

THE HACKABLE CONDENSER

A PROTOTYPE FOR AN EVER CHANGING ARCHITECTURE



THE PUBLIC CONDENSER

STUDIO BRIEF

THEMES

LOCATION

THE COMMONS &
URBAN LOUNGE

RESILIENCE &
SUSTAINABILITY

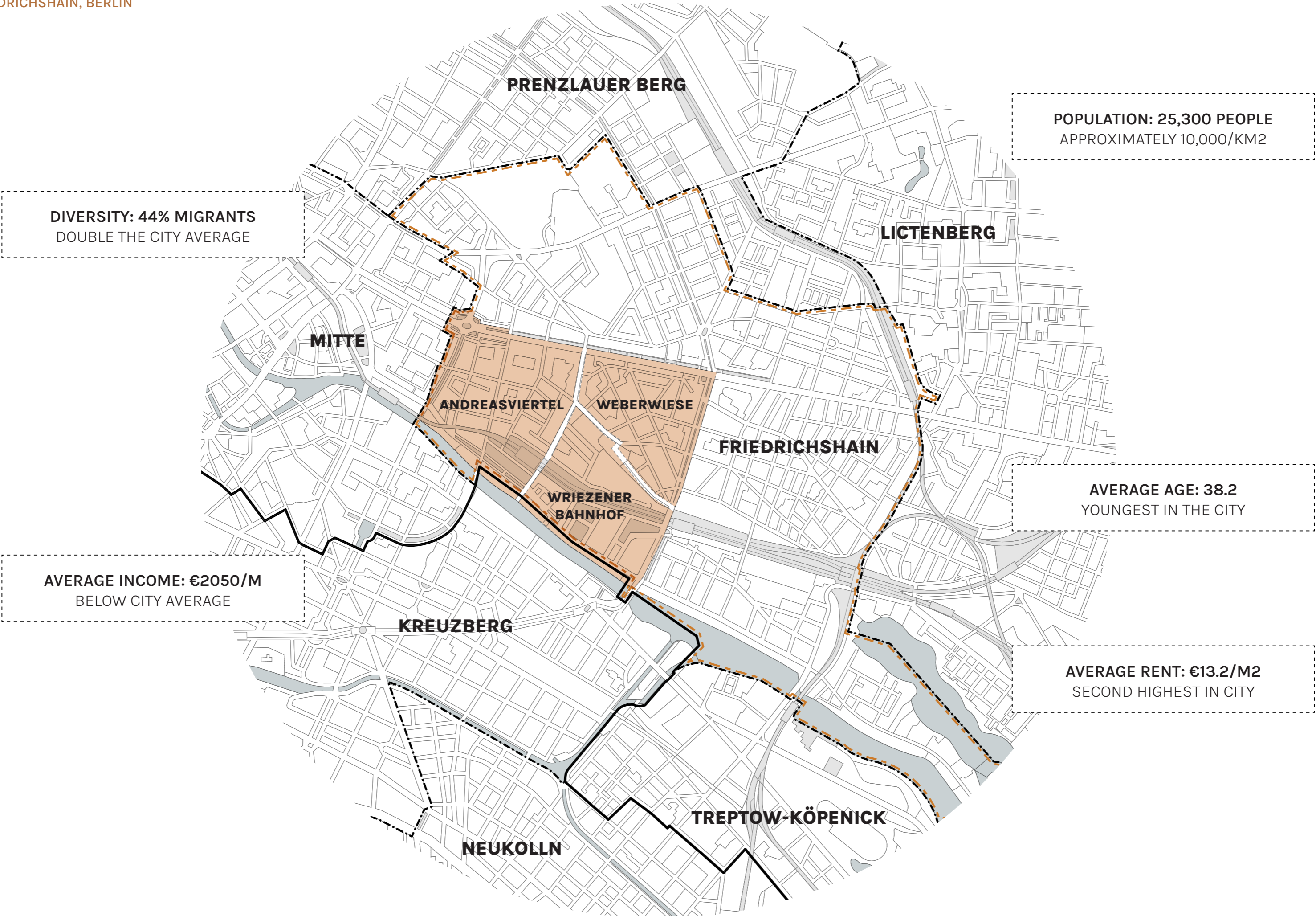
THE CITY OF BERLIN

PROTOTYPE

MULTIPLICITY & HYBRIDITY

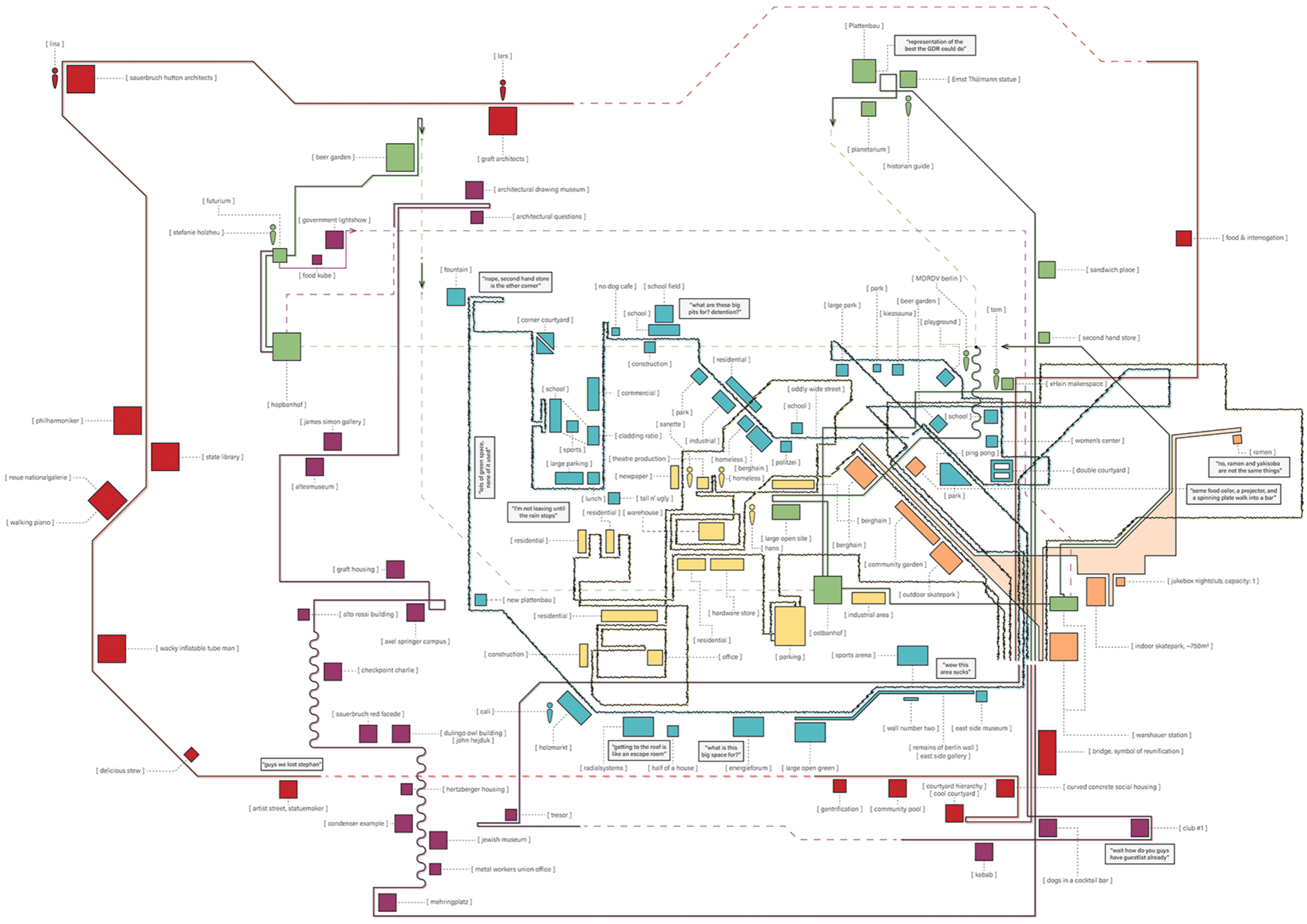
FRIEDRICHSHAIN

SITE INTRODUCTION
FRIEDRICHSHAIN, BERLIN



INTERPRETATIVE MAP

SITE FINDINGS



DEVELOP A **PROTOTYPICAL APPROACH** TO A PUBLIC BUILDING THAT IS **FLEXIBLE AND ADAPTIVE** TO THE CHANGING NEEDS OF ITS USERS.

How does this approach change based on context? What elements are **local** and which **global**?

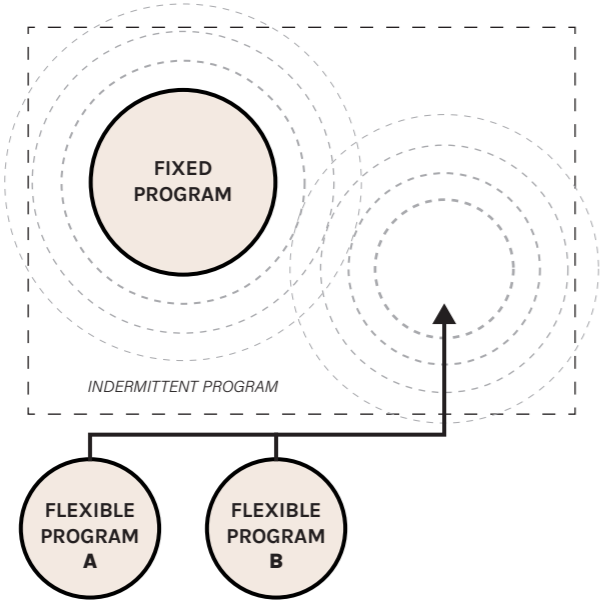
What **differentiates “hackable” buildings** from other forms of adaptable architecture?

What layers or systems of the building are changeable, and by whom?

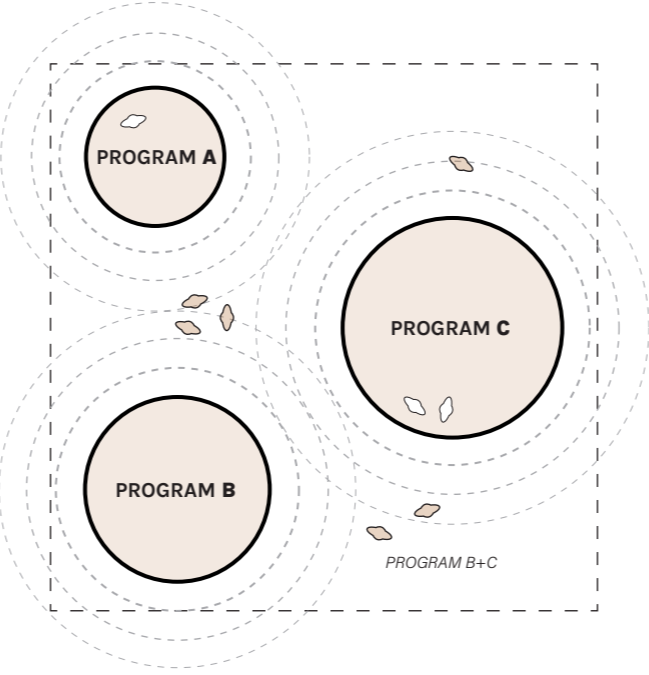
Can this approach be adapted to **existing building** stock to increase their adaptability and resilience?

What does this methodology mean in terms of building authorship and ownership?

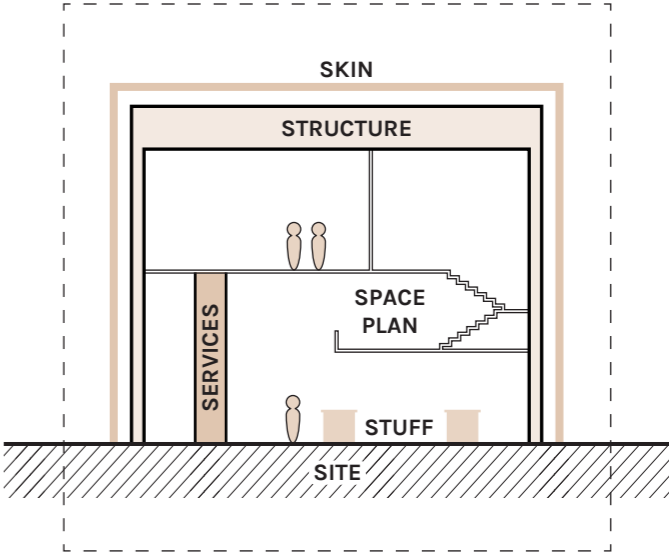
CONCEPT DIAGRAMS
PROJECT DRIVERS



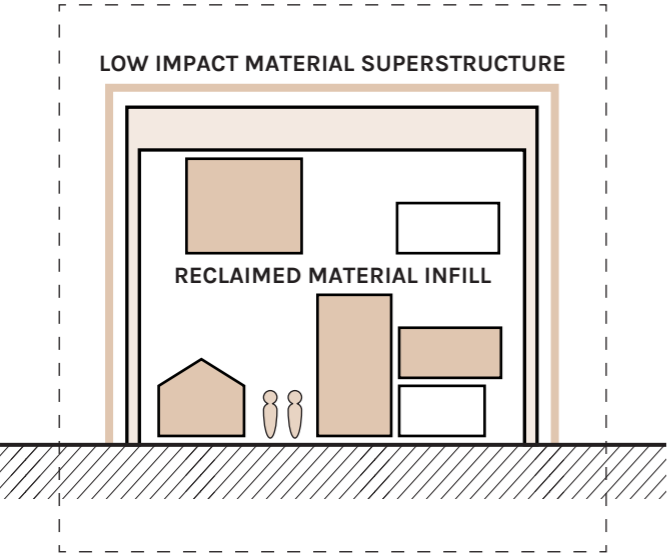
LOOSE FIT AND MULTIPLICITY
DESIGN AFFORDANCES FOR A VARIETY OF ACTIVITIES



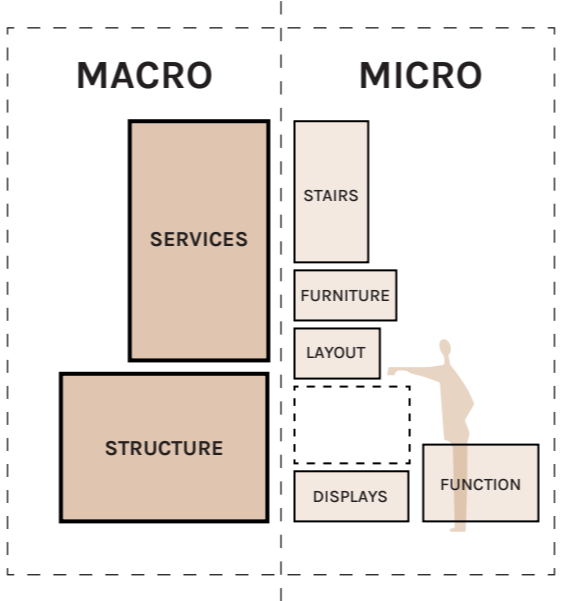
FIXED VS. SPONTANEOUS SPACE
HANDLES FLUCTUATIONS IN ACTIVITY DEMAND



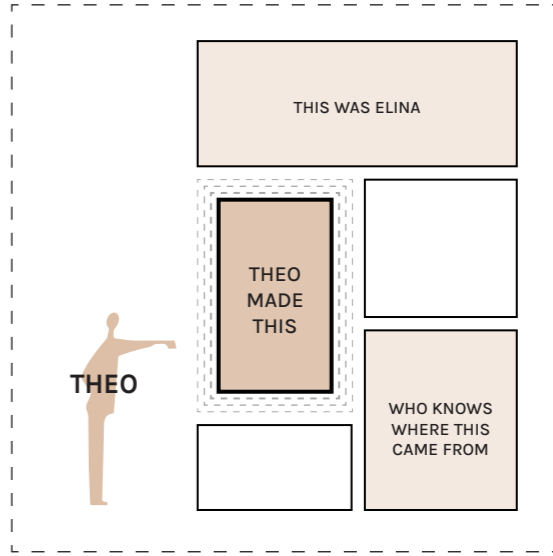
SEPERATION OF BUILDING SYSTEMS
ALLOW FOR INDEPENDANT CHANGES



RECYCLED LOW IMPACT MATERIALS
MINIMIZING COST AND ENCOURAGING CIRCULARITY

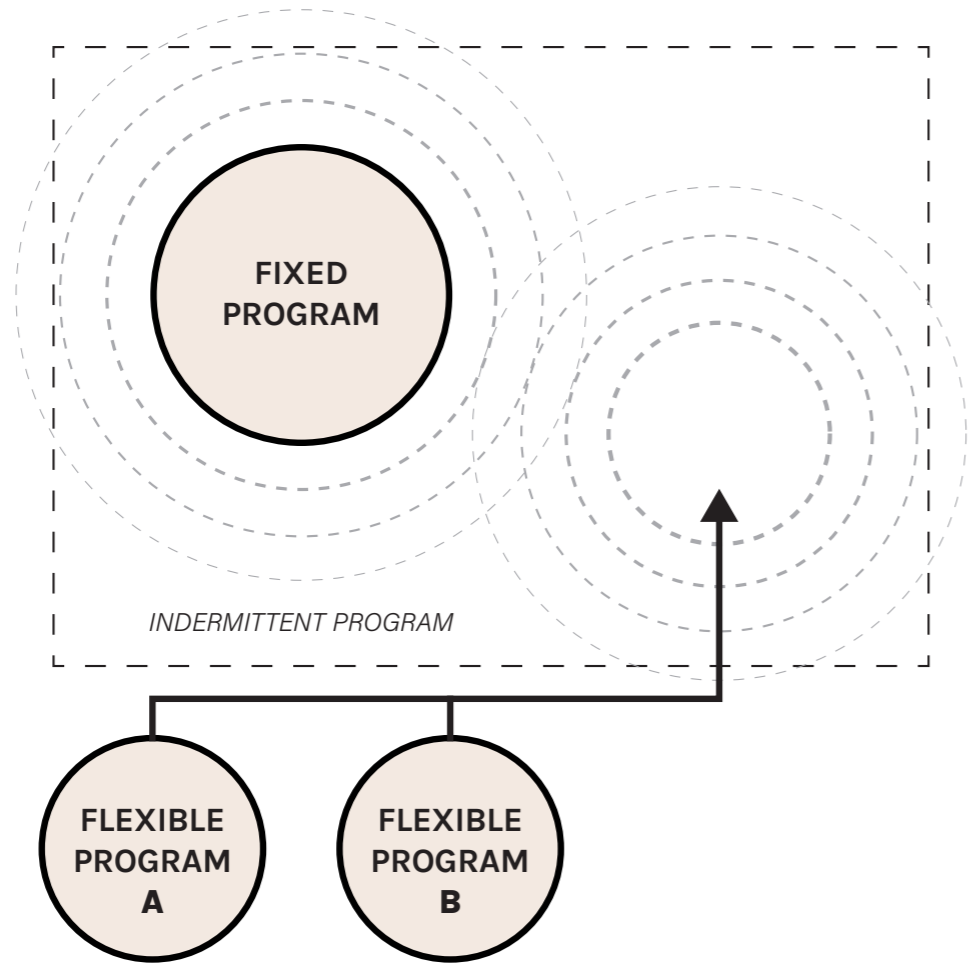
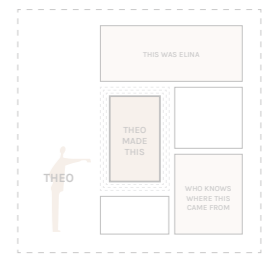
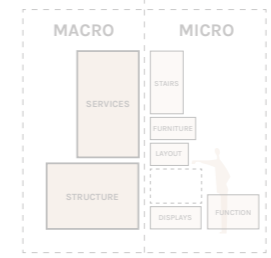
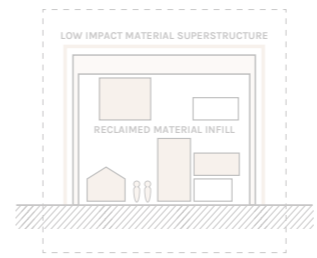
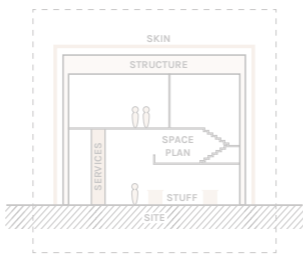
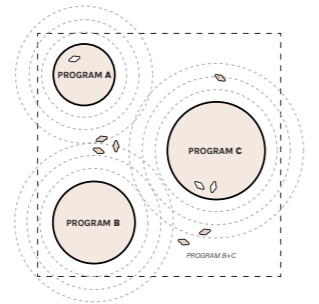
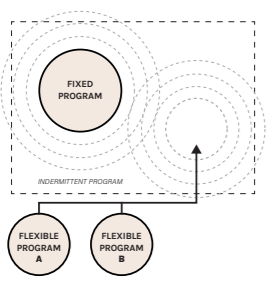


MACRO AND MICRO SCALE ALTERATION
BOTTOM UP APPROACH TO ALTERATIONS

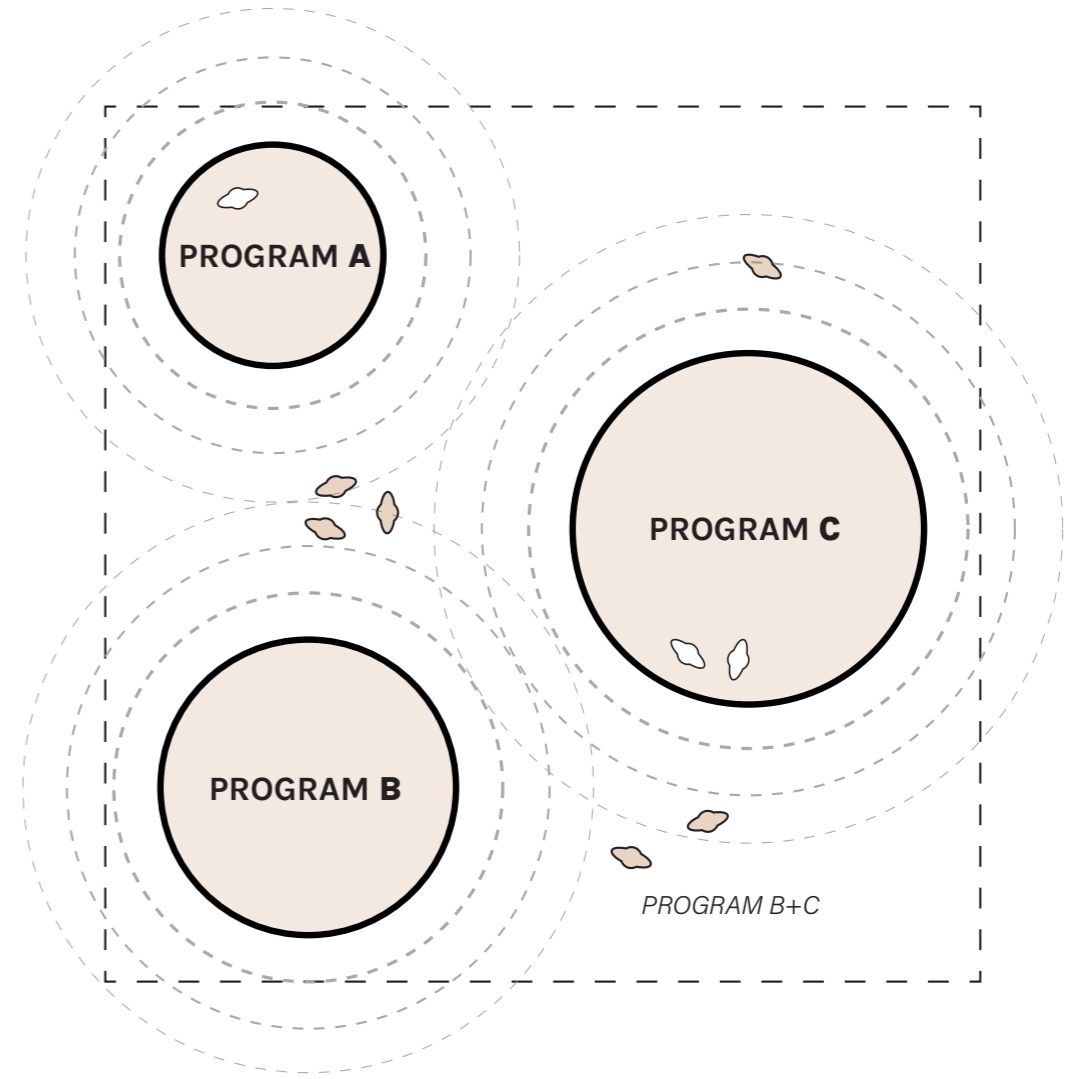


OWNERSHIP AND AUTHORSHIP
BUILDING AS A REFLECTION OF COMMUNITY

CONCEPT DIAGRAMS
MATERIALITY AND INDEPENDENT SYSTEMS

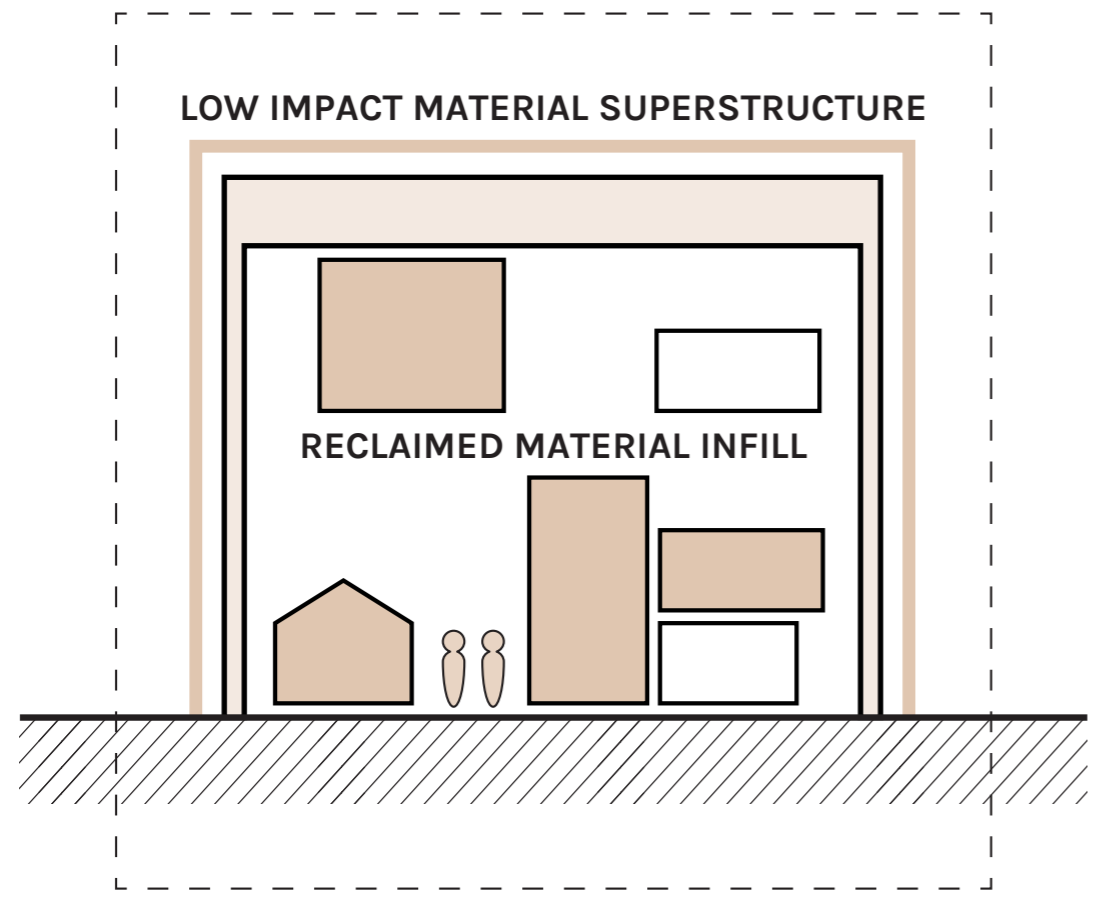
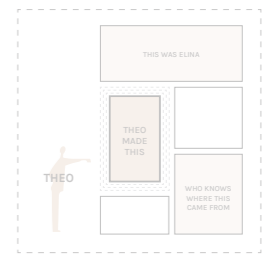
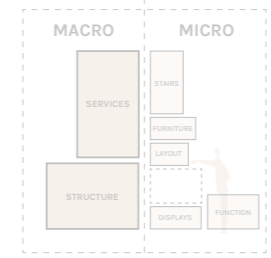
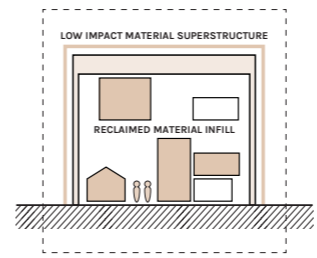
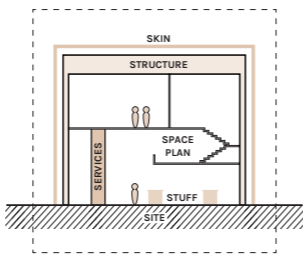
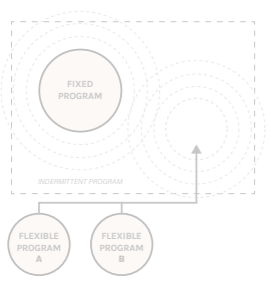


LOOSE FIT AND MULTIPLICITY
 DESIGN AFFORDANCES FOR A VARIETY OF ACTIVITIES

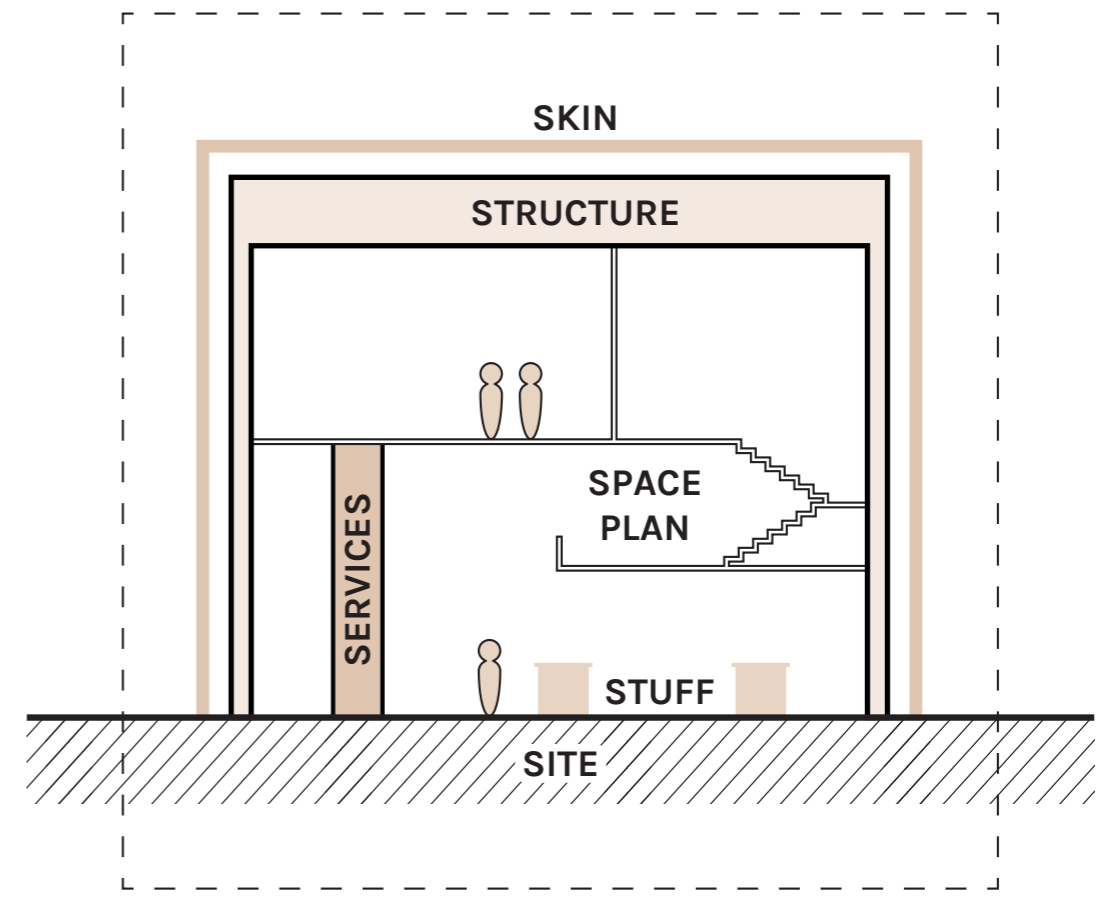


FIXED VS. SPONTANEOUS SPACE
 HANDLES FLUCTUATIONS IN ACTIVITY DEMAND

CONCEPT DIAGRAMS
MATERIALITY AND INDEPENDENT SYSTEMS

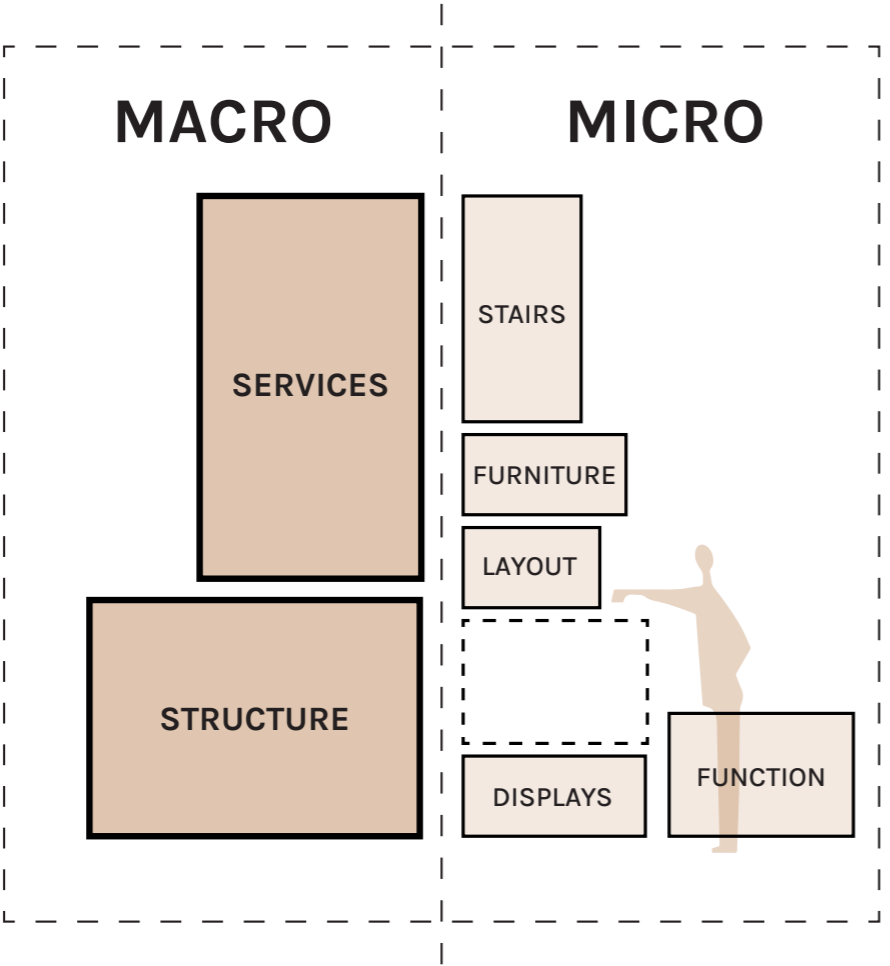
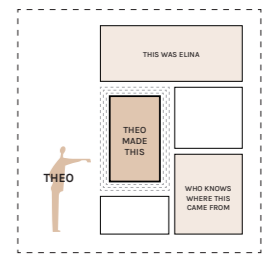
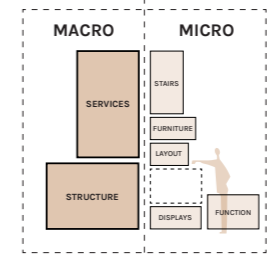
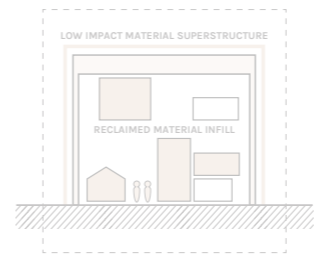
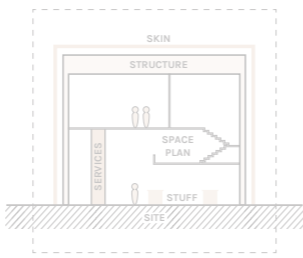
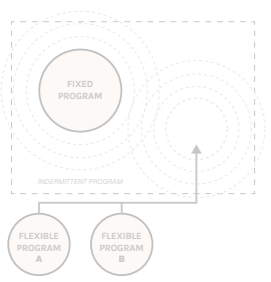


RECYCLED LOW IMPACT MATERIALS
 MINIMIZING COST AND ENCOURAGING CIRCULARITY

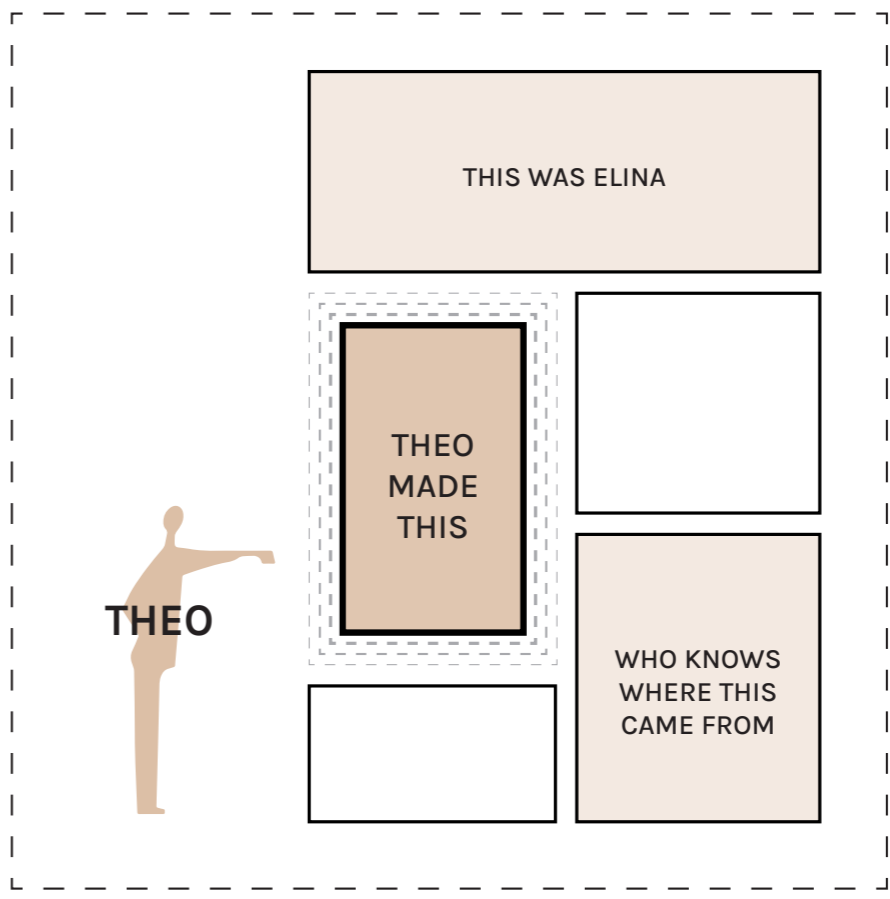


SEPERATION OF BUILDING SYSTEMS
 ALLOW FOR INDEPENDANT CHANGES

CONCEPT DIAGRAMS
 INTERACTIVITY AND OWNERSHIP

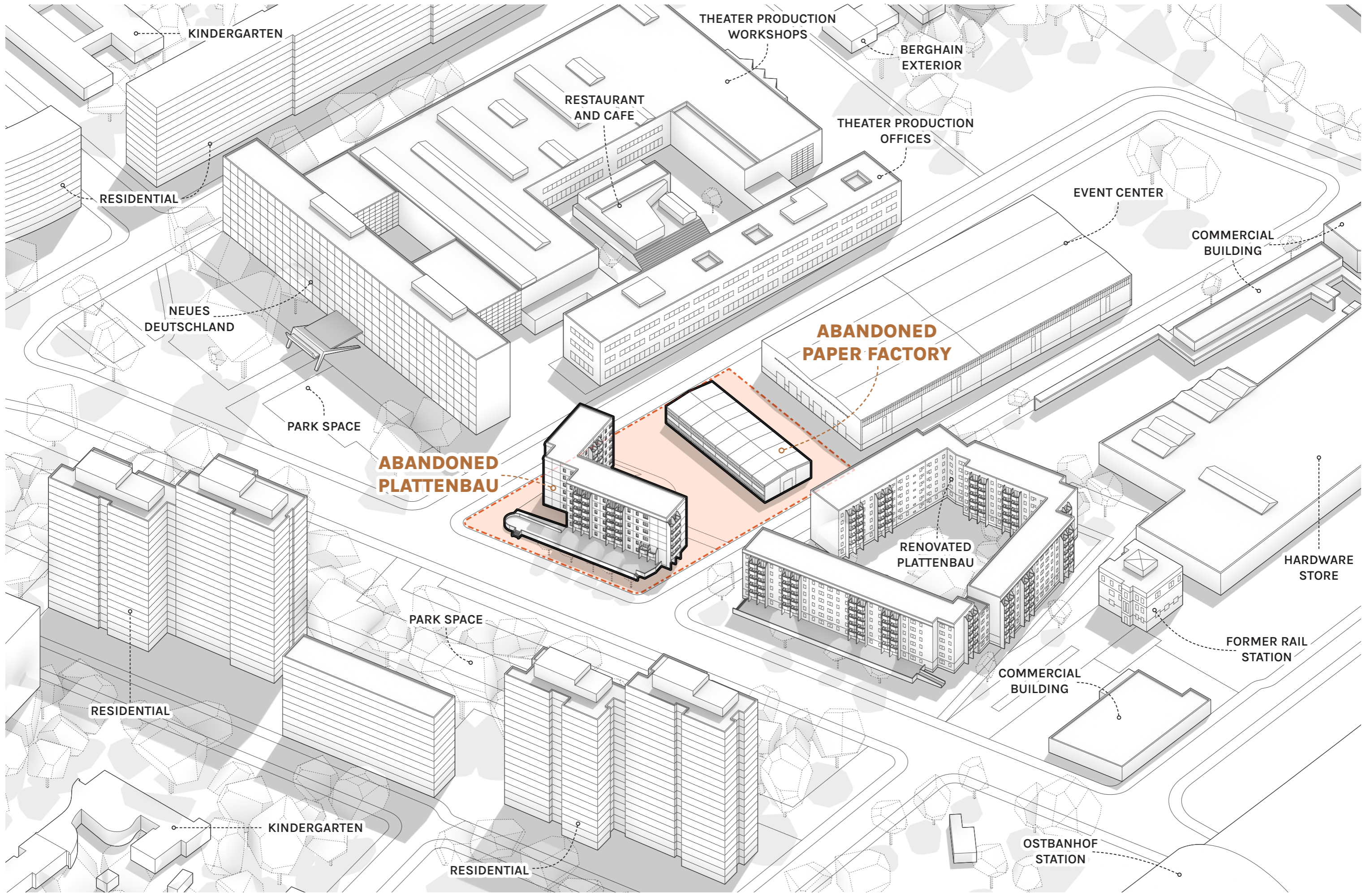


MACRO AND MICRO SCALE ALTERATION
 BOTTOM UP APPROACH TO ALTERATIONS

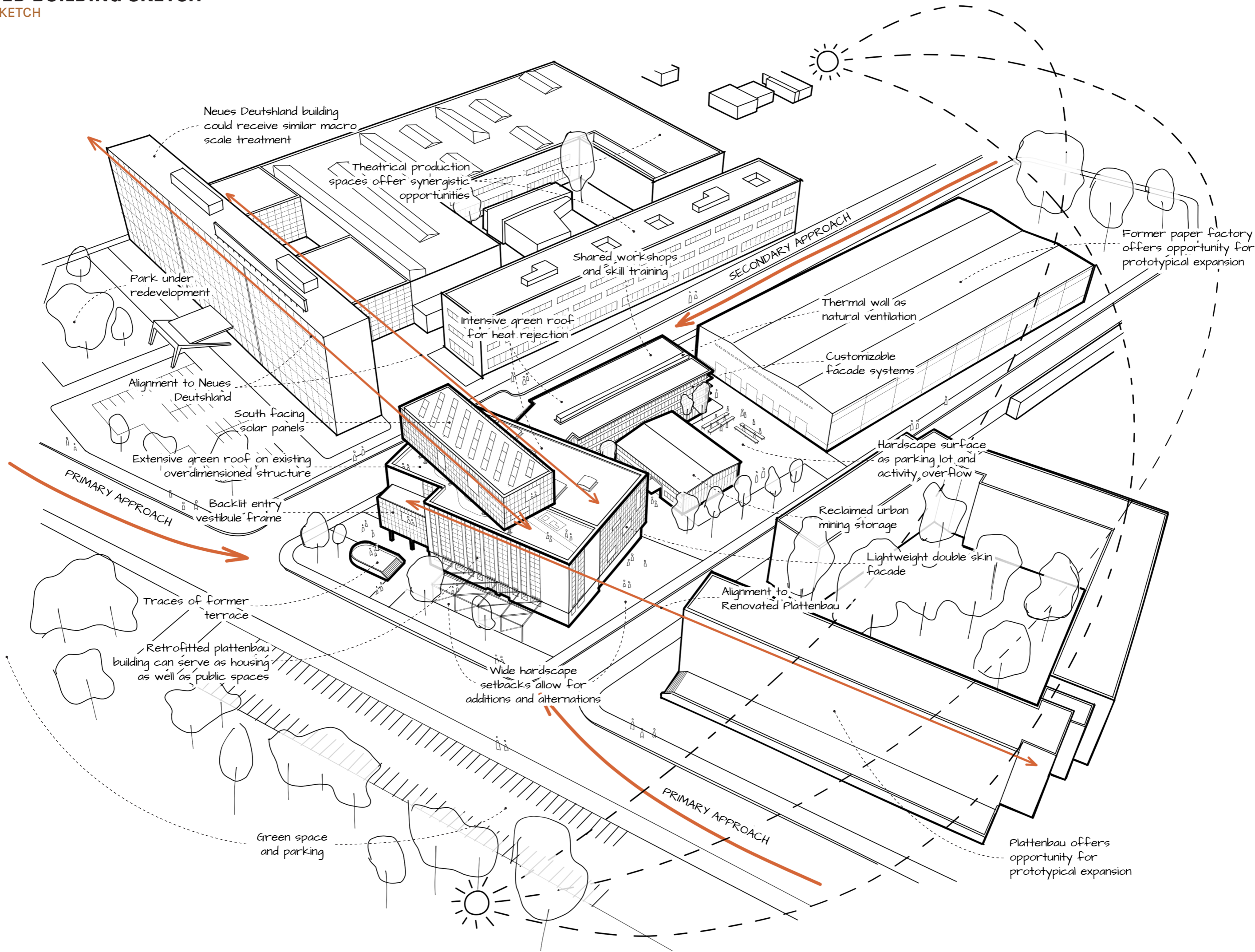


OWNERSHIP AND AUTHORSHIP
 BUILDING AS A REFLECTION OF COMMUNITY

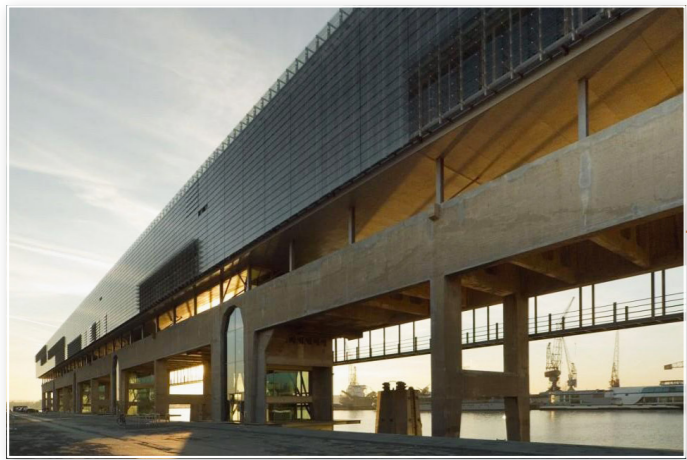
SITE SELECTION
EXISTING SITE CONDITION



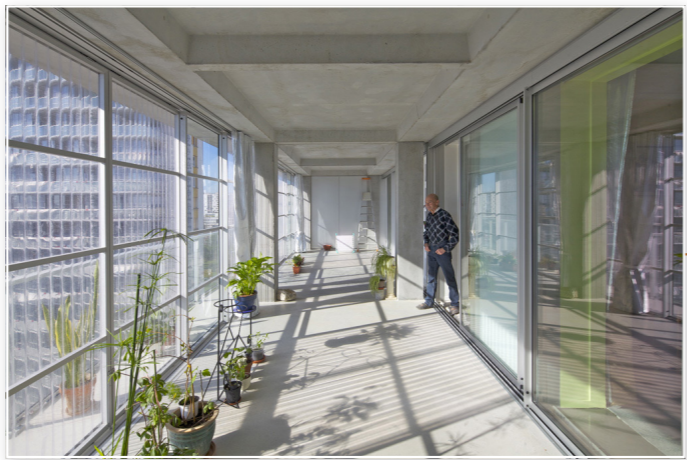
PROPOSED BUILDING SKETCH
CONCEPT SKETCH



ADAPTIVE METHODS FOR EXISTING BUILDINGS
DESIGN IMPLEMENTATION



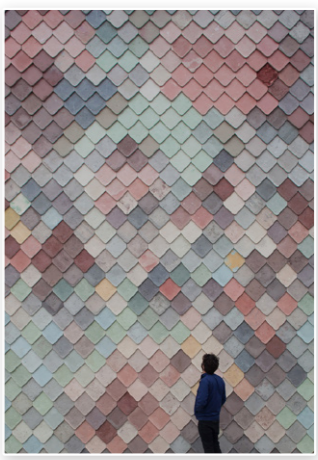
KRAANSPOOR || OTH



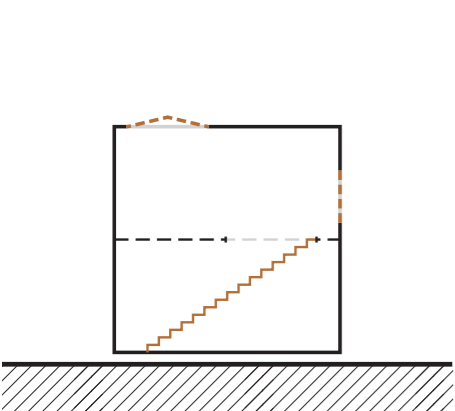
CITE DU GRAND PARC || LACATON & VASSAL



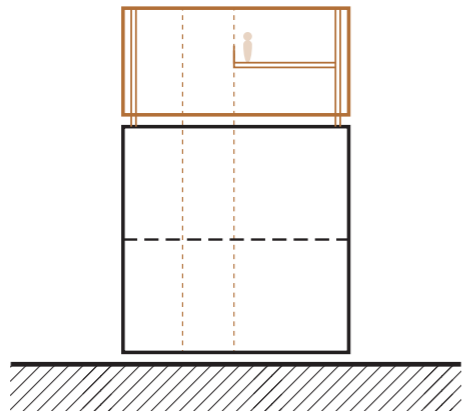
RED BULL ACADEMY || LANGARITA NAVARRO ARQUITECTOS



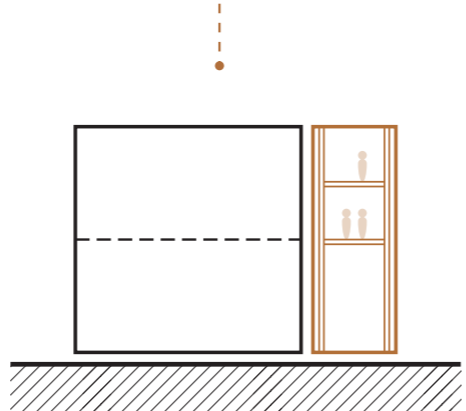
YARDHOUSE || ASSEMBLE STUDIOS



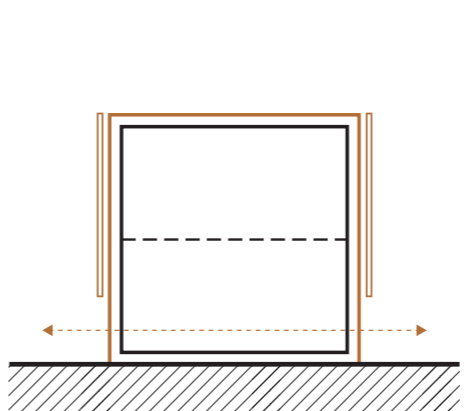
ALTERATION



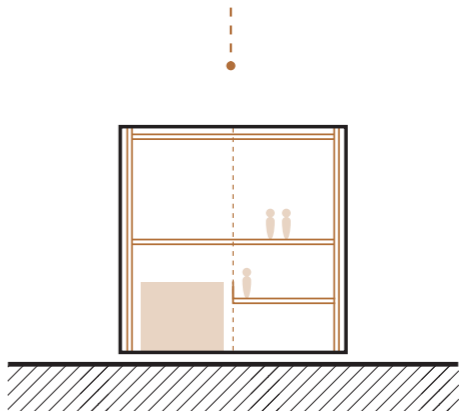
EXTENSION



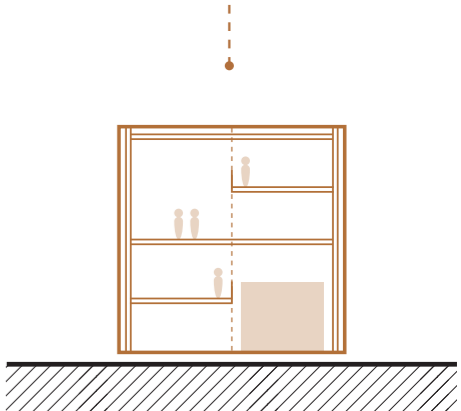
AUGMENTATION



ENVELOPING



INFILLING



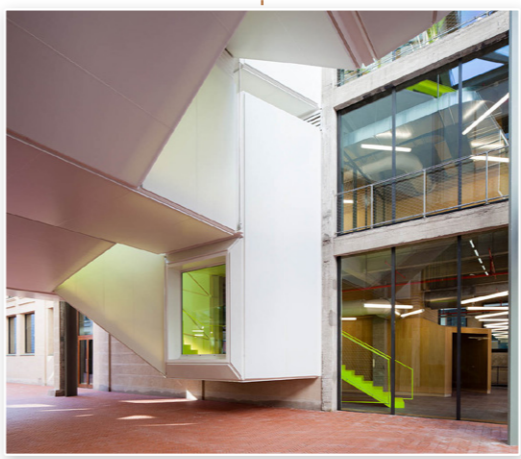
BUILDING



MEDIA LAB PRADO || LANGARITA NAVARRO ARQUITECTOS



NEST WE GROW || KENGO KUMA

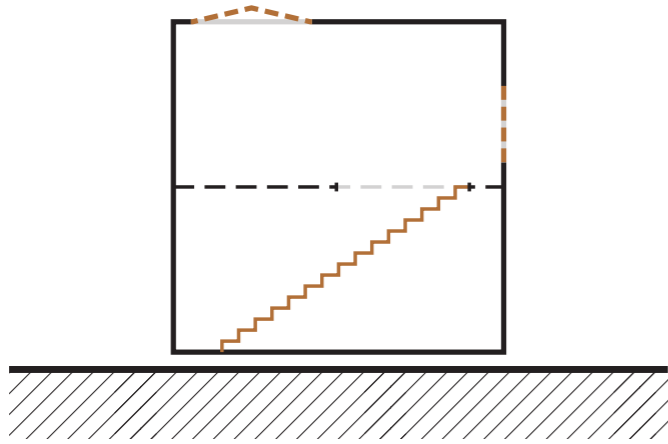


MEDIA LAB PRADO || LANGARITA NAVARRO ARQUITECTOS

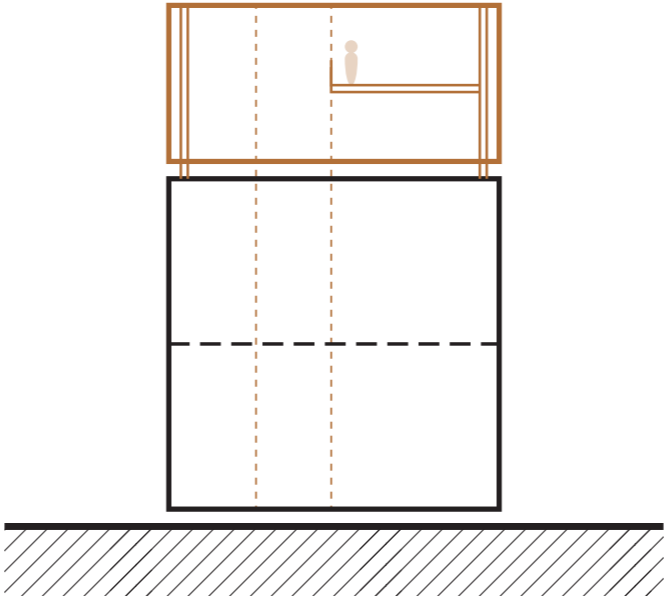


YARDHOUSE || ASSEMBLE STUDIOS

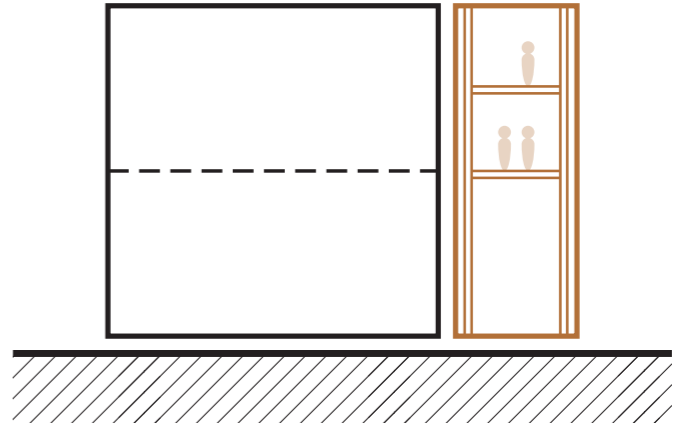
ADAPTIVE METHODS FOR EXISTING BUILDINGS
RESEARCH FINDINGS



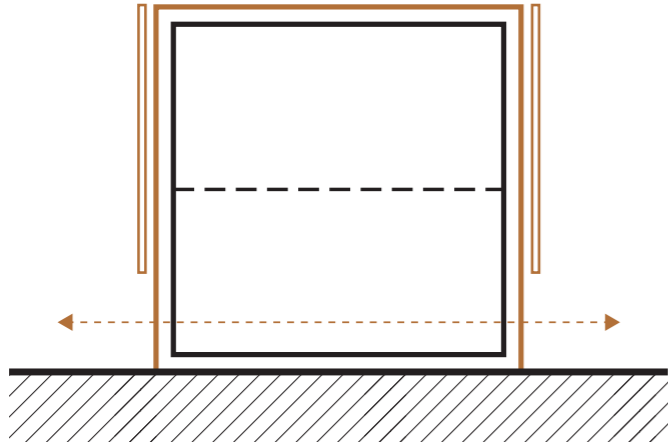
ALTERATION
REFORMULATION OF EXISTING



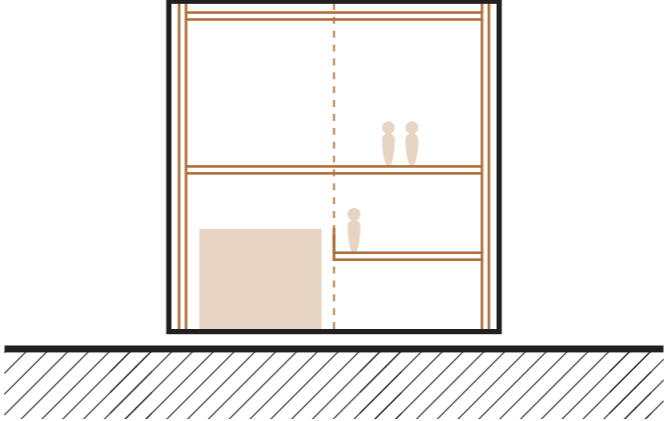
EXTENSION
GROWTH OF EXISTING



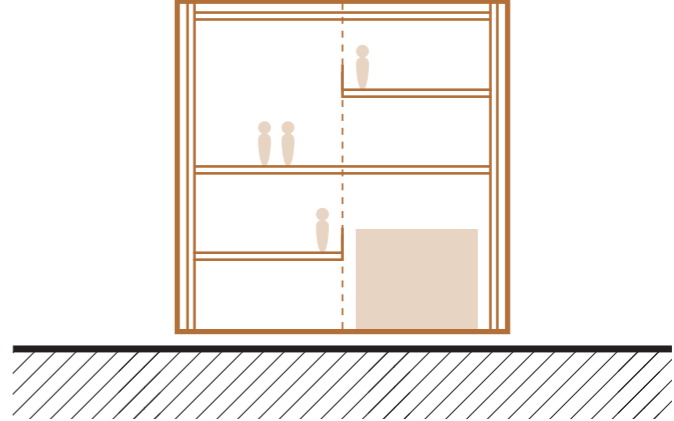
AUGMENTATION
IMPROVING OF EXISTING WITH NEW



ENVELOPING
ENCOMPASSING OF EXISTING

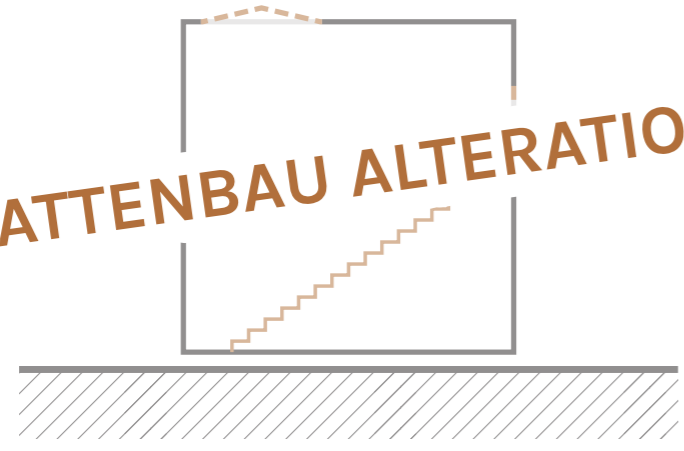


INFILLING
DENSIFICATION OF THE EXISTING



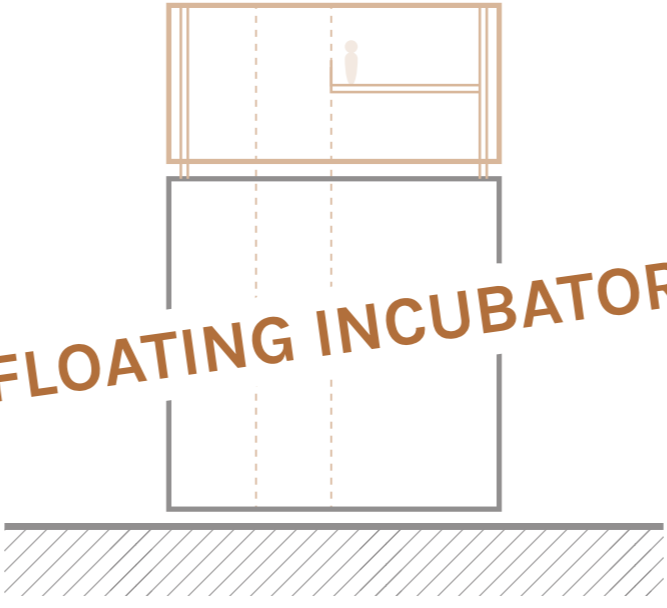
BUILDING
CREATION OF THE FUTURE EXISTING

PLATTENBAU ALTERATIONS



ALTERATION
REFORMULATION OF EXISTING

FLOATING INCUBATOR



EXTENSION
GROWTH OF EXISTING

NEW CIRCULATION SYSTEM



AUGMENTATION
IMPROVING OF EXISTING WITH NEW

SECOND SKIN AND COURTYARD



ENVELOPING
ENCOMPASSING OF EXISTING

OPEN HALL



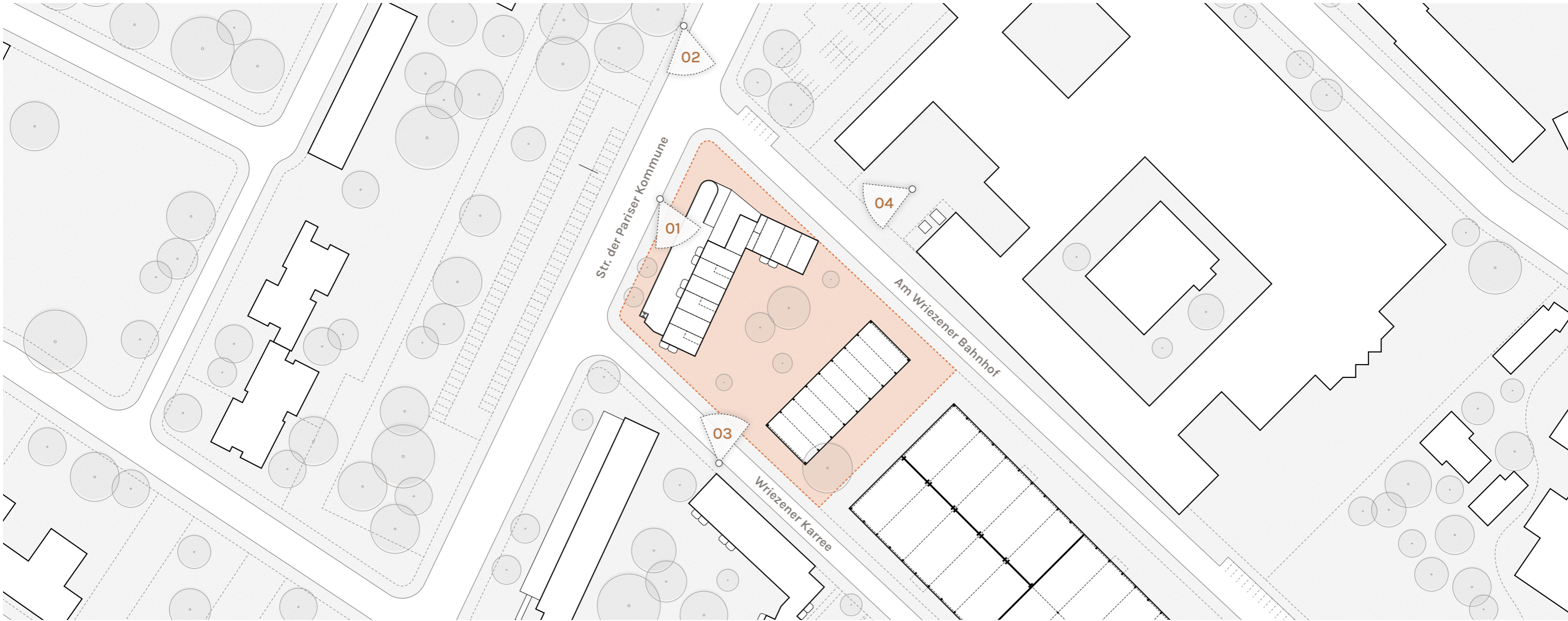
INFILLING
DENSIFICATION OF THE EXISTING

WORKSHOP



BUILDING
CREATION OF THE FUTURE EXISTING

PHOTOGRAPHIC SURVEY
PLATTENBAU CONDITION



KEY PLAN PHOTOGRAPHIC SURVEY



01



02

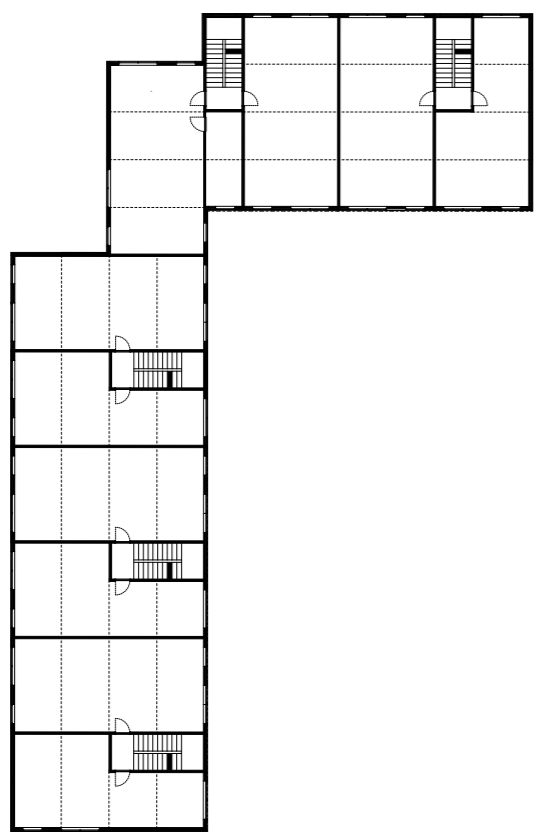


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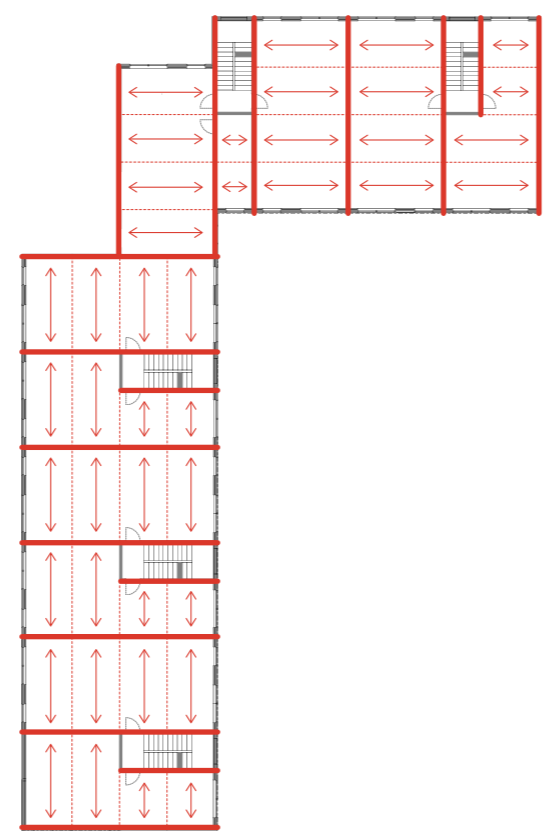


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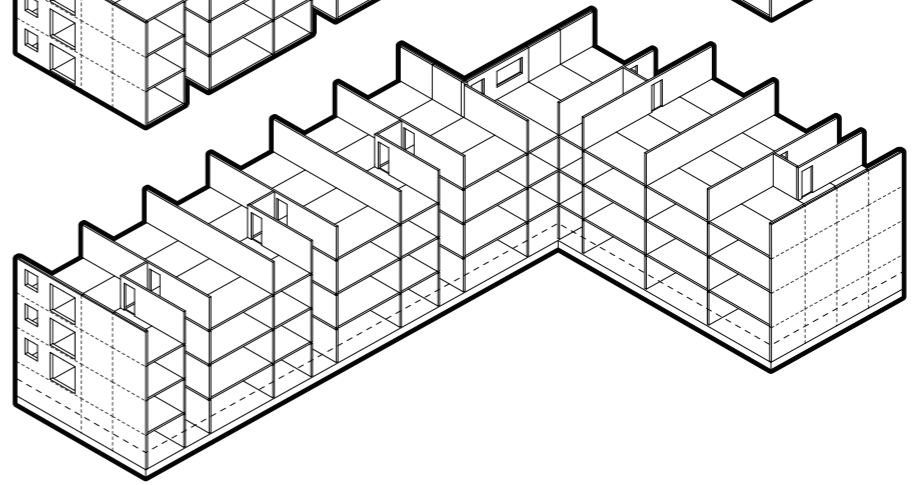
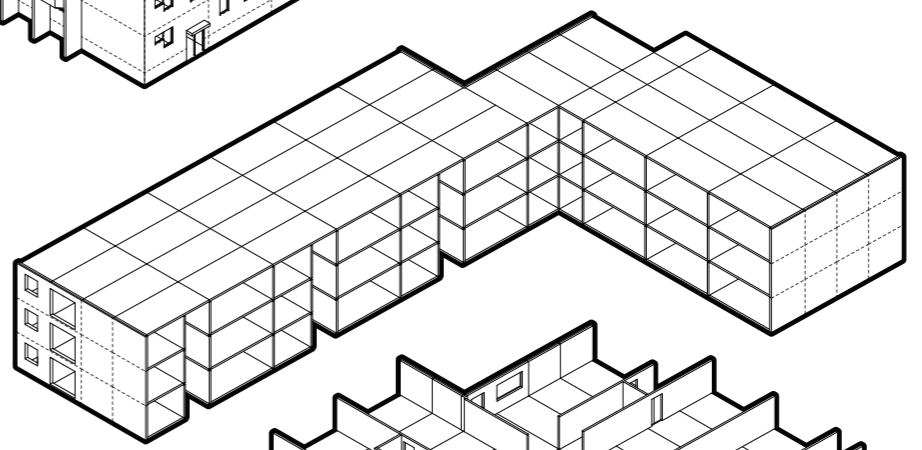
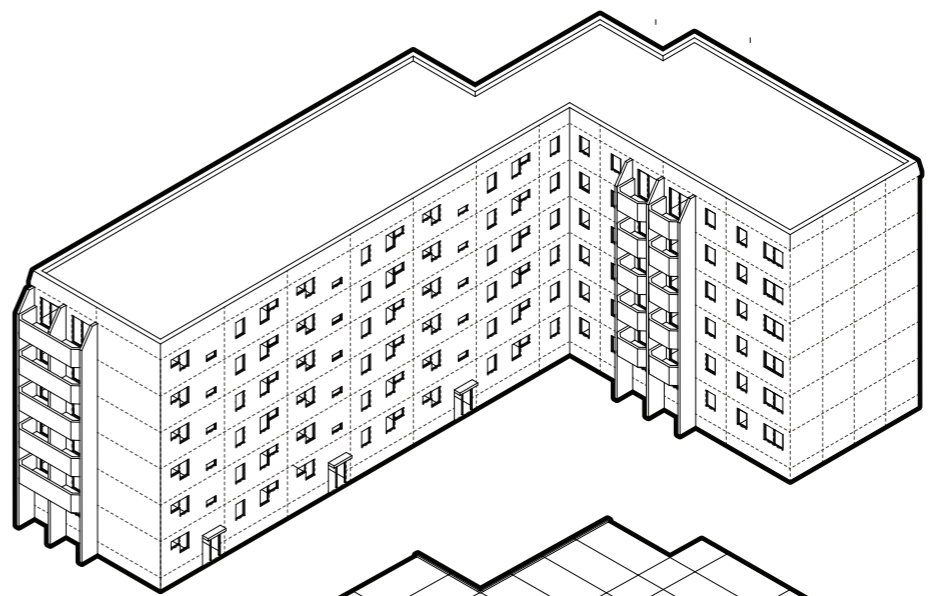
EXISTING PLATTENBAU ANALYSIS
 TYPOLOGY AND CONSTRUCTION



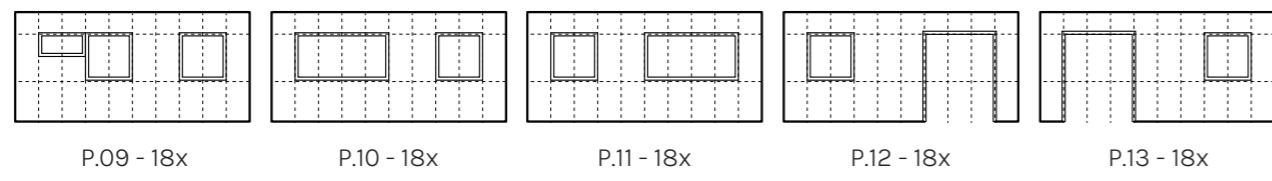
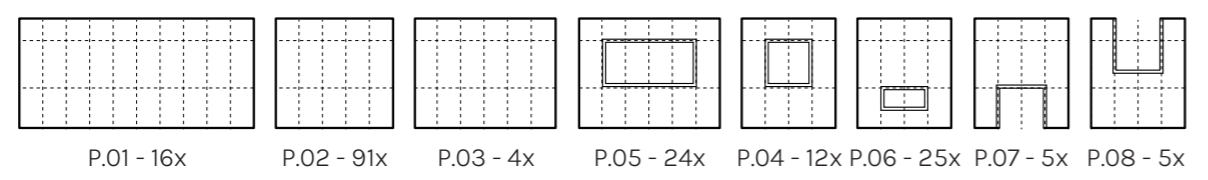
TYPICAL UPPER LEVEL PLAN



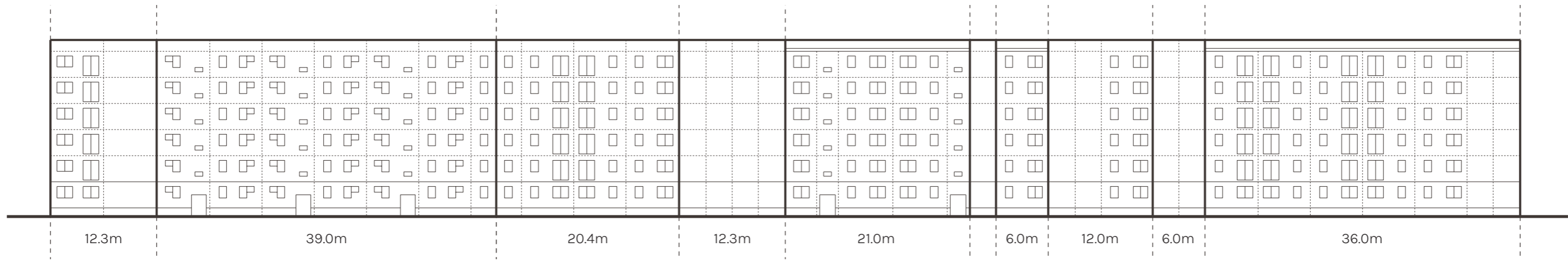
IDENTIFICATION OF STRUCTURAL ELEMENTS



BUILDING AXONOMETRIC & STRUCTURAL AXONOMETRIC

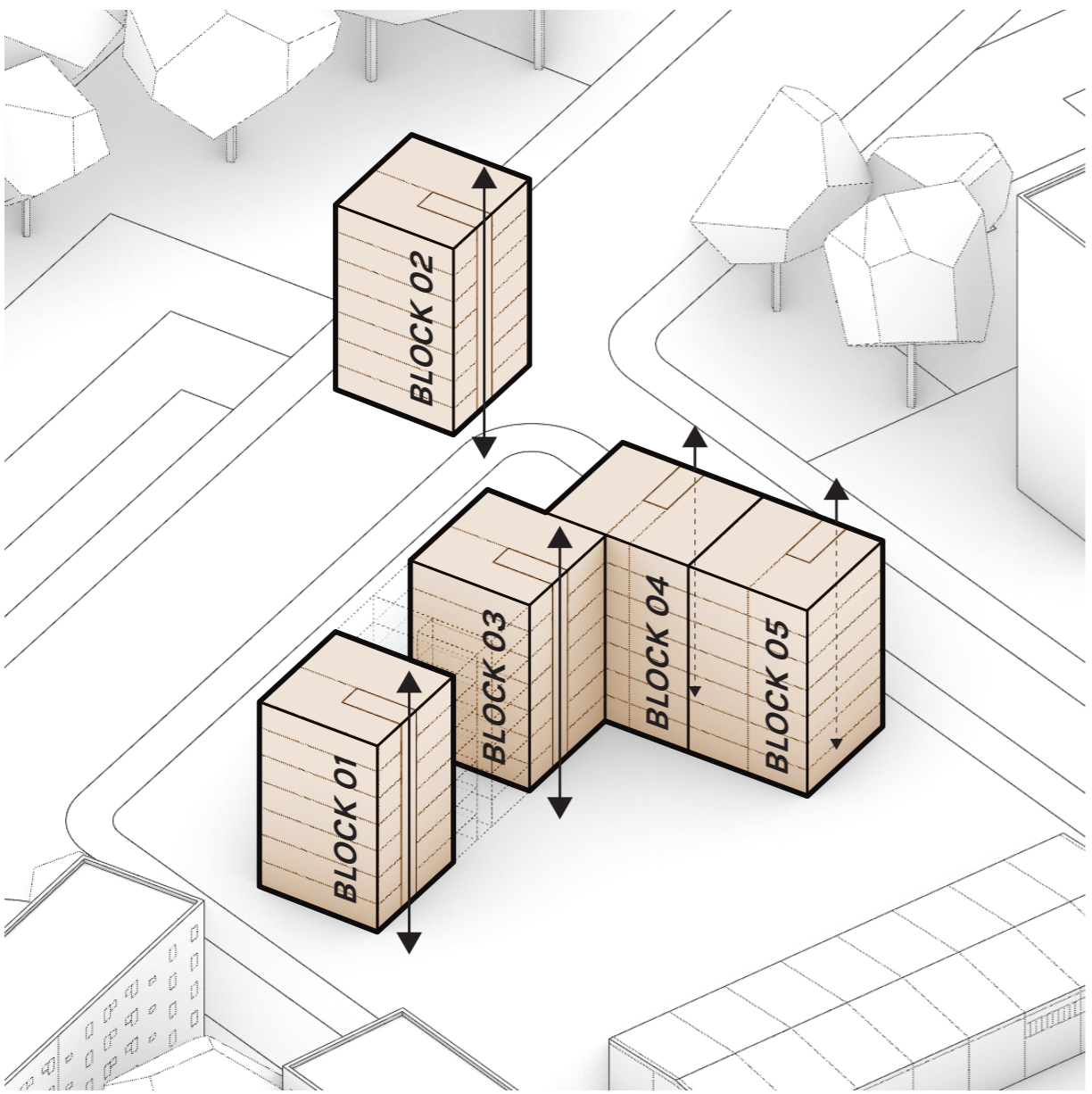


INVENTORY OF EXISTING WALL PANELS

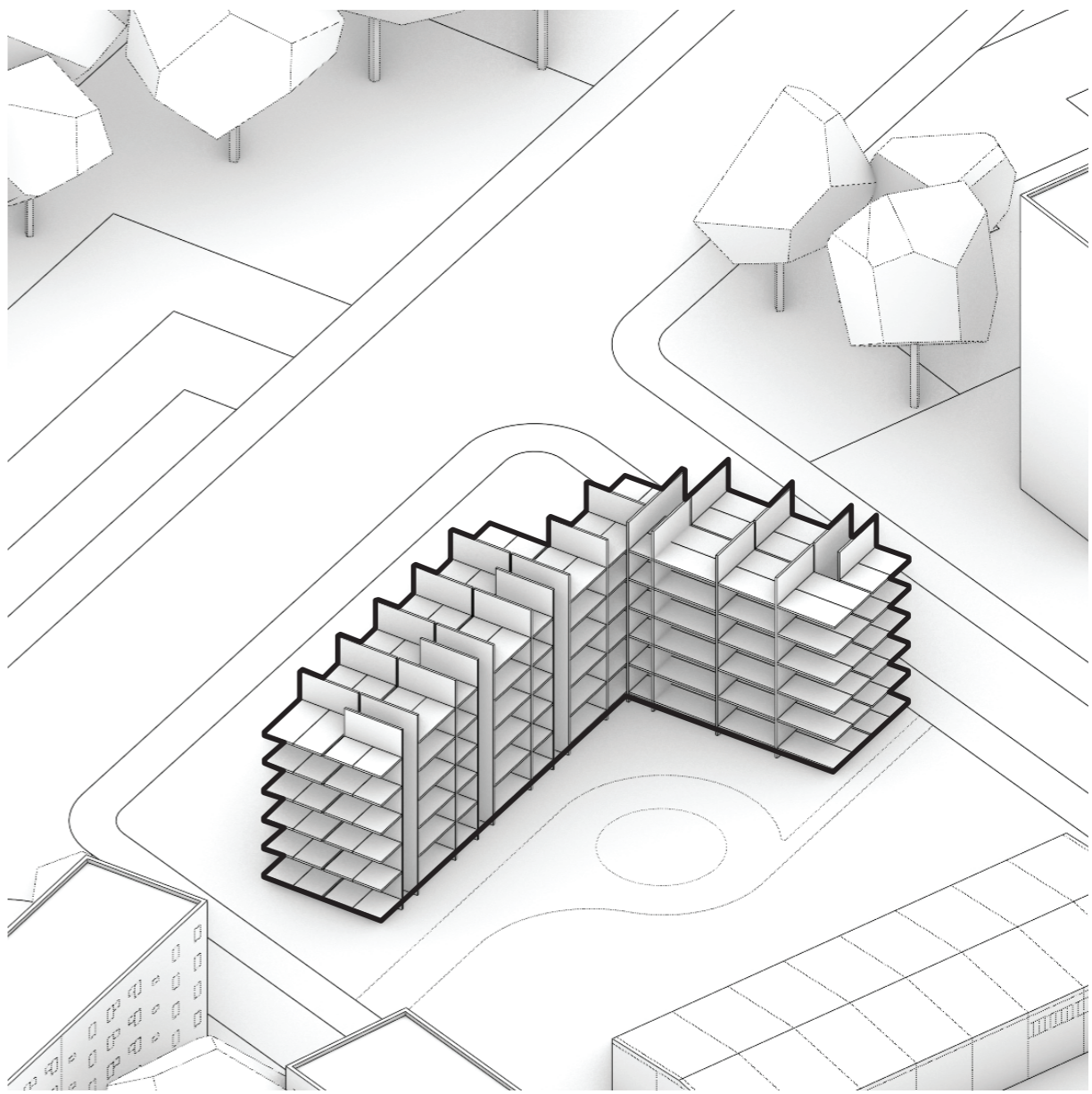


UNFOLDED ELEVATIONS

PLATTENBAU TYPOLOGY KEY PROBLEMS
CIRCULATION AND STRUCTURAL PLATES

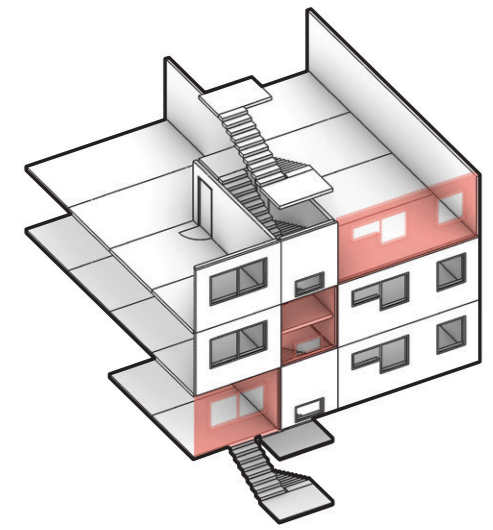


PLATTENBAU CIRCULATION

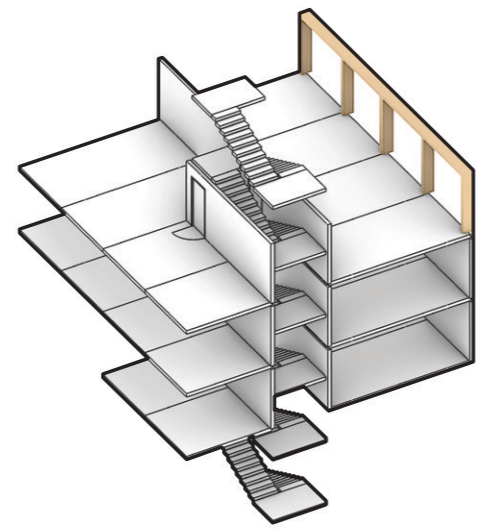


LOAD BEARING STRUCTURAL ELEMENTS

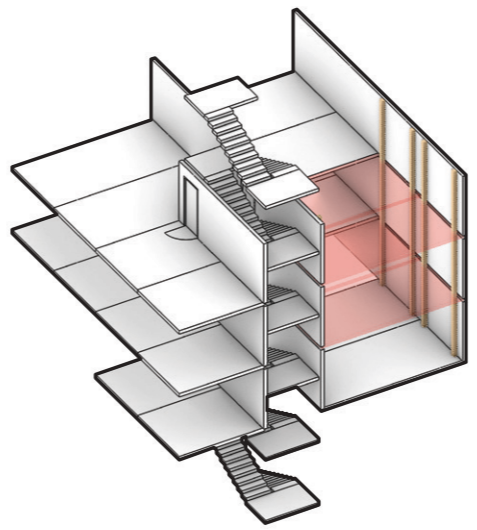
PLATTENBAU ALTERATION TOOLKIT
MACRO SCALE HACKING



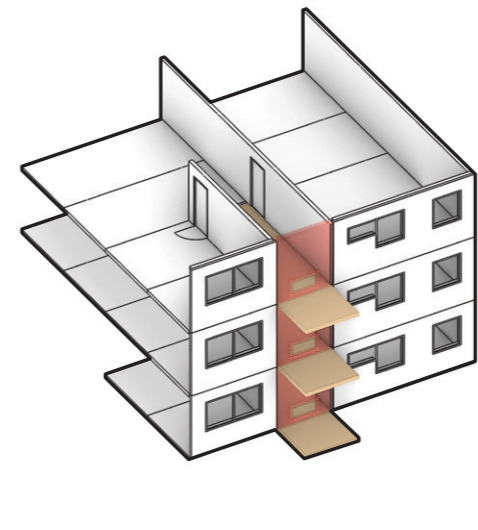
REMOVE NON LOAD BEARING
WALL CLADDING PANEL



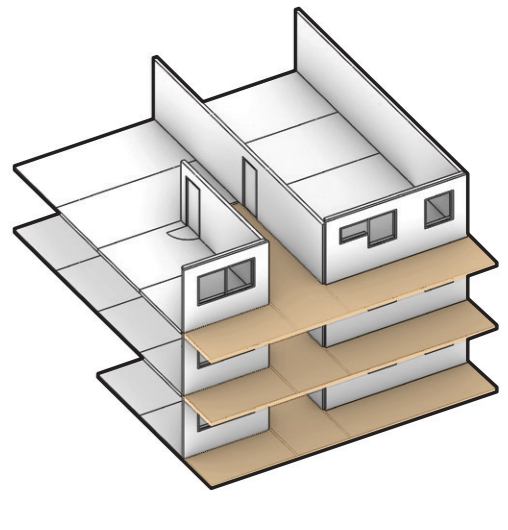
REMOVE LOAD BEARING WALL
PANEL



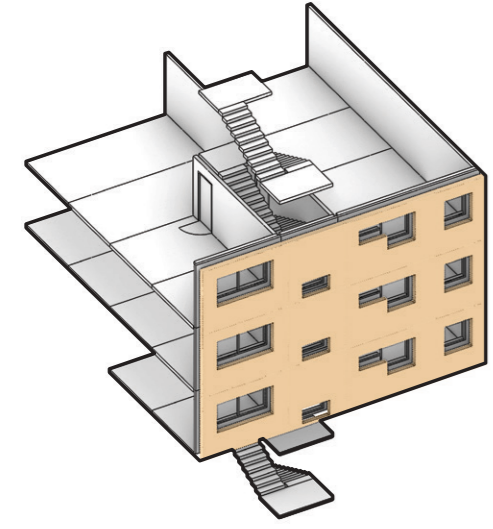
REMOVING FLOOR PLATE



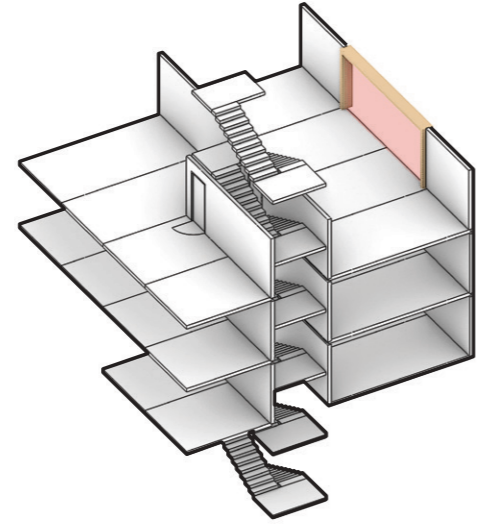
CREATING HORIZONTAL
CIRCUCATION IN STAIRWELL



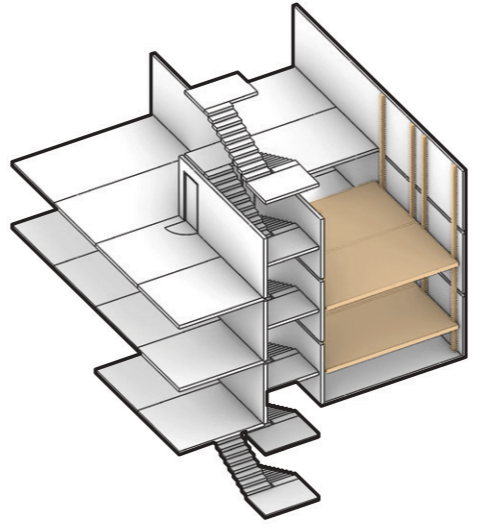
VERTICAL CIRCULATION TO
HORIZONTAL CIRCULATION



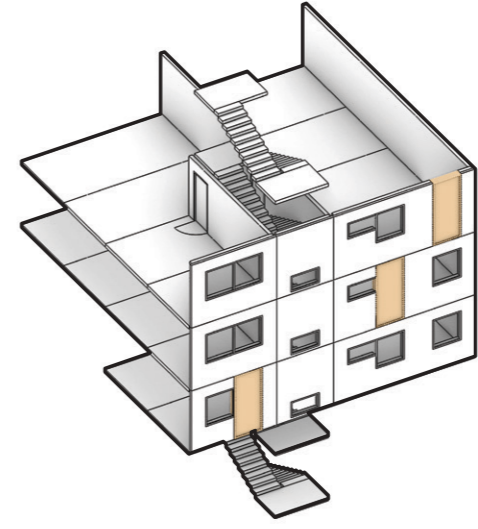
ADDING TO THE WALL ASSEMBLY



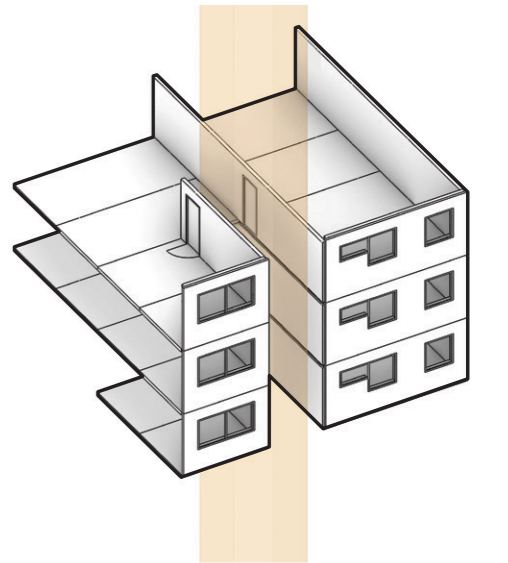
REMOVE A PARTIAL LOAD BEARING
PANEL



MOVING A FLOOR HEIGHT



CREATING HORIZONTAL
CIRCUCATION IN CLADDING PANEL



CONVERTING A STAIRWELL INTO A
LIGHTWELL

POST ALTERATION PLATTENBAU
POST OCCUPANCY

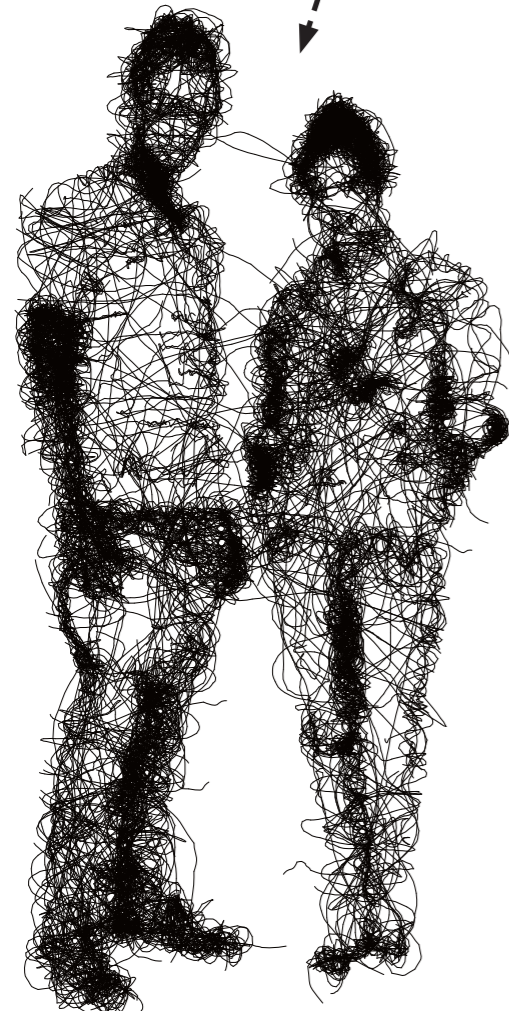


THE CAST: PERSONAS
THE PROGRAM DRIVERS AND BUILDING USERS

ELINA & THOMAS

HIGH ENGAGEMENT

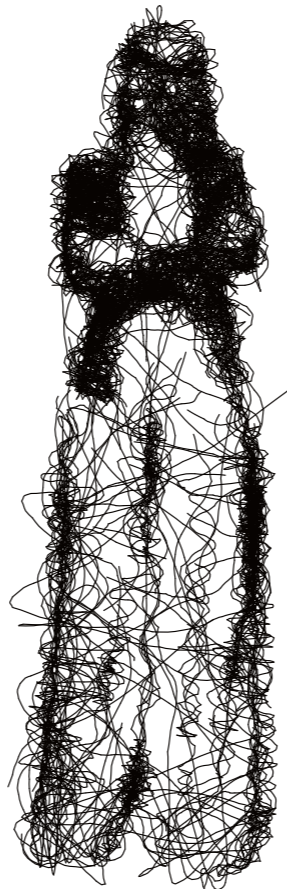
CERAMICS, MUSIC, EVENT SPACES, EXHIBITION



ELLA

HIGH ENGAGEMENT

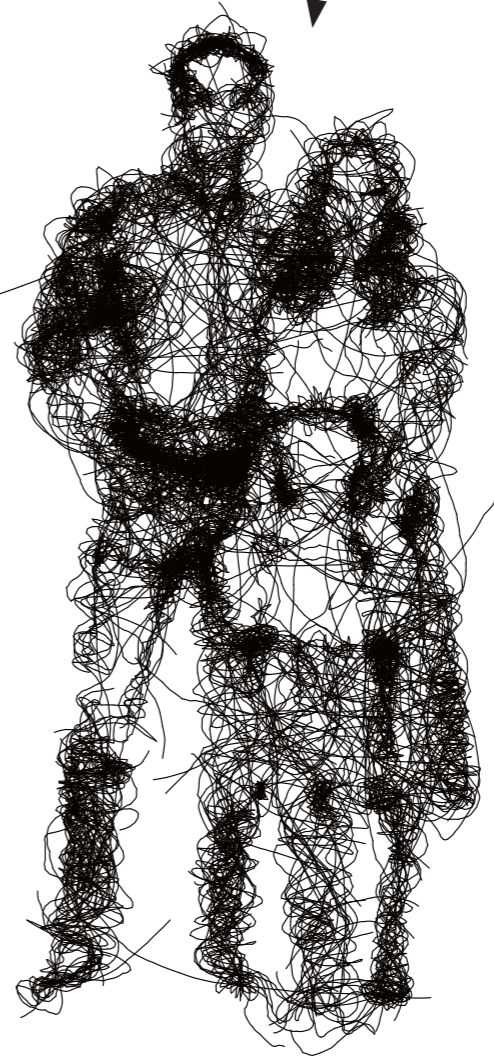
INCUBATOR, WORKSHOPS, GARDENS, FOOD HALL



THE ROMERO FAMILY

MEDIUM ENGAGEMENT

CLASSROOMS, ELECTRONICS LAB, TEXTILES LAB, INCUBATOR



ADELE

LOW ENGAGEMENT

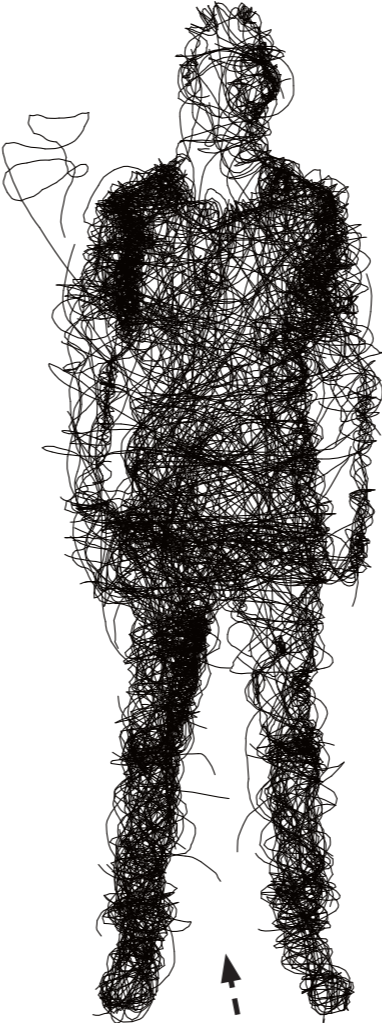
GARDENS, FOOD HALL



TIM

HIGH ENGAGEMENT

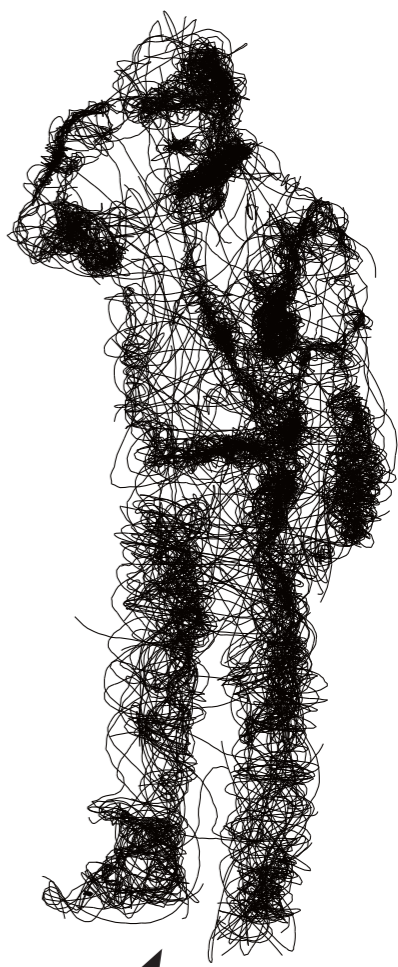
WORKSHOPS, STUDIOS, CLASSROOMS



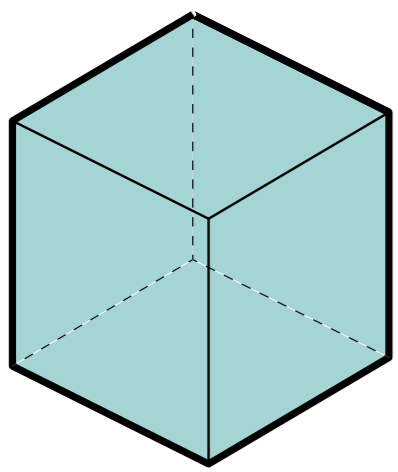
THEO

MEDIUM ENGAGEMENT

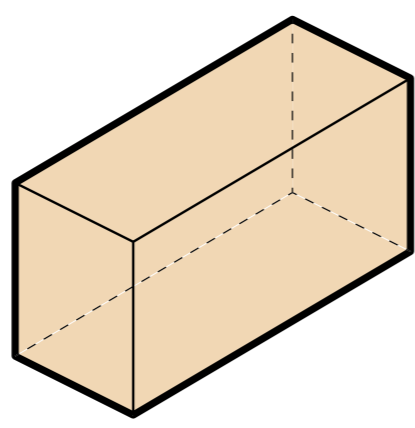
COWORKING SPACES, WORKSHOPS, COMMUNITY CENTER



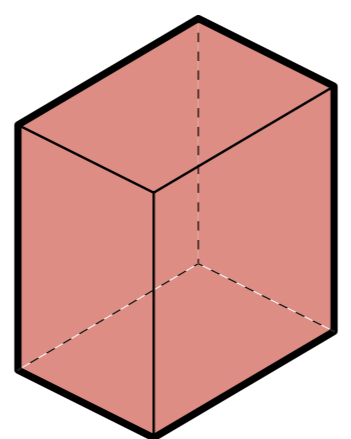
THE STAGE: PROGRAM DRIVERS
PROGRAM DEVELOPMENT



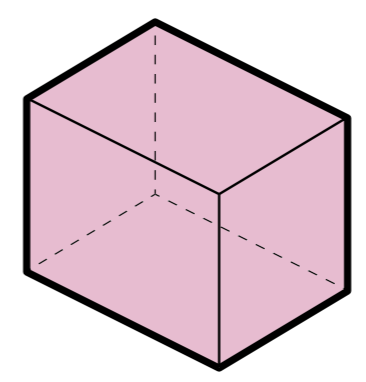
PROGRAM A
MAKERSPACE & HACKESPACE



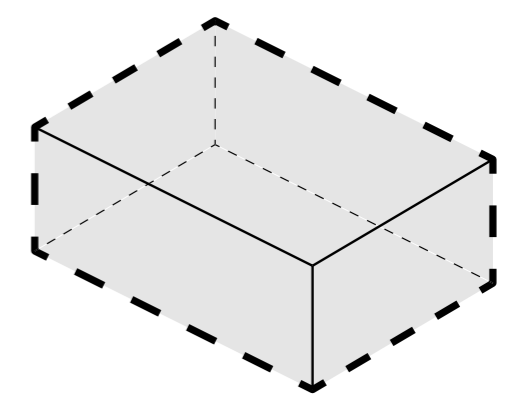
PROGRAM B
INNOVATION INCUBATOR



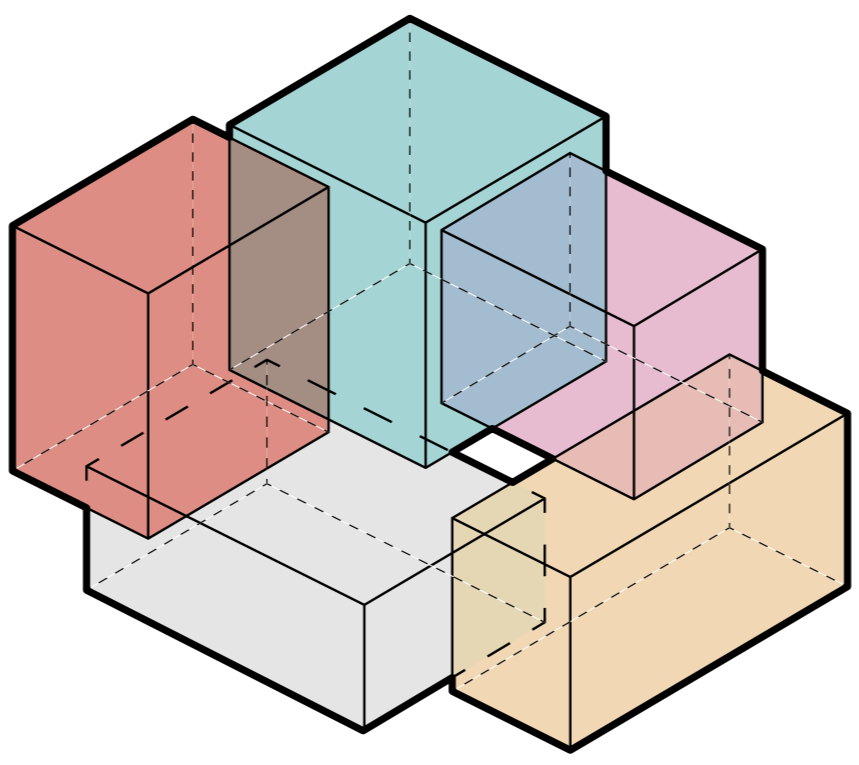
PROGRAM C
MARKET AND FOOD HALL



PROGRAM D
COMMUNITY CENTER

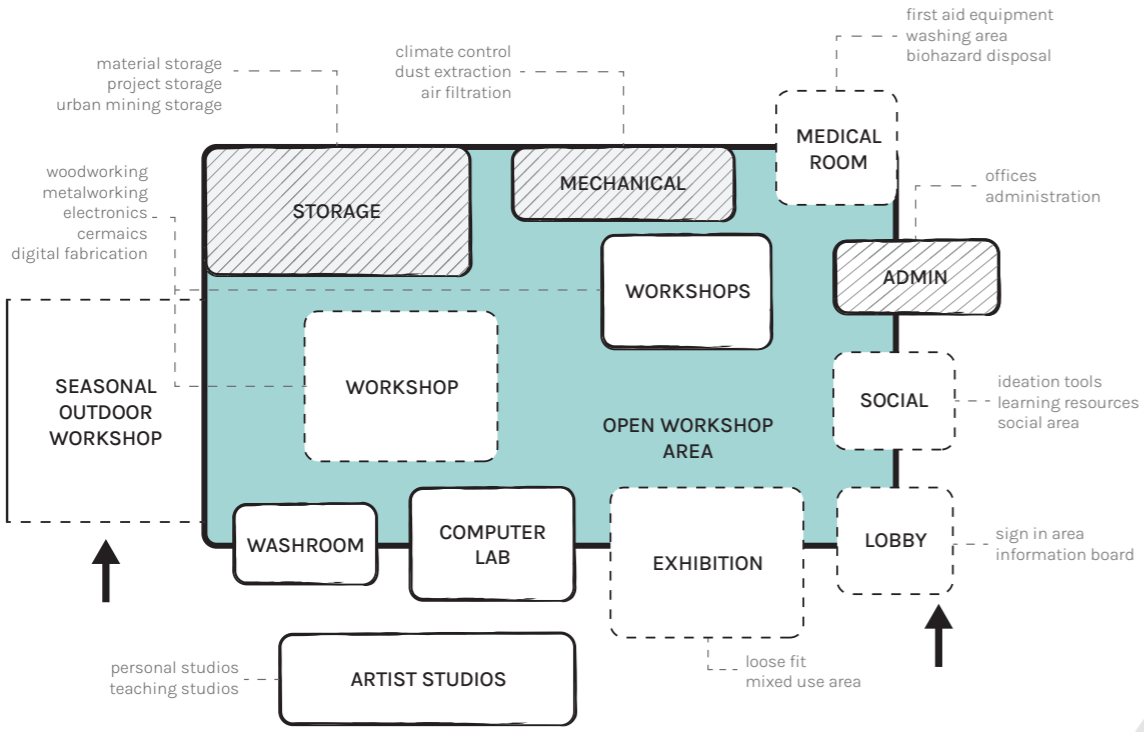


THE INBETWEEN
UNDETERMINED PROGRAM

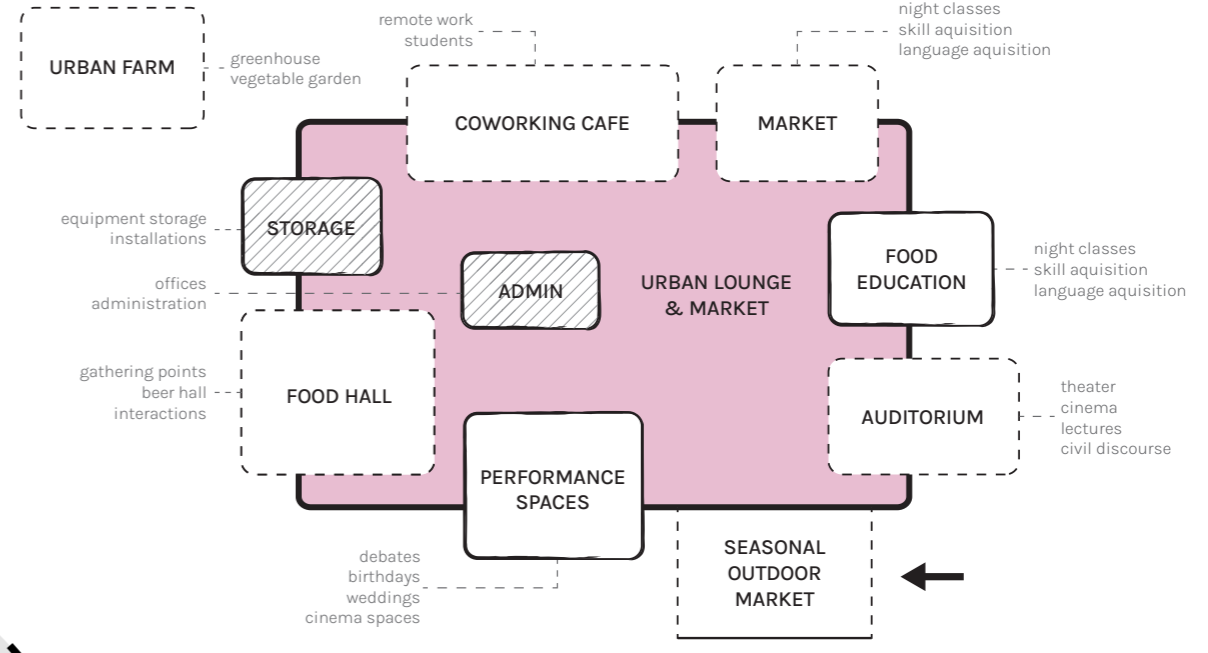


PROGRAM [A] + [B] + [C] + [D] + [THE INBETWEEN]
PUBLIC CONDENSER

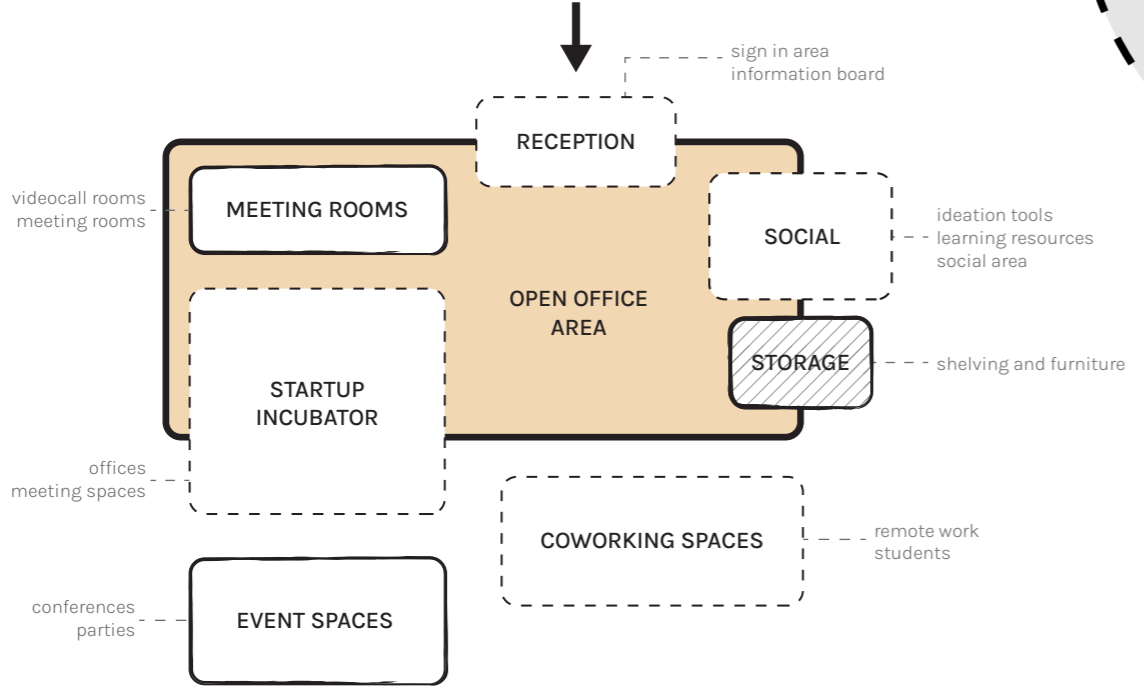
COMPONENT PROGRAM ANALYSIS
PROGRAM DEVELOPMENT



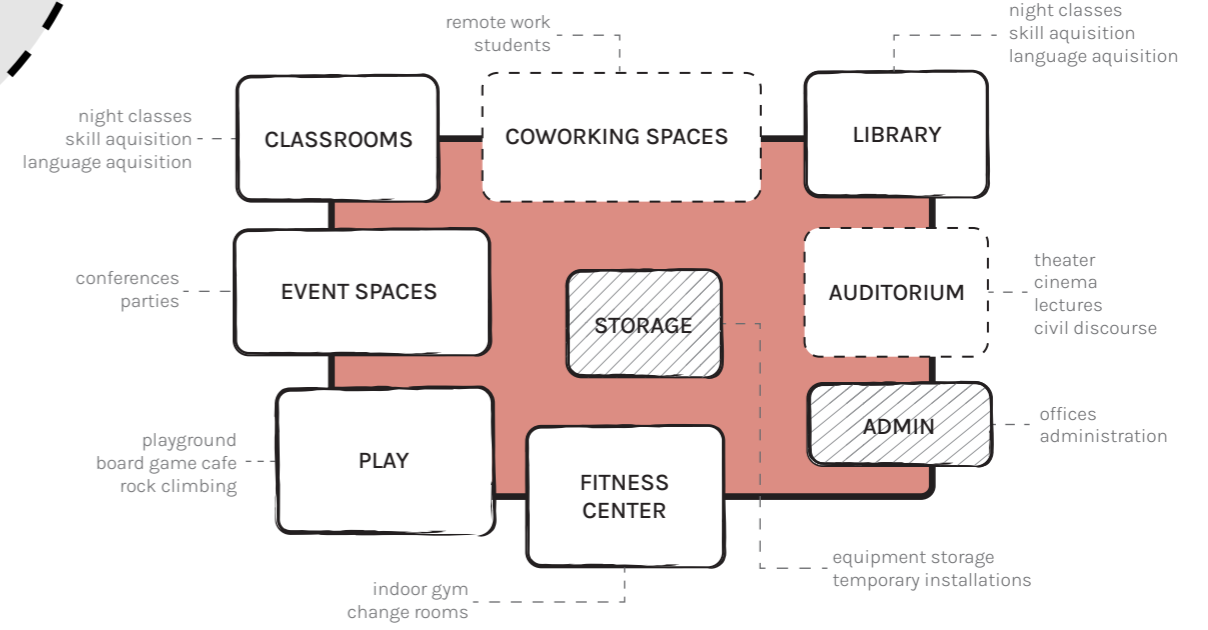
PROGRAM A
MAKERSPACE & HACKESPACE



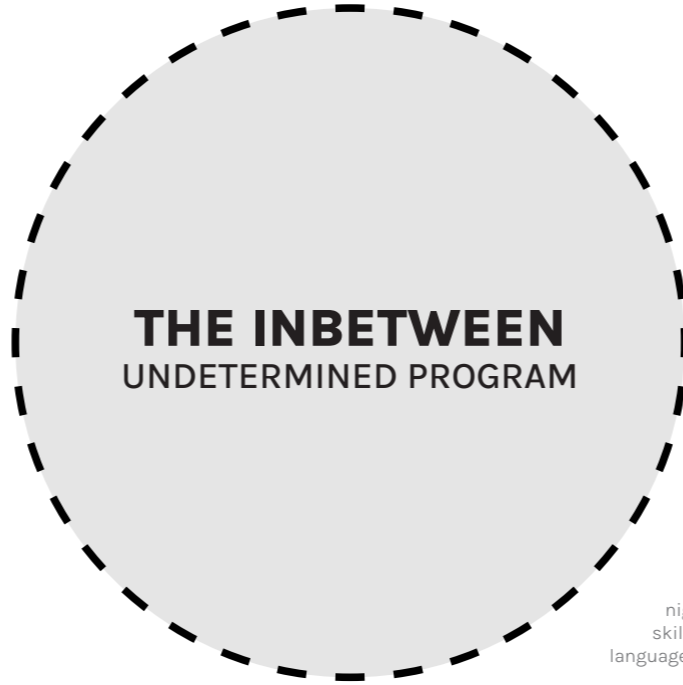
PROGRAM C
MARKET AND FOOD HALL



PROGRAM B
INNOVATION INCUBATOR

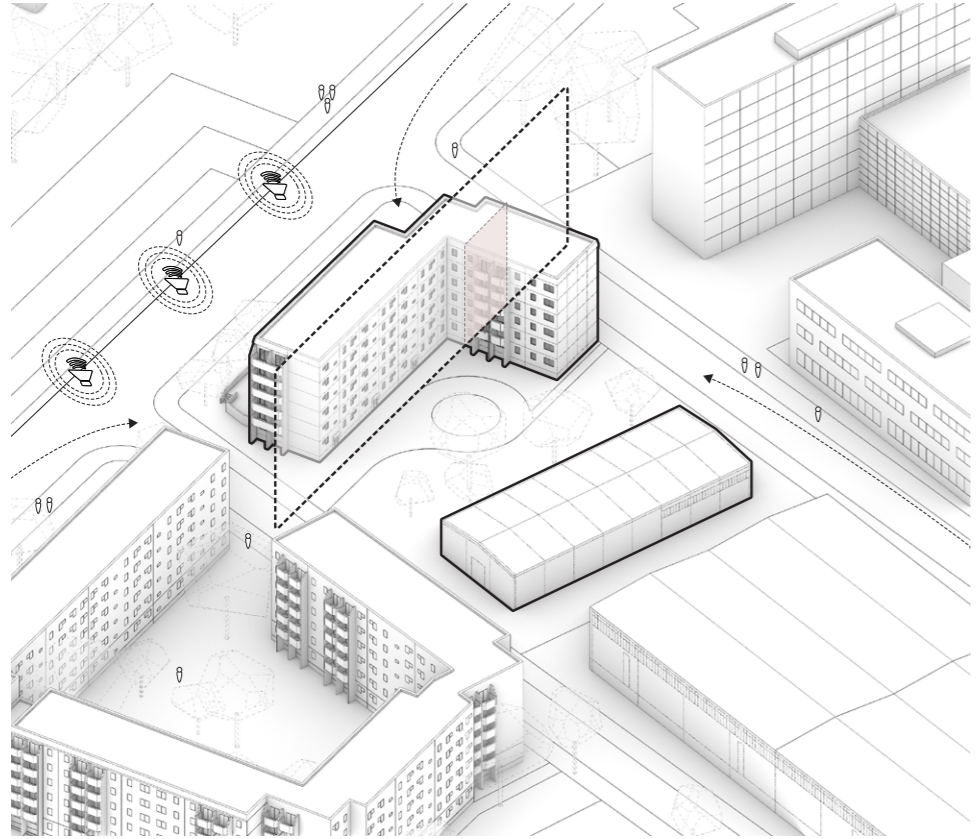


PROGRAM D
COMMUNITY CENTER

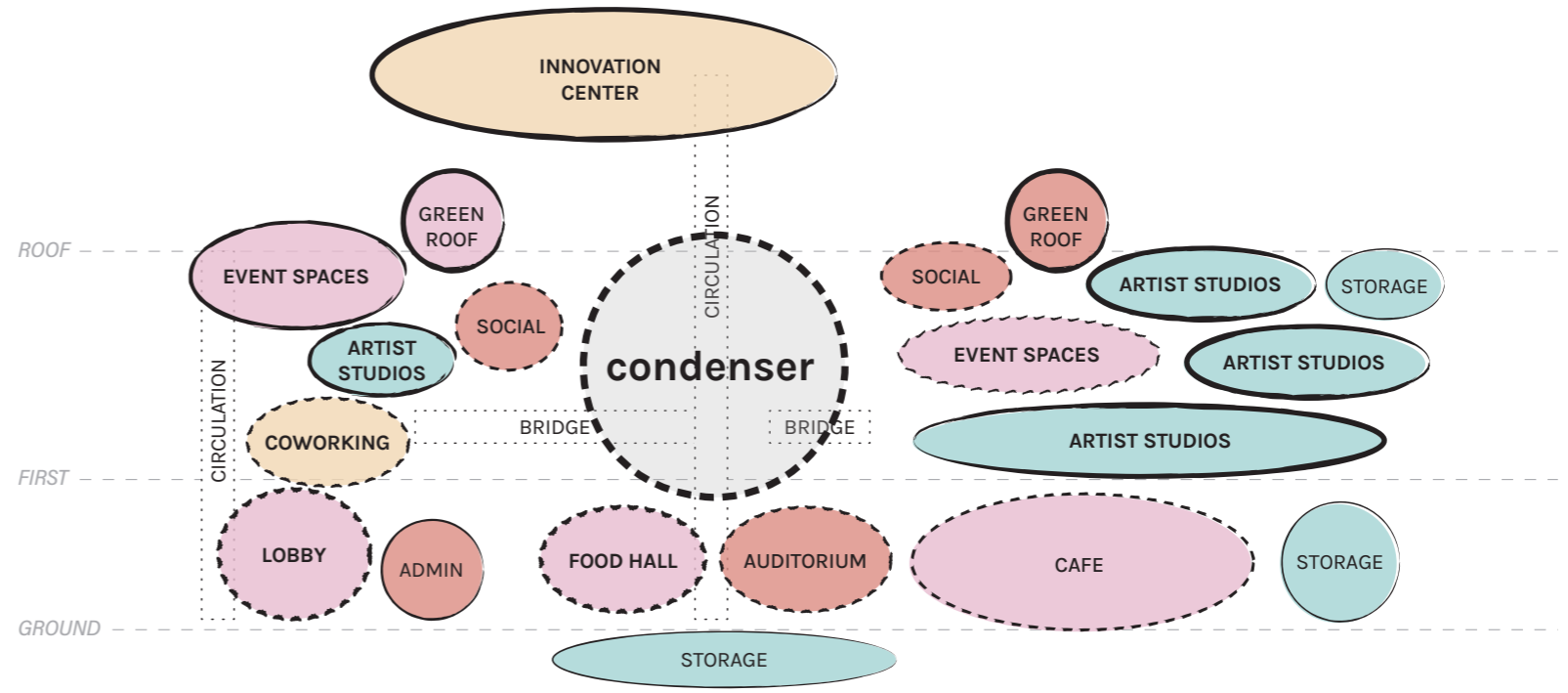


THE INBETWEEN
UNDETERMINED PROGRAM

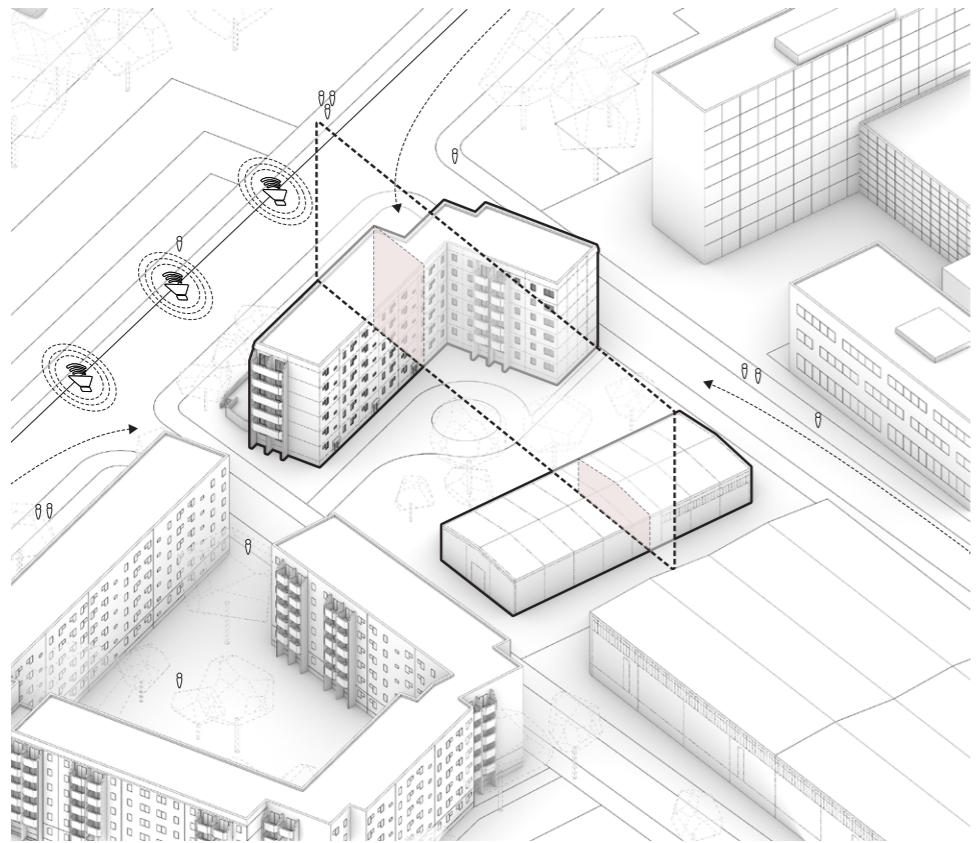
MAPPING PROGRAM TO SITE
PROGRAM NEEDS TO SITE CONDITIONS



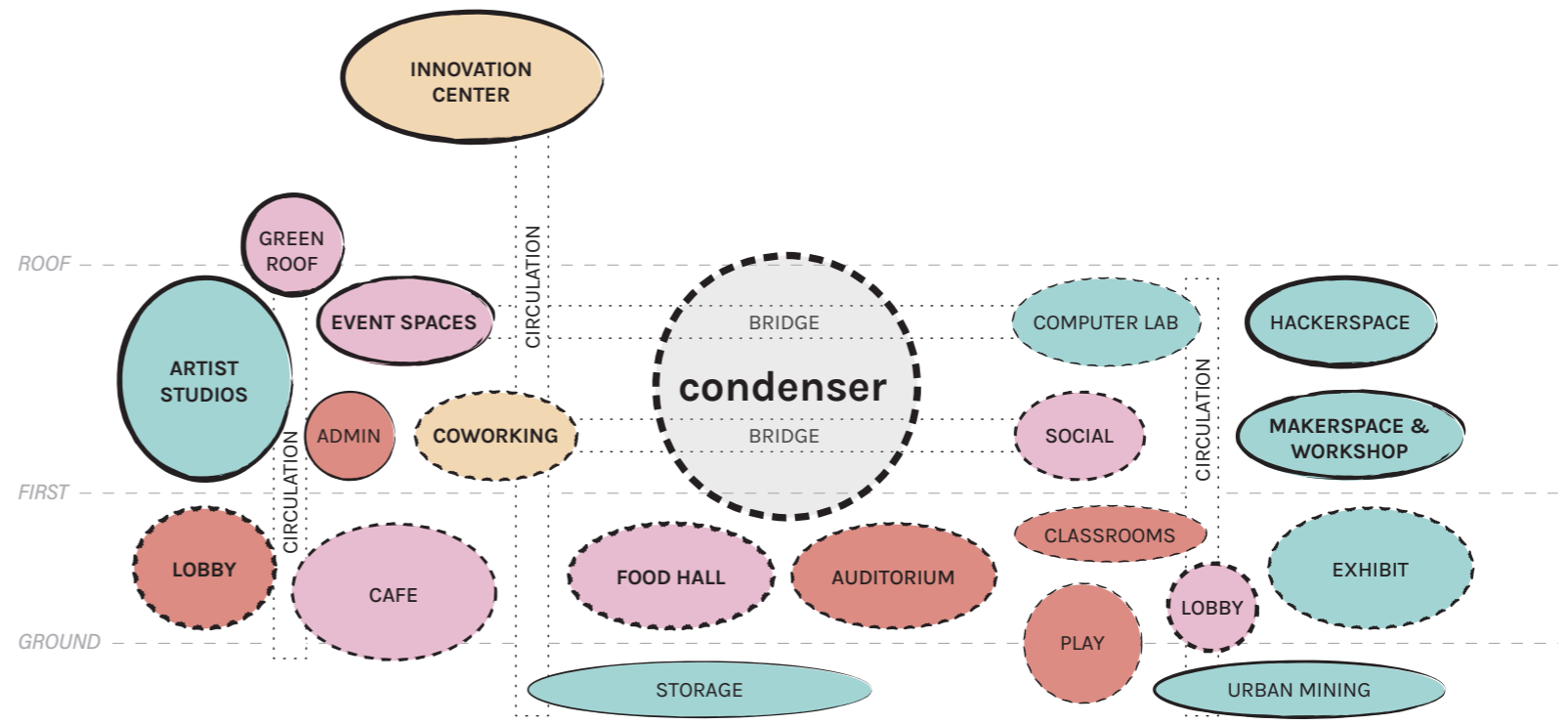
NORTH WEST FACING SECTION



NORTH WEST FACING SECTION - PROGRAM DISTRIBUTION



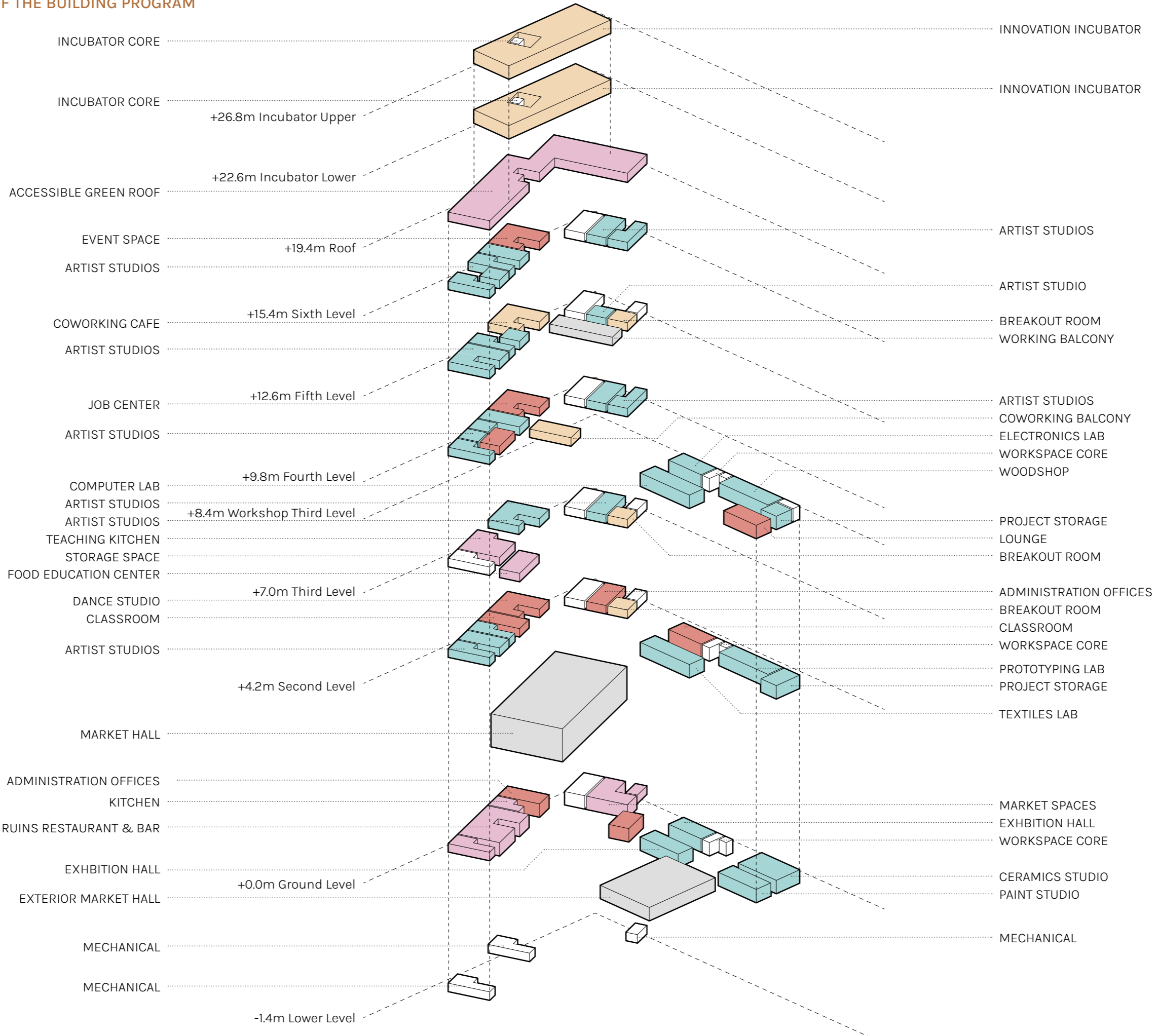
NORTH EAST FACING SECTION



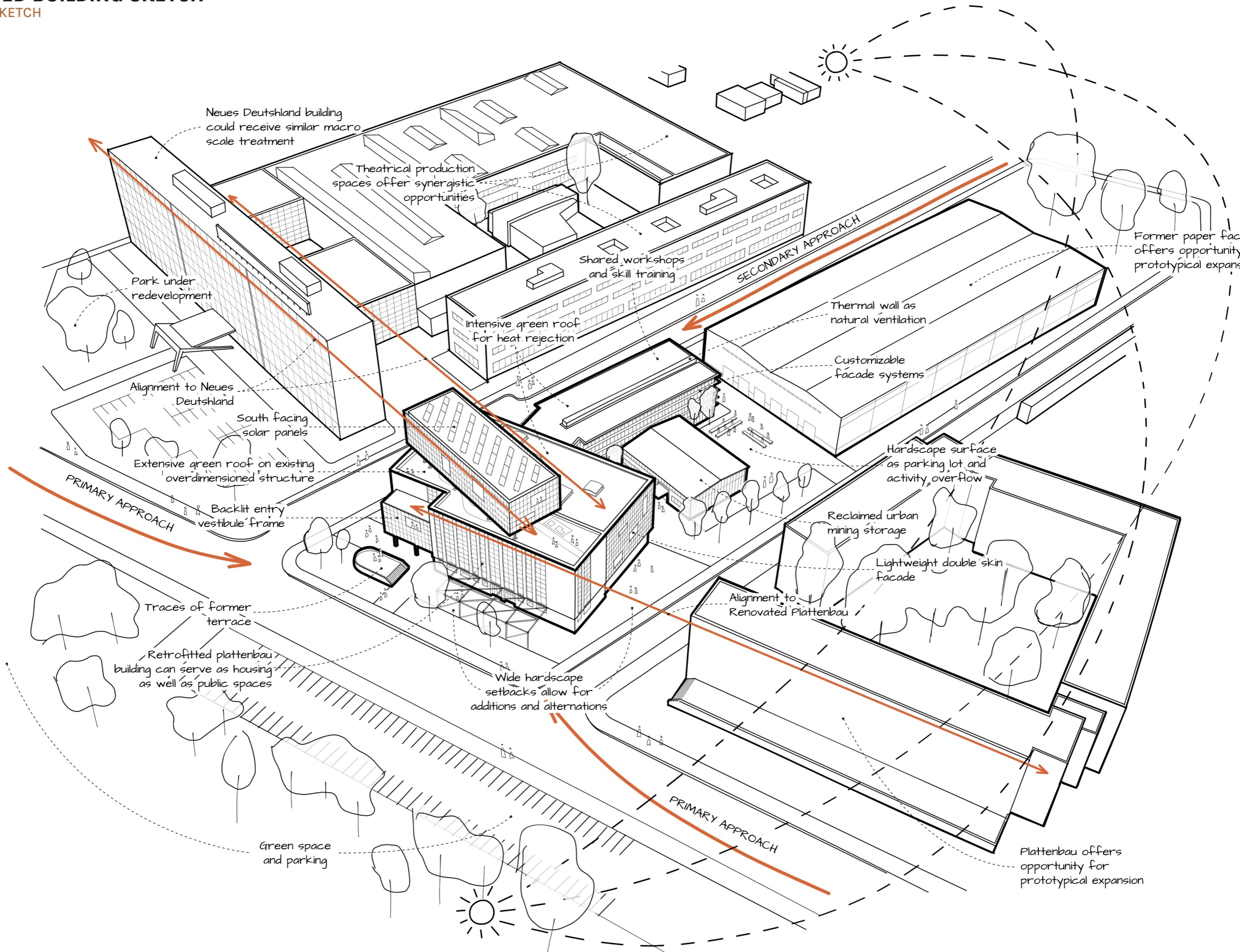
NORTH EAST FACING SECTION - PROGRAM DISTRIBUTION

PROPOSED PROGRAM DISTRIBUTION

EXPLODED AXONOMETRIC OF THE BUILDING PROGRAM



PROPOSED BUILDING SKETCH
CONCEPT SKETCH



Neues Deutschland building could receive similar macro scale treatment

Theatrical production spaces offer synergistic opportunities

Shared workshops and skill training

Intensive green roof for heat rejection

Thermal wall as natural ventilation

Customizable facade systems

Former paper factory offers opportunity for prototypical expansion

Park under redevelopment

Alignment to Neues Deutschland

South facing solar panels

Extensive green roof on existing oversized structure

PRIMARY APPROACH

Backlit entry vestibule frame

Hardscape surface as parking lot and activity overflow

Reclaimed urban mining storage

Lightweight double skin facade

Alignment to Renovated Plattenbau

Traces of former terrace

Retrofitted plattenbau building can serve as housing as well as public spaces

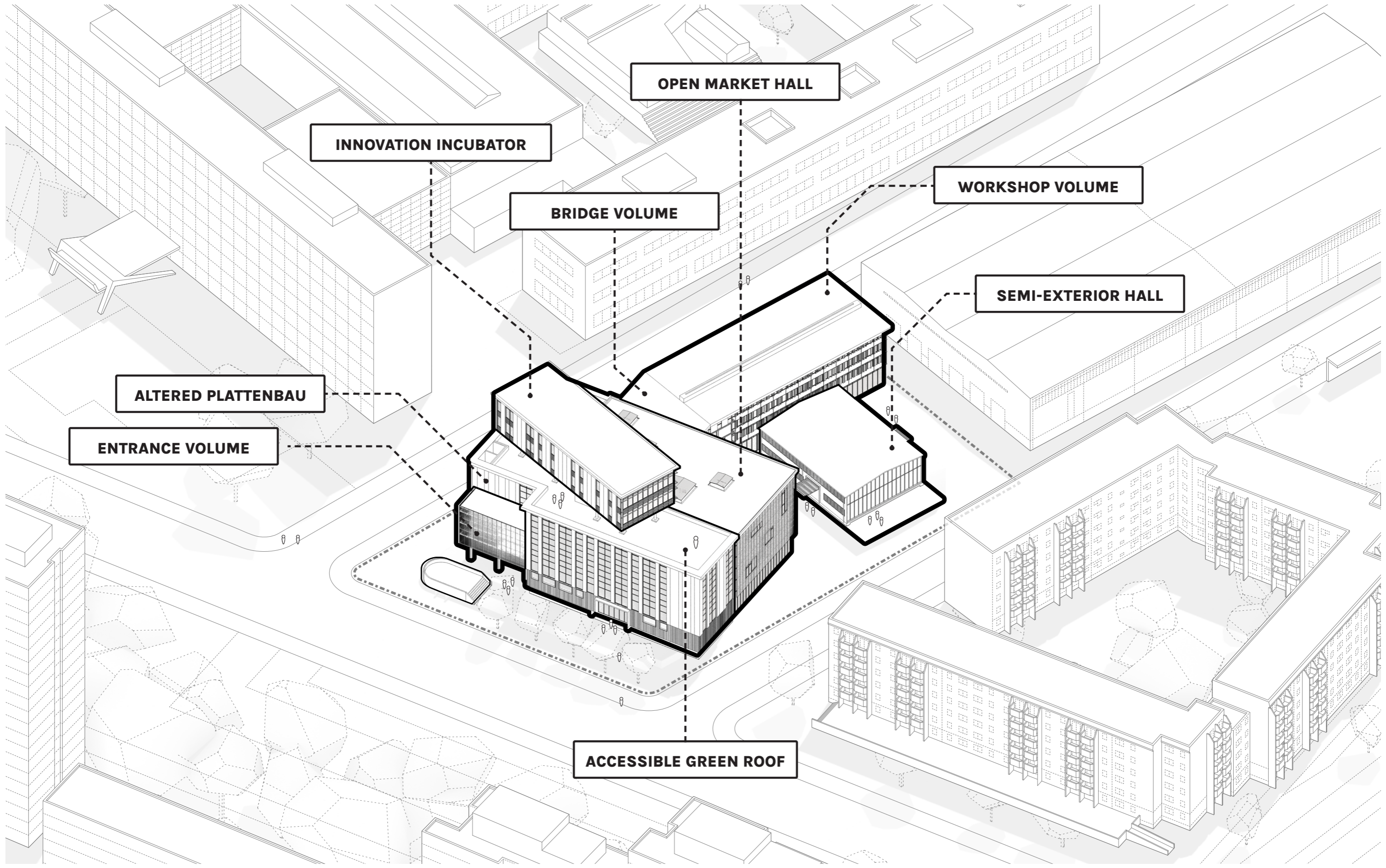
Wide hardscape setbacks allow for additions and alternations

PRIMARY APPROACH

Green space and parking

Plattenbau offers opportunity for prototypical expansion

BUILDING OVERVIEW
BUILDING PARTS



OPEN MARKET HALL

INNOVATION INCUBATOR

WORKSHOP VOLUME

BRIDGE VOLUME

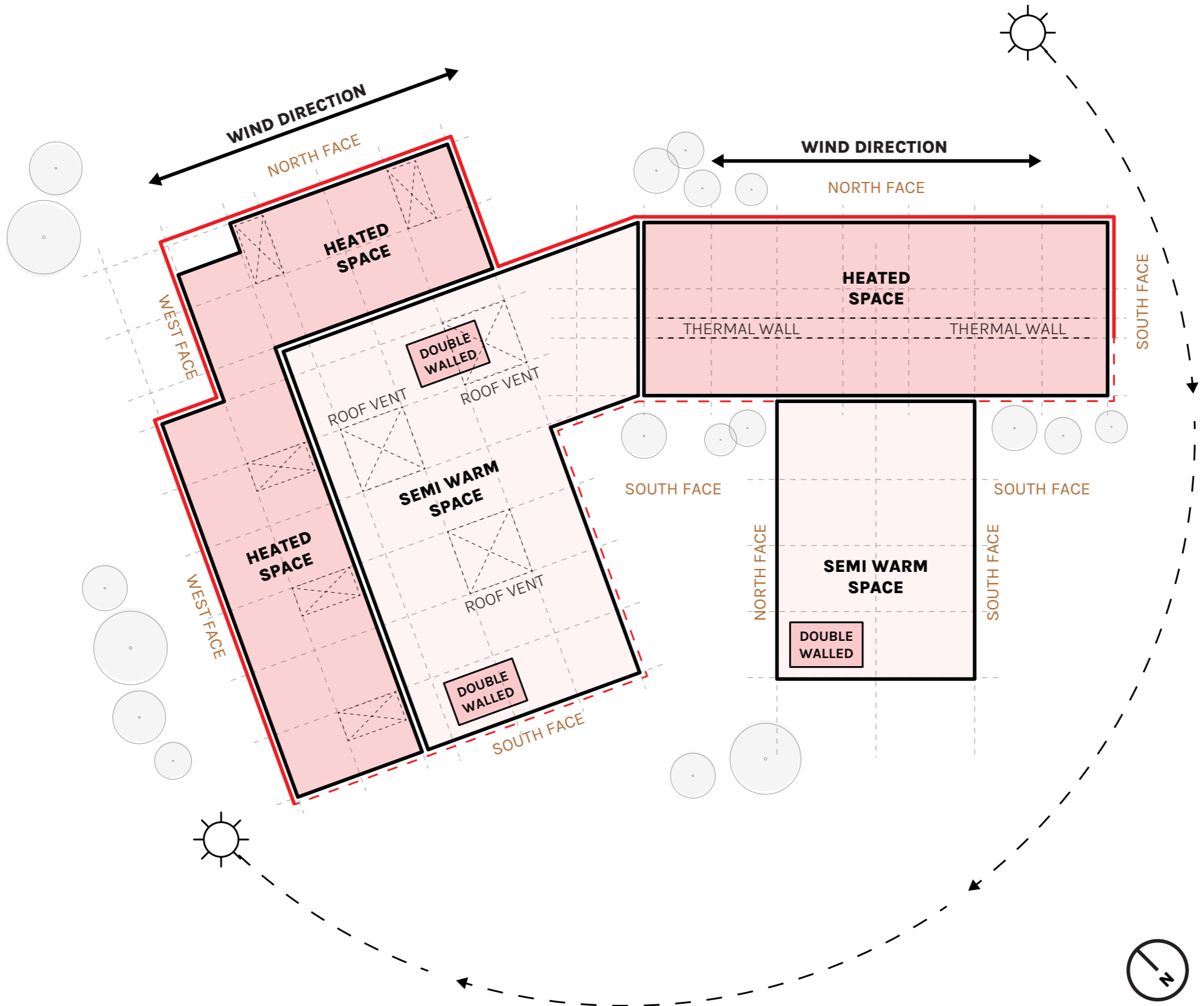
SEMI-EXTERIOR HALL

ALTERED PLATTENBAU

ENTRANCE VOLUME

ACCESSIBLE GREEN ROOF

THE LOOSE FIT BLANKET
SECOND SKIN AND CLIMATE STRATEGY



CLIMATE SCHEME - SUMMER
DISTINCT CLIMATE ZONES & NATURAL VENTILATION

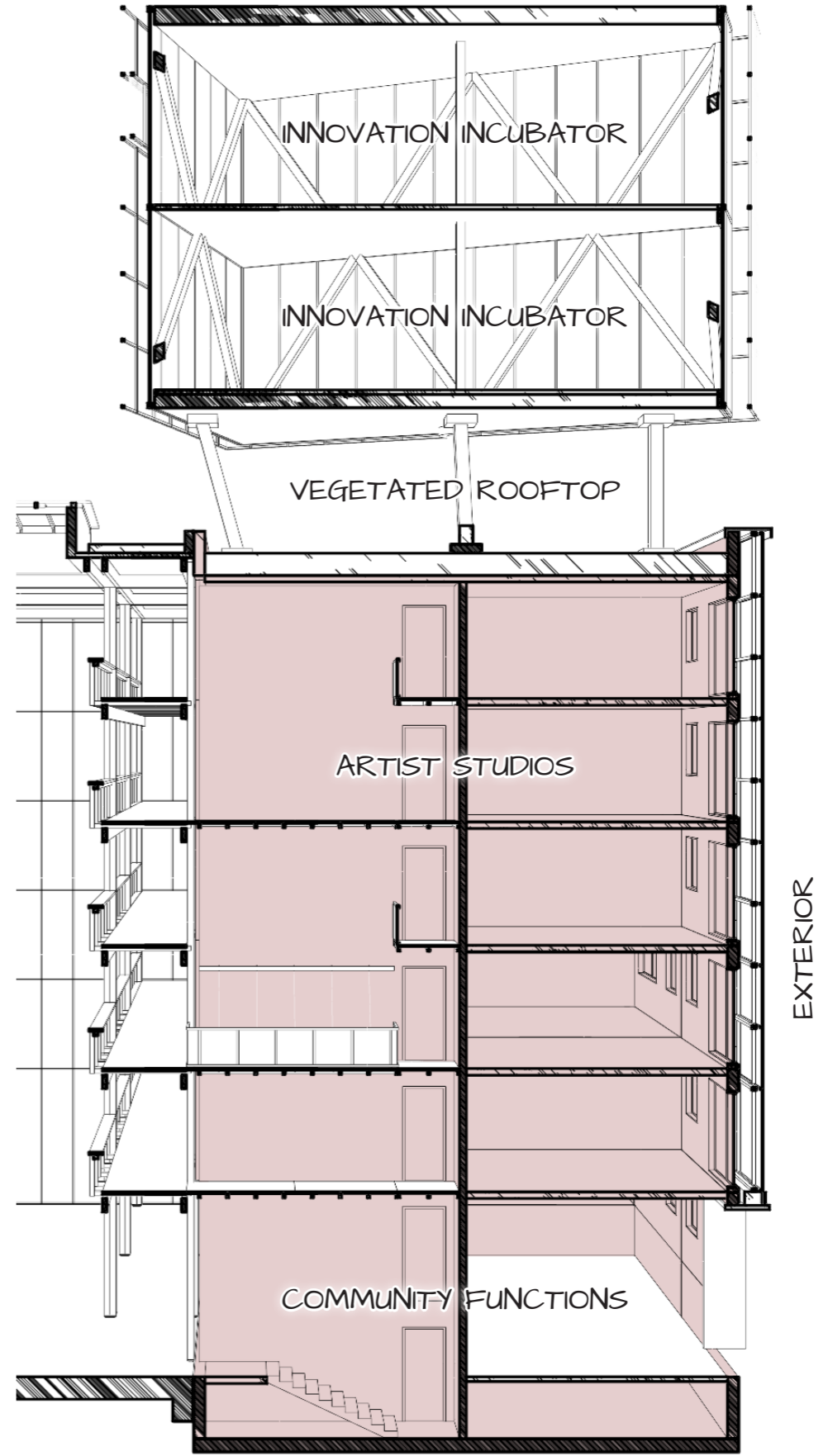
PLATTENBAU MACRO LEVEL ALTERATIONS
REINTERPRETATION



GROUND LEVEL SKETCH PLAN



TYPICAL UPPER LEVEL SKETCH PLAN



TYPICAL UPPER LEVEL SKETCH PLAN

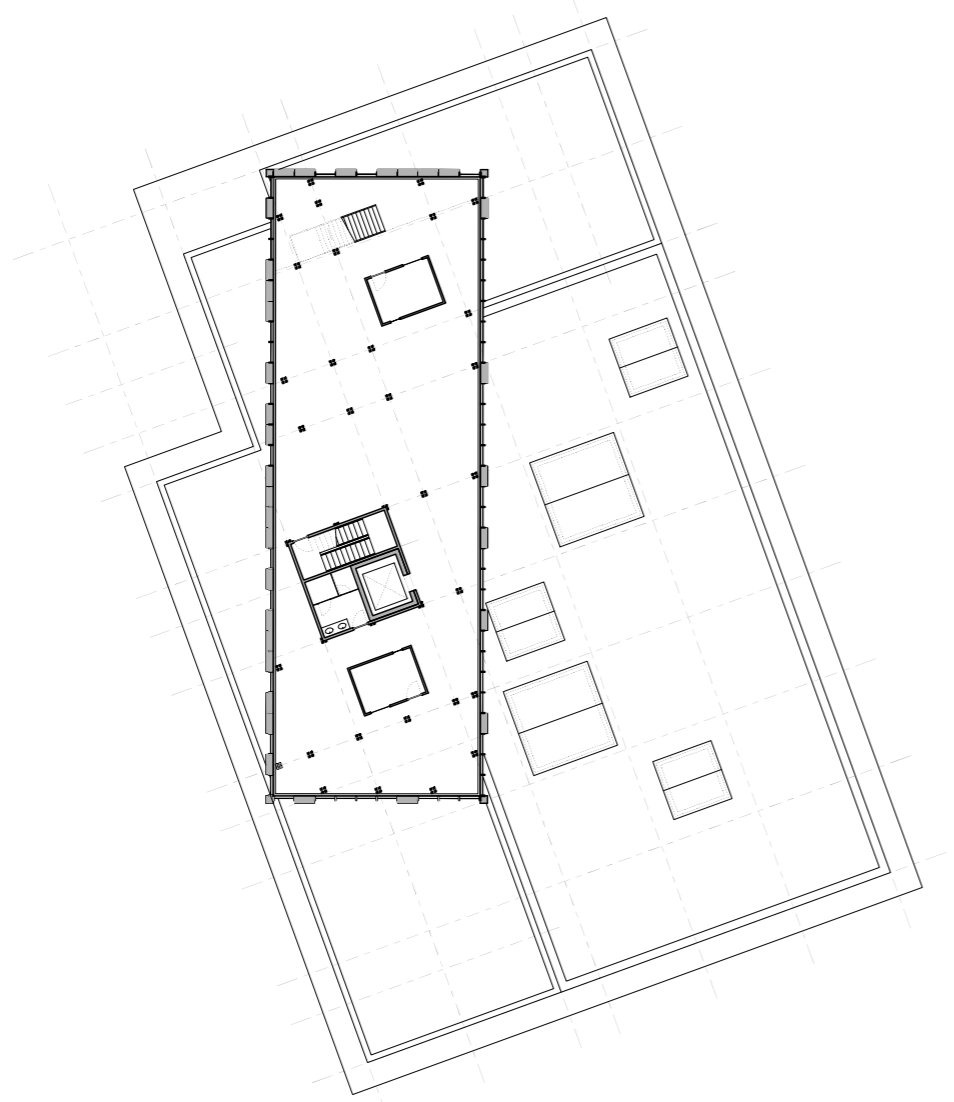
NORTH WEST APPROACH
PRIMARY APPROACH



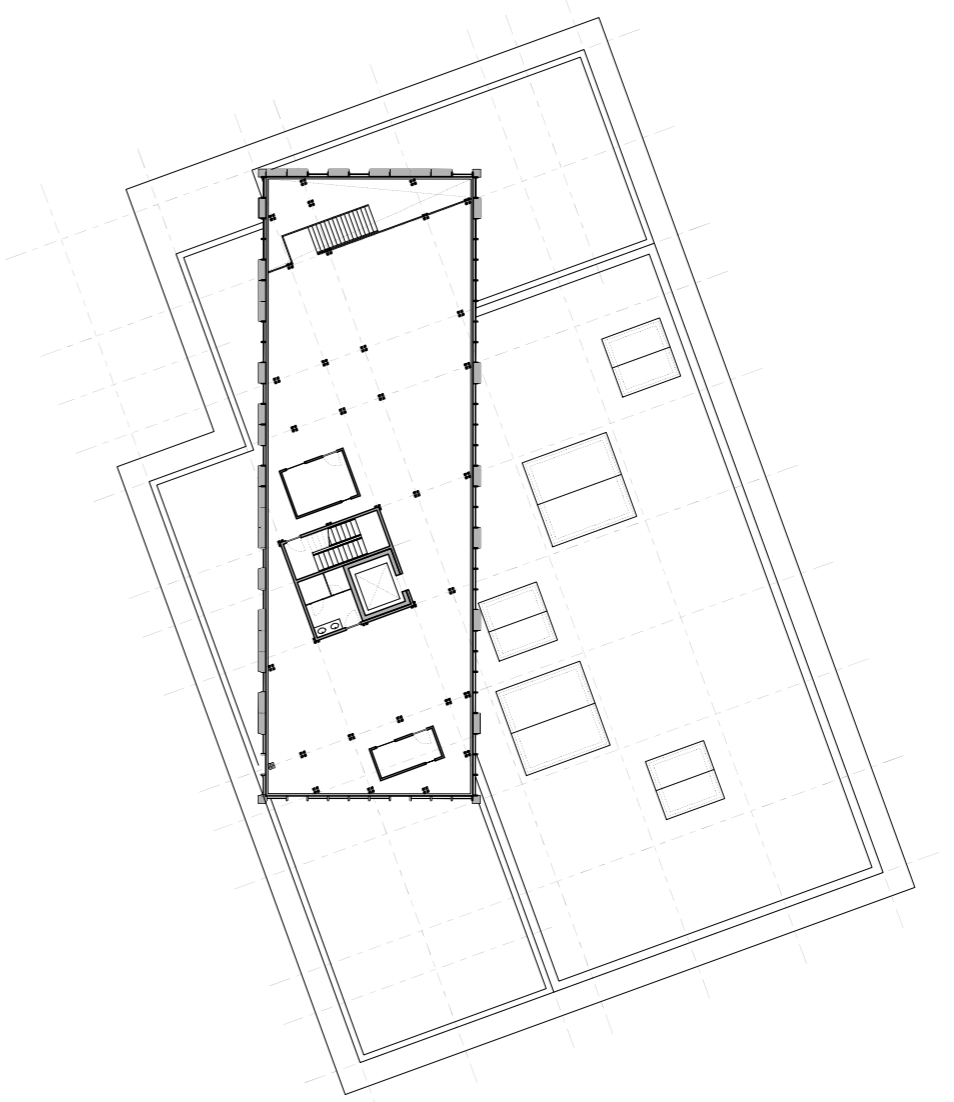
ACCESSIBLE GREEN ROOF
SEMI PRIVATE GARDEN



INNOVATION INCUBATOR
FLOATING STRUCTURE



INCUBATOR LOWER FLOOR PLAN



INCUBATOR UPPER FLOOR PLAN



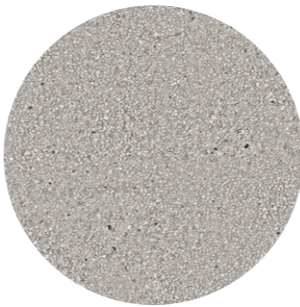
SOUTH WEST APPROACH
PRIMARY APPROACH



BLANKET COMPOSITION AND FUNCTION
TRANSPARENT BLANKET



THATCH CLADDING PANELS



EXISTING CONCRETE CLADDING



WOOD WINDOW FRAMES



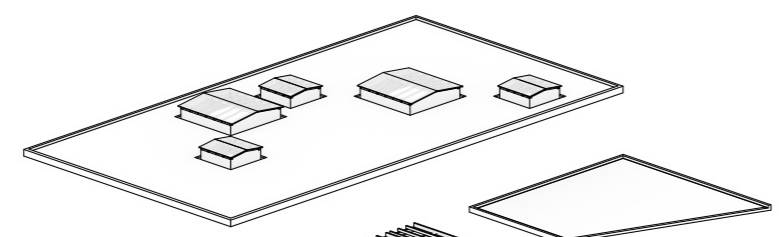
BEECH WOOD SLATS



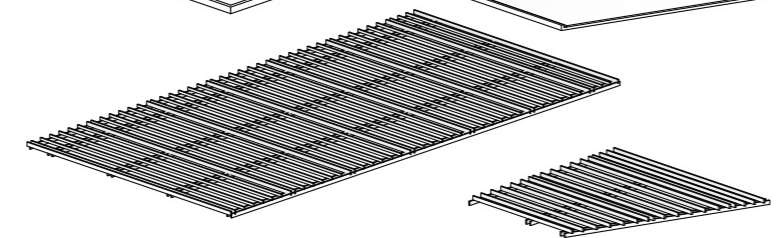
STREET ART AND GRAFFITI

ENCLOSING THE COURTYARD
MAIN HALL COMPONENTS

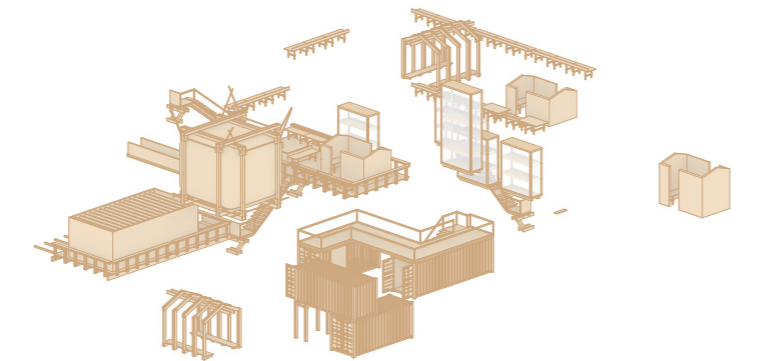
EXTENSIVE GREEN ROOF
AND SKYLIGHTS



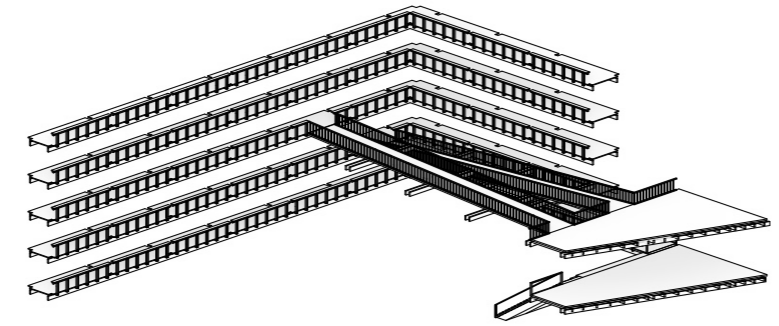
ROOF SUPPORT
STRUCTURE



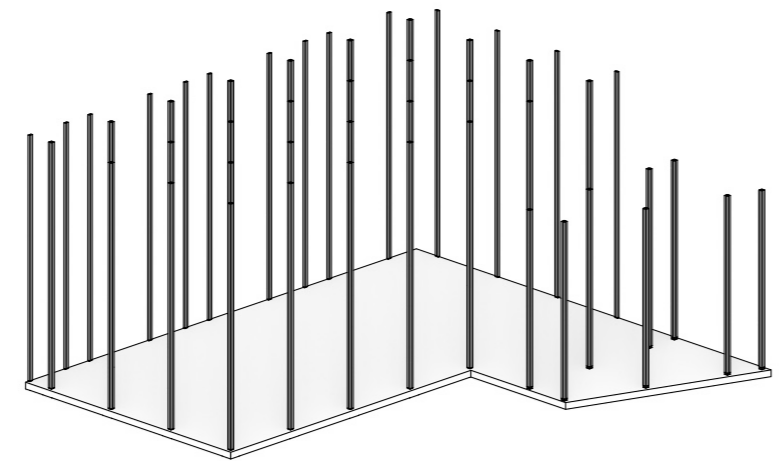
INTERNAL
INTERVENTIONS



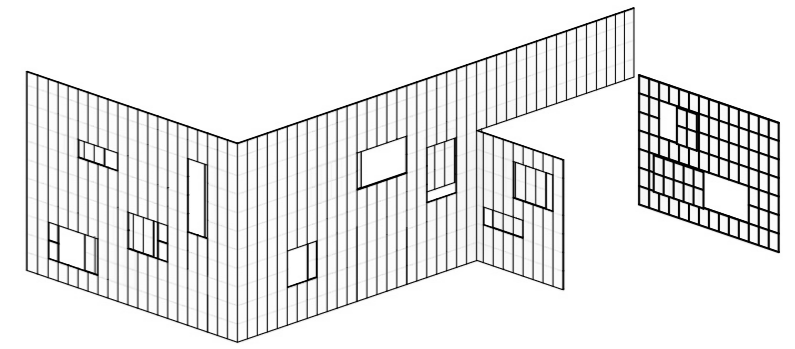
CIRCULATION AND
CONNECTION SYSTEMS



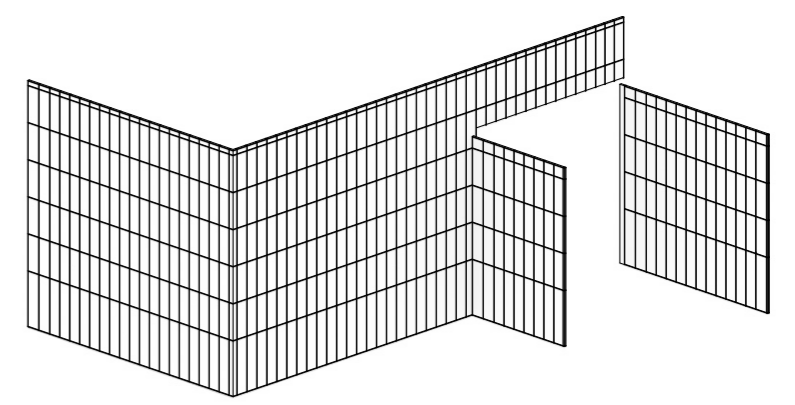
STRUCTURAL
COMPONENTS



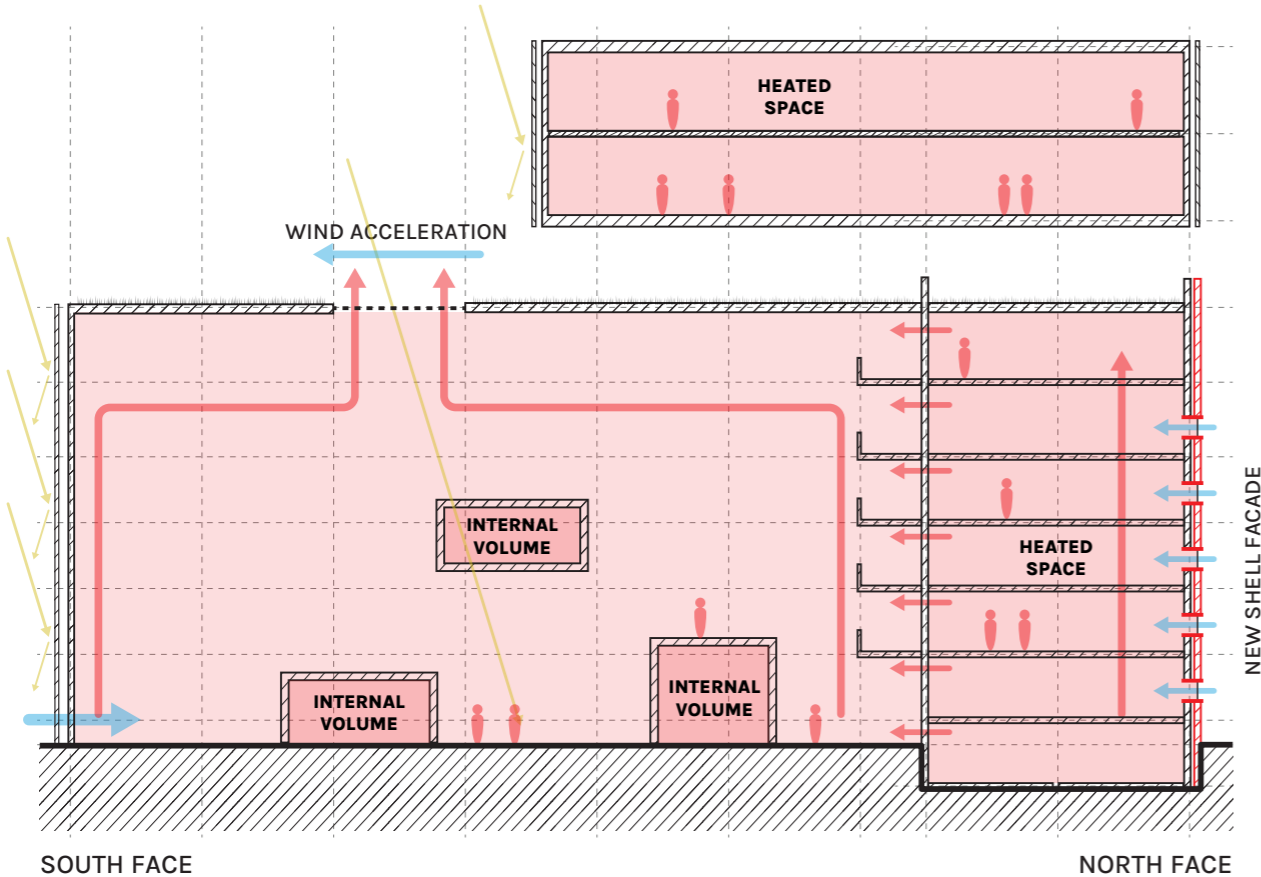
WOOD FRAME POLYURUTHANE
SECOND SKIN



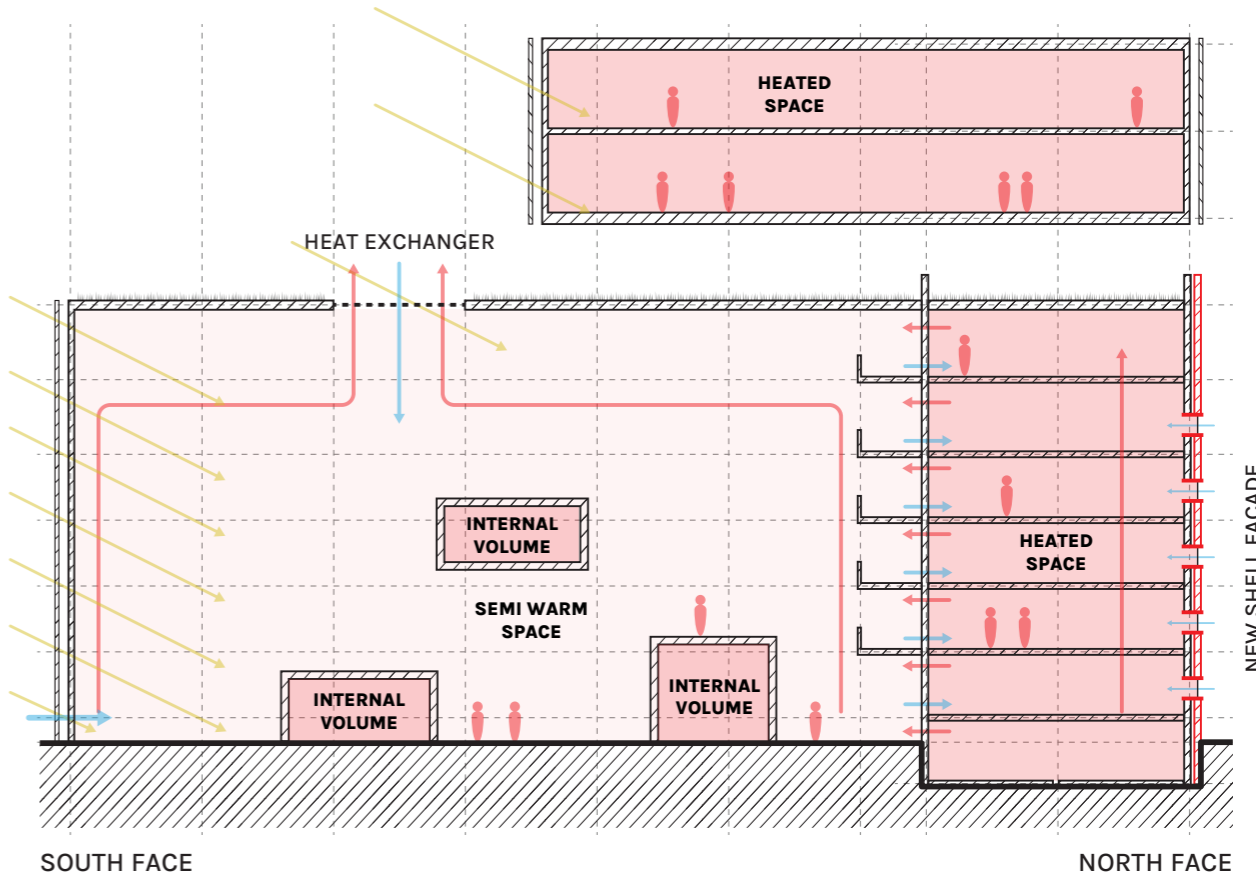
WOOD FRAMED
CURTAIN WALL



PLATTENBAU CLIMATE SCHEME
THERMAL ALLIESTHESIA

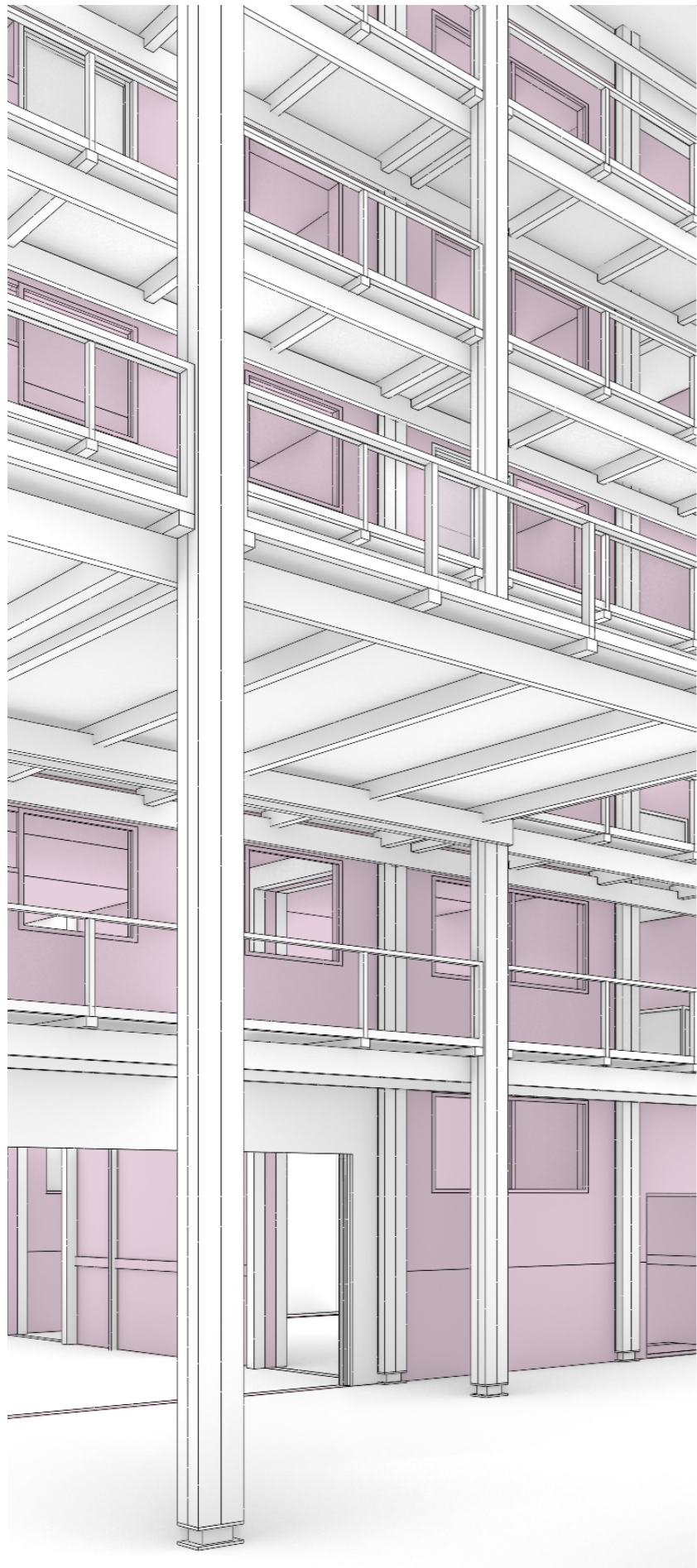


CLIMATE SCHEME - SUMMER
DISTINCT CLIMATE ZONES & NATURAL VENTILATION

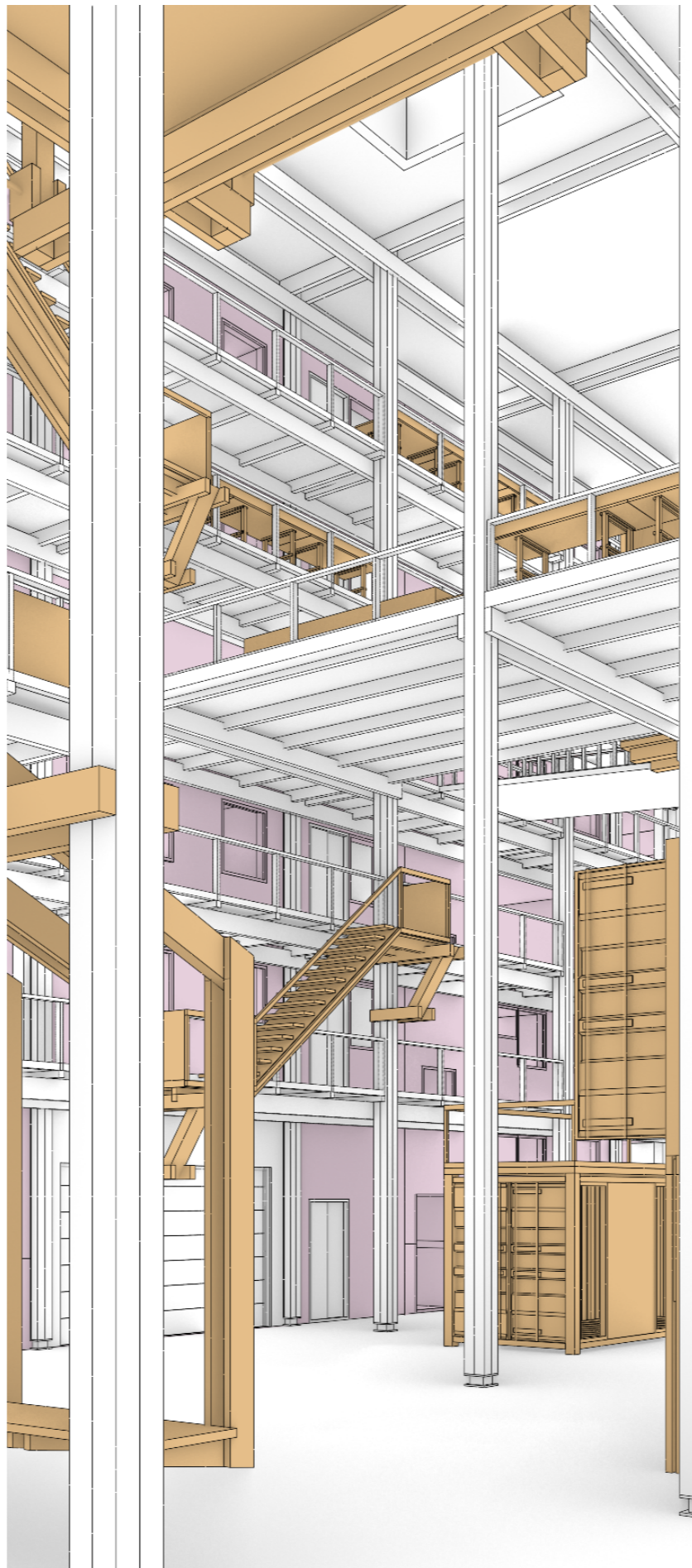


CLIMATE SCHEME - WINTER
DISTINCT CLIMATE ZONES & MIXING VENTILATION

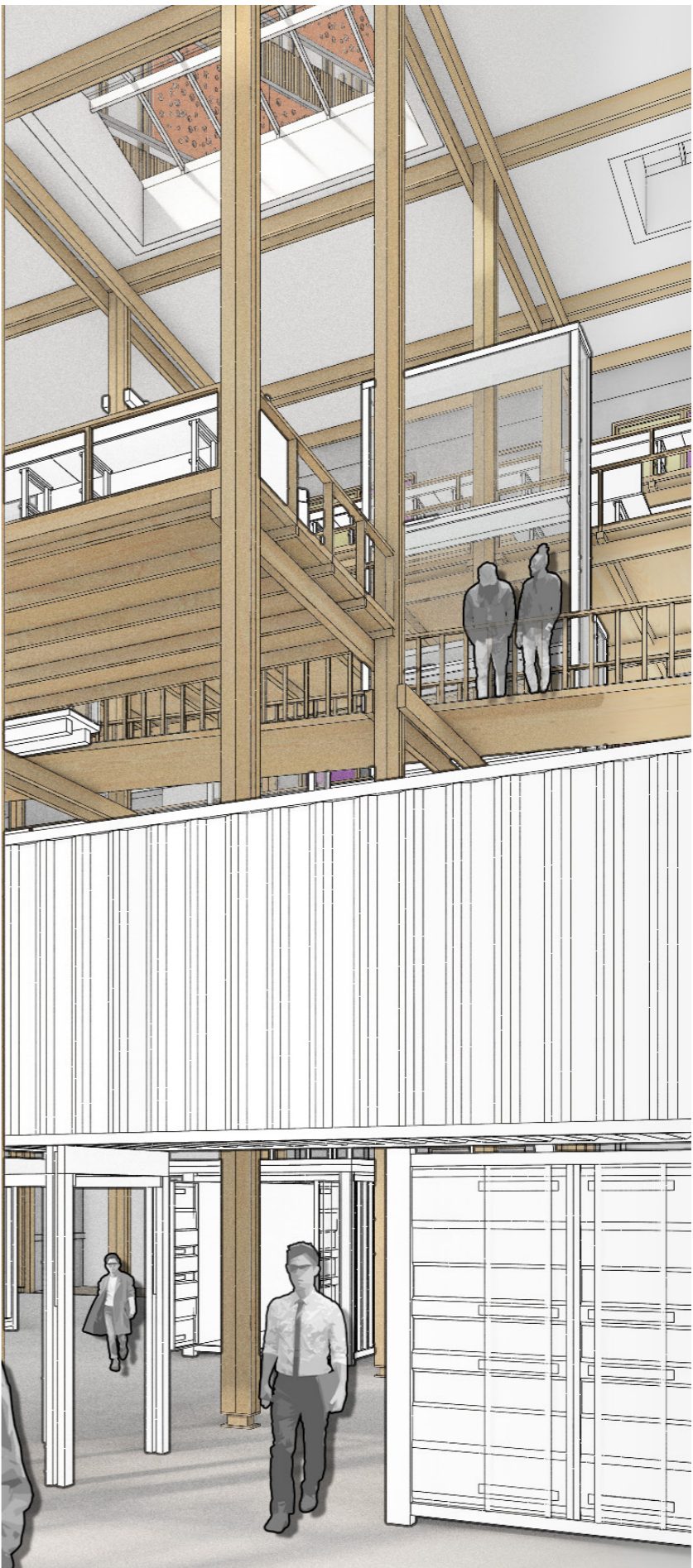
MAIN HALL DEVELOPMENT
PHASES OF USE



PRE-OCCUPANCY

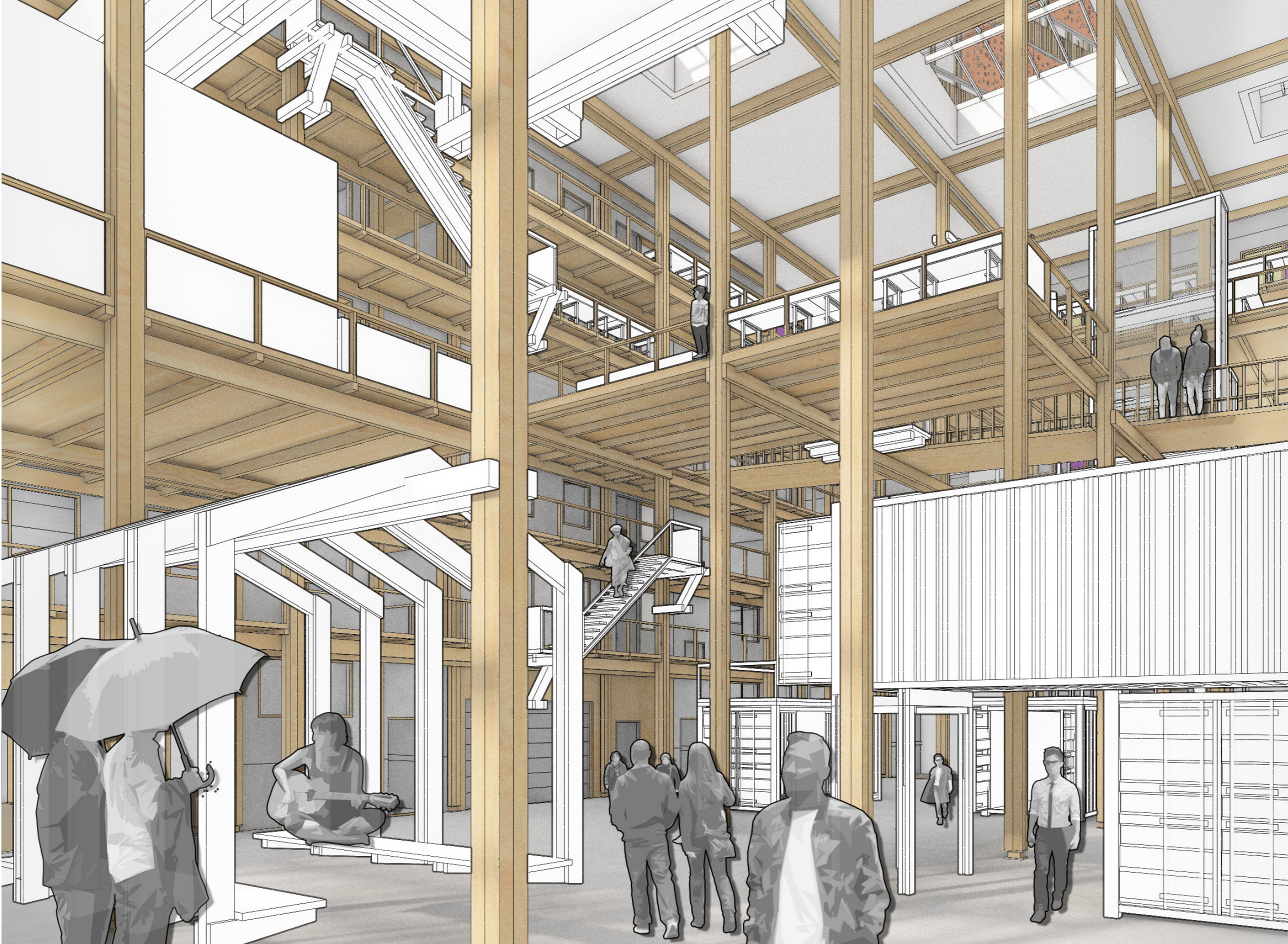


POST-OCCUPANCY



USE PHASE

MAIN HALL DEVELOPMENT
POST OCCUPANCY PHASE

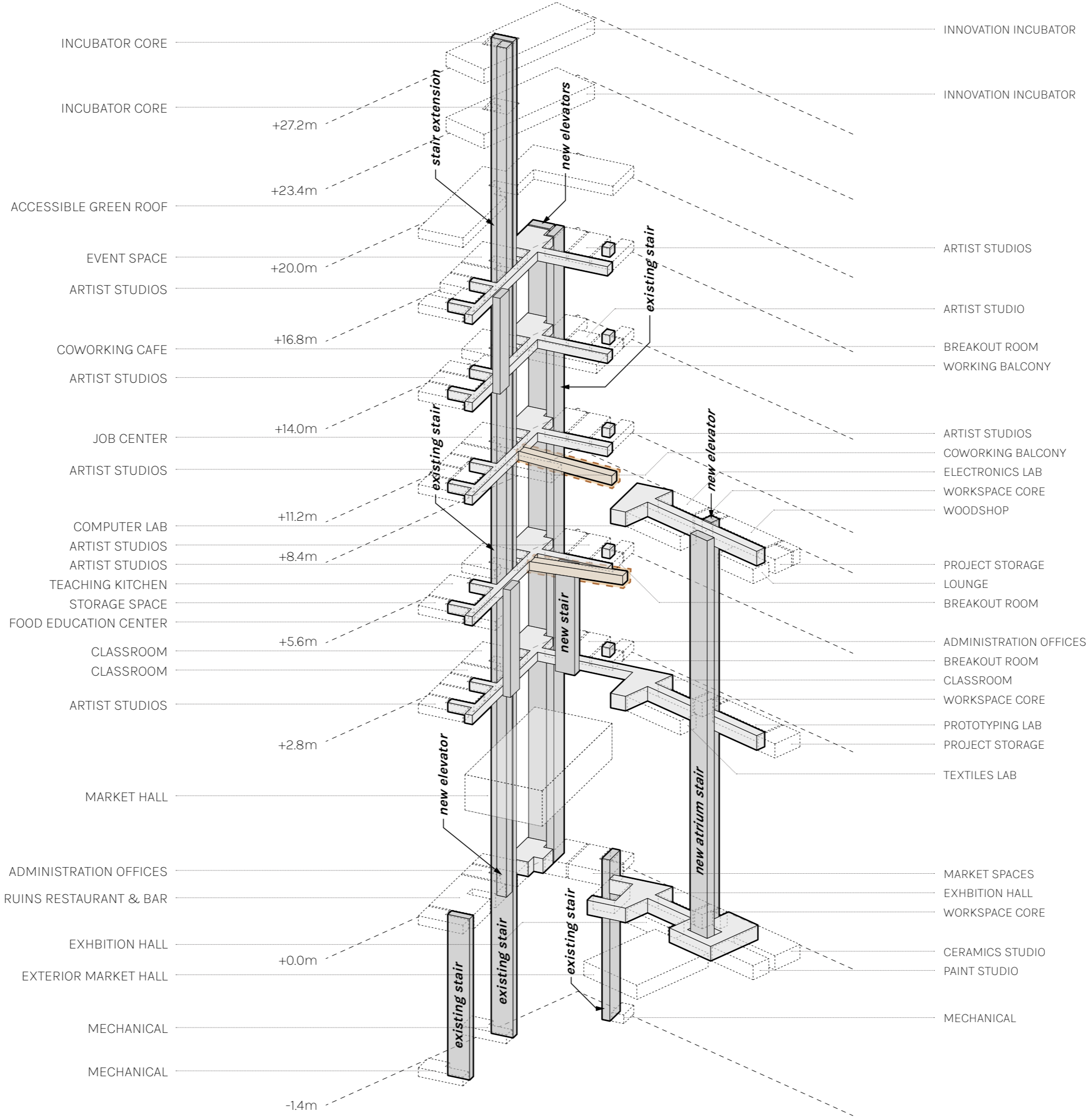


BRIDGING VOLUME
CONNECTING FUNCTIONS

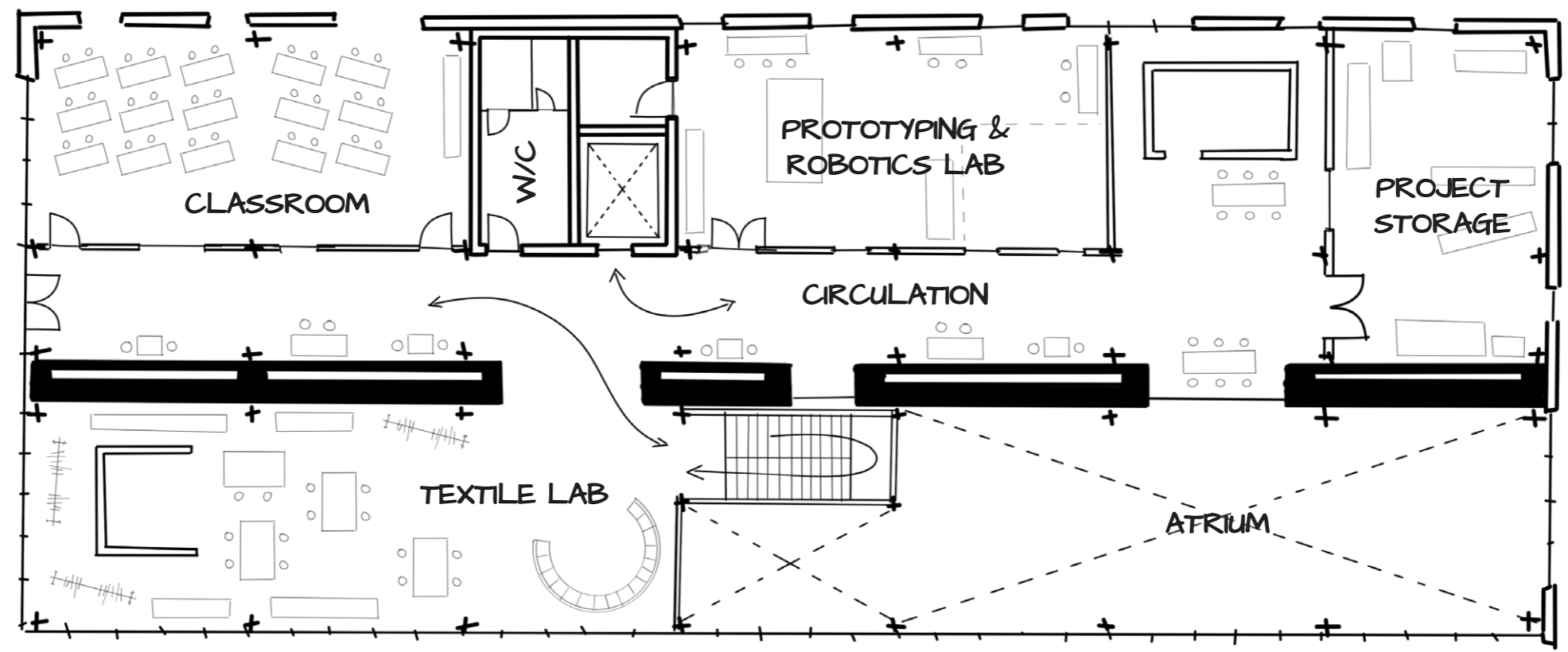
BRIDGING PORTION



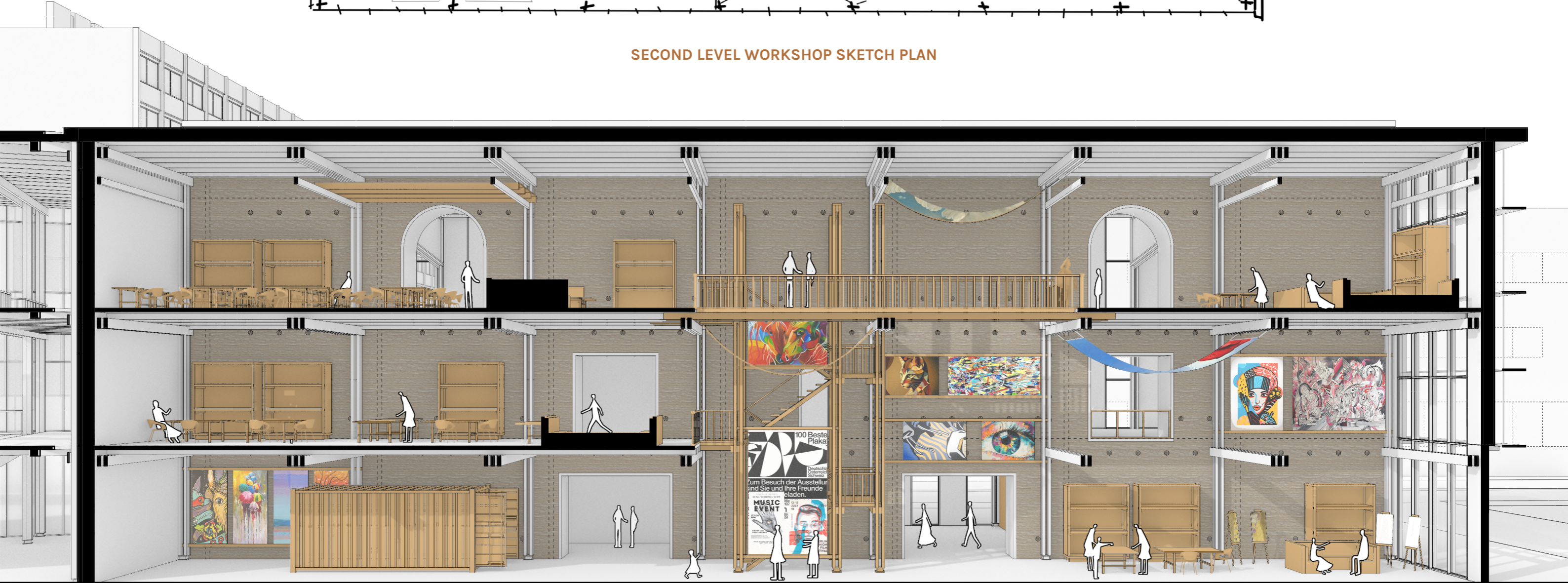
THE BRIDGE
THE COMMON CONNECTION



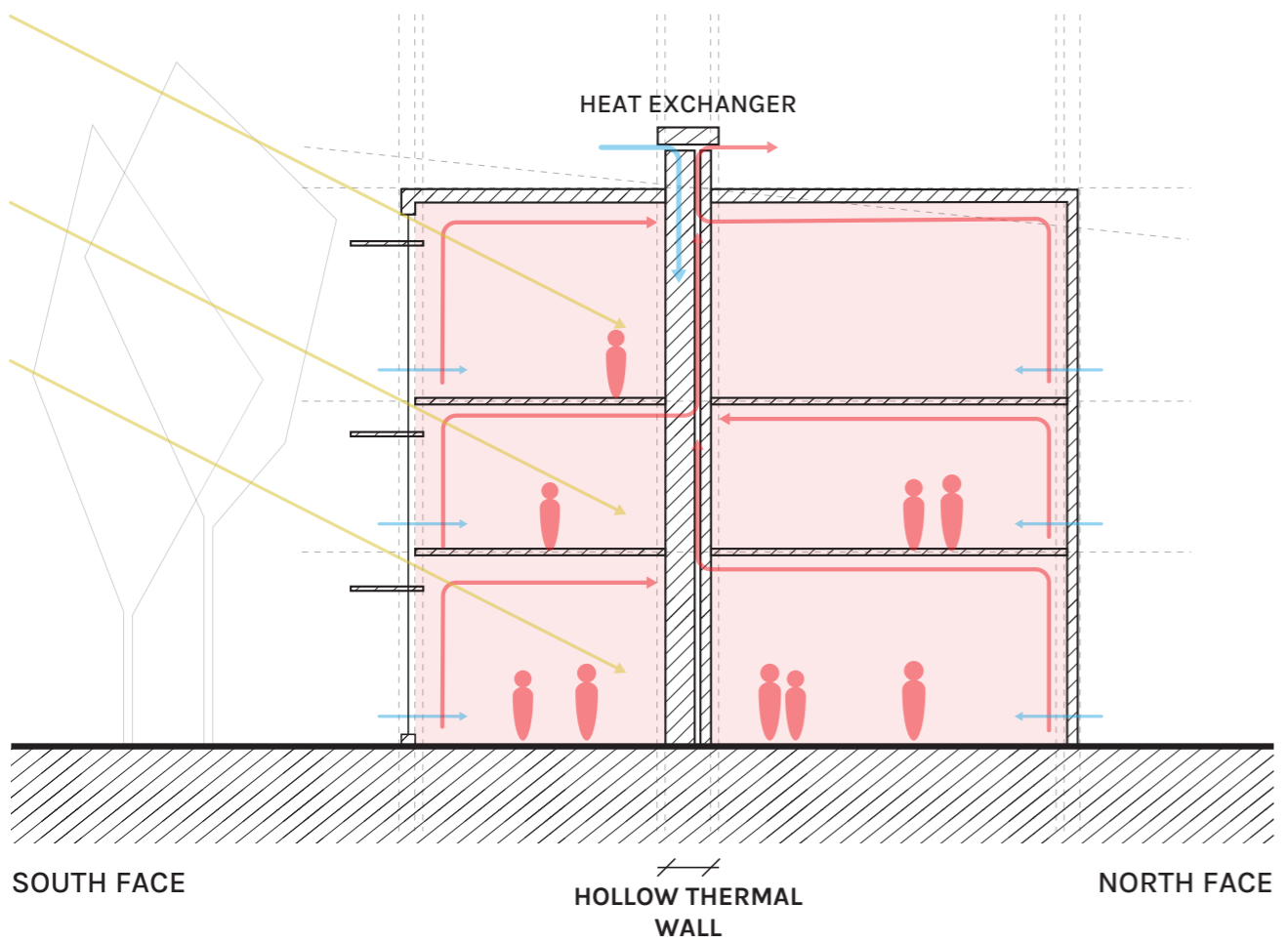
THE WORKSHOPS
FLEXIBLE COWORKING SPACES



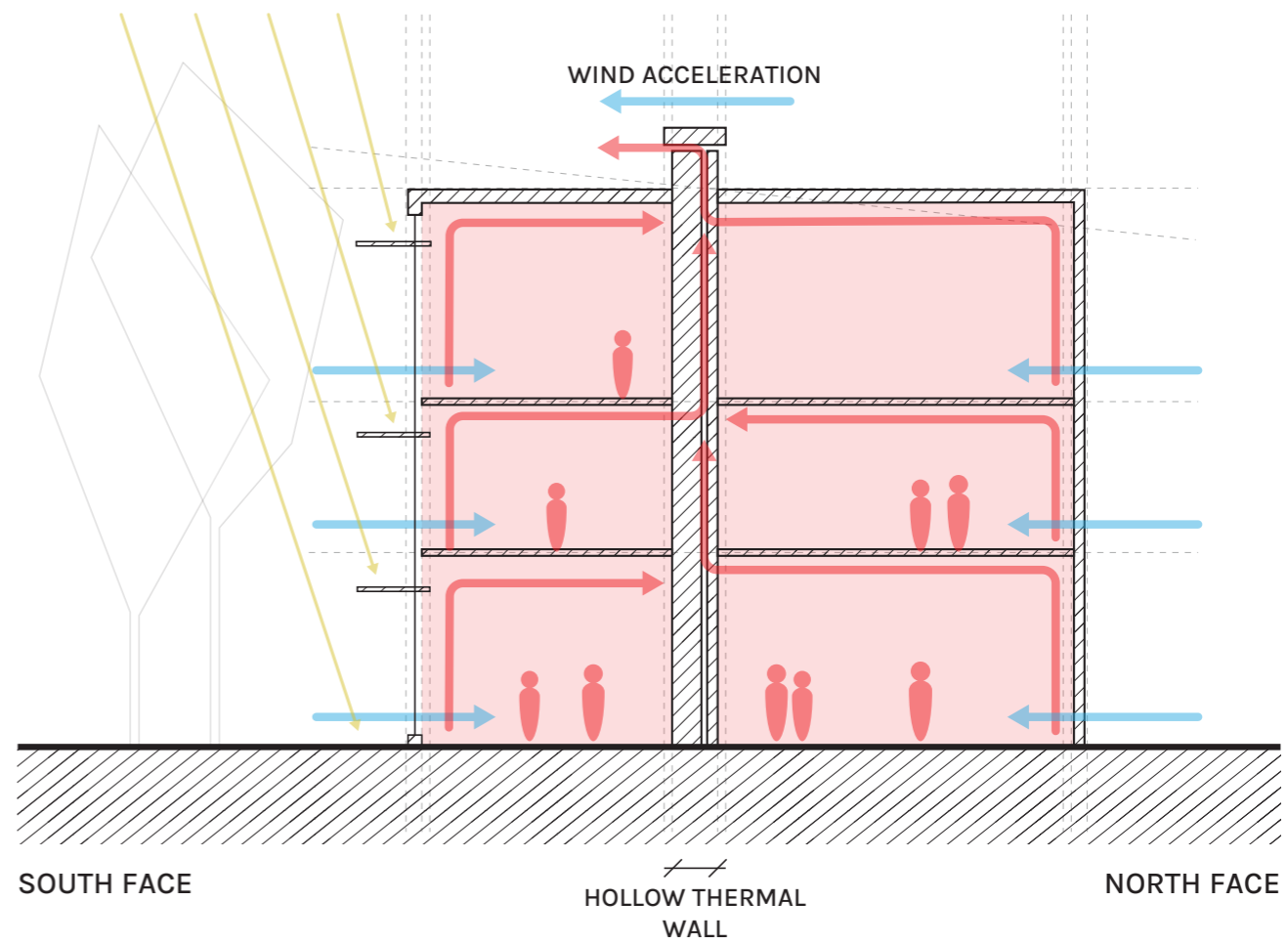
SECOND LEVEL WORKSHOP SKETCH PLAN



WORKSHOP CLIMATE SCHEME
THERMAL MASS AND NATURAL VENTILATION



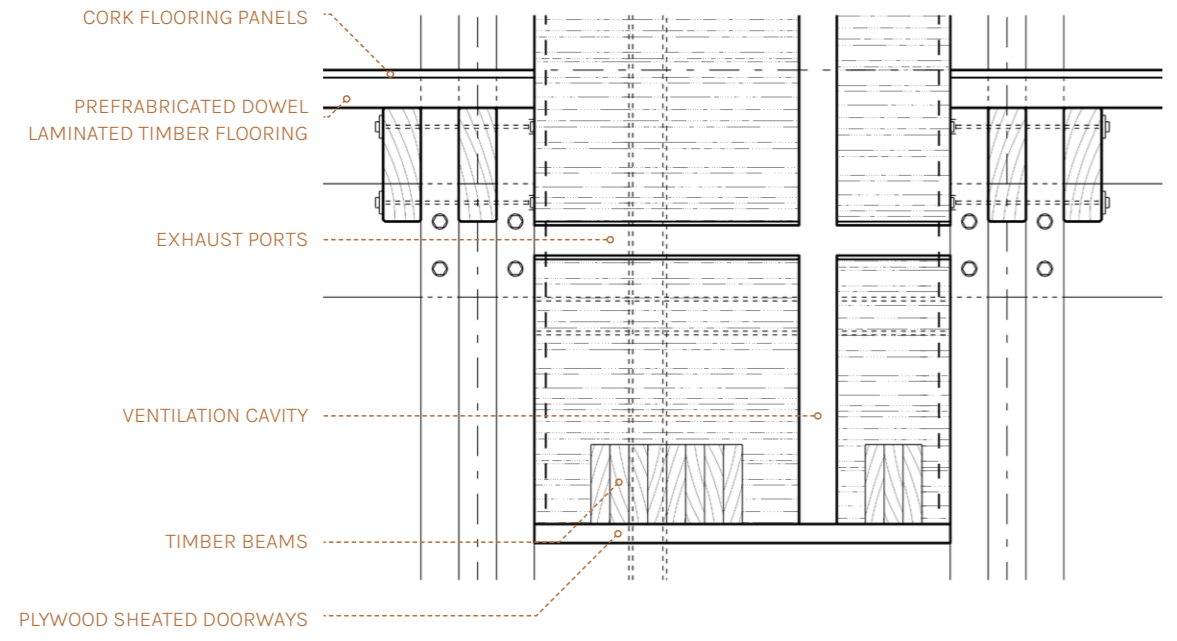
CLIMATE SCHEME - WINTER
SOLAR HEAT GAIN, RETENTION, AND HEAT RECOVERY



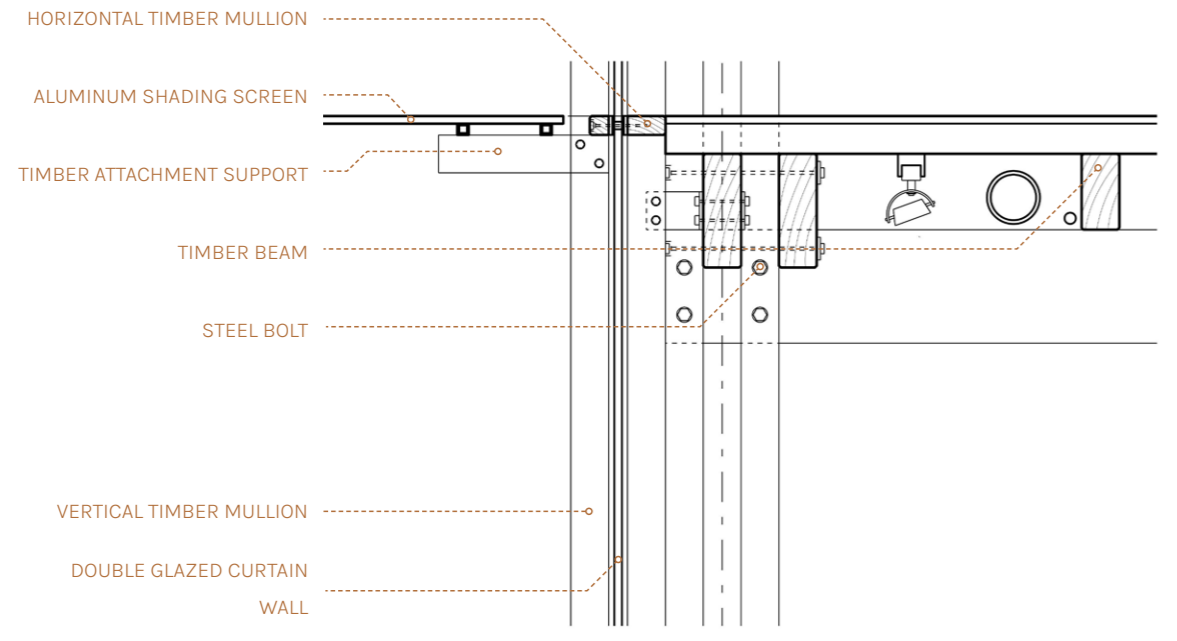
CLIMATE SCHEME - SUMMER
HEAT REJECTION, NATURAL VENTILATION, MICROCLIMATES

THERMAL WALL

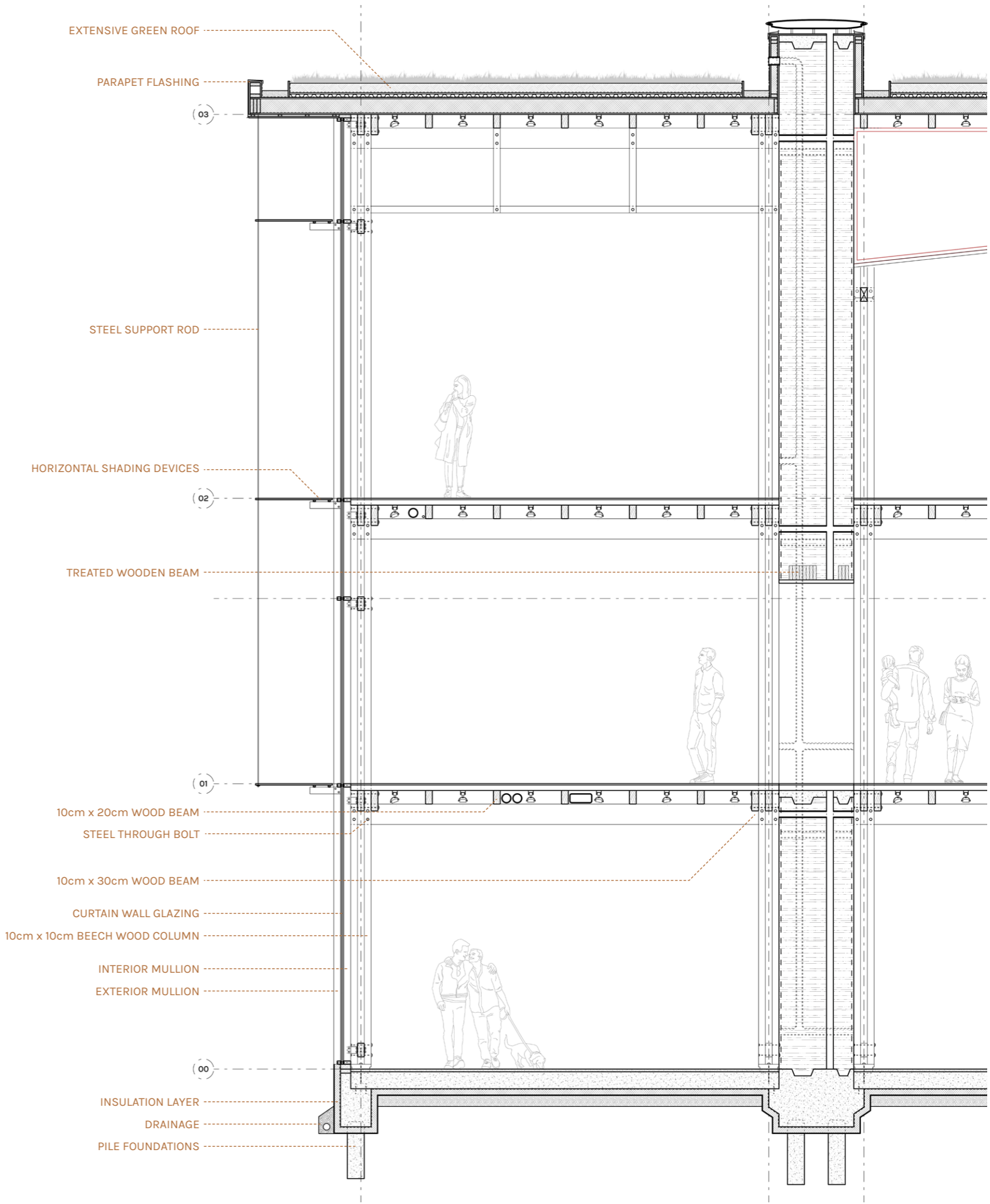
TECHNICAL SECTION



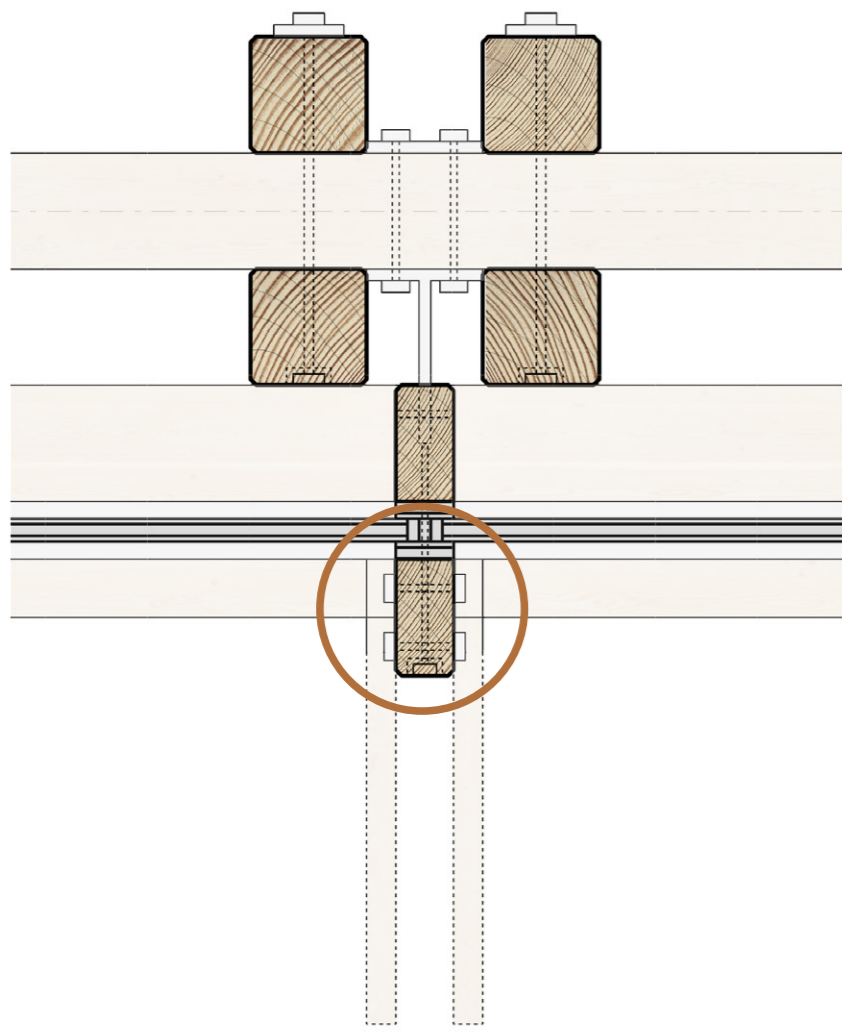
THERMAL WALL OPENING DETAIL



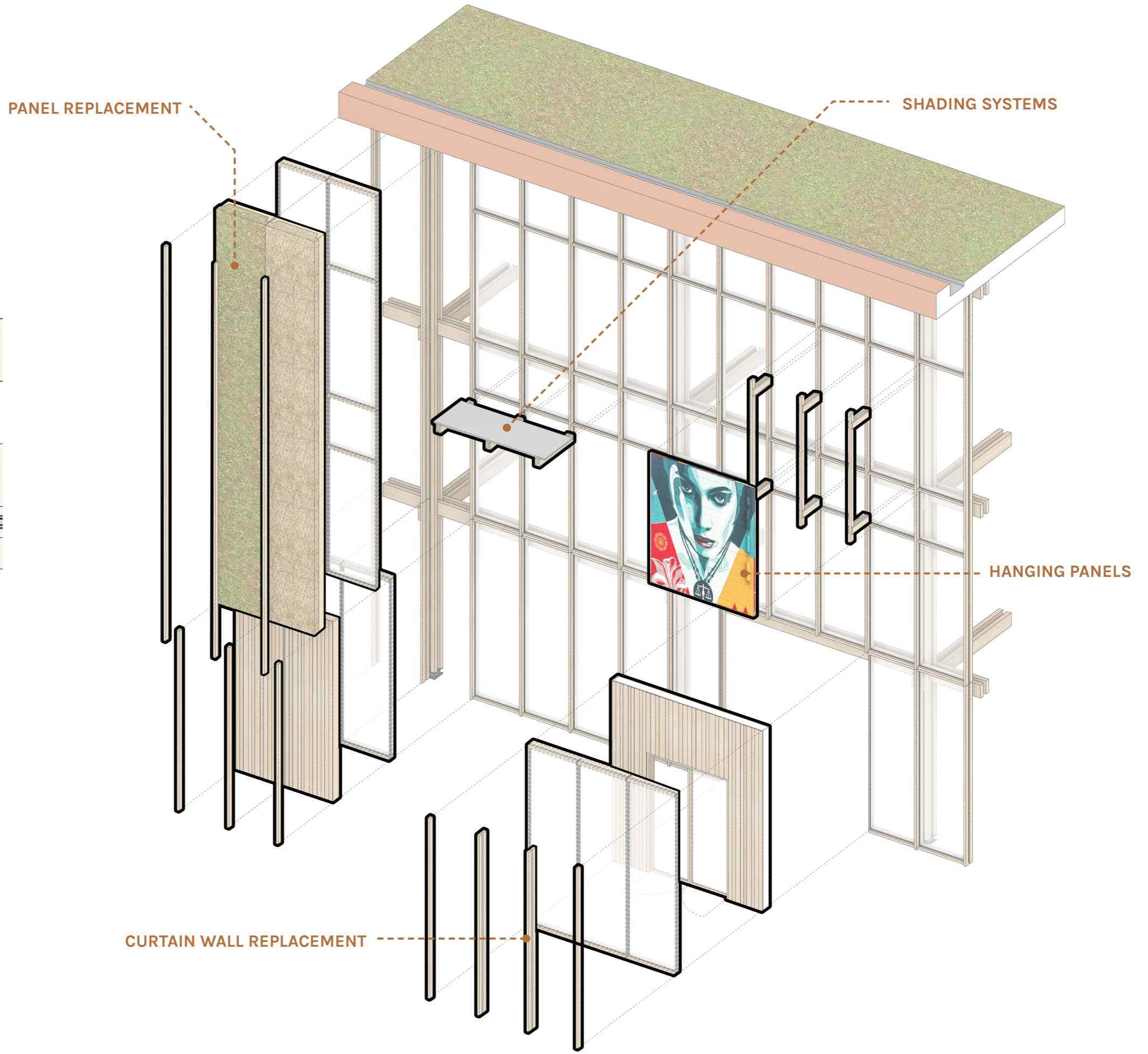
CURTAIN WALL CONNECTION DETAIL



ADAPTABLE FACADE
MODULAR CURTAIN WALL SYSTEM



DEMOUNTABLE EXTERIOR MULLIONS



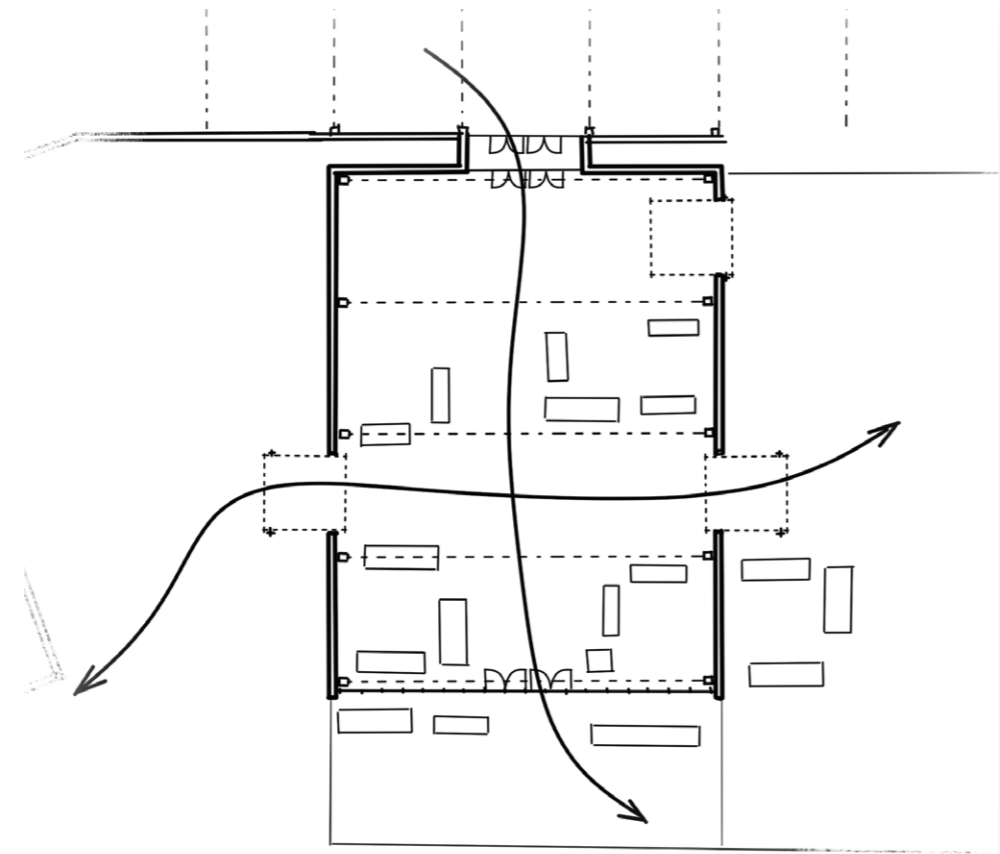
PANEL REPLACEMENT

SHADING SYSTEMS

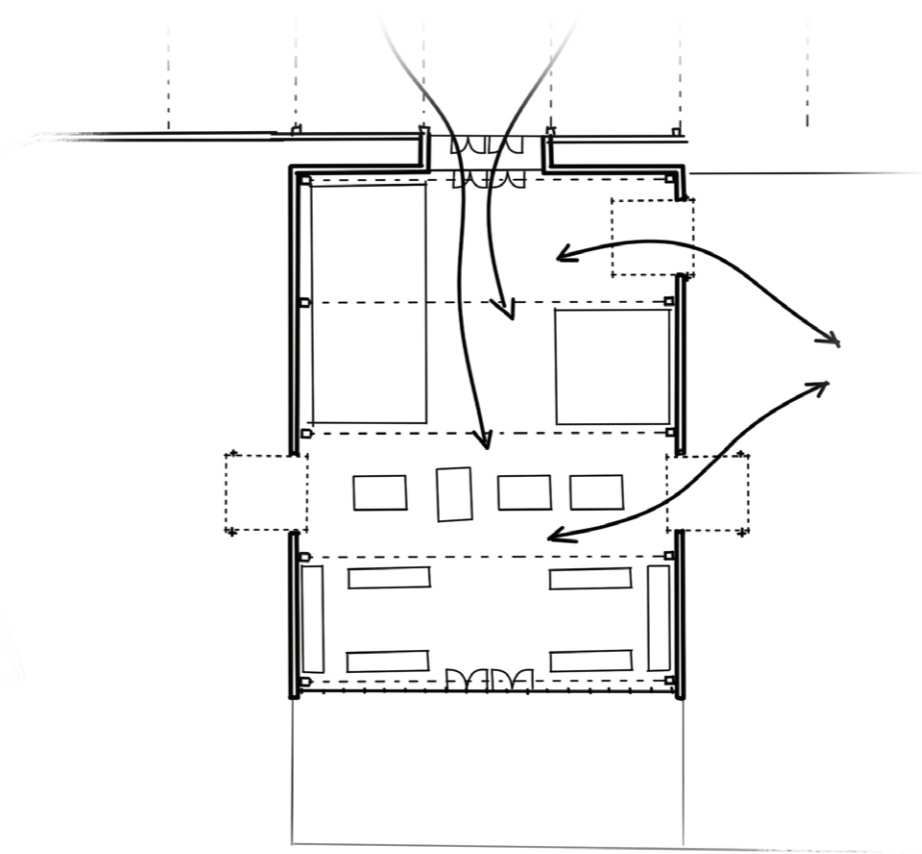
HANGING PANELS

CURTAIN WALL REPLACEMENT

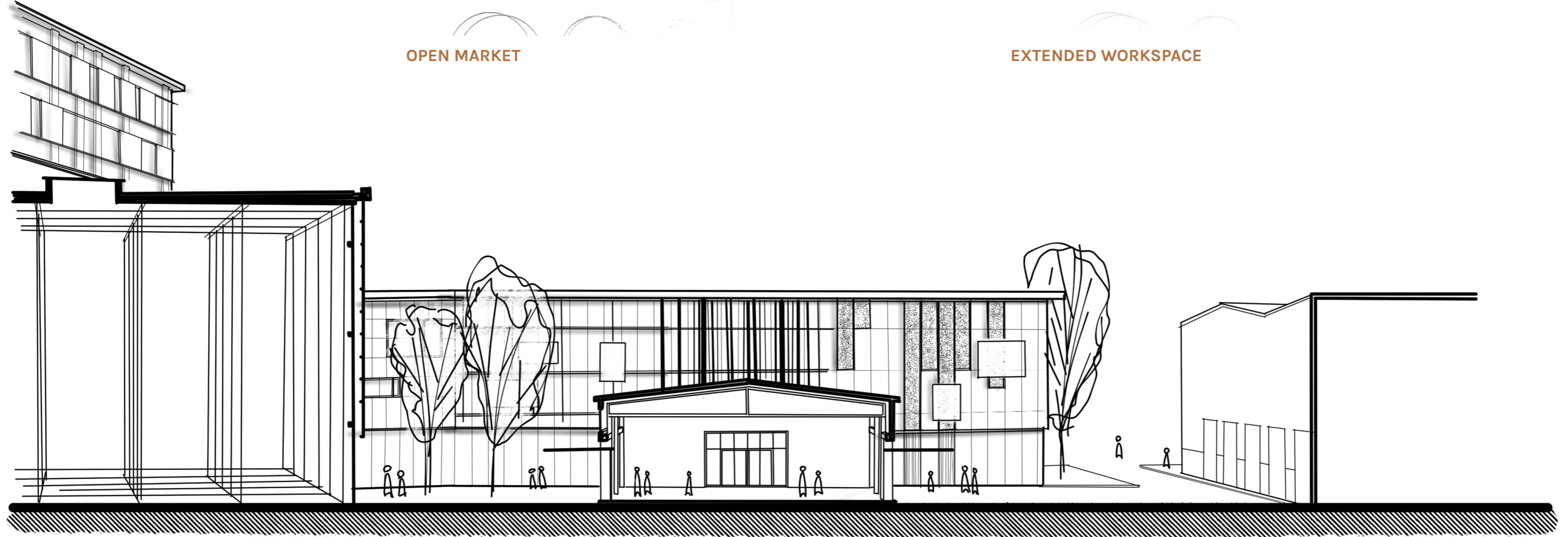
THE RECLAIMED WAREHOUSE
CIRCULAR ECONOMY STORAGE AND LOCAL ECONOMY MARKET



OPEN MARKET



EXTENDED WORKSPACE



COURTYARD RENDER

EXTERIOR SPACES

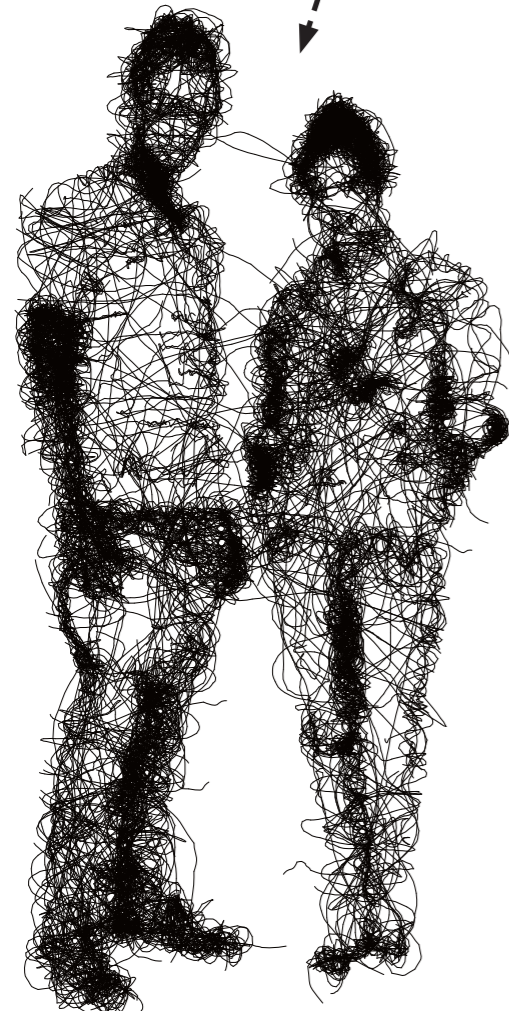


THE RETURN OF THE THE CAST: HACKERS
THE PROGRAM DRIVERS AND BUILDING USERS

ELINA & THOMAS

HIGH ENGAGEMENT

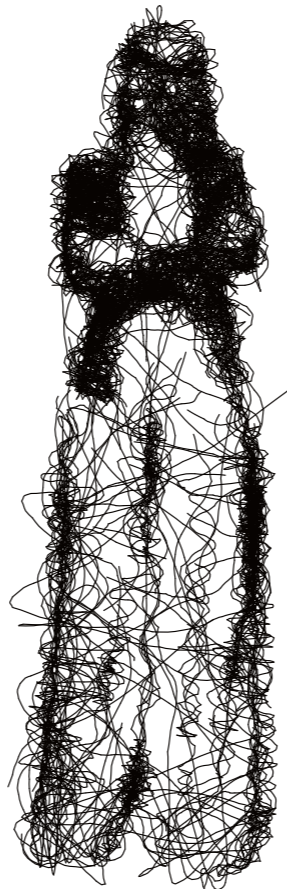
CERAMICS, MUSIC, EVENT SPACES, EXHIBITION



ELLA

HIGH ENGAGEMENT

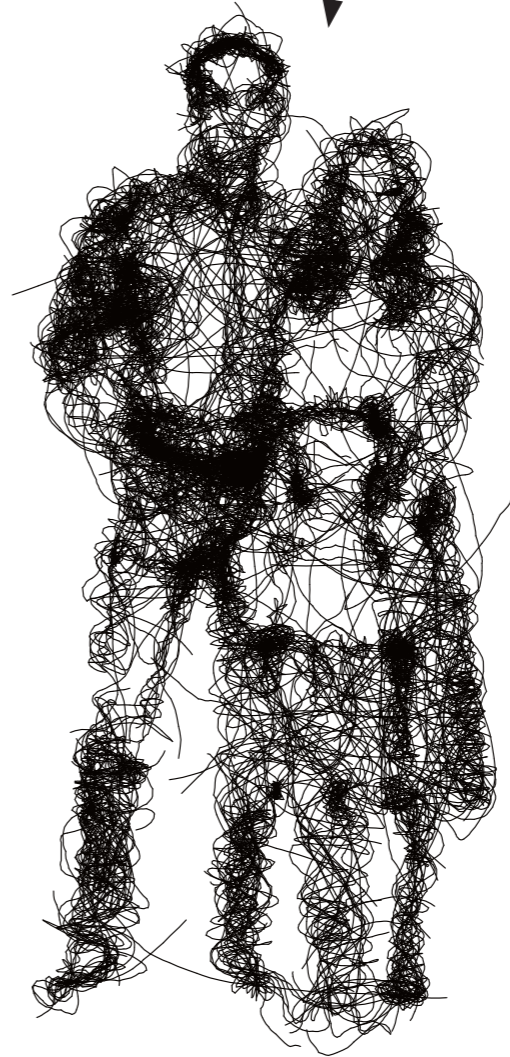
INCUBATOR, WORKSHOPS, GARDENS, FOOD HALL



THE ROMERO FAMILY

MEDIUM ENGAGEMENT

CLASSROOMS, ELECTRONICS LAB, TEXTILES LAB, INCUBATOR



ADELE

LOW ENGAGEMENT

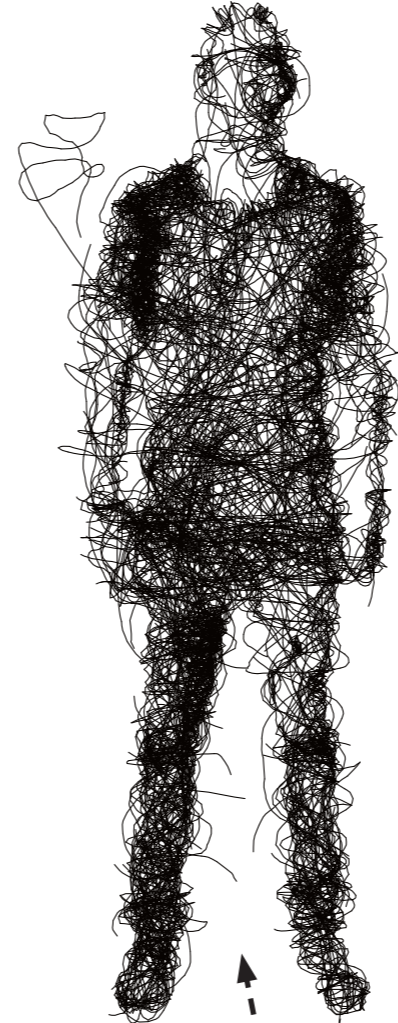
GARDENS, FOOD HALL



TIM

HIGH ENGAGEMENT

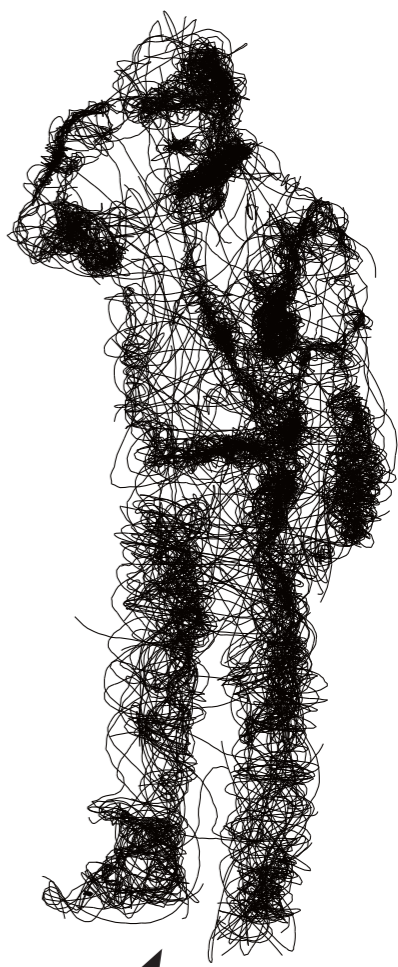
WORKSHOPS, STUDIOS, CLASSROOMS



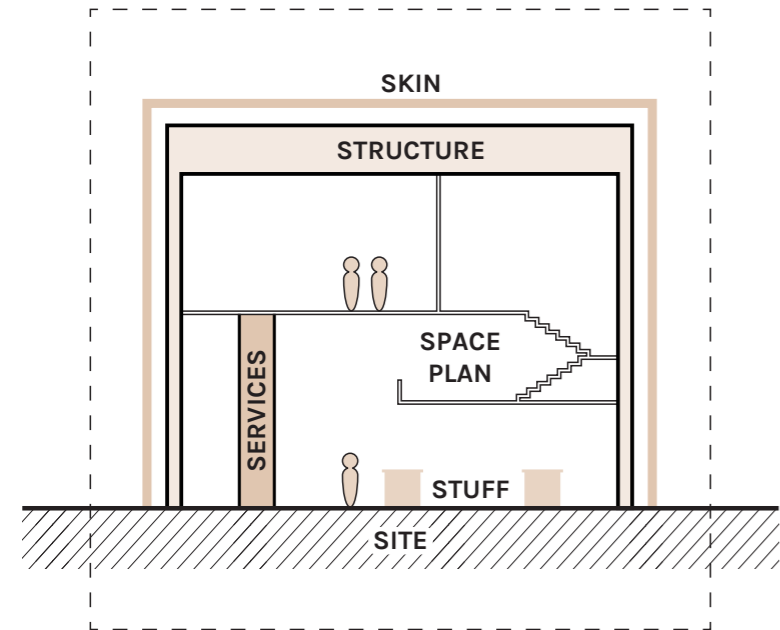
THEO

MEDIUM ENGAGEMENT

COWORKING SPACES, WORKSHOPS, COMMUNITY CENTER



HACKABLE BUILDING ELEMENT IDENTIFICATION
 BUILDING INTERACTABILITY

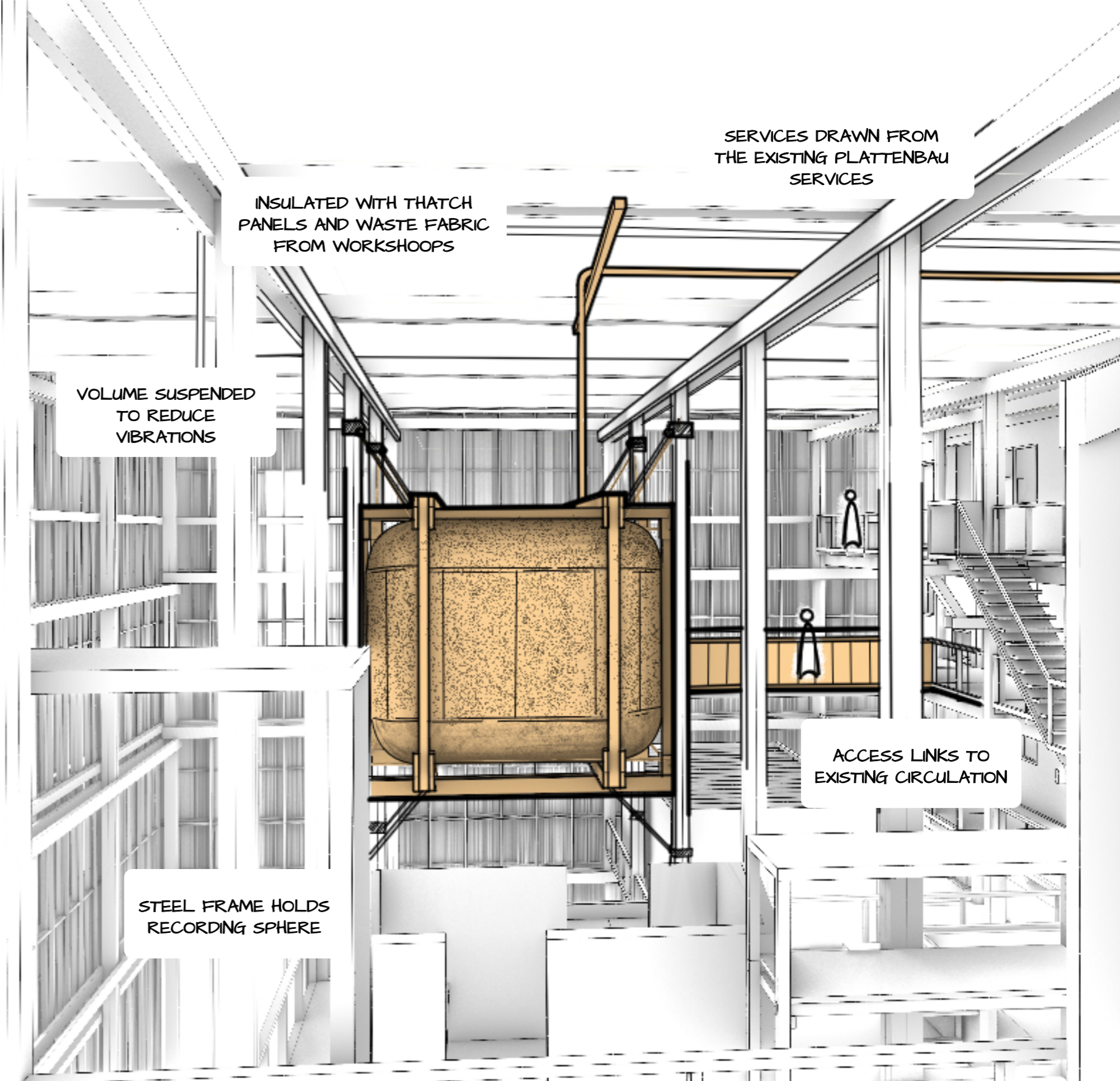
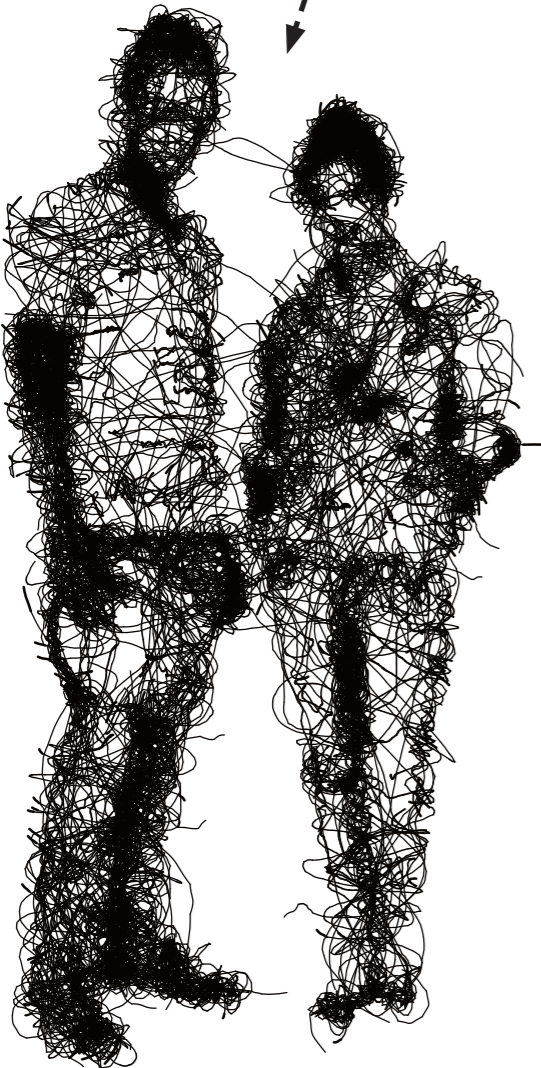


<p>LOW HACKABILITY</p>		<p>SITE</p>	<p>The user has little control over the environmental conditions, but has the opportunity to alter the exterior environment by extending the existing structure and adding freestanding elements and furniture.</p>
<p>LOW HACKABILITY</p>		<p>SERVICES</p>	<p>Services, including utility ports, circulation, and mechanical functions are not alterable by the user. The user can however add to and extend existing services.</p>
<p>SOME HACKABILITY</p>		<p>ENVELOPE</p>	<p>Users have a degree of control over the envelope. While its location is to be fixed in order to ensure the proper operation of the envelope, flexibility in cladding materials, exterior shading elements, and operable elements provide users the ability to adapt the envelope.</p>
<p>SOME HACKABILITY</p>		<p>STRUCTURE</p>	<p>The structure of the building is to remain fixed, however users have the ability to add new structure to support or extend the function of the existing structural elements in the building.</p>
<p>HIGH HACKABILITY</p>		<p>SPACE PLAN</p>	<p>Some necessary spaces required for building function should be considered off limits. However, the majority of defined spaces are expected to be repurposed as needed, and new spaces added where existing ones are unavailable or unsuitable.</p>
<p>HIGH HACKABILITY</p>		<p>STUFF</p>	<p>Furniture, decoration, workshop equipment, working surfaces, and infill elements are all expected to be moved, repurposed, and recycled as the need arises.</p>

SUSPENDED RECORDING STUDIO
RESPONSE TO POOR ACOUSTIC VALUE

ELINA & THOMAS
HIGH ENGAGEMENT

CERAMICS, MUSIC, EVENT SPACES, EXHIBITION



INSULATED WITH THATCH
PANELS AND WASTE FABRIC
FROM WORKSHOPS

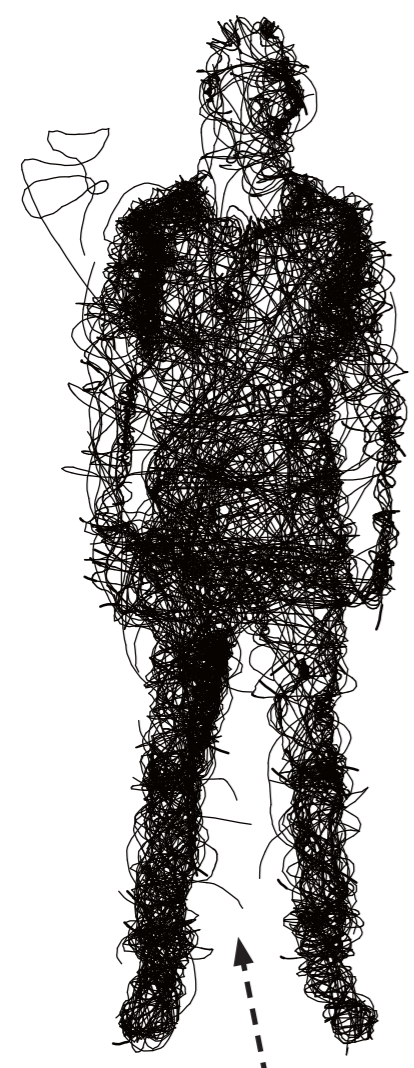
VOLUME SUSPENDED
TO REDUCE
VIBRATIONS

SERVICES DRAWN FROM
THE EXISTING PLATTENBAU
SERVICES

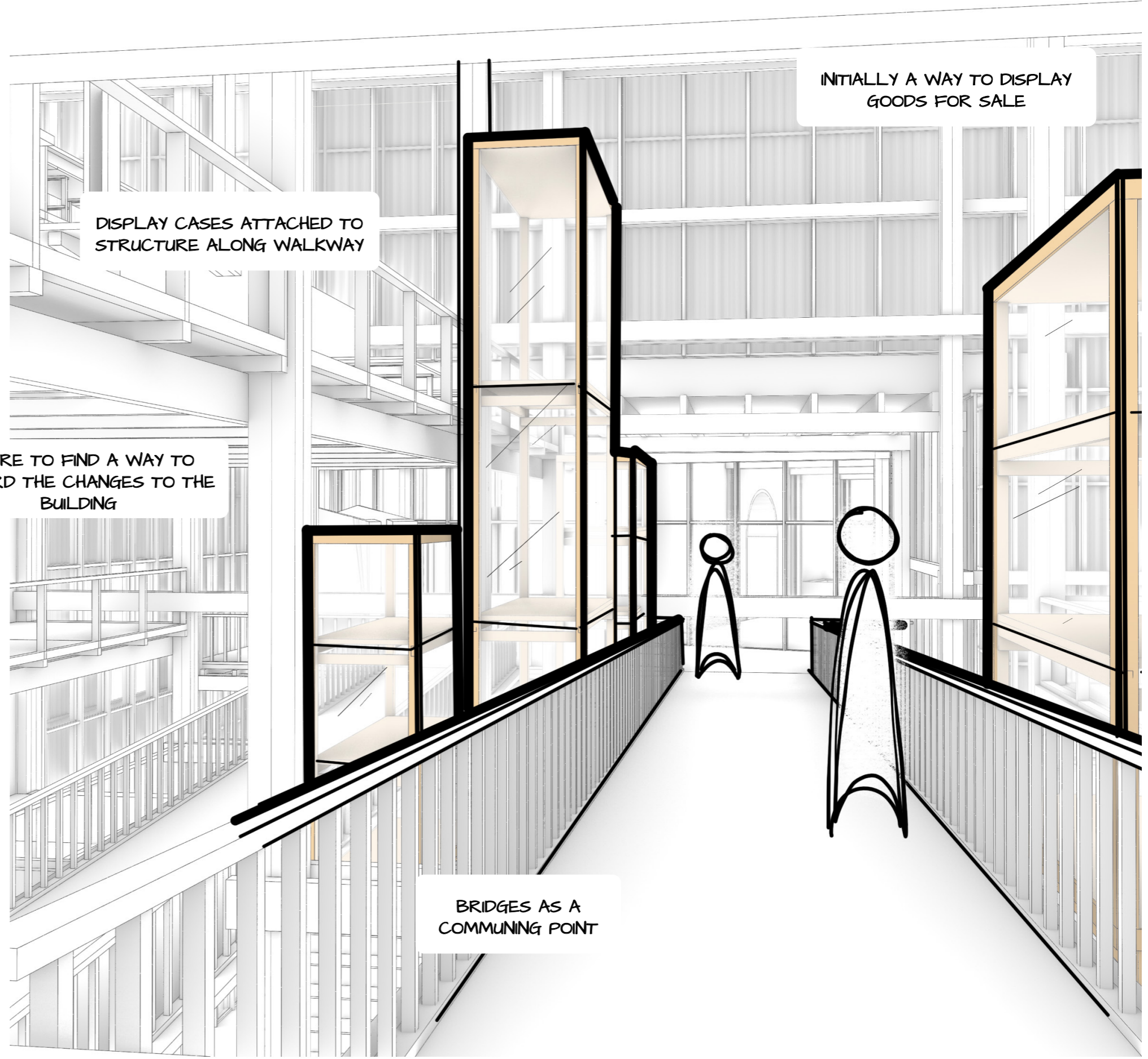
ACCESS LINKS TO
EXISTING CIRCULATION

STEEL FRAME HOLDS
RECORDING SPHERE

DEPOT LITE: ROTATING EXHIBITION DISPLAYS
OPPORTUNISTIC REPLICATION, RECORDING CHANGE



TIM
HIGH ENGAGEMENT
WORKSHOPS, STUDIOS, CLASSROOMS



DISPLAY CASES ATTACHED TO
STRUCTURE ALONG WALKWAY

INITIALLY A WAY TO DISPLAY
GOODS FOR SALE

DESIRE TO FIND A WAY TO
RECORD THE CHANGES TO THE
BUILDING

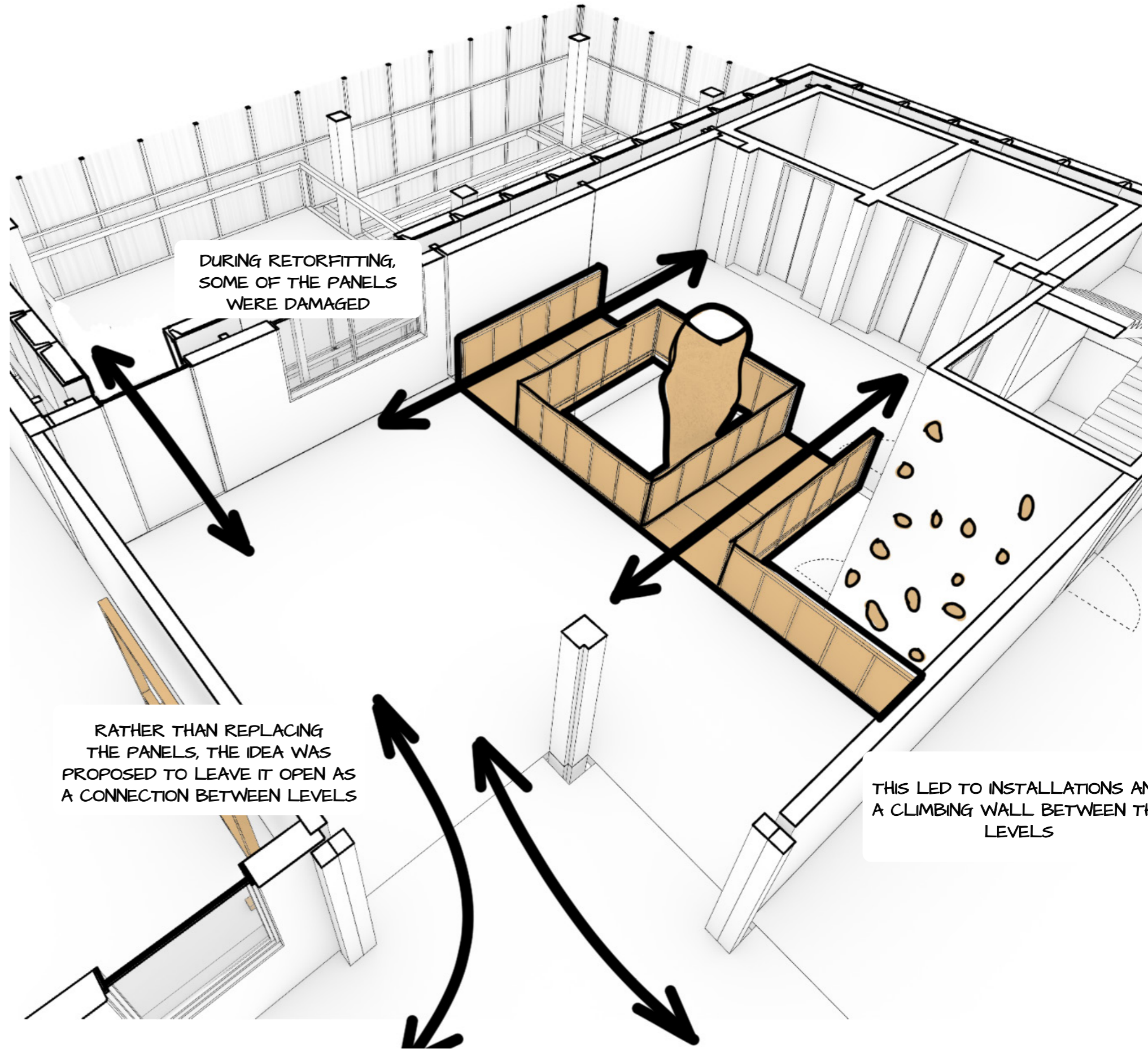
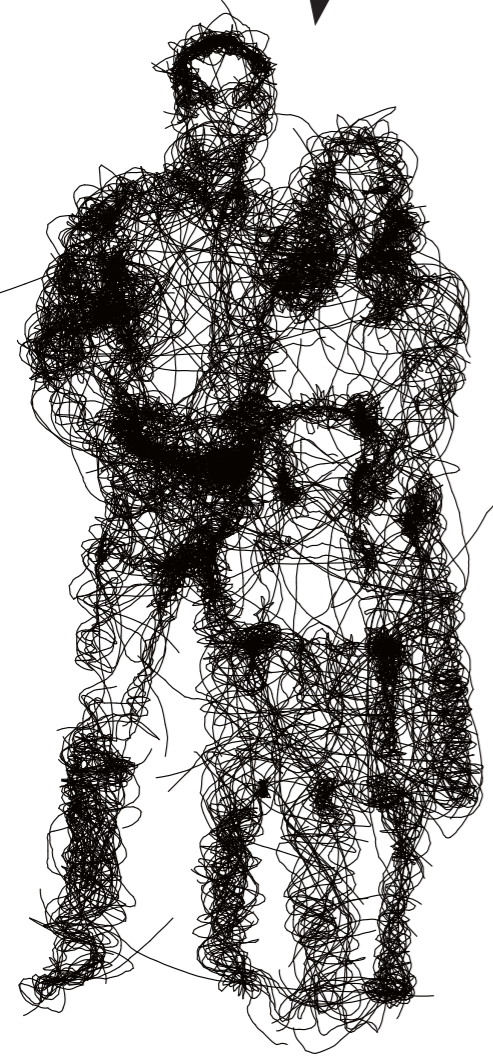
BRIDGES AS A
COMMUNING POINT

TRANSPARENT PATCH
DAMAGE AS OPPORTUNITY

THE ROMERO FAMILY

MEDIUM ENGAGEMENT

CLASSROOMS, ELECTRONICS LAB, TEXTILES LAB, INCUBATOR

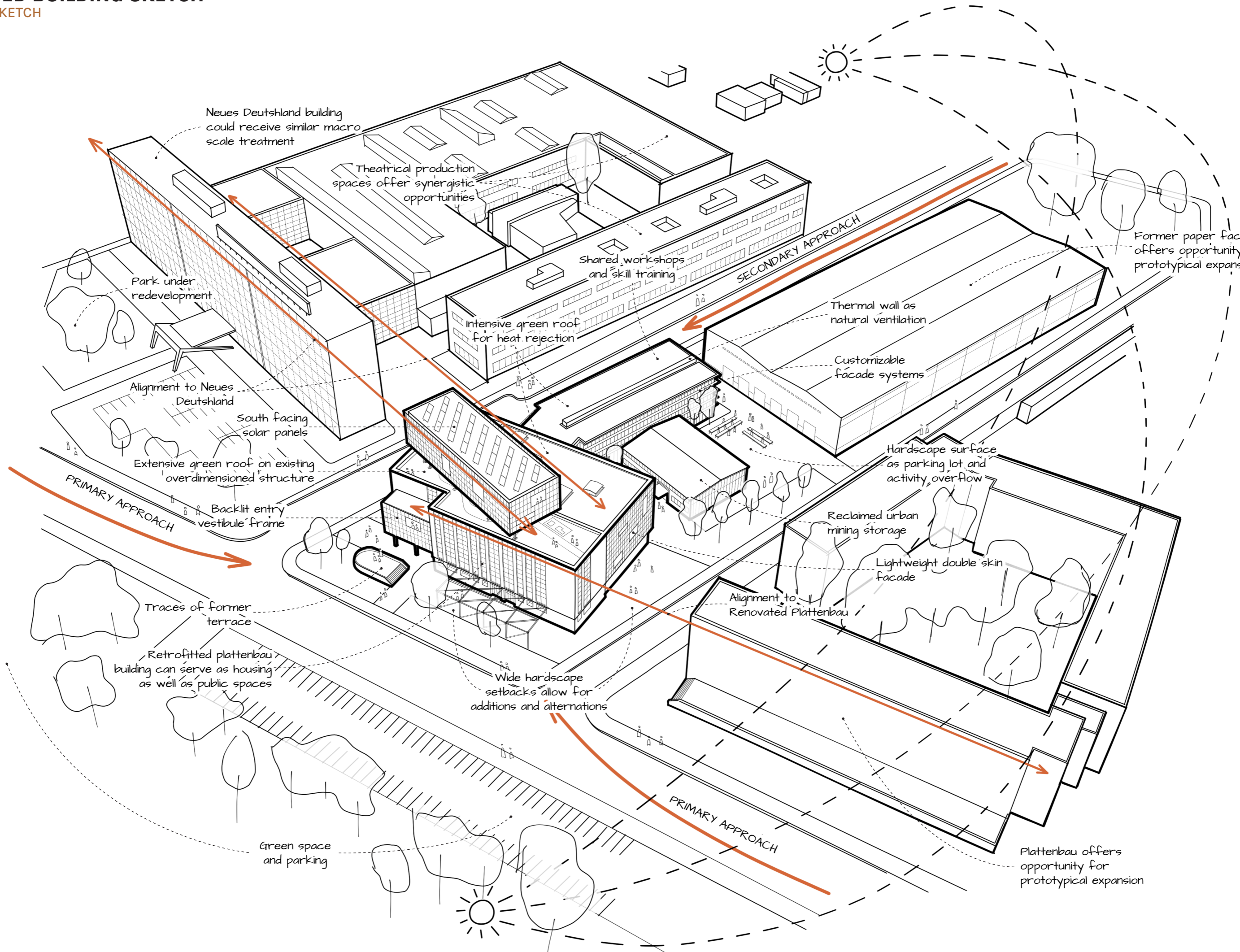


DURING RETORFITTING,
SOME OF THE PANELS
WERE DAMAGED

RATHER THAN REPLACING
THE PANELS, THE IDEA WAS
PROPOSED TO LEAVE IT OPEN AS
A CONNECTION BETWEEN LEVELS

THIS LED TO INSTALLATIONS AND
A CLIMBING WALL BETWEEN THE
LEVELS

PROPOSED BUILDING SKETCH
CONCEPT SKETCH



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Traces of former terrace

Retrofitted plattenbau building can serve as housing as well as public spaces

Wide hardscape setbacks allow for additions and alternations

PRIMARY APPROACH

Green space and parking

Plattenbau offers opportunity for prototypical expansion