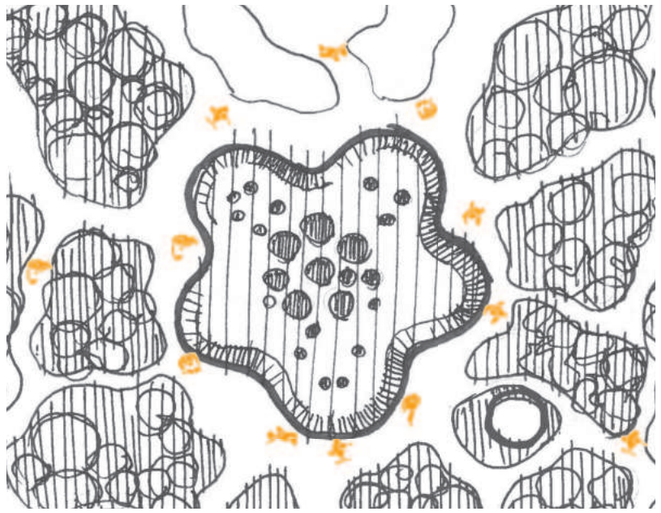
RESEARCH BY DESIGN JOURNAL

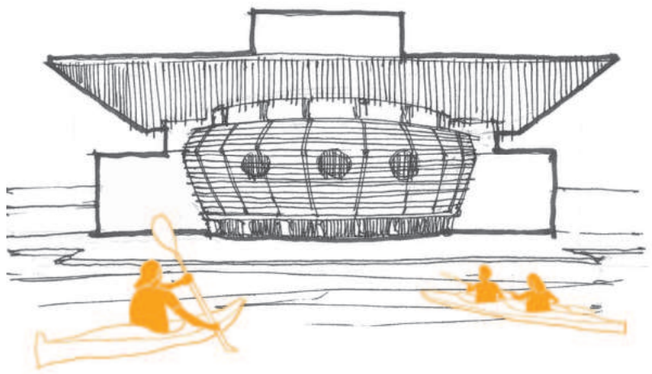
Alex Buijsman
5943086
18-06-2025

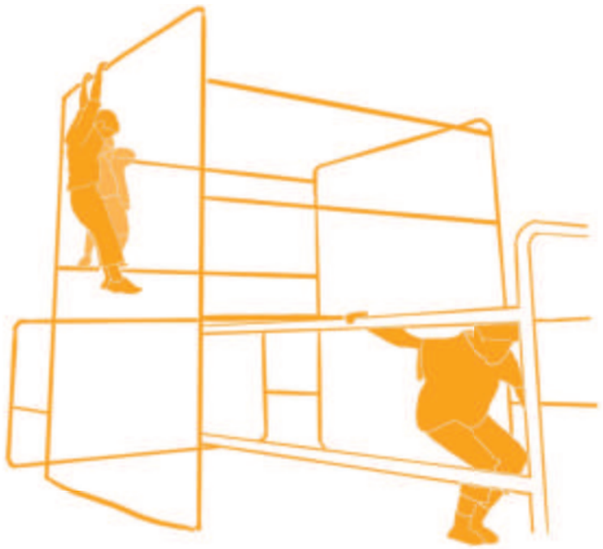
Reseach-by-Design Journal

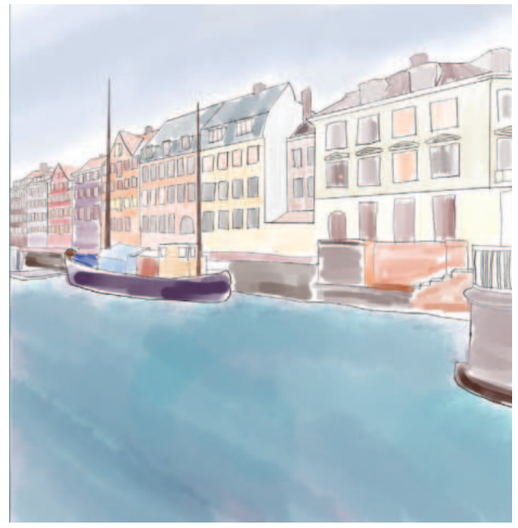
Design P1

The people of Kopenhagen. Kopenhagen is filled with exciting architecture and inspiring people. All these difference experiences inspired to draw the different interactions between these people. Ultimately resulting in a framework of exchanges

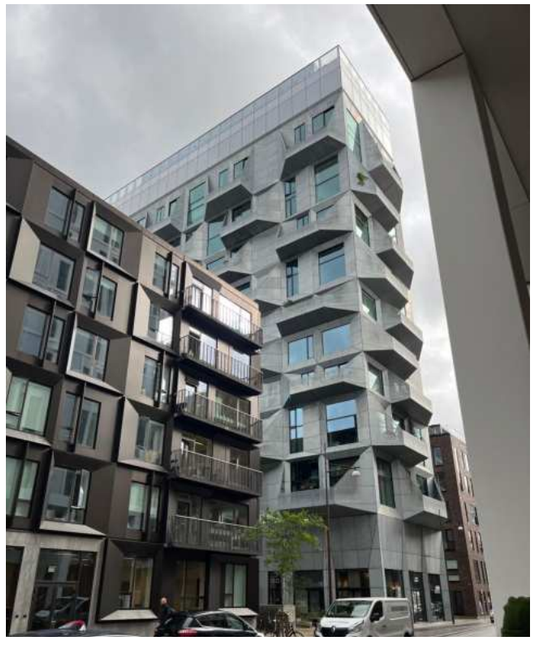


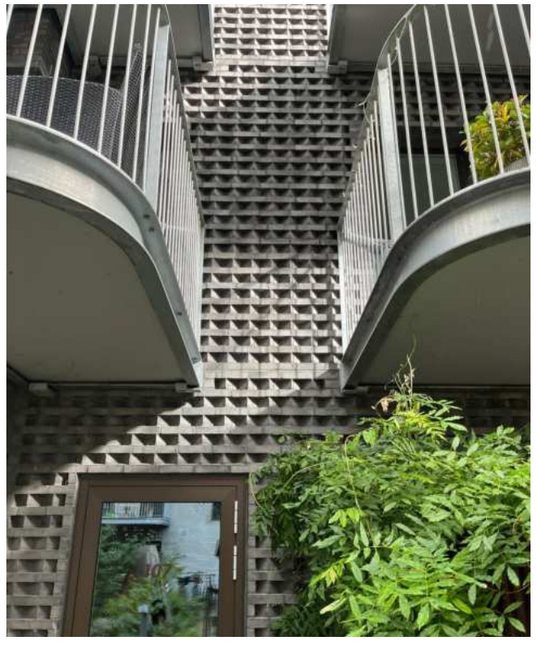


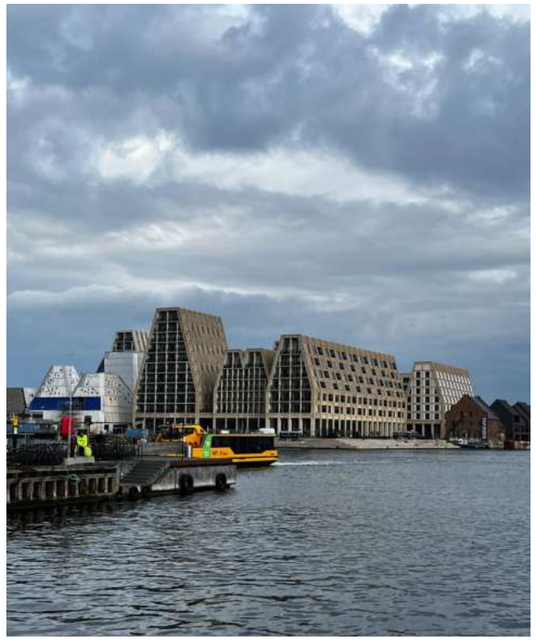




P1

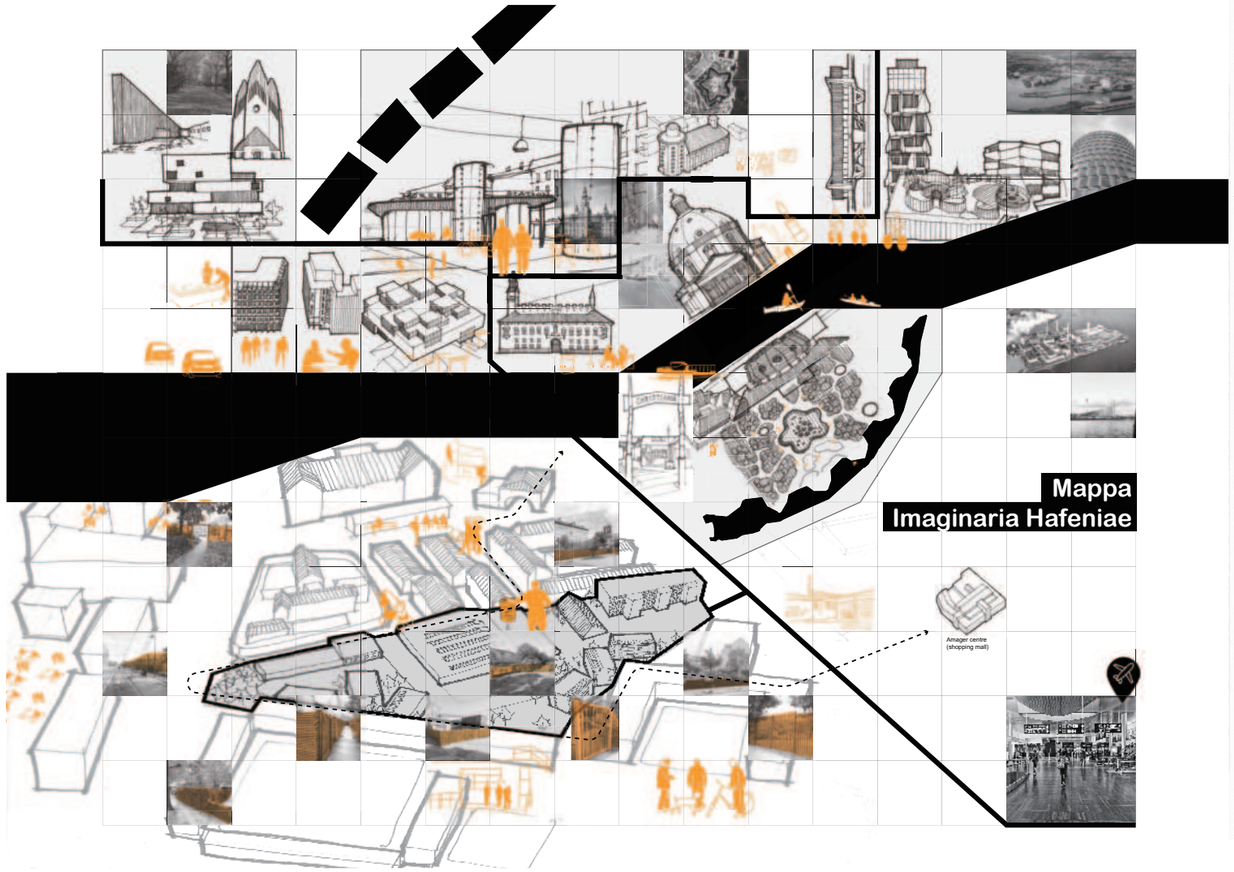






P1

Two of the concluding pieces of the research on both Kopenhagen and Sundholm itself, showing the intricate connection within this city.



PEOPLE

Denmark is believed to be the homeland of the happiest country in the world, despite their rather gloomy weather for the majority of the year. Danes, and in this instance Copenhagens, tend to cope with it in a very good manner, enjoying their life to the fullest, yet in a modest way

This poster is a sum-up of the research about people of Copenhagen and focuses on four main aspects: Society - how is it built and what are the main tendencies, Hygge - the danish term describing the coziness and social tightness, Play - how the Danes tend to spend their free time and Work - what is their approach to it?

HYGGE

intimacy, trust & authenticity > consumerism, competition & material abundance

- 'making do' remain valued despite material abundance - incompatible with excessive consumption or extravagant lifestyles
- means of social control - middle-class perceives it as essential cultural element & criticizes the upper-class for lacking it
- associated with simplicity, comfort, and a sense of warmth, frequently experienced at home but not limited to it

*"Hygge encourages interactions that are **informal, authentic, inclusive and close-knit**, creating a protective social space where people feel **safe to express themselves** without judgment. It promotes **bonding over shared experiences,** particularly in smaller, familiar settings like homes, cafes, or public parks."*

PLAY

- Copenhageners love to Exercise, Relax, and Go out
- Weekends are for flea markets, food festivals, and fresh air by the canals
- Green spaces are the city's living rooms, where people meet up and hang out.
  Copenhageners know how to turn a quiet harbor into a vibrant summer hangout.
- "For Copenhageners, 'play' means being outside meeting friends by the harbor, at a café, or enjoying local sports. They'll party through the night, yet cherish quiet moments and time to relax."
- 53% of the youth exercises on a regular basis

SOCIETY

- 661.000 people, 1.1% yearly increase. 23rd in Europe
- 325.000 households, increasing
- citizenship 50% danish, 12% western, 5% non western
- 49% men, 51% women
- average density 7254 people / km2, increasing. 46th in Europe
- as of 2023, 44% of Copenhageners are single—reshaping the definition of community
- Diversity at a glance: 25% of Copenhagen's population has a multicultural background
- Copenhagen: A city where 63% of people cycle daily—shaping public space dynamics
- 60% of Copenhageners use public libraries—emphasizing the importance of shared civic spaces

WORK

- arbejdsglæde – from "arbejde" the Danish for "work" and "glæde" from the word for "happiness" - it literaly means "happiness at work"
- With an average of just 34 hours working time a week, Danish people can achieve work-life balance easily
- The Danish *Flexicurity* model based on a long tradition of dialogue between employer associations and labour unions makes Danes more open to globalisation, they feel confident that if one job disappears, another is likely to arise in its place
- flexible labor market has made Copenhagen more appealing to investors and developers, it has also fostered a model of state-entrepreneurialism. This intersects with local socio-environmental policies, creating a subtle, selective process of neoliberal control over the poor.
- In Sundholm, where public space is scarce, tensions between vulnerable groups and the middle class are heightened, reflected in the fences and walls that divide the neighborhood.

Jing Ge
Alex Buijsman
Puria Mosayebi
Mikolaj Chmiel

P1

A conclusion on the point of departure for the view on hybridity, the angle that has been taken for the project and the first research questions.

HYBRIDITY

The user plays a key role in determining how a building is utilized. However, architecture can target hybridity and connection, and with that stimulate certain behavior. This does not mean that the hybridity that the building provides is used in the way that the design proposes but can influence the availability and the possibility of the use of hybridity.

Sundholm is an area that has to be treated with respect. Many different groups can be found on a small surface, some of which do not connect well with each other. Think of groups with different cultural backgrounds, (low-income) families and drug addicts or just groups with different opinions. Although hybridity is something that should be stimulated, you would never put two dominant dogs opposite each other. Instead, you first let them get used to each other. The public building in this case being the defuser between these groups.

Building wise, this means not to let them interact on all, but on certain levels. Dividing certain functions and groups and between them create common ground, a place where they come together. Through architectural design, such as different lines of sight and transparency these groups already know of each other's existence inside of the building and in that sense, get used to (and be comfortable with) each other. At that moment a better connection can be made on the common ground.

This does not mean that all groups clash. Some can be connected more easily. Within these groups, a fusion even can be made. Think of the young generation (students) teaching the older generation how to use new technology or the older generation teaching children discipline, confidence and respect for older generation and each other through the art of boxing or fitness. Even a more vulnerable group like the homeless people could be connected by creating a workshop in the building that can repair bicycles or other products relatively cheap for the low-income families. This is not a direct or hard connection, but something that creates respect between these groups which is the first step towards a better understanding and thus a step towards a community on a larger scale.

Encouraging respect through exchange, sightlines, transparency and with that hybridity, can be the first step to a vibrant community with an interplay of different cultures, ideas, and experiences. The emphasis not being on forcing these groups to meet, but giving them the opportunity through architectural design. Only using transparency can already create more understanding between groups. Creating points of connection will further that goal.

Overall, In a place like Sundholm, hybridity in the public realm will be a place to bring people together not by forcing connection but by giving the upportunity for interaction on multiple levels, starting at visibility. Its up to the different users to then decide what and when the next step will be and up to the architect to provide it.

QUESTIONS

MAIN QUESTION

How can architectural design contribute to the feeling of safety and comfort, and with that create a safer environment for its users?

SUB QUESTIONS

How can social control be stimulated through architectural design?

In what ways can lighting design be optimized to improve both real and perceived safety and comfort?

How can urban architecture address the needs of diverse user groups and still ensure a universally safe environment?

In what way do architectural elements like materials, forms and colors impact the feeling of safety inside a building?

What architectural features most influence users' perception of safety in urban spaces?

What are effective design strategies for integrating green spaces while maintaining high visibility and security?

How might we design a public building focusing on health & comfort for the local community of Sundholm and non-profit organisations in order to provide a safe, welcoming space that fosters a sense of security in a divided neighborhoud.

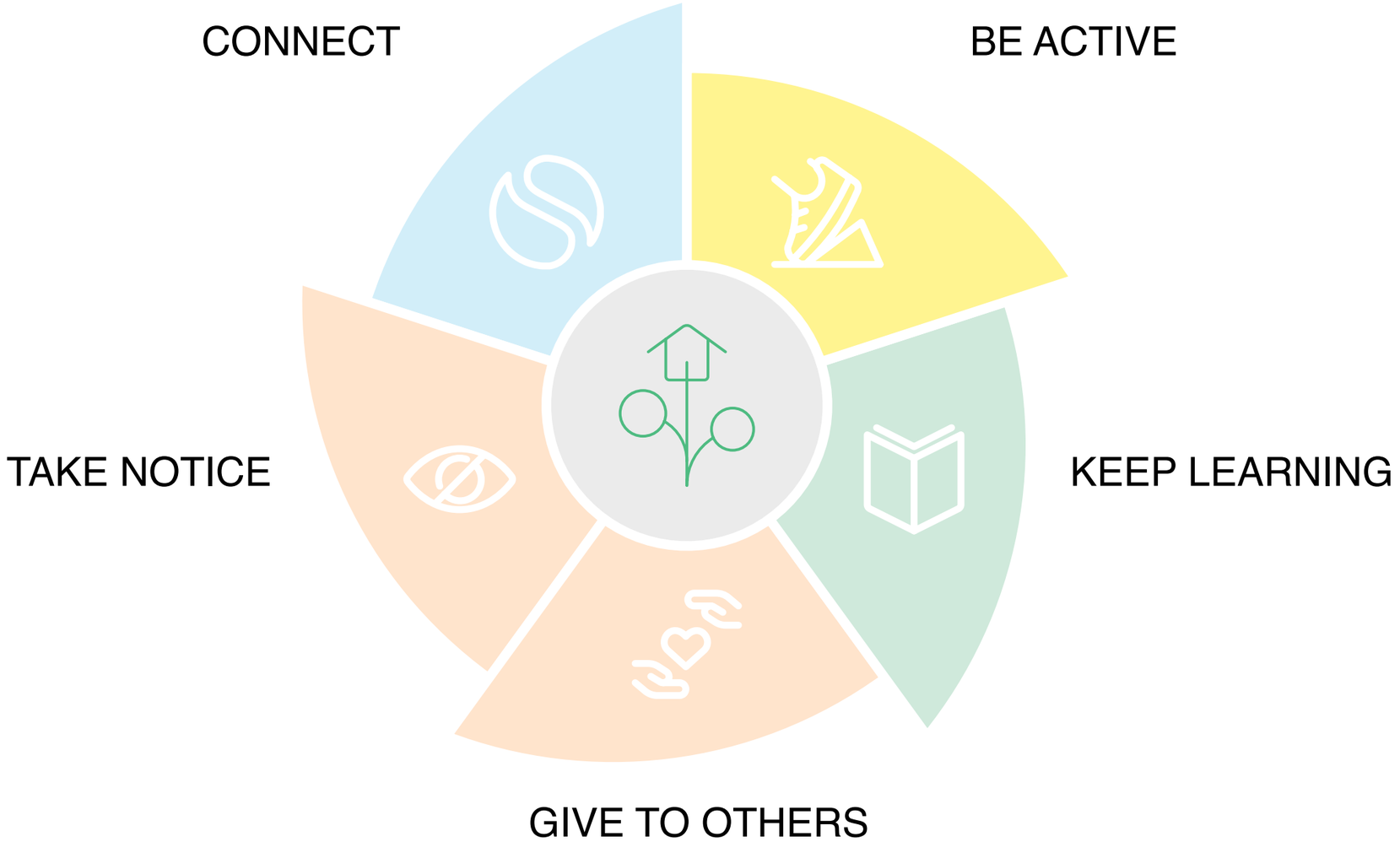
Action: "Design a public building focusing on health and comfort"
Target group: "Local community of Sundholm"
Stakeholders: "non-profit organisations"
Outcome: "Safe, welcoming space that fosters a sense of security"
Context: "A divided neighborhood"

Reseach-by-Design Journal

Design P2

Well-being is a relatively new concept with a lot of research being conducted at the moment looking at a wide variety of variables. In the case of Sundholm, because of the many different (cultural) groups and individuals, the chosen research should target these groups in a universal way that gives space for connectivity but also individuality. The new economic foundation is an independent think tank that was commissioned to develop a set of evidence-based actions to improve personal well-being. From former research they developed a long list of evidence-based actions to enhance well-being in a universal way and then reduced this to 5 points that reflected the key findings of their research. These 5 ways to well-being are: Connect, Be active, Take notice, Keep learning, and give.

WELL-BEING PRINCIPLE



centre of well-being,New economic forum

NEURO - ARCHITECTURE

For the interior environment, the design principle should focus on shapes, color, materials, and comfort to create spaces where people feel safe, comfortable, and happy. The research method that connects neuroscience with architecture is called Neuro-architecture.

Neuro-architecture introduces key insights into how the brain responds to space, emphasizing coherence, biophilic design, sensory comfort, and emotional safety. Together, these systems gave me a clear structure to assess and design environments that actively support mental, physical, and social well-being. They formed the basis on which the following decisions were made..

THERMAL COMFORT

AIR QUALITY

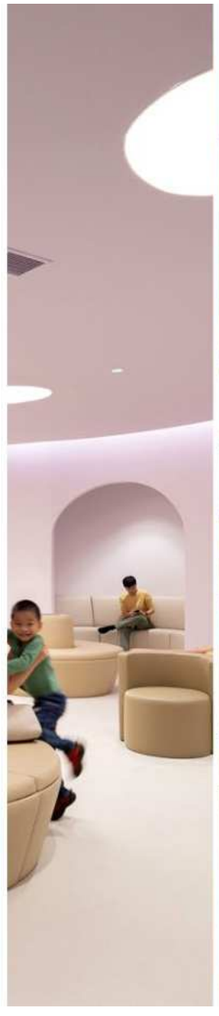
NATURAL MATERIALS

BIOPHILIC DESIGN

LIGHTING

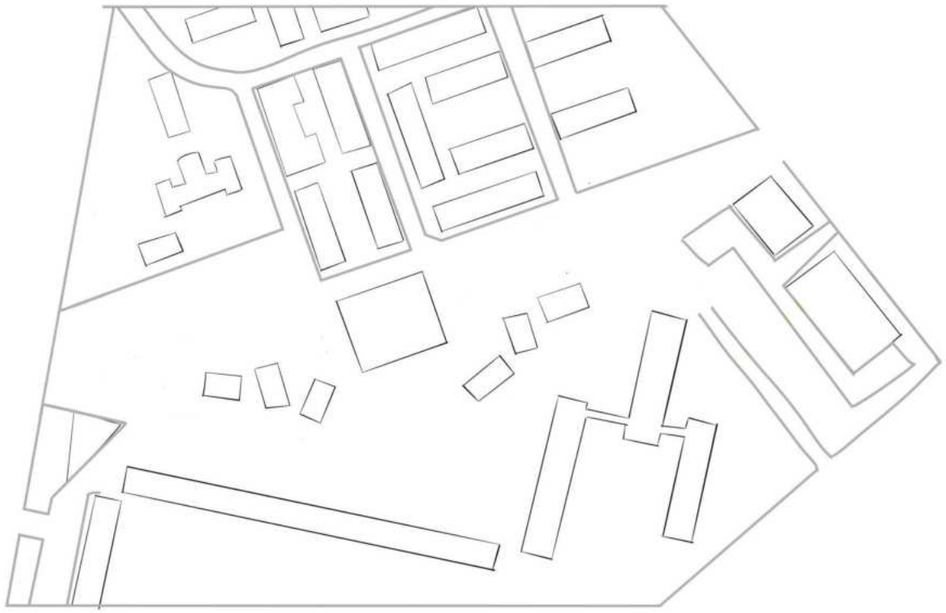
ACOUSTICS

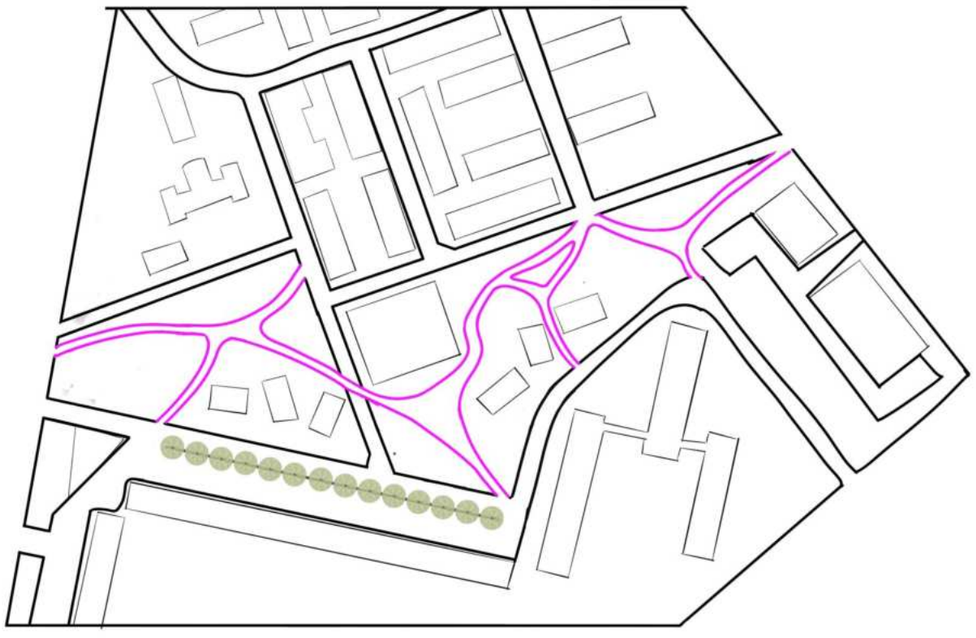
COLOR PSYCHOLOGY



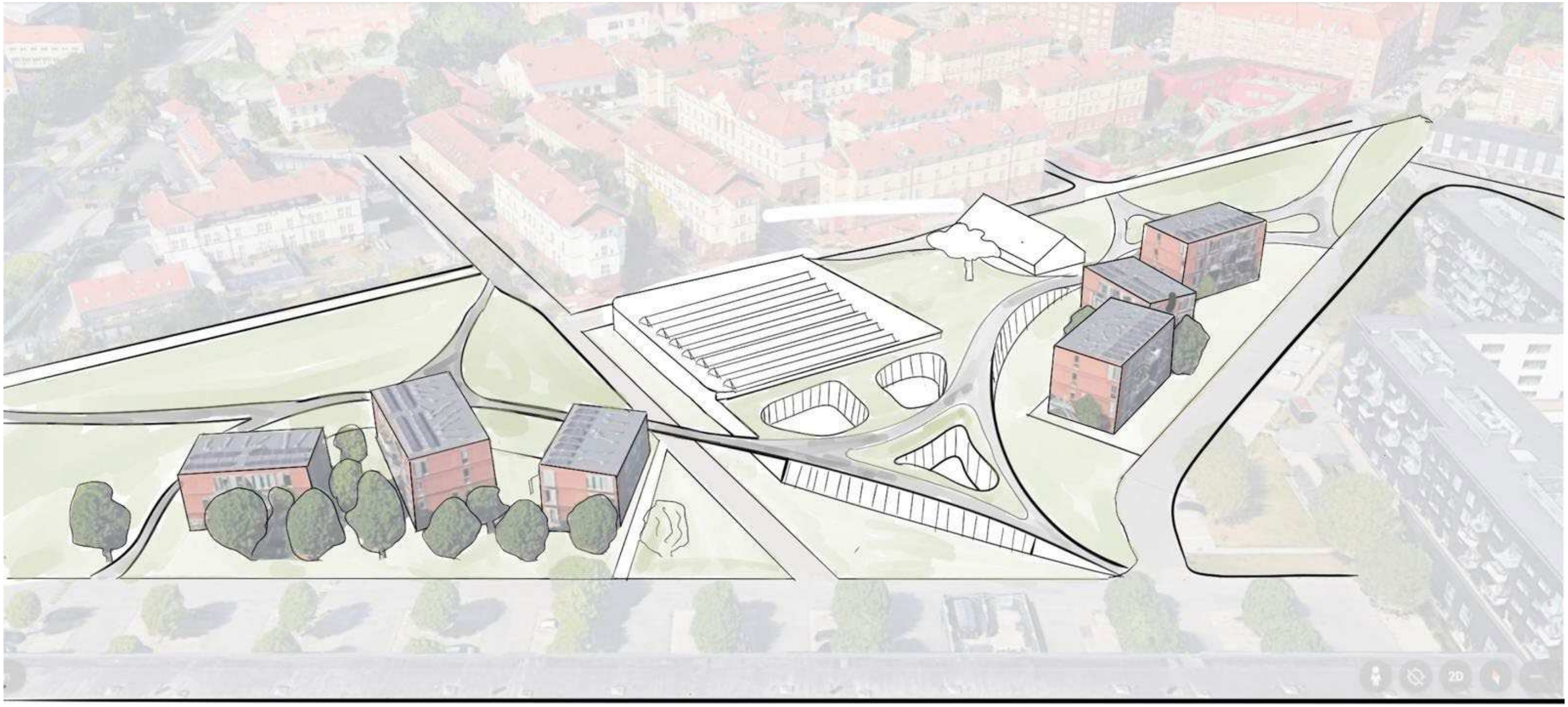
RESTORATIVE SPACES

ORGANIC FORMS

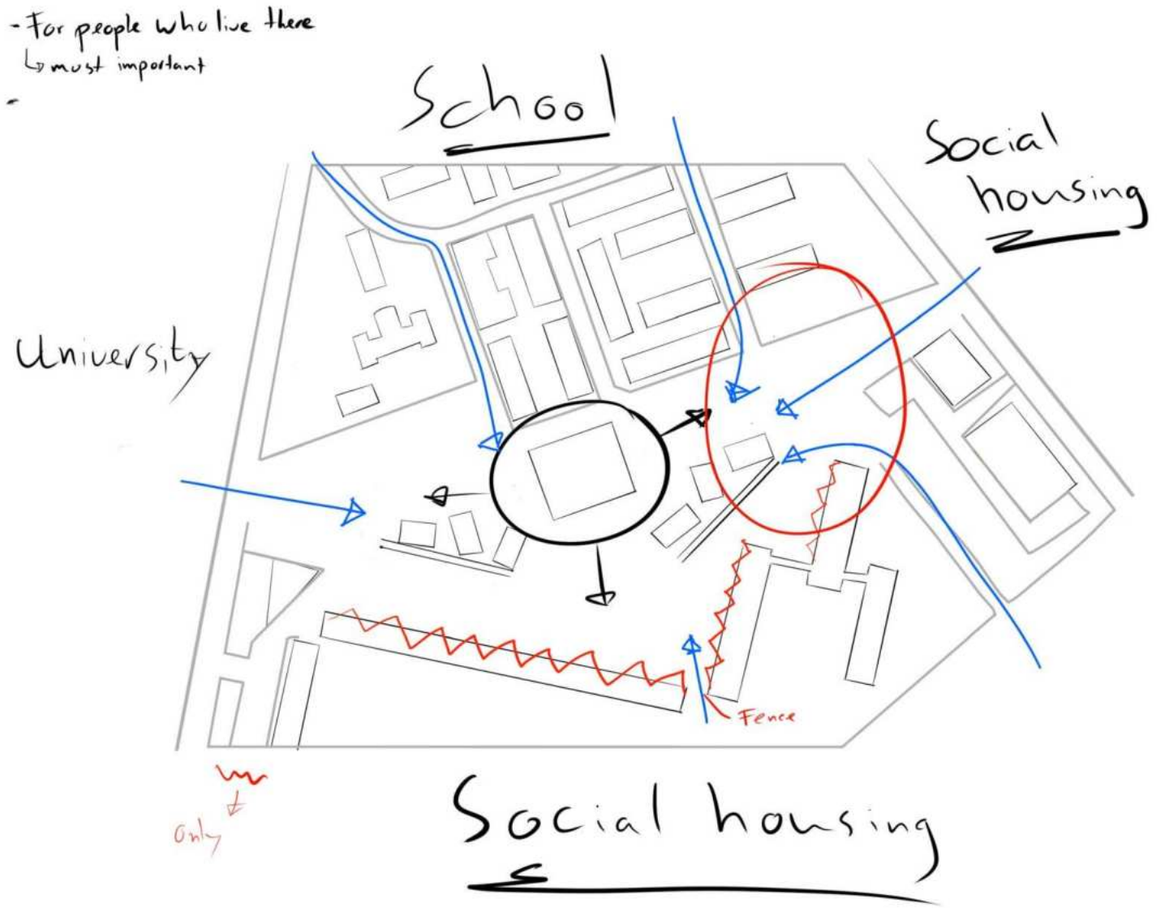


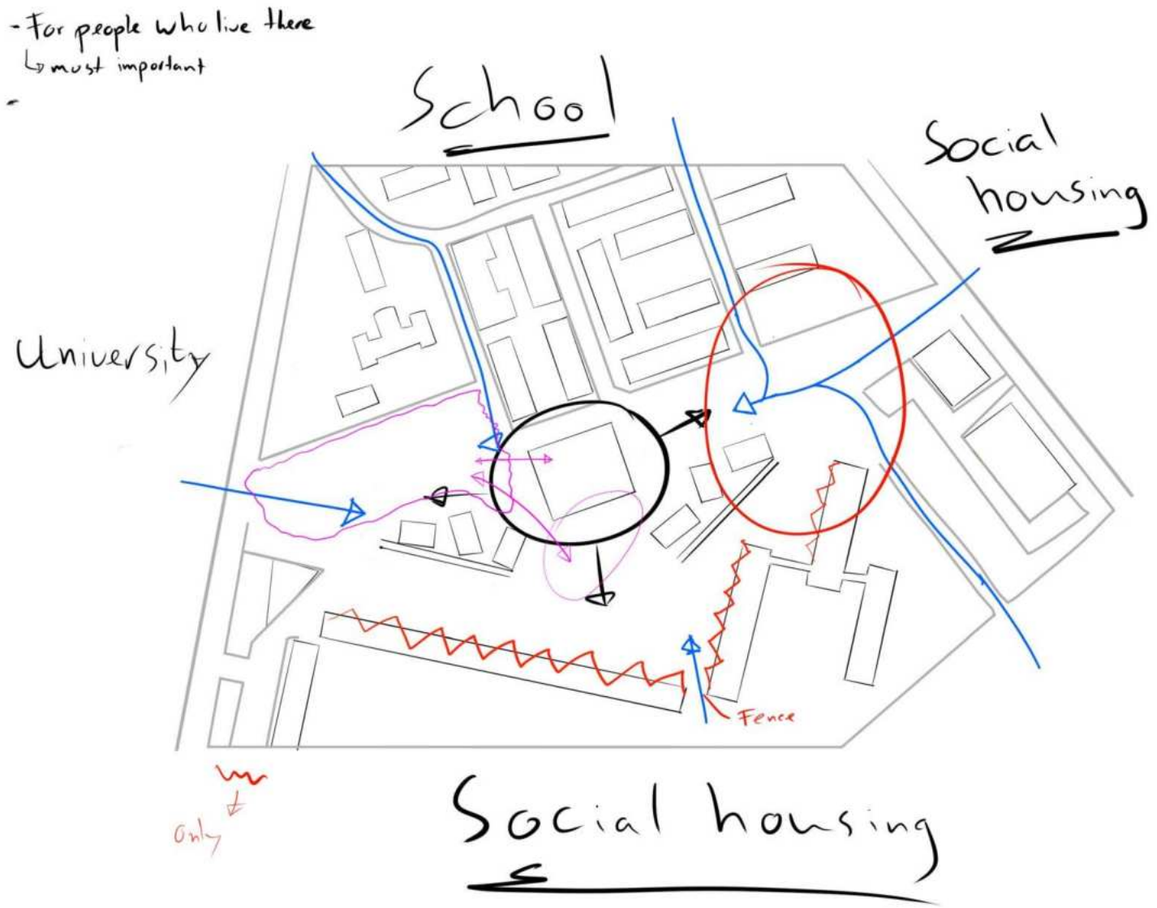


First idea on implementation of green landscape in the site area



First sketch of combining multiple ambitions

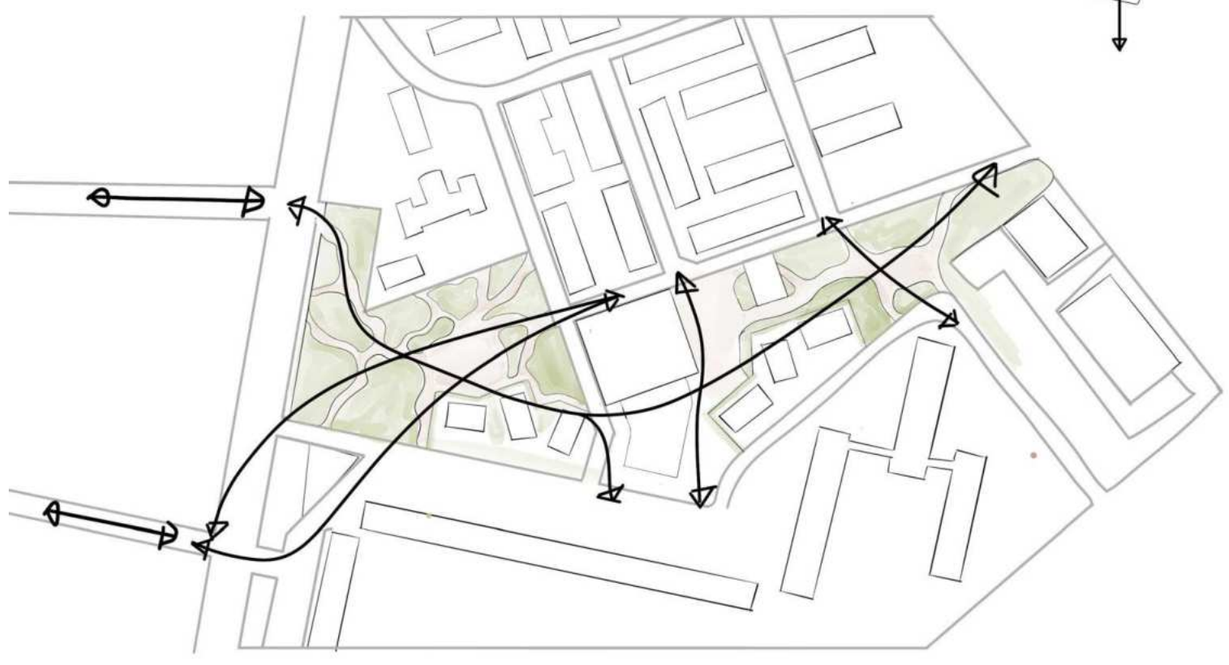




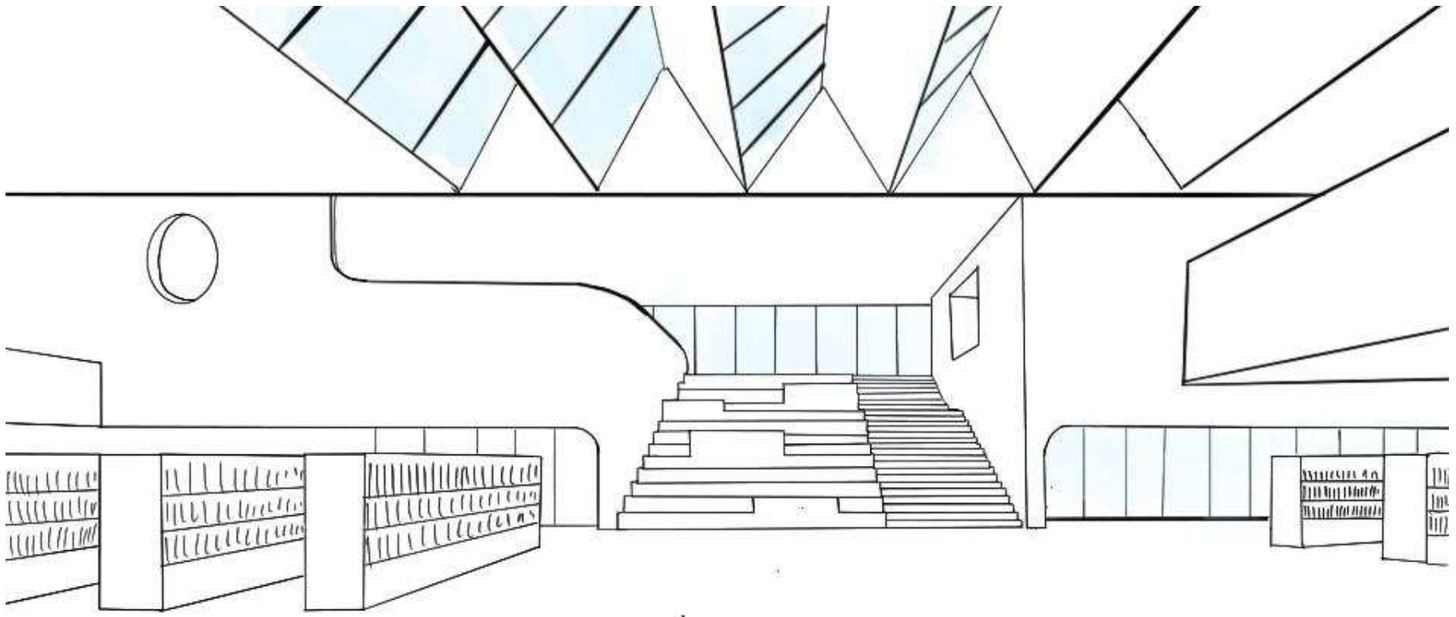
Site analisis of entry points

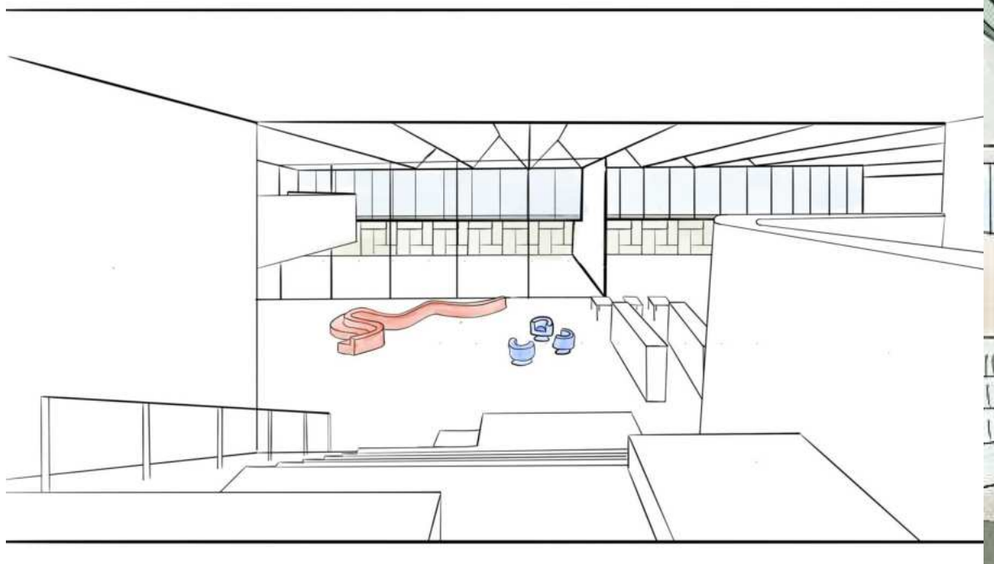
P2

Examples of landscape design



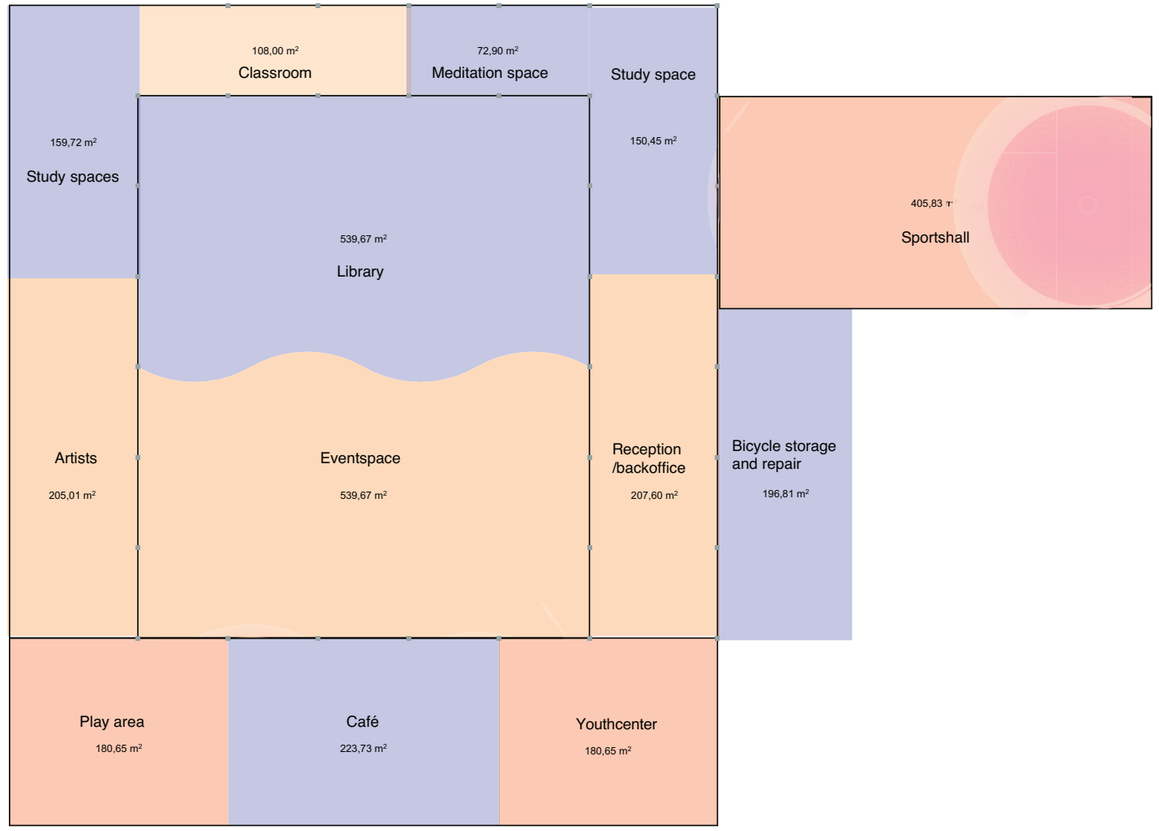
Collage of external environment

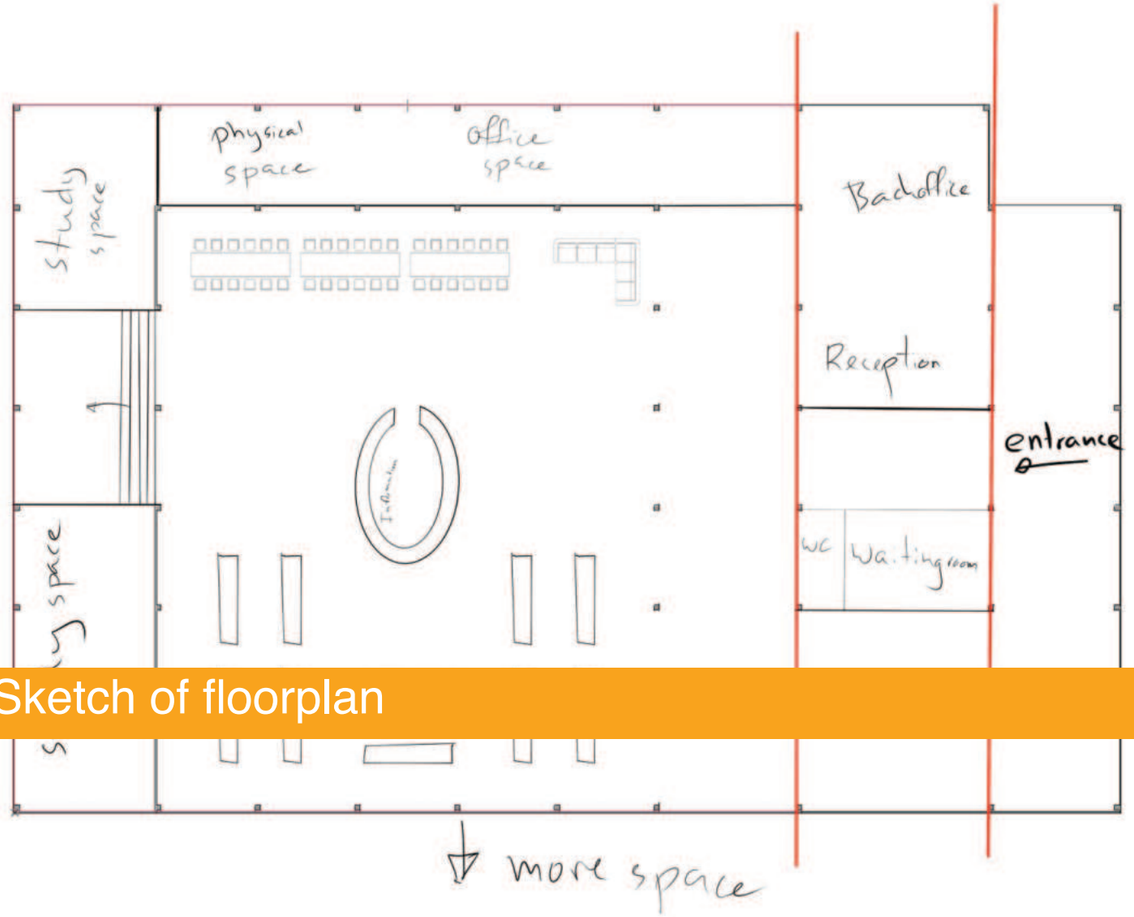


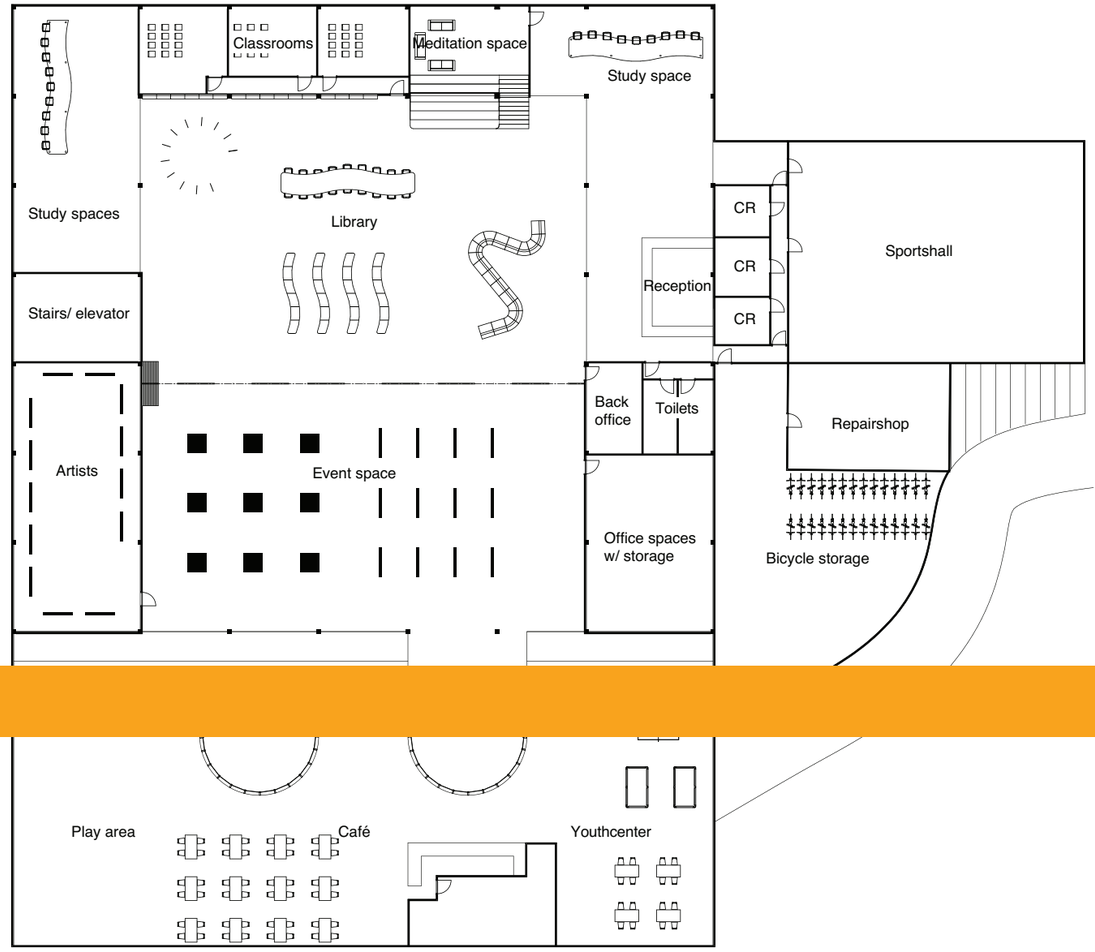


Sketch of internal environment

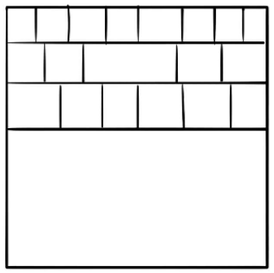
P2

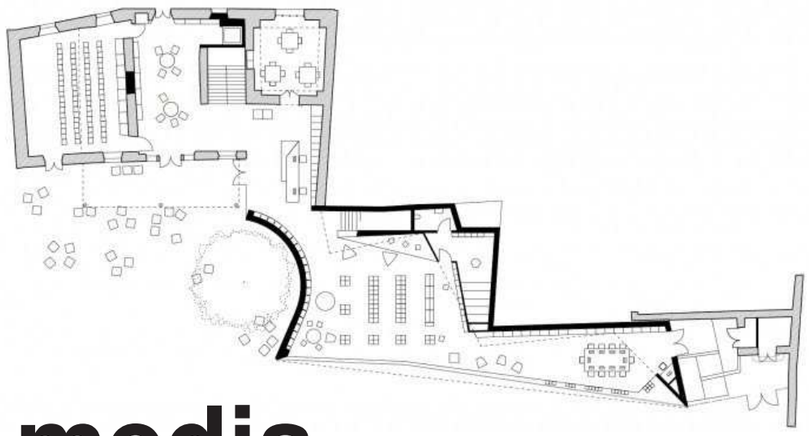






Sketch of floorplan

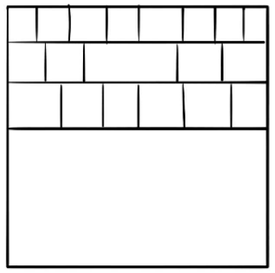


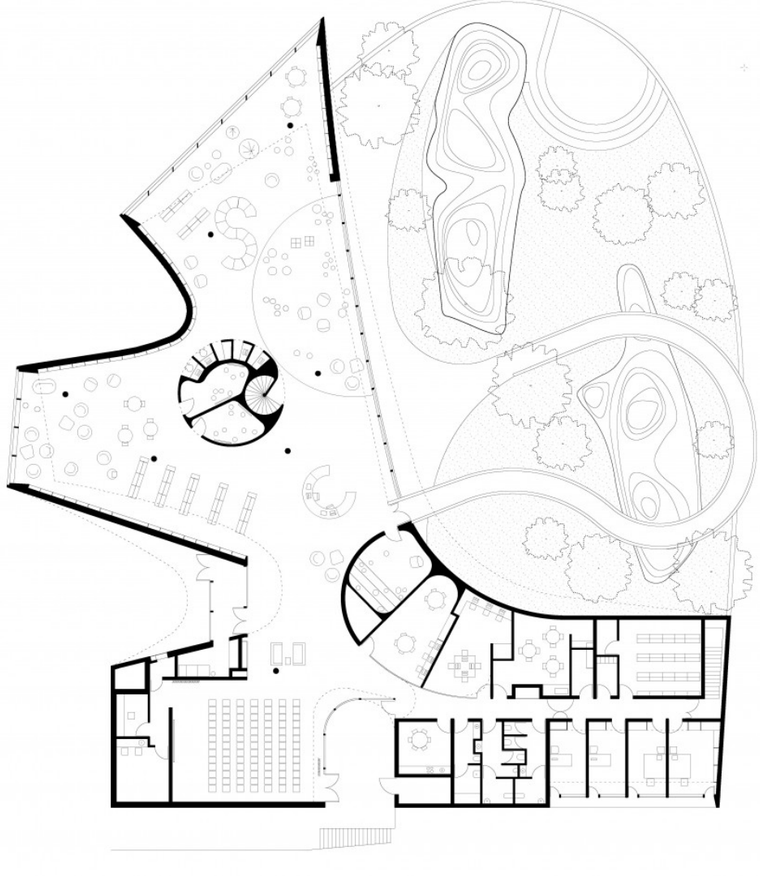


‘Pierre bottero’ media library and park

P2

Porto-Vecchio
2022
Animu media library

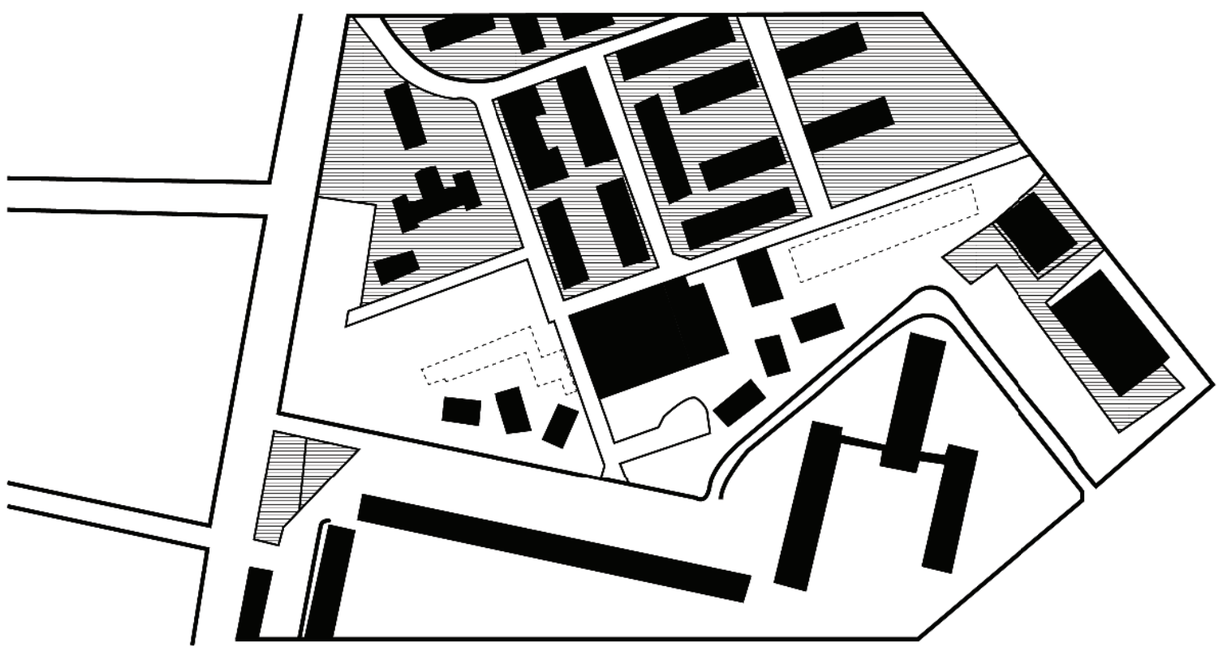


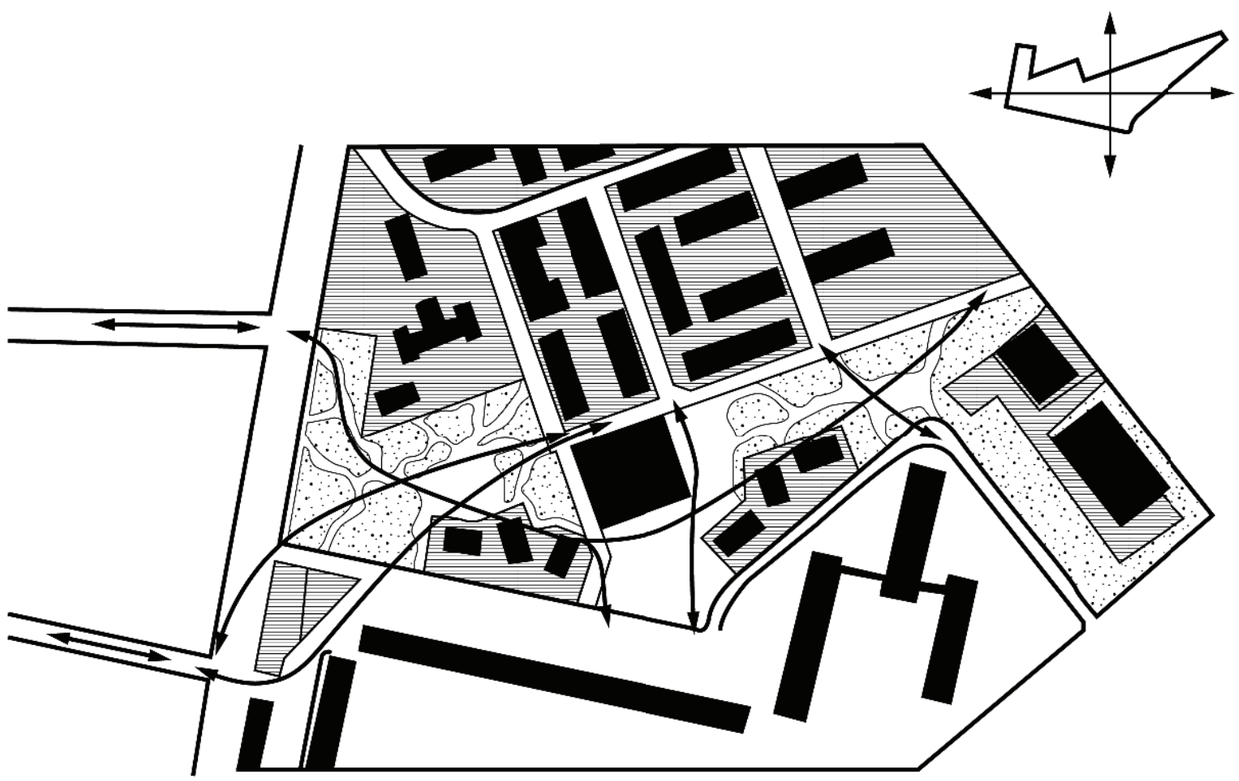


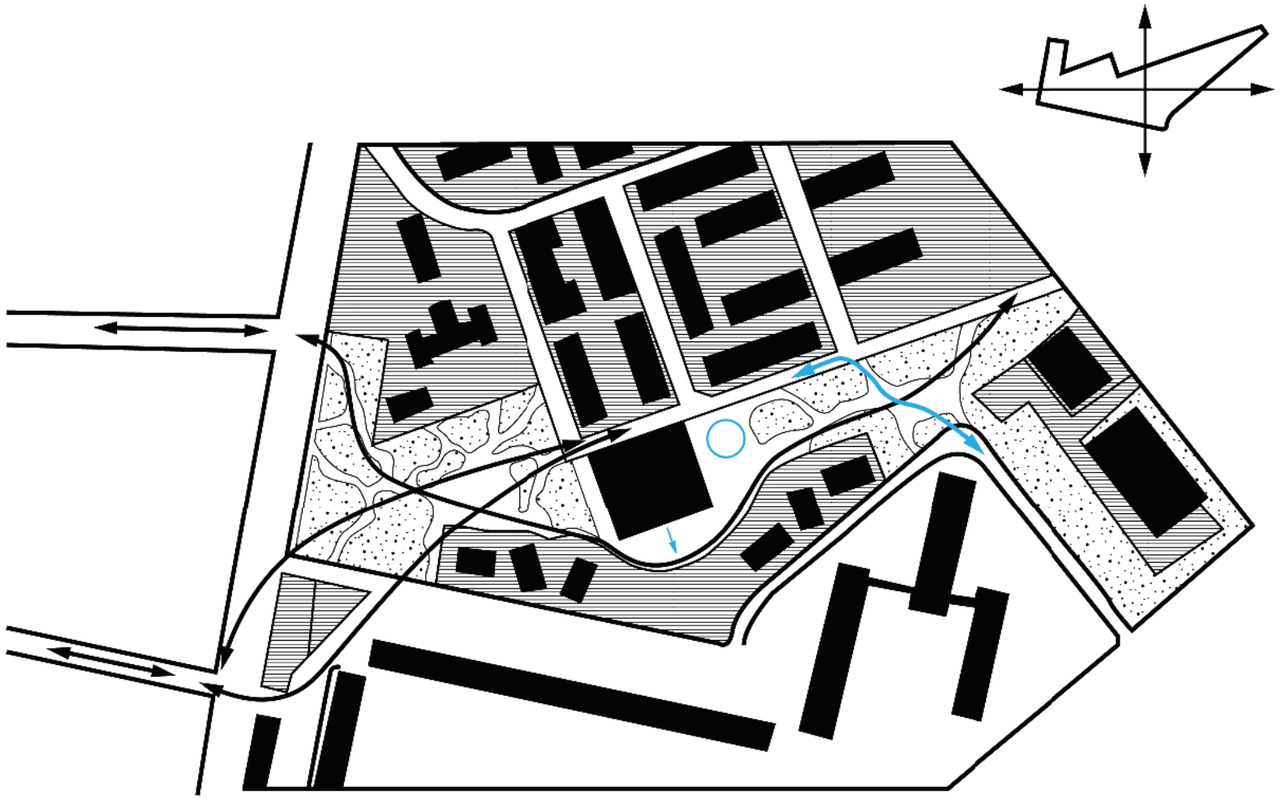
Reseach-by-Design Journal

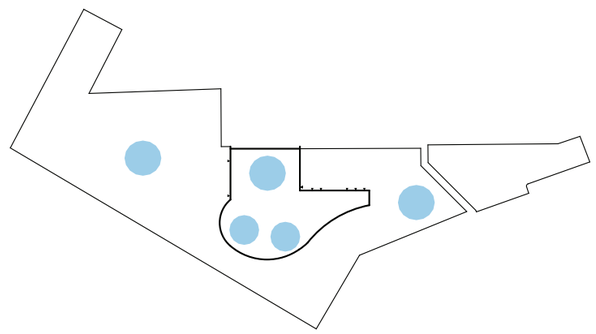
Design P3

P3

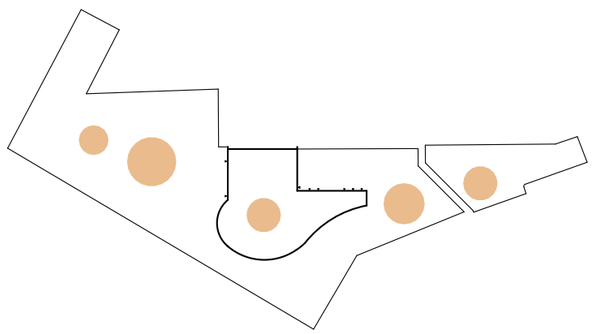




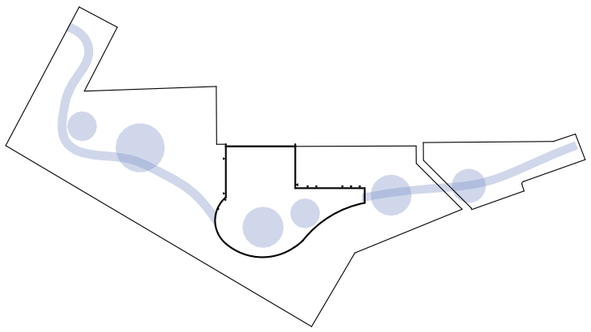




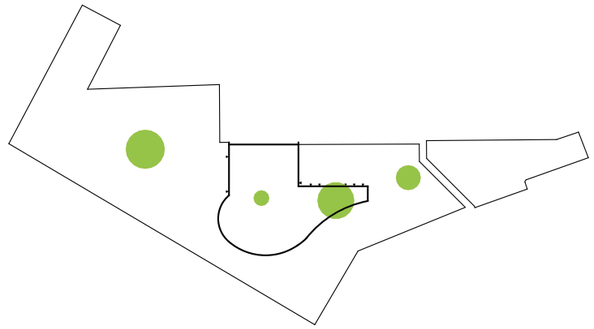
Keep Learning



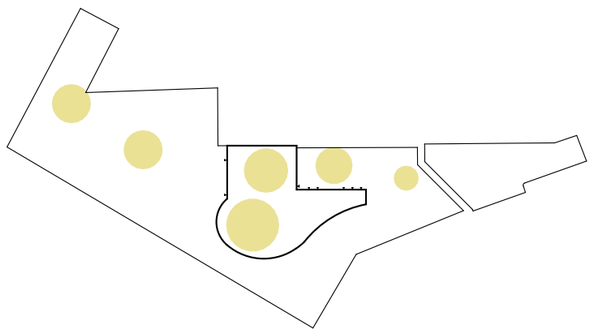
Connect



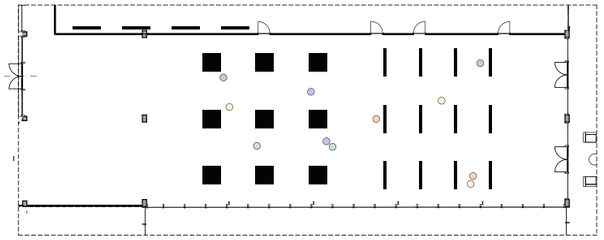
Be Active

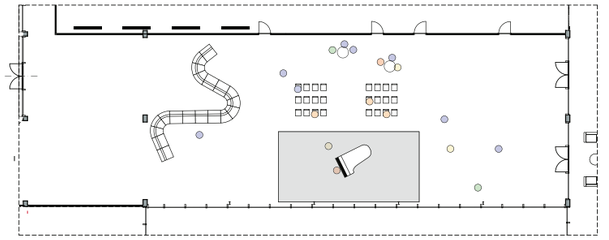


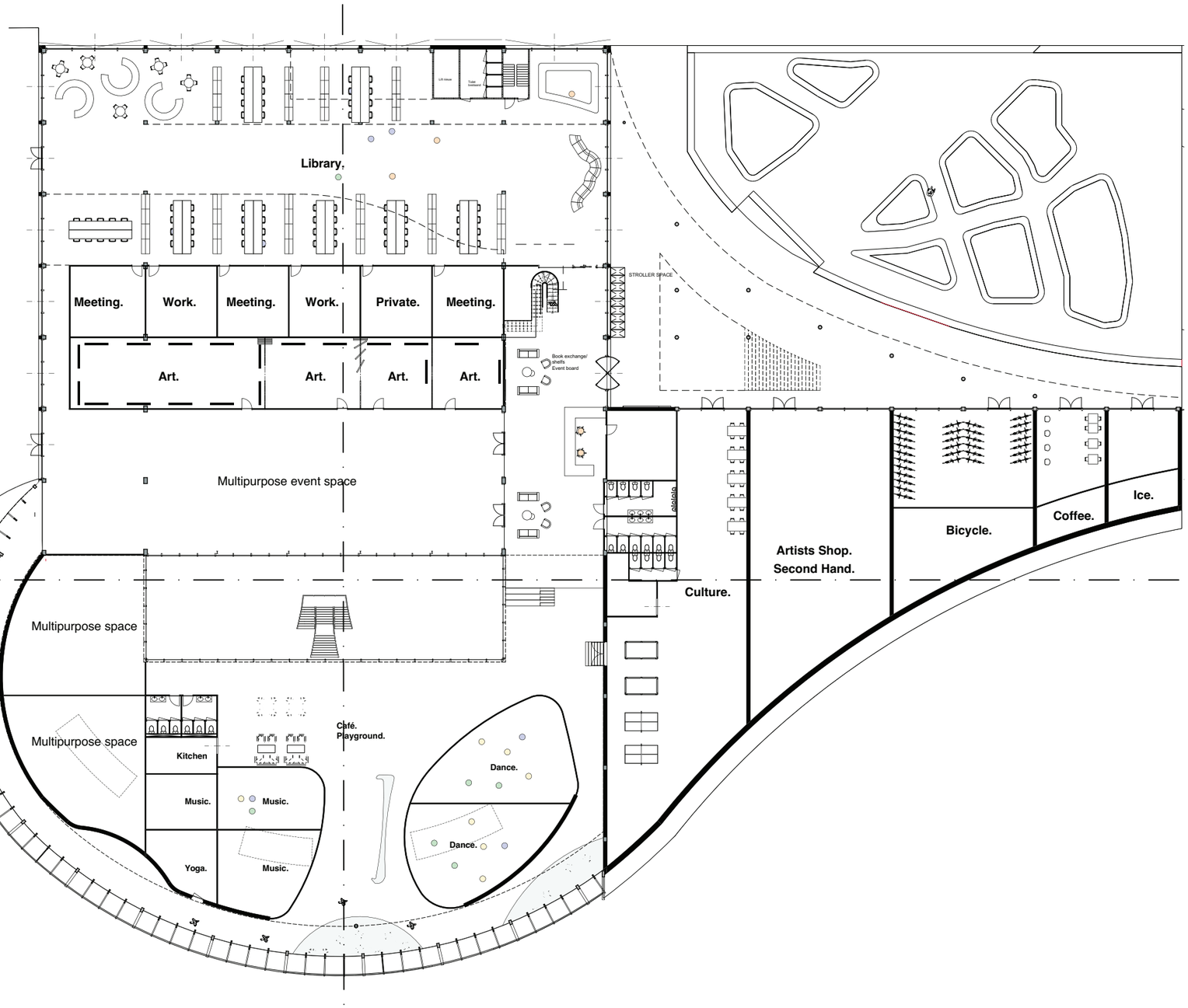
Give to Others



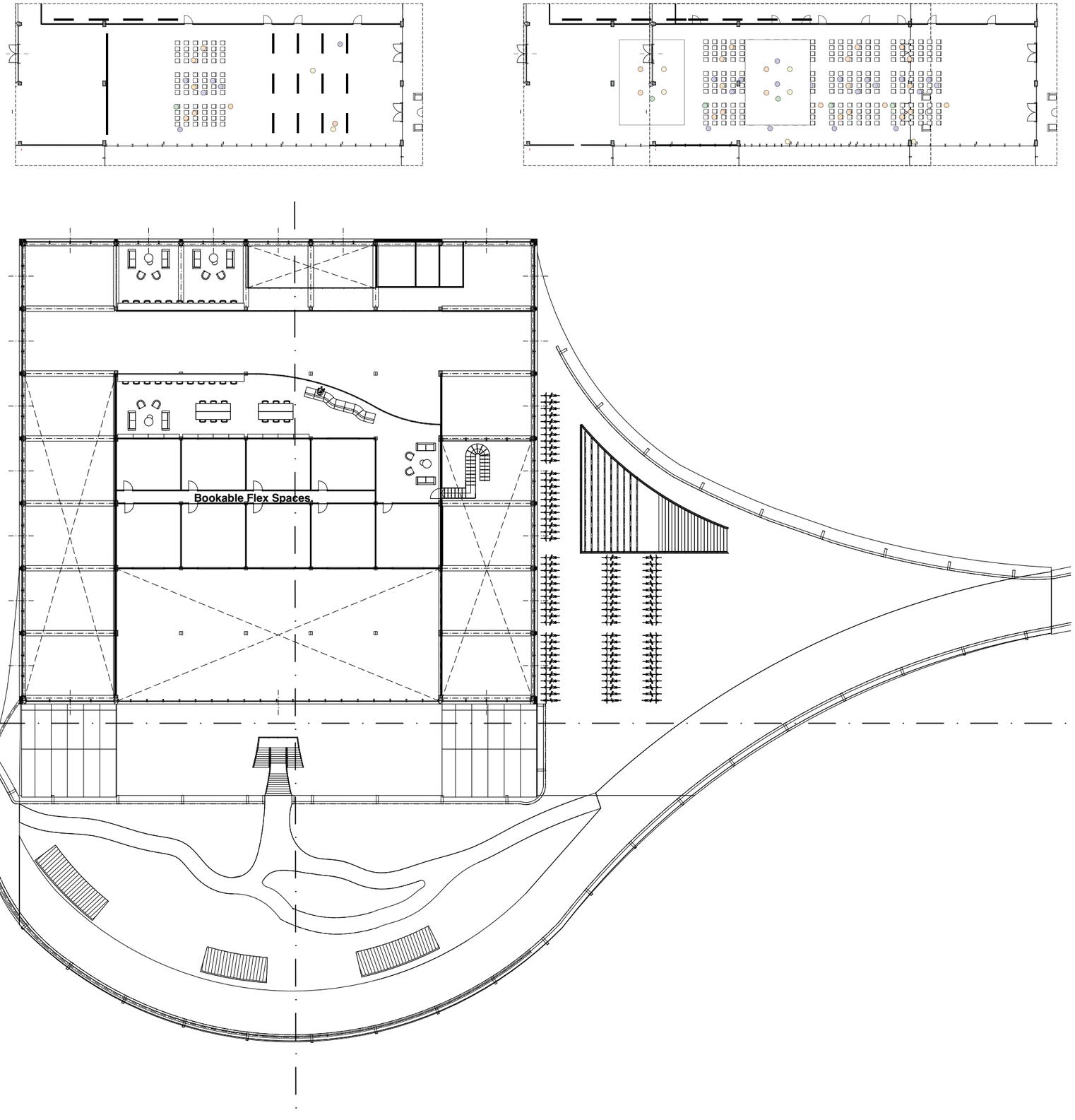
Take Notice



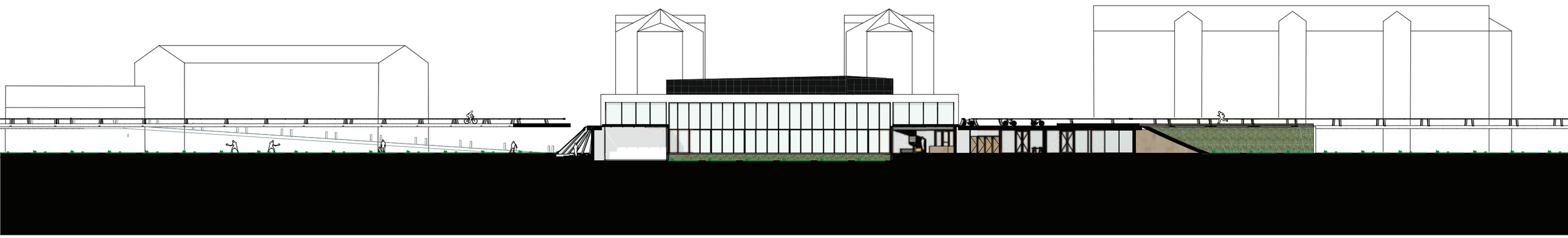


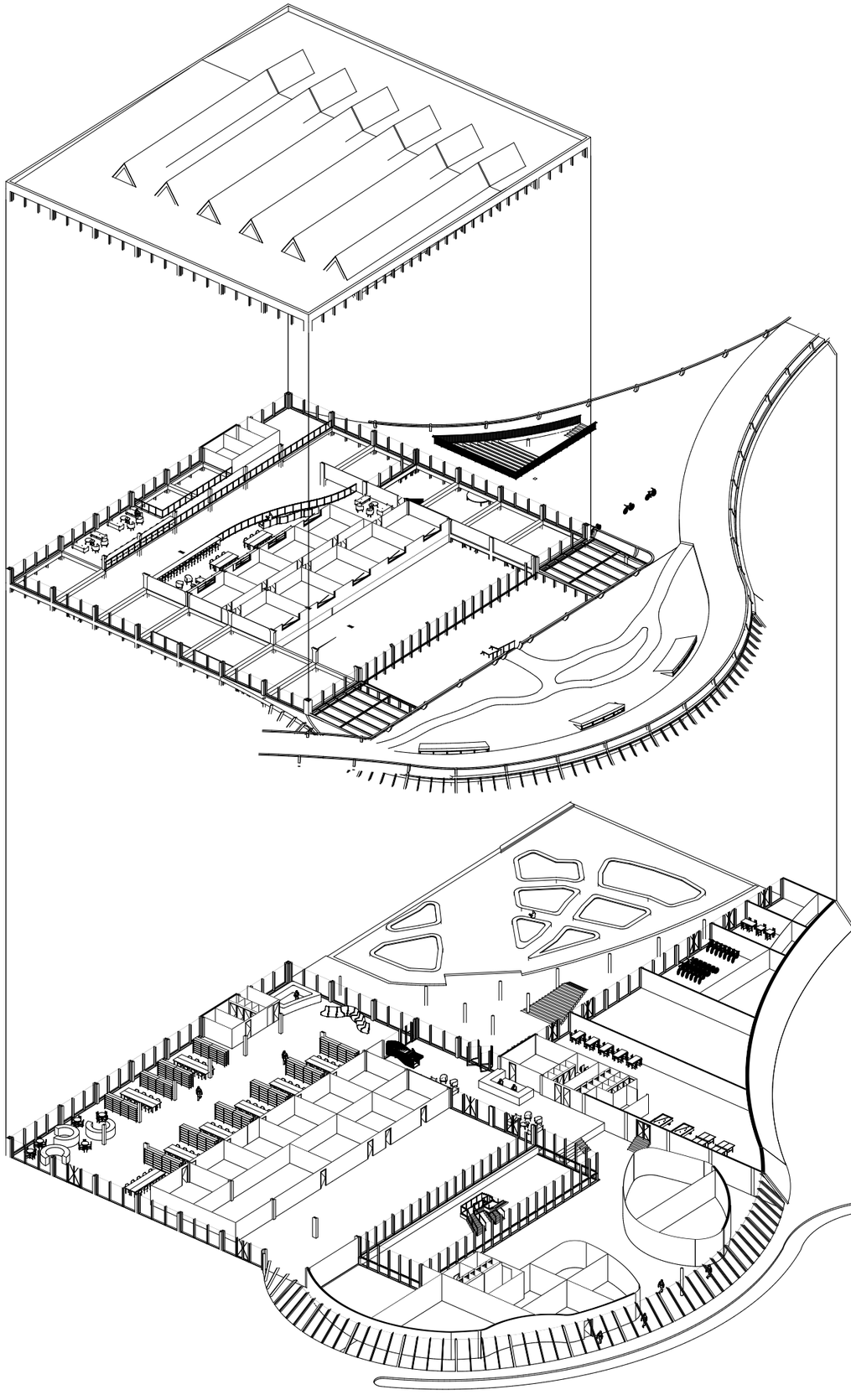

Library.
Meeting.
Work.
Meeting.
Work.
Private.
Meeting.
Art.
Art.
Art.
Art.
STROLLER SPACE
Book exchange/
shelfs
Event board
Multipurpose event space
Multipurpose space
Multipurpose space
Café.
Playground.
Kitchen
Music.
Music.
Yoga.
Music.
Dance.
Dance.
Culture.
Artists Shop.
Second Hand.
Bicycle.
Coffee.
Ice.

P3



P3

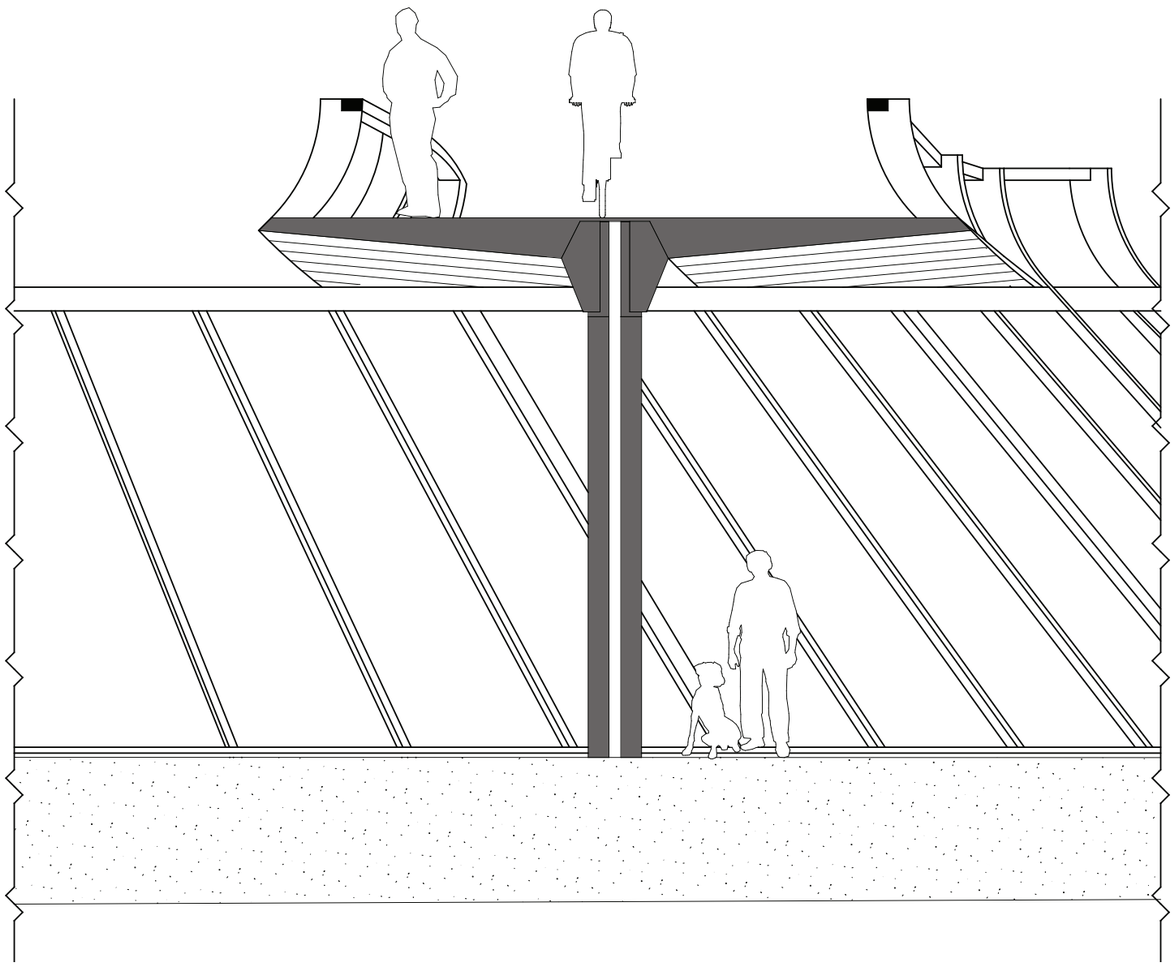


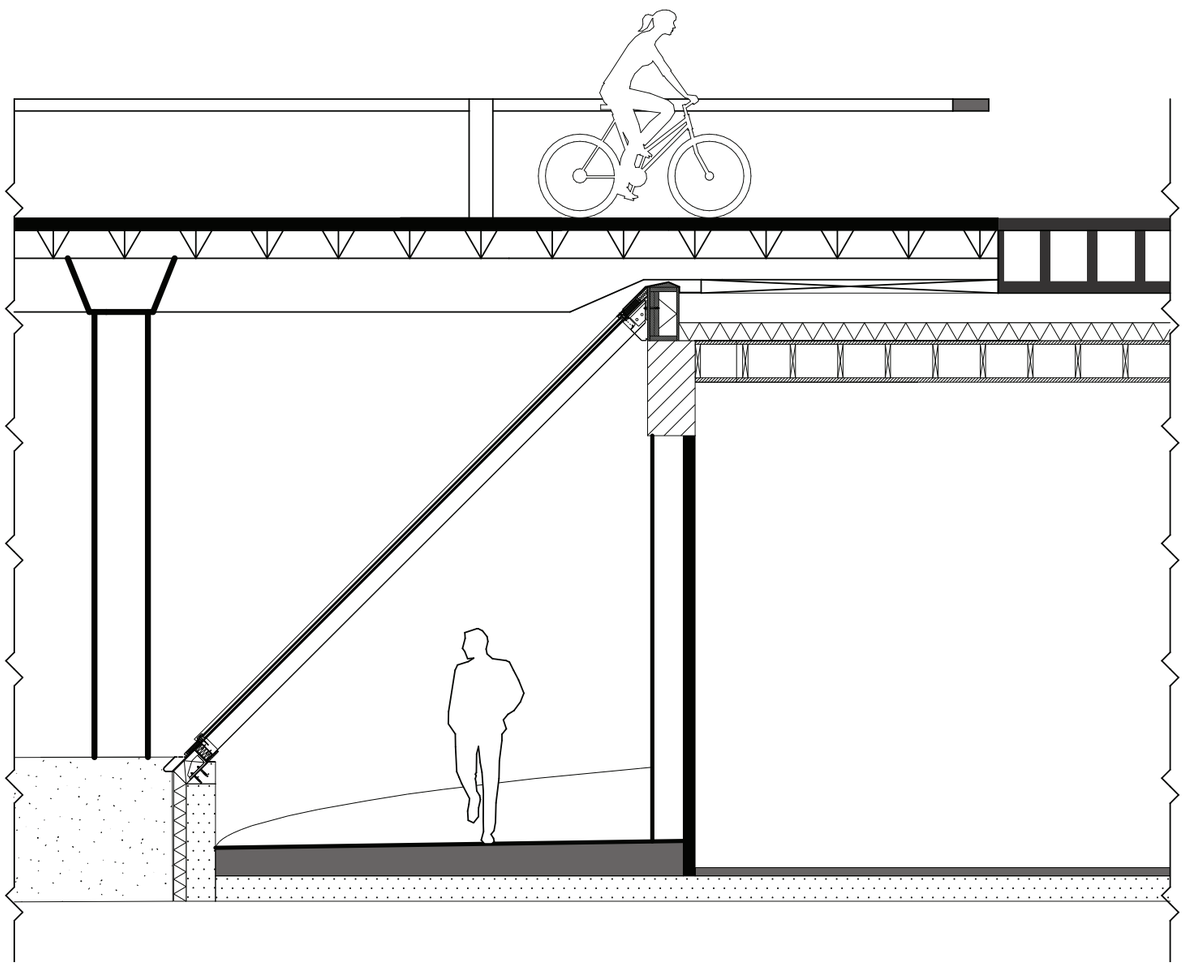


Library during the day Rendered with Comfy UI

Event space during a concert COnnect - Space Encounters

Front Entrance during the evening Rendered with Comfy UI



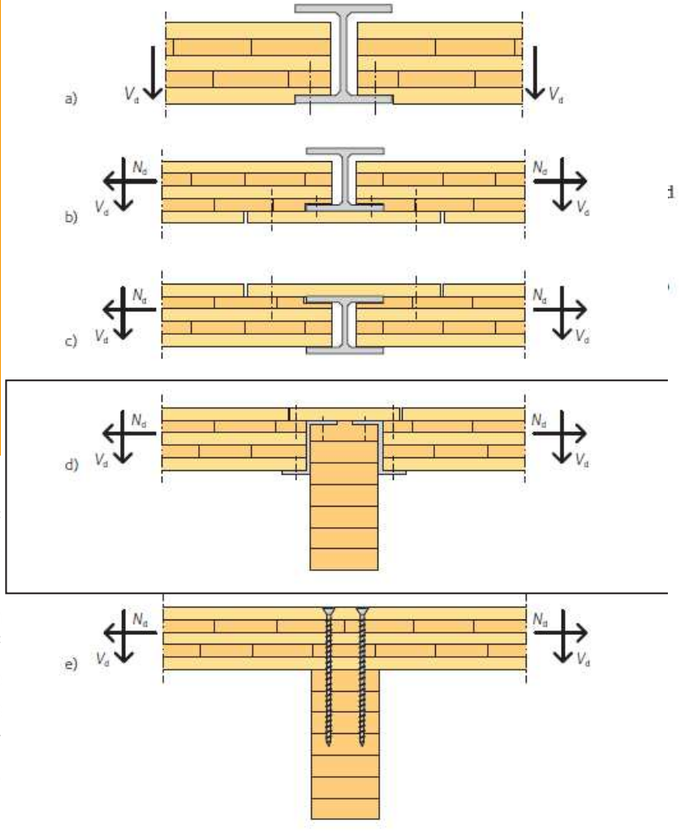


Reseach-by-Design Journal

Design

TBD

For the structure of the new part of the building. Cross Laminated Timber is used as a sustainable building method. It is build against the existing fabrikken in a way to preserve the amount of materials that is used. Other than the main structure, this chapters shows the detailing of the Nabohus together with the most important references.



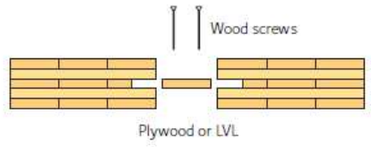


Figure 4.7 Joint with loose tongue.

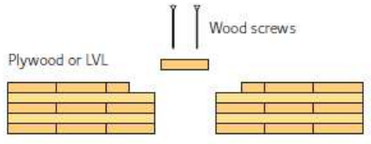


Figure 4.8 Joint with single cover plate.

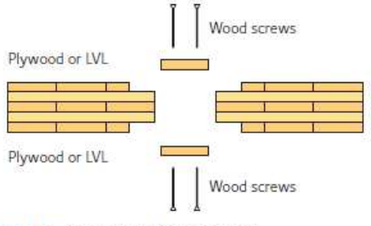
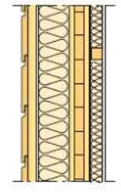
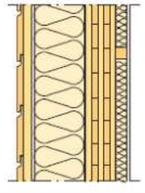
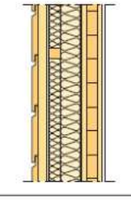
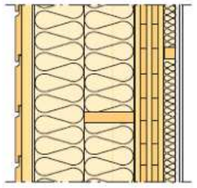
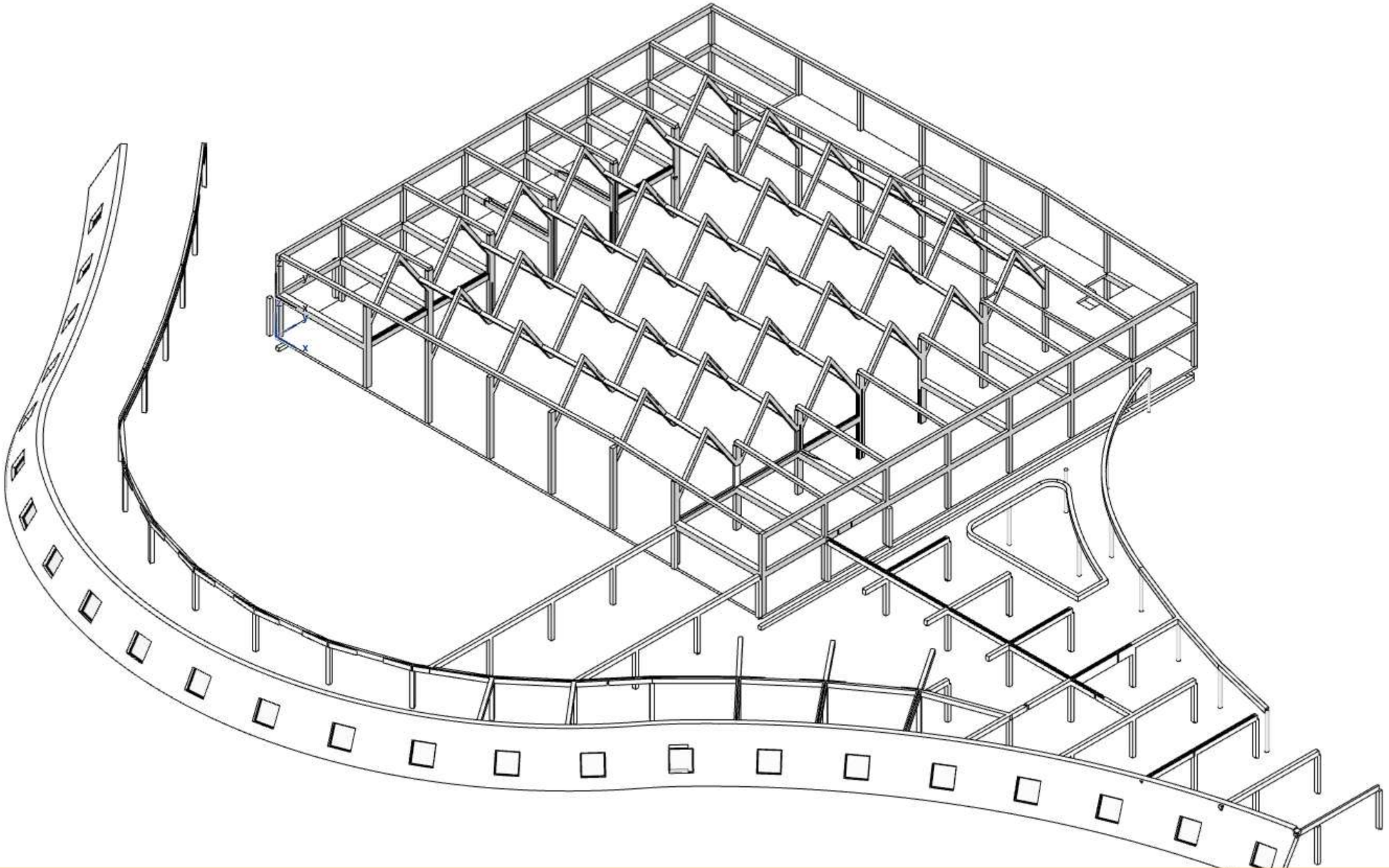


Figure 4.9 Joint with double cover plates.

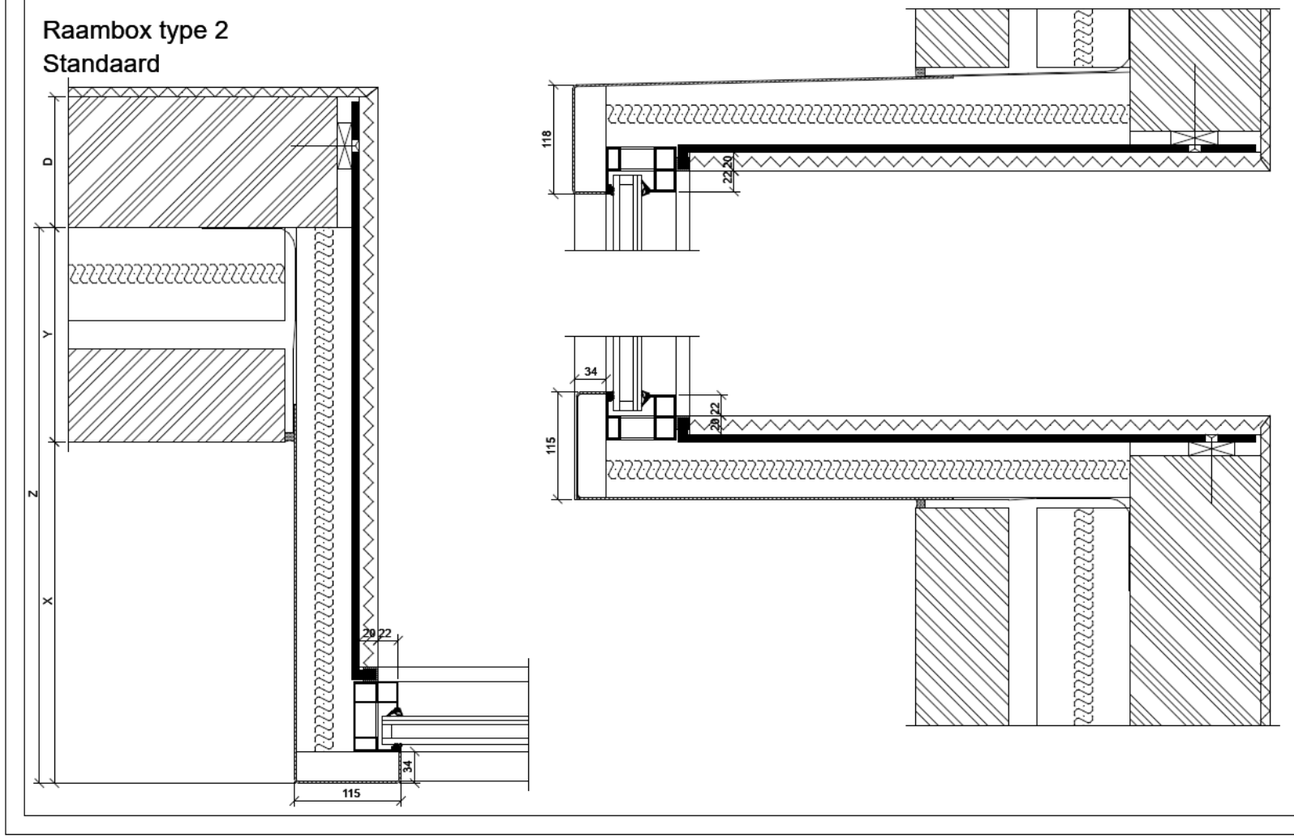
Table 6.7 Selection of external wall designs.

Wall type	Material (mm)	U-value [W/m²K]	Total thickness (mm)	Fire class	Ljudisolering D_n (C;C_{tr})
	**Wall type 1** 22 external cladding 34 battens Wind protection 120 heavy insulation 80 CLT panel Vapour retarder 45 studs and insulation 13 plasterboard	0.25	314	REI60	38 (-1;-4)
	**Wall type 2** 22 external cladding 34 battens Wind protection Vapour retarder 195 heavy insulation 100 CLT panel 45 studs and insulation 13 plasterboard	0.15	409	REI60	41 (-;-)
	**Wall type 3** 22 external cladding 34 battens Wind protection 45 studs and insulation 95 insulation Vapour retarder 80 CLT panel 15 fire-resistant plasterboard	0.25	291	REI60	51 (-3;-9)
	**Wall type 4** 22 external cladding 34 battens Wind protection 170 vertical studs and insulation 170 horizontal studs and insulation Vapour retarder 100 CLT panel 45 studs and insulation 2 × 13 mm plasterboard	0.10	567	REI90	52 (-;-)

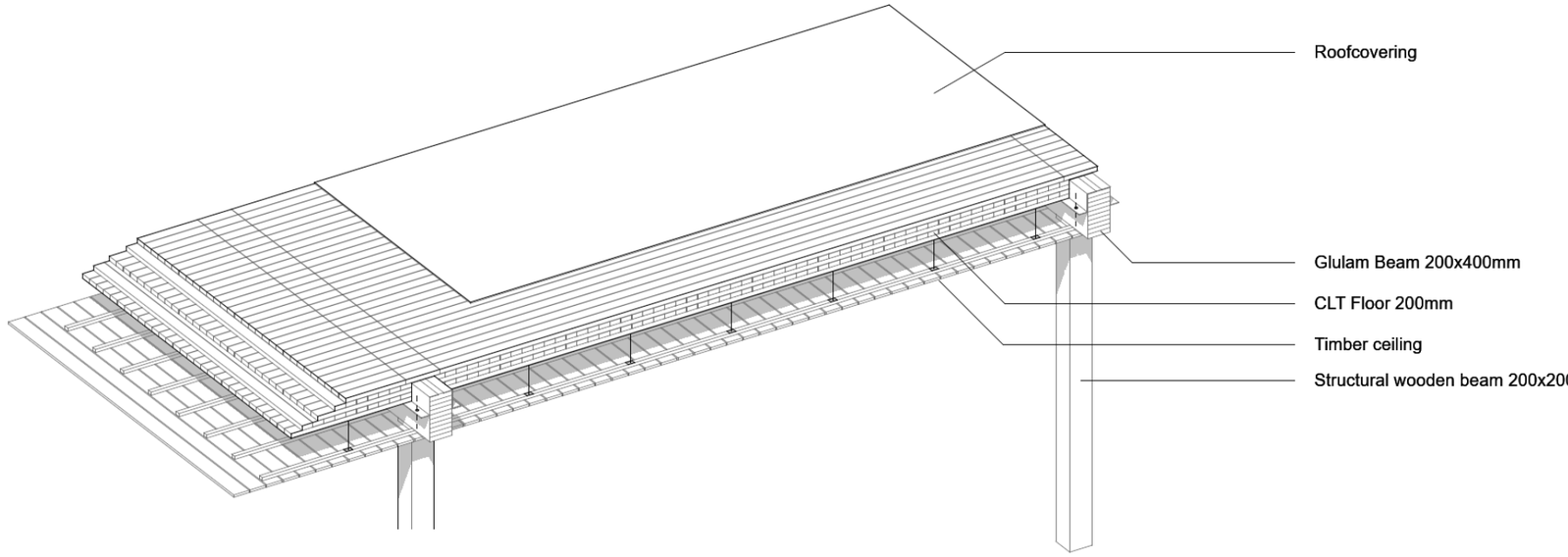


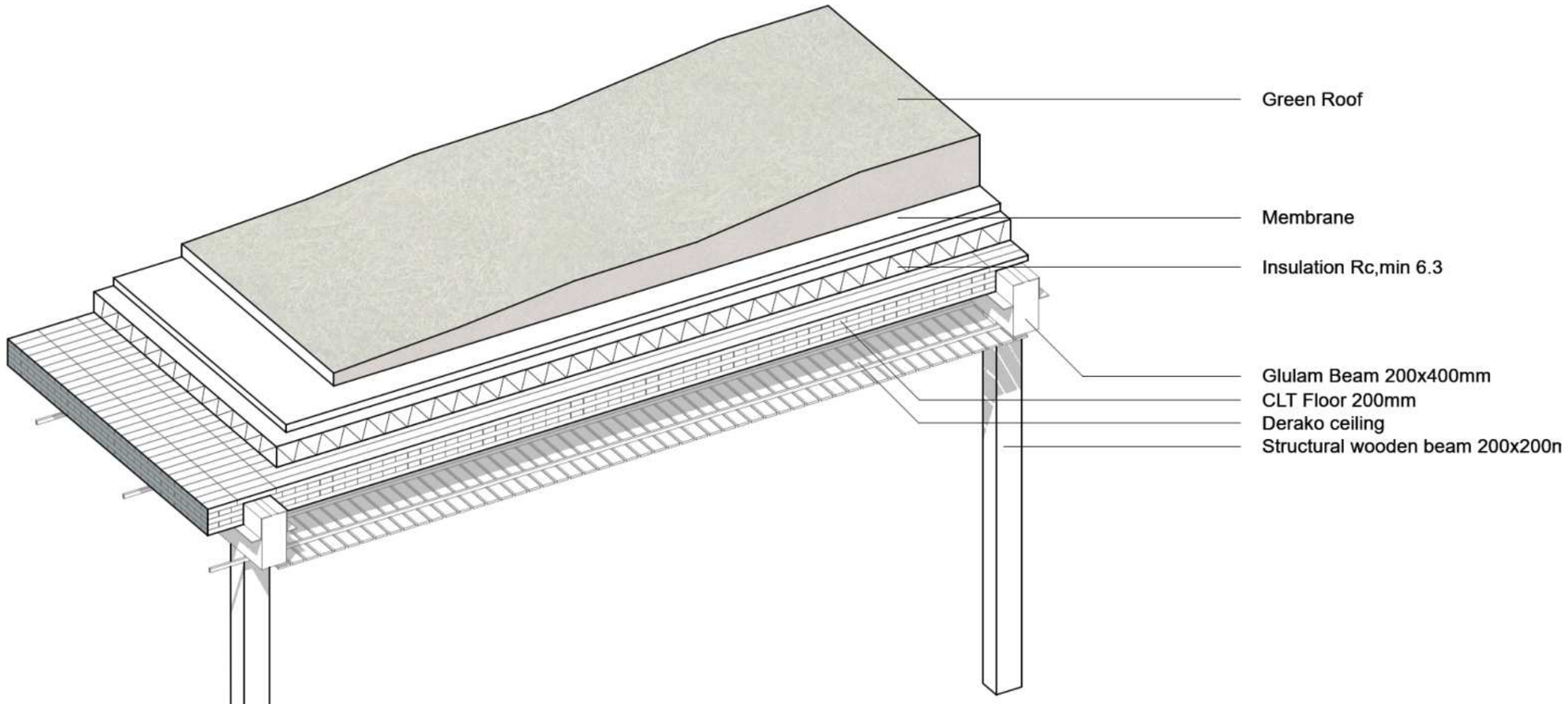
First construction drawing

Raambox type 2
Standaard

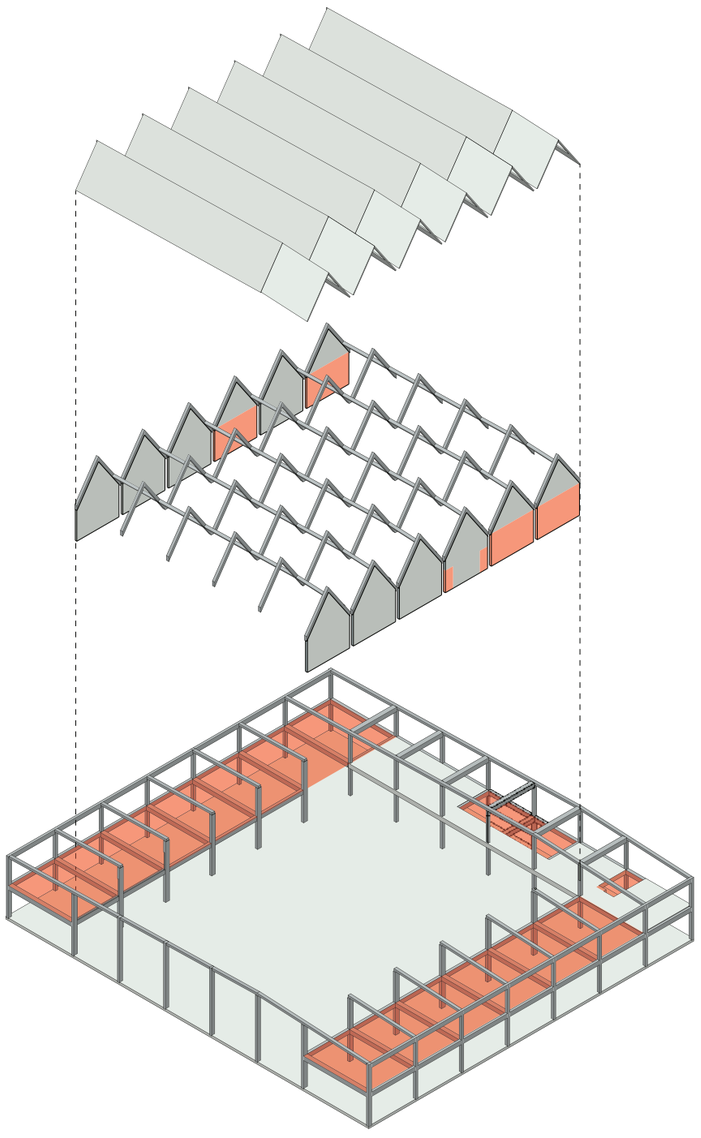


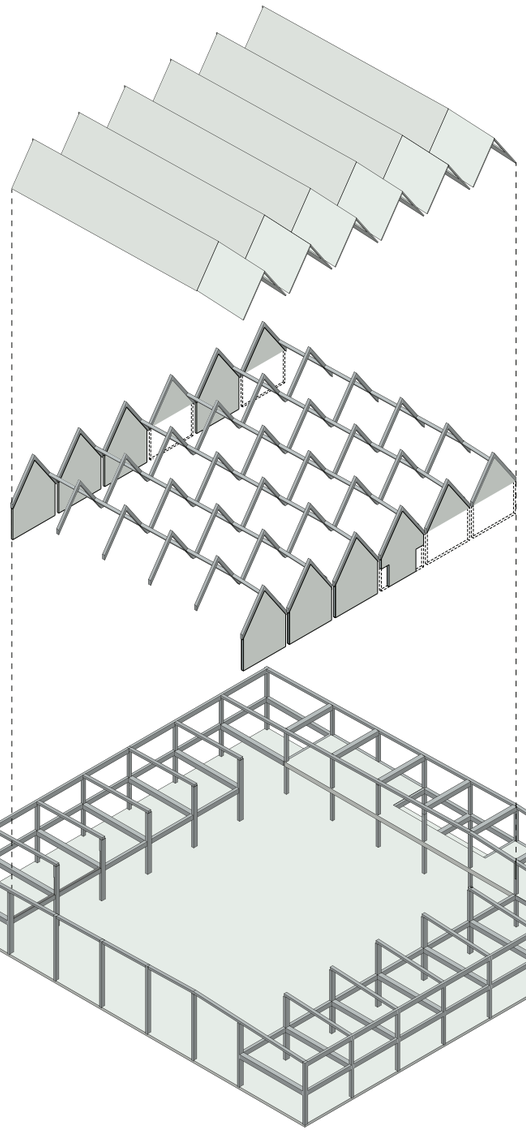
Use of external windows

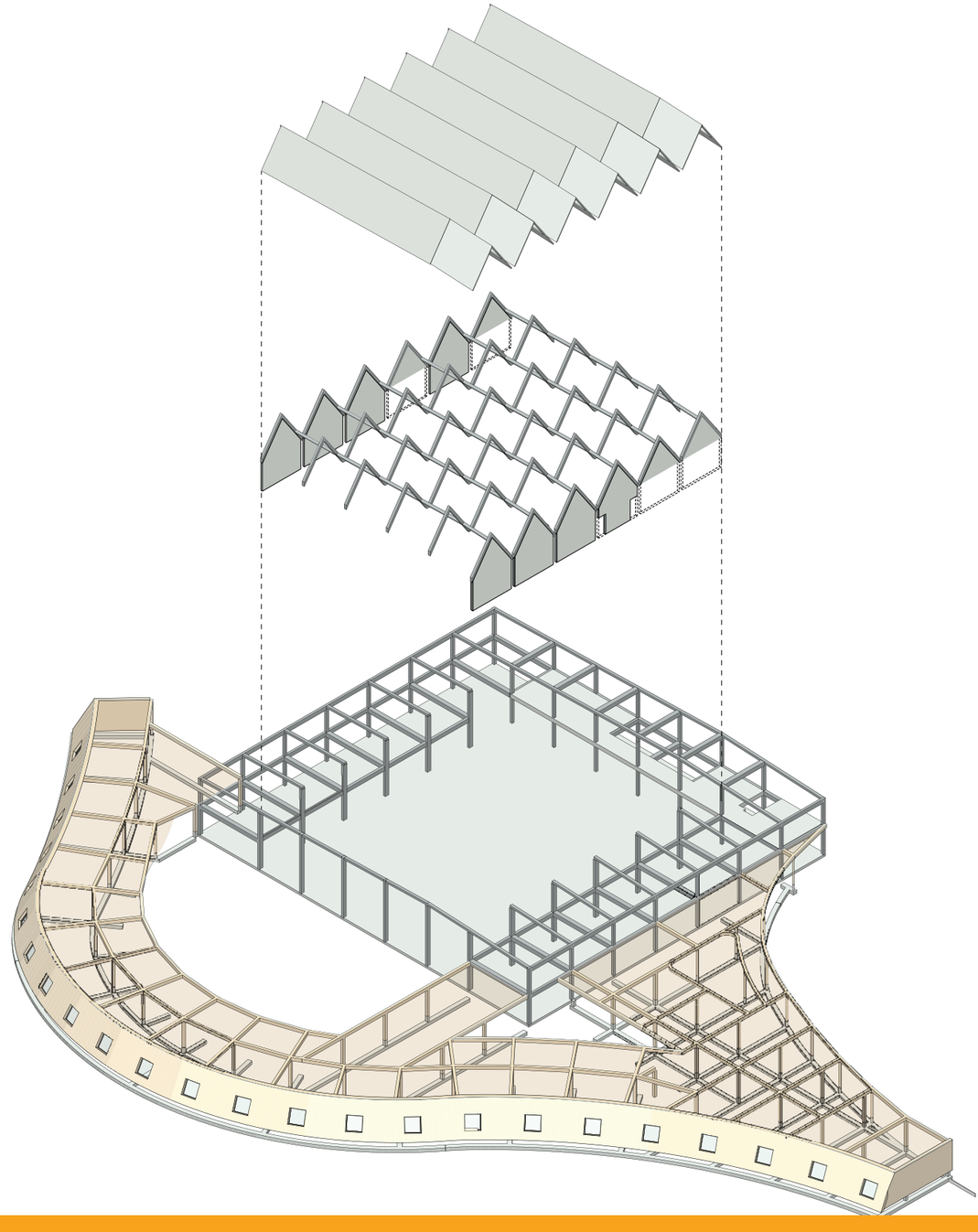

Roofcovering
Glulam Beam 200x400mm
CLT Floor 200mm
Timber ceiling
Structural wooden beam 200x200


Green Roof
Membrane
Insulation Rc,min 6.3
Glulam Beam 200x400mm
CLT Floor 200mm
Derako ceiling
Structural wooden beam 200x200n

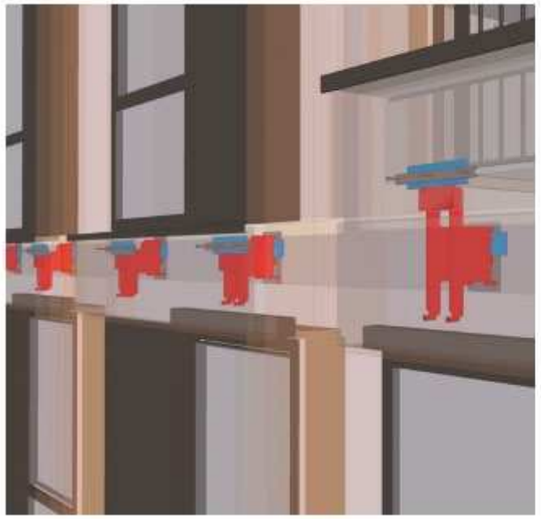
Structure

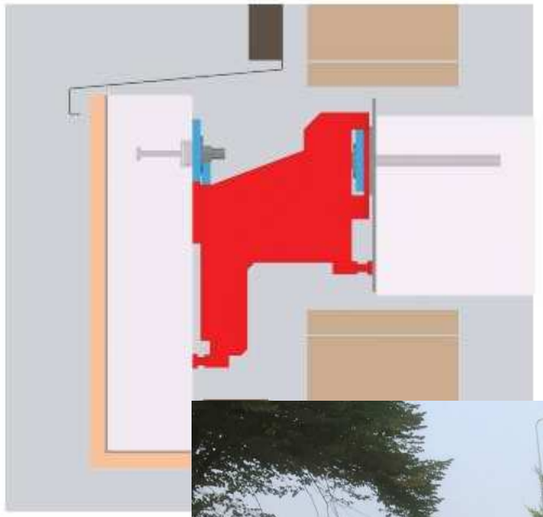




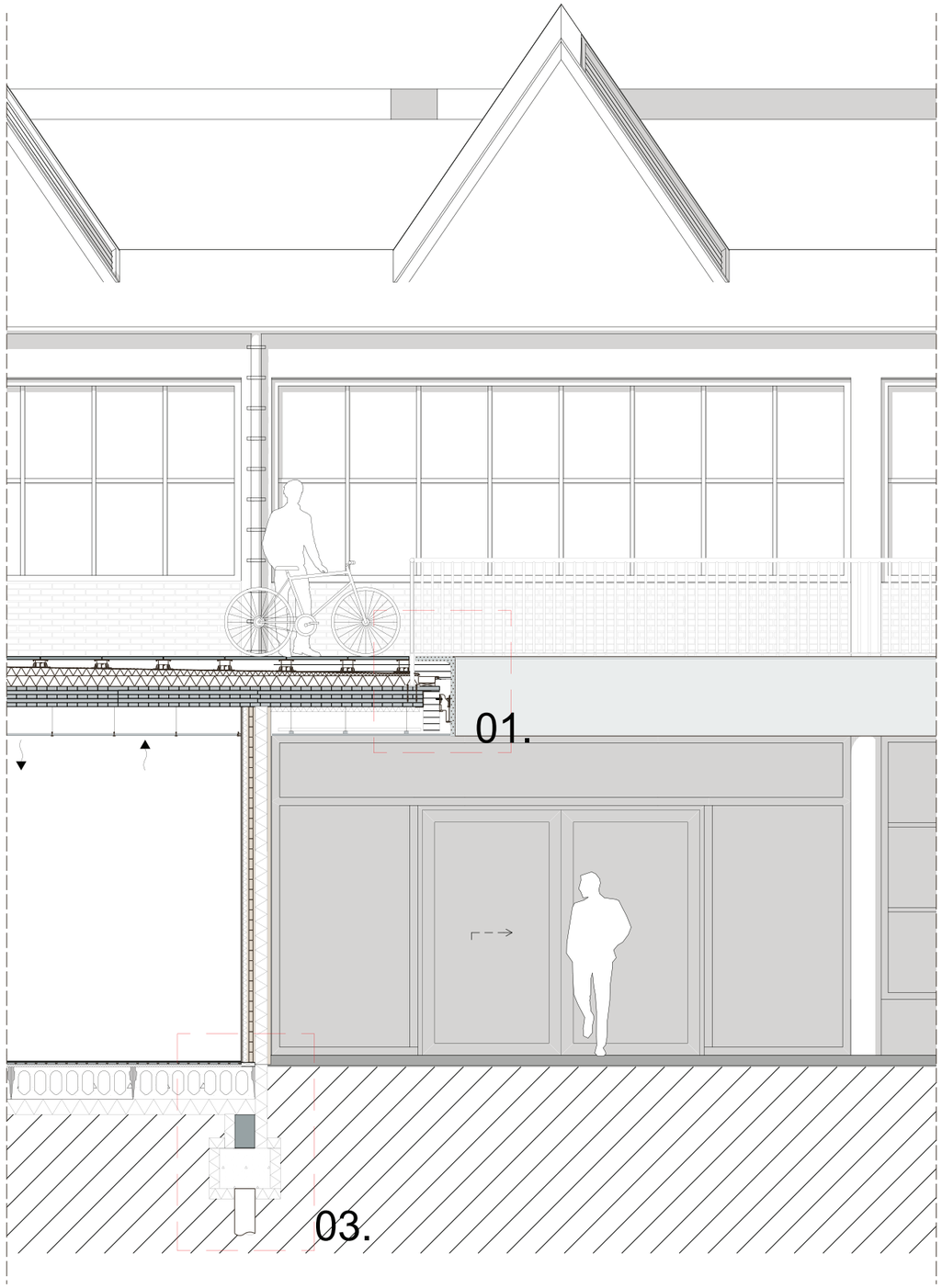


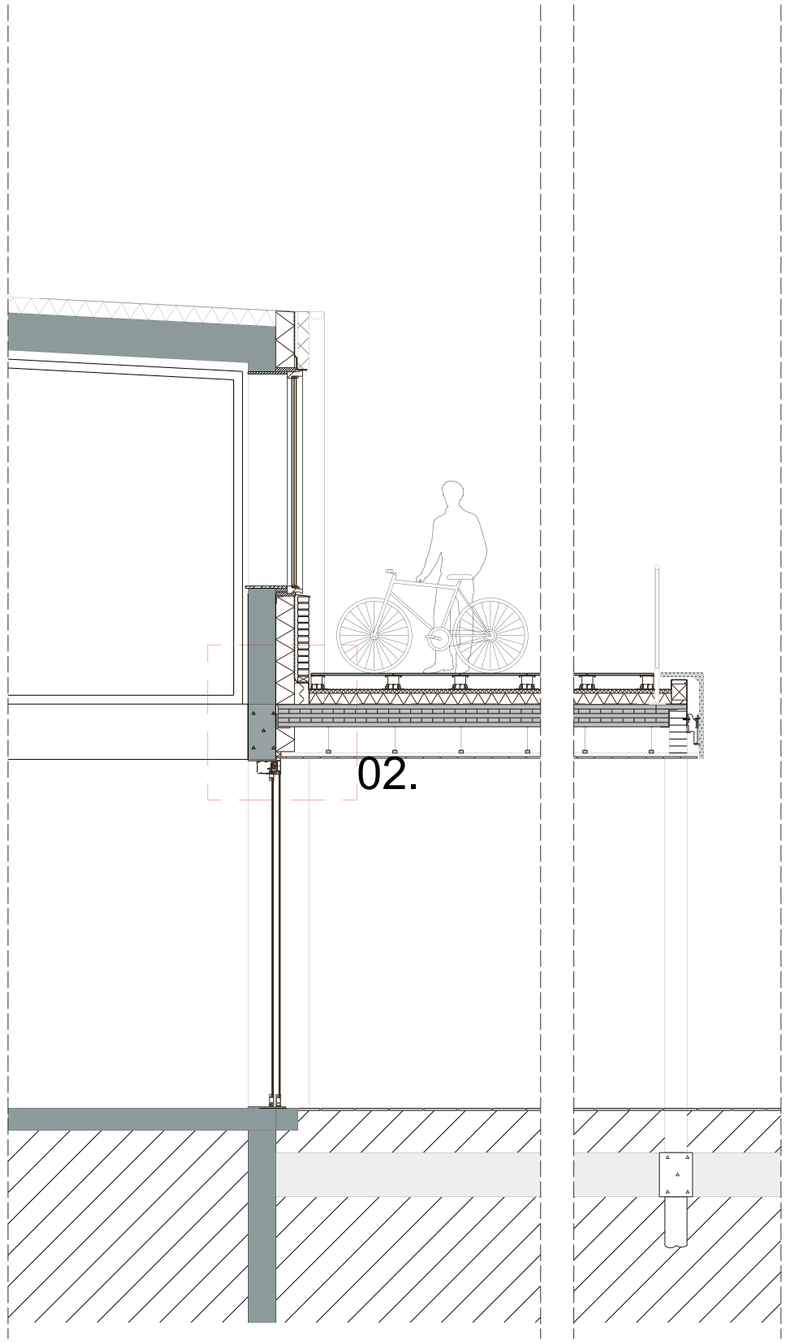
Final construction design



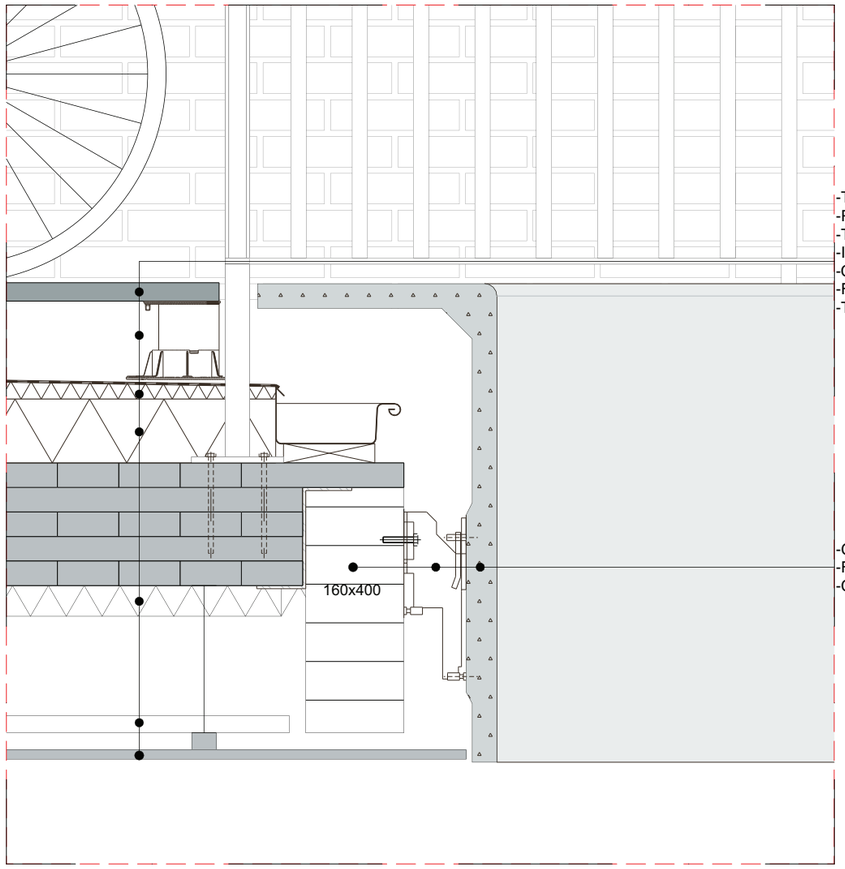


Technical details





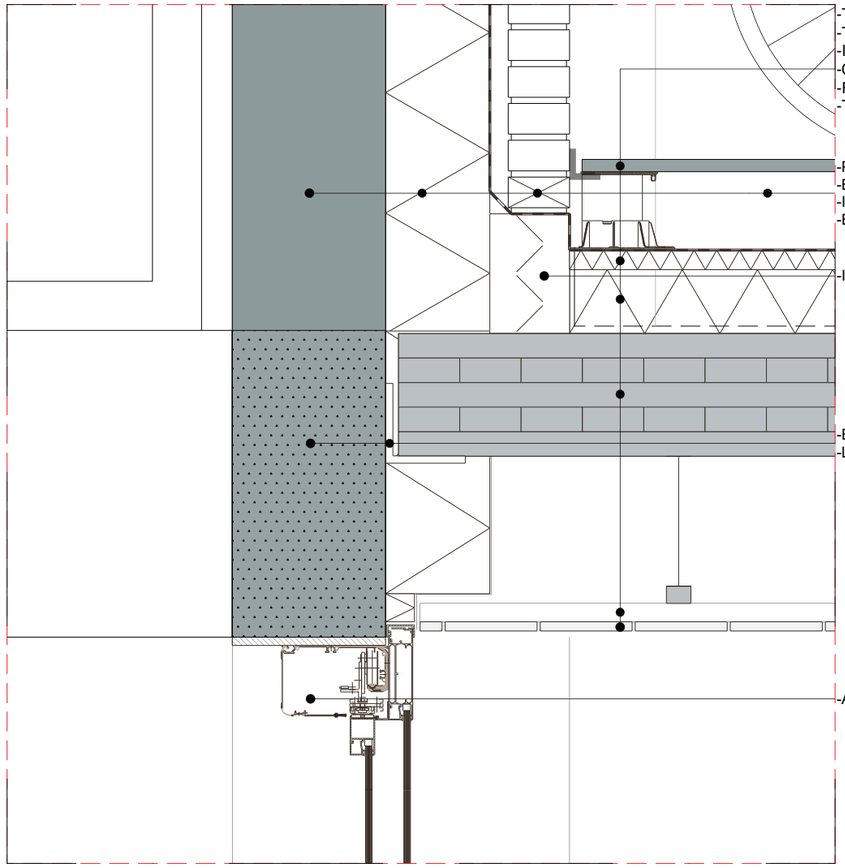
Fragment P4



-Tiles 30mm
-Paving Pedestal
-Tapered Insulation
-Insulation Rc-min= 5m2K/W
-CLT floor 200mm
-Framing 2x 28x40mm
-Timber finish 20mm

-Glulam 160x400mm
-Facade fixing system
-Concrete facade strip

01.



-Tiles 20mm
-Tapered Insulation
-Insulation Rc-min= 5m2K/W
-CLT floor 200mm
-Framing 2x 28x40mm
-Timber finish 20mm

-Pavement pedestal
-Brick 100mm
-Insulation Rc-min= 5.0m2K/W
-Existing brick structure

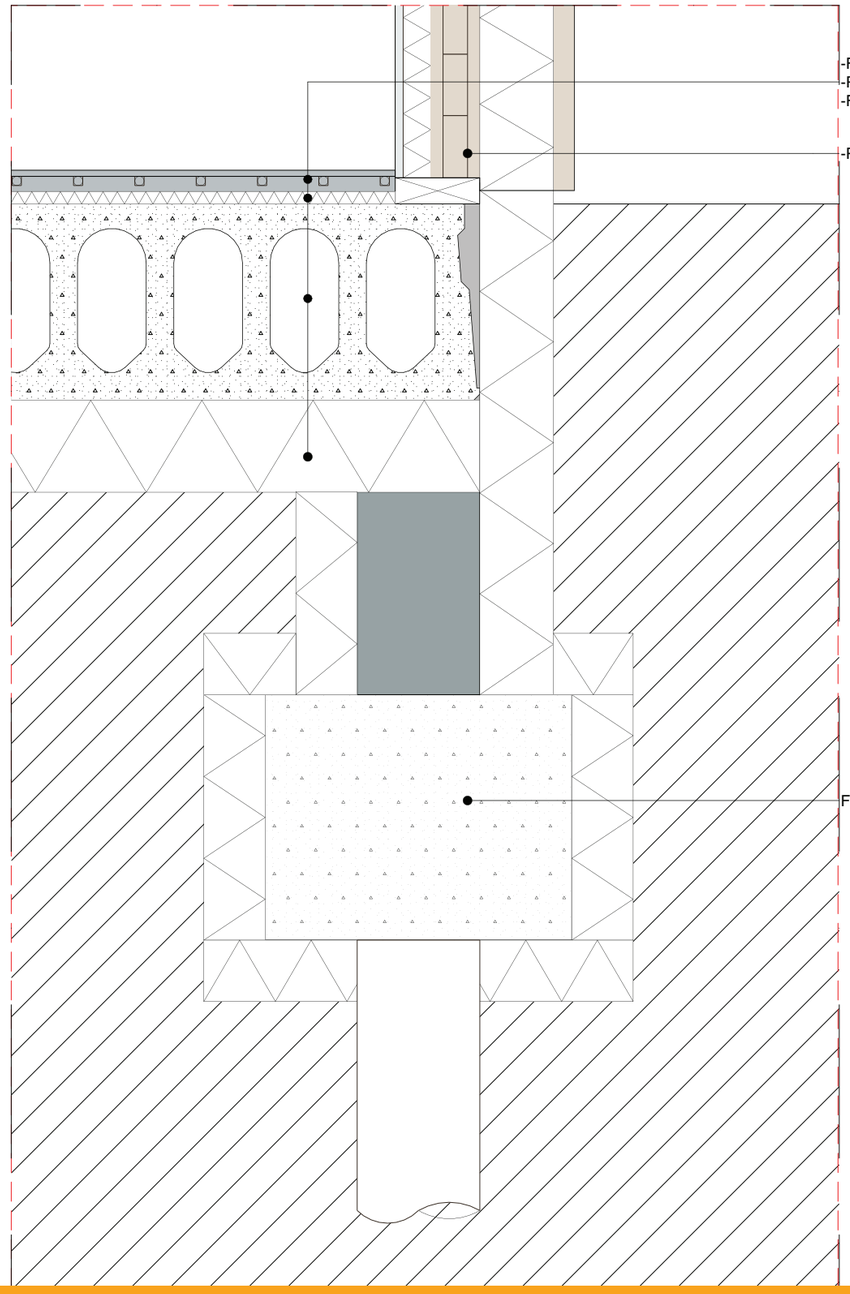
-Insulated building block

-Existing structural beam
-L Angle

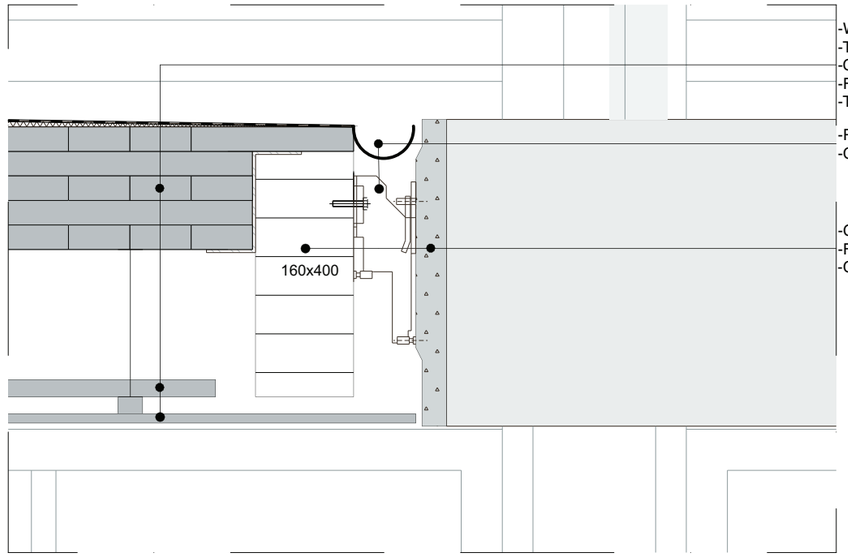
-Aluminium sliding door

02.

Detailing


-Fermacell estrichfloor with floorheating 55mm
-Remountable hollow core slab 320mm
-Floorinsulation 150mm
-Prefabricated Cross laminated timber facade wall
Foundation beam

03.


-Waterproof layer
-Tapered Insulation
-CLT floor 200mm
-Framing 2x 28x40mm
-Timber finish 20mm
-Roof gutter
-Concrete anker
-Glulam 160x400
-Facade fixing system
-Concrete facade strip
160x400

04.

P5

WELL-BEING WITHIN ALL SCALES

Alex Buijsman I 5943086

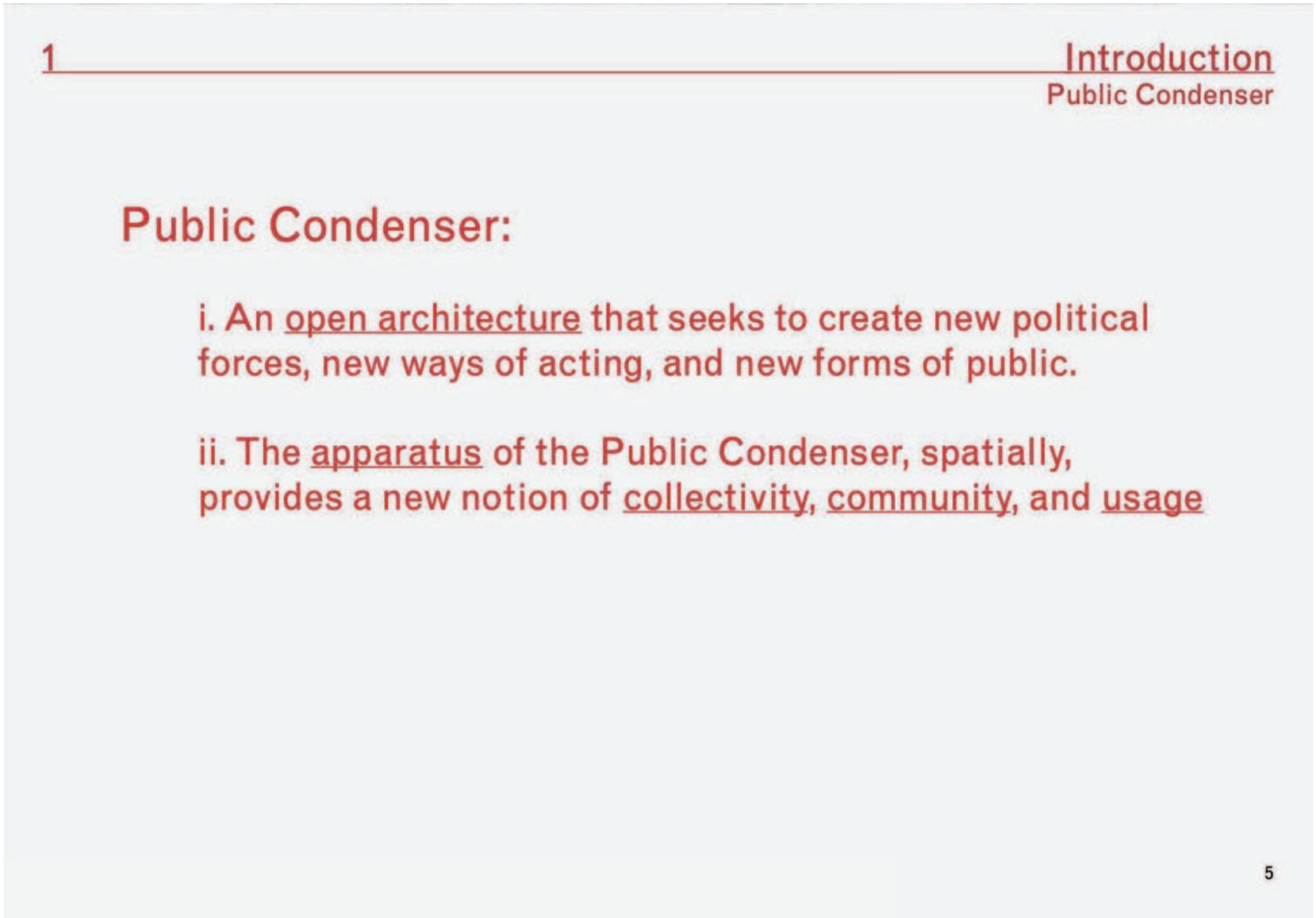
Under supervision of: Henk Bulstra I Florian Eckardt I Sien van Dam

INTRODUCTION
CONTEXT
PROCESS
PROPOSAL

WHAT IS A PUBLIC CONDENSER?

INTRODUCTION

PUBLIC CONDENSER



Public Condenser: definition by Yuncheng Jeffrey Deng,
Commons of Care – Copenhagen, Vesterbro – Public Building Graduation Studio Public Condenser, 2019-2020

HAVFRUEN

Kingo
LETS JUST FEAR
EVERYTHING

SUNDHOLM

“LET’S JUST FEAR EVERYTHING”

INTRODUCTION

CONTEXT

COPENHAGEN

SUNDHOLM

SITE

INTRODUCTION

HISTORY

1908

1945

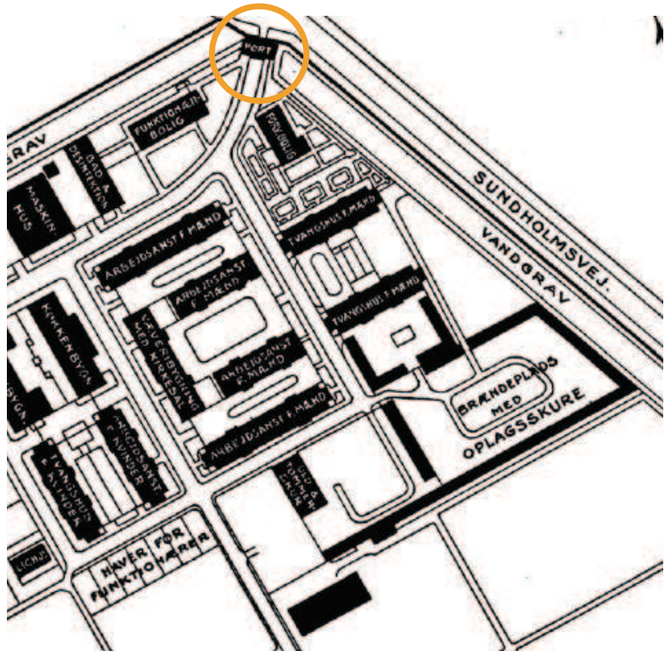
2000

INTRODUCTION

HISTORY

INTRODUCTION

TODAY



CONTEXT

VULNERABILITY

CONTEXT

QUALITIES

CONTEXT

CONCLUSION

A neighborhood divided by cultural background,
socio-economic challenges, vulnerability

↓

Disconnect among residents

↓

Social Isolation

↓

Pressure on physical, mental and social well-being & Health

PROCESS

RESEARCH QUESTION

RESEARCH QUESTION

“How can architectural design in the Sundholm Neighborhood promote physical, mental, and social well-being across diverse communities within a public condenser?”

WELL-BEING

[wel-bi-iŋ] **noun**

The state of being comfortable, healthy and happy

PROCESS

NABOHUS

NABOHUS

PROCESS

NABOHUS

NABO

[na;bo] **noun**

1. *A person living near or next to another; a neighbor*
2. *A fellow resident in a shared environment, such as a street, building or community*

PROCESS

NABOHUS

HUS

[Hus] **noun**

1. *A building for human habitation; a house*
2. *A structure for a specific function or gathering (e.g. community hall)*

PROCESS

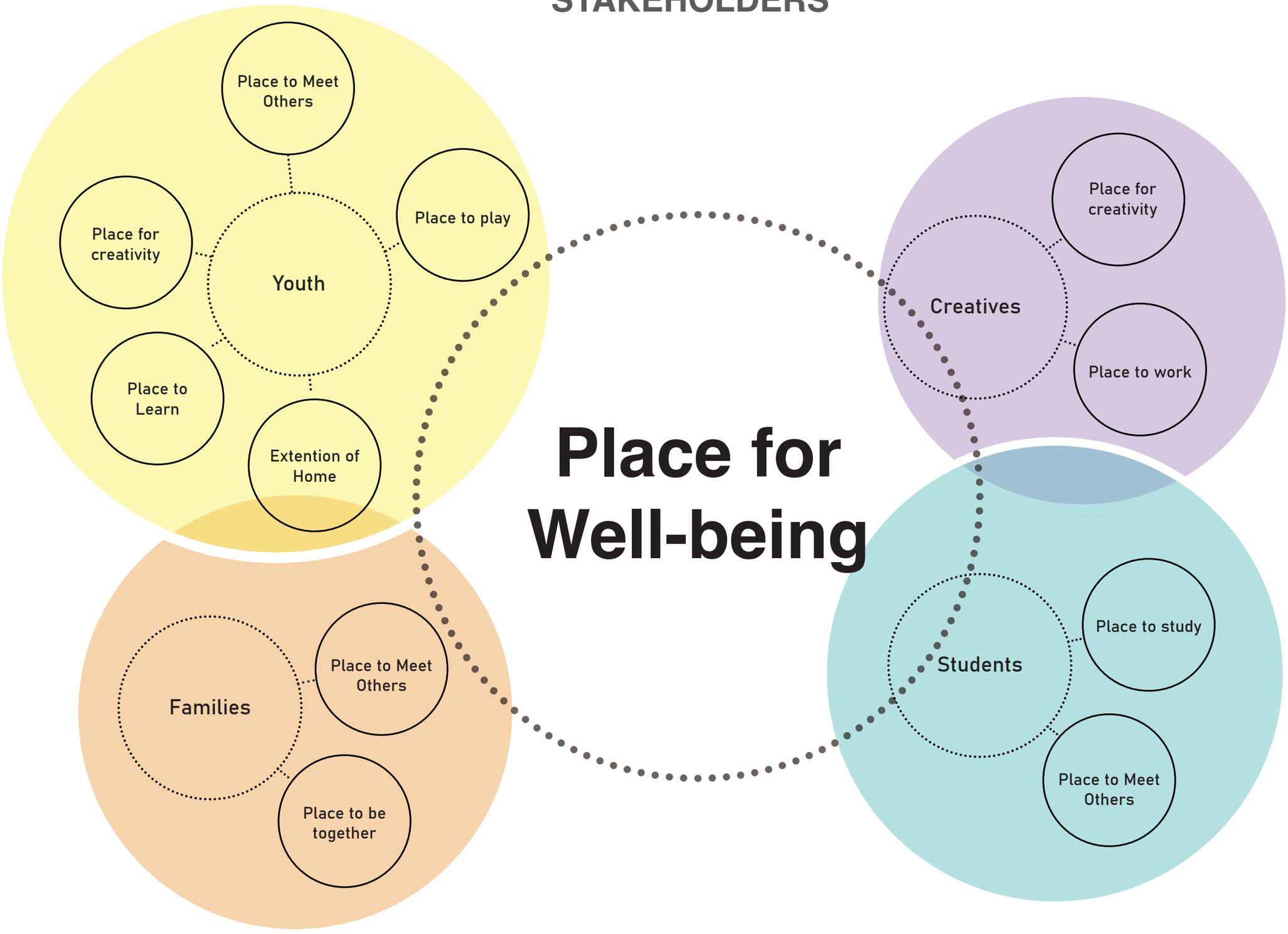
NABOHUS

NABOHUS

A HOUSE FOR NEIGHBOURS; A SHARED SPACE FOR CONNECTION, CARE, AND COMMUNITY

PROCESS

STAKEHOLDERS



PROCESS

MUNICIPALITY VISION

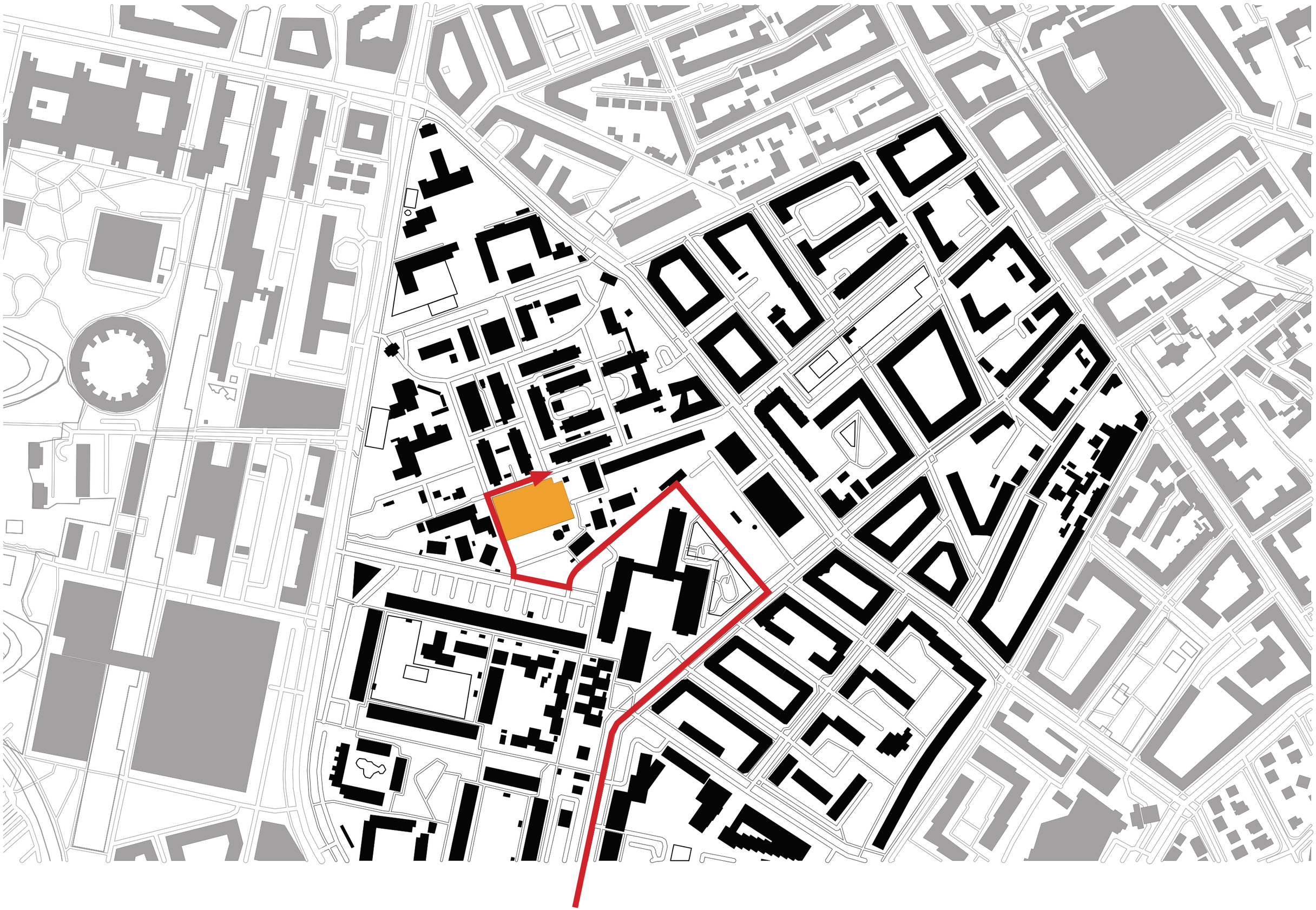
VISION

"SØNDERBRO MUST BE A **COHERENT GREEN DISTRICT** WITH A **STRONG IDENTITY** AND GOOD SPACE FOR COMMUNITY AND DIFFERENCE."

"THE NEIGHBOURHOOD IS **BOUND TOGETHER** BY A **WELL-FUNCTIONING TRAIL SYSTEM** AND BY **ATTRACTIVE GREEN STRETCHES**. HERE, **ART SHOWS THE WAY** THROUGH THE NEIGHBOURHOOD, AND IT'S EASY AND SAFE TO MOVE AROUND."

"SØNDERBRO IS **CONNECTED TO THE REST OF THE CITY** AND IS EXPERIENCED AS A GREEN AND EXCITING NEIGHBORHOOD WHERE GUESTS WANT TO VISIT AND WHERE YOU ARE PROUD TO LIVE AND BE-LONG."

Kopenhagen University
Amager Shopping Center
Residency
Concert Hall
Residency



PROCESS

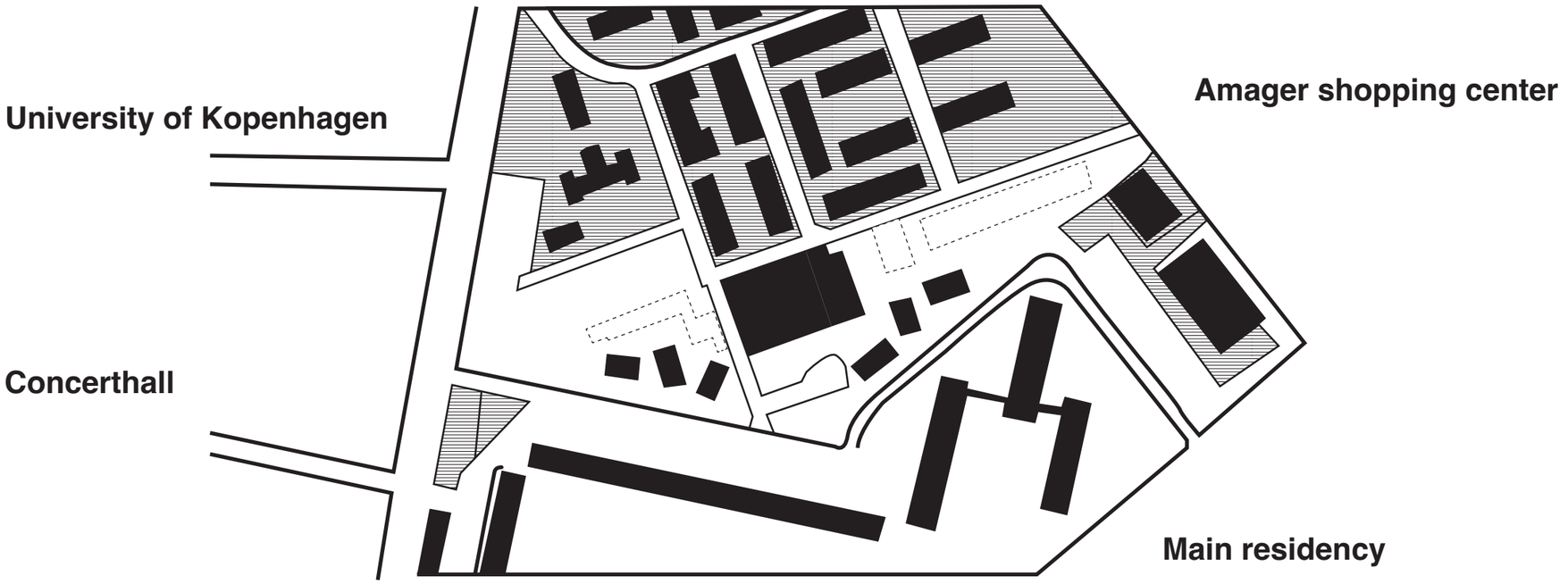
FABRIKKEN

PROCESS

FABRIKKEN

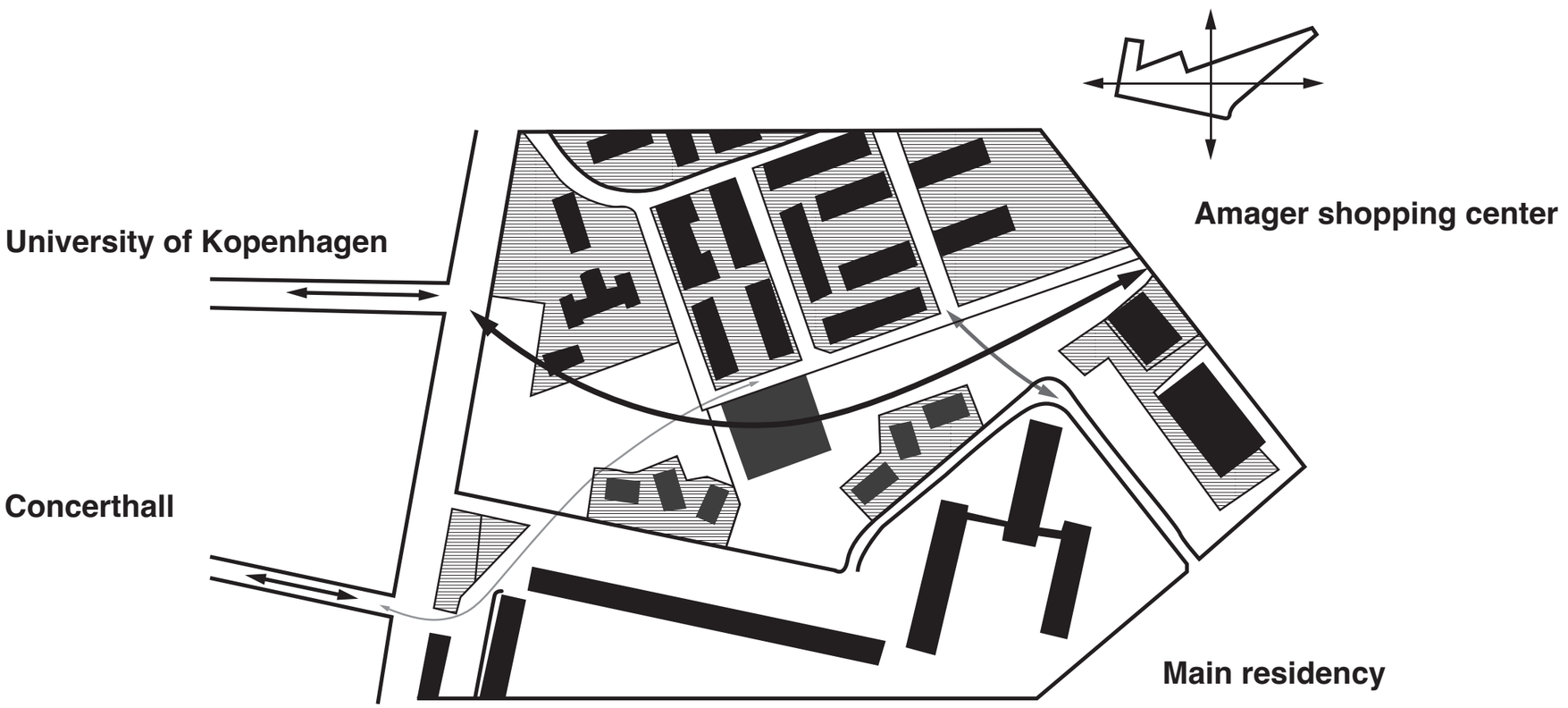
PROCESS

SITE ANALYSIS



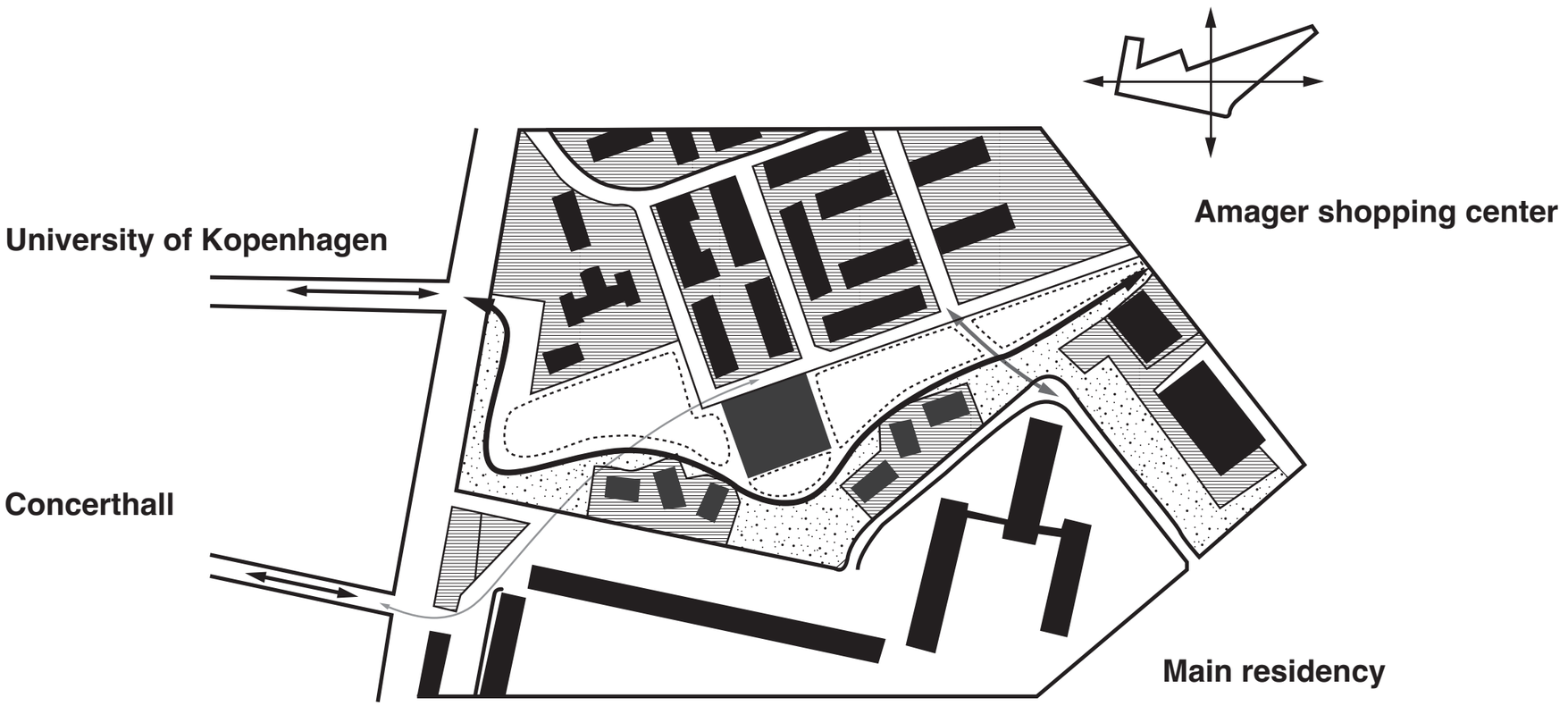
PROCESS

SITE ANALYSIS



PROCESS

SITE ANALYSIS



PROCESS

WELL-BEING CONCEPT

‘BROAD FOCUS ON USER GROUPS’

‘SPACE FOR INDIVIDUALS’

‘SPACE FOR GATHERING’

NEF

NEW ECONOMICS FOUNDATION

‘THE PROJECT AIMS TO ANALYZE THE MOST IMPORTANT DRIVERS OF MENTAL CAPITAL AND WELL-BEING TO DEVELOP A LONG-TERM VISION FOR MAXIMIZING MENTAL CAPITAL AND WELL-BEING’

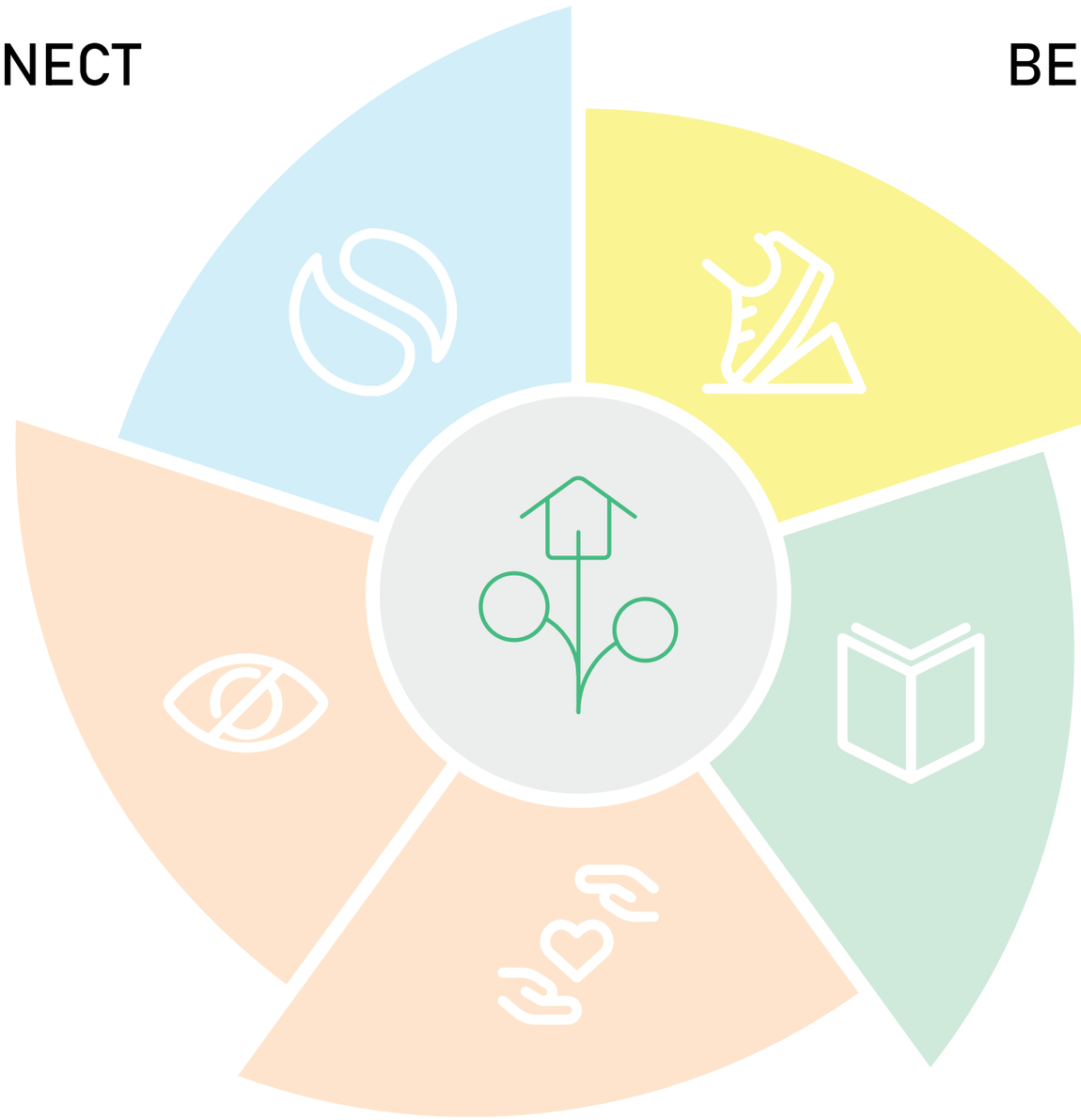
5 WAYS TO WELL-BEING

PROCESS

5 WAYS TO WELL-BEING

CONNECT

BE ACTIVE



TAKE NOTICE

KEEP LEARNING

GIVE TO OTHERS

centre of well-being,New economics foundation

‘PRINCIPLE BASED ON SCIENTIFIC RESEARCH’

NEURO- ARCHITECTURE

APPLIES PRINCIPLES OF NEUROSCIENCE TO ARCHITECTURAL DESIGN, SEEKING TO CREATE SPACES THAT POSITIVELY INFLUENCE COGNITIVE FUNCTION, WELL-BEING, AND OVERALL EXPERIENCE.

Neuroarchitecture: How the Perception of Our Surroundings Impacts the Brain; Sarah Abbas

PROCESS

NEURO-ARCHITECTURE

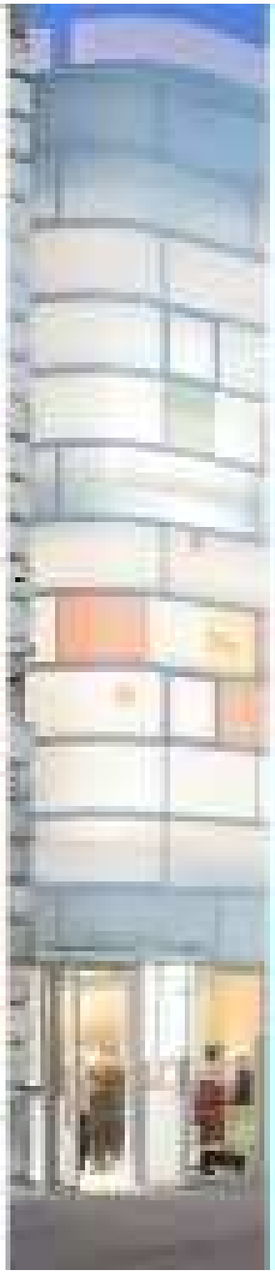
THERMAL COMFORT

AIR QUALITY

NATURAL MATERIALS

BIOPHILIC DESIGN

LIGHTING


ACOUSTICS

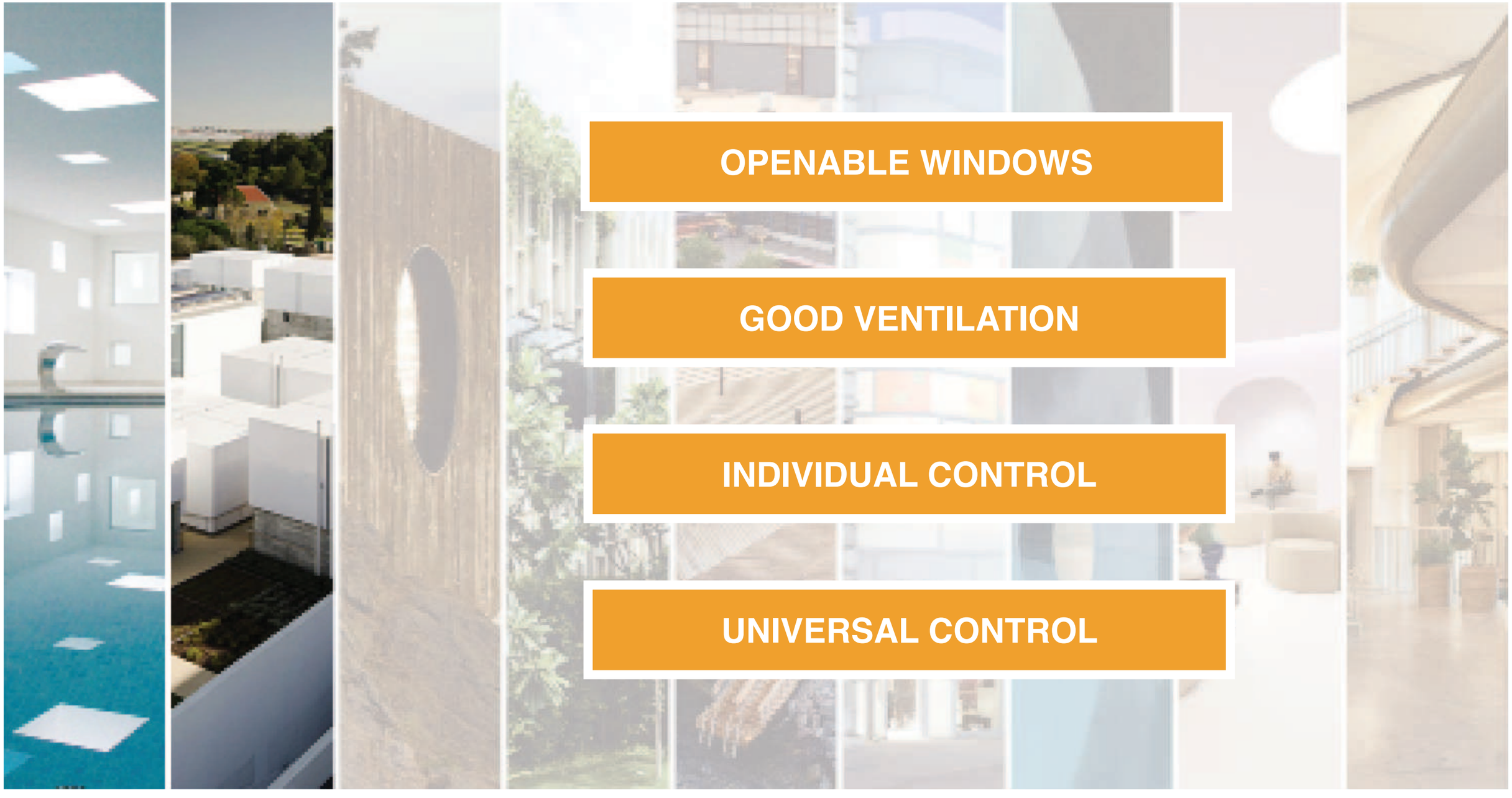
COLOR PSYCHOLOGY

RESTORATIVE SPACES

ORGANIC FORMS

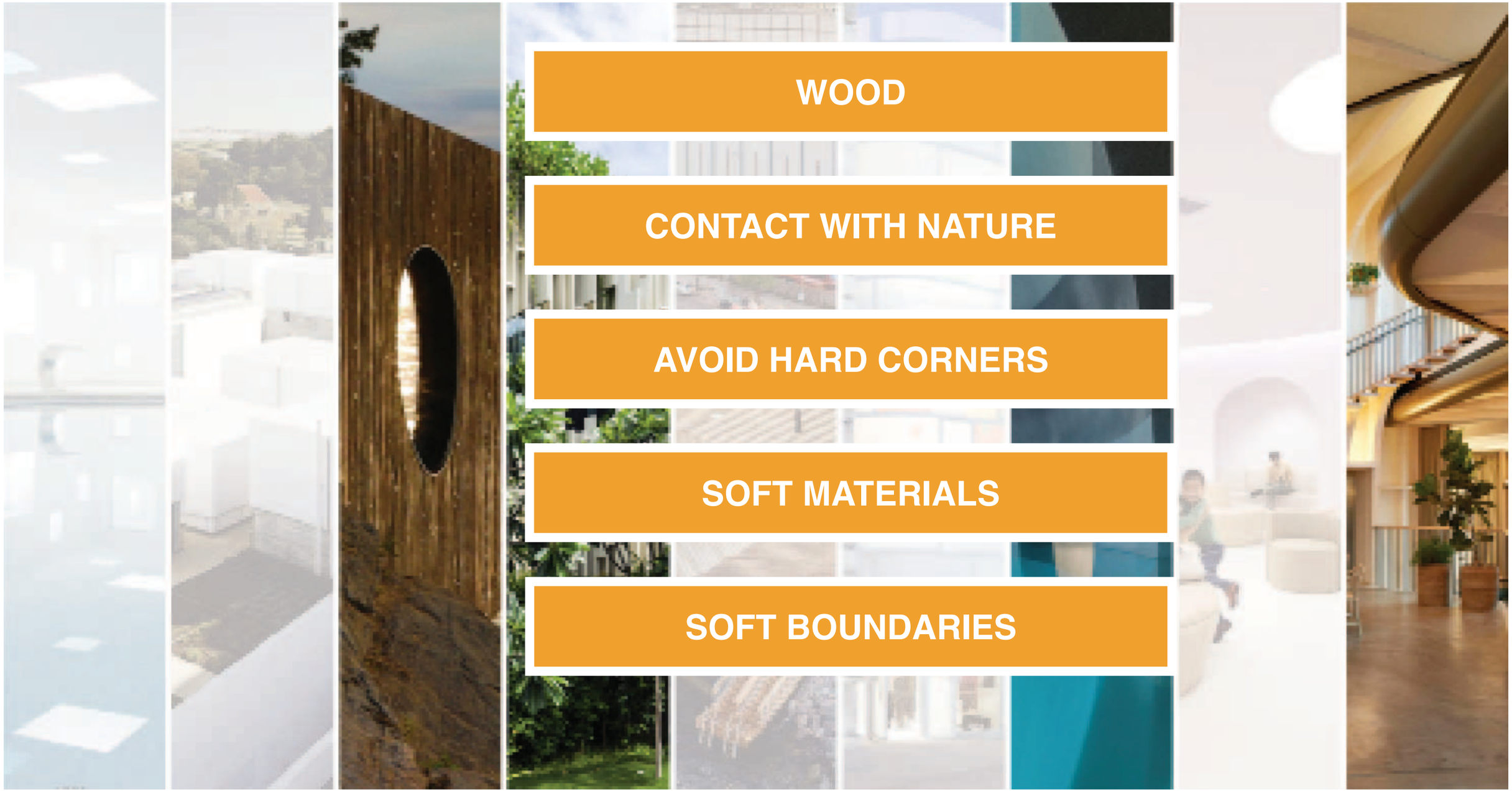
PROCESS

NEURO-ARCHITECTURE



PROCESS

NEURO-ARCHITECTURE



THERMAL COMFORT

AIR QUALITY

NATURAL MATERIALS

BIOPHILIC DESIGN

LIGHTING

ACOUSTICS

COLOR PSYCHOLOGY

RESTORATIVE SPACES

ORGANIC FORMS

PROCESS

NEURO-ARCHITECTURE

NATURAL LIGHTING

SOFT LIGHTING

PEACEFUL SPACE

SOFT MATERIALS

THERMAL COMFORT

AIR QUALITY

NATURAL MATERIALS

BIOPHILIC DESIGN

LIGHTING

ACOUSTICS

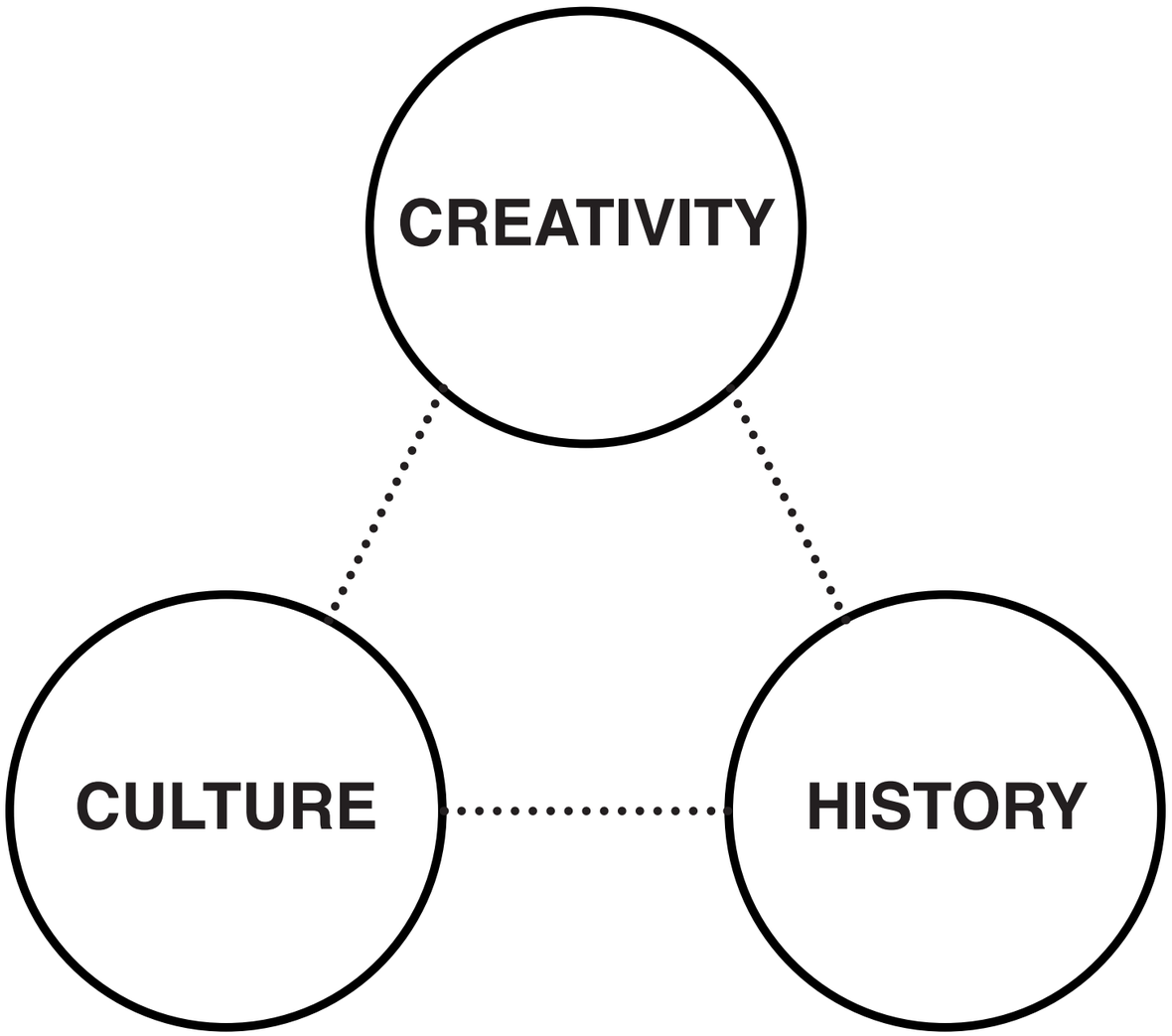
COLOR PSYCHOLOGY

RESTORATIVE SPACES

ORGANIC FORMS

PROCESS

IDENTITY



PROPOSAL

LANDSCAPE

1. Transportation
2. Wet surface
3. Hard surface
4. Soft surface
5. Connection

PROPOSAL

DIKE

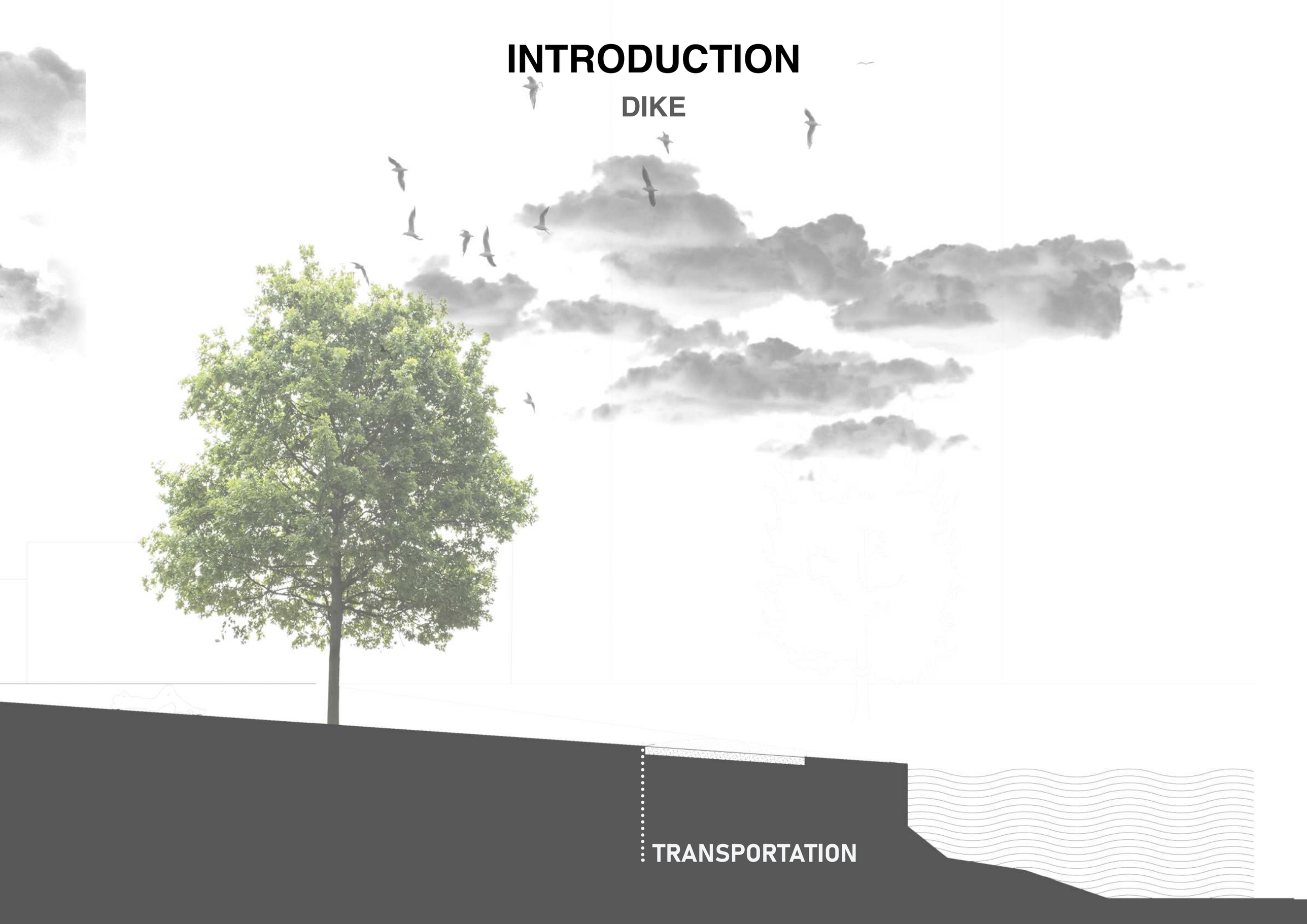
SOFT

TRANSPORTATION

SOFT

INTRODUCTION

DIKE

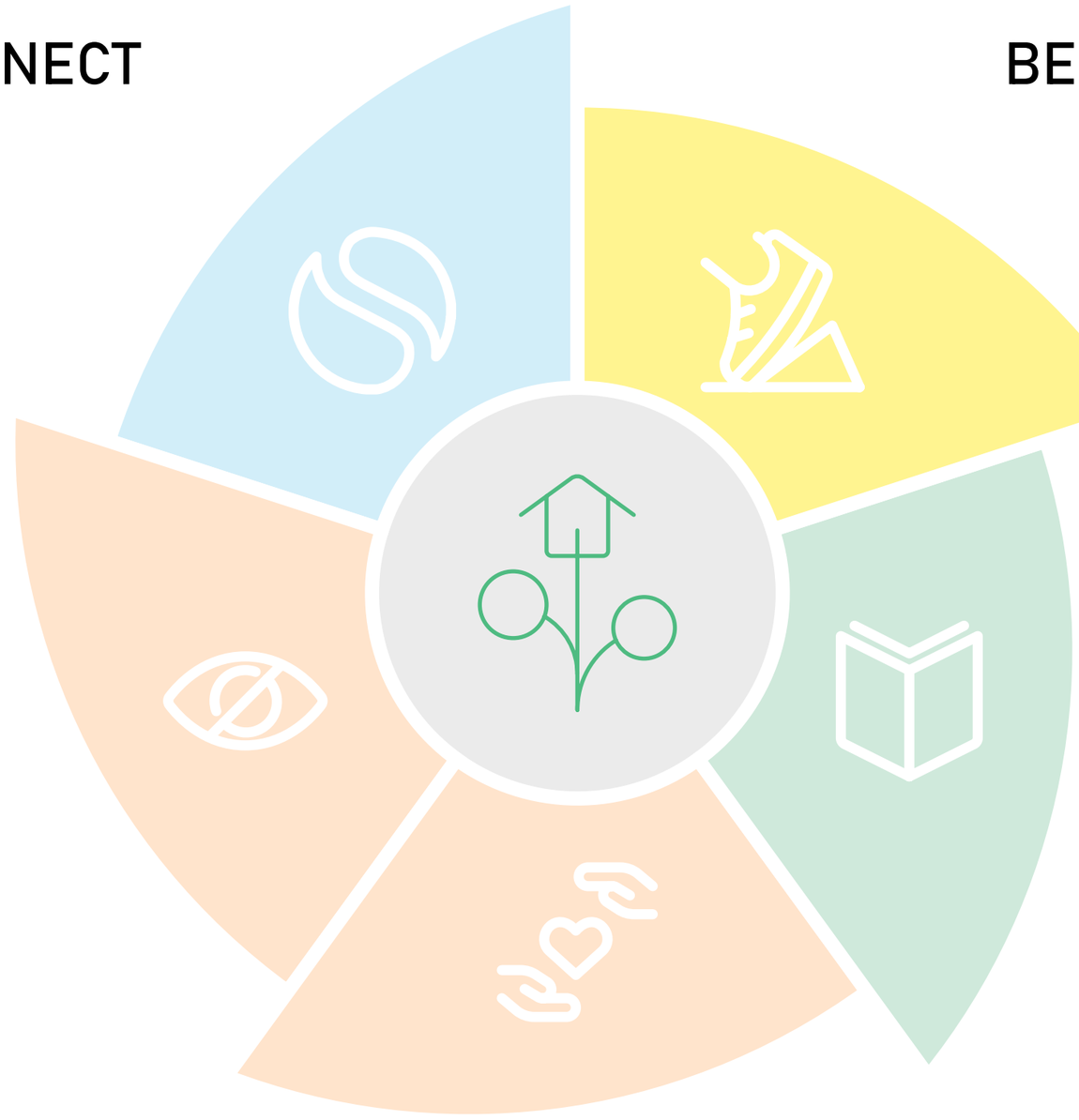


PROPOSAL

5 WAYS TO WELL-BEING

CONNECT

BE ACTIVE



TAKE NOTICE

KEEP LEARNING

GIVE TO OTHERS

centre of well-being,New economics foundation

PROPOSAL

CONNECT

CONNECT

PROPOSAL

CONNECT

PROPOSAL

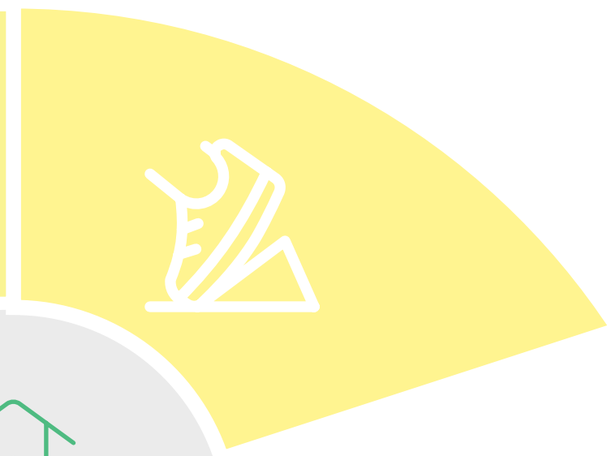
CONNECT

PROPOSAL

BE ACTIVE

BE ACTIVE

WALK OR RUN
STEP OUTSIDE
EXERCISE



PROPOSAL

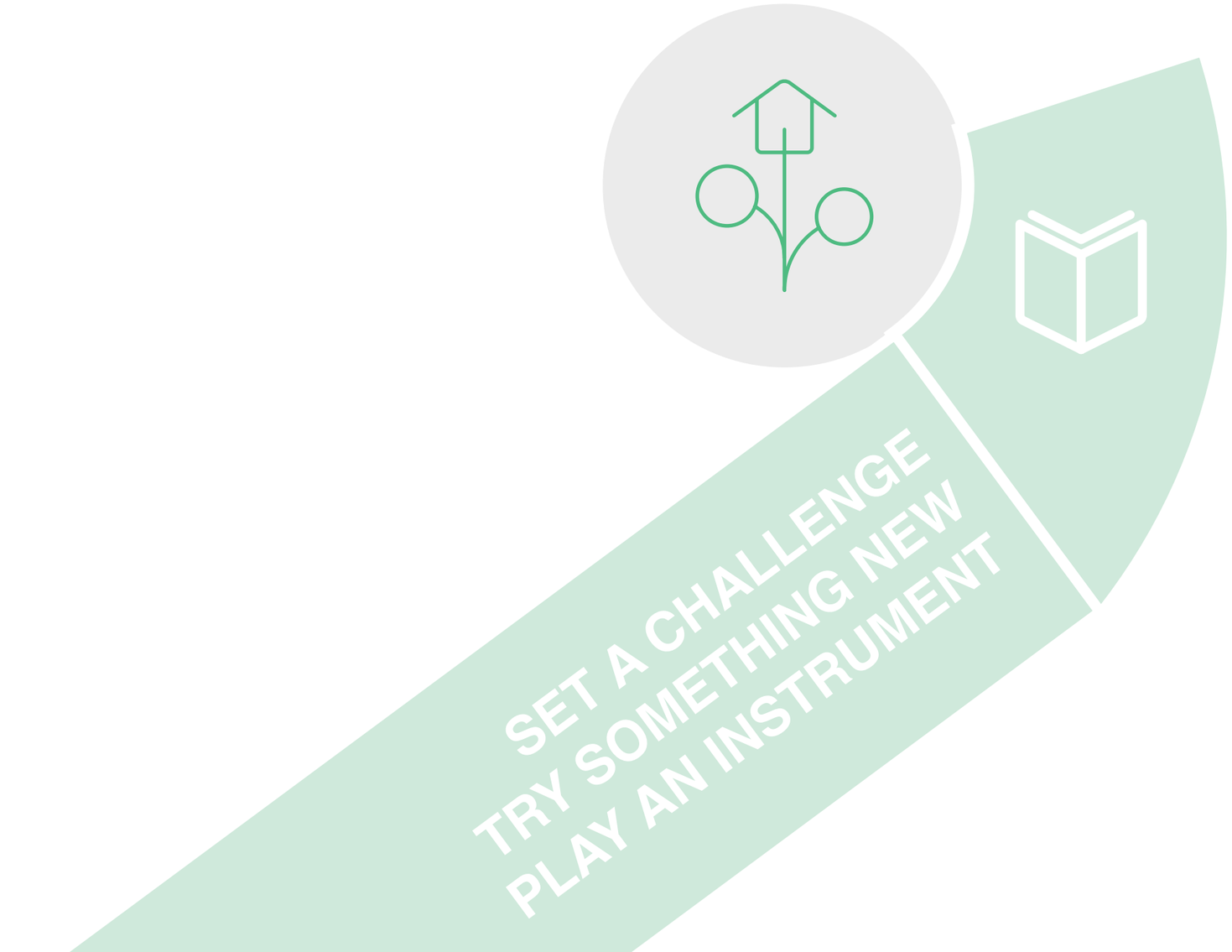
BE ACTIVE

PROPOSAL

BE ACTIVE

PROPOSAL

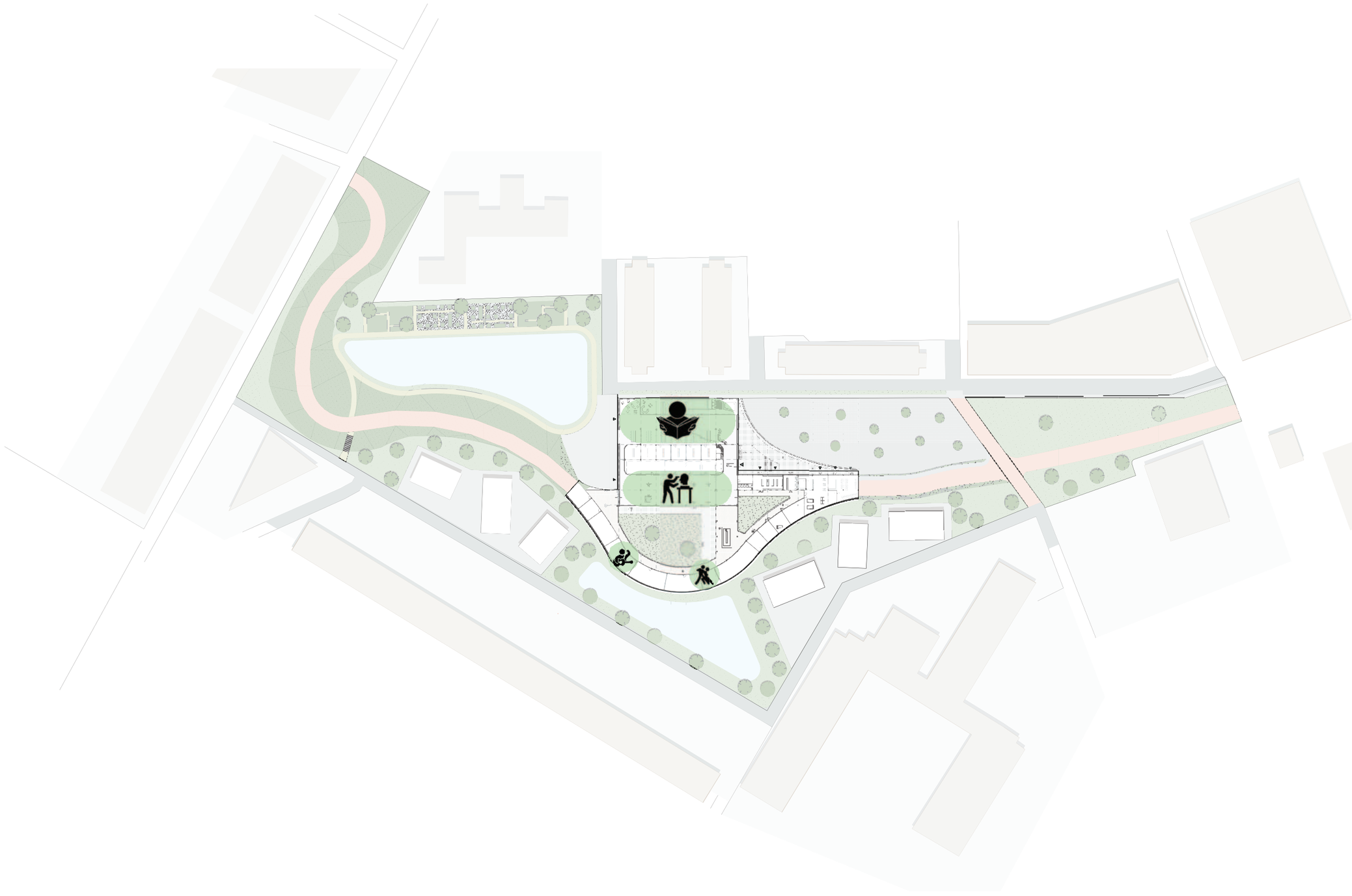
KEEP LEARNING



KEEP LEARNING

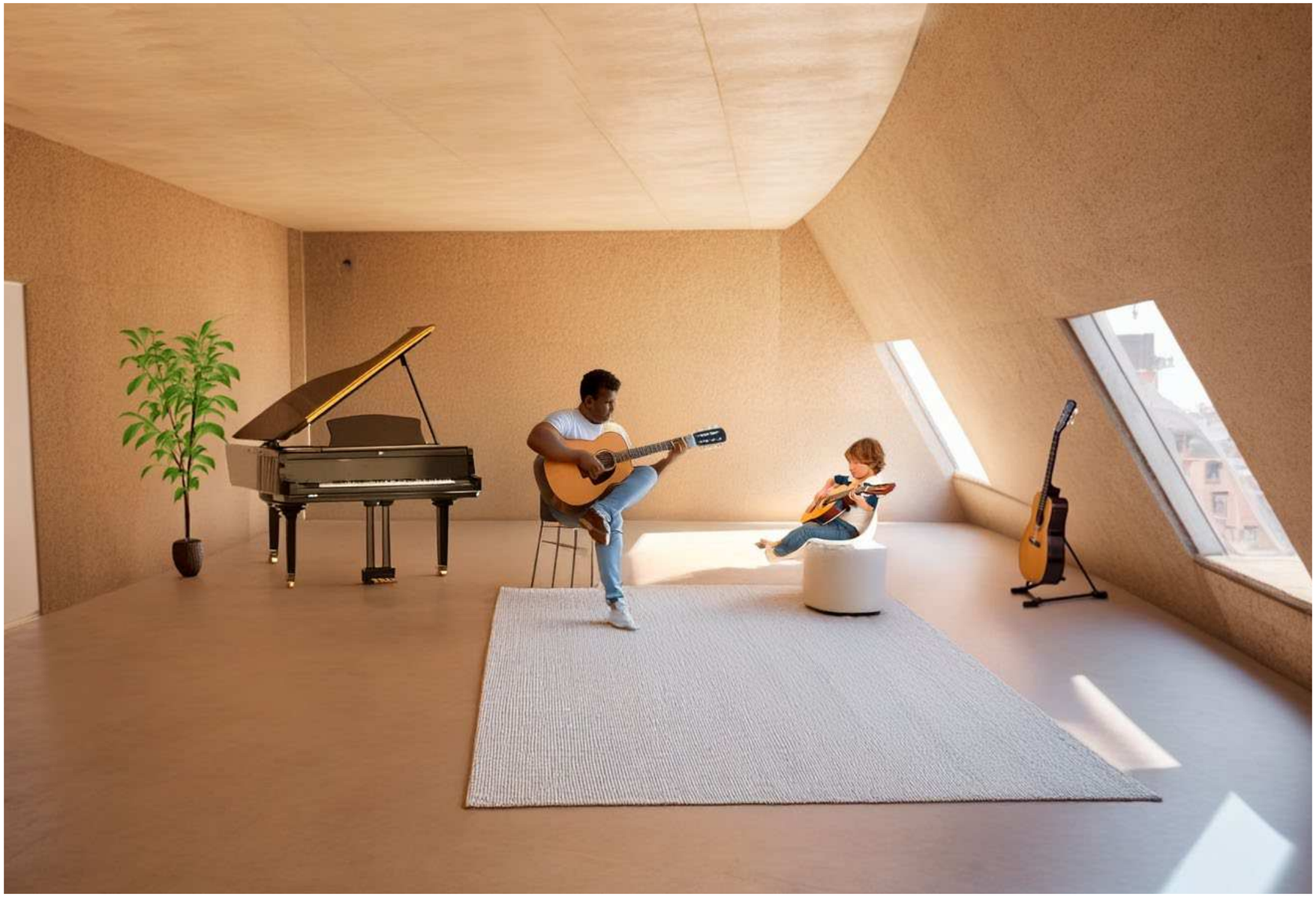
PROPOSAL

KEEP LEARNING



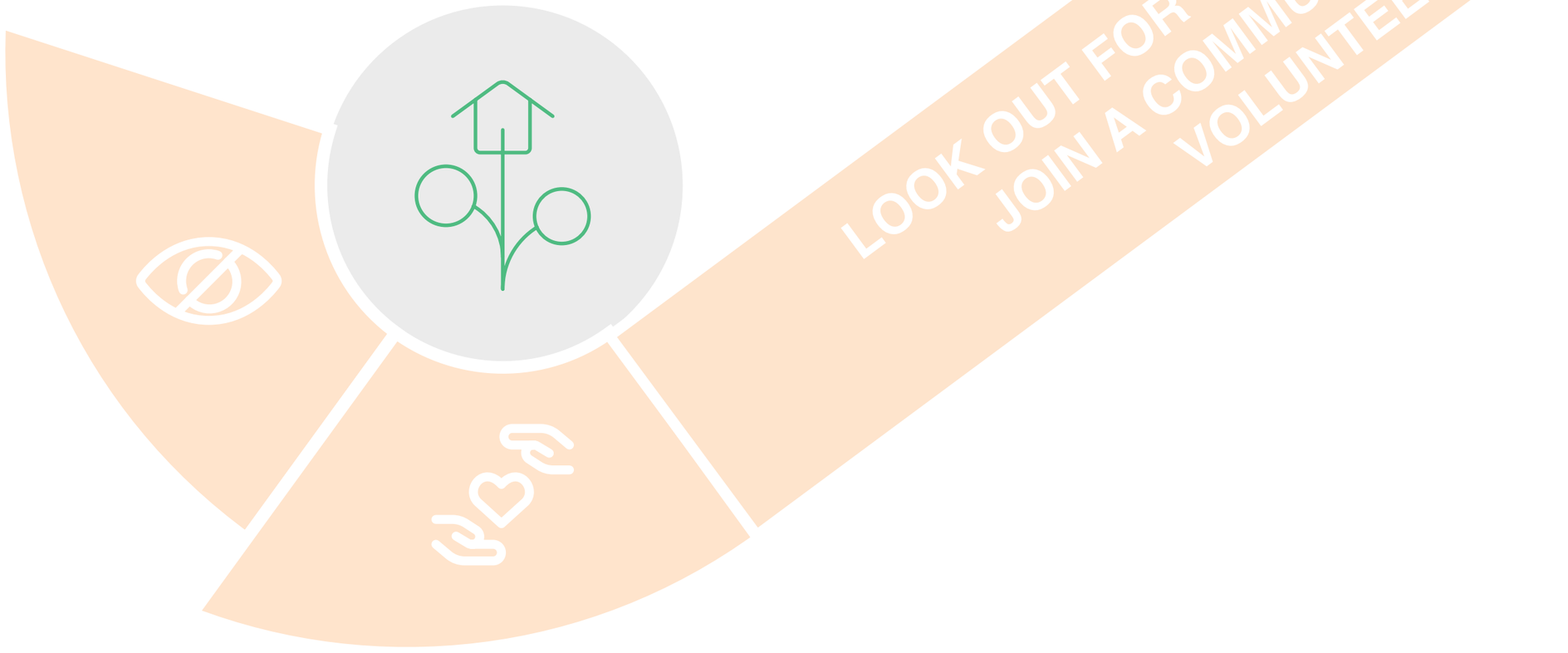
PROPOSAL

KEEP LEARNING



PROPOSAL

GIVE TO OTHERS & TAKE NOTICE



TAKE NOTICE

GIVE TO OTHERS

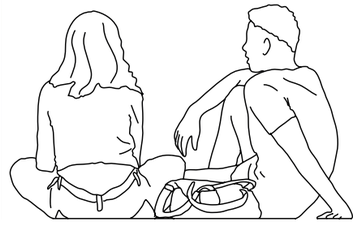
PROPOSAL

GIVE TO OTHERS & TAKE NOTICE

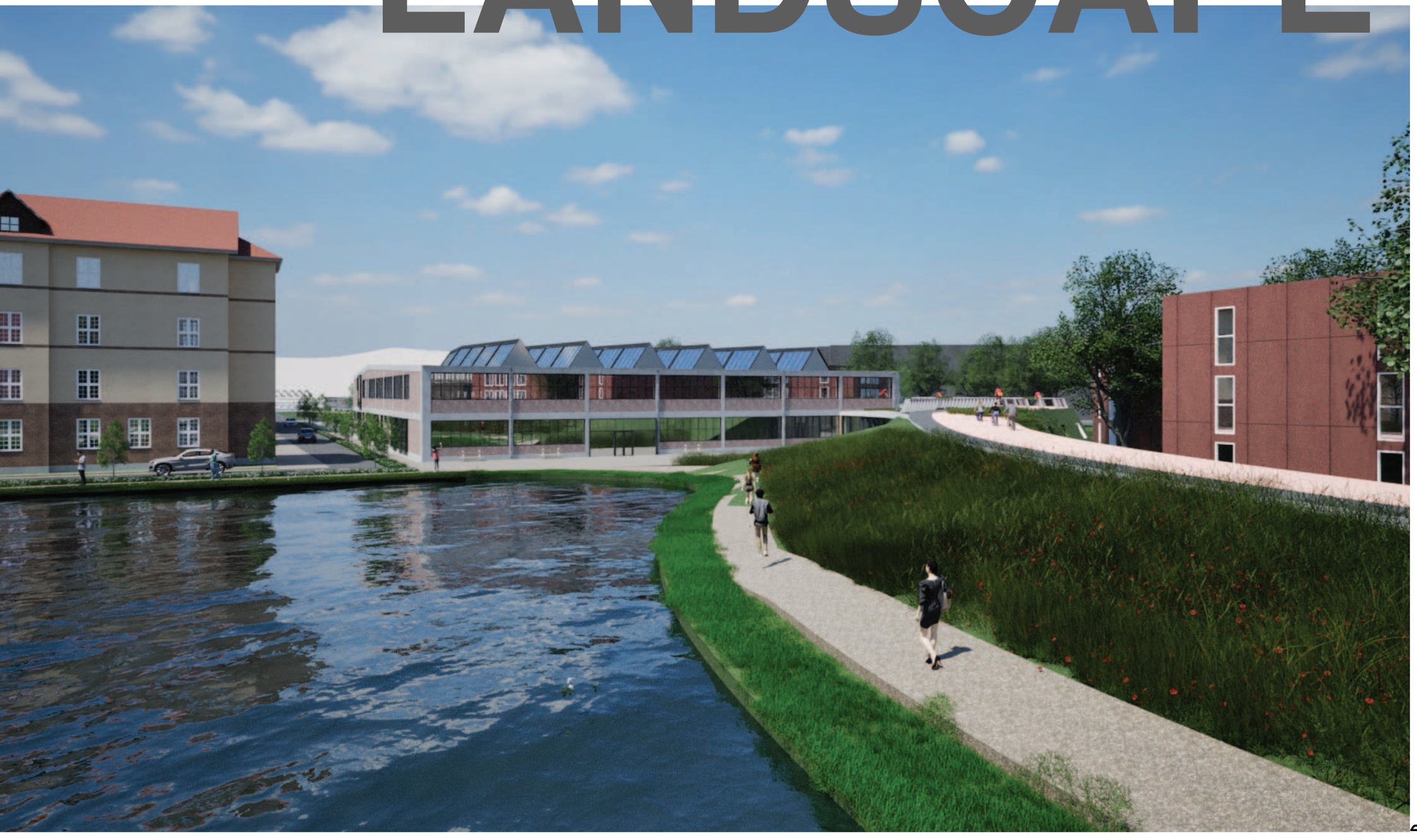
PROPOSAL

GIVE TO OTHERS & TAKE NOTICE

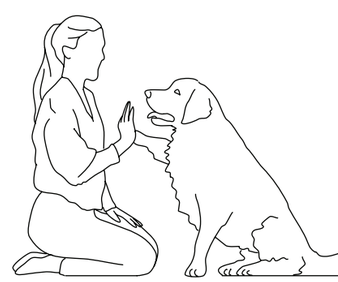
LANDSCAPE



LANDSCAPE



LANDSCAPE



PROPOSAL

FABRIKKEN

PROPOSAL

FABRIKKEN

PROPOSAL

FABRIKKEN

OLD

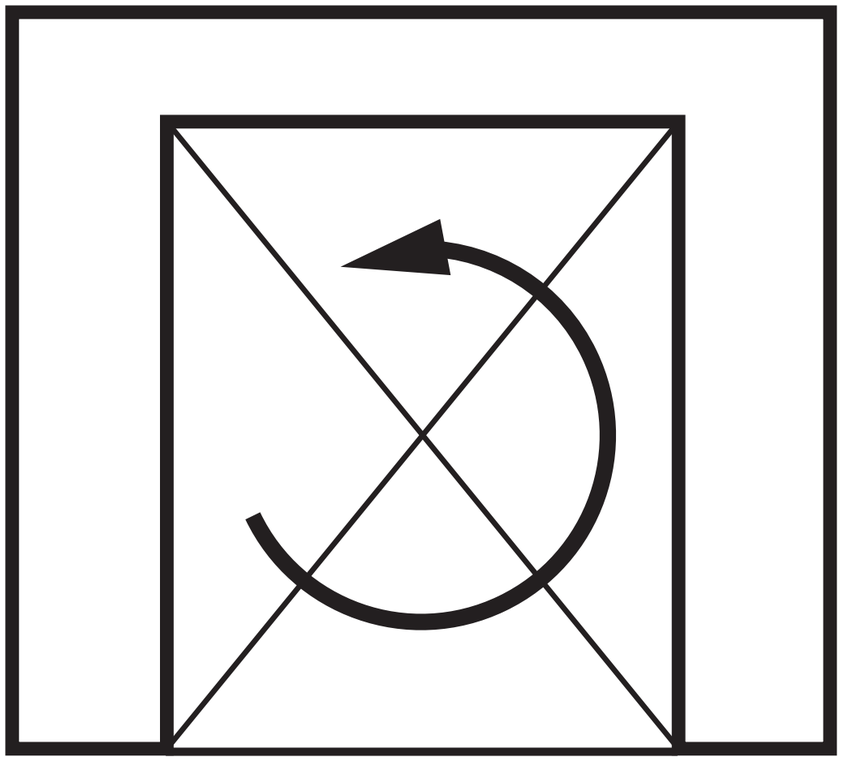
PROPOSAL

FABRIKKEN

NEW

PROPOSAL

EXISTING GRID

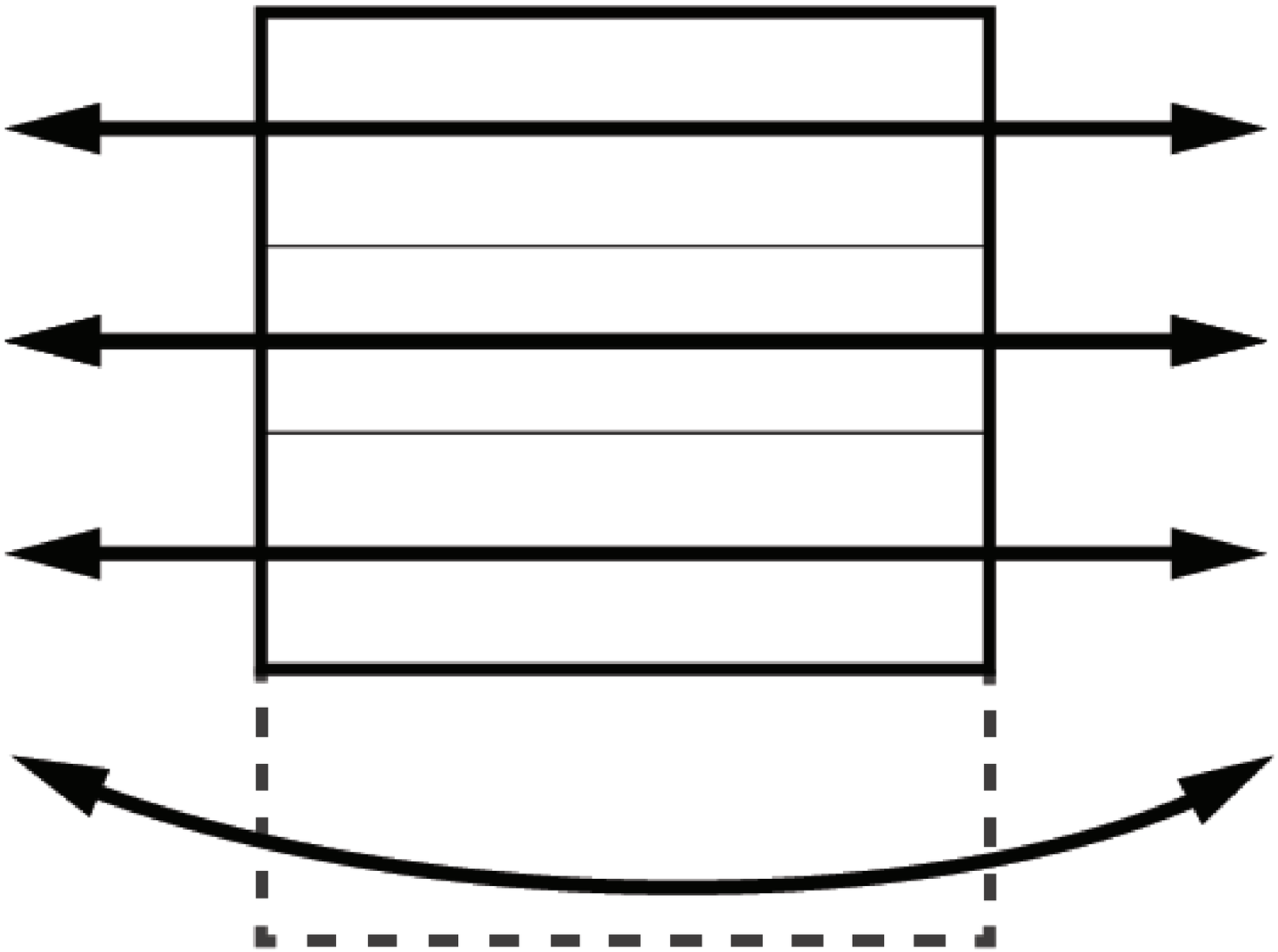


PROPOSAL

NEW GRID

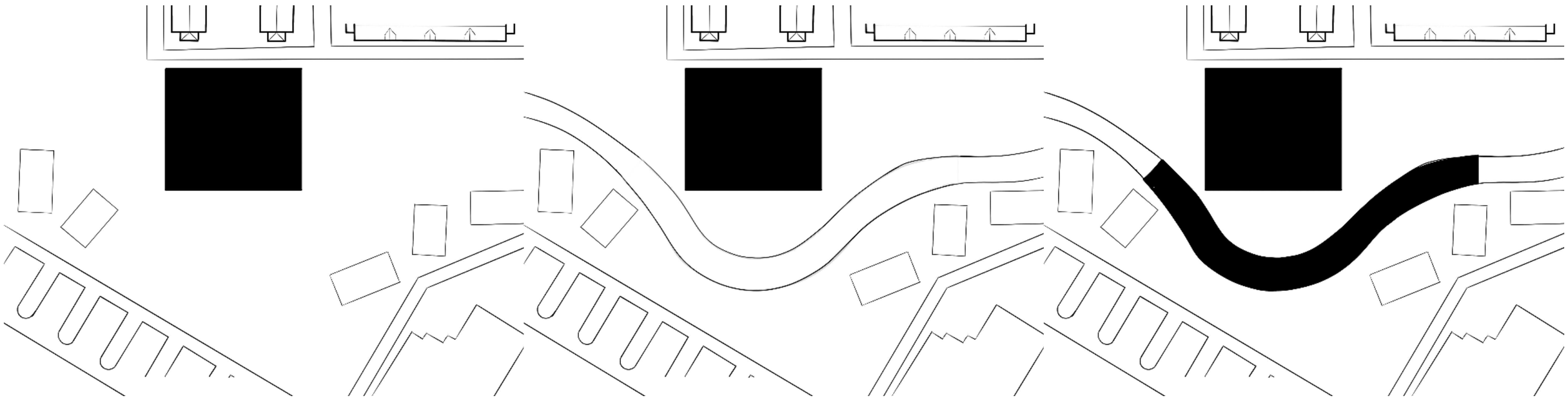
PROPOSAL

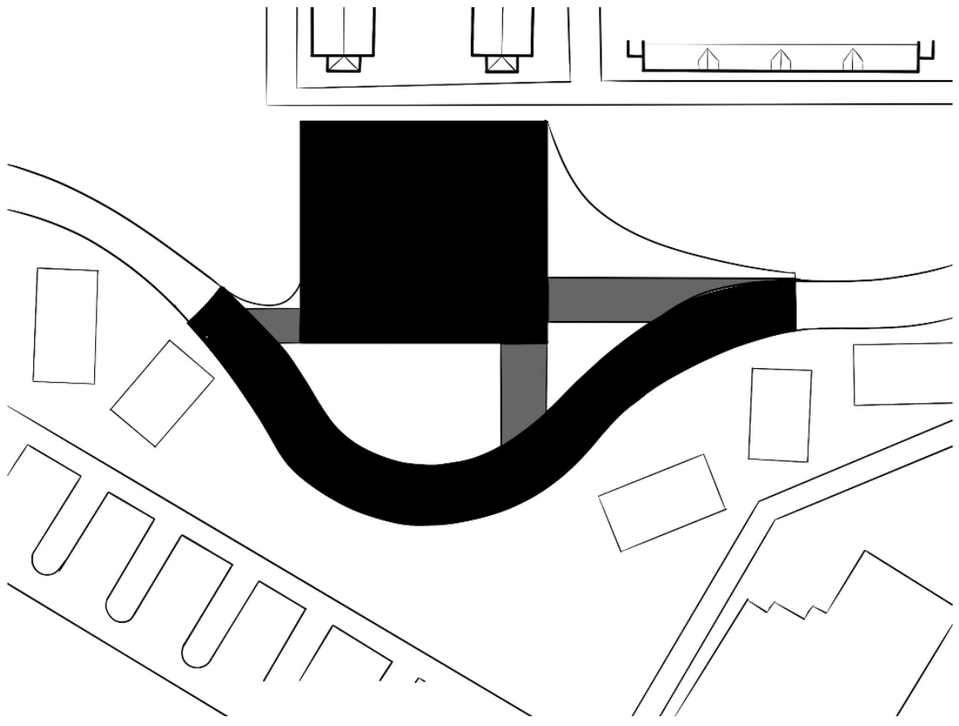
ADDITION



PROPOSAL

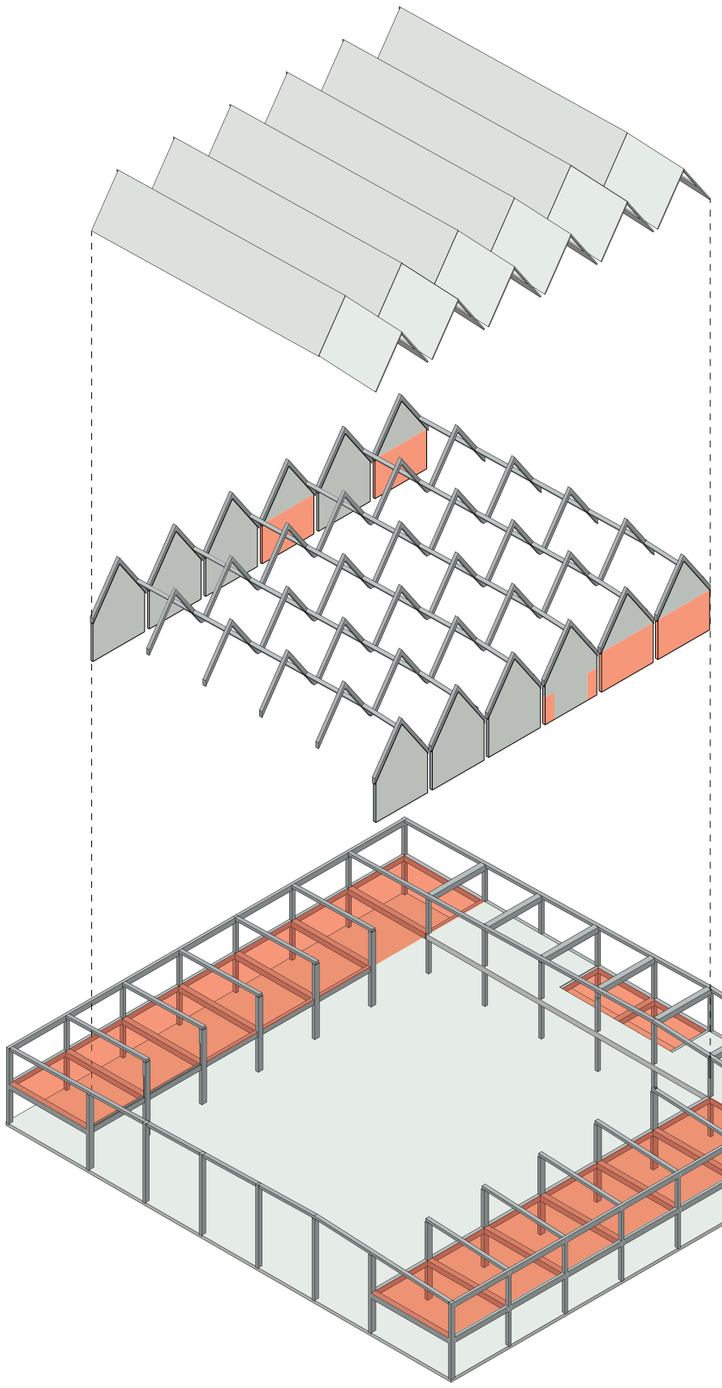
CONCEPT

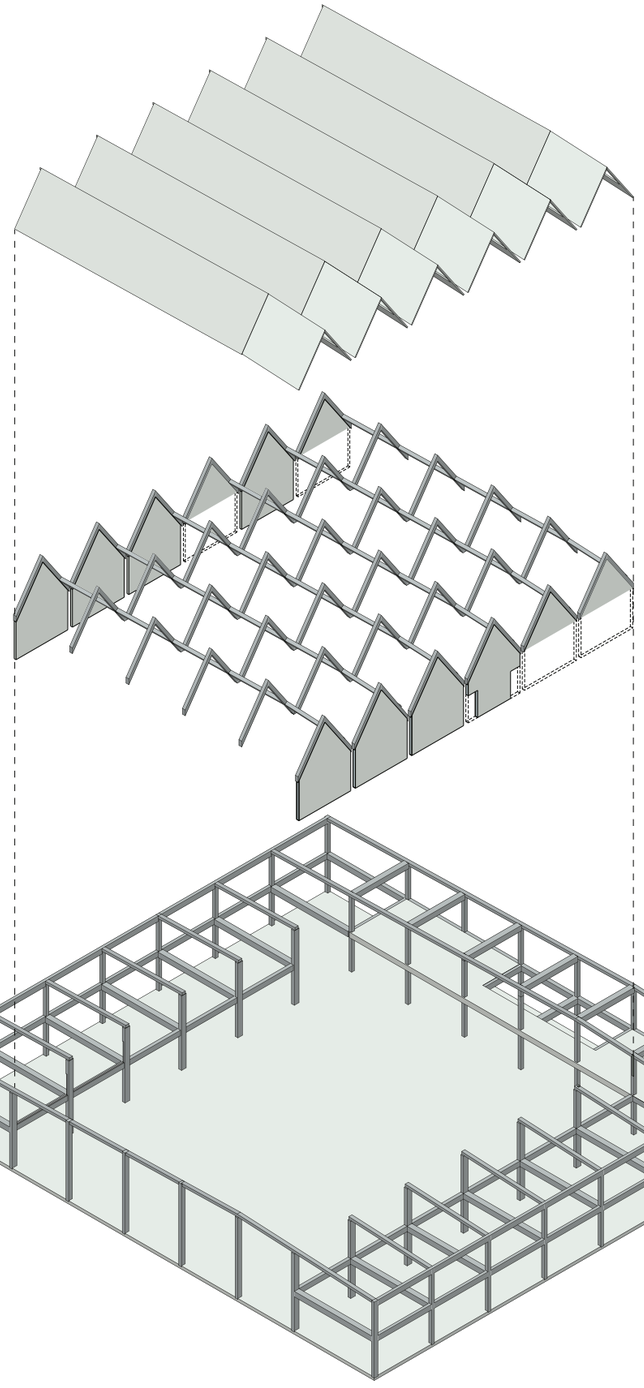




PROPOSAL

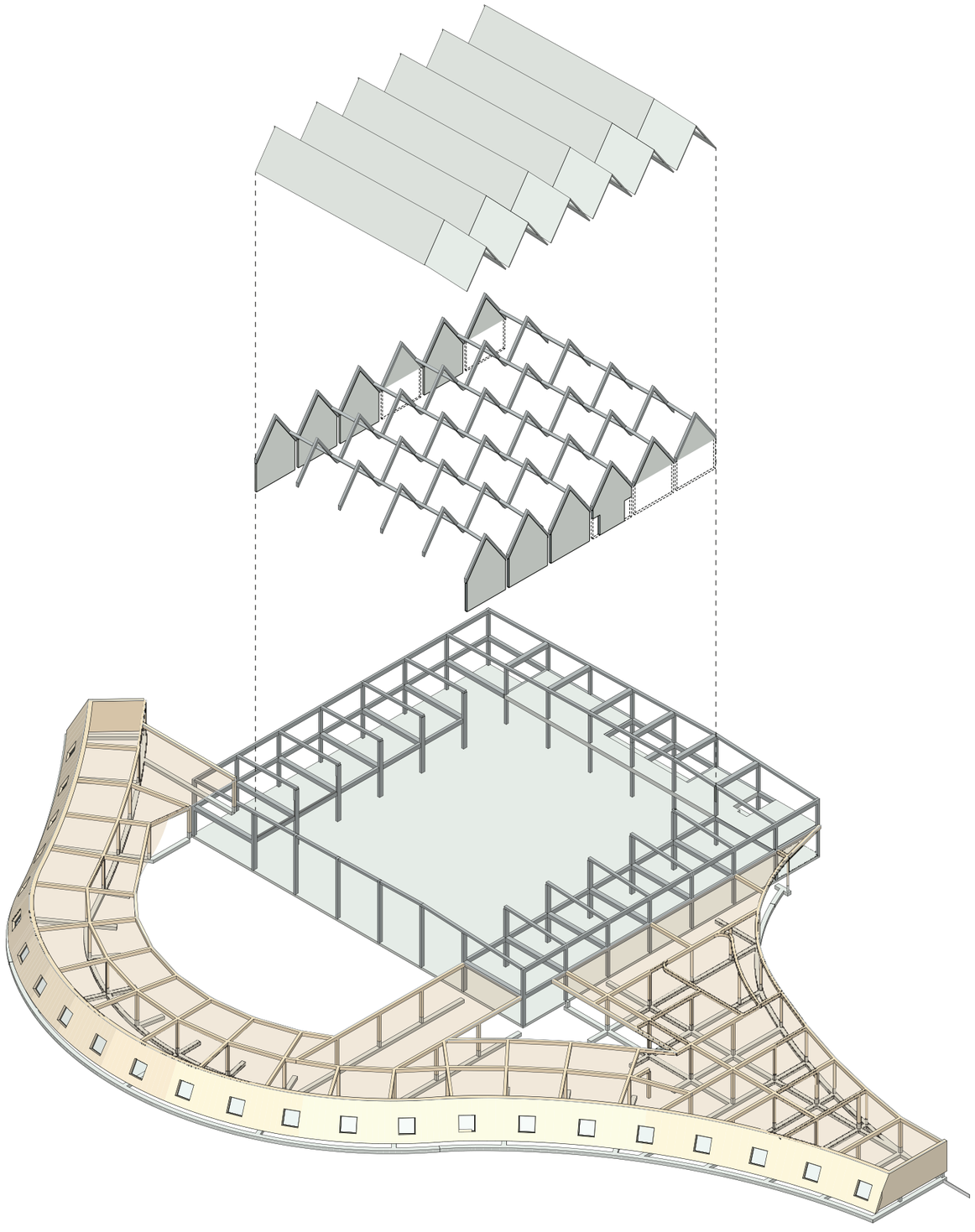
STRUCTURAL CHANGE





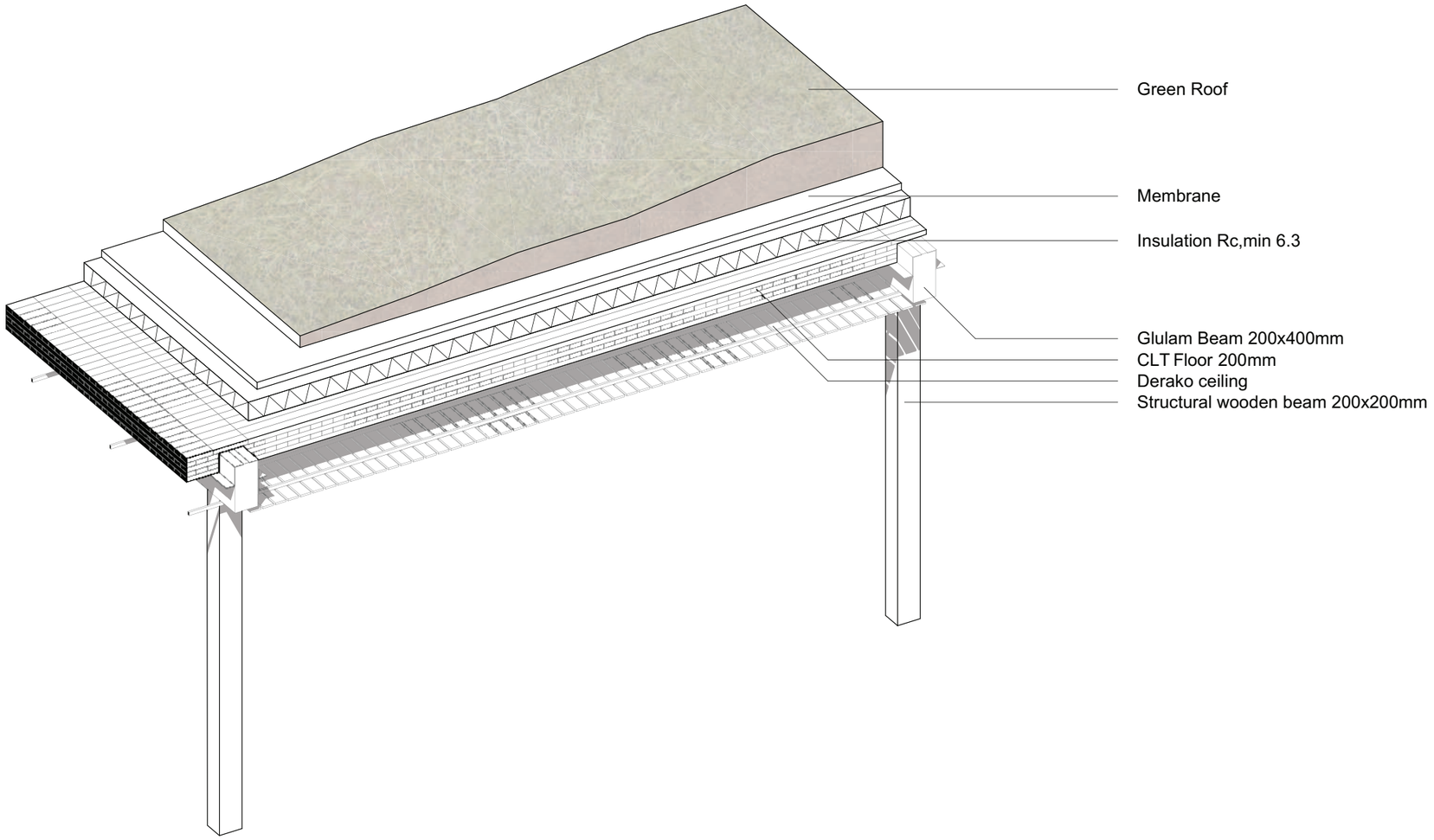
PROPOSAL

ADDED STRUCTURE



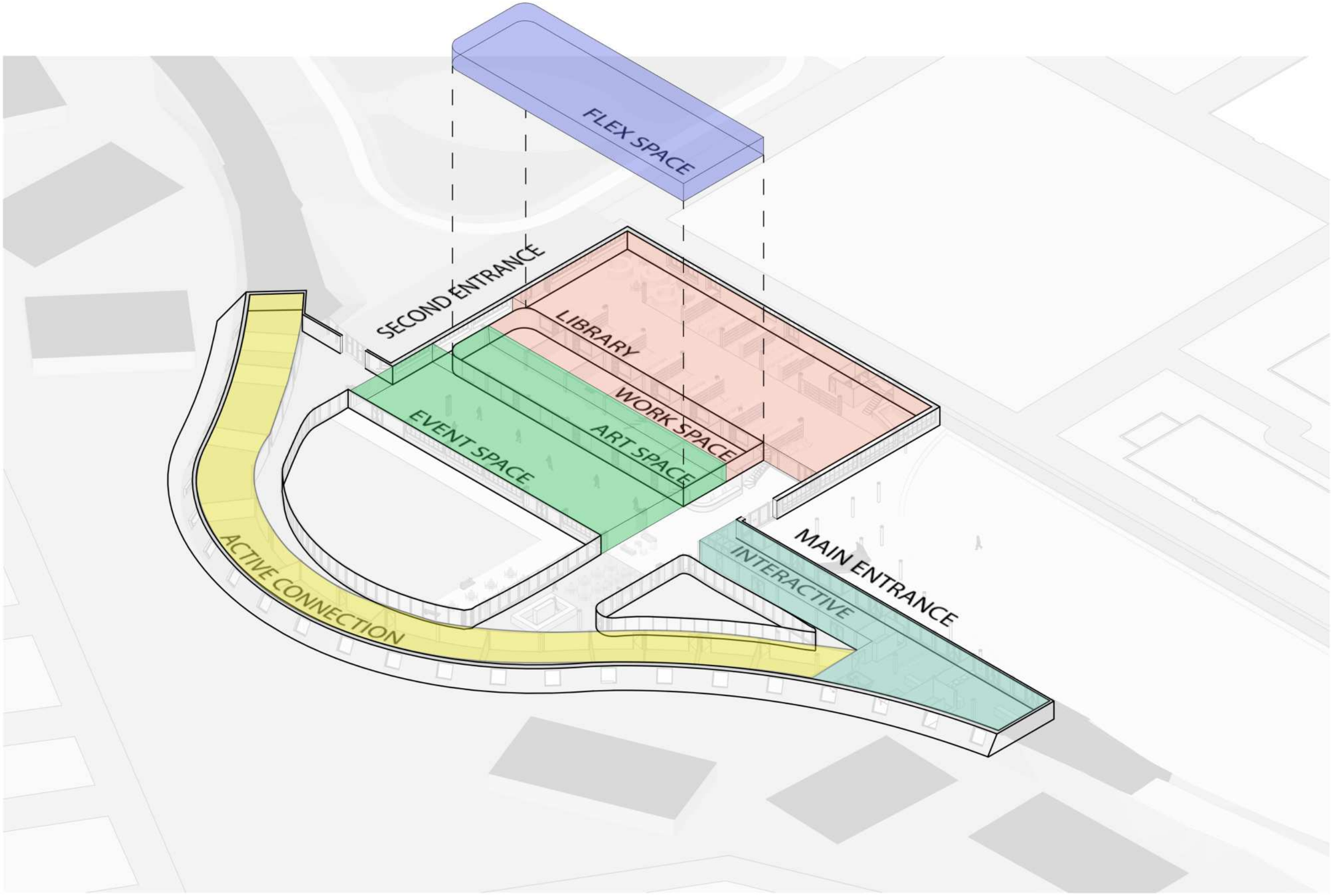
PROPOSAL

STRUCTURAL METHOD



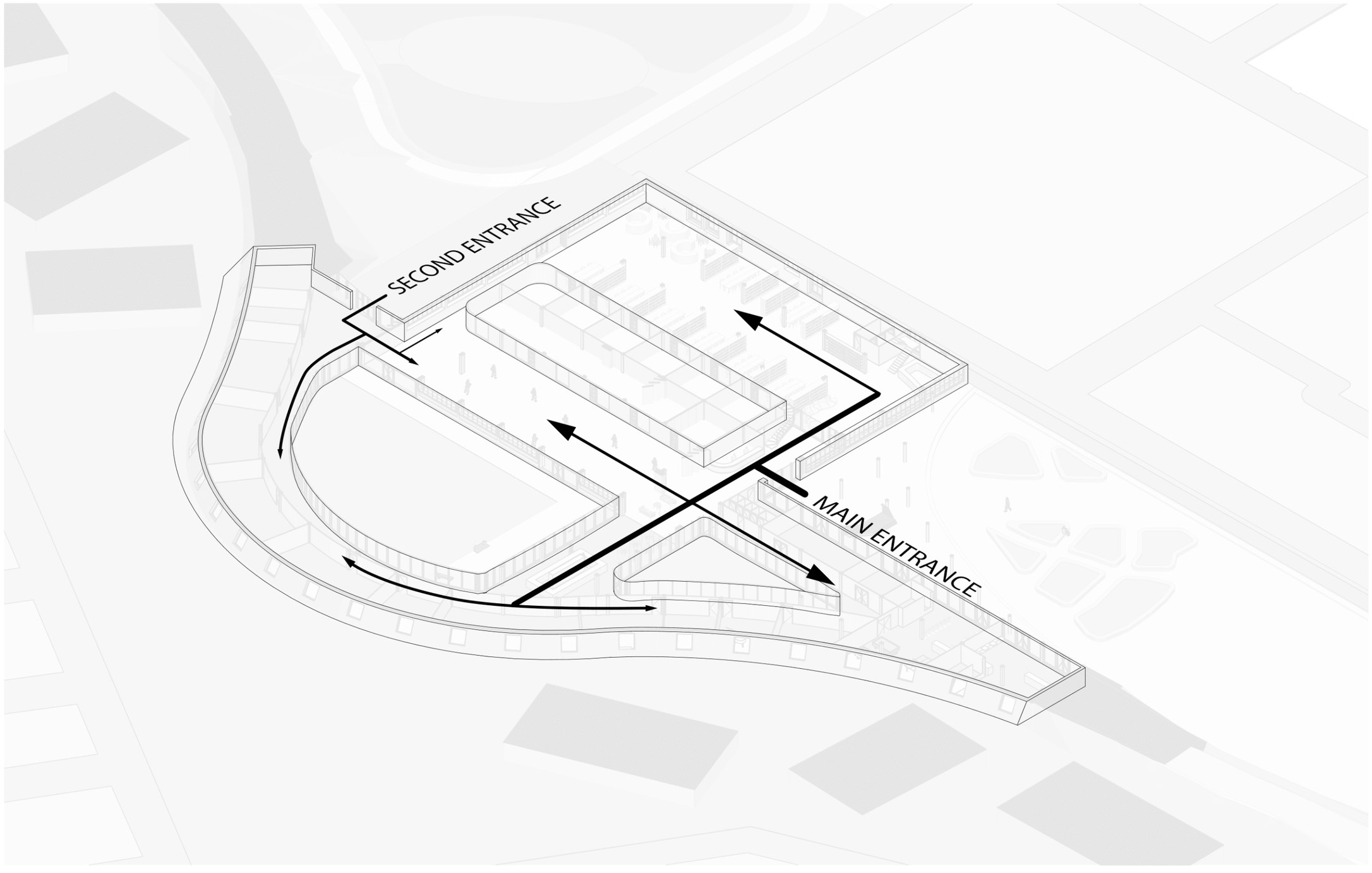
PROPOSAL

PROGRAM



PROPOSAL

ROUTING



Art.
Art.
Art.
Art.
Book exchange/
shelfs
Event board
STROLLER SPACE
LIFT
Backoffice.
Artshop.
Coffee.
Cultural home.
Bicycle shop.
Yoga.
Yoga.
multipurpose.
Multipurpose.
Makerspace.
Dance.
Dance.
Kitchen.
Music
Music
Livingroom
Storage

PROPOSAL

NEIGHBORS

Mira & Paul

Elena & Thomas

Origin: Eastern European
Family of 4 living in Sundholm

Kevin

Origin: Danish
Student at the university living in Sundholm

PROPOSAL

THE NEIGHBORS

Kevin

- Studies math at the university and lives in Sundholm
- No space at home and university is to crowded
- Wants to support a local initiative for Tutoring

PROPOSAL

THE NEIGHBORS

Mira

- Introverted and isolated due to her language barrier.
- Lonely and disconnected when her family is away.
- Is curious, hopeful, and open to new connections.

Paul

-Works at the city center managing a coffee place
-Loves to visit art in his spare time

Elena

- Just started high school
- Has some trouble with math

Thomas

- Is at the end of his primary school
- Is inspired to start learning an instrument

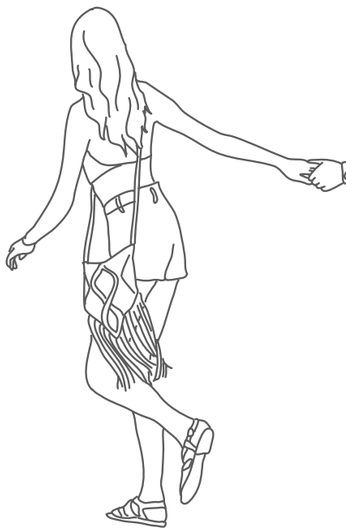
PROPOSAL

WEEKPLANNER

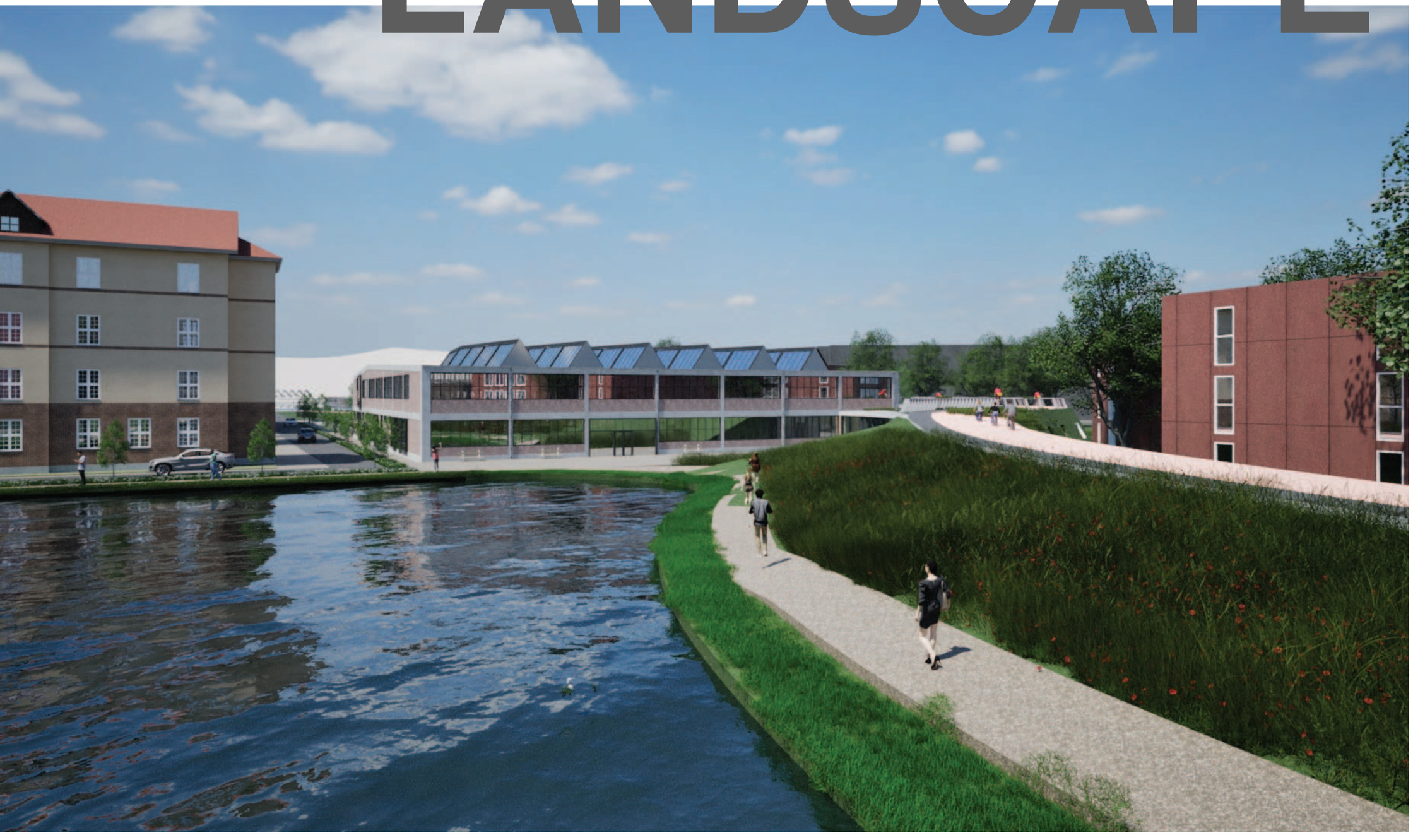
PROPOSAL

MAIN SQUARE

ENTRANCE

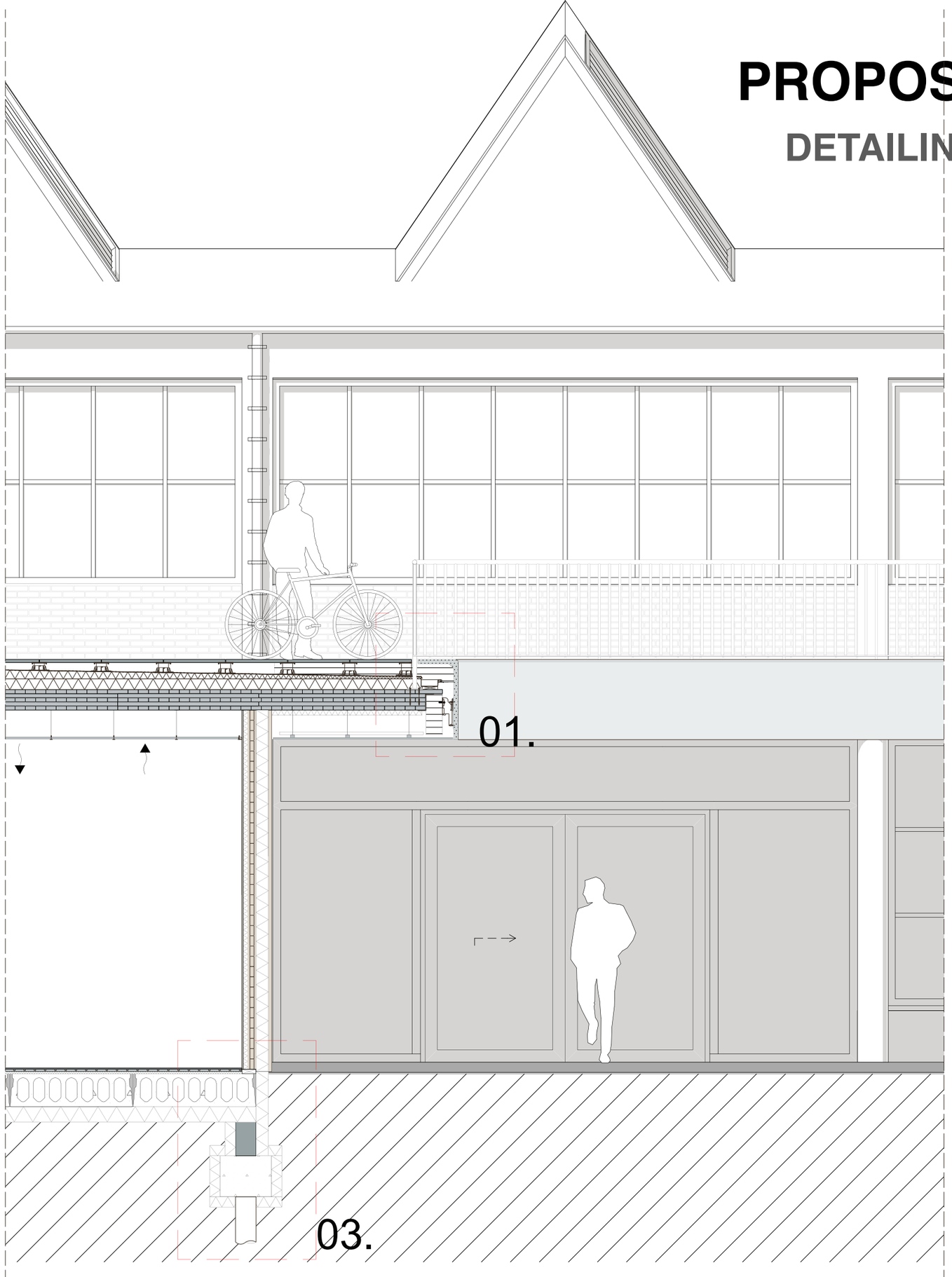


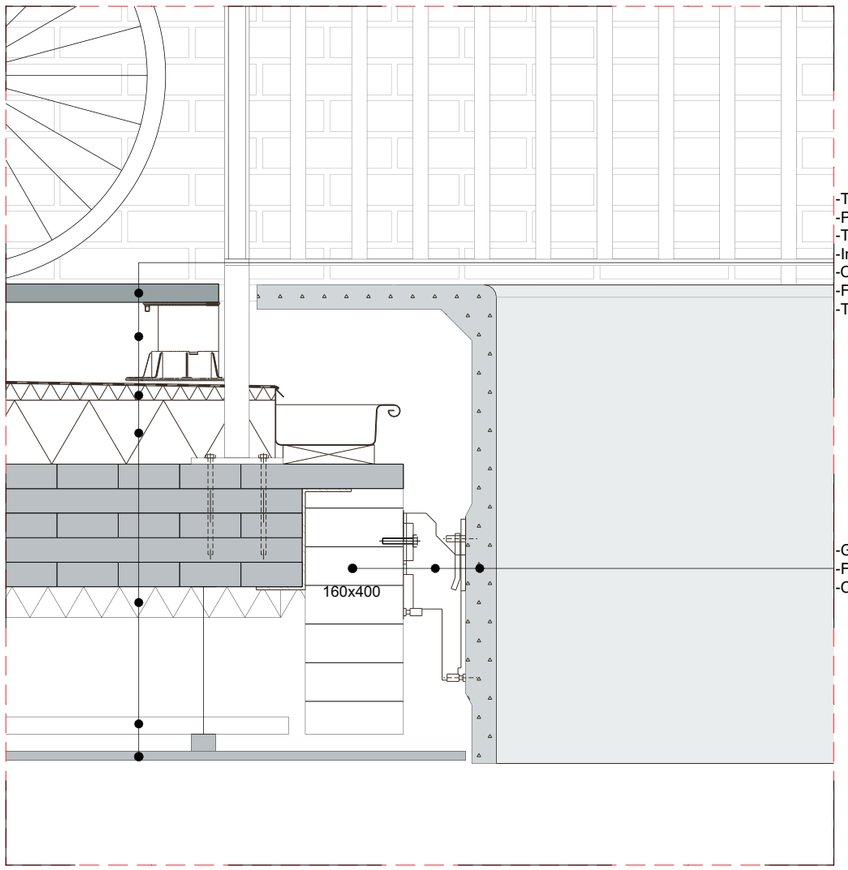
LANDSCAPE



PROPOSAL

DETAILING



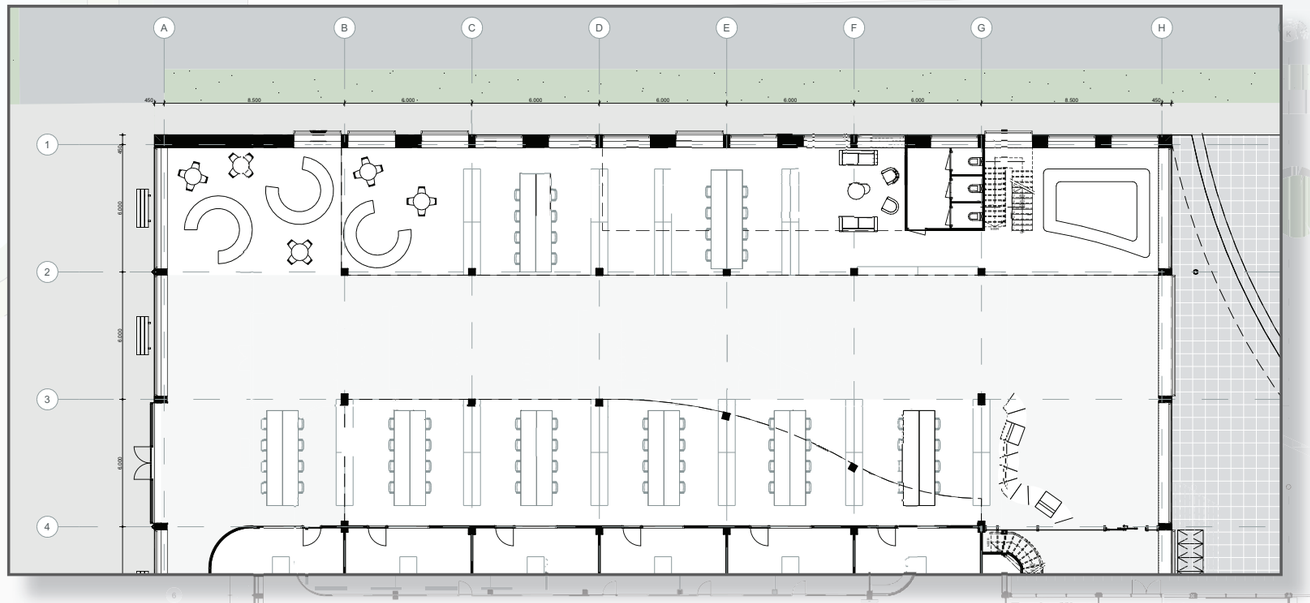


01.

ENTRANCE

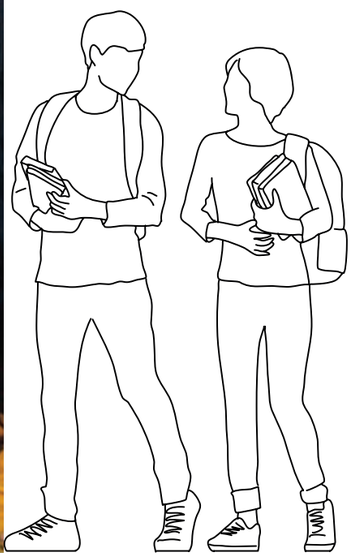
PROPOSAL

LIBRARY



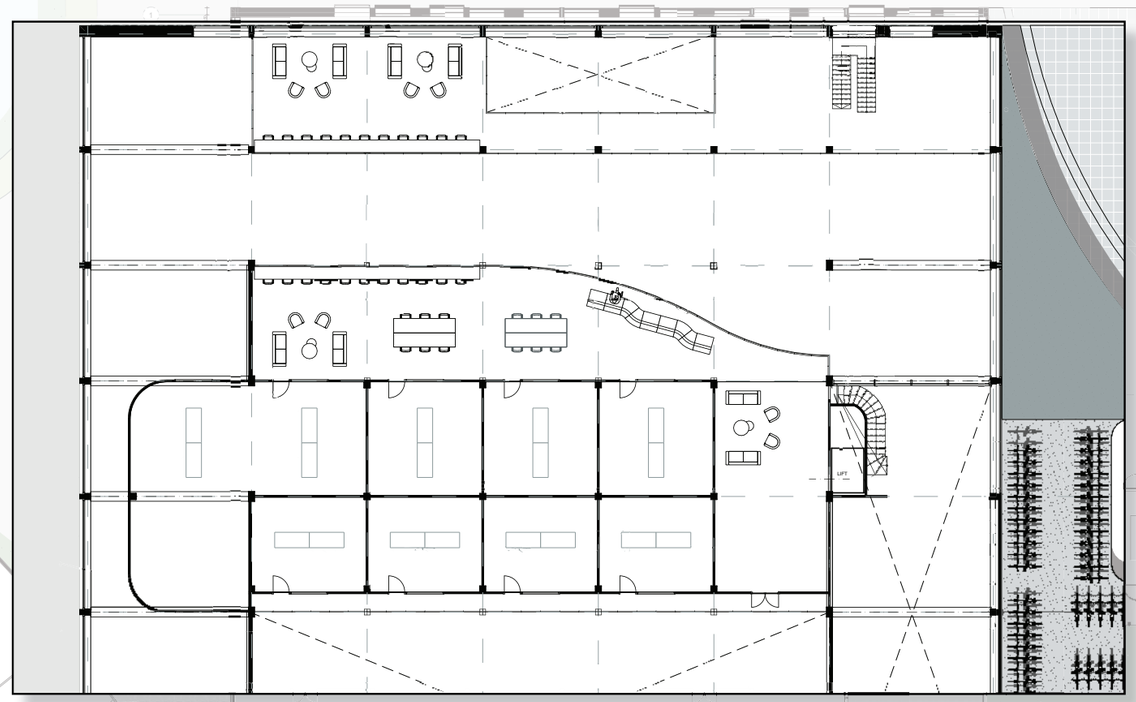
Backoffice.
Artshop.
Coffee.
Cultural home.
Bicycle shop.
Yoga.
Yoga.
multipurpose.
Multipurpose.
Makerspace.
Dance.
Dance.
Kitchen.
Music
Music
Livingroom
Storage

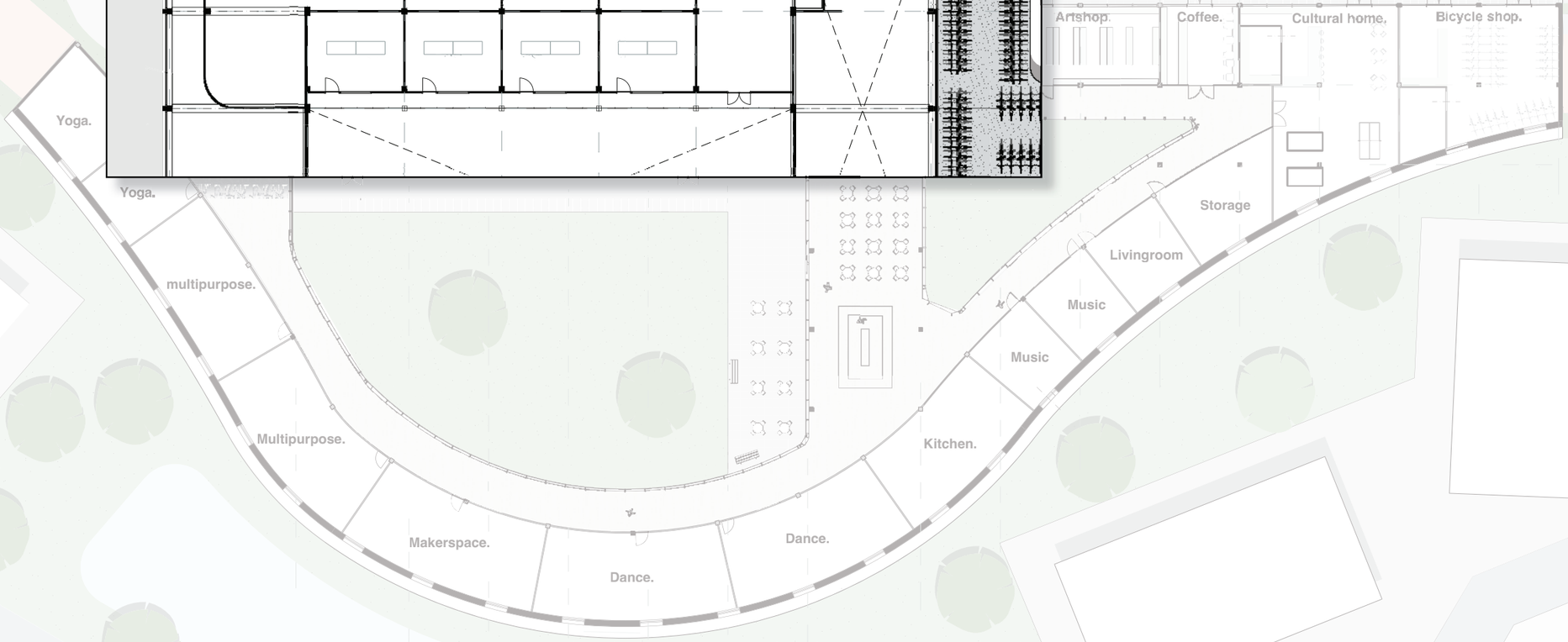
LIBRARY



PROPOSAL

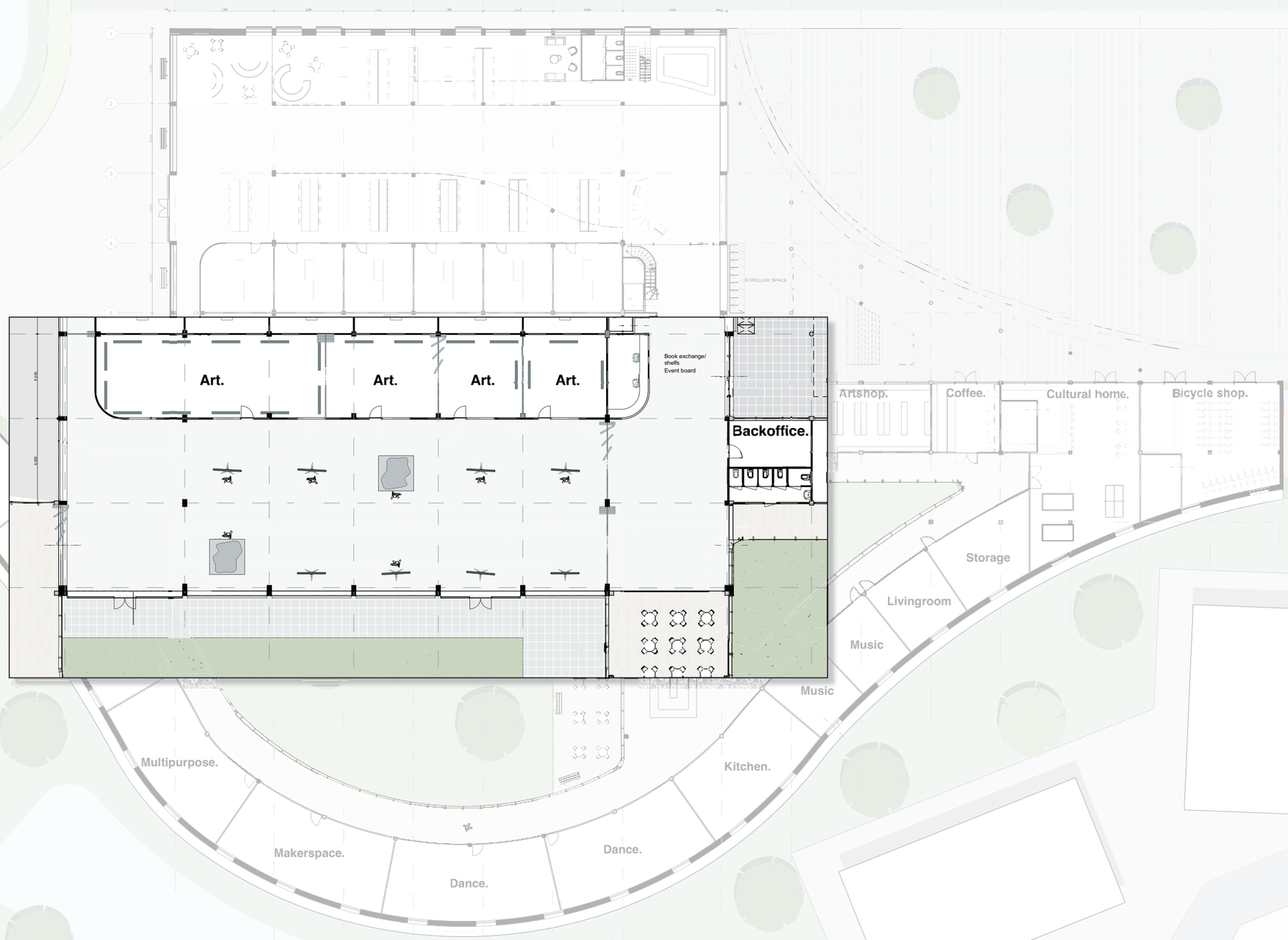
FLEX SPACES





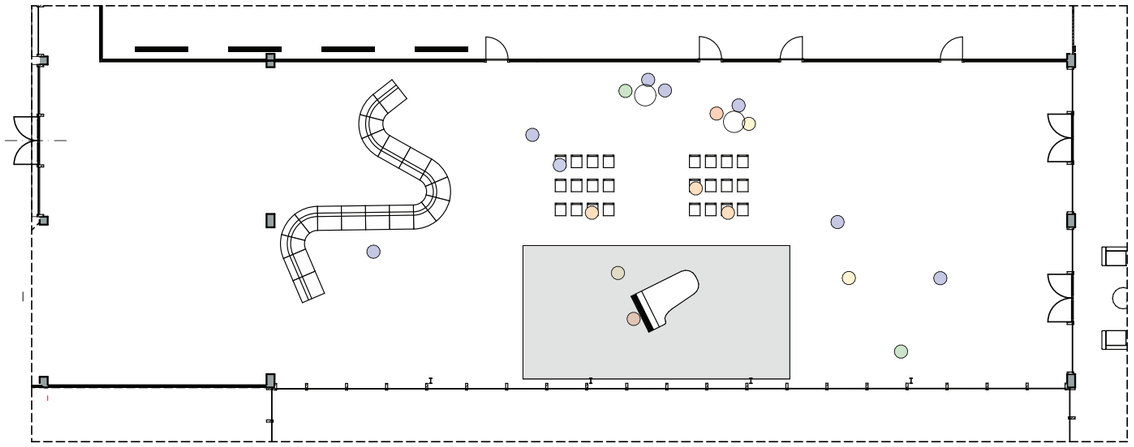
PROPOSAL

EVENT SPACE

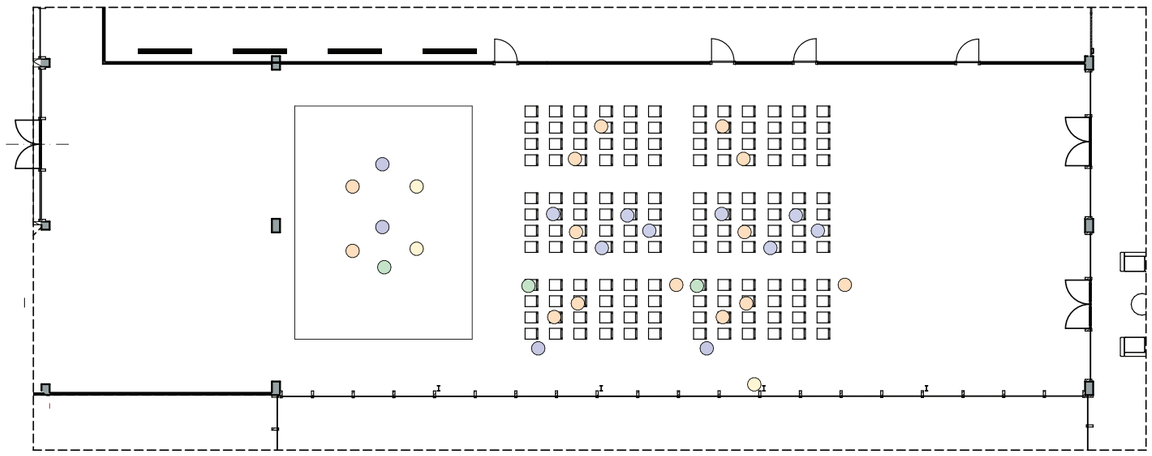


PROPOSAL

OPTIONS EVENTSPACE



MUSIC PERFORMANCE

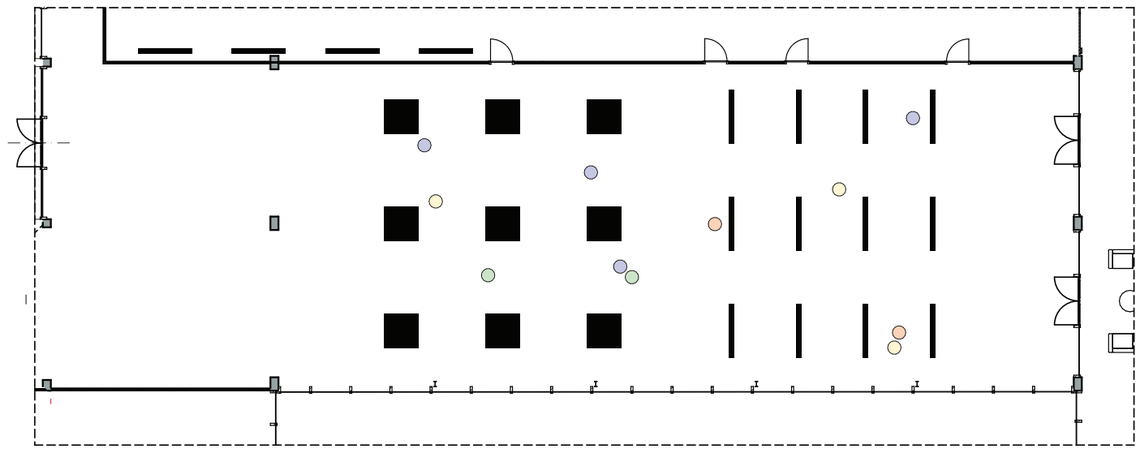


DANCE PERFORMANCE

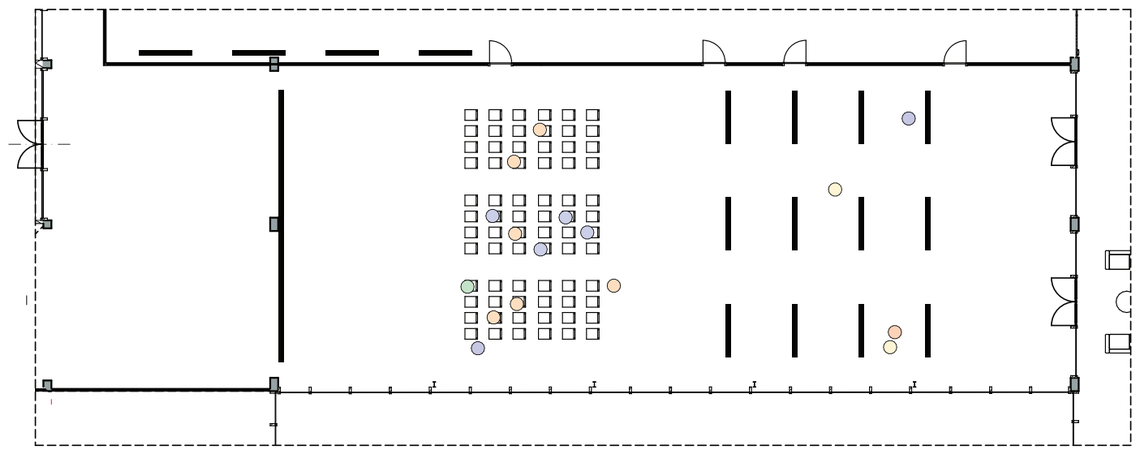
DANCE

PROPOSAL

OPTIONS EVENTSPACE

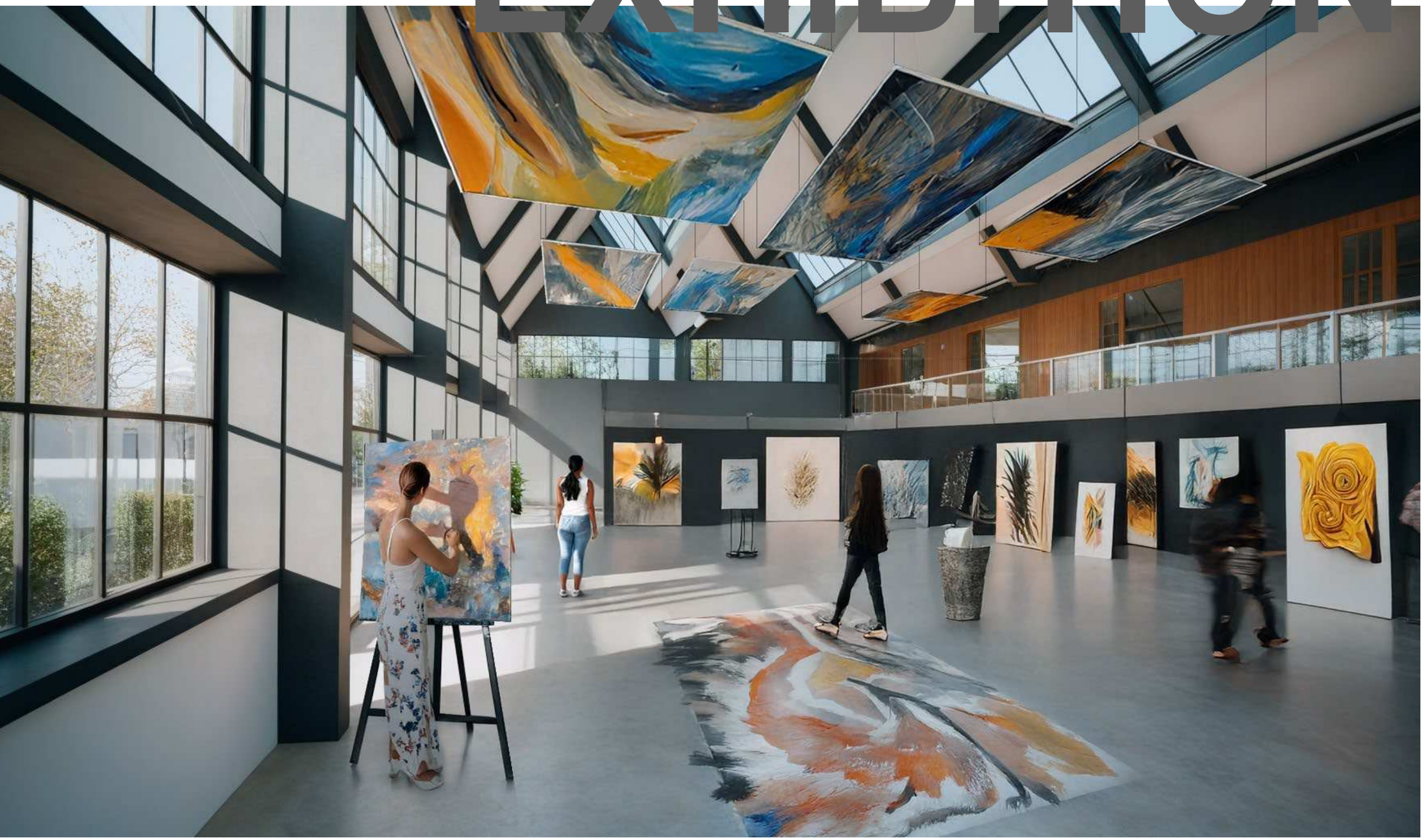


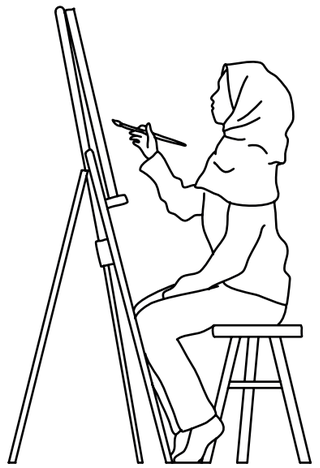
EXHIBITION



MOVIE

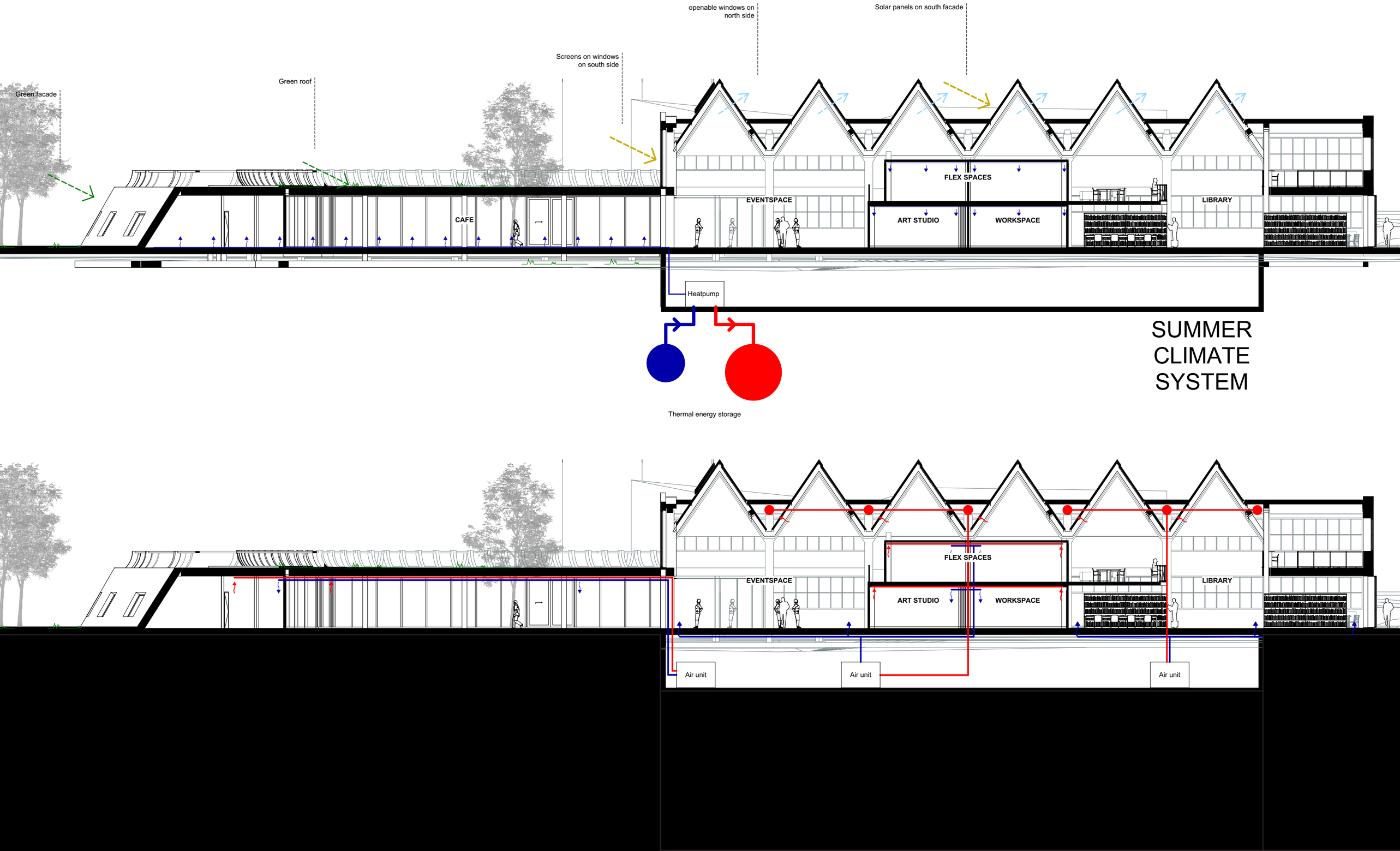
EXHIBITION





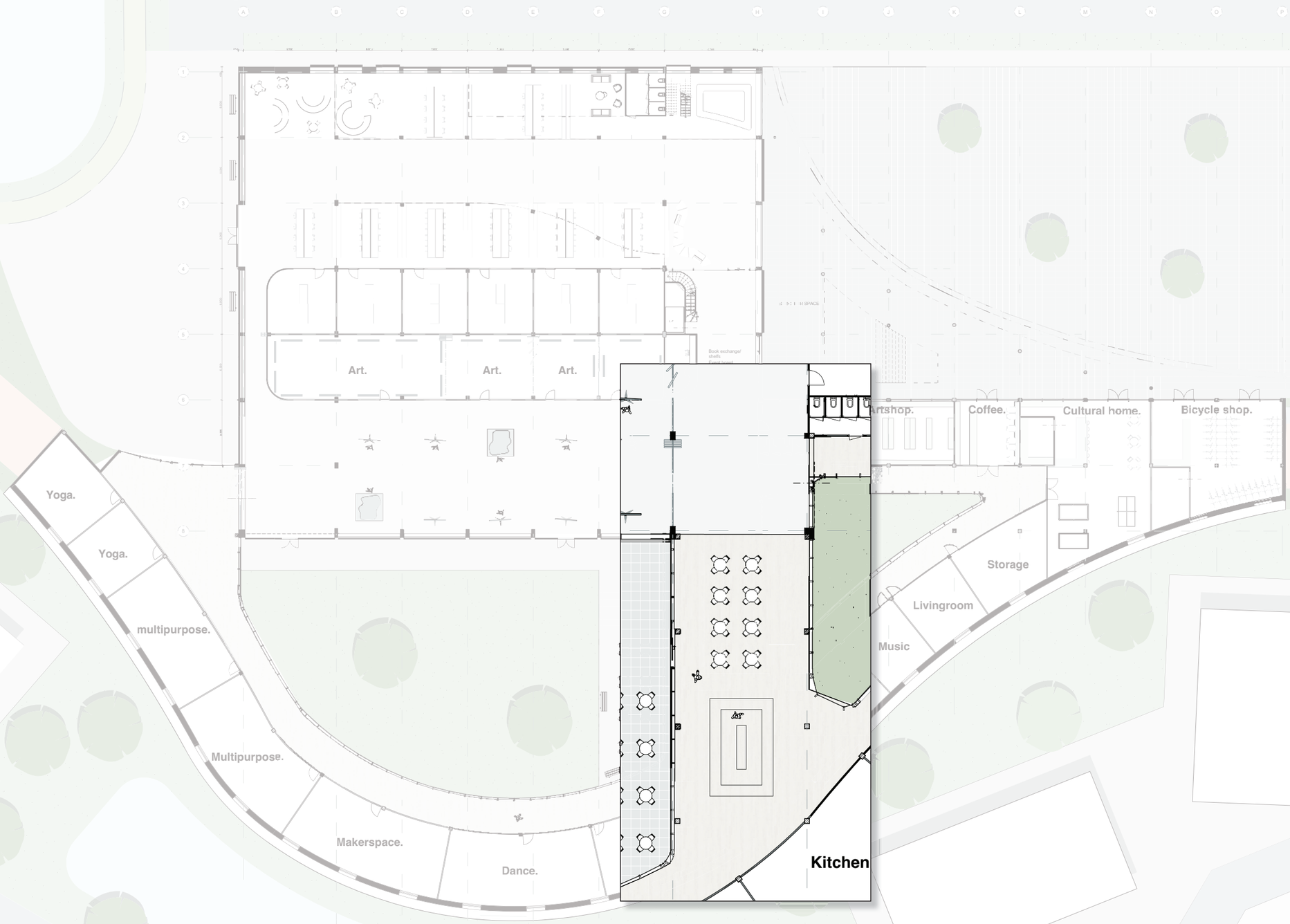
PROPOSAL

CLIMATE SECTION



PROPOSAL

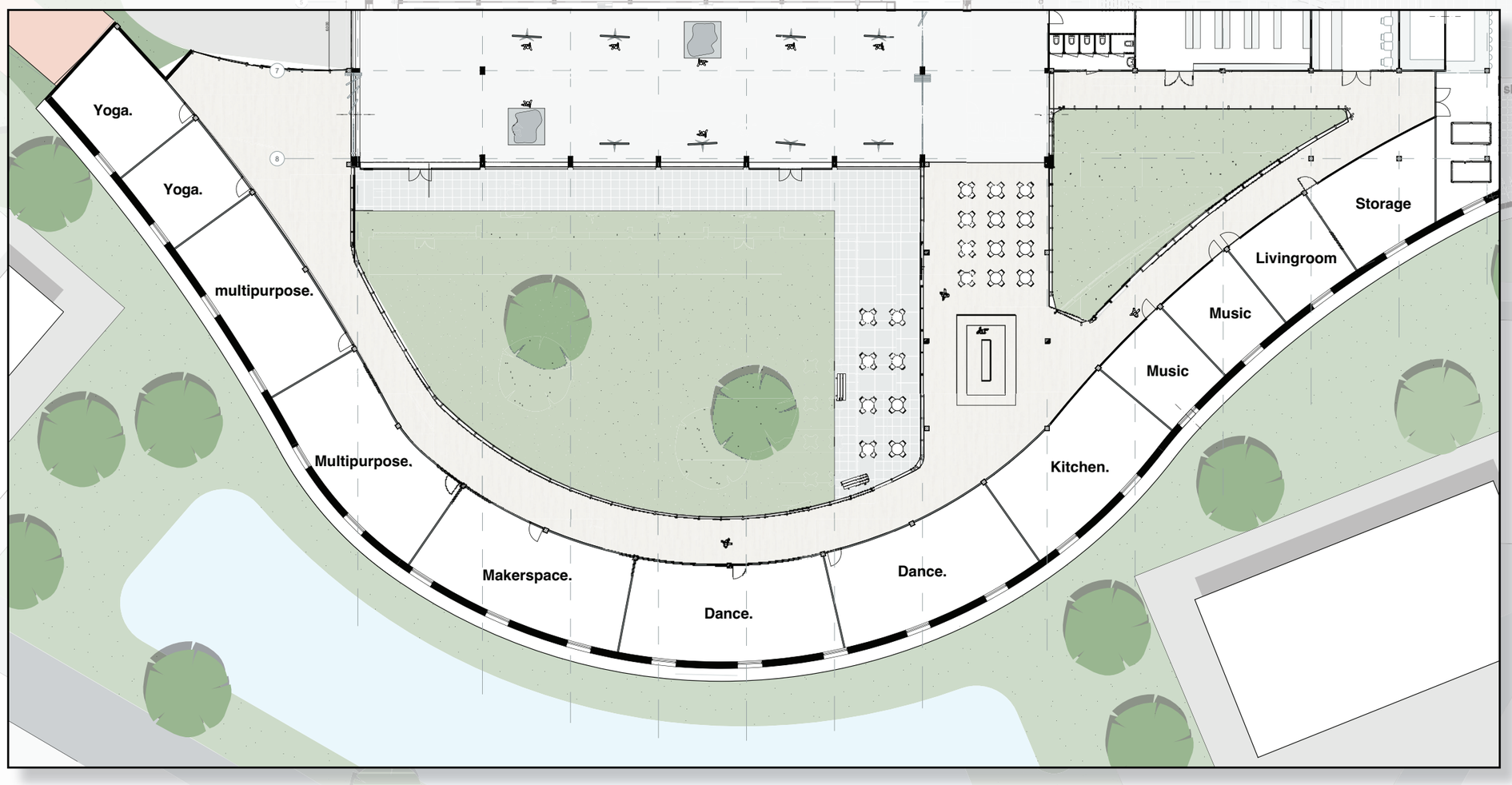
CAFE



HABITAT

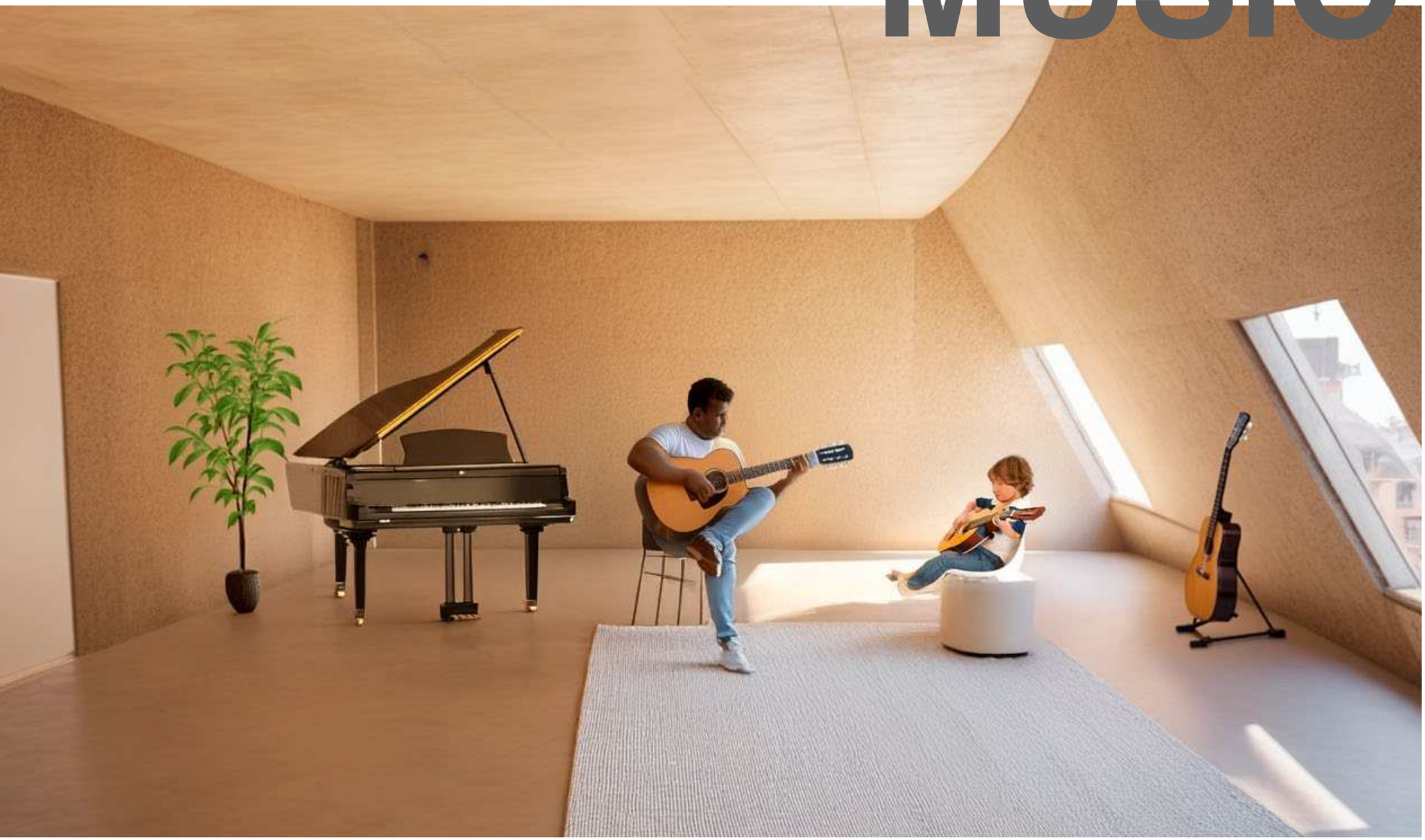
PROPOSAL

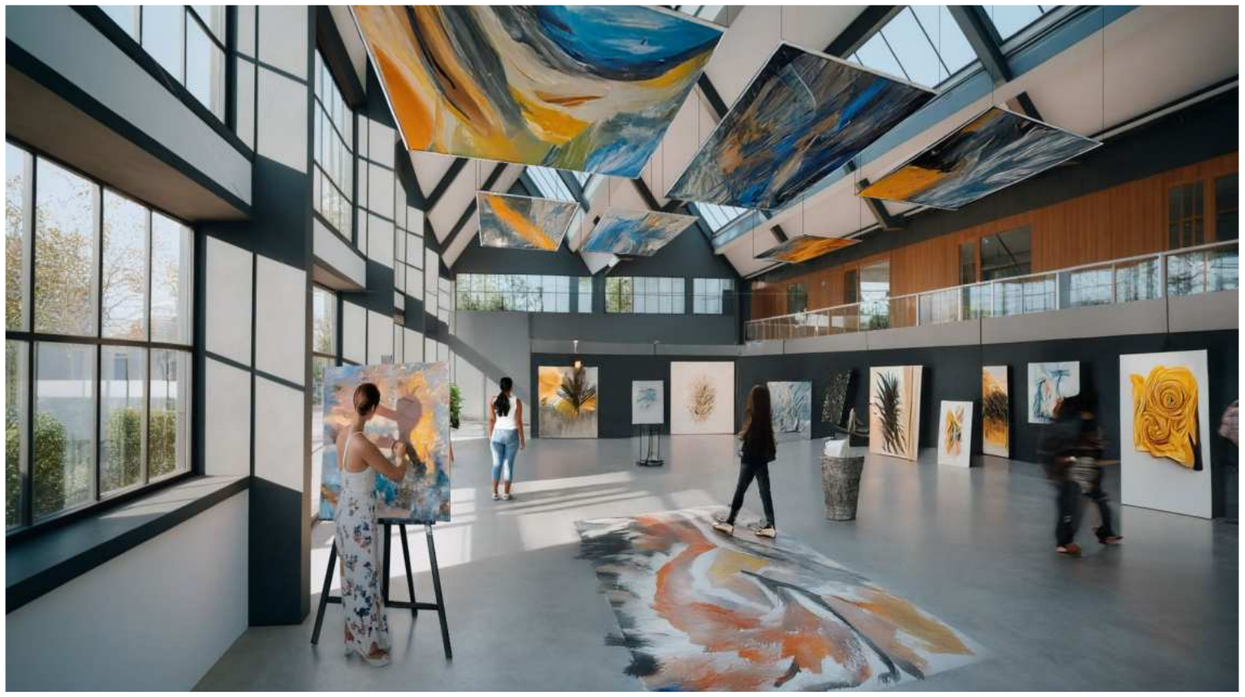
UNDER THE DIKE



INNER STREET

MUSIC





CONNECTOR

CONNECTOR WITHIN

ALL-SCALES

WELL-BEING WITHIN

ALL SCALES

WELL-BEING WITHIN ALL SCALES

THANK YOU