

# FROM VACANT BUILDING 028

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ARCHITECTURAL ENGINEERING

1 / 88

# TOWARDS A FUTURE PROOF BUILDING



# TABLE OF CONTENT

MOTIVATION

OBJECTIVE

RESEARCH & ANALYSIS

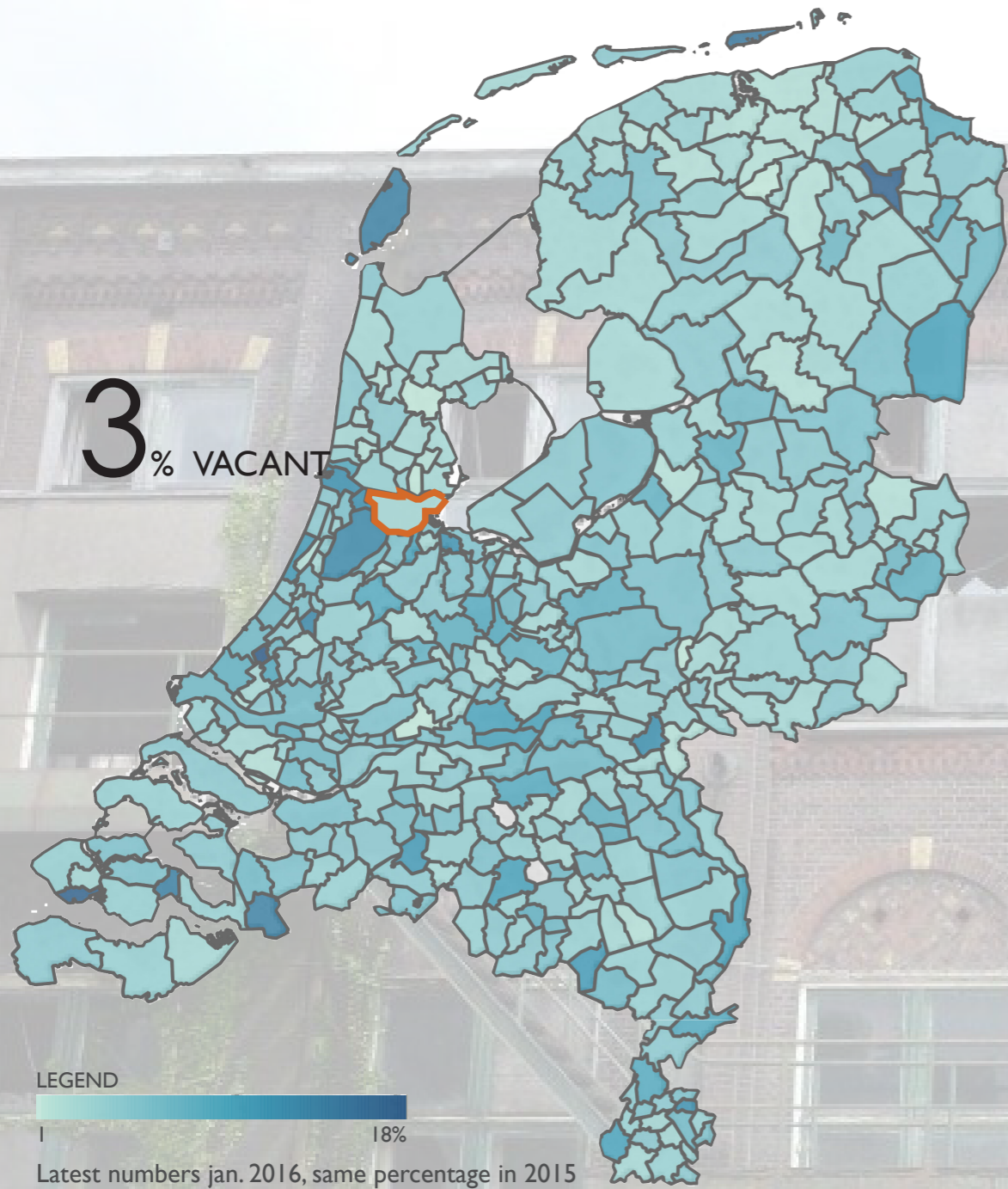
DESIGN

# MOTIVATION



VACANCY

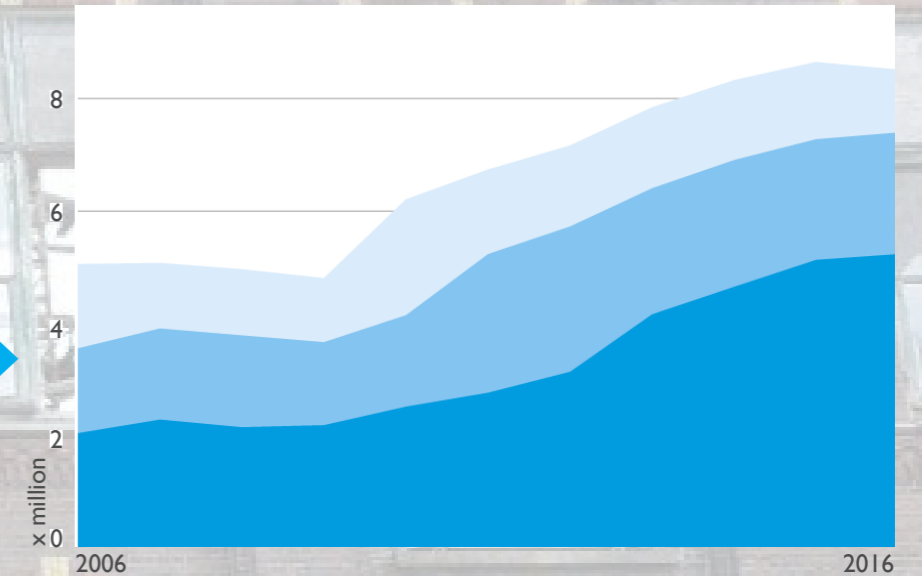
MOTIVATION



TOTAL BUILDING STOCK  
1.293.252.680 M2

6% VACANT  
72.191.300 M2


- DWELLINGS
- OFFICES**
- RETAIL
- EDUCATION
- SPORTS
- LOGIES



VACANCYTYPE

- Initial vacancy (<1 year)
- Long-term vacancy (1-3 years)
- Structural vacancy (>3 years)

NUMBERS

- 
- NO MAINTENANCE
  - PHYSICAL AND ESTHETICAL QUALITIES DECLINE
  - IRREPARABLE DAMAGE TO CONSTRUCTION
  - NEGATIVE INFLUENCE ON (SOCIAL) ENVIRONMENT

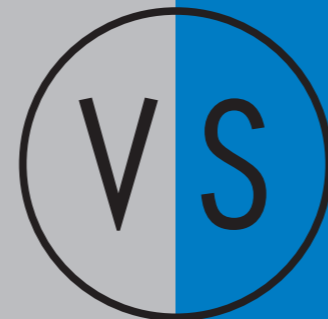
DECAY

“OUR CITIES ARE **STATIC**,  
OUR BUILDINGS ARE **STATIC**,

**BUT WE AS USER ARE DYNAMIC”**

SOCIAL CHANGE  
TECHNOLOGICAL CHANGE  
CONTEXTUAL CHANGE  
CLIMATOLOGICAL CHANGE  
CHANGE IN POLICIES AND REGULATIONS

STATIC



DYNAMIC



FUNCTIONAL DURABILITY

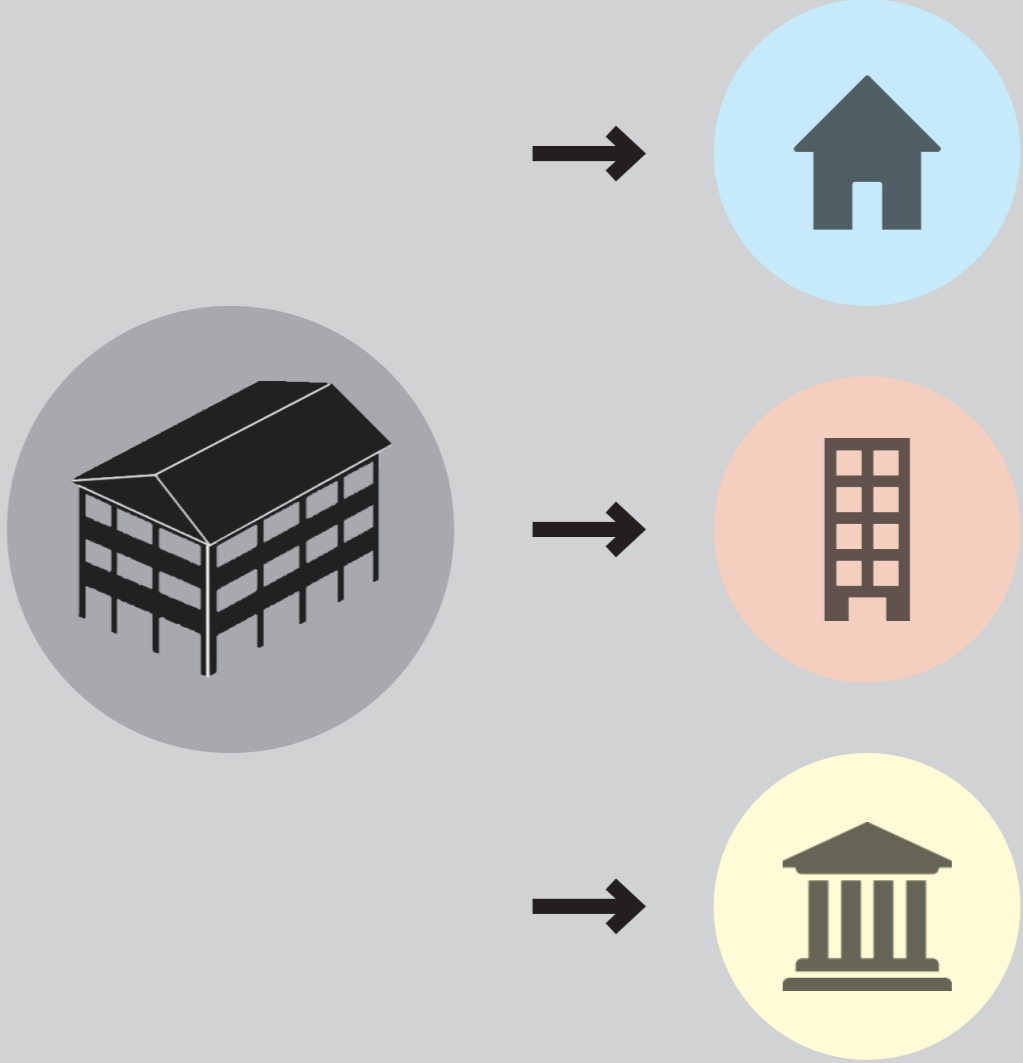
ECONOMIC DURABILITY

AESTHETIC DURABILITY

TECHNICAL DURABILITY

# DURABILITIES

*“TRANSFORMING THE BUILDING  
COMPLETELY TO THE REQUIREMENTS  
AND PREFERENCES OF ONE PARTICULAR  
FUNCTION”*



COMMON APPROACH

OBJECTIVE



REUSE

VS



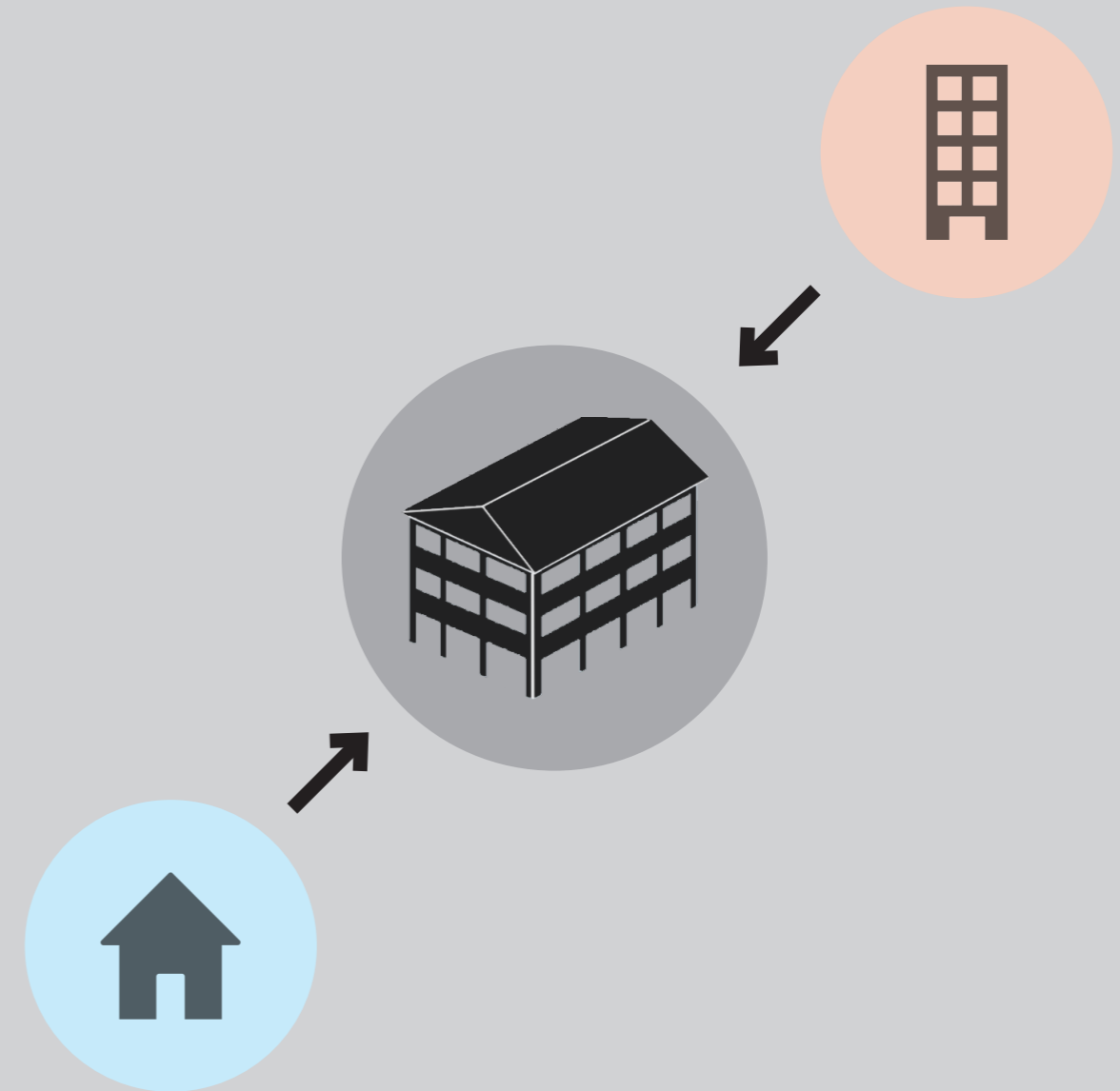
DEMOLITION

*DETERMINING FACTORS*

- OVER DIMENSION
- INDEPENDENT LOAD BEARING STRUCTURE
- LOCATION

- MATERIAL WASTE
- EMBODIED ENERGY EXISTING  
60-70% IN LOAD BEARING STRUCTURE
- COSTS DEMOLITION
- EMBODIED ENERGY REBUILD

*“DEVELOP A STRATEGY WHEREBY FUNCTION CHANGE CAN BE ACCOMPLISHED WITH MINIMAL TECHNICAL INTERVENTIONS AND MODIFICATIONS”*



FUTURE PROOF APPROACH

FUNCTIONAL DURABILITY

ECONOMIC DURABILITY

AESTHETIC DURABILITY

TECHNICAL DURABILITY

DURABILITIES

# RESEARCH & ANALYSIS

**DECOMPOSE  
BUILDING**

*BUILDING LAYERS &  
ELEMENTS*



**POSSIBLE  
FUNCTIONS**

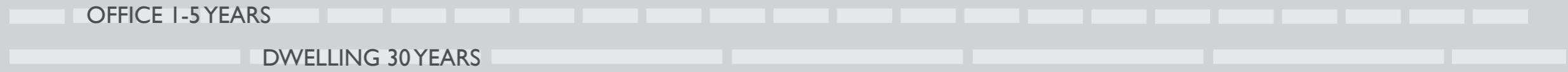
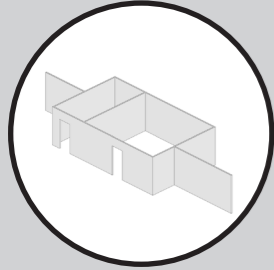
*CONTEXT DEPENDENT*

*COMPATABILITY SCHEME  
BETWEEN FUNCTIONS*

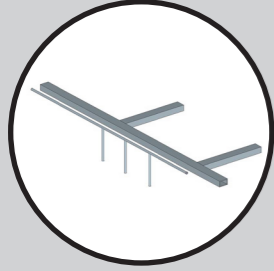
*FOCUSED ON EVERY  
LAYER OF A BUILDING*



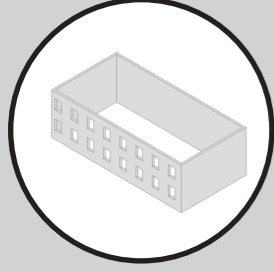
**SPACE PLAN**



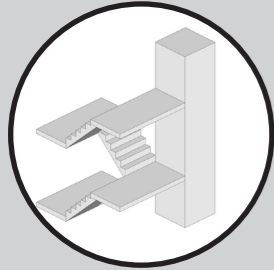
**SERVICES**



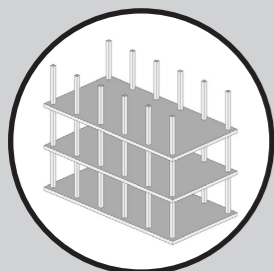
**SKIN**



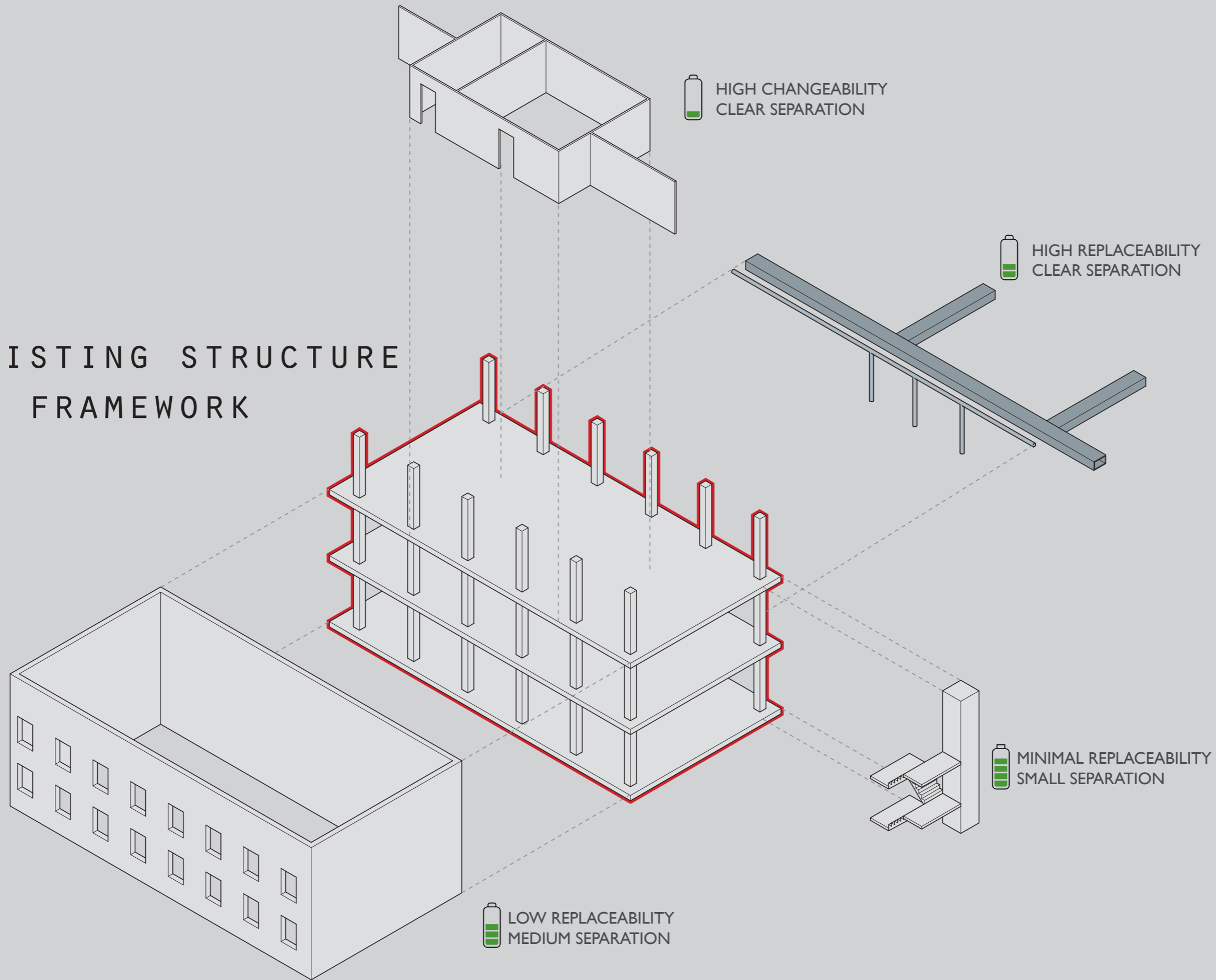
**ACCES**



**STRUCTURE**



EXISTING STRUCTURE  
AS FRAMEWORK





# CONTEXT



# MARINE ESTABLISHMENT AMSTERDAM





Muziekgebouw aan 't IJ



PIET HEINKADE

48 BORNEO EILAND  
759 IJBURG

26  
KATTENBURGERSTRAAT

IJBURG

DIJKSGRACHT



Nemo

OOSTERDOK



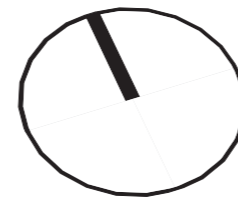
Scheepvaartmuseum



KATTENBURG



WITTENBURG



22  
KATTENBURGERPLEIN

22

INDISCHE BUURT



48 SCHIPHOL  
246 HOUTHAVENS



759 CS SLOTERDIJK

CONNECTION WITH  
OOSTERDOK



**INTERNATIONAL  
INNOVATION ENVIRONMENT**

CONNECTION WITH  
KATTENBURG /  
WITTENBURG



*“CONTRIBUTE TO NAUTICAL CHARACTER”*



*“FOCUS ON FUTURE PROOF BUILDINGS”*

*“CHANGE IS THE NEW CONSTANT”*

**BUILDING ON CROSSING POINT OF WORK AND  
LIVE ENVIRONMENT**

(EXPAT)  
HOUSING



(FLEX)  
OFFICE



RESIDENTIAL SUPPORTIVE TO AREA  
CONCEPT

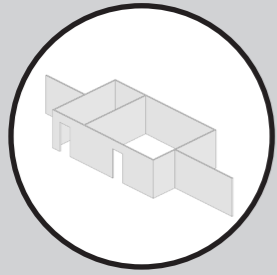
FLEXIBLE HOUSING  
SINGLE/COUPLE HOUSING <50M<sup>2</sup>  
FAMILY HOUSING  
SHARED FUNCTIONS  
LAUNDRY, CLEANING  
OUTDOOR SPACE

ENTREPRENEURIAL  
DYNAMISM

INNOVATIVE START-UPS  
RAPIDLY GROWING START-UPS  
FLEX/ENCLOSED WORKSPACE

# COMPATIBILITY SCHEME

	SPACE PLAN	SERVICES	SKIN	ACCESSIBILITY
OFFICE	<p><b>Building size</b></p> <p>Interior lay out</p> <p>Required space based on m<sup>2</sup> per person. Presence of certain rooms not required.</p> <p>min. 12,6m</p> <p>20m</p> <p>min. 12m</p> <p>12m</p> <p>12m</p> <p>cells office</p> <p>cocoon office</p> <p>open plan office</p> <p>Lifespan</p> <p>1-5 years for interior walls</p> <p>SHORT LIFESPAN</p> <p>FLEXIBLE POSITION</p> <p>window to window 20m</p> <p>window to atrium 12m total 24-30m</p> <p>window to core 10m total 20-30m</p>	<p><b>HVAC</b></p> <ul style="list-style-type: none"> <li>- collective or centralized system</li> <li>- mechanical ventilation system</li> <li>- temperature control by convection</li> <li>- space dependent extraction</li> </ul> <p><b>Water management</b></p> <ul style="list-style-type: none"> <li>- low sanitary density, clustered</li> <li>- minimal shower facilities</li> <li>- low capacity indoor sewerage</li> <li>- high capacity indoor sewerage</li> </ul> <p><b>Energy</b></p> <p>regularly distributed lighting plan outlets based on workspaces</p> <p><b>Lifespan</b></p> <p>15-20 years</p> <p><b>COLLECTIVE / CENTRALIZED</b></p> <p><b>CLUSTERED</b></p> <p><b>LOW CAPACITY</b></p>	<p><b>Transparent part</b></p> <p>2,5% of occupied area transparent in facade</p> <p><b>Sun shading</b></p> <p>To avoid direct sunlight in the building, a sort a sun-shading system is preferable</p> <p><b>REPRESENTATIVE</b></p> <p><b>NO DIRECT SUNLIGHT</b></p> <p>Lifespan</p> <p>30 years. Keeping up with contemporary trends. Facade needs to be representable for a variety of companies.</p>	<p>gallery</p> <p>corridor</p> <p>central</p> <p>porch</p>
	VS	VS	VS	
RESIDENTIAL	<p><b>Building size</b></p> <p>Interior lay out</p> <p>List of required spaces: toilet, bathroom, bedroom, kitchen, external storage and outdoor space.</p> <p>max. 8m</p> <p>min. 9m</p> <p>one side oriented</p> <p>LONG LIFESPAN</p> <p>FIXED POSITION</p> <p>OUTDOOR SPACE</p> <p>max. 1,6m</p> <p>6,6m</p> <p>two side oriented</p> <p>Lifespan</p> <p>20-35 years for interior walls</p>	<p><b>HVAC</b></p> <ul style="list-style-type: none"> <li>- individual or decentralized system</li> <li>- natural ventilation system</li> <li>- temperature control by radiation</li> </ul> <p><b>Water management</b></p> <ul style="list-style-type: none"> <li>- high sanitary density, clustered</li> <li>- shower and bath facilities</li> <li>- high capacity indoor sewerage and hot water supply</li> </ul> <p><b>Energy</b></p> <p>specific distributed lighting plan outlets needed in every room</p> <p><b>Lifespan</b></p> <p>20-30 years</p> <p><b>INDIVIDUAL / DECENTRALIZED</b></p> <p><b>DIVIDED</b></p> <p><b>HIGH CAPACITY</b></p>	<p><b>Transparent part</b></p> <p>10% of occupied area transparent in facade</p> <p><b>DIRECT SUNLIGHT</b></p> <p><b>Open-able parts</b></p> <p>Open-able parts are required to enable spui supply</p> <p><b>Lifespan</b></p> <p>Up to 60 years. Depending on location and street-view</p>	<p>gallery</p> <p>corridor</p> <p>central</p> <p>porch</p>
COMPATIBILITY	<p><b>YES</b></p> <p>Two combinations possible:</p> <p>(1) window-to-window two side oriented</p> <p>(2) window-to-atrium window-to-core one side oriented</p> <p><b>NO</b></p> <p>Interior walls are not compatible to both functions and need to be easily adjustable, especially by an office, due to frequent changes in layout. The need of outdoor space for dwellings can affect the floor plan radically.</p>	<p><b>HVAC</b></p> <p>Same medium for temperature control and ventilation system can lead to common use of certain parts. Ducts and pipes will have to be moved, added or replaced.</p> <p><b>Water management</b></p> <p>Pipes and sewerage will have to be repositioned and added.</p> <p><b>Energy</b></p> <p>Wires need to be replaced for shifting lighting points and outlets.</p> <p><b>NO</b></p>	<p><b>YES/NO</b></p> <p>A more transparent facade has an positive effect on the energy consumption of light, although direct sunlight is not favourable for offices. Open-able windows are also preferable for offices. Appearance of the facade has to represent both functions, has to be neutral. Characteristics can link to location.</p>	<p><b>YES</b></p> <p>Two accessibility types suitable for both functions:</p> <p>(1) corridor</p> <p>(2) central</p>

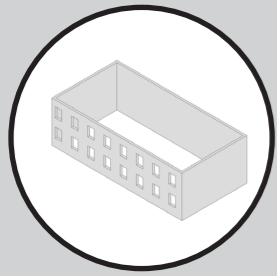


HIGH CHANGEABILITY  
UNIVERSAL SYSTEM

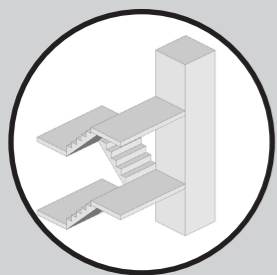
DRY CONNECTIONS  
DRY FINISH



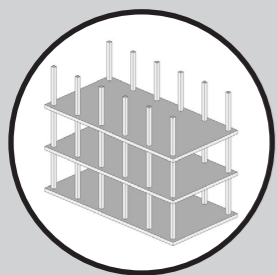
HIGH ACCESSIBILITY &  
CHANGEABILITY



UNIVERSAL APPEARANCE  
ADAPTABLE TO NEEDS OF USER



UNIVERSAL FOR BOTH FUNCTIONS



BASE FOR BOTH FUNCTIONS



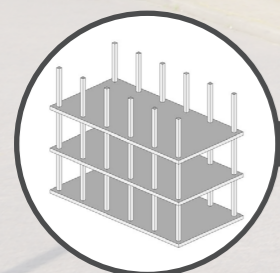
DESIGN

# BUILDING 028

## GENERAL INFORMATION

BUILT IN 1966

FORMER SCHOOL AND RECRUIT CENTER

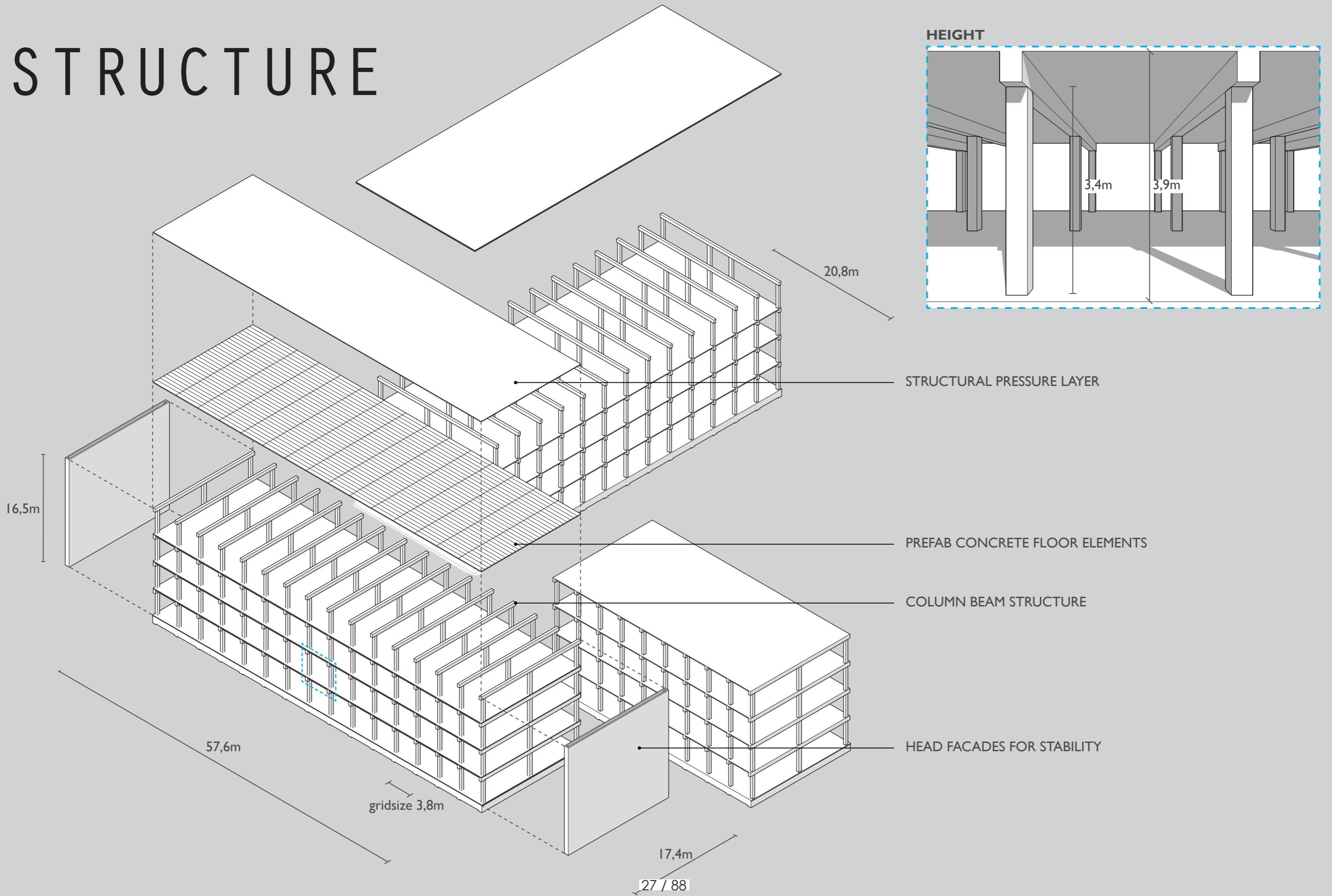


25%

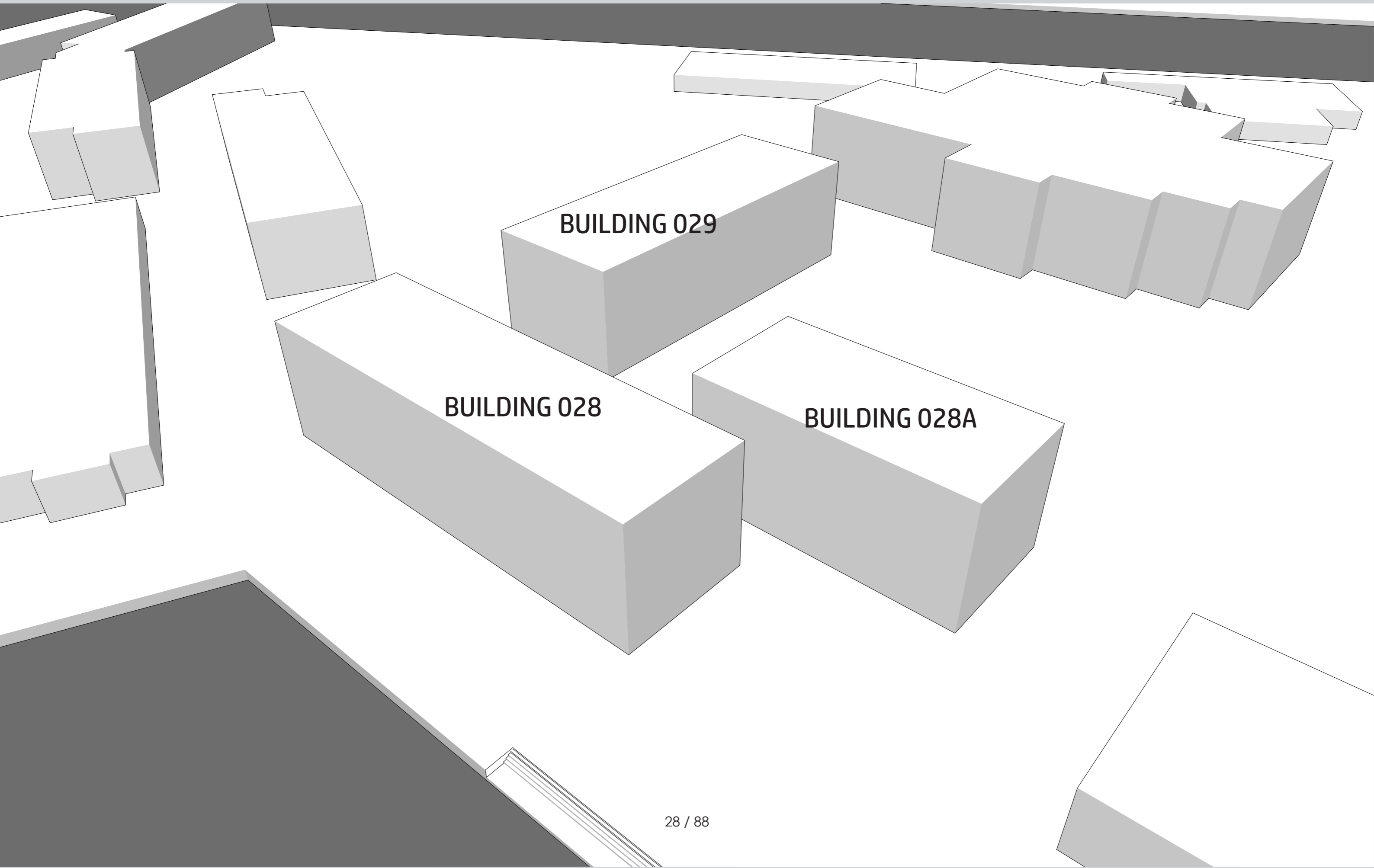
POTENTIAL

200 YEARS

# STRUCTURE



# CONCEPT

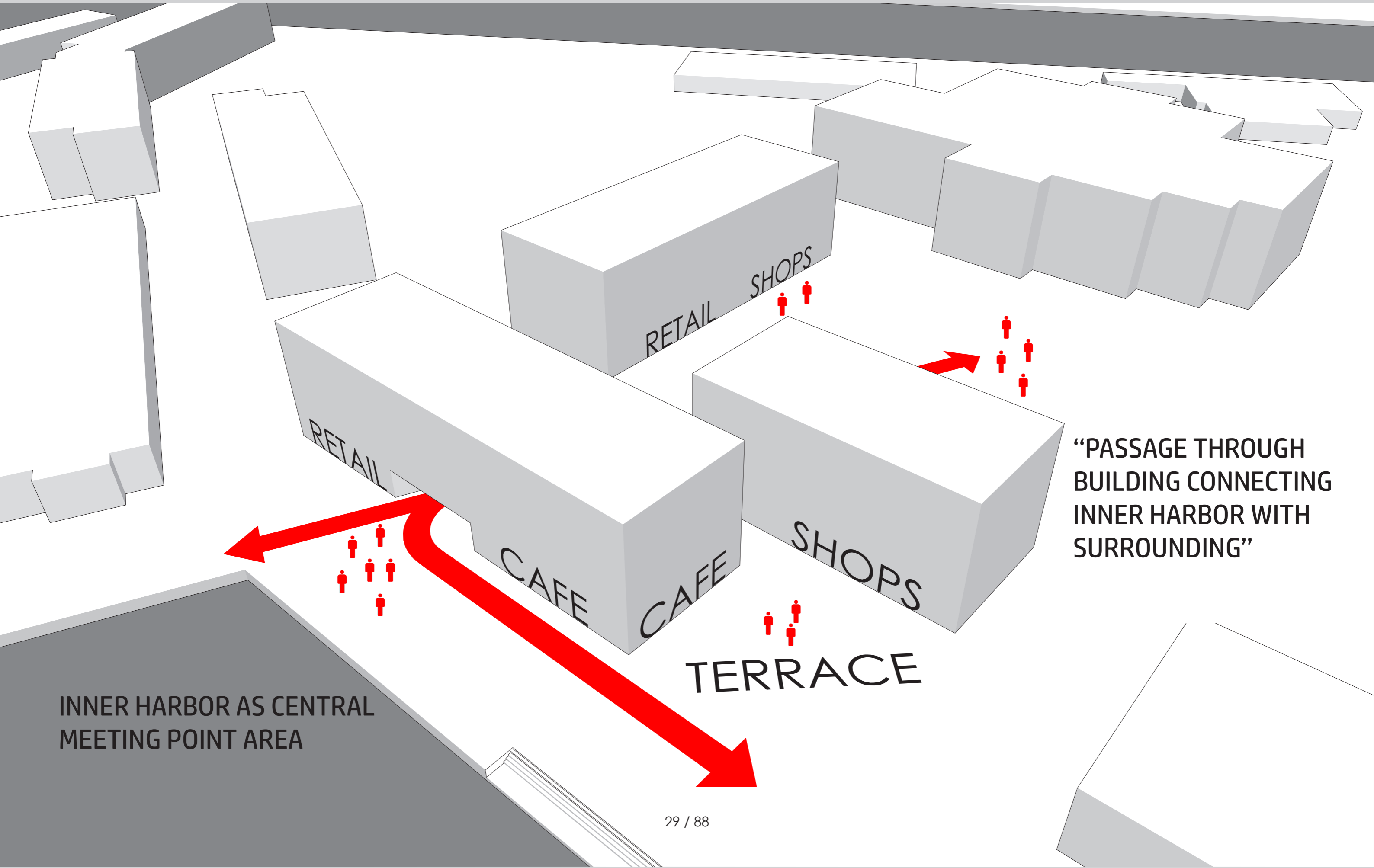


**BUILDING 028**

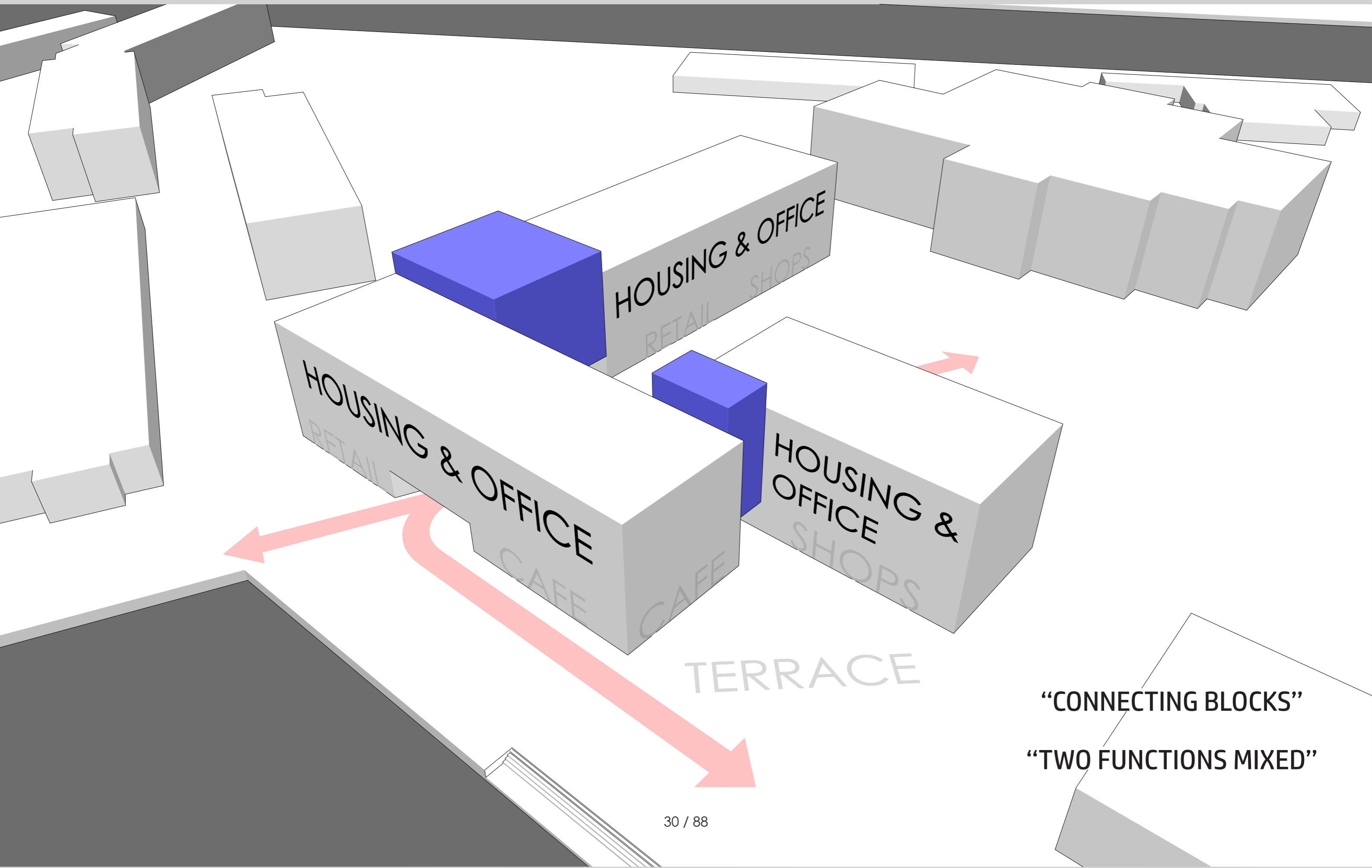
**BUILDING 029**

**BUILDING 028A**

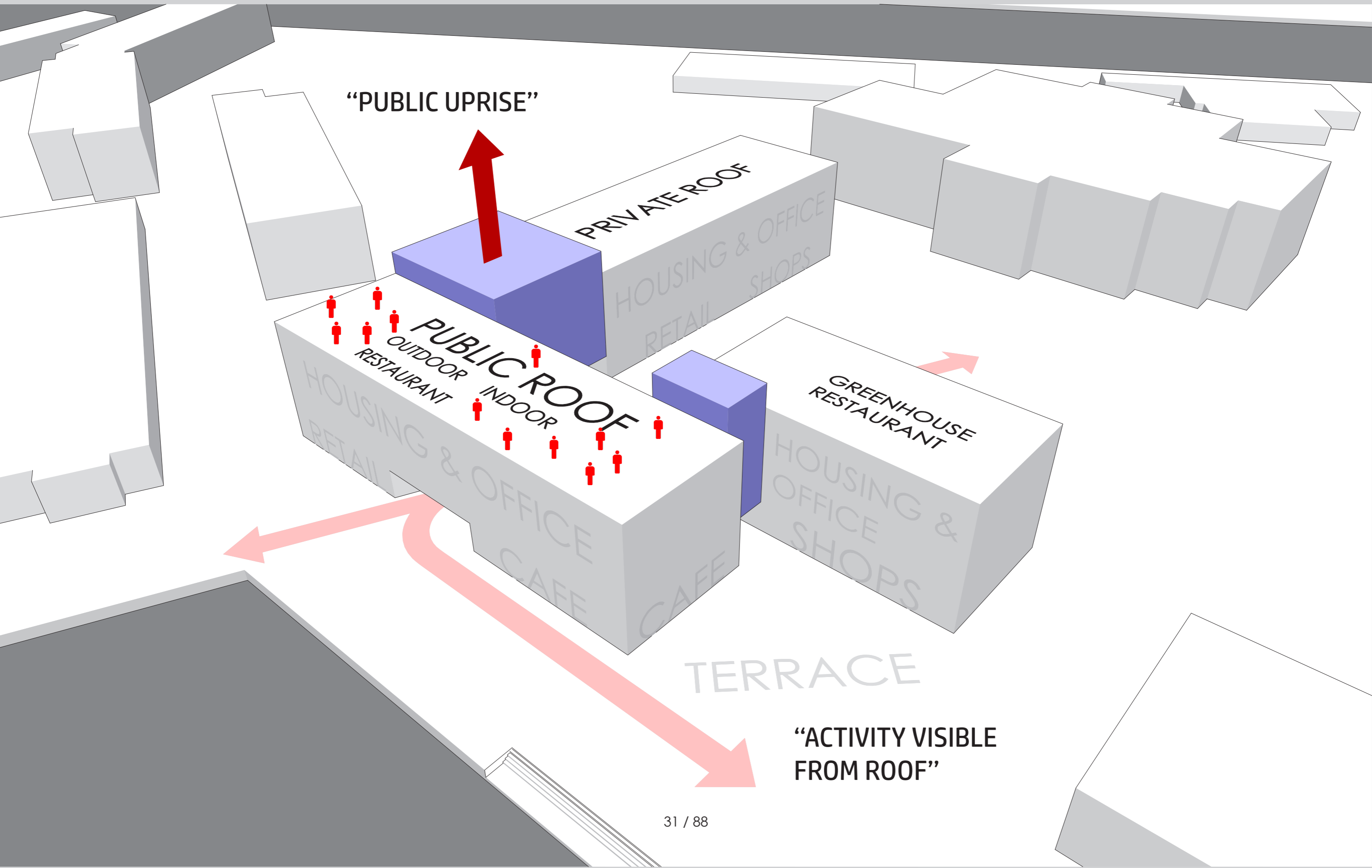
# CONCEPT



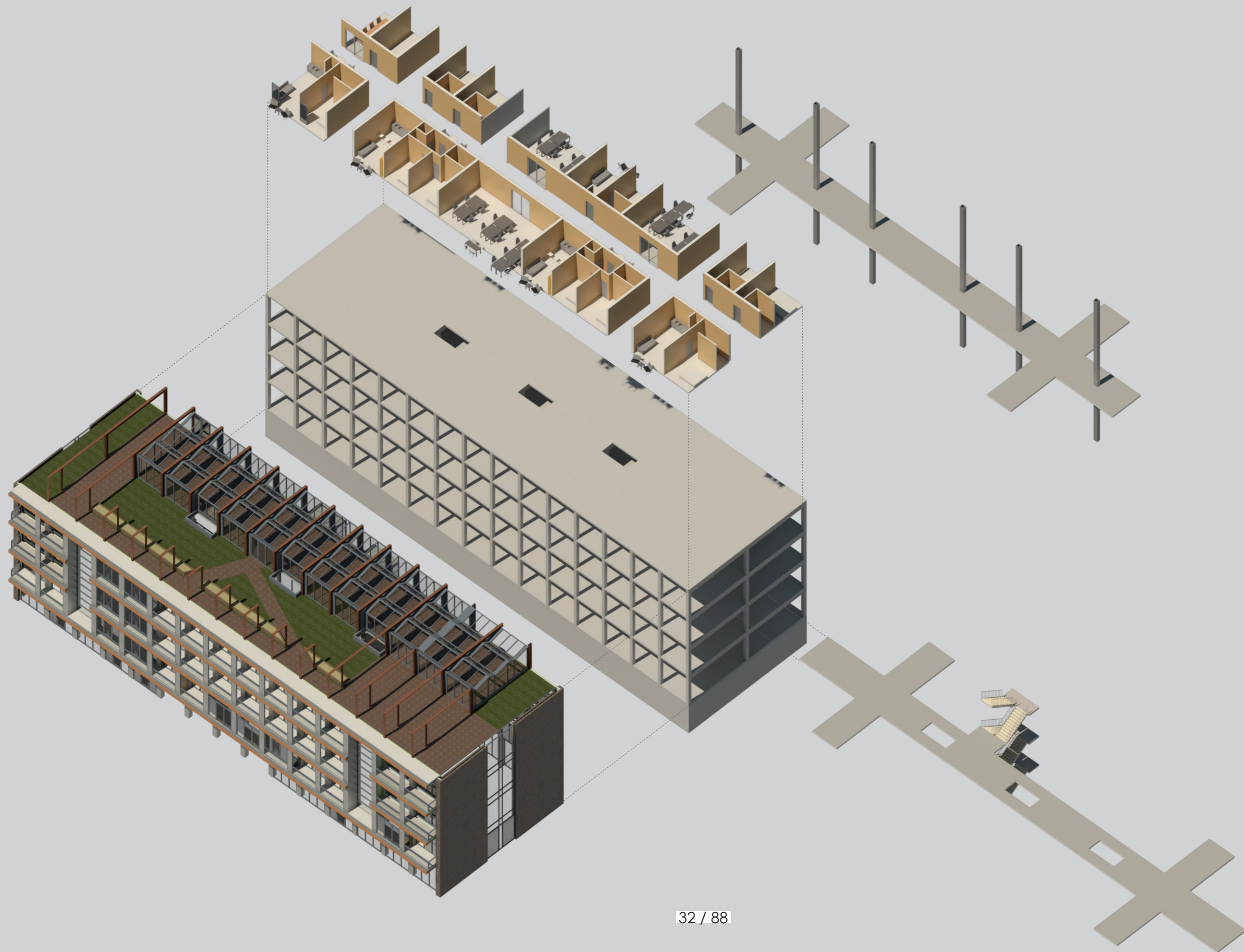
# CONCEPT



# CONCEPT

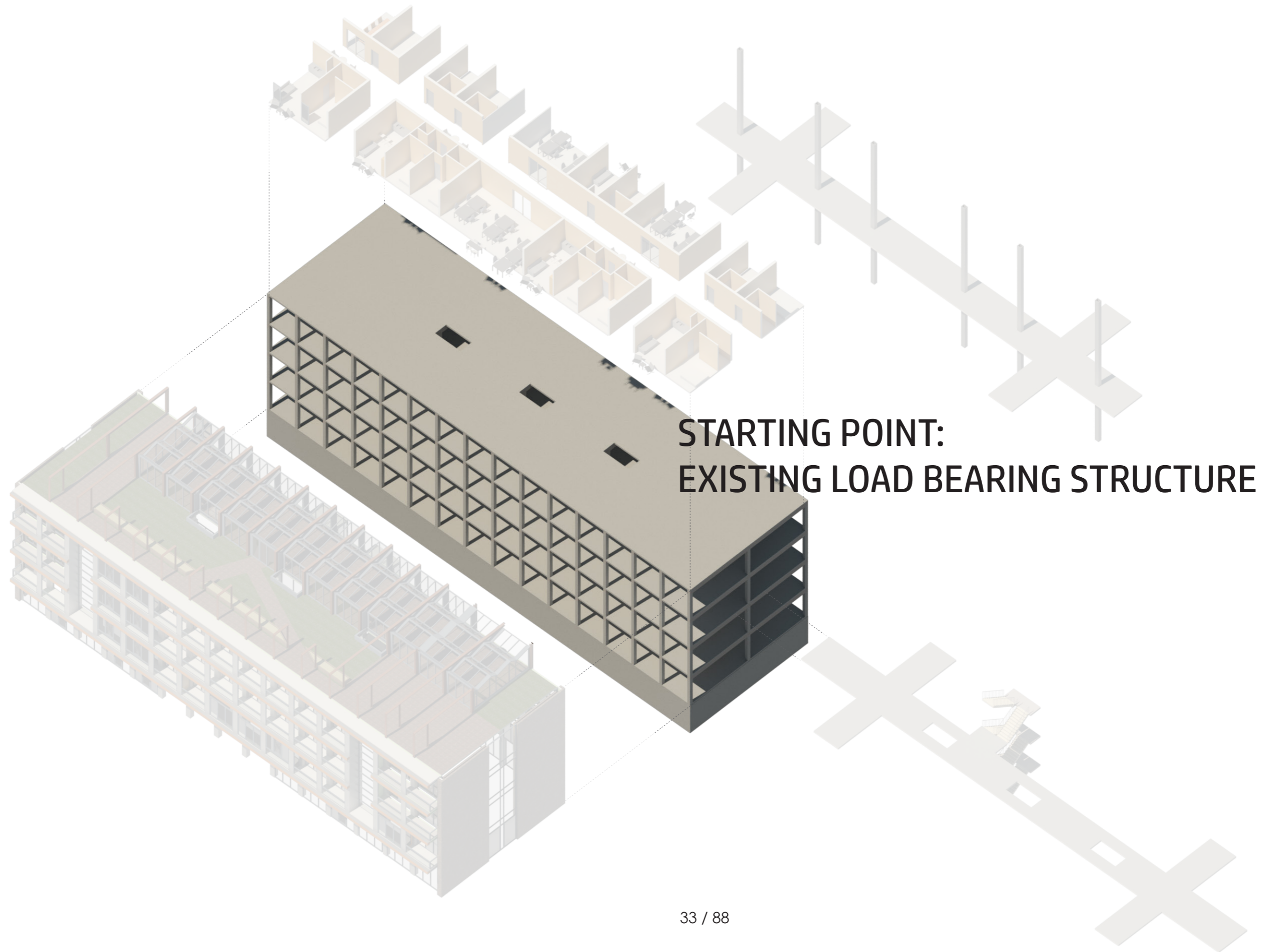


# OVERVIEW LAYERS

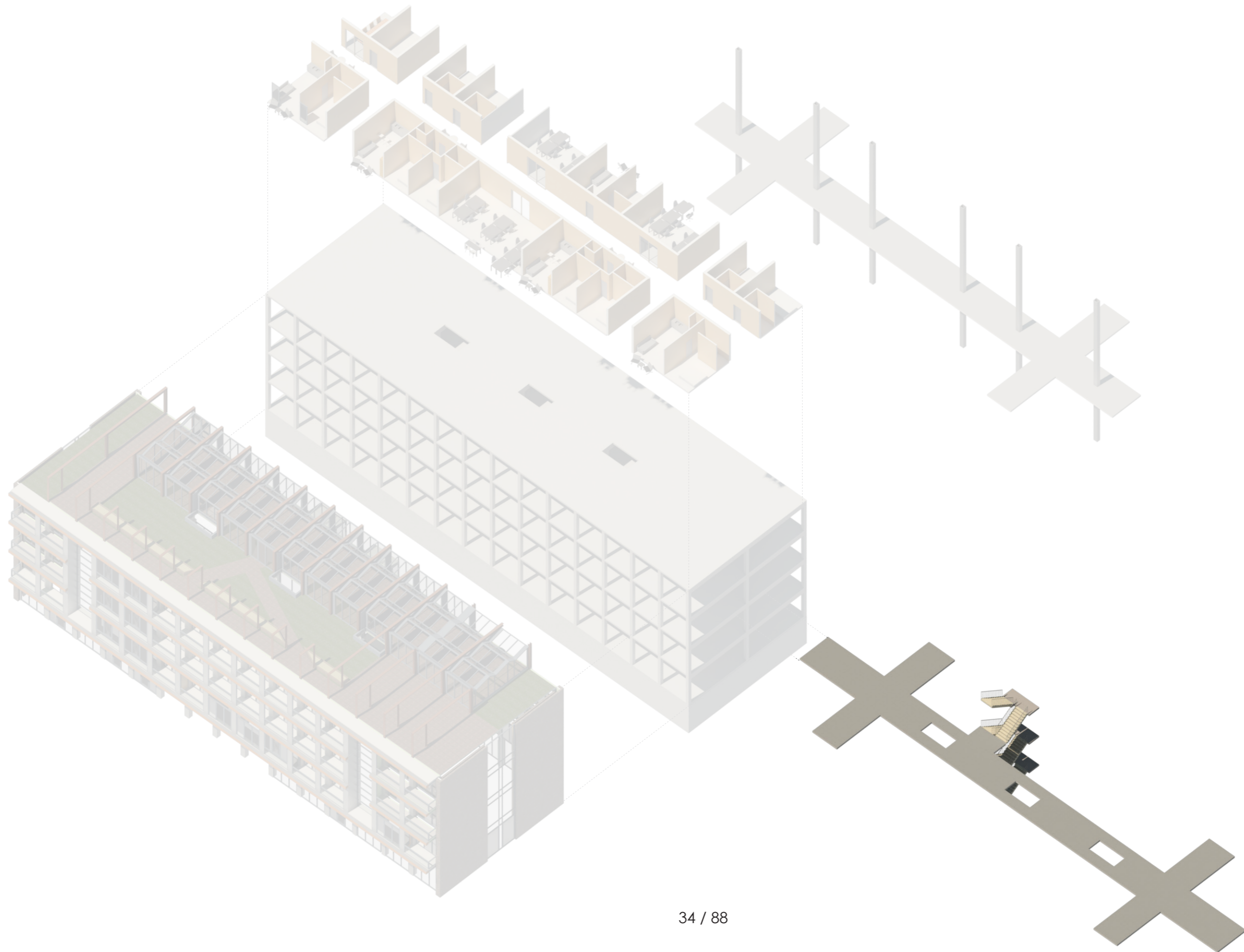


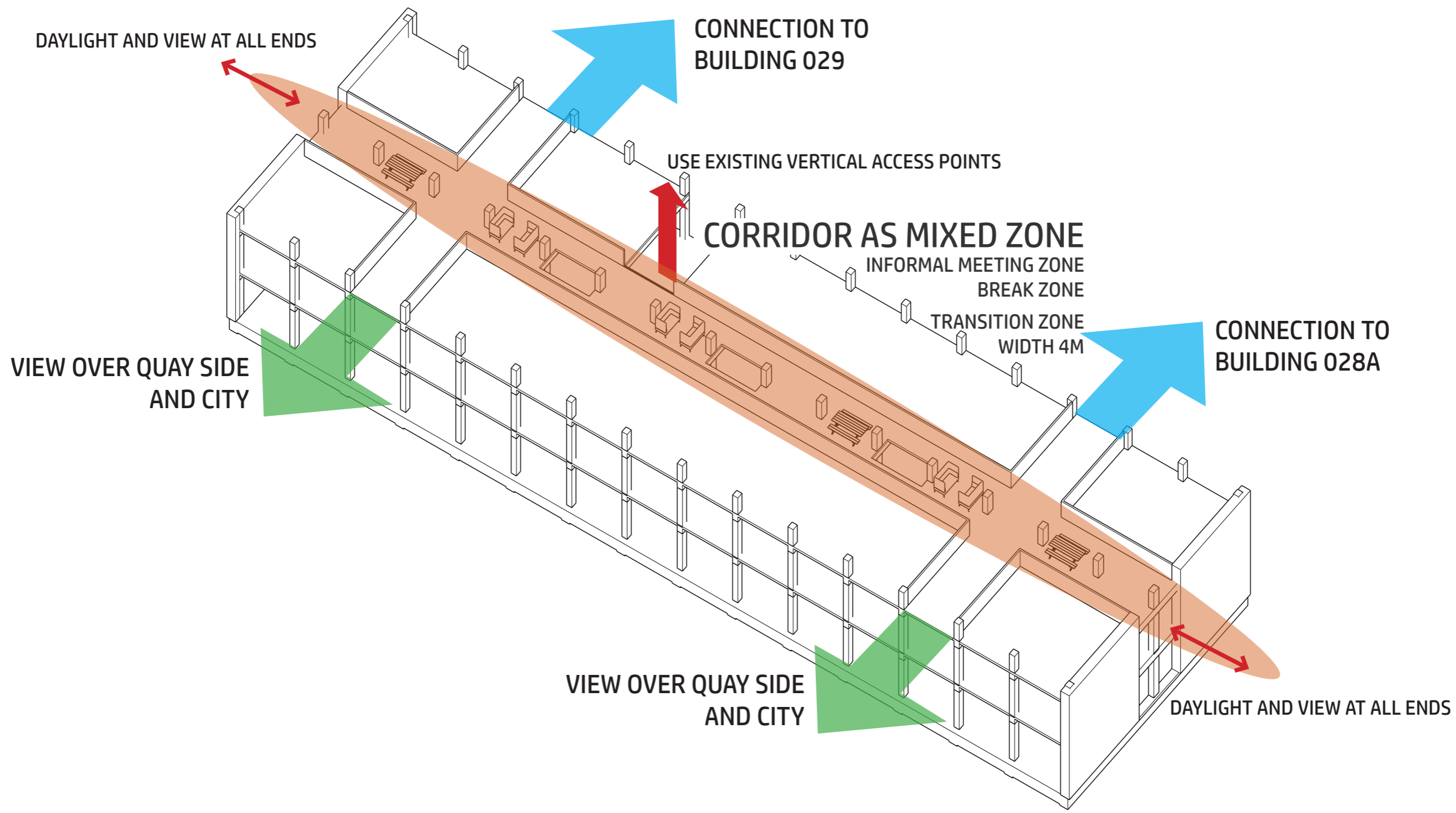


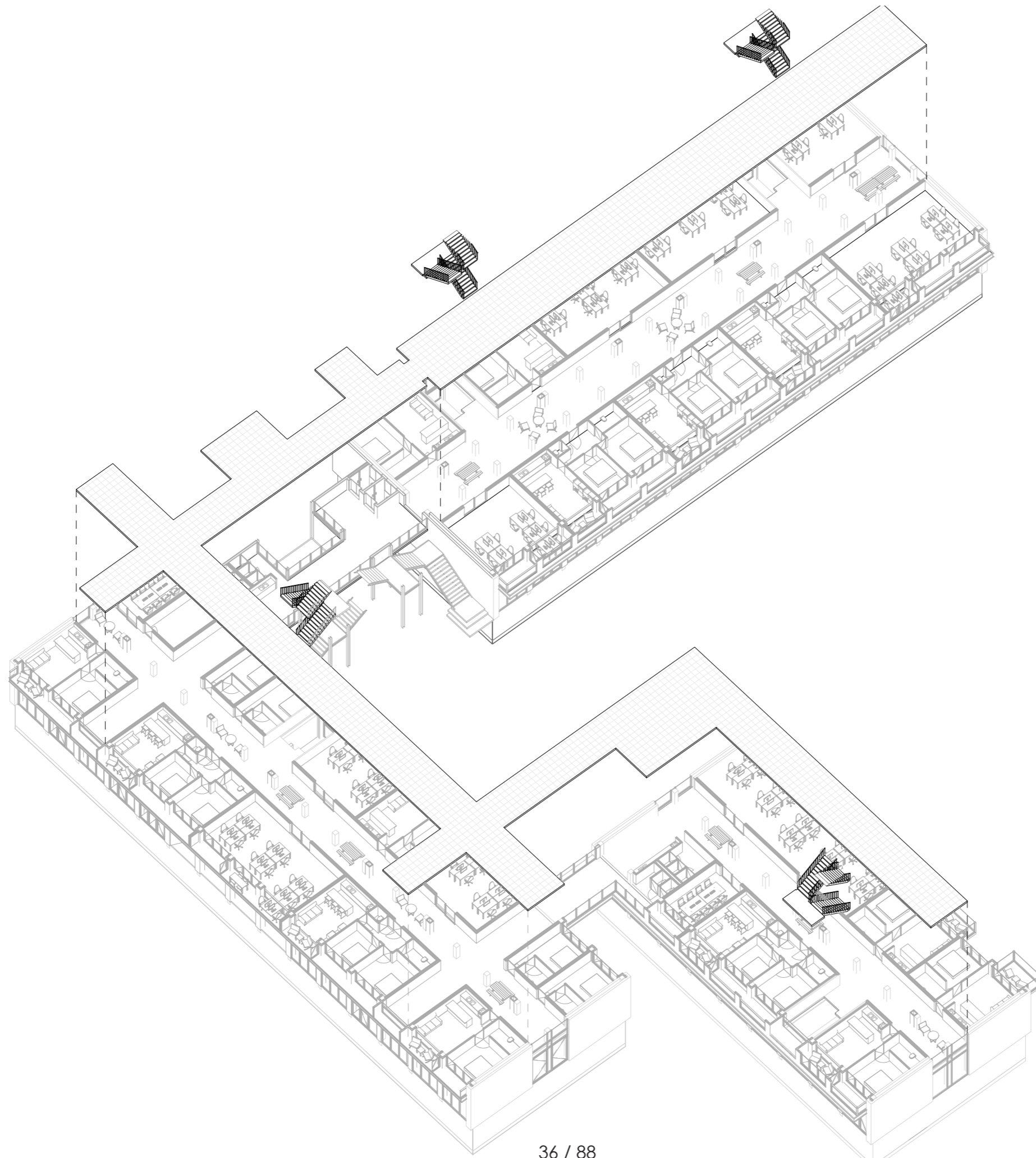
# STRUCTURE



# ACCESSIBILITY

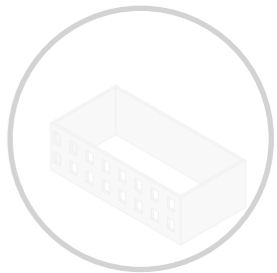
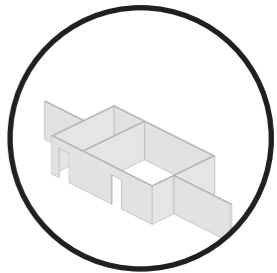
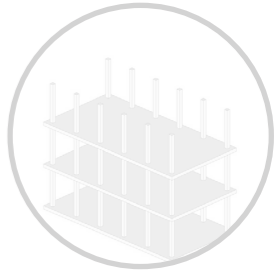
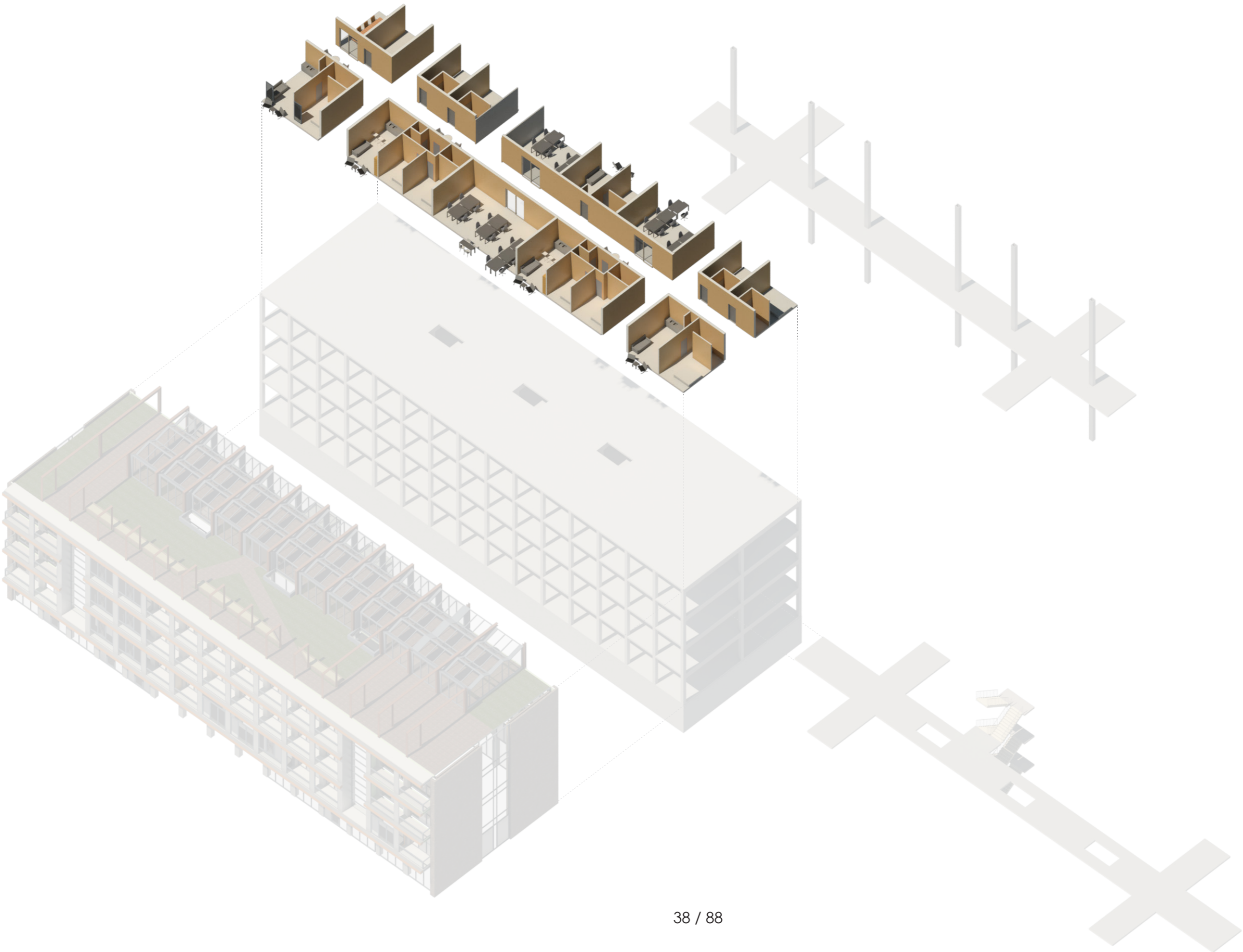




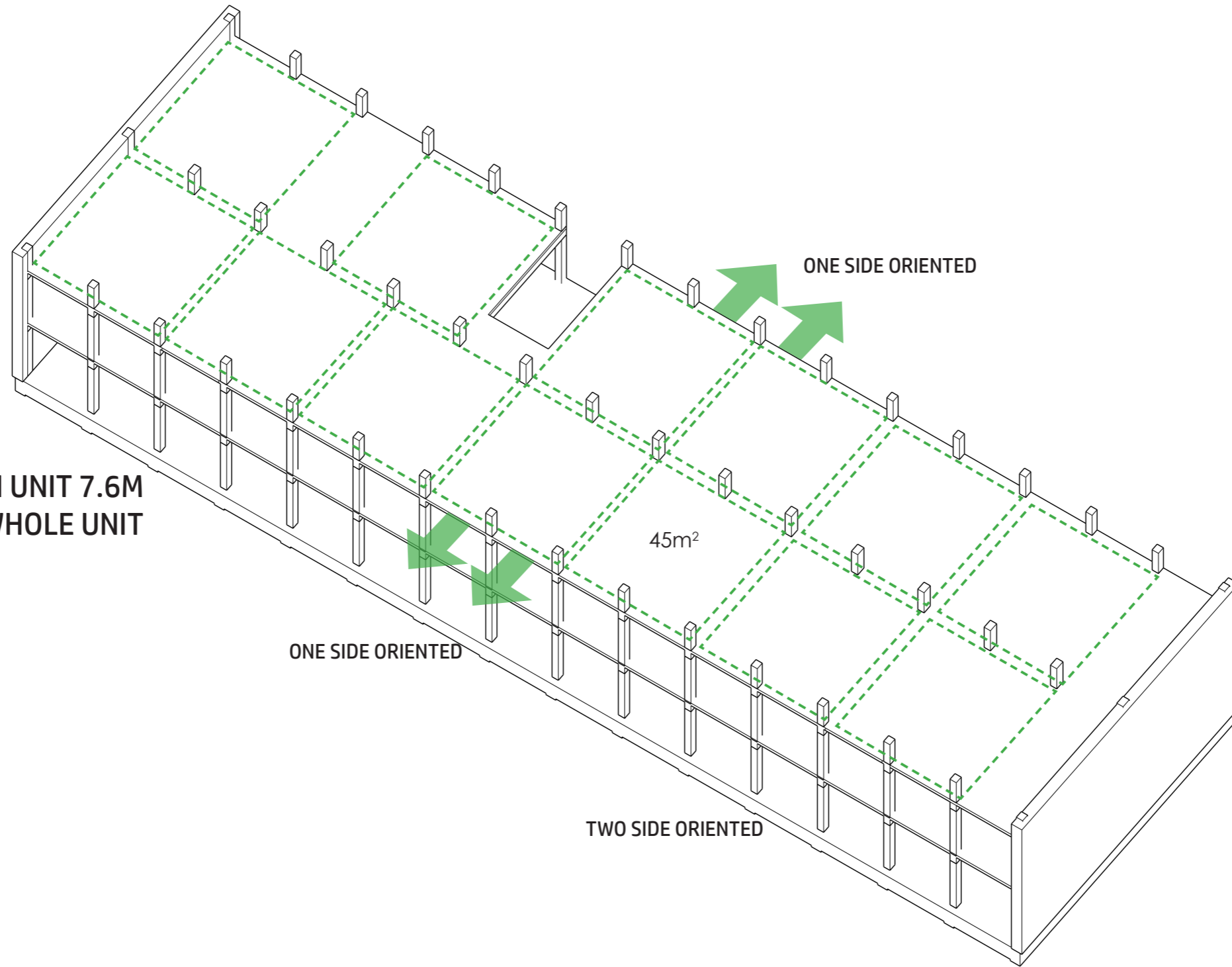




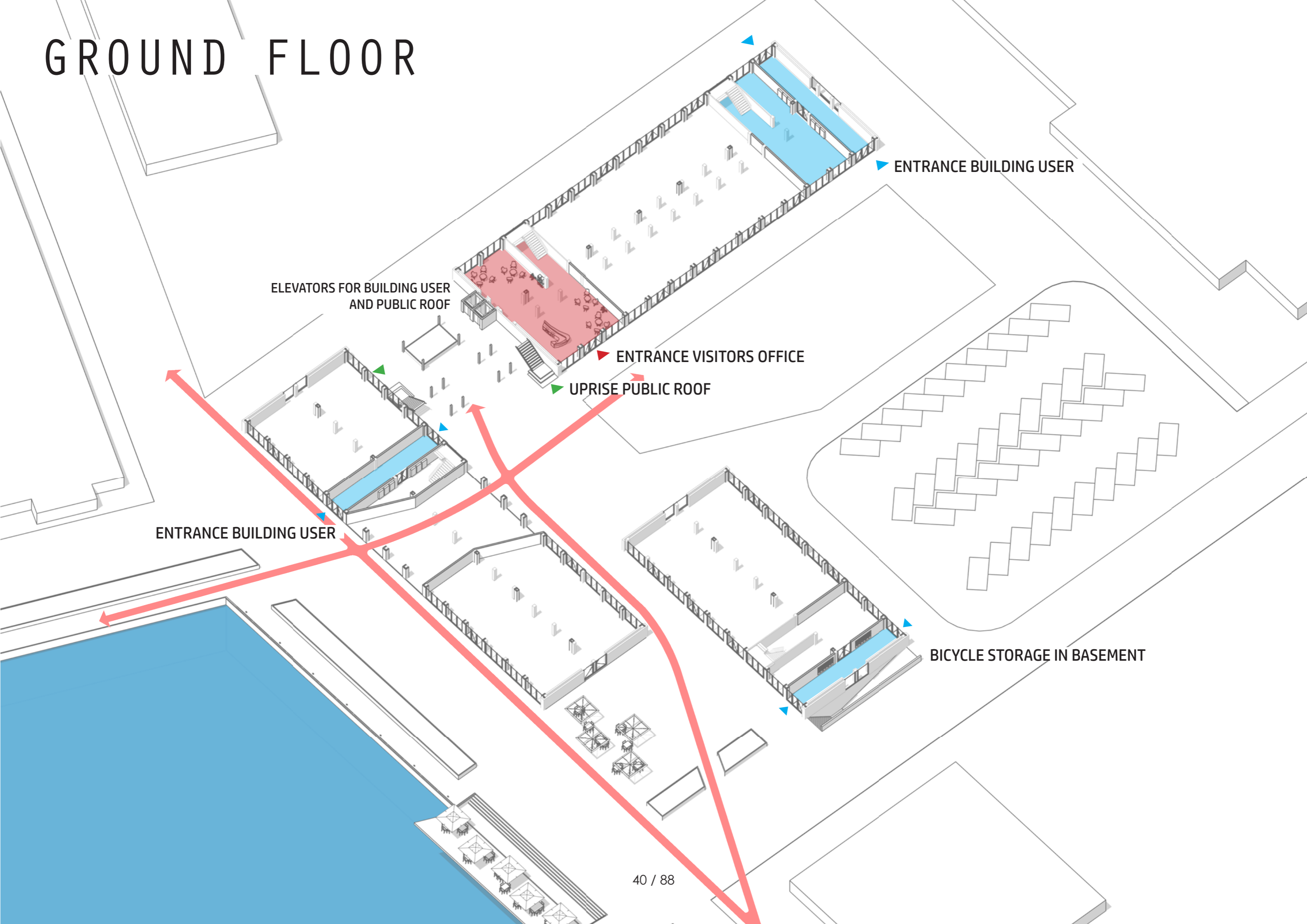
# SPACE PLAN



**MINIMUM WIDTH UNIT 7.6M  
LIGHT INCLUSION IN THE WHOLE UNIT**



# GROUND FLOOR



ELEVATORS FOR BUILDING USER  
AND PUBLIC ROOF

ENTRANCE BUILDING USER

ENTRANCE VISITORS OFFICE

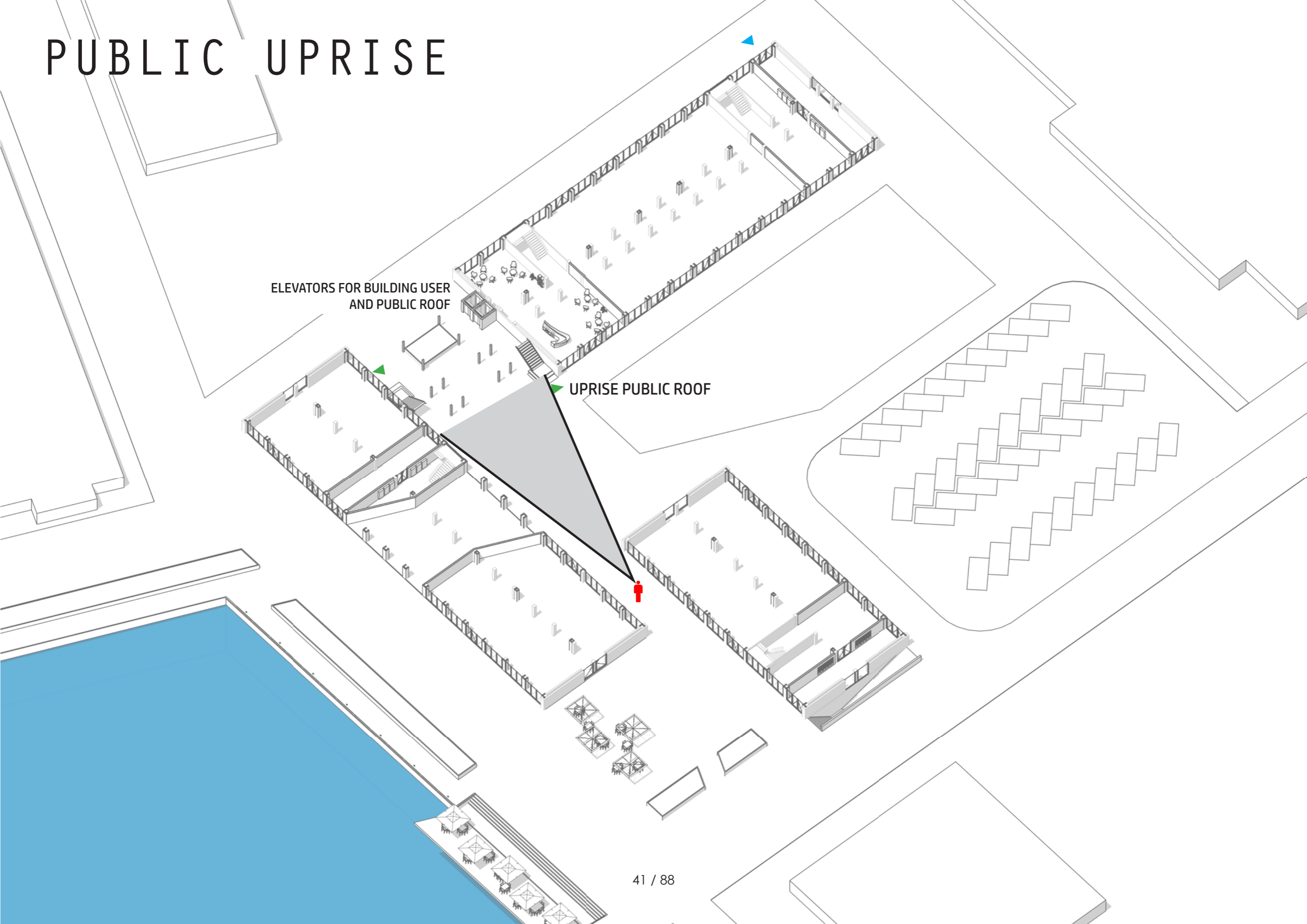
UPRISE PUBLIC ROOF

ENTRANCE BUILDING USER

BICYCLE STORAGE IN BASEMENT



# PUBLIC UPRISE



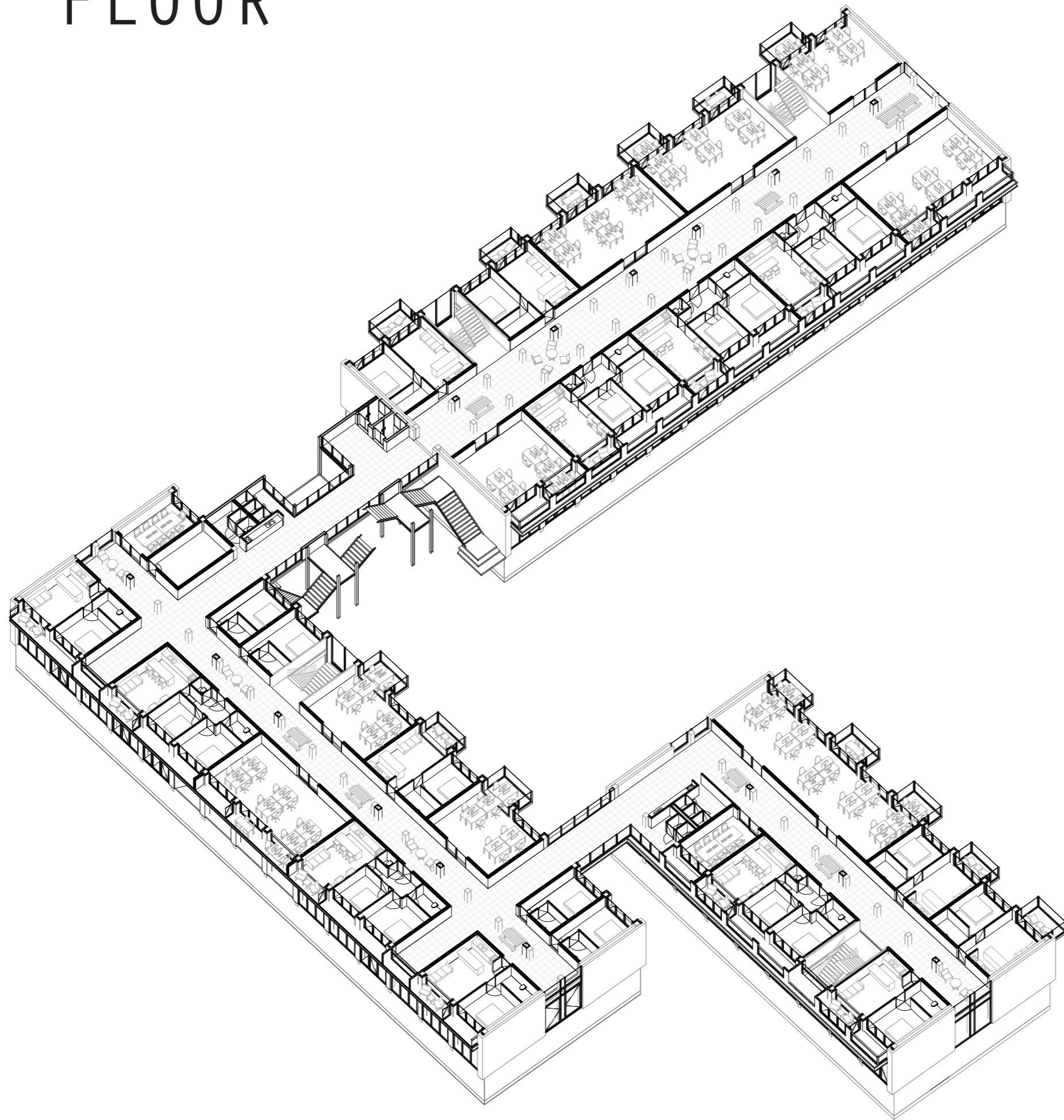
ELEVATORS FOR BUILDING USER  
AND PUBLIC ROOF

UPRISE PUBLIC ROOF

# IMPRESSION



# FIRST FLOOR



# SCENARIO 1: HOUSING



# SCENARIO 2: OFFICE

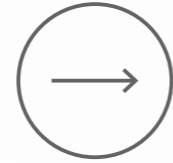
PRIORITY SCHEME POSITION FLEX OFFICE



# SCENARIO 3: MIX

PRIORITY SCHEME POSITION COMBINATION

-  FAMILY HOUSING
-  SINGLE HOUSING
-  FLEX OFFICE



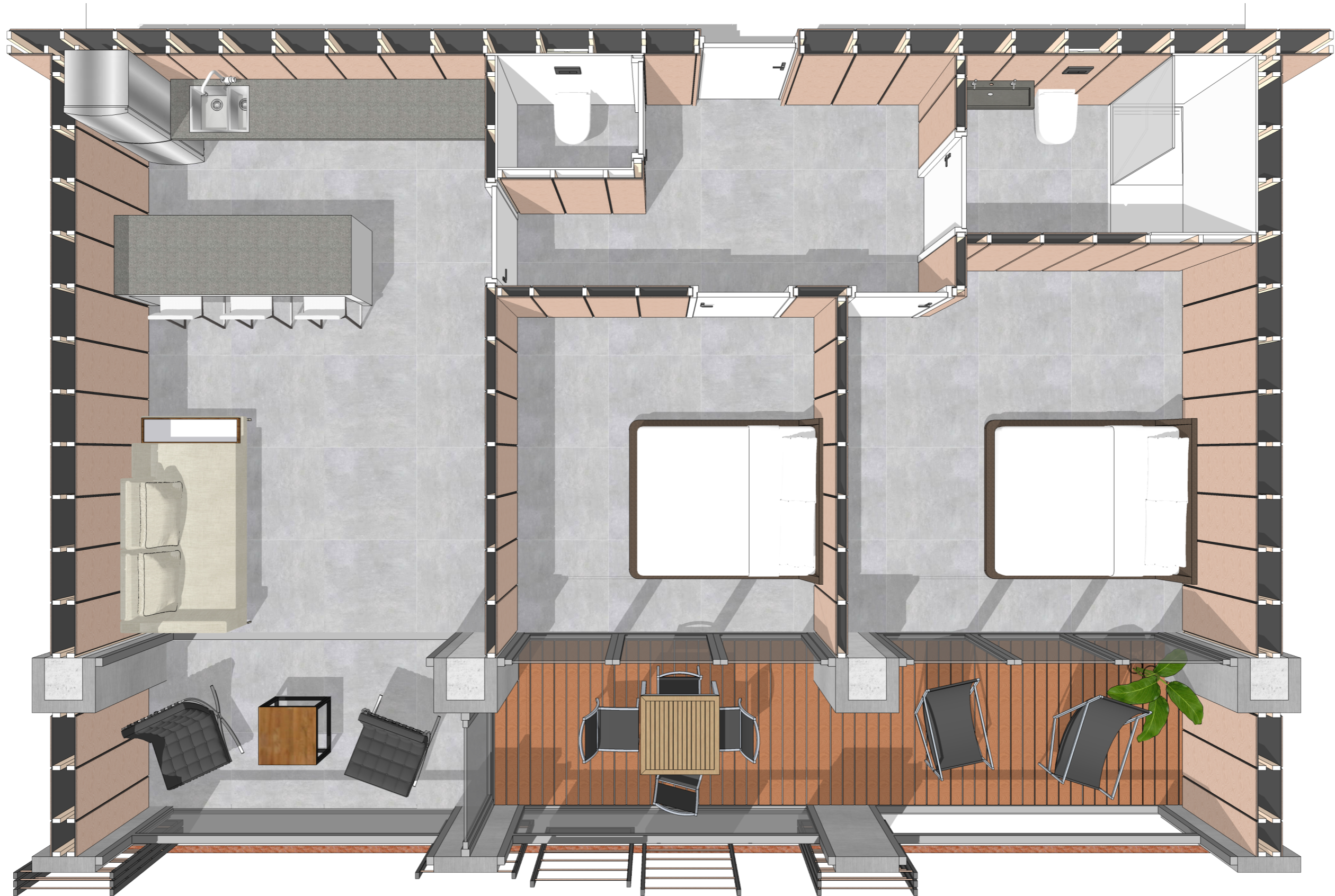
# CONFIGURATION

SINGLE/ COUPLE APARTMENT



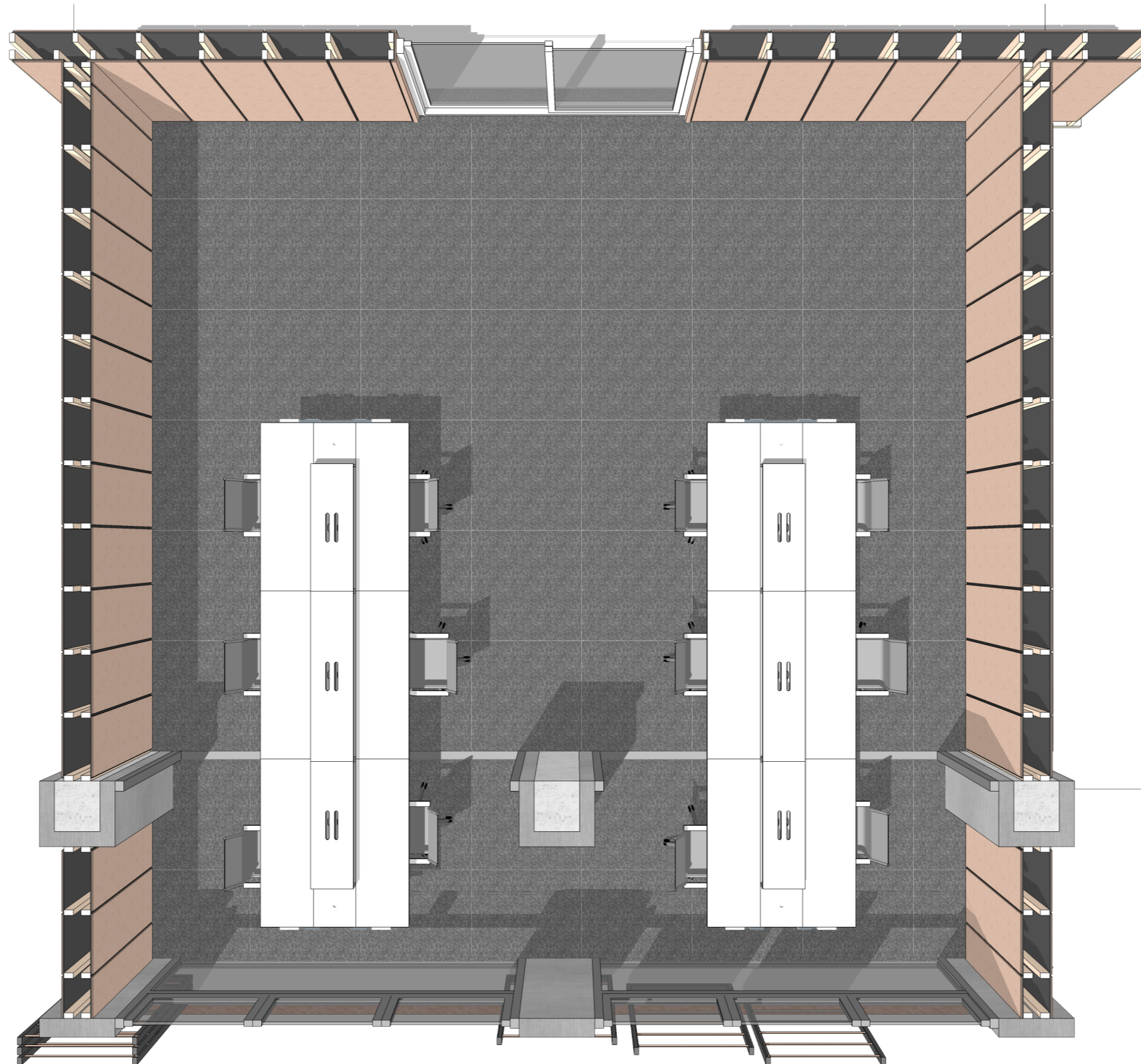
# CONFIGURATION

## FAMILY APARTMENT



# CONFIGURATION

## WORKSPACES

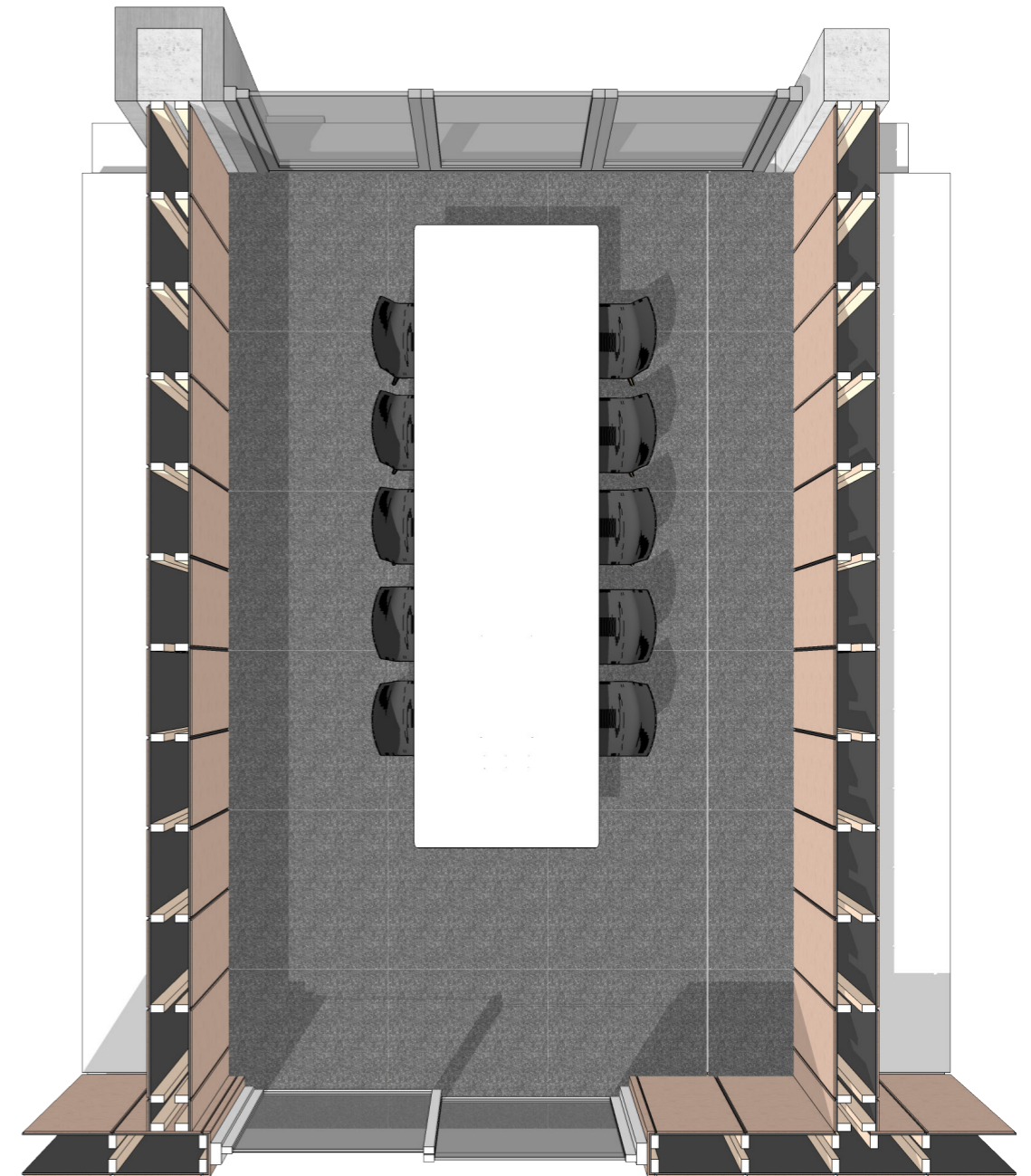


# CONFIGURATION

## SUPPORTING SPACES



SHORT STAY UNIT



CONFERENCE ROOM



ROOF FOR BUILDING USERS

GREENHOUSE SUPPORTING RESTAURANT

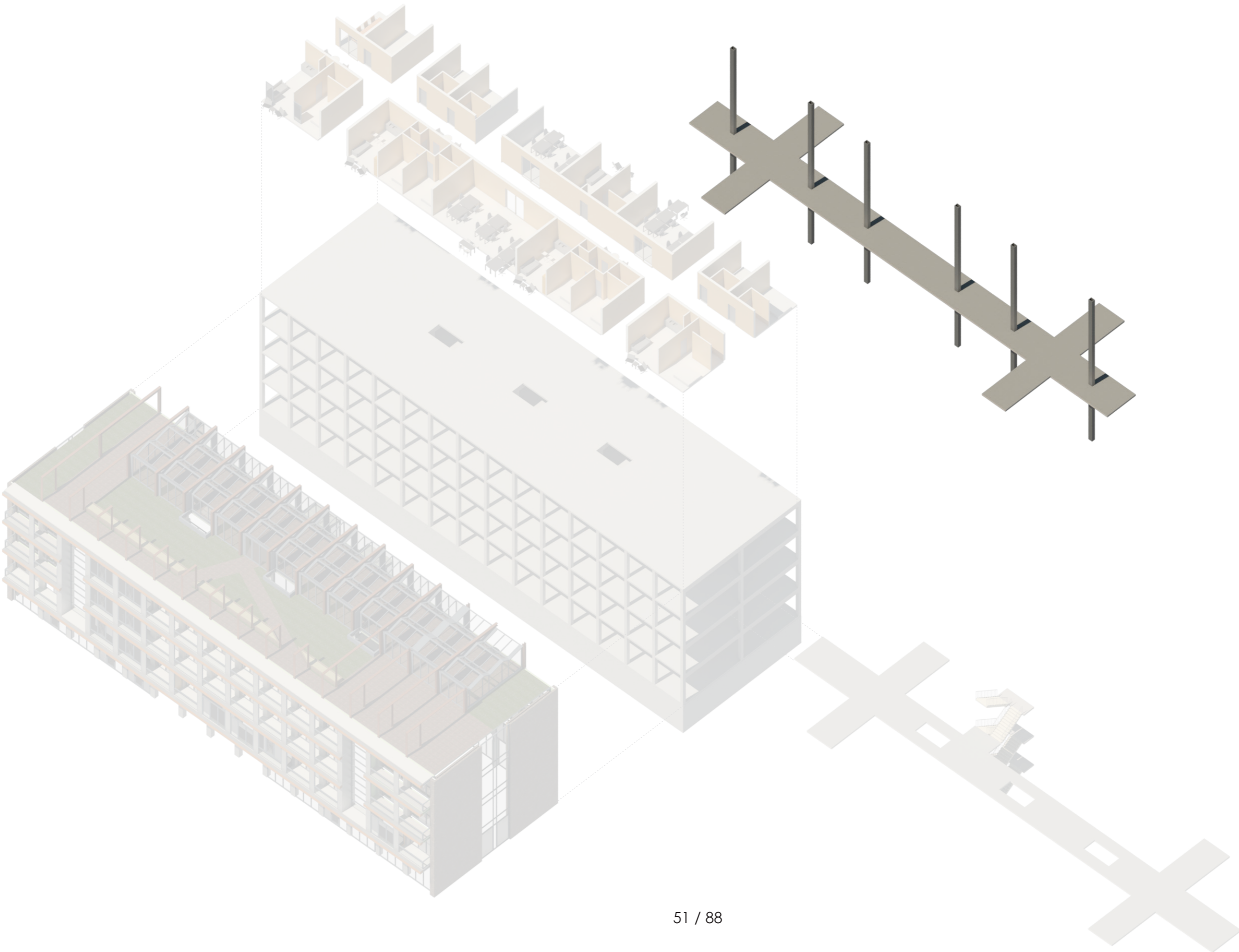
RESTAURANT

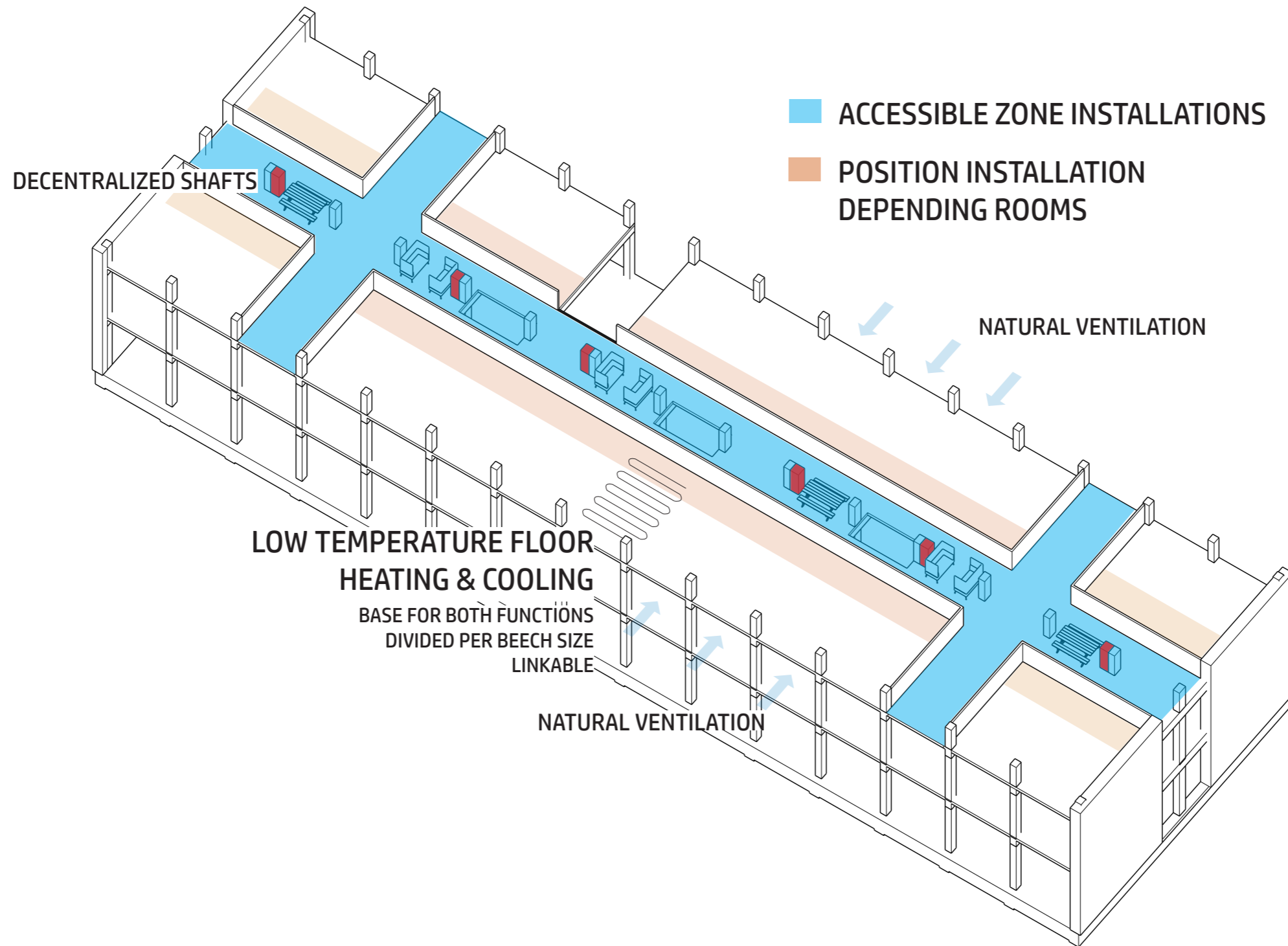
EXTENSION PUBLIC REALM

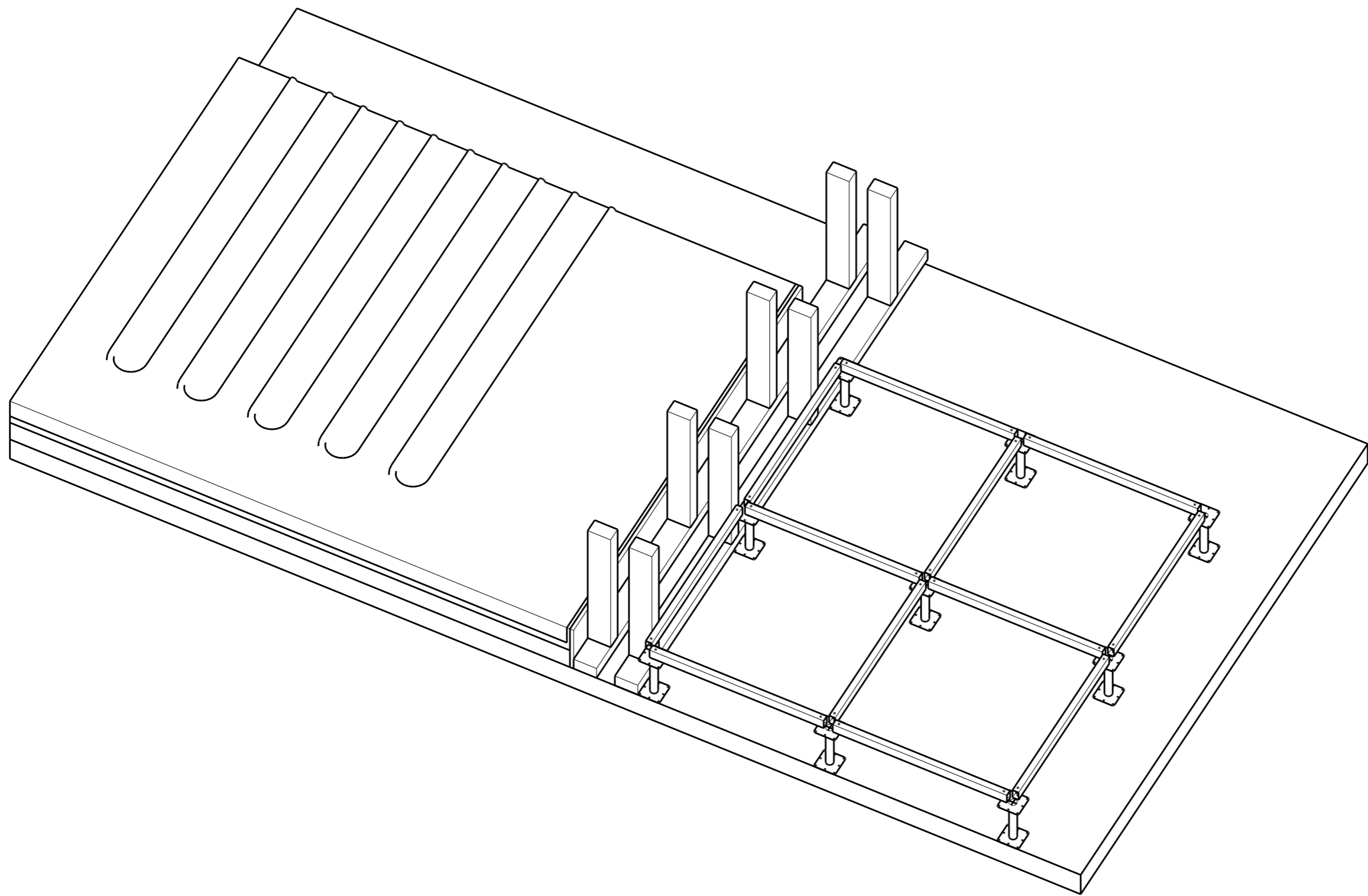


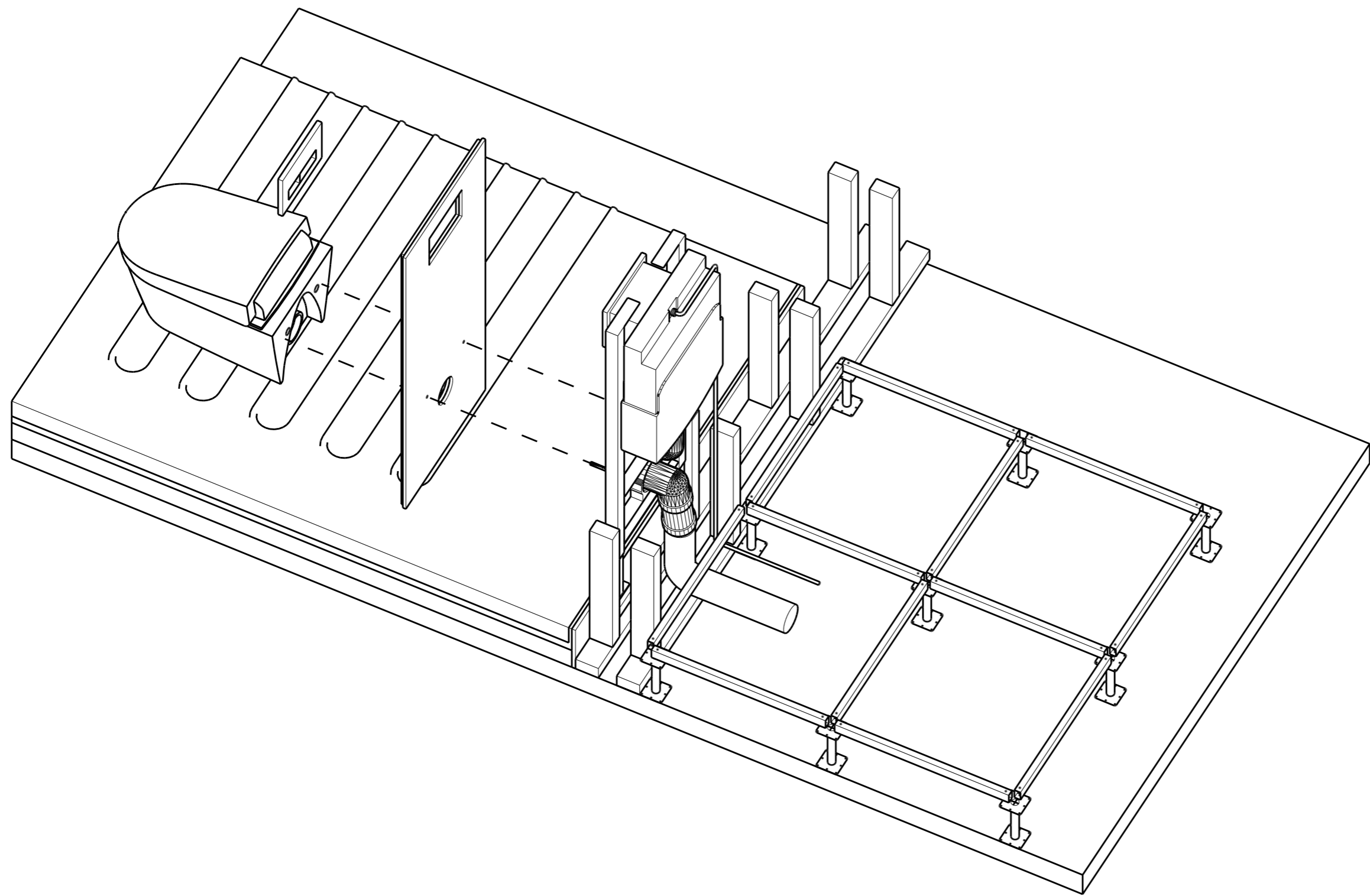


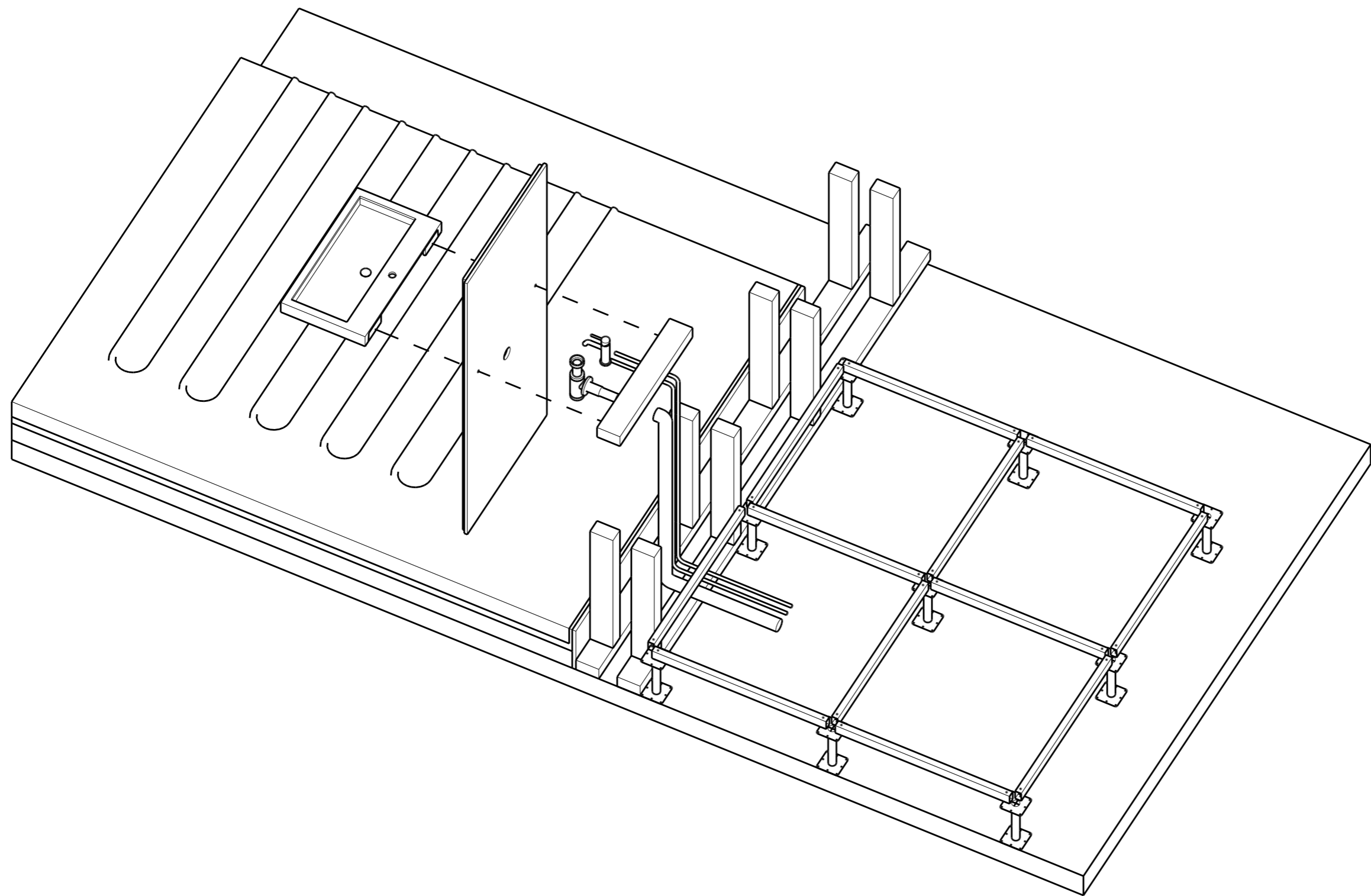
# SERVICES

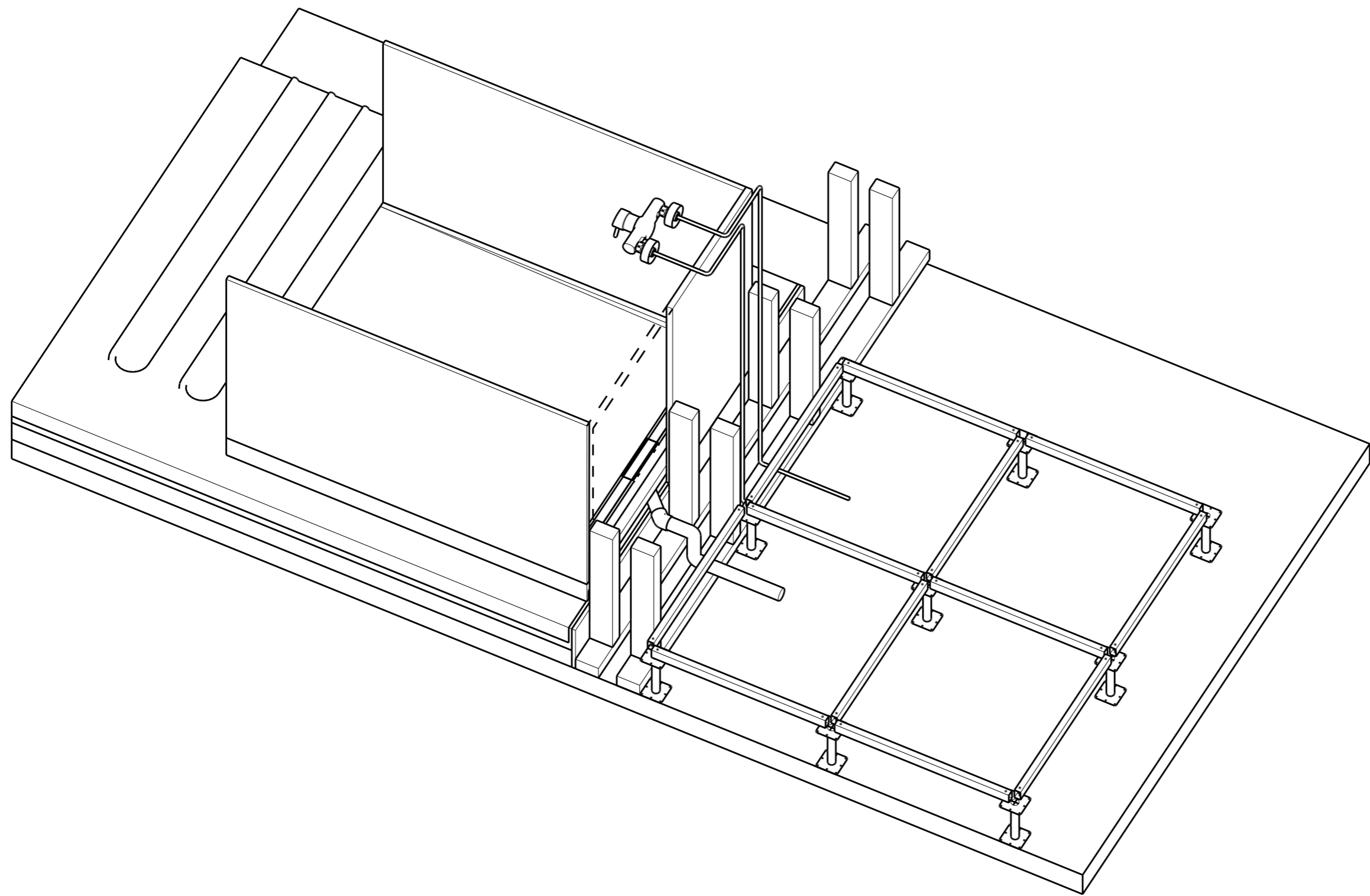




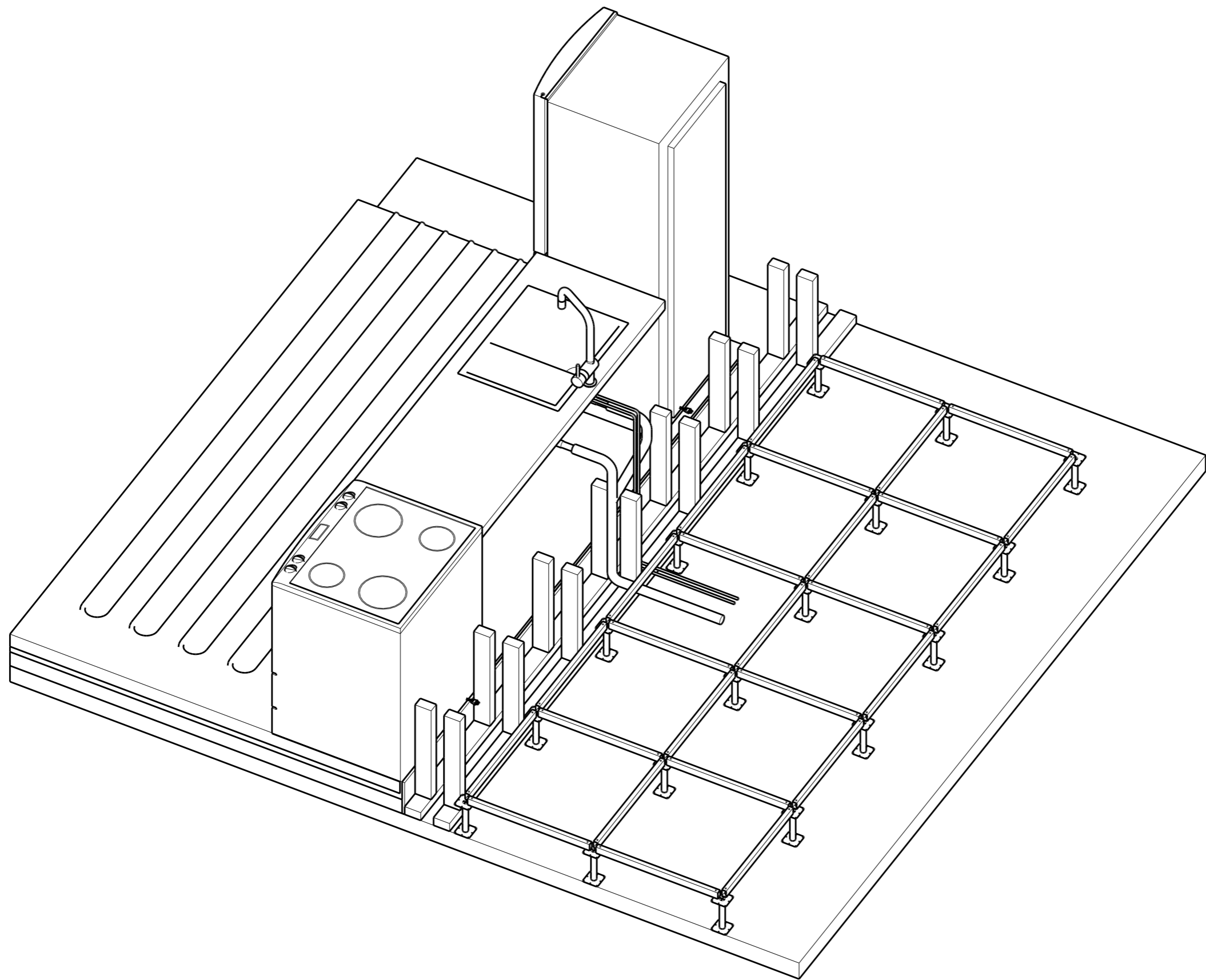


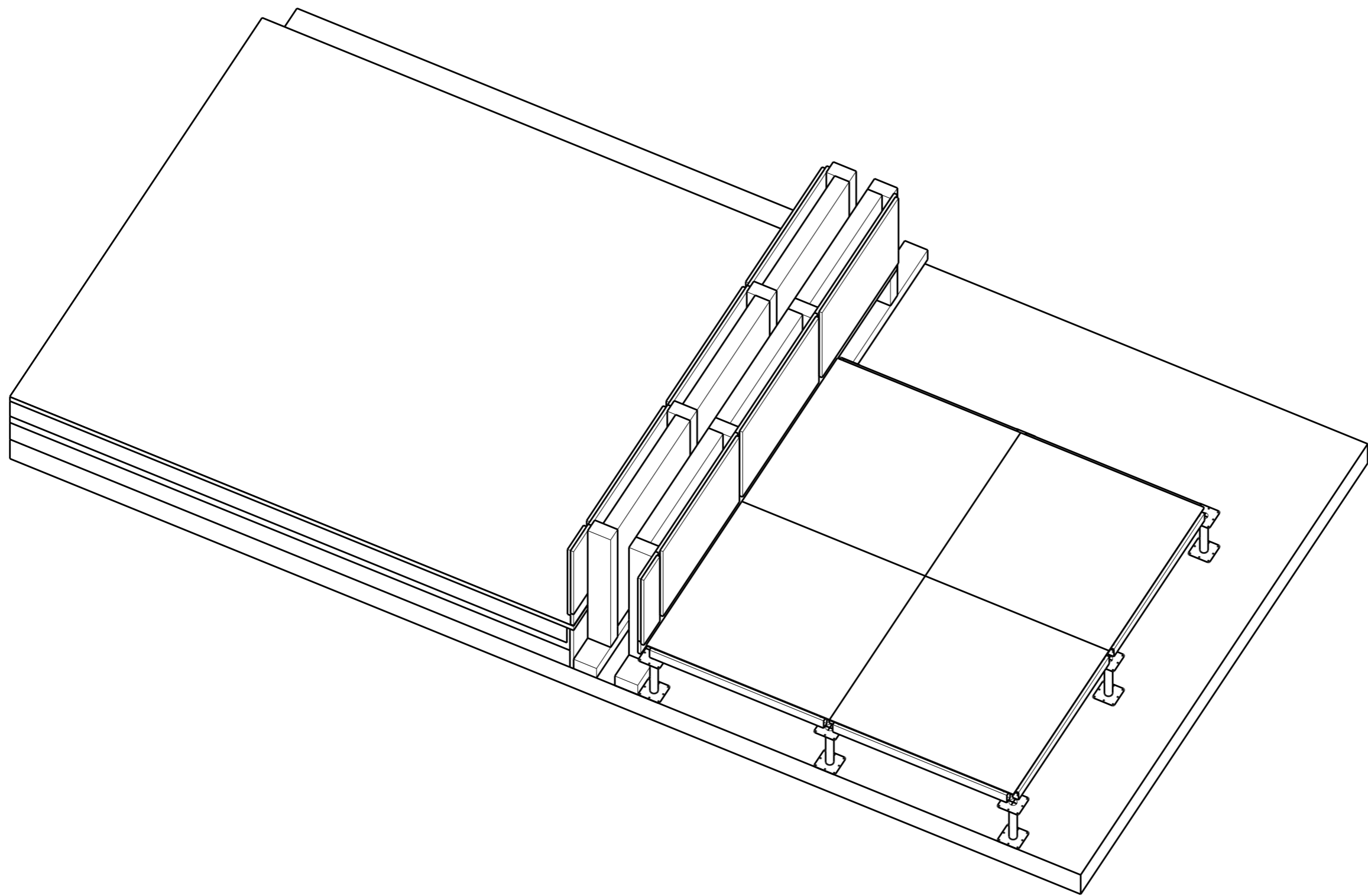


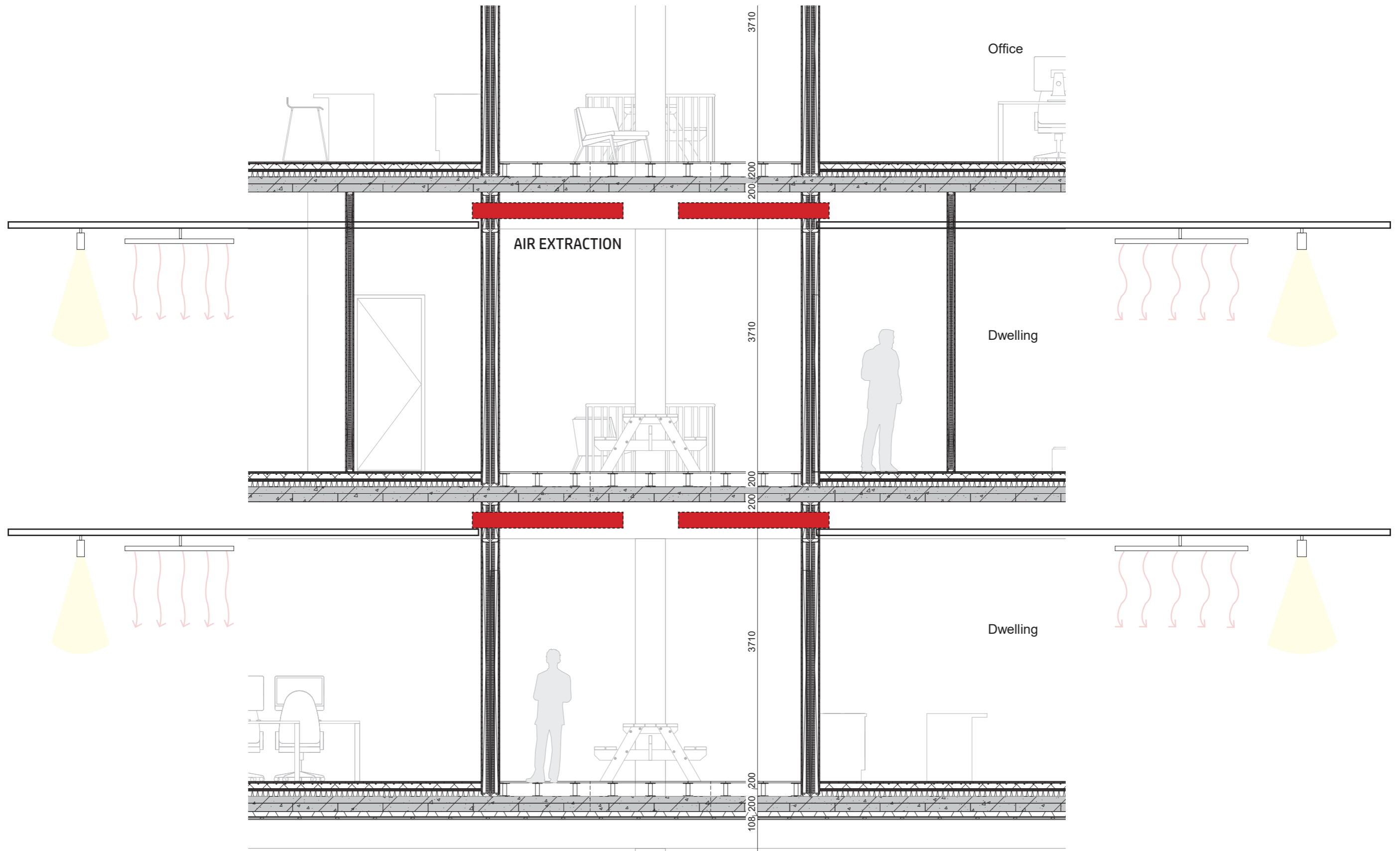


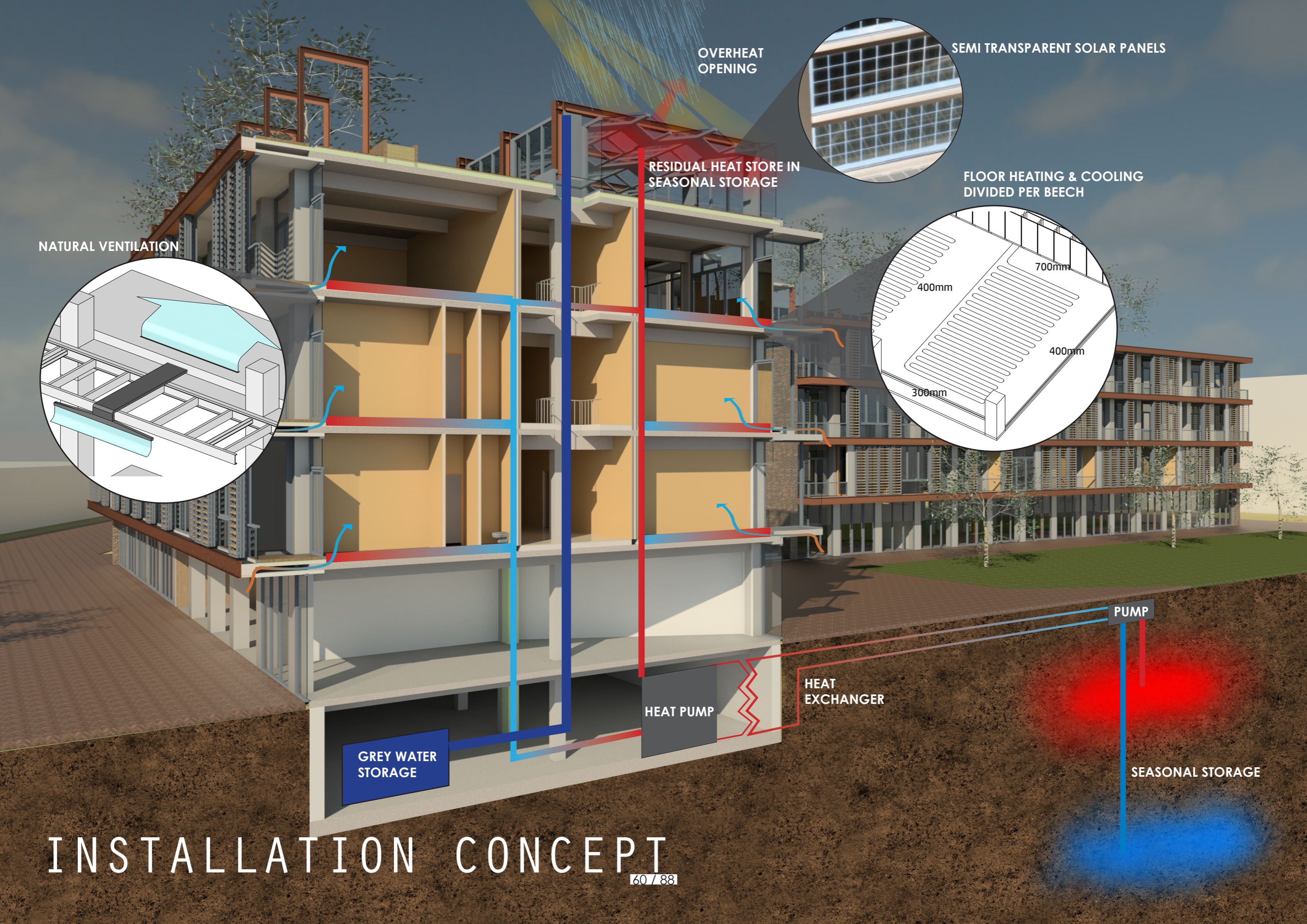






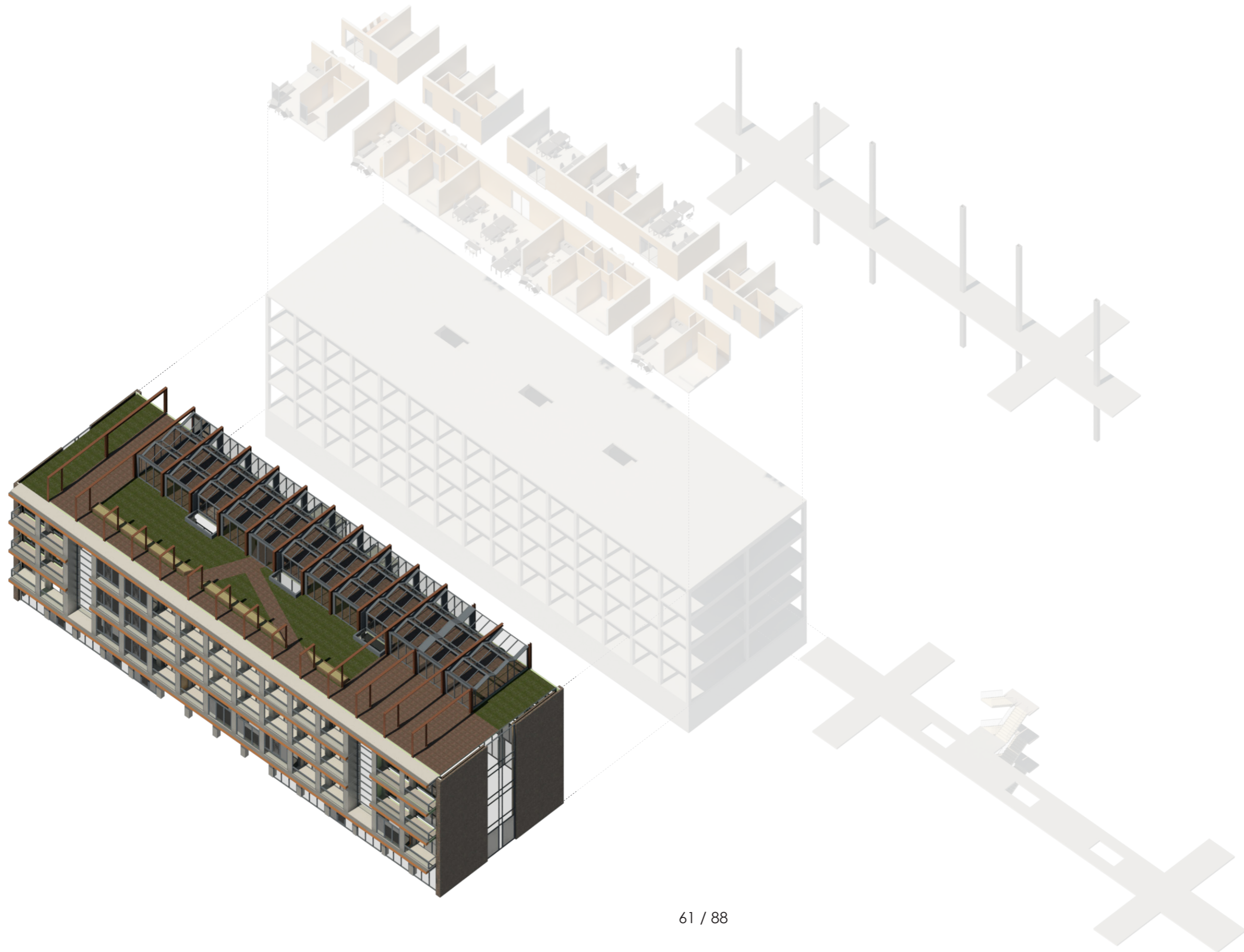


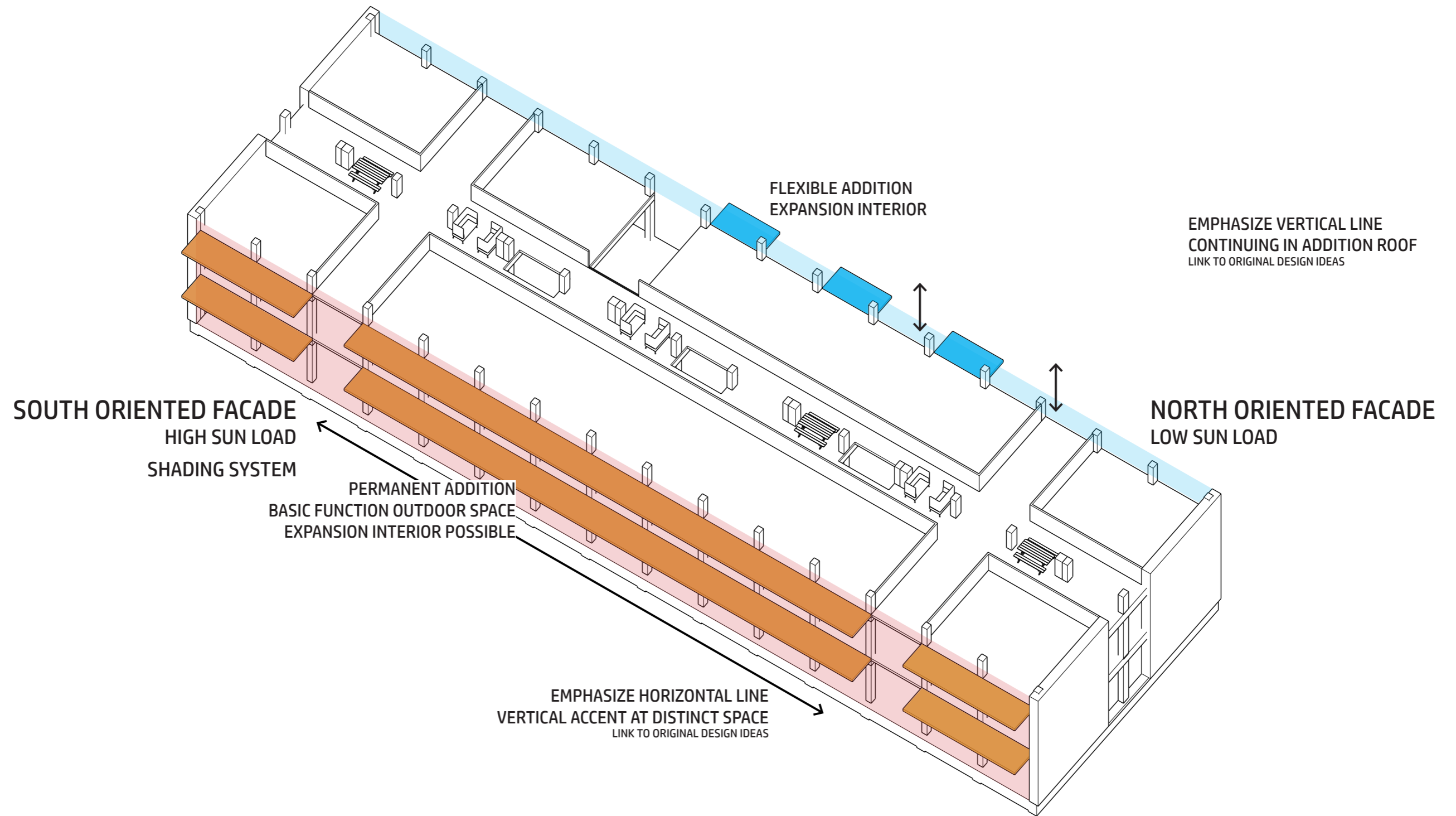




# INSTALLATION CONCEPT

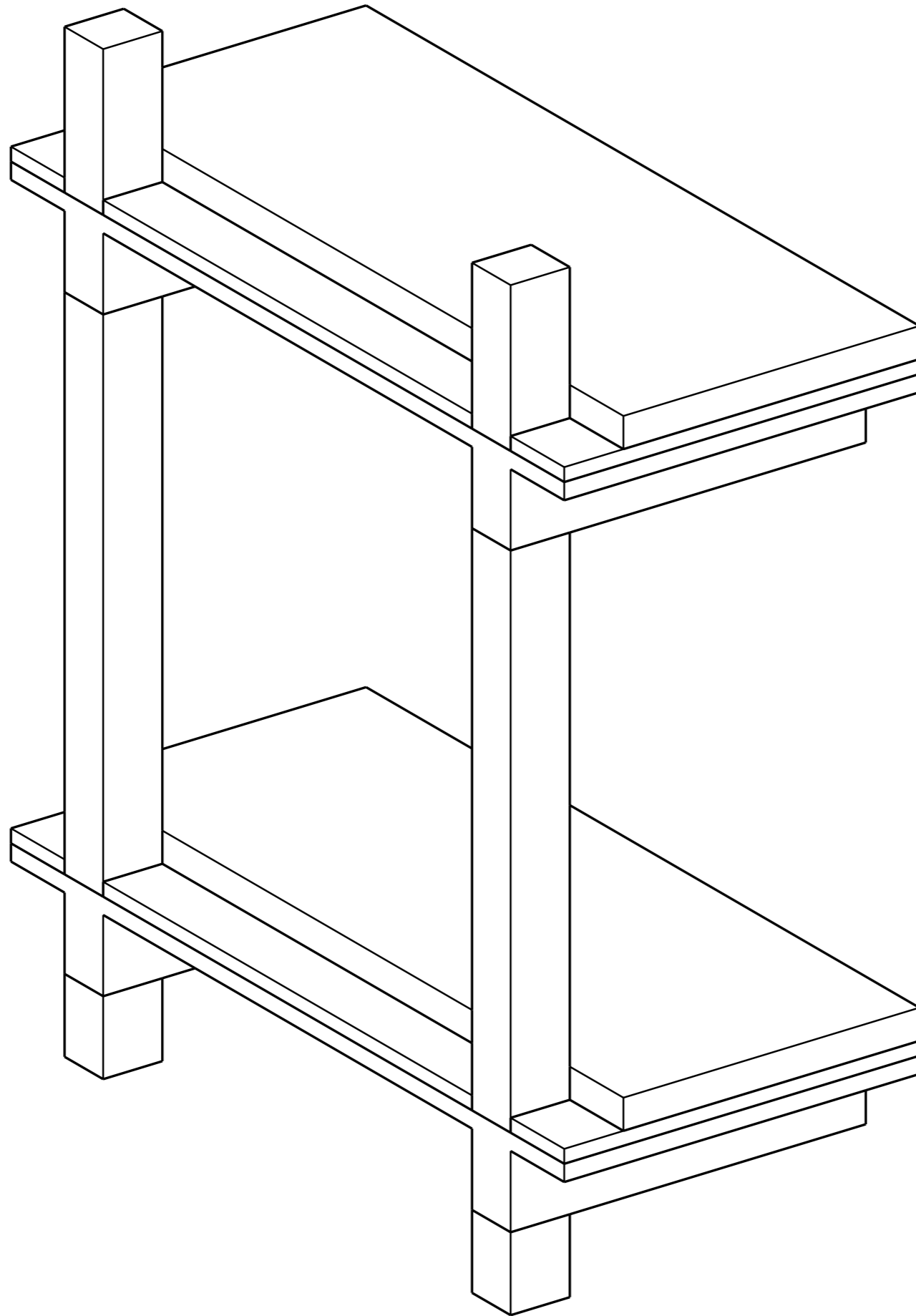
# FACADE





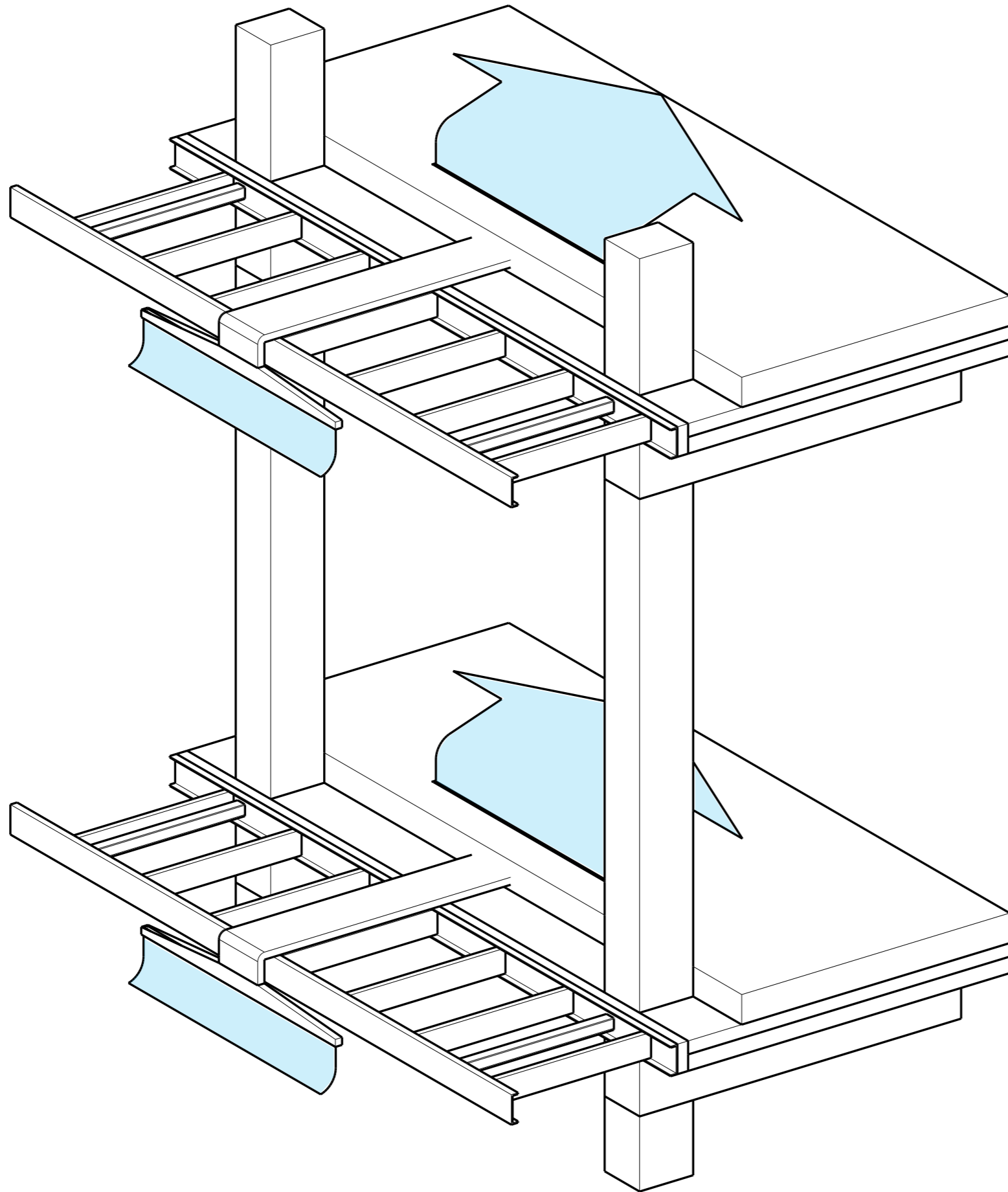
# SOUTH FACADE



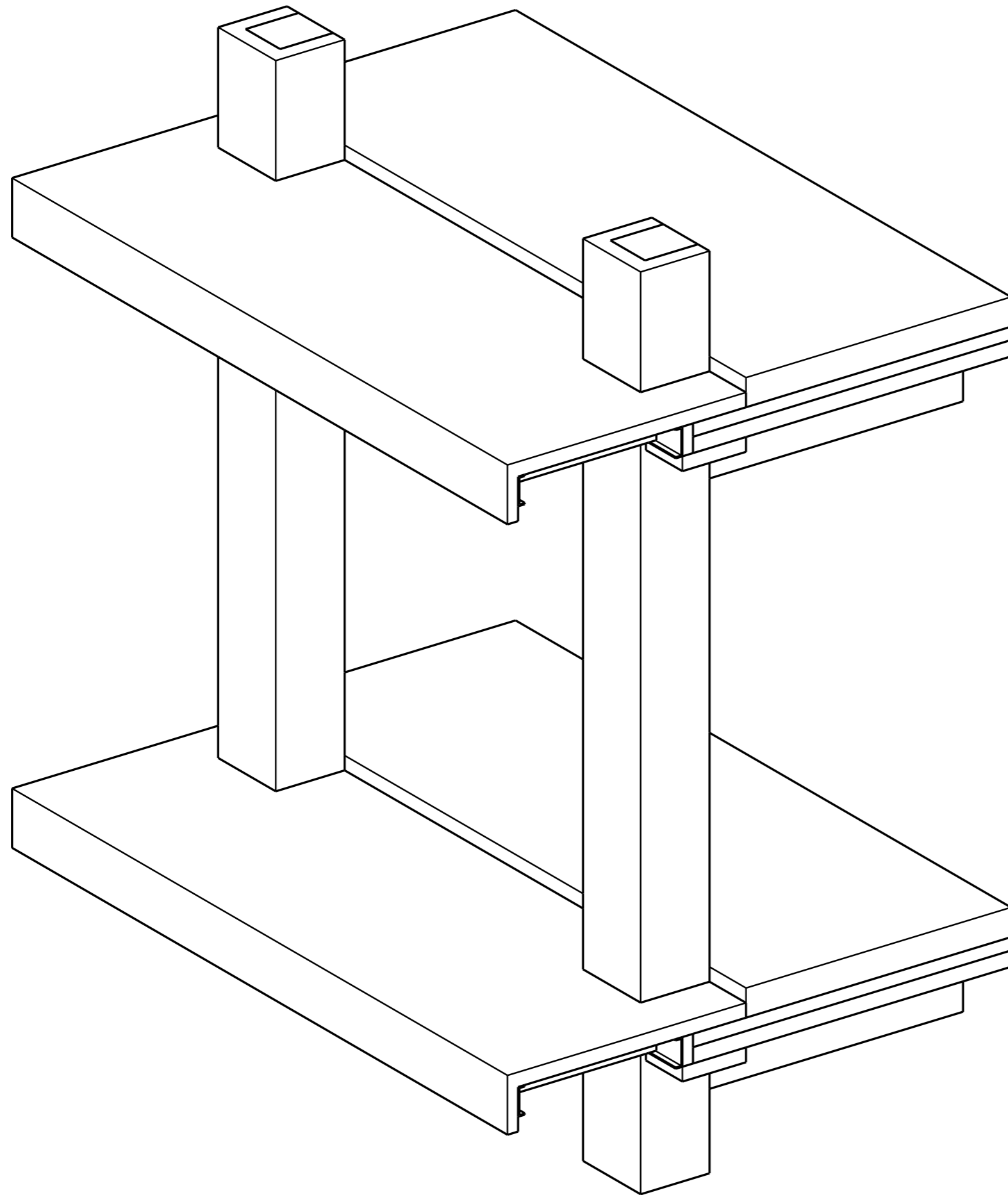


STARTING POINT

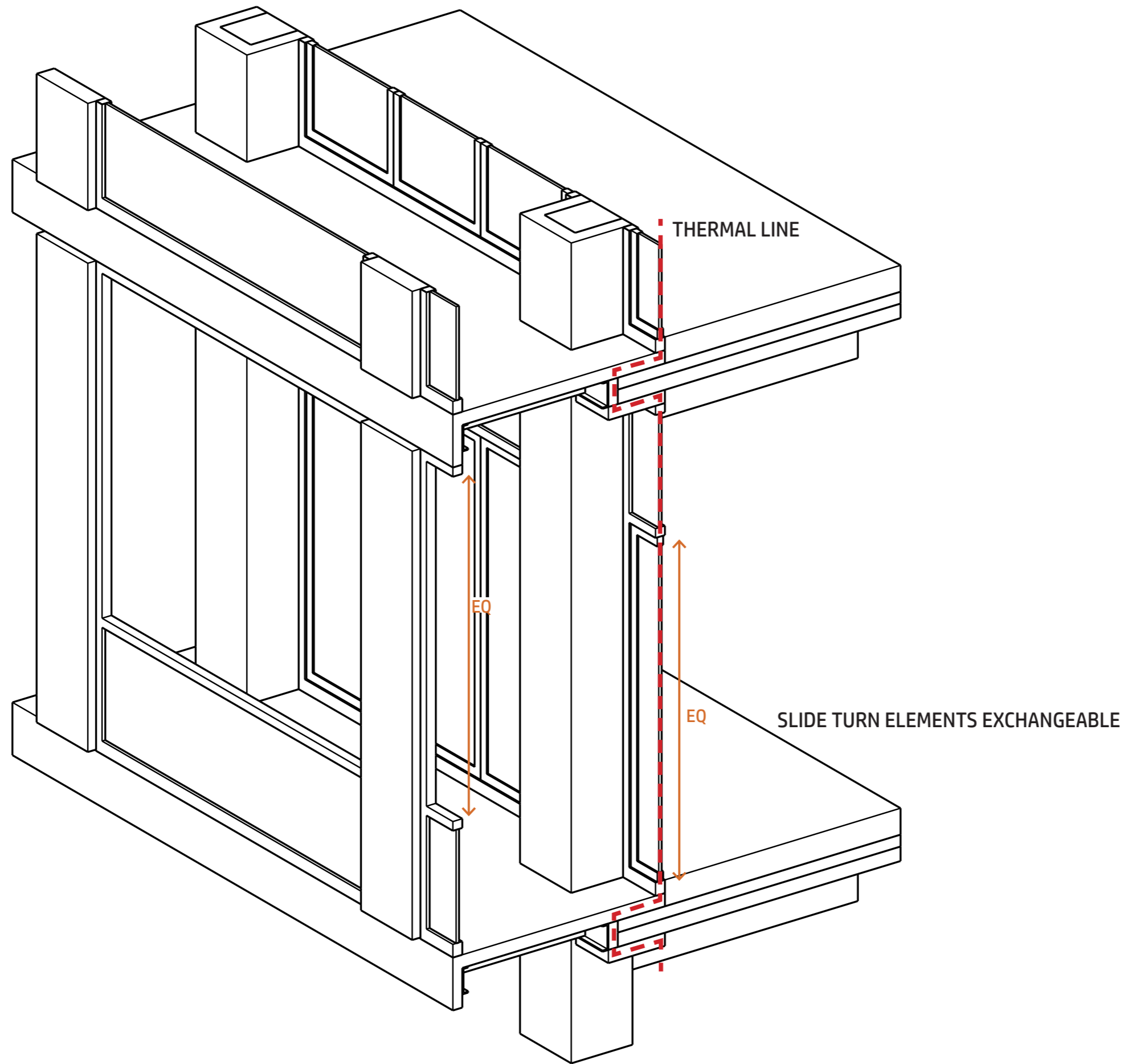




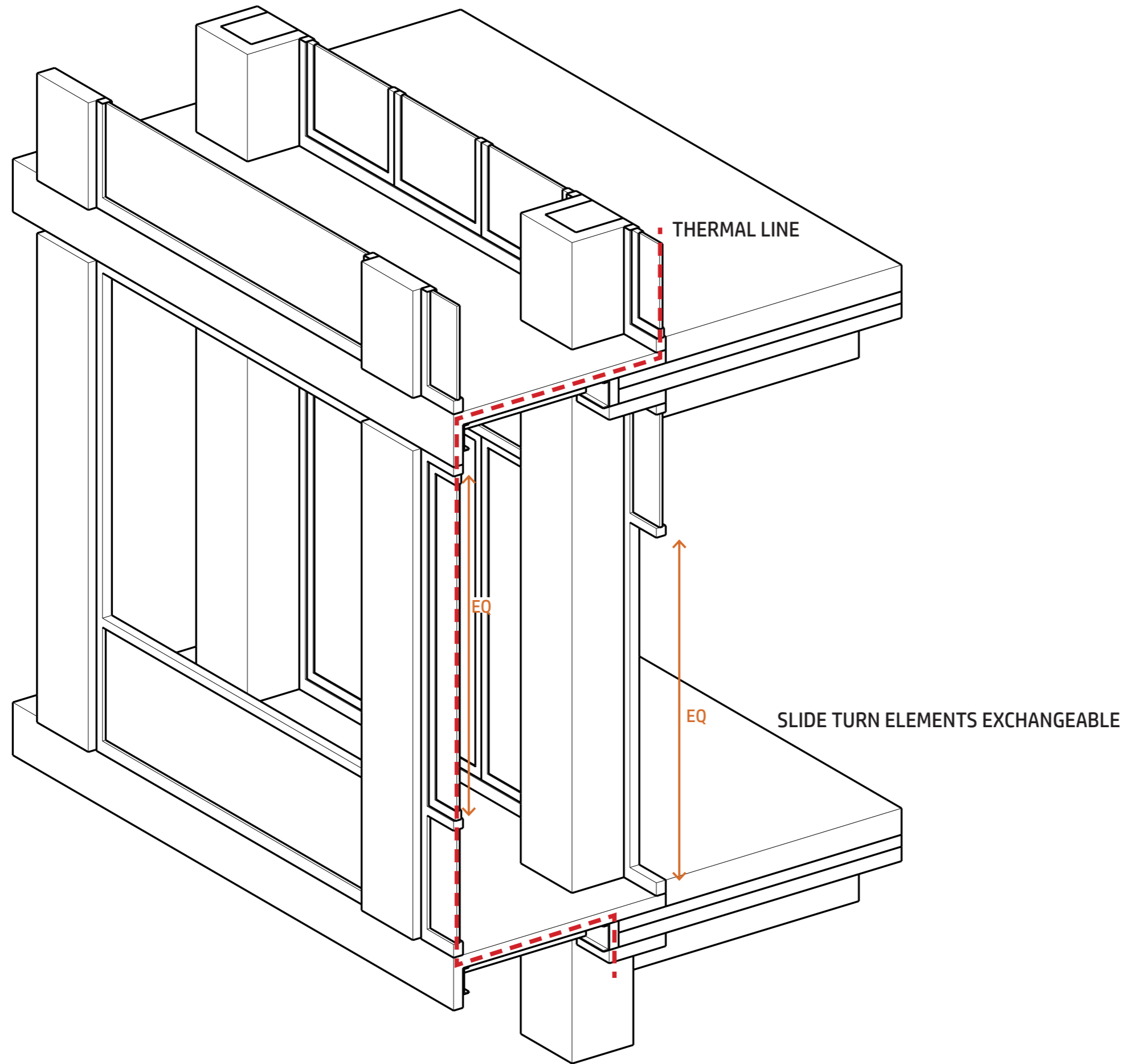
STRUCTURE &  
VENTILATION



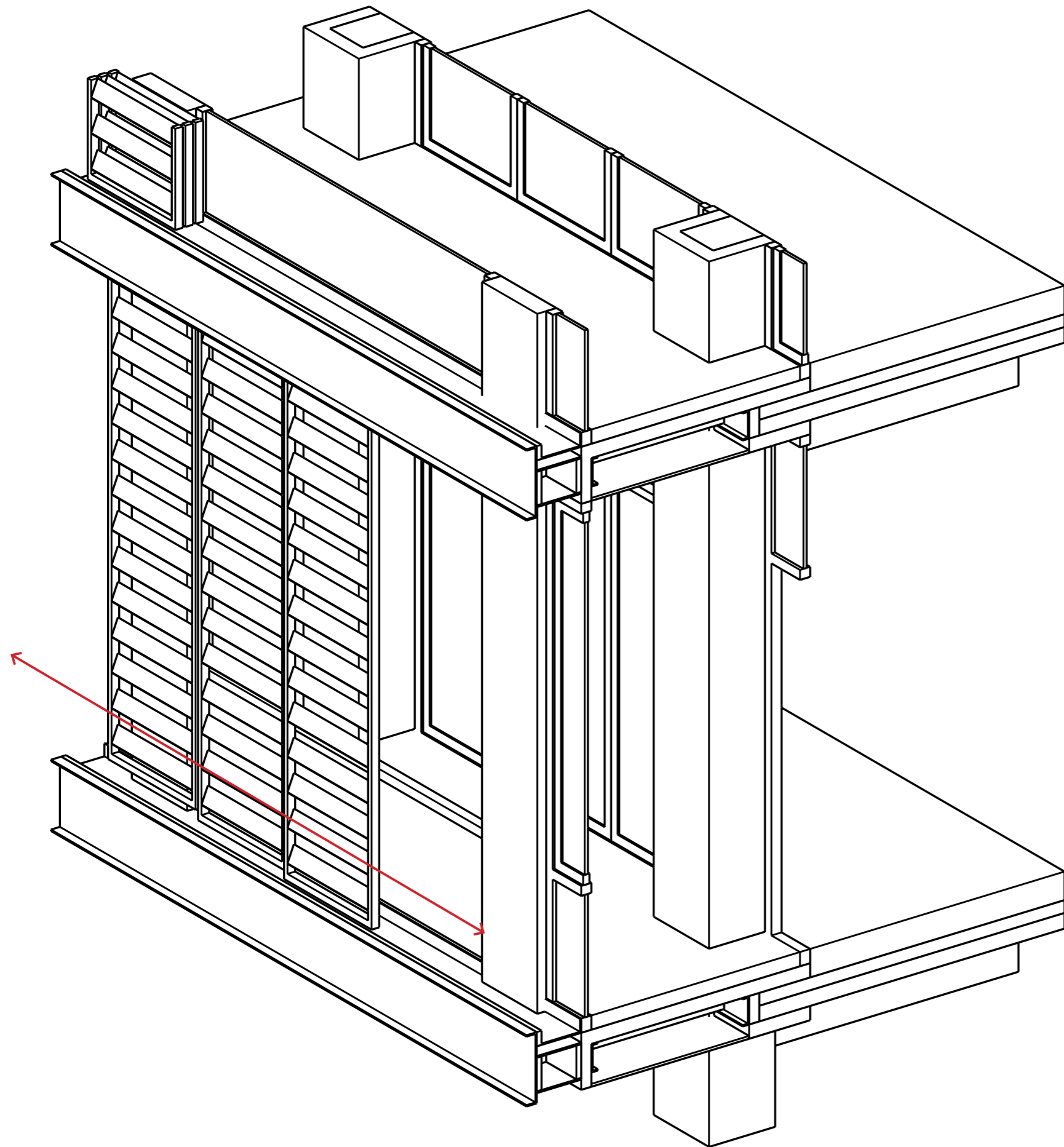
INSULATION



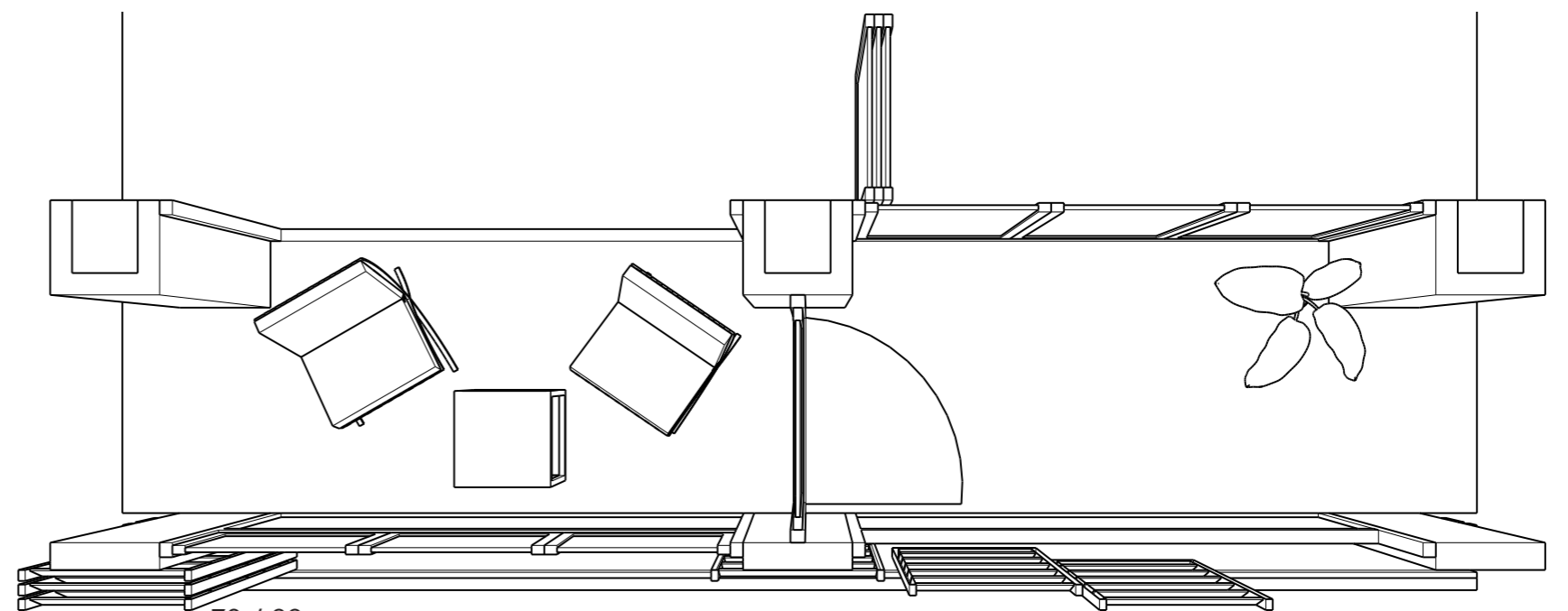
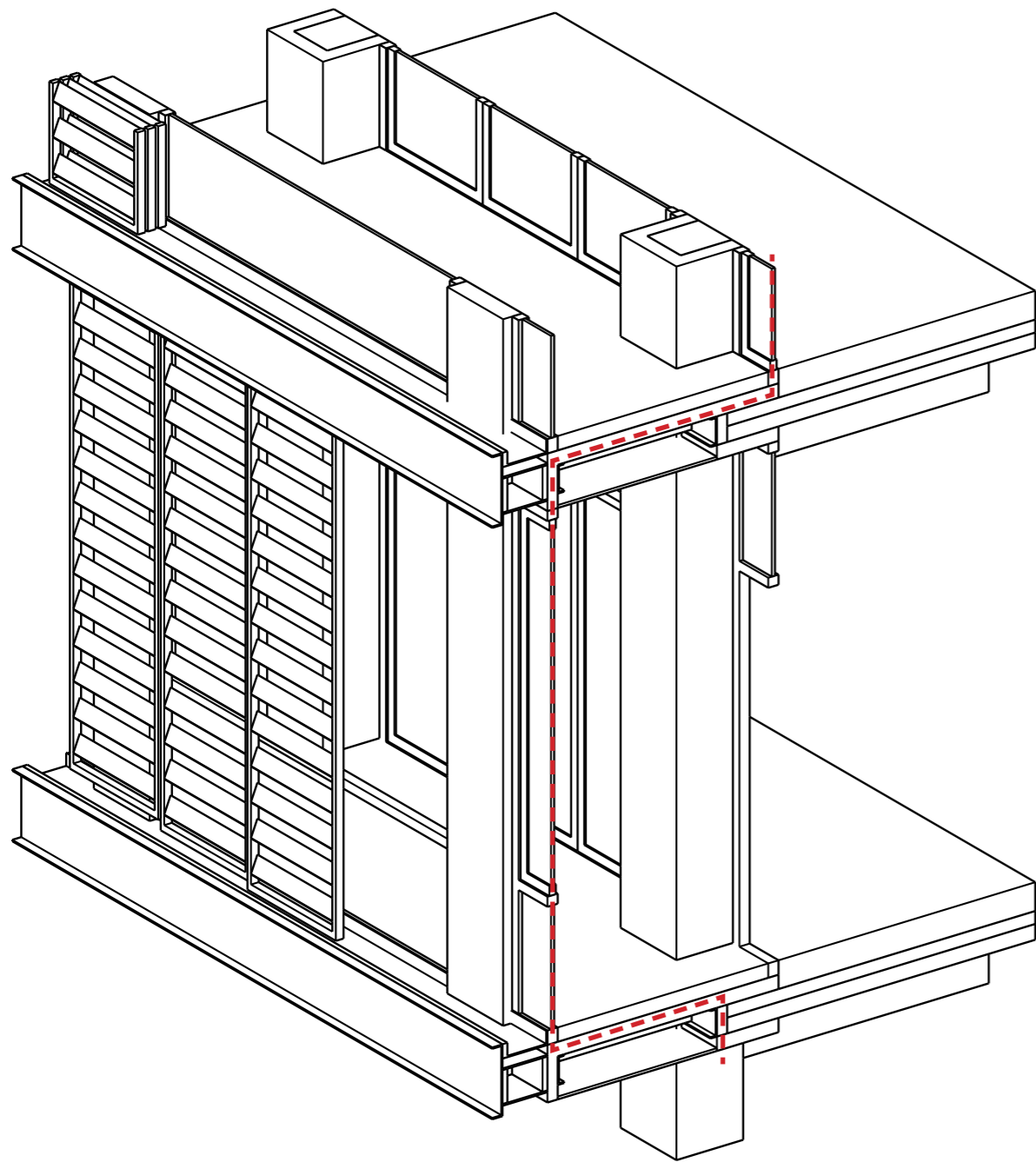
# WINDOW FRAME

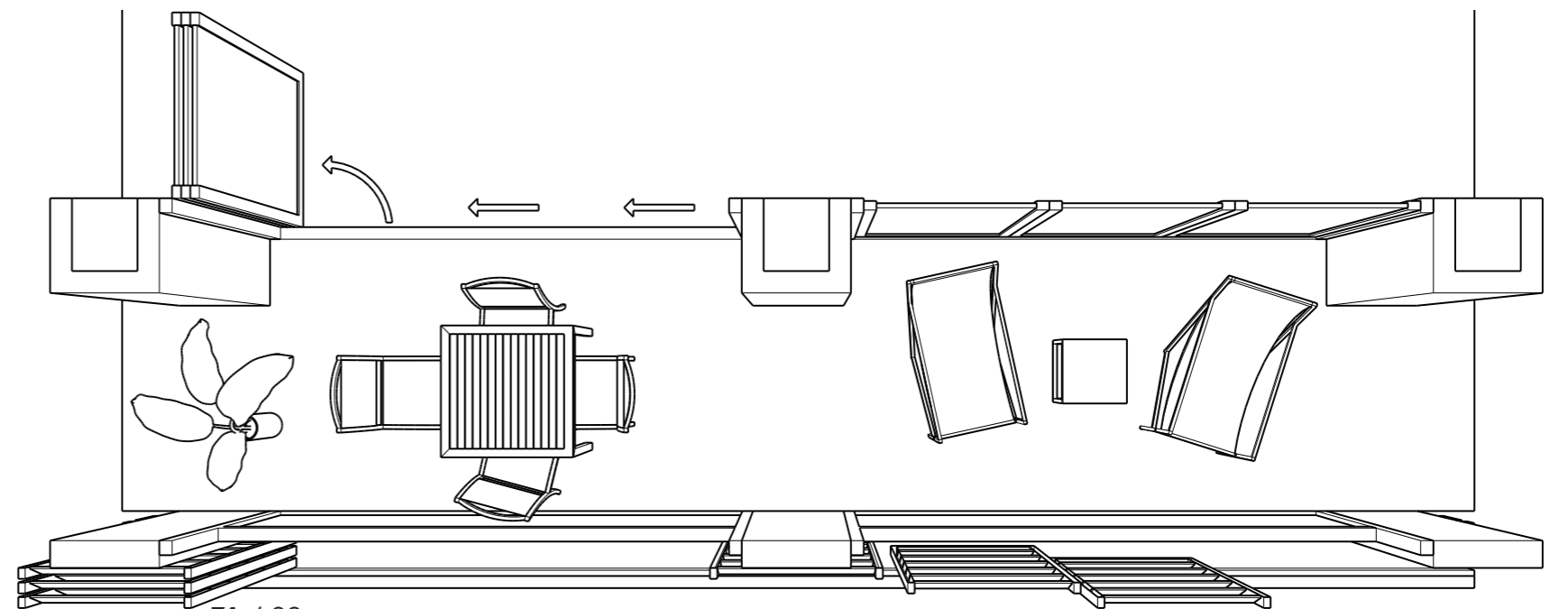
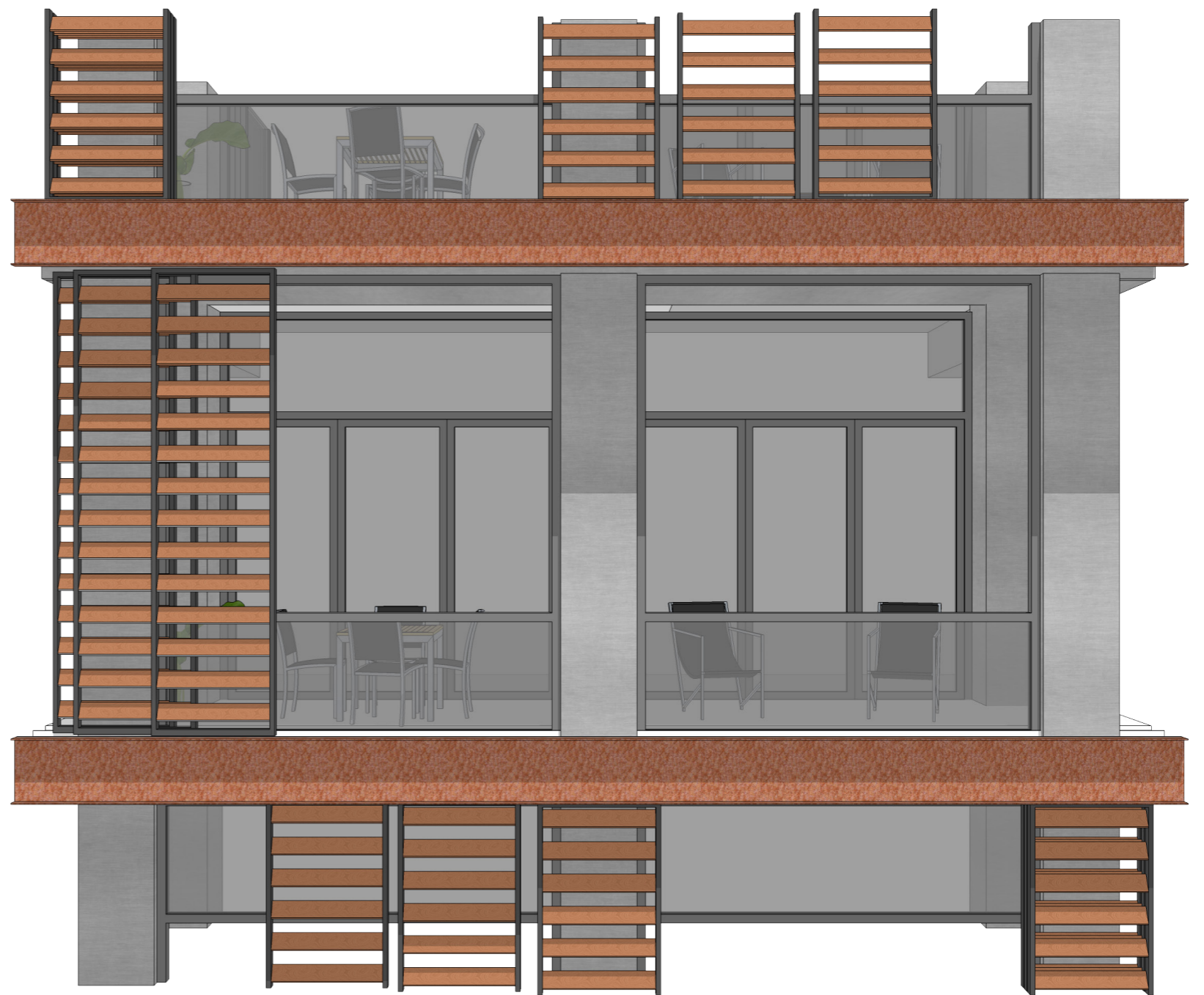
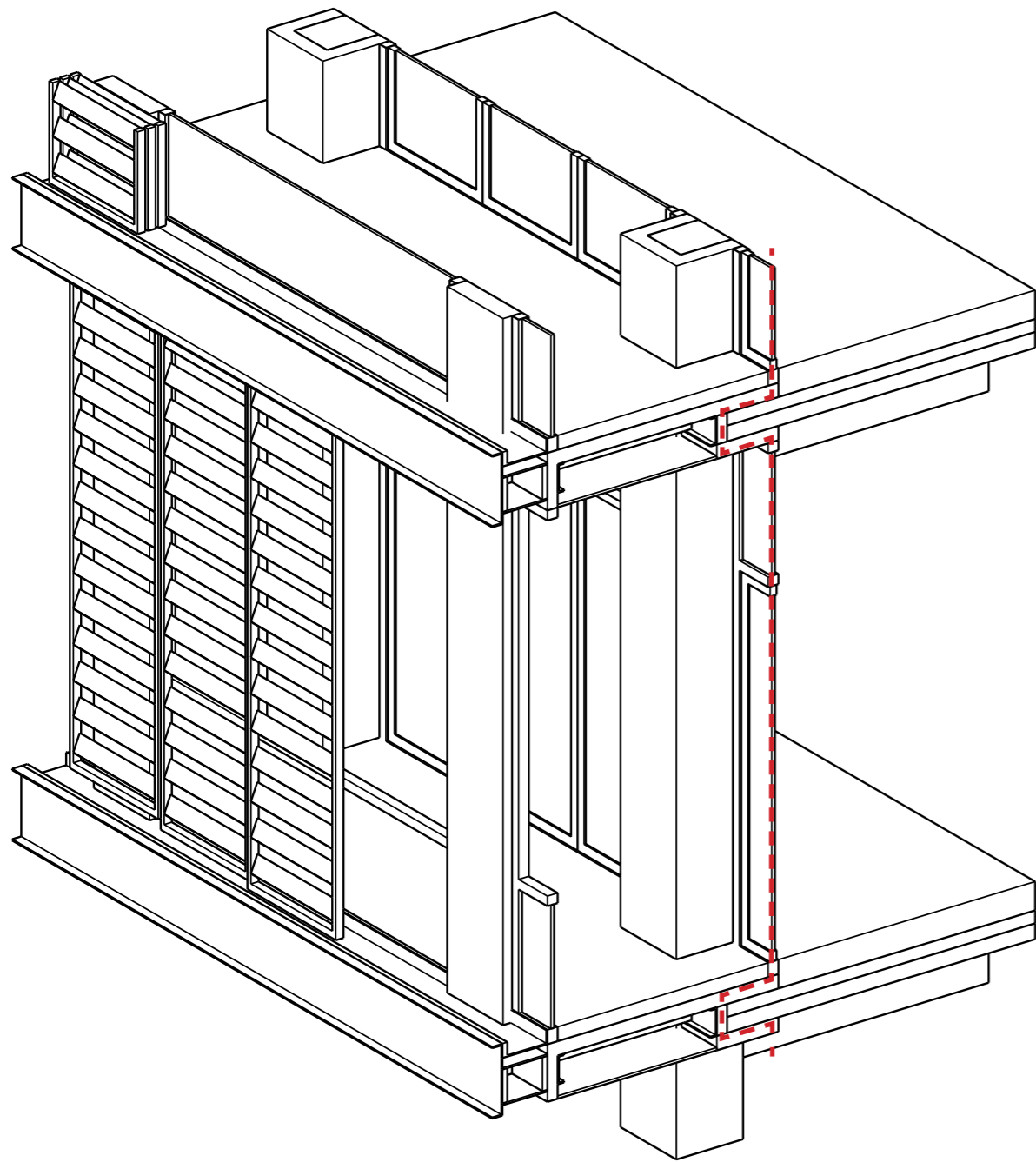


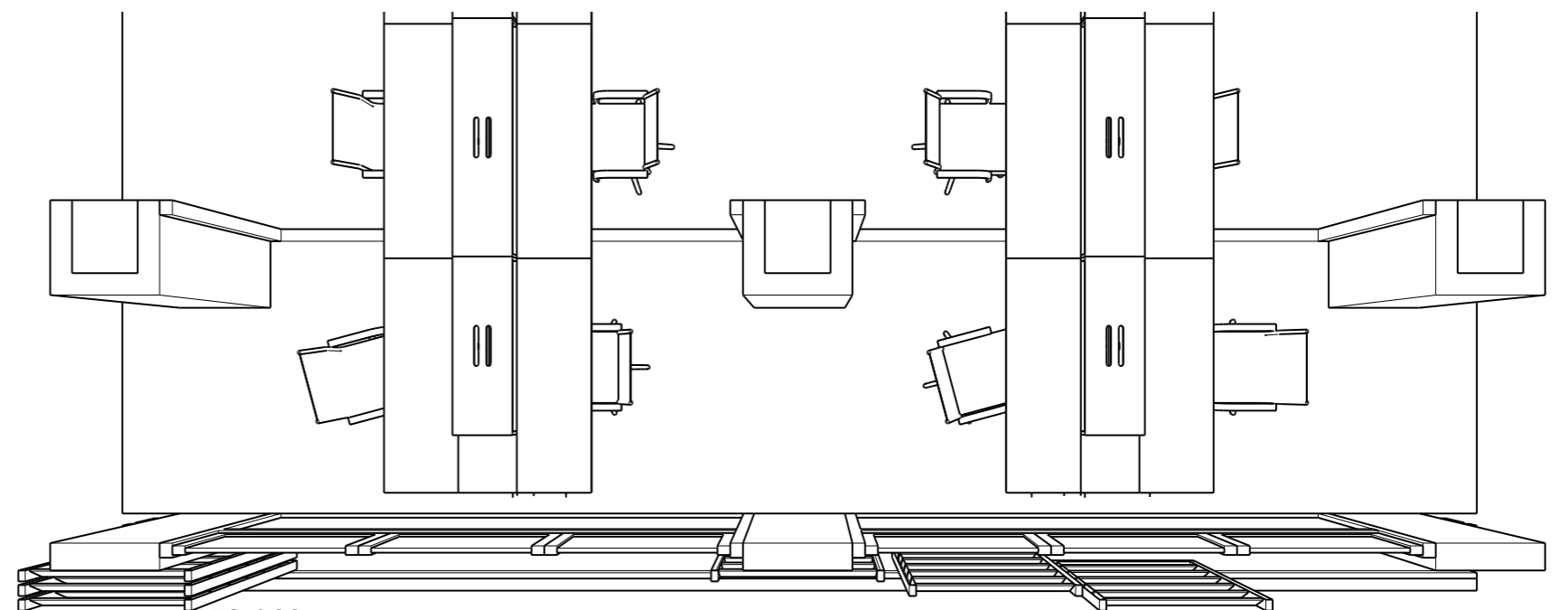
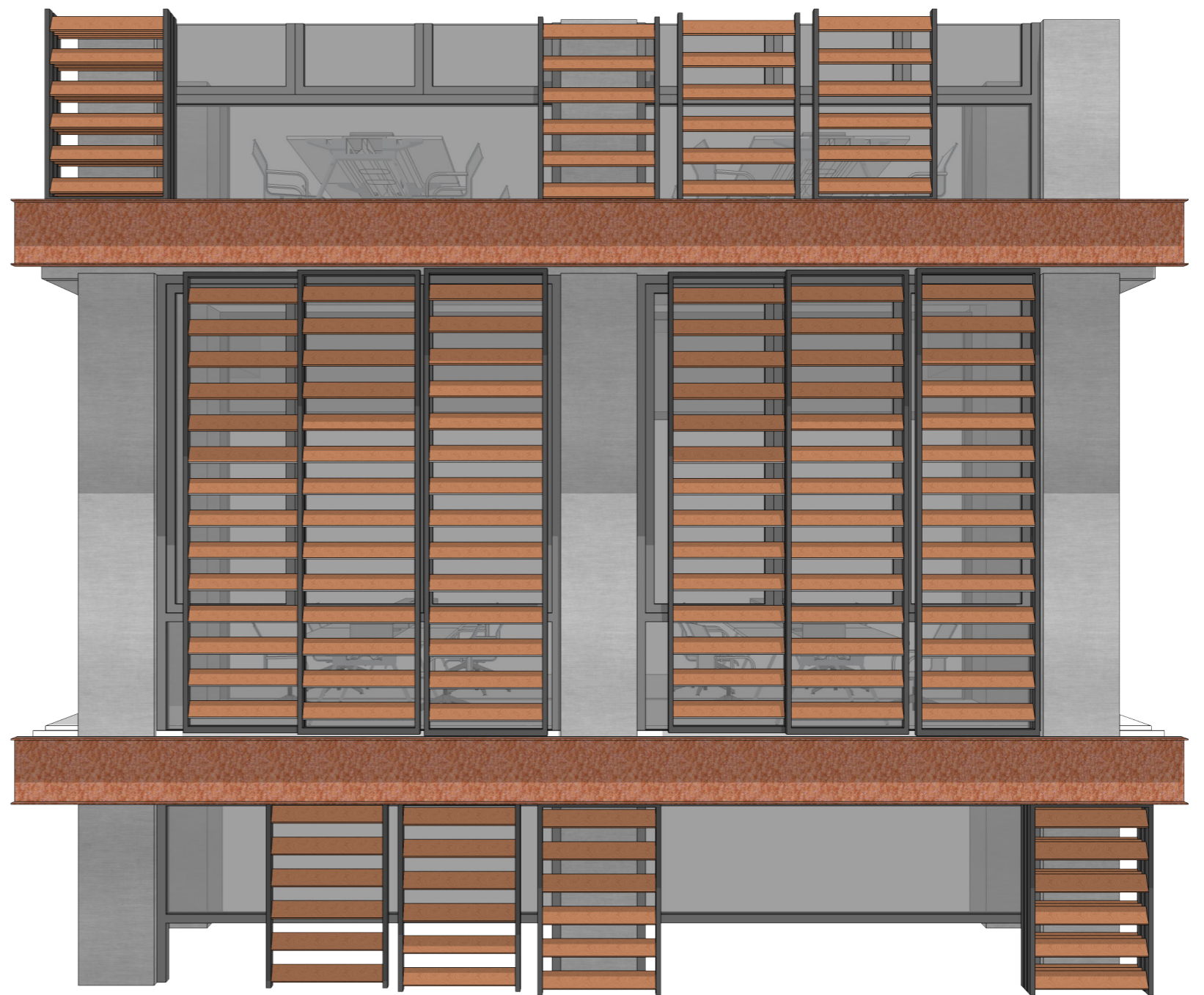
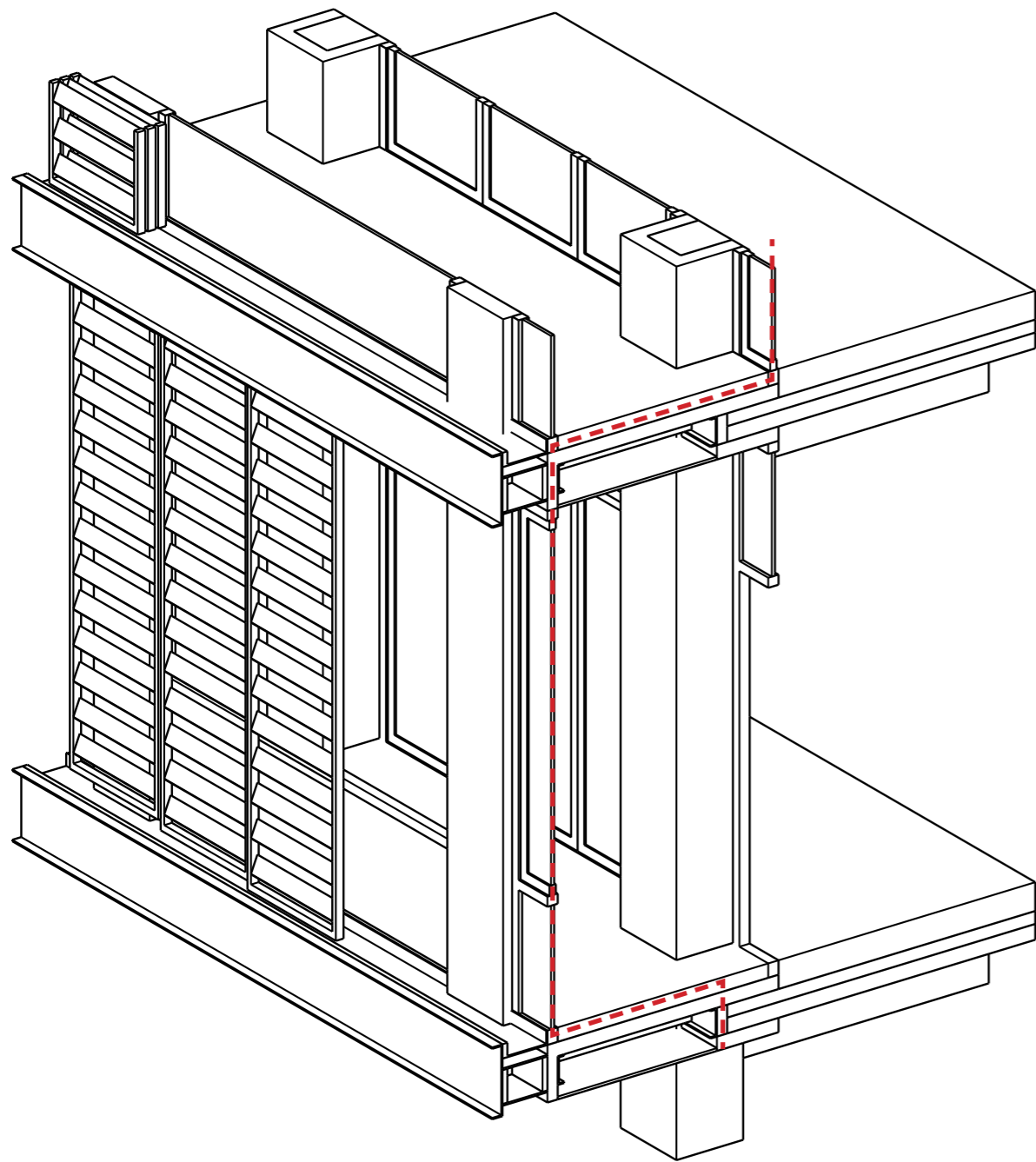
# WINDOW FRAME



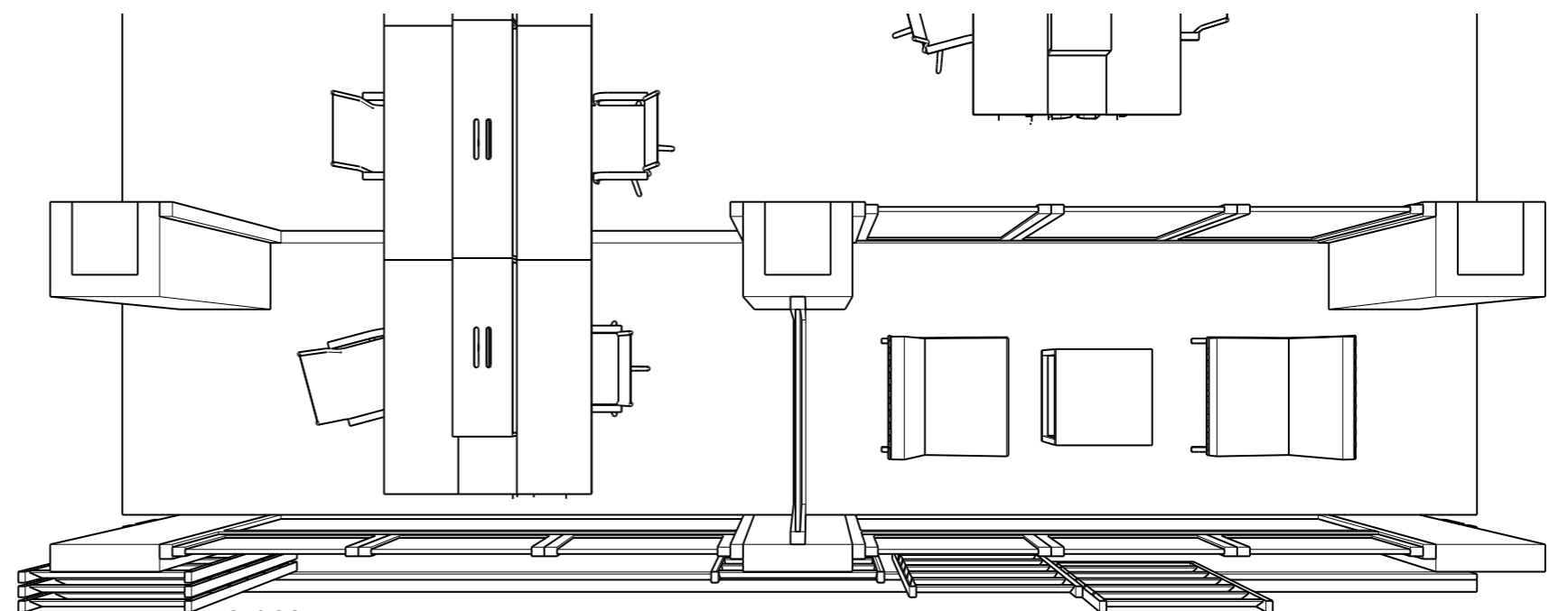
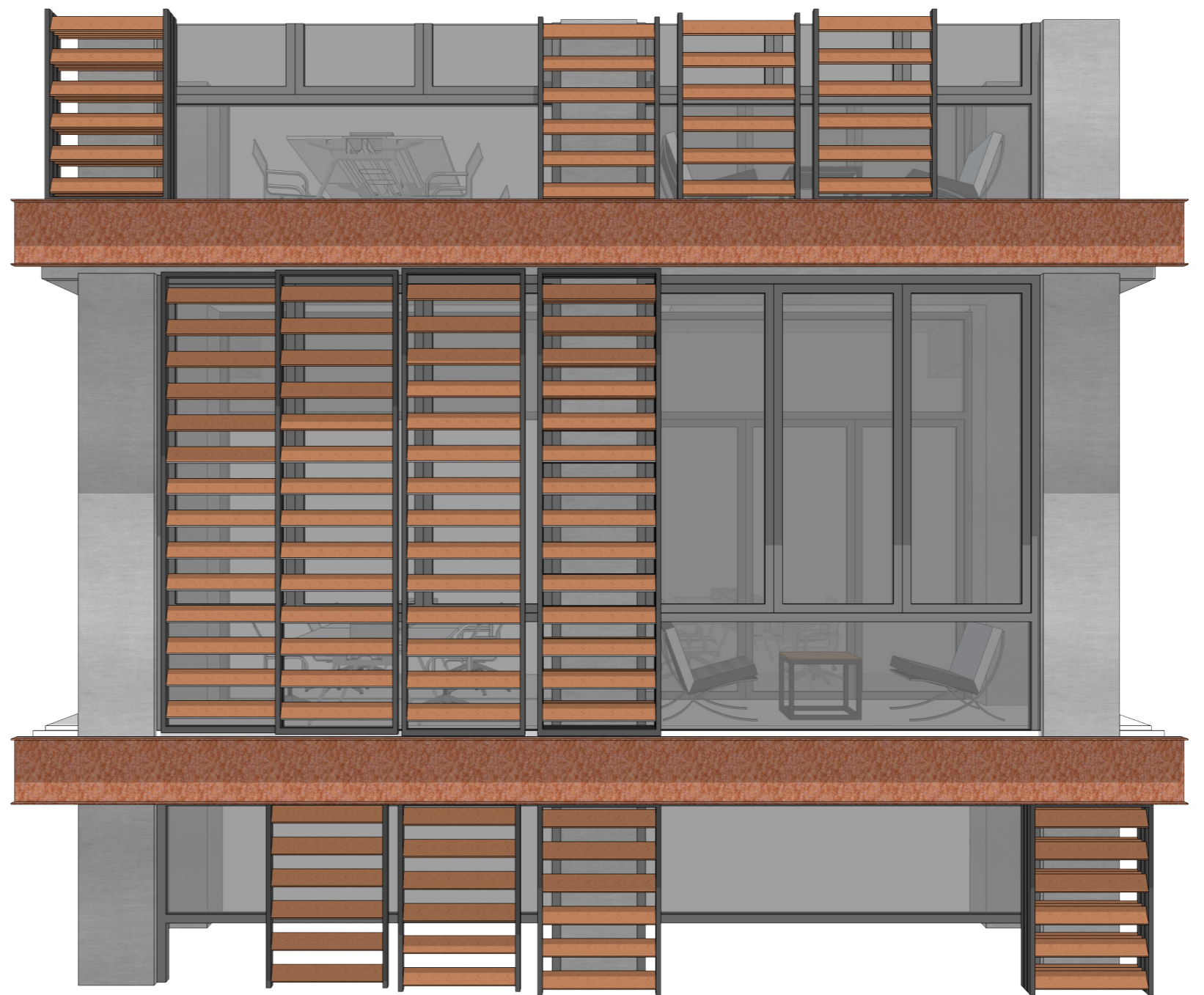
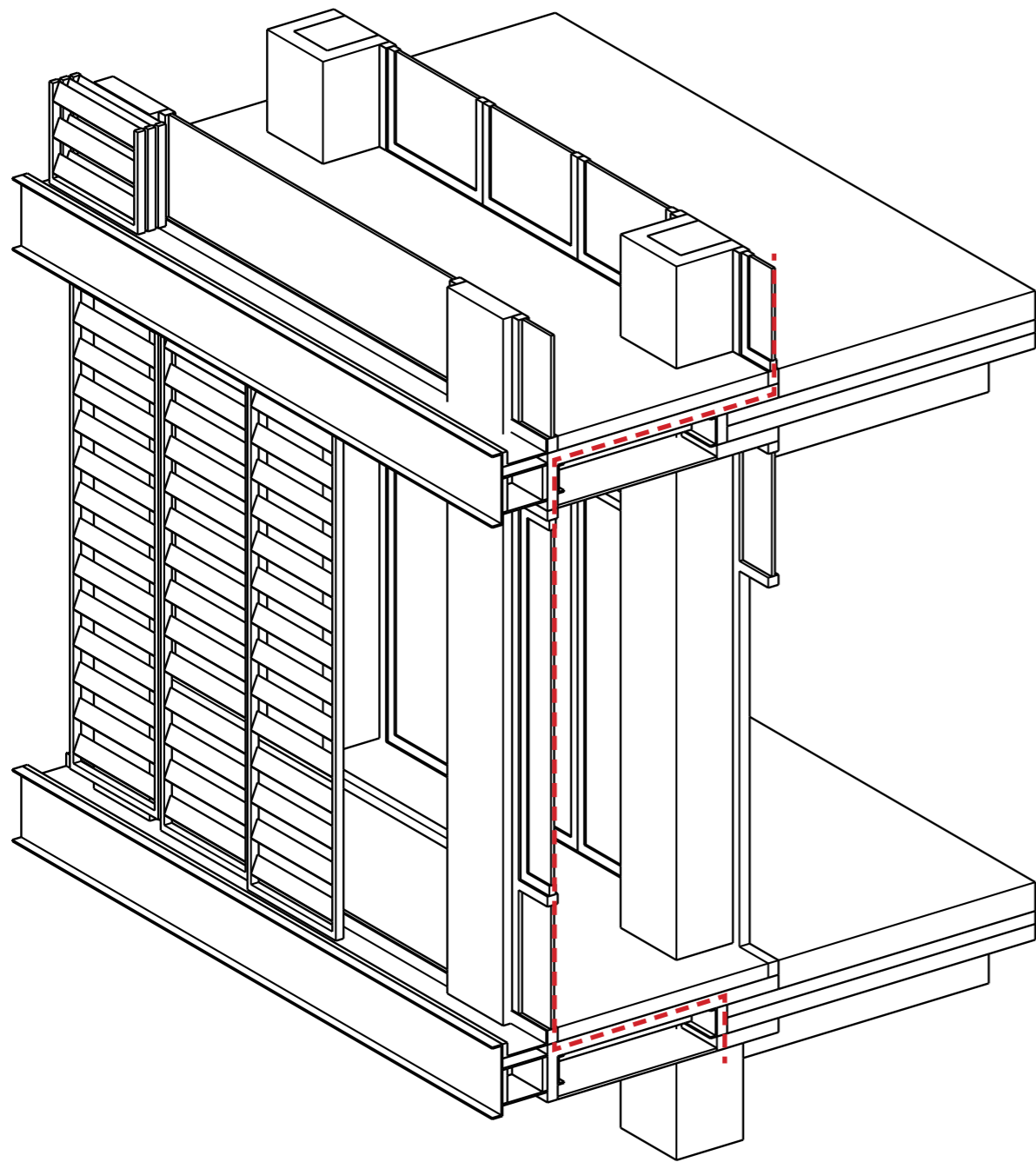
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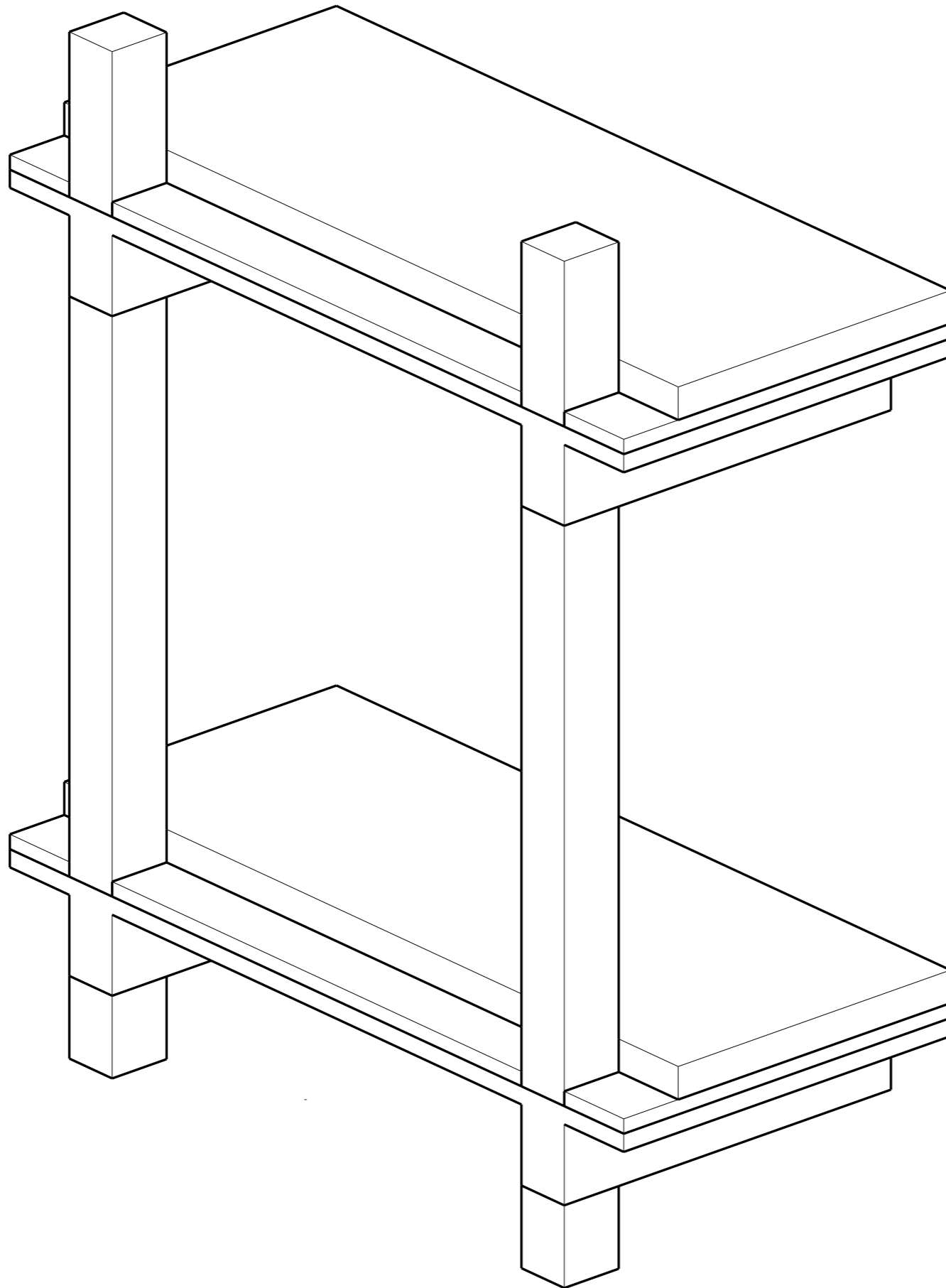




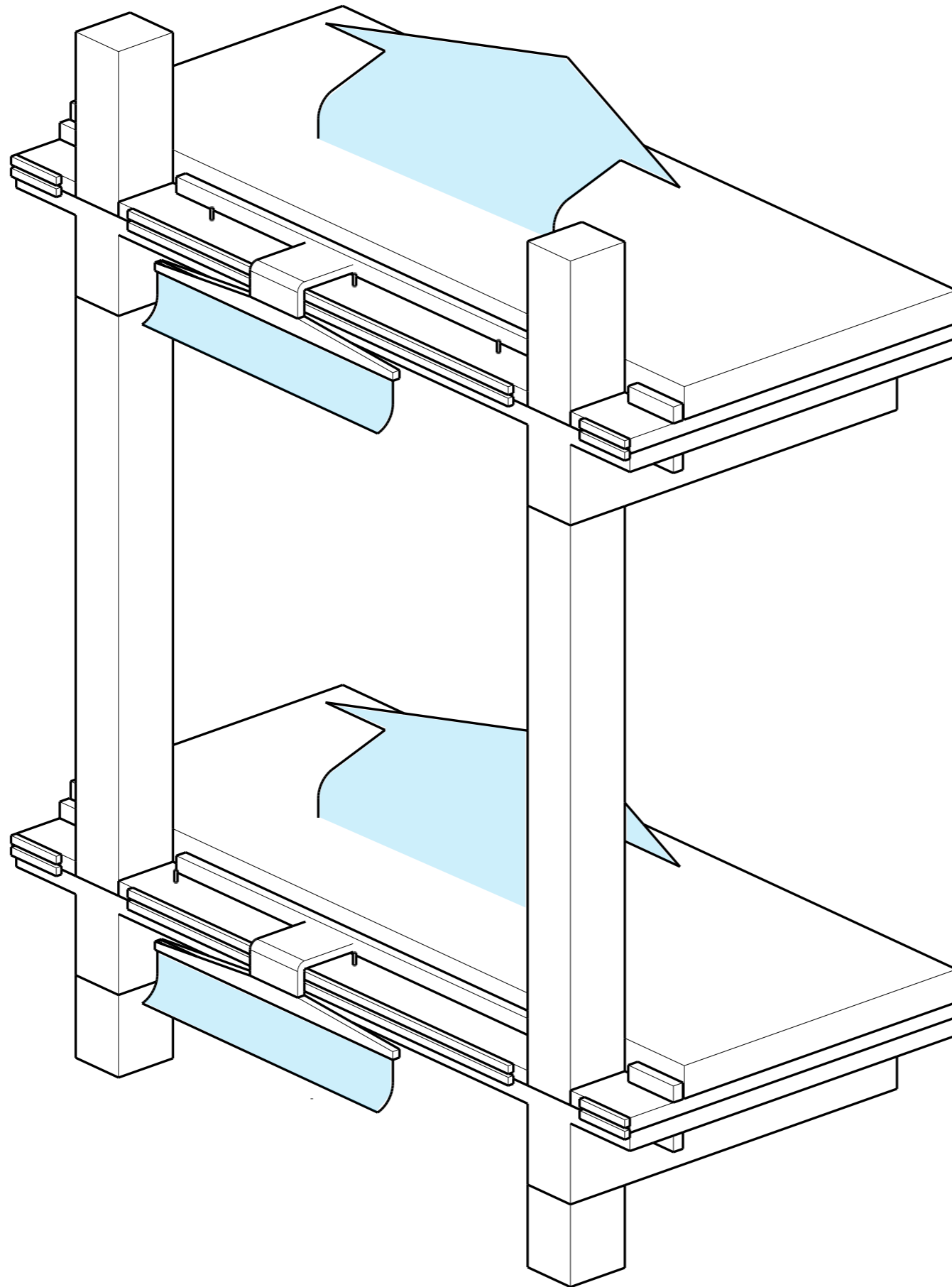


# NORTH FACADE

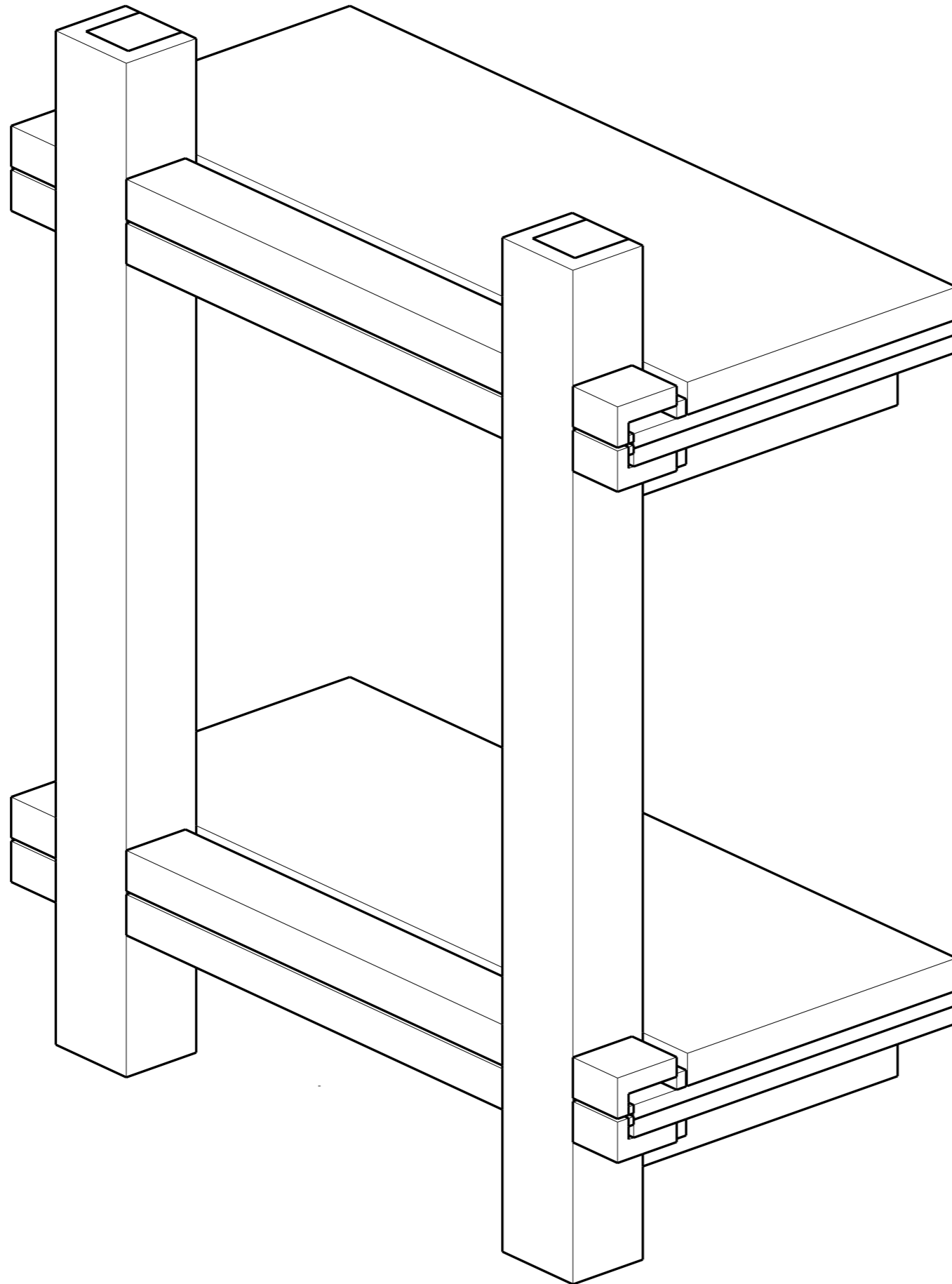




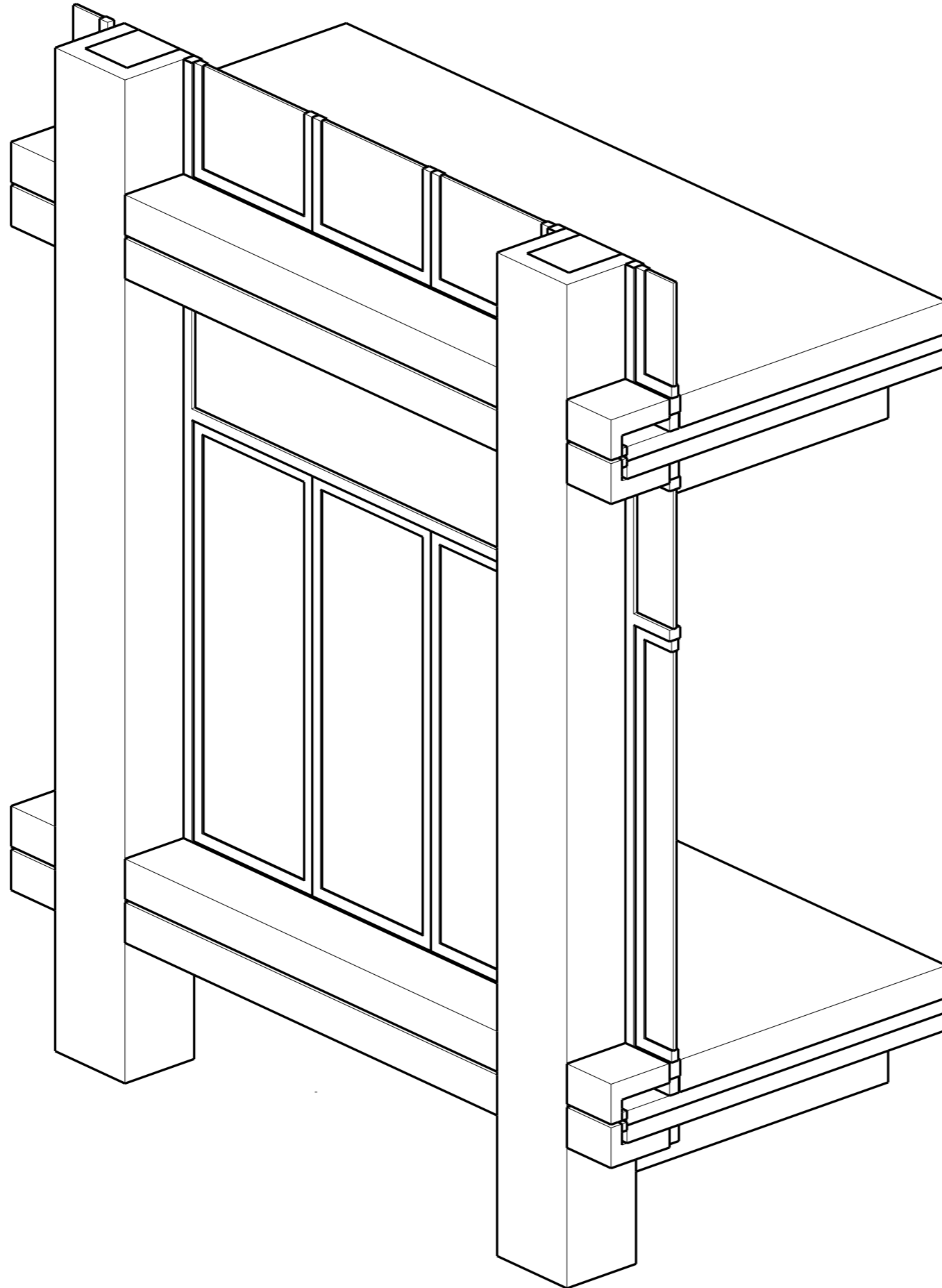
STARTING POINT



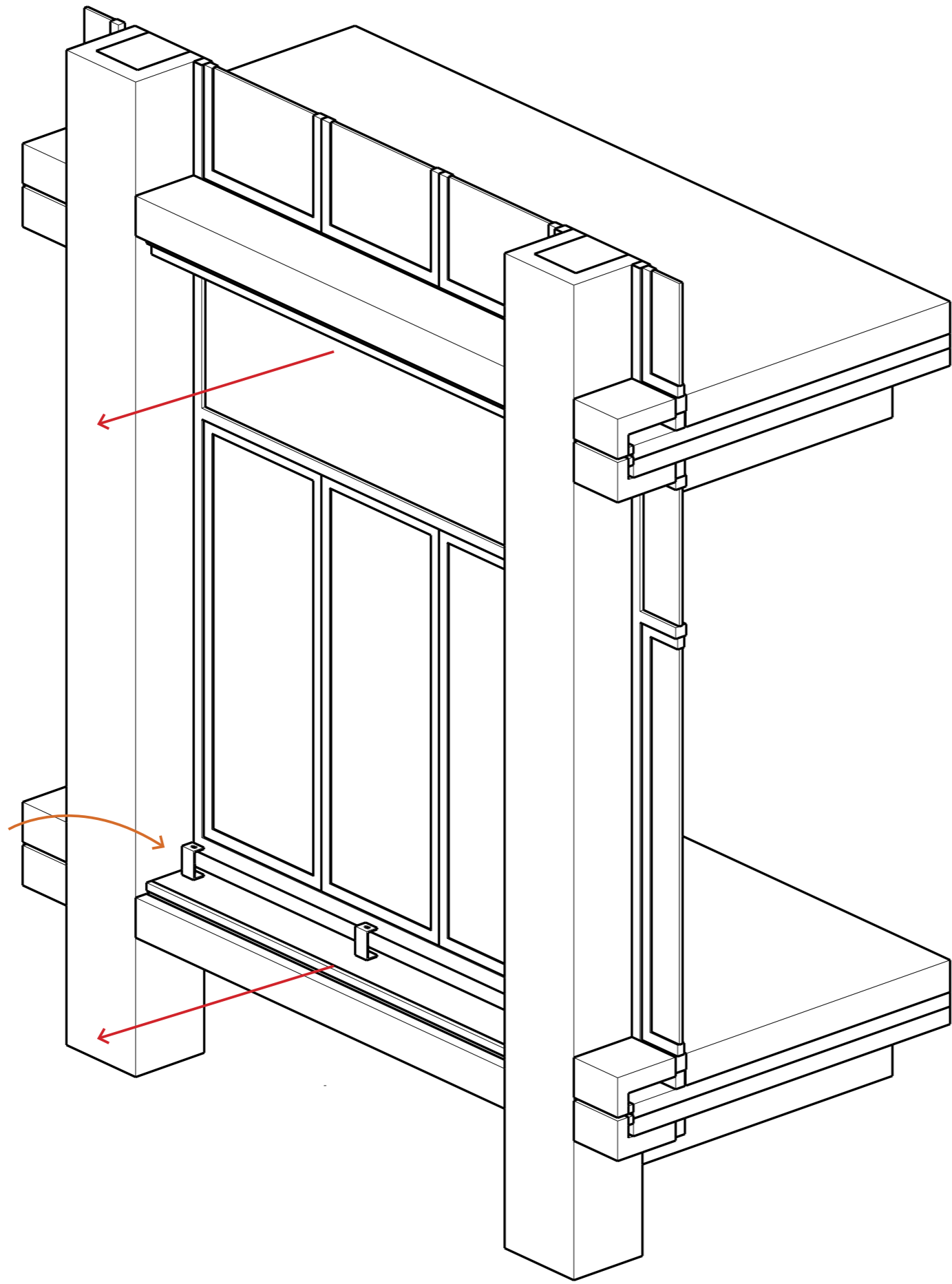
STRUCTURE &  
VENTILATION



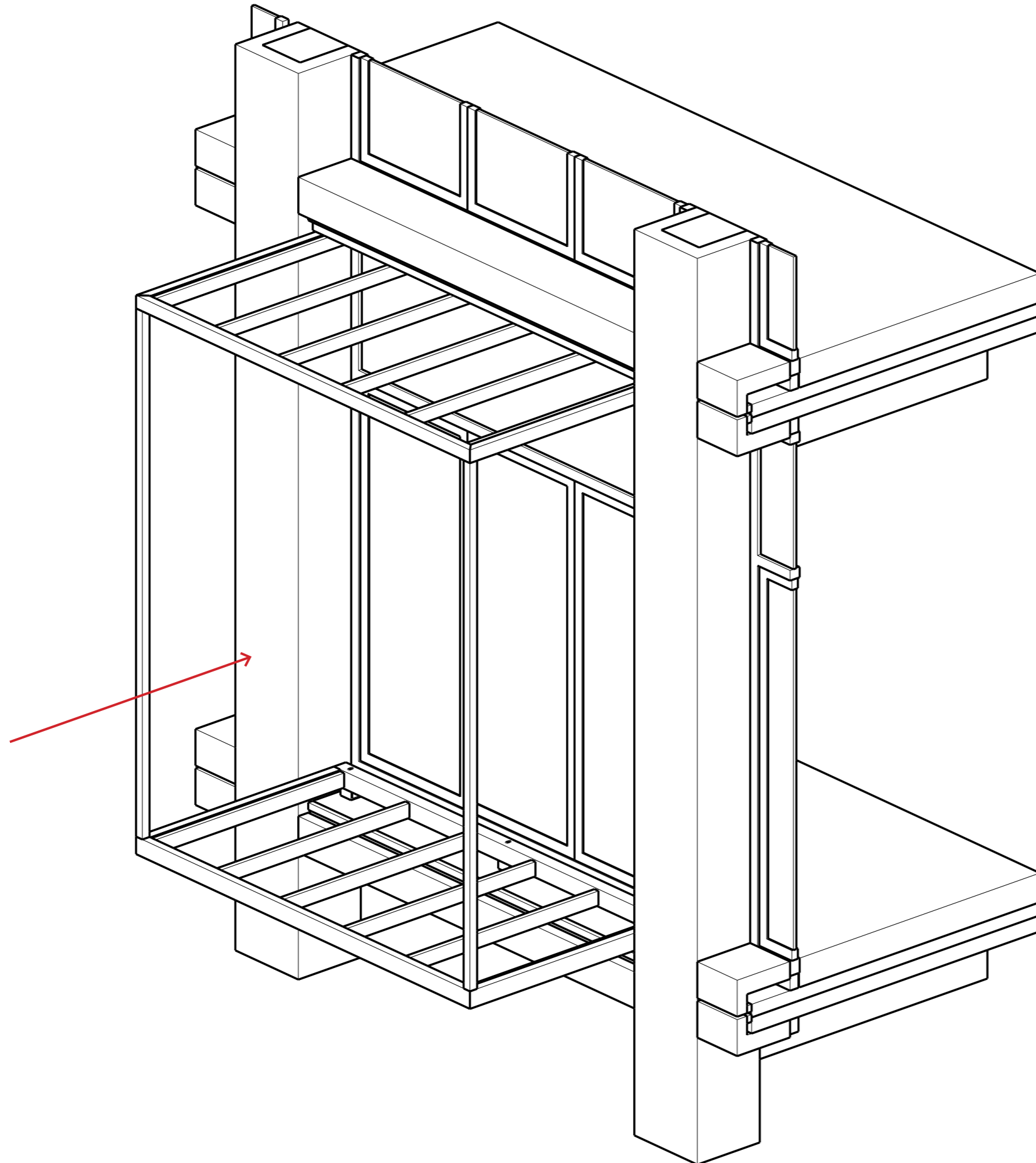
INSULATION



WINDOW FRAME

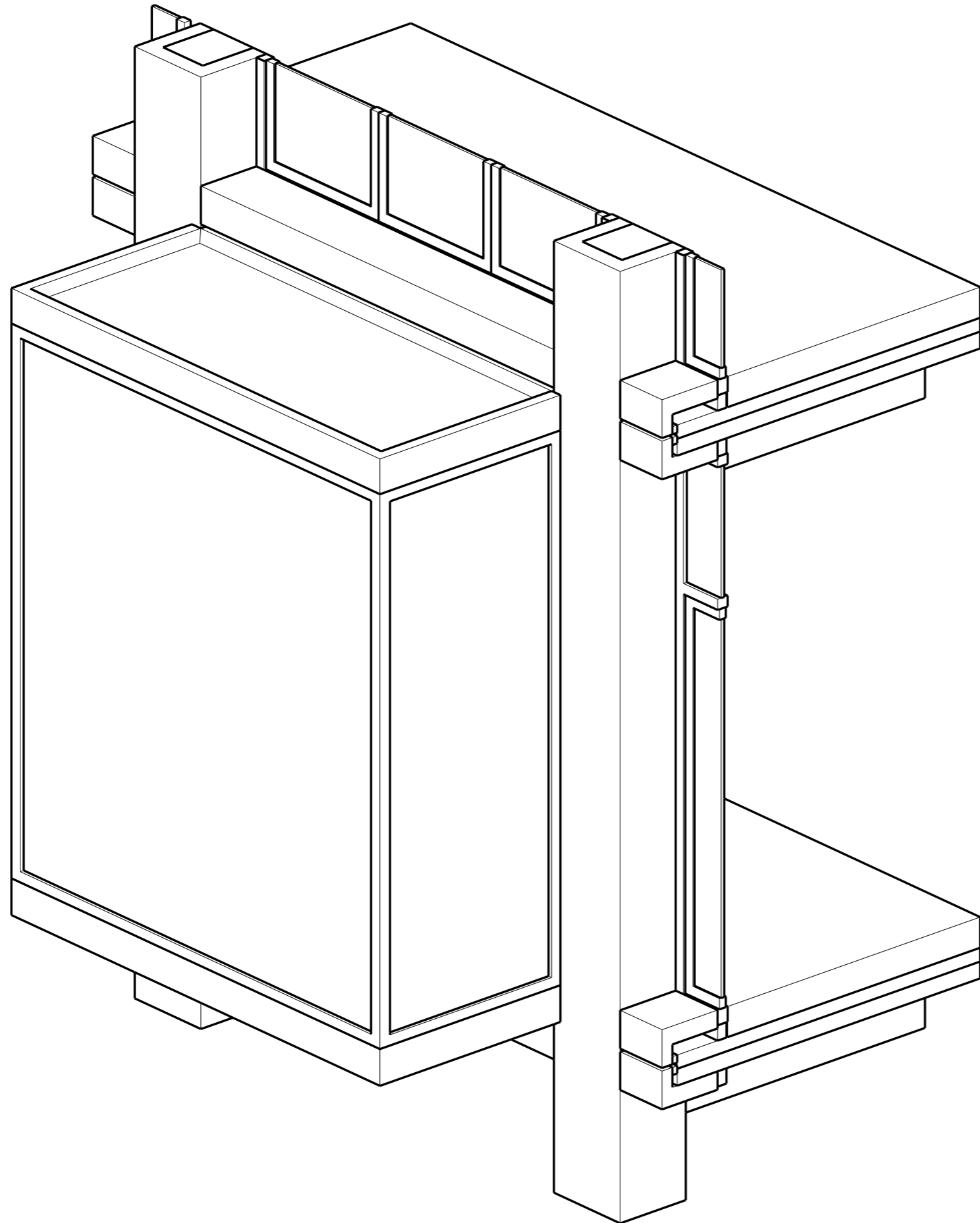


PREPARING ADDITION

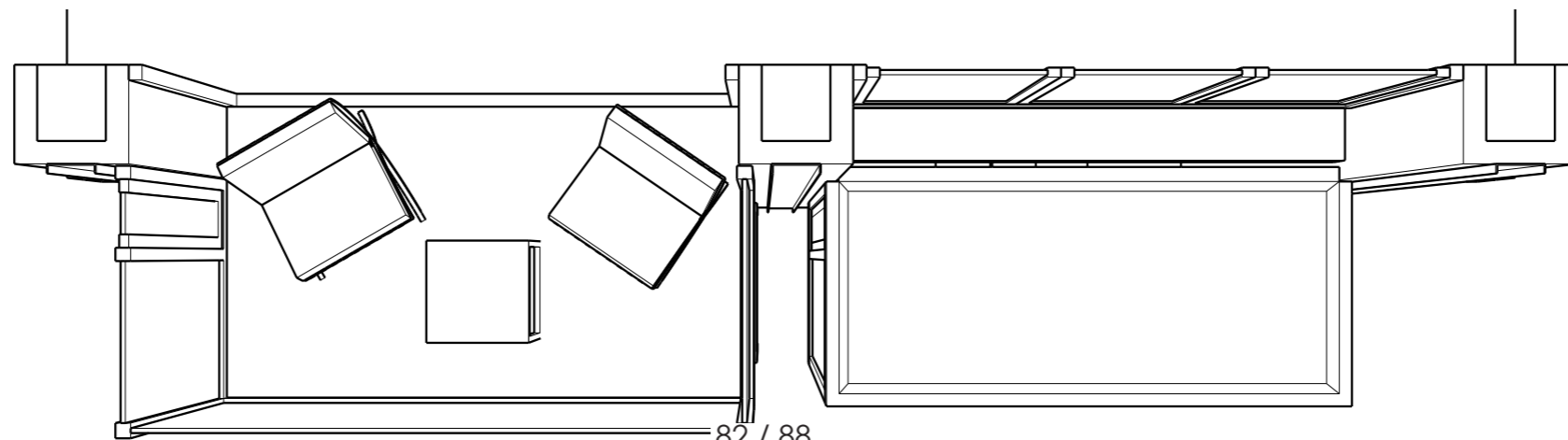


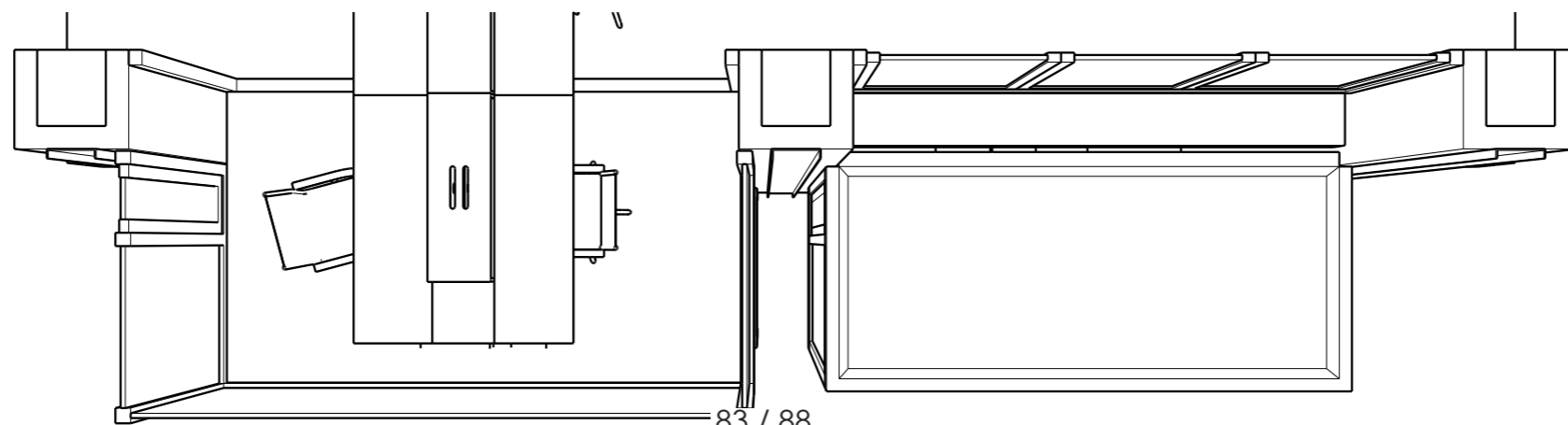
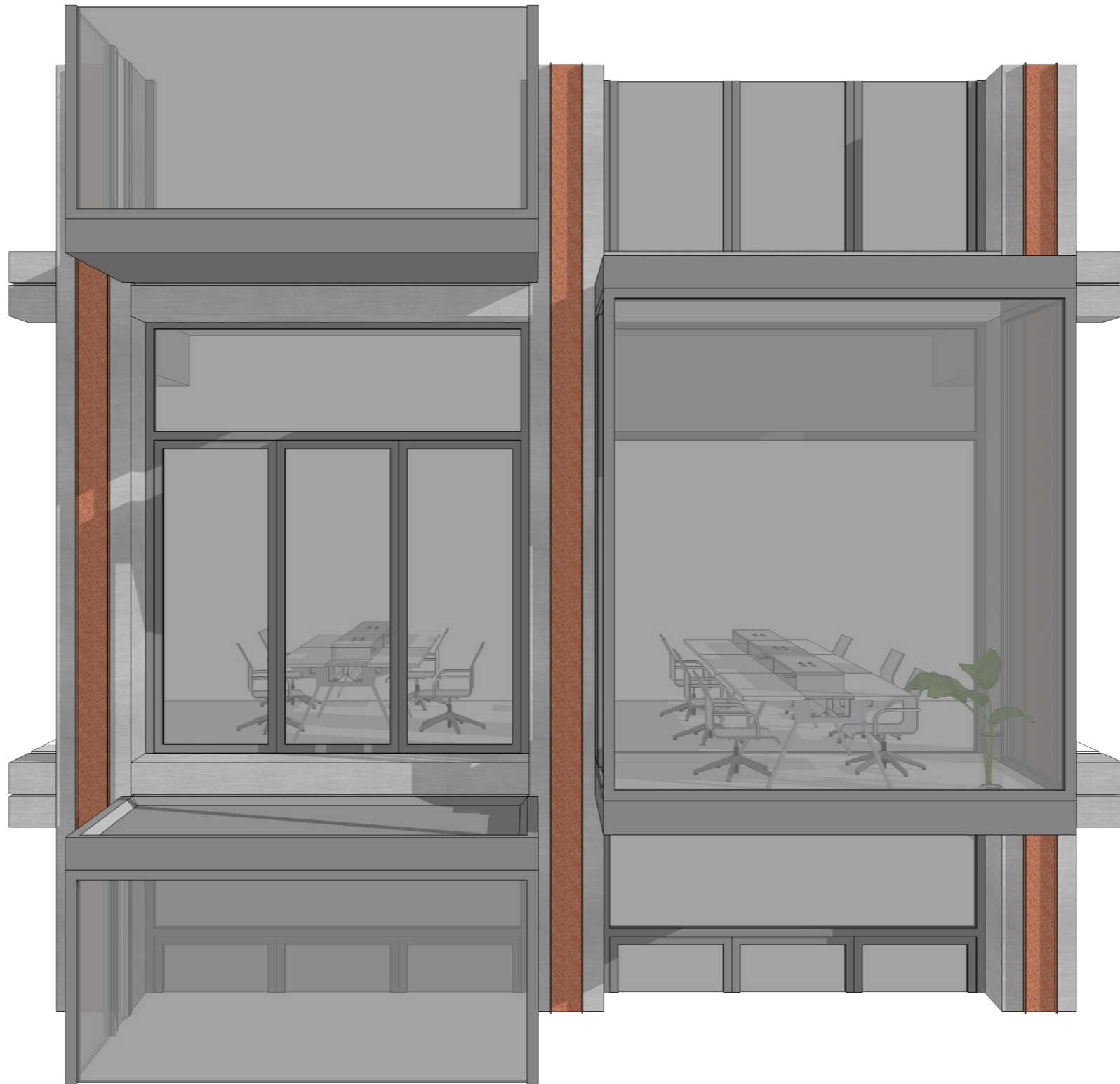
STRUCTURE ADDITION



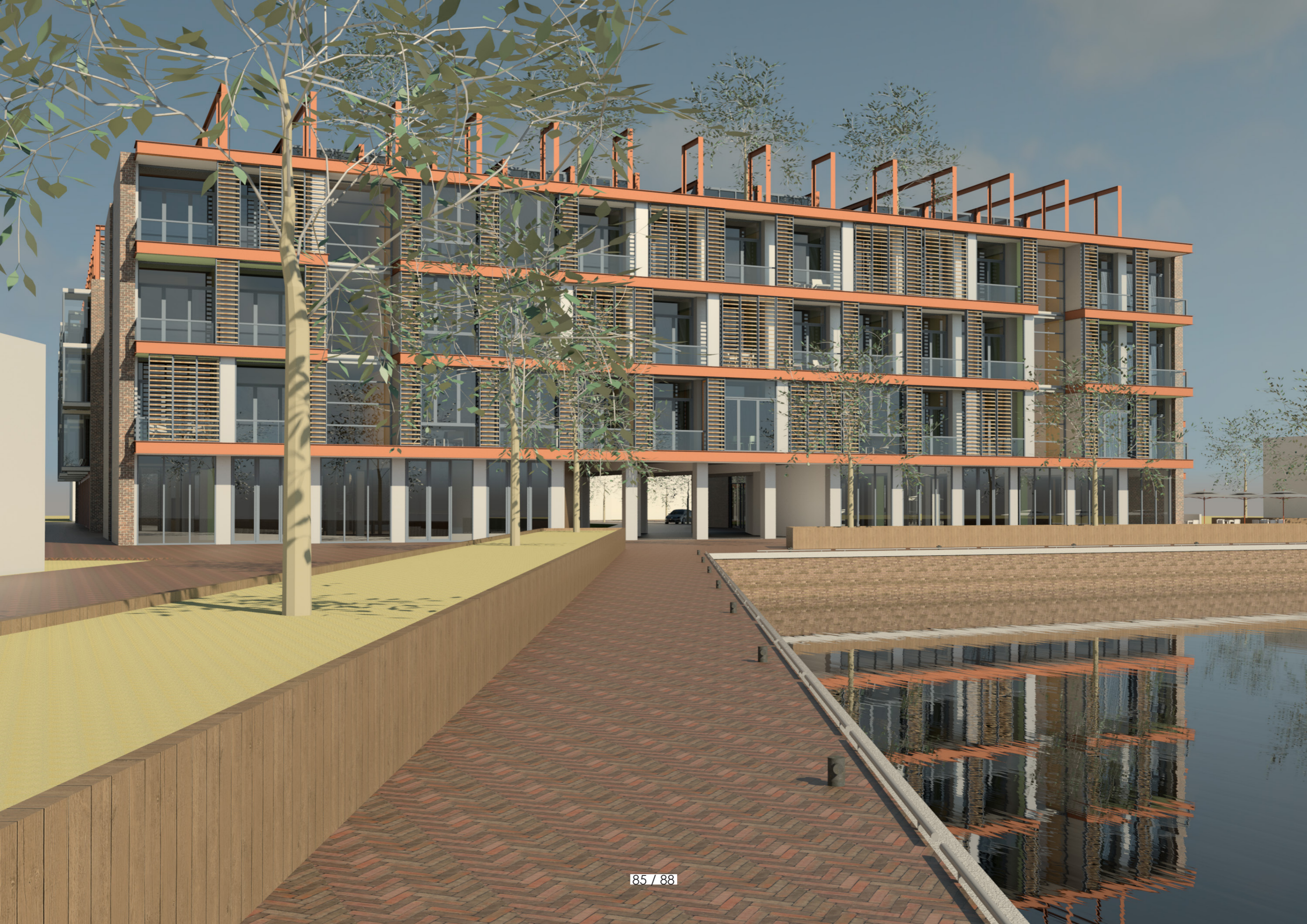


TOTAL ADDITION











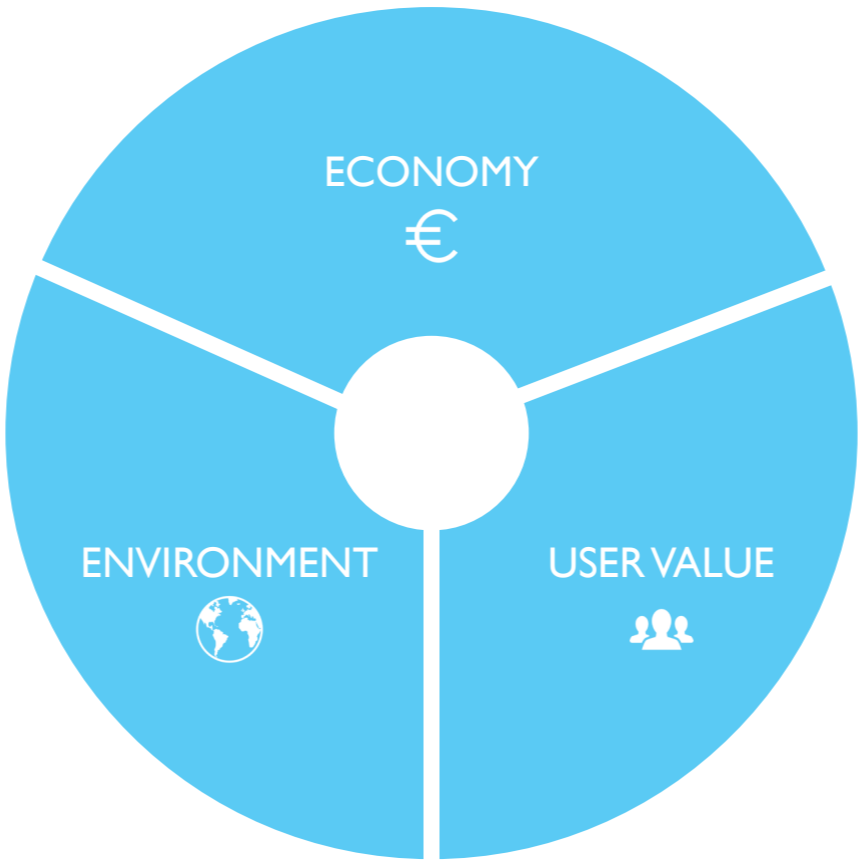
THANKS FOR THE ATTENTION!

TIME FOR QUESTIONS

# APPENDIX

# ECONOMICS

- ↓ (RAW) MATERIAL USE LOAD BEARING STRUCTURE
- ↓ EMBODIED ENERGY



TRANSFORMATION COSTS ↑  
VACANCY RISK ↓  
YIELD TERM ↑

COMPENSATE WITH REVENUE FROM PUBLIC FUNCTIONS (RENT ON GROUND LEVEL AND ROOF)

FUNCTION NEUTRALITY ↑  
FLEXIBILITY ↑