/PORTFOLIO/

SELECTED WORKS 2017-2022

Cong Liu

Starting from building materials, I seek the harmonious coexistence of man and nature. By using dierent building materials and transforming the spatial geometry to express the cultural core, convey a sense of cultural identity and belonging.

The collision of materials and nature, culture and space makes me continue to innovate and introduce new combinations, and at the same time have a deeper understanding of people and society.

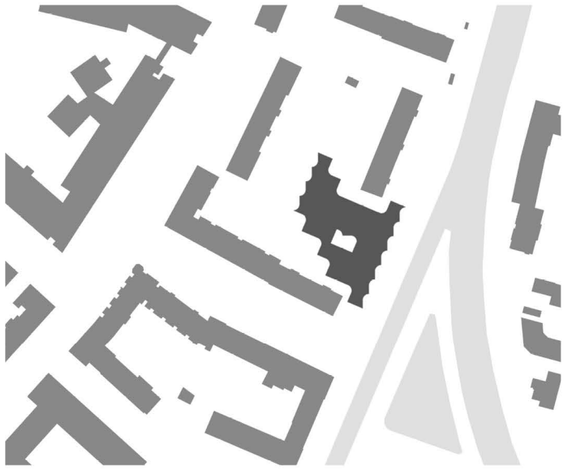
I believe that architecture is the balance and link between man and nature. Continuous innovation based on tradition and making designs that go beyond tradition can make our lives better.

Content

Thick Brick Building

4. Semesterproject, B.A. TUM
leaded by prof. Krucker & Prof. Bates
Groupmember: Niaoniao Li, David Zhou, Daniel Schoepflin

At the Ampfingstrasse

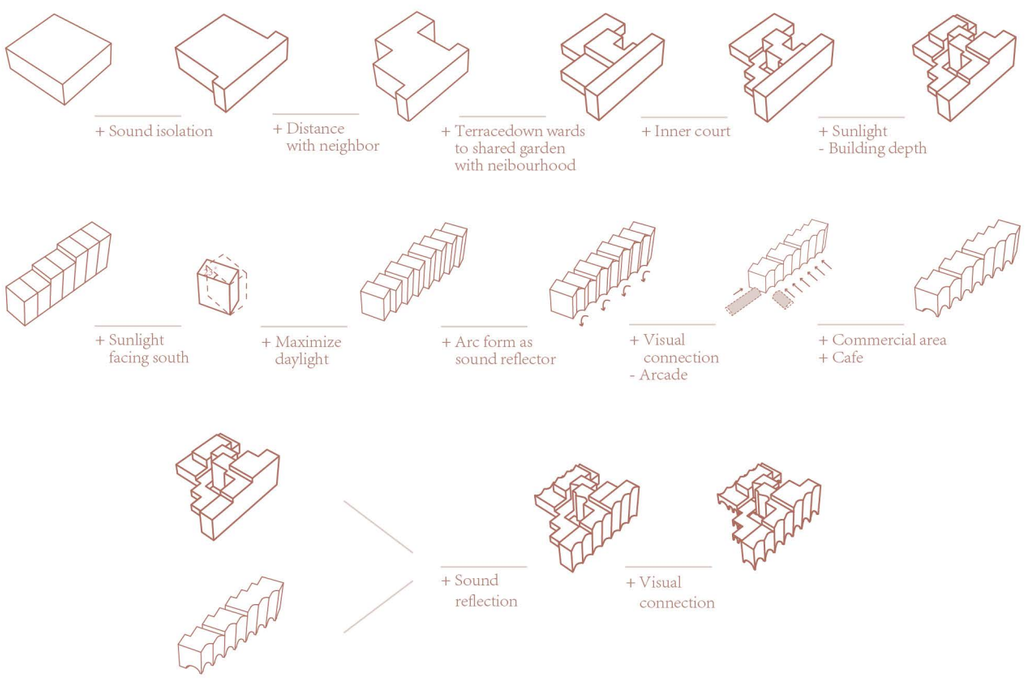


The site of Ampfingstraße 43 is located right next to the junction of Ampfingerstraße and Innsbrucker Ring Tunnel, which is a segment of the Middle Ring, a significant and constantly used highway in Munich.
Due to its steady flow of vehicles and the noise created by them, the junction’s traffic becomes something that is always present at this location.
This also affects the surrounding architecture and how it has to react to it and is a very important aspect to consider while looking for a new solution for this site. So we choose the curved form for our modul to reflect and block the noise. Also in order to gathering more sunlight, we reorient the modul to face south.

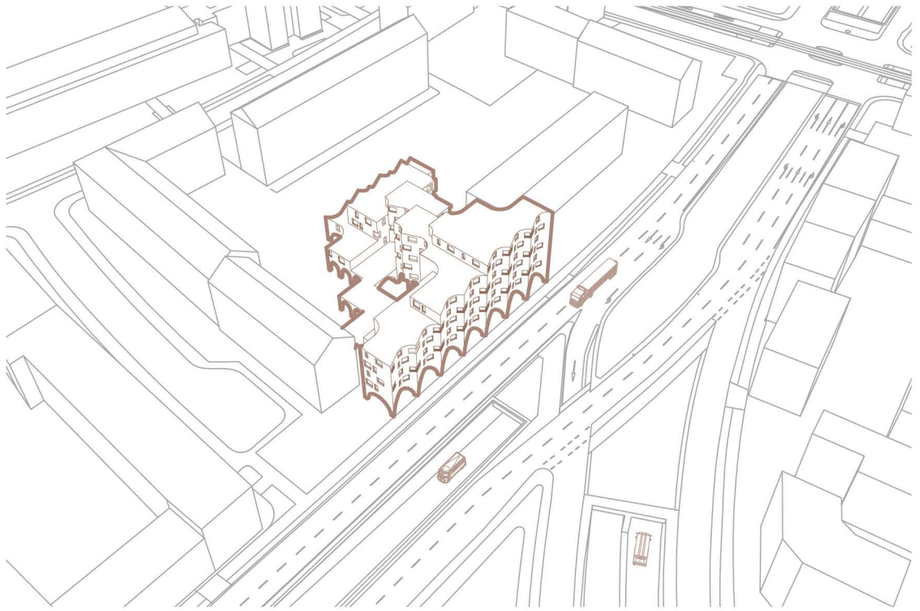
The project is to build a mixed use buiding with residential, office and commercial areas, which we have arranged in unit of floor. For the different usings there are diverse sizes of moduls, which for residential level is 12m x 8m and office area is 10m x 8m, due to the light effect influced by the depth of the inner space.
The public commercial area with a atrium garden is located on the first floor, leaded by arcade, which filters the traffic noise to provide a relative enclosed and quiet garden.

Top
Site plan
Right
Visualisation of hallway

INTERACT WITH NEIBOURHOOD



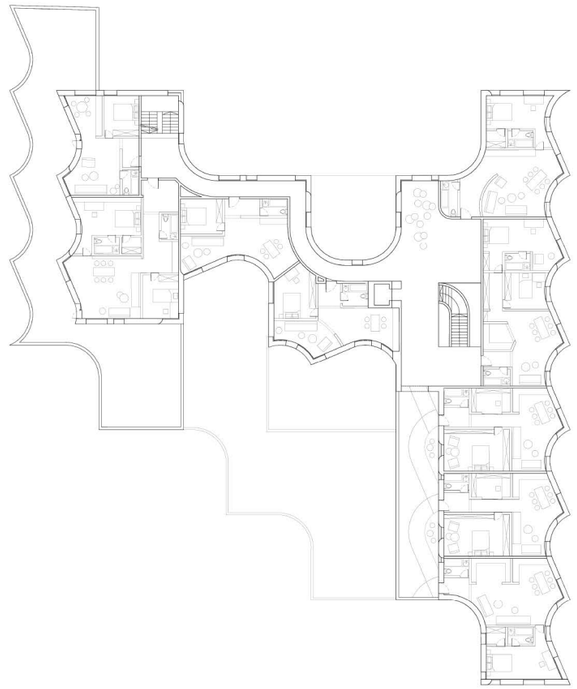
Top
Volume diagram
Bottom
Section AA



The Terrace on the working floor provide a relaxing and peaceful place for employee.Also, as interaction with the neibourhood building, the terrace offers a great opportunity to have a visual connection with the shared garden, but at the same time the transition to private appartment.

The arcade filter not only traffic noise but also non-resident. Thus, the garden is equipped with private atmosphere.

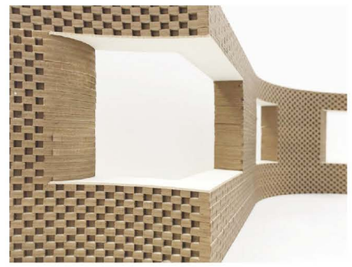
Top
Bird eye view
Bottom
Section BB

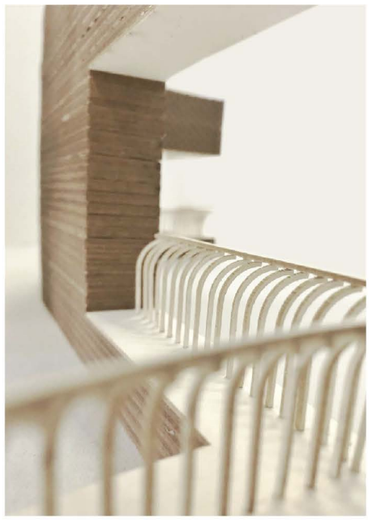


Left
ground floor plan/commercial area
Top
*1st floor plan/office area**
Bottom
2nd floor plan/residential area

Concept of facade

The way that the brick constructed is arccording the shape of the facade. The more curved the more gape between the adjacent brick piece. To maintain the curve as the architectual language in our design, the openings have rounded reveal towards in side, which in one hand provide more privite space against the main road, in the other hand smooth the whole facade and emphasize the dominant edges. As the same idea of the window reveal, the handrail repeats the curve element once agian.





Top
Volume diagram
Middle
1:100 model foto/yard
Bottom
1:100 model foto/facade

Top
Detail model of facade
Middle
Facade details
Bottom left
Visualisation of arcade

Top
Visualisation

Senior apartment Webergasse

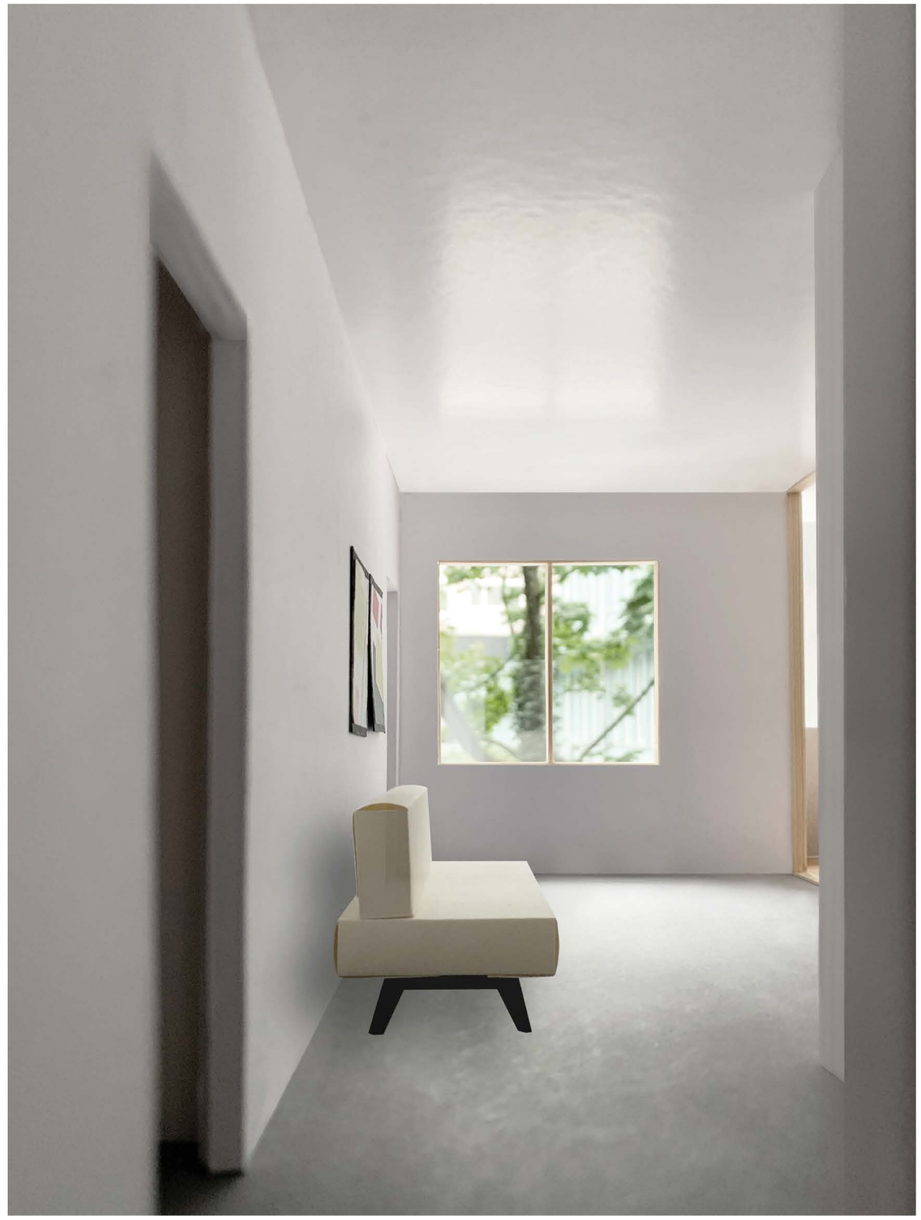
Project in realization
Meili,Peter GmbH Munich
Directors: Florian Hartmann, Andreas Muesseler,
Oliver Noak and Lisa Yamaguchi
Project leader: Ruth Wetcke

At the Ampfingstrasse

In the St. Leonhard district of Nuremberg, the property is located in a heterogeneous environment between a preserved school, a grown and newer city structure on the edge of a preserved cemetery. The property is lined with striking trees and a wall. The development creates 50 identical 2-room apartments that can be used as senior housing for one or two people. Day care center is on the ground floor.
The 8-storey building stands freely on the property and arranges the 7 apartments per floor like a windmill around a central access area, so that the view from each apartment opens up the largest possible panorama.

The volume is divided into narrow, slim facade surfaces, which are based on the gable sides of the surroundings. On the one hand, the building is self-confidently expressively free, but at the same time it integrates itself sensitively into the surroundings and subordinates itself to the proportions of the school and the trees.
The shape takes into account both the orientation of the apartments and the effect of the building structure on the outside, as well as the dense surrounding trees.

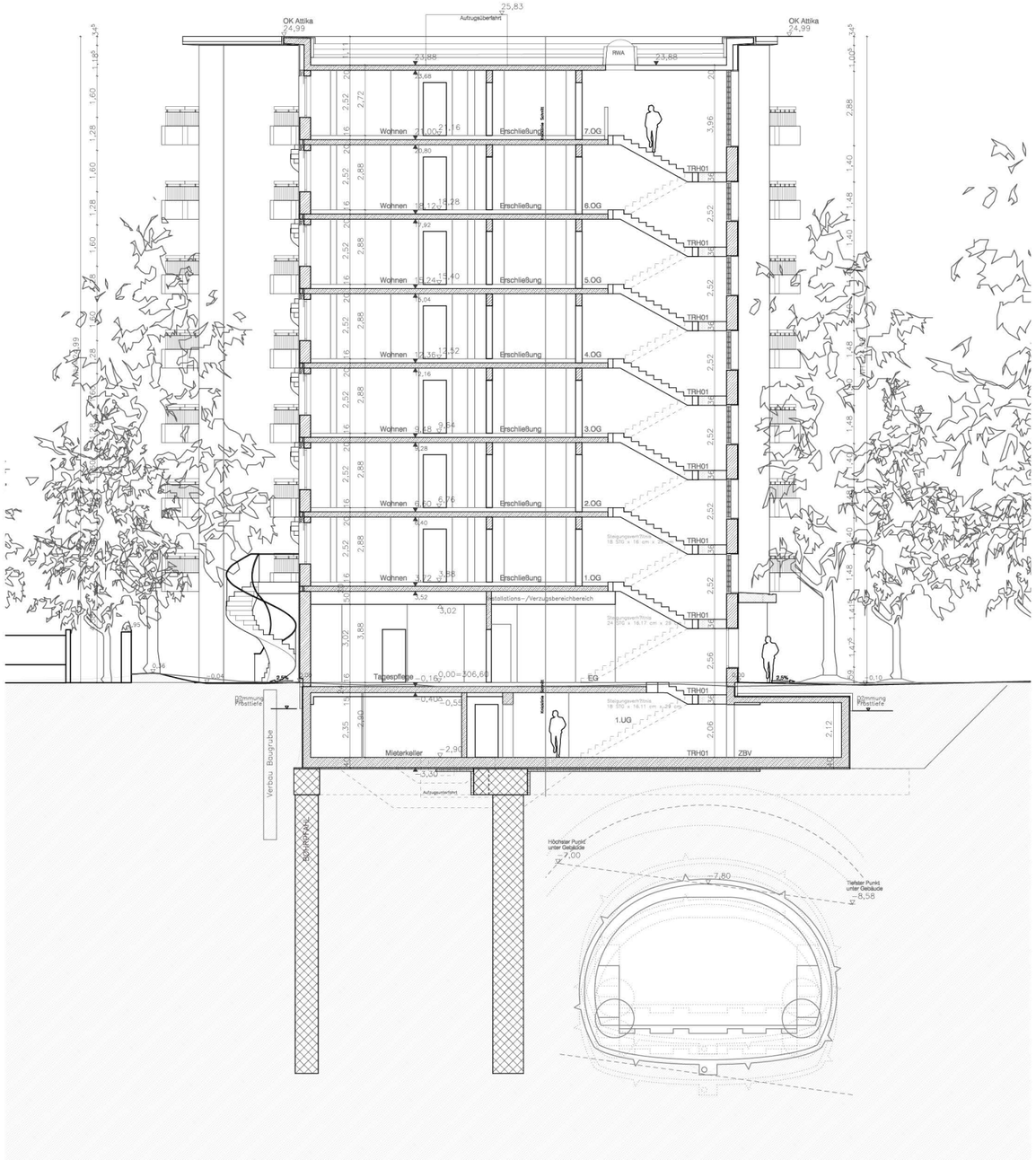
In this studio work, I was in charge of making interior perspective, hallway study, plan drawing for building application(LP3) and facade study.



Top
Facade detail
Right
Visualisation of livingroom

Top
Ground floor plan

Top
*Site model**
Bottom
Facade study; section; model photo*



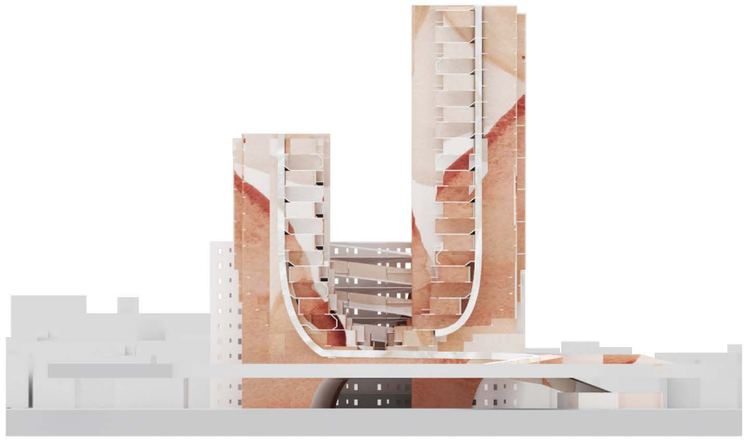
Top
Secion BB

Top
*Entrance**
Bottom
Regular floor

Cyclogic

Studio solo project
Urban housing project with public commons proposal
Leaded by Jonas Coersmeier

At Brooklyn Navy Yard, NYC



As the artery of New York BQE has largely influenced the way that people are living and commuting. It offers the convenience for people live far away, but doesn't bring much accessibility and occupation for people near by. For instance, it takes longer when people want to across the neighborhood and while cars are flashing by above. This cross section inspired me to think about mitigate the difference.

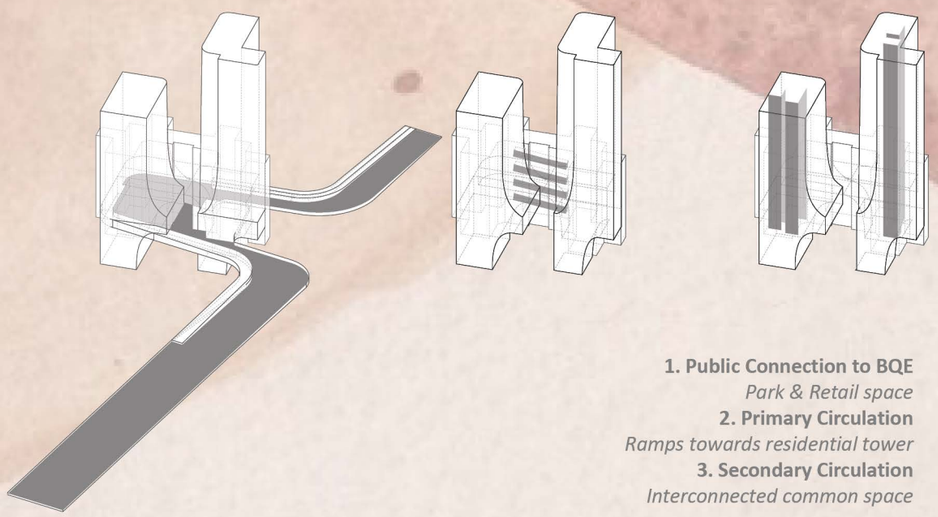
Instead of reconstruct the BQE, people are expecting it to transform to a more green and sustainable facility. There was several bike events happens on BQE before COVID and I think it is a interesting connection for BQE neighbors and transform it to be a more accessible and sustainable bike park.

But bikers in New York usually doesn't have a good living condition with their bikes, for example countless the doors and narrow hall ways. So I tried to create a housing project for people commuting with bike or any other no motor vehicles.

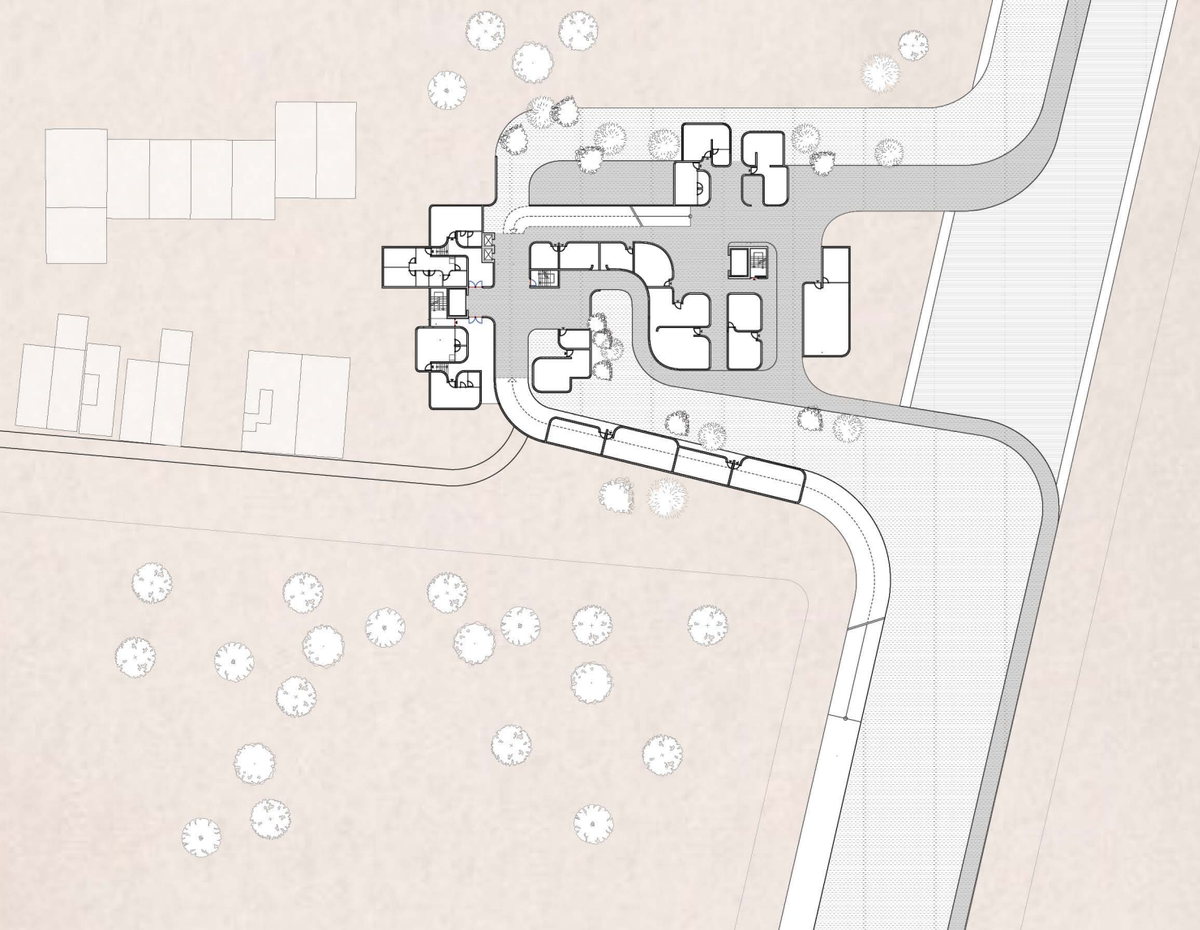
So I started from here to connect the building with BQE through bike lane and trail parks. It extend from the BQE and circulate in to the common platform on BQE level. It has open entrance to access easily to groceries and bike related retails.

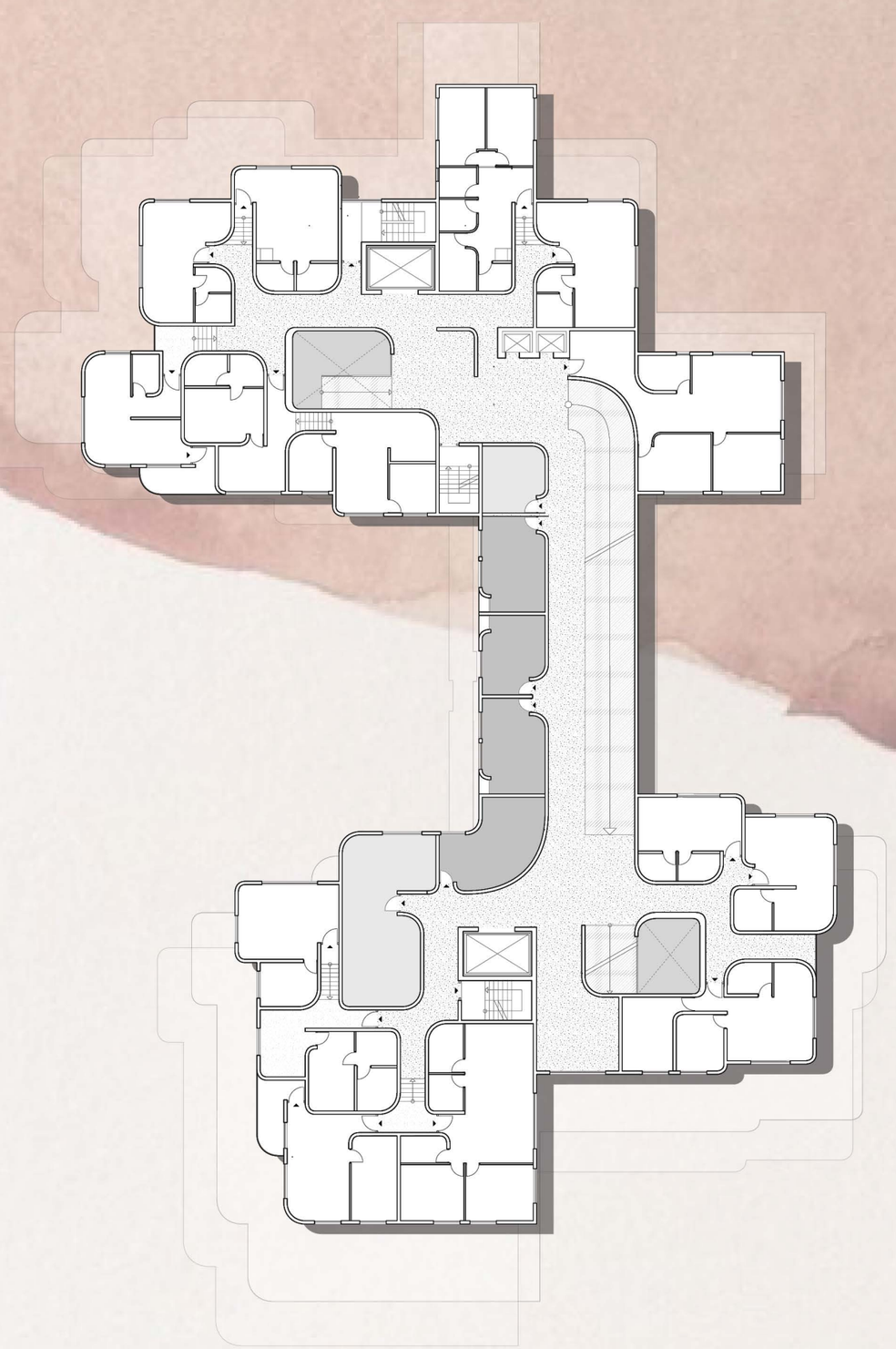
The material study is considering the brown from existing building. It becomes varietal to more neutral since bycicle is a common activity for almost all kinds of people and it is absolutely natrual bioenergy.

Top
Elevation
Right
Aerial view

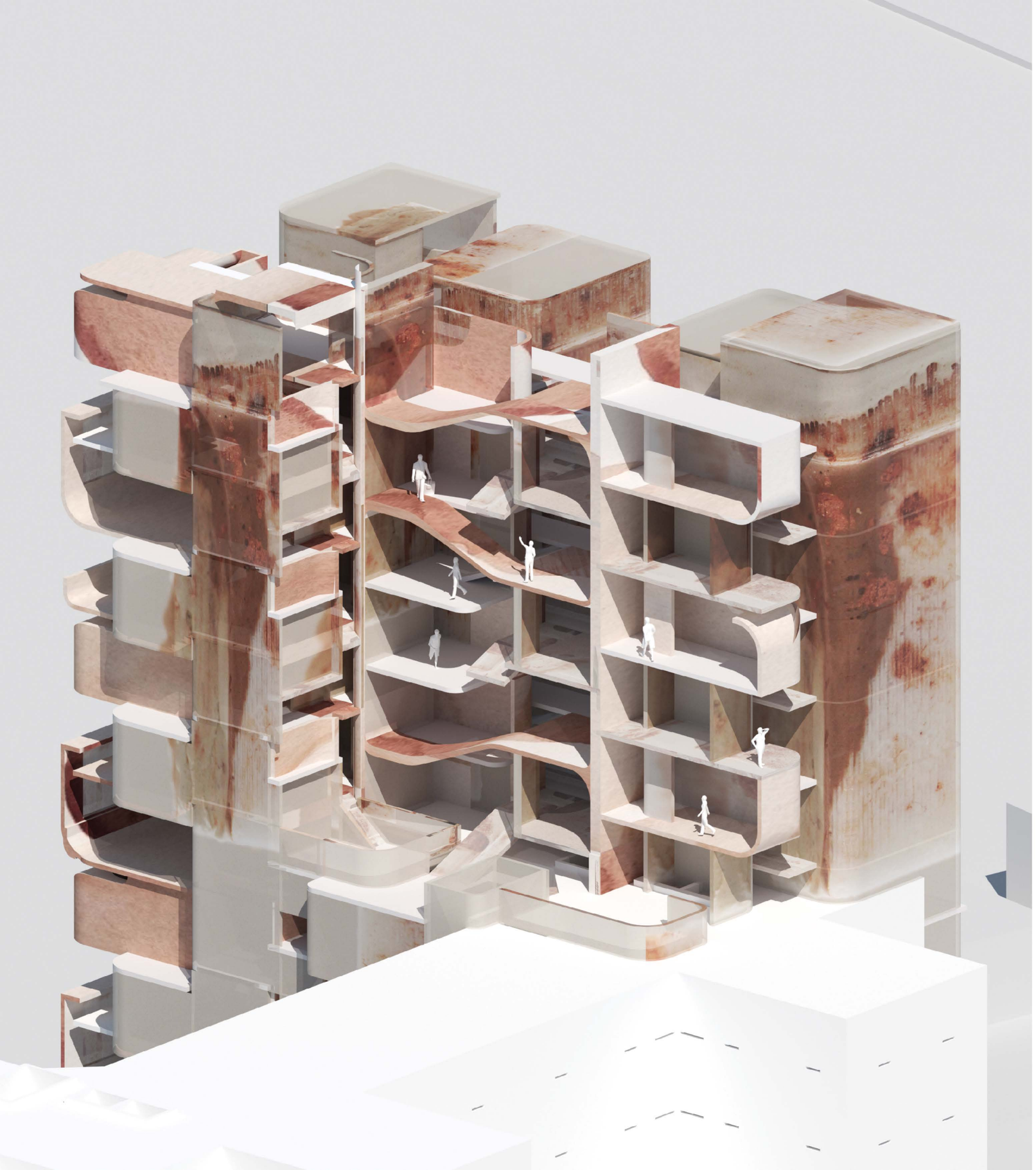


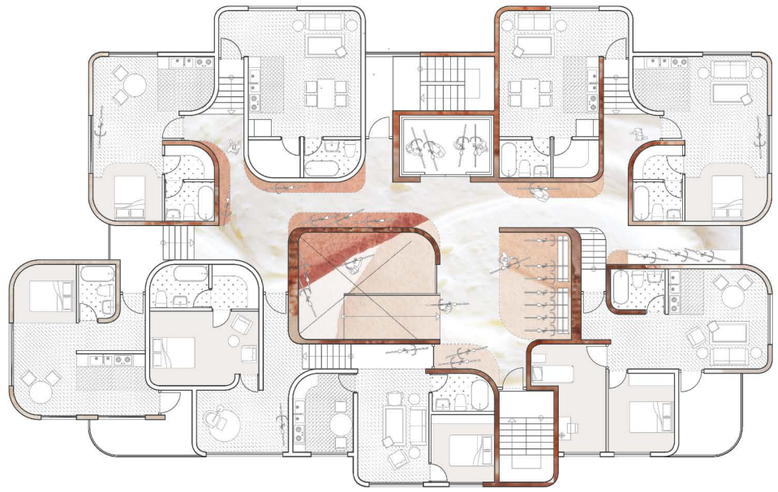
1. Public Connection to BQE
Park & Retail space
2. Primary Circulation
Ramps towards residential tower
3. Secondary Circulation
Interconnected common space



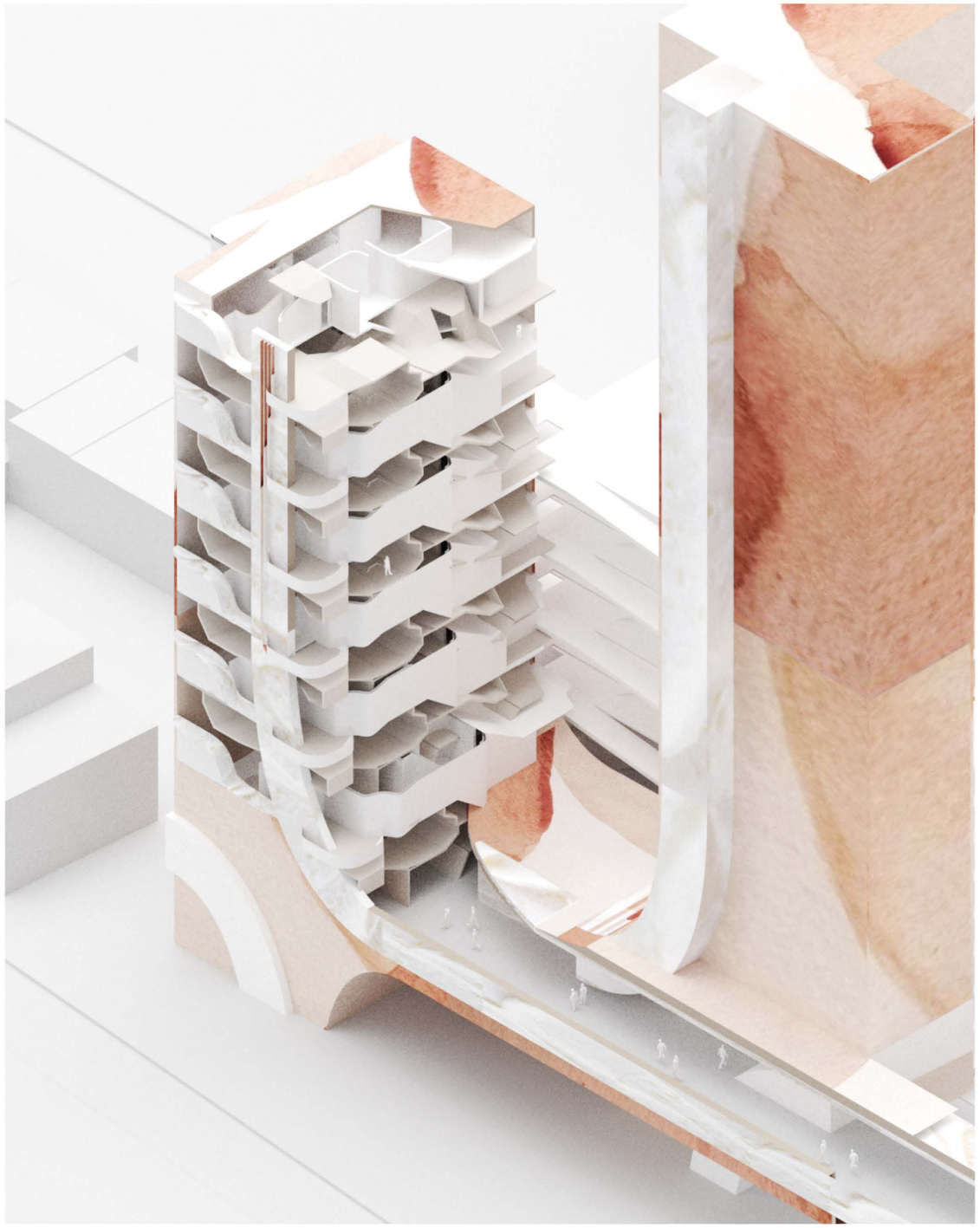


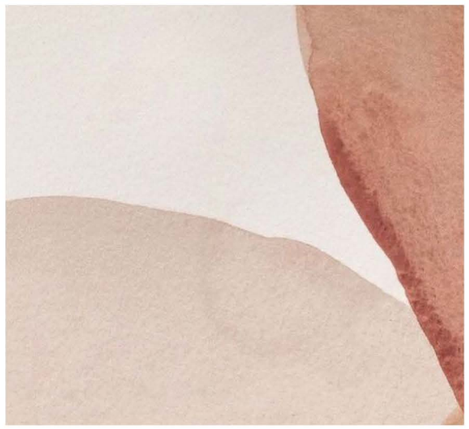
Top left
Housing type diagrams
Right
Regular floor plan integrated with existing building





Left
Cluster chunk of residential tower
Top right
Floor plan of residential tower
Bottom right
Section of residential tower





Left
Poster of public common space
Right
Material studies

Ephemeral Permanence

Workshop project M.A. TUM
Reused material design for water side pavillion
Leaded by
Mario Rinke, UAntwerp
Tina Vestermann Olsen, AAU
Alessandro Tellini, ETH Zurich

At Fjordmarken, Aalborg

Designing and building with reclaimed structural materials?
The most sustainable construction materials are those we already have. Reusing what already exists is at the heart of circular construction and a fundamental element of a more sustainable architecture. If a building cannot be used anymore and faces demolition, we must at least reclaim its components. On the technical side, the major components should be recognised and reintroduced into the market. On the design side, this new broader notion of materiality pushes towards an availability-based design that also shapes the way we decide forms, connections, component arrangements and spaces.

Provided with a given set of components, such as light steel parts, bricks, timber beams and panels, the participants first analysed their technical and architectural properties. They then designed a temporary pavilion serving as a social place at the site close to the city center but also to the nearby marina. In the coming years, the site will undergo a transformation dealing with among other things rising sea water levels and the project contributes by making visible potentials of the future. In the final phase of the workshop, the group built the selected design. The pavilion serves as a 1:1 demonstrator of circularity that brings to life the potential of the site and foregrounds material reflexivity.

Top
Material close up
Right
Construction site

1
Concrete Plate

Leftover elements from a construction site in Aarhus.
//GreenDozer

2
Steel Column

Leftover elements from demolishing a building in Aarhus.
//GreenDozer

3
Marine Plywood

Leftover elements from a construction site in Herlev.
//STARK gentræ

4
Gas Concrete

Previosuly used for an exhibition at the Utzon Center.
// Utzon Center

5
Pine Beam

Leftover elements from a construction site in Herlev.
//STARK gentræ

6
Brick

Brick are leftover from demolishing a building in Aarhus.
//GreenDozer

7
Steel, C-Profile

Specially designed clamps for the main joints of the structure to prevent damaging the elements.
// FAB LAB, AAU

8
Roof Tiles

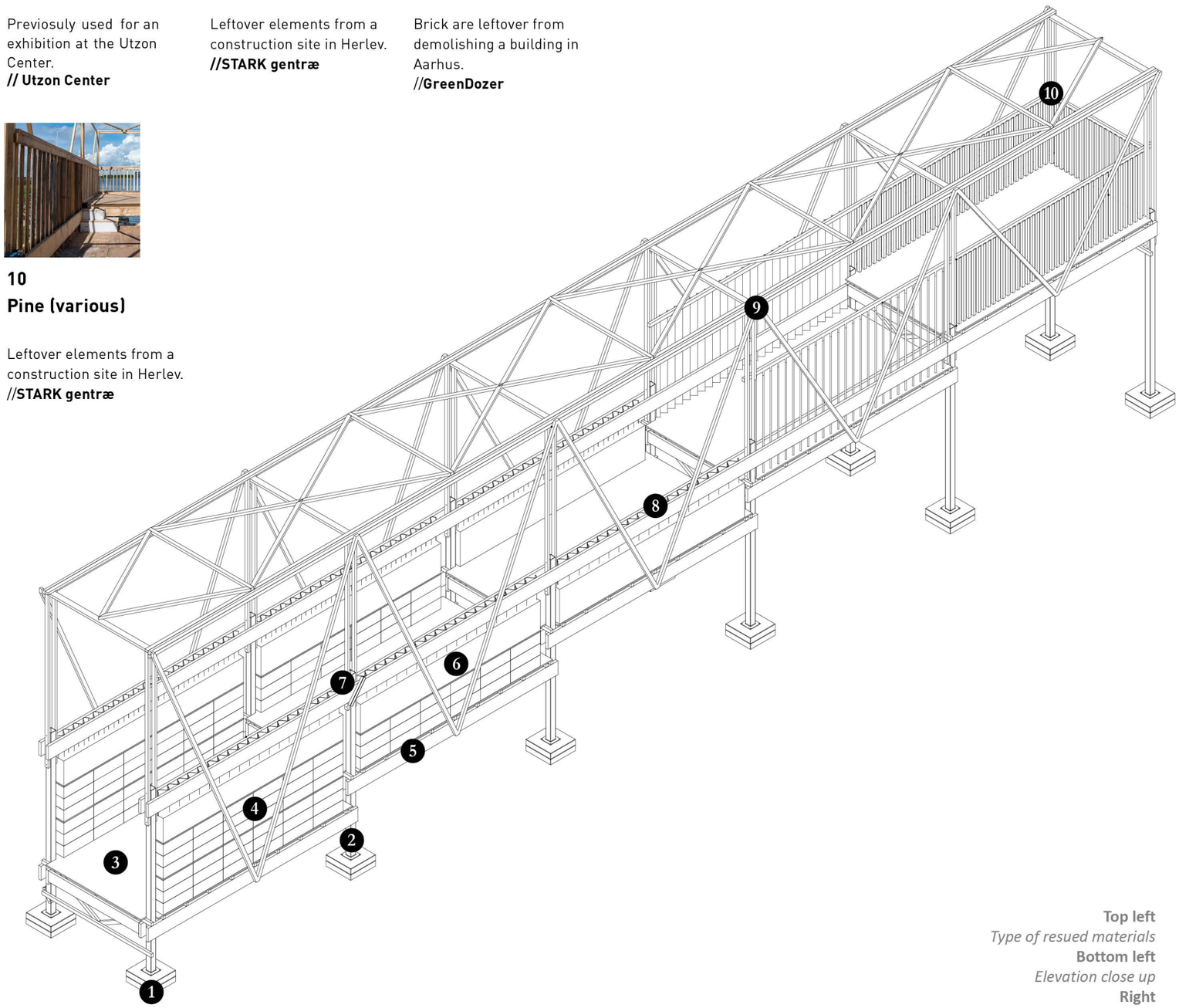
Leftover elements from a construction site in Aarhus.
//GreenDozer

9
Roof Lath

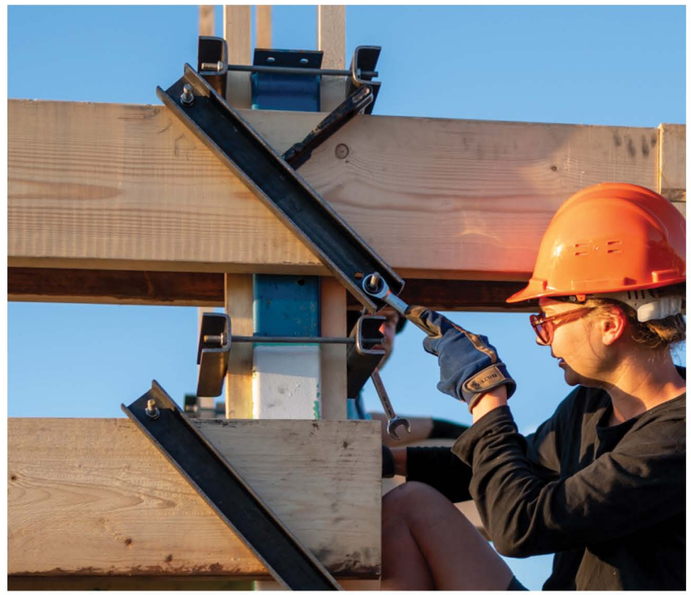
Leftover elements from a construction site in Herlev.
//STARK gentræ

10
Pine (various)

Leftover elements from a construction site in Herlev.
//STARK gentræ



Top left
Type of resued materials
Bottom left
Elevation close up
Right
Construction perspective

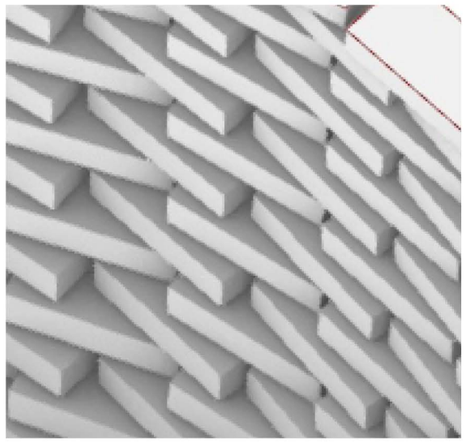


Left
Pavilion
Top right
Combining recycled material on facade
Bottom right
Fasten clamps for joints on the colum

Fabrication-Aware Digital Design

Seminar project M.A. TUM
Human-robot cooperative design proposal for brick pavillion
Leaded by Lidia Atanasova, Kathrin Doerfler

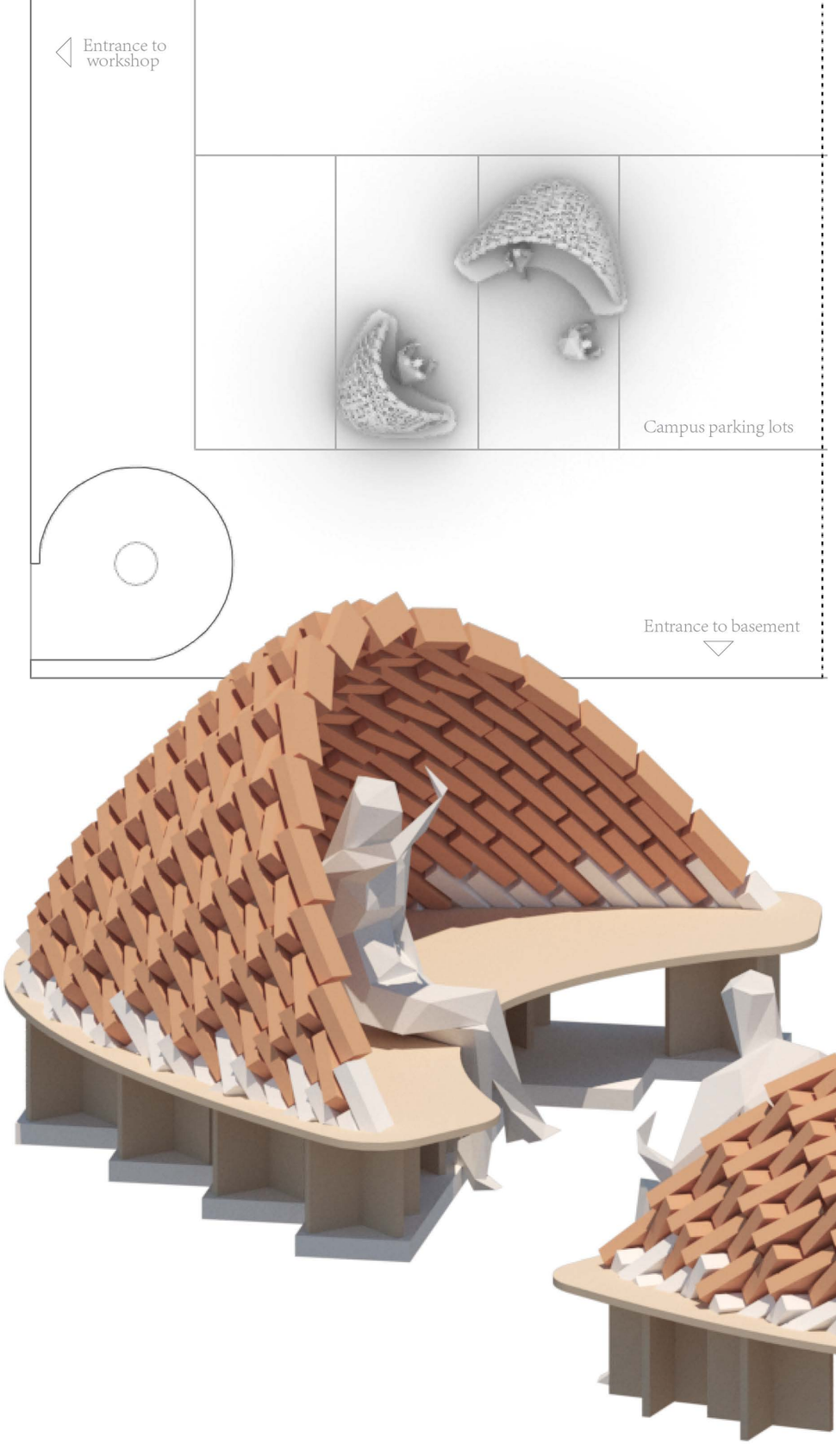
At Bauinung, Munich

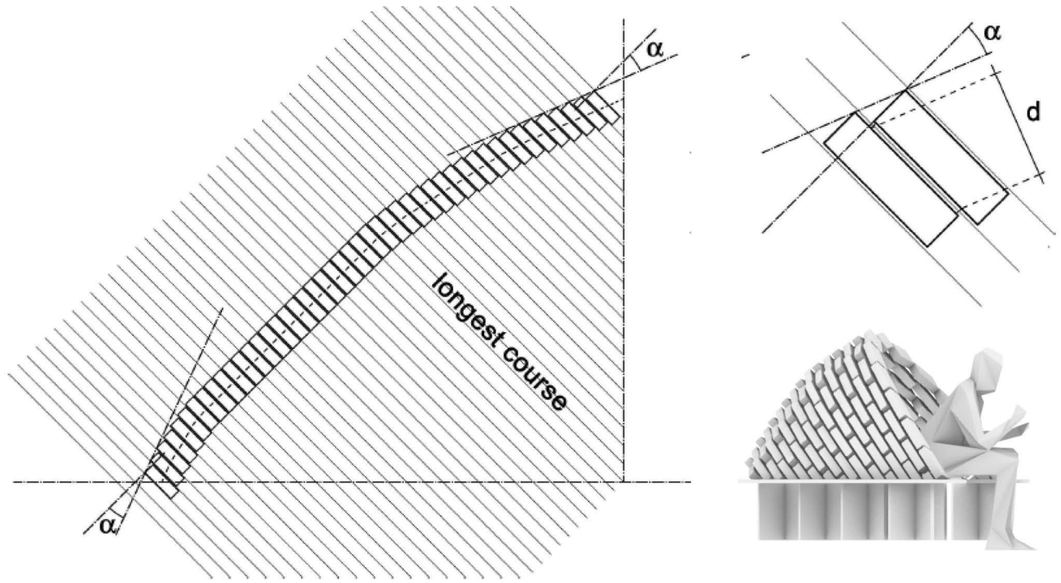


At the beginning of the seminar, bricklayer apprentices from the training center of the Bauinnung München-Ebersberg share the theoretical and practical basic principles of historical brickwork. Building on this, we are taught theories and basic practical knowledge for fabrication-oriented digital design and robot-based fabrication in architecture. Using existing examples, we learn the principles of parametric design of brickwork using the Python programming language in Rhino and Grasshopper software. The theoretical principles discussed are deepened in design exercises. These serve as preparation for the fabrication in which human and a mobile robot create collaboratively a 1:1 scale design at the premises of the Bauinnung.

We take the nubian vaults as our reference, which has a self-supporting principle and could be constructed without formwork. However, to build a vault from ground normally needs highly skilled maisoner. So task for us is to test to build with help of computational design and robot together. Moreover, we developed the idea of rotating the bricks individually to give the vault an interesting texture and give it some value that can only be realized by mechanical cooperation.
Regarding the pavillion as a resting area for students at Bauinung, we caculated the volume as high as it could stand and oriented the vaults to provide shading in the meanwhile also preserve the chance to enjoy sunshine.

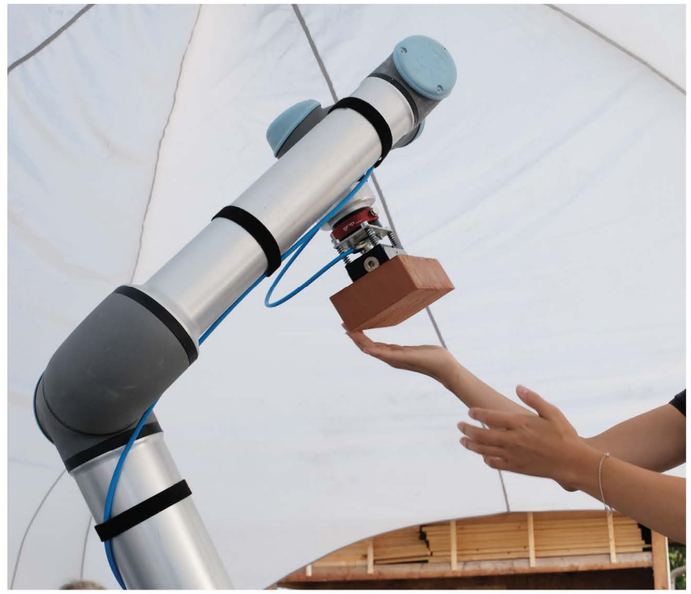
Top
Elevation close up
Right
Working on construction site





Recourse: David Wendland (2007) Traditional Vault Construction Without Formwork: Masonry Pattern and Vault Shape in the Historical Technical Literature and in Experimental Studies, International Journal of Architectural Heritage, 1:4, 311-365, DOI: 10.1080/15583050701373803

Top left
Site plan
Bottom left
Digital design preview
Right
Masonry theory



Left
Co-working scenario
Top right
Cleaning surface
Bottom right
Taking off-sending brick

Thank you


LENCA
Apfelschorle
Ohne Zucker-
zusatz
LENCA
pfelschorle
Aus
heimischen
Äpfeln