

DRAWINGS SET

# 'LIVE-WORK FACTORY'

NANTAWAT SIRTIP  
4892399

NEW YORK MIDTOWN GRADUATION STUDIO

COMPLEX PROJECTS

FACULTY OF ARCHITECTURE AND THE BUILT ENVIRONMENT  
DELFT UNIVERSITY OF TECHNOLOGY

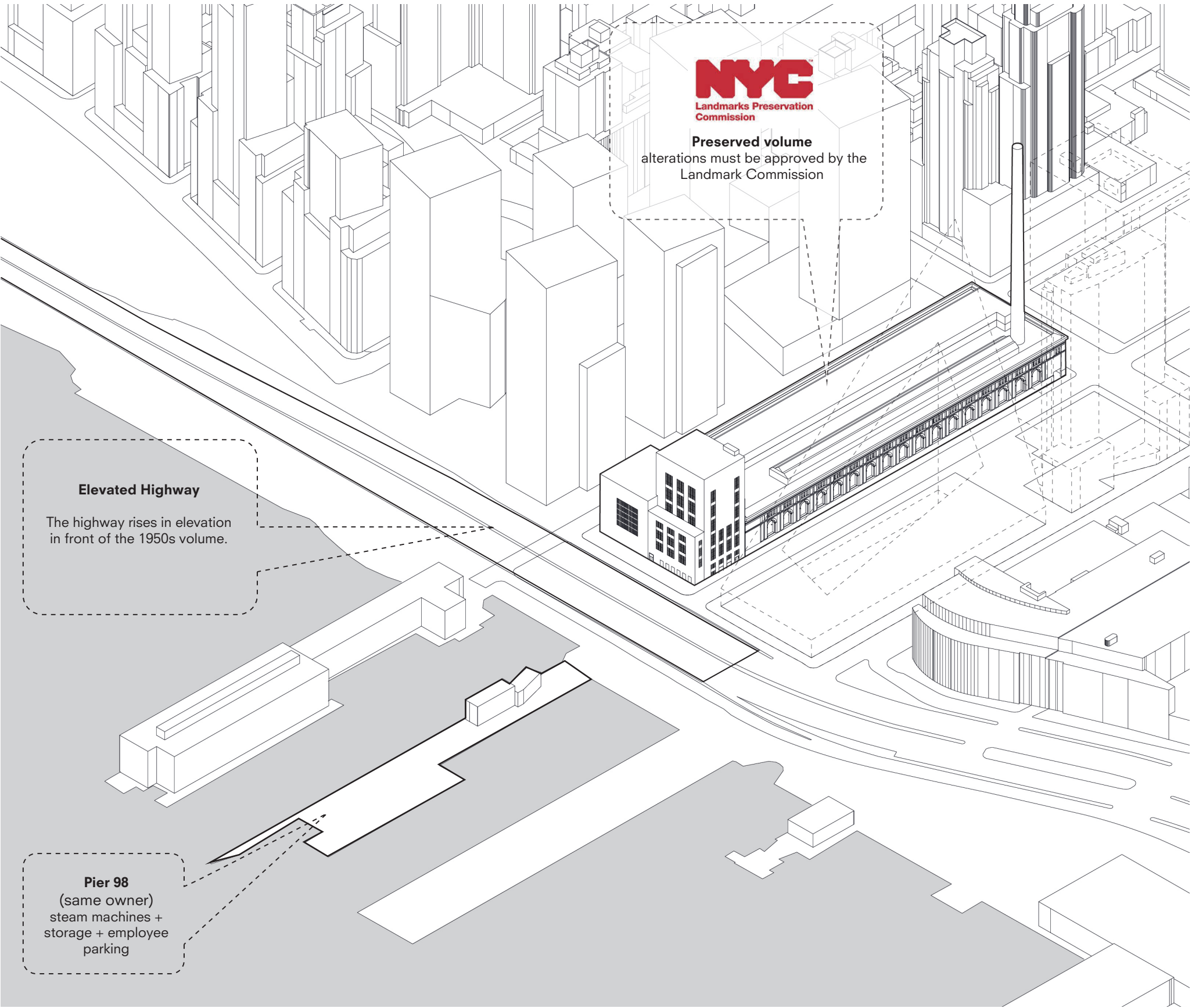
03/07/2020

STUDY AREA IN NORTH-WESTERN MIDTOWN MANHATTAN





# CURRENT SITUATION



## INTERBOROUGH RAPID TRANSIT (IRT) POWERHOUSE,

**ARCHITECT:** STANFORD WHITE, (McKIM, MEAD & WHITE)

**BUILT:** 1904 (PRESERVED) 1950 (ADDITION)

**ORIGINAL USE:** POWER STATION FOR METRO  
**CURRENT USE:** STEAM PLANT  
**CURRENT OWNER:** ConEDISON

### POLICIES

**NEW YORK WORKS**

CREATING GOOD JOBS

2017: Emphasis on creating more good-paying jobs for New Yorkers.



**OneNYC 2050**

BUILDING A STRONG AND FAIR CITY

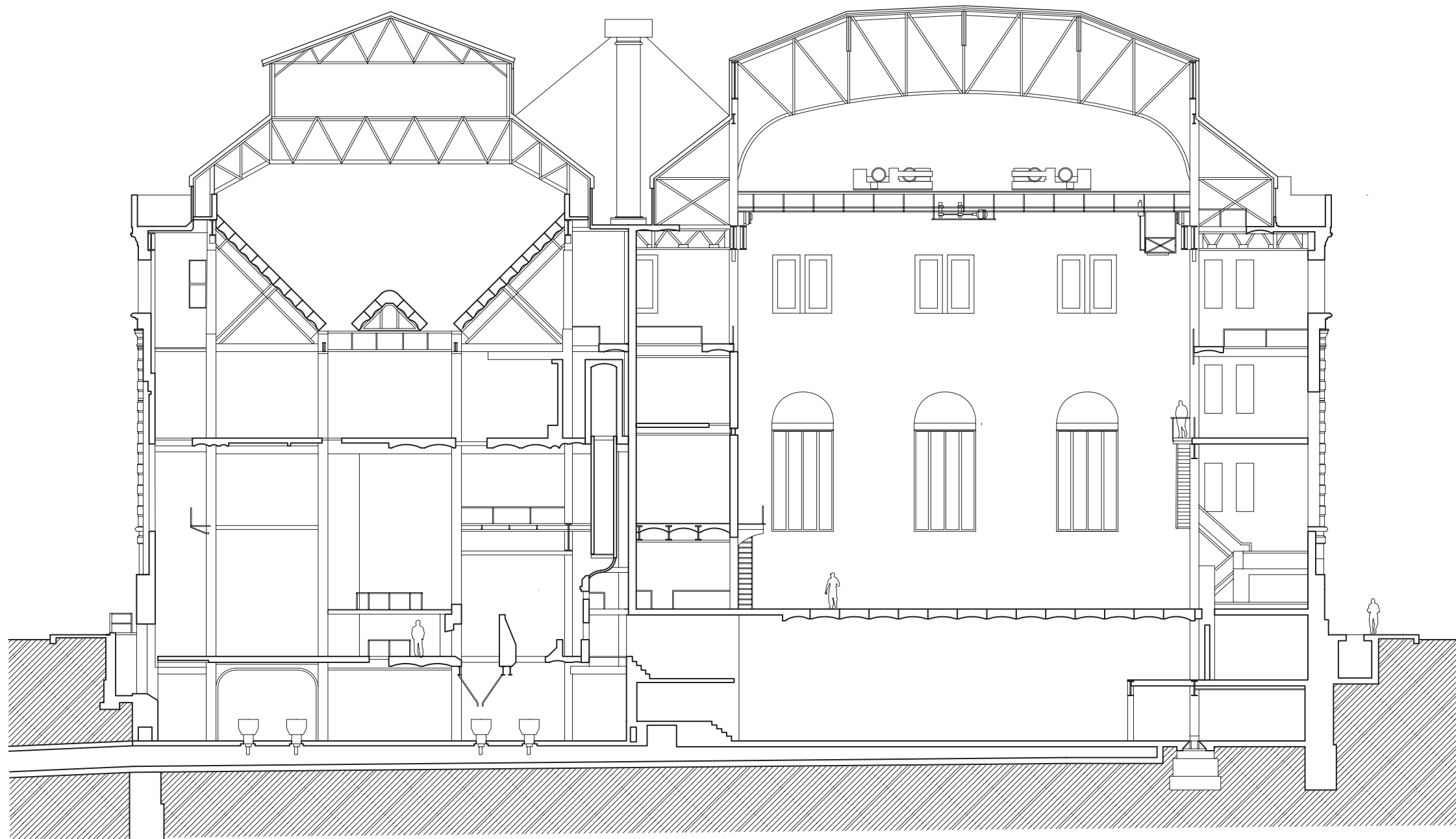
2019: Long term sustainability goal for the city - including the promotion of renewable energy and reduction in the use of natural gas



Current Interior: Not Utilized to fullest potential

CHOSEN SITE: THE IRT BUILDING ON W.58TH ST.





SECTION  
1:250

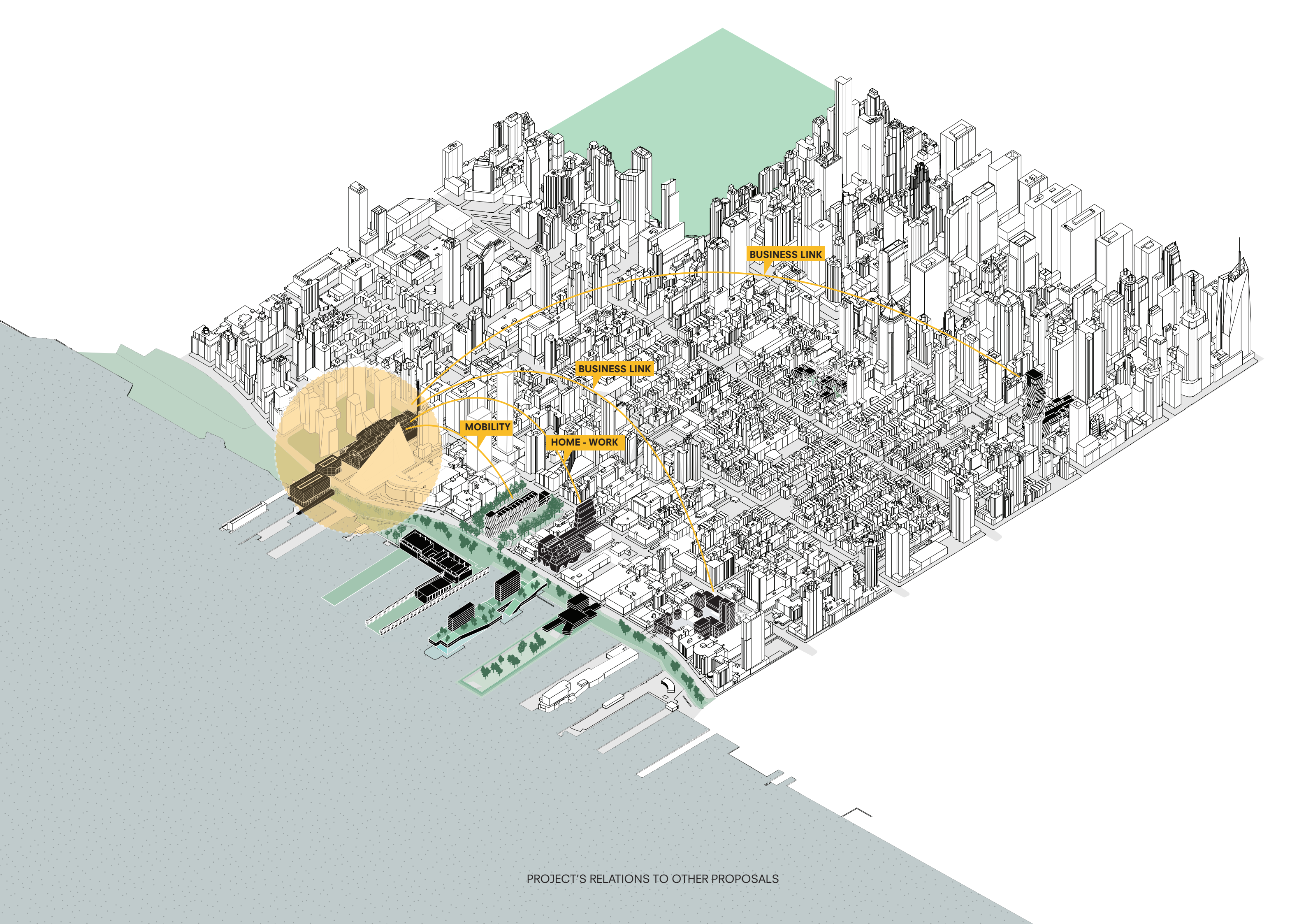
SECTION OF THE CURRENT CONDITION





AXONOMETRIC OF THE GROUP'S PROPOSALS





PROJECT'S RELATIONS TO OTHER PROPOSALS









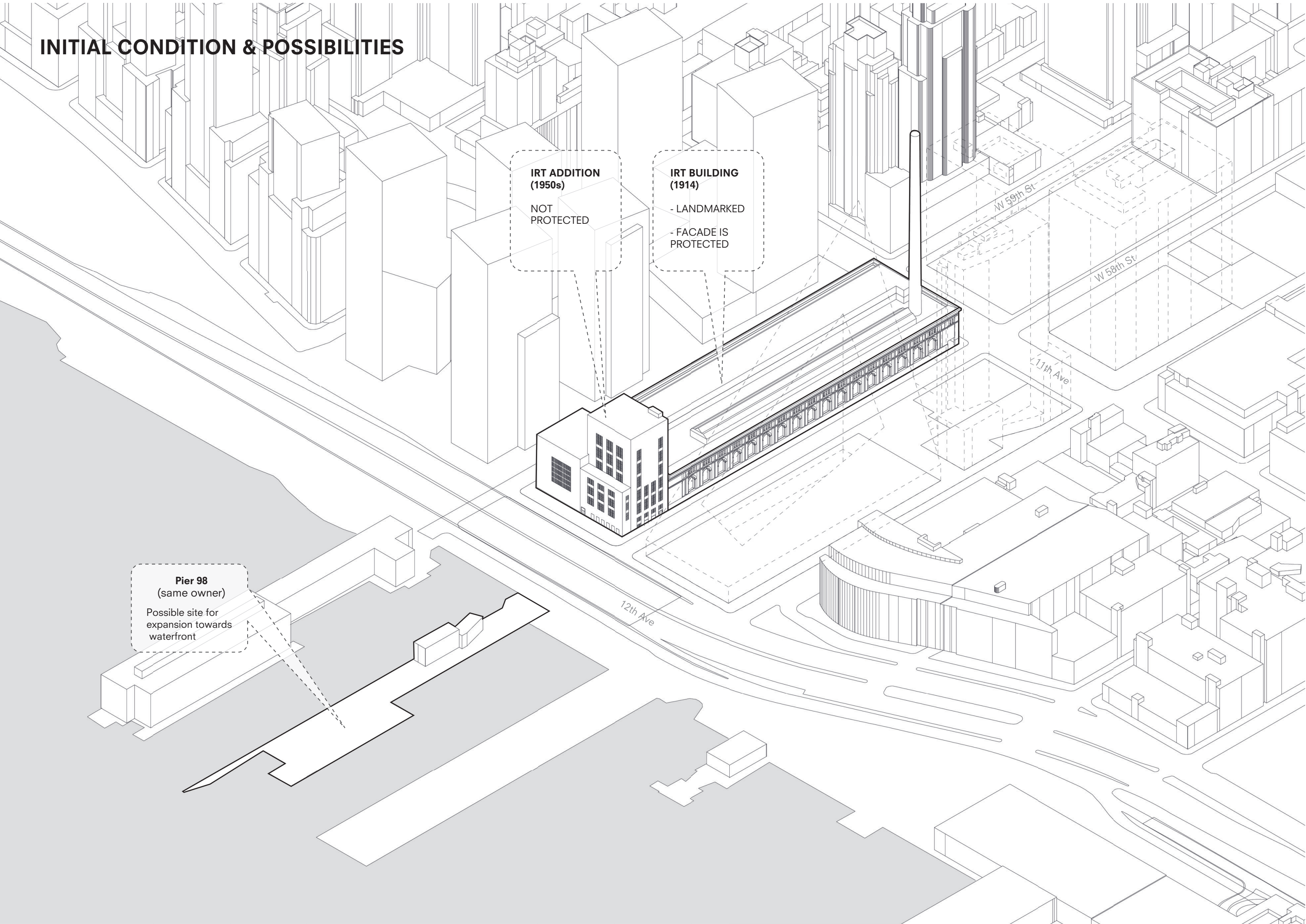
## RESEARCH QUESTIONS

HOW TO CREATE A LIVE-WORK TYPOLOGY THAT RESPONDS TO THE CHANGING LANDSCAPE OF WORK OF THE 21ST CENTURY NEW YORK?

HOW CAN A MIXED-USE PROJECT ENGAGE WITH THE PUBLIC DOMAIN TO REACTIVATE THE URBAN QUALITY OF A PREVIOUSLY INDUSTRIALIZED WATERFRONT?



INITIAL CONDITION & POSSIBILITIES



IRT ADDITION  
(1950s)

NOT  
PROTECTED

IRT BUILDING  
(1914)

- LANDMARKED
- FACADE IS  
PROTECTED

Pier 98  
(same owner)

Possible site for  
expansion towards  
waterfront

W 59th St

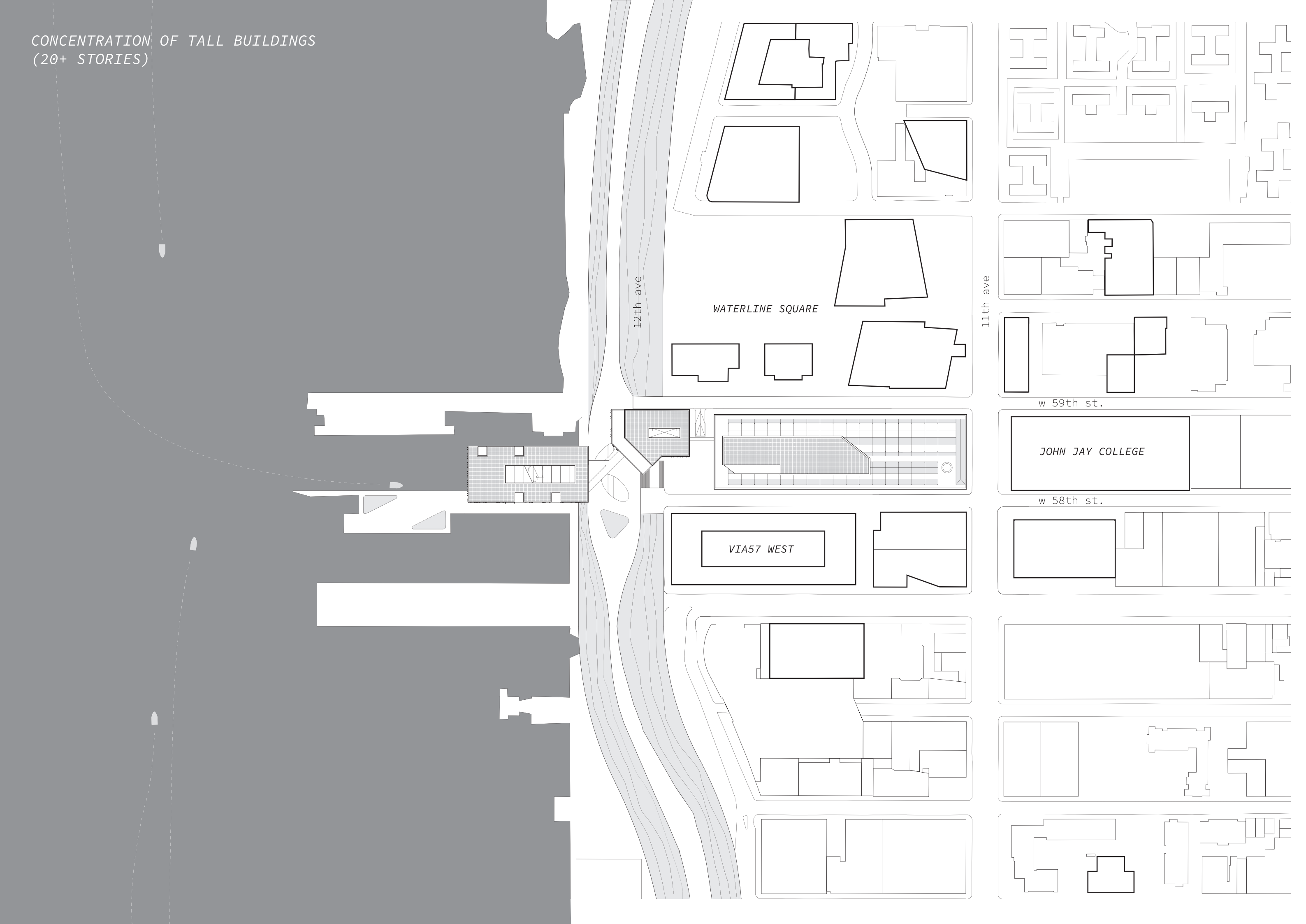
W 58th St

11th Ave

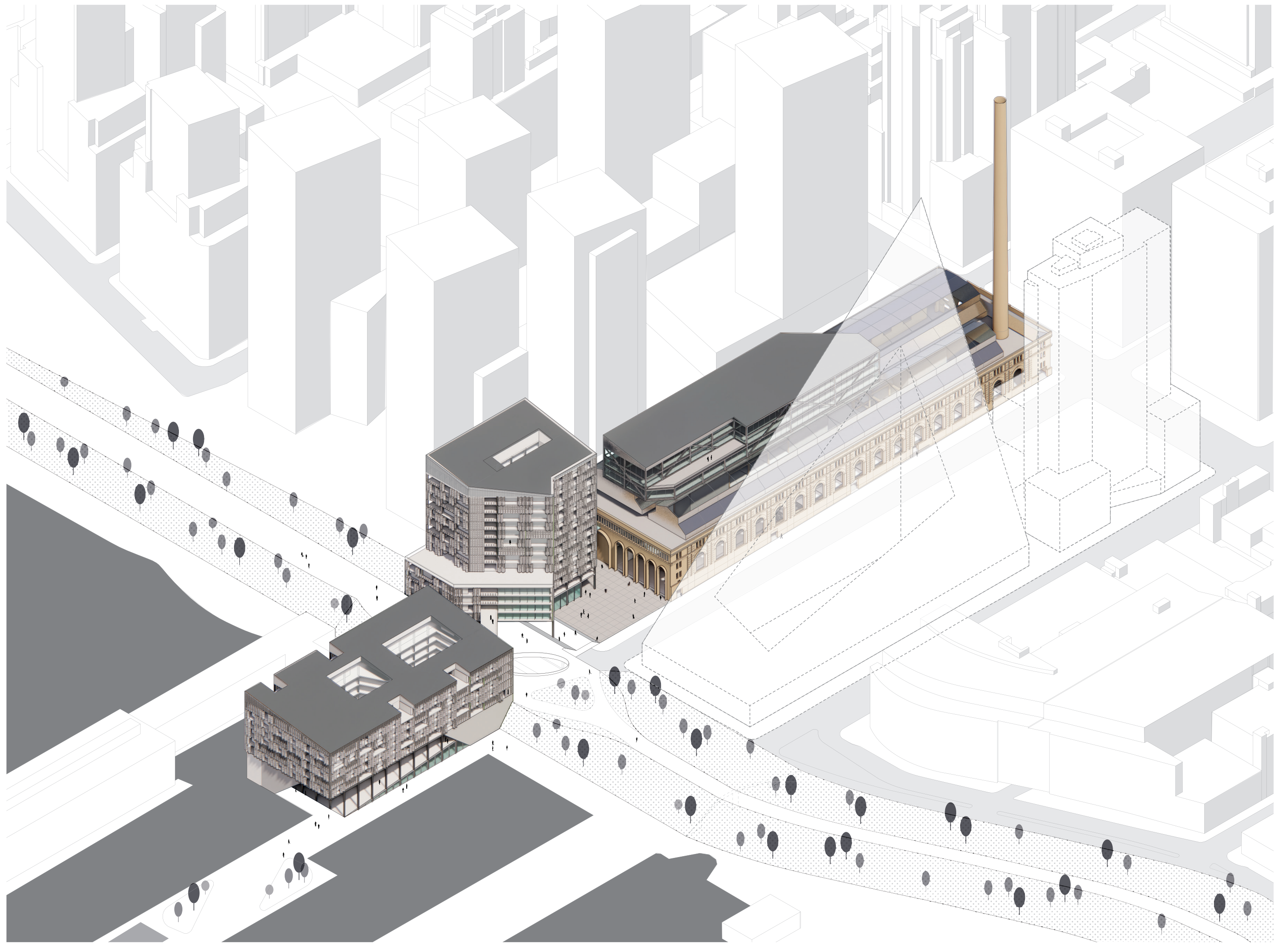
12th Ave



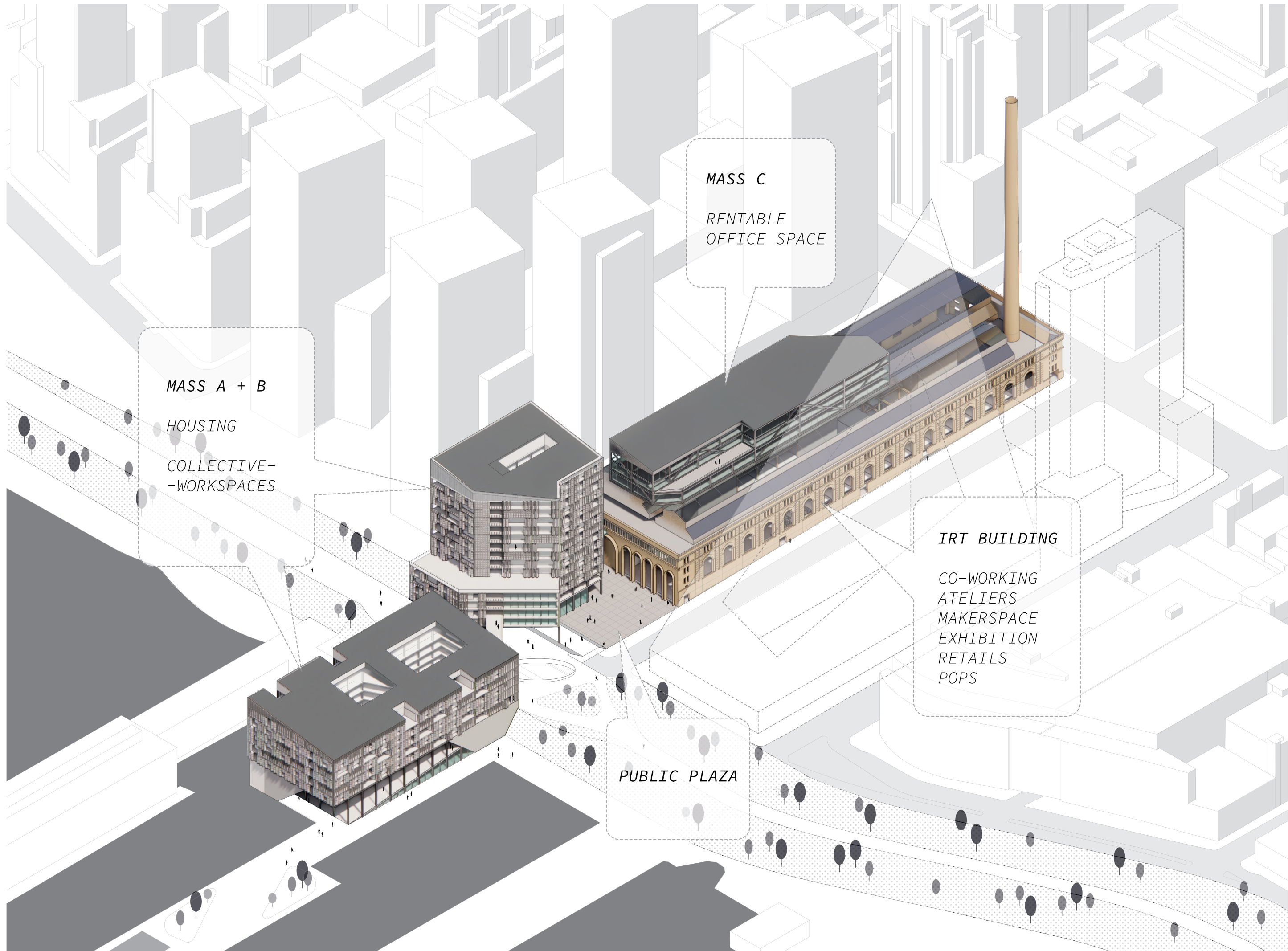
CONCENTRATION OF TALL BUILDINGS  
(20+ STORIES)











*MASS C*

*RENTABLE  
OFFICE SPACE*

*MASS A + B*

*HOUSING*

*COLLECTIVE-  
WORKSPACES*

*IRT BUILDING*

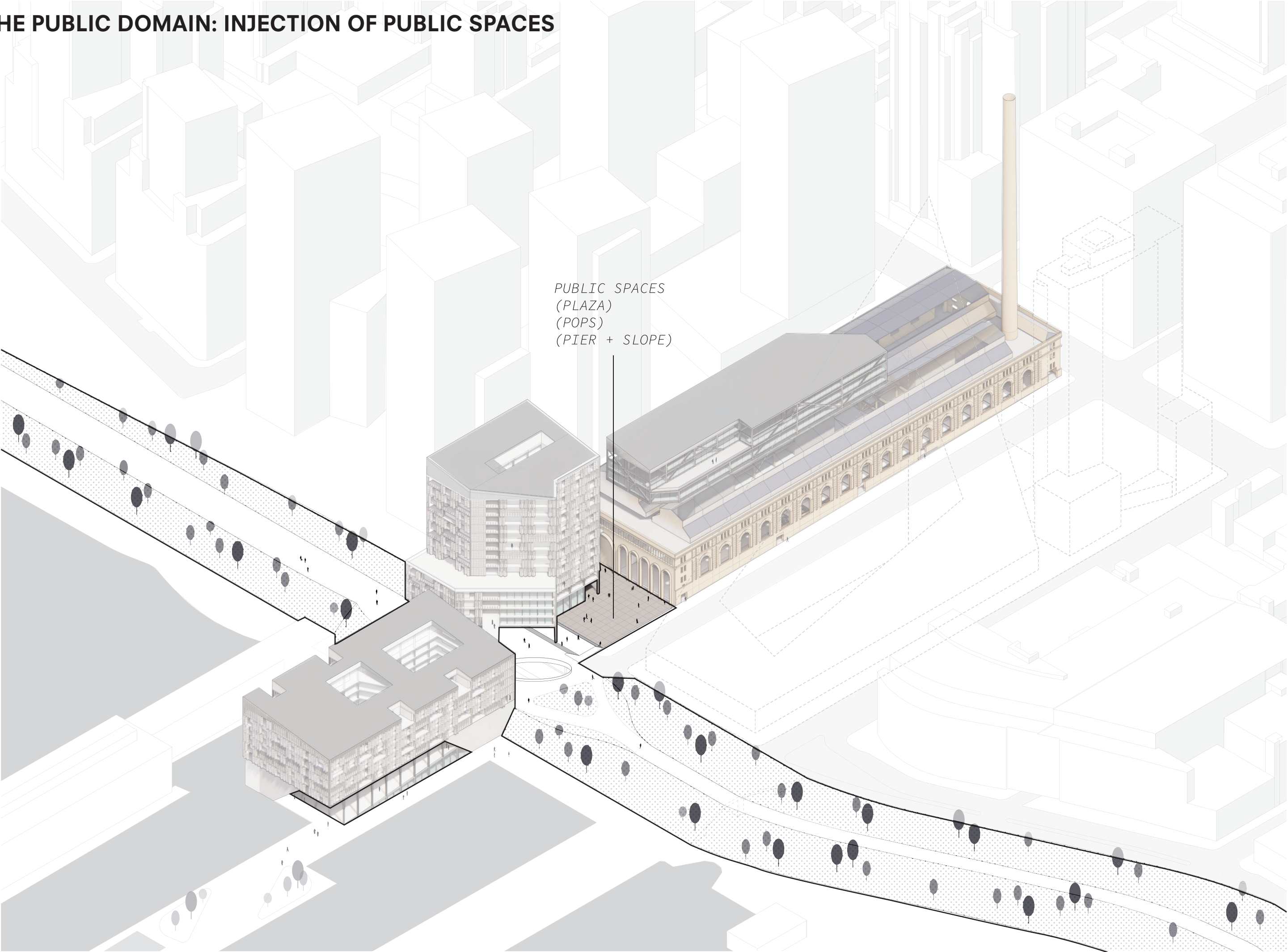
*CO-WORKING  
ATELIERS  
MAKERSPACE  
EXHIBITION  
RETAILS  
POPS*

*PUBLIC PLAZA*

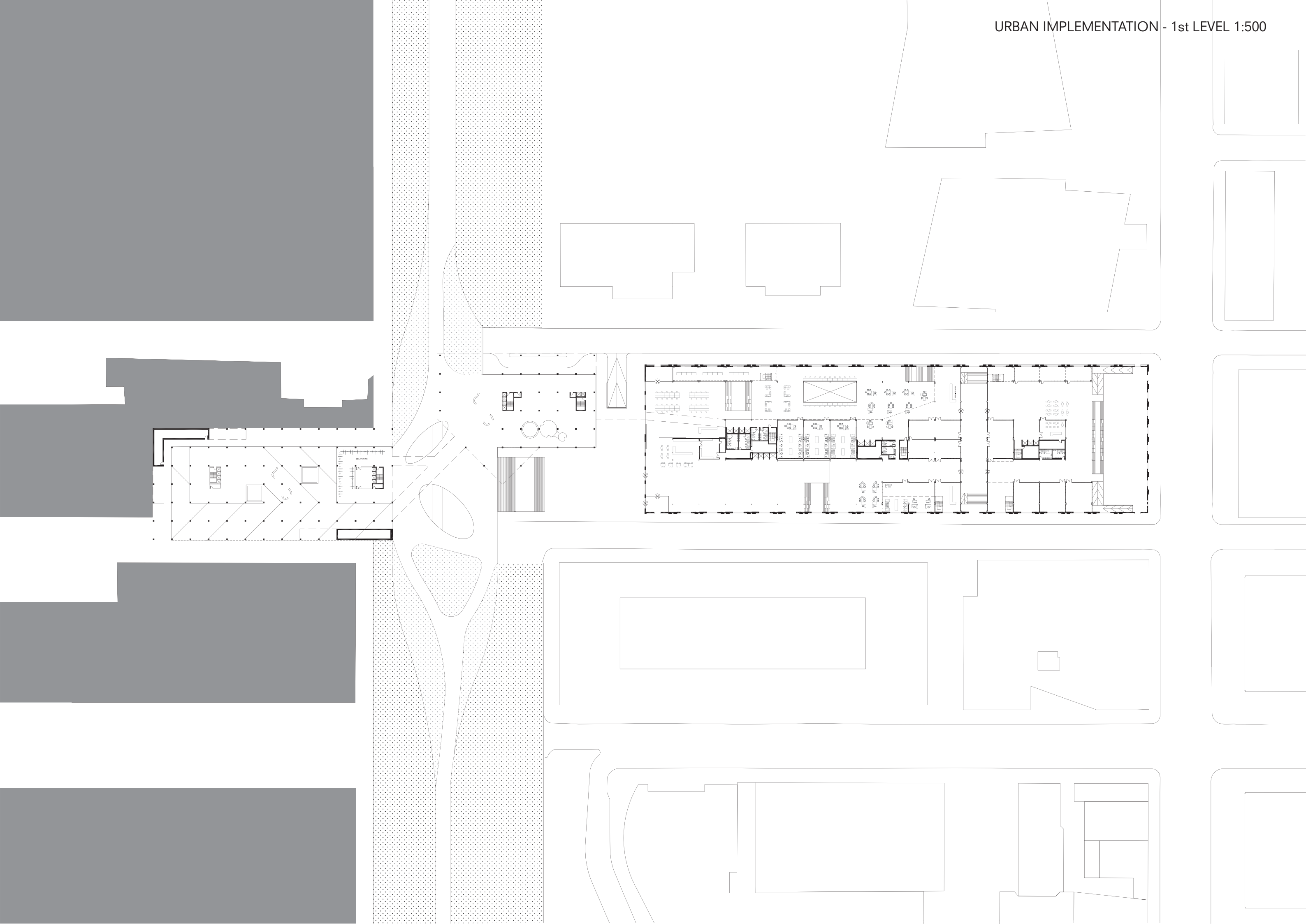


THE PUBLIC DOMAIN: INJECTION OF PUBLIC SPACES

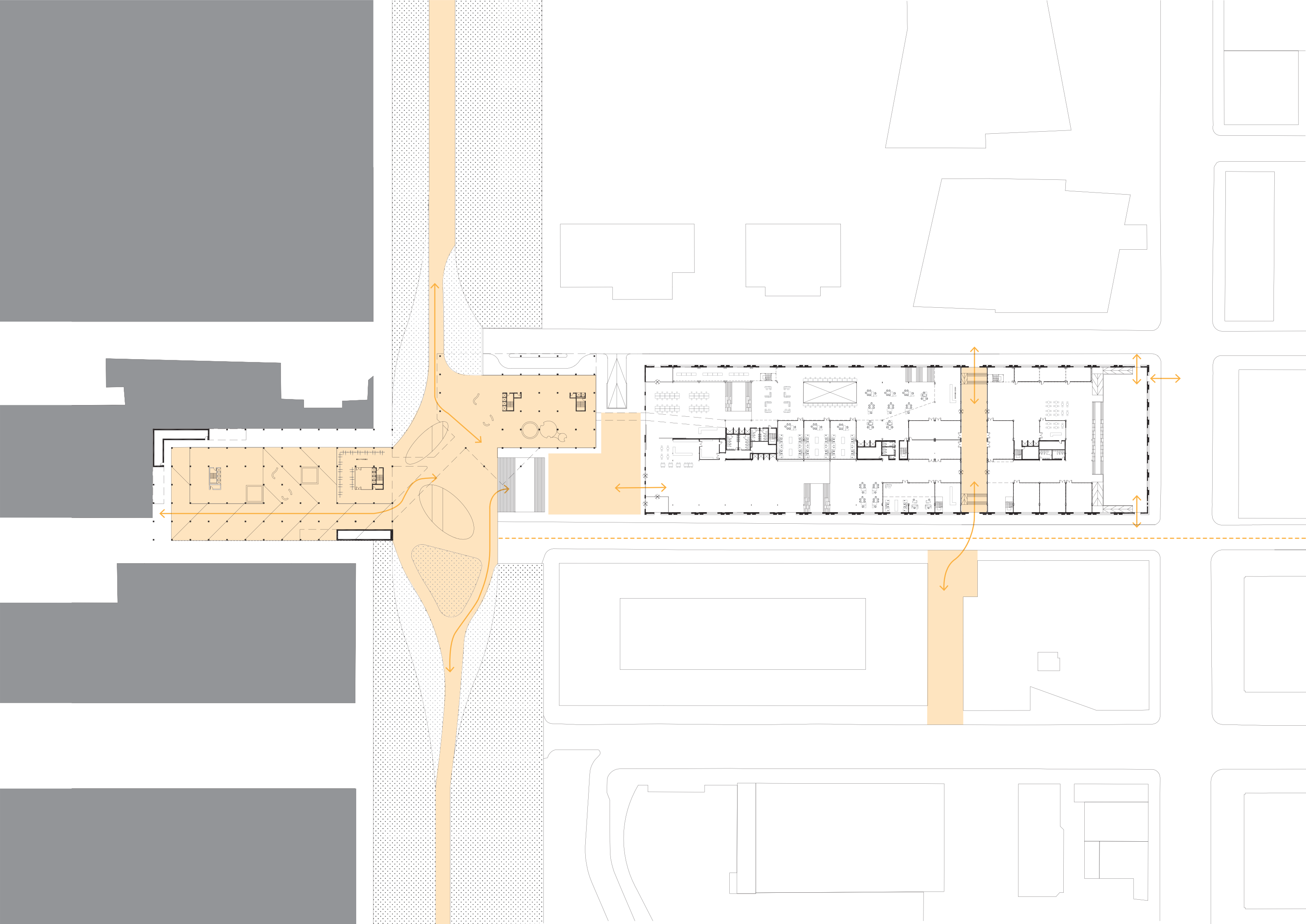
PUBLIC SPACES  
(PLAZA)  
(POPS)  
(PIER + SLOPE)













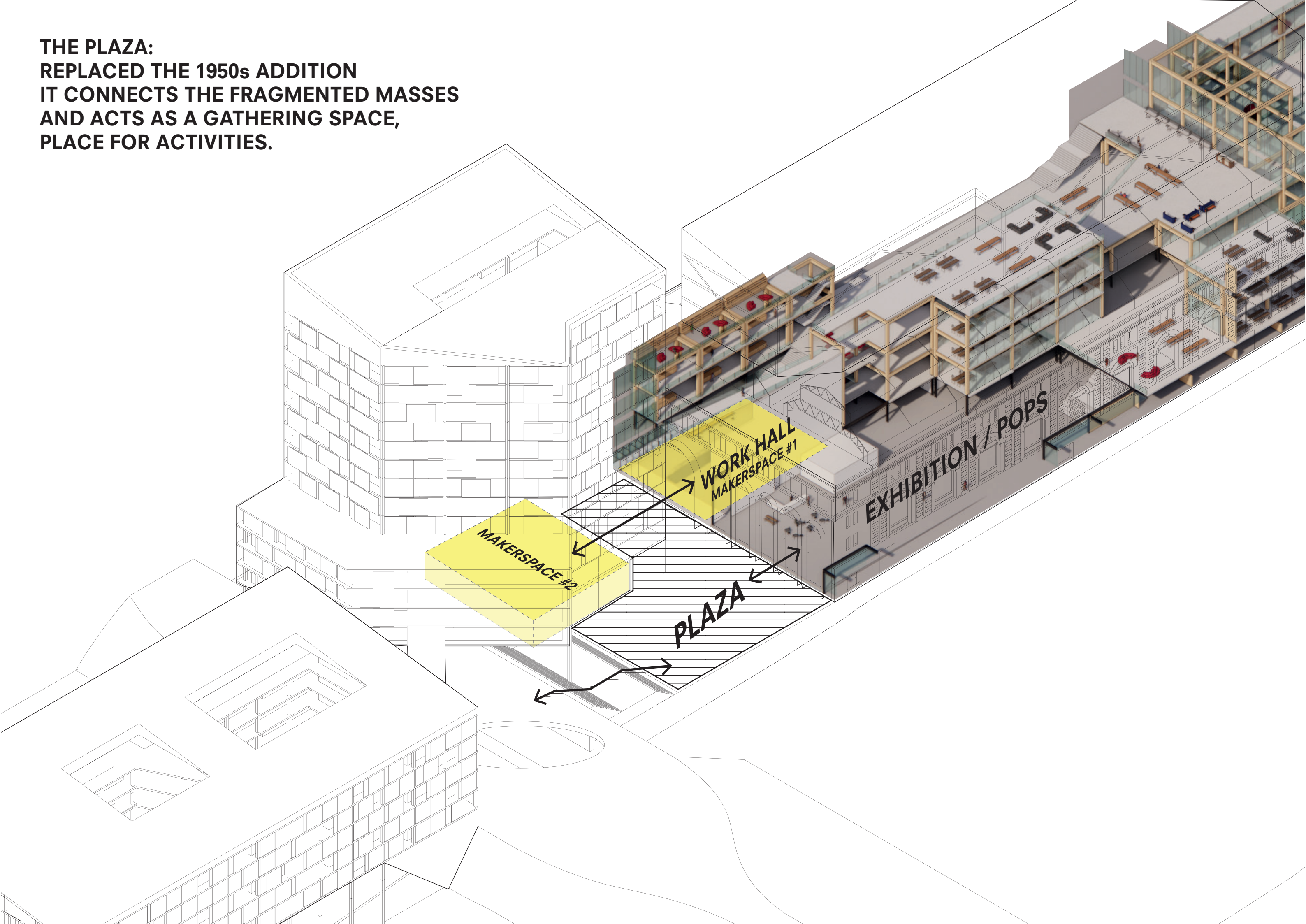








**THE PLAZA:  
REPLACED THE 1950s ADDITION  
IT CONNECTS THE FRAGMENTED MASSES  
AND ACTS AS A GATHERING SPACE,  
PLACE FOR ACTIVITIES.**







**PLAZA AND SEASONAL ACTIVITIES : SUMMER**



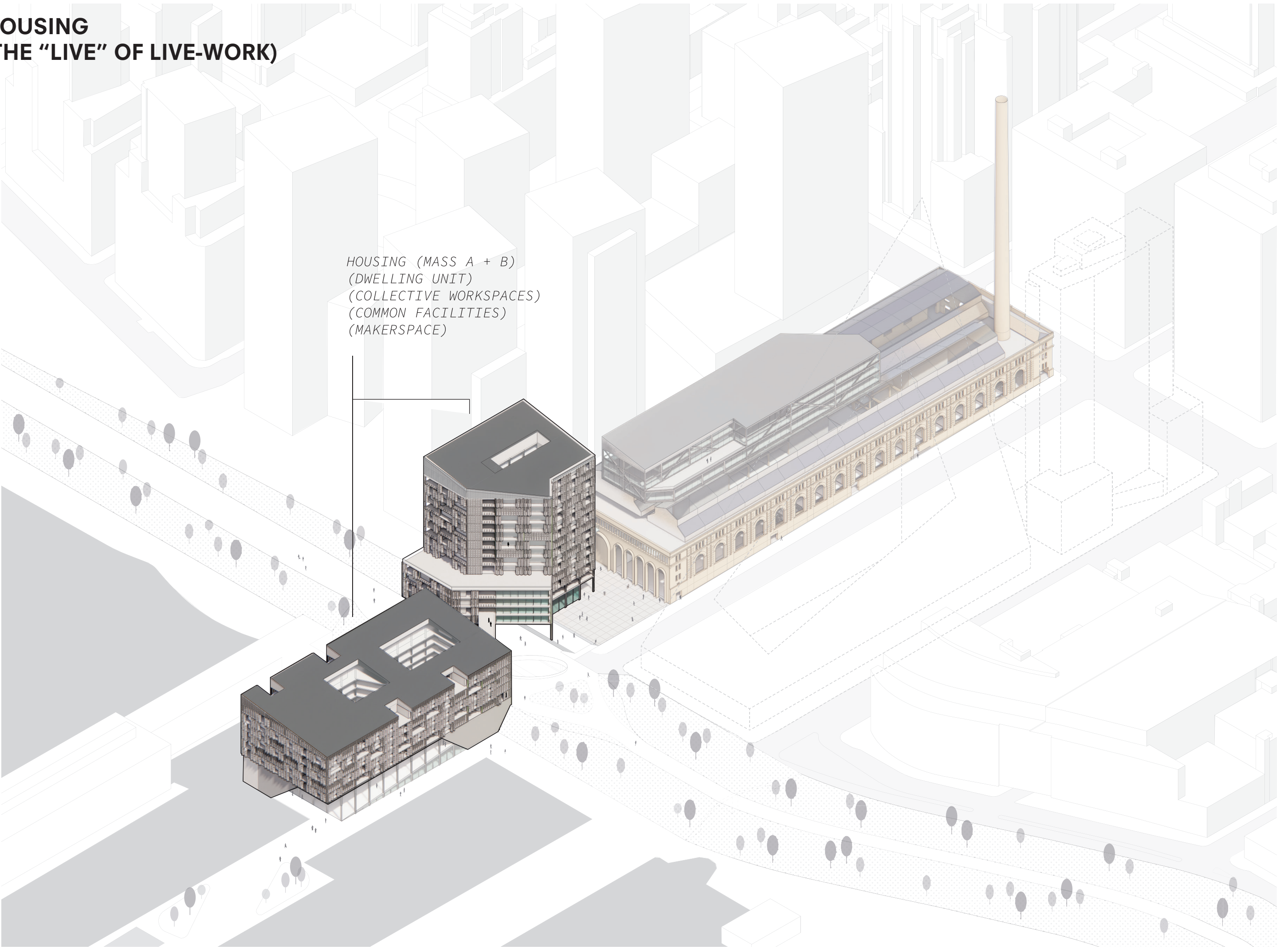


**PLAZA AND SEASONAL ACTIVITIES : WINTER**

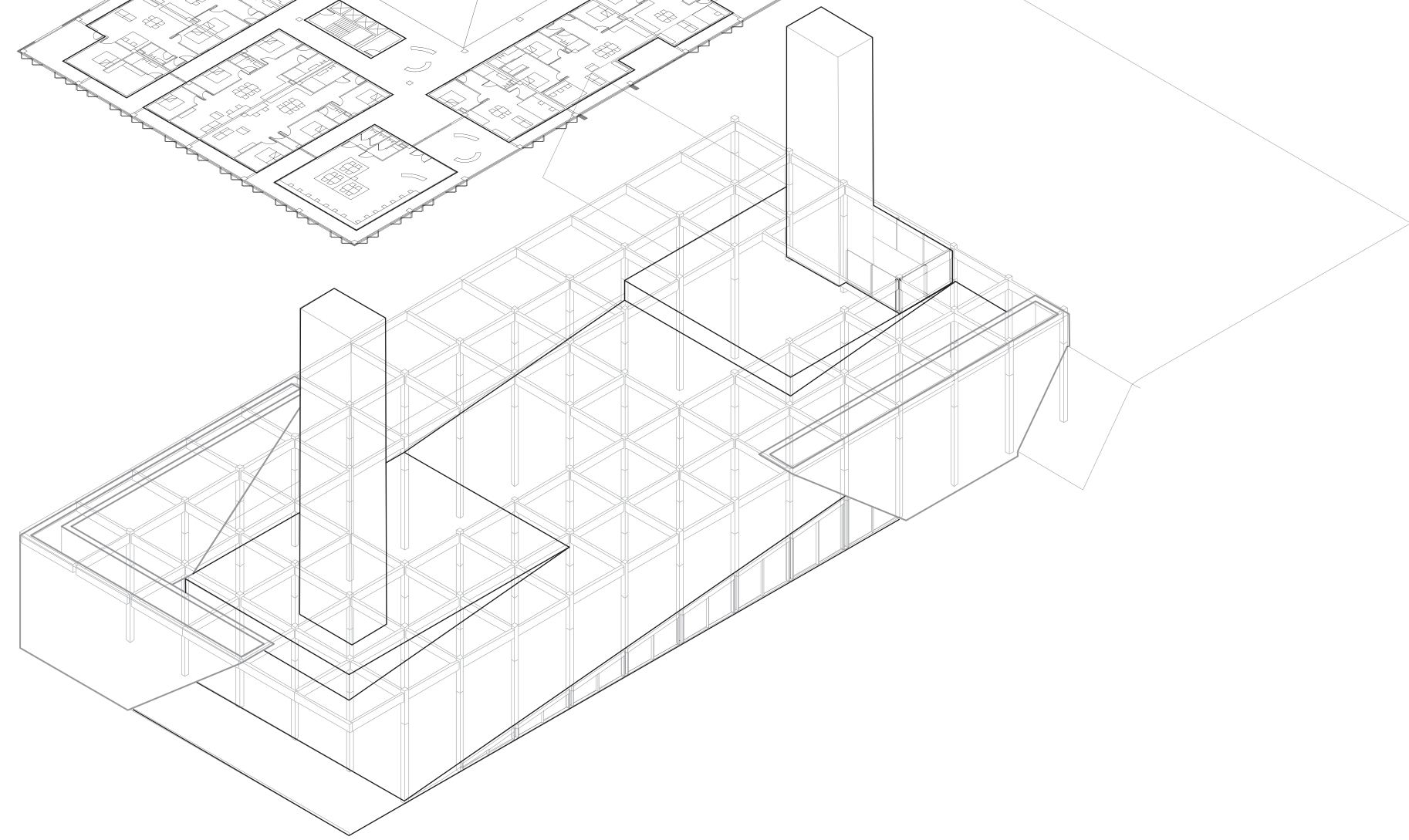
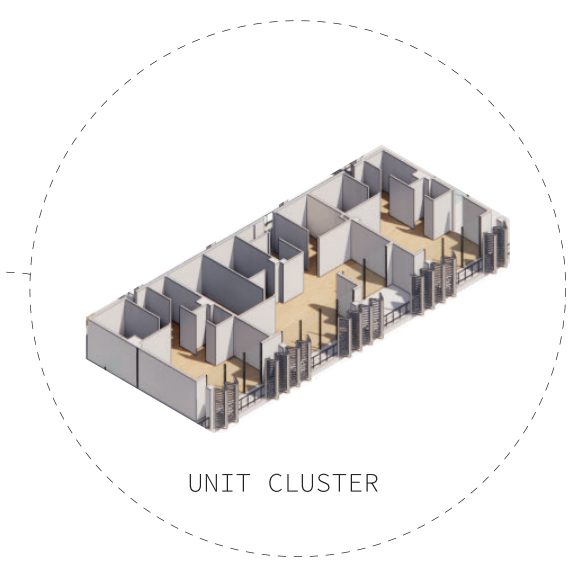
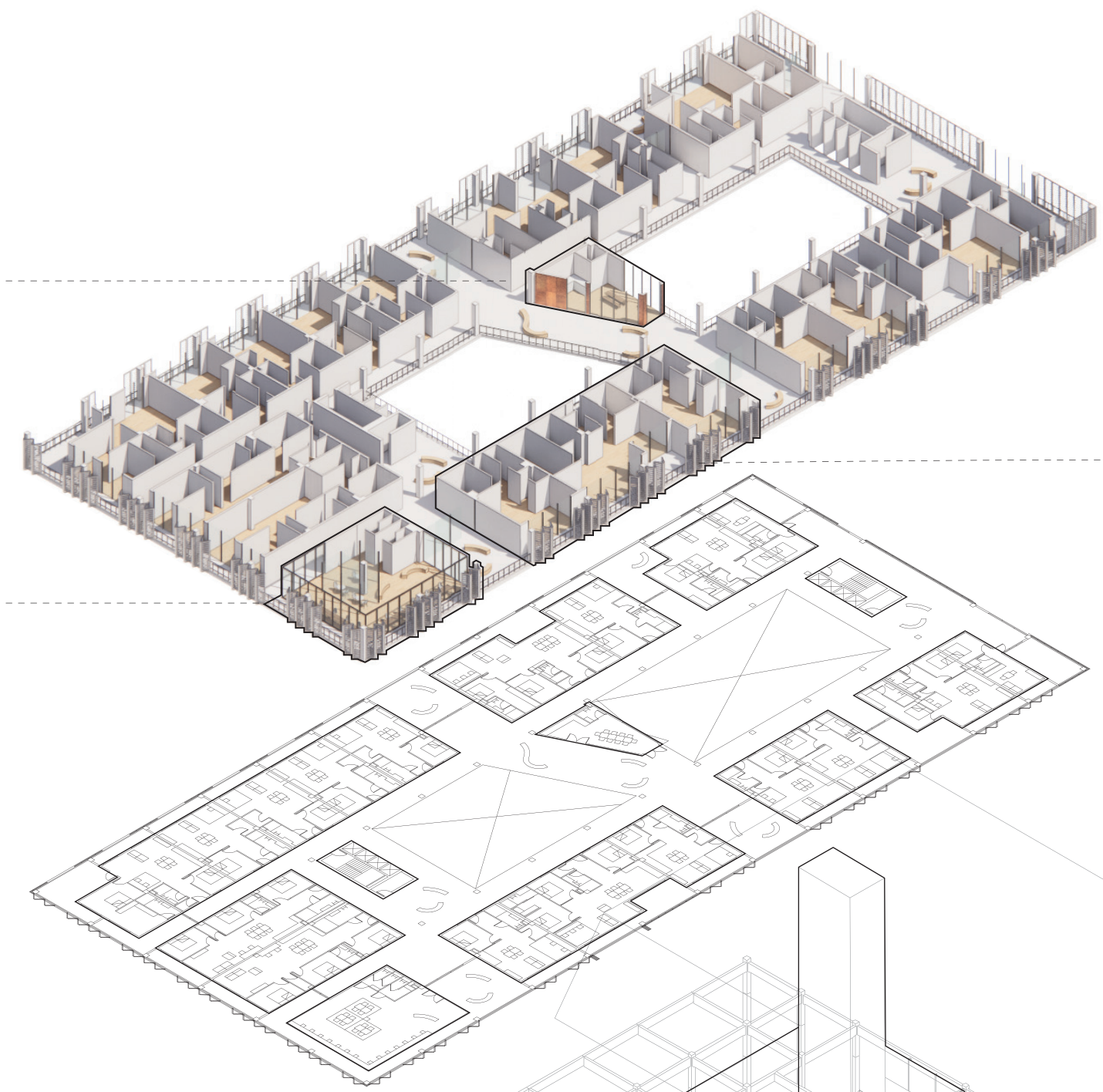


HOUSING  
(THE “LIVE” OF LIVE-WORK)

HOUSING (MASS A + B)  
(DWELLING UNIT)  
(COLLECTIVE WORKSPACES)  
(COMMON FACILITIES)  
(MAKERSPACE)

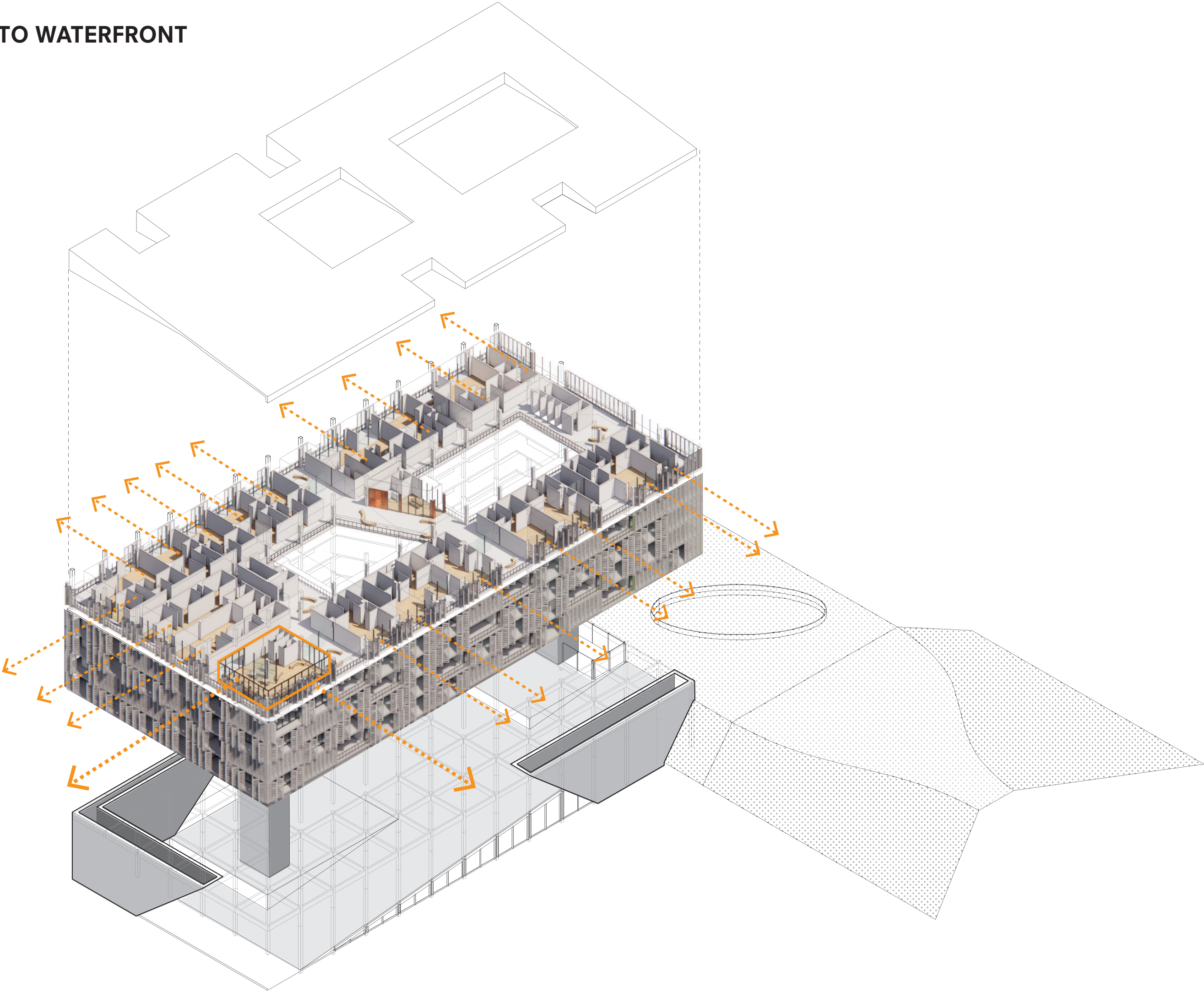






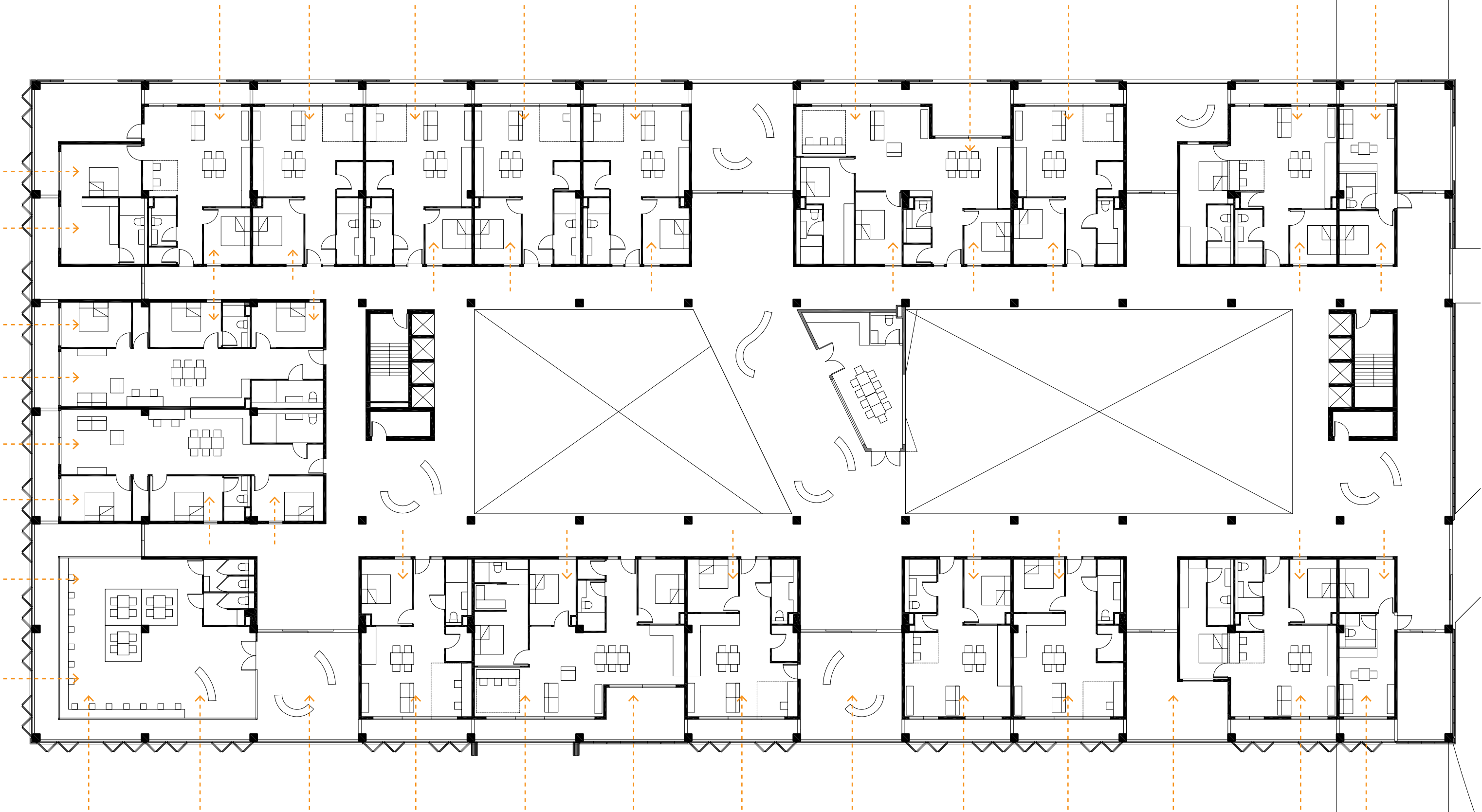


MAXIMIZE VIEW TO WATERFRONT



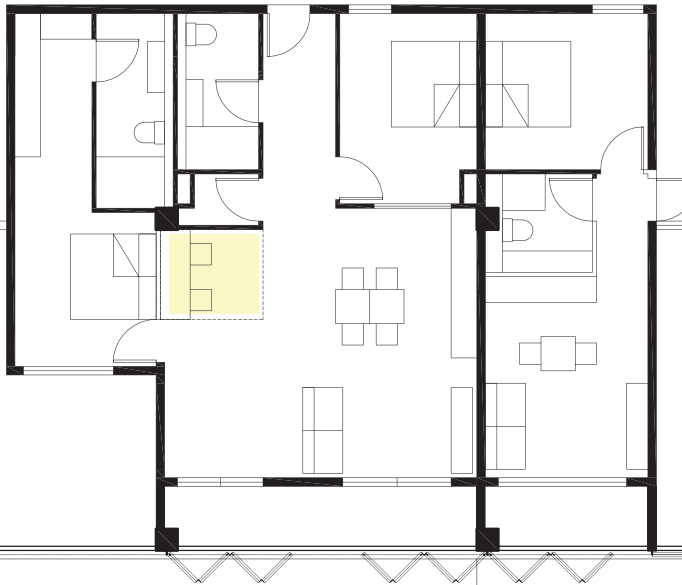
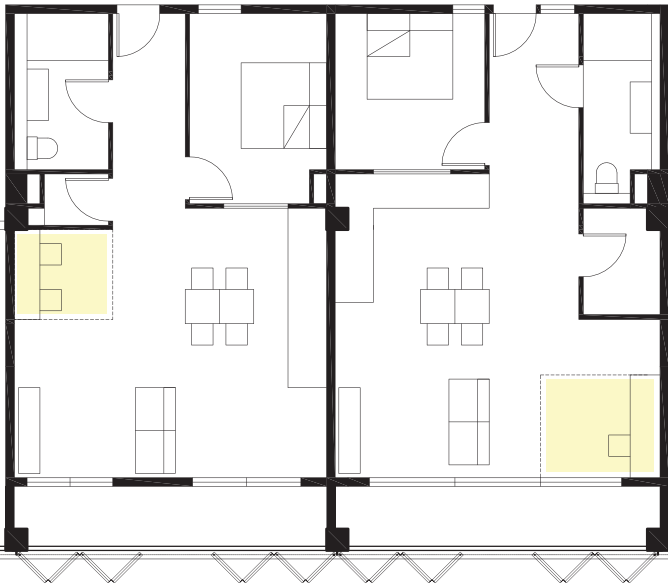
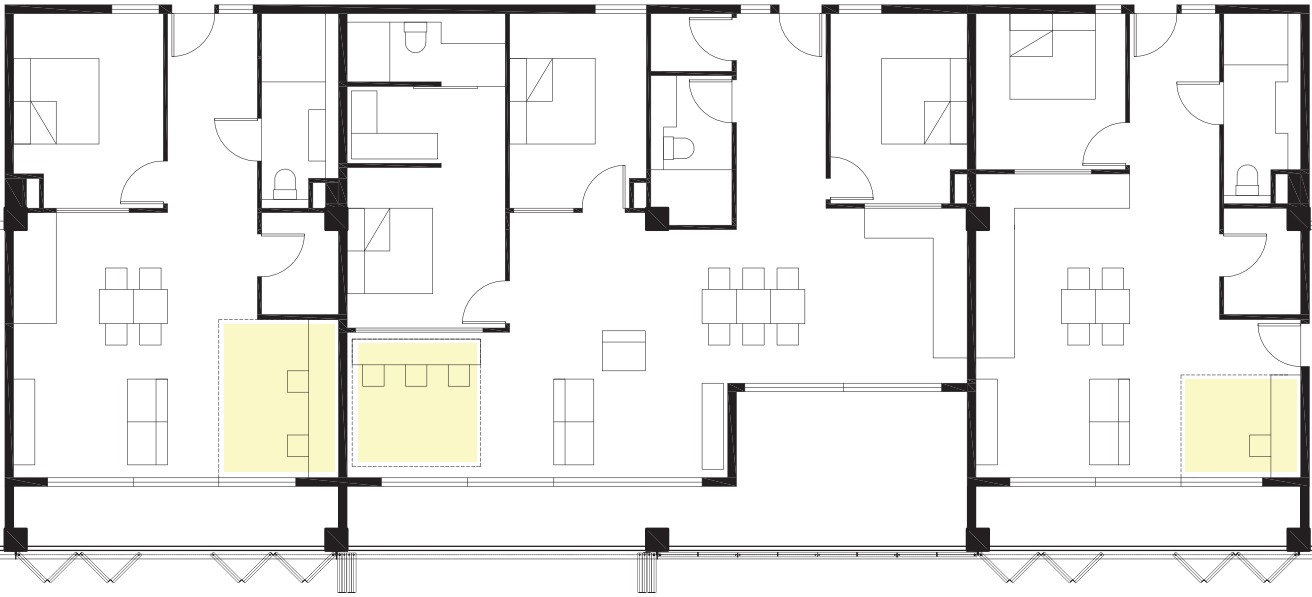
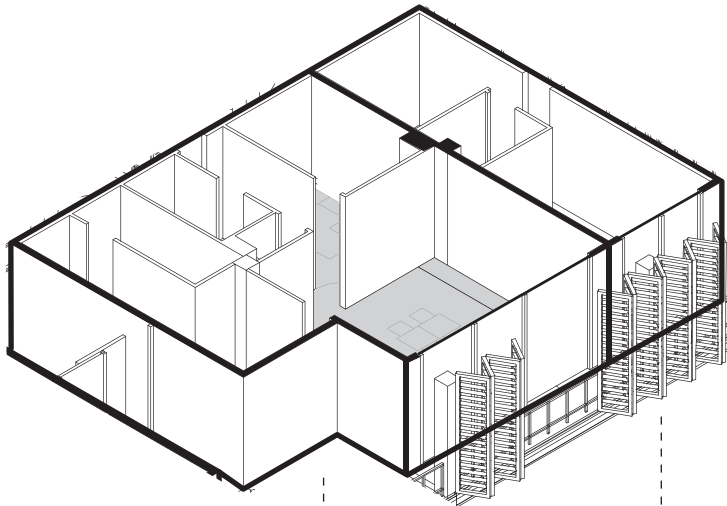
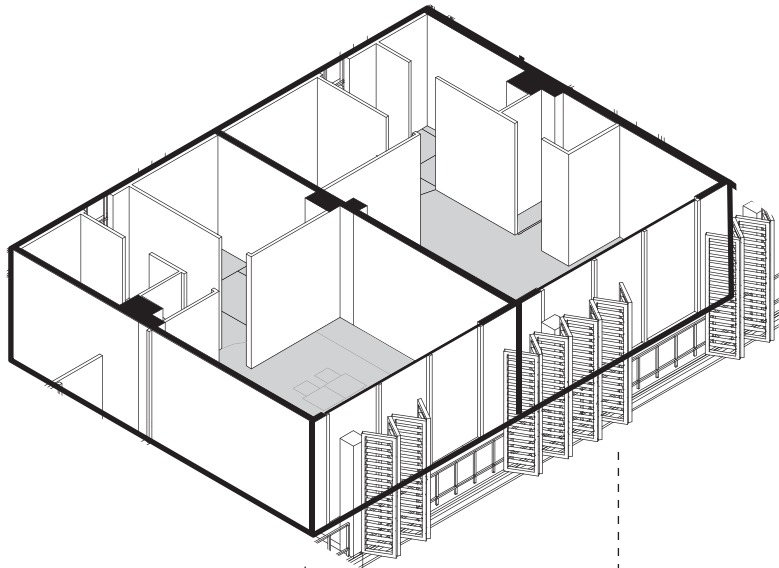
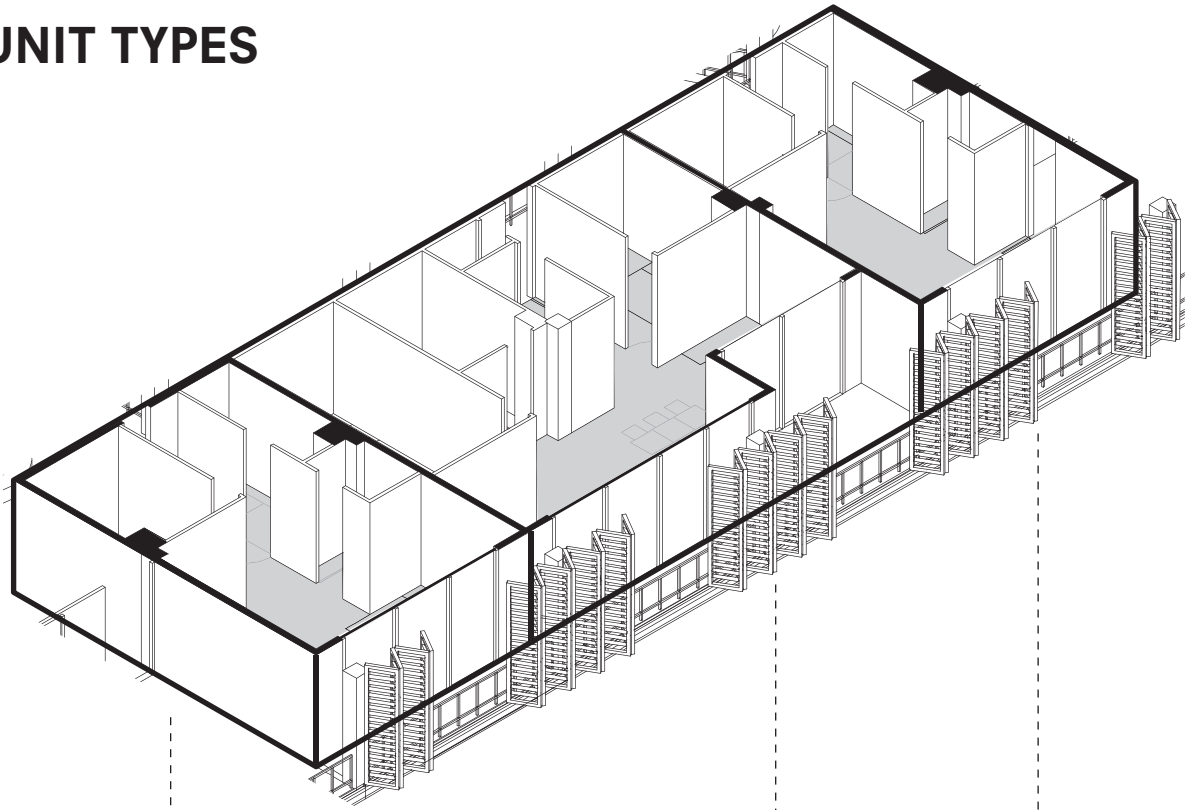


OPENING; LIGHT ENTRANCES





UNIT TYPES



82 sqm  
(1 bedroom)

143 sqm  
(3 bedrooms)

82 sqm  
(1 bedroom)

82 sqm  
(1 bedroom)

82 sqm  
(1 bedroom)

106 sqm  
(2 bedrooms)

42 sqm  
(studio)



single



family



single



single



single



small family



student



couple



flatmates



couple



couple

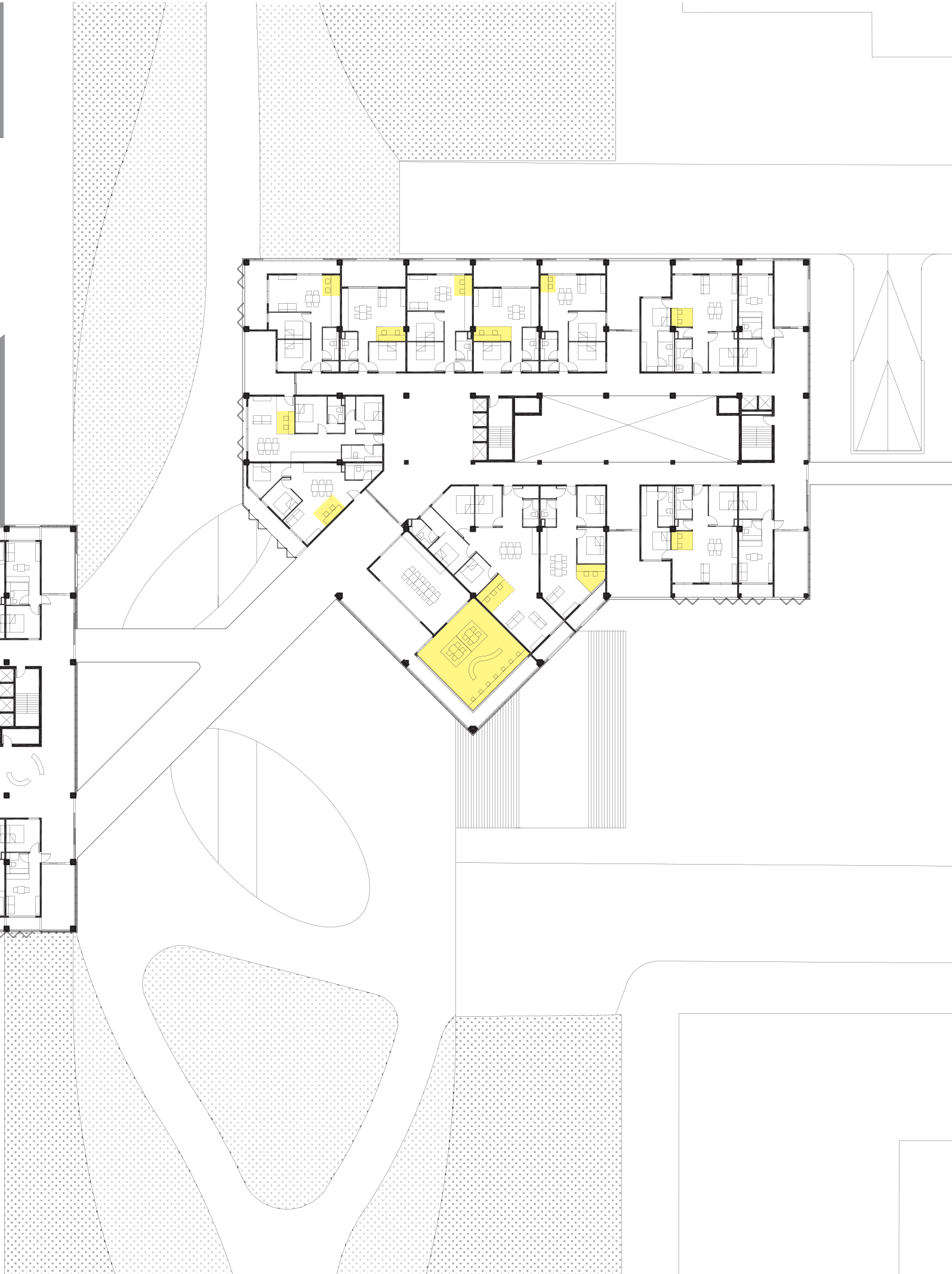


couple



flatmates



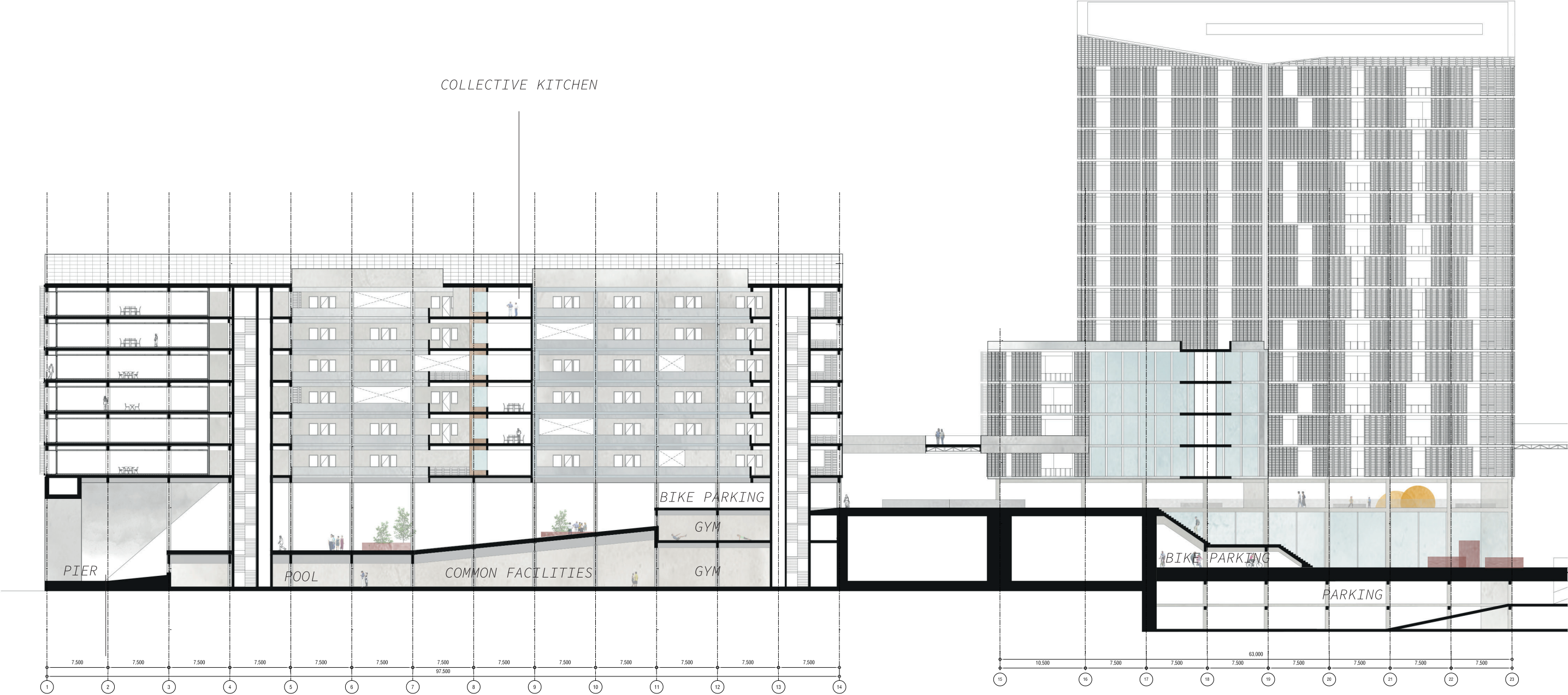




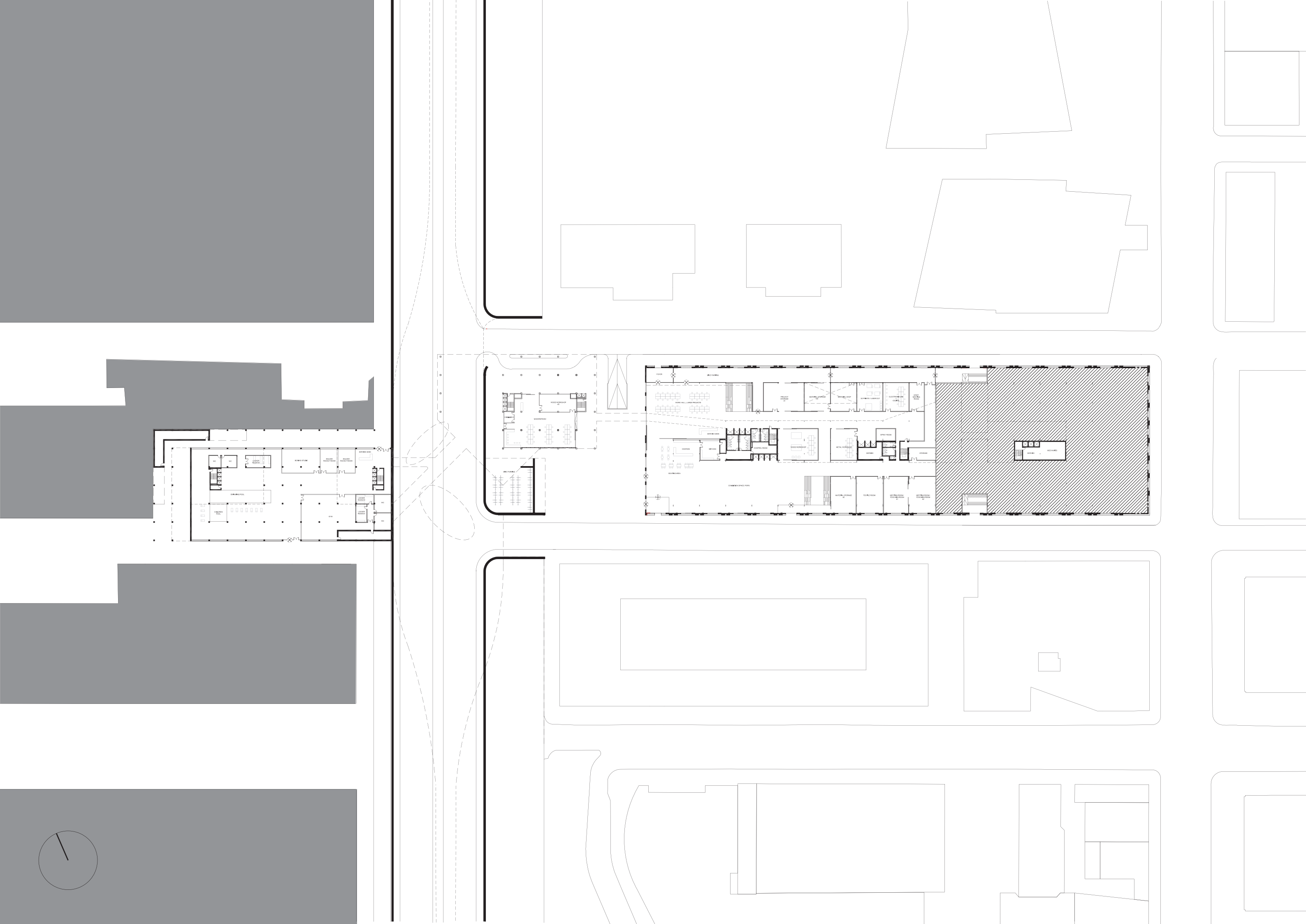




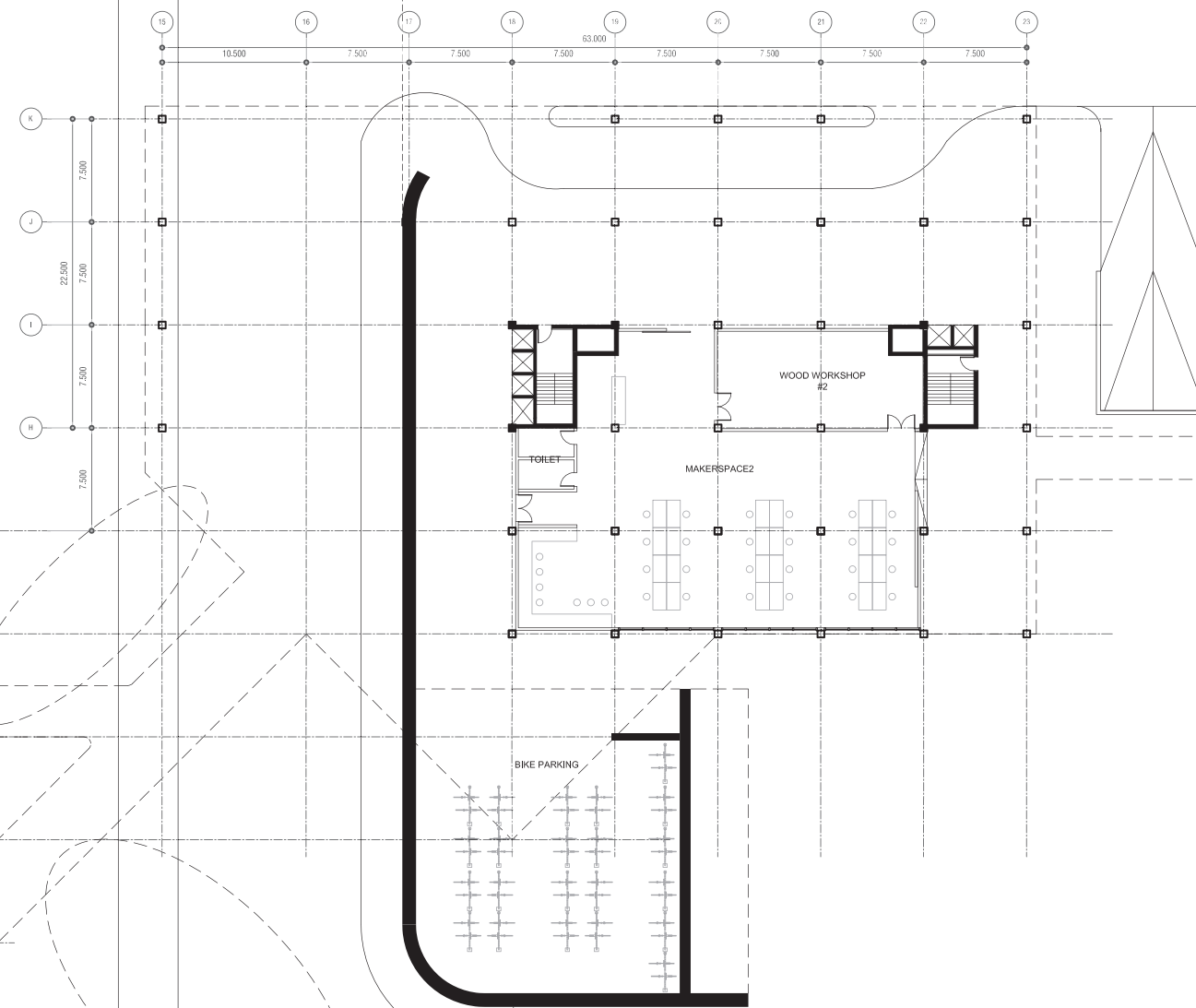
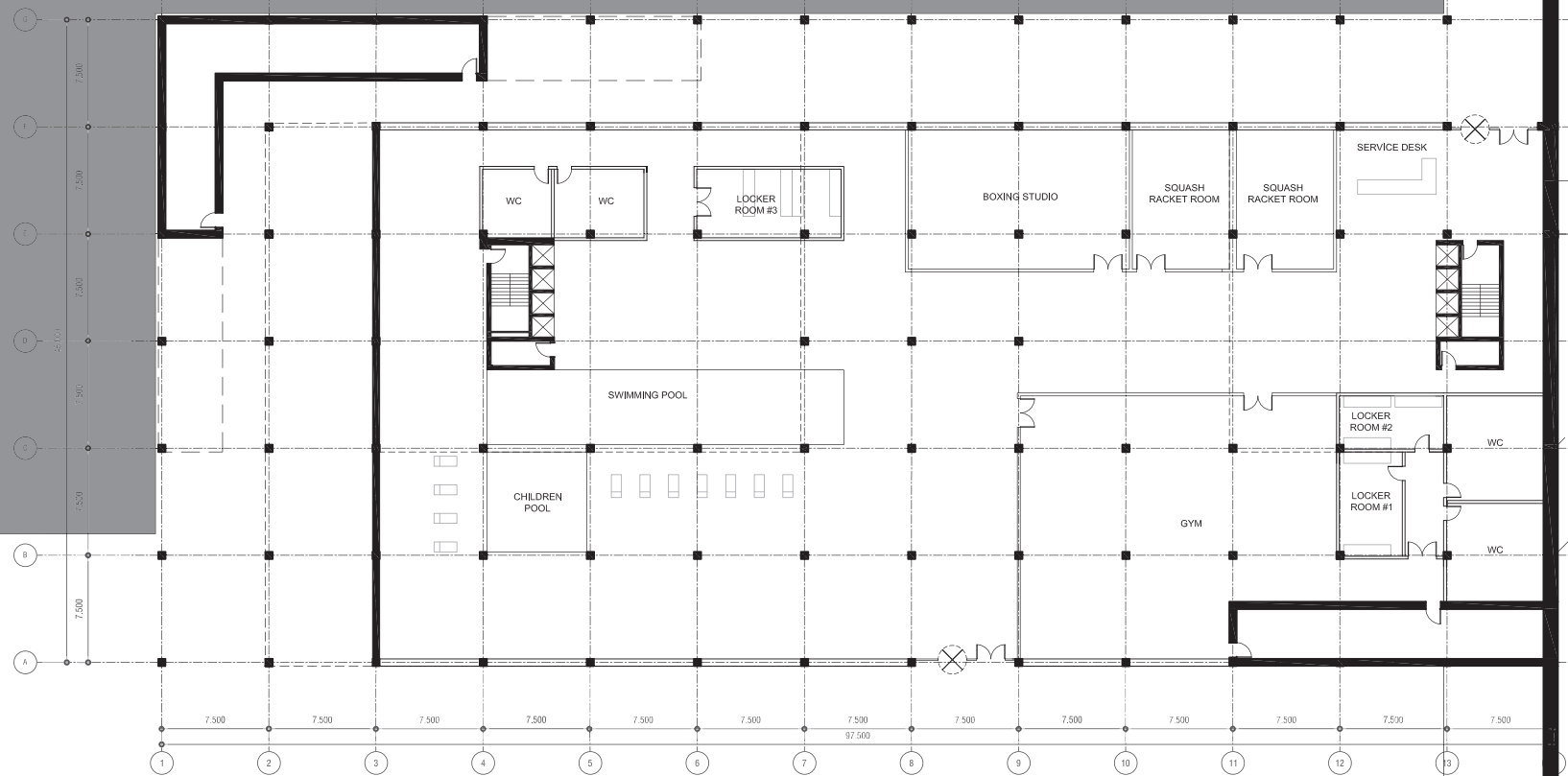
SECTION 1:200 (HOUSING MASS)



















**COLLECTIVE WORKSPACE PER FLOOR FOR RESIDENTS**





**COLLECTIVE SPACES - SHARED KITCHEN & BALCONY**

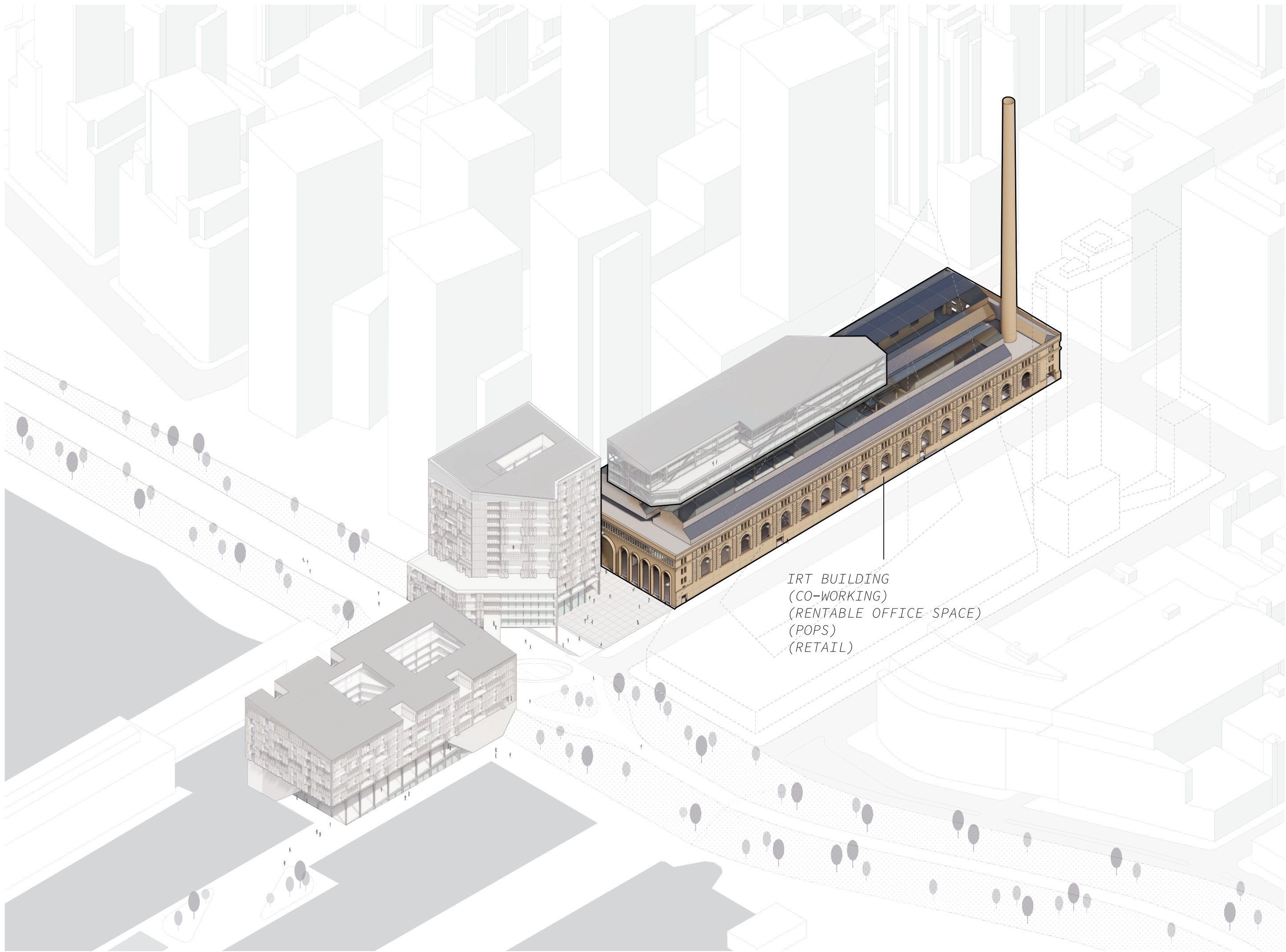






**ENTRANCES TO HOUSING FROM THE SLOPE**





IRT BUILDING  
(CO-WORKING)  
(RENTABLE OFFICE SPACE)  
(POPS)  
(RETAIL)



**SPATIAL CONCEPT**

**EXISTING STRUCTURE**  
INFLUENCES SPATIAL  
DEVISION

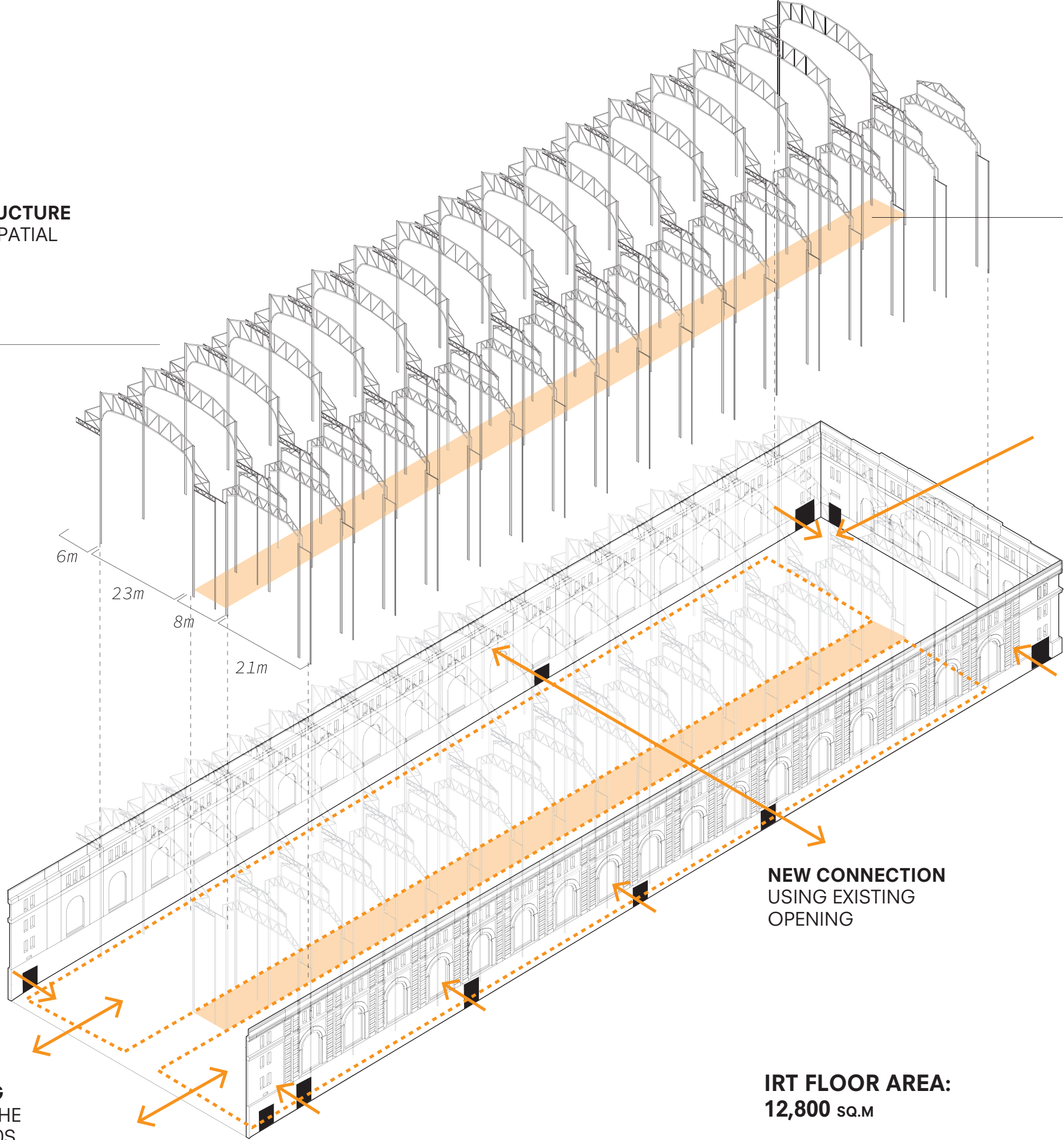
**CENTRAL SPINE**  
POSSIBLE SERVICE  
CORES (w = 8m.)

**OLD MAIN ENTRANCE**  
FROM 11TH AVE STILL USED

**NEW CONNECTION**  
USING EXISTING  
OPENING

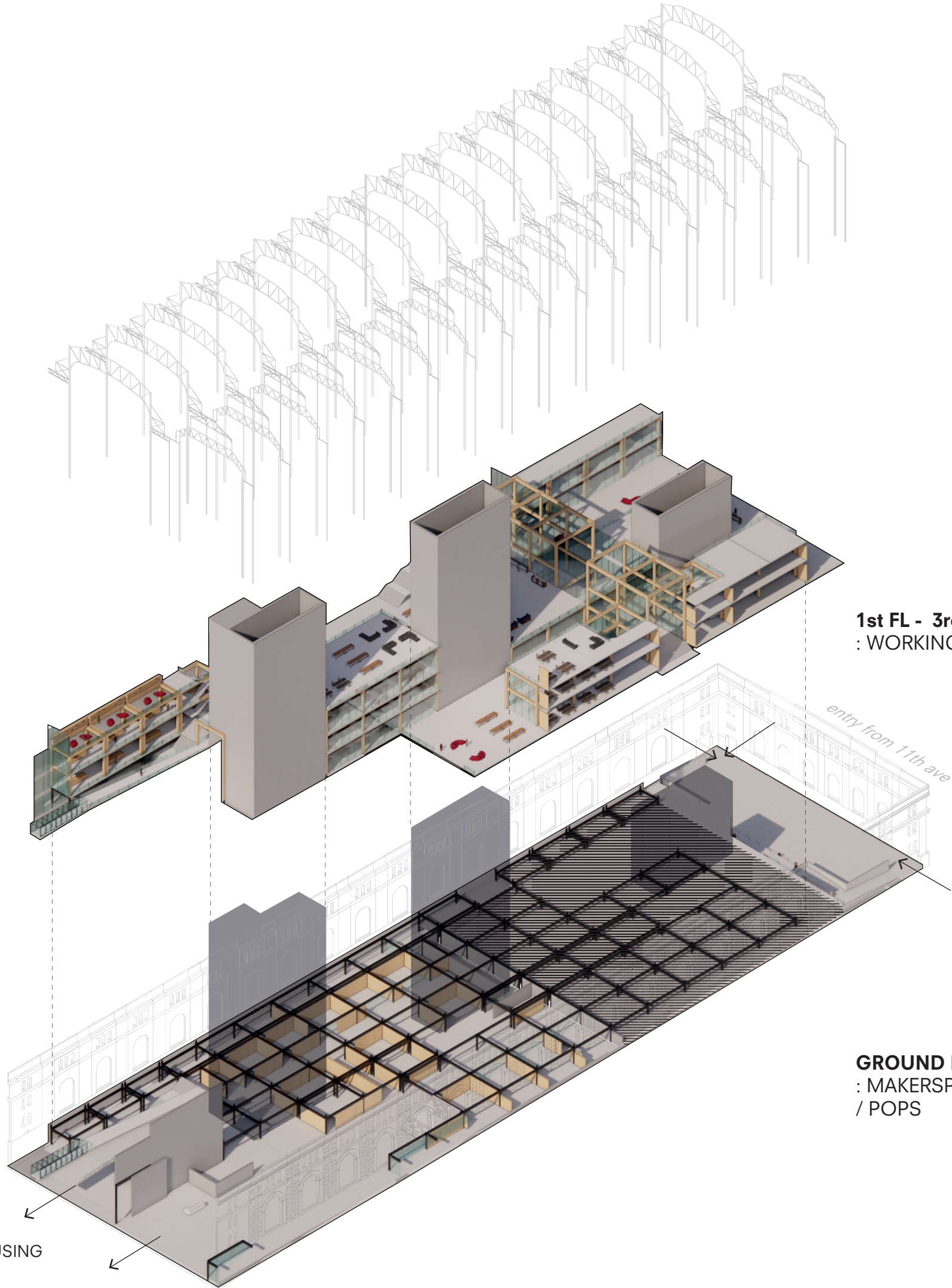
**NEW OPENING**  
IN PLACE OF THE  
PREVIOUS 1950S  
ADDITION

**IRT FLOOR AREA:**  
**12,800 sq.m**





**EXISTING  
STRUCTURES**



**1st FL - 3rd FL**  
: WORKSPACE, RETAIL

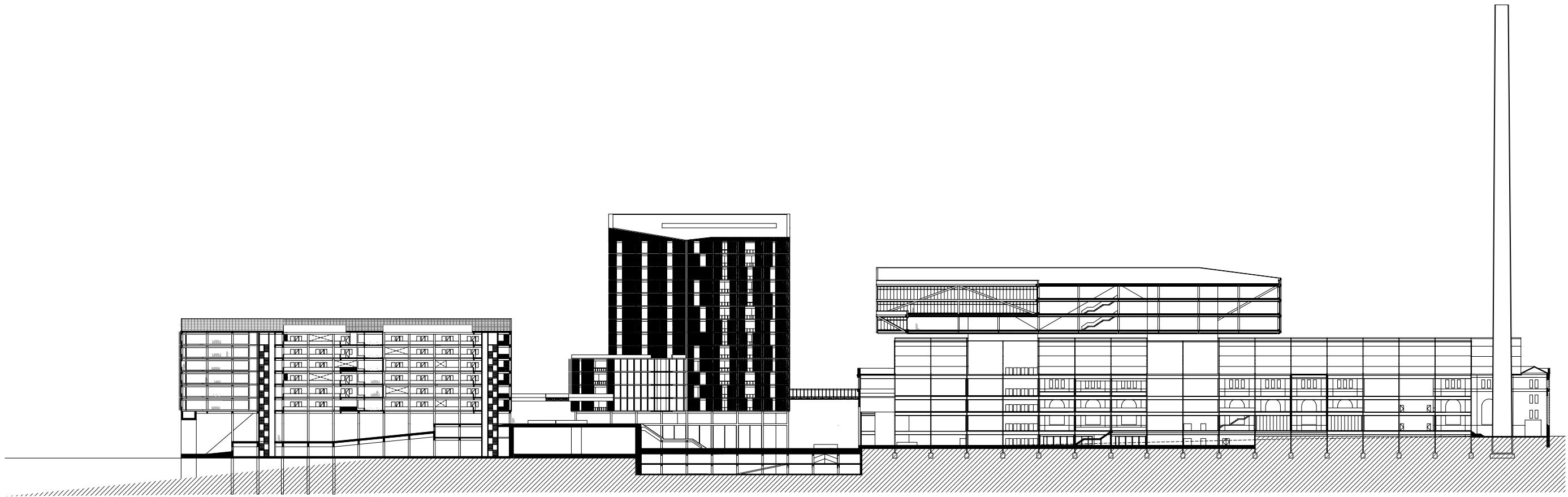
**ORIGINAL  
FACADE (1914)**

**GROUND FL**  
: MAKERSPACE, EXHIBITION  
/ POPS

TO  
PLAZA / DIKE / HOUSING

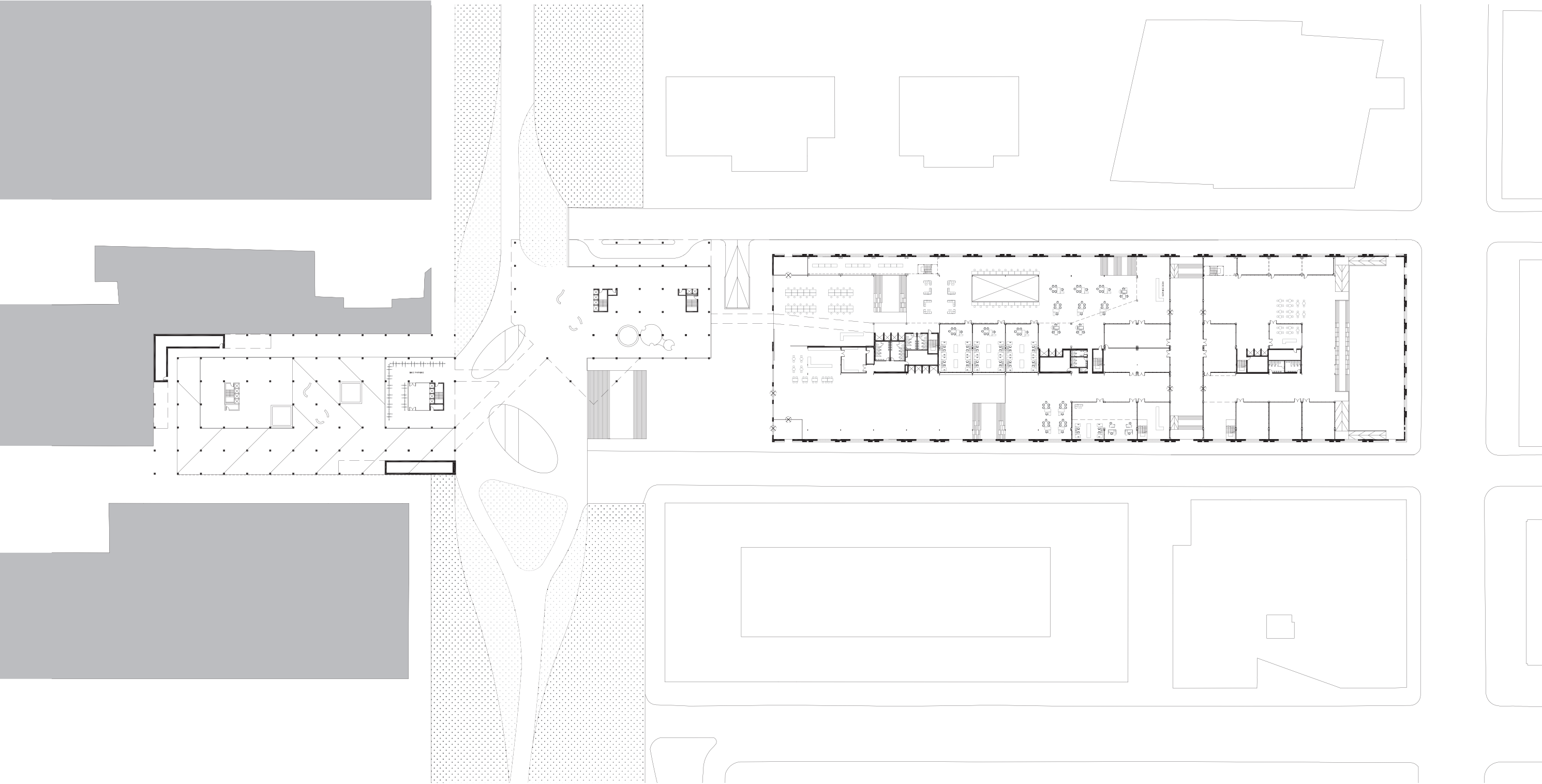
entry from 11th ave





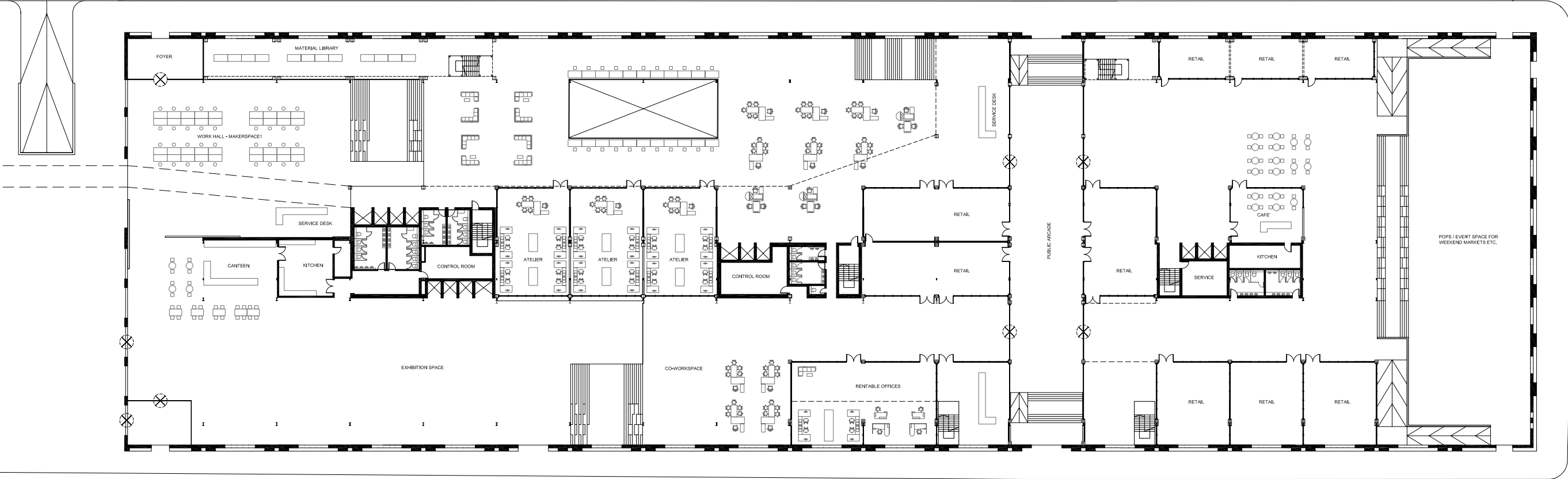


1st FL  
1:500



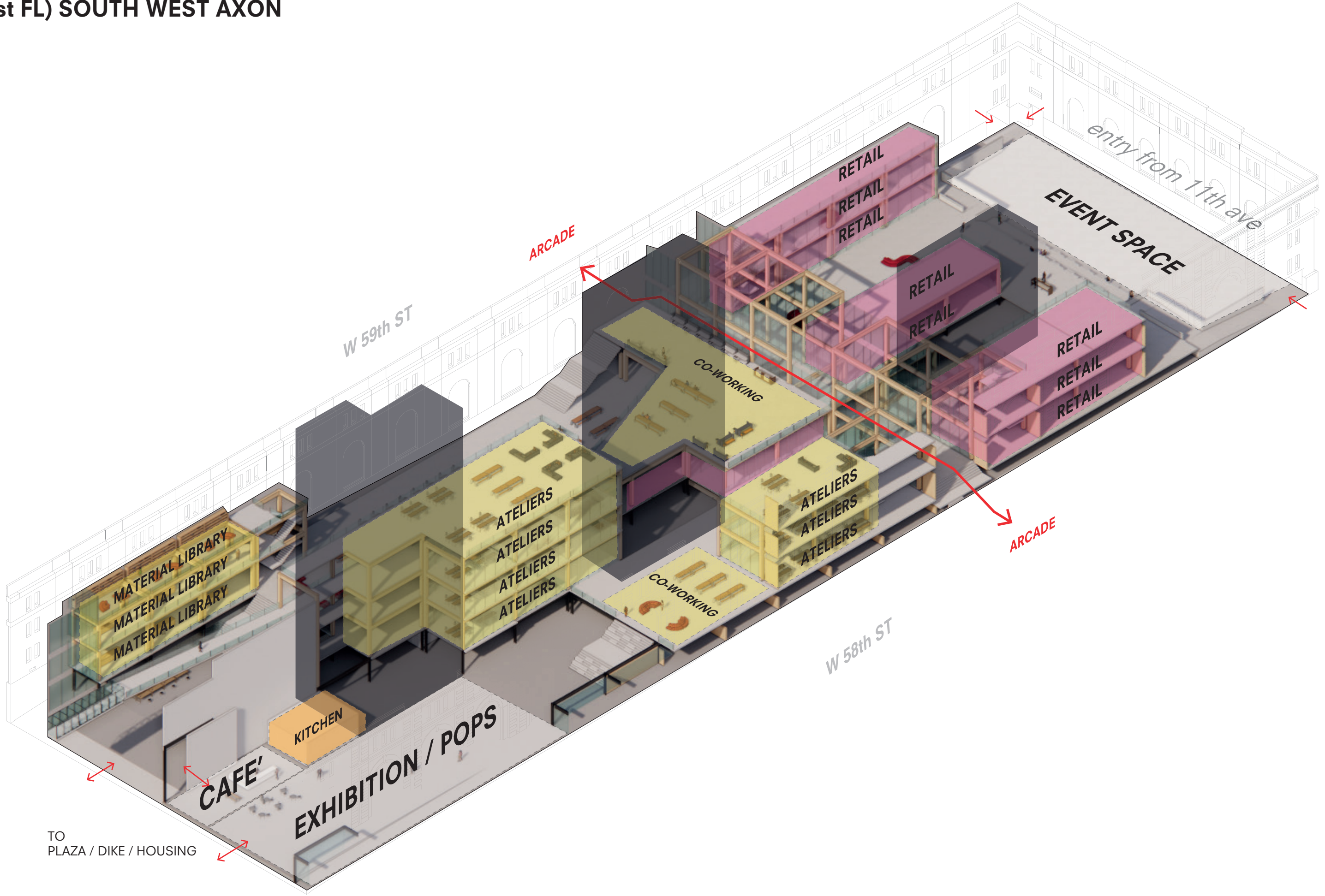


IRT BUILDING  
(1st FL)  
1:250

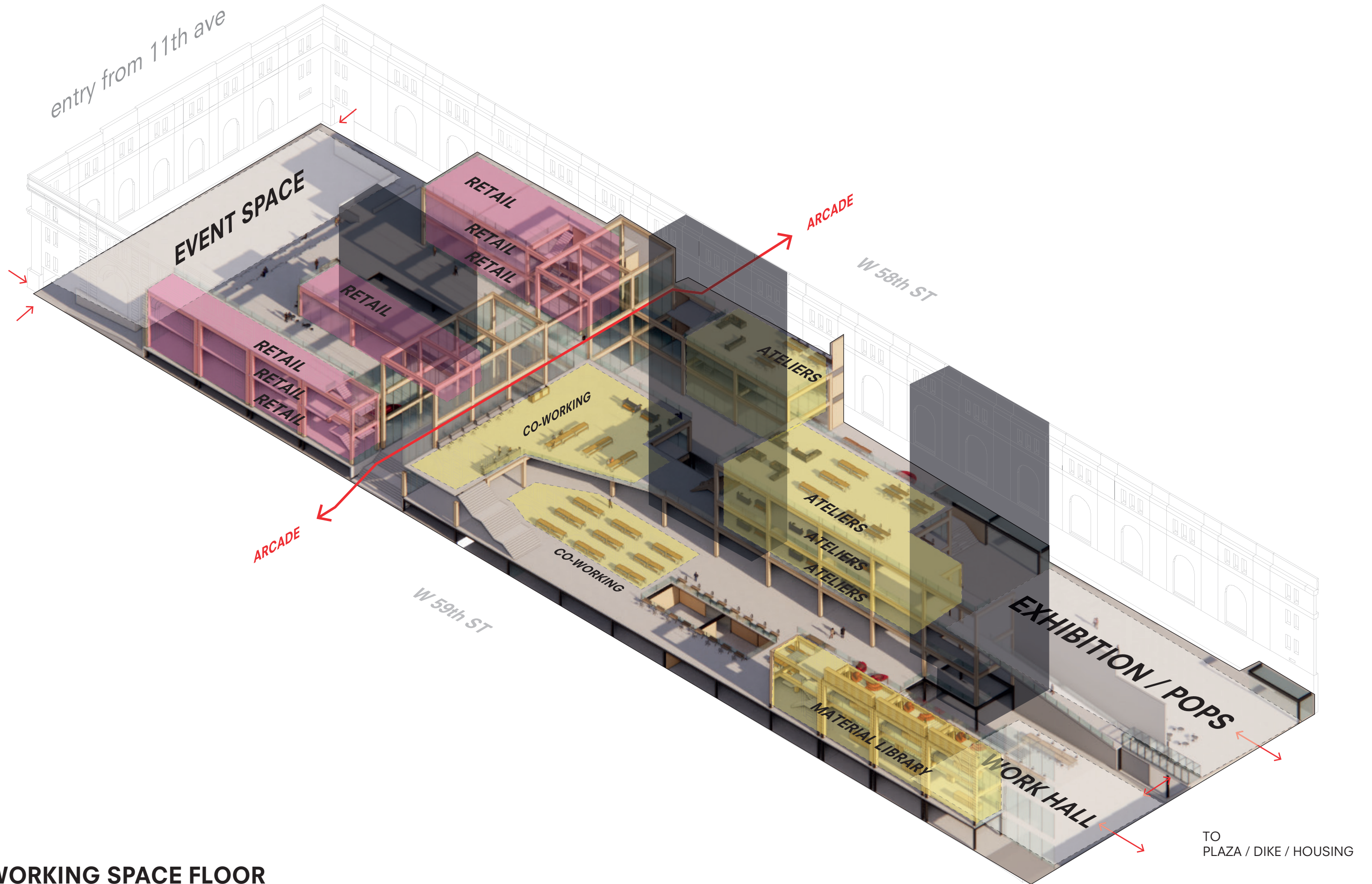




**WORKING SPACE FLOOR  
(1st FL) SOUTH WEST AXON**

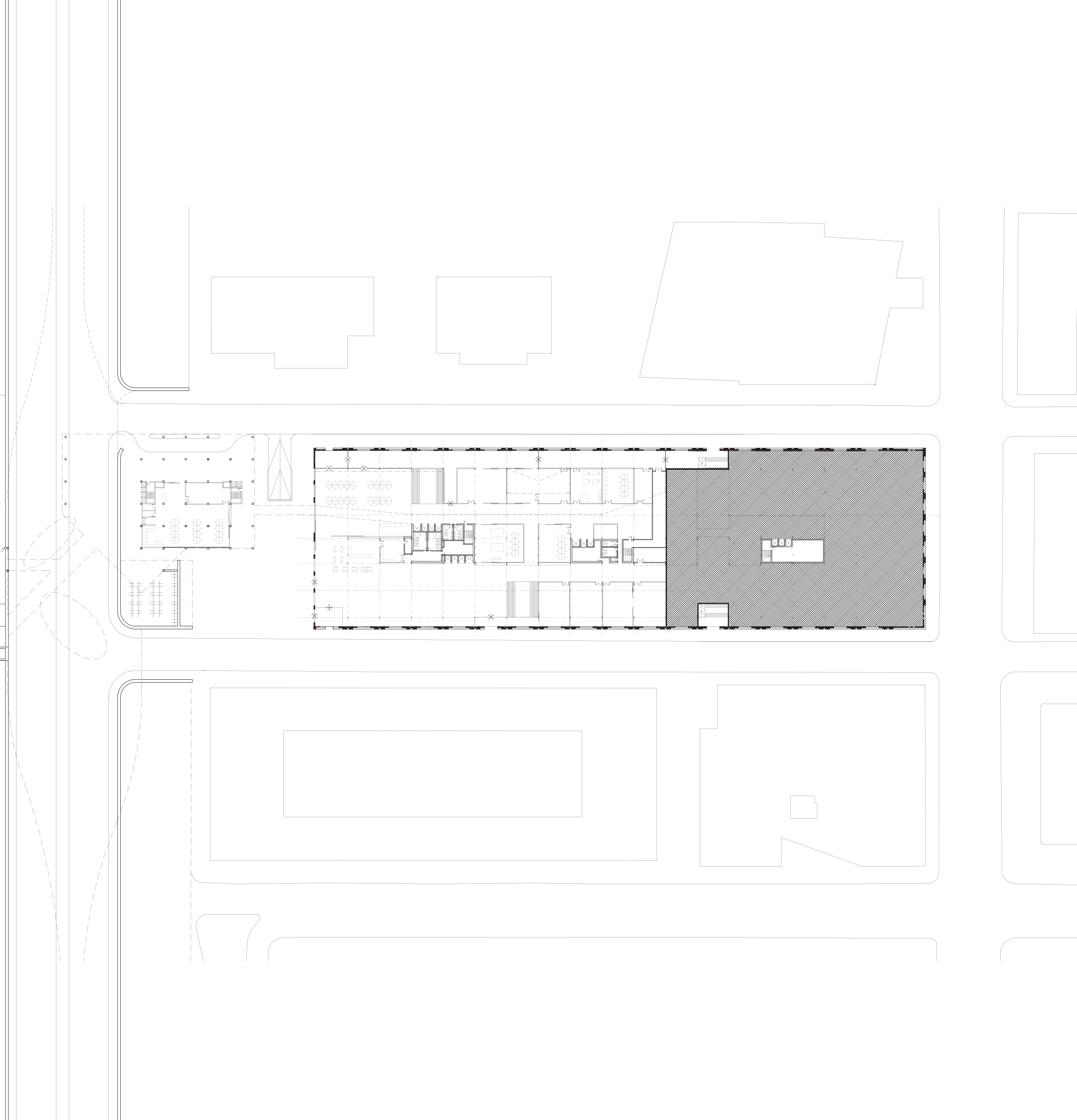
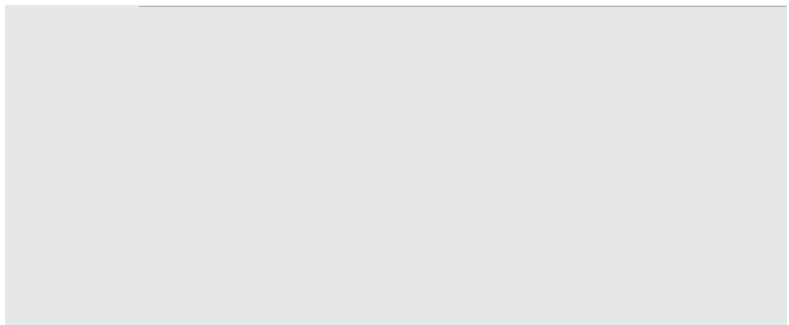
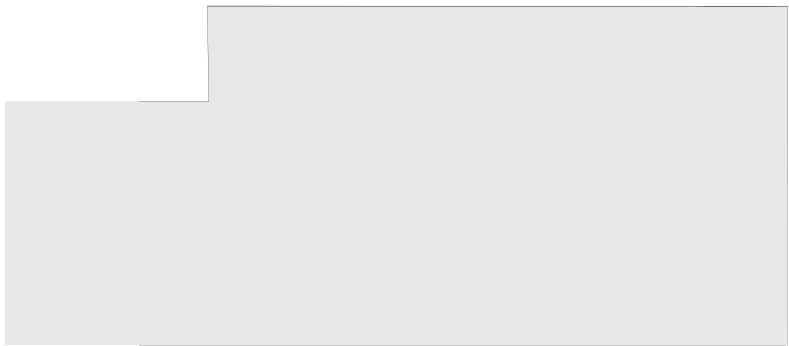
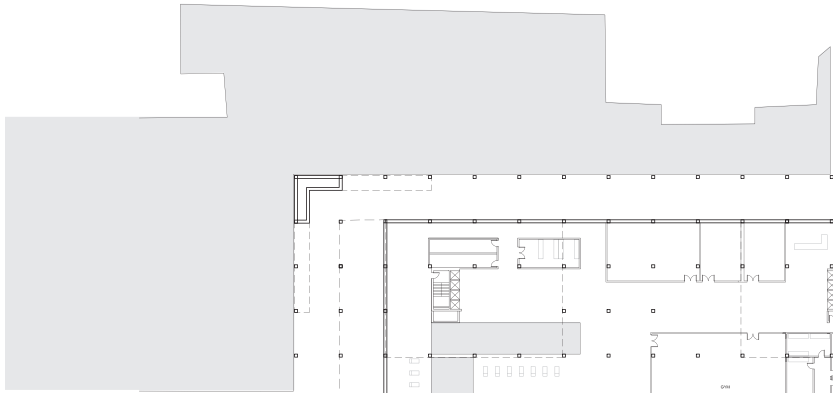
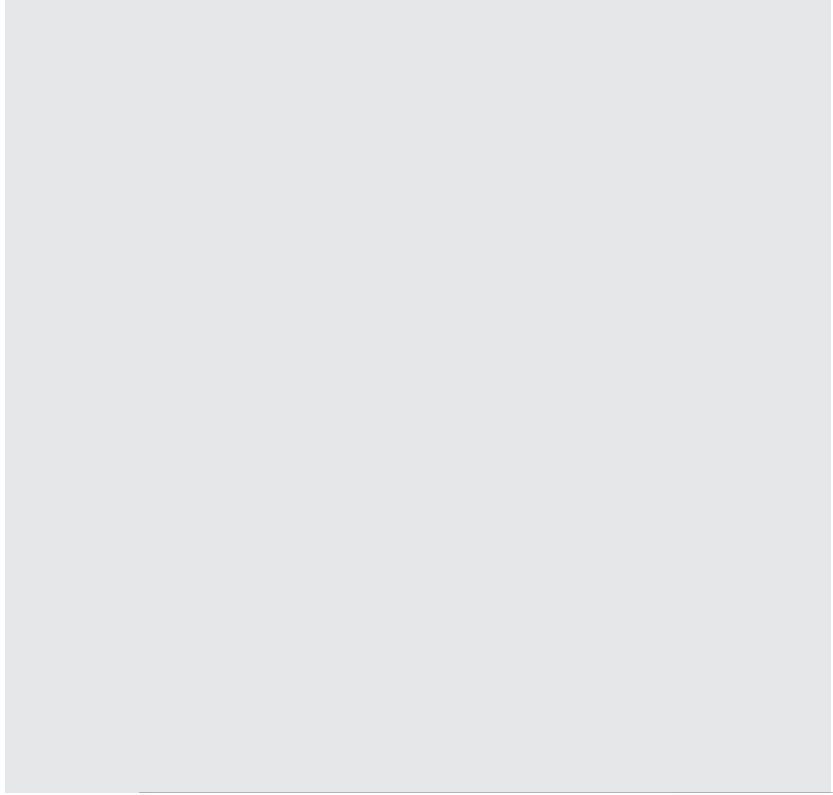




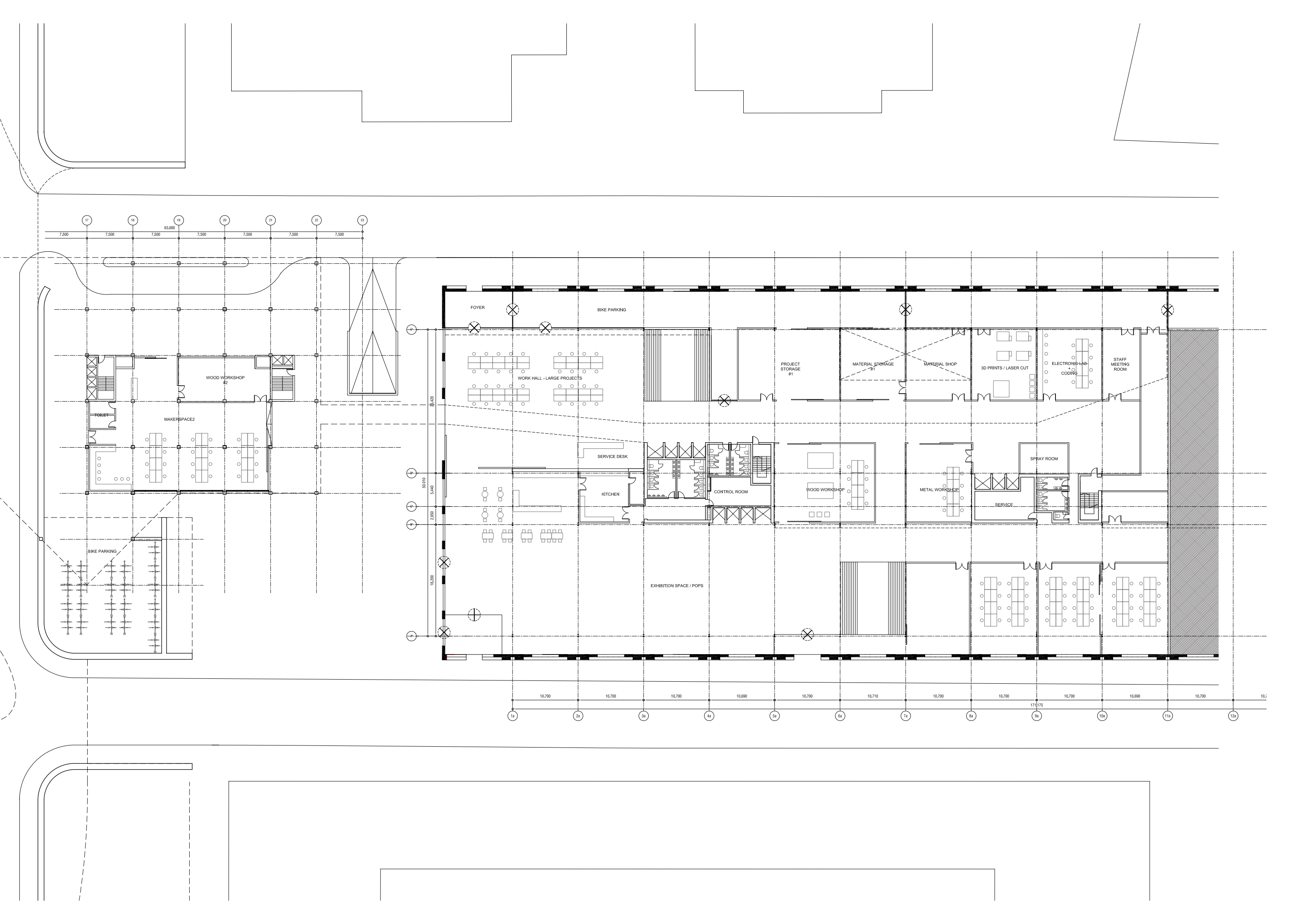


**WORKING SPACE FLOOR  
(1st FL) NORTH WEST AXON**



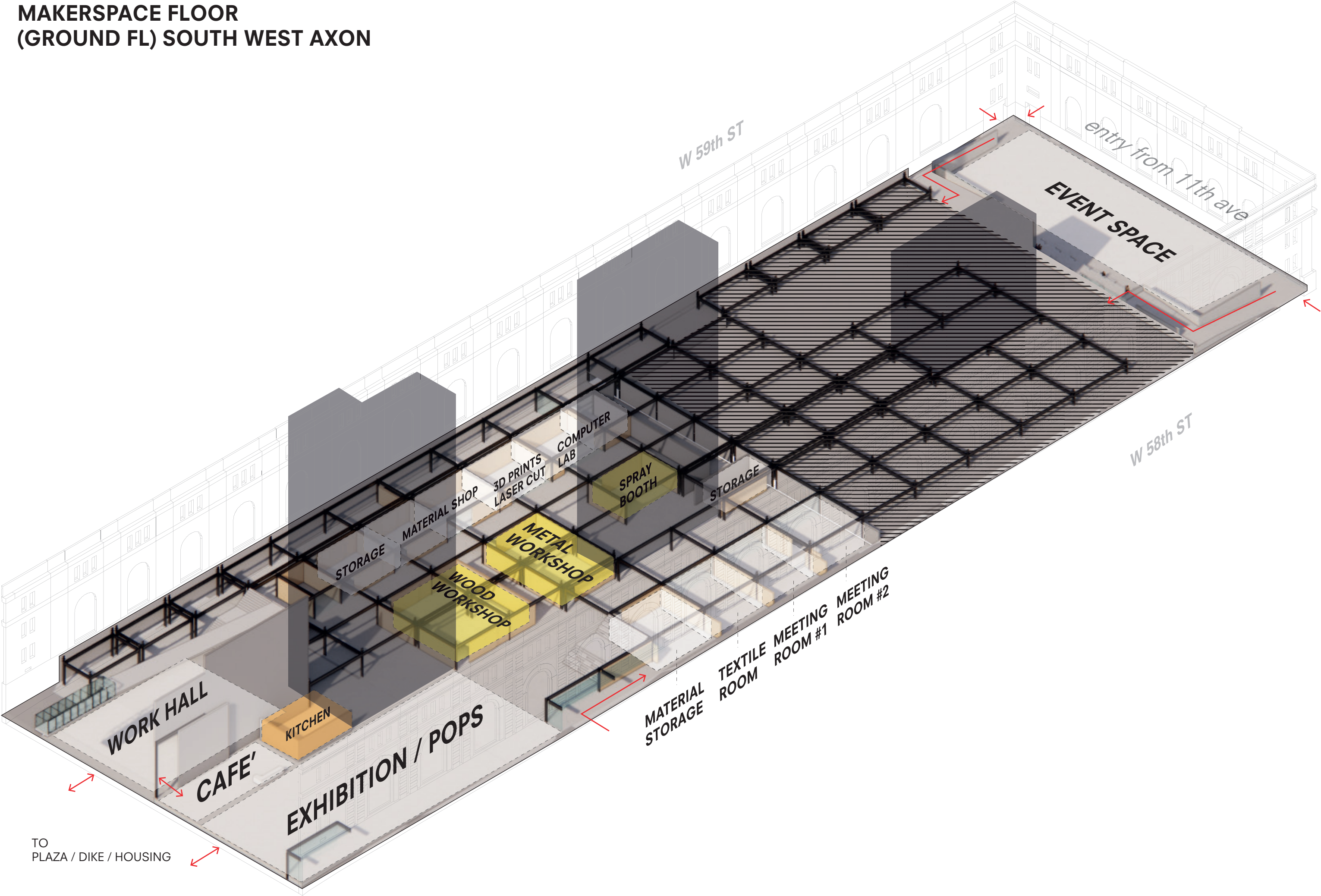




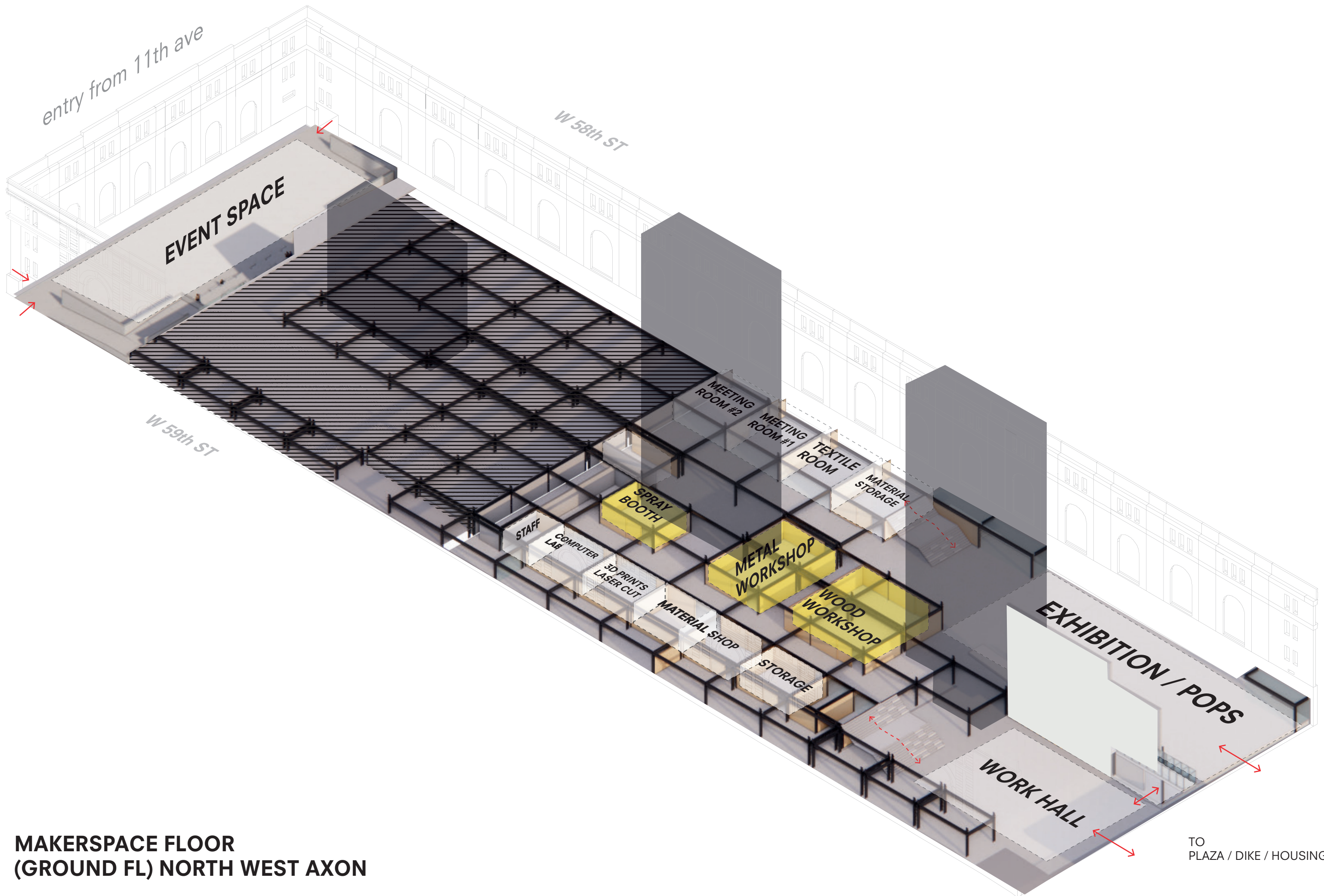




MAKERSPACE FLOOR  
(GROUND FL) SOUTH WEST AXON







**MAKERSPACE FLOOR  
(GROUND FL) NORTH WEST AXON**





ENTRANCE FROM 11TH AVE (EVENT SPACE + RETAIL)





**WORKSPACE ON 1ST FLOOR**





**WORKSPACE ON 2ND FLOOR**





**WORKSPACE ON 3RD FLOOR**





POPS + EXHIBITION SPACE ON GROUND FLOOR (WEST END)





**MAKERSPACE WORK HALL (WEST END)**





**ARCADE CONNECTING W58th ST. TO W59th ST.**



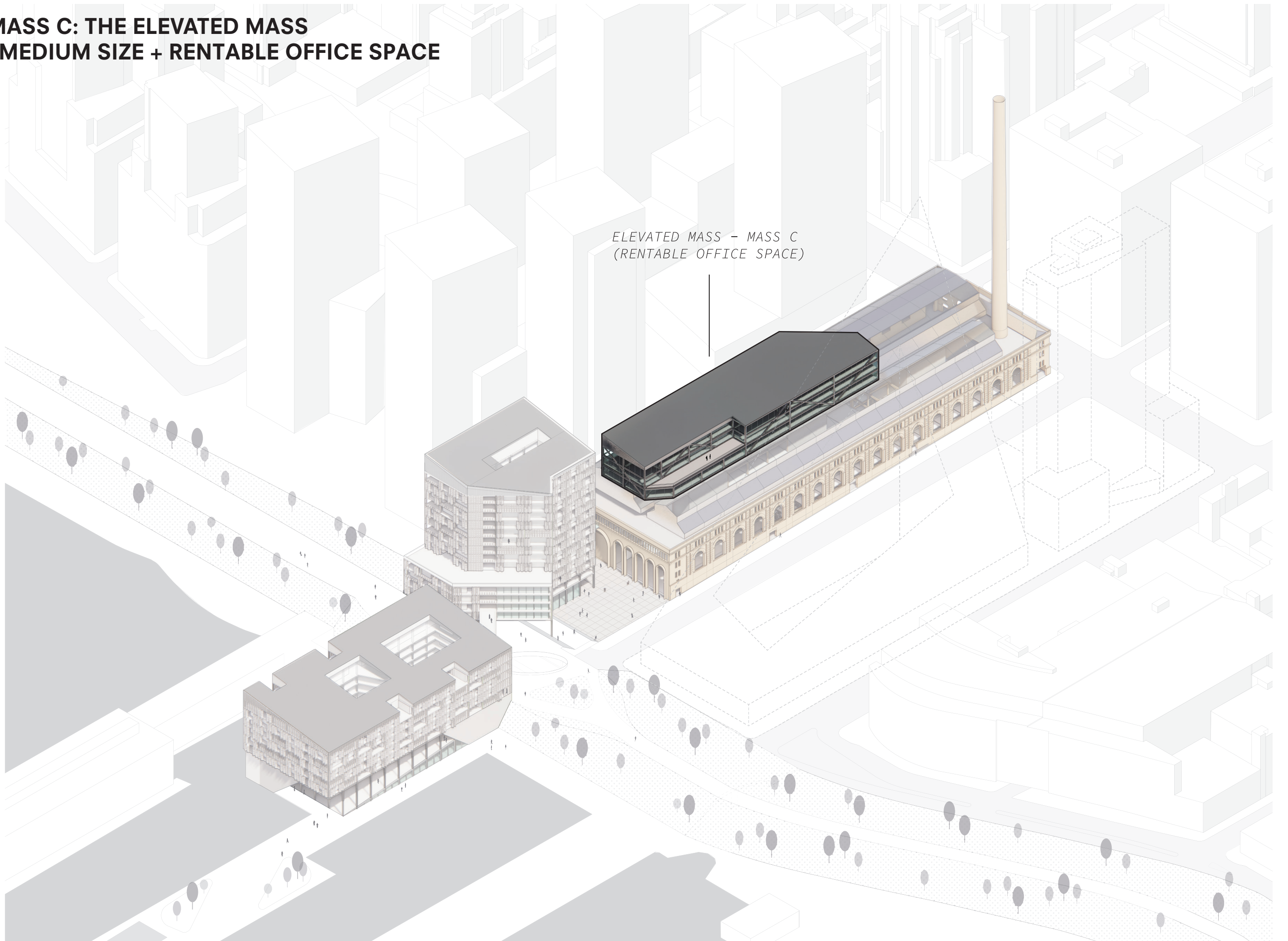


**ARCADE CONNECTING W59th ST. TO W58th ST.**



**MASS C: THE ELEVATED MASS**  
**: MEDIUM SIZE + RENTABLE OFFICE SPACE**

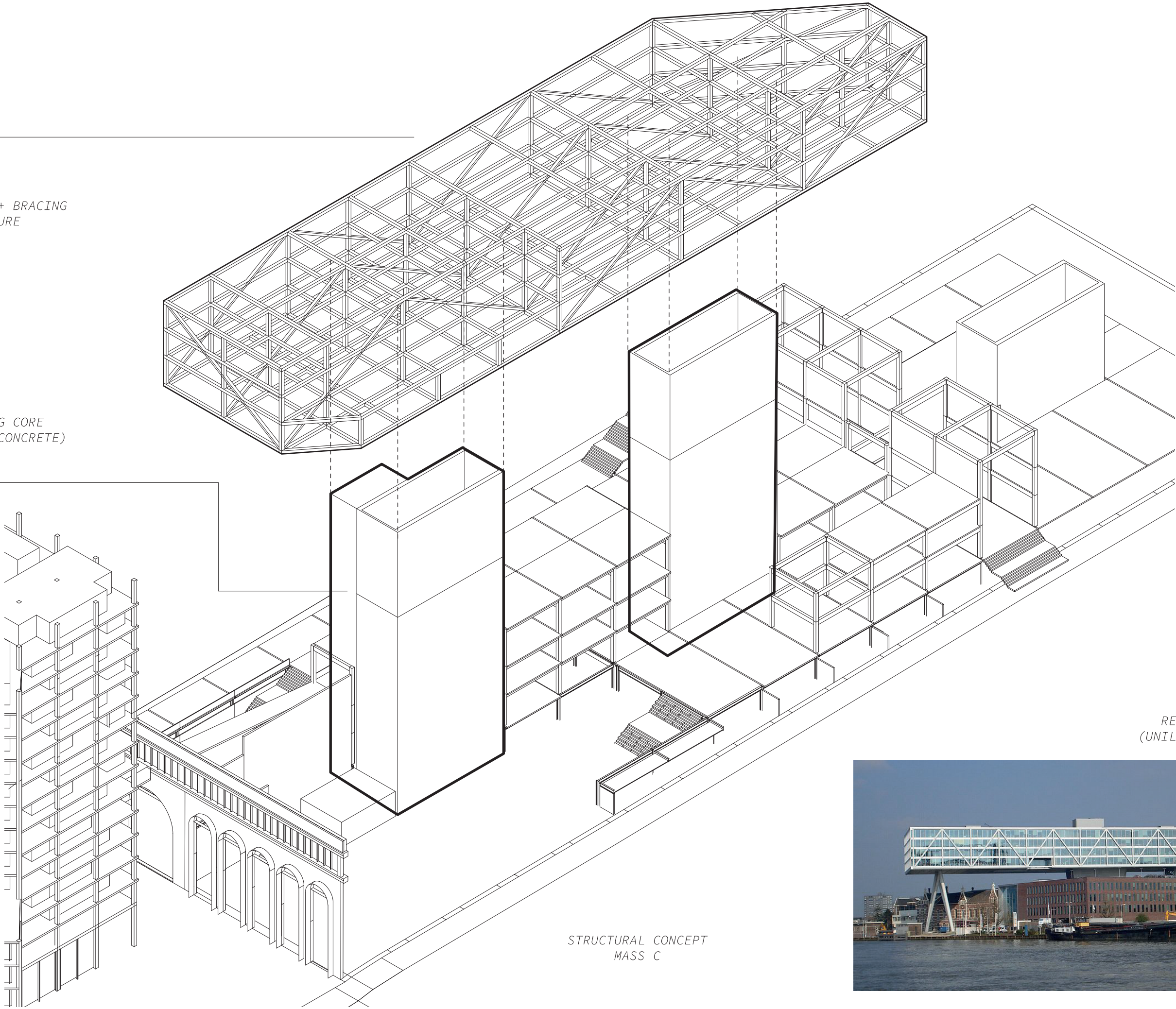
*ELEVATED MASS – MASS C  
(RENTABLE OFFICE SPACE)*





STEEL TRUSS + BRACING  
STRUCTURE

SUPPORTING CORE  
(REINFORCED CONCRETE)

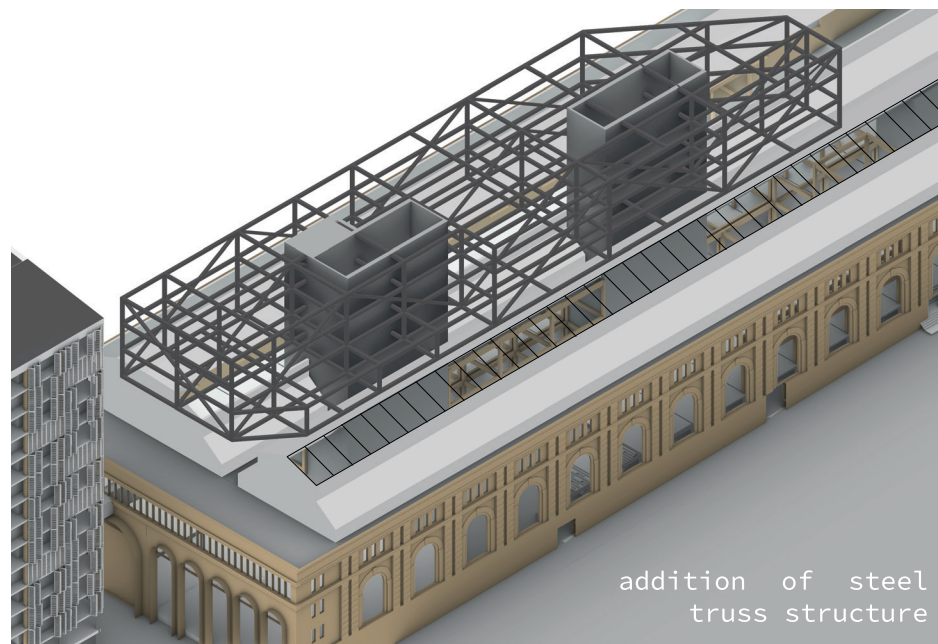


REFERENCE PROJECT  
(UNILEVER ROTTERDAM)

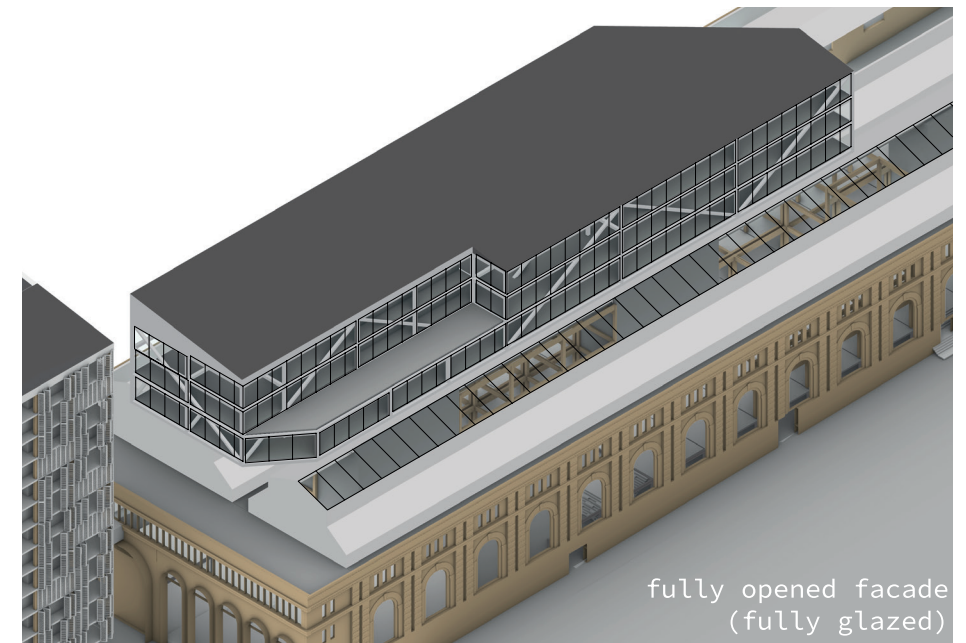


STRUCTURAL CONCEPT  
MASS C

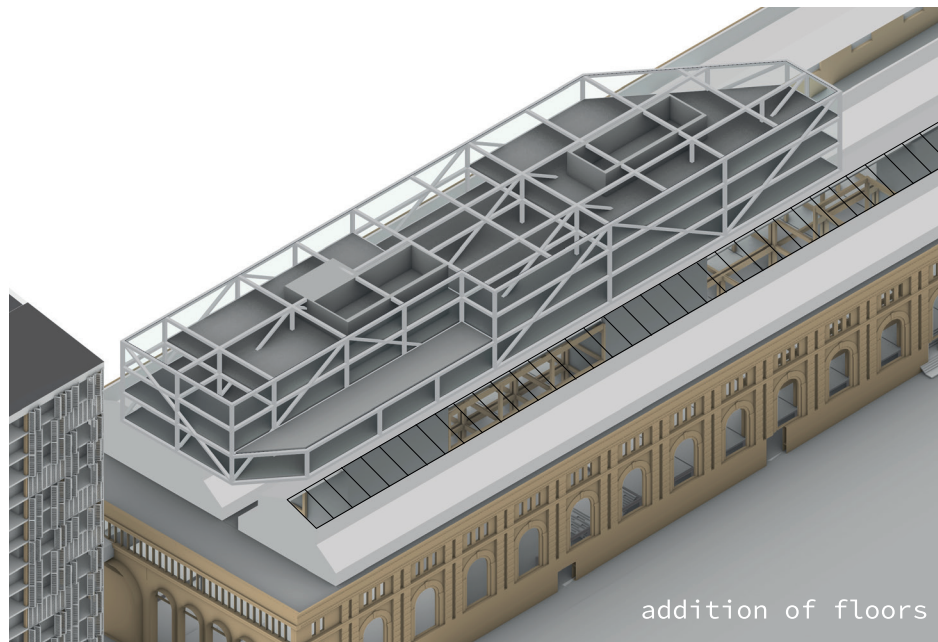




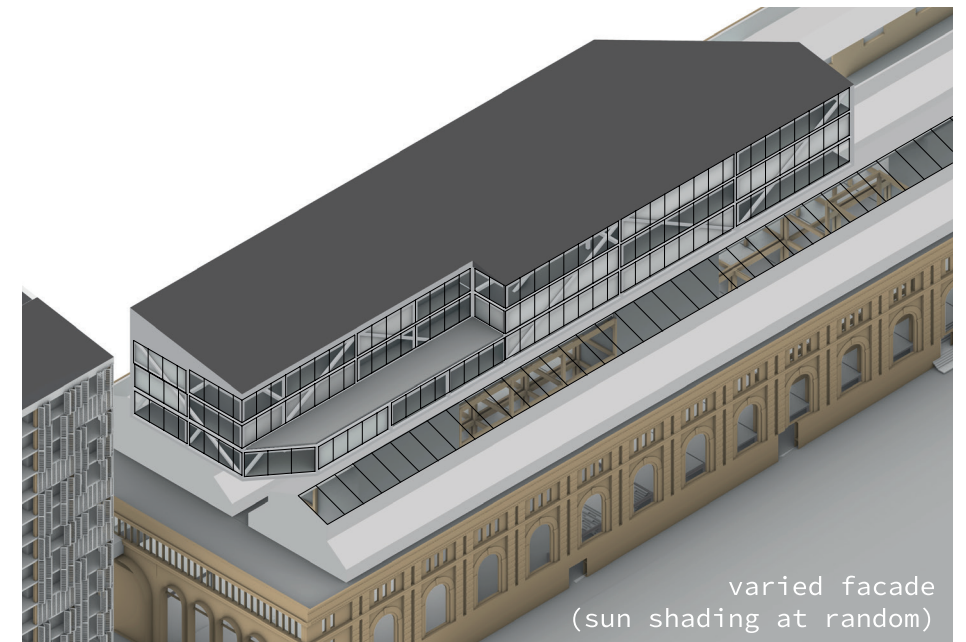
addition of steel  
truss structure



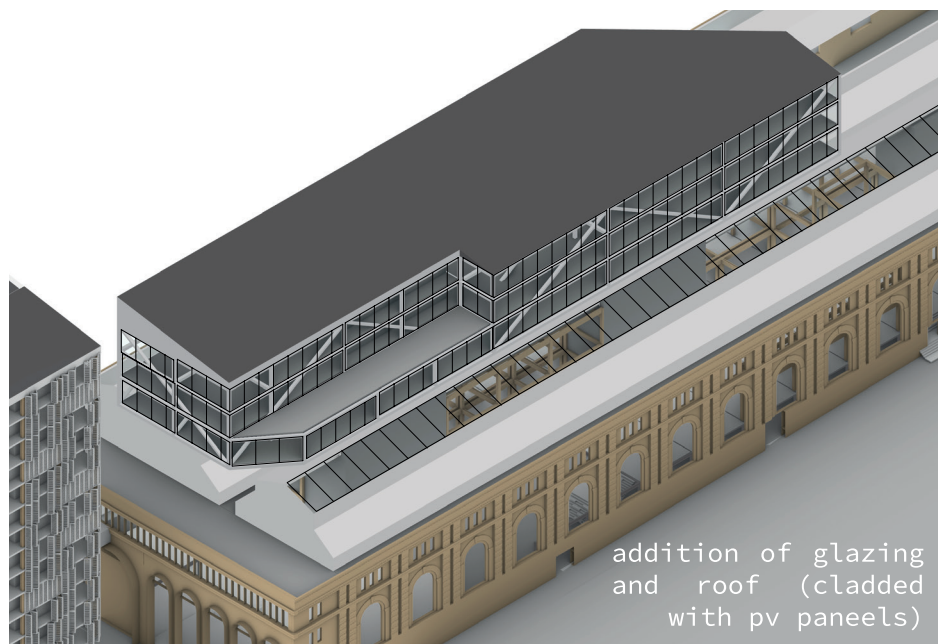
fully opened facade  
(fully glazed)



addition of floors



varied facade  
(sun shading at random)

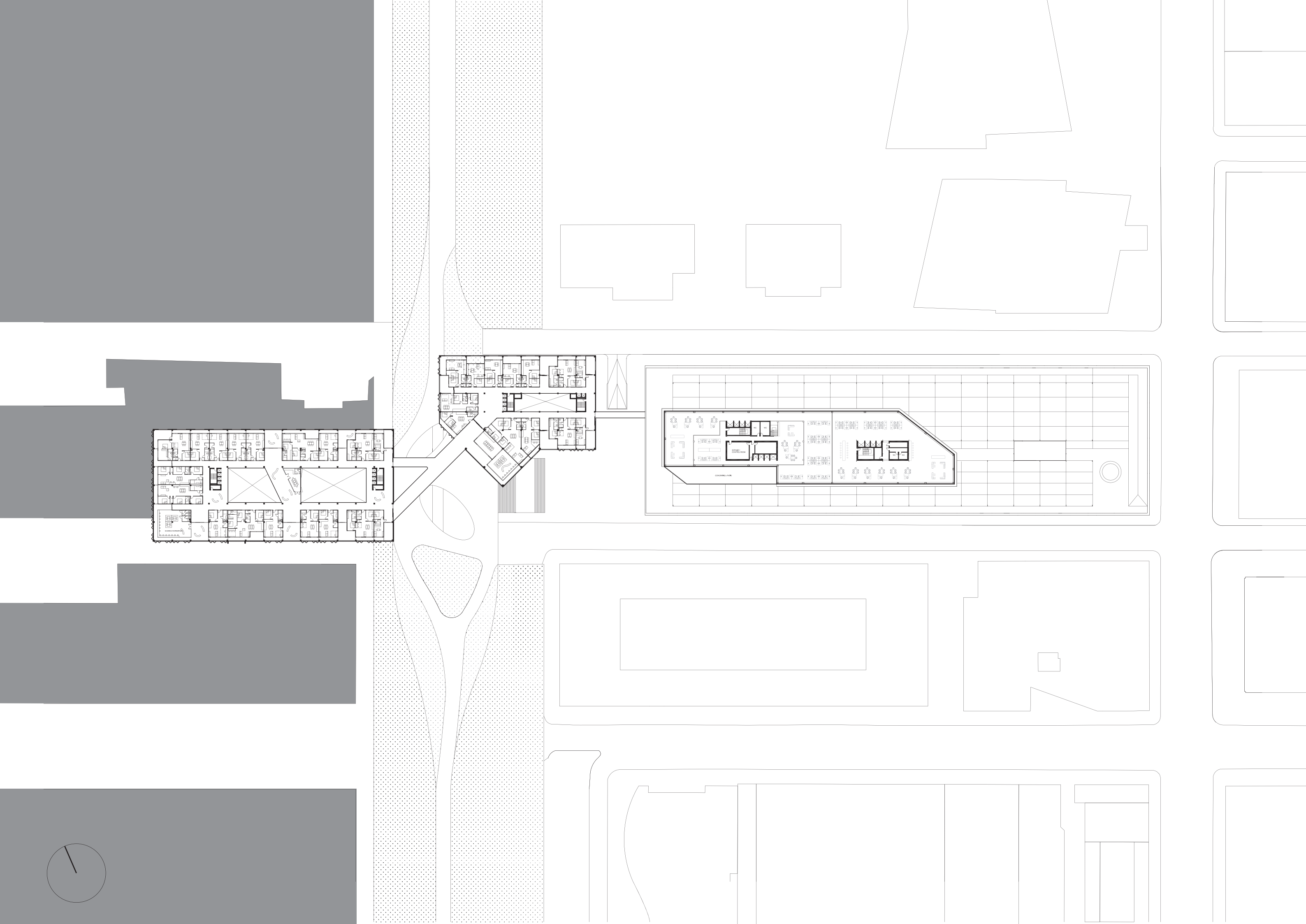


addition of glazing  
and roof (cladded  
with pv paneels)

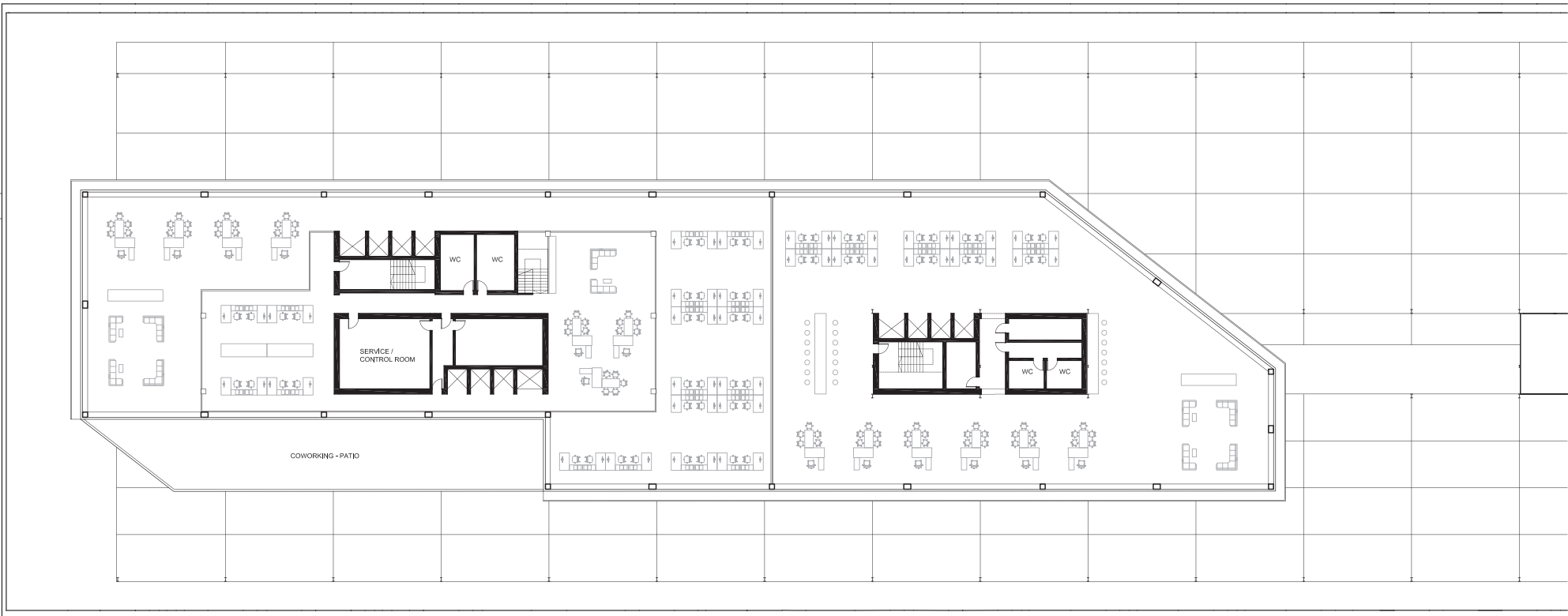


fully closed facade  
(automated sun shading)

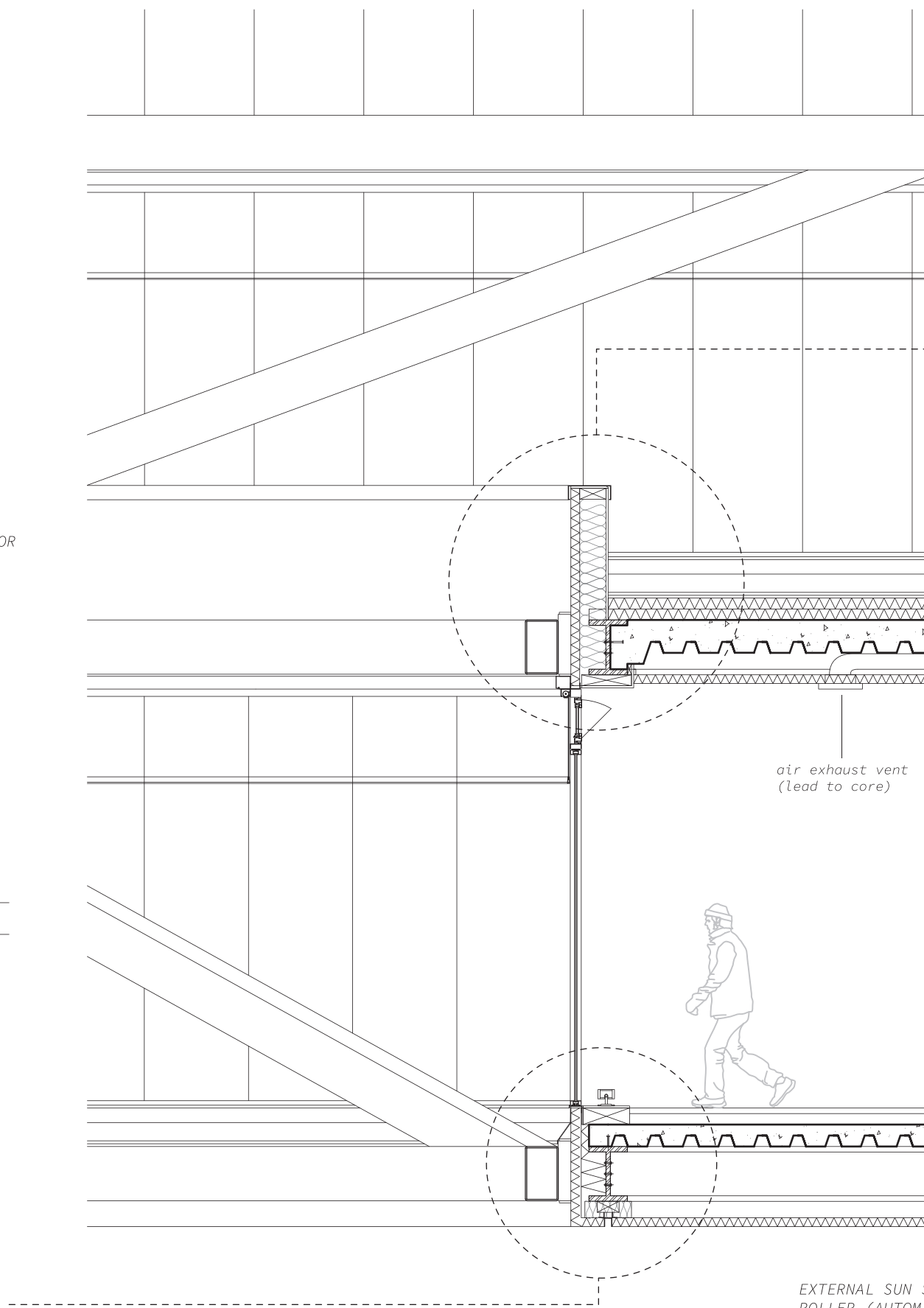
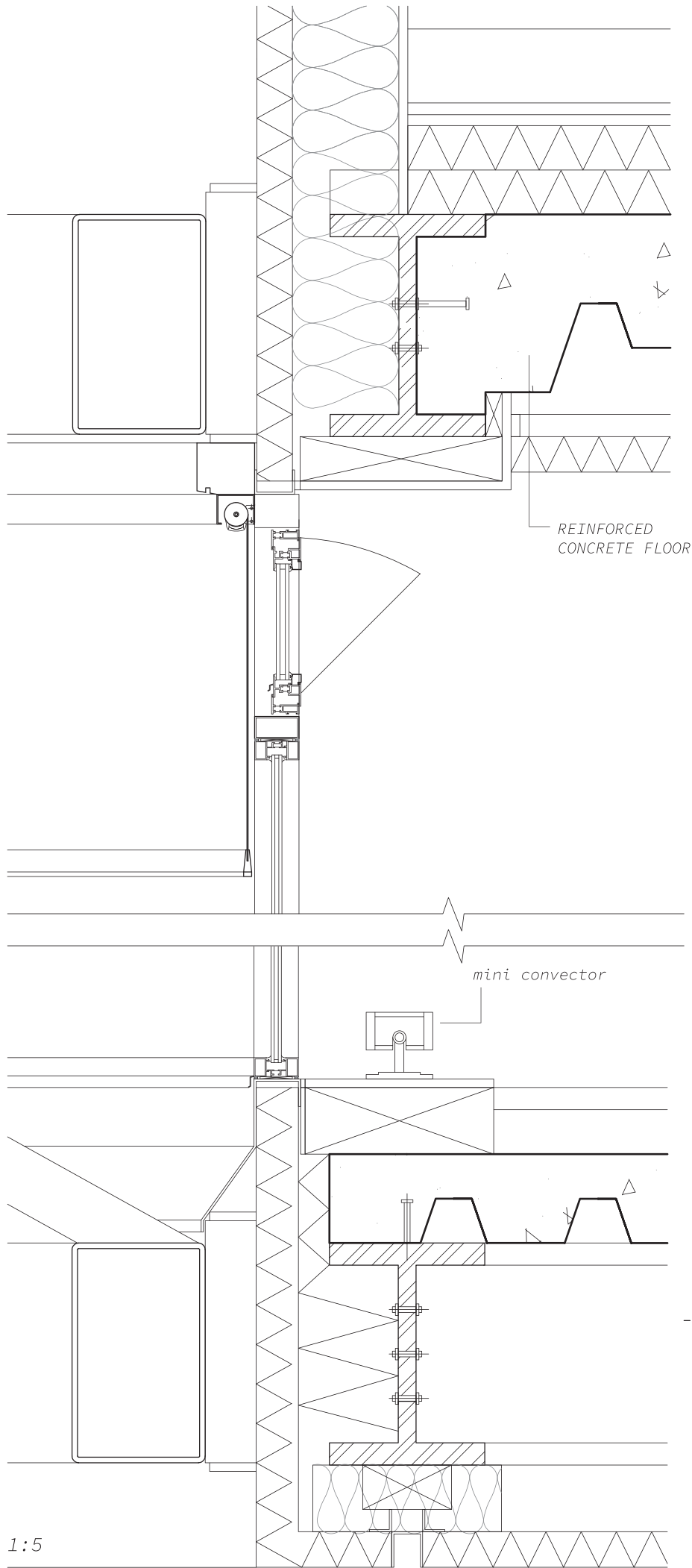




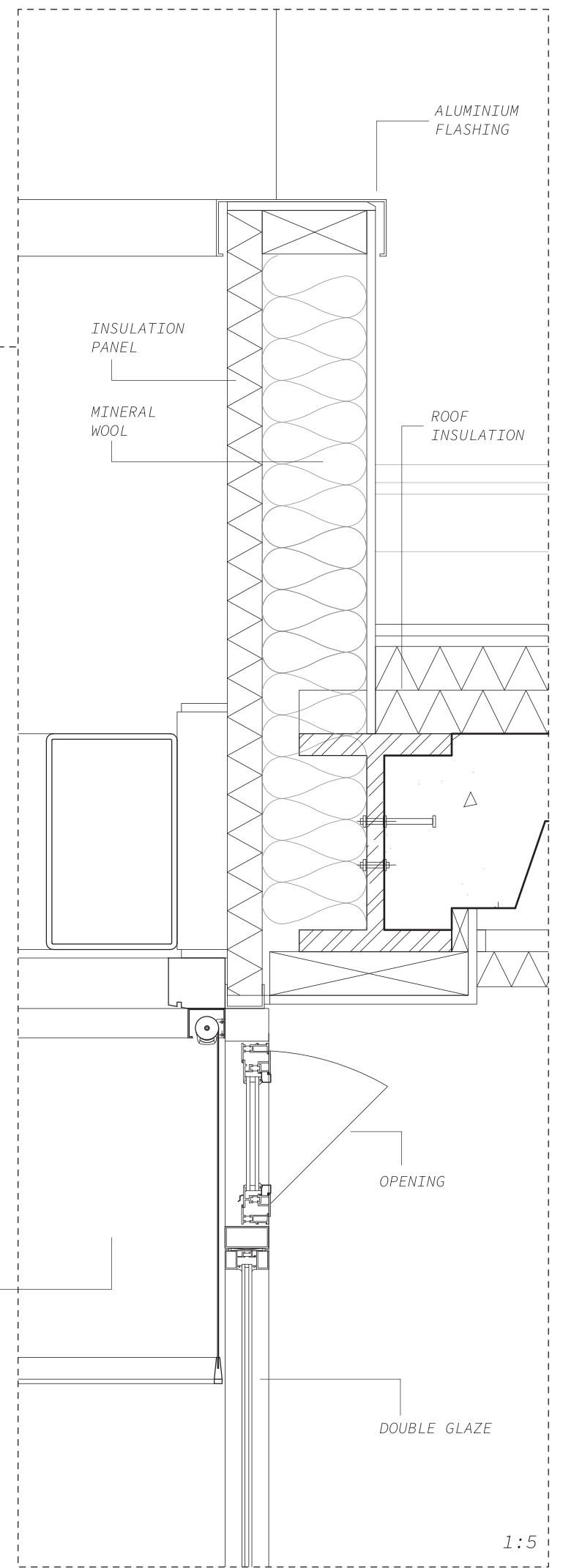




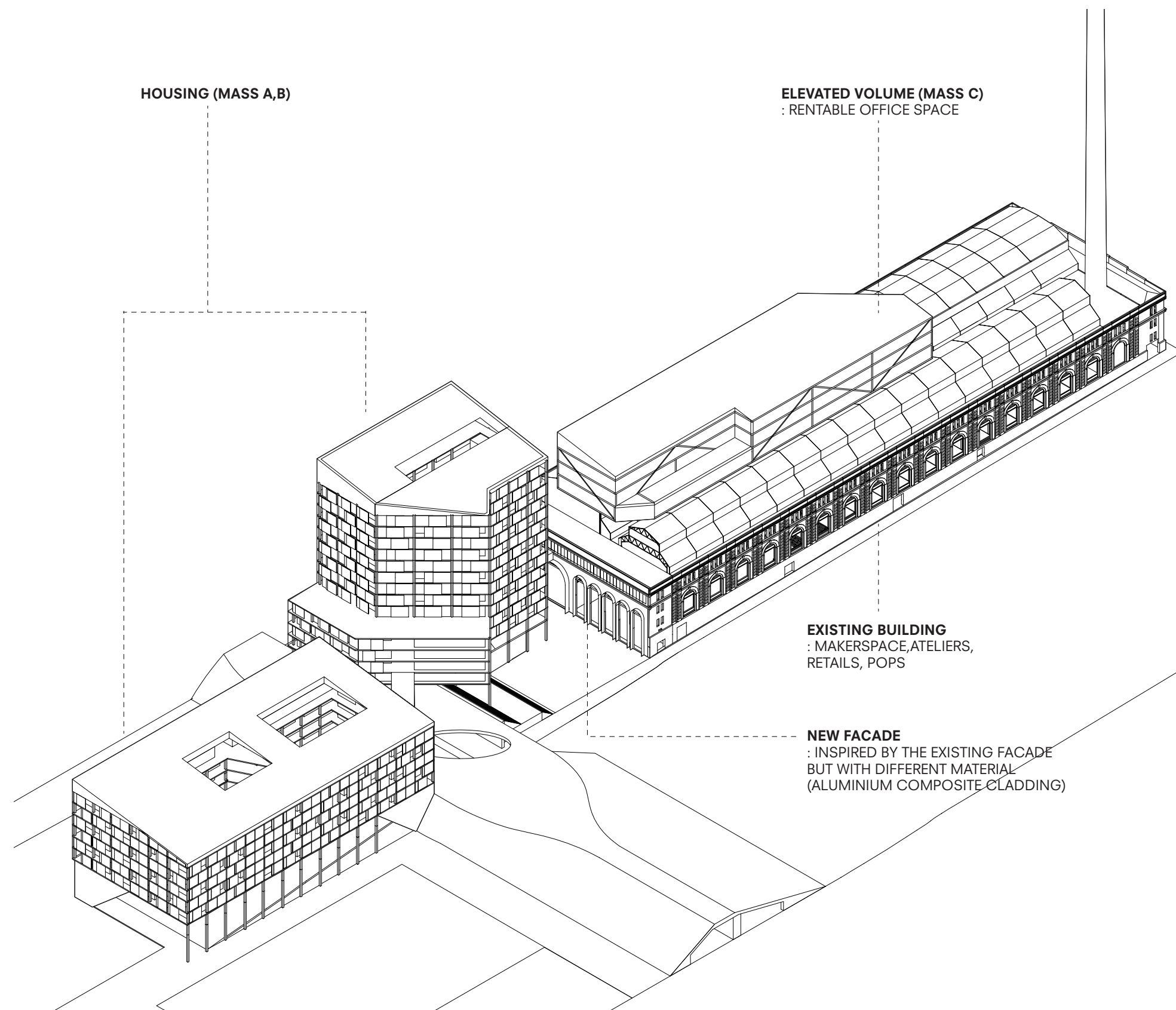




FACADE SECTION DETAIL  
(MASS C)  
1:20







**HOUSING (MASS A,B)**

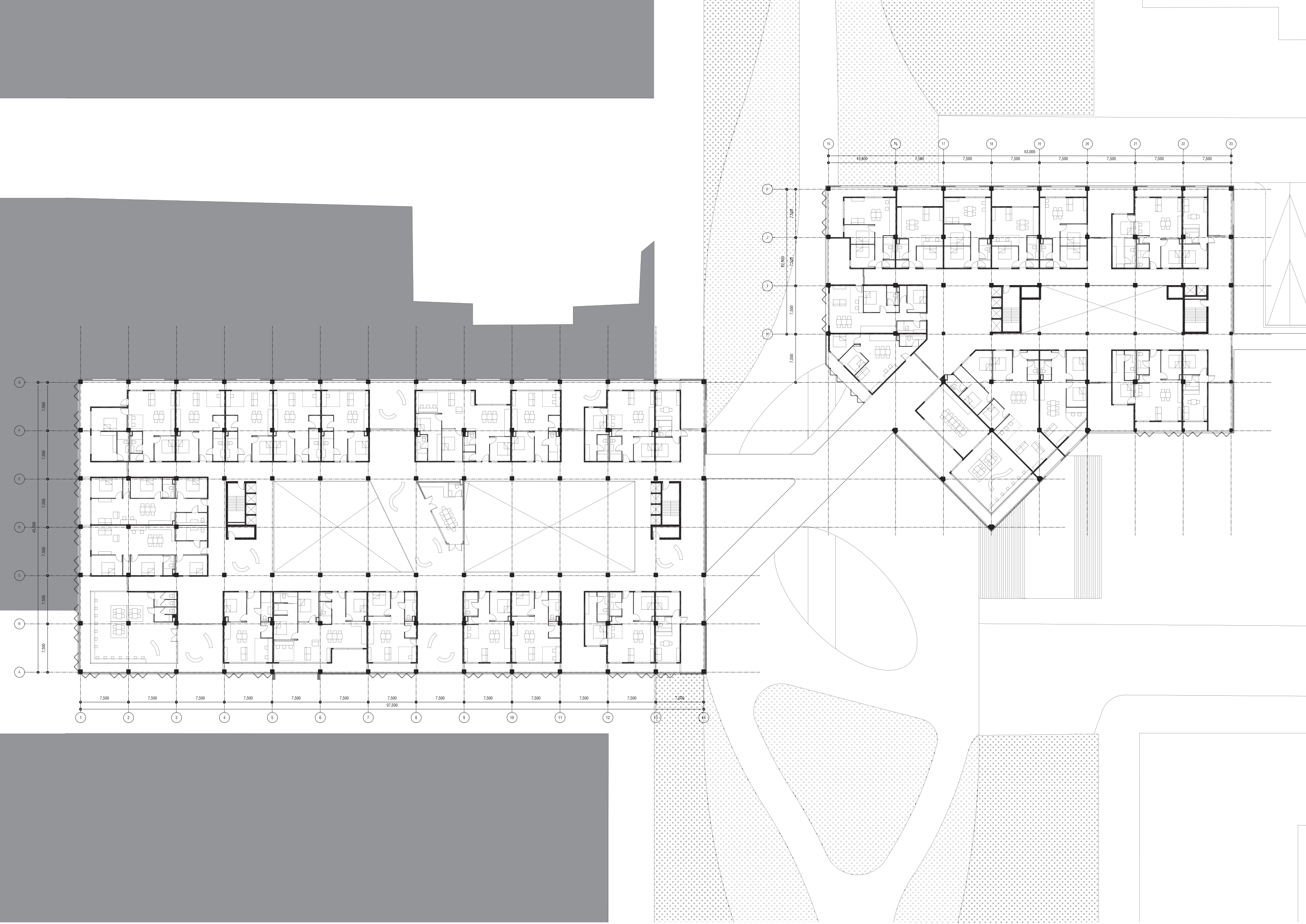
**ELEVATED VOLUME (MASS C)**  
: RENTABLE OFFICE SPACE

**EXISTING BUILDING**  
: MAKERSPACE, ATELIERS,  
RETAILS, POPS

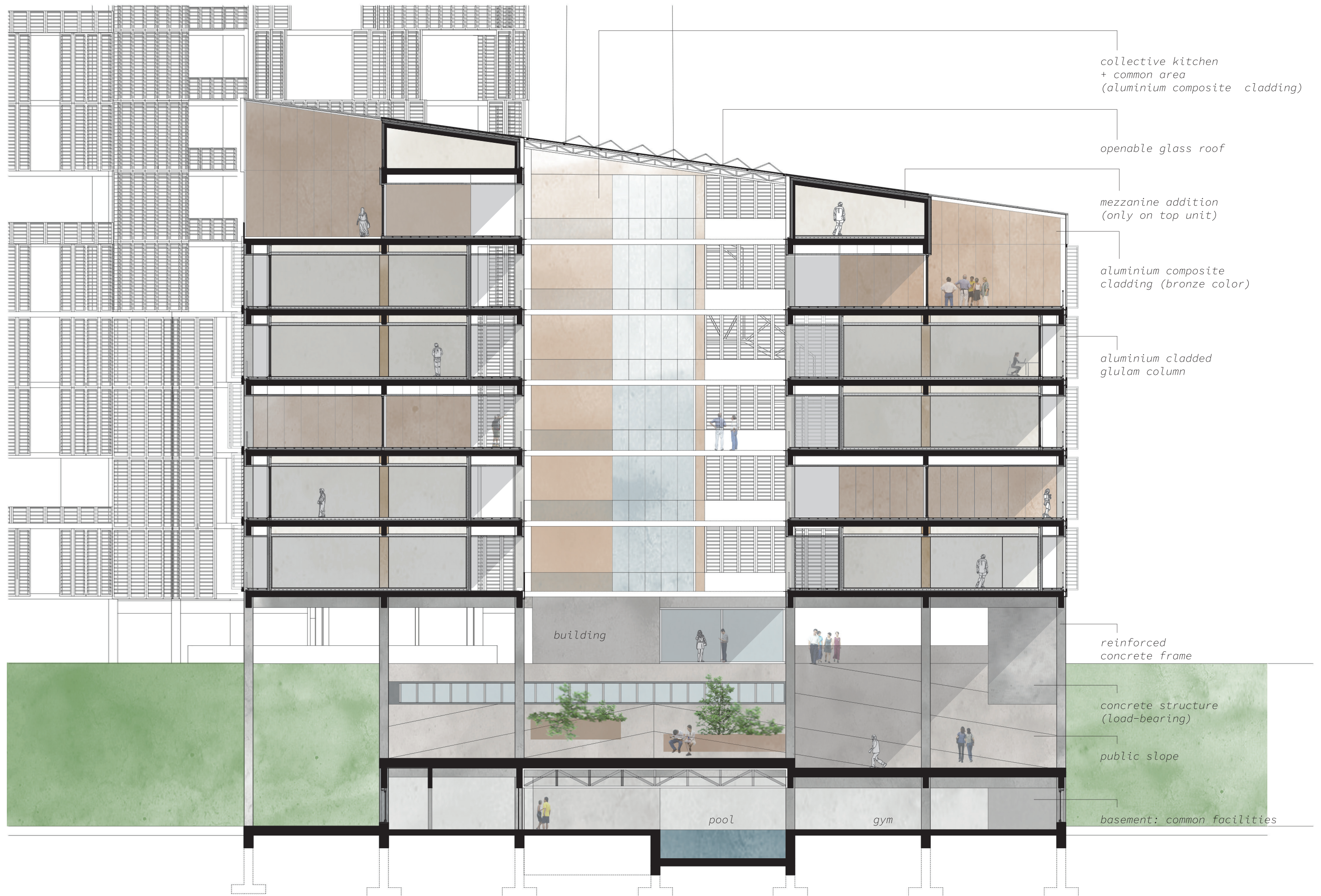
**NEW FACADE**  
: INSPIRED BY THE EXISTING FACADE  
BUT WITH DIFFERENT MATERIAL  
(ALUMINIUM COMPOSITE CLADDING)

**BUILDING TECHNOLOGY  
ASPECT**





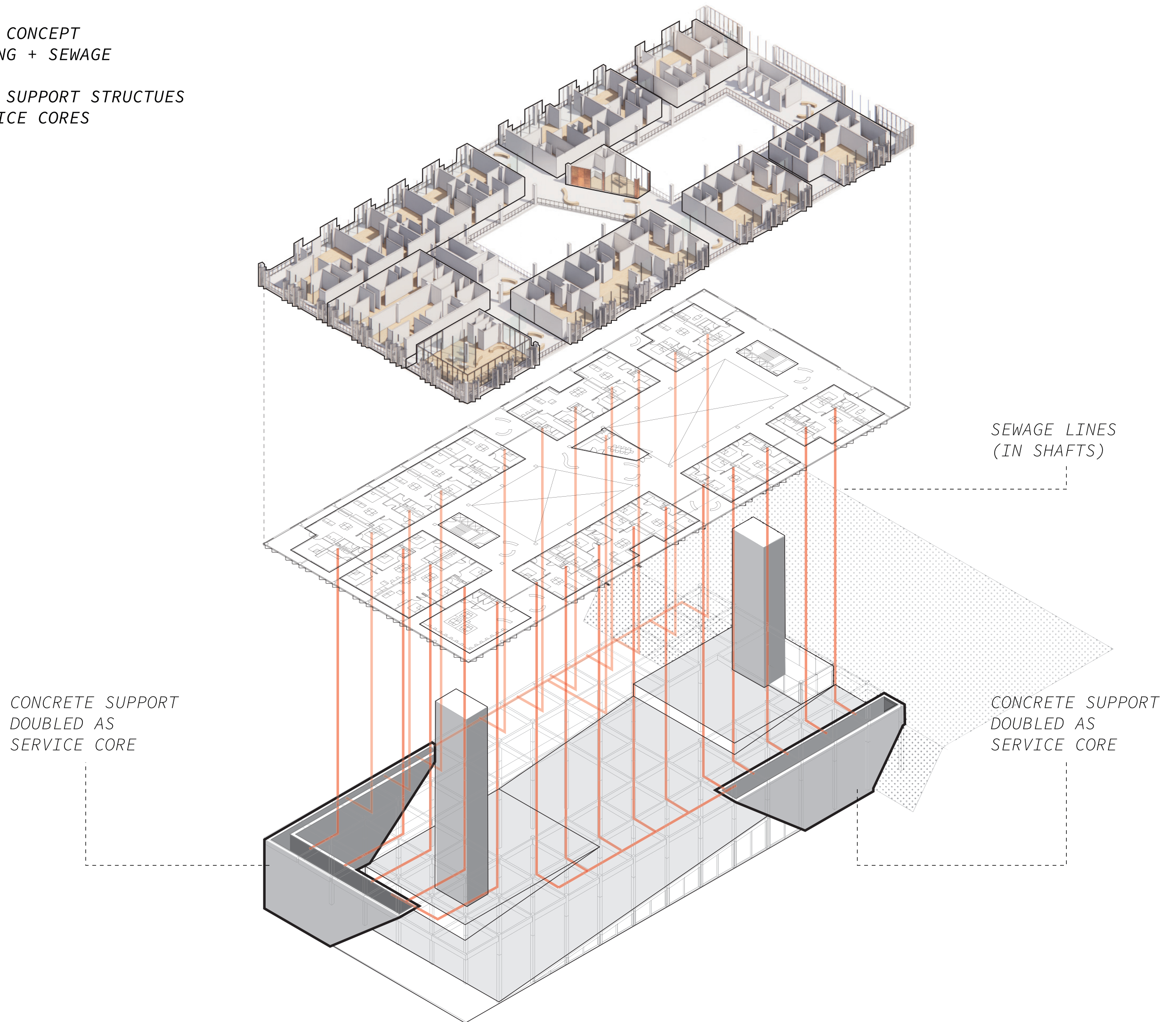






SERVICE CONCEPT  
PLUMBING + SEWAGE

- USING SUPPORT STRUCTURES  
AS SERVICE CORES

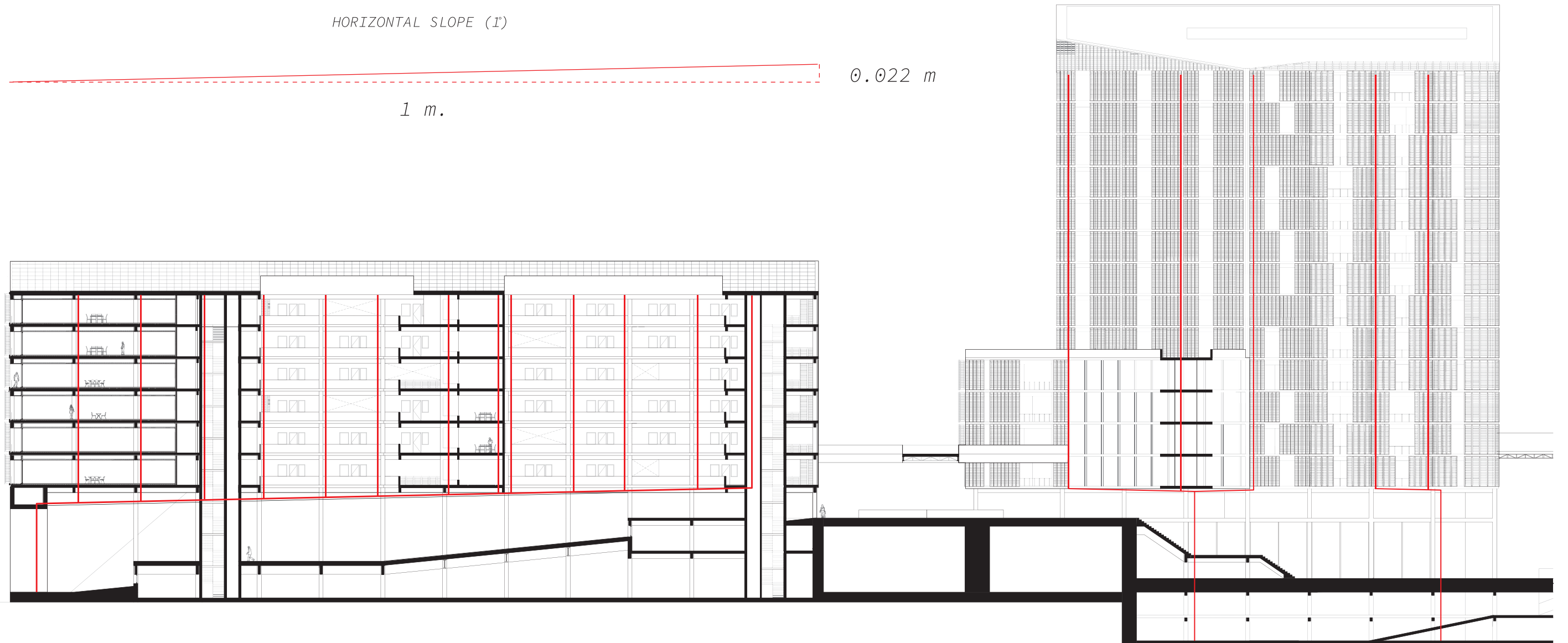




HORIZONTAL SLOPE (1°)

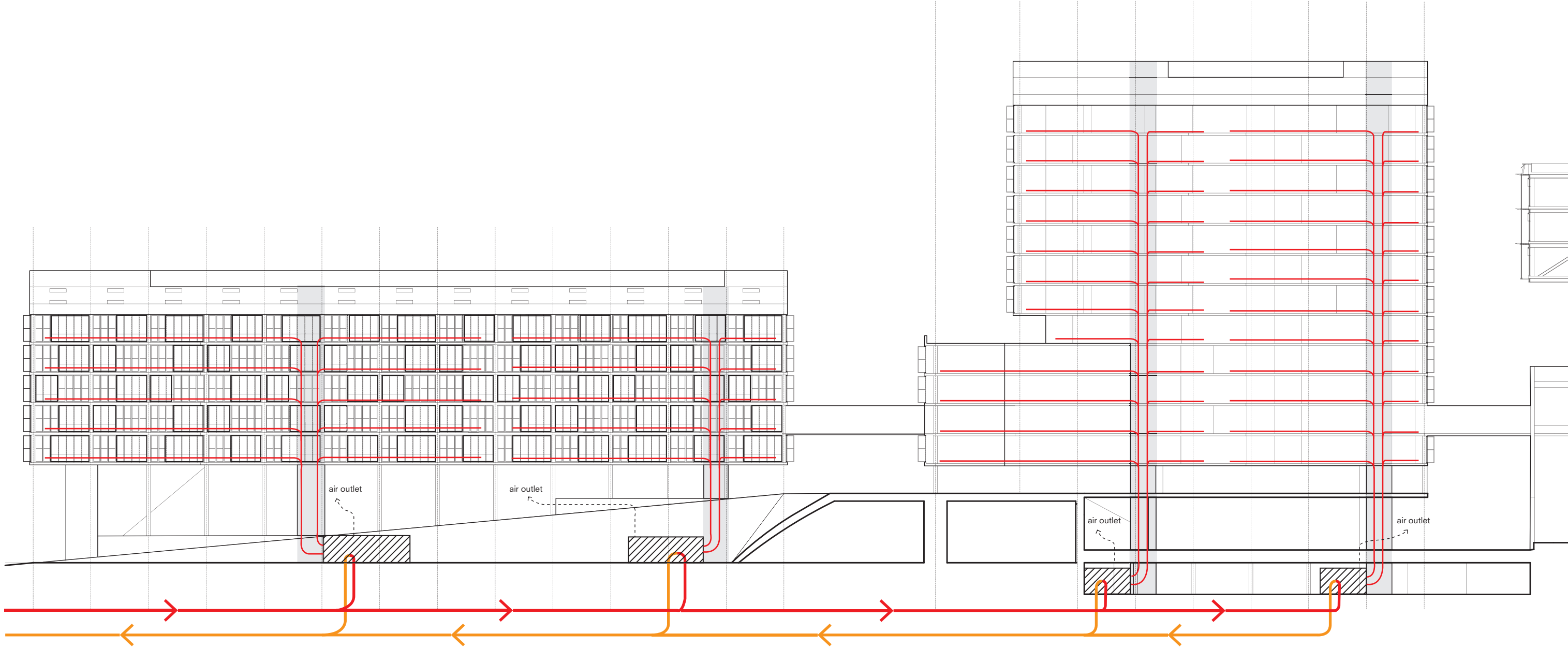
0.022 m

1 m.





**SEAWATER SOURCE HEATING / COOLING**  
USING (SEA)WATER FROM THE HUDSON TO HEAT / COOL BUILDING



WARMER WATER FROM HUDSON RIVER

IN WINTER

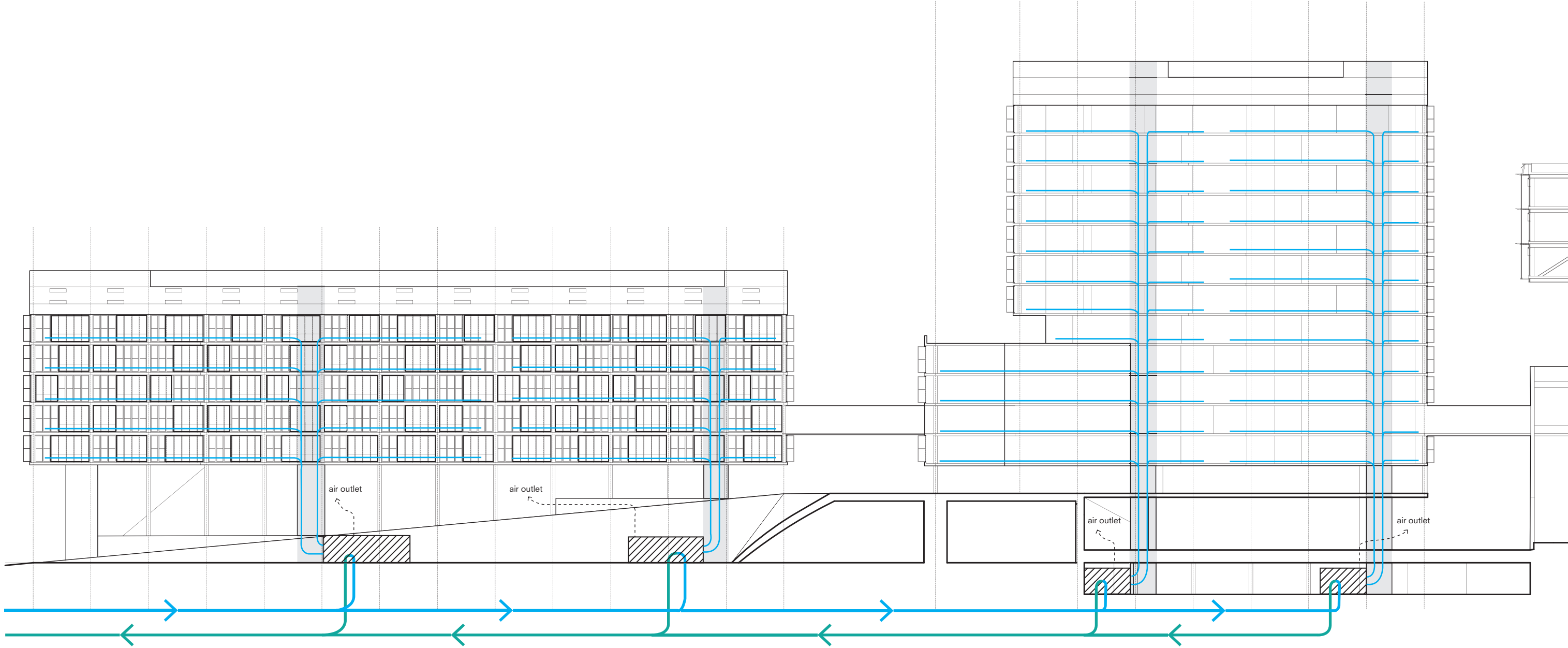


Heat Exchanger

WATER TEMP IS RELATIVELY WARMER THAN AIR,  
WATER FROM THE RIVER IS PUMPED THROUGH THE HEAT EXCHANGER  
AND USED TO WARM THE UNITS BY UNDER FLOOR HEATING SYSTEM



**SEAWATER SOURCE HEATING / COOLING**  
USING (SEA)WATER FROM THE HUDSON TO HEAT / COOL BUILDING



COOLER WATER FROM HUDSON RIVER

IN SUMMER

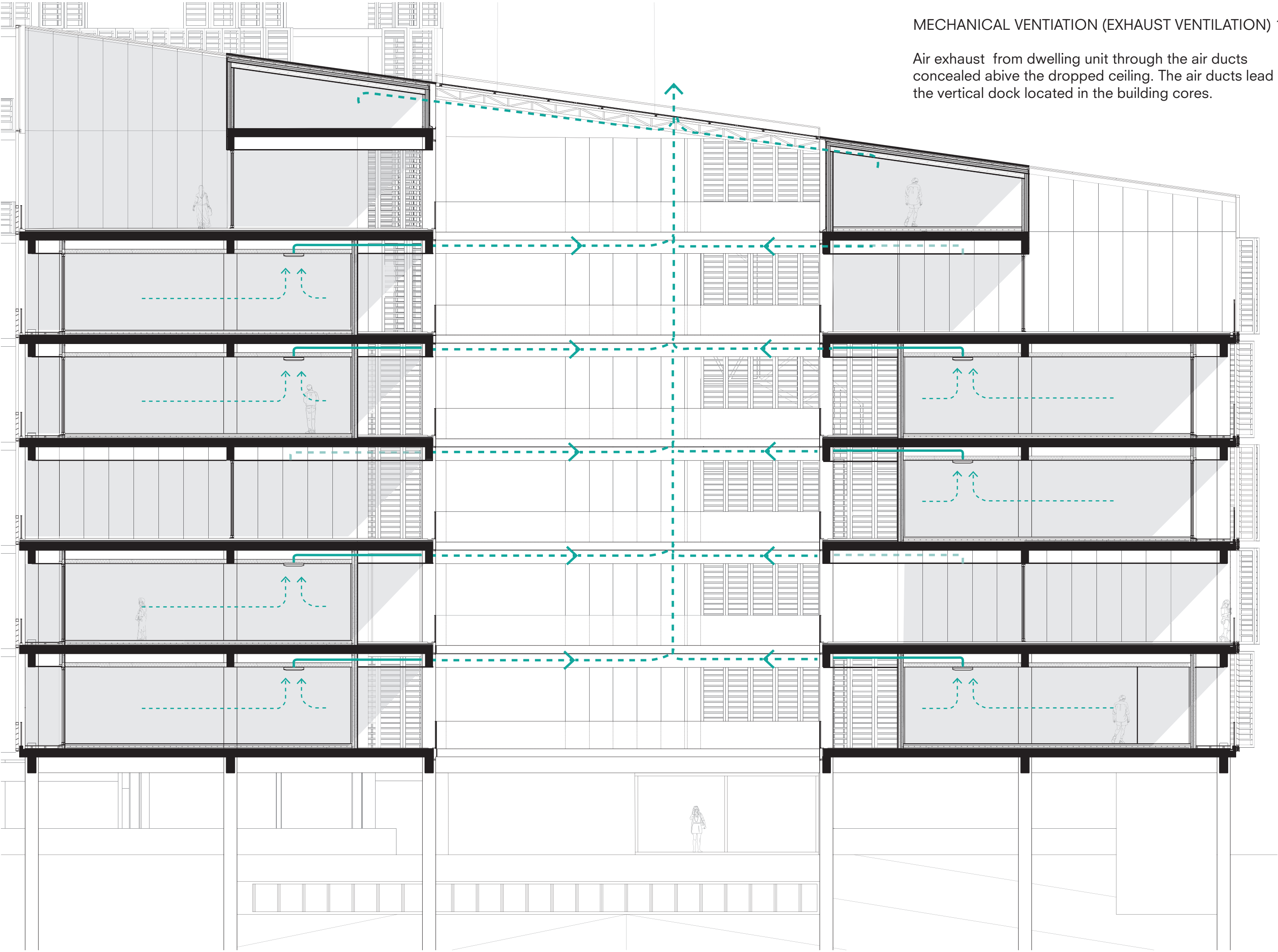
 Heat Exchanger

WATER TEMP IS RELATIVELY COOLER THAN AIR,  
WATER FROM THE RIVER IS PUMPED THROUGH THE HEAT EXCHANGER  
AND USED TO COOL THE UNITS BY UNDER FLOOR COOLING SYSTEM



MECHANICAL VENTIATION (EXHAUST VENTILATION) 1:50

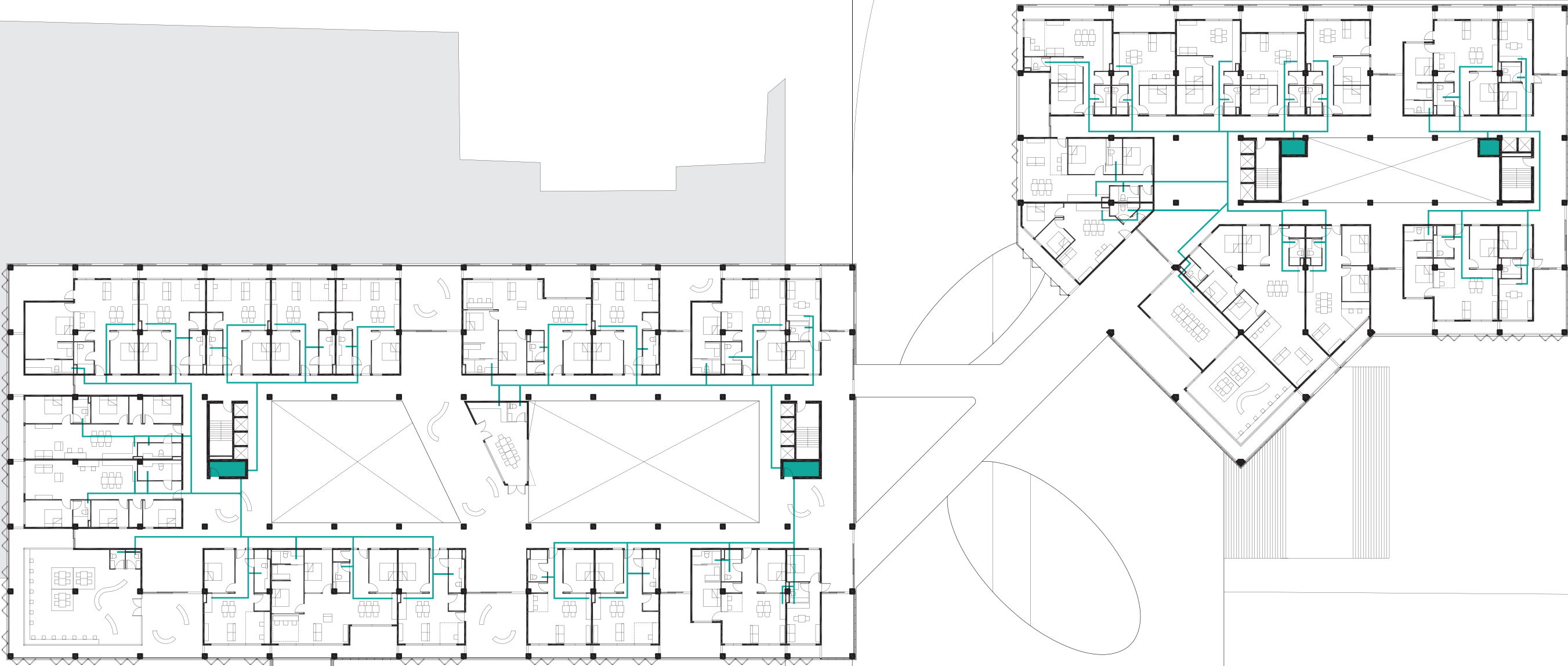
Air exhaust from dwelling unit through the air ducts concealed above the dropped ceiling. The air ducts lead to the vertical dock located in the building cores.



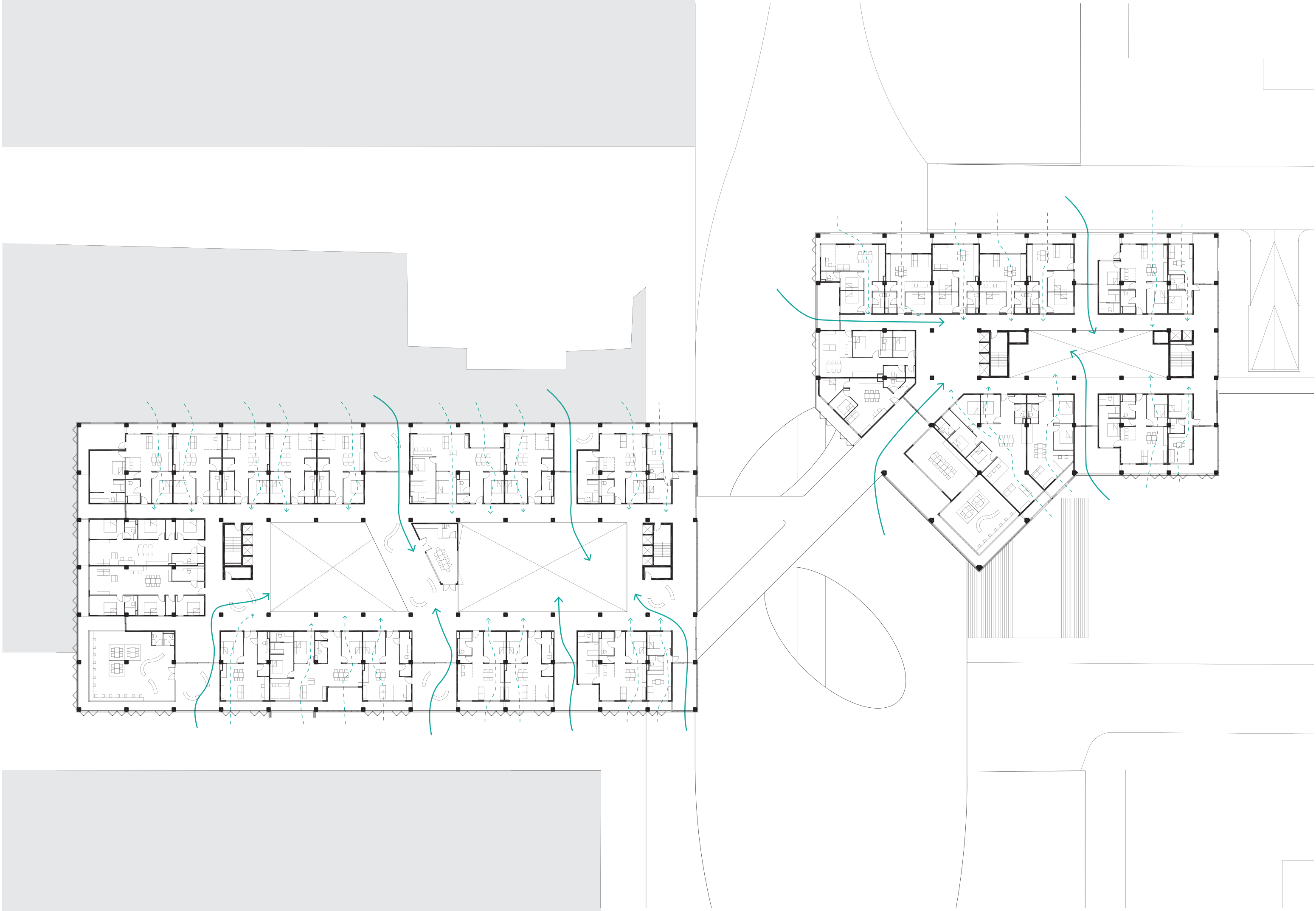


MECHANICAL VENTIATION (EXHAUST VENTILATION) 1:50

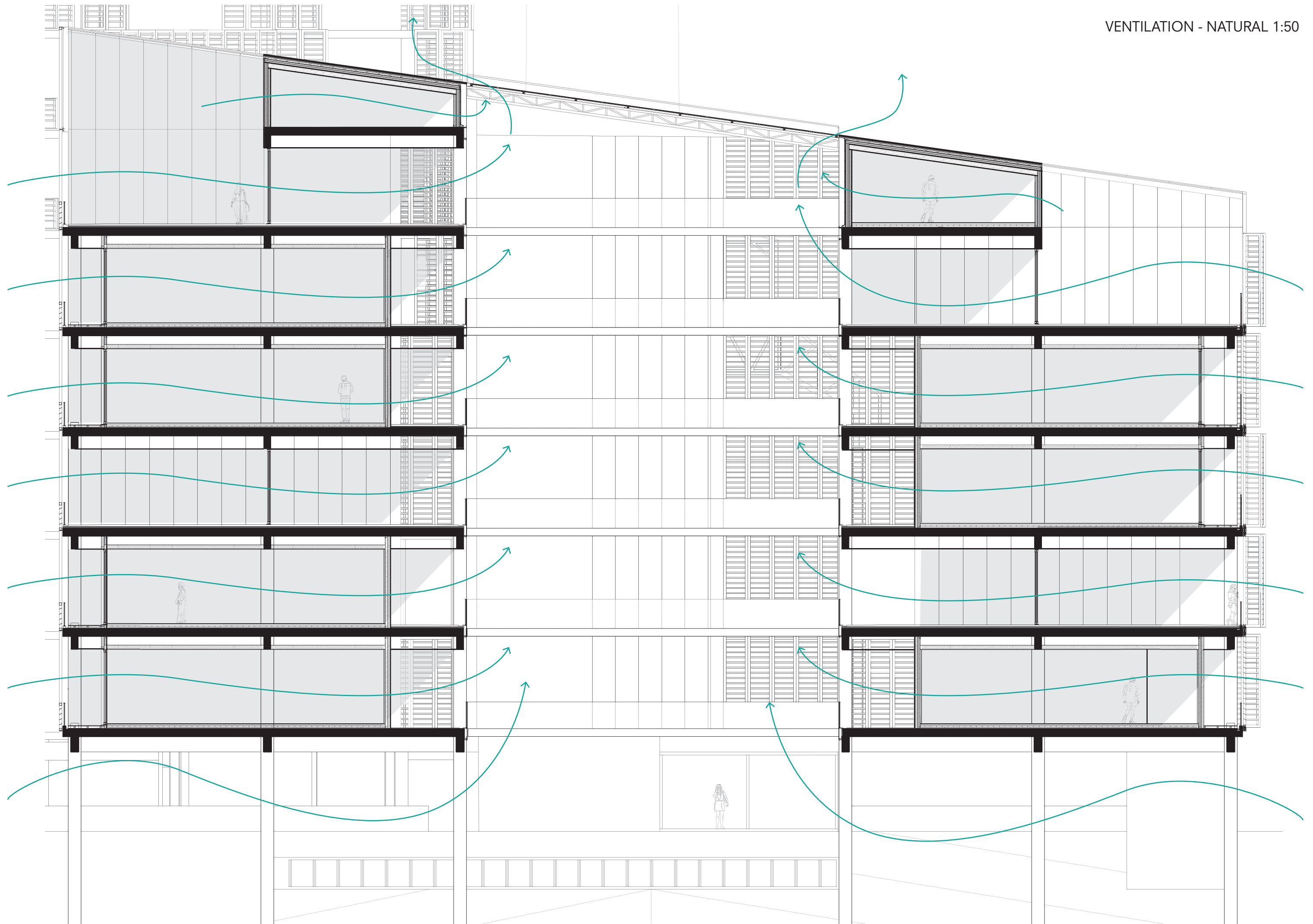
Air exhaust from dwelling unit through the air ducts concealed above the dropped ceiling. The air ducts lead to the vertical dock located in the building cores.





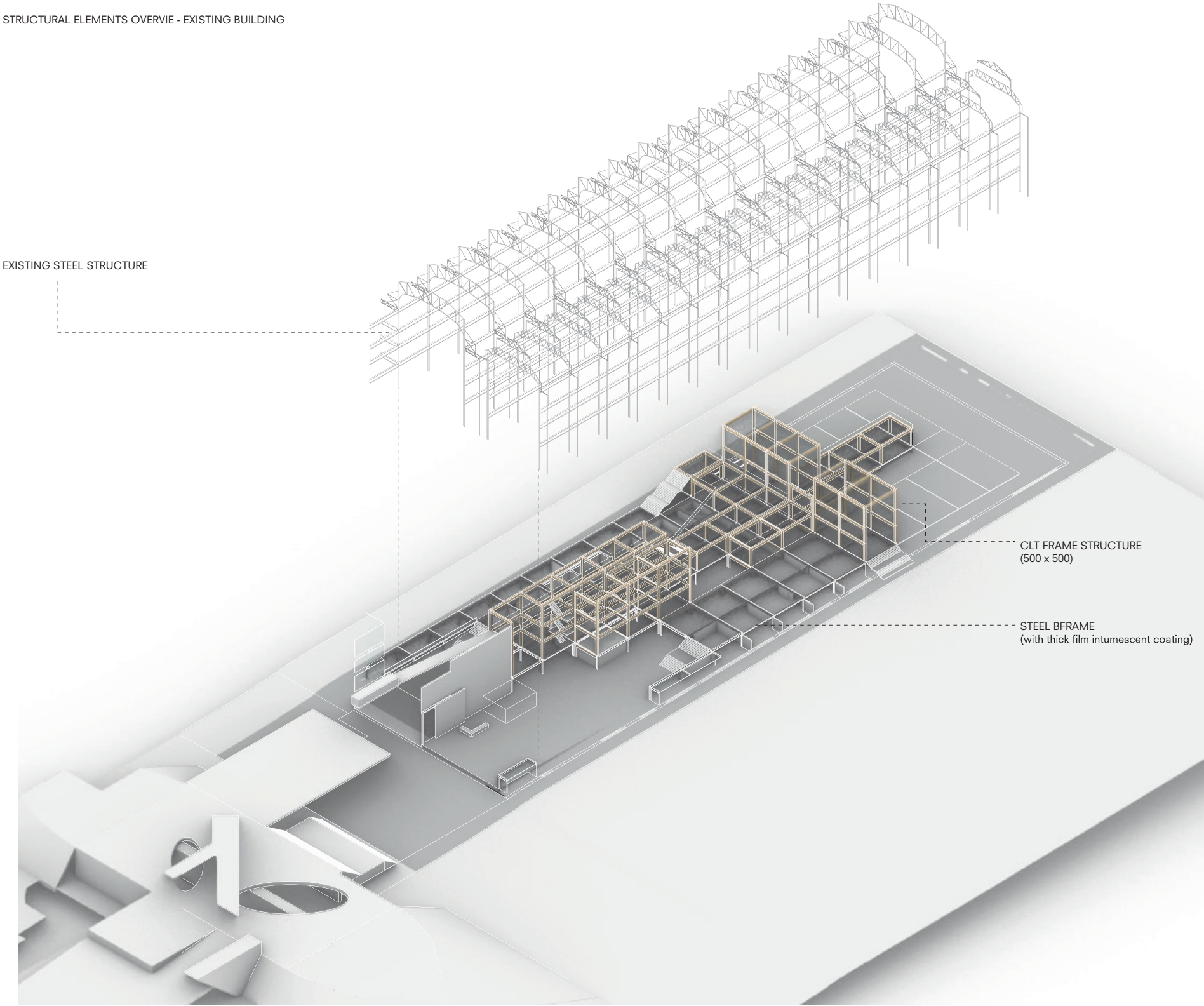








STRUCTURAL ELEMENTS OVERVIE - EXISTING BUILDING

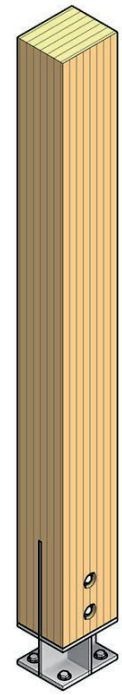


**IRT BUILDING  
STRUCTURAL CONCEPT**



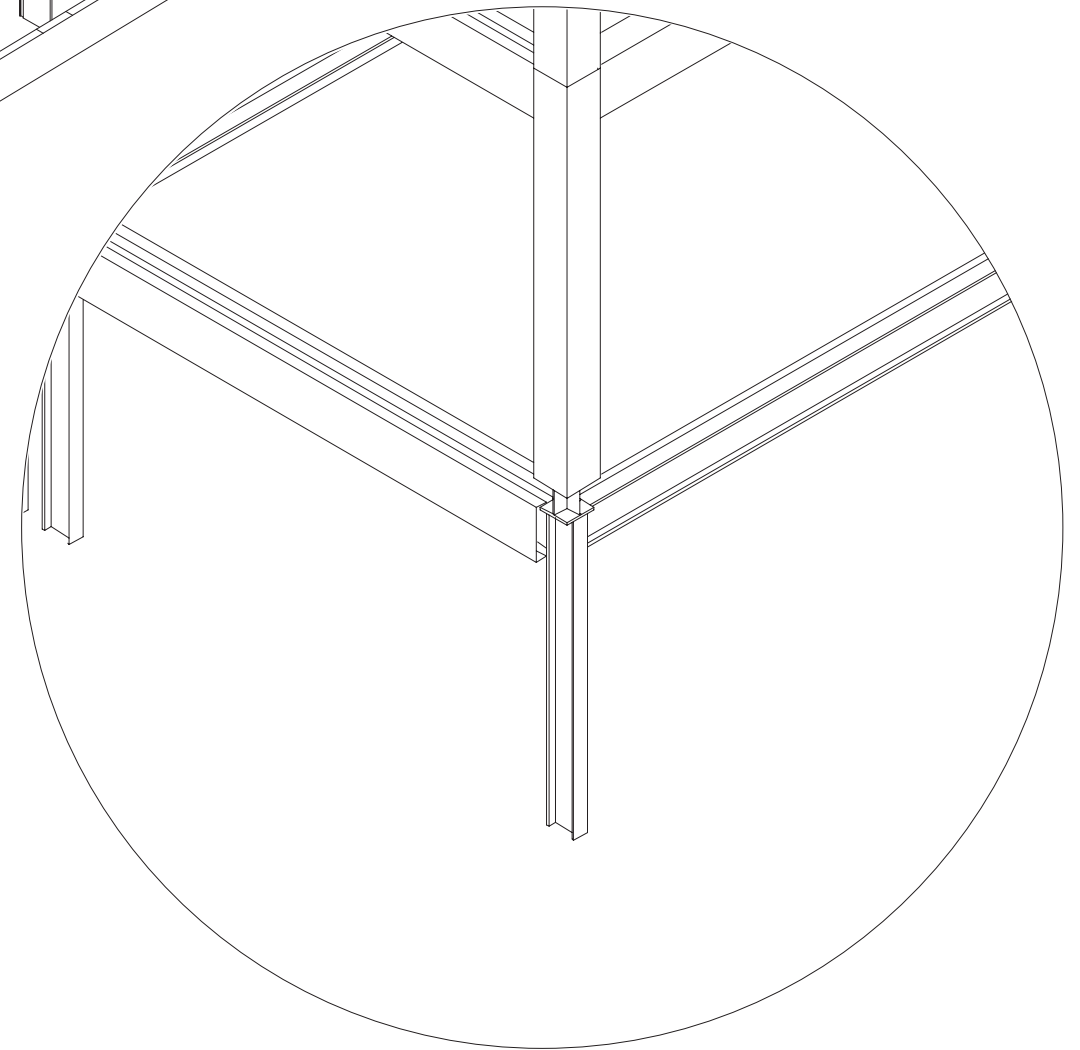
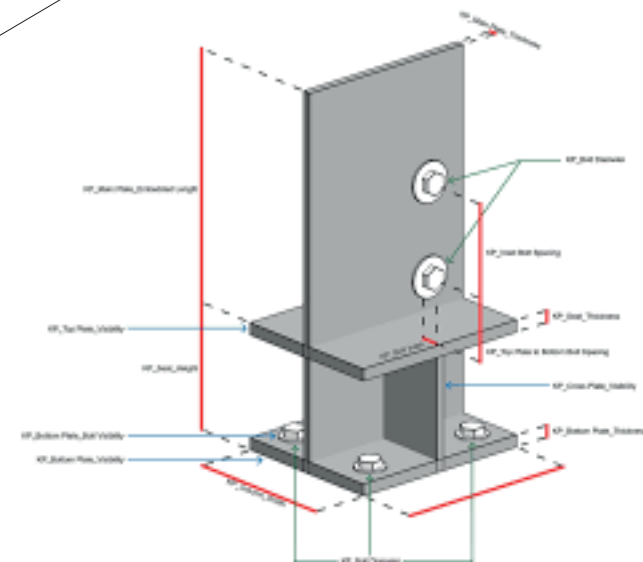
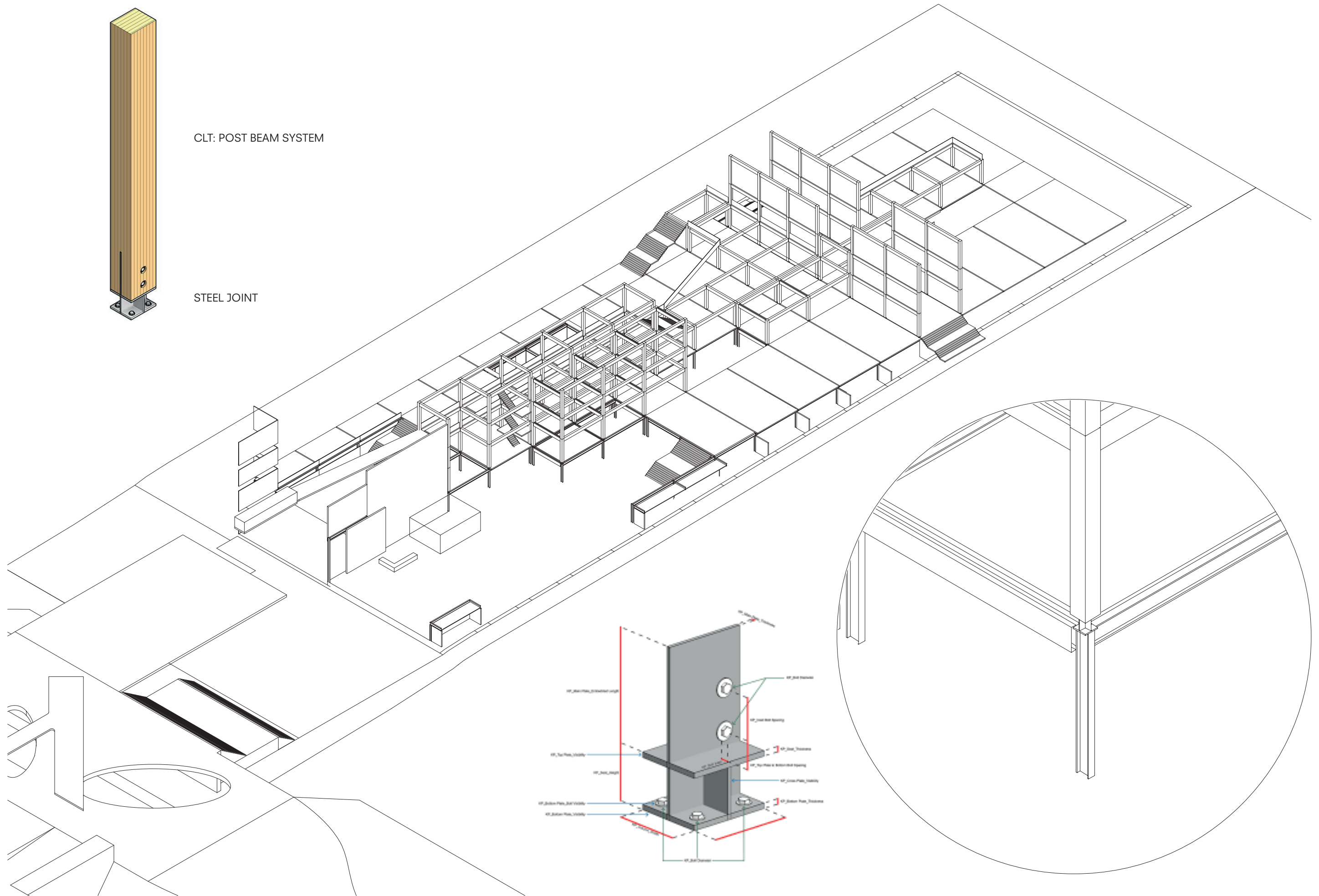




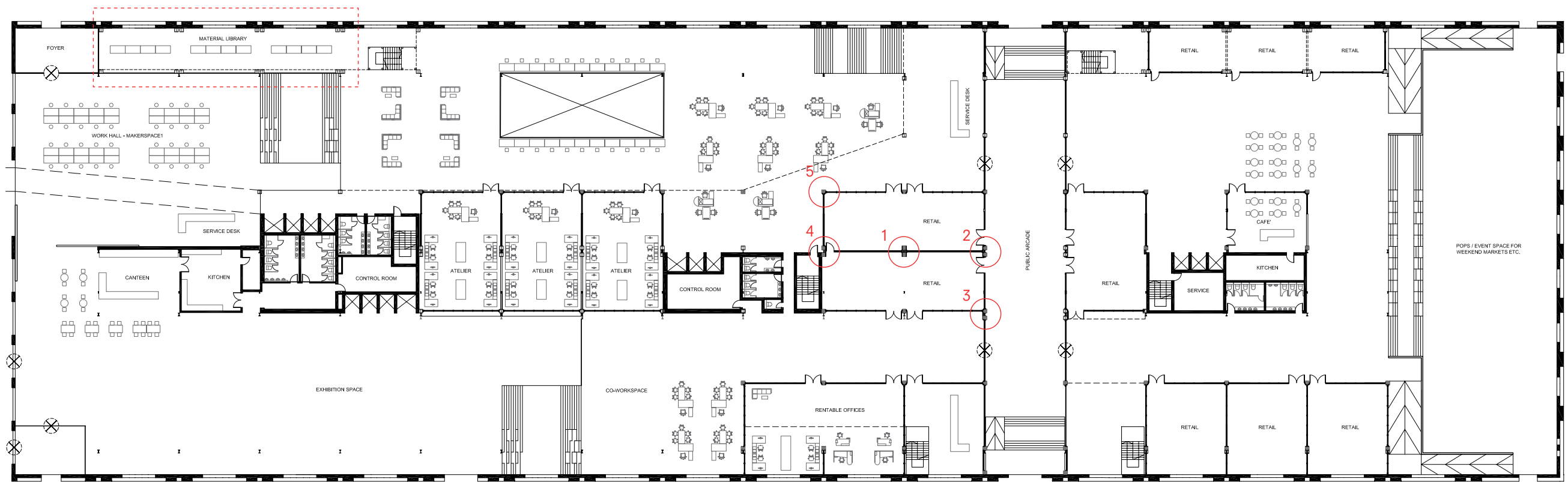


CLT: POST BEAM SYSTEM

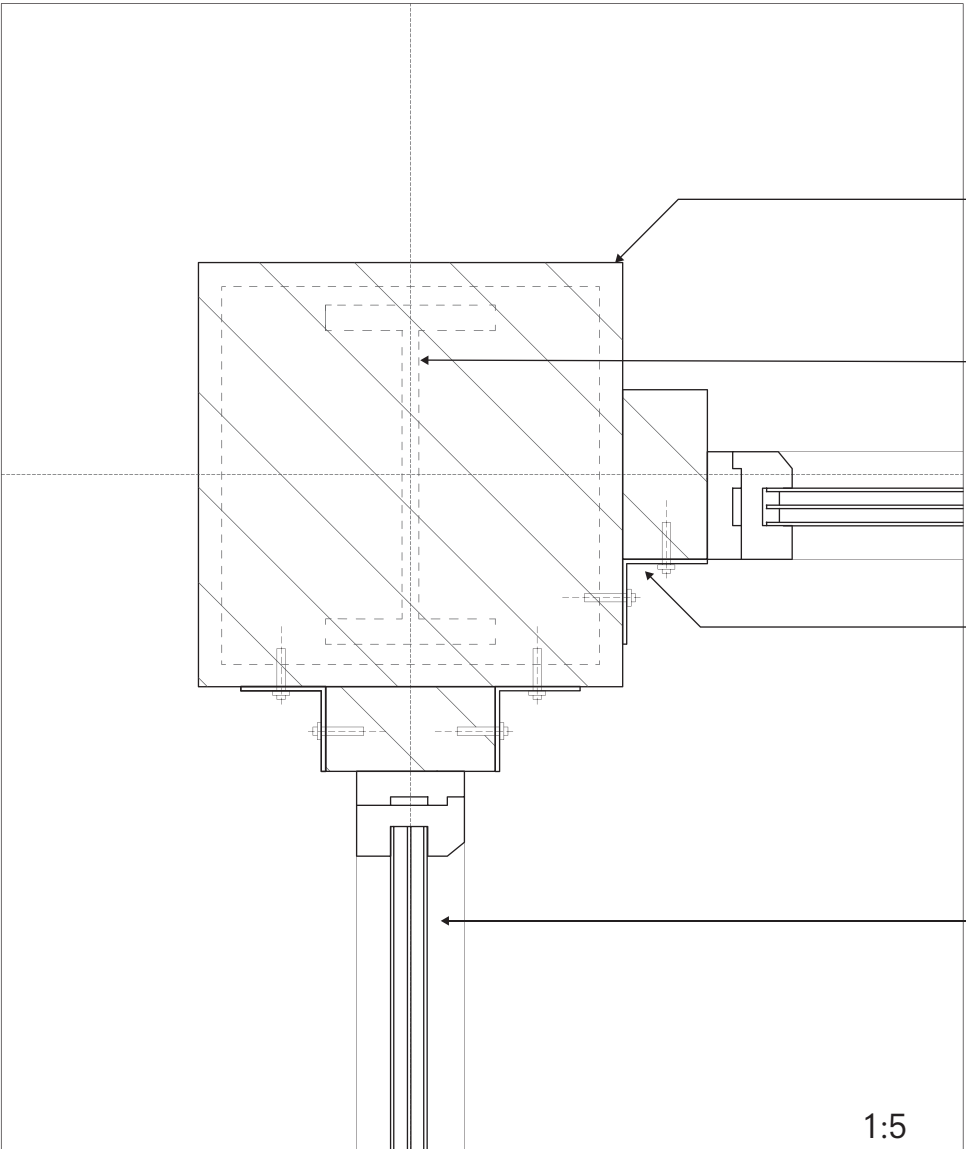
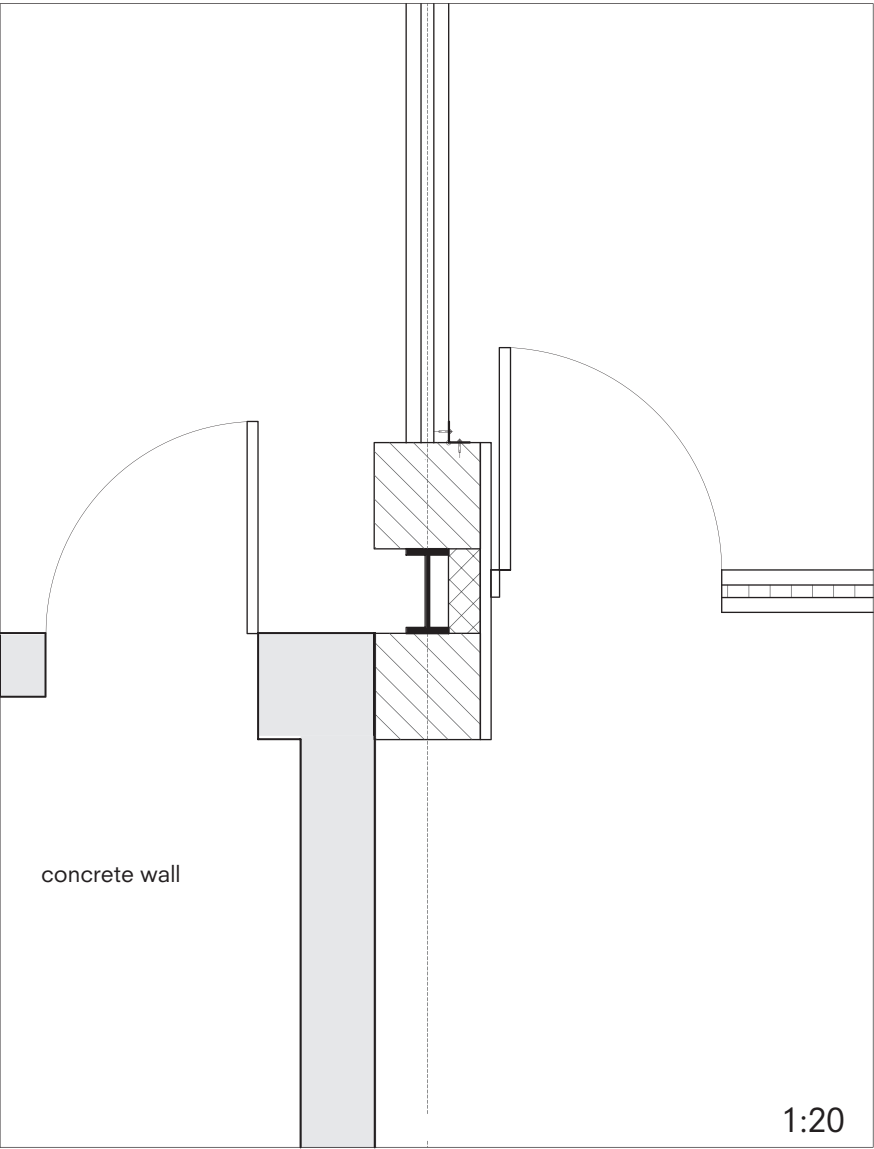
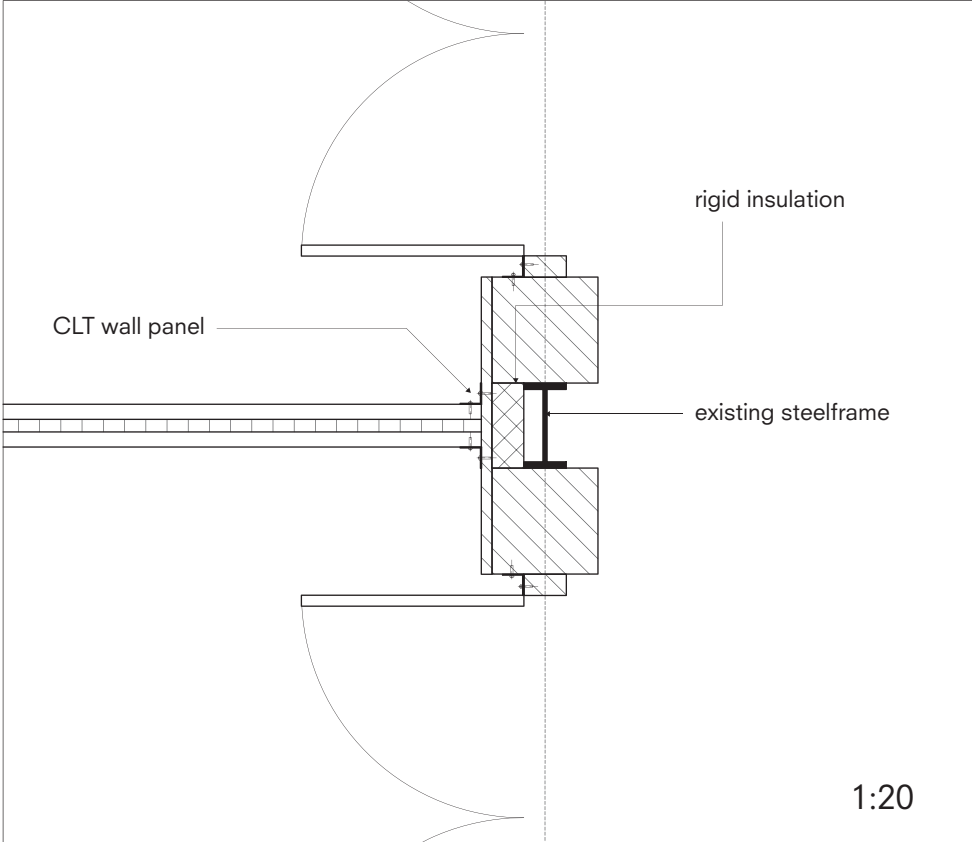
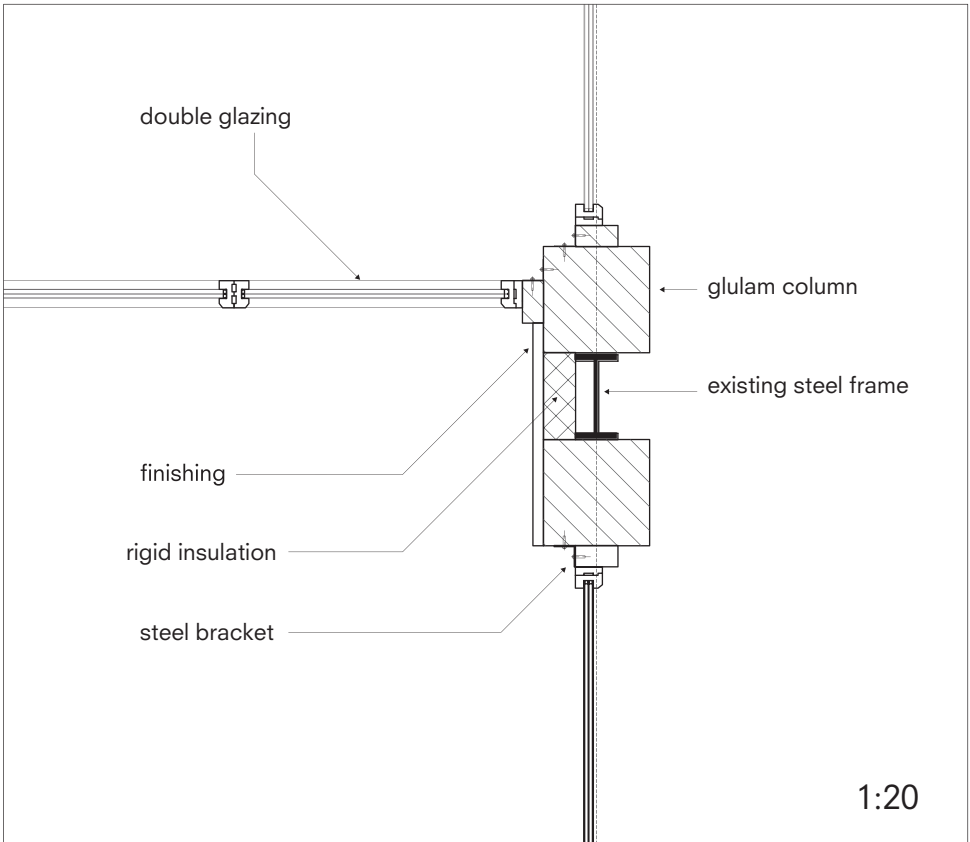
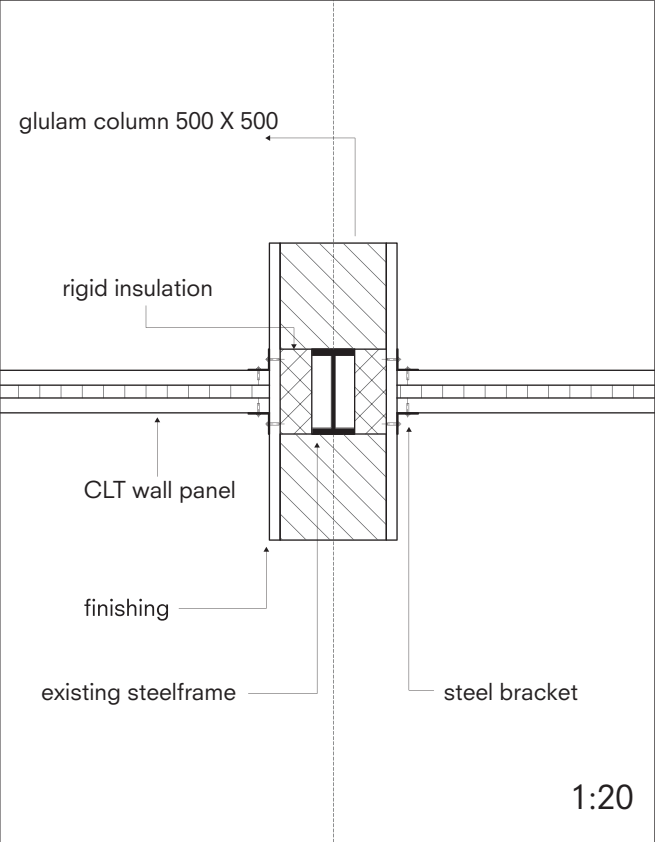
STEEL JOINT











**POSSIBLE DESTAIL INTERNAL SUBSTRUCTURE**

GLULAM WOOD COLUMN 500 X 500

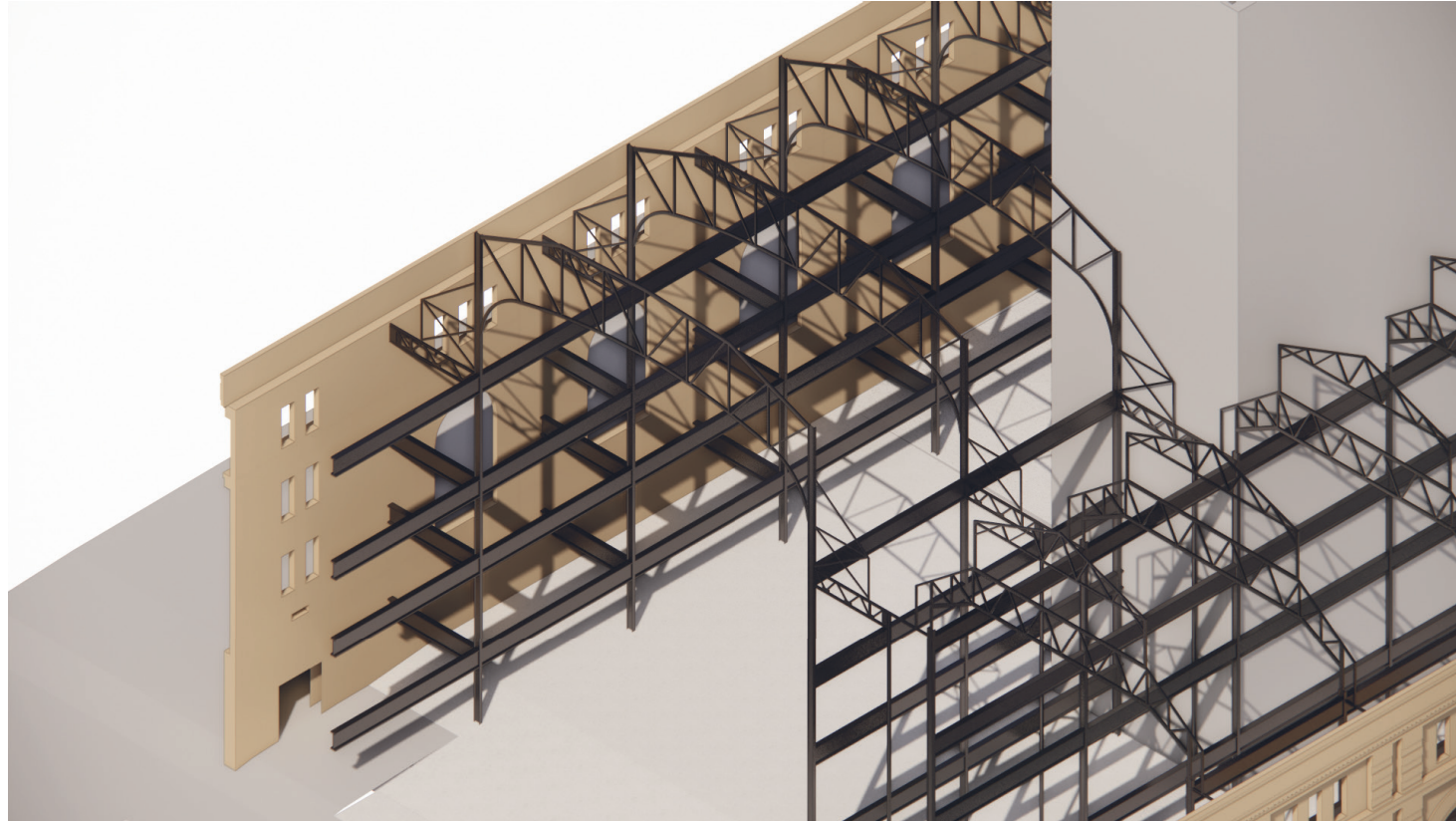
STEEL JOINT AT BASE 400 X 400

STEEL BRACKET

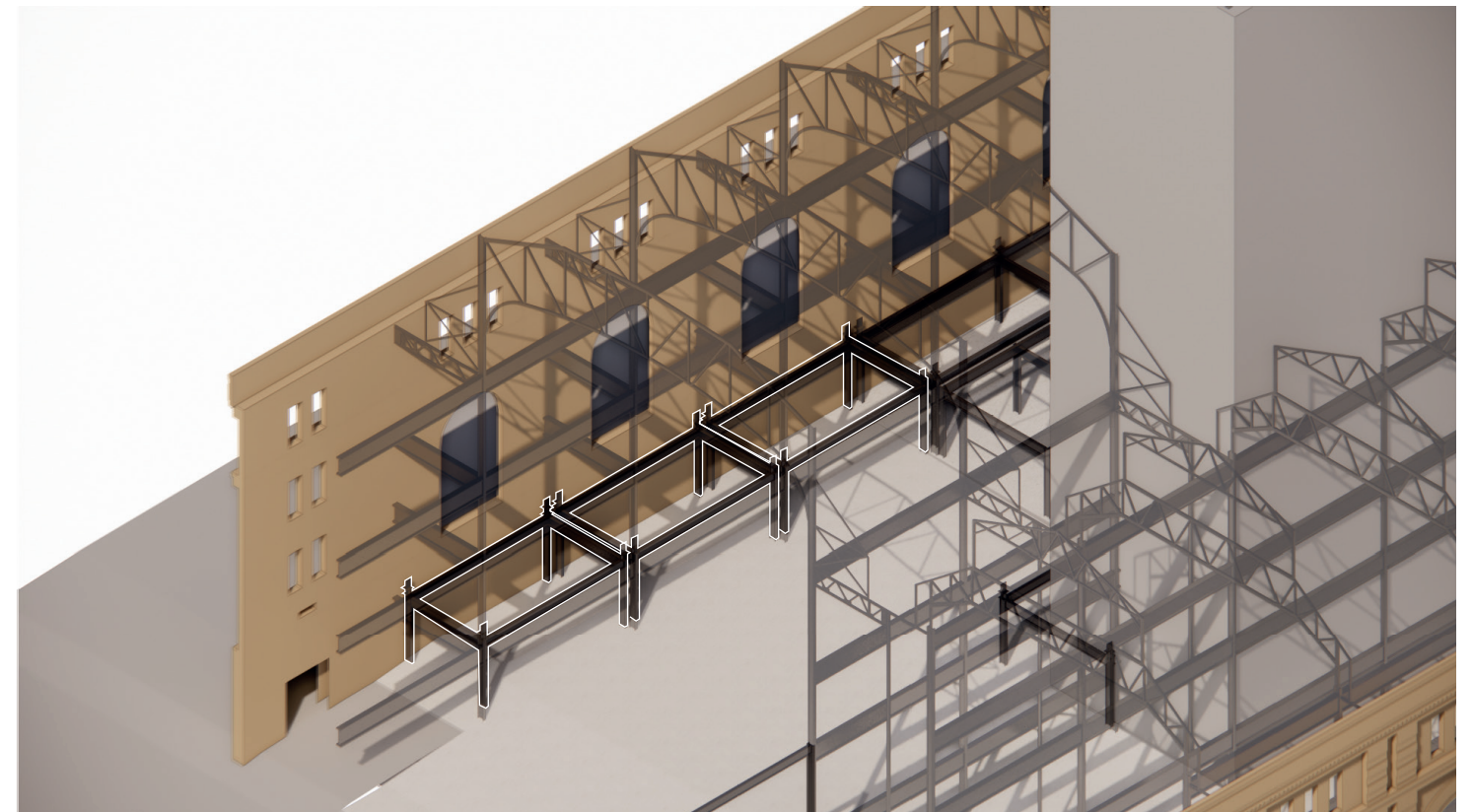
DOUBLE GLAZE WALL



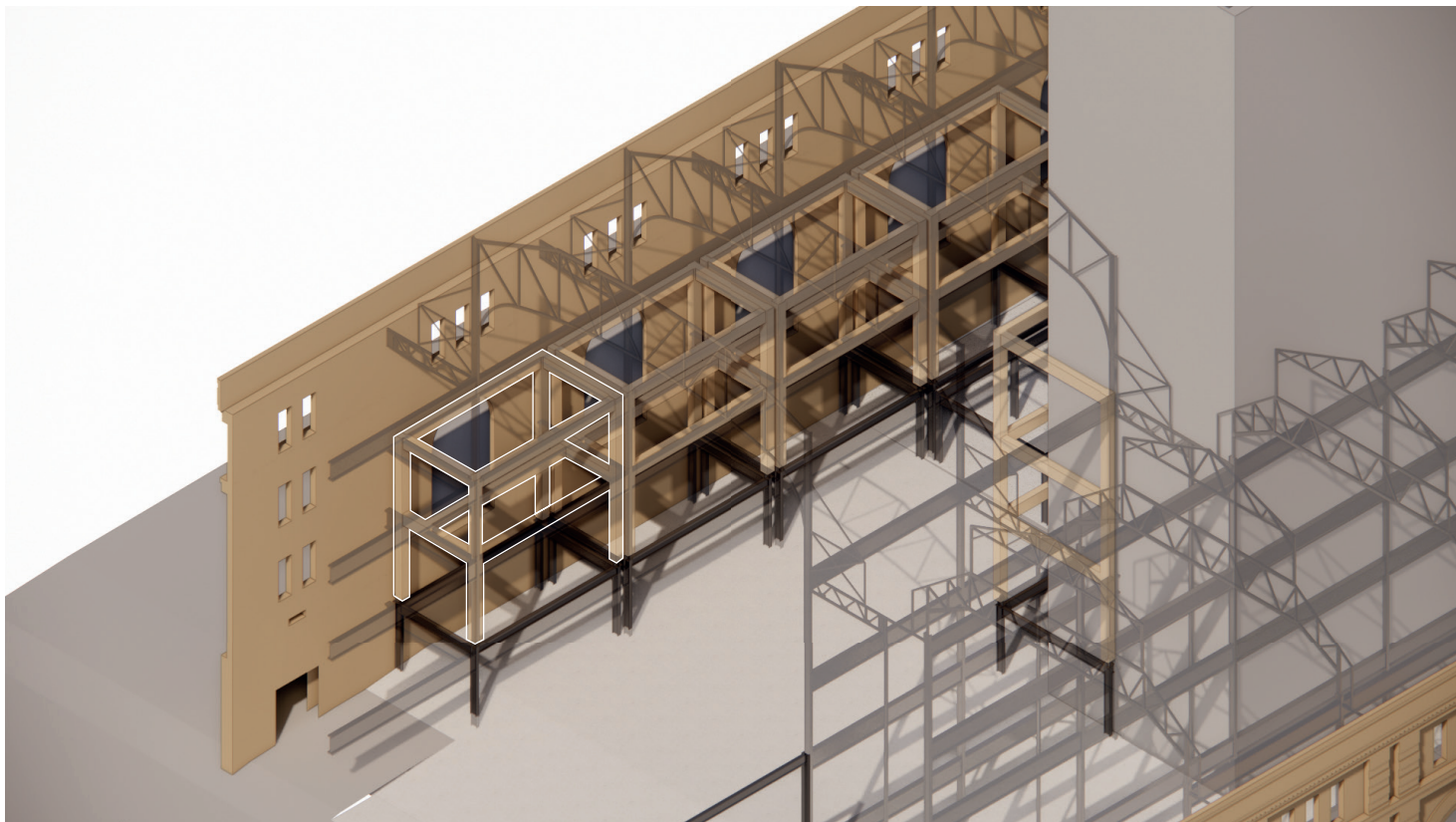
## MIXTURE OF OLD & NEW STRUCTURE



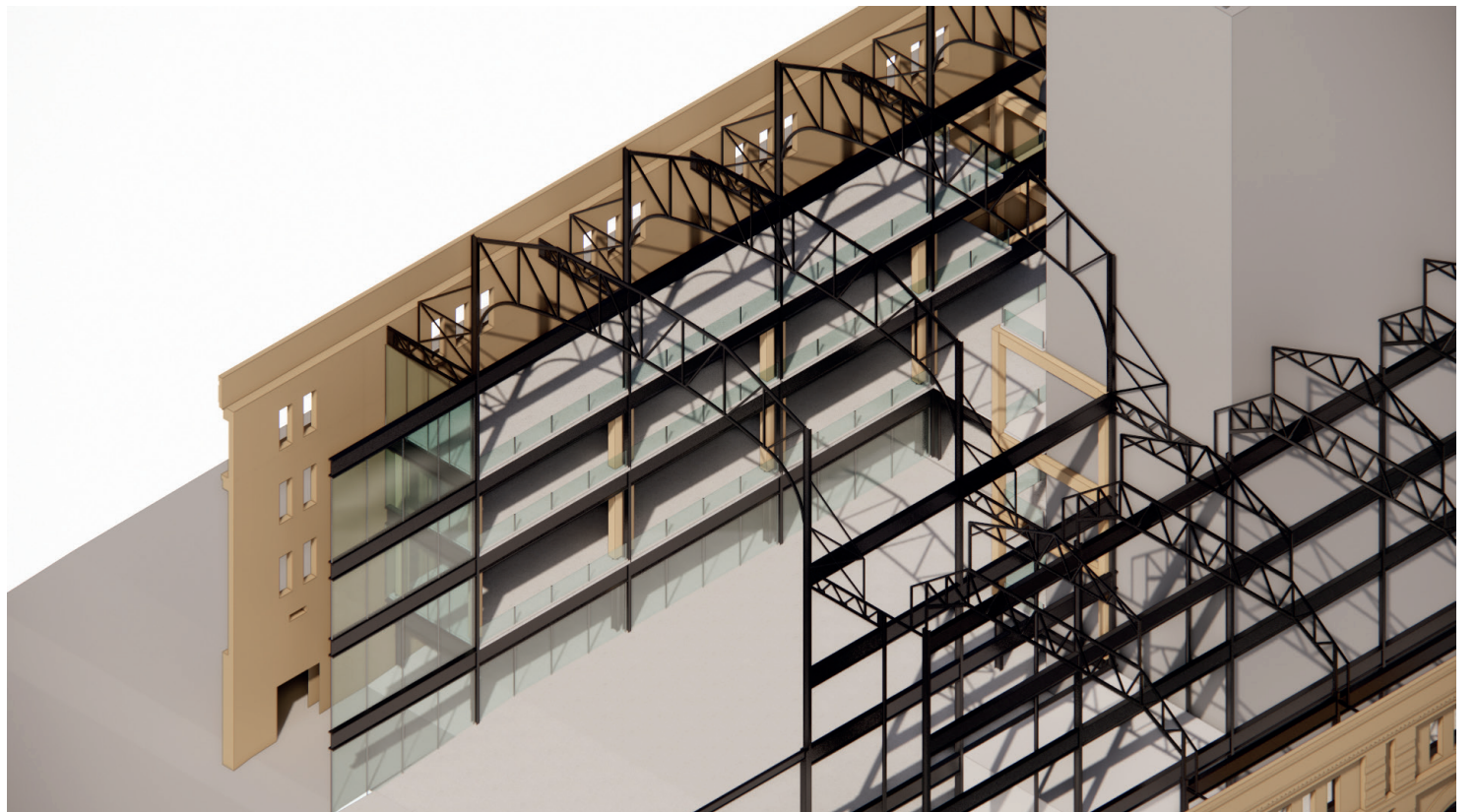
1. EXISTING STEEL STRUCTURE AND ORIGINAL BRICK FACADE.2



. NEW STEEL FRAME ADDED WITHIN EXISTING FRAME



3. CLT FRAME EXTENDING UPWARD (ATTACHED TO NEW FRAME)



4. FLOORS AND WALLS (GLASS) ADDED TO NEW CLT FRAME







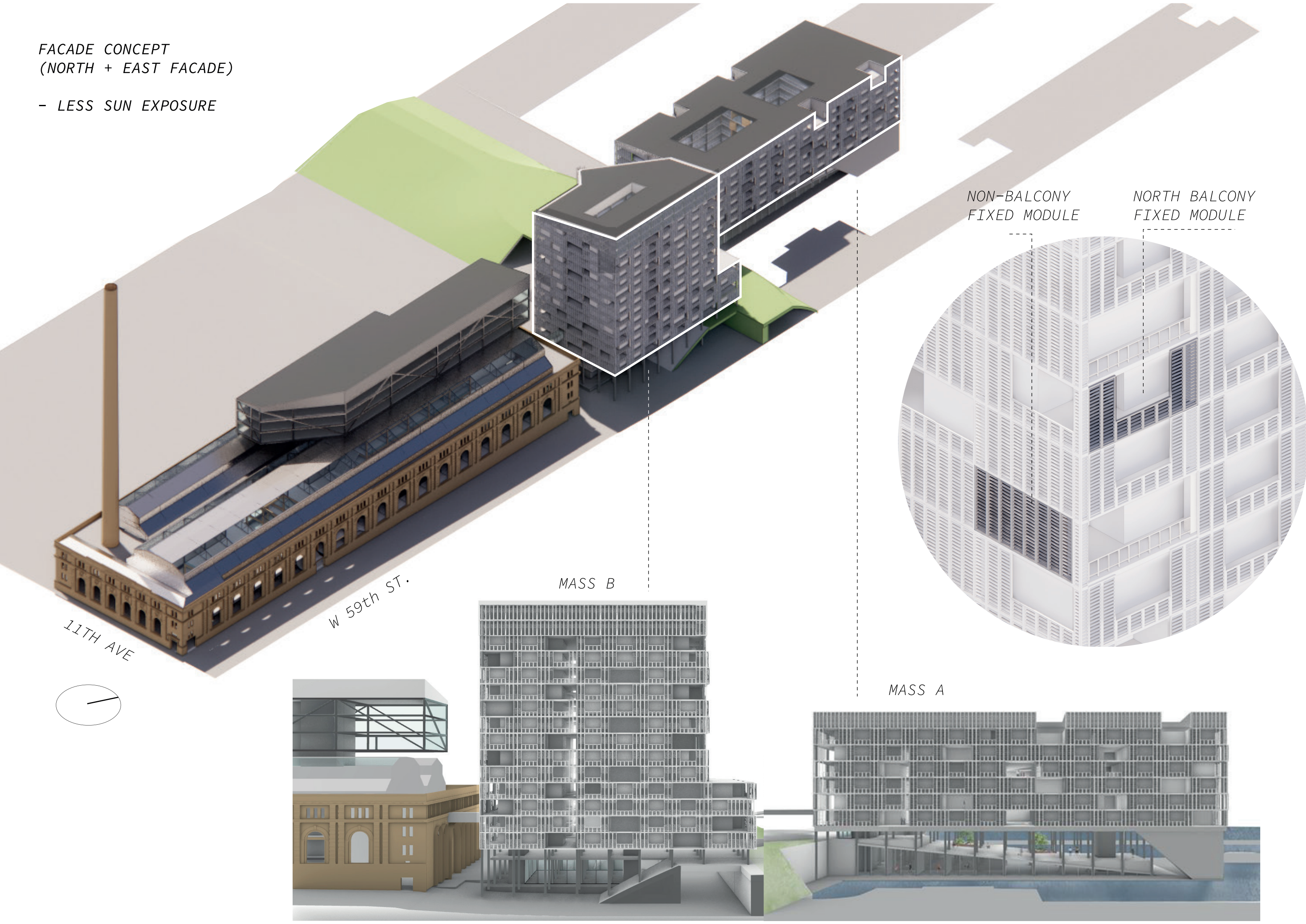


**FACADE  
FOCUS: HOUSING**



FACADE CONCEPT  
(NORTH + EAST FACADE)

- LESS SUN EXPOSURE



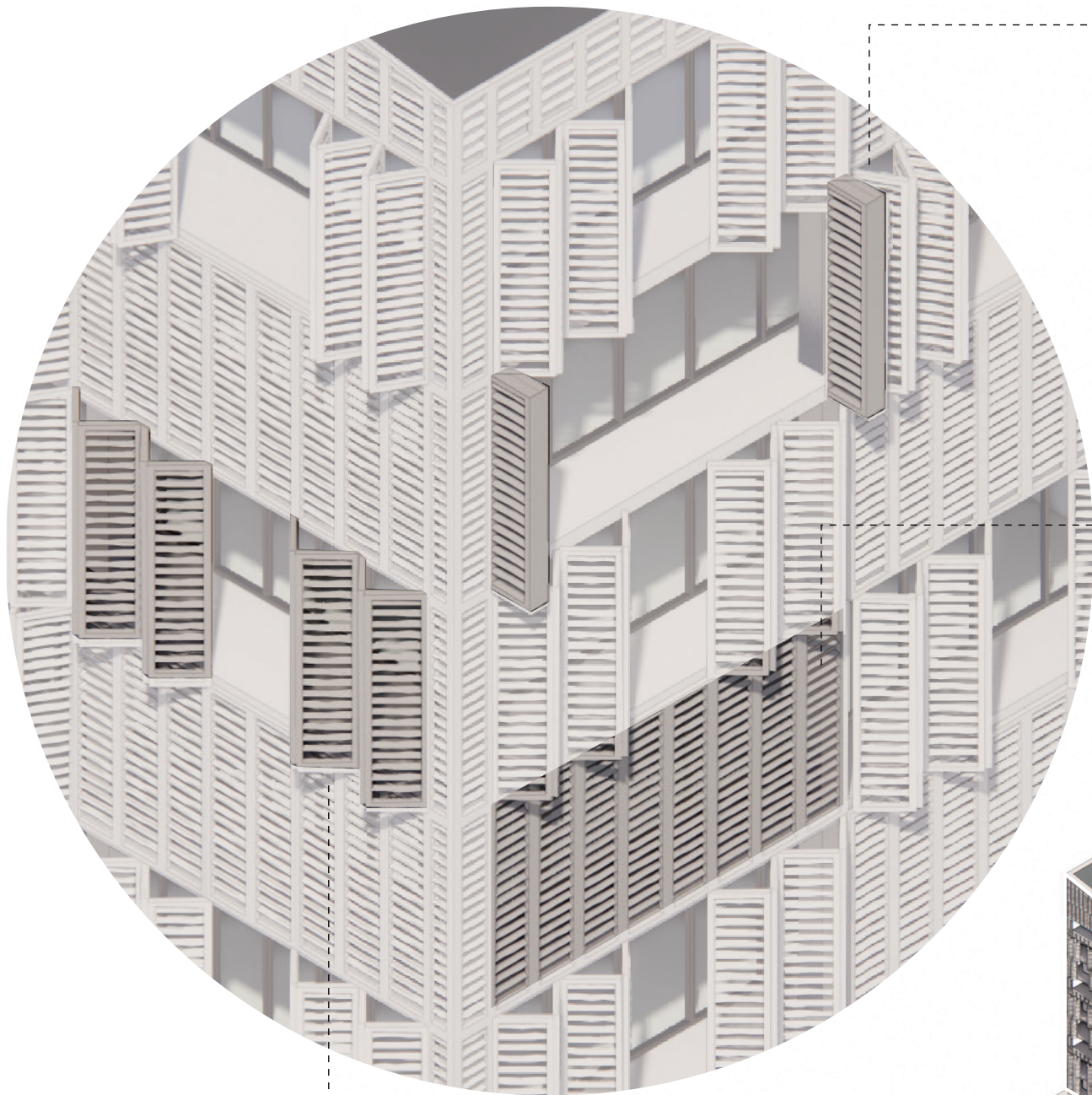
NON-BALCONY  
FIXED MODULE

NORTH BALCONY  
FIXED MODULE

MASS B

MASS A





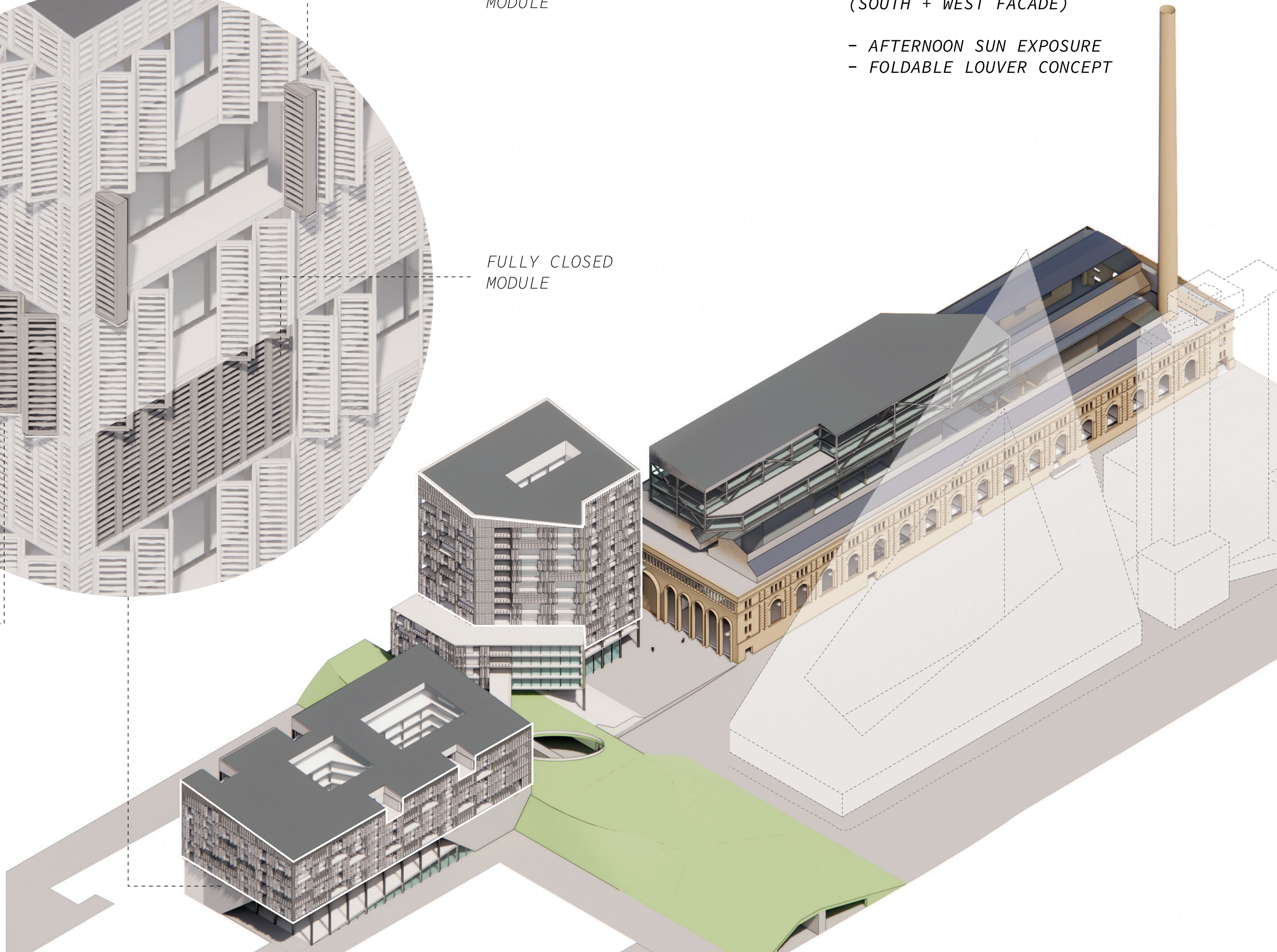
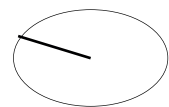
FULLY OPENED  
MODULE

FULLY CLOSED  
MODULE

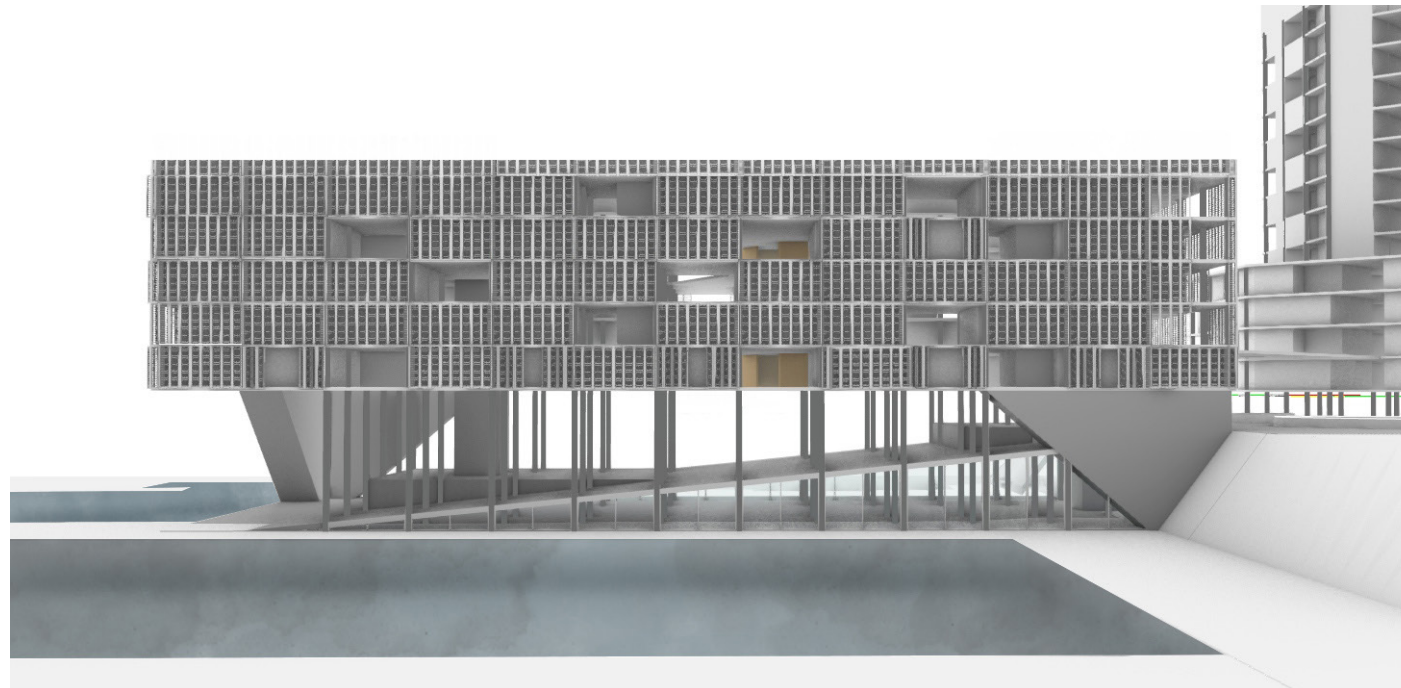
SEMI-OPENED  
MODULE

FACADE CONCEPT  
(SOUTH + WEST FACADE)

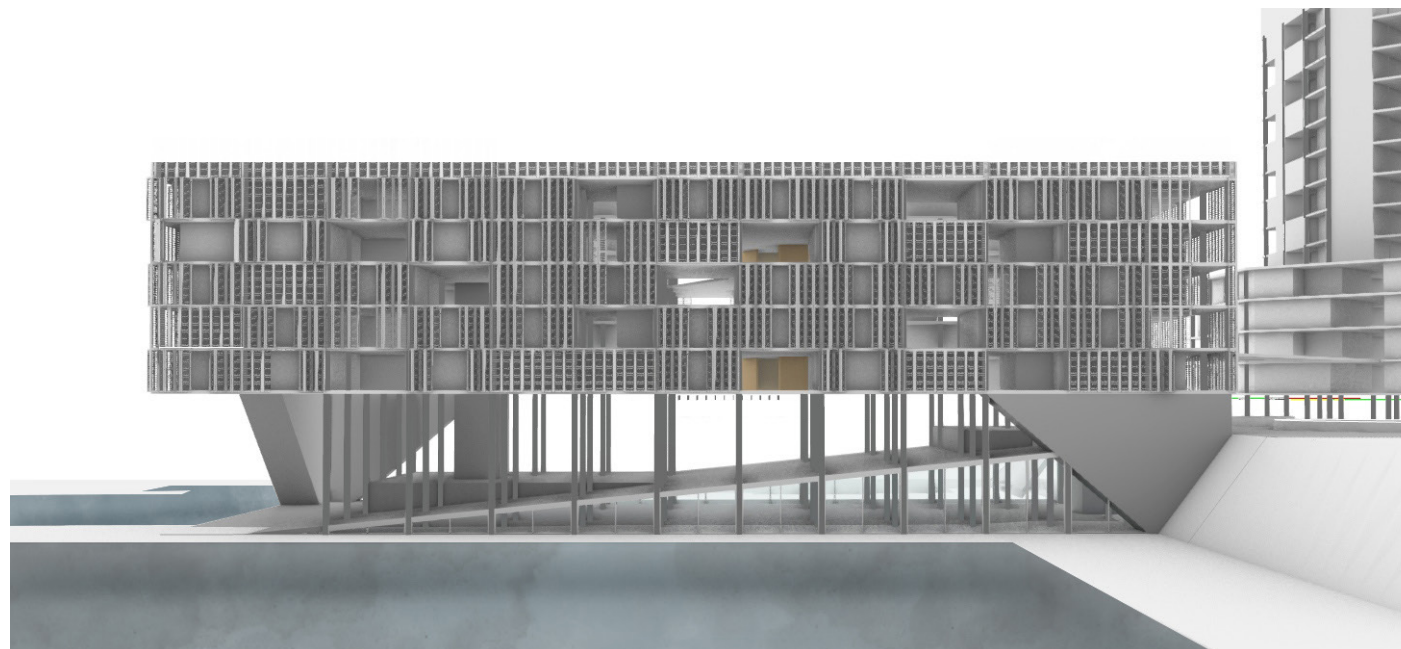
- AFTERNOON SUN EXPOSURE
- FOLDABLE LOUVER CONCEPT



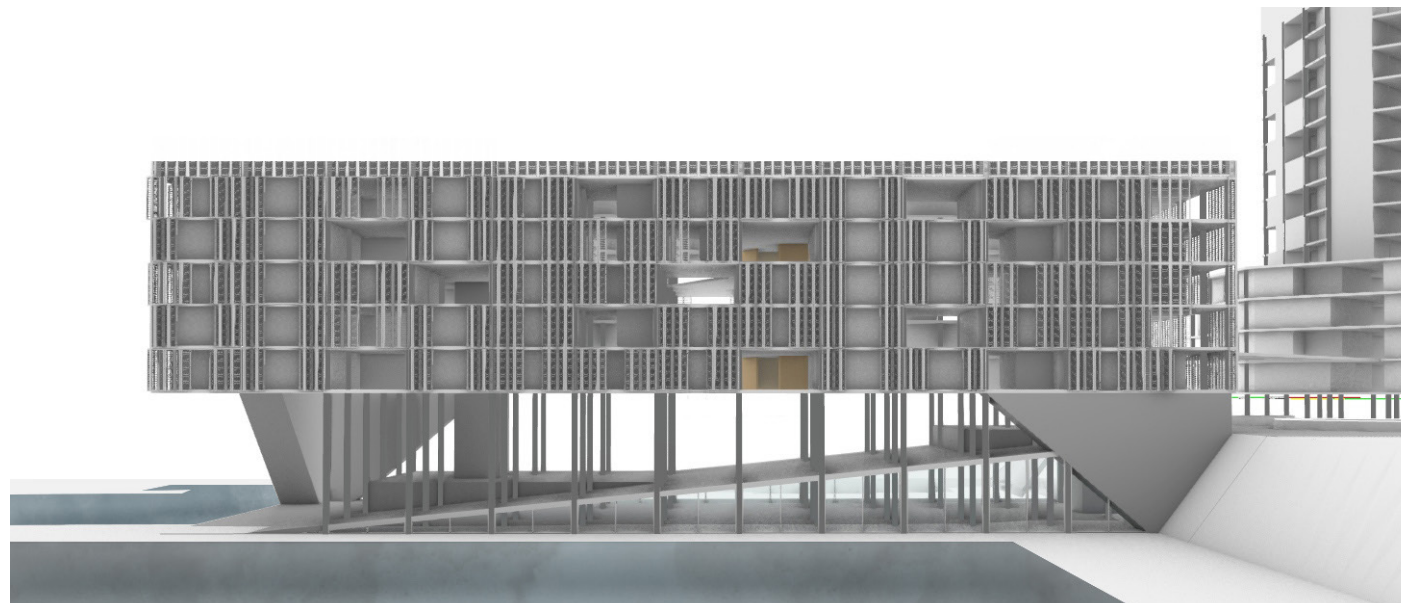




ENCLOSED



VARIED



OPEN





FOLDING LOUVER  
FACADE (ALUMINIUM  
FRAME IN LIGHT  
GREY)

FACADE FRONT VIEW  
(EXTERNAL)

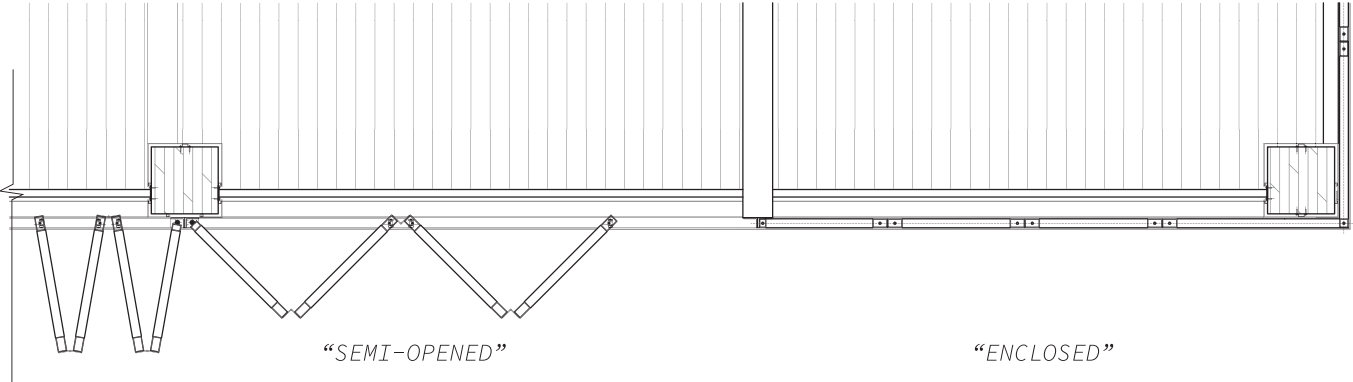
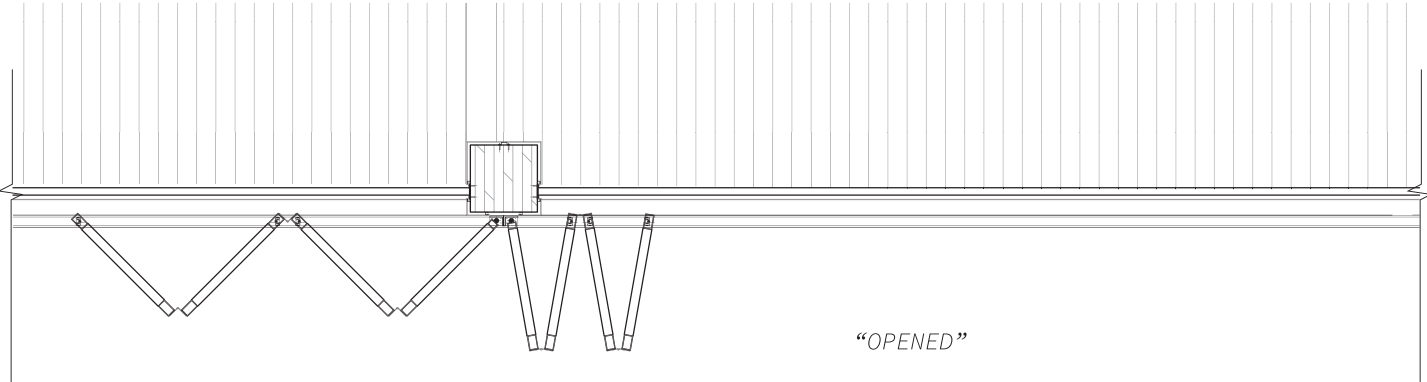
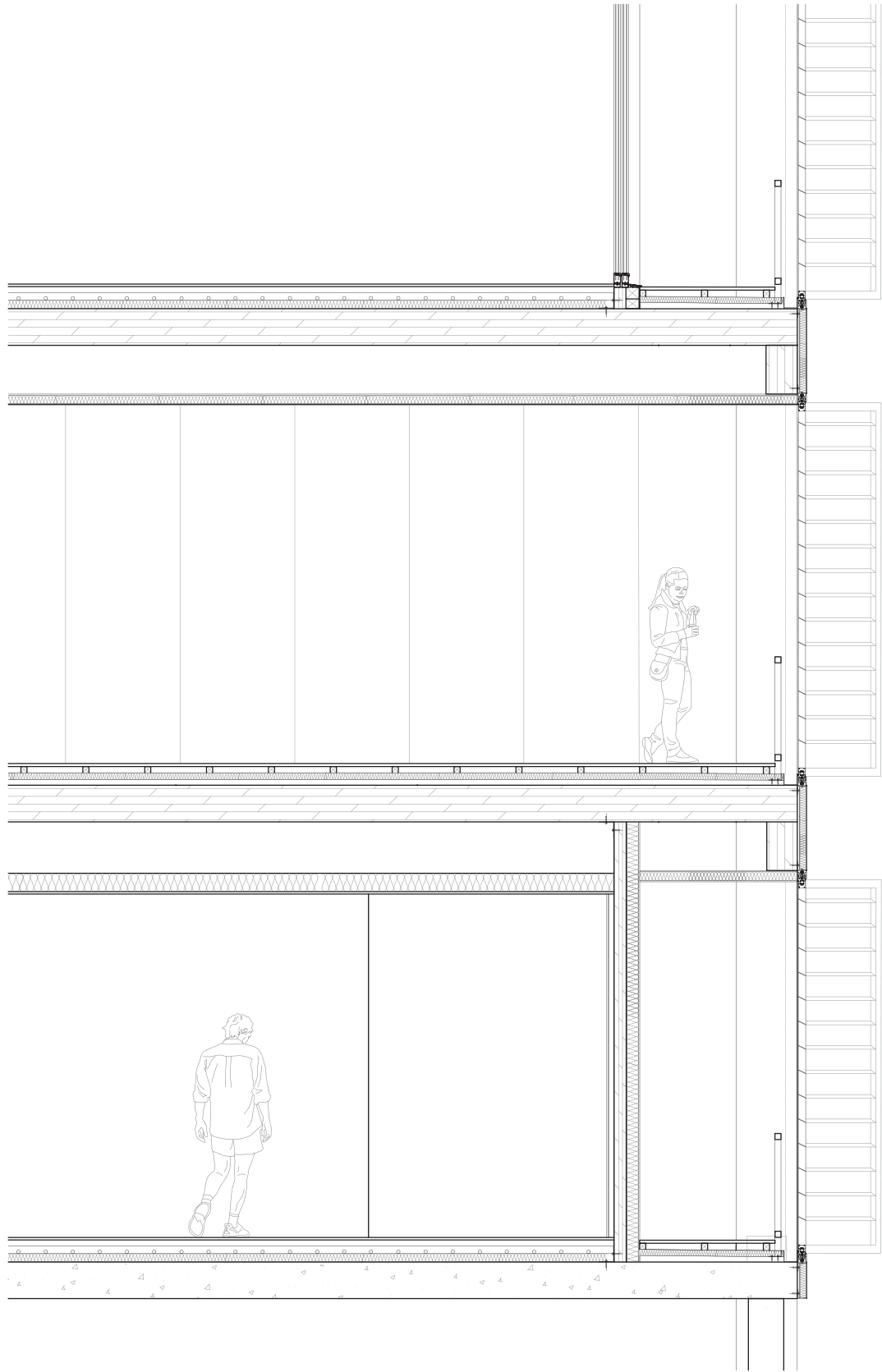
COLLECTIVE BALCONY



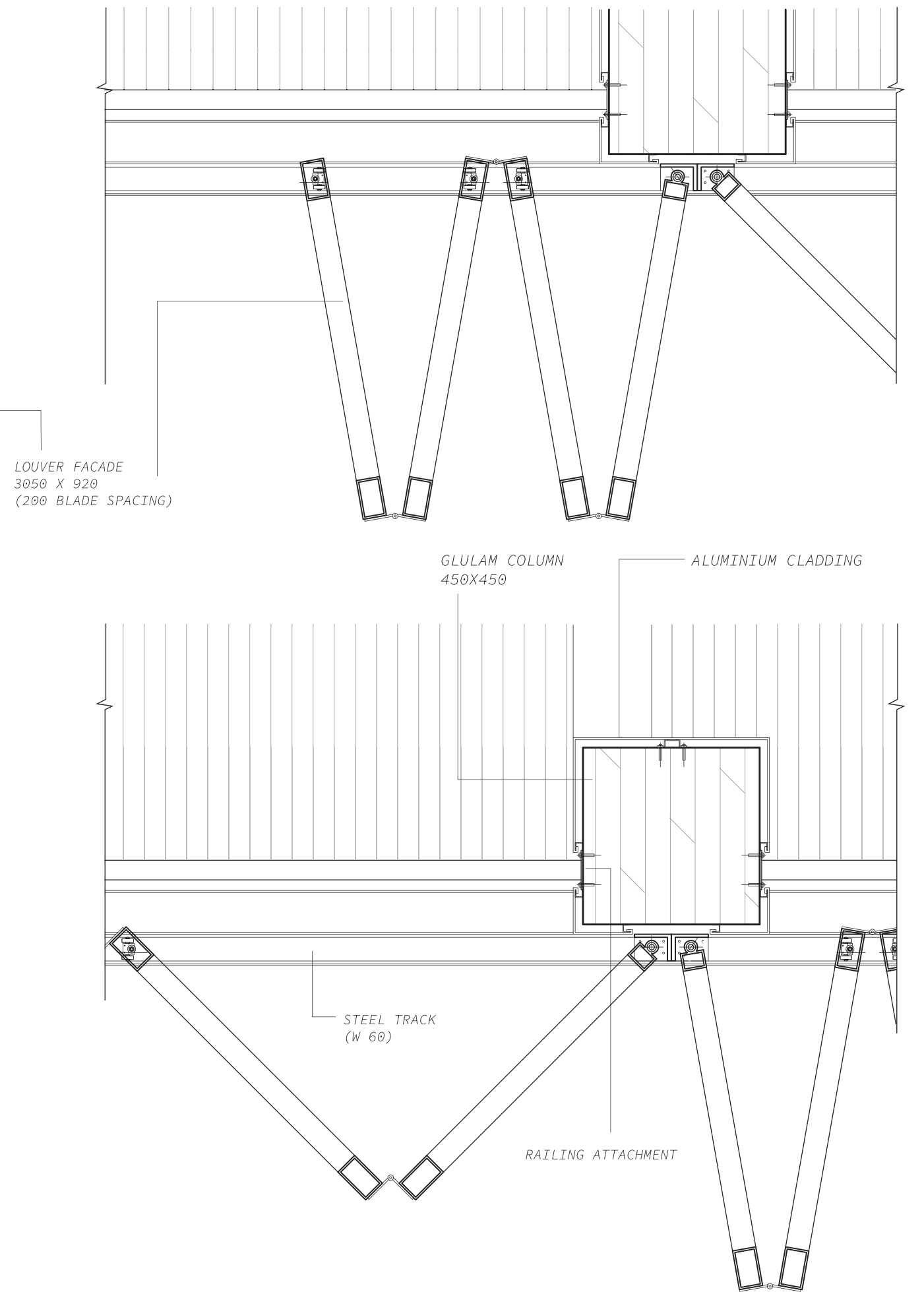
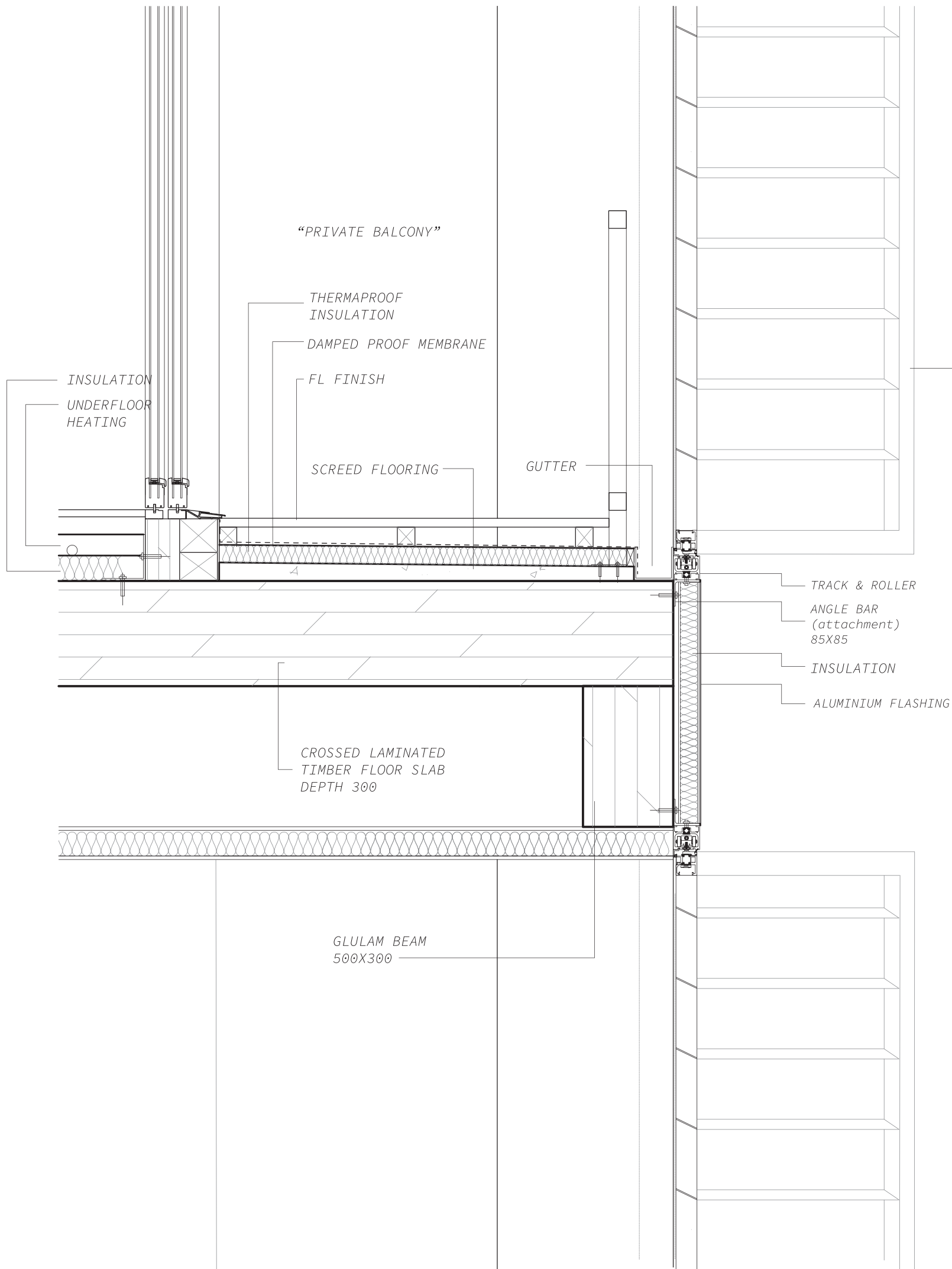
FACADE FRONT VIEW (HOUSING MASS)



FACADE SECTION VIEW 1:20

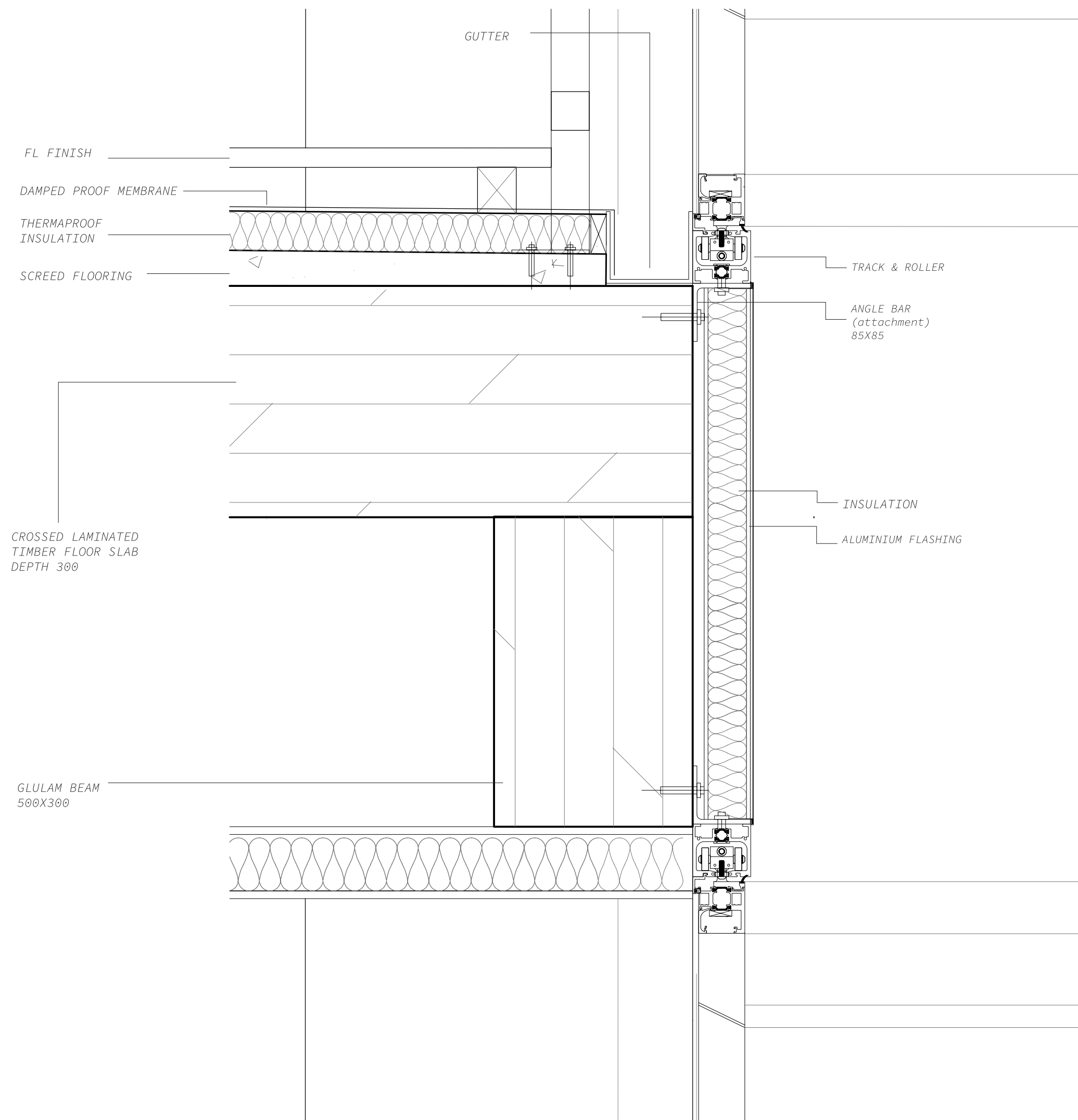






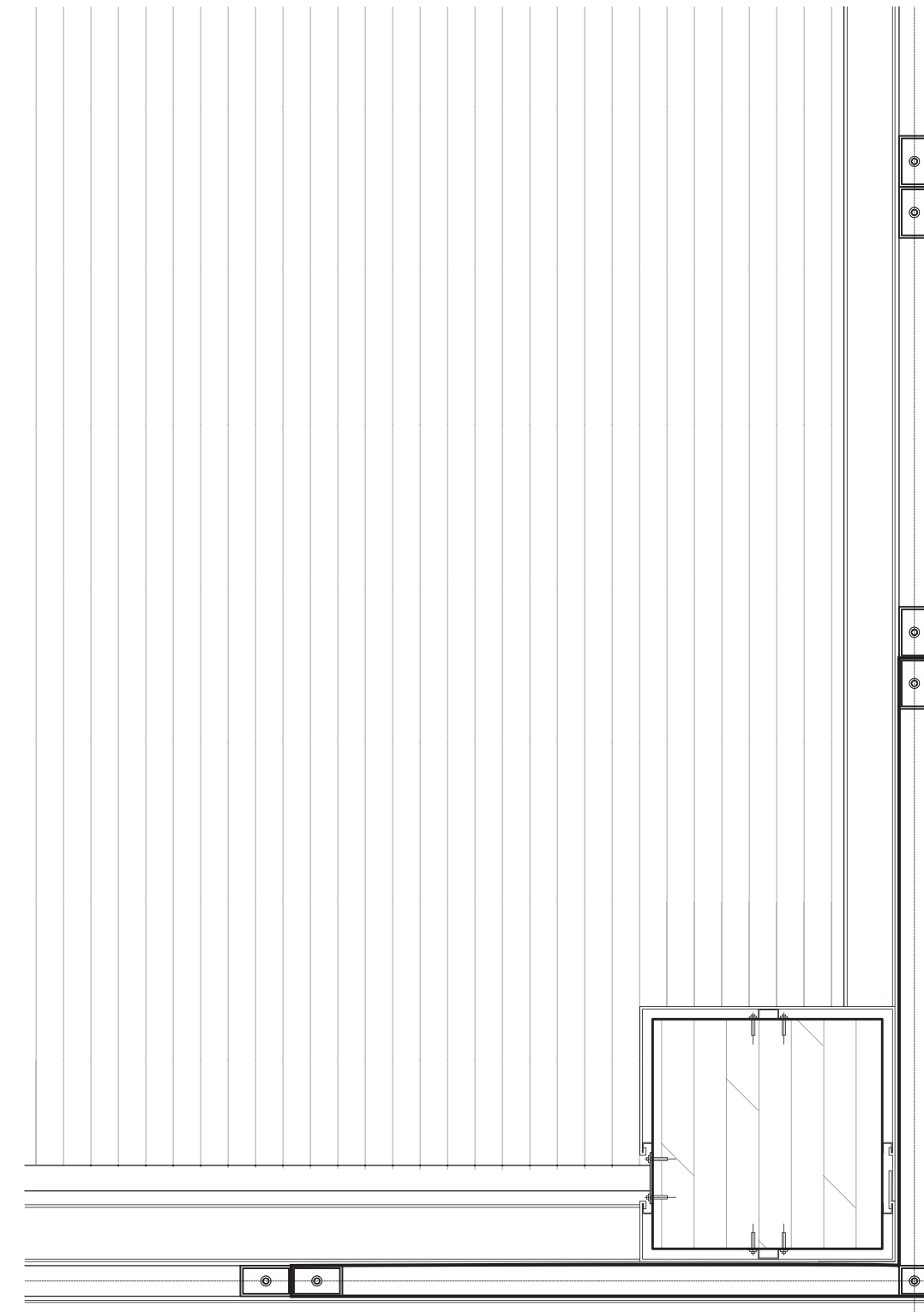
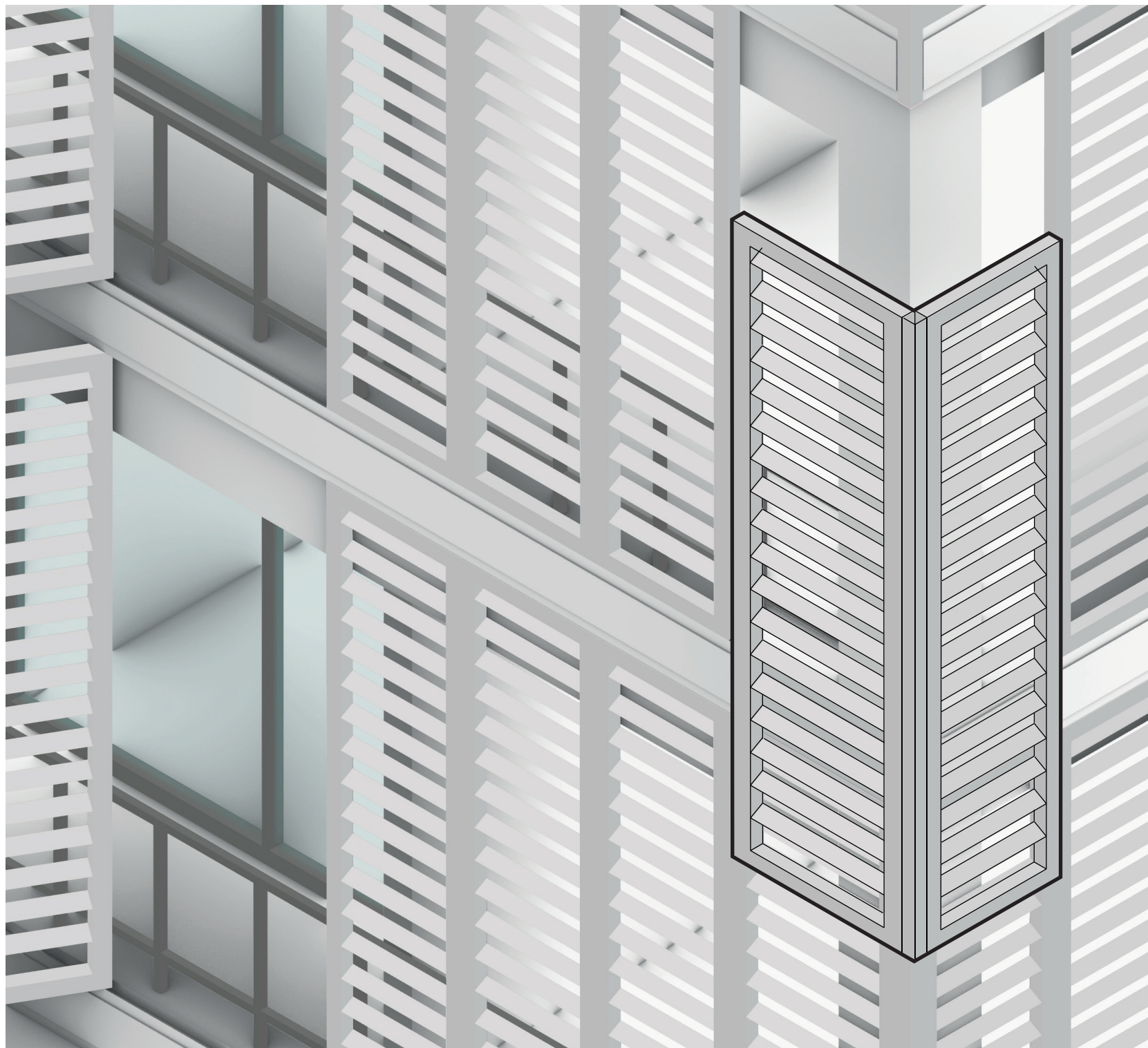
FACADE LOUVER DETAIL  
1:5





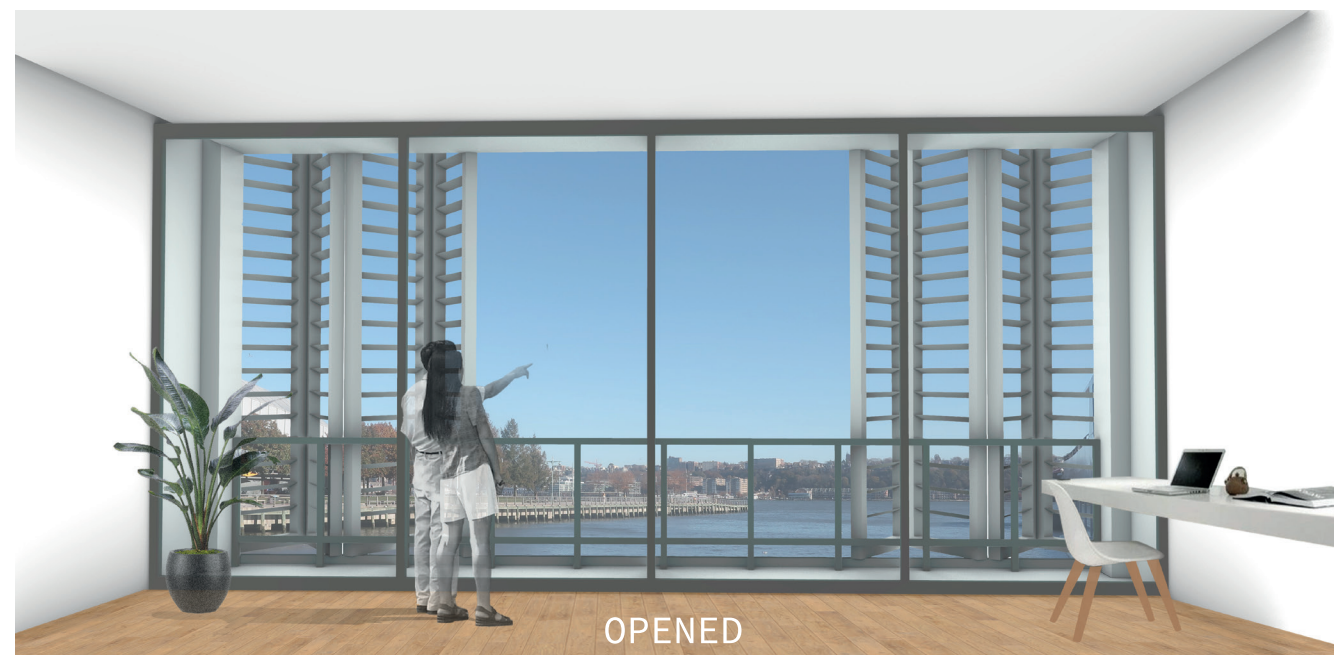
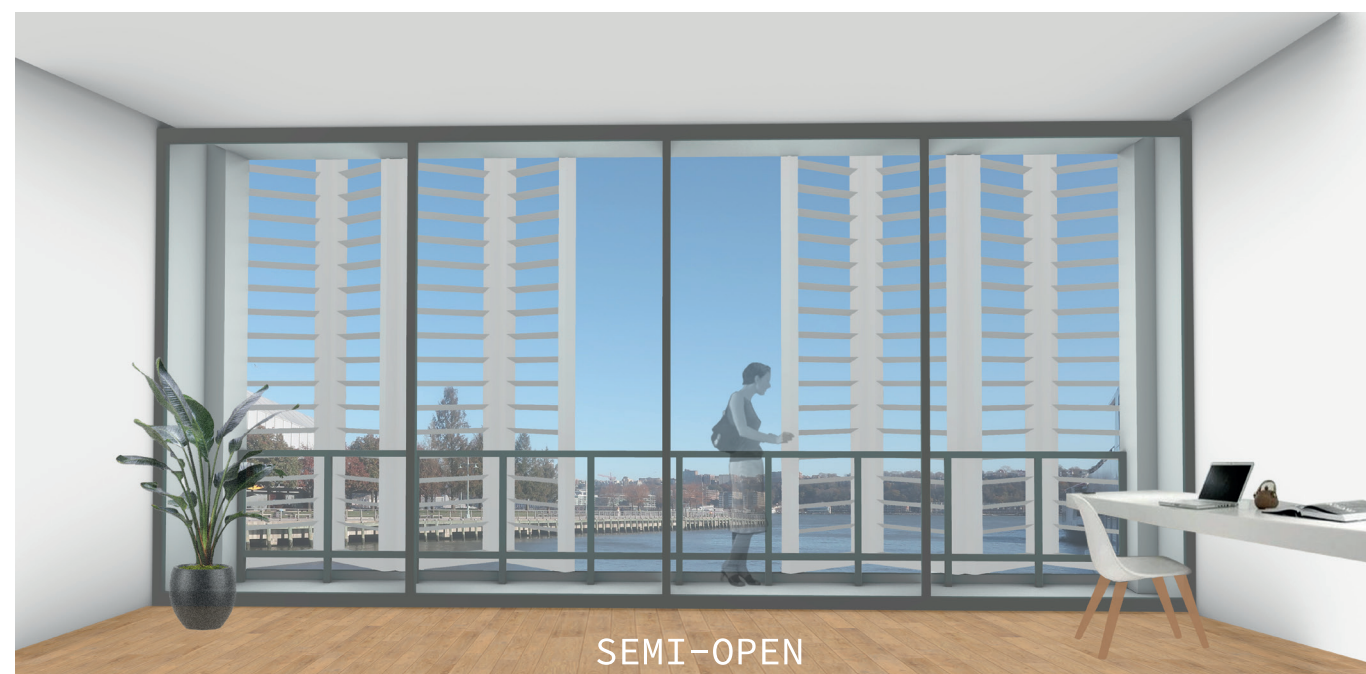
FACADE LOUVER DETAIL  
1:2





FACADE CORNER CONDITION  
(FIXED PANEL IN ANGLE)  
BOLTED ON TOP AND BOTTOM ON  
STEEL ANGLE BAR





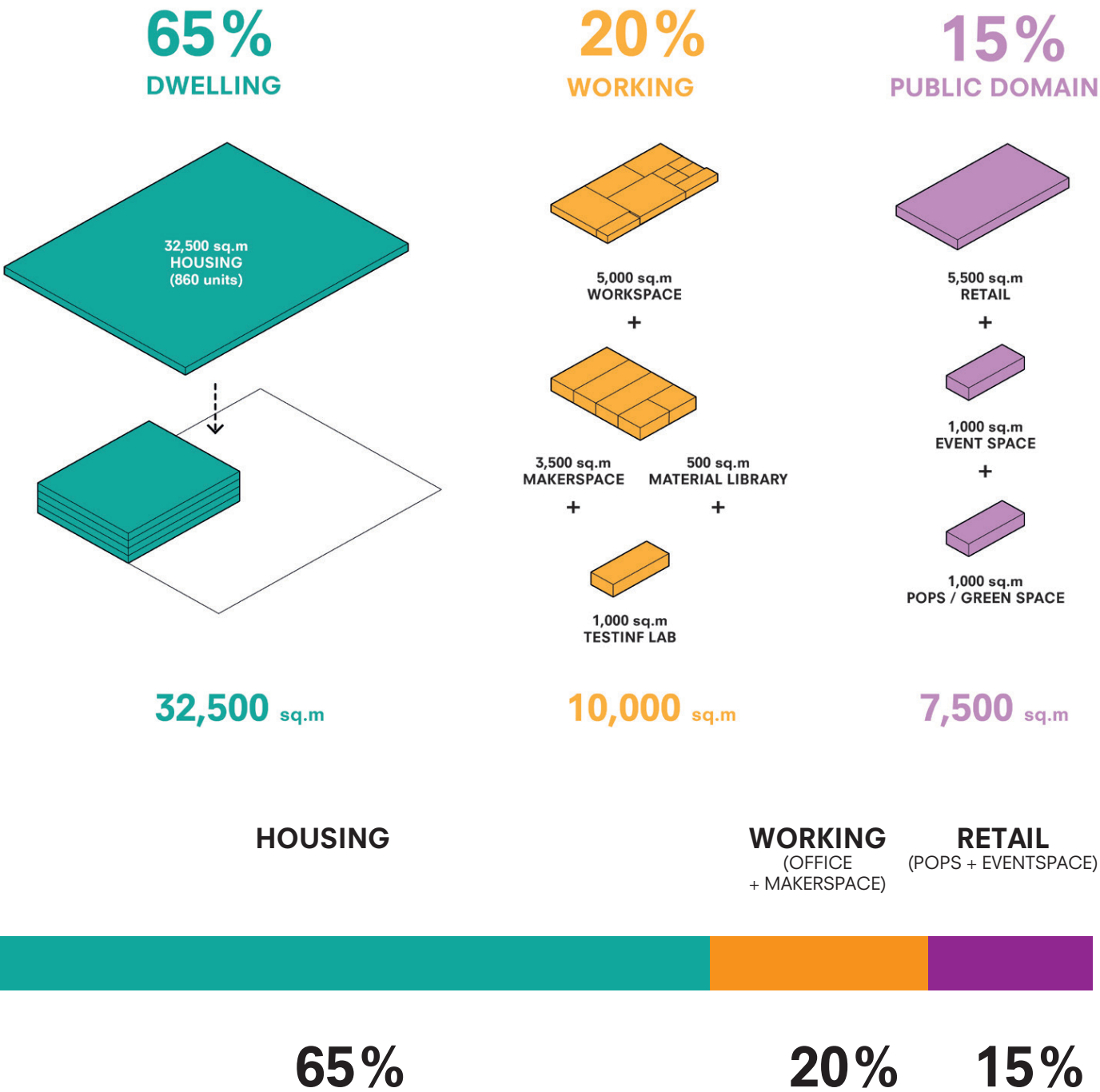
FACADE VIEW (INTERIOR)



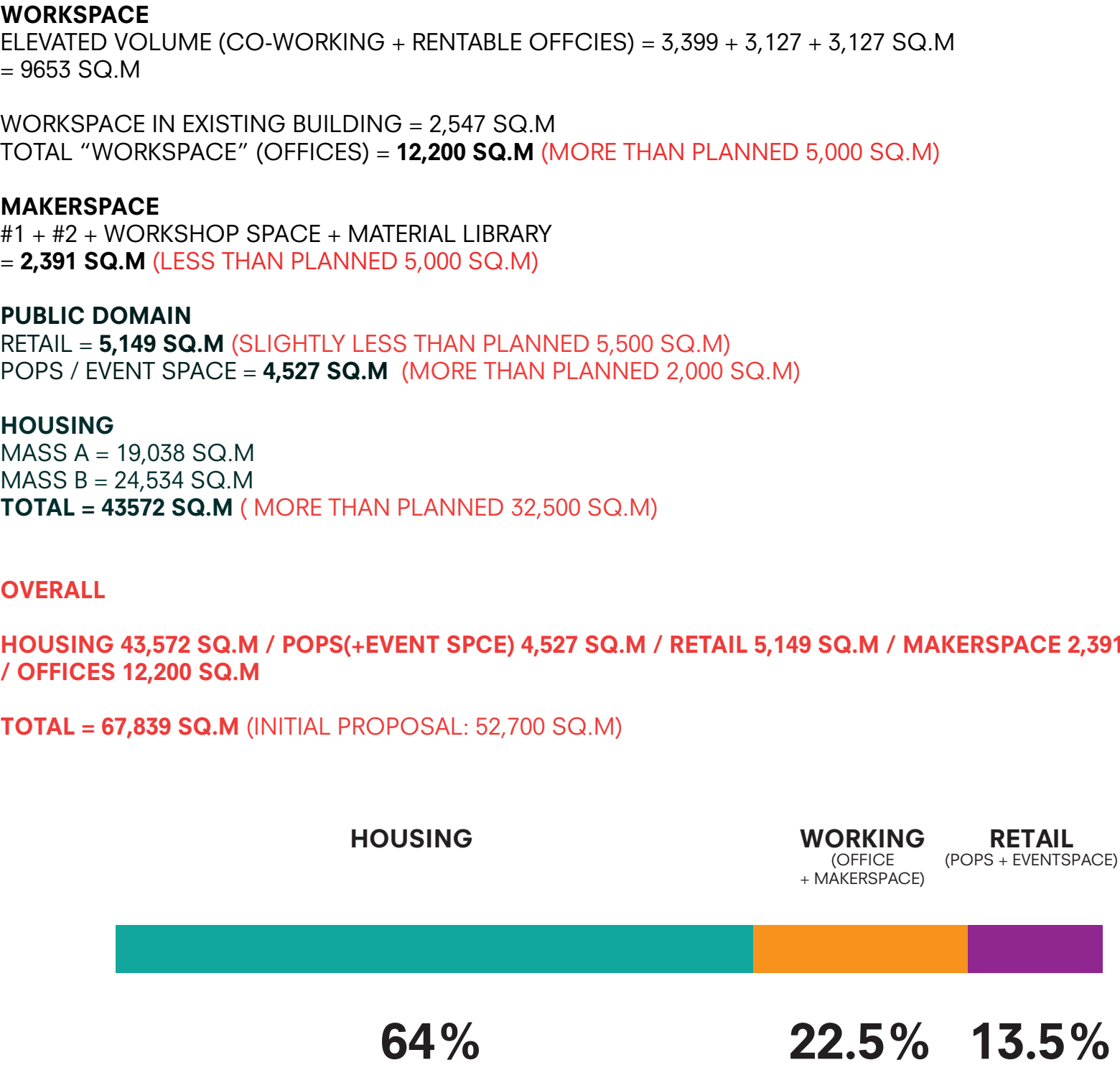
FLOOR AREA CHECK  
- SQUARE FOOTAGE CHECK  
(COMPARE WITH INITIAL BRIEF)

INITIAL

INITIAL PROGRAM SPATIAL REQUIREMENT



CURRENT



\*INCREASED SQUARE FOOTAGE BUT RATIO IS SIMILAR TO INITIAL IDEA