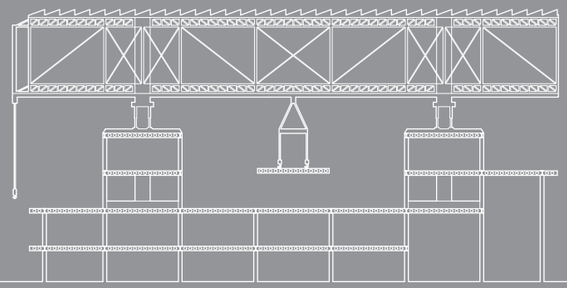
FAB-LAB SLOTERDIJK

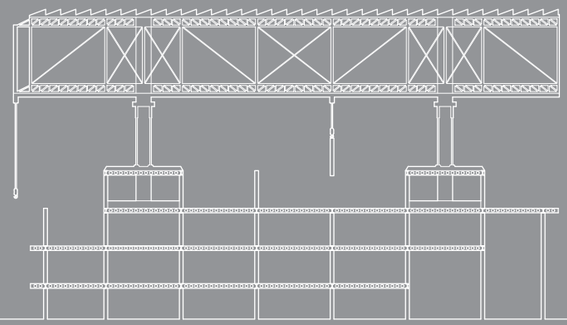
CP

Leevan Yue HUANG | Complex Projects | July 2018

TOWARDS A POROUS AMSTERDAM IN DEVELOPING THE RINGZONE

PROLOGUE





TODAY BORDER VACUUM
highway infrastructure becoming the new city wall in post-modern age

FUTURE DEVELOPMENT BELT
reconstructing urban network in ring zone to boost economy

TODAY LINEAR ECONOMY
city consuming everything mass produced outside

FUTURE LOCAL URBAN FACTORY
digital construction with circular resources for customized architecture

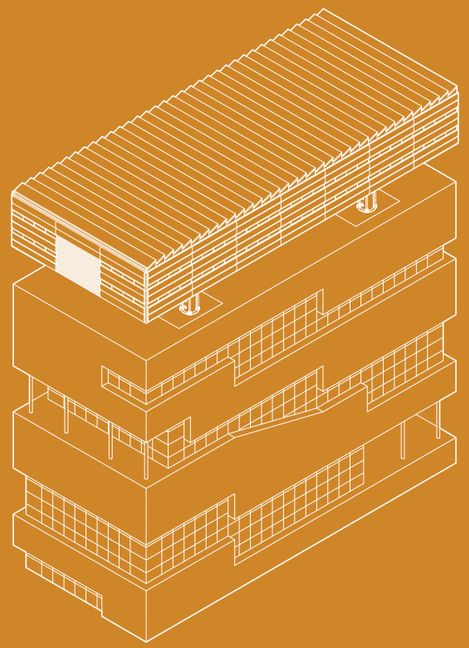
Developed around the river Ij, Amsterdam as the economy center had expanded its urban territory by breaking the city wall and annexing its neighbors. Sloterdijk, once a village lying at 3km northwest of Amsterdam city center, was developed according to Urban Expansion Plan (AUP) in 1960s. With the connection of Sloterdijk station and ring road A10, Sloterdijk holds a strategically important location in metropolitan Amsterdam and the larger urban network of Randstad. As the city center gets more congested, the future growth of Amsterdam renders development of regional center more and more important. However, although the current infrastructure of A10 increase regional mobility, analysis shows that segregation of city center and the urban periphery by the imposed infrastructure has resulted in a variety of social problems outside of the Ring – low employment rate, low education degree and a high concentration of low-income households.

Non-space along ring road

Dark pedestrian underpass to the other side of world

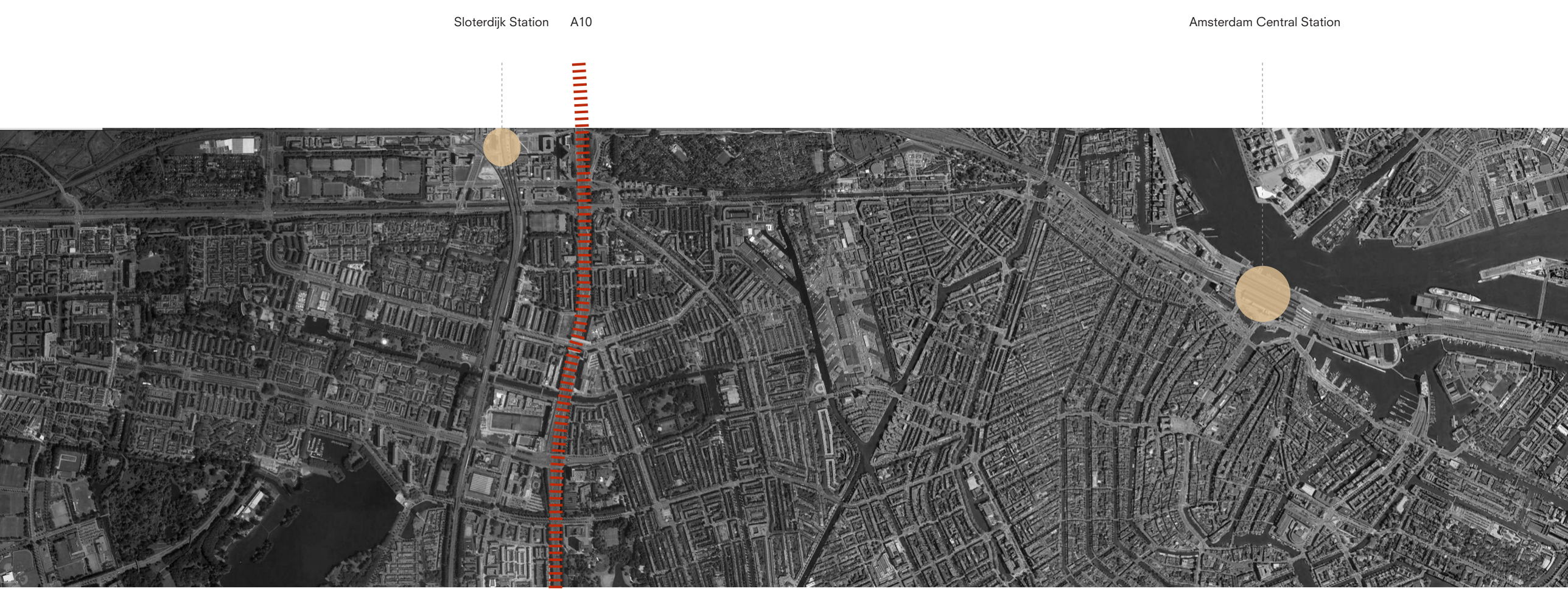
Digital fabrication brings urbanization to factories

Building Amsterdam upon 2050, the project not only needs to tackle existing infrastructural and social problems but also strives for innovation. The contemporary city is much more than its built form (although that certainly does structure our experience of it). Cities are shaped by both local economies and global markets, which don’t exist as distinct entities but rather co-exist and even co-constitute. Moving towards industry 4.0, economy structure is more and more diverse where creative industry gradually builds up a sharing economy system.

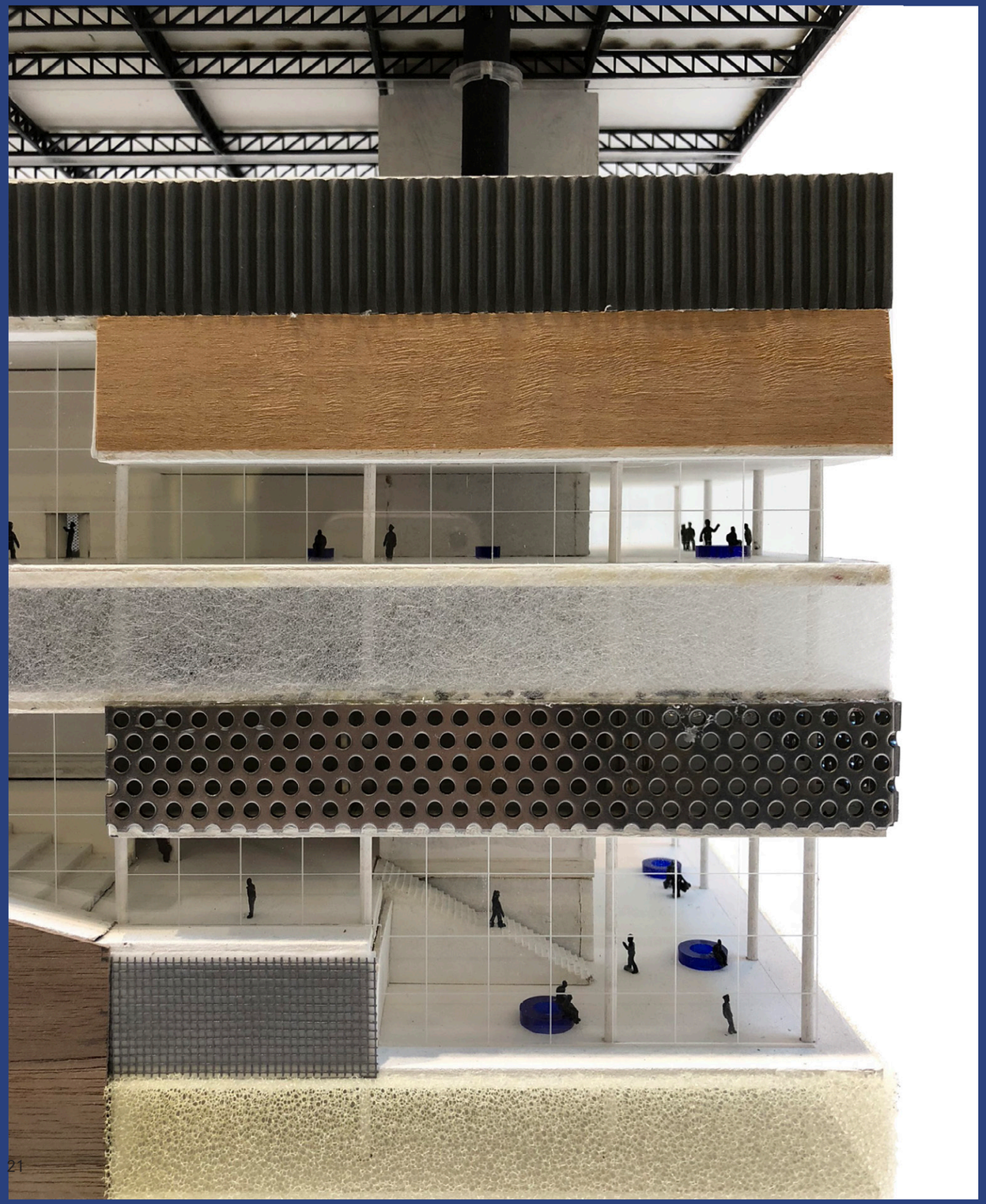


FAB-LAB SLOTERDIJK

My project develops on my personal fascination of the border condition in a metropolitan urban environment. The uneven distribution of power and wealth has resulted in huge difference in socio-economic indicators and spatial orders between various districts within a city. Through defining the border condition that demarcates urban territories, actuality of modern cities can be seen as a gated urbanity. In the turn of explosive urbanization progress, the study of border condition within the entity of a city is a reflection of the spatial monopoly in the current system of capitalism. As cities expand in building more houses and infrastructure, every new piece of steel and brick builds onto the existing edifice, which may put it in imbalance if the question is neglected. In the economic drive of free market, ideology of an open urbanity that is accessible to all. While clear contrasts in demographics, amenities, aesthetics, economies and other variables exist between areas within and beyond the ring, the ring zone itself is becoming a more popular destination, potentially stitching the disconnection between Amsterdam's go-to and no-go areas.



Sloterdijk and Amsterdam center - a regional center with prominent access to train and metro, however segregated by the infrasture of A10



PROJECT THEME

Building Amsterdam upon 2050, the project not only needs to tackle existing infra-structural and social problems but also strives for innovation. The contemporary city is much more than its built form (although that certainly does structure our experience of it). Cities are shaped by both local economies and global markets, which don’t exist as distinct entities but rather co-exist and even co-constitute. With the analysis of the Ring road, the project is located along the A10, anchoring in the group masterplan of the ring zone. The concept of making a porous border of social mixing and knowledge sharing for the neighborhood requires the design to manifest itself in 3 scales:
The masterplan scale of downgrading the A10, by making junctions underneath urban streets and transforming extra bypasses into bicycle highway.
The building scale of non-typical space organization and entrance from both high-way and inner streets.
The detail scale of façade articulation.

Designing towards 2050, Amsterdam will continue to grow with more population and more jobs.
As the city center get saturated, more cultural and economic activities will be pushed towards the periphery,
Eventually becomes a polycentric urban model. With the drive of airport and harbor, the west axis and south axis will become the new economy corridor.
As a result of more public transport and mass use of autonomous car in the next 30 years, the ring road will be downgraded. A10 will become a less strong border presence.
Therefore, existing border need to be reconstructed to connect with urban fabric.

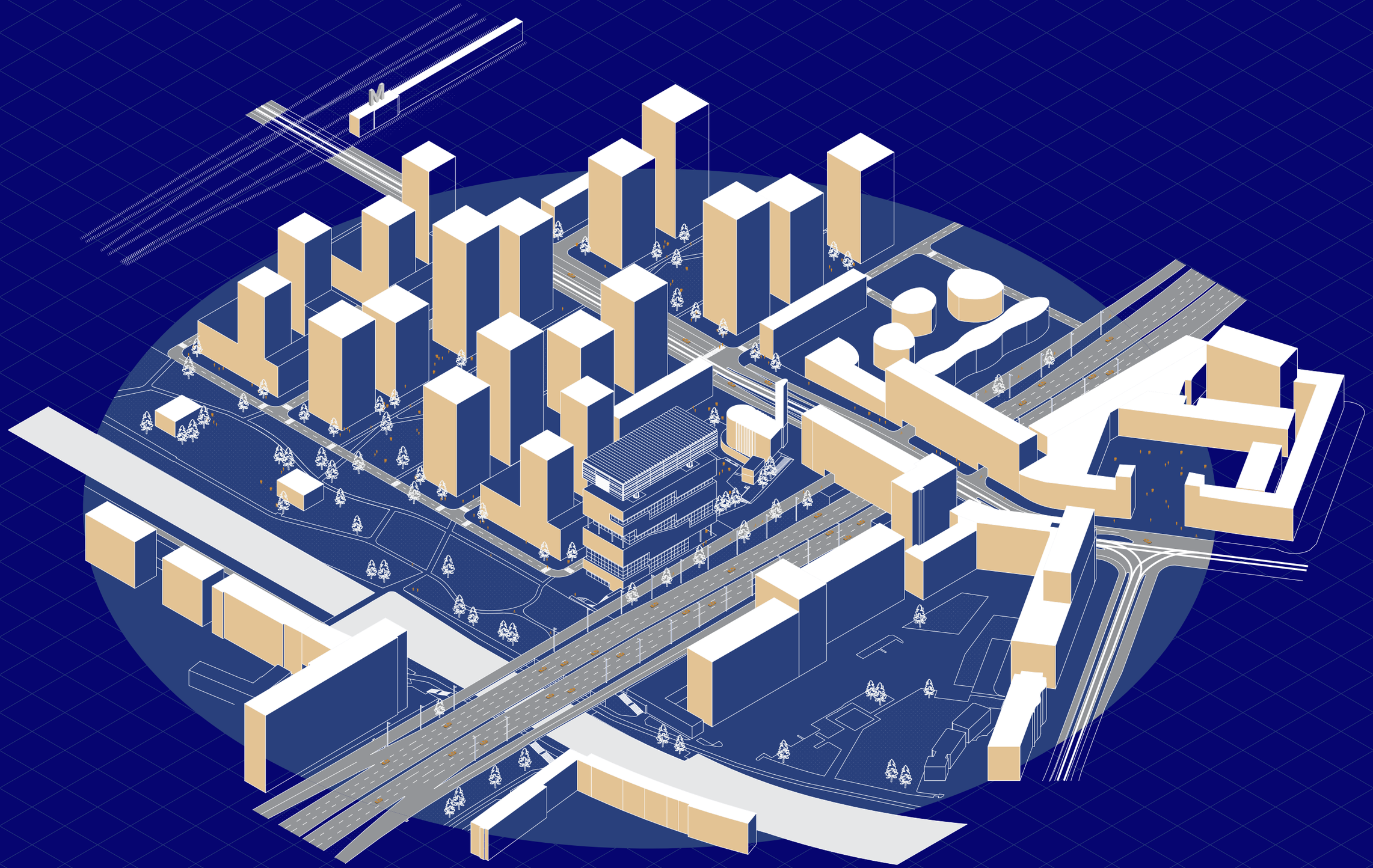
Bretten Zone
- the green belt extending from Amsterdam Central to Haarlem

Sloterdijk Station
- the gateway connecting Sloterdijk to the metropolitan region of Randstad

Ringzone
- area between A10 and metro line forming a high mobility neighborhood

Sloterdijk Center
- the region center for culture and leisure

Sloterplas
- the water reservoir with diverse water activities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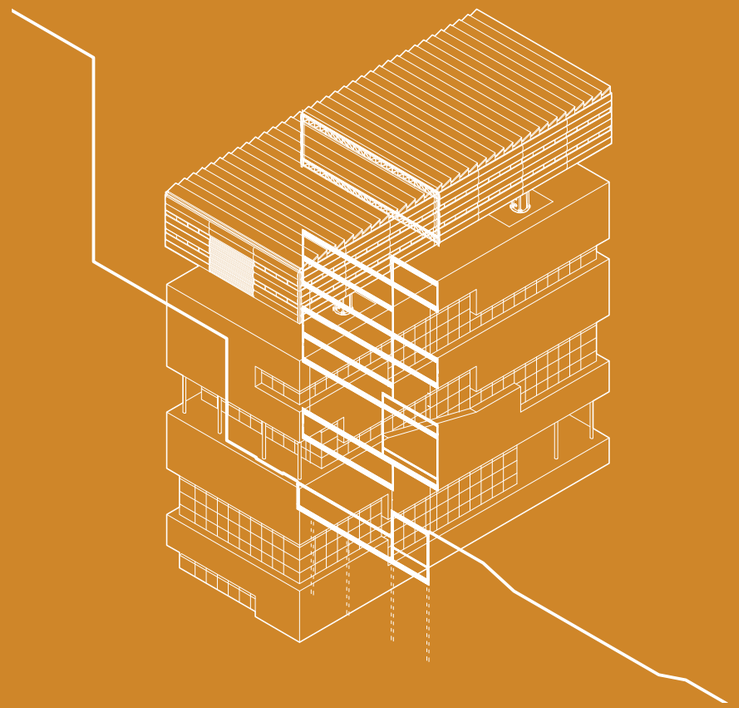
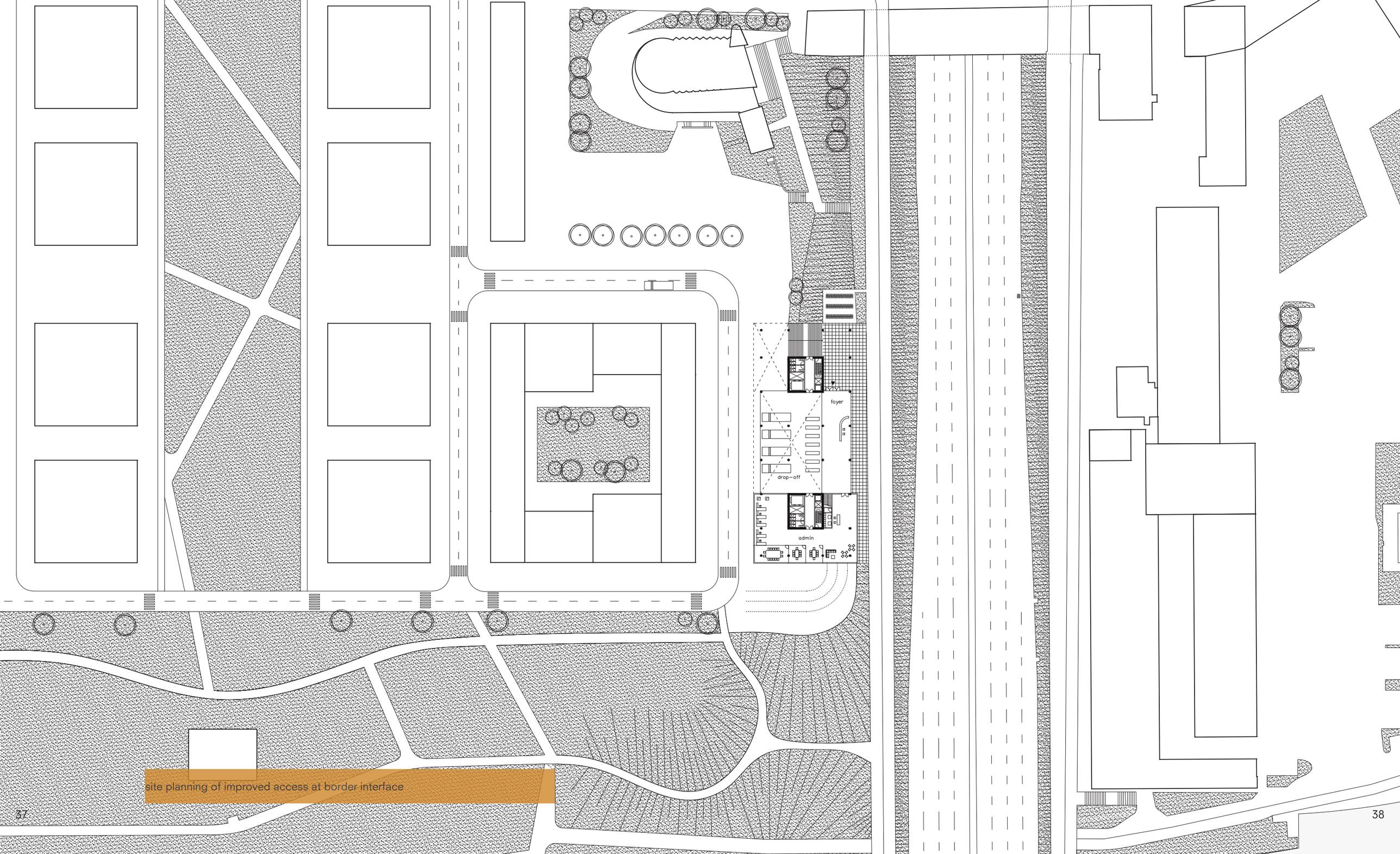


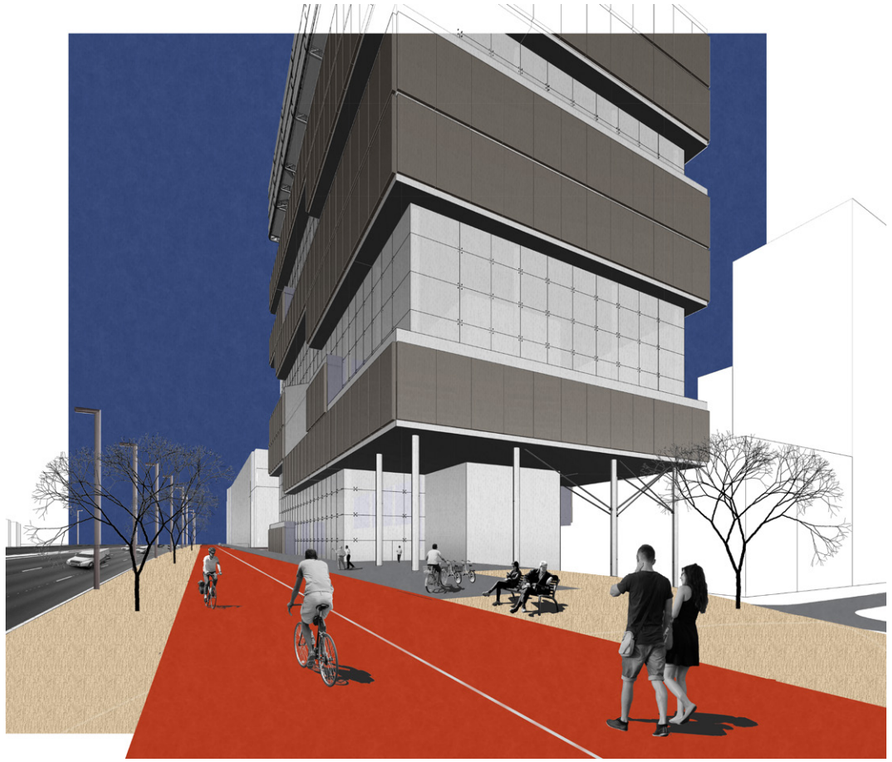
THE BORDER INTERFACES

The uneven distribution of power and wealth has resulted in huge difference in socio-economic indicators and spatial orders between various districts within a city. Through defining the border condition that demarcates urban territories, actuality of modern cities can be seen as a gated urbanity. In the turn of explosive urbanization progress, the study of border condition within the entity of a city is a reflection of the spatial monopoly in the current system of capitalism. Such a rethinking of relation between its ontological existence and epistemological form is a process of theorizing the concept of urbanity and defining new urban question. As cities expand in building more houses and infrastructure, every new piece of steel and brick builds onto the existing edifice, which may put it in imbalance if the question is neglected. In the economic drive of free market, ideology of an open urbanity that is accessible to all. While clear contrasts in demographics, amenities, aesthetics, economies and other variables exist between areas within and beyond the ring, the ring zone itself is becoming a more popular destination, potentially stitching the disconnection between Amsterdam's go-to and no-go areas.

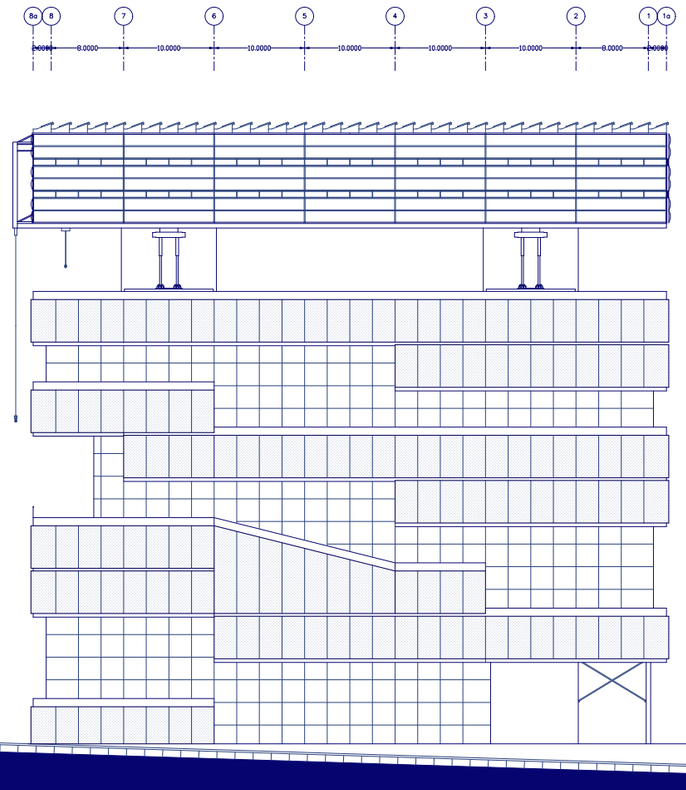


site planning of improved access at border interface

A1
A
B
C
D
D1
1.0000
8.0000
10.0000
8.0000
1.0000



Interface of horizontal access


8a
8
7
6
5
4
3
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1
1a
6.0000
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10.0000
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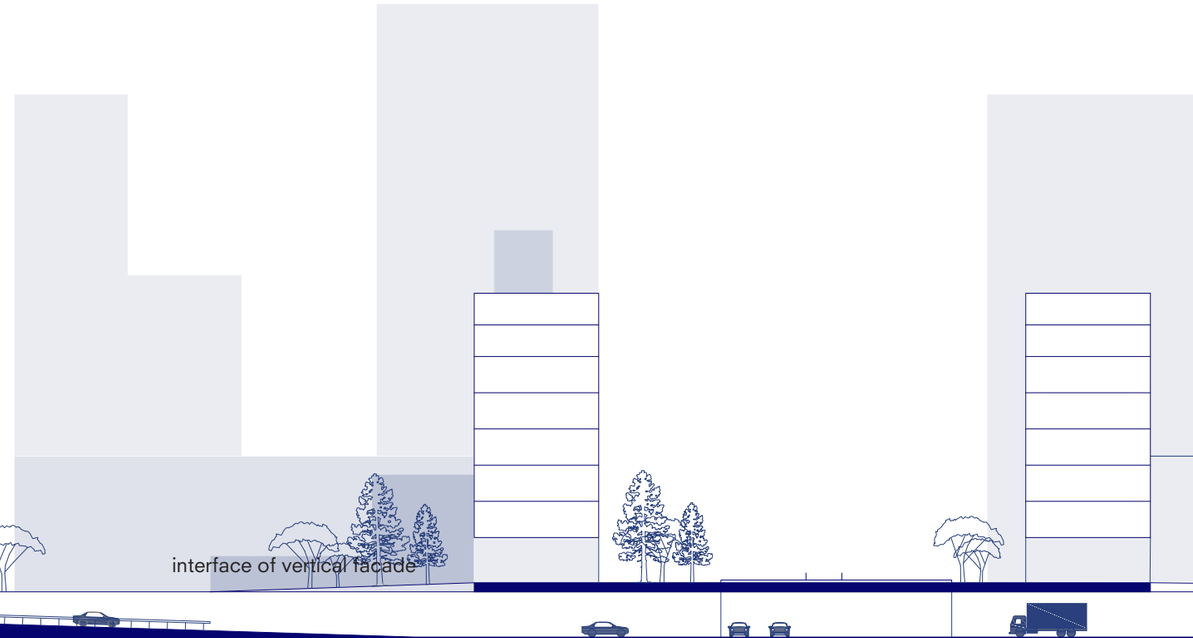
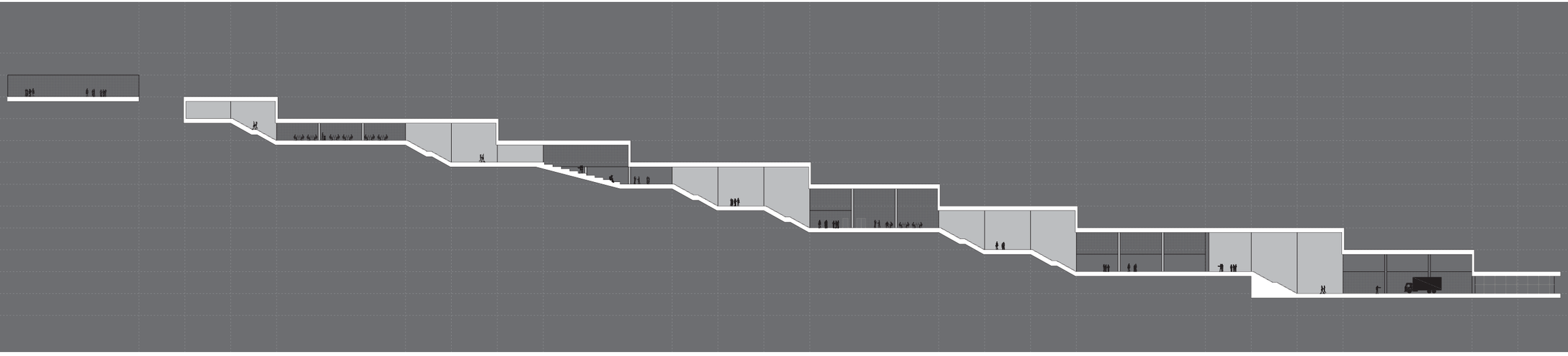
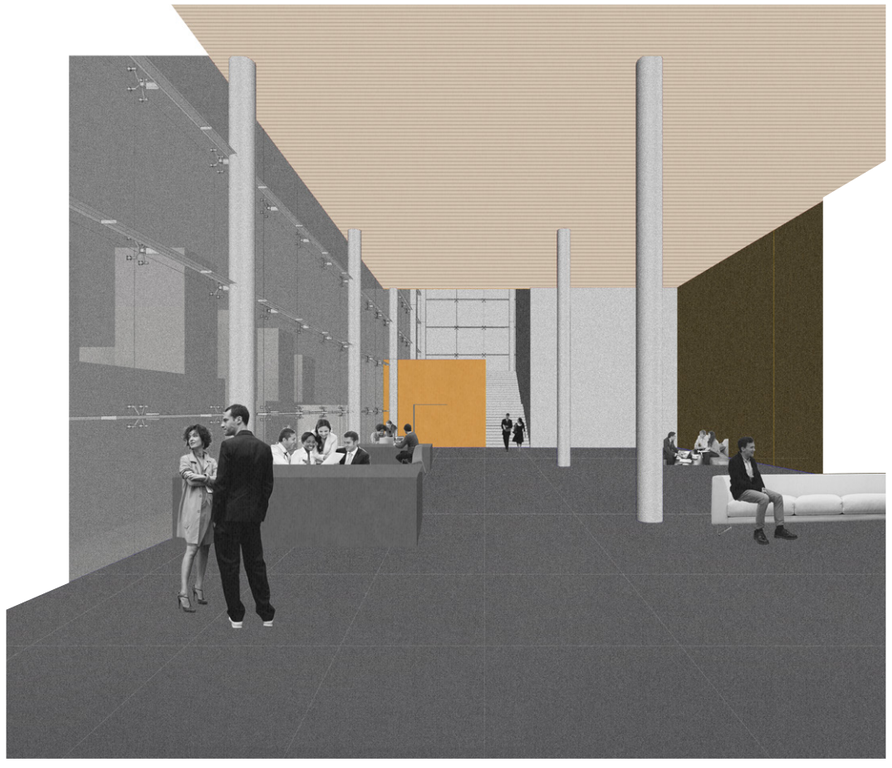
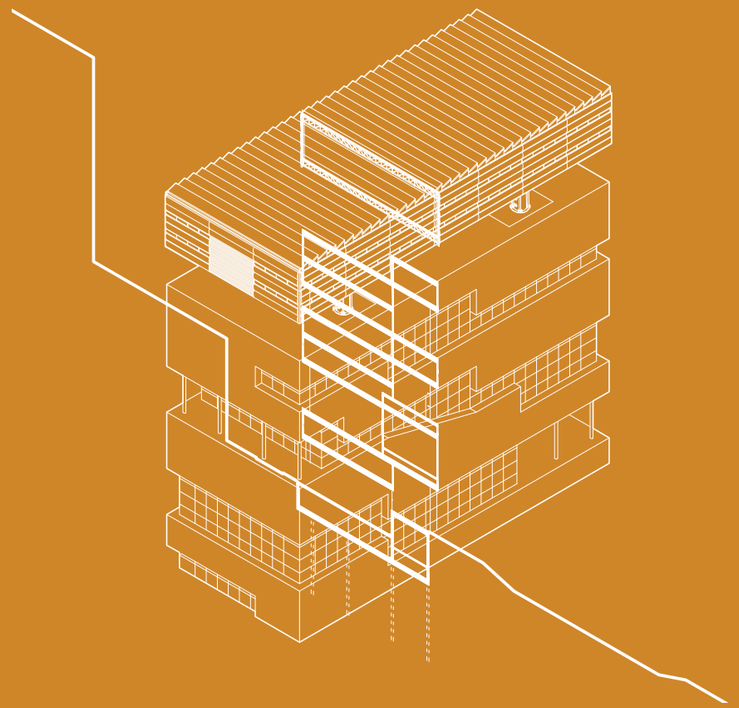

interface of vertical facade



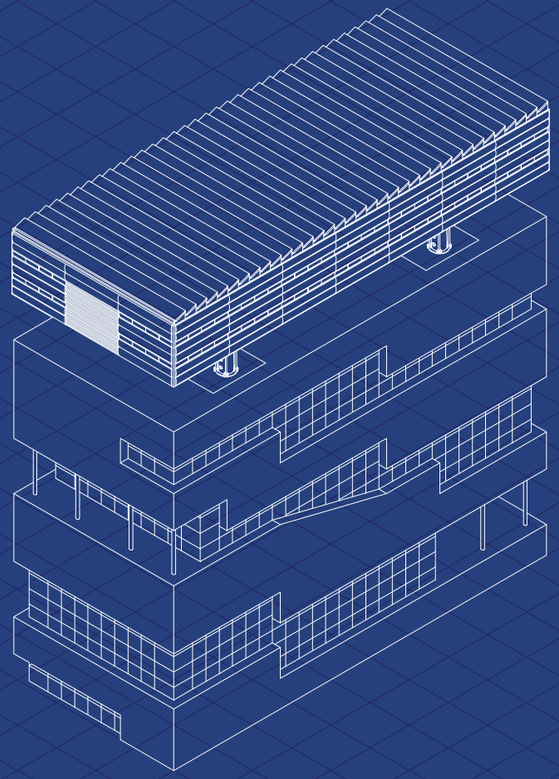


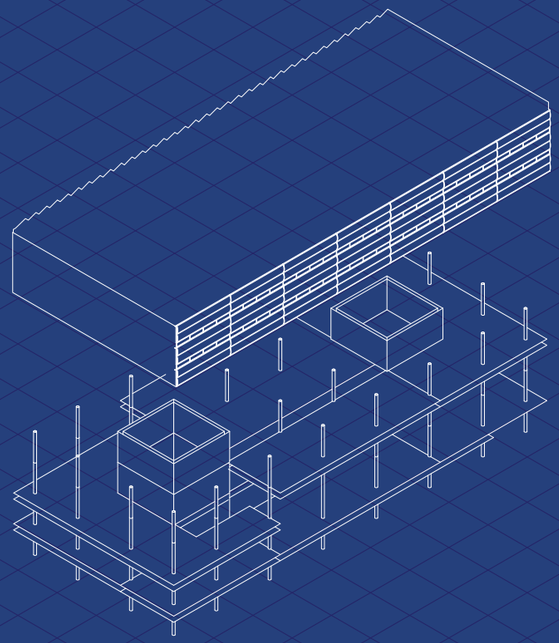
“We need to do a brief discussion about the new product.”
“No problem let’s take a seat.”

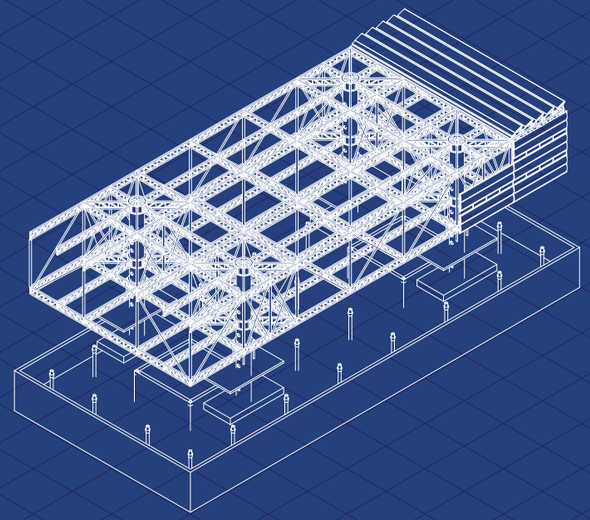


THE FABRICATED BUILDING

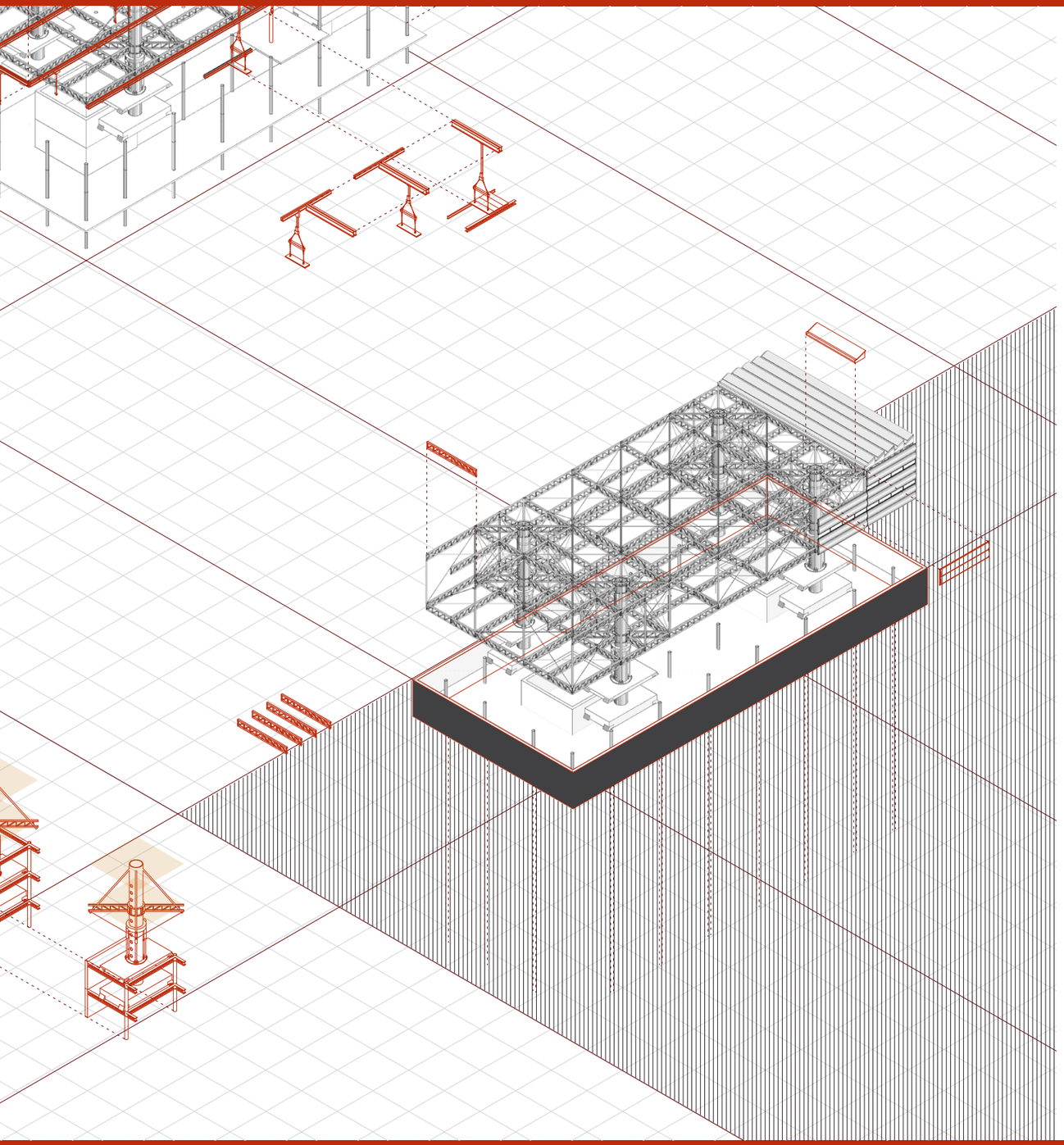
How to strengthen Amsterdam's advantage in the knowledge based economy in relation to its citizens? To answer the question, my project proposal is based on 3 principles: local production, innovation driven and flexible space. Local production of building material is made possible with integration of technology aim (robotic arms, 3d print, etc.) to produce with local collected resource. By doing so, need for importation is reduced to move towards a circular economy. These technologies will also be exhibited and accessed to public by hosting workshops and lectures. The building will be a vertical campus for people to exchange and practice ideas.



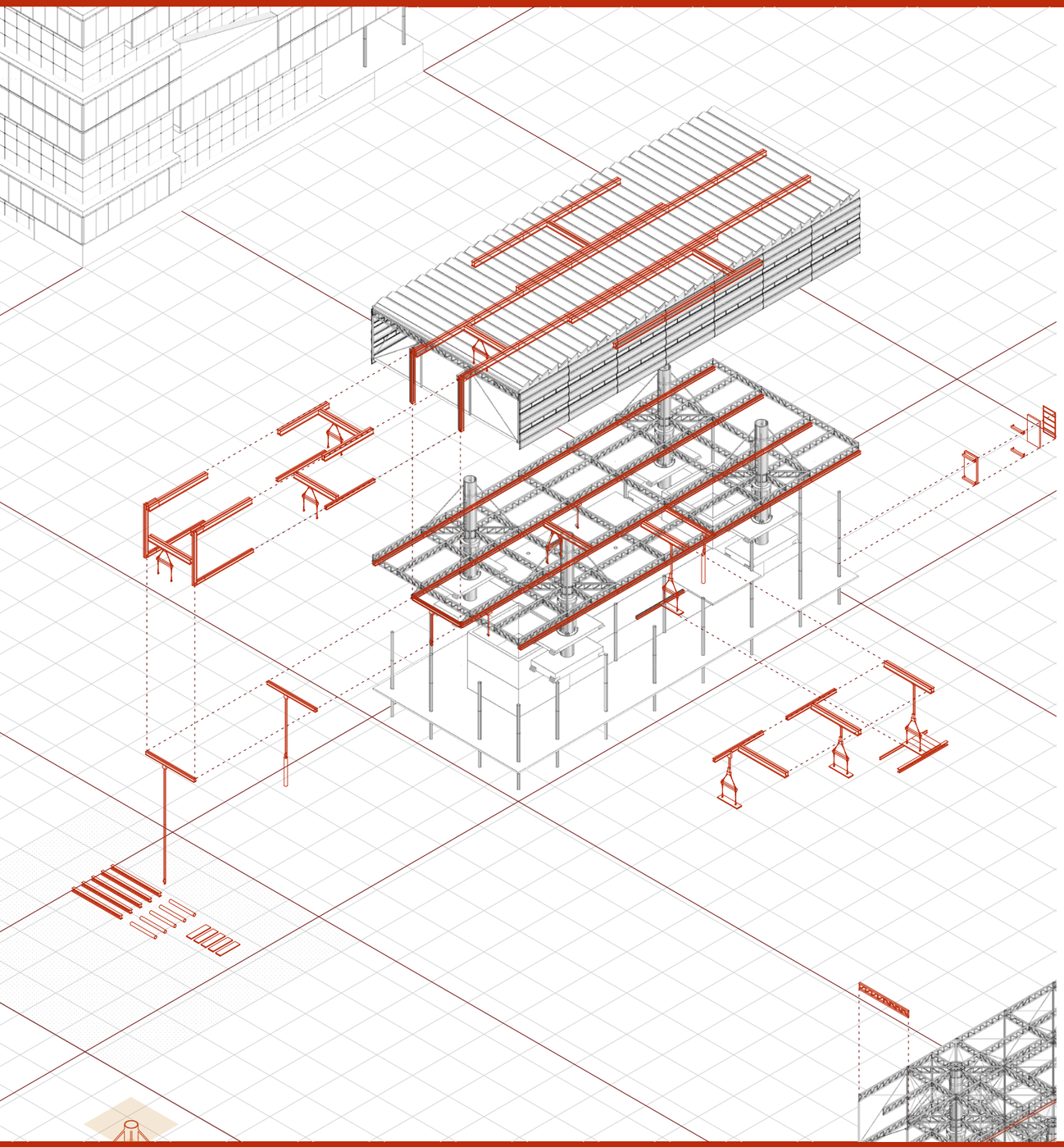


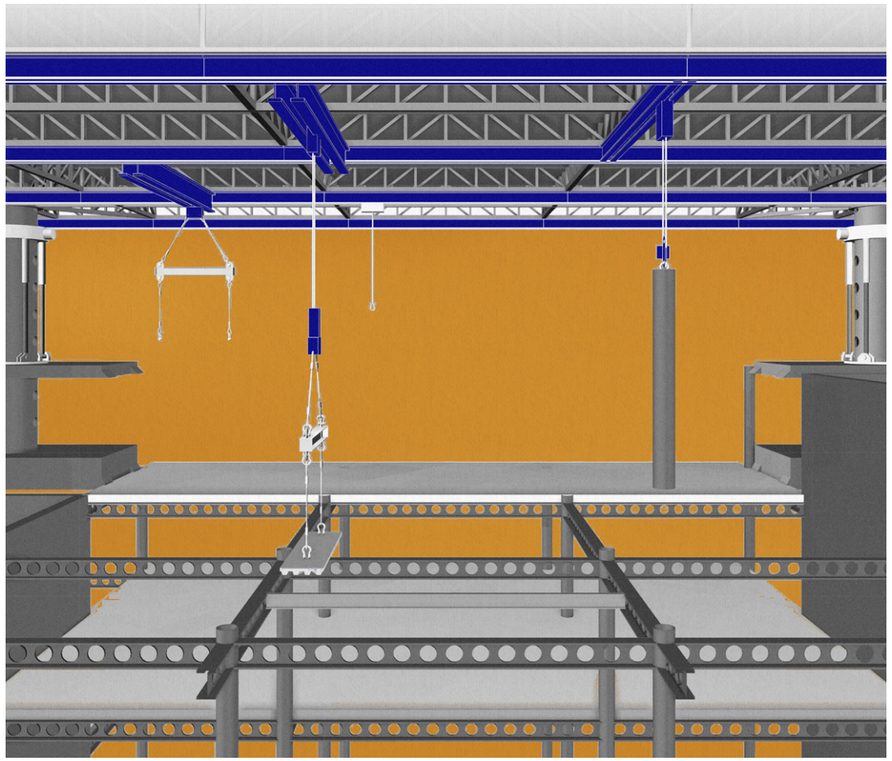


Construction process

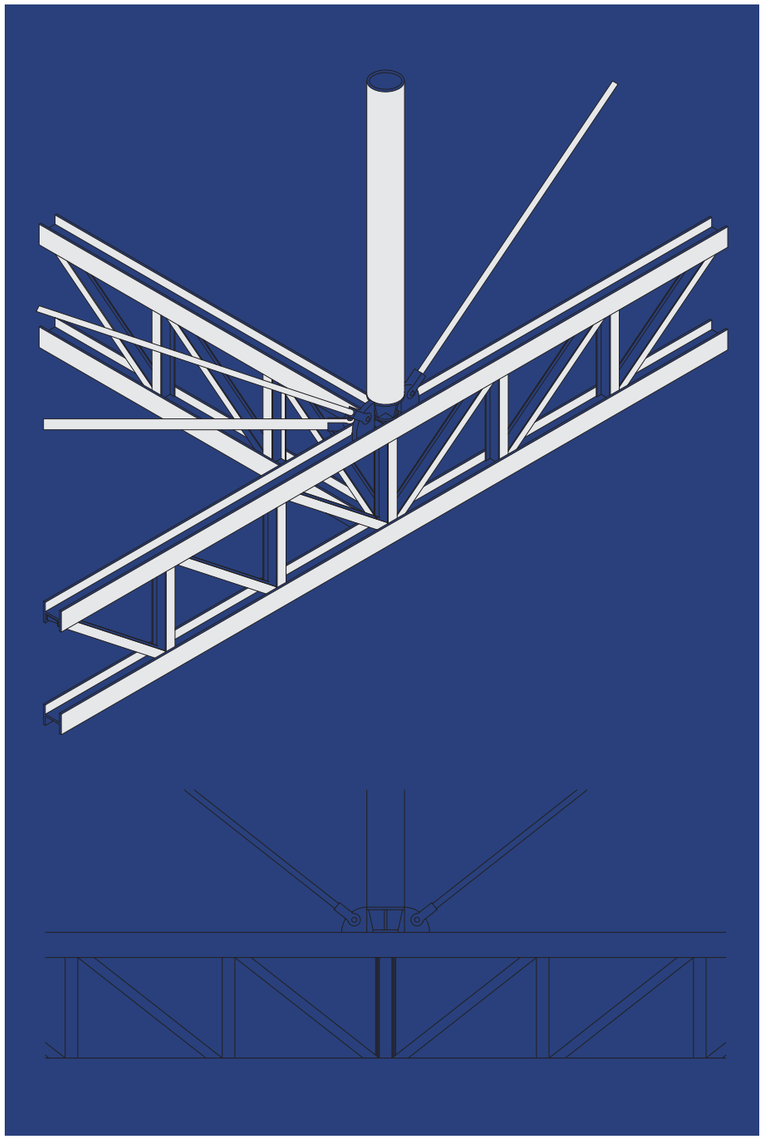


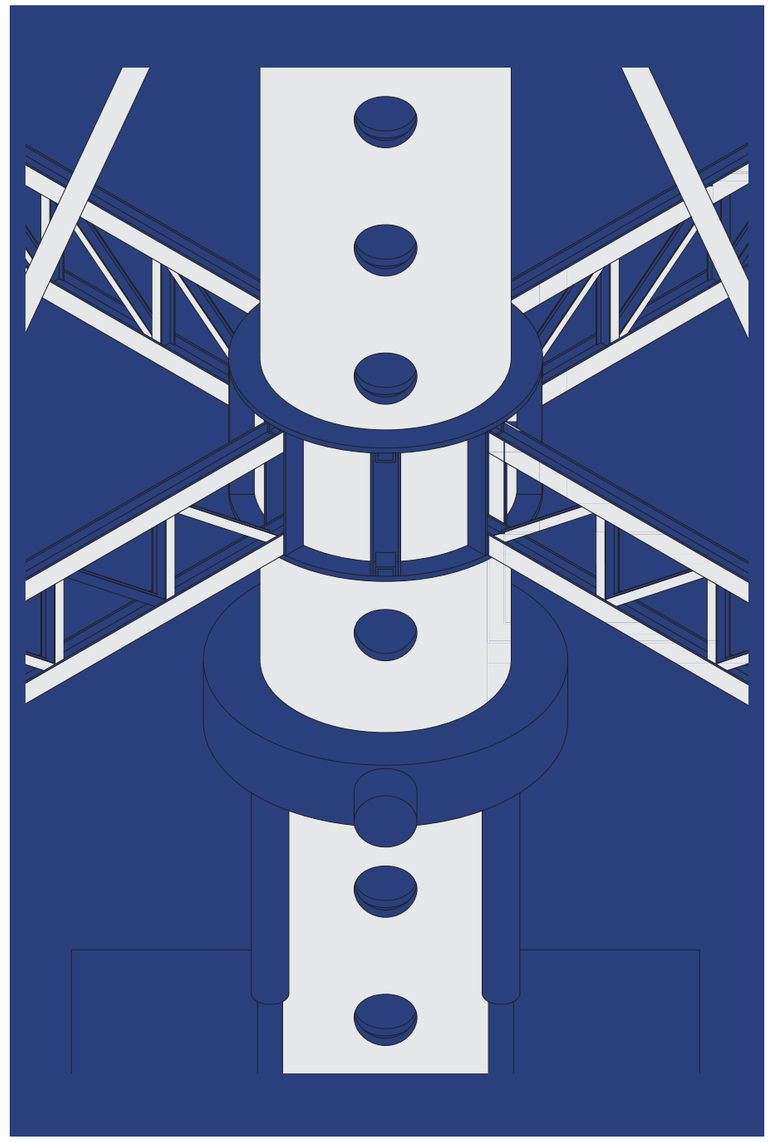
Jacking up of construction platform

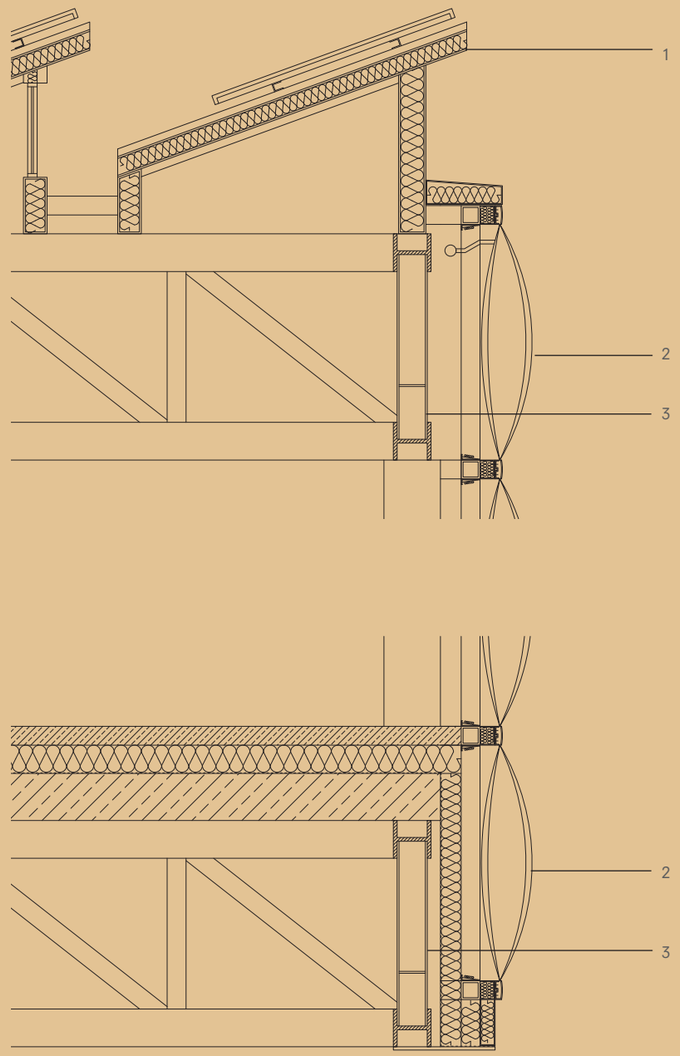




Delivering and installation of structure members



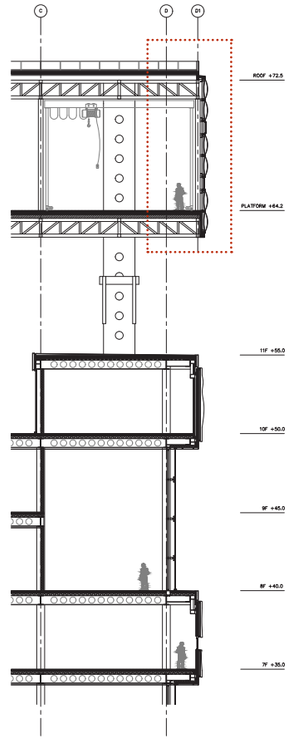


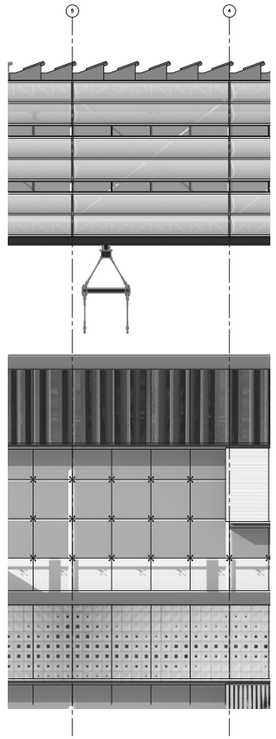


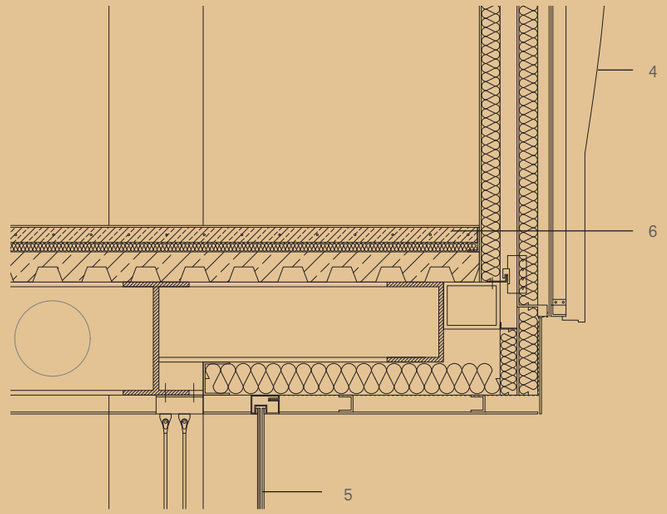
1 galvanized steel standing seam roofing
photovoltaic solar panels
gutter

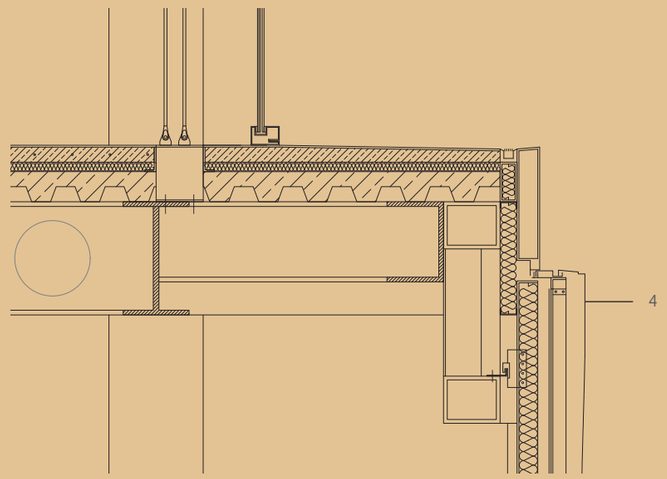
2 ETFE sheeting cushion
with quadruple layer
steel mullion cap with
concealed fasteners
steel tube
plastic hose for air supply

3 lattice truss





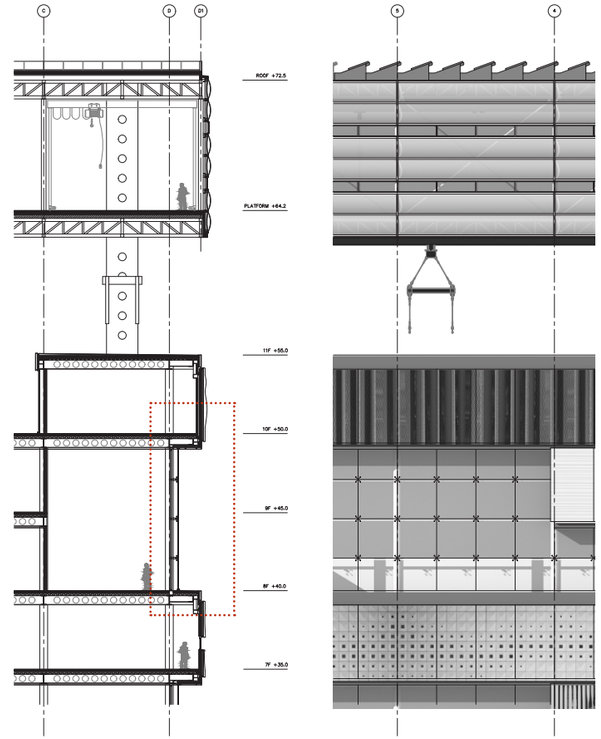




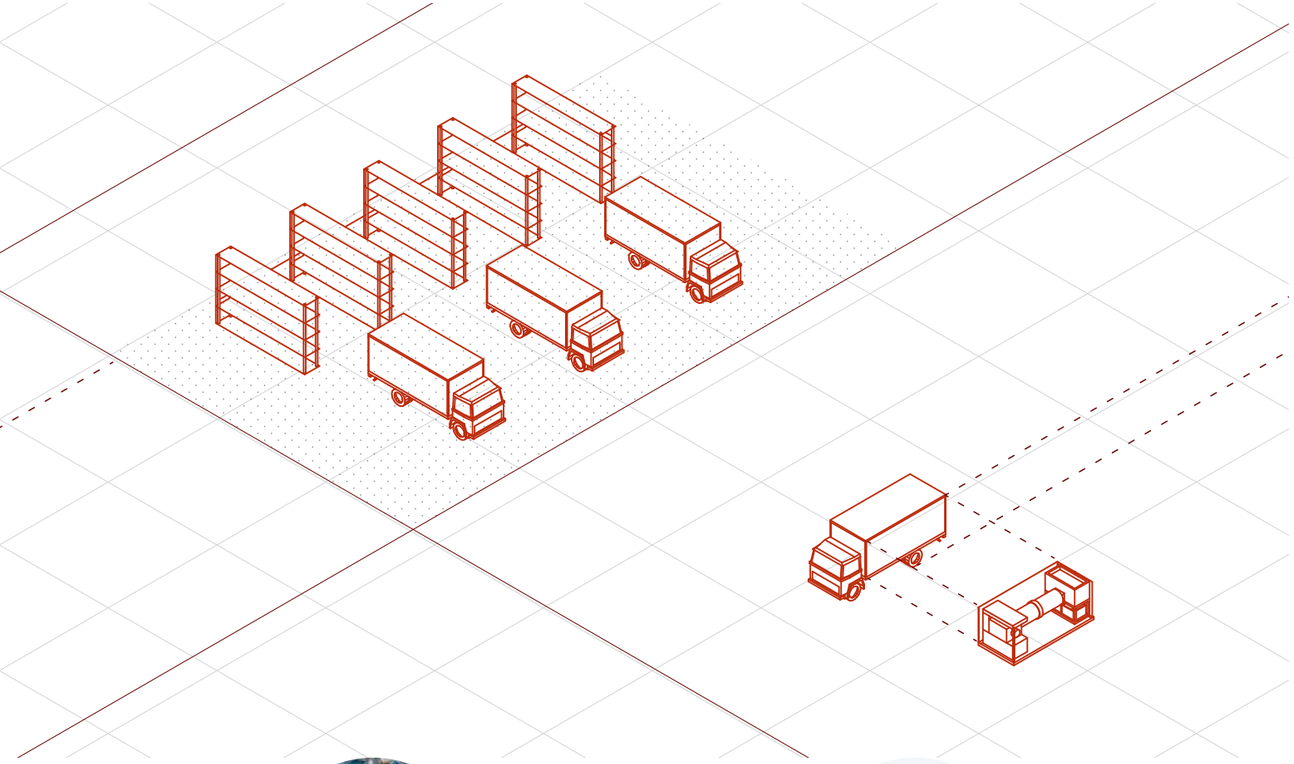
4 FRP sandblasted aluminum frame screwed to FRP
150mm aluminum sandwich panel with insulation steel tube facade substructure

5 double glazing (15mm laminated glass + 10mm air gap + 10mm glass) steel rod facade stays horizontal flat steel facade beam with point fixings

6 vinyl floor finish concrete screed with underfloor heating 60mm insulation composite concrete slab ceiling

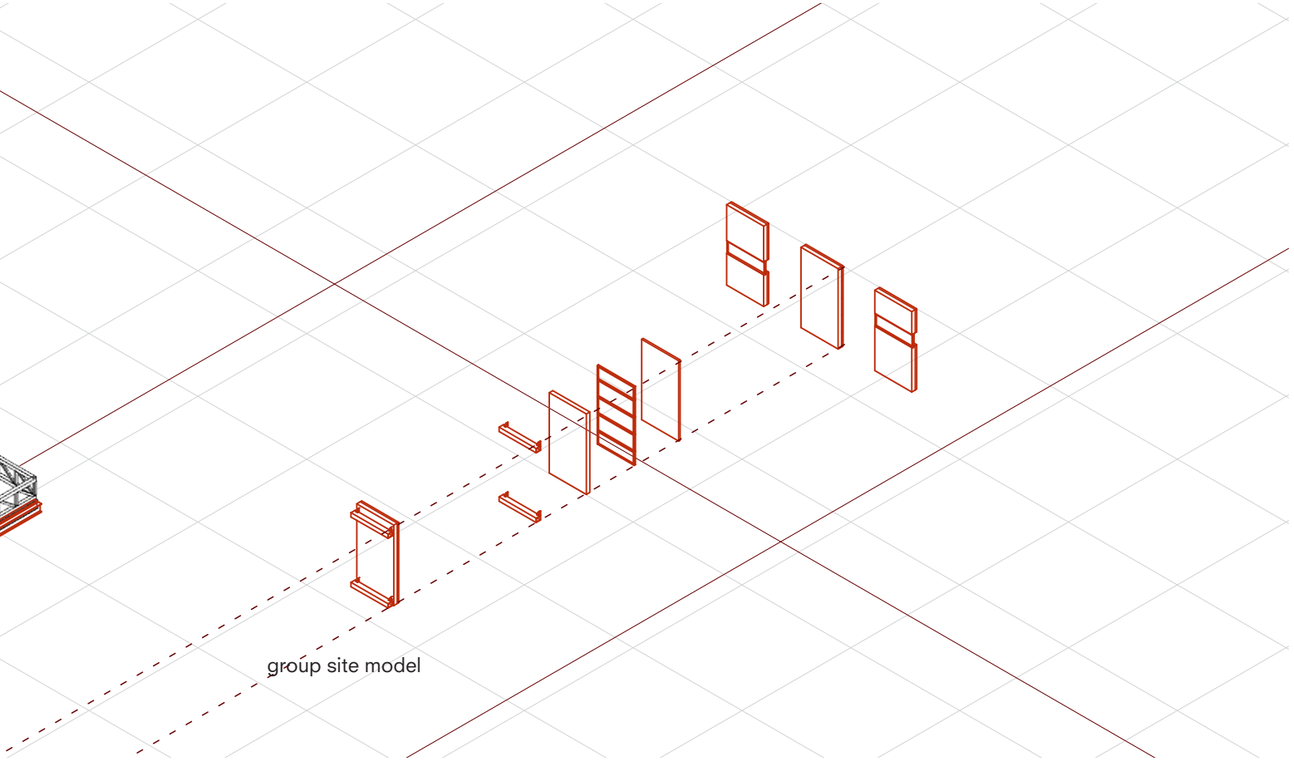


delivery of recycled 3DP material



“ Hi, new delivery of plastic Grade C from Slotermeer. “
“ Oh yes we’ll unload the extrusion disks from the truck. You can go and log in the earned points for Slotermeer. ”

fabrication and assembly of facade panels

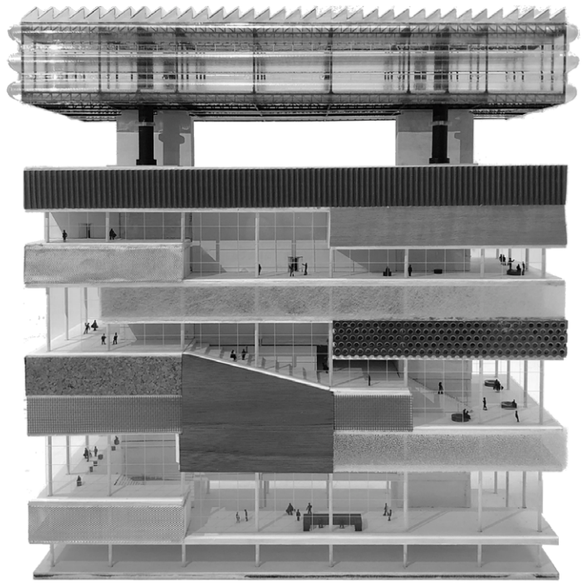


group site model

“ Tenant 14 has just sent the design of level 7. We need to print metal. “
“ Hmmm 24 panels. Got it. I’ll go check if the recycled extrusion material is enough. ”

“ Just printed this new prototype! What do you guys think? “
“ Looks nice! Maybe we can change the angle of the leg a bit... “

“ A new order just came in this morning! Gotta make some changes in the customization part and then leave it to the Big Prints. “



EPILOGUE

Fab lab Sloterdijk is the result of future towards customization products, of sharing economy and open access to knowledge. By locating it at the still-inactivated border vacuum along A10, the design aims at bringing more energy to the neighborhood. The Fab lab will be a boost to economy and education at the same time, which pays back to the overall prosperity of the society.

ACKNOWLEDGMENTS

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