBRARY
IN GOTHENBURG”*

Hannah Delvert
Chalmers School of Architecture
Department of Architecture and Civil Engineering
Examiner: Björn Gross
Supervisor: Mikael Ekegren



"The Relation Between Construction and Spatial Experience"
Chalmers School of Architecture
Department of Architecture and Civil Engineering
Architecture and Urban Design. Building Tectonics
Hannah Delvert 2020

Supervisor: Mikael Ekegren
Examiner: Björn Gross

This master thesis investigates types of construction in relation to spatial experience. The two methods investigated are the solid and filigree construction method. In the book "Constructing Architecture" Deplaze (2013) describes that all following forms of construction derives from the two construction archetypes - solid and filigree construction. These archetypes offer different and contrasting spatial qualities that affect how to construct space. The purpose is to design a library with the two construction methods separated on two floors in order to compare them and understand how they affect spatial experience. One of the main issues for this project is how to work with these contrasts into one coherent building. Another question worked with is if these construction methods could add value and answer to the different needs of a library. This is a research by design project conducted on iterations of drawings, physical models and visualizations. Studies of built references are used in order to understand

the execution of construction and literature studies are made to understand the theoretical concepts of spatial experience. The result is a proposal for a library in the city centre of Gothenburg that sets light on different types of construction and the effect construction has on the experience of a building. The different functions of the library make use of the two construction methods. The filigree construction creates prominent reading spaces on the second floor and the solid construction makes enclosed spaces possible and creates inbuilt functions such as bookshelves on the first floor. The contrast between the solid and filigree construction enhances one another. The first floor becomes more heavy and enclosed in relation to the second floor and the experience of the big and open space on the second floor becomes a relief after moving through the solid brick space. One could say that their spatial qualities become more clear and tangible when experienced together.

I. BACKGROUND	III. PROGRAM
Student background	Space index
Project construction	Spatial configuration
Theoretical background	
II. BUILT REFERENCES	V. PROPOSAL
Andrea Deplaze	Situation
Mies van der Rohe	The building
Heinz Bienefeld	Details
Gluck +	Visualizations
IV. SITE	VII. REFLECTION
Description	
Photos	VIII. REFERENCES
Facade analysis	

I. BACKGROUND

STUDENT BACKGROUND

Hannah Delvert		
Born in Linköping 1991		
Education		
2018-2020	Master Programme Architecture Chalmers University of Technology, Gothenburg.	
2017-2018	Course in Art and storytelling Academy of Art and Design, University of Gothenburg	
2014-2017	Bachelor Programme Architecture Chalmers University of Technology, Gothenburg.	
2011-2013	Fine arts Liljeholmen Art and Design school	
2007-2010	Science Programme Västerviks Gymnasium	

PROJECT CONSTRUCTION

Background
<p>This thesis started off with a curiosity for spatial experience and a wish to grasp this abstract phenomenon. Construction and more precisely the two construction archetypes became a concrete way to look at spatial experience. Reading ”Constructing Architecture” Deplaze (2013) describes the two construction methods and also their effect on spatial qualities. To look at these two phenomenons at the same time, the abstract phenomenon of spatial experience, and the concrete approach of construction is a way for this project to investigate and evaluate space. This project will approach this discussion by designing a library and dividing the building into two parts where two construction methods are investigated and looked at separately but also in relation to each other. A public program such as a library seems to be suitable when discussing spatial experience, making spatial experience accessible for everyone.</p>
Aim
<p>The aim for this project is to investigate the solid and filigree construction methods and their spatial qualities. The project aims to work with the duality of these two methods and answer the question of how to work with this duality into one coherent building. This will be investigated in the situation of a library, looking at how these two construction methods could support the different functions of the library. The outcome of this project aims to be a proposal for a library in central Gothenburg that adds to the discussion concerning construction and spatial experience.</p>

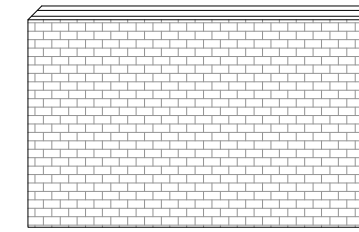
Objectives
<p>I. How do different types of construction affect the spatial experience of a building?</p> <p>II. How could the duality of the solid and filigree construction type merge into one coherent building?</p> <p>III. How could the solid and filigree construction answer to the different functions of a library.</p>
Limitations
<p>The project does not aim to reinvent the library or to investigate a future function for the library and does not aim to be a model or prototype for a library building in general. This project does not investigate the program in detail. The investigation of the two construction methods is limited by dividing and separating the two construction methods on two separate floors.</p>
Method
<p>The project is a research by design project conducted on iterations of drawings, physical models and visualizations. Studies of built references are used in order to understand the execution of construction and literature studies are made to understand the theoretical concepts of spatial experience. Early in the project there was an investigation of the site conducted by site visits, photos, physical models and schemes for flow etc.</p>

THEORETICAL BACKGROUND

Solid and filigree construction

In the book "Constructing Architecture" Deplaze (2013) describes that all following forms of construction derives from the two construction archetypes - solid and filigree construction. The two construction archetypal forms will be investigated in this project focusing on their spatial qualities. Deplazes (2013) describes the features of solid construction with the terms "...heaviness and compactness" (p. 14). He also states that solid construction stands in contrast to filigree construction. The primary elements are massive with three dimensional walls made up by layers of stone or modular prefabricated materials, or by casting in a mould a material that solidifies upon drying. "It becomes clear from this that solid constructions can only accommodate compressive forces and - unlike filigree construction - cannot handle tensile forces." (Deplaze, 2013. P. 14). The sizes of the openings in the walls becomes limited due to the weakening effect they have on the load bearing function of the wall. "This type of construction is founded on the individual cell and groups of rooms are created by adding cells together or subdividing individual cells. As in the simplest case all

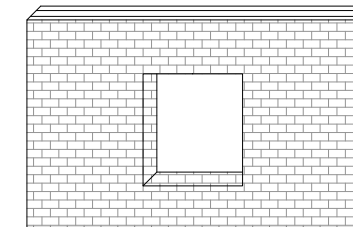
walls have load bearing and separating functions, there is no structural hierarchy. All parts tend to be of equal importance." (Deplaze, 2013. P. 14) Deplazes (2013) describes that the term "filigree construction" refers to the way in which these forms of construction are put together. The word is a variation on "filigreen" which in itself is a variation on "filigrane", derived from the Latin word filum(thread) and granum(seed). The filigree structure is according to Deplaze (2013) "...a weave of straight or rodlike elements assembled to form a planar or spatial lattice in which the load bearing and separating functions are fulfilled by different elements" (p.14). The filigreen construction is, one could say, reduced to the essentials. This results in a framework with many voids. To create an architecturally defined space we need to close this framework, which is achieved by secondary elements and not by the load bearing structure itself. The openings are consequently structural openings, the size of the opening is the size in between the open framework.



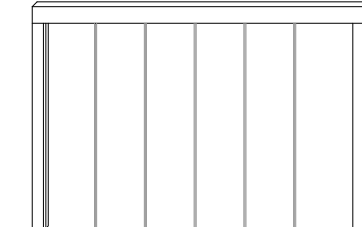
Body: walls



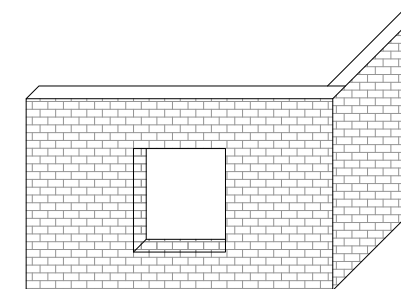
Lattice: linear members



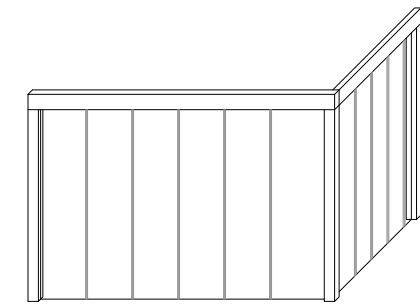
Openings: holes



Openings: inbetween elements



Primacy for space:
Directly enclosed interior
space. Distinct separation
between interior and exterior



Primacy for space:
No direct architectural interior
space. No separation between
interior and exterior

Figure 1. Comparing solid and filigree construction

THEORETICAL BACKGROUND

Spatial experience

Spatial experience is an abstract phenomenon that is hard to grasp and control. In order to understand this a little bit better this project has gathered some thoughts and works from these architects: Bernard Tschumi, Le Corbuiser and Elias Cornell. These thoughts on spatial experience and sequences have been an inspiration for this project and stands as a foundation for this master thesis.

LE CORBUSIER

Samuel (2010) has written about Le Corbusier's in his book *Le Corbusier and the architectural promenade* and emphasizes here on Le Corbusier's abilities concerning spatial experience. Samuel (2010) argues that Le Corbusier recognized the importance of movement in order to experience architecture. He believed that the body played a primary role in assimilation of knowledge (p.39). "Taken at a basic level the promenade refers, of course, to the experience of walking through a building" (Samuel, 2010. p.9). The architectural promenade has its roots in the Beaux Arts concept "La Marche". But Samuel (2010) writes that Le Corbusier criticised the products of Beaux Art for being built around perspectives that could only be understood from one fixed viewing point. The promenade however was created to be appreciated on the move. "it is while walking, moving from one place to another, that one sees how the arrangements of the architecture develop" (Samuel, 2010. p.41). Le Corbusier constructed the promenade with elements which typically make up each stage in Le Corbusier's narrative path and are summarized below.

Threshold or introduction

The threshold in the works of Le Corbusier are according to Samuel (2010) often muted in its lighting, provides a point of focus after the mental silence of the street. The entry occurs either from a distance or has several steps of incremental elements that builds up to the point of entry.

Le Corbusier recognized the importance of the design

of the door, the handle, the mat, the finishes, the articulation of the ceiling etc in formulating the entry. "Doors and eyes are almost interchangeable. The building, as in the films of Eisenstein, is the protagonist in the drama, entering into a tense and passionate relationship with the reader" (Samuel, 2010. p86).

"To the young student, I should ask: How do you make a door? What size? Where do you put it?...I want reasons for that. And I should add: Hold on: do you open a door? Why there and not elsewhere? Ah, you seem to have many solutions? You are right, there are many possible solutions and each gives a different architectural sensation. Ah, you realize that different solutions are the very basis of architecture? Depending on the way you enter a room, that is to say, depending on the place of the door in the wall of the room, the feeling will be different. That is architecture!" (Samuel, 2010. p. 86)

Sensitising Vestibule

Samuel(2010) describes that the corollary of the door is the vestibule space that could sometimes only exist of as little as a change in ceiling height or floor finish. The vestibule sets the scene of what is to come writes Samuel (2010), it forces the reader to engage and to focus. This effect is usually achieved through homogeneous use of materials in walls, ceiling and floor, through the absence of details, and by creating geometric echoes of the vestibule itself beyond or around its boundaries and through the use of mirrors and glass. Water was also an element used in or near the vestibule space. Samuel (2010) describes that the act of cleansing is a "...universal symbol of new beginnings" (p. 92).

Questioning - savoir habiter

THEORETICAL BACKGROUND

Spatial experience

Samuel (2010) writes that the next step of Le Corbusier's dramatic arc occurs on the first inhabited floor level . "In terms of Le Corbusier's rhetoric this is the point at which various options are examined and questions are asked." (Samuel, 2010. p.92). It is supposed to contain many sub-routes and sub-destinations, places for eating or contemplating the fire, and places for making decisions. Samuel (2010) believes that this questioning stage concerns the engagement of the body, often acting as a distraction from the main promenade. But the reader is always drawn back to the point of reorientation and the culmination of the promenade.

Reorientation

Samuel (2010) states that Le Corbusier thinks human beings have a tendency to be attracted to the centre of gravity. What Le Corbusier often use to as this "attraction" is a stair or a ramp. The reader could have had a glance of the stair at the beginning of the promenade or have already traveled up one circuit or ramp. "...But the enticement of distant horizontal light and view upon entry to the main living level draws the reader to explore the horizontal extent of the building before being pulled back to the promenade." (Samuel, 2010. P. 92). Samuel (2010) claims that Le Corbusier

Culmination

In the works of Le Corbusier the promenade always culminates on the roof where the reader is greeted with a beautiful view writes Samuel (2010). To maximise the experience Le Corbusier uses framing. "Such sculptural spaces, framing a view or a sky, would become a characteristic of Le Corbusier's architecture." (Samuel, 2010. p.100

BERNARD TSCHUMI

When talking about sequences Tschumi seems to have a clear idea of what a sequence is and should be. He talks about sequences that includes three relations, Internal relations / transformational sequence, External relations / spatial sequence, Program / programmatic sequence. The first one, the transformational sequence, is the architectural drawing according to Tschumi (1977). It refers to the method of working and will not be further discussed in this project. When Tschumi (1977) talks about the external relation, the so called spatial sequence, he puts the finger on what one could say is the essence of sequences, he claims that:

"The spatial sequence, configurations-en-suite, enfilade, spaces aligned along a common axis - all are specific architectural organizations. All have emphasized a planned path with fixed halting points, a family of spatial points linked by continuous movement." (Tschumi, 1977. p.155)

What Tschumi (1977) also states is the importance of the programmatic sequence. The programmatic sequence is according to Tschumi the sequence of events, use, activities, incidents that always are superimposed on those fixed spatial sequences. Tschumi (1977) categories these programmatic sequence into "...those that are indifferent to the spatial sequence, those that reinforce it, and those that work obliquely against it" (p.159). A programmatic sequence that reinforce the spatial sequence could become totally interdependent and fully condition each other's existence. Tschumi (1977) means that each action, each movement could be designed or "programmed".

"In themselves, spatial sequences are independent of what happens in them. (Yesterday I cooked in the bathroom and slept in the kitchen.) They may coincide for a shorter or longer period. As sequences of events do not depend on spatial sequences (and vice versa), both can form independent systems, with their own implicit schemes of parts." (Tschumi, 1977. p. 160)

Tschumi (1977) believes that many architects want their buildings to be read at a glance. But he talks about time as an important element to experience a building. Tschumi (1977) argues that the "The final meaning of any sequence is dependant on the relation space/movement/event" (p. 162).

ELIAS CORNELL

Cornell's text in Humanistic inquiries into architecture is a discussion about the differences and similarities between architecture, art and practical artefacts. To do this Cornell (1959) distinguish between two different experiences, one is aesthetic and is thus an experience of art. The other can be caused by purely practical artefacts, and is also aesthetic. Cornell (1959) claims that "Architecture on the other hand, is different. Its products retain their meaning as practical reality as well as their artistic meaning." (p.15). What Cornell means is that a building is an integrated whole that gets its full meaning by a sort of practical action which he calls "the act of taking possession". Cornell (1959) writes that he believes that to experience a building you need to dwell before it and in it. And he says that "the act of possession also helps us

to distinguish between an experience of architecture and one of art" (p.21). Cornell also talks about the drama of experiencing a building. He argues that the exterior of a building is always part of a bigger whole, it is in the context of the sky, landscape, neighbouring building or other surroundings.

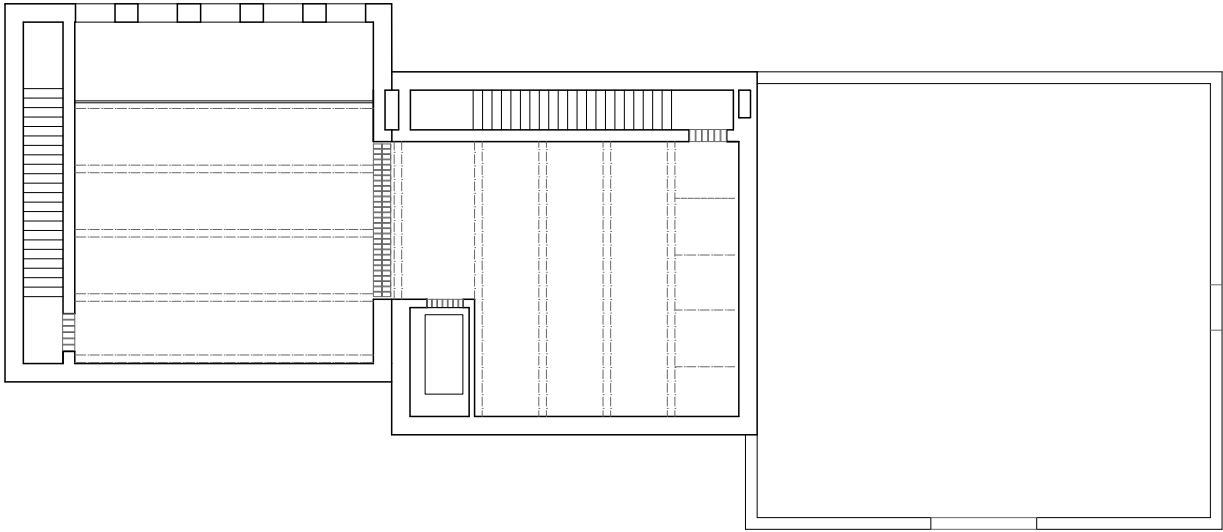
"An exterior gives the initial stage of a total architectonic experience. We look forward to an interior as a completion: our awareness is expectancy. Inside the interior of the building the conditions are different. The part of reality in which we are and which is visible to us is all interior." (Cornell, 1959. p.24)

Cornell (1959) describes that the interior is the second part of the drama, the second act of the experience. The act of possession is accomplished. Cornell (1959) means that we have the memory of the exterior in mind when entering the building and looks back on it as an introduction. The interior gives the final stage of the total architectonic experience and our awareness is fulfillment. "The artistic work - the interior we are inside - engages our entire attention, continuously and unceasingly, as long as we stick to the relevant angles" (Cornell, 1959. p.24).

II. BUILT REFERENCES

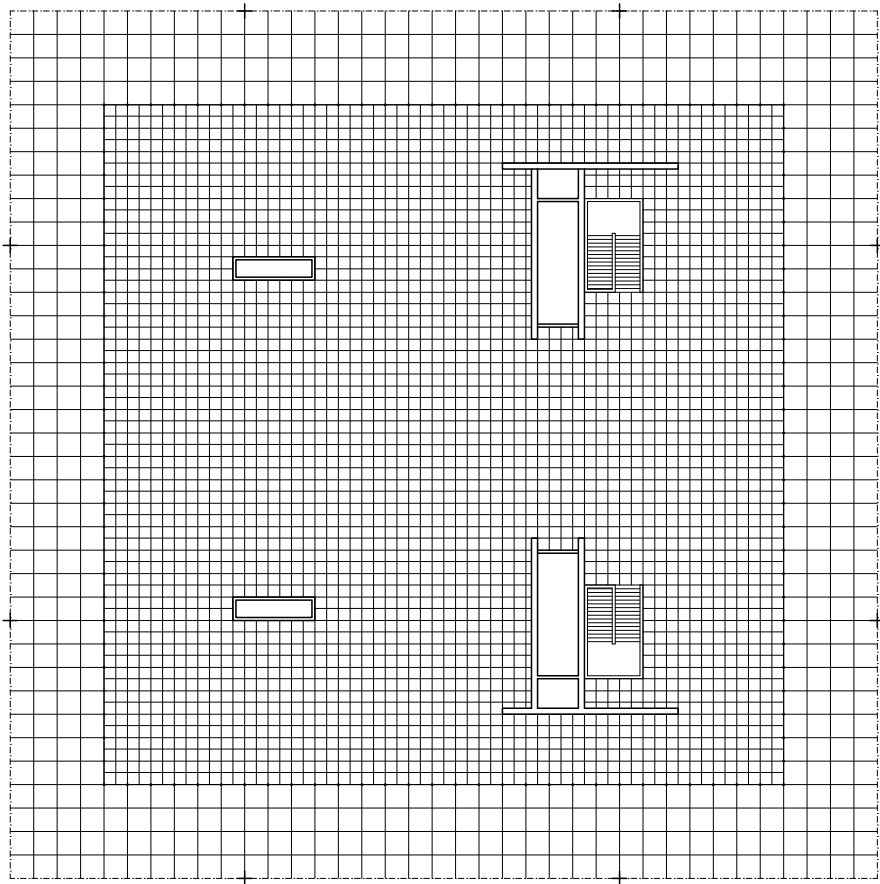
This project is a great example that has created knowledge concerning solid construction for this project. The spatial experience of this building is heavy and massive. The brick that makes itself appears on the outside and on the inside enhances the monolithic character of this building, it is almost like someone has carved these spaces out of a solid block. The solid brick walls are both load bearing and spatial definers. The contrast between outside and inside is big. When entering the building it's almost like entering a different world. Deplaze (2013)

describes that the floor is made out of wood in order to accentuate the vertical layout without interfering with the masonry shell (p. 363). Seen from the outside, the building preserves the impression of having no internal floors. The openings in this building reinforce the monolithic feeling of the gallery. There are not many openings and the design of the windows and doors are narrow and long, this creates the effect of an almost uninterrupted surface (Deplaze, 3013).

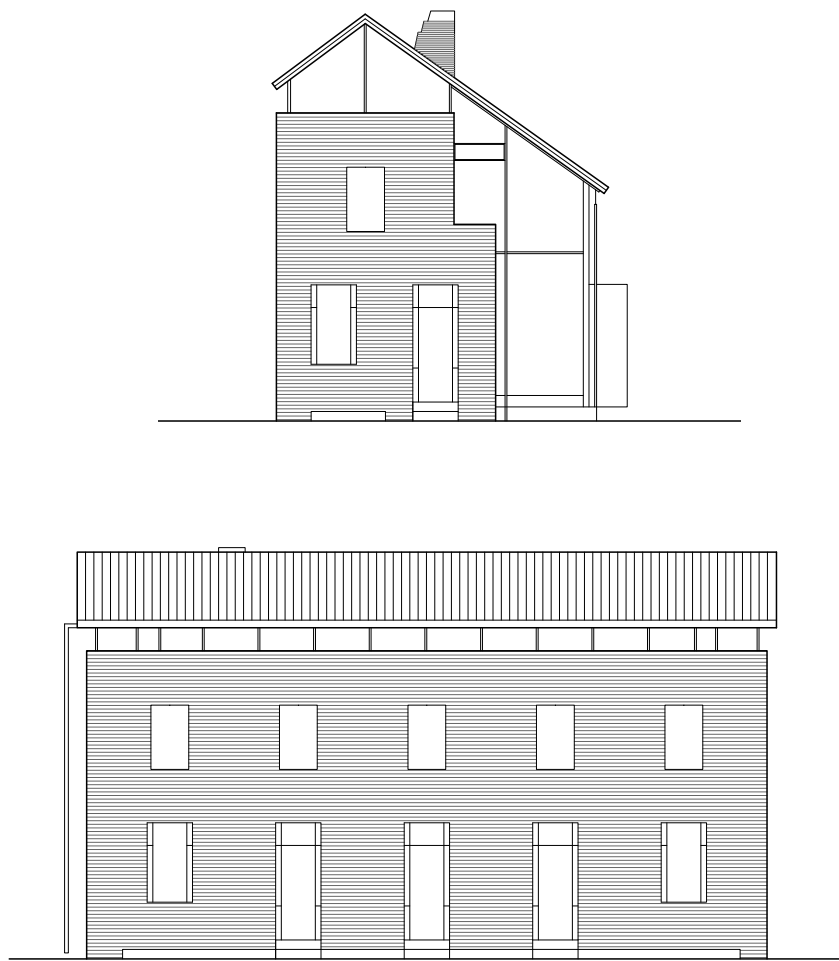


The Neue Nationalgalerie in Berlin is a spatial reference bringing up the two spatial experiences investigated in this project, the filigree and the solid space. Evan thought these spaces aren´t constructed precisely according to the solid and filigree archetypal forms this building possesses many of the qualities of solid space and filigree space. Filigree space is often defined by the floor and roof and so is also the case when entering the podium for Neue Nationalgalerie. The podium on which the galerie stands on is exceptionally large and plays as the main character of the space, the protagonist of the first impression. When

entering the galerie the roof becomes another protagonist together with the floor. The walls are absent figures that do very little to define or enclose the space. When going down the stairs to the base level you encounter a contrasting experience. A low, flat and dark hall with walls as the new protagonist. The walls define a flowing space, leading you around corners. The space is defined by its enclosure, a clear distinction between outside and inside which is one of the main spatial qualities for a solid construction archetype.



BABANA EK HOUSE
Brühl, Heinz Bienefeld



The Babanek house in Brühl is a playful example of how one could work with two contrasting construction methods into one coherent building . The way Bienefeld works with the massiveness of the brick and the lightness of the steel and glass has been an inspiration for this master thesis. The composition of the facade is artistically

balanced and well formulated. The strict part of the facade with its well proportioned windows are contrasted by the more playful glass part of the facade. This duality enhances the heavy and light character of the facade, the contrast becomes an expression and tells a story about construction.

SCHOLAR`S LIBRARY
New York, Gluck+



The scholar’s library in New York has a clear distinction between its two main functions, storing books and reading space. These two functions are clearly accentuated by the architecture. The first floor is completely closed and stacked with shelves and books. The second floor is completely open and the inbuilt furniture

welcomes the visitor to read and study. The structure of the building expresses a dual character which has been an inspiring example for this master thesis. The dramatic effect of going from something solid and dark up into something open and light enhances the experience of the library.

III. SITE

The site is located on a parking lot beside the historic building Feskekörka. It is close to the city centre and the popular walk along the canal passes by beside the chosen site for this project. The two neighbouring buildings possess characteristics of solid and filigree construction. Feskekörka, the most iconic building with a great character, has characteristics of solid construction with its massive brick facade. Fisketorget 2 is the building on the east side of Feskekörka with a beautiful filigree construction. The facades are constructed with slender concrete pillars that play together in an uneven pattern. Feskekörka and the filigree building are the two solitaire volumes dominating this site. The building for this master thesis aims to add a third solitaire building for the site. A building that does not compete in attention with Feskekörka but tries to adapt to the proportions and aesthetics from both Feskekörka and from the filigree building at Fisketorget 2. The population in the area is mostly single households and smaller families. Close to the site there is a student home located with many apartments. The university of

Gothenburg has a big part of their school close to the site called Pedagogen. Close to the site there are also several gymnasiums, a sfi-school, a school kids from the class 1- 5 and also folkuniversitetet. Pedagogen already has a library close by but it is mostly for internal students and it is hard to find if you don't know where to go. This new library aims to reach out to the ones who live nearby but also to all those who study in different forms close to the site.

This project has formulated three statements that are considered during the design process. The first statement is that this project aims to add value by framing the walk along the canal and the square in front of Feskekörka. Secondly, the building will be the third solitaire, adapting to the size and proportions of the other two solitaire buildings and trying to be a supporting figure beside Feskekörka. And finally this project will try to fill the need of study places in Gothenburg and at the same time being a library for the close community.



SITE ANALYSIS



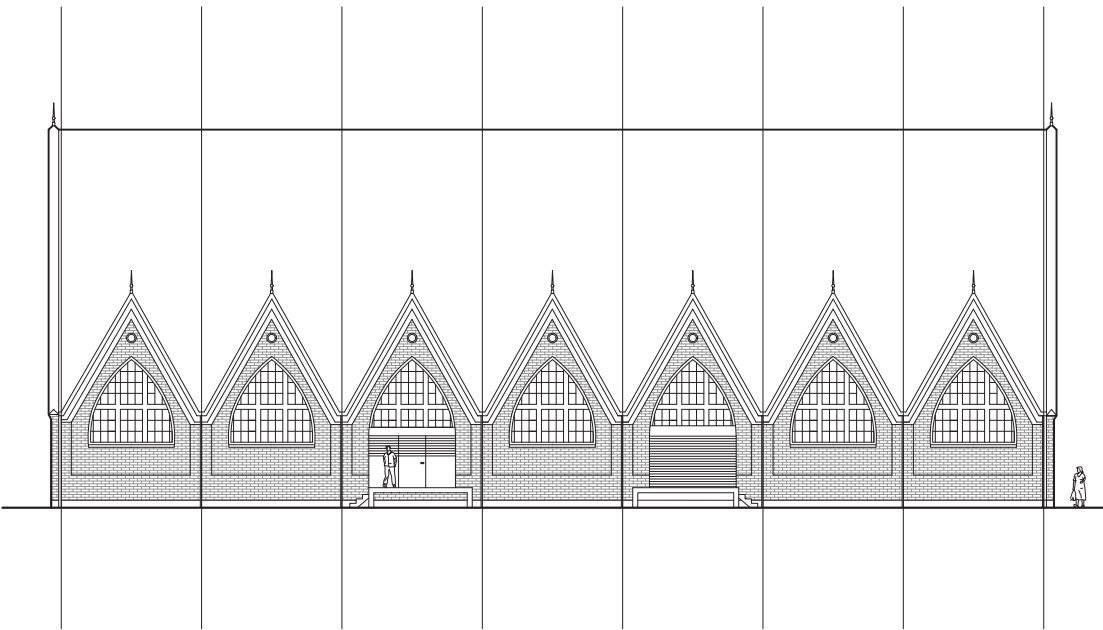
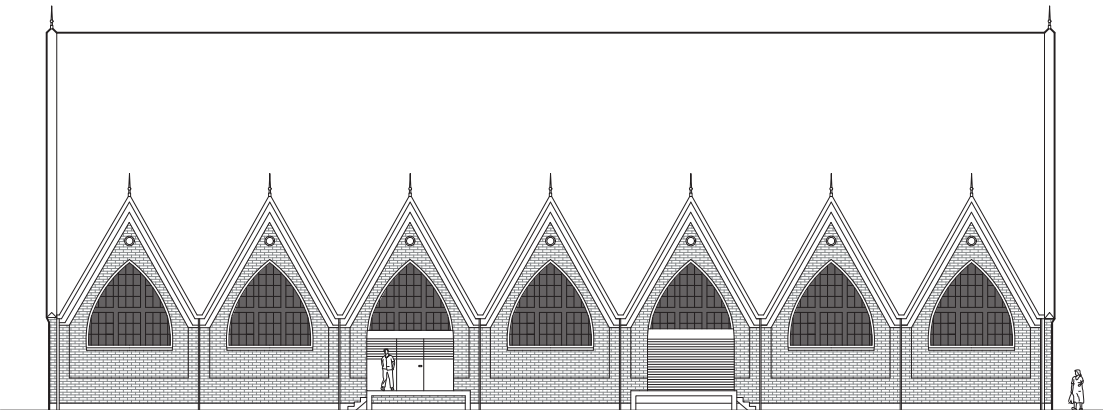
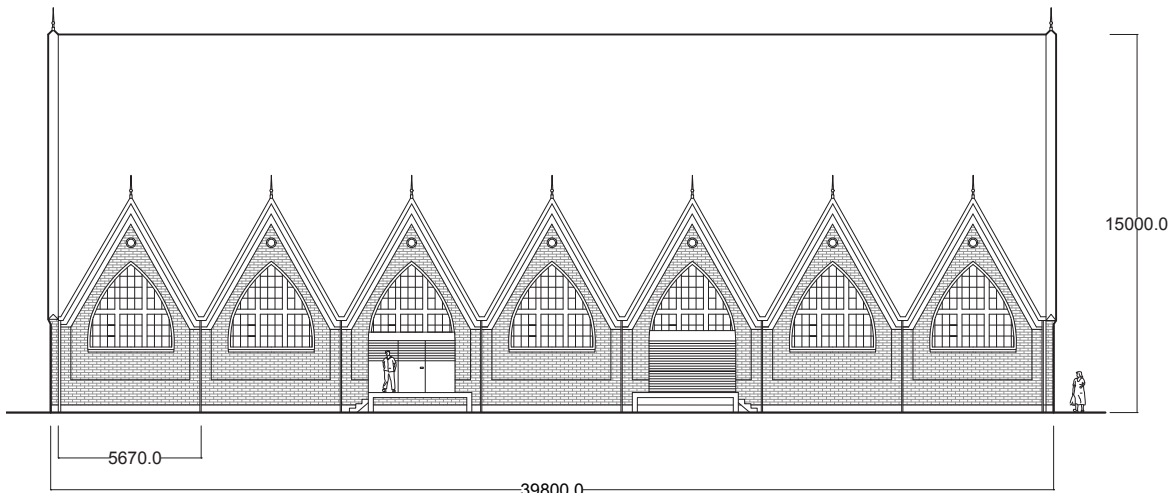
Figure 2. Views of the site

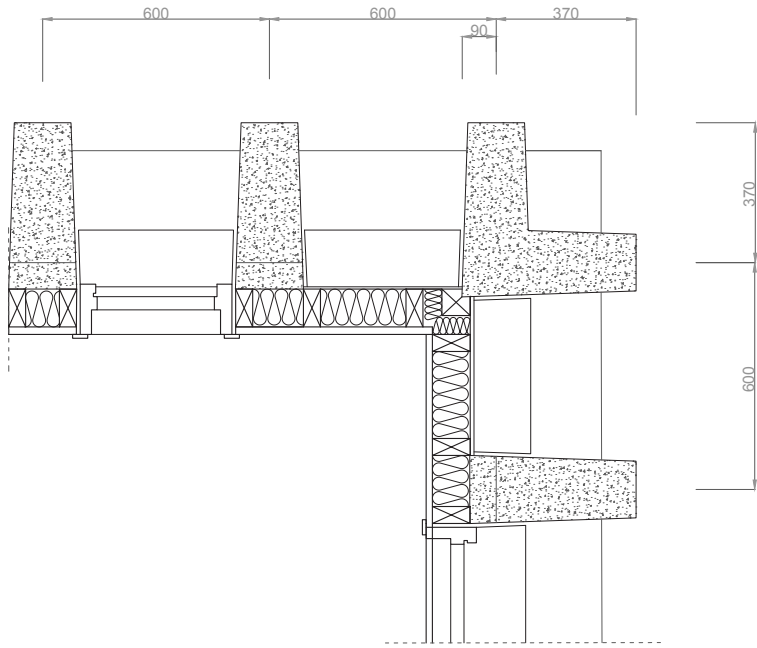


Figure 3. The two solitaires; Feskekörka and Fisketorget 2

Feskekörka is one of the most iconic buildings in Gothenburg. It is designed by Gothenburg's city architect Victor von Gegerfelt and was built in 1874. The style is a combination of a national romantic style and a bold form-experiment. It is built in order to have a clear center with several smaller departments. The departments were moved to the sides of the building around 1959-63 and made room for a wide aisle. This also resulted in the clo-

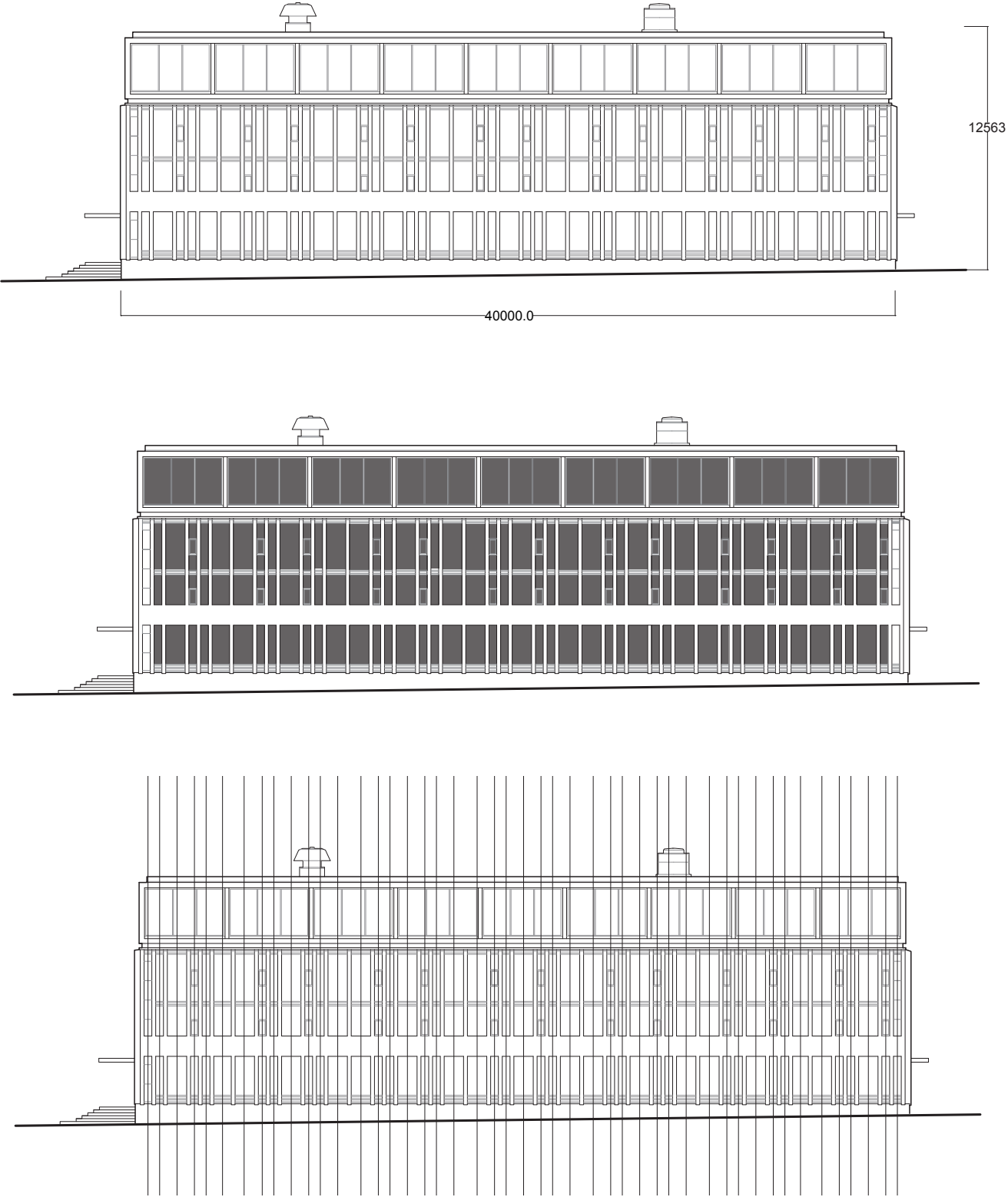
sing of the windows along the facade. Feskekörka is therefore a rather closed off building today and doesn't give much life back to the street. It could be important when designing a new building to take this into consideration. The rhythm of the facades are very clear and symmetrical. The facades are covered in yellow brick with an english cross bond and the base is made out of limestone.





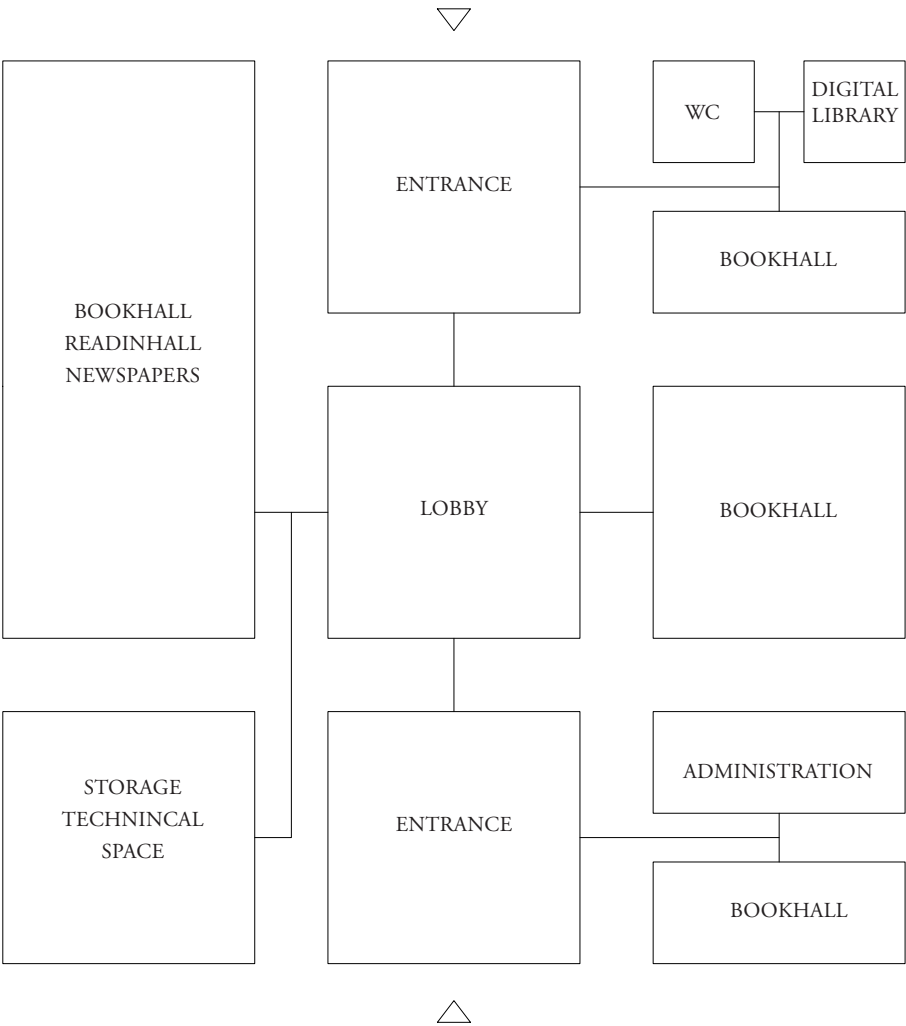
The neighbour to Feskekörka is a beautiful example of a filigree construction. It is an office building built in the sixties with a facade consisting of slender concrete pillars with a profile that makes the pillars elegant (see detail above). The rhythm and openings of this building stands very much in contrast to Feskekörka. This building

gives the street small peaks into the interior through the concrete pillars that are filled with glass as the secondary material in between the pillars. The rhythm has an uneven pattern of pillars, making the walk by this building interesting and vibrant.



IV. PROGRAM

LOBBY		STORAGE	
wc x 5	40	archive	50
receptiondesk	10	sorting area	10
		workshop	40
BOOKHALL		storage	20
Magazine, newspaper	50	garbage room	10
Books	500	TECHNICAL SPACE	
readinghall	300	ventilation	-
browse station + infodesk	10	shafts	-
		electricity cabinets	-
DIGITAL LIBRARY		TRANSPORTATION	
Computer station x 10	40	elevator	7
print/copy service	10	staircases	50
storage	5		
ADMINISTRATION			
office spaces x 4	40		
staff breakroom w. pentry	20		
toilet	20		
storage	10	Ca grossarea: 1400 kvm	

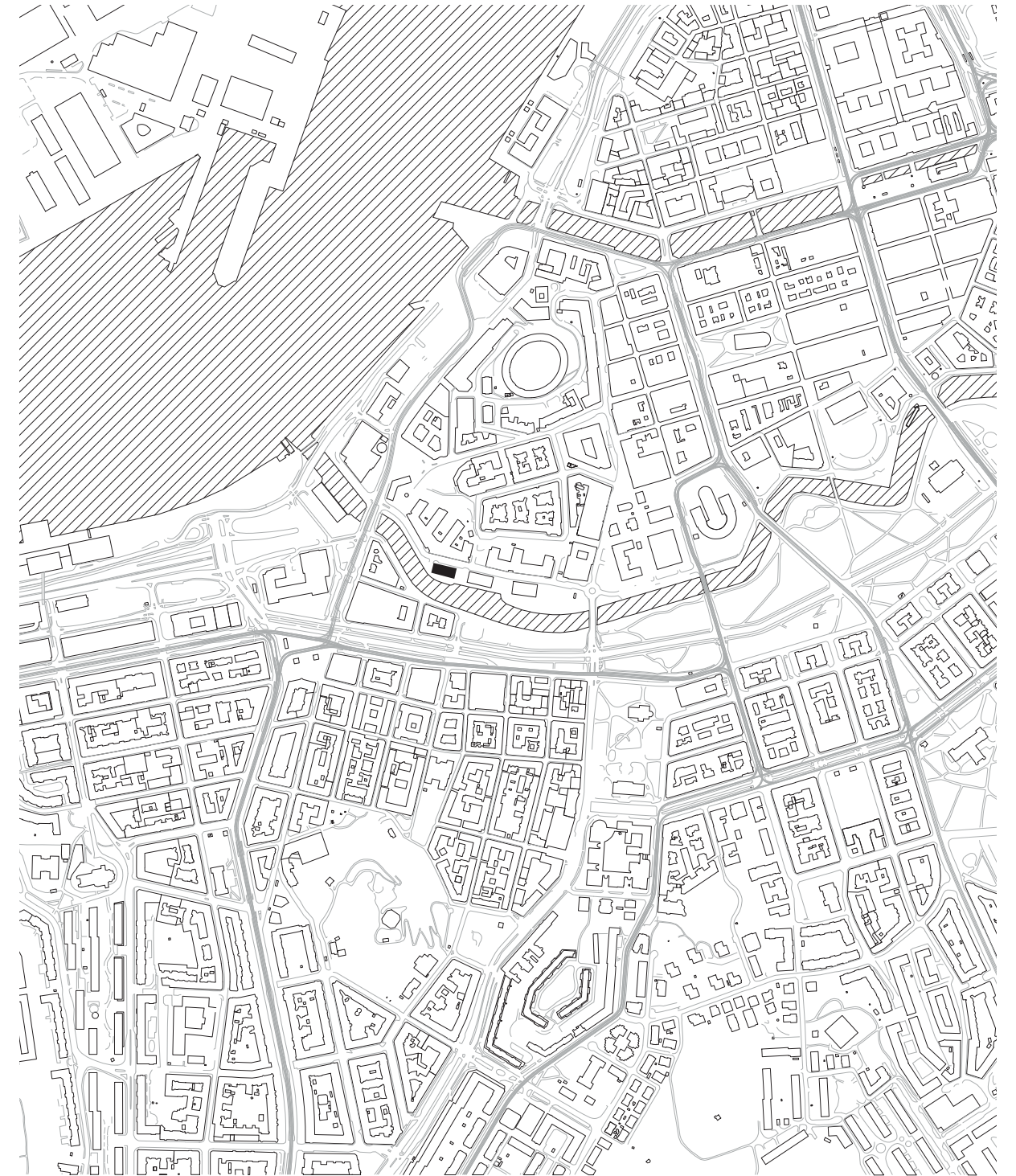


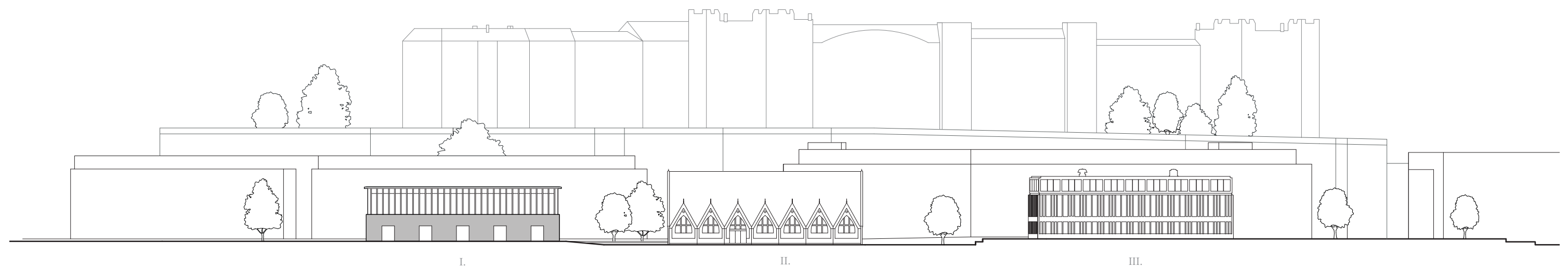
V.
PROPOSAL

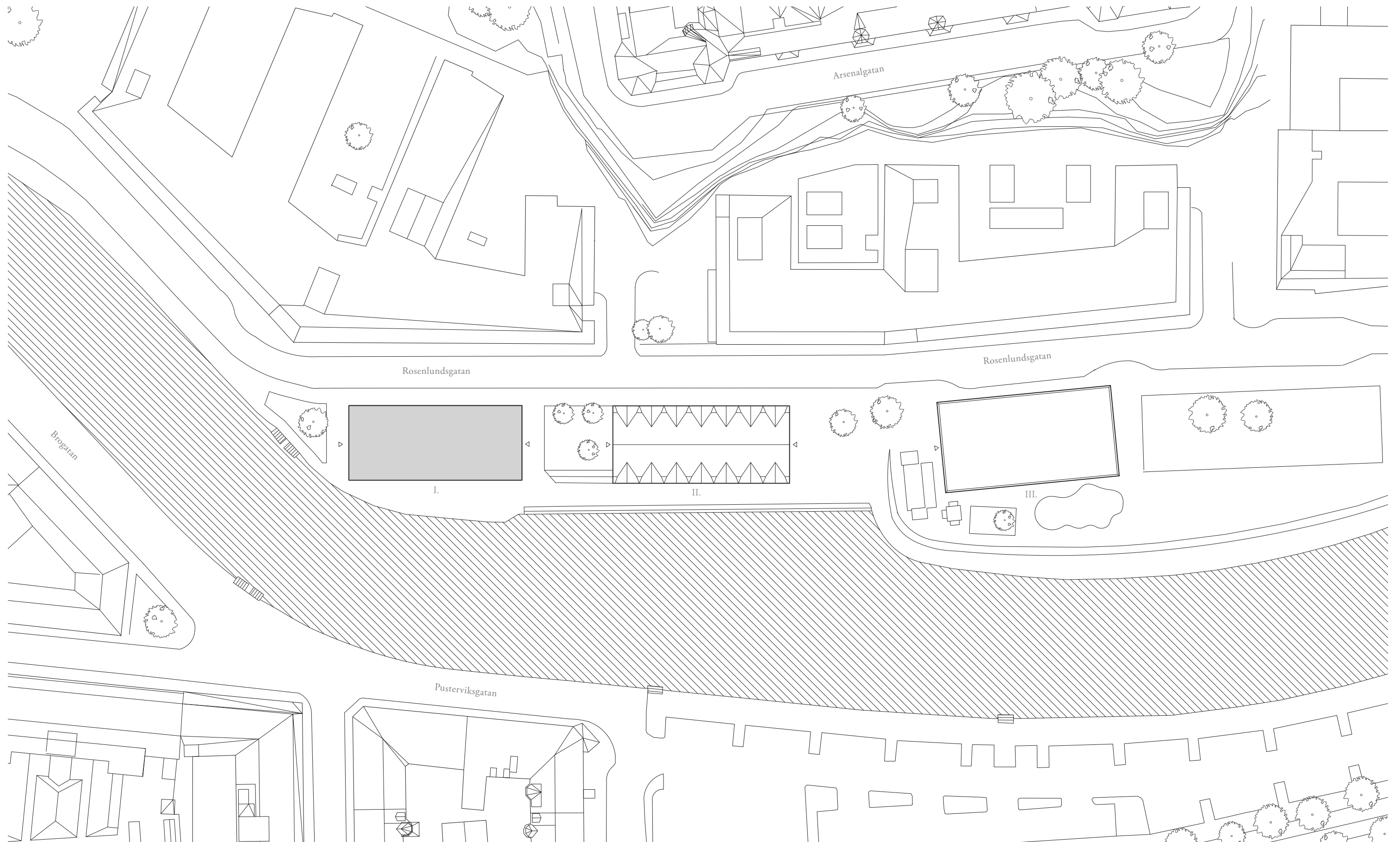
The building becomes the third solitaire at Rosenlundsgatan together with Feskekörka and Fisketorget 2. Proportion and characteristics of the two existing buildings are reflected in the new building. Feskekörka with its solid character is reflected in the first floor of the new building and the filigree character of Fisketorget 2 is reflected in the second floor. The length of the building is the same as Feskekörka and prolongs its directions in order to become a natural ending to the street. The library has two main entrances, one on each short side. This layout mirrors the floorplan of Feskekörka and thereby creates a continuous movement through the site. The square in front of Feskekörka is supported with a new facade, framing the square and creating an enclosed space. The placement of the building is also meant to support the walk along the canal by giving direction to the site and framing the promenade. Feskekörka has a rather closed facade which doesn't give much life back to the street

level or the promenade along the canal. The new building has been designed with this in consideration and tries to give life back to the street with its openings on the first floor and its transparent upper floor. The new building adds new life to the site with its program. A new flow of people will be in movement here to visit the library. The beautiful site along the canal is utilized and becomes available for everyone.

The library is divided into two floors where the two construction methods are separated vertically. The first floor is designed by using the solid construction method and the second floor is created by using the filigree construction method. The functions of the library are also separated into the two floors. The first floor is furnished with all the main tools and functions in order to separate it from the second floor that is mainly furnished with seatings and studyplaces.







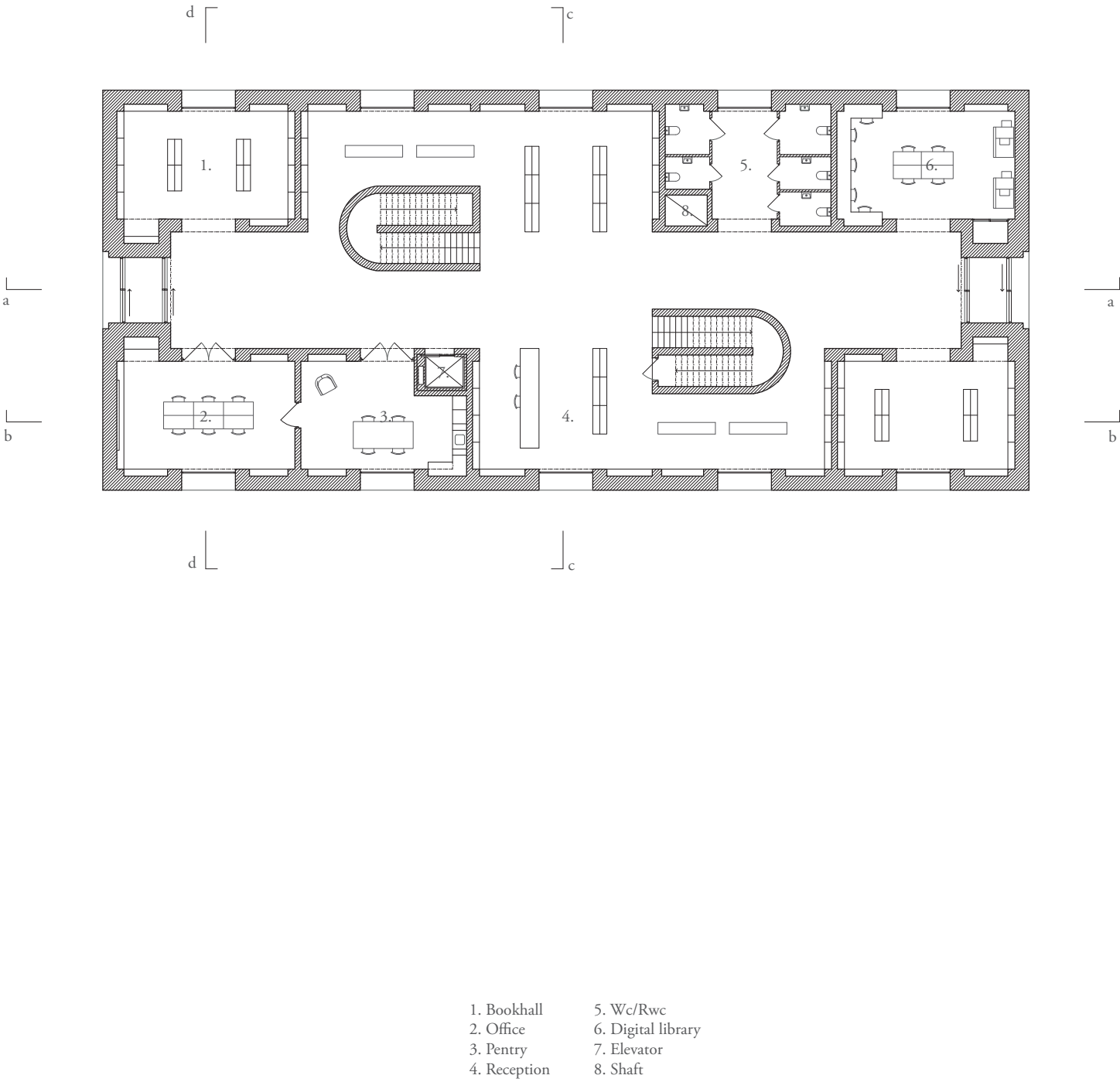


FIRST FLOOR

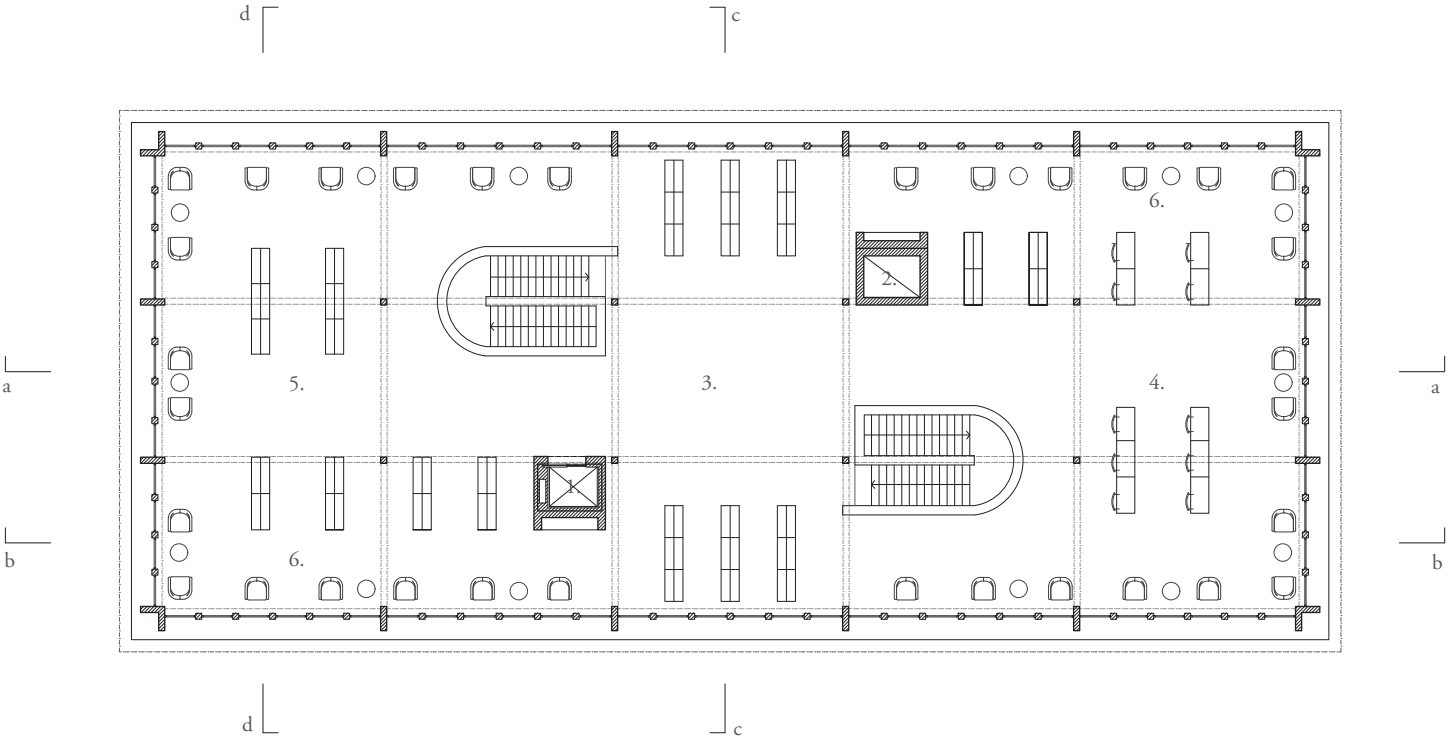
Solid construction

The first floor has been designed with a solid construction method. Its primary element is the massive three dimensional wall and in this project it is made up of brick. The load bearing function and the enclosing function are identical and therefore the erection of walls creates interior spaces directly. According to Deplaze (2013) the primary features of solid construction are heaviness and compactness. These features have had a focus when designing the first floor and in order to enhance these solid features this project has worked with monolithic characteristics. The idea is that the first floor should be experienced as a brick-like cave where the spaces are carved out of solid brick. You enter through a thick brick wall and into an interior that is also made out of brick. You are separated from the outside world by the brick

walls that are both load bearing and spatial definer. The separating function of the walls offers enclosed spaces suitable for the first floor where administration, toilets etc are located. The monolithic character is enhanced by the inbuilt bookshelves and the staircases that seem to be carved out of the brick. The openings in the facade are deep and gives the impression of a massive brick wall. The walls are the protagonist of the first floor, leading you in and guides you through the space. As you walk the building reveals itself and in the middle of the building the main hall opens up to reveal a framed view over the canale. The reception is located here in order to be available from both entrances. From the main hall the two staircases are inviting you up to the second floor.



SECOND FLOOR Filigree construction



The second floor is designed with a filigree construction method. This method is reduced to its essentials, according to Deplaze (2013). The load bearing function becomes a framework that contains many voids and has to be filled with secondary elements. This project has worked with a wooden-pillar-system that is filled with glass as the secondary material in between the pillars. The separation between outside and inside is thus very vague. The roof and the floor become the surfaces that define the space as the walls are absent figures. This project has worked with the second floor as one big space separated by volumes that zone the space rather than dividing it. These volu-

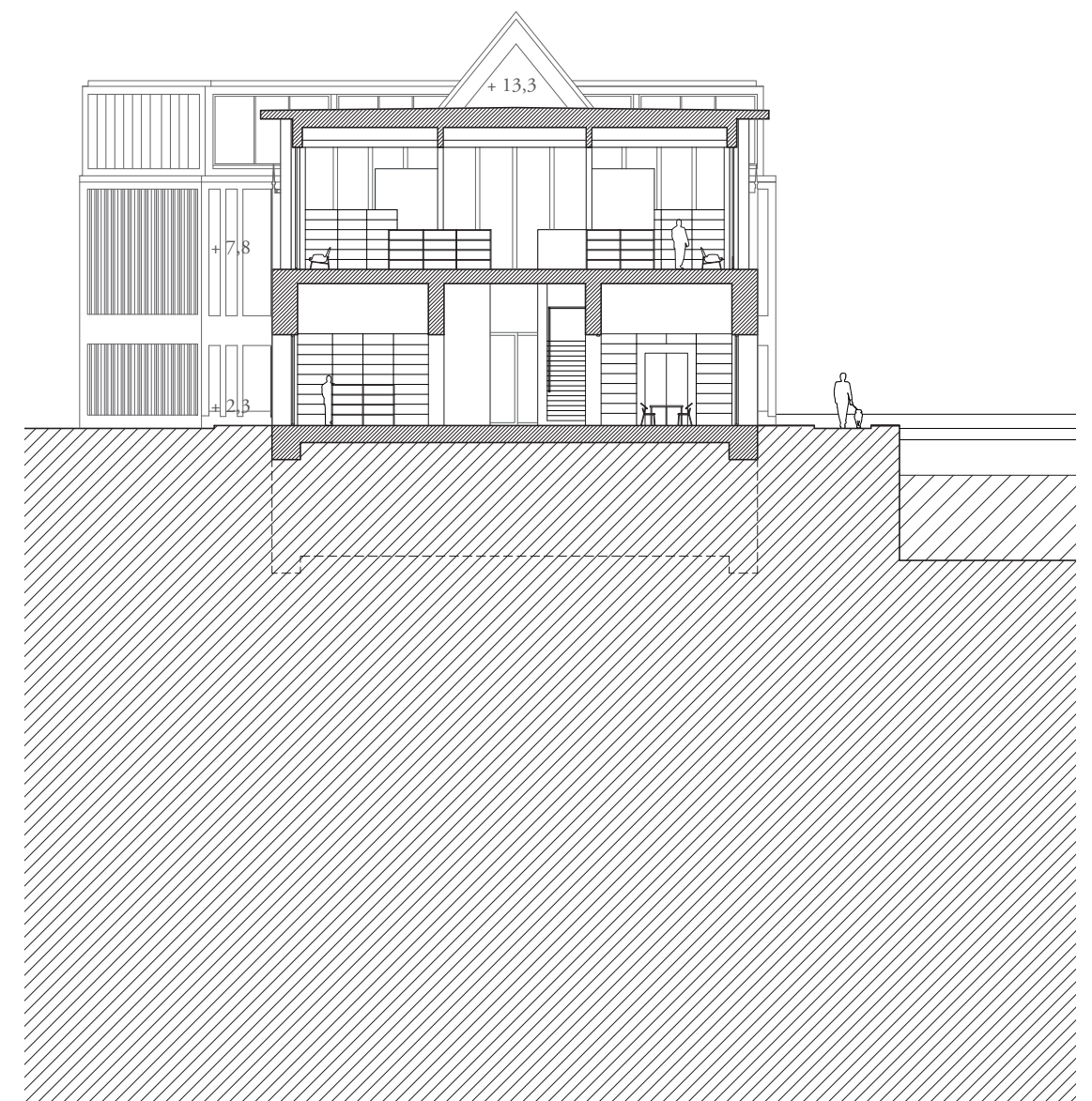
mes are made out of brick and take a step back from the pillars and the roof in order to create the impression of an uninterrupted space. The staircases, the elevator and the shaft are the only volumes coming up on the second floor. Together they create a main hall in the center of the room, a place for reorientation in order to find your way to a suitable seating space. All seatings, beside the study desks, are placed along the facade. This creates a focused place with a great view for the reader, a private place where you can read without having to see what happens behind you.

- 1. Elevator
- 2. Shaft
- 3. Bookhall
- 4. Bookhall
- 5. Studydesks
- 6. Reading spaces



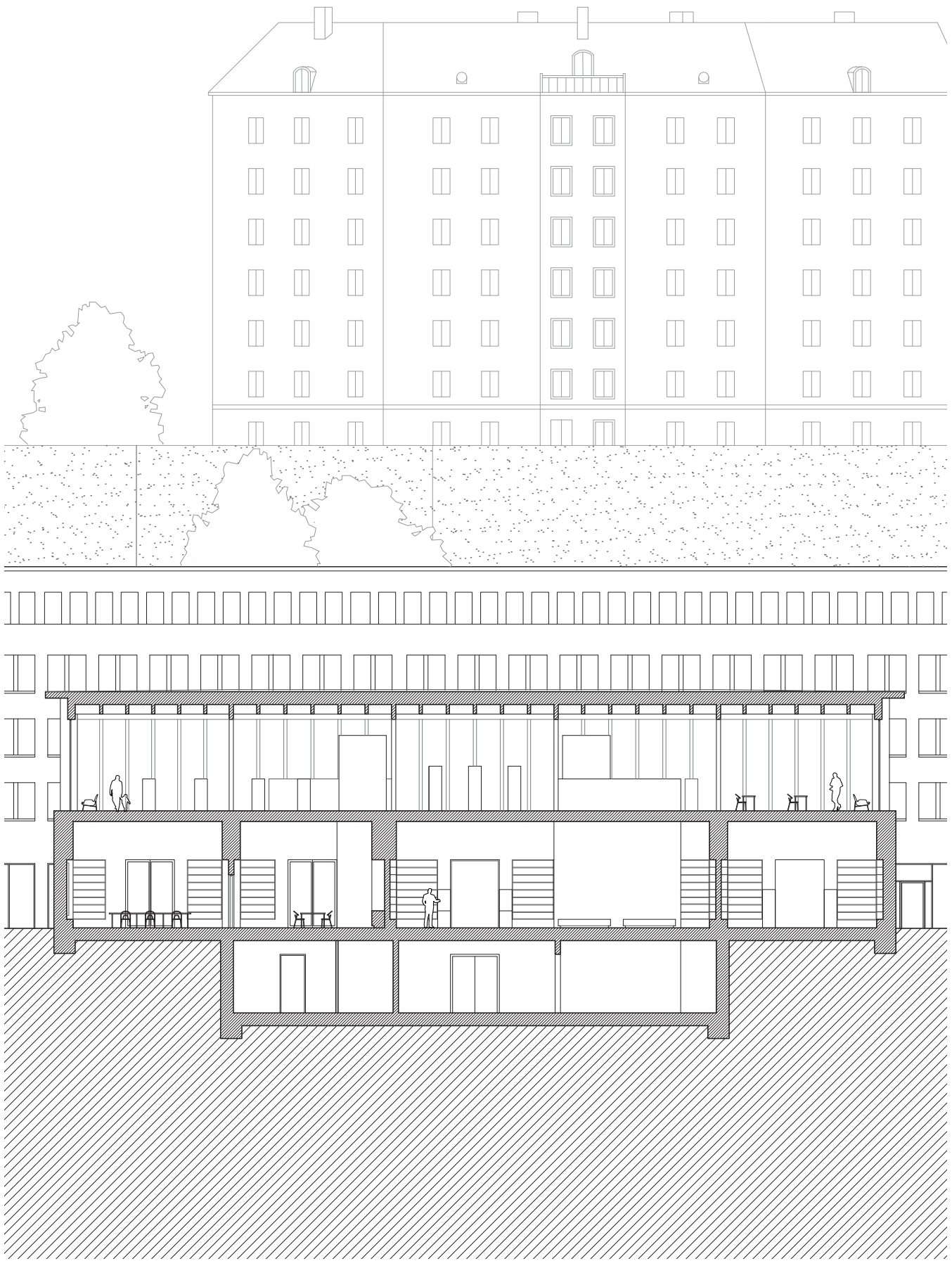
The facades are designed with a focus on enhancing the two construction types and at the same time creating a coherent facade expression. The solid bottom floor is enhanced by leaving a lot of surface uninterrupted. The openings are holes in the brick surface in a clear rhythm to mimic feskekörkas facade structure. The windows are positioned on the inside of the wall in order to create a deep hole, enhancing the massive and heavy character in the solid part of the facade. The filigree part of

the facade is pushed in to enhance the lightness of the filigree construction. The openings happen in between the wooden pillars that are filled with glass. In order to create a coherent facade expression the two floor plans have the same height. The proportion of the opening on the first floor has the same proportion as in between the load bearing pillars on the second floor in order to create a relation between the two floors.

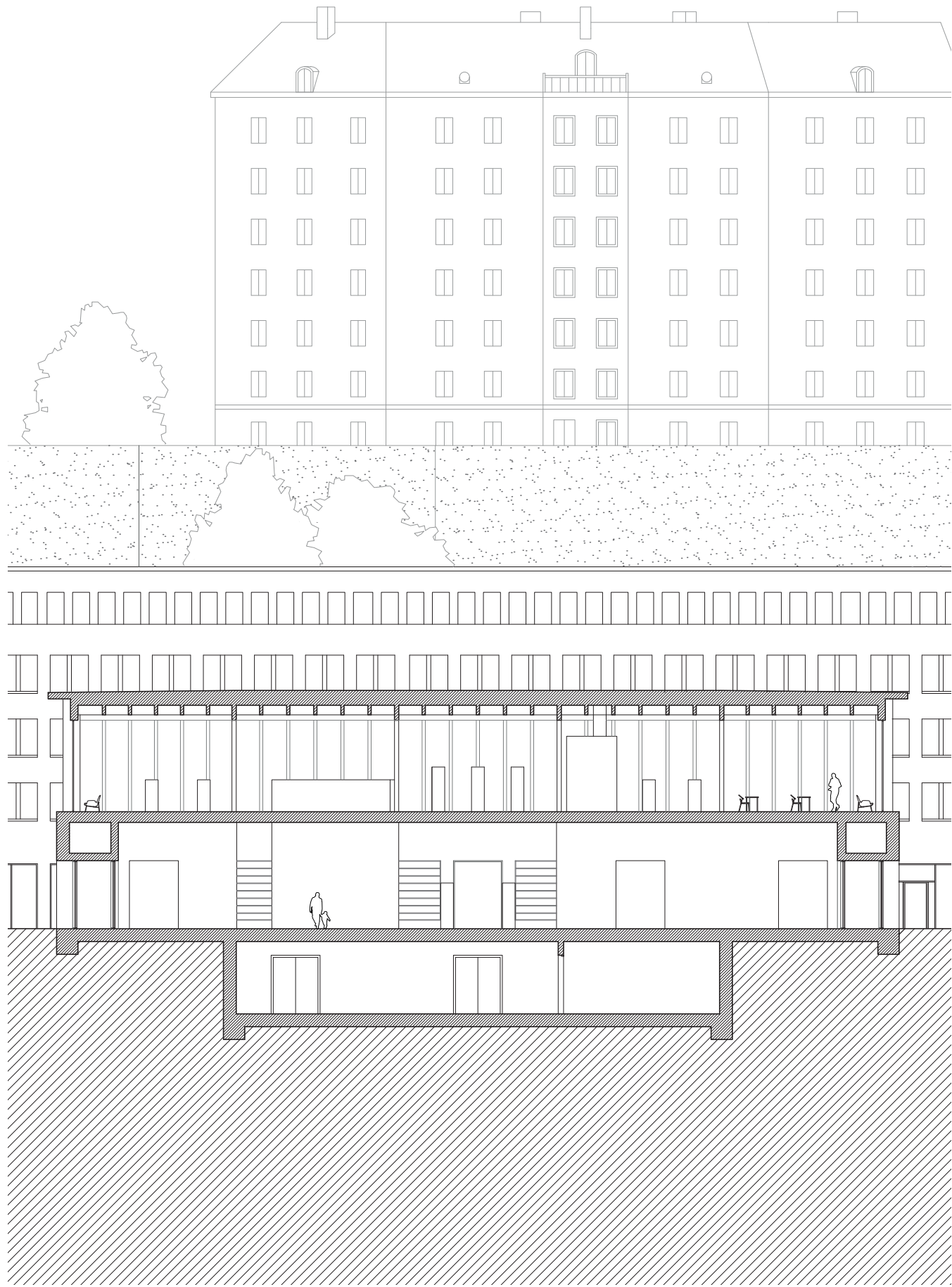




South facade



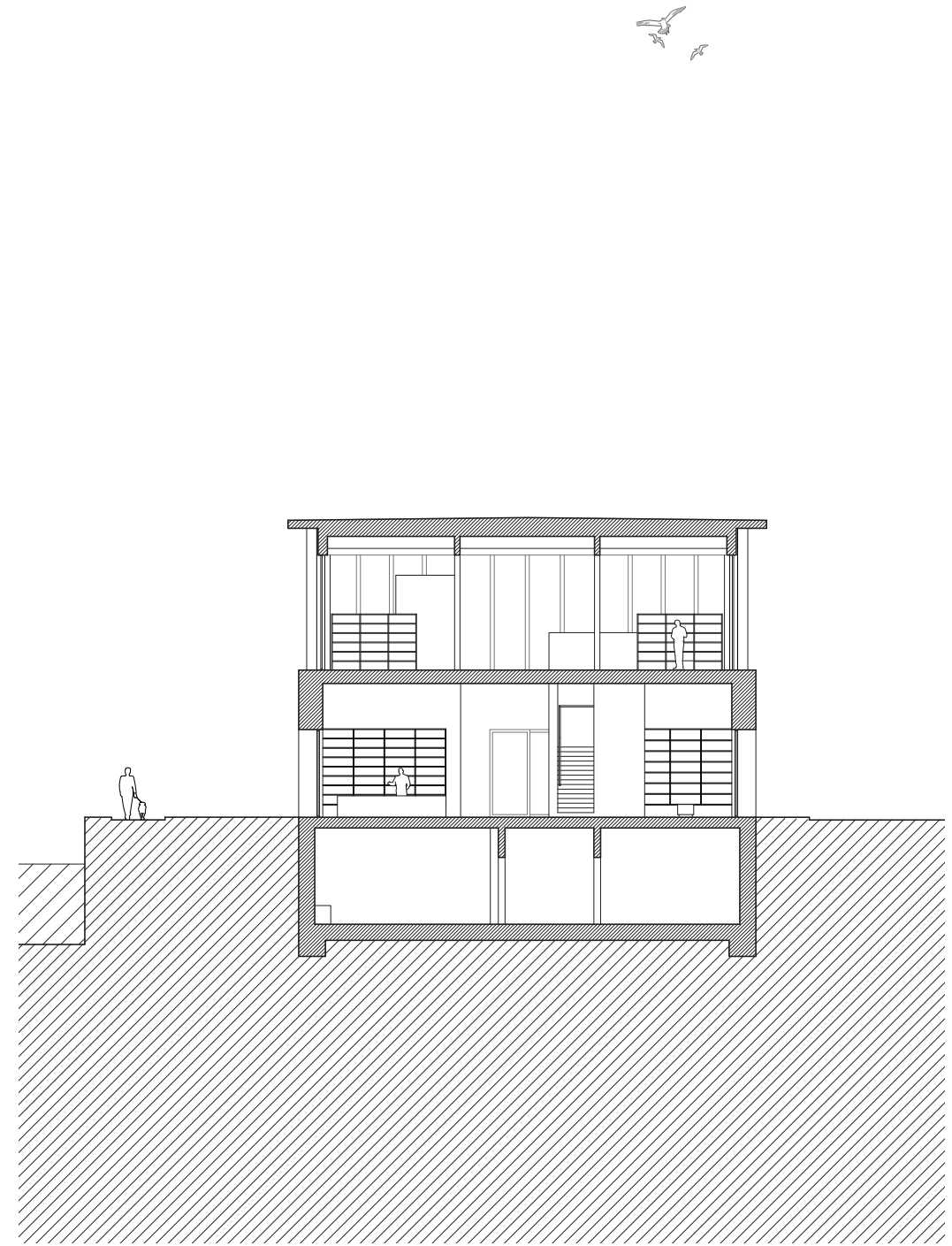
Section b-b



Section a-a

56

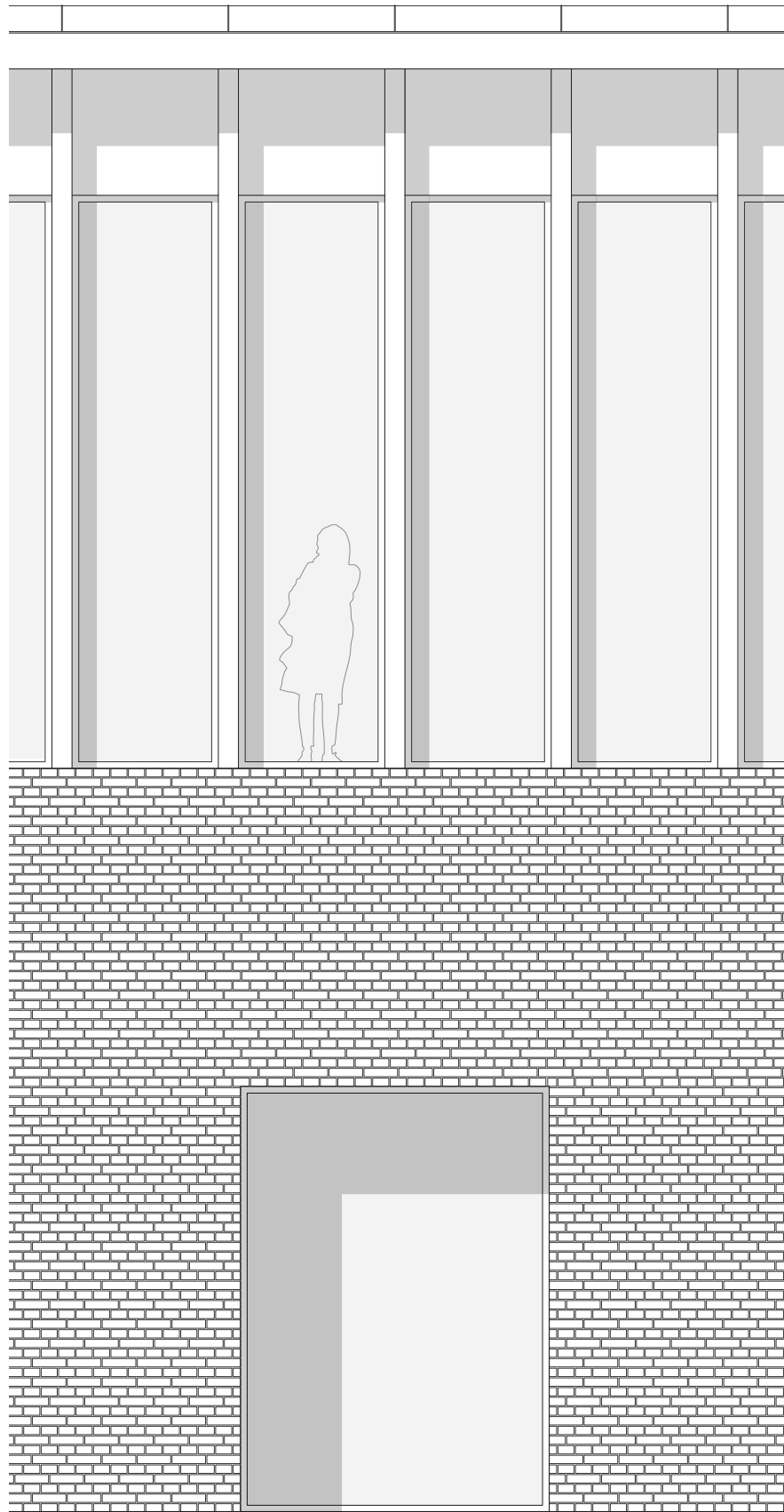
1:250



Section c-c

57

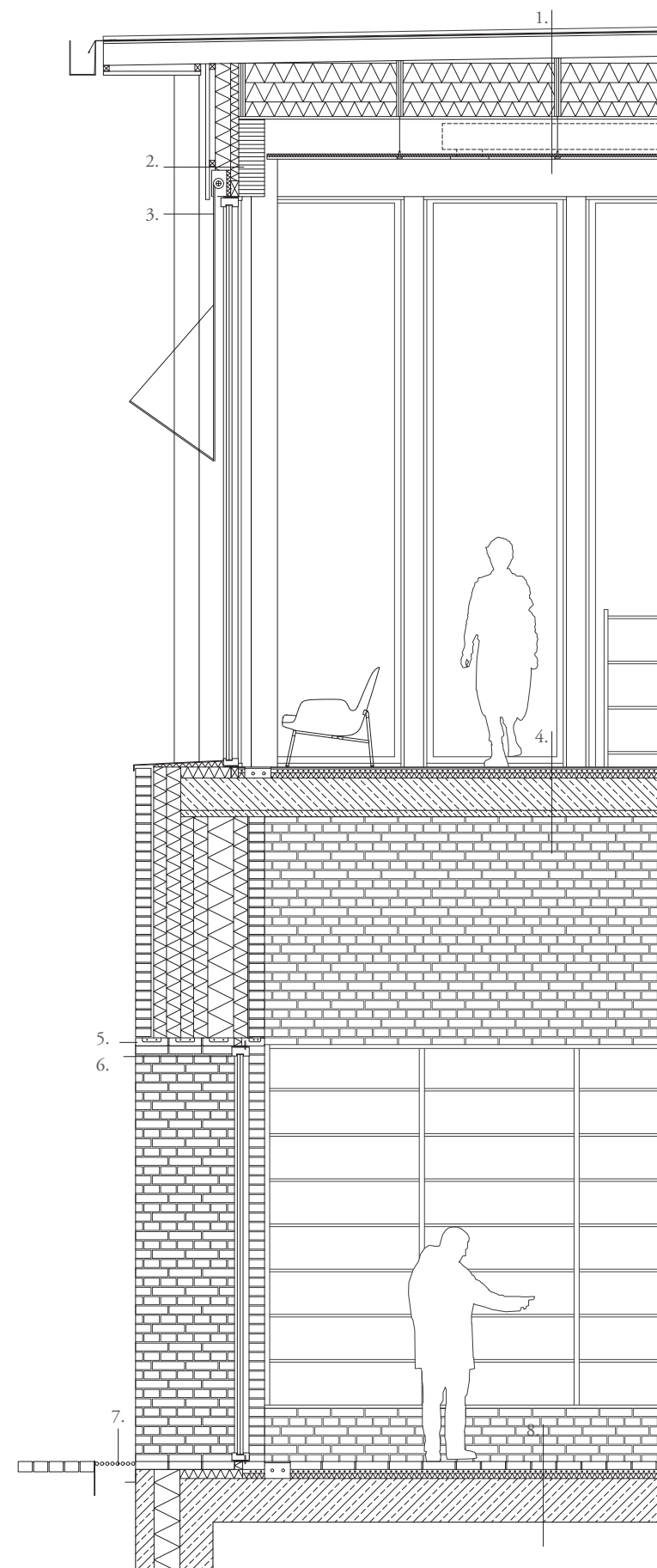
1:250



Facade elevation

58

1:50

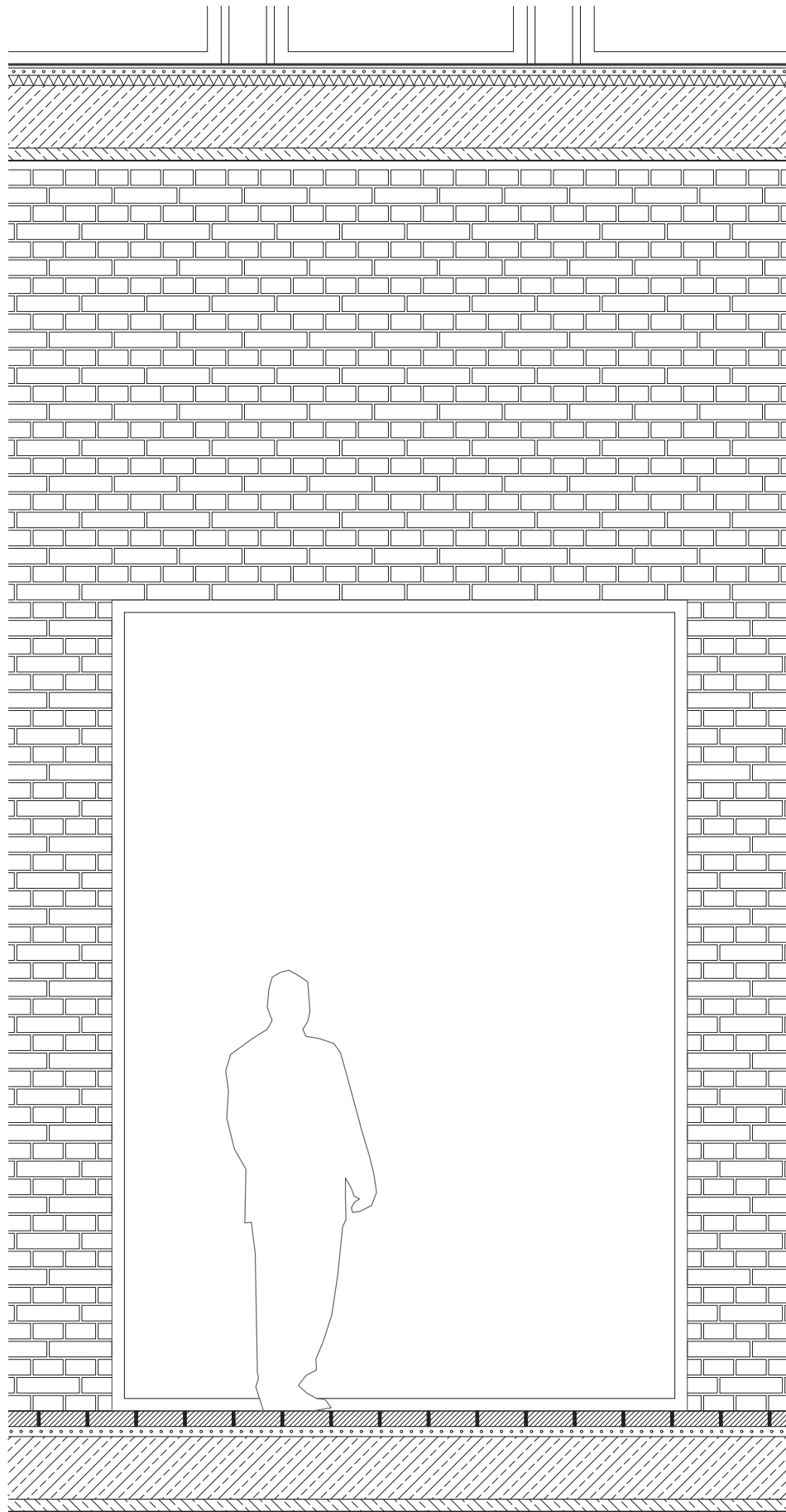


1. 6 mm hardcoat
3 mm paperboard substrate
17 mm rounge-in-groove board
170 mm wooden joist 1200cc
400-500 mm kerto-beam 1200cc
500 mm isolation
20 mm particleboard
200 mm installation-space
30 mm acoustic panels.
2. Gluelam-beam 200x600
3. Sunscreen
4. 15 mm parquet
30 mm underfloorheating
40 mm impact sound isolation
250 mm reinforced concrete
50 mm prec. conc. slab
5. Brick beam
6. Wooden window frame
7. Gravel
8. 62 mm brick
50 mm floorheating
40 mm impact sound isolaion
250 mm concrete

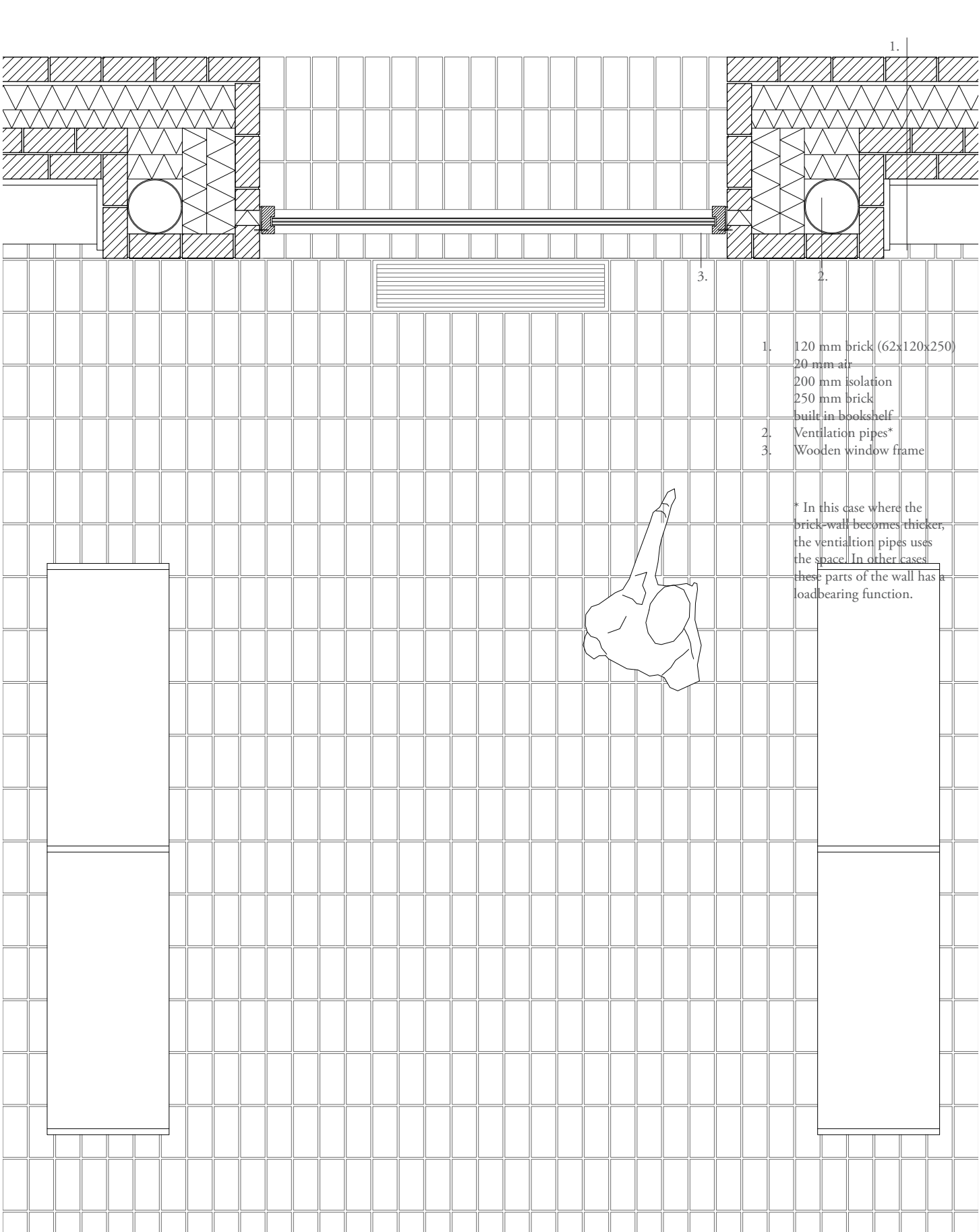
Detail section

59

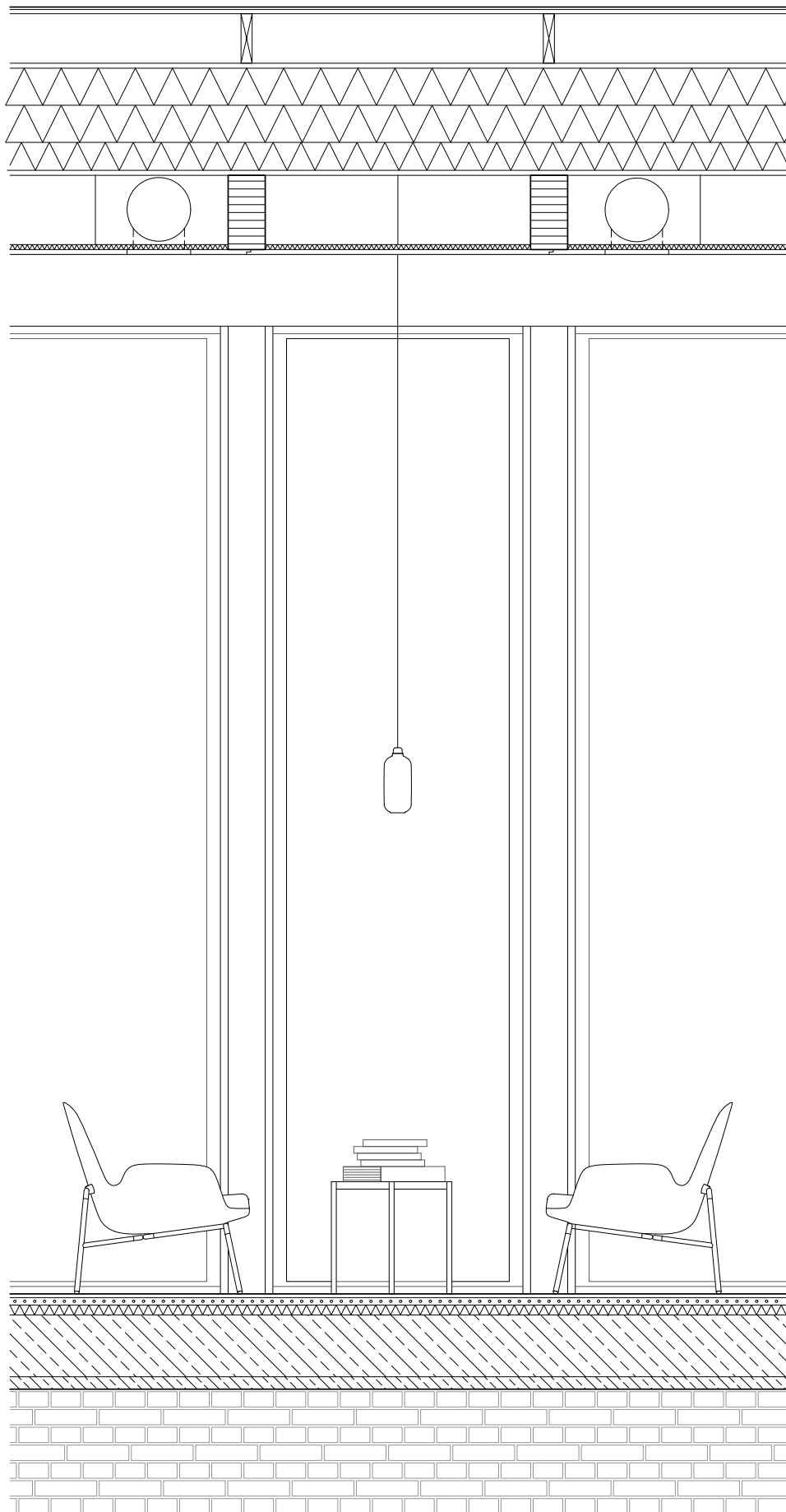
1:50



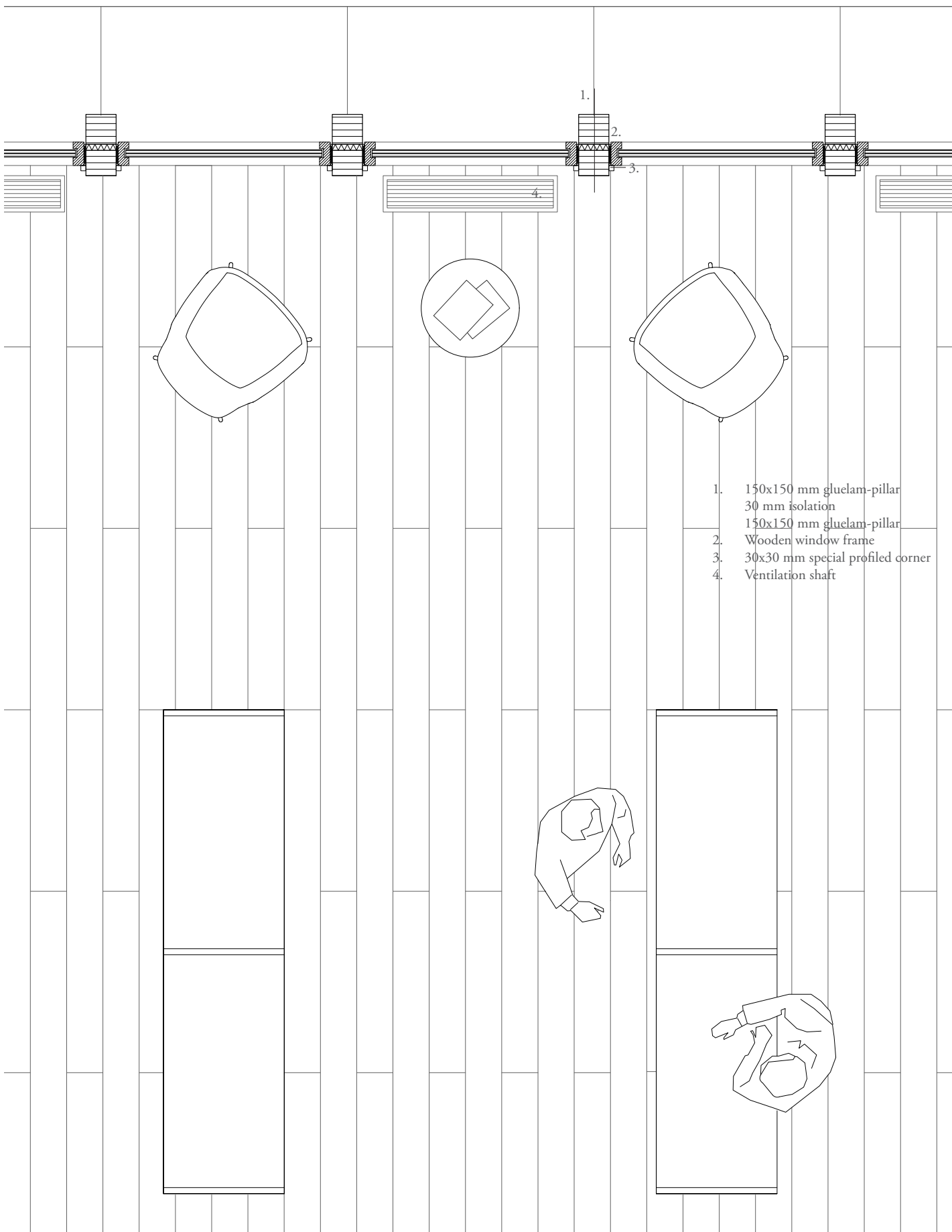
Internal elevation 1:st floor



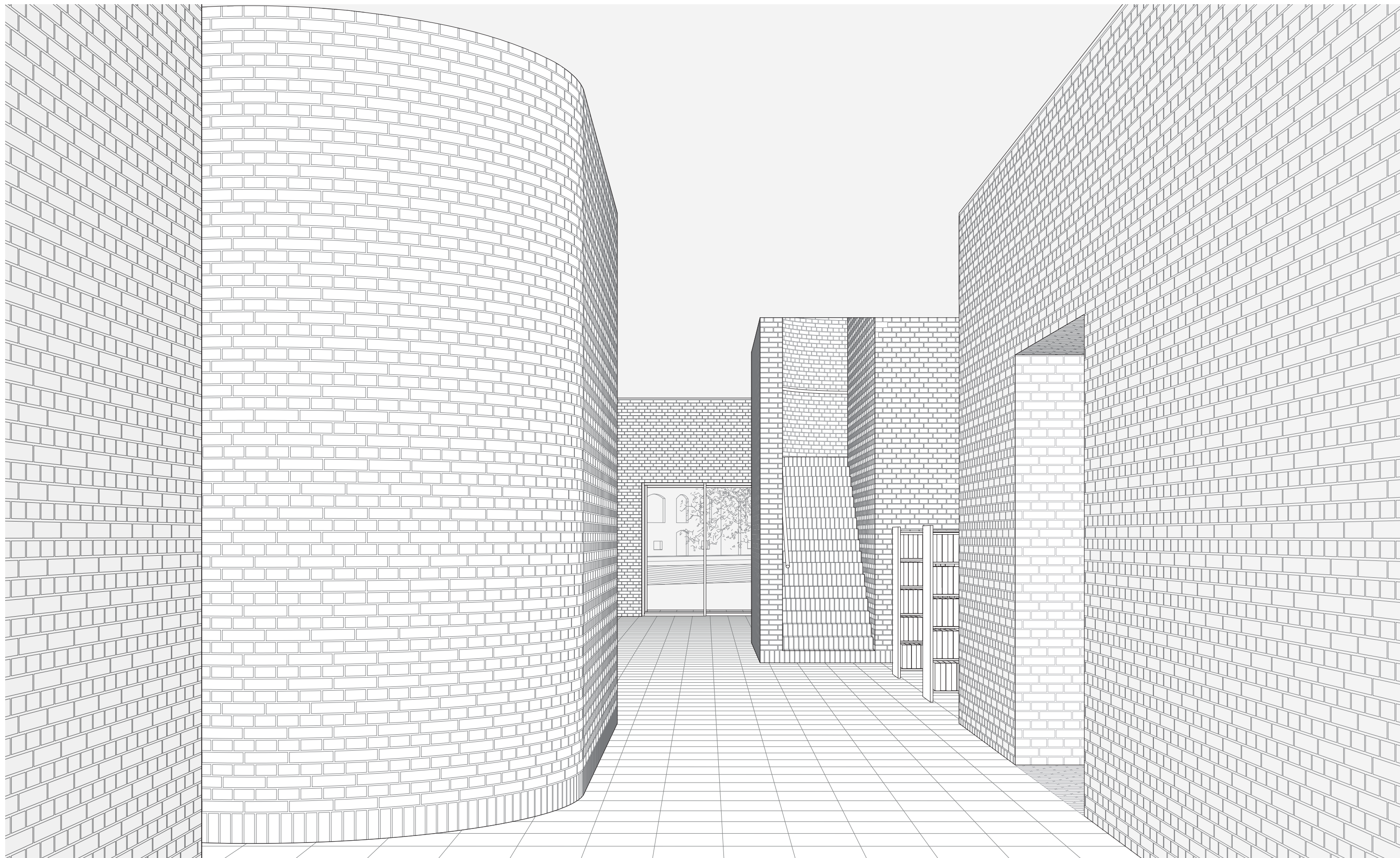
Plan 1:st floor

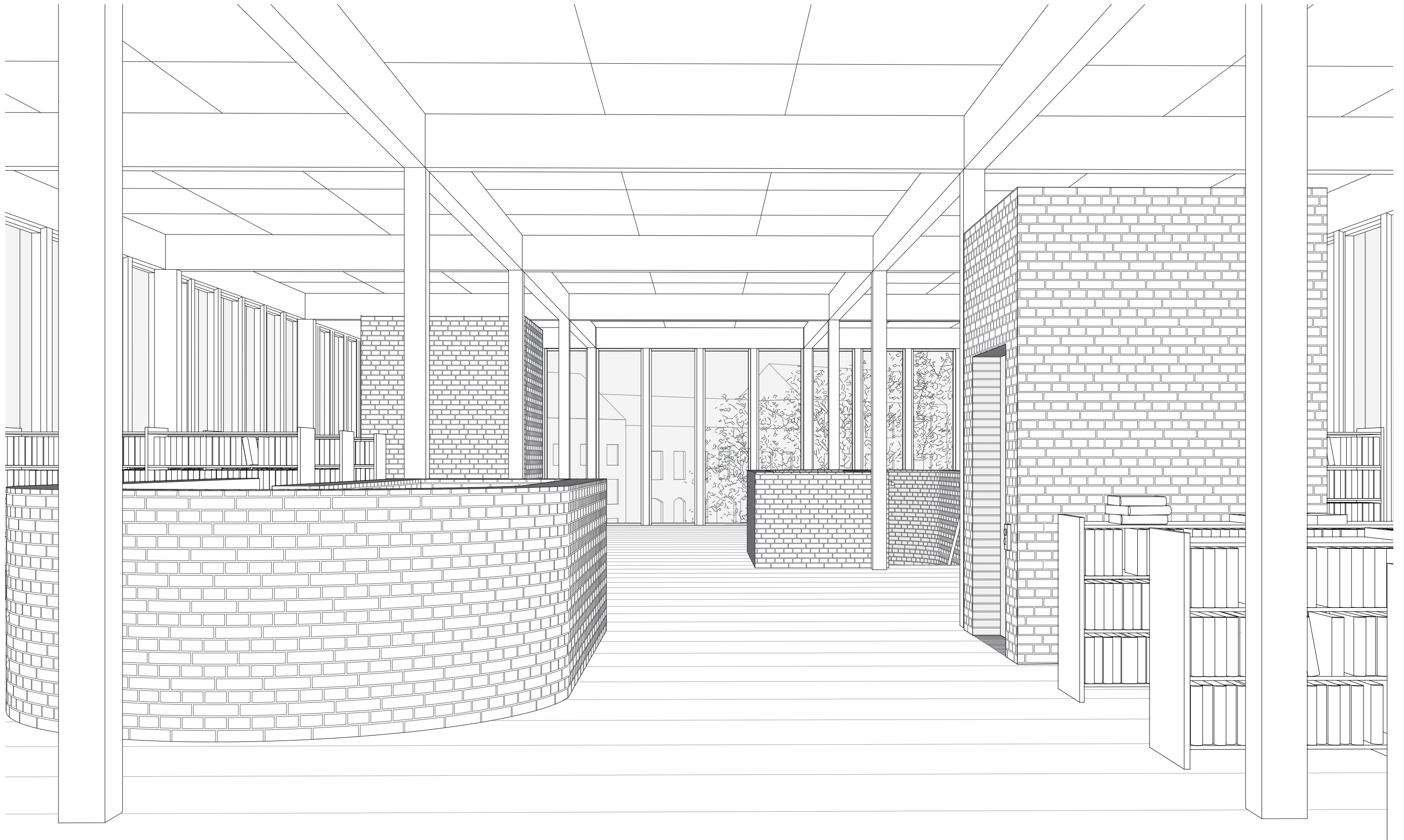


Internal elevation 2:nd floor



Plan 2:nd floor





VII.
SUMMURY AND REFLECTION

The purpose of this study is to investigate the two construction methods, solid and filigree construction, and to look at how they affect space. The aim is to design a library that answers the question of how construction affects the spatial experience of a building. Another aim for this study is to see how the two construction methods answer to the different functions of a library. The context of this project is a site in the city centre of Gothenburg. A smaller parking lot beside the historic building Feskekörka becomes a suitable place for this investigation. The site offers a beautiful view over the canal and two neighbouring buildings that have characteristics of solid and filigree construction. Feskekörka in brick has a massive and heavy facade expression and fisketorget 2 has a clear filigree facade expression. These buildings are two solitaires at the site and this project becomes the third.

The result is a library that is designed with the two construction methods divided into two floors, the first floor with the solid construction method and the second with a filigree construction method. The different functions of the library make use of the two construction methods. The filigree construction creates prominent reading spaces on the second floor and the solid construction makes enclosed spaces possible and creates inbuilt functions such as bookshelves on the first floor.

The first floor with its massive three dimensional brick walls is a result of a focus on the heavy and massive features of the solid construction. During the process this project chose to focus more on spatial expression of the solid construction method than on the organization of spaces. This resulted in a floor plan layout that not necessarily is organized according to the solid construction theory. The result is a more open and flowing floor plan than what a more strict approach would have been. The project gained a more heavy and massive character when

the two staircases were released from the walls. They became sculptures that characterize both floor plans. On the second floor the focus is on the filigree characteristics, light, open and flowing. The wooden pillar system is the load bearing structure of this floor and filled with glass as the secondary element in between the pillars. The floor and the roof are the protagonist of this floorplan, they define the space as the walls are absent figures. The volumes that zone the upper floor are the staircases, the elevator and the shaft. Due to the fact that these volumes are the only figures that divide and zone the upper floor plan they have to be very carefully positioned. Consequently these volumes came to shape the whole organisation of the building. The two floorplans become dependent on each other and affect the other in a direct way. If this project would have worked with the two construction methods in an other way than in a strict vertical way, it might have been easier to freely design and investigate the two methods separately. On the other hand, this forced relationship between the two floorplans has given me and this project a lot of knowledge concerning the two construction methods. To have struggled with the merging of these two floor plans has been educating and forcing an understanding of the essential parts of the two construction methods.

By working with these construction types separated on two floors, forcing a relationship between them, also sets light on the contrast between them and therefore makes it easier to compare them. The first floor becomes more heavy and enclosed in relation to the second floor and the experience of the big and open space on the second floor becomes a relief after moving through the solid brick space. One could say that the contrast between the two construction types enhances one another and their spatial qualities become clear and tangib

VIII. REFERENCES

LITTERATURE REFERENCES

Cornell, E. (1959). *Humanistic Inquiries into architecture*. Göteborg : CTH.

Samuel, F. (2010). *Le Corbusier and the architectural promenade*. Basel : Birkhäuser, cop.

Tschumi, B. (1977). Screenplays (The Fight), Bernard Tschumi, Screenplays (Psycho Dissolve).

Kleine, H. (2018). *The Drama of Space*. Birkhäuser Verlag, Basel.

Thomas, A. (1993). *Buildings & power : freedom and control in the origin of modern building types*. London : Routledge

Kungliga Biblioteket. (2018) Bibliotek 2017. Stockholm. Kungliga biblioteket.

Deplaze, A. (2018). *Constructing architecture, materials processes structures, a handbook*. Birkhäuser Verlag, Basel.

Hilberseimer, L. (1956). *Mies van der Rohe*. Chicago: Paul Theobald.

Carter, P. (1974). *Mies van der Rohe at work*. London: Phaidon Press Limited.

McLeod, V. (210). *Detail in Contemporary Timber Architecture*. London: Laurance King Publiching Ltd.



"The Relation Between Construction and Spatial Experience"

Chalmers School of Architecture

Department of Architecture and Civil Engineering

Architecture and Urban Design. Building Tectonics

Hannah Delvert 2020

Supervisor: Mikael Ekegren

Examiner: Björn Gross