HACKABLE ARCHITECTURE

A PROTOTYPE FOR AN EVER CHANGING ARCHITECTURE

RESEARCH JOURNAL - MAXWELL STERRY - 5086809

STUDIO DOCUMENTS
REQUIRED SUBMISSIONS

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Maxwell Sterry
Student number	5086809

Studio		
Name / Theme	Public Building / Public Condenser	
Main Mentor	Stefan Witteman	Project Design
Second Mentor	Florian Eckardt	Building Technology
Third Mentor	Stefano Corbo	Research
Argumentation of choice of the studio	The Public Building Studio appealed due jointly to its location in Berlin, a city with a rich historical and cultural background, as well as its focus on the Commons. Public spaces are critical elements of the urban fabric, and the concept of a Public Condenser appealed for its focus on promoting social and cultural exchange. The scale of the project and a strong focus on environmental resilience also served as strong factors behind the decision. The notion of a prototypical building, more specifically a prototypical process of building creation, seemed like a topic that meshed well with prior interests and studies.	

GRADUATION PLAN

Graduation project	
Title of the graduation project	Hacking Architecture – An Ever-Changing Prototype in Friedrichshain
Goal	
Location:	Wriezener Karree, Berlin, Germany.
The posed problem,	The need for adaptable buildings as a response to climate change is known. Repurposing existing structures and building materials are significant means of reducing the environmental impact of space making. This process of users appropriating and adapting the built environment, overwriting past functions and meanings with new ones, is prevalent within the urban fabric of Berlin and has become part of the identity of the city. Two terms which shaped the early explorations were loose fit architecture and hackable buildings. This research proposes a typology between these terms which provides the scaffolding to allow and encourage users to alter the space to suit the changing needs placed upon the building. The primary aim of this typology is to reduce the initial resource input into buildings, increase the longevity and resiliency of the structures, and help form more meaningful relationships between people and spaces they inhabit. Berlin, like many cities, is experiencing the effects of gentrification as property prices continue to rise. The area of Friedrichshain currently boasts the second highest housing expenses in Berlin, despite an average income under the city average. Segments of the population heavily affected by these changes are young families and those in creative fields, many of whom require shop spaces and studios in order to do their craft. In many urban areas the trend of coworking spaces, collaborative workshops, and makerspaces can be observed in response to this. These spaces leverage the increased density and shared resources to make creative spaces more accessible. Such a function would allow residents who may otherwise have been forced to move to other parts of the city to stay in their neighborhood and social networks. The prototype that is the subject of this graduation project would also provide a platform for the exploration of hackability and self-building as tools for developing more local and self-reliant communities.

Research questions and	The primary research topic focuses on the development of a prototypical approach to public buildings that is flexible and adaptive to the changing needs and desires of its users, and the development of systems that allow and encourage this change. What does it mean for a building to be hackable? What differentiates it from other open building or loose fit typologies? What types of systems or layers are changeable by the users of a space? Do systems extend to allowing for the alteration of structural and envelope components of the building, or is user control limited to the infill of a fixed shell? In what ways are these systems global and reproducible in a variety of contexts, and in what ways are they local to the culture, people, and construction methods of their context? To what extent are these buildings exportable and reproducible in different contexts? Do these building systems and logics have the capability to increase the adaptability of existing buildings? What opportunities are afforded for repurposing typologies which may otherwise be undesirable? What does this approach of user driven design mean in terms of authorship of the resulting environment? Or in terms of ownership of the building?
design assignment in which these result.	The course abstract for the studio outlines the notion of a public condenser which leverages multiplicity and hybridity to create more resilient and sustainable buildings. This necessitates a variety of programmatic functions which synergize with each other. Berlin prides itself in its status as a city of culture creation and technological innovation, and like many cities vows a strong emphasis on sustainability and healthy living. The building program and function builds on these aspects and combines it with the local particularities of the district and its constituent neighborhoods. As a prototype, not only for Berlin but also a global context, such a building system would need to be flexible enough to accommodate local building materials, vernacular, construction techniques, and building regulations. The prototype should also serve as a base from

which it can be expanded, replicated, and reinterpreted. The building itself serves as scaffolding for user interventions.

The core program of the building is made up of a few key functions. The hackerspace and makerspace are integral to the ability for users to make physical transformations, integrating and giving better facilities to already existing groups on the site. The artist studios are a response to the increasing lack of affordable artist rental spaces driven by inflation, making use of shared workshop spaces as a means of reducing individual cost. These synergize with the workshop spaces provided by the makerspace. The urban lounge and food hall come as a result of a lack of spaces for members of the community to gather in their neighborhoods and provide opportunities for interactions between the various communities housed within the building. Also benefiting from these adjacencies is the innovation incubator, a direct response to the cities desire to foster innovation in the fields of technology and sustainability. Other more fluid program types, such as coworking areas, performance halls, and education spaces are housed in the flexible spaces that make up the remainder of the program.

Process

Method description

Site Analysis:
An initial group analysis of the site was conducted prior to the physical site visit in order to gain an understanding of the Friedrichshain area through the lens of politics, history, culture, demographics, and the built environment. The one-week site visit that followed was split between touring the city in order to gain a greater understanding of the city, and spending time on the site conducting interviews and identifying potential sites for the interventions.

Upon returning from the site visit a comparison was conducted between the sites that had been identified during the visit. Key criteria included accessibility for both pedestrians and commuters, available building area, urban fabric, and environmental factors. The plot of Wriezener Karree appealed due to its central location between the three Kiezs and easy access via public transportation due to its proximity to Ostbanhof. The building plot was suitable for the scale of the building which targets four thousand square meters, and the light industrial character of the area appealed for the selected programs.

Program Development:
The initial program development was driven by two primary factors. Firstly, research was done to determine what the city of Berlin has defined as priorities for the creation of the built environment. Their roadmap for the next decade in terms of urban development served as a reference point, and in the situation where this project was non theoretical this alignment would prove helpful in gaining funding for the construction and operation of the project. The second driver was a series of interviews conducted with the people who lived within the area, from which a series of personas were developed as tools to refer to throughout the design process.

A number of exercises and explorations were done in the arrangement of this program, including several tests attempting to arrange adjacencies between programs and the site through use of data driven models.

Theoretical Research:
Research began by looking at resources related to open buildings, loose fit architecture, and hackable buildings with the aim of developing an understanding of the research that already exists.

As part of the Theory and Delineation course that is part of the graduation studio, several exercises were undertaken combining various methods of representation and work to help identify and express intentions. Exemplifying the model of research by design, the successive nature of the assignments allowed for the reinterpretation and critical thought of earlier ideas as later explorations were conducted. Several of these methods appear elsewhere throughout the work.

Design Explorations:
The identification and development of building systems capable of supporting the range of freedom the term ‘hackability’ requires is an ongoing process. A key element to this is the distinction between modularity and standardization. Systems like French Cleats serve as a useful reference point for the frameworks that will be developed.

Affordances such as overbuilding and demountability will be explored for their potential for expansion, relocation, and self-replication.

Further research into emerging fabrication techniques and responsive materials will be conducted in search of an alternative to a modular or kit-of-parts style system. These systems often lack the freedom and flexibility for self-expression, spontaneity, and the integration of local vernacular and craft that has been identified as a key criteria for these systems.

GRADUATION PLAN

Literature and general practical preference

LITTERATURE:

- The Second Digital Turn, Design Beyond Intelligence (2017) - Mario Carpo
- Loose Fit Architecture, Designing Building for Change (2017) - Alex Lifschutz
- How Can We Design For A Remountable And Flexible Open Building (2019) - Steven Lammersen
- A Pattern Language (1977) - Christopher Alexander
- The Timeless Way of Building (1979) - Christopher Alexander
- Battle - Christopher Alexander (2012) - Christopher Alexander
- Fabricate 2011 (2011) - Making Digital Architecture
- Fabricate 2020 (2020) - Making Resilient Architecture
- City of Permanent Temporality (2019) - Elma van Boxel, Kristian Koreman
- Sun, Wind, Light: Architectural Design Strategies, Third Edition (2014) - MarkDeKay and G.Z. Brown
- Housing as a Verb (1972) - John F.C. Turner
- Designing the Thermal Properties of Bio-Composites for Thermal Mass and Dynamic Insulation (2022) - R. Fortin, A. Halepaska, S. Craig

PRECEDENT PROJECTS:

- Palais de Tokyo Expansion (2014) - Lacaton & Vassal
- Red Bull Music Academy (2011) - Langarita Navarro Arquiterctos
- Medialab-Prado - Langarita Navarro Arquiterctos
- SESC Pompeia (1986) - Lina Bo Bardi
- UBC Brock Commons (2017) - Acton Ostry Architects
- Yardhouse (2012) – Assemble Studio
- Sugarhouse Studios (2017) – Assemble Studio
- Theatre on the Fly – Assemble Studio
- Poppenbuttel Community Center (2017) – Assemble Studio
- Artscape Wychwood Barns (2011) – Dtah

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

This graduation project can be seen as a culmination of academic work undertaken at TU Delft, but also includes elements of previous studies at McGill University and TU Wien. Notable components and methods carried over from this previous education include interest in generative design systems, entropy driven design, material science, and self-building.

The notable elements of the master's degree at TU Delft leading up to the graduation studio consisted of four key courses. The form studies studio undertaken in MSc1 focused on the use of physical models as a design tool, with emphasis on the aesthetics, materiality, and sustainability of museum building in Delft. This studio served as an introduction to model making as a design tool as well as a novel approach to the design process.

Following this, MSc2 included a façade design course centered around the reuse and repurposing of modular facade elements recovered from the partial demolition of a bank building in Amsterdam. Conducted in conjunction with students from the tracks of Building Technology and Civil Engineering, the course introduced some of the more technical aspects of reuse and performance design. The Theory Thesis course, also undertaken within the third quarter, focused on the topic of self-building as a response to both climate change and the various forms of housing shortages seen throughout the world. This work can be seen as a genesis point for the self-building and hackable building topics being explored in the context of the graduation studio.

The second half of MSc2 featured the Interactive Architecture Studio, which explored the effects of interactive design, artificial intelligence, robotics, and material science as possible routes to create a more efficient and enjoyable built environment. The design project was to design furniture and interior landscape for the TU Delft Library building implementing these technologies in the design, fabrication, and use phases.

Ultimately, the topic of the graduation studio builds upon topics and interests that have been developed through the preceding academic experience at TU Delft and the prior education and seeks to expand upon these topics to explore something that has the potential to continue to be explored as academia turns to practice.

GRADUATION PLAN

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

The concept of adaptable and flexible buildings, or "hackable buildings" is becoming increasingly relevant within the larger architecture, social, professional, and scientific frameworks. There are a few key reasons for this:

1. Climate change: Adaptable buildings are a way to reduce the environmental impact of construction and repurpose existing structures, which can be more sustainable and energy efficient.
2. Demographic shifts: As cities and neighborhoods change, the needs and desires of their residents also change. Adaptable buildings can better respond to these shifts by allowing for flexibility and adaptability in their use.
3. Emerging technologies: The development of new materials, fabrication techniques, and building systems is enabling architects and designers to create buildings that are more adaptable and responsive to their users.
4. Community engagement: Hackable buildings that allow for user intervention and participation can create a sense of ownership and belonging for residents, fostering a sense of community and social cohesion.

Overall, the development of adaptable and flexible buildings has the potential to address a range of issues and challenges faced by modern cities and communities, and as such is of significant interest within the larger architecture and design fields.

Time Planning

P1 | Pre-Design | 05.09.2022 - 10.11.2022

Weeks 1.1 to 1.3 focused on the development of initial positions for the project as well as a collaborative analysis of the site and context at the scale of city, district, and neighbourhoods.
Week 1.4 was devoted to a weeklong site visit in Berlin, with three days dedicated to exploring the immediate context, conducting interviews, and developing the initial position.
Weeks 1.5 to 1.9 focused on refining the positions and research questions by way of exploring a variety of working methods and representational techniques. This period also included site selection based on project criteria and the development of a high-level program.
Week 1.10 featured the P1 pre-design presentation and the compilation of a research-by-design journal.

P2 | Concept Design | 17.11.2022 - 30.01.2023

Weeks 2.1 to 2.8 centered on the development of a conceptual design showing the architectural potential and ambitions of the project. The resulting concept should be clearly derived from the research-by-design model which serves as the basis for the design studio.
Between weeks 2.6 and 2.9 students will develop the Graduation Plan outlining future design objectives for P4.

P3 | Preliminary Design | 16.02.2023 - 30.03.2023

The early weeks of P3 will serve as a period of critical reflection on the feedback of the P2 presentations and the work preceding them. This period will be used to clarify the goals of the project and set medium term design goals.
Aspects of the building will be developed at a variety of scales, with the intent of solving much of the design at scales ranging from 1:500 to 1:50. Preliminary details at smaller scales will likely be developed in parallel. Physical models of various scales will be used in conjunction with digital models and computational analysis to explore and test design decisions and interventions. Material design will be explored with an emphasis on emergent materials and fabrication techniques.
The final weeks of this period will be dedicated to the production of deliverables suitable for the preliminary design stages, including but not limited to site plans, floor plans, elevations, and sections of appropriate detail, as well as other supporting documents and models showing the research-by-design process.

P4 | Final Design Part A |06.04.2023 - 30.05.2023

Building materialization and construction will be examined at scales ranging from 1:20 to 1:1 as appropriate in both technical drawings and physical models and prototypes. Hackability and adaptability will be tested by exploring how the space can be altered to accommodate different program types. Visualizations of the building and context will be developed by combination of physical and digital models, and a high detail working model will be produced.

P5 | Final Design Part B | 08.06.2023 - 30.06.2023

Final corrections of materials, production of completed research-by-design journal, and finalizations of physical models at appropriate scale and level of detail.

REFLECTION TEXT

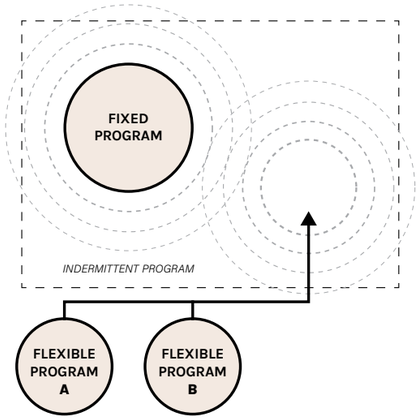
INTRODUCTION

The public building graduation studio focused on the the central theme of the commons, with the design brief of the public condenser. This core notion, along with the four pillars of hybridity, multiplicity, resilience, and sustainability, formed the initial principles against which research and design were referenced.

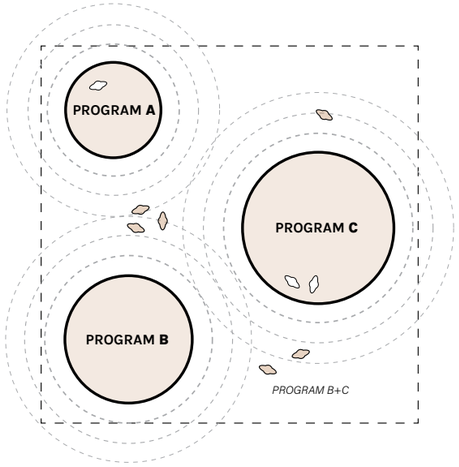
Friedrichshain, the neighborhood in Berlin designated as the site for the studio project, is still visibly affected by the aftermath of reunification following the fall of the Berlin Wall. During the site visit, what stood out to me was a city that is constantly redefining and overwriting itself.

The process of redefining and reinterpreting the built environment is exemplified by Berghain, one of the notable landmarks in the neighborhood. The former power plant has been transformed into a nightclub of international reputation.

The concept of hackable architecture was originally intended as an exploration of what an architecture that encourages transformation and redefinition would look like. This type of architecture gives users the freedom to shape the space and make it their own, with the end result being a reflection of the users themselves and the community they belong to, with the aim of fostering a sense of collaboration and inclusivity. It is also a way to challenge the traditional notion of a static and unchanging built environment, instead embracing the idea that spaces can be dynamic and adaptable to the people who use them.



LOOSE FIT AND MULTIPLICITY

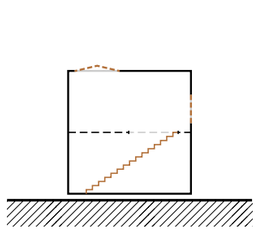


FIXED VS. SPONTANEOUS SPACE

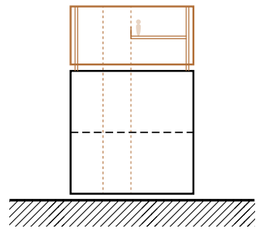
RESEARCH METHODOLOGY

Early stages of research focused on developing concepts that would allow for greater flexibility in architecture. One such concept was ‘loose fit’, which involved designing spaces to be overbuilt so that in the future they could accommodate a wider range of functions. Another important topic was the ‘sites and services’ model proposed by John Turner for social housing, which was examined and its principles translated to match the proposed program of makerspace, artist studios, and commoning areas.

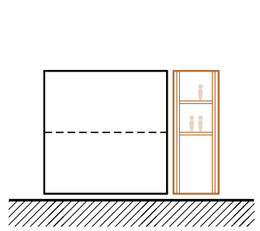
These ideas were explored through concurrent application to new buildings on the site as well as the transformation and augmentation of the existing building stock found on the site. The juxtaposition of the two spaces was particularly important as it allowed for a clear illustration of the differences between high and low adaptability spaces. Working with the rather limiting system of the Plattenbau allowed for the development of a prototypical toolkit of interventions, akin to the process of hacking sought after in the project at a user scale. This cyclical approach between design and research was a critical component of the development of the project, and one that was invaluable to my own learning throughout the process.



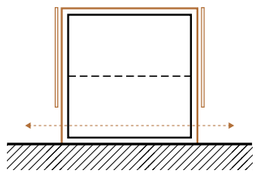
ALTERATION



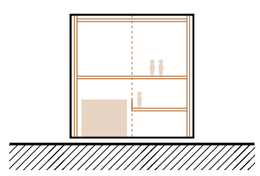
EXTENSION



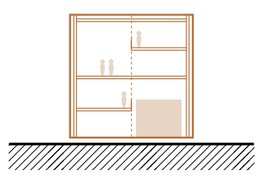
AUGMENTATION



ENVELOPING



INFILLING



BUILDING

One weakness in the methodology used is that the act of hacking, one of the foundational concepts of the proposal, is inherently something that is difficult to incorporate. It requires both the hacker and the hacked, the former of which is an unknown user at an unknown future point, and the latter, the object that results at the end of the design process. While the use of the personas used to characterize the neighborhood are an effective narrative device, I feel there were better methods that could have been used to simulate the act of hacking throughout the design process.

REFLECTION TEXT

1. What is the relation between your graduation project topic, your master track (Ar, Ur, BT, LA, MBE), and your master programme (MSc AUBS)?

This graduation project can be seen as a culmination of academic work undertaken at TU Delft, but also includes elements of previous studies at McGill University and TU Wien. Notable components carried over from this previous education include interest in generative design systems, material science, and self-building.

The master's degree at TU Delft leading up to the graduation studio consisted of four key courses. The form studies studio undertaken in MSc1 focused on the use of physical models as a design tool, with emphasis on the aesthetics, materiality, and sustainability of a museum building in Delft. MSc2 included a façade design course conducted in conjunction with students from the tracks of Building Technology and Civil Engineering which centered around the reuse and repurposing of modular facade elements recovered from the partial demolition of a bank building in Amsterdam. The Theory Thesis course, also taken within the third quarter, focused on the topic of self-building as a response to both climate change and the various forms of housing shortages seen throughout the world. This work can be seen as a genesis point for the self-building and hackable building topics being explored in the context of the graduation studio.

The second half of MSc2 featured the Interactive Architecture Studio, which explored the effects of interactive design, artificial intelligence, robotics, and material science as possible routes to create a more efficient and enjoyable built environment. The design project was to design furniture and an interior landscape for the TU Delft Library building, implementing these technologies in the design, fabrication, and use phases.

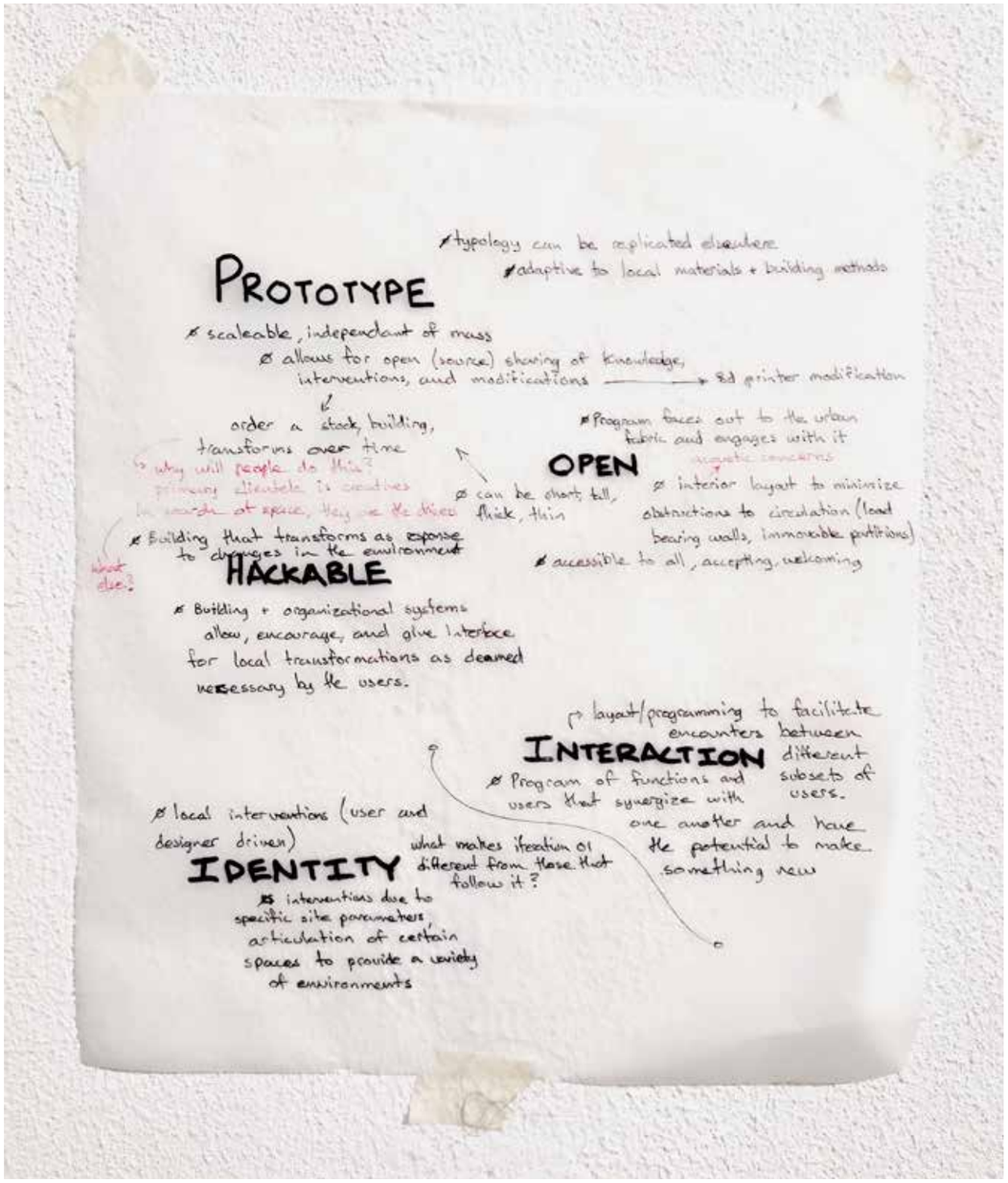
Ultimately, the topic of the graduation studio builds upon topics and interests that have been developed through the preceding academic experience at TU Delft and prior education and seeks to expand upon these topics to explore something that has the potential to continue to be explored as academia turns to practice.

2. How did your research influence your design/recommendations and how did the design/ recommendations influence your research?

The research on adaptable and hackable buildings, loose-fit architecture, and user-driven design such as co housing were strongly influential in developing a framework for the project. The notion of a public condenser that leverages multiplicity and hybridity to create more resilient and sustainable buildings was developed based on research surrounding the need for adaptable buildings as a response to climate change. There are several points in which the design informed new research. One case of this was a deep exploration into the topic of thermal mass, thermal alliesthesia, and natural ventilation to support a primarily passive climate strategy.

The design of the public condenser prototype aims to reduce the initial resource input into buildings, increase the longevity and resiliency of the structures, and help form more meaningful relationships between people and the spaces they inhabit. The building is intended to serve as a base, from which it can be expanded, replicated, and reinterpreted.

The recommendations for the core program of the building were informed by the research on the lack of affordable artist rental spaces, the need for spaces for members of the community to gather in their neighborhoods, and the trend of coworking spaces and makerspaces in response to gentrification. The transient program types were included to allow for more fluid and adaptable use of the space by users, responding to the idea of user-driven design and the appropriation of space by the urban fabric of Berlin.



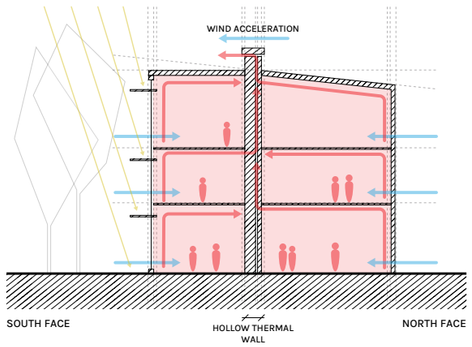
EARLY CONCEPTUAL MAPPING WORK

In turn, the design recommendations influenced further research into the concept of loose-fit architecture and hackable buildings as tools for developing more local and self-reliant communities. The research explored the potential of makerspaces and collaborative workspaces in creating more localized economies and networks of goods while encouraging the exchange of knowledge and skills. The concept of a circular economy, using quantities of material often unsuited to larger architectural interventions, was also explored, further expanding on the idea of reducing the initial resource input into buildings.

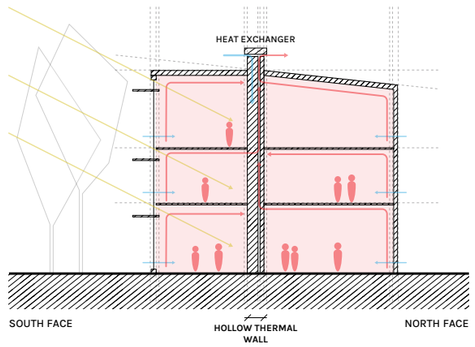
3. How do you assess the value of your way of working (your approach, your used methods, used methodology)?

The methodology used throughout this graduation project is similar in many ways to that taught in previous academic experiences, with research and design both being treated as important elements within the design process.
The initial site studies and excursion formed a base understanding and identified some urban conditions within which research questions and program emerged. While the choice of program was, in part, driven by my own interests preceding the graduation studio, there existed a strong argument supporting the choice of program based on the various data points collected within the this research phase. Some of these data points are: societal and economic trends in the areas, the urban roadmap published by the municipality, and interviews with residents of the neighborhood.

As mentioned previously, one difficulty found in the methodology was incorporating the act of hacking, as it is reliant on having a set object which can be hacked. The personas used to characterize the neighborhood were an effective narrative device, but ultimately were difficult to incorporate before the later stages of the project.



CLIMATE SCHEME - SUMMER
HEAT REJECTION, NATURAL VENTILATION, MICROCLIMATES



CLIMATE SCHEME - WINTER
SOLAR HEAT GAIN, RETENTION, AND HEAT RECOVERY

One weakness I have identified with my process more generally is a tendency to fixate on solving particular low level issues before a design process calls for it. One notable example within the graduation studio was a period of several weeks during P3 where my energy was focused almost entirely on developing a climate scheme utilizing a thermal wall at the expense of exploring higher level design decisions such as massing and façade studies. I feel there is great benefit to shifting between a larger urban or architectural scale and more detailed design, opening opportunities for one scale to inform the other, but it is something that I feel a need to better regulate.

4. How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

The concept of adaptable and flexible buildings is becoming increasingly relevant within planning and architectural frameworks. Hackable buildings push this concept, proposing a typology that encourages users to alter space as a means to increase the resiliency of the built environment. It proposes architecture not as a product, but as a framework within which members of a community operate and live.

Adaptable buildings are a way to reduce the environmental impact of construction and repurpose existing structures, which can be more sustainable and energy efficient. Finding ways to repurpose existing building stock and materials and encouraging this act within the building represents a cultural shift from current day methods and ideologies. The use of low impact natural materials in the construction process, integration of different climate zones, and potentially demountable construction components all support a design reacting to environmental realities, which for me is one of the chief ethical concerns of any designer in the current day.

As cities and neighborhoods change, the needs and desires of their residents also change. Adaptable buildings can better respond to these shifts by allowing for flexibility and adaptability in their use. This is becoming a larger issue as people continue to become increasingly nomadic. Hackable buildings that allow for user intervention and participation can create a sense of ownership and belonging for residents, fostering a sense of community and social cohesion.

The development of new materials, fabrication techniques, and building systems is enabling architects and designers to create buildings that are more adaptable and responsive to their users. These same tools also give regular users the freedom to make, learn, and interact with their environments in a variety of ways.

5. How do you assess the value of the transferability of your project results?

The notion of developing a prototypical building has been a consistent theme throughout the design process. In many ways I feel that this component of the project has been a success.

One area where this is present is the study and proposed transformation of the Plattenbau building. This style of building is present throughout Eastern Europe, and variations of plate concrete buildings can be found in many other parts of the world. Many of these have limited potential to be transformed or altered within the scope of the users of the space. The methods employed for the transformation of this particular Plattenbau building can be applied to any number of similar constructions with similar results.

One area of the project that I intend to develop further for during the P5 period looks specifically at this prototypability, exploring the implementation of these ideas on other existing buildings in the near proximity, proposing a high level scheme of what the project might look like had those sites been selected in place of the current one.

THEORY AND DELINEATION

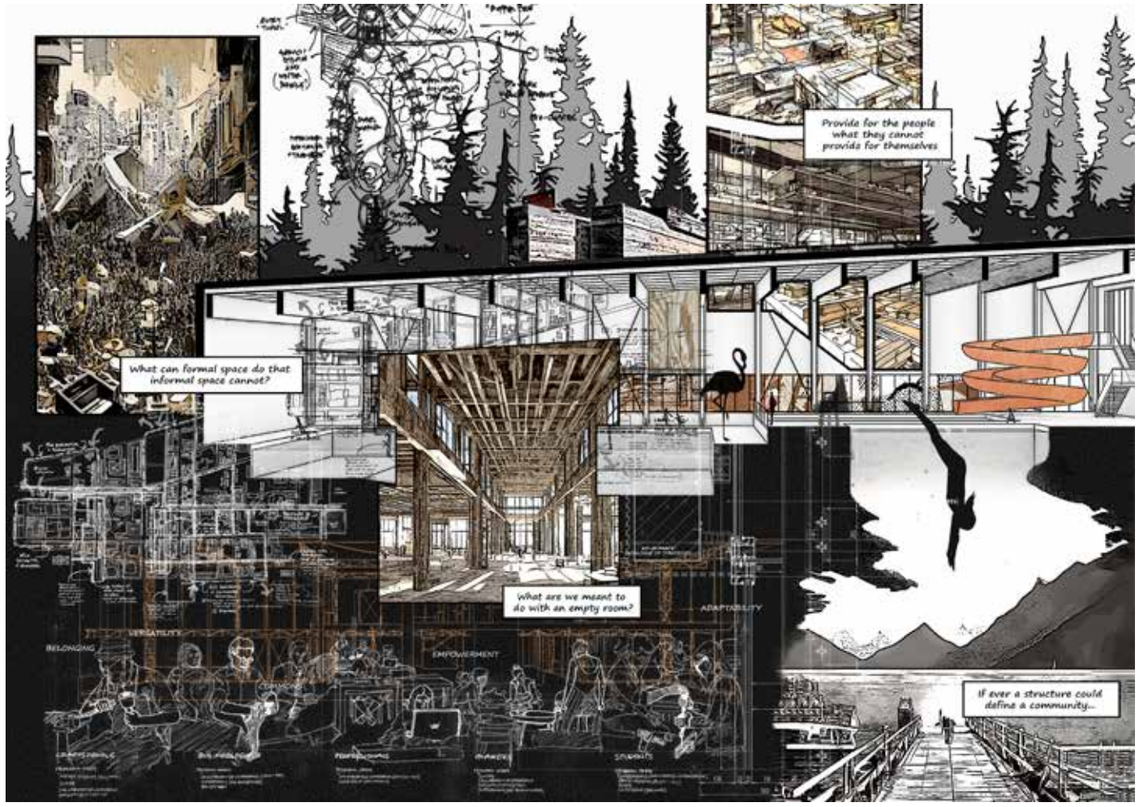
WEEKLY ASSIGNMENTS

COLLAGE AND MONTAGE

ORIGINAL COLLAGE

In the initial attempt at making a collage that was representative of my early thoughts on the topic of public building I relied heavily on my lived experiences. The rural part of Canada where I grew up didn't have public building. We did however have public spaces, the community beach (lower right) and the mountain lookout (forested background) were spaces where the community regularly gathered. Growing up the willingness to actively change these environments, building benches, rope swings, firepits, were normal. There was an element of lawlessness to the authority of the user.

In contrast to this, much of academic and professional experience treated architecture as static and unmoving, with few accordances for any actions not specified in the design brief. As a designer, creating opportunities for the unexpected limits ones control, which I attempted to represent through the use of AI generated images.



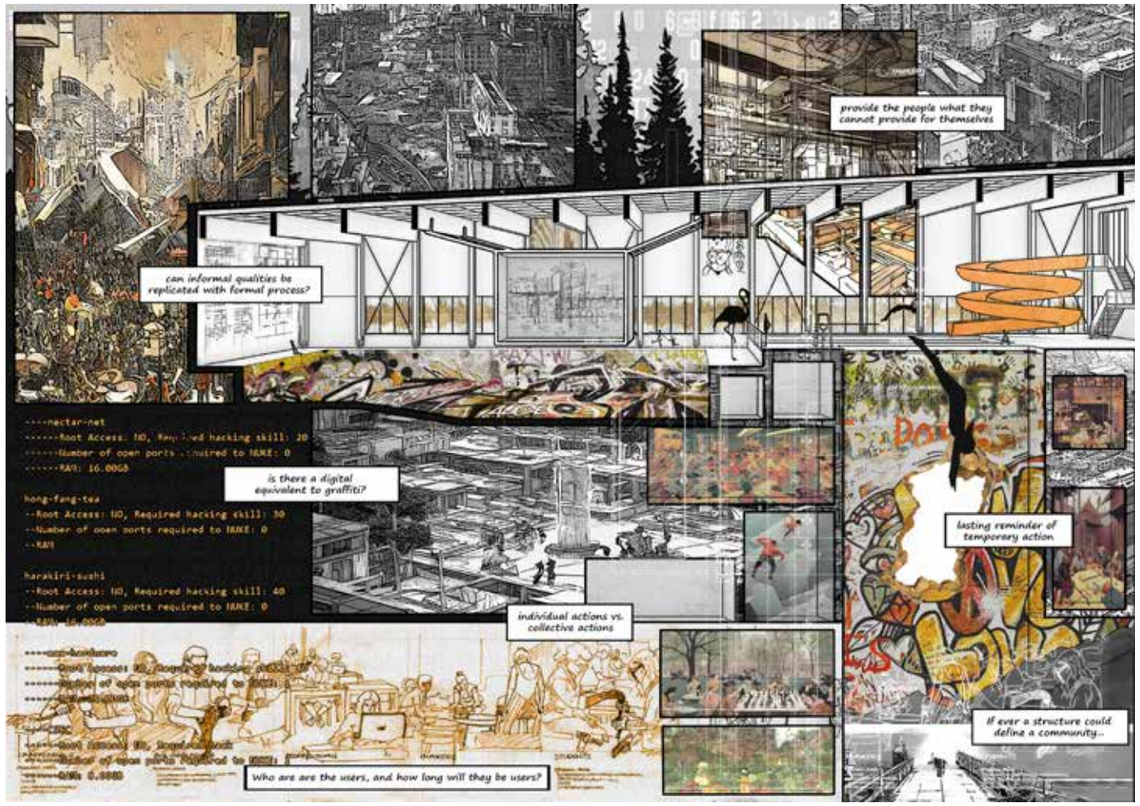
ORIGINAL COLLAGE EXERCISE

REVISITED COLLAGE

What I feel I missed in the original exercise was the question of what a public building should be in the city of Berlin, and more specifically the are of Friedrichshain. Revisiting the collage after the excursion allowed me to bring some of my experiences into the collage.

Changing the backdrop from one of mostly nature to one of mostly city better reflects the ratio of built environment to green space in Berlin. The use of graffiti and murals an representation of both the history of street art in Berlin but also the willingness and history of appropriating abandoned buildings and spaces. The elements of code throughout serve as a visual link to the importance Berlin places on technology and innovation.

Again AI image generation was used as a means of representing the ambiguity between design and use, with a loose logic of coloured elements representing the life of the city against a dark background.



REVISITED COLLAGE EXERCISE

What can formal space do that informal space cannot?

Provide for the people what they cannot provide for themselves

What are we meant to do with an empty room?

If ever a structure could define a community...

BELONGING

VERSATILITY

COMMONS

EMPOWERMENT

ADAPTABILITY

CRAFTSPEOPLE

BUSINESSPEOPLE

PROFESSIONALS

MAKERS

STUDENTS

provide the people what they cannot provide for themselves

can informal qualities be replicated with formal process?

----nectar-net
------Root Access: NO, Required hacking skill: 20
------Number of open ports required to NUKE: 0
------RAM: 16.00GB

hong-fang-tea
--Root Access: NO, Required hacking skill: 30
--Number of open ports required to NUKE: 0
--RAM

harakiri-sushi
--Root Access: NO, Required hacking skill: 40
--Number of open ports required to NUKE: 0
--RAM: 16.00GB

is there a digital equivalent to graffiti?

lasting reminder of temporary action

individual actions vs. collective actions

----max-hardware
------Root Access: NO, Required hacking skill: 80
------Number of open ports required to NUKE: 1
------RAM: 32.00GB

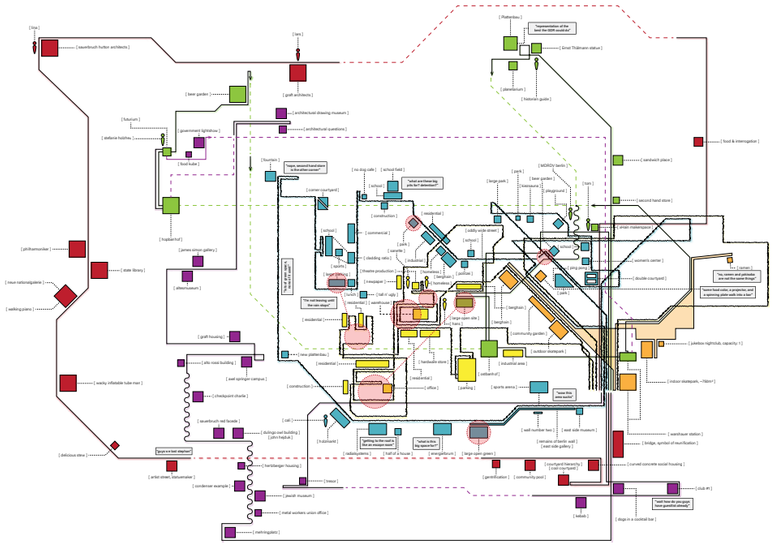
----CSEC
------Root Access: NO, Required hack
------Number of open ports required to NUKE: 1
------RAM: 8.00GB

Who are are the users, and how long will they be users?

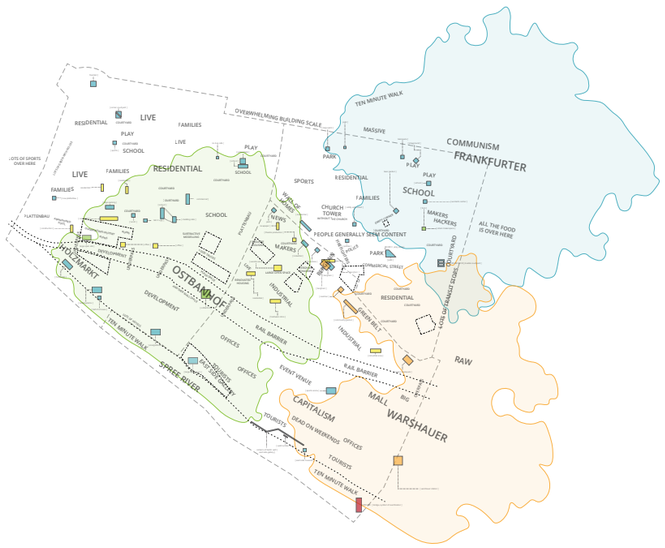
If ever a structure could define a community...

MAPPING

ORIGINAL COLLAGE EXERCISE



ORIGINAL COLLAGE EXERCISE



REVISITED COLLAGE EXERCISE

EXPERIENCING AND RECORDING

Throughout the trip my method of recording my surroundings on site was primarily through photos and sketch. These egocentric sketches of my surroundings and the relationships I saw built up my understanding on the area. The early sketches bear little resemblance to the cartographic version of the area, but the later sketches are relatively accurate and recognizable.

OVERWRITING AND SUPERIMPOSING

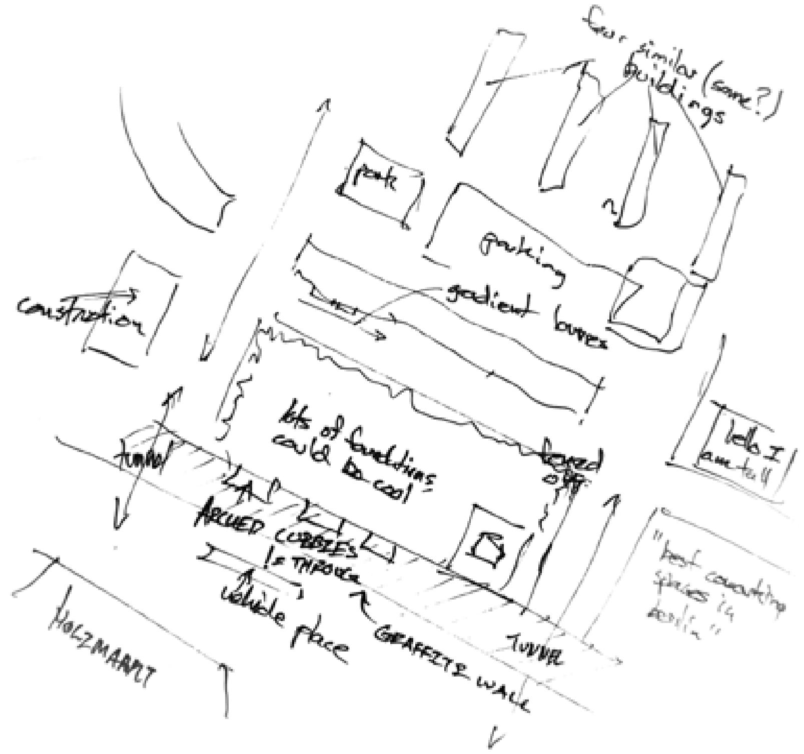
Translating the innacuraccy of the sketched fragments into a cohesive whole was done by superimposing the travel path of each day over top of one another. The ‘metro’ style logic developed as a way to keep individual elements somewhat legible while further abstracting the journey. Due to the way the information was recorded and map created, there are often multiple instances of the same building. Berghain appearing three times and the MDRDV site appearing twice are examples of this. Other elements, such as memorable quotes or people that I met, also appear on this map.

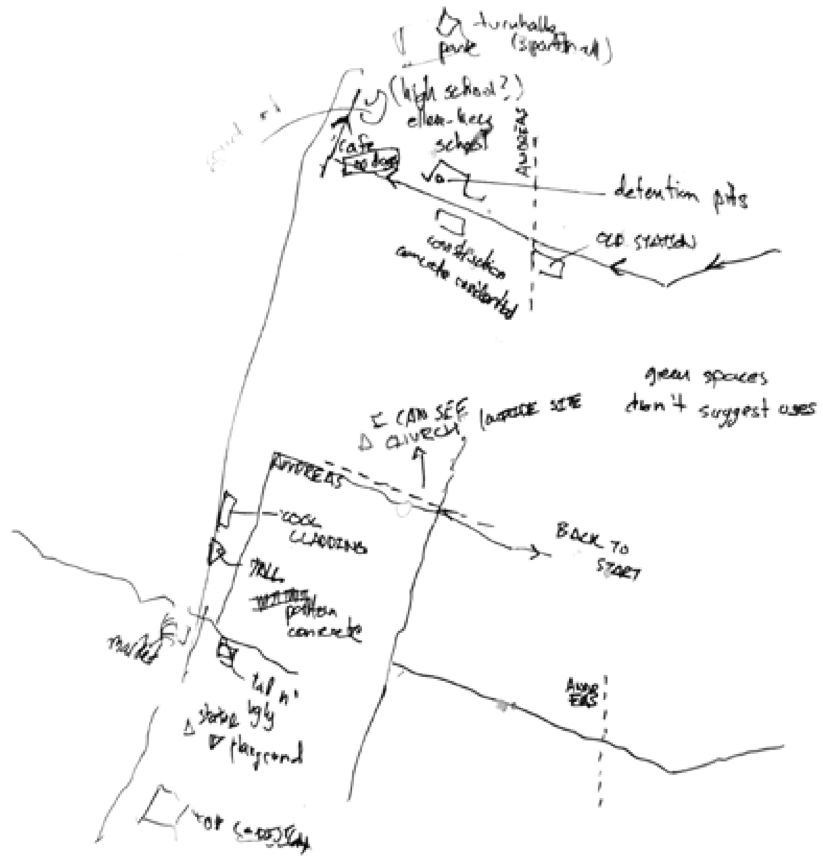
INTERPRETING AND ANALYZING

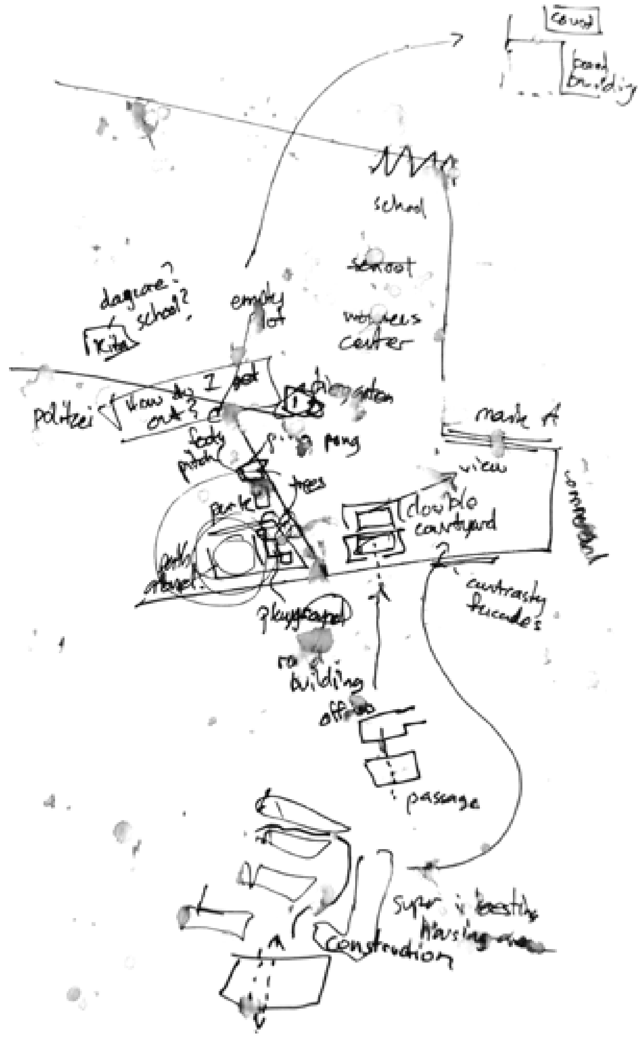
While the previous map did a fine job of representing my experiences on thje excursion, there was little analysis done with that data. A second map was produced which placed all the elements (or ‘metro stations’) from the previous map into their geographically correct positions. Language was used to try and describe the findings and character of various areas. Possible sites for the design studio were highlighted on the map for further investigation. Ten minute walking paths from each of the nearby transit stations were added to help give a sense of scale to the map.

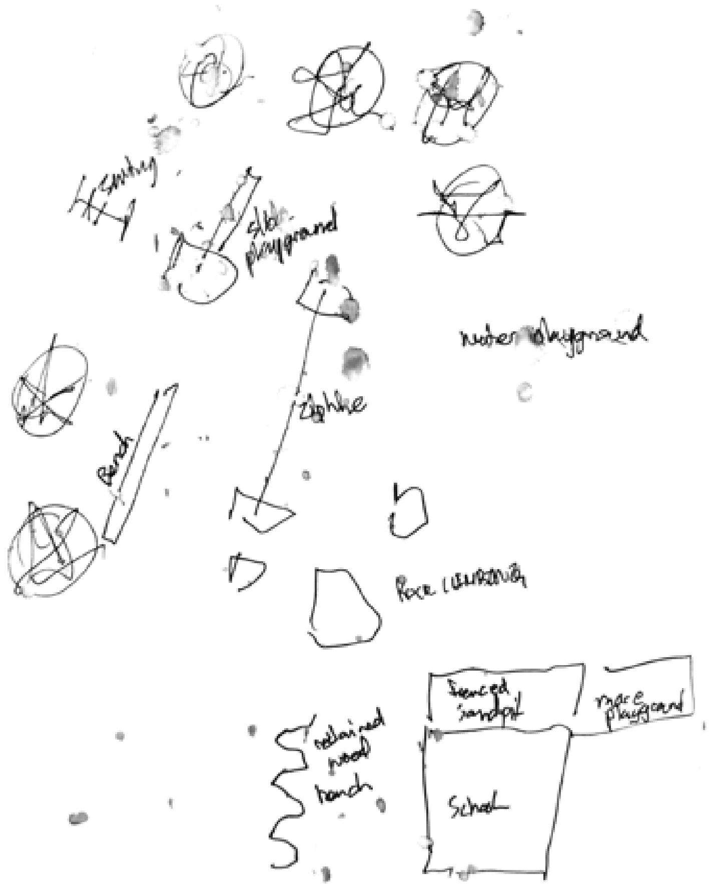
MAPPING


potential site
LARGE LOT
still main street
wide street
HERE
main street
politie


four similar (same?) buildings
parking
gradient lanes
construction
lots of buildings could be cool
tunnel
ARCHED CUBBIES
vehicle place
GRAFFITI WALL
TUNNEL
HOLZMARKT

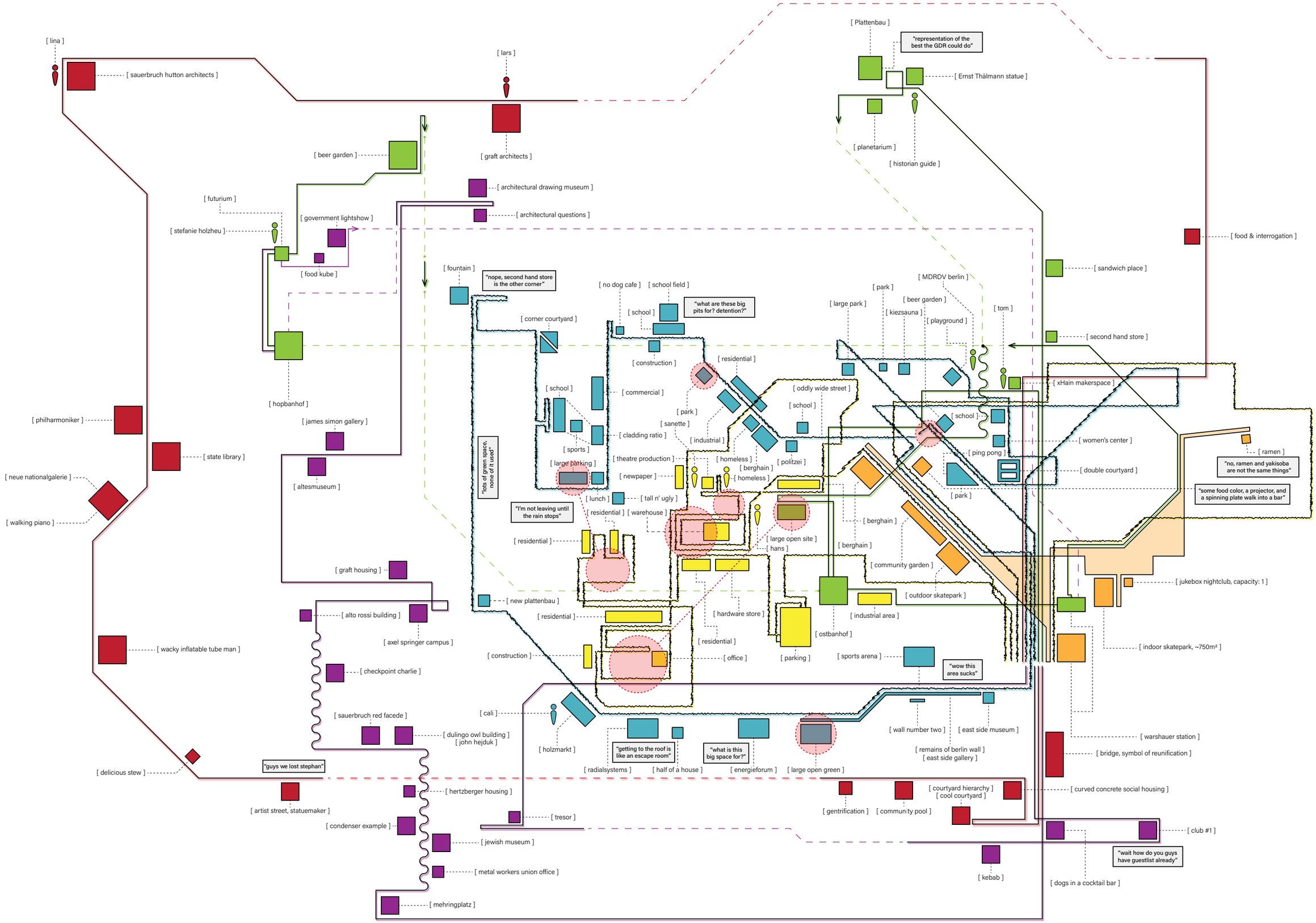

detention pits
OLD STATION
green spaces don't suggest uses
BACK TO START
playground


school
daycare? school?
empty lot
double courtyard
contrasty facades
playground
passage
construction

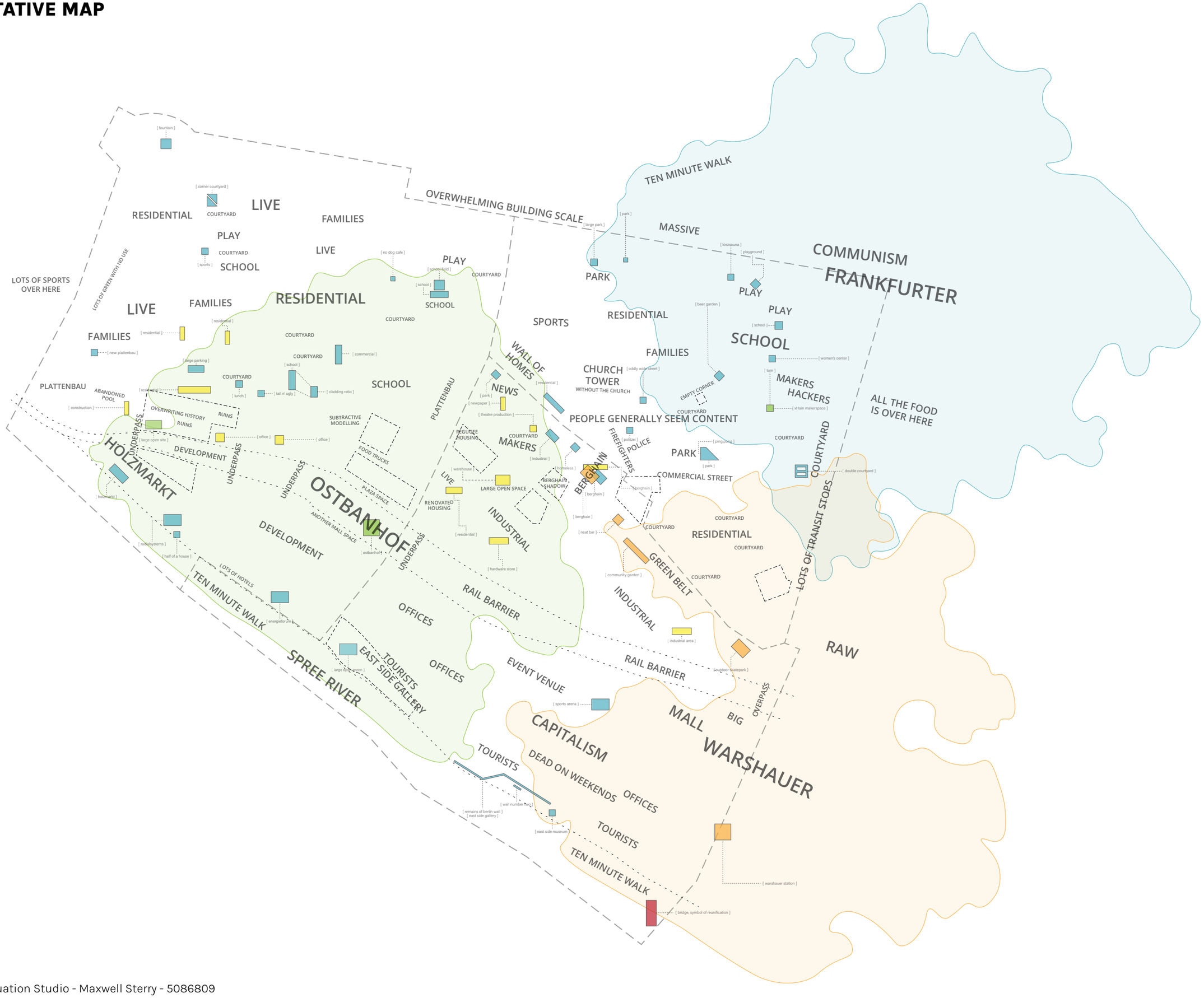

water playground
zipline
bench
fenced sandpit
more playground
School


PARK
HOMELESS
BERGHAIN
I like the windows here
TRAPEZE
GATES
similar buildings
SKATE?
LOTS OF FENCE
HOMELESS ENCAMPMENT
courtyard

EXCURSION MAP



INTERPRETATIVE MAP



ASSEMBLAGE MODEL

PHYSICAL MODEL

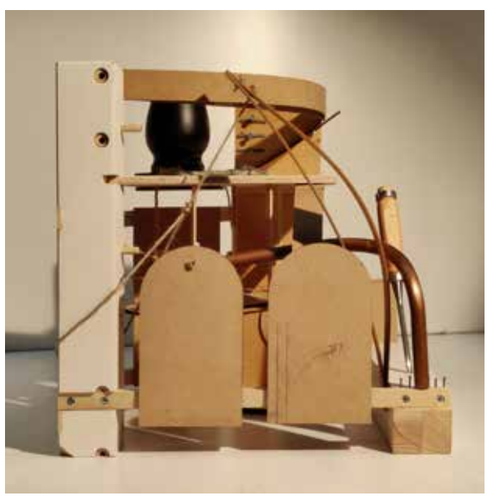
The physical model was an exploration of process and craft. There was no defined plan, each element was its own intervention that built upon the existing framework and provided the context for the next element. The elements themselves came from a collection components from past models, reclaimed furniture, and the mystery household hardware box.

Many of these elements carry with them traces of their past uses. A possible future intervention would be to dissemble the model and rebuild it into a different assemblage, leaving behind even more traces of its current permutation. This type of history is clearly seen around Berlin, from firewalls indicating the presence of neighboring buildings at one time to old windows being bricked up with different sized bricks to the rest of the building,

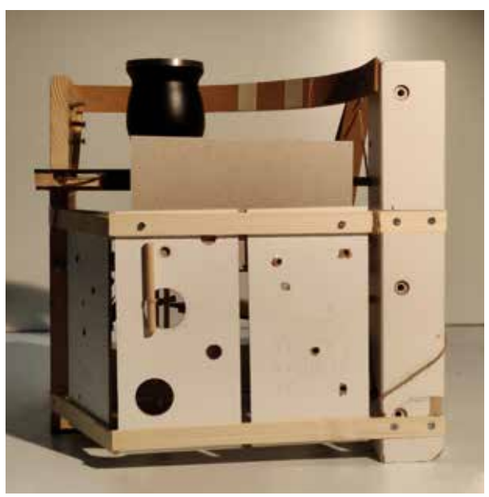
The third element that I felt was important to express in this model was the presence of the tools used to produce it. Having the required tools to change the model and modify it to suit present needs is a key element of my proposal.

DETAIL VIEW

'HUMAN' PERSPECTIVE

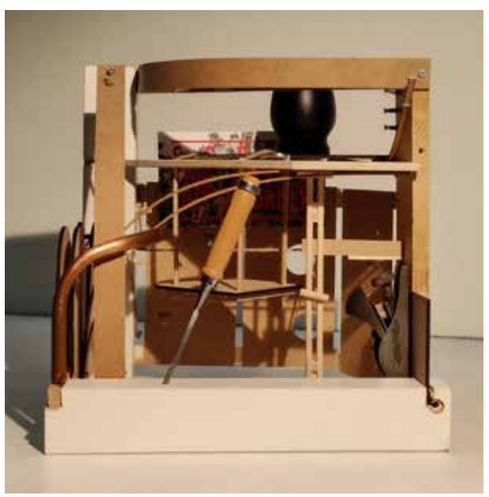


ELEVATION 01



ELEVATION 02

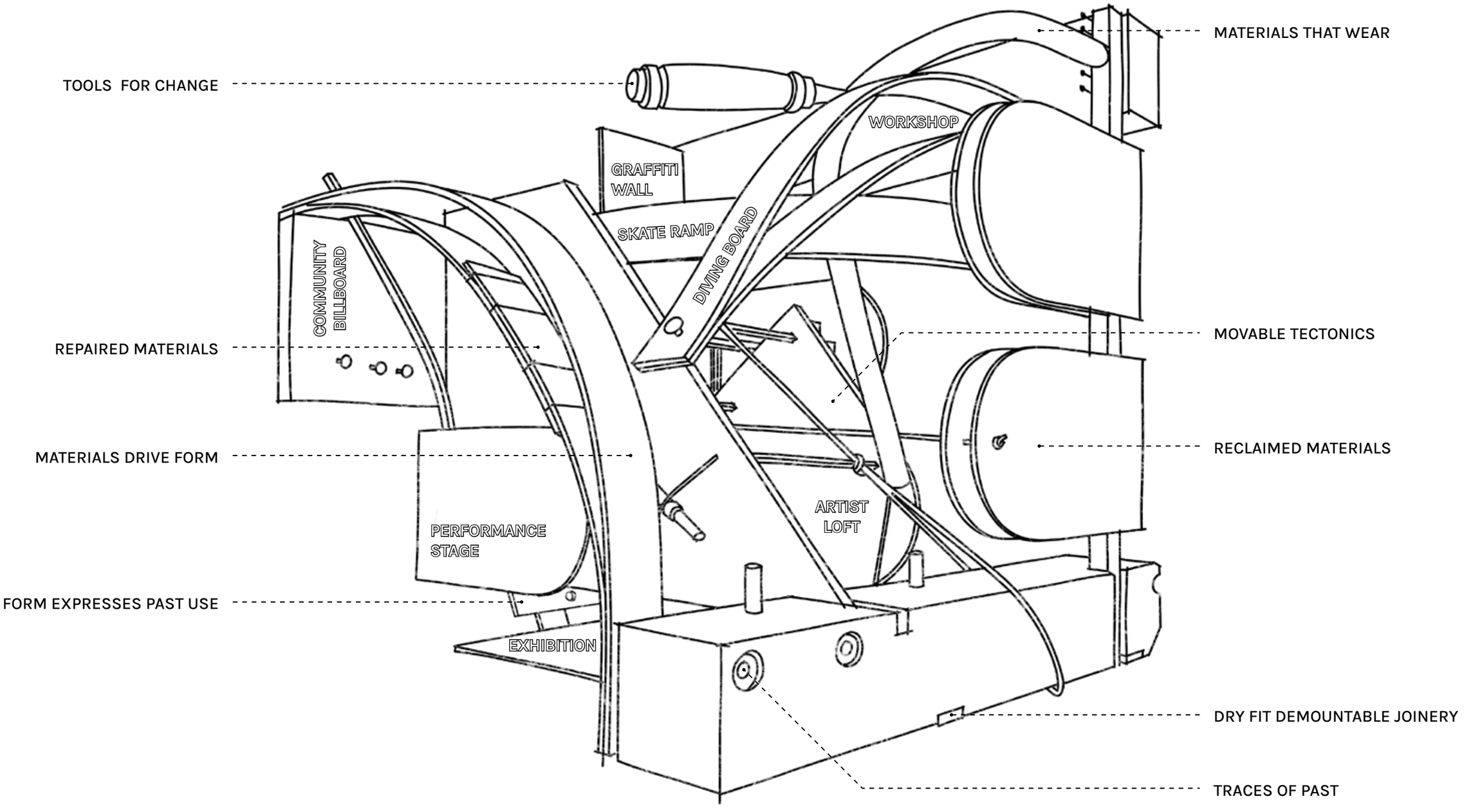
ELEVATION 03



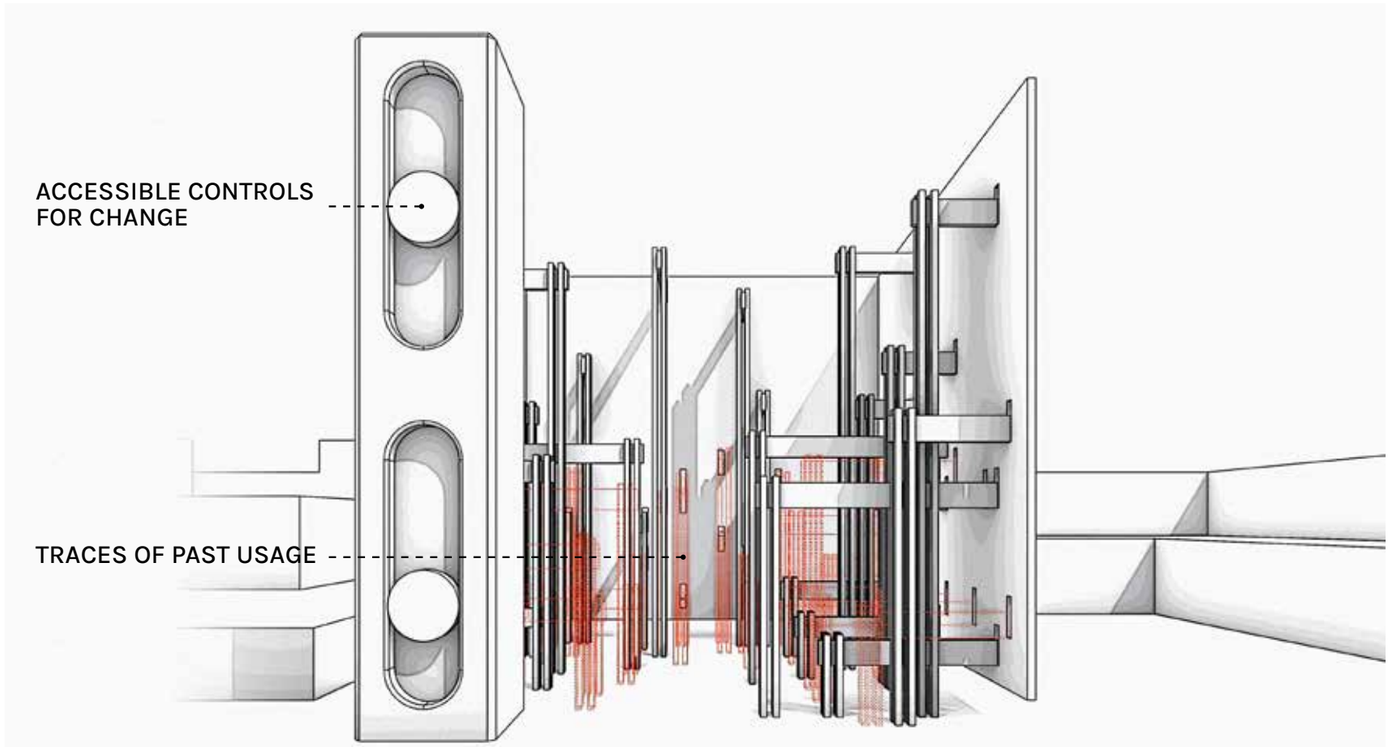
ELEVATION 04

ELEVATION 05

ASSEMBLAGE MODEL



DIGITAL MODEL

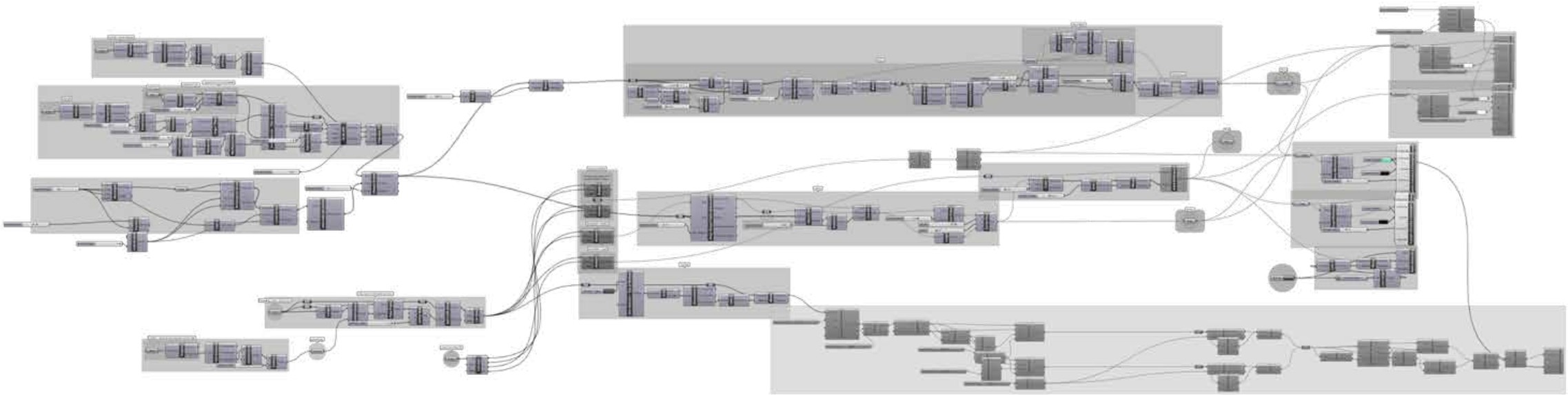


DIGITAL MODEL

Interpreting the physical model in a digital form proved challenging, as many of the inputs for the physical model did not have a ready digital equivalent. Instead, I chose to focus on the aspects of scalability, reconfigurability, and the traces left by the changes in the buildings operation.

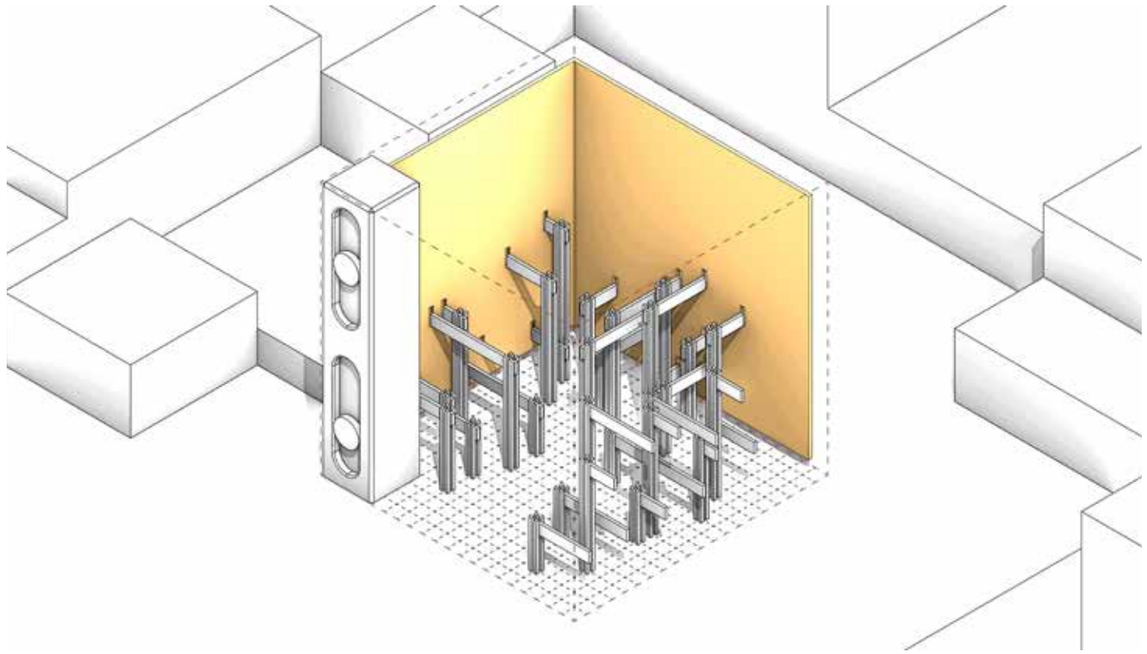
Key elements of the script created for the generation of the digital model are the “physical” controls, with interfaceable elements serving as the tools used to generate different varatiations, and with each variation keeping a record of past permutations.

As with most parametric based models, the complexity number of possible permutations grows with the number of inputs and outputs. The need for rigorous rulesets and definitions limits the possibility for uniqueness, freedom, and personality found in the physical model. This juxtaposition mirrors the theoretical difference between altering a modular system and hacking an existing system.

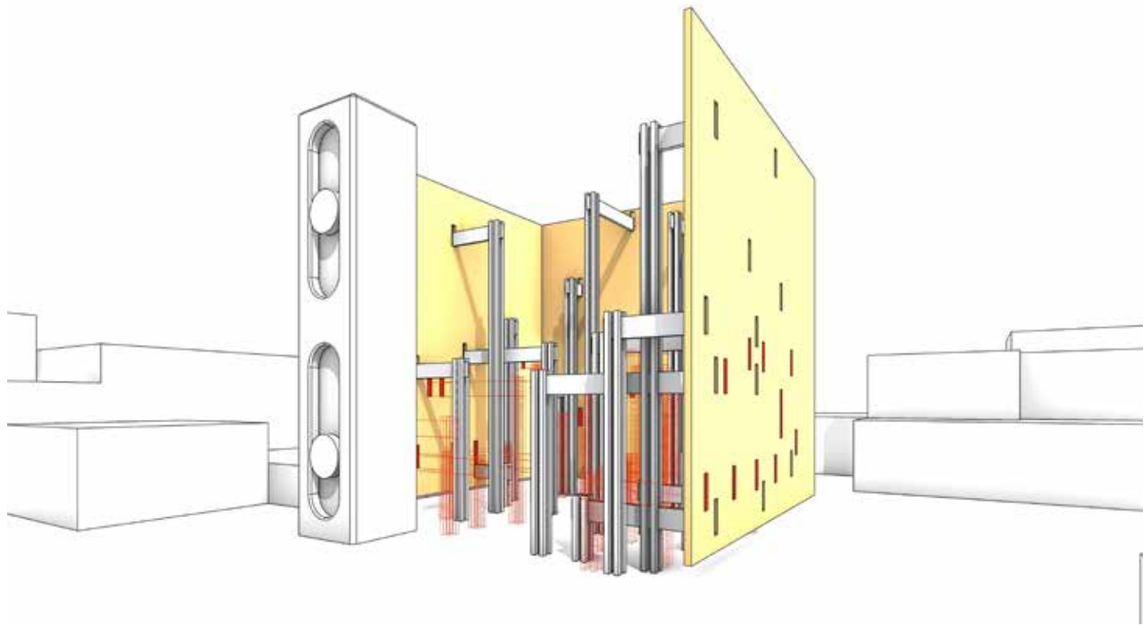


GRASSHOPPER SCRIPT USED FOR PARAMETRIC MODEL GENERATION

DIGITAL MODEL



SYSTEM
EXPLORATIONS OF STRUCTURAL LOGICS AND SYSTEMS AND THEIR LIMITATIONS



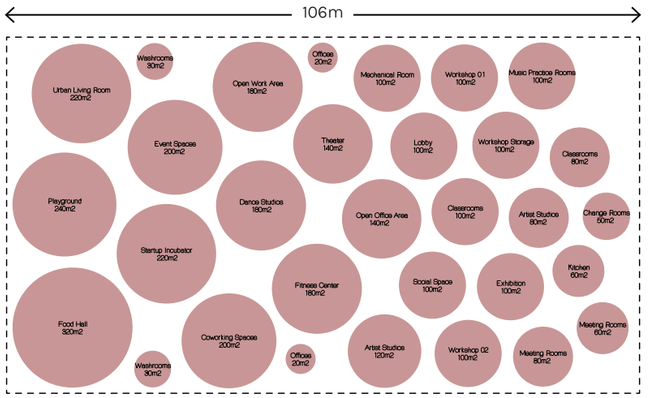
CHANGE
OVER TIME THE SYSTEMS CONFIGURATION IS OVERWRITTEN BY NEW FORM TO ACCOMMODATE CHANGING NEEDS

APPROPRIATION
USERS FINDING WAYS TO INHABIT THE SPACE AND FORM IT TO THEIR NEEDS

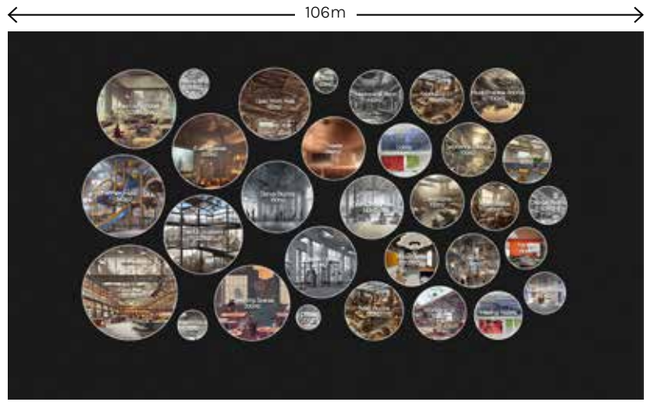
APPROPRIATION
USERS FINDING WAYS TO INHABIT THE SPACE AND FORM IT TO THEIR NEEDS

POST PRODUCTION

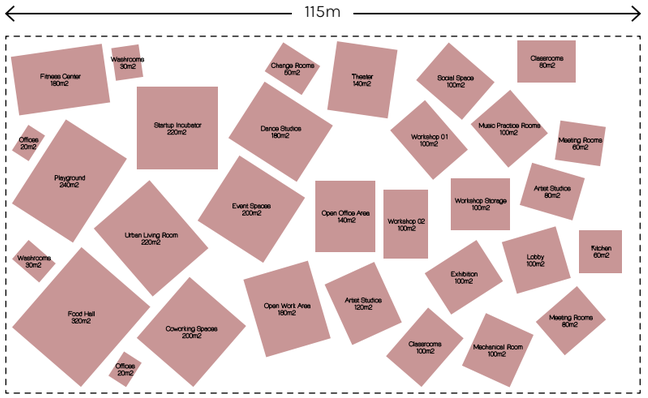
Room Name	Area (m2)	Room Height (m)	Sunlight Requirement (1 to 3)	Openness (1 to 3)
Mechanical Room	100	3	1	1
Lobby	100	8	3	3
Washrooms	30	3.5	1	1
Washrooms	30	3.5	1	1
Social Space	100	4.5	2	2
Kitchen	60	4	2	2
Change Rooms	50	3.5	1	2
Event Spaces	200	5	2	2
Classrooms	100	4	2	2
Offices	20	4.5	3	2
Urban Living Room	220	6	3	3
Food Hall	320	8	3	3
Playground	240	5	3	3
Open Work Area	180	4	3	3
Workshop 01	100	5	2	2
Workshop 02	100	5	2	2
Workshop Storage	100	4	1	3
Artist Studios	80	4.5	3	2
Artist Studios	120	4.5	3	2
Exhibition	100	4.5	2	3
Offices	20	3	1	1
Theater	140	8	1	3
Dance Studios	180	5	2	3
Fitness Center	180	5	2	3
Music Practice Rooms	100	4	2	2
Meeting Rooms	80	4	2	1
Meeting Rooms	60	4	2	1
Startup Incubator	220	5	3	2
Coworking Spaces	200	4.5	3	2
Open Office Area	140	4.5	3	2
Classrooms	80	4	2	2



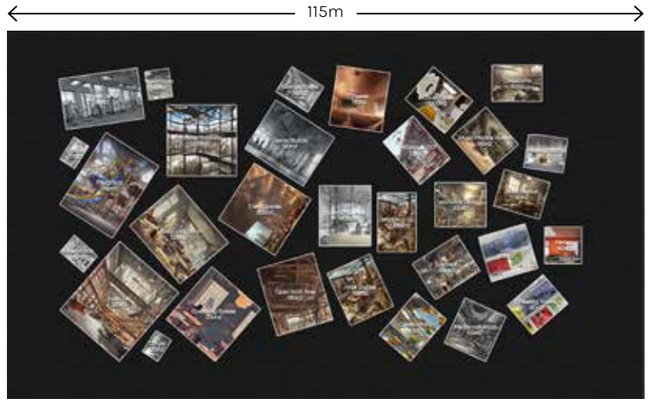
CIRCULAR CONFIGURATION - R11A40B21 - SPACING 1.6



CIRCULAR CONFIGURATION - R11A40B21 - SPACING 1.6



RECTANGULAR CONFIGURATION - R11A40B21 - SPACING 1.6



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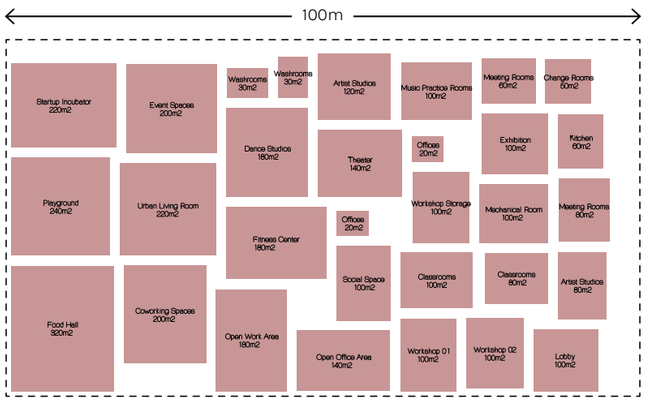
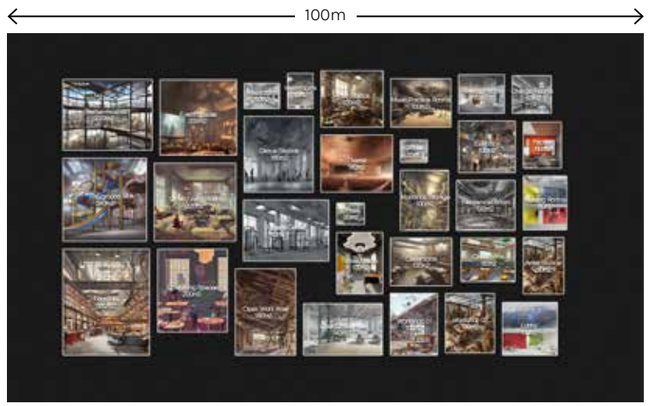


RECTANGULAR CONFIGURATION - R4A26B30 - SPACING 1.6



RECTANGULAR CONFIGURATION - R4A26B30 - SPACING 1.6

PROGRAM REQUIREMENTS
PROGRAM FUNCTIONS AND THEIR SPATIAL REQUIREMENTS

GENERATING SPACES
RANDOMLY ASSINGING SPACES WITHIN ENVELOPE

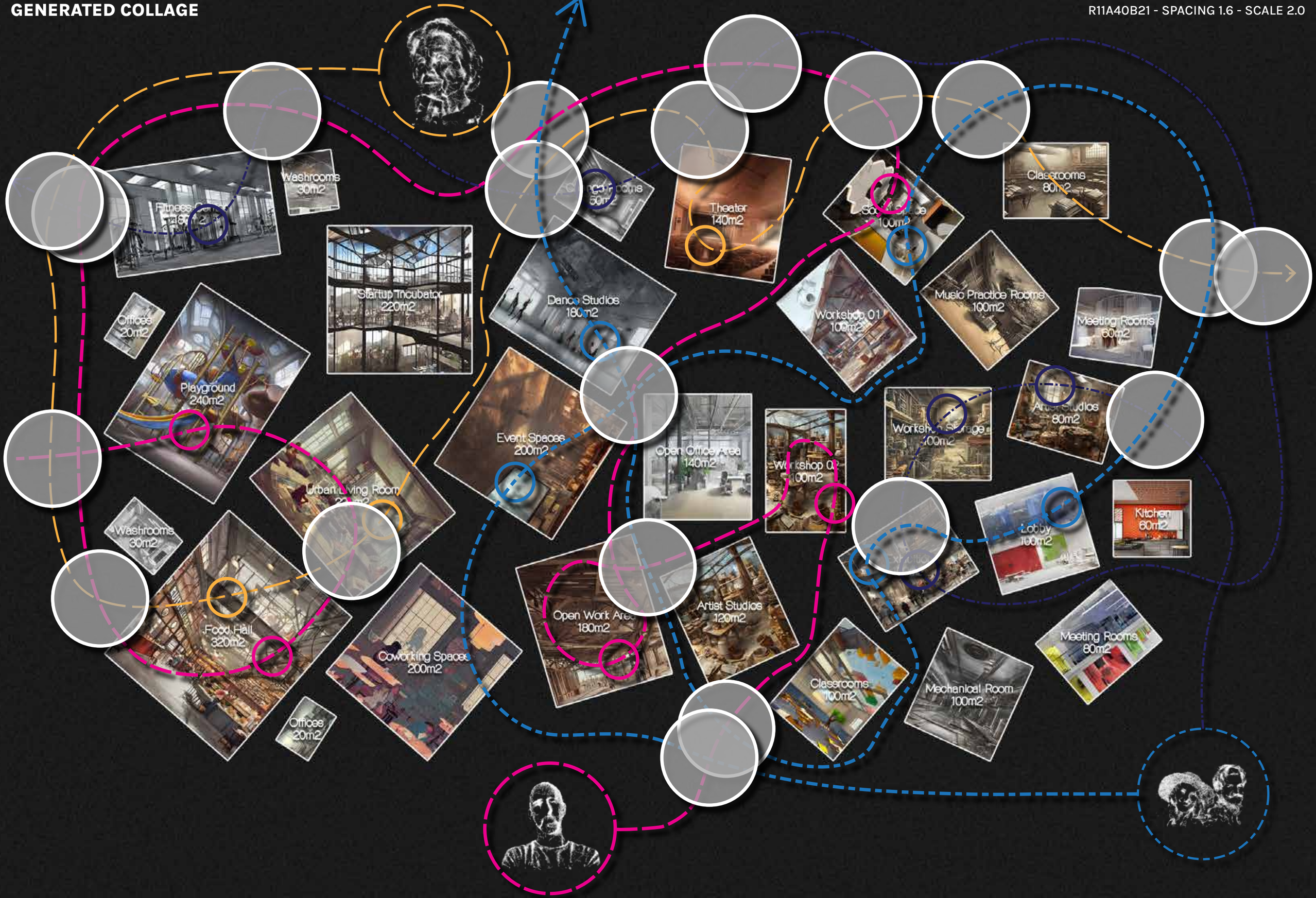
ASSIGNING PROGRAMS
EXAMINING LAYOUTS AND RELATIONSHIPS

GENERATED COLLAGE

R11A40B21 - SPACING 1.6 - SCALE 1.7

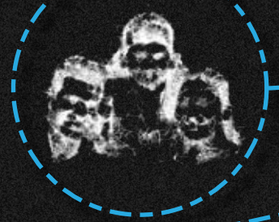
GENERATED COLLAGE

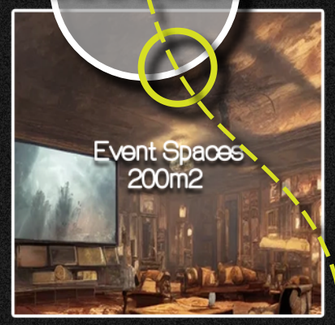
R11A40B21 - SPACING 1.6 - SCALE 2.0

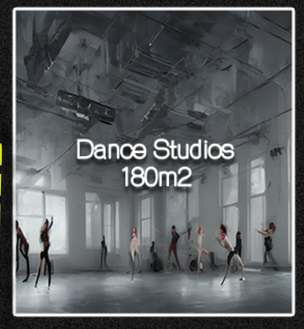


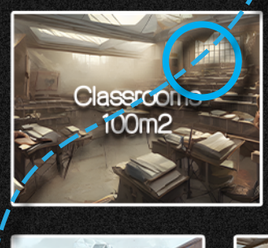
GENERATED COLLAGE

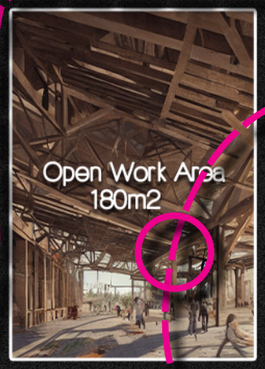
R4A26B30 - SPACING 1.6 - SCALE 1.5

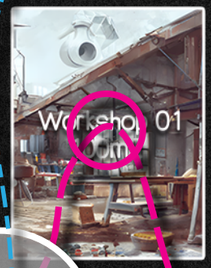


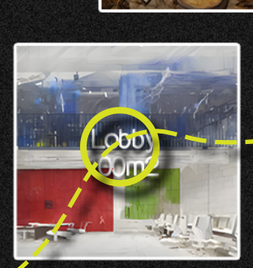












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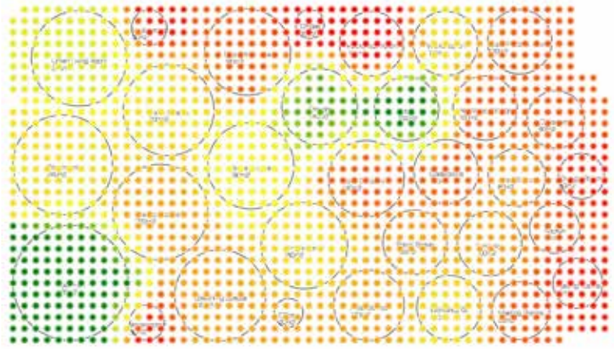
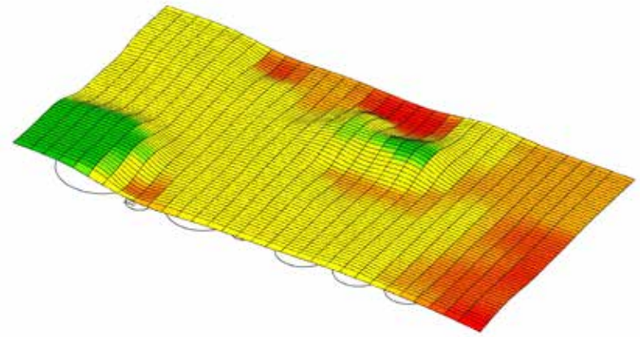


CIRCULAR CONFIGURATION - R11A40B21 - SPACING 1.6



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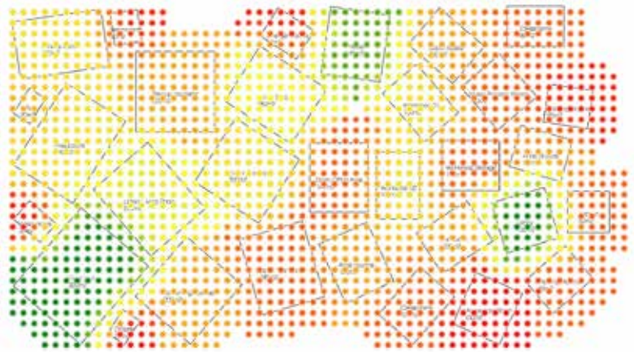

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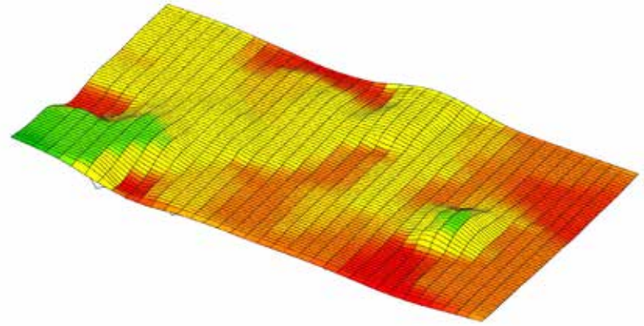
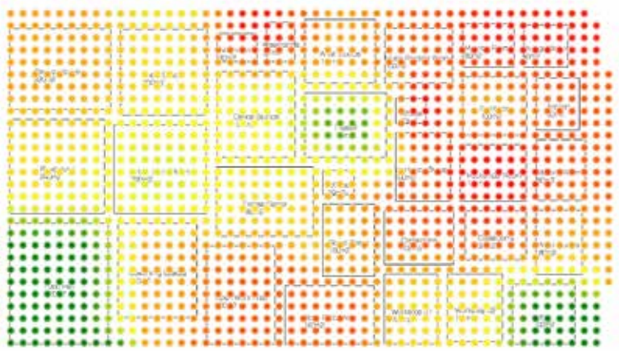
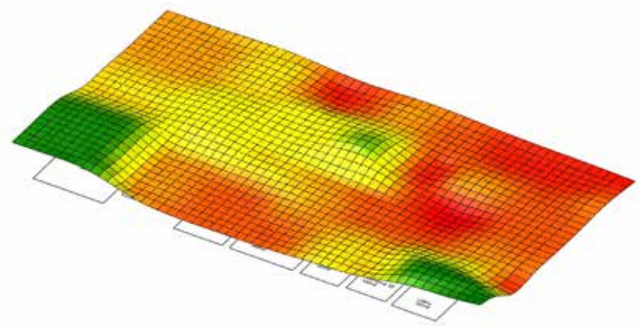


RECTANGULAR CONFIGURATION - R11A40B21 - SPACING 1.6



RECTANGULAR CONFIGURATION - R4A26B30 - SPACING 1.6



RECTANGULAR CONFIGURATION - R4A26B30 - SPACING 1.6

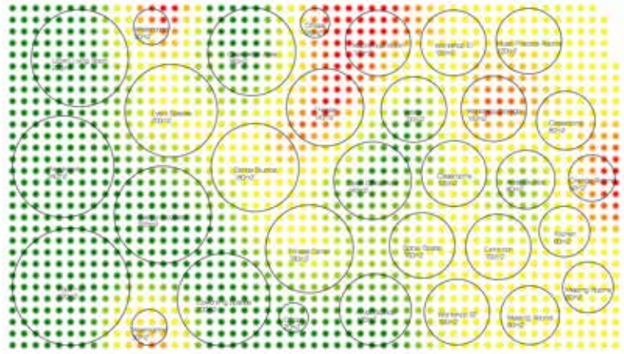
PROGRAM REQUIREMENTS
PROGRAM FUNCTIONS AND THEIR SPATIAL REQUIREMENTS

GENERATING HEIGHT FIELD BY PROGRAM
ASSIGNING WEIGHTS BY PROXIMITY TO PROGRAM

GENERATING GEOMETRY
HEIGHTMAP INTO GEOMETRY

POST PRODUCTION

Room Name	Area (m2)	Room Height (m)	Sunlight Requirement (1 to 3)	Openness (1 to 3)
Mechanical Room	100	3	1	1
Lobby	100	8	3	3
Washrooms	30	3.5	1	1
Washrooms	30	3.5	1	1
Social Space	100	4.5	2	2
Kitchen	60	4	2	2
Change Rooms	50	3.5	1	2
Event Spaces	200	5	2	2
Classrooms	100	4	2	2
Offices	20	4.5	3	2
Urban Living Room	220	6	3	3
Food Hall	320	8	3	3
Playground	240	5	3	3
Open Work Area	180	4	3	3
Workshop 01	100	5	2	2
Workshop 02	100	5	2	2
Workshop Storage	100	4	1	3
Artist Studios	80	4.5	3	2
Artist Studios	120	4.5	3	2
Exhibition	100	4.5	2	3
Offices	20	3	1	1
Theater	140	8	1	3
Dance Studios	180	5	2	3
Fitness Center	180	5	2	3
Music Practice Rooms	100	4	2	2
Meeting Rooms	80	4	2	1
Meeting Rooms	60	4	2	1
Startup Incubator	220	5	3	2
Coworking Spaces	200	4.5	3	2
Open Office Area	140	4.5	3	2
Classrooms	80	4	2	2



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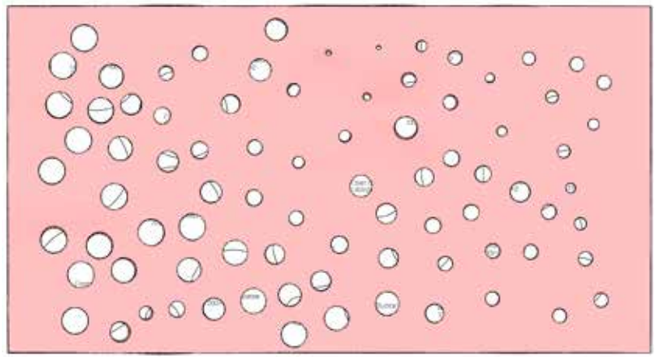

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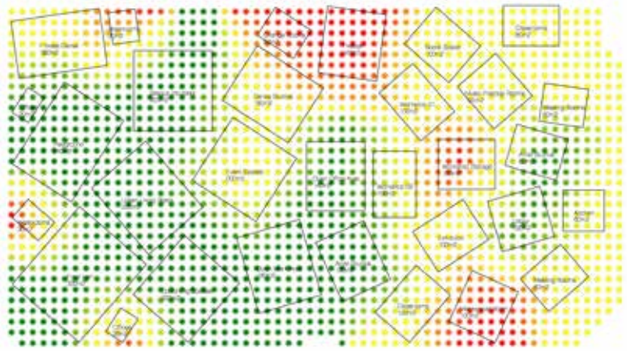

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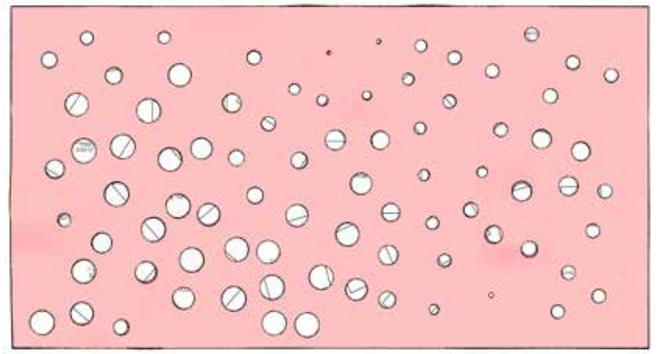

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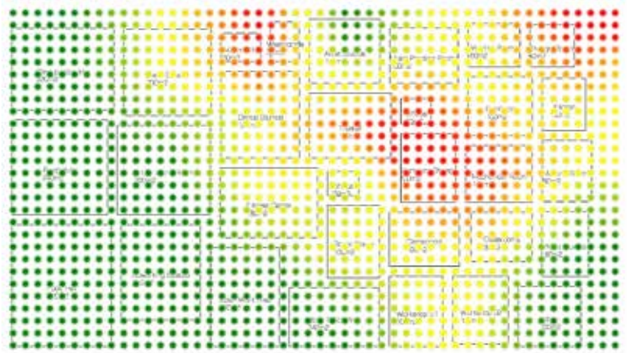

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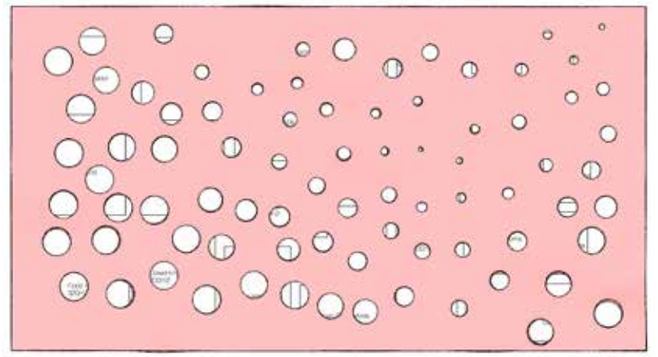


RECTANGULAR CONFIGURATION - R4A26B30 - SPACING 1.6

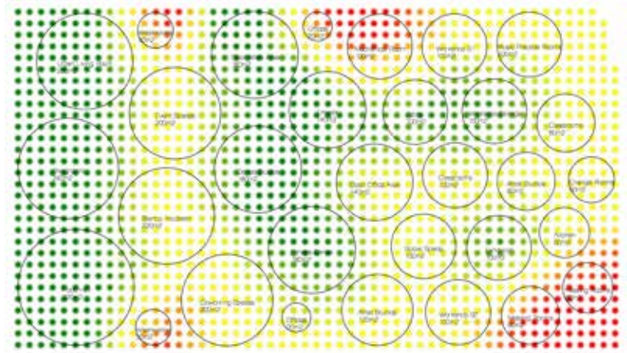
PROGRAM REQUIREMENTS
PROGRAM FUNCTIONS AND THEIR SPATIAL REQUIREMENTS

GENERATING LIGHT FIELD BY PROGRAM
ASSIGNING WEIGHTS BY PROXIMITY TO PROGRAM

GENERATING GEOMETRY
LIGHTMAP INTO GEOMETRY

POST PRODUCTION

Room Name	Area (m2)	Room Height (m)	Sunlight Requirement (1 to 3)	Openness (1 to 3)
Mechanical Room	100	3	1	1
Lobby	100	8	3	3
Washrooms	30	3.5	1	1
Washrooms	30	3.5	1	1
Social Space	100	4.5	2	2
Kitchen	60	4	2	2
Change Rooms	50	3.5	1	2
Event Spaces	200	5	2	2
Classrooms	100	4	2	2
Offices	20	4.5	3	2
Urban Living Room	220	6	3	3
Food Hall	320	8	3	3
Playground	240	5	3	3
Open Work Area	180	4	3	3
Workshop 01	100	5	2	2
Workshop 02	100	5	2	2
Workshop Storage	100	4	1	3
Artist Studios	80	4.5	3	2
Artist Studios	120	4.5	3	2
Exhibition	100	4.5	2	3
Offices	20	3	1	1
Theater	140	8	1	3
Dance Studios	180	5	2	3
Fitness Center	180	5	2	3
Music Practice Rooms	100	4	2	2
Meeting Rooms	80	4	2	1
Meeting Rooms	60	4	2	1
Startup Incubator	220	5	3	2
Coworking Spaces	200	4.5	3	2
Open Office Area	140	4.5	3	2
Classrooms	80	4	2	2



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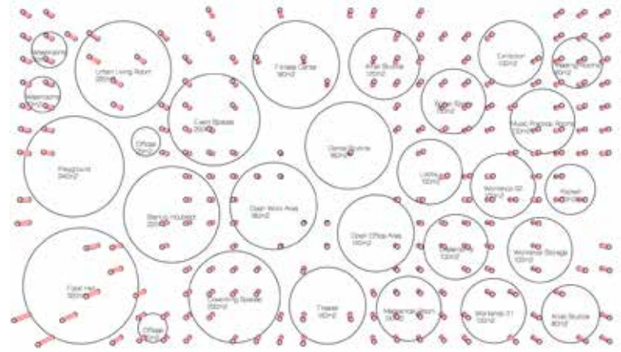

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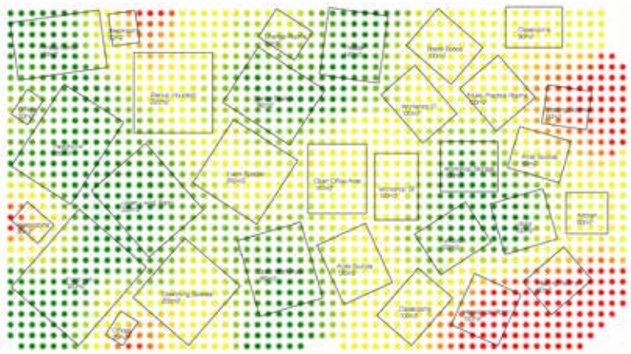

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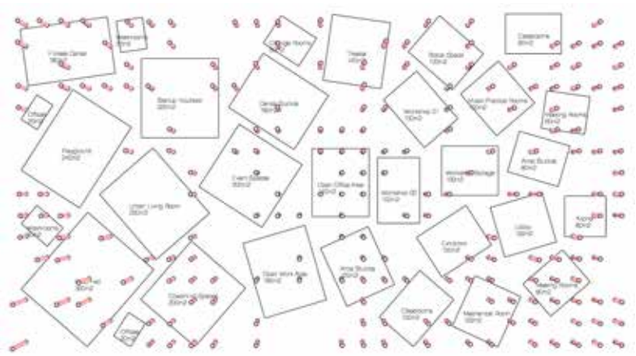

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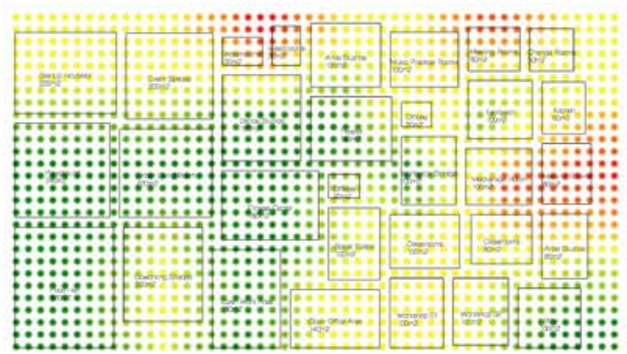

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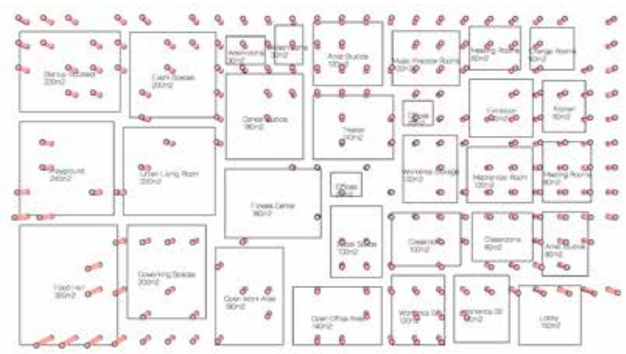


RECTANGULAR CONFIGURATION - R4A26B30 - SPACING 1.6

PROGRAM REQUIREMENTS
PROGRAM FUNCTIONS AND THEIR SPATIAL REQUIREMENTS

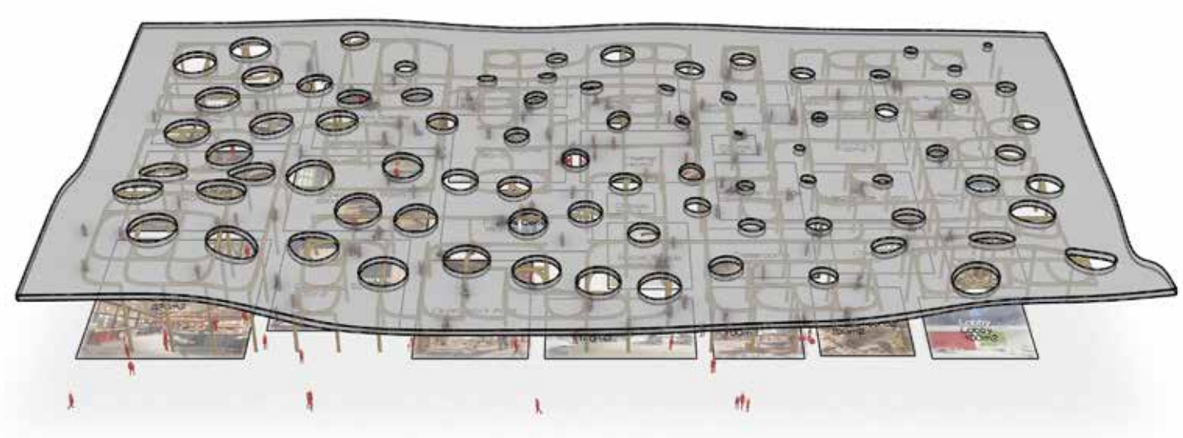
GENERATING DENSITY FIELD BY PROGRAM
ASSIGNING WEIGHTS BY PROXIMITY TO PROGRAM

GENERATING GEOMETRY
DENSITY MAP INTO GEOMETRY

POST PRODUCTION

CIRCULAR CONFIGURATION - R11A40B21 - SPACING 1.6

RECTANGULAR CONFIGURATION - R11A40B21 - SPACING 1.6

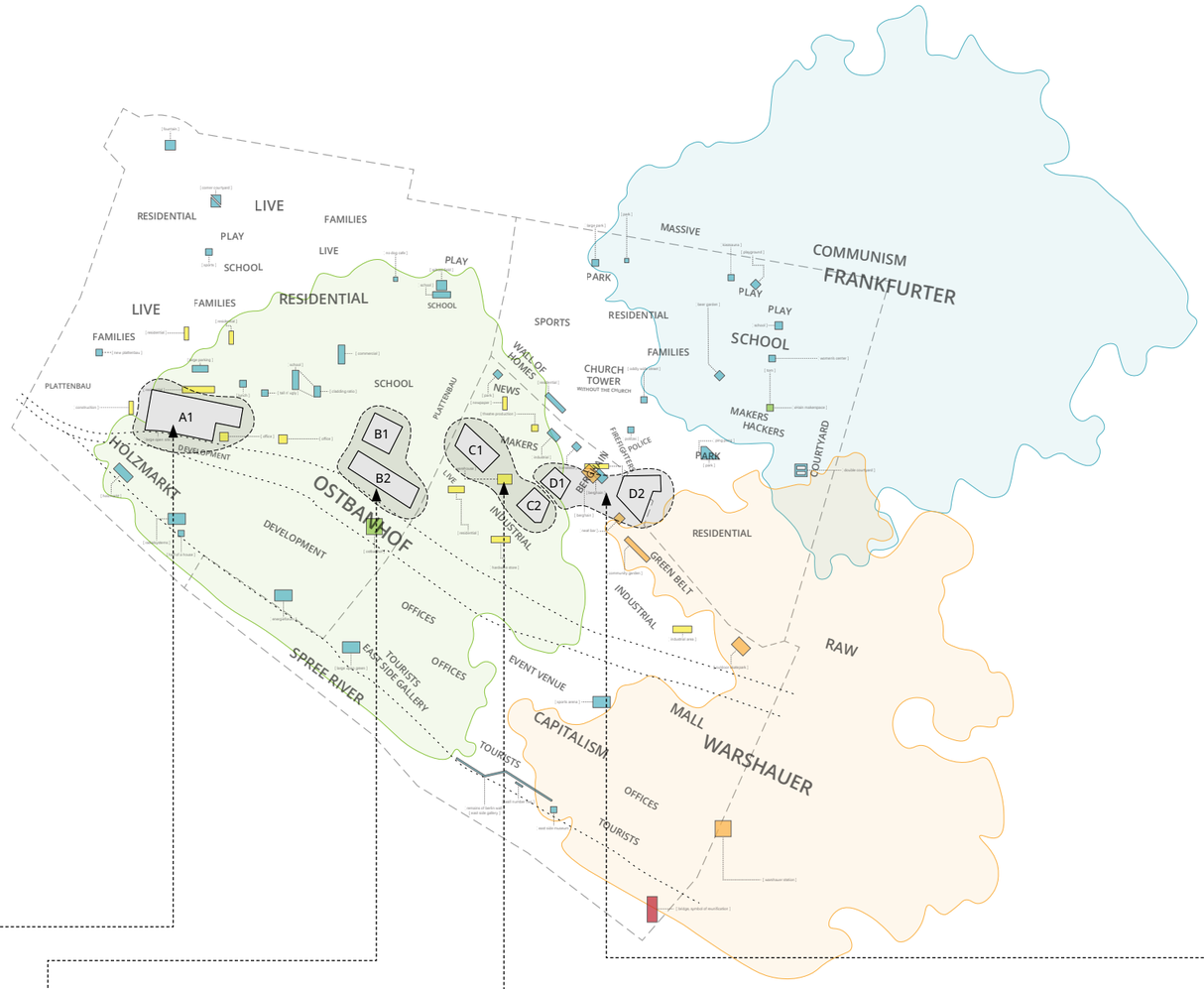


RECTANGULAR CONFIGURATION - R4A26B30 - SPACING 1.6

SITE SELECTION

WRIEZNER KARREE

SITE CONDITIONS MATRIX



A - MVRDV PLOT

A - MVRDV Plot

- Site area of 18000m².
- One of the very few large open plots within the assigned neighborhoods.
- The series of old foundations left on the site from old buildings is interesting and could prove a very interesting design driver. Acquiring detailed information about them seems difficult.
- Historical context of the area being destroyed following the war would have to be addressed.
- Intermittent noise from the adjacent train line would be a consistent concern.
- Potential to use the archway spaces beneath the railway.
- Site almost seems to large for the building we are asked to design.
- Primarily residential neighborhood
- Adjacent buildings between 25-50m.
- Construction underway on the plot to the west.
- Location lends itself to a 'social' and 'wellness' focused prototype.

B - OSTBANHOF PLAZA

B1 - Food Truck Parking

- Site area of 6000m².
- Varied context of relatively tall buildings.
- Currently this area of the neighborhood feels quite dead and borderline unpleasant.
- Seems to be occasionally used for events and has a number of food trucks indicating a need for food in the area.
- Parking could be included with plans to phase it out, tying into loose-fit.
- Extremely close to Ostbanhof station, making the site more accessible to those outside the immediate neighborhood.
- Primarily residential context.
- Location lends itself to a 'social' and 'wellness' focused prototype.

B2 - Ostbanhof Plaza

- Site area of 10000m².
- Three surviving buildings with commercial on the lower floor and residential on the upper floor.
- Getting information on these buildings to integrate will likely be challenging.
- A long site with green space on either end (east and west) providing opportunities to integrate these with the building program.
- Directly adjacent to Ostbanhof station.
- A cluster of smaller interventions seems more appealing here than a single building.
- Parking could be included with plans to phase it out, tying into loose-fit.
- Location lends itself to a 'social' and 'work' focused prototype.

C - RUNDOWN INDUSTRIAL

C1 - Refugee Hotel

- Site area of 18000m².
- Plot has two existing buildings on it. One a former hotel which is being appropriated as housing for refugees at the present moment, and a one story warehouse building.
- Residential building from the same era as the complex to its south which was renovated in 2008.
- Strategies for keeping these buildings could prove challenging due to a lack of usable information about their structure or layout.
- Context is a mix of residential, commercial, and industrial.
- Location is central to all three neighborhoods and easily accessible from Ostbanhof.
- Private theater production company to the north could form part of a creative complex for the city.
- Location lends itself to a 'social' and 'maker' focused prototype.

C2 - Industrial Island

- Site area of 18000m².
- Context is primarily industrial and commercial meaning noise is less of a constraint at this location.
- Location is central to all three neighborhoods and accessible from Ostbanhof.
- Private theater production company to the north could form part of a creative complex for the city.
- Location lends itself to a 'maker' focused prototype.

D - END OF PARK

D1 - Berghain South

- Site area of 18000m².
- Empty plot directly south of the Berghain building.
- Currently the site is occupied by a number of homeless people, and has been for a number of years.
- Context is primarily industrial and commercial meaning noise is less of a constraint at this location.
- Private theater production company to the west could form part of a creative complex for the city.
- Proximity to the green belt to the east provides opportunities to integrate into the park.
- With Berghain closing down the question of what happens to the larger site as a whole becomes something which may need to be addressed.
- Location lends itself to a 'social' and 'maker' focused prototype.

D2- Aldi Grocery Store

- Site area of 18000m².
- Site contains a one story grocery store and parking spot.
- Over 10min walk from the nearest train station, slightly more accessible by tram.
- Immediate context includes Berghain, a police station, a fire station, the primary commercial street in the area, and the long green strip to the southwest.
- Mix of residential, commercial, and industrial.
- Has a number of neighboring buildings with atypical / non-vernacular forms for the area.
- Location lends itself to a 'social' and 'wellness' focused prototype.

LARGE SITE
SOUTH ANDREASVIERTEL

Initially I was quite attacted to the large open site in the south of Andreasviertel. It's large open nature is suitable for a variety of uses and offers the potential to phase the project or integrate other buildings at an urban planning scale. The ruins on the site pose an interesting design problem, and the arched recesses below the train station a unique opportunity.

However, I feel the size of the site is at odds with the size of the program. Such a large site (1800m²) is better suited to a project with a larger footprint. Furthermore, early studies into sites and programs lead me to feel this site is better suited to series of uses which do not align with my interests from the studio.

	FLEX A2	PROGRAM	A2	
REQUIRE	-	Entrance / Lobby	200m²	1300m2
	-	Services	250m²	
	-	Utility	400m²	
	-	Circulation	450m²	
CREATE	-	Makerspace Workshop	300m²	650m2
	-	Artist Studios	200m²	
	50m²	Exhibition	50m²	
	-	Storage	75m²	
	-	Offices	25m²	
THINK	125m²	Coworking Space	250m²	950m2
	175m²	Startup Incubator	350m²	
	75m²	Classroom	150m²	
	100m²	Atrium	100m²	
	100m²	Event Space	100m²	
COMMUNE	-	Food / Beer Hall	300m² + Ext.	700m2
	-	Urban Farm	Ext.	
	-	Community Kitchen	75m²	
	100m²	Urban Living Room	200m²	
	125m²	Event Spaces	125m²	
WELLNESS	-	Fitness Centre	200m²	1000m2
	-	Sports Area	Ext.	
	-	Sauna & Spa	150m²	
	-	Small Pool	550m²	
	-	Changing Rooms	50m²	
	-	Showers	50m²	
EXTERIOR	-	Sports Fields	1000m²	2400m2
	-	Changing Rooms	50m²	
	-	Showers	50m²	
	-	Urban Farm	1000m²	
	-	Parking	300m²	

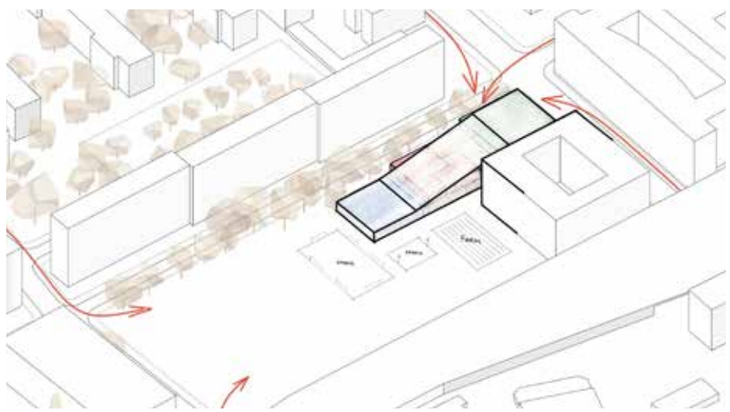
Total Flex: 850m² **Total Interior: 4600m²**

CONSTRUCTION TO THE WEST

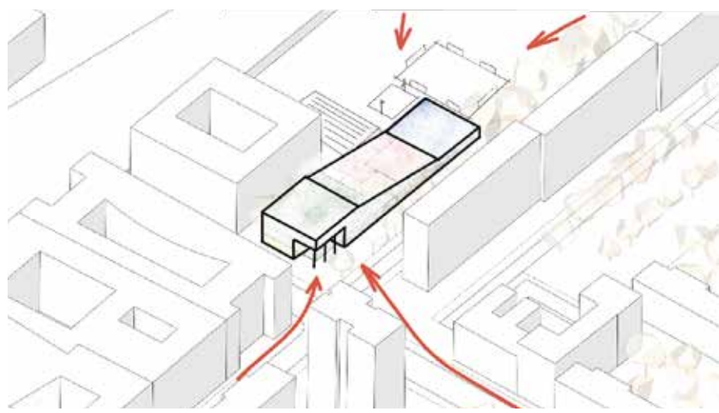
OFFICE BUILDING AND RUINS

RAILWAY TO THE SOUTH

SITE PLAN & SHADOW STUDY



SOUTHWEST AXO SKETCH



NORTHEAST AXO SKETCH

LINEAR PARK
SOUTHERN WEBERWIESE

Situated at the foot or Berghain and the end of the elongated green space, the two highlighted sites are located in a more diverse area. They have the opportunity to make use of the park space to extend or augment the range and quality of services offered, possibly through a series of smaller interventions scattered throughout the park.
There are some notable differences between the two sites. To the south of Berghain, the smallest of the considered plots is currently inhabited by homeless people, and has been for a number of years now. Its location would offer more synergy with the theater production complex, Berghain, and the soon to be developed housing block to it's immediate south. The grocery store plot carries a lot of potential not maximized by the current usage, but ultimately with the similarly programmed RAW nearby and the relocation of the grocery store this site is among the less attractive of the ones studied.

	FLEX A2	PROGRAM	A2	
REQUIRE	-	Entrance / Lobby	200m²	1300m2
	-	Services	250m²	
	-	Utility	400m²	
	-	Circulation	450m²	
CREATE	-	Makerspace Shop	400m²	1000m2
	-	Artist in Residence	100m²	
	50m²	Artist Studios	200m²	
	50m²	Graffiti Space	50m²	
	100m²	Exhibition	100m²	
	-	Storage	100m²	
	-	Offices	50m²	
THINK	100m²	Coworking Space	200m²	800m2
	150m²	Startup Incubator	300m²	
	50m²	Classroom	100m²	
	100m²	Atrium	100m²	
	100m²	Event Space	100m²	
COMMUNE	-	Food / Beer Hall	300m² + Ext.	850m2
	-	Urban Farm	Ext.	
	-	Teaching Kitchen	50m²	
	-	Community Kitchen	50m²	
	150m²	Urban Living Room	150m²	
	100m²	Event Space	100m²	
WELLNESS	-	Fitness Centre	200m²	650m2
	-	Sports Rooms	250m²	
	50m²	Changing Rooms	50m²	
	150m²	Rock Climbing Area	150m²	
EXTERIOR	-	Exisiting Urban Farm +	1000m²	1700m2
	-	Outdoor Market	200m²	
	-	Parking	300m²	
	-	Informal Skatepark	200m²	

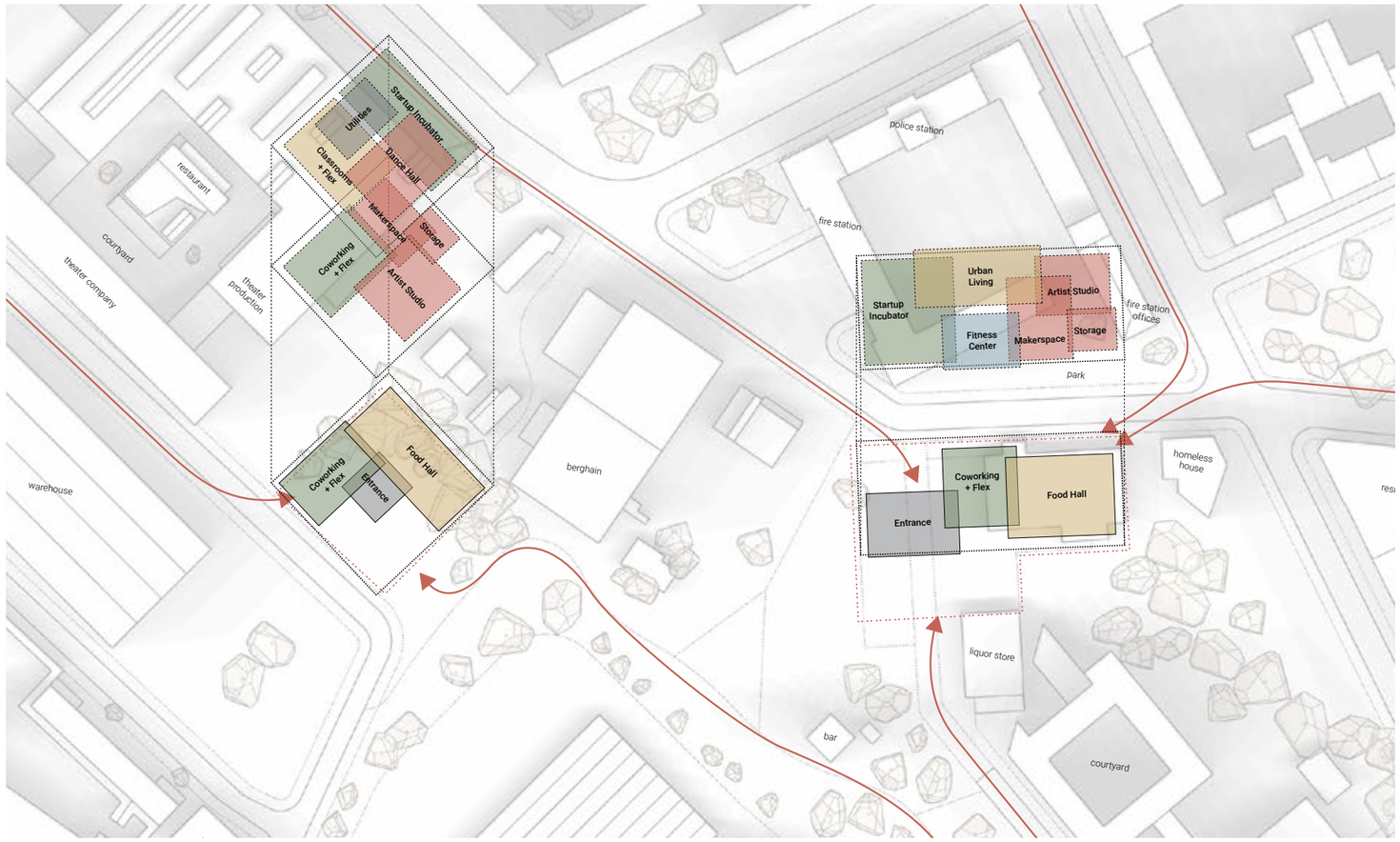
Total Flex: 1100m² **Total Interior: 4600m²**

ENTRANCE TO BERGHAIN

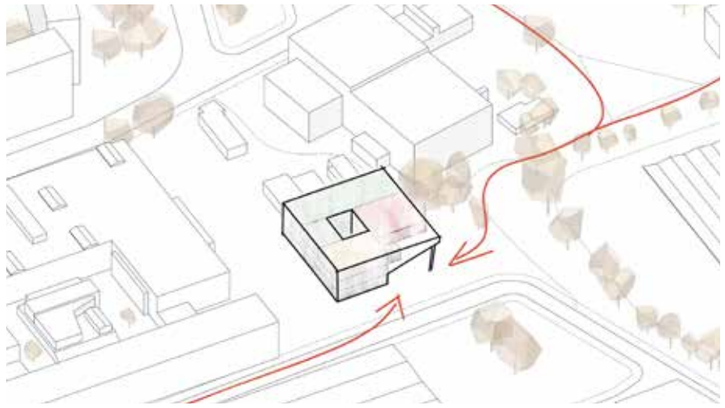
NEIGHBORING BAR

COMMUNITY GARDEN

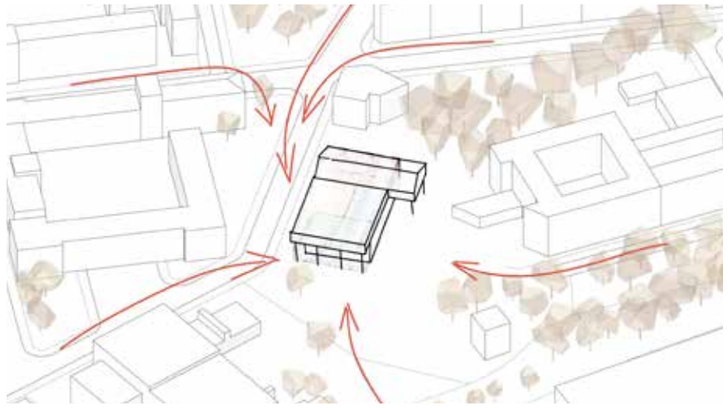
NEARBY GRAFFITI



SITE PLAN & SHADOW STUDY



BERGHAIN SOUTH AXO SKETCH



GROCERY SITE AXO SKETCH

INDUSTRIAL SITE

INTERSECTION OF THREE NEIGHBORHOODS

The abandoned island in the industrial section of Friedrichshain interested me the most during the excursion, and I feel still is the most suitable site for the design project. Looking at ways to incorporate the existing building on the westernmost plot in either whole or part is something I would find interesting. Not least because it fits with the theme of 'overwriting' that my project is dealing with so far. Given the warehouse building in the center seems to be unused it too could become a possible site for intervention, or an area for the building to expand into.

A stumbling block for reuse of any of these spaces will be getting drawings that can be used as reference when proposing reuse scenarios. Two options present themselves in finding the architects who did the renovations on the housing units directly south, or those doing the development on the block itself (GRAFT).

	FLEX A2	PROGRAM	A2	
REQUIRE	-	Entrance / Lobby	200m²	1300m2
	-	Services	250m²	
	-	Utility	400m²	
	-	Circulation	450m²	
CREATE	-	Makerspace Shop	400m²	1200m2
	-	Artist in Residence	250m²	
	50m²	Artist Studios	200m²	
	-	Teaching Studios	50m²	
	25m²	Graffiti Space	25m²	
	100m²	Exhibition	100m²	
	-	Storage	150m²	
	-	Offices	25m²	
THINK	100m²	Coworking Space	200m²	800m2
	150m²	Startup Incubator	300m²	
	50m²	Classroom	125m²	
	100m²	Atrium	100m²	
	75m²	Event Space	75m²	
COMMUNE	-	Food / Beer Hall	375m² + Ext.	950m2
	-	Urban Farm	Ext.	
	-	Teaching Kitchen	50m²	
	-	Community Kitchen	75m²	
	150m²	Urban Living Room	300m²	
	75m²	Event Space	150m²	
WELLNESS	-	Fitness Centre	200m²	400m2
	-	Changing Rooms	50m²	
	50m²	Rock Climbing Area	150m²	
EXTERIOR	-	Rooftop Urban Farm	1000m²	1700m2
	-	Outdoor Market	200m²	
	-	Parking	300m²	
	-	Skatepark	200m²	

Total Flex: 925m² **Total Interior: 4650m²**

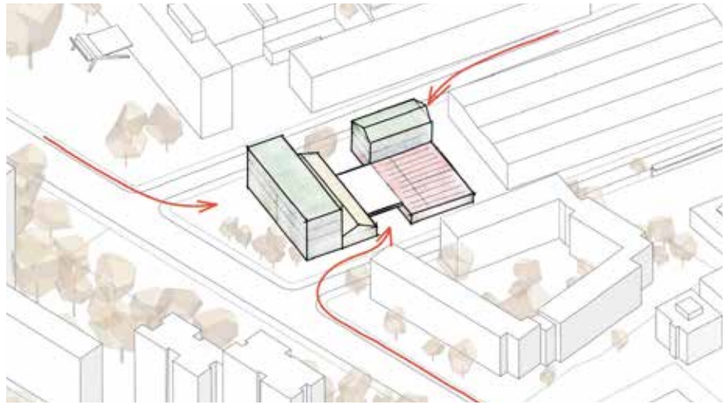
WAREHOUSE STAIRS

INDUSTRIAL BUILDINGS

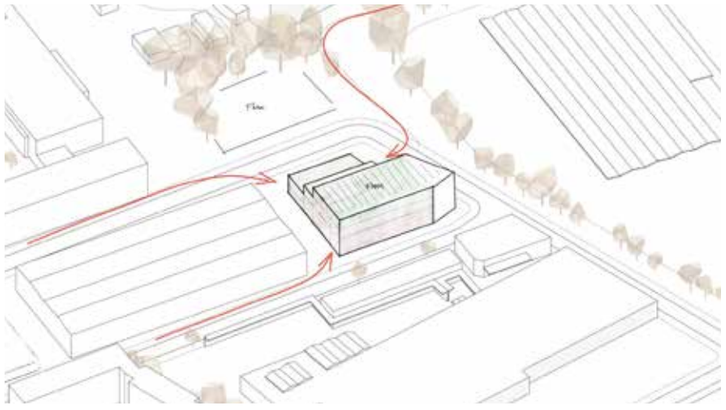
FILLED IN WINDOW

TWO DERELICT BUILDINGS

SITE PLAN & SHADOW STUDY



REFUGEE HOTEL AXO SKETCH

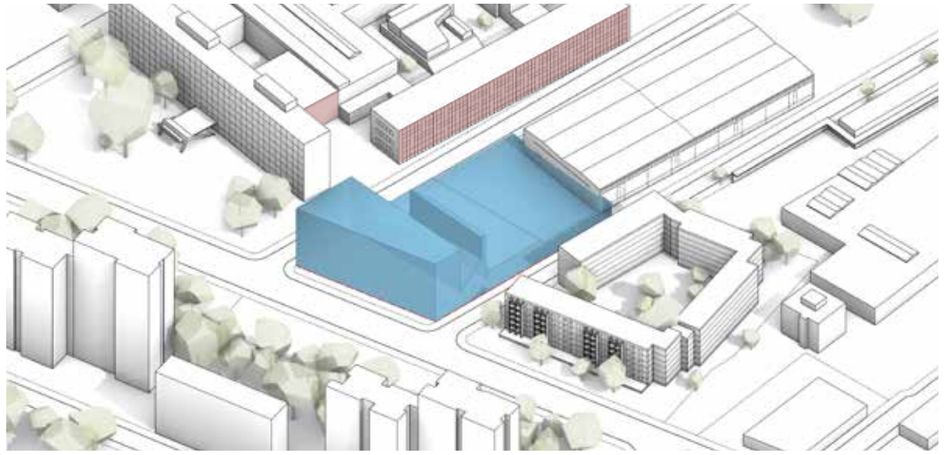


INDUSTRIAL AXO SKETCH

SOLAR ENVELOPE

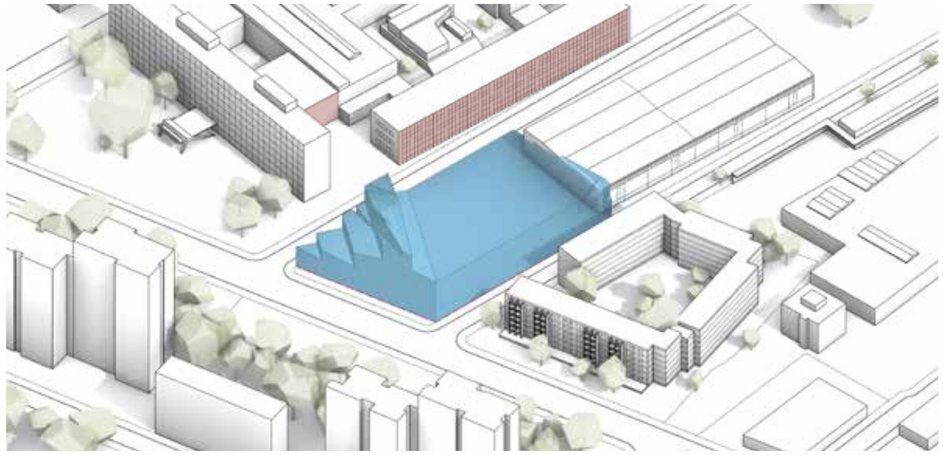
TEN HOUR STUDY

DECEMBER



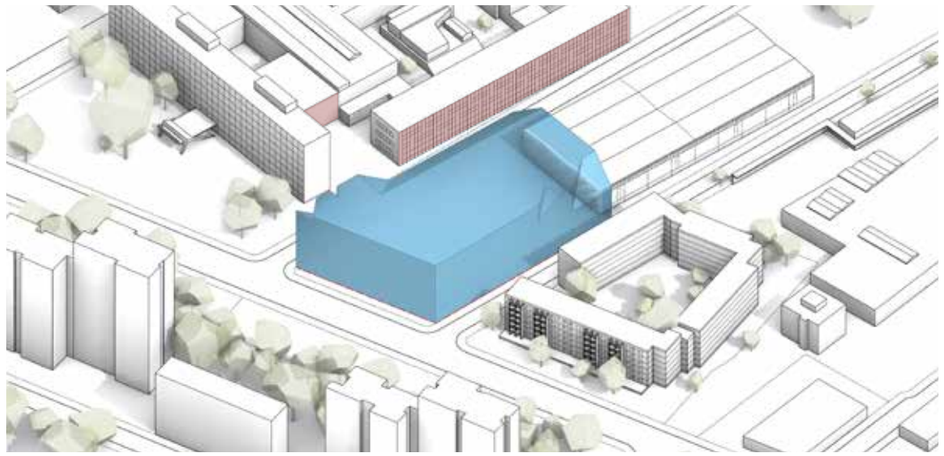
December 20th, 8h to 18h

MARCH



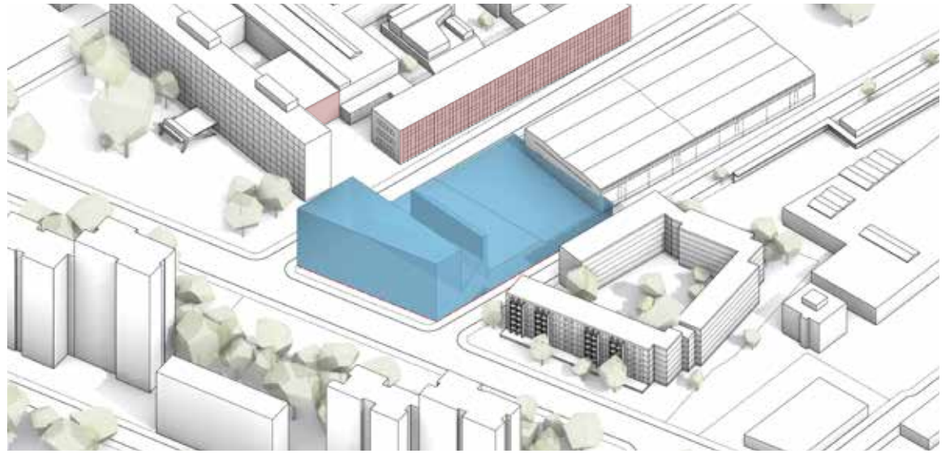
March 20th, 8h to 18h

JUNE

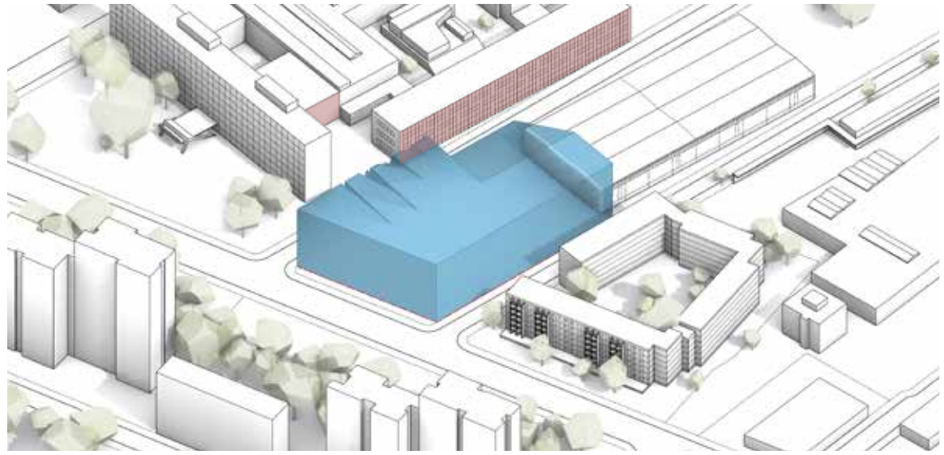


June 20th, 8h to 18h

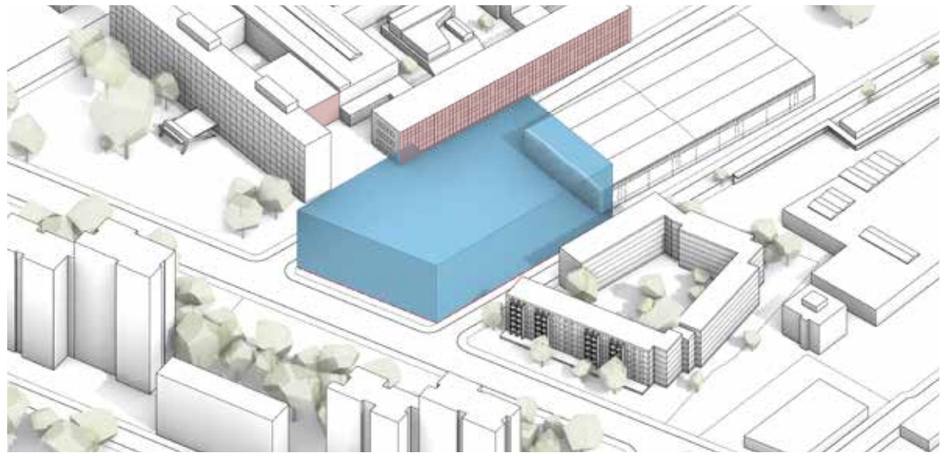
SIX HOUR STUDY



December 20th, 10h to 16h



March 20th, 10h to 16h



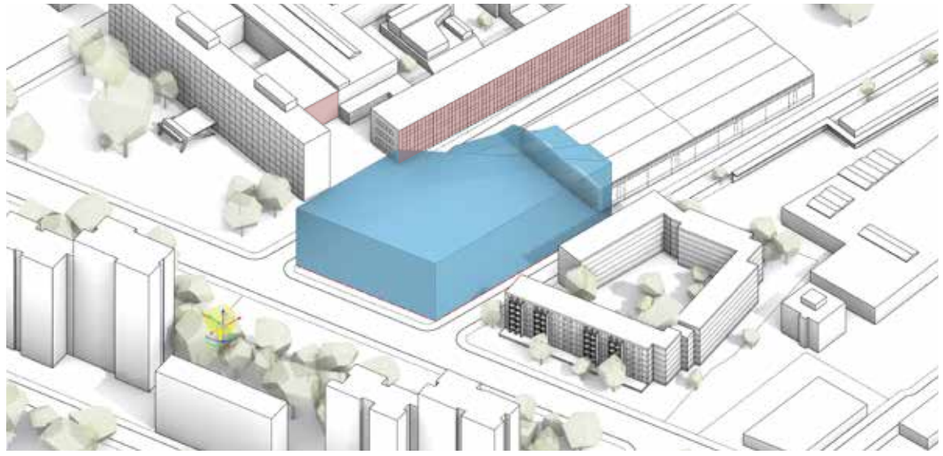
June 20th, 10h to 16h

SOLAR ENVELOPE

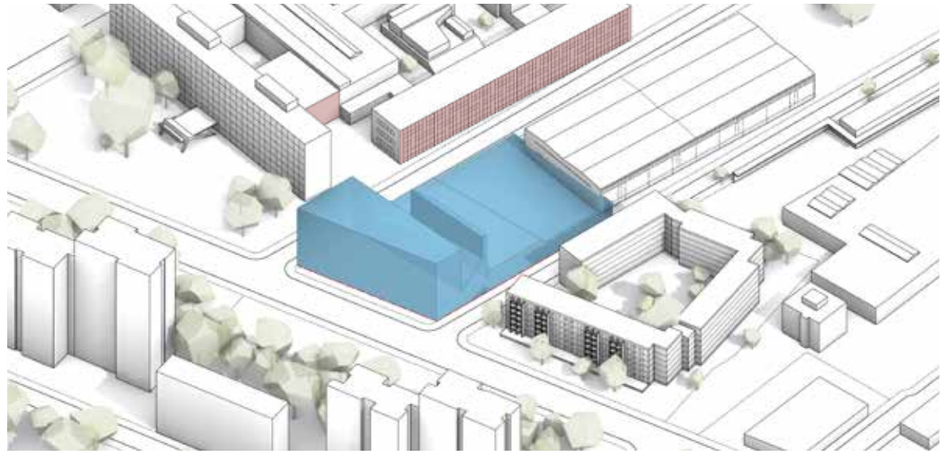
MORNING

AFTERNOON

DECEMBER

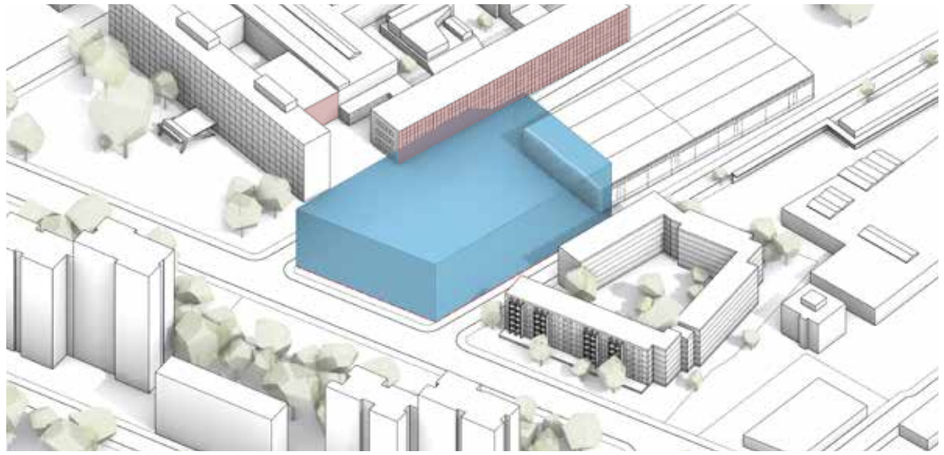


December 20th, 10h to 13h

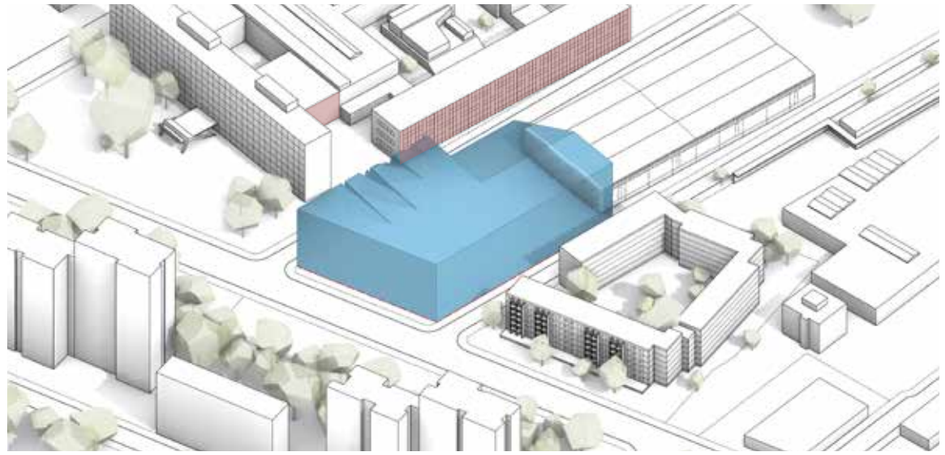


December 20th, 13h to 16h

MARCH



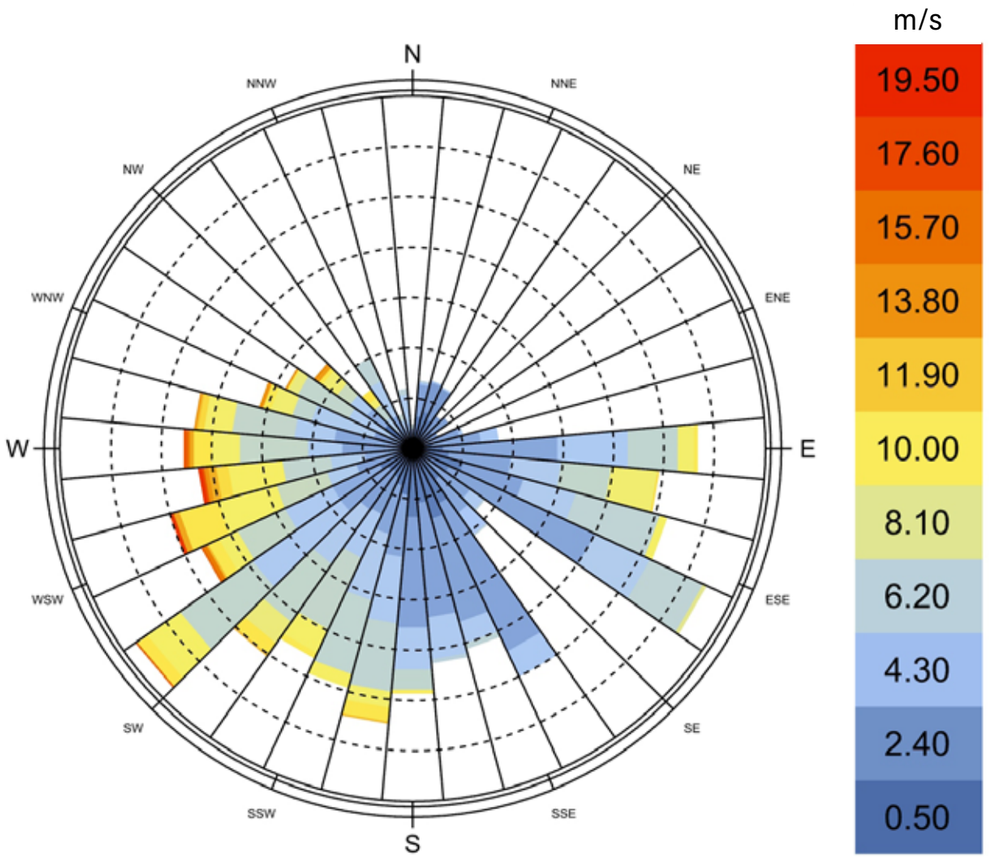
March 20th, 10h to 13h



March 20th, 13h to 16h

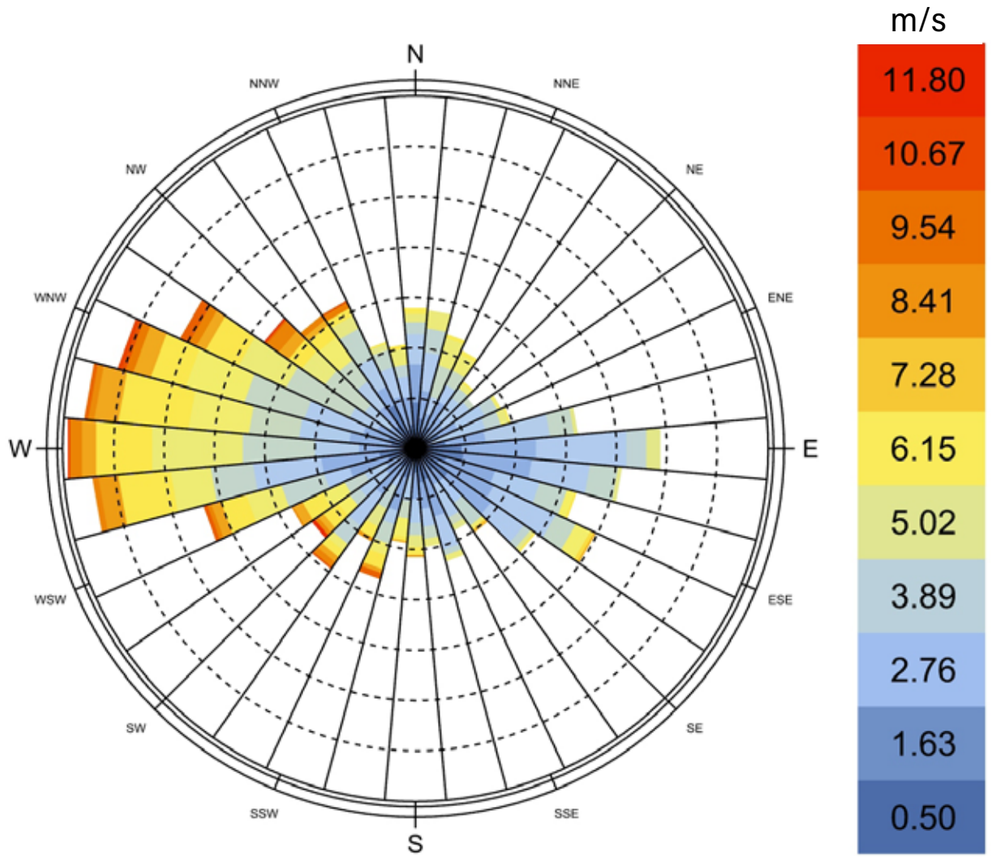
SEASONAL WINDS

WINTER WINDS [OCTOBER TO FEBRUARY]



Wind Speed (m/s)
Source: IWEC Data
City: BERLIN
Time-zone: 1.0
Country: DEU
Period: 10/16 to 2/16 between 0 and 23 @1
Calm for 1.41% of the time = 42 hours.
Each closed polyline shows frequency of 0.9% = 25 hours.

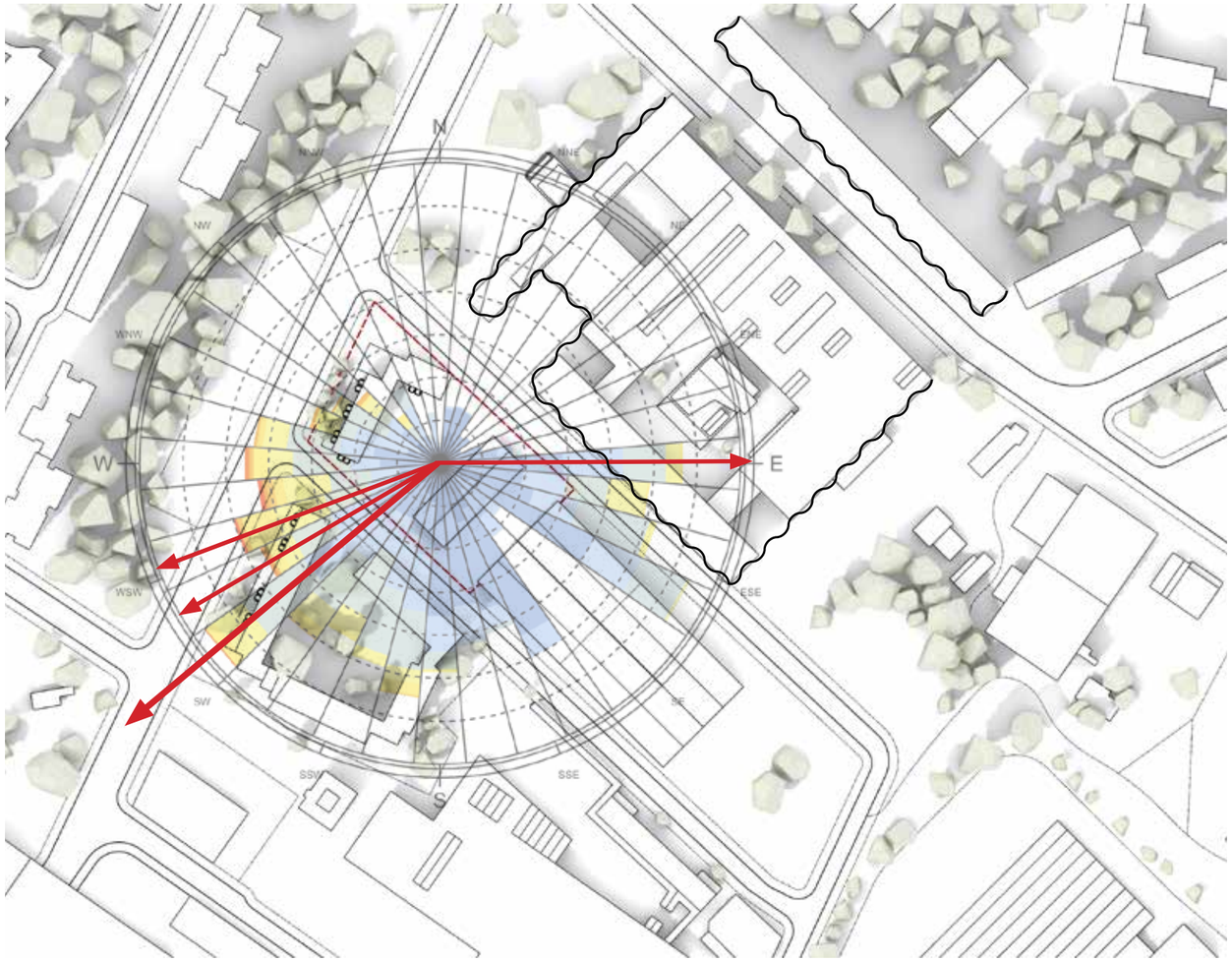
SUMMER WINDS [APRIL TO AUGUST]



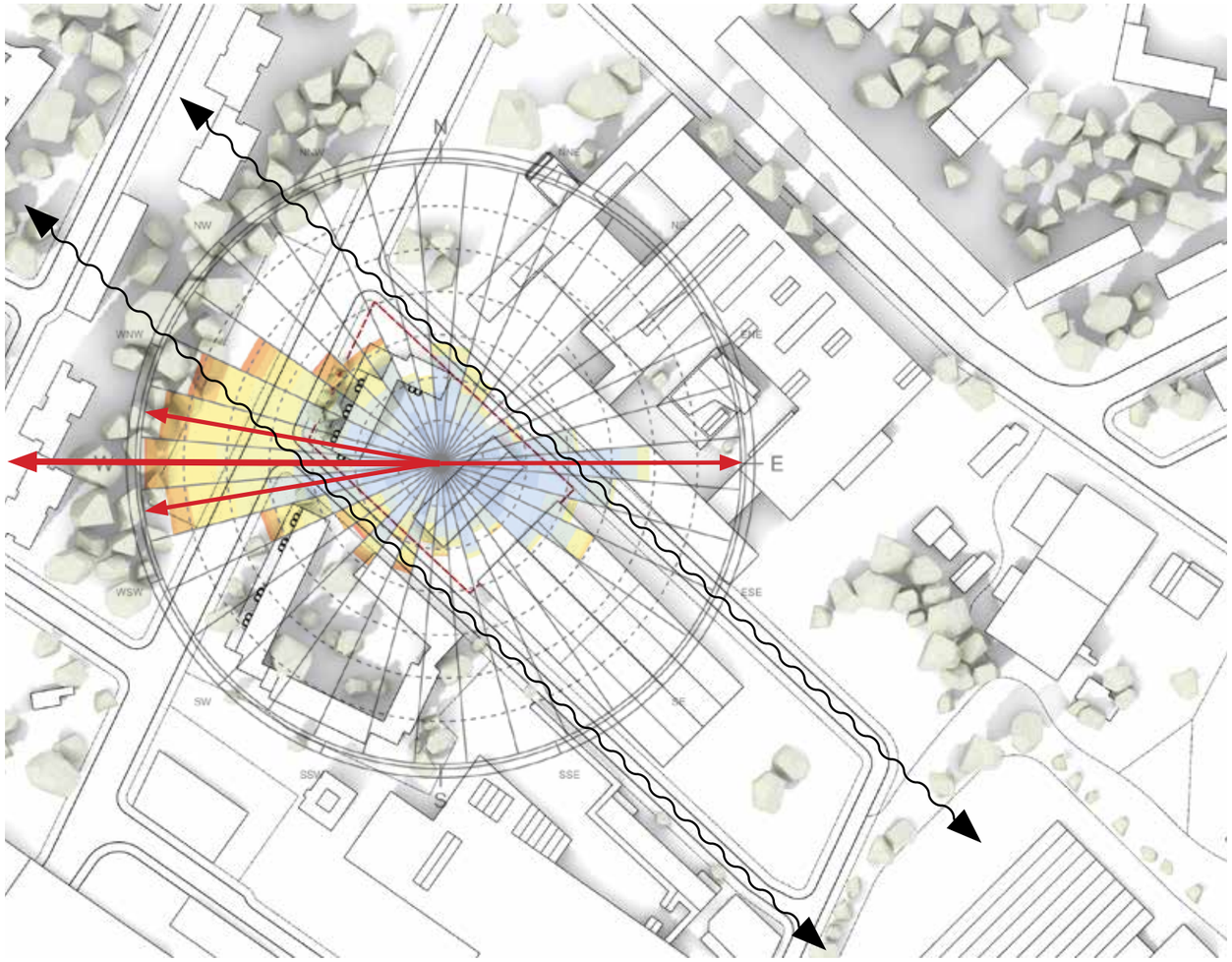
Wind Speed (m/s)
Source: IWEC Data
City: BERLIN
Time-zone: 1.0
Country: DEU
Period: 4/16 to 8/16 between 0 and 23 @1
Calm for 3.01% of the time = 89 hours.
Each closed polyline shows frequency of 0.9% = 25 hours.

SEASONAL WINDS

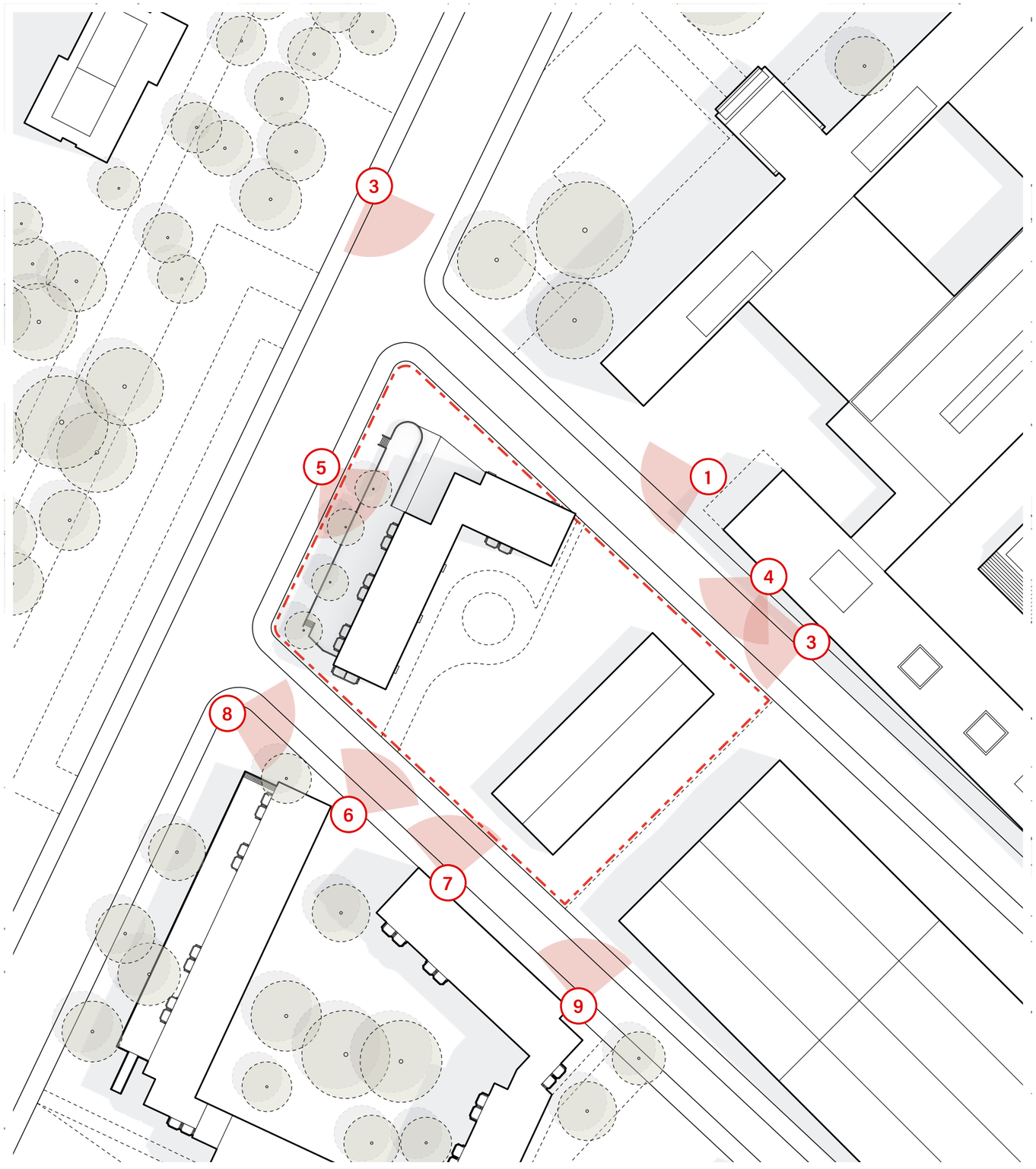
WINTER WINDS [OCTOBER TO FEBRUARY]

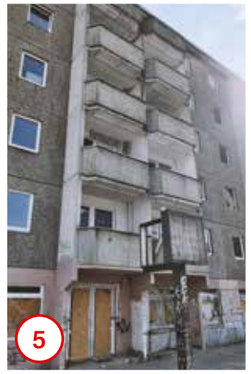


SUMMER WINDS [APRIL TO AUGUST]

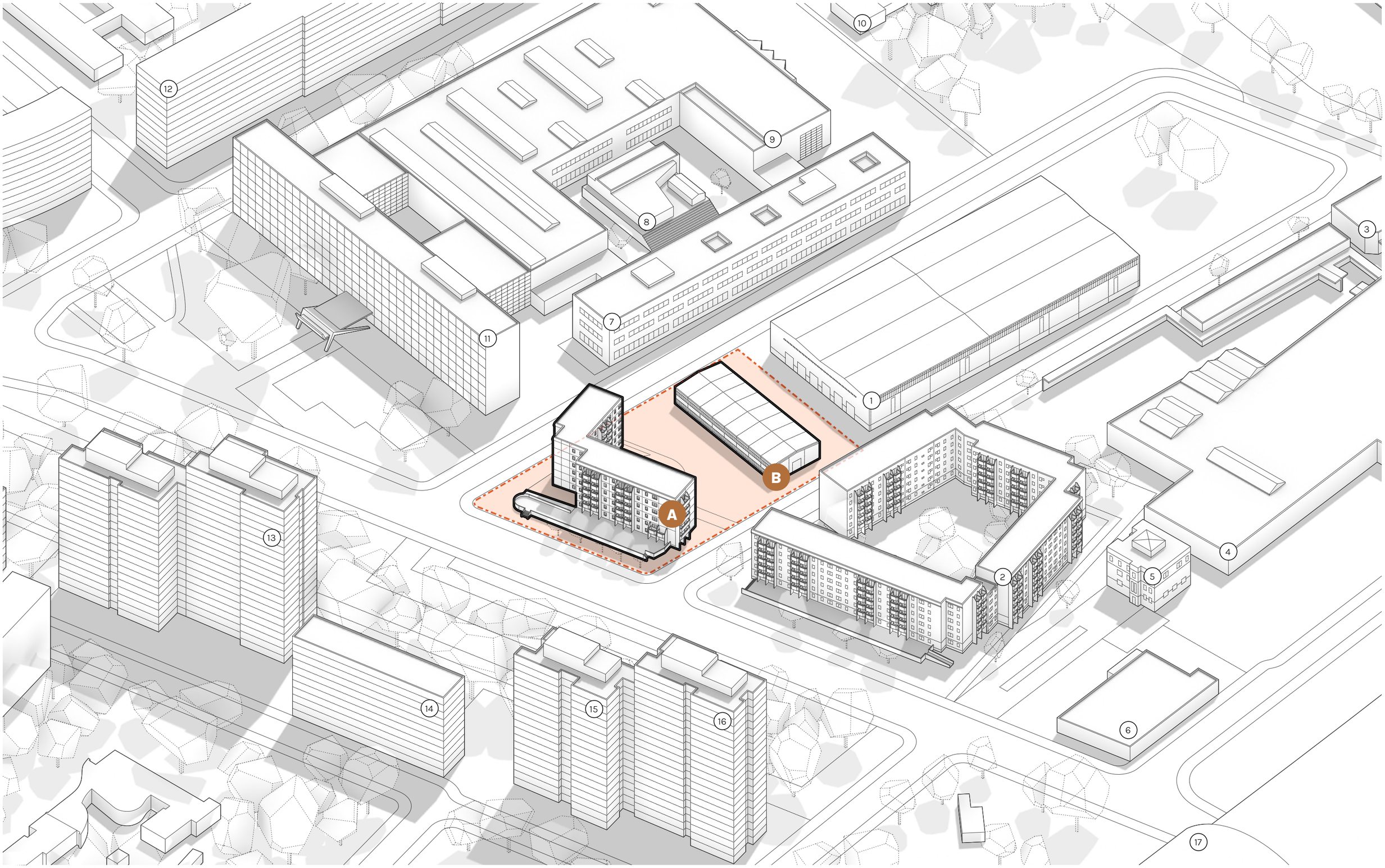


PHOTOGRAPHIC SURVEY OF THE SITE





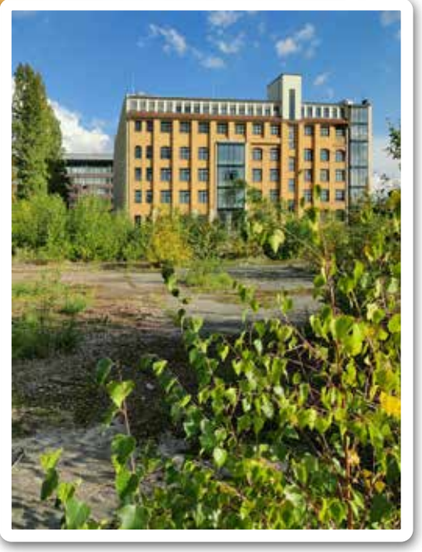
EXISTING SITE AXONOMETRIC



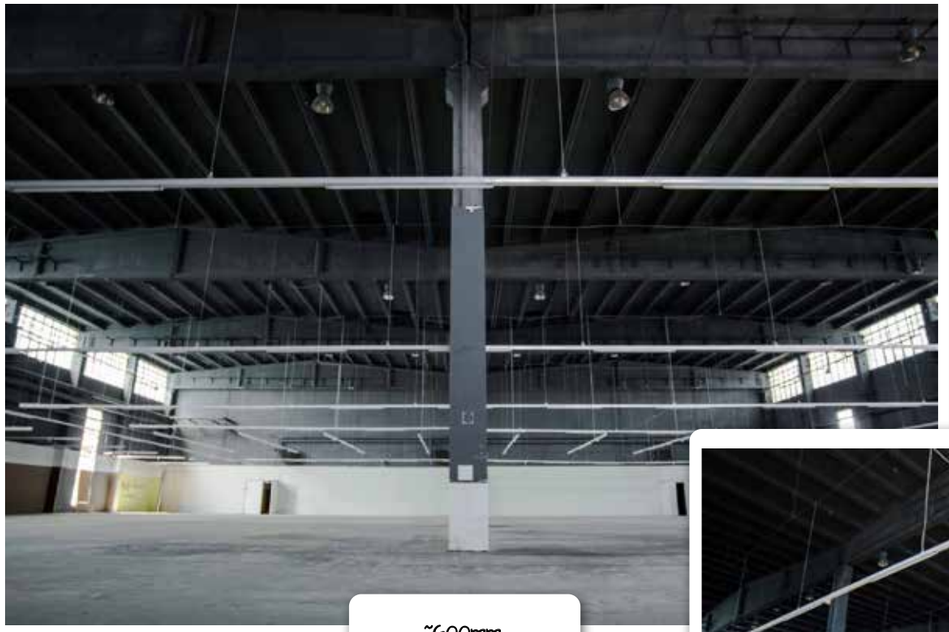
1 Event Center (18m), **2** Residential Building (20m), **3** Commercial Building (6m), **4** Hardware Store (9m), **5** Former Railway Station (16m), **6** Light Industrial (6m), **7** Theater Production Offices (16m), **8** Cafeteria (14m), **9** Theater Production (14m) **10** Berghain Exterior, **11** Neues Deutschland (31m), **12** Residential (33m), **13** Residential (62m), **14** Residential (30m), **15** Residential (54m), **16** Residential (62m), **17** Ostbanhof Station (26m)

A Plattenbau Residential (19m),
B Light Industrial (8m)

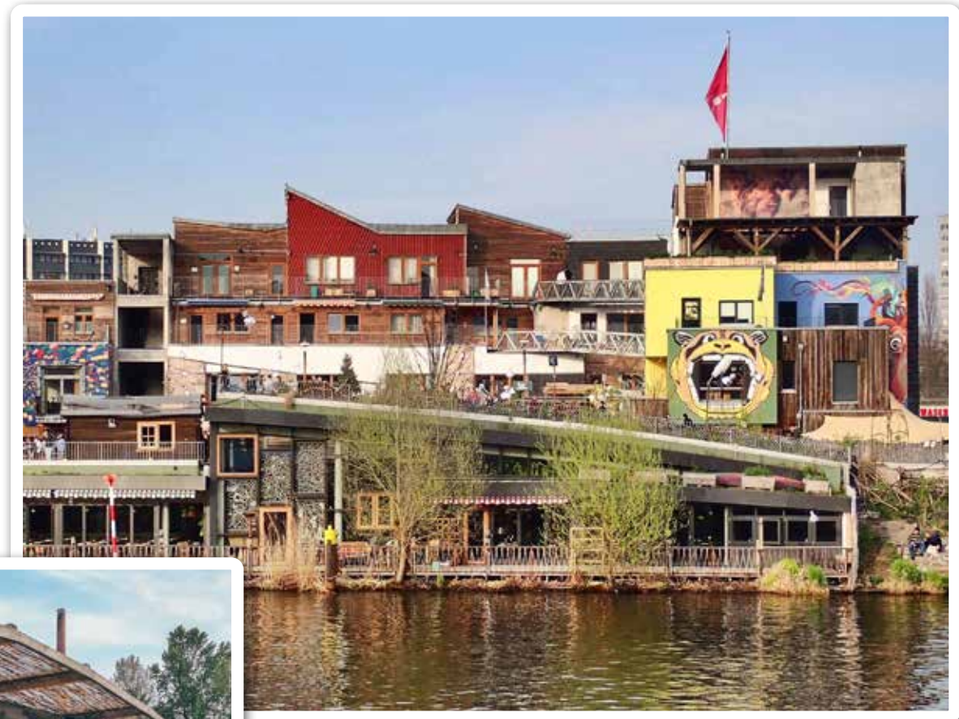
SITE VISIT PHOTOS



EXISTING CONDITIONS
LARGE WAREHOUSE

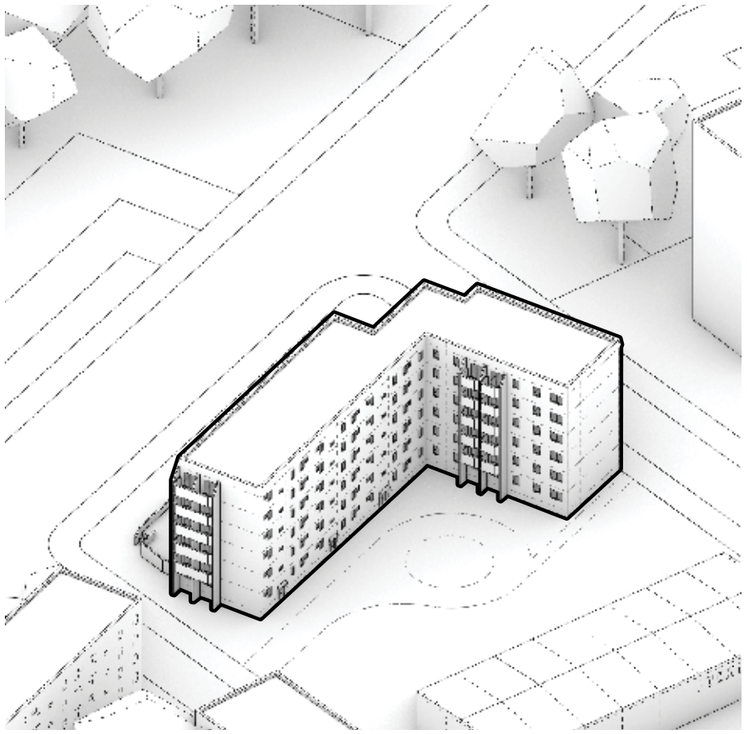


HOLZMARKT 25
POINT OF INTEREST

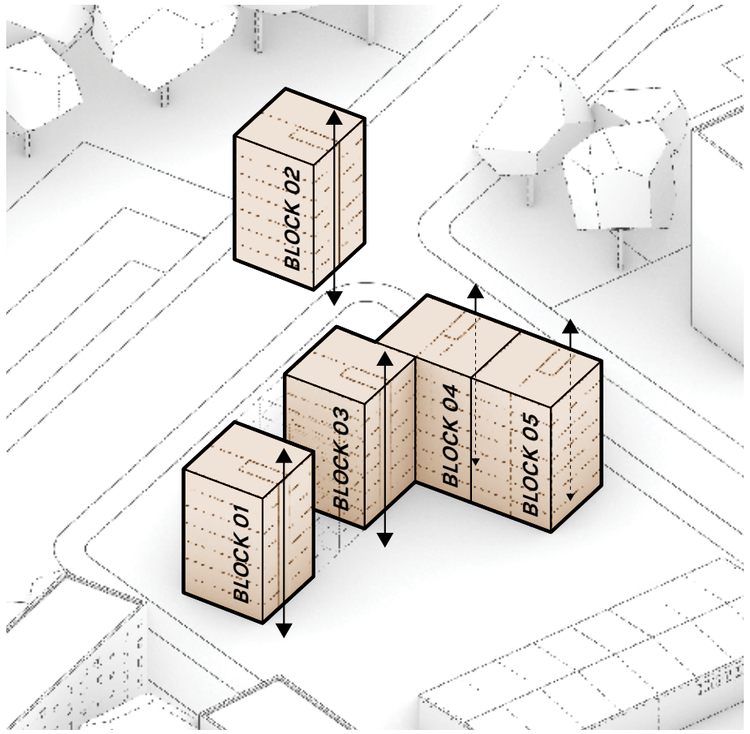


EXISTING BUILDING ANALYSIS
PLATTENBAU AND WAREHOUSE

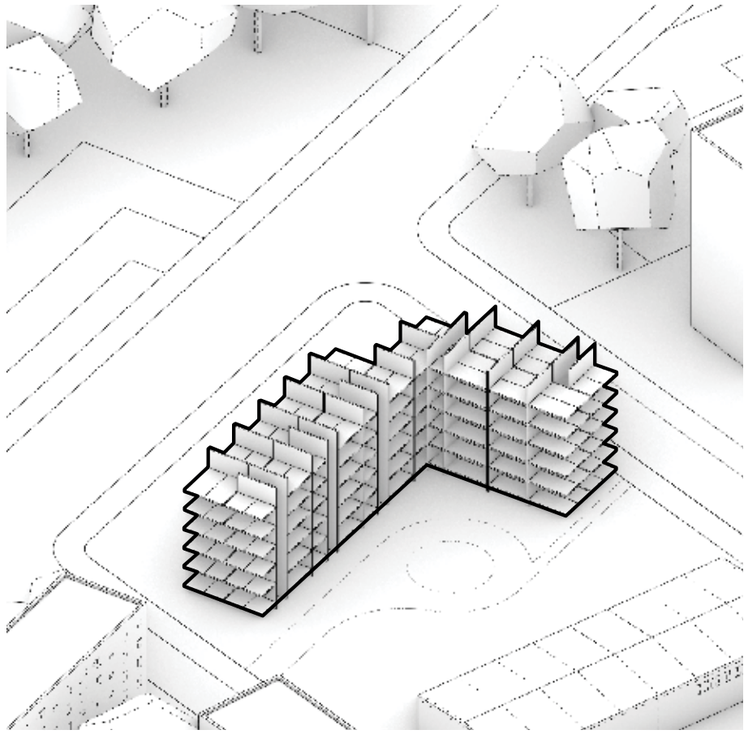
PLATTENBAU STUDY



PLATTENBAU MASSING



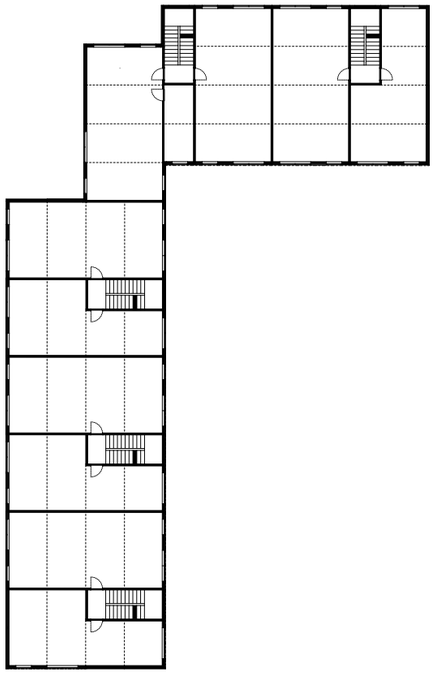
EXISTING PLATTENBAU CIRCULATION



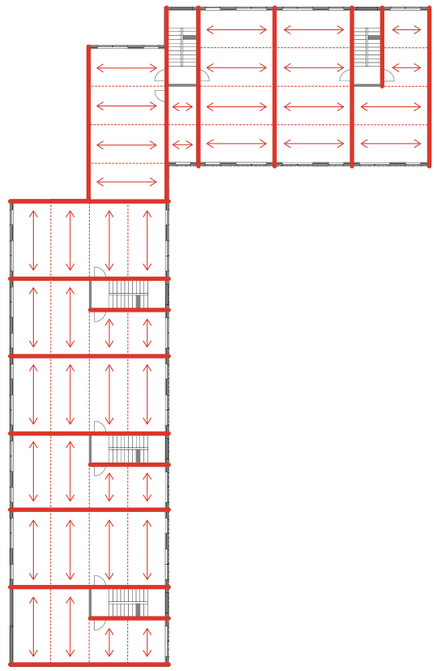
EXISTING PLATTENBAU STRUCTURAL ELEMENTS

PHOTOGRAPHS OF THE PLATTENBAU STRUCTURE

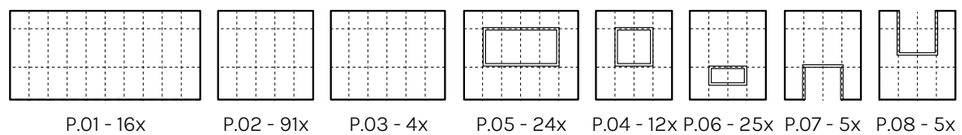
PLATTENBAU STUDY
DRAWINGS

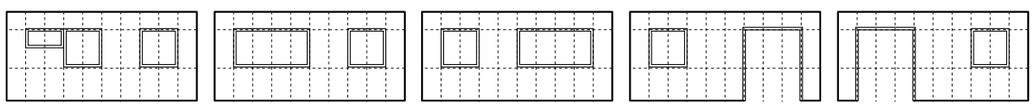


TYPICAL UPPER LEVEL PLAN

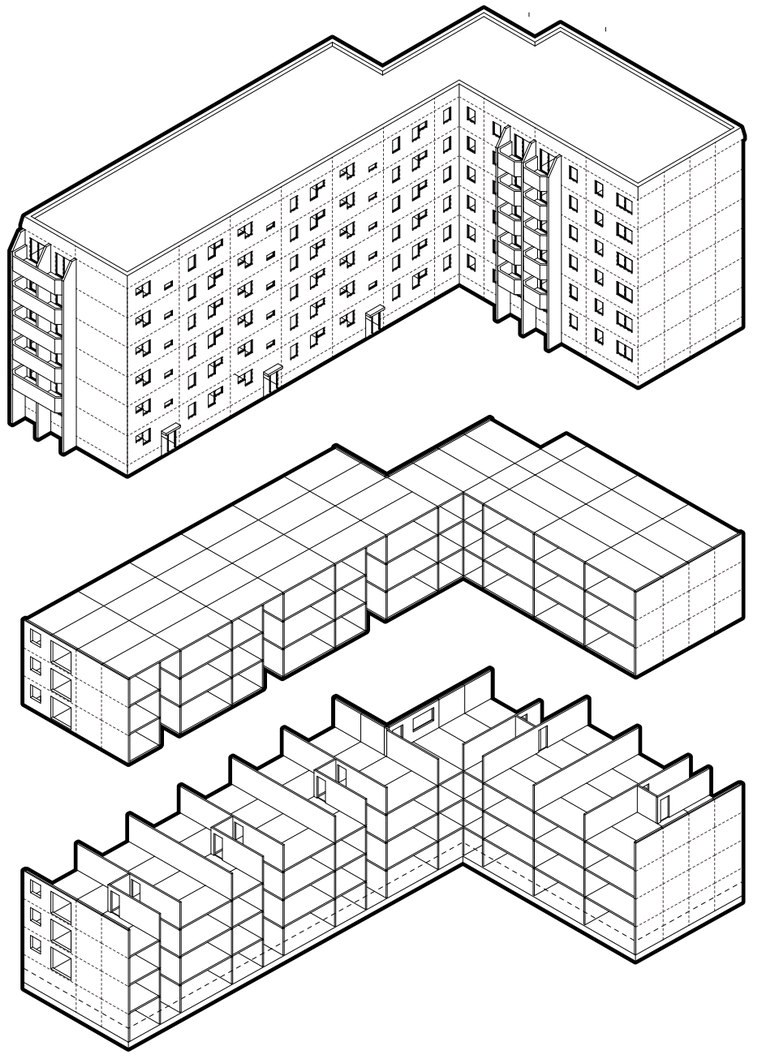


IDENTIFICATION OF STRUCTURAL ELEMENTS

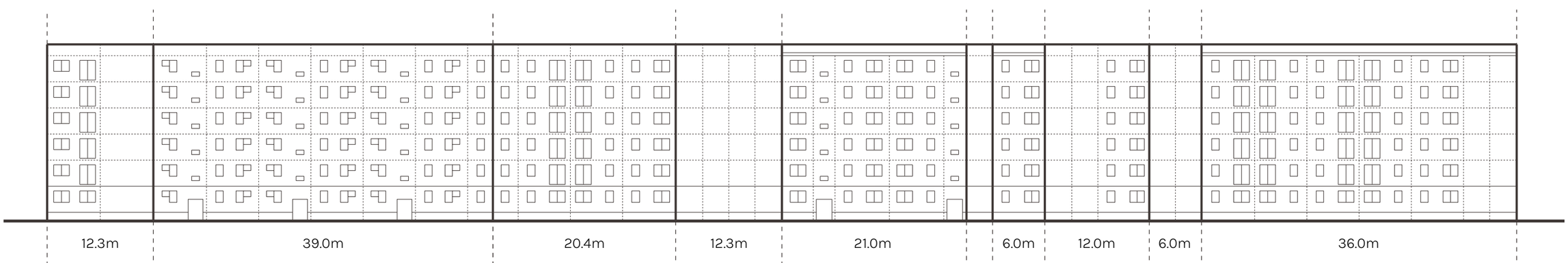




INVENTORY OF EXISTING WALL PANELS

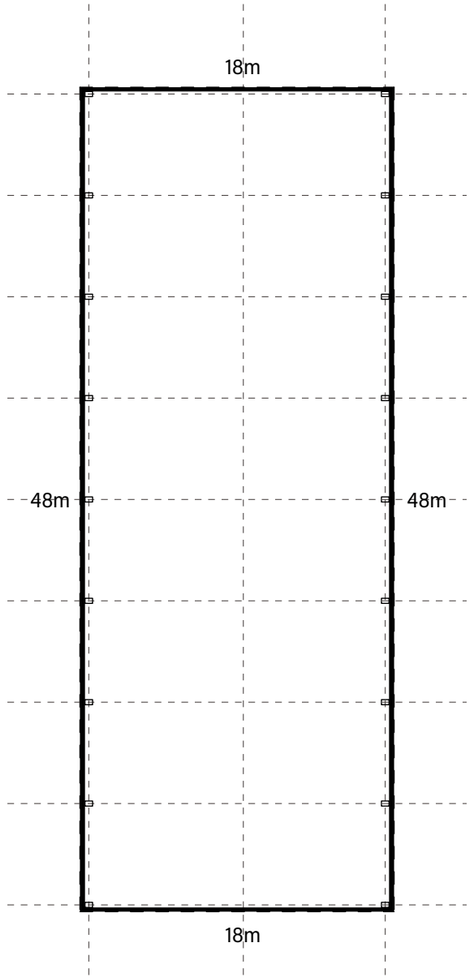


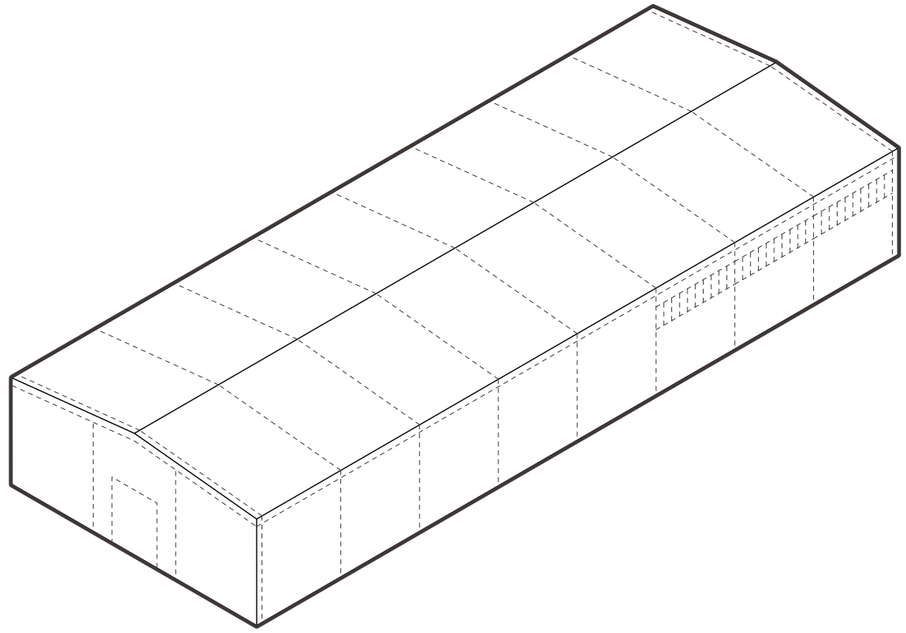
BUILDING AXONOMETRIC & STRUCTURAL AXONOMETRIC

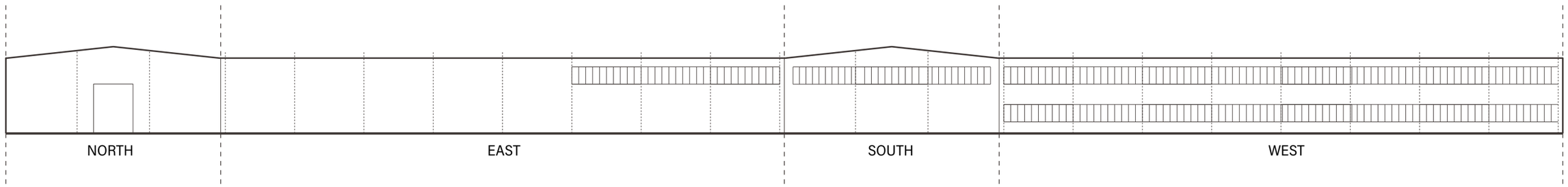


UNFOLDED ELEVATIONS

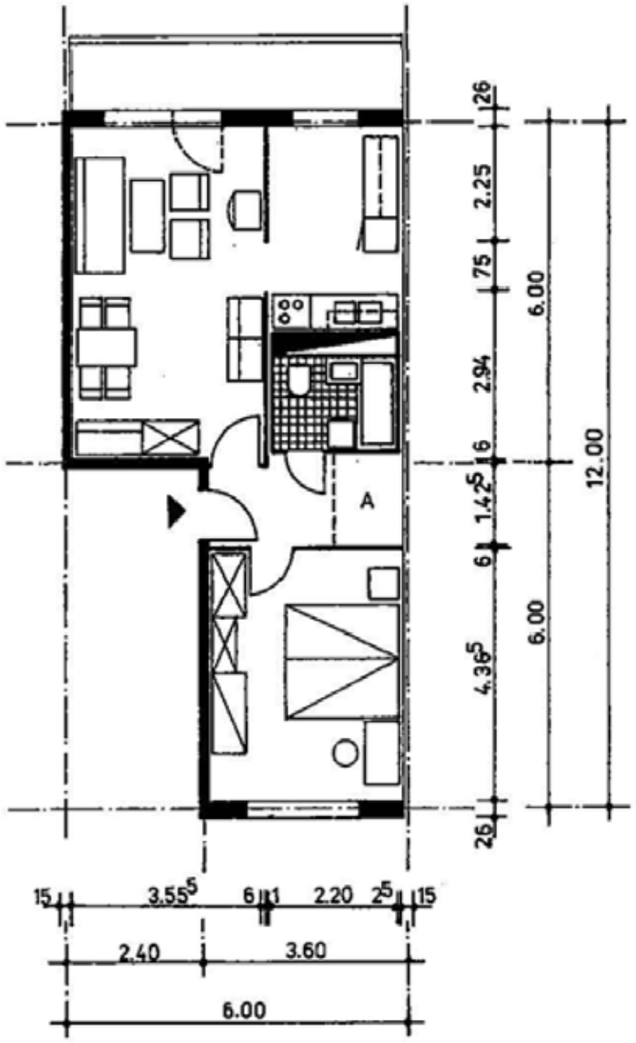
PAPER FACTORY STUDY



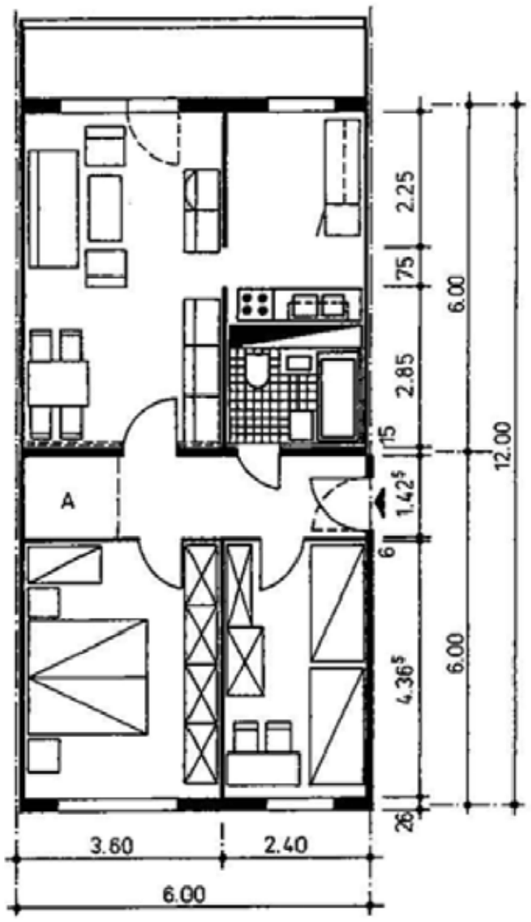




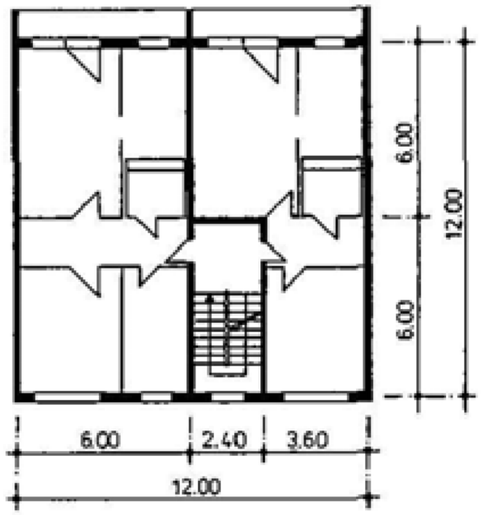
PLATTENBAU DETAILS
TYPICAL DETAILS



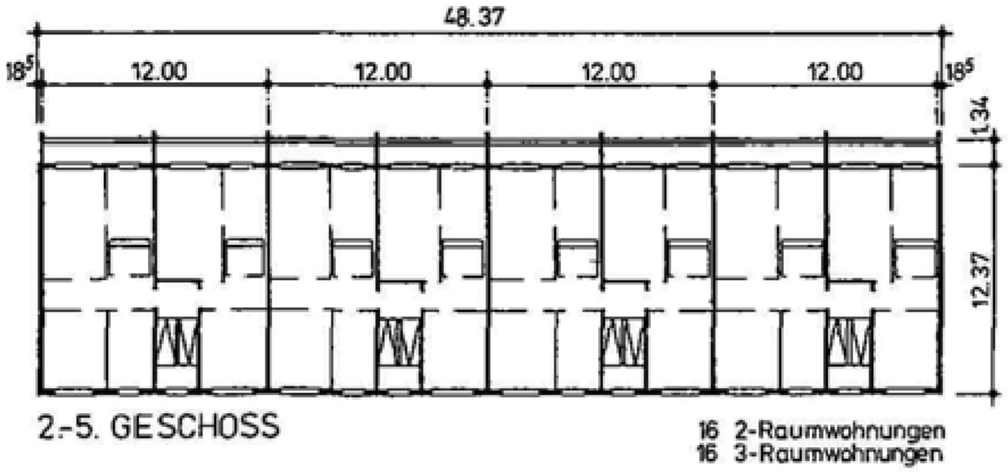
TYPICAL APARTMENT STYLE A



TYPICAL APARTMENT STYLE B

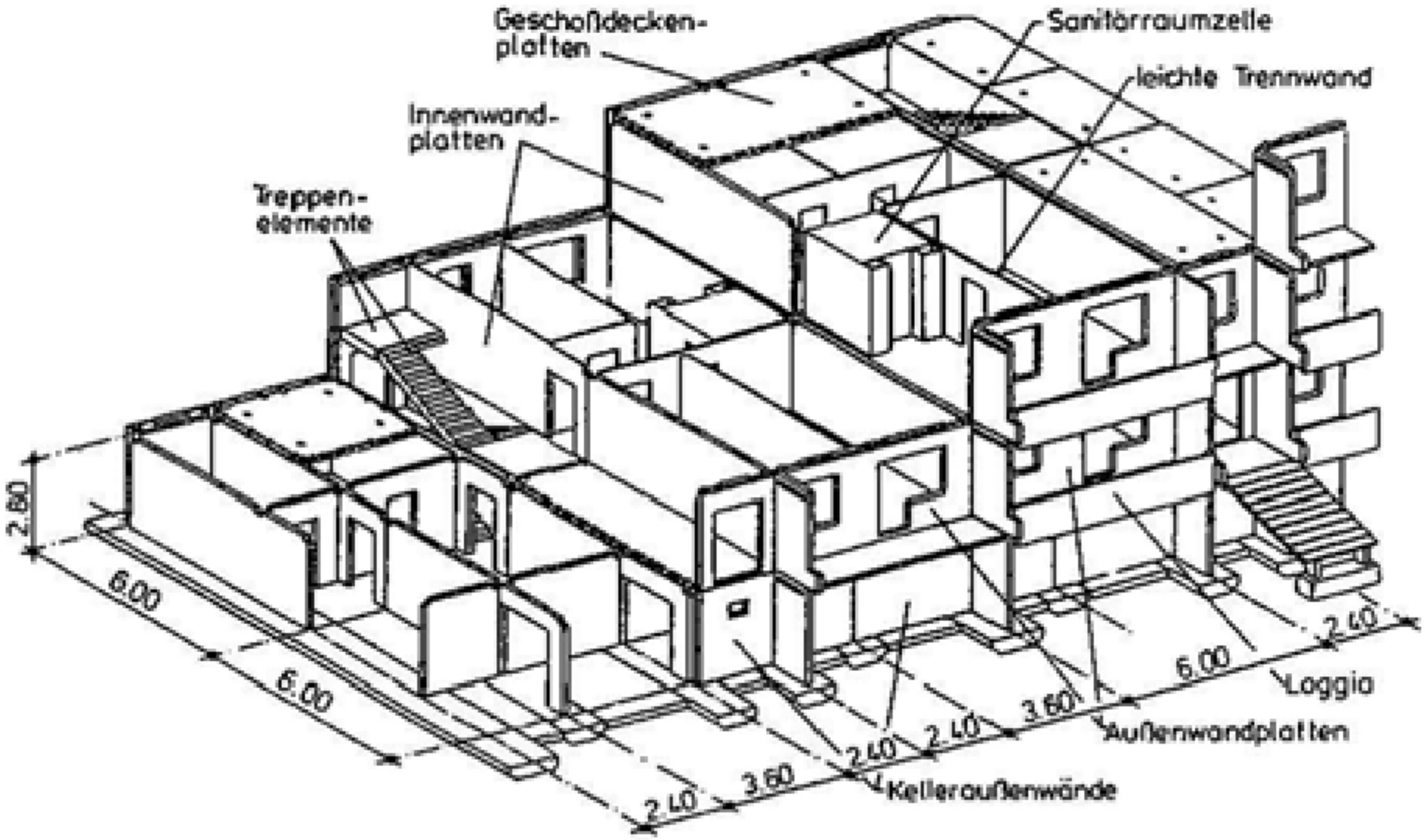


TYPICAL APARTMENT PAIRING



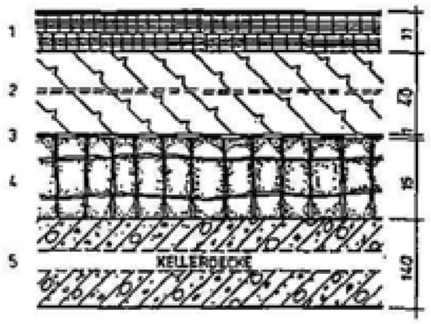
PLAN BLOCK

PLATTENBAU DETAILS
TYPICAL DETAILS



PARTIAL AXONOMETRIC

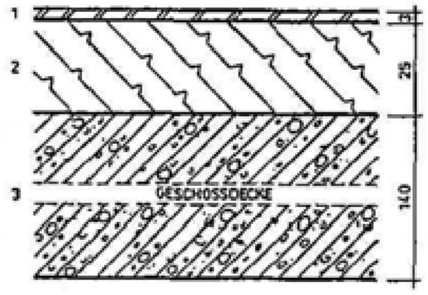
PLATTENBAU DETAILS
TYPICAL DETAILS



1 PVC-Spannteppich
2 Anhydritestrich
3 1 Lage nackte Bitumenpappe
4 Mineralwolleplatte
5 Kellerdecke

Bild 3.4.6: Erdgeschoßfußboden

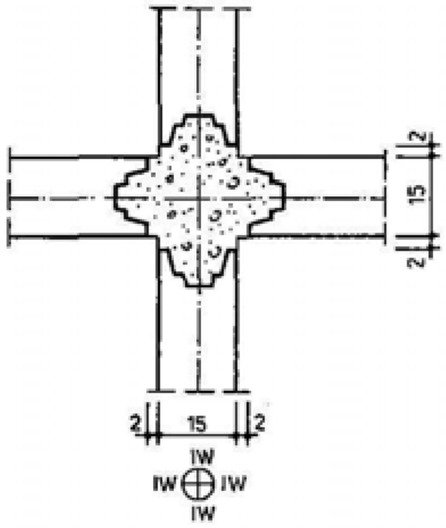
GROUND FLOOR

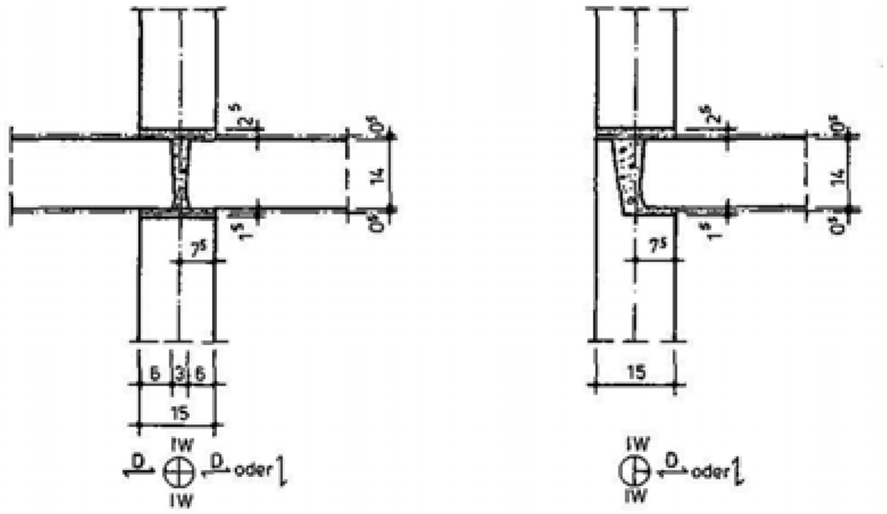


1 PVC-Weichbelag
2 Anhydritestrich (Ausgleichestrich)
3 Geschoßdecke (Wohnungstrenndecke)

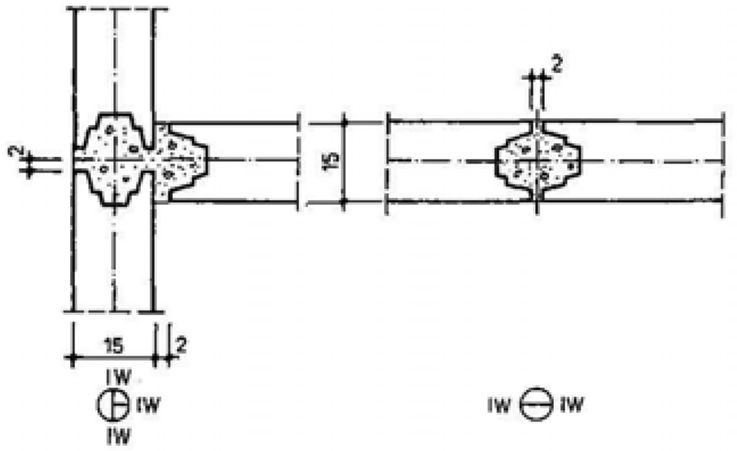
Bild 3.4.7: Normalgeschoßfußboden

NORMAL FLOOR

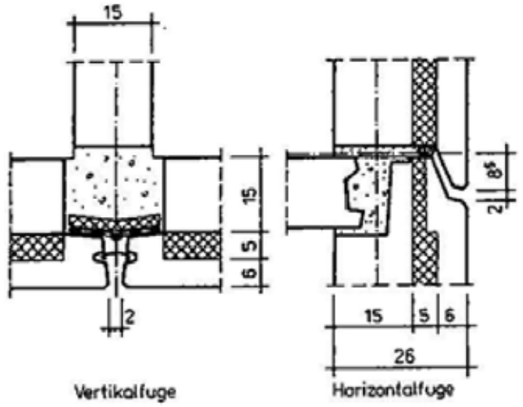


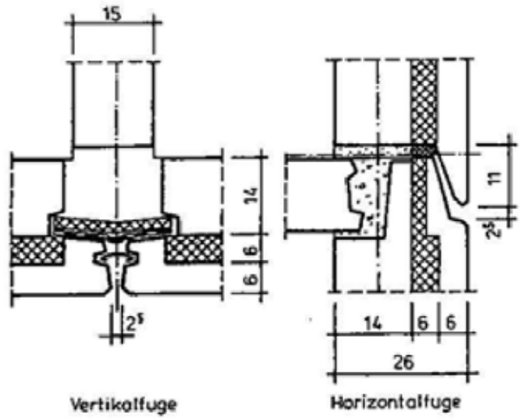


SECTION - INSIDE WALL TO CEILING

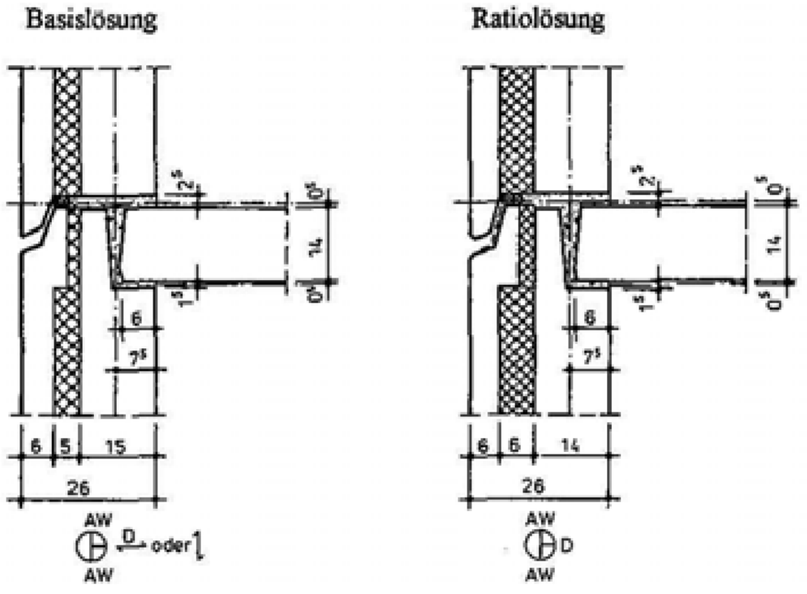


PLAN - INSIDE WALL TO INSIDE WALL





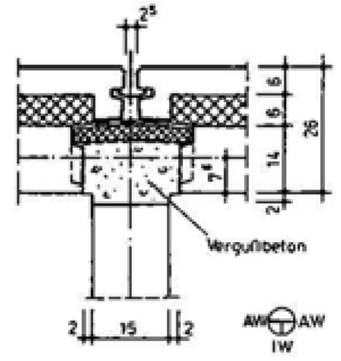
DETAILS - OUTSIDE WALL TO FLOOR

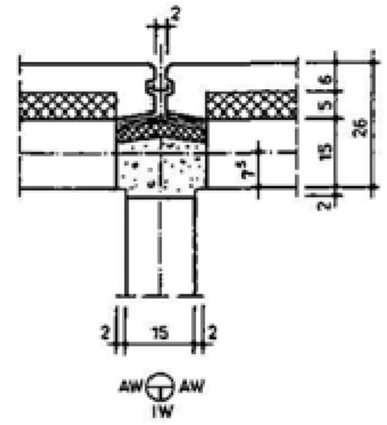


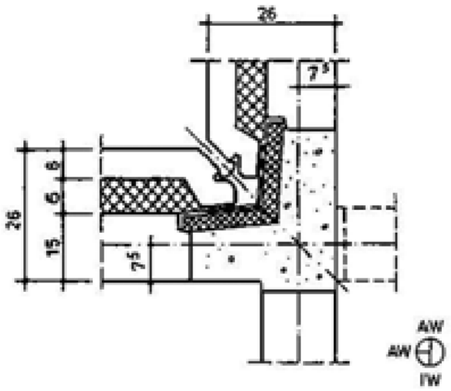
SECTION - OUTSIDE WALL TO OUTSIDE WALL

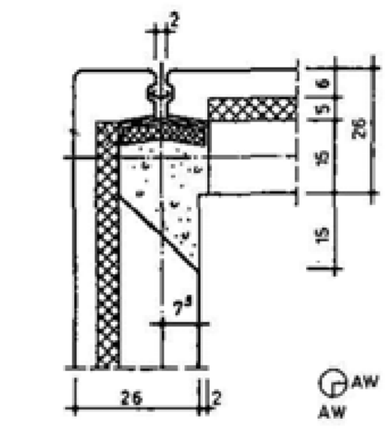
Charakteristische Knotenpunkte und Verbindungen

Die geometrische Gestaltung der Knotenpunkte der horizontalen und vertikalen Verbindungen erfolgte entsprechend den Grundregeln für Bauelemente der WBS 70. Die Wahl der zweckmäßigsten Knotenpunktausbildung war abhängig vom Entwurf, der Statik und der Herstellungstechnologie. Die charakteristischen horizontalen und vertikalen Knotenpunkte sind in den Bildern 2.2.7 bis 2.2.10 dargestellt.

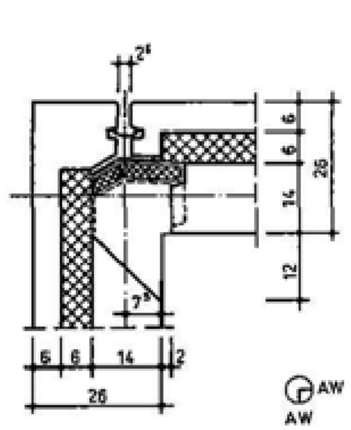








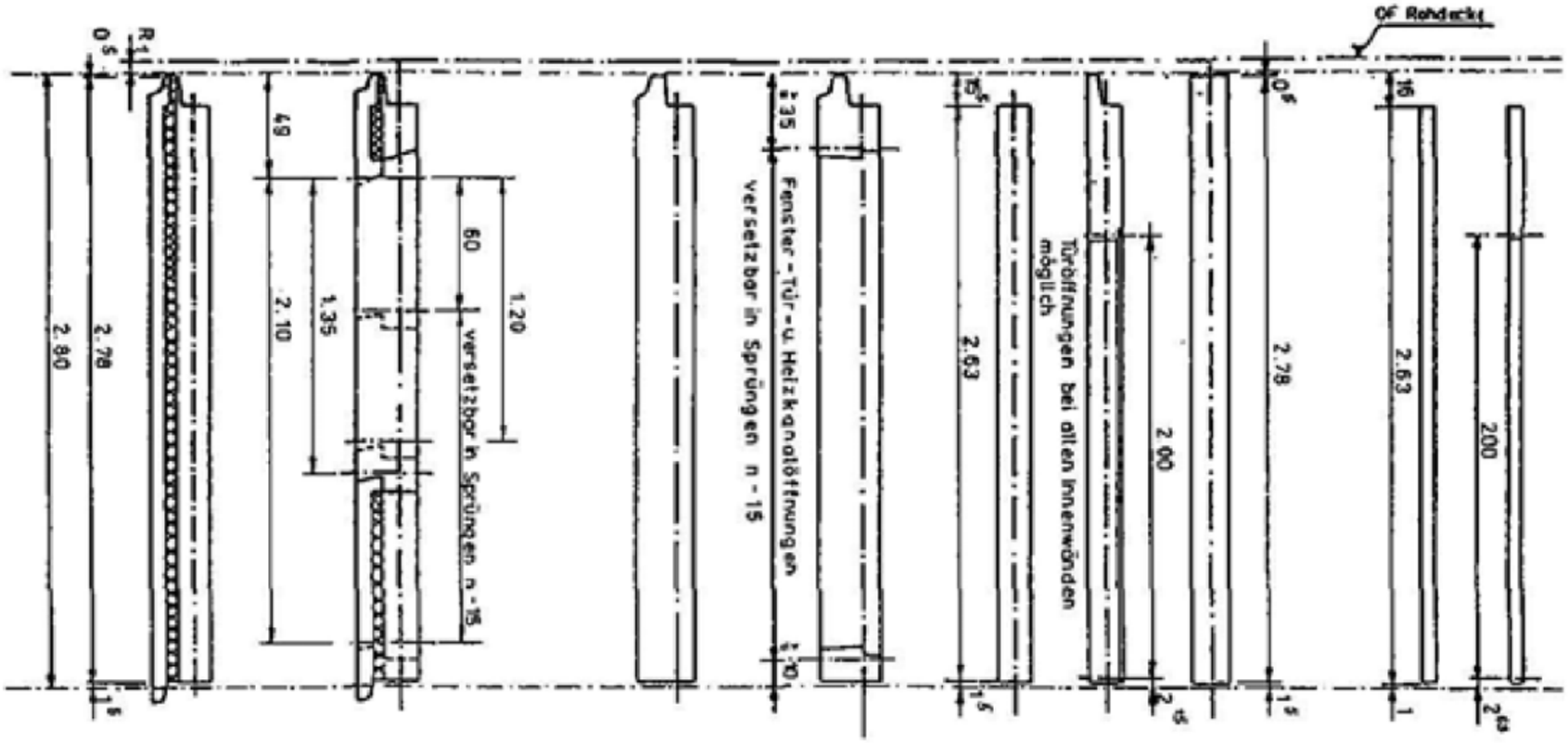
Basislösung



Ratiolösung

DETAIL PLAN - EXTERIOR CONNECTIONS

PLATTENBAU DETAILS
TYPICAL DETAILS



EXTERIOR WALL PANELS

BASEMENT WALL PANELS

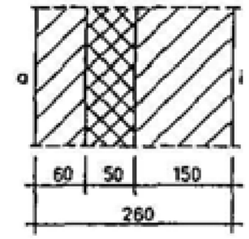
LOAD BEARING INTERIOR WALLS

PARTITION ELEMENTS

EXTERIOR

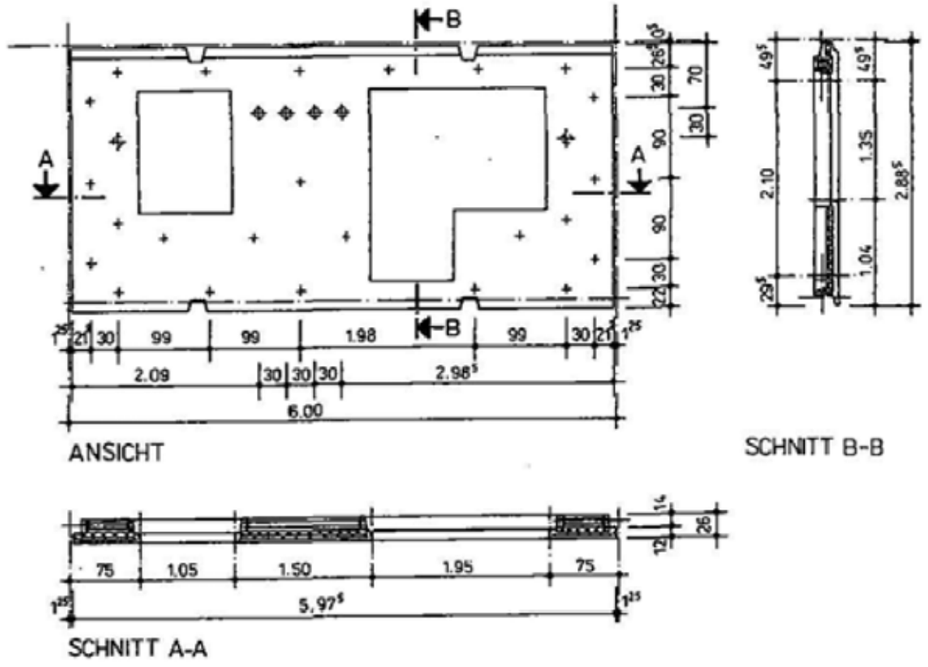
INTERIOR

BASED ON DATE ON CONSTRUCTION

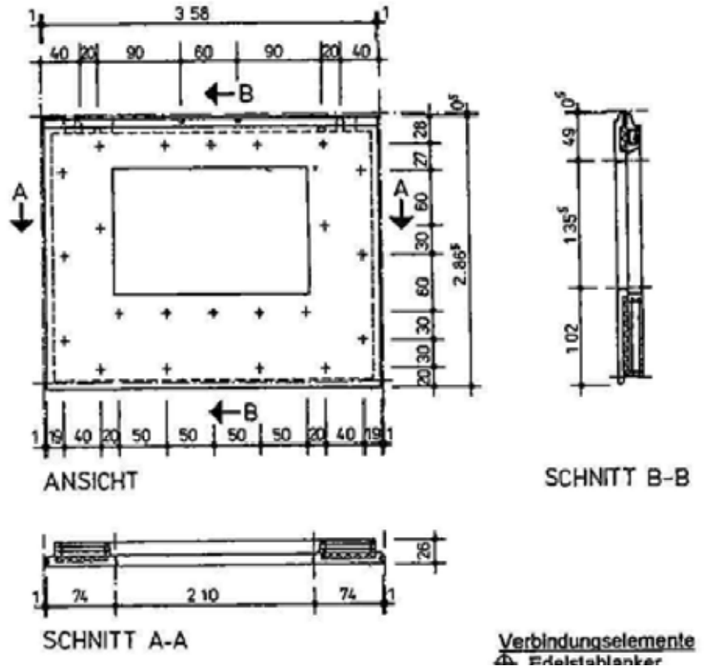
Entwicklungsstufen	Ratiostufe I ab 1980
	
Längsaußenwand · mittlerer Wärmedurchlaß-widerstand[x] 1/Λ (m²·K/W)	0,84
· Dunkelwandfläche	1,35
Giebelaußenwand · mittlerer Wärmedurchlaß-widerstand[x] 1/Λ (m²·K/W)	1,00
· Dunkelwandfläche	1,35
Dämmstoff	50 mm Schaumpolystyren, Reduzierung der Wärmebrücken, veränderte Randausbildung
Fenster	wie Basislösung
Fensterfläche/WE	wie Basislösung

EXTERIOR WALL PANEL TECHNICAL DETAILS

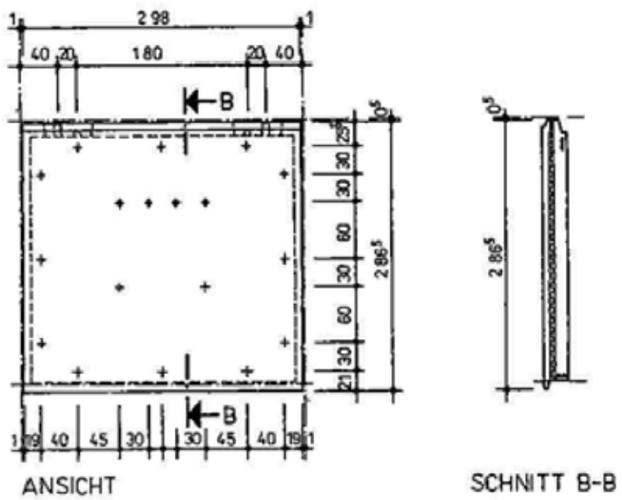
PLATTENBAU DETAILS
TYPICAL DETAILS



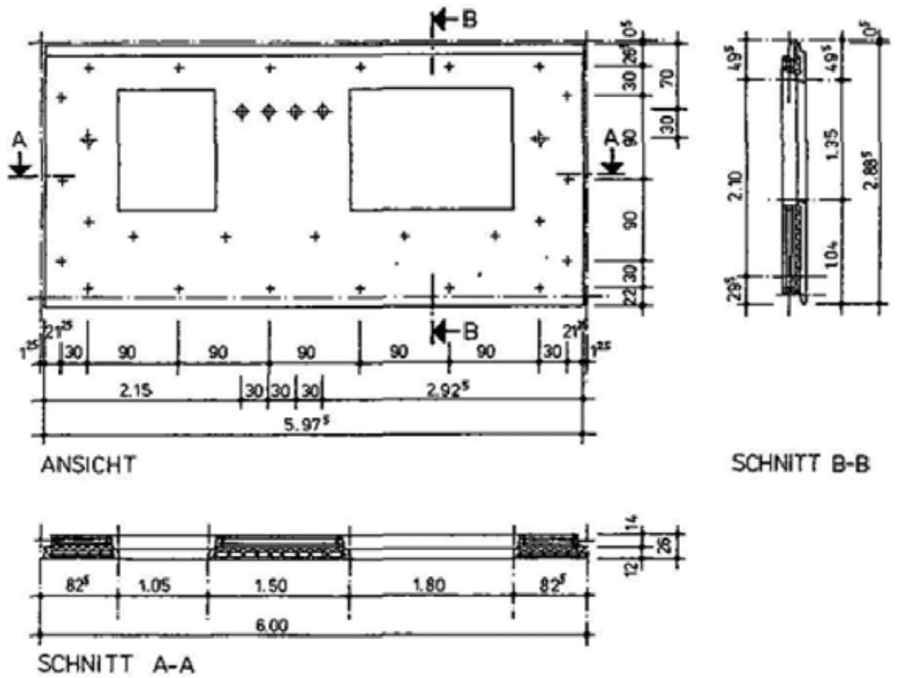
PANEL TYPE A



PANEL TYPE B

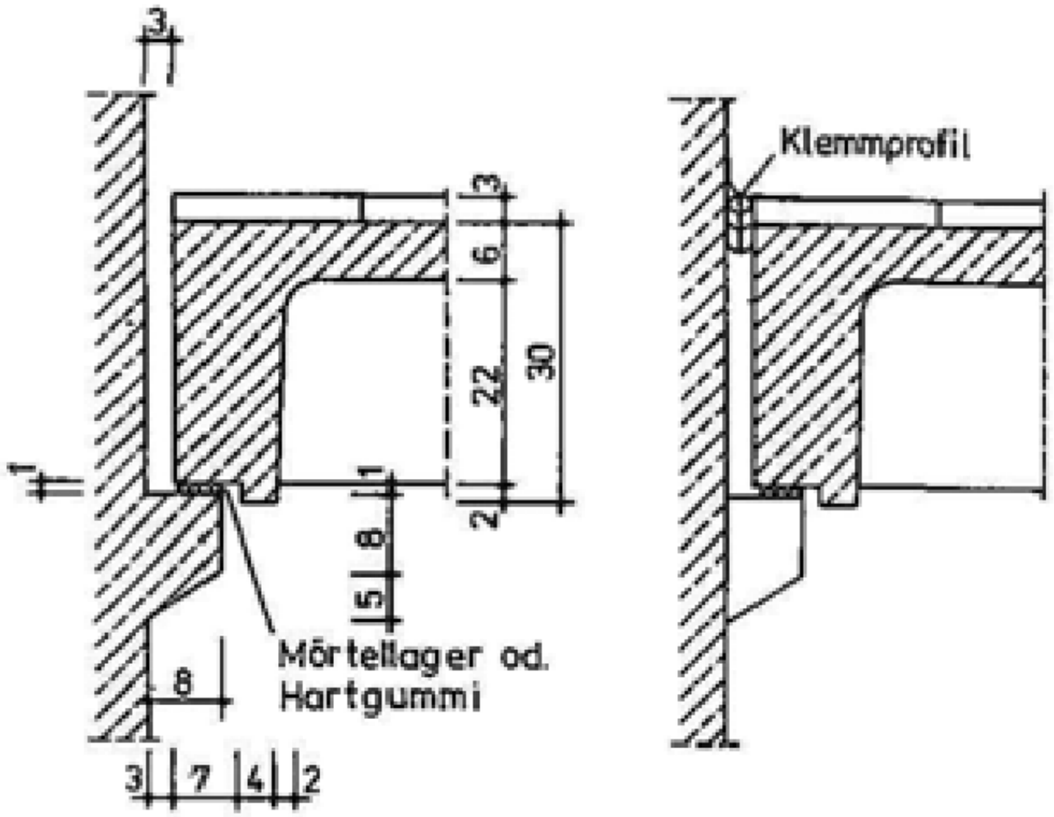


PANEL TYPE C

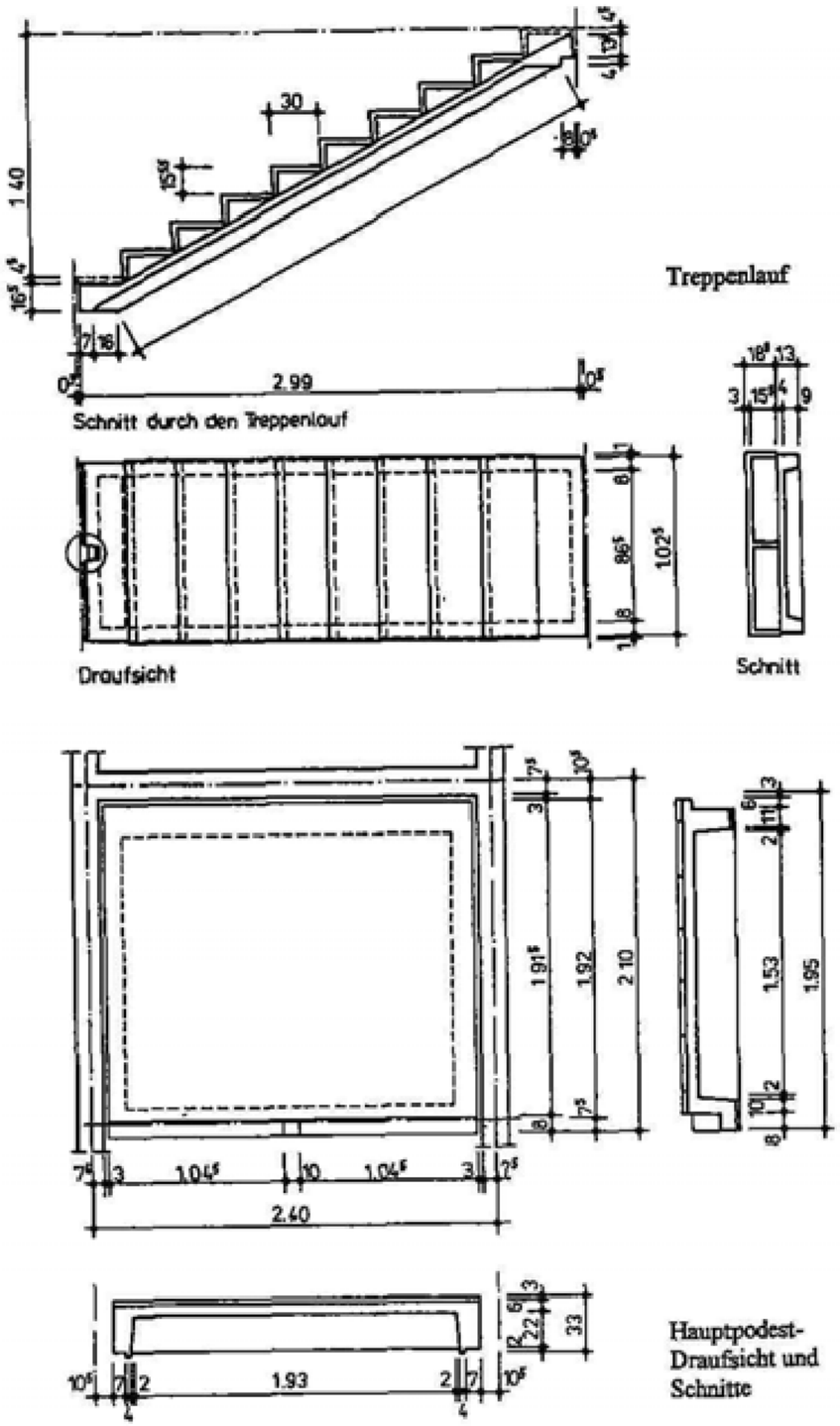


PANEL TYPE D

PLATTENBAU DETAILS
TYPICAL DETAILS



LANDING CONNECTION DETAIL



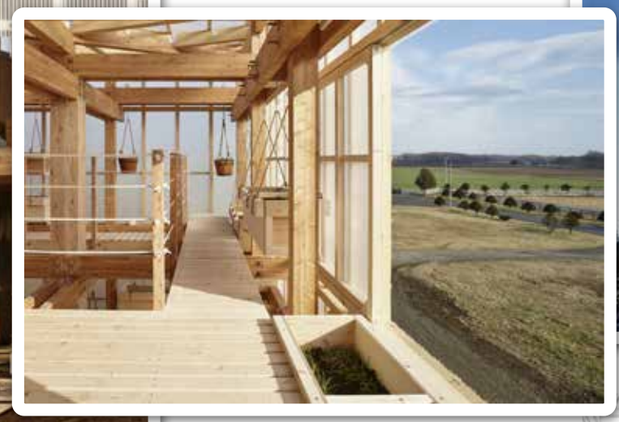
STAIR ELEMENTS

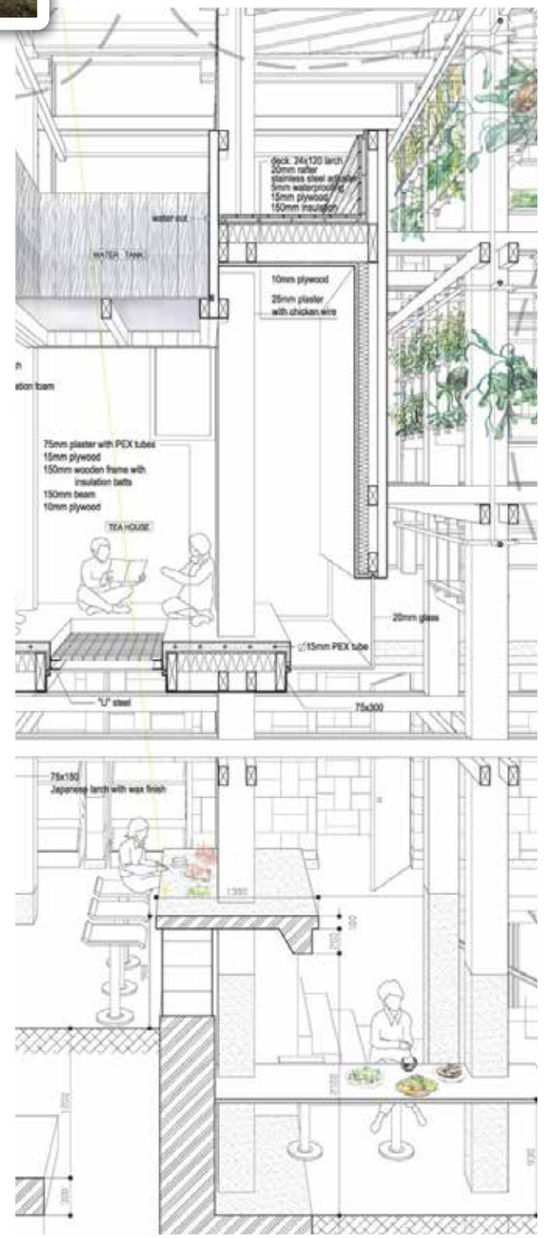
PRECEDENT STUDIES

OVERVIEW OF REFERENCES

NEST WE GROW

KENGO KUMA, UC BERKELEY CED GRADUATE TEAM

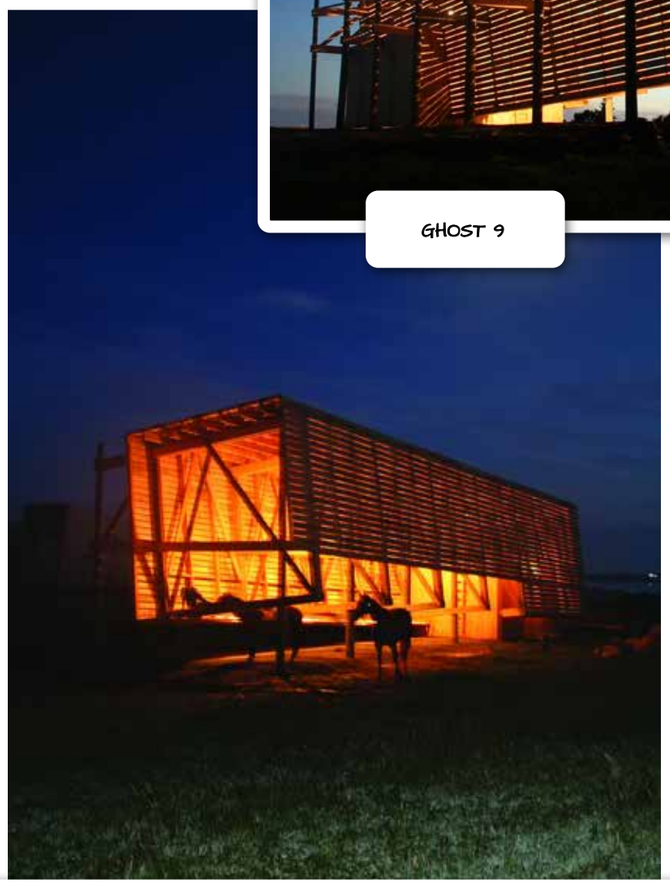




GHOST LABS

MACKAY-LYONS SWEETAPPLE ARCHITECTS

GHOST 9



GHOST TOWER

GHOST 6

DESIGN BUILD MEANS INHERENT USER INTERACTIVITY

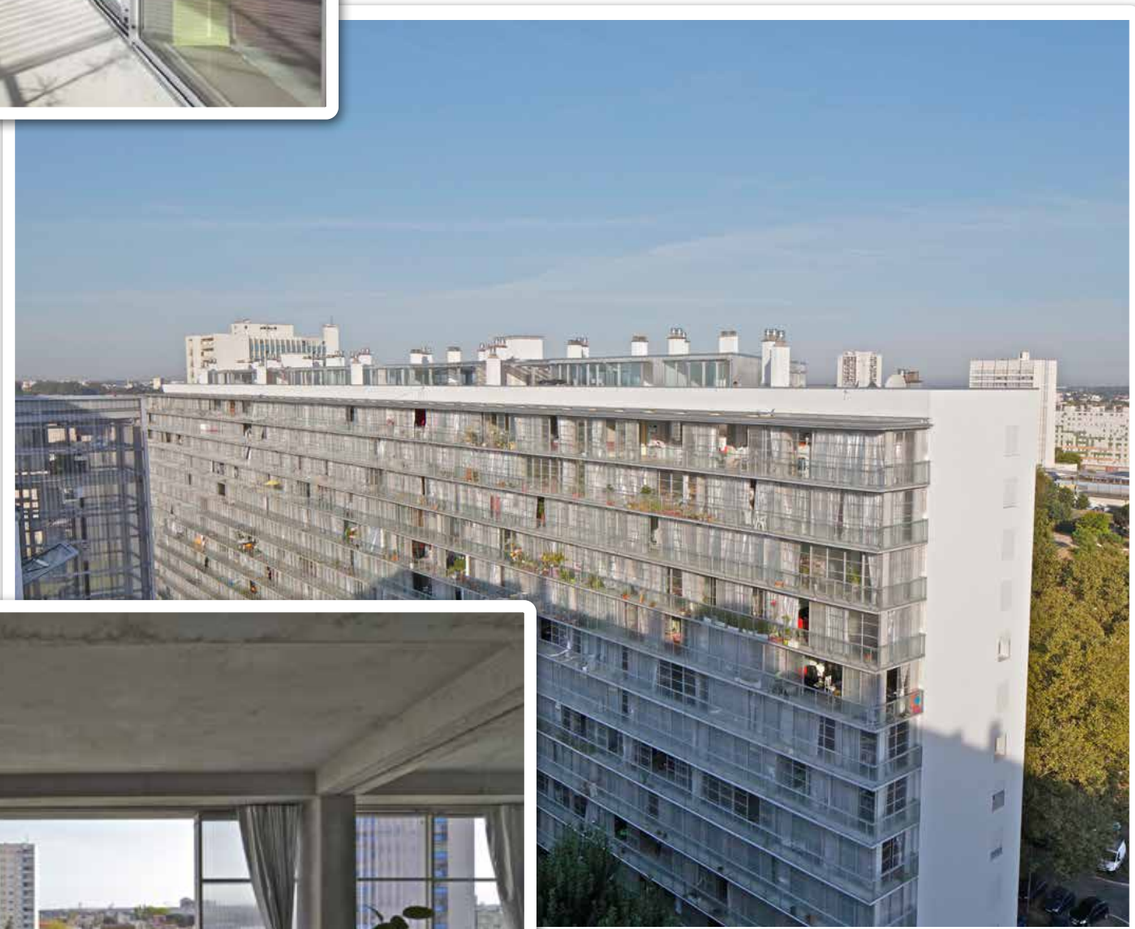
GHOST 3

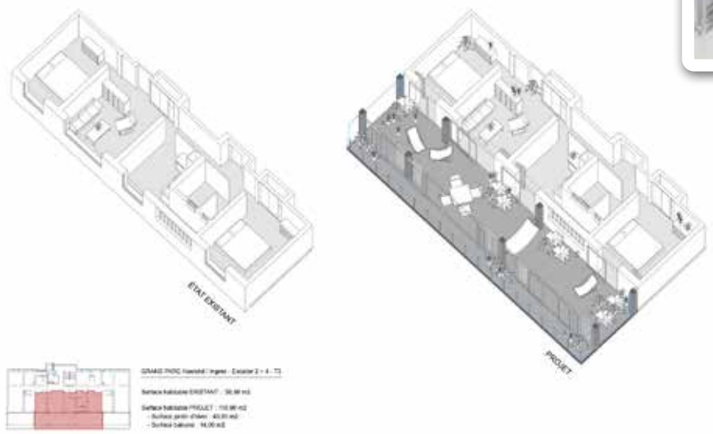
GHOST 5

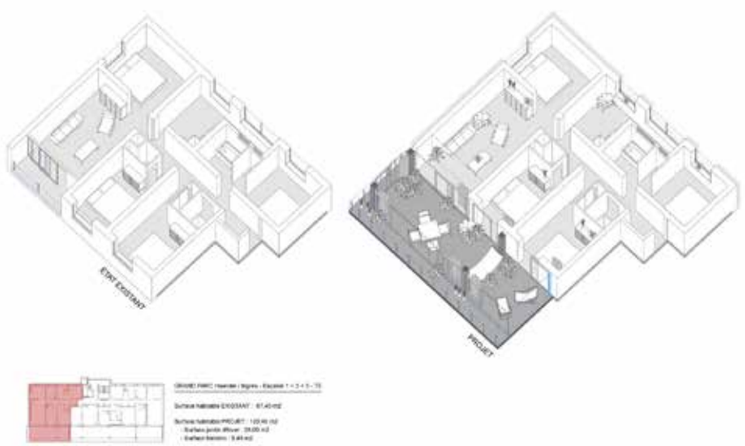
CITE DU GRAND PARC

LACATON & VASSAL

RAINSCREEN CLADDING SYSTEMS



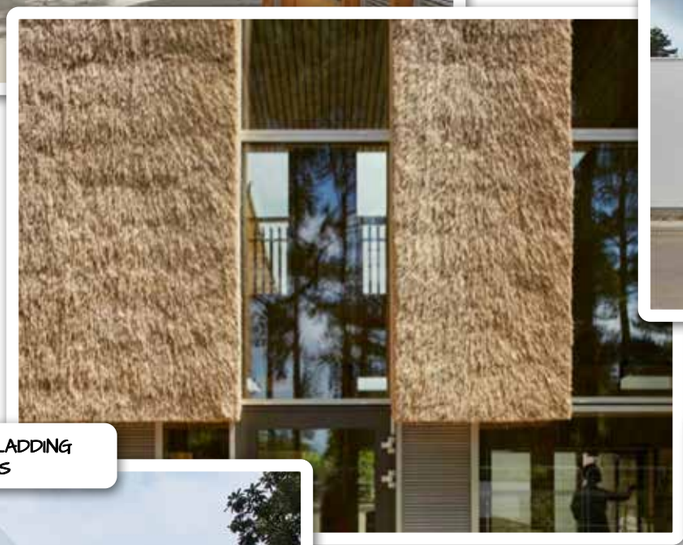


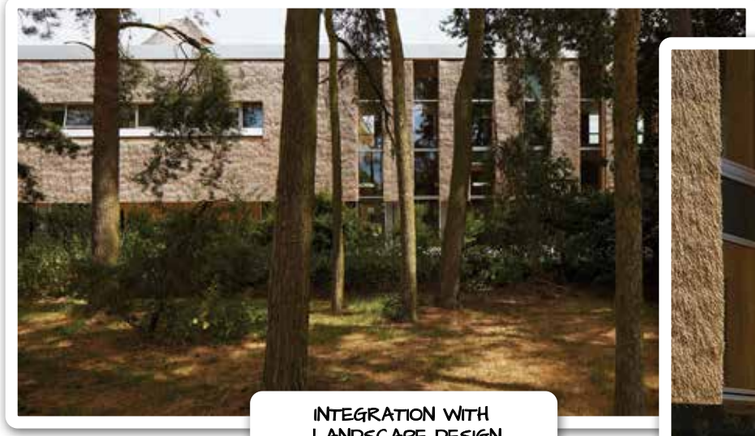


THE ENTERPRISE CENTER

ARCHITYPE

- Projected lifespan of 100 years and serves as a paragon of low embodied carbon construction
- Its 3,400sq m floor space accommodates hatcheries and incubator units for SMEs and start-ups operating in the low-carbon sector, as well as an innovation lab, a 300-seat lecture theatre and flexible teaching facilities and workspaces.
- The need to keep embodied carbon to a minimum sparked a quest to identify suitable materials, particularly from local sources, that could fulfil the required aesthetic and functional criteria.
- Versatile properties of thatch [...] using it to create a bristling layer of rainscreen cladding on the facades. “In terms of impact and architecture, rainscreen cladding is often the first thing you see.”
- worked alongside local thatchers to develop a novel construction technique: prefabricated thatched cassettes were produced off site, which were later fixed to the framework using split battens.
- A spray-on cellulose product made from recycled paper acts as an acoustic dampener.
- Building made use of materials discarded from other projects, urban mining.
- The exhibition area functions as a versatile social workspace that stretches along the full length of the building and unites the two wings at either end. Dramatic changes in height and plenty of glazing give it a spacious feel, while pods projecting from the first floor are clad in a range of materials that promote the centre’s ecological credentials.
- As with most modern educational facilities, the building offers a range of working environments that can be adapted to different uses, as well as breakout areas and dedicated teaching spaces. The ground floor contains a variety of seminar and lecture spaces, alongside rooms accommodating student enterprises and a hatchery where small businesses can hire desks.

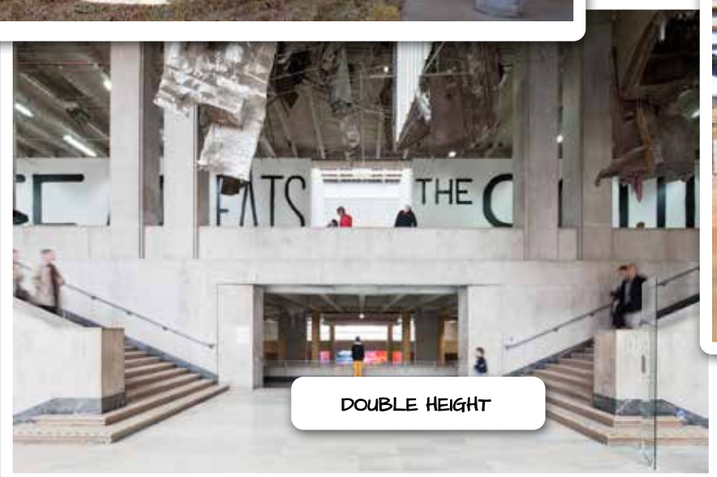




PALAIS DE TOKYO

LACATON & VASSAL

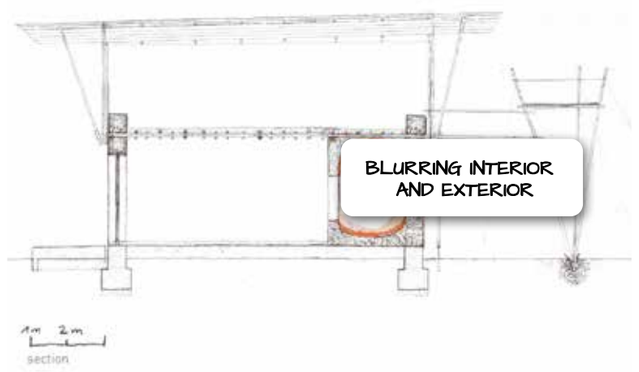
- Built in the 1930s, by the late 1990s the building was mostly abandoned following the move of the exhibits to other galleries.
- Stripped down structures that exposes and embraces raw materials. Allowed to age.
- Different atmospheres: lower levels are dark and gloomy, upper levels bright and sunny.
- Lack of dedicated routes, users are allowed (encouraged?) to wander uninhibited.
- Structure was reinforced where needed and left alone elsewhere.
- The section, in many places, deals with ideas of split levels, changing ceiling elevations, open (transformable space), and access to daylight.

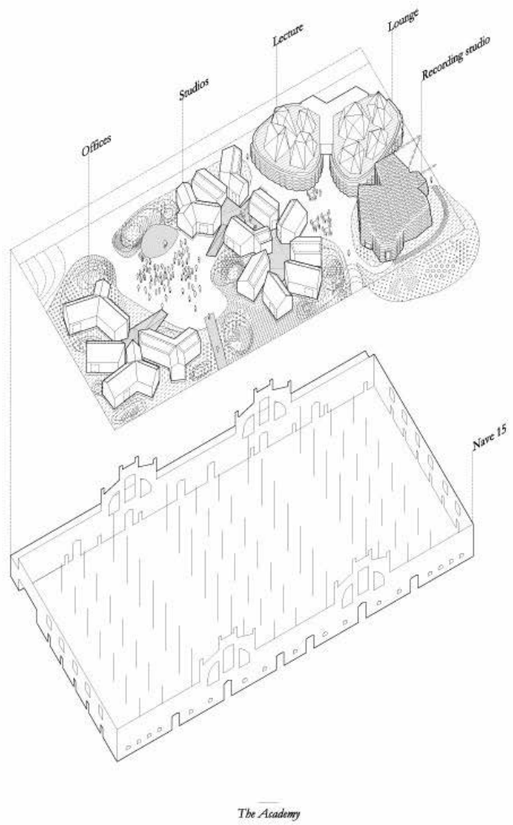


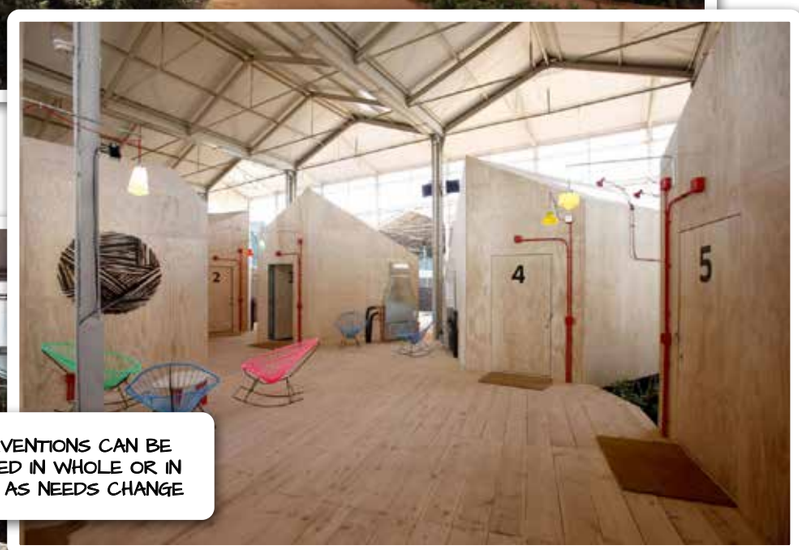
RED BULL ACADEMY
LANGARITA NAVARRO ARQUITECTOS

- The RBMA is a nomadic music festival, in 2011 it was hosted in Madrid on short notice due to earthquakes in japan.
- Intended as a medium-term project, the project was designed as a temporary and reversible (demountable?) for ease of reconfigurability.
- Focus on specific needs (acoustic and technical) for the event, as well as facilitating artistic encounters (!) between the invited musicians.
- Five guidelines:

1. Deadlines and budget: light construction, balance between standardization and adaptability.
2. Making no non-revesible changes to the warehouse space in Matadero.
3. Program was driven by specific event requirements: construction methods would allow for different events to reconfigure structures as needed.
4. Acoustics: some interventions were specific based on the usage, some generic (mass, cloth).
5. Temporari-ness: can be removed without a trace, repurposement of materials considered.





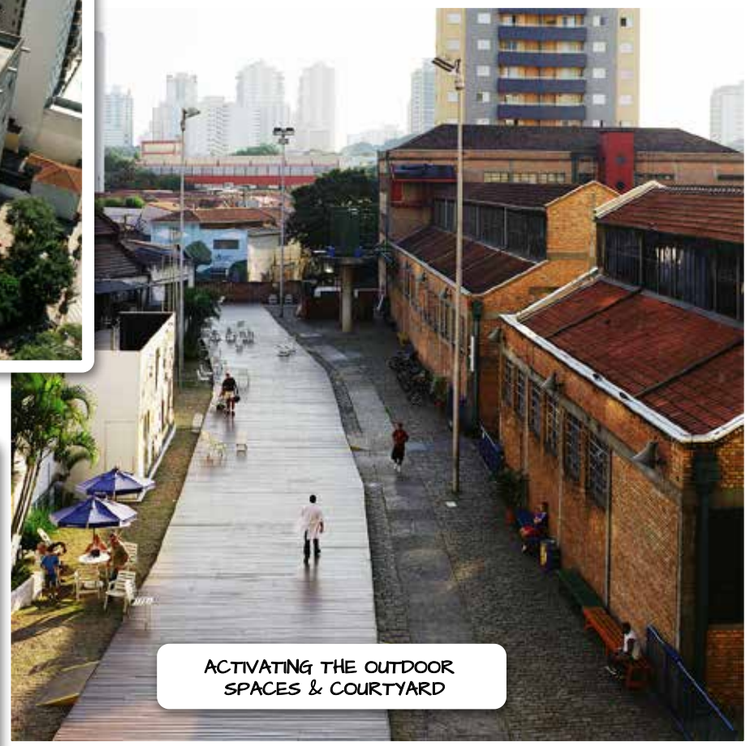


SESC POMPEIA

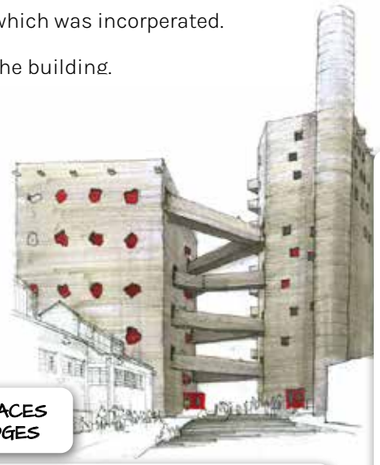
LINA BO BARDI

- Three primary volumes, one big tower, one small tower, and one circular tower.
- Windows show pattern of the styrofoam molds, concrete shows pattern of wooden molding.
- Concrete and pre-stressed concrete elements made up the structure of the building.
- Importance of pedestrain access and connection to the surrounding streets.
- Project was built around the renovated drum factory which was incorperated.
- Internal street a holdover of the previous function of the building.

CONCEPT OF EXISITING AND NEW BUILDINGS

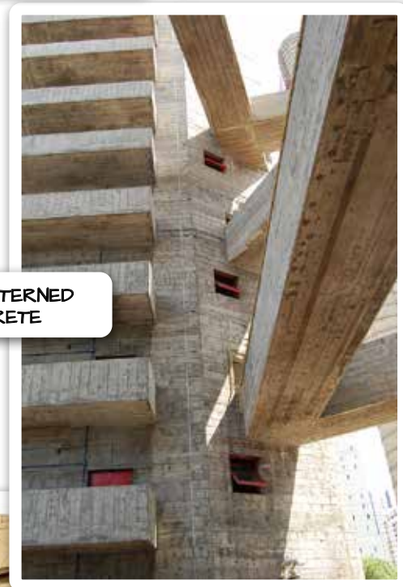


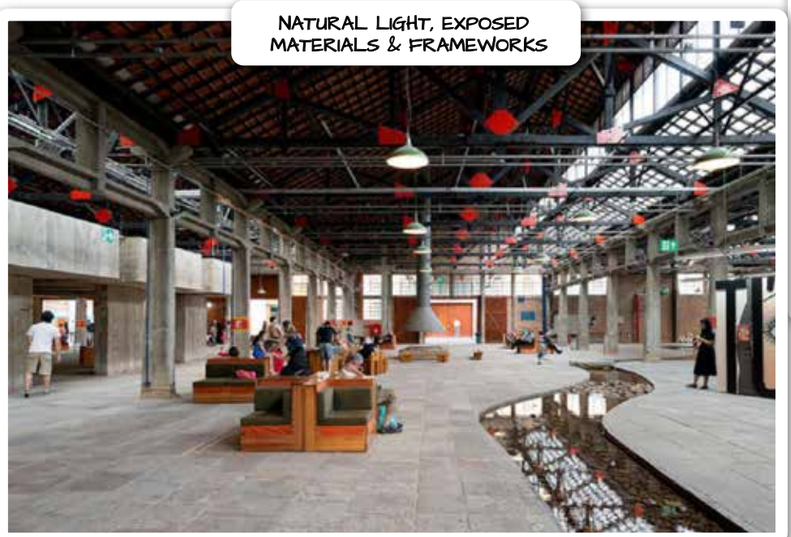
ACTIVATING THE OUTDOOR SPACES & COURTYARD



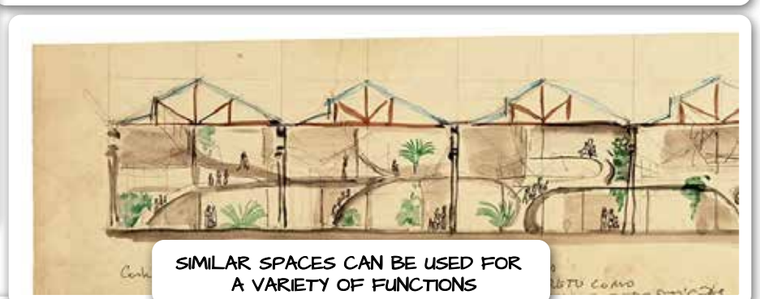
CONNECTING SPACES THROUGH BRIDGES

WOOD PATTERNED CONCRETE

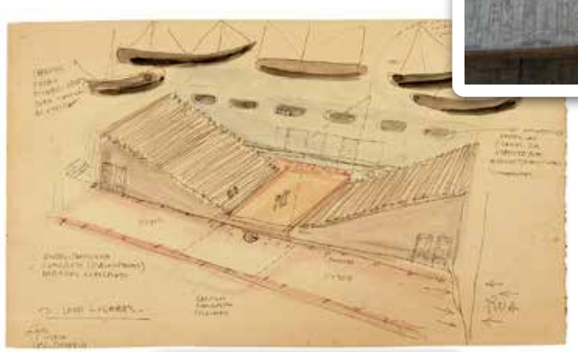




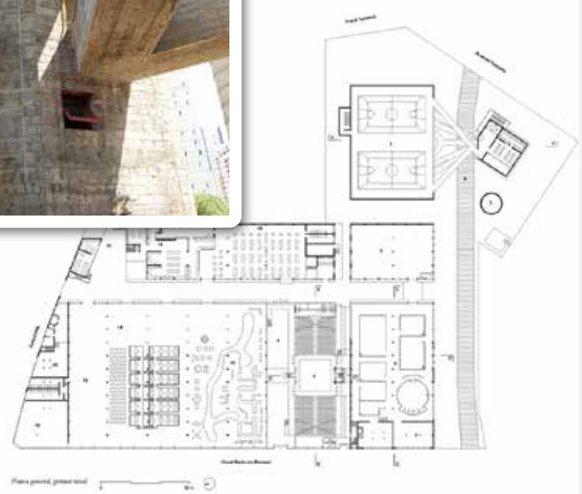
NATURAL LIGHT, EXPOSED MATERIALS & FRAMEWORKS

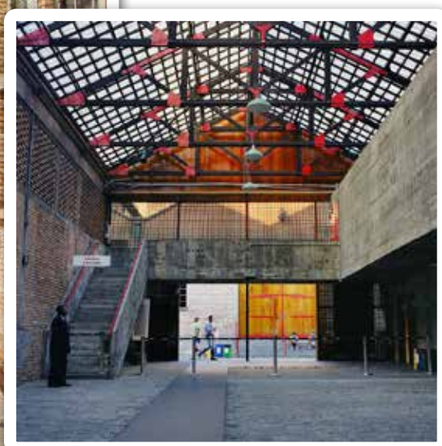


SIMILAR SPACES CAN BE USED FOR A VARIETY OF FUNCTIONS



STAIR OR AMPITHEATER STRUCTURE





YARDHOUSE
ASSEMBLE STUDIOS

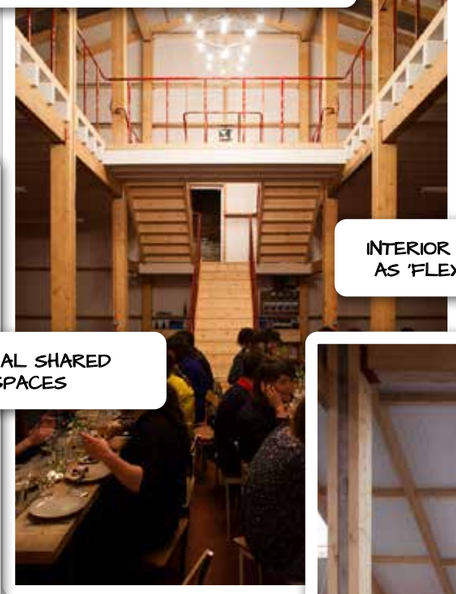
- Affordable creative workspace building. Demountable and moveable.
- Social and collaborative work environment. Skill sharing and community learning.
- Studio 'plots' were provided without partitions, leaving tenents to adapt the space to their needs.
- Structure is a mix between heavy timber and timber framing. There are no load bearing walls, and tenents can attach partitions and other elements onto the existing structure.
- Handmade colorful concrete tiles clad prefabricated insulation panels. 'Bespoke'.
- Highly affordable due to construction methods and materials (£291/m^2) (total costs under £80,000) (2012). Built using standard material dimensions. This also has the benefit of easy repair and replacement. Replocatable without specialist trades.
- Materials are left exposed.
- 3.5 to 4.5m ceiling heights allows for good natural light and expansion via mezzanine storage

IDENTIFYING OBJECTS MADE FROM SITE MATERIALS

Feedback has indicated that many tenants were very excited by opportunity to be part of the creation of a new creative community and that the flexibility and adaptability of spaces was a major selling point. In this respect many tenants saw us as an alternative to London's larger studio providers who do not grant their tenants as much flexibility and control over their studio space. Many applicants were also attracted by the collaborative nature of the project and the additional facilities available on site. This is an element of the project that we believe would be particularly valuable to expand on future sites. For many emerging creative practitioners, access to tools and facilities can be a major financial barrier to pursuing individual work. Partnering the provision of affordable workspace with more established lead tenants who have the financial capital to invest in facilities, or with independently provided workshop facilities can be a major boost for smaller tenants and can give greater financial viability for larger tenants to invest in tooling.

REPRODUCABLE BUILDING SYSTEMS

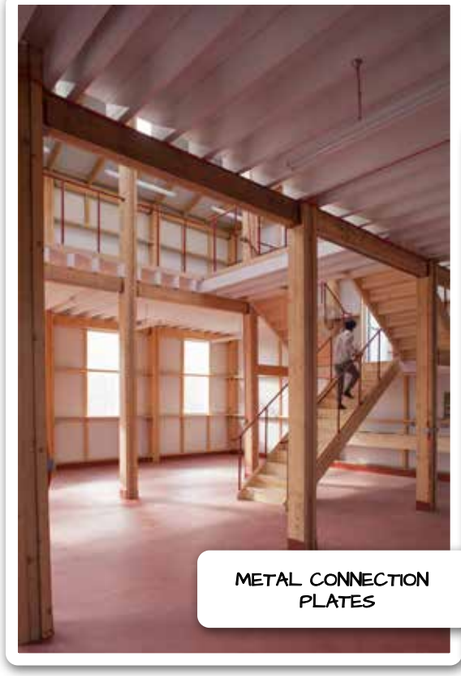
INTERIOR SERVED AS 'FLEX' SPACE



CENTRAL SHARED SPACES

SIMPLE EXPOSED MATERIAL

TILES SERVED AS A UNIQUE IDENTIFIER



METAL CONNECTION PLATES

Flexibility - Studio plots The building is constructed without internal walls. Each structural bay of the building, measuring 4m x 3m, was treated as a studio 'plot', where tenants would be able rent 1,2,3 or 4 adjacent plots to create the studio size of their preference and pay the corresponding square metre rate. This meant the layout and size of the studios could respond directly to demand, reducing the risk of unlet space and offering tenants the opportunity to only pay for as much space as they needed. Studio plots were provided in a basic state with no partition walls or furnishings, leaving it up to the tenant to 'complete' the space in an appropriate way for their practice. Allowing tenants to build their own walls had the significant benefit of creating a more affordable end product since tenants are able to build at a cheaper rate than would have been possible for a contractor. Giving tenants some hand in the construction of their space also has considerable benefits for the sense of community in the building, giving a much greater degree of ownership and control.

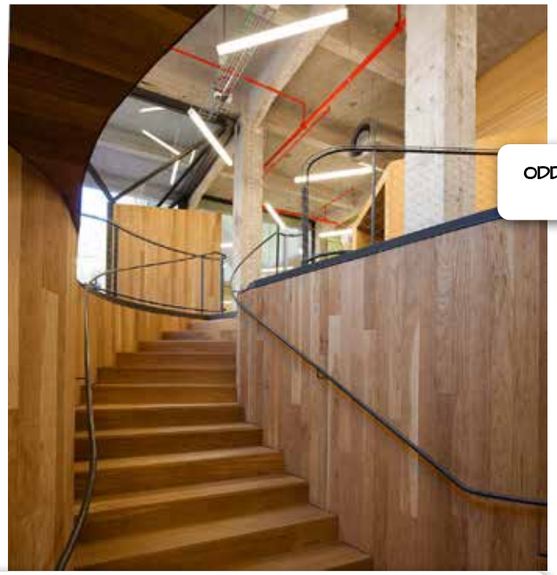
MEDIA LAB PRADO

LANGARITA NAVARRO ARQUITECTOS

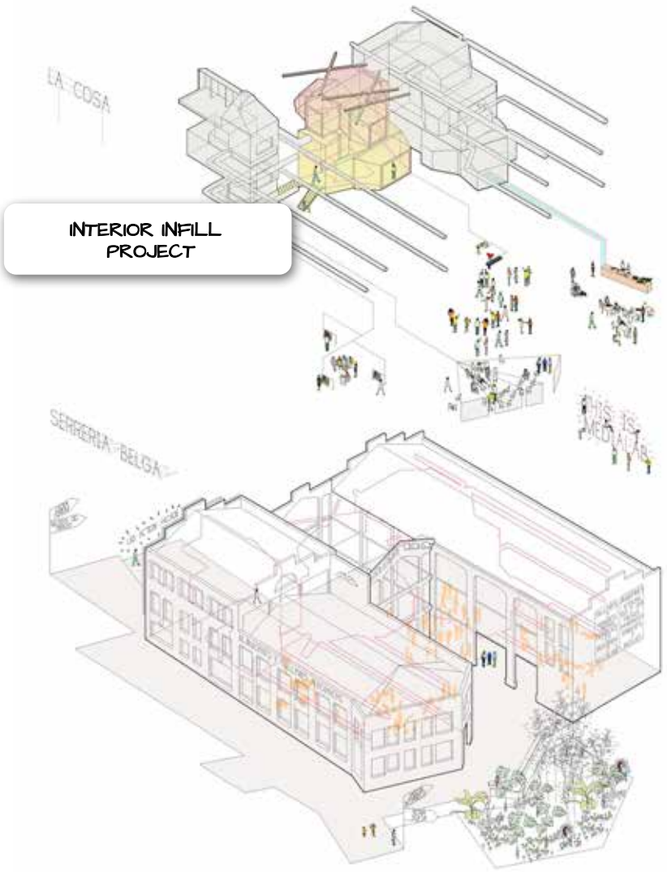
- “Promotes **production as a permeable process**, supplanting the figure of the spectator with that of the actor, or the figure of the **mediator as a facilitator of connections.“**
- Co-existance between old and new, halfway point as an open, versatile process activated by its users.
- Using and celebrating the existing factory building. Made of lightweight reinforced concrete (1920s), efforts were made to avoid create similar spaces to those already existing.
- Non-specific appoach to spaces, resulting in a homogenous approach to materials and uniform sitribution of installations. (similar service requirements throughout?).
- Different levels of change through time. Lightweight materials and systems suited for dissasembly and reuse.
- Searching for opportunities to provide supporting functions (multiplicity).

MORE PATTERNED CONCRETE

STRANGE LITTLE MOMENTS

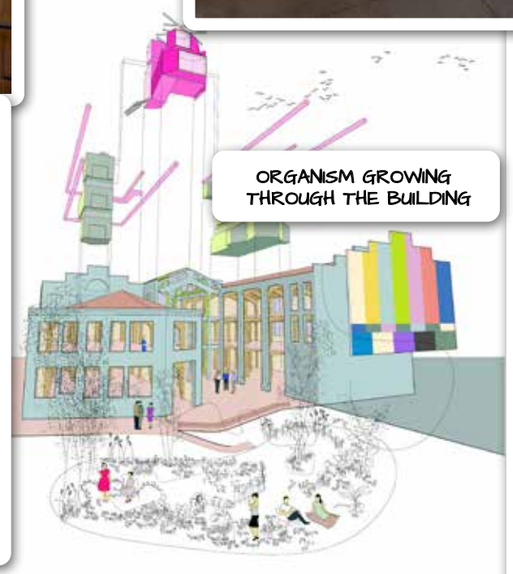


ODD MOMENT, RATHER ENDEARING

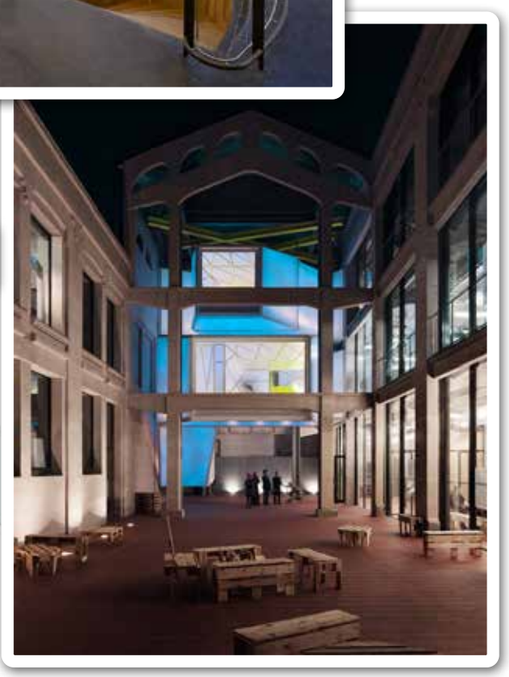


INTERIOR INFILL PROJECT

INTERVENTIONS WHERE NEEDED IN BUILDING

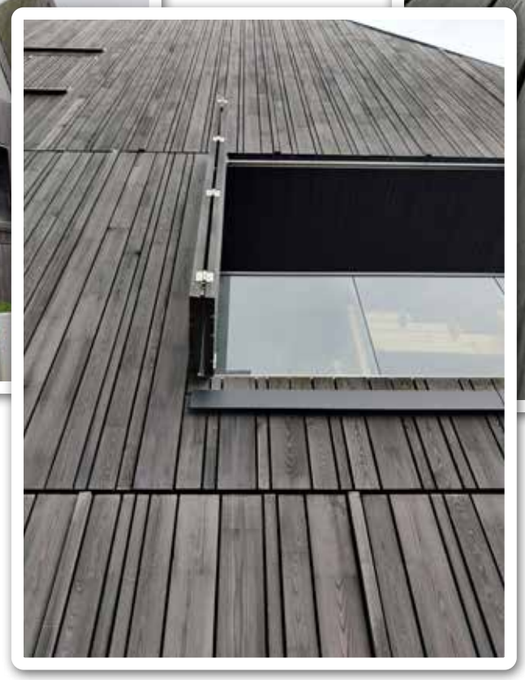


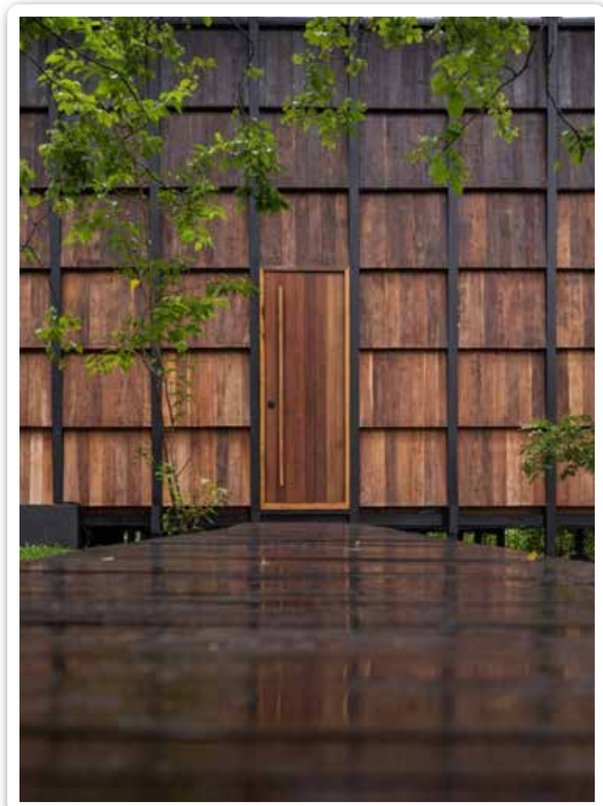
ORGANISM GROWING THROUGH THE BUILDING

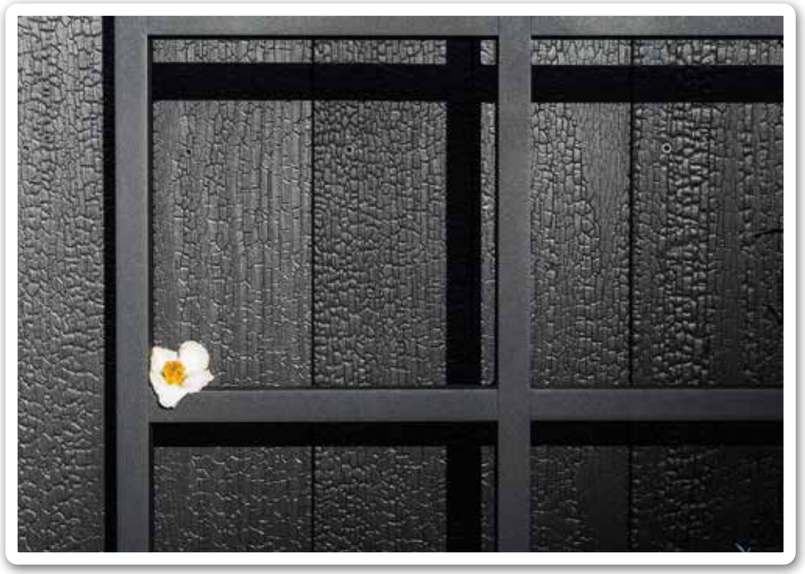


MATERIAL STUDY

SHOU SUGI BAN - CHARRED WOOD CLADDING







MATERIAL STUDY
THATCH CLADDING

MATERIAL STUDY
THATCH CLADDING

RAINSCREEN CLADDING SYSTEMS

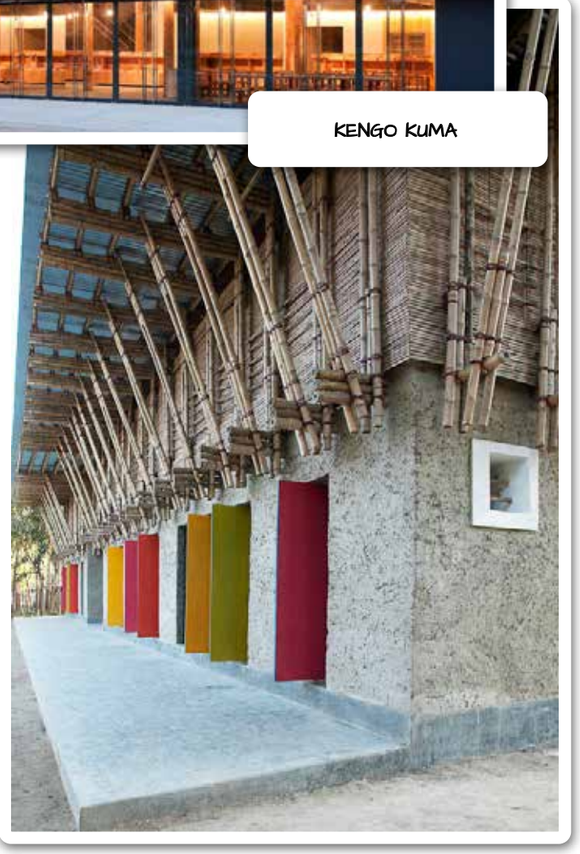
PREFABRICATED PANELS / VERTICAL SETS

HOLLOW REED HAS BETTER INSULATION PROPERTIES

MORE TRADIATIONAL THATCH SYSTEM

BUILDING IS A LITTLE BUTT UGLY

KENGO KUMA

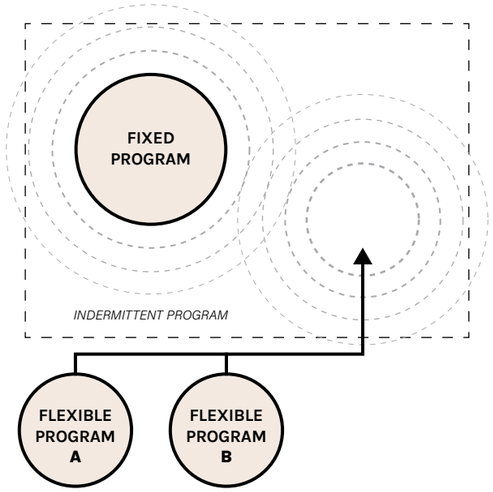


TAKERN VISITOR CENTER

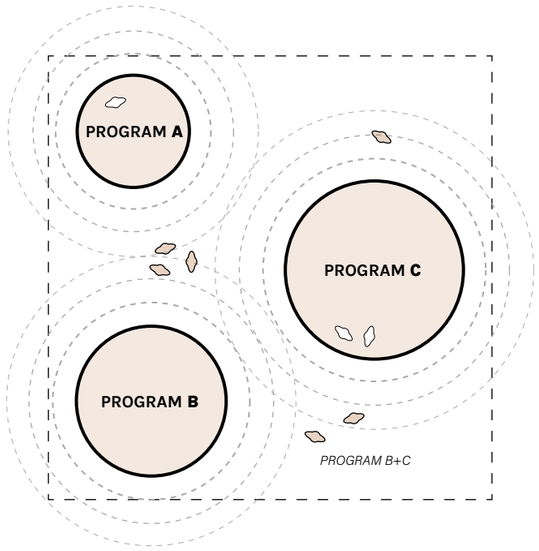
DESIGN DEVELOPMENT

PROCESS

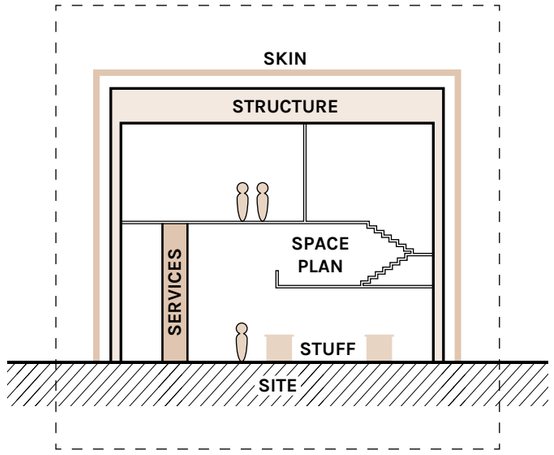
CONCEPT DIAGRAMS
PROJECT DRIVERS



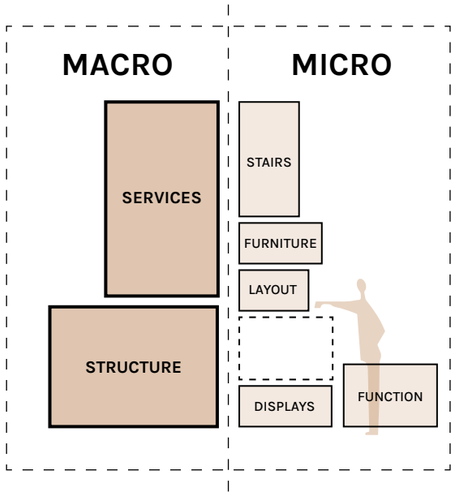
LOOSE FIT AND MULTIPLICITY
DESIGN AFFORDANCES FOR A VARIETY OF ACTIVITIES



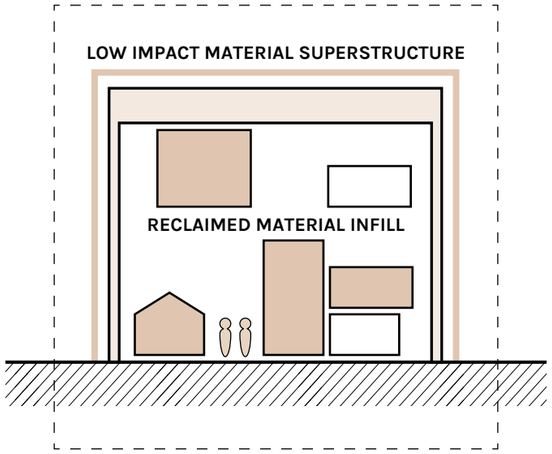
FIXED VS. SPONTANEOUS SPACE
HANDLES FLUCTUATIONS IN ACTIVITY DEMAND



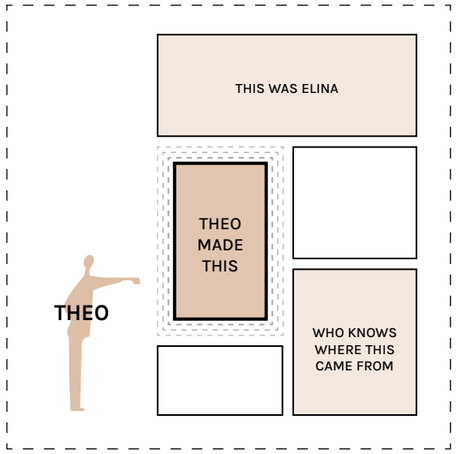
SEPERATION OF BUILDING SYSTEMS
ALLOW FOR INDEPENDANT CHANGES



MACRO AND MICRO SCALE ALTERATION
BOTTOM UP APPROACH TO ALTERATIONS



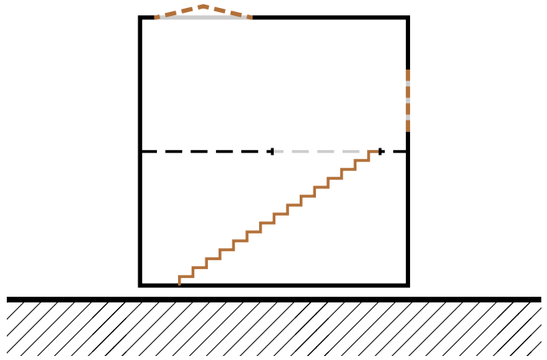
URBAN MINING AND LOW IMPACT MATERIALS
MINIMIZING COST AND ENCOURAGING CIRCULARITY



OWNERSHIP AND AUTHORSHIP
BUILDING AS A REFLECTION OF COMMUNITY

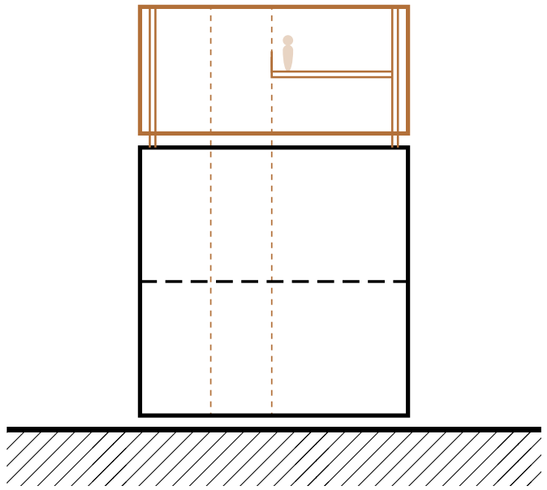
METHODS OF WORKING WITH BUILDING STOCK

RESEARCH FINDINGS



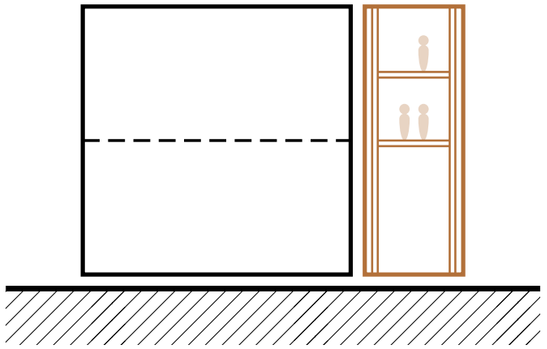
ALTERATION

REFORMULATION OF EXISTING



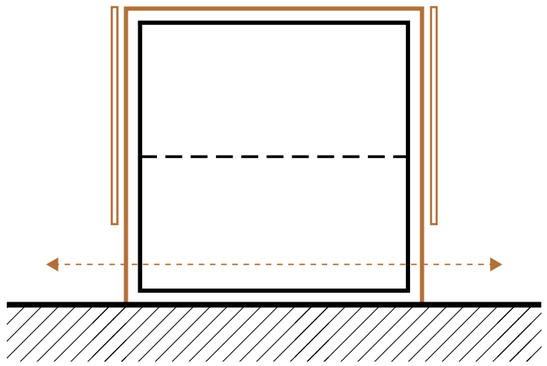
EXTENSION

GROWTH OF EXISTING



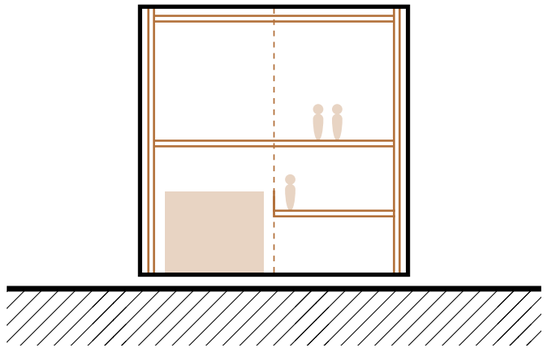
AUGMENTATION

IMPROVING OF EXISTING WITH NEW



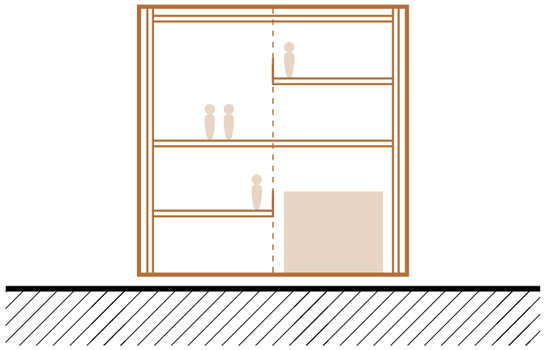
ENVELOPING

ENCOMPASSING OF EXISTING



INFILLING

DENSIFICATION OF THE EXISTING



BUILDING

CREATION OF THE FUTURE EXISTING

THE CAST - PERSONAS

THE PROGRAM DRIVERS AND BUILDING USERS

ELINA & THOMAS

HIGH ENGAGEMENT

CERAMICS, MUSIC, EVENT SPACES, EXHIBITION

ELLA

HIGH ENGAGEMENT

INCUBATOR, WORKSHOPS, GARDENS, FOOD HALL

THE ROMERO FAMILY

MEDIUM ENGAGEMENT

CLASSROOMS, ELECTRONICS LAB, TEXTILES LAB, INCUBATOR

ADELE

LOW ENGAGEMENT

GARDENS, FOOD HALL

TIM

HIGH ENGAGEMENT

WORKSHOPS, STUDIOS, CLASSROOMS

THEO

MEDIUM ENGAGEMENT

COWORKING SPACES, WORKSHOPS, COMMUNITY CENTER

COMMUNITY PERSONAS
SAMPLES OF COMMUNITY USERBASE

PERSONA	BACKGROUND	GOOD POINTS IN AREA	PAIN POINTS IN AREA
 **ELINA & THOMAS**	Elina and Thomas moved to Berlin five years ago from France because of Berlin's prominent reputation for the arts. Elina works as a coordinator and event organizer and Thomas is ceramic artist and musician. They don't know how long they want to stay in Berlin, and worry that the rising cost of living might make the decision for them.	• Berlin exceeds their expectations as a cultural city. • They enjoy the enthusiastic nightlife. • Easy to meet others temporary Berliners, particularly in the central districts.	• Rising cost of living is pushing them to work longer hours in order to make ends meet. • Thomas is finding it difficult to maintain his studio space and is considering splitting it with another artist to reduce costs.
 **ELLA**	Ella is a mechanical engineer and product designer who moved to Berlin from her hometown of Munich. Passionate about environmental activism, professional development, and food, she has struggled to meet like minded people and collaborators over the lockdown.	• Berlin's outspoken nature aligns more closely with her social and political beliefs. • The number of families in the neighborhood gives confidence in starting her own in the area. • Enjoys tending to community garden in Weberwiese.	• With much of her time occupied by work, she finds few opportunities to meet people in Friedrichshain. • She dislikes the lack of restaurants in her area. • Is often annoyed at the number of tourists and foot traffic near her apartment along the Spree.
 **THE ROMERO FAMILY**	The Romeros are a family of Argentine immigrants who relocated to Berlin late last year. The father, Fernando, trained as an architect but his degree is not recognized in Germany. The entire family is taking German lessons in order to assimilate to their new home. Their daughter, Sofia, hopes to become a fashion designer.	• Grateful for the opportunity to move to a more economically stable nation. • Happy to find diverse demographics, including other spanish speakers.	• Despite being a skilled professional, Fernando will have to either go back to school or learn a new profession in order to work in the country. • They often struggle with the unfamiliar language.
 **ADELE**	Adele has lived in Friedrichshain since before the fall of the Berlin Wall. Following the death of her late husband, she has rekindled her interest in gardening, but lacks much space in her small back yard. She has a number of friends in the area whom she meets with regularly.	• Adele finds her fondness for the area tied mainly to its history and her own experiences. • She enjoys volunteering at the nearby school where she worked as a German teacher.	• Adele has little fondness for the cultural scene of her city. She finds the music, vandalism, and attitudes of the younger people distasteful. • There is difficulty in finding meeting places for her and her friends in the area to meet that are accessible and quiet enough for conversation.
 **TIM**	Tim is a retired Australian set designer and prop maker who moved to Berlin to live with his partner ten years ago. Through his work Tom has lived in a number of major cities, but considers Berlin the one that best fits his current needs. He is active in the local makerspace community, xHain, where he works on his own projects and gives guidance to a younger generation of makers.	• Tom finds Berlin to be an incredibly diverse, welcoming, and caring city. • Is stimulated by the world around him and finds joy in seeing people follow their passions. • Enjoys being able to share his knowledge and experience with the younger generation.	• Worries that the current housing shortage and gentrification will change the demographics of Friedrichshain into something less interesting. • Worries about the reliance on technology among young people.
 **THEO**	Theo used to work as a senior developer. After struggles with substance abuse and homelessness, he has rebuilt his life and now works remotely. In an effort to change to a more hands on career, possibly in the trades. He actively volunteers in an effort to support those in similar situations to his past.	• Thoe finds Berlin to be a caring and generous city. • He identifies with the counter-culture culure of Berlin and its nightlife. • Wants to find his own way to help people struggling with drugs and alcohol.	• Theo is concerned that the gentrification taking place in Friedrichshain risks pushing many people out of their communties.

PROGRAM DEVELOPMENT
PROGRAM DEVELOPMENT

BERLIN 2030 URBAN DEVELOPMENT PLAN - FUTURE

- Strengthening the economy with smart knowledge
- Improving accessibility and city-friendly mobility
- Unleashing strengths through creativity
- Shaping the future together
- Laying the groundwork for a climate-friendly metropolis
- Safeguarding employment via education and skills
- City and green growing together
- Reinforcing neighbourhood diversity

BERLIN 2030 URBAN DEVELOPMENT PLAN - TODAY

- Dynamic capital with global reach
- Innovative economic and scientific hub
- Metropolis with enourmous untapped land potential
- A place for everyone to explore their creativity
- Green and compact city
- Caring, inclusive and socially responsible city

FUTURE PLANNING THEMES

- TECHNOLOGY & INNOVATION
- ECONOMY & EMPLOYMENT
- CREATIVITY & CULTURE
- EDUCATION & SKILL AQUISITION
- COMMUNITY & DIVERSITY
- HEALTH & WELLNESS
- SUSTAINABILITY

POSSIBLE PROGRAM ELEMENTS

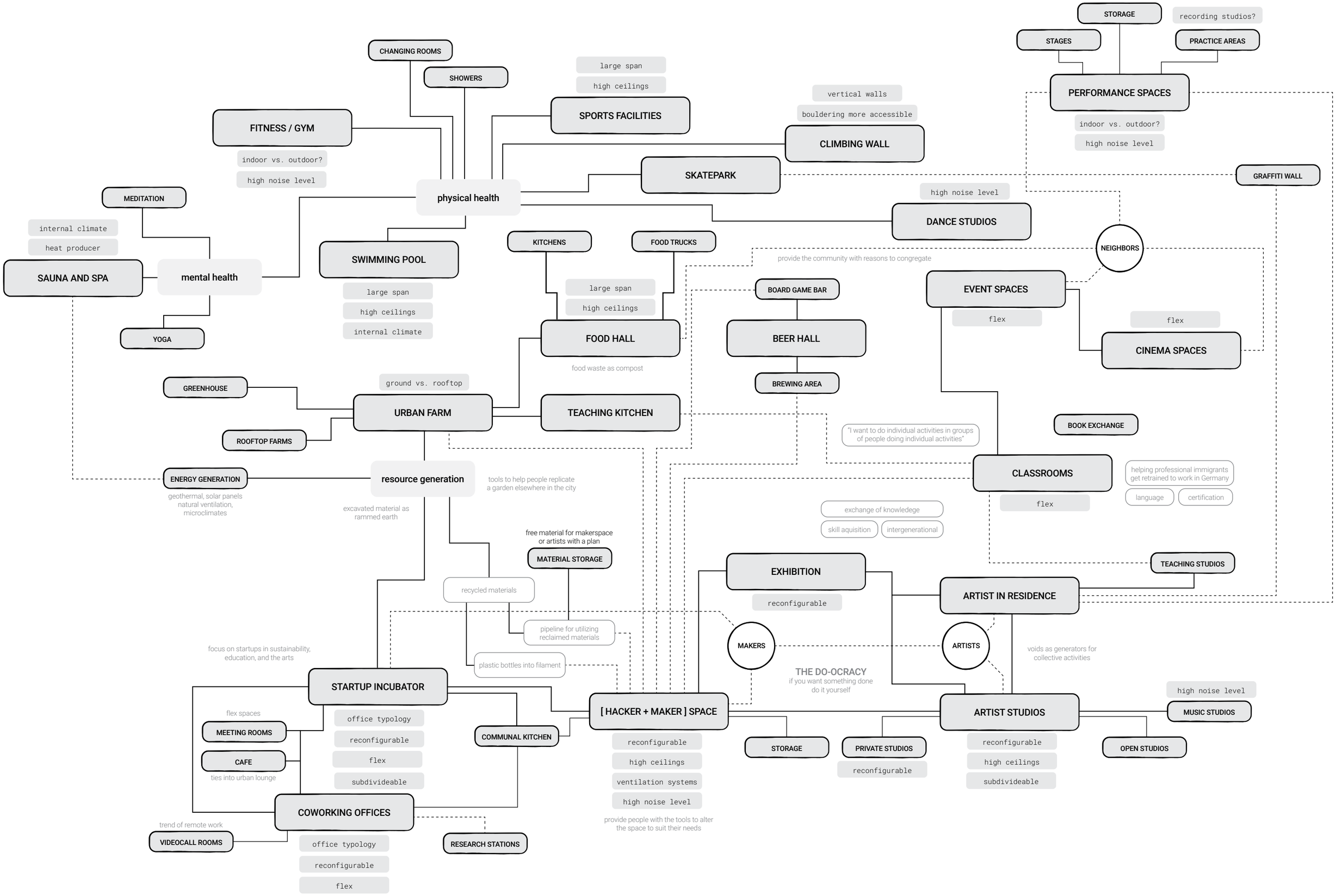
- **Coworking Spaces** — Collaborative working spaces.
- **Startup Incubator** — Office spaces for young businesses and start-ups.
- **Rental Office Space** — Typical office space, offset cost of the building.
- **Artist Studios** — Artist workshops and studios to rent.
- **Artist in Residence** — Artists live and work on site.
- **Performance Spaces** — Practice and performance areas for artists.
- **Exhibition Spaces** — Artist exhibitions & community work.
- **[Maker & Hacker] Space** — Community workshop and Hackerspace.
- **Graffiti Spaces** — Space for street art to be performed.
- **Teaching Studios** — Program specific education spaces.
- **Auditorium** — Holds lectures, workshops, or town halls.
- **Event Spaces** — Flexible spaces capable of hosting events.
- **Food / Beer Hall** — Sharing of ideas and culture.
- **Fitness Area** — Interior or exterior space for physical fitness.
- **Sports Facilities** — Fields, courts, pools, or other infrastructure.
- **Rock Climbing** — Interior area for rock climbing or bouldering.
- **Community Garden** — Land that can be used to host a community garden.
- **Energy Generation** — Elements intended to reduce carbon impact.

PERSONAS



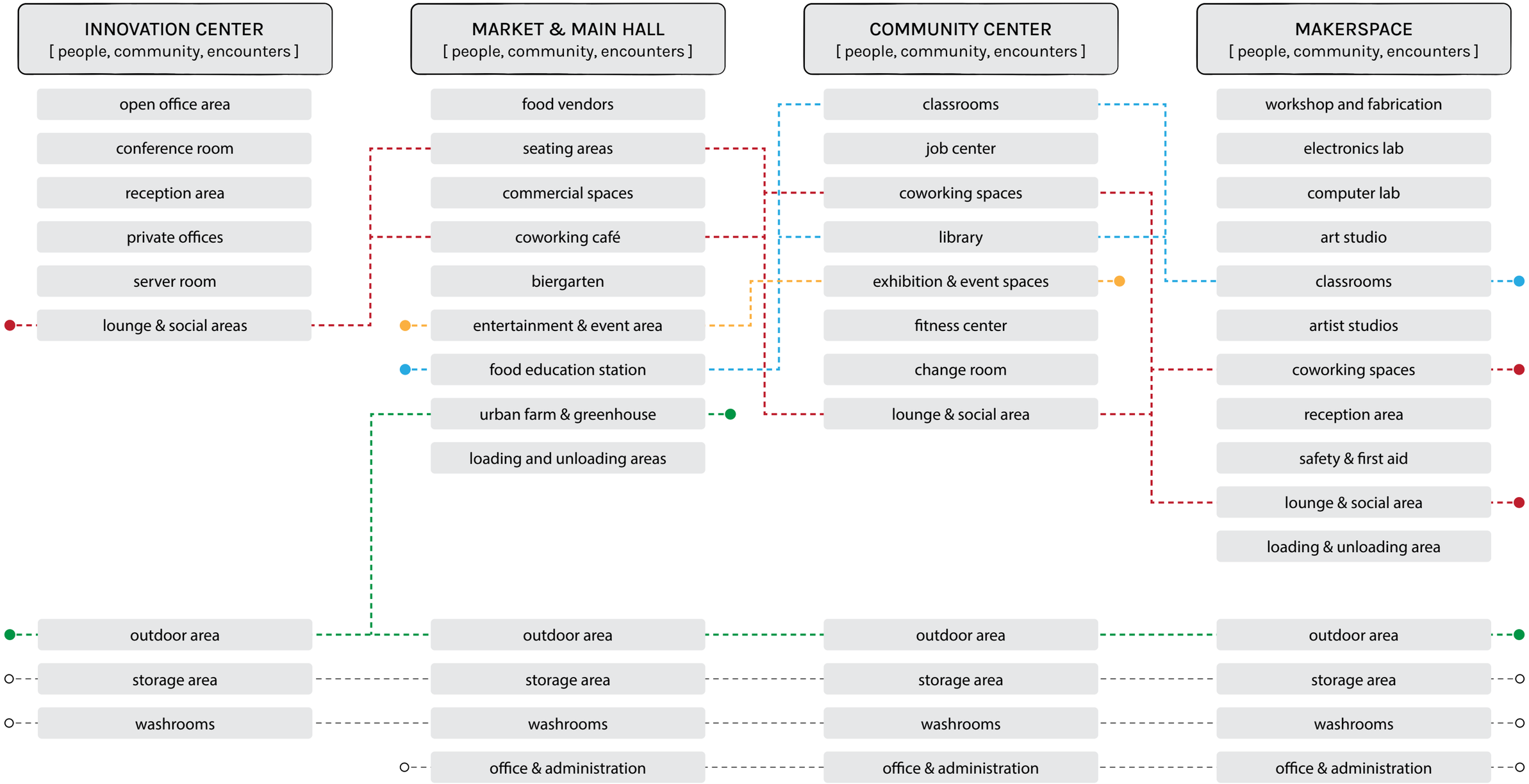



PROGRAM DEVELOPMENT
MASTER PROGRAM



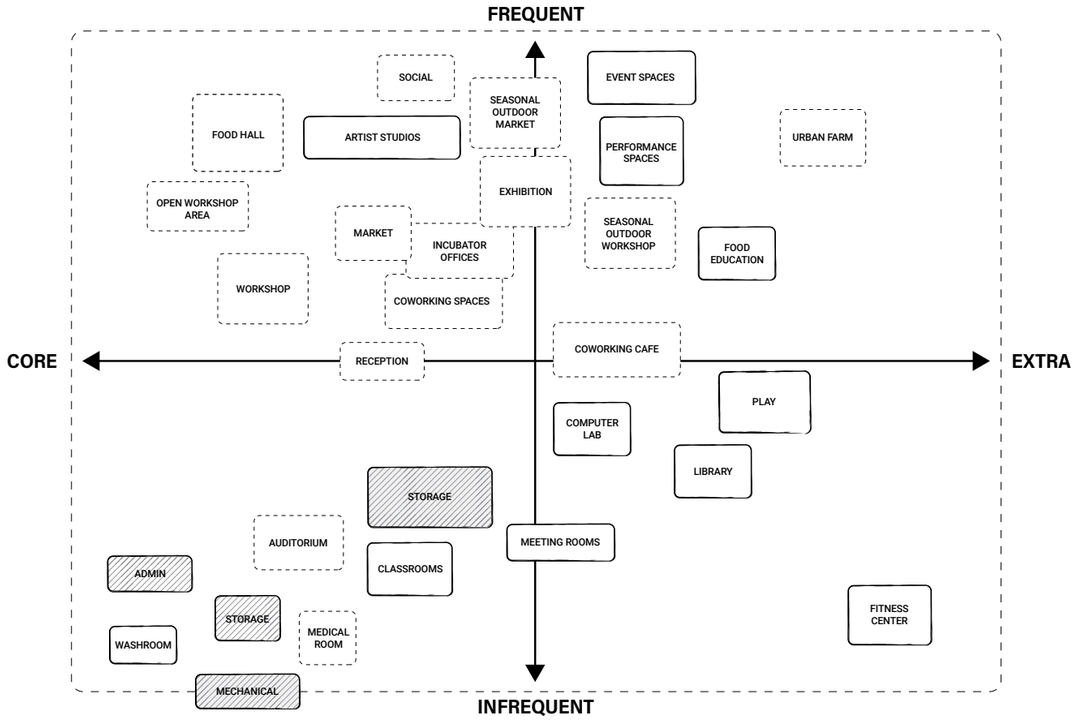
DIVIDING PROGRAM INTO CORES

CLUSTERING



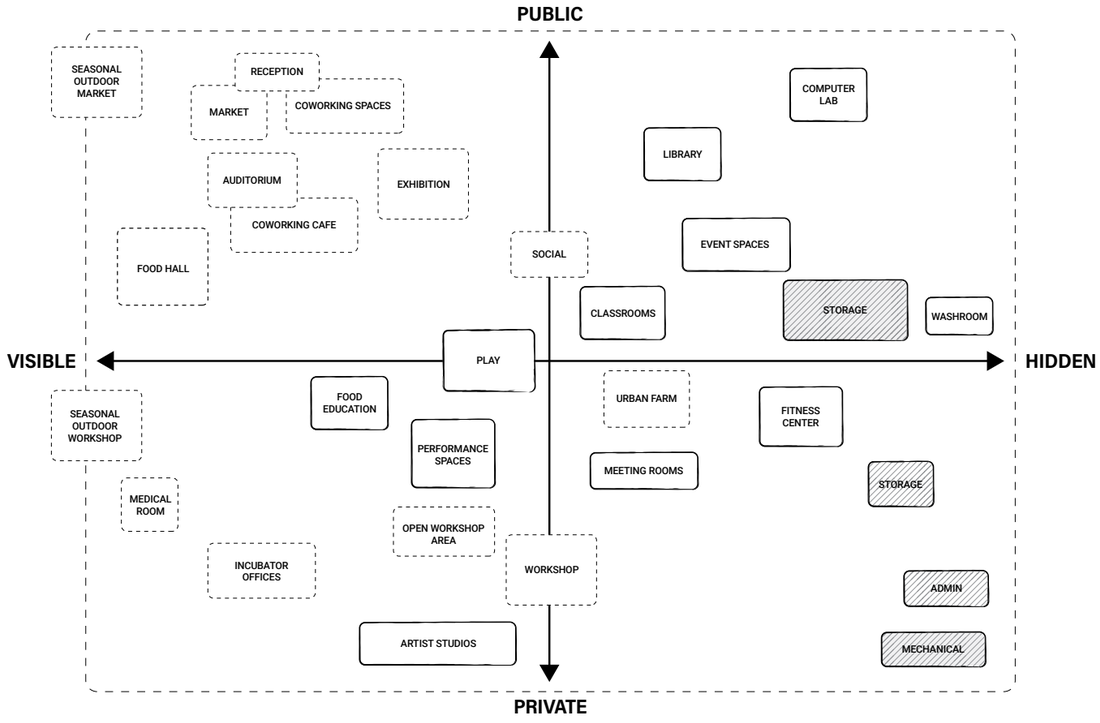
PROGRAM DEVELOPMENT

FUNCTION MAPPING



FIXED VS. SPONTANEOUS SPACE

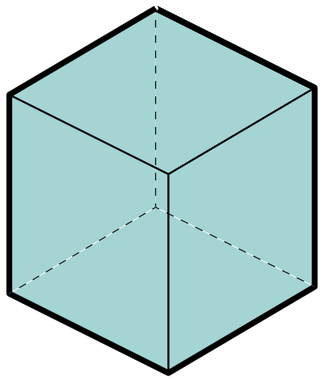
DOUBLE THE CITY AVERAGE



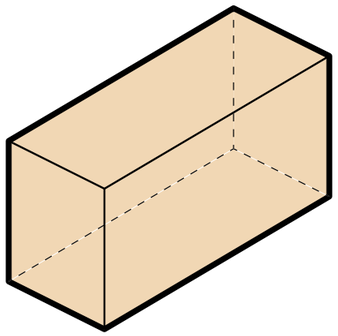
LAYERS OF HACKABILITY

DOUBLE THE CITY AVERAGE

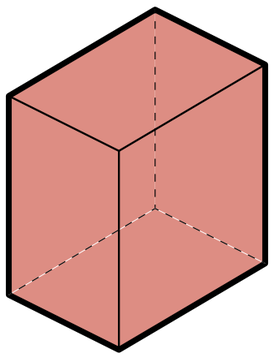
PROGRAM DEVELOPMENT
DRIVERS



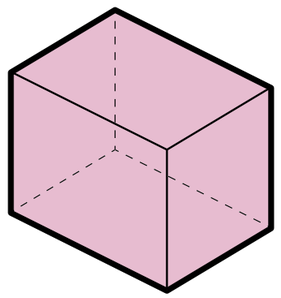
PROGRAM A
MAKERSPACE & HACKESPACE



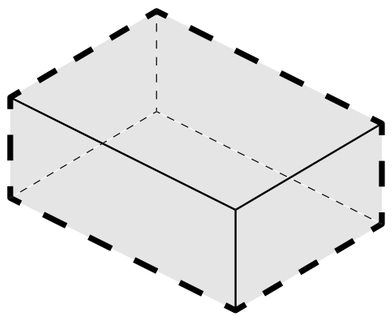
PROGRAM B
INNOVATION INCUBATOR



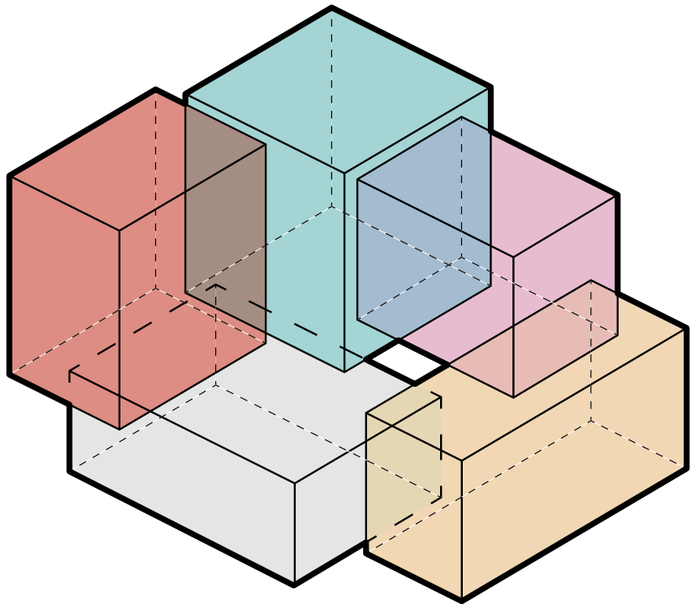
PROGRAM C
MARKET AND FOOD HALL



PROGRAM D
COMMUNITY CENTER

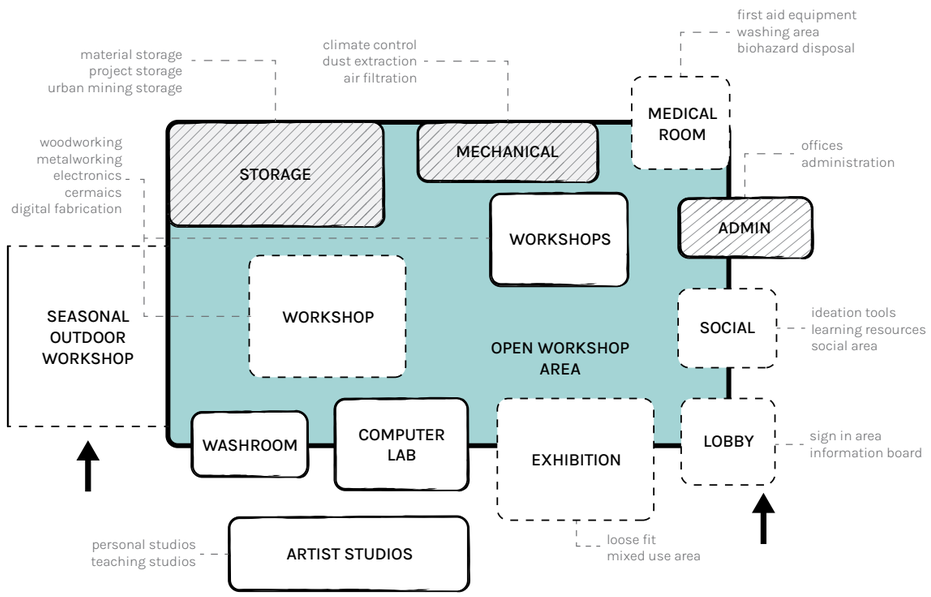


THE INBETWEEN
UNDETERMINED PROGRAM

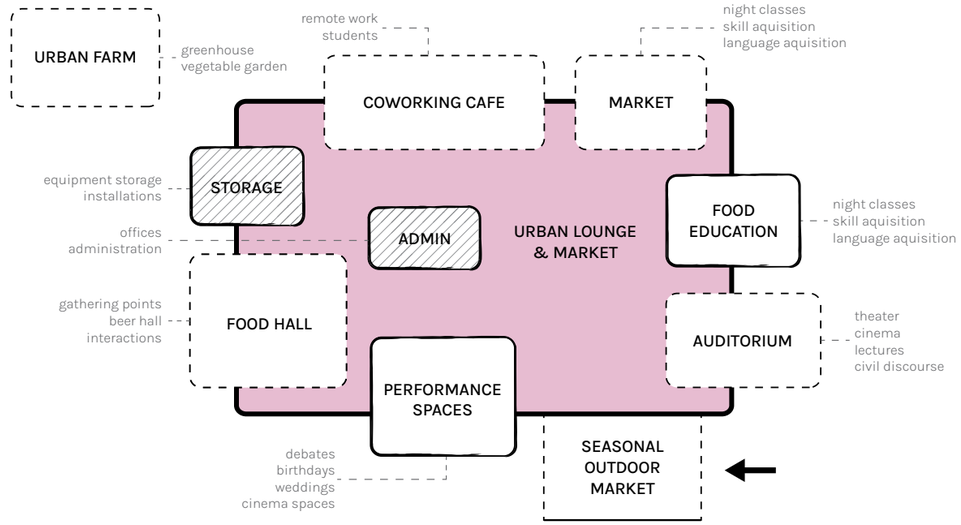


PROGRAM [A] + [B] + [C] + [D] + [THE INBETWEEN]
PUBLIC CONDENSER

PROGRAM DEVELOPMENT
UNDERSTANDING THE COMPONENT PROGRAMS

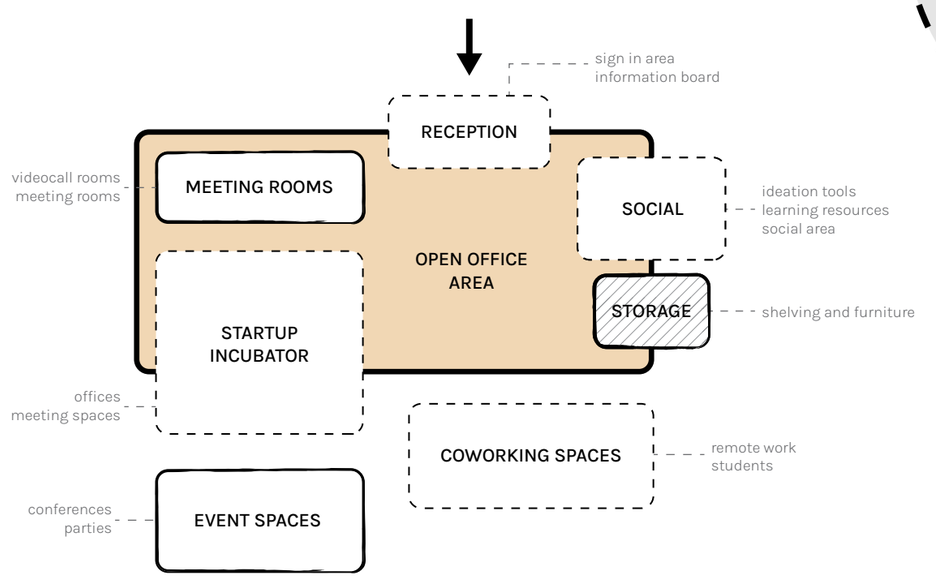


PROGRAM A
MAKERSPACE & HACKESPACE

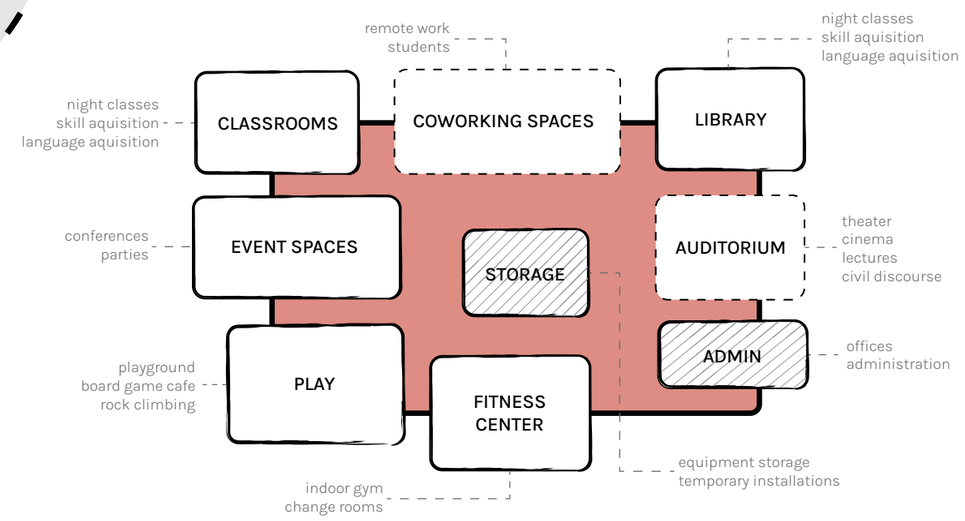


PROGRAM C
MARKET AND FOOD HALL

THE INBETWEEN
UNDETERMINED PROGRAM

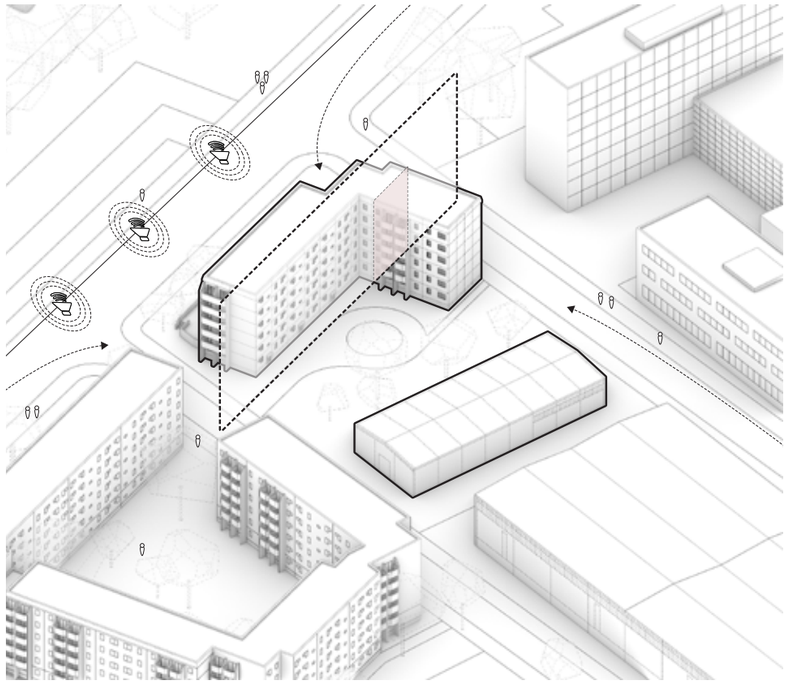


PROGRAM B
INNOVATION INCUBATOR

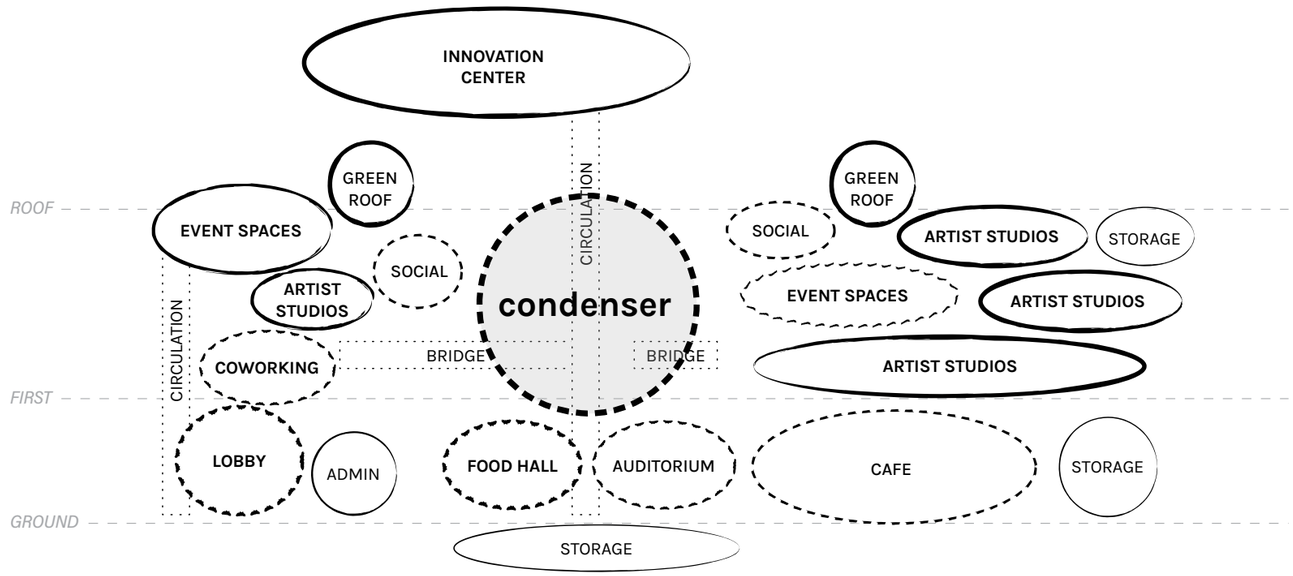


PROGRAM D
COMMUNITY CENTER

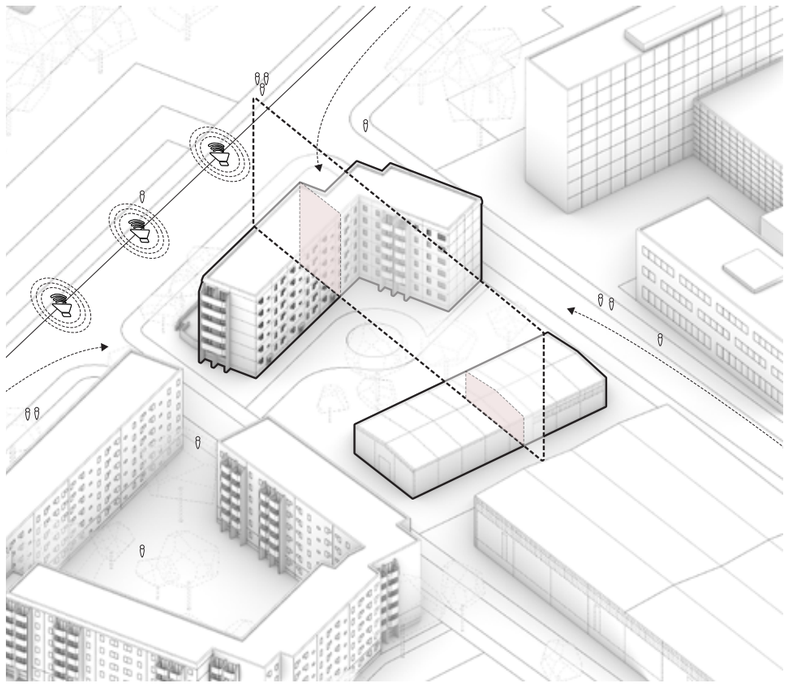
PROGRAM MAPPING
DISTRIBUTING PROGRAM AND CONDITIONS



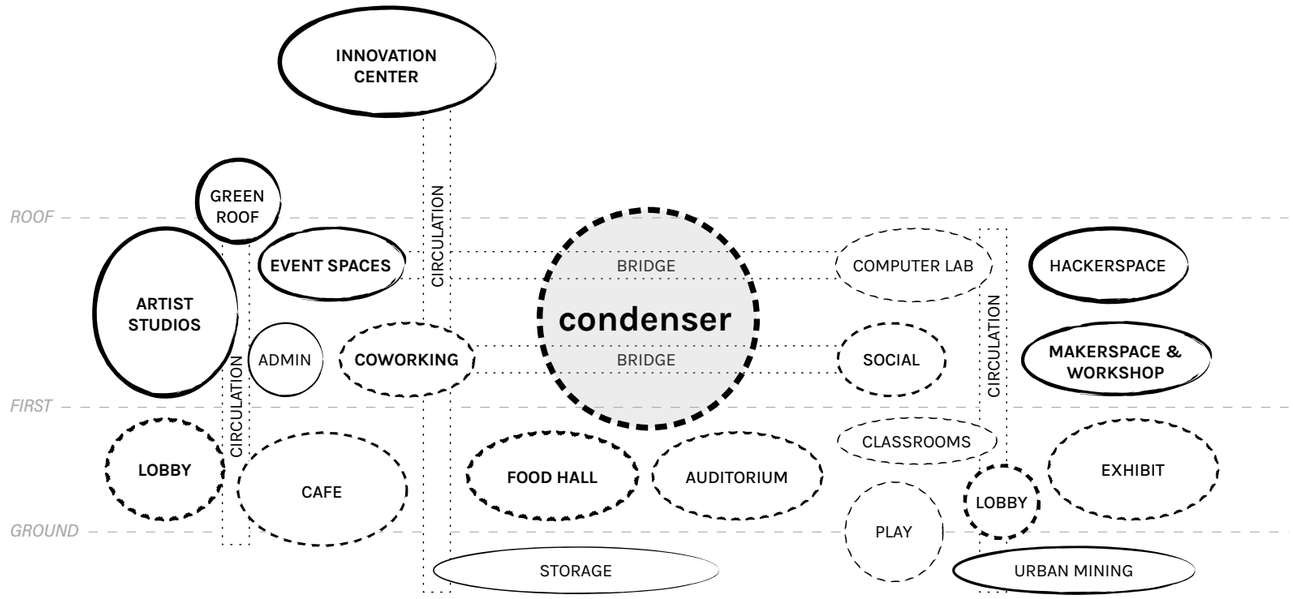
NORTH WEST FACING SECTION



NORTH WEST FACING SECTION - PROGRAM DISTRIBUTION



NORTH EAST FACING SECTION



NORTH EAST FACING SECTION - PROGRAM DISTRIBUTION

440M²

INNOVATION INCUBATOR

OFFICE SPACES

2040M²

MAKERSPACE AND CREATIVE SPACES

WORKSHOPS AND STUDIOS

1400M²

COMMUNITY CENTER

INTERACTION AND EVENTS

1550M²

AUDITORIUM AND MARKET HALL

MARKET AND FOOD HALL

1100M²

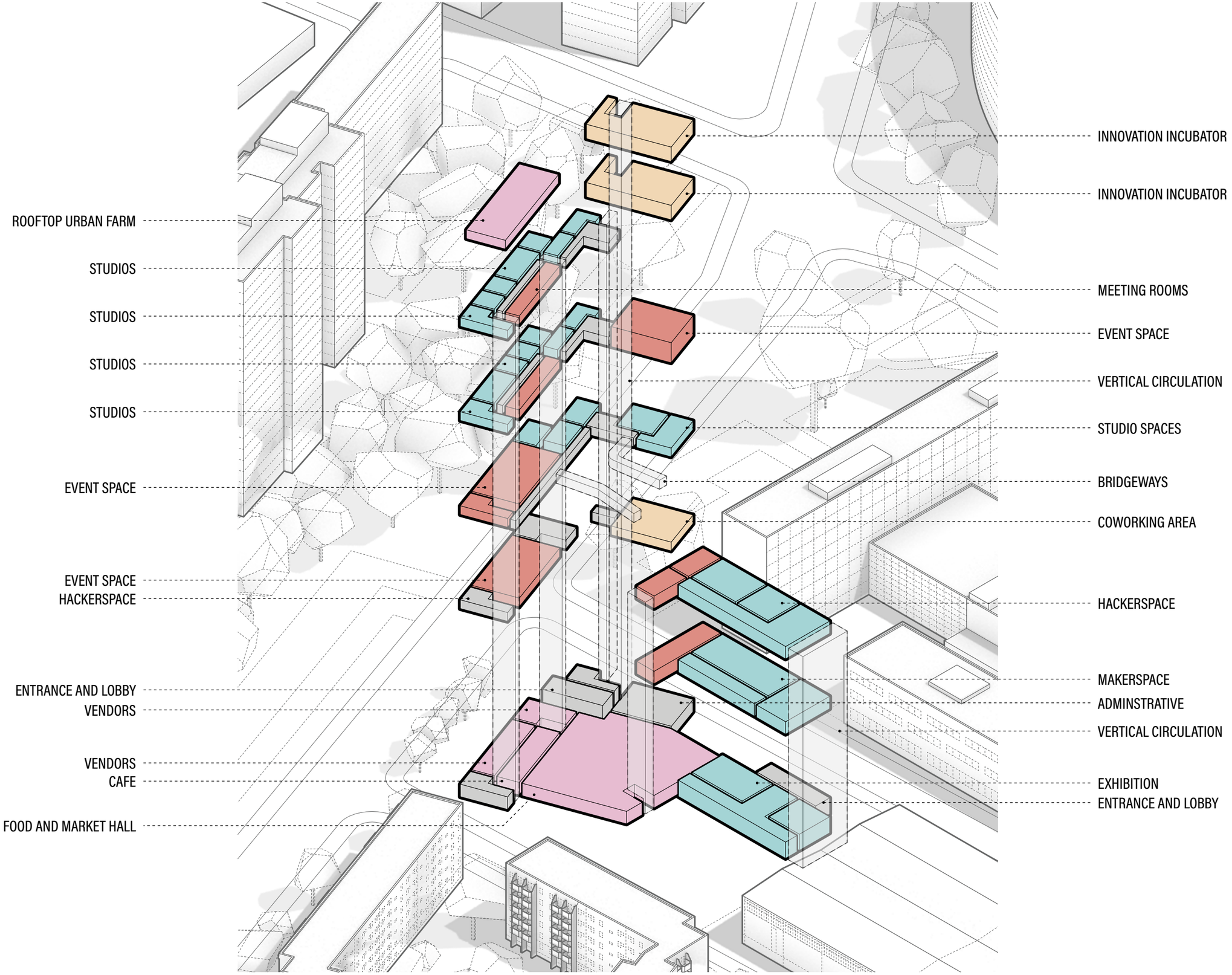
COMMON REQUIREMENTS

SERVICE SPACES

FUNCTION	TARGET GROSS AREA	TARGET NET AREA	TARGET HEIGHT	TARGET LIGHT	OPENNESS	OCCUPANCY DENSITY
INNOVATION INCUBATOR						
reception area	30	25	4.0	high	open	medium
conference room	40	35	4.0	medium	closed	low
flexible office space	270	245	5.0	high	open	medium
lounge & social area	60	55	4.5	high	open	medium
storage room	40	0	3.0	low	closed	low
SUB TOTAL	**440**	**360**				
MAKERSPACE & CREATIVE						
reception area	30	25	4.0	high	open	medium
flexible workshop space	400	360	6.0	high	open	medium
specific shop program	350	315	5.0	very high	mixed	low
classroom & training area	80	70	4.0	medium	mixed	medium
lounge & social area	80	70	4.5	high	open	medium
coworking space	200	180	4.0	medium	open	medium
artist studios	500	450	3.5	high	closed	low
exhibition areas	150	135	5.0	high	open	high
storage room	150	0	3.0	low	closed	low
safety and first aid	20	20	3.0	very high	open	low
mechanical	80	0	3.0	low	closed	low
SUB TOTAL	**2040**	**1625**				
COMMUNITY CENTER						
library	100	90	4.0	high	mixed	medium
event spaces	200	180	4.5	high	mixed	high
auditorium area	200	180	6.0	high	open	high
coworking spaces	150	135	4.0	high	mixed	medium
job center	80	70	4.5	medium	open	low
flexible outdoor space	400	0	-	high	-	high
meeting rooms	40	35	3.5	medium	closed	low
play spaces	130	115	4.0	high	open	medium
classroom spaces	100	90	4.5	medium	closed	medium
SUB TOTAL	**1400**	**895**				
AUDITORIUM AND MARKET HALL						
flexible market area	400	180	6.0	high	open	high
food vendors	200	45	6.0	high	open	high
rooftop urban farm / greenhouse	400	0	-	high	-	low
food education space	50	180	4.5	medium	open	medium
seating areas	200	135	4.5	high	open	high
storage rooms	150	135	3.0	low	closed	low
entertainment and event area	150	130	6.0	high	open	high
SUB TOTAL	**1550**	**1035**				
COMMON REQUIREMENTS						
washrooms	100	85	3.5	low	closed	low
office and administration	100	85	4.0	medium	closed	low
loading and unloading area	50	45	5.0	medium	closed	low
entrances	150	130	5.0	high	open	medium
mechanical	200	0	3.0	low	closed	low
circulation	500	0	4.0	medium	open	medium
SUB TOTAL	**1100**	**360**				

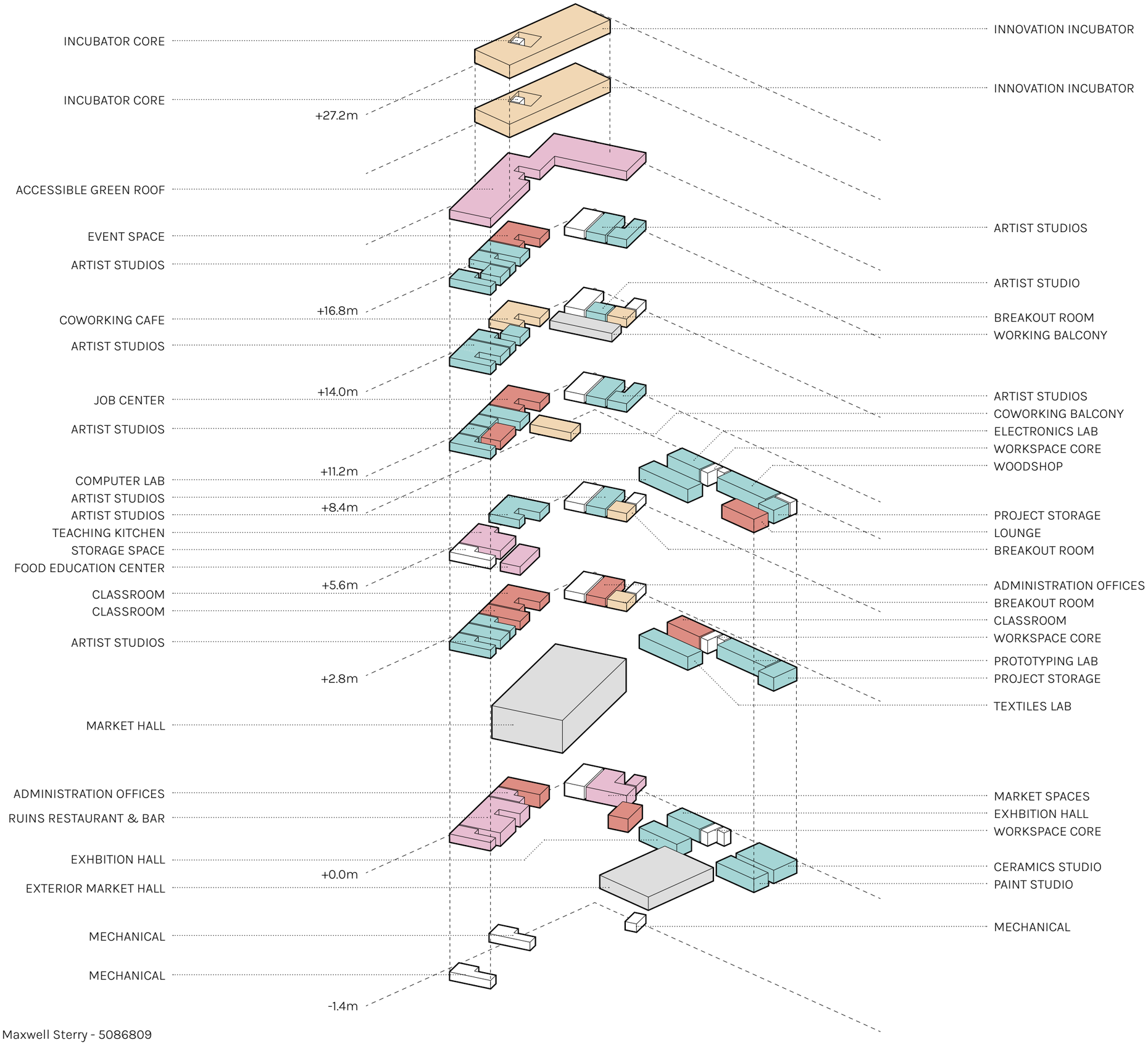
P2 PROGRAM ANALYSIS

MAPPED PORGRAM



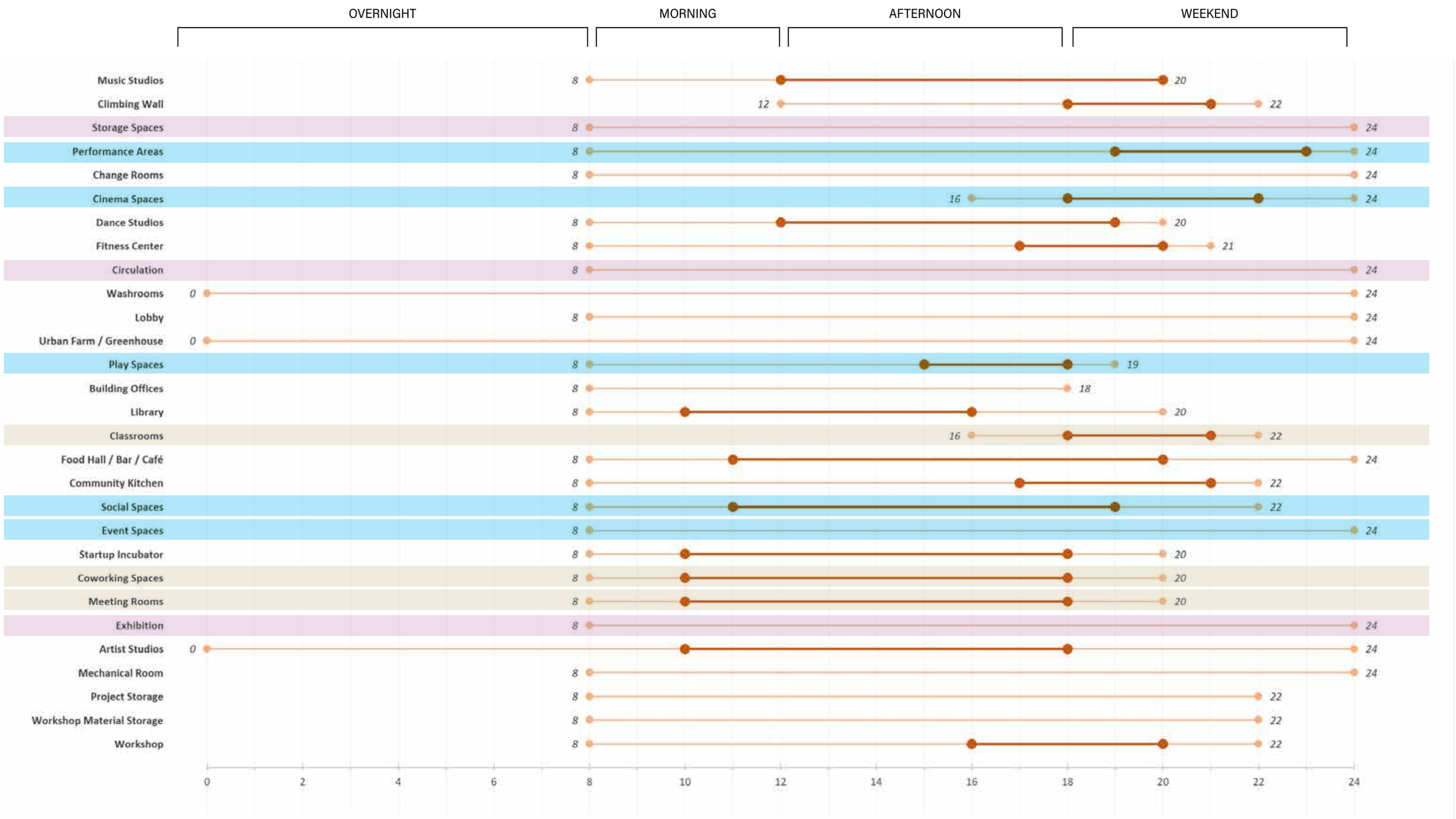
END PROGRAM DISTRIBUTION

IMPLEMENTED SPATIAL MAPPING OF THE PROGRAM



ACTIVE HOURS BY PROGRAM

MULTIPLICITY STUDY



PRINCIPLE EXAMPLES

STORAGE

MODULAR STORAGE

IKEA

- **High** standardization
- Highly modular
- **Limited** in the variety of items that can be accommodated
- **Low** amount of flexibility during the design phase, **medium** amounts of flexibility during the use phase.
- **Some ability** to react to changing needs or organizational strategies.

SHADOWBOARDING

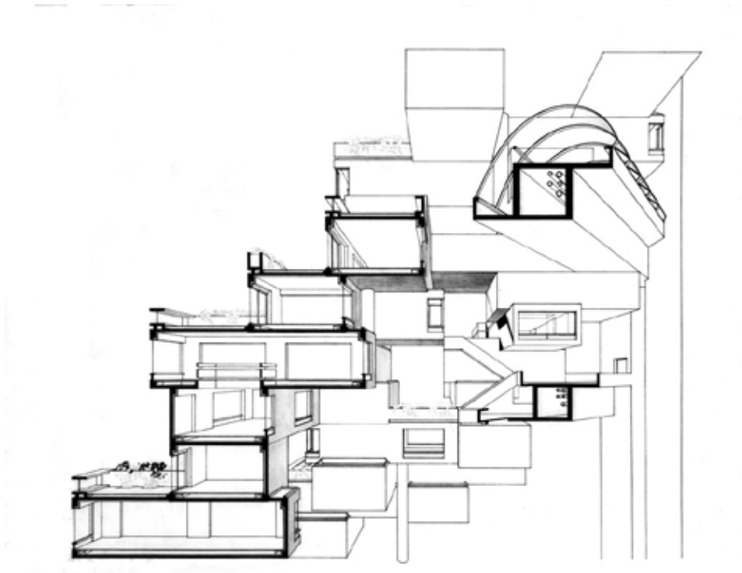
MEDIUM SOCKET SET

- **Low** standardization
- Non modular
- **Flexible** in the variety of items that can be accommodated
- **Large** amount of flexibility during the design phase, **low** amounts of flexibility during the use phase.
- **No ability** to react to changing needs or organizational strategies.

HACKABLE SYSTEM

FRENCH CLEAT WALL

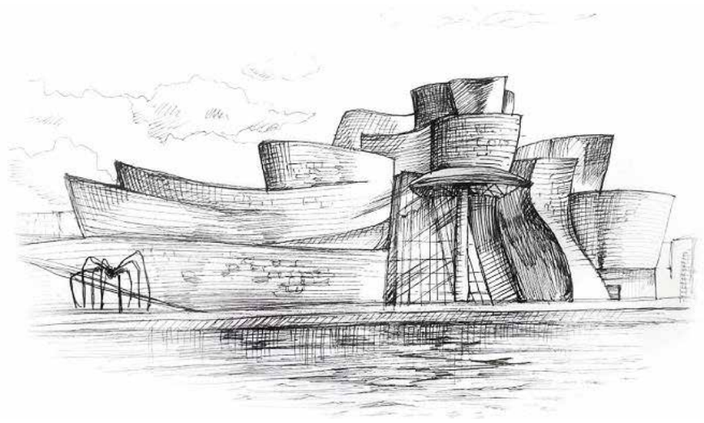
- **Some** standardization
- Some modularity
- **Flexible** in the variety of items that can be accommodated
- **Large** amount of flexibility during the design phase, **large** amounts of flexibility during the use phase.
- **High ability** to react to changing needs or organizational strategies.



MODULAR ARCHITECTURE

HABITAT 67 - MOSHE SAFDIE

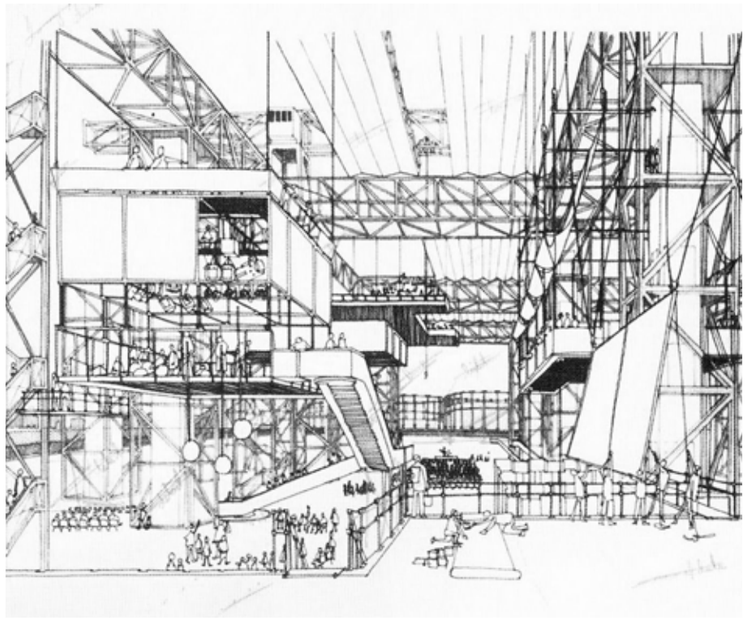
- **High** modularity
- **High** scalability
- **Some** flexibility during design phase
- **Some** flexibility during use phase



MONUMENTAL ARCHITECTURE

GUGGENHEIM BILBAO - FRANK GEHRY

- **Low** modularity
- **Low** scalability
- **High** flexibility during design phase
- **Low** flexibility during use phase



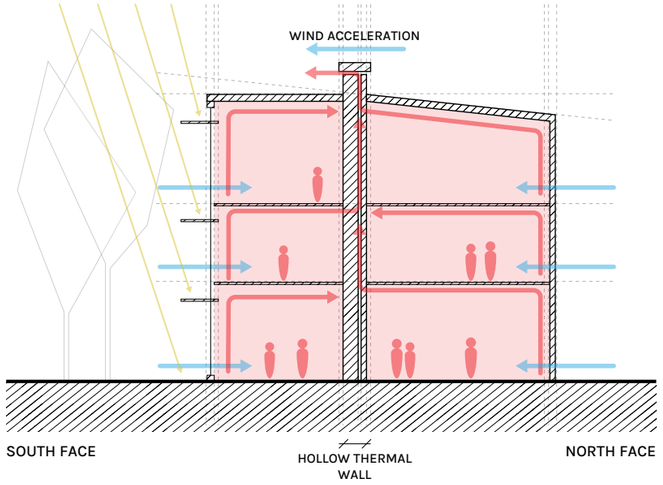
HACKABLE ARCHITECTURE

FUN PALACE - CEDRIC PRICE

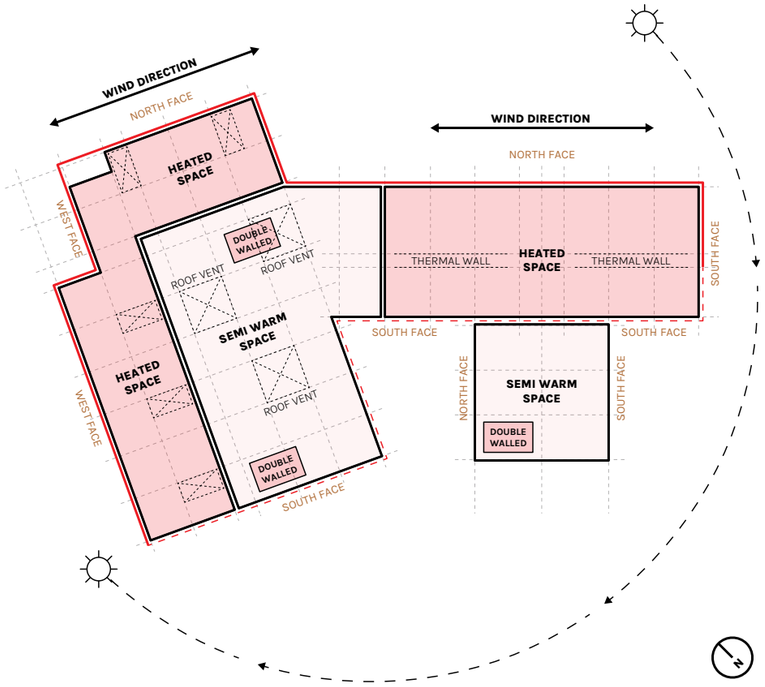
- **Some** modularity
- **High** scalability
- **Some** flexibility during design phase
- **High** flexibility during use phase

CLIMATE DIAGRAM

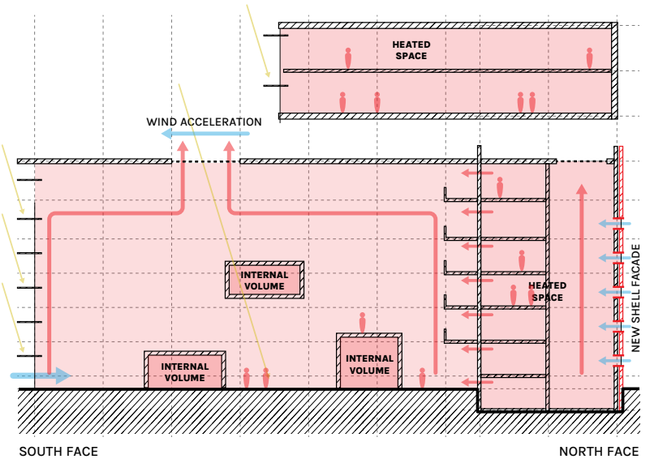
CLIMATE ZONES



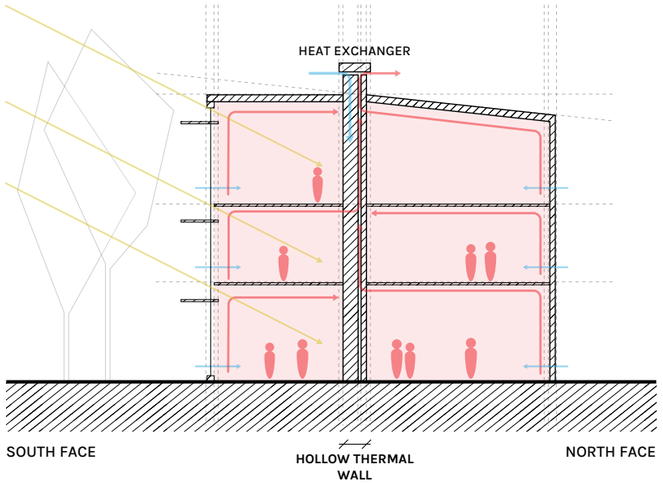
CONCEPTUAL WINTER PLATTENBAU HALL SECTION



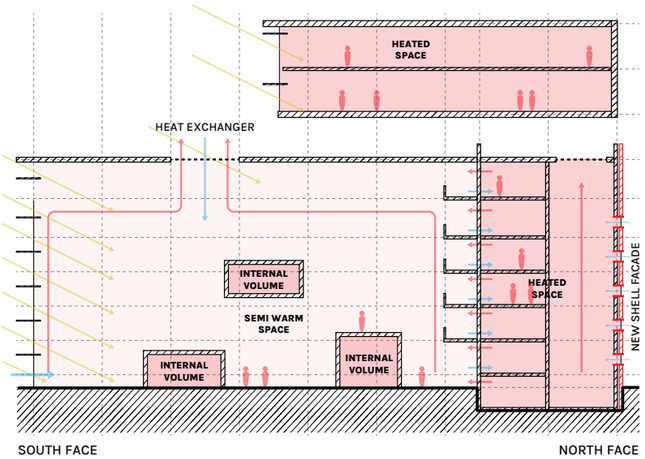
CONCEPTUAL CLIMATE ZONE PLANS



CONCEPTUAL WINTER MAKERSPACE SECTION



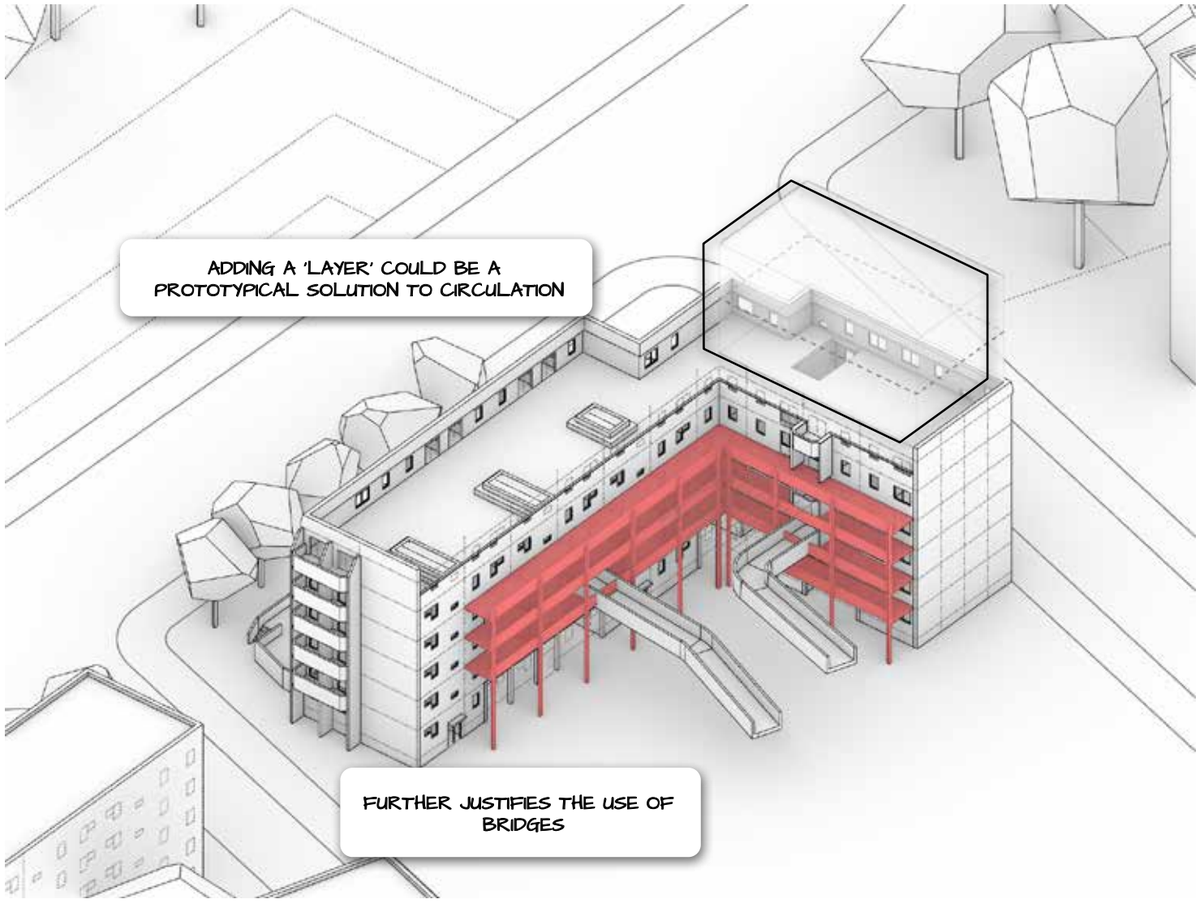
CONCEPTUAL SUMMER PLATTENBAU HALL SECTION

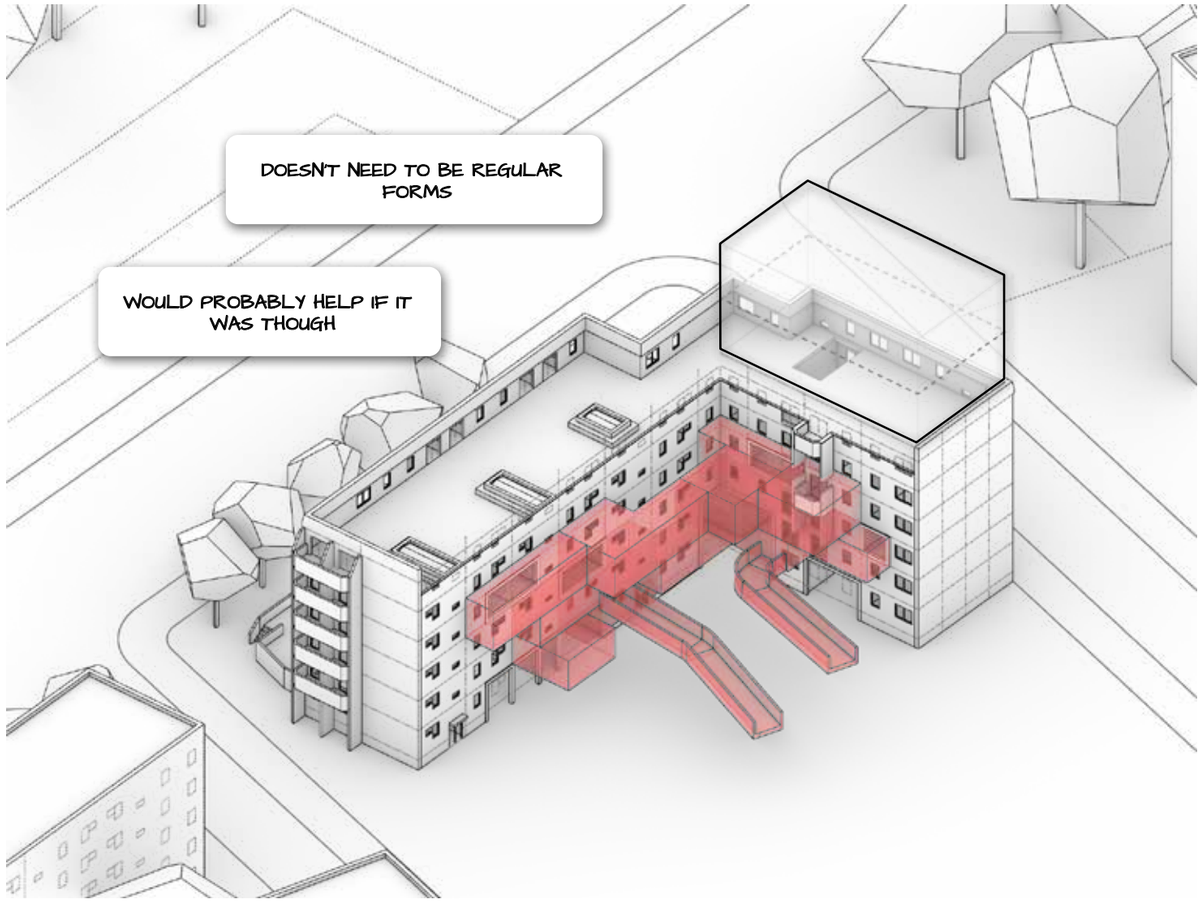


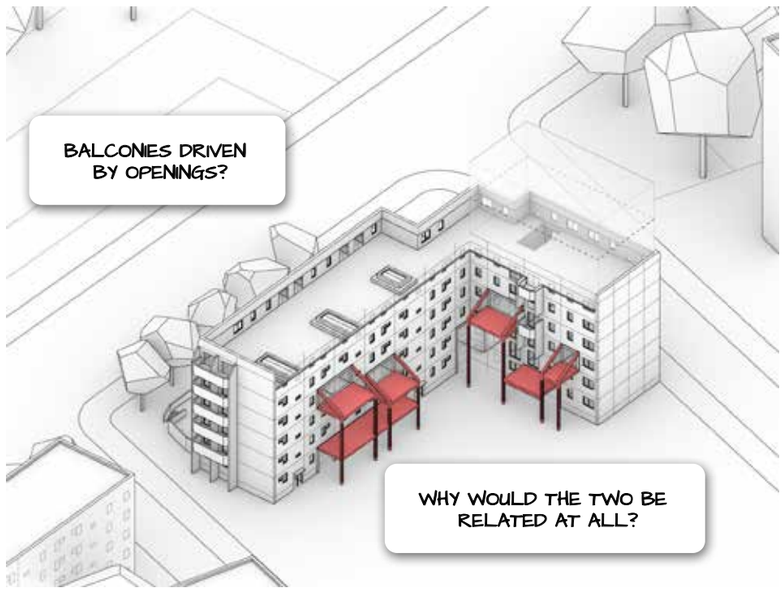
CONCEPTUAL SUMMER MAKERSPACE SECTION

PATTENBAU CIRCULATION CONCEPT

SECOND SKIN - NEW ORGAN

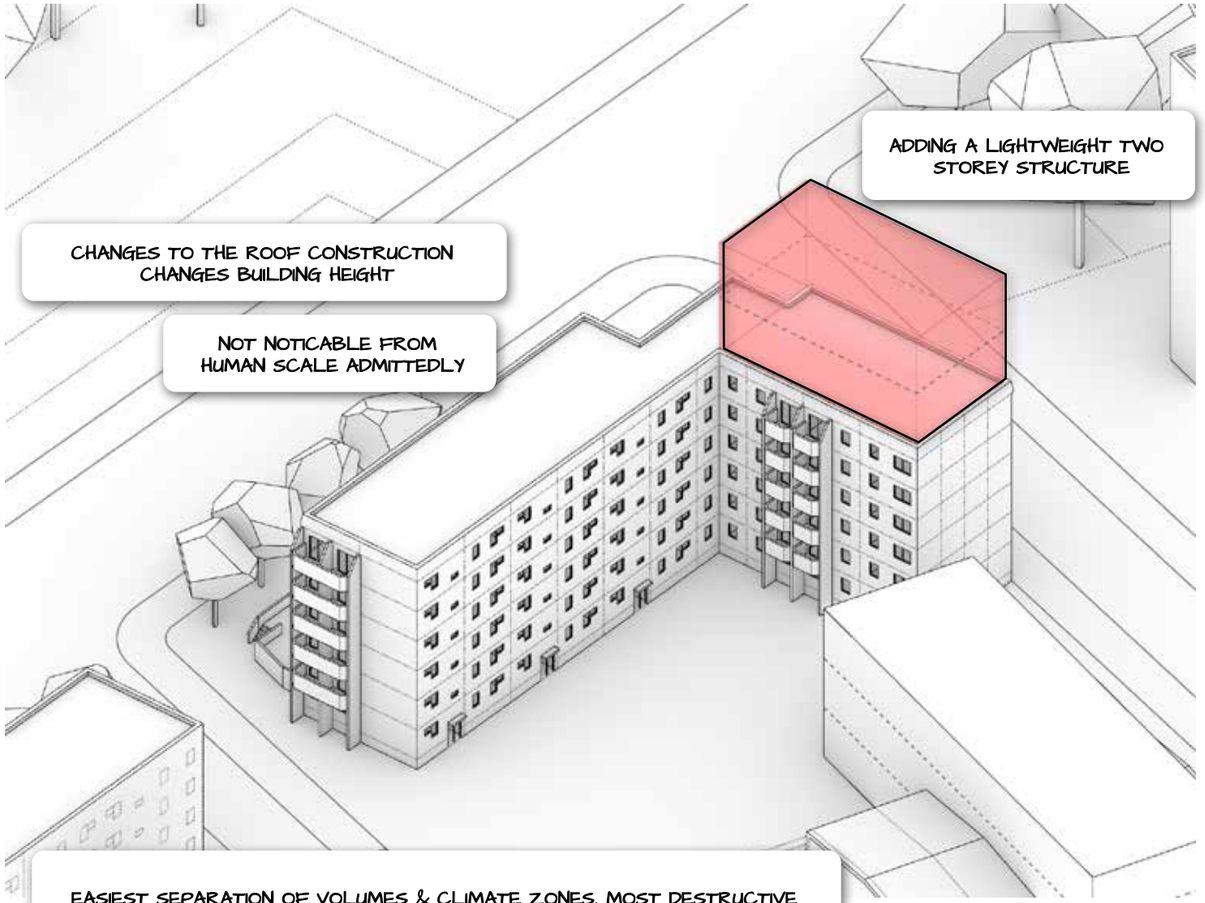


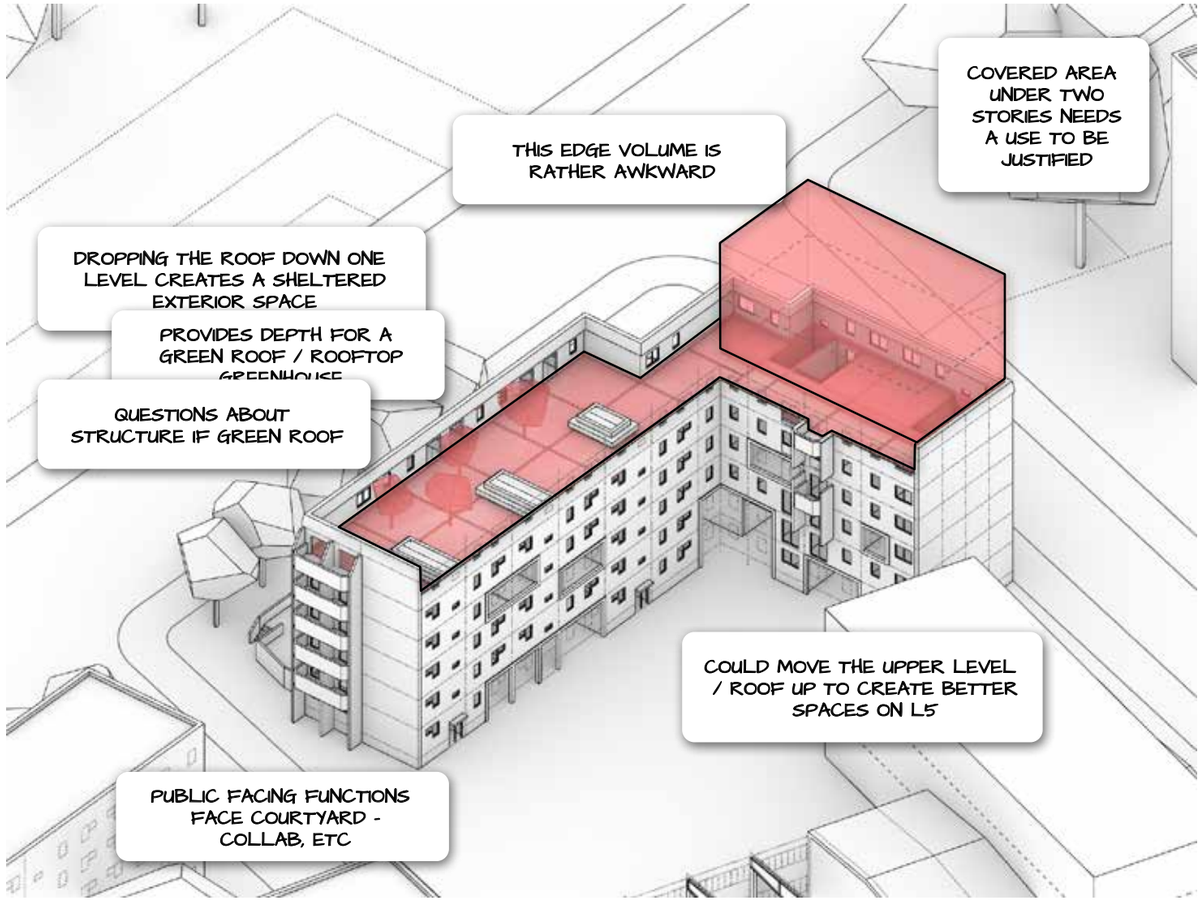


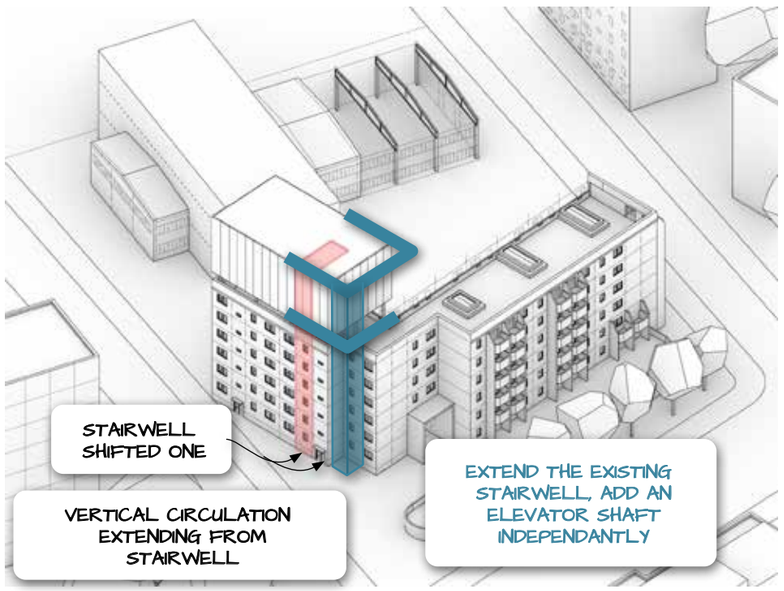


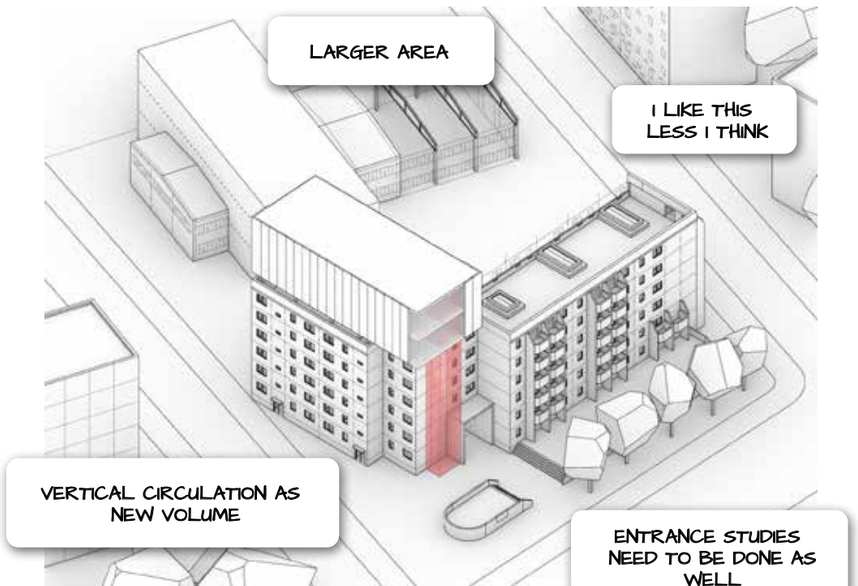
INCUBATOR VOLUME TESTS

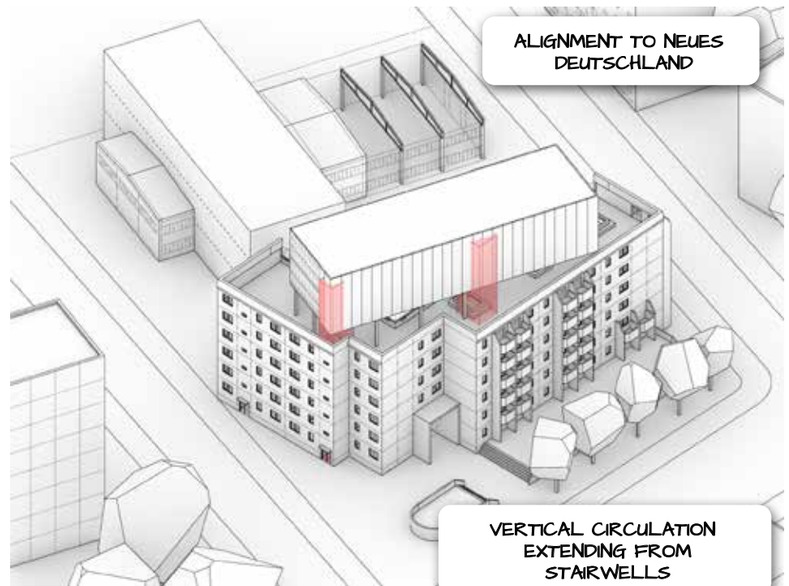
EXTENSION







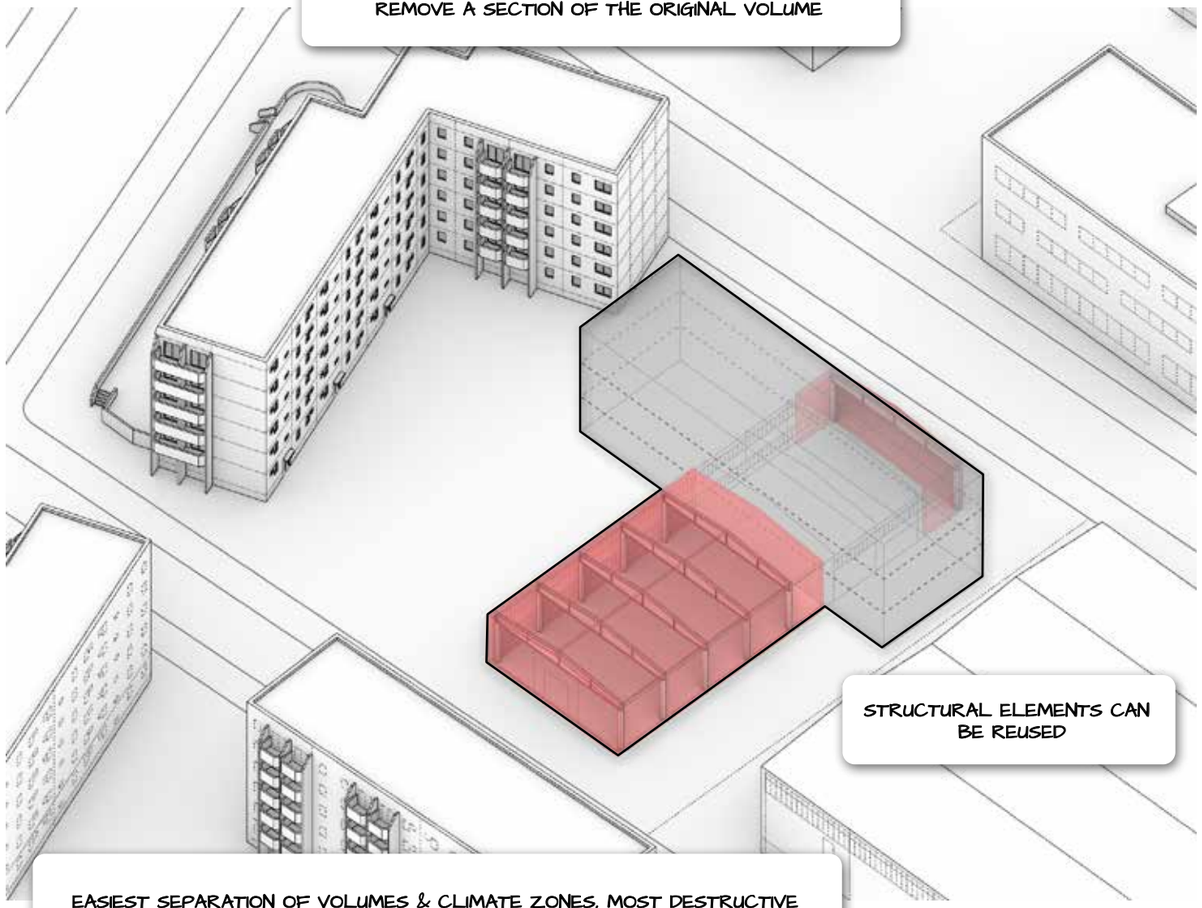




MAKERSPACE VOLUME TESTS

EXISTING WAREHOUSE

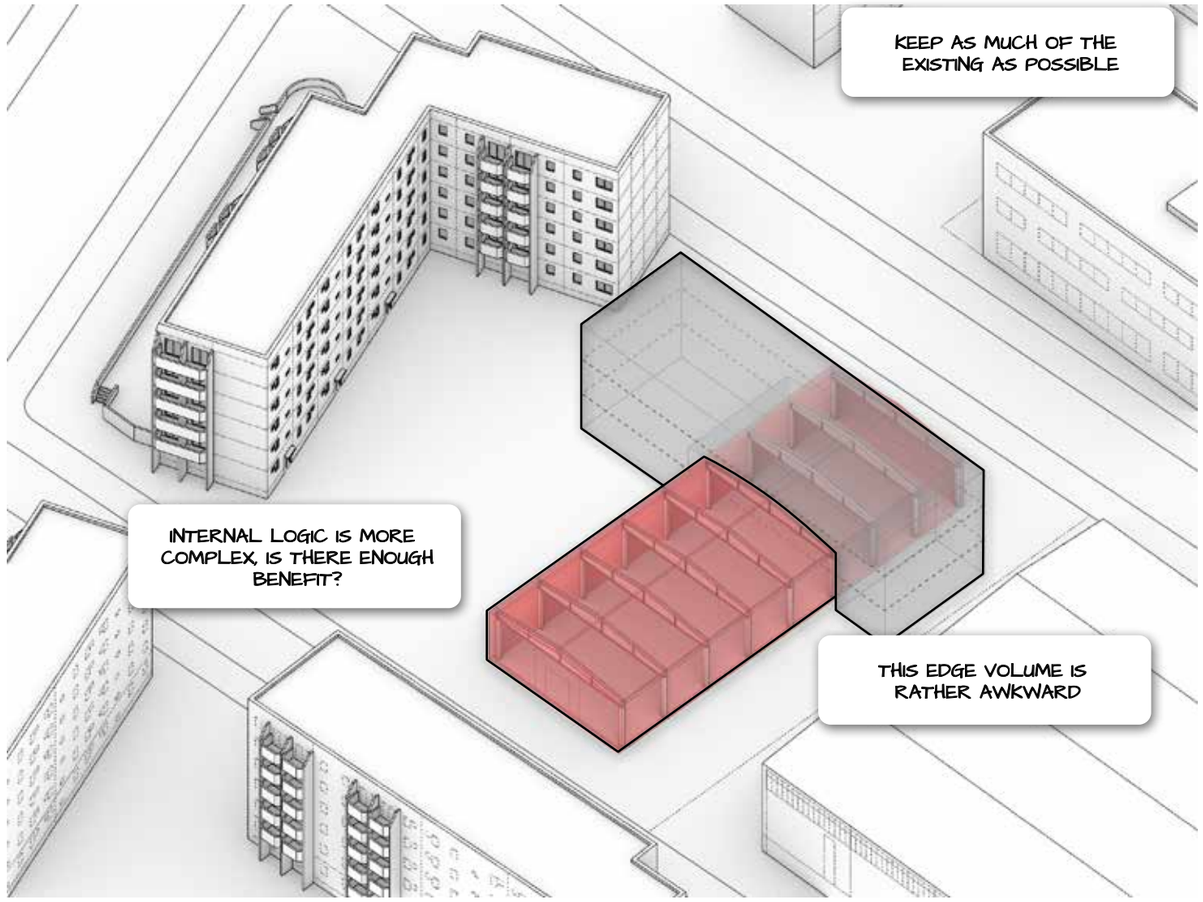
REMOVE A SECTION OF THE ORIGINAL VOLUME



STRUCTURAL ELEMENTS CAN BE REUSED

EASIEST SEPARATION OF VOLUMES & CLIMATE ZONES, MOST DESTRUCTIVE

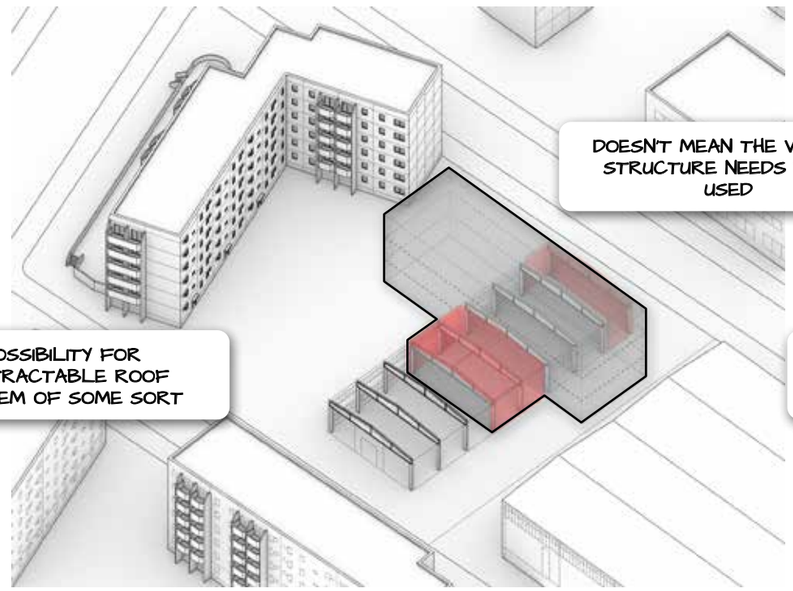
KEEP AS MUCH OF THE EXISTING AS POSSIBLE



INTERNAL LOGIC IS MORE COMPLEX, IS THERE ENOUGH BENEFIT?

THIS EDGE VOLUME IS RATHER AWKWARD

DOESN'T MEAN THE WHOLE STRUCTURE NEEDS TO BE USED

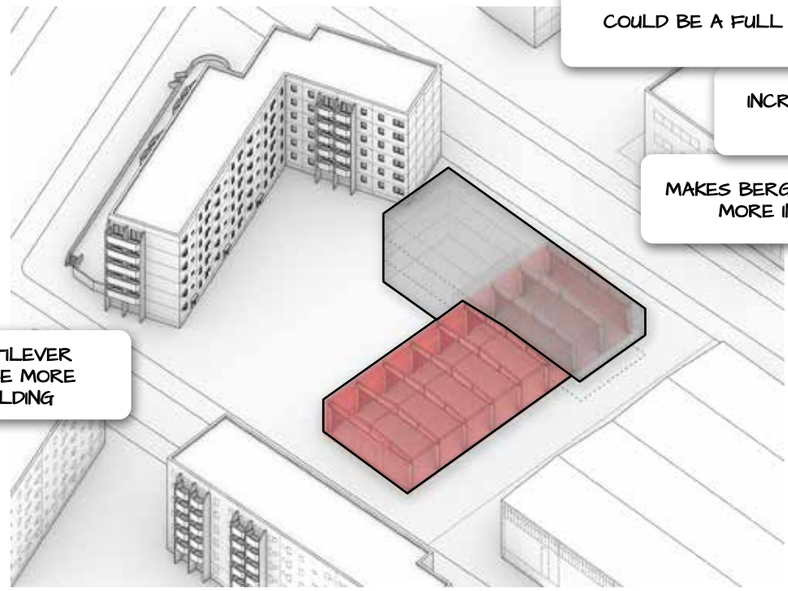


POSSIBILITY FOR RETRACTABLE ROOF SYSTEM OF SOME SORT

COULD BE A FULL CANTILEVER

INCREASES SURFACE AREA TO VOLUME RATIO

MAKES BERGHAIN APPROACH MORE INTERESTING

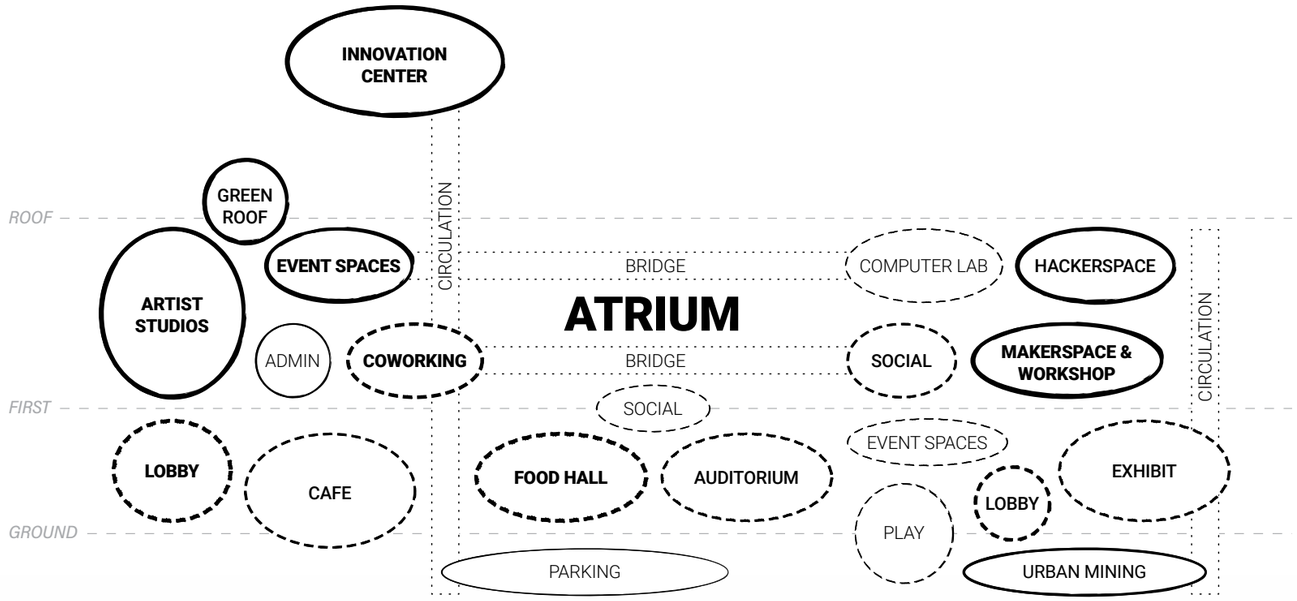


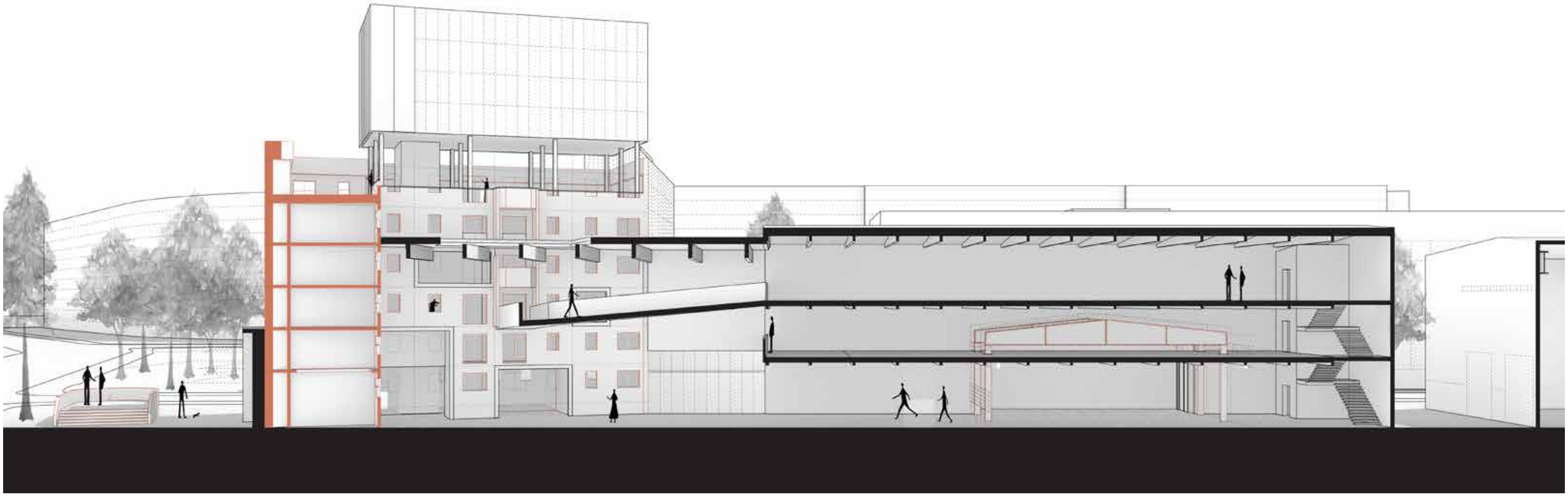
POSSIBLE CANTILEVER OPTION, EXPOSE MORE EXISTING BUILDING

APTOS RETREAT - CCS ARCHITECTURE

P2 SCHEMATIC SECTION

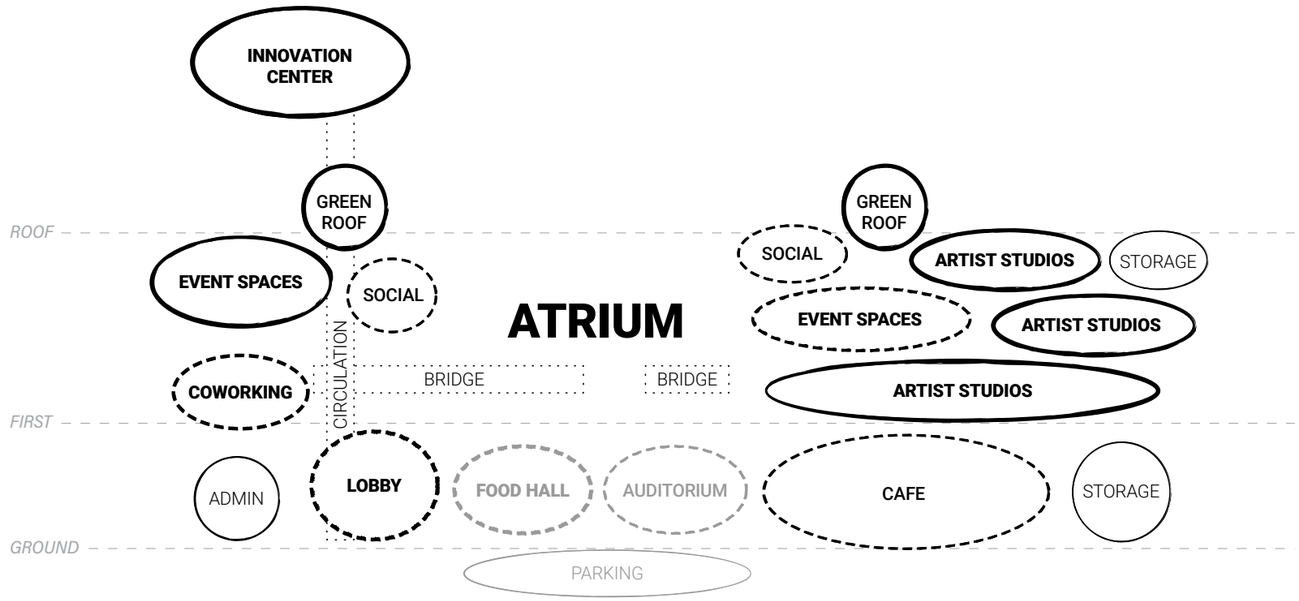
HIGHLIGHTED OLD BUILDING

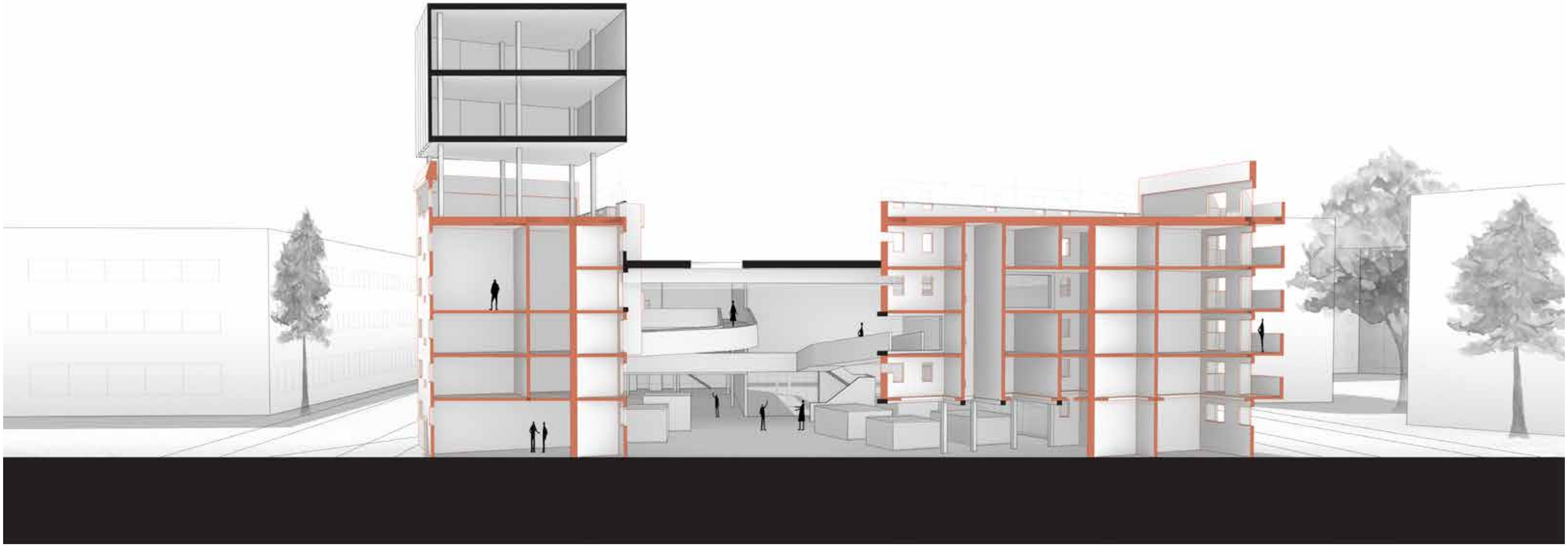




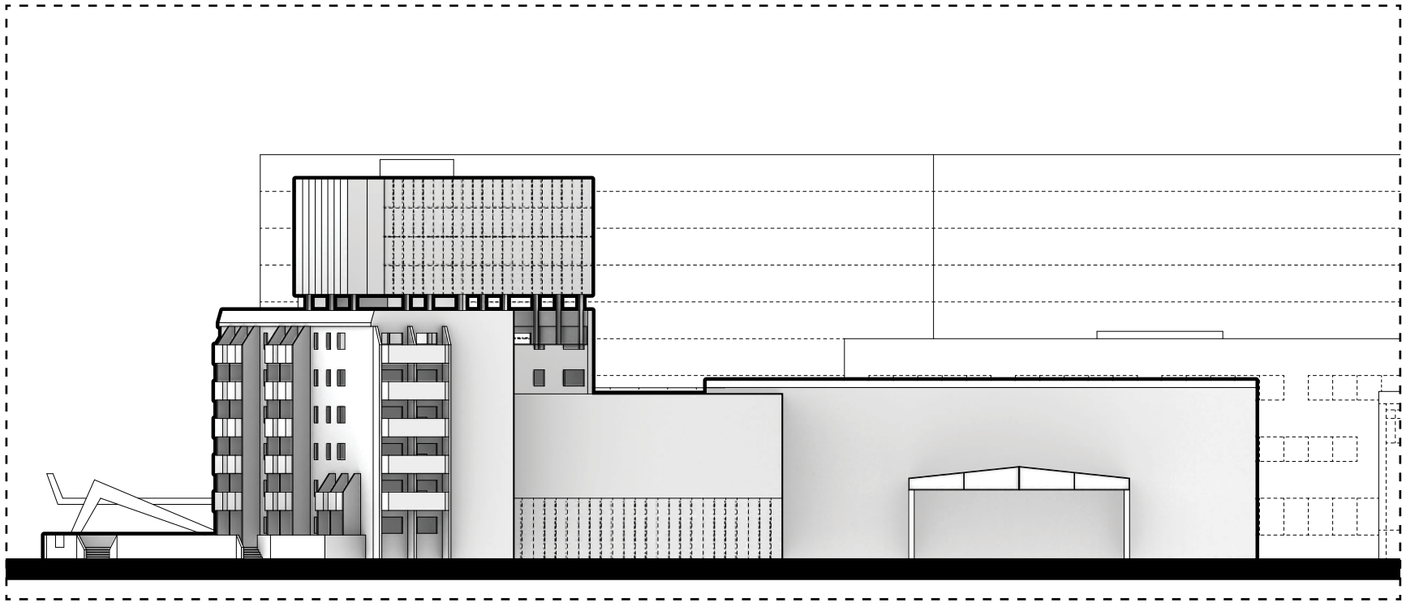
P2 SCHEMATIC SECTION

HIGHLIGHTED OLD BUILDING

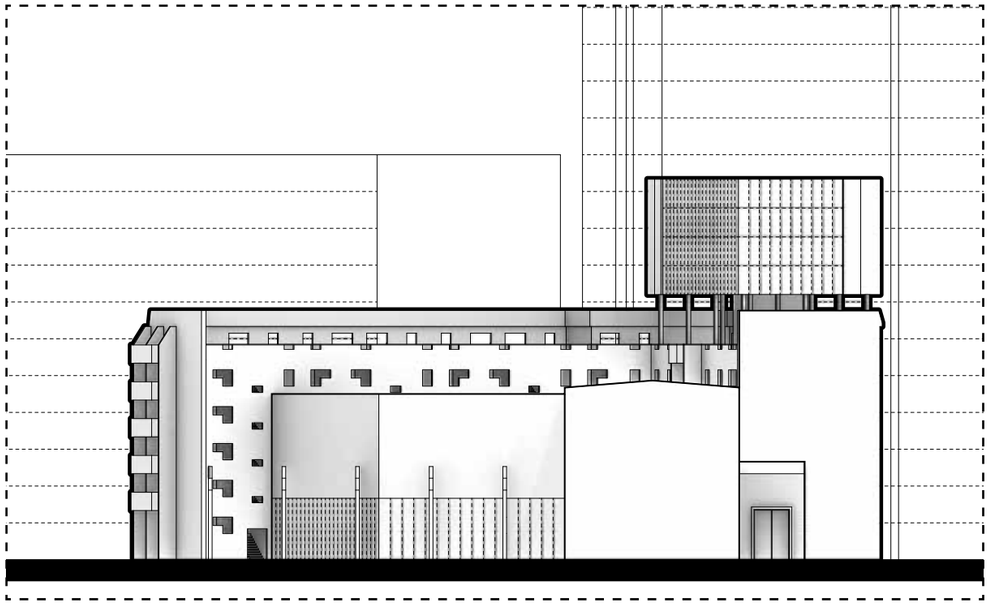




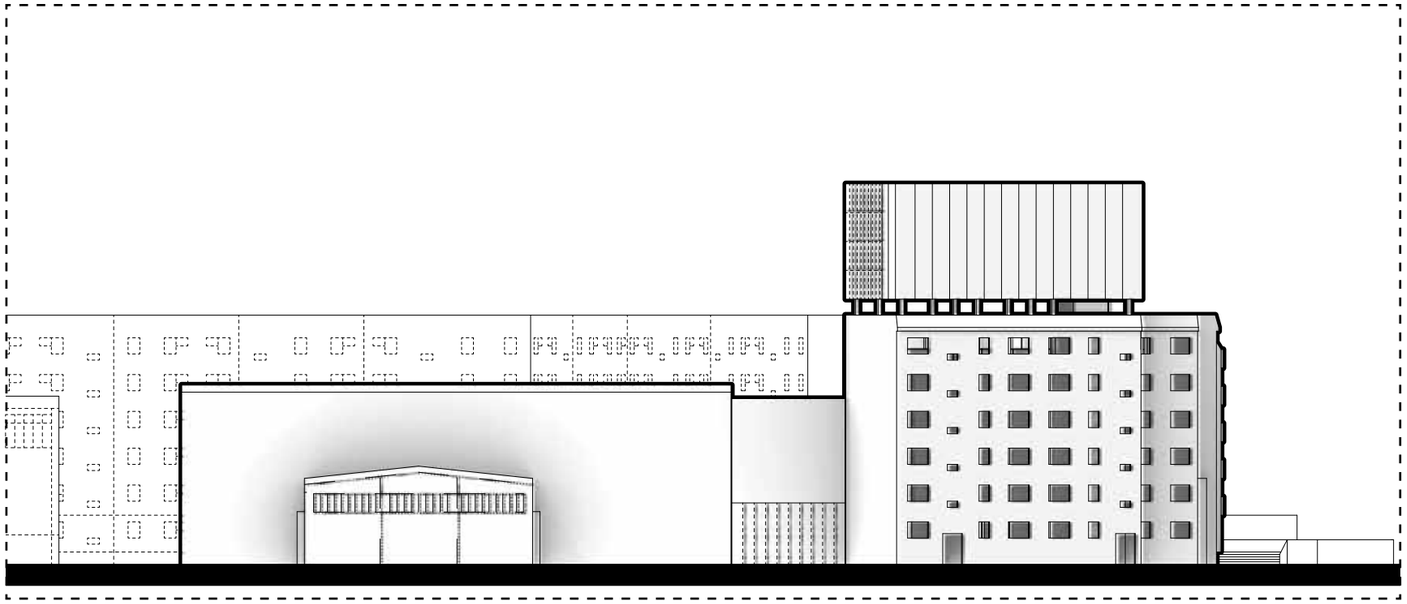
P2 BUILDING ELEVATIONS
PRIMARY FACADES



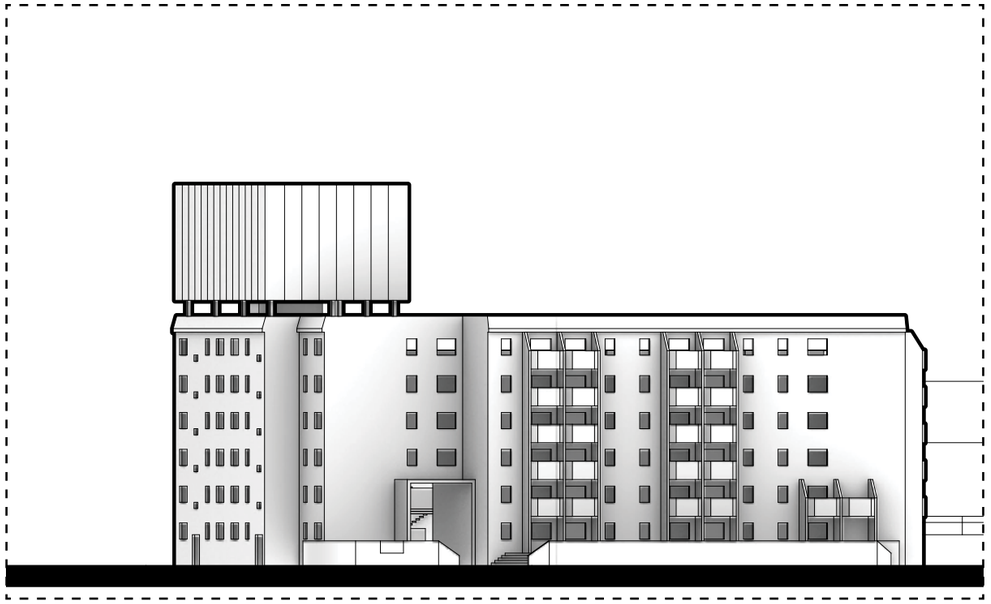
SOUTH ELEVATION
SCALE: 1 TO 1000



EAST ELEVATION
SCALE: 1 TO 1000

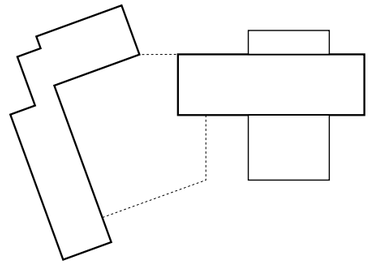


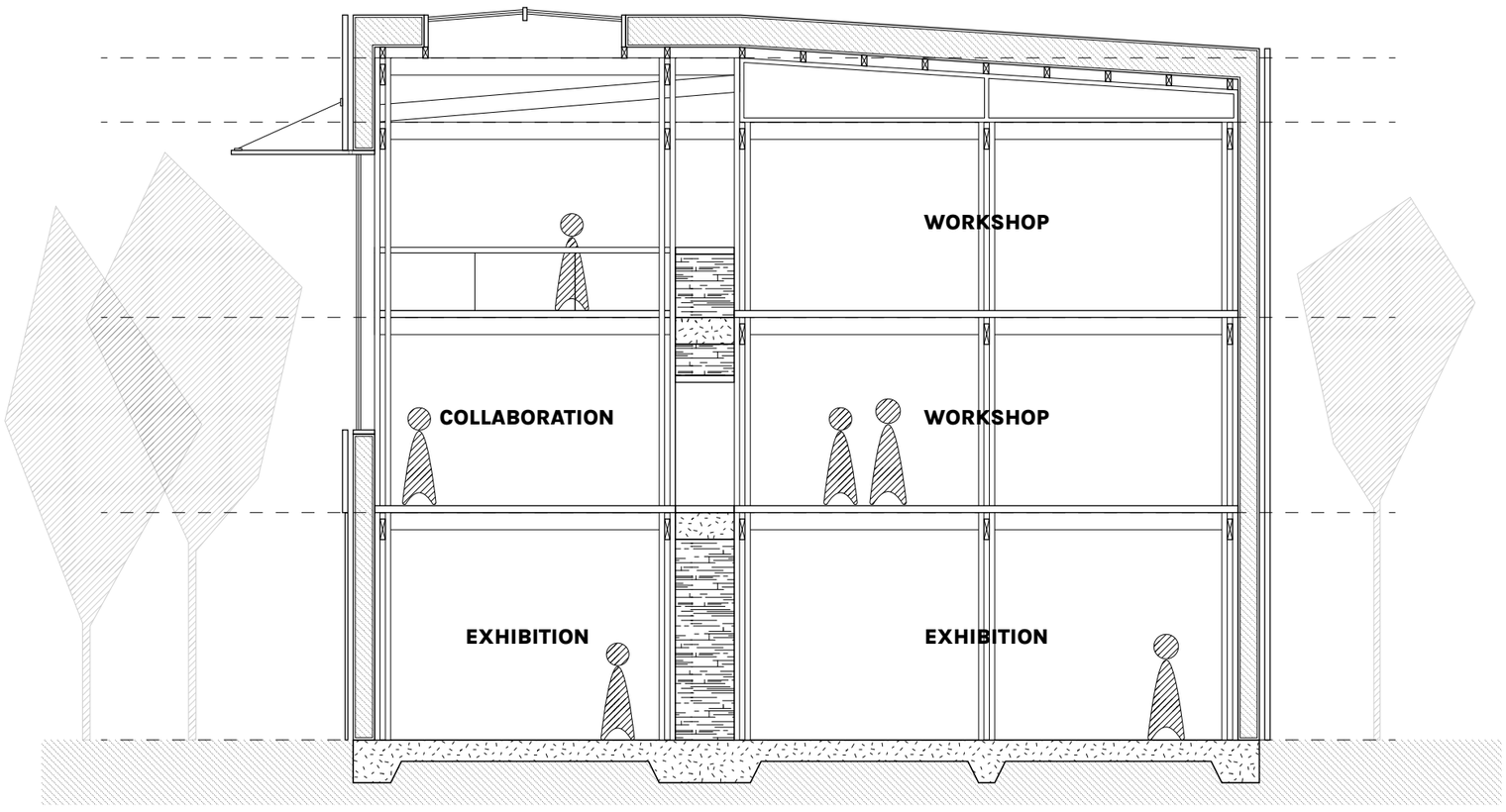
NORTH ELEVATION
SCALE: 1 TO 1000



WEST ELEVATION
SCALE: 1 TO 1000

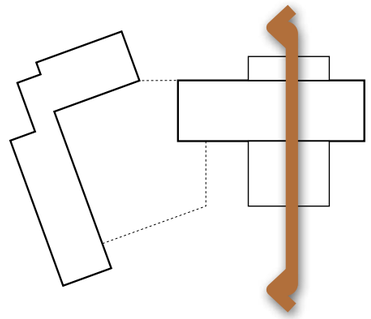
DESIGN DEVELOPMENT
SCHEMATIC SECTION

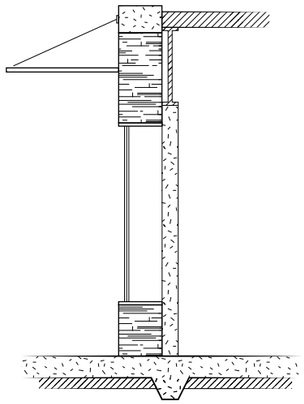


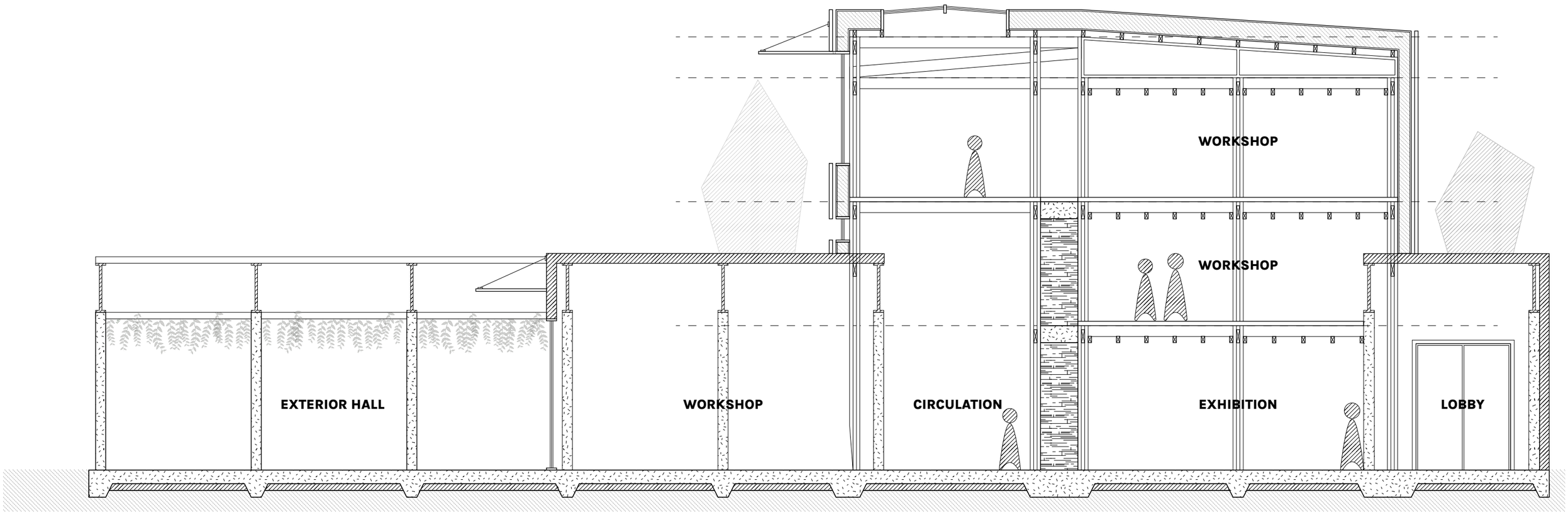


DESIGN DEVELOPMENT

SCHEMATIC SECTION







PLATTENBAU SECOND SKIN
FACADE AND ELEVATION SYSTEM

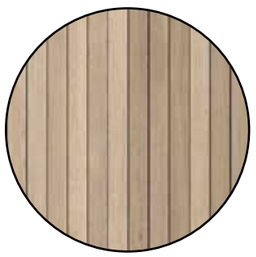
MATERIALS NOT TO SCALE

THATCH CLADDING PANELS

EXISTING CONCRETE CLADDING

BURNT WOOD HORIZONTAL SLATS
(RECLAIMED WOOD)

WOOD WINDOW FRAMES



BEECH WOOD SLATS

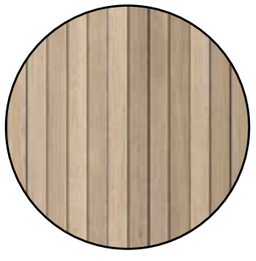
PLATTENBAU SECOND SKIN
FACADE AND ELEVATION SYSTEM

MATERIALS NOT TO SCALE

THATCH CLADDING PANELS

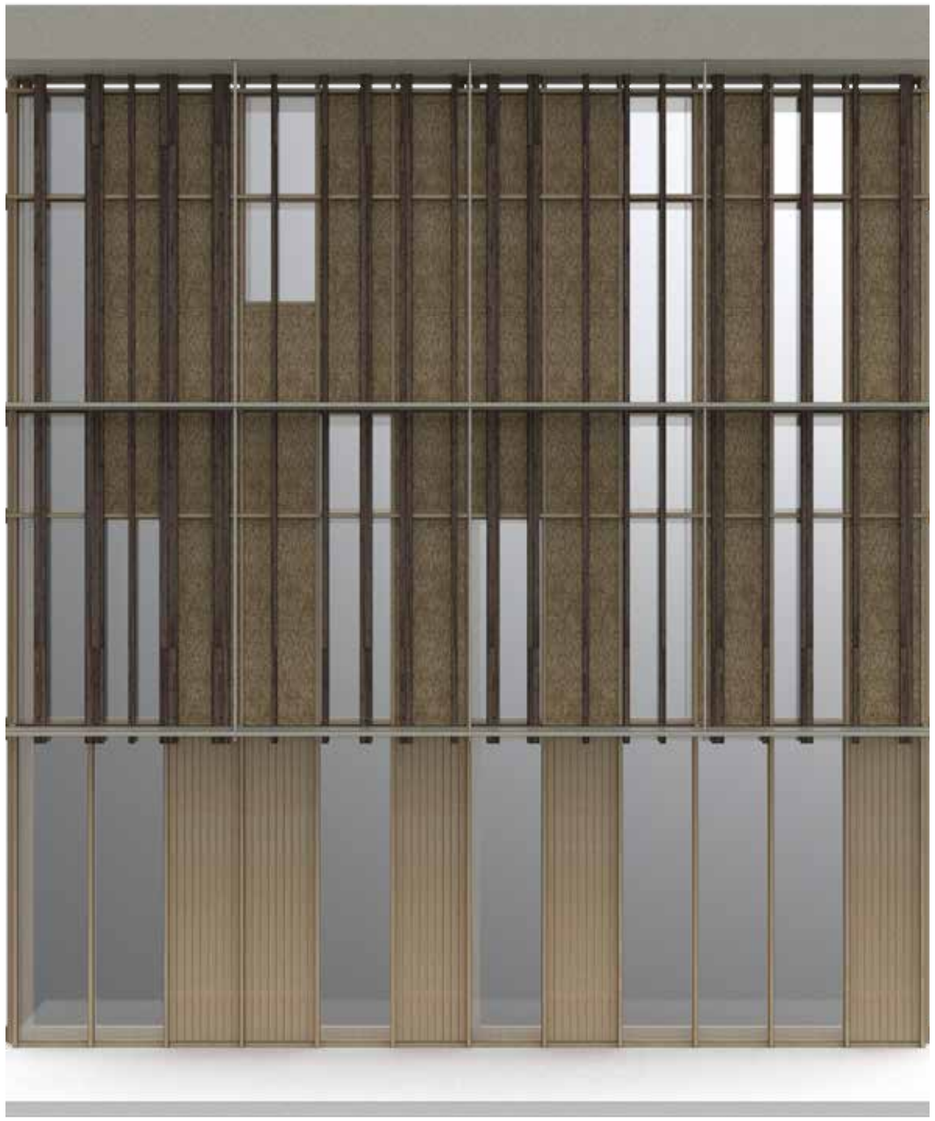
EXISTING CONCRETE CLADDING

WOOD WINDOW FRAMES



BEECH WOOD SLATS

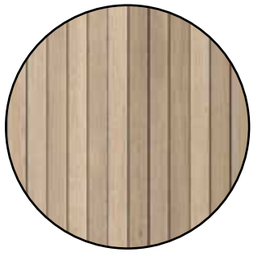
WORKSHOP VOLUME CLADDING
FACADE AND ELEVATION SYSTEM



THATCH CLADDING PANELS

BURNT WOOD HORIZONTAL SLATS
(RECLAIMED WOOD)

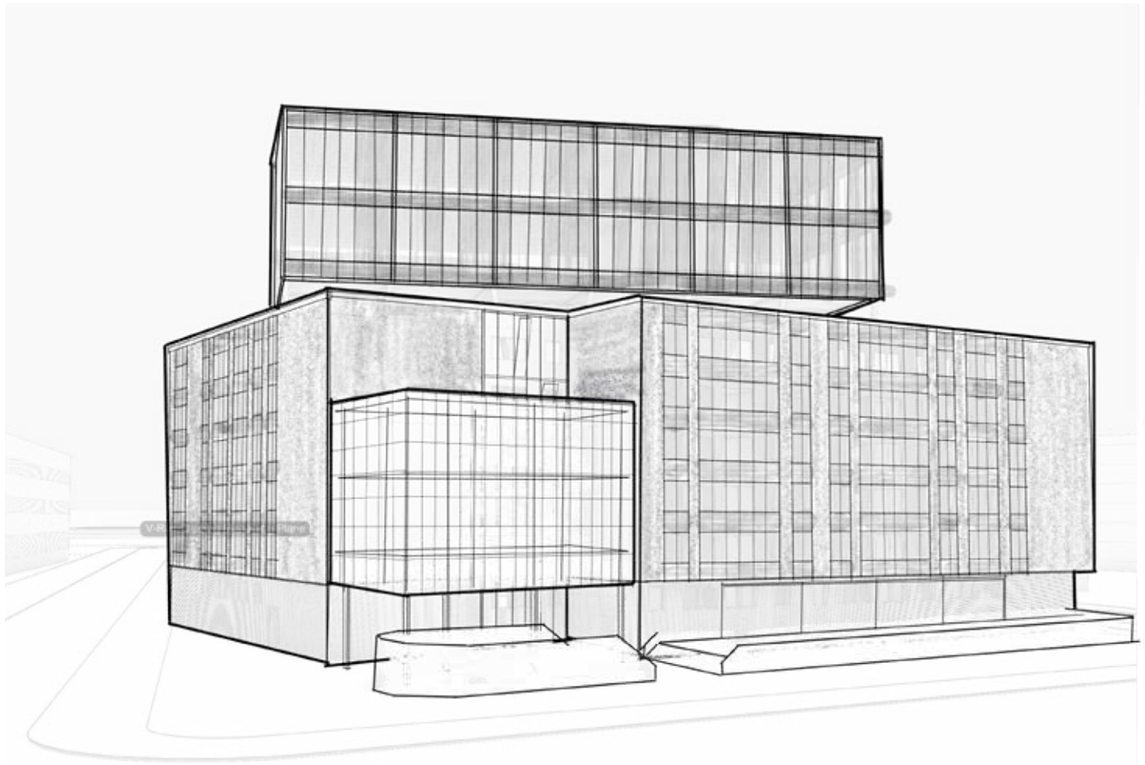
WOOD WINDOW FRAMES



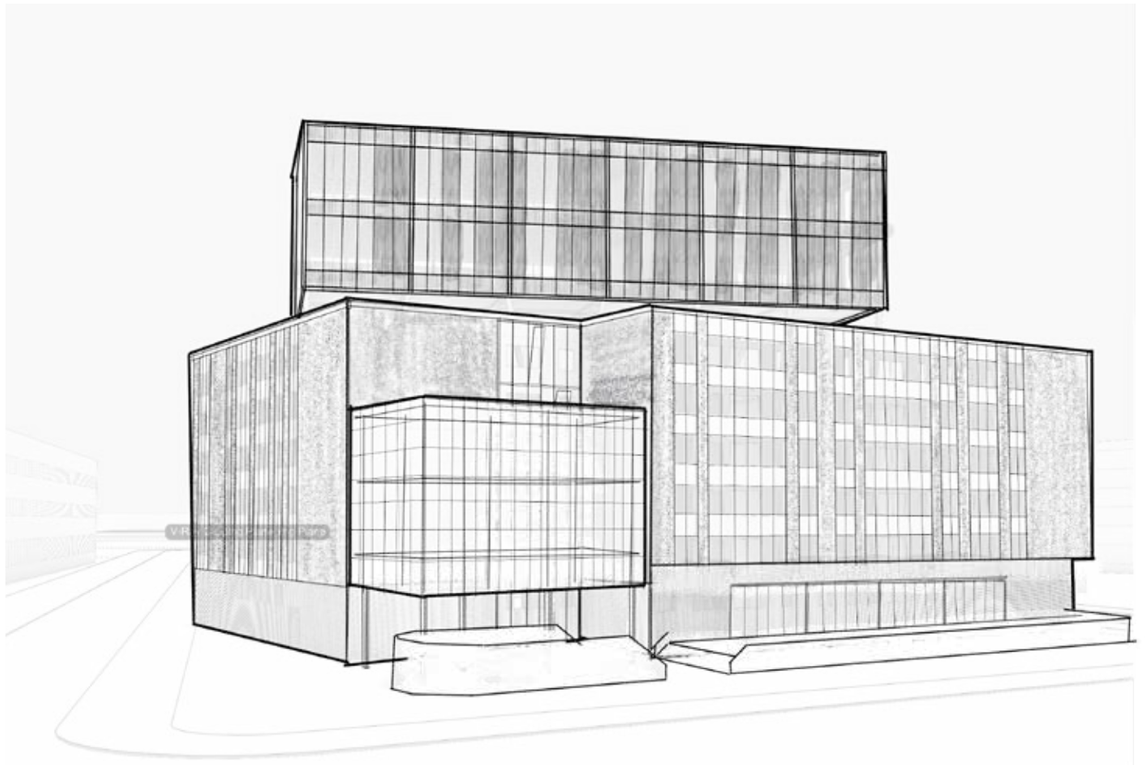
BEECH WOOD SLATS

ELEVATION TESTING

FACACE STUDIES



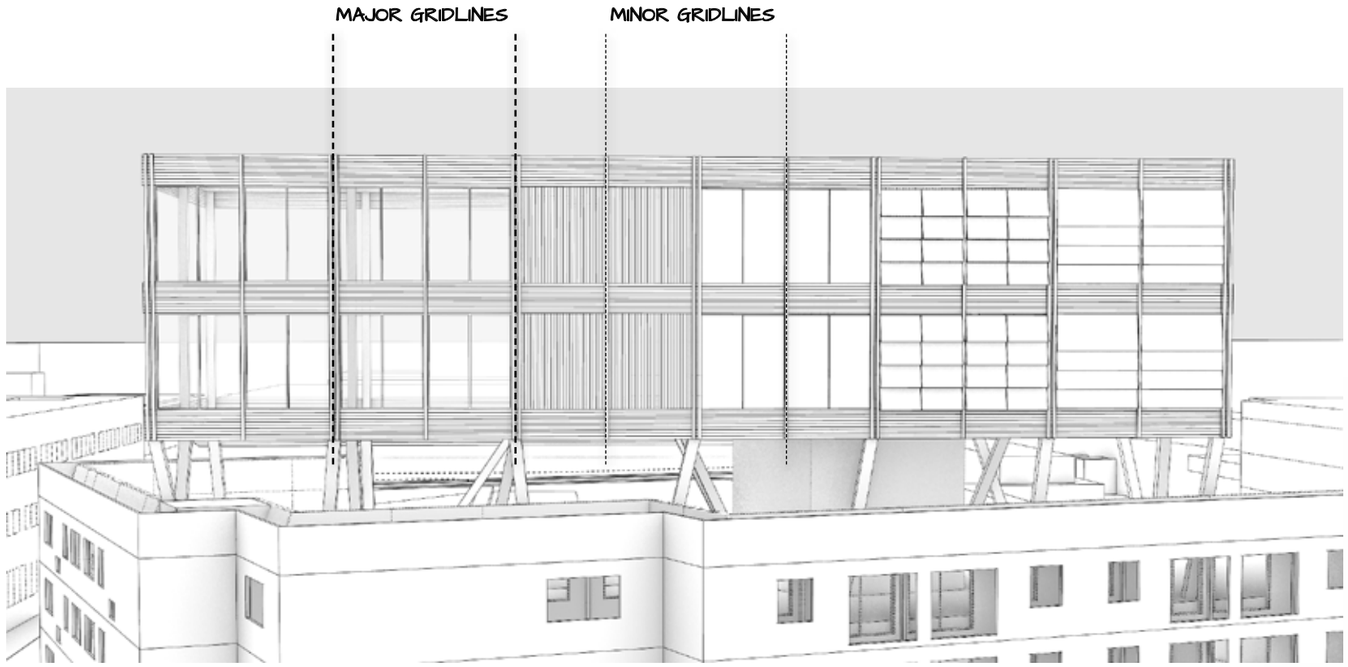
WITH HORIZONTAL ELEMENTS

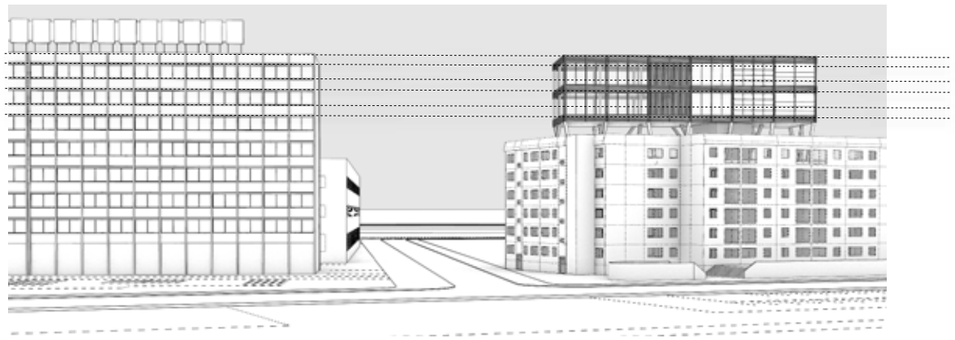


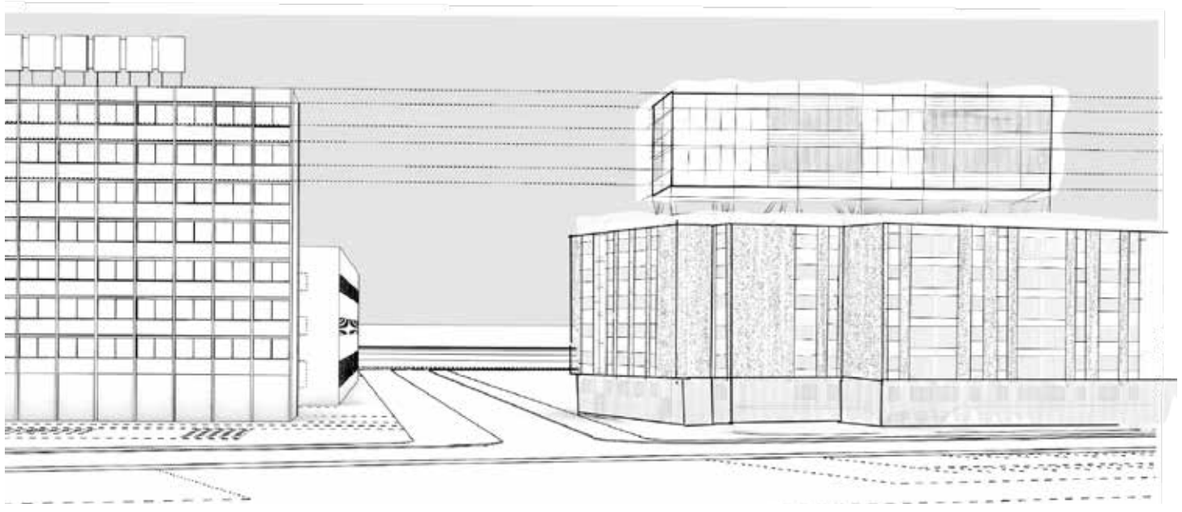
WITHOUT HORIZONTAL ELEMENTS

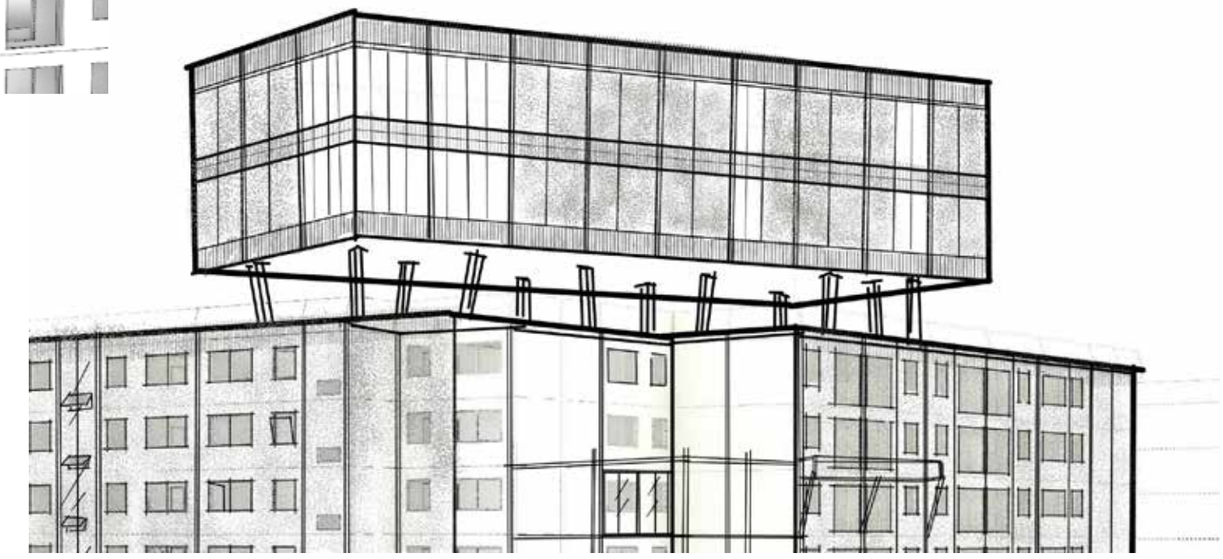
ELEVATION DEVELOPMENT

INCUBATOR

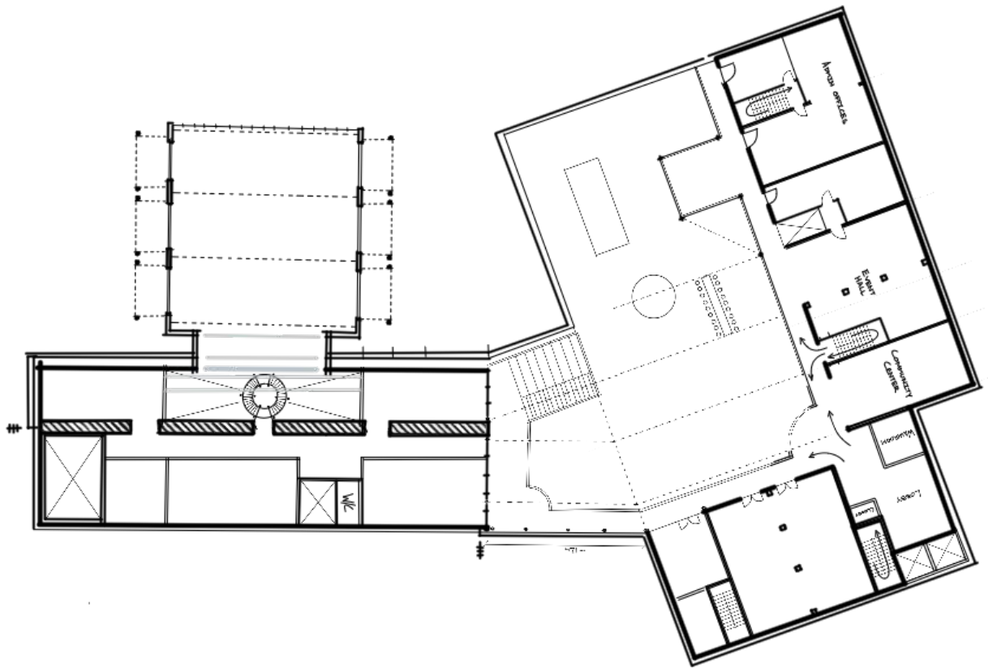


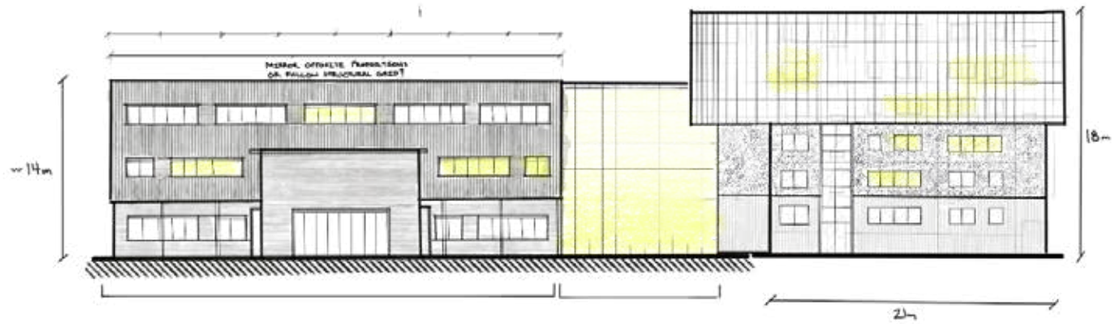


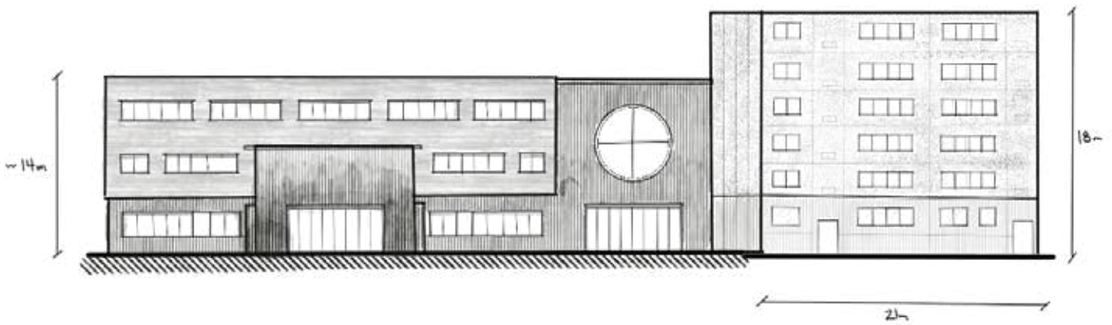


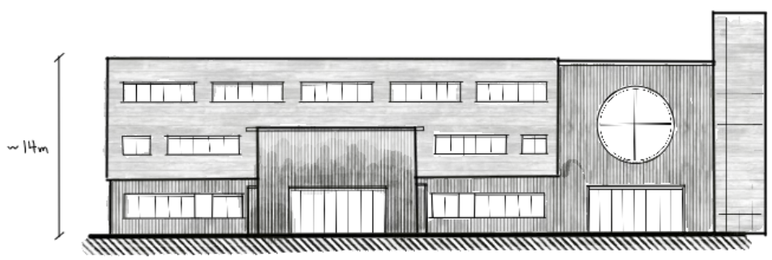


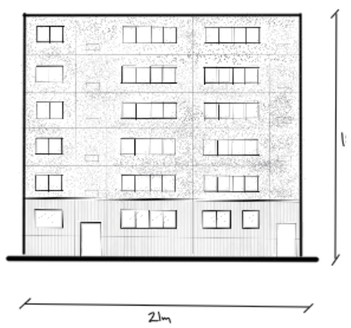
ELEVATION TESTING
NORTH END

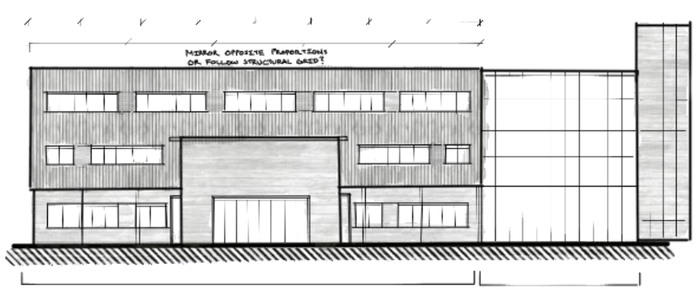


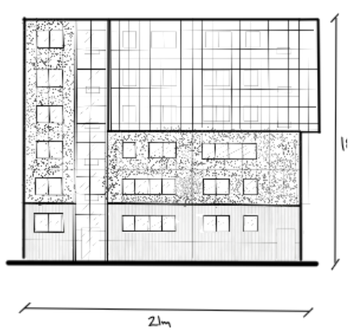


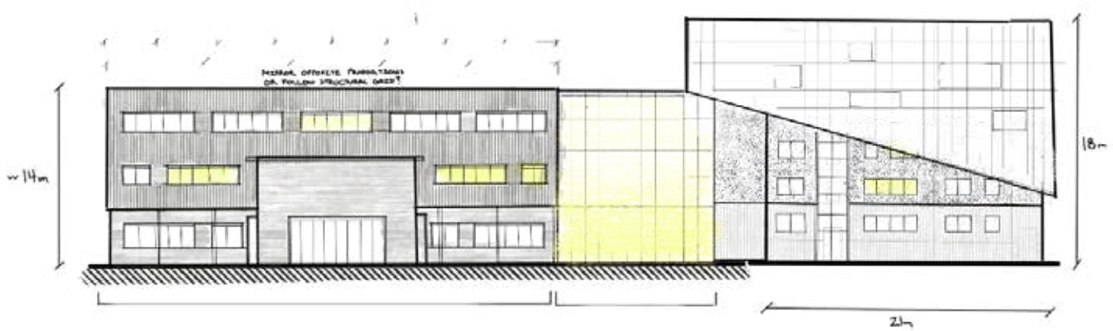




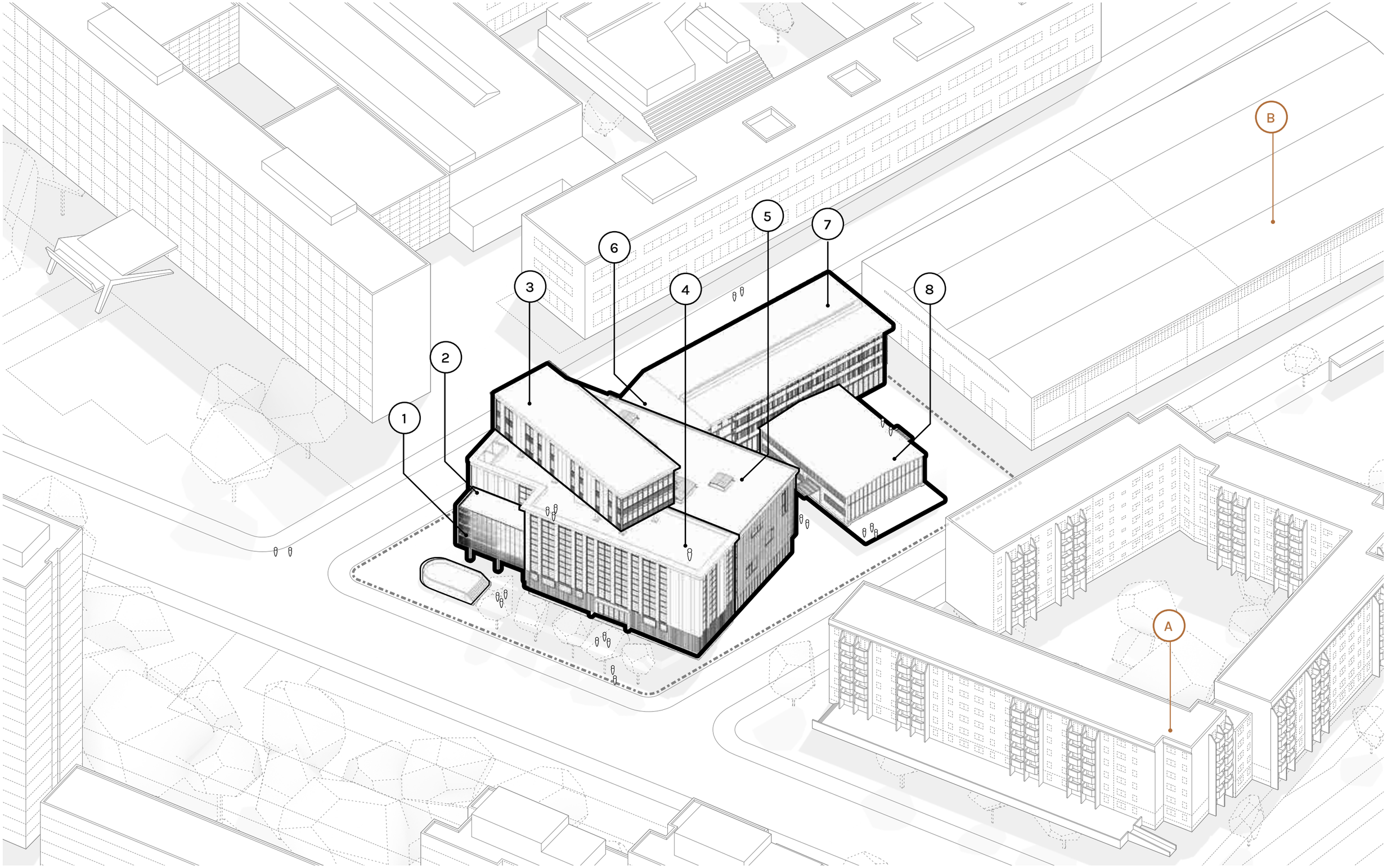








PROPOSED SITE AXONOMETRIC



1 Entrance Portal, **2** Altered Plattenbau, **3** Innovation Incubator, **4** Accessible Green Roof, **5** Open Market Hall, **6** Bridging Volume, **7** Workshop Volume, **8** Semi Exterior Hall

A Renovated Plattenbau

B Former Paper Factory

POST ALTERATION PLATTENBAU

EXISTING AND MUTABLE ELEMENTS HIGHLIGHTED

ELEVATIONS
ELEVATIONS

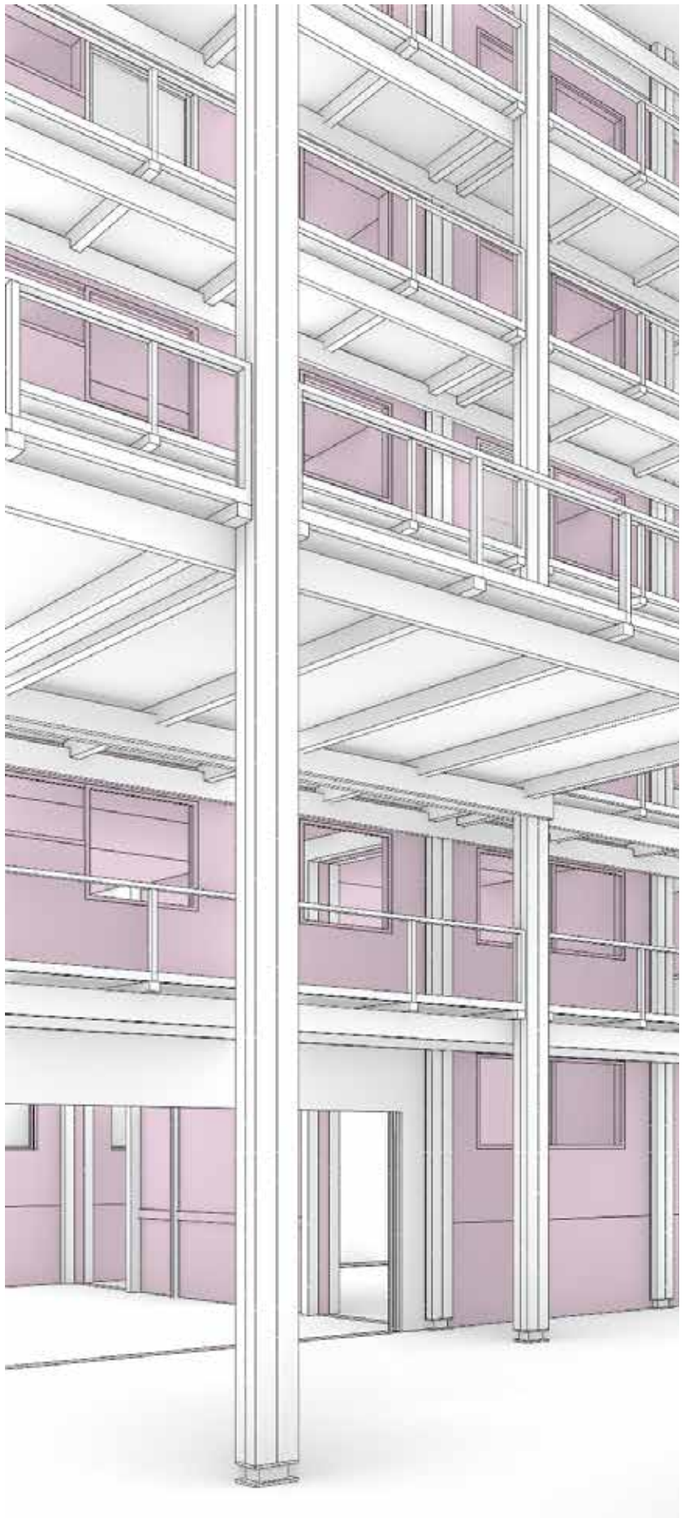
NORTH EAST ELEVATION

SOUTH ELEVATION

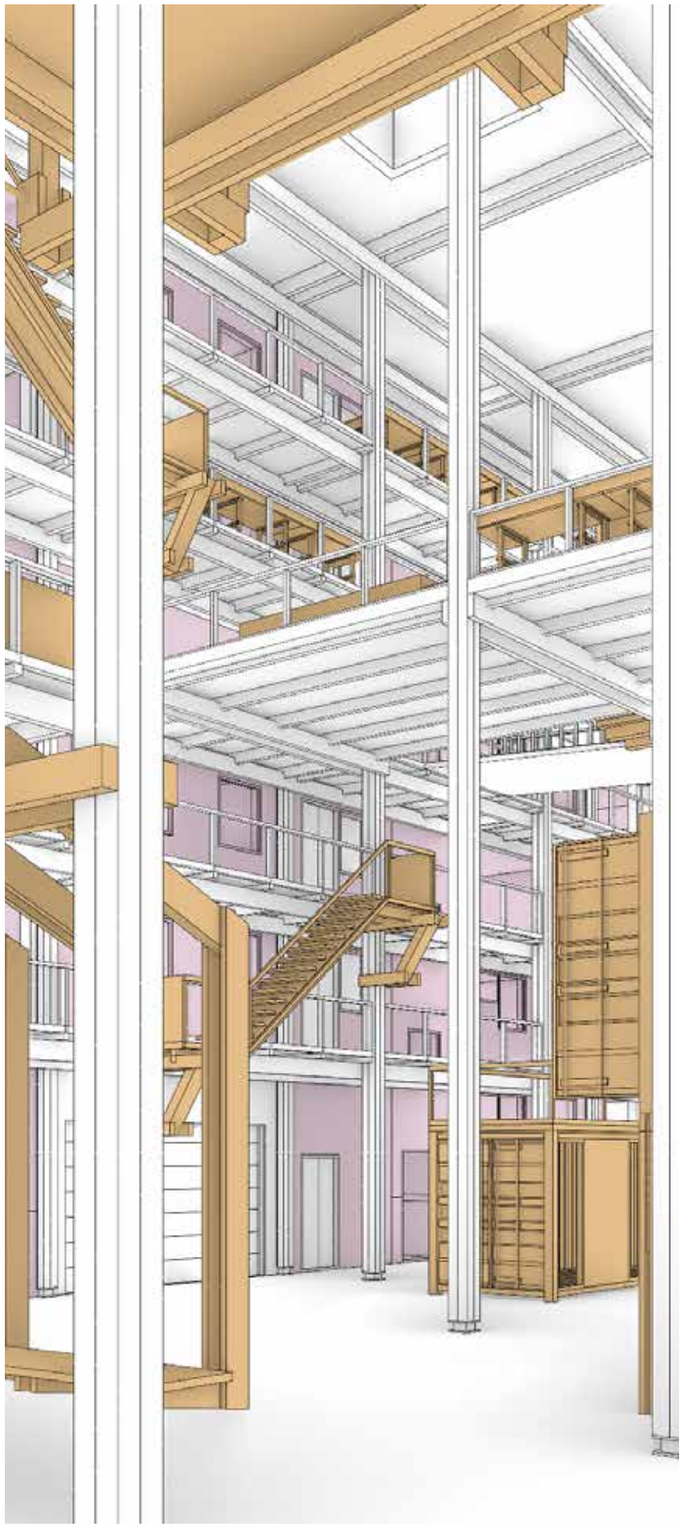
NORTH ELEVATION

EAST ELEVATION

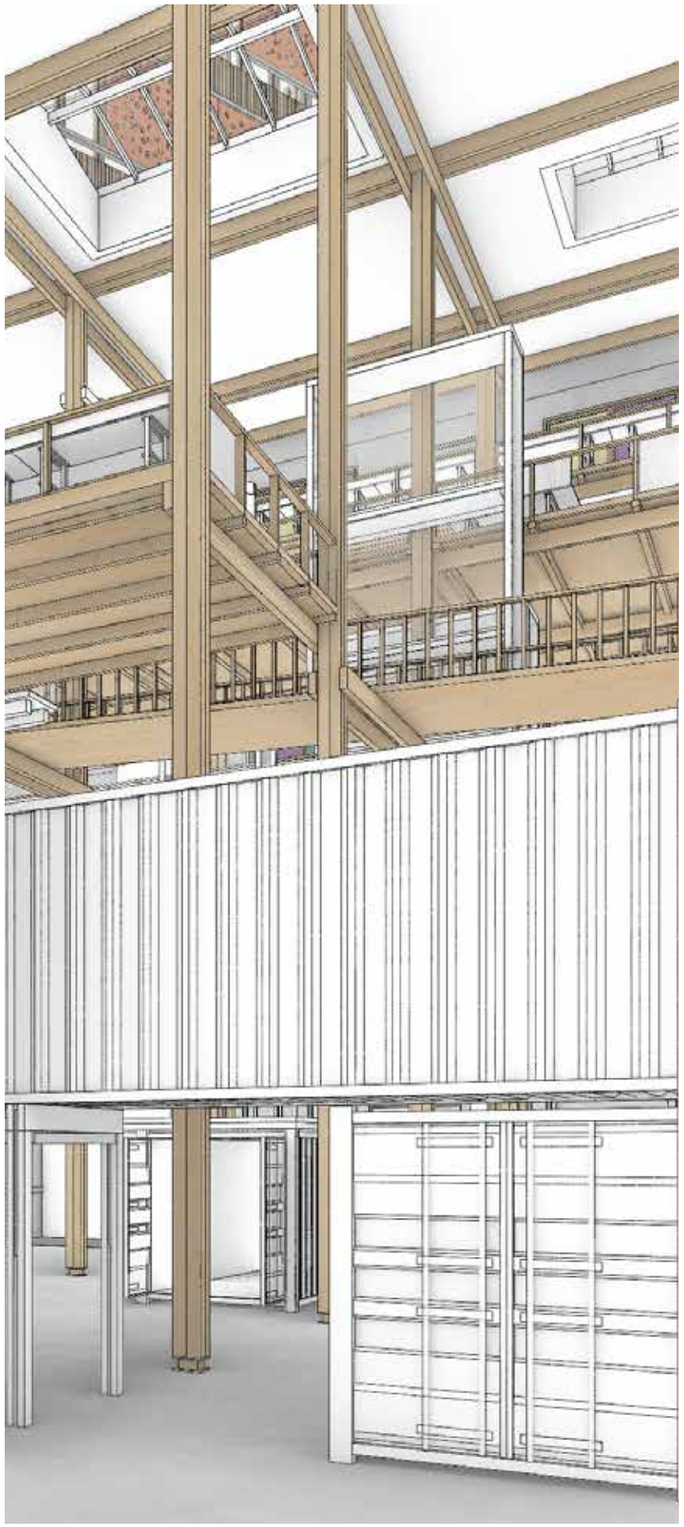
PROLIFERATION OF MARKET HALL OVER TIME



PRE-OCCUPANCY

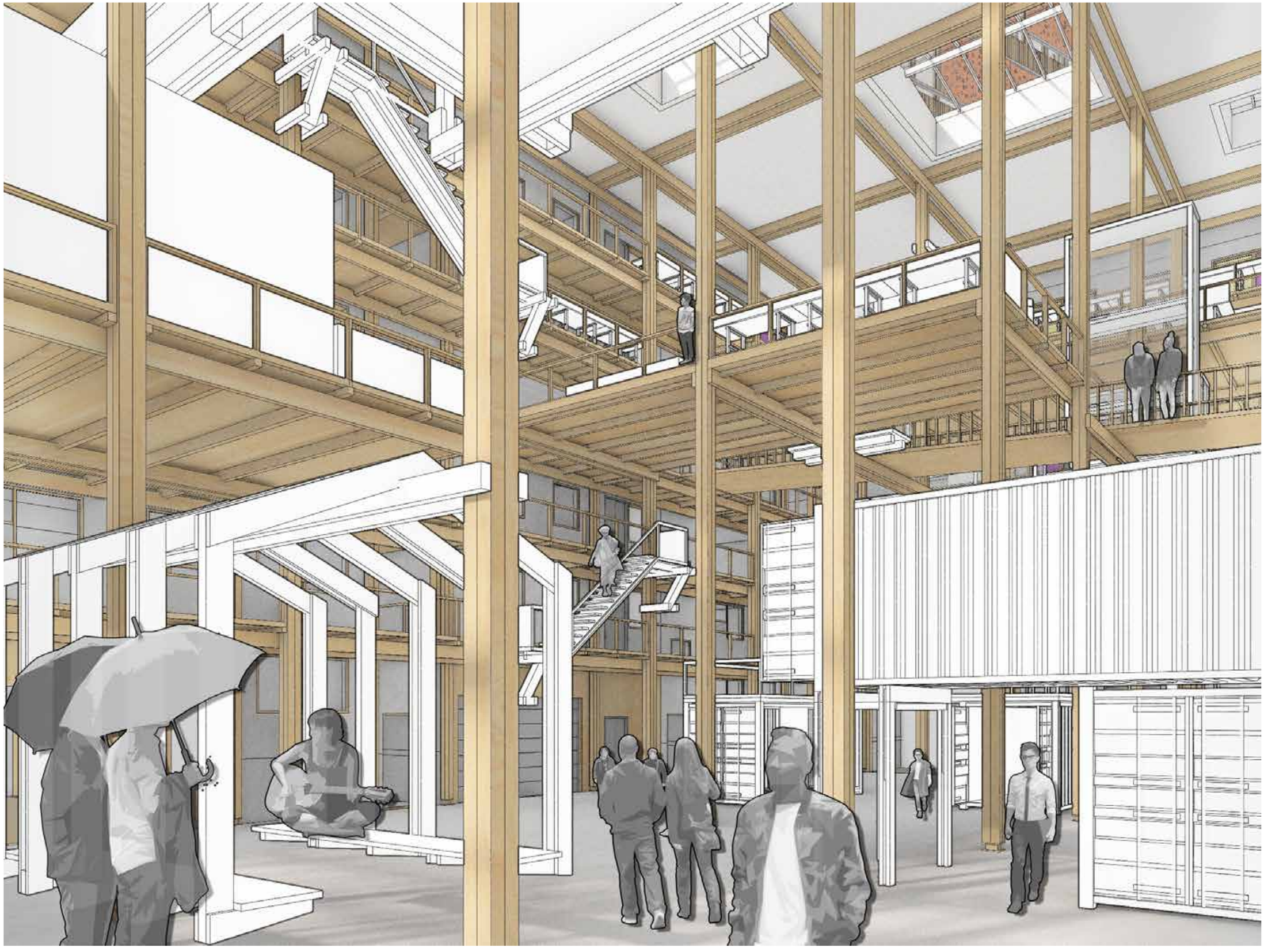


POST-OCCUPANCY



USE PHASE

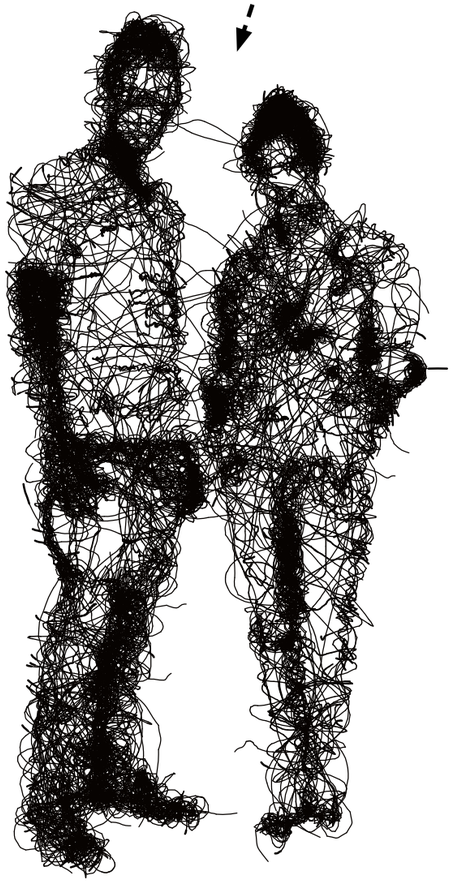
INTERIOR PERSPECTIVE
MAIN HALL

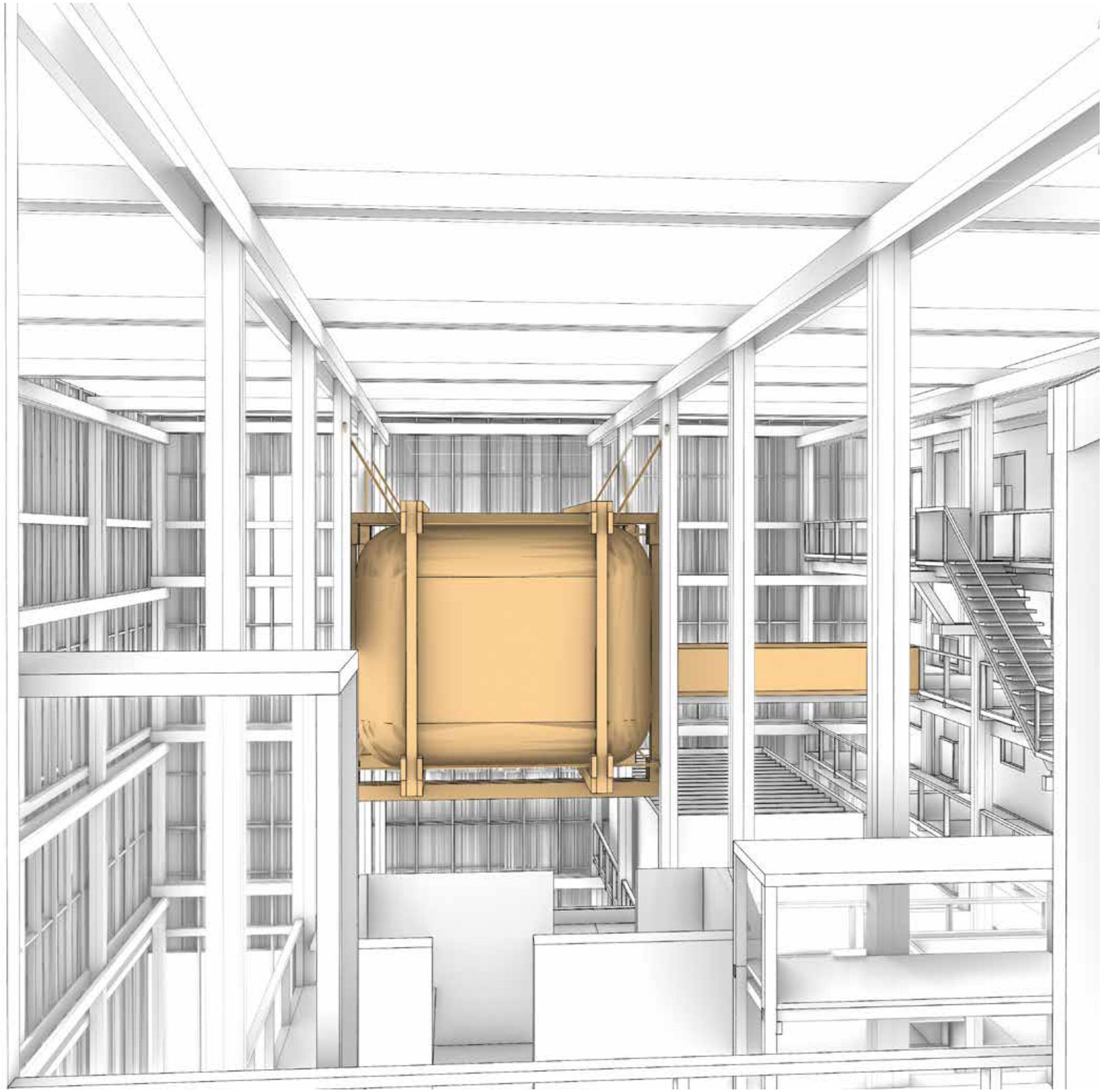


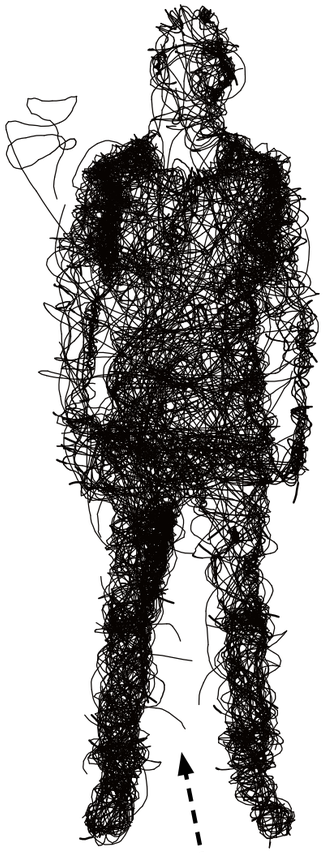
ELINA & THOMAS

HIGH ENGAGEMENT

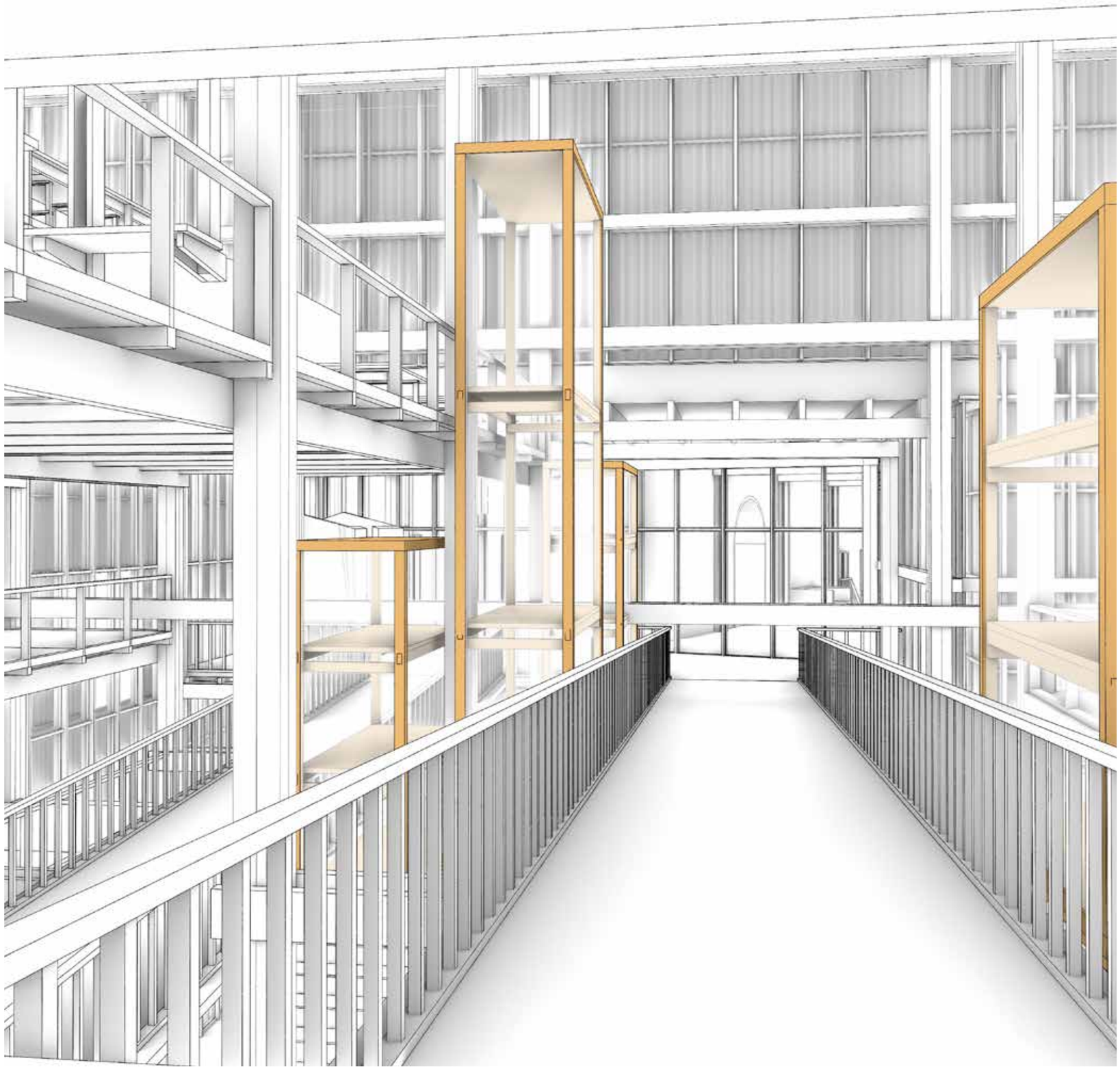
CERAMICS, MUSIC, EVENT SPACES, EXHIBITION



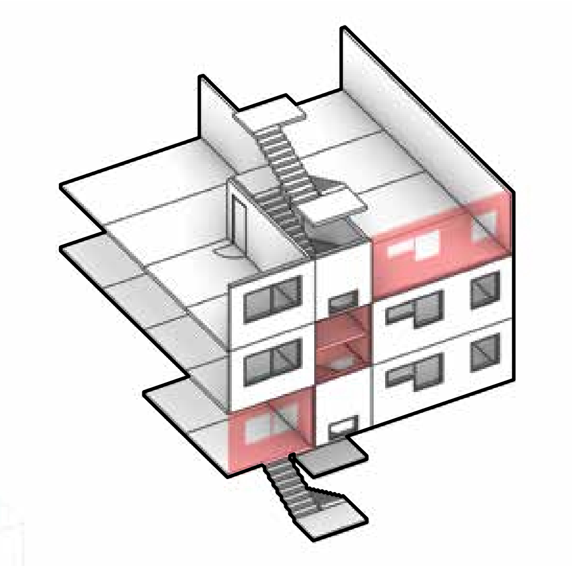




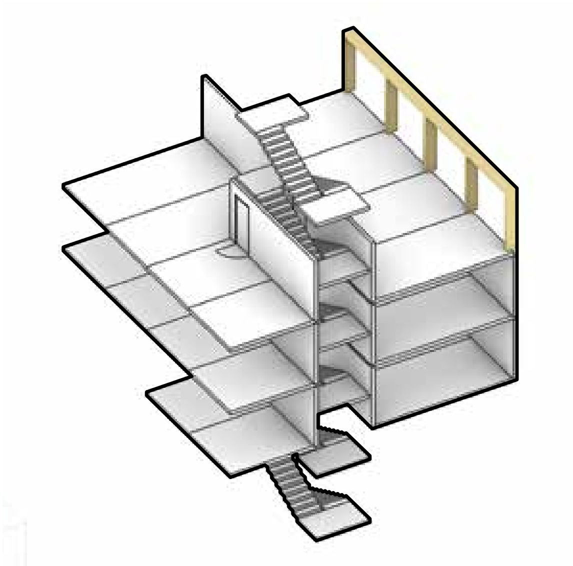
TIM
HIGH ENGAGEMENT
WORKSHOPS, STUDIOS, CLASSROOMS



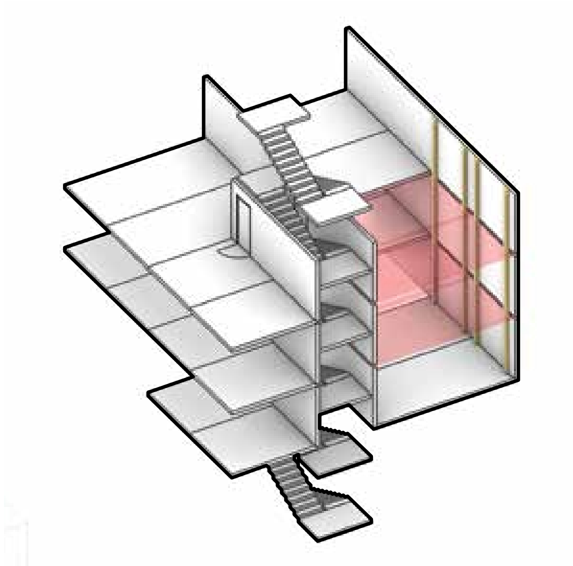
SECTIONAL ALTERATION TOOLKIT



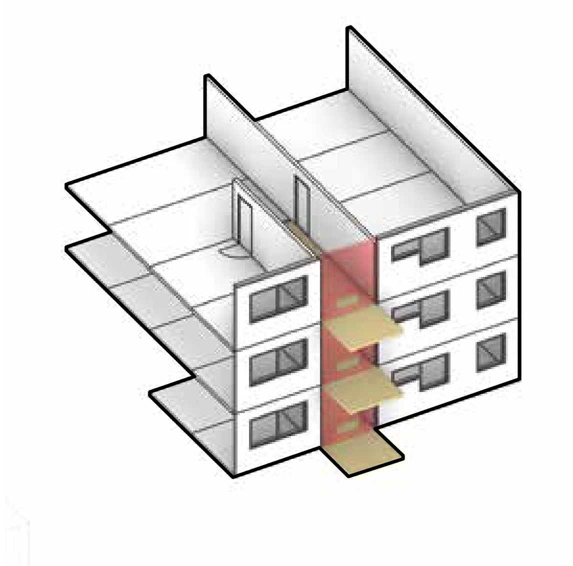
REMOVE NON LOAD BEARING WALL CLADDING PANEL



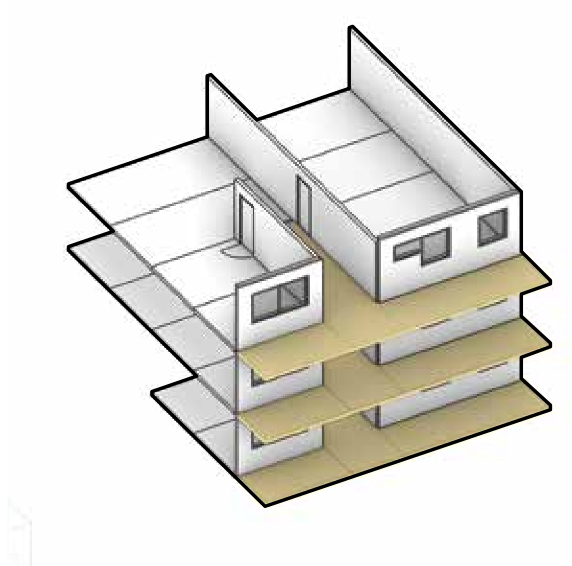
REMOVE LOAD BEARING WALL PANEL



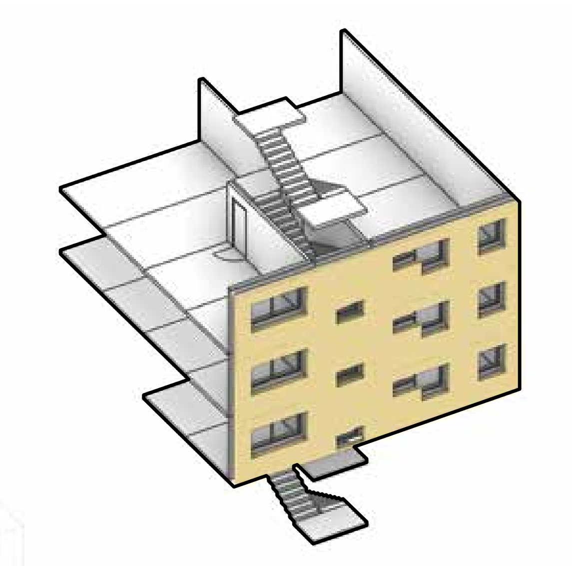
REMOVING FLOOR PLATE



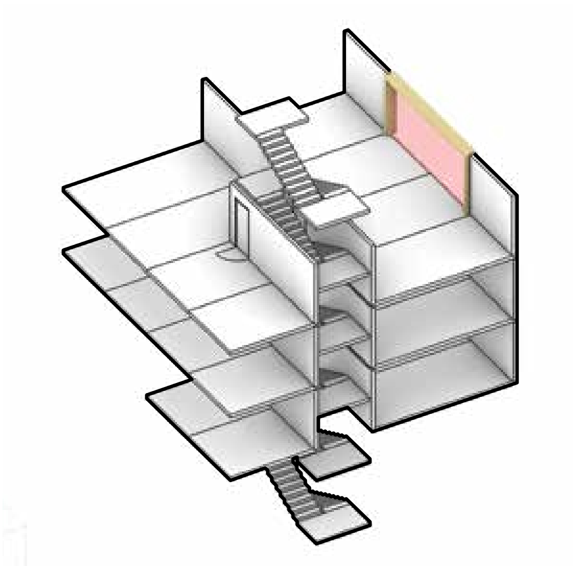
CREATING HORIZONTAL CIRCUATION IN STAIRWELL



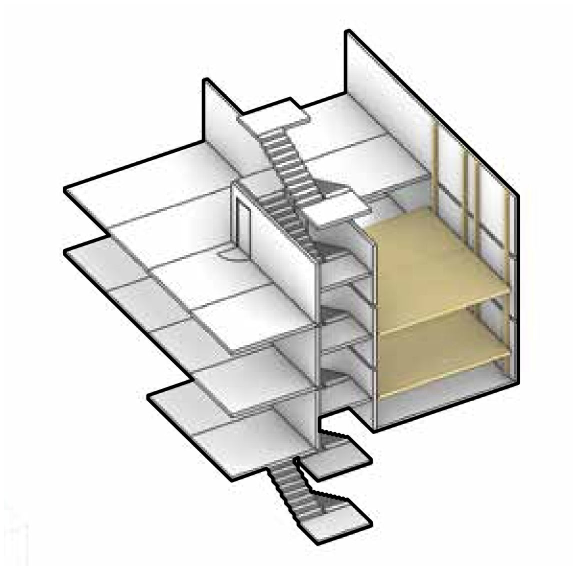
VERTICAL CIRCULATION TO HORIZONTAL CIRCULATION



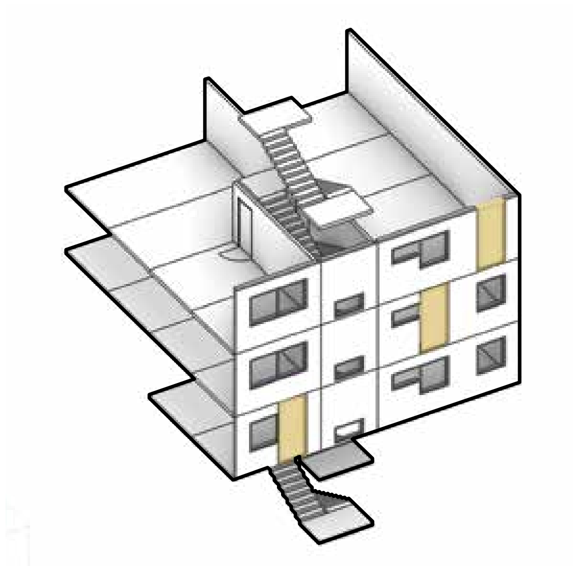
ADDING TO THE WALL ASSEMBLY



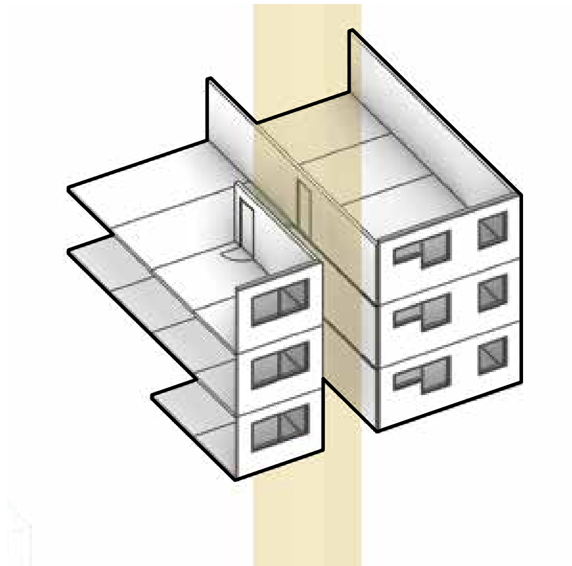
REMOVE A PARTIAL LOAD BEARING PANEL



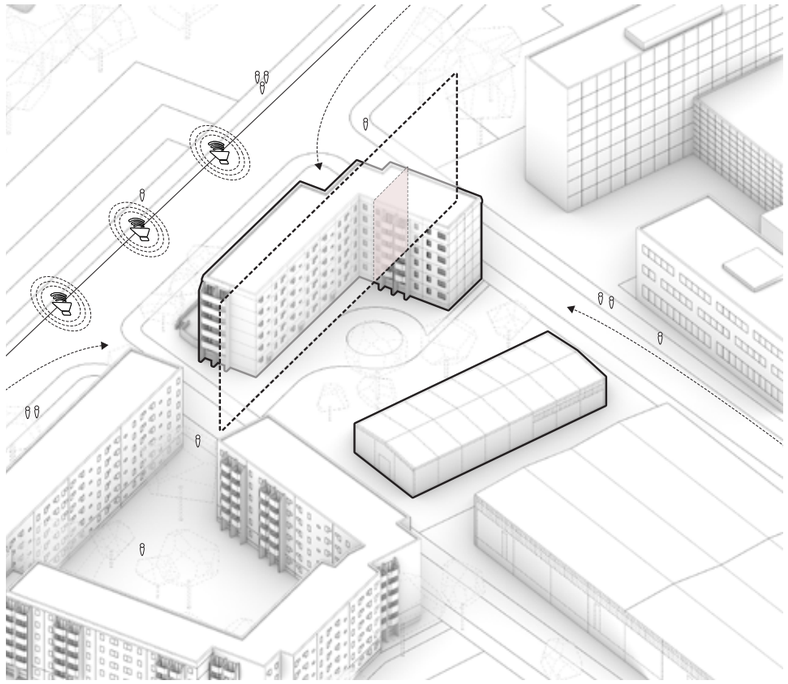
MOVING A FLOOR HEIGHT



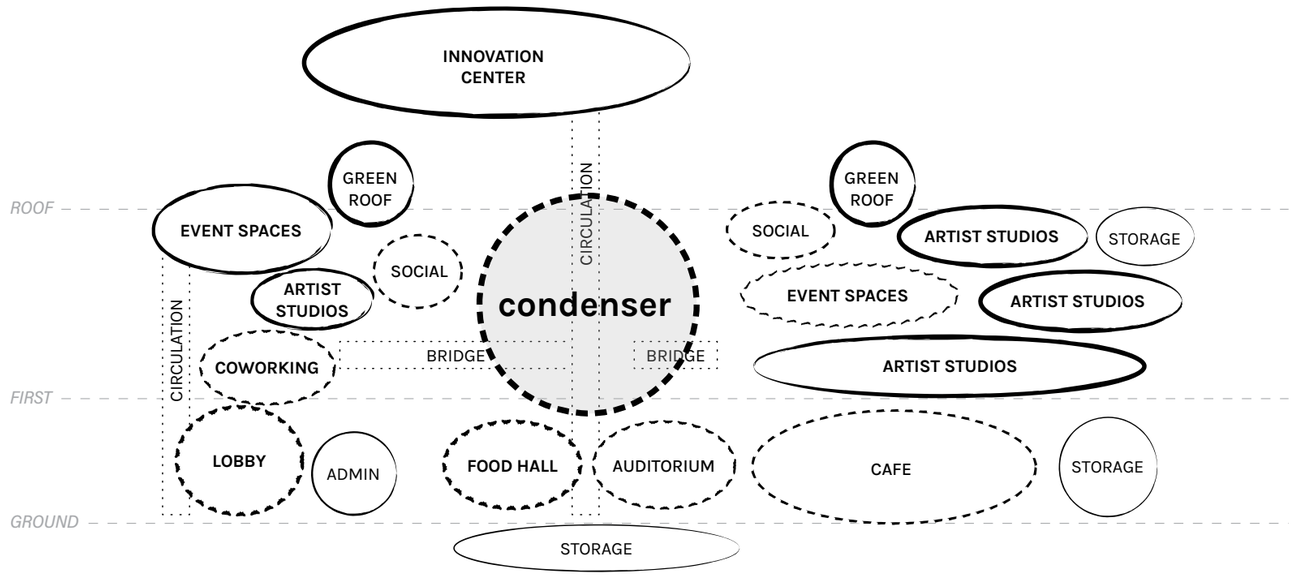
CREATING HORIZONTAL CIRCUATION IN CLADDING PANEL



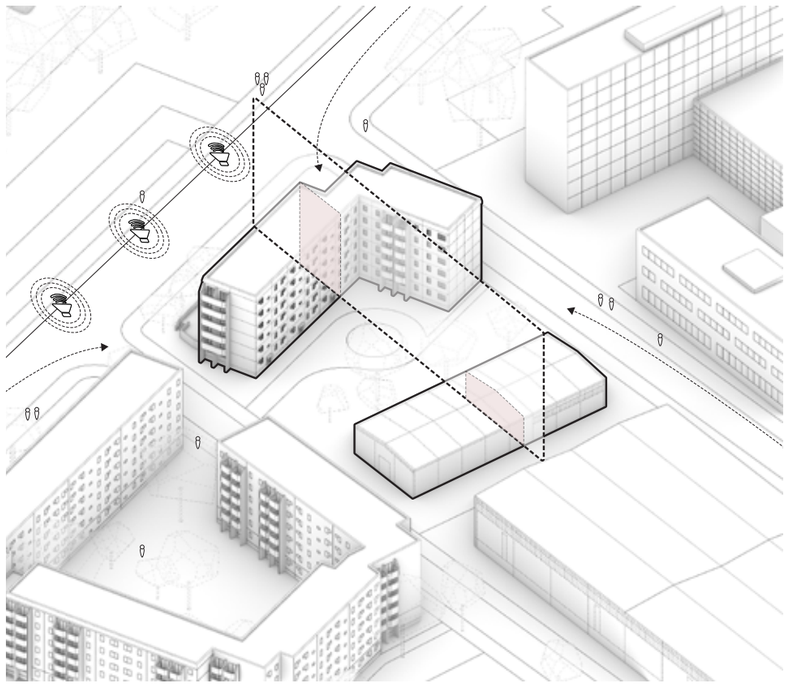
CONVERTING A STAIRWELL INTO A LIGHTWELL



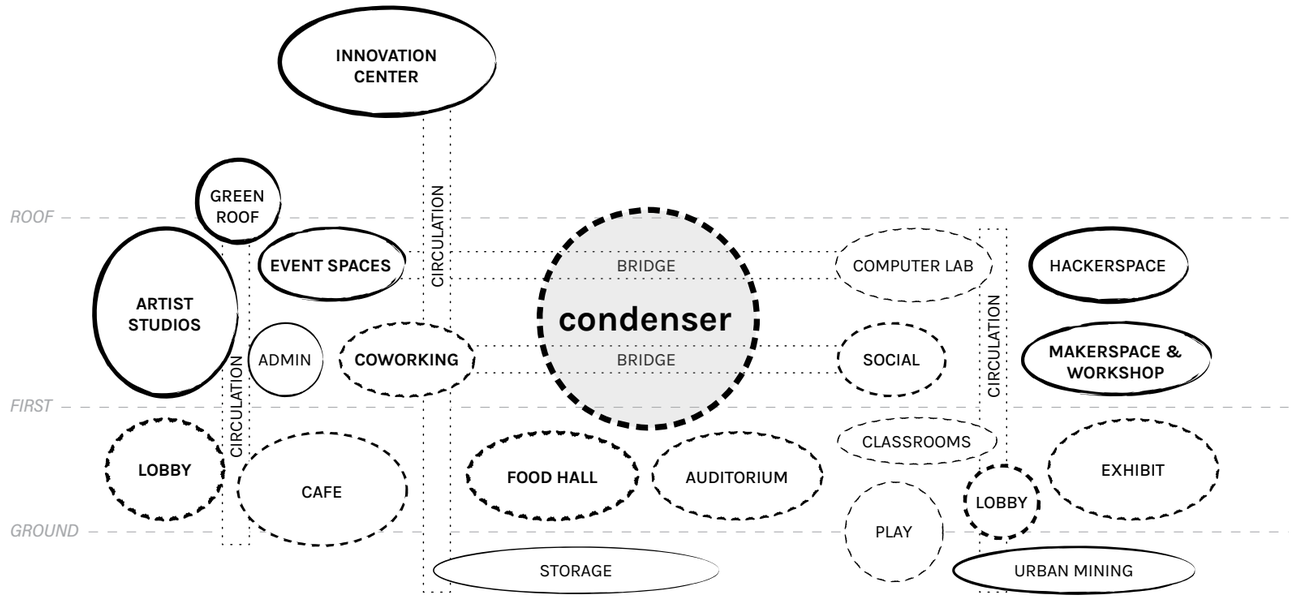
NORTH WEST FACING SECTION



NORTH WEST FACING SECTION - PROGRAM DISTRIBUTION

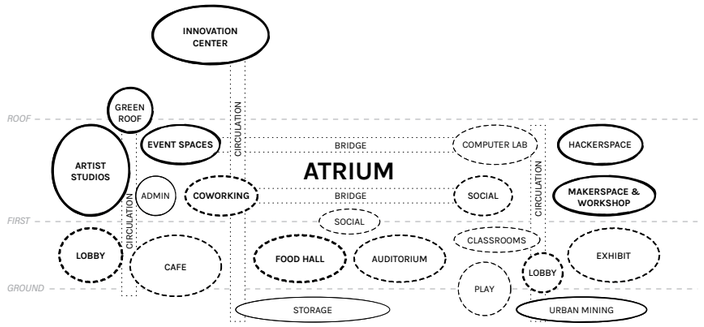


NORTH EAST FACING SECTION

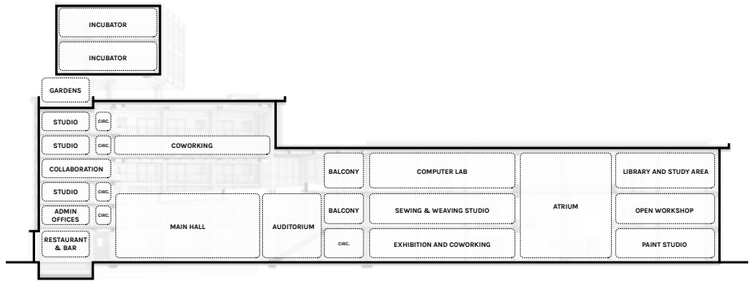


NORTH EAST FACING SECTION - PROGRAM DISTRIBUTION

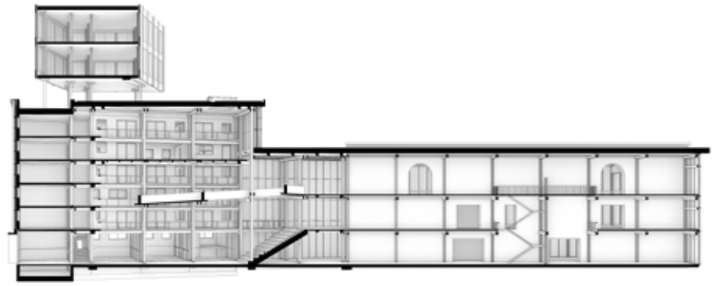
DEVELOPMENT DIAGRAMS
HACKABLE BUILDING DESIGN PROCESS



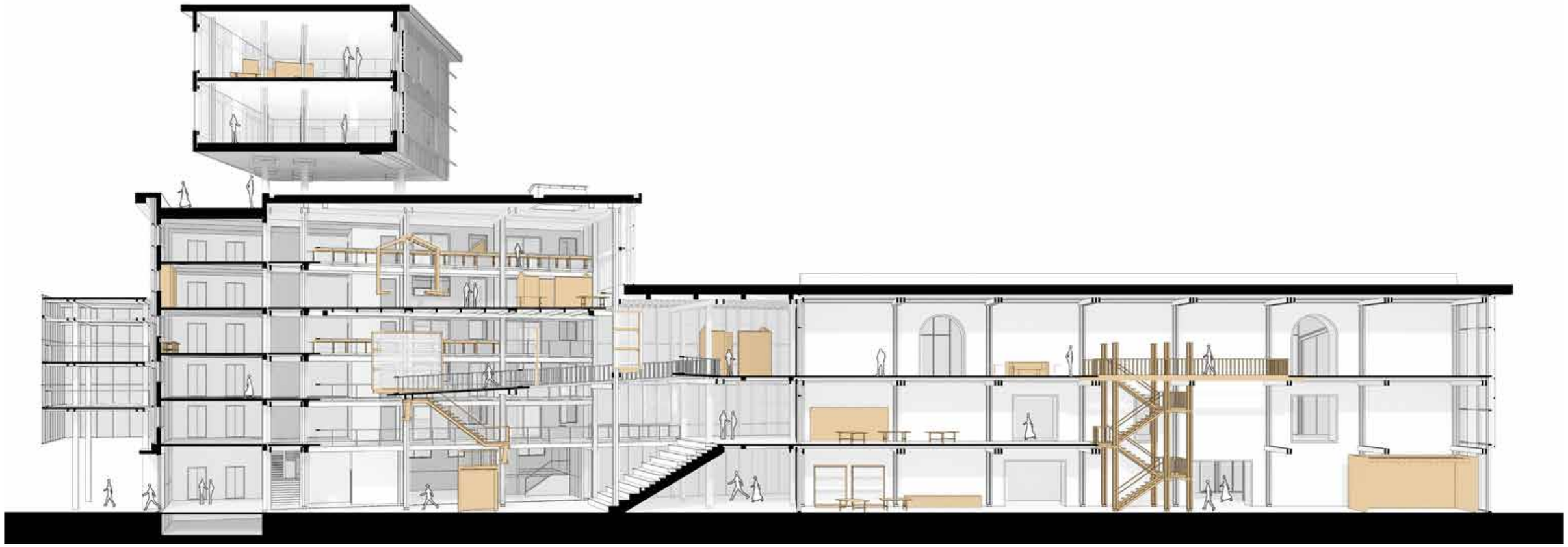
CONCEPTUAL PROGRAMMATIC SECTION



CONCEPTUAL PROGRAMMATIC SECTION



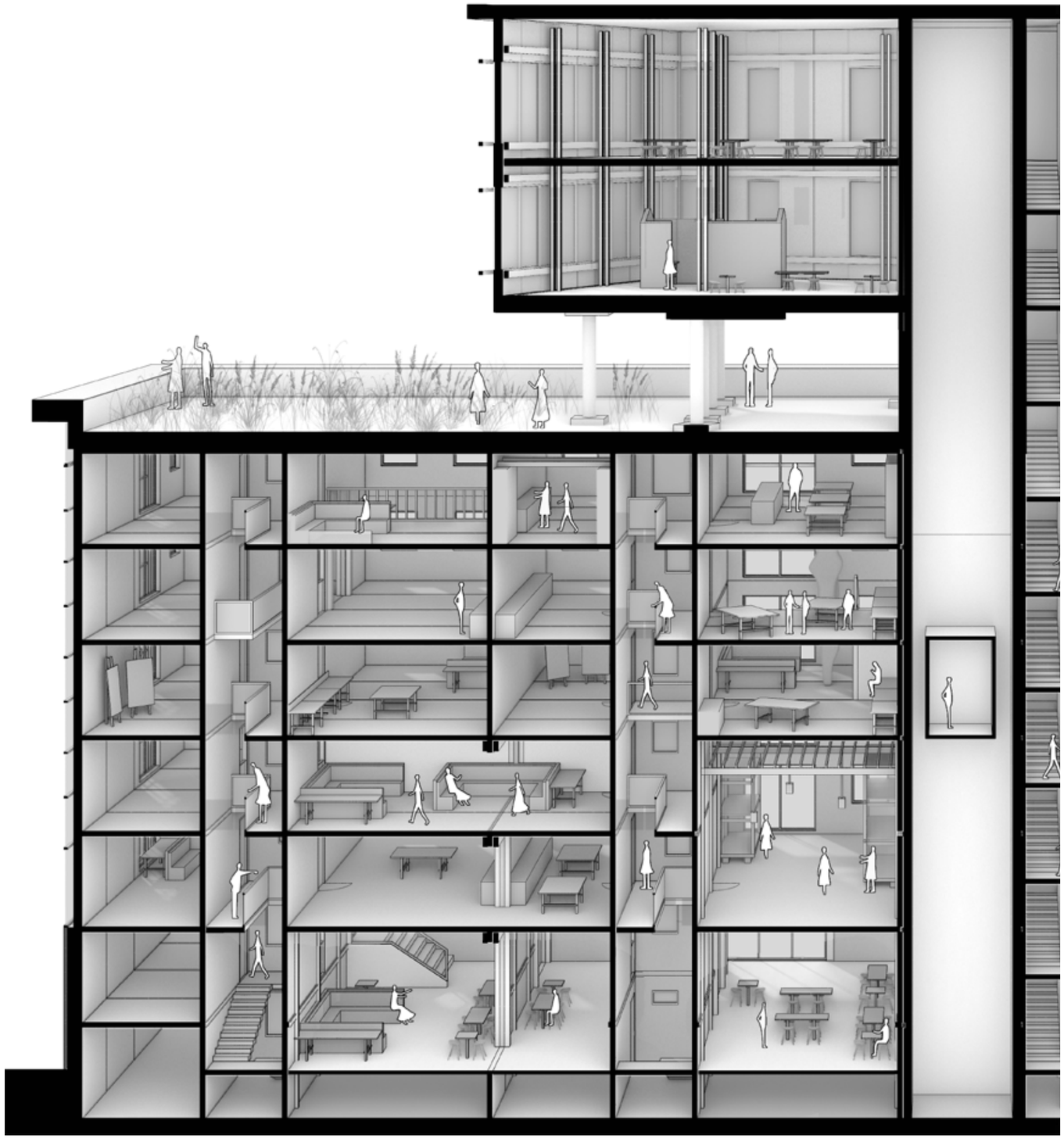
PRE-OCCUPANCY ARCHITECTURAL SECTION



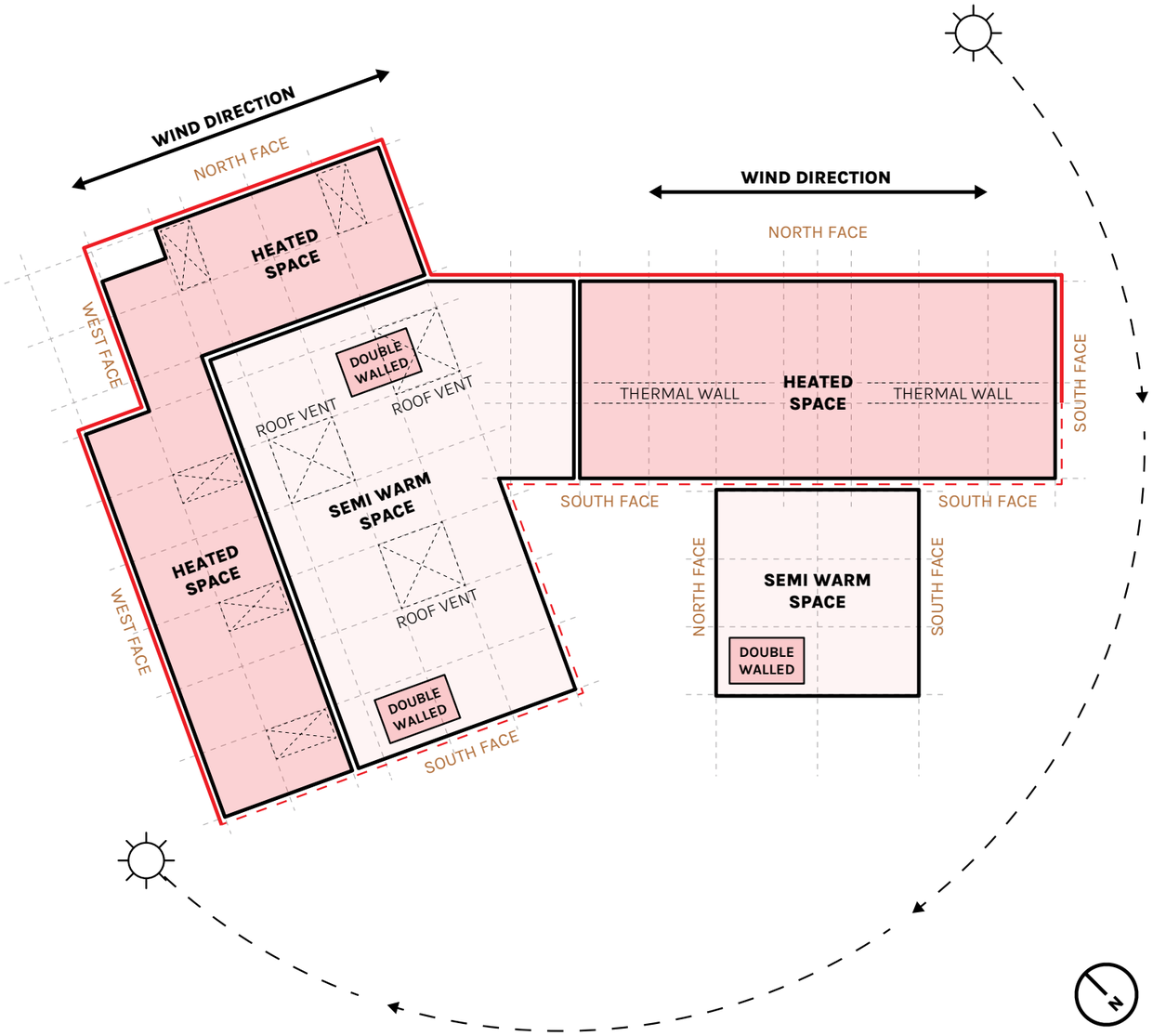
POST-OCCUPANCY ARCHITECTURAL SECTION

GROUND LEVEL SKETCH PLAN

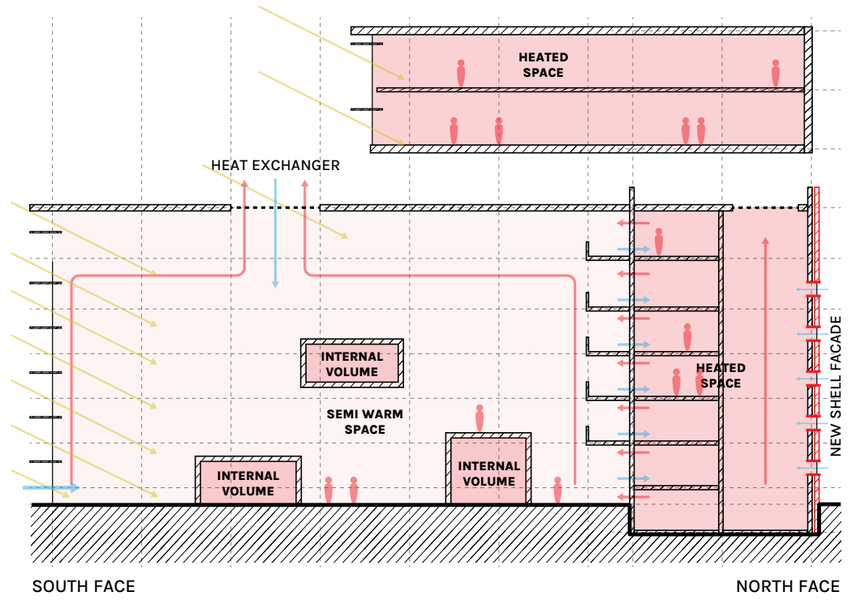
TYPICAL UPPER LEVEL SKETCH PLAN



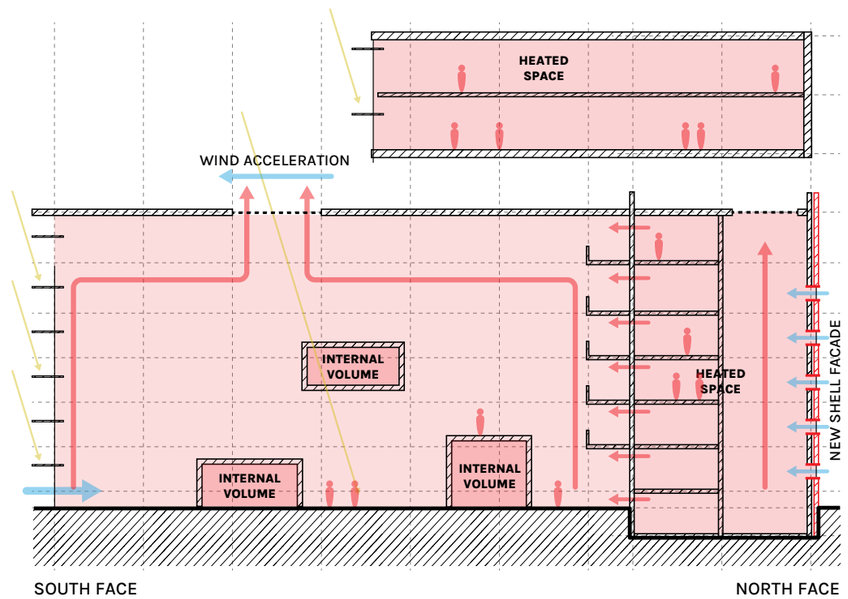
PLATTENBAU ALTERATION SECTION



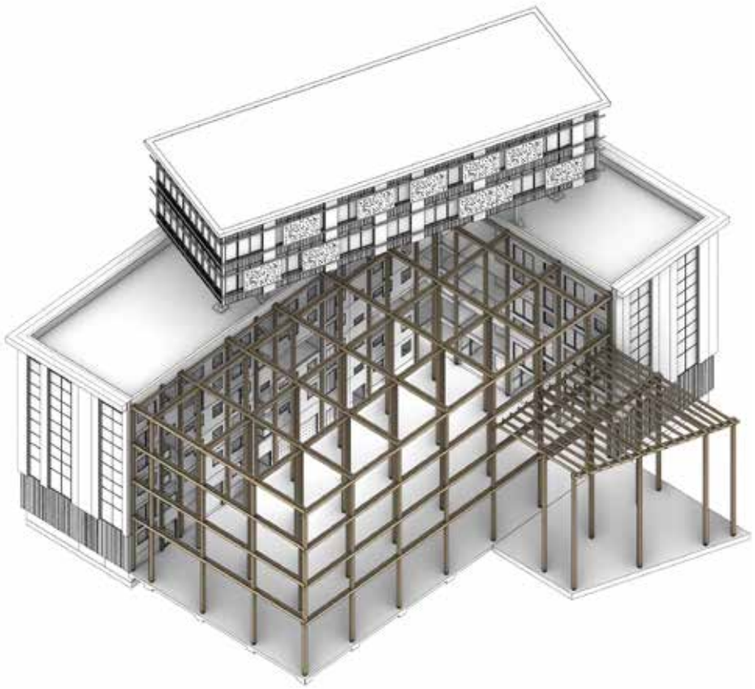
CLIMATE SCHEME - SUMMER
DISTINCT CLIMATE ZONES & NATURAL VENTILATION



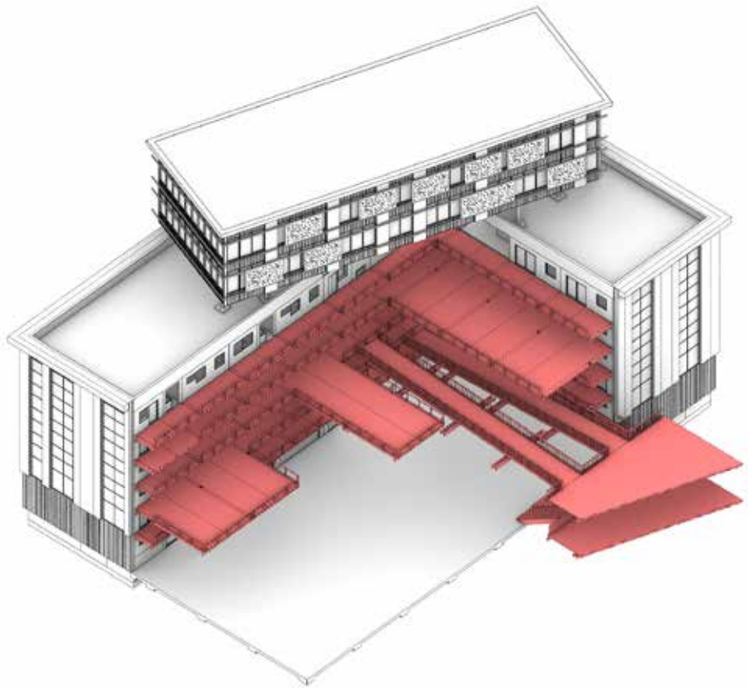
CLIMATE SCHEME - WINTER
DISTINCT CLIMATE ZONES & MIXING VENTILATION



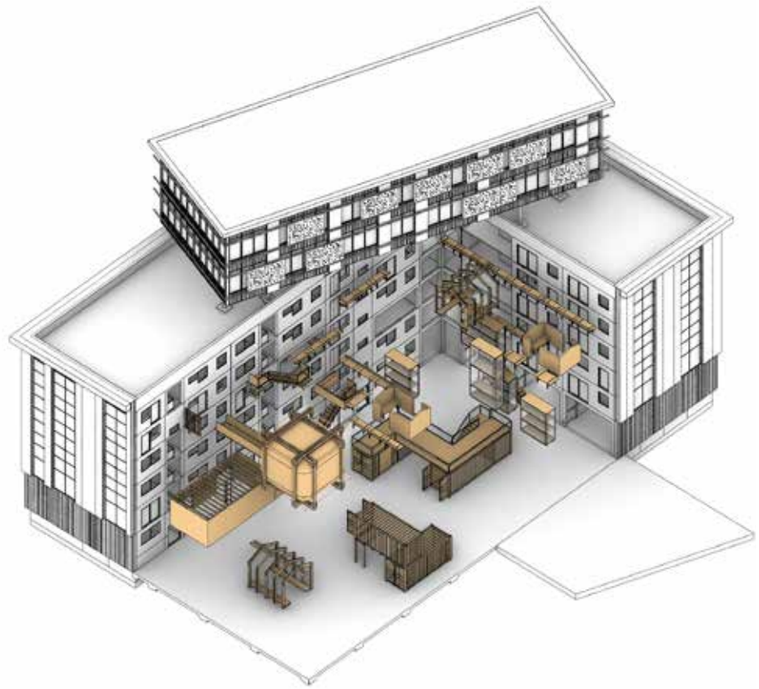
CLIMATE SCHEME - SUMMER
DISTINCT CLIMATE ZONES & NATURAL VENTILATION



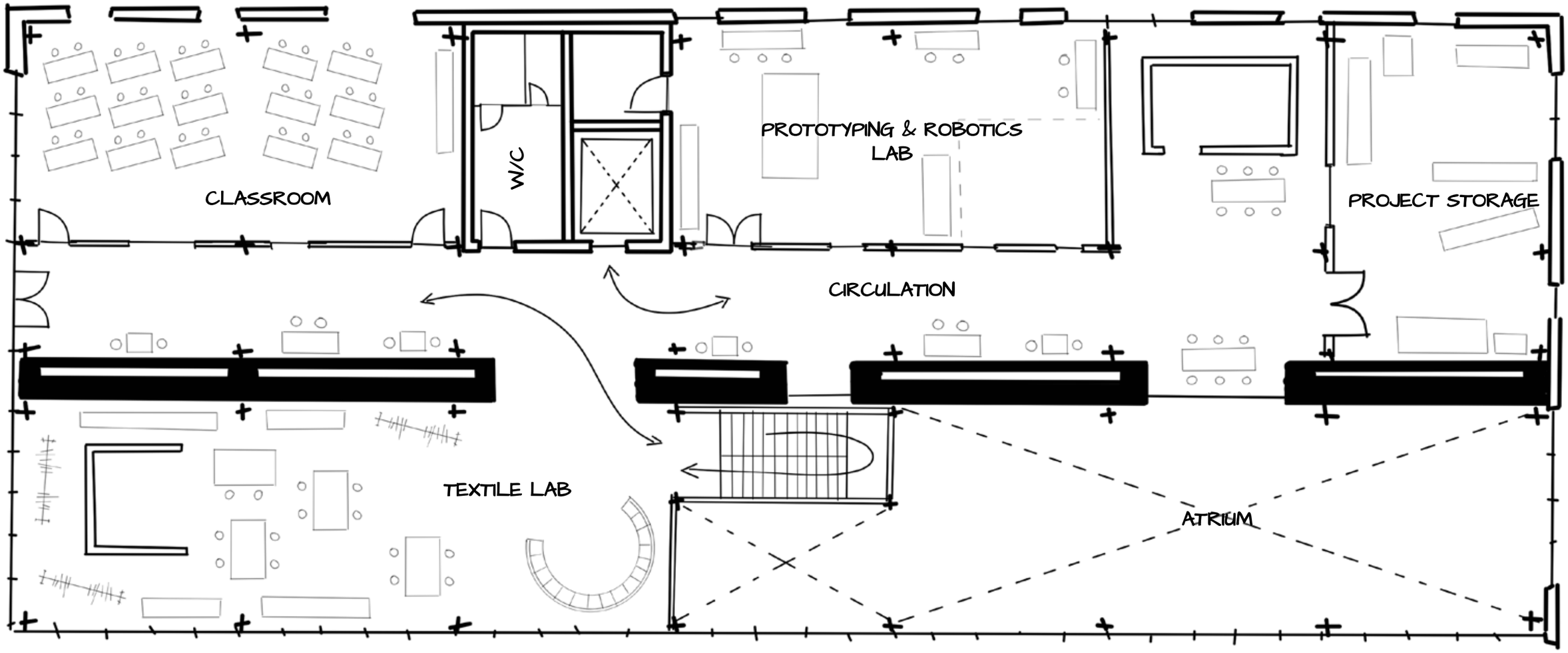
STRUCTURAL ELEMENTS

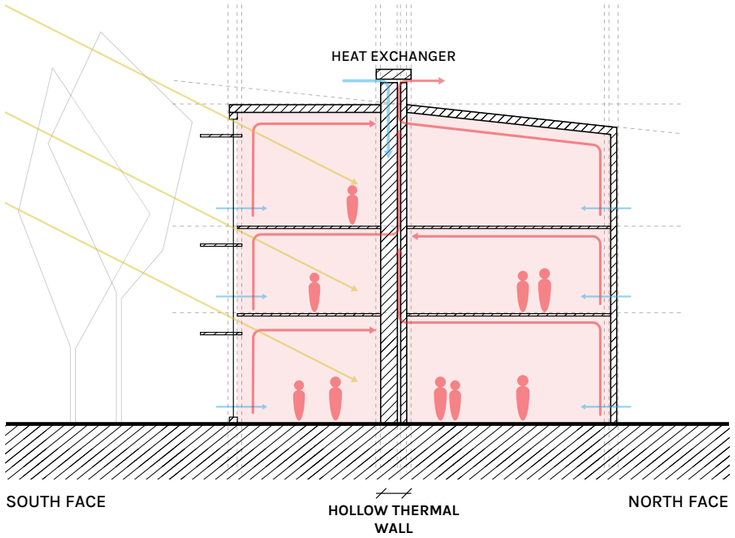


CIRCULATION ELEMENTS

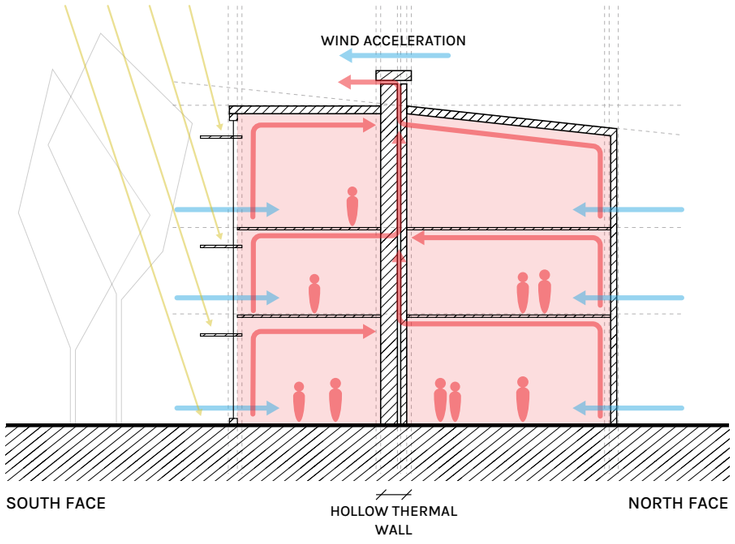


INFILL ELEMENTS

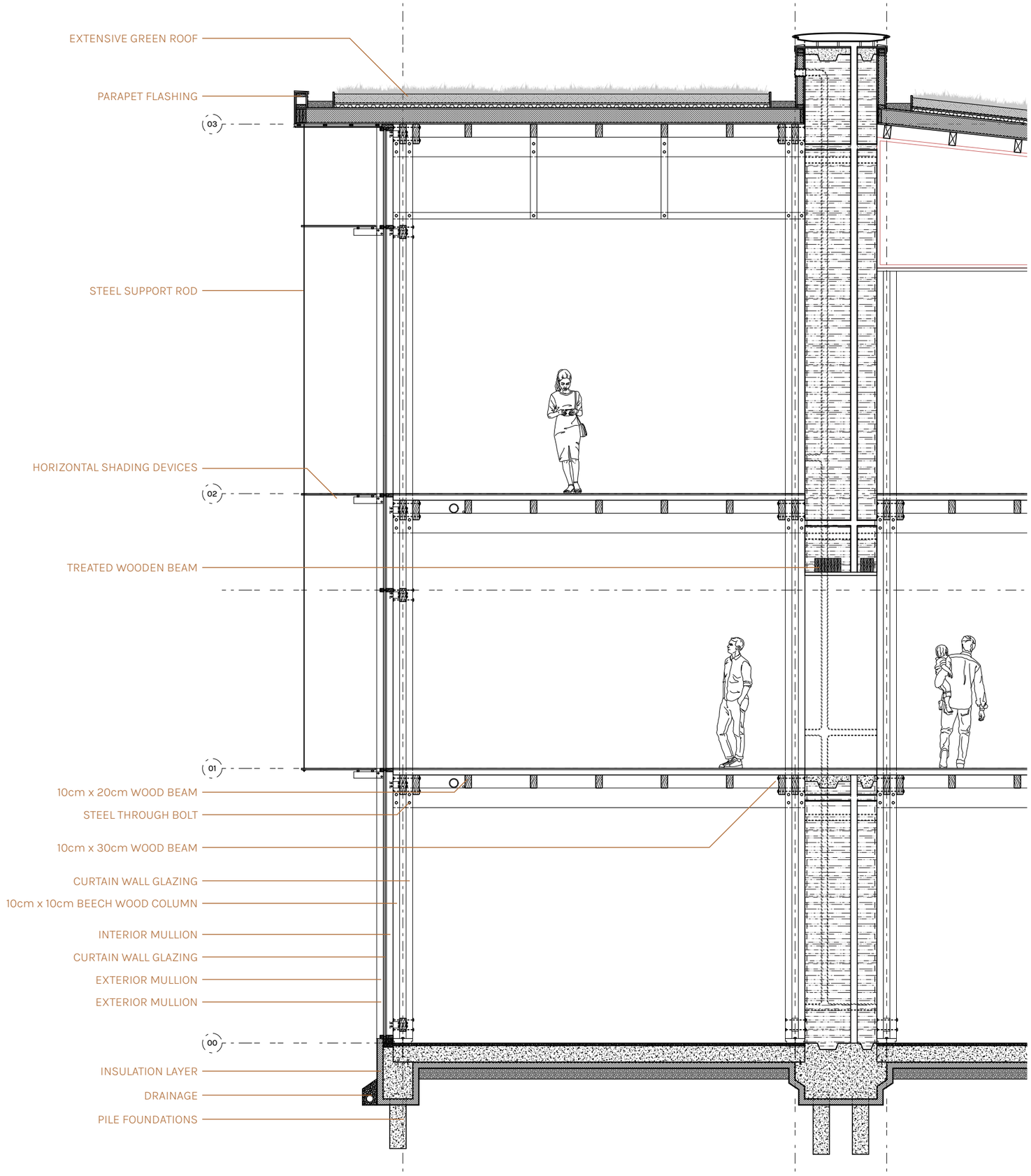

CLASSROOM
W/C
PROTOTYPING & ROBOTICS LAB
PROJECT STORAGE
CIRCULATION
TEXTILE LAB
ATRIUM



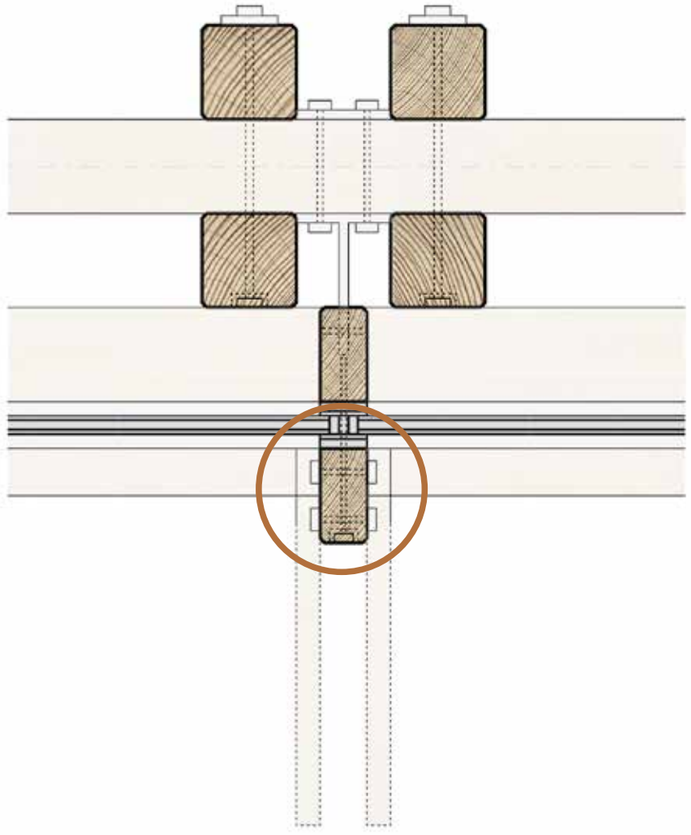
CLIMATE SCHEME - WINTER
SOLAR HEAT GAIN, RETENTION, AND HEAT RECOVERY



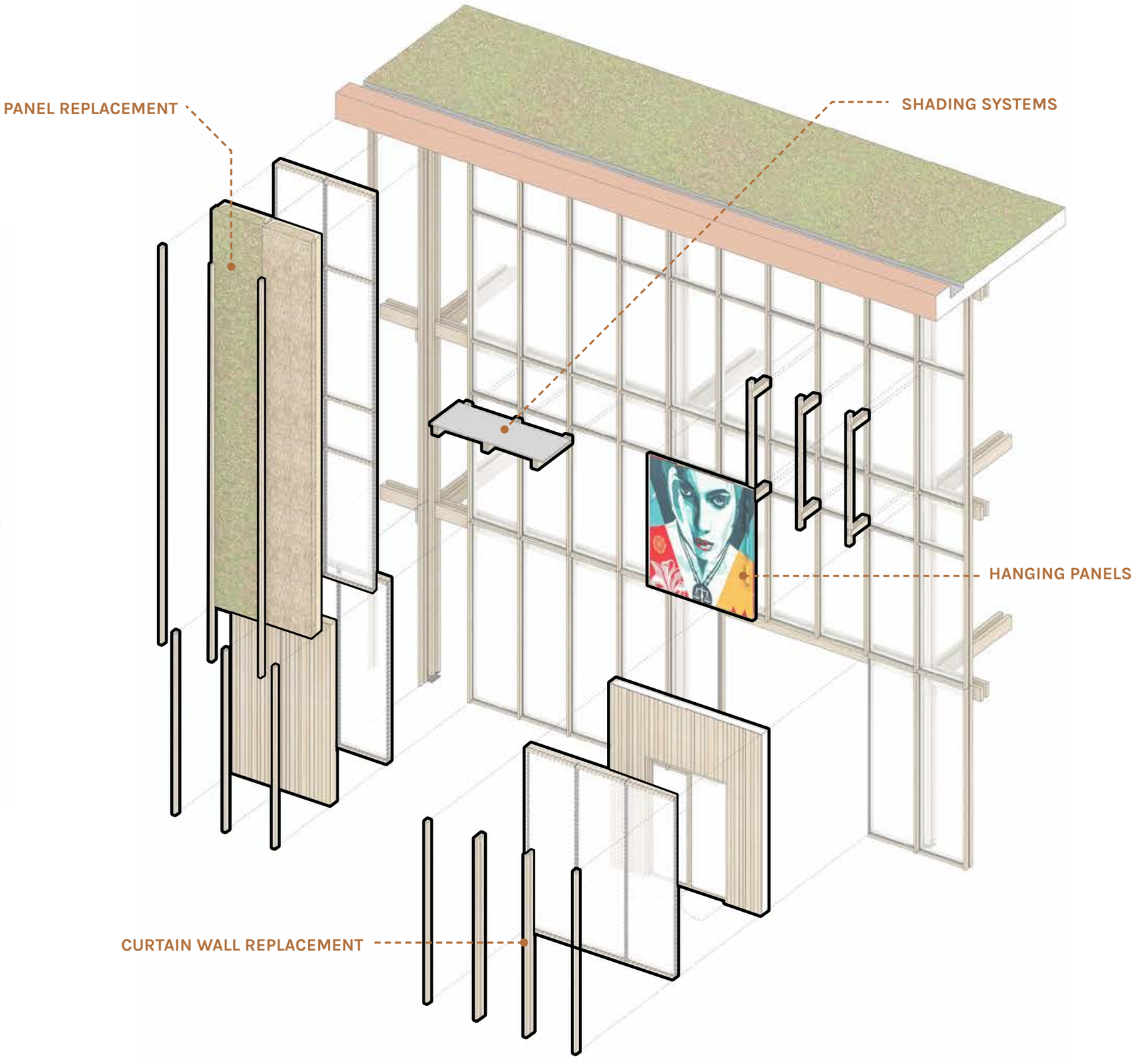
CLIMATE SCHEME - SUMMER
HEAT REJECTION, NATURAL VENTILATION, MICROCLIMATES

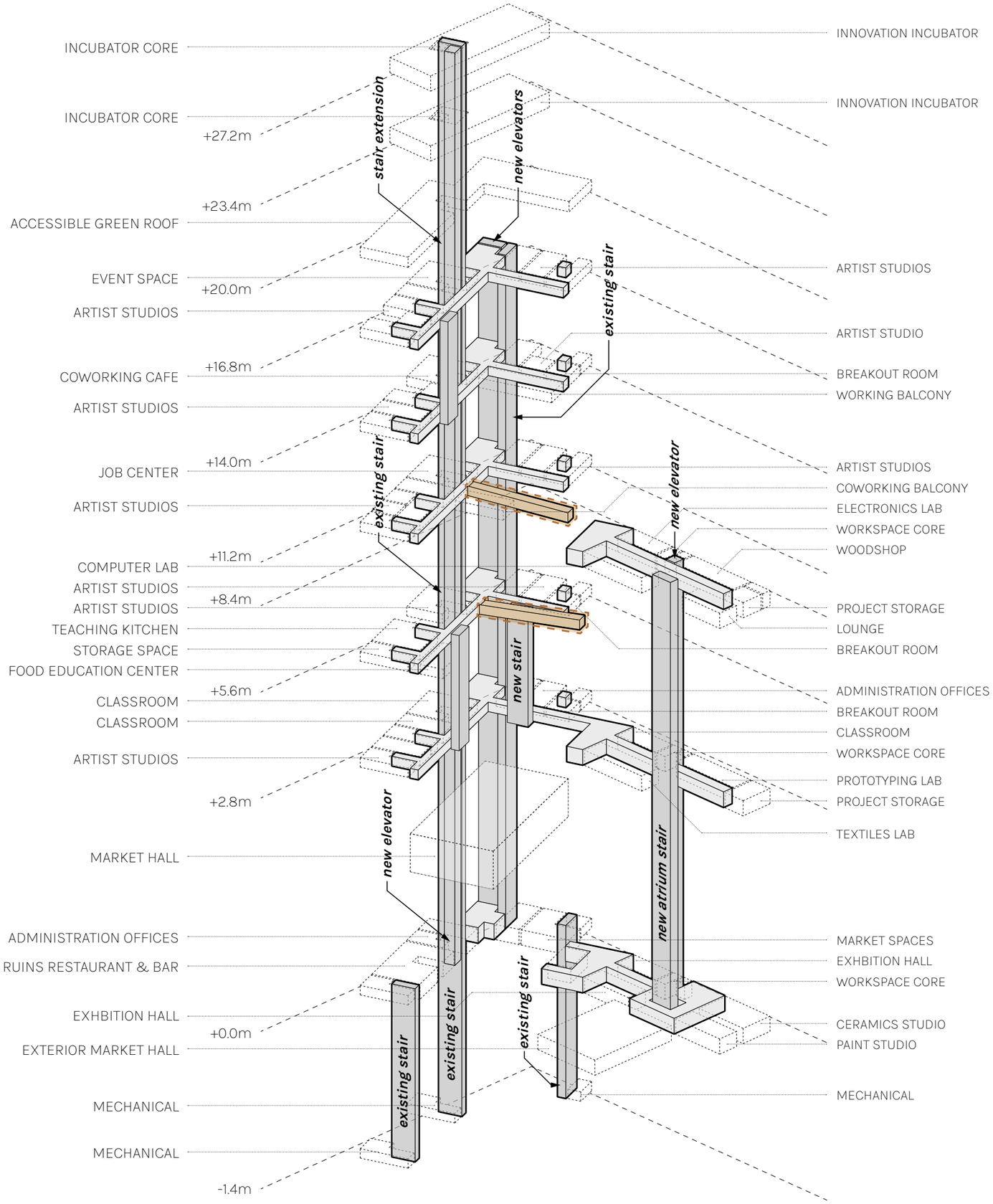


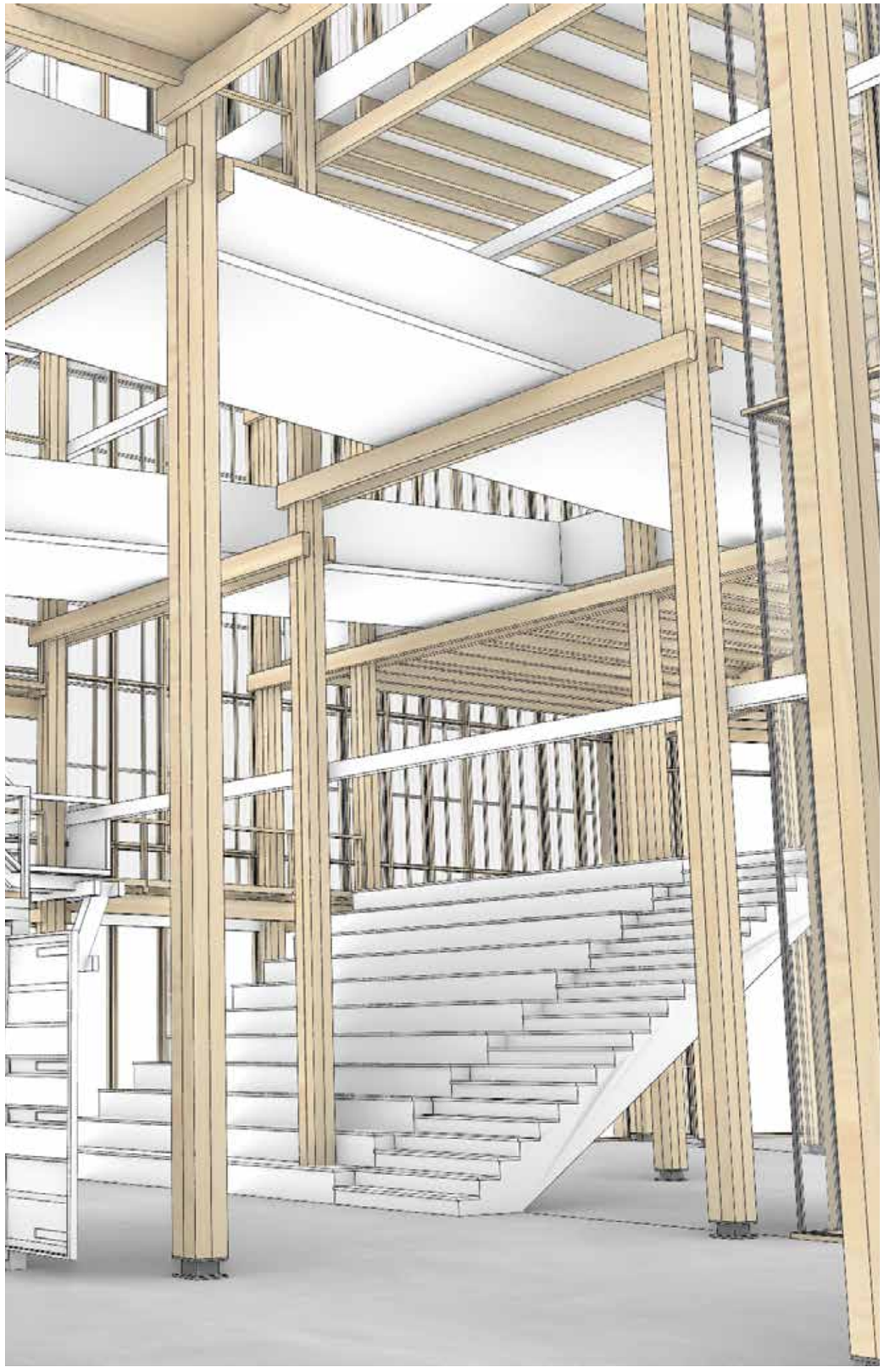
ADAPTABLE FACADE SYSTEM



DEMOUNTABLE EXTERIOR MULLIONS

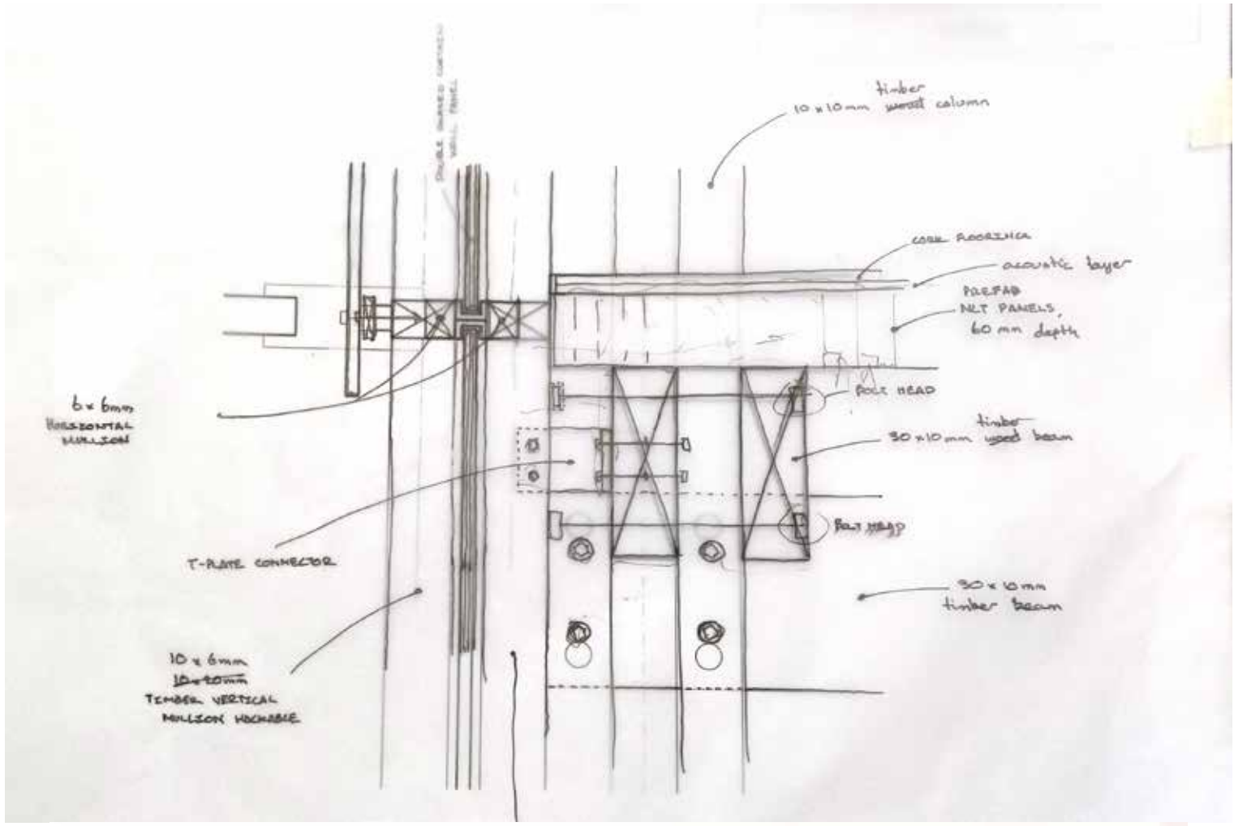


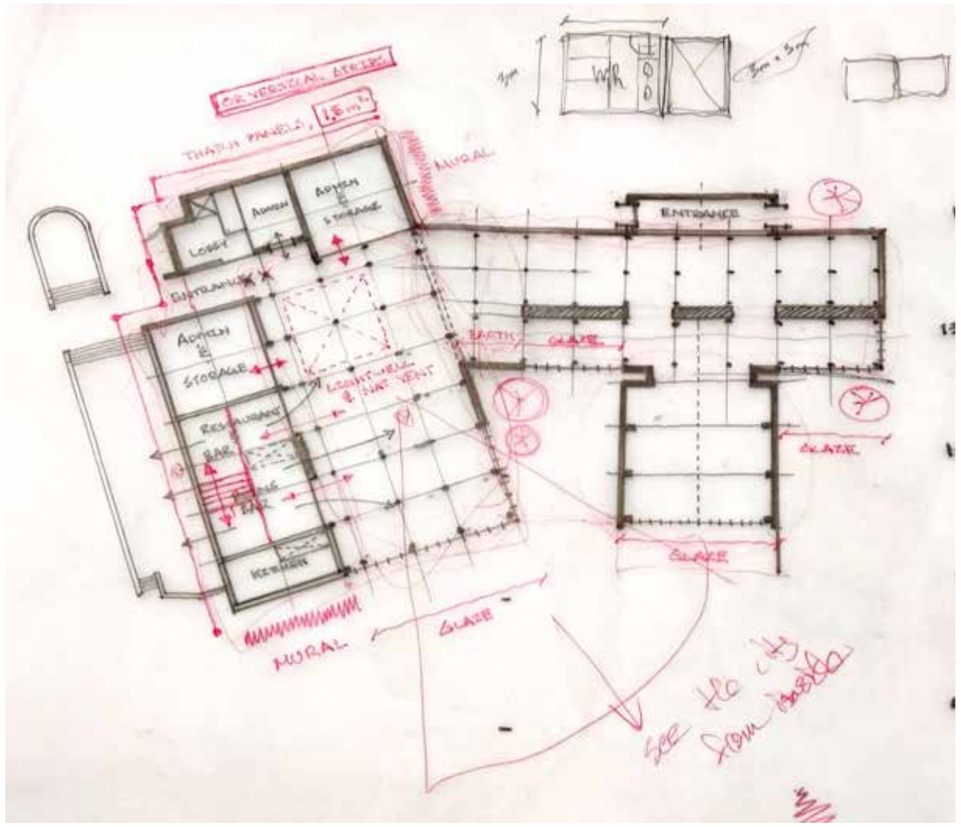

INCUBATOR CORE
INCUBATOR CORE
+27.2m
+23.4m
ACCESSIBLE GREEN ROOF
EVENT SPACE
+20.0m
ARTIST STUDIOS
+16.8m
COWORKING CAFE
ARTIST STUDIOS
+14.0m
JOB CENTER
ARTIST STUDIOS
+11.2m
COMPUTER LAB
ARTIST STUDIOS
+8.4m
ARTIST STUDIOS
TEACHING KITCHEN
STORAGE SPACE
FOOD EDUCATION CENTER
+5.6m
CLASSROOM
CLASSROOM
ARTIST STUDIOS
+2.8m
MARKET HALL
ADMINISTRATION OFFICES
RUINS RESTAURANT & BAR
EXHBITION HALL
+0.0m
EXTERIOR MARKET HALL
MECHANICAL
MECHANICAL
-1.4m
stair extension
new elevators
existing stair
existing stair
new elevator
new stair
new elevator
new atrium stair
existing stair
existing stair
existing stair
INNOVATION INCUBATOR
INNOVATION INCUBATOR
ARTIST STUDIOS
ARTIST STUDIO
BREAKOUT ROOM
WORKING BALCONY
ARTIST STUDIOS
COWORKING BALCONY
ELECTRONICS LAB
WORKSPACE CORE
WOODSHOP
PROJECT STORAGE
LOUNGE
BREAKOUT ROOM
ADMINISTRATION OFFICES
BREAKOUT ROOM
CLASSROOM
WORKSPACE CORE
PROTOTYPING LAB
PROJECT STORAGE
TEXTILES LAB
MARKET SPACES
EXHBITION HALL
WORKSPACE CORE
CERAMICS STUDIO
PAINT STUDIO
MECHANICAL

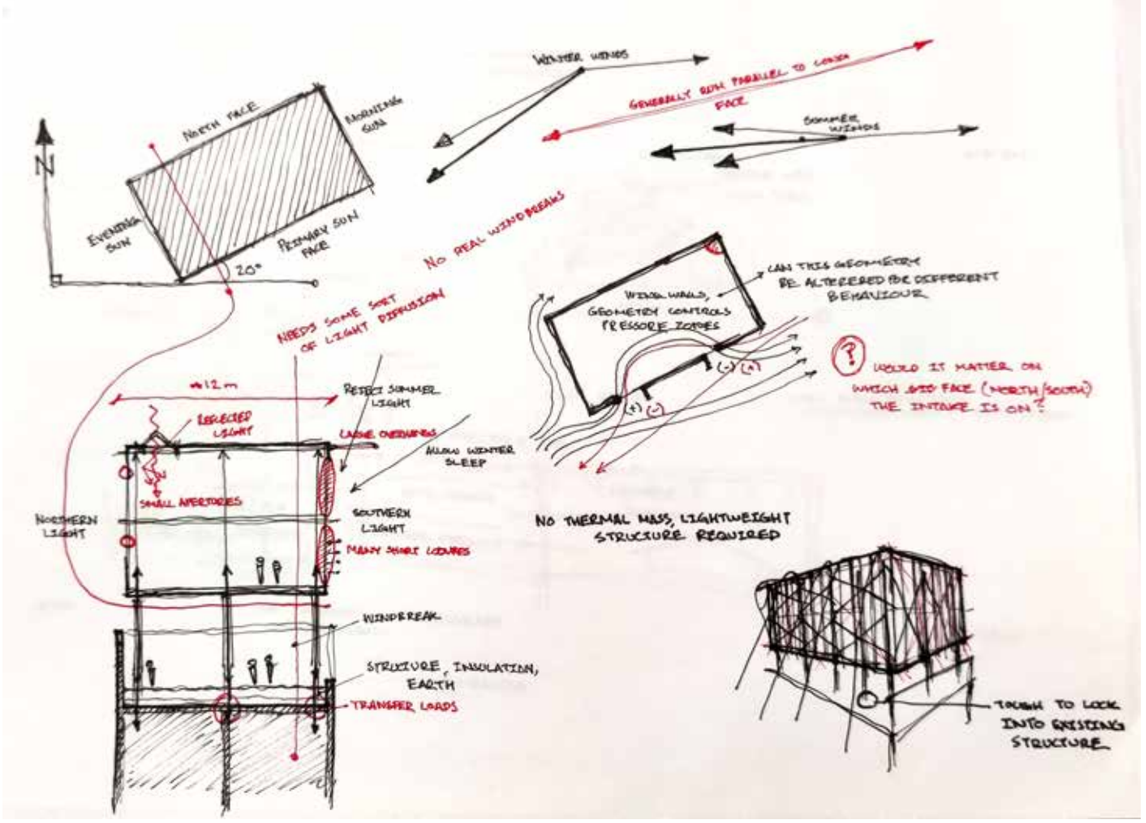


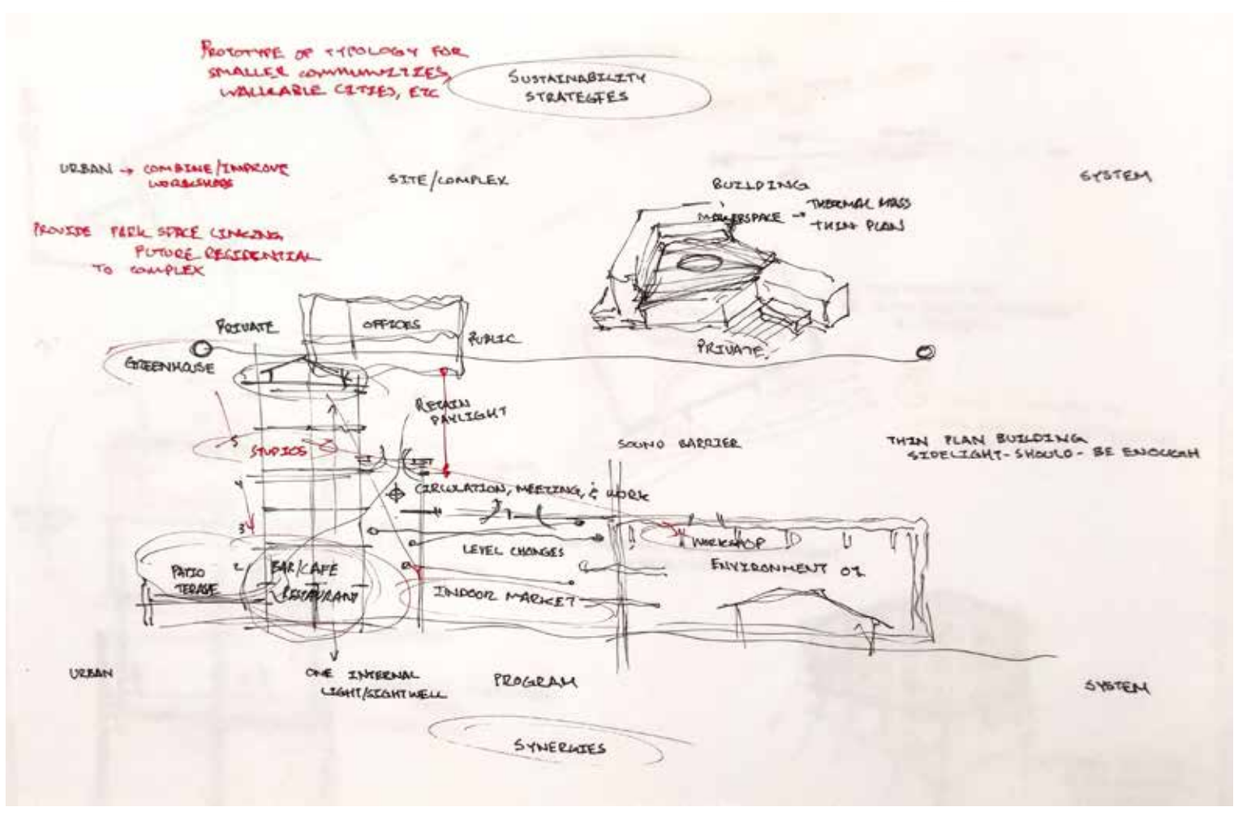
SKETCHES

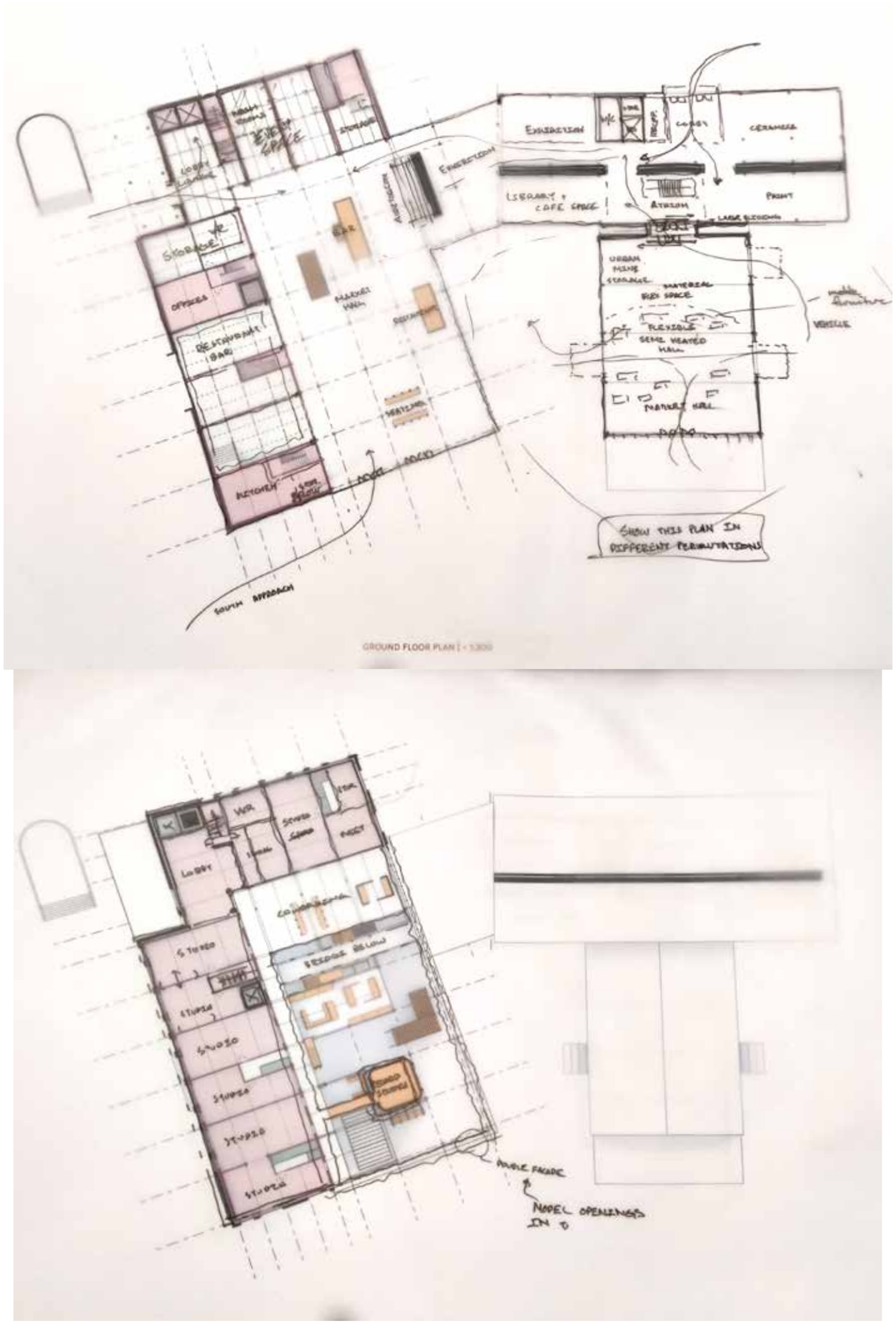
SAMPLE OF SKETCHES

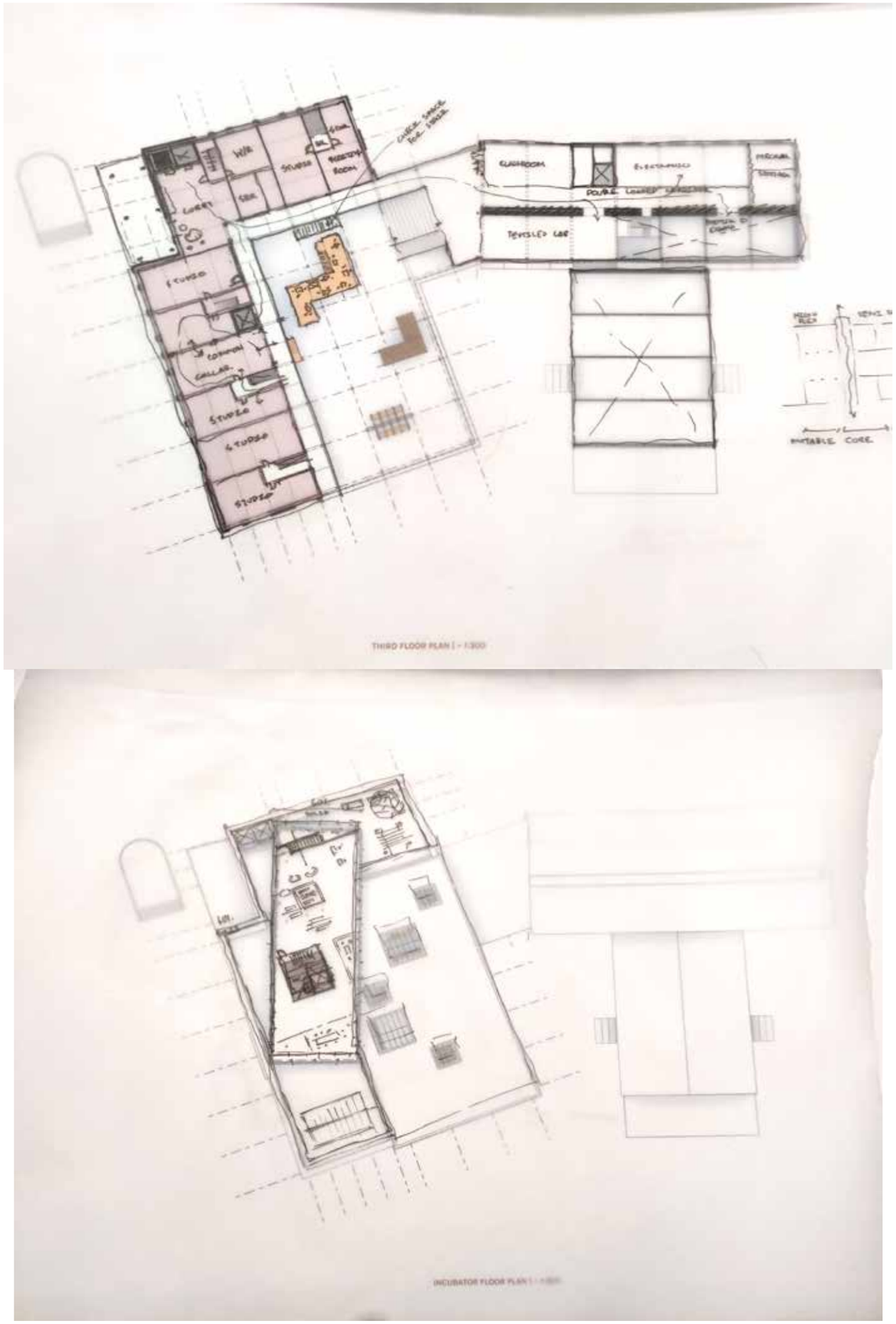

timber
10 x 10 mm wood column
cork flooring
acoustic layer
PREFAB
NLT PANELS,
60 mm depth
6 x 6mm
HORIZONTAL
MULLION
POLE HEAD
timber
30 x 10 mm wood beam
T-PLATE CONNECTOR
30 x 10 mm
timber beam
10 x 6mm
TIMBER VERTICAL
MULLION MOVABLE


MURAL
ENTRANCE
GLAZE
GLAZE
GLAZE
MURAL
GLAZE


WINTER WINDS
GENERALLY RUN PARALLEL TO LONG FACE
SUMMER WINDS
NORTH FACE
MORNING SUN
EVENING SUN
PRIMARY SUN FACE
20°
NO REAL WINDBREAKS
NEEDS SOME SORT OF LIGHT DIFFUSION
WIND WALL, GEOMETRY CONTROLS PRESSURE ZONES
CAN THIS GEOMETRY BE ALTERED TO BE DIFFERENT BEHAVIOUR
WOULD IT MATTER ON WHICH SIDE FACE (NORTH/SOUTH) THE INTAKE IS ON?
≈12 m
REFLECT SUMMER LIGHT
REFLECTED LIGHT
LARGE OPENINGS
MURAL WINTER SLEEP
SMALL APERTURES
NORTHERN LIGHT
SOUTHERN LIGHT
MANY SMALL LOUVRES
WINDBREAK
STRUCTURE, INSULATION, EARTH
TRANSFER LOADS
NO THERMAL MASS, LIGHTWEIGHT STRUCTURE REQUIRED
TOUGH TO LOCK INTO EXISTING STRUCTURE


PROTOTYPE OF TYPOLOGY FOR SMALLER COMMUNITIES, WALKABLE CITIES, ETC
SUSTAINABILITY STRATEGIES
URBAN → COMBINE/IMPROVE WORKSHOPS
SITE/COMPLEX
SYSTEM
PROVIDE PARK SPACE LINKAGE, FUTURE RESIDENTIAL TO COMPLEX
BUILDING
MASS/SPACE → THERMAL MASS THIN PLAN
PRIVATE
OFFICES
PUBLIC
PRIVATE
GREENHOUSE
RETAIN DAYLIGHT
STUDIOS
SOUND BARRIER
THIN PLAN BUILDING SIDELIGHT- SHOULD- BE ENOUGH
CIRCULATION, MEETING, & WORK
LEVEL CHANGES
WORKSHOP
ENVIRONMENT OF
PATIO TERRACE
BAR/CAFE RESTAURANT
INDOOR MARKET
ONE INTERNAL LIGHT/LIGHTWELL
URBAN
PROGRAM
SYSTEM
SYNERGIES



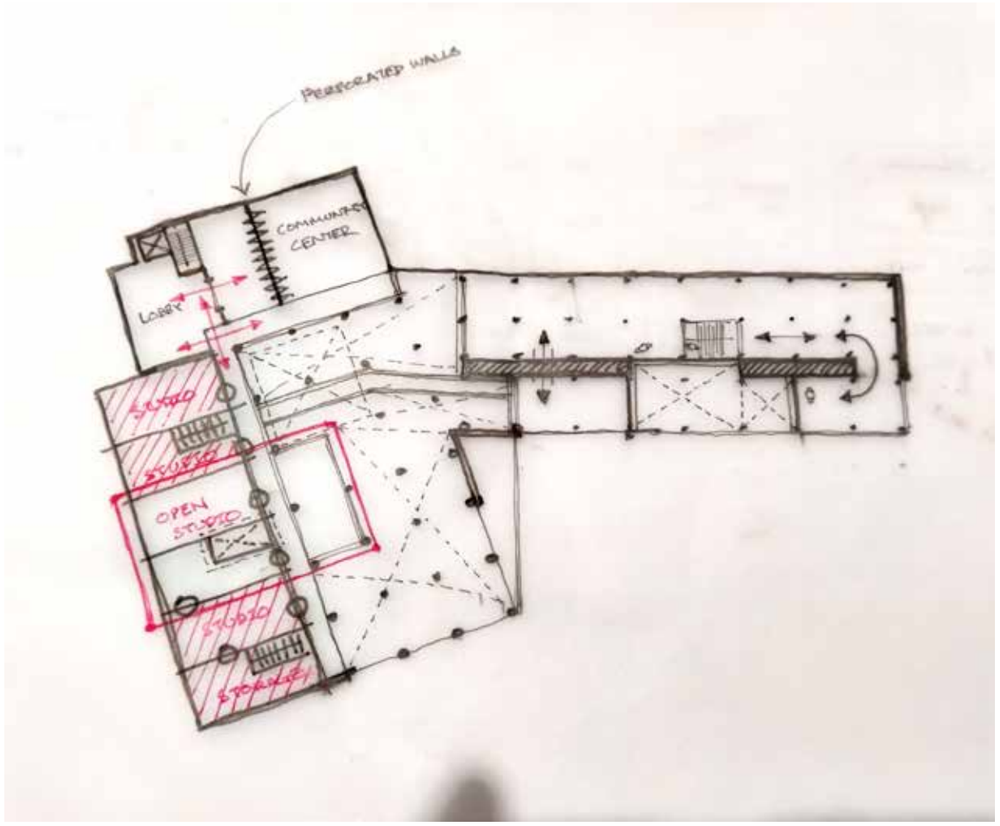


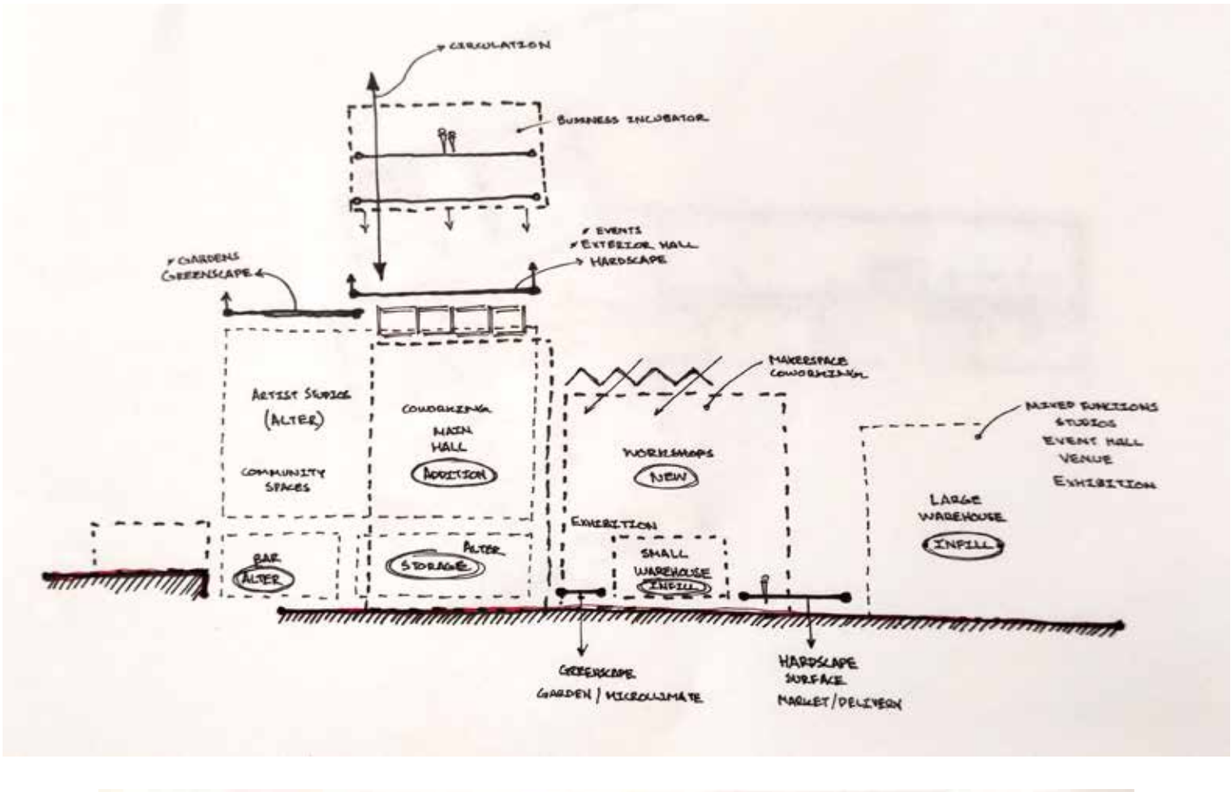
STORAGE
LOBBY
DESIGN SPACE
STORAGE
OFFICES
RESTAURANT / BAR
KITCHEN
BAR
MARKET HALL
AUDITORIUM
EXHIBITION
EXHIBITION
LIBRARY + CAFE SPACE
ATRIUM
CERAMICS
PRINT
LARGE ROLLER DOOR
URBAN MINE STORAGE
MATERIAL R&D SPACE
FLEXIBLE SEMI HEATED HALL
MATERIAL HALL
mobile furniture
VEHICLE
SHOW THIS PLAN IN DIFFERENT PERMUTATIONS
SOUTH APPROACH
GROUND FLOOR PLAN | - 1:300

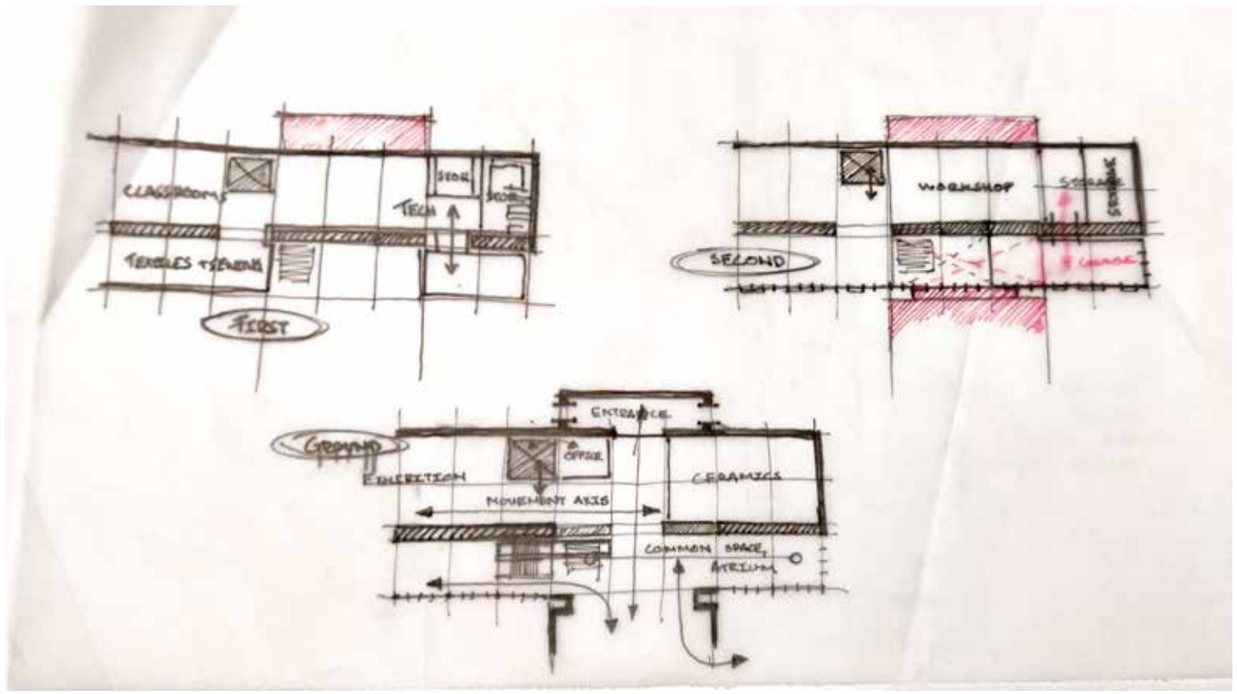
CHECK SPACE FOR STAIR
WR
STUDIO
MEETING ROOM
LOBBY
STUDIO
COMMON CELLAR
STUDIO
STUDIO
STUDIO
CLASSROOM
ELECTRONICS
DOUBLE LOADED CORRIDOR
TEXTILES LAB
PORTABLE CORE
THIRD FLOOR PLAN | - 1:300

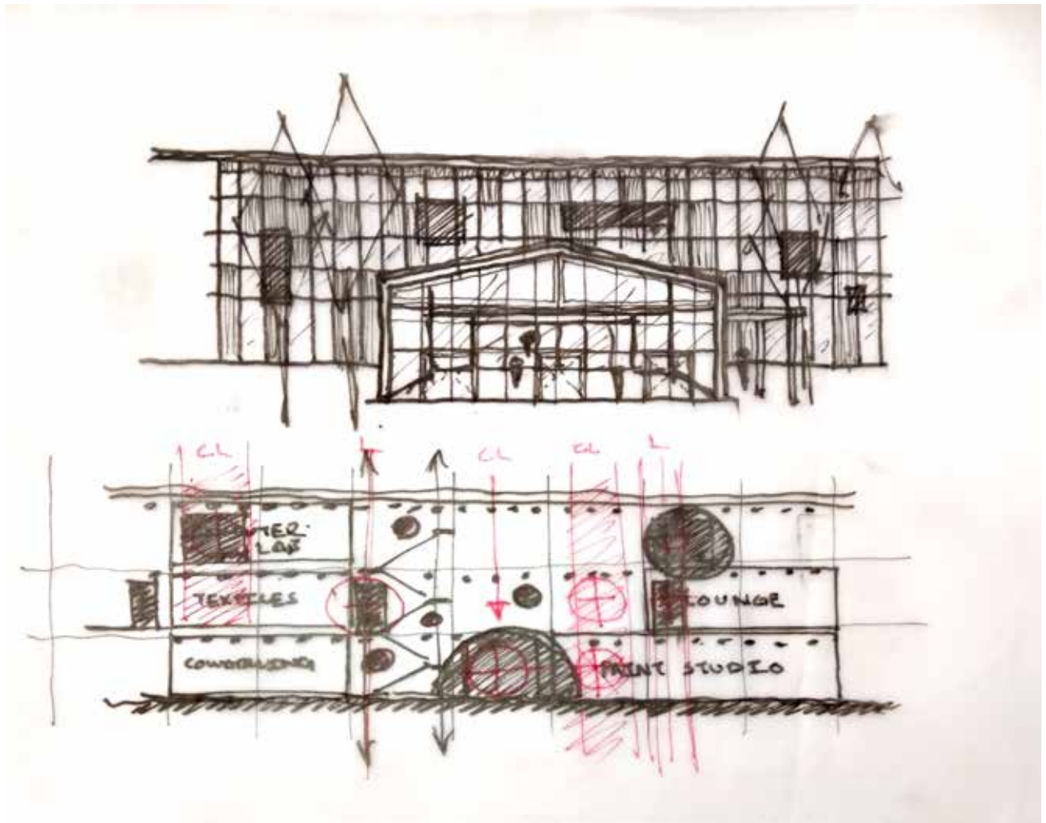
WR
LOBBY
STUDIO
STUDIO
STUDIO
STUDIO
STUDIO
STUDIO
COWORKING
BRIDGE BELOW
PUBLIC FACADE
MODEL OPENINGS IN

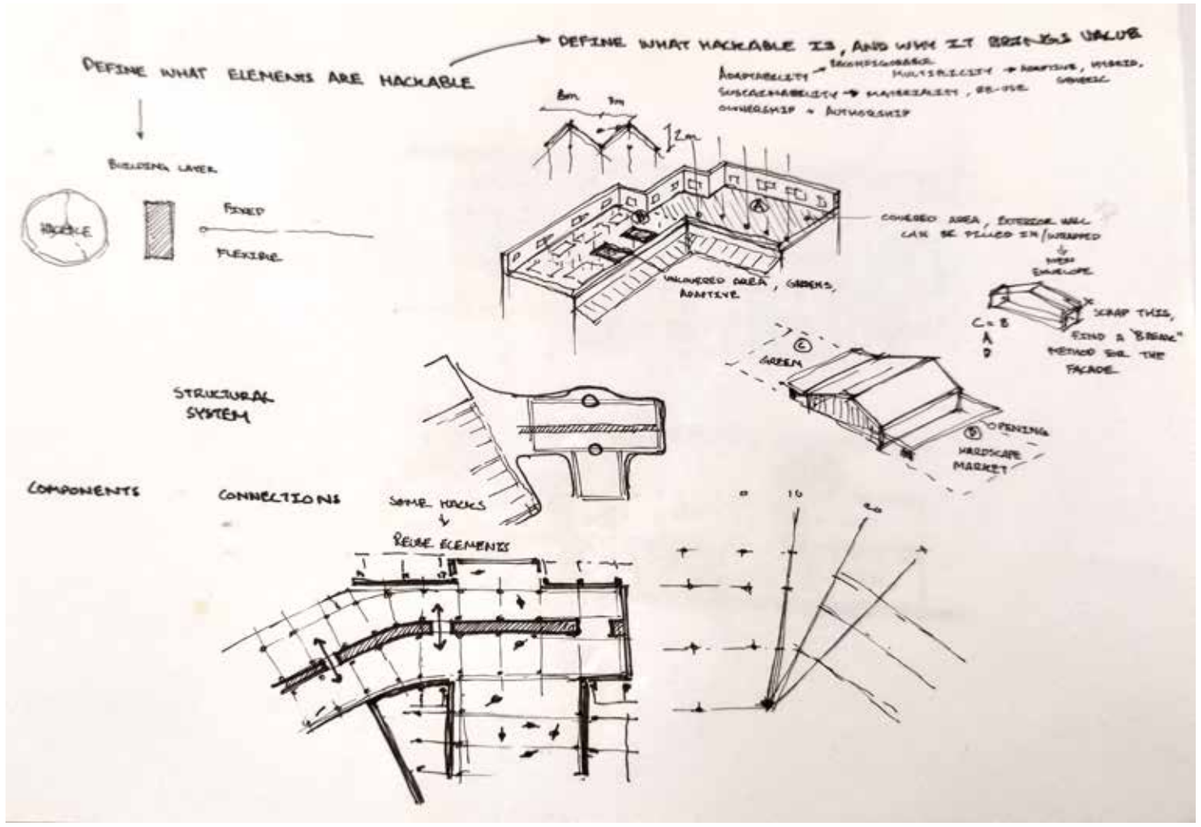
INCUBATOR FLOOR PLAN | - 1:300

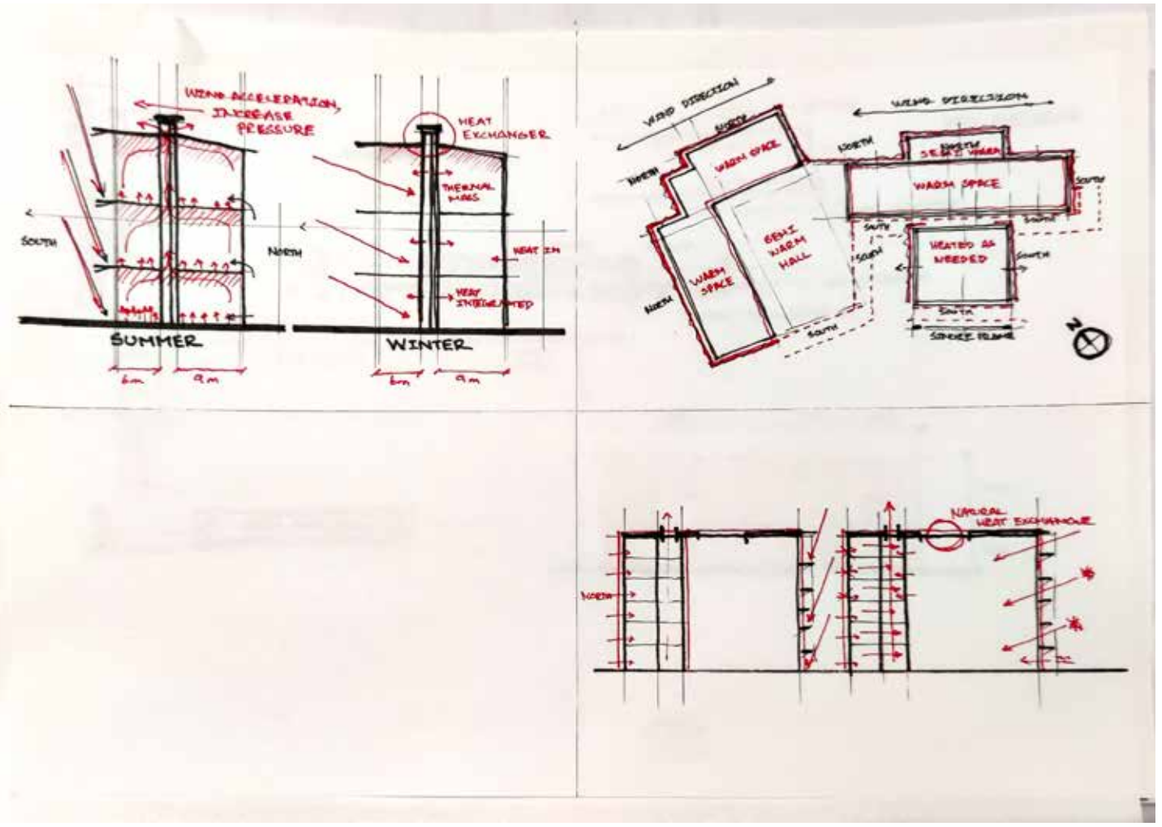

PERFORATED WALLS
COMMUNITY CENTRE
LOBBY
STUDIO
STUDIO
OPEN STUDIO
STUDIO
STORAGE

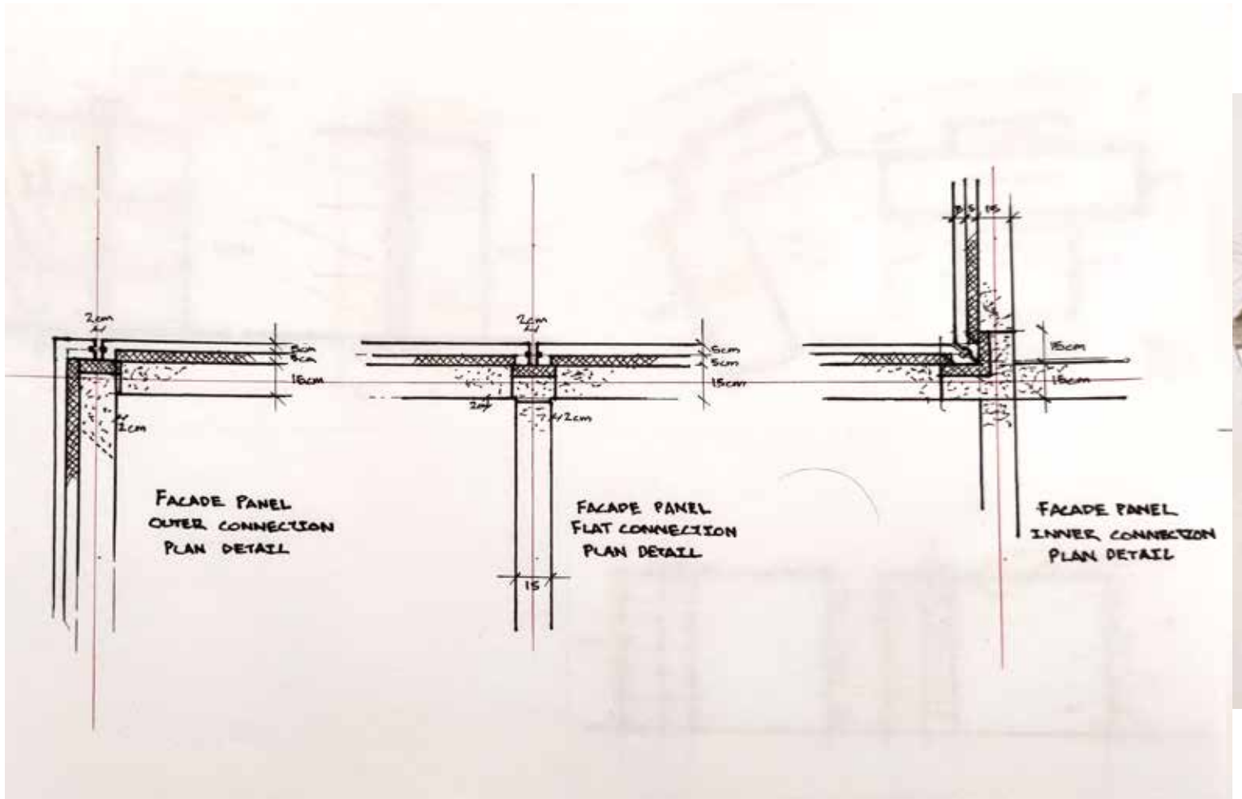

CIRCULATION
BUSINESS INCUBATOR
EVENTS
EXTERIOR HALL
HARDSCAPE
GARDENS
GREENSCAPE
ARTIST STUDIOS
(ALTER)
COMMUNITY SPACES
COWORKING
MAIN HALL
ADDITION
MAKERSPACE
COWORKING
WORKSHOPS
NEW
MIXED FUNCTIONS
STUDIOS
EVENT HALL
VENUE
EXHIBITION
LARGE WAREHOUSE
INFILL
EXHIBITION
BAR
ALTER
ALTER
STORAGE
SMALL WAREHOUSE
INFILL
GREENSCAPE
GARDEN / MICROCLIMATE
HARDSCAPE
SURFACE
MARKET/DELIVERY

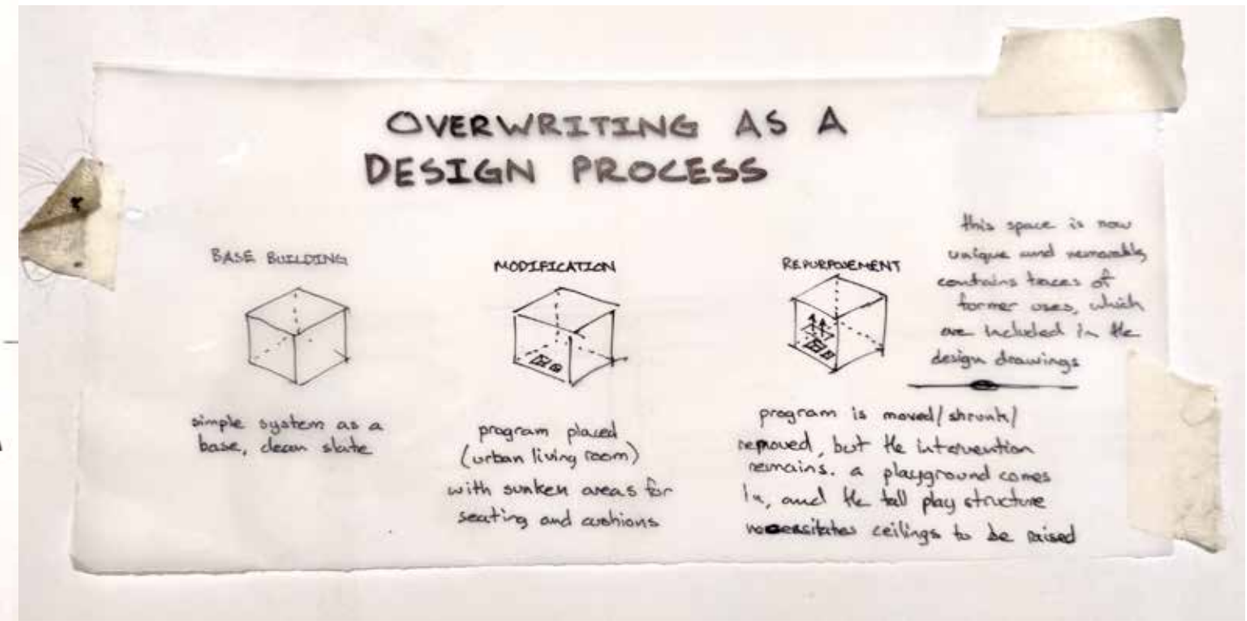

CLASSROOM
STOR
STOR
TECH
TEXTILES TERRACE
FIRST
WORKSHOP
STORAGE
SECOND
GROUND
ENTRANCE
OFFICE
EXHIBITION
MOVEMENT AXIS
CERAMICS
COMMON SPACE
ATRIUM

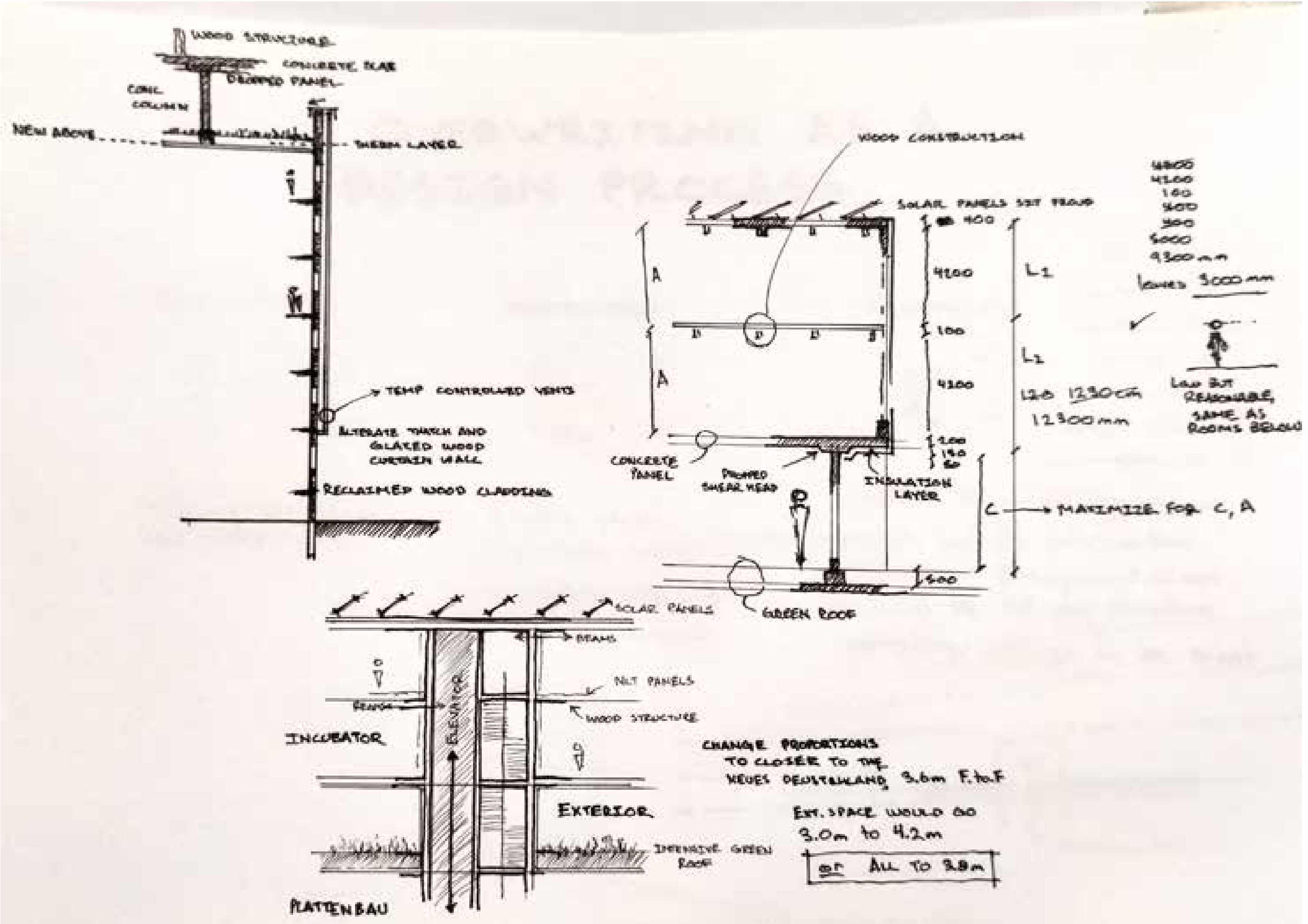

TEXTILES
LOUNGE
PRINT STUDIO

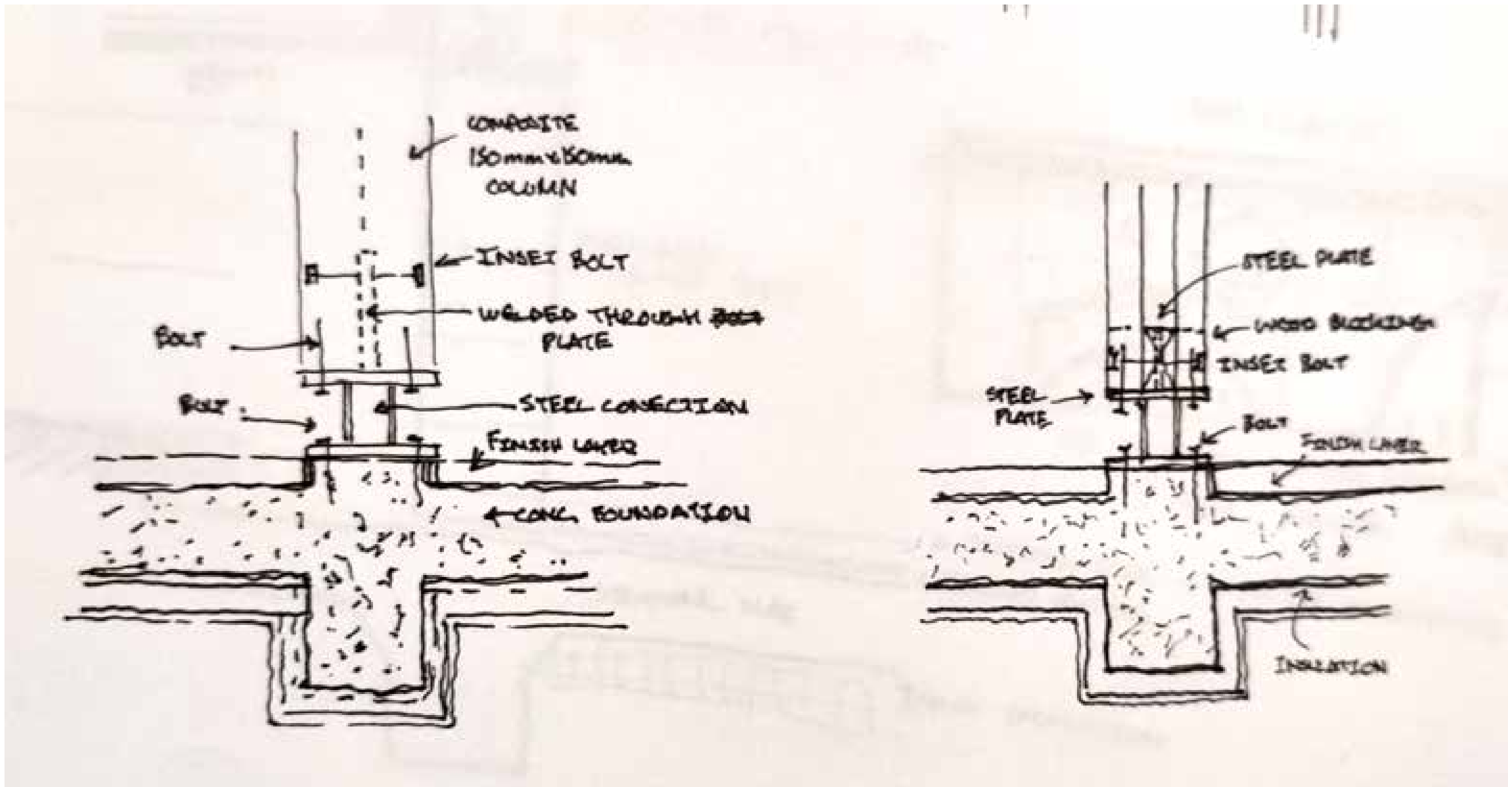

DEFINE WHAT ELEMENTS ARE HACKABLE
DEFINE WHAT HACKABLE IS, AND WHY IT HAS ITS VALUE
BUILDING LAYER
FIXED
FLEXIBLE
COVERED AREA, EXTERIOR WALL CAN BE FILLED IN/EXPANDED
VALUED AREA, GARDEN, ADAPTIVE
SCRAP THIS, FIND A "BREAK" METHOD FOR THE FACADE
STRUCTURAL SYSTEM
COMPONENTS
CONNECTIONS
SOME HACKS
REUSE ELEMENTS
OPENING
HARDSCAPE MARKET


WIND ACCELERATION, INCREASE PRESSURE
HEAT EXCHANGER
THERMAL MASS
HEAT IN
HEAT INTERCEPTED
SOUTH
NORTH
SUMMER
WINTER
WIND DIRECTION
WARM SPACE
SEMI WARM HALL
HEATED AS NEEDED
SMOKE PLUME
NATURAL HEAT EXCHANGE

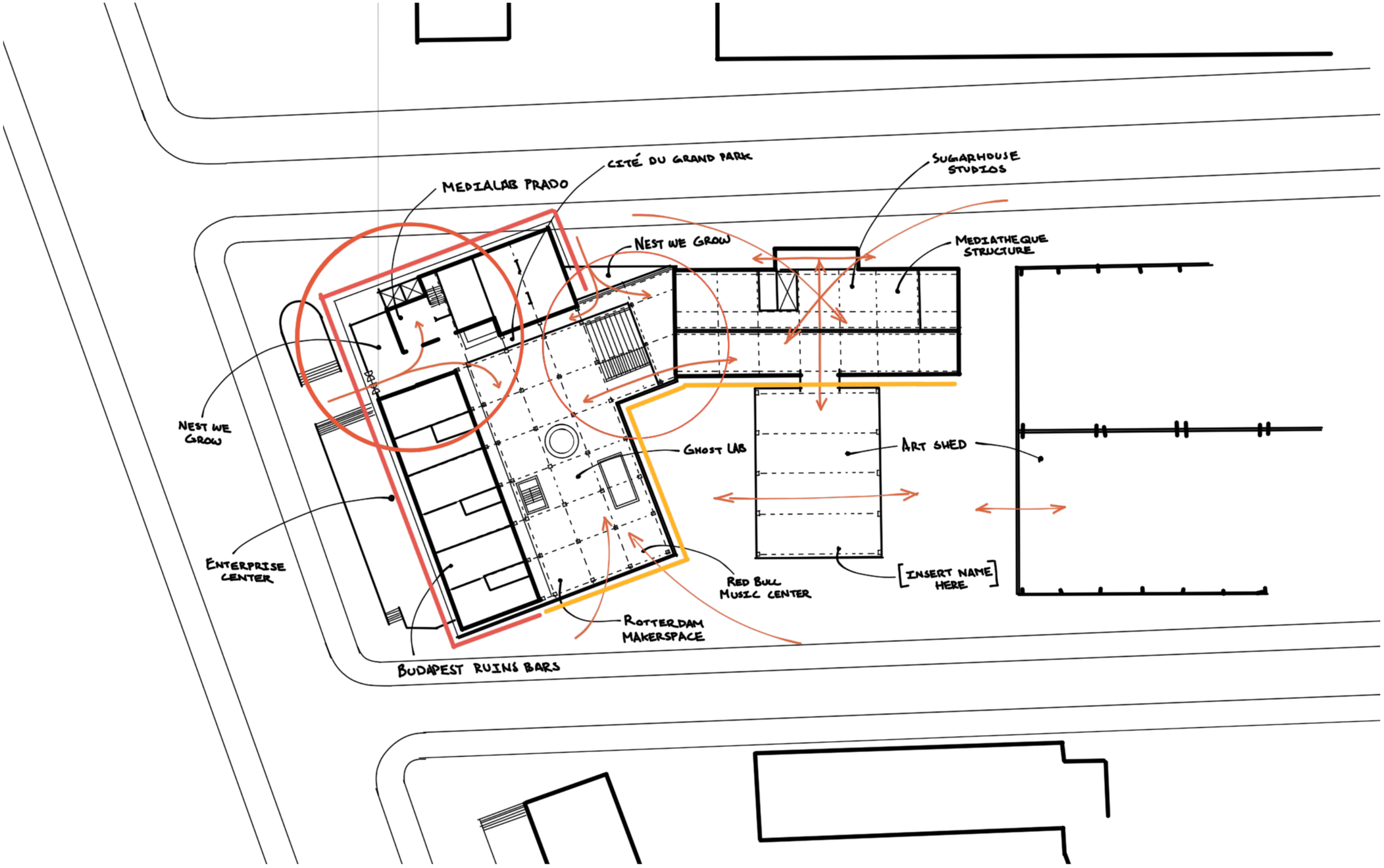

FACADE PANEL OUTER CONNECTION PLAN DETAIL
FACADE PANEL FLAT CONNECTION PLAN DETAIL
FACADE PANEL INNER CONNECTION PLAN DETAIL


OVERWRITING AS A DESIGN PROCESS
BASE BUILDING
simple system as a base, clean slate
MODIFICATION
program placed (urban living room) with sunken areas for seating and cushions
REPURPOSEMENT
program is moved/shrunk/removed, but the intervention remains. a playground comes in, and the tall play structure necessitates ceilings to be raised
this space is now unique and remarkably contains traces of former uses, which are included in the design drawings


WOOD STRUCTURE
CONCRETE SLAB
DROPPED PANEL
NEW ABOVE
WOOD CONSTRUCTION
SOLAR PANELS
TEMP CONTROLLED VENTS
ALTERNATE THATCH AND GLAZED WOOD CURTAIN WALL
RECLAIMED WOOD CLADDING
CONCRETE PANEL
DROPPED SHEAR HEAD
INSULATION LAYER
MAXIMIZE FOR C, A
GREEN ROOF
INCUBATOR
ELEVATOR
EXTERIOR
CHANGE PROPORTIONS TO CLOSER TO THE NEUES DEUTSCHLAND 3.6m F.to.F
EXT. SPACE WOULD GO 3.0m to 4.2m
or ALL TO 3.8m
INTENSIVE GREEN ROOF
PLATTENBAU

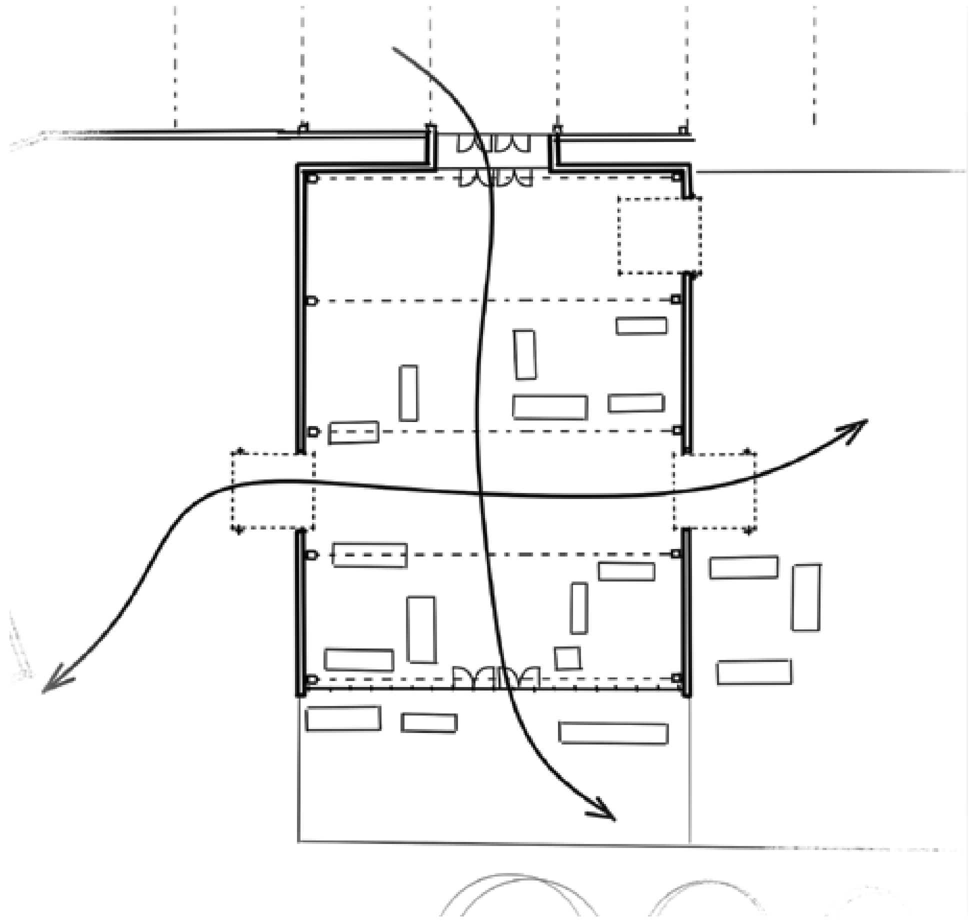

COMPOSITE 150mmx150mm COLUMN
INSET BOLT
WELDED THROUGH PLATE
BOLT
STEEL CONECTION
FINISH LAYER
CONC. FOUNDATION
STEEL PLATE
WOOD BLOCKING
INSET BOLT
BOLT
FINISH LAYER
INSULATION

PRECEDENT MAPPINGS
SOURCES OF INSPIRATION

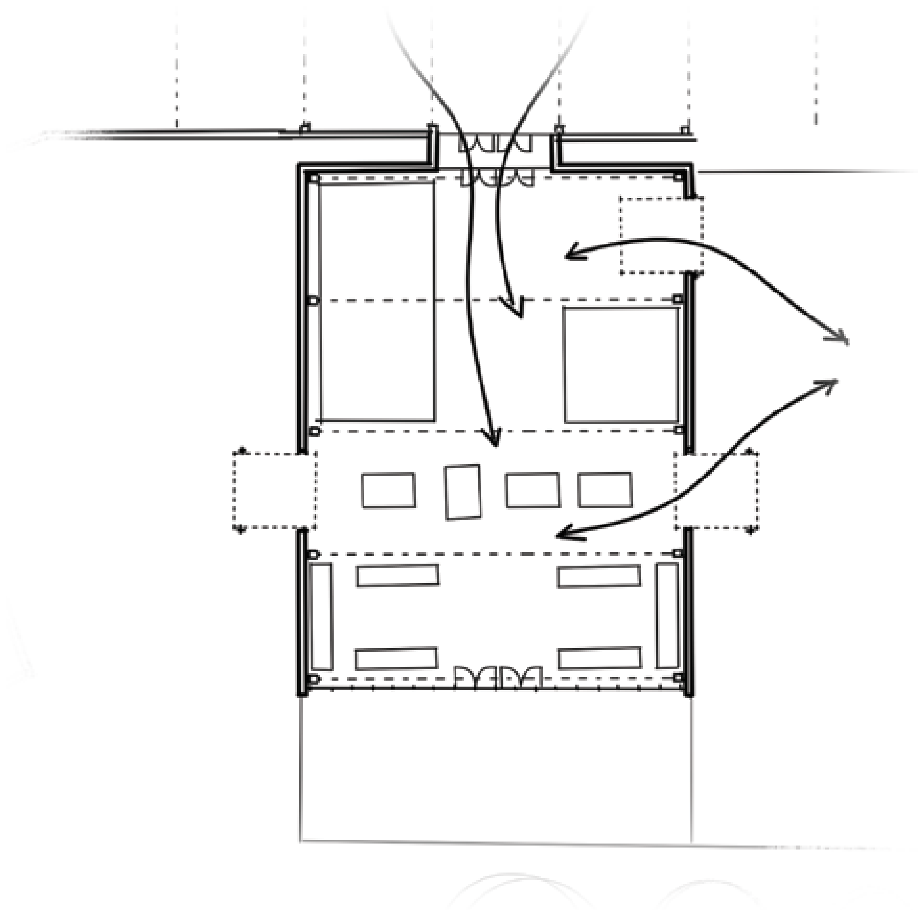


WAREHOUSE AND COURTYARD

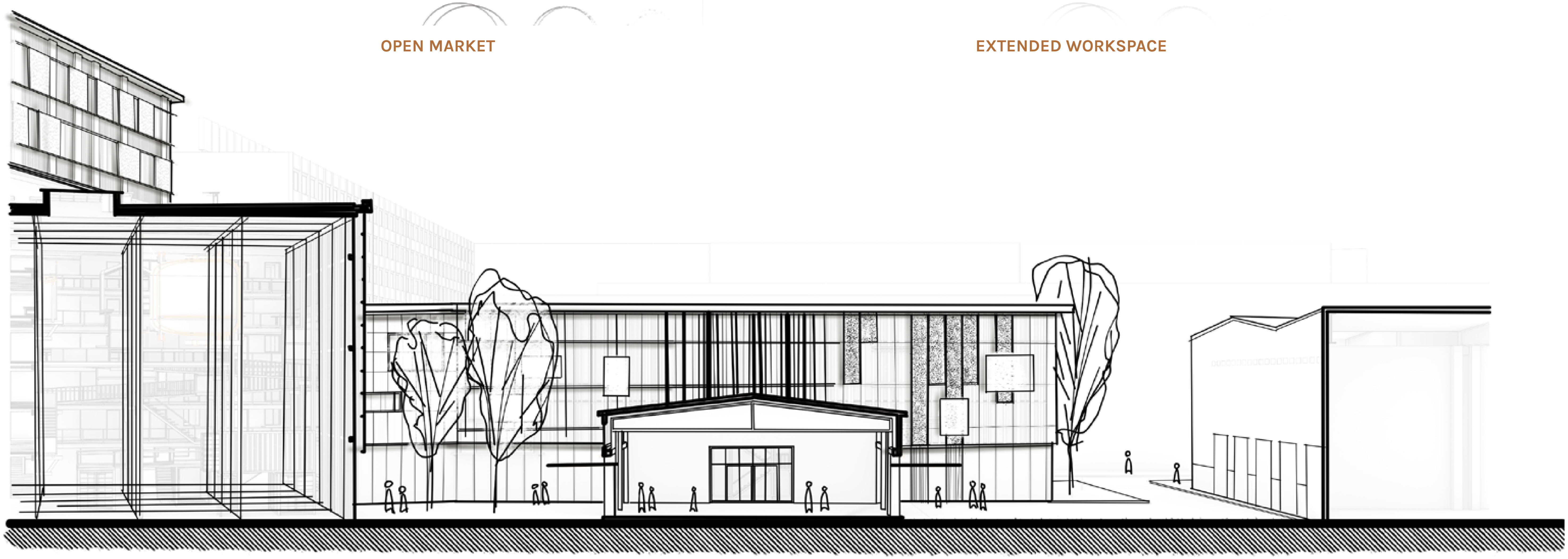
PERMANENT TEMPORALITY



OPEN MARKET



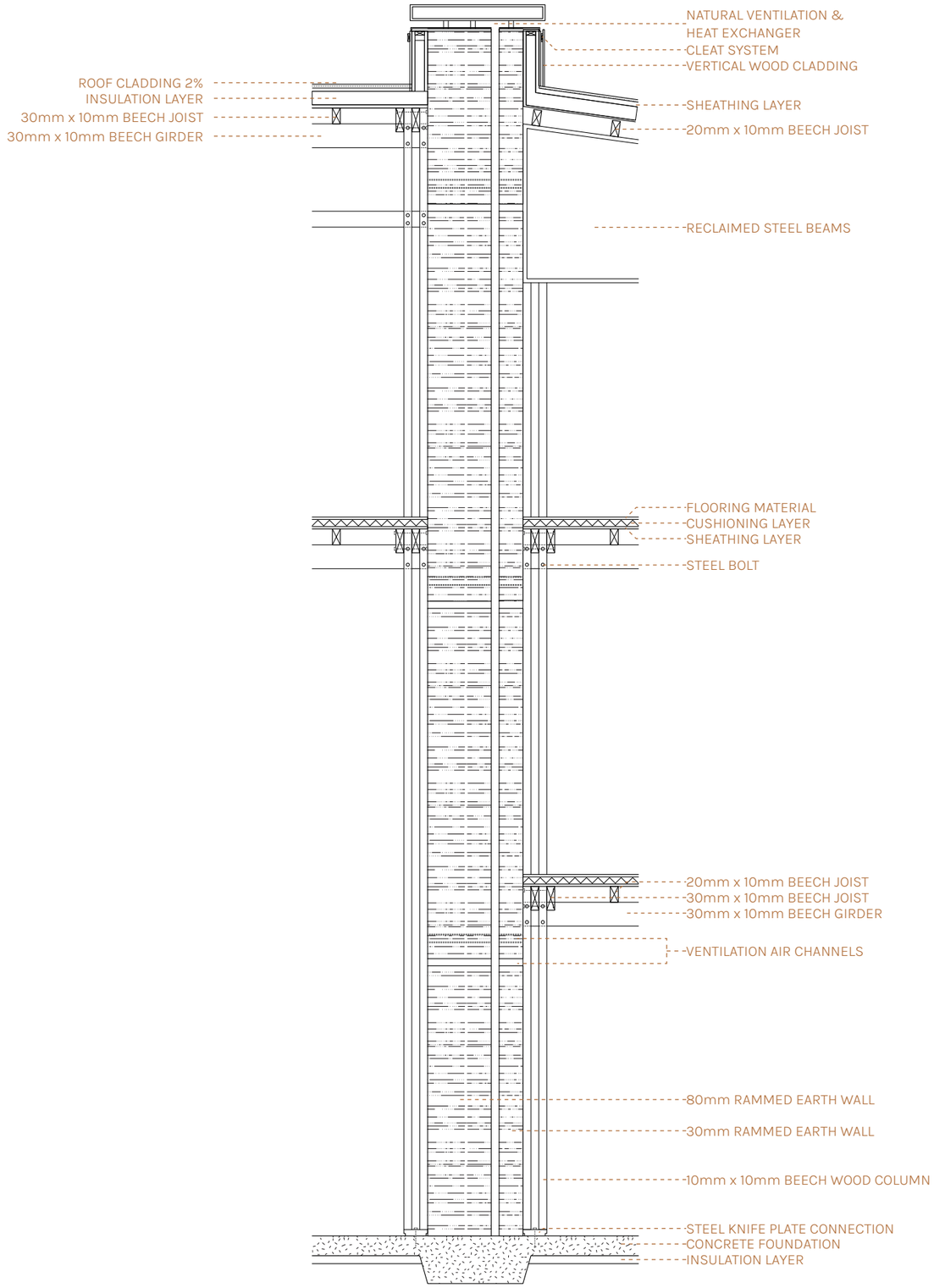
EXTENDED WORKSPACE



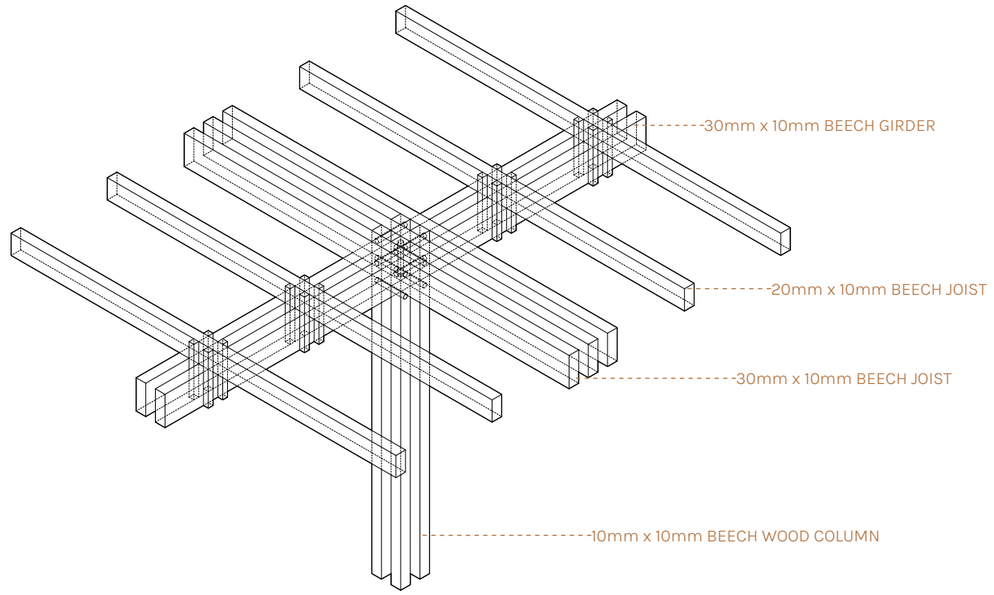
DETAILING CONSTRUCTION

PROGRAM ANALYSIS

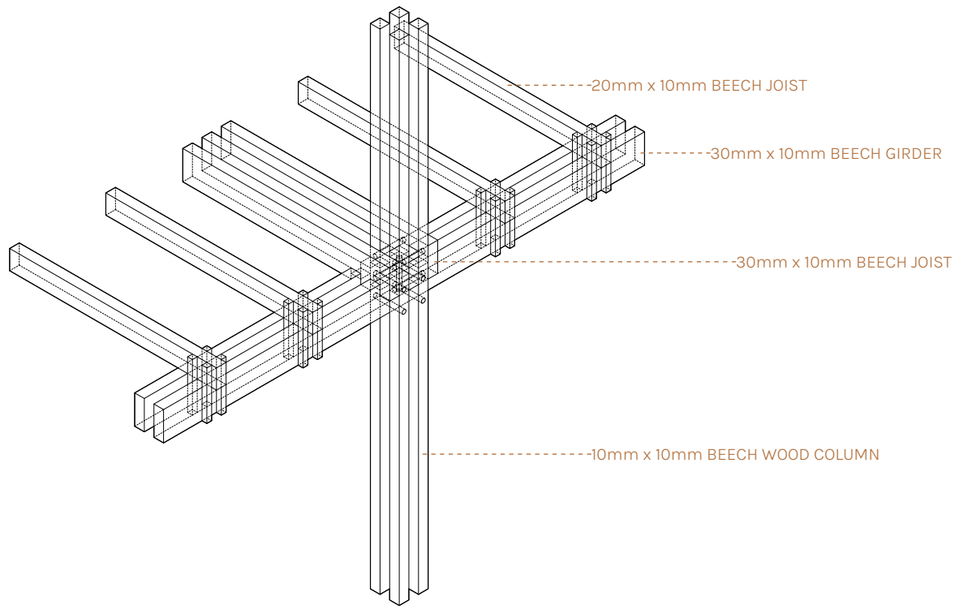
ARCHITECTURE SCALE



THERMAL WALL SECTION



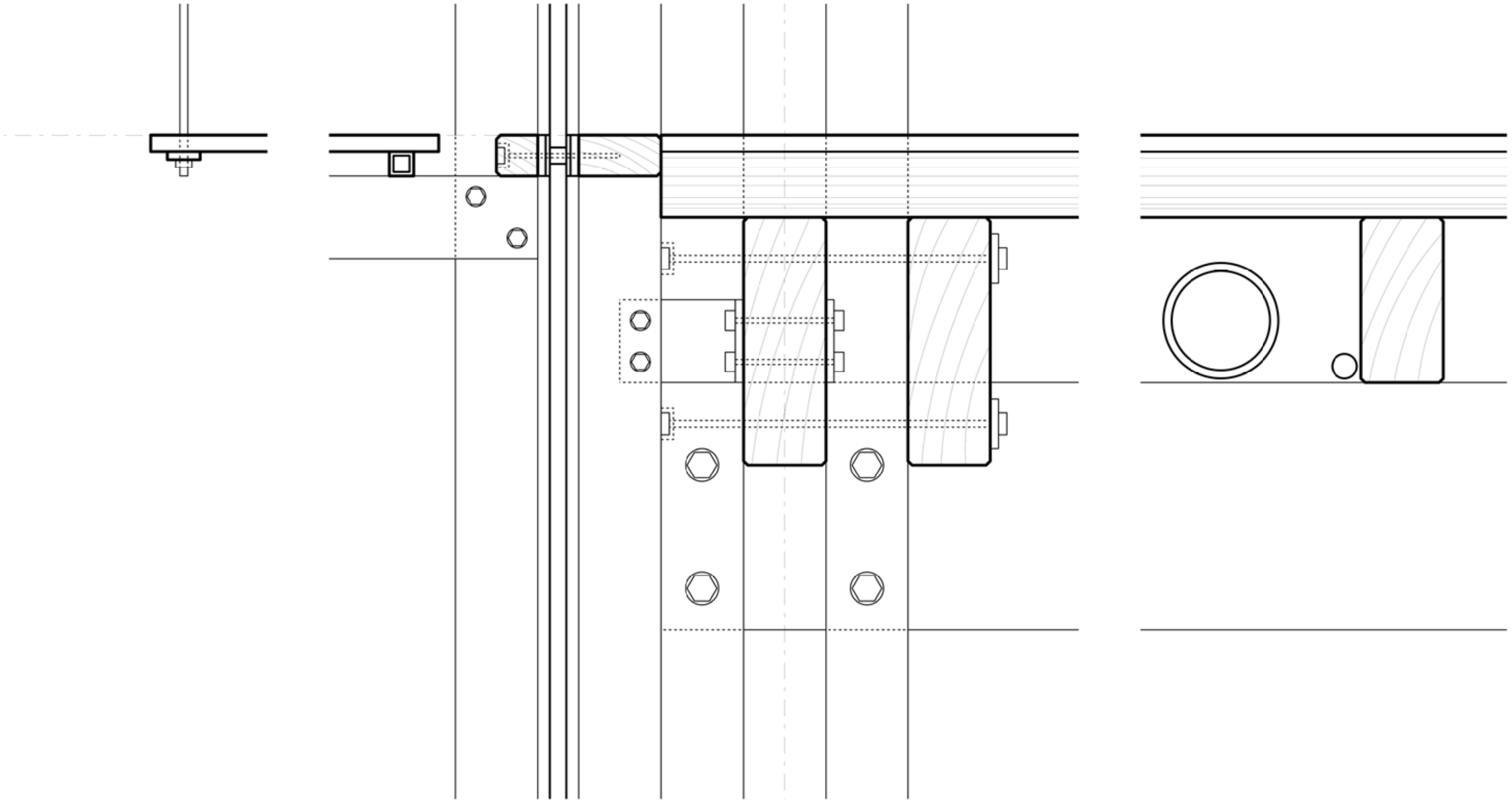
STRUCTURAL DETAIL ISO - ROOF CONDITION



STRUCTURAL DETAIL ISO - EDGE CONDITION

CURTAIN WALL SECTION DETAIL

1:5 DETAIL



CURTAIN WALL PLAN DETAIL

1:5 DETAIL