

familyandfriends

FAM-1

FAM-1 is a prototype twice over.

familyandfriends envisions not just one building, but a comprehensive mass timber design, fabrication and construction system: **FAM**.

The system leverages our region's great timber resources, burgeoning mass timber fabrication industry, and massive housing demand to innovate both the material and social character of high density living.

In a time of increasing loneliness, we need alternatives to the studio, one- and two-bedroom units dominating the market. Two demographics historically underserved by the housing sector — **intergenerational families** and **young people** — both stand to benefit from larger units. For families, remaining together offers affordability, mutual support, and cultural continuity. For youth, roommates mean a more affordable, more social way of life. Accordingly, **FAM-1 has 5, 6, and 7 bedroom units**. Their design builds on the success of student sharehouses in Vancouver, adopting many of the spatial characteristics of the single-family home.

From a construction standpoint, FAM minimizes the number of unique components, adopting just a few **modular panels, plates,**

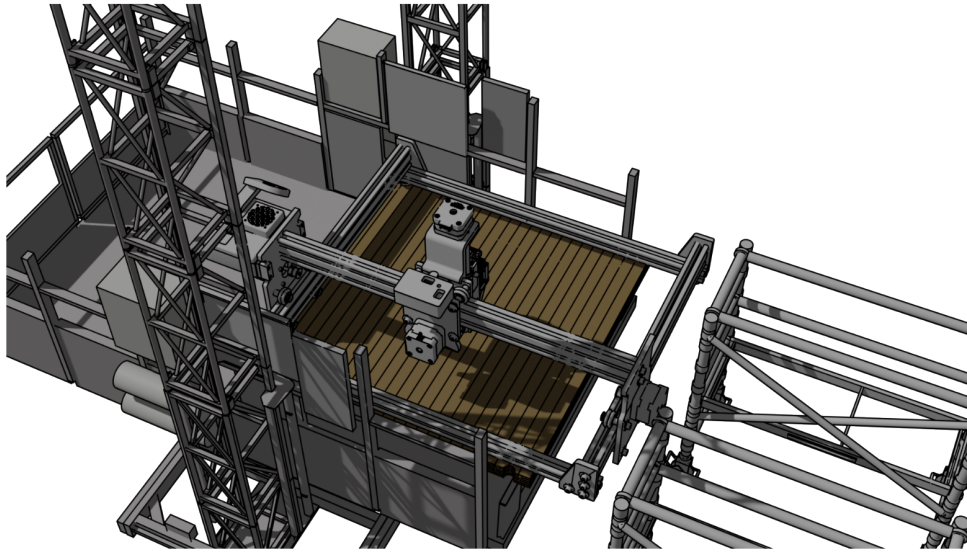
and columns. Prefabricated partitions, fixtures and fittings **expedite on-site construction**. The system is also modular at the building scale -- independent CLT circulation cores allow for the design of both small and large building footprints.

A pilot project, FAM-1 intends to prove both the efficacy of the manufacturing and construction system, as well as the market feasibility of large, multi-bedroom 'sharehouse' units. It will be developed and funded by the CMHC, in partnership with Kwantlen First Nation's "Səyem" development corporation. If successful, the FAM system will be available to private developers and non-profits alike for rapid deployment across the West Coast.



MANUFACTURING AND ASSEMBLY

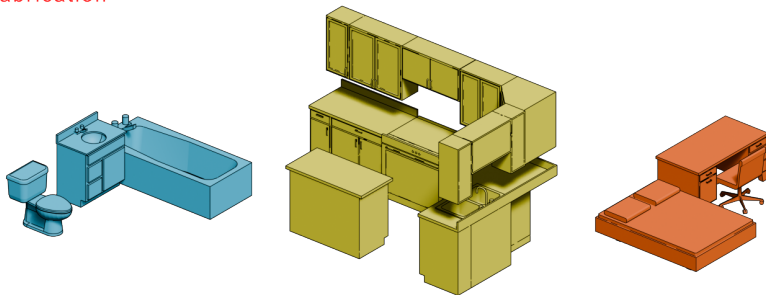
the project proposes a tandem mass timber facility that can produce both prefabricated CLT panels as well as prefabricated light wood framing panels. This would avoid more carbon heavy materials such as steel framing as well as utilising the efficiency of materials provided by the stick framing.



each panel is designed to fit within the constraints of a long haul truck bed for distribution throughout Vancouver as well as the rest of the Pacific climate zone. Once on site, the pieces can be easily assembled with minimal crews and an on-site crane.

PODS

standardized kitchen, bathrooms and bedrooms allow for easy prefabrication



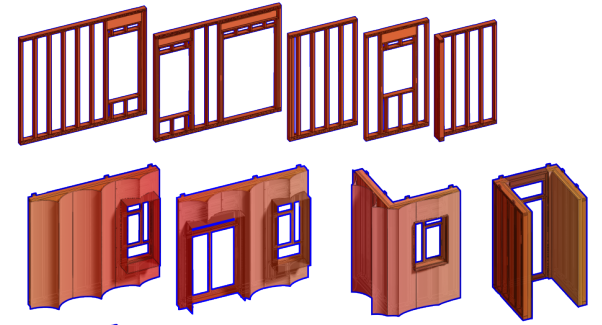
EXTERIOR PANEL FRAMING

prefabricated in factory



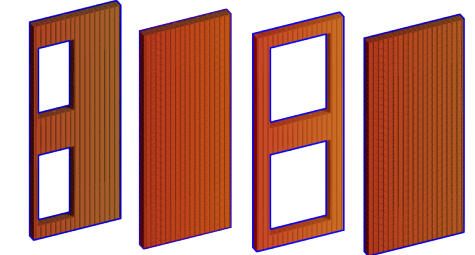
EXTERIOR PANELS

cladding and assembly completed in factory



CLT SHAFT PANELS

prefabricated in factory



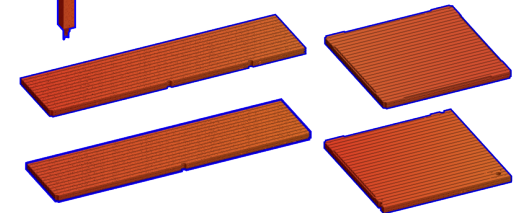
GLULAM POST + STEEL CONNECTION

prefabricated in factory



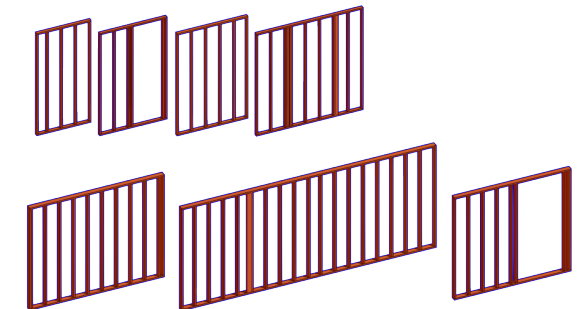
CLT PLATES

prefabricated in factory



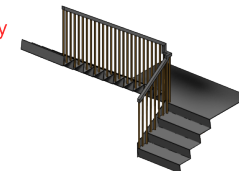
INTERIOR PARTITIONS

prefabricated in factory



STAIRS

prefabricated in factory



MANUFACTURING AND ASSEMBLY

the composite post and plate structure is comprised of approximately 1178 m³ of lumber including sheathing, CLT, light wood framing and glulam posts. Storing in total 1057 metric tons of CO₂, which is equivalent to 343 cars off the road in one year or the energy to operate 171 homes.

each room is equipped with an electric baseboard heater

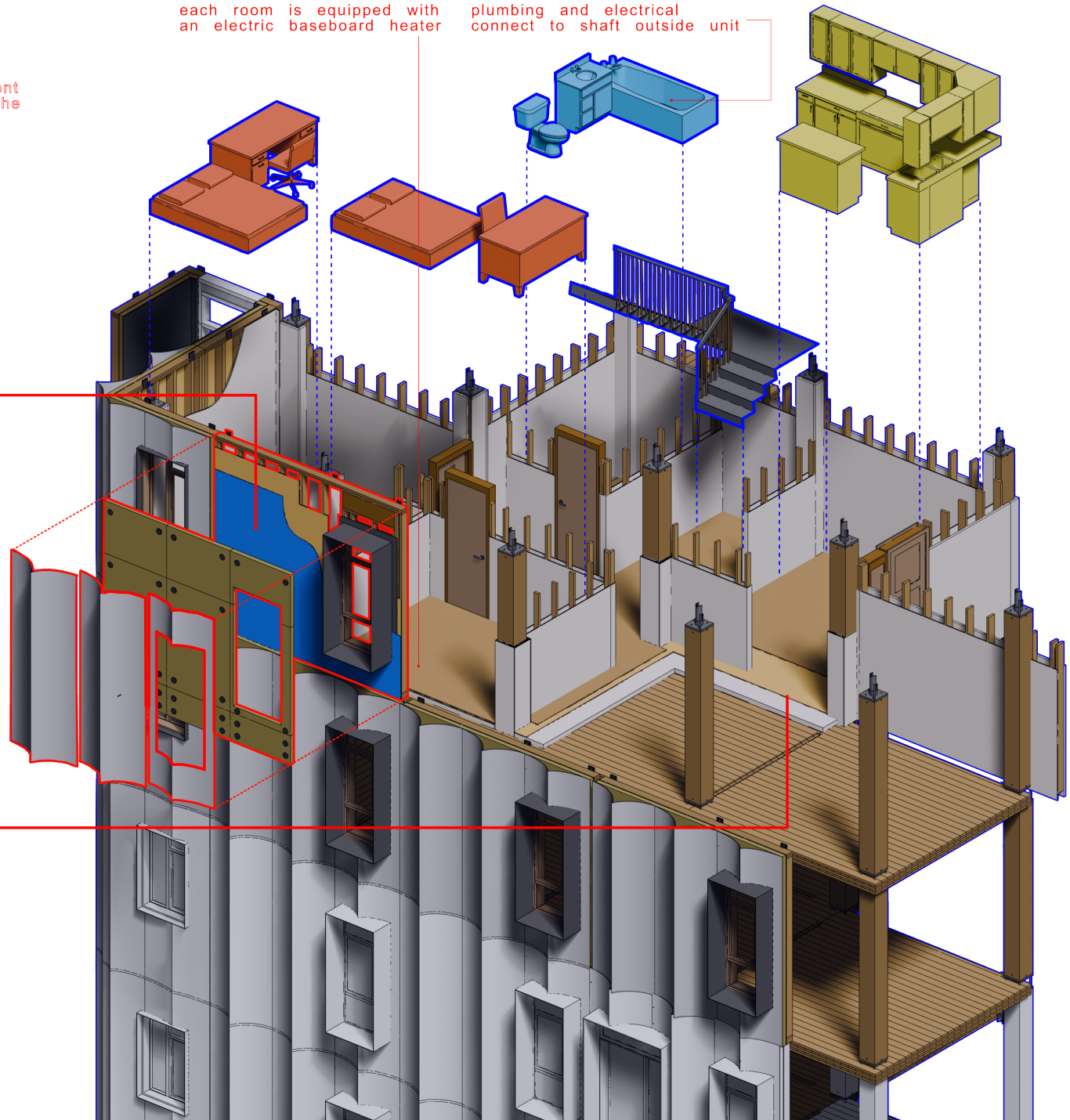
plumbing and electrical connect to shaft outside unit

EXTERIOR ASSEMBLY

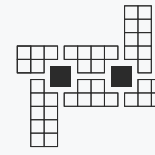
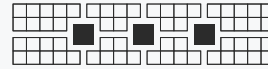
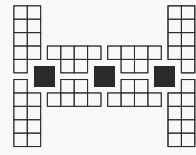
metal cladding
25mm steel girts
76mm rigid insulation with thermally broken clips
liquid applied membrane
12.7mm plywood sheathing
140mm light wood frame with fibreglass batt insulation
16mm gypsum finish

FLOOR ASSEMBLY

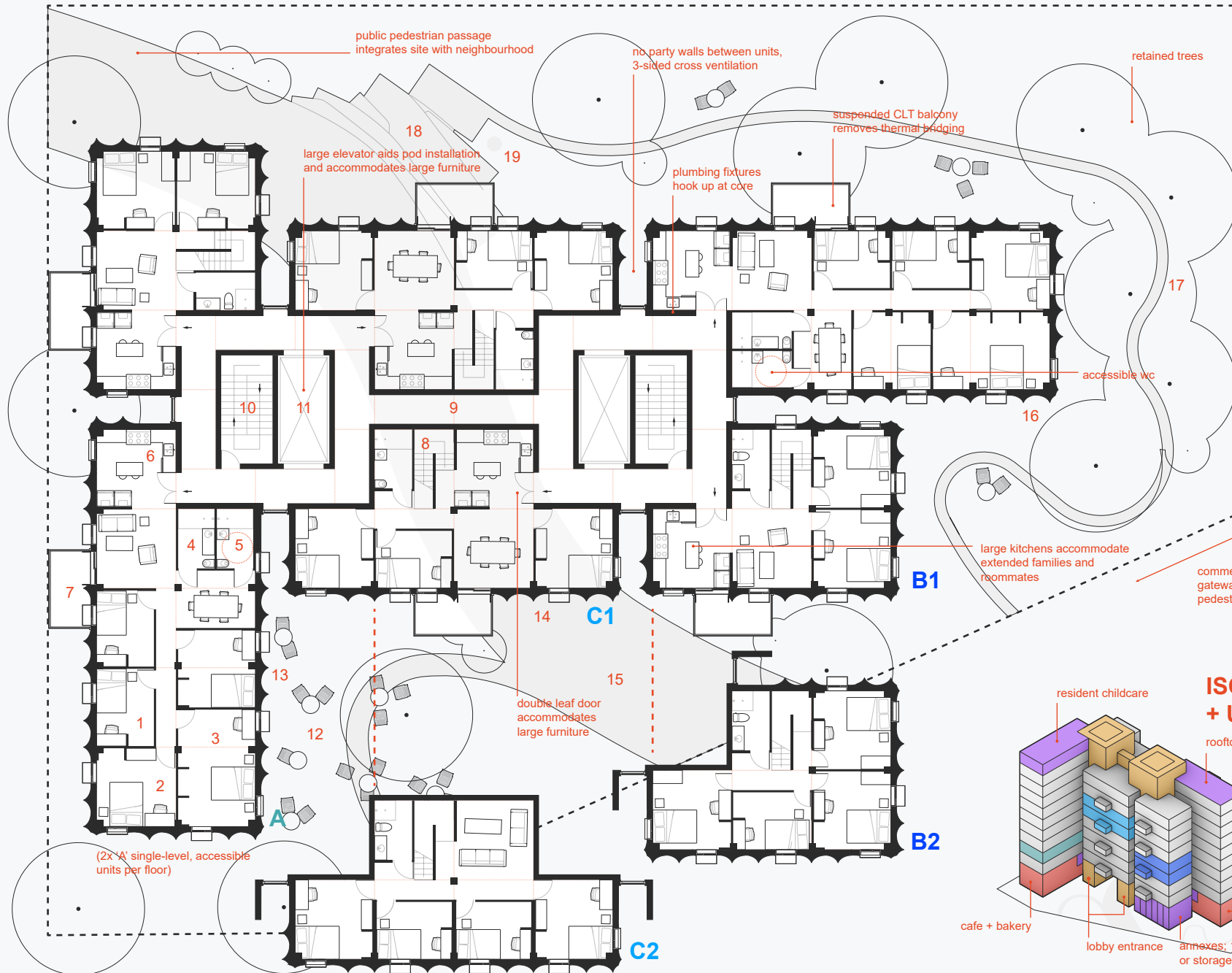
floor finish
12.7mm plywood subfloor
50mm rigid insulation with acoustic rails and dampeners
3 ply 16mm gypsum panel
5 ply CLT deck



TYPICAL UPPER FLOOR + SITE PLAN



→ modular core + unit system allows configuration for large and small sites



IN-UNIT PODS

- 1 bedroom S
- 2 bedroom M
- 3 bedroom L
- 4 wc X
- 5 wc Y (accessible)
- 6 shared kitchen
- 7 balcony
- 8 stair

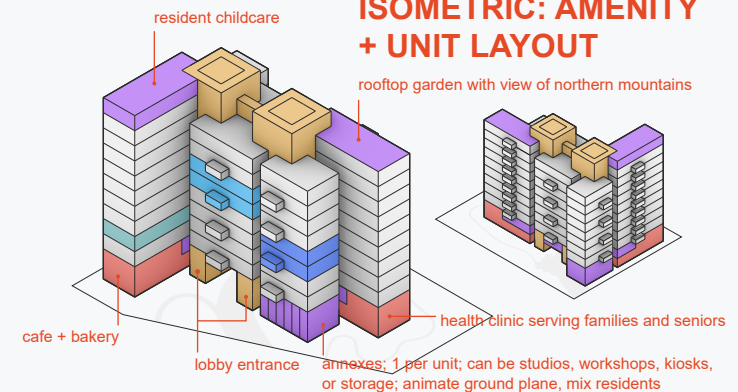
CORE

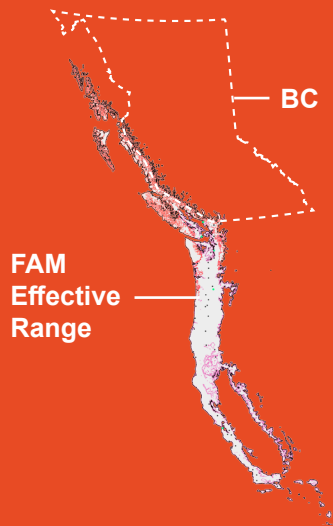
- 9 shared circulation
- 10 exit stair
- 11 oversized elevator

URBAN + LANDSCAPE

- 12 cafe patio
- 13 cafe + bakery entry
- 14 timber gateway + carving workshop
- 15 lost stream urban passage
- 16 family health clinic entry
- 17 stormwater runnel
- 18 rain garden + reflecting pool
- 19 sculpture

ISOMETRIC: AMENITY + UNIT LAYOUT





The system is designed to serve the largest possible market with a single product, thereby maximizing fabrication efficiency and leveraging economies of scale. Weatherproof, insulated panels suit West Coast climate zones—Csb to the south and Cfb to the north. With millions of residents across Vancouver, Victoria, Seattle, Portland, and San Francisco, BC's timber and fabrication industries are well placed to supply this "climate market." We need to think big.

In addition to climate, the design must respond to its cultural region. The large units can accommodate atypical family sizes, a need expressed by the Semiahmoo, Kwantlen, and Katzie First Nations, on whose territory the project is located. At the site scale, a culverted stream and dense tree cover have become opportunities for stewardship through daylighting and preservation, while spaces such as a covered outdoor patio and rain garden can support cultural programming, such as carving or workshops.

PROFORMA

FSR	3.708468229
Lot size (sq ft)	20,125
Building sq ft Above Grade	74633
Building efficiency (%)	85
non saleable/rentable (sq ft)	11194.89739
saleable/rentable (sq ft)	63437.75188
Total Stories above grade (#)	10.5
Total Stories (#)	10.5
Base floor (#)	1
Above 1st storey (#)	9.5
Stories below grade (#)	0
Units (#)	34
Bedrooms (#)	194
Amenity space (sq ft)	1395.00279
Non-residential (sq ft)	7463.264927



CONSTRUCTION COSTS

	Square footage	Concrete		Submission	
		\$/sq ft	Cost	\$/sq ft	Cost
Below grade	0.0	\$315	\$0	\$150	\$0
Base floor	7463.3	\$360	\$2,686,775	\$270	\$2,015,082
Above 1st storey	67169.4	\$385	\$25,860,211	\$280	\$18,807,428
	Quantity	\$/unit		\$/unit	
Balconies	34	\$25,000	\$850,000	\$25,000	\$850,000
	Cost per month	# Months	Cost	# Months	Cost
Schedule Costs (Monthly)	\$50,000	18	\$900,000	16	\$800,000
TOTAL			\$30,296,986		\$22,472,509

EMBODIED CARBON

	Sq ft	Concrete		Submission	
		Embodied	Total	Embodied	Total
Total Building Sq Footage	74632.6	6.69	499219.28	2.7	201508.153

The proforma points to general project benefits, such as reduced carbon emissions and cost compared to concrete construction. However, some advantages of the FAM system are not fully captured in the table, such as faster construction timelines due to prefabrication and standardization of unit design, and the ability to scale this system across similar sites for further cost efficiencies. Together, the proforma demonstrates that this system is not only feasible but establishes a replicable path toward affordable, low-carbon, family-oriented urban housing.