

An architectural rendering of a modern courtyard. The courtyard is paved with dark grey tiles and features a central landscaped area with tall green grass and a small sculpture made of stacked wooden blocks. The surrounding buildings have dark blue-grey facades and large glass windows. In the foreground, a man, a woman, and a child are walking. In the background, several other people are visible. The sky is a clear blue with a large flock of birds flying in a V-shape.

MADE FOR MEMORY: PRADA FOUNDATION

EDUARDS LASMANIS

COMPLEX PROJECTS GRADUATION STUDIO
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RESEARCH FRAMEWORK

Introduction

Museums are a vital part of human culture. The main role of these institutions is to house and curate artworks and historical artifacts to the public. Ideally, museum spaces help visitors have a powerful encounter with new ideas through works of art, therefore fostering new perspectives. However, oftentimes museum experiences are associated with mental and physical fatigue, caused by large amount of artifacts, lack of clarity in spatial organization and crowded spaces.

To address this issue, the thesis explores the question: **How can museum architecture enhance visitor memory retention of the museum collection?** The term “architecture” can be understood as both design of buildings and design of the curated exhibitions. The term “memory retention” in this context addresses long lasting memories and impressions of the museum collection, conceived during the visit.

By gaining an understanding of current design practice of museum spaces and exploring topics within the field of human psychology, the main issues with museum experience are identified. Specific tools and methods of memory retention are selected and applied to the museum context. Lastly, this is materialized in an architectural proposal for a new Prada Foundation in Milan, Italy.





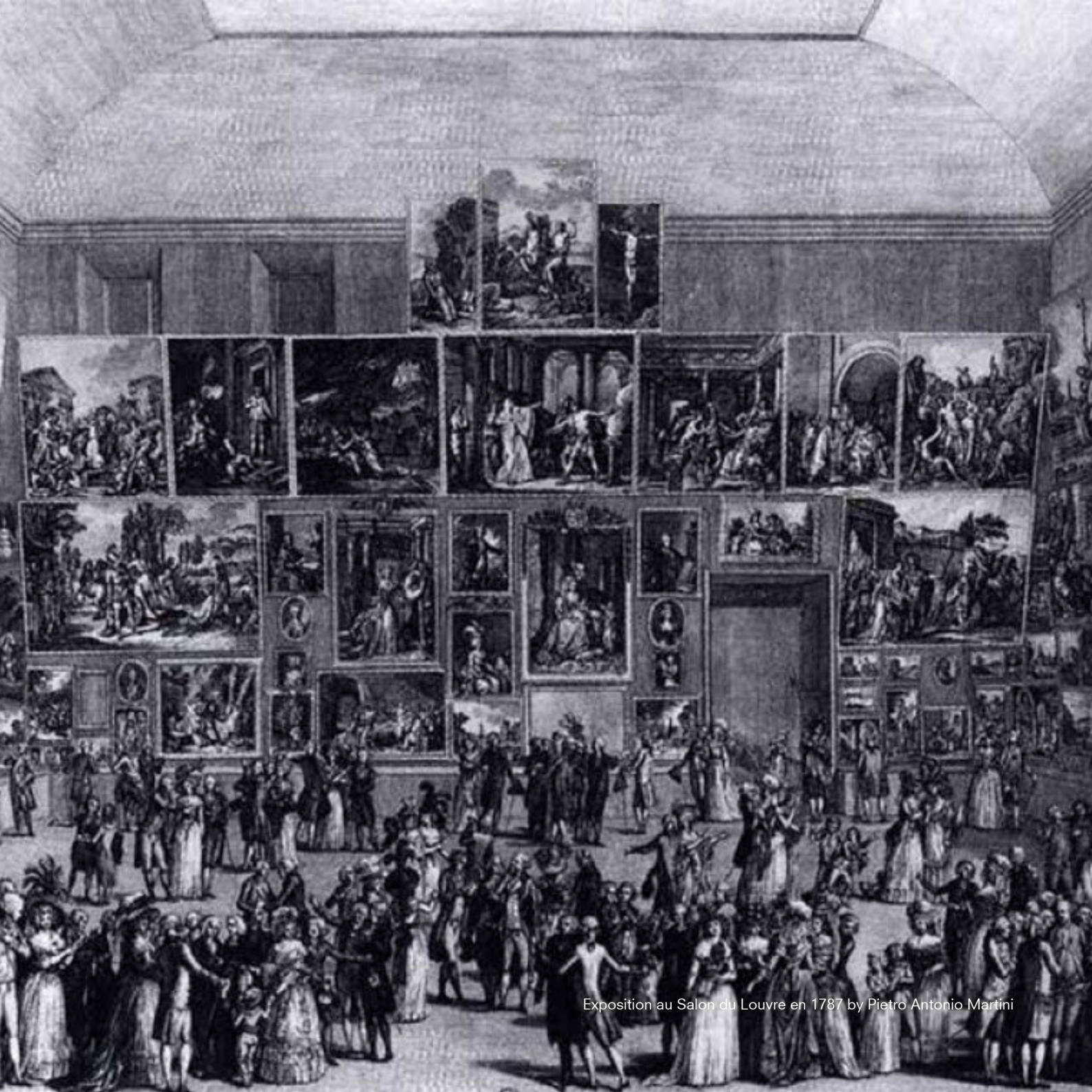
People experiencing museum fatigue. Jeremy Weate

Sensory Overload

There exist an overwhelming amount of museums where artworks are densely displayed. Some of these examples include well known galleries such as Uffizi in Florence, Louvre in Paris, Wallace Collection in London. Artworks, often placed side by side or layered, create a crowded effect that reduces the impact of individual pieces. This common layout contributes negatively to how well visitors can mentally digest the displayed subjects. Therefore visitors are inclined to skim through, instead of immerse themselves with each artwork. Studies suggest that the average museum visitor typically spends only 10 seconds per artwork, highlighting the fast pace in which a museum collection is often experienced.¹ Not only does this limit the depth of interaction with artworks, but also impedes the creation of lasting impressions.

The museum environment contributes to visual and cognitive overstimulation, causing a state which has often been referred to as museum fatigue. To an extent this is caused by sensory overload, which is a psychological phenomenon that refers to decreased mental function as a result of an overload of inputs. These inputs can include information from all of the five senses- vision, sound, taste, touch, and smell. Museum spaces are mainly filled with an overwhelming amount of visual information, however, they can also include an array of sound, smell, and tactile stimuli. Aforementioned museum fatigue (mainly caused by sensory overstimulation) is a well-documented issue in the context of museum experience. Fatigued visitors generally are more likely to have a shorter attention span, glance through rooms, and engage less with artworks.

¹Jeffrey K Smith, F Smith, and P.L. Tinio, 'Time Spent Viewing Art and Reading Labels'.



Exposition au Salon du Louvre en 1787 by Pietro Antonio Martini

Selectiveness and Rest

Museum visitors often are inclined to view the whole museum collection due to a certain fear of missing out on something noteworthy. This leads to an experience which is filled with superficial and brief encounters, where quantity is prioritized over depth.

Research indicates that what humans remember in the long term from a certain experience is only a specific highlight and the end of the experience.² This raises the question of whether a higher amount of artworks experienced holds any significant value in the long-term memories of the museum visit. Another study points out that in retrospective evaluations of affective episodes, such as a museum visit, the duration of the particular event is neglected.³ The study concludes that “Retrospective evaluations appear to be determined by a weighted average of “snapshots” of the actual affective experience, as if duration did not matter.”

Another aspect that is often only partially addressed in museum layouts is rest zones. In many instances, museum spaces are organized as a continuous sequence of rooms, without dedicated zones for visitors to have rest and allocate time for reflection. This can reduce the ability to mentally form more distinct moments that might serve as anchors that organize memories of the museum visit.

To some extent, a well-informed museum visitor can enhance the effect of a museum visit on an individual level. Visitors can be more selective in what they spend their time on, consciously allocate time for rest to avoid fatigue, as well as organize the newly gained impressions by creating mental anchor

points. However, the importance of designing for an attentive, immersive museum experience that helps visitors form more long-lasting memories has been overlooked in current design practice of museum spaces. To form a better basis for potential solutions, the link of memory and space will be explored in the following chapter.

² M Do, V Rupert, and L Wolford, ‘Evaluations of Pleasurable Experiences: The Peak-End Rule’.

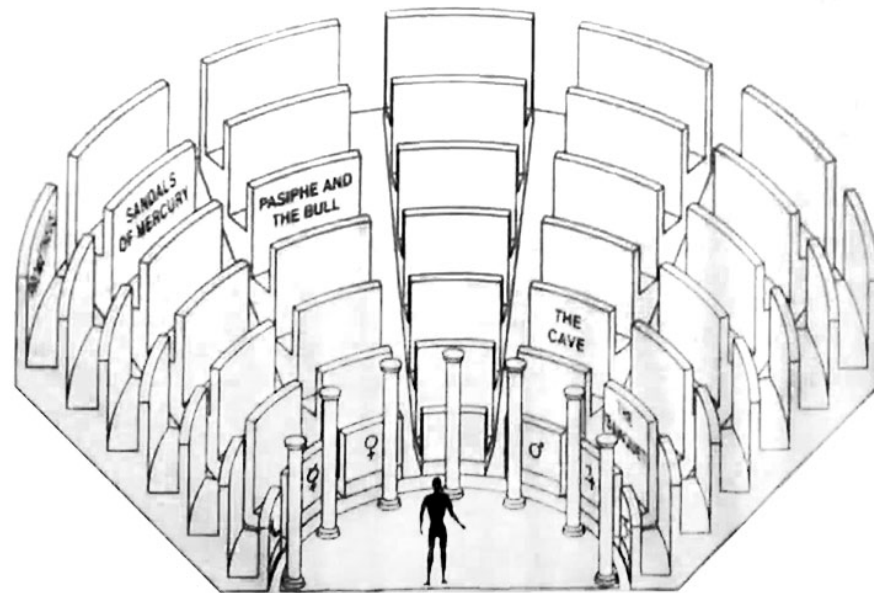
³ Fredrickson and Kahneman, ‘Duration Neglect in Retrospective Evaluations of Affective Episodes’.

Space and Memory

The link between space and memory has been explored throughout human history. The Method of Loci, described in Ancient Greek and Roman writings on rhetoric, has proven to be one of the most effective methods in memorizing new information to this day. In Method of Loci, the user imagines a familiar environment, such as childhood home or hometown, to enhance recollection of new, unrelated, concepts. Another spatial mnemonic device, proposed by Italian polymath Camillo during Renaissance period is the Theatre of Memory. It served to “locate and administer all human concepts, everything which exists in the whole world” using a circular theatre with the visitor in the centre, surrounded by various concepts that form a comprehensive framework of collective human knowledge.

There exist common examples where spatial categories influence memory retention, such as a grocery store. Such environments are filled with a large number of concepts, namely food items, that are physically organized and therefore later recalled in a highly spatial manner.

Museum spaces have to address the same questions, as spatial organization of information plays a pivotal role in how museums are experienced. Each room or corridor can serve as a “memory palace”, where certain aids help the formation of new associations.



Camillo's theatre. Stanford Visual Arts Services interpretation.

Less Artworks per Visit

Limiting the amount of artworks a visitor encounters during a museum visit can allow the visitor to focus more attention to each artifact. Instead of creating spaces filled with an overwhelming amount of art pieces, a single space can be used to house only one artwork. The artwork can be enforced by optional supporting material that provides more insight into the artist and the context of the particular artifact. This way, the visitor can fully immerse themselves into a single idea, and go into more depth if inclined to do so.

Evidence suggests that average visit times of museums are 2 to 3 hours in larger institutions and 1 to 2 hours in smaller museums. As described earlier, the visit is commonly an uninterrupted and fast-paced consumption of exposed artifacts. Museum fatigue and memory retention could be addressed by not only decreasing the amount of artworks seen (and increasing the amount spent on individual artworks), but also decreasing the total time spent during each museum visit. Instead of being viewed as fundamentally “complete” and all-encompassing, museums should be seen as a fraction of indefinite collection of ideas, that can not be explored completely. Museum experiences therefore could become shorter, but more frequent. This would allow visitors to process and reflect on the encountered ideas, contributing to a more profound interaction with art.



Zoning and Flows

Organizing exhibition zones with attention to the amount of visitors can reduce crowding that contributes to noise and creates obstructions. These factors prevent the visitor from having an immersive experience. Potential solutions would include reservations for the museum visit that limit the amount of visitors, or managing visitor amount within the level of individual spaces.

It has to be noted that, apart from being a space for encounter with artworks, museums also have the role of stimulating public interaction and community engagement. This social aspect has to be kept in mind when addressing the question of visitor flows.

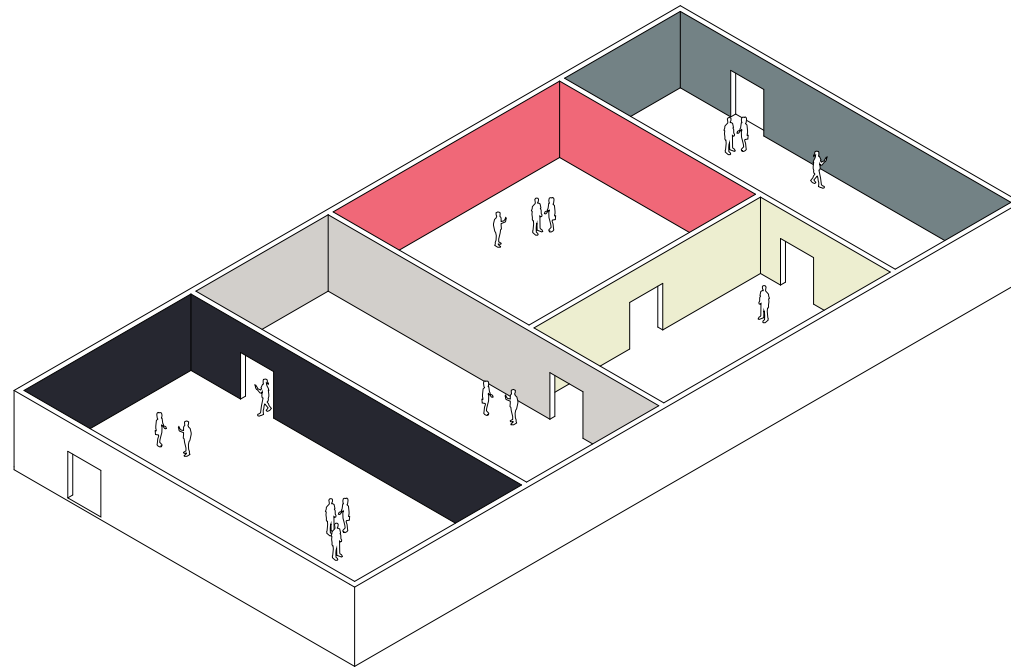
Allowing museum visitors to have moments of rest between and during the viewing of artworks can help to have a more immersive encounter with new ideas. This has been partially addressed in current museum spaces, as seating is placed in the exhibition areas. Furthermore, there are cases where museums provide portable seating, allowing visitors to allocate more time to any of the artworks.

Apart from seating, dedicated spaces for reflection could be implemented. These spaces could provide seating, natural elements such as plants, drinking water and restrooms. Seating could be directed towards views of nature to help visitors recollect their thoughts and reflect on the experience. This is partially addressed in restaurants that are commonly incorporated in museum buildings.

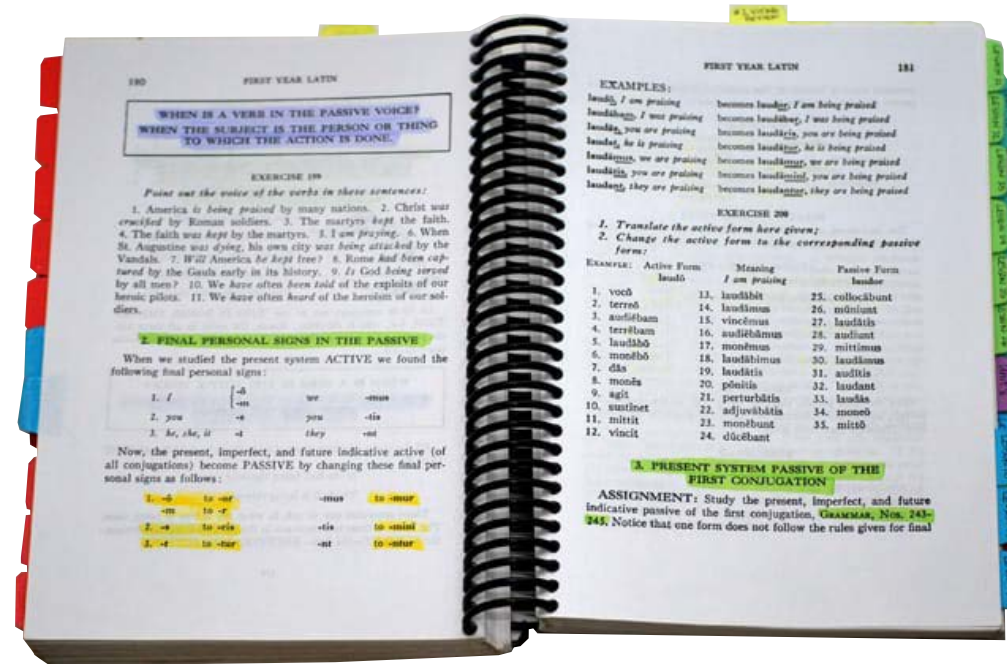
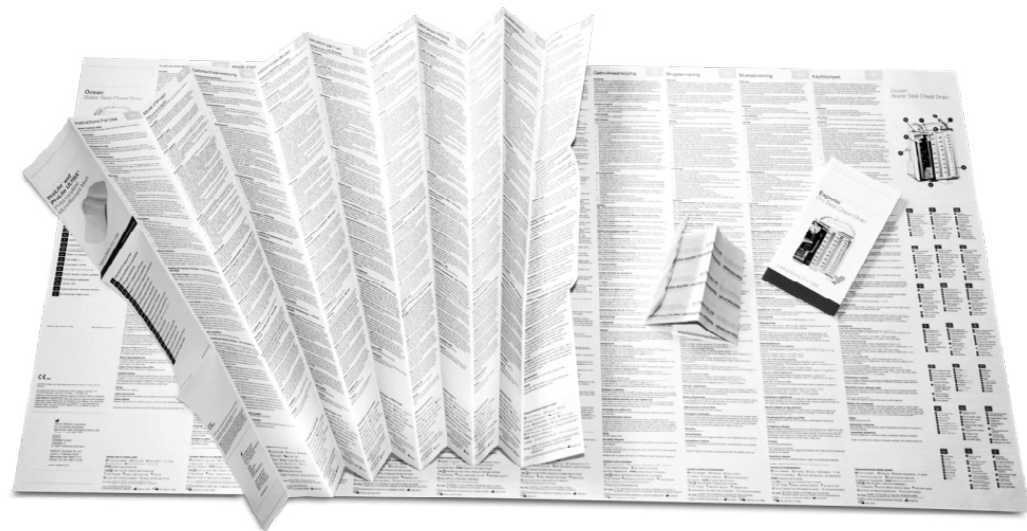
Another topic that can be explored in the context of memory retention of museum visits in thoughtful use of color. Various studies have concluded that use of

color is an effective tool for the increase of memory retention. On one hand, introduction of the variable of color can further complicate the environment where art is exposed. On the other hand, it can be a powerful tool in increasing memory retention by color coding different segments of an exhibition.

⁴ The use of color-coding could then serve as an anchor and systemize artworks experienced.



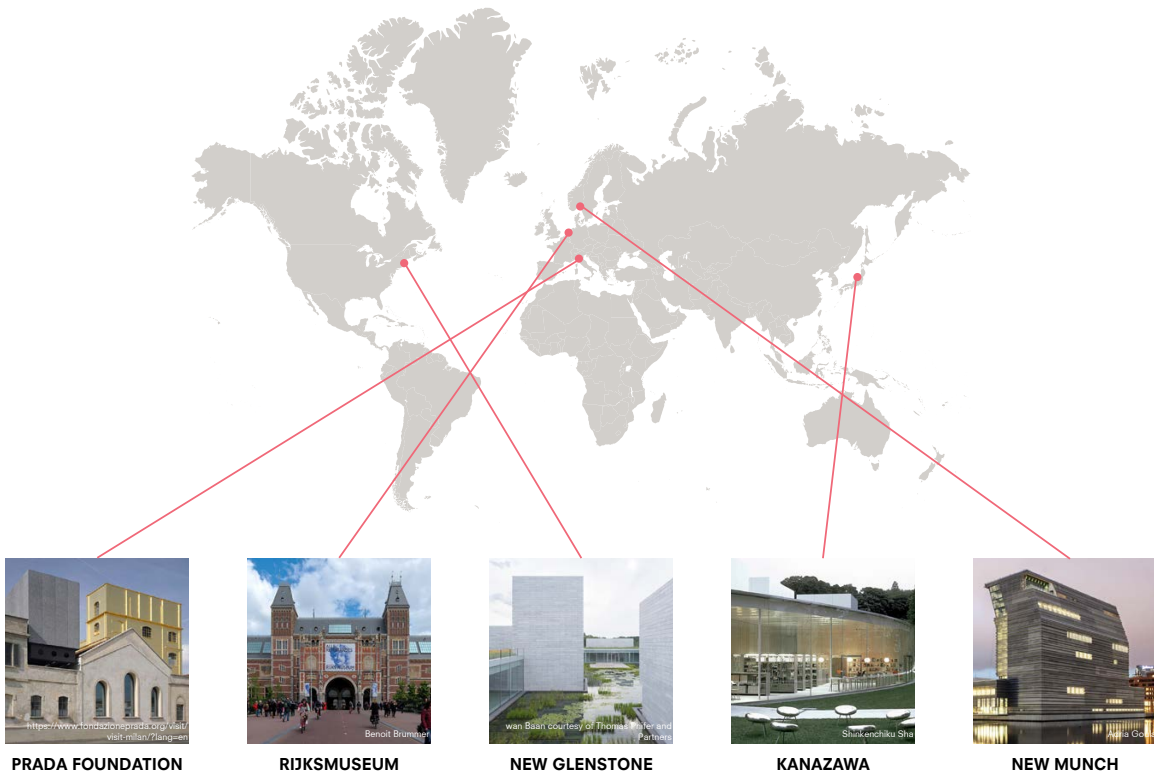
⁴ Dzulkifli and Mustafar, 'The Influence of Colour on Memory Performance: A Review'.

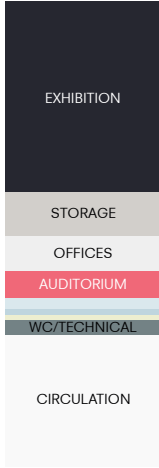


CASE STUDIES

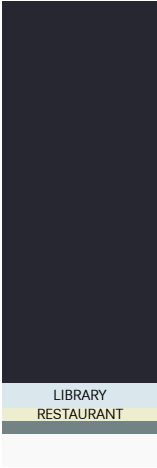
Architecture of a Museum

The design of a museum is never neutral. It reflects institutional ideologies, local culture as well as curatorial intentions. In an attempt to critically analyze current paradigms of museum design and provide a significant alternative through the redesign of Fondazione Prada in Milan, five different museum projects are analyzed. These case studies have been selected to reveal a range of building types, curatorial spatial design, and programmatic combinations that define the appearance of the contemporary art museum today.





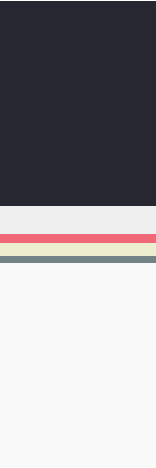
PRADA FOUNDATION



RIJKSMUSEUM



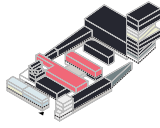
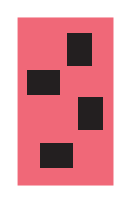
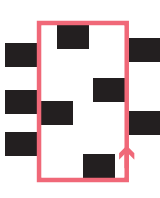
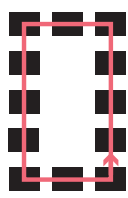
NEW GLENSTONE



KANAZAWA



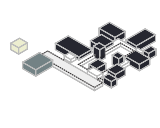
NEW MUNCH



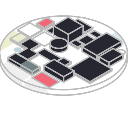
PRADA FOUNDATION



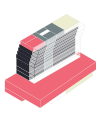
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NEW GLENSTONE



KANAZAWA



NEW MUNCH

Prada Foundation

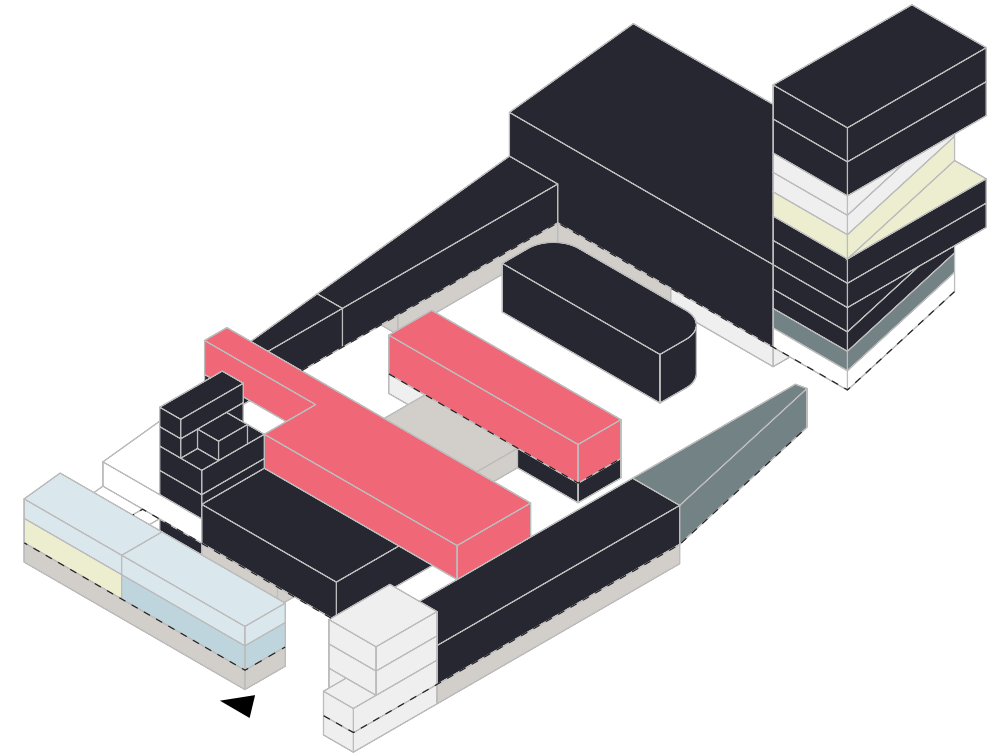
Prada Foundation, which was once an industrial distillery complex, is an example of a hybrid museum model that welcomes the layering of time and variety of spatial experiences.

Instead of imposing a single architectural language, OMA's design embraces a patchwork of interventions, including contrast, addition, and restoration.

Adjacent to exposed untreated concrete and industrial sheds contrasting elements are placed, such as the Golden House, covered with golden leaf.

Its spatial types is heterogeneous, fragmented and campus-like. The program consists of exhibition halls, a movie theater, restaurant and a separate cafe, tower galleries, and outdoor area.

The complex of Prada Foundation values contrast and intrigue more than continuity. But this richness can also cause visitors' memories to become fragmented, making it harder to remember the storyline of the art experience.

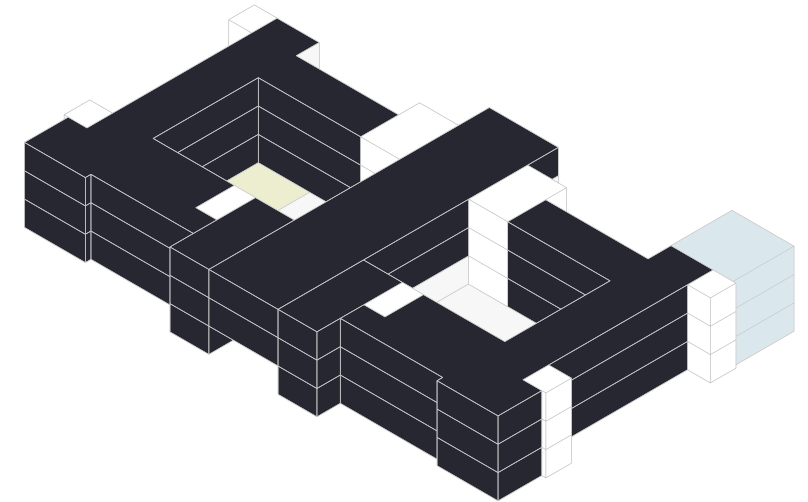


Rijksmuseum

A highly structured, symmetrical, and programmatically clear approach to museum design is exemplified by the Rijksmuseum in Amsterdam, the Netherlands. The visitor is led through a national narrative of Dutch art by its central axis and robust hierarchical routing. By reuniting the building's two halves and constructing a large, light-filled atrium, Cruz y Ortiz's most recent renovation restored spatial clarity.

The layout is organized in an axial, palatial, and historically stratified manner. Program consists of elements that include a central public foyer, education areas, an integrated library, and galleries arranged chronologically.

Strict routing encourages control and linearity, which is perfect for didactic clarity but less flexible for modern curatorial techniques. Nevertheless, through distinct segmentation, its rhythm promotes memory retention.

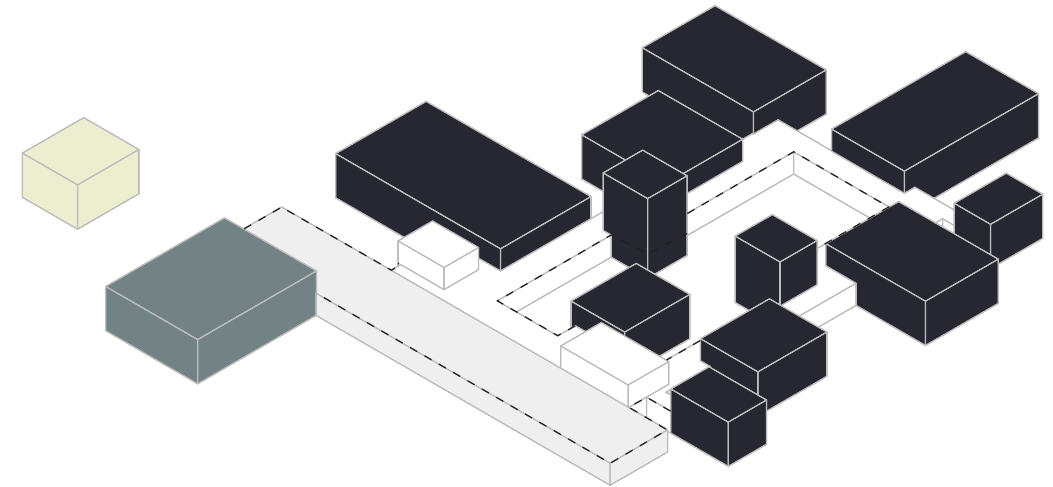


New Glenstone

The new Glenstone, which is situated in rural Maryland, USA, provides a contemplative and experiential museum model. In addition to serving as a background for artwork, architecture can also be used to slow down visitors. A central water court serves as the focal point of the pavilions, which are connected by lengthy, silent corridors that prime the observer for each piece of art separately.

Nature-inspired pavilions, loinear and curated routing create a more experiential museum visit. A visitor center, outdoor sculpture pathways, private viewing areas, and spacious exhibition rooms all support the idea of a more calming visitor experience.

Glenstone is successful in separating artworks and increasing awareness. A major source of inspiration for the design direction of this thesis is the deep engagement and memory that are fostered by the harmony of architecture, art, and landscape.



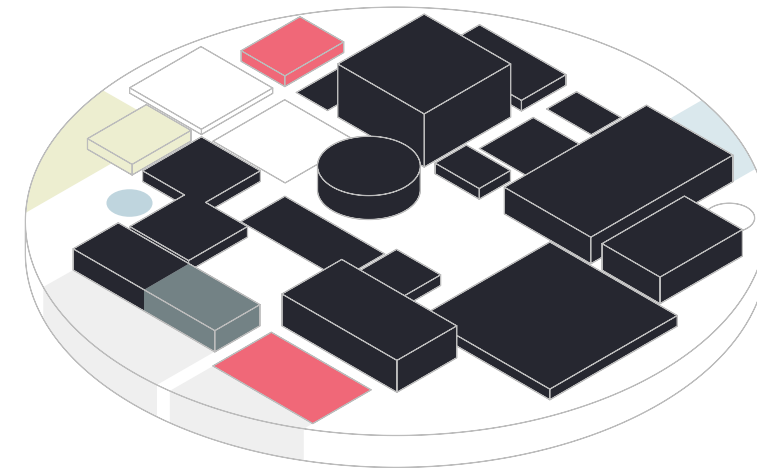
Kanazawa Museum

The Kanazawa museum by SANAA takes the concept of separate volumes and explores a non-linear way of organization.

The building has a circular shape with separate rectangular galleries, glass walls, and overlapping programs.

The layout is highly non-hierarchical, porous, and field-like, creating many ways how the museum can be experienced from a routing perspective.

This model encourages exploration and chance encounters, but it could also lead to confusion and too much information. The blurred lines between art and public space go against what people expect from museums, but they also can complicate lasting memory formation.

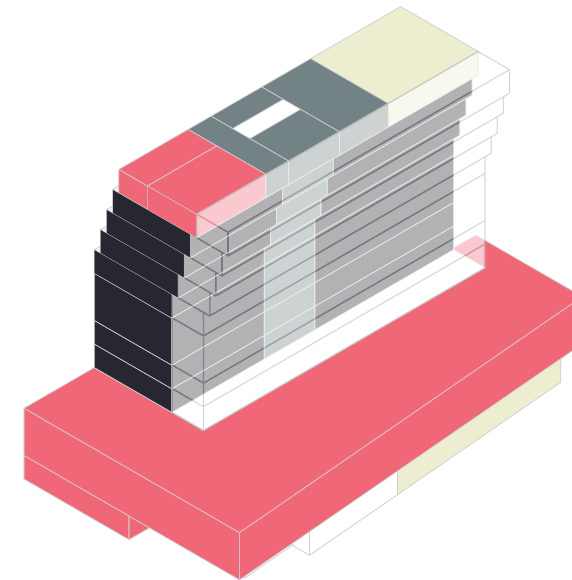


New Munch Museum

The new Munch museum asserts itself vertically, with a tower design that turns the traditional horizontal promenade into a stacked curatorial journey. The visitor goes up through the building, accompanied by the views of the fjord and city.

The vertical museum “tower” consists of permanent and temporary exhibitions, a library, archives, event spaces, and a rooftop restaurant.

The vertical circulation creates a rhythmic pattern of pause and ascent, making each encounter with the art part of a larger ascent through space.



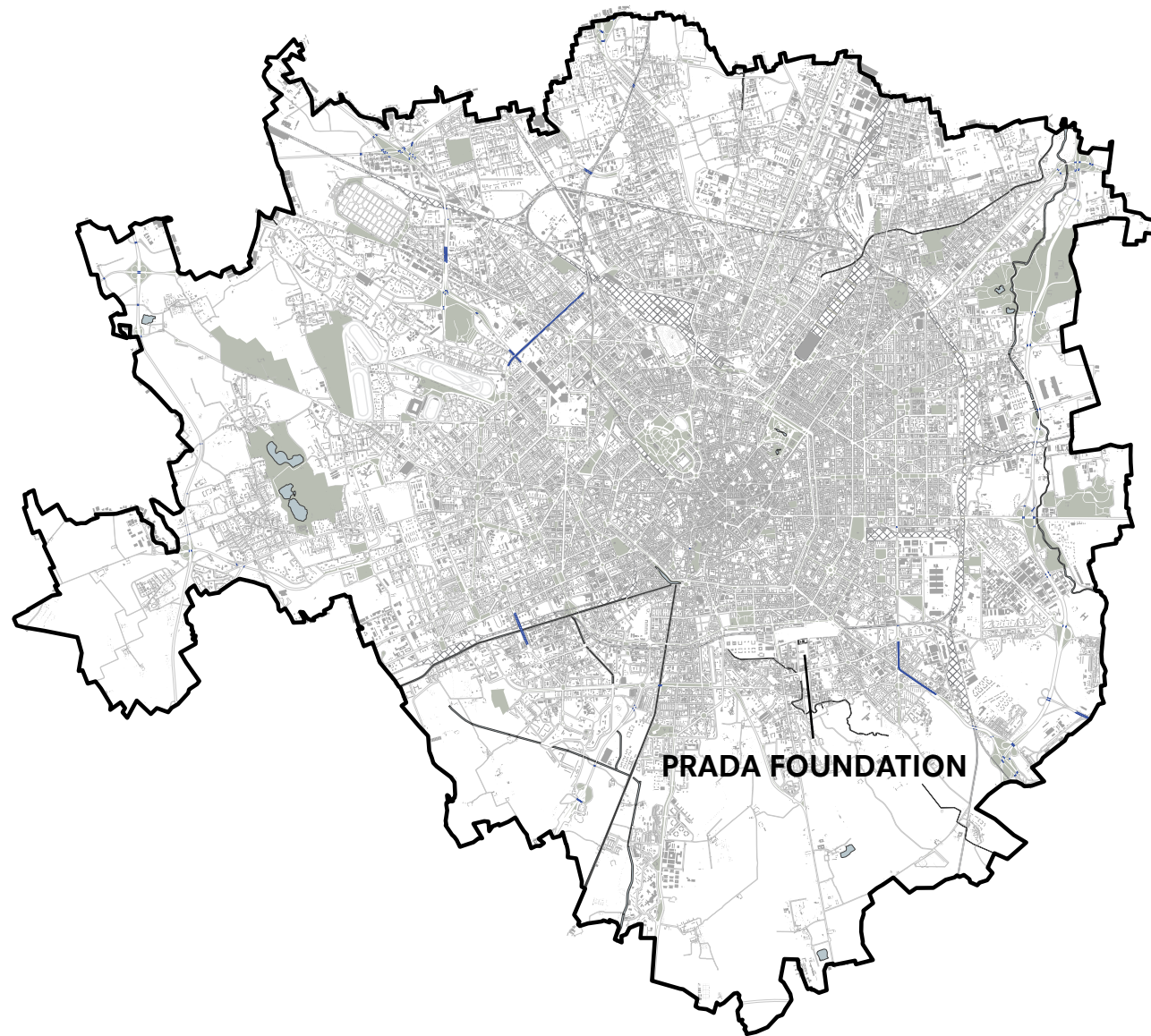
SITE

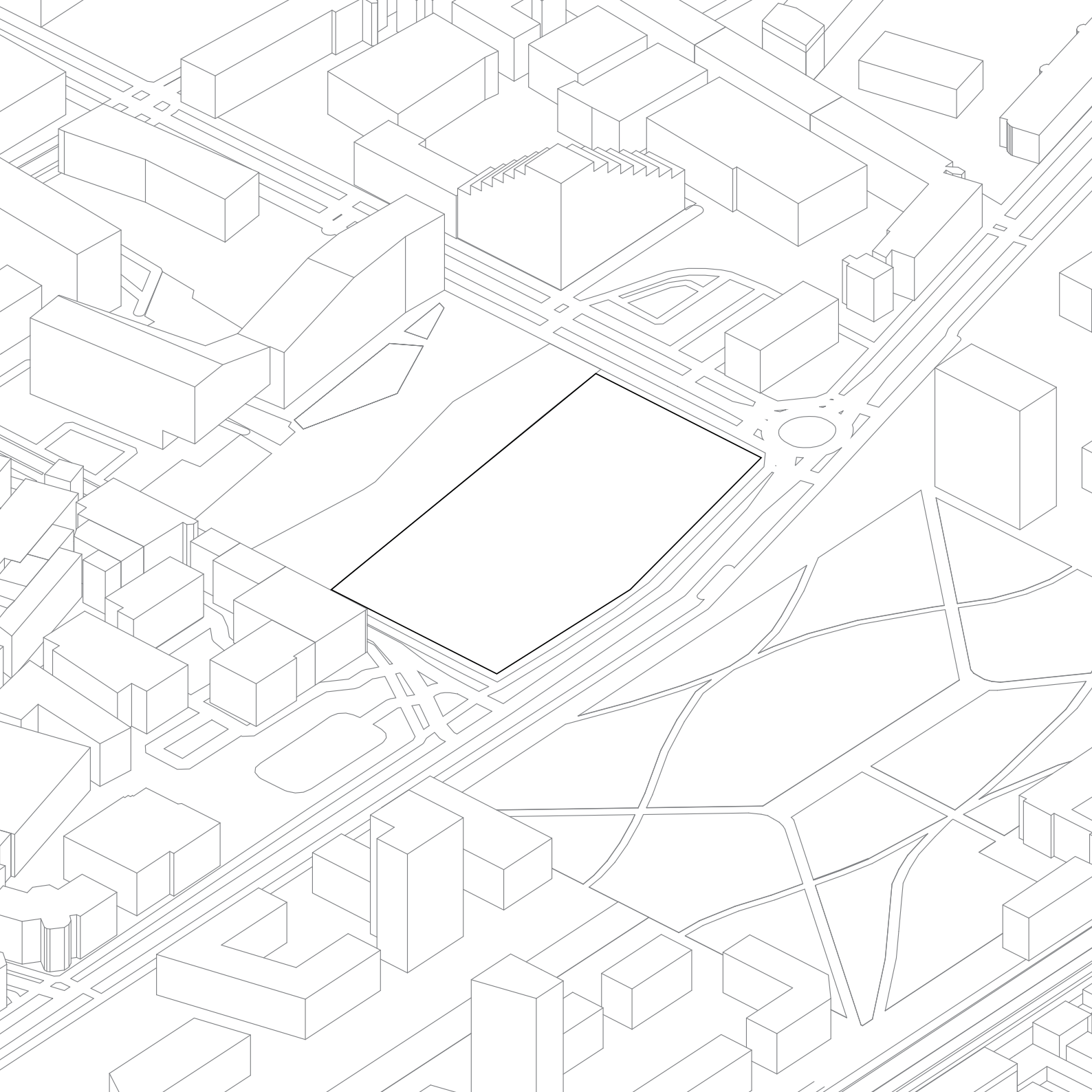


Milan

Milan occupies a unique position in Italy's cultural landscape. Globally it is often referred to as the city of fashion, design and style, in which *Made in Italy* is curated and exported. Within Italy, Milan is seen as a pragmatic, productive and fast-paced city that contrasts with the more heritage-driven cities, such as Florence, Naples or Rome.

Milan's architectural identity is less about historic preservation and more about transformation and new developments. Industrial districts have been reimagined as creative hubs, where institutions such as Fondazione Prada act as anchors and accelerators of urban renewal.





Largo Isarco

Fondazione Prada, built on the former distillery complex Largo Isarco, is located in the Ripamonti area of Milan.

Historically known for manufacturing, rail infrastructure, and working-class housing, the area is now experiencing a transition into a neighbourhood with increasing cultural gravity.

In recent years, the former train yard adjacent to the building site has been a major focus of urban development, as an Olympic Village is being constructed for the 2026 Olympics in Milan.

IMPLEMENTATION

Memory Principles

To support memory formation within the museum, five cognitive principles were translated into spatial strategies. These design moves aim to enhance clarity, focus, and recall — encouraging visitors to have a more meaningful interaction with artworks and help retain their experience over time.

Cognitive Load

Reducing the percentage of mental load spent on navigating the museum.



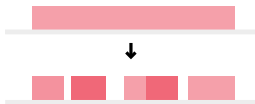
Added context

Additional information about a subject helps enrich understanding and create lasting memories.



Chunking

Grouping information into “chunks” helps memory retention.



Spacing

Multiple shorter sessions of consuming new information are more effective for memory retention.



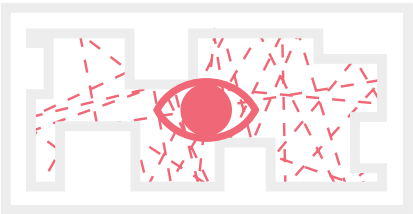
Recall & Retrieval

Revisiting helps consolidate memory of new information.



Cognitive Load

An intuitive spatial organization is achieved by implementing an enclosed courtyard with transparent inner facade. By having a continuous visual reference that serves as an anchor, visitors are able to navigate themselves within the museum environment. This reduces the mental effort spent on wayfinding, and more attention can be allocated to experiencing artworks.



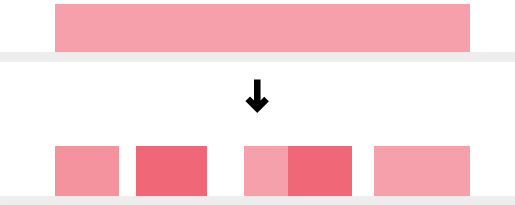
Added Context

While the ground level houses both permanent and temporary exhibitions, the -1 level below serves as a supporting layer that facilitates the deepening of knowledge in relation to what is being displayed above. This is achieved by incorporating screening rooms, auditoriums, a library, workshop space, and other spaces where supporting material is displayed.



Chunking

Instead of having a museum space act as a vast field of artworks, the temporary exhibition has been divided in separate volumes, each fully curated in a thematic manner. These volumes serve as a blank canvas for curatorial expression, allowing for a fully immersive environment.



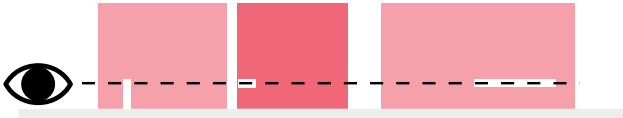
Spacing

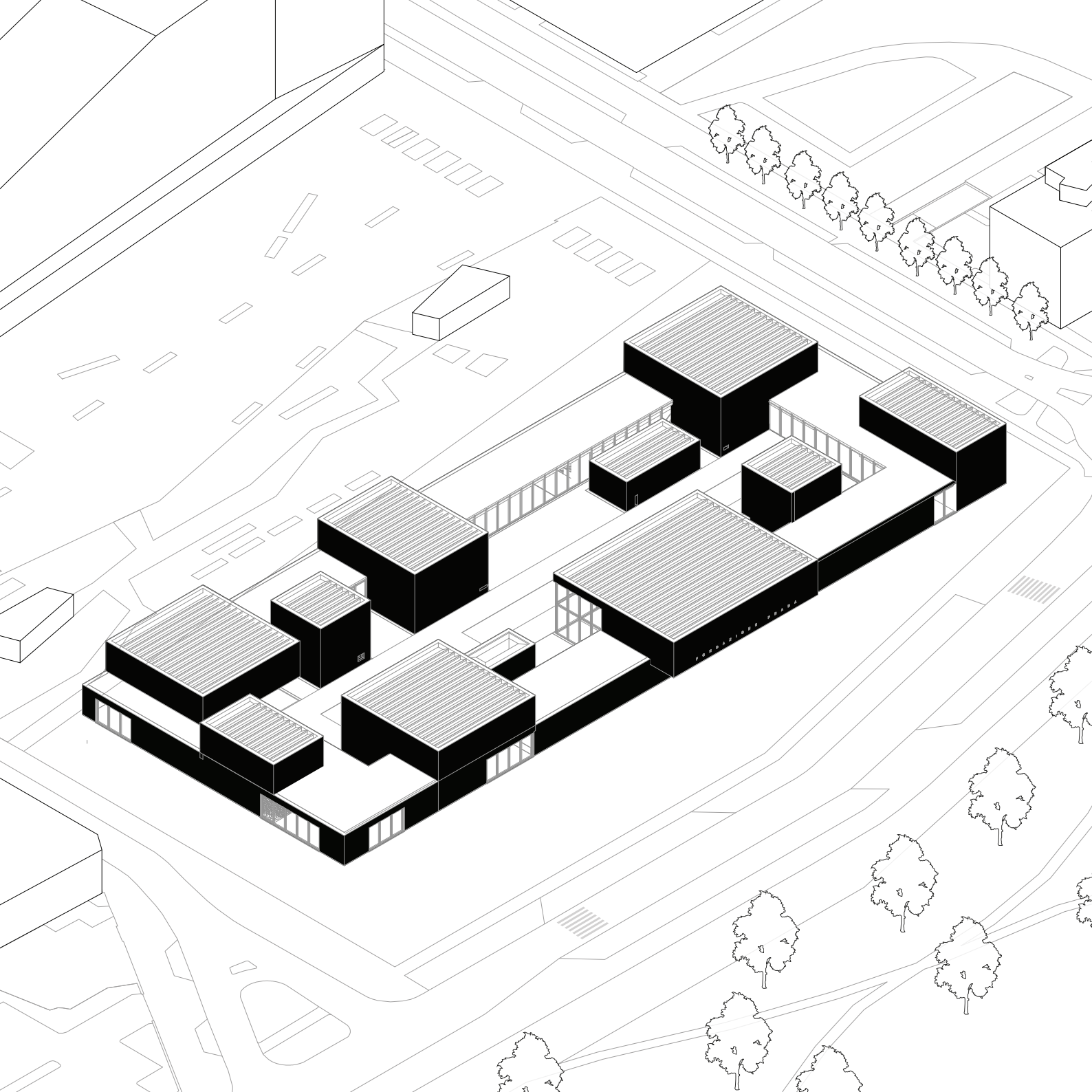
The museum layout allows for visits of select fragments of the exhibition and return experiences. Visitors are encouraged to visit the museum more than once, leveraging time as a tool for reflection and long-term memory retention.



Recall and Retrieval

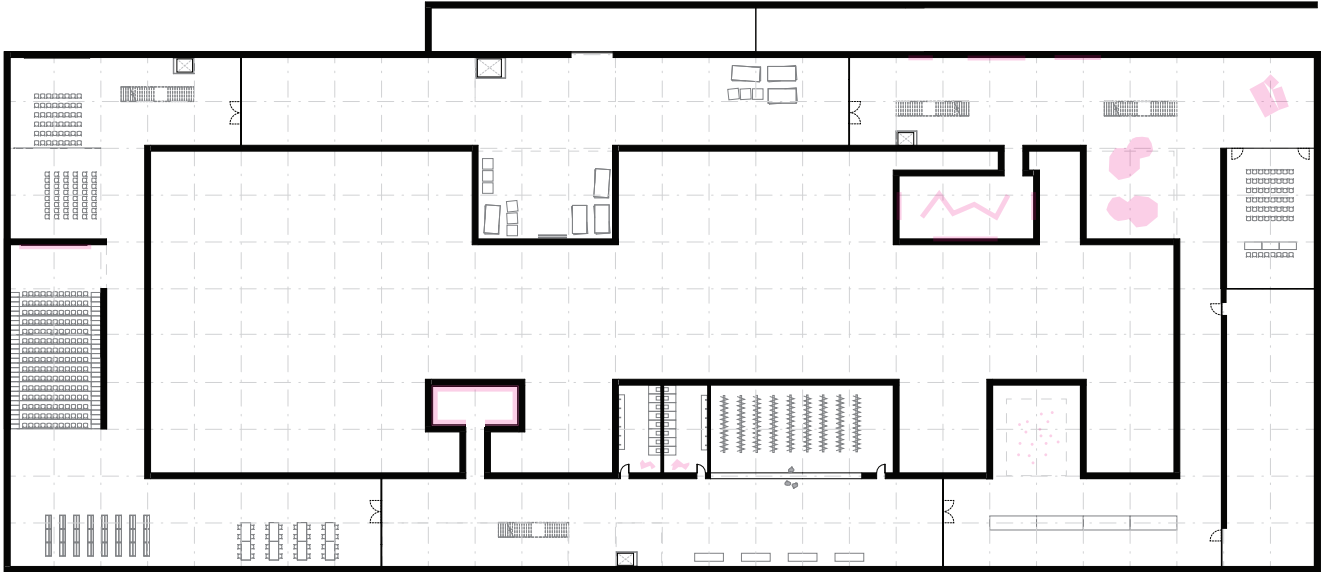
The accessible inner courtyard not only creates an overview, but also allows visitors to encounter the architectural volumes that house thematic exhibitions from a different perspective. Each volume has a window facing the courtyard, which acts as an additional visual connection point, further increasing memory retention.





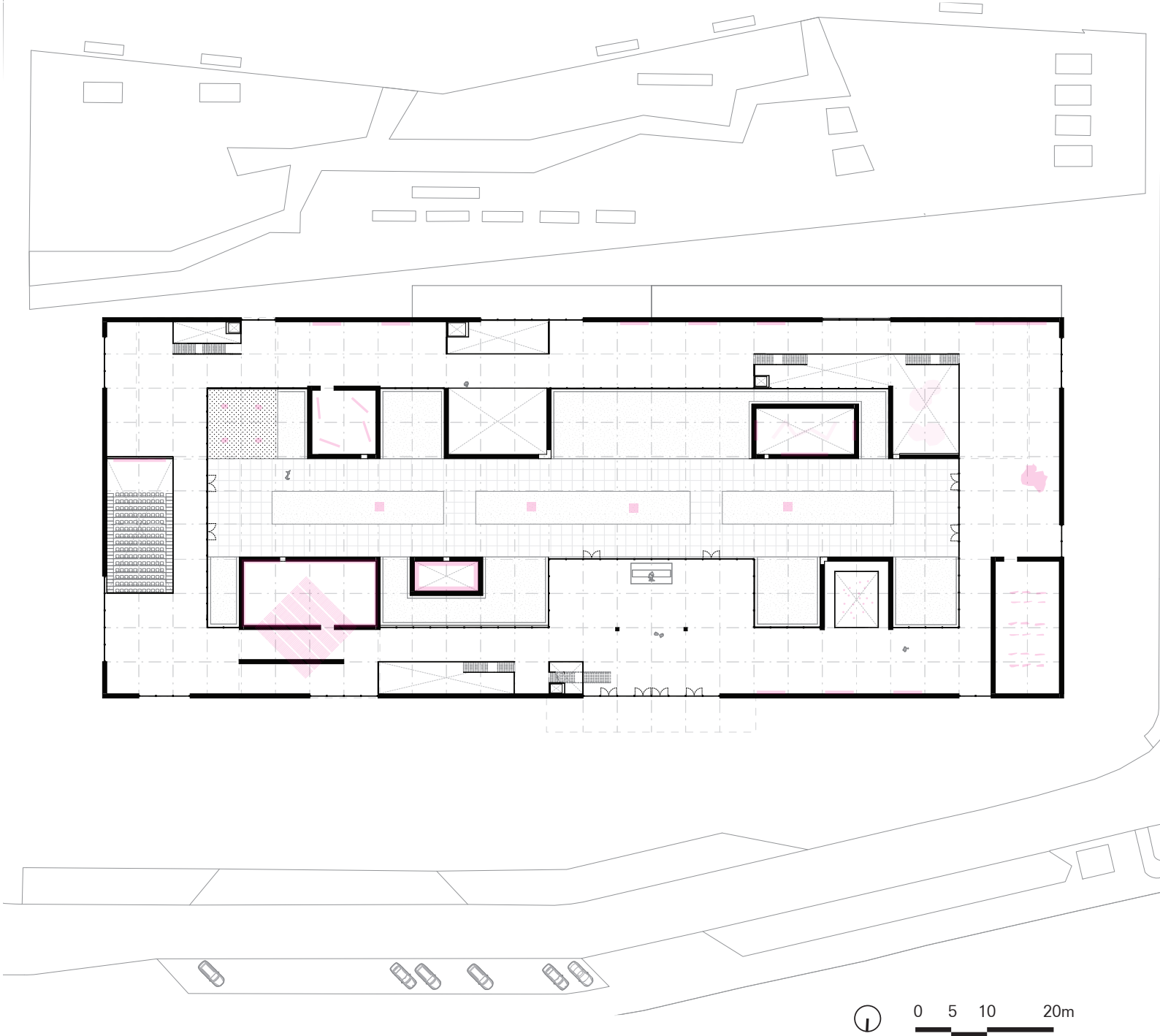
Basement Level

The -1 level mostly serves as a supporting layer for the exhibition. It houses the wardrobe, wc, a library, auditoriums, screening rooms and meeting spaces, a museum storage, staff facilities and a workshop. Two of the exhibition spaces are accessible from the -1 level, creating a diversity in how each of the volumes interact with the circulation perimeter.



Ground Level

The ground level serves as the core and main part of the museum and leads the visitor through the exhibition. When entering the entrance hall, the visitor is presented with a complete overview of the museum composition. From this level, the exhibition volumes are experienced and connections with the basement level are established. Accessibility to the inner courtyard has been created in three different segments.



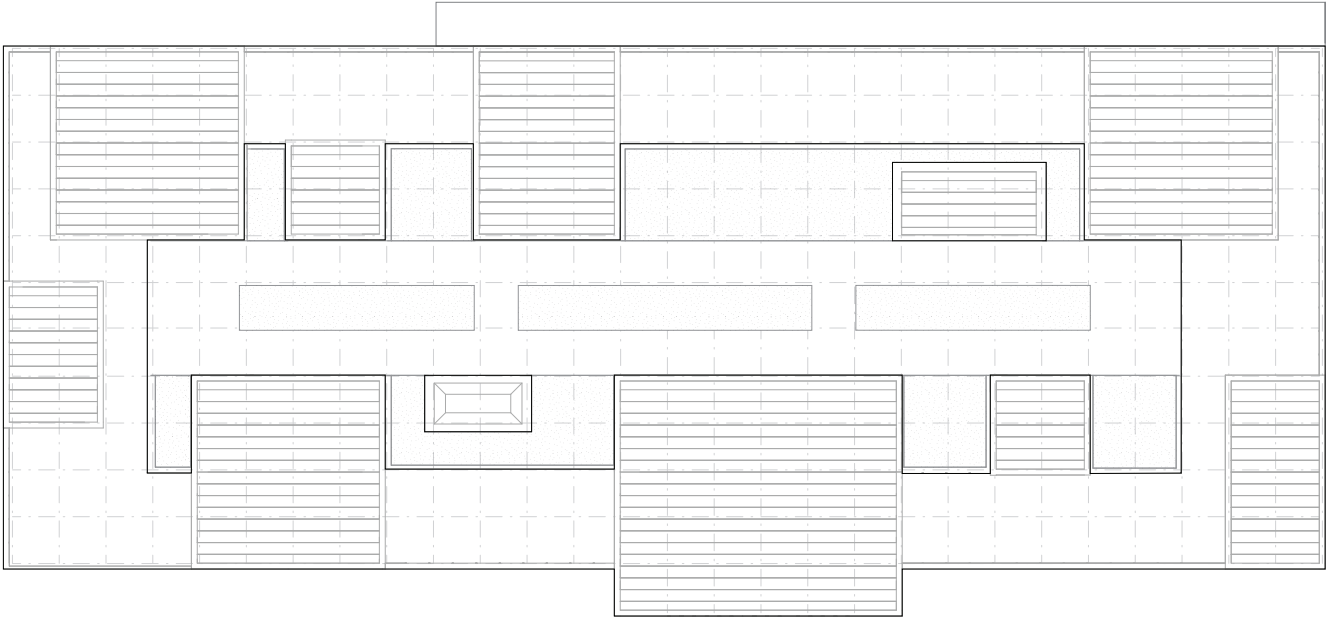
First Level

Level 1 houses a restaurant and an exhibition space in two of the volumes.



Roof Plan

Diffused skylights are placed on each of the volumes, allowing for subtle and controlled natural light.



Arriving



Unveiling



Experiencing



Learning



Reflecting



Discovering



Contemplating



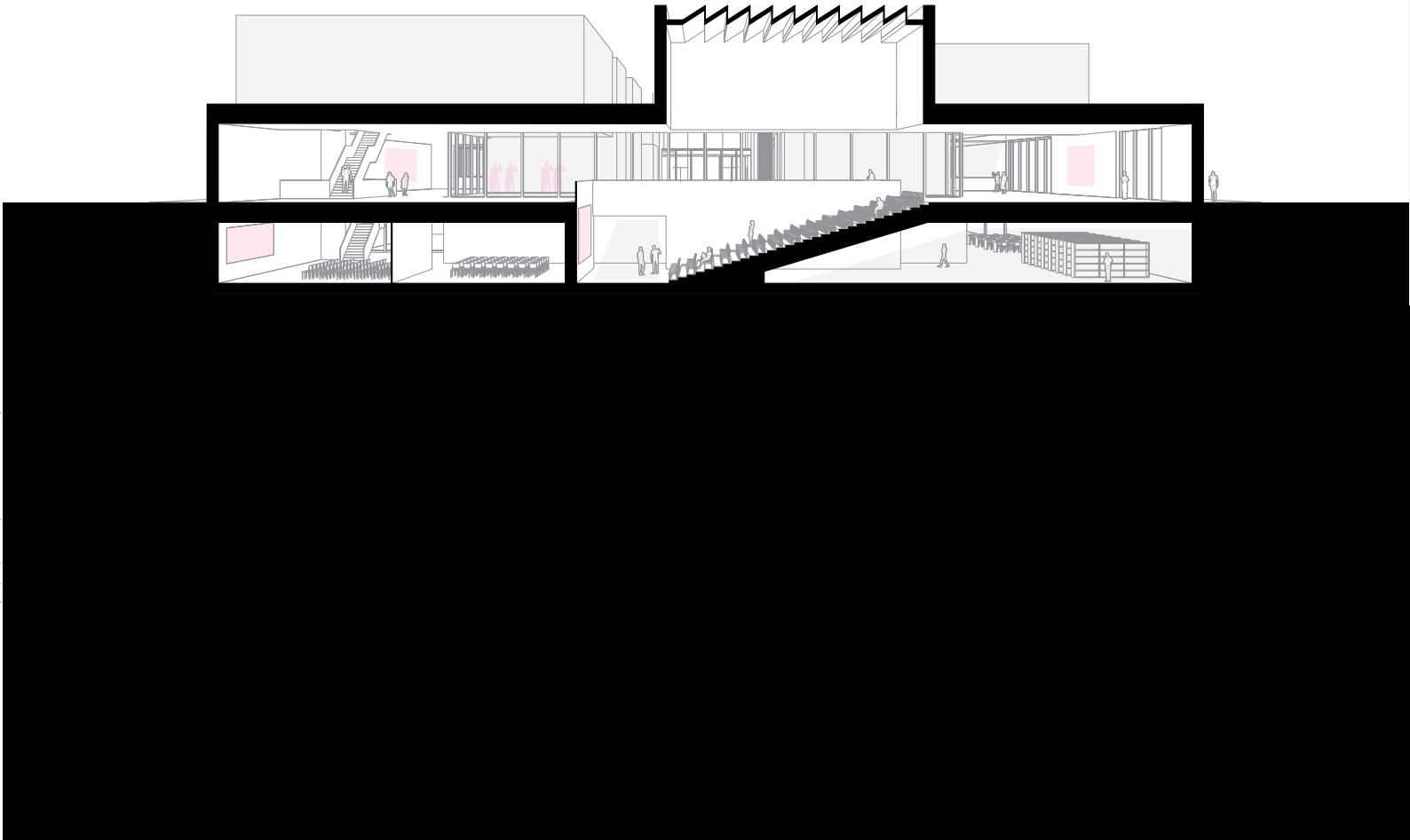
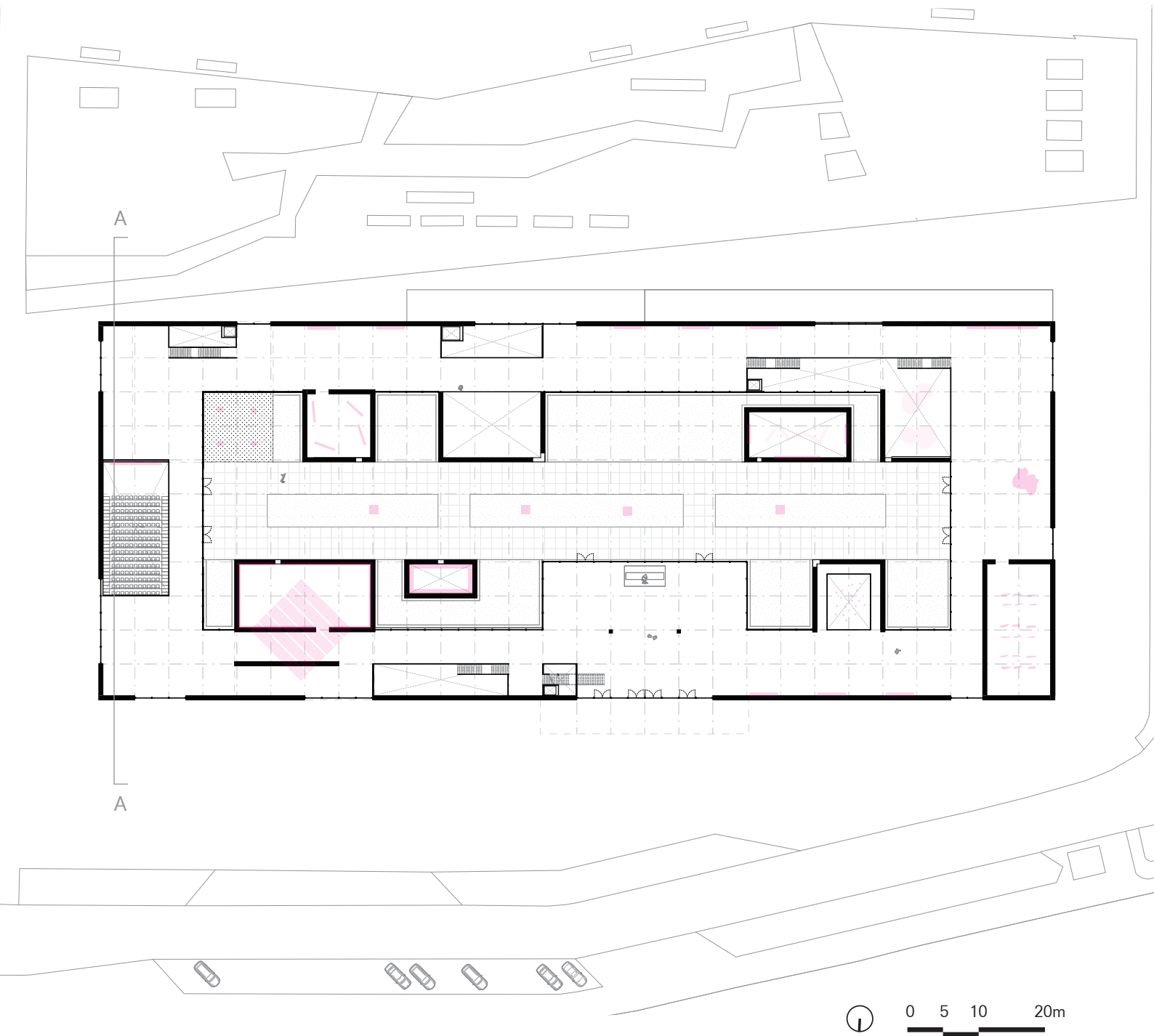
Engaging



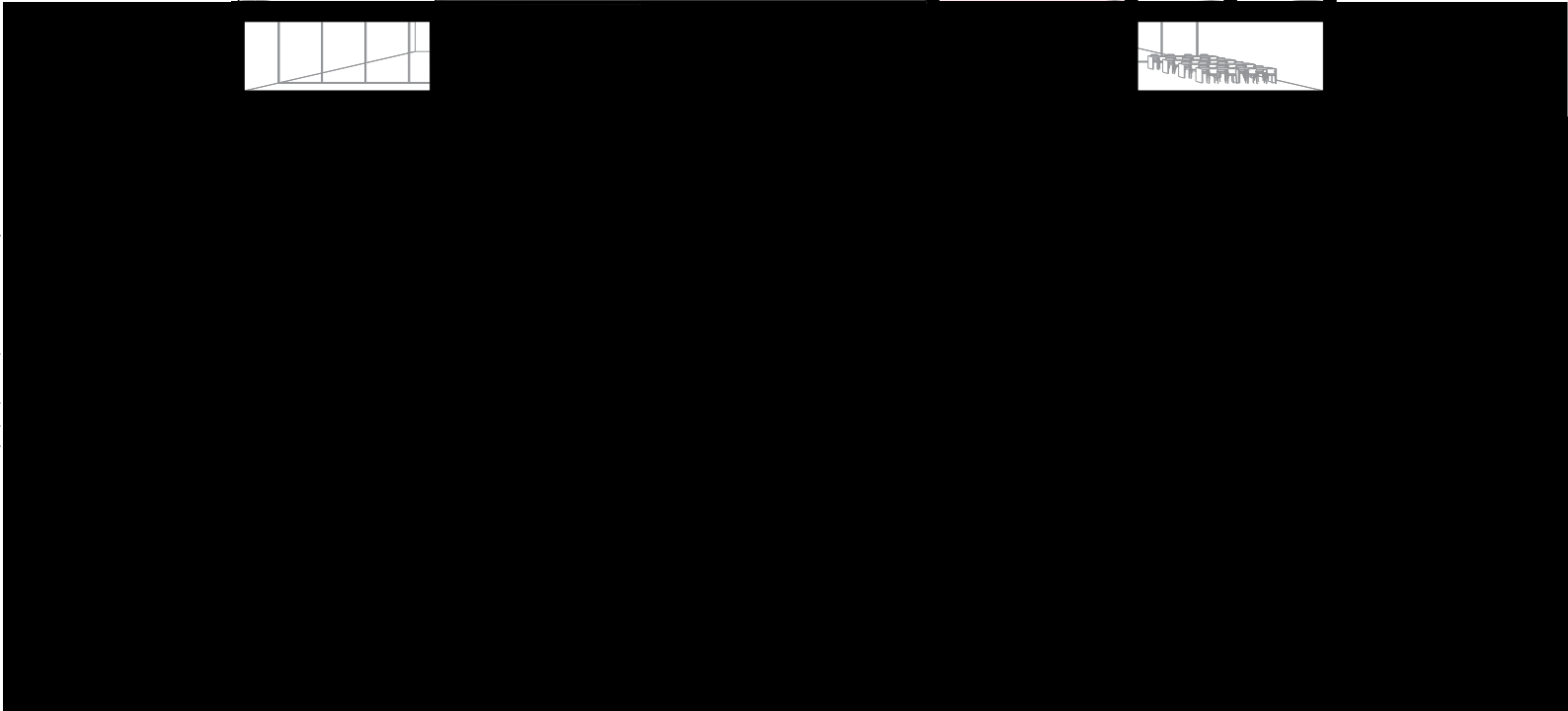
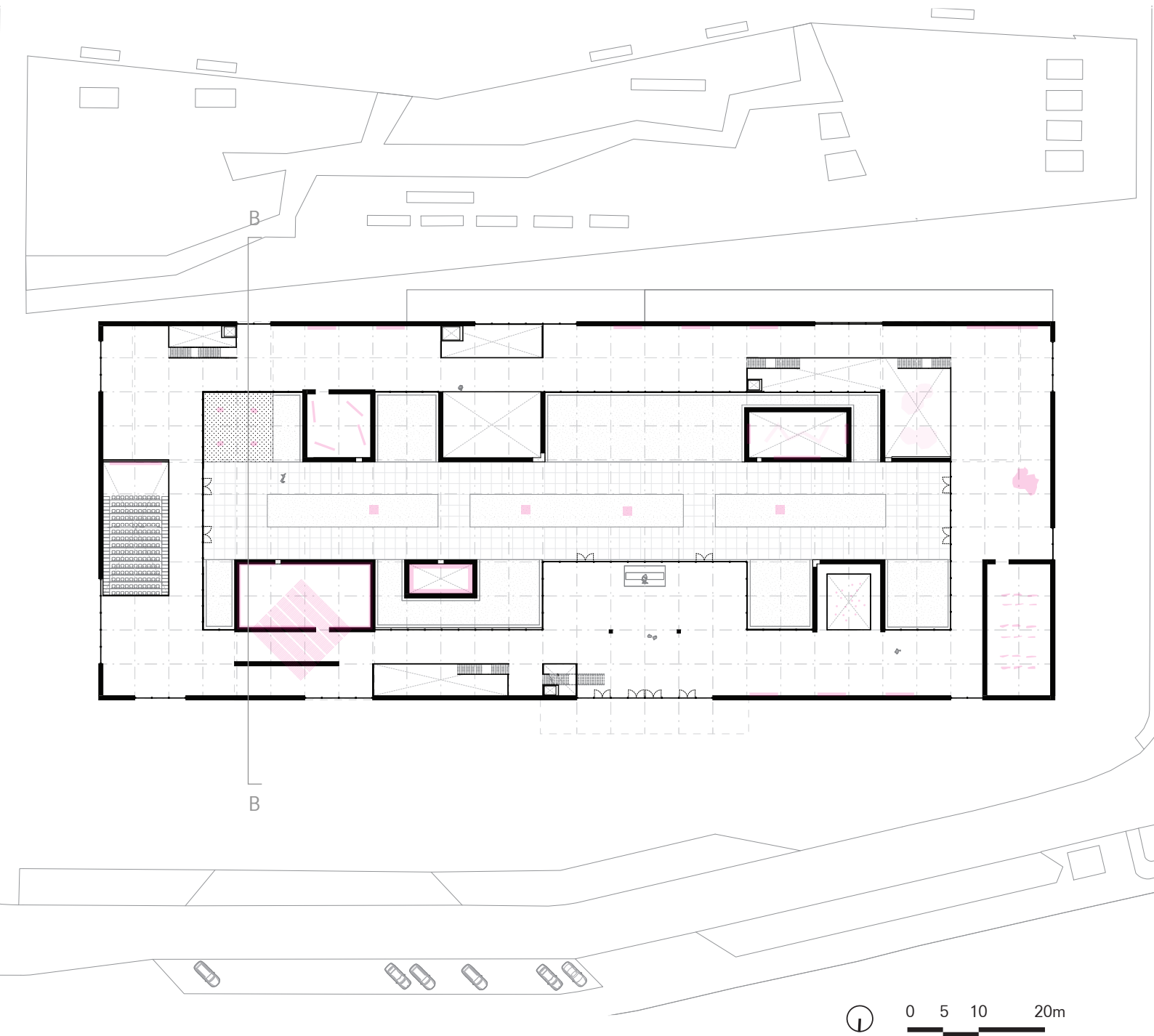
Section

The layered nature of the project becomes visible in the section. The volumes intersect with the circulation perimeter in an array of ways, creating distinct and memorable encounters.

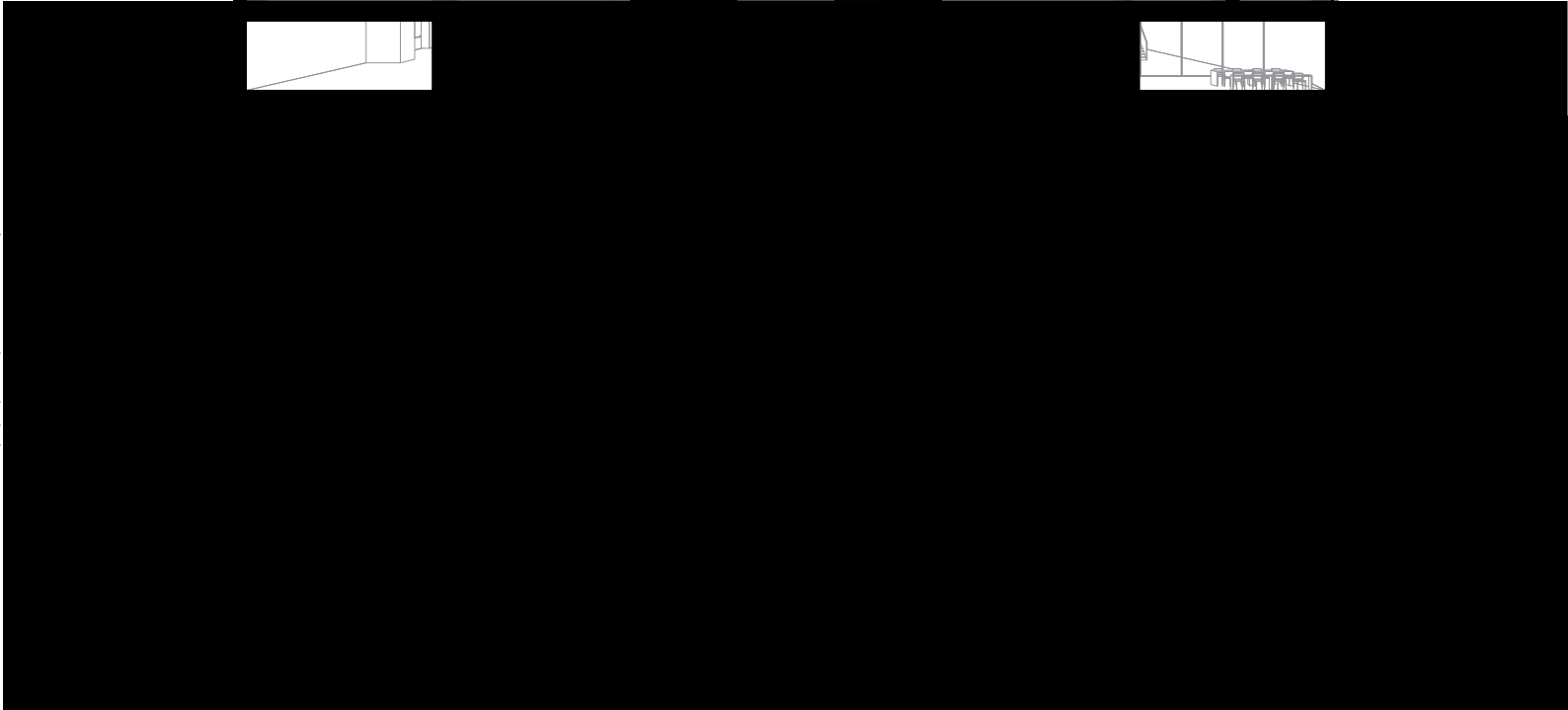
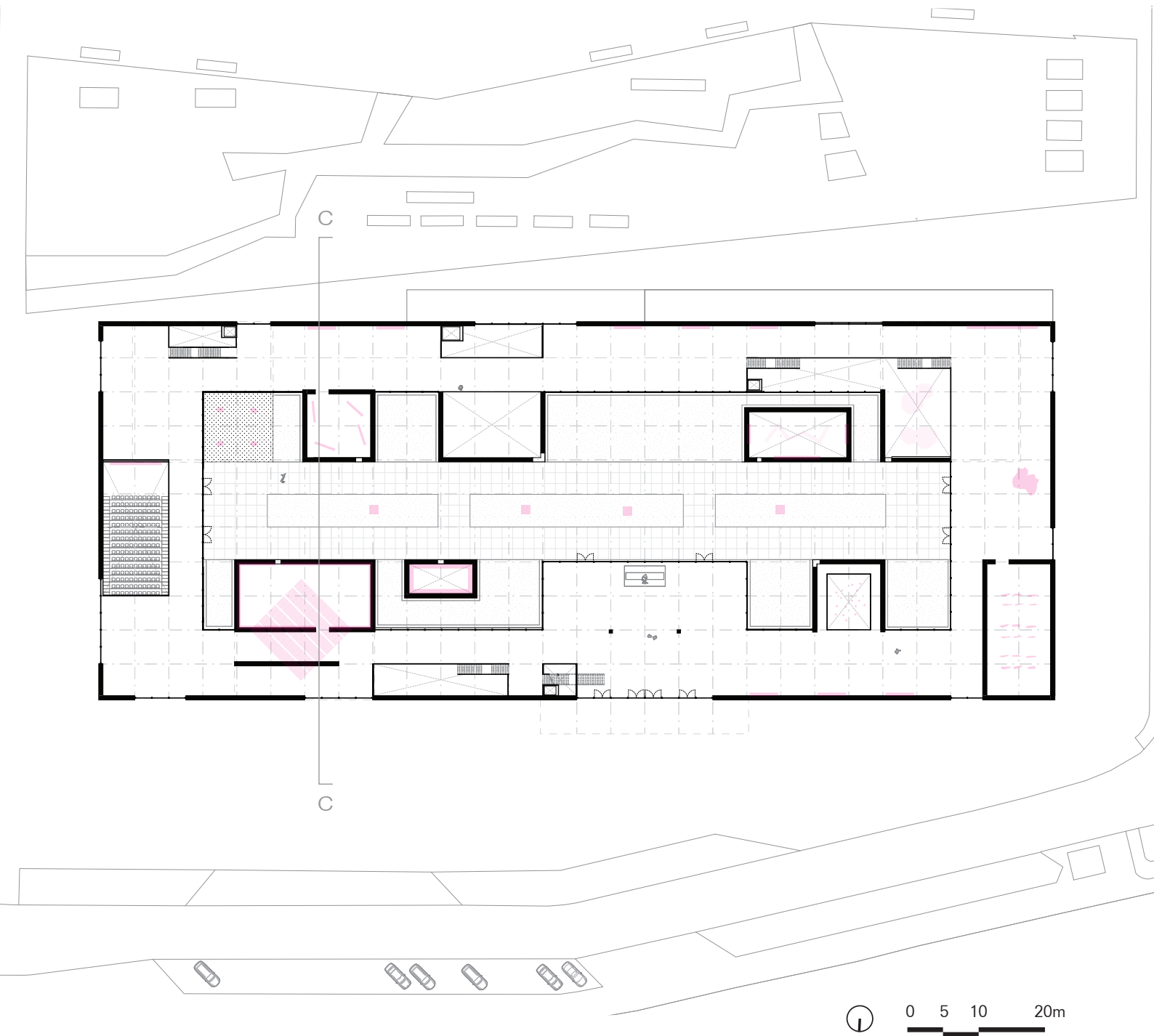
Section A-A



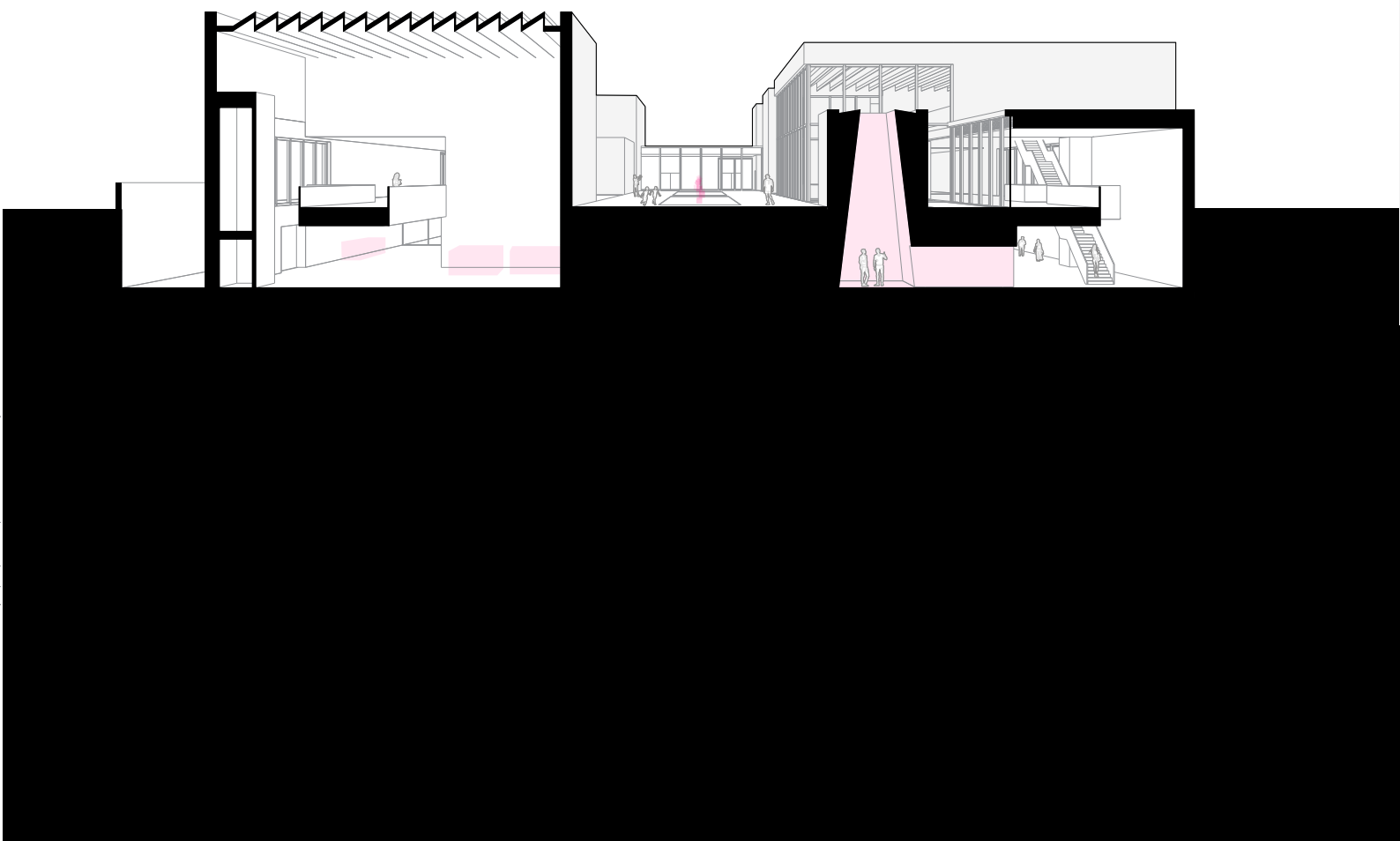
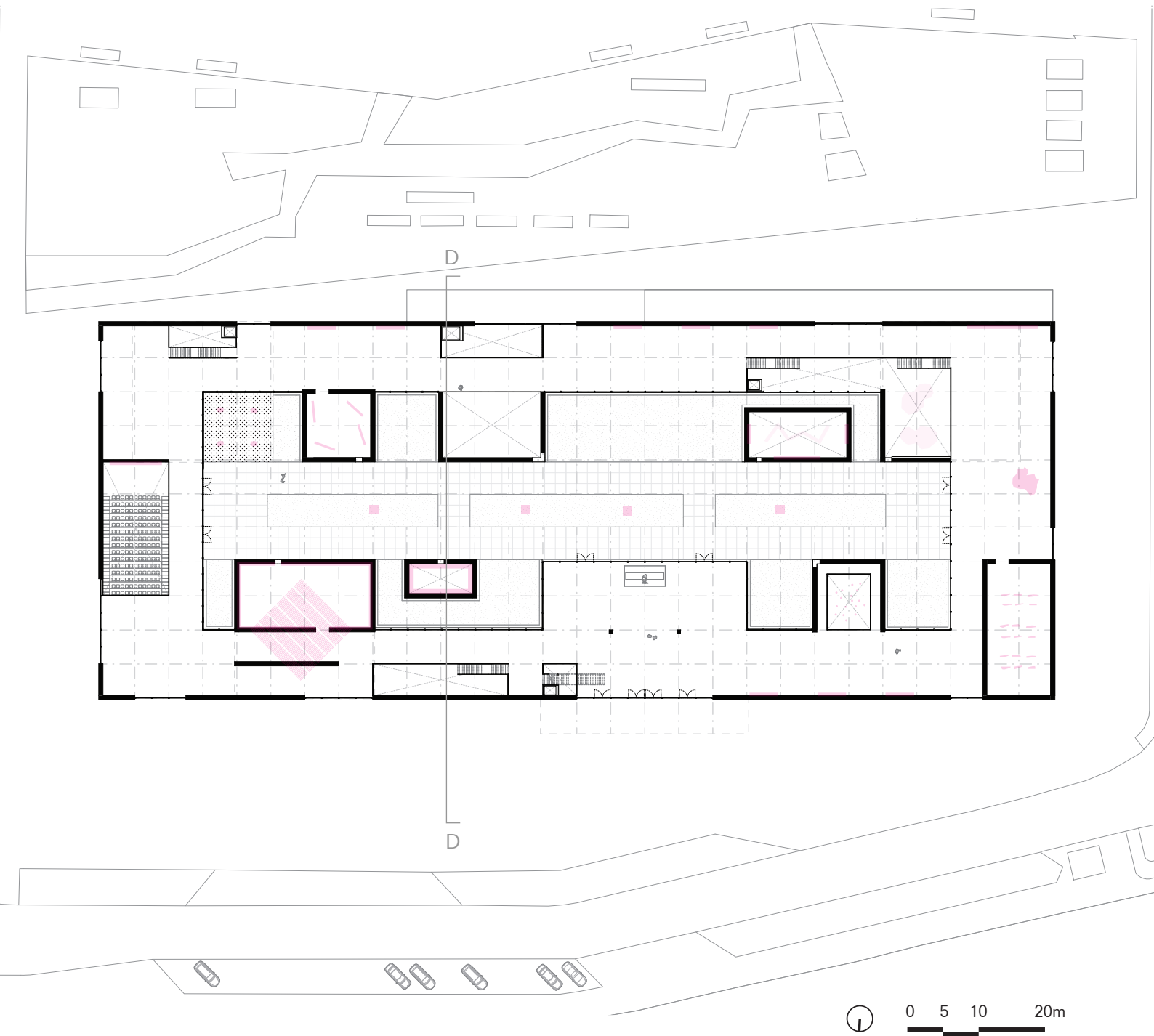
Section B-B



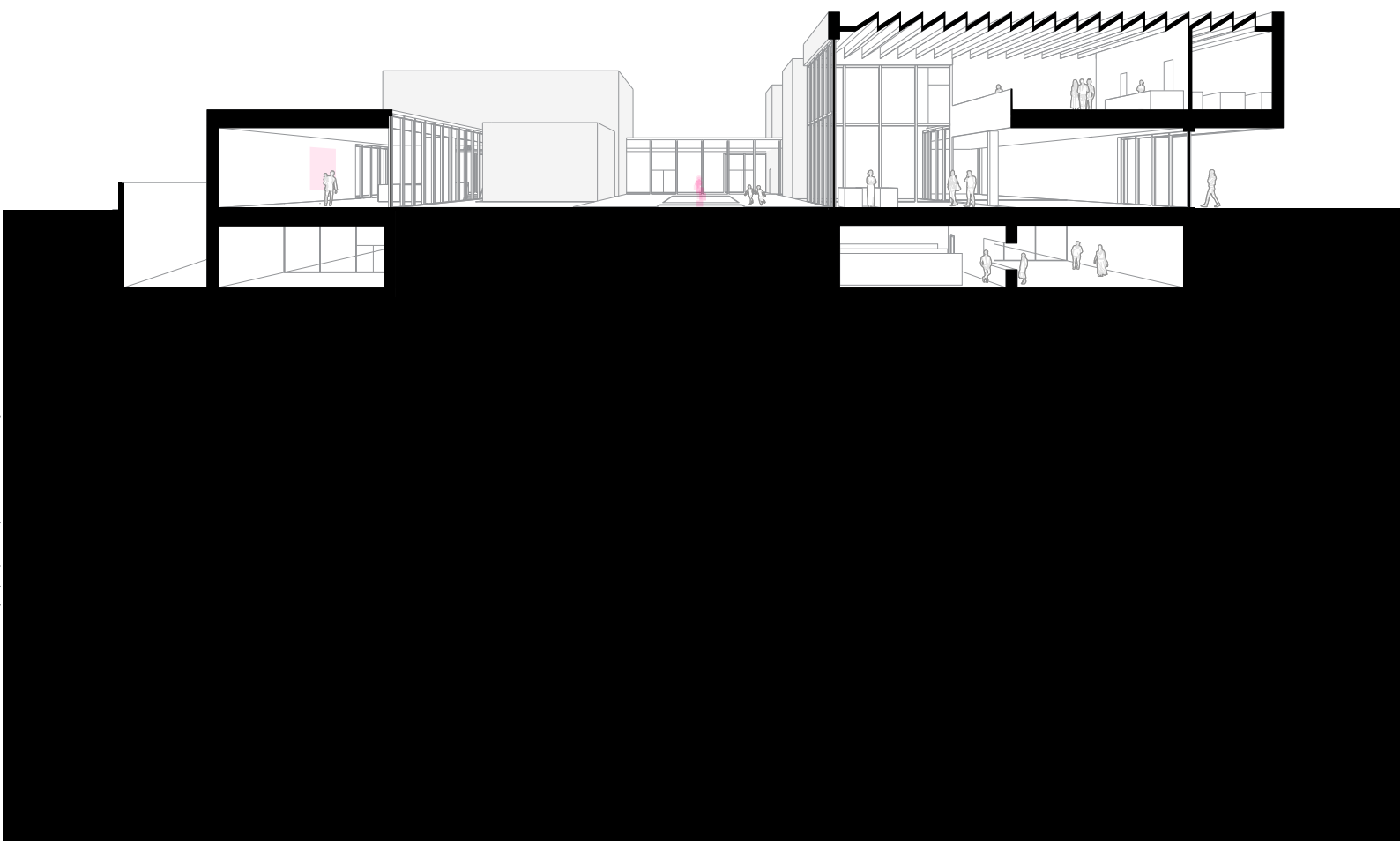
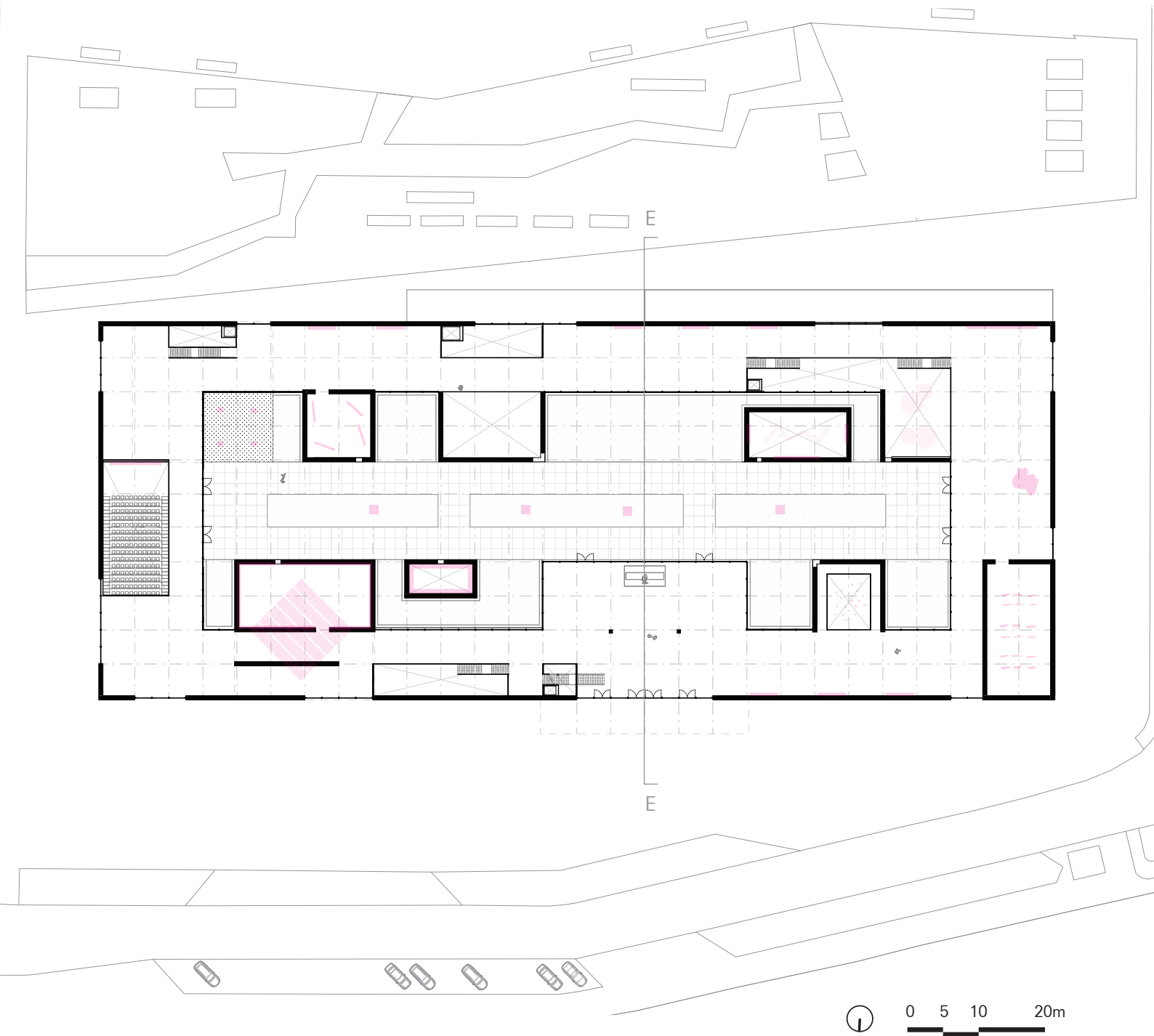
Section C-C



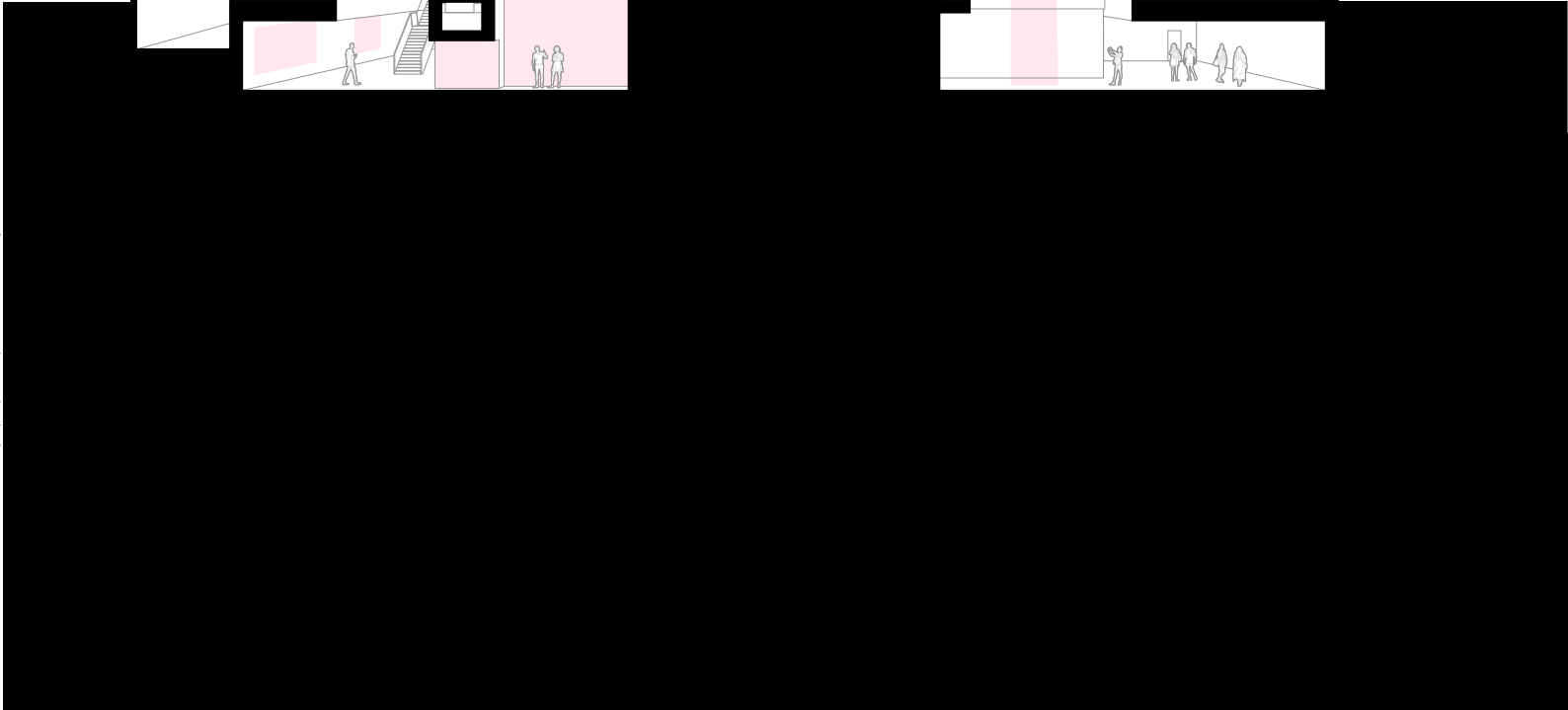
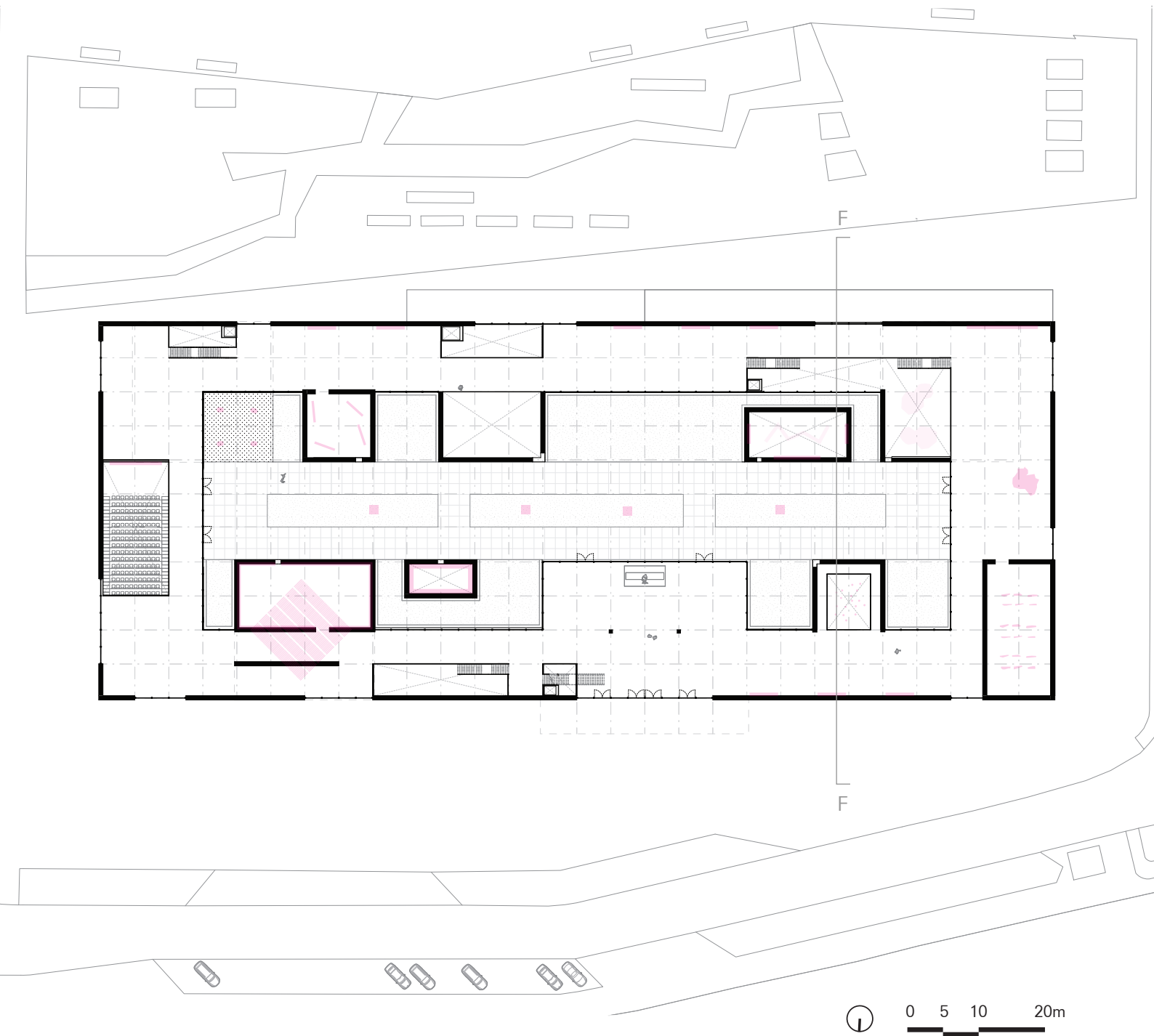
Section D-D



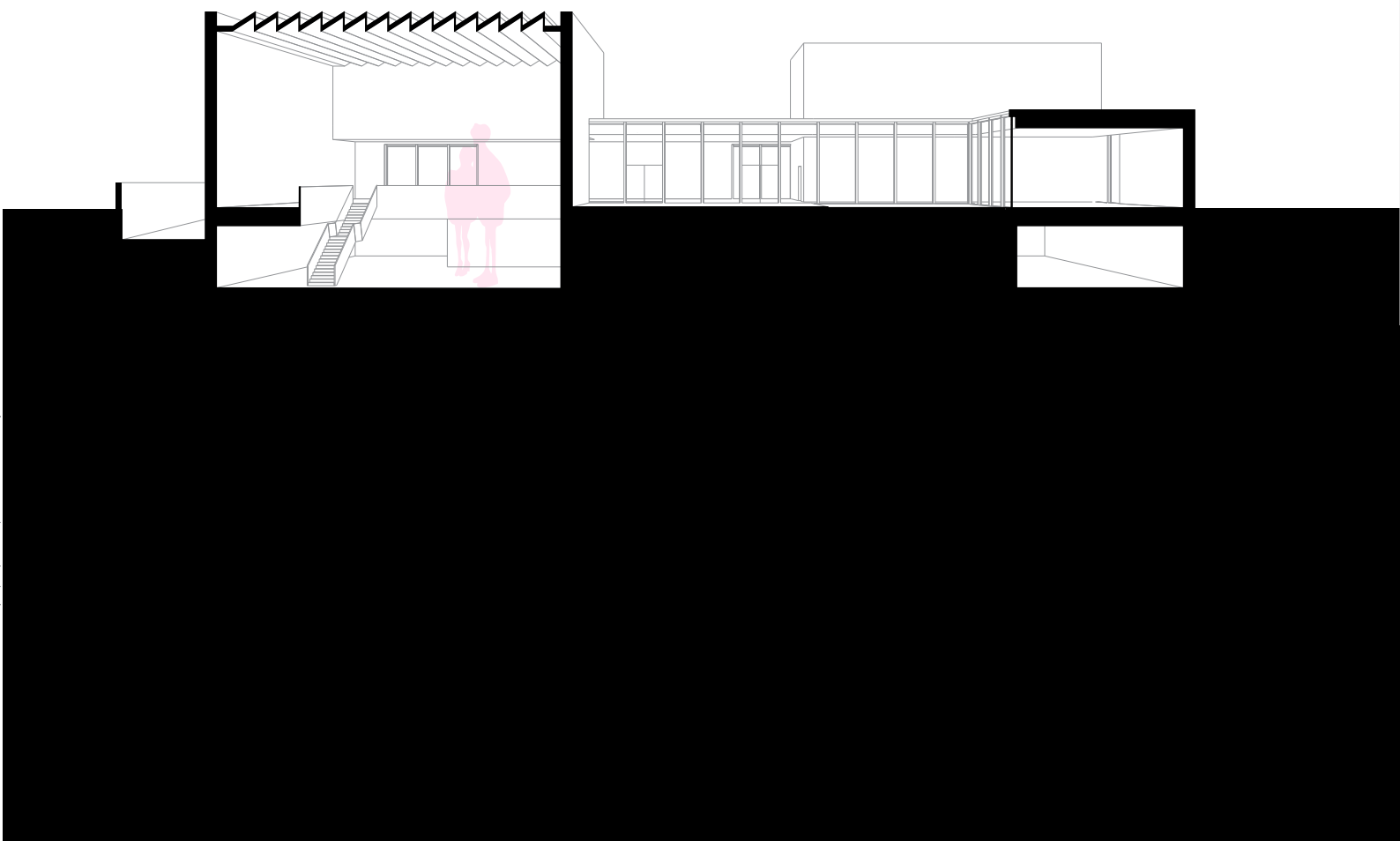
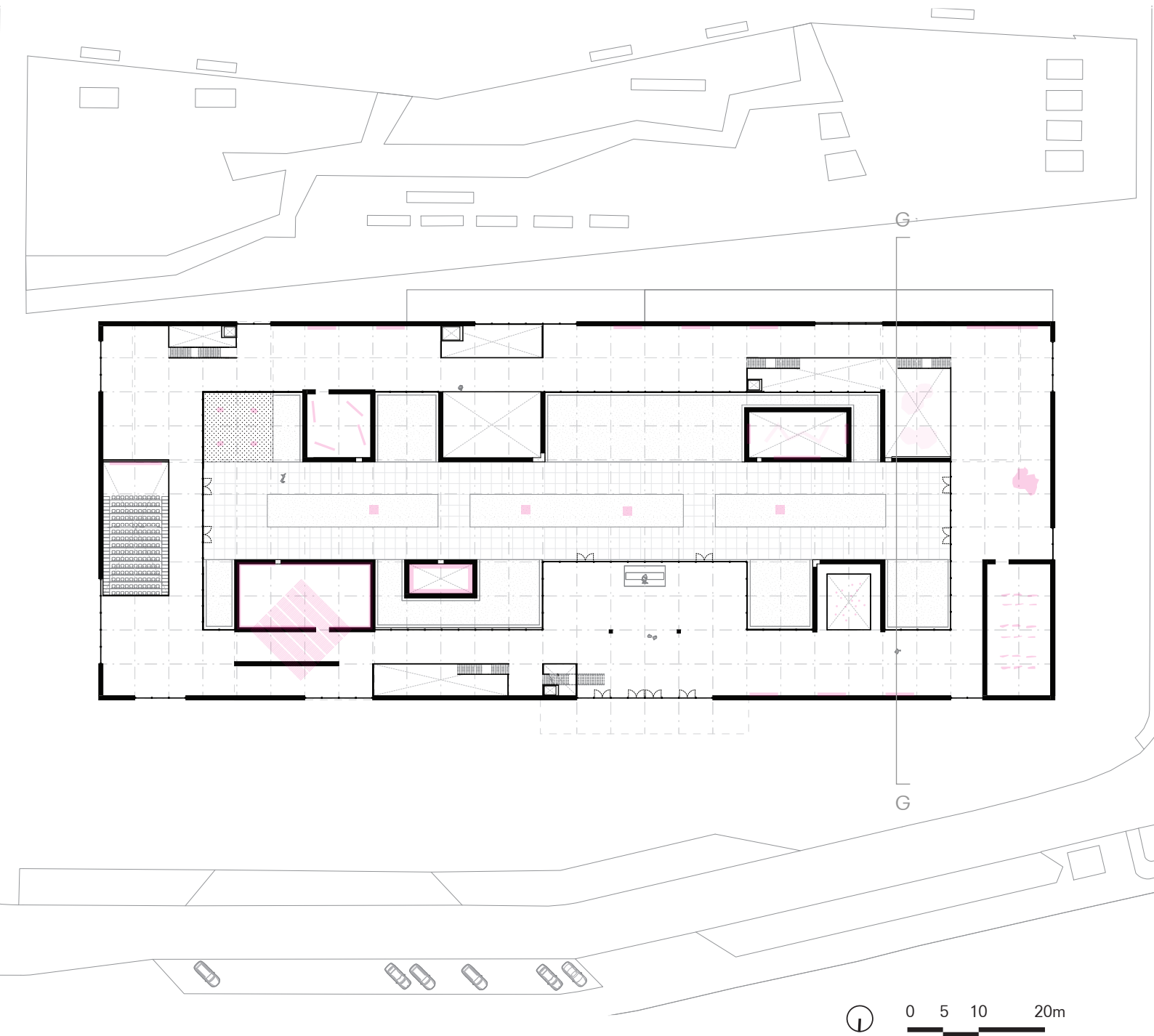
Section E-E



Section F-F



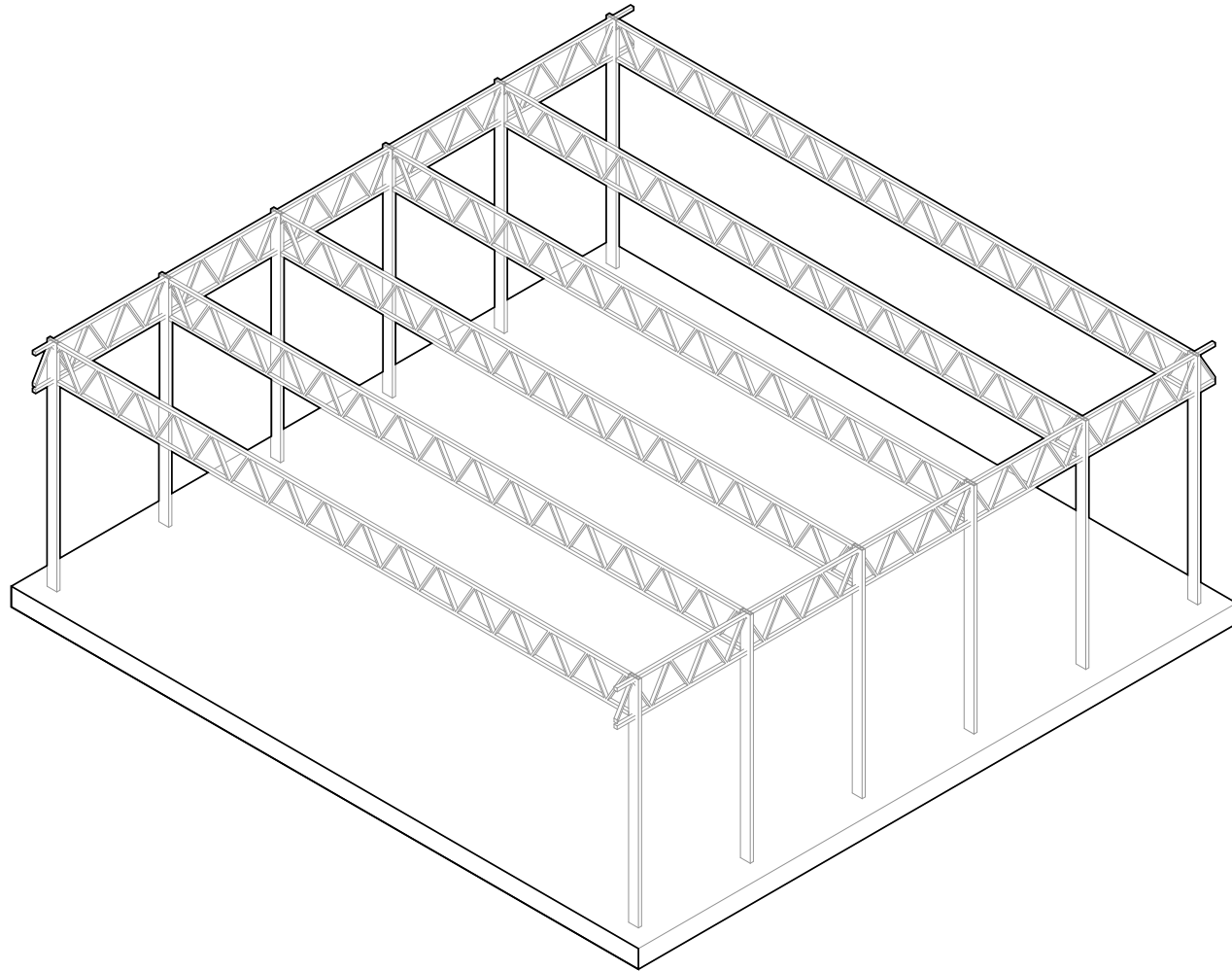
Section G-G



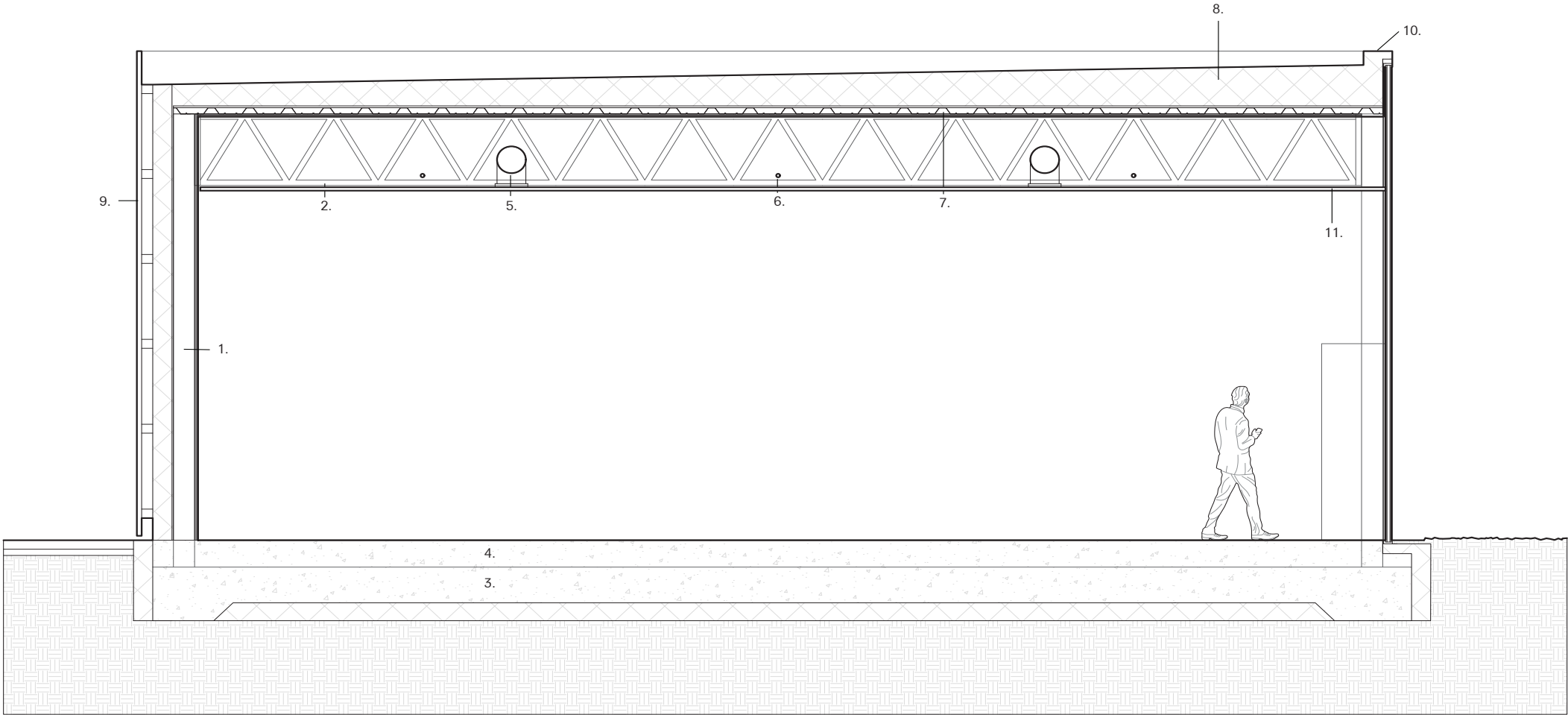
BUILDING TECHNOLOGY

Structure

The load bearing structure consists of warren steel trusses and steel columns, while fixed connections and wall elements ensure structural stability.



Detail



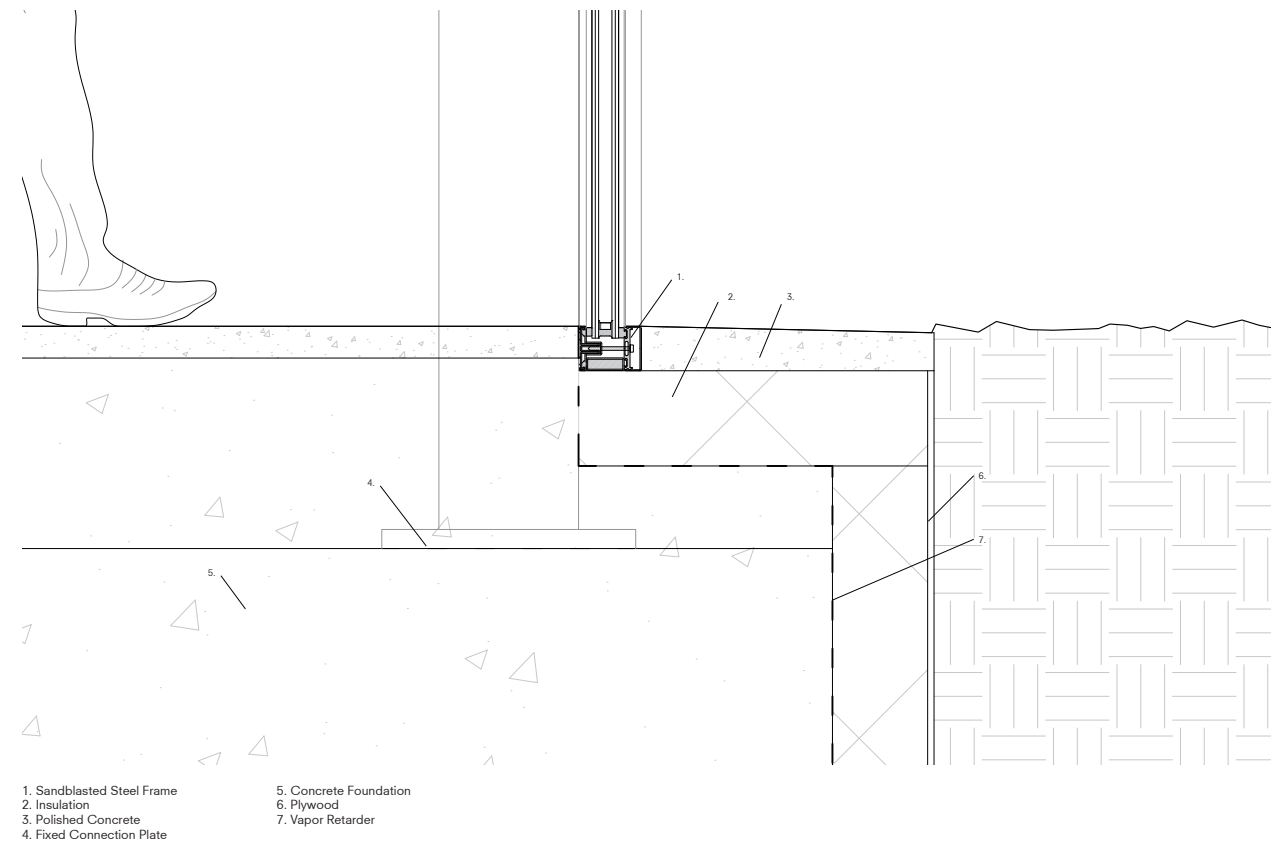
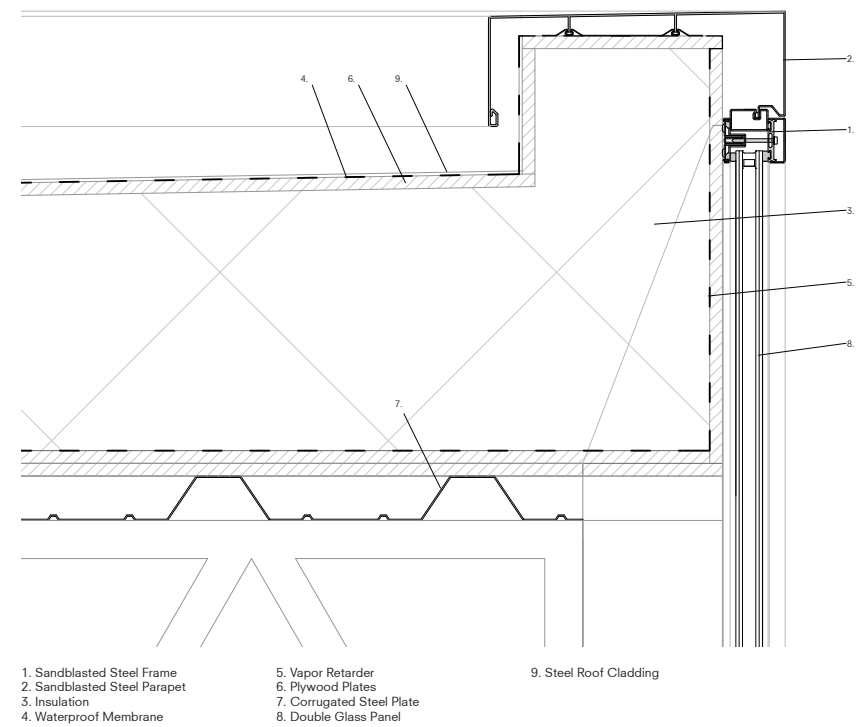
1. Steel beam 220x70mm
2. Warren truss 800x70mm
3. Concrete foundation
4. Polished concrete

5. Mechanical Ventilation Duct
6. Sprinklers
7. Corrugated Steel Plate
8. Insulation

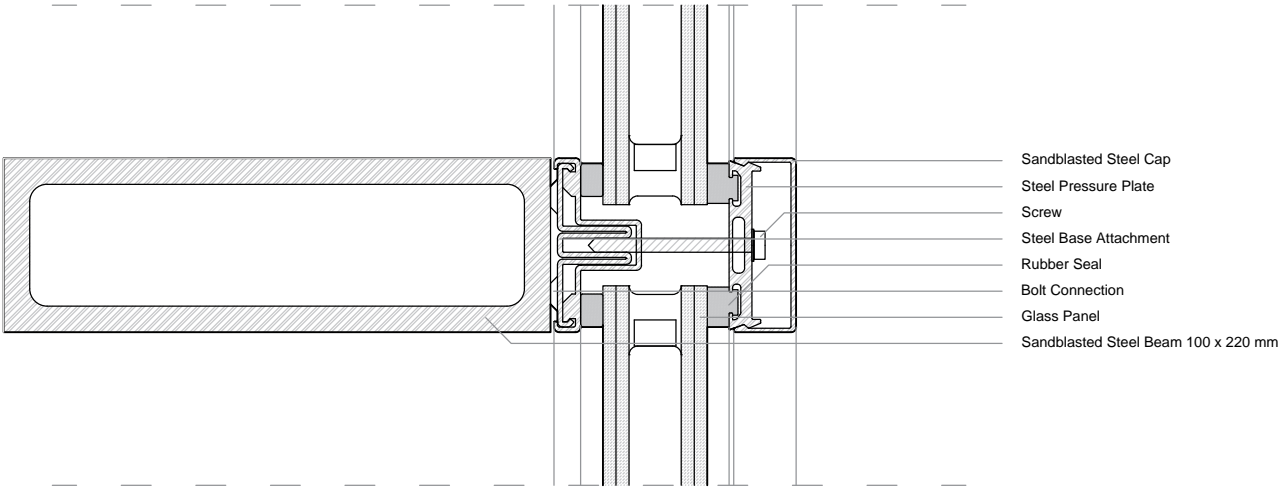
9. Polished Steel Cladding
10. Sandblasted Steel Cladding
11. Acoustic Seamless Plaster Ceiling



Detail

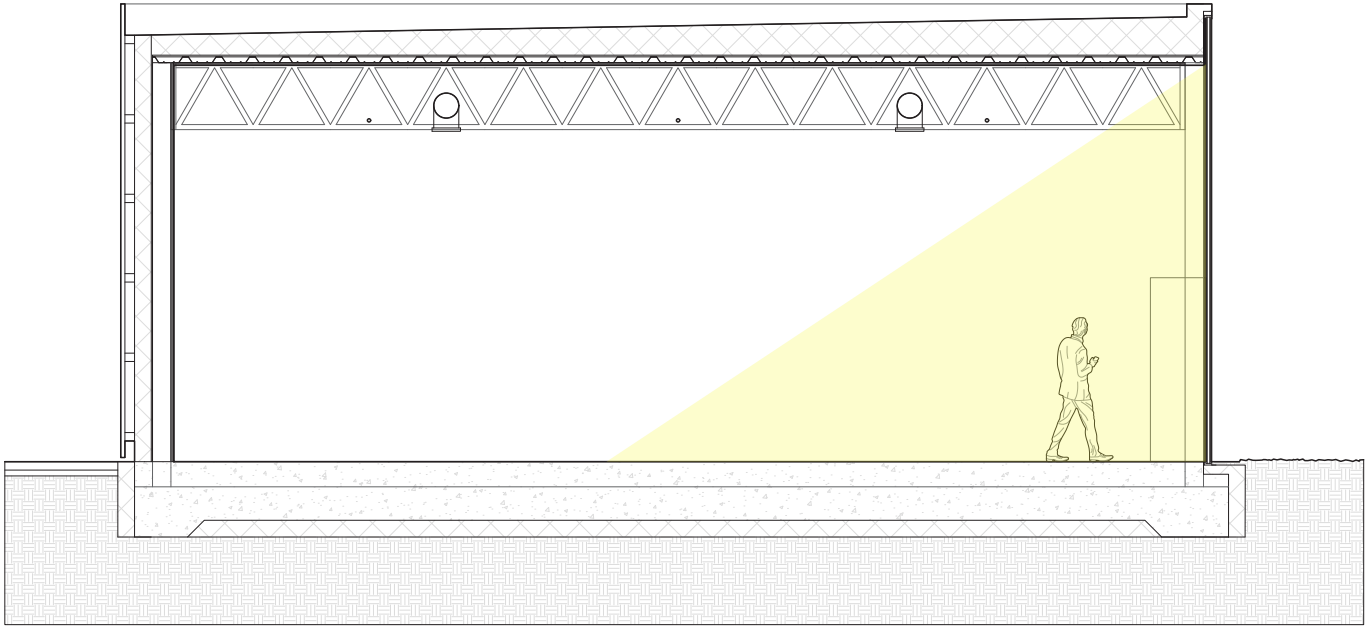


Detail

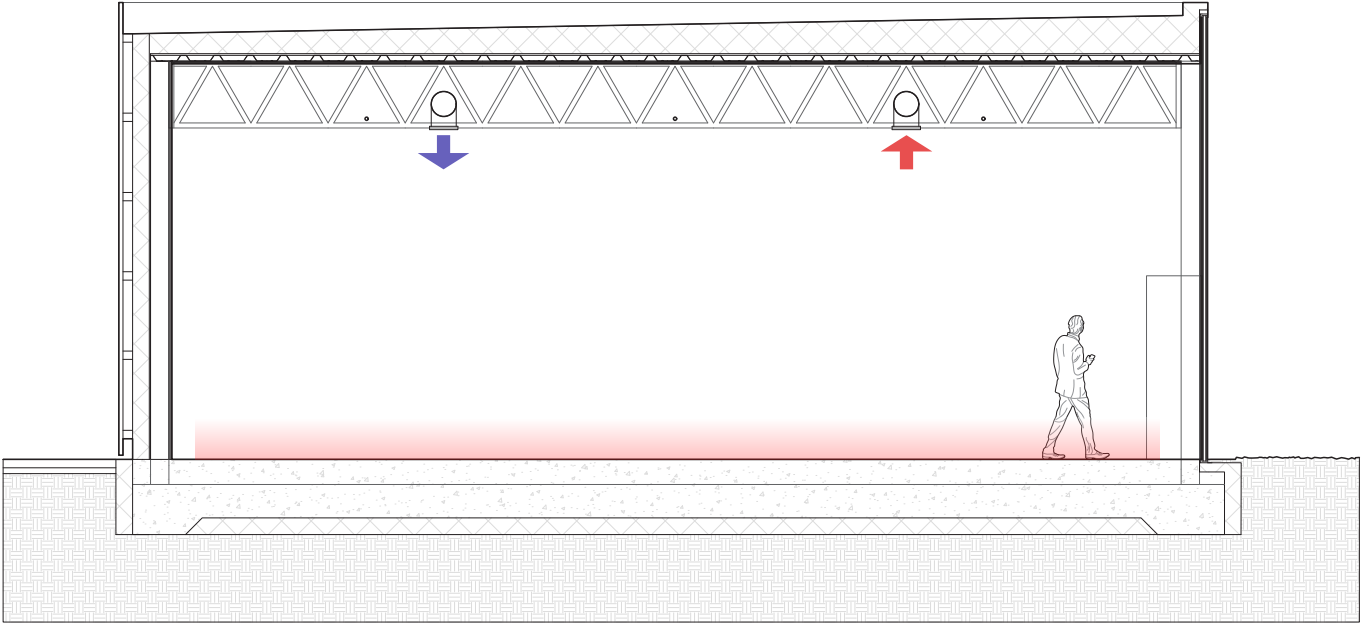


0 25 50 100 mm

Insolation



Heating and Ventilation



Rainwater

