2021

CANADIAN GREEN BUILDING AWARDS

THE NATIONAL PROGRAM OF SUSTAINABLE ARCHITECTURE & BUILDING MAGAZINE SABMag

PART 1
PROJECT DESCRIPTION

Use for all categories. Projects are judged based on criteria of sustainable design, architectural merit and innovation.

Project categories

Identify which Award category you are entering

☐ **1. Residential [small]**
Open to new or renovated buildings less than 600m² in area, of which a minimum of 75% is dedicated to single-family or multi-family residential uses.

☐ **2. Residential [large]**
Open to new or renovated buildings [typically multi-unit buildings or groups of related buildings] greater than 600m² in area, of which at least 75% is dedicated to residential uses.

☐ **3. Commercial/Industrial [small]**
Open to new or renovated buildings up to 2,000m² in area, of which more than 75% is dedicated to commercial or industrial uses.

☒ **4. Commercial/industrial [large]**
Open to new or renovated buildings [or groups of related buildings] greater than 2,000m² in area, of which at least 75% of the floor area is dedicated to commercial or industrial uses.

☐ **5. Institutional [small]**
Open to new or renovated buildings up to 2,000m² in area, of which more than 75% is dedicated to institutional uses.

☐ **6. Institutional [large]**
Open to new or renovated buildings [or groups of buildings] greater than 2,000m² in area, of which at least 75% of the floor area is dedicated to institutional uses.

☐ **7. Mixed Use**
Open to new or renovated buildings [or groups of related buildings] of any size, in which no individual use exceeds 75% of the overall floor area.

☐ **8. Existing Building Upgrade**
Open to buildings of any size or type in which the primary focus of the work has been to enhance the performance or extend the life of an existing structure. Entries in this category are required to respond only to the submission criteria appropriate to the project.

☐ **9. Interior Design**
Open to interior design projects of any size or type. Entries in this category are required to respond only to the submission criteria appropriate to the project.

An award will be given in each category at the discretion of the jury.

PROJECT DETAILS

Project name: 80 Atlantic

Address: 80 Atlantic Avenue, Toronto, Ontario

Year completed: 2020

PROGRAM AND CONTEXT

Project type: [Identify all uses occupying 10% or more of gross floor area]

Commercial, Retail

Project site: [Check all that apply]

- [■] Previously undeveloped land
- [ ] Previously developed land
- [ ] Urban
- [ ] Suburban
- [ ] Rural

Other Building description: [Check only one]

- [■] New
- [ ] Renovation
- [ ] Both [If both, list __% new and __% renovation]

STATISTICS* Provide the following metrics as applicable to your project.

- Site Area: 1955 m^2
- Building gross floor area: 12950 m^2
- Energy Intensity: 150 KWhr/m^2/year [Include both base building and process energy]

[optional: report energy intensity separately as follows:

- Energy Intensity, base building: 104 KWhr/m^2/year
- Energy Intensity, process energy: 46 KWhr/m^2/year

- Reduction in energy intensity: 32.3 %.
- State the reference standard on which the % reduction is based: MNECB, NECB or ASHRAE 90.1

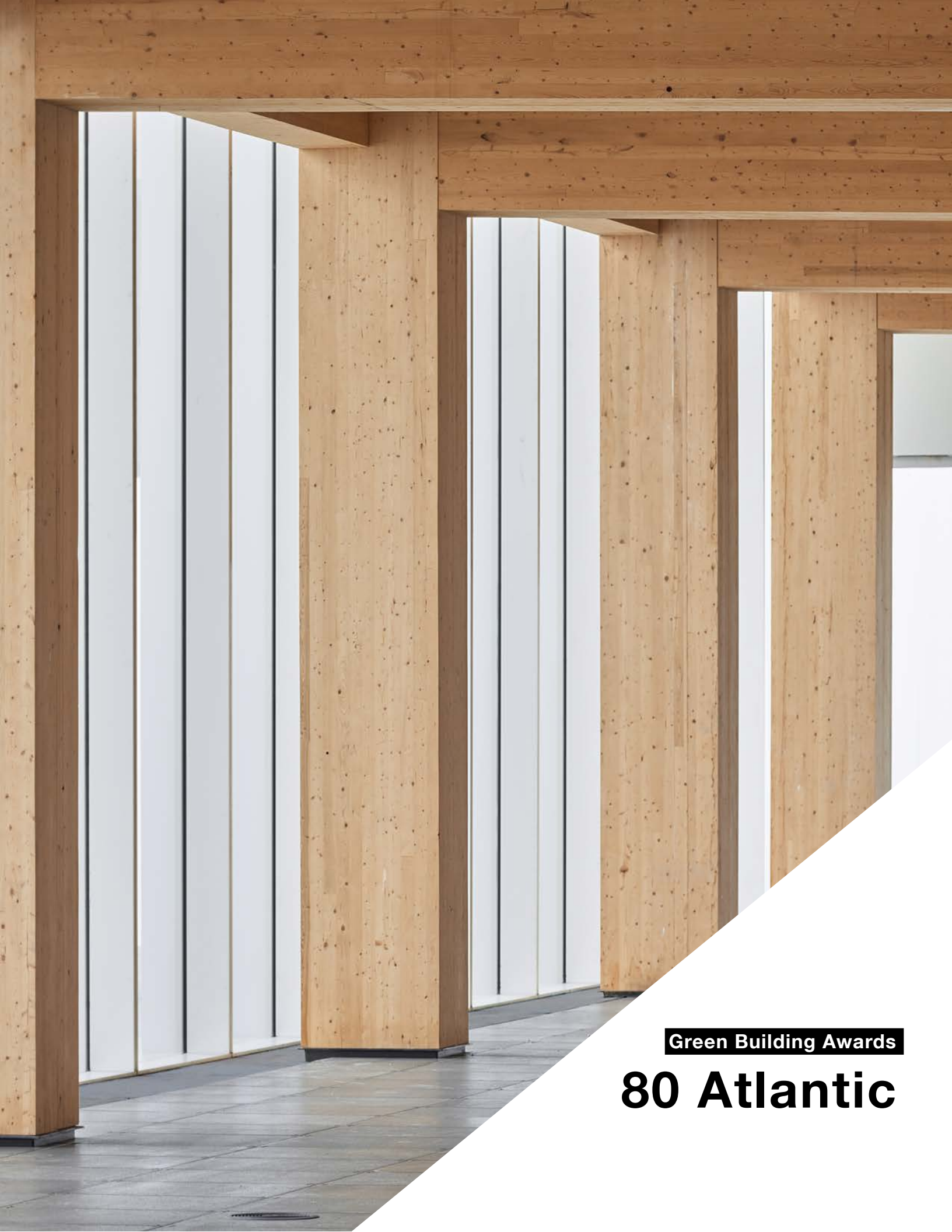
[include version]: ASHRAE 90.1-2010 modified by SB-10

- Recycled materials content: n/a % by value
- Water consumption from municipal source: 4712 litres/occupant/year

[Include both base building and process consumption]

- Reduction in water consumption: 23 %
- State the reference on which the % reduction is based: LEED [■] or other [ ]
- Construction materials diverted from landfill: n/a %
- Regional materials by value: n/a %

***NOTE FOR PART 9 RESIDENTIAL PROJECTS: PROVIDE THE STATISTICS ABOVE IF AVAILABLE.** Include in the Executive Summary [see next page] the EnerGuide or the Home Energy Rating System [HERS] ratings if available, and the WalkScore rating [see www.walkscore.com]. Also, a qualitative assessment of project performance should be included in the appropriate sections of the narrative.



Green Building Awards

80 Atlantic

Ontario's first mass timber commercial building in a generation, 80 Atlantic (80) is a prototype for the future of mass timber and sustainable construction. Paired with its sister building, 60 Atlantic (60), 80 offers an exemplary work environment and a civic amenity associated with innovation and sustainability.

80 Atlantic combines four storeys of office over ground-floor retail, constructed using Canadian-sourced timber. The project was the first to embrace the 2015 Ontario Building Code allowance for wood buildings up to six storeys. Proceeding with only five storeys, the team designed an appropriately scaled building for its context, with a shorter approvals period.

In Toronto's Liberty Village, 80 was designed to attract the new creative class that has adopted this neighbourhood. The surrounding factory buildings influenced its design, leading to an adapted brick and beam typology and masonry-inspired punched windows.

Sustainable design strategies include:

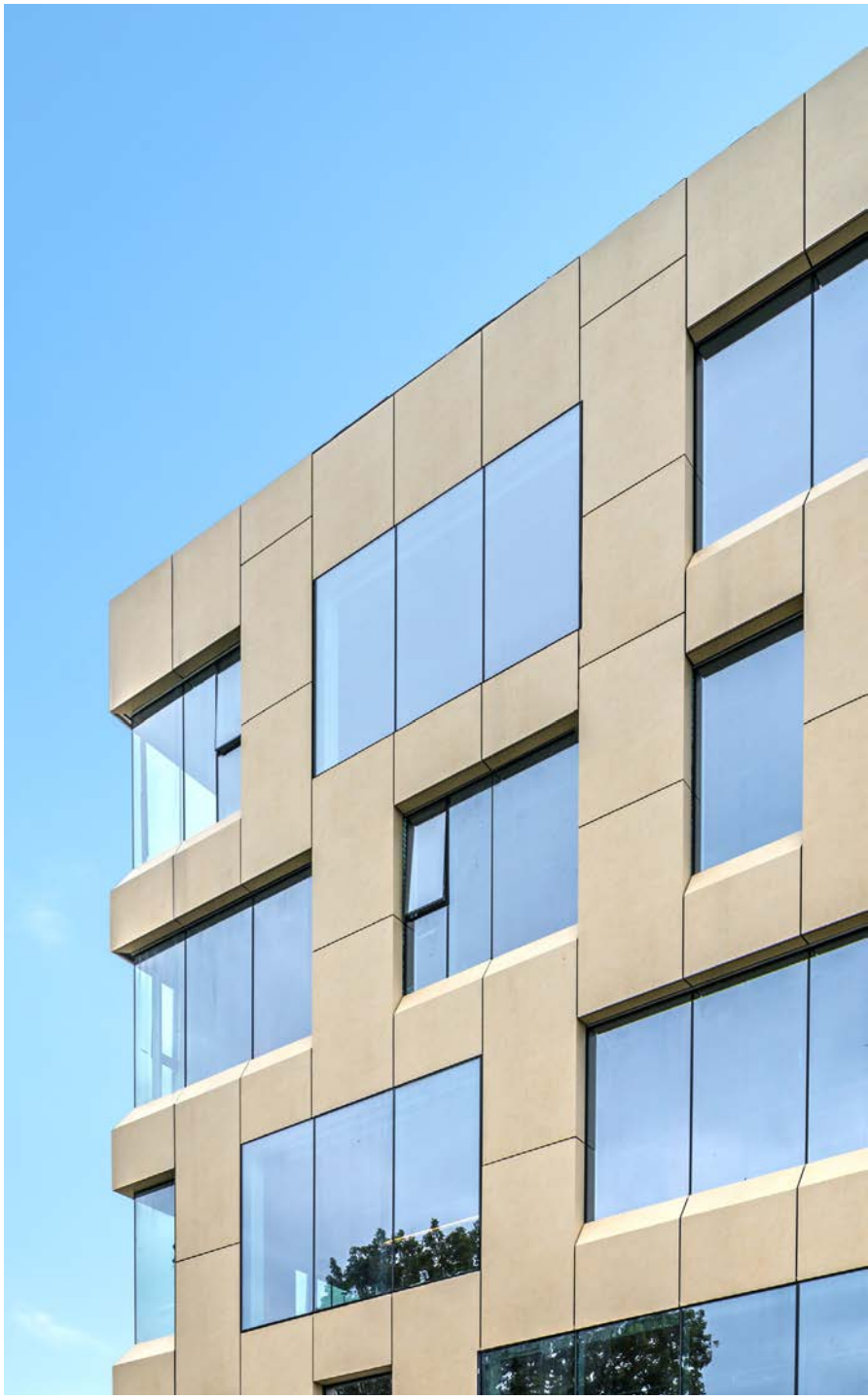
- The use of heavy timber, leveraging embodied carbon benefits;
- A high-performance building envelope with exterior insulation;
- Full building air filtration testing;
- Community integration including a shared courtyard with 60, public art in an activated laneway, and full-scale public views of the wood within.

Strategic Decisions

The project goals were to design an office building that would build on the success of the adjacent property, 60 Atlantic (a globally recognized warehouse conversion/ expansion), demonstrate leadership in the rapidly developing field of mass timber, and to attract creative tenants. Motivated by recent changes to the Ontario Building Code allowing for commercial wood buildings up to six storeys, the team introduced a new "Post and Beam 2.0" typology. 80 Atlantic mixes the warmth, beauty and large, open spans of a converted industrial building with the environmental and technological advantages of a Class-A office building, including airtight construction, energy efficiency, good acoustics and built-in technologies. 80 Atlantic offers the materially raw and easily reconfigurable environment popular with new economy tenants, but without its deficits: the dust, draughts, poor acoustics, energy inefficiency, and the obtrusively placed pipes and cables. Punched windows echo the architecture of surrounding heritage buildings and maintain an overall window-to-wall ratio of 40%. A south-facing curtainwall mitigates the building's mass and scale on the streetscape while showcasing the mass timber interiors to passersby.

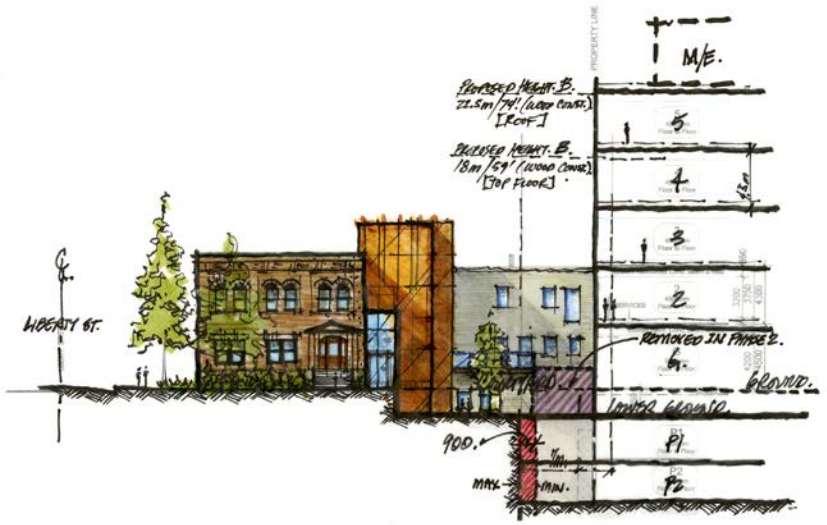
East-West Building Cross-Section

East-West Section showing engineered plenum



Community

80 shares a courtyard beer garden with 60 Atlantic, inviting both tenants and neighbours to enjoy the site beyond work hours. The public realm includes places to sit; to lock a bicycle; and to take shelter from the elements. 80 also offers proximity to an array of green commuting options including two lines of public transportation as well as pedestrian and cycling paths. Promoting alternative commuting options, the project includes only the requisite car parking and exceeds the suggested bicycle spaces, which includes covered parking. Supergraphics lead cyclists down a ramp into the bike storage area, complete with shower amenities. A 60ft long mural lines the north facade walkway, giving the neighbourhood a well-lit laneway connection between Atlantic and Jefferson Avenues.

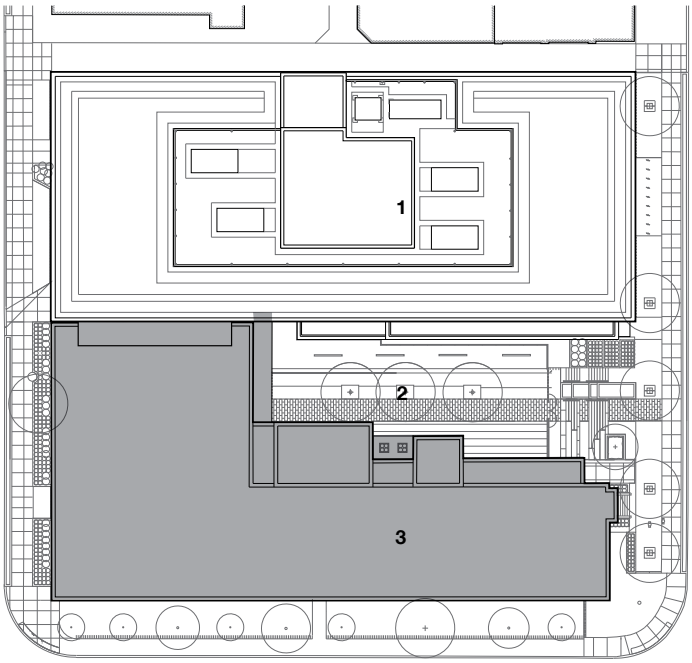


North-South Building Section

Atlantic-Jefferson pedestrian laneway improvements; mural by artist Nicole Charles

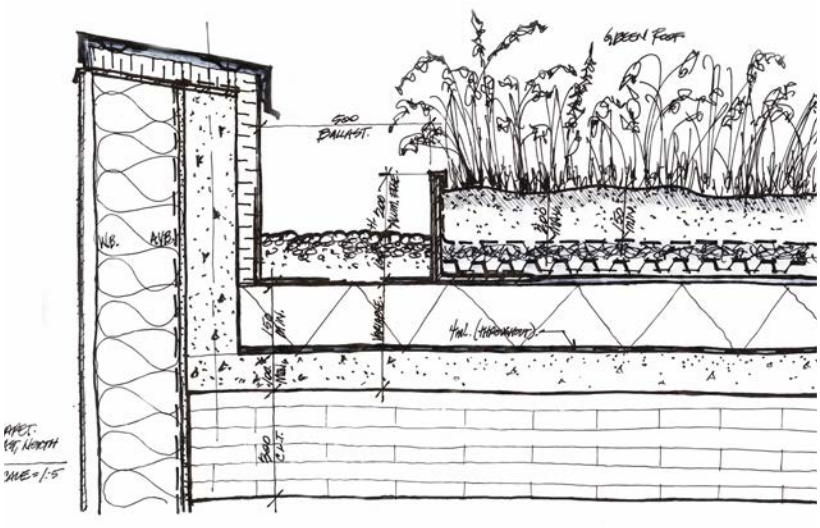
Site Ecology

80 Atlantic features the first green roof on a mass timber commercial building in Toronto, which we hope will inform future projects. The green roof is a combination of intensive and semi-intensive species, with taller grasses around the edges. The site's landscaping is composed of 100% native tree species, planted in Silva Cells, and at least 50% native and drought tolerant plants. Rainwater is retained and reused for landscaping. In five years, shade will cover 75% of the hardscape with 50% of the shading achieved from high albedo landscape materials.



1 80 ATLANTIC
2 COURTYARD
3 60 ATLANTIC

Site Plan



Typical parapet along East + North + West

Light & Air

The team did thermal modelling and a thermal comfort study, installing the best possible, high performance glazing.

Air tightness testing verified that the building exceeded the Washington State target infiltration rate, achieving a rate of 0.32cfm/ft2 @75 Pa. HVAC ducts, integrated into the floor plenum, keep the air moving and temperatures comfortable. The electrical and telecommunications systems are also below the floor, resulting in a highly adaptable and uncluttered space. Unobscured by ducts or bulkheads, the natural wood columns and ceilings are on display throughout.

Building users have more control over their environment than in a typical office setting, thanks to operable windows which are easily accessible to 30% of occupants and interior shading control through user operated blinds.

High performance LED lighting and occupancy sensors reduce energy required for lighting to 3.87 W/m2 from a code reference of 8.07W/m2. An ERV with 88% recovery contributes to the building's overall energy performance of 150 kKWhr/m2.

Wellness

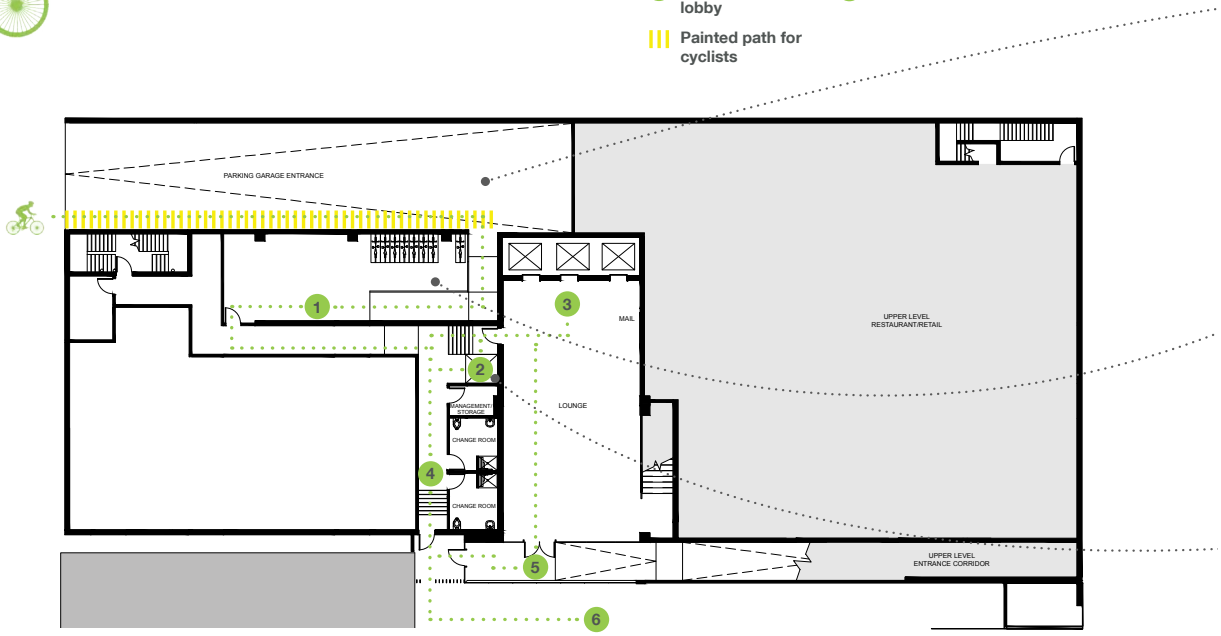
The unobstructed wood columns and ceilings positively impact occupants' physical and psychological well-being, with similar stress-reducing effects to nature. The wood softens both light and noise. It also eliminated the need for drywall, acting as both the structure and the finish material.

Other healthful attributes include the generous daylight, community connections, and how the building prompts an active lifestyle. Operable windows and solar shading optimize comfort. The curtainwall bathes the interiors with daylight, positively contributing to occupant wellness.

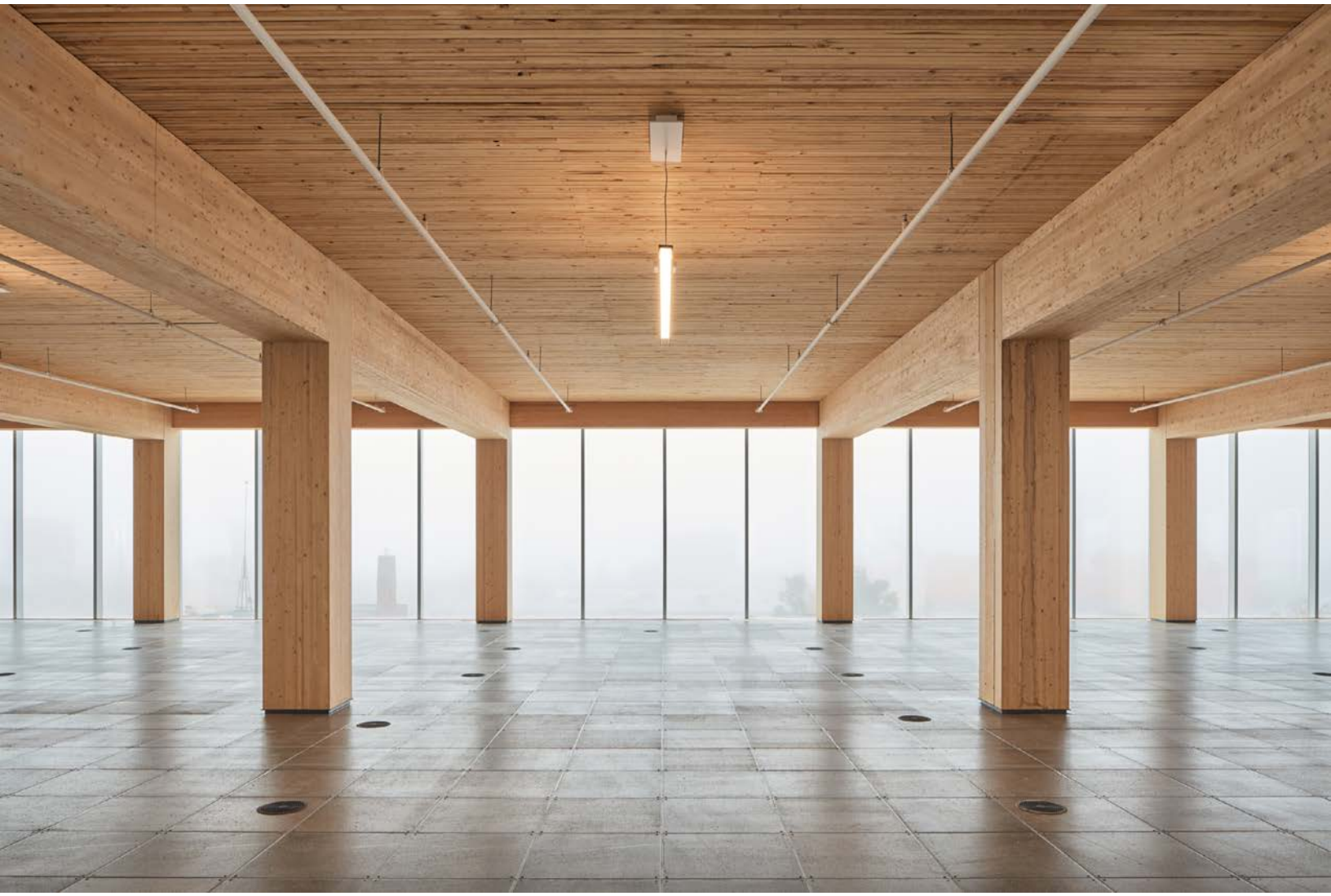
A Day in the Life of a Typical Cyclist

1. Bike parking
2. Lift
3. Lounge/Elevator lobby
4. Change rooms and showers
5. Entrance ramp
6. Exterior courtyard

Painted path for cyclists



design development

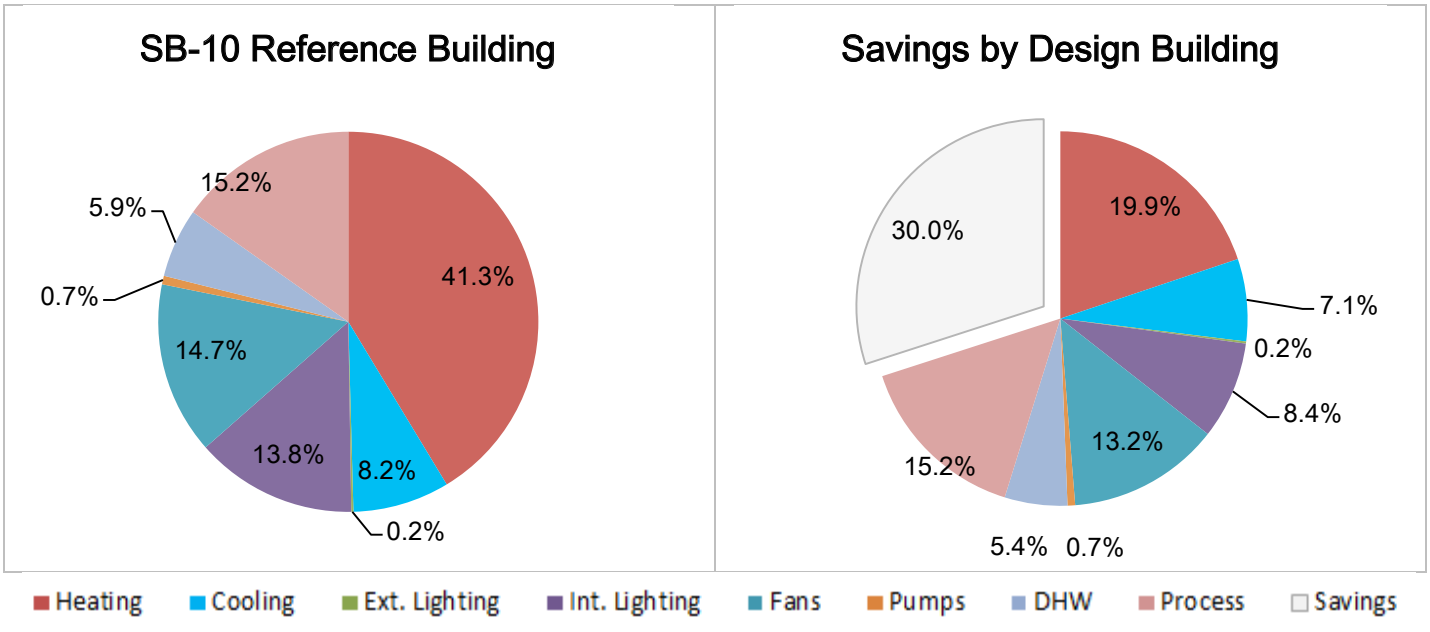


Energy Present & Future

80 Atlantic's total annual energy consumption is 150 KWhr/m2, with 104KWh/m2 for the base load and 46KWh/m2 for the process loads. The building's energy savings stem from an energy recovery ventilator with 88% sensible recovery serving the RTUs, and condensing boilers with a thermal seasonal efficiency of 90%. High performance LED lighting and occupancy sensors reduce the energy required to light the space from the code reference of 8.07W/m2 to 3.87 W/m2.

80 Atlantic was commissioned to best practices just as the pandemic hit and as such has not been able to be fully occupied. Building performance will be verified and monitored remotely through data collection and analysis.

Components of Annual Energy Consumption



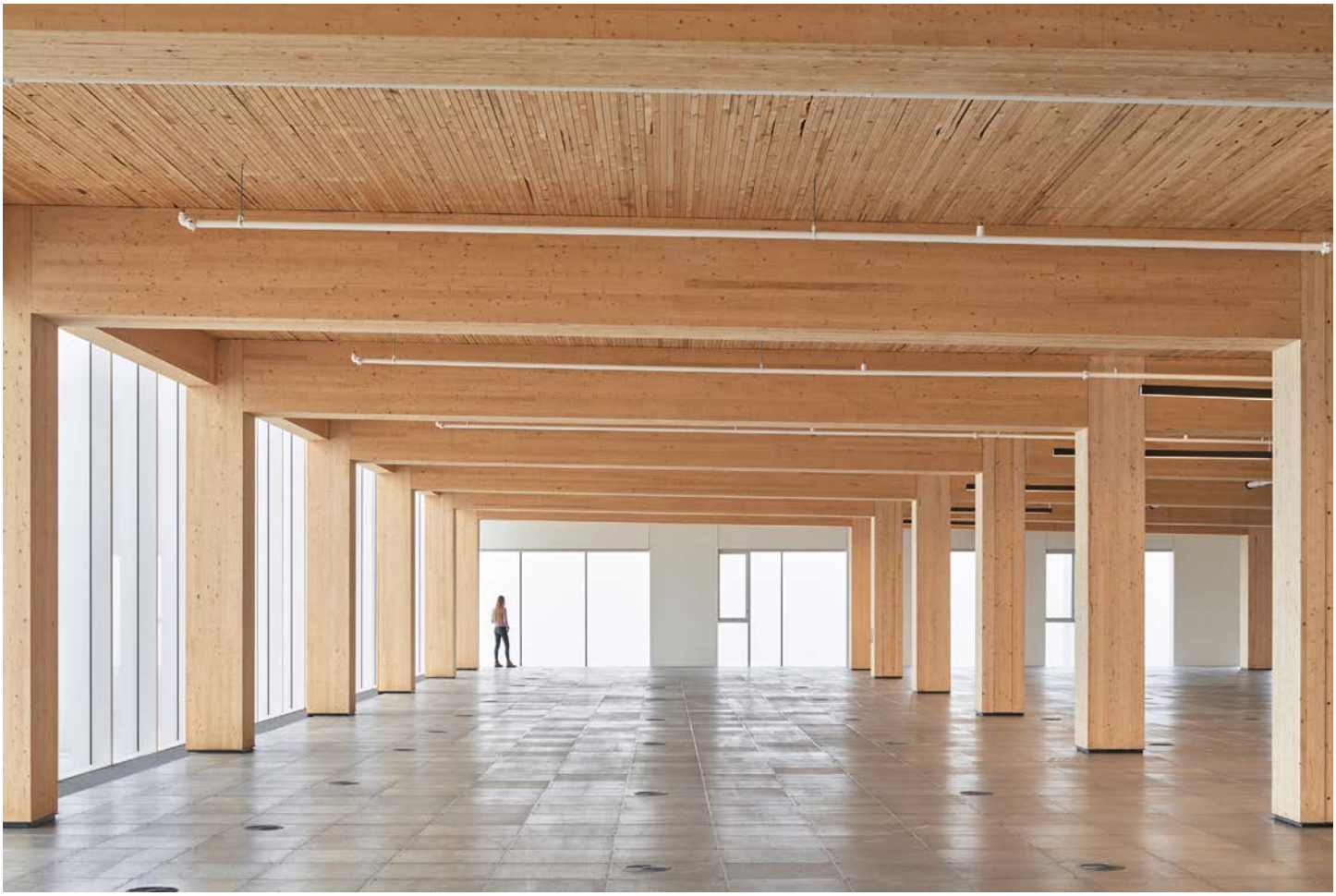
Water Conservation

80 Atlantic's potable water consumption was reduced by 23% compared to the LEED v2009 baseline through various strategies including low flow fixtures (1.9 LPM toilets and 5.7 LMP showers).

Materials & Resources

Wood is the primary structural material. It is a renewable, sustainable, local resource that enables faster, quieter and safer construction as well as a beautiful, adaptable and healthy environment. Wood sequesters carbon and avoids the emissions produced by standard structural materials.

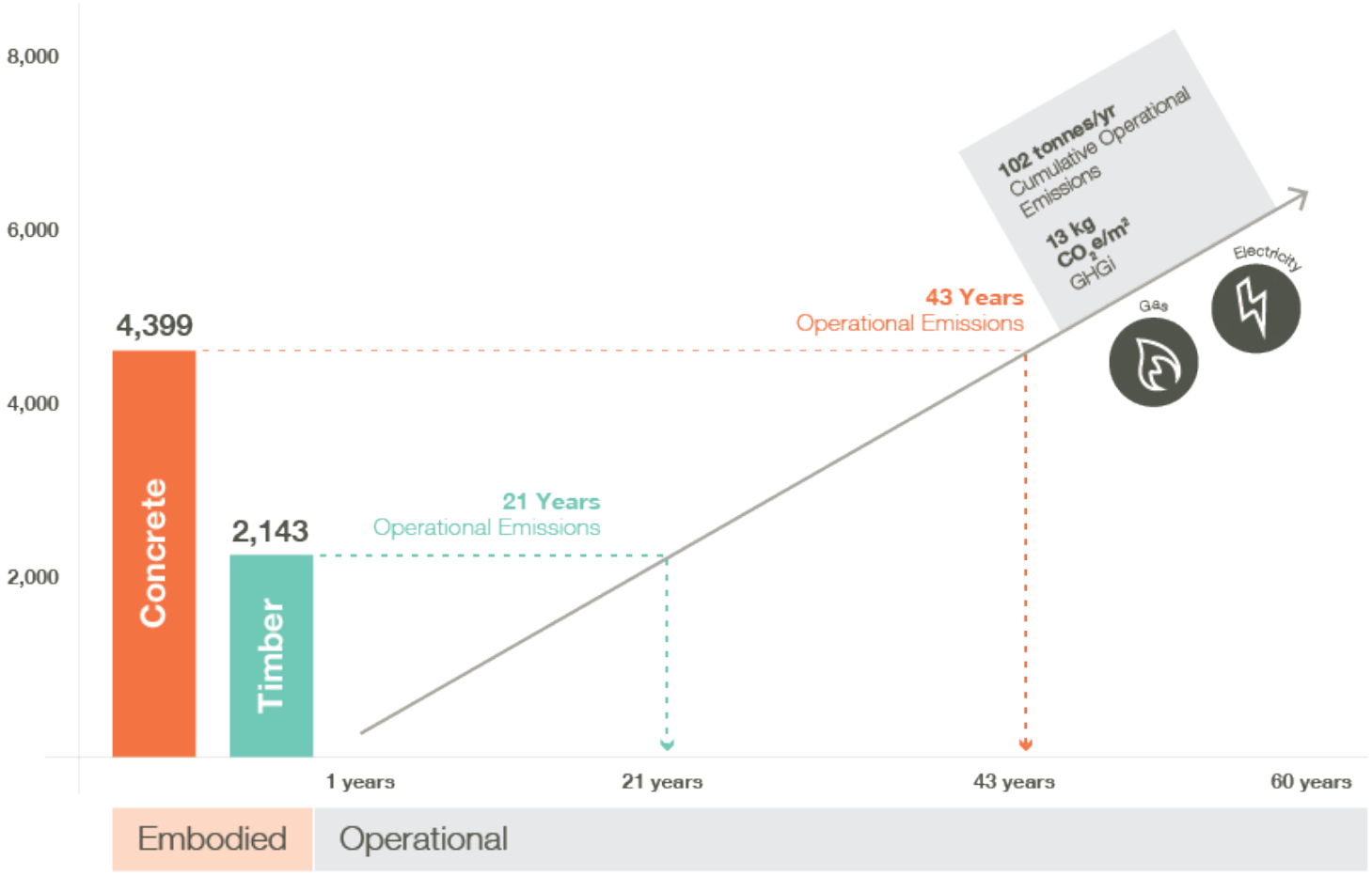
Pre-fabrication results in a better product, greater safety and more efficient labour conditions, less waste and quieter construction. On the interior, the warmth and quality of exposed timber saves on the need for additional finishes.

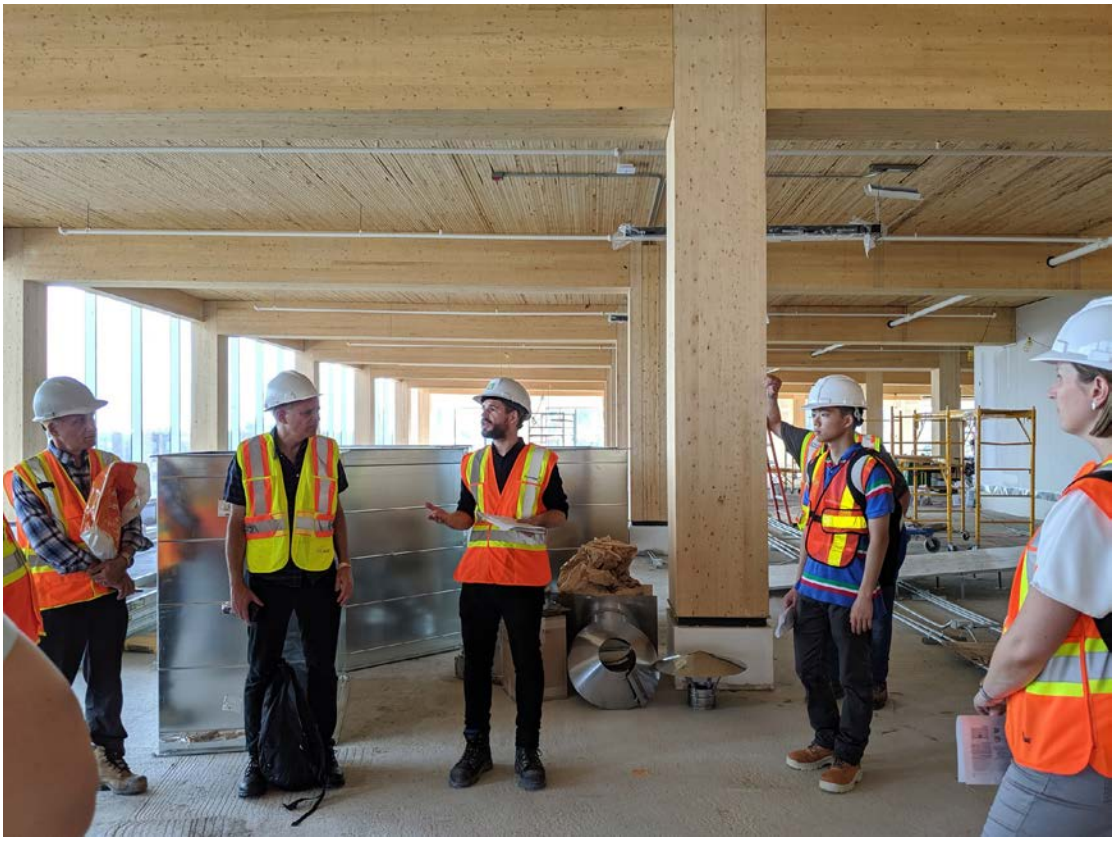


Building Life Cycle Considerations

We engaged RWDI consulting engineers to perform a life cycle analysis for 80 to determine the embodied carbon of the building. During design, we studied the structural systems in both concrete and timber. Following methodologies outlined in ISO 14044 and LEEDv4, we compared the carbon impacts of this decision.

The analysis showed that the embodied carbon for this building in timber is the equivalent of 21 years of base load operational emissions, or, half the embodied carbon than the same building would have, had it been designed solely in concrete.





Education & Information Sharing

From its inception, the project drew the attention of the local architecture community, and we felt that it was important to be as transparent as possible about our process and findings to help encourage sustainable architecture in the province. We built a full-scale mock-up at the Carpenter's Union for testing the construction and sharing our exploration with students and other interested parties. We also hosted multiple open houses during the construction phase for Ontario Wood WORKS!, architects, school groups and the media. We also performed air tightness testing to ensure that the building was performing as designed.