



HOUSING THE HOMO LUDENS

Ruben de Leeuw

P5 Presentation

Architectural Engineering

Design mentor: Roel van de Pas

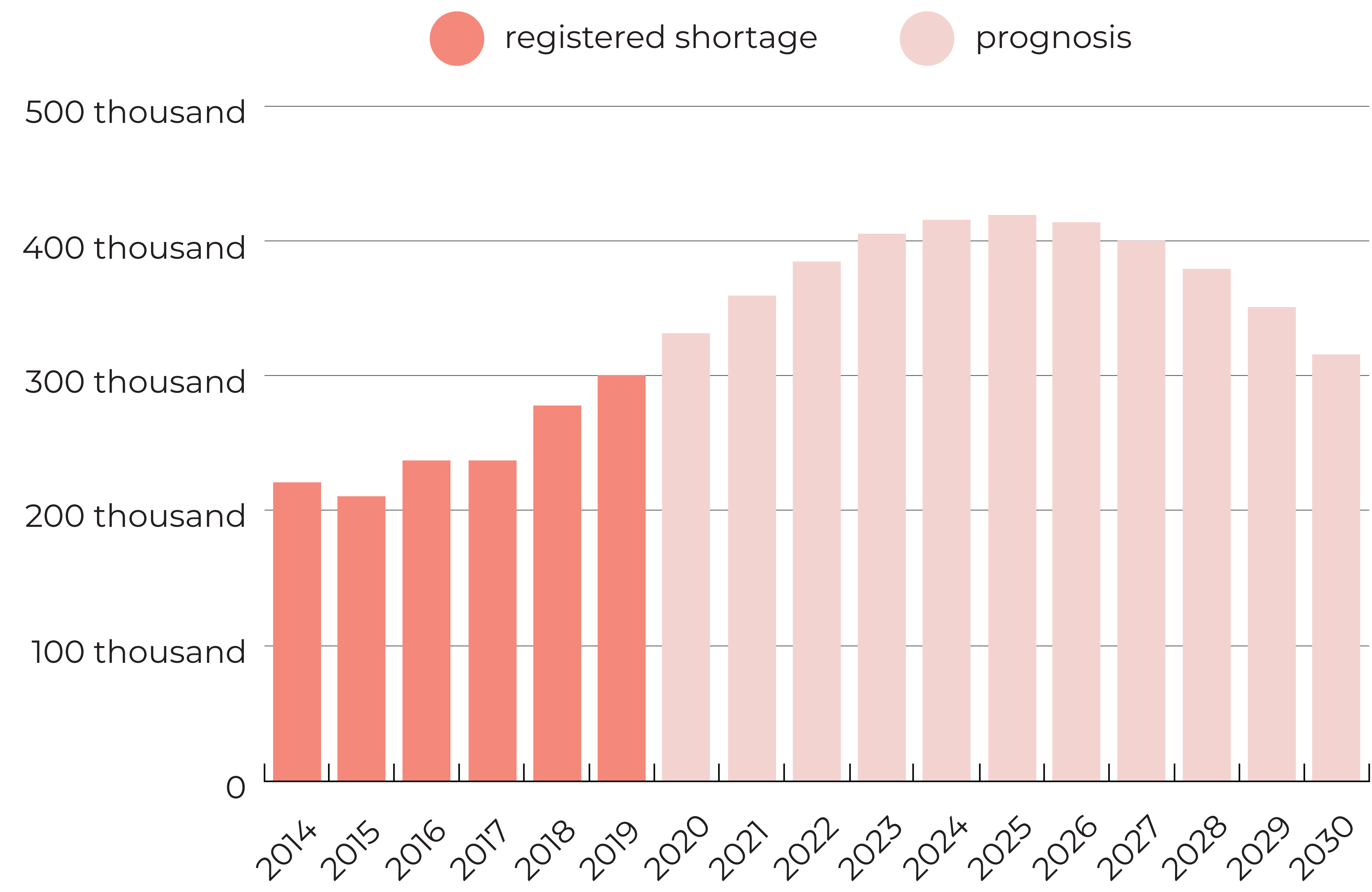
Engineering mentor: Engbert van der Zaag

Research mentors: Hans Hoogenboom & Pirouz Nourian

INTRODUCTION

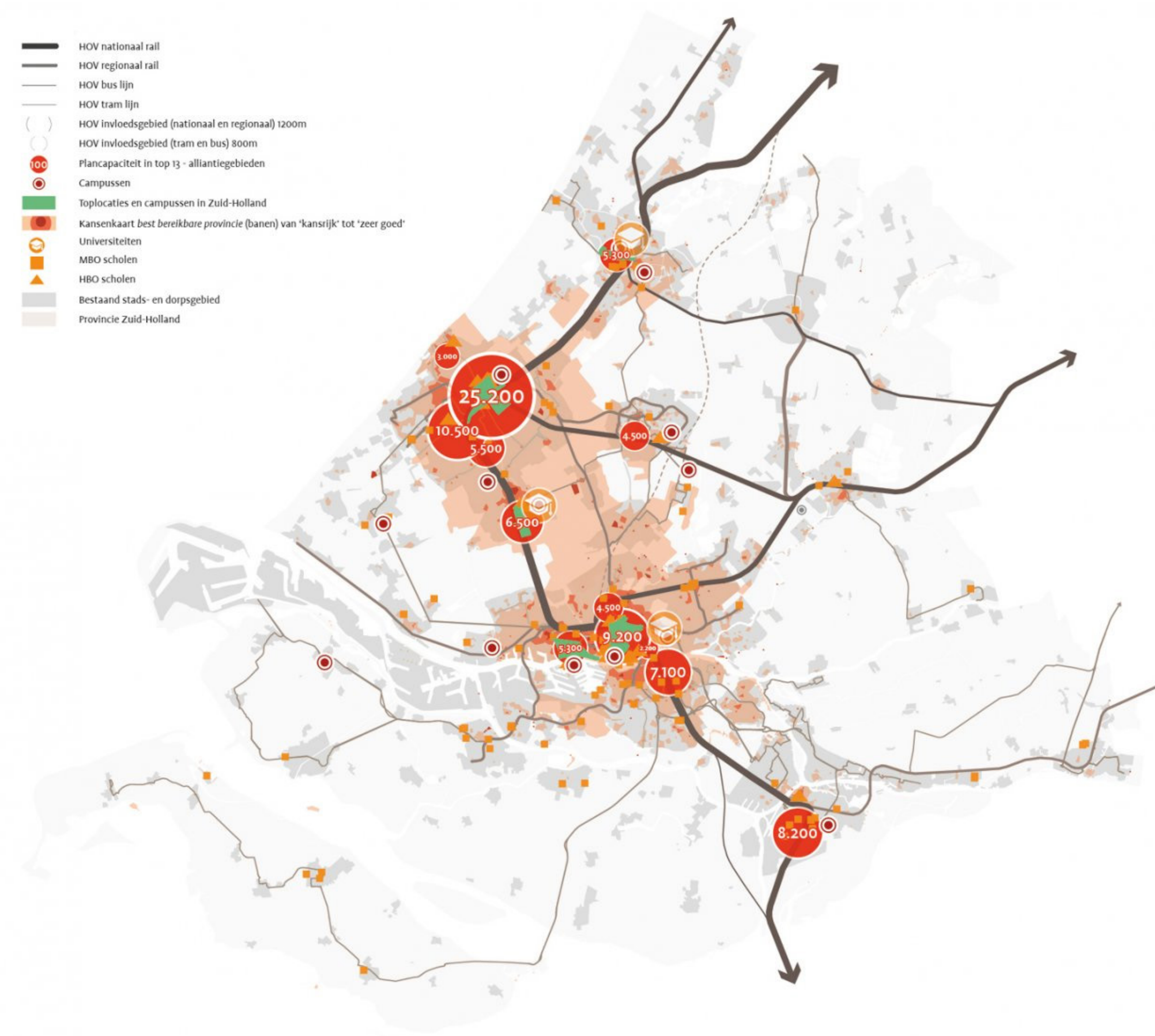
BACKGROUND

Housing shortage development



Source: <https://nos.nl/artikel/2369109-schreeuwend-tekort-aan-woningen-wat-moet-eraan-gedaan-worden>

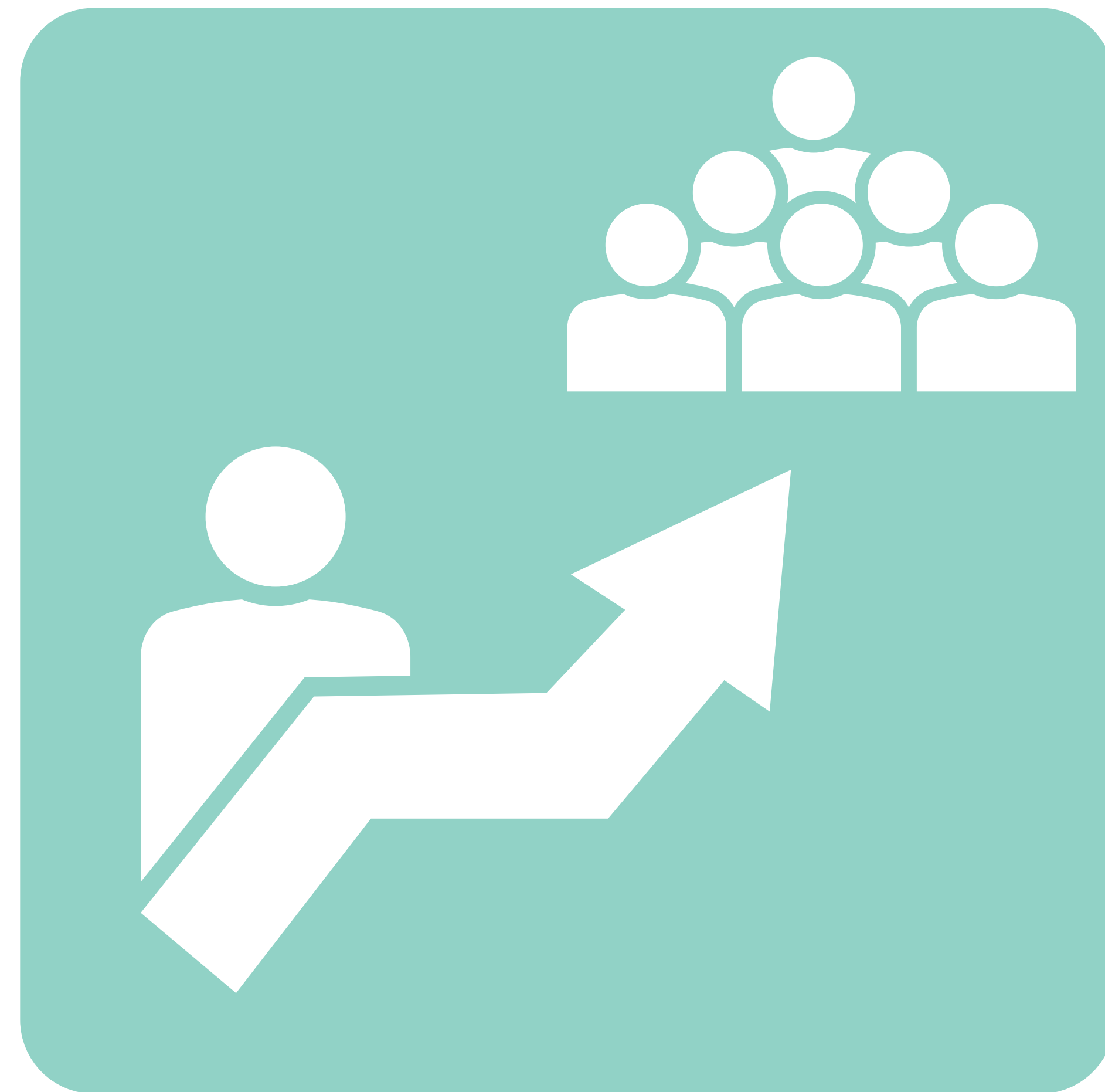
Housing shortage



Source: Verstedelijkingsalliantie, <https://www.verstedelijkingsalliantie.nl/verstedelijkingsalliantie/>

Densification

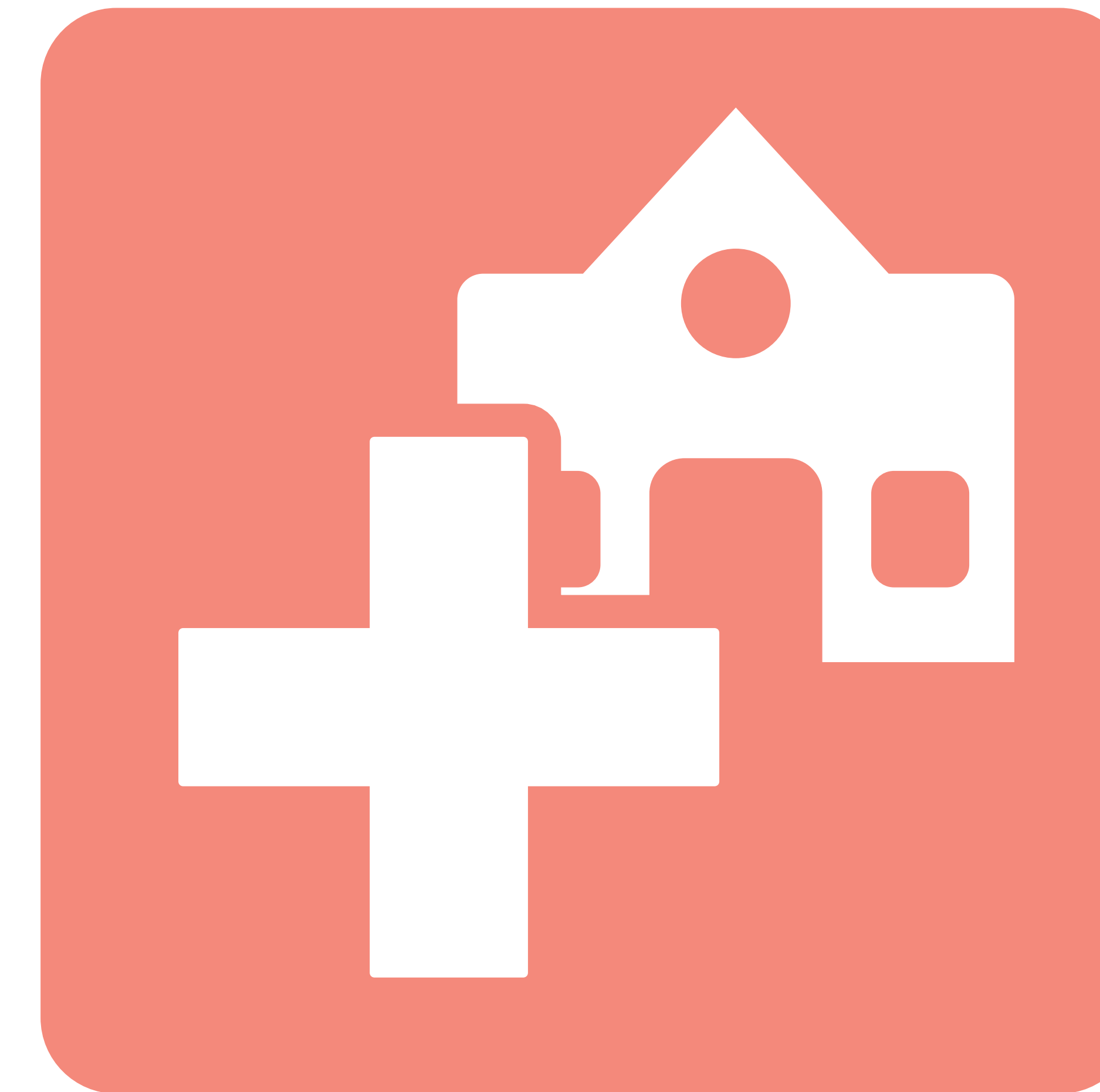
Densification as an **opportunity**:



Social-sustainability



Climate change mitigation



Access to urban amenities

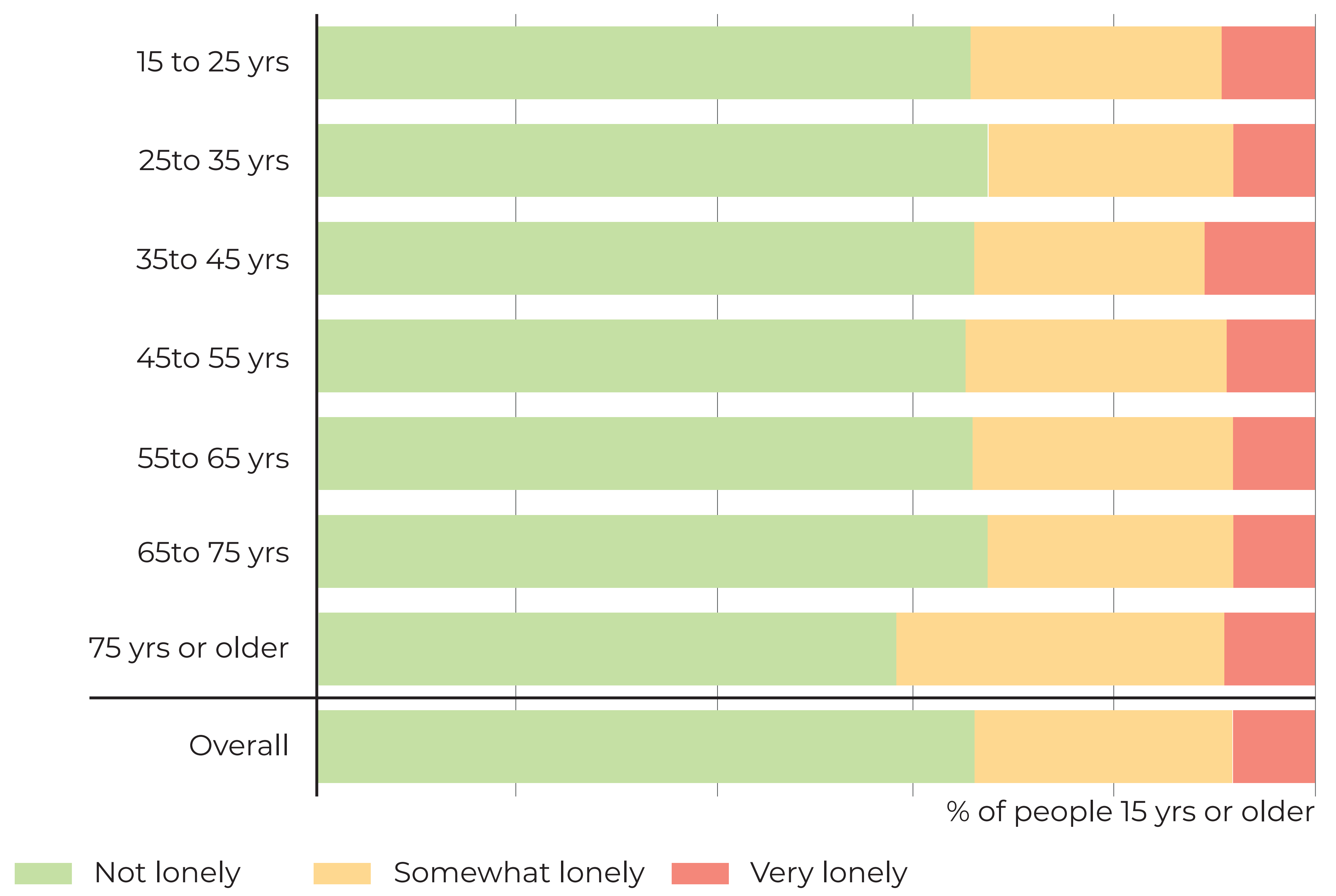


Pedestrianization

INTRODUCTION

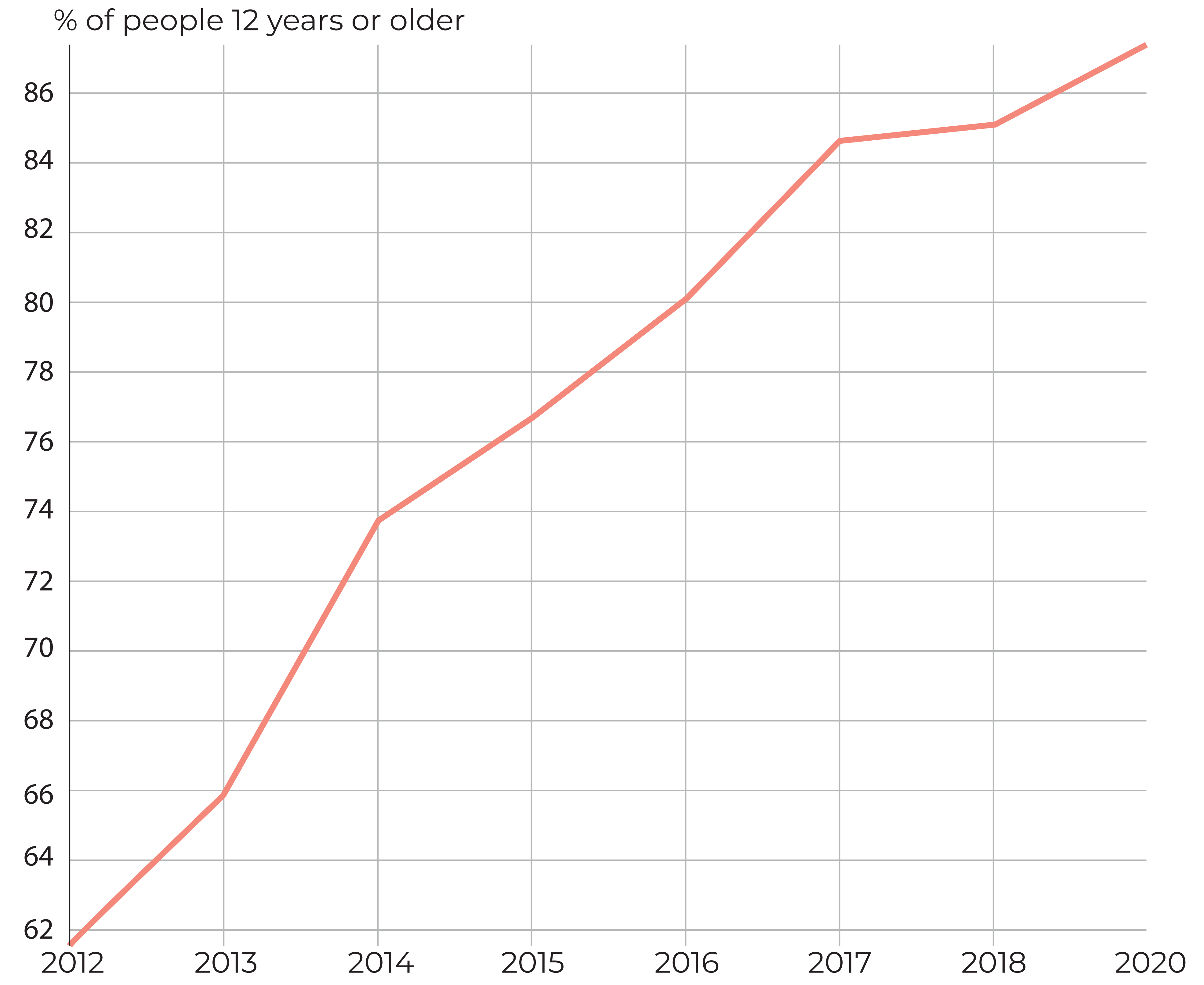
BACKGROUND

Loneliness by age group, 2019



Source: CBS (2020), from <https://www.cbs.nl/nl-nl/nieuws/2020/13/bijna-1-op-de-10-nederlanders-voelde-zich-sterk-eenzaam-in-2019>

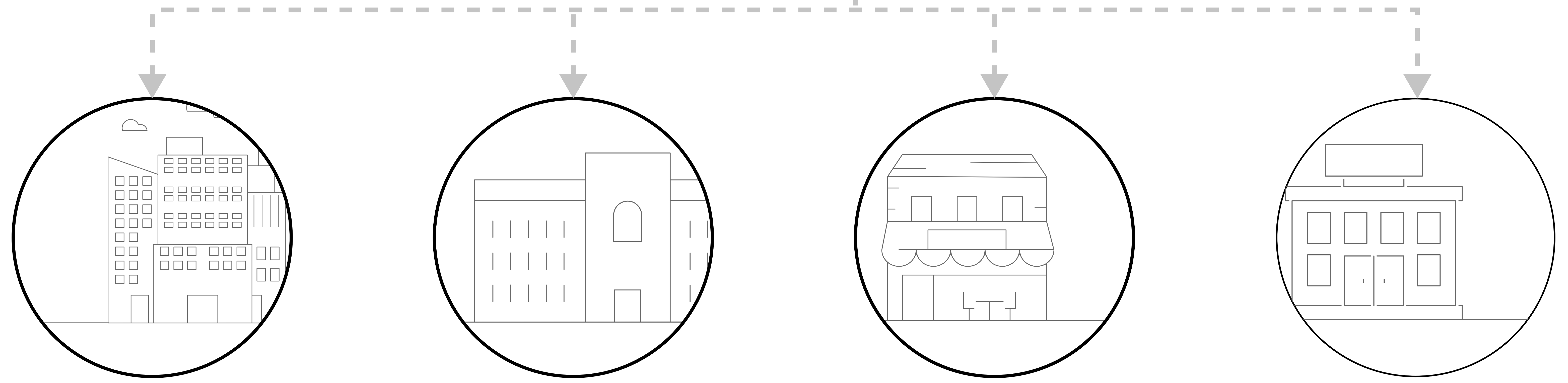
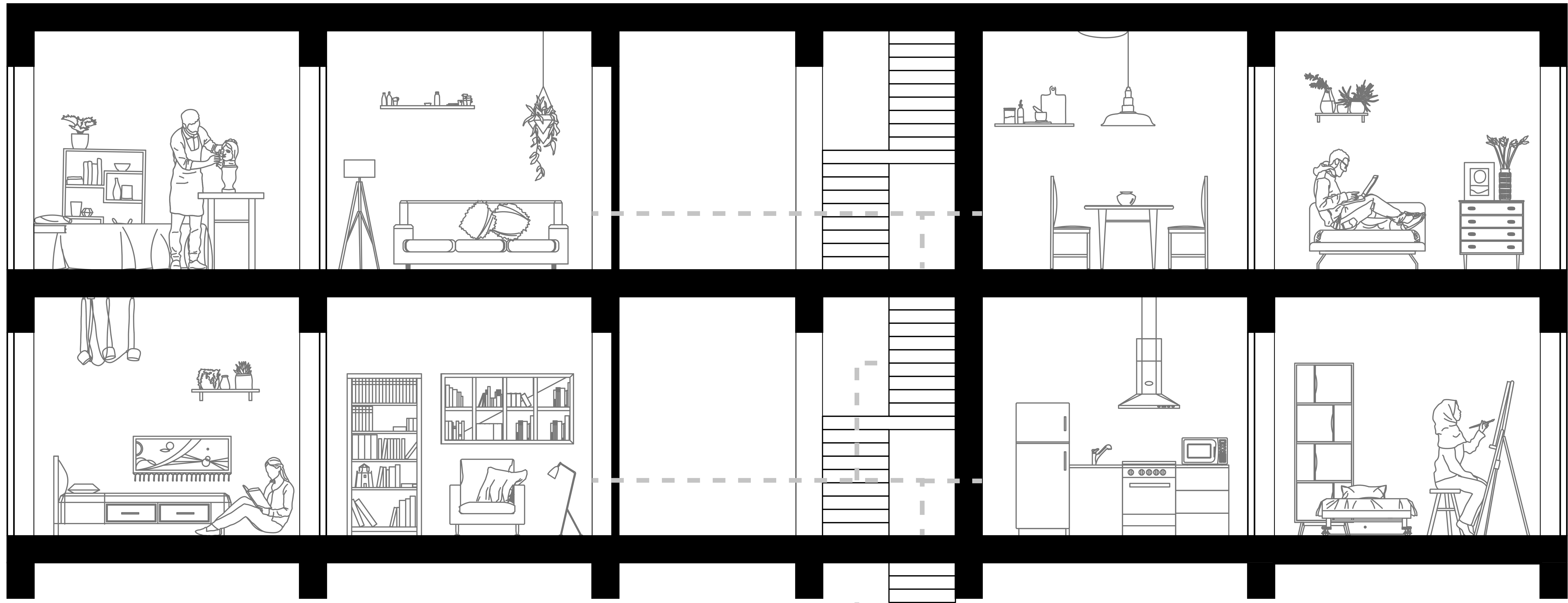
Social media usage



Source: CBS Statline, from opendata.cbs.nl

INTRODUCTION

BACKGROUND



Work

School

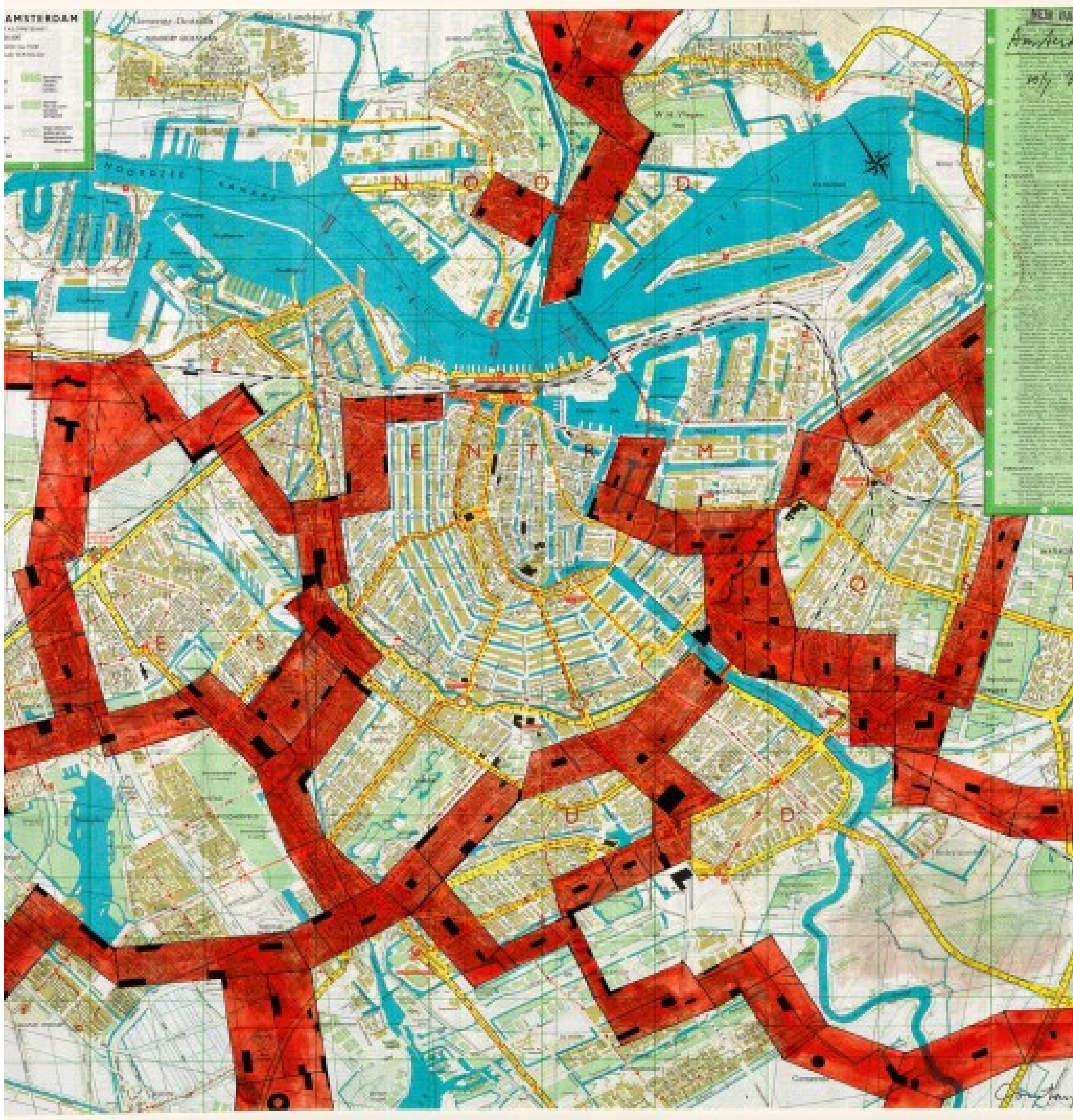
Restaurant

Hobby

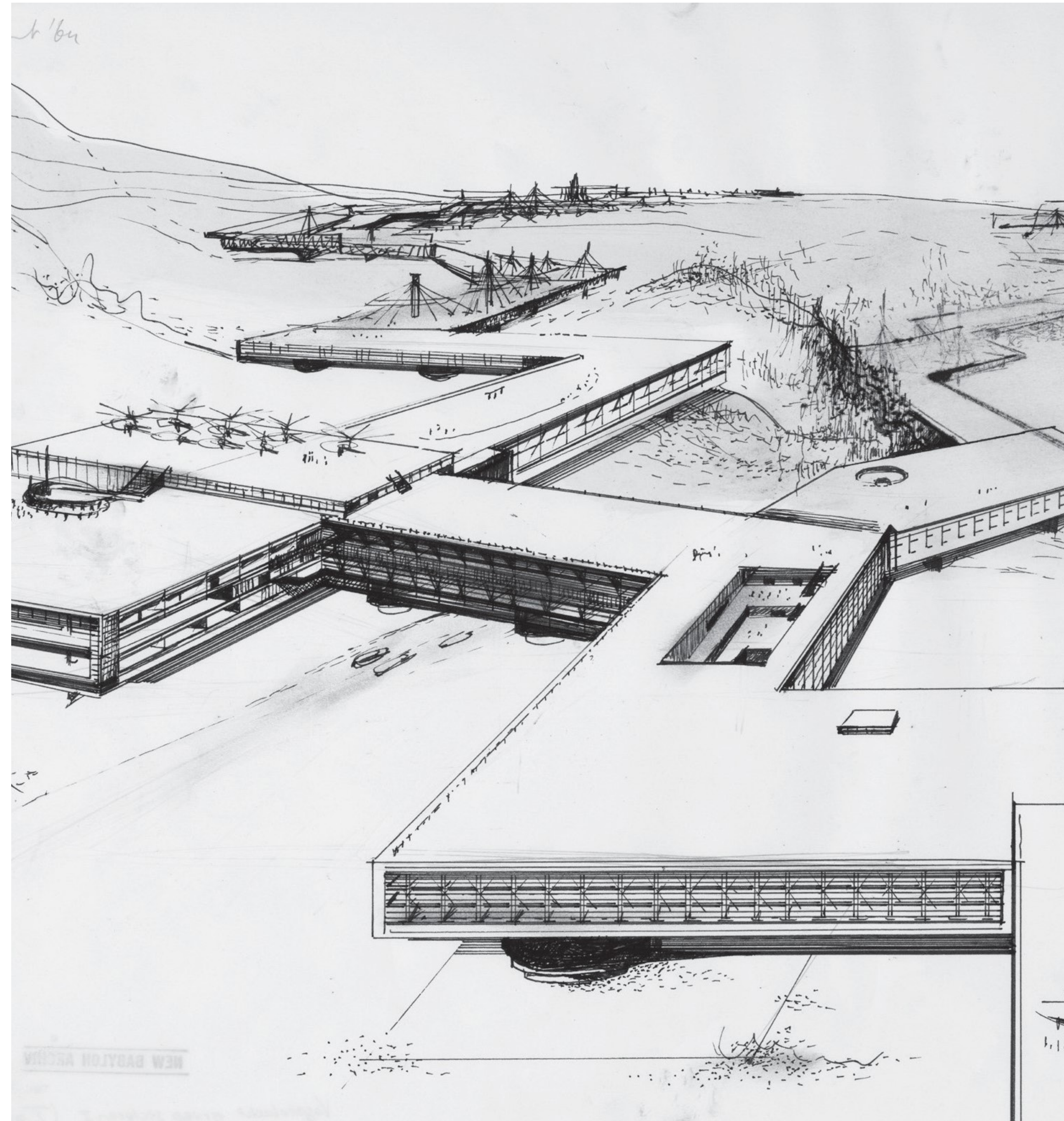
INTRODUCTION

BACKGROUND

Constant's New Babylon



Global Network



Explorable Sectors

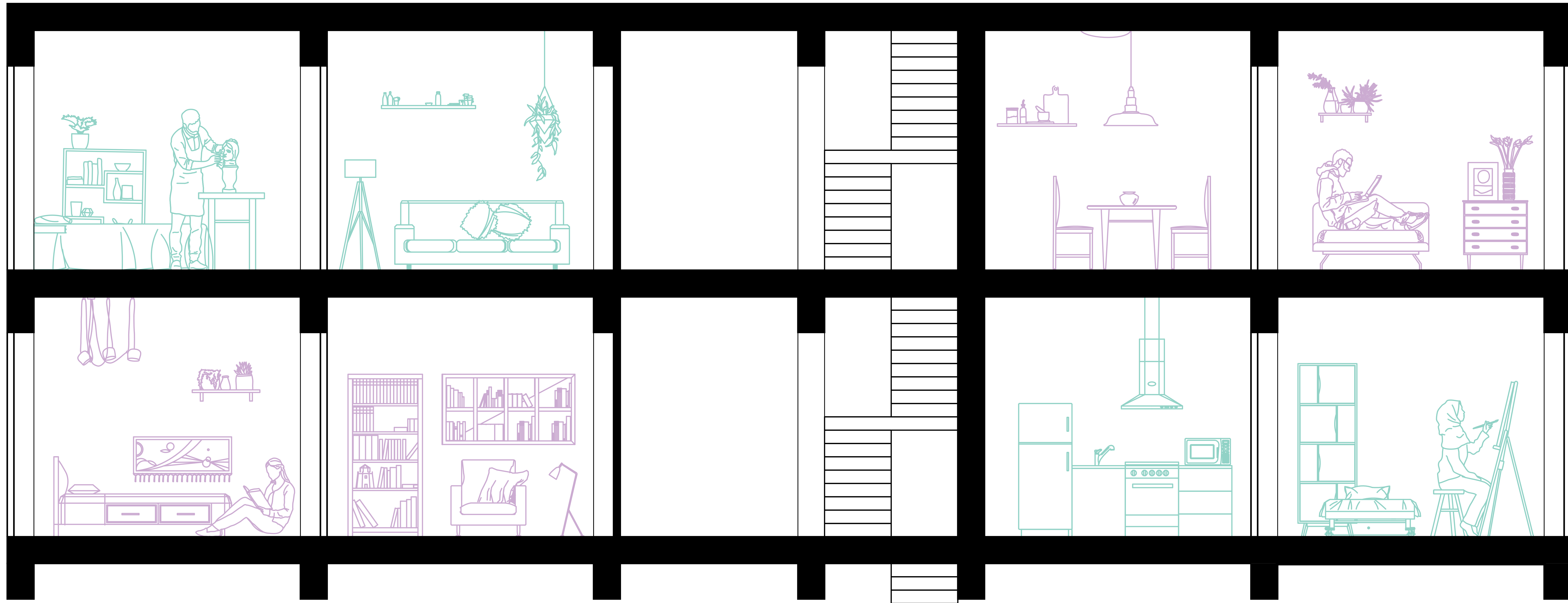


Changing interiors

Left: Nieuw Babylon - Amsterdam by Constant Nieuwenhuys, 1963, from: <https://www.kunstmuseum.nl/nl/collectie/new-babylon-amsterdam?origin=gm>
Middle: Vogelvlucht groep sectoren by Constant Nieuwenhuys, 1964, from: <https://www.kunstmuseum.nl/nl/collectie/vogelvlucht-groep-sectoren-i?origin=gm>
Right: Mobil Ladderlabyrinth by Constant Nieuwenhuys, 1967, from: <https://stichtingconstant.nl/work/mobil-ladderlabyrinth>

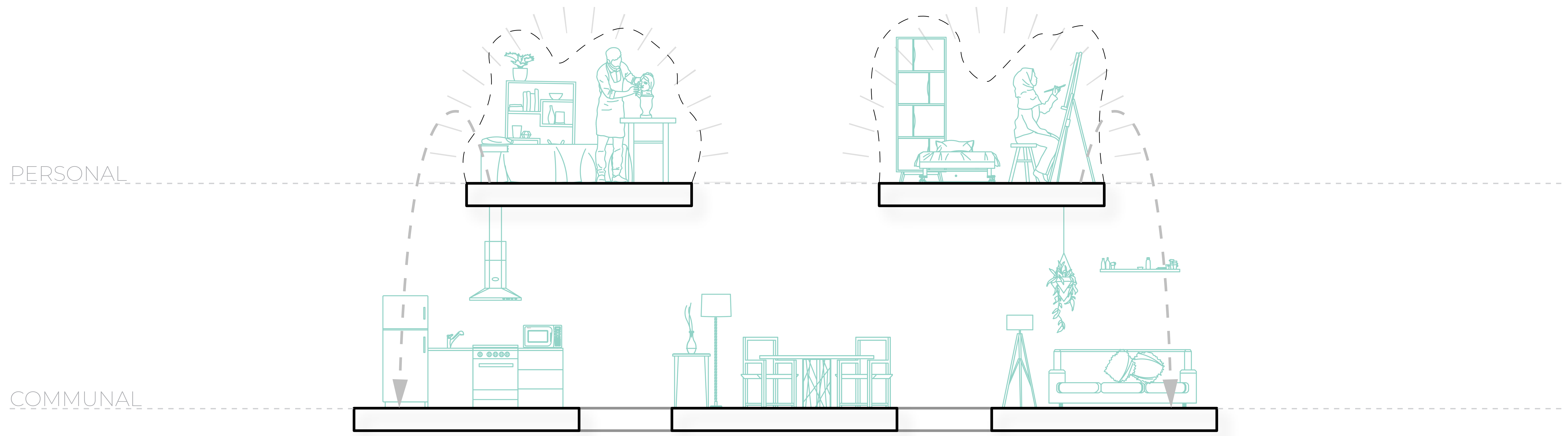
INTRODUCTION

DESIGN GOAL



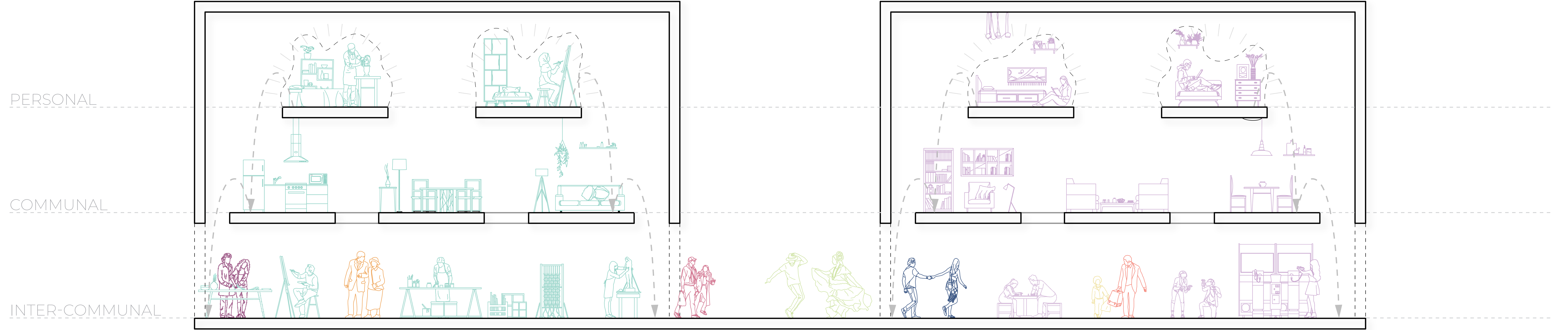
INTRODUCTION

DESIGN GOAL



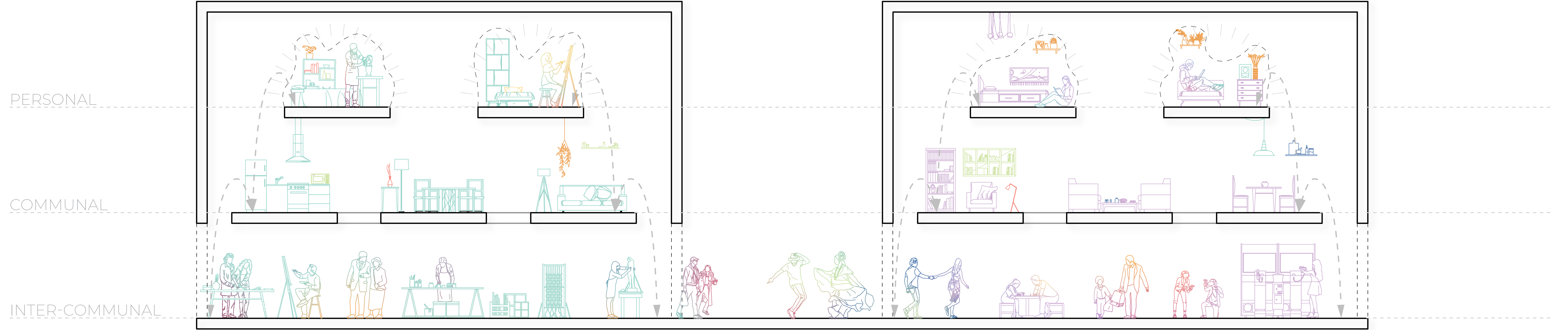
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DESIGN GOAL

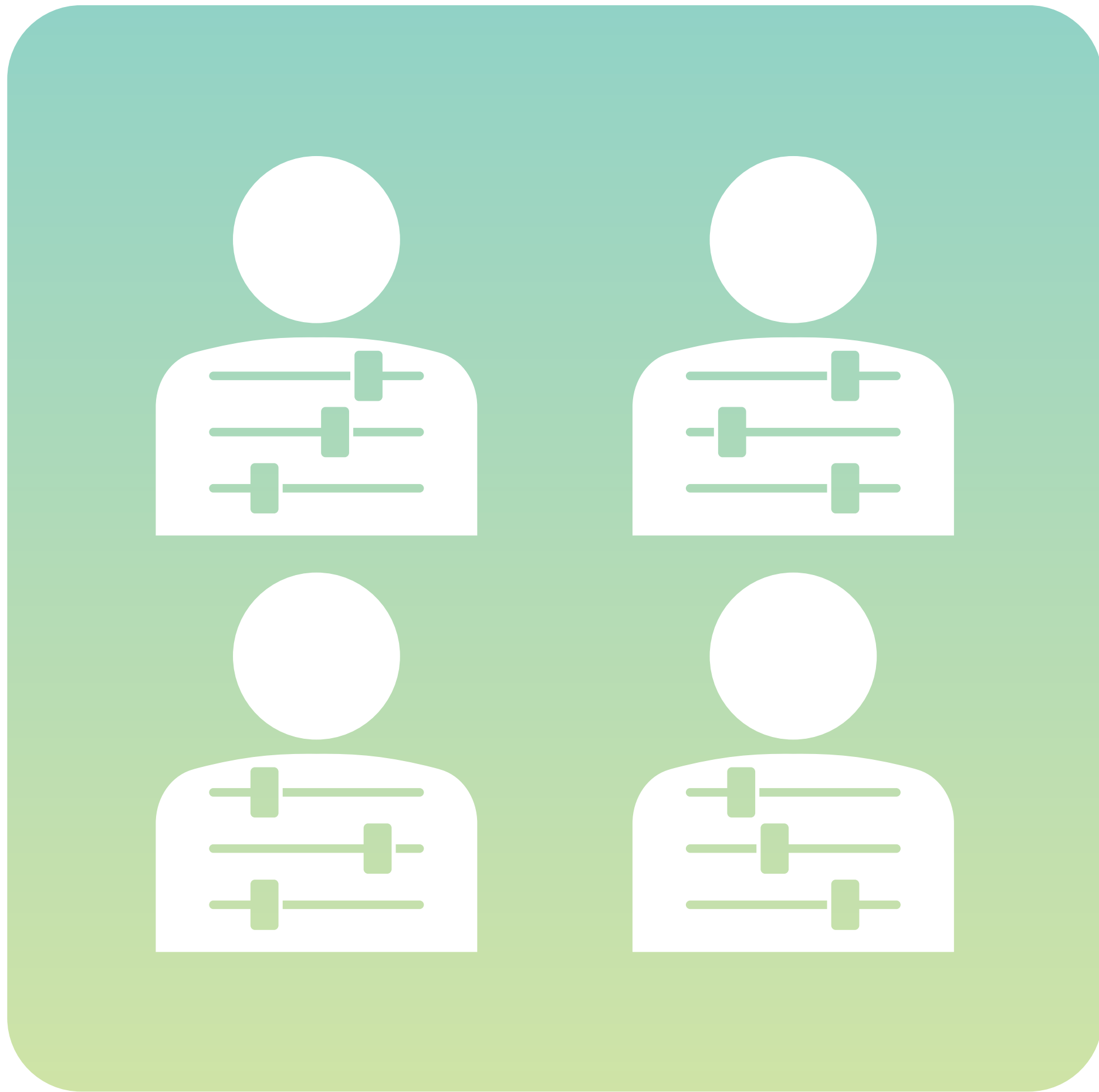


INTRODUCTION

DESIGN GOAL



DESIGN
INGREDIENTS



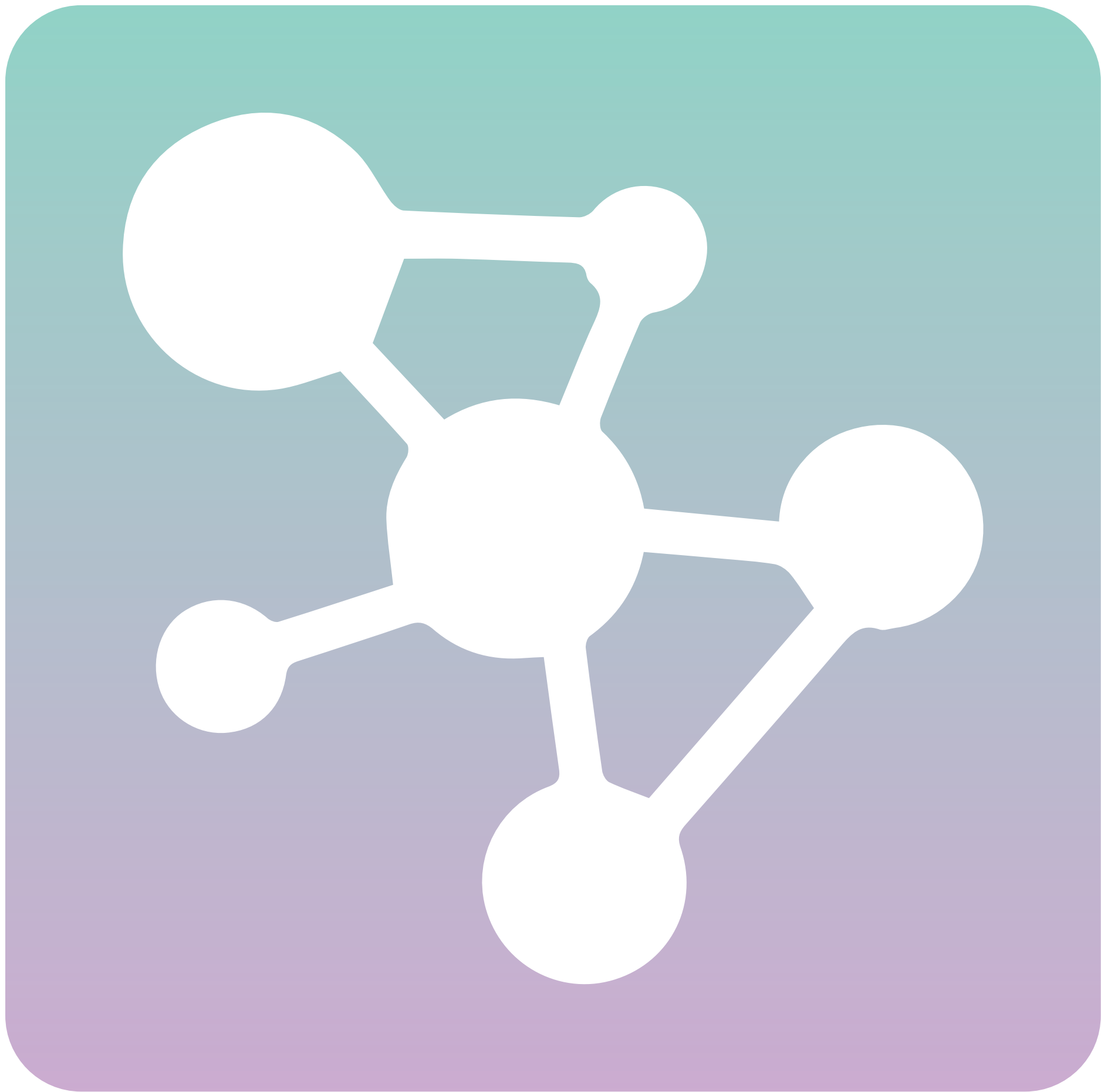
Mass-customization



Mixed-use



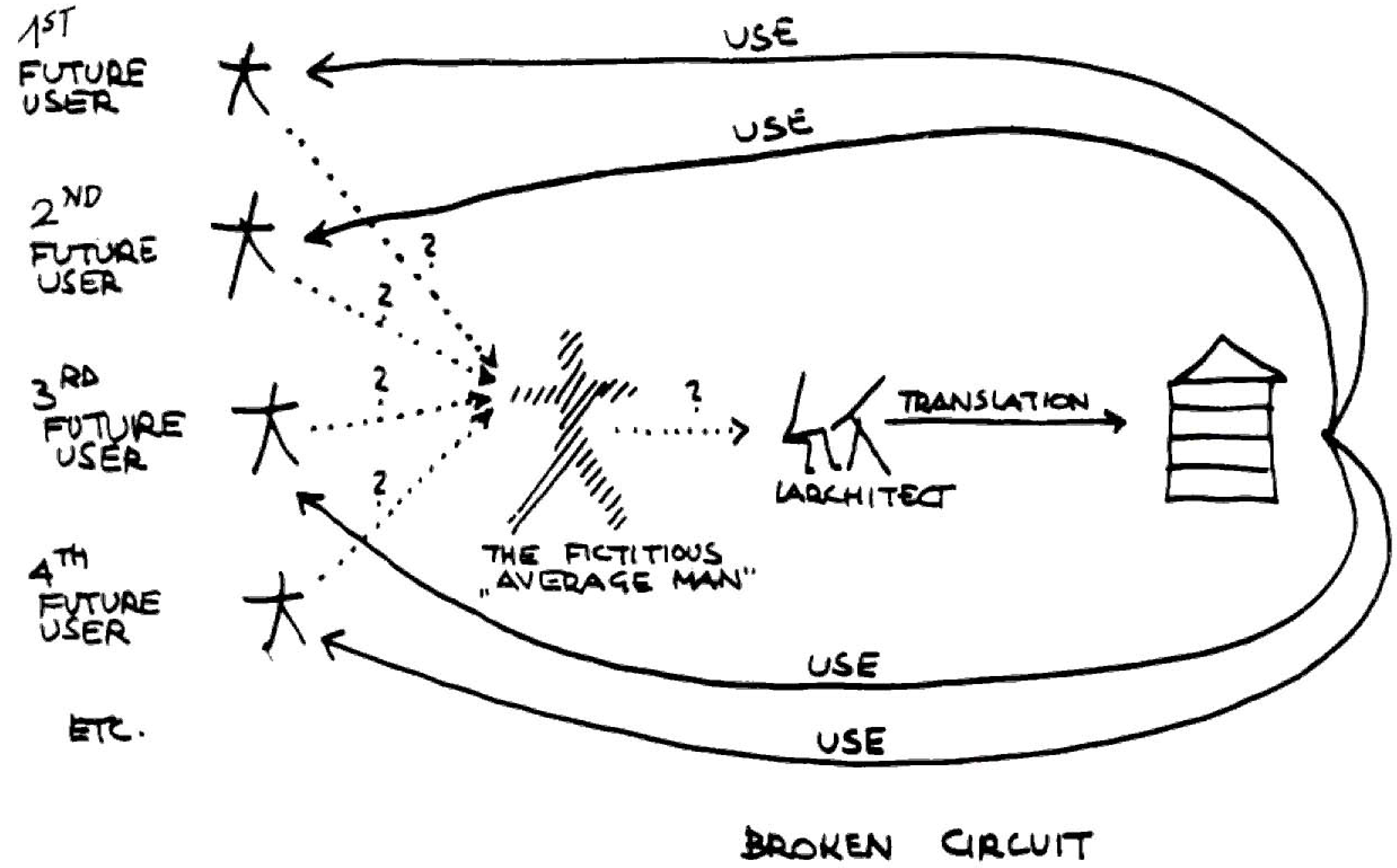
Community fostering



Inter-connectivity

THEMATIC RESEARCH

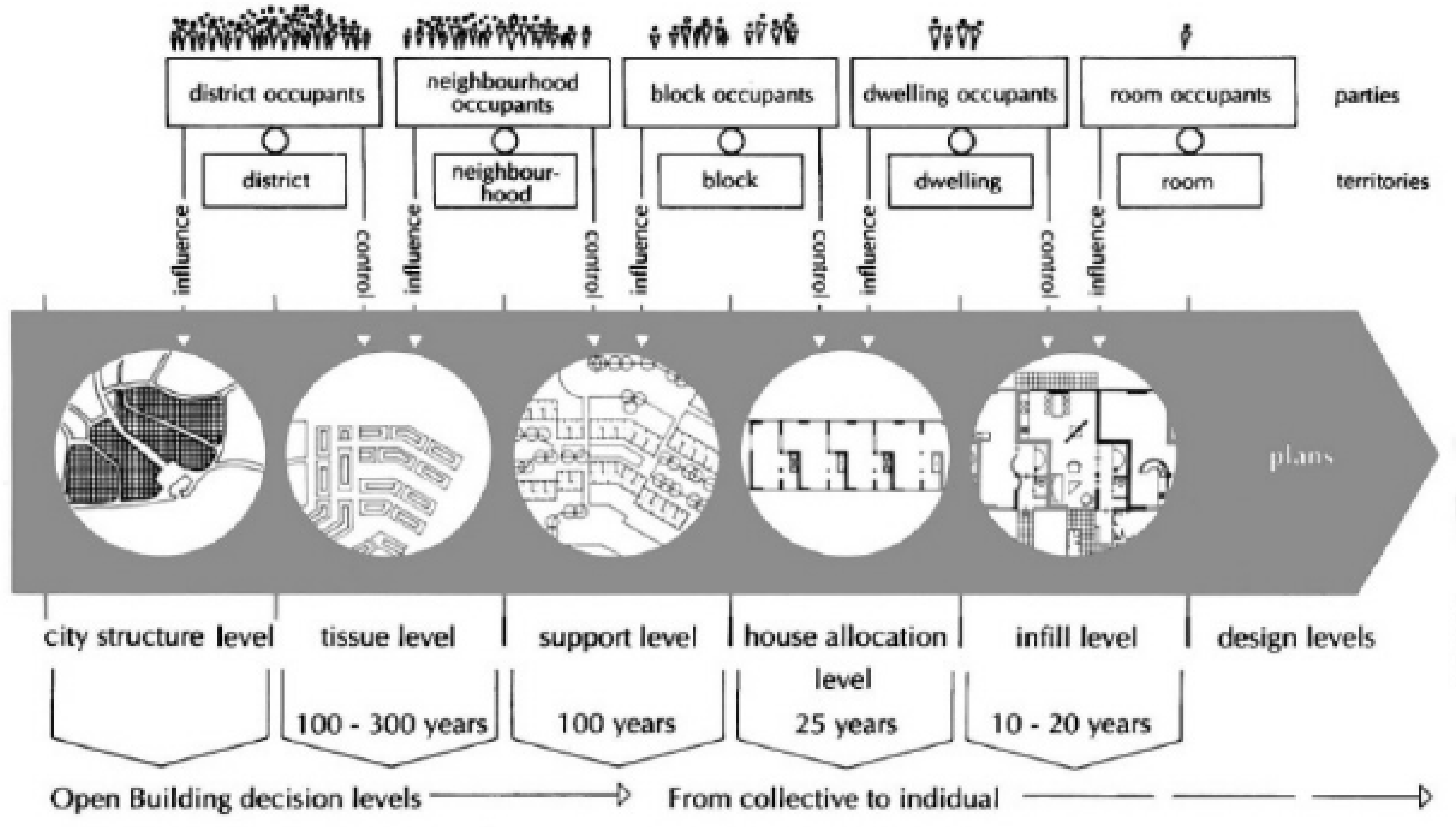
INTRODUCTION



Why customization?

THEMATIC RESEARCH

ENABLING CUSTOMIZATION

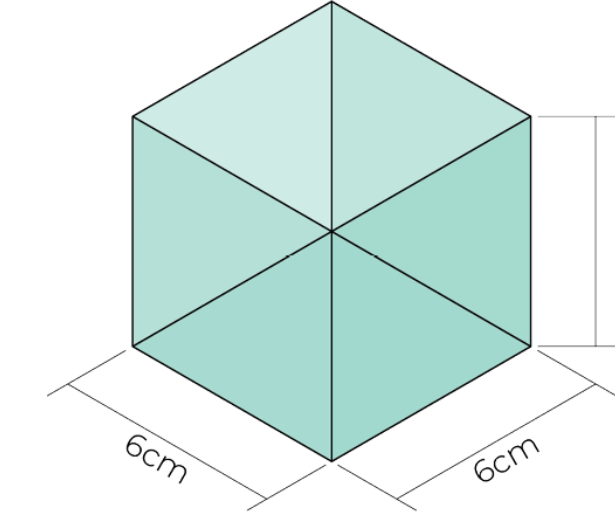


Infrastructure

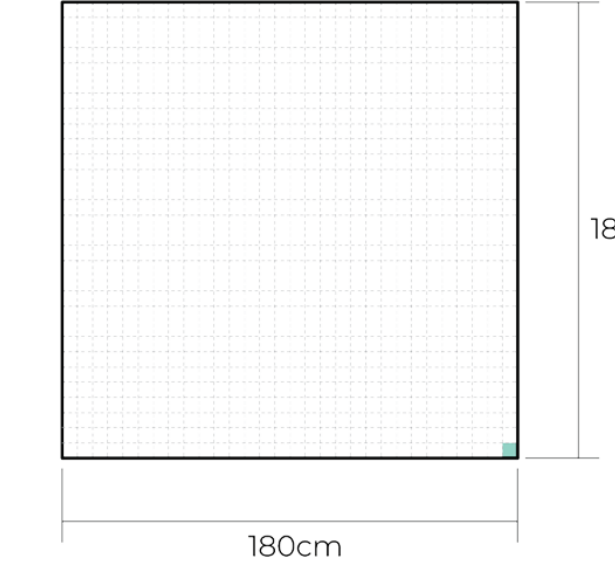
THEMATIC RESEARCH

ENABLING CUSTOMIZATION

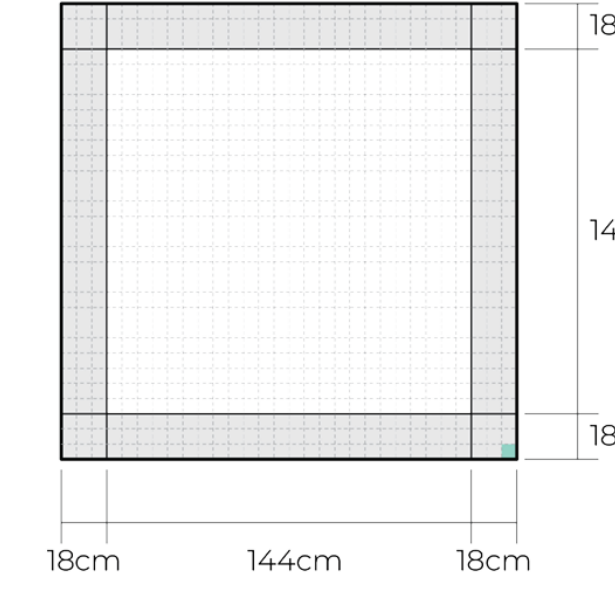
SYSTEM OF DIMENSIONS



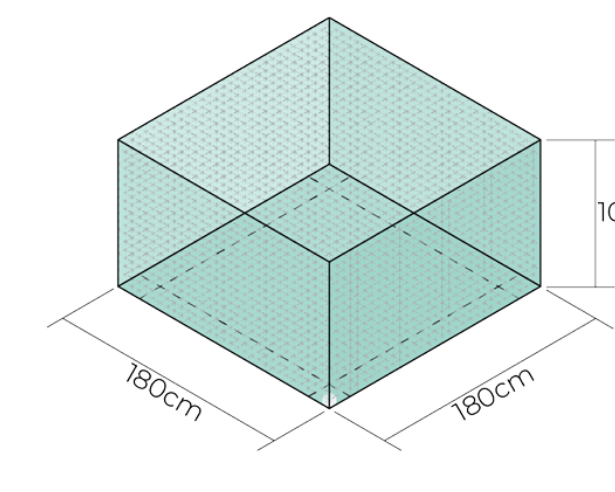
Mini voxel
X = 6cm Y = 6cm Z = 6cm
Base unit for building components.



Tatami
X = 180cm Y = 180cm
Base two-dimensional unit for room dimensions.



Tartan grid unit
X = 144cm+2 * 18cm Y = 144cm+2 * 18cm
Tatami unit with 18cm on all sides reserved for structural elements.



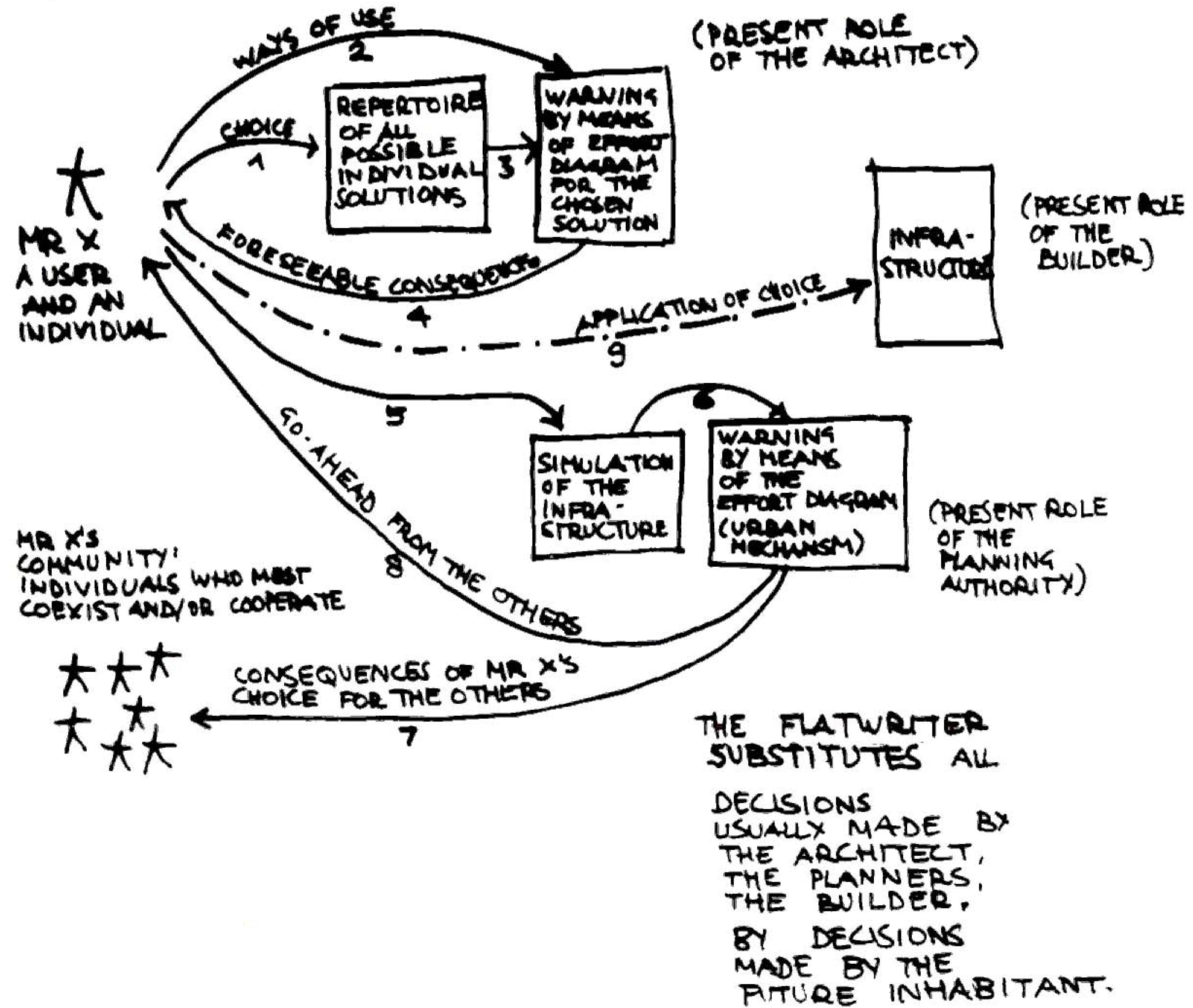
Voxel
X = 180cm Y = 180cm Z = 108cm
Base three-dimensional unit. Accommodates six steps of a staircase.



Base spatial unit
X = 180cm Y = 180cm Z = 324cm
Base three-dimensional unit for room dimensions. Contains a minimum 260cm tall clear space and a maximum 64cm tall space for floor structure and installations.

Modular system

SCHEMATIC PRESENTATION OF THE FLATWRITER.

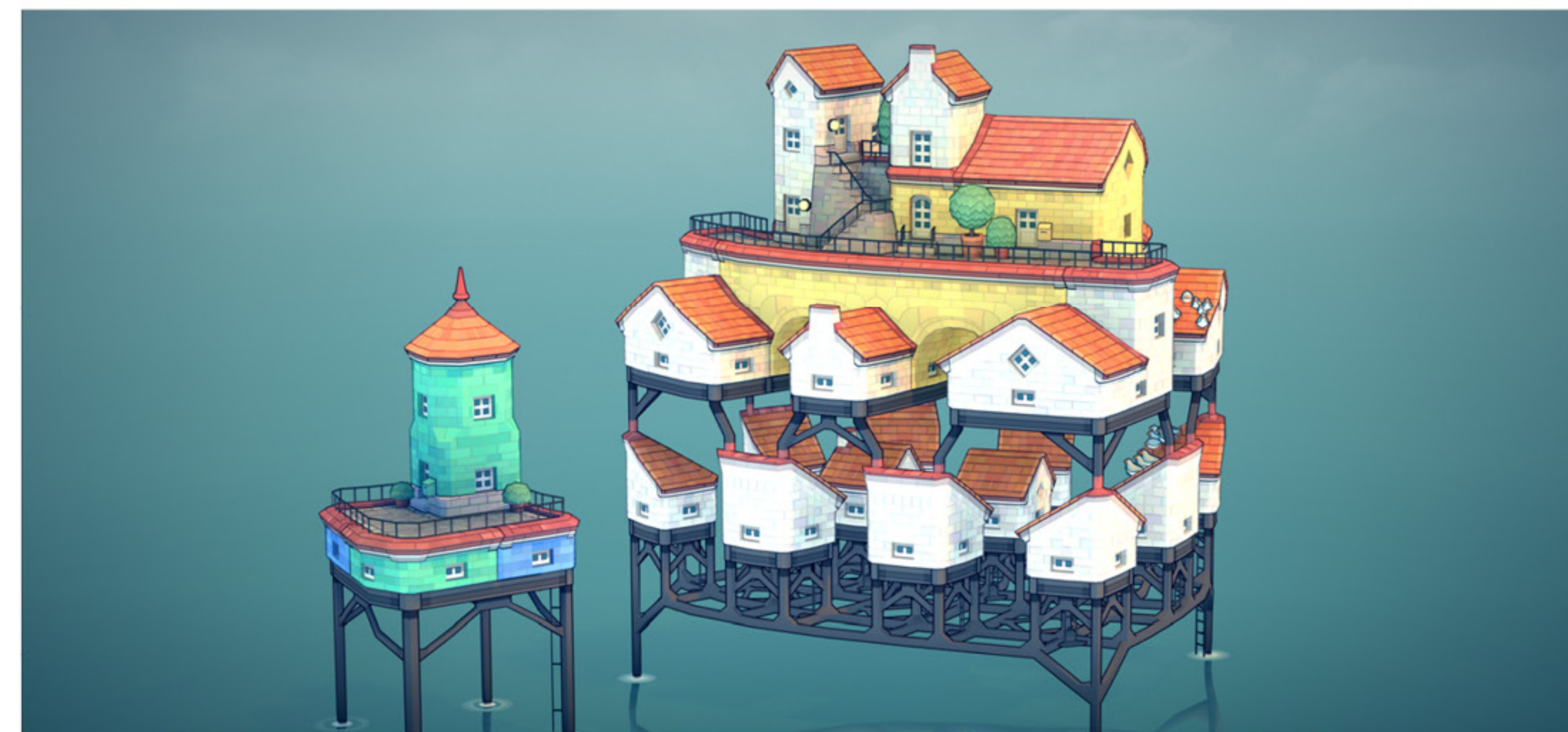


Evaluation system

THEMATIC RESEARCH

A DESIGN GAME

NAME: TOWNSCAPER
YEAR: 2021
CREATOR: OSKAR STÅLBERG



Examples of towns created in Townscaper, from: <https://www.townscapergame.com/>

DESCRIPTION
 Townscaper is a game that allows players to design an island town using only two inputs. It is an example of how rule-based design can generate complex configurations. Players select a color and click on a location in a grid, after which the game generates a building bases on a set of rules. The element placed in a grid slot is selected from a library using a wave function collapse algorithm, which selects elements based on surrounding elements. Players have crowd-sourced a list of rules and library of resulting elements.

SOURCE(S)
 Townscaper official website. Raw Fury. Retrieved 28 May 2022 from <https://www.townscapergame.com/>
 Townscaping - Looking At How Things Generate. (2020, 7 May 2021). Retrieved 28 May 2022 from <https://steamcommunity.com/sharedfiles/filedetails/?id=2155305102filedetails/?id=2155305102>

NAME: YAP-YAŞA
YEAR: 2010
CREATOR: EKIM TAN



Yap-Yaşa play process, from: Tan, 2017, pg. 231



Final design drawing of Yap-Yaşa outcome, from: Tan, 2017, pg. 242

DESCRIPTION
 Yap-Yaşa was an experimental participatory game for the design of city blocks in the urban transformation of Istanbul. It was part of a series of urban planning games developed for a research project by Tan (2017). The aim of this game was to investigate the potential of gaming to allow non-designers to negotiate with professionals.

The game space consisted of a generic version of Istanbul's city blocks. This block had to be populated with a densified version of Istanbul's existing self-organized and self-built neighborhood typology. The hypothesis was that this urban block could accommodate both the renewal demands of Turkey's Housing Administration and developers, and the existing social and economic networks of residents.

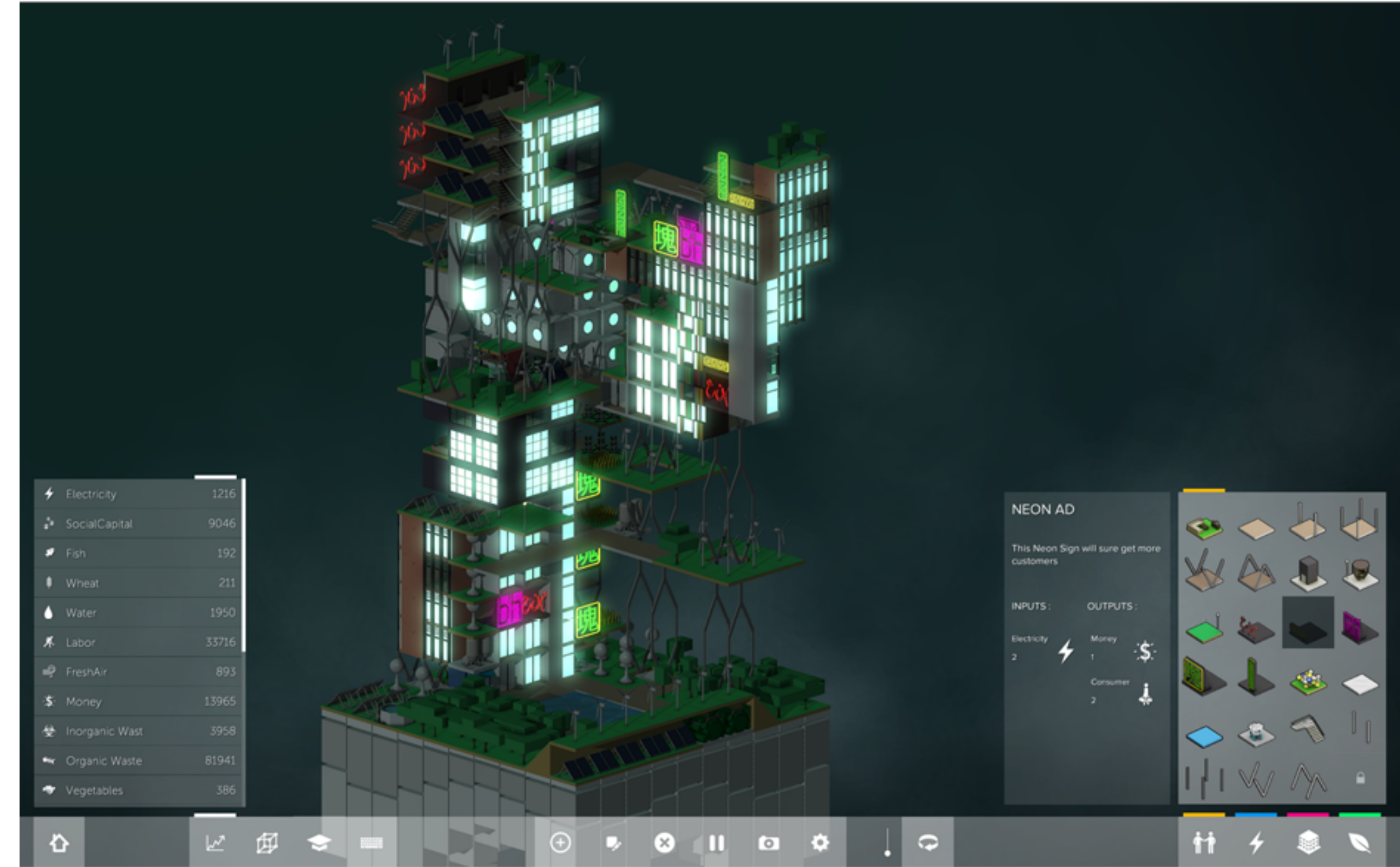
The game consisted of two types of rules, organizational rules and design rules. The organizational rules established the play-process. To properly simulate the dynamics behind Istanbul's urban renewal, a set of roles were introduced. These roles were modeled to reflect real powers and agencies and dictated the moves players could make. Furthermore, exchanging roles, or role-playing, was investigated as a way for stakeholders to understand each other's point of view. Design rules were introduced to mitigate the knowledge gap between professional and non-professional players. These rules ensured the configurations resulting from the play-process would adhere to certain qualities, such as limited building height and a certain amount of open space at ground level. In other words, these rules would protect less-informed players from certain design choices being made, either by themselves, or by professional players taking advantage of a difference in knowledge between players.

The play-process itself consisted of configuring urban blocks by placing stacks of 4 units on a grid, with each unit taking 1x2 grid spaces and one height level. Each unit could also be individually rotated around a screw that connected the units in the stacks, which facilitated more detailed designs and additional negotiation. The game was played in two sessions with three different groups. In the first session the Turkish Housing Association held most of the power, as only the player with this role was allowed to place housing units. In this session none of the groups were able to reach consensus without breaking the game's rules. In the second session all players could place at least some units. Additionally, in this session players also role-played as a different stakeholder. In this sessions players were able to reach consensus and come up with a design that satisfied all participants.

Using this game uninformed users were able to customize their housing and neighborhood in negotiation with other stakeholders. With some basic rules, different urban blocks could be configured while fulfilling the same requirements in density and open space on ground level. Further rules for the configuration would emerge from user preferences, negotiation and power dynamics within the groups. Another important conclusion is that without the ability for all players to take part in the design process the likelihood of consensus being reached is minimal, as shown by the differing results of the two sessions.

SOURCE(S)
 Tan, E. (2017). *Negotiation and Design for the Self-Organizing City: Gaming as a method for Urban Design*. [Delft Technical University]. Delft.

NAME: BLOCK'HOOD
YEAR: 2017
CREATOR: PLETHORA PROJECT



Screenshot of Block'hood, showing a player-designed neighborhood and the user-interface. The feedback on resources is displayed on the left, a library of blocks with information on each blocks is displayed on the right. By Plethora project, 2017, from: <https://www.plethora-project.com/blockhood>

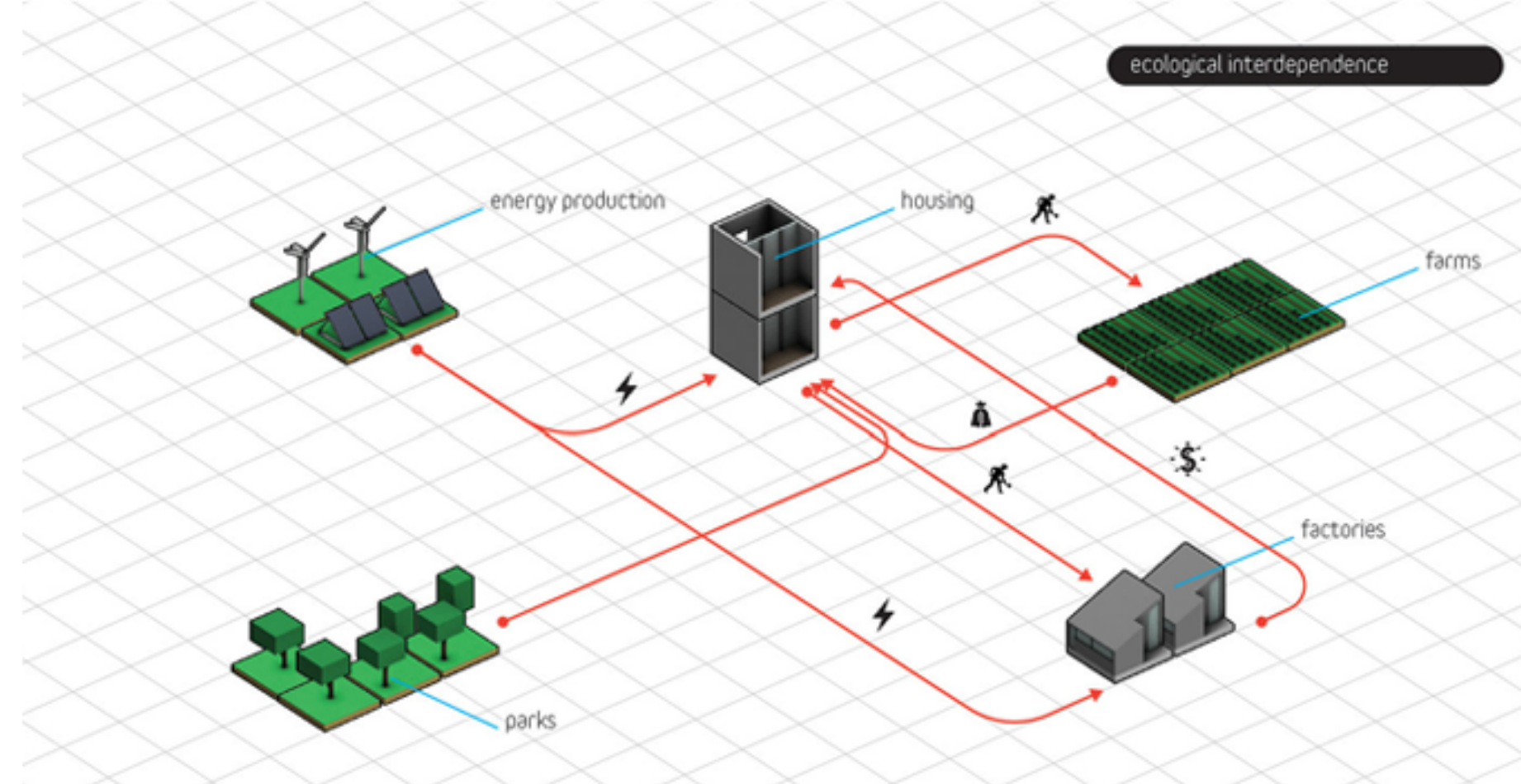


Diagram showing the resource interdependence of some blocks, by Plethora Project, 2017, from: <https://www.plethora-project.com/blockhood>

DESCRIPTION
 The developers of Block'hood describe it as a neighborhood-building simulator that allows players to explore the diversity and ecosystems of cities. It is an example of a game in which players can use game pieces to customize an environment that simulates and gives feedback on real-life systems, but on an abstracted level. The players can configure a predominantly vertically stacked neighborhood by choosing from a library of blocks. Different blocks use and produce different resources. Some blocks can house inhabitants, including animals. The user-interface shows the amount of resources each block uses and produces, the total amount of each resource produced by the neighborhood, and the surplus of deficit of each resource. A resource deficit will cause blocks that use the particular resource to deteriorate, eventually leading to the blocks' collapse. In short, Block'hood allows players to experiment with designing an environment, and gives feedback on their choices.

SOURCE(S)
 STEAM. (2017). Block'hood. Retrieved 27 May 2022 from <https://store.steampowered.com/app/416210/Blockhood/>
 Plethora Project. Block'hood. Retrieved 27 May 2022 from <https://www.plethora-project.com/blockhood>



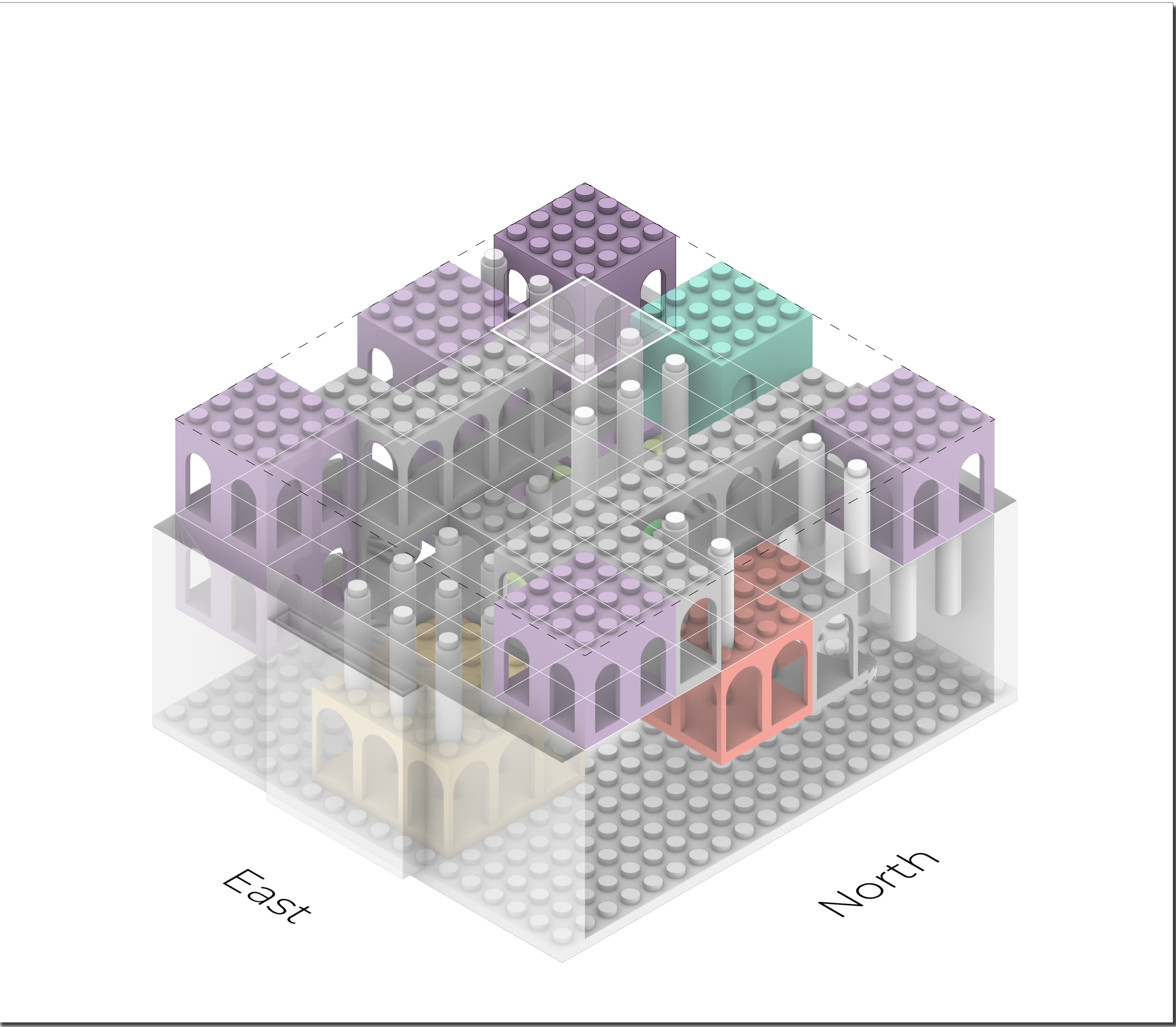
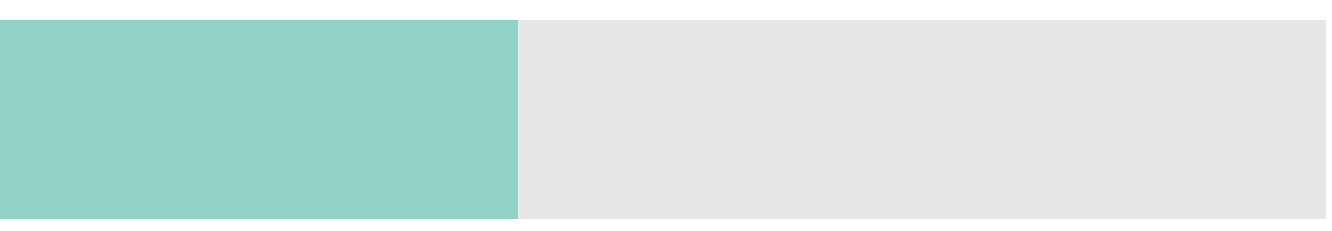
THEMATIC RESEARCH

DESIGN GAME

Aaron
Photographer



Budget:



COLOR LEGEND

- Void
- Circulation
- Private Quarters
- Bathroom
- Study
- Living
- Studio
- Kitchen
- Dining

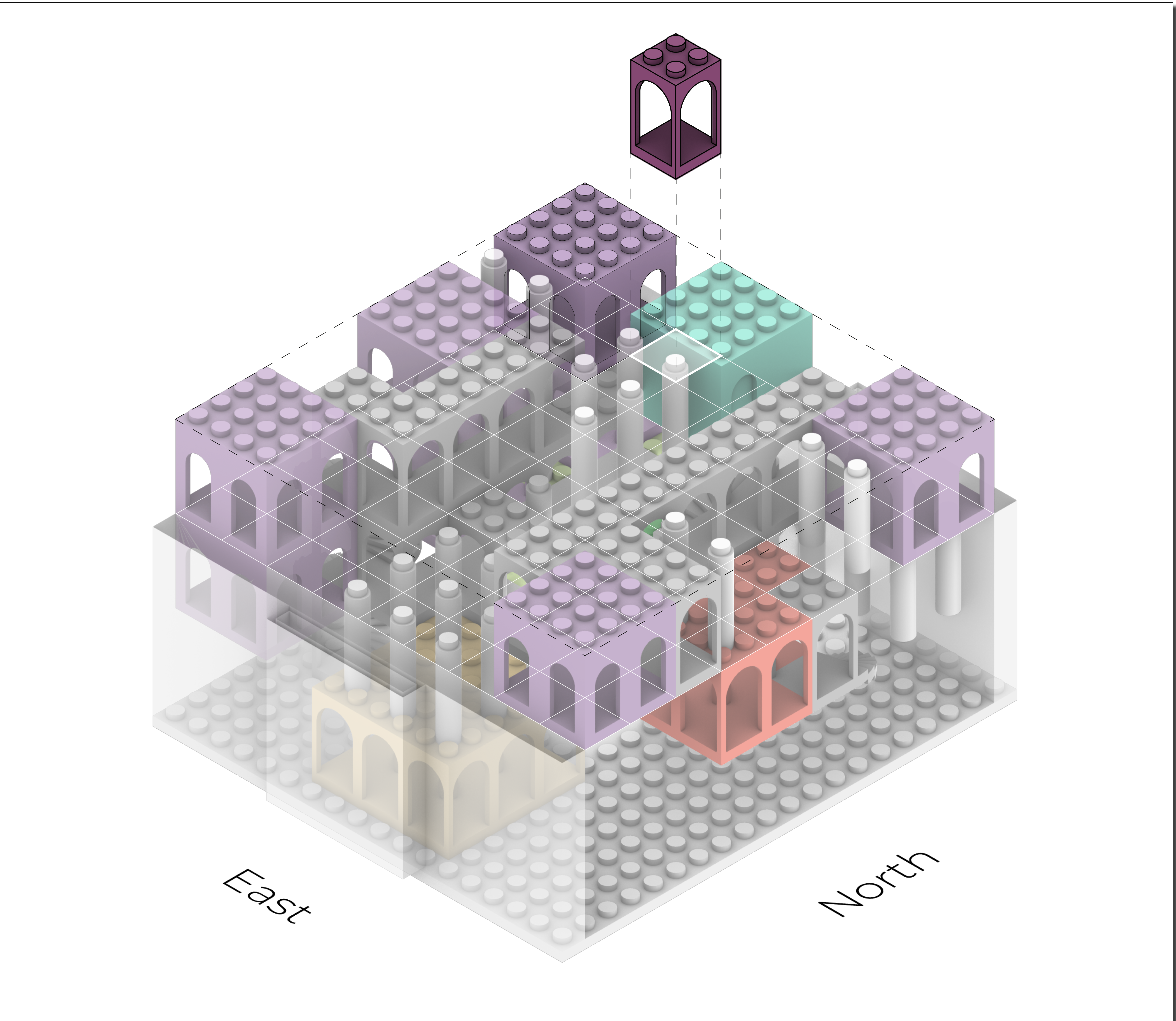
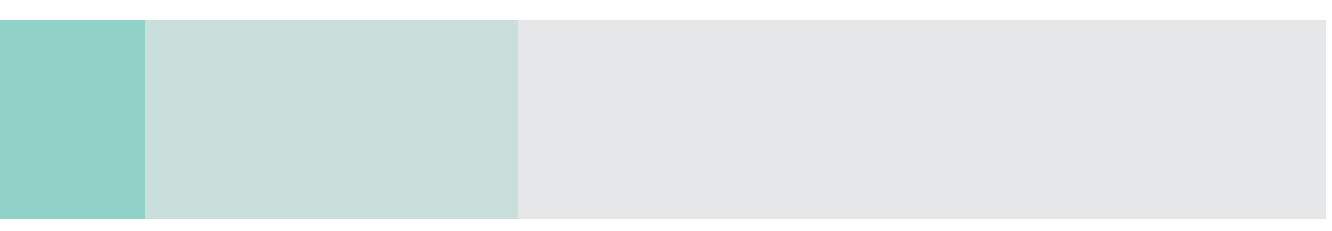
THEMATIC RESEARCH

DESIGN GAME

Aaron
Photographer



Budget:



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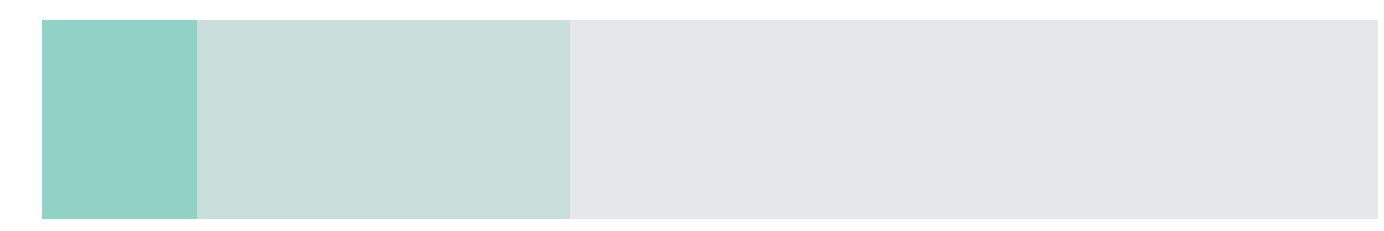
THEMATIC RESEARCH

DESIGN GAME

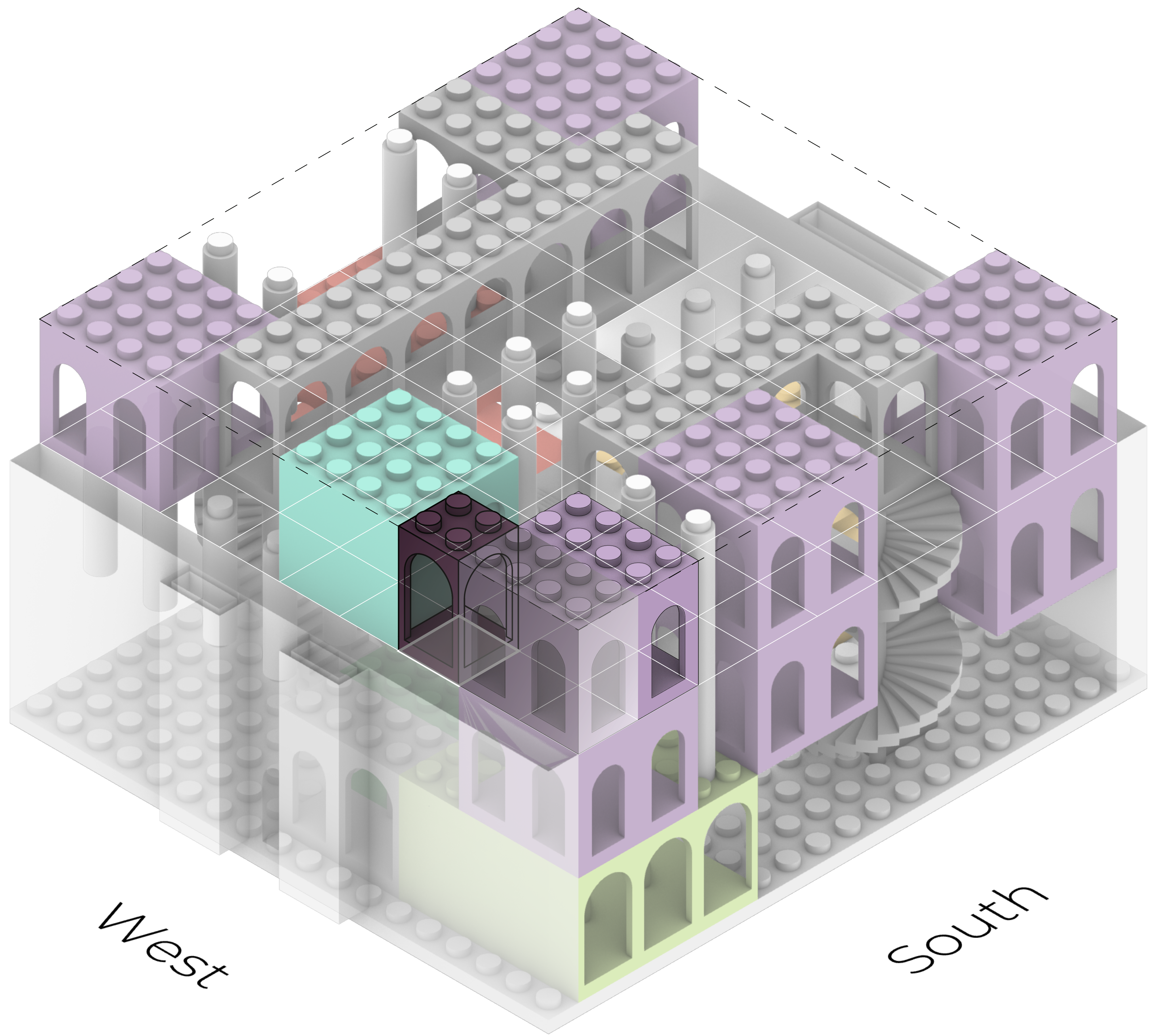
Aaron
Photographer



Budget:



NOT ENOUGH NATURAL LIGHT



COLOR LEGEND

- Void
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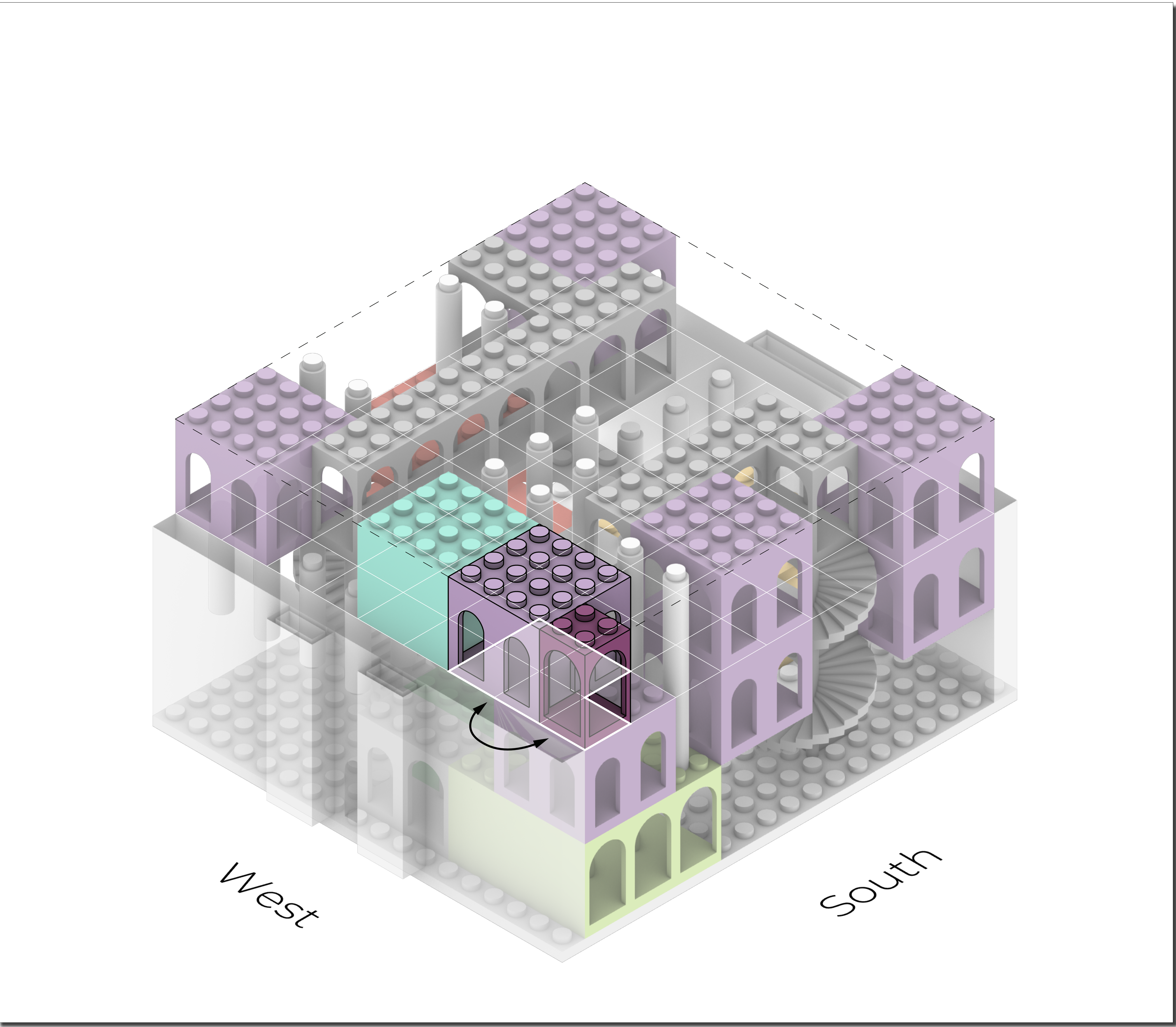
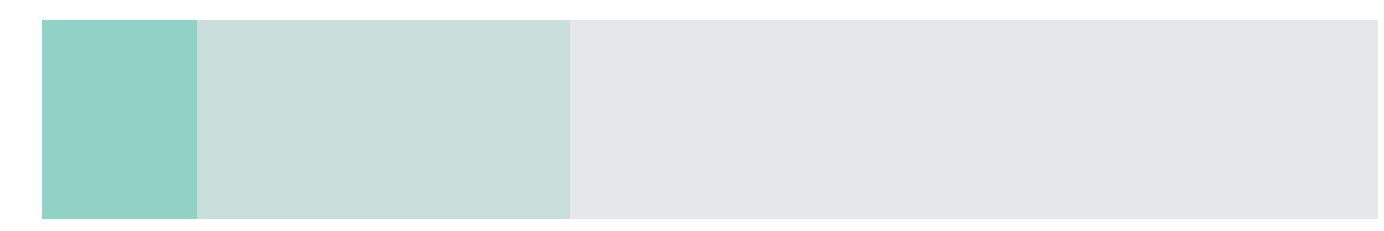
THEMATIC RESEARCH

DESIGN GAME

Aaron
Photographer



Budget:



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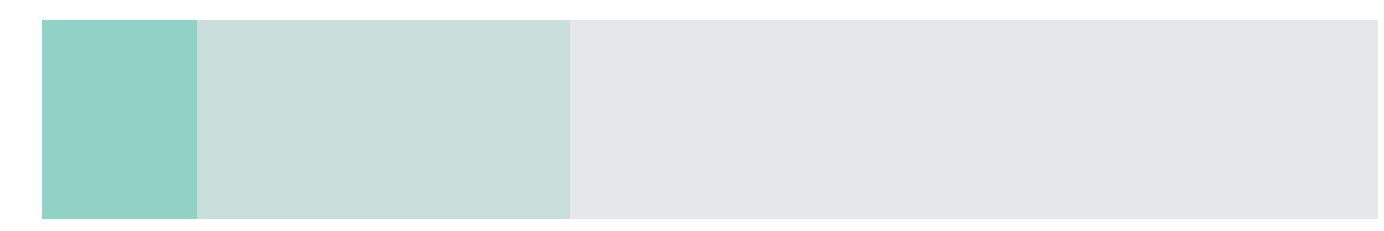
THEMATIC RESEARCH

DESIGN GAME

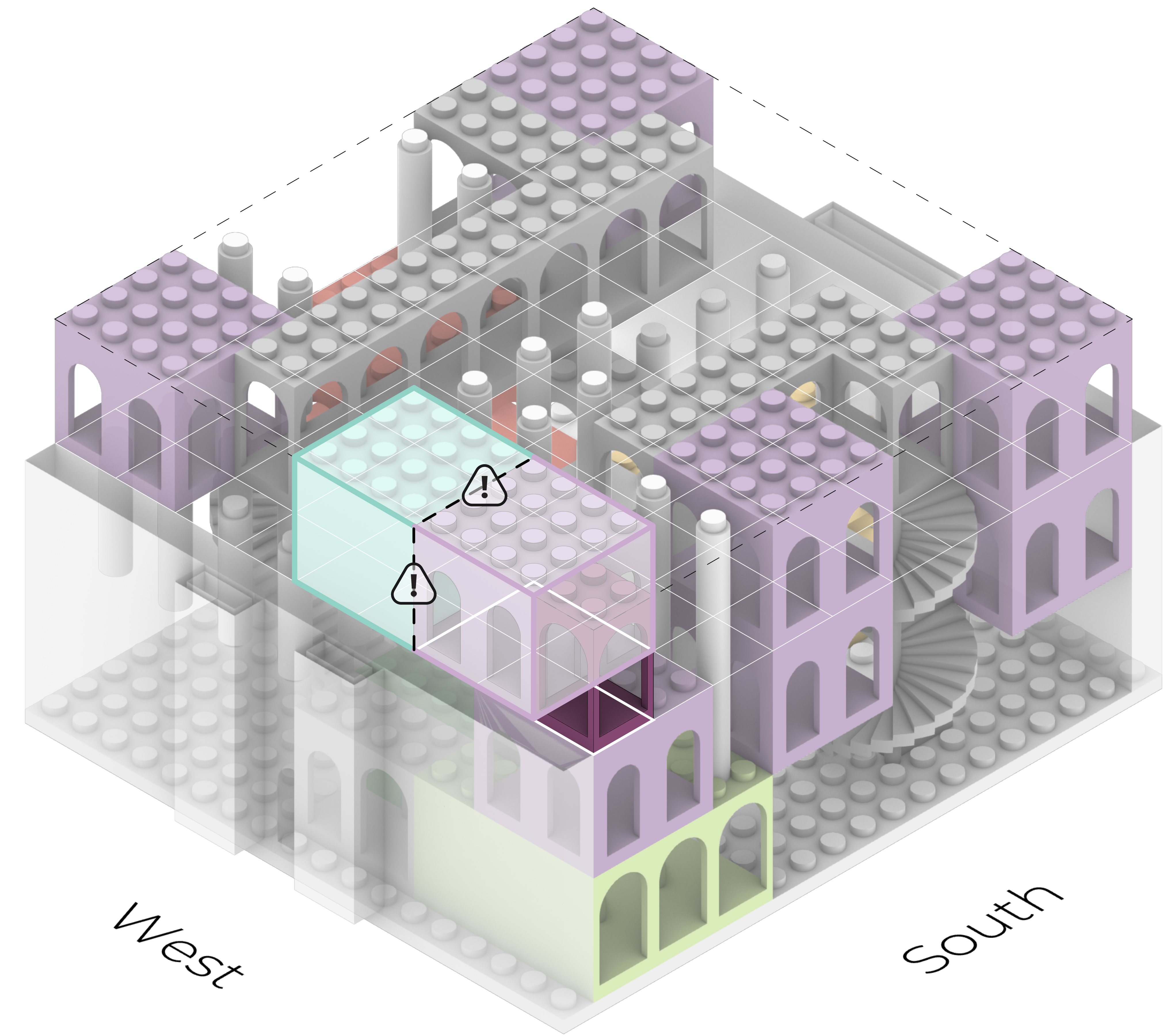
Aaron
Photographer



Budget:



ILLEGAL CONNECTION: PRIVATE TO SHARED



COLOR LEGEND

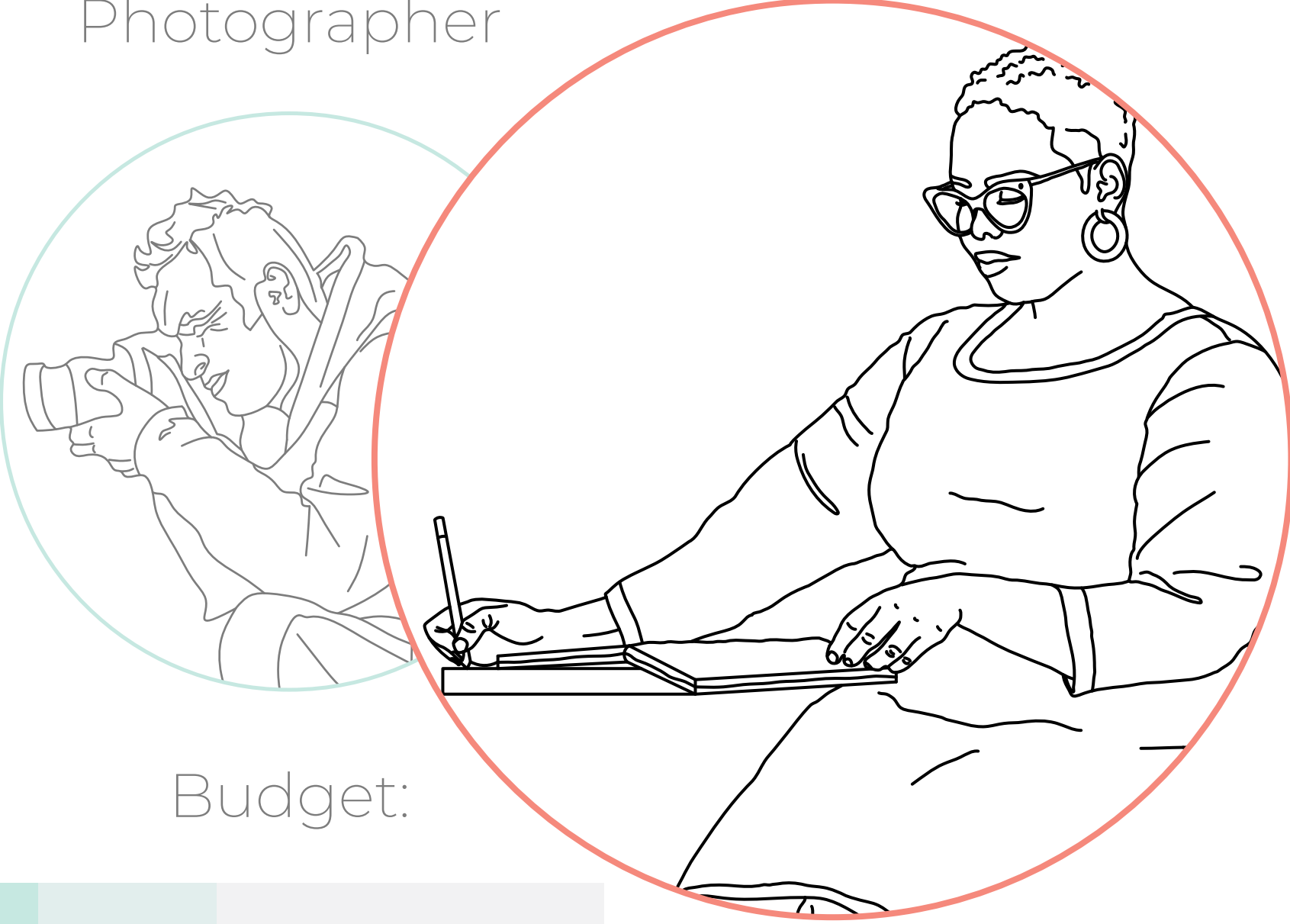
- Void
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THEMATIC RESEARCH

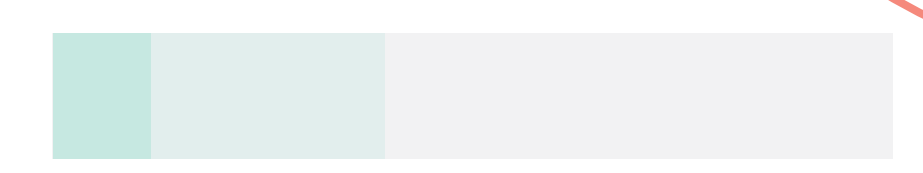
DESIGN GAME

Hannah
Illustrator

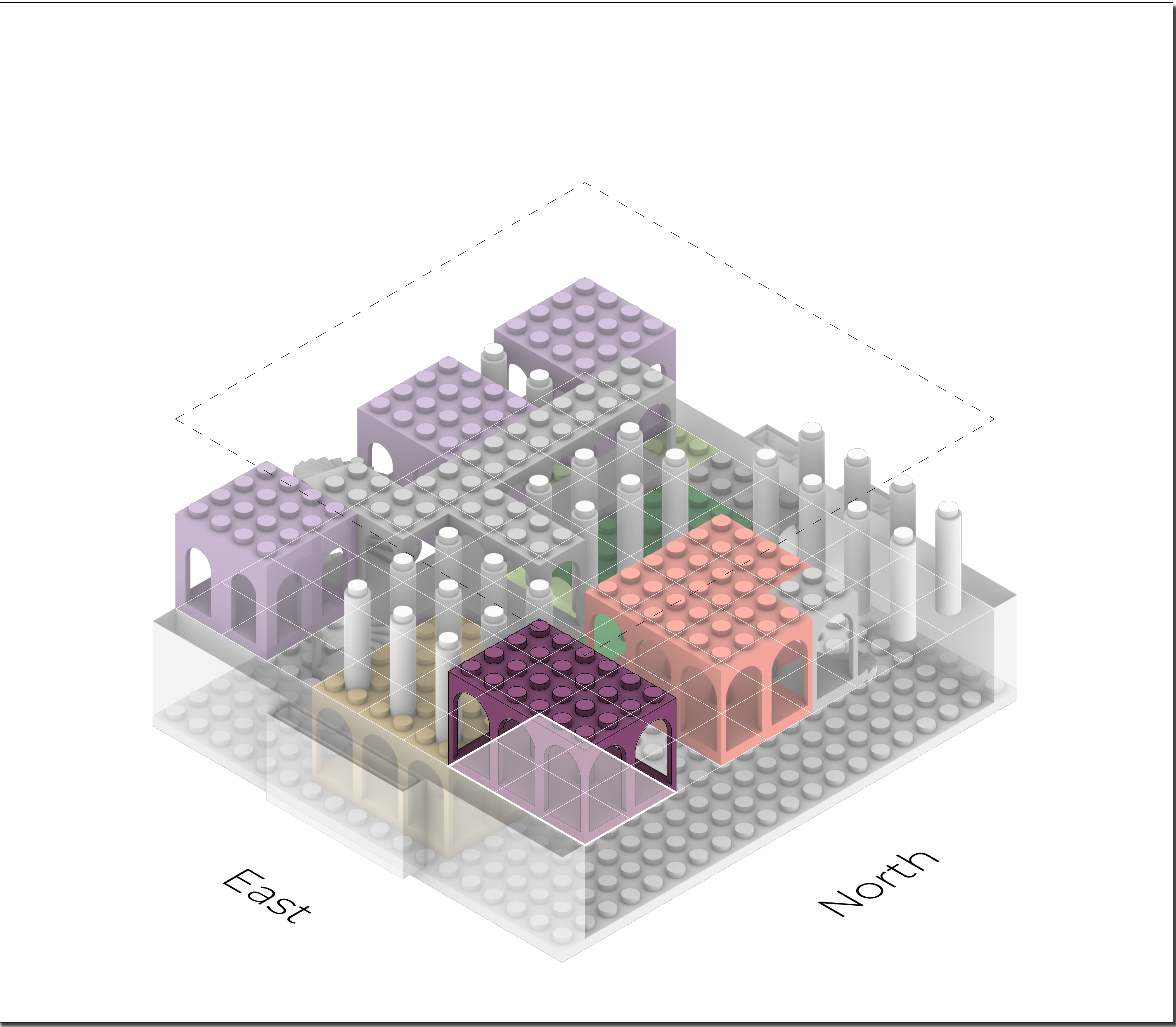
Aaron
Photographer



Budget:



Budget:



COLOR LEGEND

- Void
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THEMATIC RESEARCH

DESIGN GAME

Aaron
Photographer

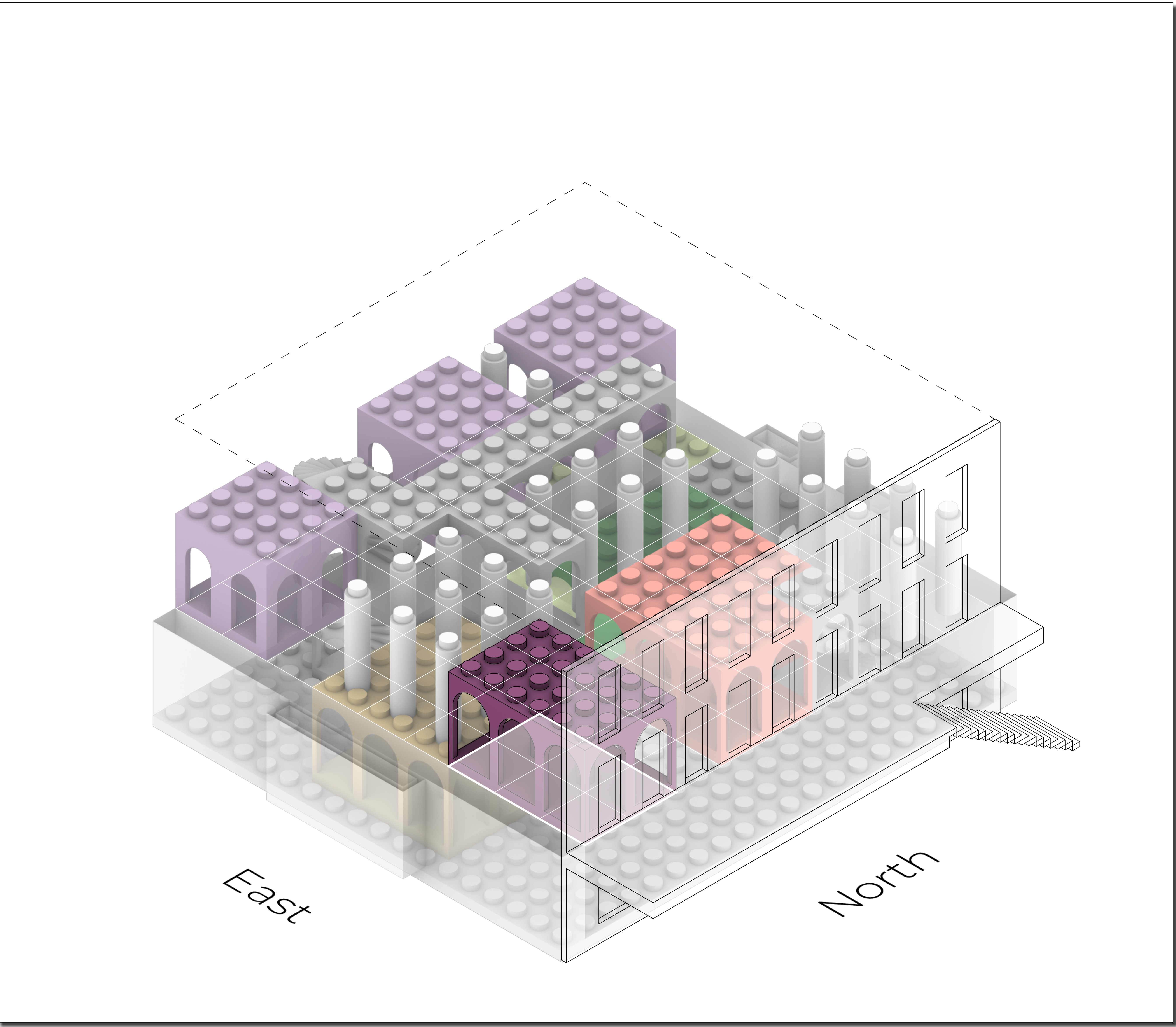
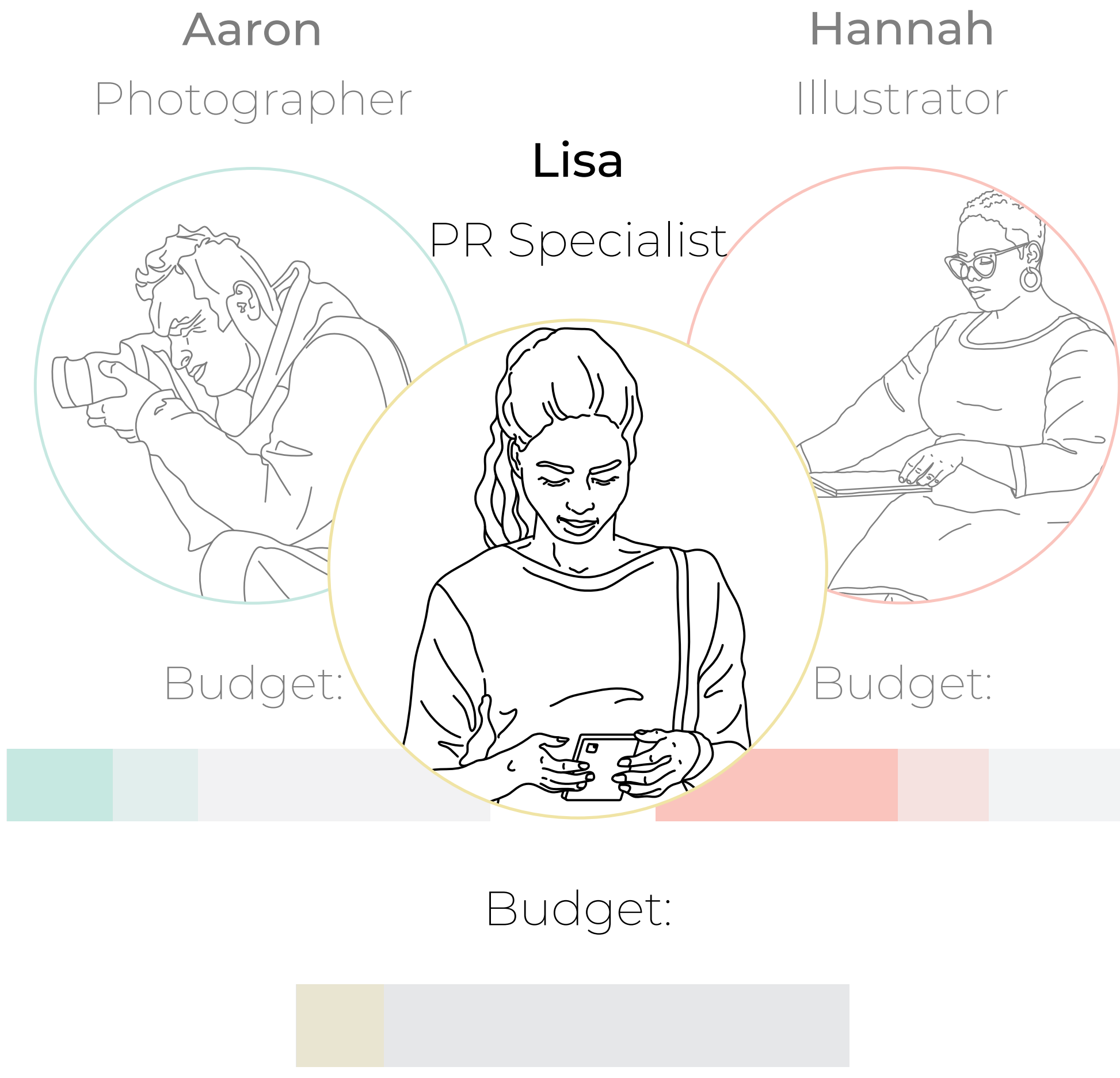
Hannah
Illustrator

Lisa
PR Specialist

Budget: [Progress bar]

Budget: [Progress bar]

Budget: [Progress bar]

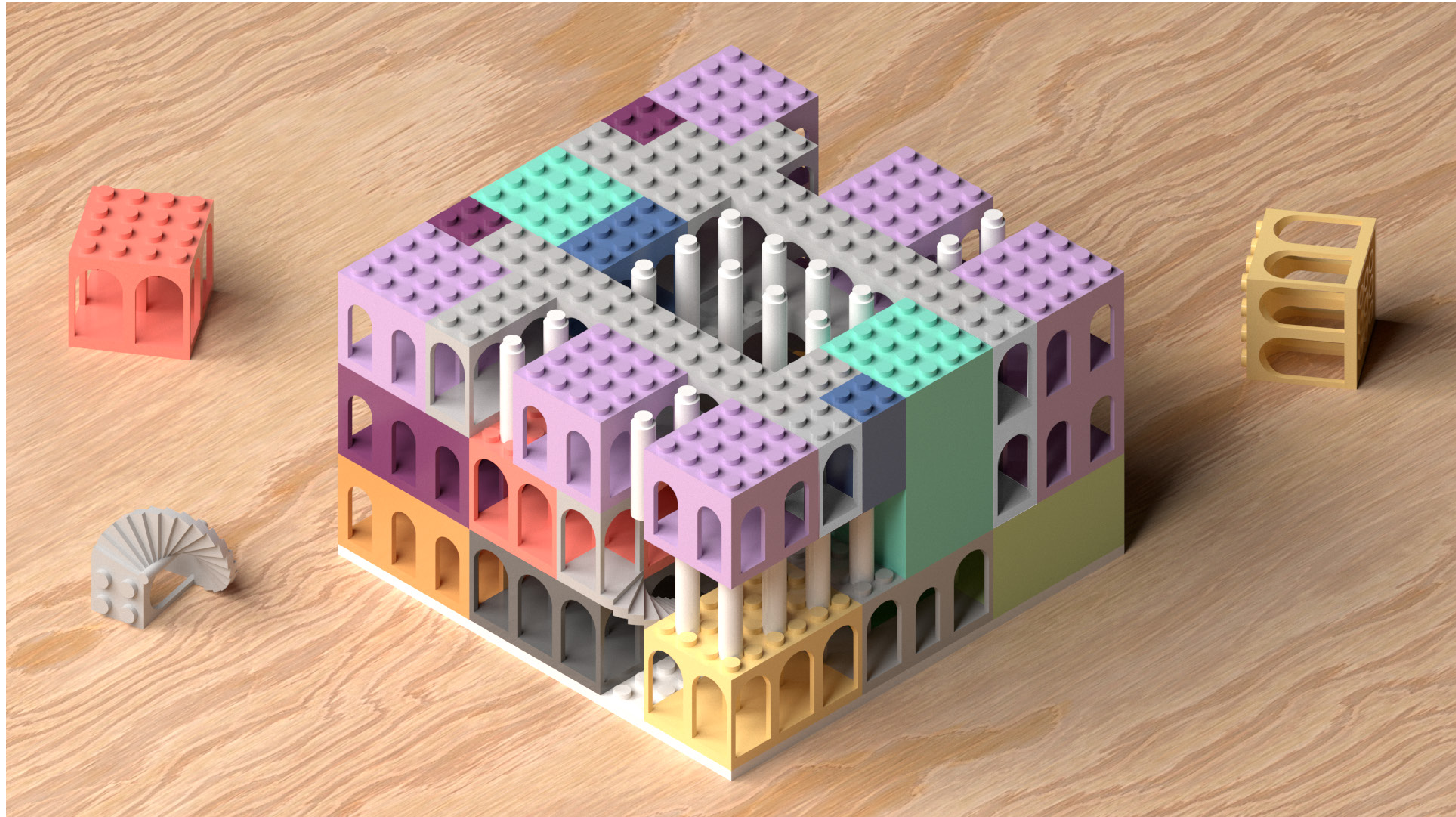


COLOR LEGEND

- Void
- Circulation
- Private Quarters
- Bathroom
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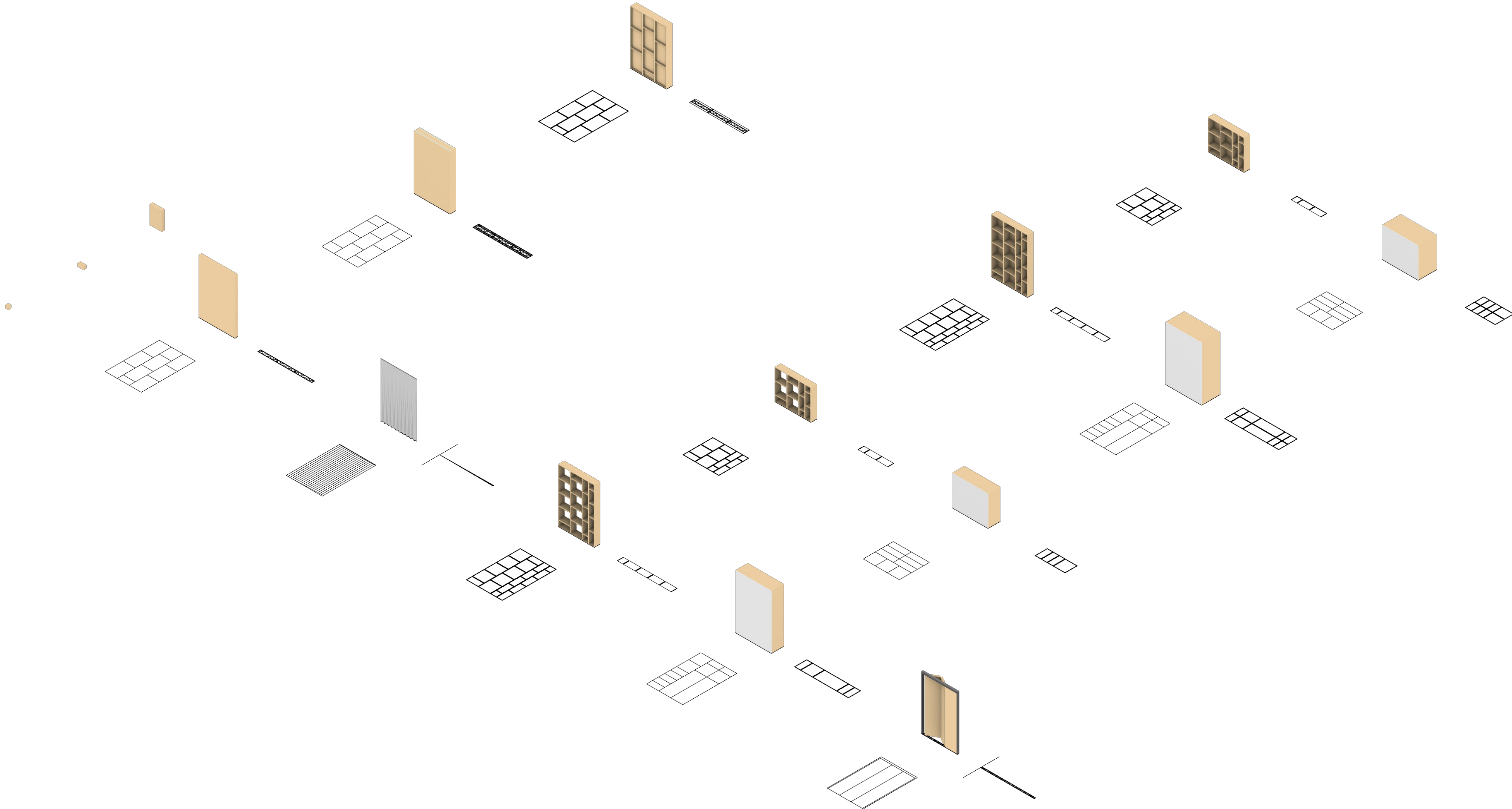
THEMATIC RESEARCH

DESIGN GAME



Possible result of play session

RESEARCH
PARTITIONS



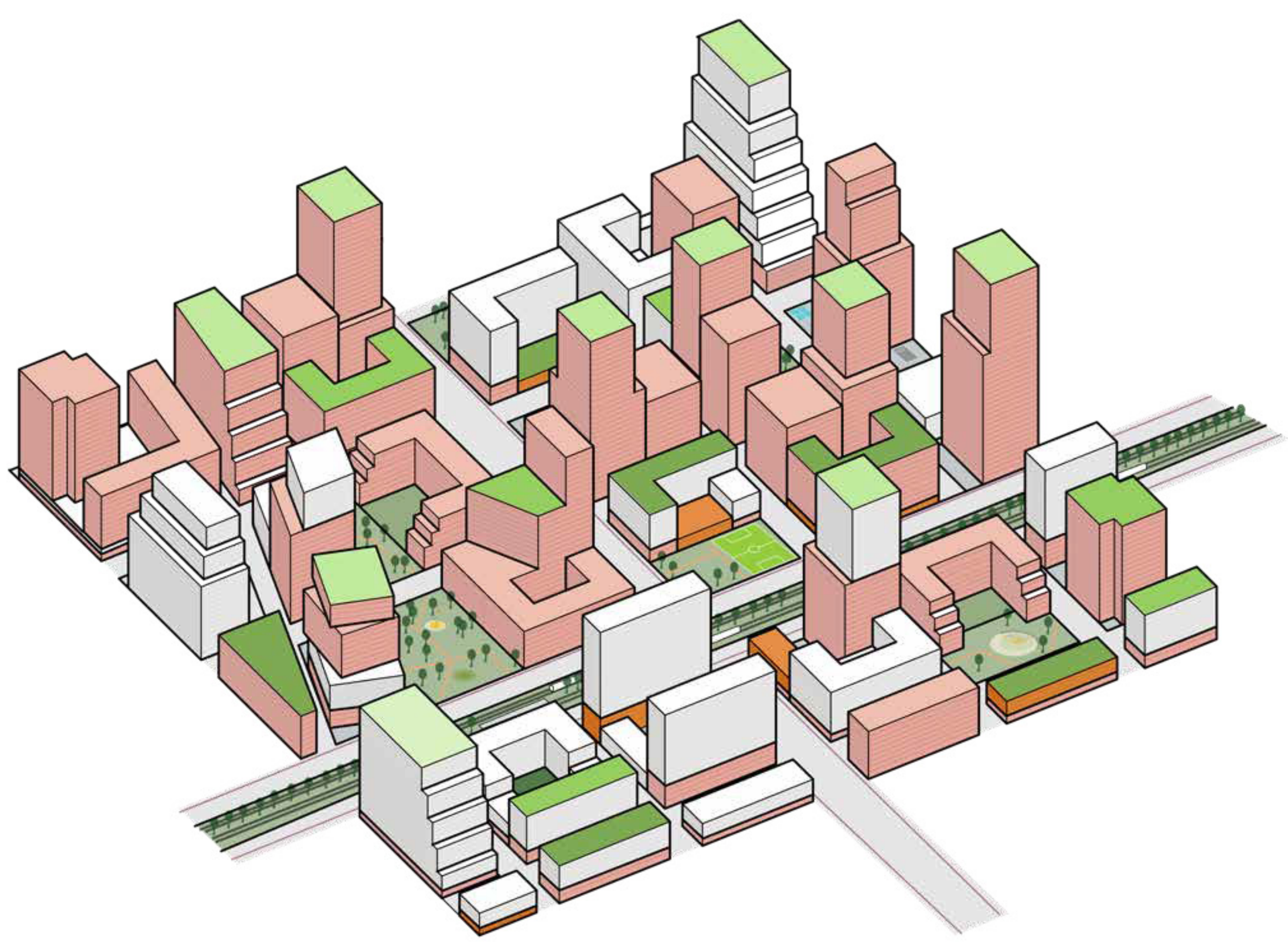
DESIGN

SITE



DESIGN

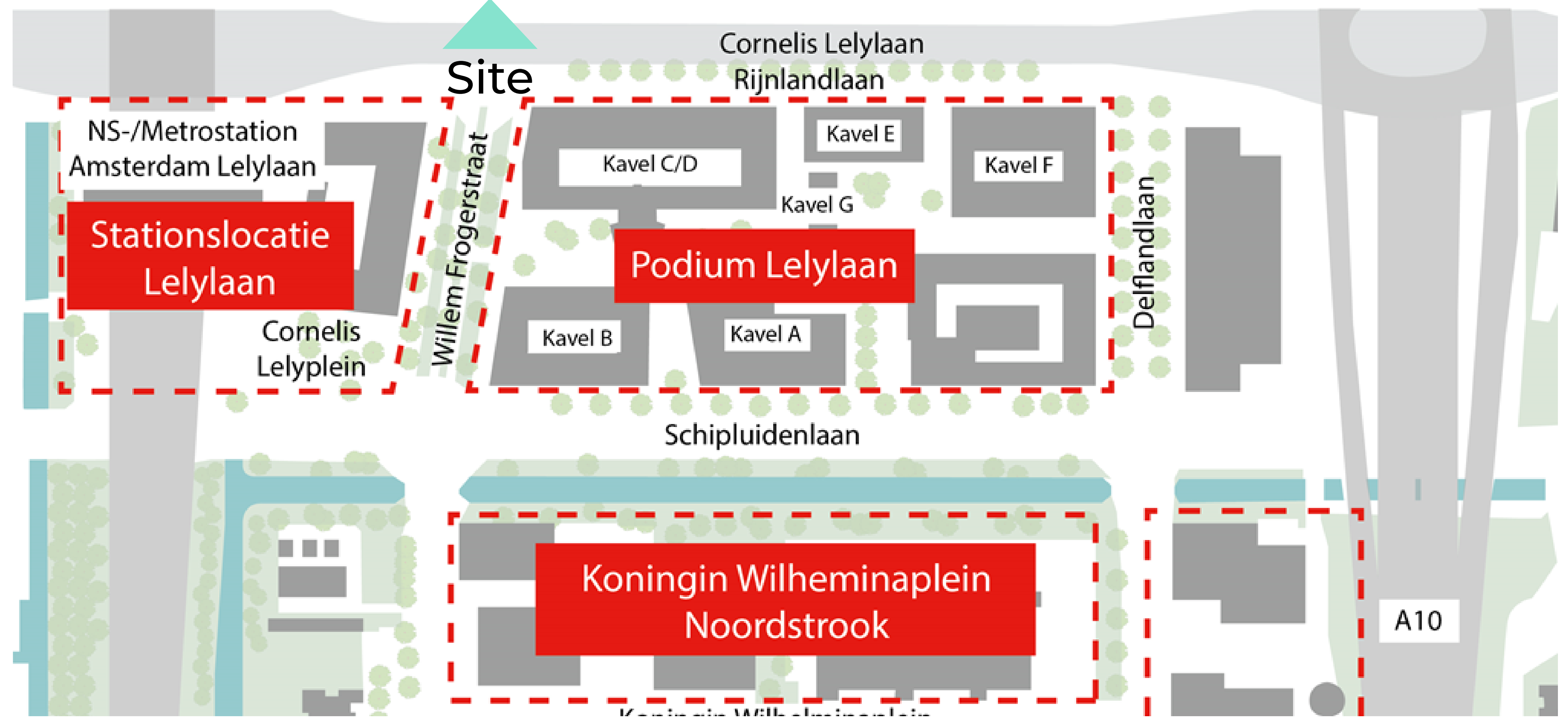
SITE



Dense urban center



Station quarter



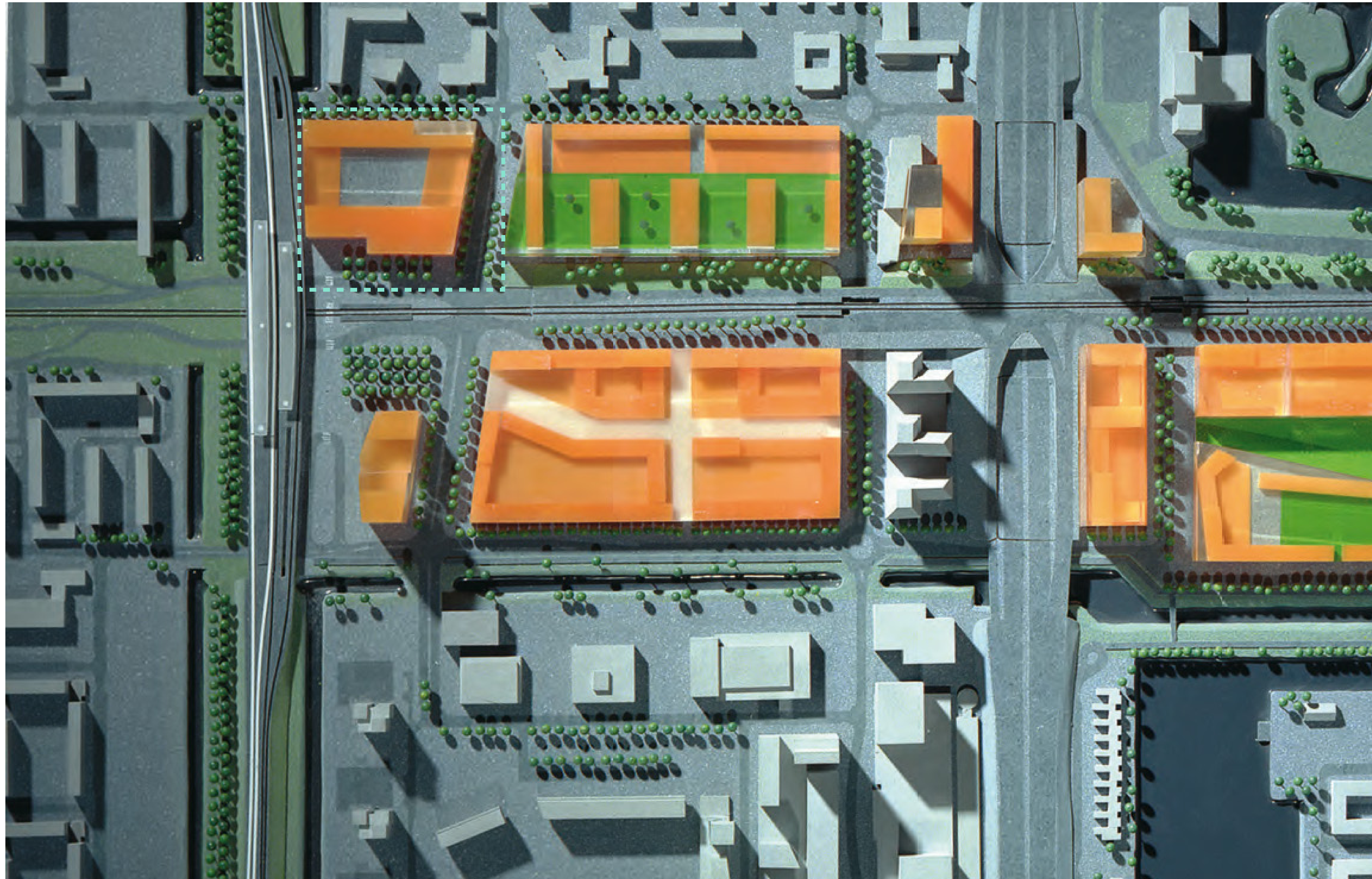
Development around Lelylaan Station



Podium Lelylaan

DESIGN

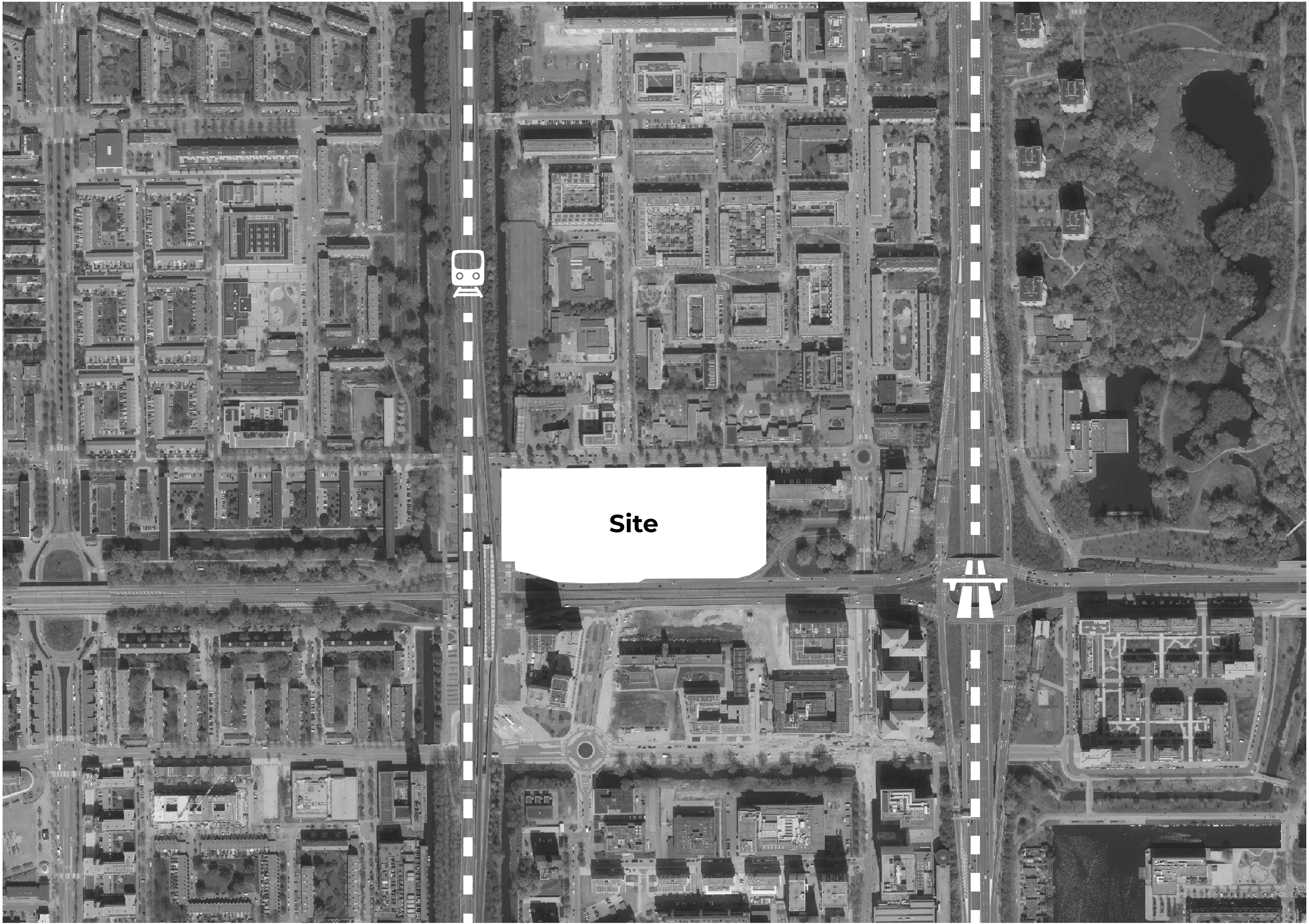
SITE



2001: Masterplan by Palmbout

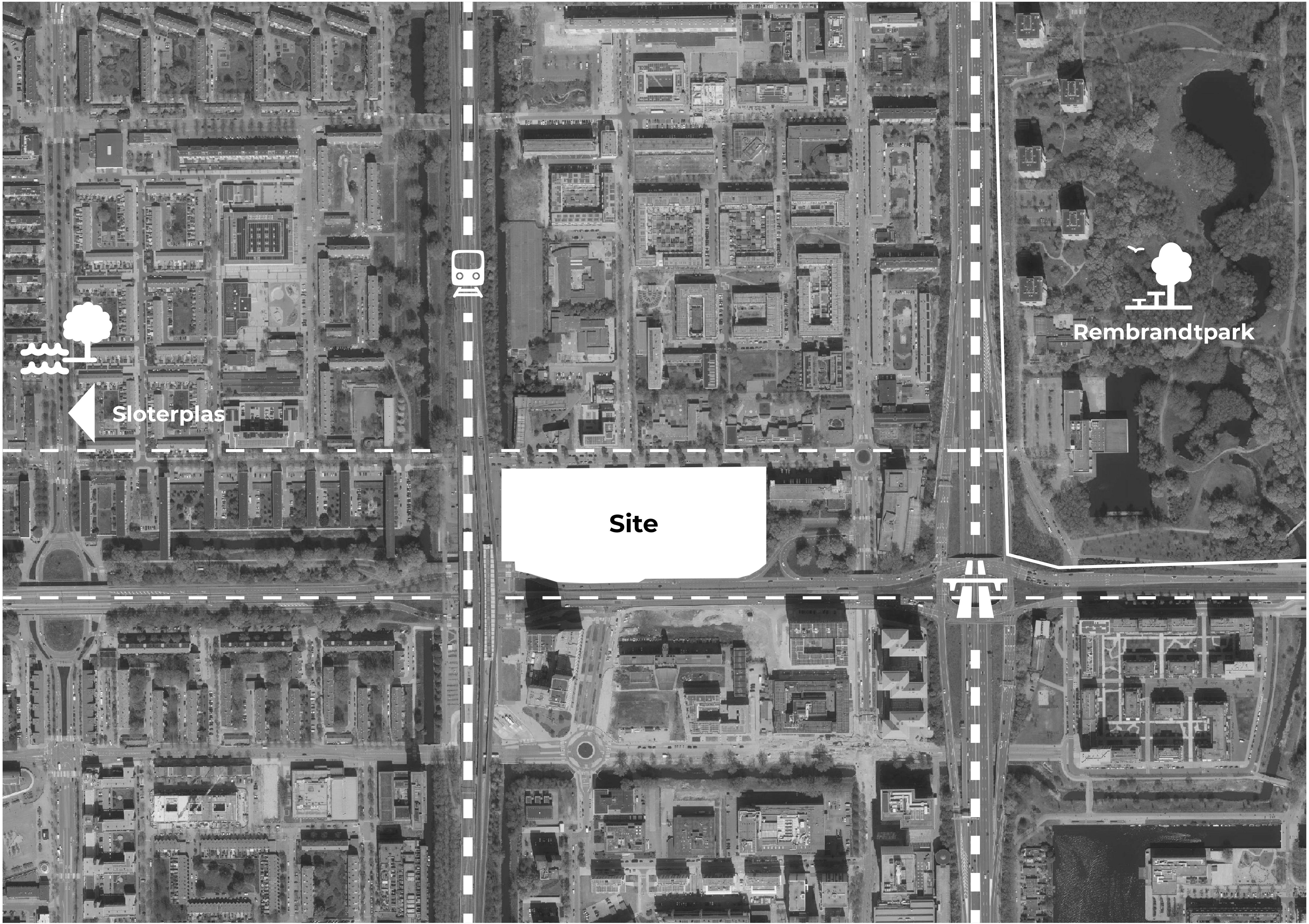
DESIGN

SITE



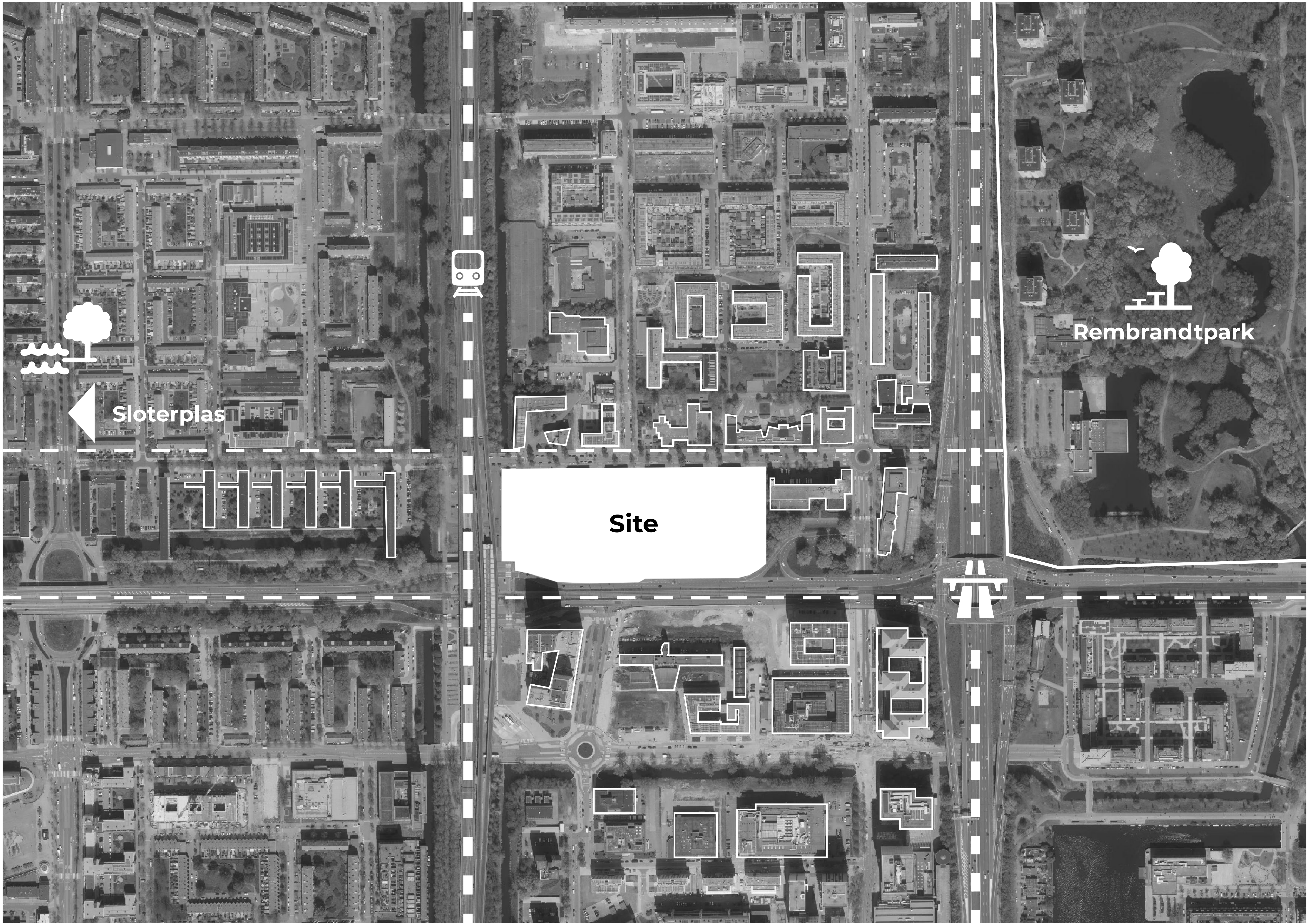
DESIGN

SITE



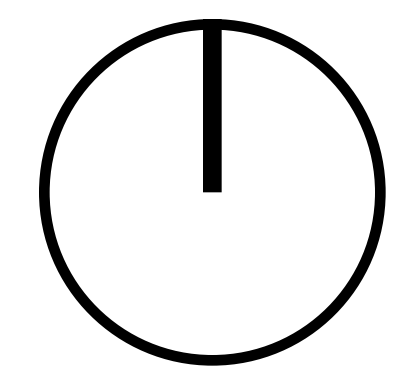
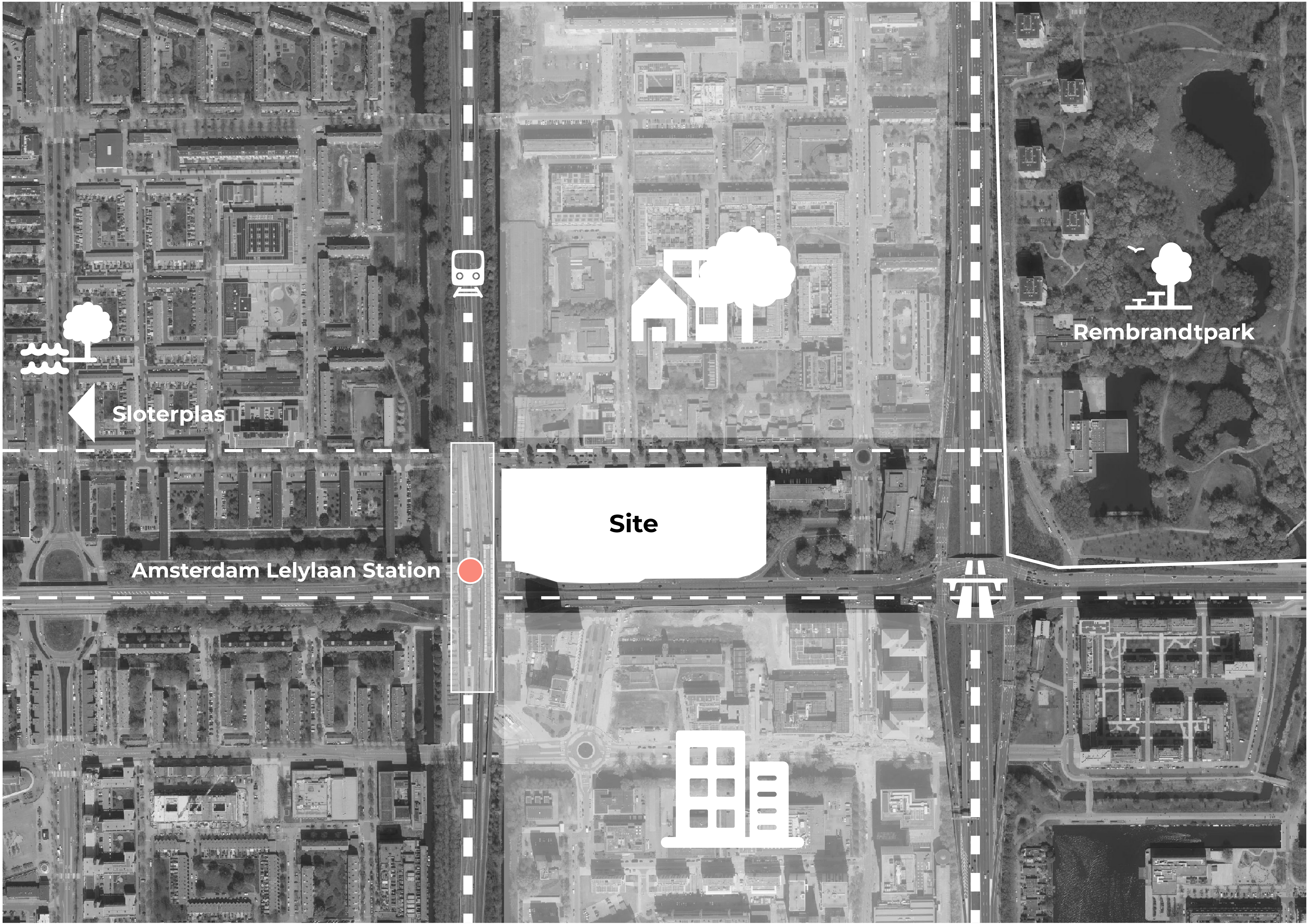
DESIGN

SITE

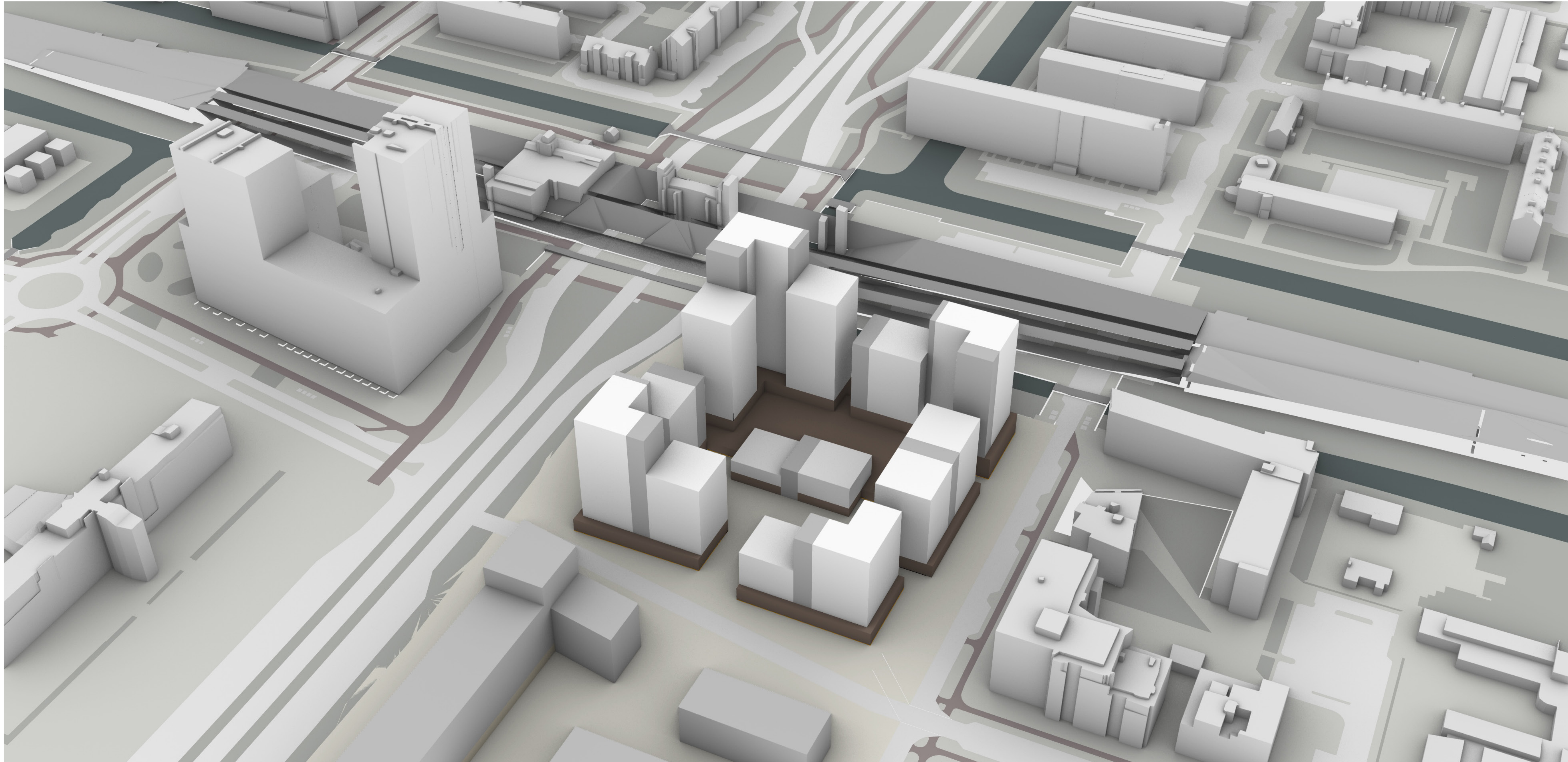


DESIGN

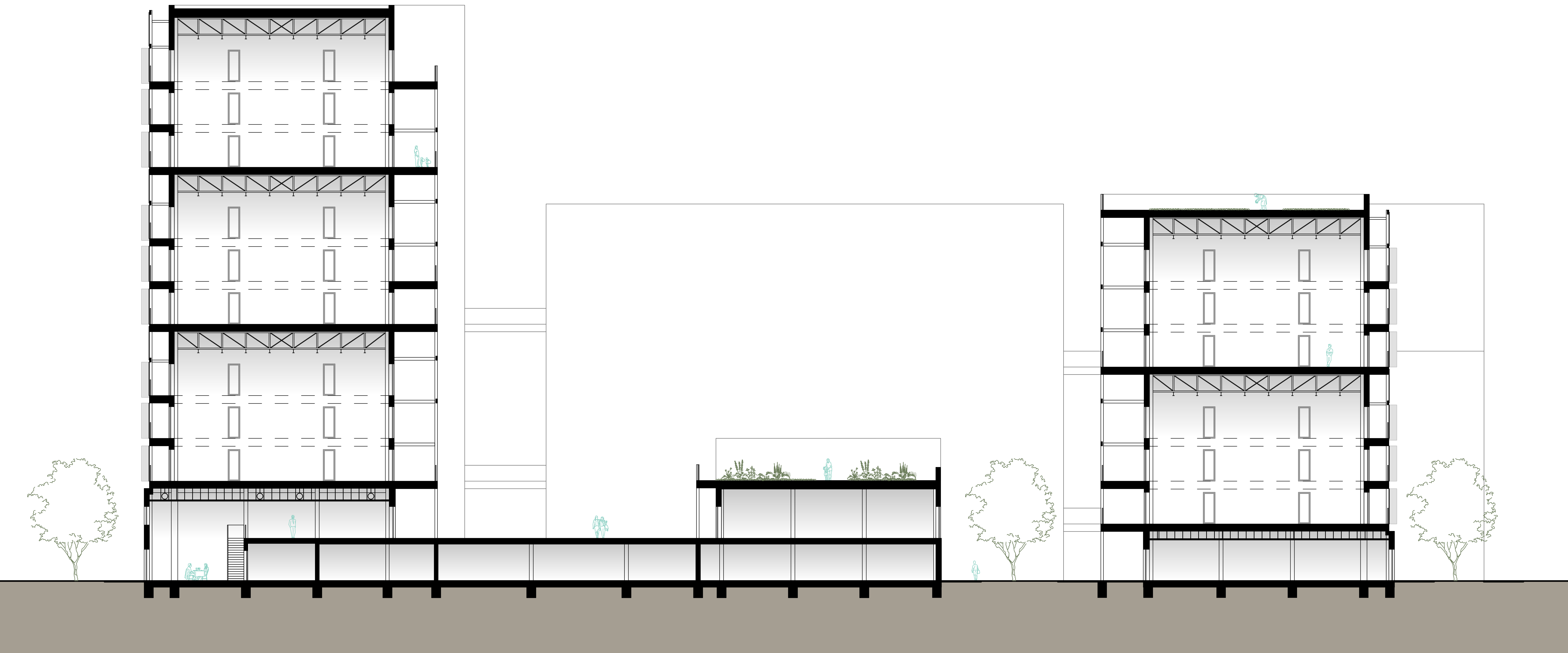
SITE



DESIGN
MASSING



DESIGN
SECTION

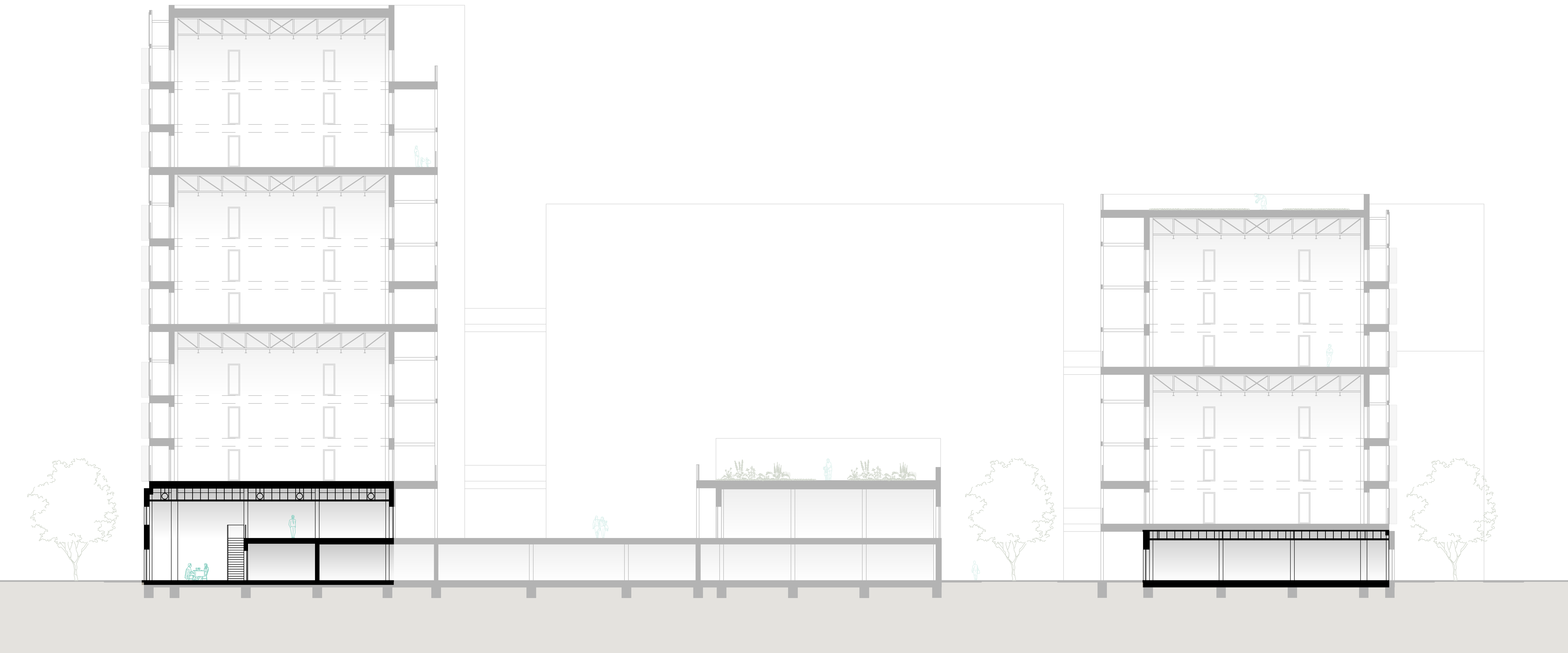


WEST

10m 4m

EAST

DESIGN
SECTION



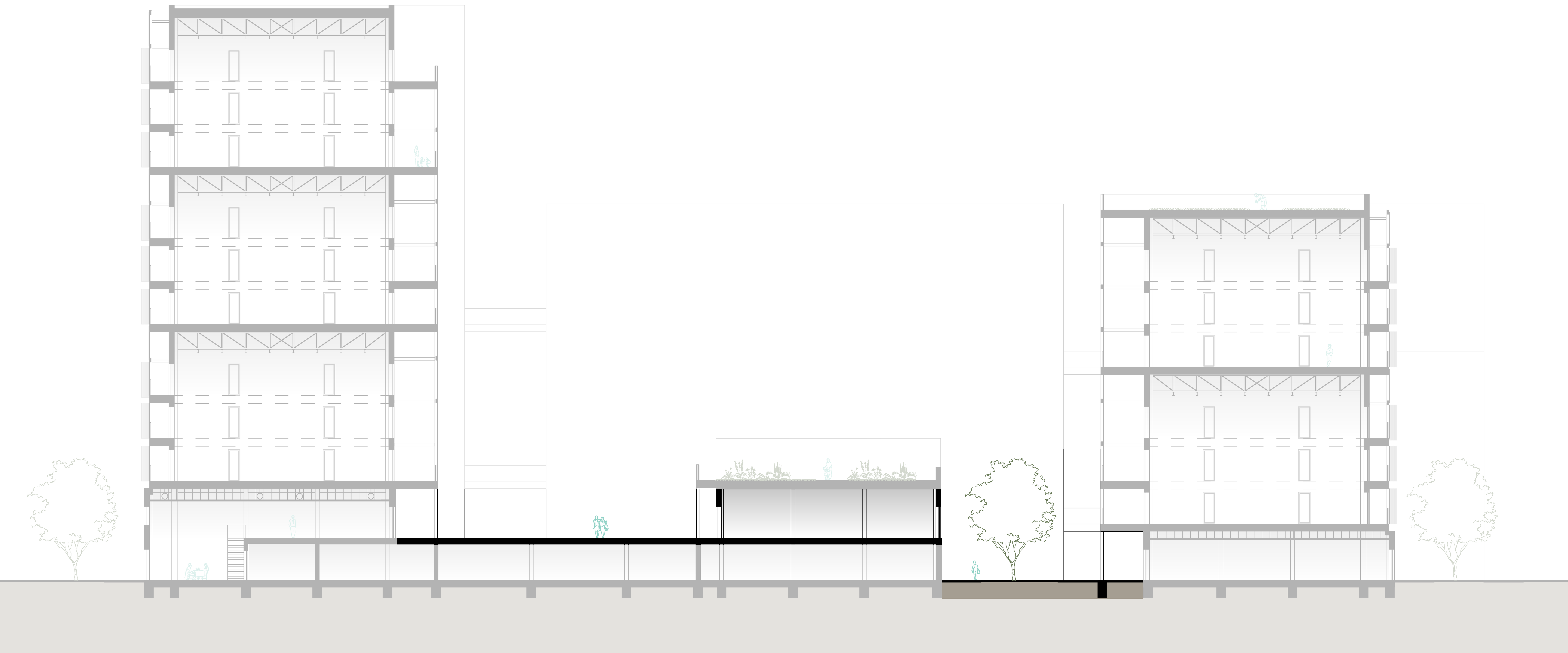
WEST

Public Plinth

10m 4m

EAST

DESIGN
SECTION



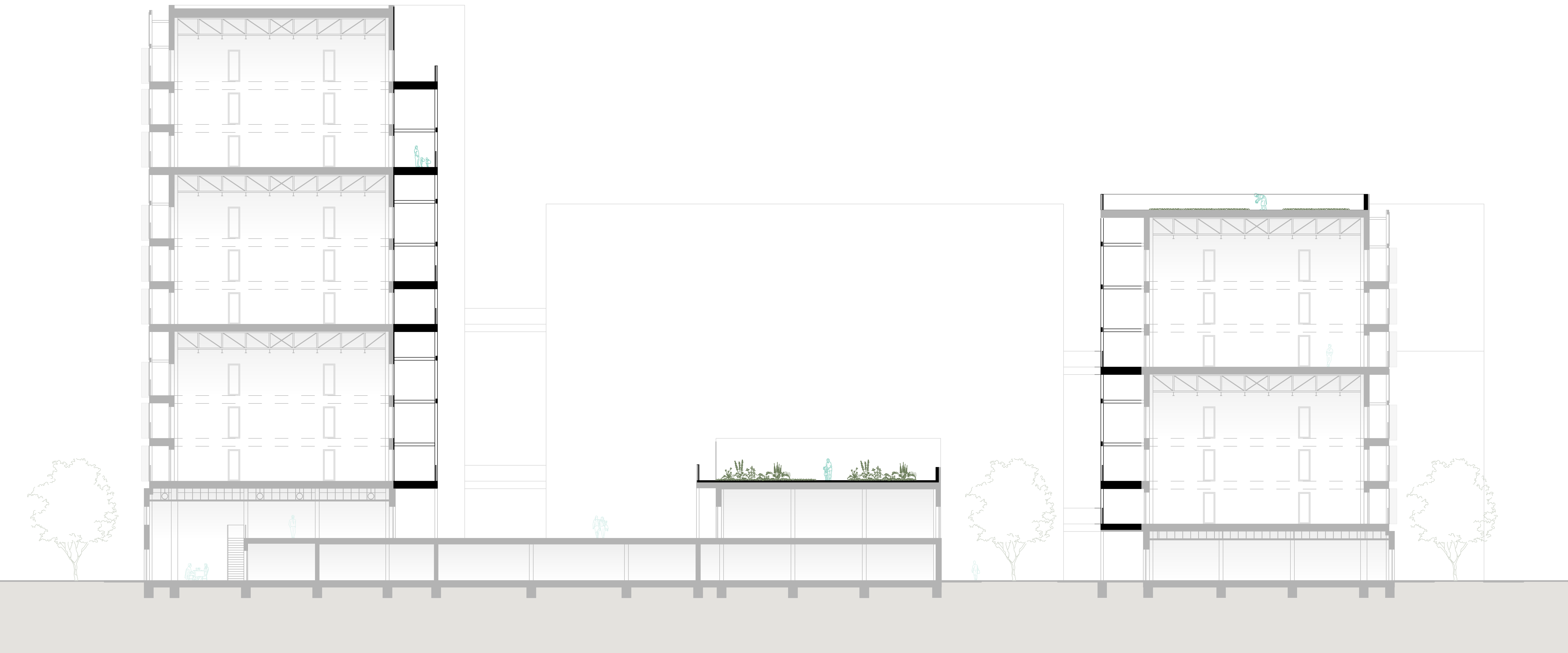
WEST

Less public enclosed areas



EAST

DESIGN
SECTION



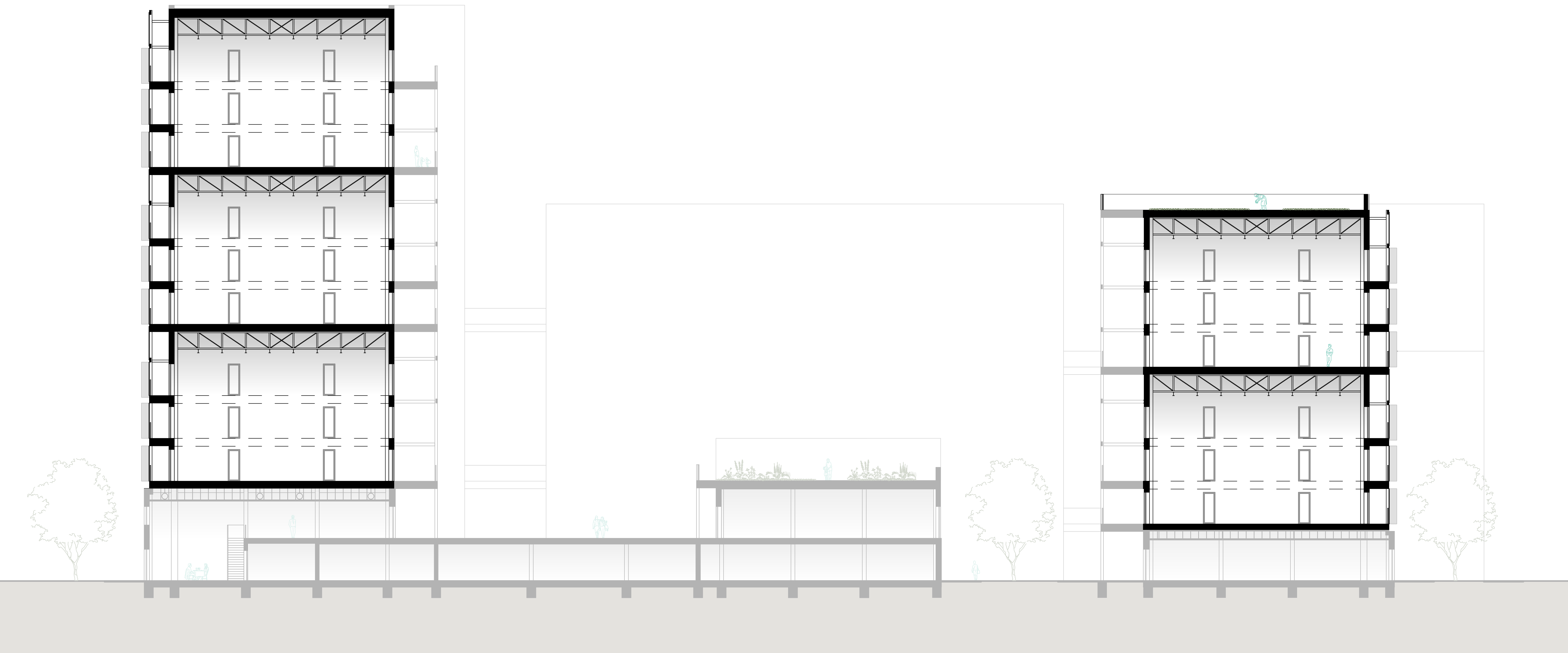
WEST

Gathering spaces for the Homo Ludens

10m 4m

EAST

DESIGN
SECTION



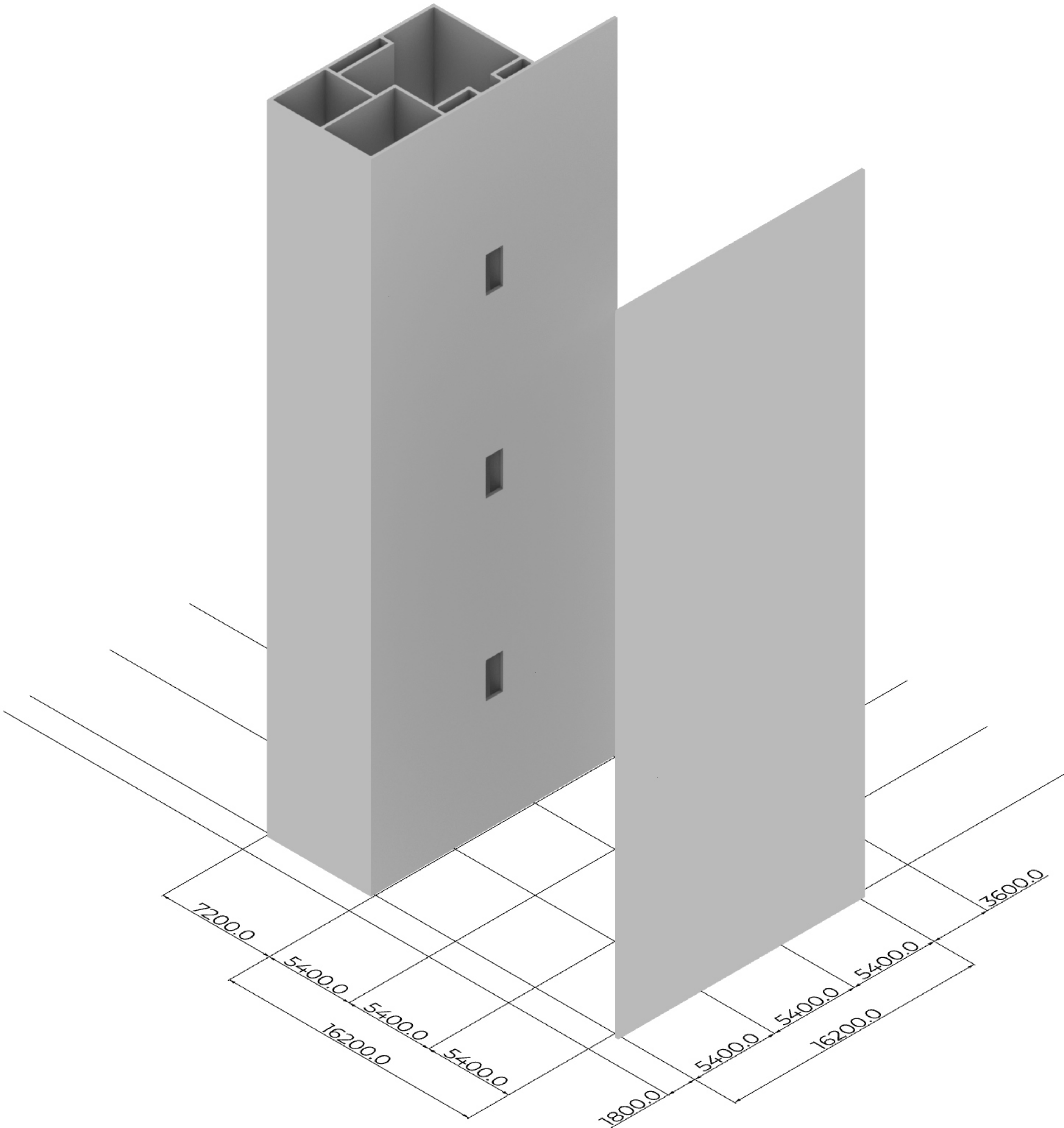
WEST

Stacked Communities

10m 4m

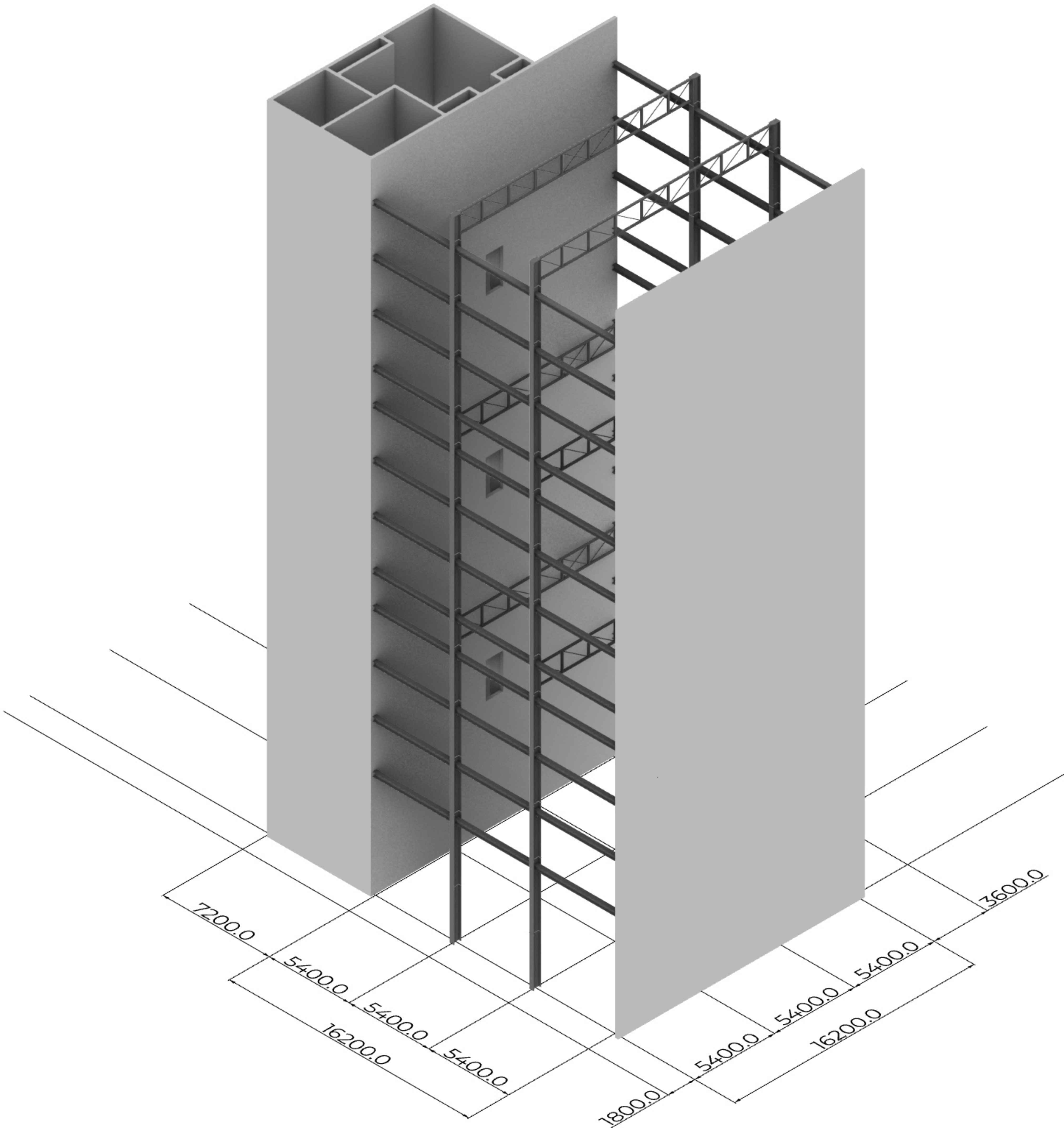
EAST

DESIGN
SUPPORT STRUCTURE



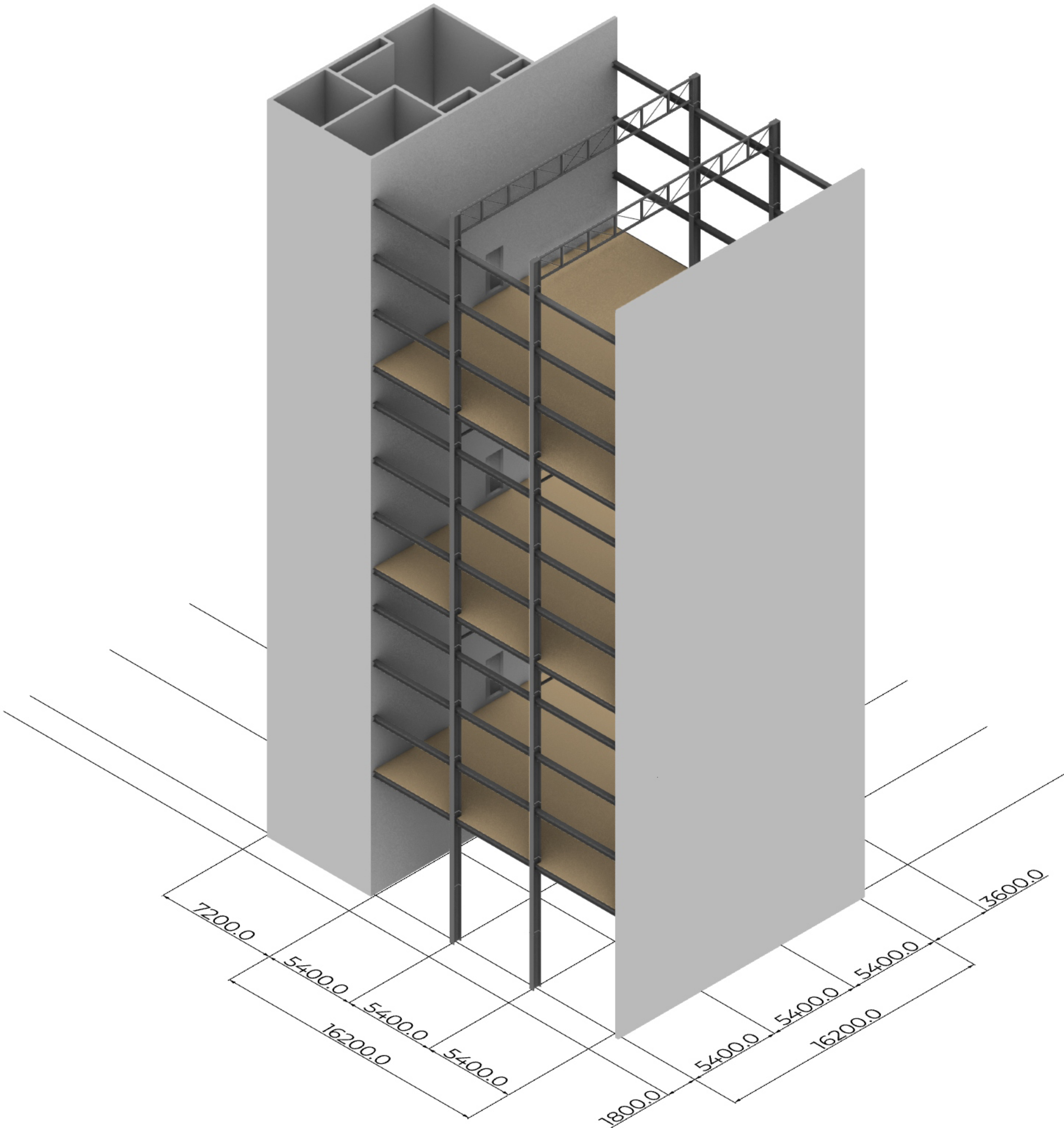
Concrete cores and shear walls

DESIGN
SUPPORT STRUCTURE



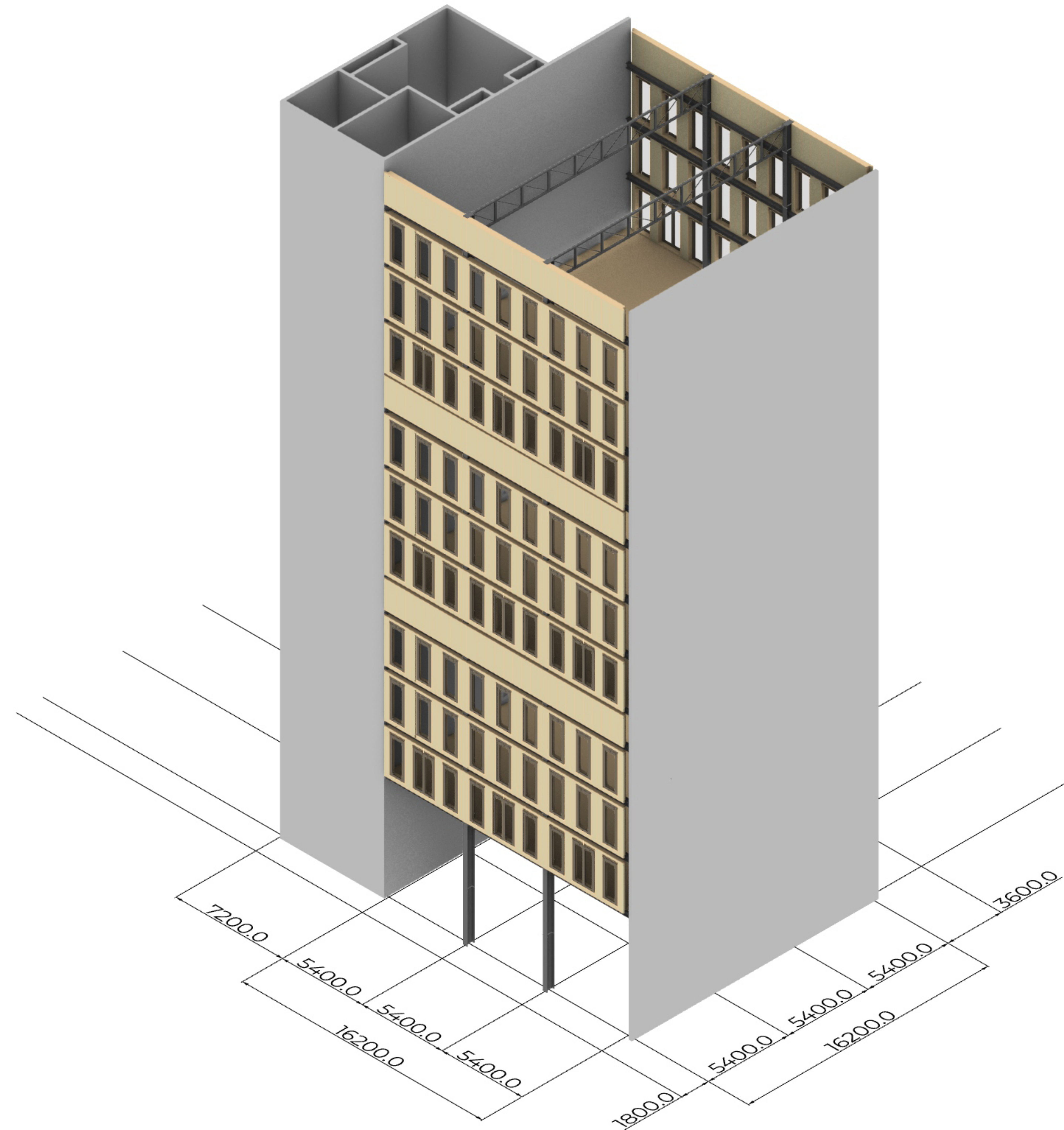
Steel structure

DESIGN
SUPPORT STRUCTURE



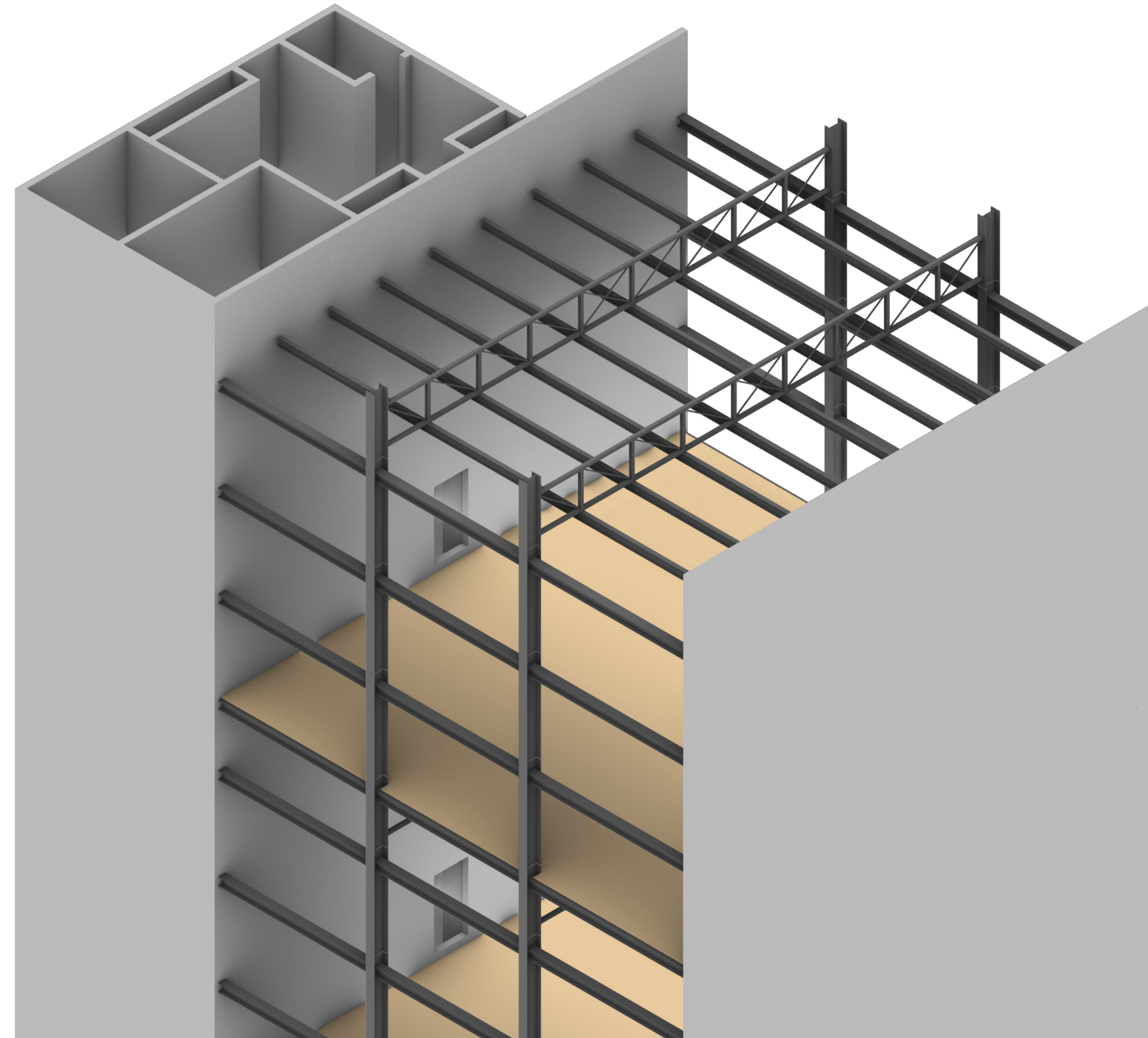
Community Floors

DESIGN
SUPPORT STRUCTURE



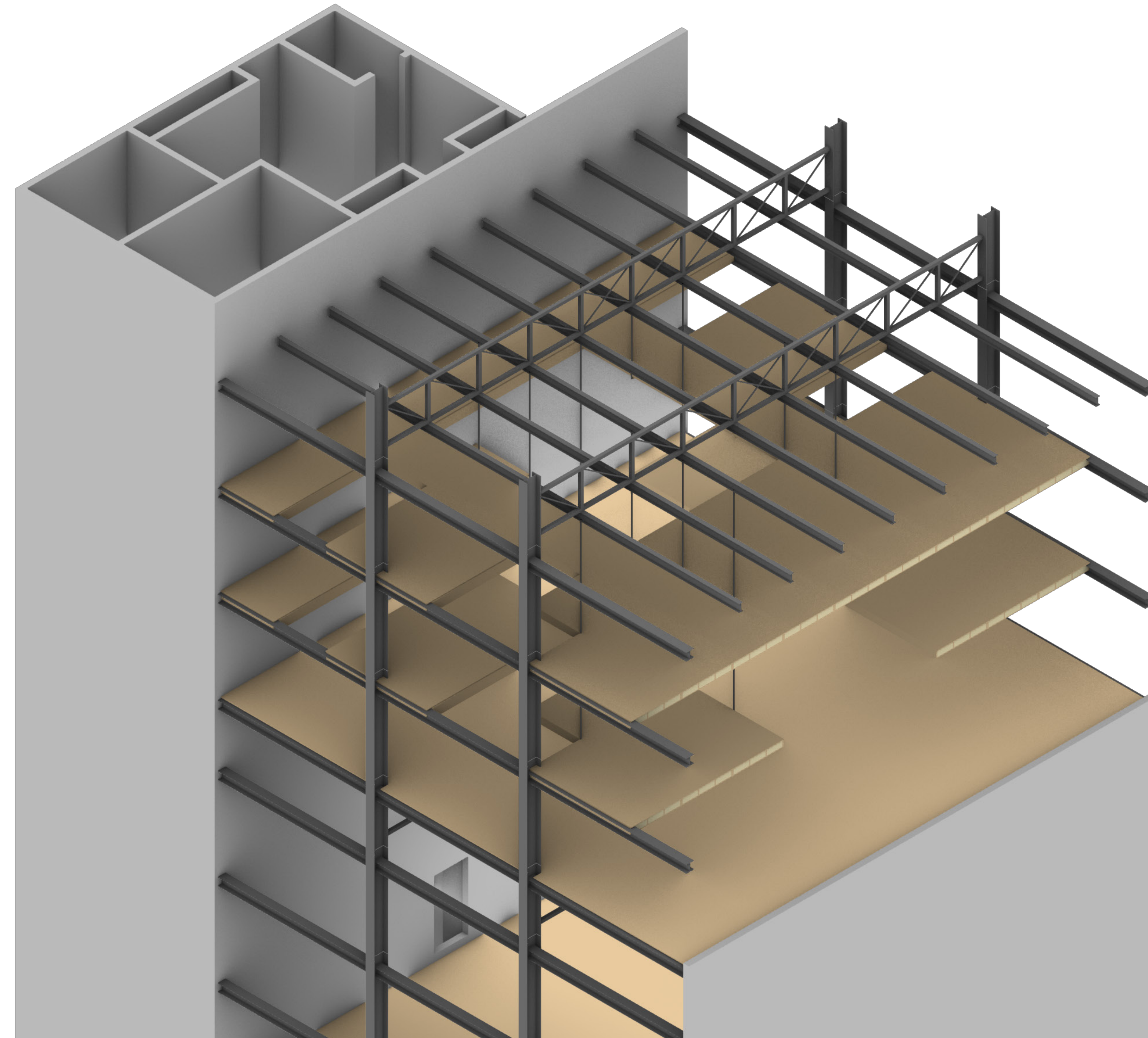
Prefab timber-frame elements

DESIGN
SUPPORT STRUCTURE



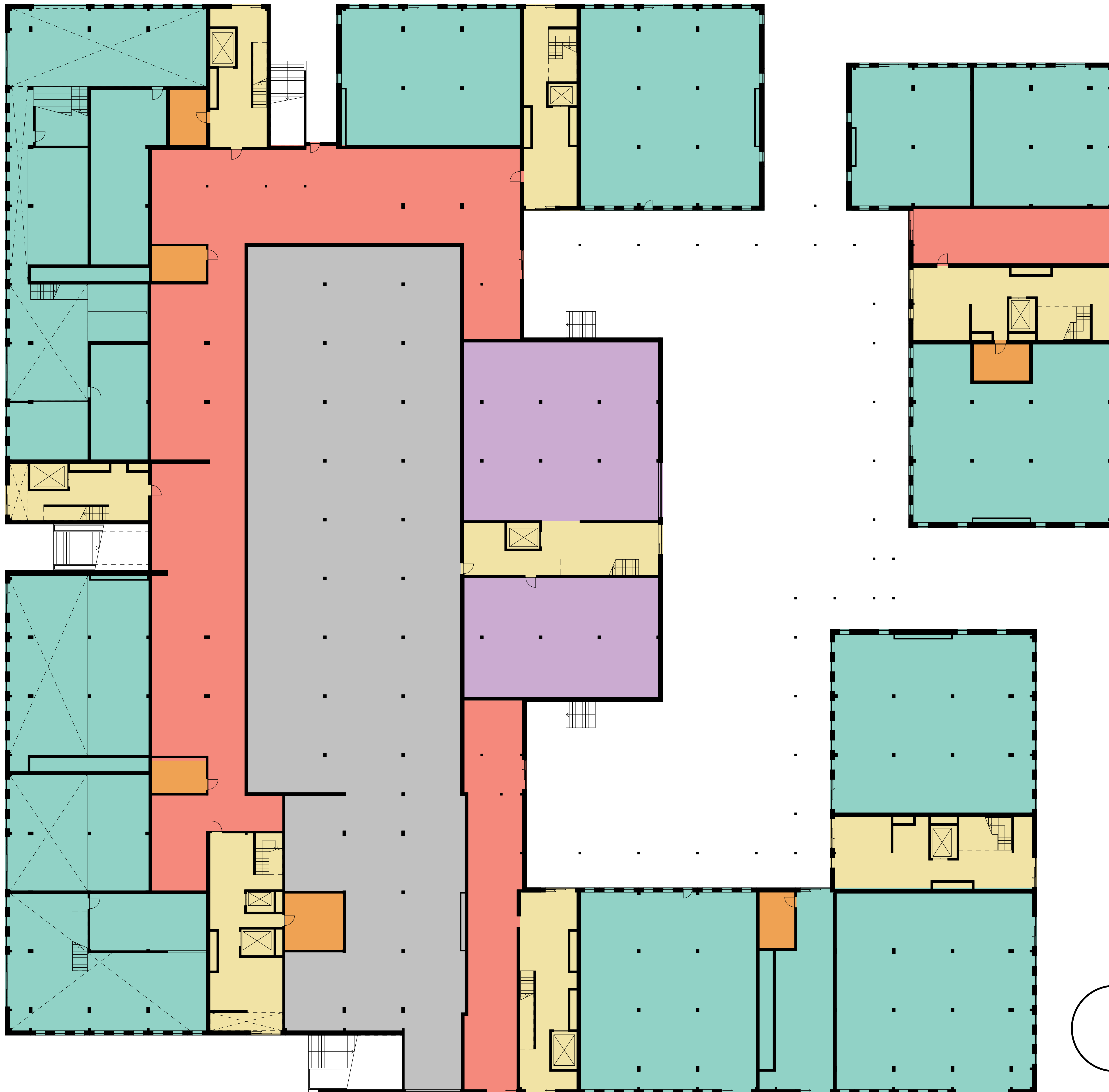
Interior support beams on 1800mm grid

DESIGN
INFILL STRUCTURE



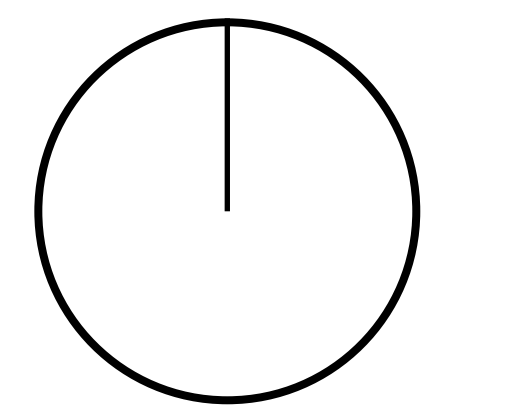
Suspended timber infill floors

DESIGN
FLOOR PLANS



LEVEL 00

- Public & Commercial
- Technical rooms
- Circularity center
- Coliving communities
- Storage & Bike parking
- Car park
- Circulation cores



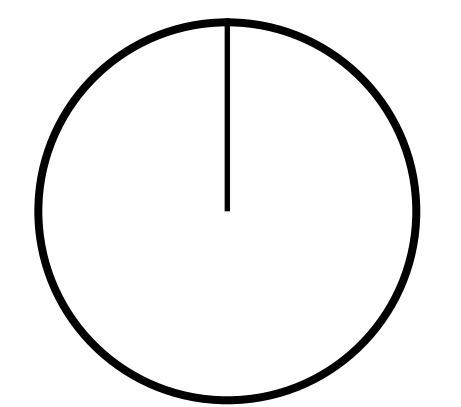
10m 4m

DESIGN
FLOOR PLANS



LEVEL 01

- Public & Commercial
- Technical rooms
- Circularity center
- Coliving communities
- Storage & Bike parking
- Car park
- Circulation cores



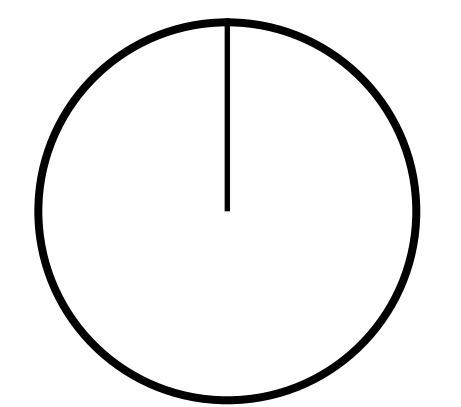
10m 4m

DESIGN
FLOOR PLANS



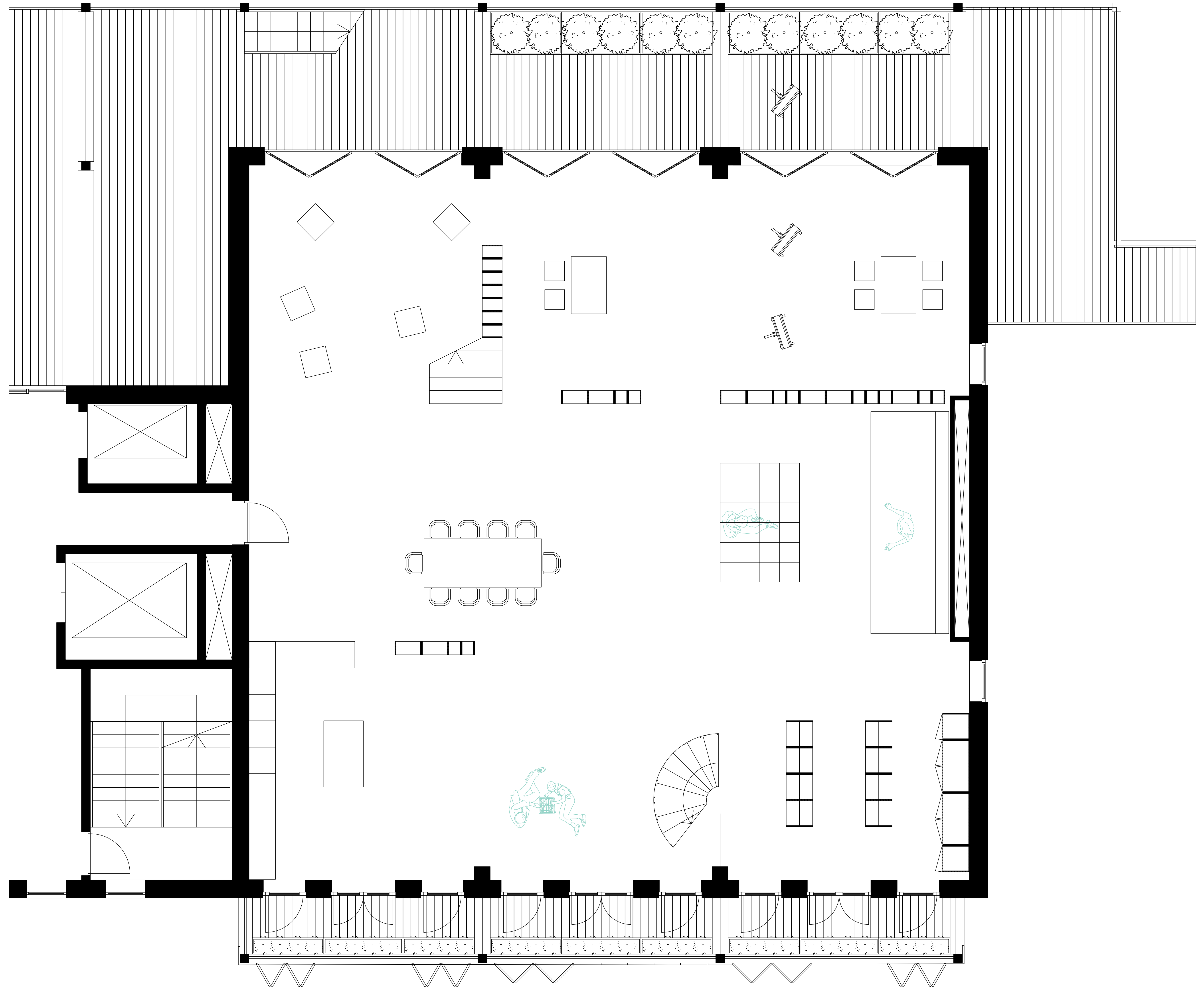
LEVEL 05

- Coliving communities
- Circulation cores



10m 4m

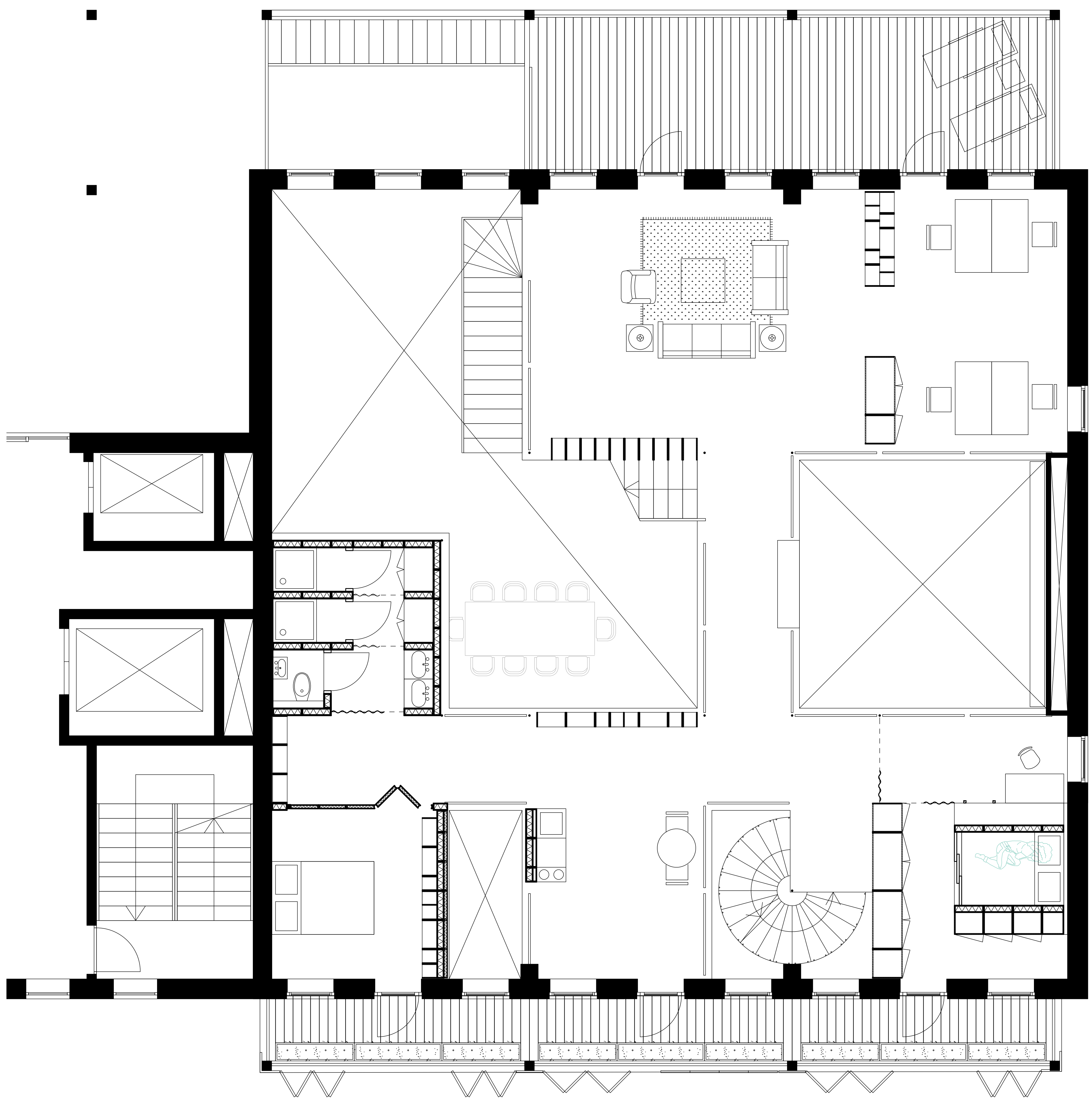
DESIGN
COMMUNAL HOUSING



Artists Community 00

3m 1m 0

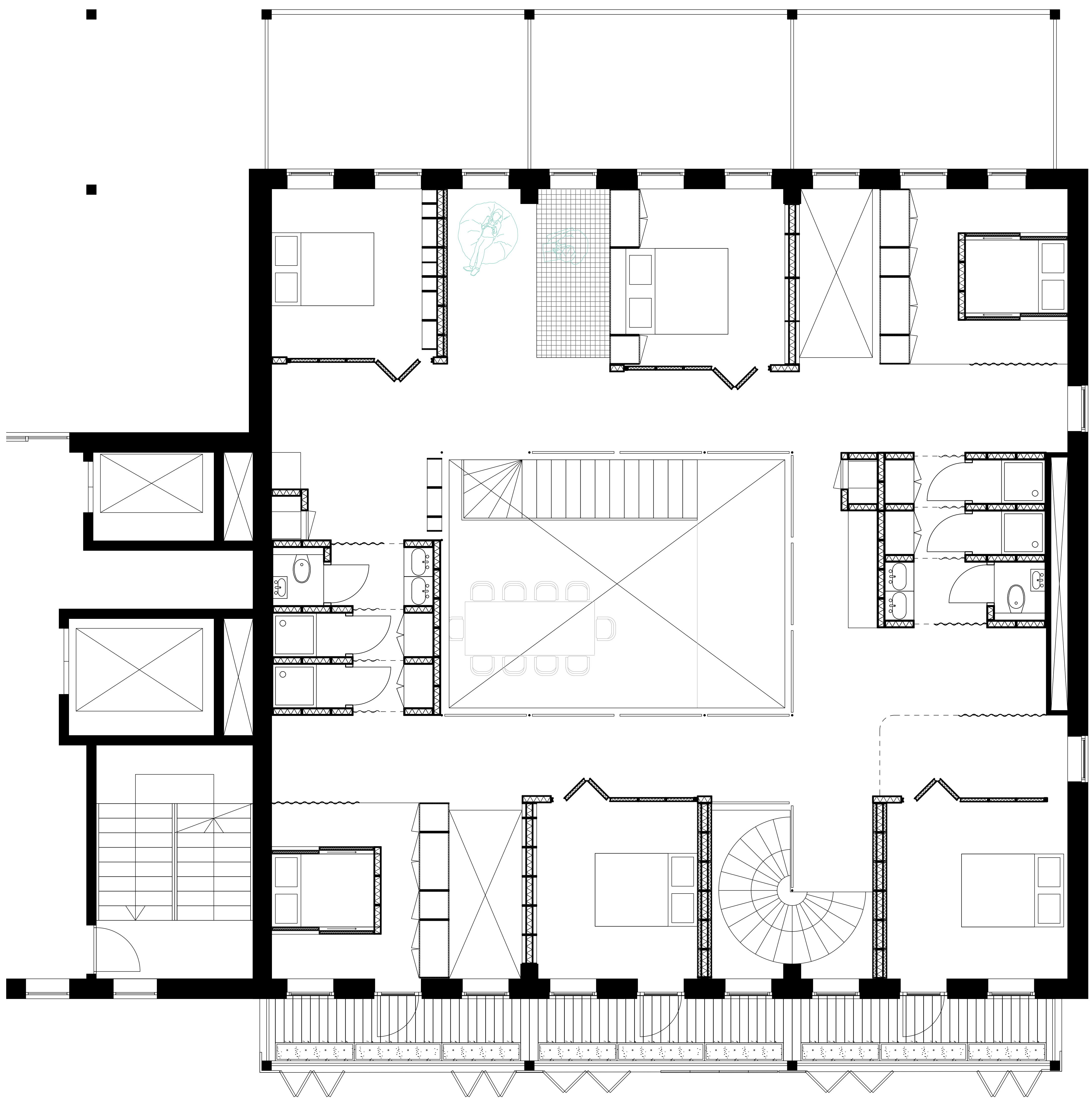
DESIGN
COMMUNAL HOUSING



Artists Community 01

3m 1m 0

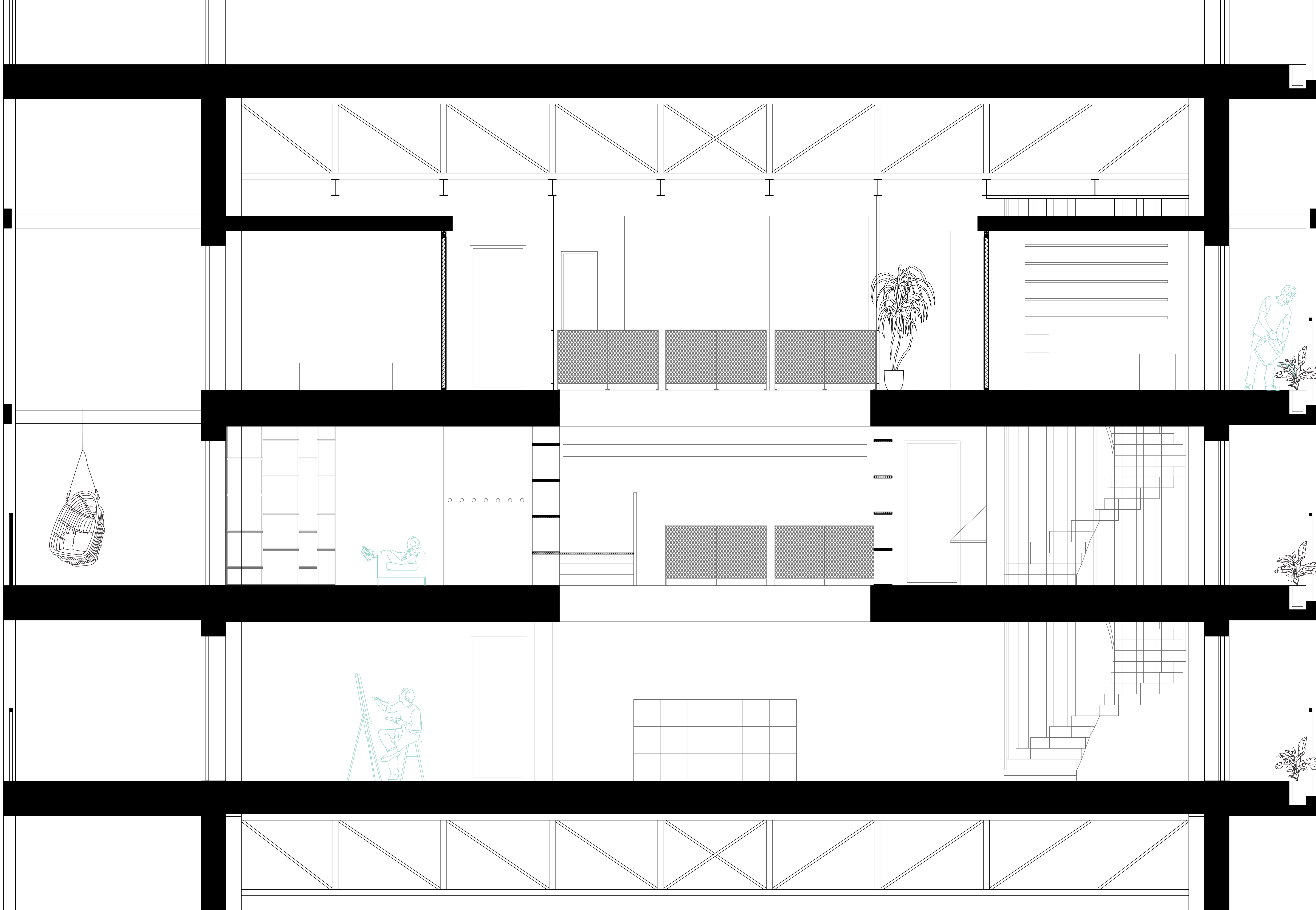
DESIGN
COMMUNAL HOUSING



Artists Community 03

3m 1m 0

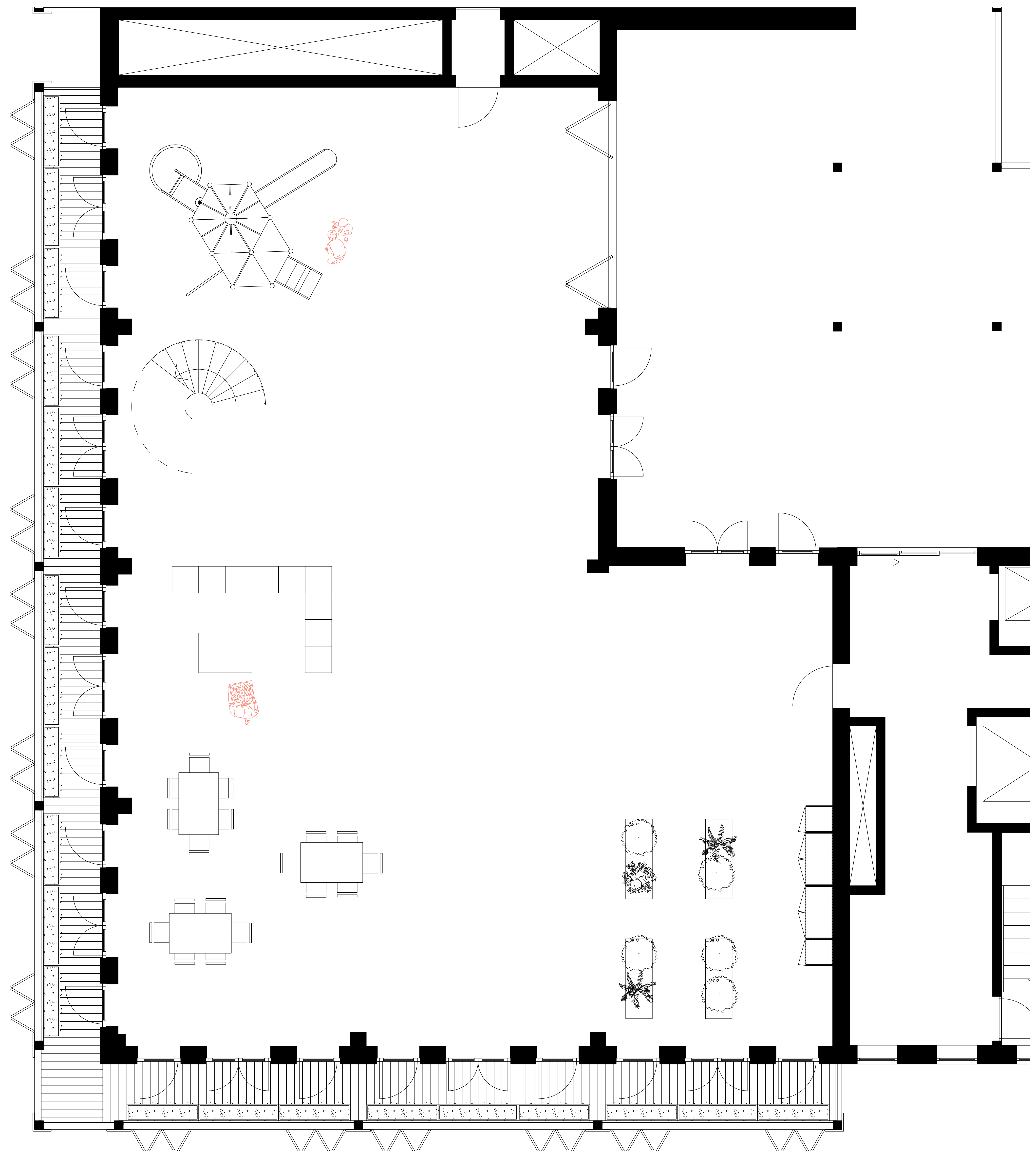
DESIGN
COMMUNAL HOUSING



Artists Community Section

3m 1m 0

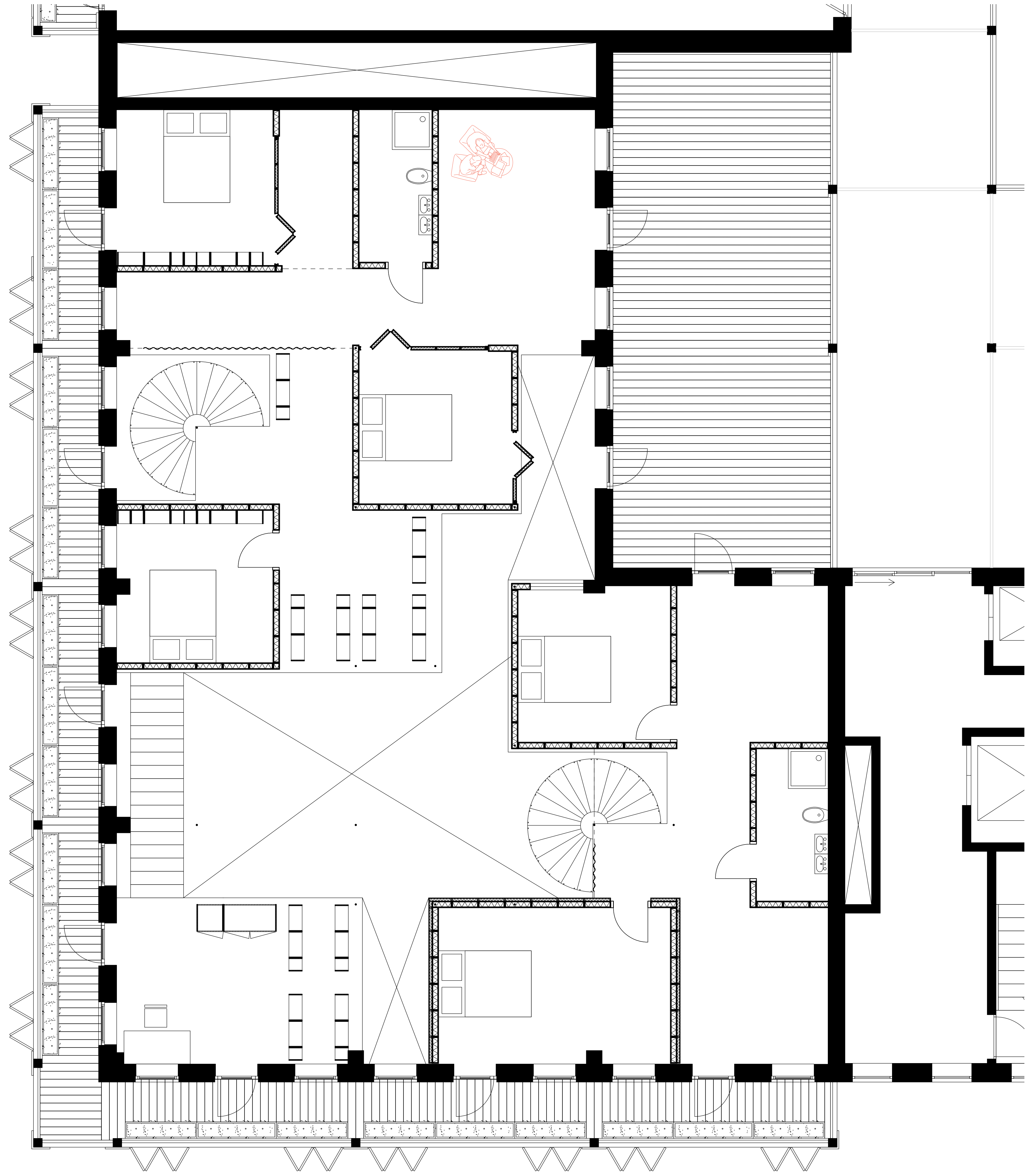
DESIGN
COMMUNAL HOUSING



Family Community 00



DESIGN
COMMUNAL HOUSING



Family Community 02



DESIGN
COMMUNAL HOUSING



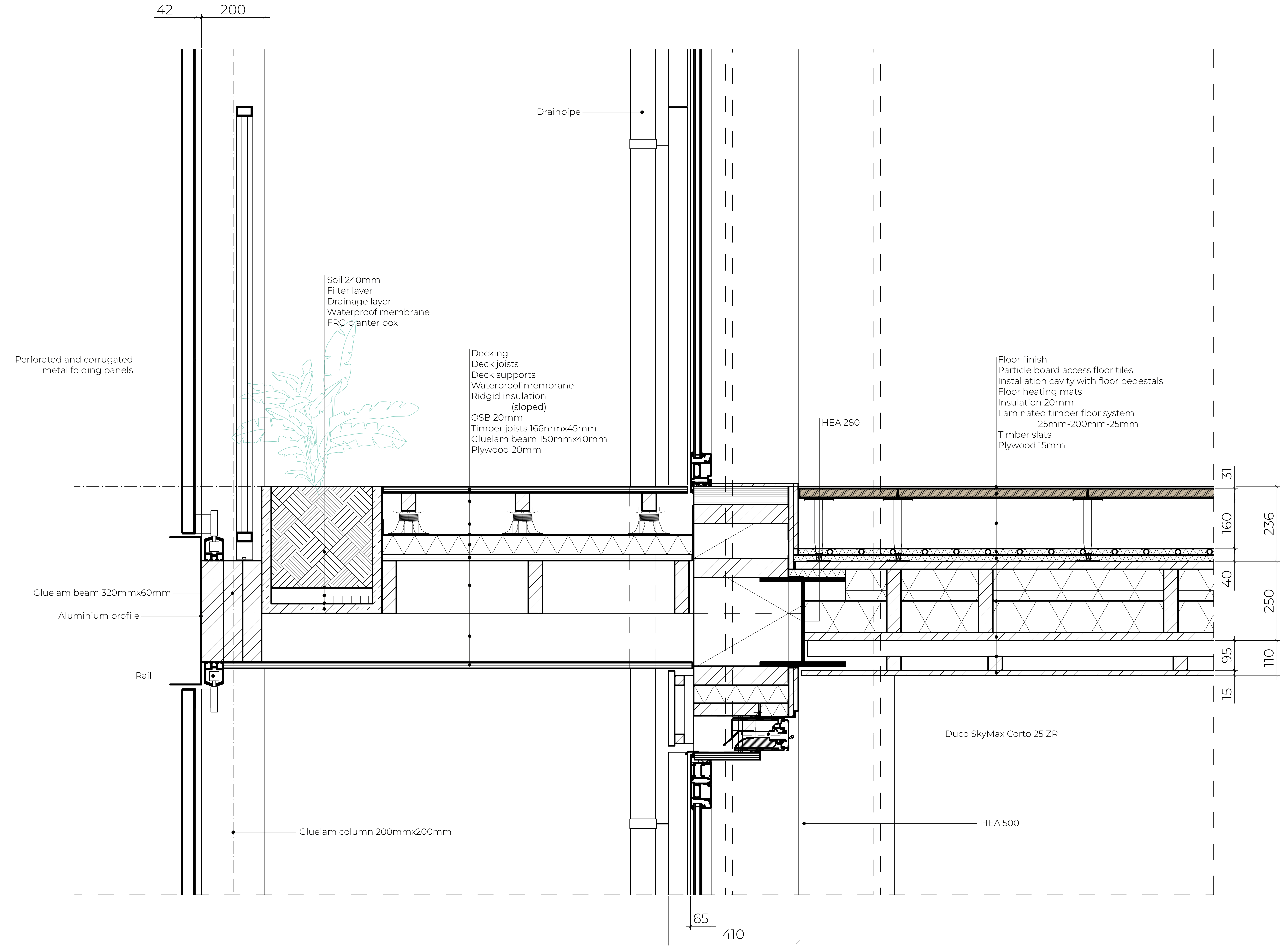
DESIGN
COMMUNAL HOUSING



DESIGN
COMMUNAL HOUSING



DESIGN DETAIL



DESIGN
COMMUNAL HOUSING



DESIGN
COMMUNAL HOUSING

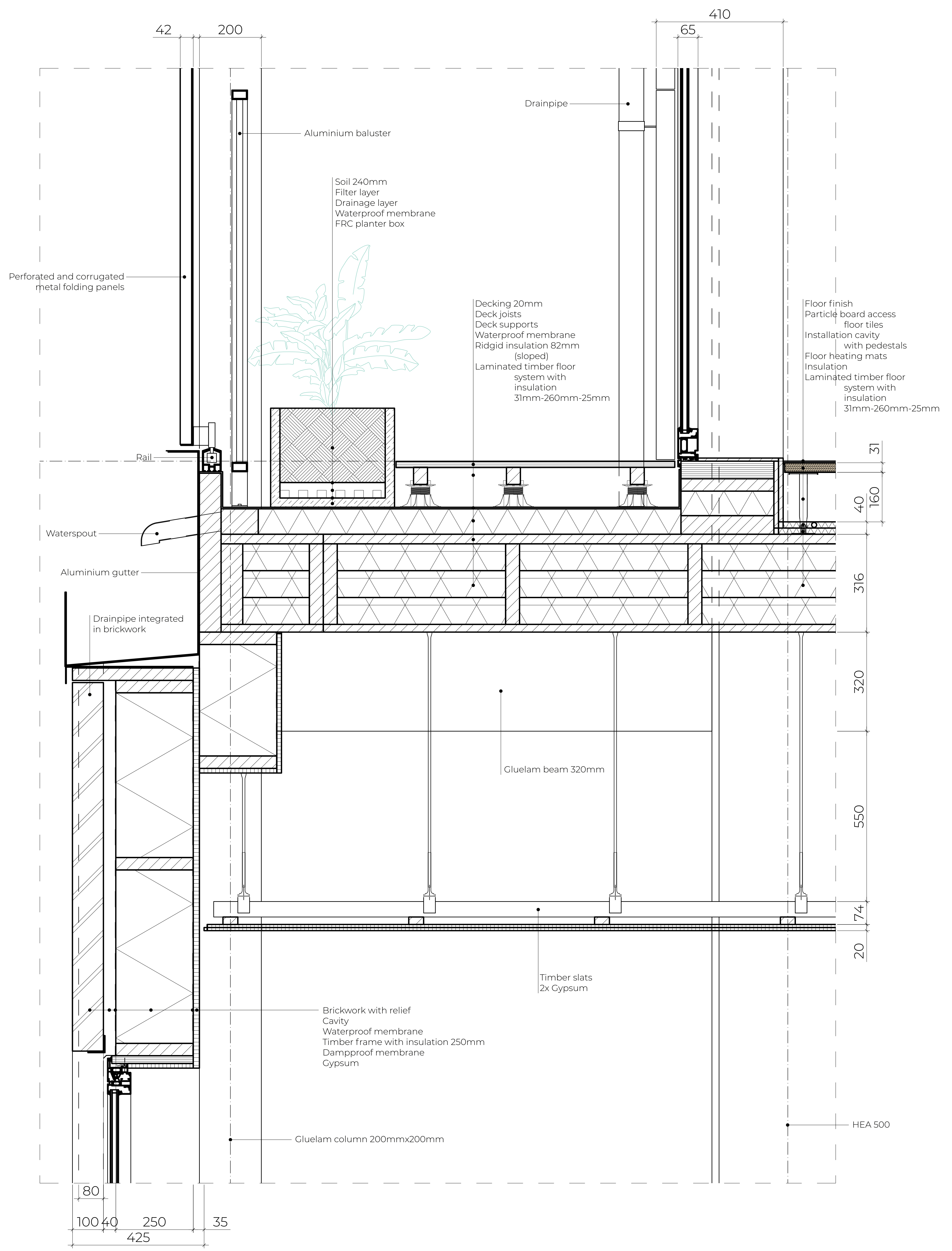


DESIGN
MATERIALIZATION



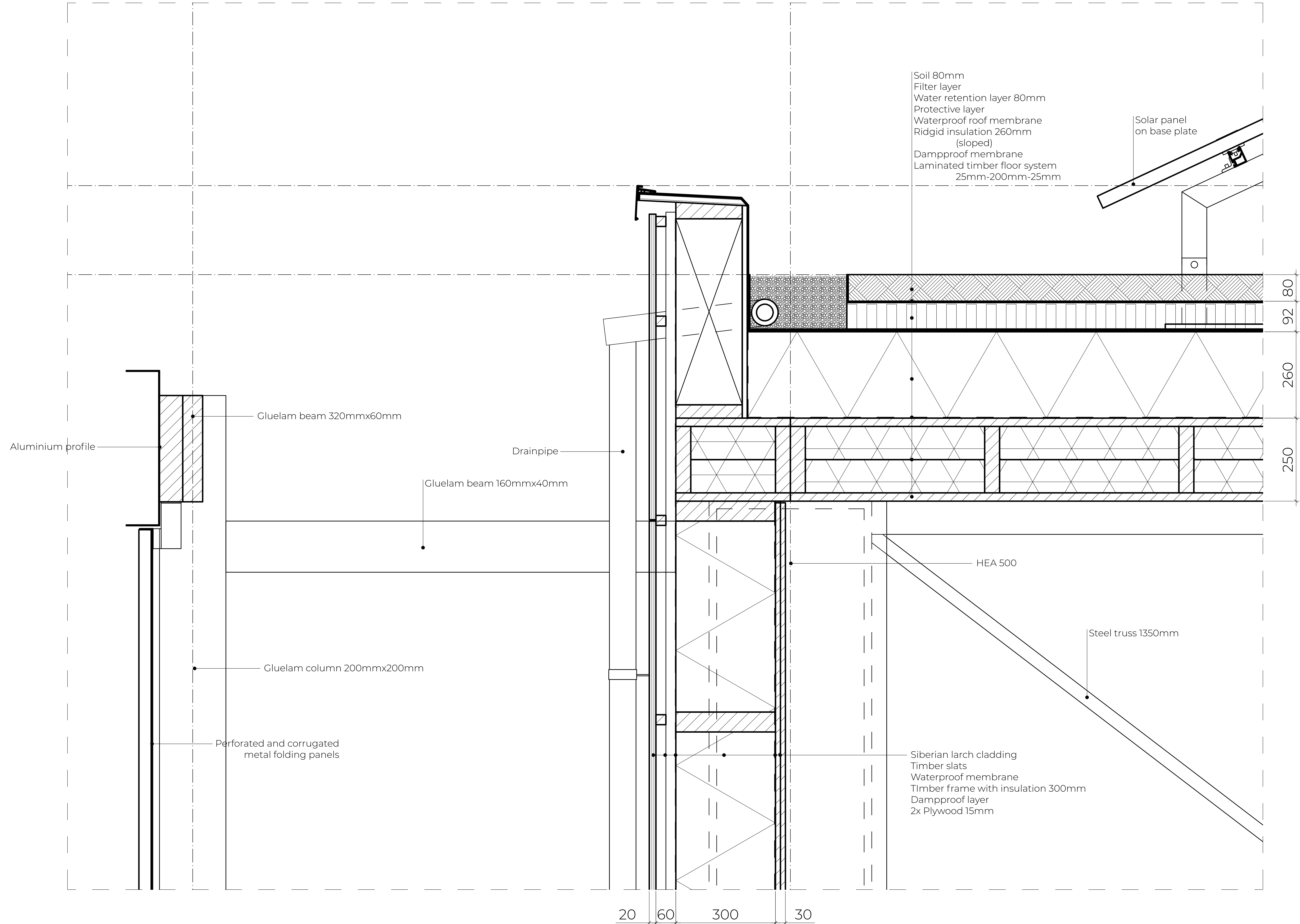
DESIGN

MATERIAL TRANSITION DETAIL



DESIGN

ROOF DETAIL



DESIGN
MATERIALIZATION



DESIGN
PRIVATE BALCONIES



DESIGN
ACCESS GALLERIES



DESIGN

ACCESS GALLERIES



CONCLUSION

A type of housing wherein:

You can share your identity with others

Others may share their identity with you

Your environment may respond to your identity

Your identity may respond to your environment



THANK YOU
QUESTIONS?