

## APERTURE

Long Island City, Queens, New York

Graduate / Upper Level

Aperture envisions a dense waterfront promenade throughout Long Island City, of which the building site is only the beginning. The East River promenade connects Queensbridge Park to the North, with Hunters Point to the South and provides unique public space and a development impetus for the Queens riverfront.

The building parti reflects simple timber joinery, with a bridge being inserted like a mortise and tenon joint. This reflection of timber joinery continues in the detailing of structural systems and with extruded modules and bay windows penetrating the façade. These apertures reflect the flexibility of wood as a building material, where exterior and interior are visible in contrast to each other. The building is clad in dark, charred wood and the apertures highlight the raw, blonde timber within.

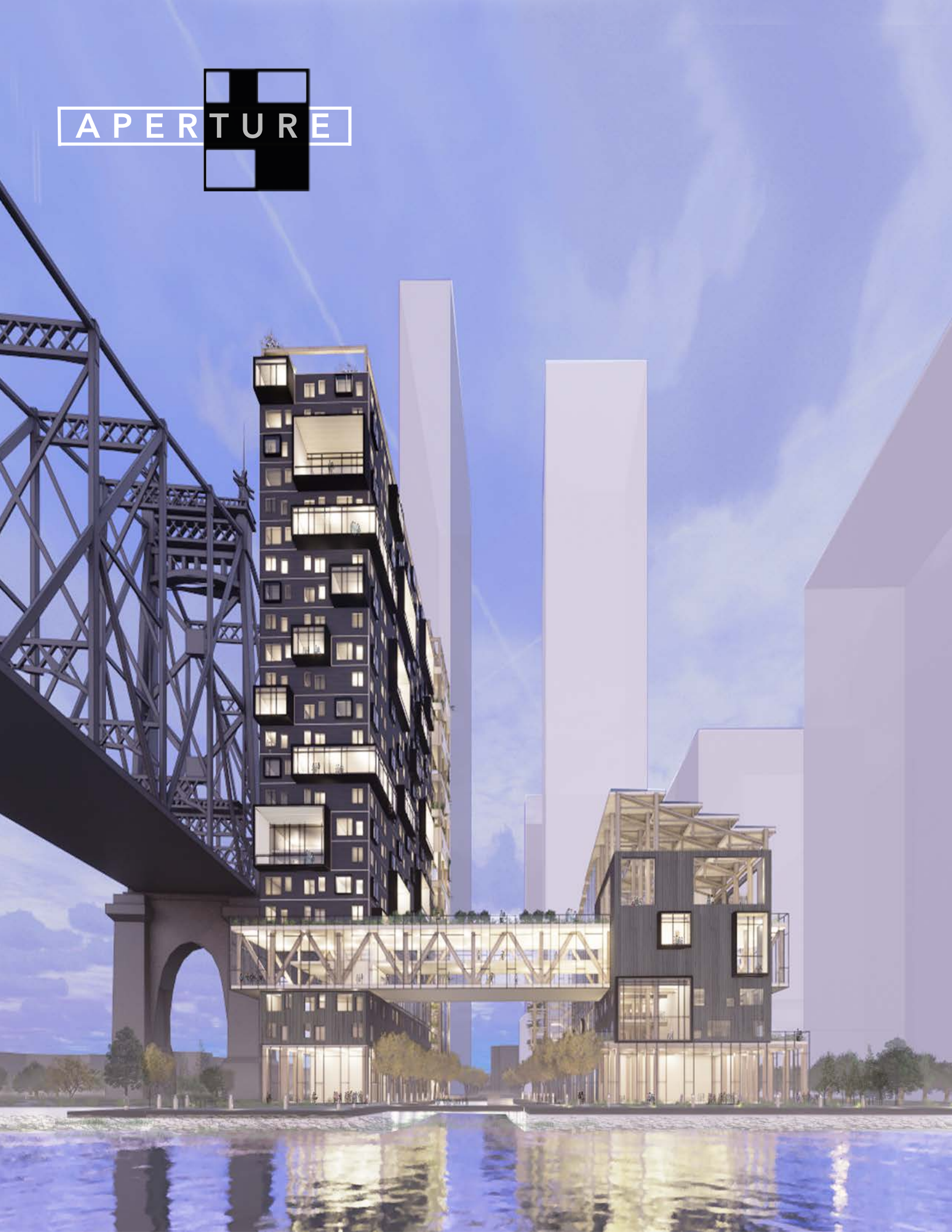
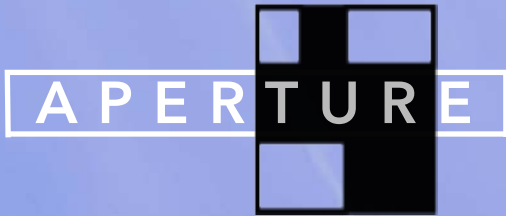
The program is broken up into two buildings, creating a pedestrian street that continues the motion set up by the city grid to connect the public to waterfront amenities and a new ferry terminal. A threshold is created with extruded aggregations of plants that are integrated vertically along the lobbies and public spaces through a modular planter system resulting in opportunities for biophilia and additional carbon sequestration. The public programs are concentrated on the lower floors, with a physical bridge connecting housing with the wellness center and creating a gateway to the city. The Education Center classrooms are lifted off the ground floor to provide space for retail at ground level and to provide secure outdoor play space for children.

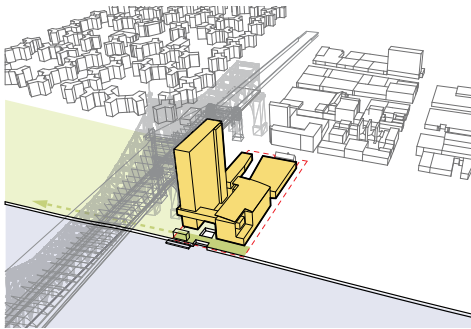
Residential units use a modular system based on the standard CLT sheet to create units fitting between one and four modules each. The building is organized with skip-stop corridors to allow cross flow of air in many units. Single Loaded corridors provide an acoustic buffer from the Queensboro Bridge to the North. Every third floor includes a double height flexible social space with an outdoor terrace to provide usable, amenable space to small communities within the building. Larger public spaces are provided at the roof and fifth floor—where a physical connection is made between the residences and the wellness center, encouraging use.

Several different mass timber strategies are used to construct a planar residential tower and a trabeated community building. CLT panels are used in a structural “egg-crate” matrix that accentuates the modularity of the residences. Glulam columns and beams provide open and airy spaces for the community building, while DLT walls and roof panels provide embedded acoustic baffling, lighting, and a tactile, interactive surface for classroom walls.

### METRICS

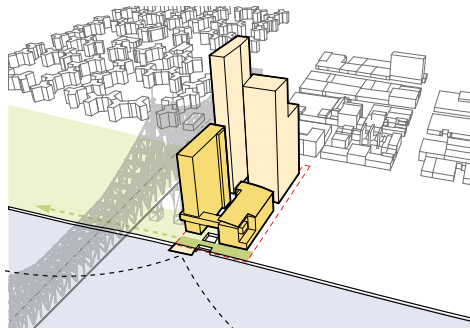
Timber:	Carbon stored: 5202 Tonnes	Photovoltaics:	PV size: 12,000 ft <sup>2</sup>
	Carbon avoided: 2018 Tonnes		360,000 kWh/yr (roughly 1/3 residential building use)
	Total carbon benefit: 7221 Tonnes	Plants:	Carbon Sequestration: 3 tonnes/yr





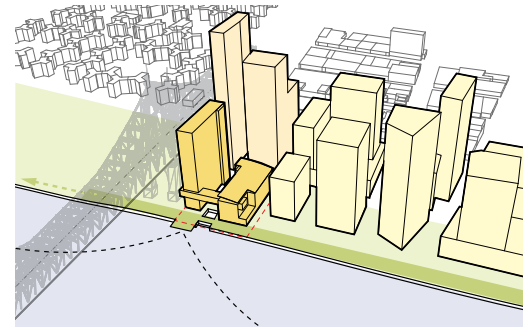
## Phase 1

FAR	2.2
Phase Area	230,000 sf
Gross Area	230,000 sf
Open Space	36,000 sf
Program	Office (12,000 sf) Retail (60,000 sf) Education (35,000 sf) Rec Center (23,000 sf) Residential (100,000 sf)



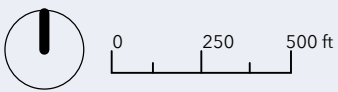
## Phase 2

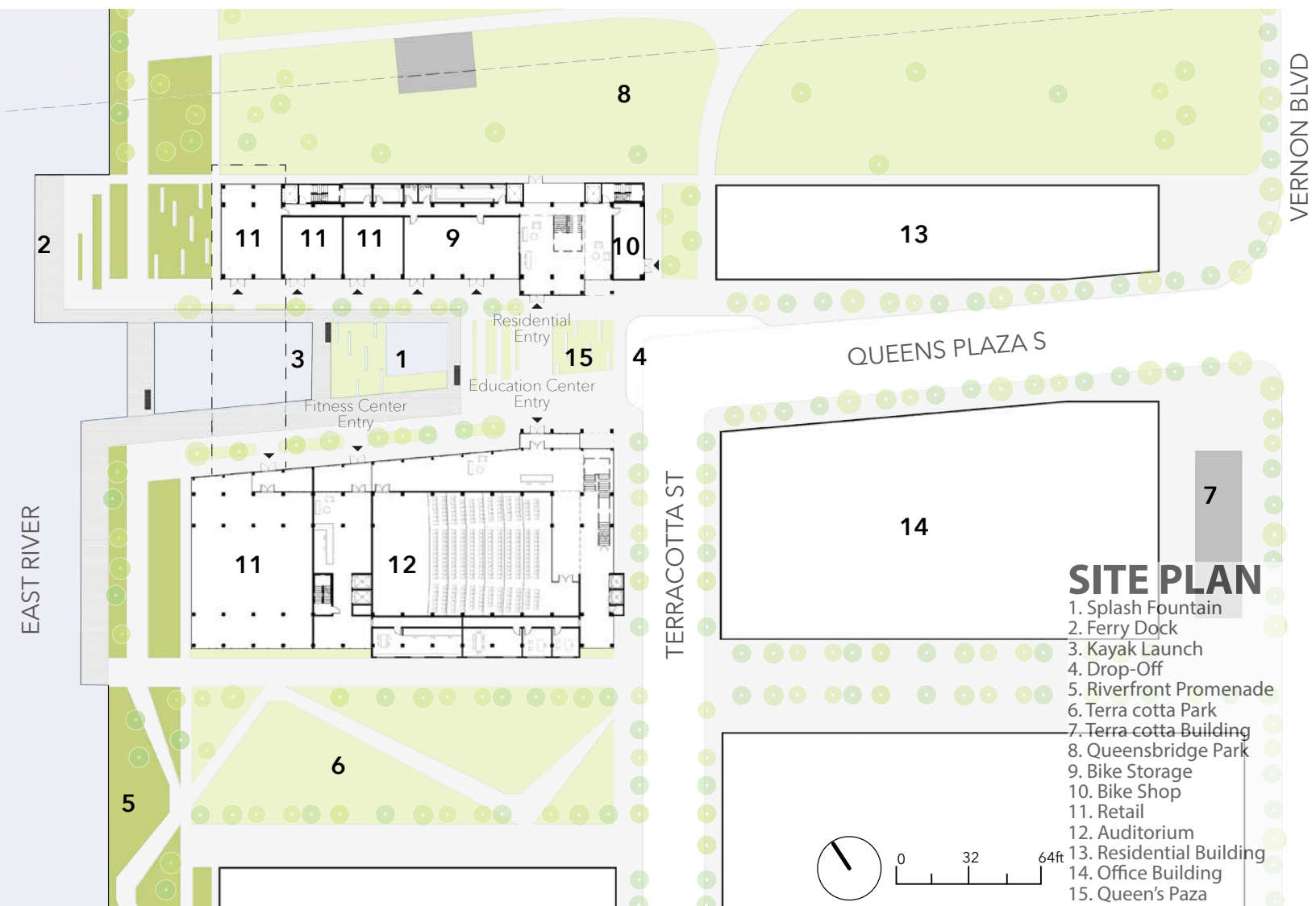
FAR	10
Phase Area	810,000 sf
Gross Area	1,040,000 sf
Open Space	0 sf
Program	Office (310,000 sf) Residential (500,000 sf)



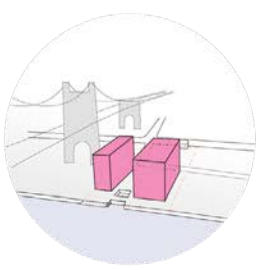
## Phase 3

FAR	n/a
Phase Area	3,520,000 sf
Gross Area	4,560,000 sf
Open Space	1,200,000 sf
Program	Office (1,000,000 sf) Retail (250,000 sf) Community (270,000 sf) Residential (2,000,000 sf)

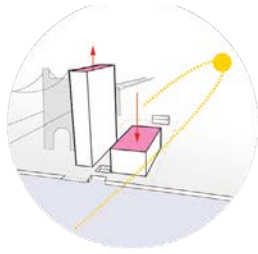




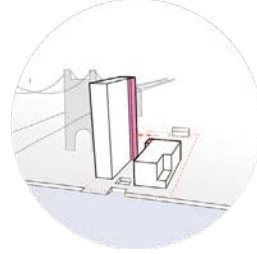




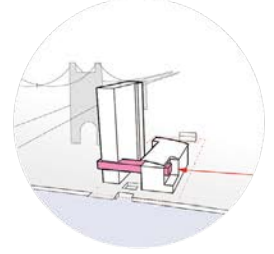
**CREATE STREET**



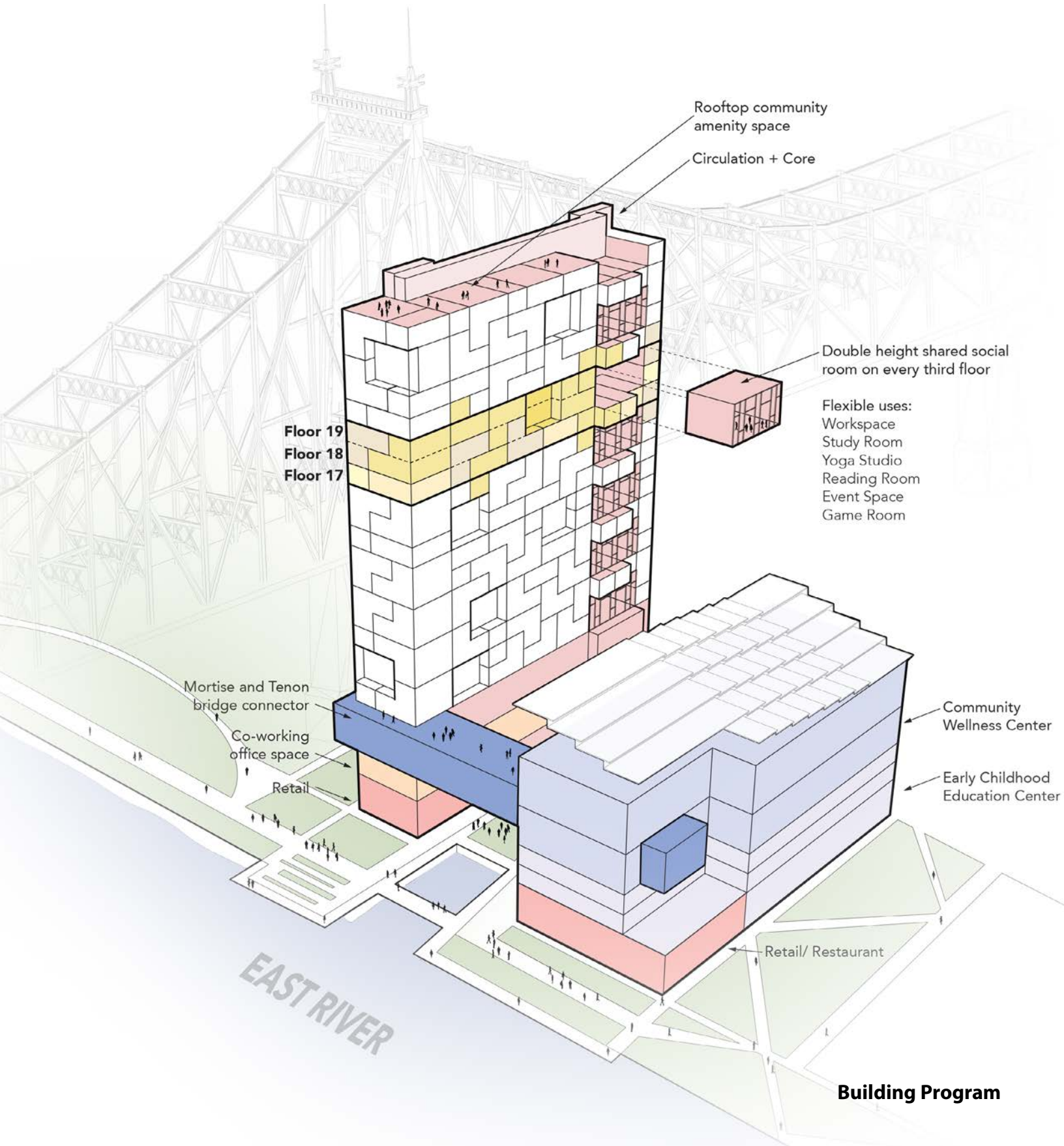
**PROVIDE SOLAR ACCESS**



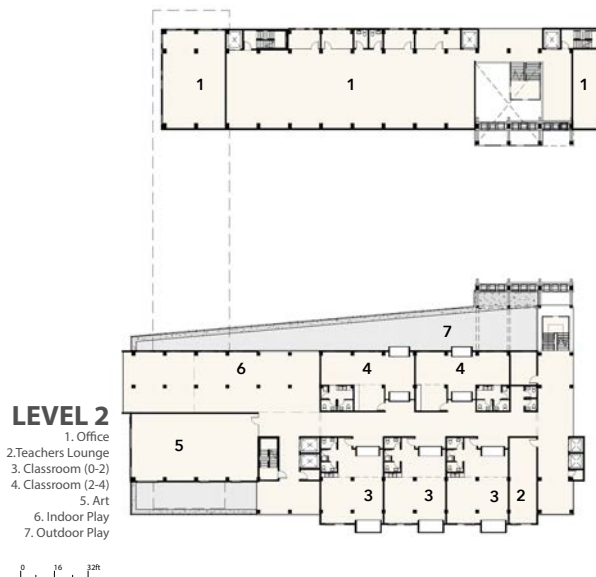
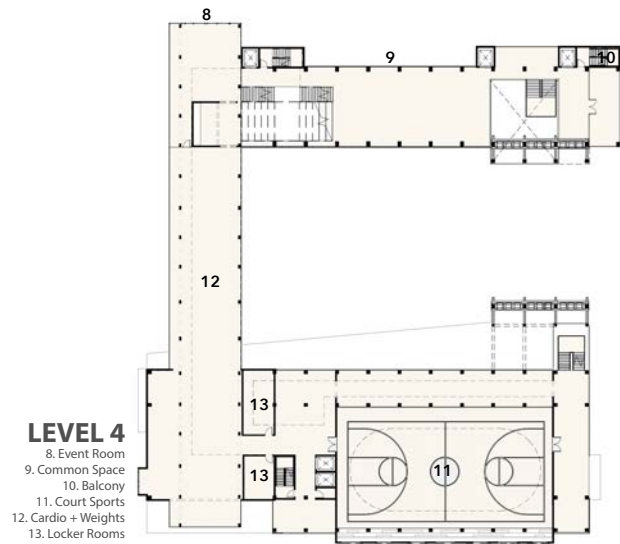
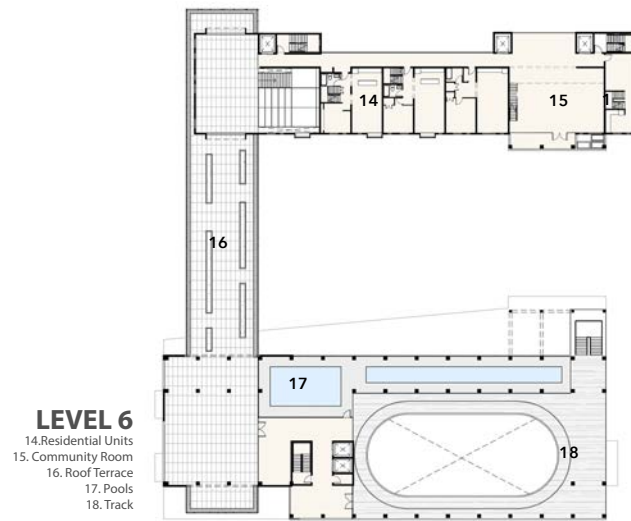
**EXTRUDE THRESHOLD**



**INSERT CONNECTION**



**Building Program**





**Community Building**

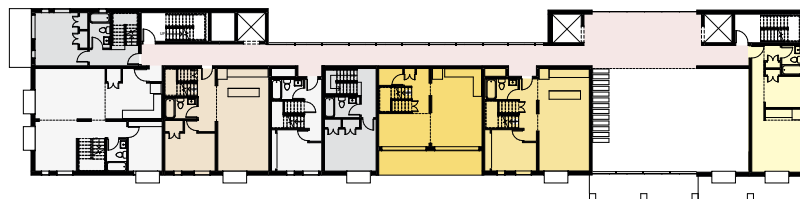




**Residential Building**



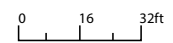
**FLOOR 19**



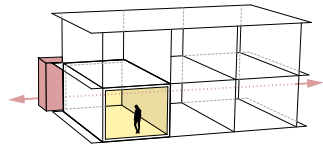
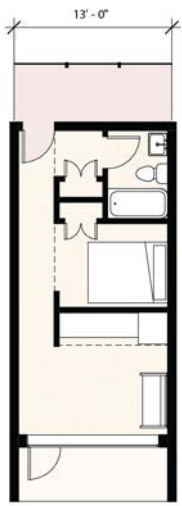
**FLOOR 18**



**FLOOR 17**

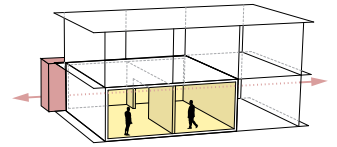






### **MICRO UNIT**

325 ft<sup>2</sup>  
1 Module  
4 Sheets of CLT



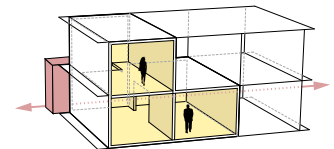
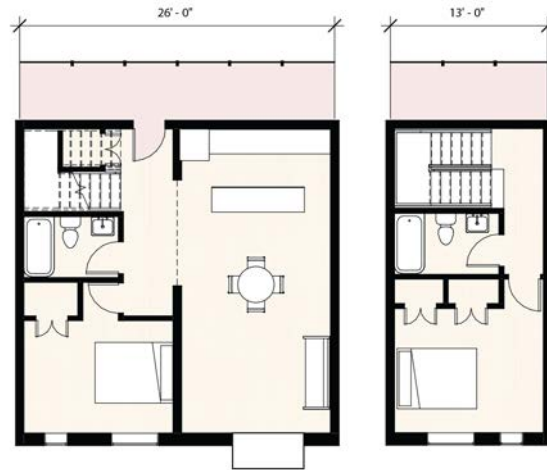
### **1 BED UNIT**

650 ft<sup>2</sup>  
2 Modules  
7 Sheets of CLT



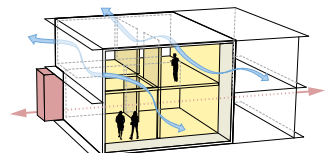
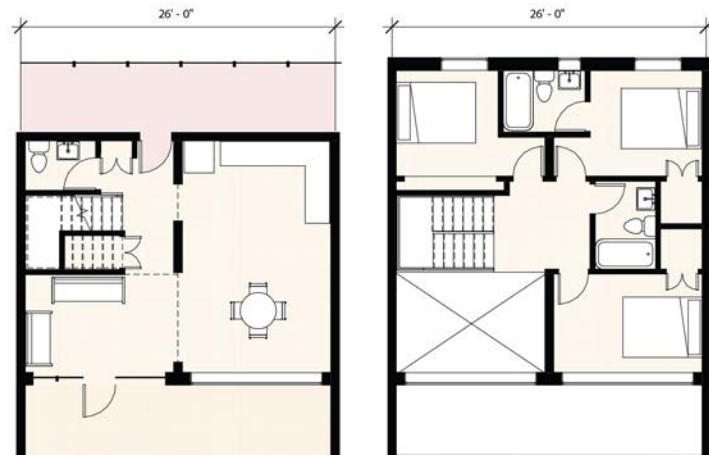
### **TYPICAL CLT SHEET**

13' Width  
26' - 39' Length



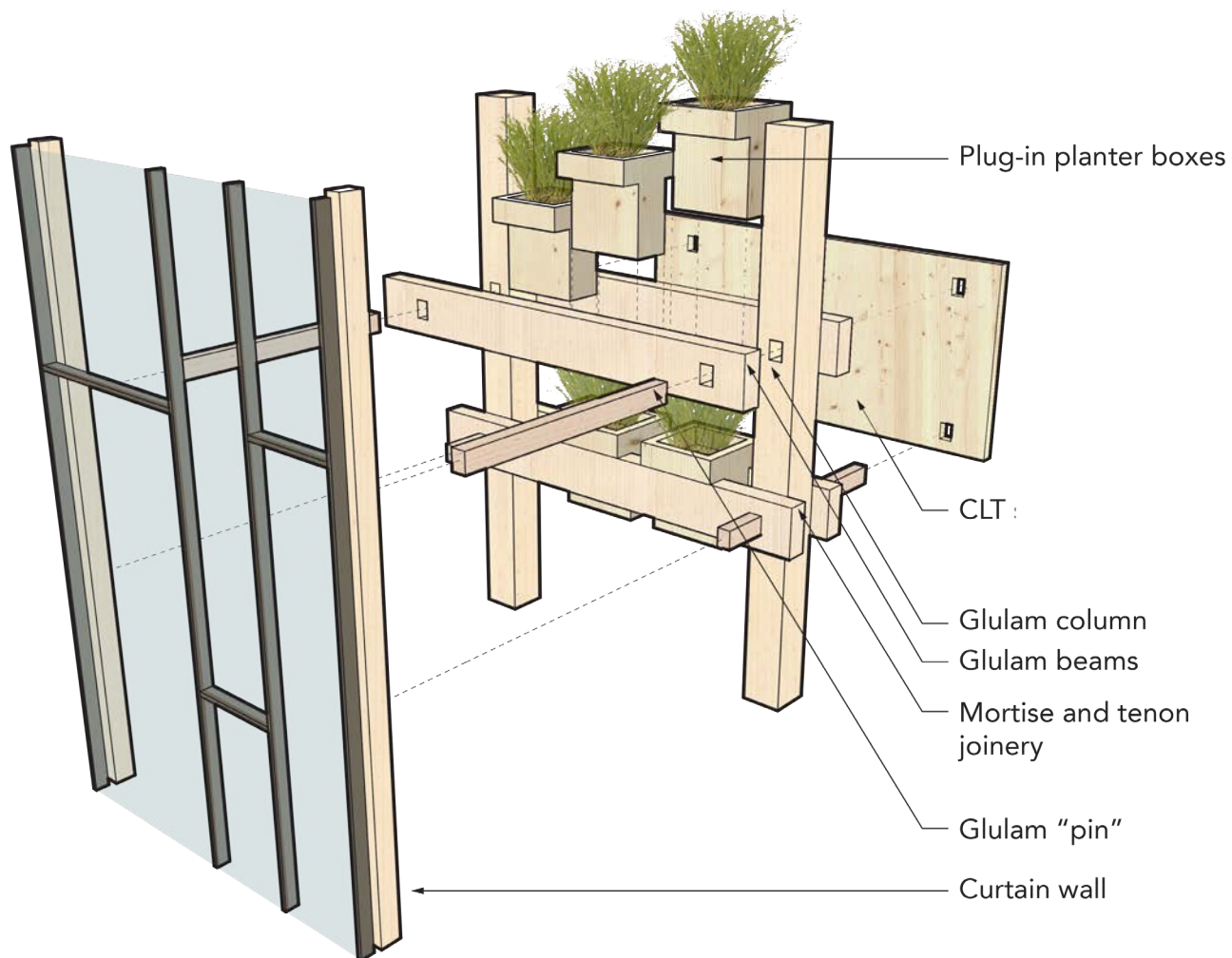
### **2 BED UNIT**

850 ft<sup>2</sup>  
3 Modules  
10 Sheets of CLT



### **3 BED UNIT**

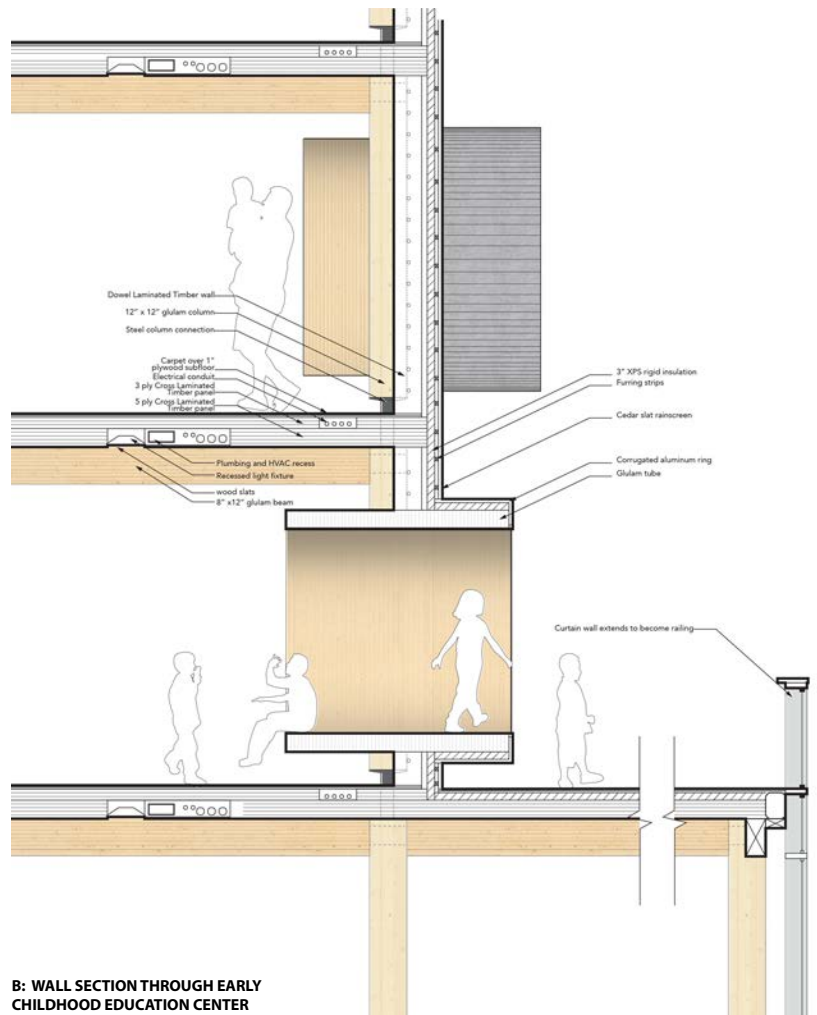
1000 ft<sup>2</sup>  
4 Modules  
12 Sheets of CLT



**TYPICAL VERTICAL GARDEN CONNECTION**



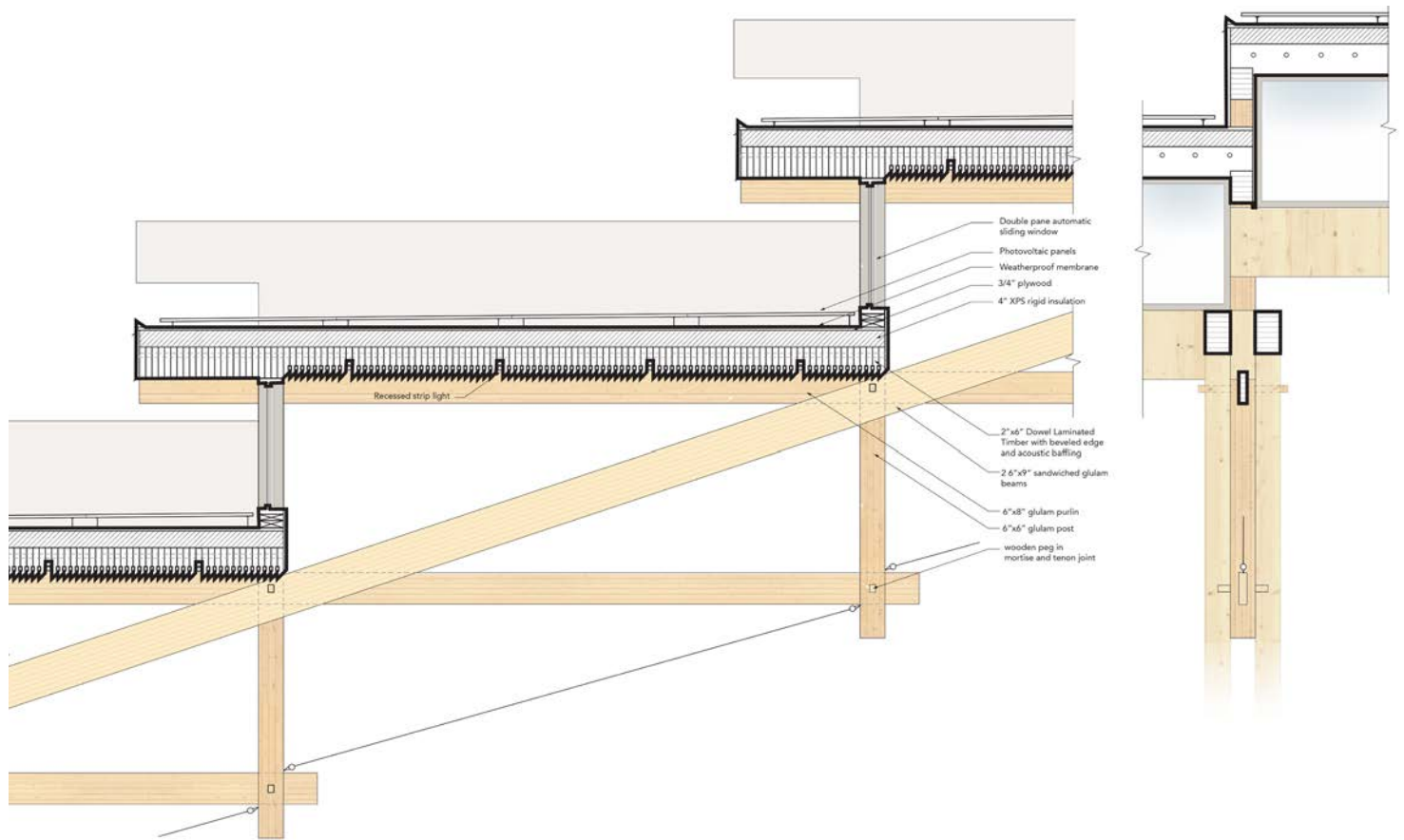




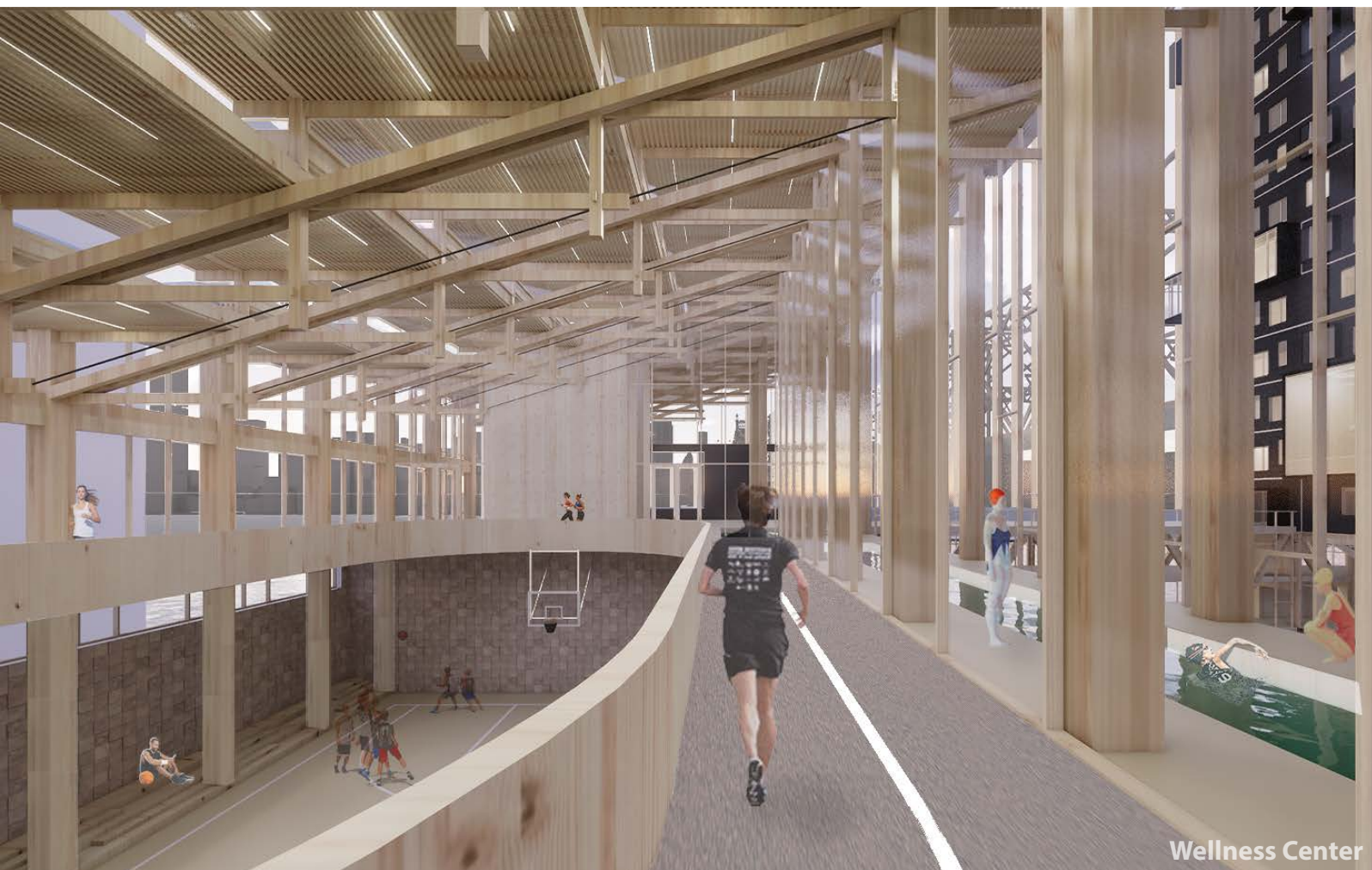
**B: WALL SECTION THROUGH EARLY CHILDHOOD EDUCATION CENTER**



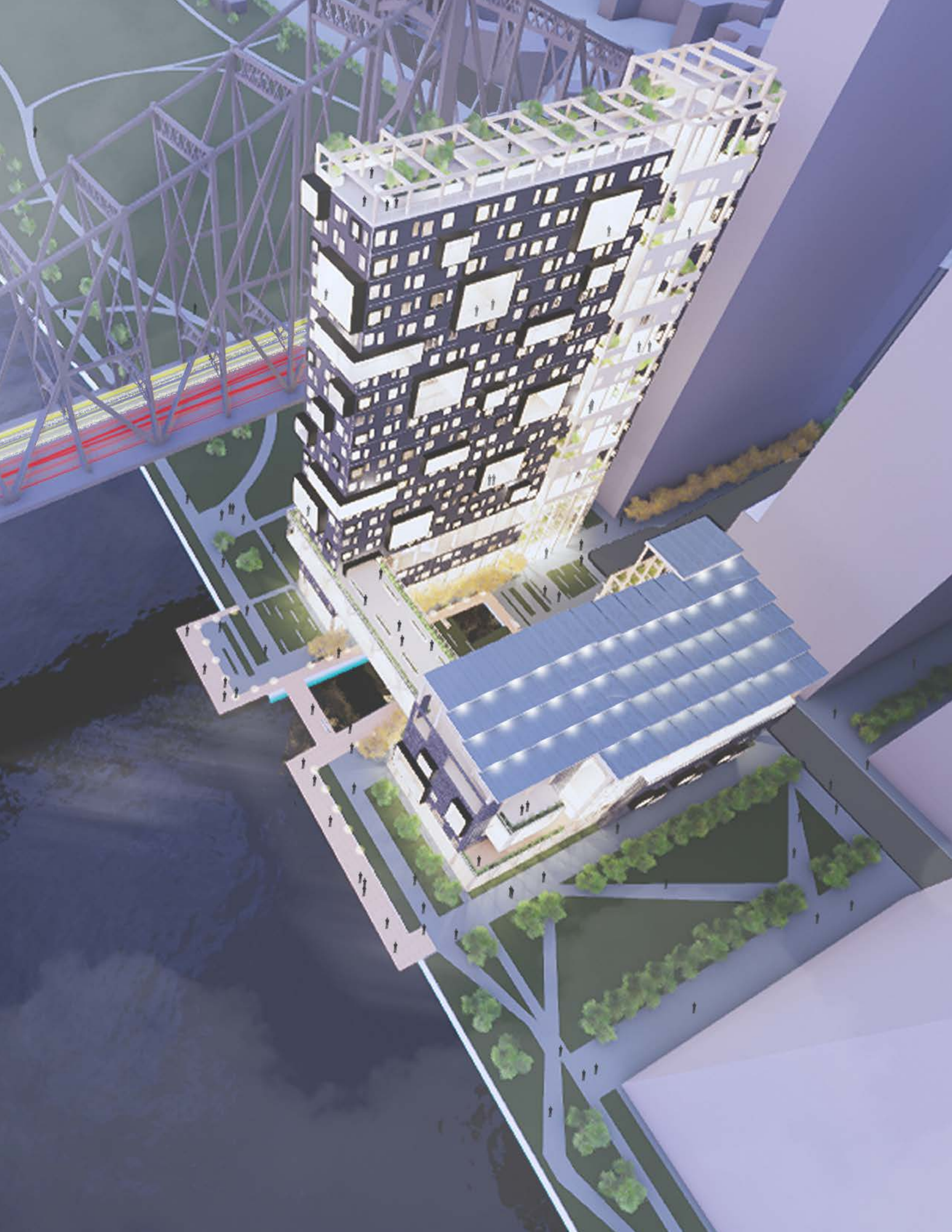




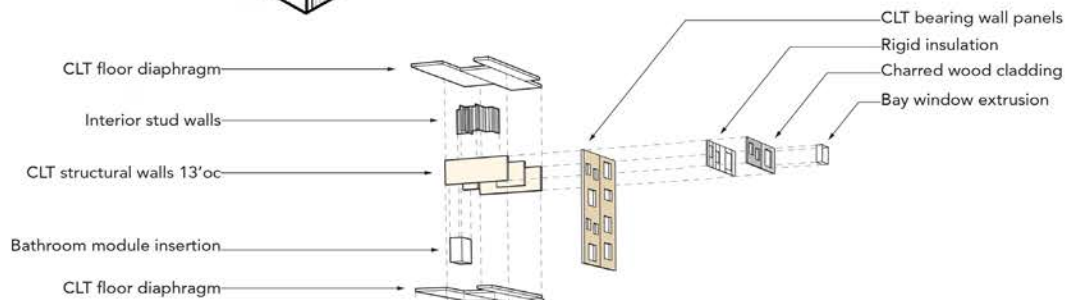
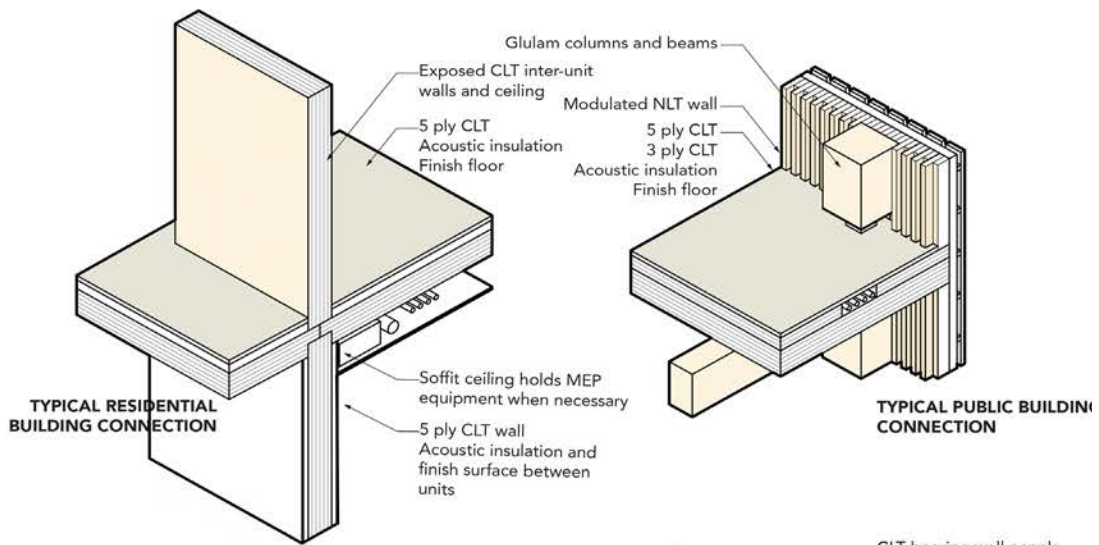
**A: ROOF SECTION IN WELLNESS CENTER**





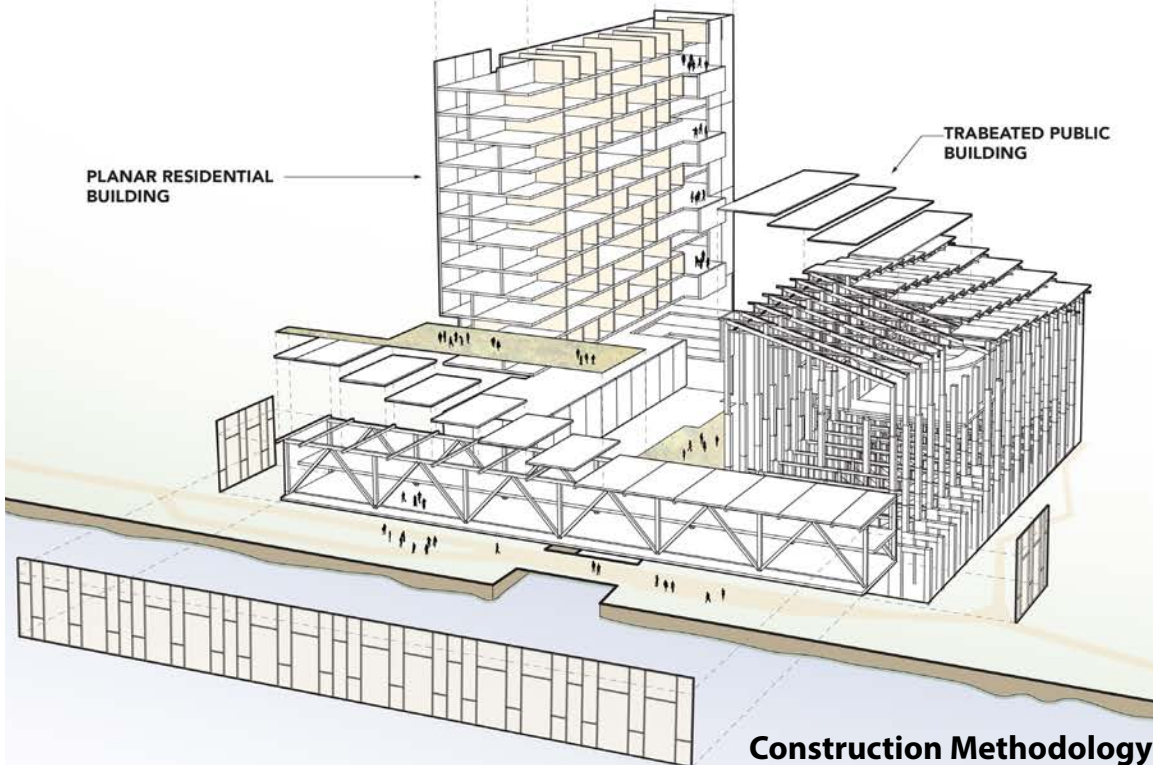






**PLANAR RESIDENTIAL BUILDING**

**TRABEATED PUBLIC BUILDING**





VEGETATED ROOF DECK  
SKIP-STOP CORRIDOR  
RESIDENTIAL UNIT  
SM COMMUNITY ROOM  
LG COMMUNITY ROOM  
VERTICAL GARDEN  
RESIDENTIAL LOBBY  
BRIDGE VIEWING DECK

TRACK  
SPORT COURT  
POOL  
CLASSROOM  
AUDITORIUM  
EDUCATION LOBBY  
VERTICAL GARDEN

**SOLAR POWER**  
340,000 kWh/yr  
(PV panels)

**CARBON STORAGE**  
5202 tonnes  
(MASS TIMBER MATERIALS)

**CARBON SEQUESTRATION**  
3 tonnes/yr  
(PLANTS)

**ACOUSTIC BUFFER**  
UPPER CORRIDOR  
(CONCRETE)

**CROSS-VENTILATION**  
DOWN CORRIDOR  
(GLASS)



### CLT

[floor slabs, demising walls, exterior diaphragm]  
835 panels: 13' x 35' average length  
Structurally similar to poured-in-place concrete with a fraction of the construction time and transportation costs, and a net-negative carbon footprint.



### Staggered DLT

[Roof of community building, walls of classrooms]  
No glue used, no VOC off-gassing, embedded acoustical dampening, net-negative carbon footprint.



### Glulam

[Structural system of community building and base of residential tower]  
Prefabricated columns and beams allow quick construction, minimized transportation costs, and net-negative carbon footprint.



### Dark Stain Cedar Rain Screen

[exterior cladding]  
Naturally weather resistant, reduced need for harmful chemicals.



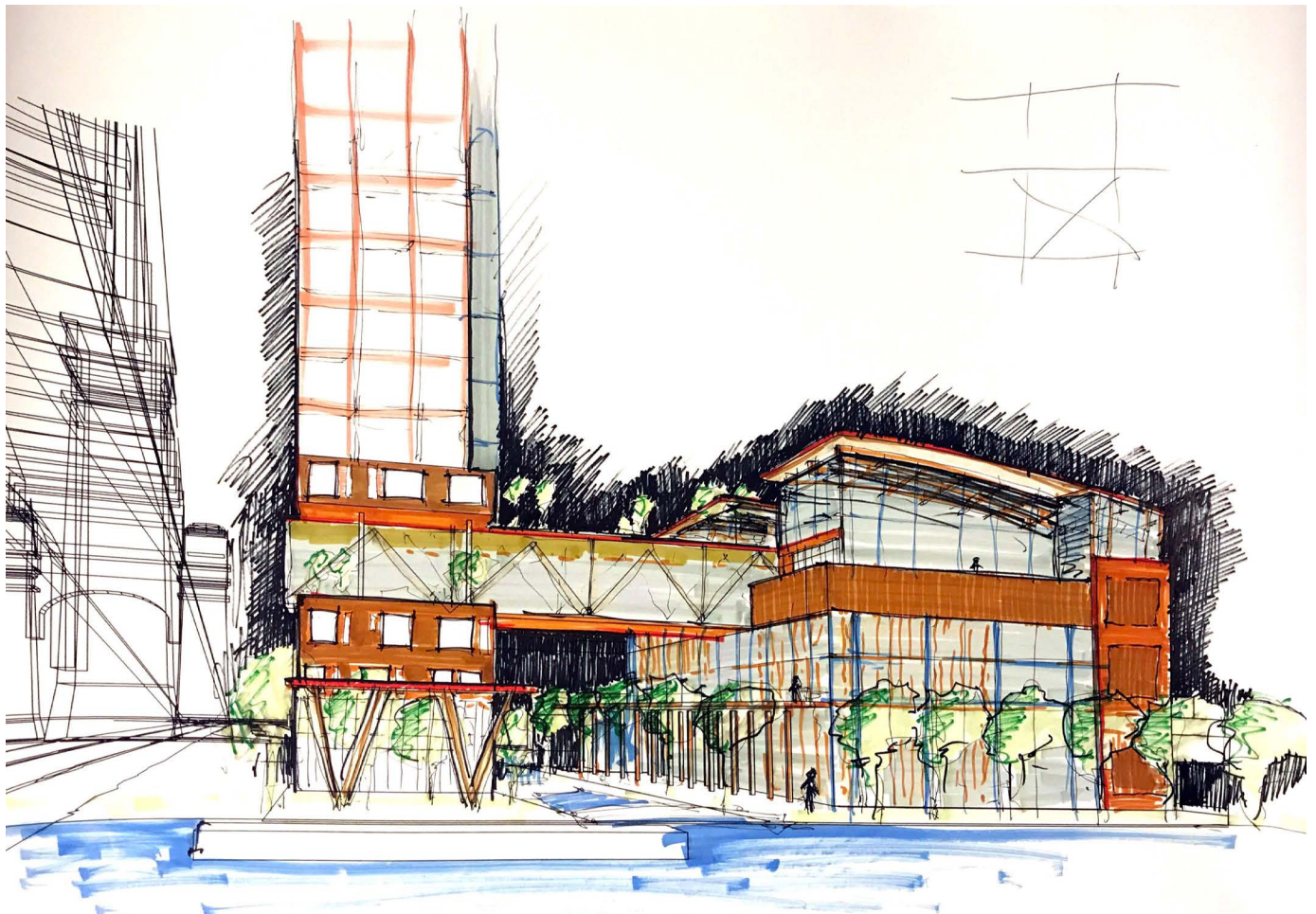
### Charred Pine Siding

[exterior cladding]  
Naturally weather resistant, reduced need for harmful chemicals.





**EARLY VIGNETTE FROM STREET**



**EARLY VIGNETTE FROM EAST RIVER**