

**MATERIAL ORGANISM**

*FINAL DOCUMENT*

## ***Document Information***

New Jersey Institute of Technology

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Graduation Program - M.Arch

Comprehensive Studio

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FINAL MATERIAL ORGANISM

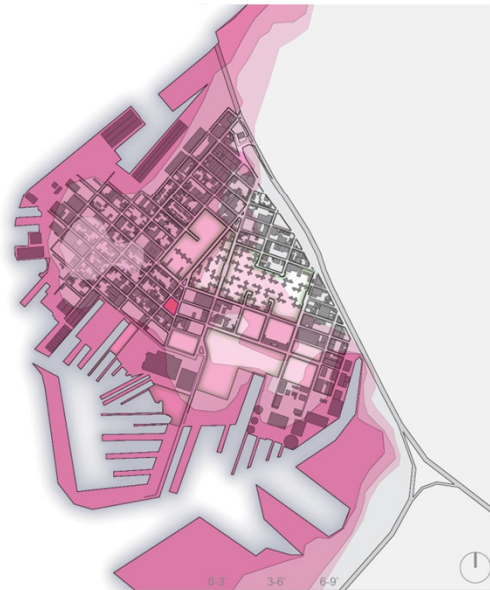
Red Hook



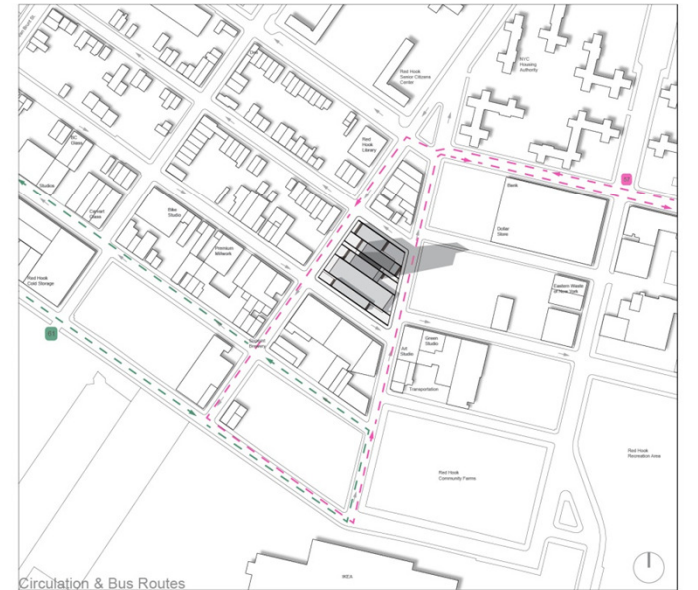
Site Context & Solar Path



Site Elevation



Circulation & Bus Routes





Wood Construction

Residential Towers

Wood Tower



+



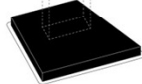
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Flood

Industrial Fabric

Concrete Base

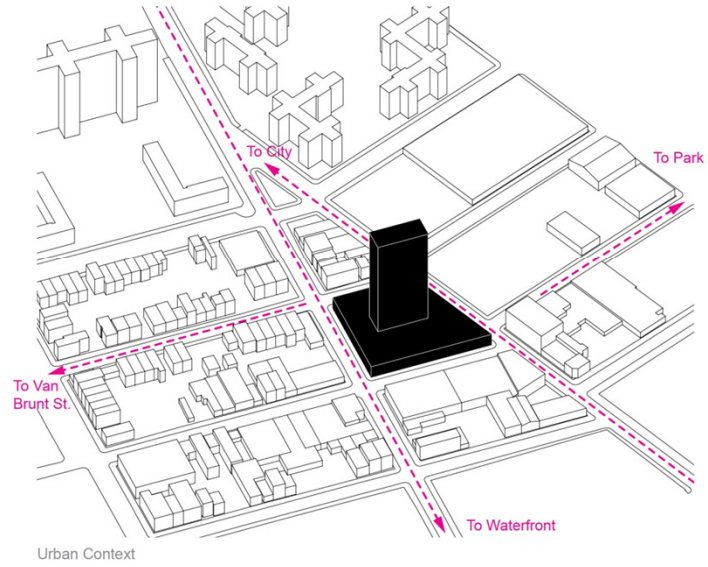
Material

+

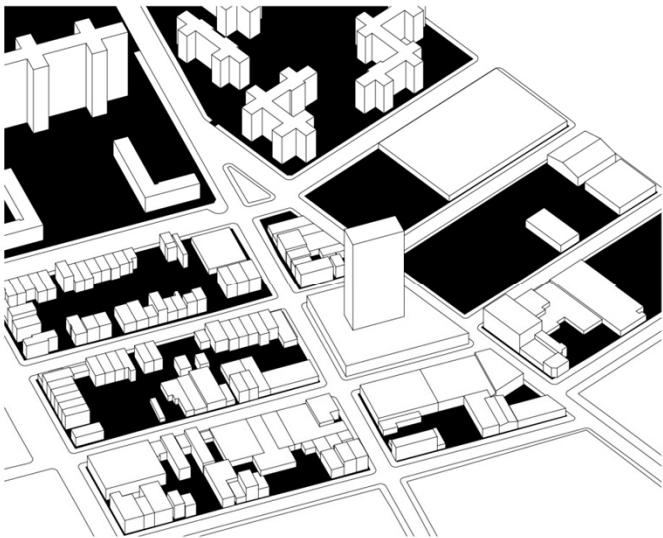
Urban Context

=

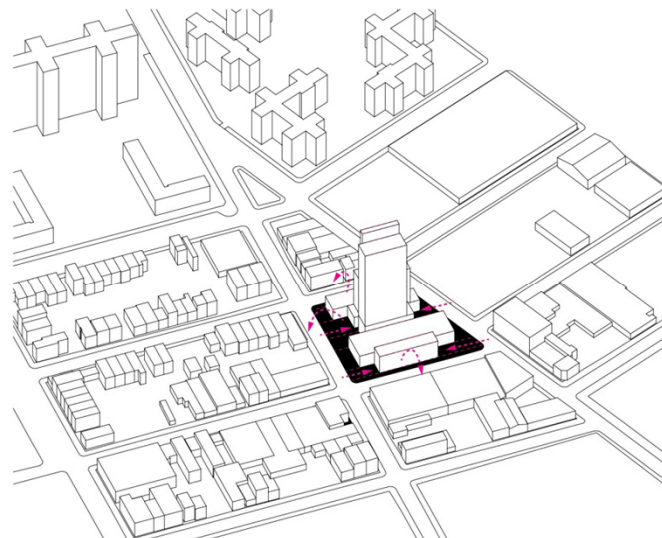
Project  
Concept



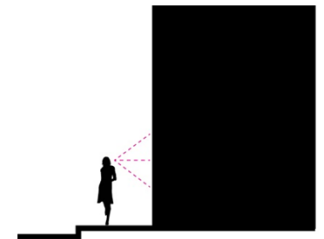
# SITE ANALYSES AND CONCEPTUAL DESIGN



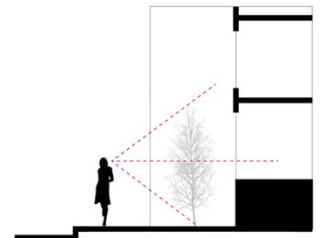
Site Fabric



Site Response



✗



✓

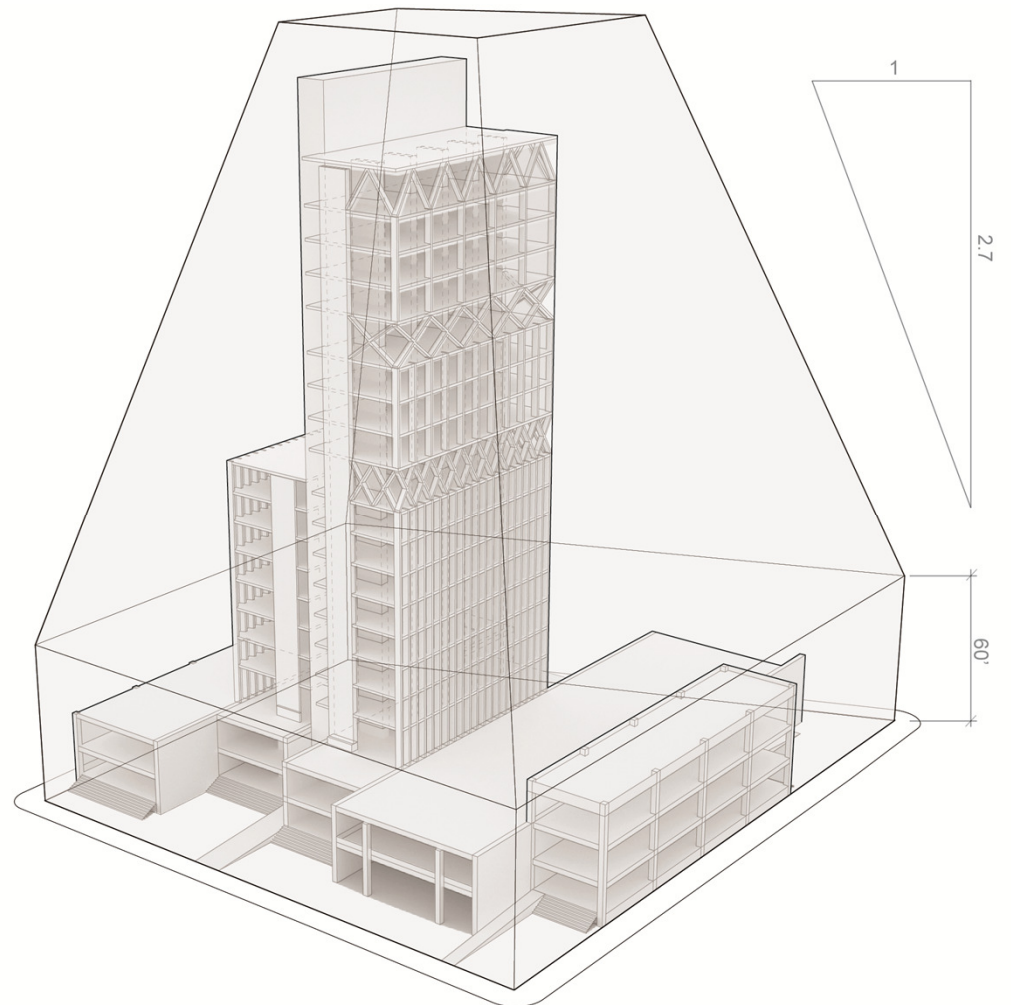
Pedestrian Response

# Zoning Analysis

M-1 Zone  
R-7 Overlay

Lot Area: 43,965 sf  
Building Area: 150,186 sf

R-7	FAR	OSR	Building Height	Parking
	0.87-3.44	15.5-25.5%	Sky Exposure	60%
Required	151,240 sf	23,279 sf min	---	60 spaces
Provided	3.41	16,240 sf + 10,556 sf (greenroof) 26,596 sf	250'	50 spaces



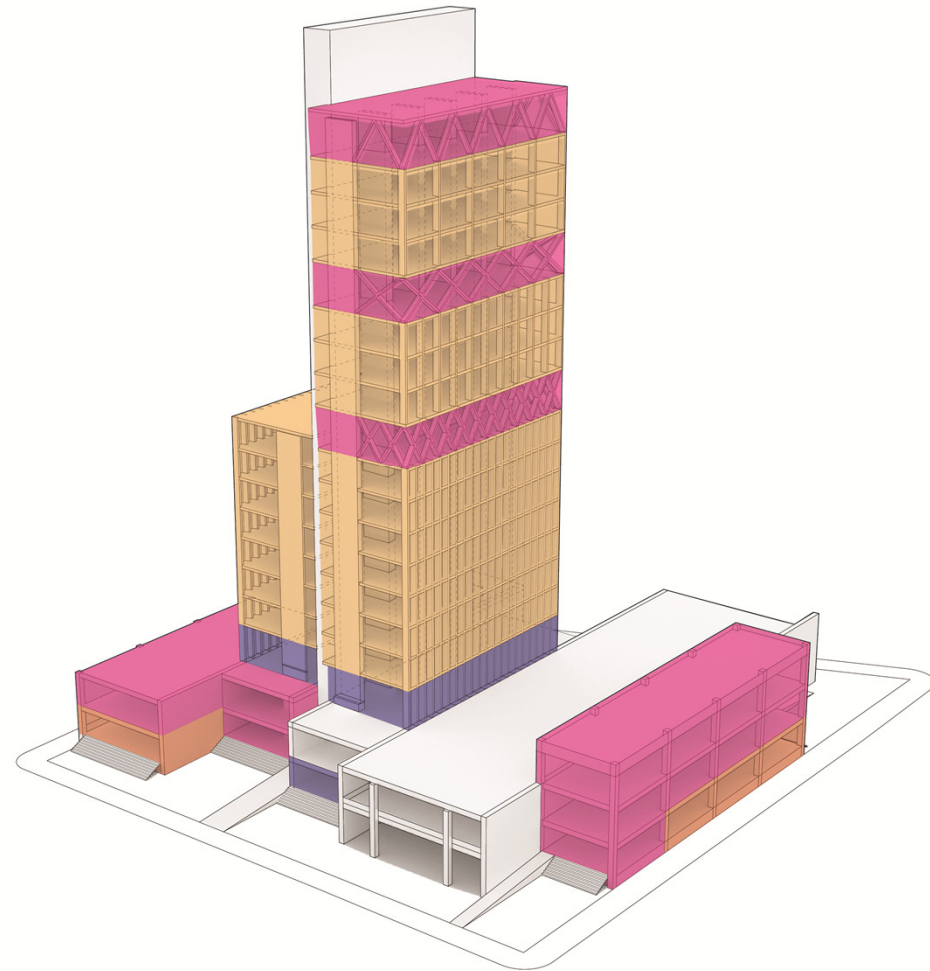
# Program Analysis

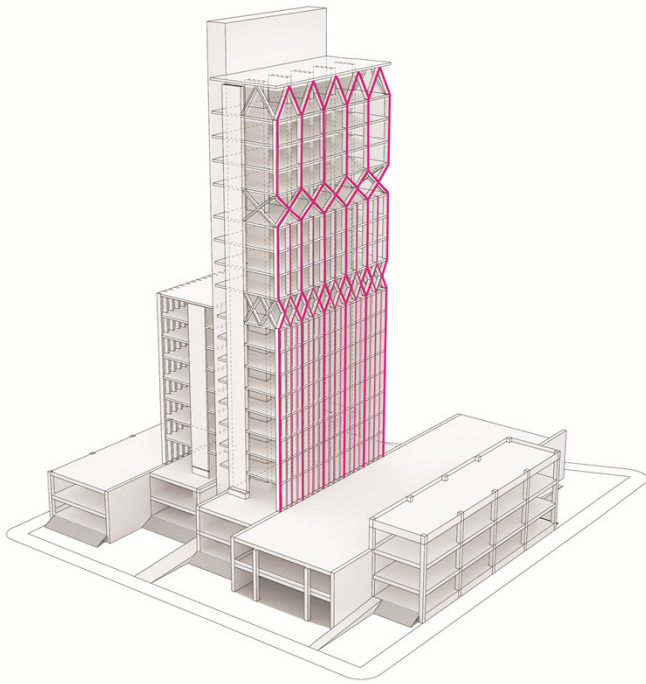
Building Area: 150,186 sf

Floor	Program	Stripe	SF
1st Floor	Open Area	1-6	16,240
	Retail	1	3,496
	Retail	6	2,340
	Office	2	4,025
	Office	6	780
	Lobby	4	4,019
	Core	3	696
	Parking	5	10,556
	2nd Floor	Office	1
Office		2	3,496
Mechanical		2,4	4,629
Parking		5	10,556
Office		6	3,172
Core		3	696
3rd Floor	Office	6	3,172
	Amenities	2,4	8,052
	Core	3	696
	Green Roof	5	10,556
4-10th Floor	Housing	2	3,750 x7
	Core	3	696 x7
	Housing	4	3,100 x7
11th Floor	Green Roof	2	3,890
	Core	3	696
	Office	4	3,100
12-14 Floor	Housing	4	3,100 x3
	Core	3	696 x3
15th Floor	Office	4	3,100
	Core	3	696
16-18 Floor	Housing	4	3,100 x3
	Core	3	696 x3
19th Floor	Office	4	3,100 x3
	Core	3	696 x3
Roof	Mechanical	3	3,100

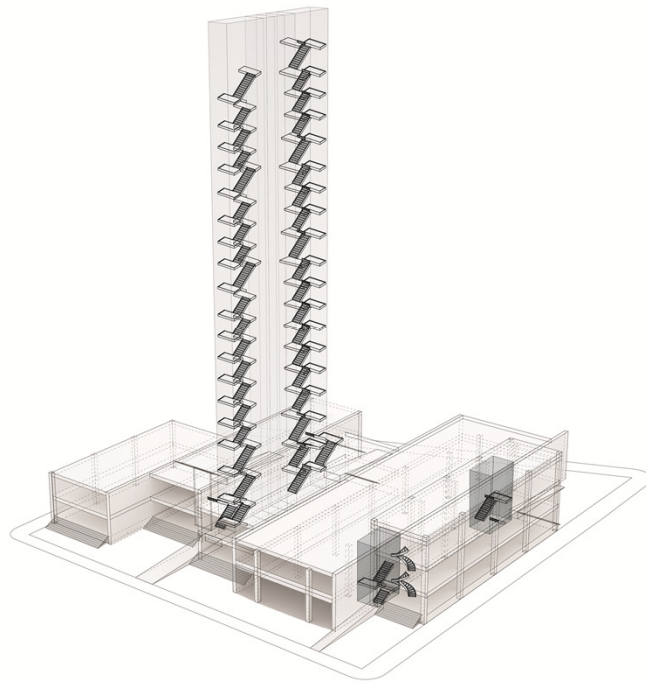
Total Retail	5,836
Total Office	30,540
Total Parking	21,112
Total Amenities	12,071
Total Housing	66,550
Total Mechanical	7,729
Total Green Roof	14,446

## ZONING AND PROGRAM ANALYSES

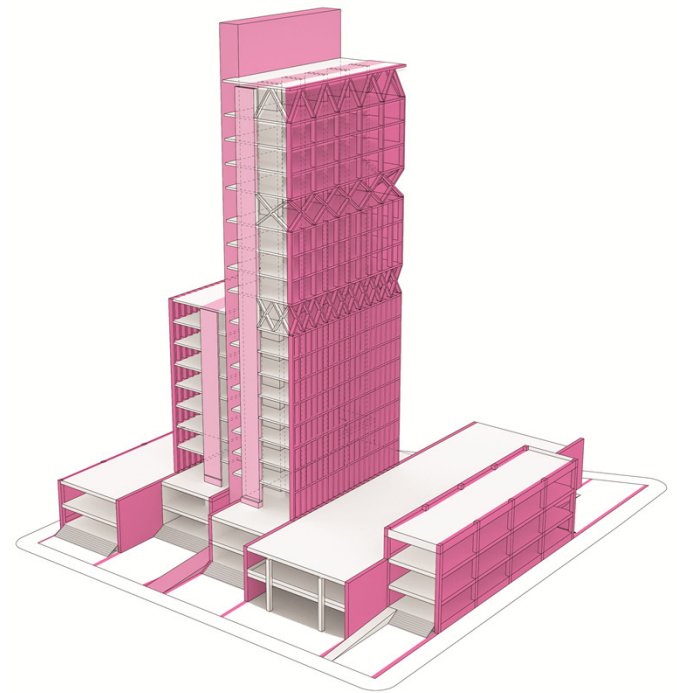




Structure Pattern



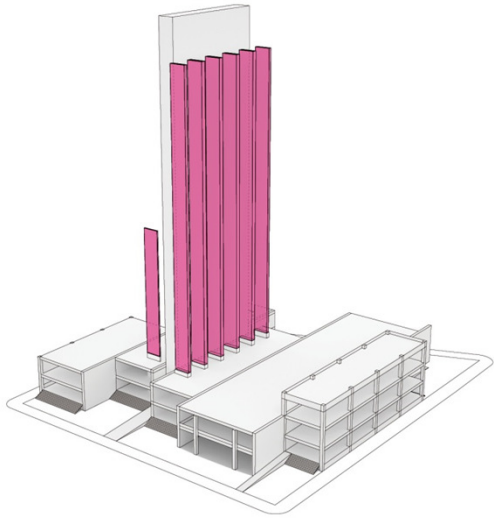
Egress



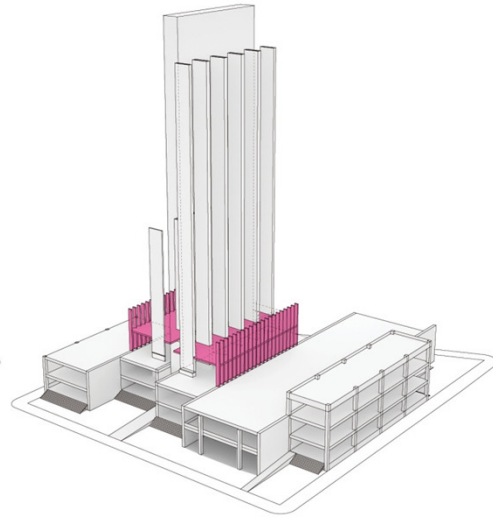
Axis of Strength and Programmatic Layers



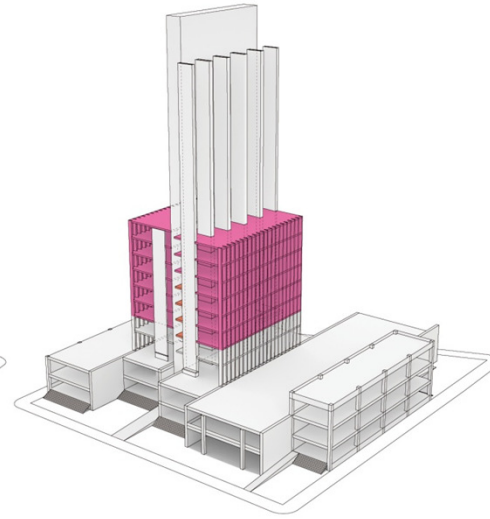
# MATERIAL ORGANISM CONTRUCTION SEQUENCE



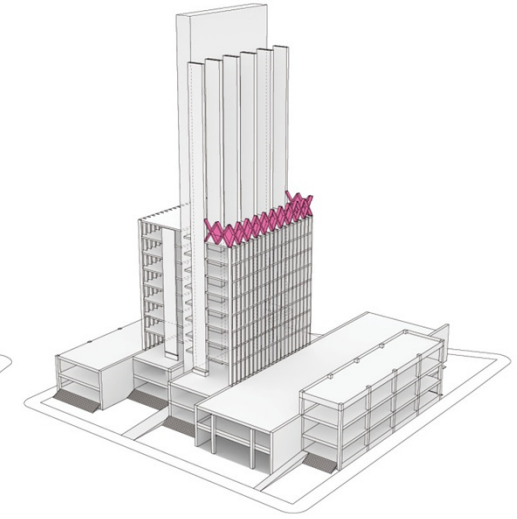
CLT Shaft Walls



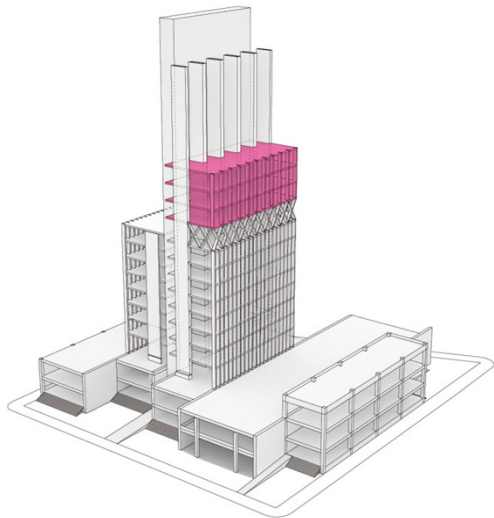
Glu-Lam Columns / CLT Floors



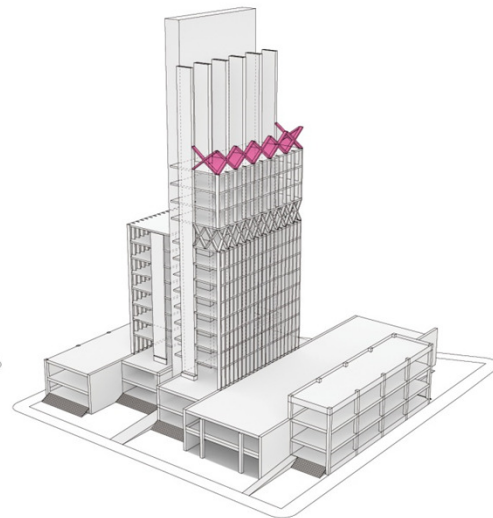
Glu-Lam Columns / CLT Floors



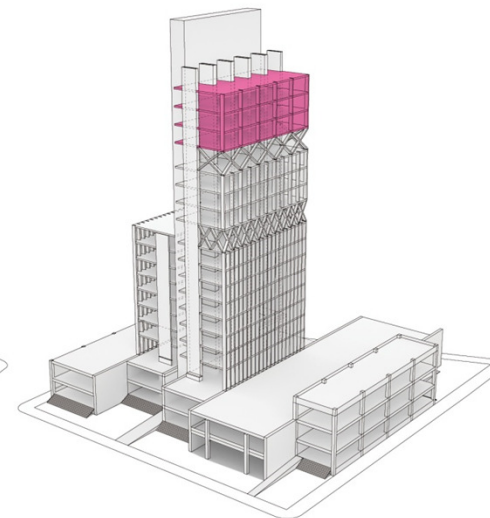
Glu-Lam Truss



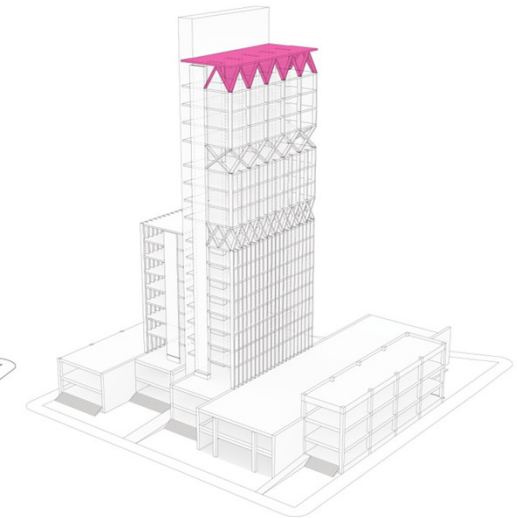
Glu-Lam Columns / CLT Floors



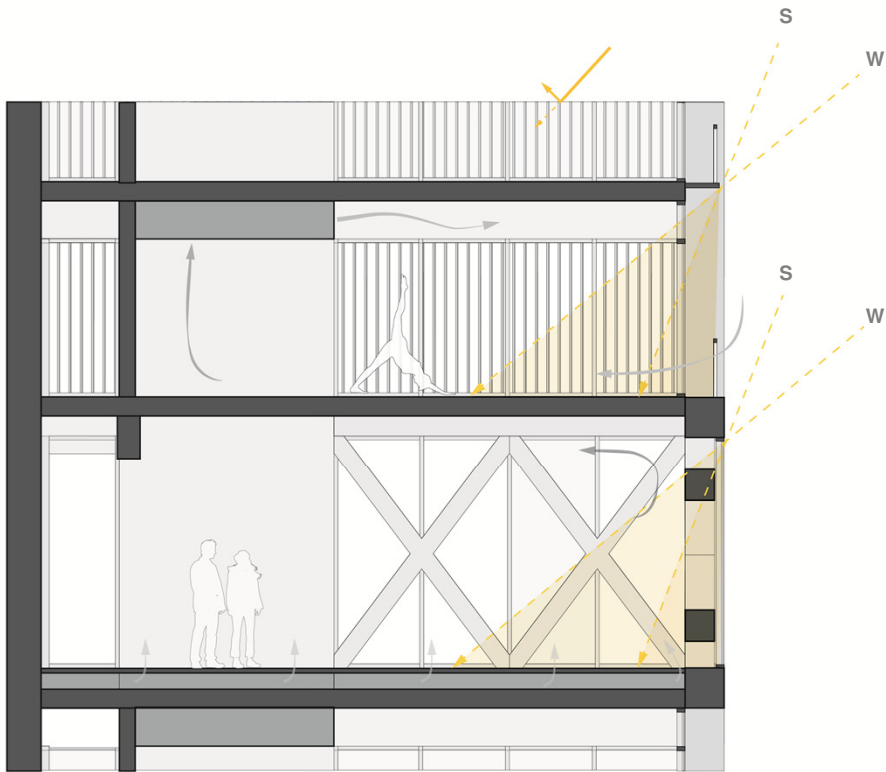
Glu-Lam Truss



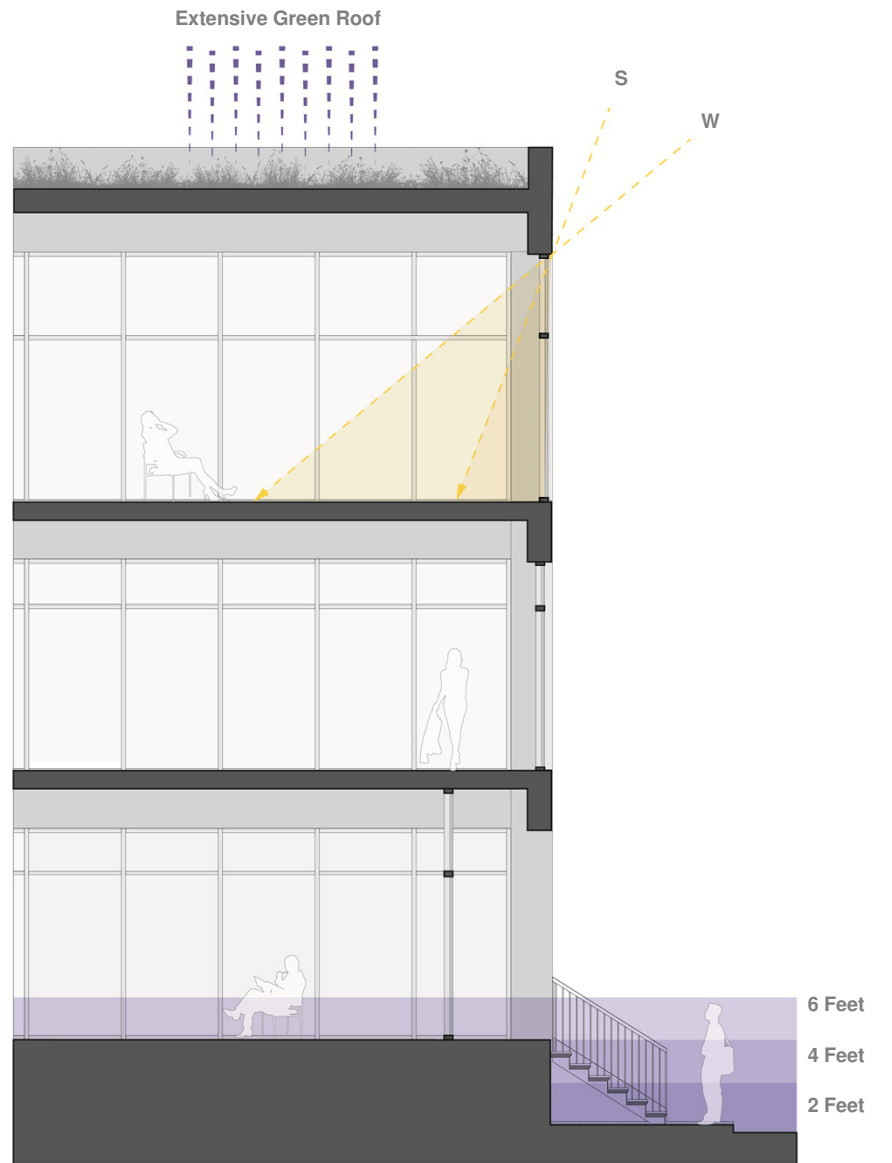
Glu-Lam Columns / CLT Floors



Glu-Lam Truss



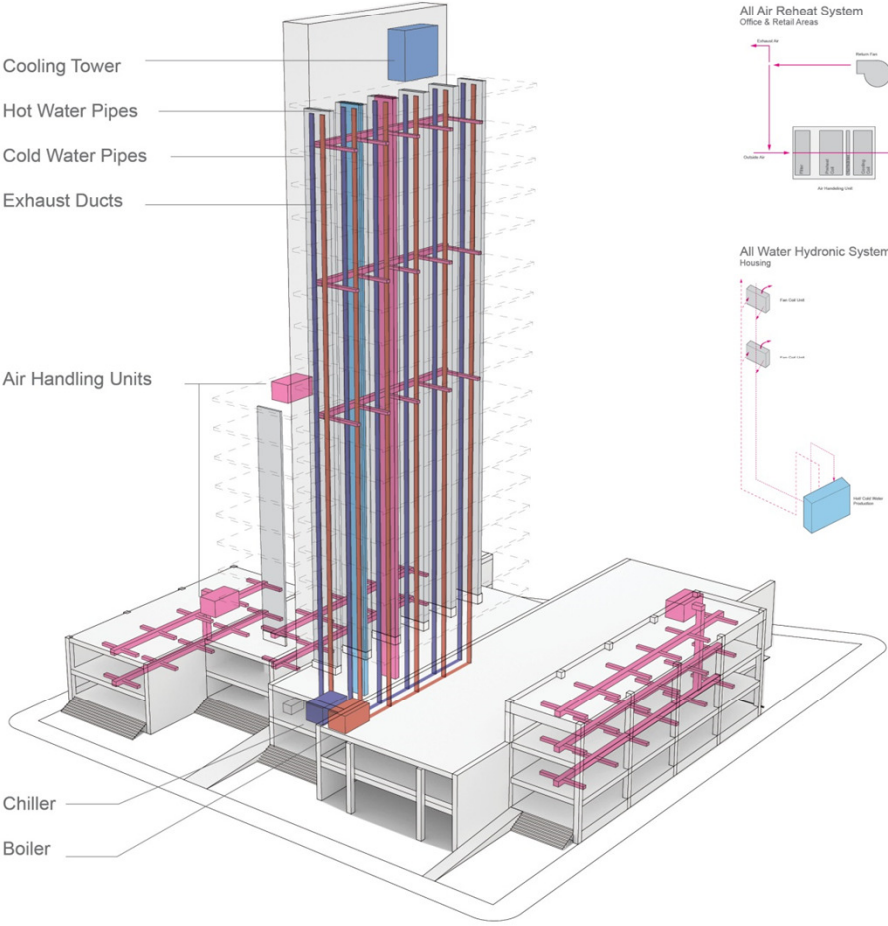
HOUSING AND OFFICE SPACES



OFFICE SPACE



ENVIRONMENTAL AND FUNCTIONING SYSTEMS

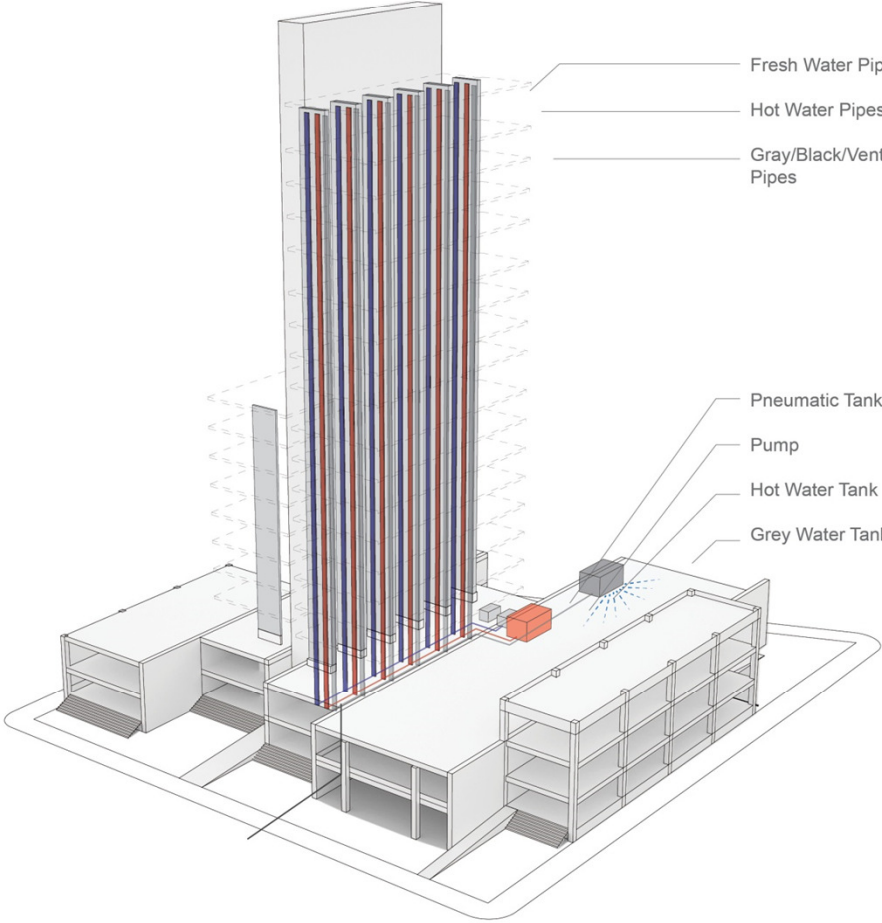
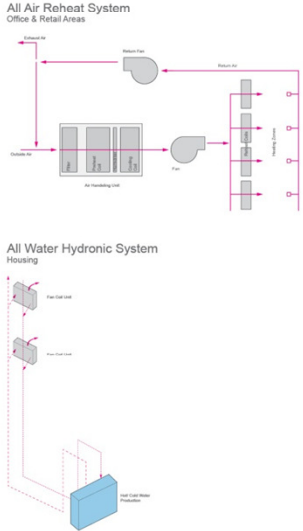


- Cooling Tower
- Hot Water Pipes
- Cold Water Pipes
- Exhaust Ducts

Air Handling Units

- Chiller
- Boiler

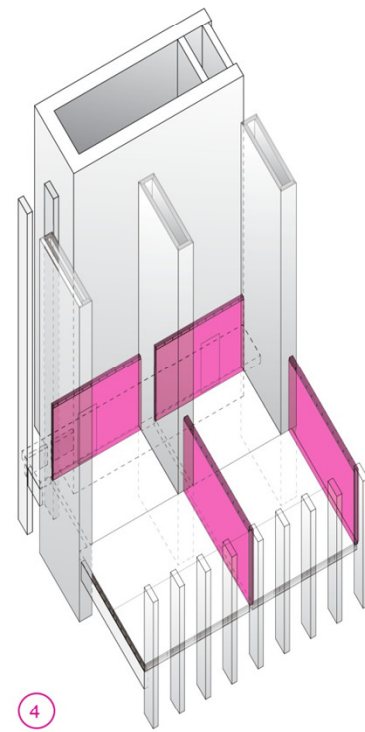
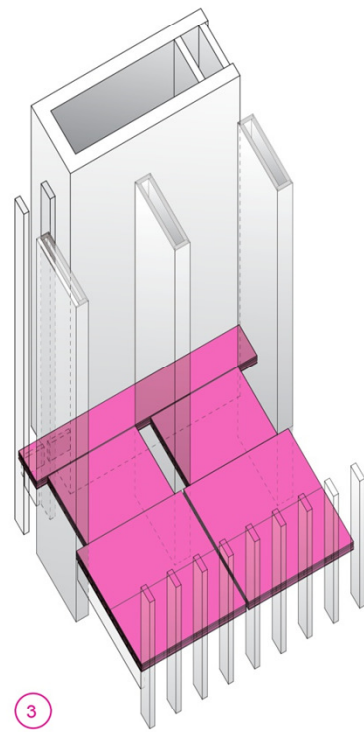
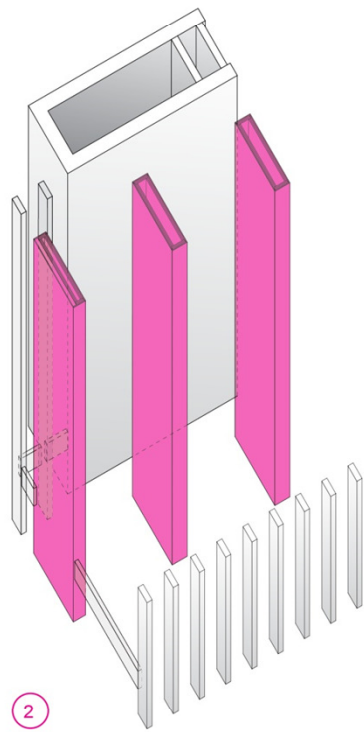
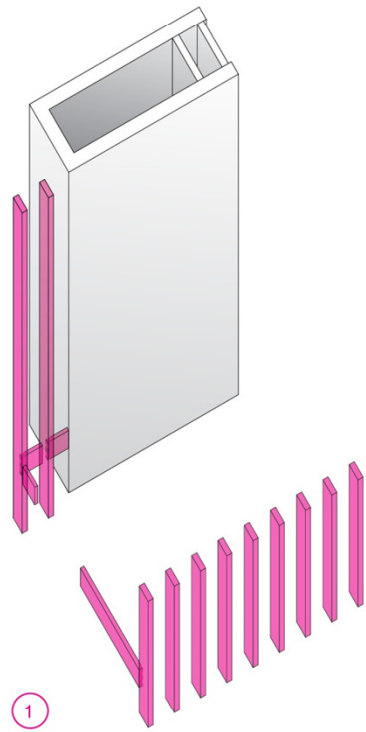
Mechanical Diagram



- Fresh Water Pipes
- Hot Water Pipes
- Gray/Black/Vent Pipes

- Pneumatic Tank
- Pump
- Hot Water Tank
- Grey Water Tank

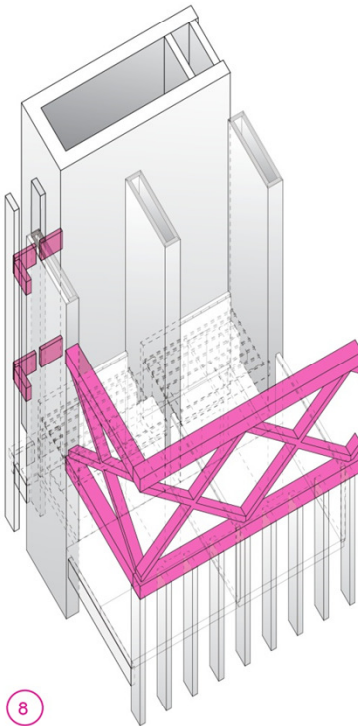
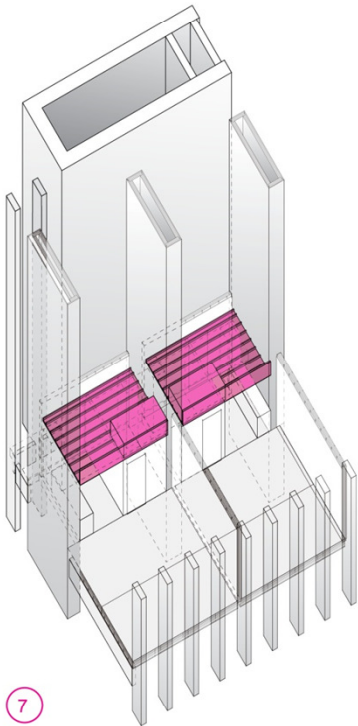
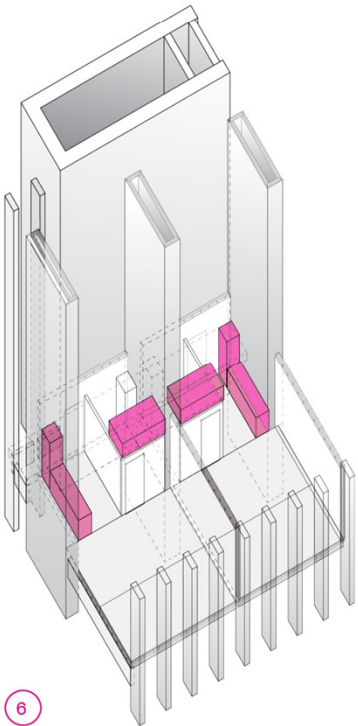
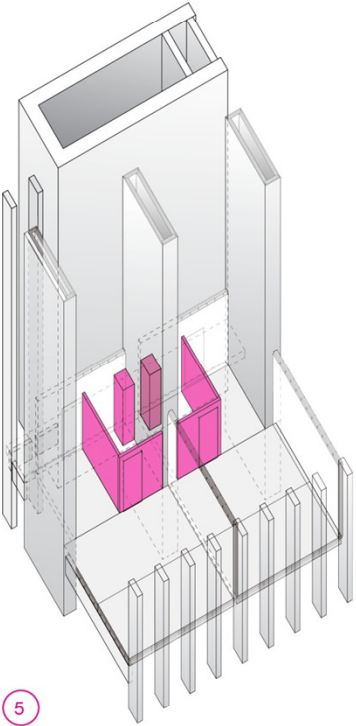
Plumbing Diagram

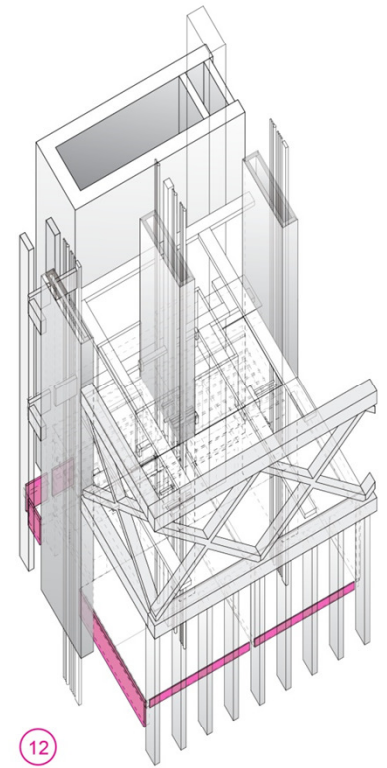
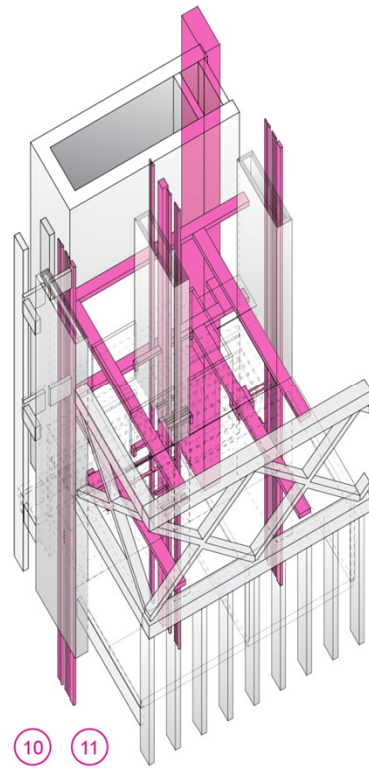
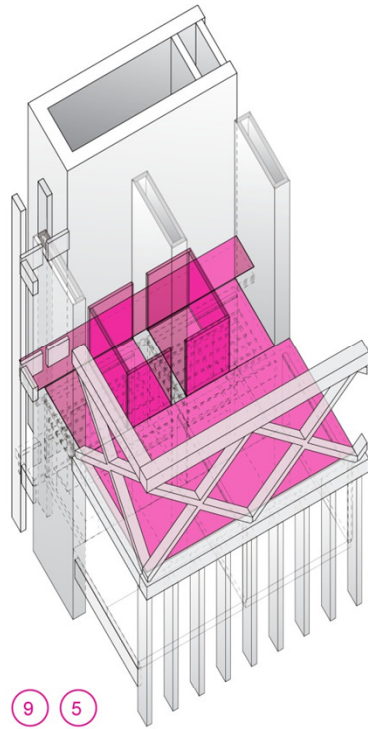
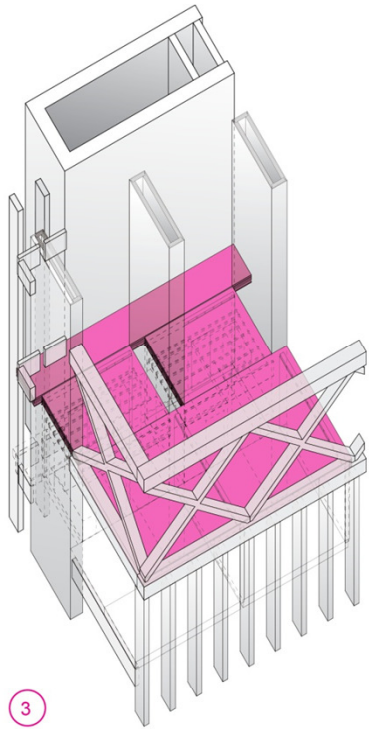


# MATERIAL ORGANISM CONSTRUCTION ASSEMBLY

## Construction Details

- 1 Glu-Lam Columns
- 2 CLT Shaft Walls
- 3 CLT Floor Panels
- 4 CLT Demising Walls
- 5 Interior Partitions
- 6 Cabinetry
- 7 Dropped Ceiling
- 8 Glu-Lam Truss



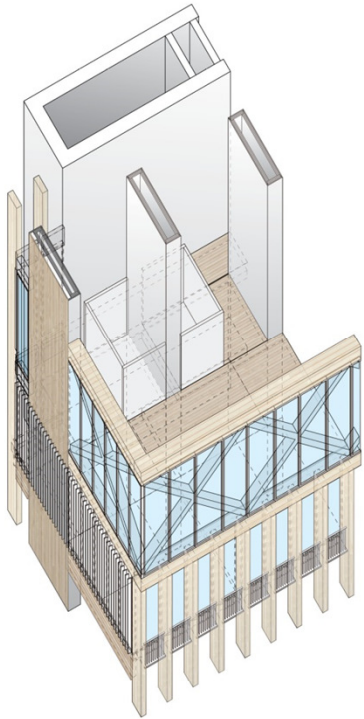
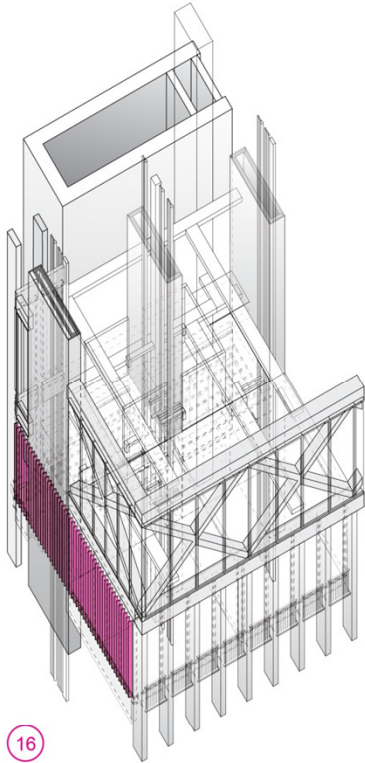
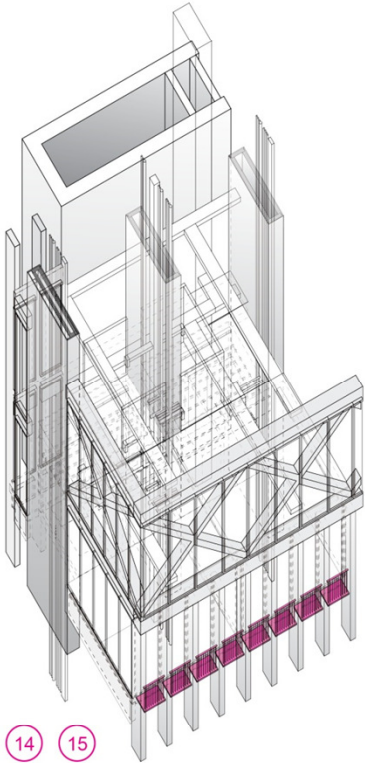
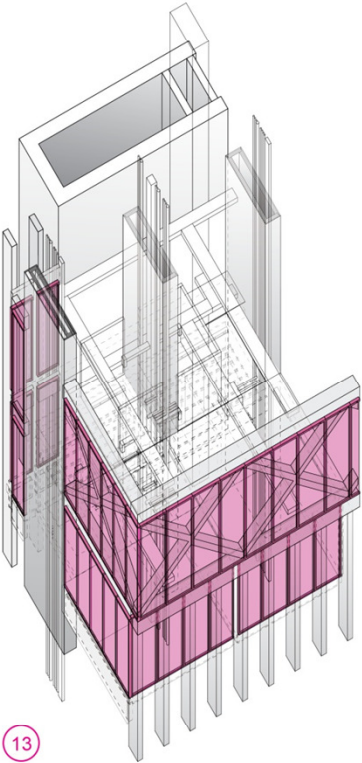




# MATERIAL ORGANISM CONSTRUCTION ASSEMBLY

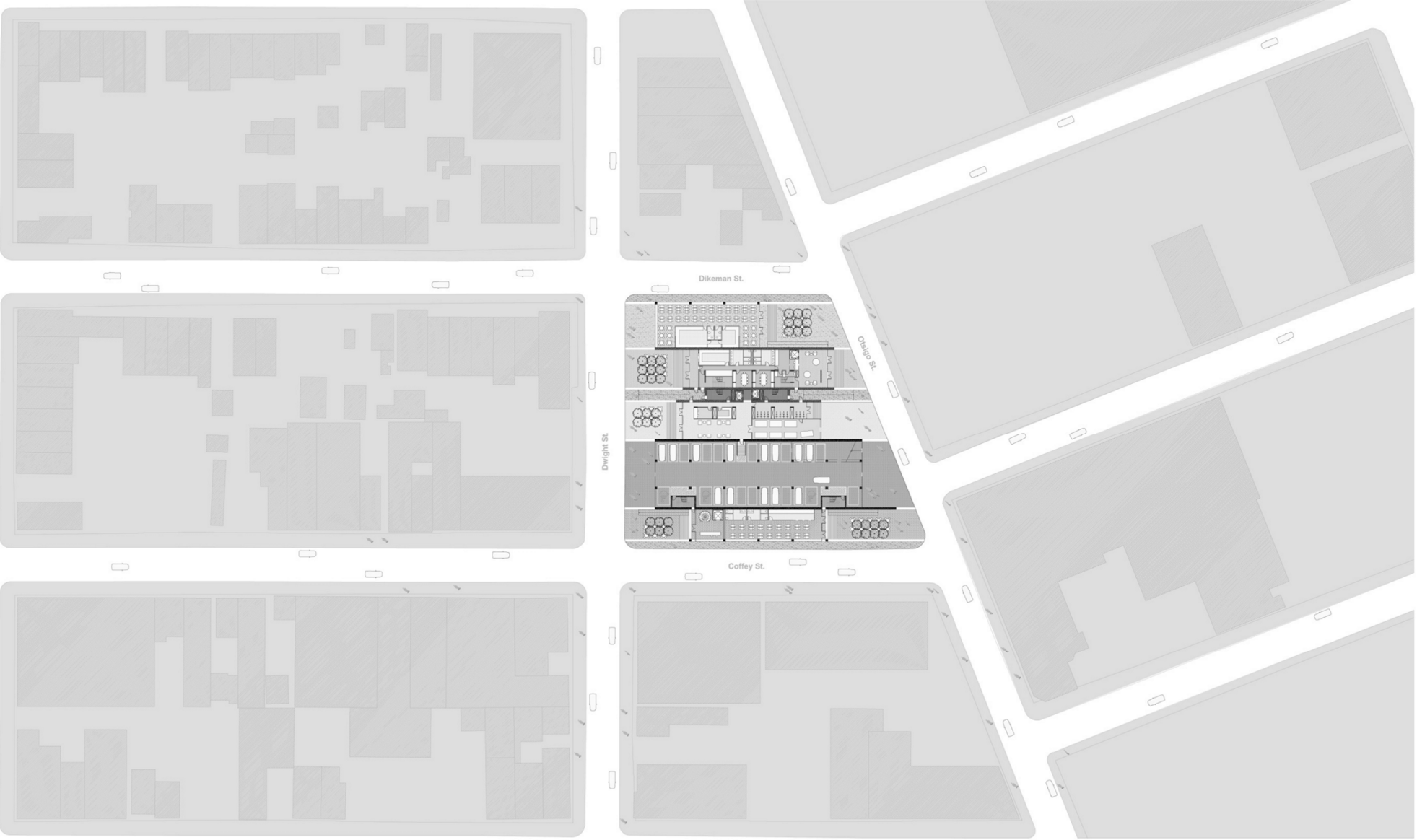
## Construction Details

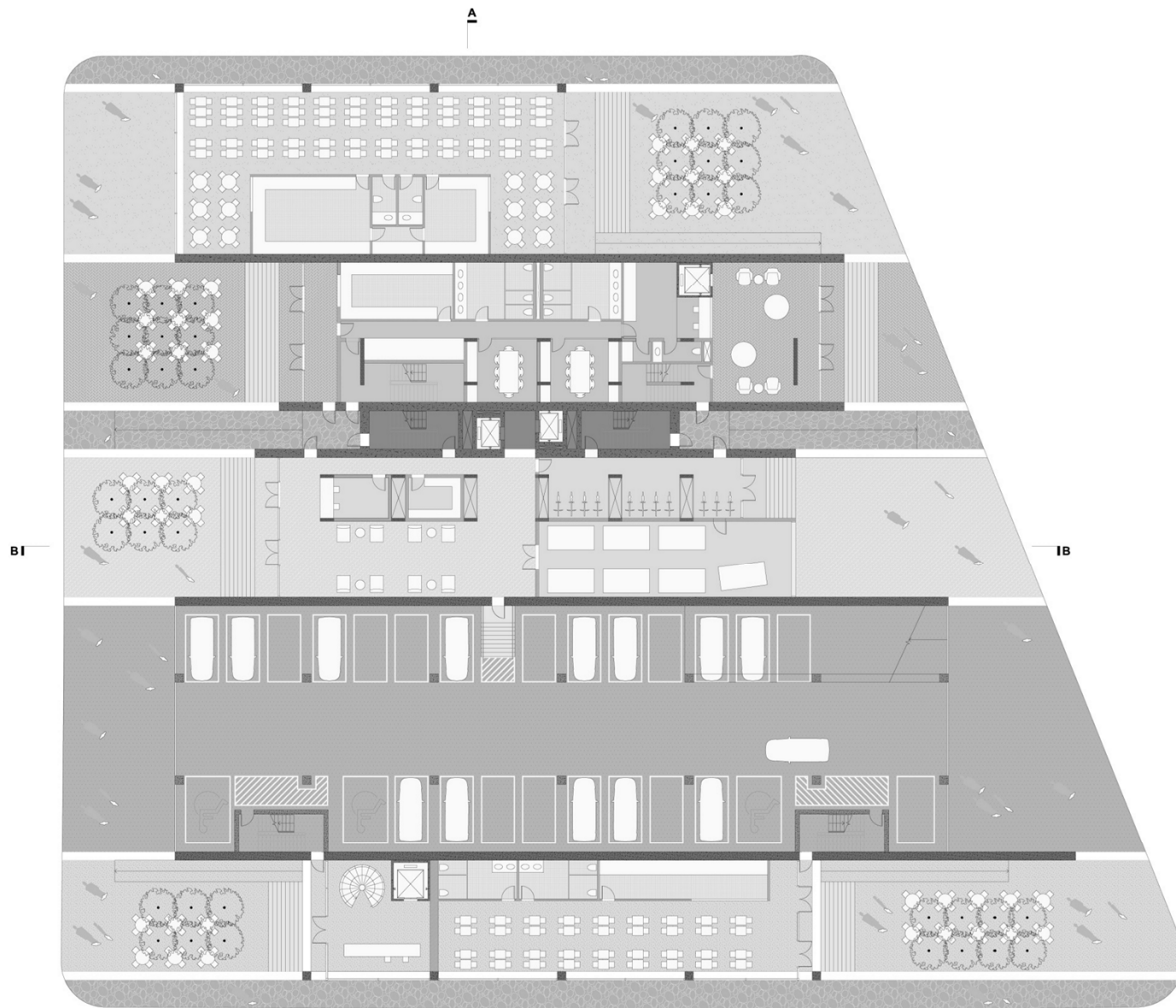
- 1 Glu-Lam Columns
- 2 CLT Shaft Walls
- 3 CLT Floor Panels
- 4 CLT Demising Walls
- 5 Interior Partitions
- 6 Cabinetry
- 7 Dropped Ceiling
- 8 Glu-Lam Truss
- 9 Raised Floor
- 10 Mechanical
- 11 Plumbing
- 12 Wood Fascia
- 13 Storefront Window Wall
- 14 Steel Balcony
- 15 Metal Guardrail
- 16 Wood Sun Shades





CONTEXT PLAN





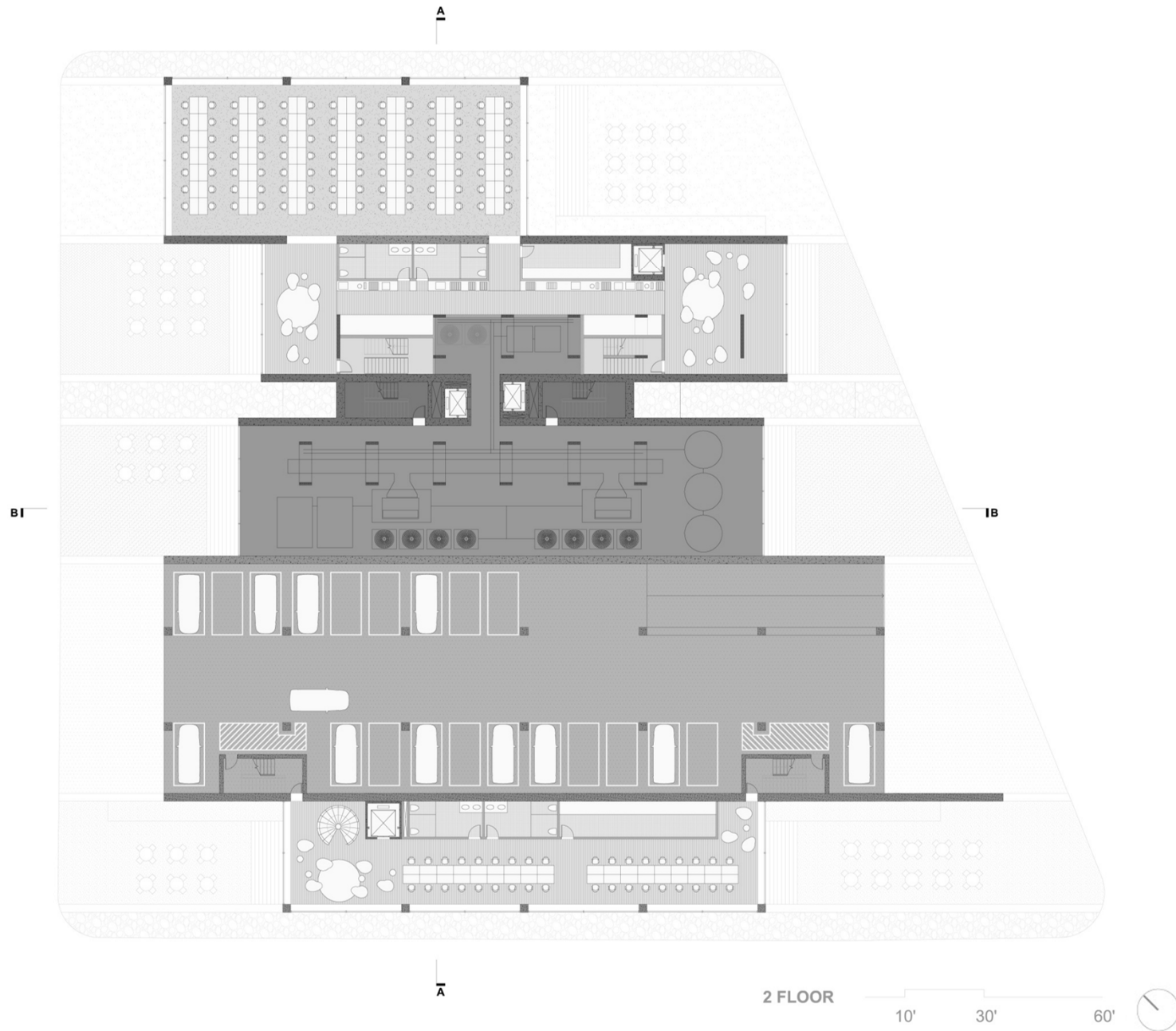
GROUND FLOOR

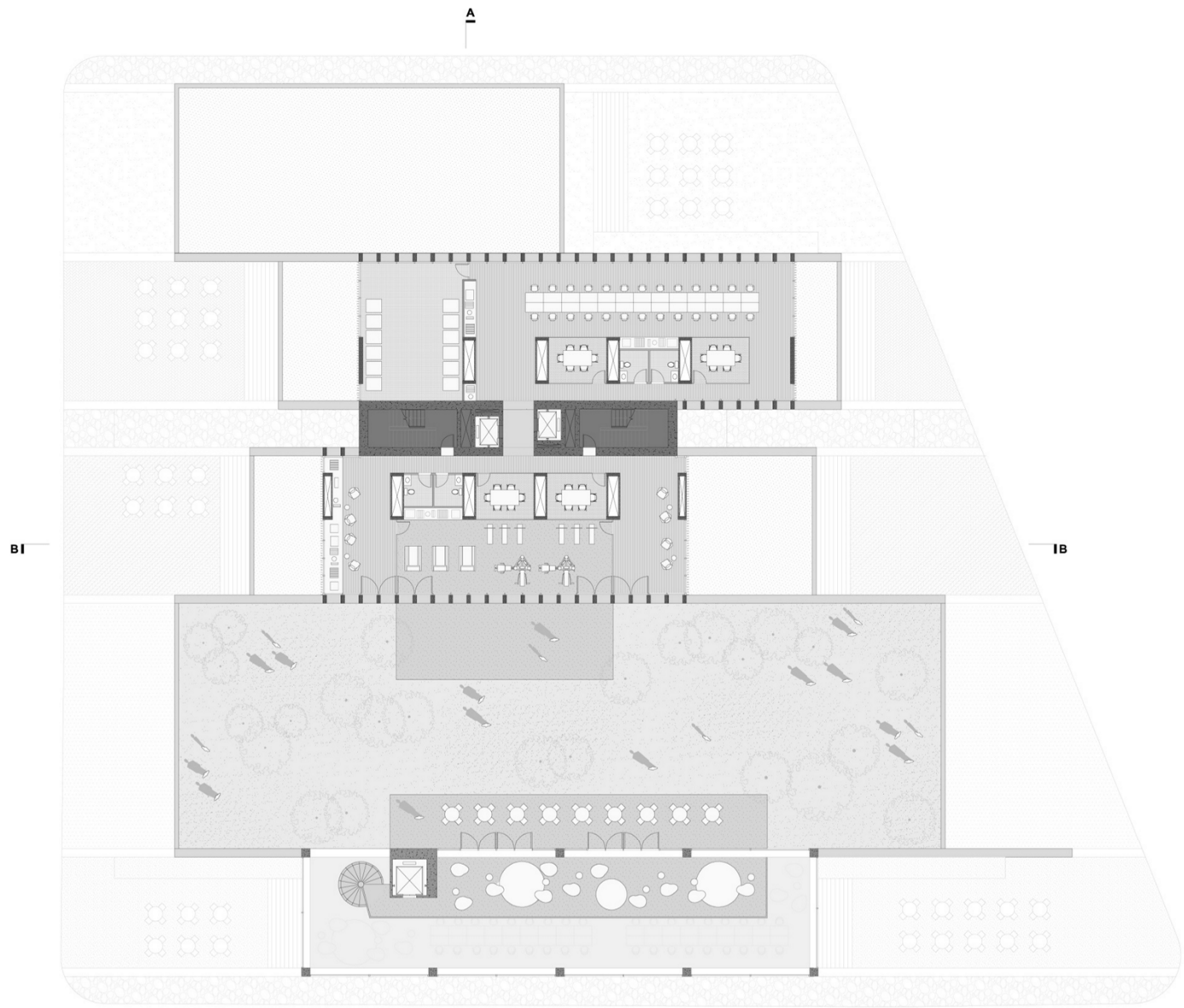
10' 30' 60'





PLAN DRAWINGS



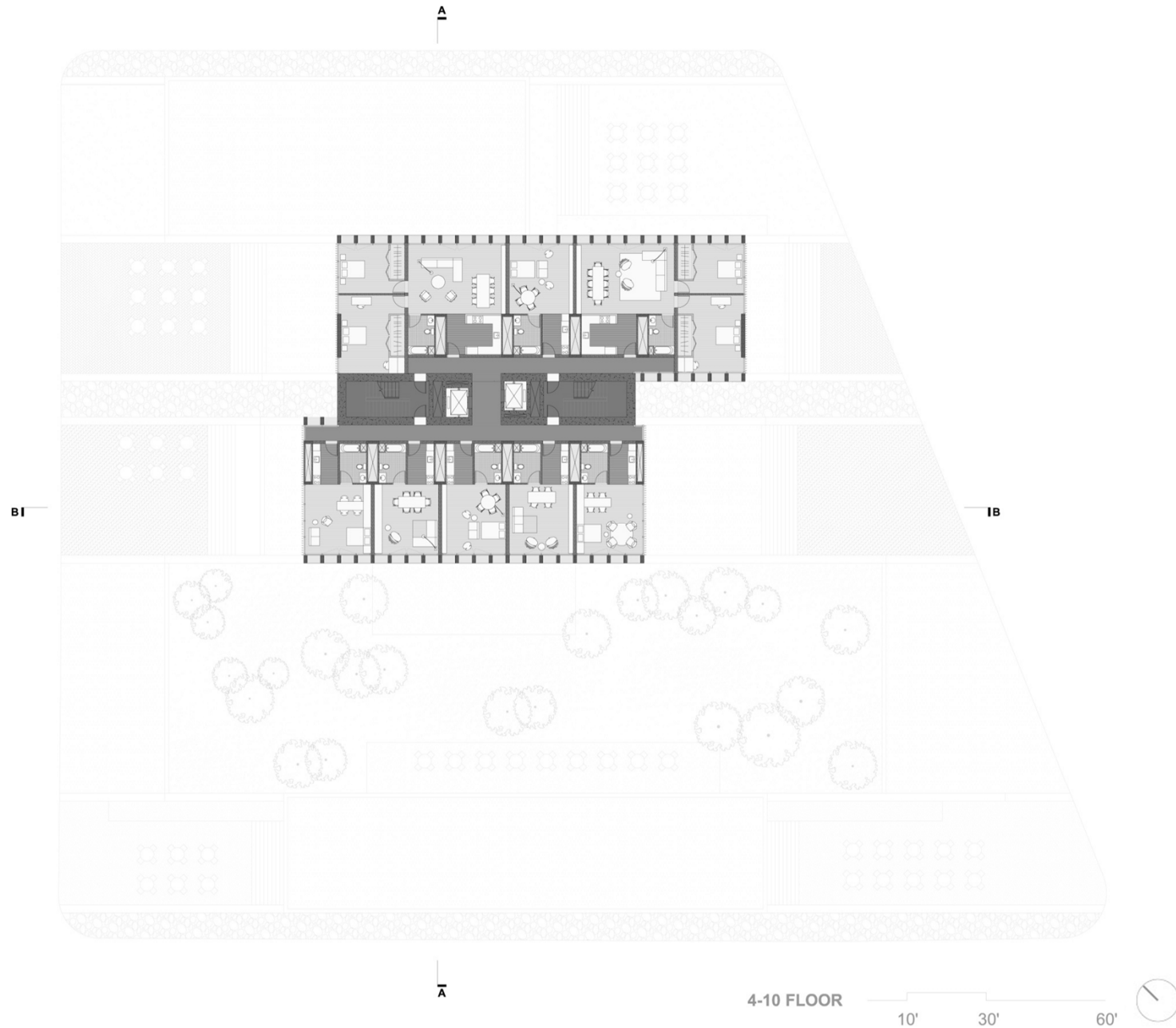


3 FLOOR

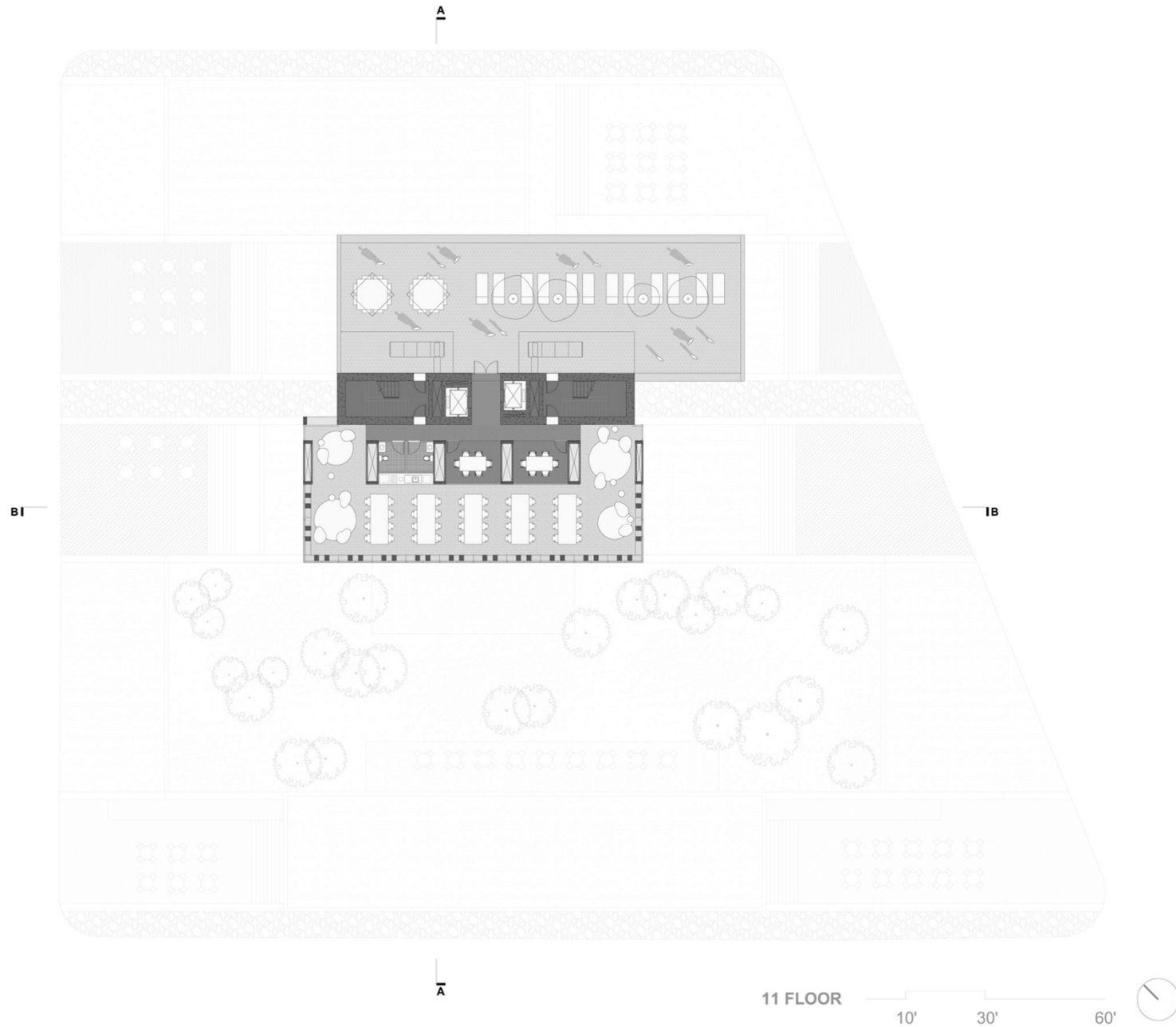
10' 30' 60'



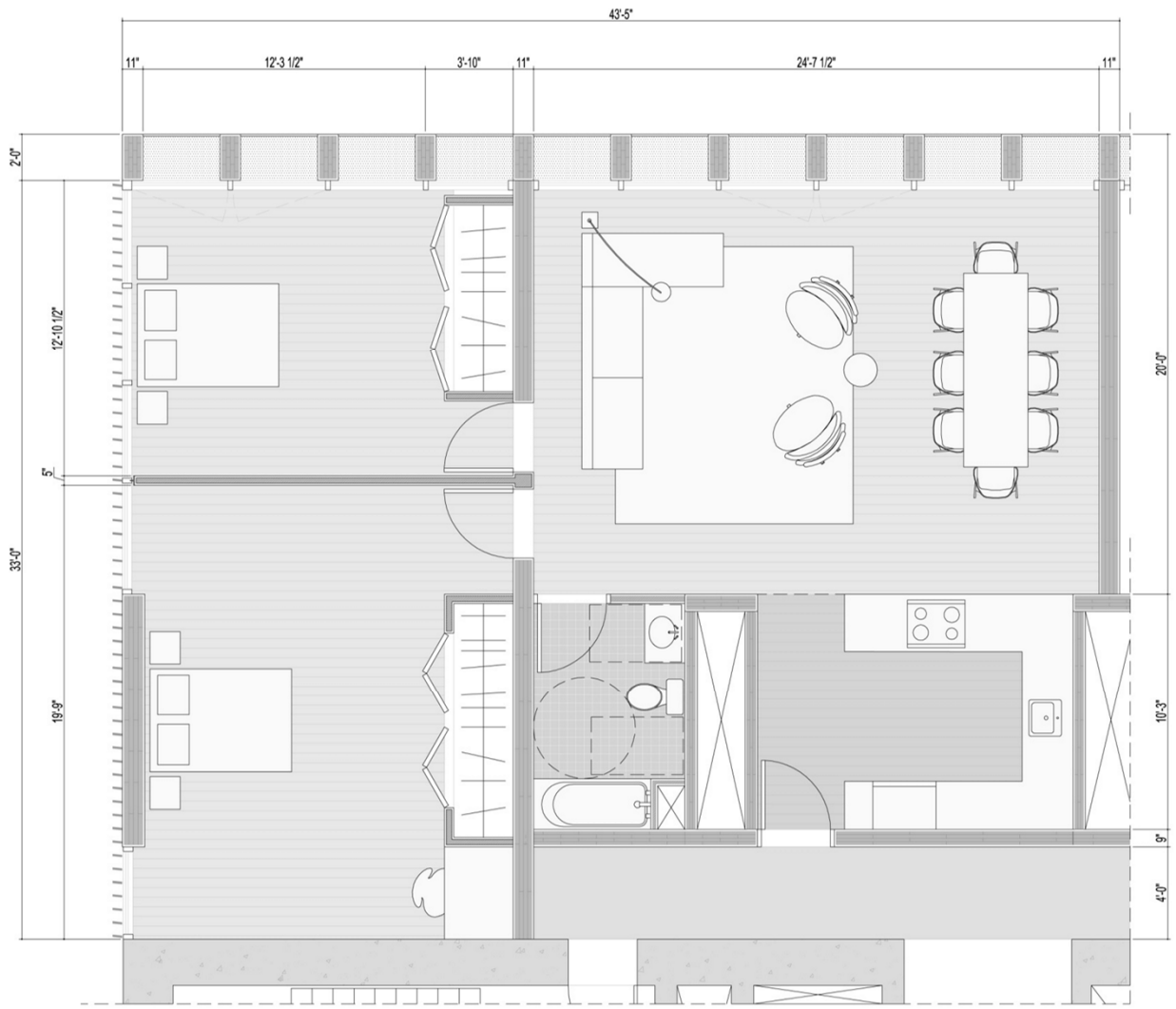
PLAN DRAWINGS



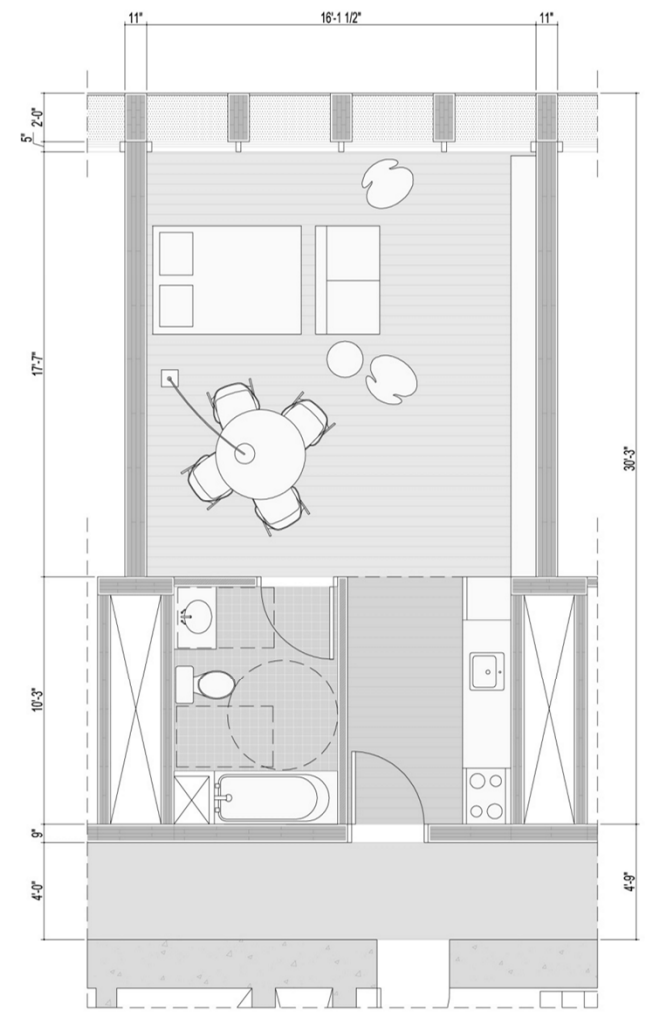
PLAN DRAWINGS



# UNITS DRAWING



2 BEDROOM UNIT



STUDIO UNIT





SOUTH ELEVATION



WEST ELEVATION



FACADES DRAWINGS

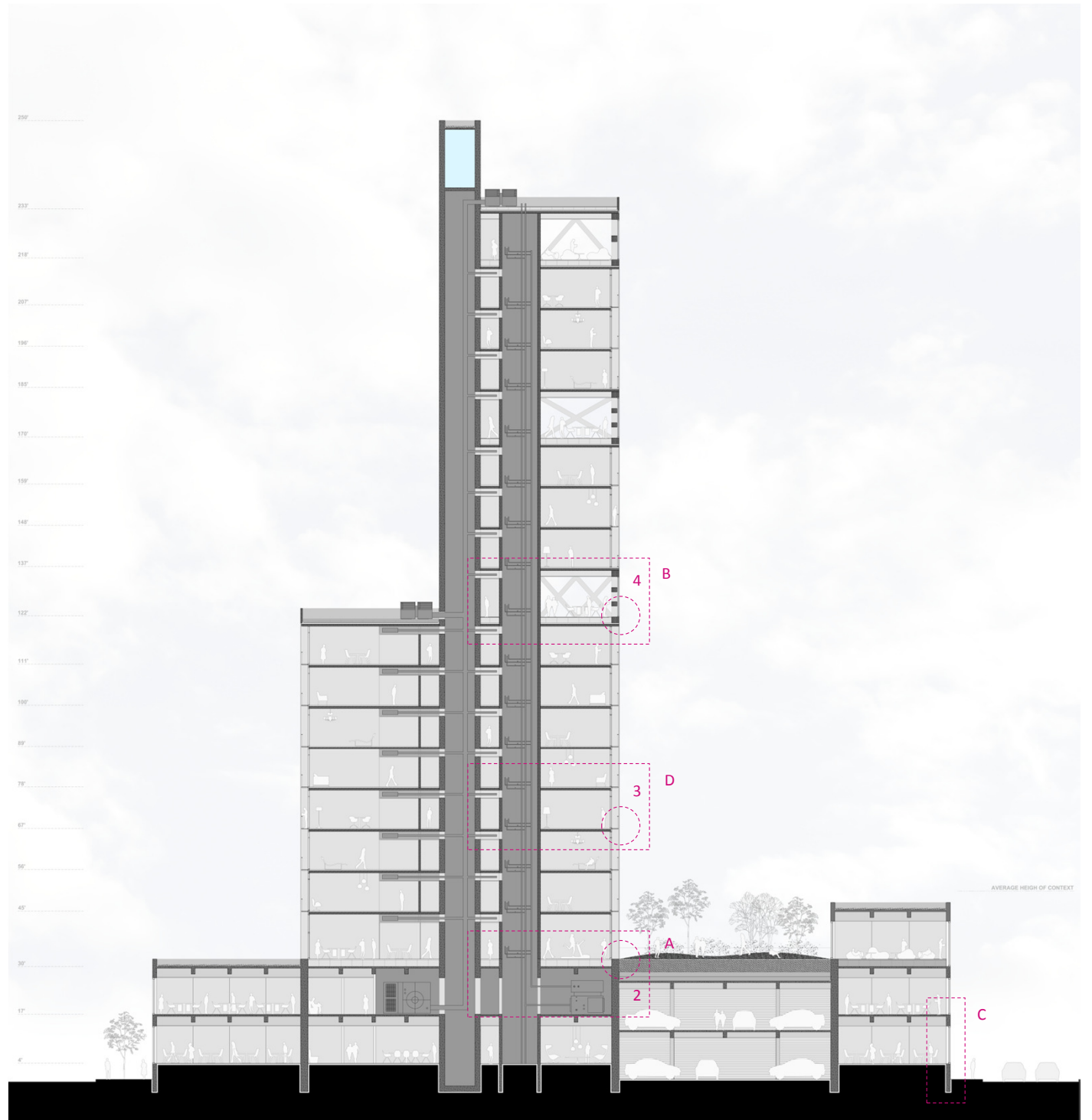


NORTH ELEVATION



EAST ELEVATION

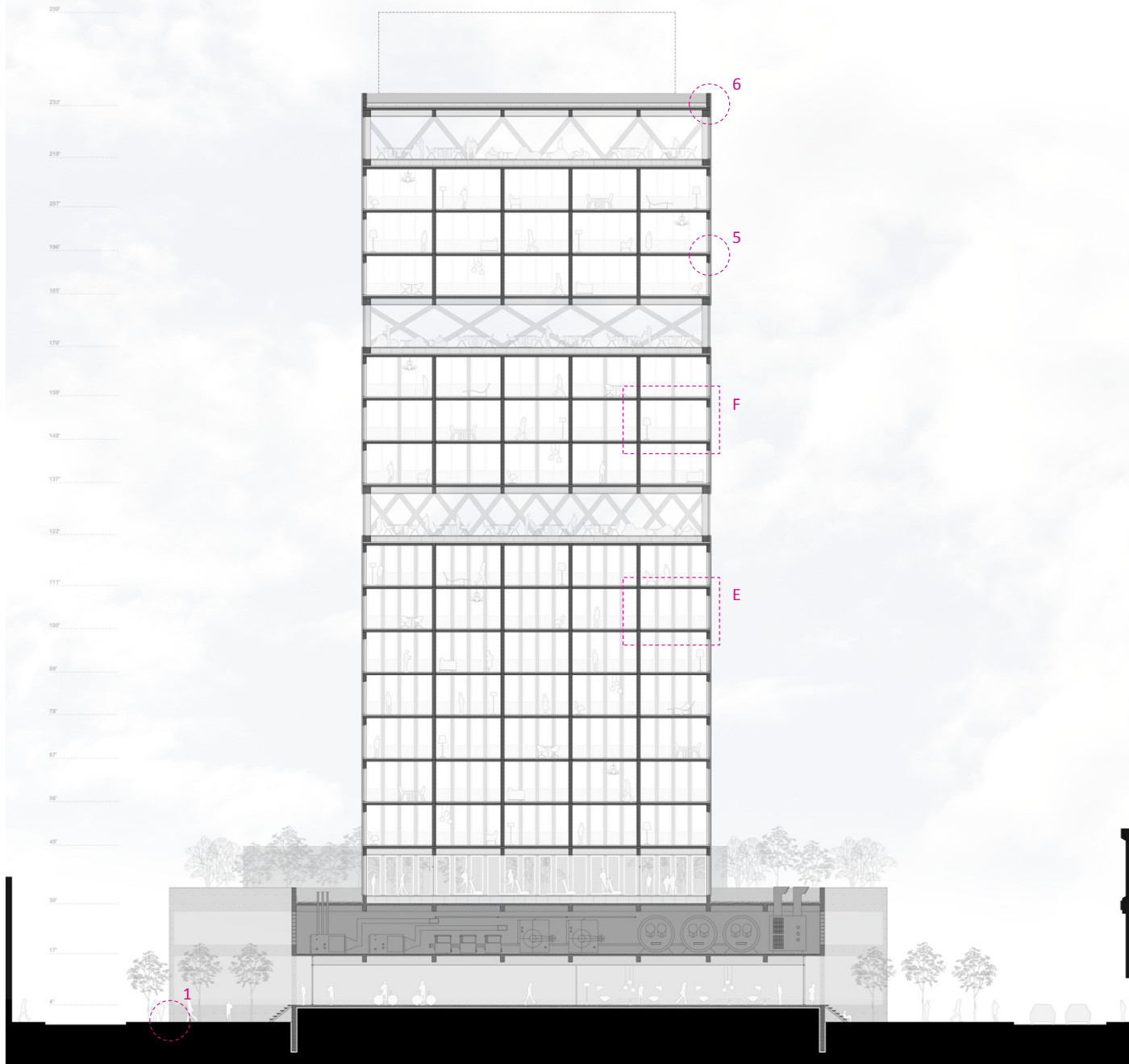




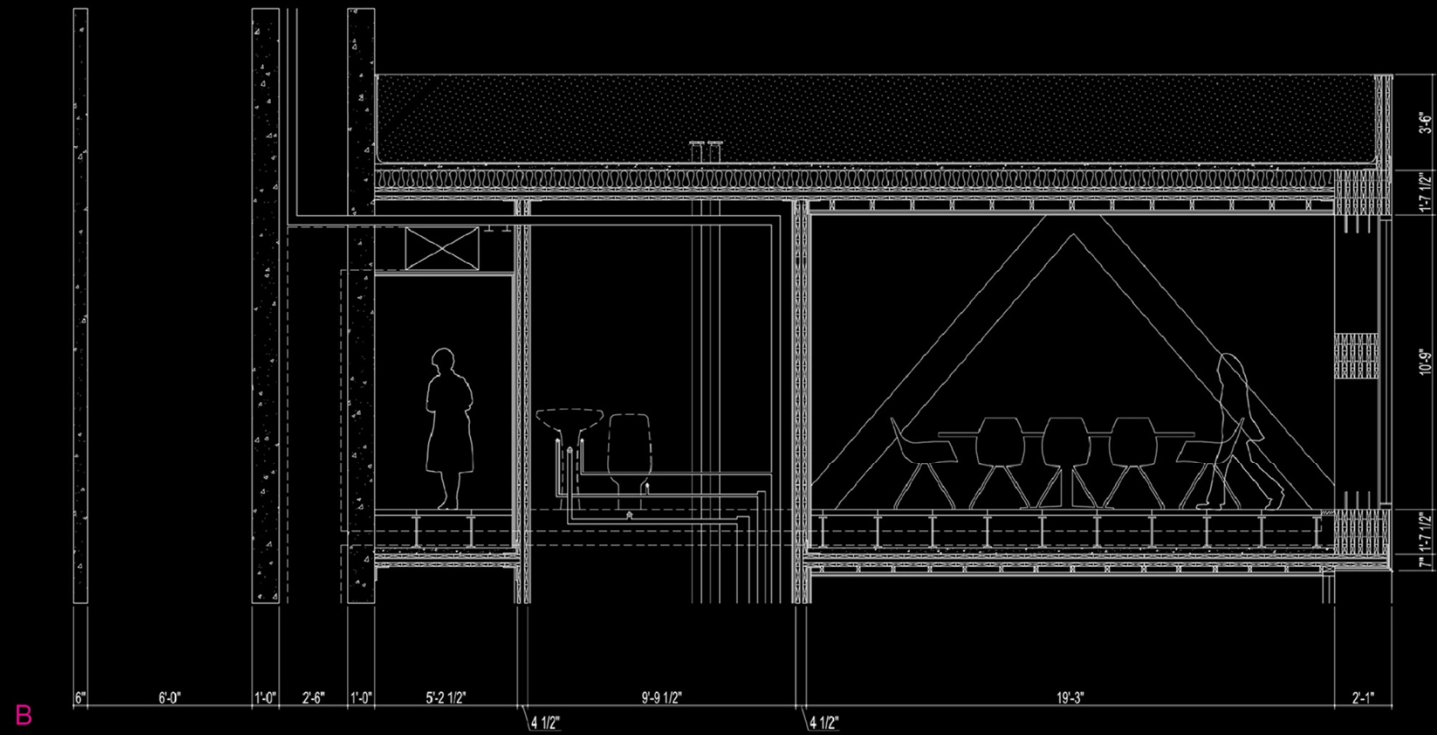
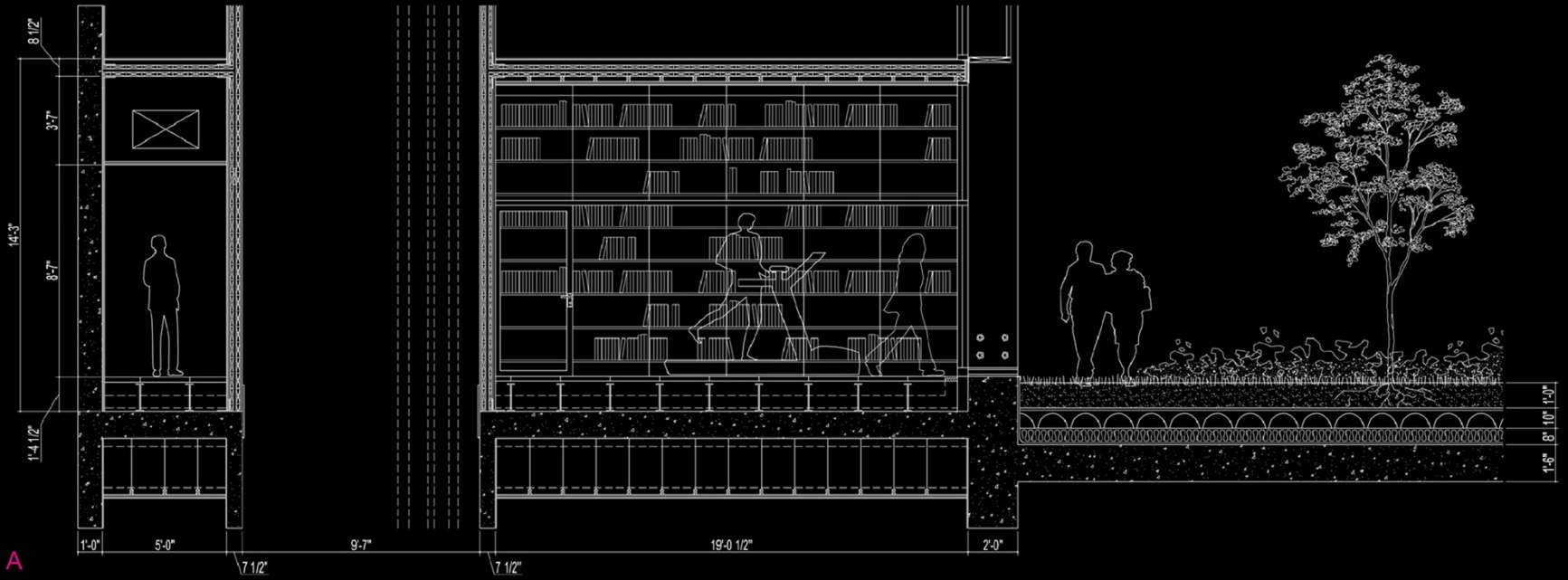
SECTION AA

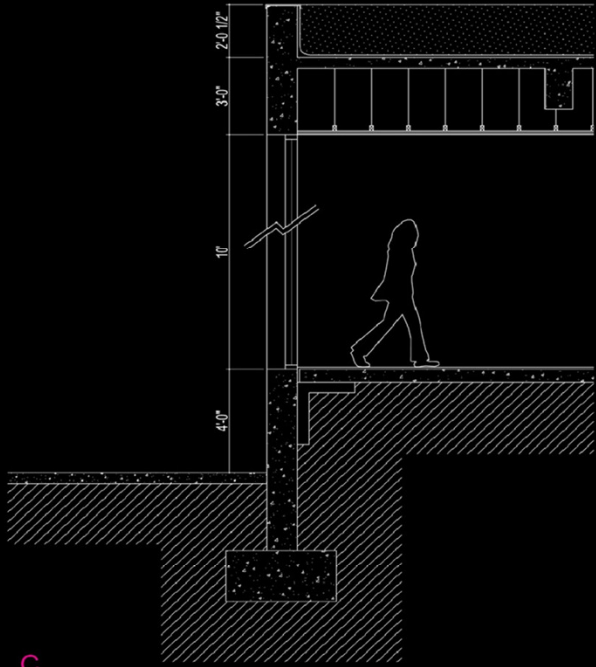


SECTION DRAWINGS

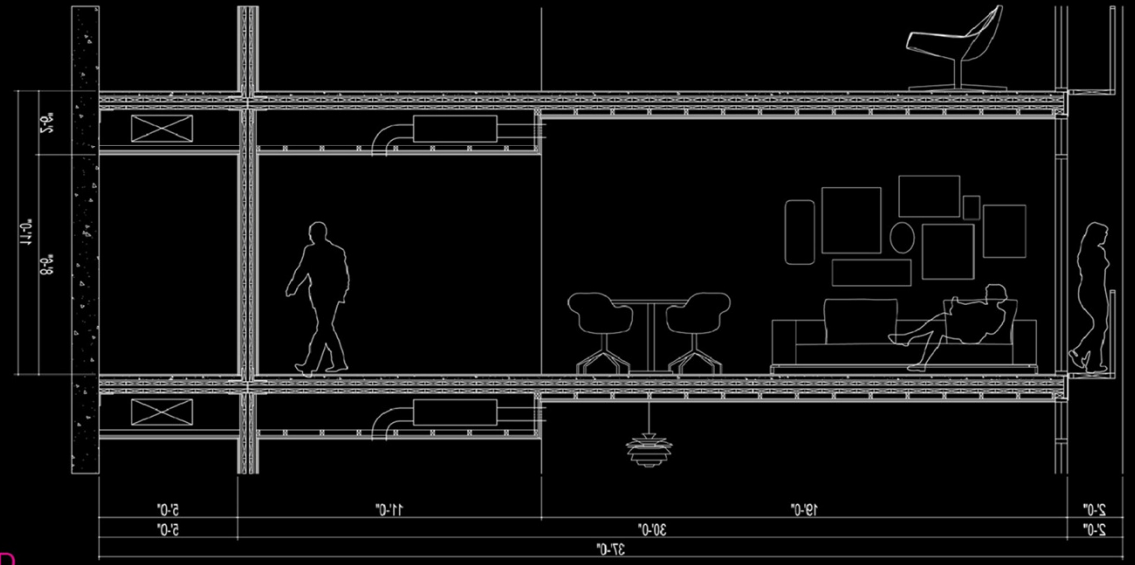


SECTION BB

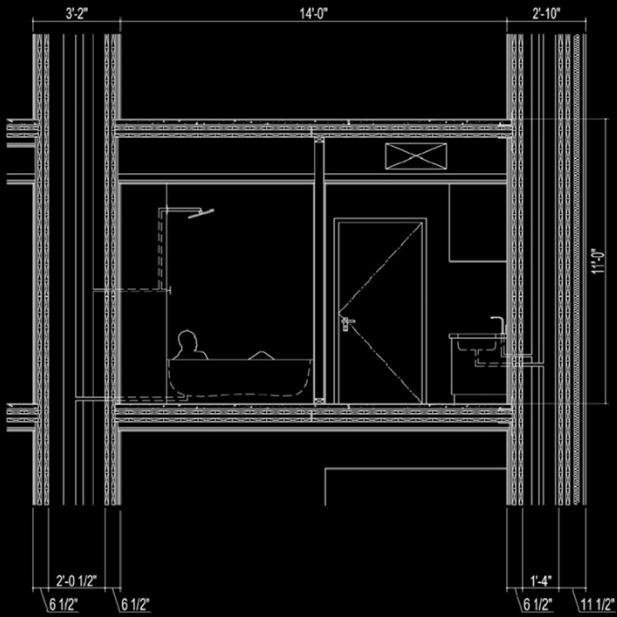




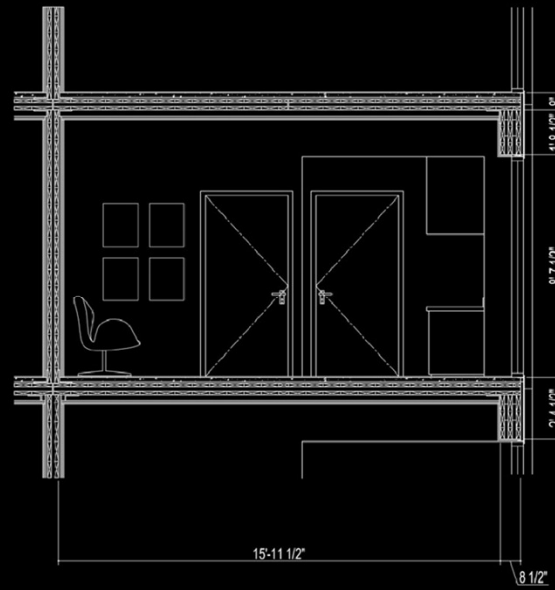
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D



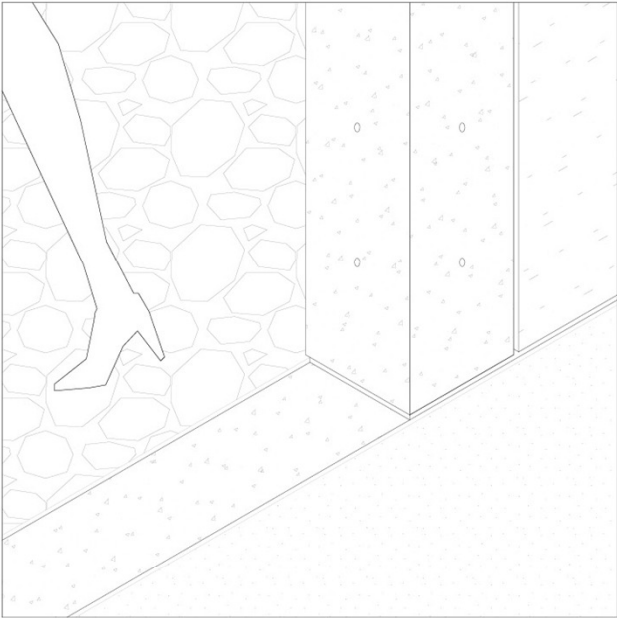
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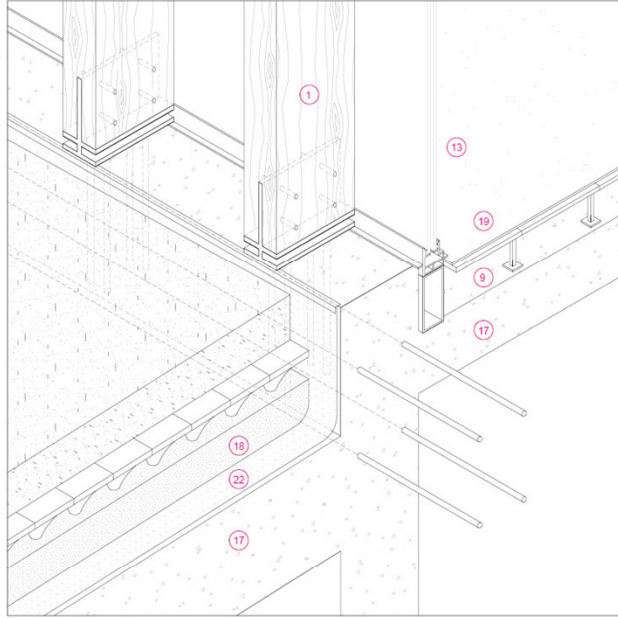
F

WALL SECTION

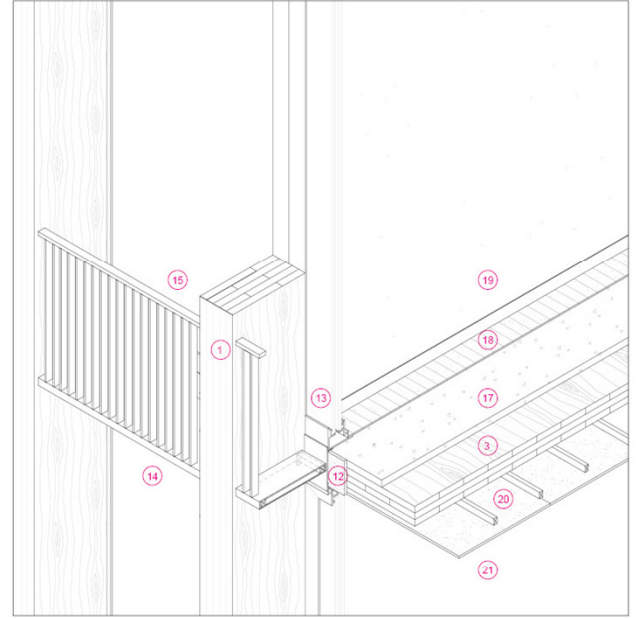
12' 6' 2'



1



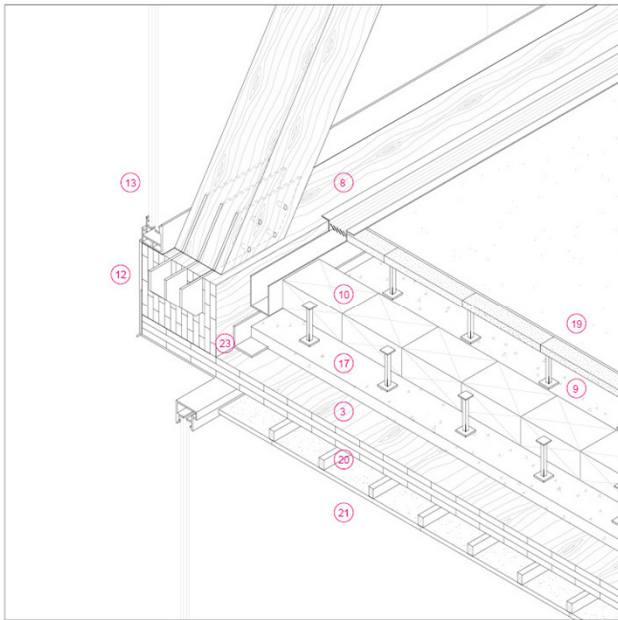
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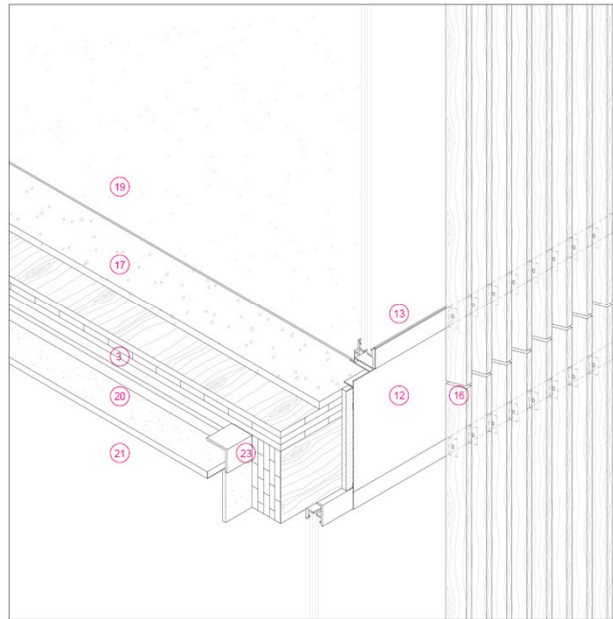
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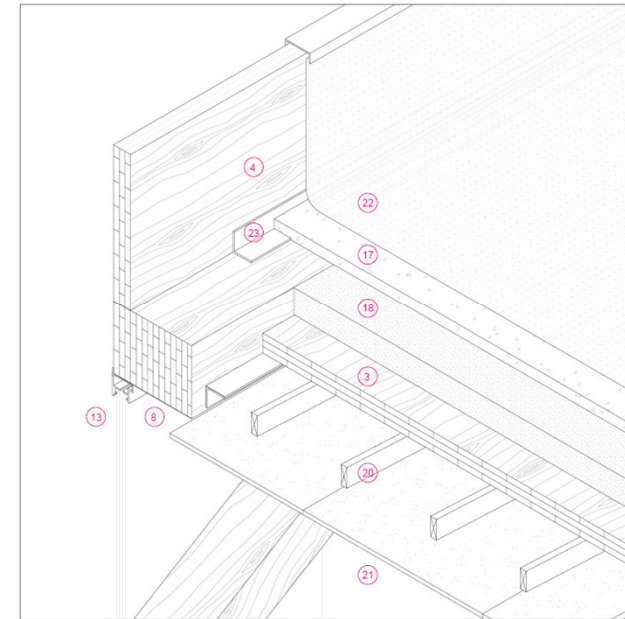
## DETAILS AXONOMETRICS



4



5



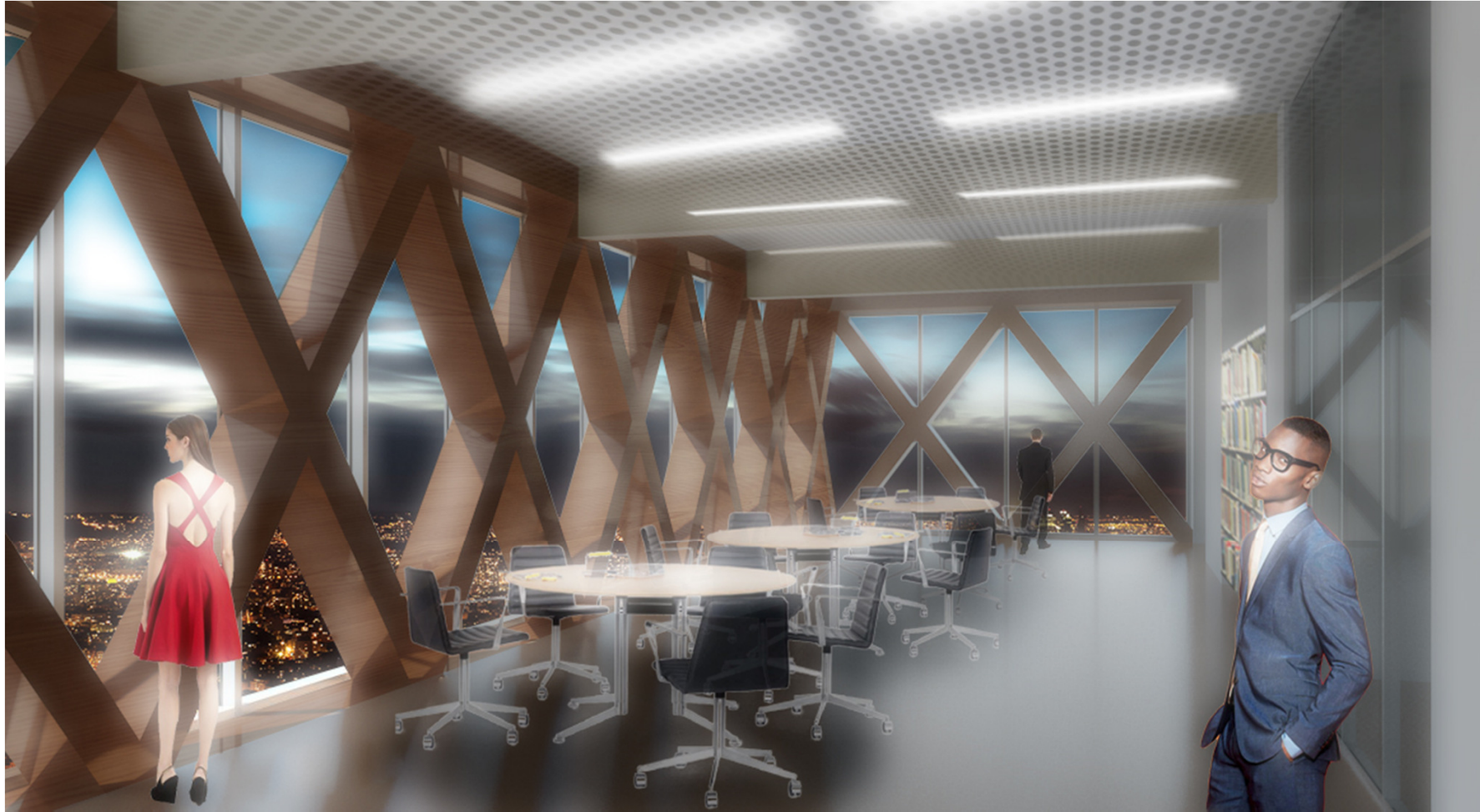
6

### Construction Details

①	Glu-Lam Columns	⑬	Storefront Window Wall
②	CLT Shaft Walls	⑭	Steel Balcony
③	CLT Floor Panels	⑮	Metal Guardrail
④	CLT Demising Walls	⑯	Wood Sun Shades
⑤	Interior Partitions	⑰	Concrete Slab
⑥	Cabinetry	⑱	Insulation
⑦	Dropped Ceiling	⑲	Finished Wood Flooring
⑧	Glu-Lam Truss	⑳	2x Wood Framing
⑨	Raised Floor	㉑	Gypsum Board
⑩	Mechanical	㉒	EDPM Roof Membrane
⑪	Plumbing	㉓	Steel Angle
⑫	Wood Fascia		







The trusses generate the open floor plan and communal spaces // OFFICE AREA



The CLT system produces the residential hive where the spans are minimal and privacy is required // RESIDENTIAL AREA





The concrete base relates directly to the contextual environment while raising the ground floor in response to flood concerns // OFFICE AREA



The recreational open area serves the community // OPEN SPACE

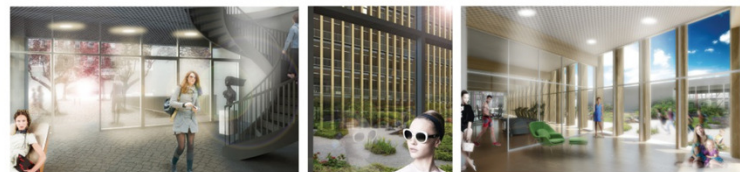




The 3<sup>RD</sup> floor holds the social activities and provides access to the green roof // COMMUNAL SPACE



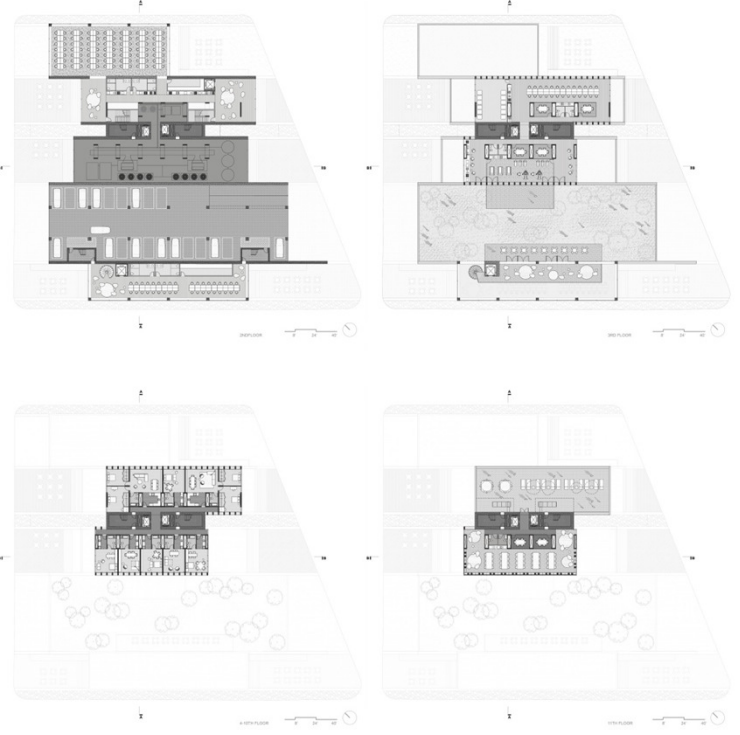
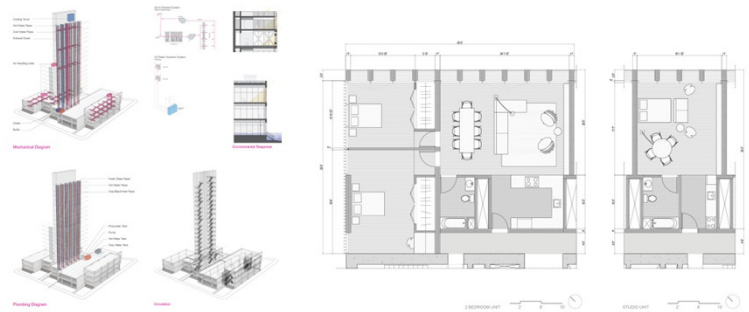
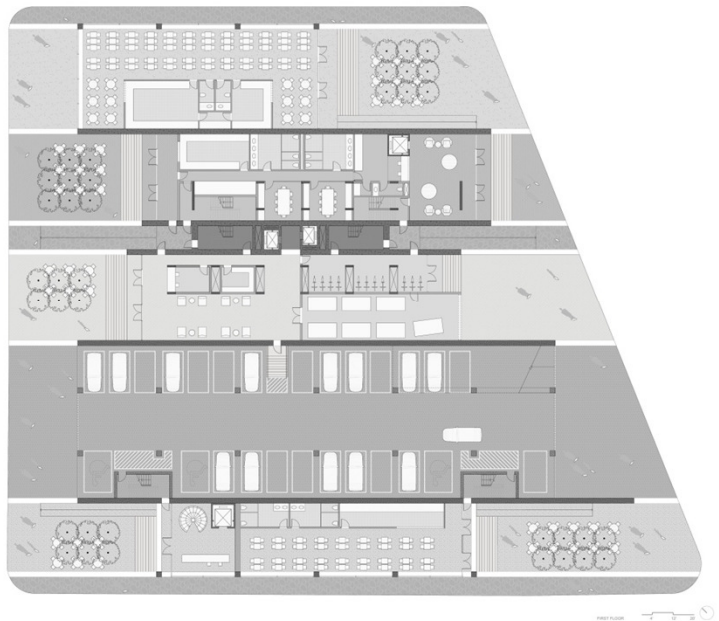
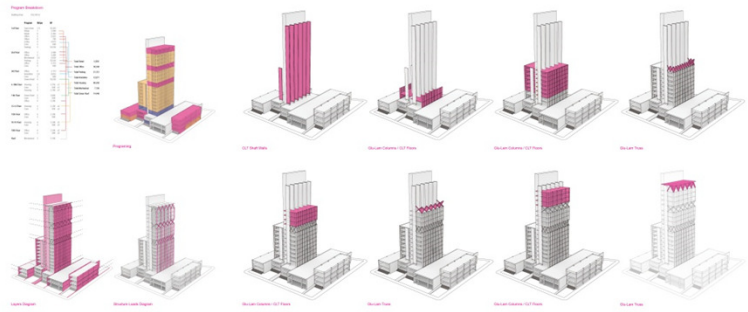
MATERIAL ORGANISM // TIMBER IN BROOKLYN

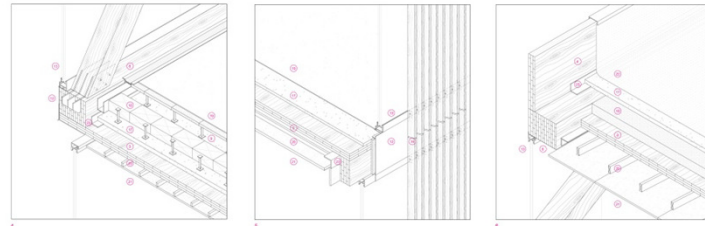
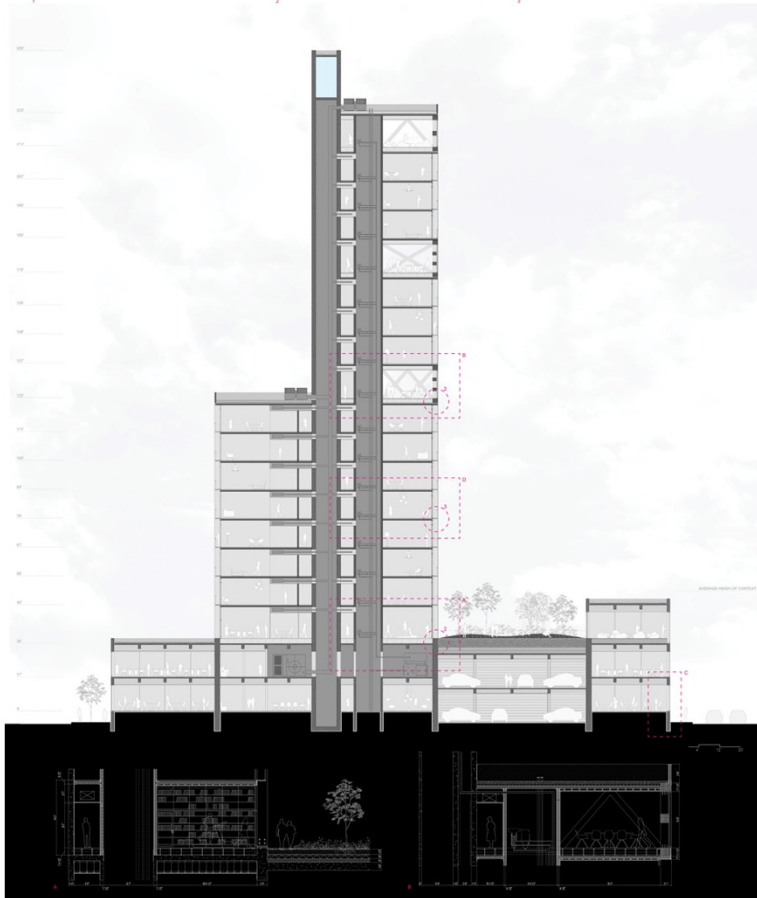
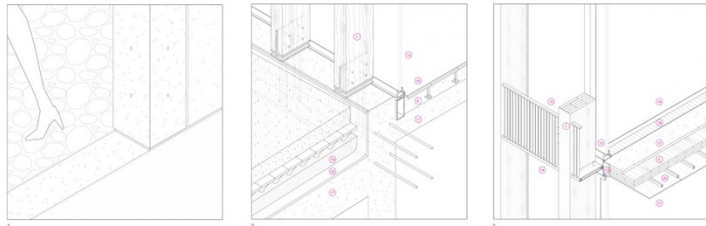
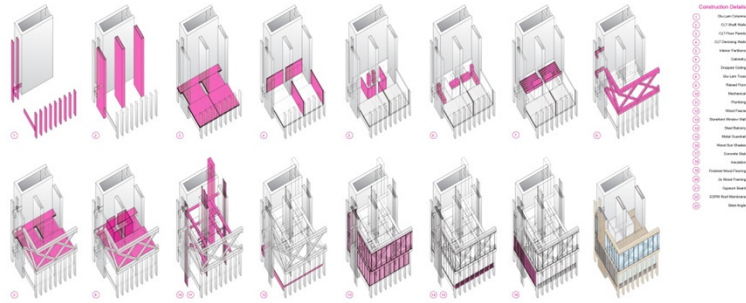


PRESENTATION BOARDS



1. 100% Glass  
 2. 100% Glass  
 3. 100% Glass  
 4. 100% Glass  
 5. 100% Glass  
 6. 100% Glass  
 7. 100% Glass  
 8. 100% Glass  
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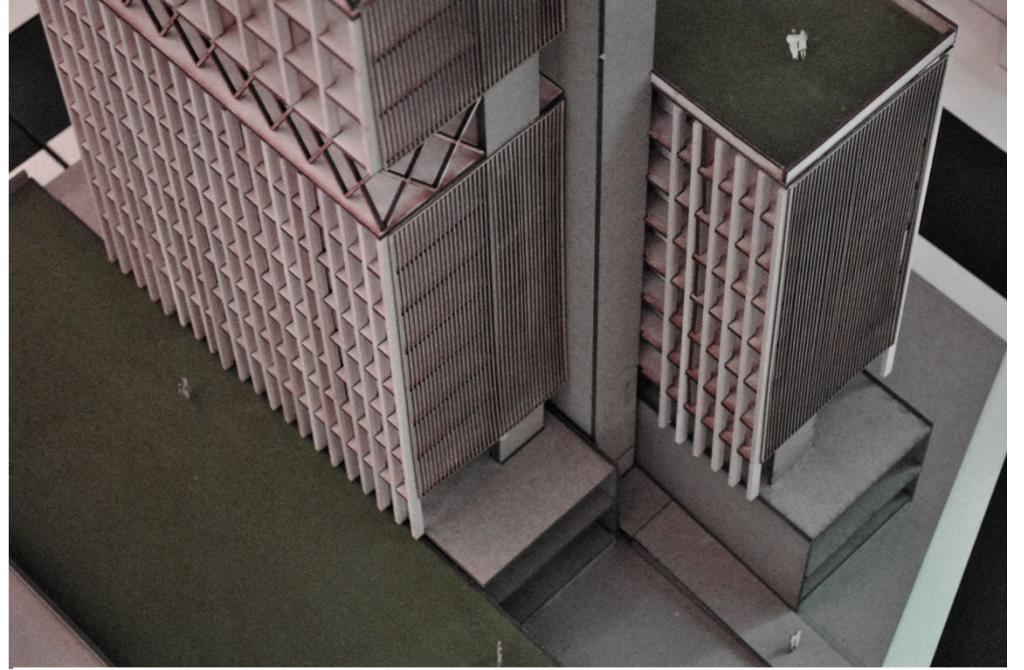






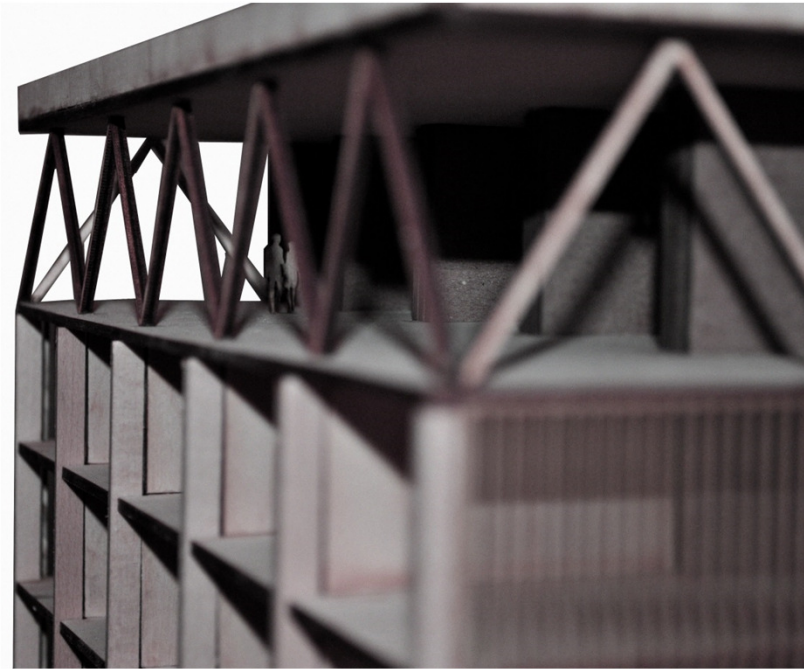


2 // STRUCTURE TRANSITIONS

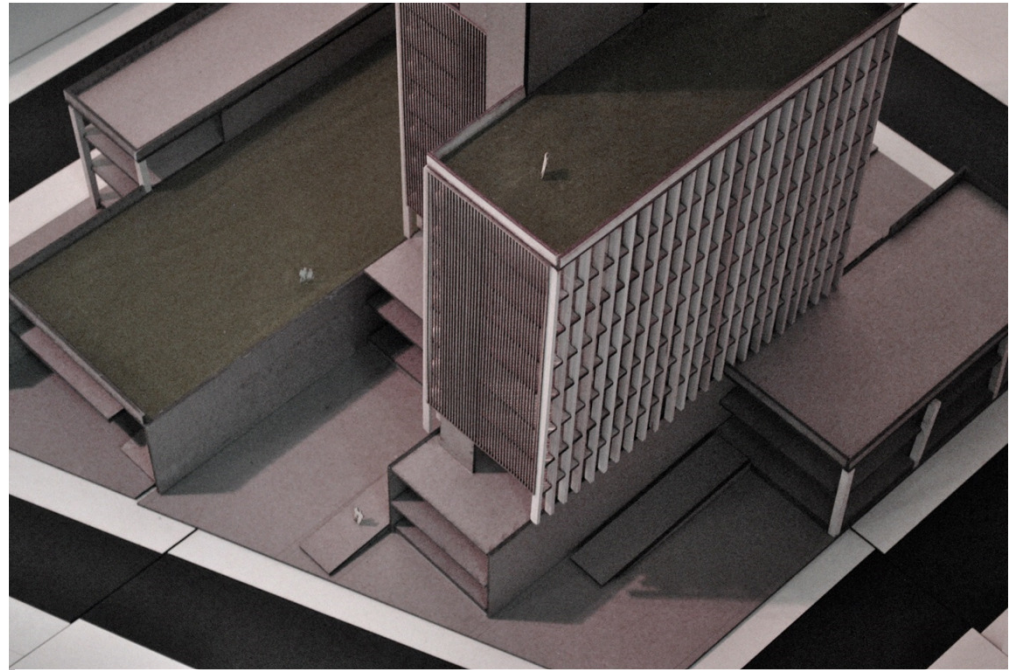


3 // STRIPES





4 // TRUSSES

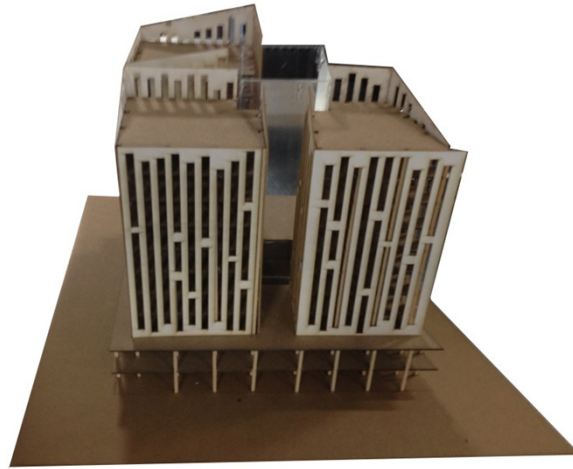


5 // ROOF GARDENS

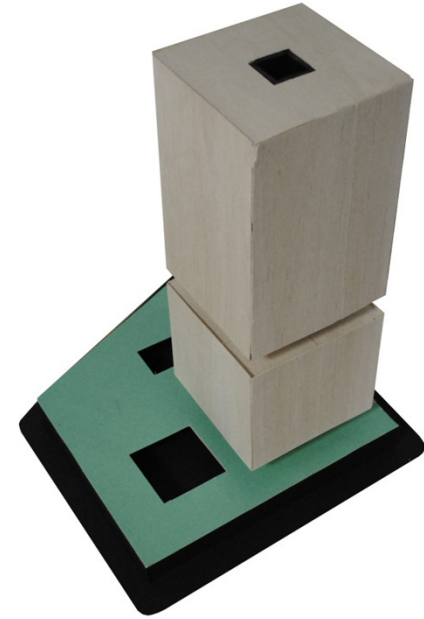
INDIVIDUAL MATERIAL ORGANISM



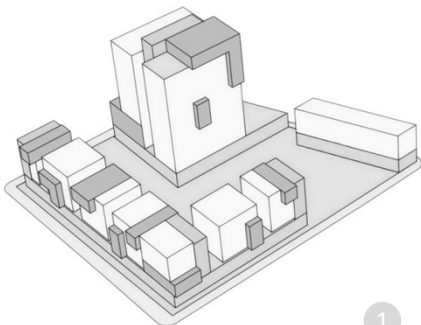
Christine Berry



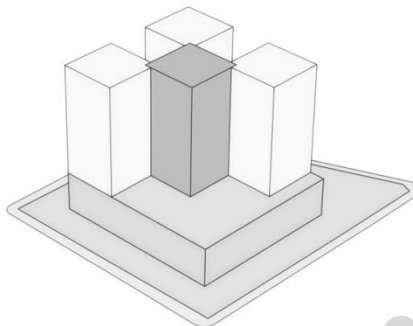
Luiza Wysocka



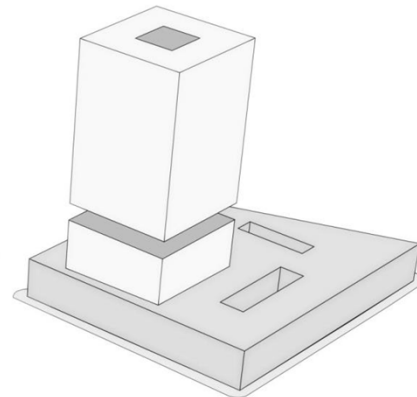
Felipe Rodrigues



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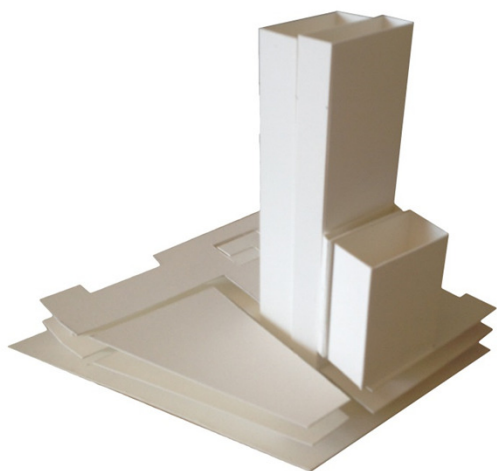


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COLLECTIVE MATERIAL ORGANISM



Concept Model



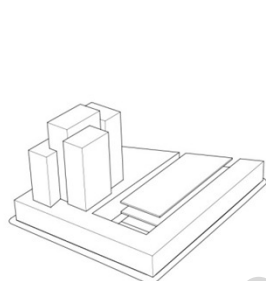
Proposal Model



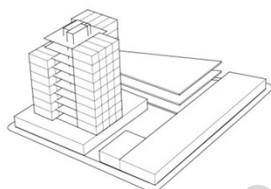
Envelope Model



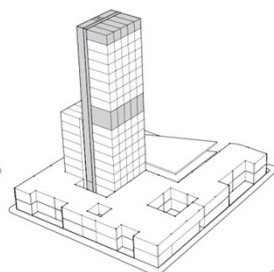
Mid Term Model



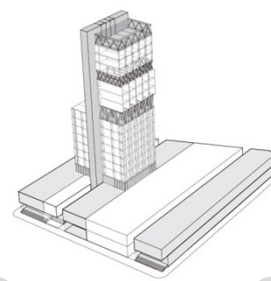
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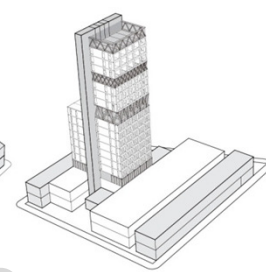
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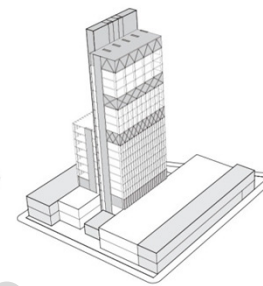
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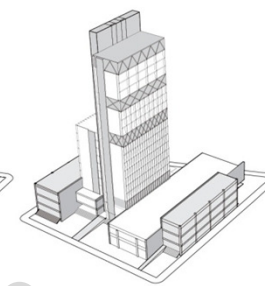
D



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F



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