

REASSEMBLING  
THE REJECTED

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adaptive reuse of  
pallet car park

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**BINDER 01** - presentation booklet

*diploma spring 2024*

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Binder 01 contains the final project. For complete process material, model photos, text and bibliography see Binder 02.

## Content

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## Delivery

**BINDERS**

- Binder 01 - presentation booklet (Printed and digital)
- Binder 02 - process booklet (Digital only)

**BOOKS**

- Archival book: Original drawings
- Archival book: Demolition book
- Photobook: Site 1895-2024
- Photobook: Site visits

Sketchbook

Pre-diploma booklet

**DRAWINGS**

- Tracings of original drawings
- Project drawings
- Construction diagram
- Sketches and diagrams

**MODELS**

- Construction model 1:50
- Artefact models 1:25

**chapter 1**  
introduction to the project



<sup>8</sup>  
r e s e a r c h

9

q u e s t i o n

Can a building dimensioned for cars become spaces of comfort and joy?

# a b s t r a c t

This diploma aims to search for qualities in unwanted spaces, by working with adaptive reuse of Paleet Car Park as case—a multi-storey parking and office structure located in the centre of Oslo, Kvadraturen, slated for demolition in favor of a new office building later this year.

It has been an exploratory study where models have been the most important tool to effectively discover and test out simple measures to maximize the value of the structure.

Allowing history to interact with new concepts isn't just about sustainable reuse; it's also a way to preserve historical uniqueness of our cities and making sure our collective stories are not lost. But we live in a time where what is valued is mainly what's old, though we're not in a position to selectively choose which historical aspects to embrace.

It is important that we take these unwanted buildings seriously and take the time to search for a human scale that may have gotten a bit lost somewhere in the 80s.

By letting this car park's original character persist, new and unexpected spaces are allowed; this project is looking at possibilities to prepare the existing building for whatever the occupants want to do with it.

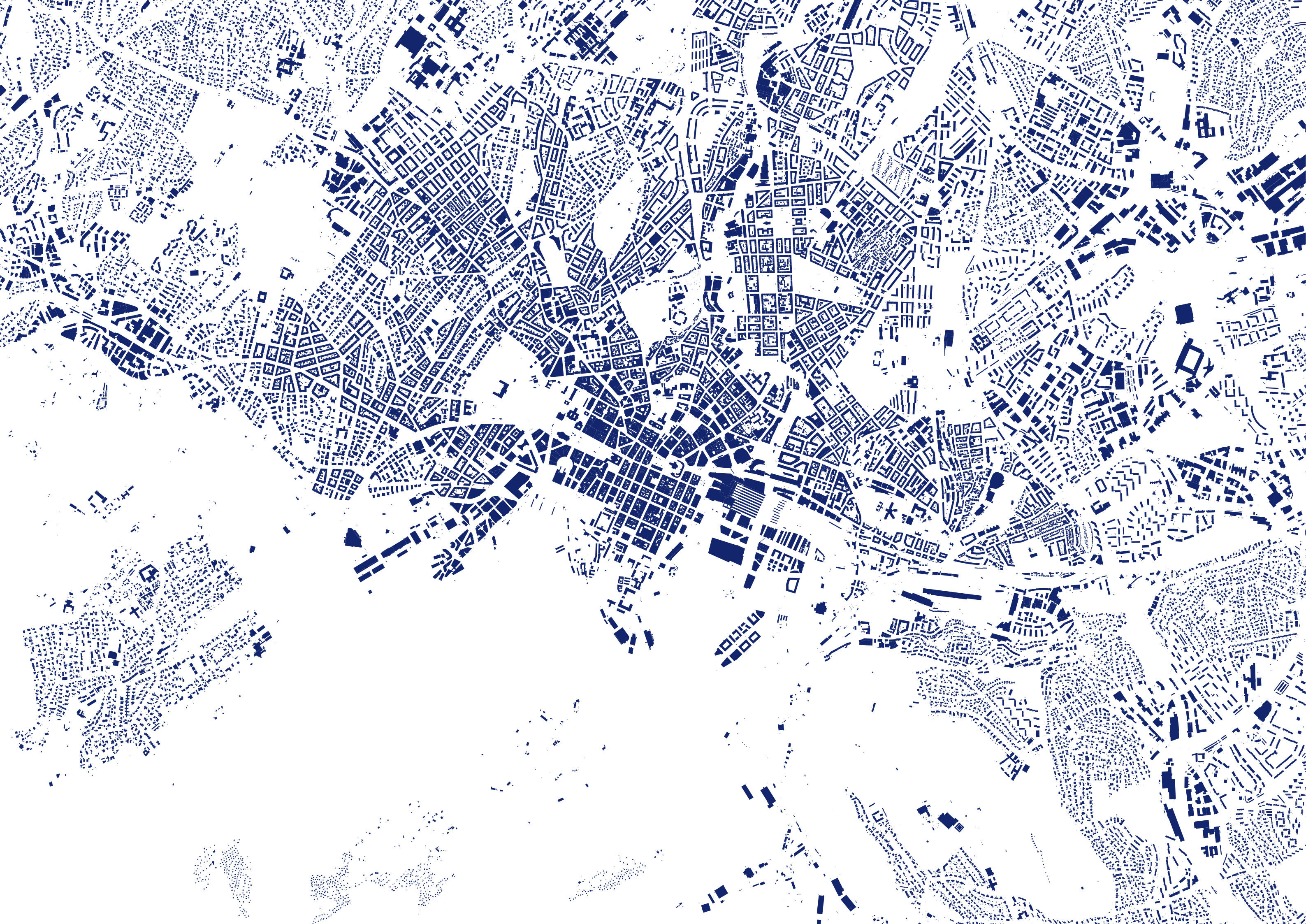
In this case I chose to look for possibilities for residential use in combination with other more social programmes, as I in my pre-diploma was interested in the search for dwellings that provide an alternative to typical pre-determined apartments and bring life to the spaces between the houses.

As I researched in my pre-diploma, the focus on residential repurposing together with offices, studios and communal spaces also seeks to align with Oslo municipality's vision of enhancing Kvadraturen's urban vitality and sense of neighbourhood.

Through discovering architectural potentials within Paleet Car Park, this diploma seeks to experiment with new possibilities for this building, and many buildings like it, to outlive their initial purpose.

**chapter 2**  
the existing building







The main challenge in the Norwegian housing market lies in Oslo, and at the same time as we need more housing, 40-60% of the parking spots in the city stands empty.<sup>1</sup>

A city center that in the future is potentially free from private car use, offers many opportunities to create a city better facilitating for human life.

Mapping out independent multilevel car parks in Oslo, the most central of them all, Paleet car park stood out as an interesting case for further speculating on alternative urban housing in Oslo.

1: Oslo Bylivsundersøkelse 2014





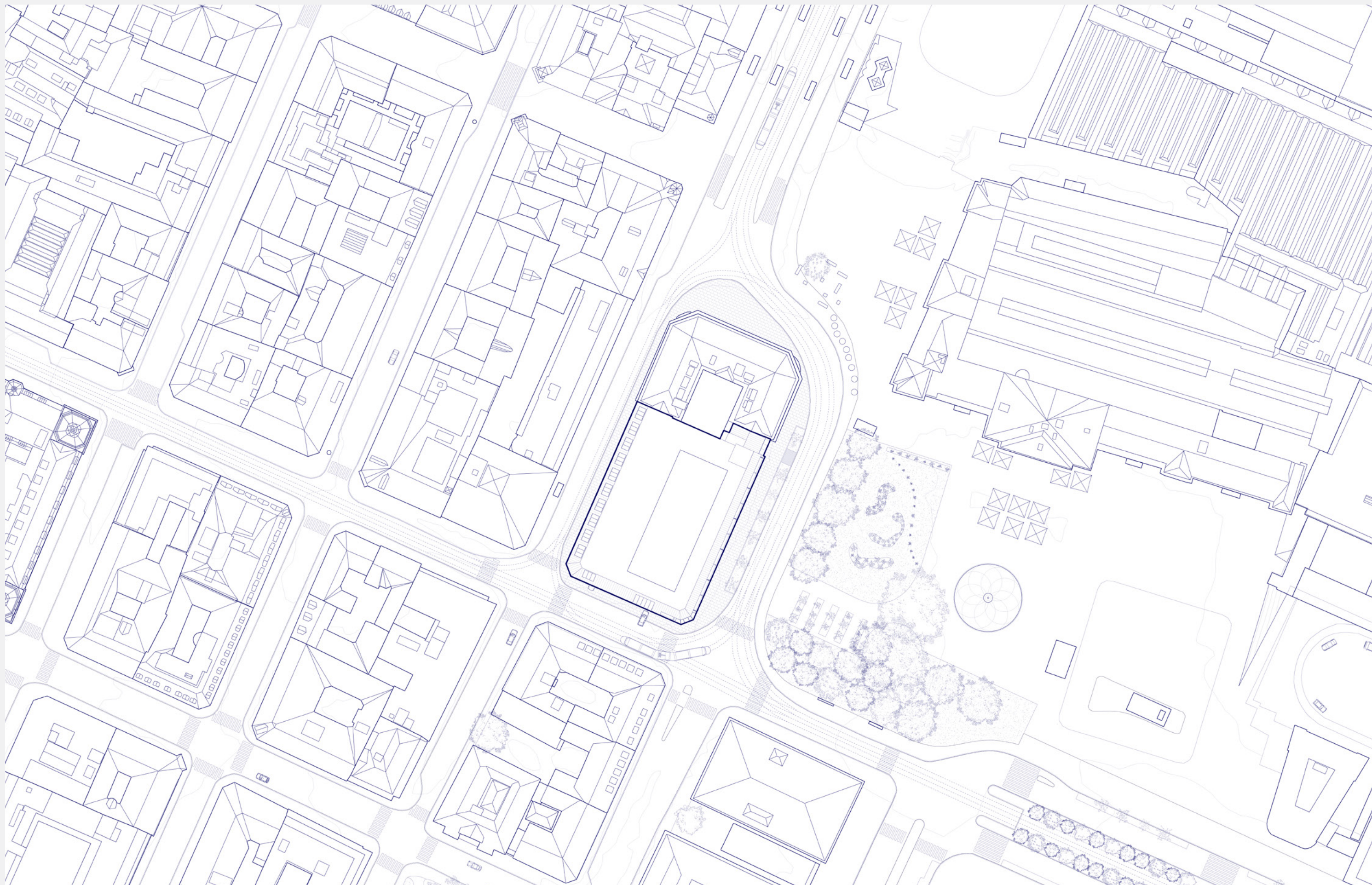


site



Architect: Petter Bogen  
Year: 1984-87  
Area: 18 000 m<sup>2</sup>





sit.plan 1:1000



Architect: Petter Bogen  
Year: 1984-87  
Area: 18 000 m<sup>2</sup>



# a r e a

There has for some years now been need and wish for housing in Kvadraturen to vitalize the area. Today the area is already highly saturated by office and commercial buildings, and a place most just pass through and only a few live.

The area offers lot of historical depth, and much has happened since the seventeenth century Kvadraturen.

From planinnsyn it is clear that what is old is mainly what is valued, and many of the buildings from the 30s and later on is not even listed. *(see the analysis in binder 02)*

As a part of my pre-diploma I researched domestic extensions in existing structures (mostly urban), and if adding housing to the buildings in the city centre could facilitate for a more sustainable urban growth.

This existing car park could be a possibility for just that.



# 24 the building

Paleet car park is an 17900m<sup>2</sup> 80s concrete structure that is to be demolished later this year. It mainly serves as a car park, together with a smaller part of offices. The car park shares its block with the historical Amerikalinjen from 1919 by Bjerke and Eliassen, and has in the later years been one in few of its kind in the city centre.

The building has never seemed particularly cherished.

Often described as sad, it stands out as Kvadraturens ugly duckling.

At the end of 2022 Bane Nor Eiendom presented the winning proposal for Strandgata 19. 400 parking spaces will now be replaced with an 11,000 square meter commercial building over seven floors, intended to accommodate offices. Same height, same footprint and same form as the car park.

The possibility of reusing the load bearing concrete structure has been considered, but the TT element slabs which suffers from the stress of being in an un-climatized space and constantly exposed to snow and salts were, in the assesment that followed by NTNU and SINTEFS in october 2023, concluded not suitable for re-use together with the evaluation of the pre-determined floor heights which doesn't reach the standard.

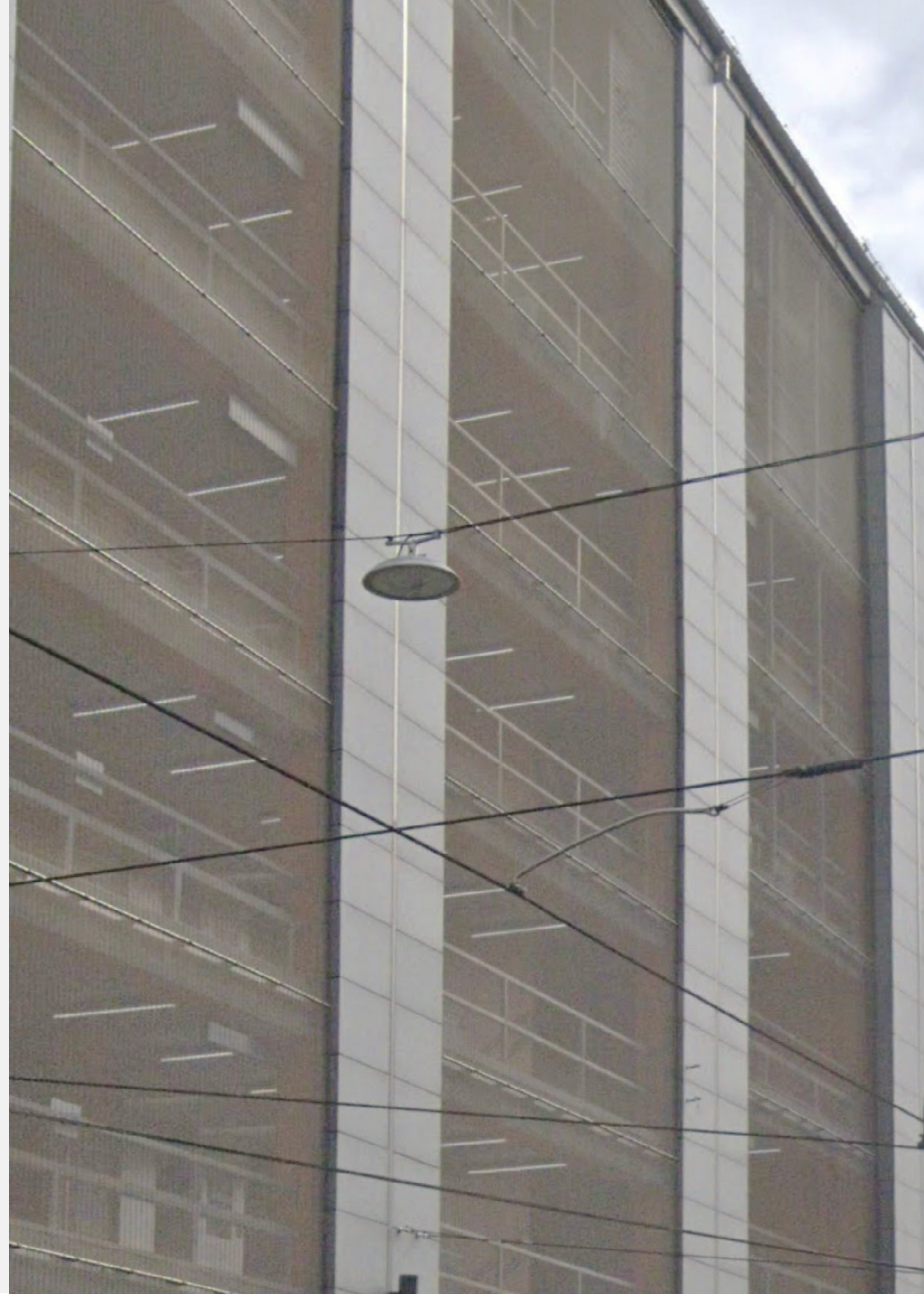
But, as the assesment also points out, if the elements are reassembled in an environment with low humidity, it can be assumed that this carbonation will essentially cease. This will reduce the risk of rust formation and associated damage, and the TT slabs could therefore re used.

The issue appear to be the costs of it all. It is cheaper to build new than to re-use and rehabilitate, and it is seen little or no value in these seemingly outdated structures.

But this is not the only 80s concrete car park or public building. These construction systems are to be found world wide. If they all reach their lifespan and are considered unusable after only 37 years, we have a huge sustainability issue no matter how "Low-carbon" the newer concrete is.

And if the concrete slabs is whats reached their time.  
What about all the other concrete and materials?

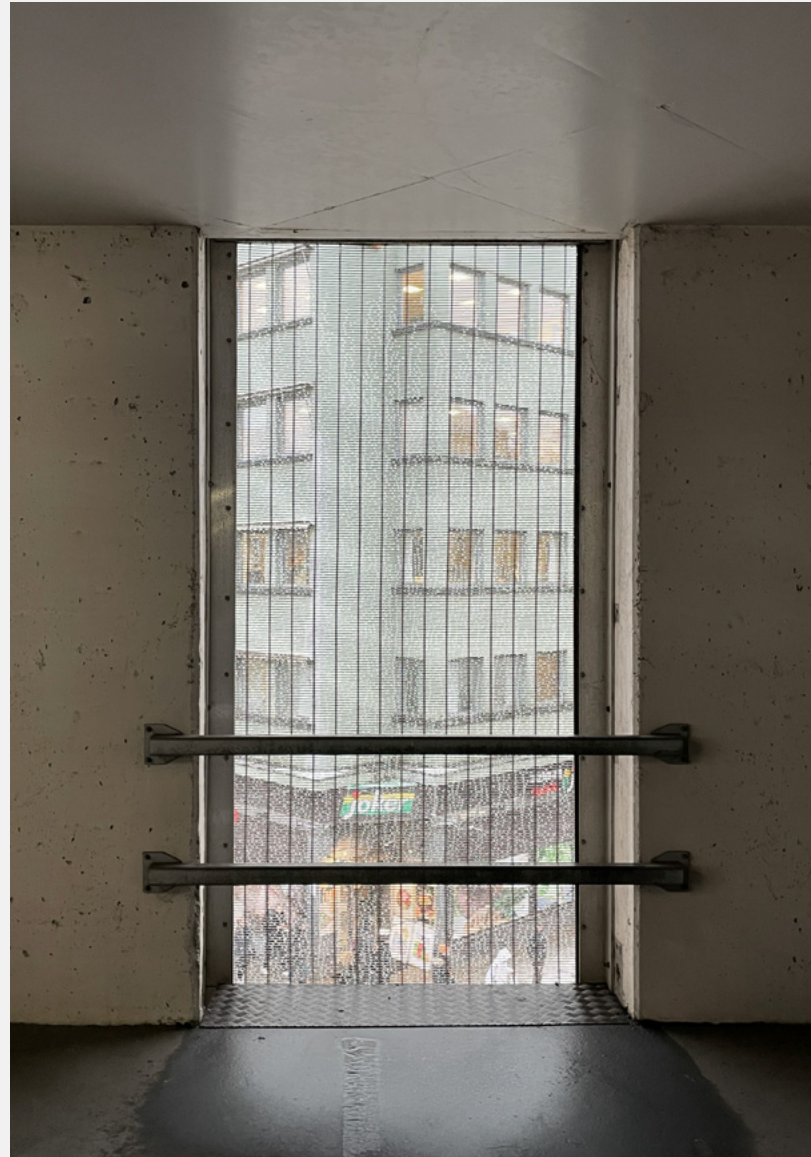
*(see Binder 02 for the report regarding reuse and demolition)*

















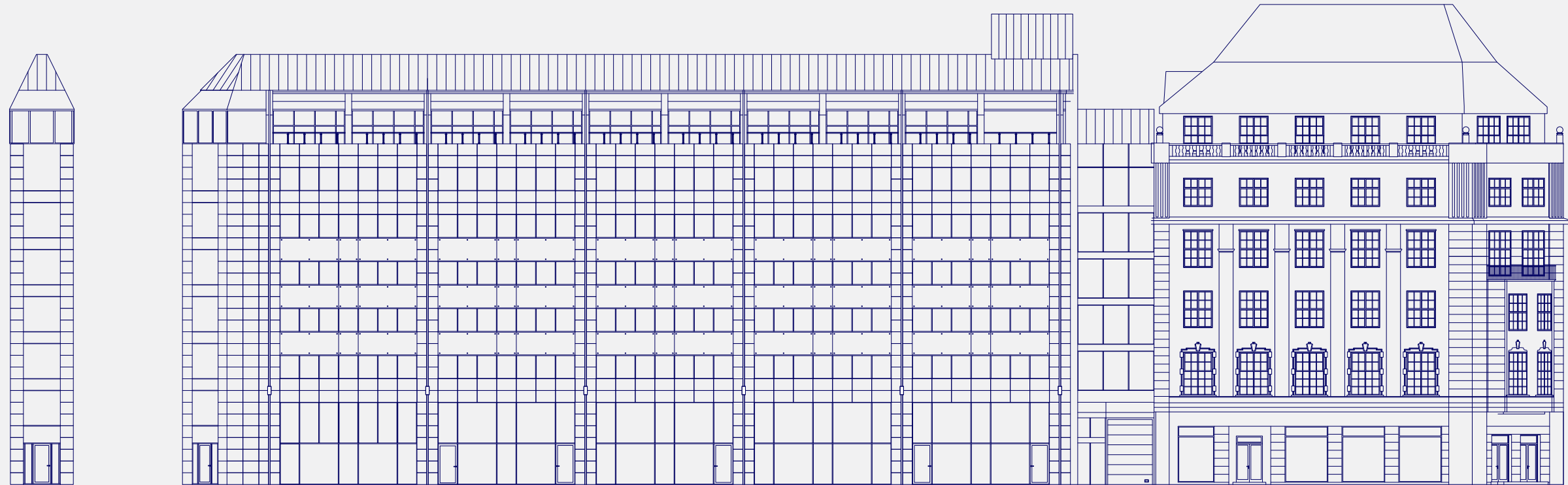


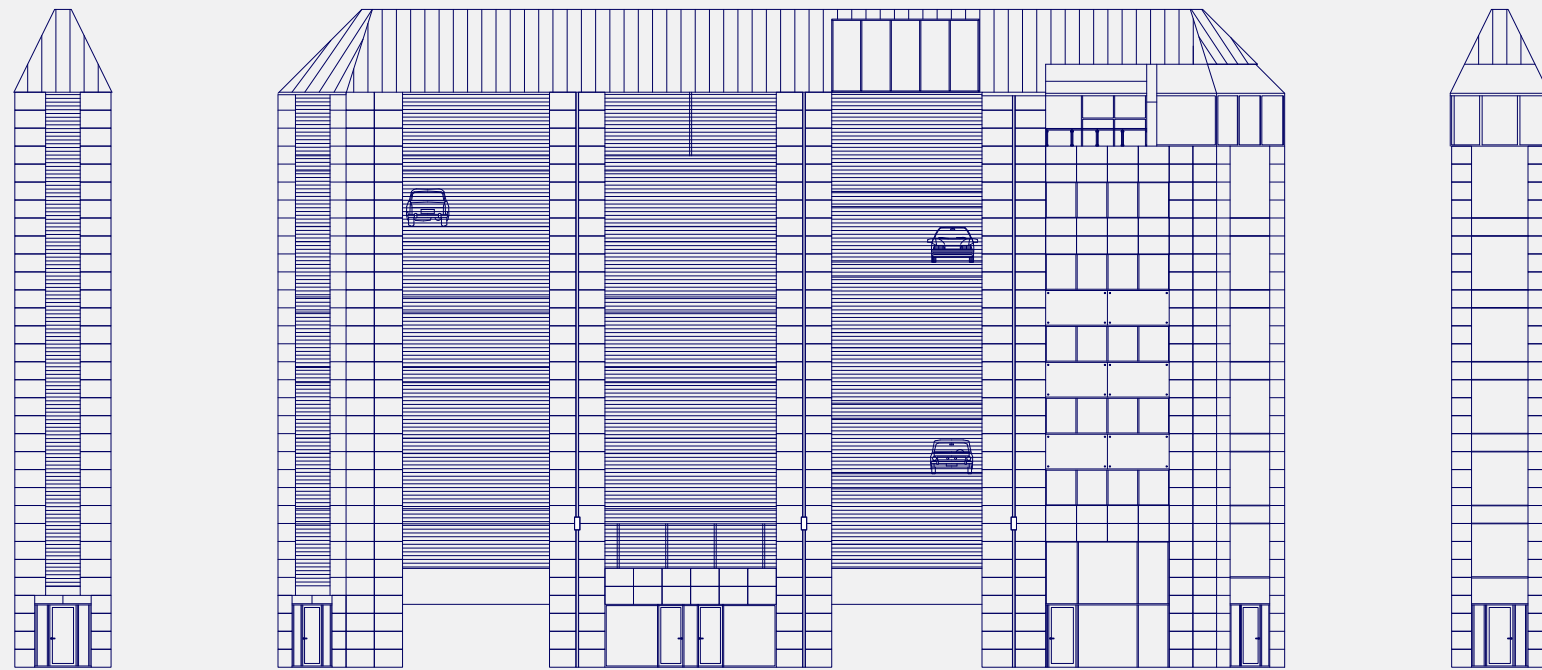
d r a w i n g

s e t

Tracing the original drawings has been an important part of the process to better understand the buildings complexity. Following is a drawing set of facades, plans and sections.









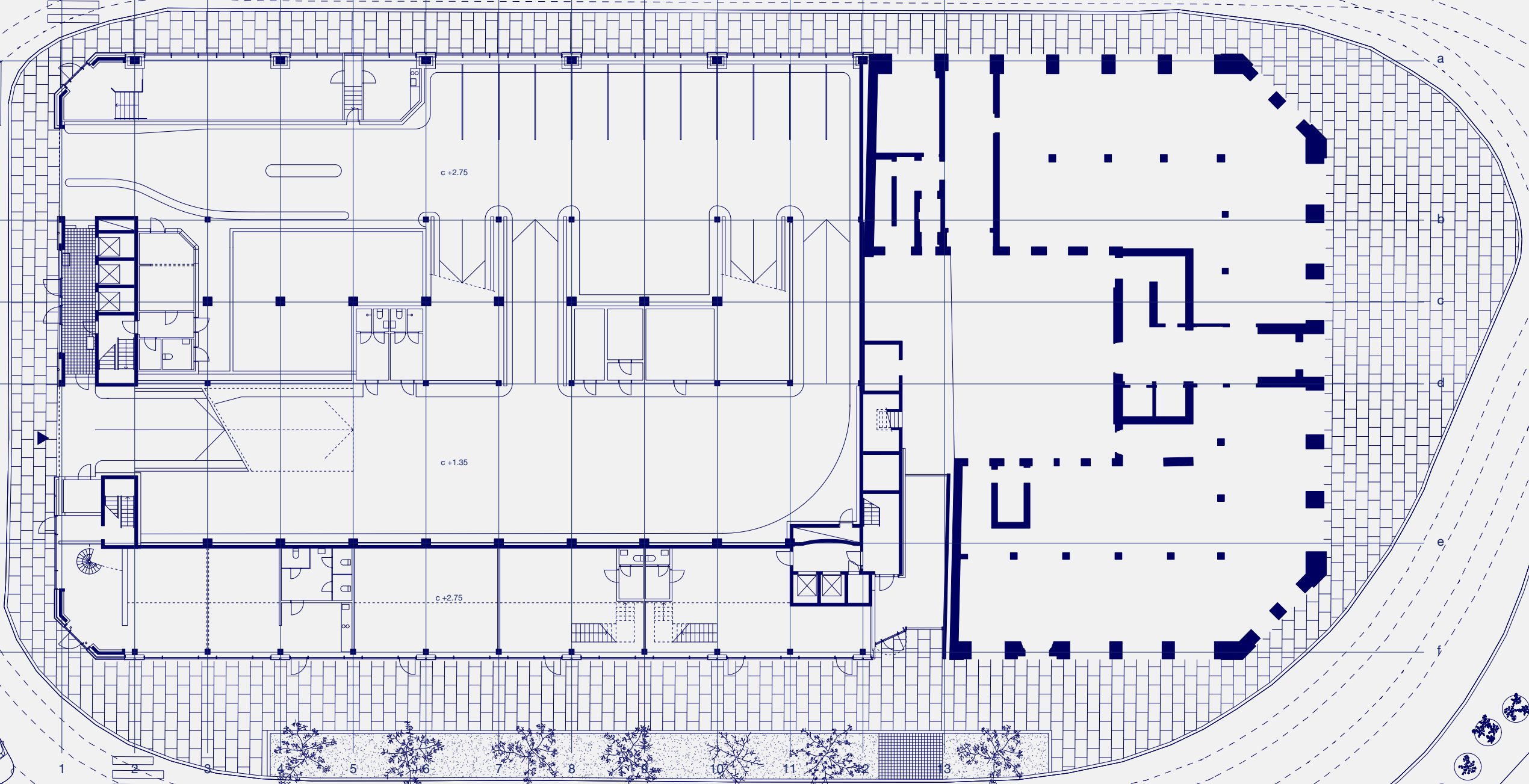


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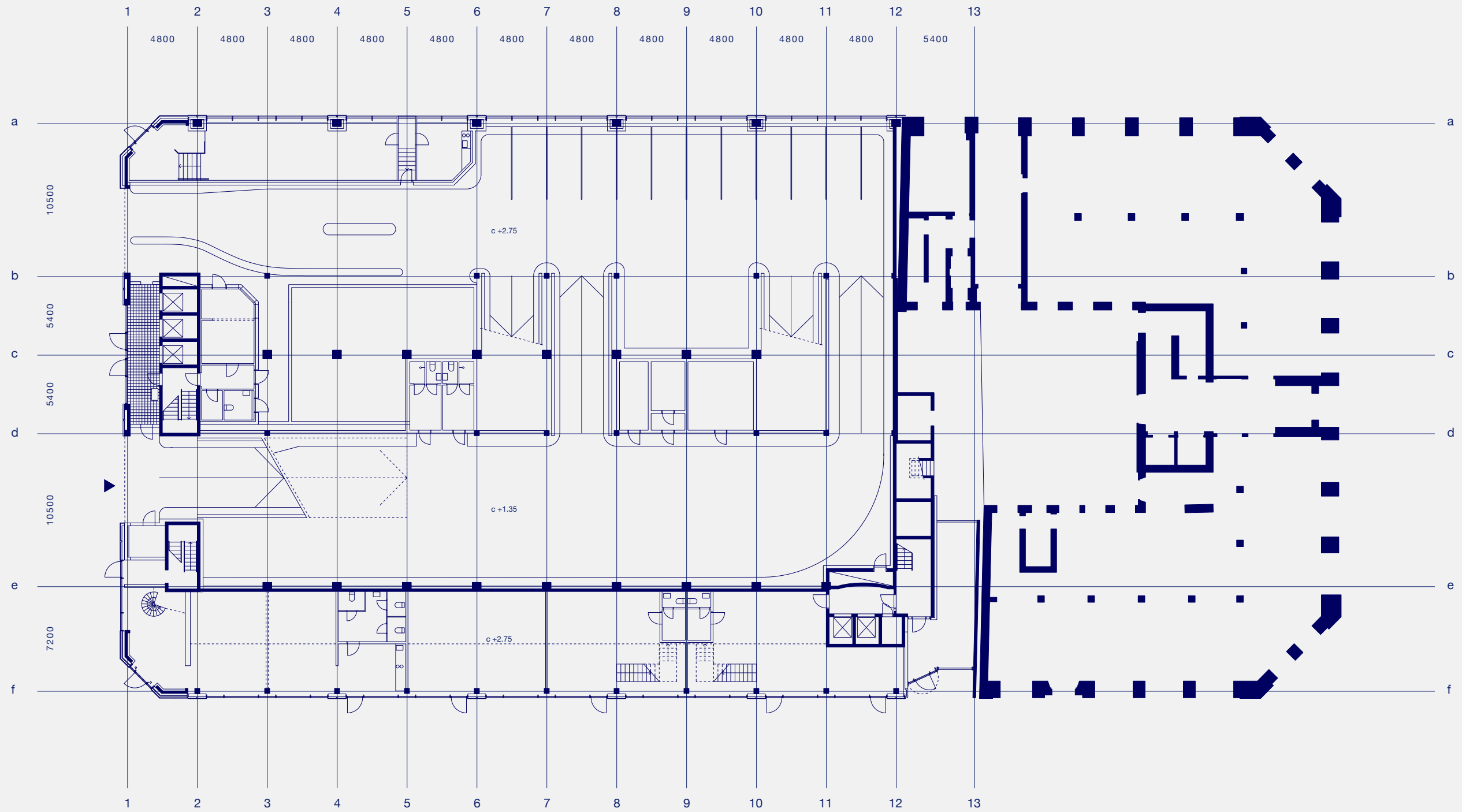
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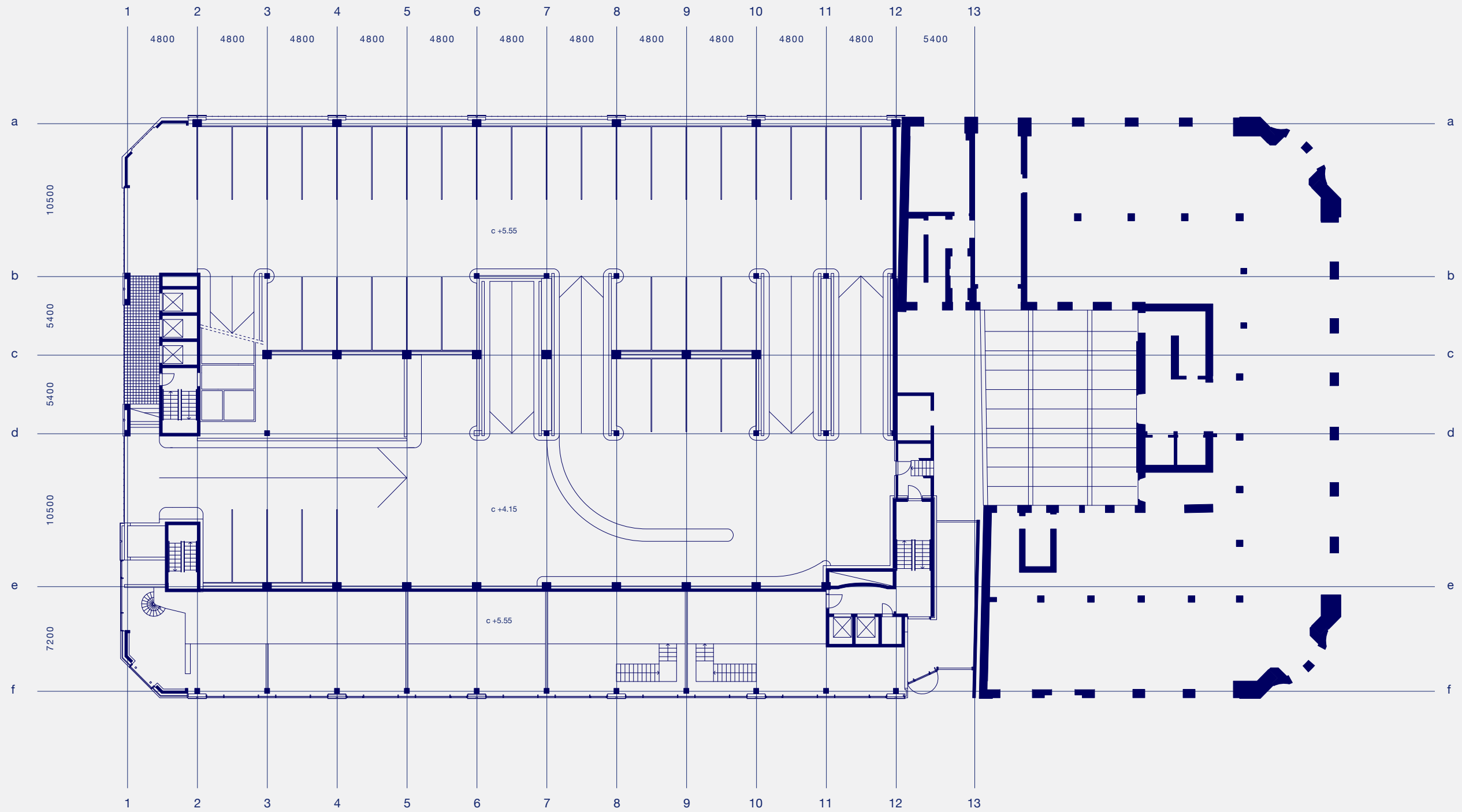
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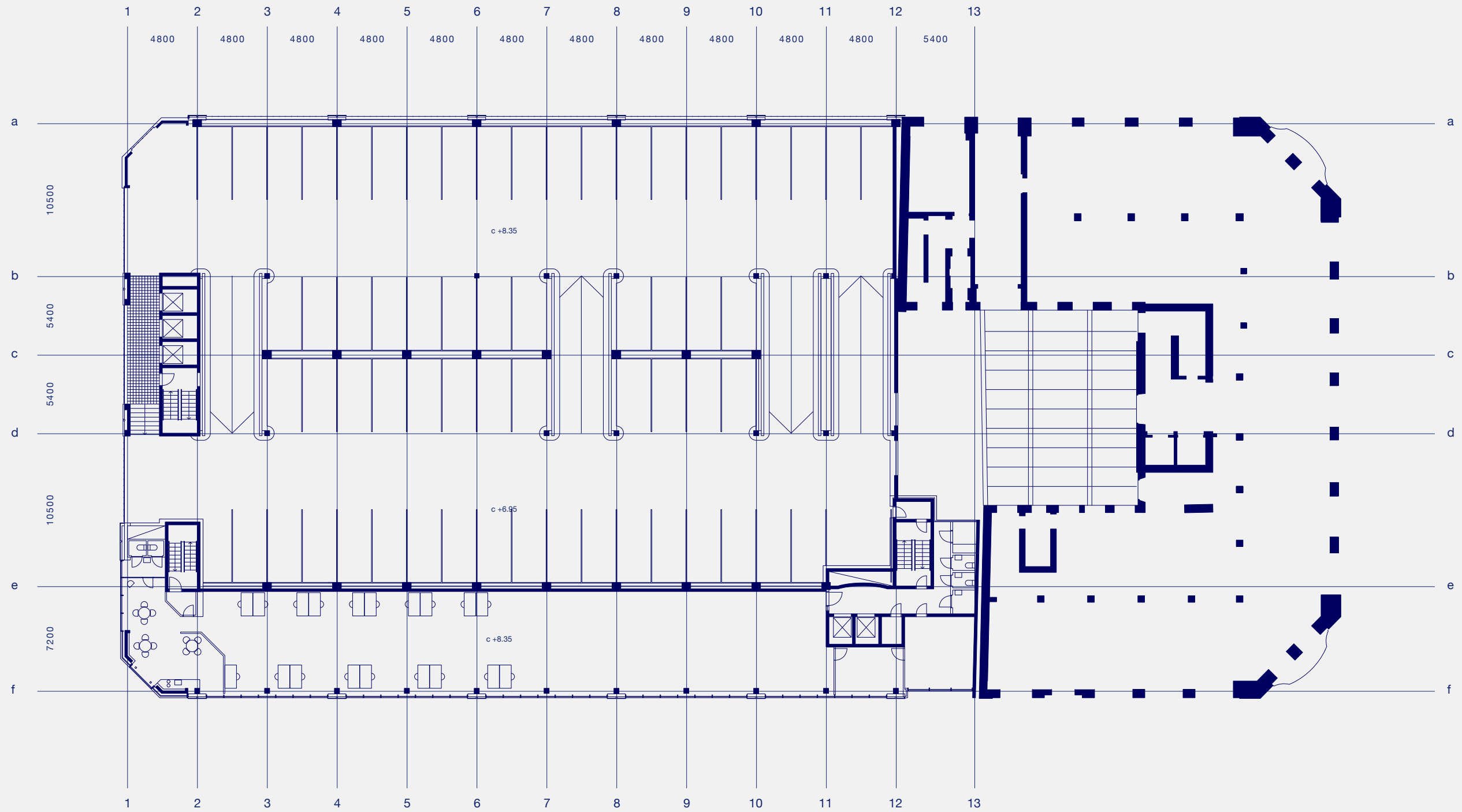


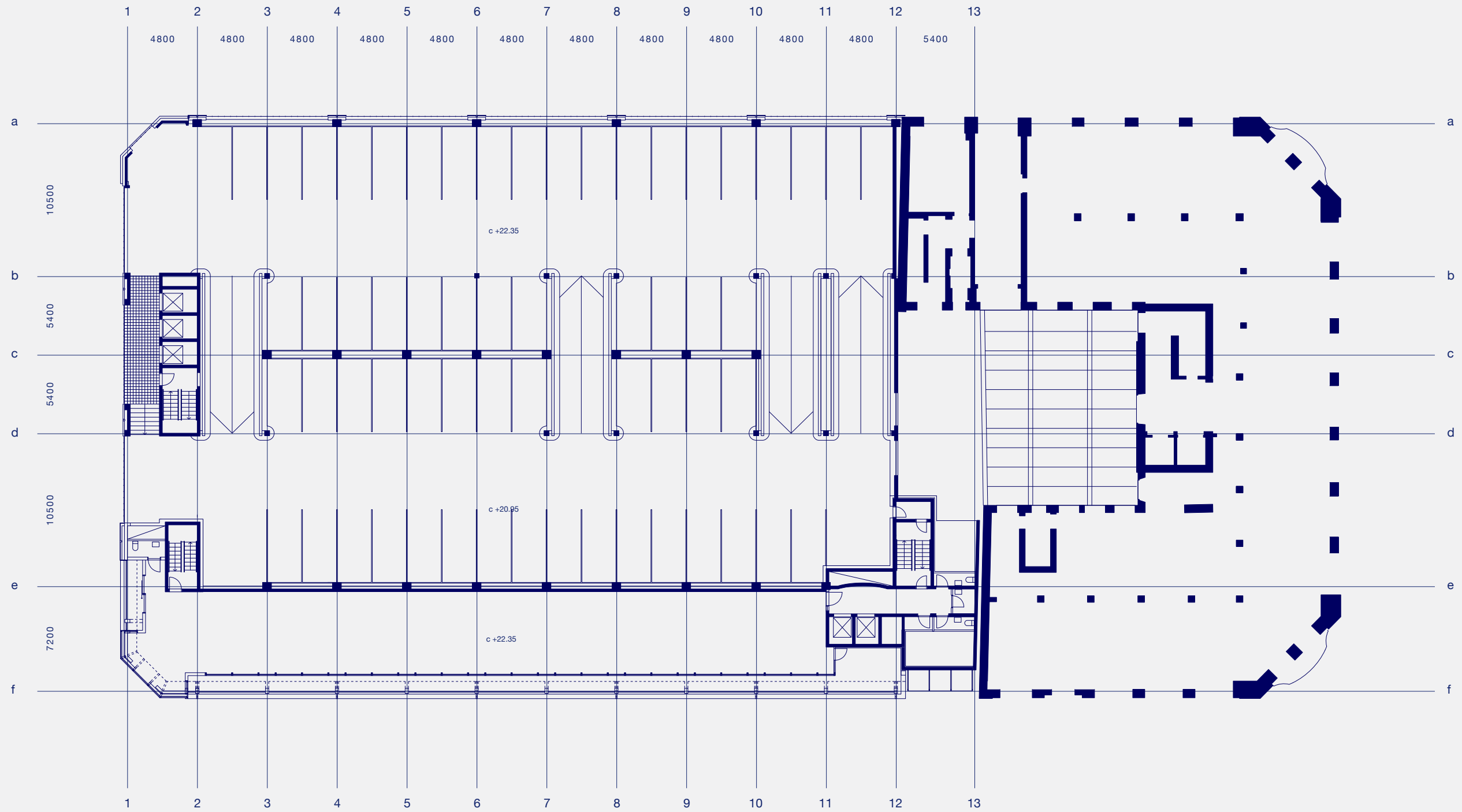
Plan 1:300

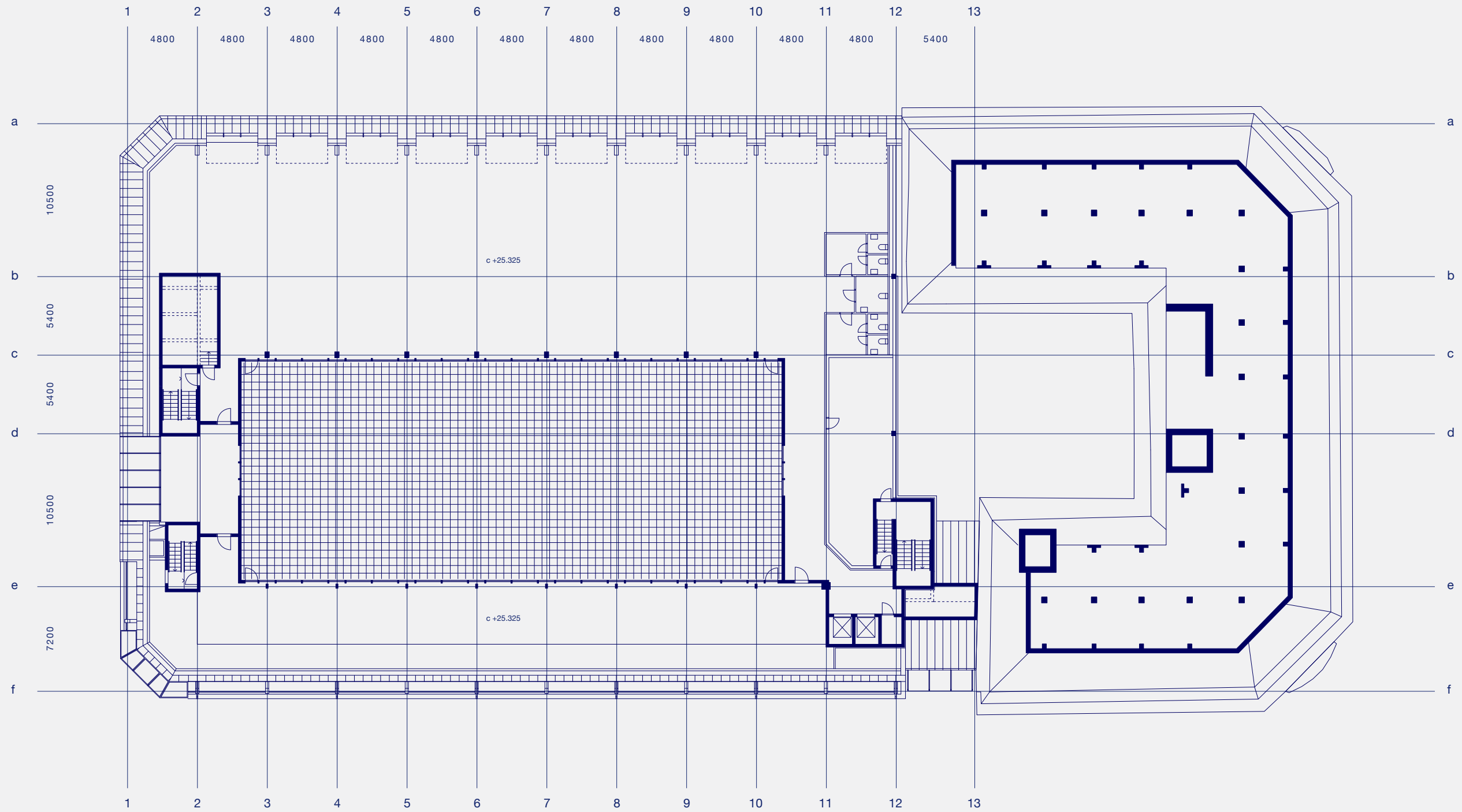
ground floor w/area



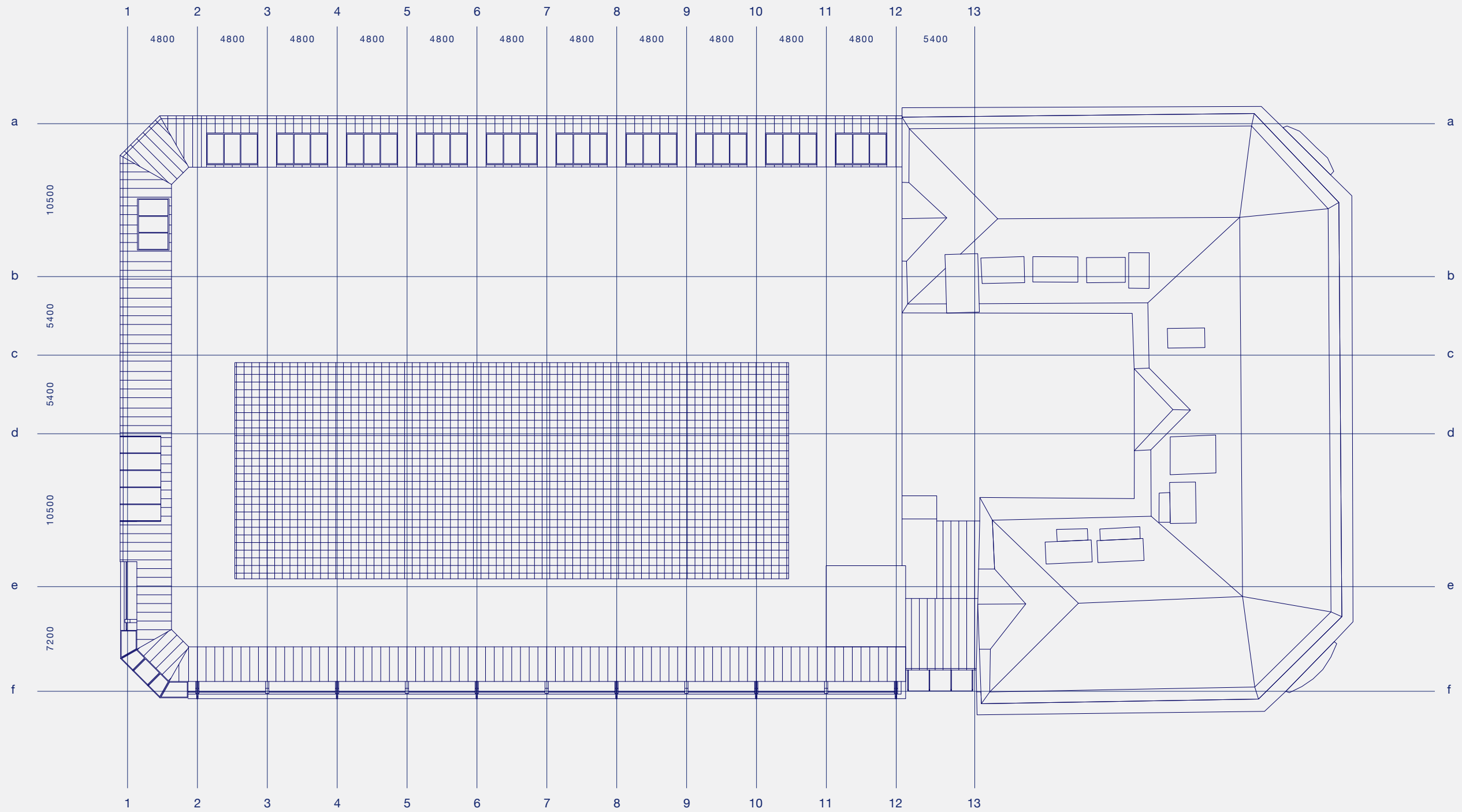


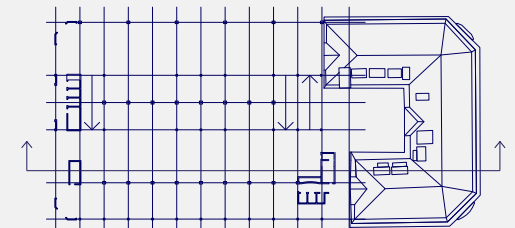
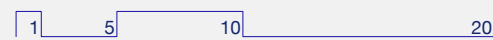
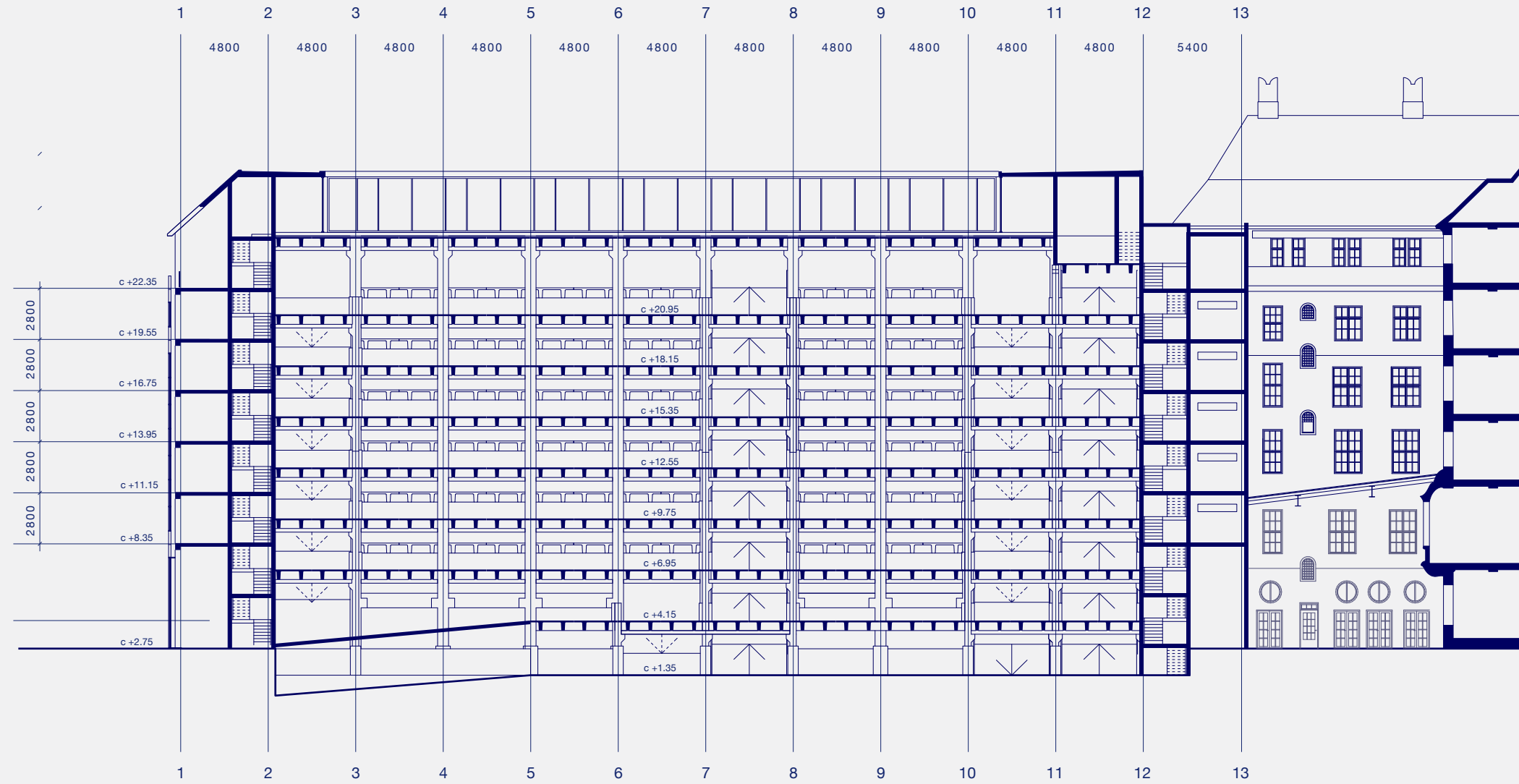


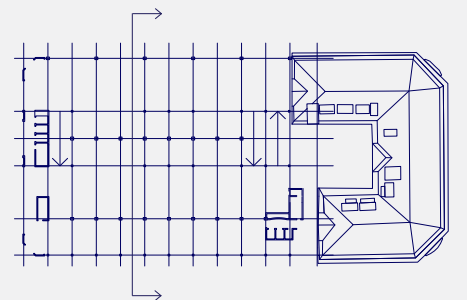
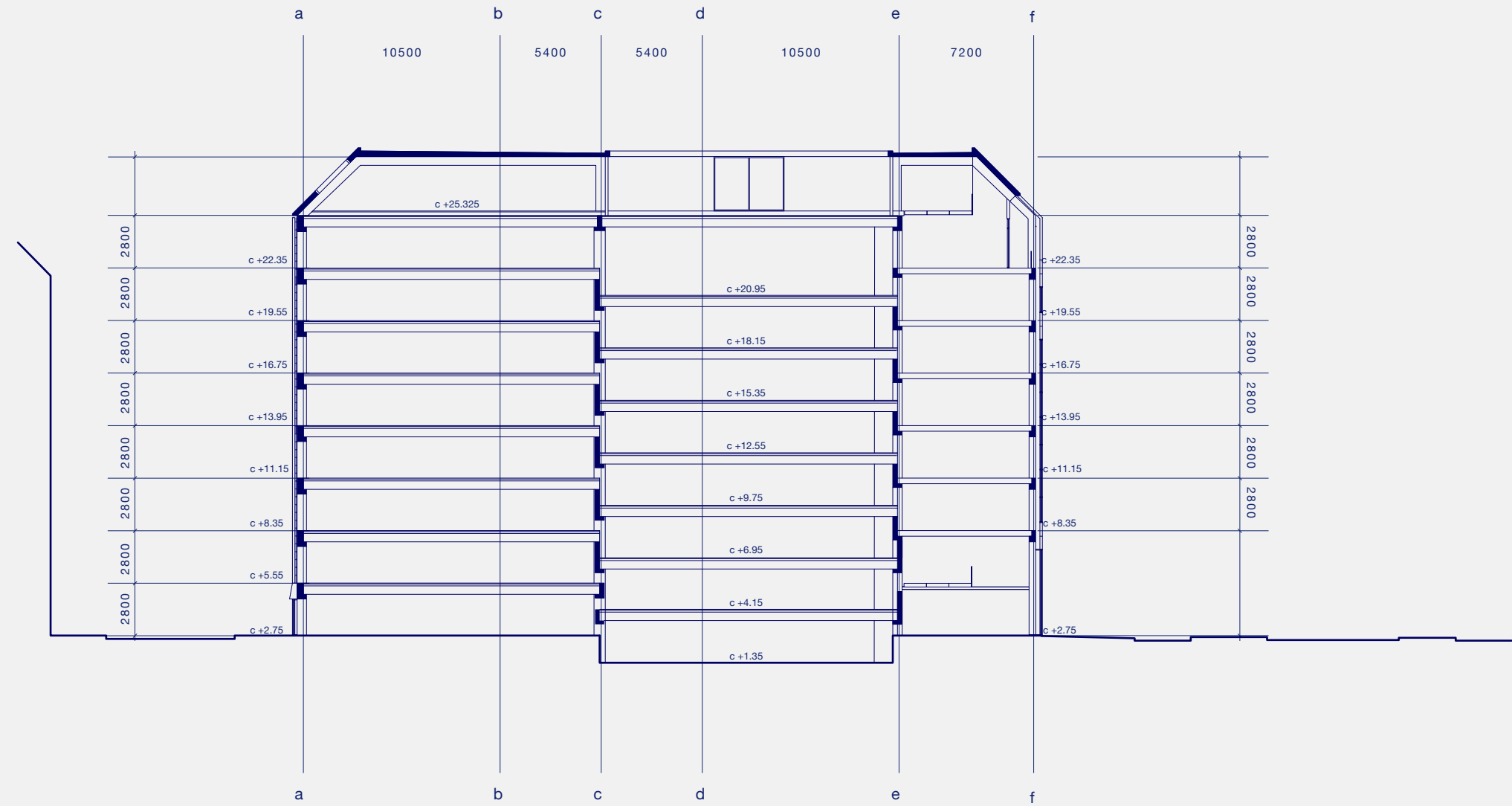


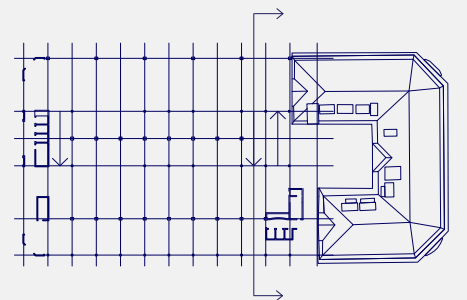
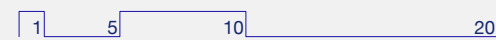
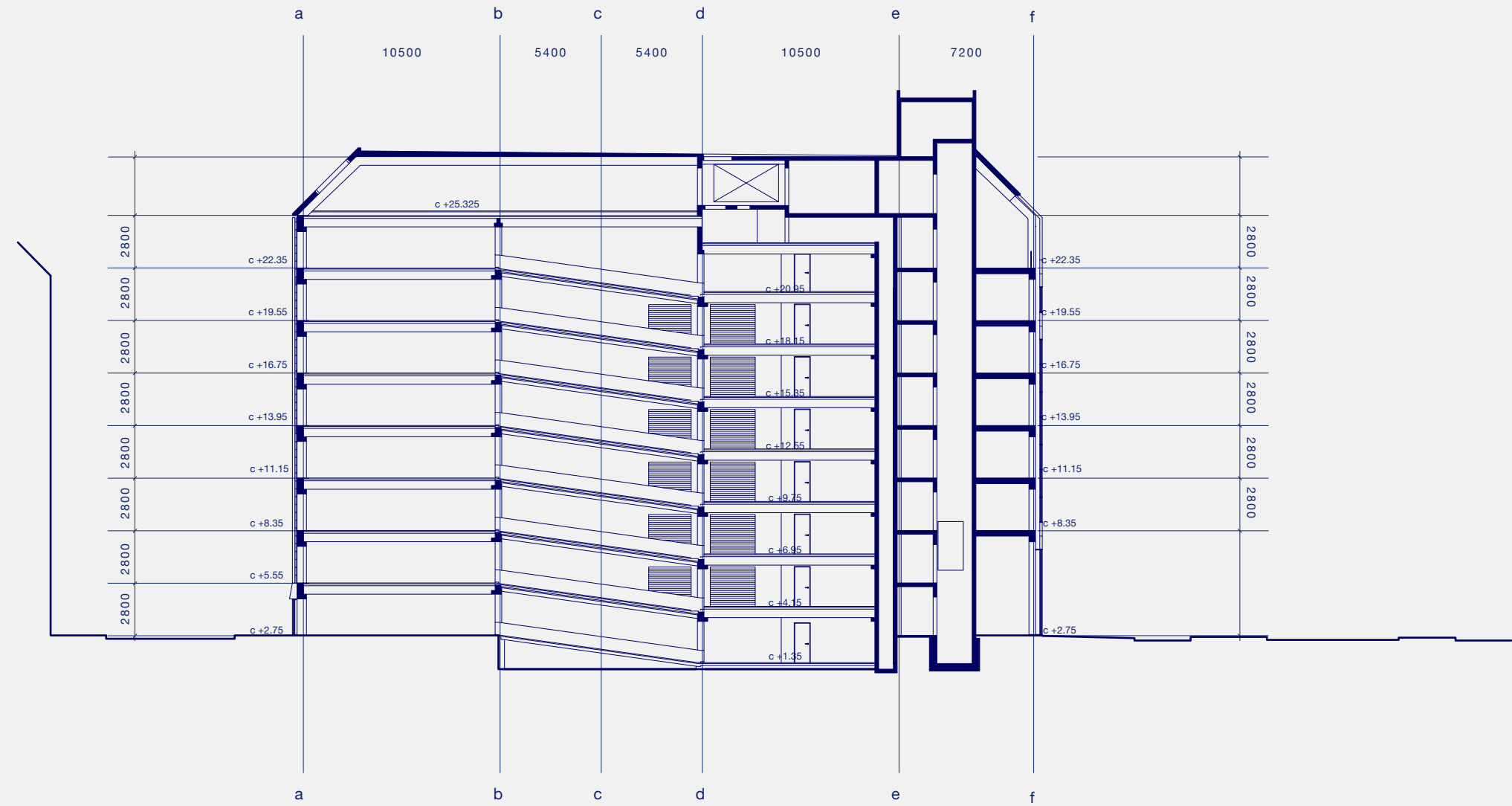












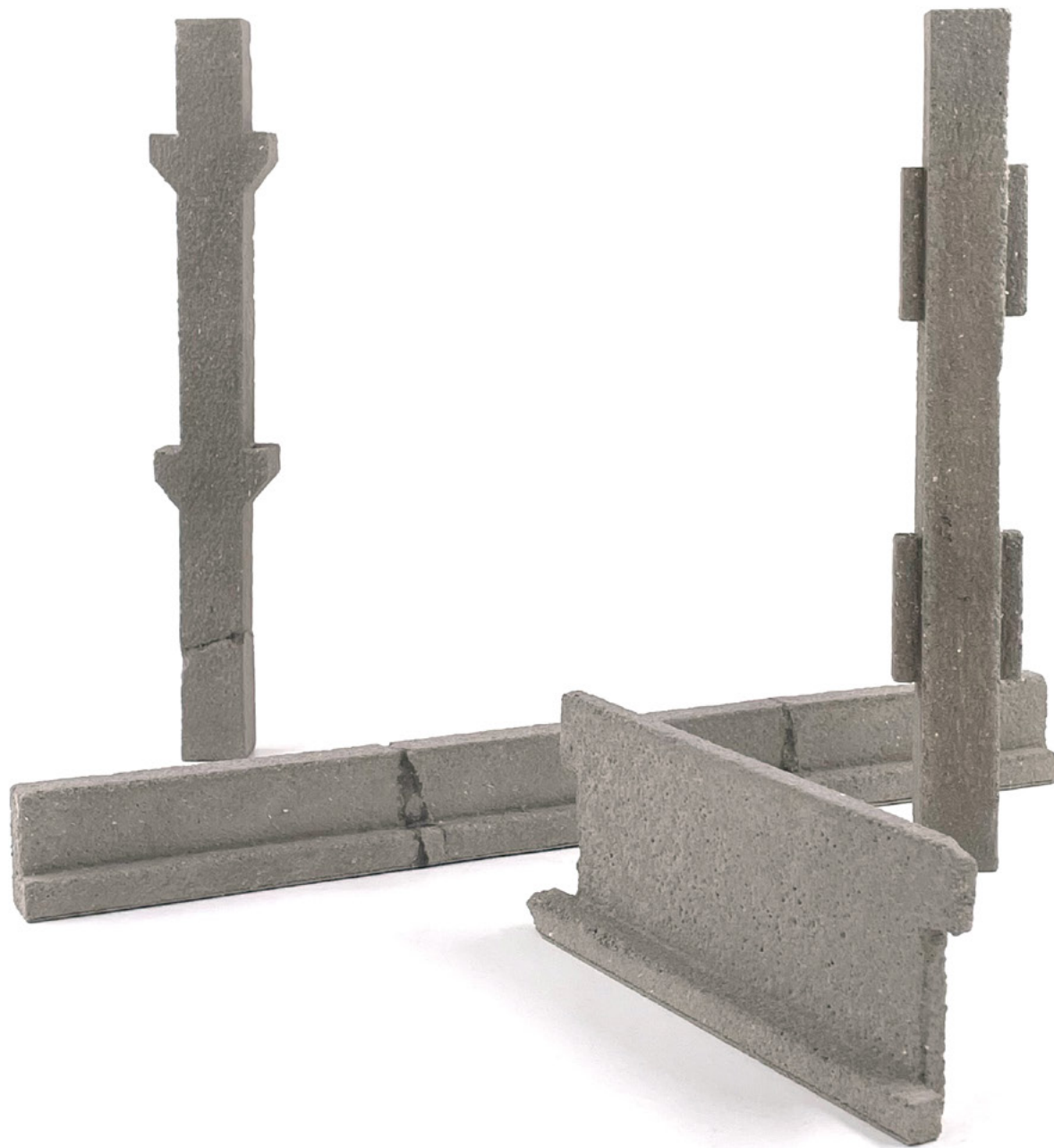
# construction

# principle

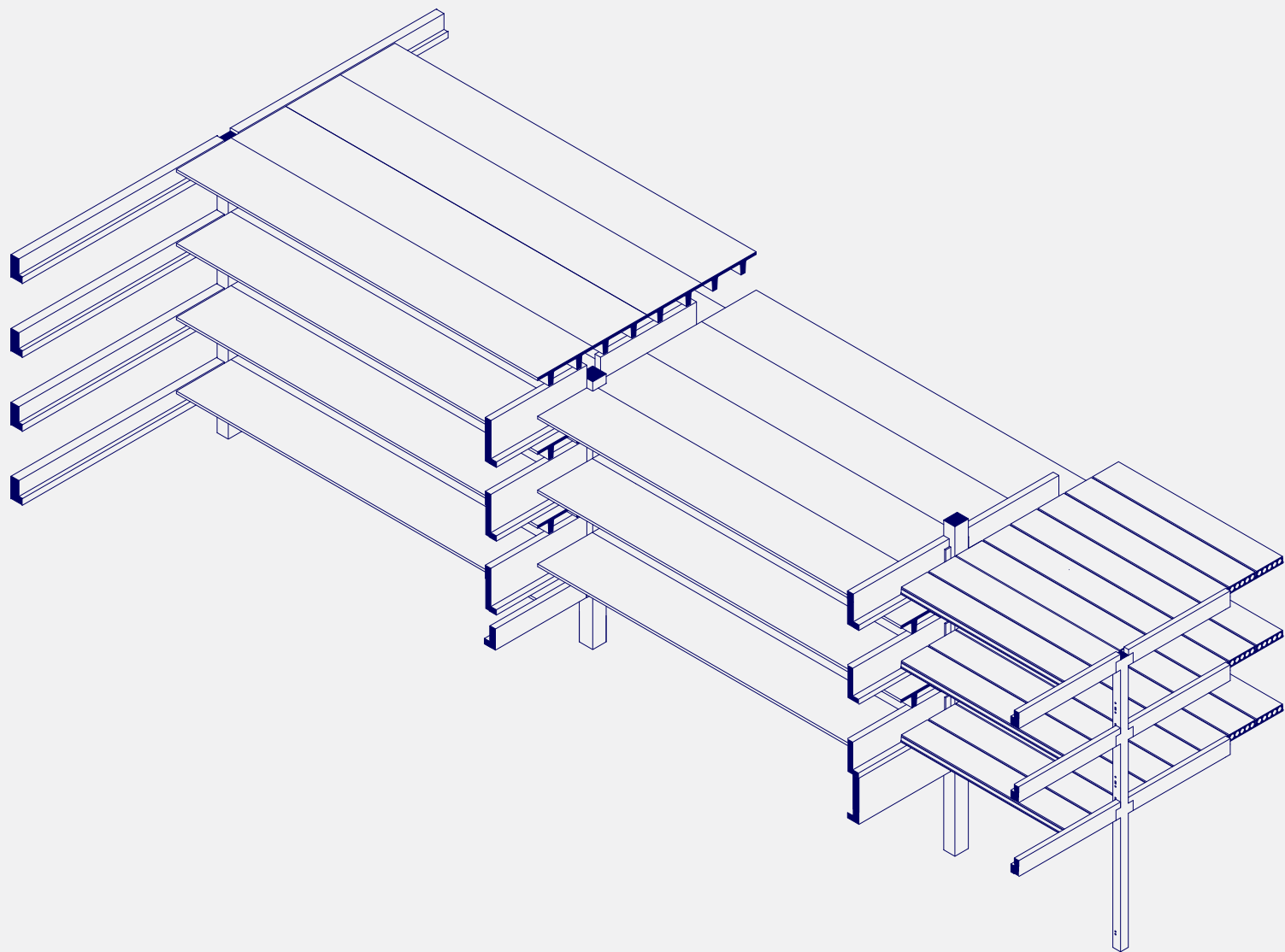
Today's structure, like most other car parks offers a lot of challenges when introduced to new use. Low ceiling height, little daylight because of deep floors, structural load about half the load needed to support programmes like office and housing, as well as all pedestrian circulation being situated at one end.

The construction system consists of hollow core elements on the office side and TT slabs on the garage side, all slabs stacked on concrete L beams, resting on the ledges of tall concrete columns.

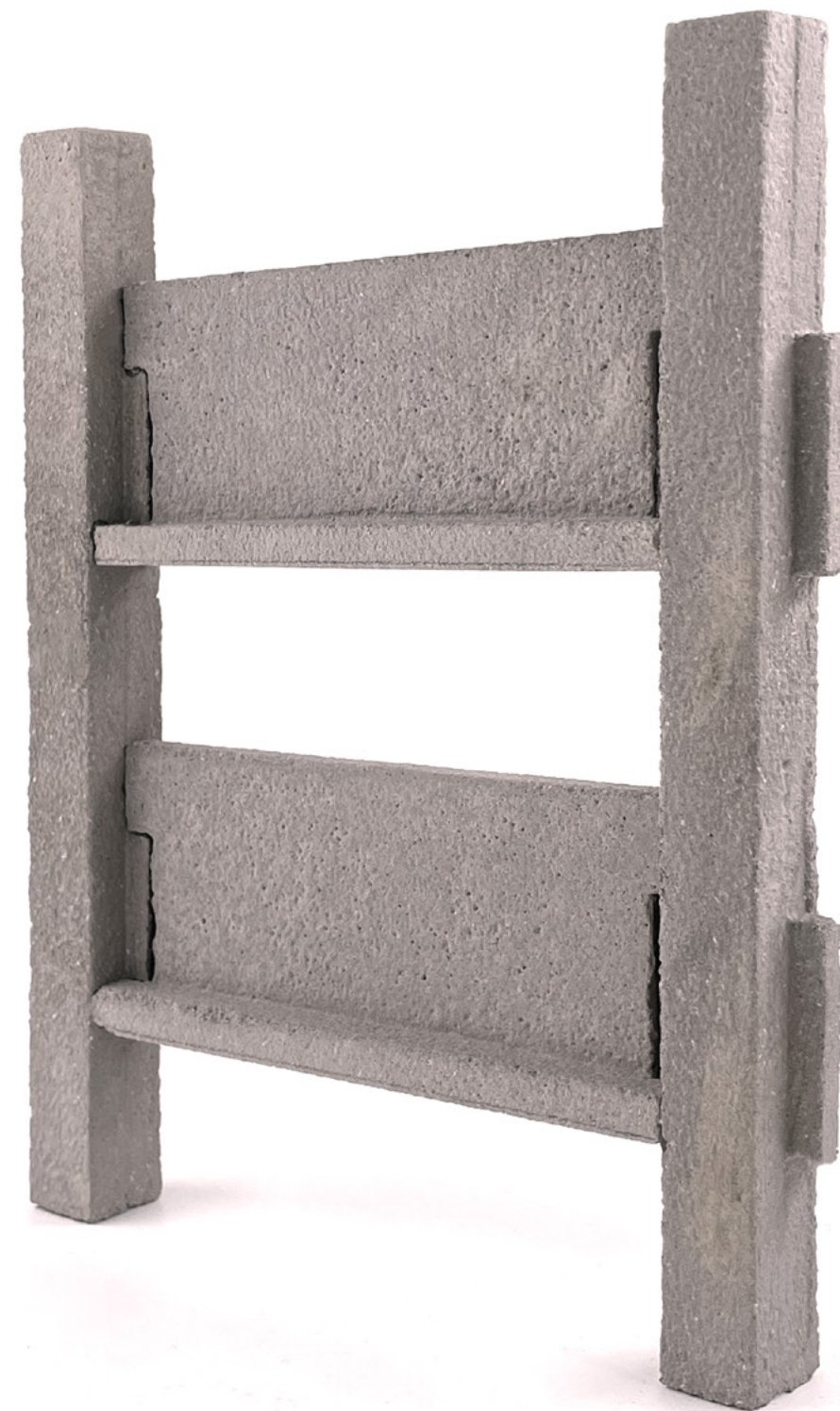
The aim is to transition from tailor made into a more resilient structure for the building to be able to outlive its purpose.







Construction principle 1:200



Column-beam system model 1:25

**chapter 3**  
the proposed reuse

# hierarchy of structural interventions

**Step 1**

What is to be dismantled and what can be reused within the project?  
Make room for sufficient daylight and floor heights.

**Step 2**

Establishing new structural members due to increased occupancy  
load.

**Step 3**

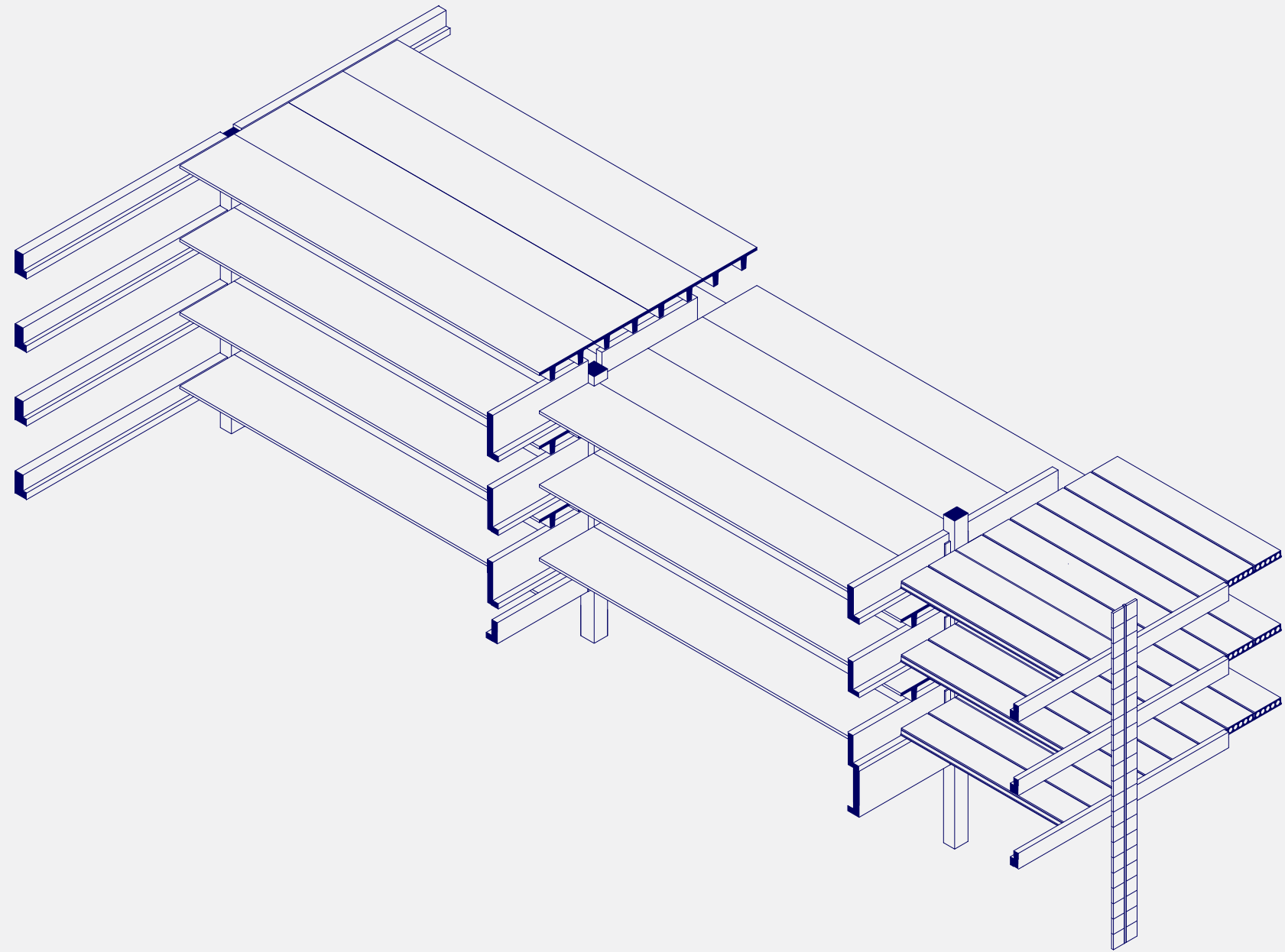
Implementing a human circulation and movement within the  
structure designed for cars.

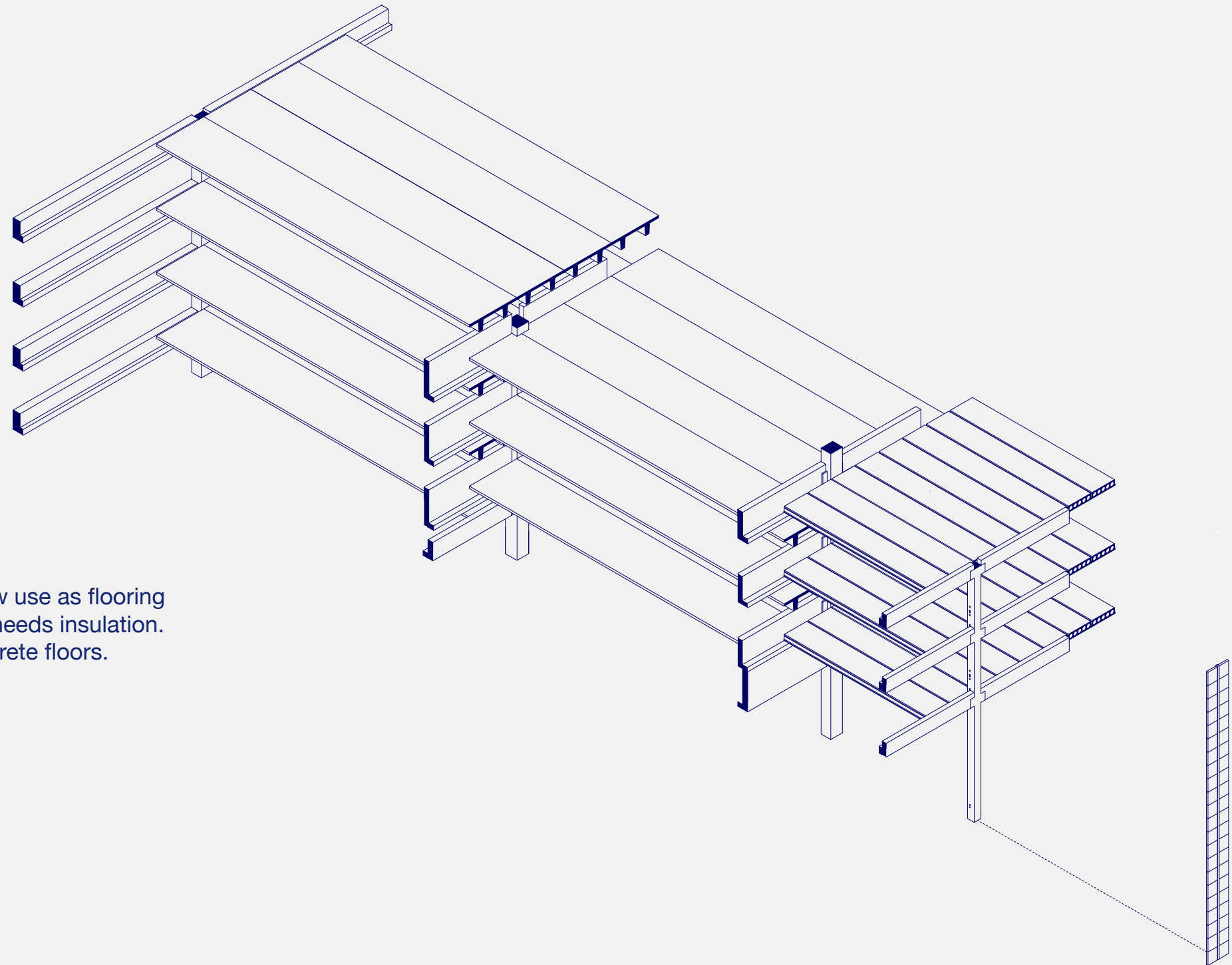
**Step 4**

Piping for water

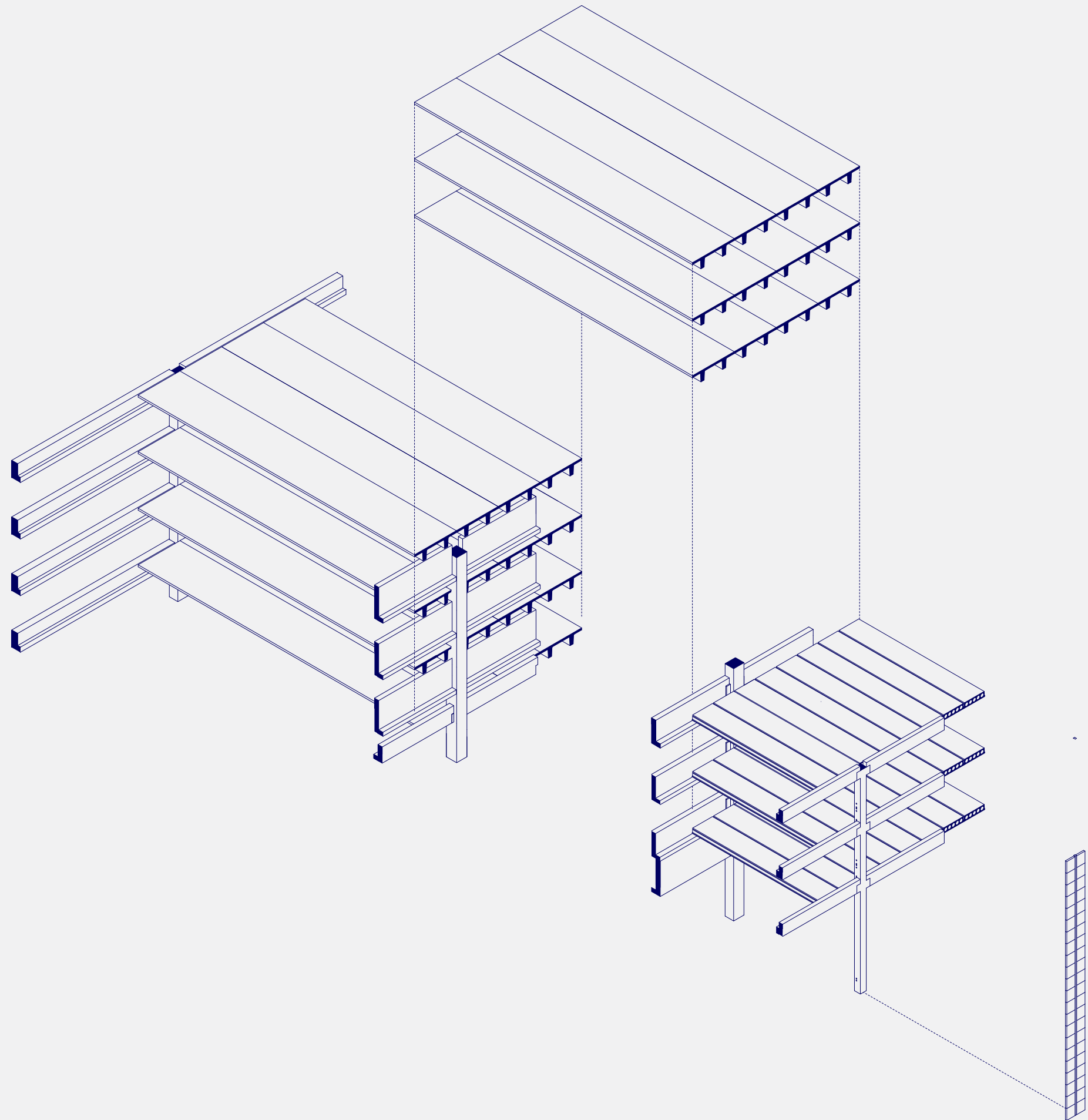
**Step 5**

Climate shell

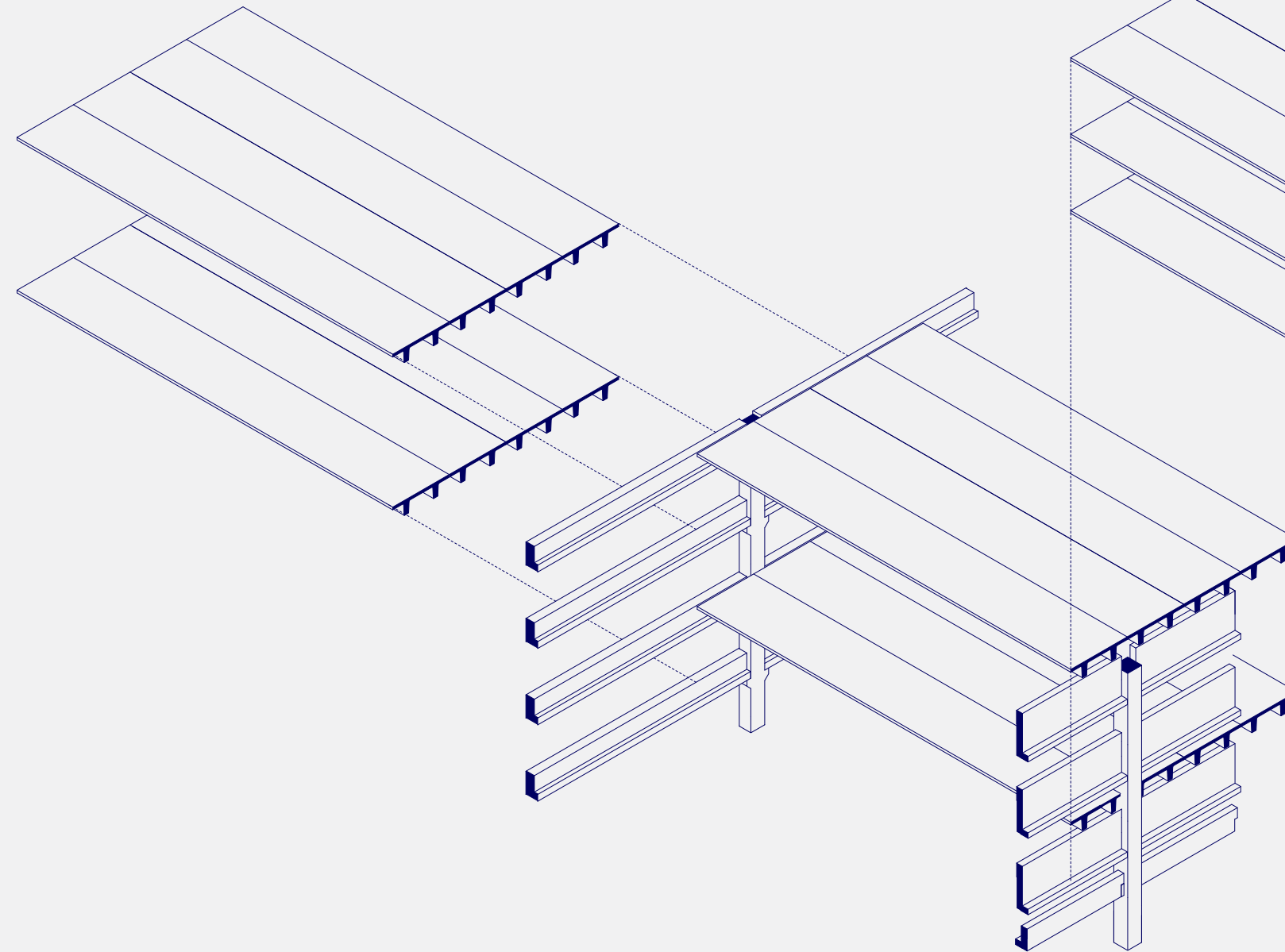




The building is undressed of its granite tiles that gets new use as flooring and smaller cladding where the beams to the courtyard needs insulation. Broken tiles will be used as aggregate in necessary concrete floors.





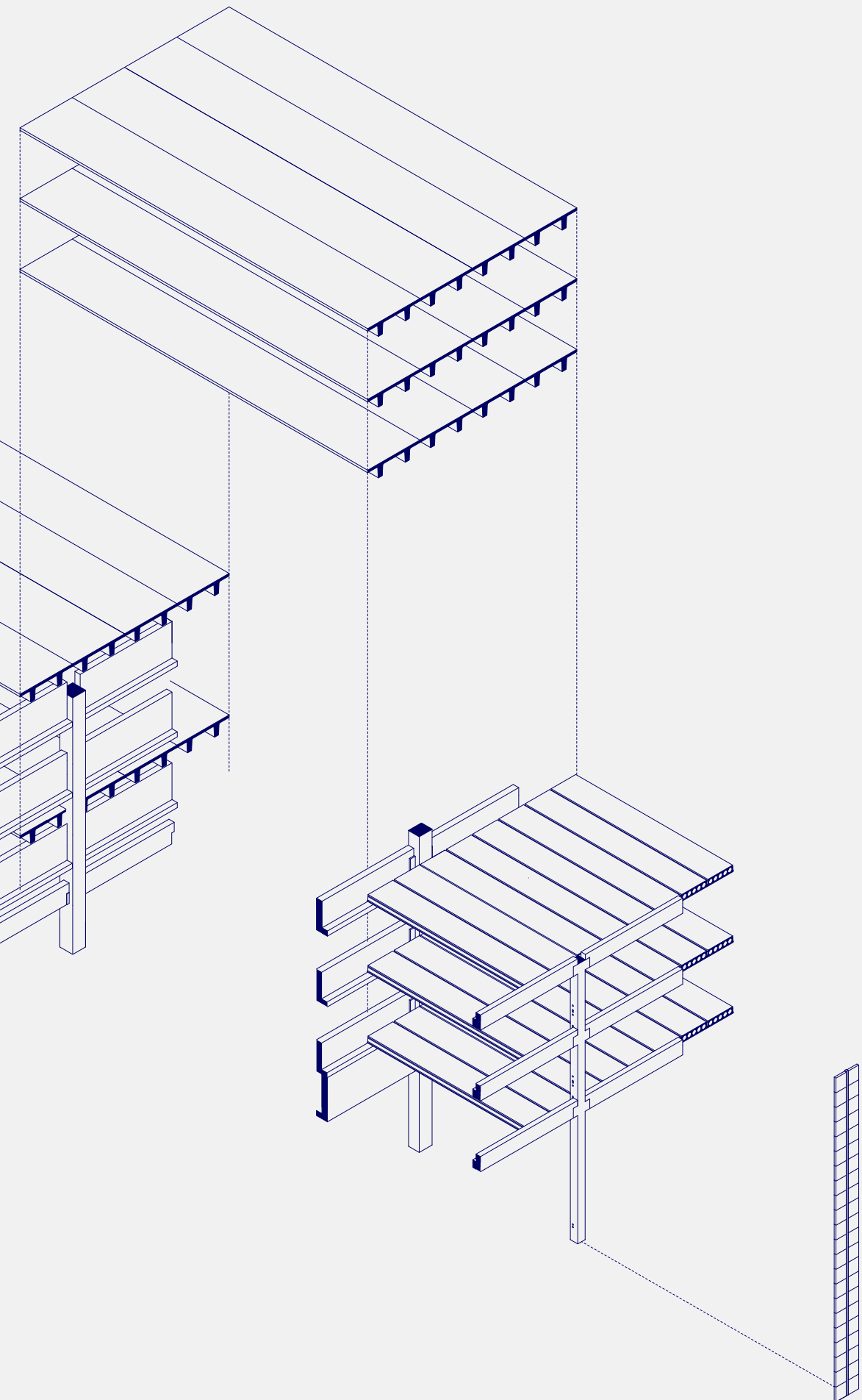


168 TT slabs will be removed, and sent to storing or recycling. The project's new established courtyard garden recycles crushed concrete from unusable TT slabs as gravel.

152 TT slabs are kept and reinforced with constructive concrete cast for continued use. These TT slabs are from the upper floors, as they are to be assumed "healthier".

By removing these elements the building gains spatial qualities which makes it possible to live there. Even though over 50% of the TT slabs will be removed, the reuse of almost all of this building's load-bearing concrete structure will significantly reduce the environmental impact.

Construction principle



They TT slabs must be used in their full length, as cutting them would compromise their structural integrity. Therefore, they will still function as floor dividers, but for the buildings changed use, they will require reinforcement to take the increased load.

The slabs are propped up, the asphalt is removed, the elements are sanded, and 100mm new structural topping is applied. The new and increased cross-section of the TT elements then provides sufficient load capacity to support residential/office use.





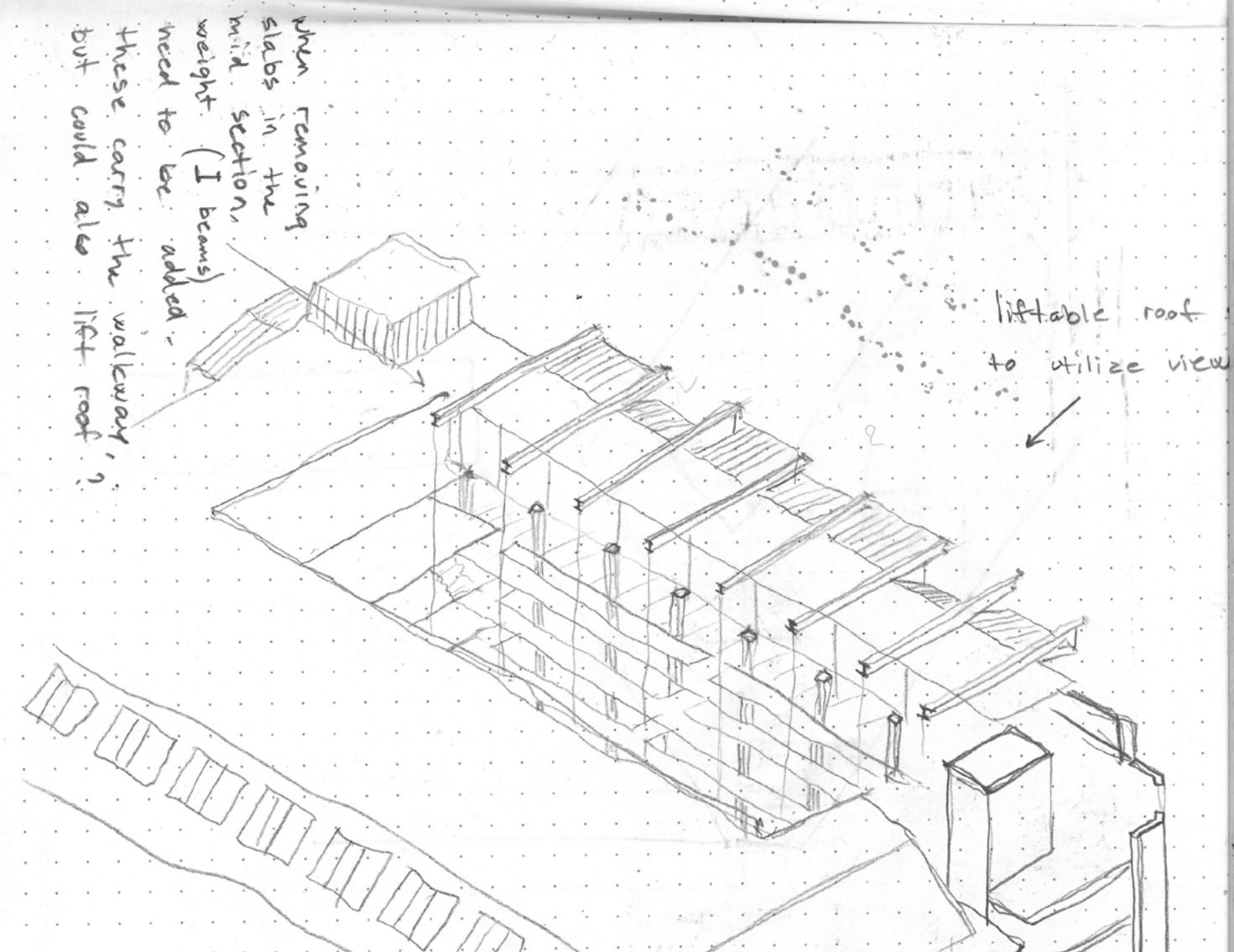
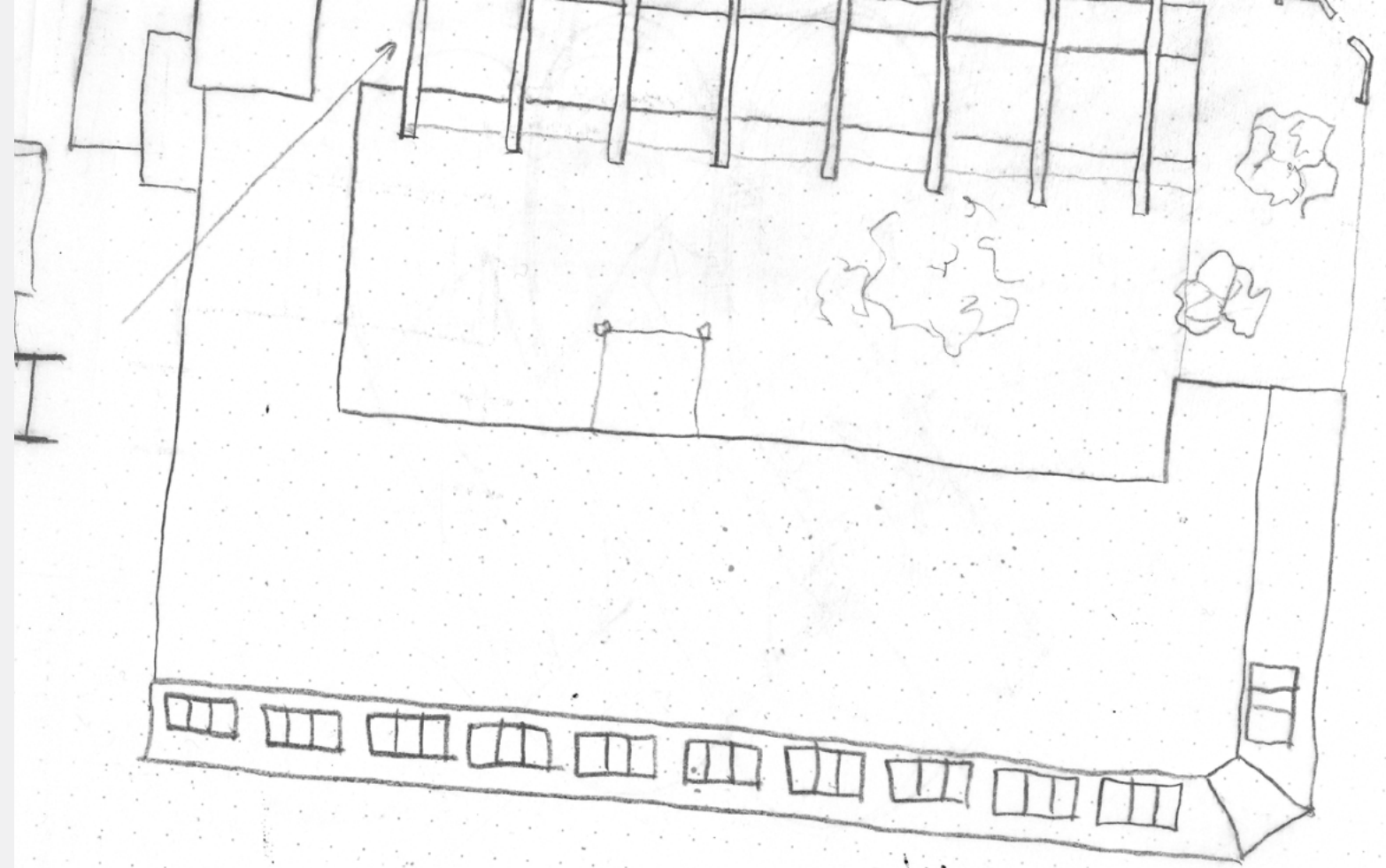
The beams in the northeast-facing facade now bear an increased load, which is resolved by introducing properly anchored support structures in the form of steel columns at the axis points that currently lack columns.

Leca blocks from the current car park is disassembled and reassembled as unit dividers, then lightly plastered.





Removing the TT slabs in the middle section reduces the load on the column/beam structure toward the new courtyard. Some of this load is absorbed along the side that still has TT elements on alternate floors, but the opposite side. By suspending a walkway from a new beam span on the roof, this balances out the structure again. The walkway is suspended by tension rods from I-beams over the roof and rests on HE 120A beams, which are mechanically attached to the column.

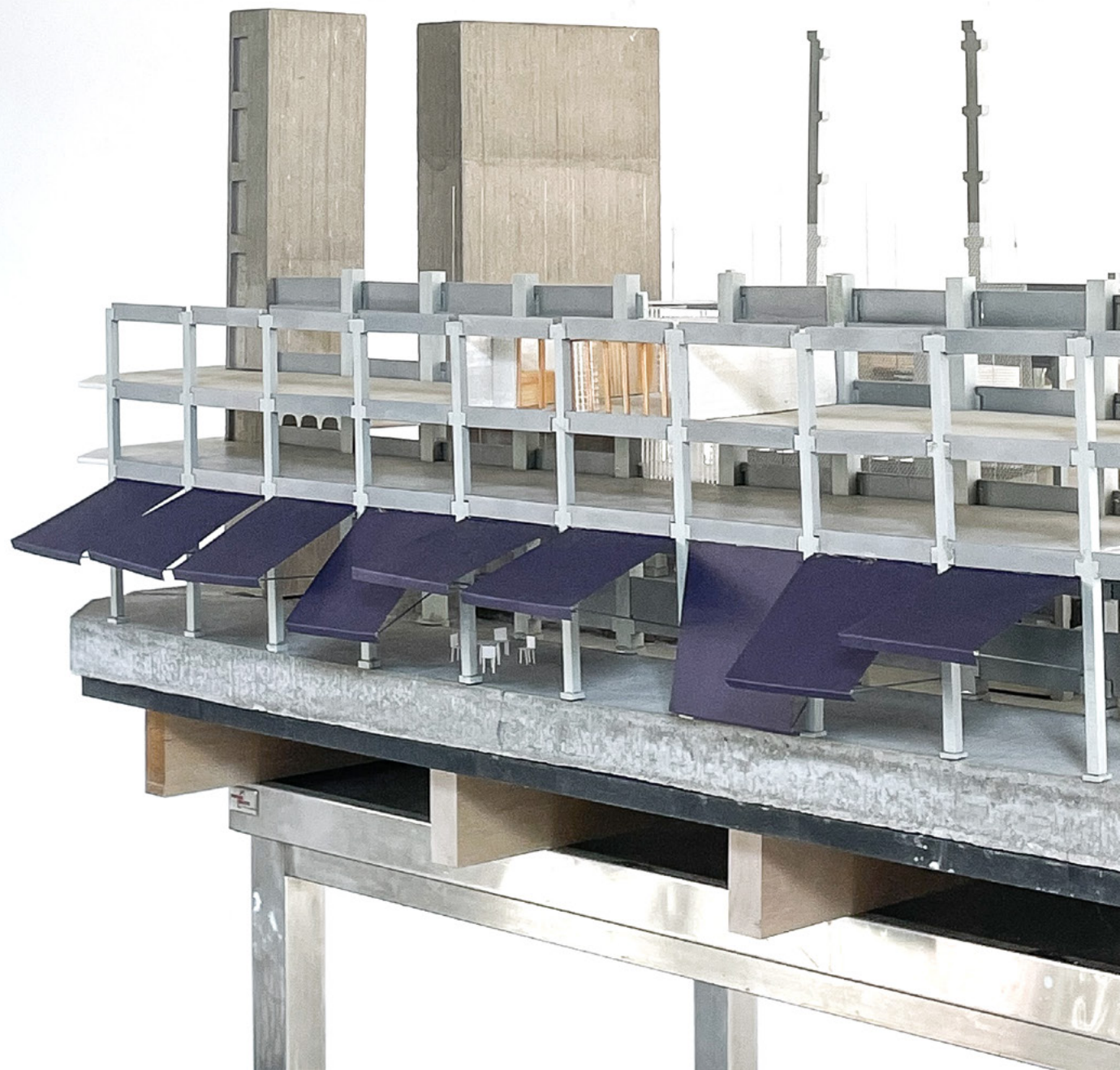




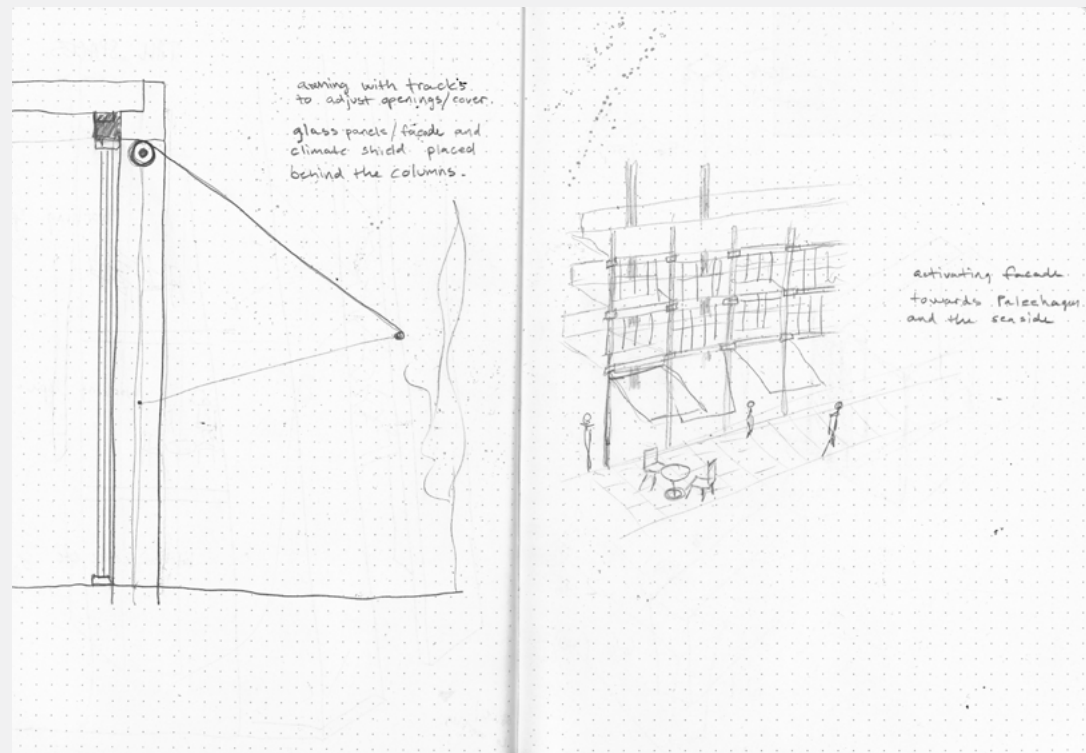
# construction

m o d e l

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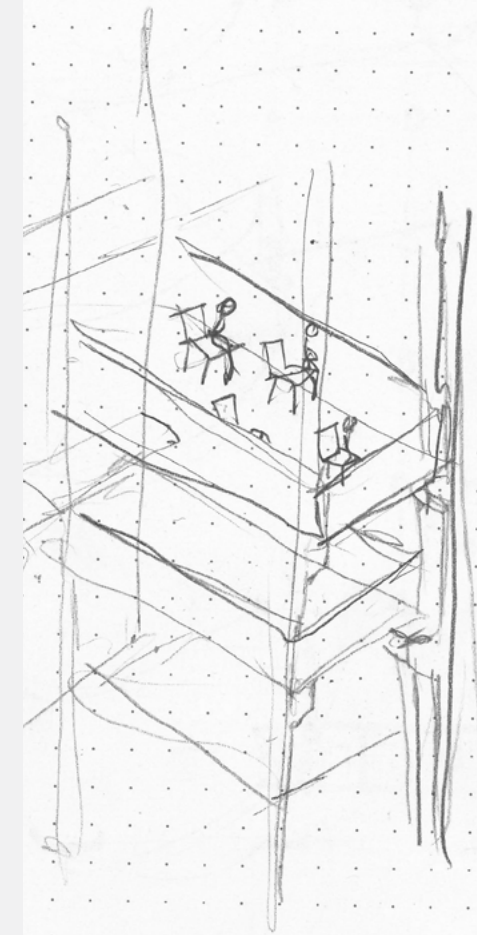




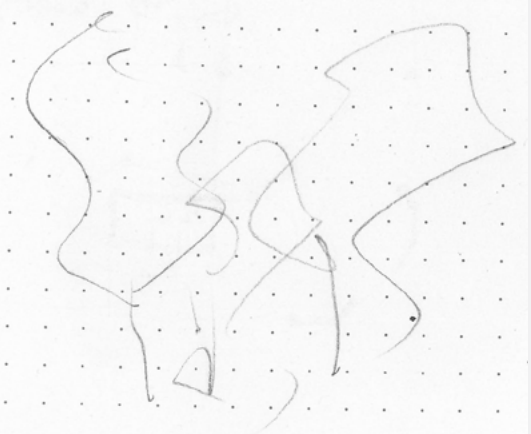
Larger multi level - multi bedroom, apart.  
All apartments have their own outdoor sp

Almost all ramps are kept and use  
as circulation space.

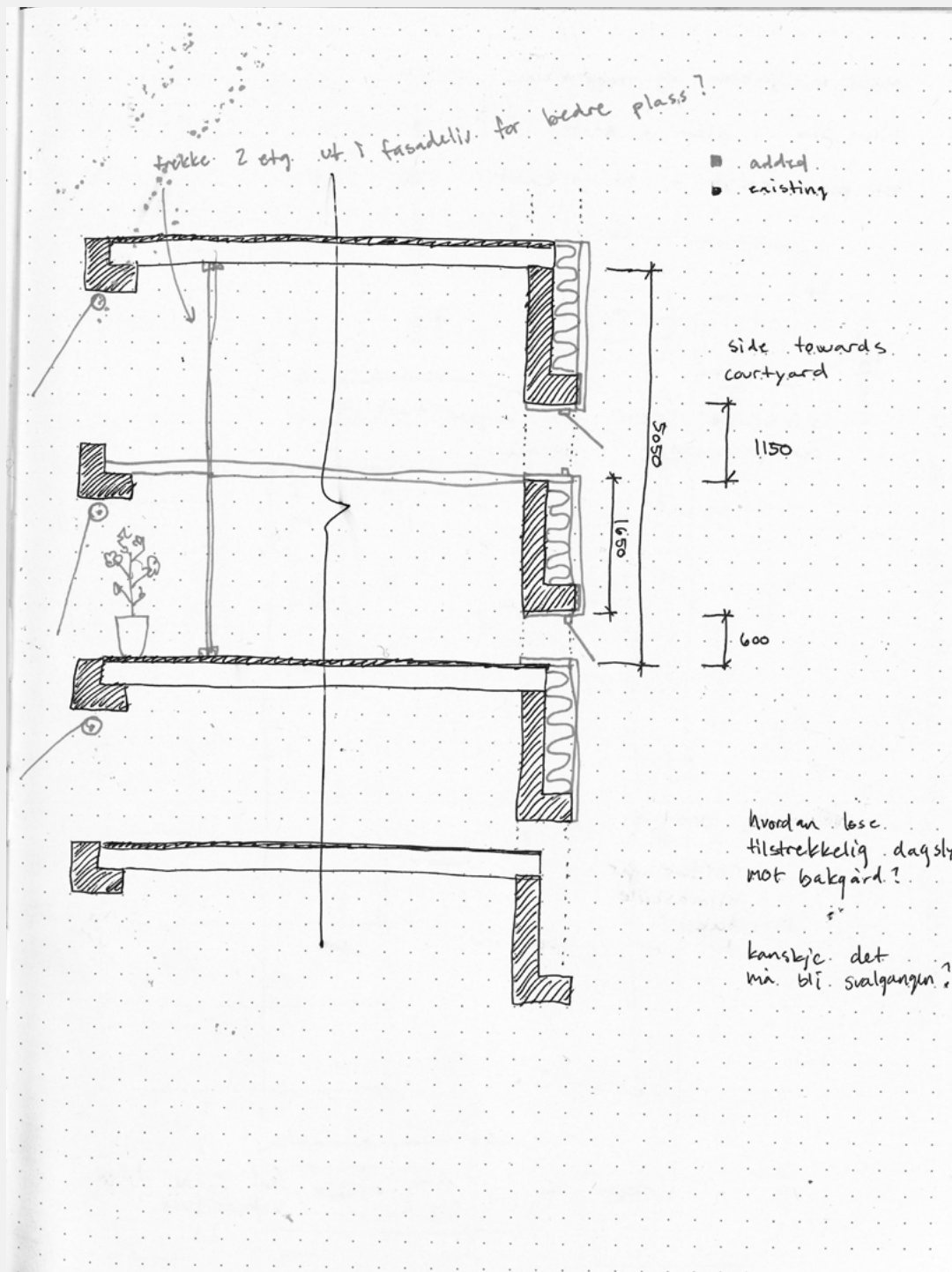
Middle ramp could be seating for  
events?



ACTIVATING  
RAMPS WHEN  
NEEDED





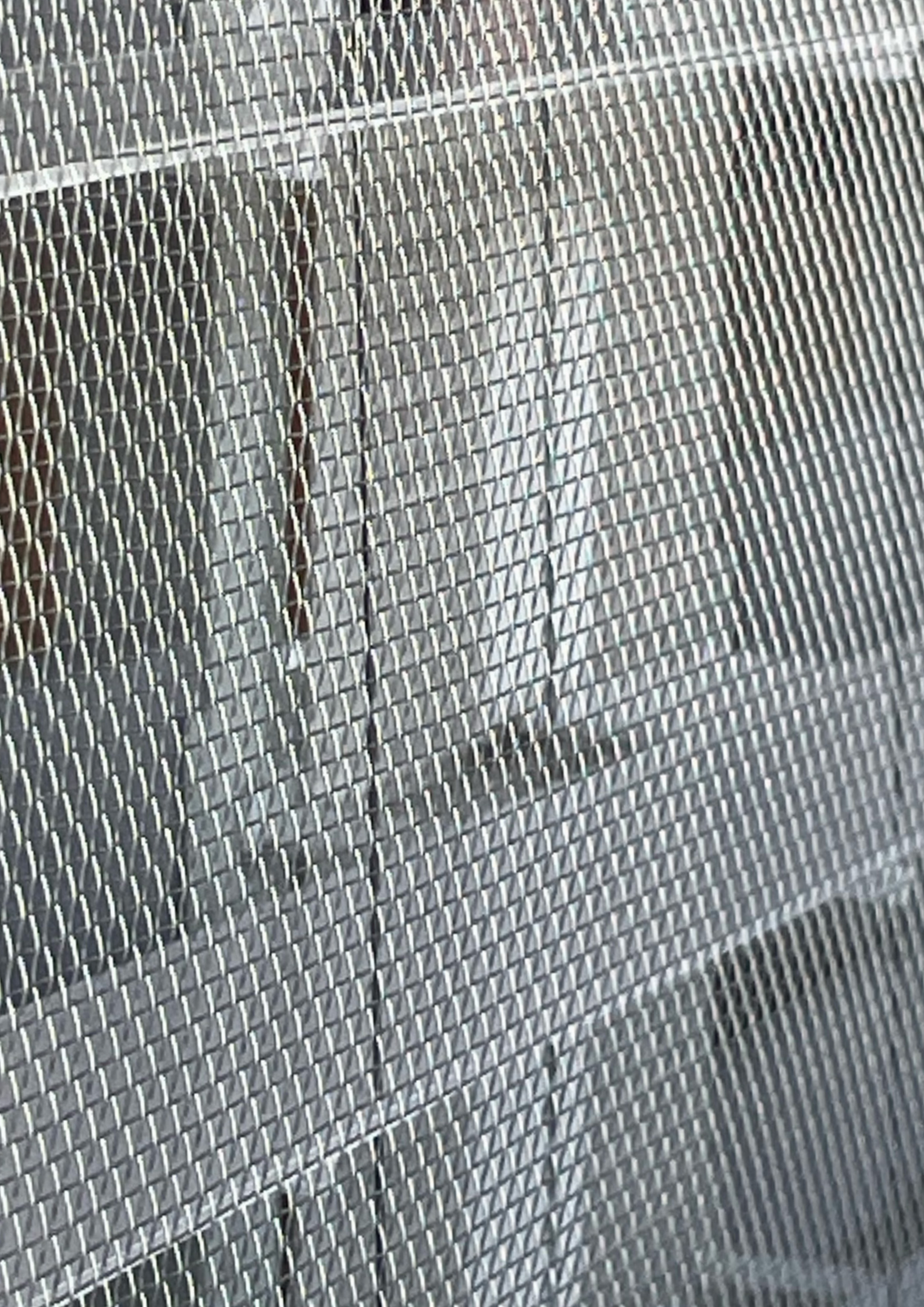






The facades towards the city are pulled back from the construction to provide a sense of privacy, and space for private gardens. This privacy is even more important when living in the middle of the city centre.















a r t e f a c t

m o d e l s

1 : 2 5

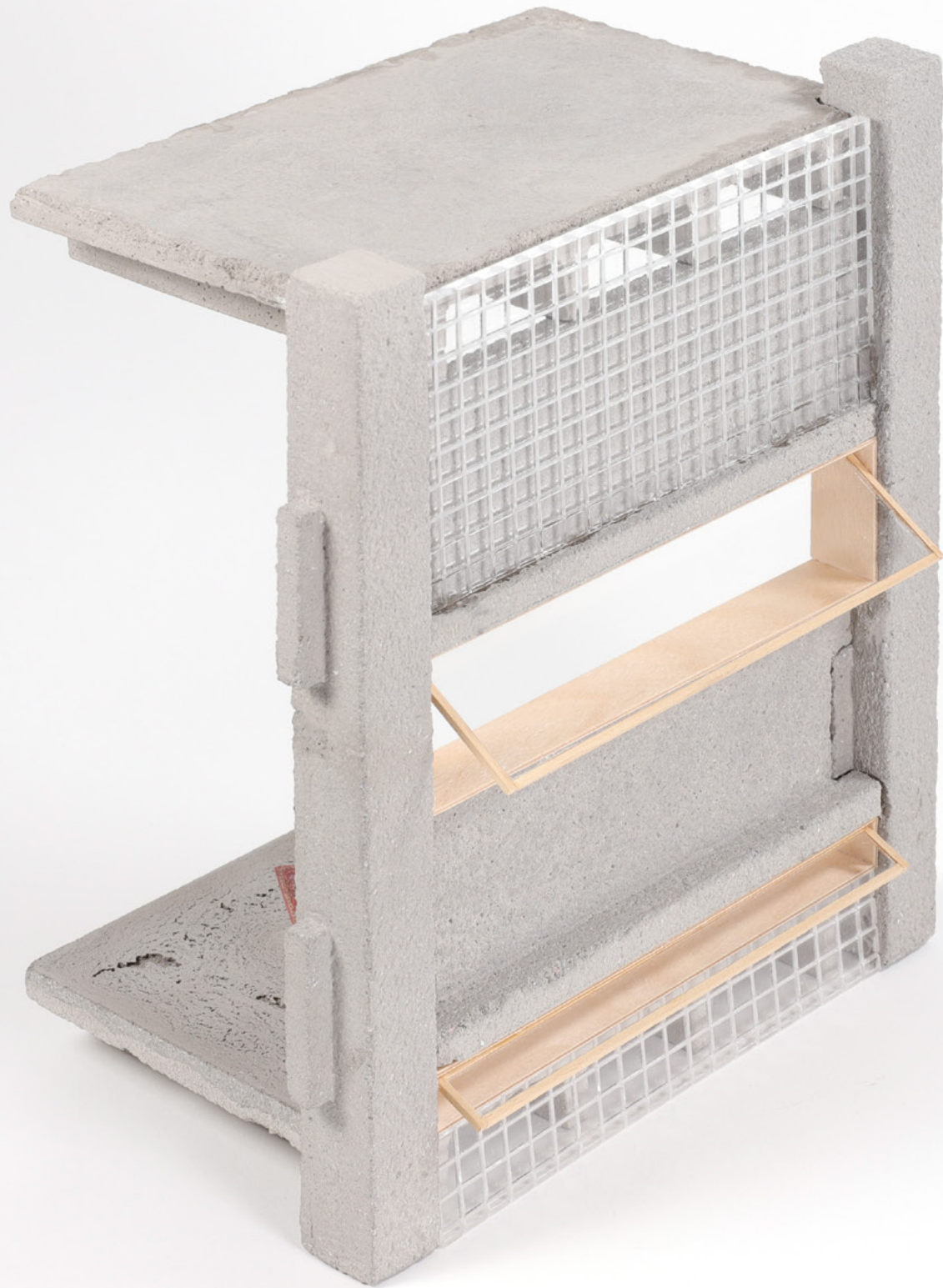






To emphasize the spatial qualities the structure can bring, the artefact models in 1:25 shows two of the facades and how small gestures brings a whole new feeling to the space.





Like adding windows to the gaps between the beams and isolating glass blocks on the beam “shelves” to climatize a room. This drags daylight along the underside of the TT slab and the lower window of 30 x 420cm facilitates for a more private space.



While on the north-west facing facade, apartments get daylight, privacy and balconies when the construction is exposed and the facade drawn in behind it.



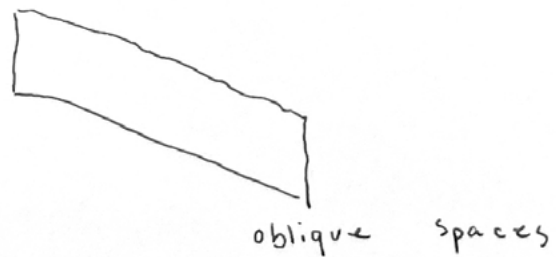
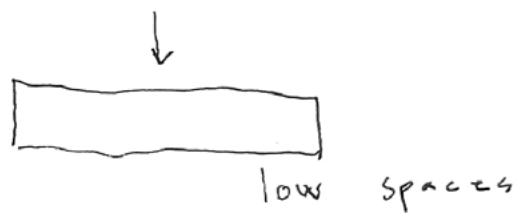
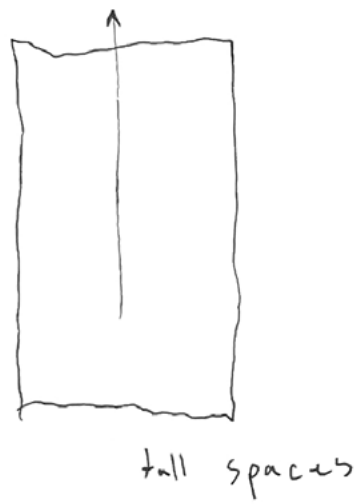


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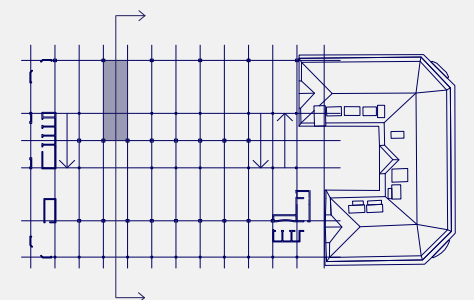
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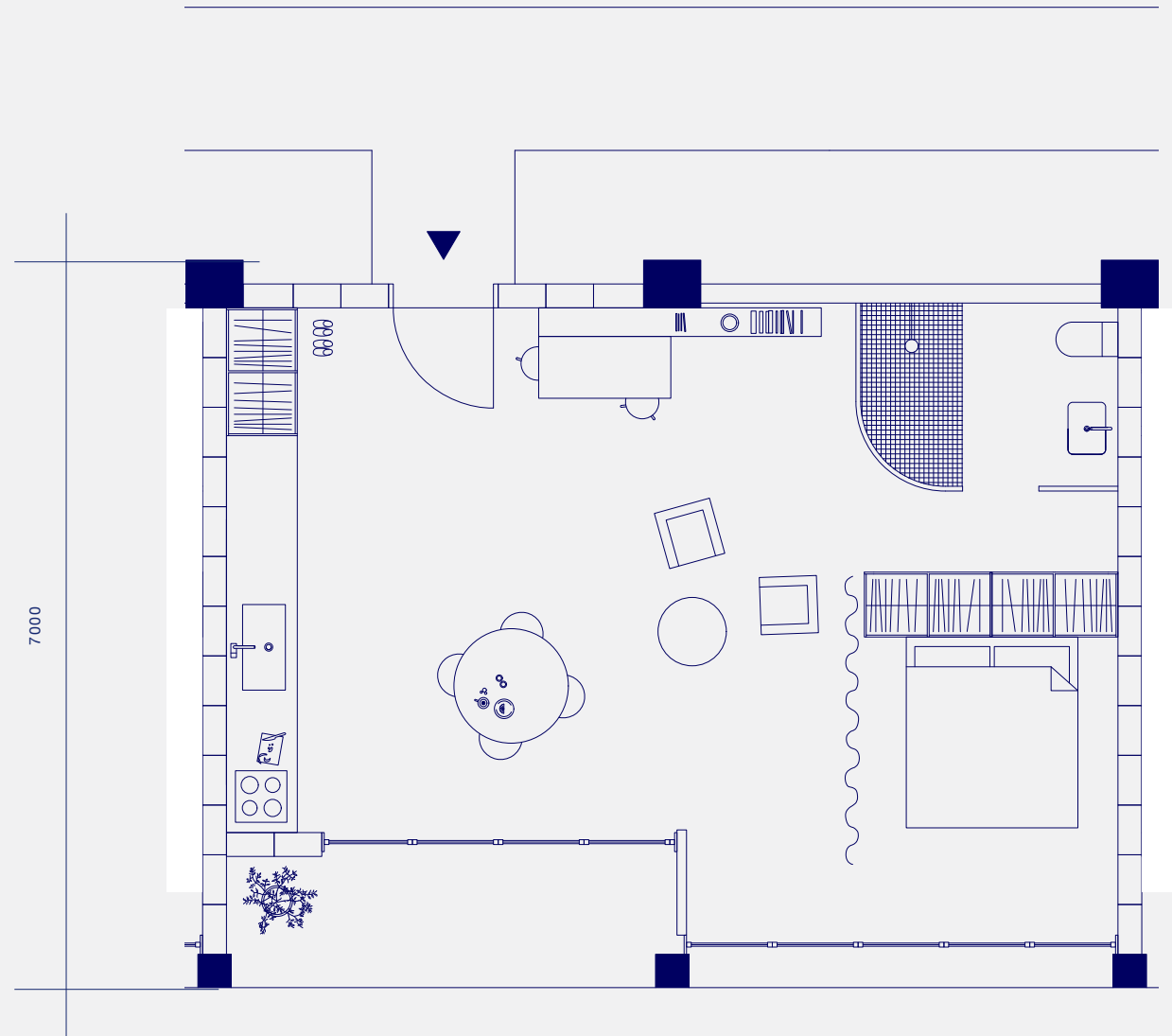


On the opposite side of the courtyard, the spaces becomes deeper and narrower when separating units. To maximize natural light and ventilation, there are windows in the spaces between the beams facing the courtyard, and recessed folding facades towards the street for private outdoor areas, increased privacy, and maximum natural light and air.

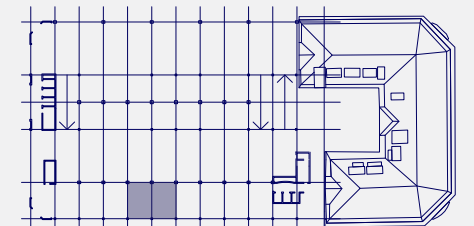


s h a l l o w



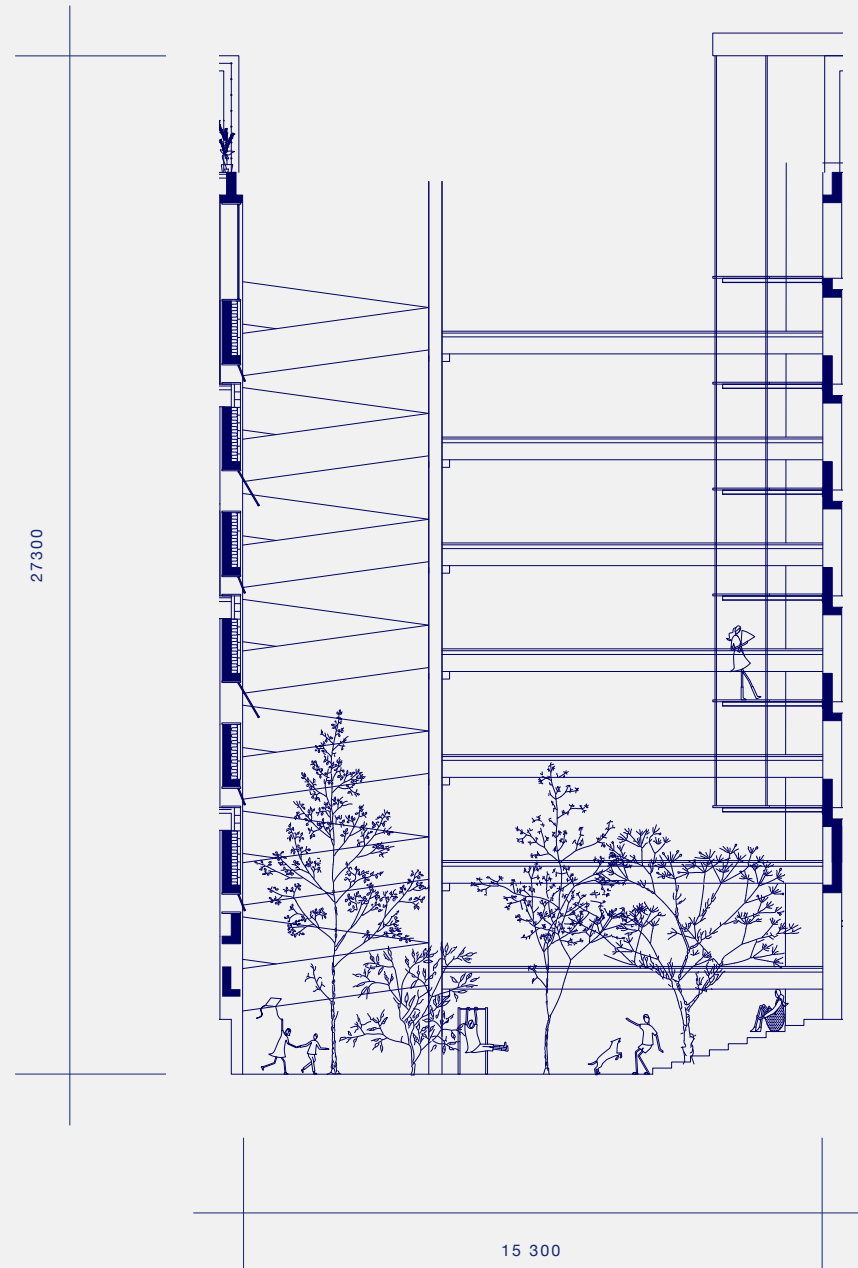


The long side of the building facing the Oslo Fjord, which currently houses office spaces, presents a challenge due to its shallow depth. This results in rather unfavorable circulation situations. Therefore, for continued use, a covered walkway is added on the courtyard facade, maximizing the utilization of the limited depth available and creates dwellings with ample facade space.



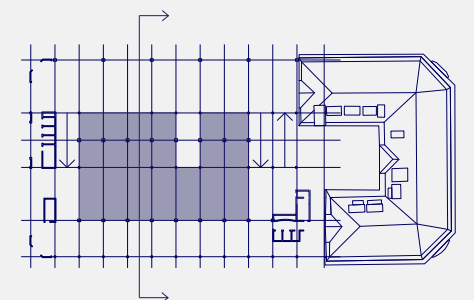
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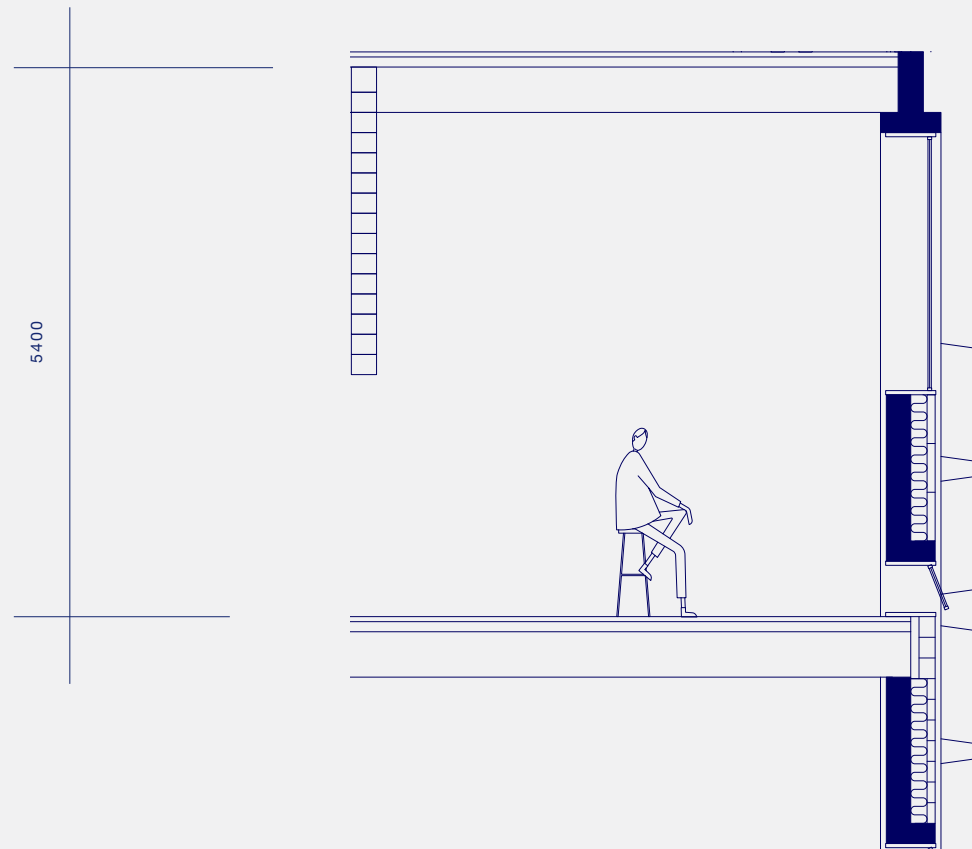




The outdoor space established after the removal of the mid section of TT elements, forms a narrow and tall green courtyard where the construction is fully readable.

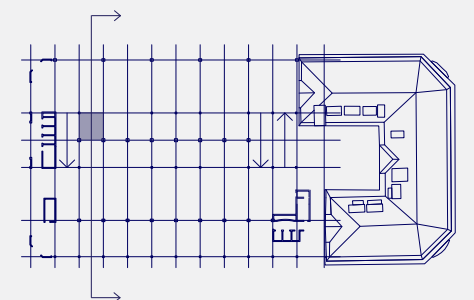
The backyard becomes the mediator between programmes, mainly visually, and partially by access.





Section 1:75

At some locations, the hallway grows to become small double-height rooms. These can be rented out as studios or ateliers where the occupant stands free to use it as one tall space or add a small loft.

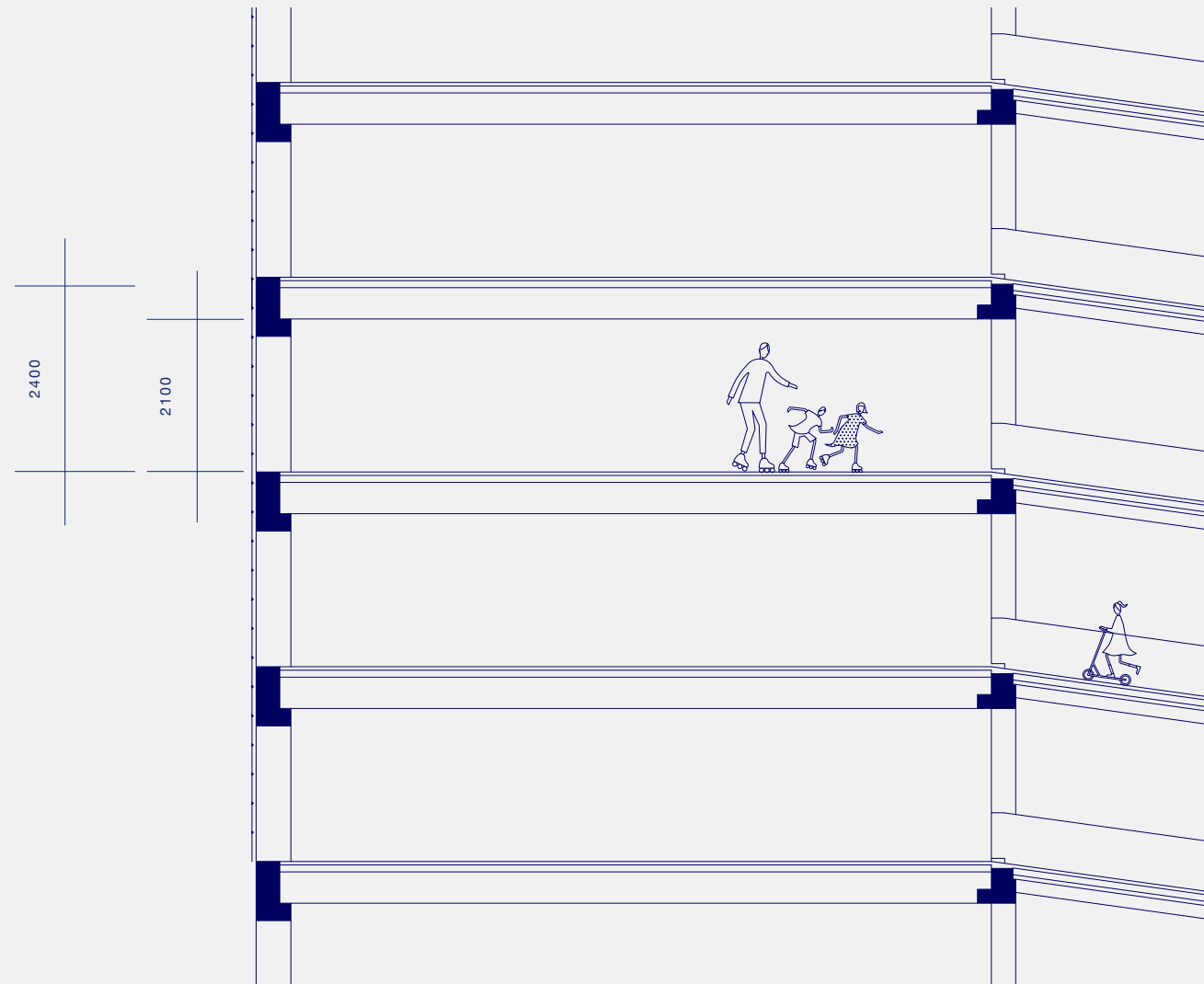




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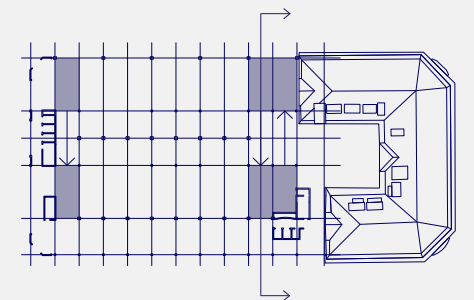
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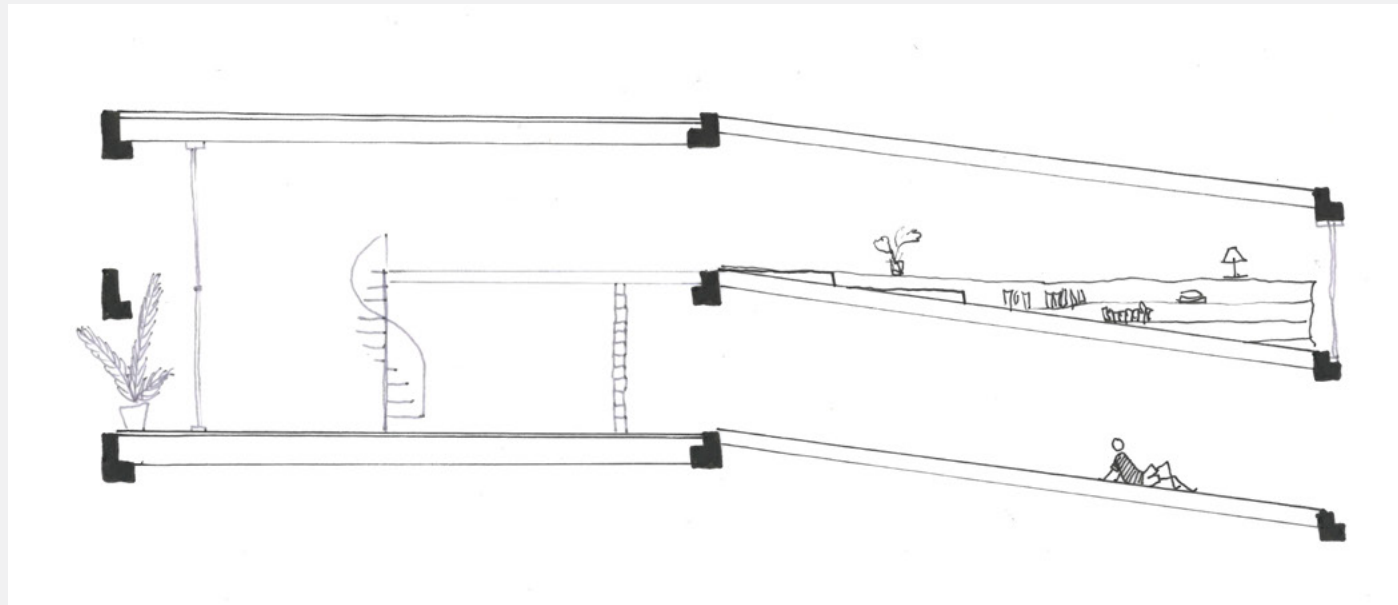
Section 1:75

The ramps, which continues as circulation areas, maintain their connection with the TT elements. These areas of the building also retain their low ceiling height of 2.2m under the ribs (2.1m after structural topping), and 2.5m (2.4m) between the ribs. These are spaces that, in addition to circulation, can be utilized as laundries, communal kitchens, bicycle parking, workshops, and play.



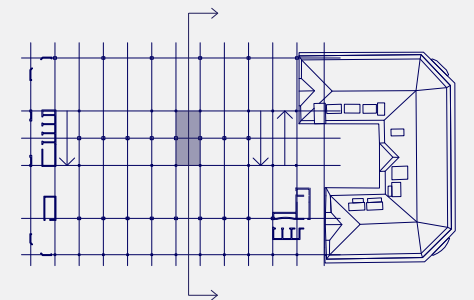


*o b l i q u e*



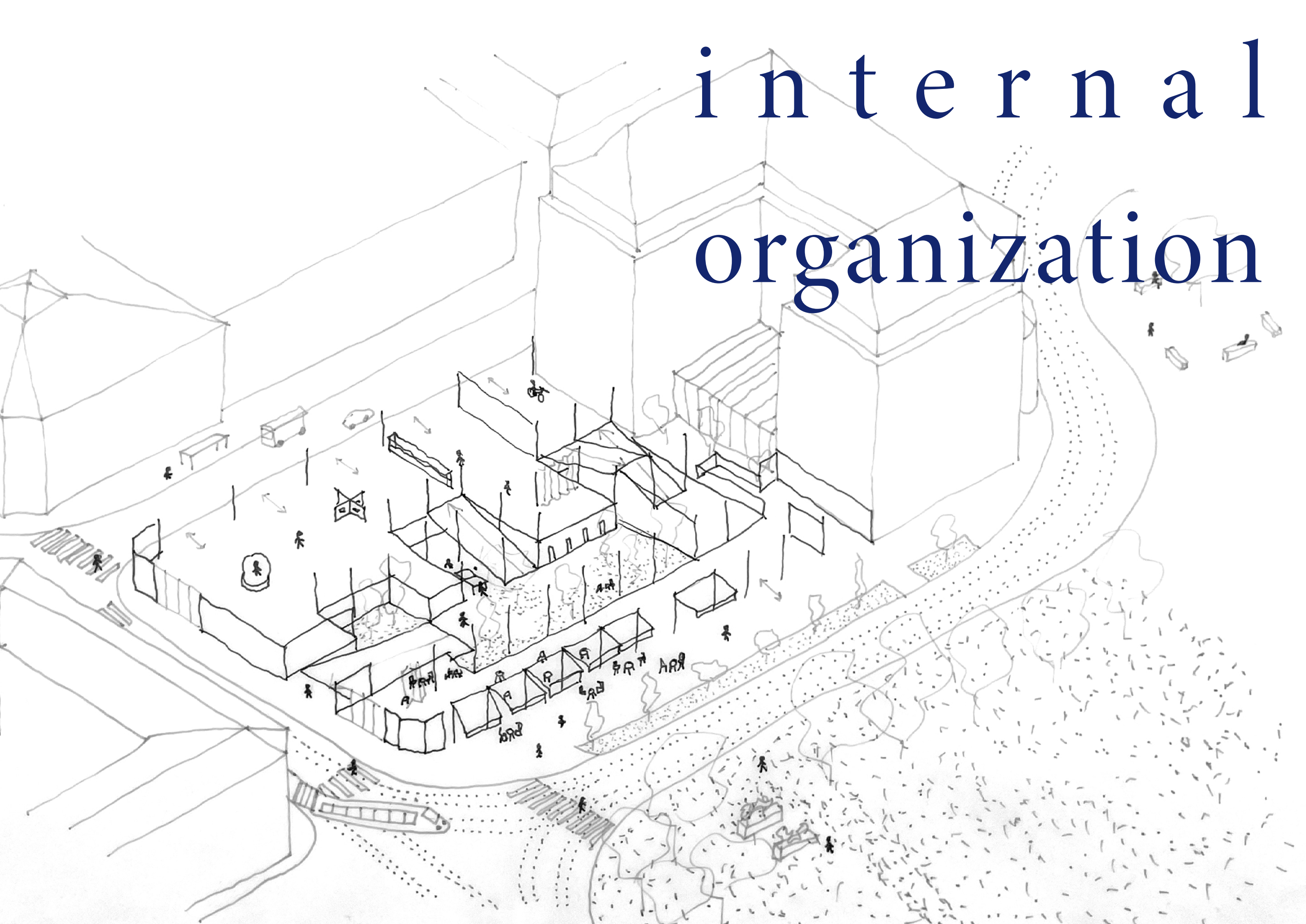
Section sketch

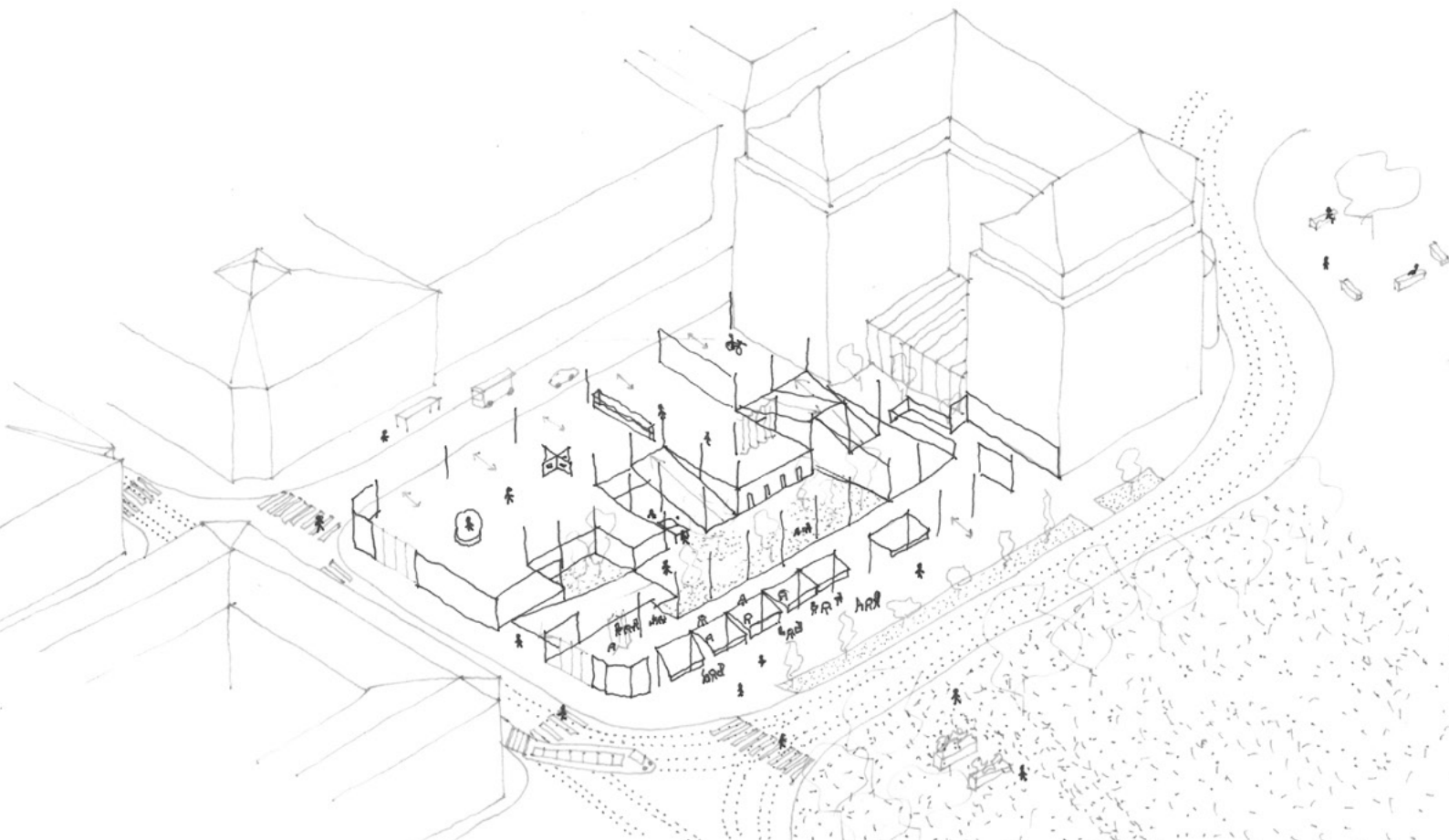
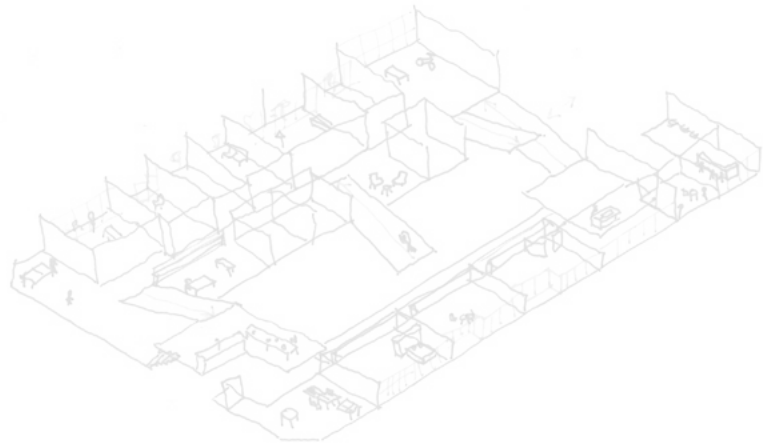
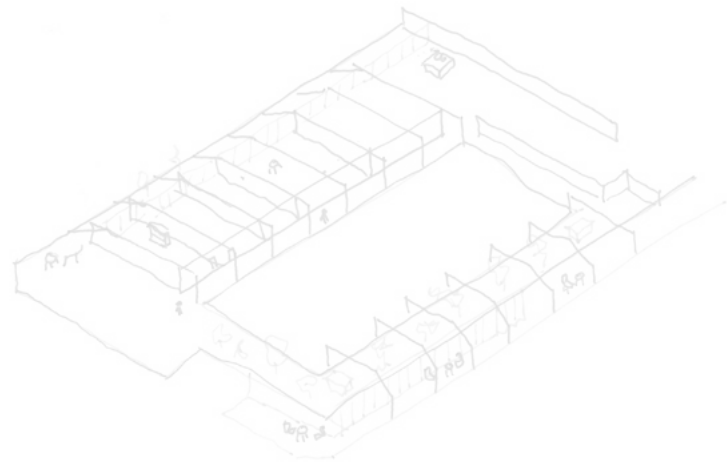
In the mid section, the ramps are kept as part of apartments and collective spaces for view of the garden.





# internal organization

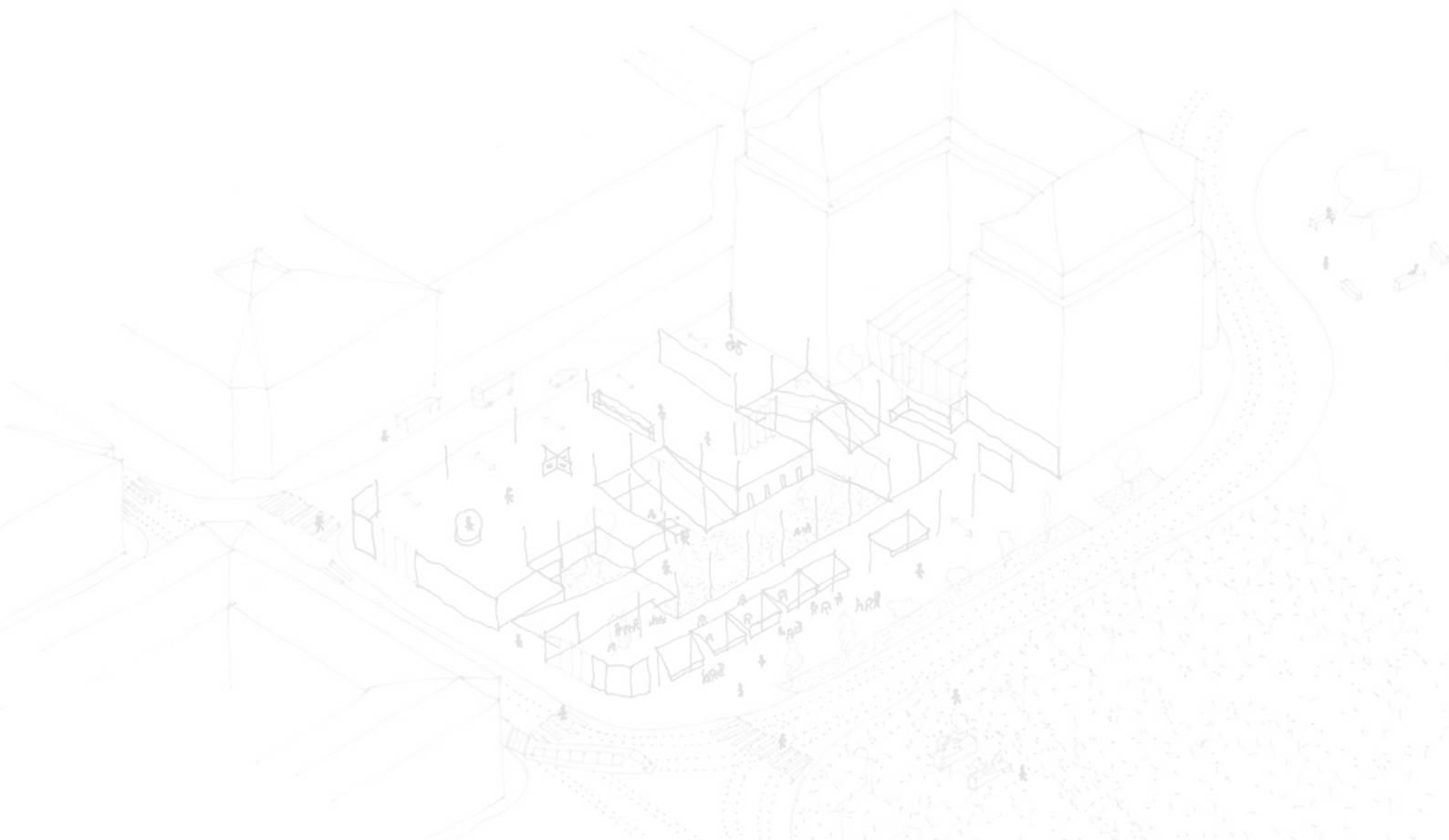
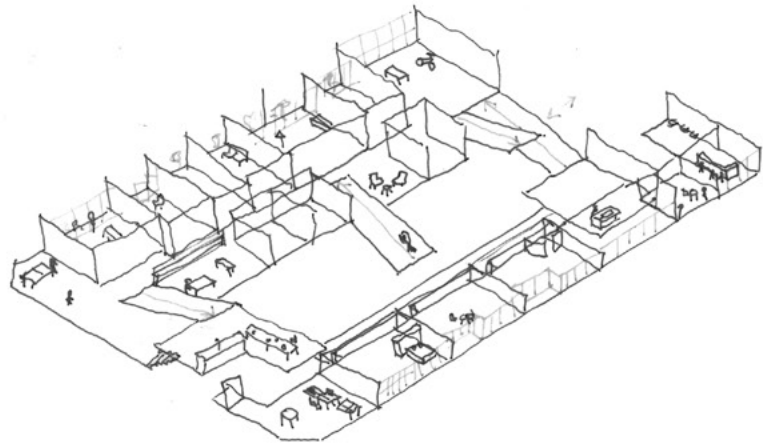
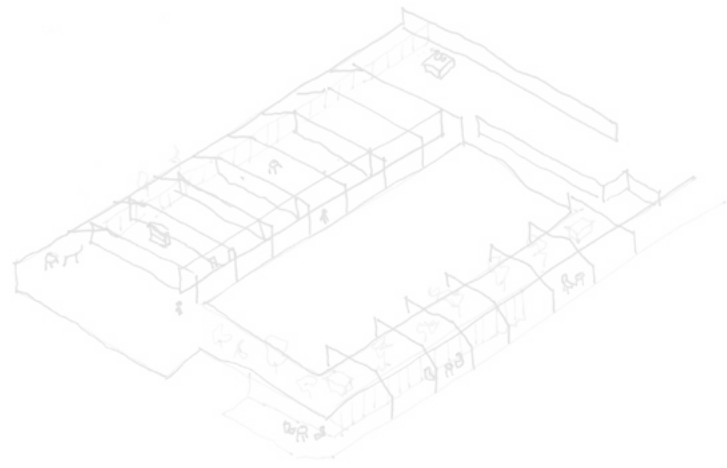




There is a significant potential for this building to contribute to the revitalization of urban life in Kvadraturen, both because it is centrally located and because its plot relates to public green spaces, public transportation, and the sea.

At street level, therefore, the boundary between the street and the building is blurred by opening up the facade facing Standgata and inviting people in to the periphery of the building, which makes room for public programming, while the centre of it makes space for a green garden.

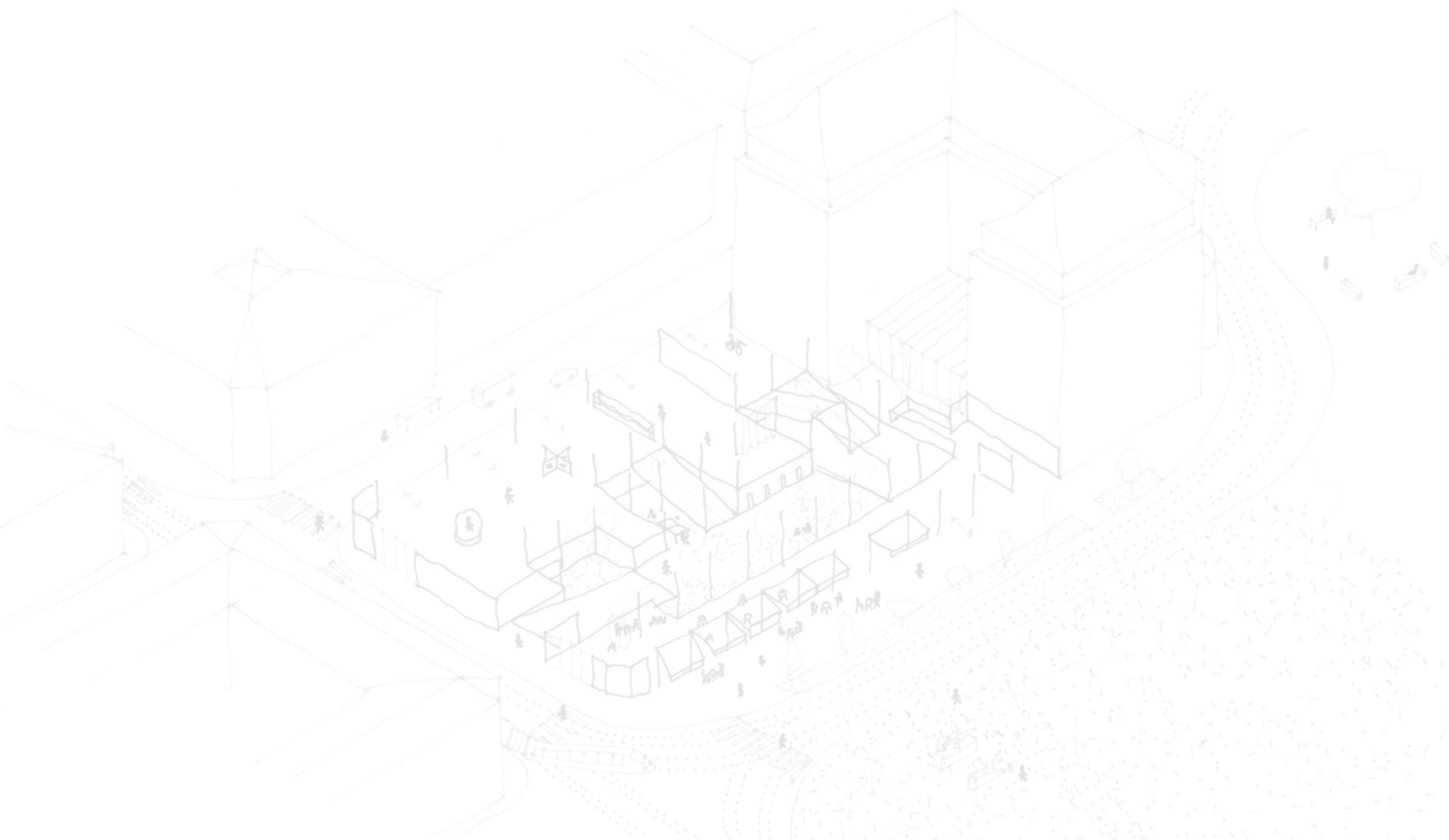
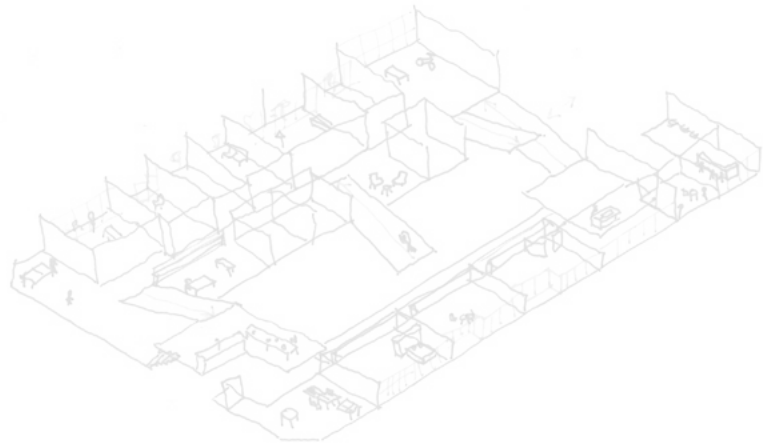
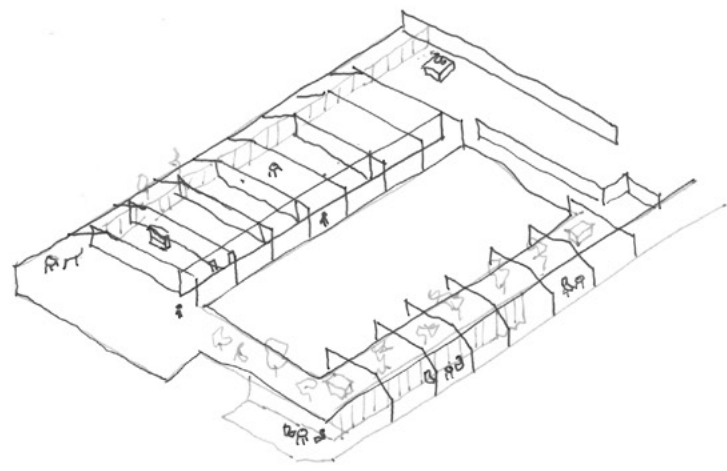




From the 4th to the 9th floor, the building is designed for residential purposes. The two different sides of the building offer different qualities to the apartments, thus providing a wide range of housing options.

The ramps are used for circulation, as breathing spaces, and internally within units (as shown earlier), as well as collective amenities such as laundries, communal kitchens, and hobby rooms that are located adjacent to the ramps on each of the short sides. An important aspect has also been to visually open up towards Amerikalinjen's backyard.

To emphasize the buildings verticality, today's meeting rooms connected to the elevator core in the north wing will be transformed into small individual bars/restaurants of 20m<sup>2</sup> each, with associated balconies.



On the 9th floor and rooftop plan, the space is opened up, and apartments are formed between the steel frames that previously held the roof panels. All of these apartments have balconies facing west where the steel frames slope, and a covered walkway is formed on the side facing the backyard.

There is a unique quality of being on the top of the tallest buildings in the midst of the city, and to make use of this potential, the roof has to be redefined.

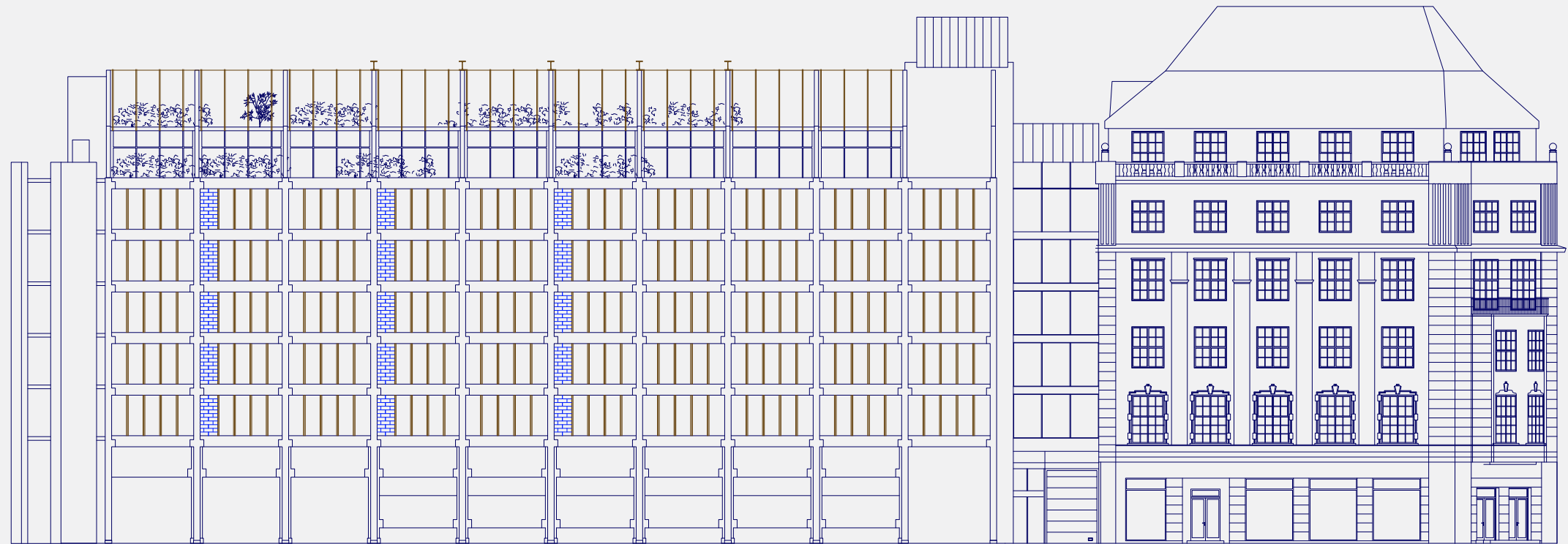
Towards the Oslo Fjord and the Opera House, the floor is opened up for a semi-private rooftop garden with opportunities for dining, and the mezzanine above will have a private greenhouse for residents and dining where everyone has their own parcel.



p r o j e c t

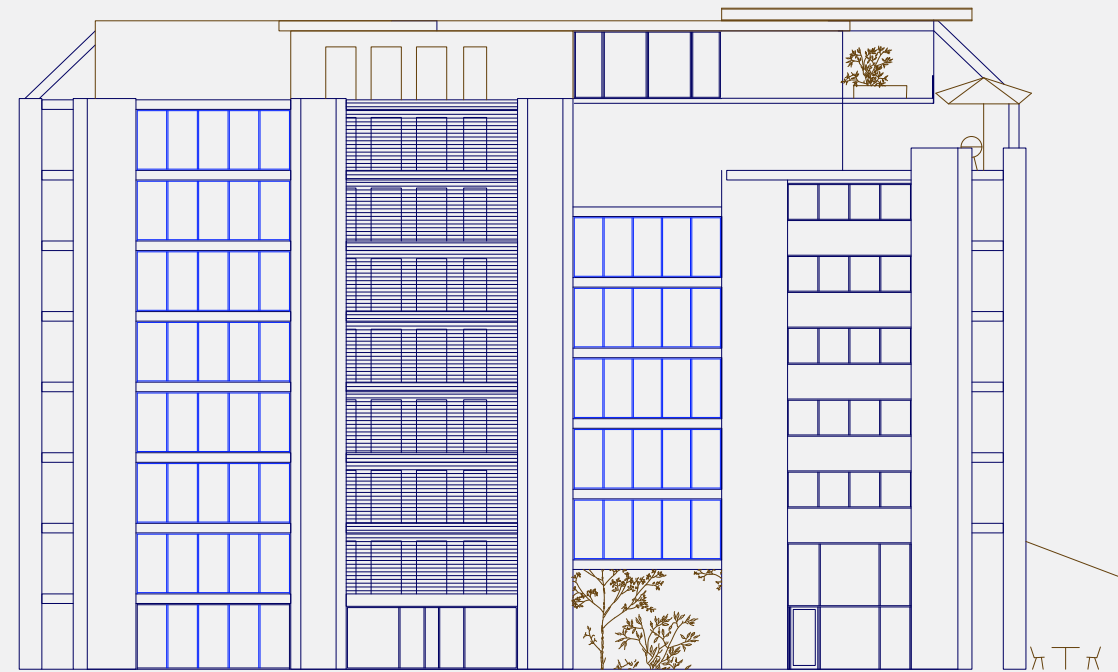
d r a w i n g

s e t



- Existing
- Moved and reused
- Added



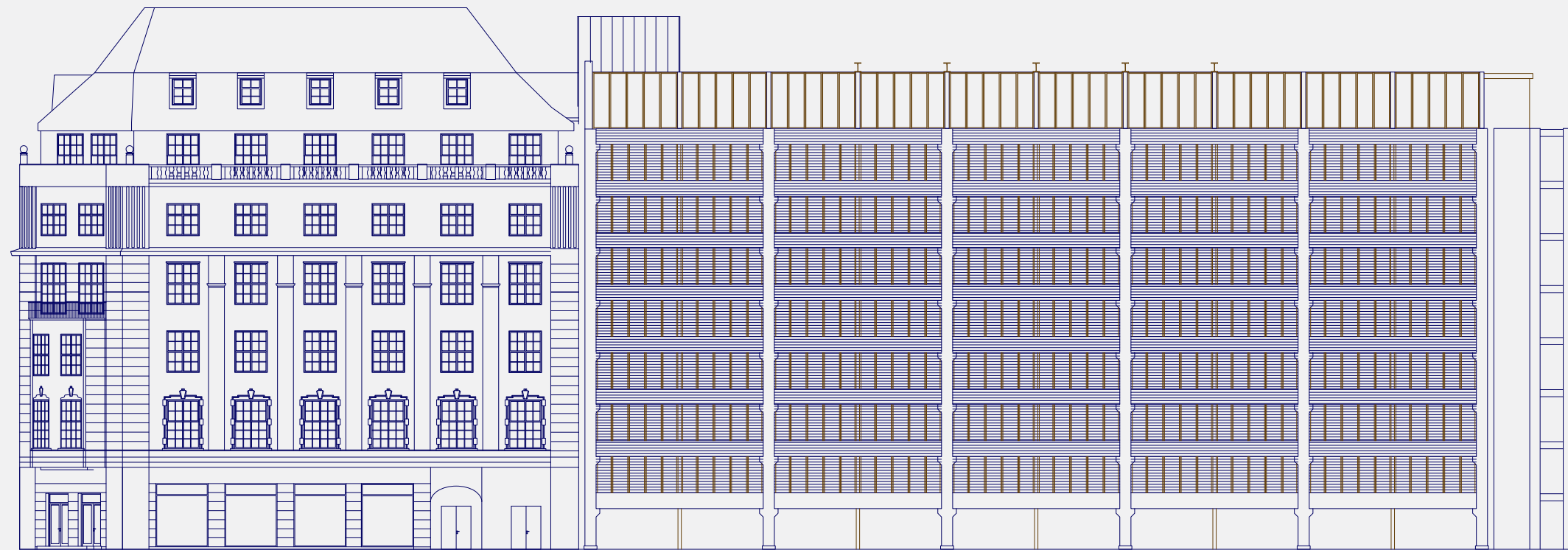


- Existing
- Moved and reused
- Added

Elevation 1:300



facade towards Prinsens gate 1:300



- Existing
- Moved and reused
- Added

Elevation 1:300



facade towards Fred Olsens gate 1:300

150

151

1 2 3 4 5 6 7 8 9 10 11 12 13

4800 4800 4800 4800 4800 4800 4800 4800 4800 4800 4800 5400

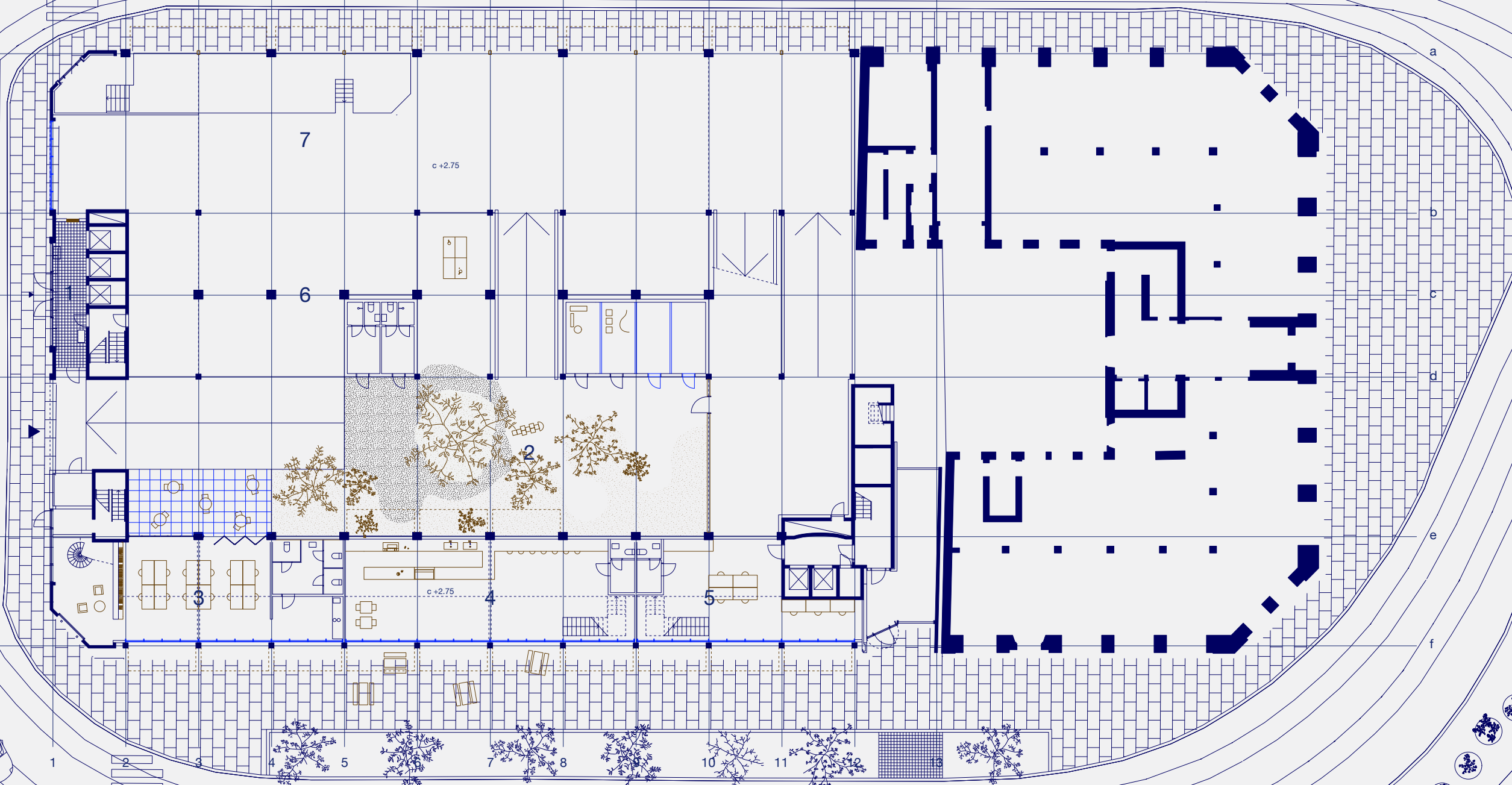
a 10500

b 5400

c 5400

d 10500

e 7200



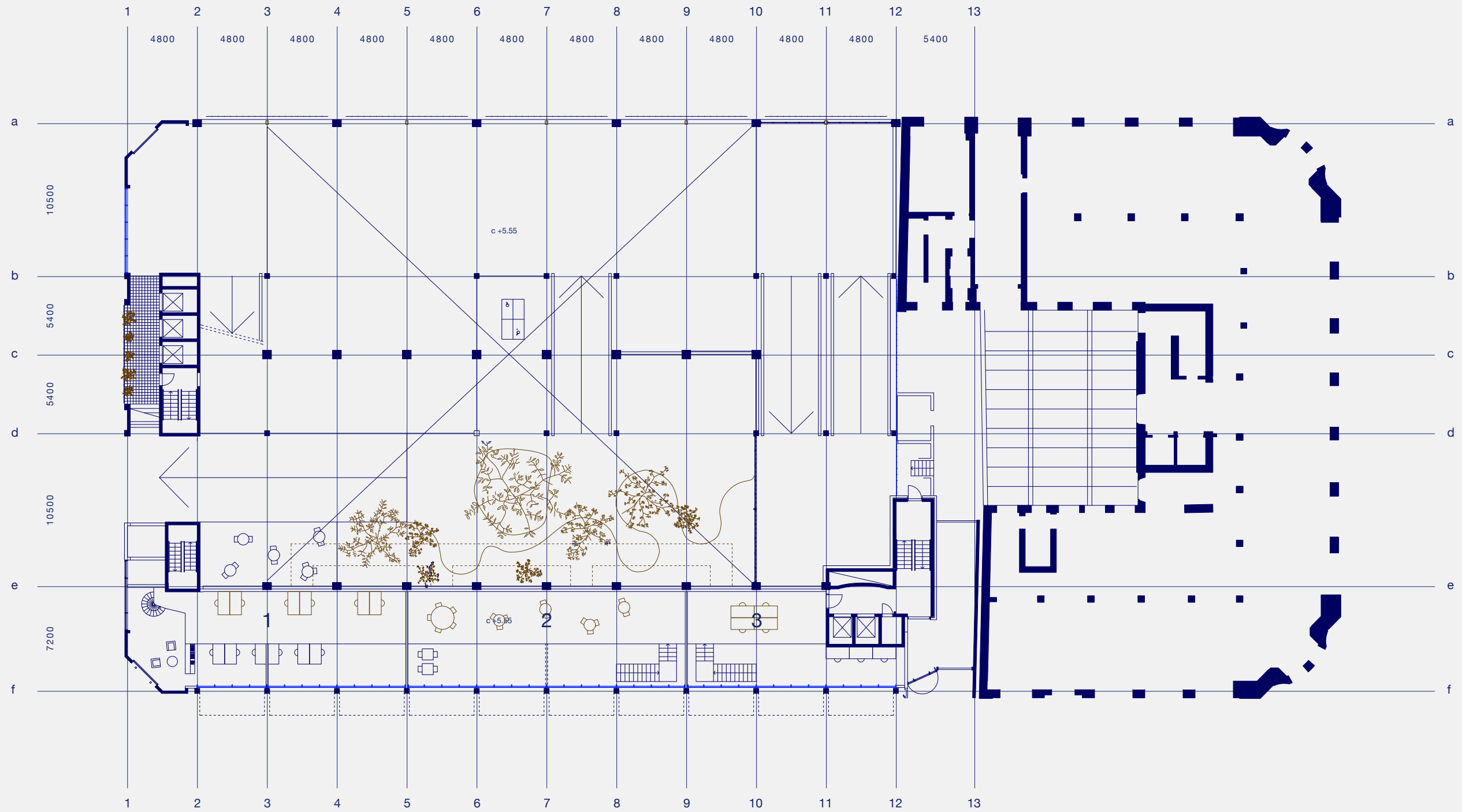
- Existing
- Moved and reused
- Added

- 1: Entrance for residents
- 2: Courtyard garden
- 3: Her co-working space
- 4: Office
- 5: Office
- 6: Gym for residents
- 7: Public/commercial space

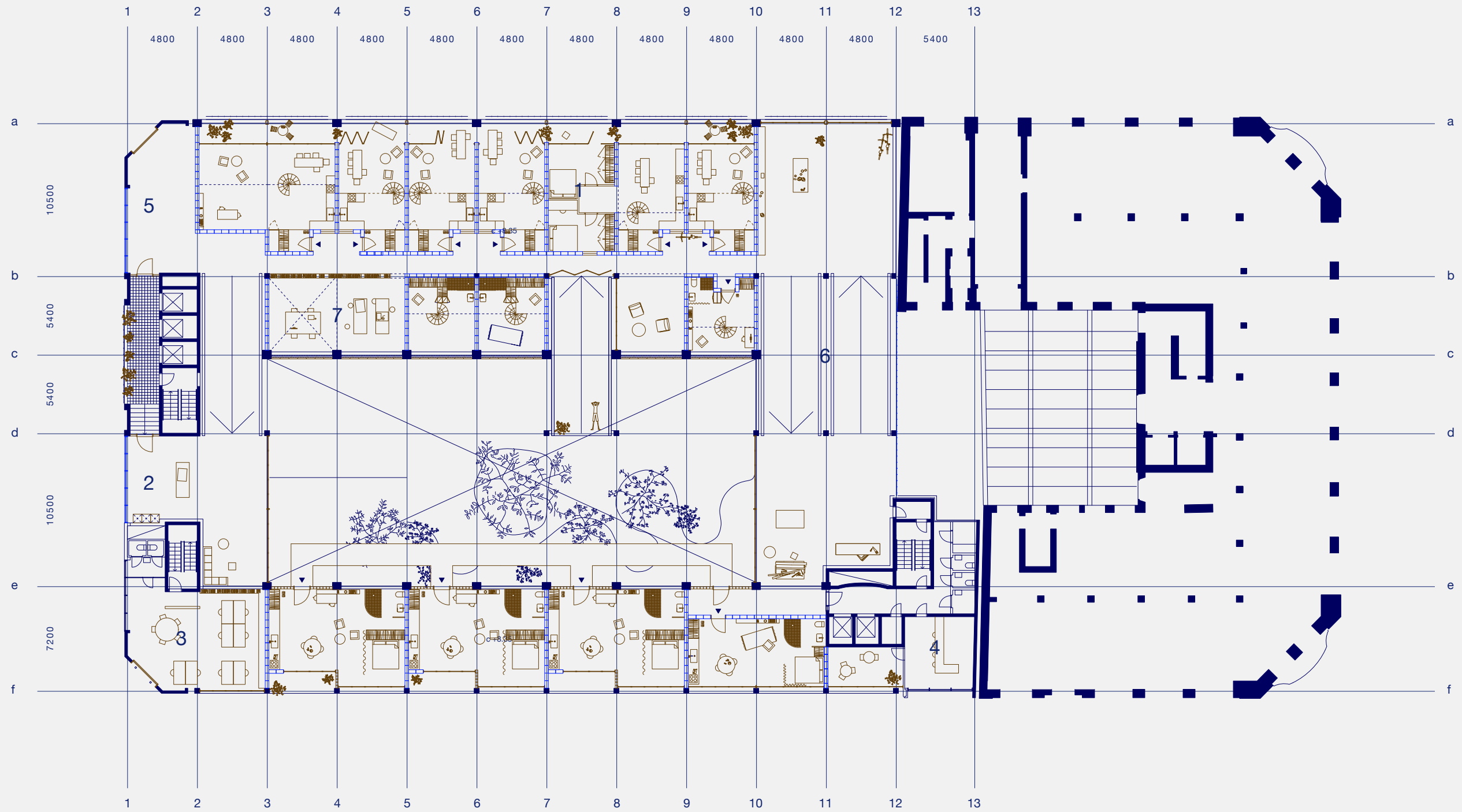
Plan 1:300

ground floor w/area



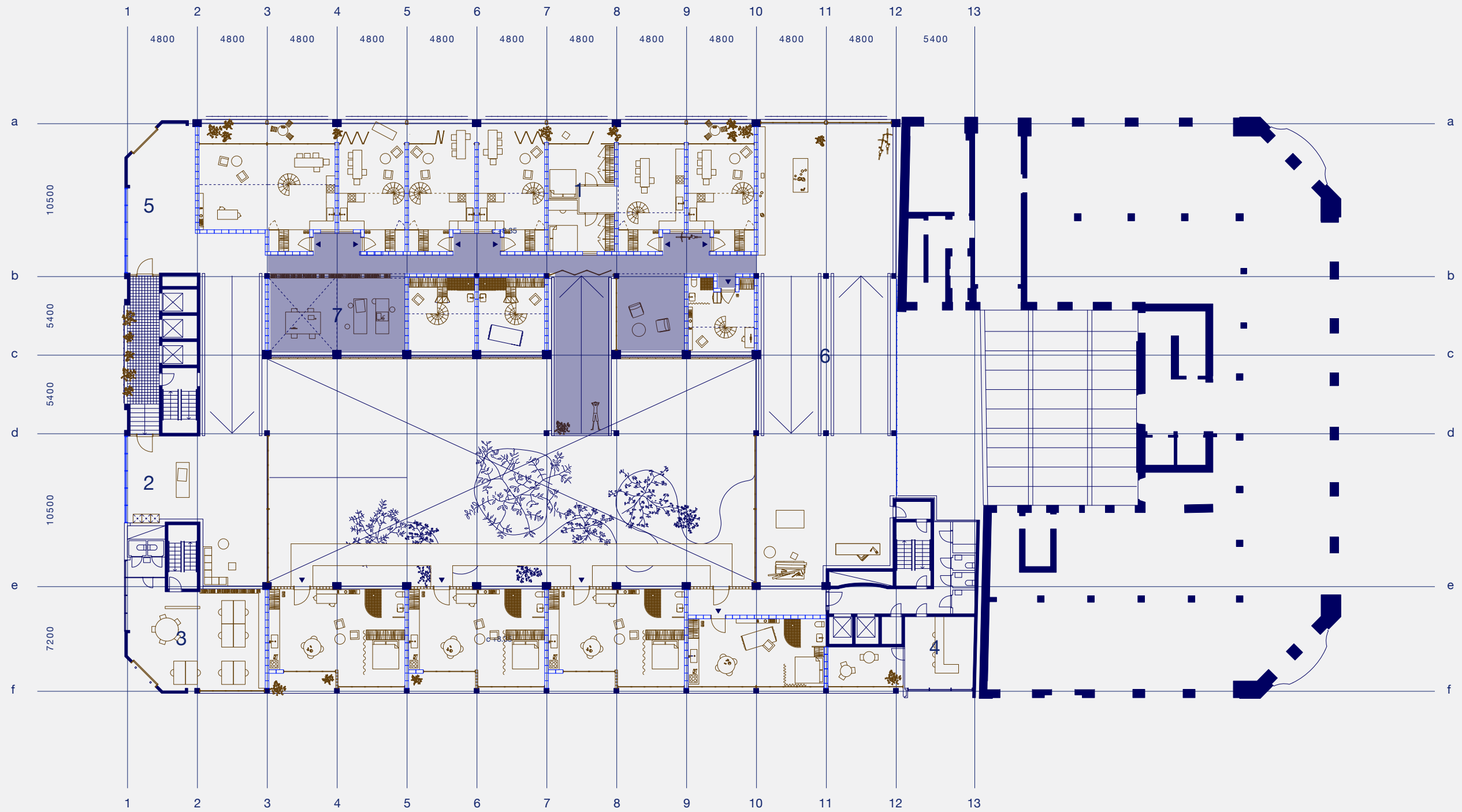


- 1: Mezzanine co working space
- 2: Mezzanine cafe
- 3: Mezzanine office



- Existing
- Moved and reused
- Added

- 1: Living units
- 2: Laundry
- 3: Co-working space
- 4: Bar/Dining
- 5: Common areas
- 6: Common hobby areas
- 7: Atelier/Studio

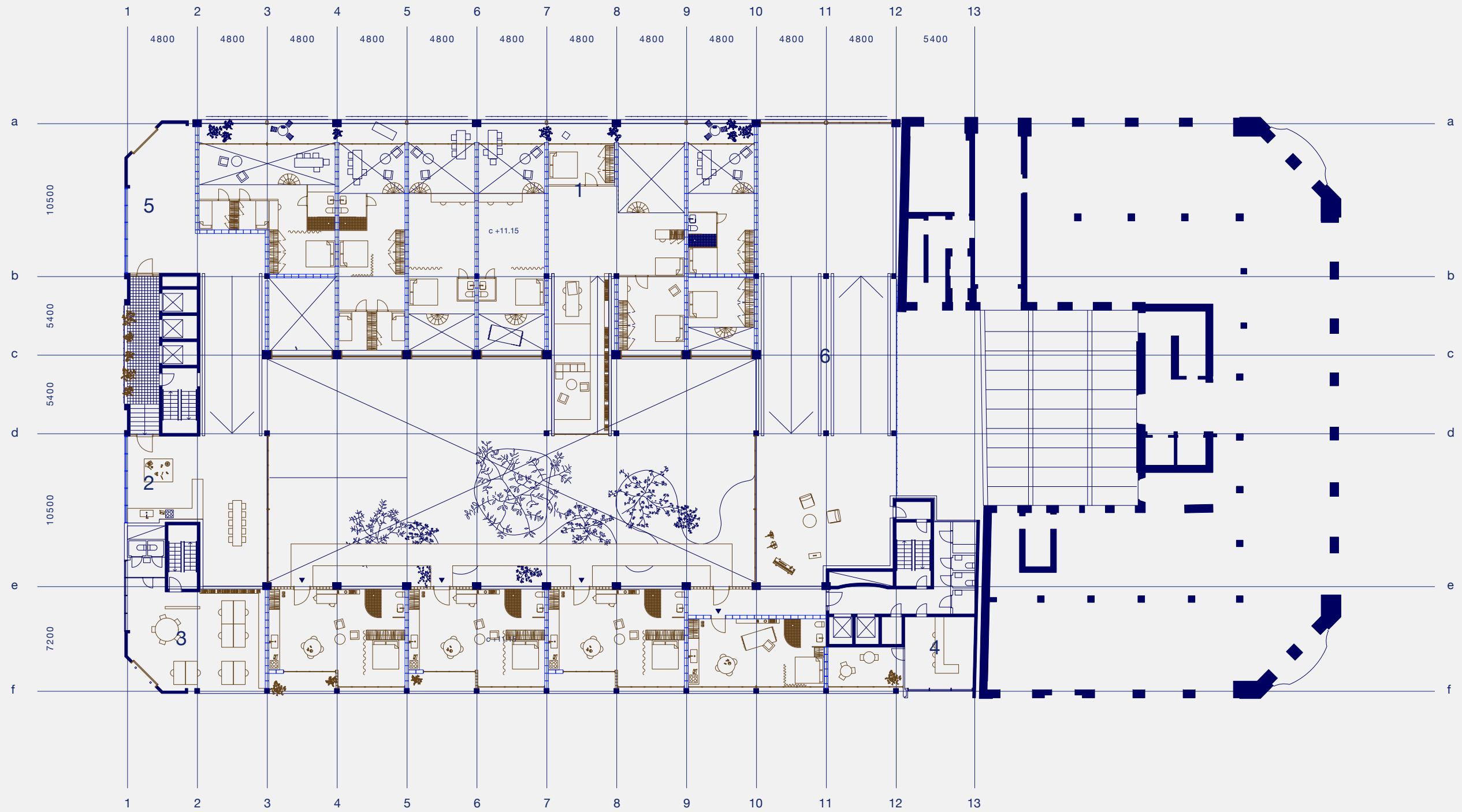


- Existing
- Moved and reused
- Added

- 1: Living units
- 2: Laundry
- 3: Co-working space
- 4: Bar/Dining
- 5: Common areas
- 6: Common hobby areas
- 7: Atelier/Studio



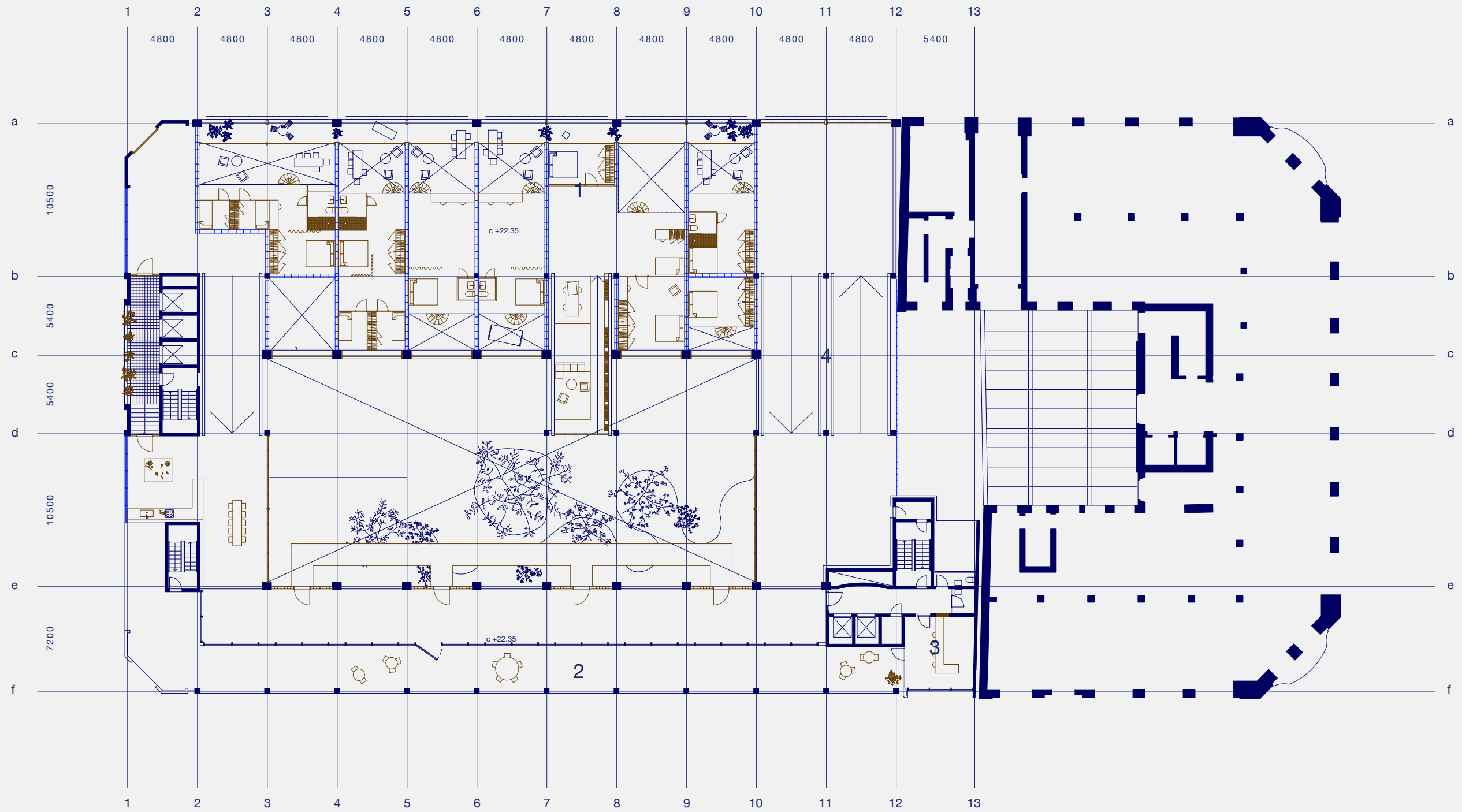




- Existing
- Moved and reused
- Added

- 1: Living units
- 2: Common kitchen/dining/party area
- 3: Co-working space
- 4: Bar/Dining
- 5: Common areas
- 6: Common hobby areas

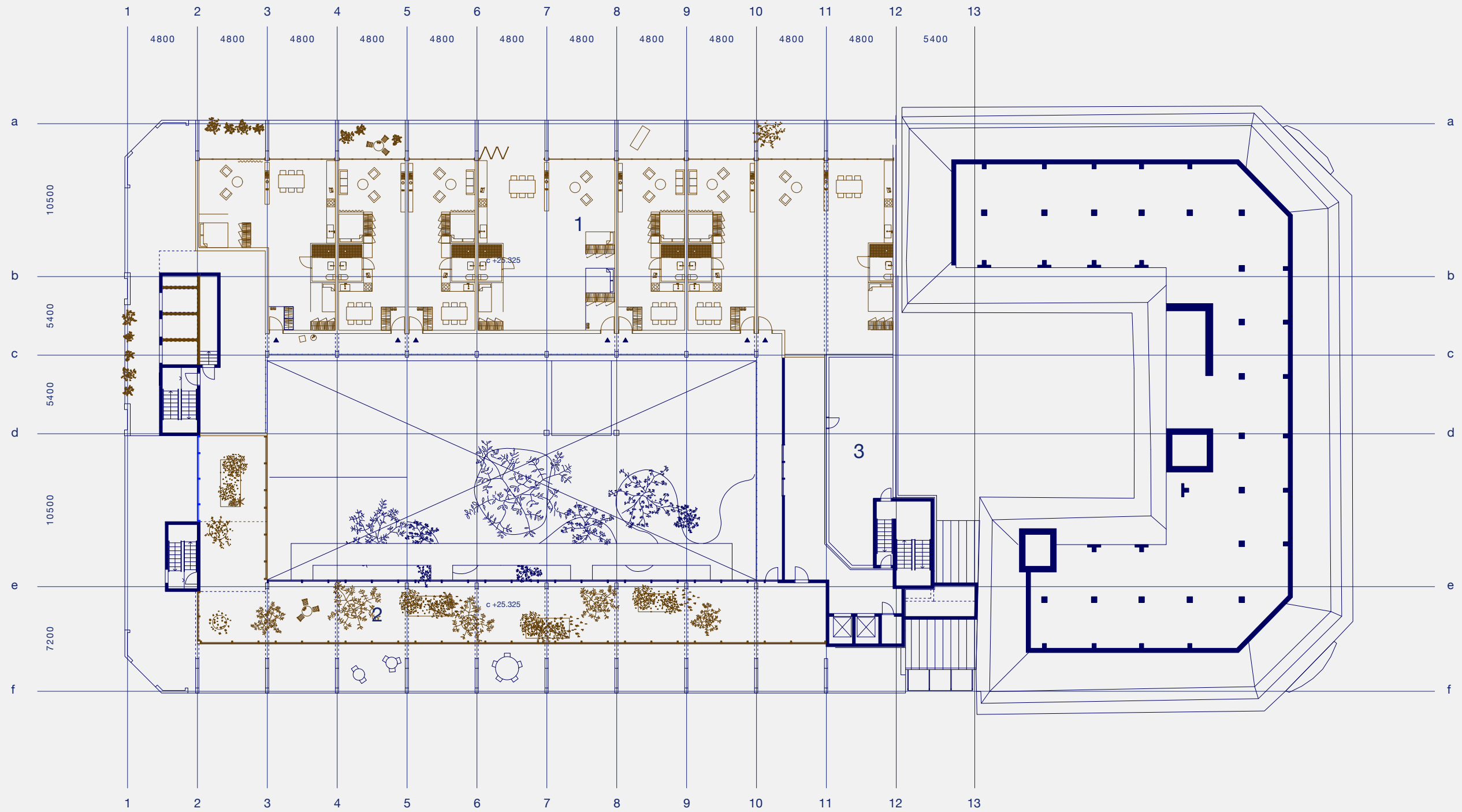




- Existing
- Moved and reused
- Added

- 1: Living units
- 2: Rooftop garden
- 3: Bar/Dining
- 4: Common hobby areas



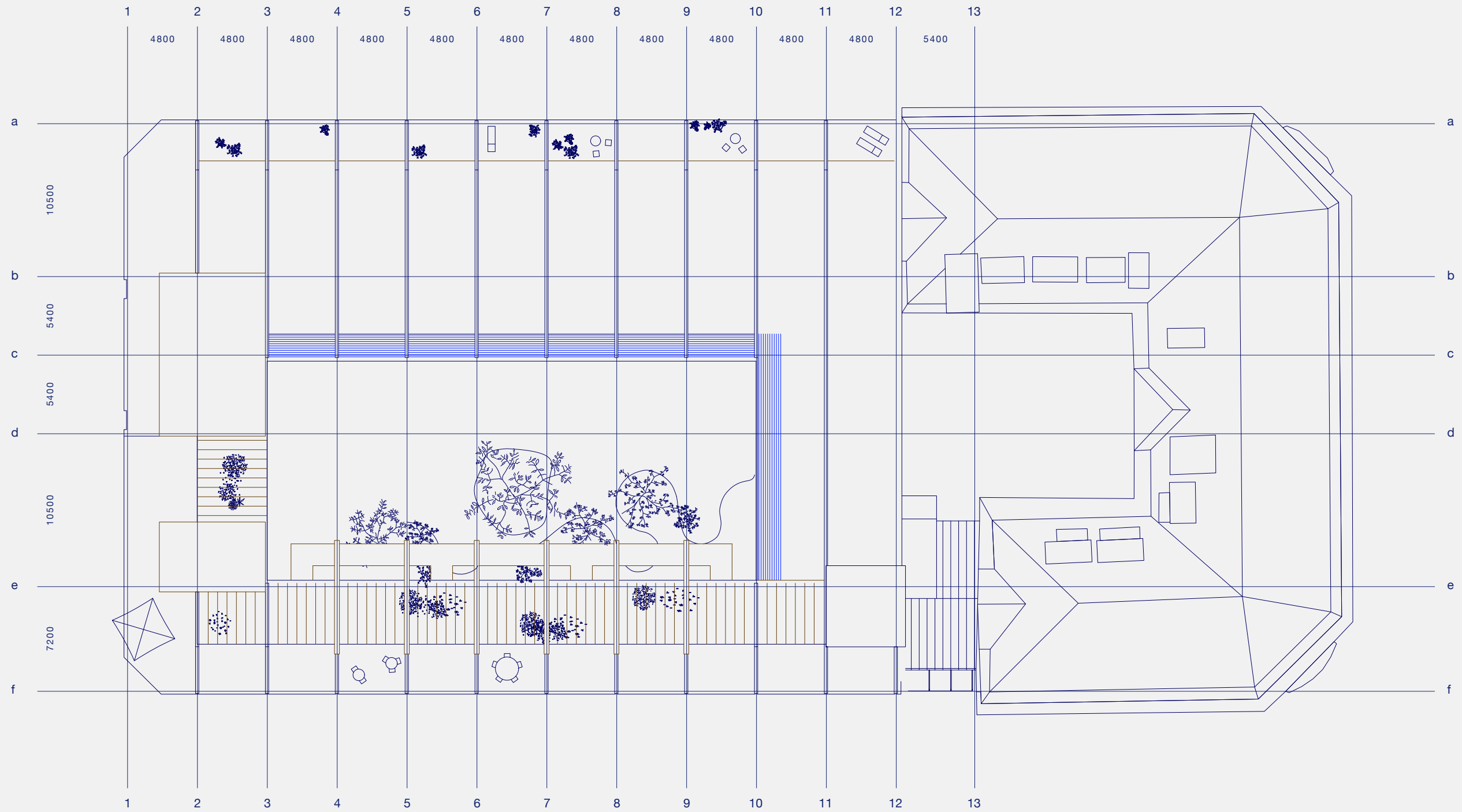


- Existing
- Moved and reused
- Added

- 1: Roof top living units
- 2: Mezzanine parcel green house
- 3: Technical room (as existing)

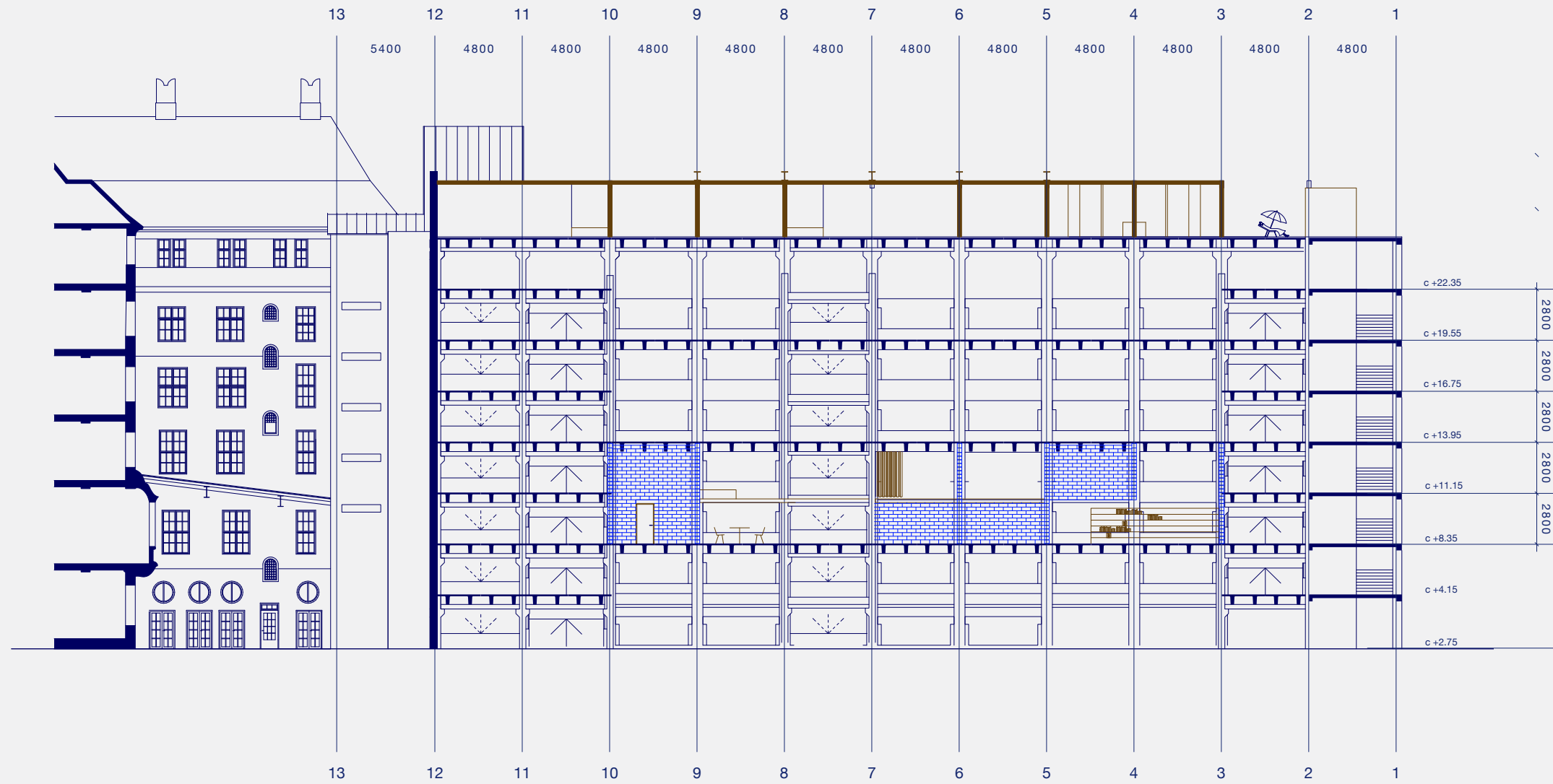






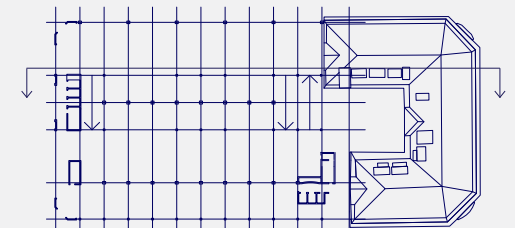
- Existing
- Moved and reused
- Added

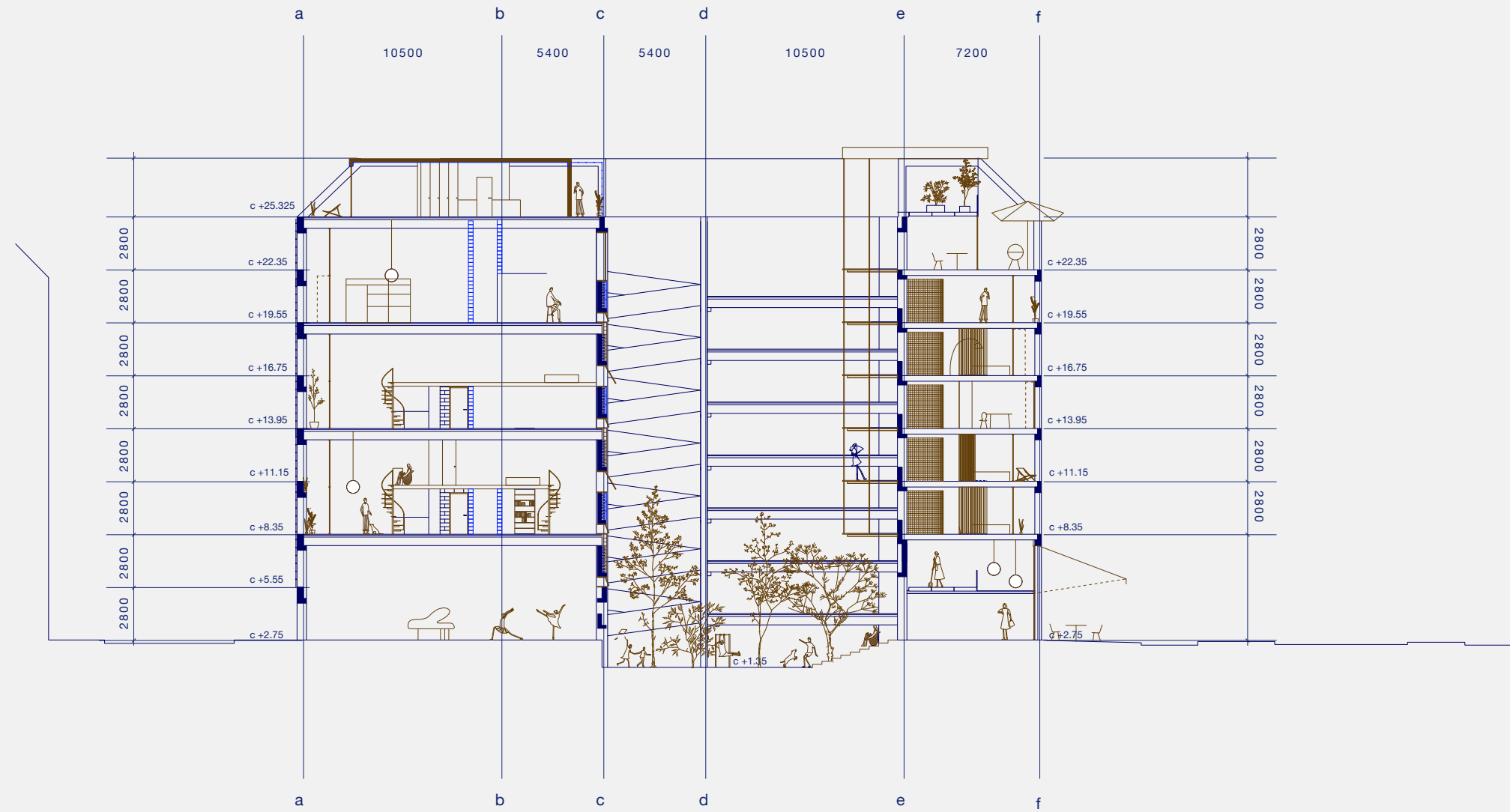




- Existing
- Moved and reused
- Added

Section 1:300





- Existing
- Moved and reused
- Added

Section 1:300

