

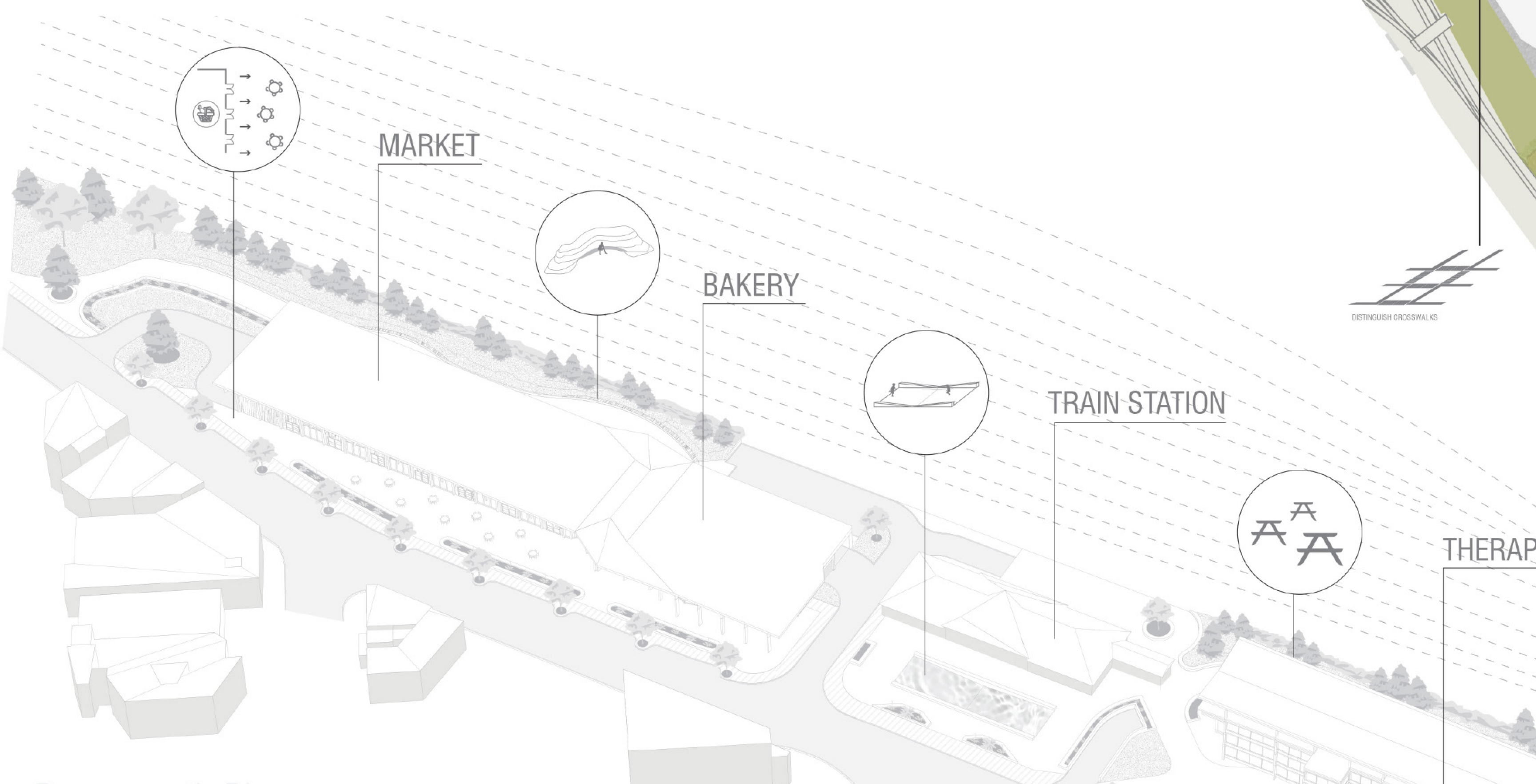
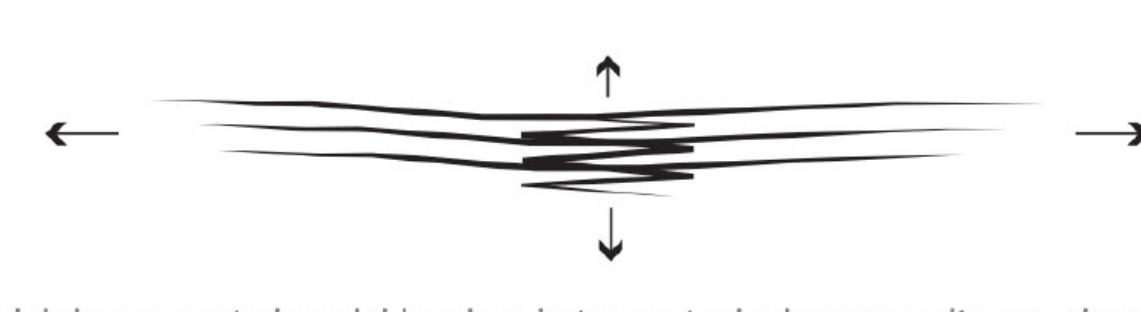


# SYMBIOTIC SUDBURY

BY: Emily Hannon & Daniel Rodrigues

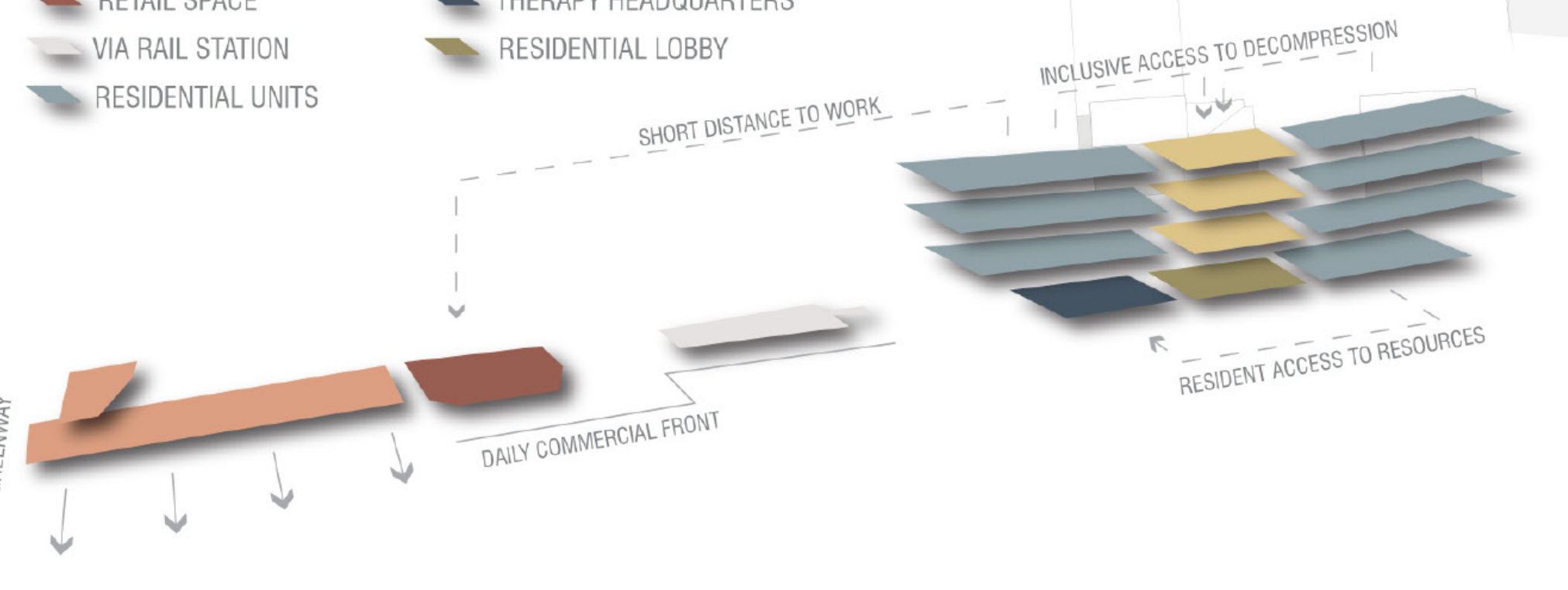
## THESIS:

The city of Greater Sudbury is littered with accessibility barriers which have created social barriers between typical community members and those who are differently-abled. This project advocates for social and spatial equality and inclusivity in the built environment. This is achieved by prioritising barrier-free circulation, programming for variously-abled citizens and an inclusive social fabric that fosters symbiotic relationships.

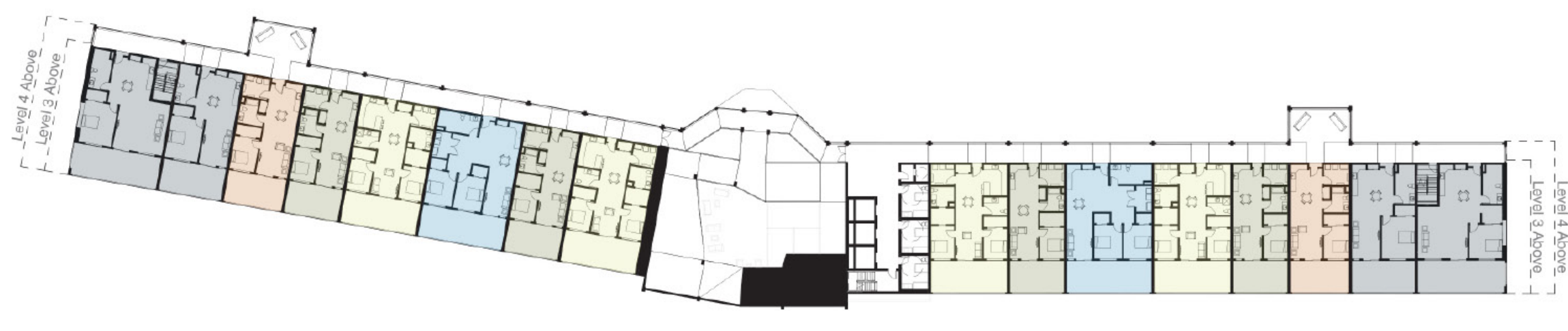


## Programmatic Diagram

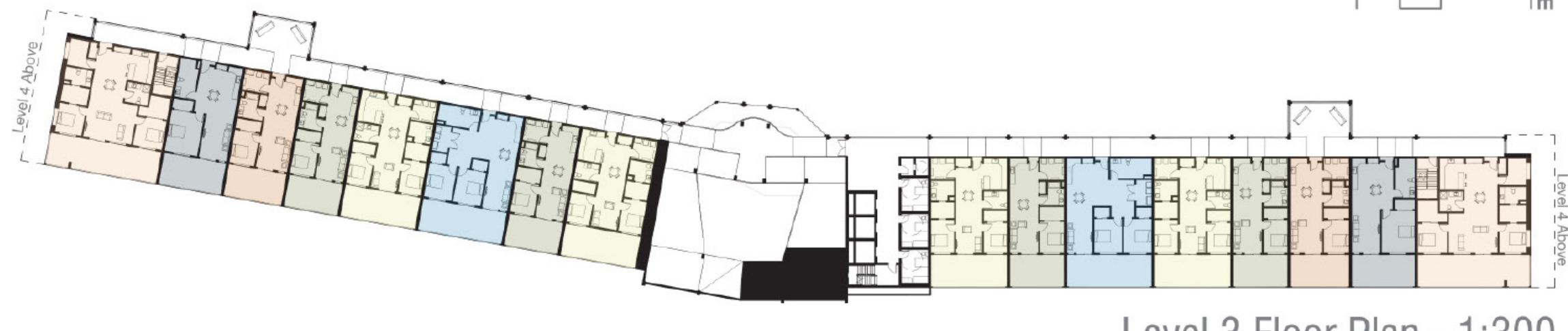
- MARKET SPACE
- RETAIL SPACE
- VIA RAIL STATION
- RESIDENTIAL UNITS
- DECOMPRESSION & CIRCULATION
- THERAPY HEADQUARTERS
- RESIDENTIAL LOBBY



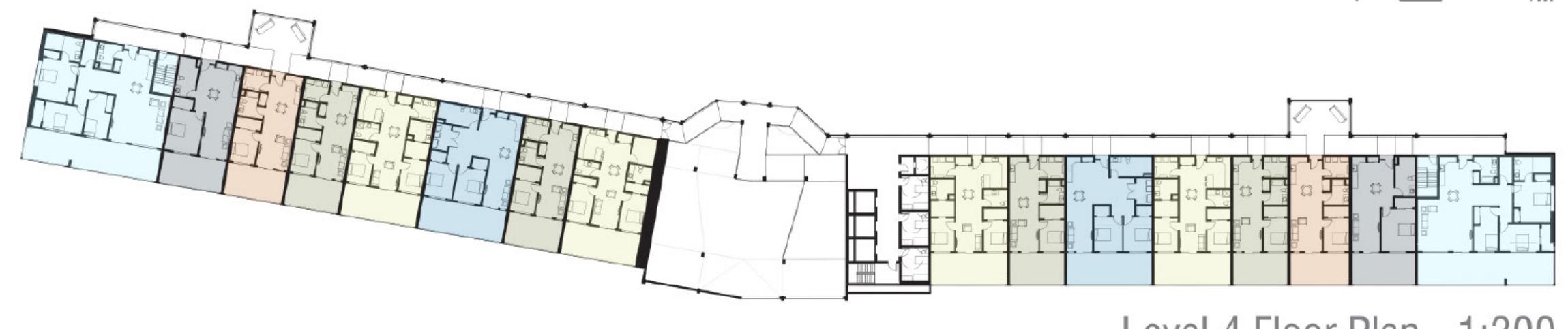
- CONCRETE
- RUBBER
- GRASS
- ECO-FLEX
- ECO-FLEX
- CONCRETE
- WOOD
- ASPHALT



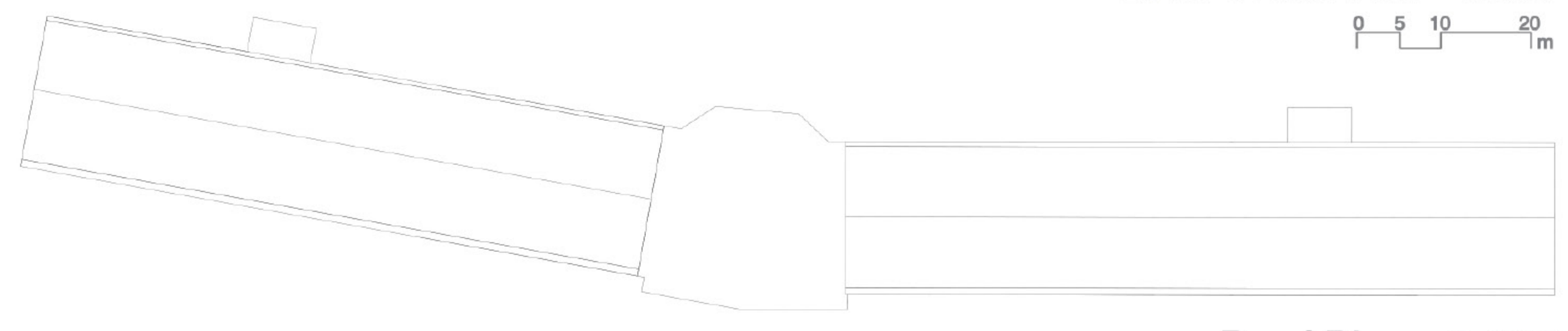
Level 2 Floor Plan - 1:300



Level 3 Floor Plan - 1:300



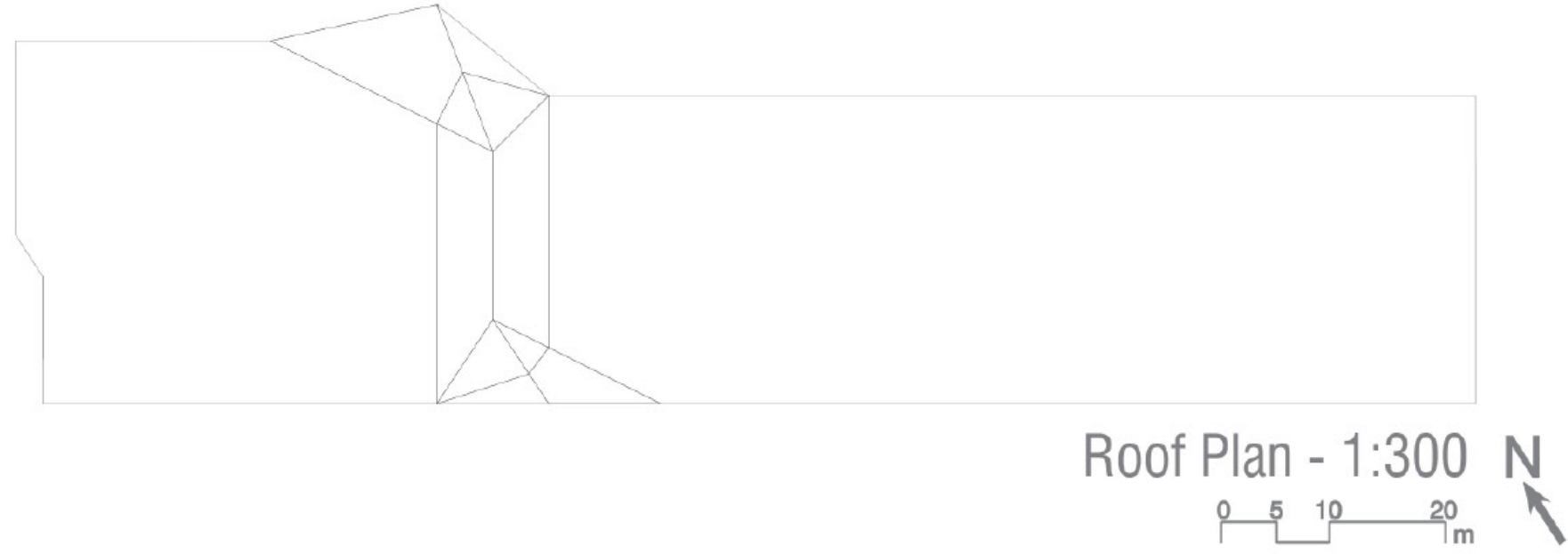
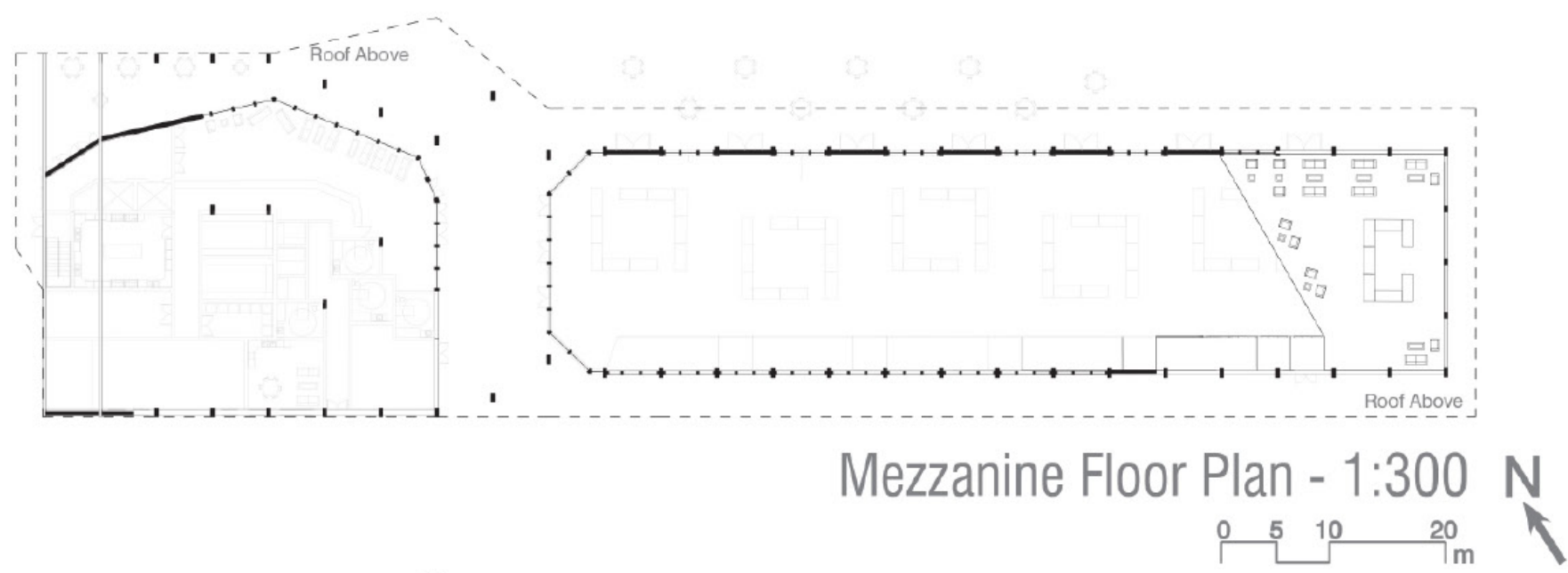
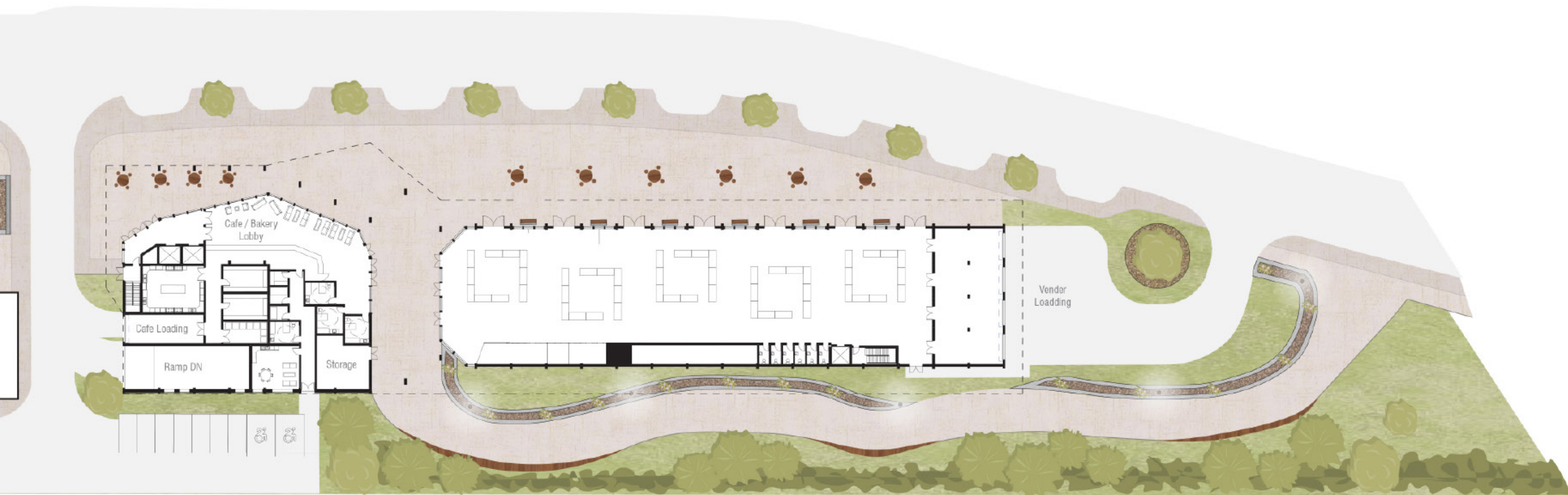
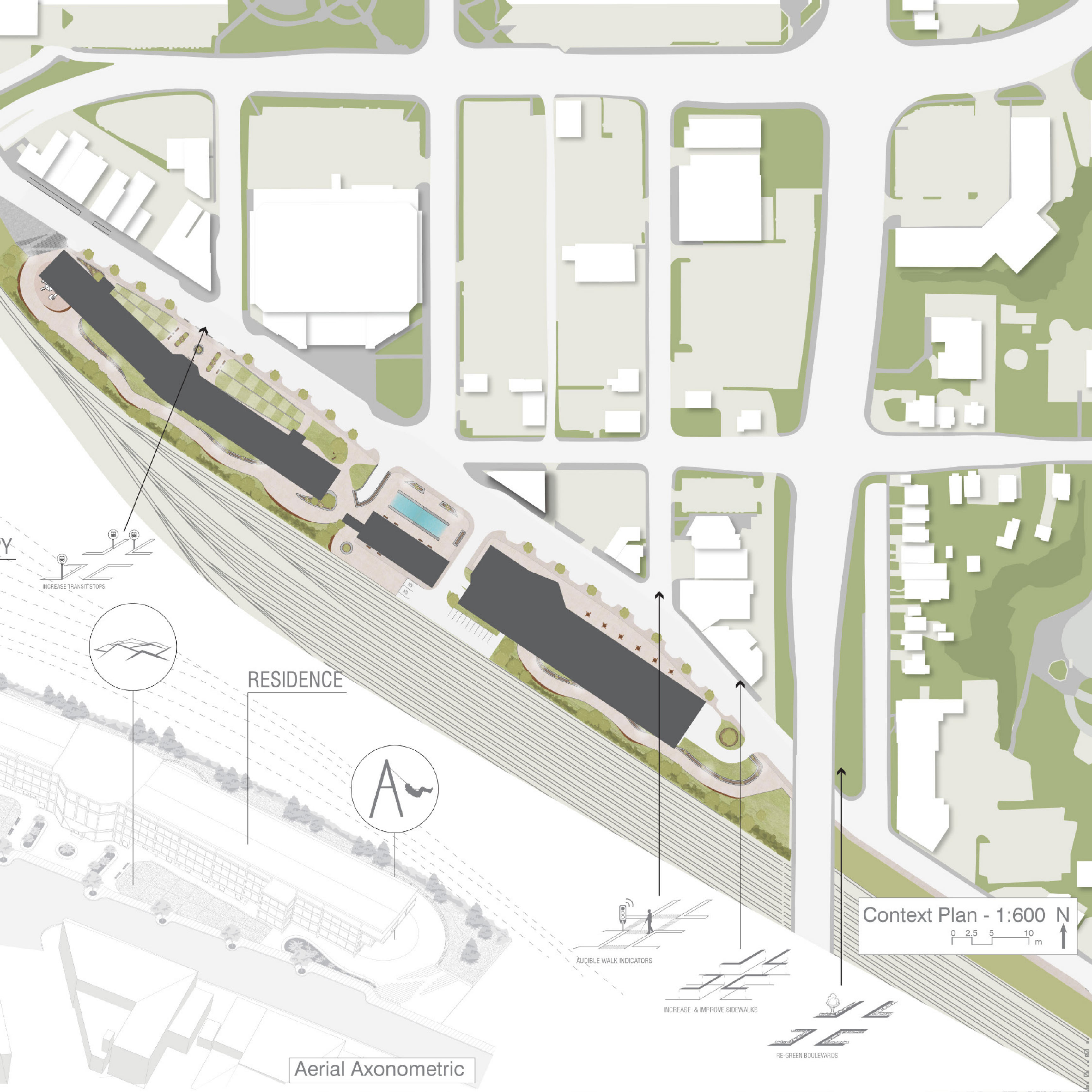
Level 4 Floor Plan - 1:300



Roof Plan - 1:300

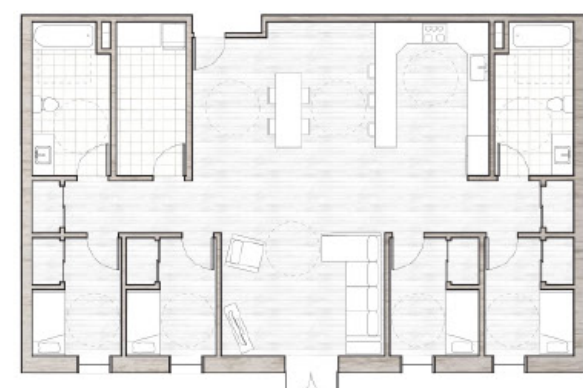
## Unit Types

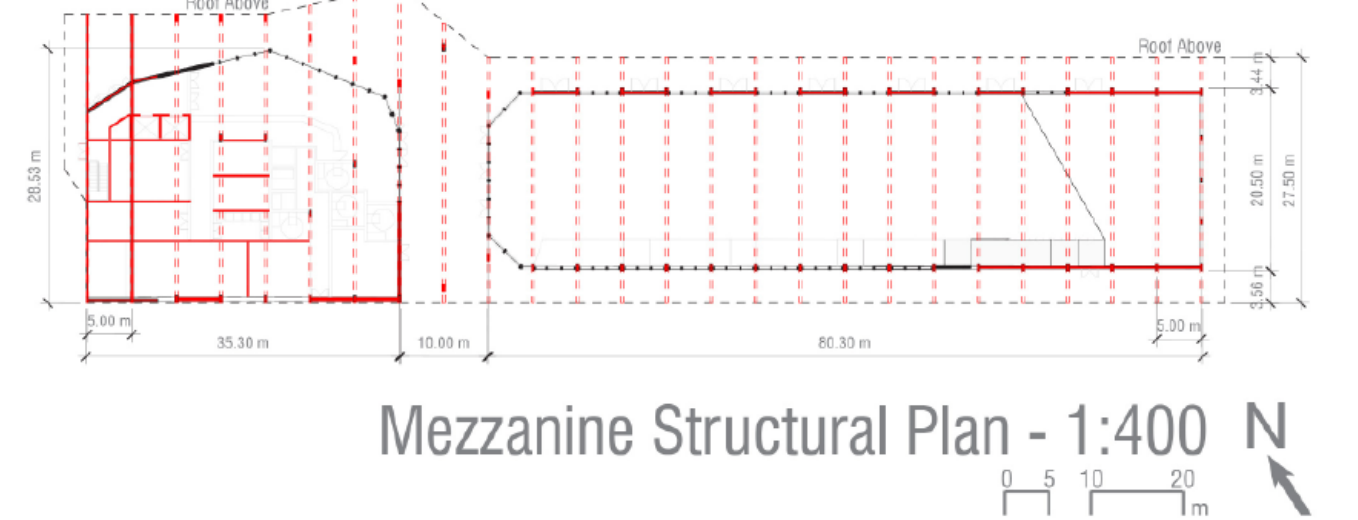
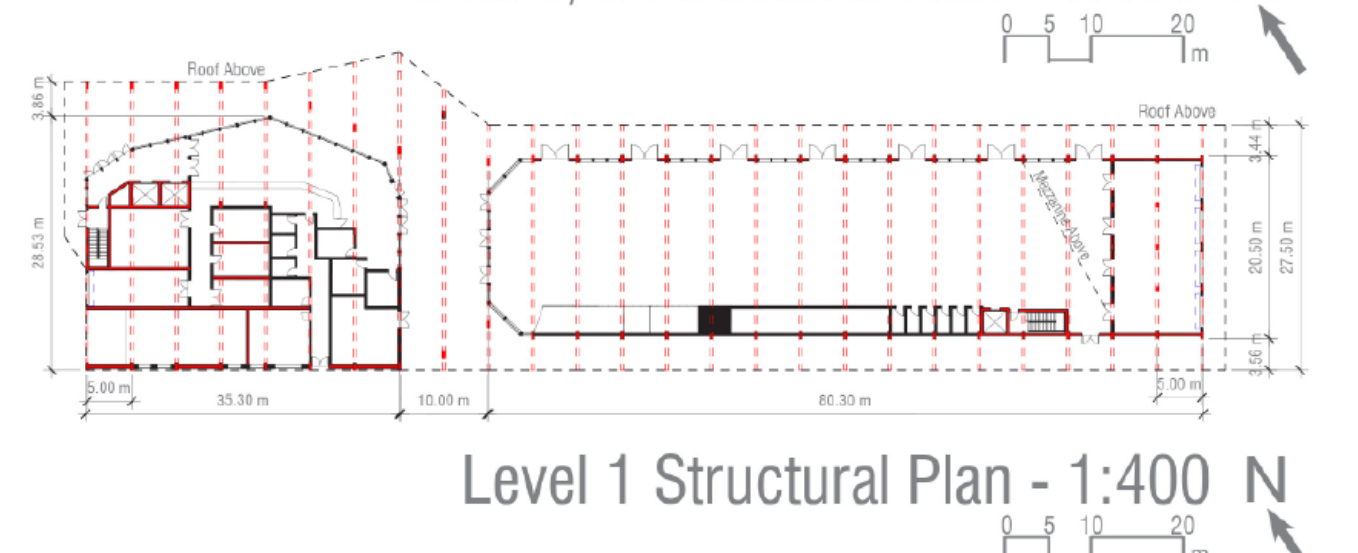
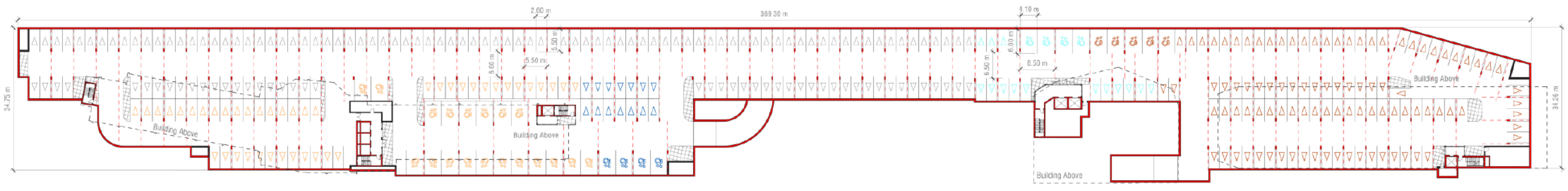
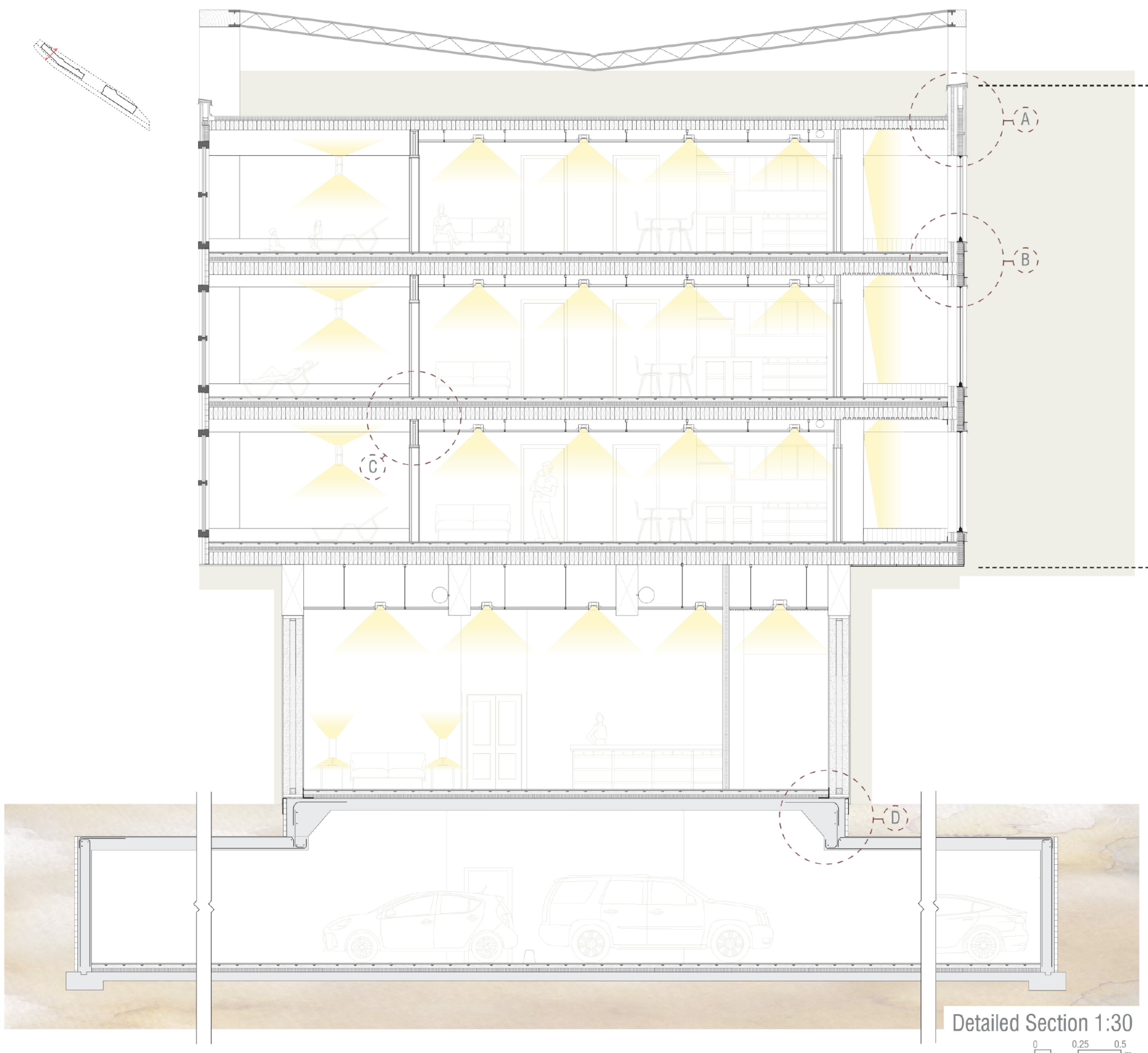
- = (W1) Wheelchair accessible, 1B
- = (W2) Wheelchair accessible, 2B
- = (W3) Wheelchair accessible, 3B
- = (T1) Typical, 1B
- = (T2) Typical, 2B
- = (S1) Sensory Sensitive, 1B
- = (S2) Sensory Sensitive, 2B
- = (G4) Sensory Sensitive, 4B



Unit Plans - 1:100

0 1 2.5 5 10 m







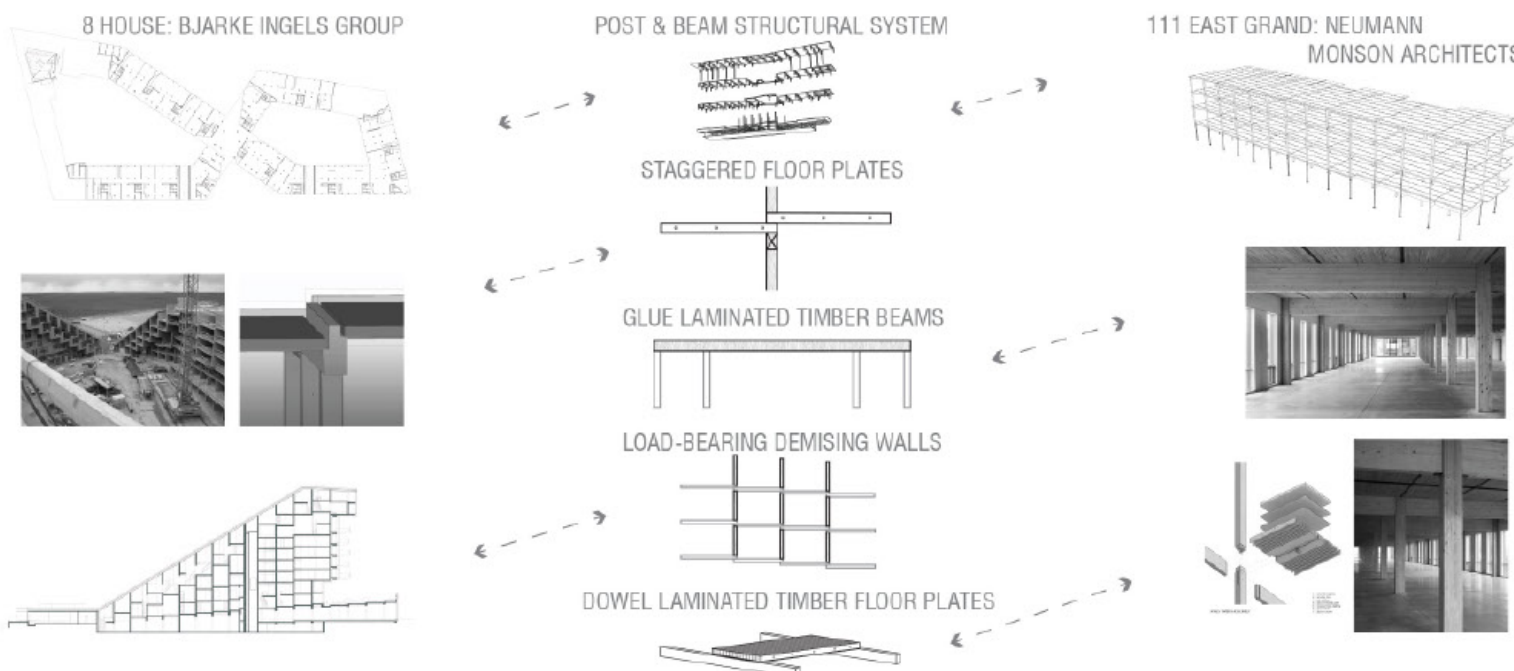
Full Market Perspective Looking South



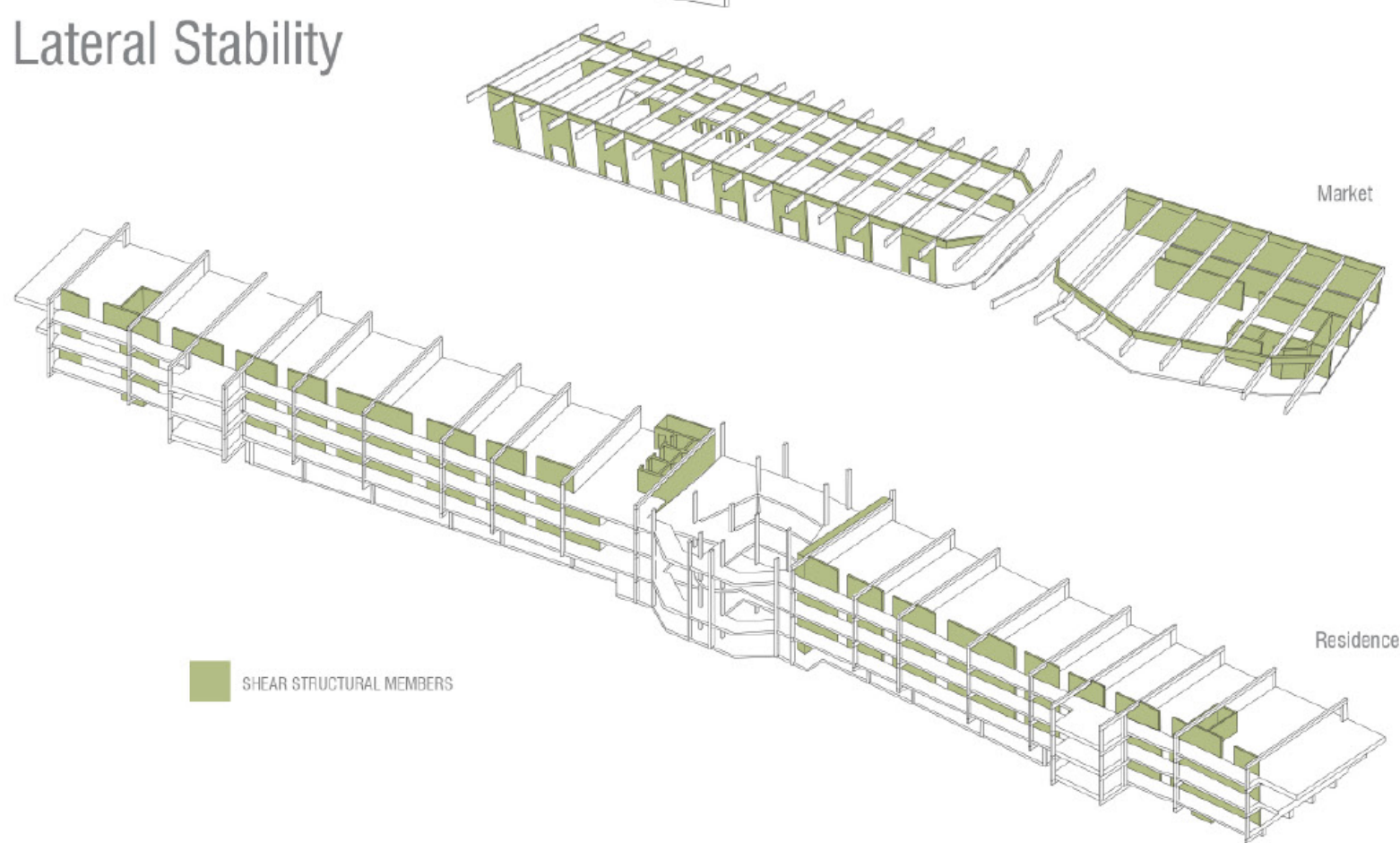
Detailed Elevation 1:30



Structural Precedents



Lateral Stability



1:150 Structural Model Photos



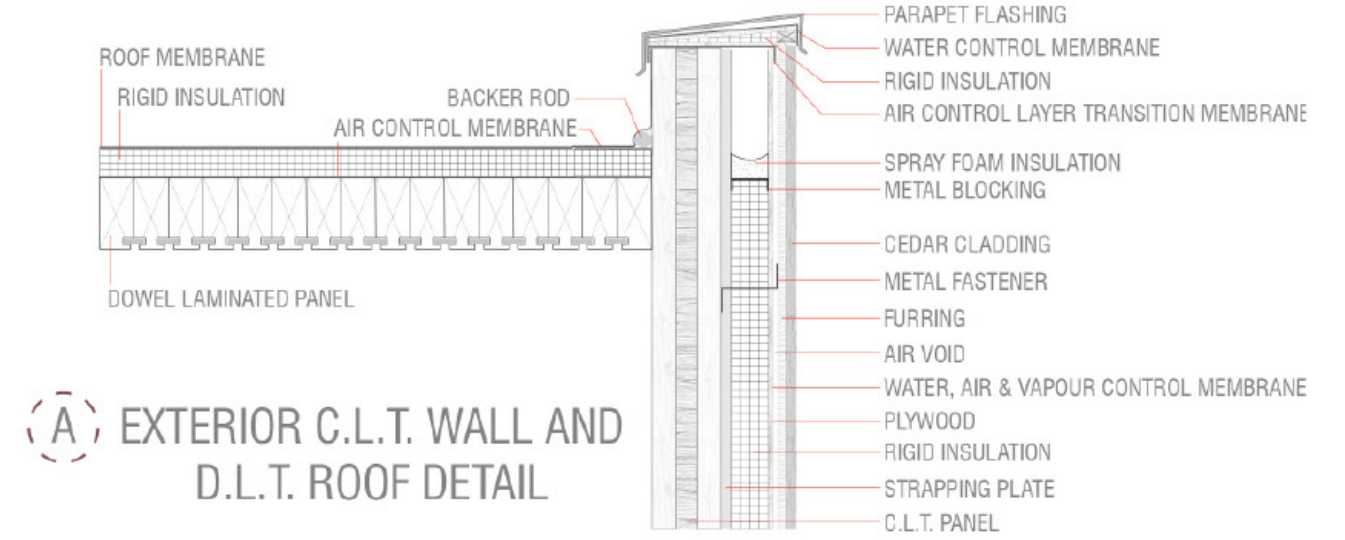
MARKET

MARKET

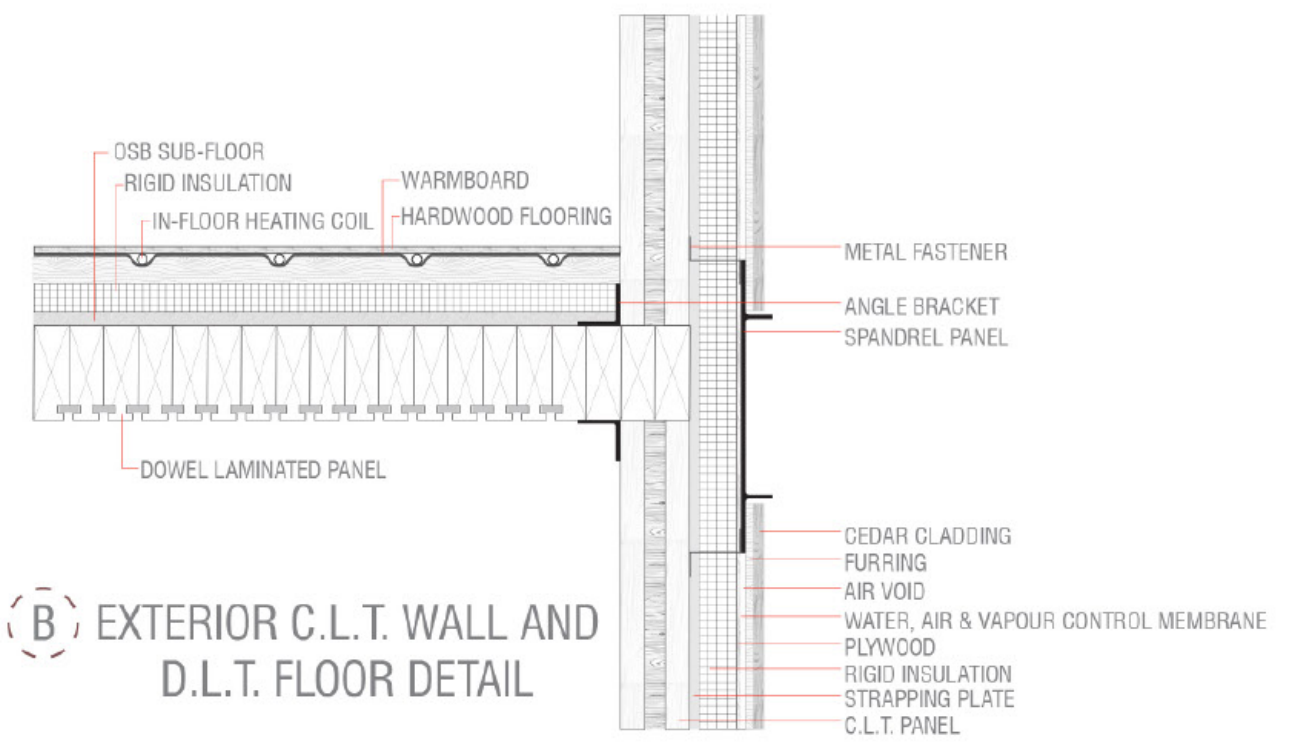
RESIDENCE

RESIDENCE

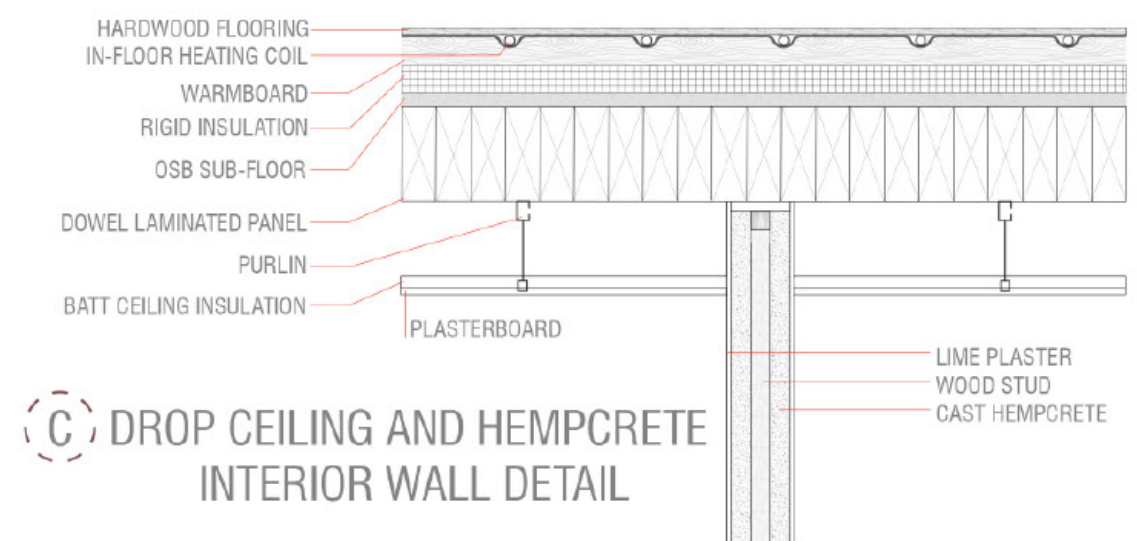
RESIDENCE



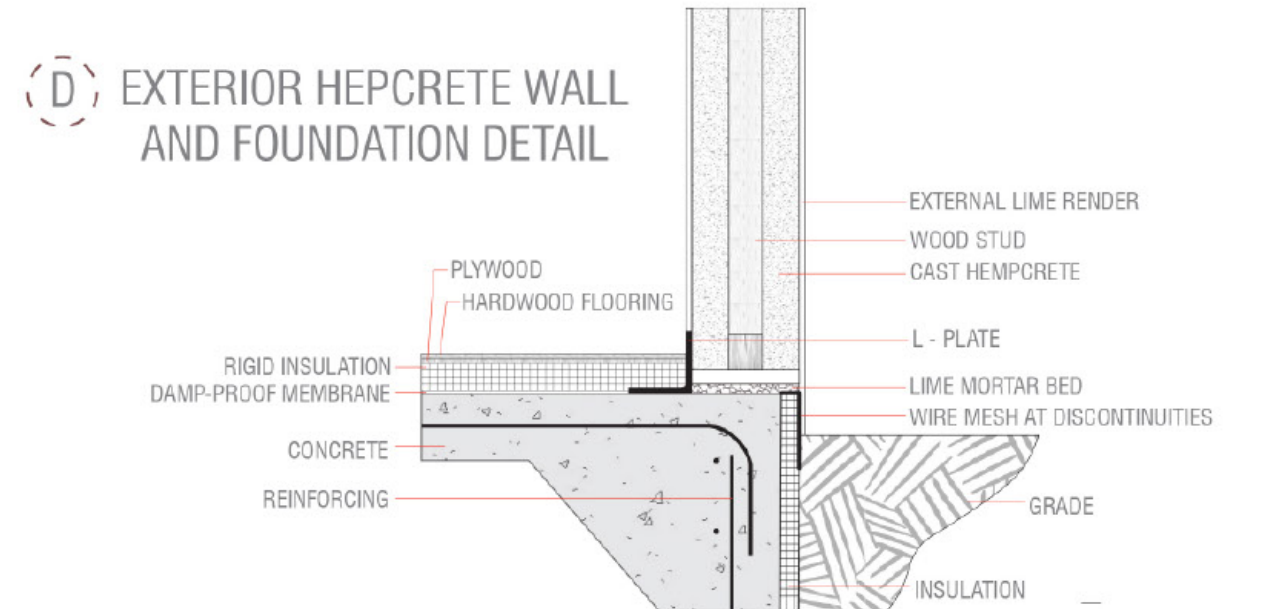
(A) EXTERIOR C.L.T. WALL AND D.L.T. ROOF DETAIL



(B) EXTERIOR C.L.T. WALL AND D.L.T. FLOOR DETAIL



(C) DROP CEILING AND HEMPCRETE INTERIOR WALL DETAIL

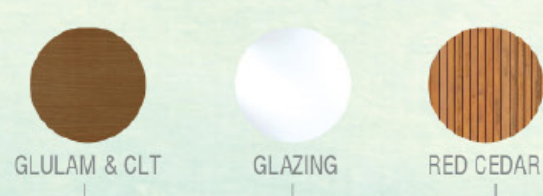
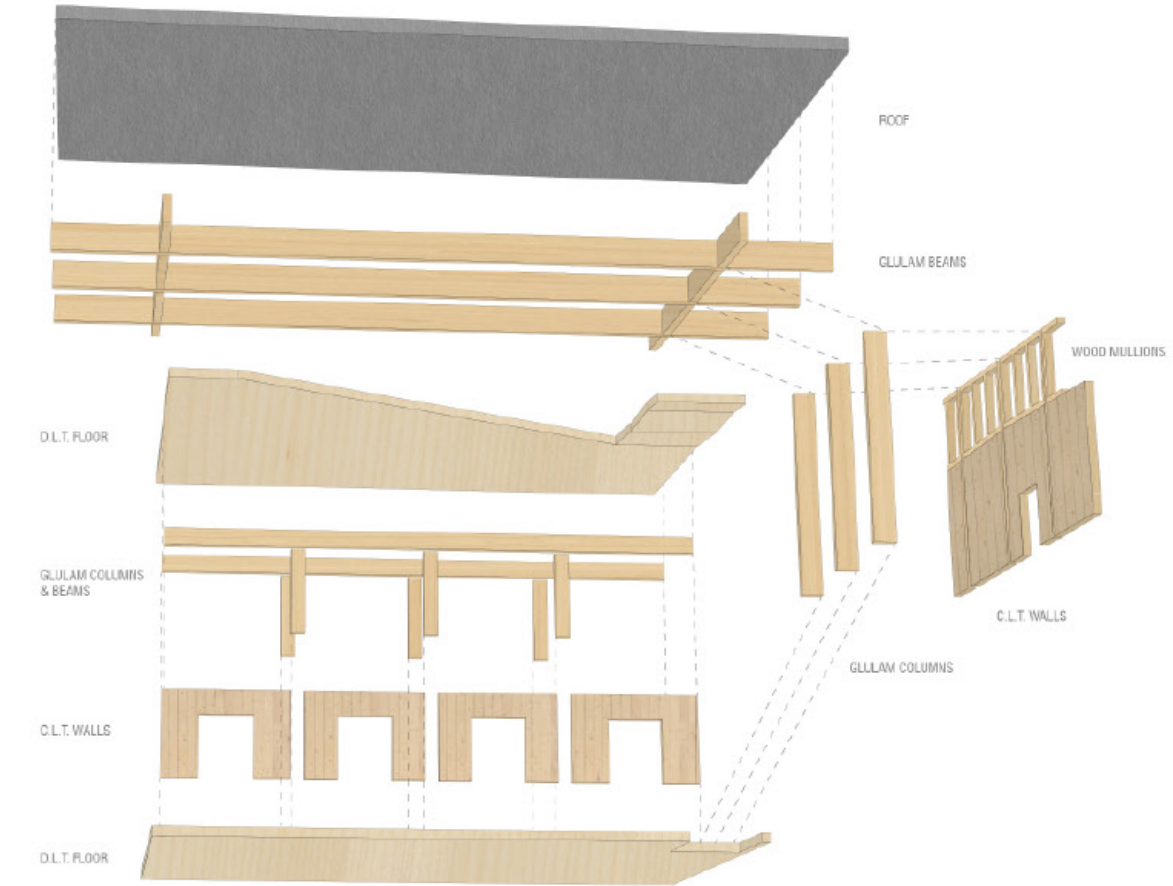


(D) EXTERIOR HEMPCRETE WALL AND FOUNDATION DETAIL

Details 1:15



Structural Axonometric



GLULAM & CLT

GLAZING

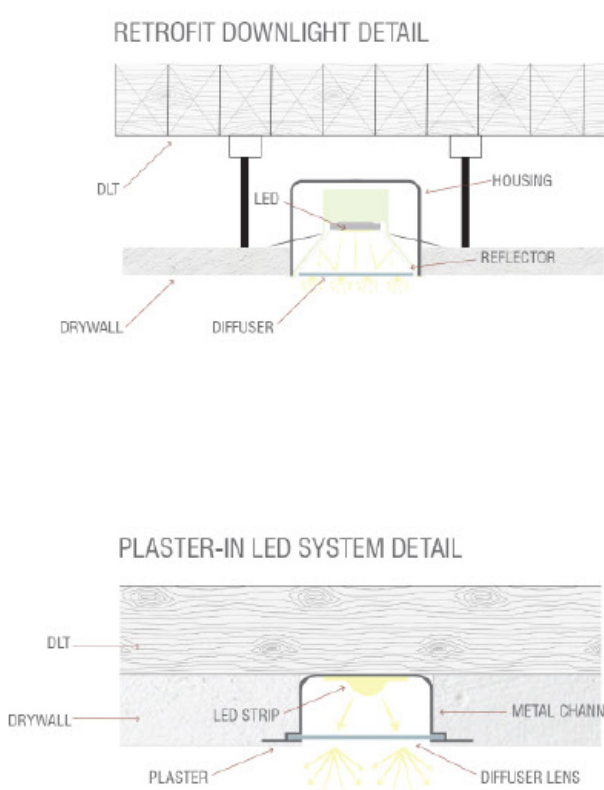
RED CEDAR





Market Separation Perspective Looking West

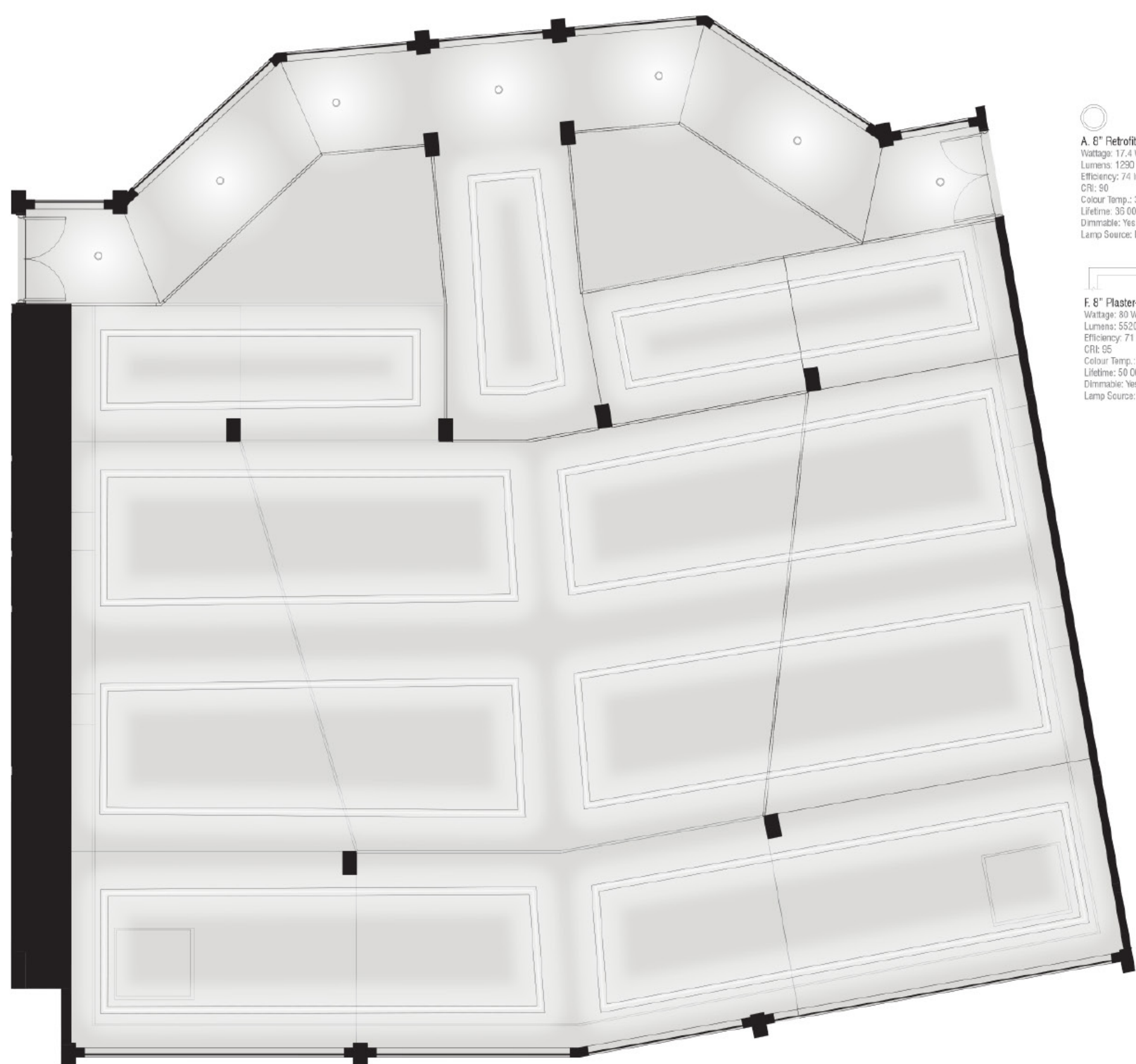
### A.S.D. Sensitive Artificial Lighting



Product	Wattage	Lumens	Efficiency	CRI	Colour Temp.	Lifetime	Dimmable	Lamp Source
Residential Retrofit Downlight RR61827WC-L7	17.4	1290 lm	74 lm/W	90	3000K	36000 h	yes	LED
A19 Colors and Tunable White Wi-Fi Connected Smart LED Light Bulb	11	810 lm	74 lm/W	85	2200K - 6500K	25000 h	yes	LED
TruLine Plaster-in LED System EDG223085	80	5520 lm	71 lm/W	95	3000K	50000 h	yes	LED



- A. 6" Retrofit Downlight**  
Wattage: 17.4 W  
Lumens: 1290 lm  
Efficiency: 74 lm/W  
CRI: 90  
Colour Temp.: 3000K  
Lifetime: 36 000 h  
Dimmable: Yes  
Lamp Source: LED
- B. 48" Modern LED Vanity Wall Mounted Light**  
Wattage: 46 W  
Lumens: 3680 lm  
Efficiency: 80 lm/W  
CRI: >80  
Colour Temp.: 3000 K  
Lifetime: 25 000 h  
Dimmable: No  
Lamp Source: LED
- C. Square Wood Table Lamp Fabric Shade**  
Wattage: 11 W  
Lumens: 810 lm  
Efficiency: 74 lm/W  
CRI: 85  
Colour Temp.: 2200 K - 6500 K  
Lifetime: 25 000 h  
Dimmable: No  
Lamp Source: LED
- D. Circle Wood Table Lamp Fabric Shade**  
Wattage: 11 W  
Lumens: 810 lm  
Efficiency: 74 lm/W  
CRI: 85  
Colour Temp.: 2200 K - 6500 K  
Lifetime: 25 000 h  
Dimmable: No  
Lamp Source: LED
- E. Hogman Outdoor Wall Sconce**  
Wattage: 11 W  
Lumens: 610 lm  
Efficiency: 55 lm/W  
Colour Temp.: 3000 K  
Wall Mount: Yes  
Dimmable: No  
Lamp Source: LED



- A. 6" Retrofit Downlight**  
Wattage: 17.4 W  
Lumens: 1290 lm  
Efficiency: 74 lm/W  
CRI: 90  
Colour Temp.: 3000K  
Lifetime: 36 000 h  
Dimmable: Yes  
Lamp Source: LED
- F. 6" Plaster-in LED**  
Wattage: 80 W  
Lumens: 5520 lm  
Efficiency: 71 lm/W  
CRI: 95  
Colour Temp.: 3000 K  
Lifetime: 50 000 h  
Dimmable: Yes  
Lamp Source: LED

"S1" Unit Lighting Plan 1:50 N

Ramp Lighting Plan 1:50 N

### Architectural Section 1:100



### Daylighting Model & Drawings

ISOLATED DAYLIGHTING MODEL OF RAMP SYSTEM

INTERIOR DAYLIGHTING MODEL OF RAMP SYSTEM

GLAZING ALONG SOUTHERN FACADE IN RAMP SPACE CREATES WARM LIGHT SPOTS ALONG THE BENCHES. CIRCULATION SPACES BEYOND BENCHES ADOPT DIFFUSED LIGHT.

QUADRUPLE HEIGHT INDOOR COURTYARD ALLOWS DIFFUSED LIGHT TO TRAVEL BETWEEN LEVELS.

ENCLOSED BALCONIES ALONG THE SOUTHERN FACADE ELIMINATES THE POSSIBILITY OF DIRECT SUNLIGHT REACHING UNITS.



CHARRED WOOD

### Envelope Precedents

FIRE STATION 76 / Hennebery Eddy Architects

- CHARRED WOOD EXTERIOR "SHOU SUGI BAN"
- ROT, WATER AND INSECT REPELLING
- RED CEDAR CLADDING WARM CONTRAST TO CHARRED PORTIONS

TAKENU NURSERY / Tadashi Suga Architects

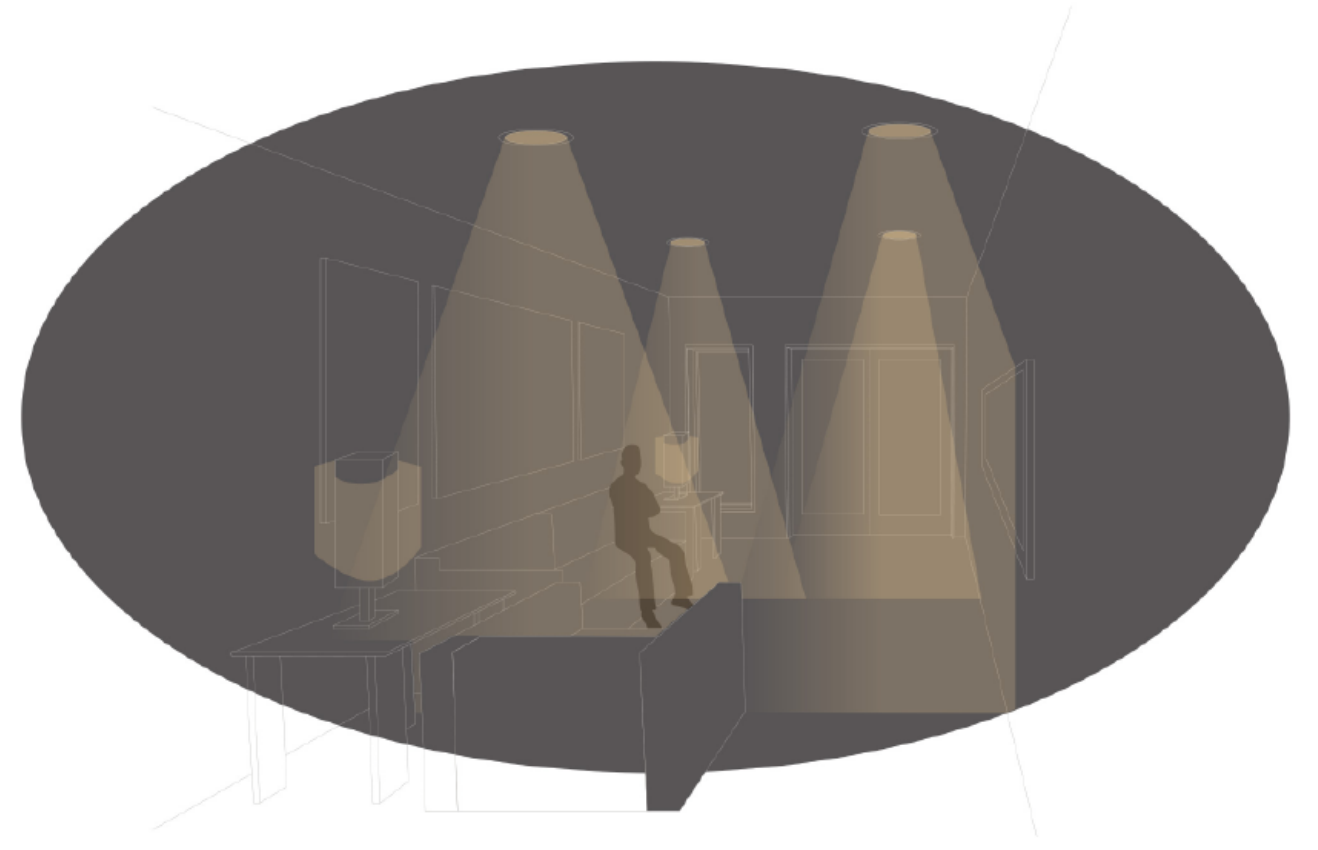
- RED CEDAR CLADDING CARBON SEQUESTERING
- CORRUGATED METAL WEATHER RESISTANT, INDUSTRIAL CONTRAST TO NATURAL MATERIALS



Greenway Market Perspective Looking South East



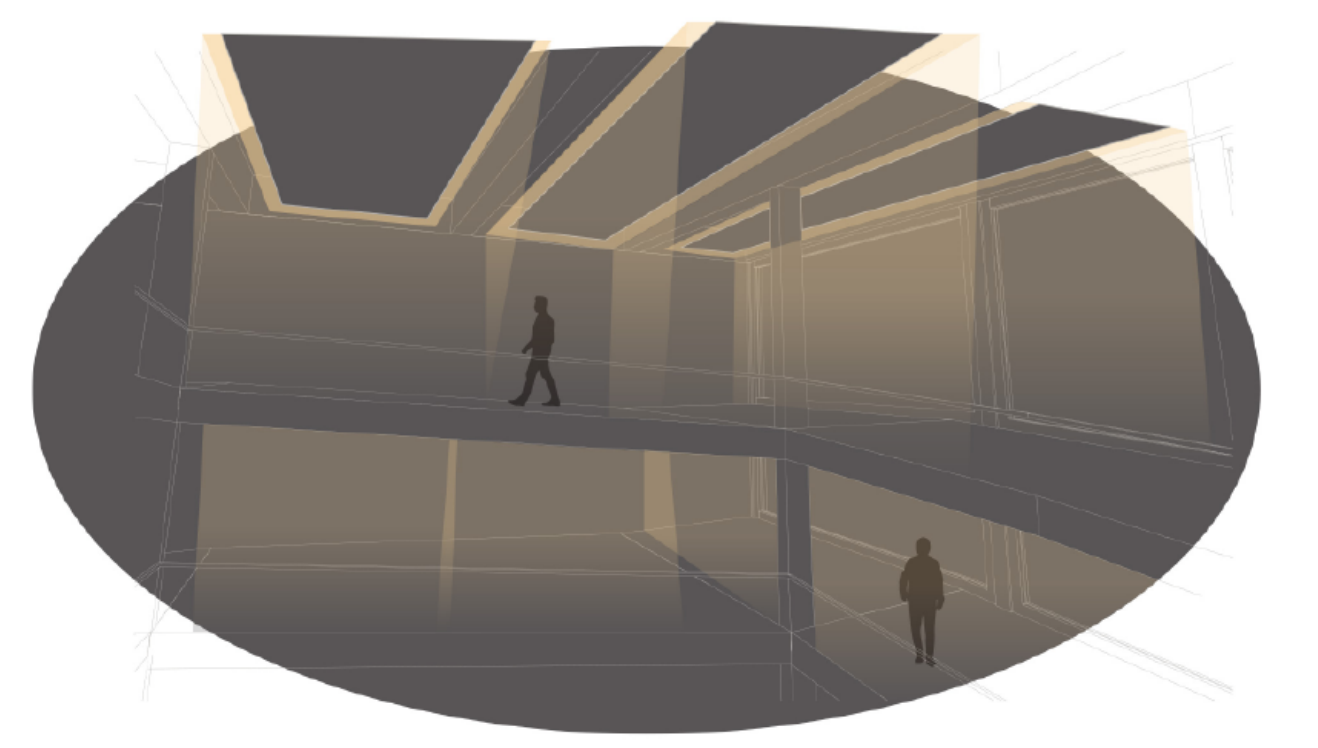
"G4" Residential Unit



"S1" Residential Unit Lighting Diagram

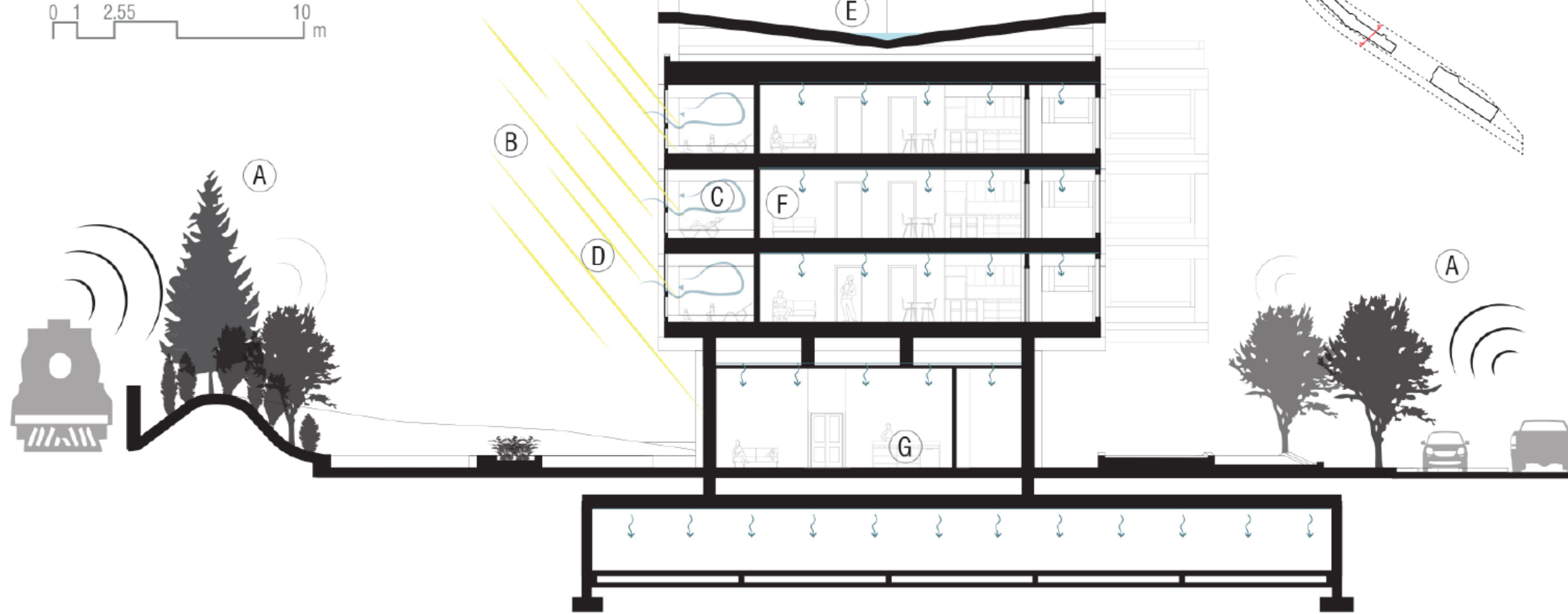


Residential Ramp Looking South-West



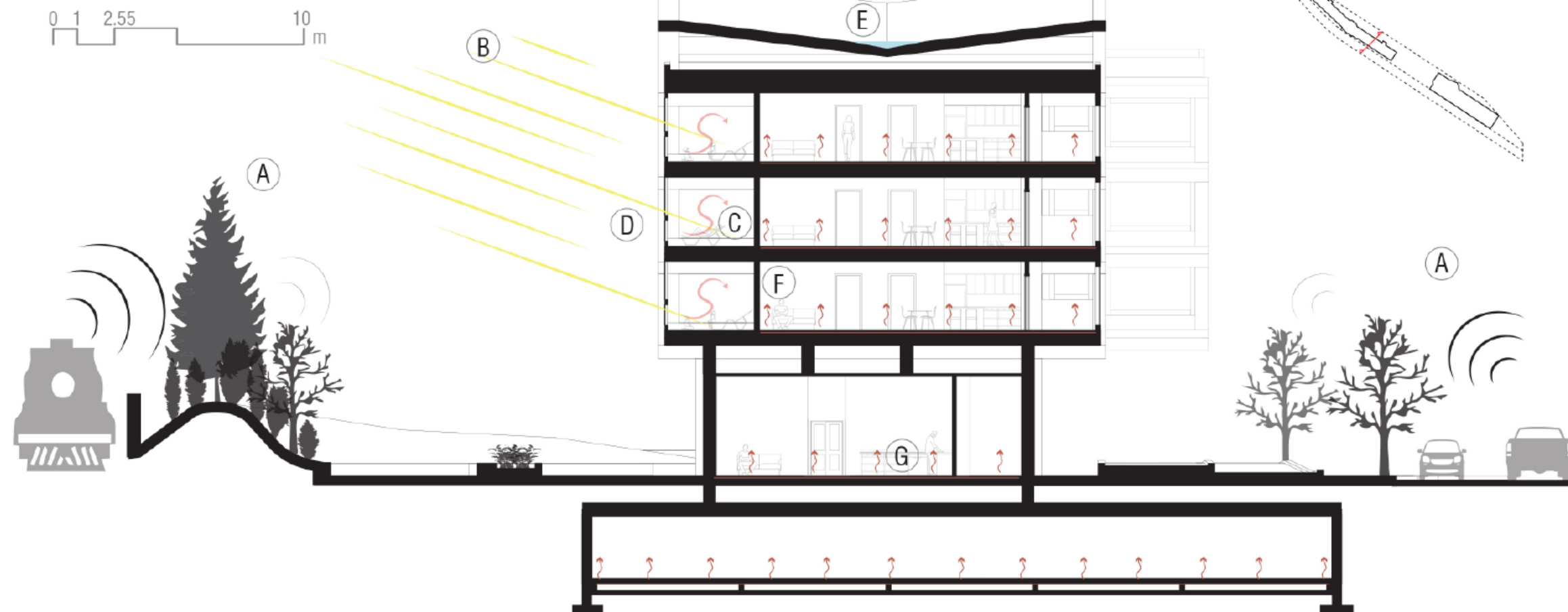
Residential Ramp Lighting Diagram

Passive Summer Section 1:100



- (A) VEGETATION ABSORBS SOUND AND BLOCKS WIND
- (B) ENCLOSED BALCONIES WELCOME SOLAR HEAT REDUCING OVERHEATING WITHIN UNITS
- (C) OPERABLE WINDOWS IN ENCLOSED BALCONIES ALLOWS FOR THERMAL REGULATION
- (D) PHOTO-VOLTAIC GLAZING PRODUCES ELECTRICITY FROM SUN EXPOSURE
- (E) WATER DRAINAGE COLLECTION IN ROOF DEPRESSION FOR GREY WATER AND GEOTHERMAL EXCHANGE SYSTEM
- (F) HEMPCRETE INTERIOR WALLS ALLOW FOR NATURAL CLIMATE AND HUMIDITY REGULATION, ACOUSTIC BARRIERS AND A NATURAL LAYER OF INSULATION
- (G) IN-FLOOR HEATING AND CEILING COOLING VIA GEOTHERMAL EXCHANGE SYSTEM

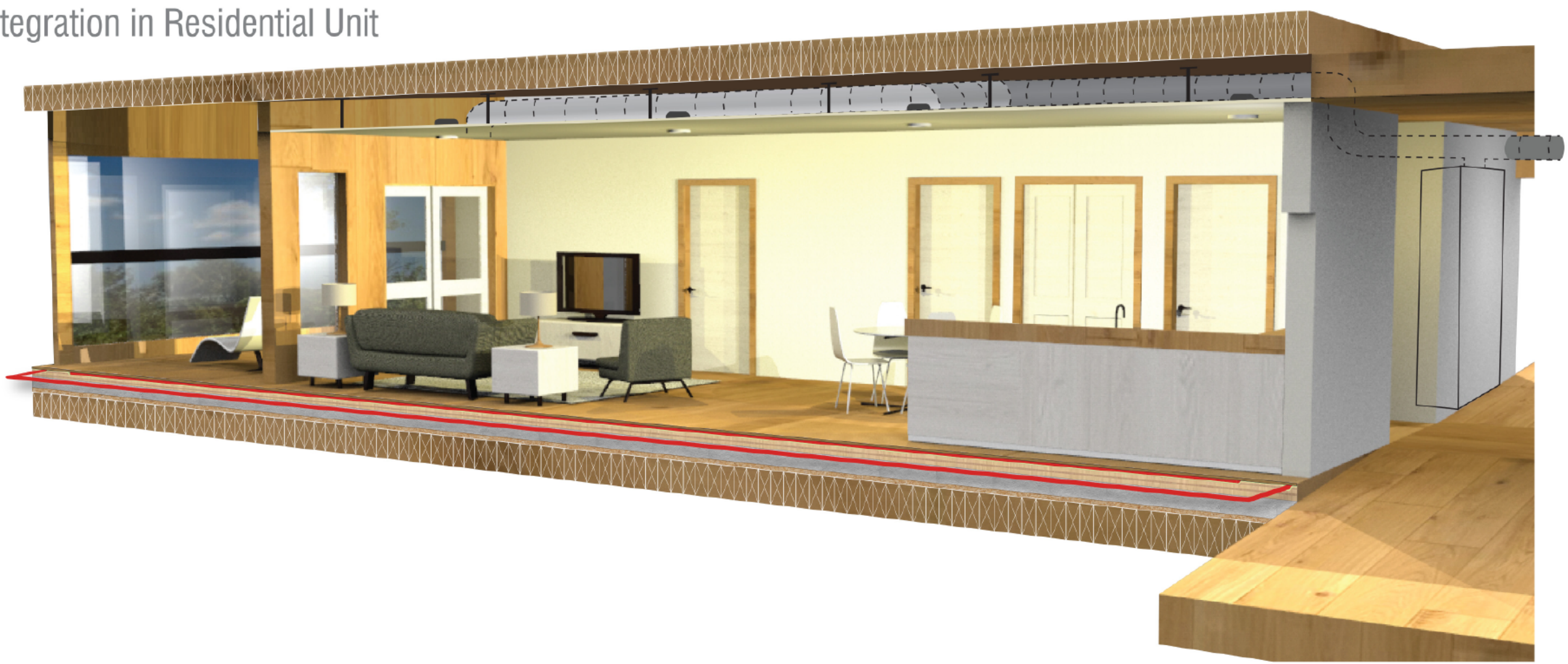
Passive Winter Section 1:100



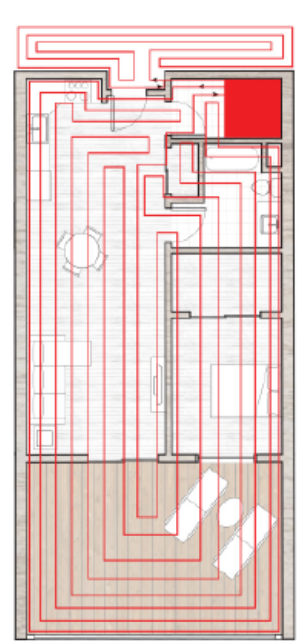


Greenway Residence Perspective Looking South East

Systems Integration in Residential Unit



HVAC Diagrams



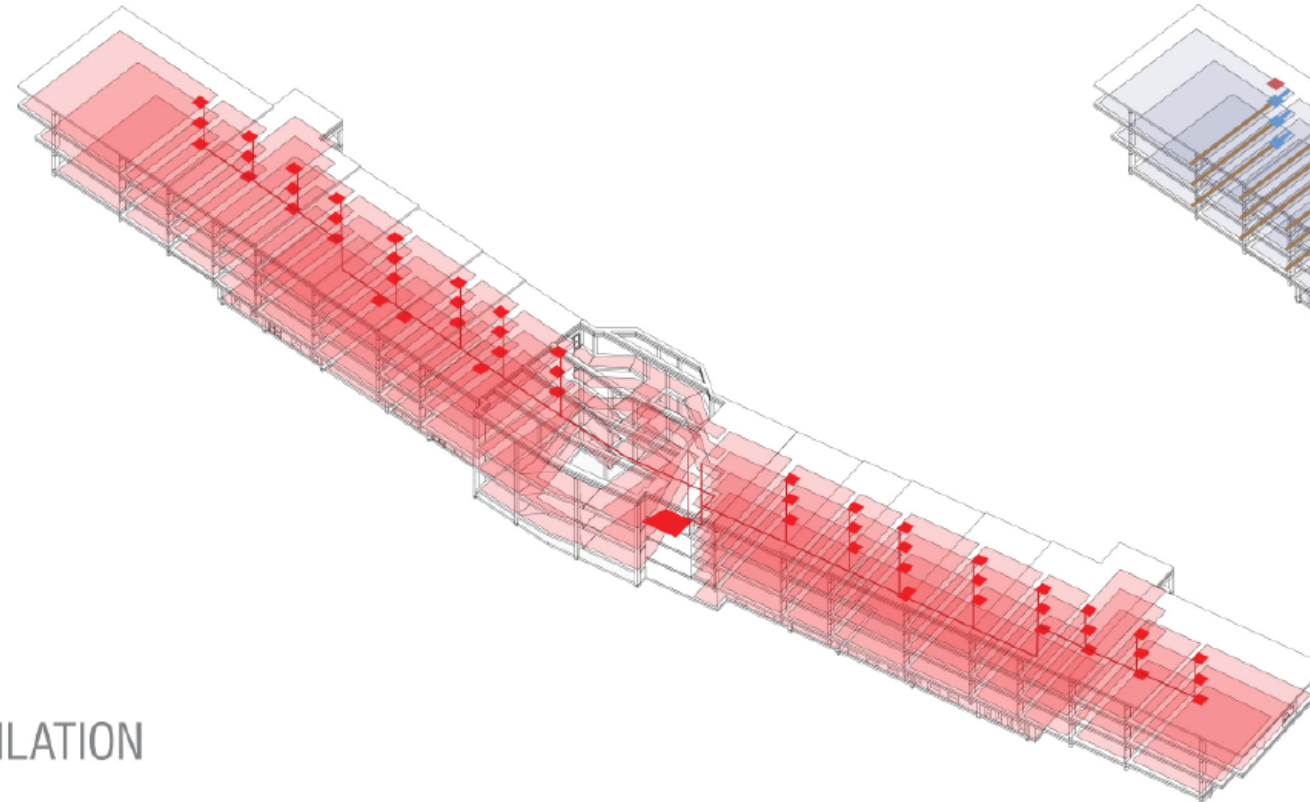
UNIT - HEATING

- ▣ = In floor heating pipes
- = Water heater unit



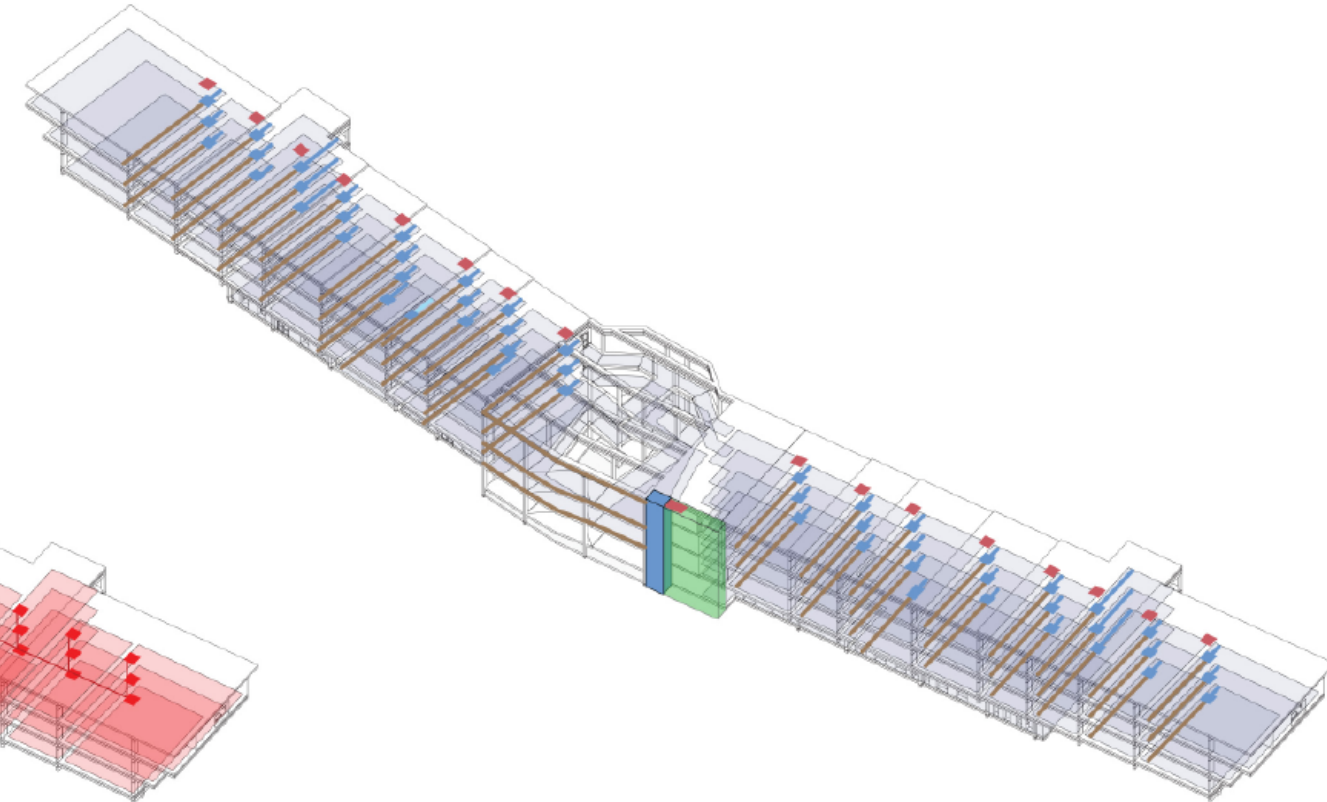
UNIT - COOLING & VENTILATION

- ▣ = Exterior Output vent
- ▣ = Output and cooling vents
- ▣ = Intake vents
- ▣ = Exterior Intake vent
- ▣ = Individual ventilation and cooling unit



RES. AXO - HEATING

- ▣ = In floor heating area
- = Water heater unit



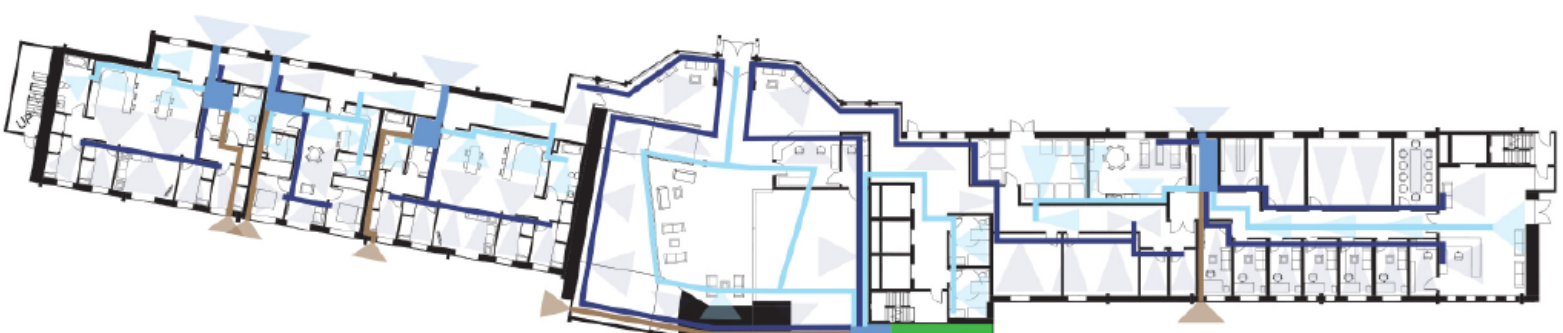
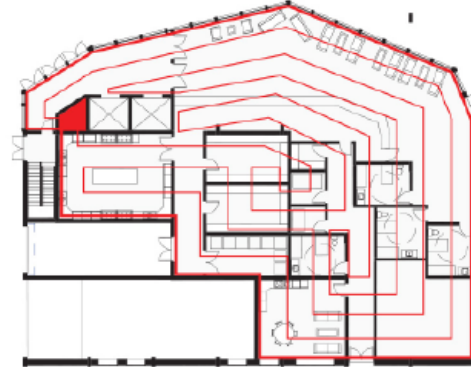
RES. AXO - COOLING & VENTILATION

- ▣ = Exterior Output vent
- ▣ = Exterior Intake vent
- ▣ = Condensing Unit
- ▣ = Ventilation and cooling unit
- ▣ = Underground parking intake air shaft



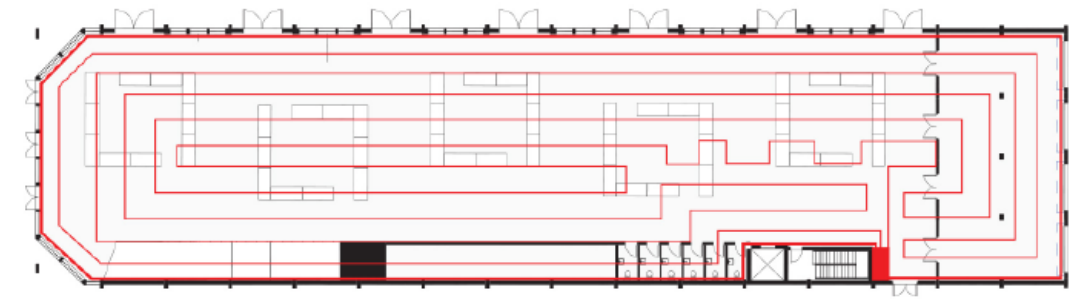
RES. LEVEL 1 - HEATING

- ▣ = In floor heating area
- = Water heater unit



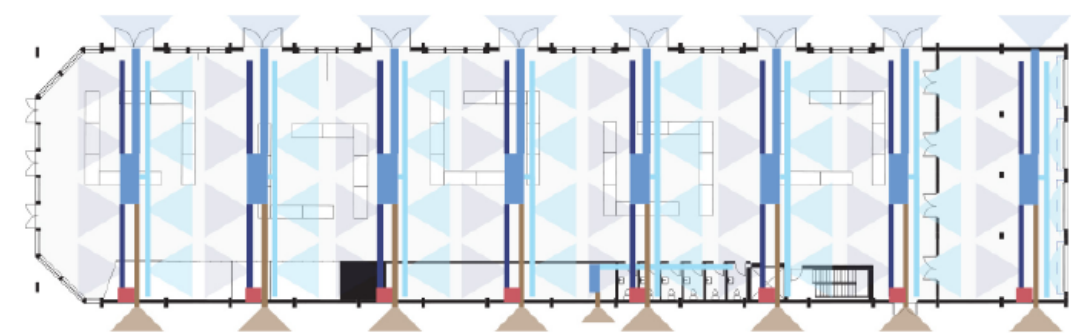
RES. LEVEL 1 - COOLING & VENTILATION

- ▣ = Exterior Output vent
- ▣ = Output and cooling vents
- ▣ = Intake vents
- ▣ = Exterior Intake vent
- ▣ = Ventilation and cooling unit
- ▣ = Underground parking intake air shaft



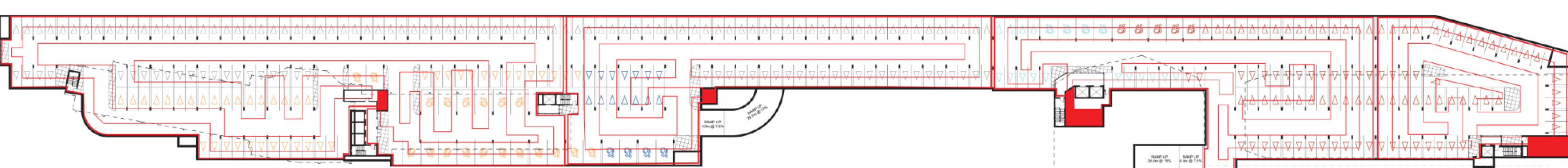
MARKET LEVEL 1 - HEATING

- ▣ = In floor heating pipes
- = Water heater unit



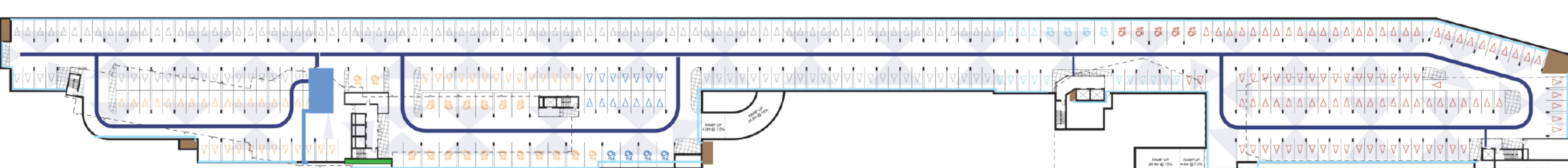
MARKET LEVEL 1 - COOLING & VENTILATION

- ▣ = Exterior Output vent
- ▣ = Output and cooling vents
- ▣ = Intake vents
- ▣ = Exterior Intake vent
- ▣ = Ventilation and cooling unit
- ▣ = Condensing Unit



PARKING - HEATING

- ▣ = In floor heating pipes
- = Water heater unit



U/G PLAN - COOLING & VENTILATION

- ▣ = Output and cooling vents
- ▣ = Output air shaft
- ▣ = Ventilation and cooling unit
- ▣ = Intake vents
- ▣ = Intake air shaft

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