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IMPLUVIA

MASTER THESIS
HS22

NOSTALGIA
ECOLOGY



LARA ASCHWANDEN

INITIAL POSITION BÜRGERHAUS

In this Master's thesis, we would like to examine the "Bürgerhaus" in the Zurich area. The foundation of our research is the extensive work "Das Bürgerhaus in der Schweiz" (The Townhouse in Switzerland) published by the Bürgerhaus Commission of the SIA in the 1920s, which documents representative residential buildings from various eras, most of which still exist today. The collection shows an impressive variety of formally and stylistically self-assured buildings, which are depicted with wonderful attention to detail. The reproduced plans include meticulously drawn elevations and interiors, from ceiling to floor, from tiled stove to door handle.

"Das Bürgerhaus in der Schweiz" was written in the interwar period and bears witness to a specific view of the history of architecture that is specific to the place and time. Thus, the concept of the town house itself is to be understood in a specific historical context. On the one hand, the publication can be read as a documentation of an architectural heritage; on the other hand, it is an expression of a return to traditional ideas of a building and craft culture that is understood as the antithesis to a modernity that is perceived as threatening. The work of the Bürgerhaus Commission will serve us as a case study on which we can examine questions of reception and appropriation. Derived from this, we are interested in the question of how we can take an inspired and critical look at architectural history today. By looking at historical architecture, we want to generate knowledge that helps us to produce architecture in our own time. In doing so, we do not look back because we are nostalgic, but because we want to be radically contemporary and relevant.

Considering their advanced age and durability, the buildings portrayed seem particularly sustainable. They testify to a high level of economic, functional and energetic intelligence and contain implicit knowledge on these topics. We want to learn from this and apply our findings to current issues of sustainability, resource and energy consumption and the durability of buildings in their most diverse meanings. We will re-examine the buildings in our own way one hundred years after they were documented by the community centre commission. In doing so, today's digital tools allow us to make a high-quality, direct and quick record of the building fabric and an up-to-date view of the community centre. At the same time, we are looking for answers to the urgent questions of our time through precise observations.

Based on the results of our investigation, we will identify thematic fields that are characteristic for the phenomenon of the community centre and still seem relevant today. Starting from this, we will develop design scenarios for contemporary, urban buildings and ask ourselves the question: could the Bürgerhaus today once again function as the starting point for a radically ecological architecture?

BÜRGERHAUS SPECTRUM

S. 5-11

HS22

THE “LAUBE” AS A COLD LIVING ROOM

AND ITS COMPOSITIONAL VALUE

“If there is one significant achievement, it is the enlargement of the corridor and the forecourt, the “ Laube ”, which appears more and more regularly and gains more and more in compositional value for the structural organism; it accommodated, as in former times, the large cupboards and chests and served as a cool living space in summer. ”

(Das Bürgerhaus der Stadt Zürich, p.12)

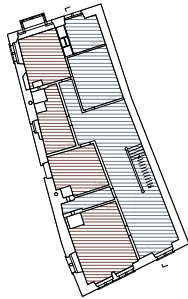
The Laube is attributed great importance mainly in summer. It is not only an extended entrance room, which often provides access to all the rooms on the floor, but can also be seen as an extension of the living space.

In order to understand this type of space in the structure of the building, I compared several residential buildings from different periods and different social structures. The floor plans of the first floor and the zoom-ins of the Laube each face north. In the sections, the issue of ventilation is shown schematically and optimised. This comparison shows that the Laube was already in use in the 12th century, that the staircase was placed in this room or immediately attached to it, and that the room served as a place to stay and for storage. However, no agreement or set of rules can be found in terms of shape, orientation and size.

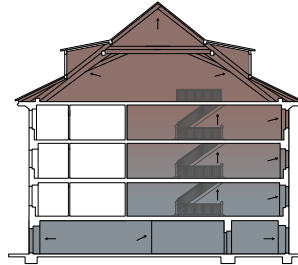
The “Laube” combines the aspects of light, ventilation, room climate, social gathering as well as the function of access.



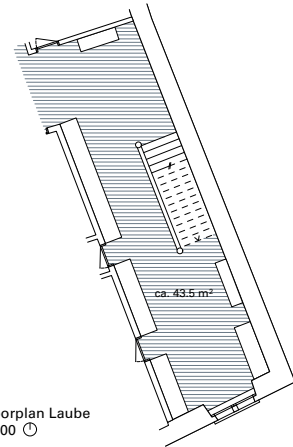
The “Laube” as a cold living room, Videostill, Pointcloud



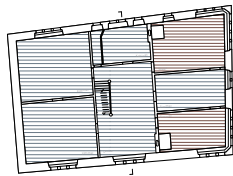
Zum weissen Turm, 12th -13th century
Floorplan
1:500 ☹



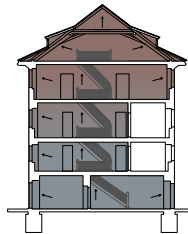
Section
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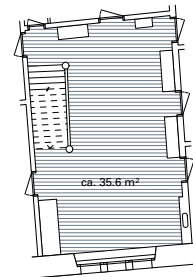
Floorplan Laube
1:200 ☹



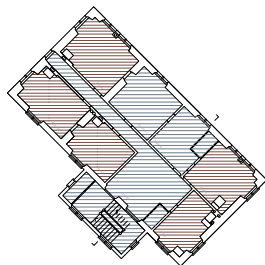
Zum Neuhaus, 1637
Floorplan
1:500 ☹



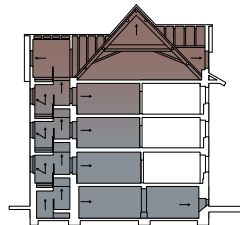
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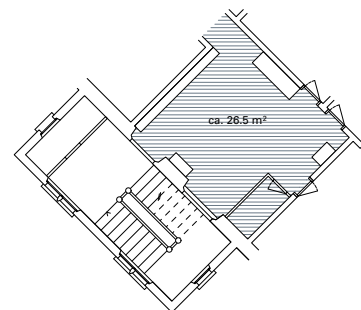
Floorplan Laube
1:200 ☹



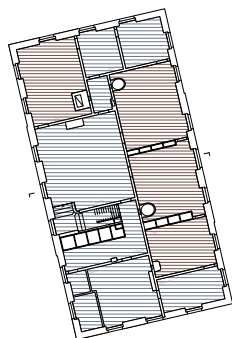
Der Neuenhof, 1684
Floorplan
1:500 ☹



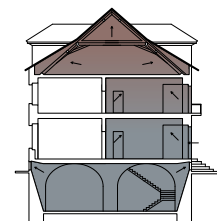
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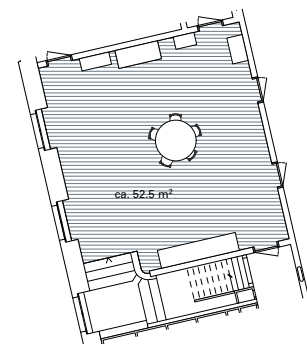
Floorplan Laube
1:200 ☹



Der Beckenhof, 1740
Floorplan
1:500 ☹



Section
1:500



Floorplan Laube
1:200 ☹

The "Laube" as a cold living room, Analysis

THE COMPACT COURTYARD HOUSE

IN THE CITY OF ZURICH AND WINTERTHUR

The demands and requirements for air and light increased during the late Gothic period. Courtyards and light shafts were built for the ventilation and lighting of the back rooms in the dense urban context. At the same time, the rooms were arranged very purposefully according to function.

A comparison of three buildings in the old town of Zurich or Winterthur reveals that the living rooms are located on the outer façades and the bedrooms are oriented towards the courtyard. Furthermore, it becomes visible which functions are assigned to rooms without daylight and also function well.

The building density in the old town is high with the typology of the long narrow plot. Compared to the maximum utilisation rate of a new building in the city of Zurich and Winterthur, almost all three buildings are above the permitted one. The compact courtyard houses allow a high building density with economical use of space.

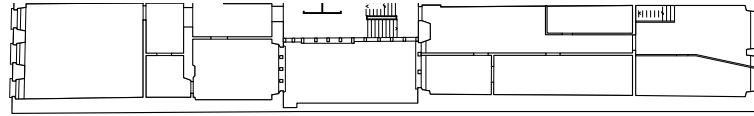
The courtyard provides an outdoor area for the residents, but protects them from noise, sun and wind. The dimensions of the courtyard and the surrounding buildings are decisive for the function of the courtyard.

The high quality of living despite the building density by generating atriums in combination with the functional arrangement of the rooms seems to be a theme with great potential.



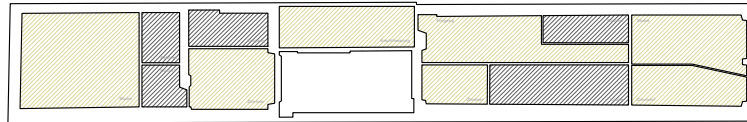
Compact Courtyard House, Videostill, Pointcloud

BÜRGERHAUS SPECTRUM



Zum Grünenberg ☉
14th Century
Floorplan 1:400

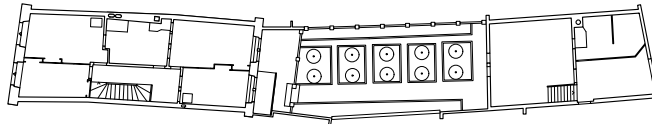
Utilization rate max. new construction Zurich & Winterthur: 2.50
Utilization rate Zum Grünenberg: 3.15
Utilization rate Zur Gemse: 2.31
Utilization rate Zur Geduld: 3.91



Schematic Floorplan 1:400 ☉

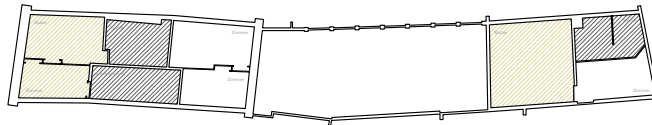
Dimensions Courtyard: 3.80m x 8.50m x 12.1m
Area: 32.3m²

Daylight
No Daylight



Haus zur Gemse ☉
ca. 1602
Floorplan 1:400

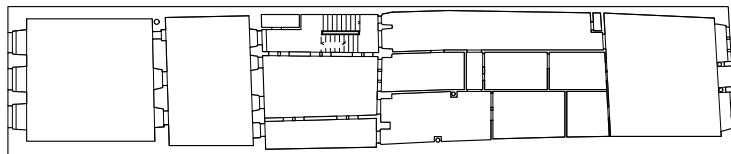
Utilization rate max. new construction Zurich & Winterthur: 2.50
Utilization rate Zum Grünenberg: 3.15
Utilization rate Zur Gemse: 2.31
Utilization rate Zur Geduld: 3.91



Schematic Floorplan 1:400 ☉

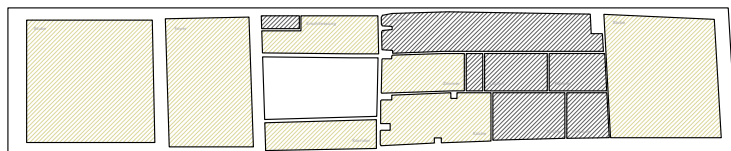
Dimensions Courtyard: 5.4m x 14.4m x 2.5m
Area: 77.5m²

Daylight
No Daylight



Haus zur Geduld ☉
1690/1717
Floorplan 1:400

Utilization rate max. new construction Zurich & Winterthur: 2.50
Utilization rate Zum Grünenberg: 3.15
Utilization rate Zur Gemse: 2.31
Utilization rate Zur Geduld: 3.91



Schematic Floorplan 1:400 ☉

Dimensions Courtyard: 3.80m x 7.20m x 13.2m
Area: 27.4m²

Daylight
No Daylight

Compact Courtyard House, Analysis

A HISTORY OF URBAN PLANNING REGULATIONS

AND ITS IMPACT ON THE WINTERTHUR CITY PLAN

The foundation of the town of Winterthur is dated by backtracking to the early first half of the 12th century and possibly happened due to economic reasons. The town served as a stacking site and market facility for the Earl of Kiburg. The extent of the current town centre was created during the enlargement of the town in the 13th century. A devastating town fire in 1313 levelled the town of Winterthur to the ground.

In the course of reconstruction the city came into being as we still know it today. This raises the question of how the characteristic reconstruction of the city contributed to the uniform shape of today's city plan and how significant the influence of the emerging building regulations were. Were these all conscious urban planning decisions realised through building regulations and top-down planning?

By comparing with extremely well-documented city centres in Europe, my assumptions about how the urban arrangement of Winterthur's city centre and the parcelling of the individual houses came about could be reduced to a few possible causes. As presumed, social, cultural, but also economic diversity played a major role in the planning of the urban form. It is therefore no coincidence that cities and urban life have had to be regulated since the beginning of urban development. In the following, some findings are discussed that may have contributed to Winterthur's historic city centre looking the way it can still be experienced today.

The regulations had their influence everywhere within the city wall and ranged from small changes at the edge of the community to the ideas of a public space and the continuity and symmetry of the appearance of the façade design. Building regulations created the modern concept of urban space.

In larger medieval European cities, planning usually consisted of small incremental changes. The starting point of planning was often the street structure. This could be made apparent by David Friedman in many towns in Tuscany, where the streets took on different dimensions depending on their function and importance. The facades facing the streets and their detailed design were often regulated by building regulations in order to improve the aesthetic quality of these streets. In Winterthur, one can precisely identify the economically valuable streets in the city plan, which give the city its distinctive character until today. In many medieval towns, the church was located in the centre and formed a square. However, the isolation of the market and the market street is mainly found in Swiss towns based on Zähringian foundations. In Winterthur, this strict separation between the economic and religious centre is particularly strong, especially in that the Marktgasse was shaped into the main traffic axis and symbolised a clear dominance. The starting point of the planning was thus narrowed down to the economically valuable streets. But what made this situation of the new city planning possible in the first place was the great fire of 1313. And this laid the foundation for new regulations.

One of the most important regulations concerned the need to prevent or limit the destructive power of fire. A large number of the urban buildings in European cities of the twelfth and thirteenth centuries were extremely inflammable. The dense population, which resulted from the fact that in many cities owning a house was a precondition for citizenship, with the use of combustible materials was a lethal combination in medieval cities. The resulting regulations on materials and the construction of fire walls led to a standardisation of the cityscape. This is visible in Winterthur through the façade order in the streets, which is significant for its regularity and restraint and creates a calm, even cityscape. The street spaces were planned, the façade appearance and the use of materials regulated by rules. But how did the parcelling within the planned urban structure come about?

Clues can be found in the building history of the core city from medieval Elburg and pre-modern Amsterdam. In Amsterdam, there was a clear relationship between plot sizes, their location and the prescribed land use. This was prescribed in the city's building regulations. The depth of the building plots in Elburg was defined by the streets, but the width depended on the financial means of the buyers as well as the function of the house. The regularity of the town's structure goes back to the simplicity of fourteenth-century surveying methods. It was thus easier to subdivide the plots in a grid with straight lines. In Winterthur, the depths of the building plots were predetermined by the already planned street network and were occupied by a front and back house. Originally, the front and back houses of a plot were in the same ownership. Presumably, the width was defined by the financial means, as was the case in Elburg whereas the maximum width was possibly limited by the maximum length of the construction beams.

Finally, when we look back at the rules and regulations that were enacted, we can see the development towards an increasingly detailed regulation of urban space and all its elements. It was not only about the survival of cities through fire safety regulations, but also about aesthetic aspects to unify the cityscape. By roughly breaking down from the large city plan to the parcelling, the urban planning order of the city of Winterthur should have been explained in certain aspects. The central city of Winterthur, which came into being after the devastating fire in 1313, is not based on pure arbitrariness. By comparing other European core cities, it could be shown that cities as Winterthur were constructed by urban planning and regulations, from the layout of the street to the construction material. By studying the urban planning of Winterthur, I was able to discover some aspects of a functioning dense city. These aspects, from the planning of the street space to the structuring of the façade, can guide me in the planning of the future community centre in a dense housing settlement.

Sources:

Emanuel Dejung und Richard Zürcher, Die Kunstdenkmäler des Kantons Zürich - Band VI, Verlag Birkhäuser AG, Basel, 1952

Richard Zürcher, Alt-Winterthur - Ein Architekturführer, Buchdruckerei Winterthur AG, ca. 1960

David Friedman, Florentine New Towns - Urban Design in the late Middle Ages, The Architectural History Foundation New York and the Massachusetts Institute of Technology, 1988

Terry R. Slater and Sandra M.G. Pinto, Building Regulations and Urban Form, 1200-1900, Routledge, London and New York, 2018

SILBERN META- MORPHOSIS

S. 13-63

HS22

SZENARIO

The foundation of our research is the work "Das Bürgerhaus in der Schweiz" published by the Bürgerhaus Commission of the SIA in the 1920s, which documents representative residential buildings from various eras. Considering their advanced age and durability, the buildings portrayed seem particularly sustainable. They testify to a high level of economic, functional and energetic intelligence and contain implicit knowledge on these topics. We want to learn from this and apply our findings to current issues of sustainability, resource and energy consumption and the durability of buildings and ask ourselves the question: could the Bürgerhaus today once again function as the starting point for a radically ecological architecture?

Through the analysis and documentation of the Bürgerhäuser in the core city of Zurich and Winterthur, I have dealt primarily with climatically and socially relevant issues. On the one hand, there is the type of extended living space in the Laube, which serves as a cool living space in summer. On the other hand, it is the way of living around a courtyard on long and narrow plots with commercial on the ground floor and residential on the upper floors.

The aspects of heat and cold, dense living and the dissolution of mono-functionality led me to the Silbern site in Dietikon. The Limmattal is the place in the canton of Zurich that expects the highest population growth in the next few years. Furthermore, in this almost purely commercial and industrial area, a high number of heat days and tropical nights can be expected, as well as an extremely low population density.

The extreme heat is no coincidence. Due to industrialisation and the establishment of industry along the Limmat river and the construction of the railway line between Zurich and Baden, a lot of agriculturally used land has been sealed. These areas contribute greatly to the increasing heat in the area. In the meantime, industry has become obsolete along the Limmat. The large industrial halls are being demolished and the land is needed for new large office complexes. But could the value of these flexible and adaptable structures be adjusted to the needs and left in place?

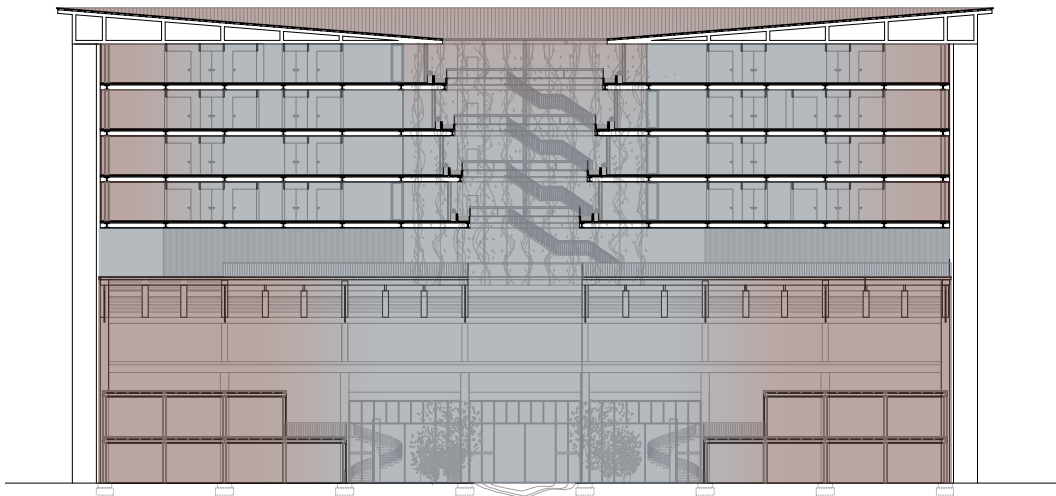
By transforming sealed areas and breaking up the mono-functionality, the number of heat days in the Silbern area can be reduced and the value of the existing buildings can be strengthened through the appropriation of the spaces by the new residents.

The mainly single-storey space-intensive halls will be raised and supplemented by flats. The ground floor is to be retained as long as possible. In this way, the Silbern industrial area will become a new poly-functional neighbourhood.

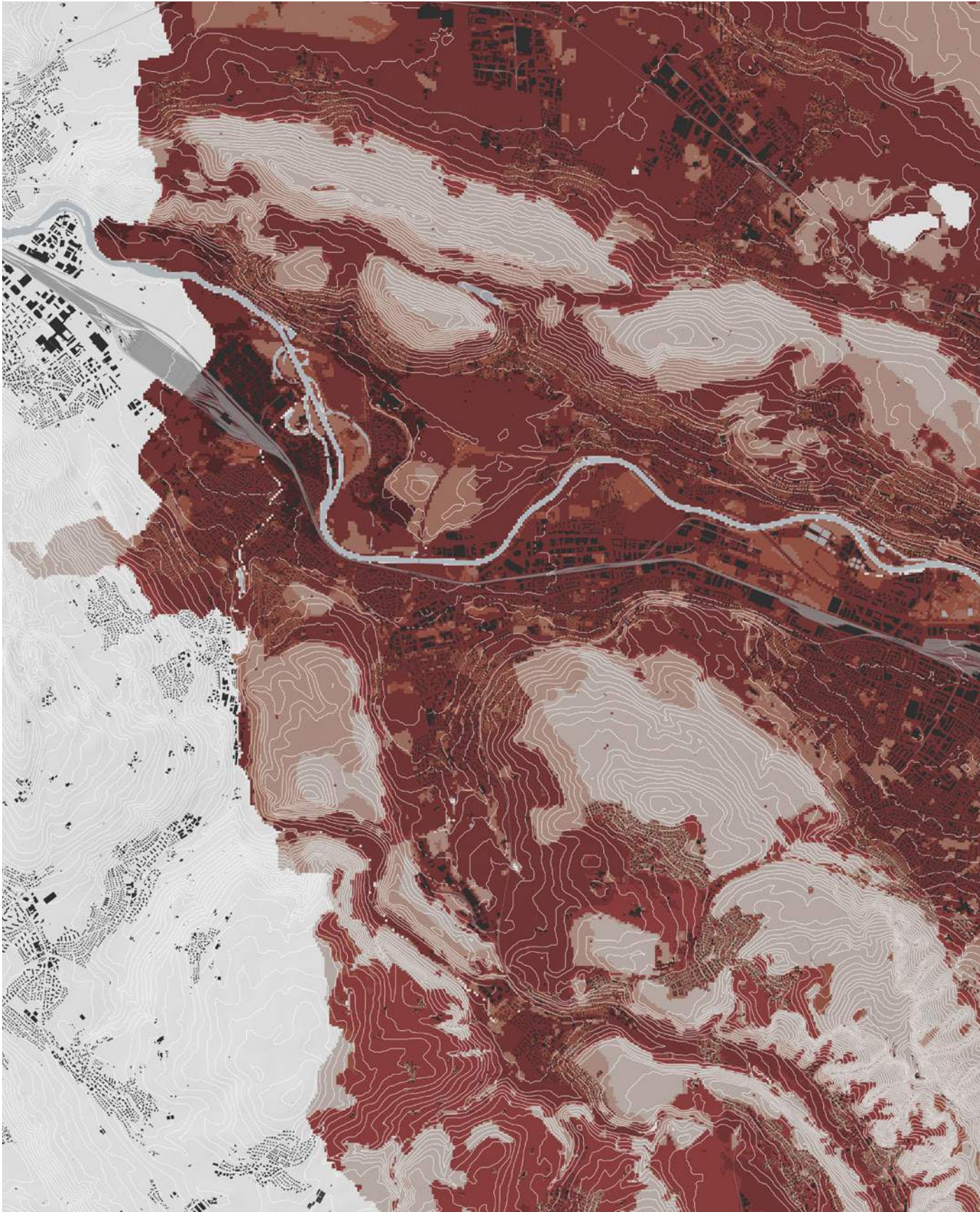
However, the increase in storeys not only generates a new multifunctional environment, but also reduces the risk of large-scale warehouses threatening to overheat. Overheating is described as the condition in which someone or something heats up too much. A number of different, interlocking developments have led, among other things, to a significant increase in overheating in buildings. The result is very warm and thus less comfortable buildings, which has a negative impact on productivity.

By designing the roof of the extension in accordance with the typology of the Roman impluvium, rainwater is channelled through the inner courtyard of the residential complex into the hall. The water with the additional ventilation in the mezzanine floor cools the warehouse down up to 4°C by evaporation. The inner courtyard thus becomes a climatic driver, but also an access and cool living space for the residents. The living space and the adjoining "Laube" form the climatically cool layer, which contrasts with the warm communal kitchen. Residents live in long and narrow flats in which performative doors can be used to create privacy and room divisions.

The Bürgerhaus of the future is a polyfunctional house in which the collective comes into play again. The new Bürgerhaus does not work against the climate, but with the climate and contributes to a different form of dense urban life.



Schematic section, heat circulation

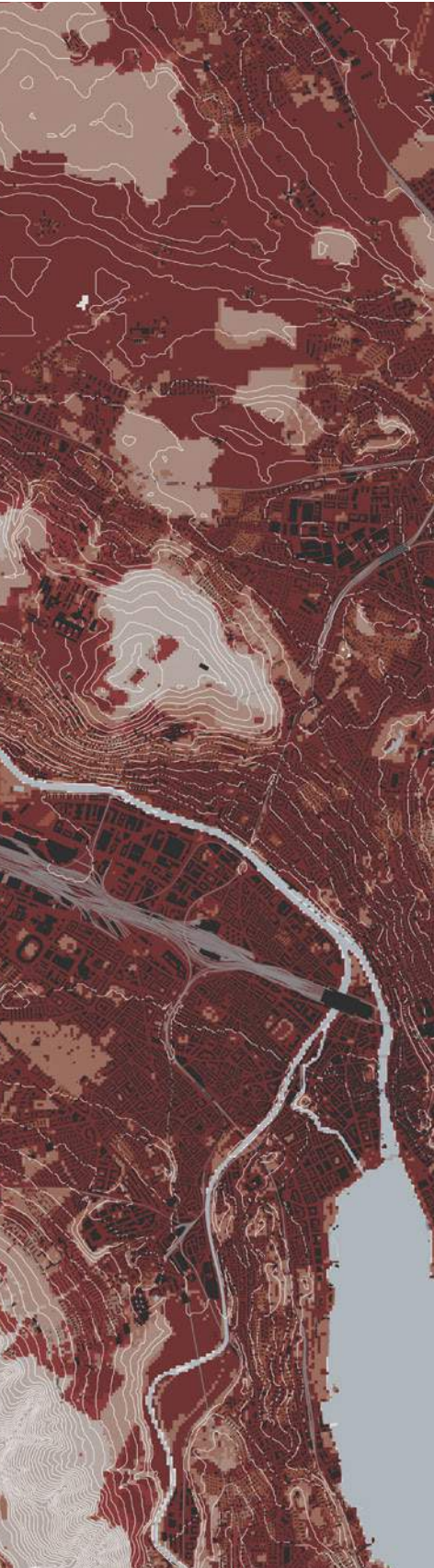


HEAT DAYS

A heat day or also called a tropical day is a day on which the maximum temperature reaches or exceeds 30°C. Extreme natural events are unfortunately no longer rare. They have gained more and more attention in the collective consciousness and will inevitably play a role in our everyday lives in the coming years. This attention is accompanied by concern about the increasing frequency and impact of weather-related hazards such as droughts and heavy rains with the threat of flooding.

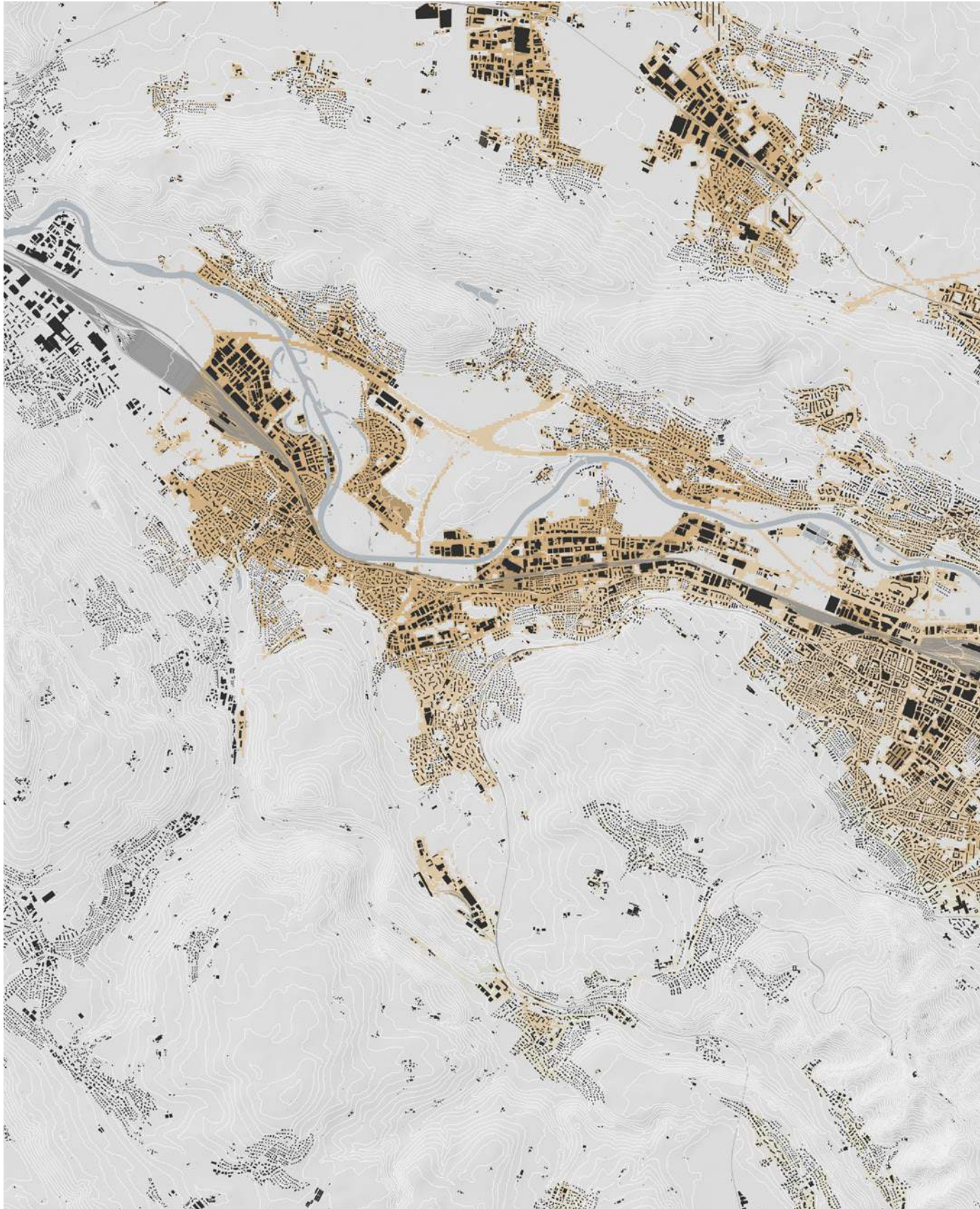
The droughts and extreme heat are severe weather-related disasters. They can last for months or years, affect large areas and have serious environmental, social and economic impacts. These impacts depend on the duration, severity and spatial extent of the hydrological deficit, but also on the environmental conditions and vulnerability of the affected region. Unlike heavy rainfall, drought does not have sudden effects. It is described as a gradual phenomena that spreads over a longer period of time and lasts for years. One of the many problems caused by drought is the quantitative and qualitative water supply. Long-term extreme effects are soil degradation and desertification, which often occur after repeated drought events.

The Silberner area in Dietikon is one of the regions in the canton of Zurich where most tropical days with maximum temperatures above 30°C can be expected. These tropical days will occur more and more frequently. From the second half of the 21st century onwards, longer summer dry spells are to be expected, which will be intensified by the Urban Heat Island effect.



Anzahl Hitzetage 2021- 2040

| |
|------------|
| Keine Tage |
| 0 - 2.5 |
| 2.5 - 5 |
| 5 - 10 |
| 10 - 20 |
| 20 - 30 |
| 30 - 50 |
| > 50 |



TROPICAL NIGHTS

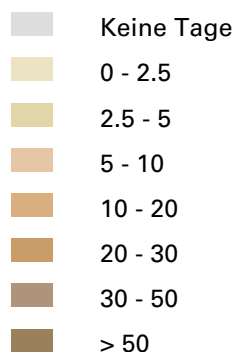
If the temperature does not drop below 20 °C at night, it is called a tropical night. In the past, such warm nights occurred in midsummer, when temperatures were also high during the day. For endangered individuals, this can be a health risk, since night-time recovery is not guaranteed at such high temperatures.

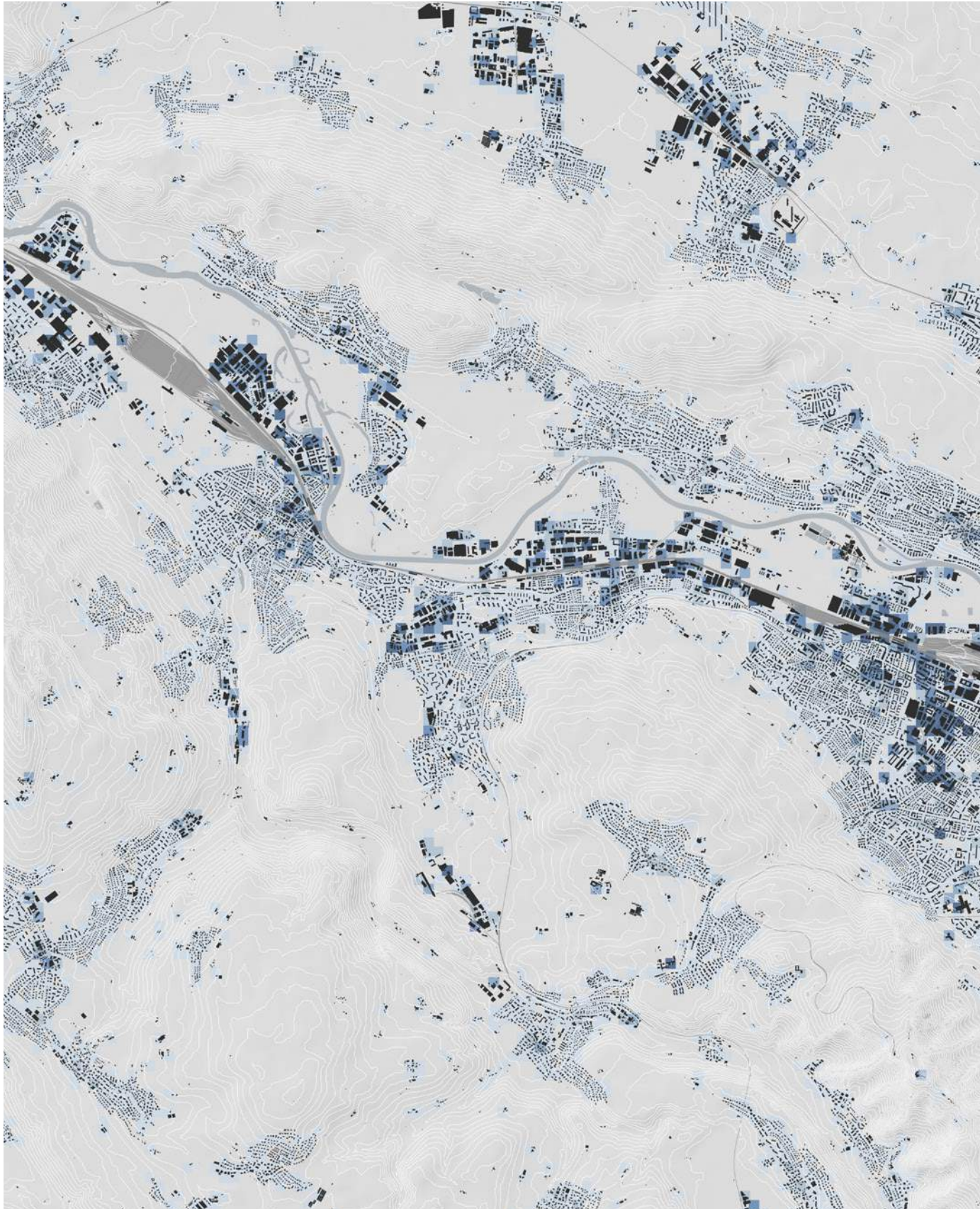
Tropical nights hardly ever occurred in Switzerland at the beginning of the 21st century. Now and then these occurred in the canton of Ticino. The rising temperatures caused by climate change cause individual tropical nights almost every year, even at lower altitudes throughout Switzerland. Due to the progress of climate change, a strong increase in the number of tropical nights in the lower-lying areas of Switzerland is to be expected by the middle of this century, including in the canton of Zurich and especially frequently in the Silberner area in Dietikon.

Rising night-time temperatures will have a major impact on the comfort of residents and nights spent in the tropical heat. We are conditioned to thermal comfort. The comfort defined by our bodies determines our expectations, standards and productivity. The extreme heat will change domestic standards, alternative forms of housing will have to be explored.



Anzahl Tropennächte 2021 - 2040





MONOFUNCTIONALITY

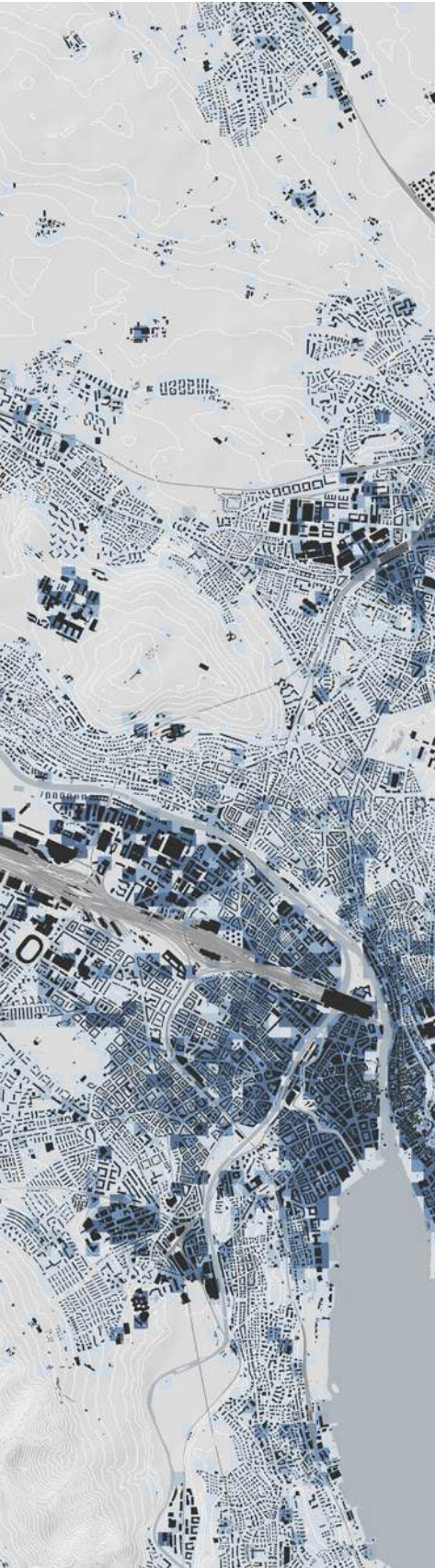
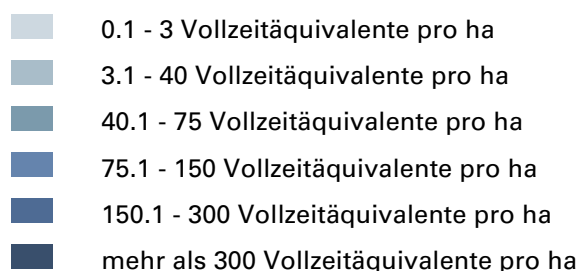
The city is a diverse and complex centre of human life. New areas are built monofunctionally next to each other. Little thought is given to the built environment. The city is segregated and developed in a purely mono-functional way. Insular thinking is practised, which leads to a reduction in the quality of urban life.

The high quality of life in the city of Zurich with its comparatively low building density and the increasing inward settlement development with redensification are in tension with each other. Although it can be assumed that many residents place a high value on the diverse infrastructure and other offerings in the city, the direct living environment plays a major role in subjective well-being. Subsequent densification of settlements often ends with the demolition of the existing building and the construction of a new one with a larger usable area, but hardly with a higher number of residents.

With the desire for an individual and private living environment with a garden, many aspire to the detached single-family house on the outskirts of town on their own land. In doing so, they often prefer residential locations with a low standard land value in order to maximise the area of the plot and thus the privacy. In the 20th century, with the motorisation of broad social strata, this situation led to so-called urban sprawl, the spread of urban areas and increasing traffic flows.

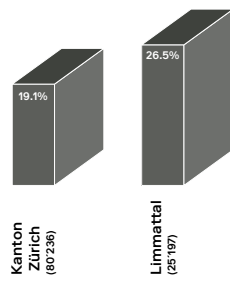
Another trend is related to the available living space per person. A reduction in this area is related to the supply of the urban neighbourhood, the type of building and the organisation of the floor space. The linking of living and working is also becoming increasingly important. Open floor plans that are flexible in their use can help to reduce the amount of space required per occupant. This has economic and ecological advantages if the intensity of use is increased.

Beschäftigtendichte (VZÄ)

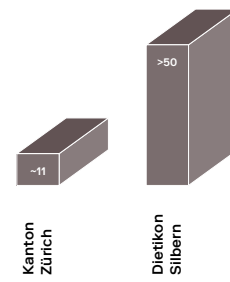




Bevölkerungswachstum
Szenario 2020-2040

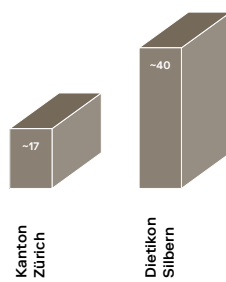


Hitzetage (Tmax >= 30°C)
Szenario 2020-2040

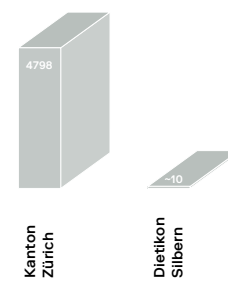




Tropennächte (Tmin \geq 20°C)
Szenario 2020-2040



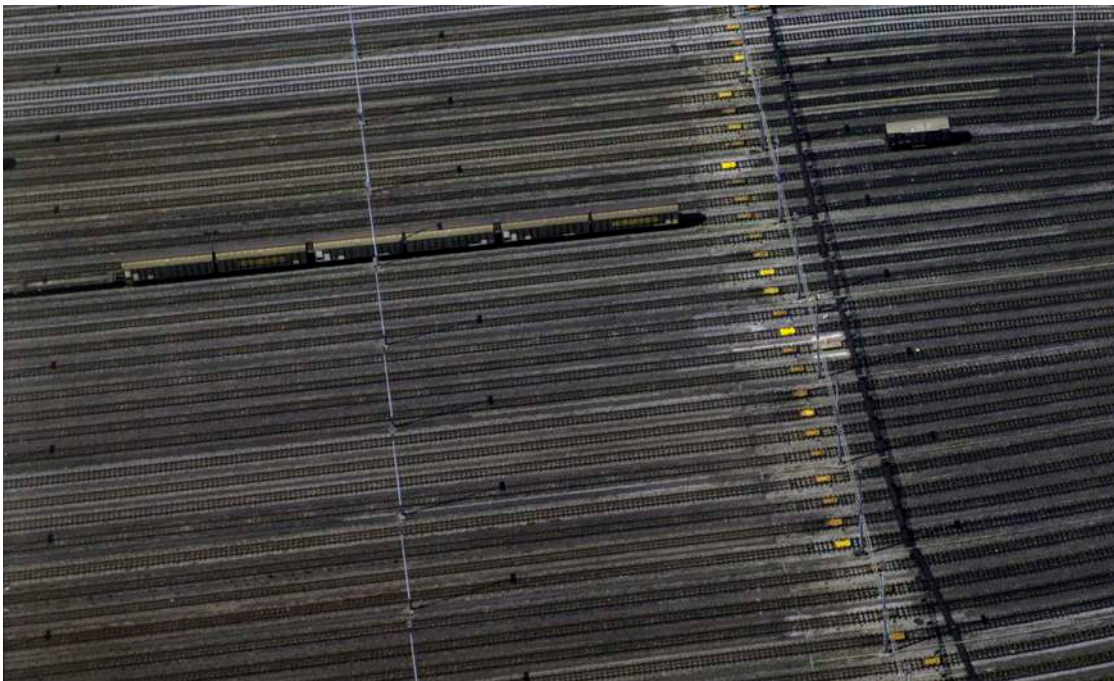
Bevölkerungsdichte (B/km²)
Situation 2022



ich vs. Silber



Baustelle Rangierbahnhof Limmattal
(ETH Bild-Archiv, Comet Photo AG, 1967)



Gleisfeld Rangierbahnhof
(ETH Bild-Archiv, Swissair Photo AG, 1993)

Due to the industrialisation of the Limmattal and the construction of the railway line including the large marshalling yard, a great deal of agriculturally used land was built on and sealed, which on the one hand has a negative effect on the water balance of the soil, and on the other hand contributes to the rise in temperature in the cities.



Kehrichtsverwertungsanlage, Dietikon
(ETH Bild-Archiv, Comet Photo AG, 1972)



Abbruch Färberei Appretur, Zürich
(ETH Bild-Archiv, Hans-Peter Bärtschi, 1978)

Due to the increasing population and location attraction in the Limmattal, many companies are forced to abandon their old factory halls. However, the value of the halls due to their adaptable structure should not be underestimated. Instead of demolition, the focus should be on conversion and adaptation.

SURFACE SEALING AND 'SPONGE CITY'

Many cities heat up more than the surrounding countryside during long-lasting hot periods. This can be attributed to the high degree of surface sealing in cities, which contradicts the natural state of an area that has not been built on. The overflow of water that occurs during heavy rainfall is discharged into channels in sealed areas. This is a disruption in the natural drainage system. Often this leads to overloading of the sewer system during heavy rainfall. Besides heavy rainfall, another extreme event will increase due to climate change. Droughts will occur more frequently, especially in summer, resulting in prolonged drought. Possible cooling through the evaporation of rainwater is reduced by the immediate drainage of precipitation.



Ground Conditions 2022

A so-called 'sponge city' imitates the natural water cycle and is intended to generate a cool and pleasant urban climate and break heat peaks. Rainwater is deliberately infiltrated and temporarily stored in the city, thus creating more evaporation surfaces. With more green spaces and water areas, the city can store the excess water during heavy rainfall and slowly release it into the environment through evaporation during dry periods. This promotes evaporative cooling and counteracts the emergence of Urban Heat Island.



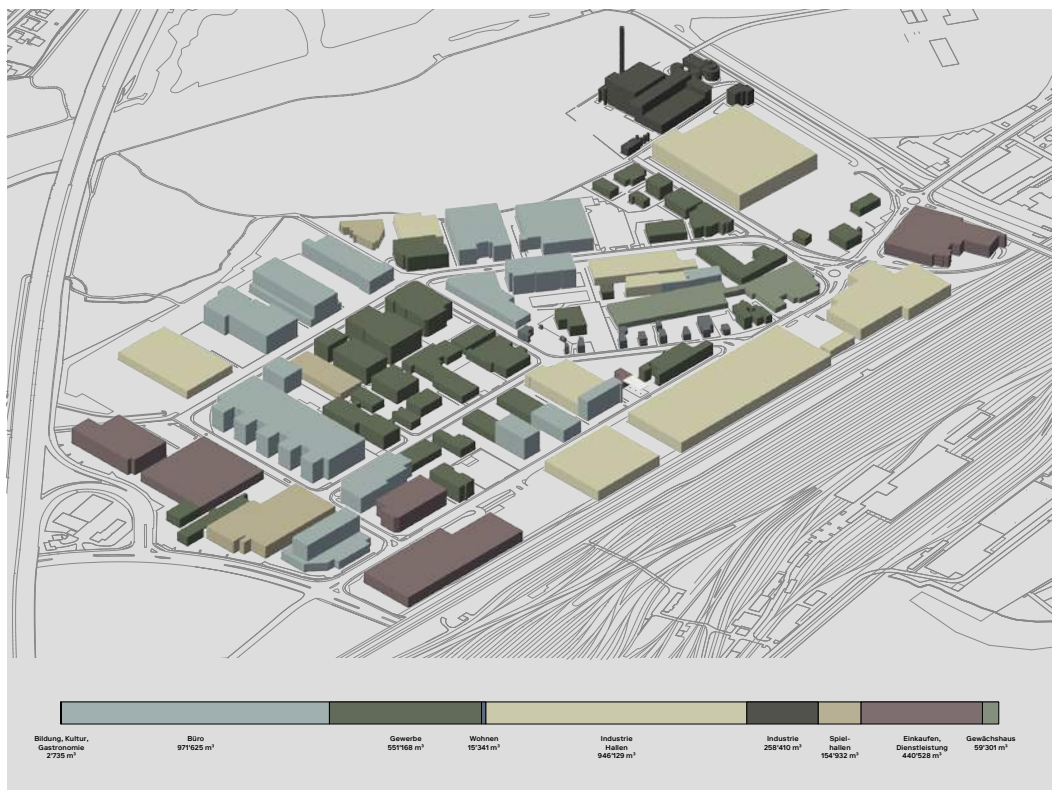
Ground Conditions 2040

SILBERN NEIGHBOURHOOD

The planning area comprises the Silberner areas north of the centre of Dietikon. The elongated area lies between the marshalling yard's track field on the south-western side and the alluvial forest along the Limmat on the north-eastern side, which is a nature reserve of national importance. To the north, the area is bordered by the motorway. To the southeast, the Limmatfeld development area immediately adjoins.

The existing buildings are used for industry and commerce, sales and services, and occasionally for residential purposes.

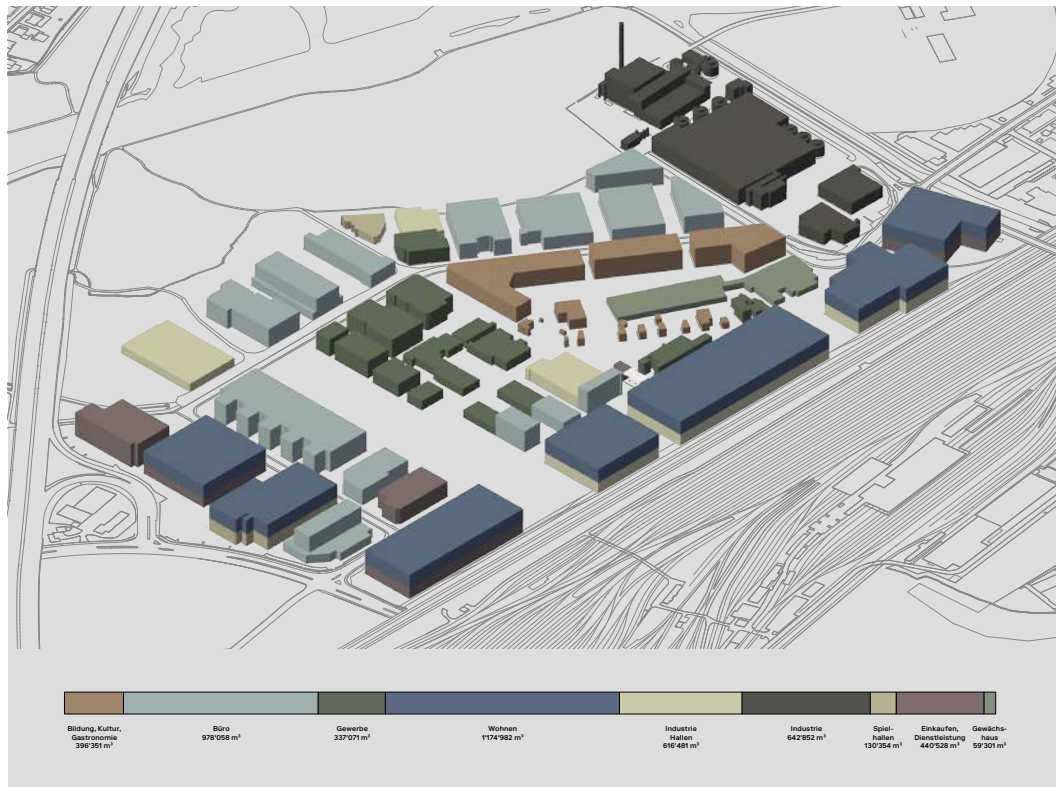
Due to the substance of the existing buildings and infrastructure, the qualities of the existing are reinforced and enhanced with a few targeted interventions. The existing landscape architectural situation is characterised by the unmediated juxtaposition of two extremely contrasting areas. The industrial area meets the nature reserve. The qualities of the public space and its identity are to be strengthened by creating new green spaces.



Analysis of Functions Situation 2022

The almost purely working and industrial quarter currently offers around 5000 jobs and 45'000 m² of retail space and represents the largest contiguous business area in Zurich's Limmat Valley. The area has a high potential for additional densification.

By breaking up the mono-functionality of the Silberner quarter, a total of seven commercial halls will be raised and around 1024 new flats will be created. Due to the different flat sizes, there will be an average of 4 people per flat, which means an increase of 4096 residents for the whole area. This creates a dense, urban residential and workers' quarter that is mutually beneficial.



Analysis of Functions Situation 2040



Site Plan, north



North orientated



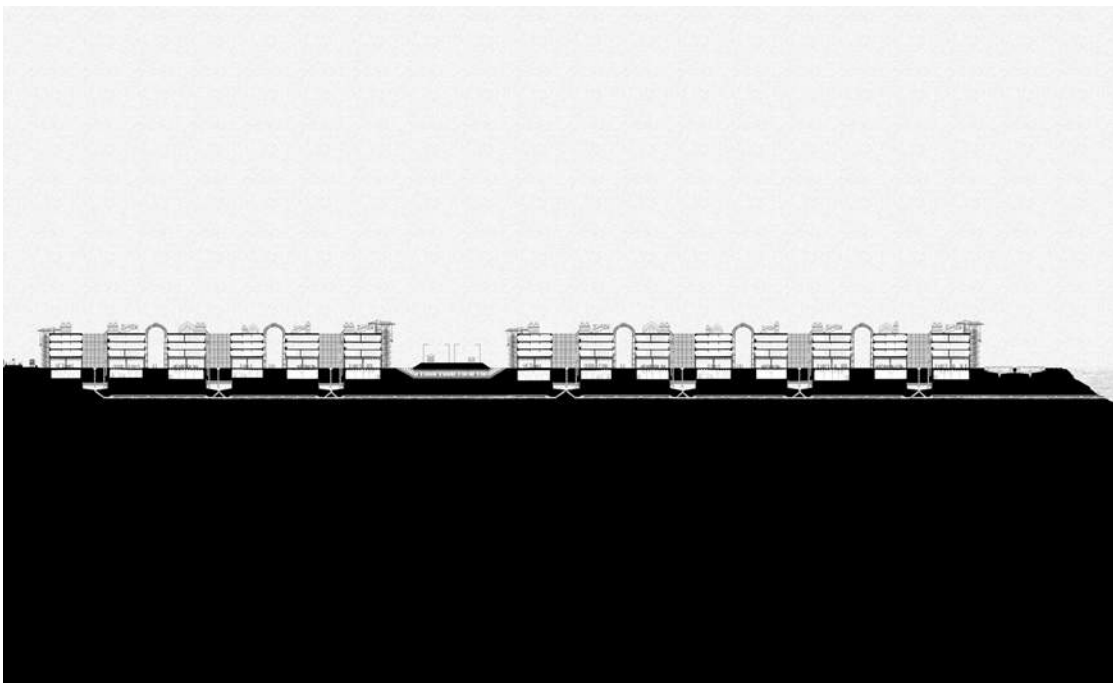
Street Composition - A



Axonometric Drawing



Rabbit Holes, Collage

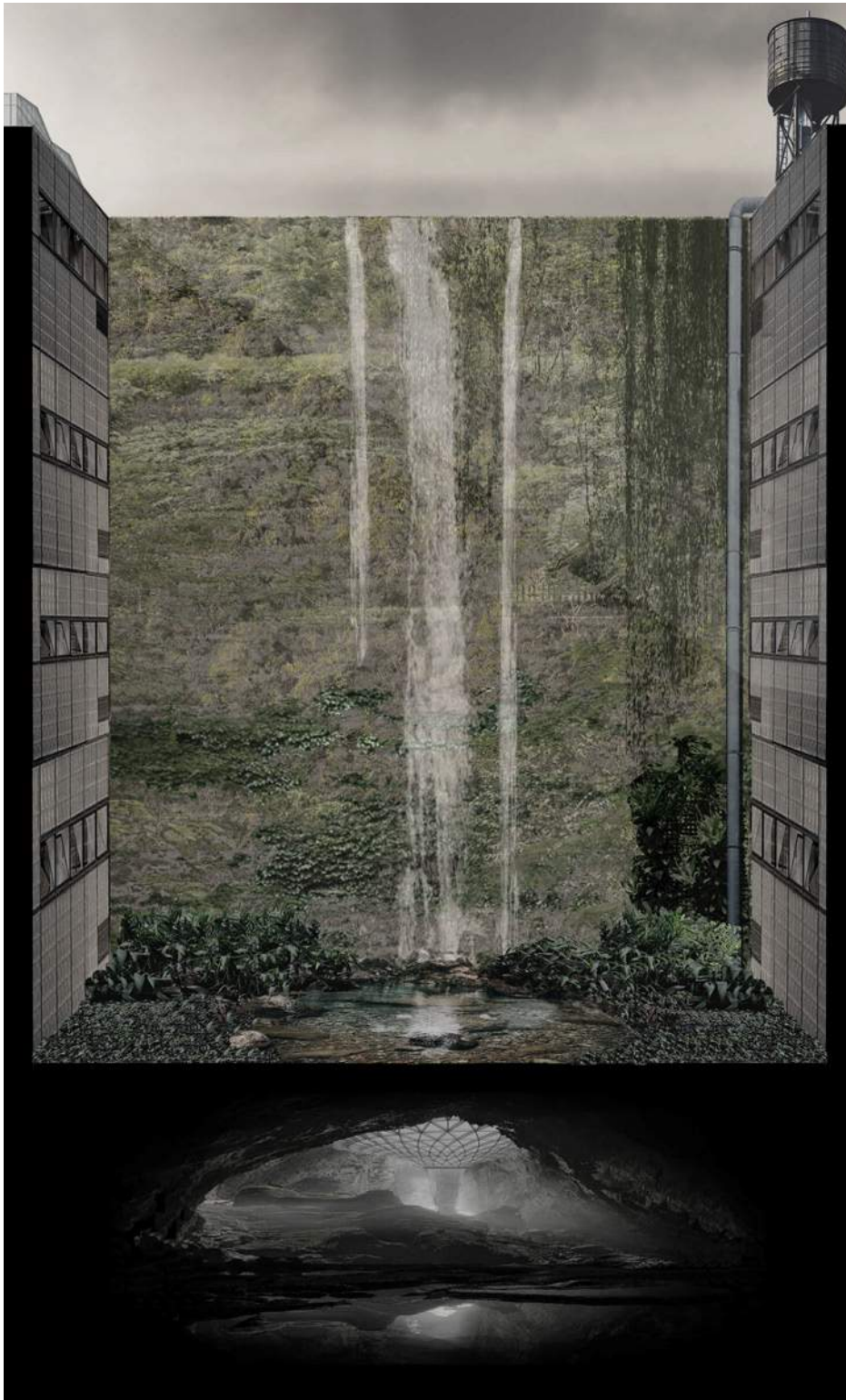


Sectioncollage



Kaminfeger Süess, Altstadt Zürich
(ETH Bild-Archiv, Heinz Baumann, 1974/76)

How does one live when the boundary between living and working merge?

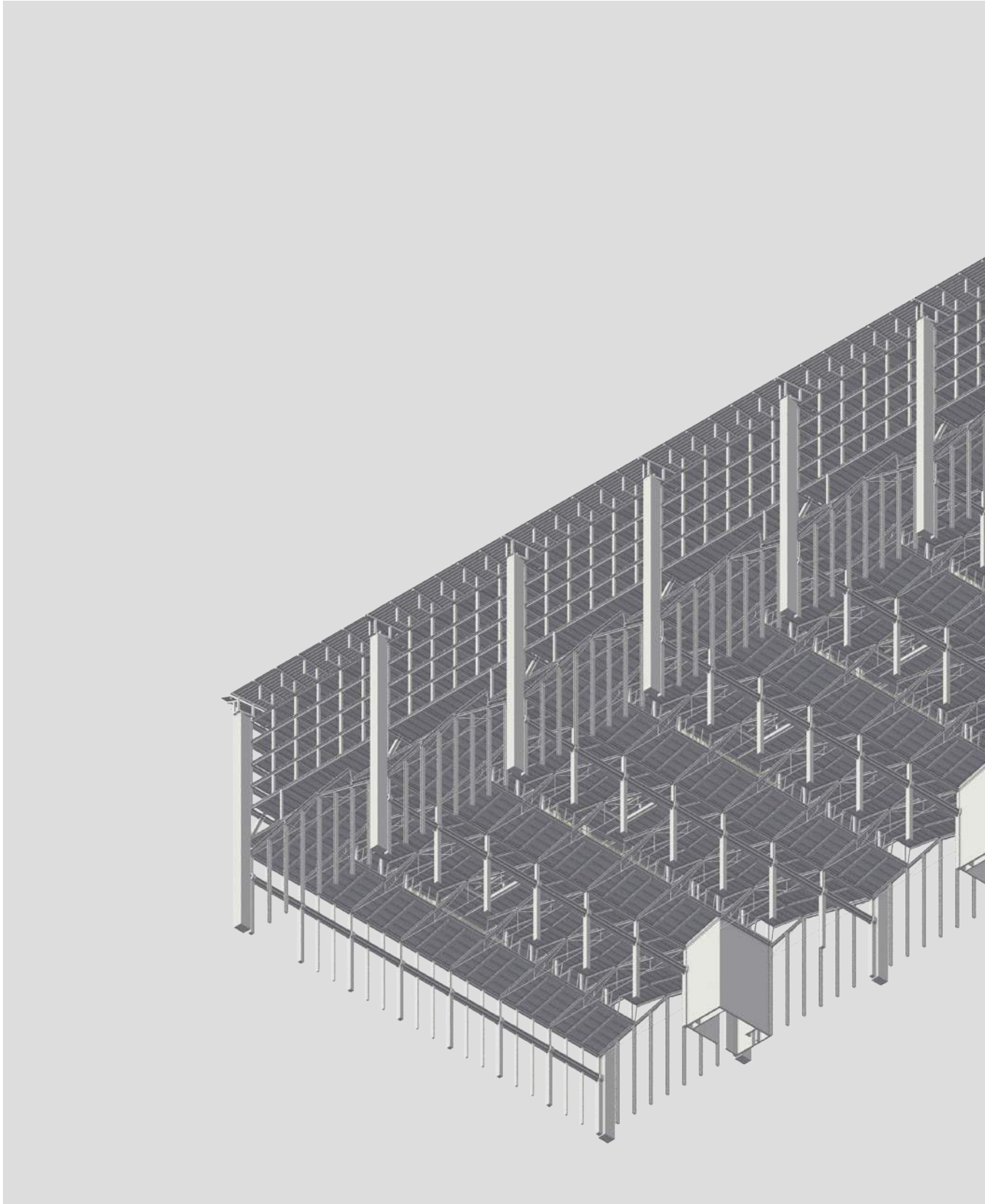


Courtyard, Collage

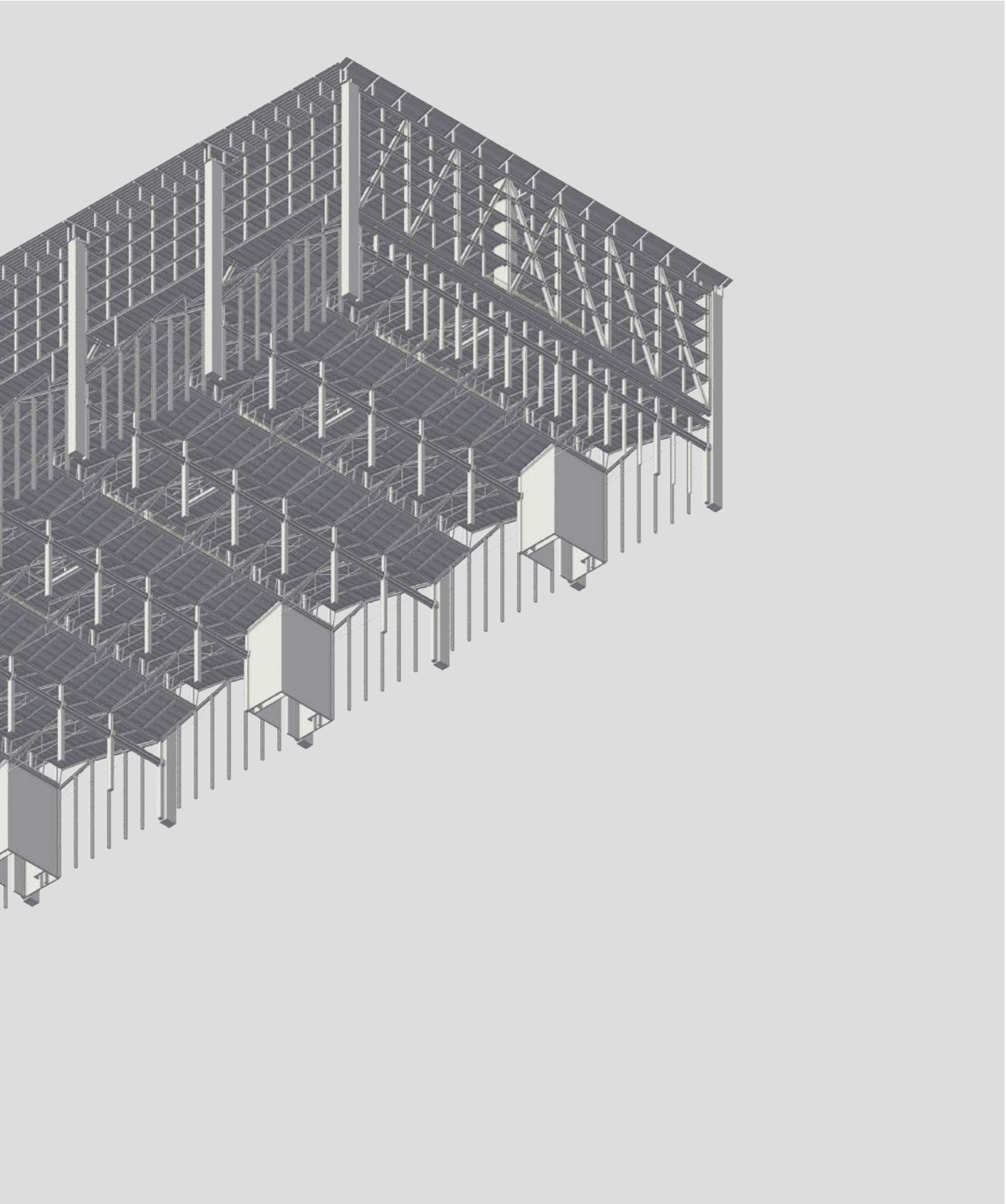


Haus der Silberhochzeit, Pompeji
(meisterdrucke.com, unbekannt, undatiert)

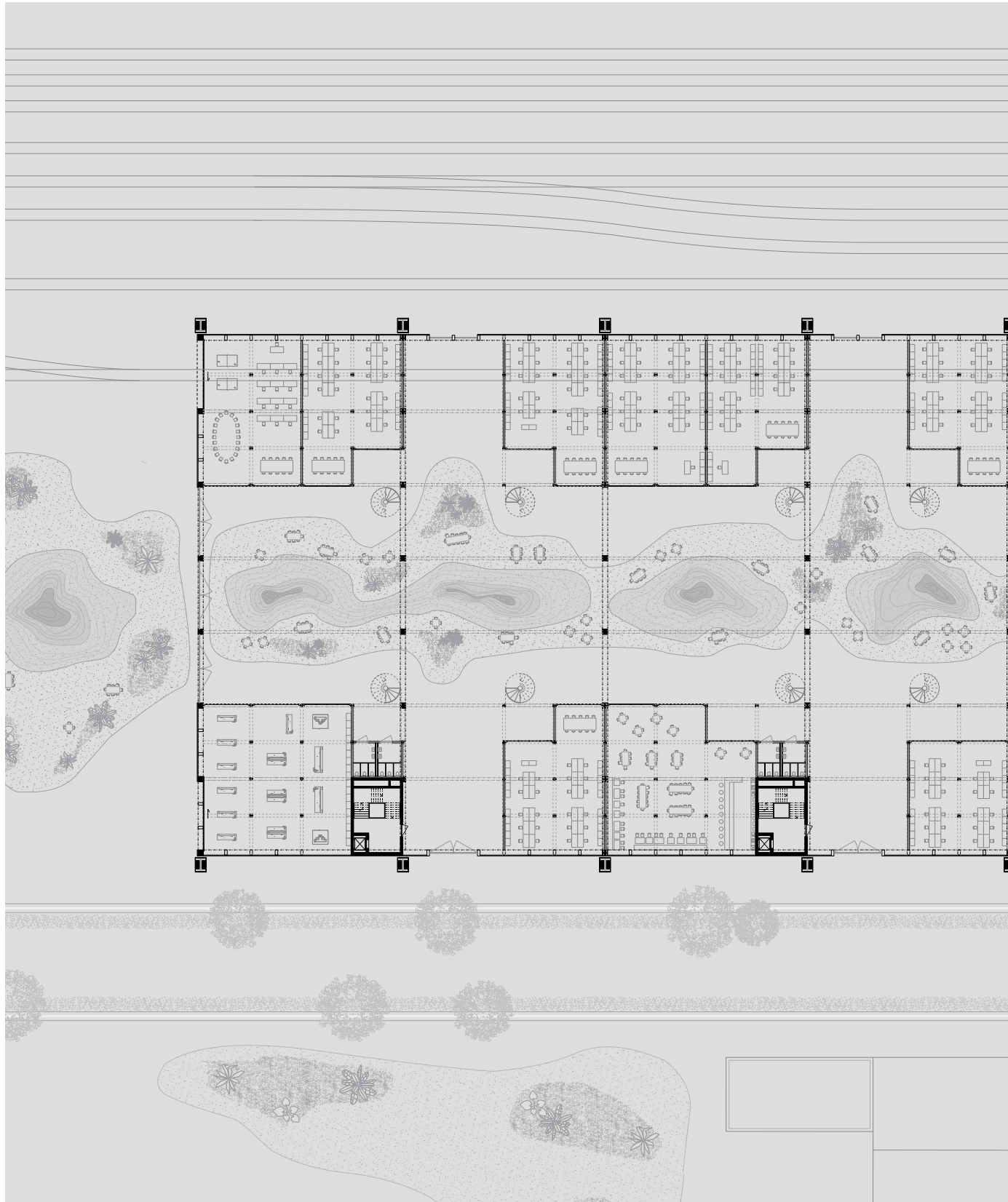
Climatic changes will not only increase the temperature. Heavy rains and droughts will become part of our everyday life. How do we deal with these two phenomena, how is water stored and how can water contribute to cooling the built environment?

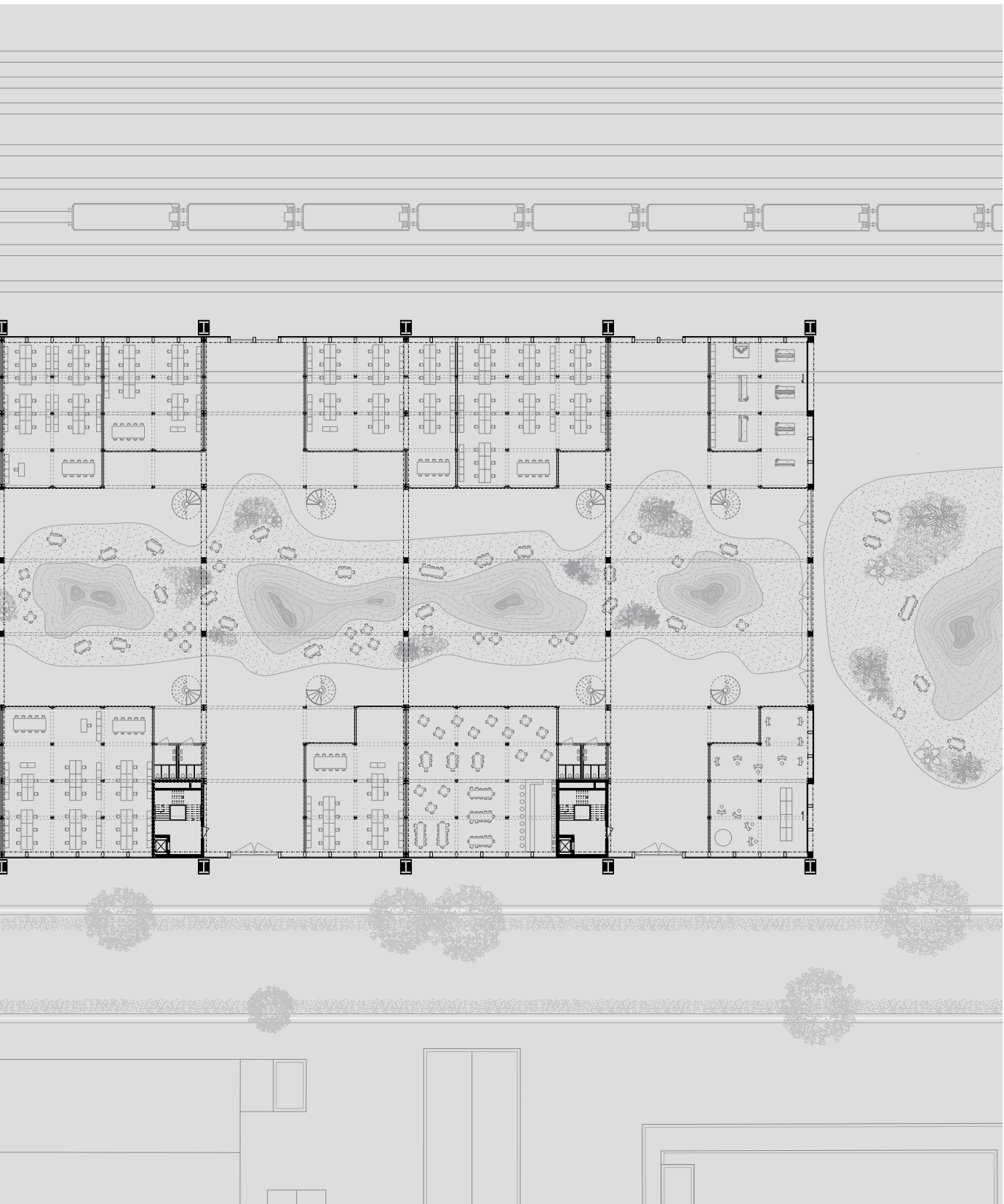


Axonometric Drawing

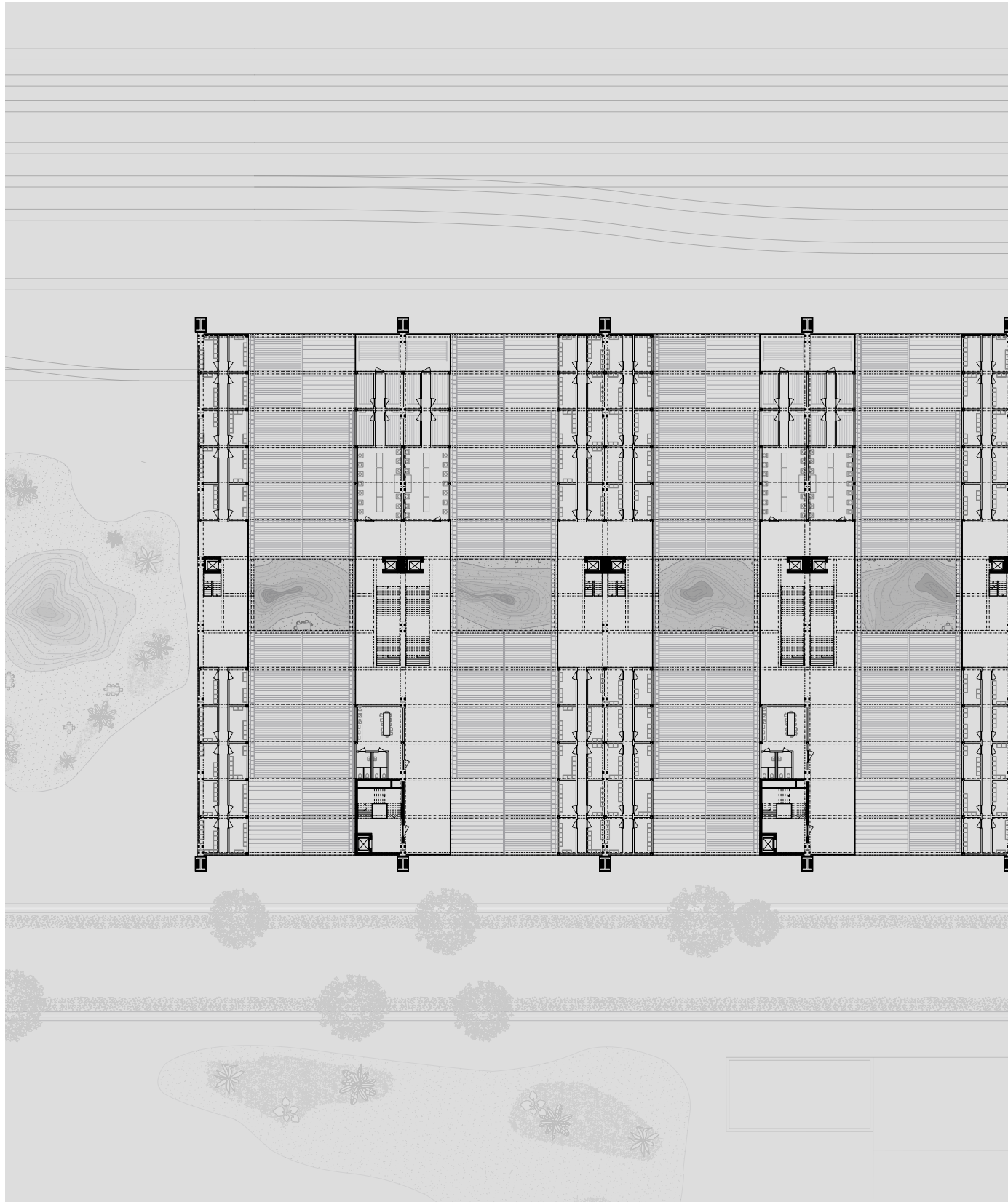


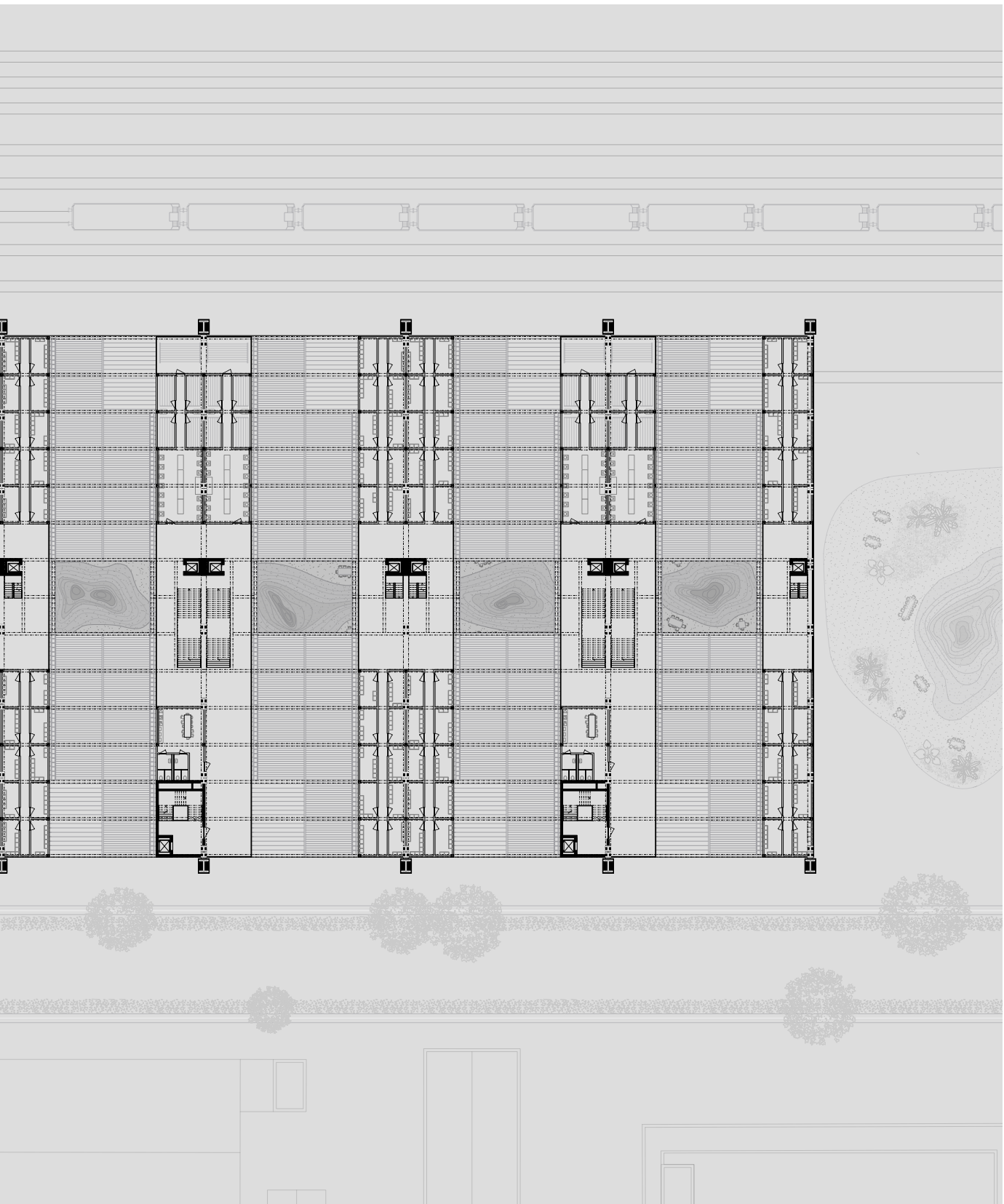
...ing, Bottom View



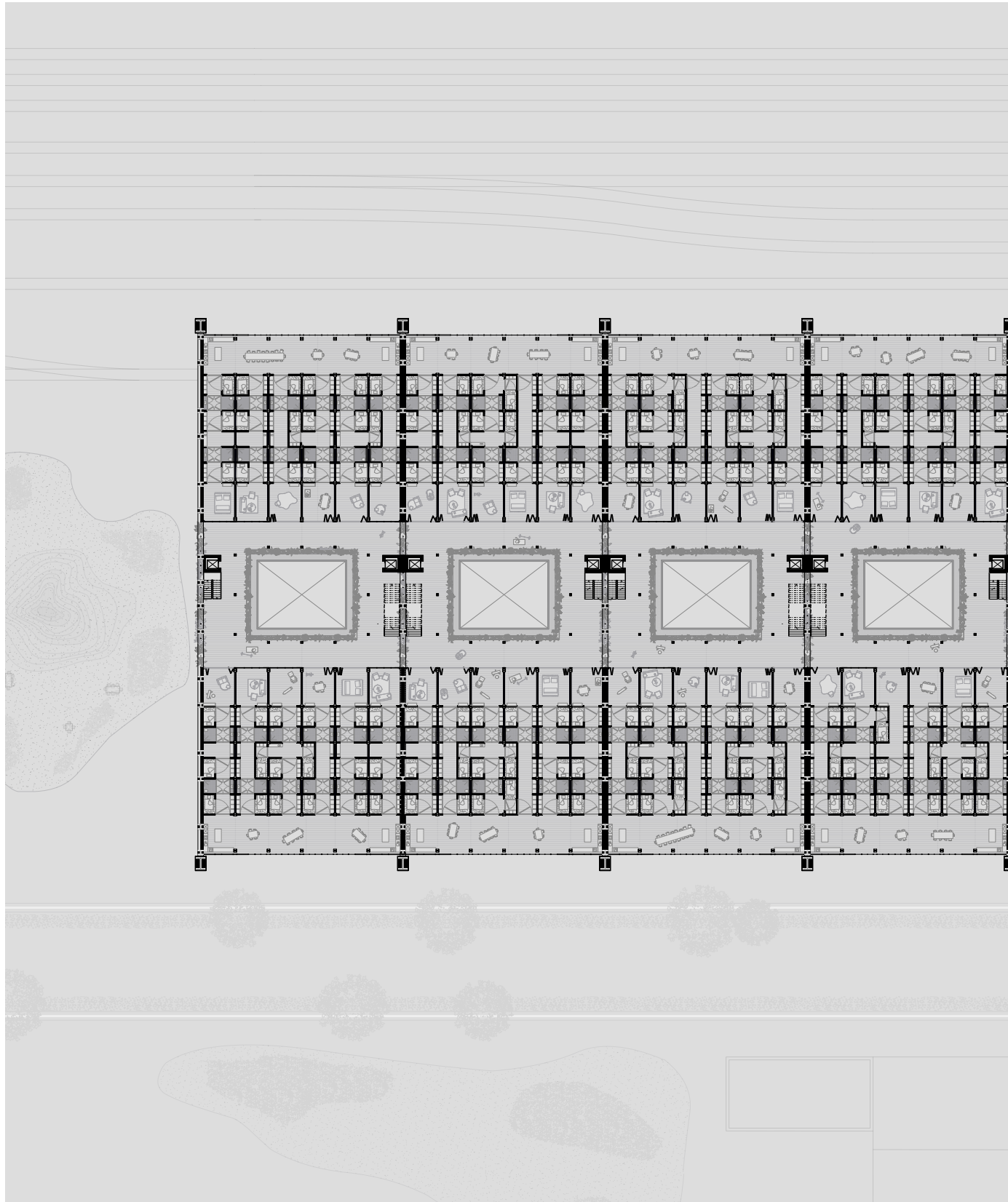


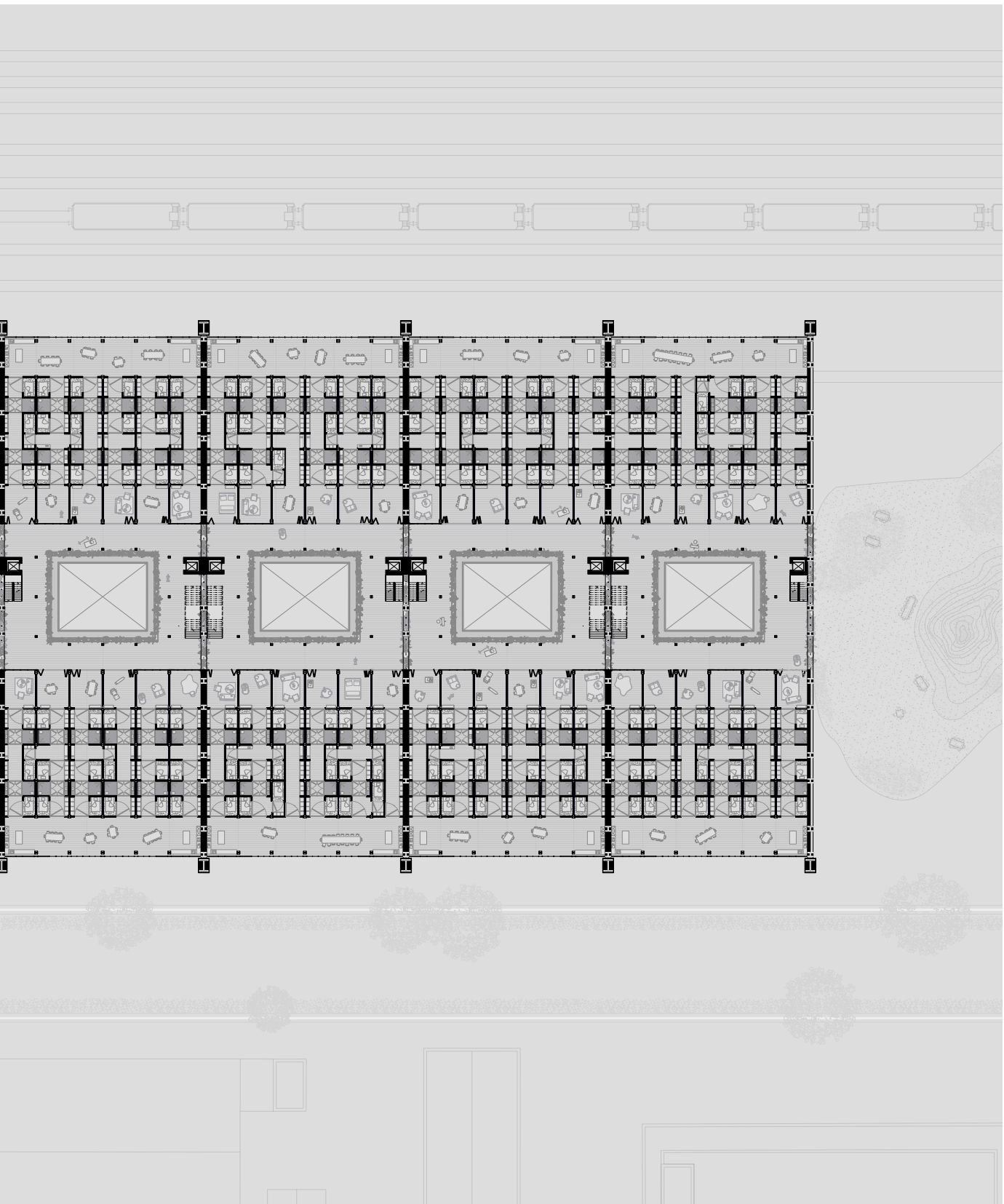
dfloor



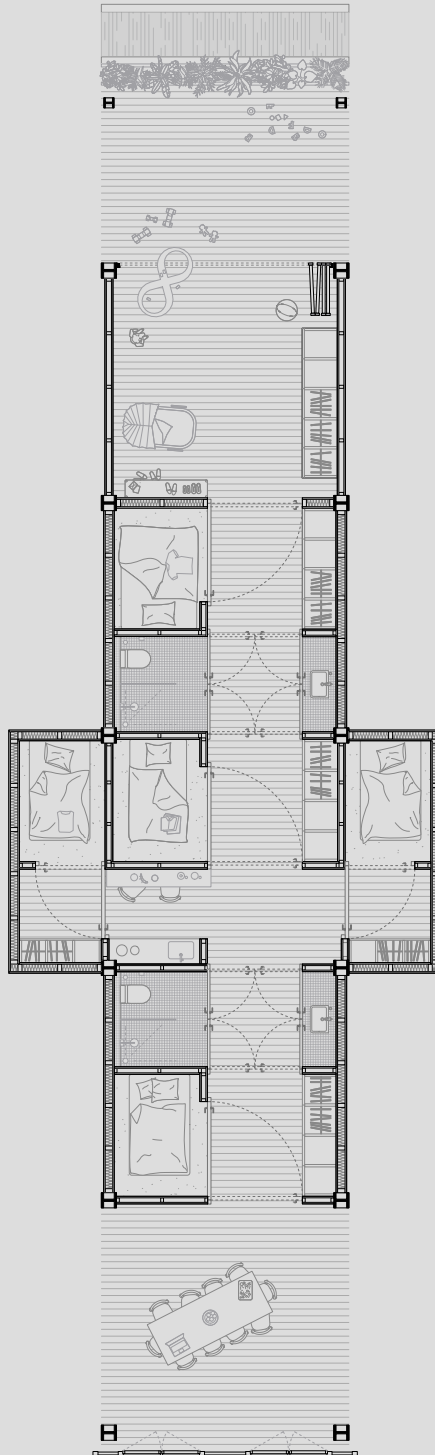
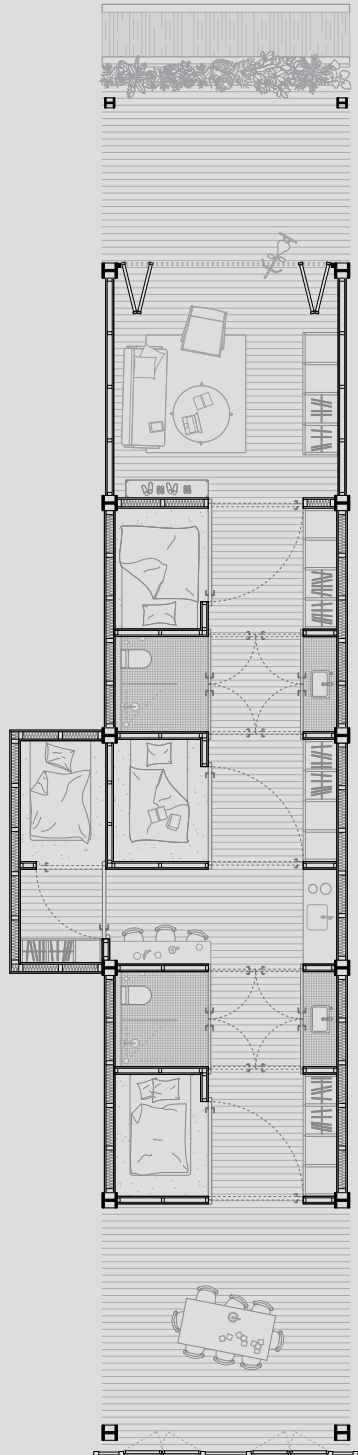


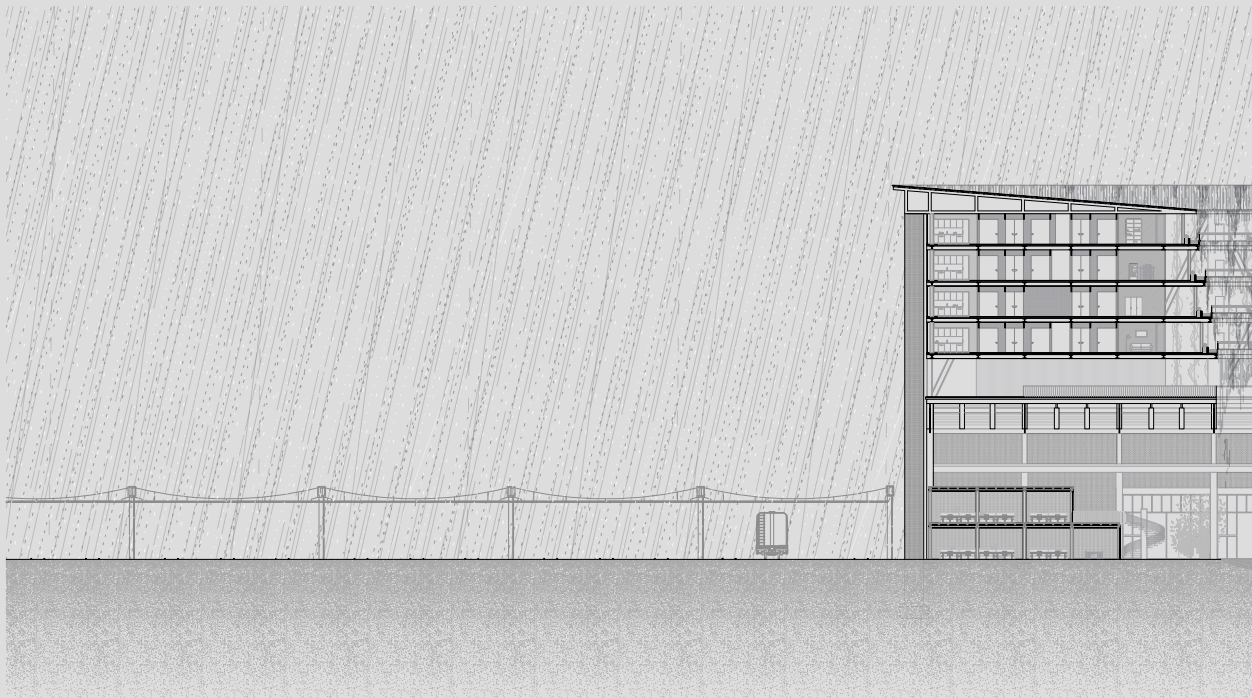
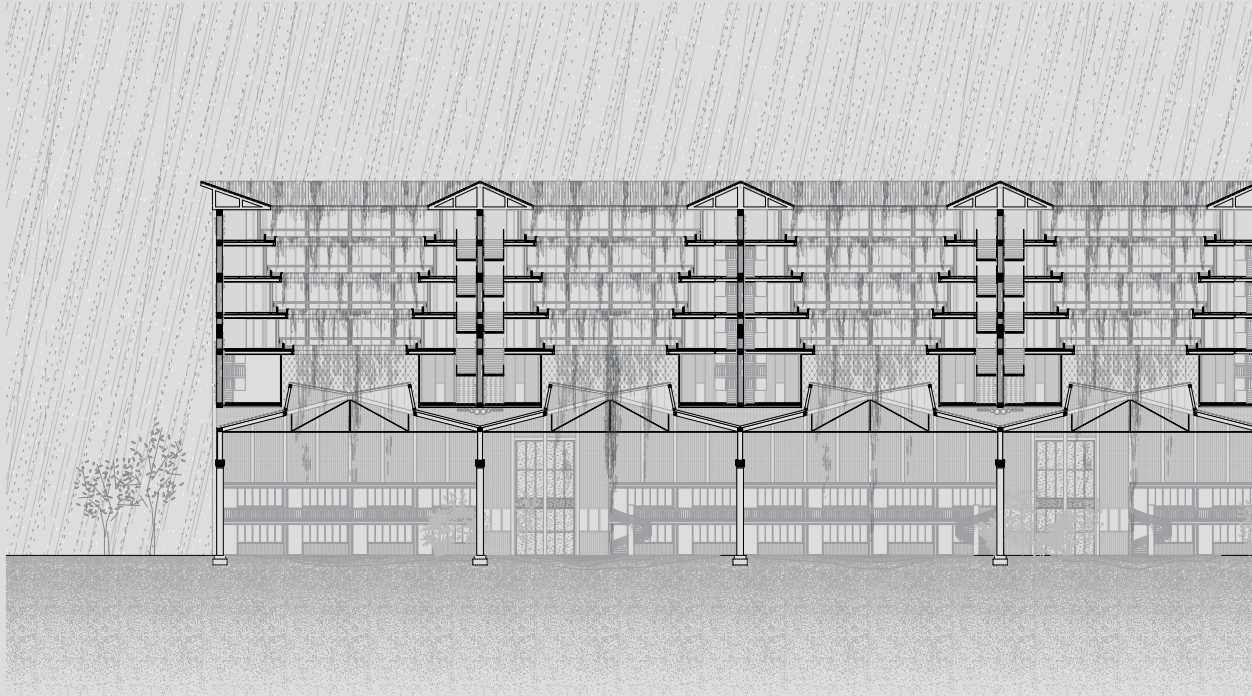
Floor

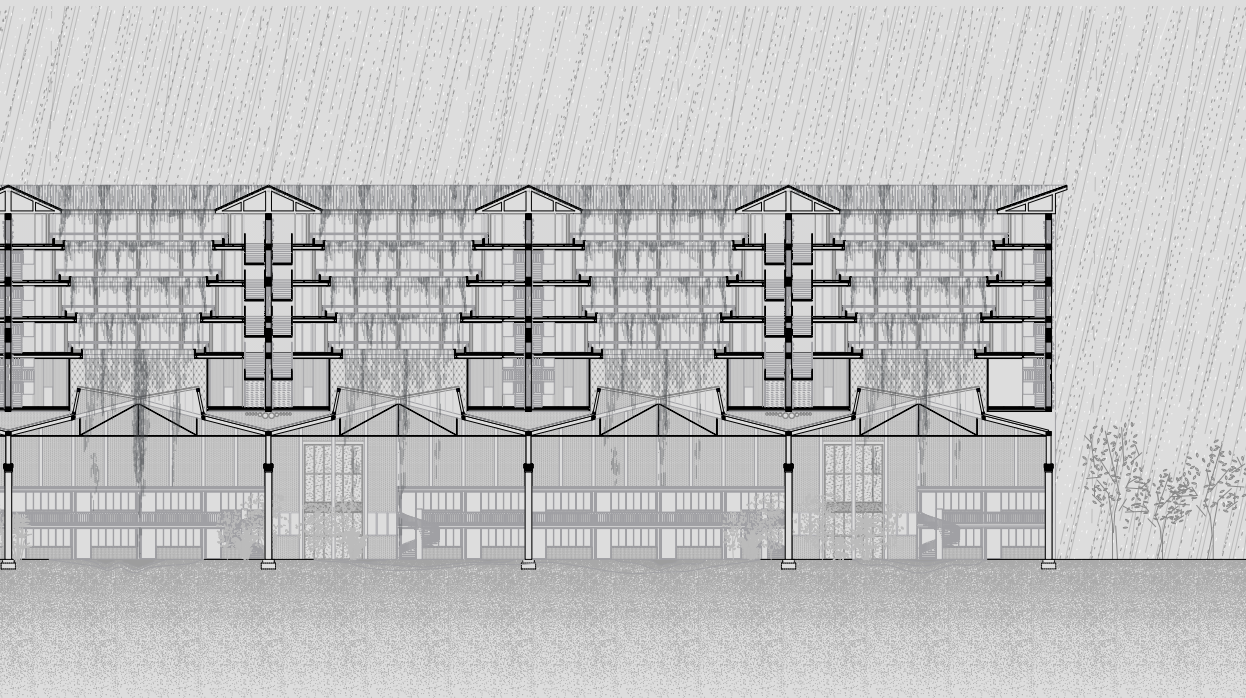


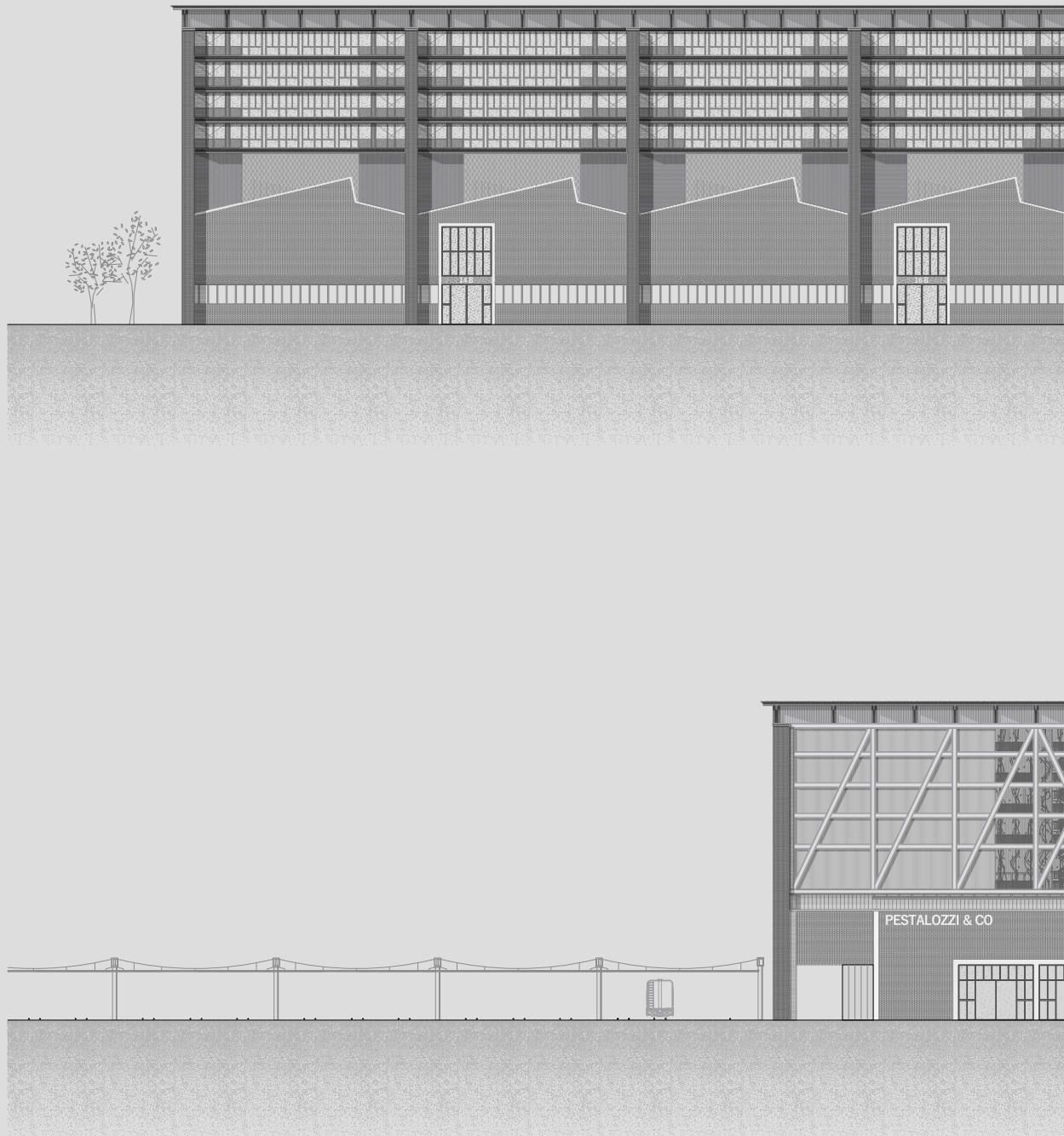


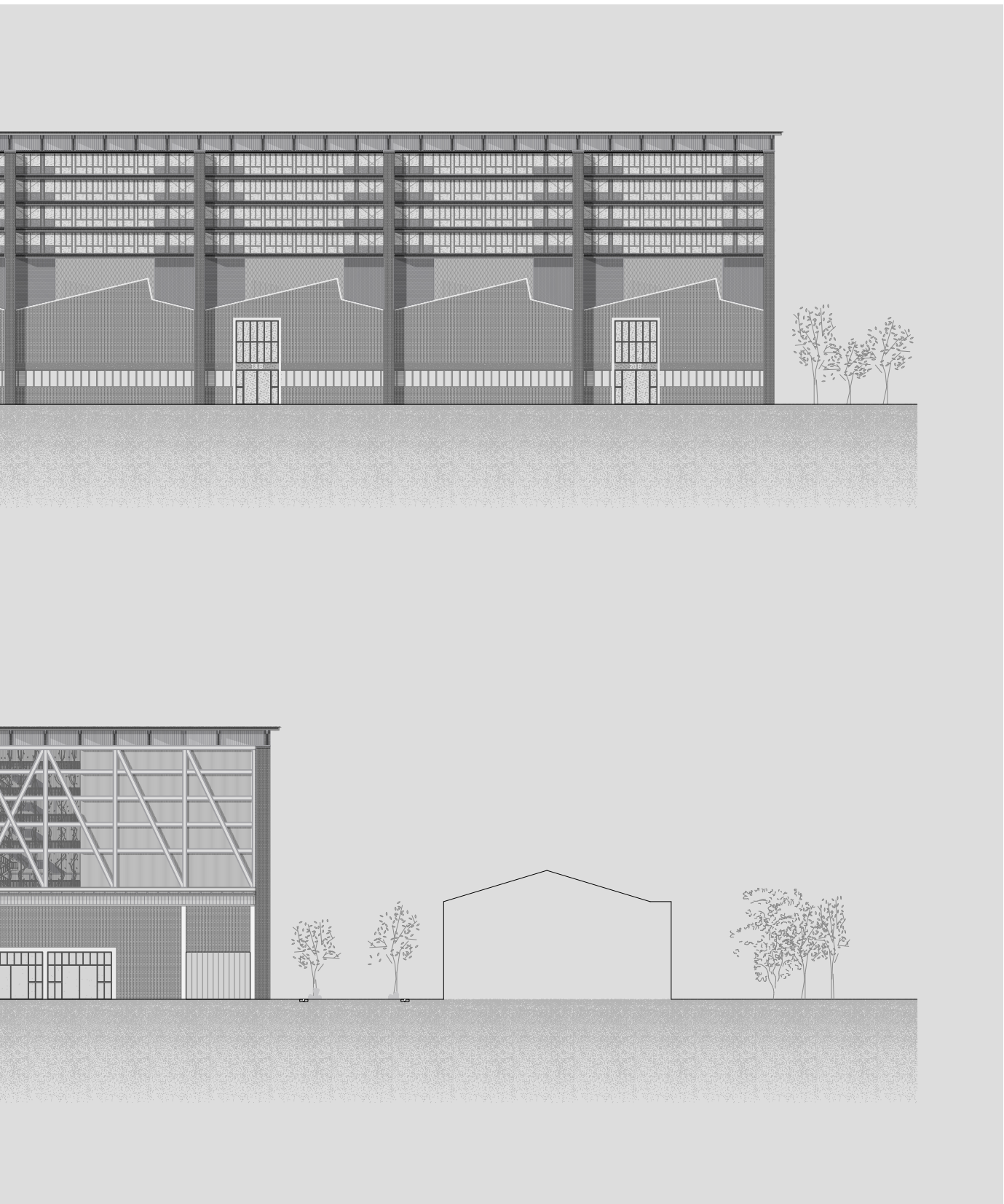




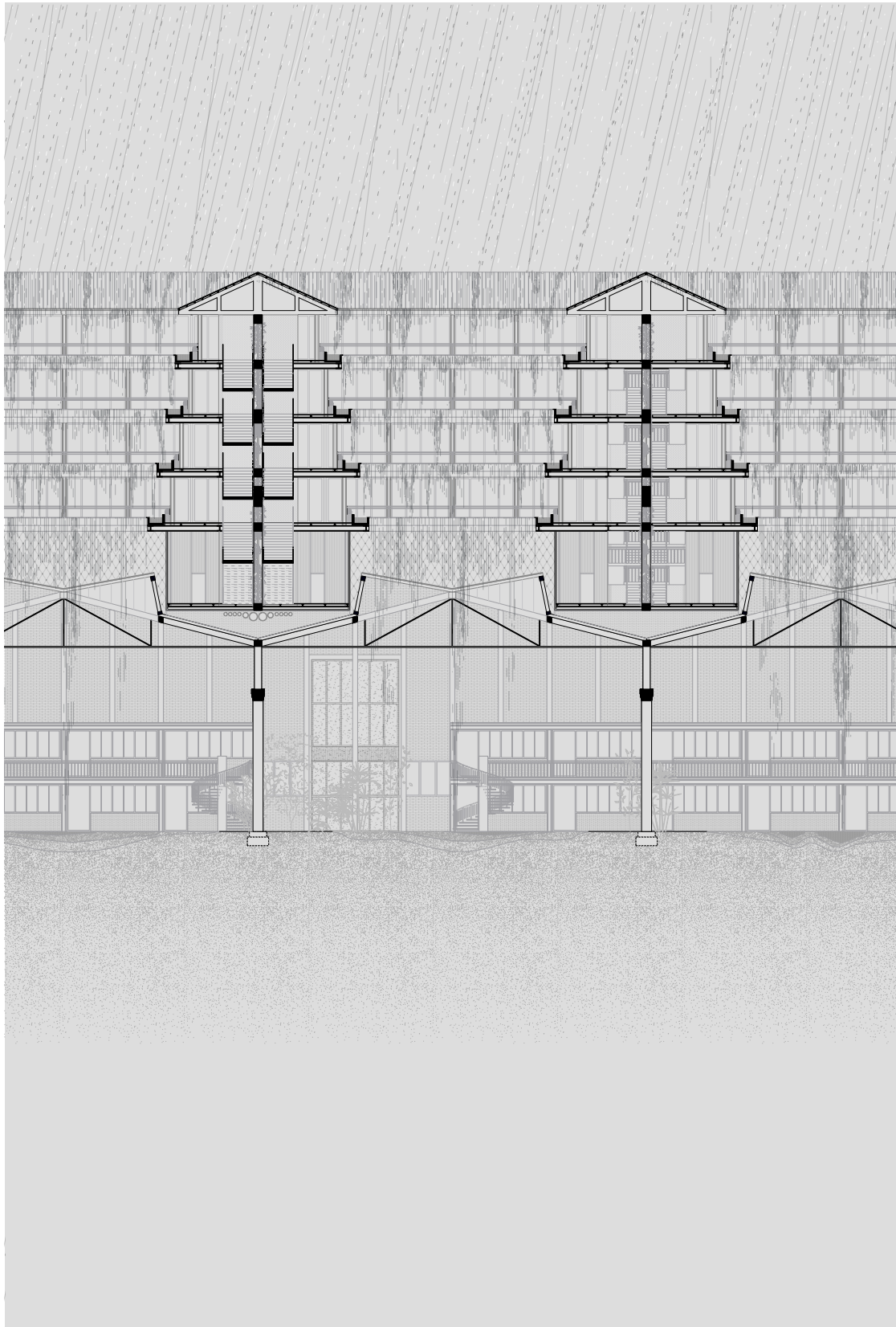




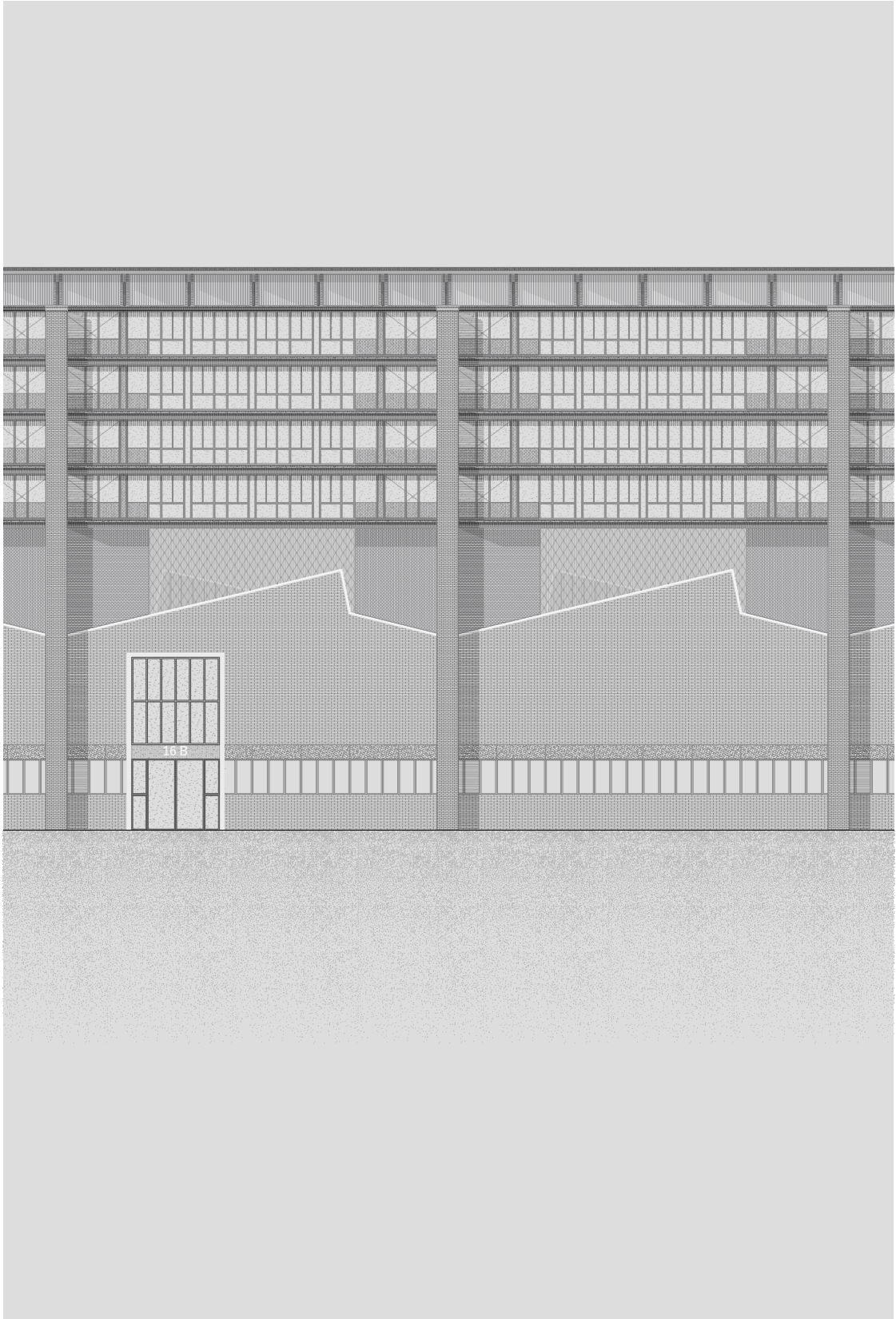




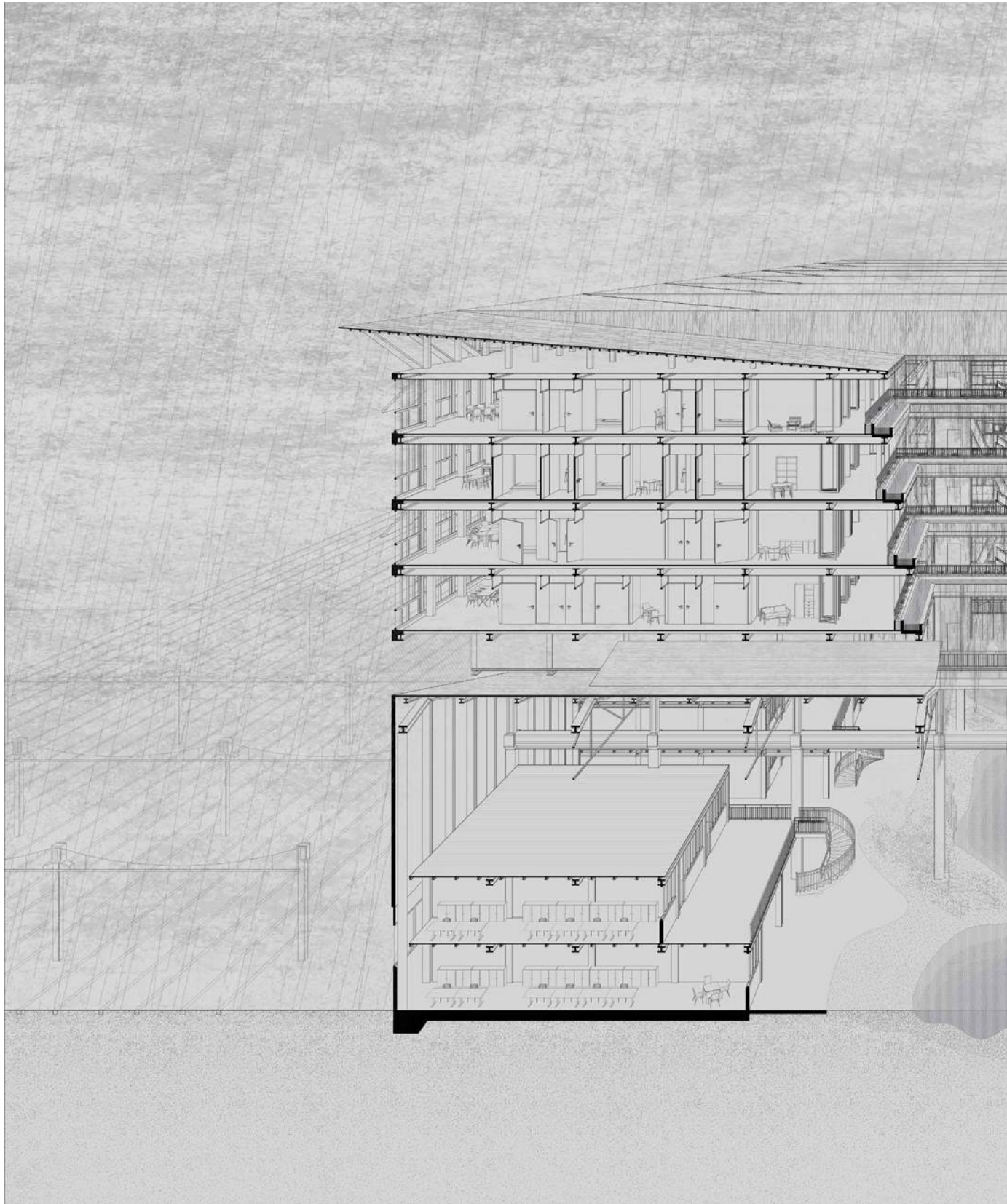
tions



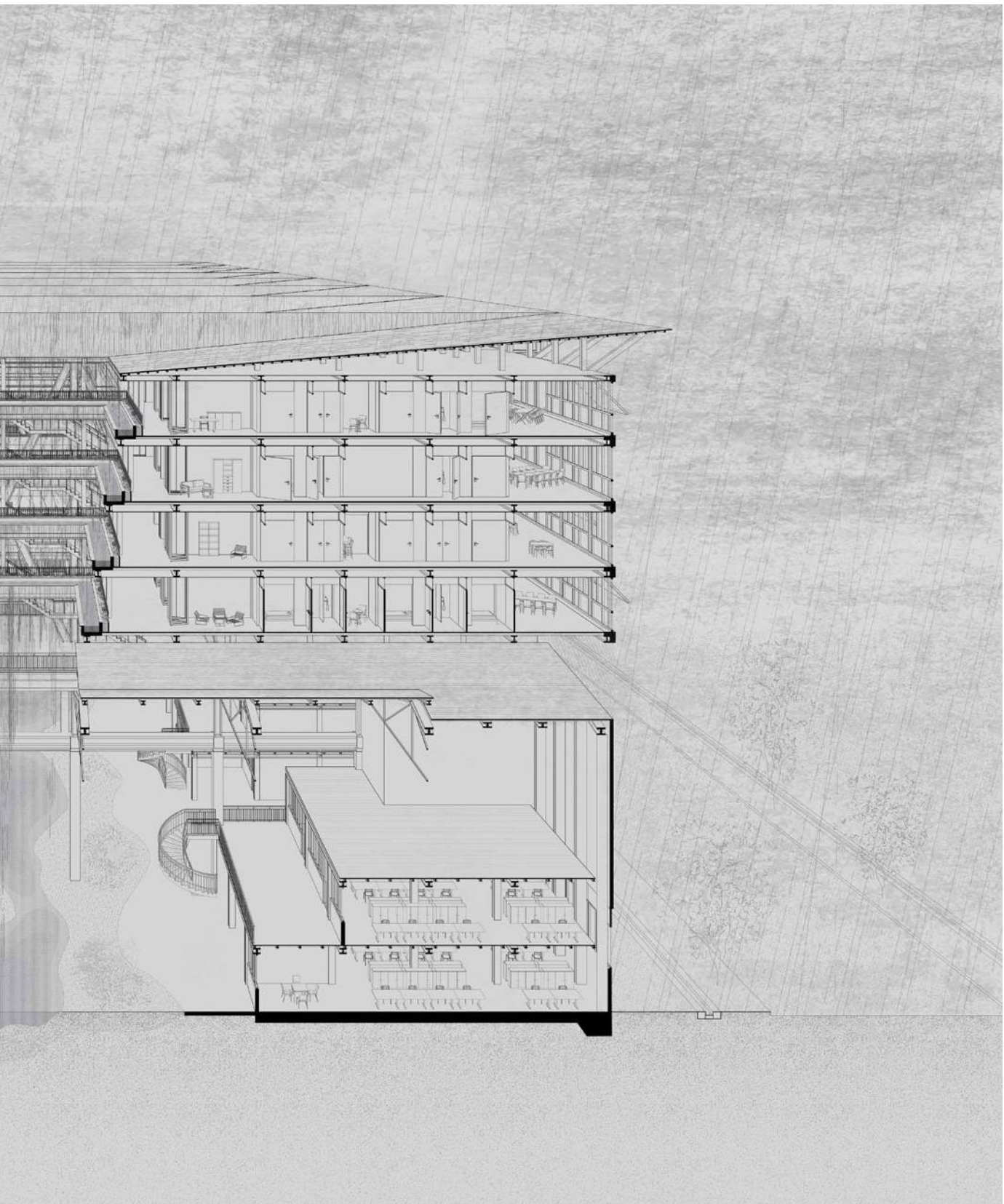
Close-Up Section



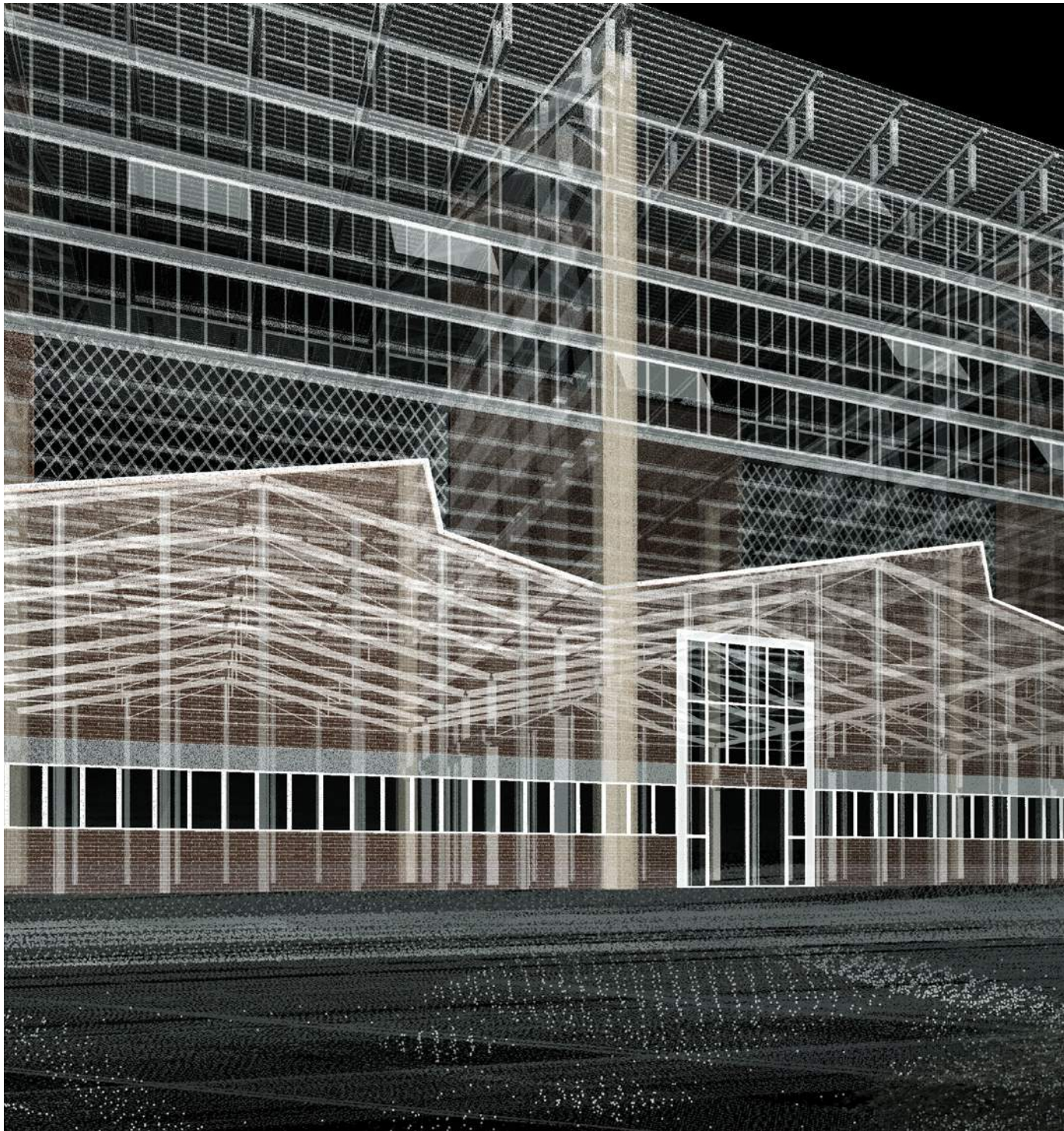
Close-Up Elevation



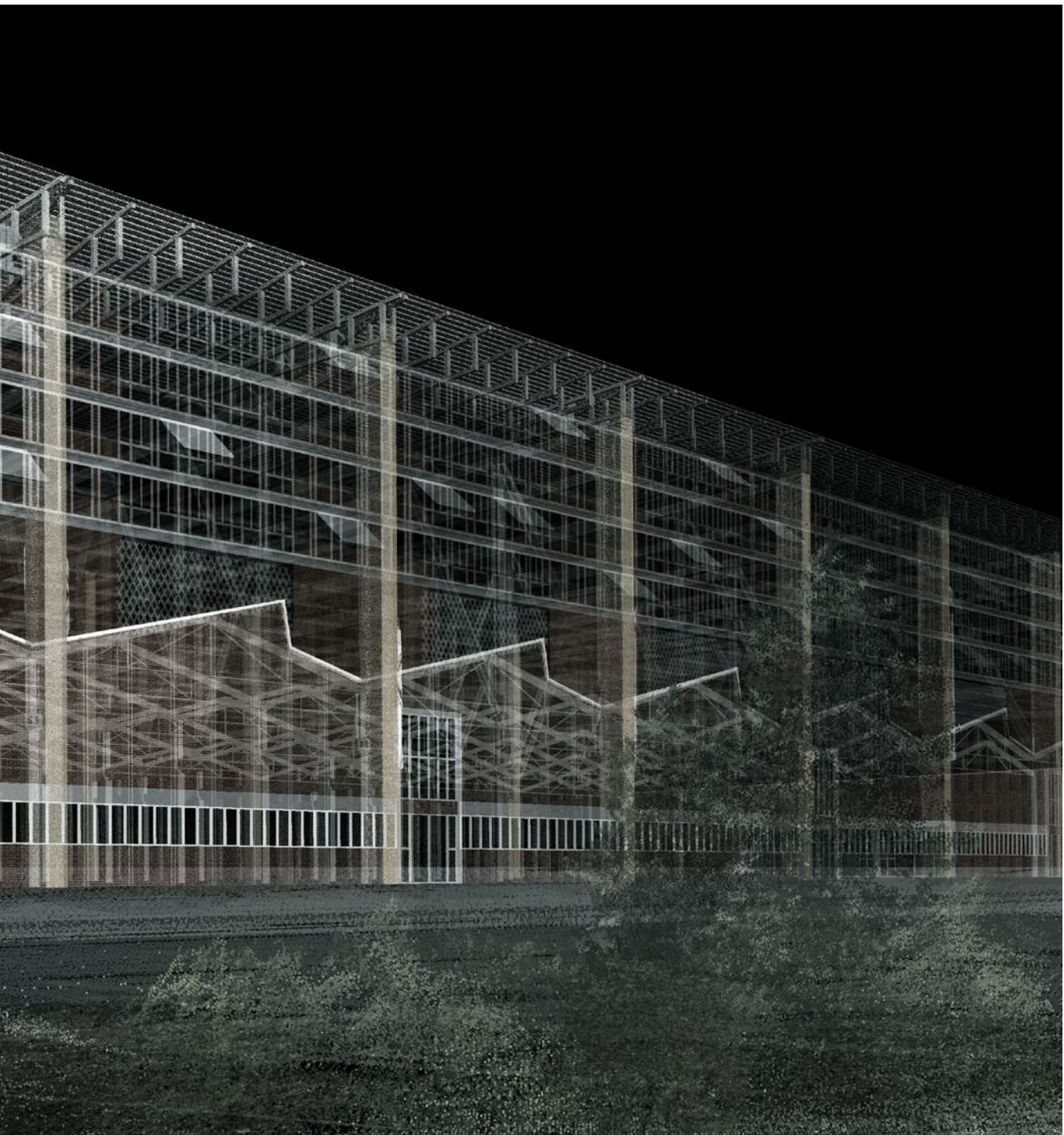
Section P



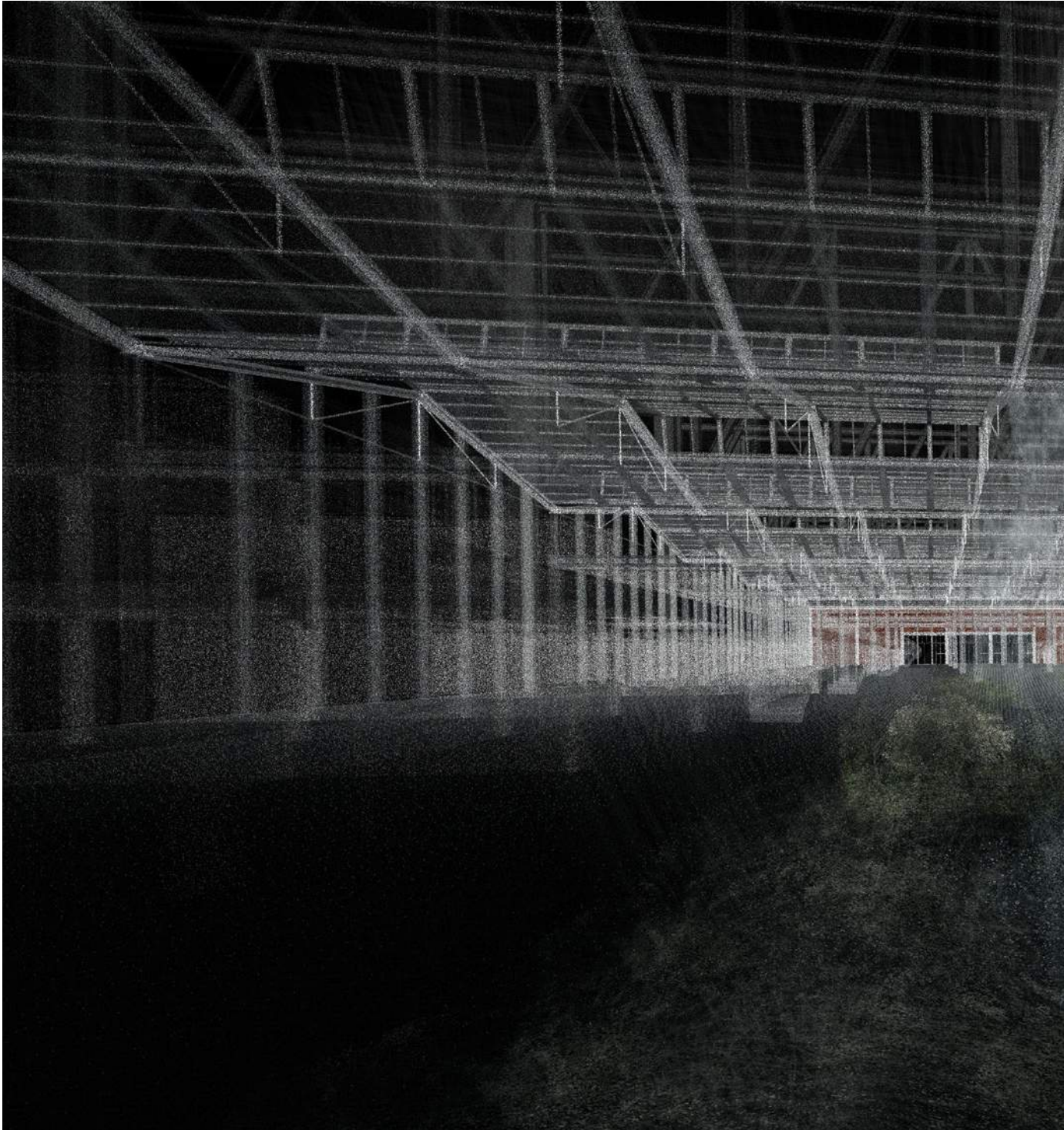
erspective



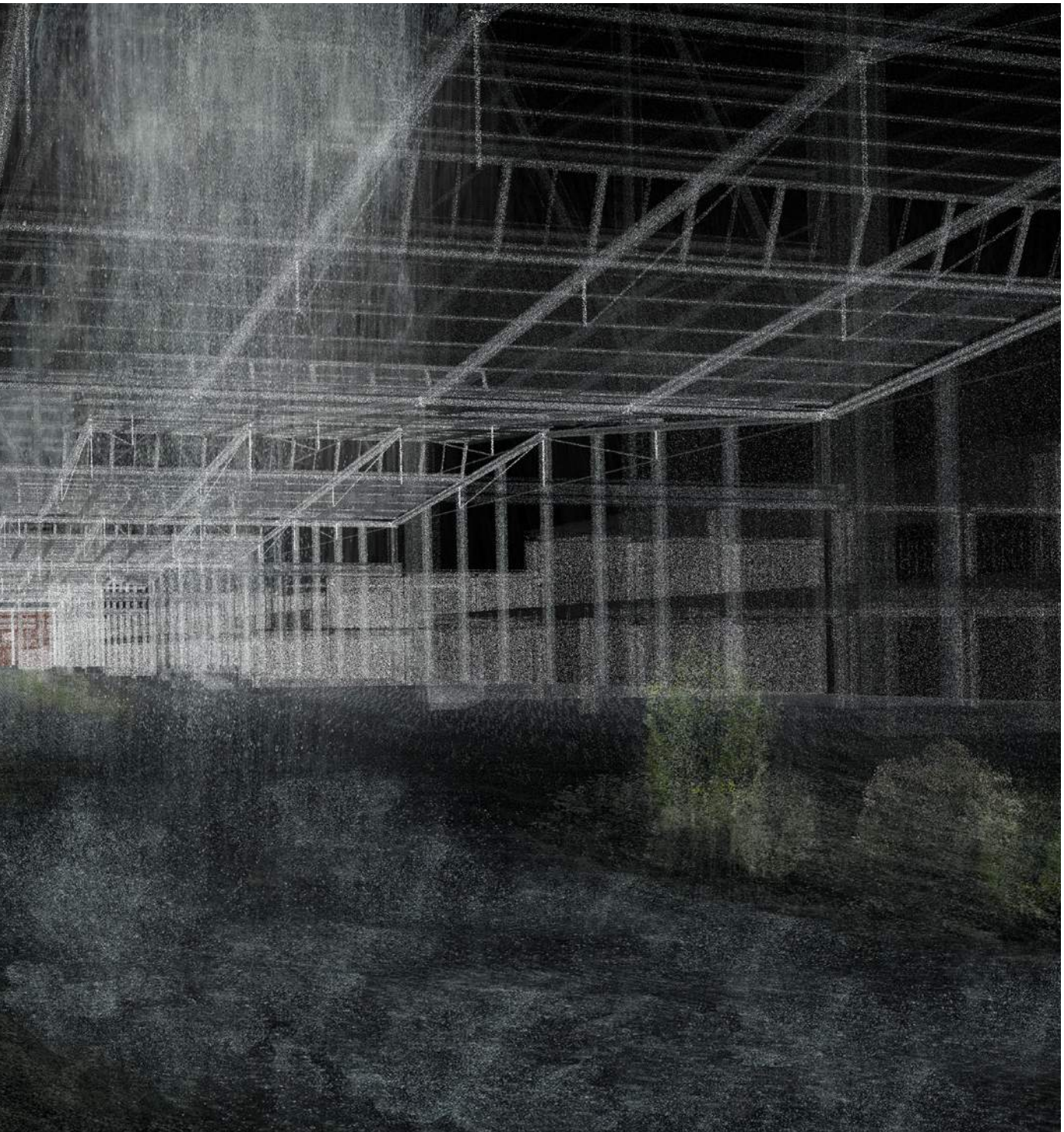
Façade, Point Clo



Cloud Visualization



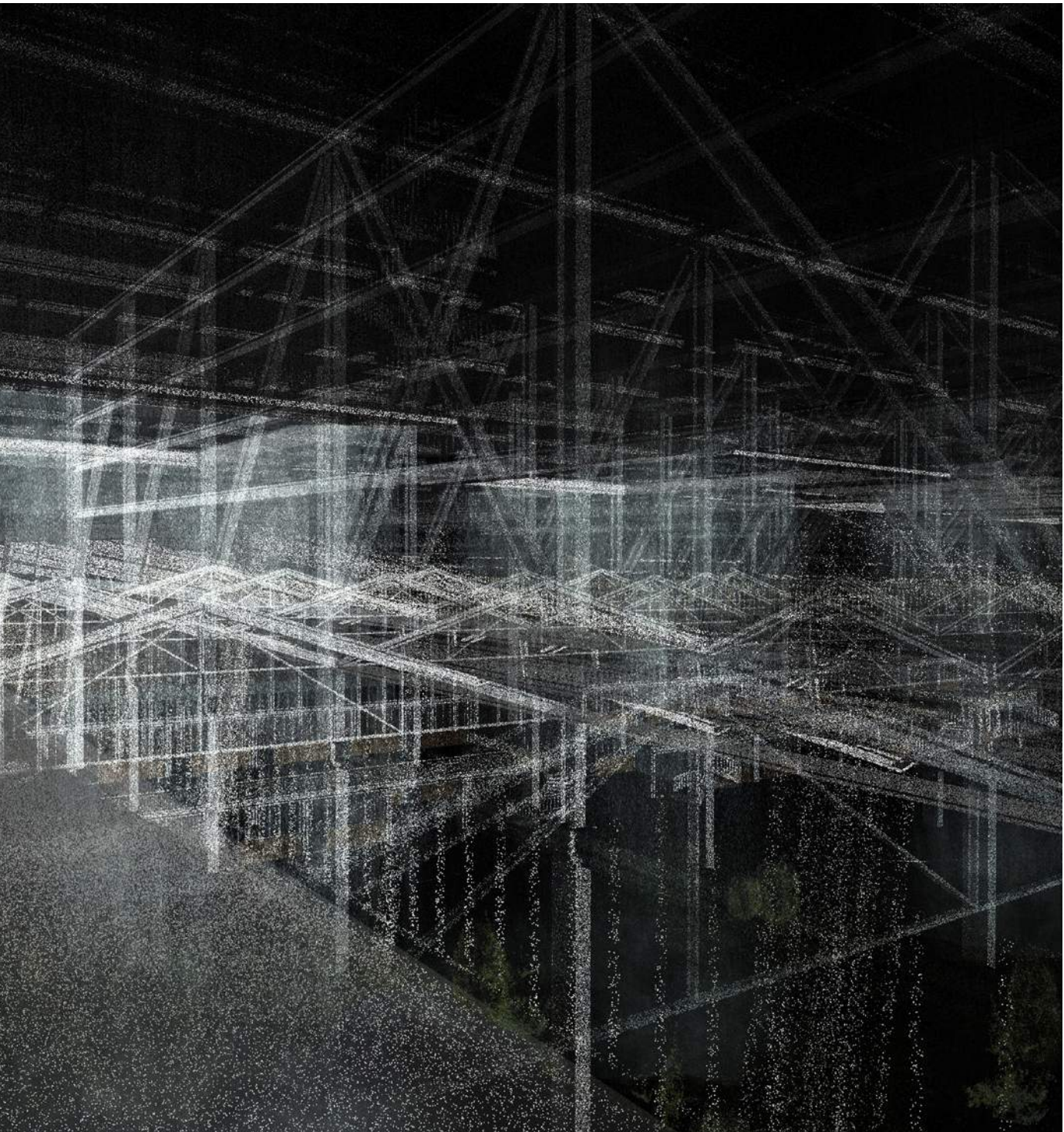
Hall , Point Cloud



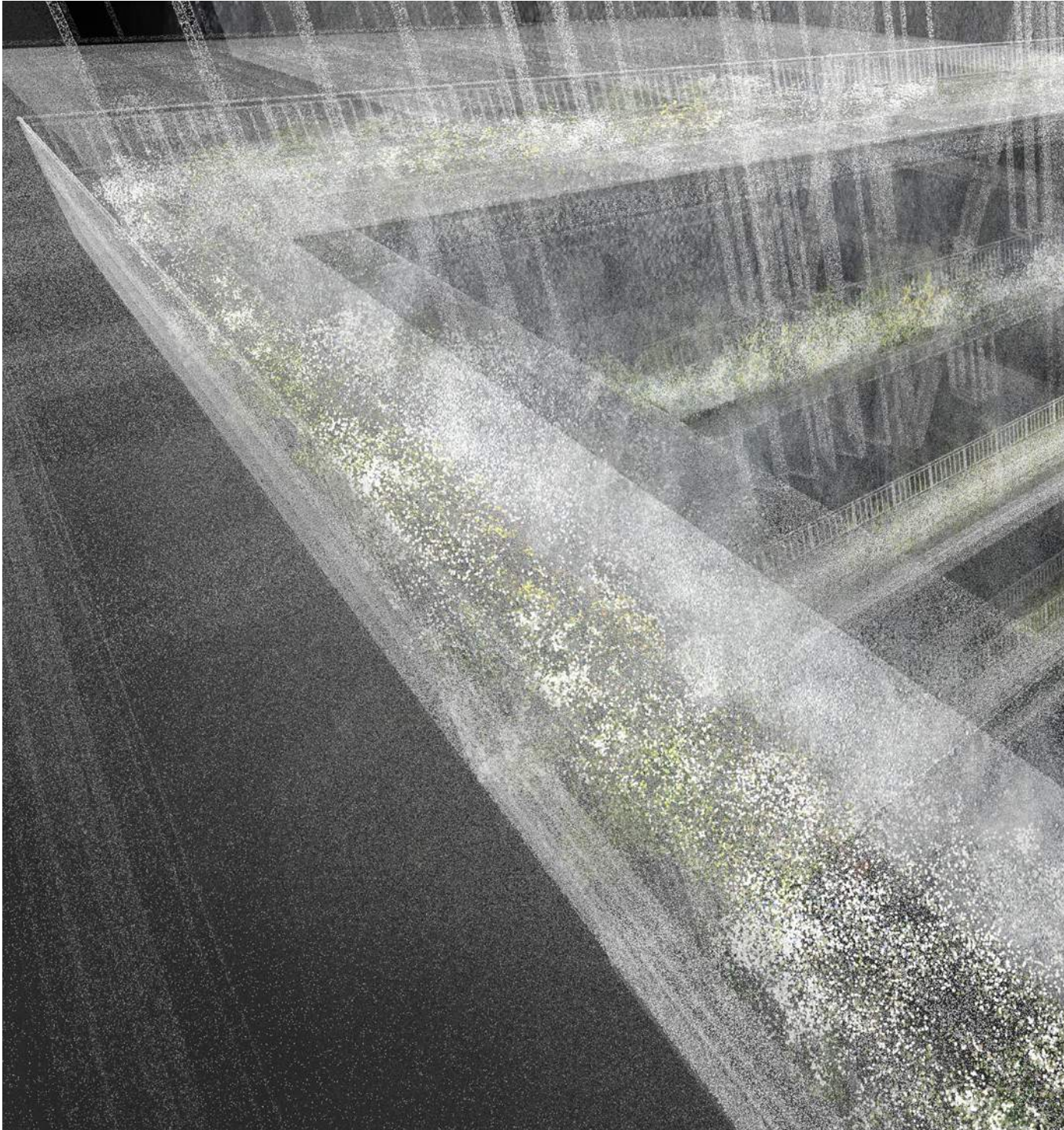
and Visualization



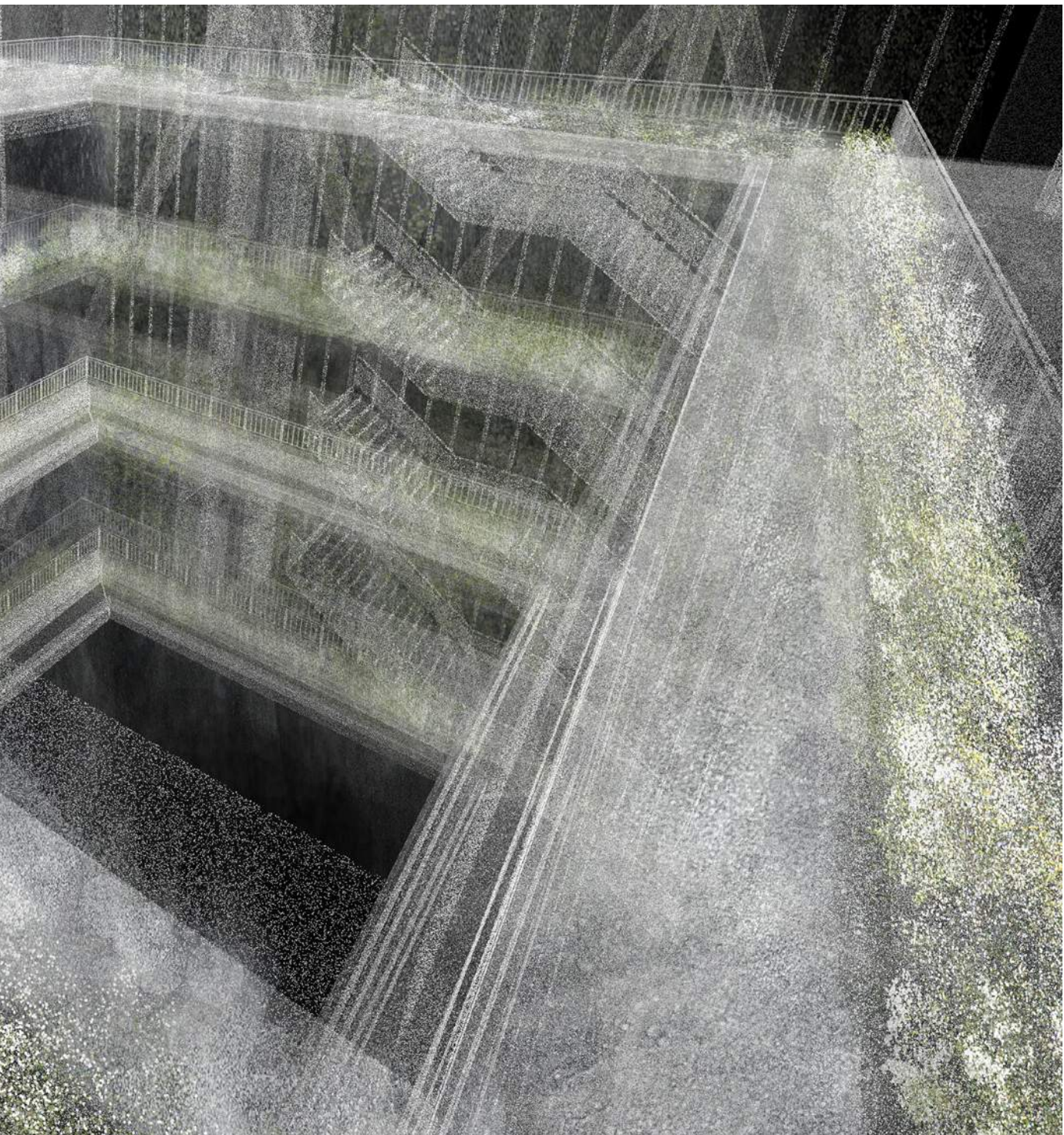
Mezzanine , Point C



Cloud Visualization



Courtyard / Impluvium, R



Point Cloud Visualization

APPENDIX

S. 65-85

HS22

BUILDING MATERIAL AND BUILDING ECONOMY

IN RESOURCE-SAVING TIMES

At the beginning of the 9th century, particularly massive buildings made of stone served as cornerstones of fortification. In the following period, this was adapted and translated into strong outer walls of many houses. Simple commoners lived for long periods in buildings constructed of wood, some of which were even described as transportable. Complete stone buildings were considered noble and were reserved for the upper class of city dwellers.

Whether wood or stone, materials were always chosen to be locally available and to be worked by craftsmen from the surrounding area. To confirm this thesis, I have looked at three guild houses that are well documented in terms of architectural history. It becomes apparent that many materials originated from the surrounding area and could be transported by ship. Often building materials from the previous building were reused or passed on.

Furthermore, the material was used economically, not only for static reasons, and was tapered towards the top floor, which is very well visible in the section of the façade.

This way of building, with local materials and efficient methods, is important in our resource-saving times.

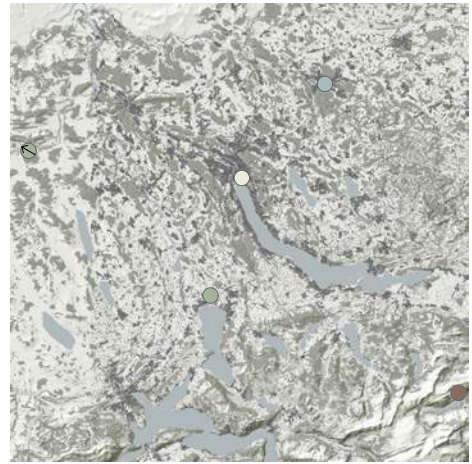


Building Materials and Occurrence, Videostill, Pointcloud



Zunfthaus zur Saffran
1719 - 1723
Schnitt 1:200

- Fundamente: Kalkstein-Bruchstein aus Glarus
- Fassade: Sandstein zum Teil Wiederverwendung vom ehemaligen "Haus zur Saffran"
- Dachziegel: Cham oder Allschwil
- Öfen: Hergestellt in Winterthur
- Holz: Dachstuhl, Eichen Fundationsrost und Treppe aus Schweizer Holz



Karte 1:500000



Zunfthaus zur Zimmerleuten
1783
Schnitt 1:200

- Fassade: Sandstein von Bollingen und von Rorschach
- Dachziegel: Wiederverwendet vom ehemaligen Haus zum Rossberg und Haus zum Salem
- Täferung: Nussbaum aus der Schweiz
- Eichenholz: Aus der Schweiz, bearbeitet im Fraumünsteräbtriess

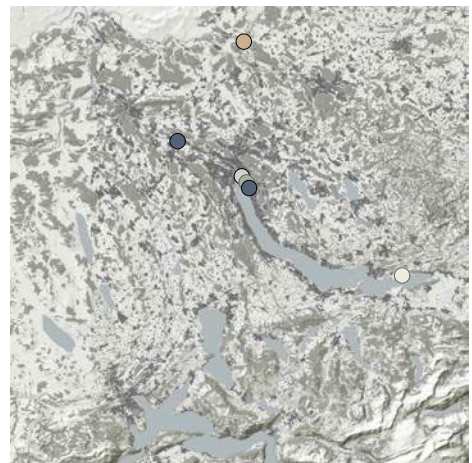


Karte 1:500000



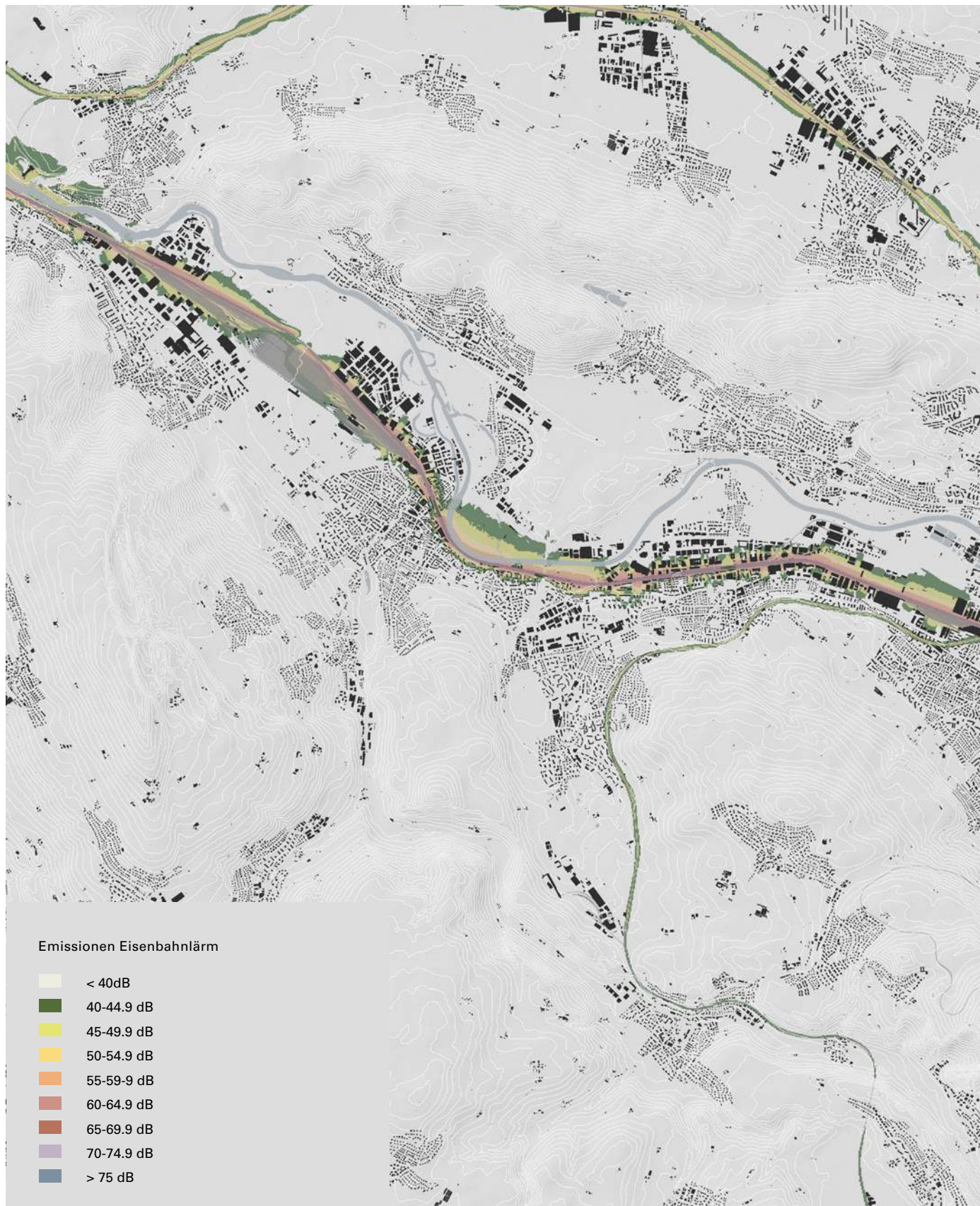
Zunfthaus zur Meisen
1757
Schnitt 1:200

- Fenster: Glasmalerei Wiederverwendung vom ehemaligen Haus zur Meisen
- Fassade: Sandstein aus Steinwerk bei Bollingen am Obersee
- Dachziegel: Wiederverwendet vom ehemaligen Schmiedschen Haus
- Ornamente: Sandstein aus Buchberg
- Eichenholz: Wiederverwendet vom ehemaligen Schmiedschen Haus, neues Eichenholz von Geroldswil an der Limmat

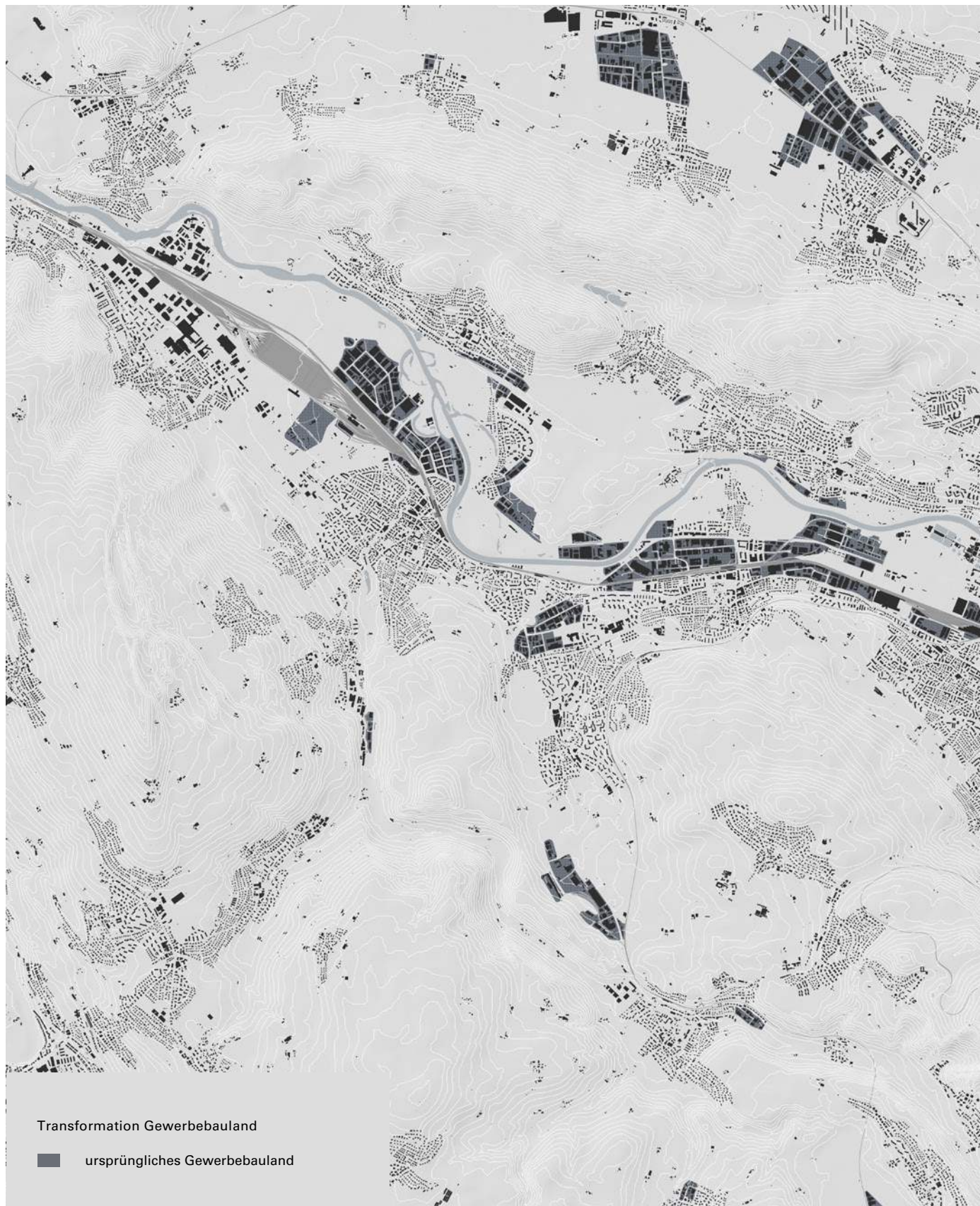


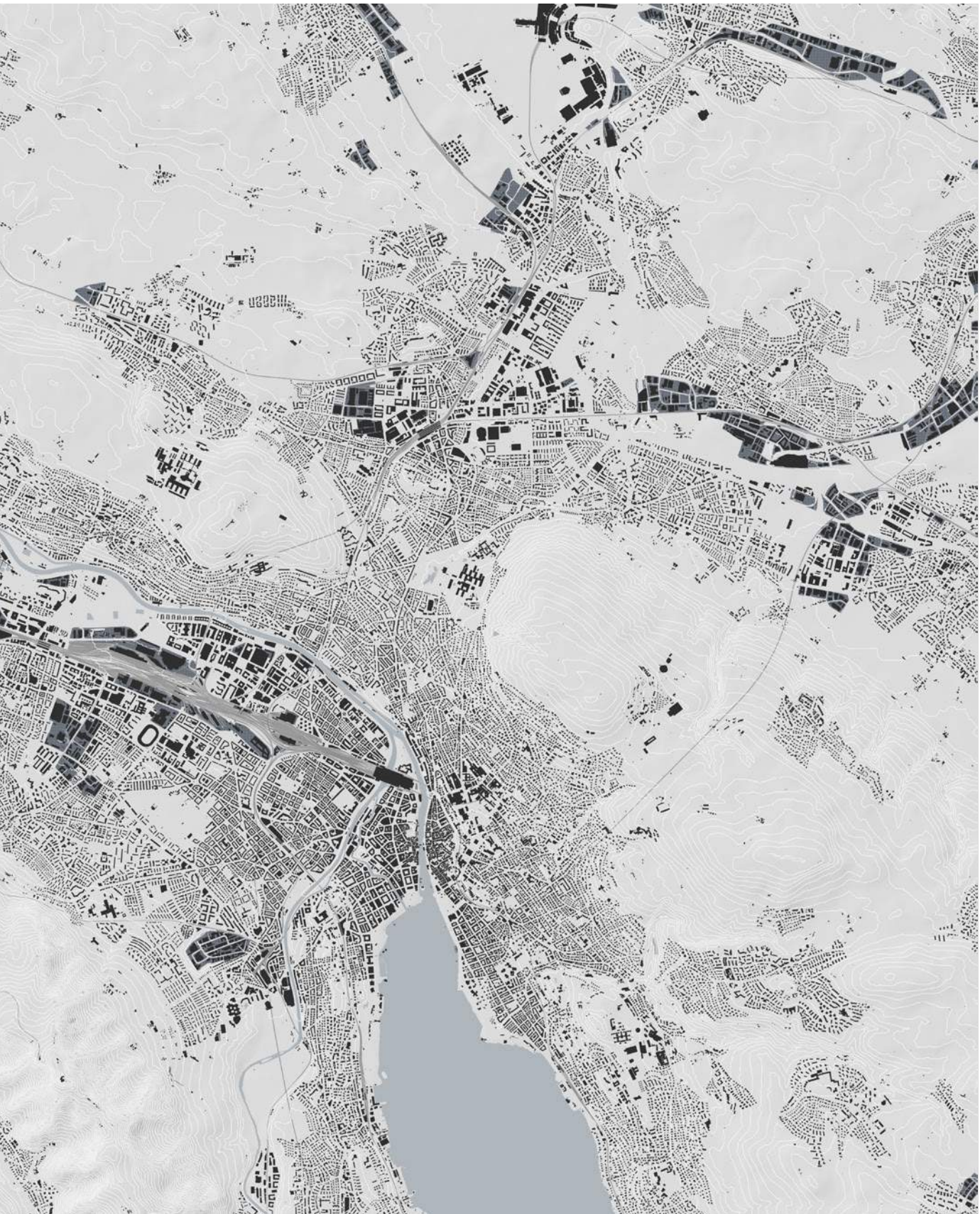
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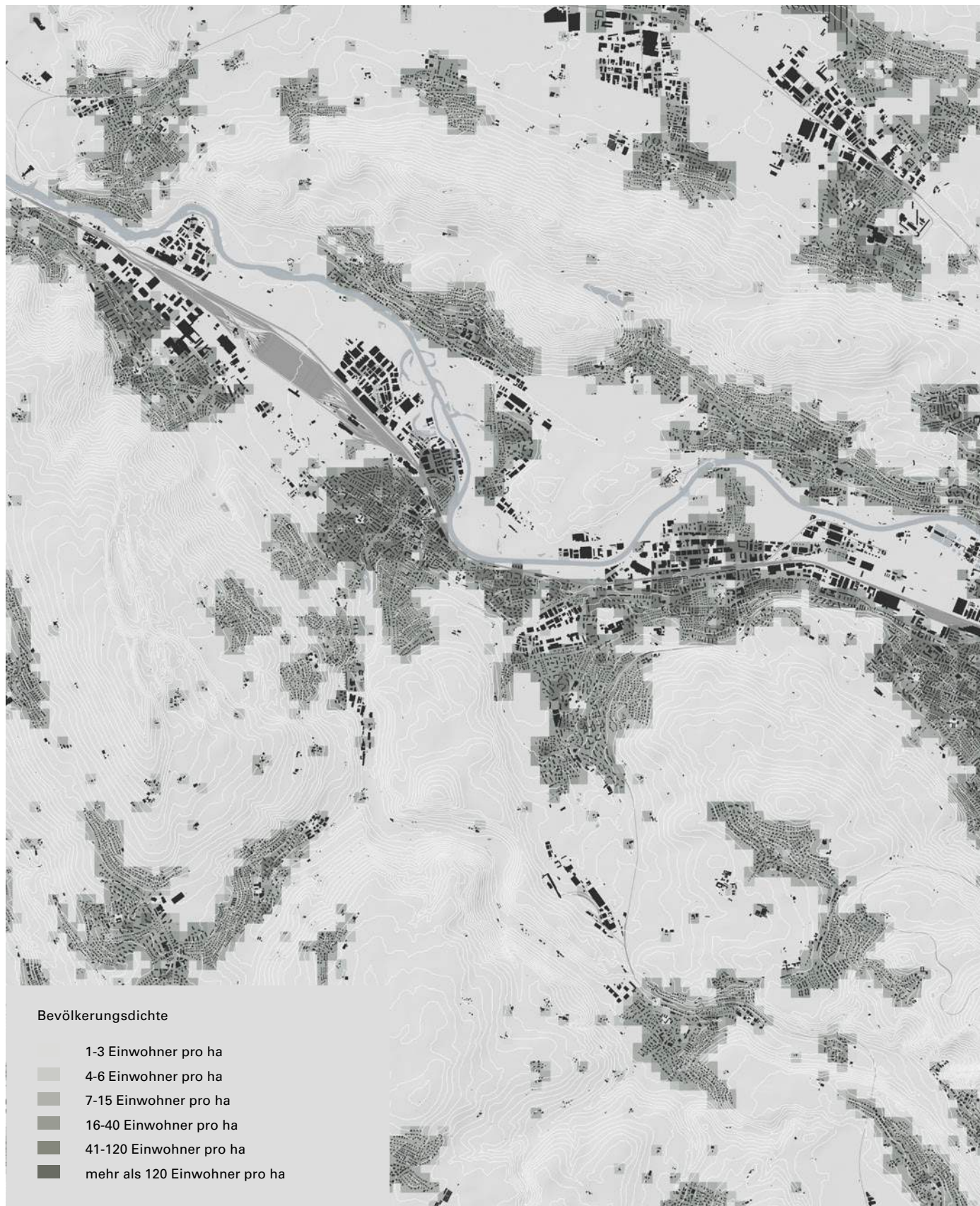
Building Materials and Occurrence, Analysis

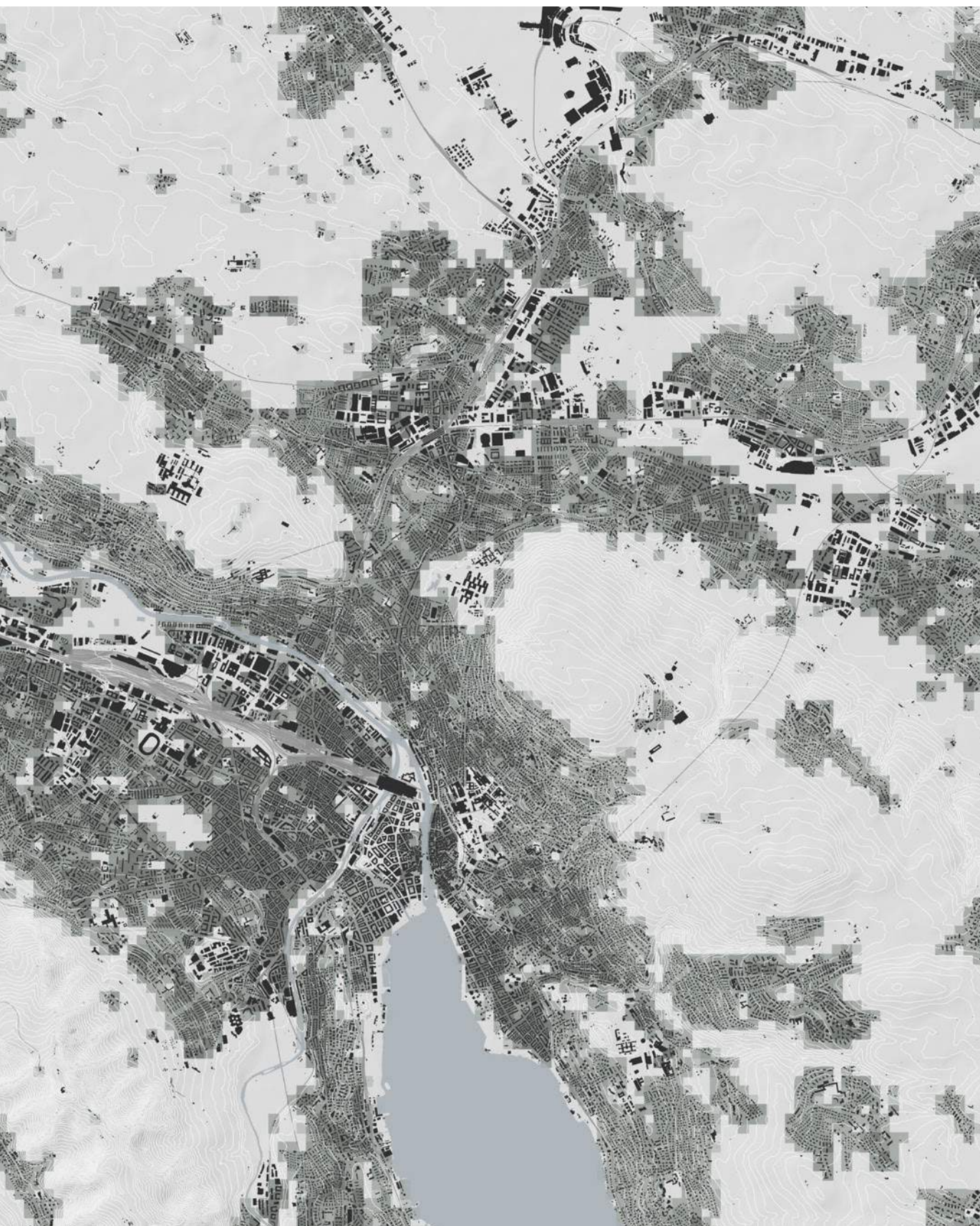




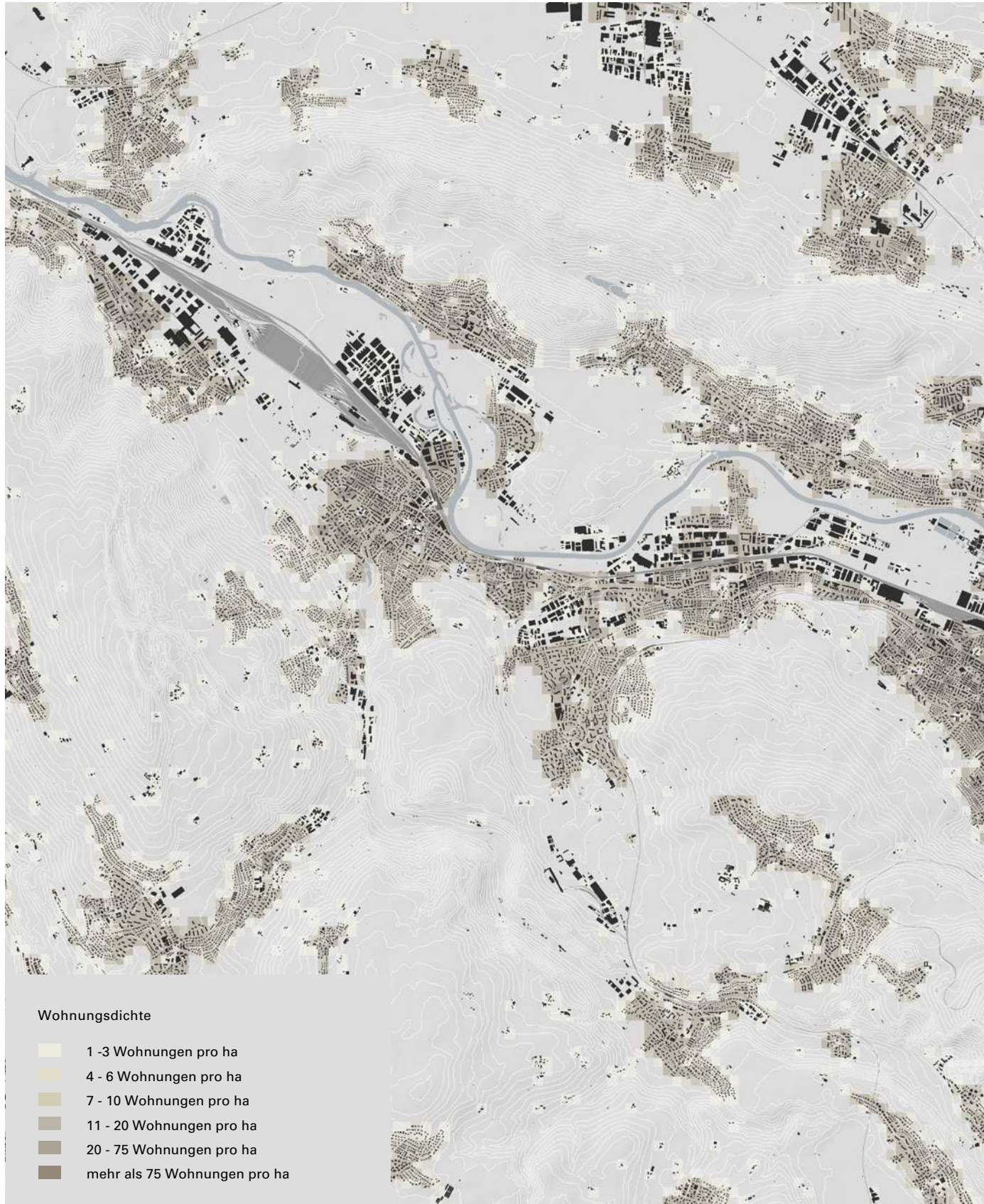


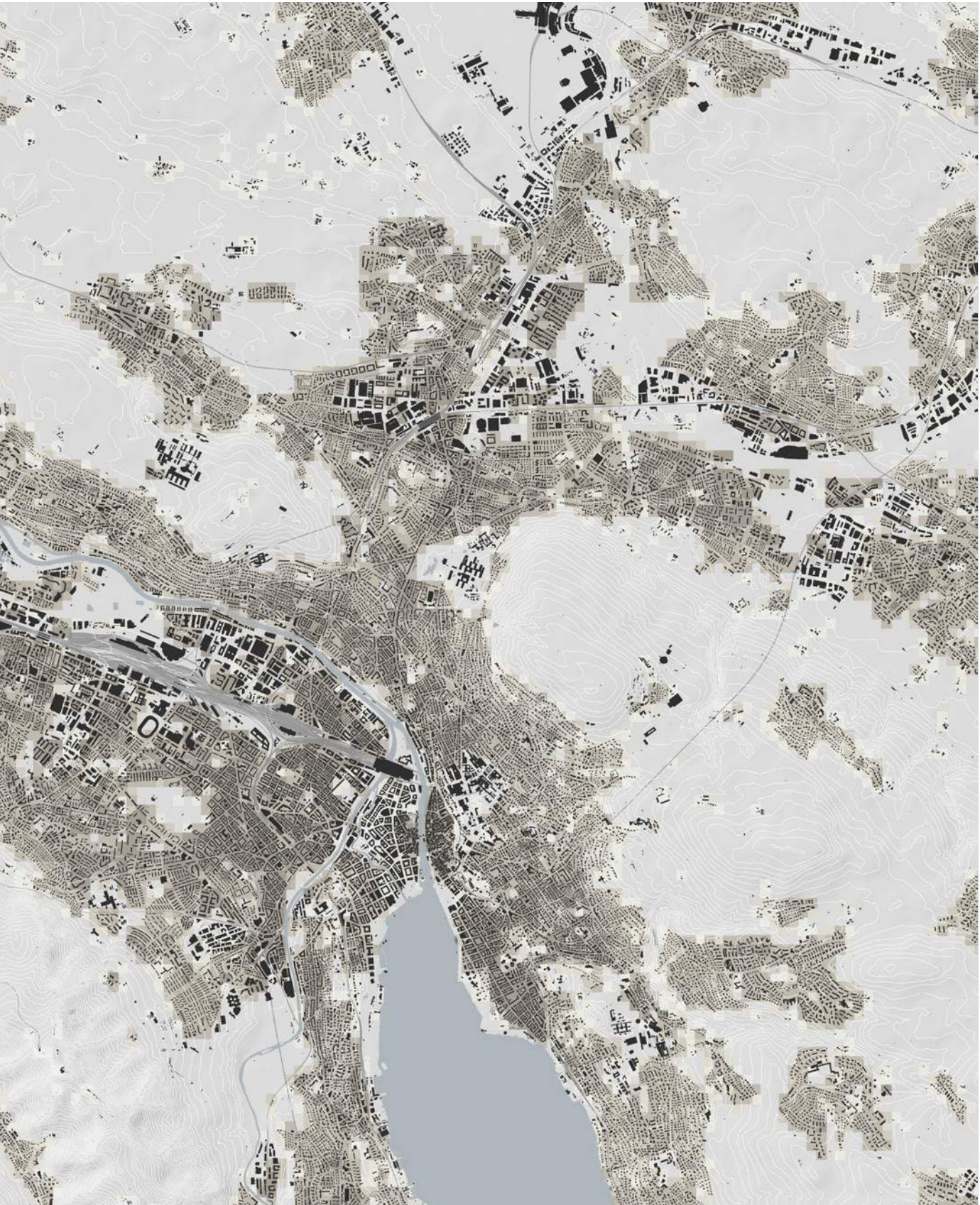






y Inhabitants

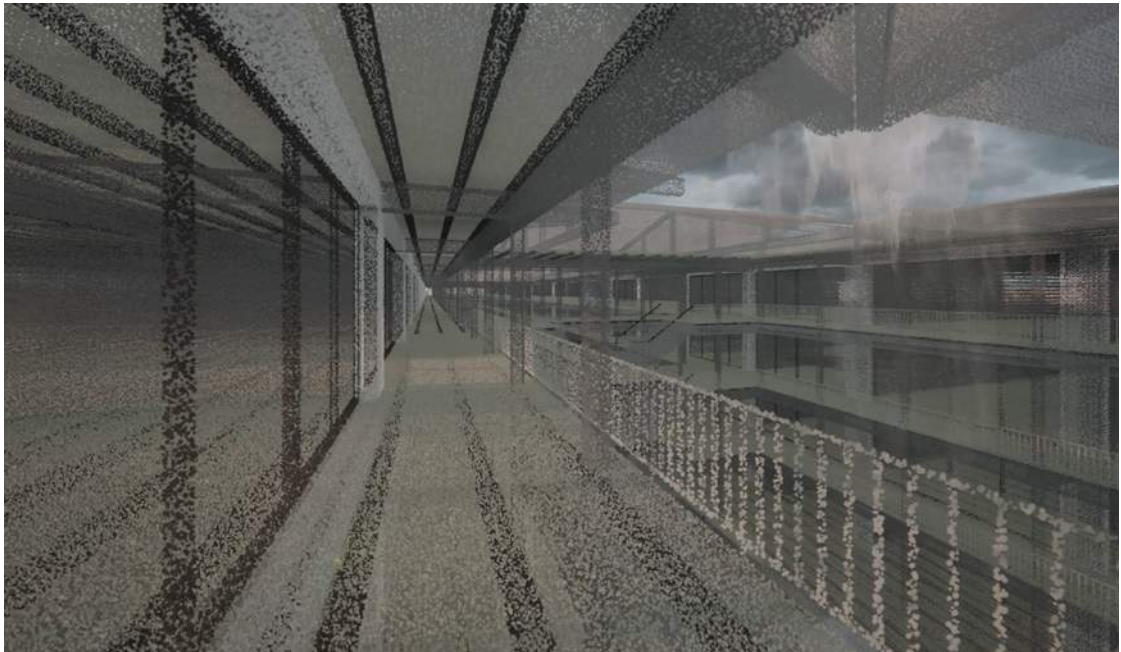




Apartments



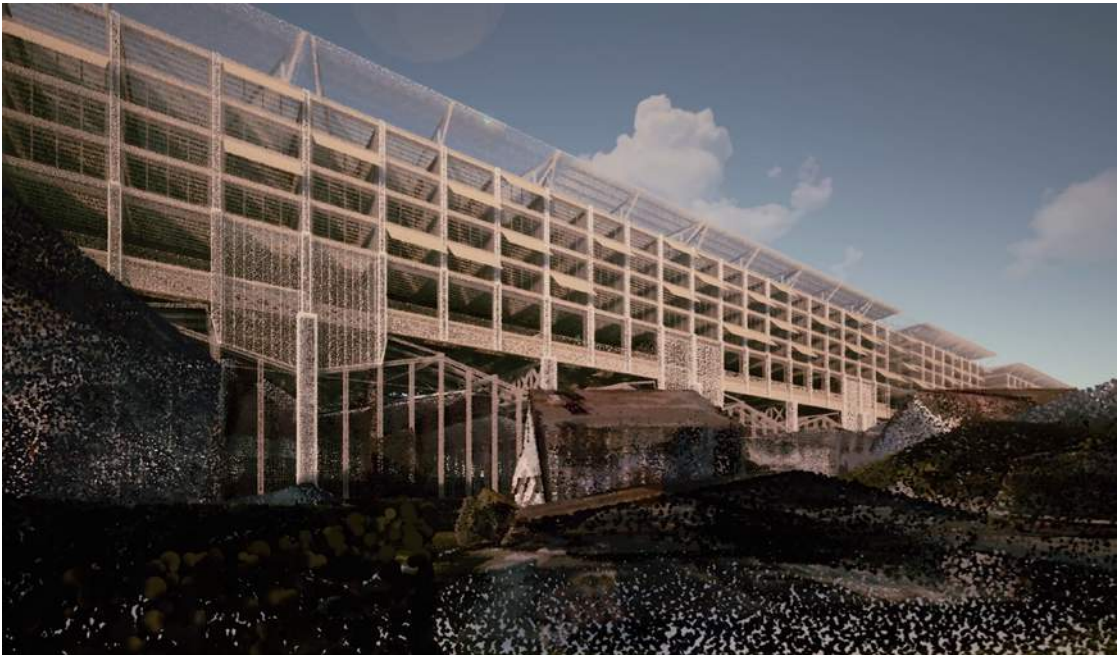
Courtyard with Impluvium, Videostill, Pointcloud



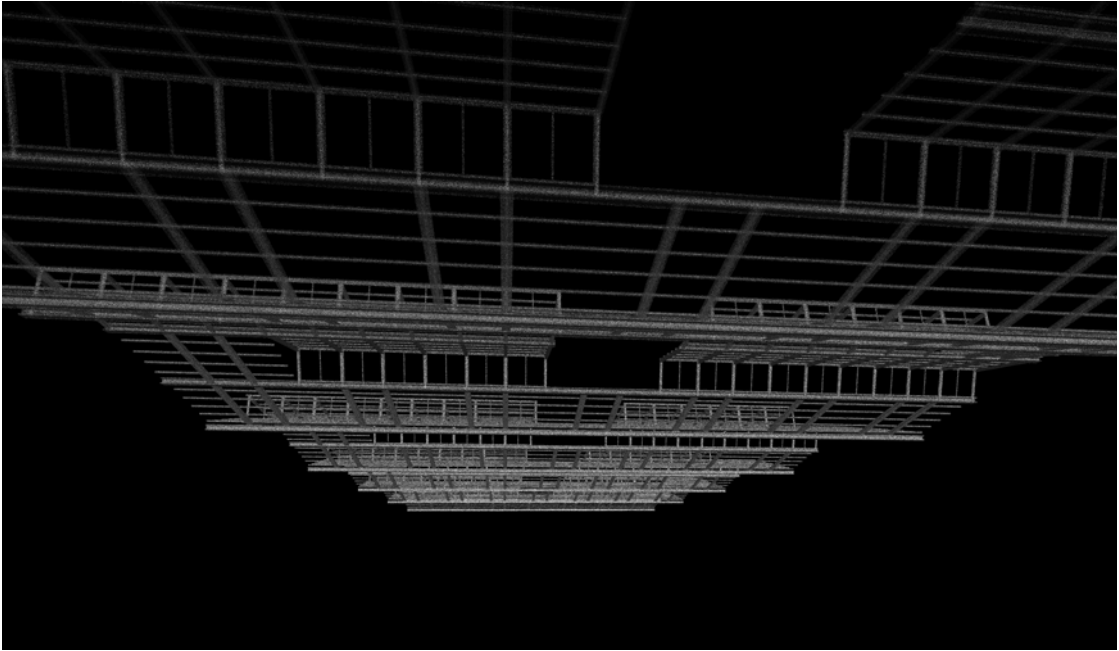
Pergola, Videostill, Pointcloud



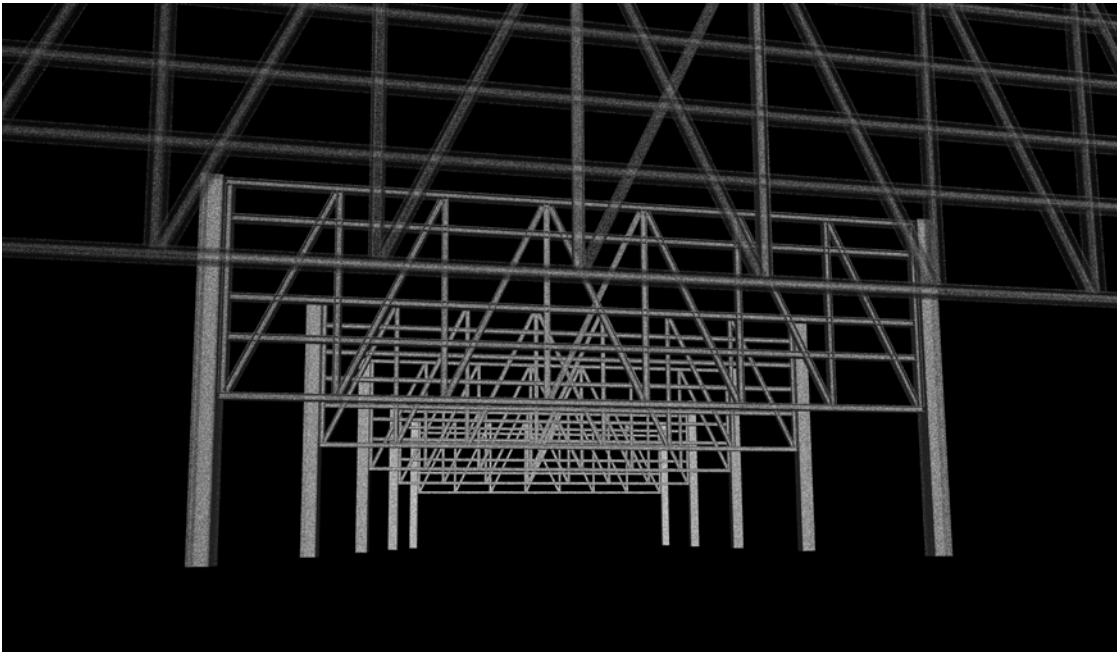
Mainstreet View, Videostill, Pointcloud



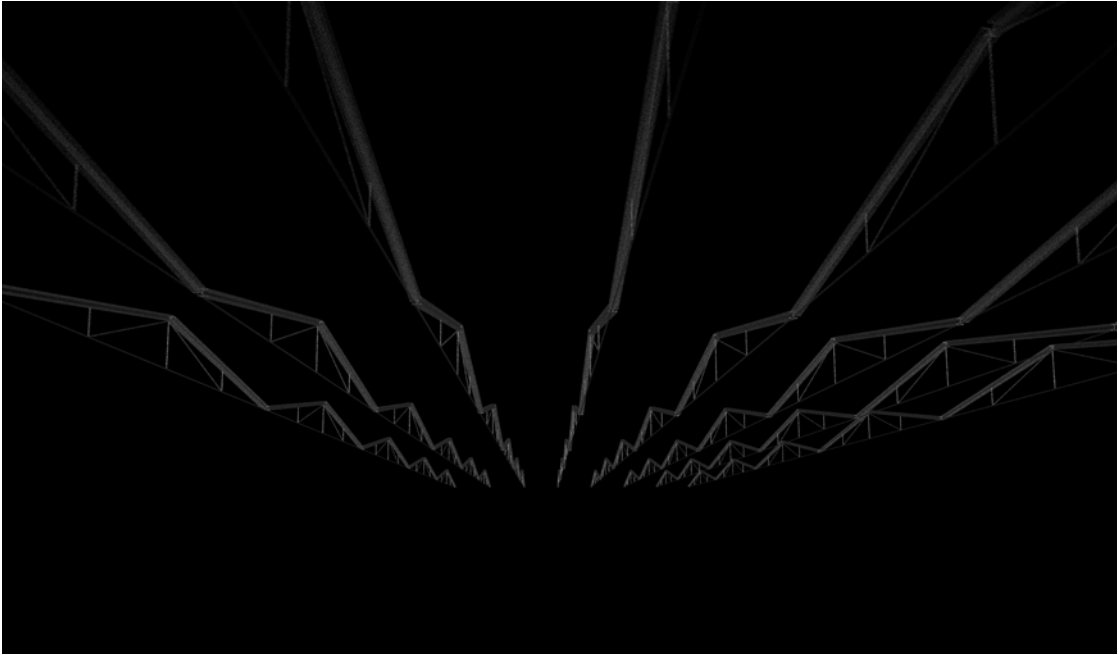
Front Facade, Videostill, Pointcloud



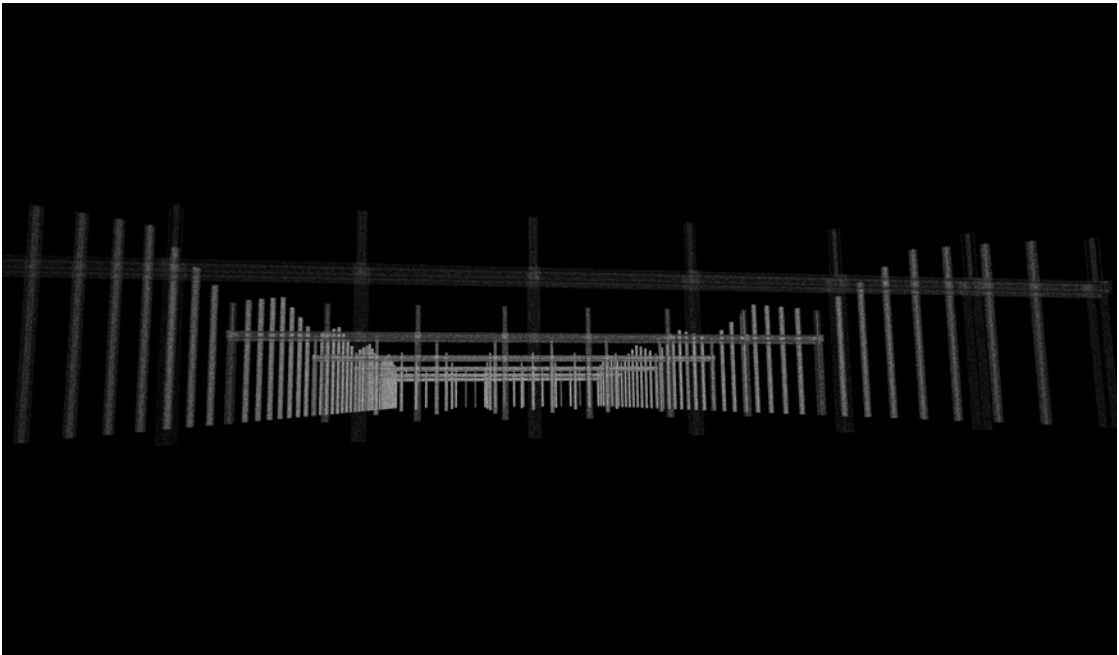
Roof Structure Hall, Point Cloud



Main Structure Addition, Point Cloud



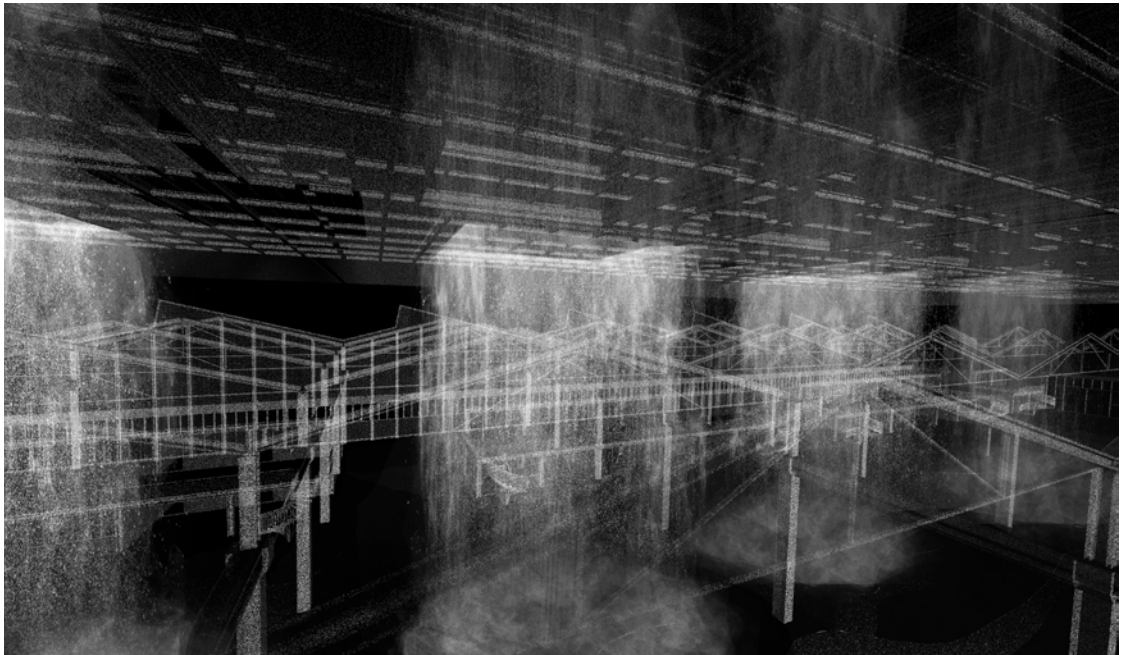
Trusses Hall, Point Cloud



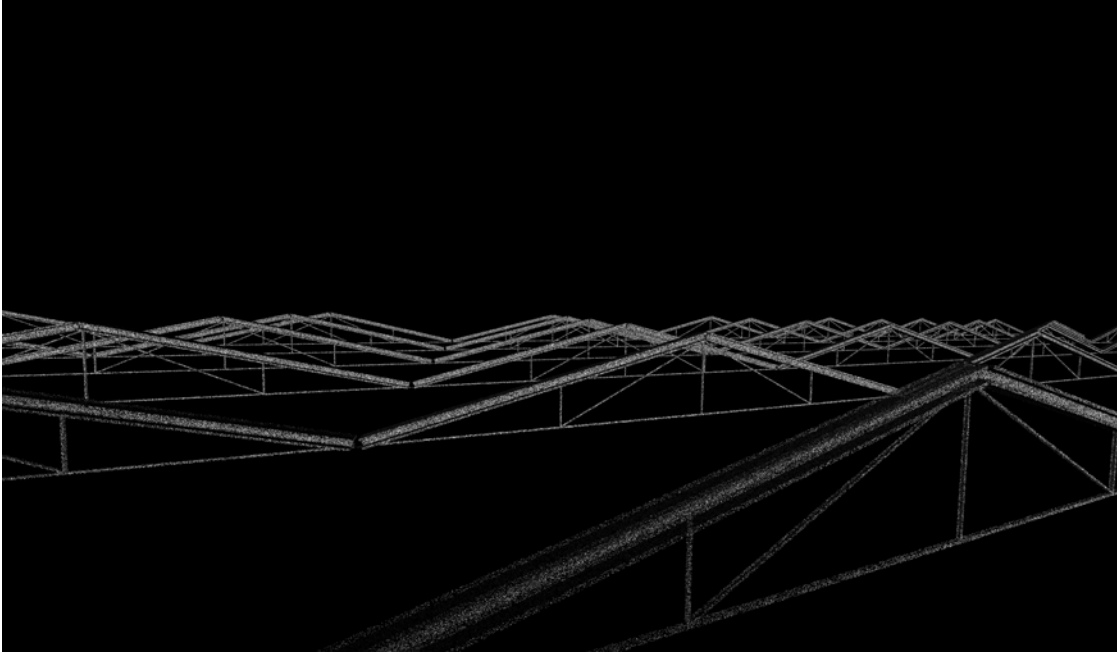
Hall Structure, Point Cloud



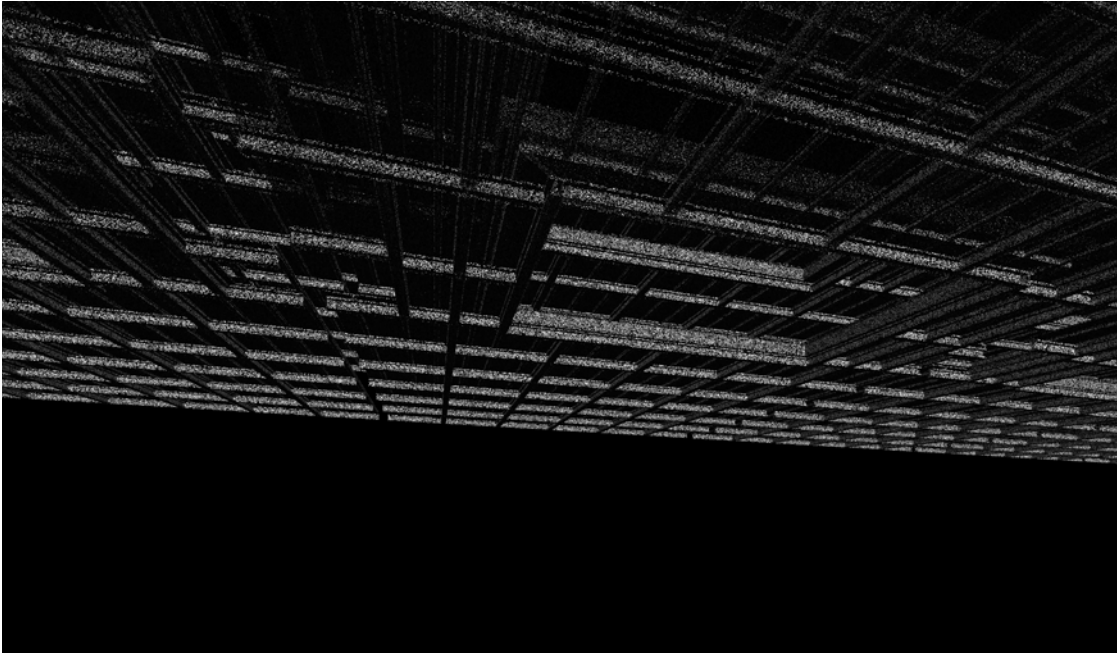
Ambient Occlusion Mezzanine Floor, Point Cloud



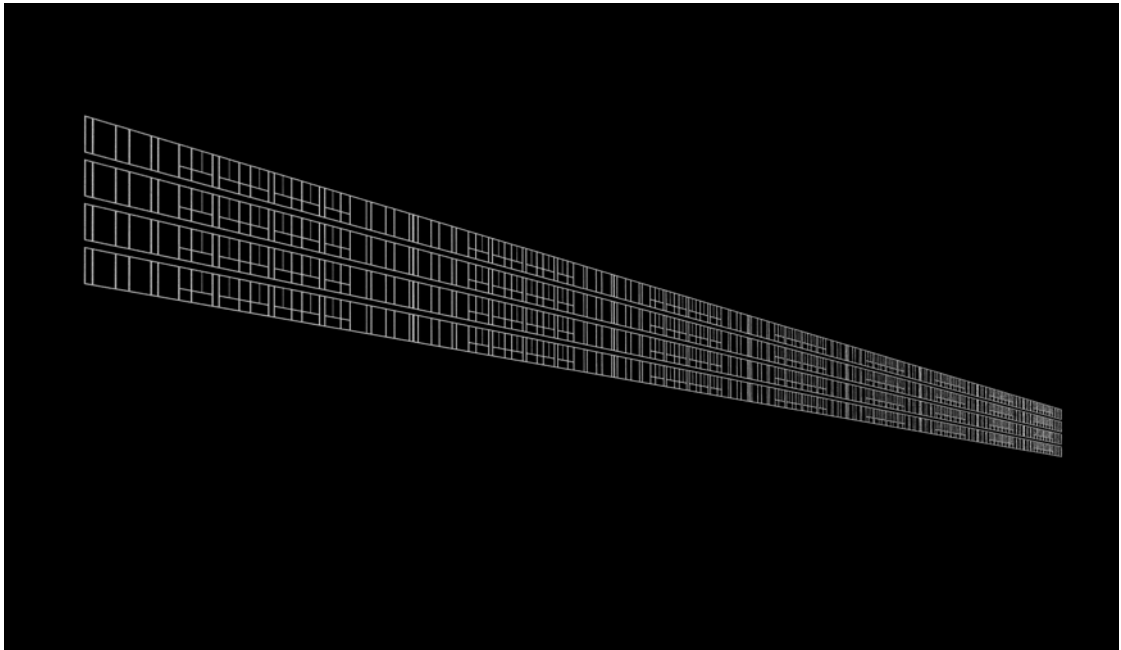
Progress Picture Mezzanine Floor, Point Cloud



Trusses Hall, Point Cloud



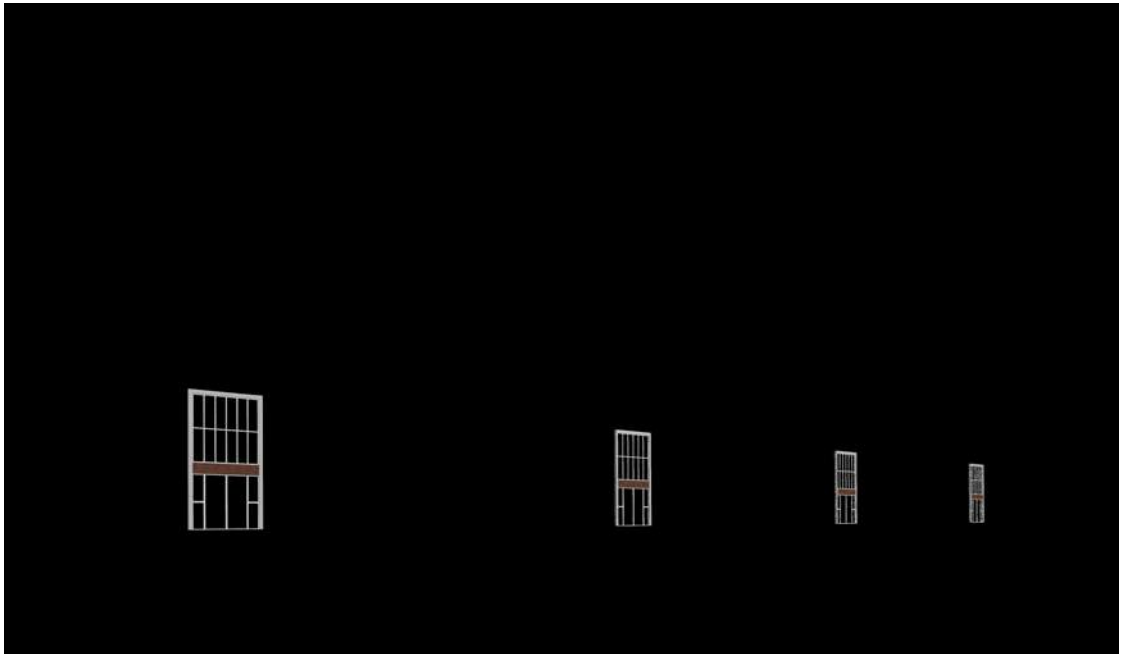
Floor Structure Build up, Point Cloud



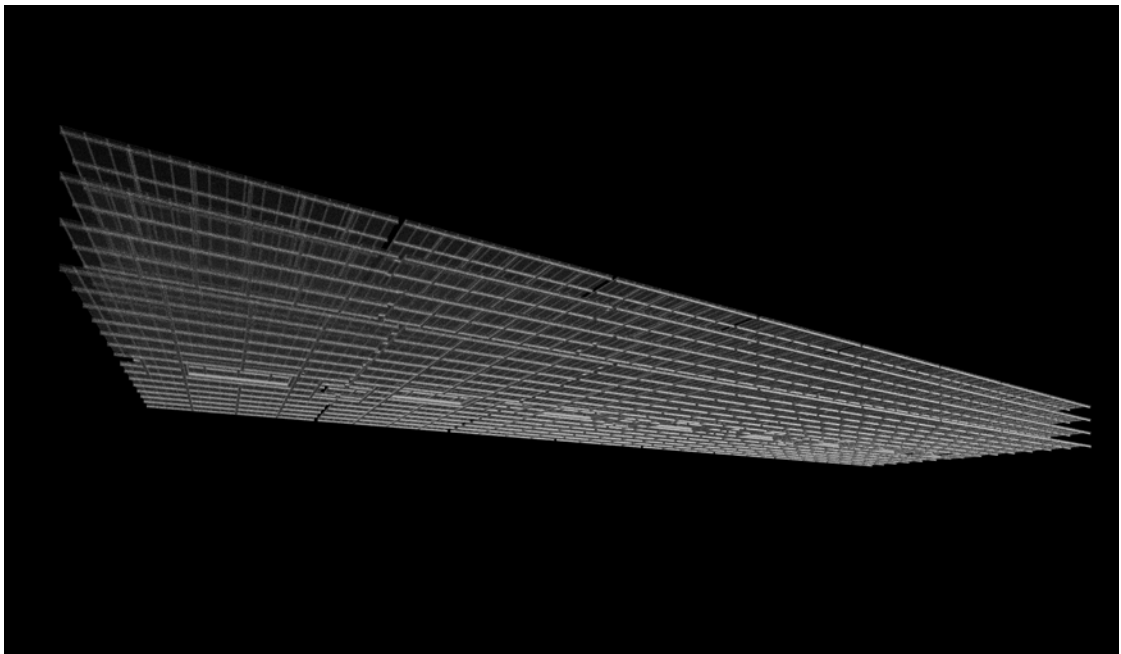
Windows N-S Façade, Point Cloud



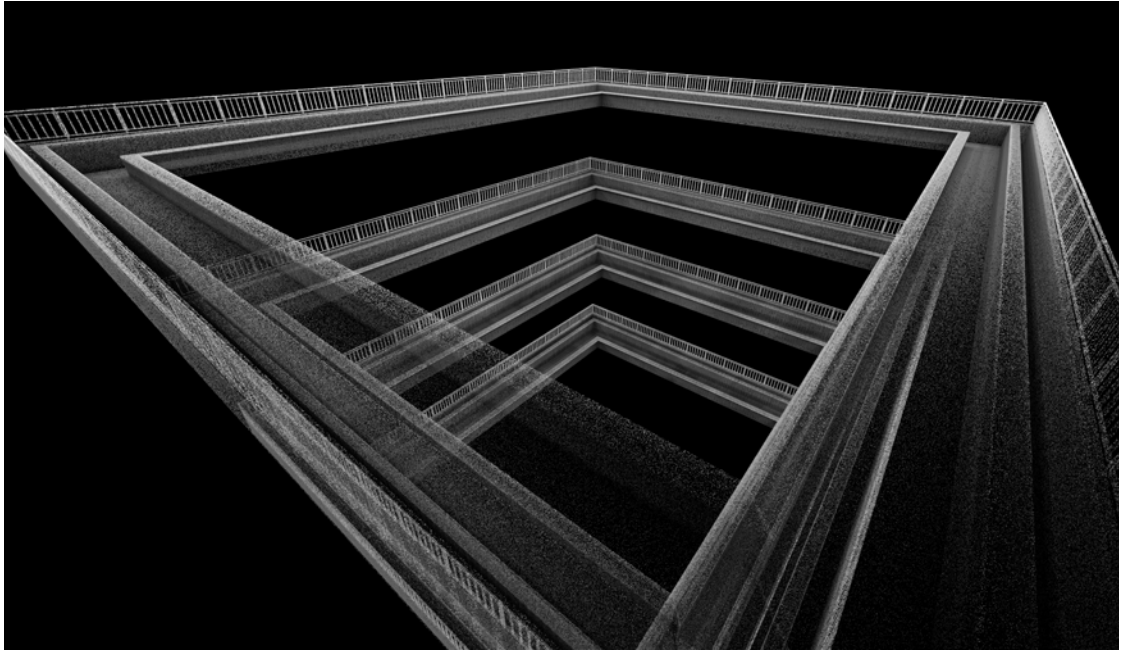
Façade Hall, Point Cloud



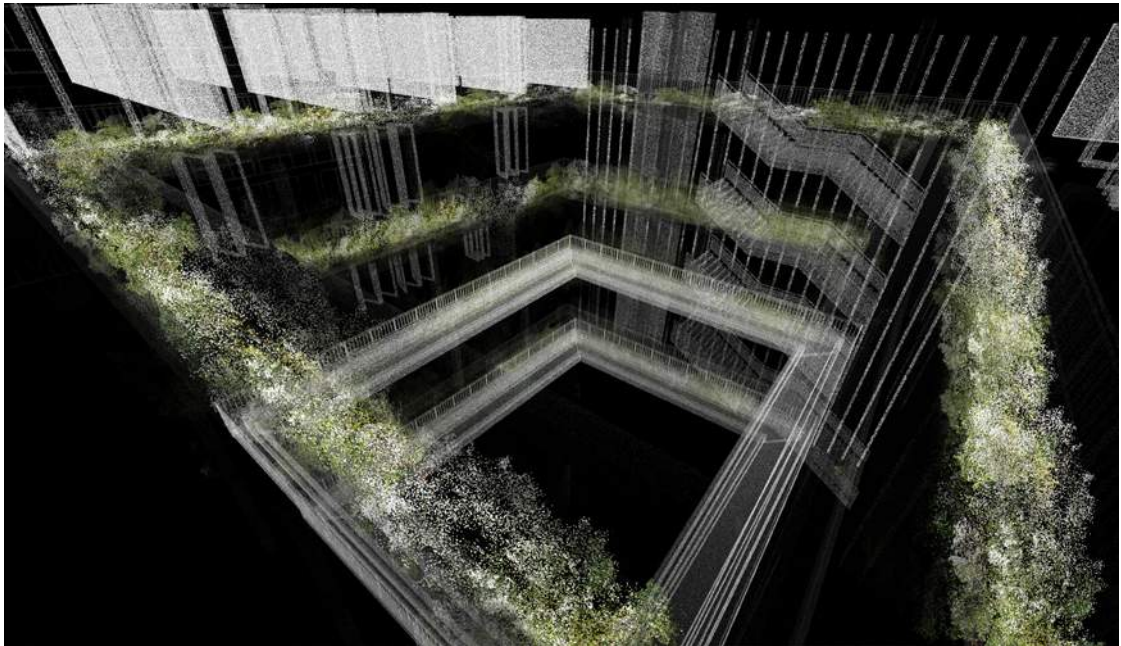
Portals, Point Cloud



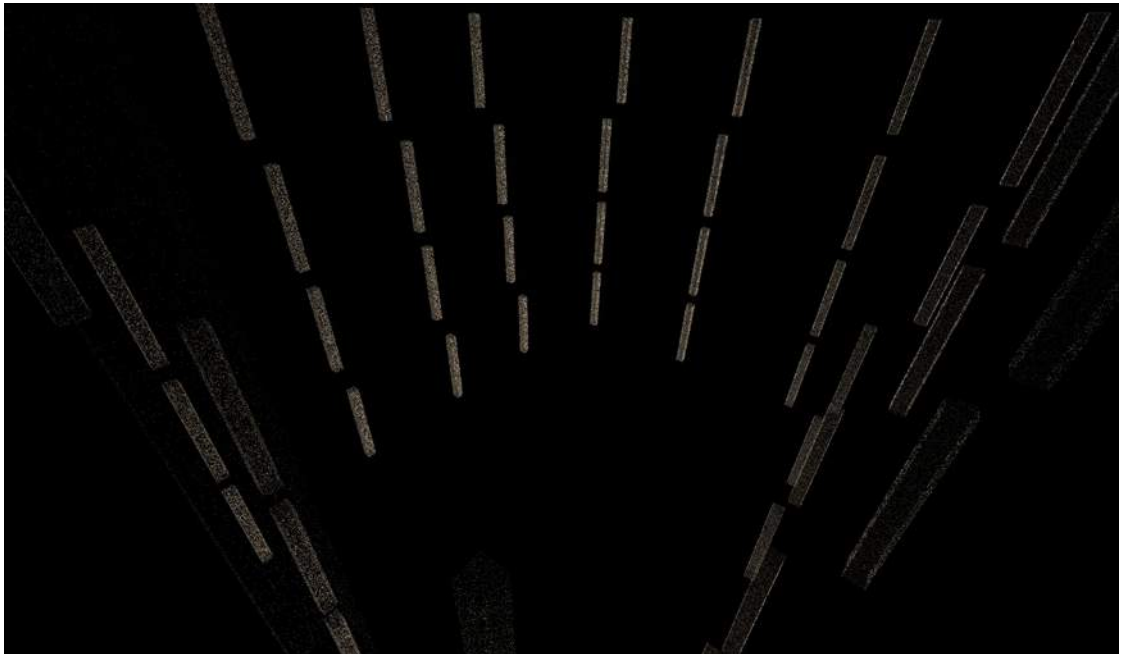
Floor Structure Build up, Point Cloud



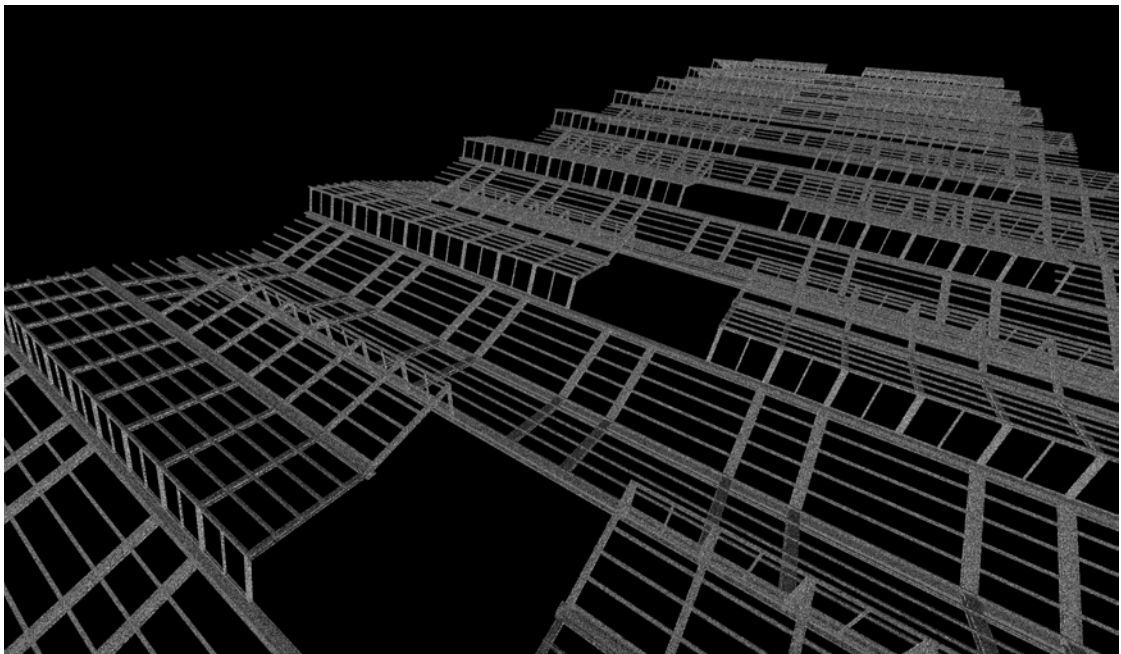
Ambient Occlusion Impluvium, Point Cloud



Progress Picture Courtyard, Point Cloud



Columns Courtyard, Point Cloud



Roof Structure Hall, Point Cloud

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MASTER THESIS HS22
NOSTALGIA ECOLOGY
BÜRGERHAUS

IMPLUVIA
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EMANUEL CHRIST & CHRISTOPH GANTENBEIN
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