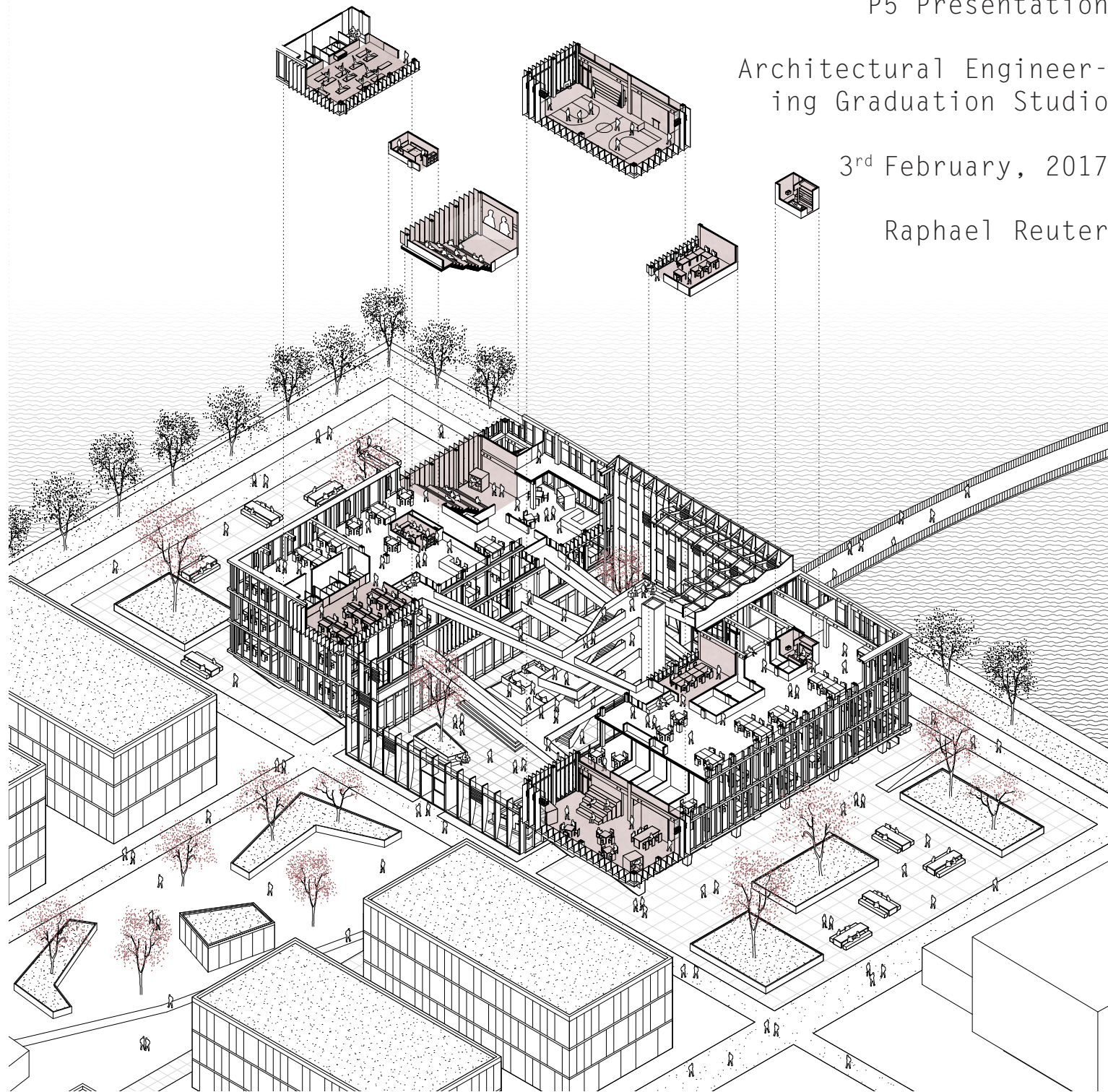


P5 Presentation

Architectural Engineer-
ing Graduation Studio

3rd February, 2017

Raphael Reuter



1. Technical Research
2. Urban Strategy
3. The Transformer Spaces
4. The Building

How can transformable Architecture help to use space more efficient?

Subquestions:

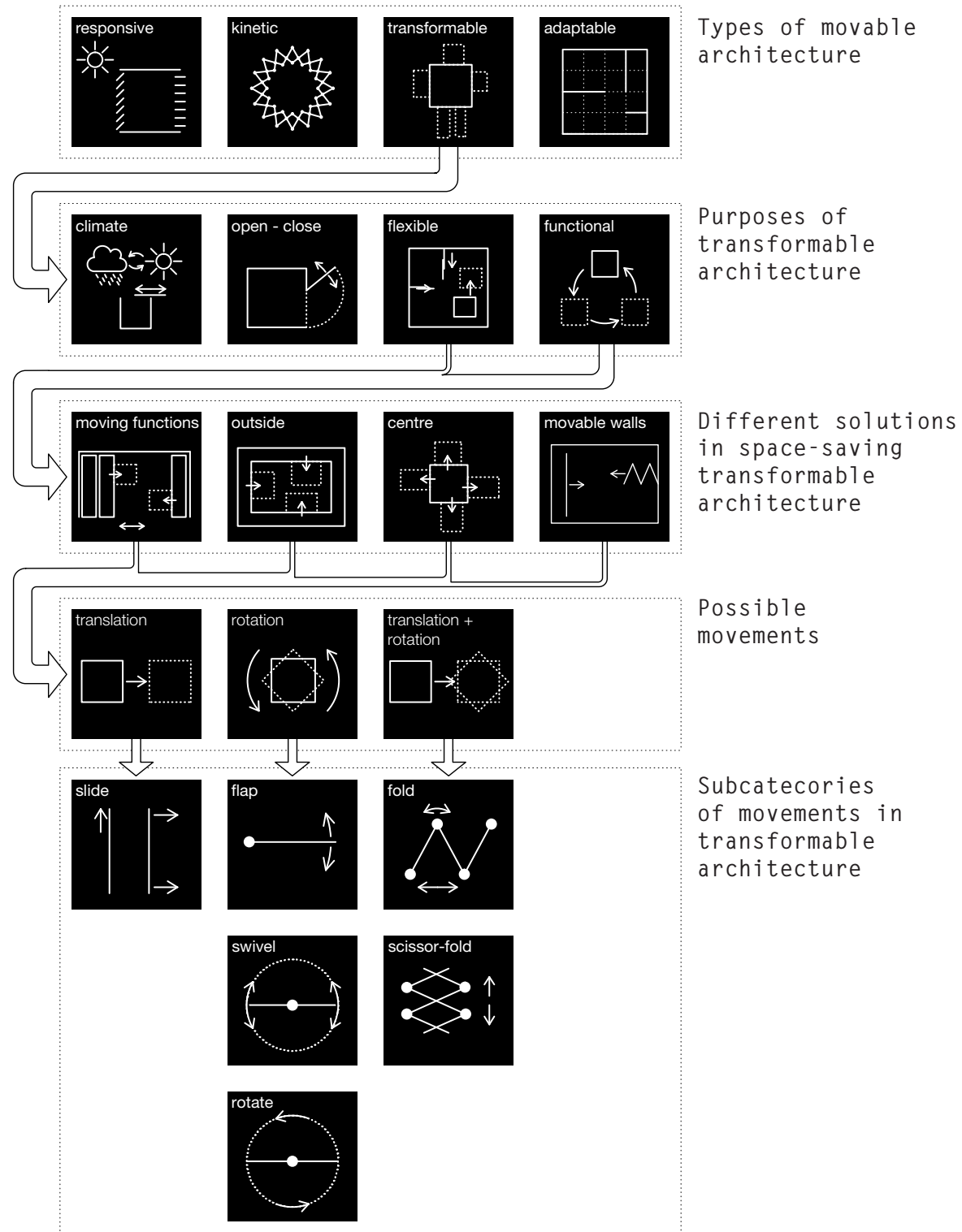
What is transformable architecture?

What are the reasons to make architecture transformable?

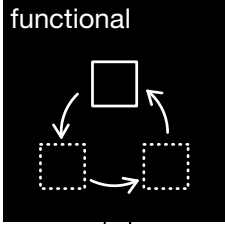
Which techniques are used to make transformations?

Which movements (sliding, rotating,...) are used in which case?

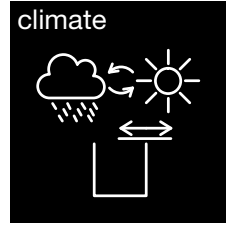
Approach of research



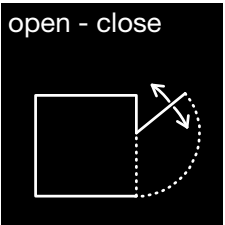
Purposes of transformable architecture



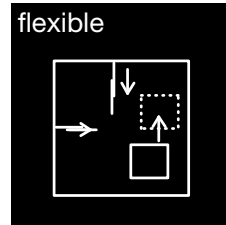
changing between different functions to save space



design can adapt itself to different weather conditions



building closes itself when it is not needed



easily changeable layouts to host all kind of functions and users

climate



Kubus
Sturm und Wartzech



Living Room,
Seifert Stoeckmann



Lakeside Stage,
Werkraum Wien with Hans Kupelwieser



Fahrt ins Grüne,
Kahlhöfer - Korschildgen



Milwaukee Art Museum,
Santiago Calatrava



Sliding House,
dRMM Architects



Bloomframe Window,
Hofman Dujardin Architects



Institut du Monde Arabe,
Jean Nouvel



Montreal Olympic Stadium Roof,
Frei Otto



Shakespeare Theater,
Renato Rizzi



Wimbledon Stadium Roof,
Capita Symonds



Sharif-ha House,
Next Office



Baer House,
Steve Baer

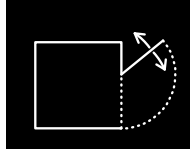


Starlight Theater,
Studio Gang



Oita Stadium,
Kisho Kurokawa

open - close



House No 19,
Korteknie Stuhlmacher Architekten



Ernsting Distribution Depot,
Schilling Architekten



Rolling Bridge,
Heatherwick Studio



Shop entrance,
Nickel und Wachter Architekten



m.poli Kiosk,
Brut deluxe



Theresienwiese Service Centre,
Staab Architekten



GuckHupf project,
Hans Peter Wörndl



Palatine Cellar,
Santiago Calatrava

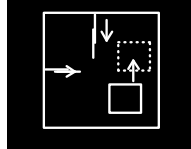


Store Front,
Steven Holl



Garden Hut
Eightyseven Architects

flexible



Studio 8,
Gruppe OMP



Naked House
Shigeru Ban



BDA Wechselraum Gallery,
Bottega + Ehrhardt Architekten



Nine-Square Grid House,
Shigeru Ban

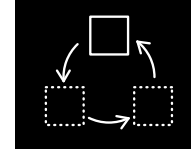


Fukuoka Housing,
Steven Holl



Skandby Office,
Bothe Richter Teherani

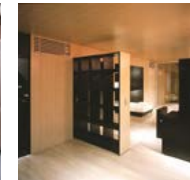
functional



Archilab Living Room,
Juan Pablo Molestina



Total Furnishing Unit,
Joe Colombo



Drawer House,
Nendo



Crate House,
Alan Wexler



K-Space,
6a Architects



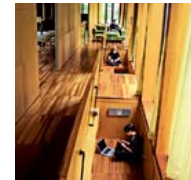
LaboShop,
Mathieu Lehanneur



Bordeaux House,
Rem Koolhaas



Erika Mann Primary School,
Susanne Hofmann Architekten



Suitcase House,
Gary Chang



Multifunctional Dwelling,
Gary Chang



All I own House,
PKMN Architectures



Chateaubriand Private Residence,
Jacques Bilodeau, Marc-Andre Plasse



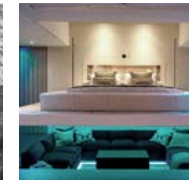
Black Treefrog,
Splitterwerk



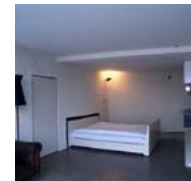
Creative Hub Euro RSCG offices,
Atelier Phileas



Kubus
Sturm und Wartzech



Yel Home
Simon Woodroffe



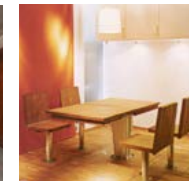
Penthouse T.O.,
pool Architektur ZT GmbH



Home/Office for a graphic designer
Roger Hirsch, Myriam Corti



Copper Suitcase,
Penda



Optibo,
White Design



Womb: work, office, meditation, base
Johnson Chou



CircuitBox,
Studio X Design Group



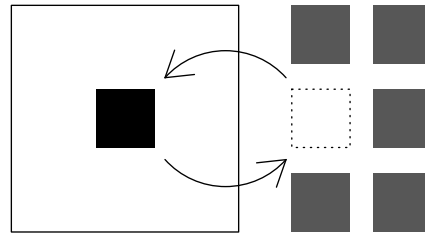
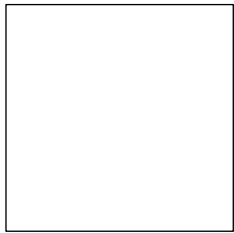
A House in a Suitcase,
Eva Prats y Ricardo Flores

Different solutions in space-saving transformable architecture

general principle

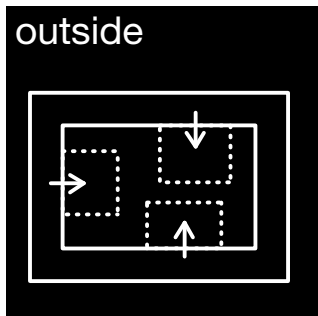
neutral space

functions

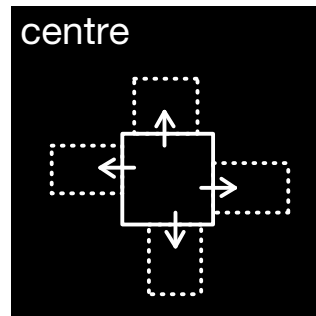


The neutral space gets activated with the function. According to the needs of the user the space gets a different function. The functions that are not used are stored outside of the neutral space.

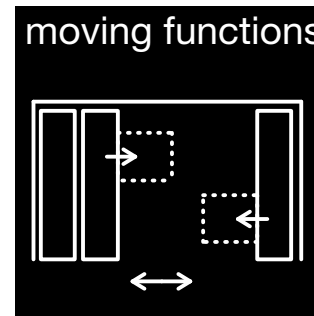
neutral space + functions on the outside



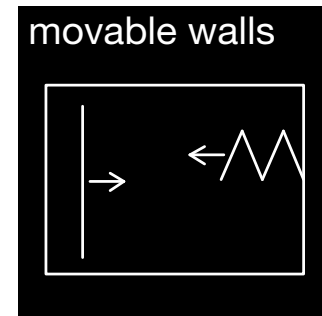
box with functions in the centre of a neutral space

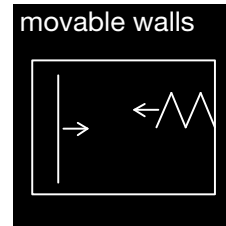
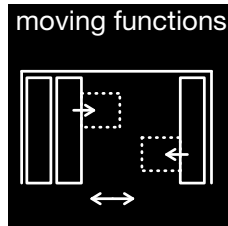
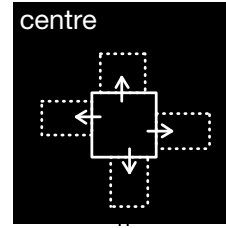
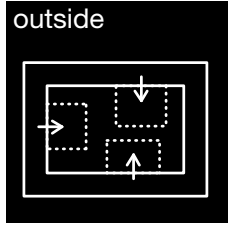


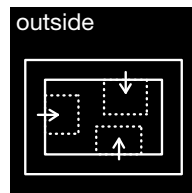
functions in moveable walls



moveable partitions to transform the spaces







Creative Hub Euro RSCG offices, Atelier Phileas



Drawer House, Nendo



LaboShop, Mathieu Lehanneur



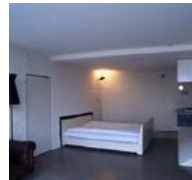
Yoi Home, Simon Woodroffe



Black Treefrog, Splitterwerk



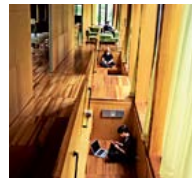
Optibo, White Design



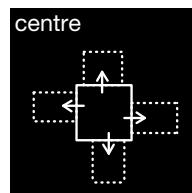
Penthouse T.G., pool Architektur ZT GmbH



Womb: work, office, meditation, base Johnson Chou



Suitcase House, Gary Chang



Total Furnishing Unit, Joe Colombo



A House in a Suitcase, Eva Prats y Ricardo Flores



Crate House, Alan Wexler



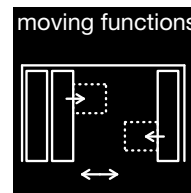
Archilab Living Room, Juan Pablo Molestina



Home! Office for a graphic designer, Roger Hirsch, Myriam Corti



Copper Suitcase, Penda



K-Space, 6a Architects



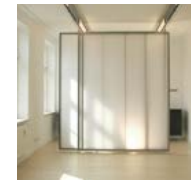
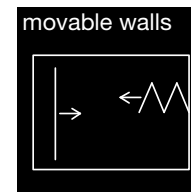
Multifunctional Dwelling, Gary Chang



CircuitBox, Studio X Design Group



All I own House, PKMN Architectures



Studio 8, Gruppe OMP



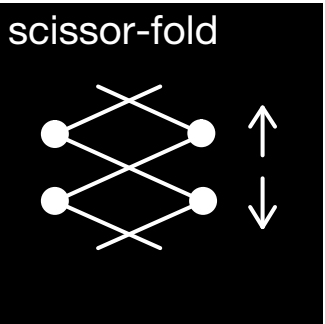
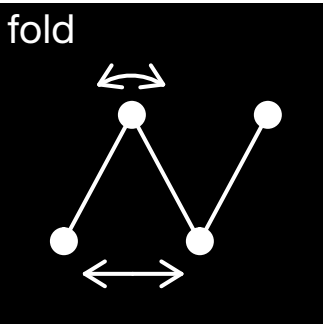
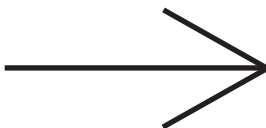
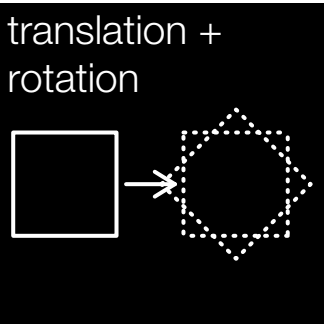
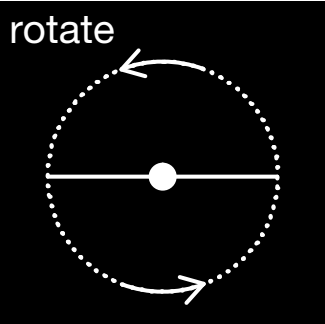
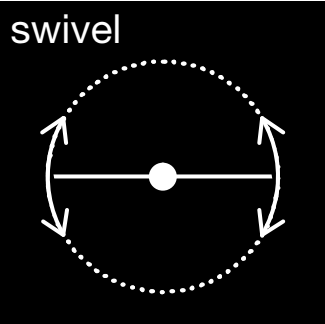
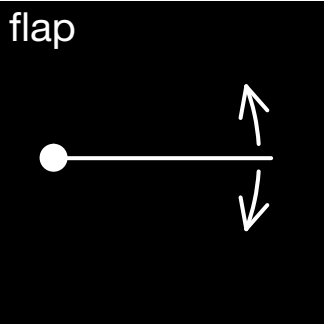
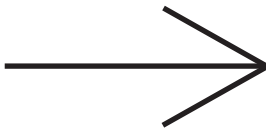
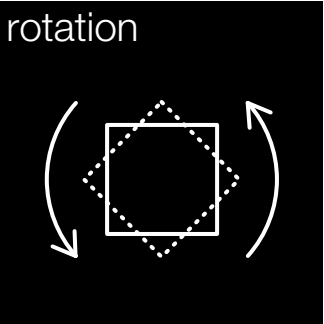
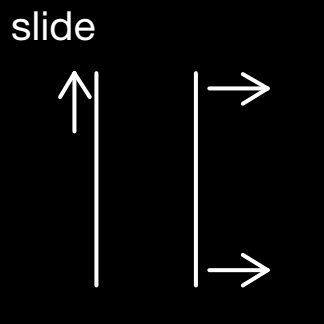
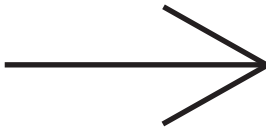
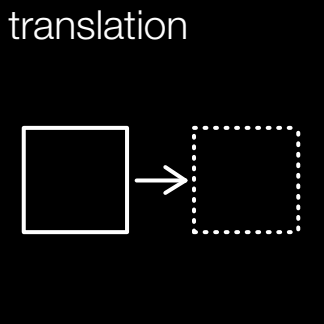
BDA Wechsraum Gallery, Bottega + Ehrhardt Architekten



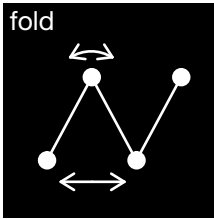
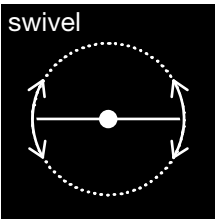
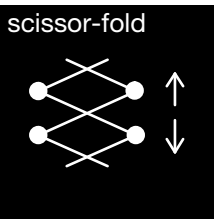
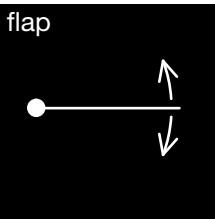
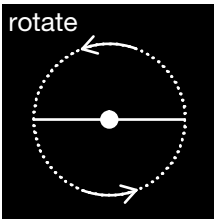
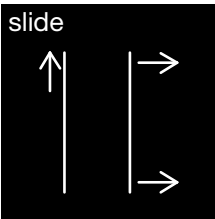
Nine-Square Grid House, Shigeru Ban



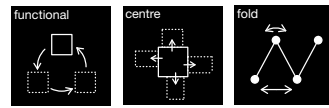
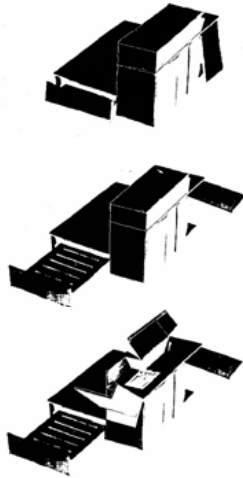
Fukuoka Housing, Steven Holl



Possible movements

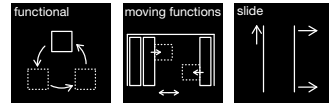


A House in a Suitcase,
Eva Prats y Ricardo Flores



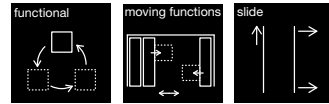
Description by the architect:
The project investigates minimum space in our daily activities; the pieces of furniture open according to each moment of the day. Thus, the unique space of the room 9x3x3 metres varies in size and use during the everyday activities. These two big packages are the ones that put the inhabitants in relationship with the space of the room. When they open them, they guess why they have such size: in their different parts, hidden uses appear and fragment the big unique space into smaller spaces of human scale.

K-Space,
6a Architects



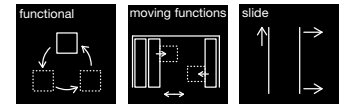
Description:
The installation for both permanent and temporary spaces adapts a library archive storage system. Five of these units are specifically designed to combine display and storage, and slide on tracks to reveal or conceal products, transparency and opacity. The units reveal its contents through the perforations and mirrors the surroundings in its surface creating a constantly changing installation.

Multifunctional Dwelling,
Gary Chang



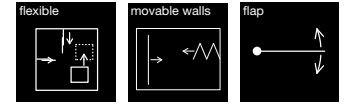
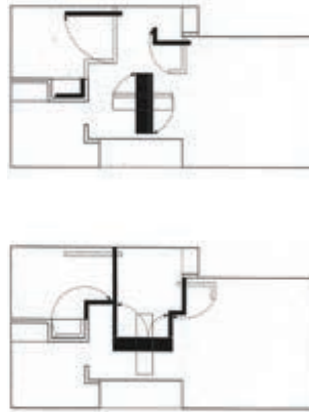
Description:
The Japanese had been doing it quietly for years, of course. But "Domestic Transformer", the catchy name that Chang, founder of the Edge Design Institute, gave to a 32 sqm Sai Wan Ho flat which can be configured into at least 24 different layouts, due to sliding wall units, fold-down tables and pull-out cabinetry, has been widely documented, and is still referred to in design articles today.

All I own House,
PKMN Architectures



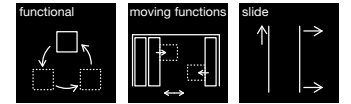
Description:
Movable library-style shelving units slide from side to side to reveal and hide compartments that serve various functions in this Spanish apartment by Madrid-based PKMN Architectures. To maximise the functionality of the restricted space, the kitchen, bedroom and storage are housed within a series of moveable units made from heavily textured oriented strand board.

Fukuoka Housing,
Steven Holl



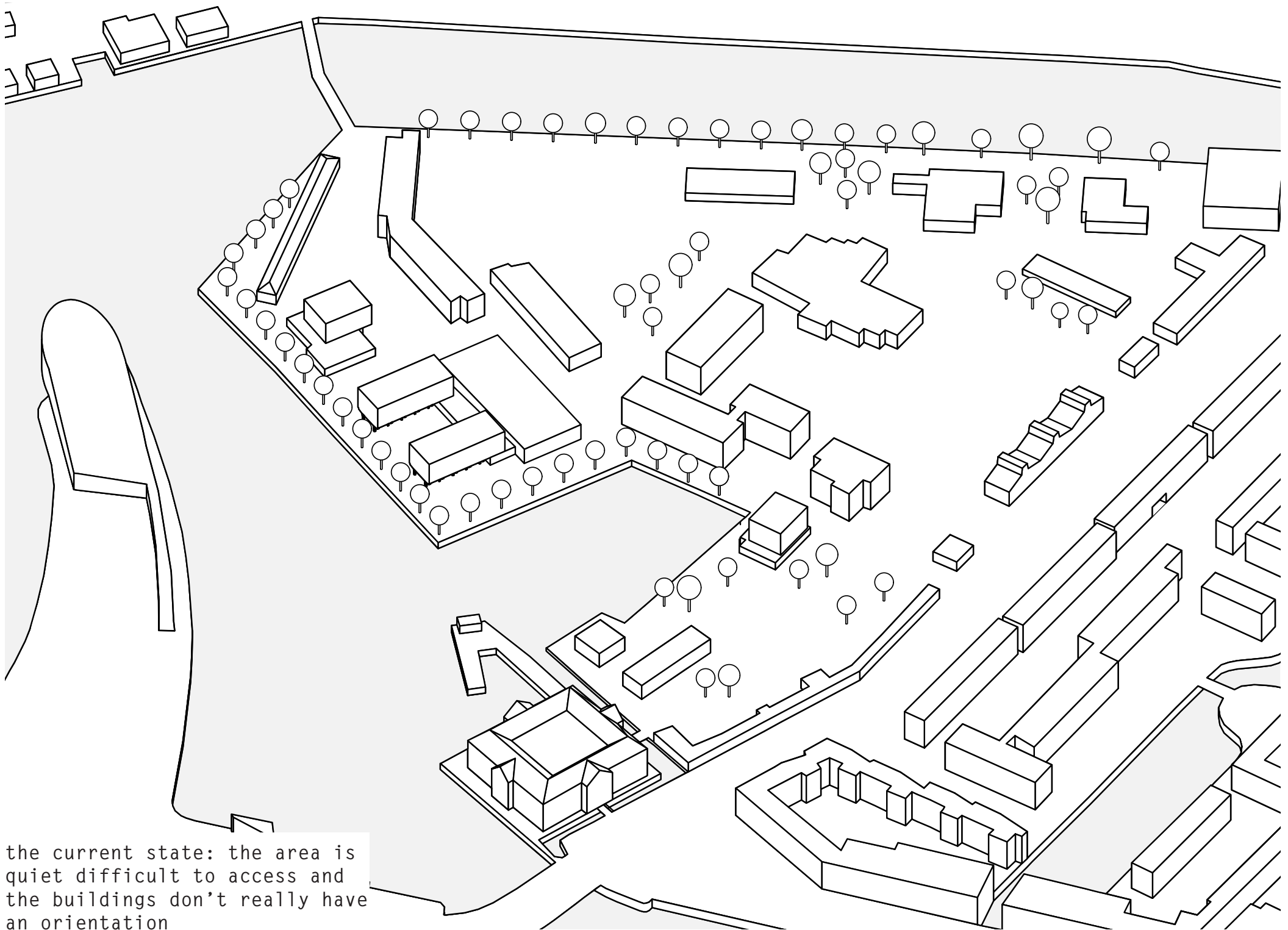
Description:
The 28 apartment interiors are conceptualized as „hinged spaces,“ a modern interpretation of the multi-use concept of traditional Fusuma. Diurnal hinging allows expansion of the living area during the day, reclaimed by bedrooms at night. Episodic hinging reflects change in family over time; rooms can be added or subtracted accommodating grown-up children leaving or elderly parents moving in. A sense of passage is heightened by three types of access, by allowing apartments to have exterior front doors, and by interlocking apartments like a complex Chinese box.

CircuitBox,
Studio X Design Group

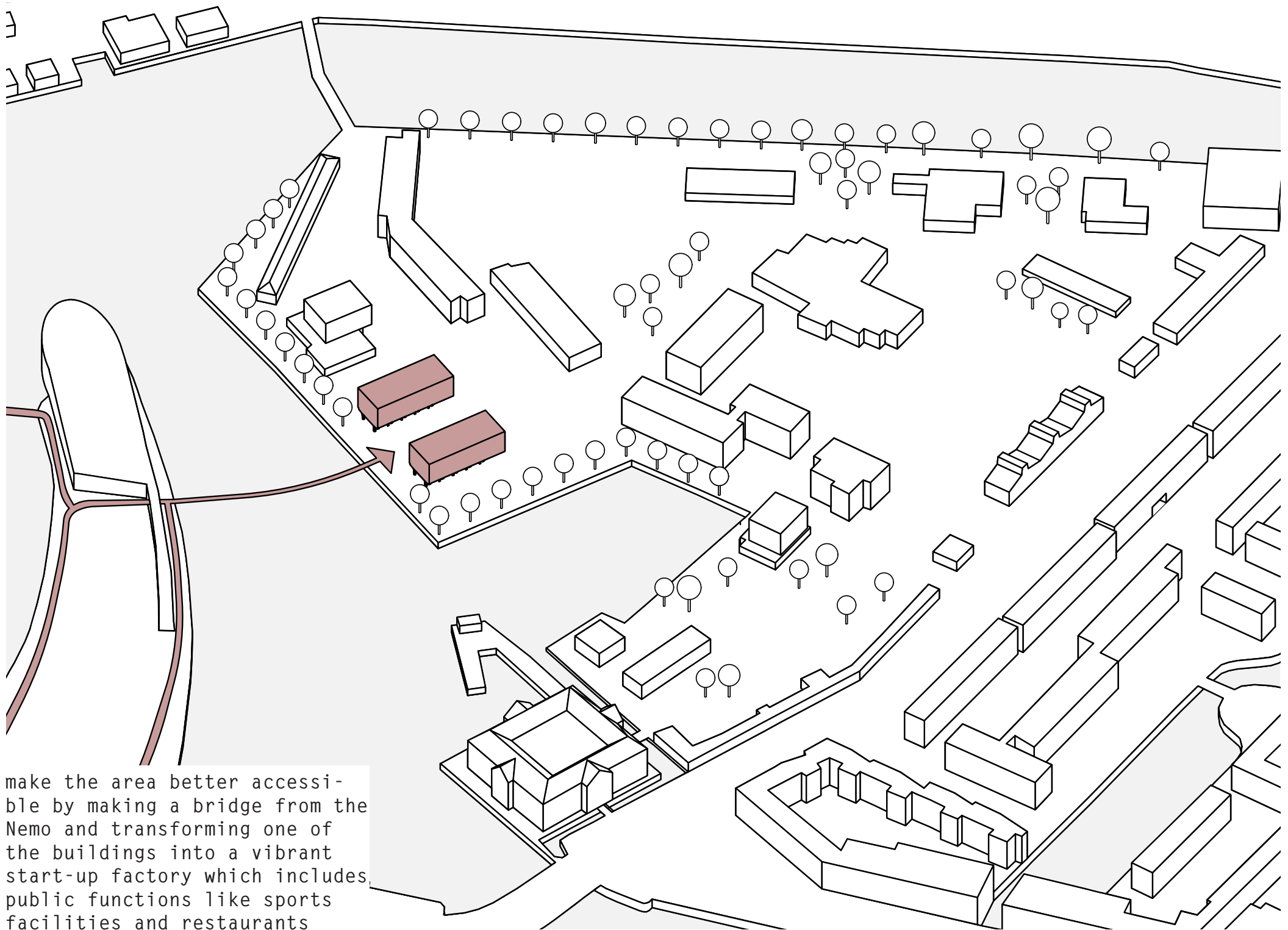


Description:
CircuitBox is a concept for a minimal dwelling conceived as a possible answer to the continuous reduction of inhabited space. It consists of a compact system that contains a multifunctional furnishing system equipped with all the necessary elements for contemporary living in a very small space. CircuitBox is composed of a series of nested rings gradually decreasing in size and hanging from a rail system along which they slide, passing one through the other. The larger ring serves as a container for the other rings and has been anchored to a wall like an electric plug.

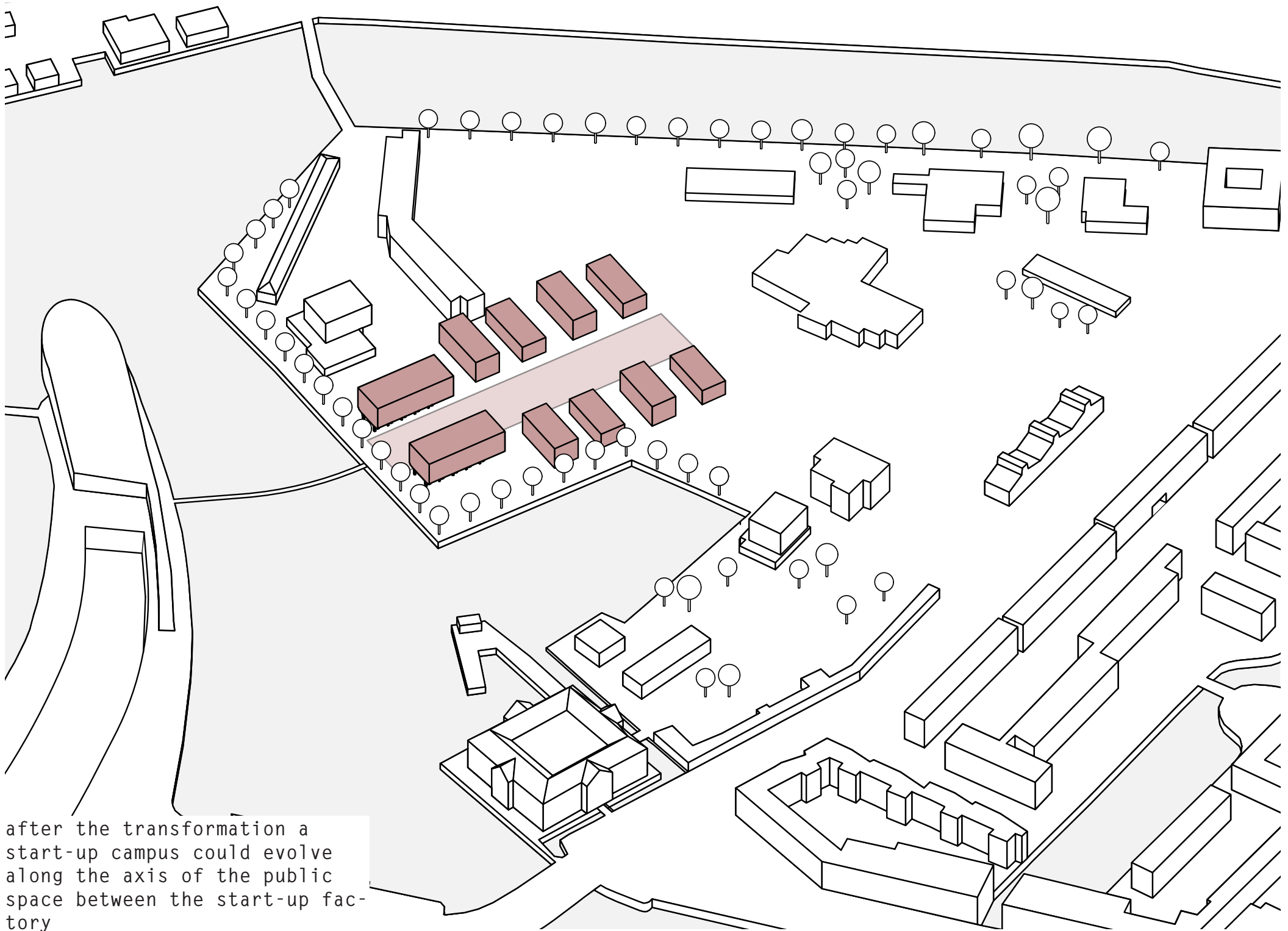




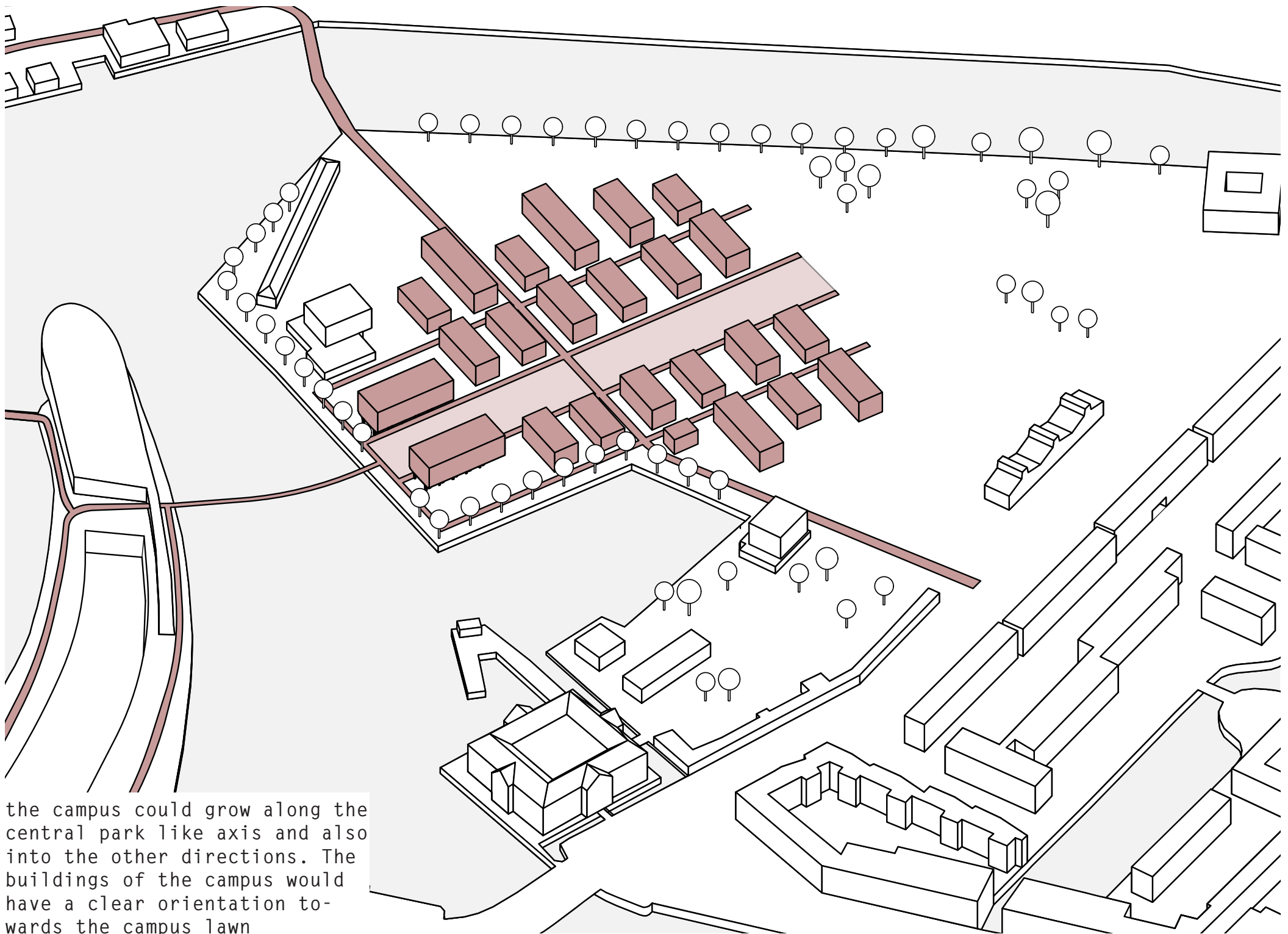
the current state: the area is
quiet difficult to access and
the buildings don't really have
an orientation



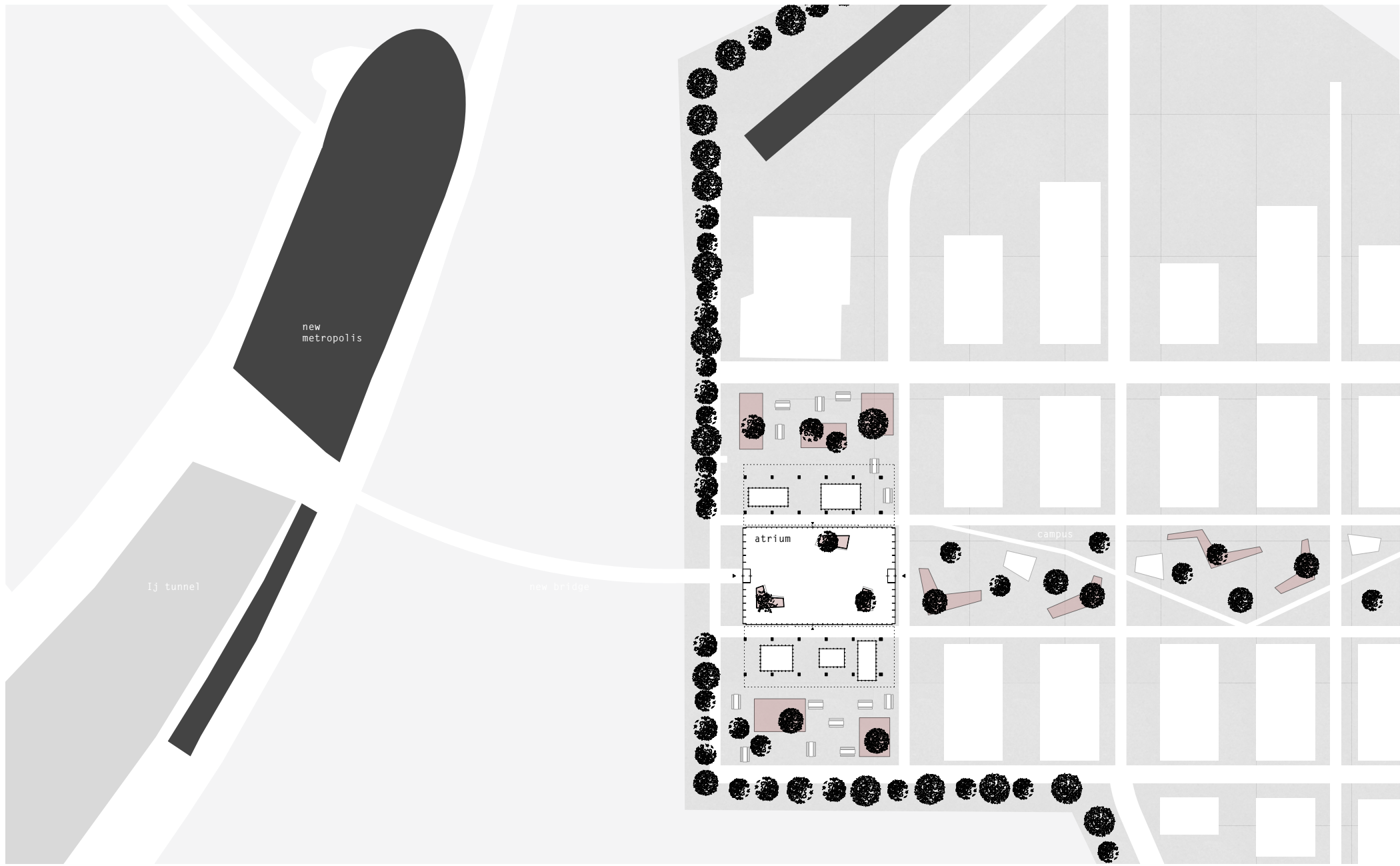
make the area better accessible by making a bridge from the Nemo and transforming one of the buildings into a vibrant start-up factory which includes public functions like sports facilities and restaurants



after the transformation a start-up campus could evolve along the axis of the public space between the start-up factory

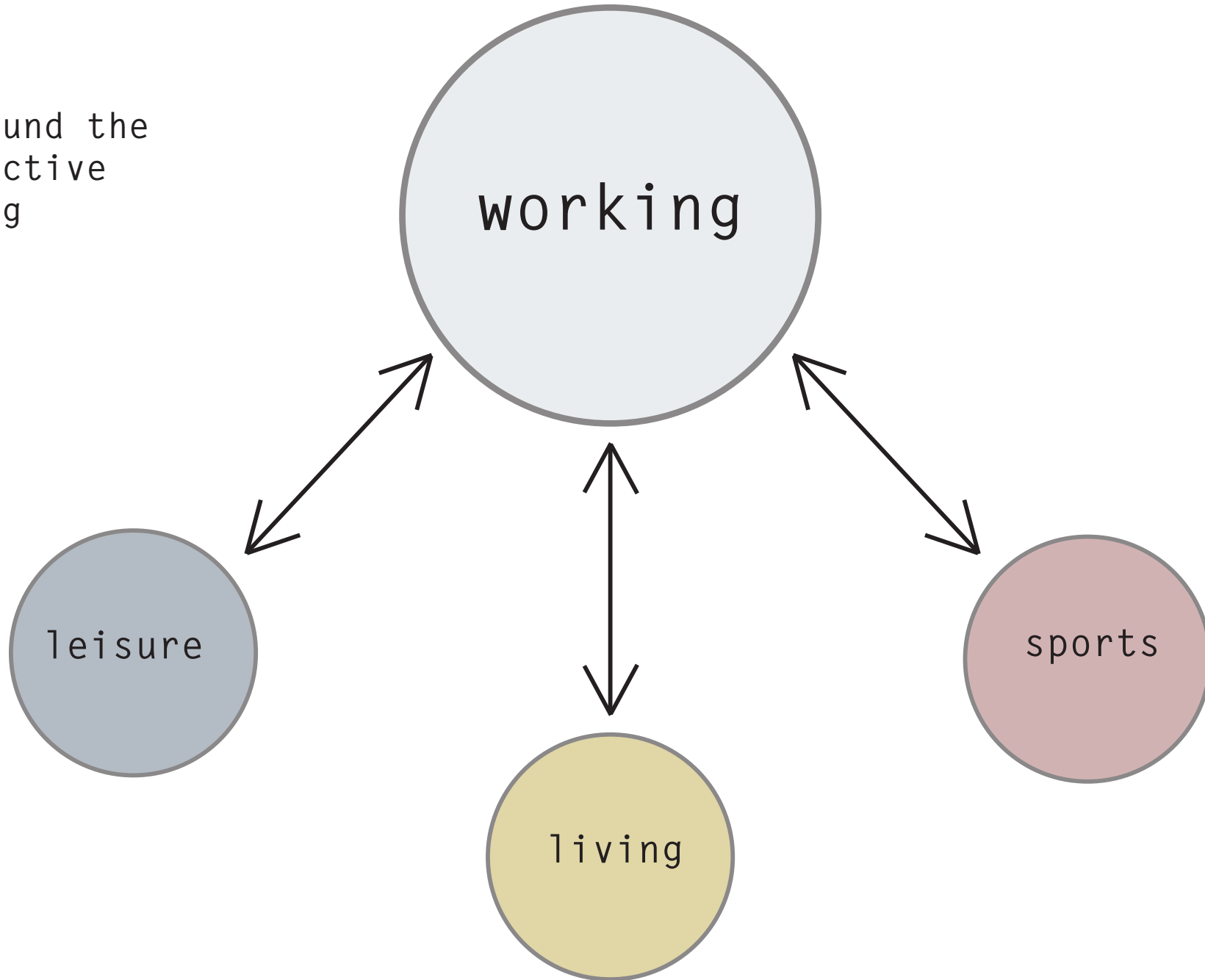


the campus could grow along the central park like axis and also into the other directions. The buildings of the campus would have a clear orientation towards the campus lawn

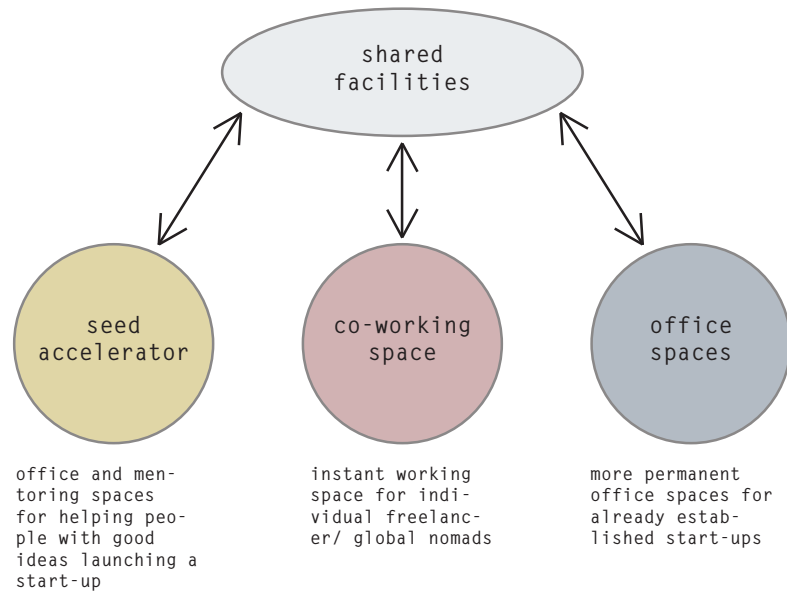


The Concept

All Around the
Clock active
Building



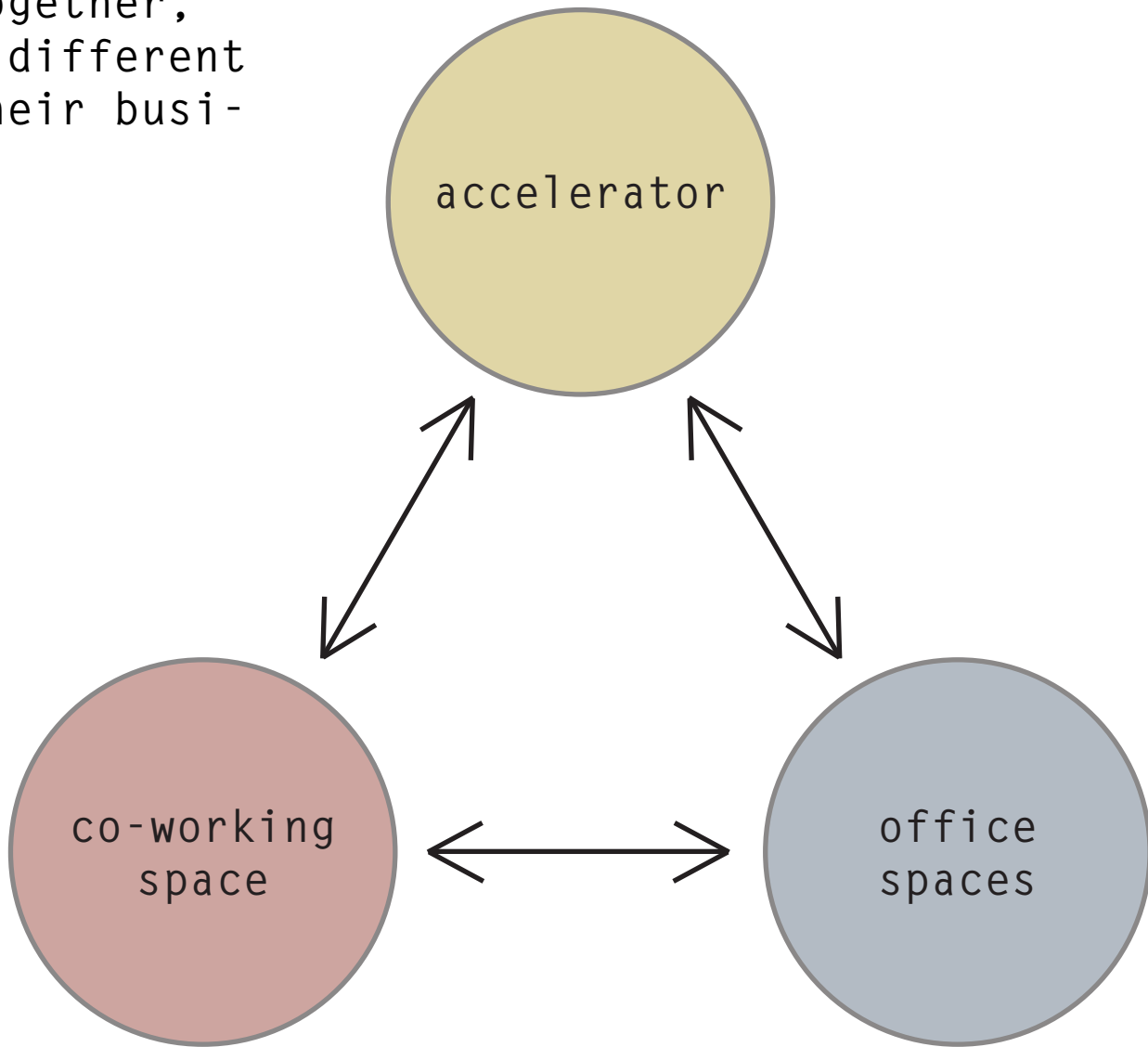
Main Users



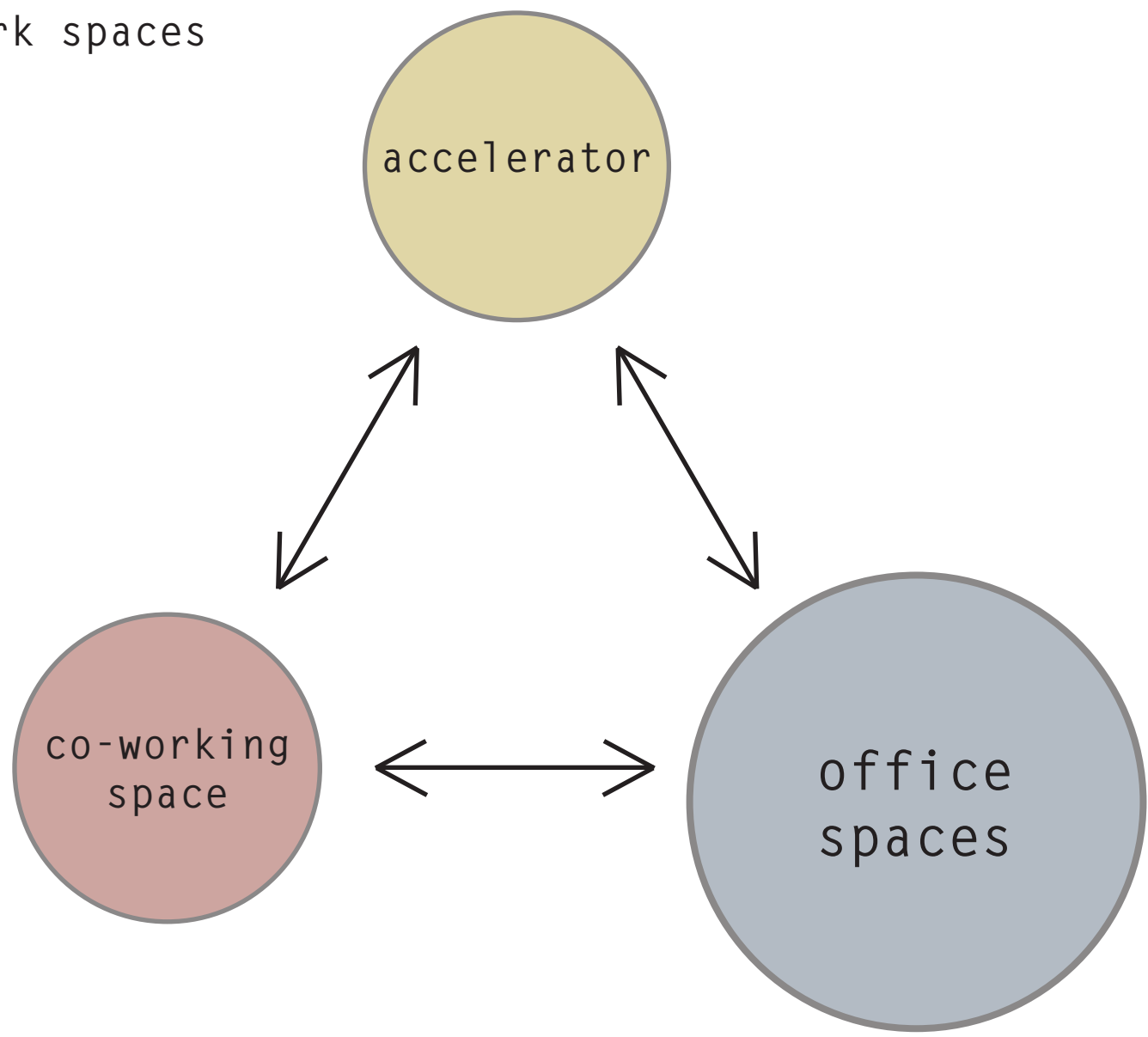
After Work Uses



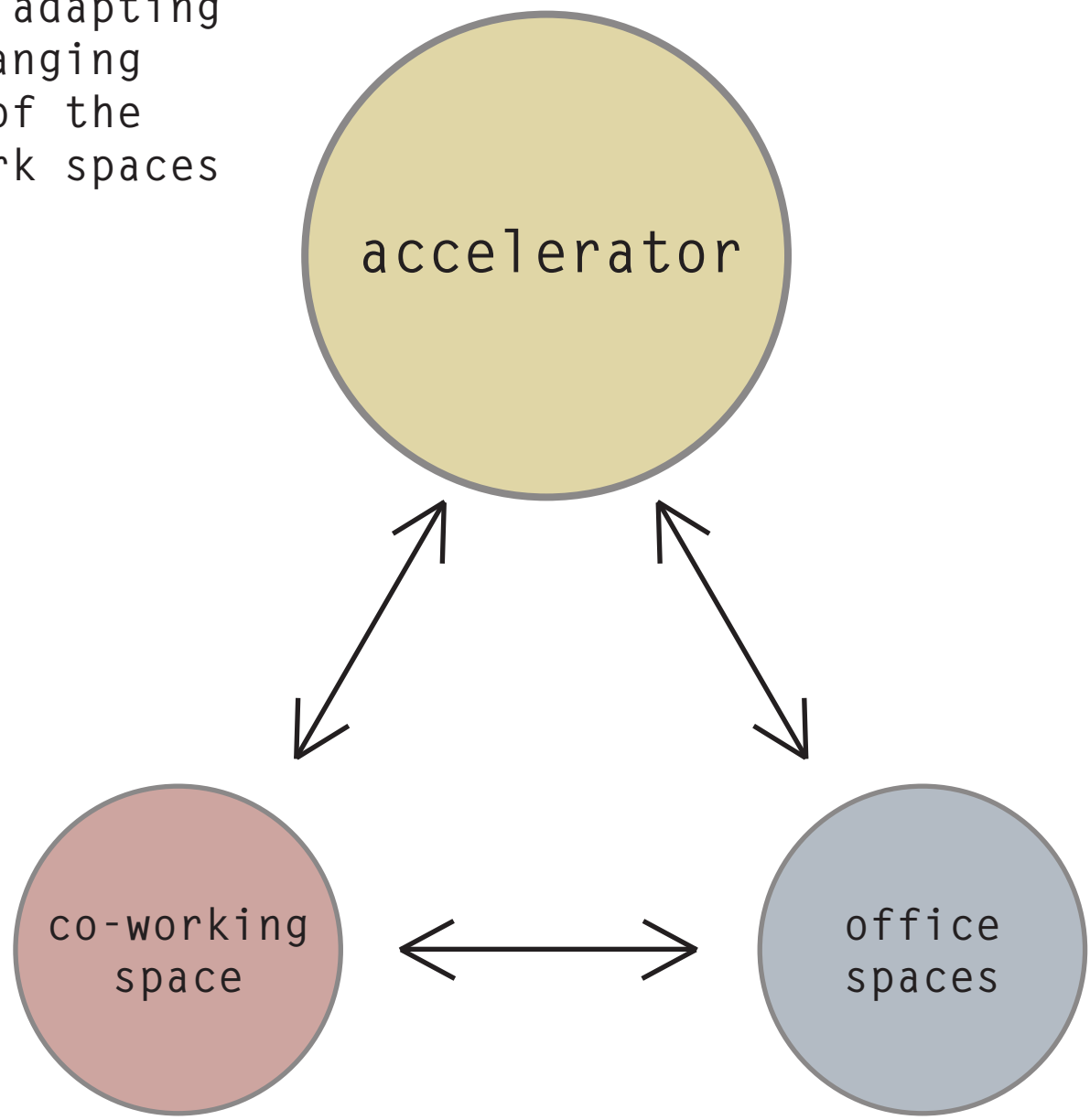
Synergy effect by putting like minded people together, that are at different stages of their business

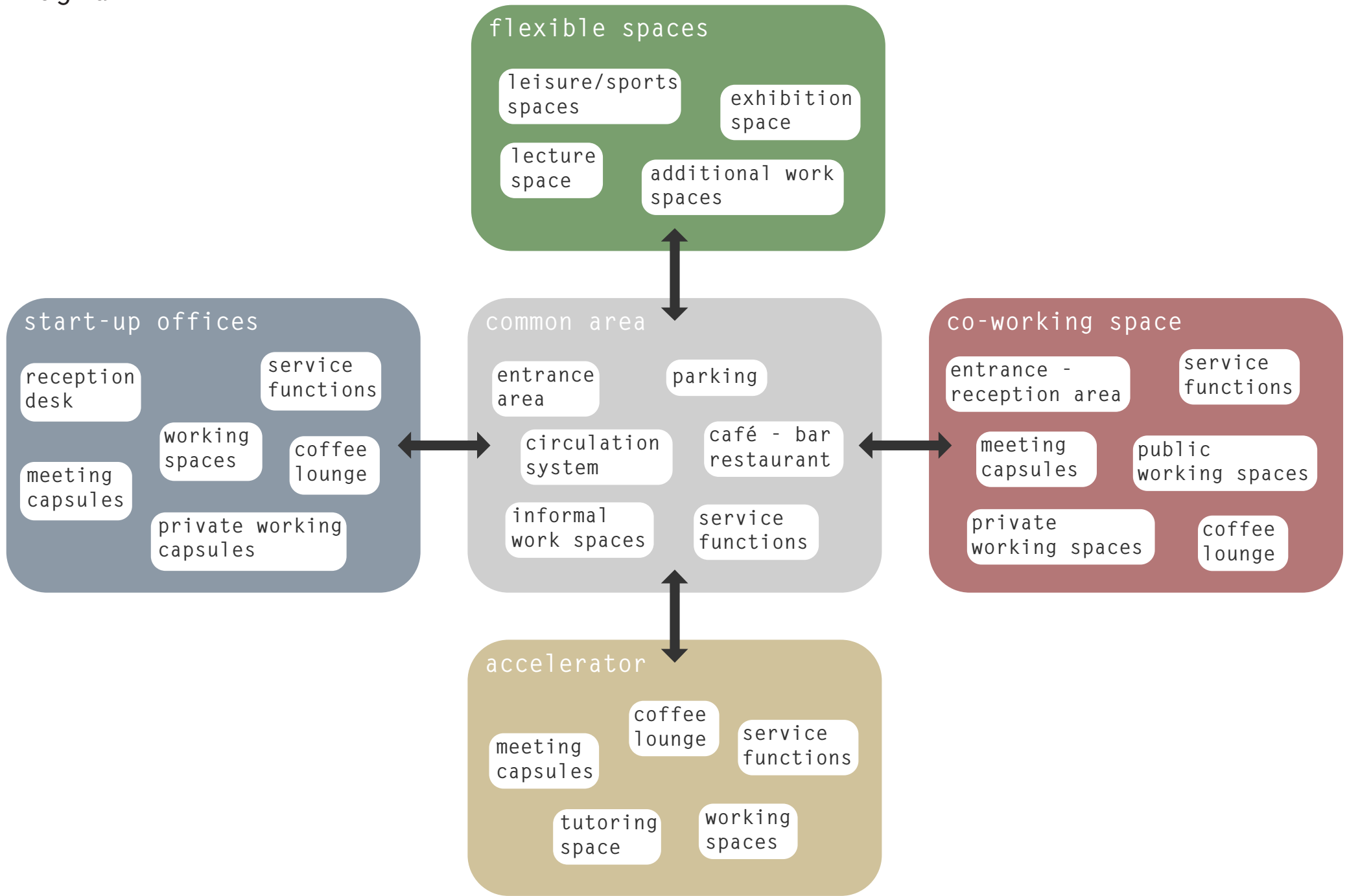


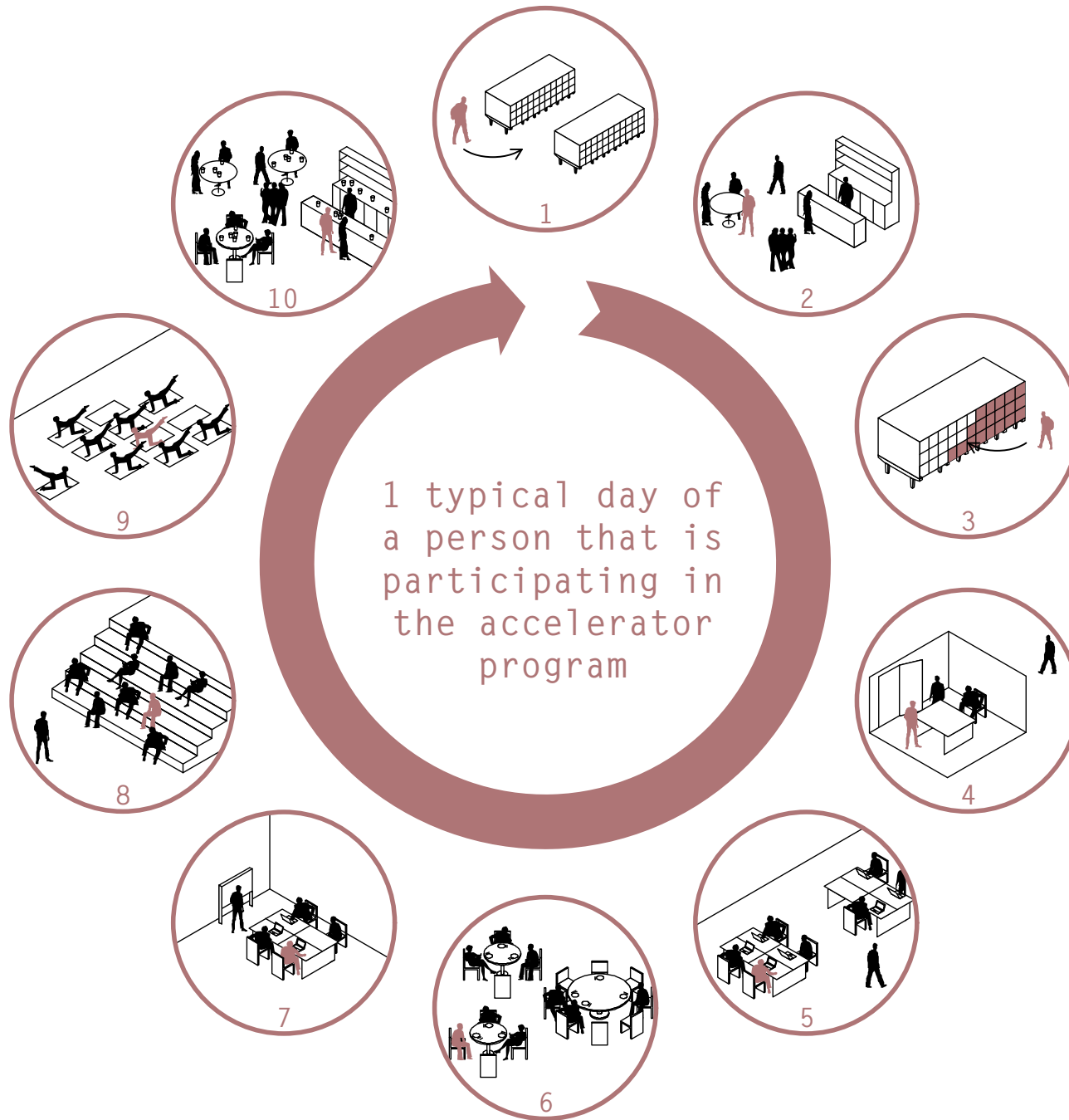
flexible for adapting easily to changing occupancies of the different work spaces



flexible for adapting easily to changing occupancies of the different work spaces

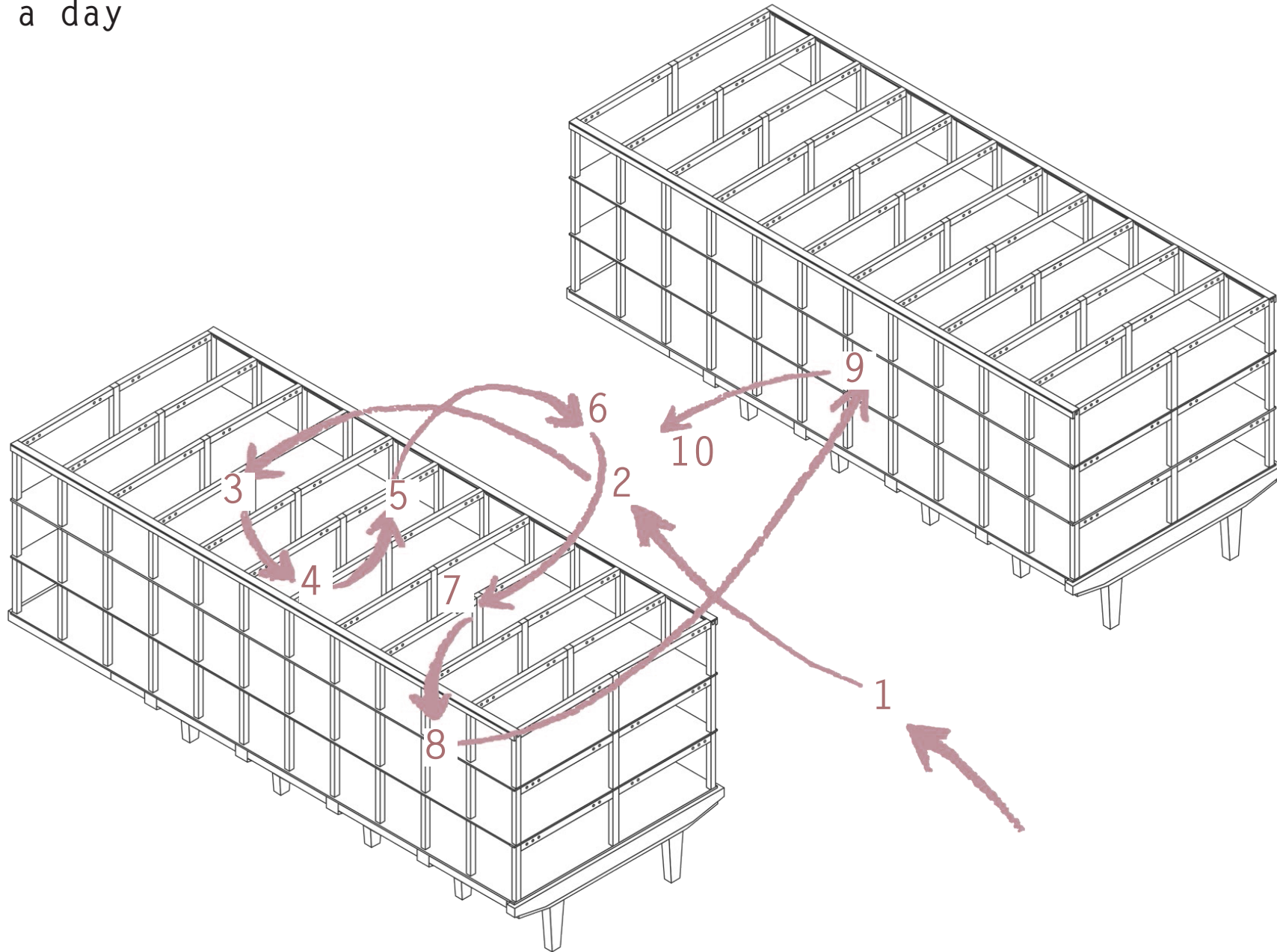




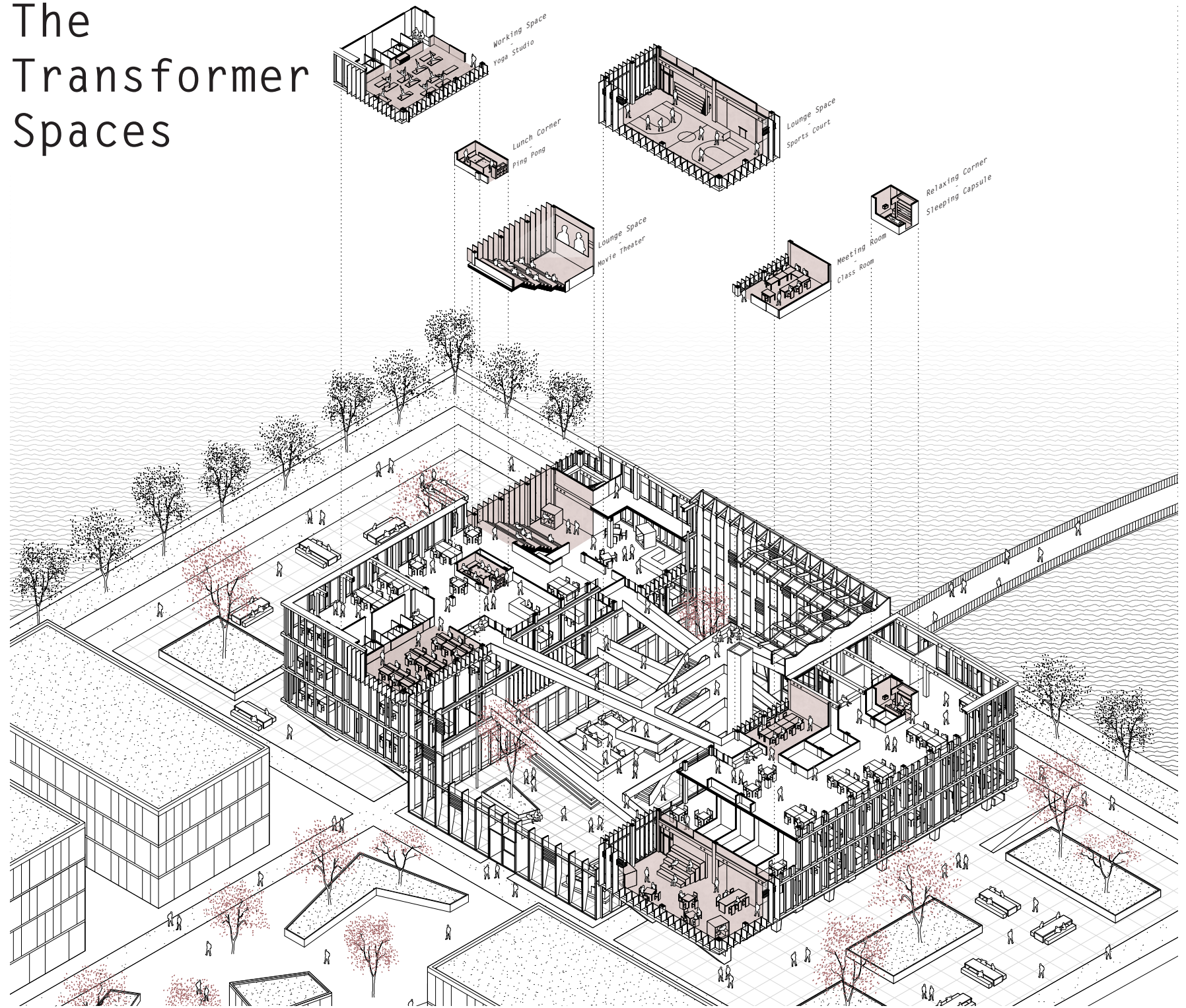


- 1 arriving at the building
- 2 breakfast at the central coffee bar
- 3 entering the accelerator space
- 4 meeting the group mates and discussing the program for the day
- 5 working together with the group
- 6 lunch in the common area
- 7 individual group tutoring
- 8 lecture by a invited guest critic
- 9 leisure/ sports activities within the building
- 10 meeting other start-up people at the bar for a after work beer

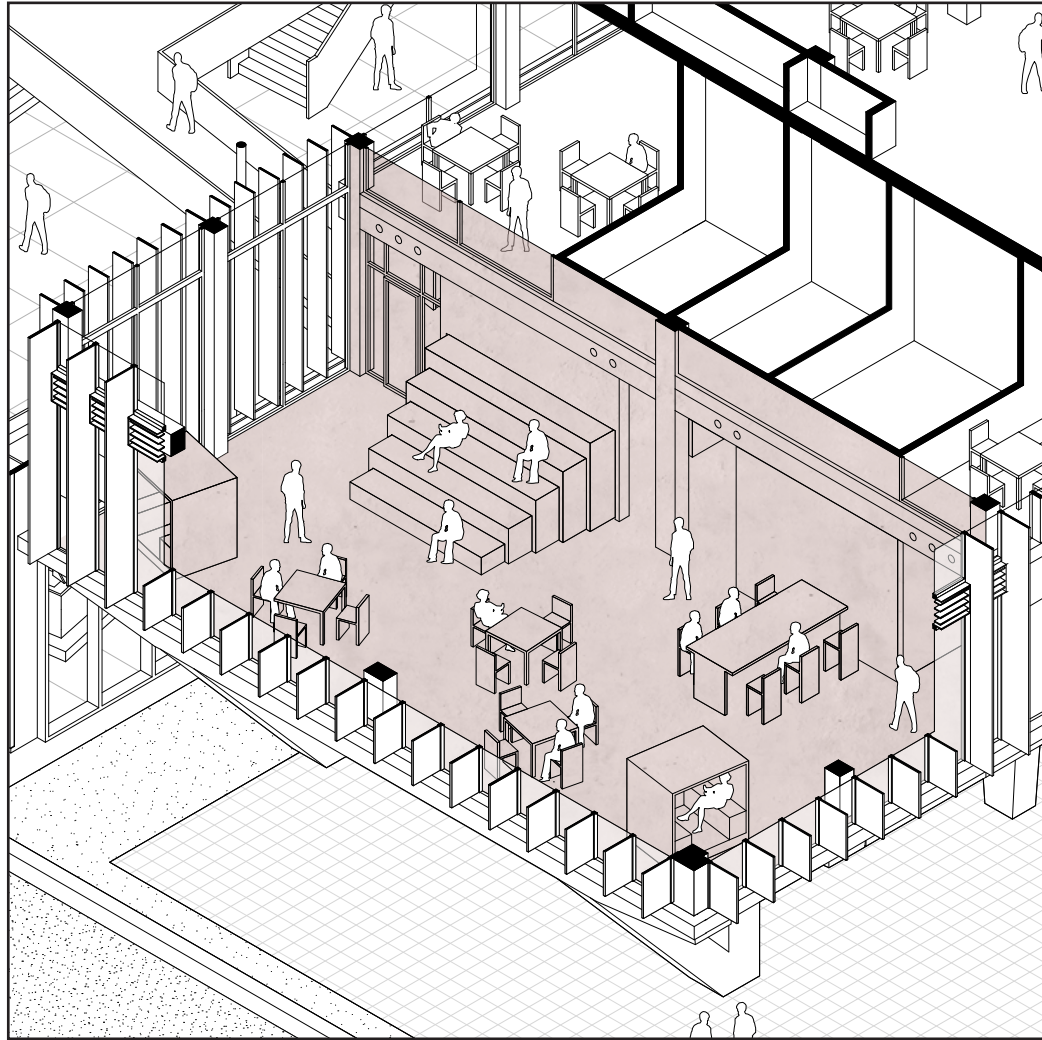
Movement through the building of one person during a day



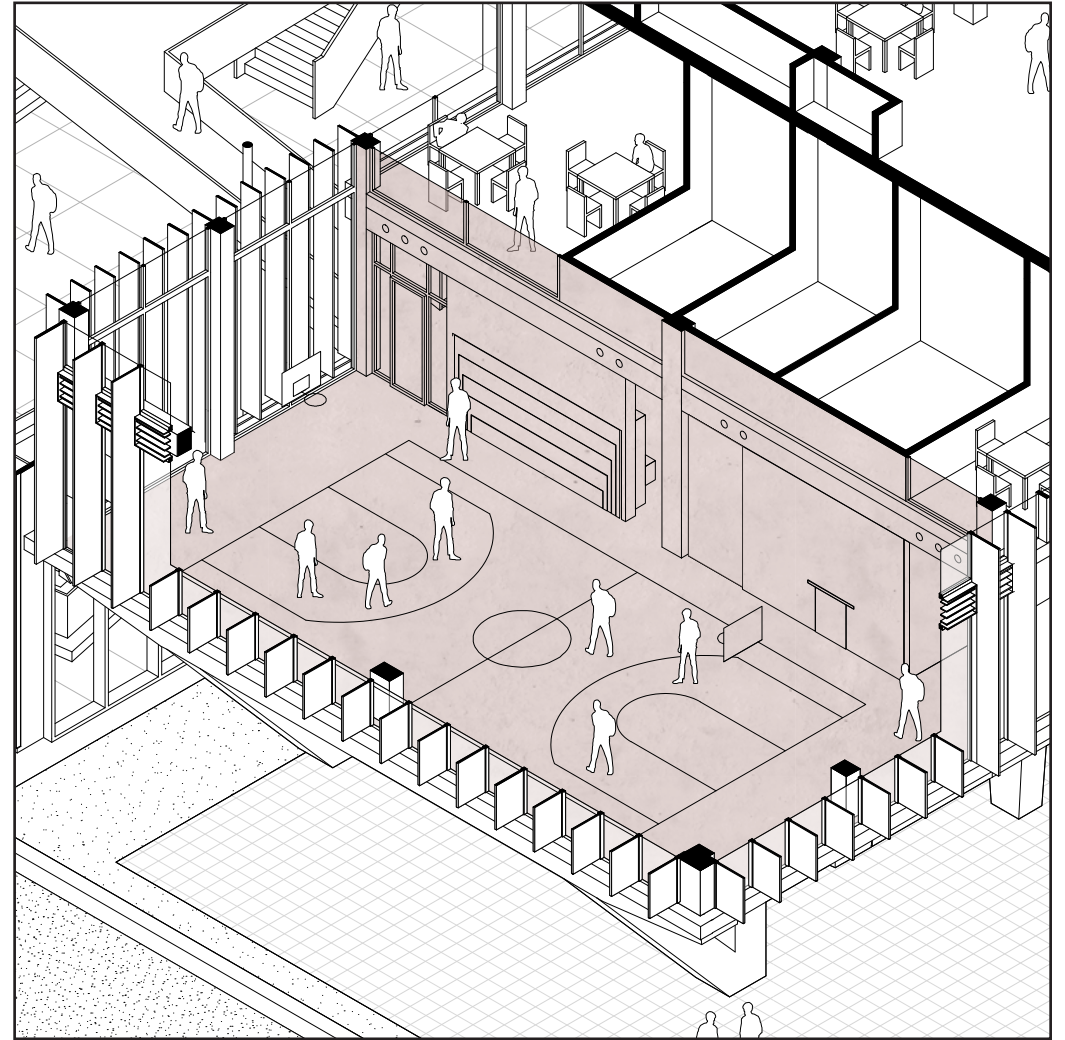
The Transformer Spaces



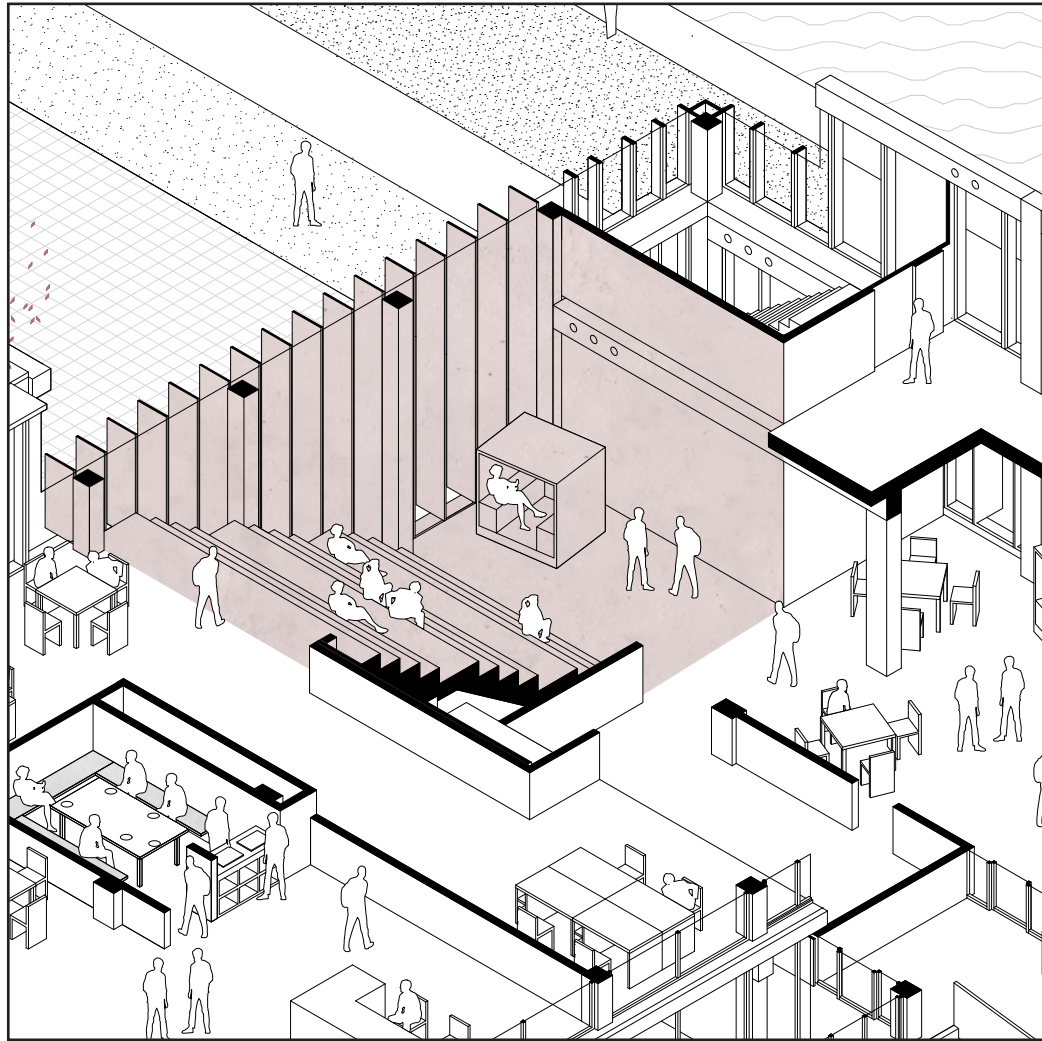
Lounge Space



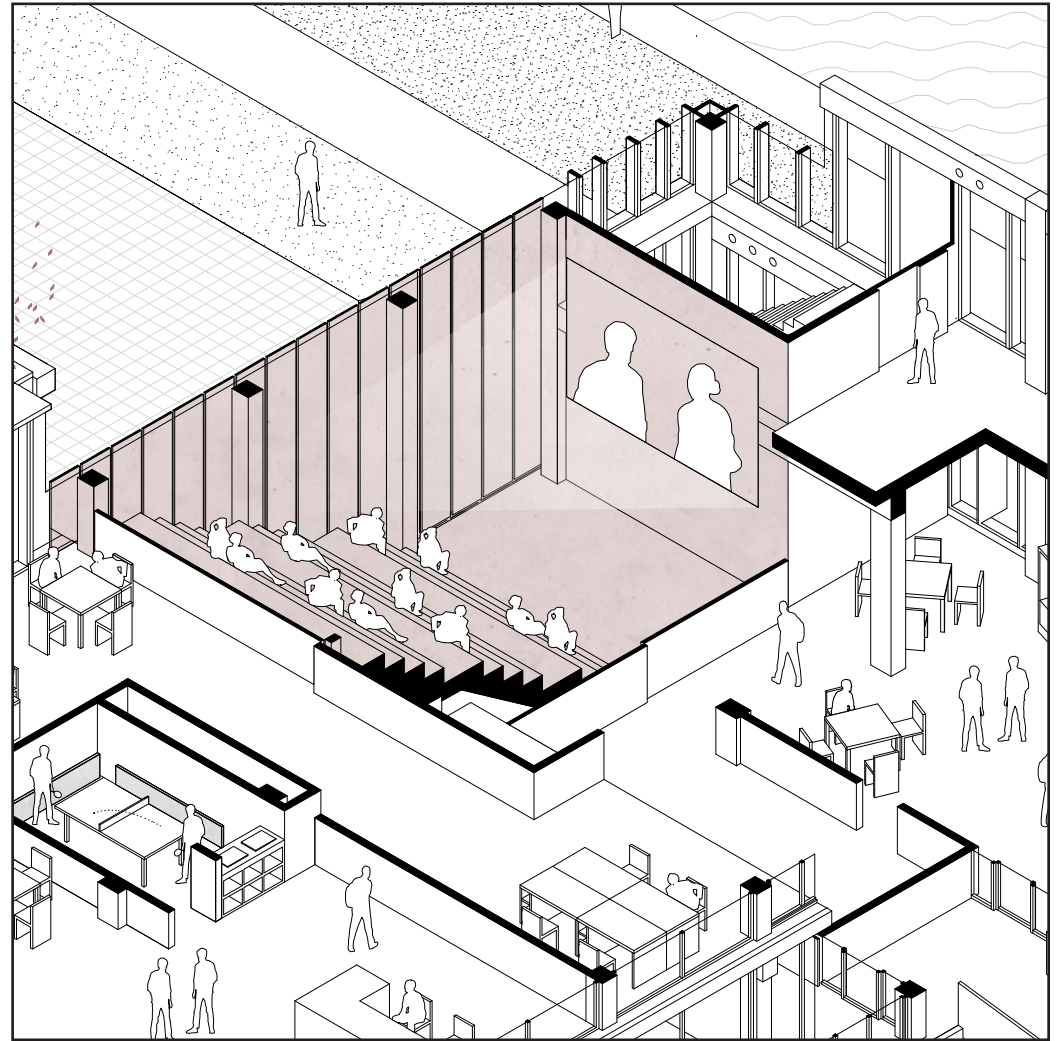
Sports Court



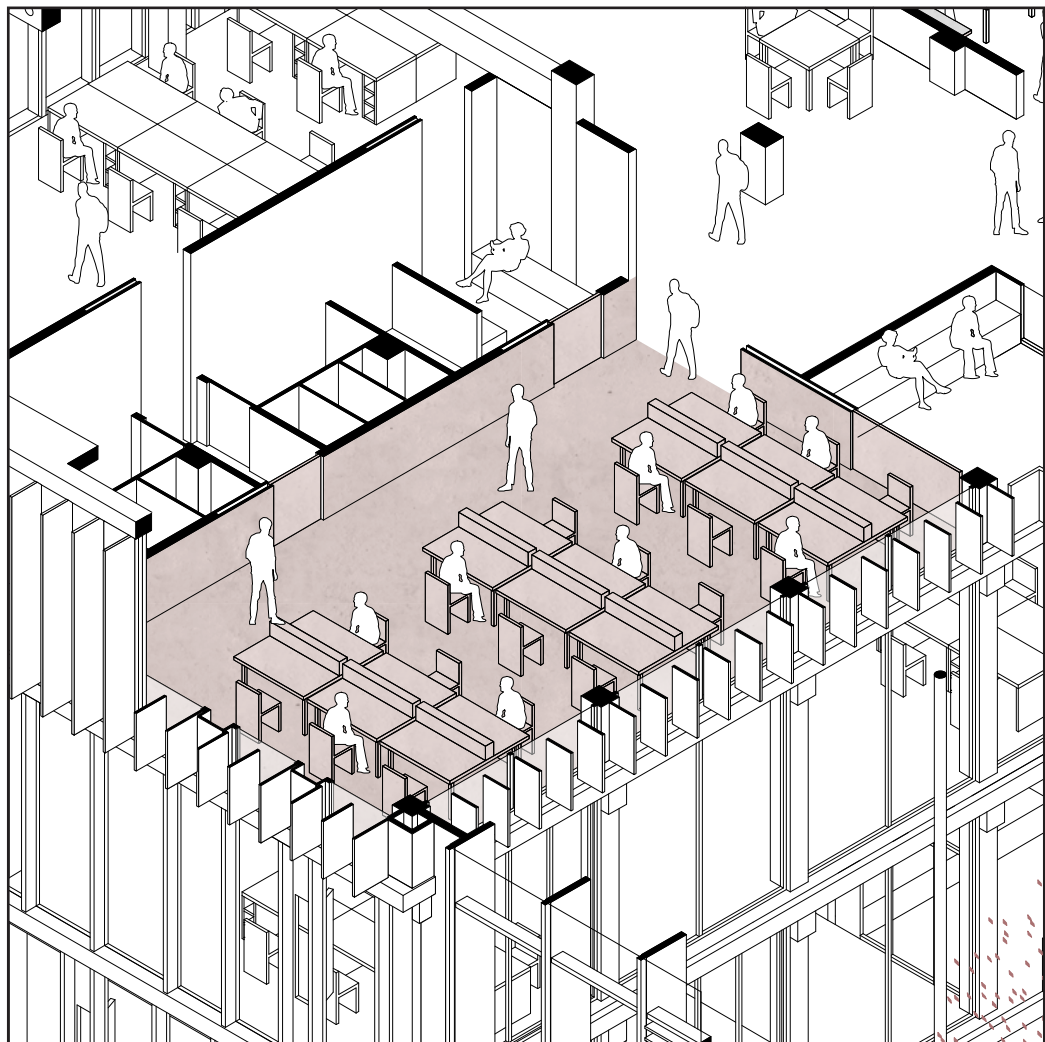
Lounge Space



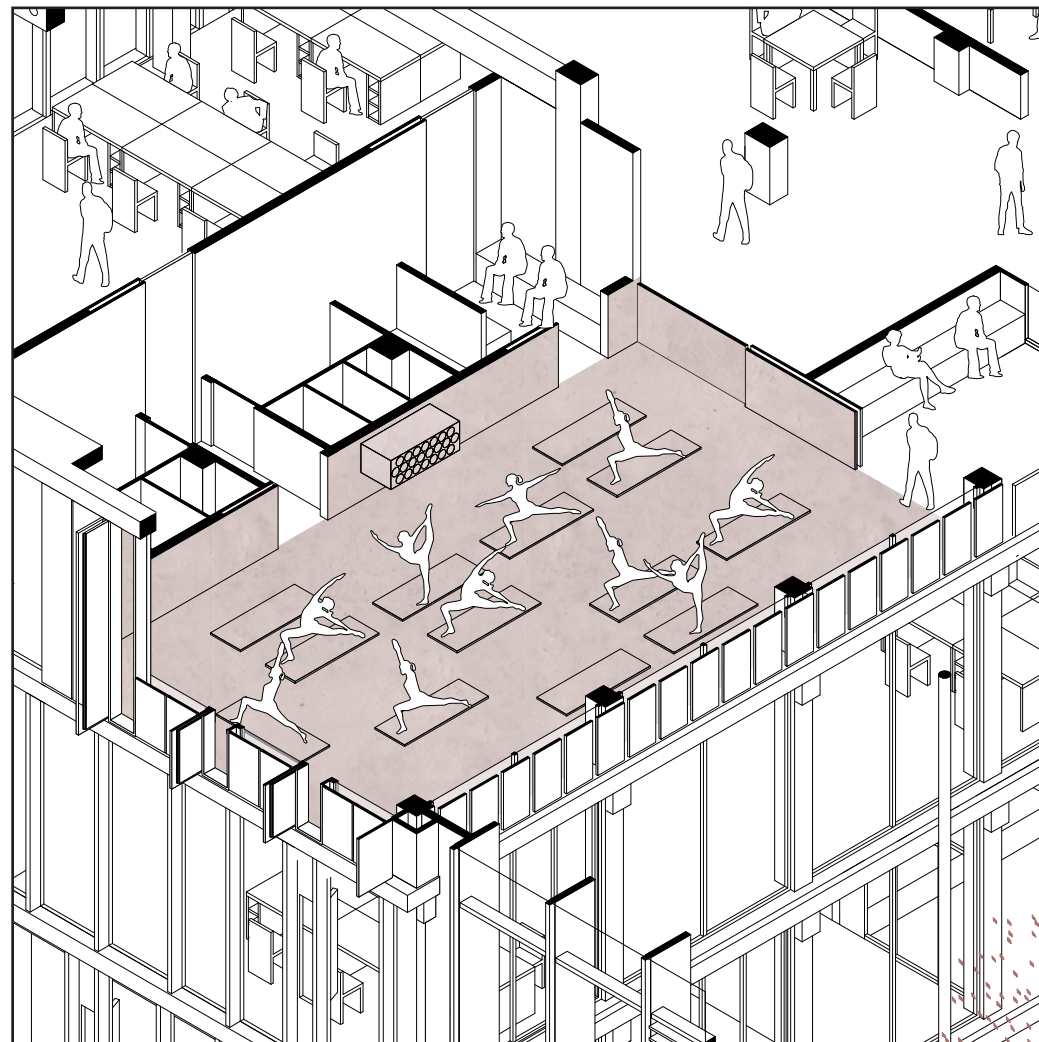
Movie Theater



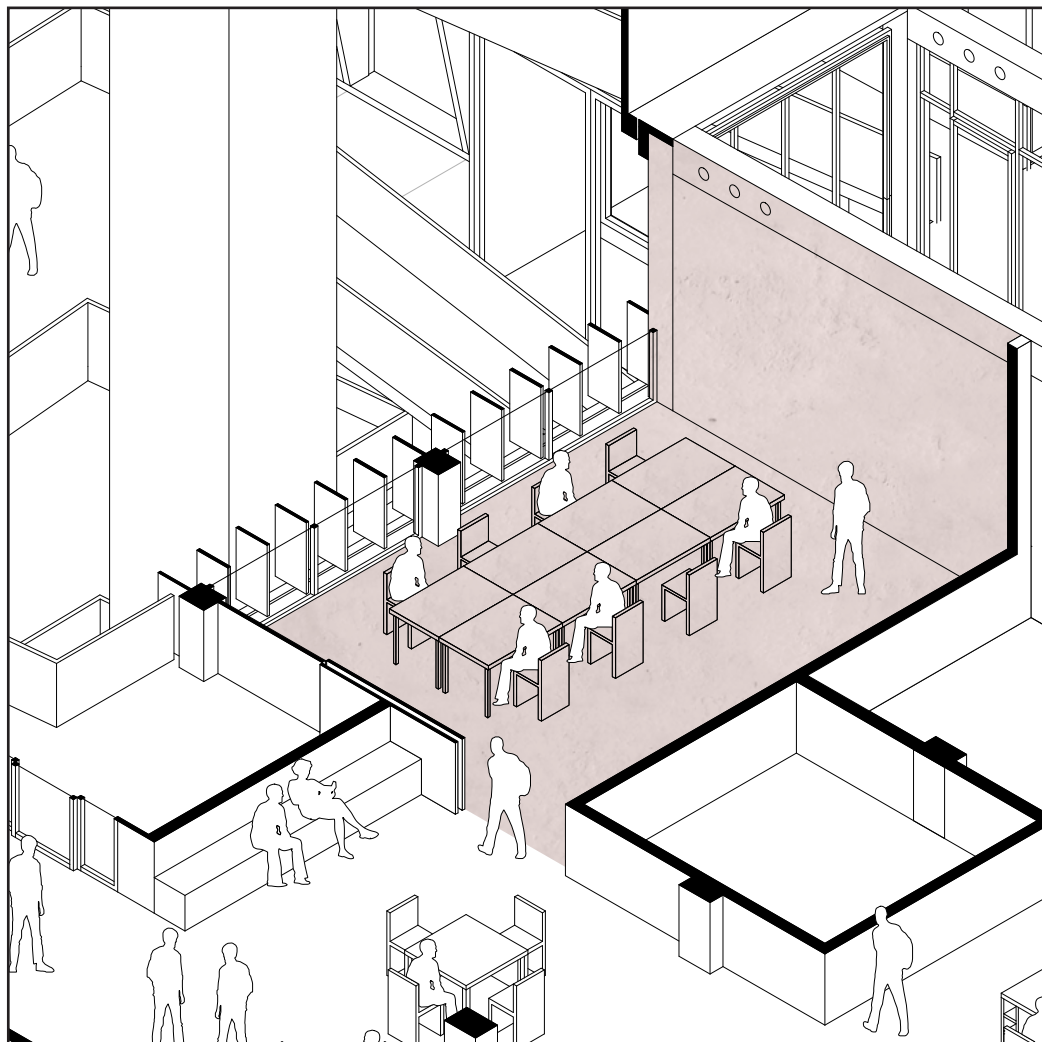
Work Space



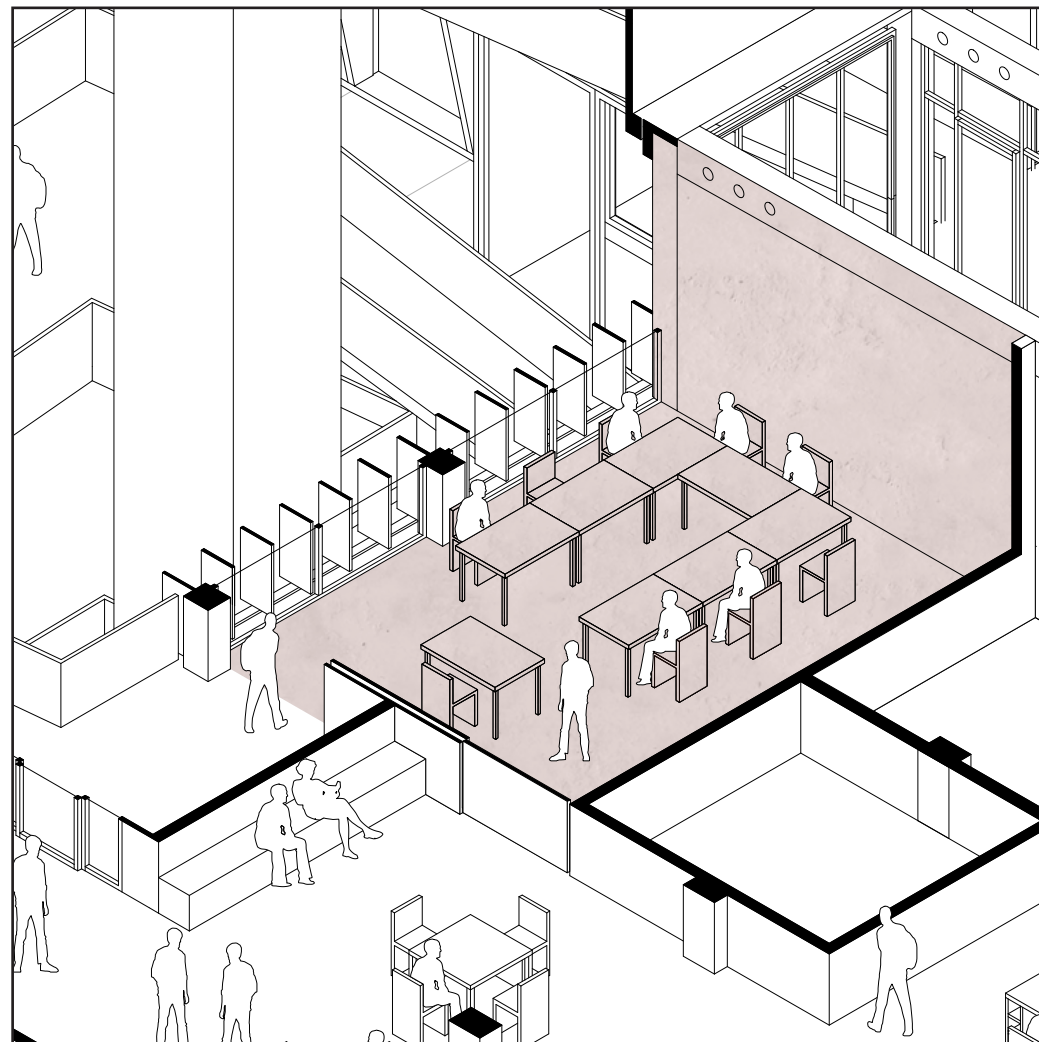
Yoga Studio



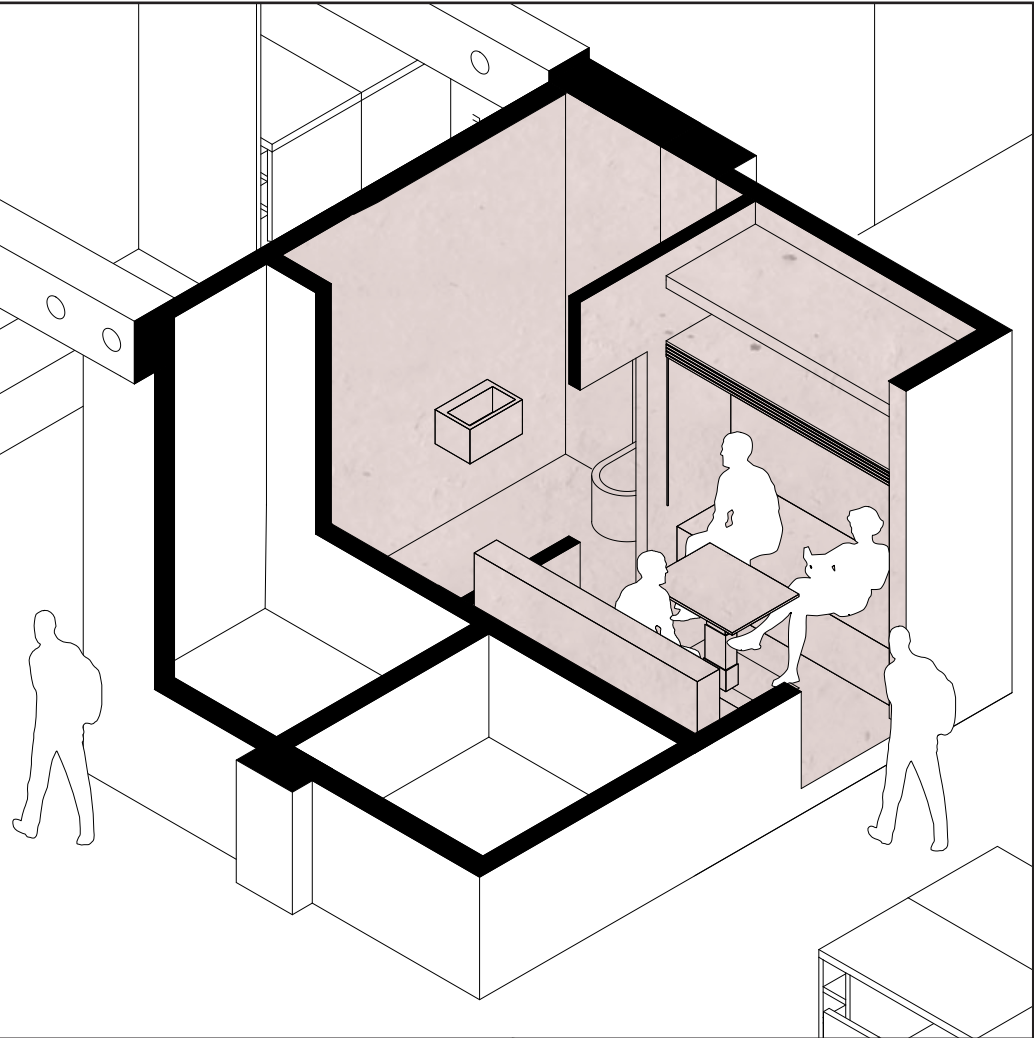
Meeting Room



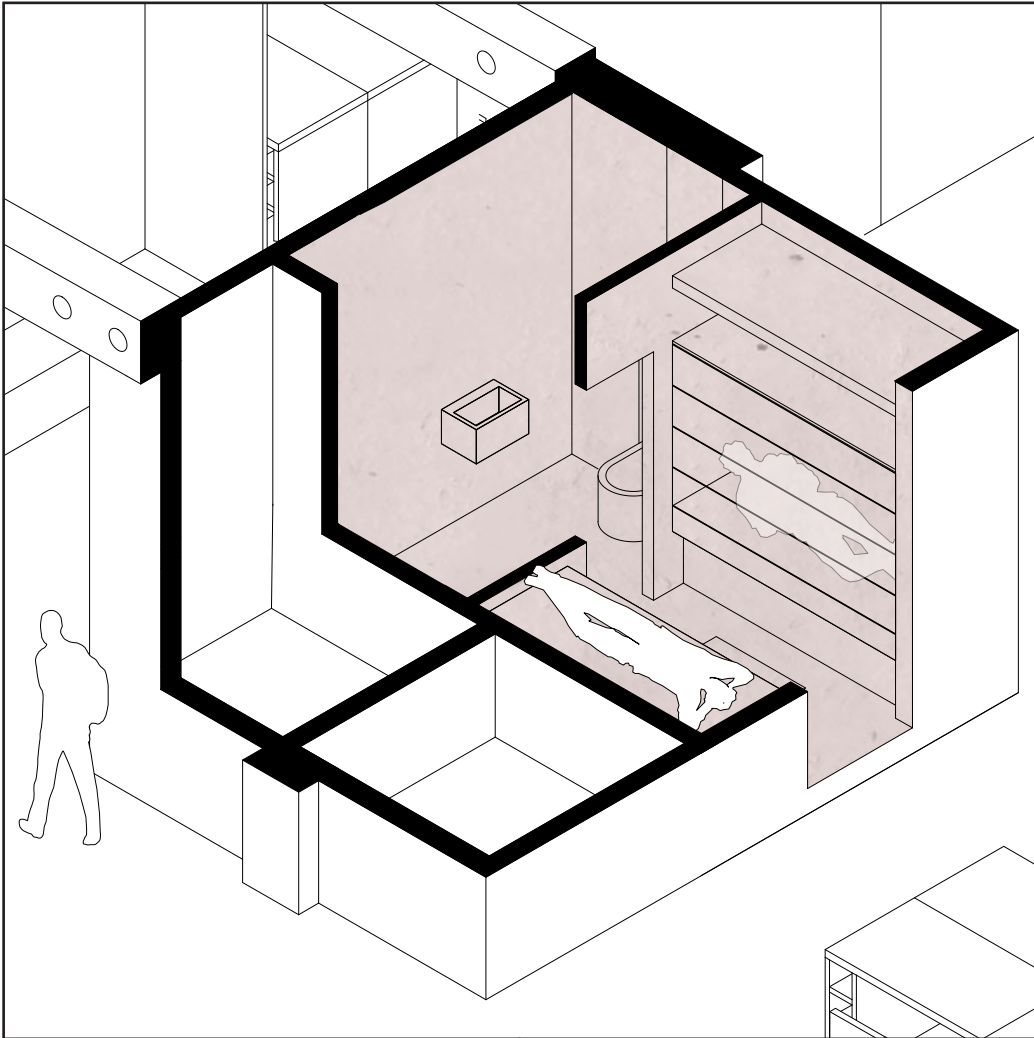
Class Room



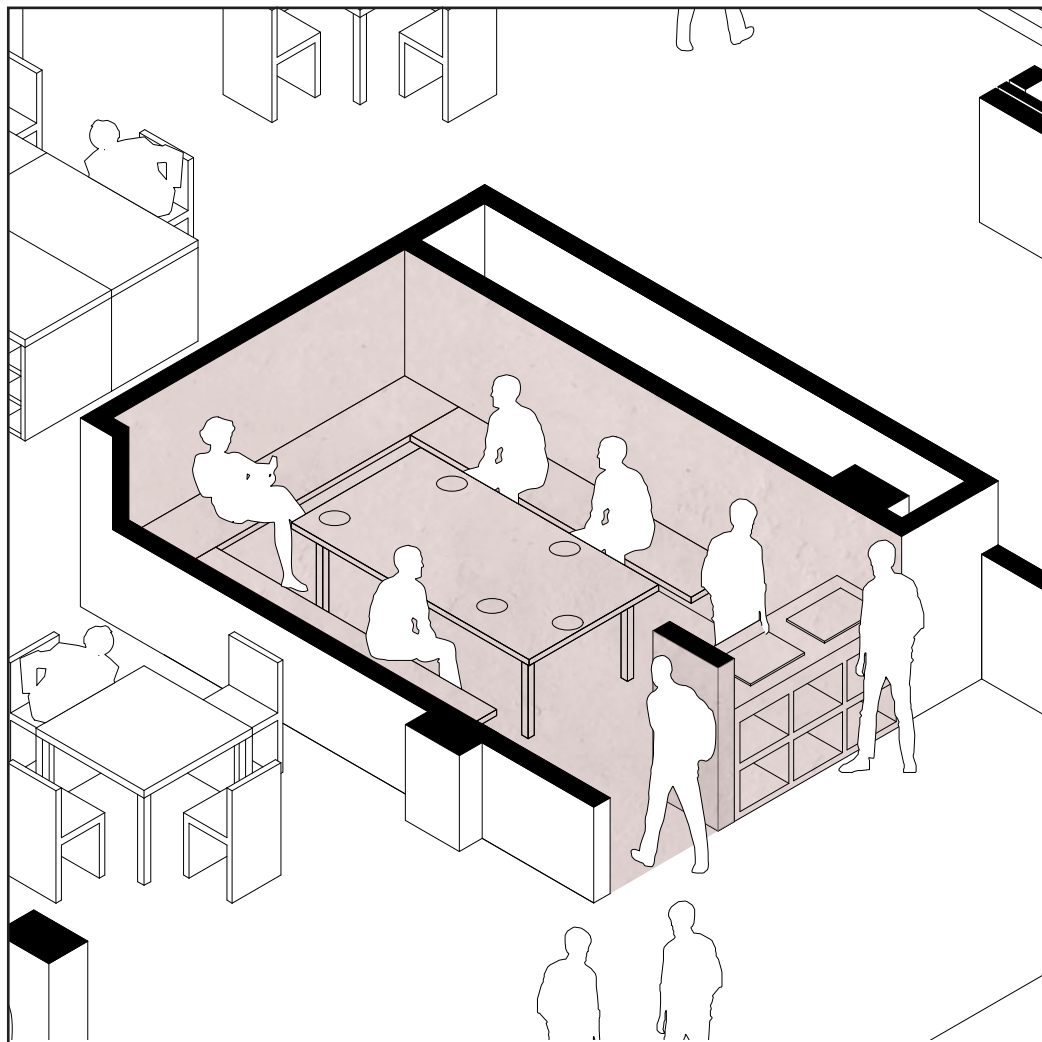
Relaxing Corner



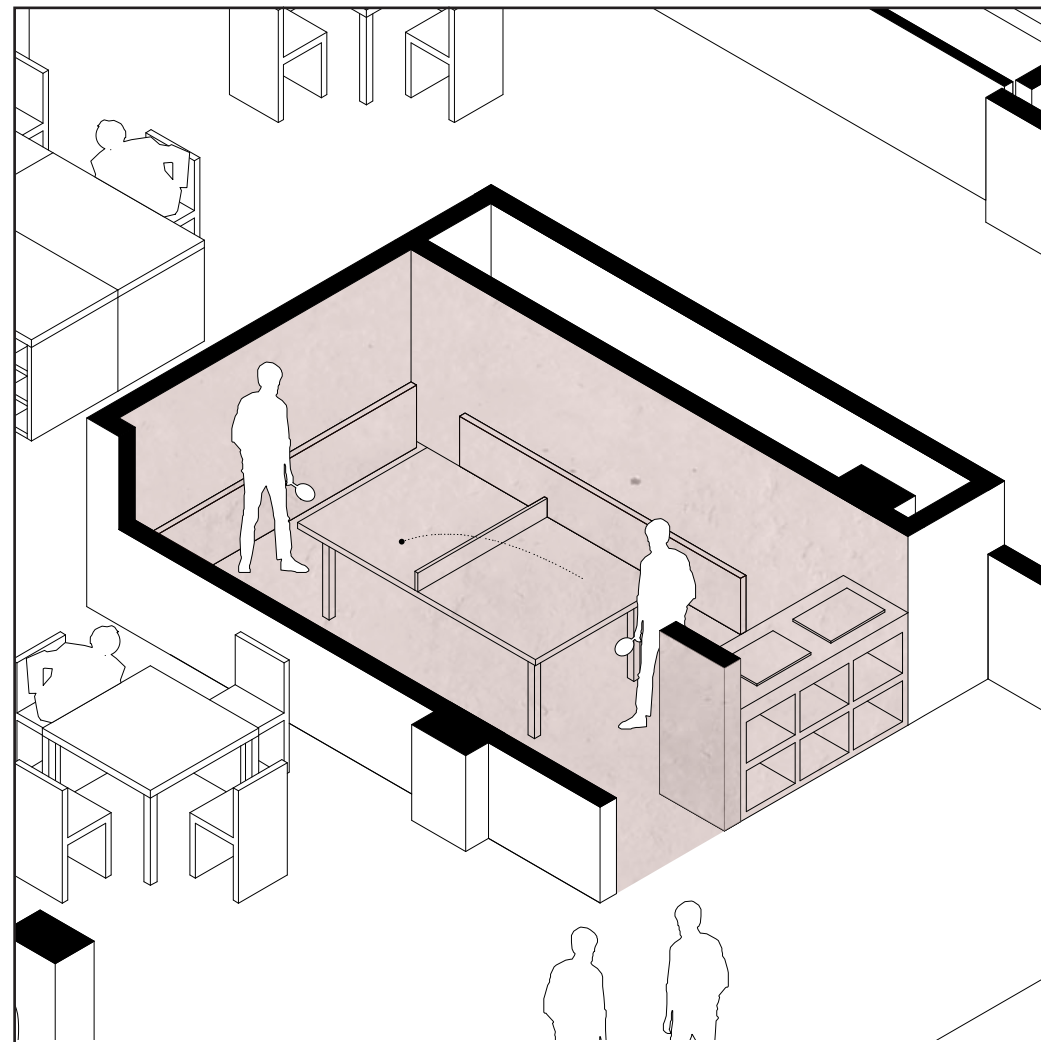
Sleeping Capsules



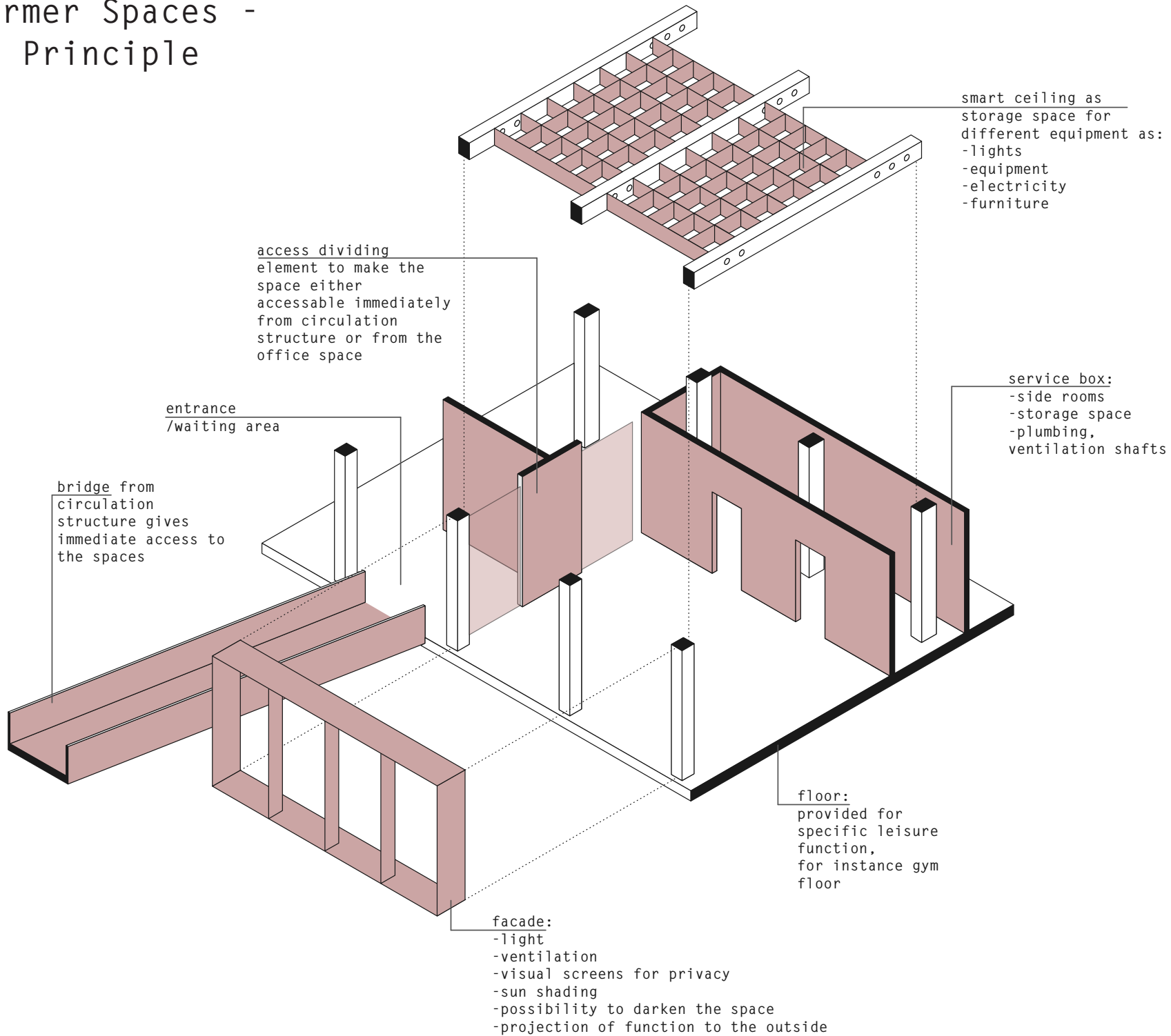
Food Corner



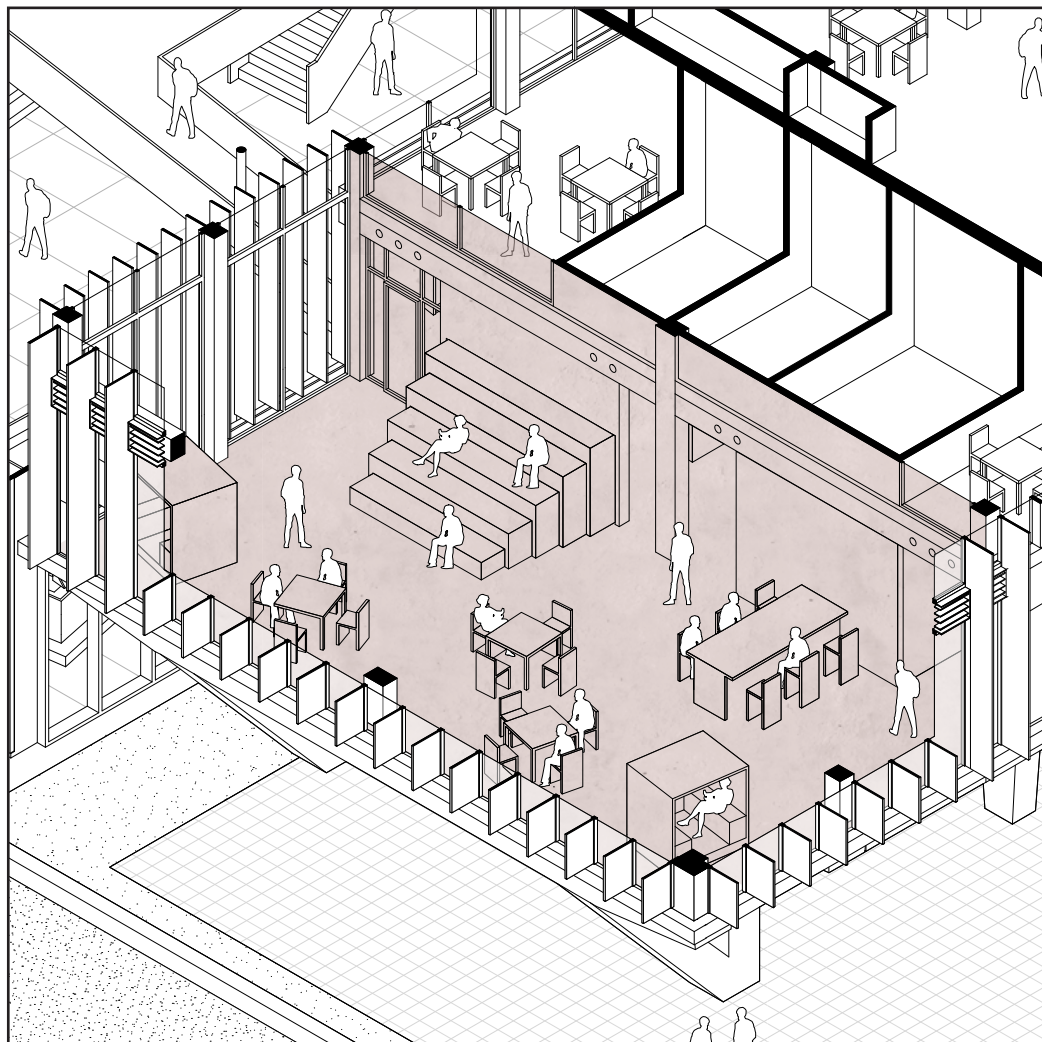
Play Corner



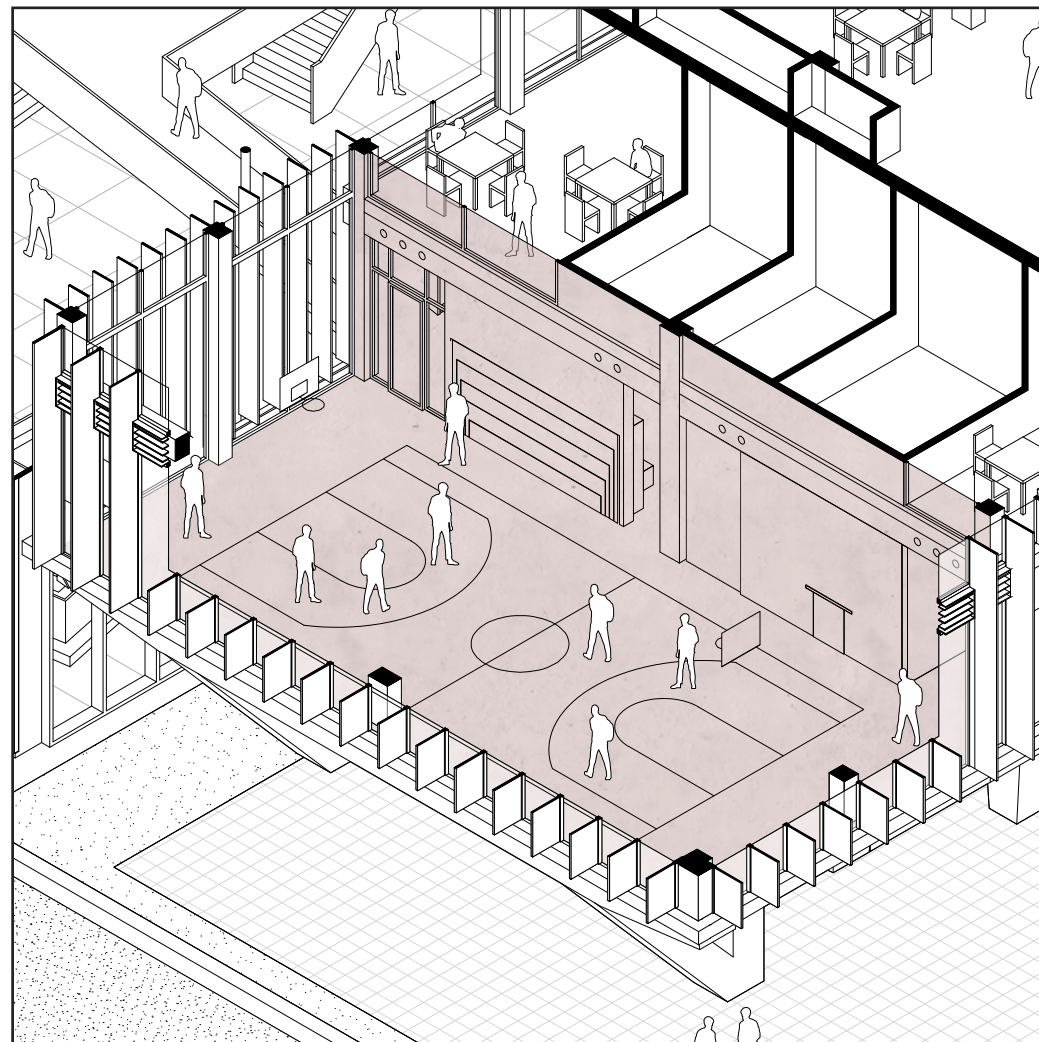
Transformer Spaces - Generic Principle



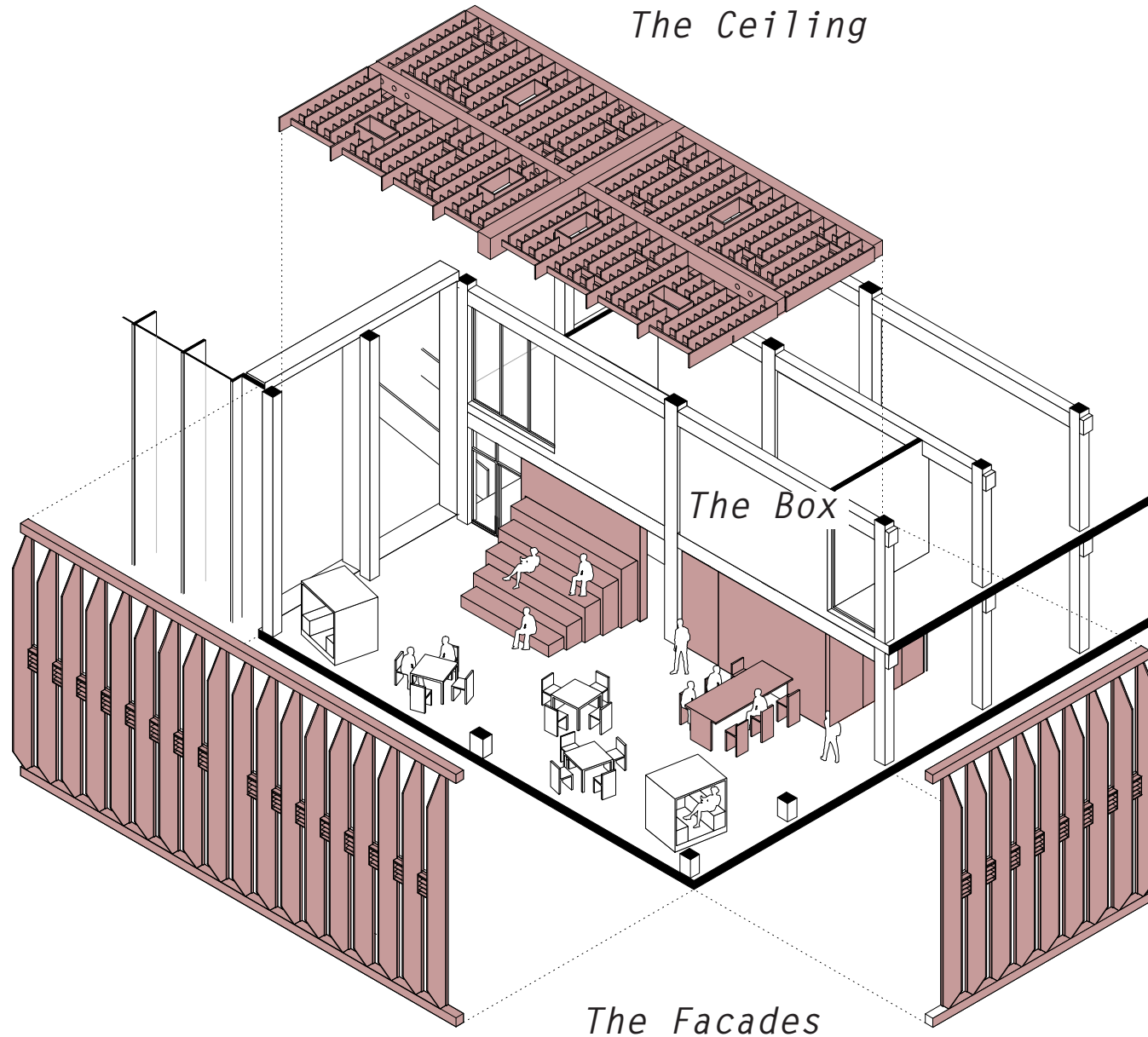
Lounge Space



Sports Court

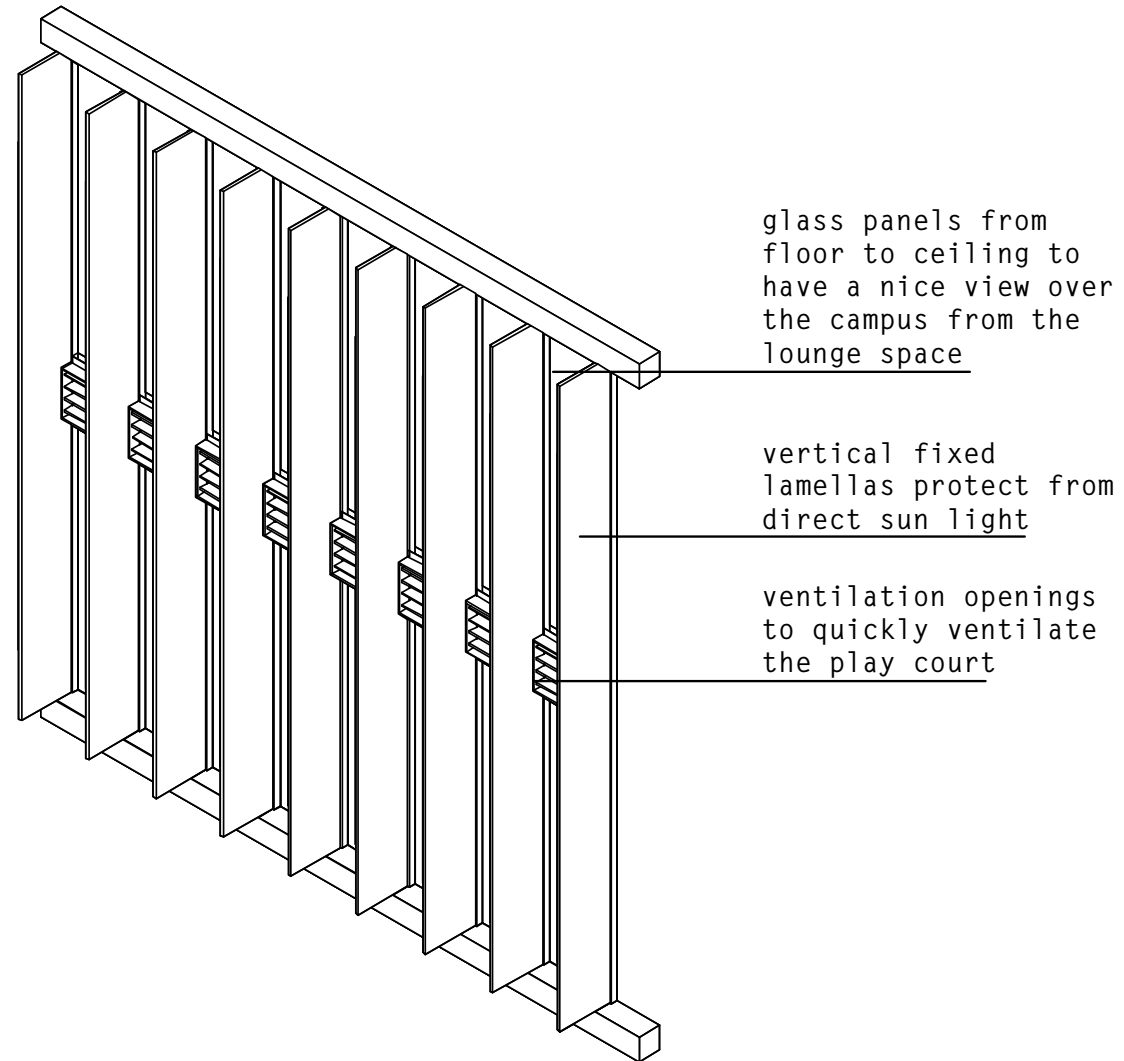


Transformer Space 1: Lounge Space - Sports Court



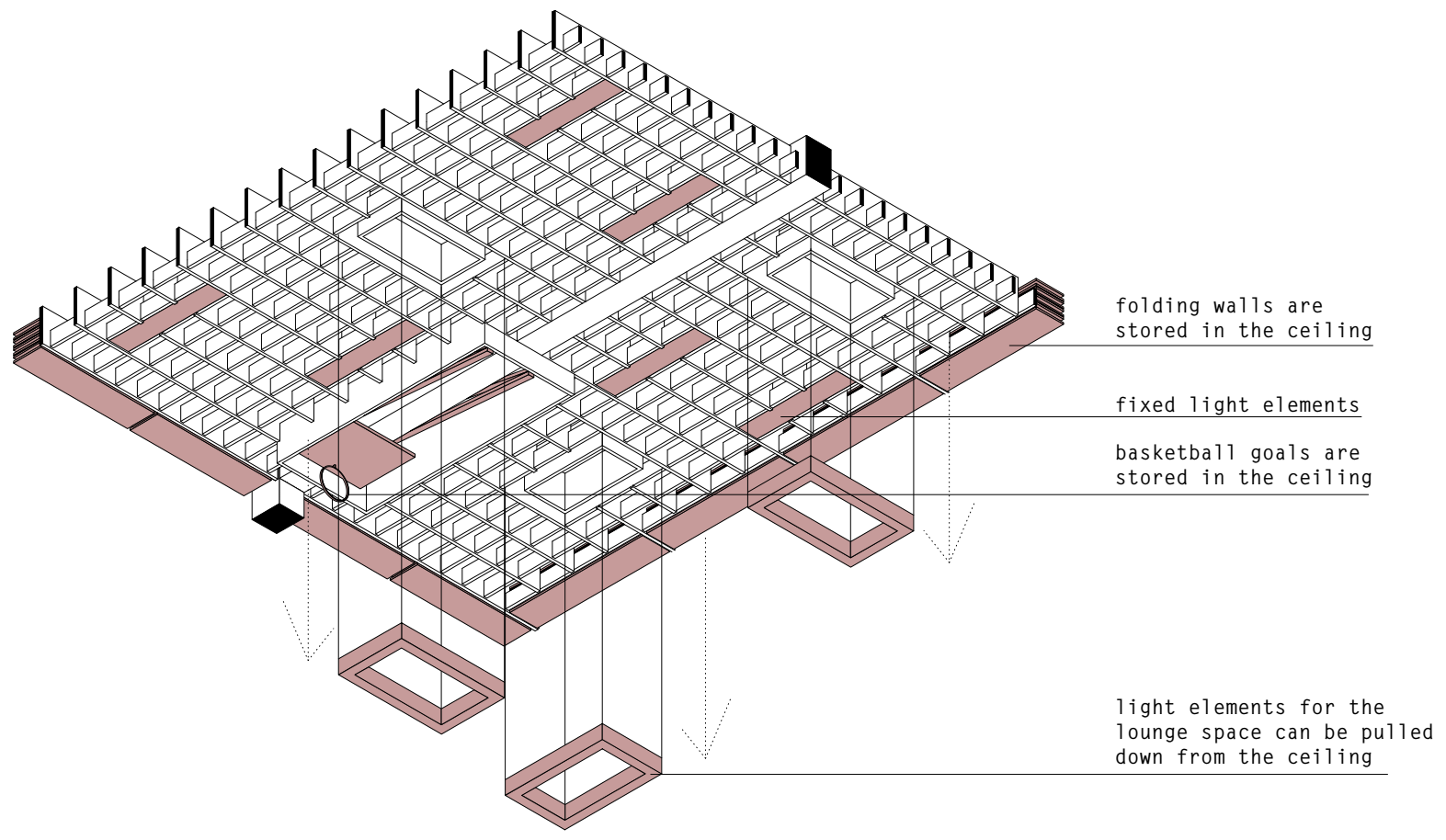
Transformer Space 1: Lounge Space - Sports Court

The Facade



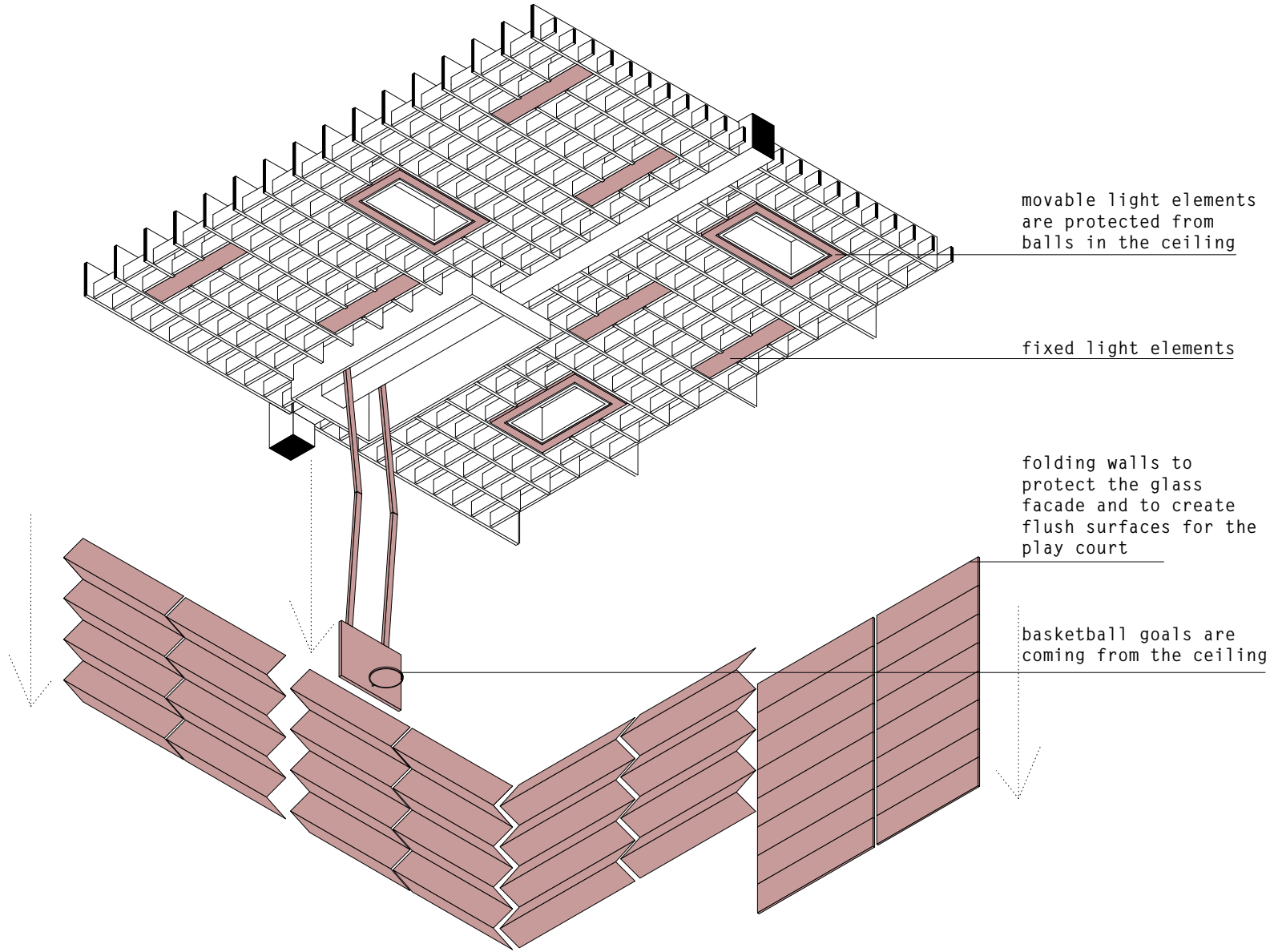
Transformer Space 1: Lounge Space - Sports Court

The Ceiling



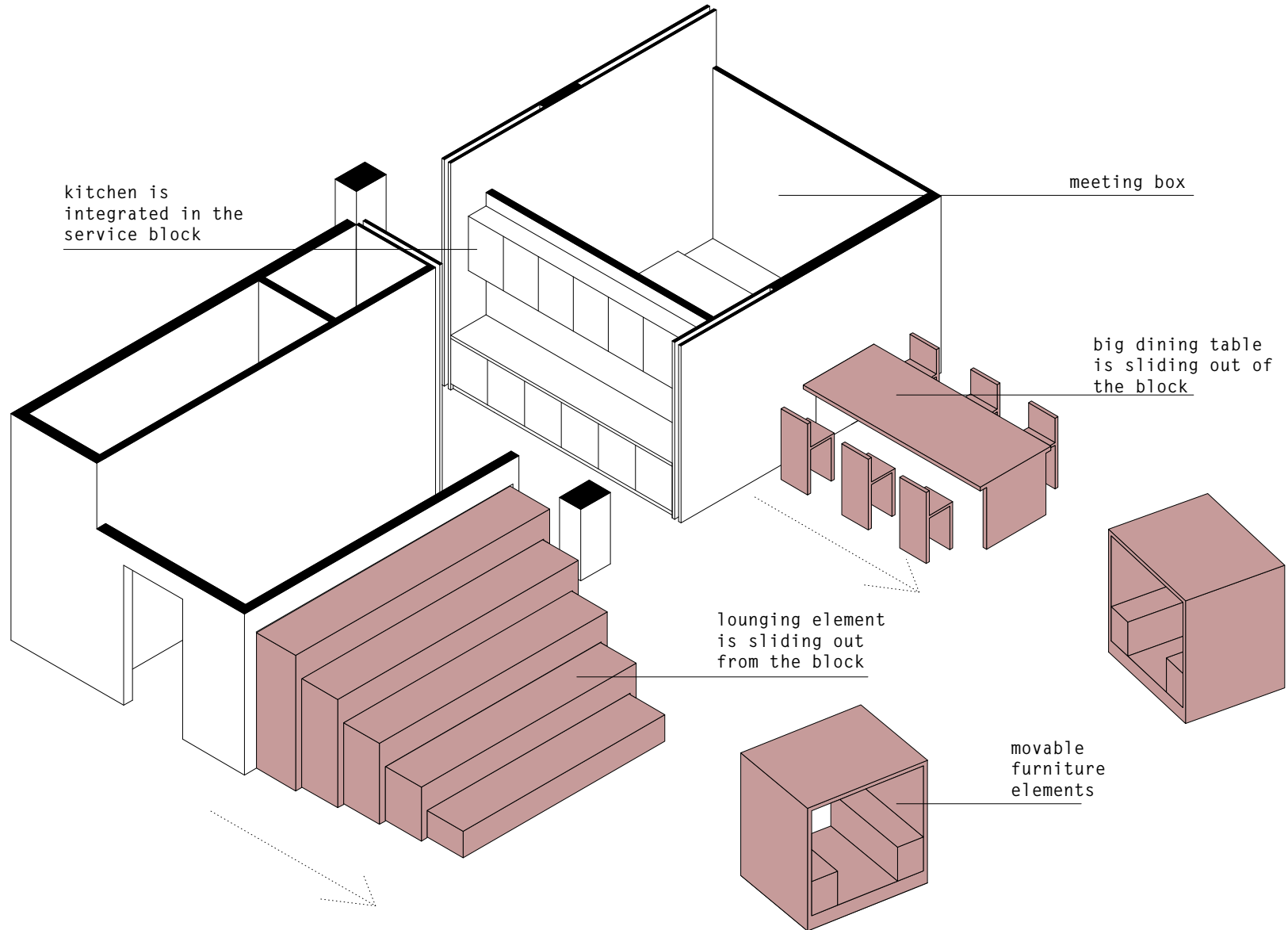
Transformer Space 1: Lounge Space - Sports Court

The Ceiling



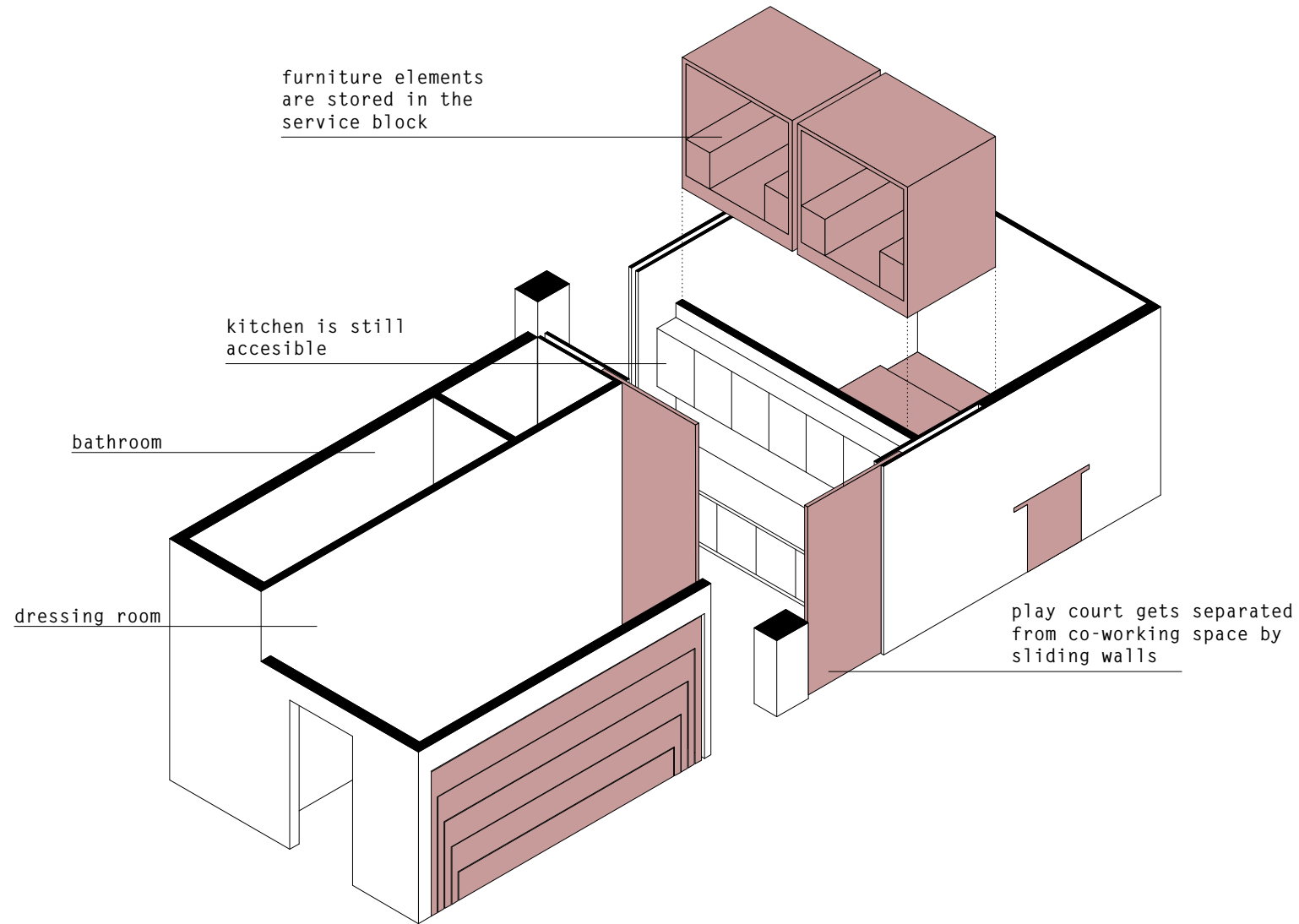
Transformer Space 1: Lounge Space - Sports Court

The Box



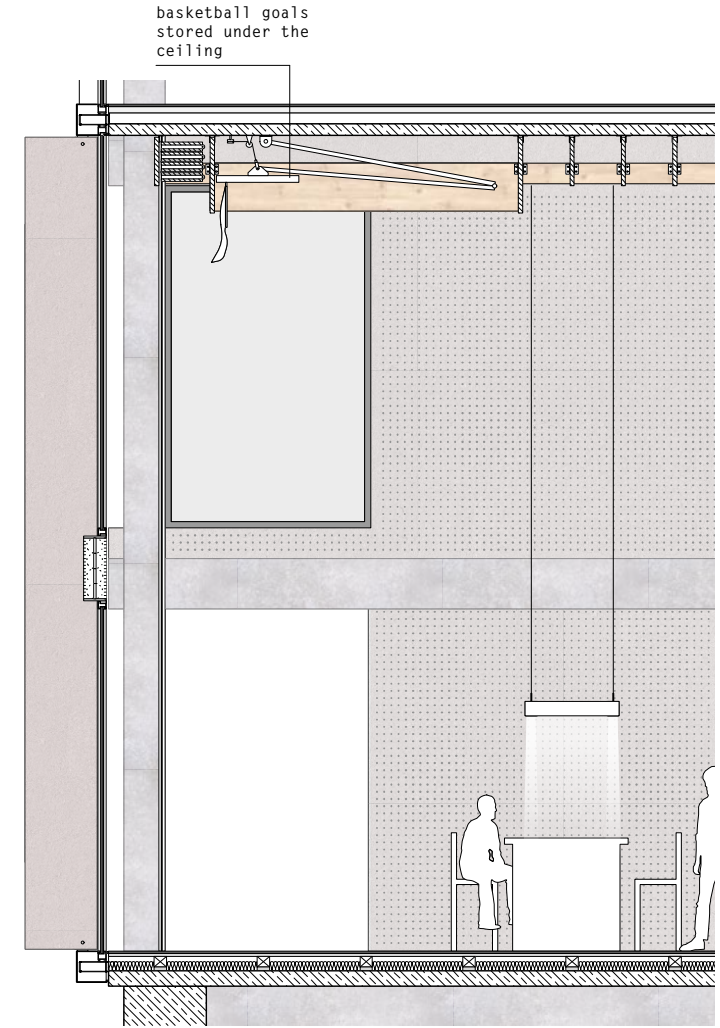
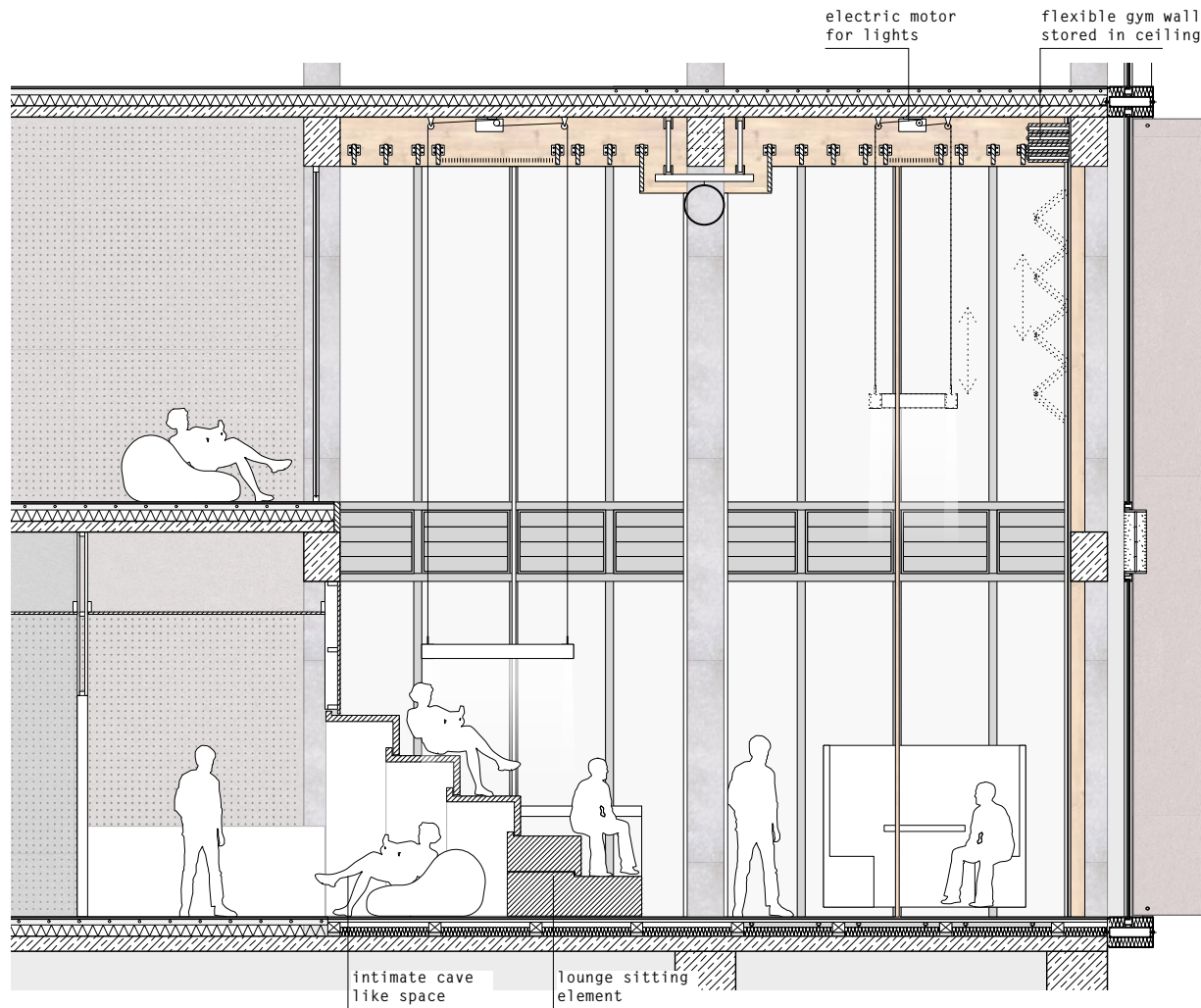
Transformer Space 1: Lounge Space - Sports Court

The Box

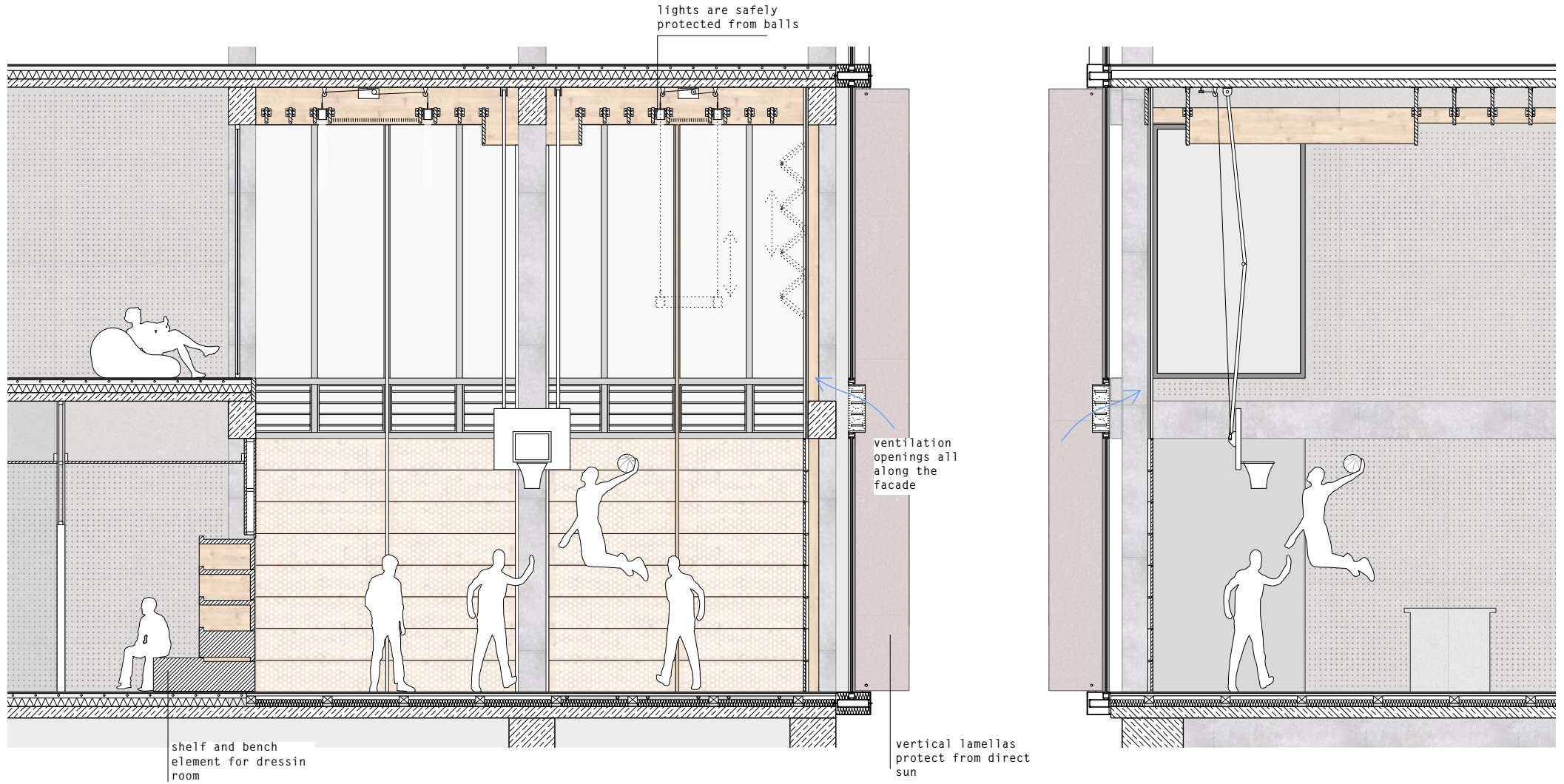


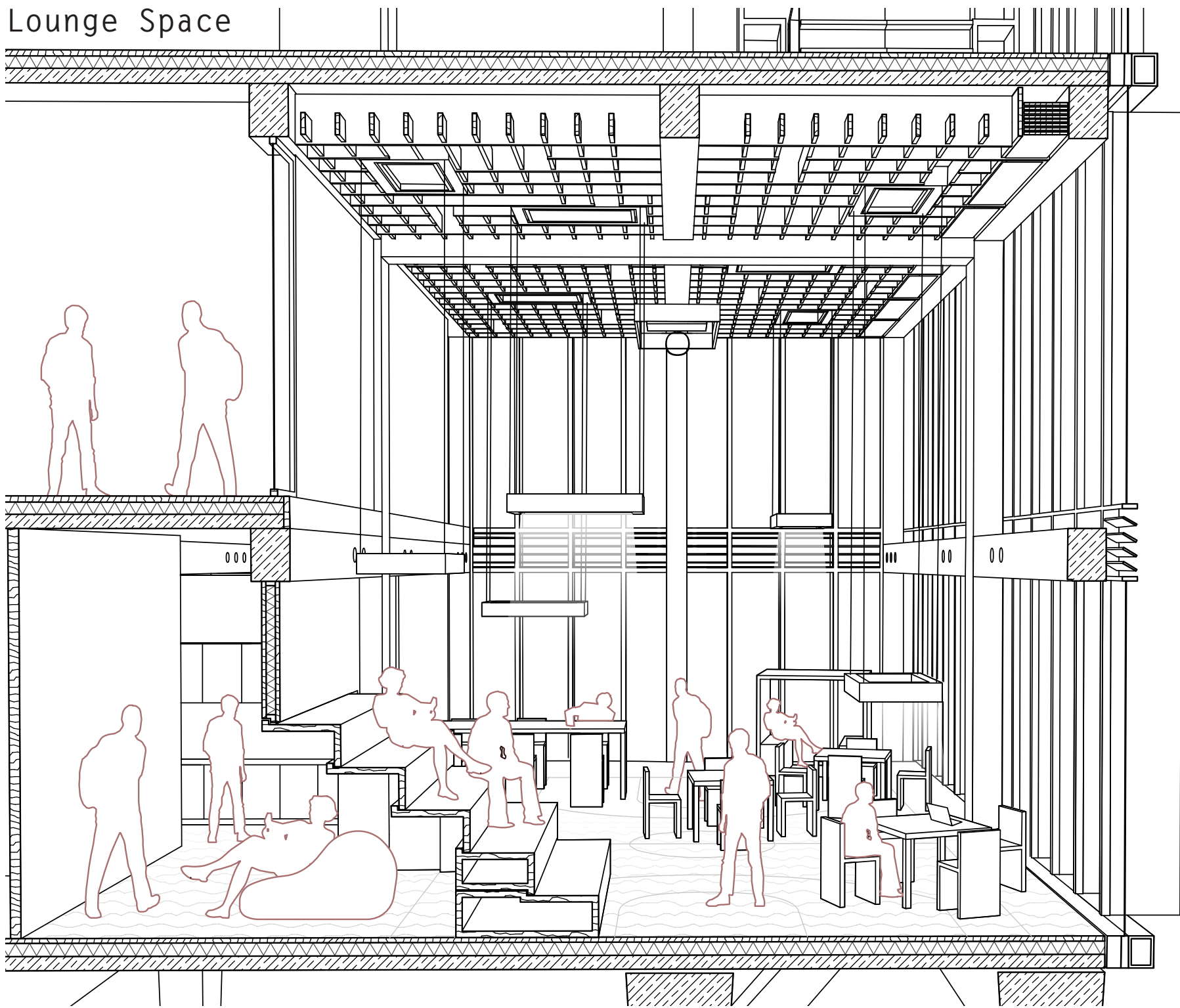
Transformer Space 1:

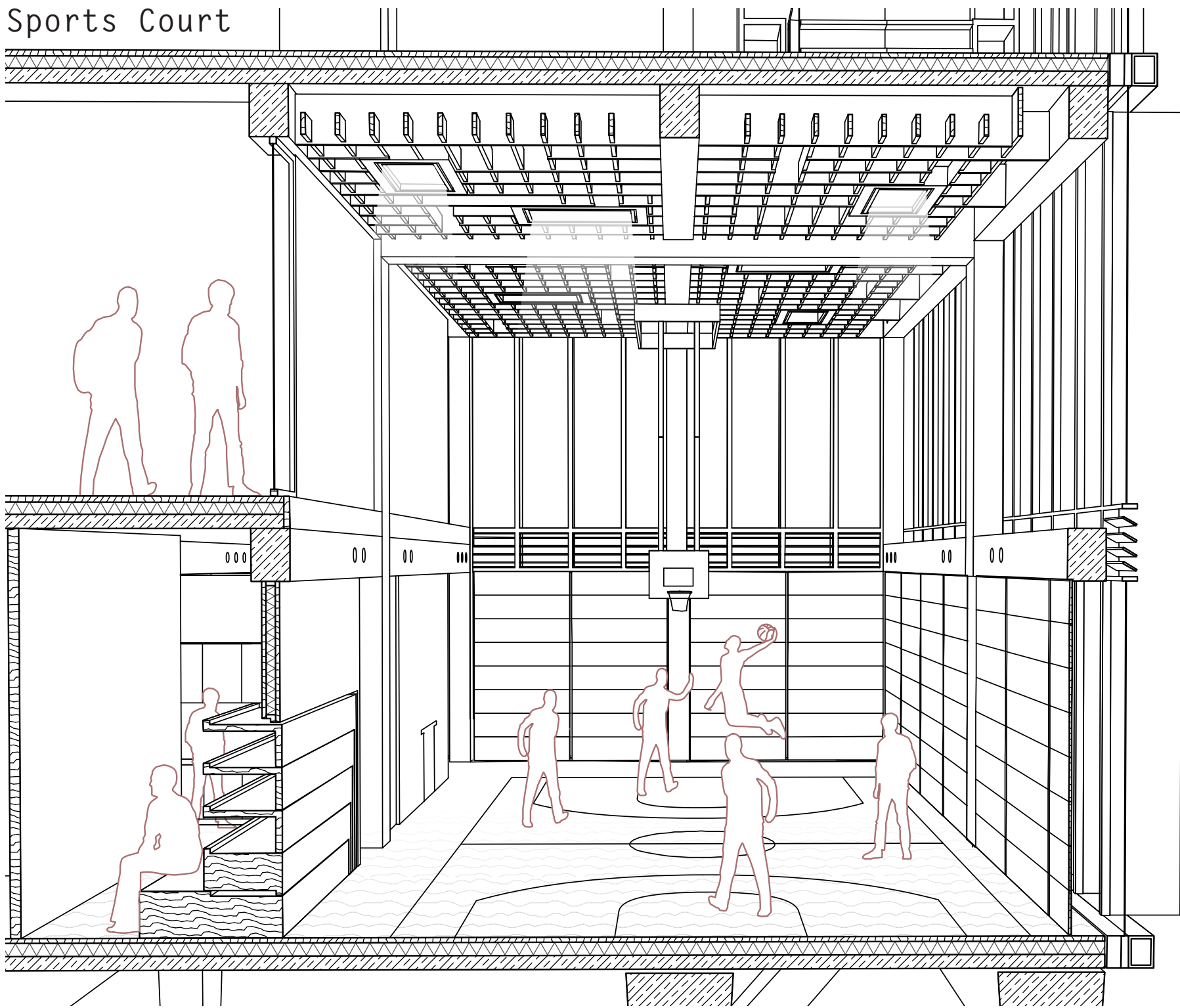
Lounge Space



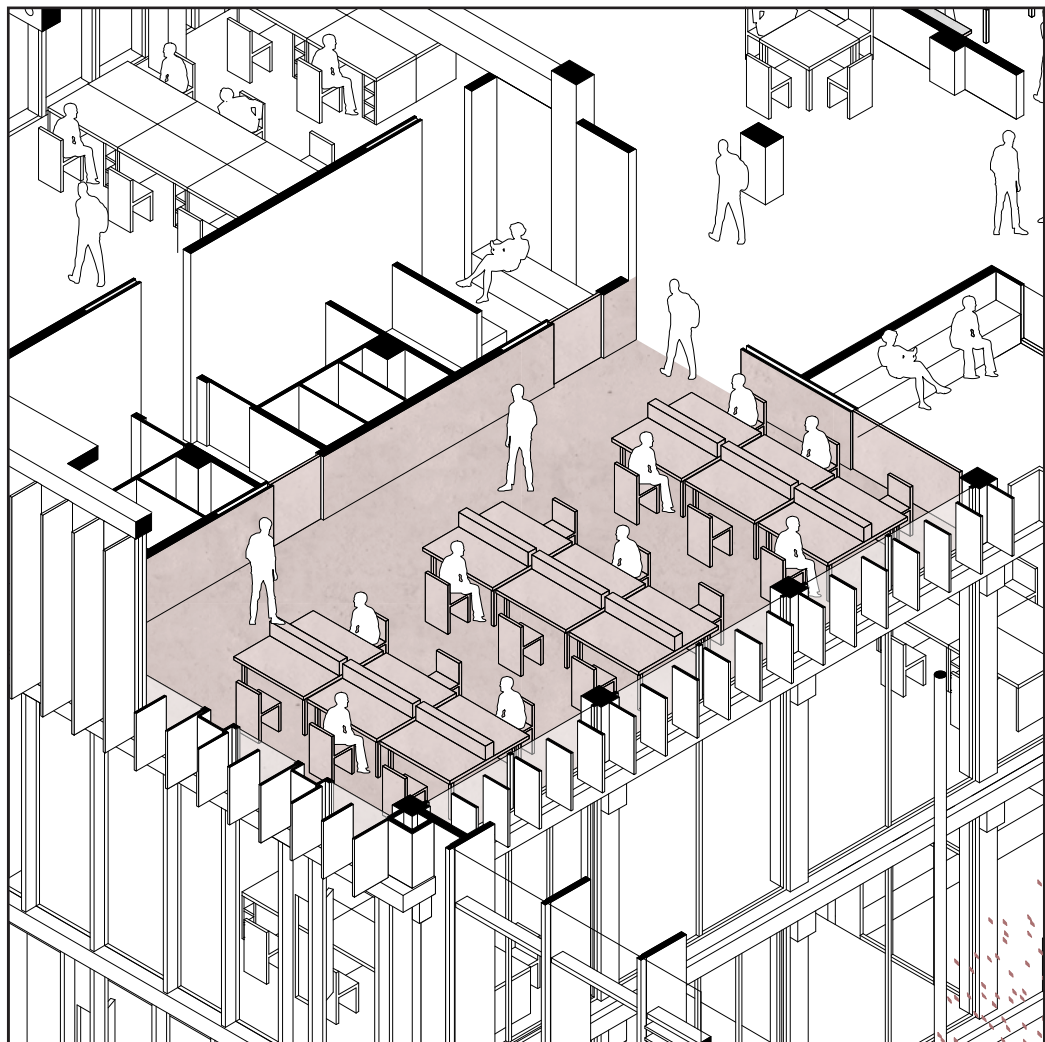
Sports Court



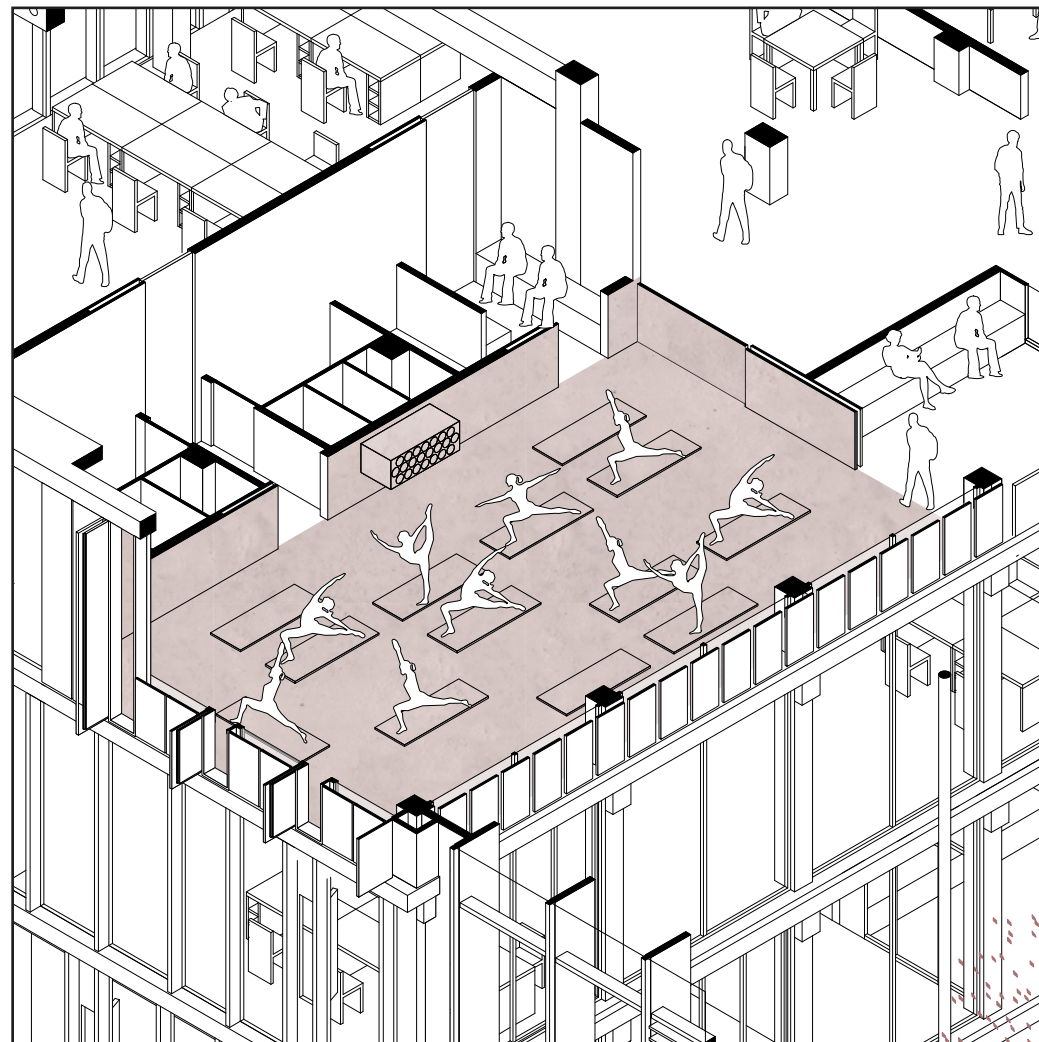




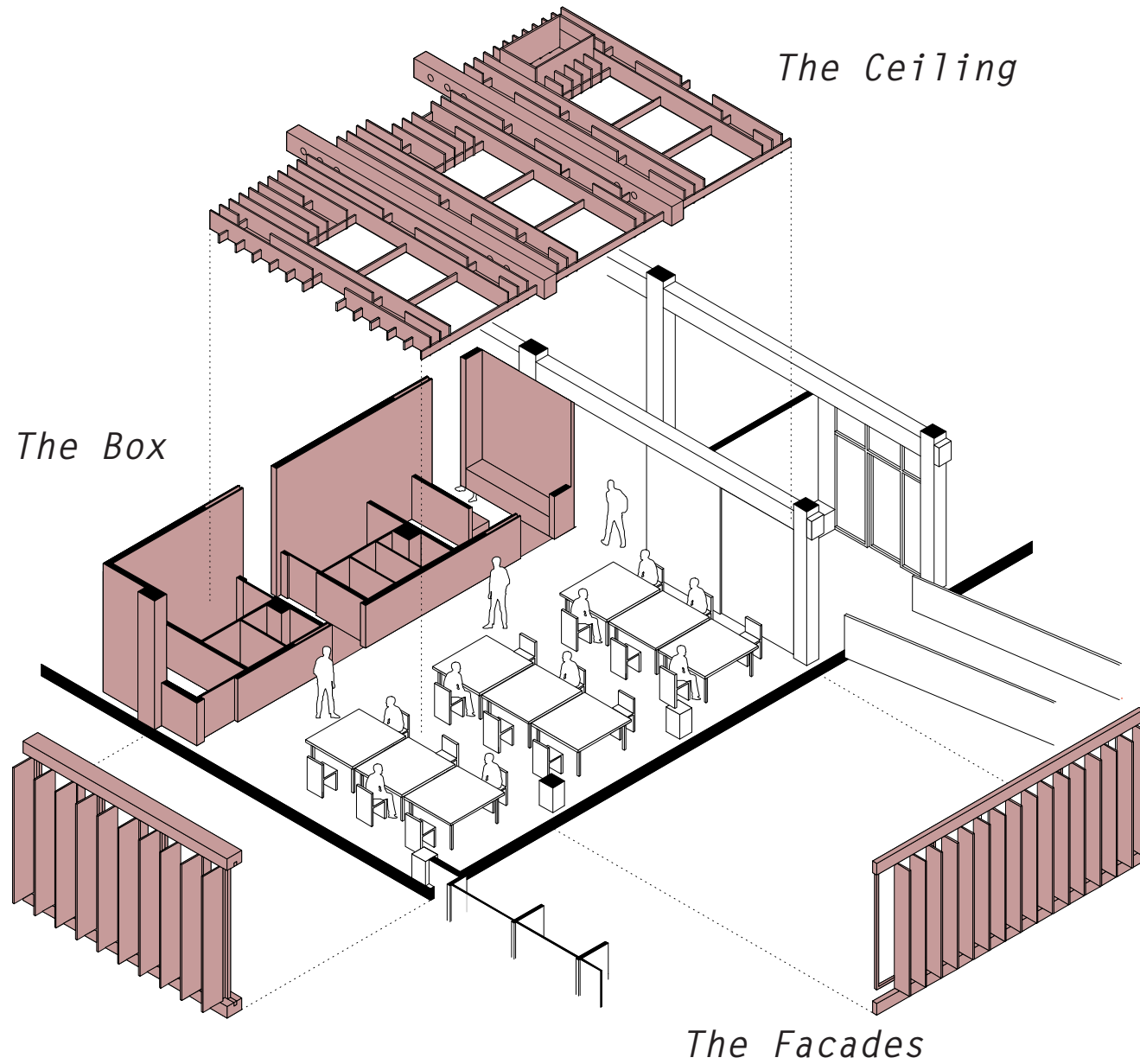
Work Space



Yoga Studio



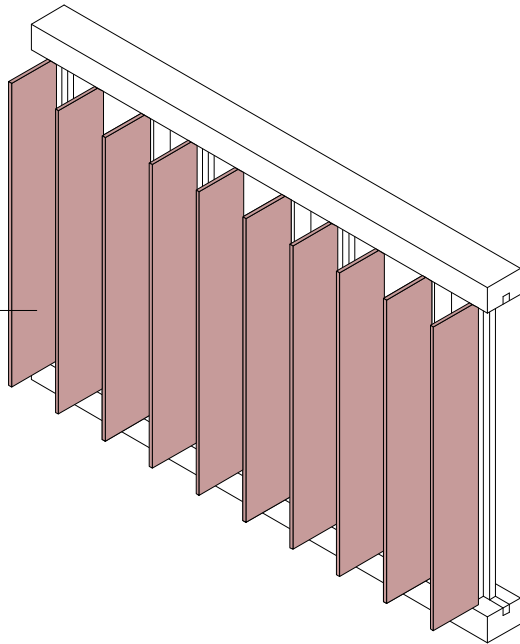
Transformer Space 1:
Lounge Space - Sports Court



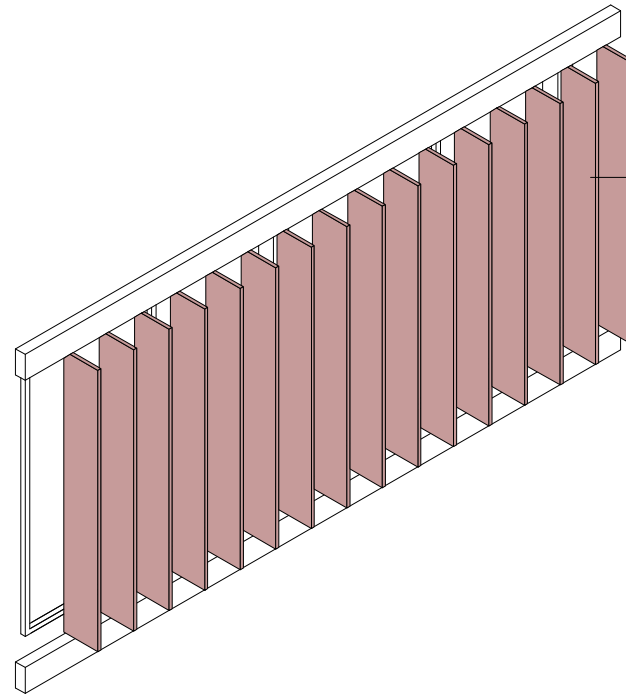
Transformer Space 1: Lounge Space - Sports Court

The Facade

vertical rotating
lamellas project from
direct sun light and
also enable to darken
the space completely



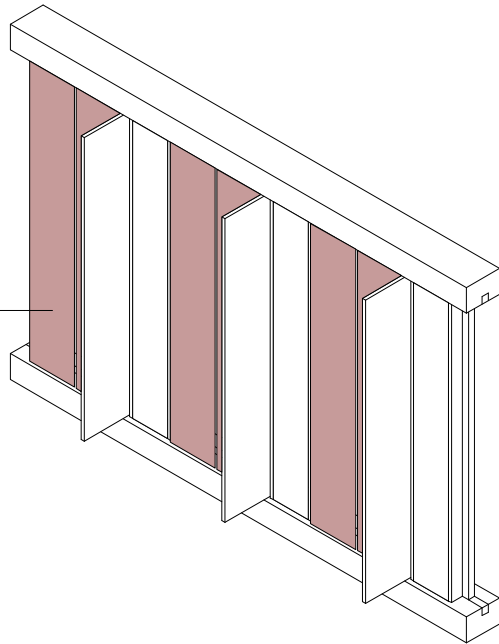
vertical rotating
lamellas allow to
darken the space or to
make it more private



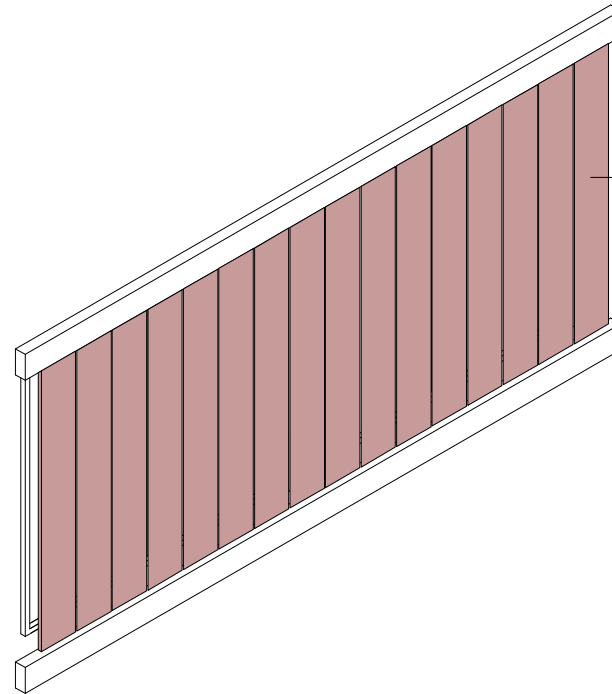
Transformer Space 1: Lounge Space - Sports Court

The Facade

vertical rotating
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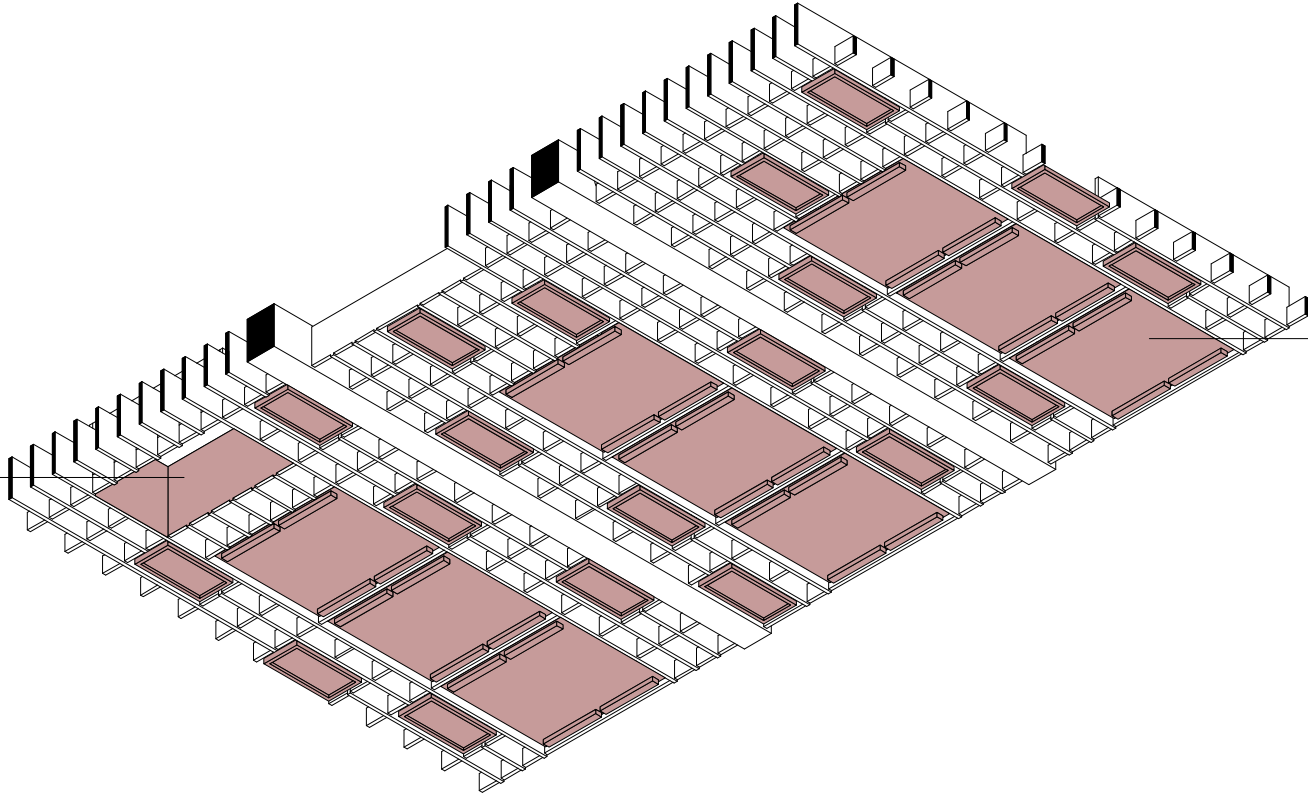


vertical rotating
lamellas allow to
darken the space or to
make it more private



Transformer Space 1: Lounge Space - Sports Court

The Ceiling

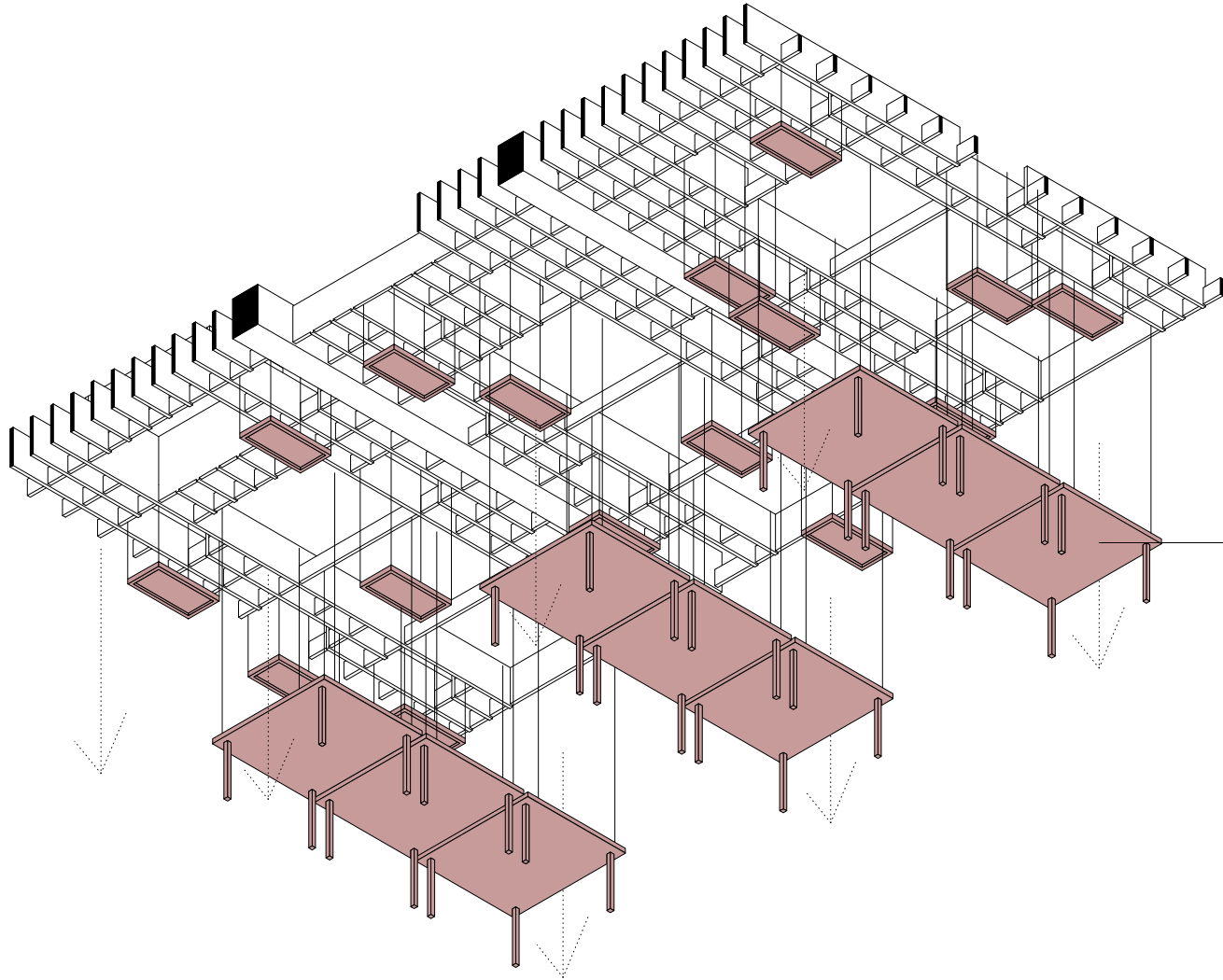


a sky light which is sitting opposite of the ventilated facade makes the space very easy to cross ventilate

desks and lights are stored inside the ceiling to keep the space below free for sports activities

Transformer Space 1: Lounge Space - Sports Court

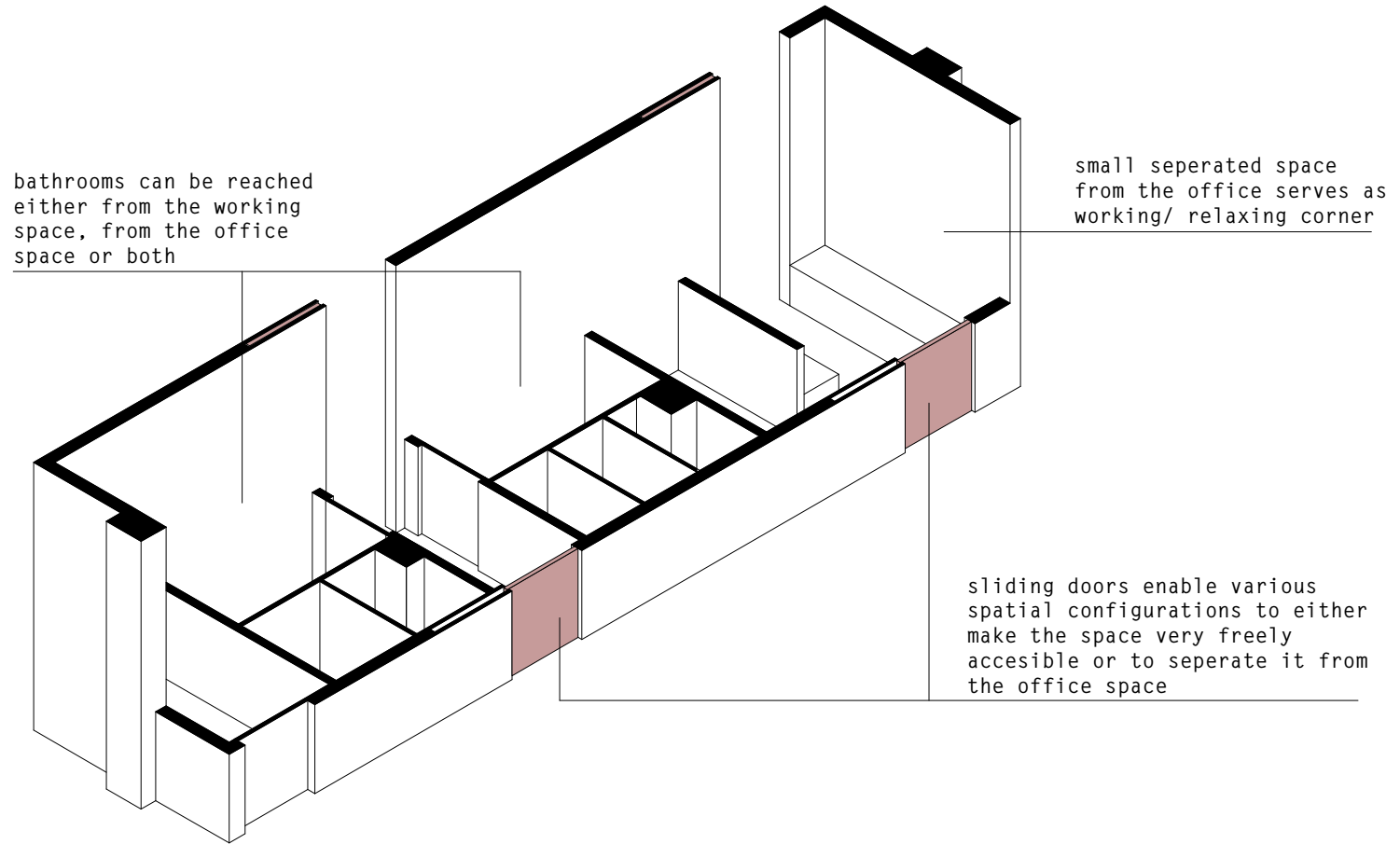
The Ceiling



desks and lights can be let down by a wire system to transform the space into a working space

Transformer Space 1: Lounge Space - Sports Court

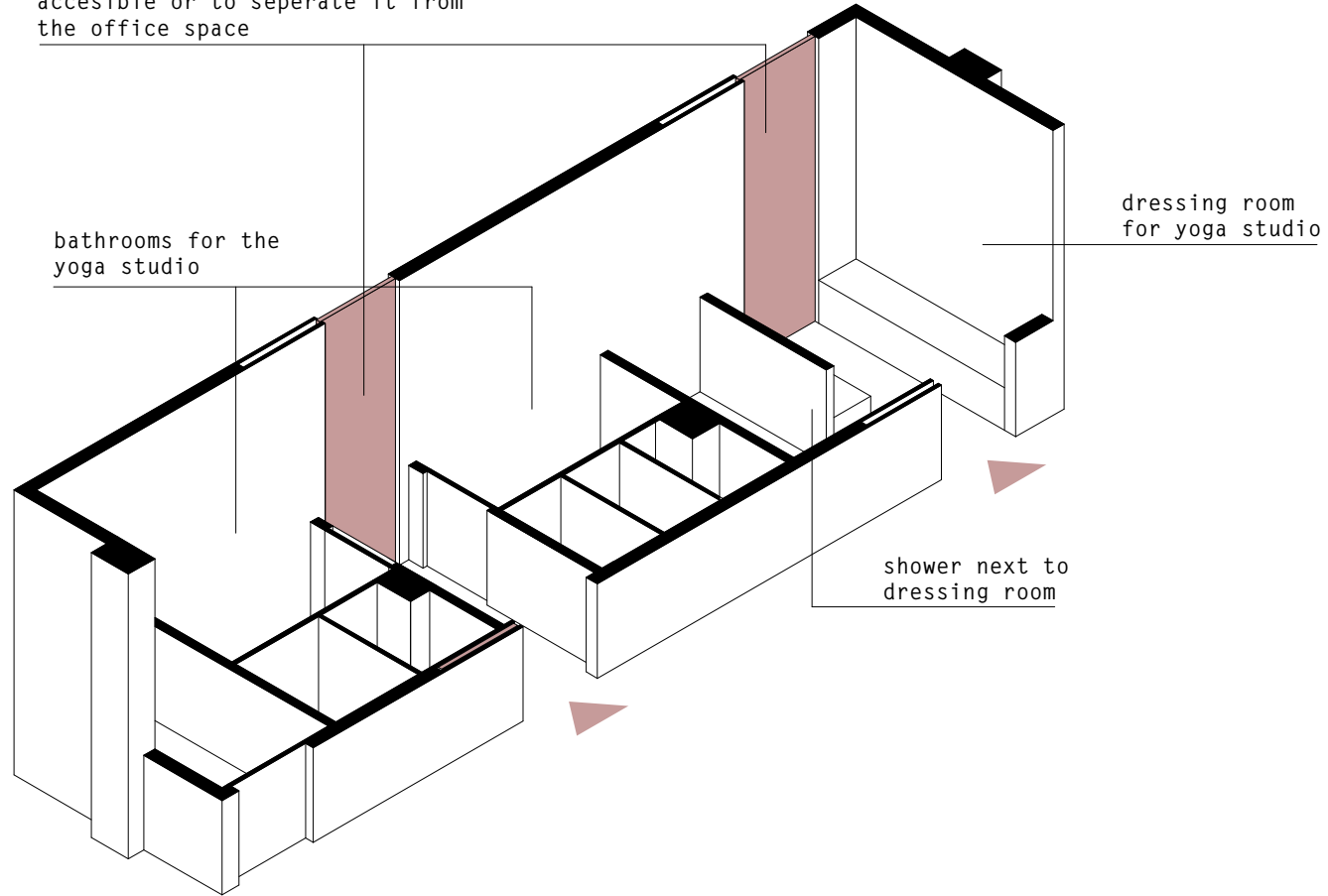
The Box



Transformer Space 1: Lounge Space - Sports Court

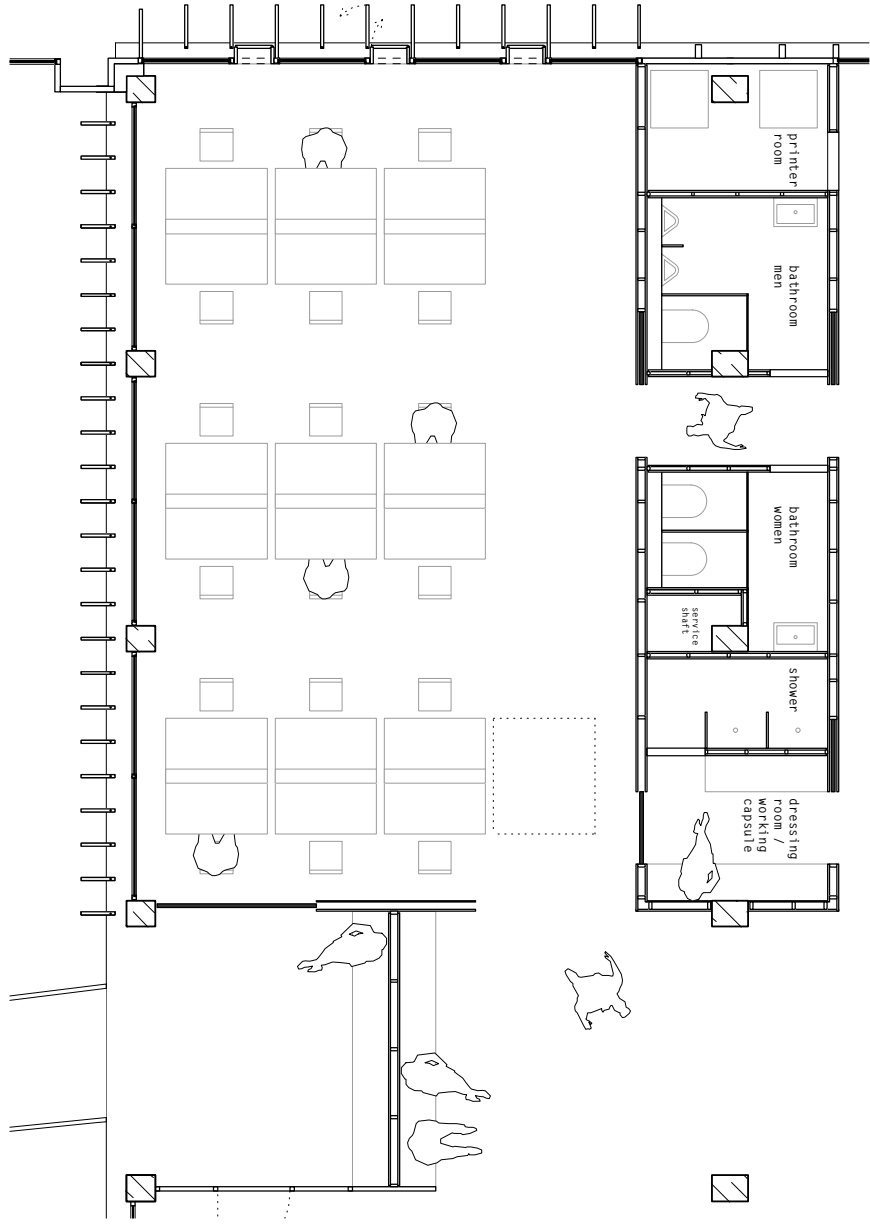
The Box

sliding doors enable various spatial configurations to either make the space very freely accessible or to separate it from the office space

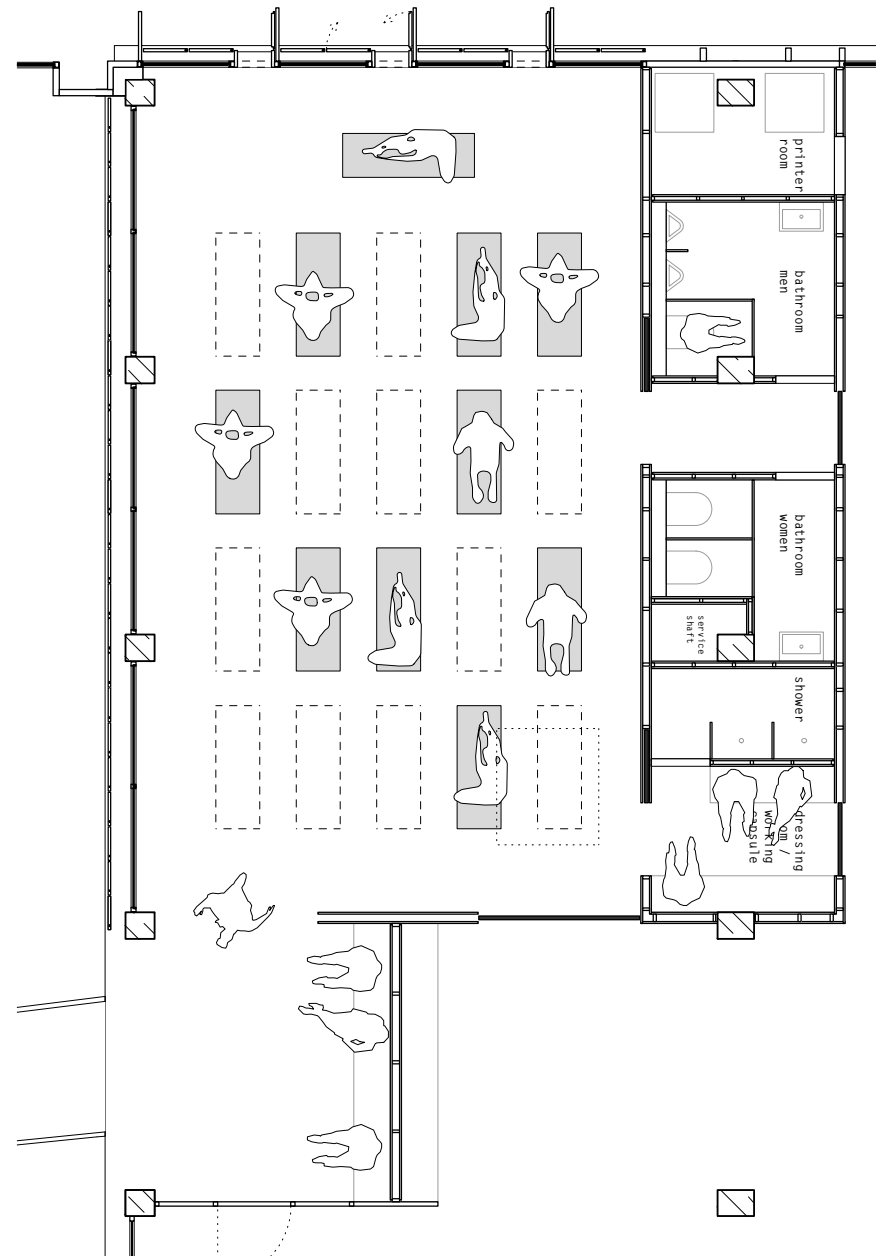


Transformer Space 1: Lounge Space - Sports Court

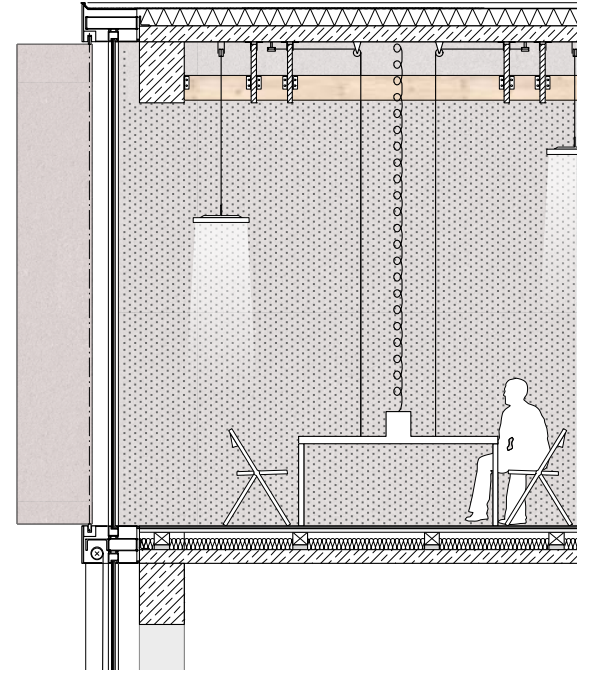
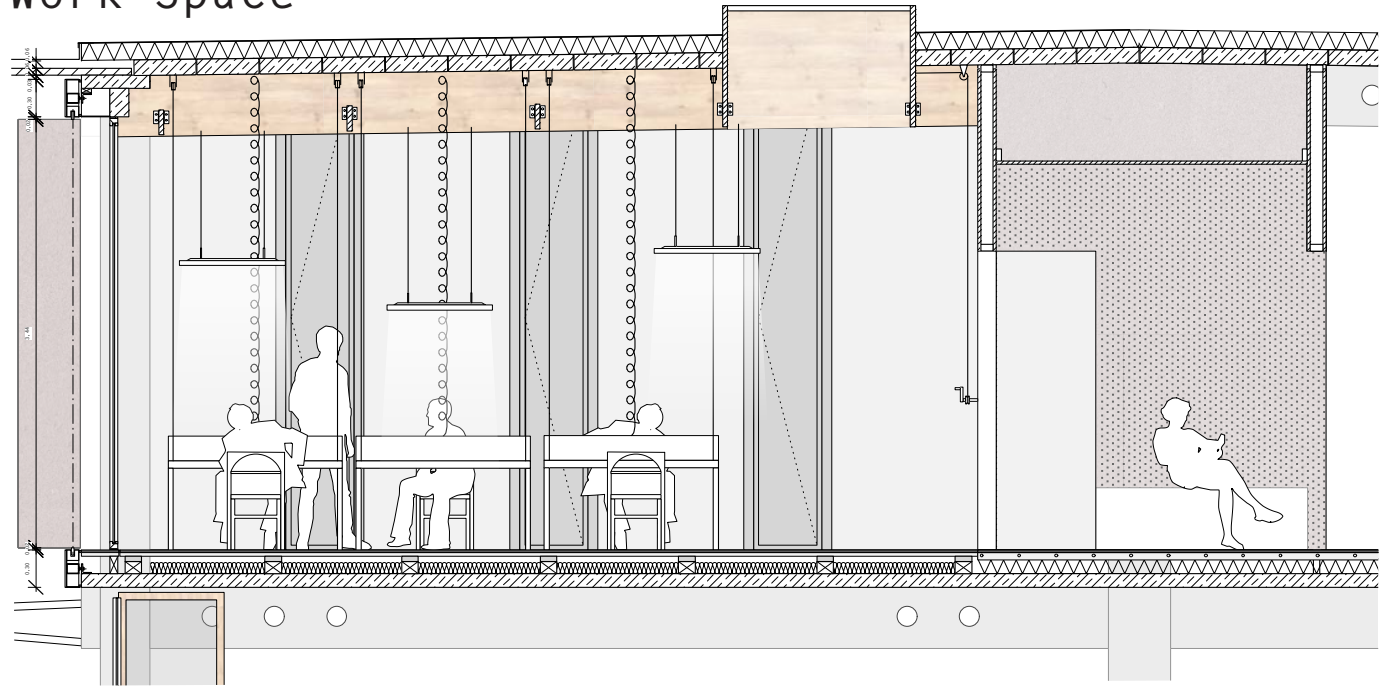
Work Space



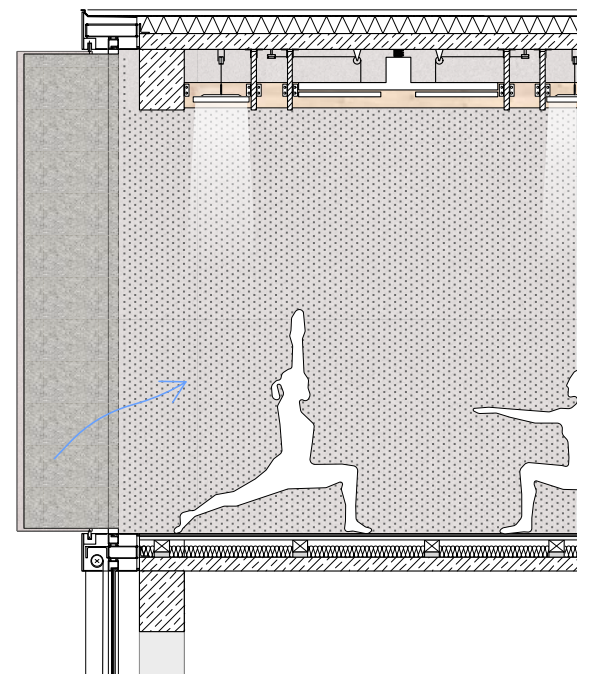
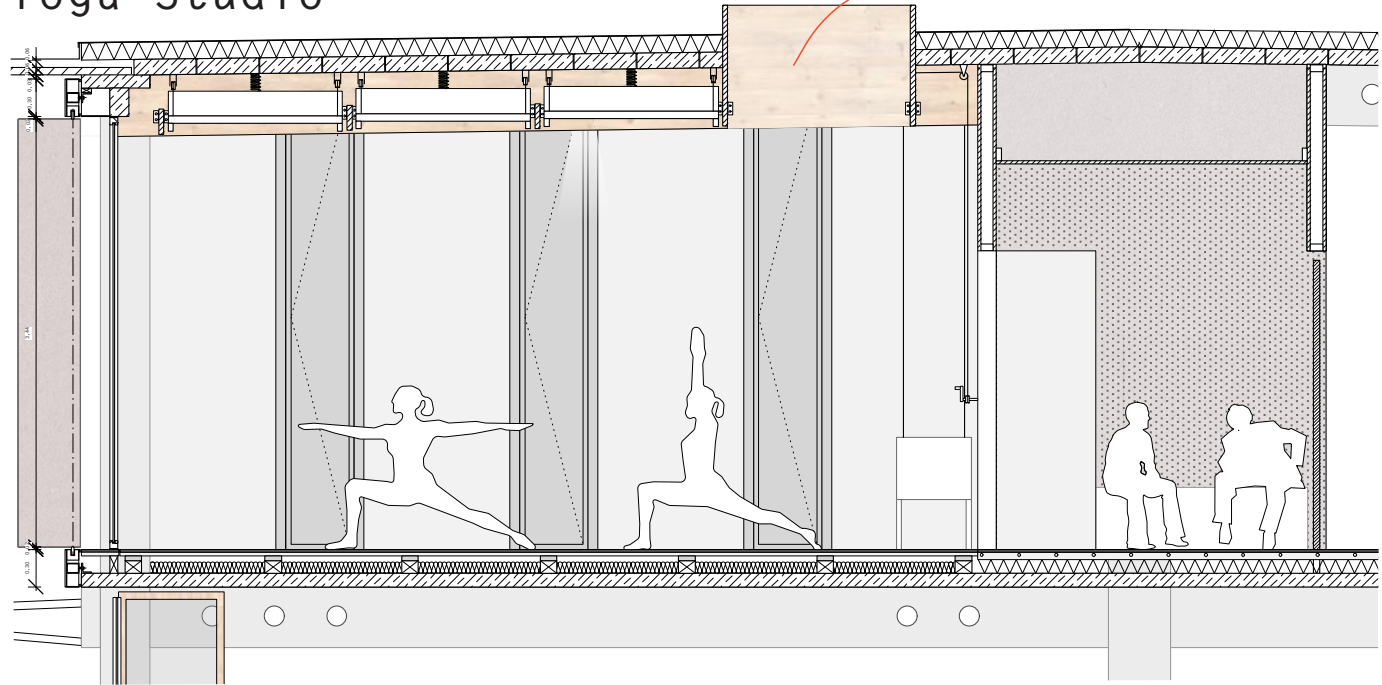
Yoga Studio



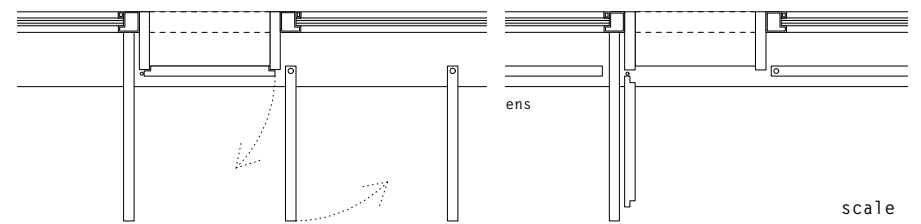
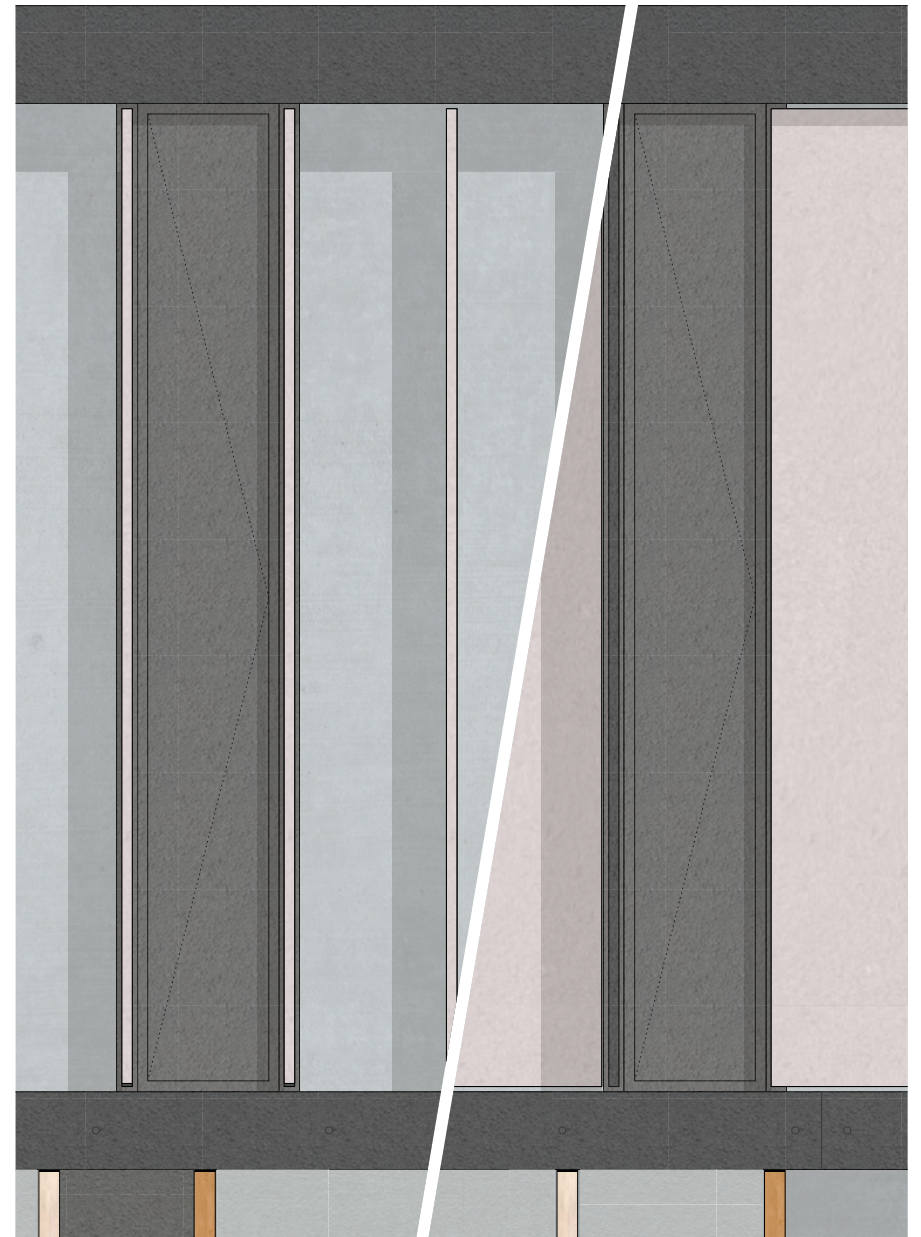
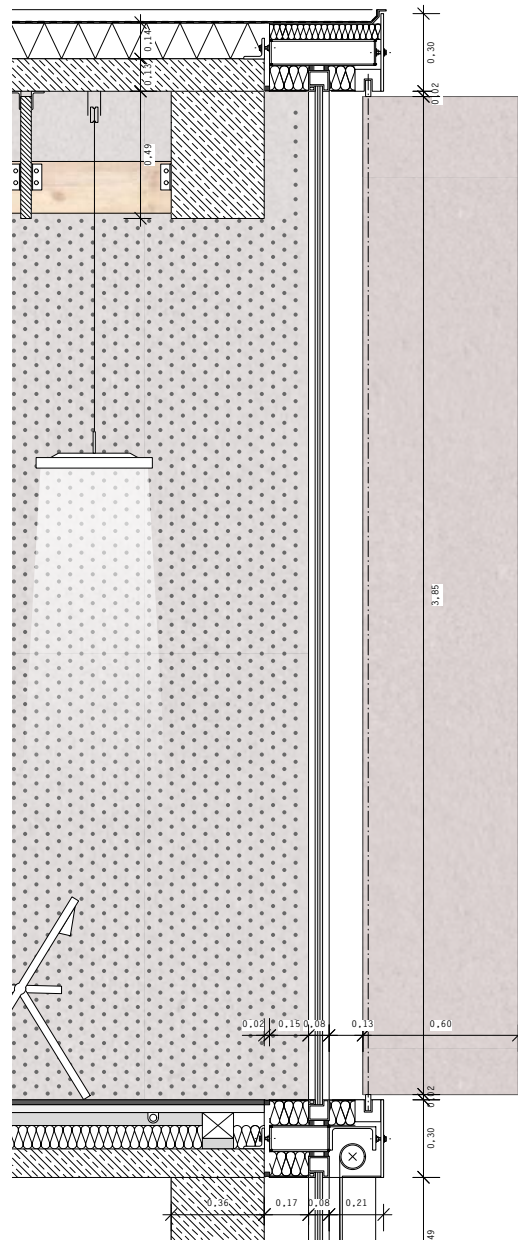
Work Space



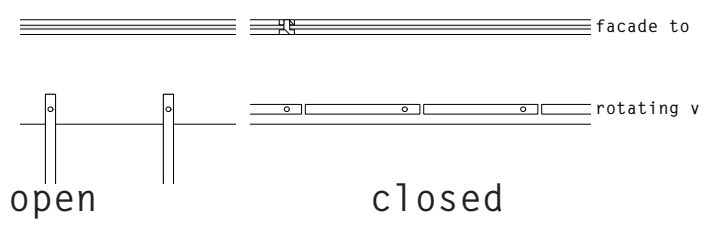
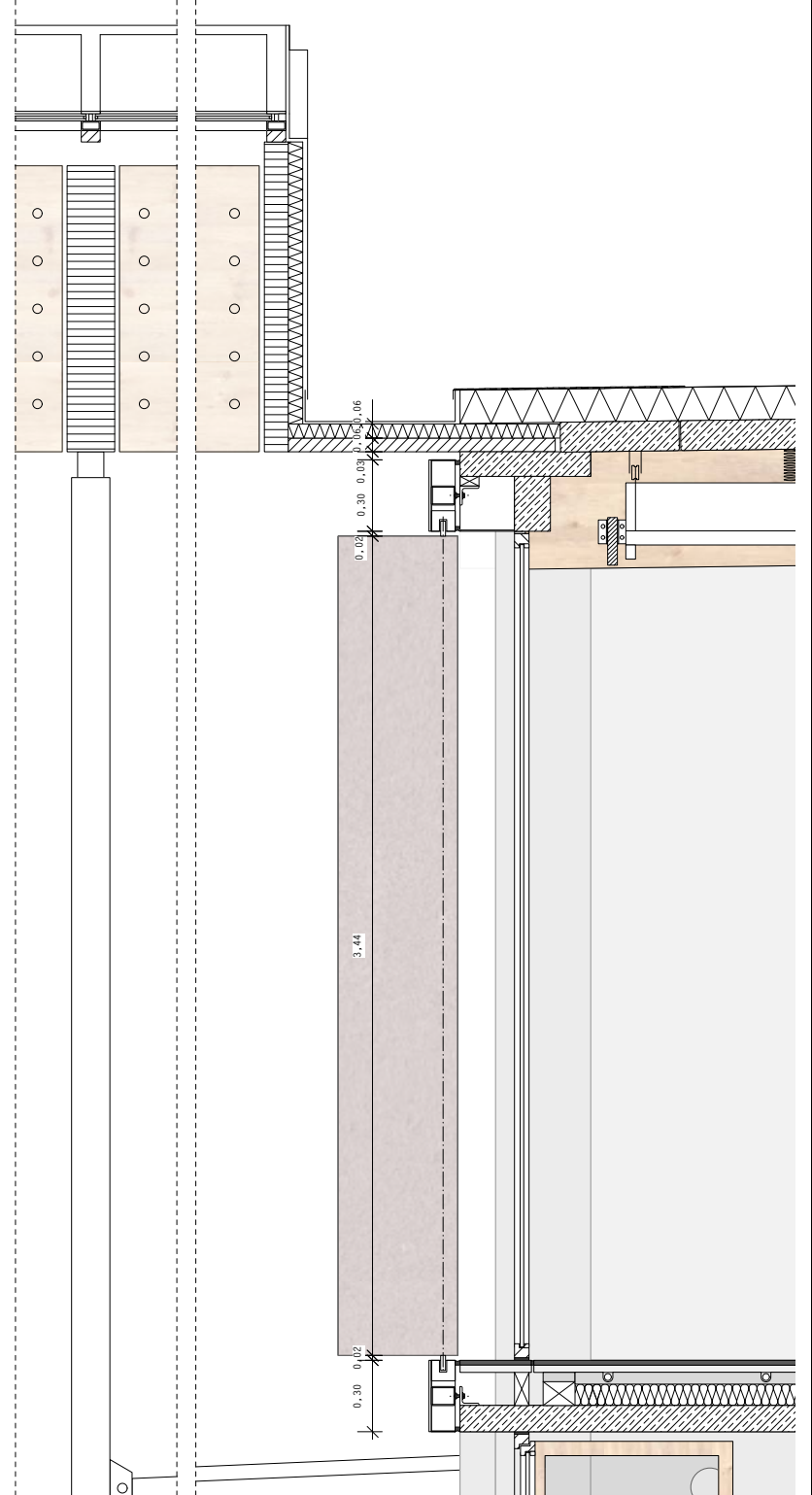
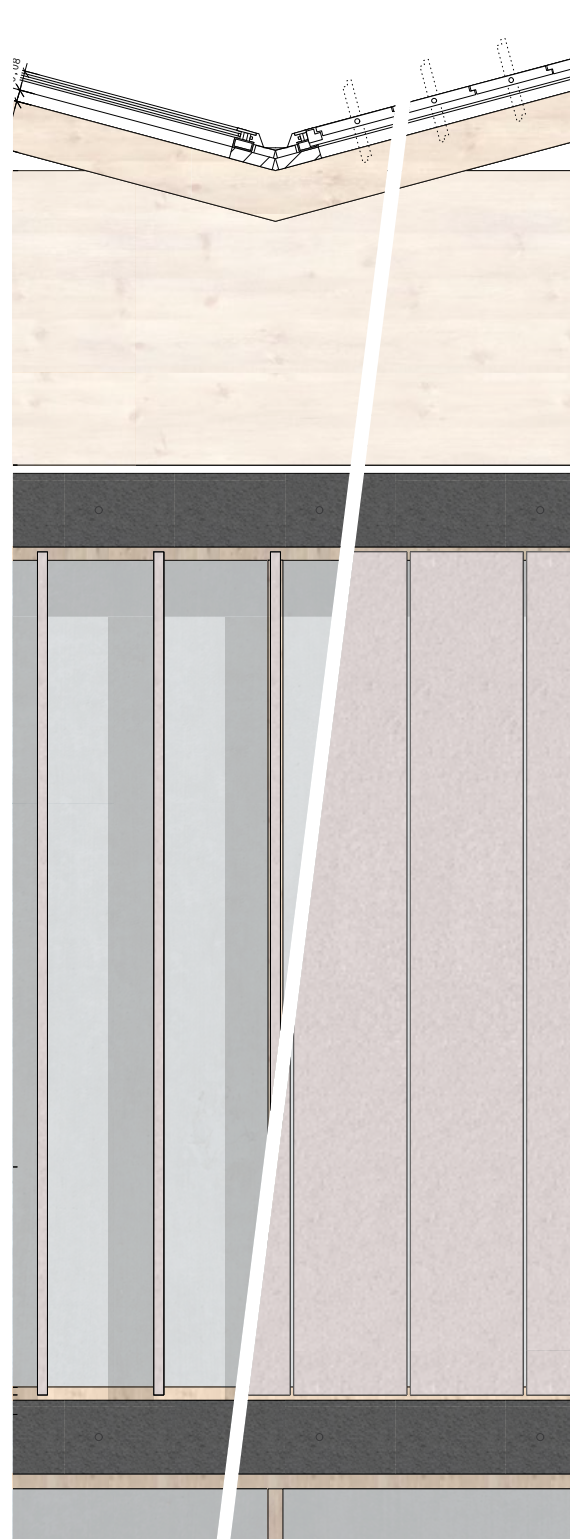
Yoga Studio

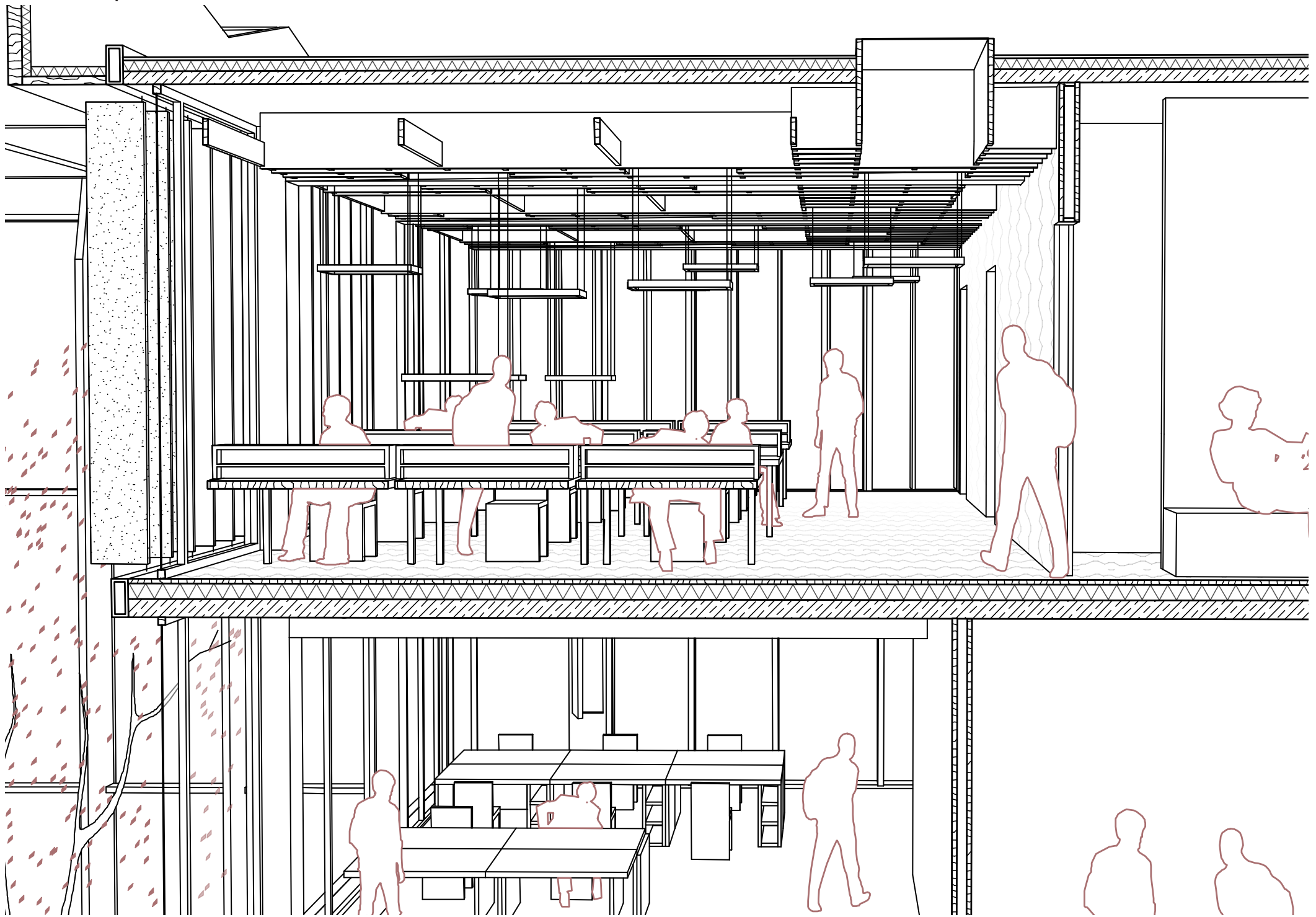


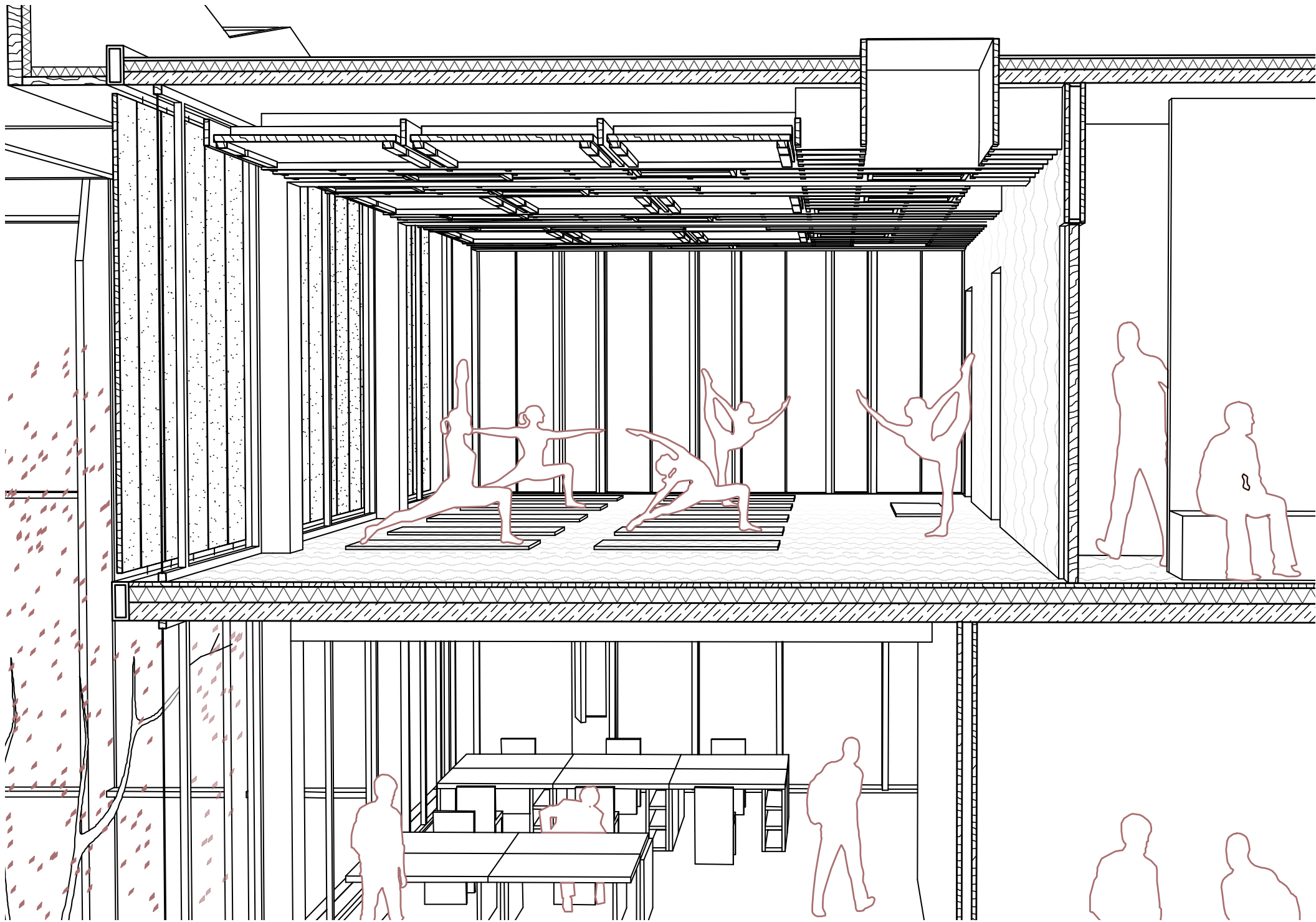
Transformer Space 1:
Lounge Space -
Sports Court
Exterior Facade



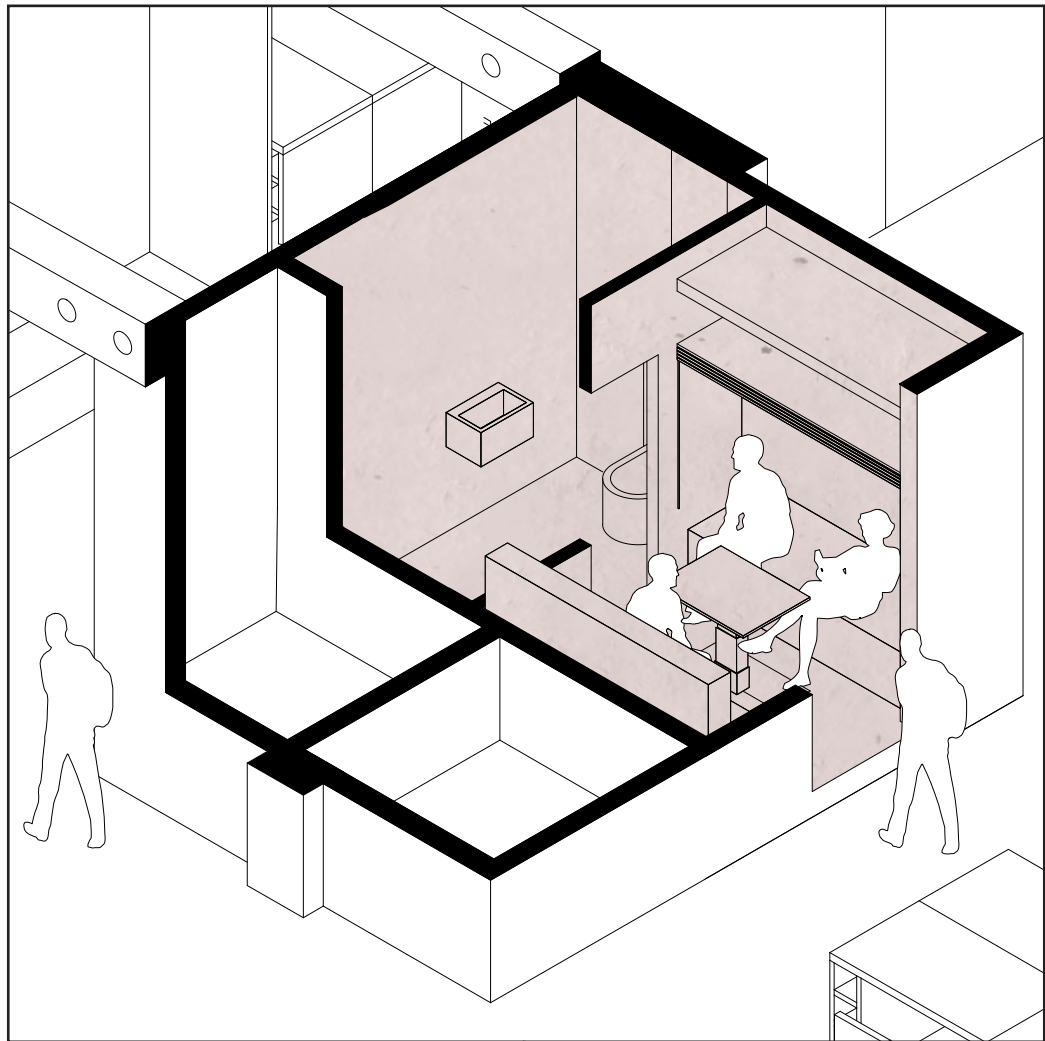
Transformer Space 1:
Lounge Space -
Sports Court
Interior Facade



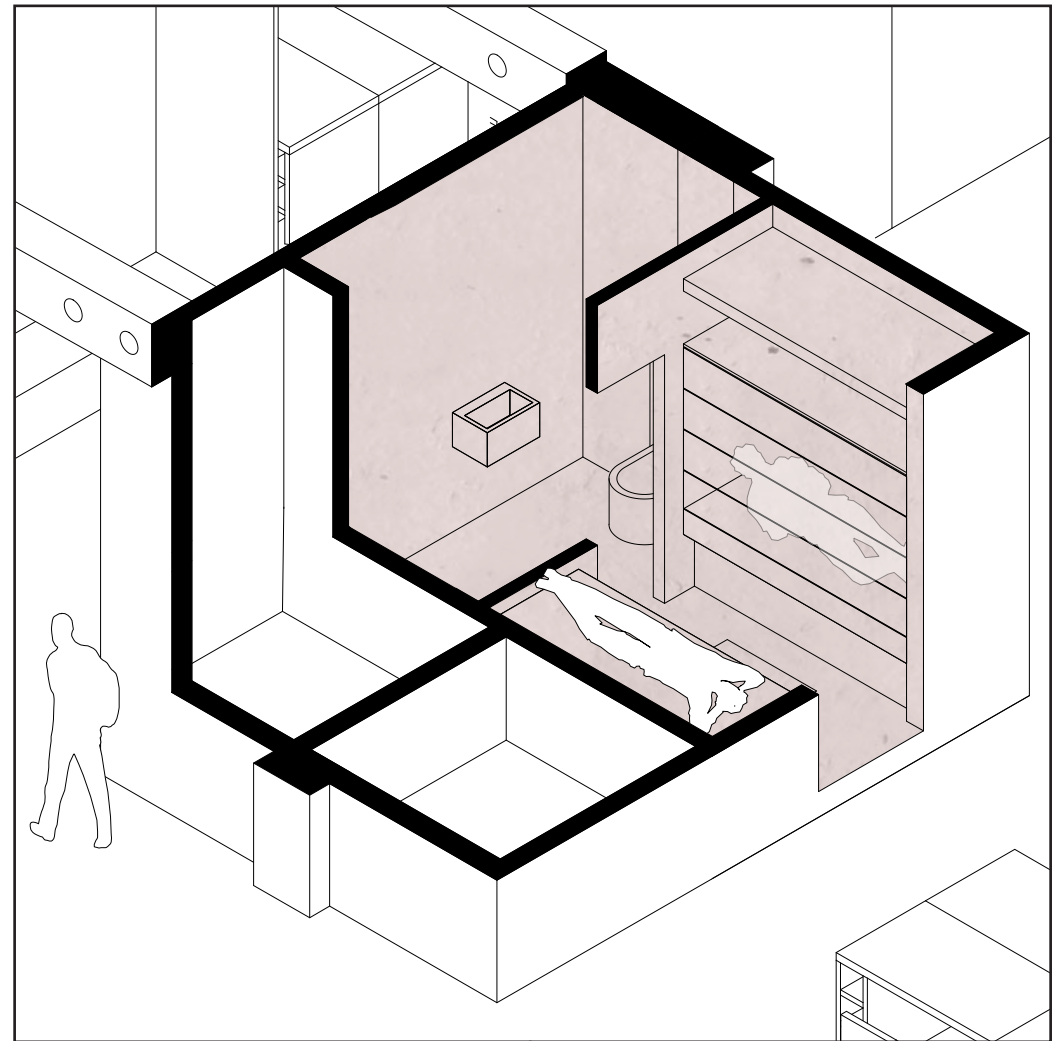




Relaxing Corner

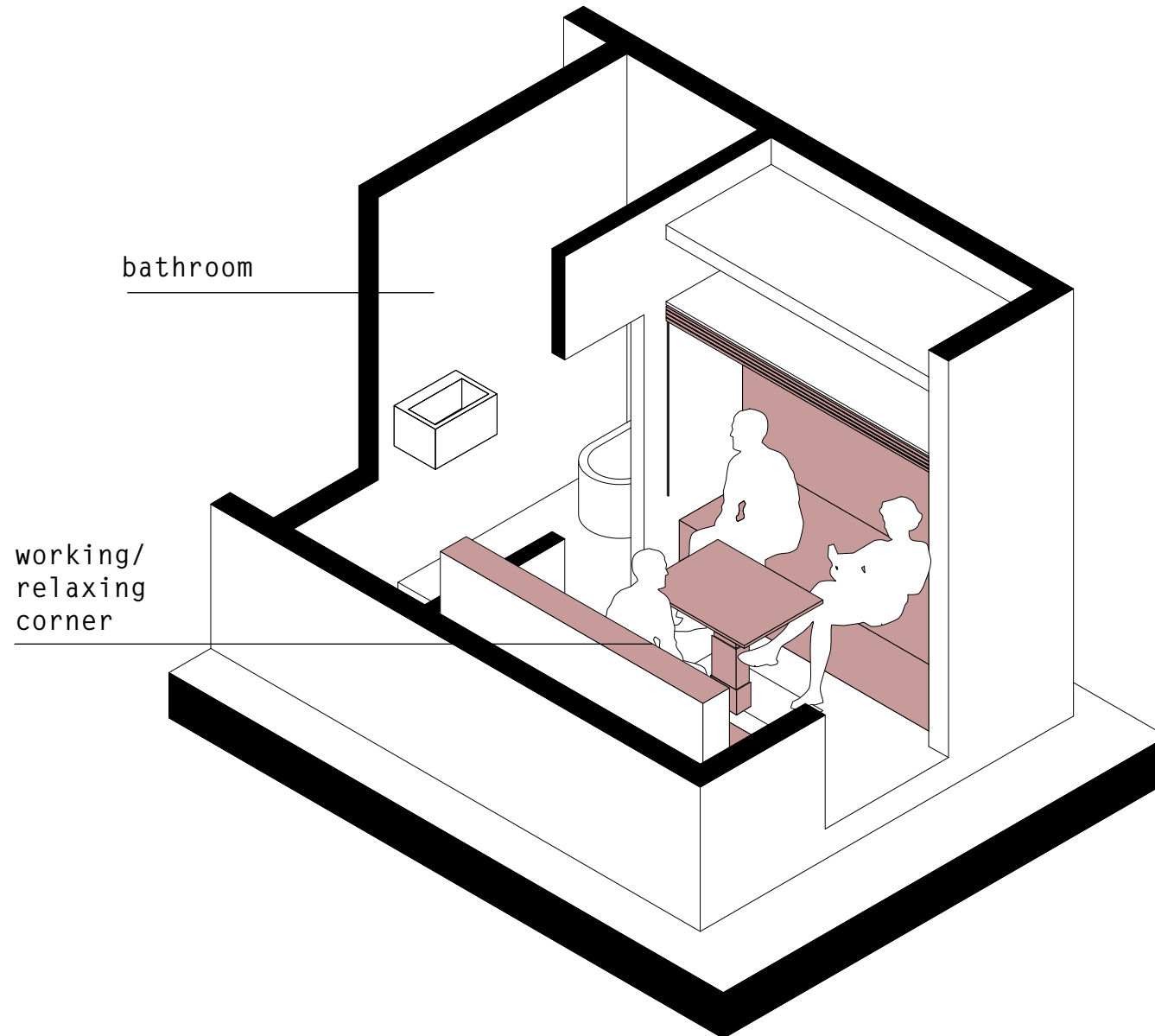


Sleeping Capsules



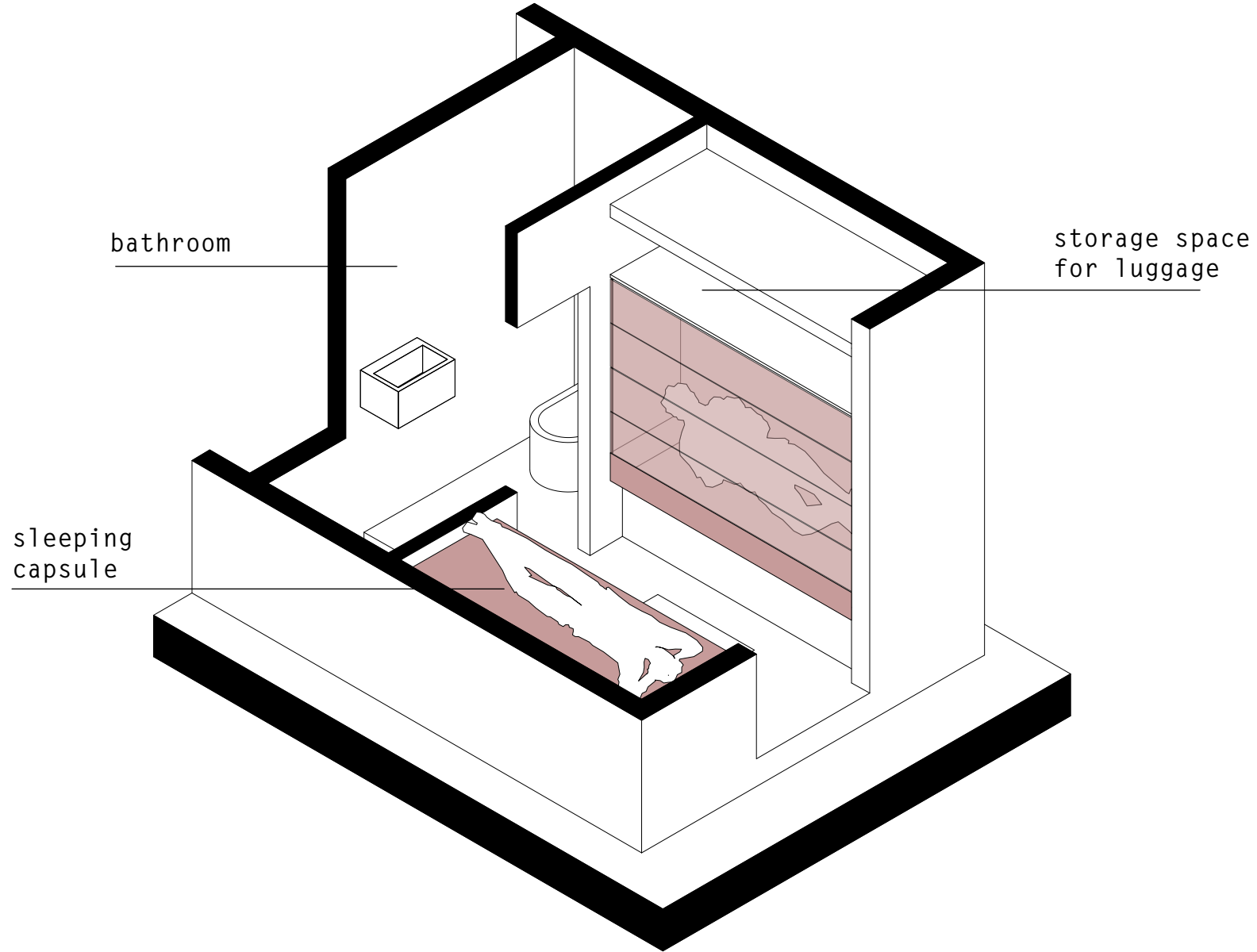
Transforming Space 3:

Working/Relaxing Corner - Sleeping Capsule

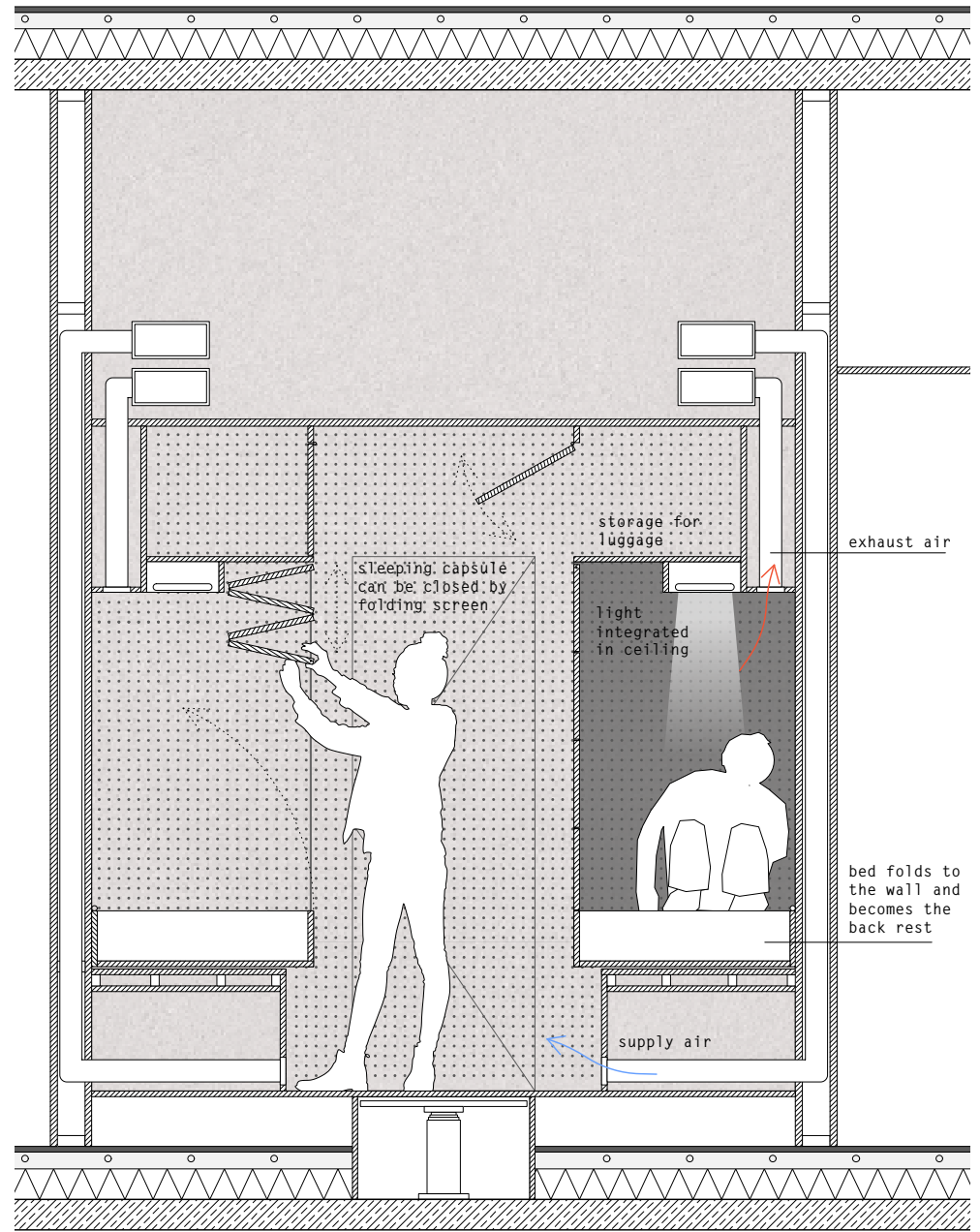
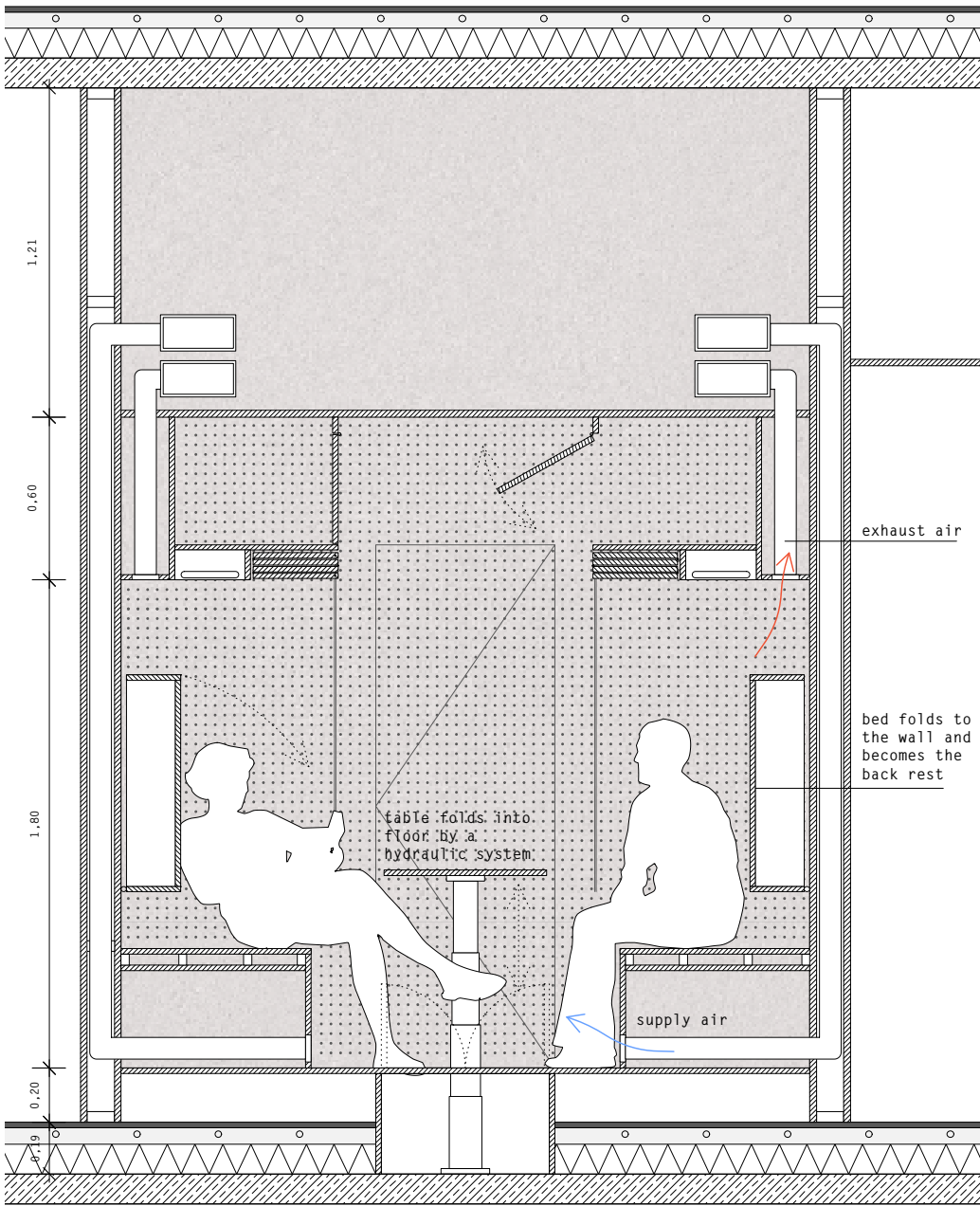


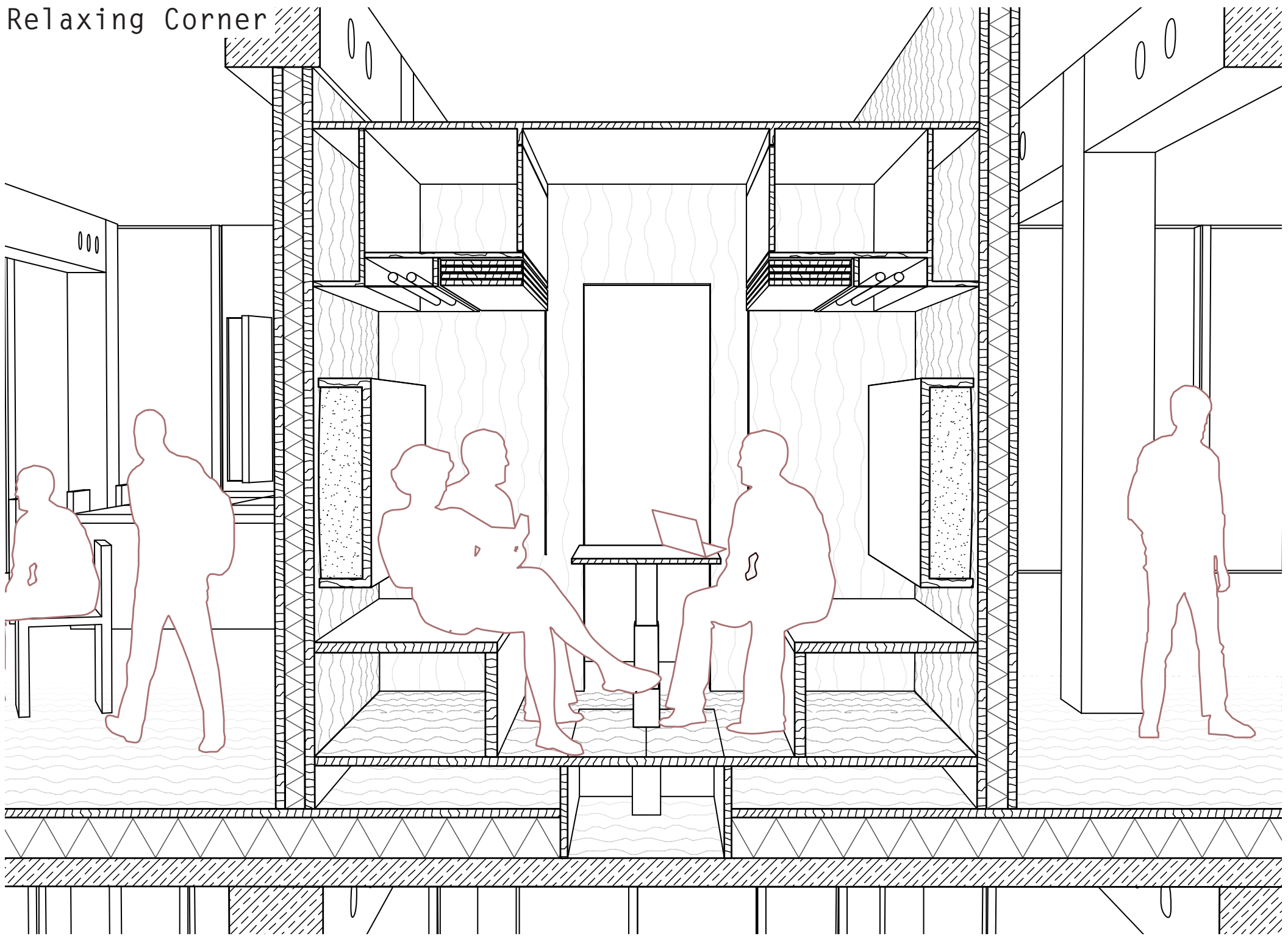
Transforming Space 3:

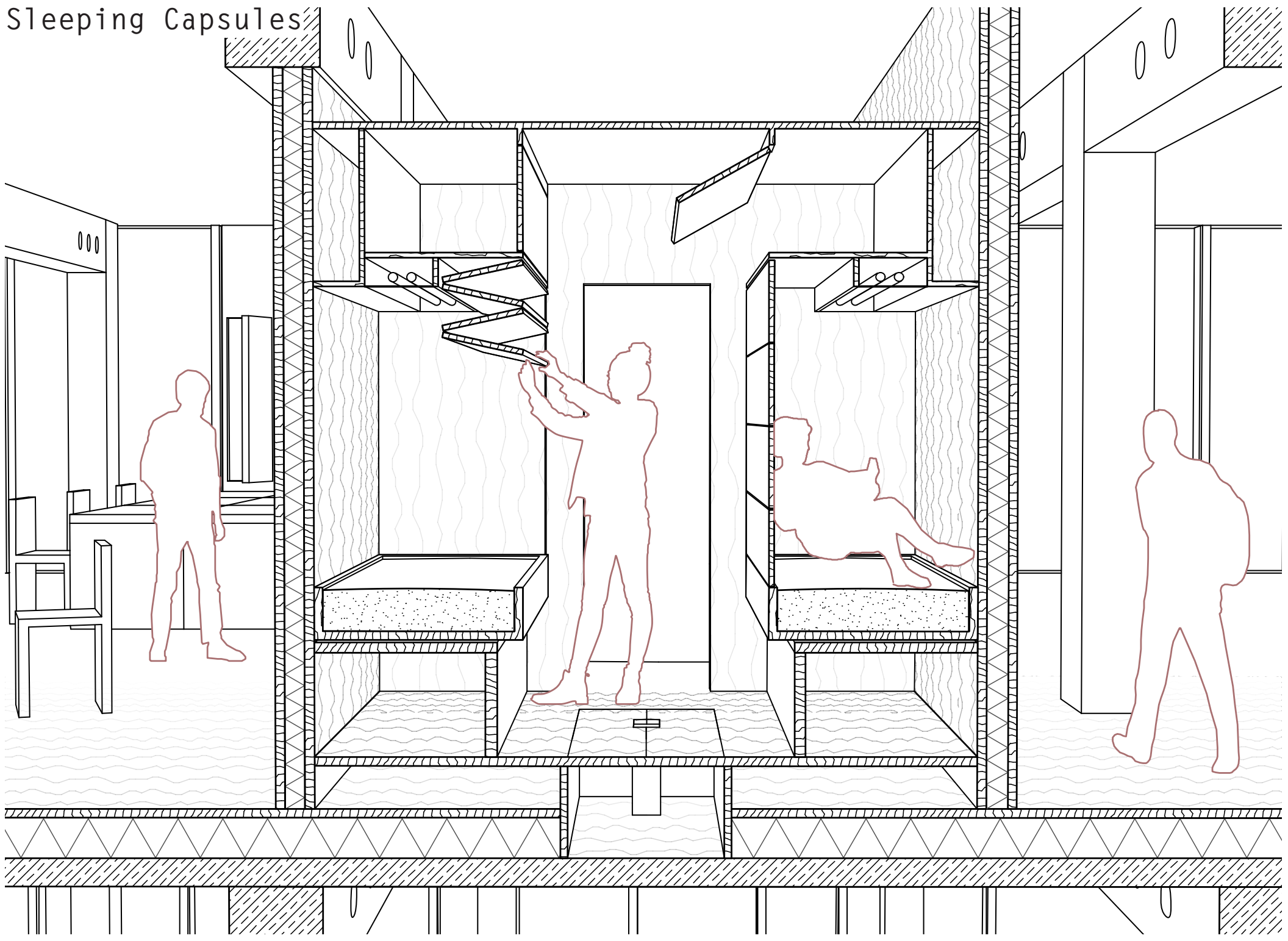
Working/Relaxing Corner - Sleeping Capsule

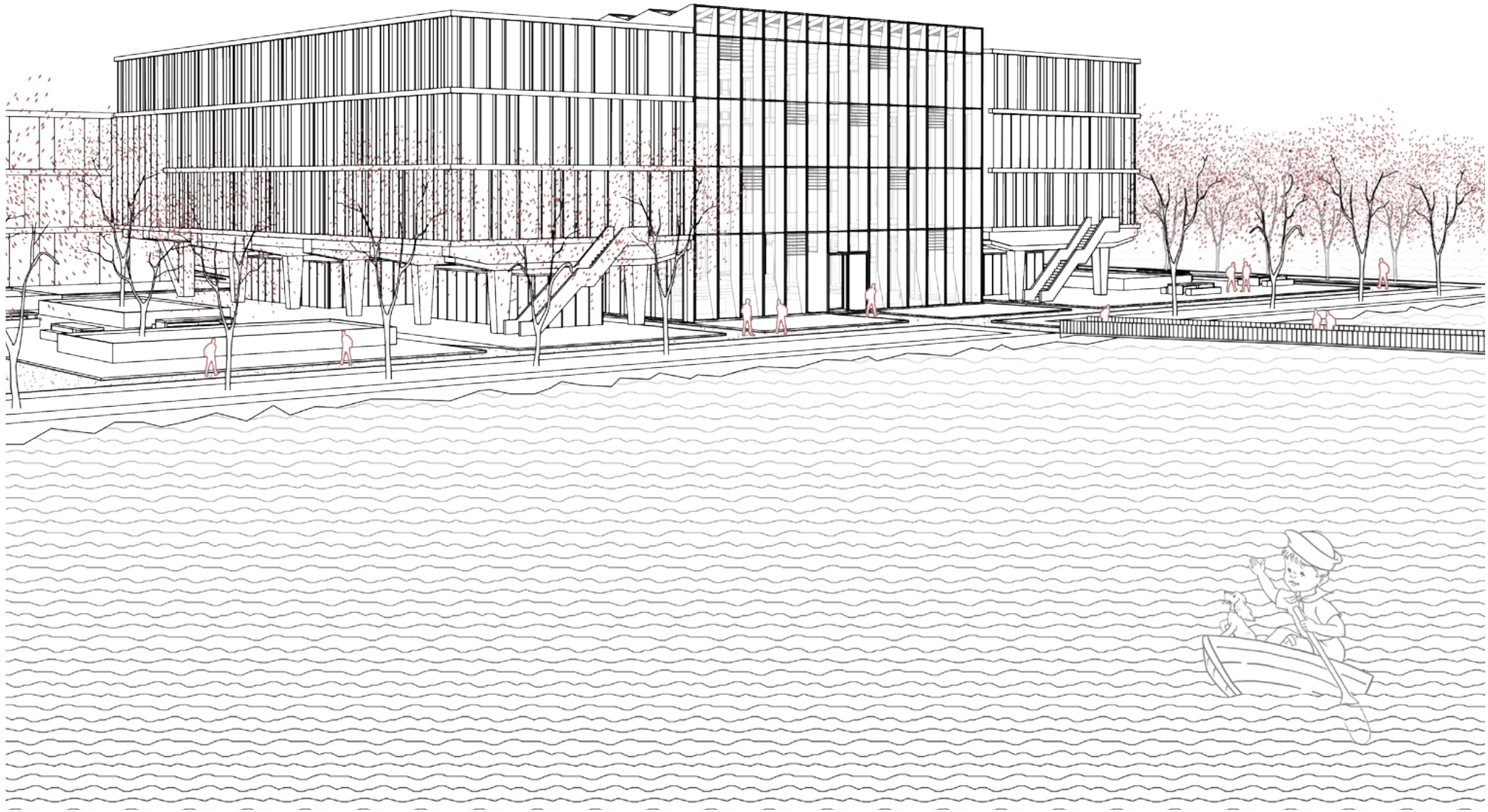


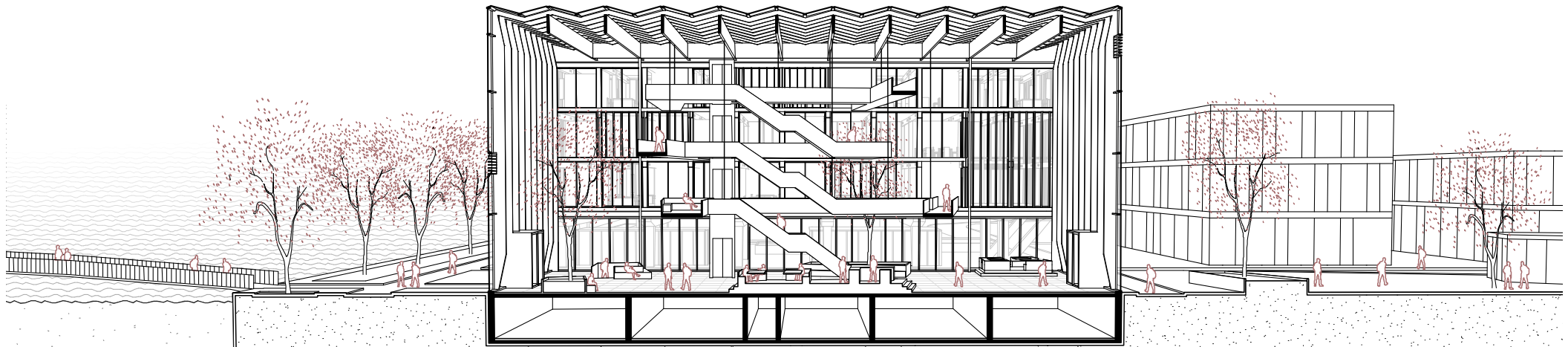
Transformer Space 3: Relaxing Corner - Sleeping Capsules







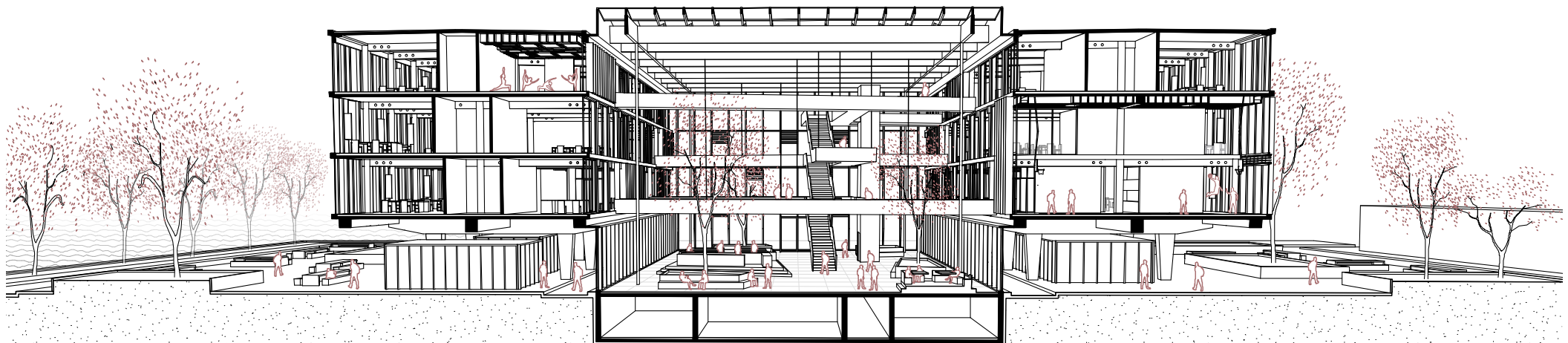




Connection to the New Metropolis

Public Atrium

Start-Up Campus



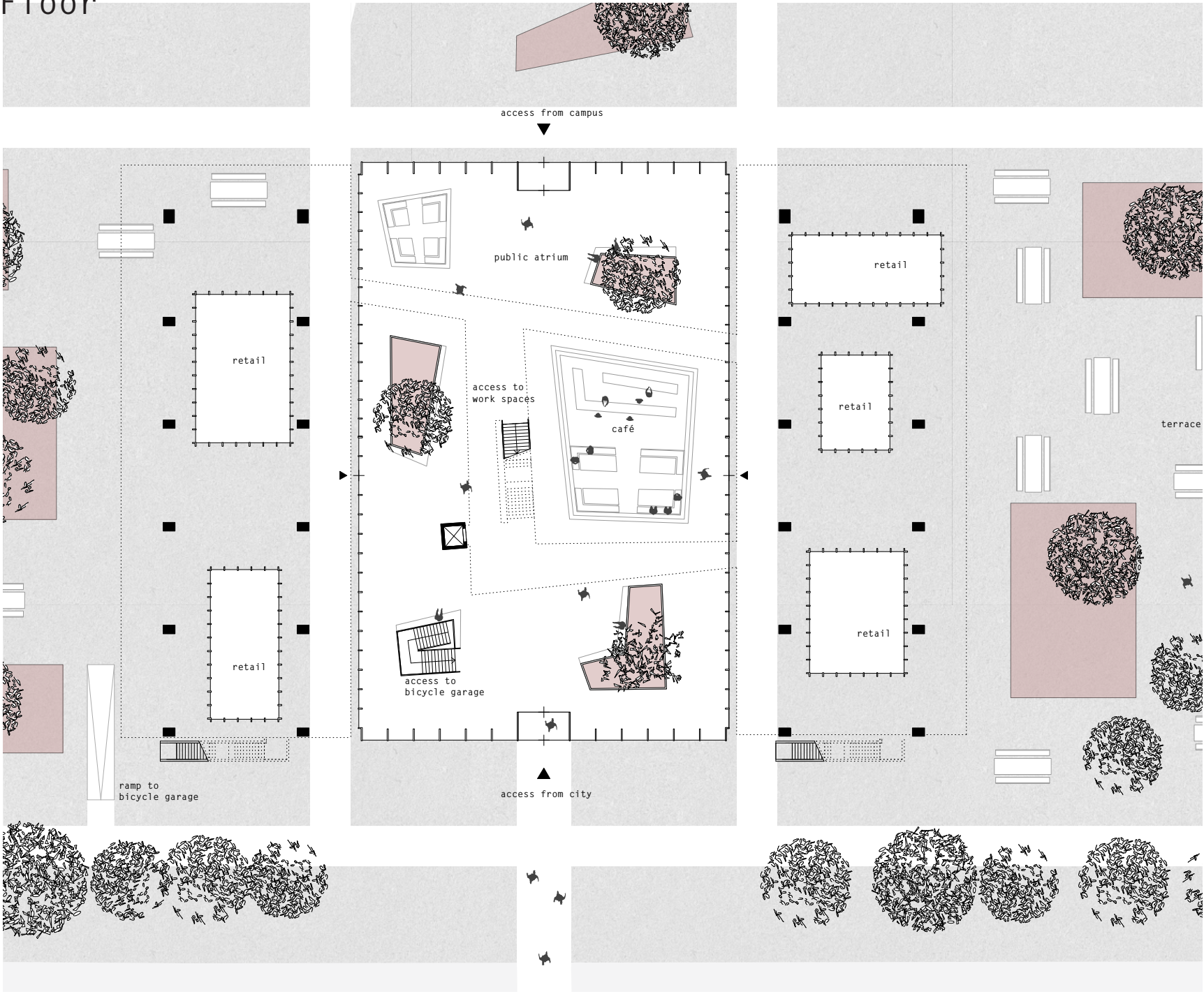
Terrace

Working Spaces

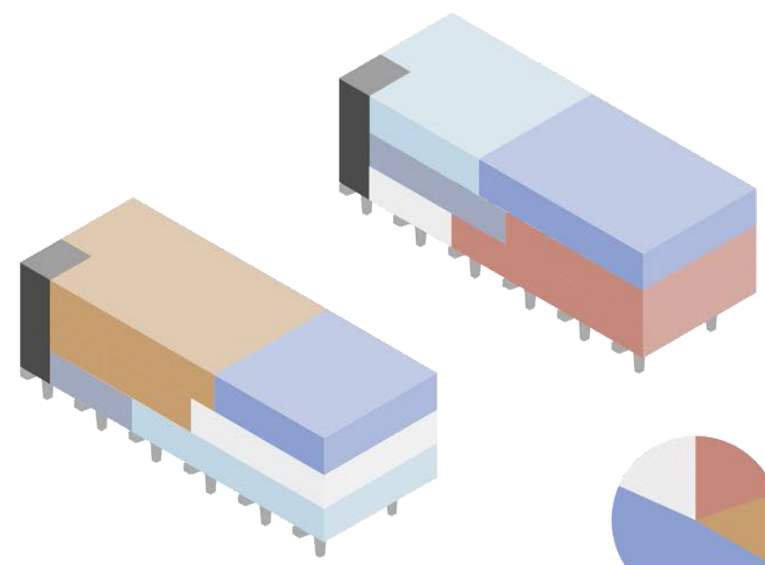
Public Atrium

Working Spaces

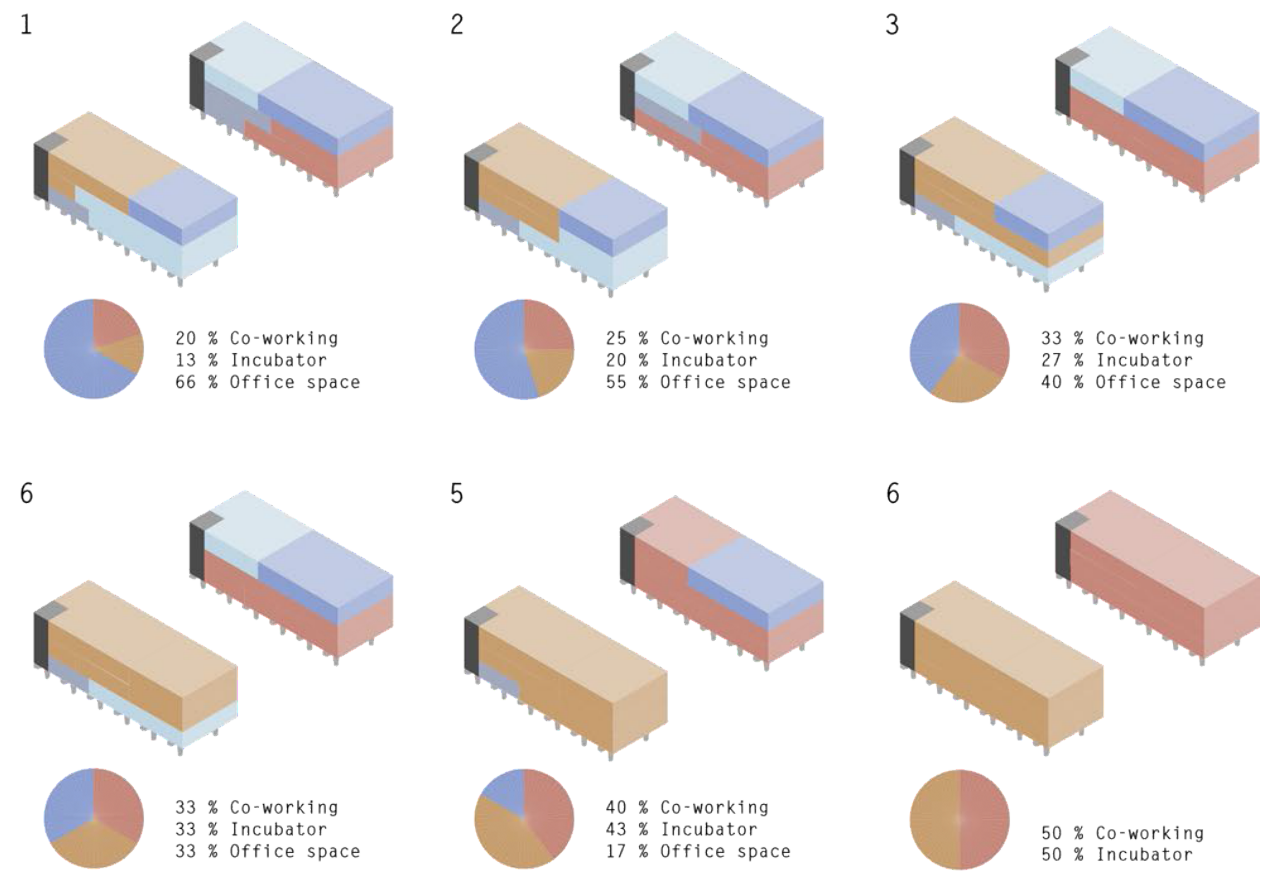
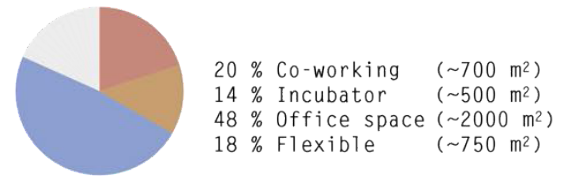
Terrace

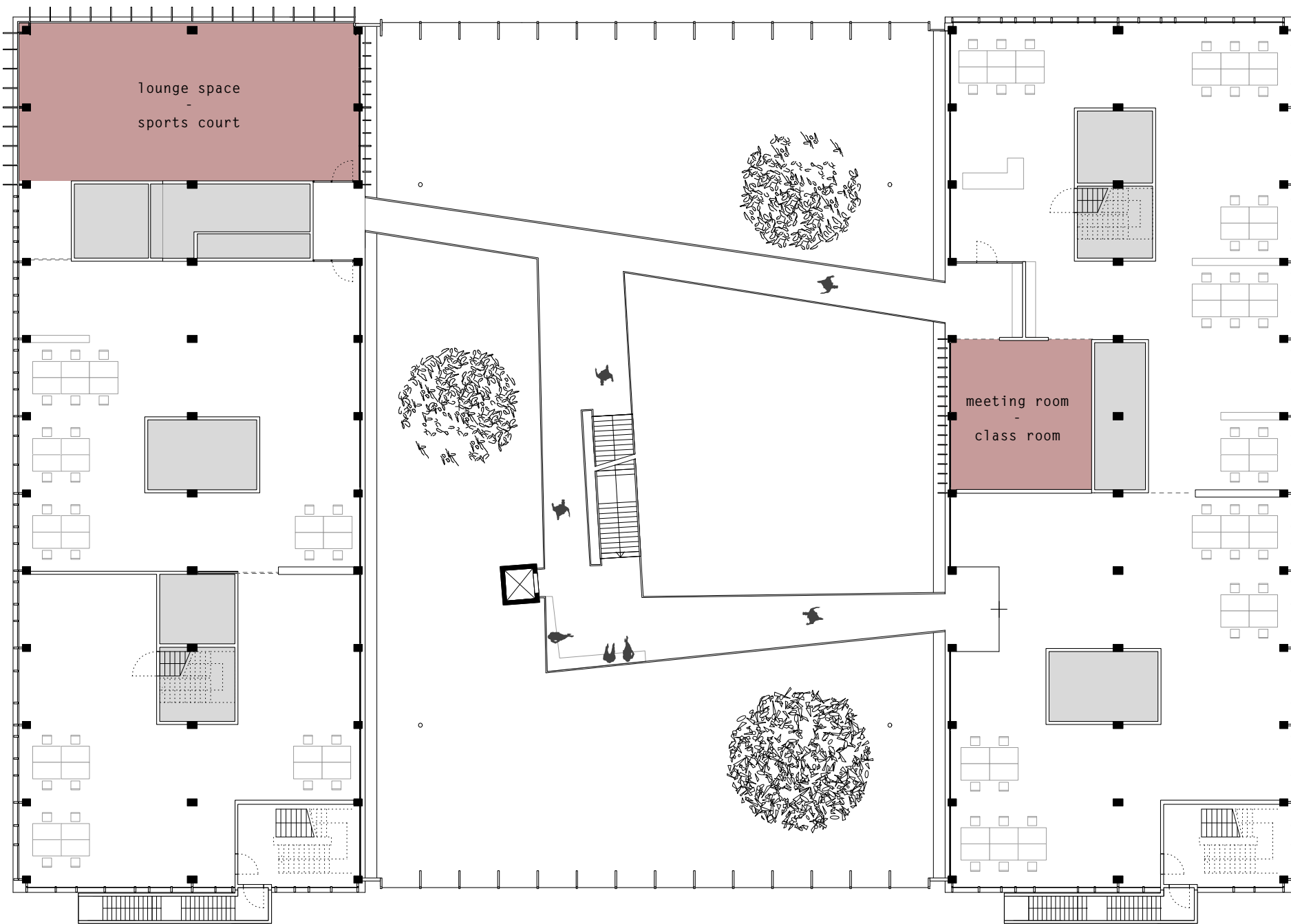


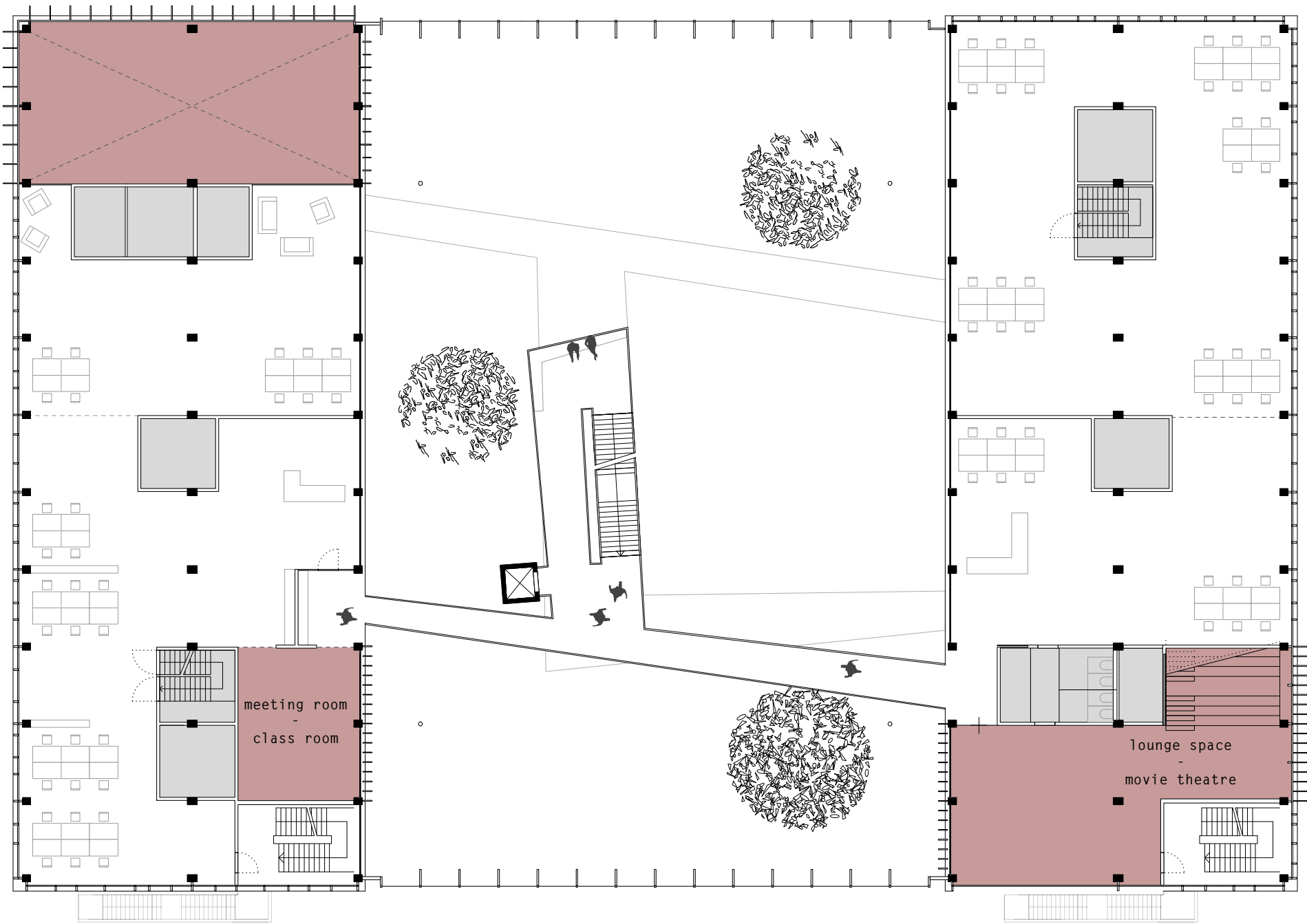
High Flexibility *to react quickly to changing users*

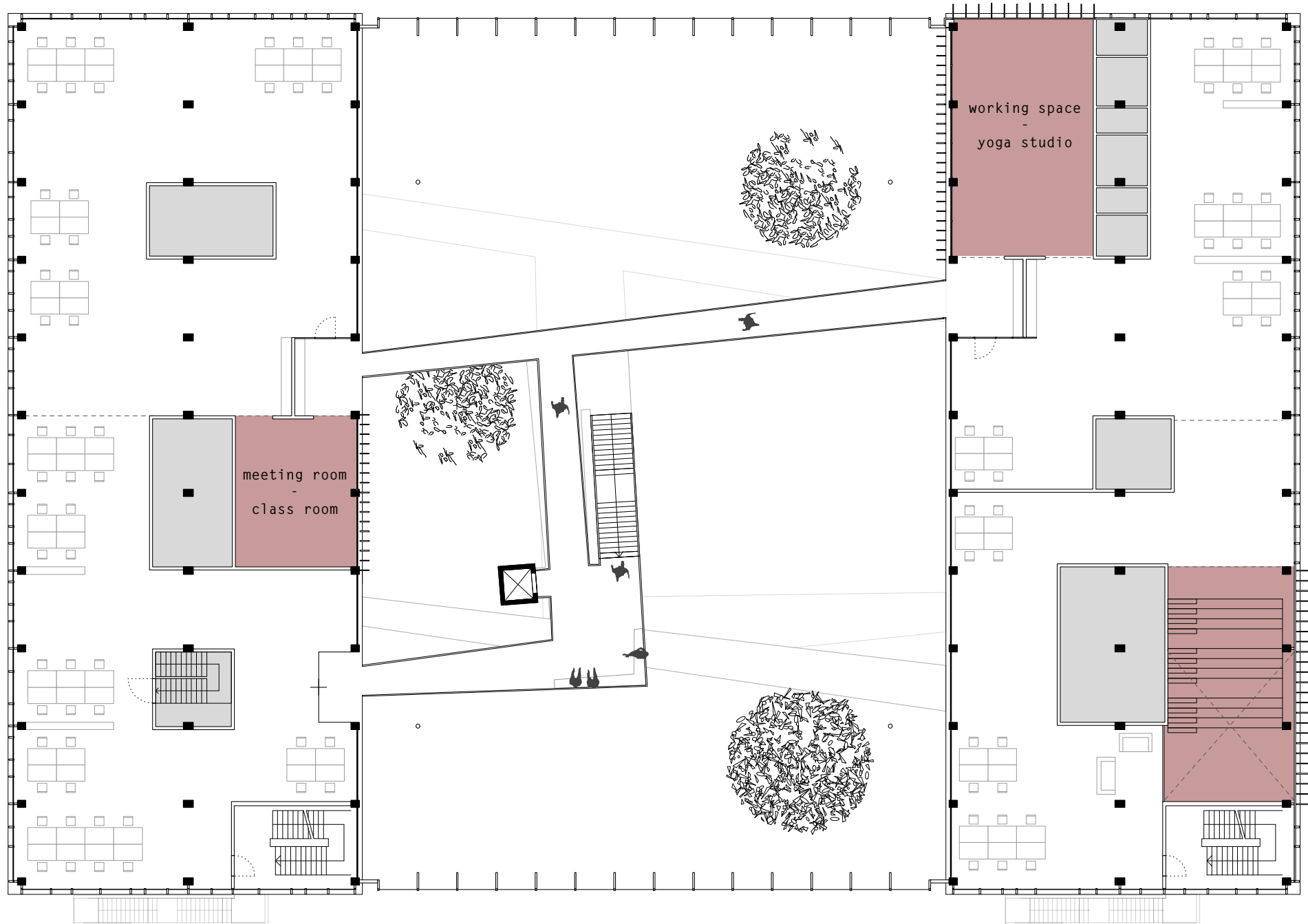


- Incubator space
- Co-working space
- Start-up offices
- flexible spaces







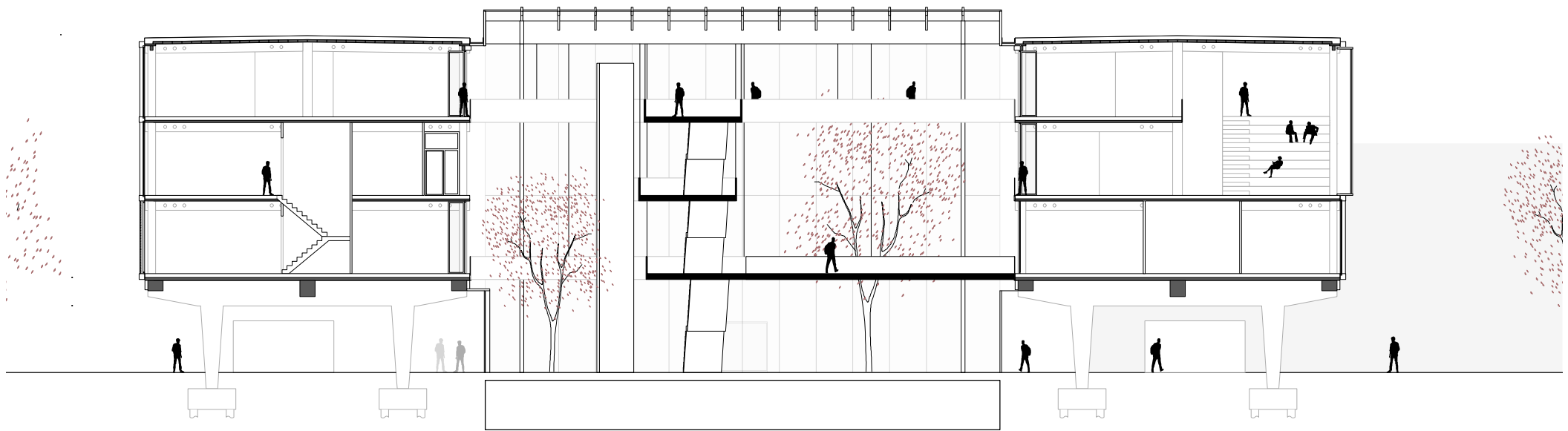


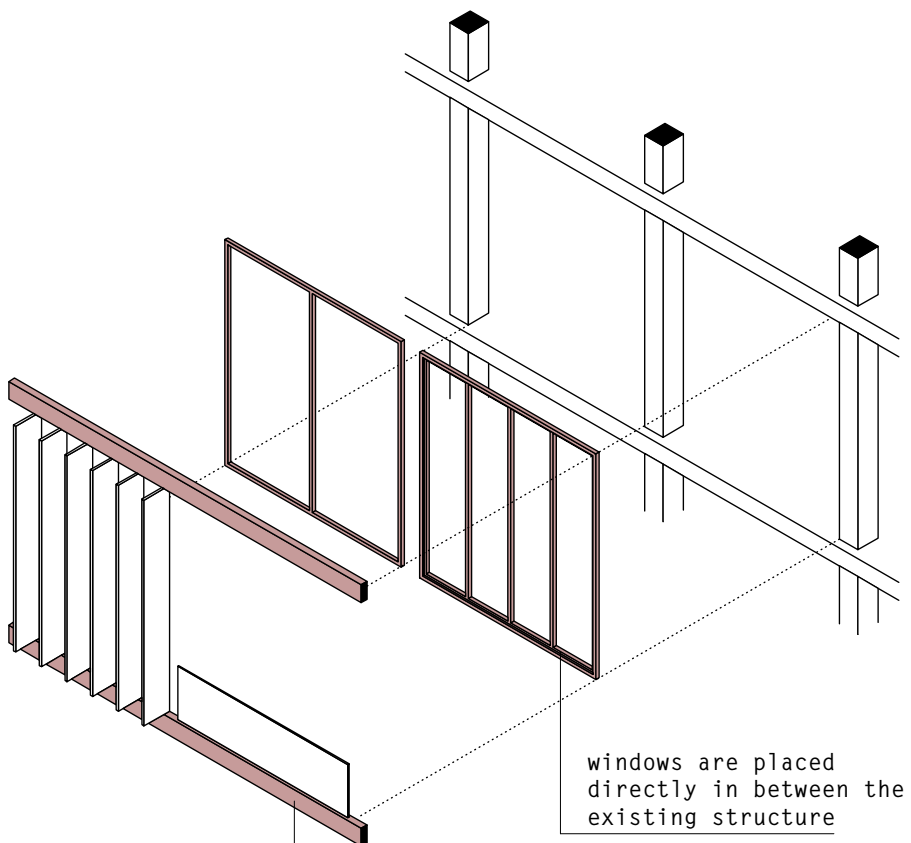






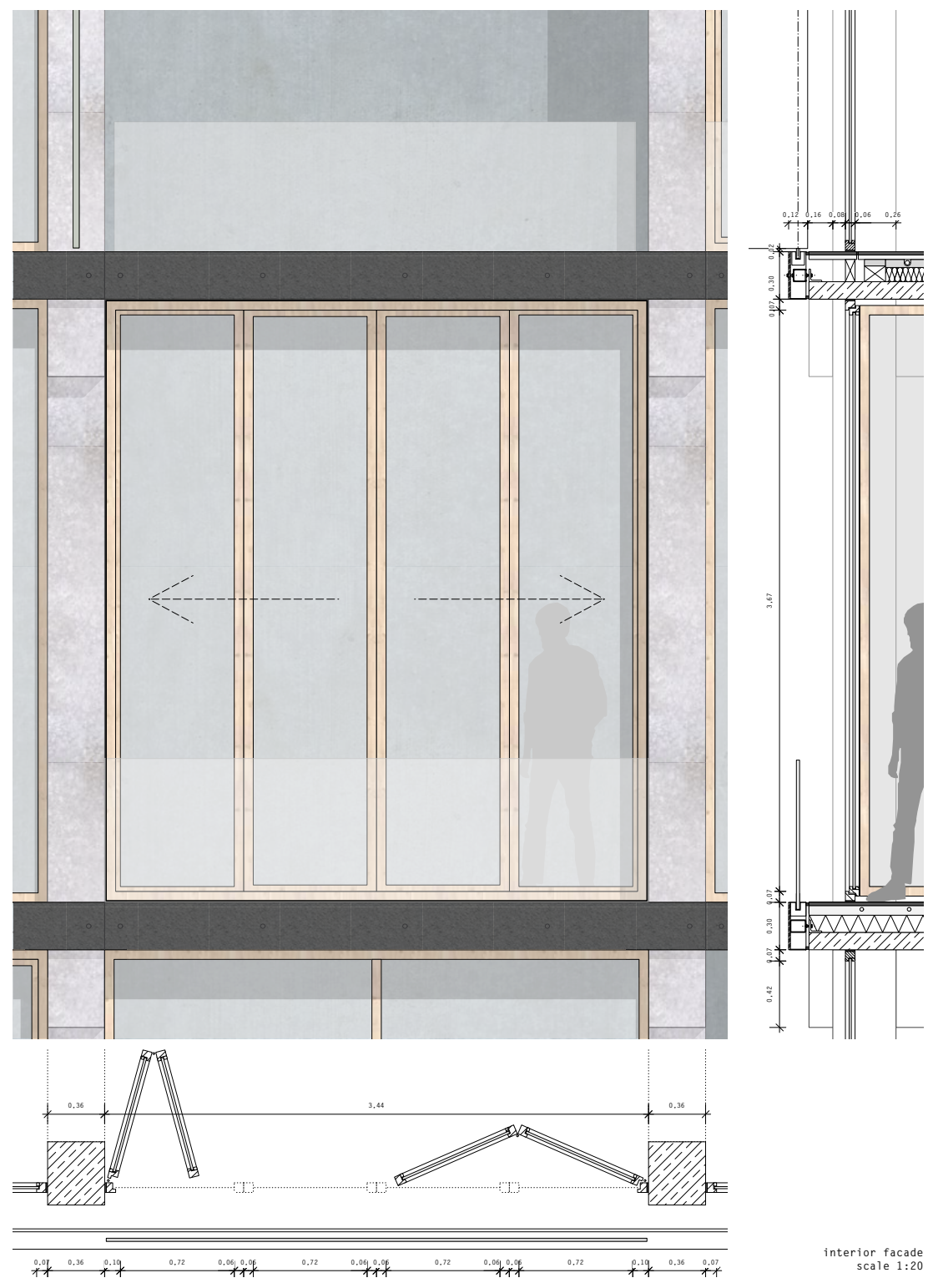
section B- B scale: 1:200

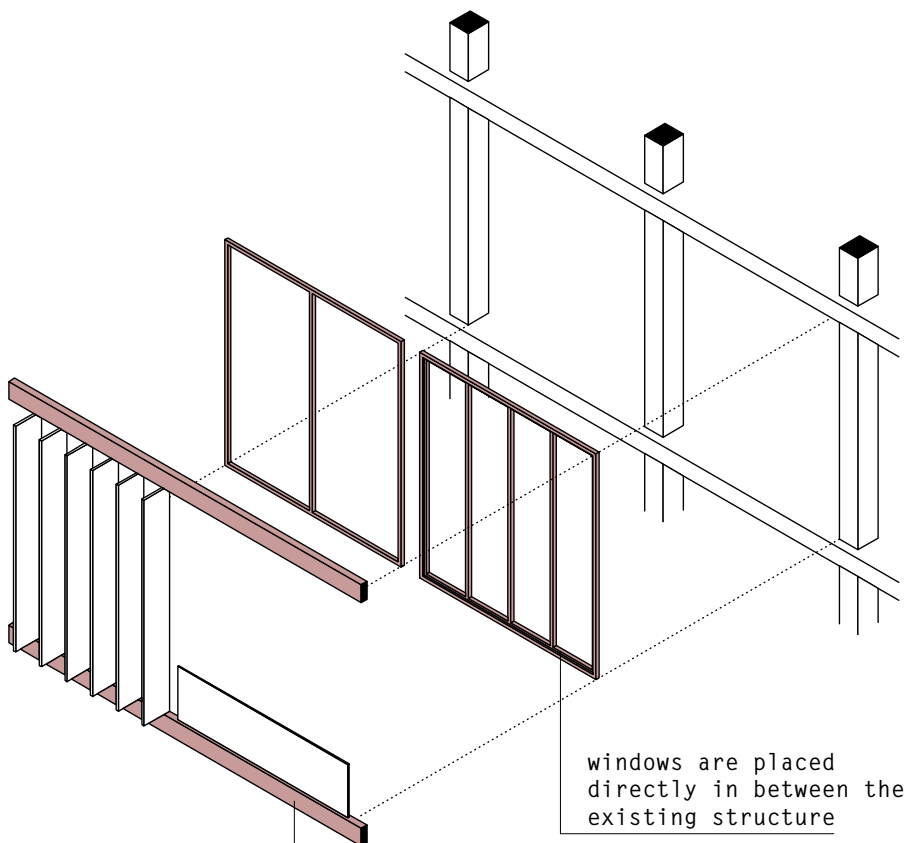




windows are placed directly in between the existing structure

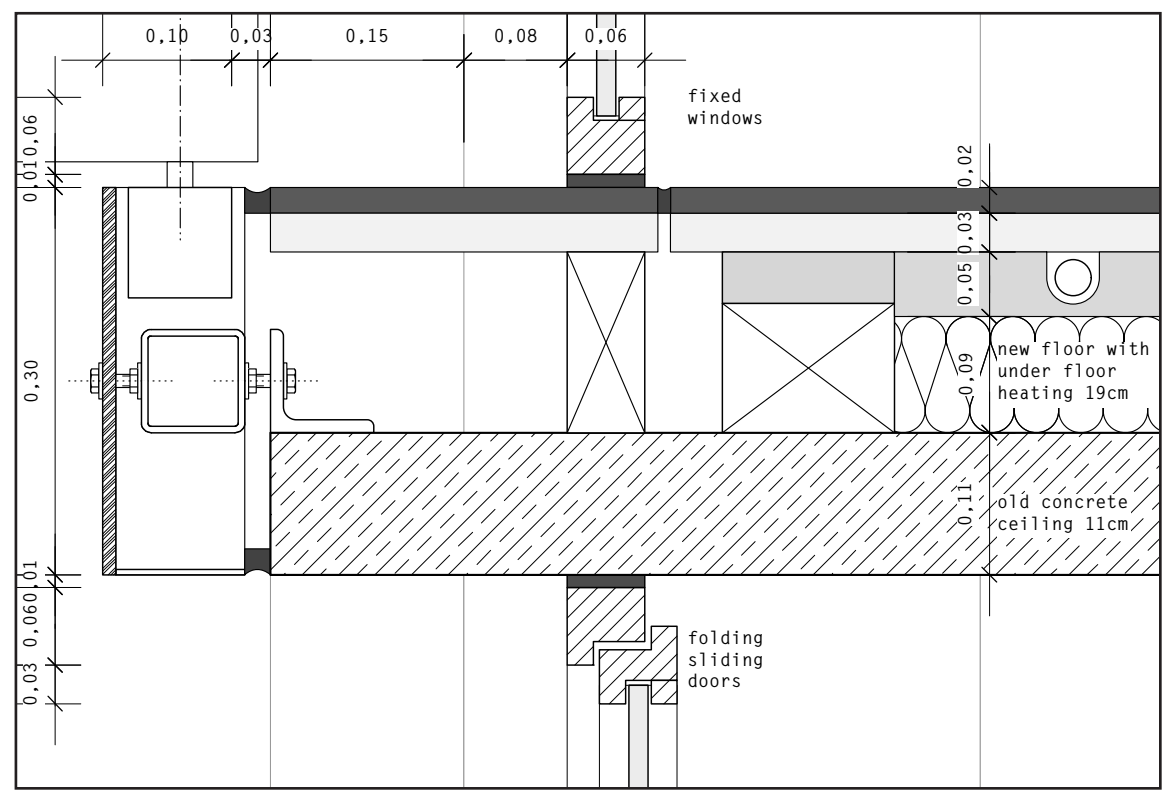
modular device to carry hand railings, visual screens, access bridges, etc.





windows are placed directly in between the existing structure

modular device to carry hand railings, visual screens, access bridges, etc.





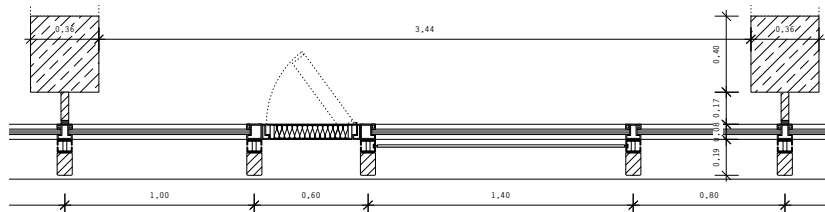
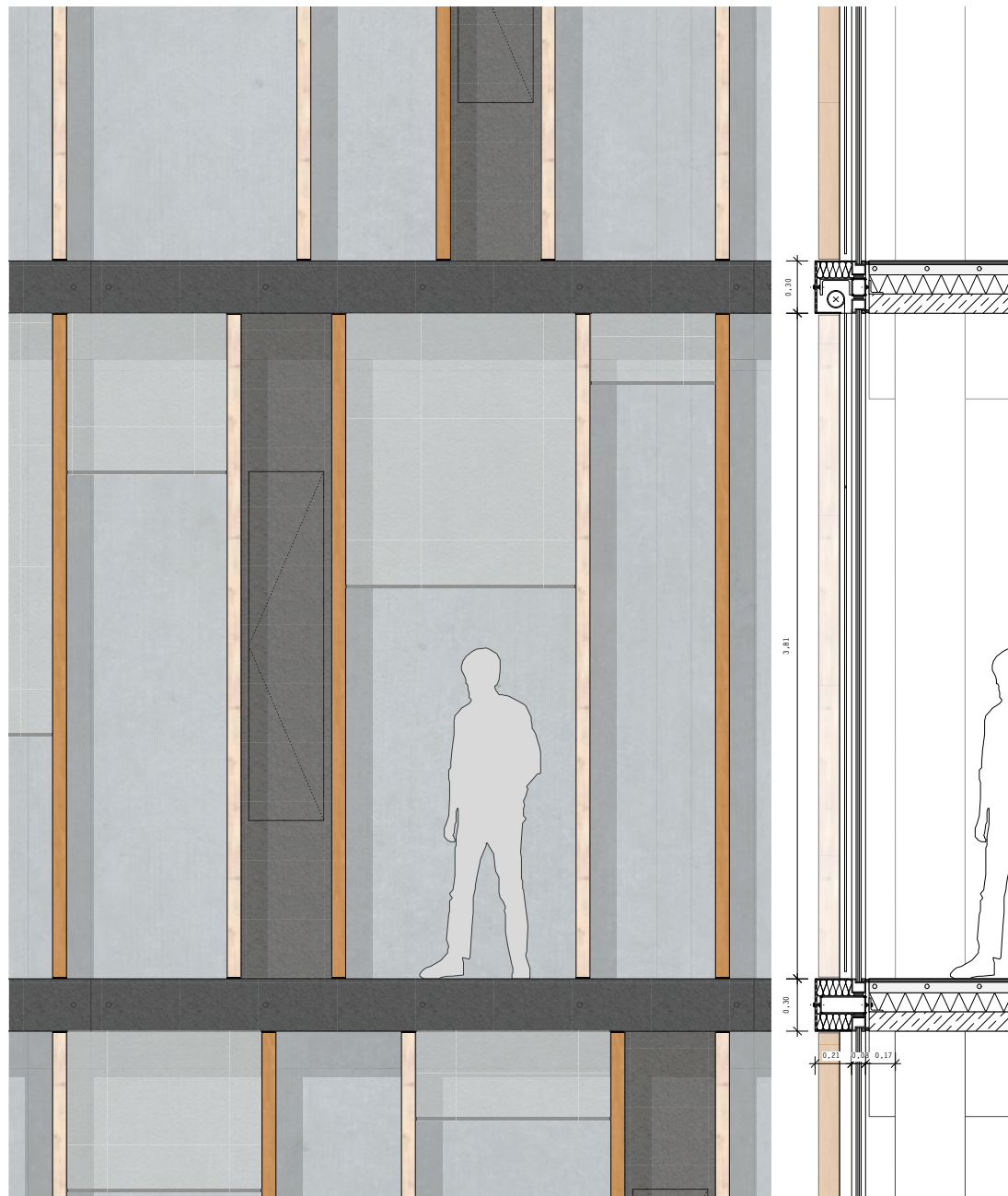
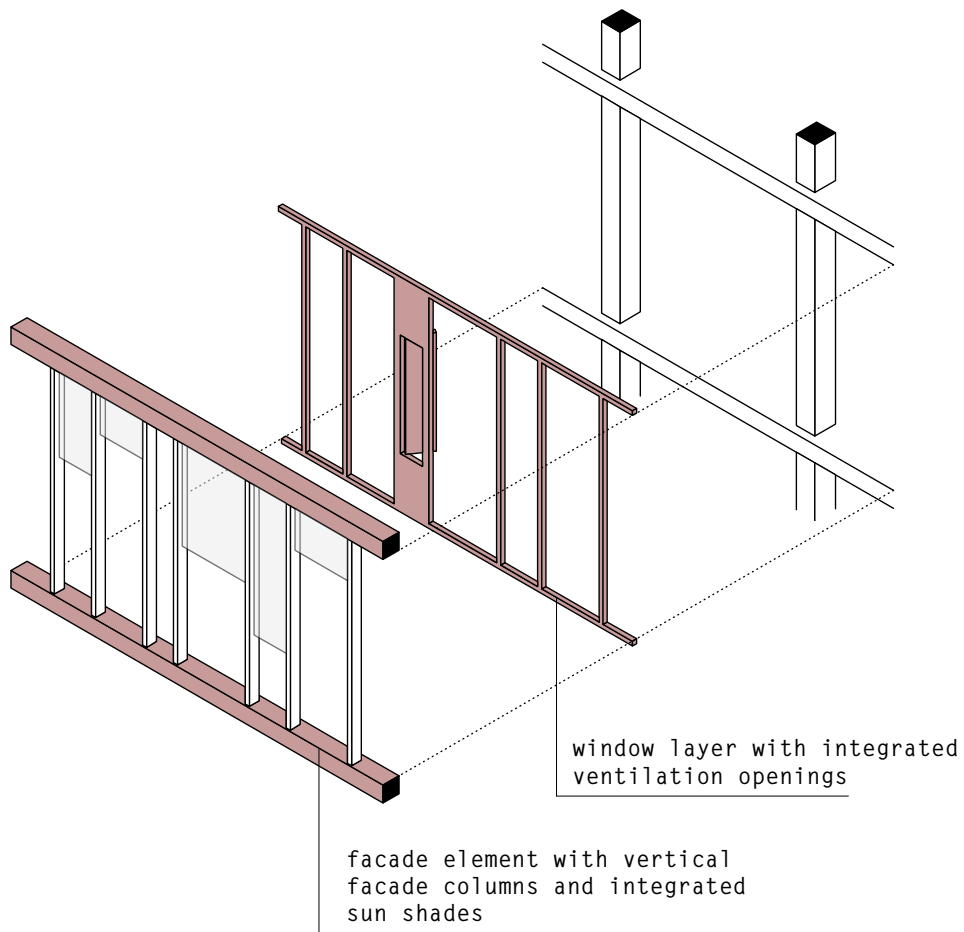


east facade scale: 1:200



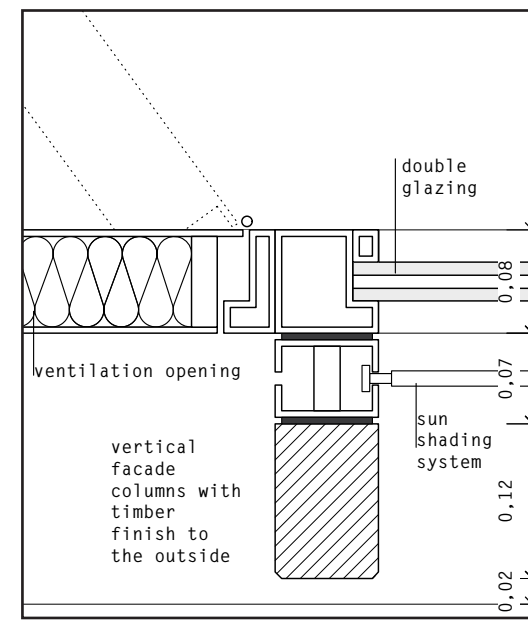
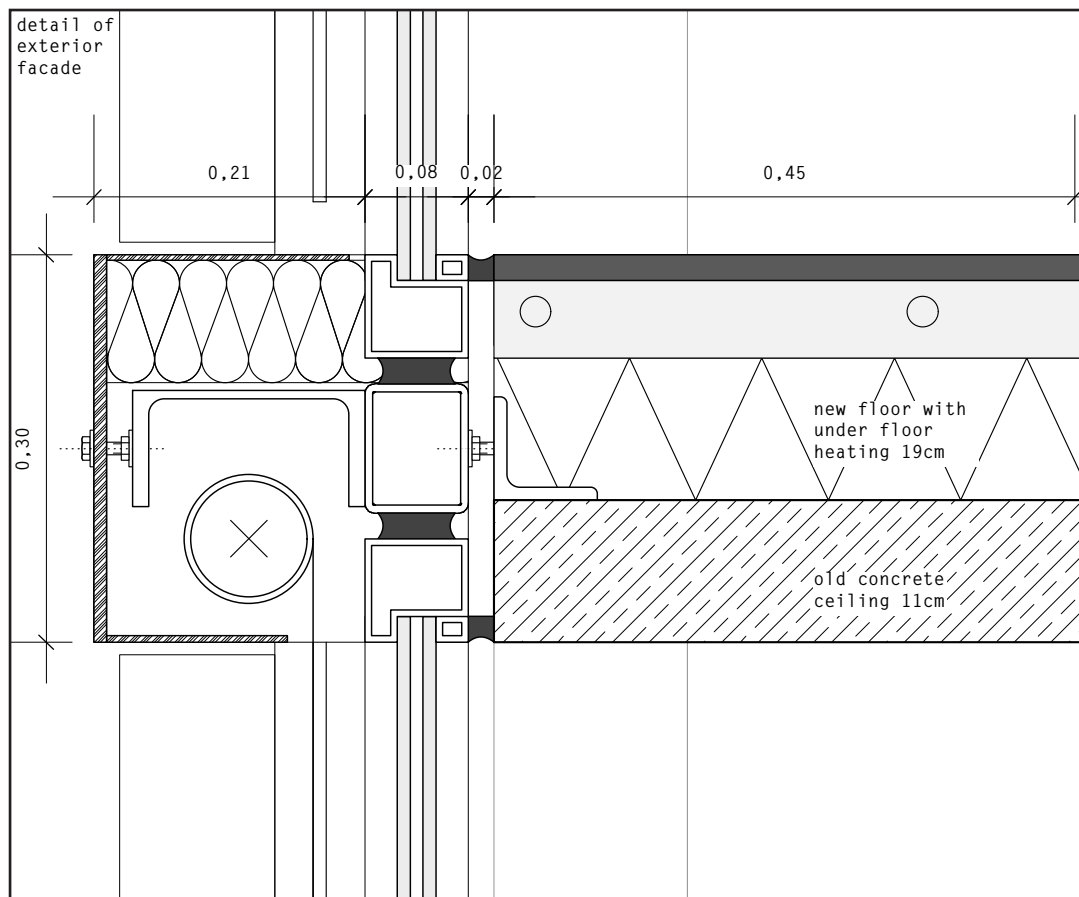
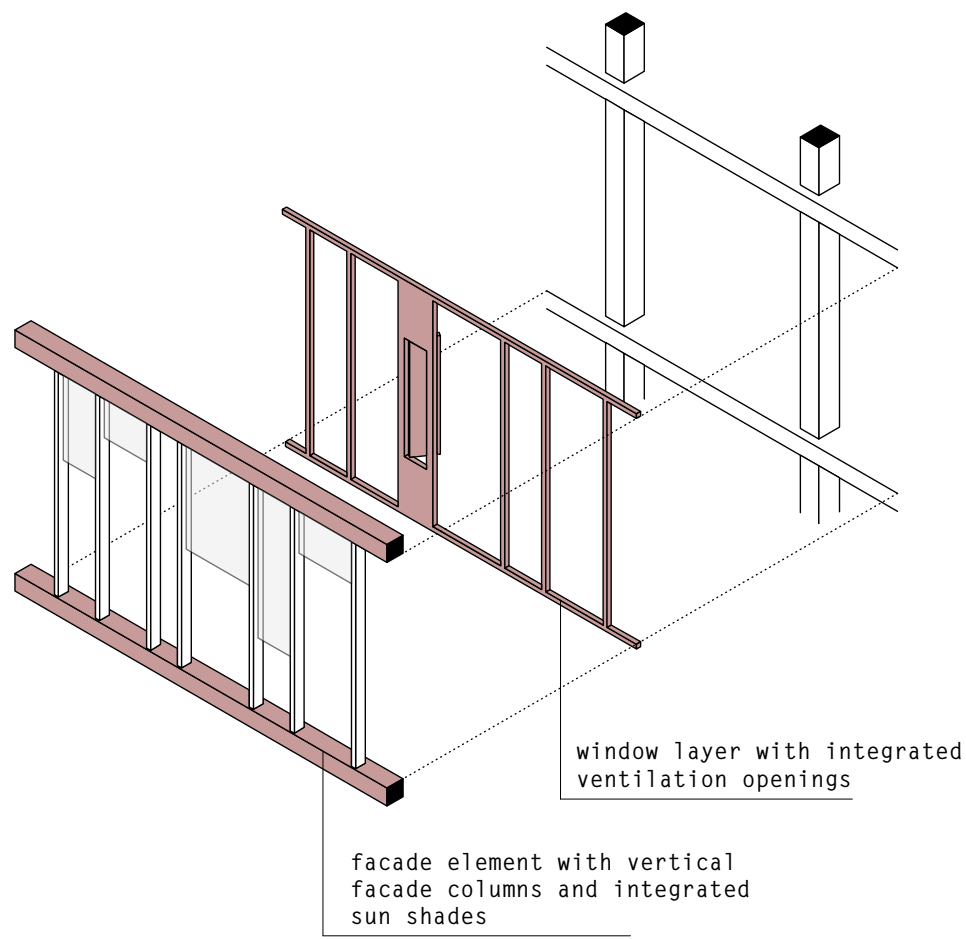
south facade scale: 1:200

Exterior Facade



exterior facade
scale 1:20

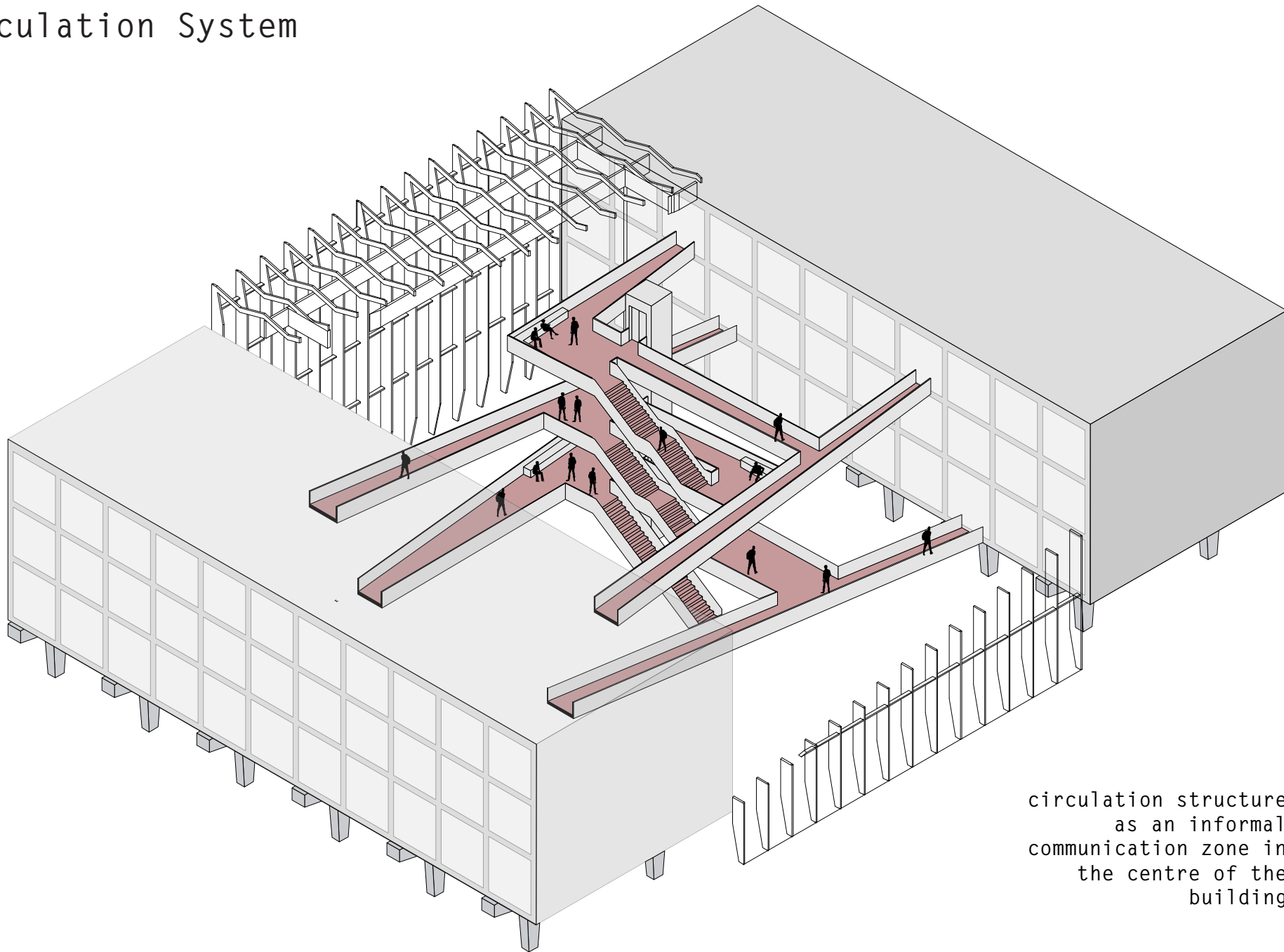
Exterior Facade





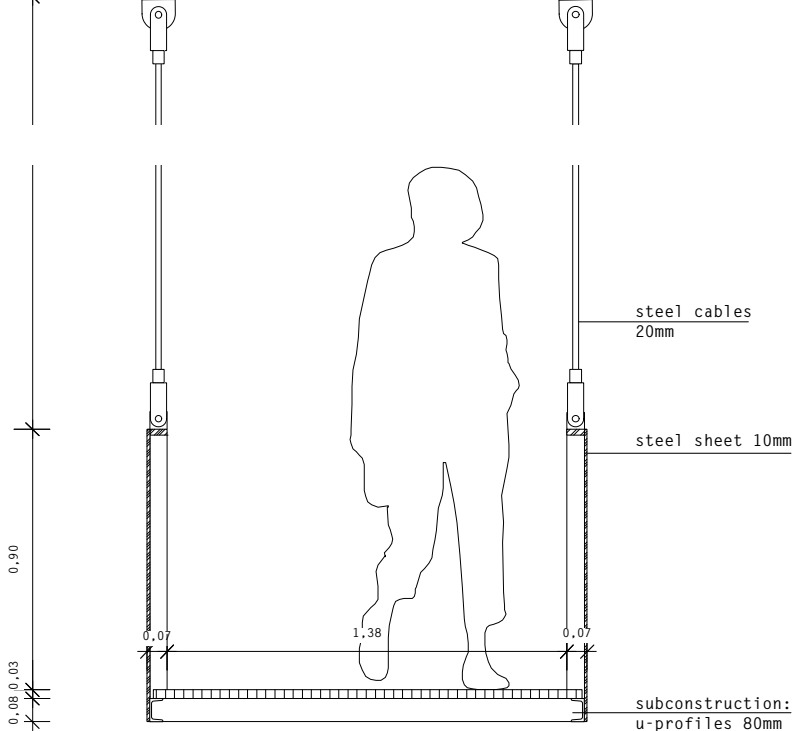
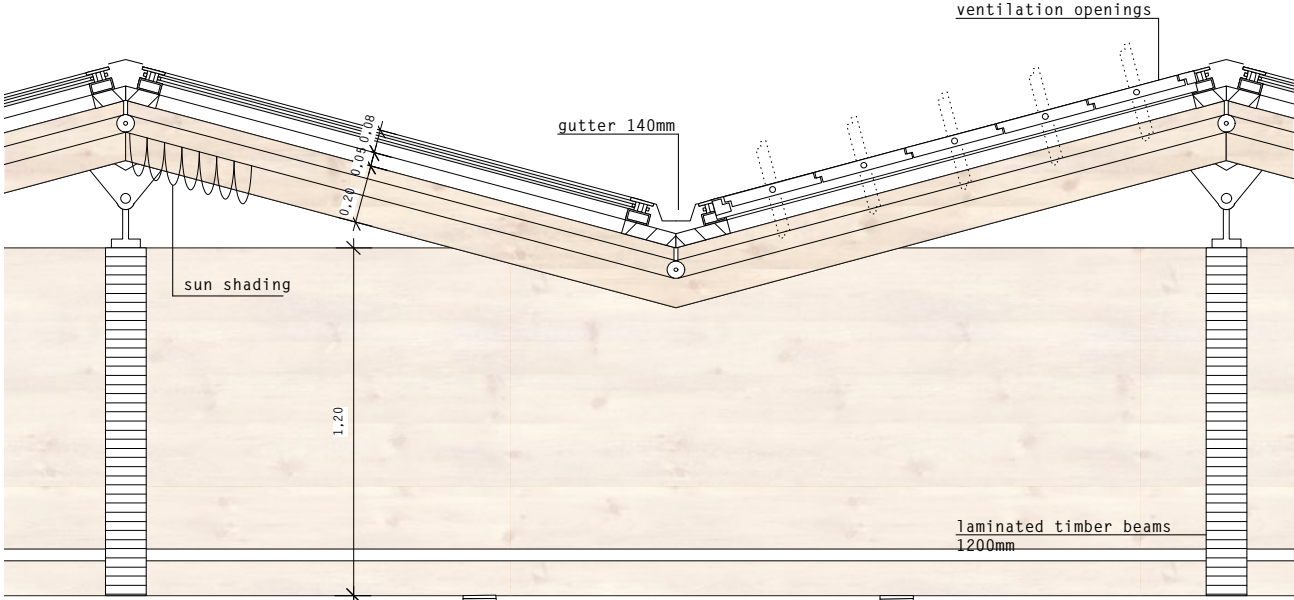
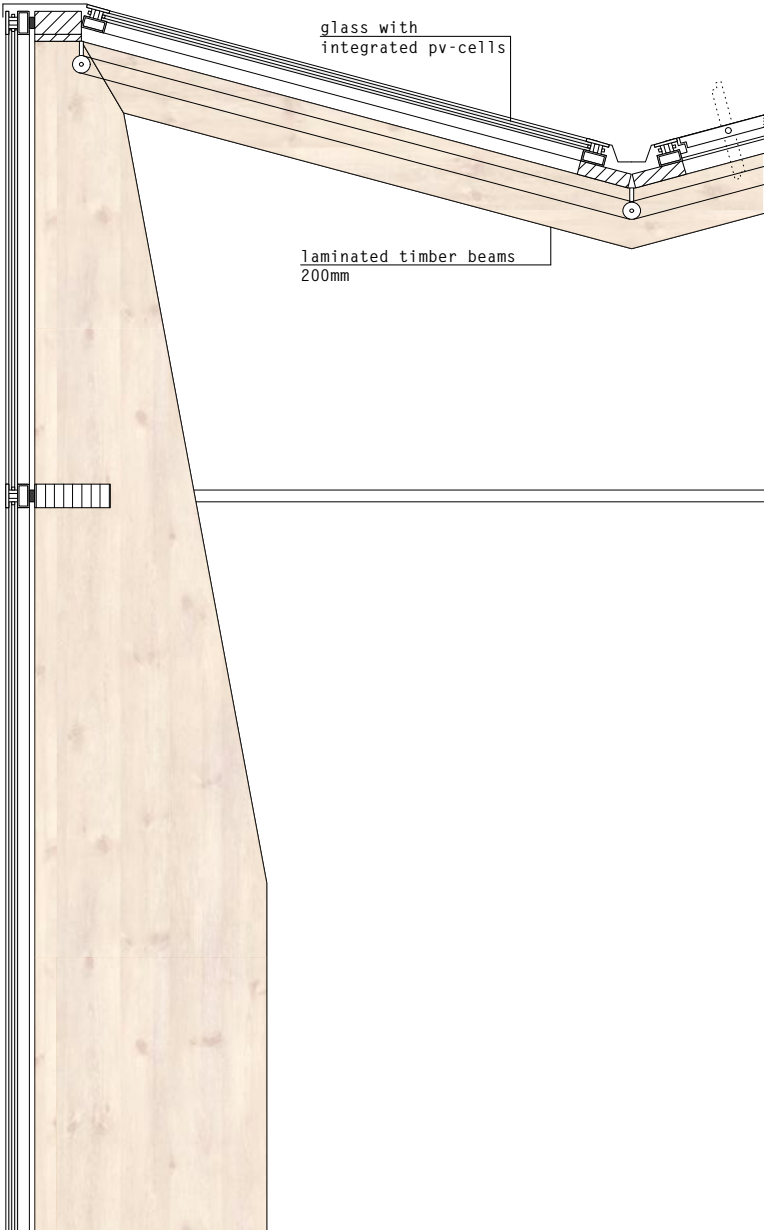
The Atrium is working as a Public Space between the two office buildings

The Atrium with the Circulation System

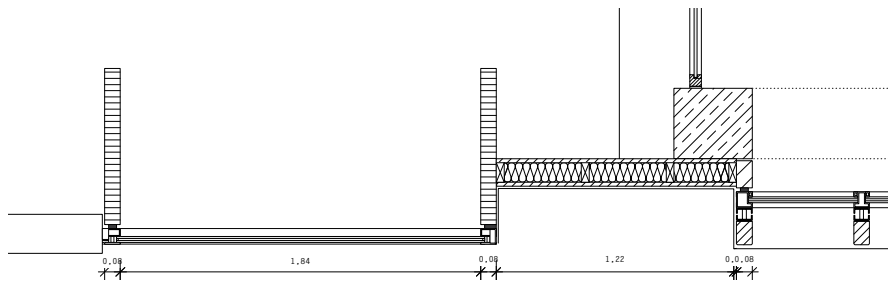
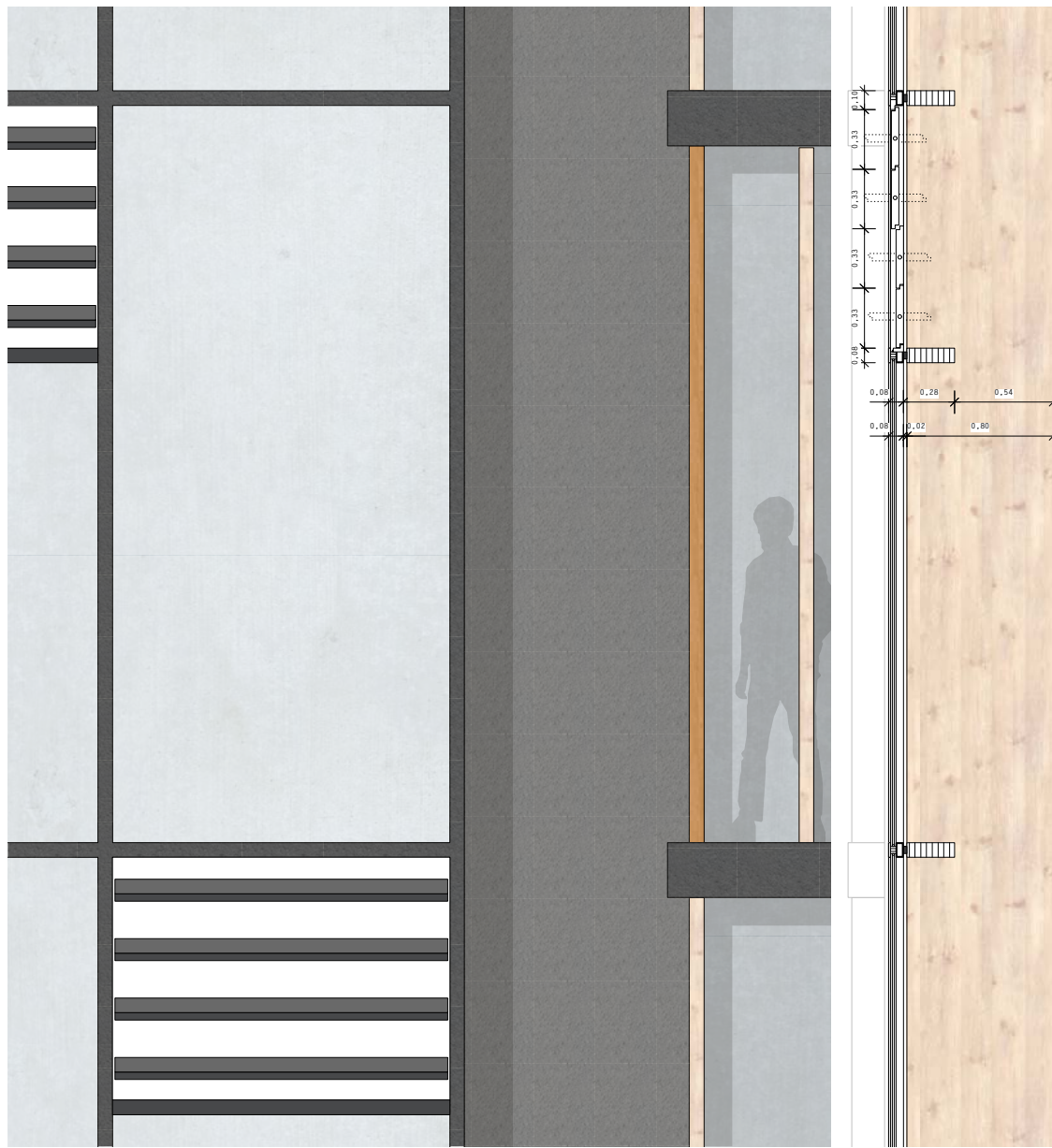


circulation structure
as an informal
communication zone in
the centre of the
building

The Atrium Roof

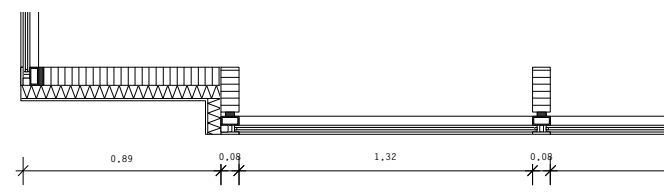
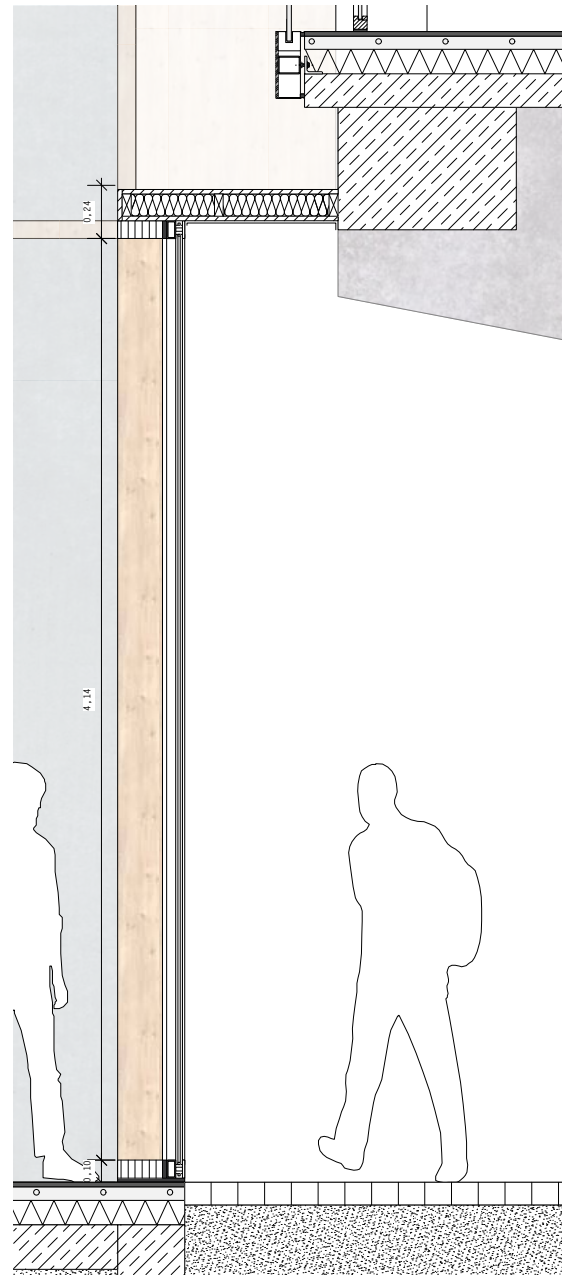
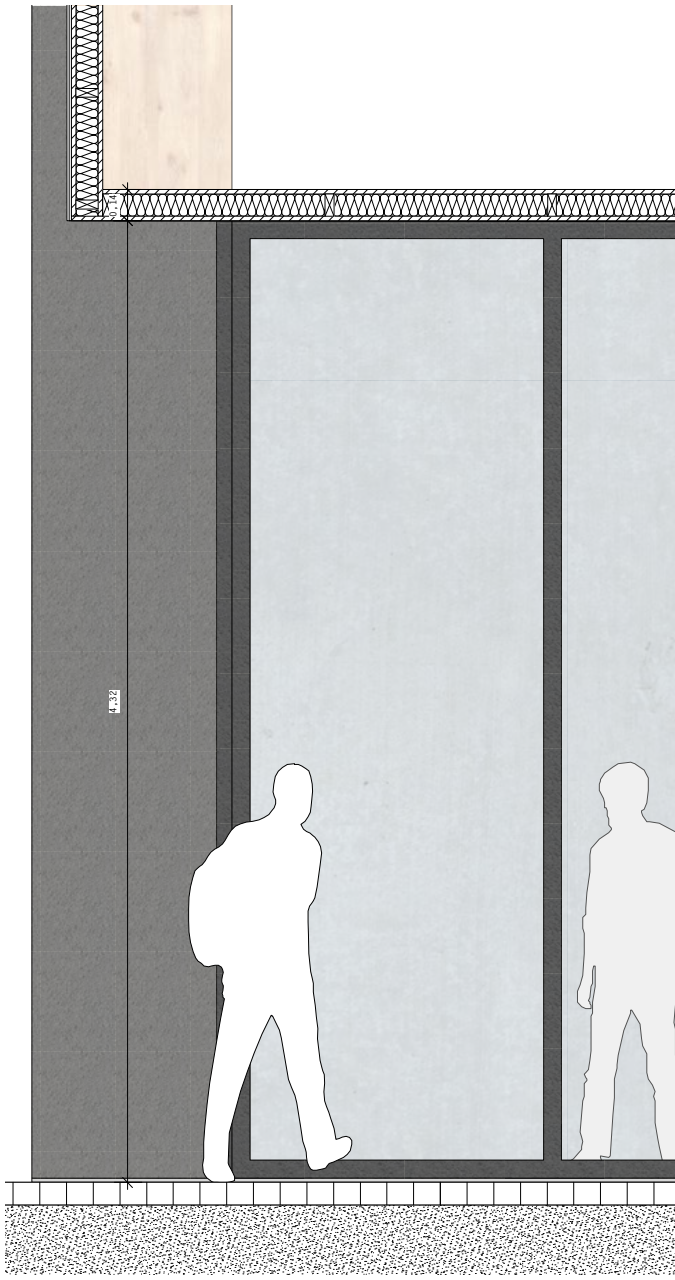


The Large Atrium Facade

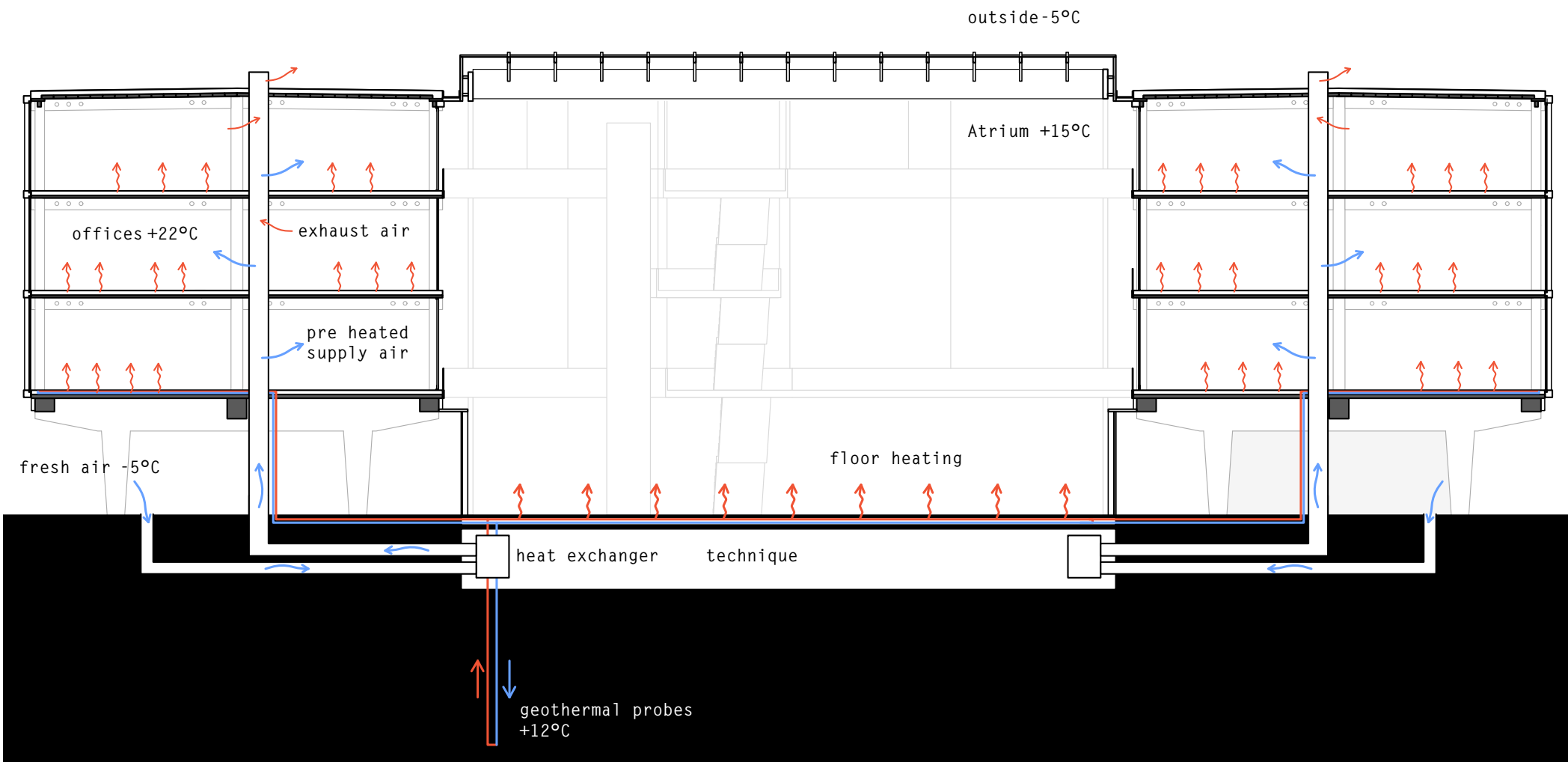


courtyard facade
scale 1:20

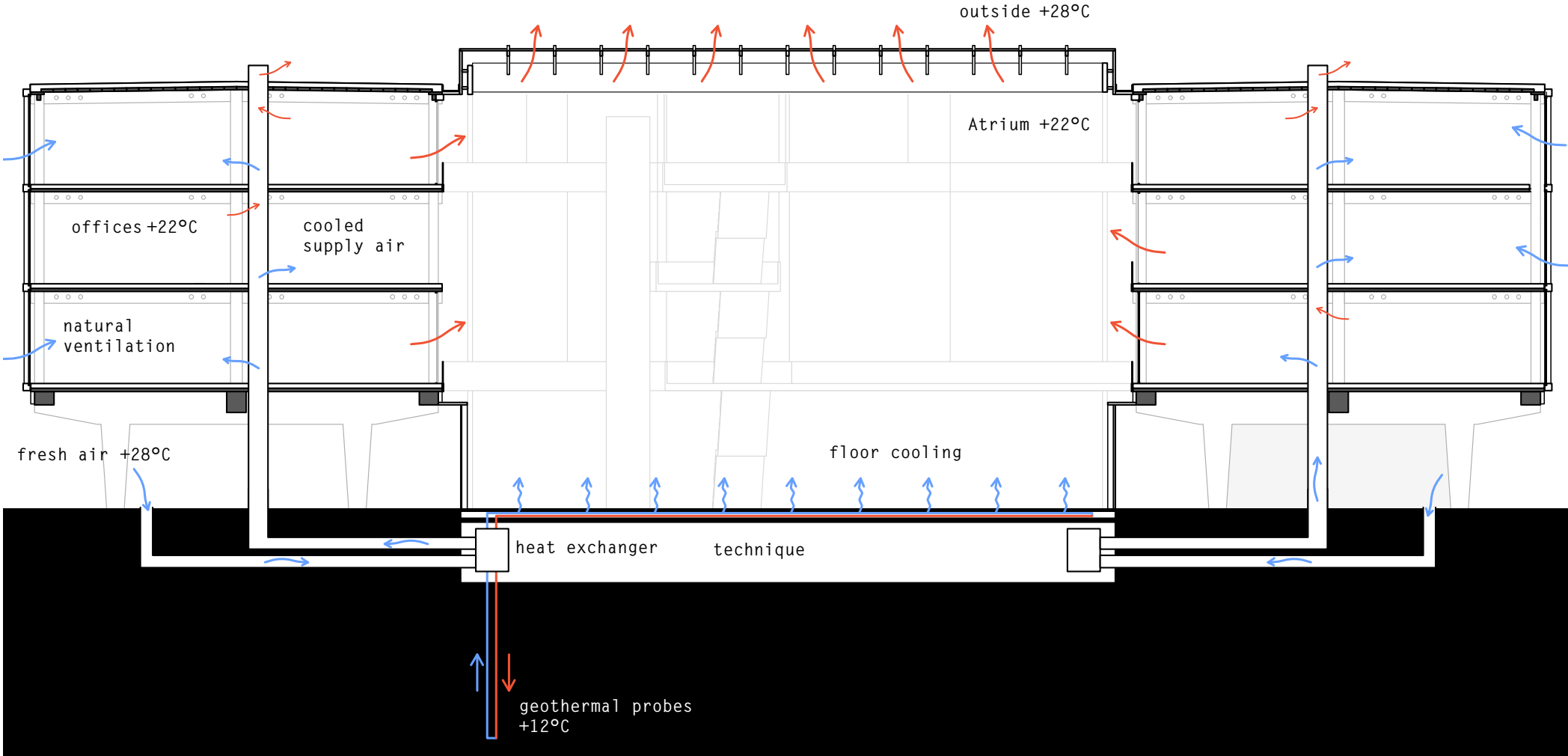
The Small Atrium Facade



Winter



Summer



Thank You!

