



BROCK COMMONS TALL WOOD BUILDING

BUILDING ENVELOPE

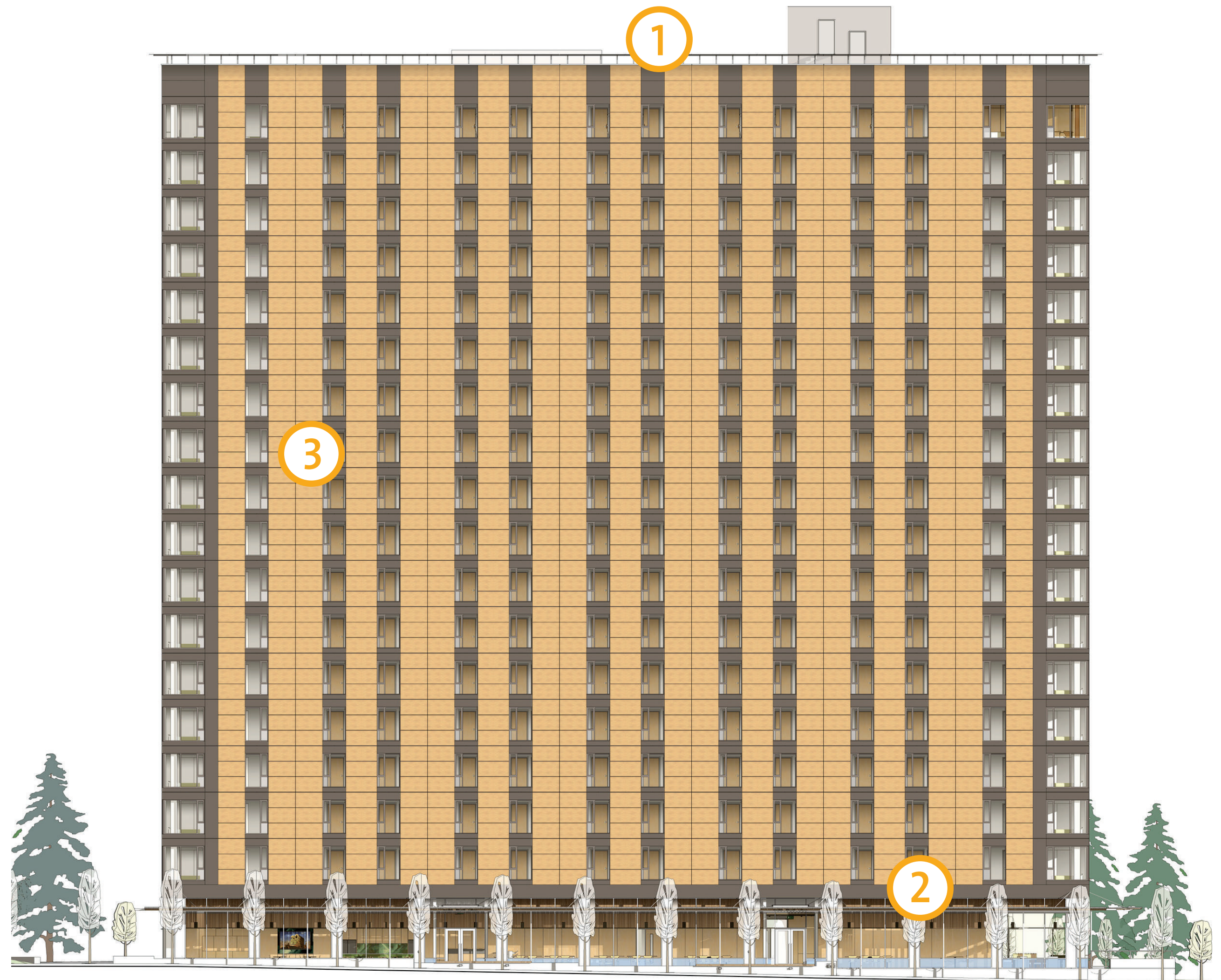
June 2016

The envelope of the Brock Commons building is a combination of a curtain wall system (ground level) and prefabricated panel system (levels 2 through 18), with a conventional built-up roof. The rationale behind a prefabricated envelope system is to allow each level to be rapidly enclosed as the wood structure is erected, thus providing protection from rain as well as reducing risk of damages. Energy performance is another consideration: the envelope has a minimum R-16 thermal resistance. The exterior colour palette and aesthetics are similar in style to the other student residence hubs on campus.

Four different envelope options were explored, as versions of design-build packages and meeting standard specification for insulation value, as well as materials and finishes:

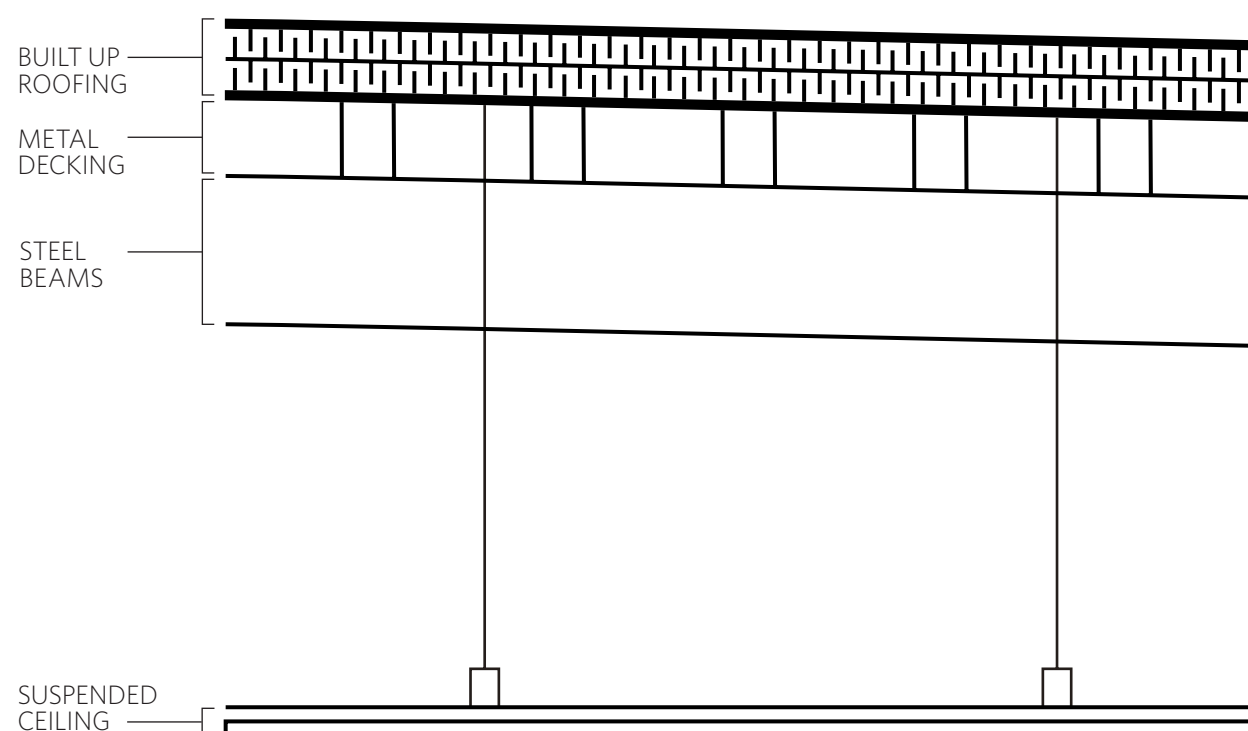
1. Curtain wall system with large insulated spandrel pieces and glazing;
2. Pre-cast carbon fibre reinforced concrete insulated sandwich panel with pre-installed windows;
3. Wood frame stud systems with pre-installed windows; and
4. Structural steel stud system with pre-installed windows (the selected option).

The decision came down to cost, weight, ease of installation and overall performance, including non-combustible construction.



1 ROOF

- The roof assembly is a traditional built up roofing system on metal decking supported by steel beams.



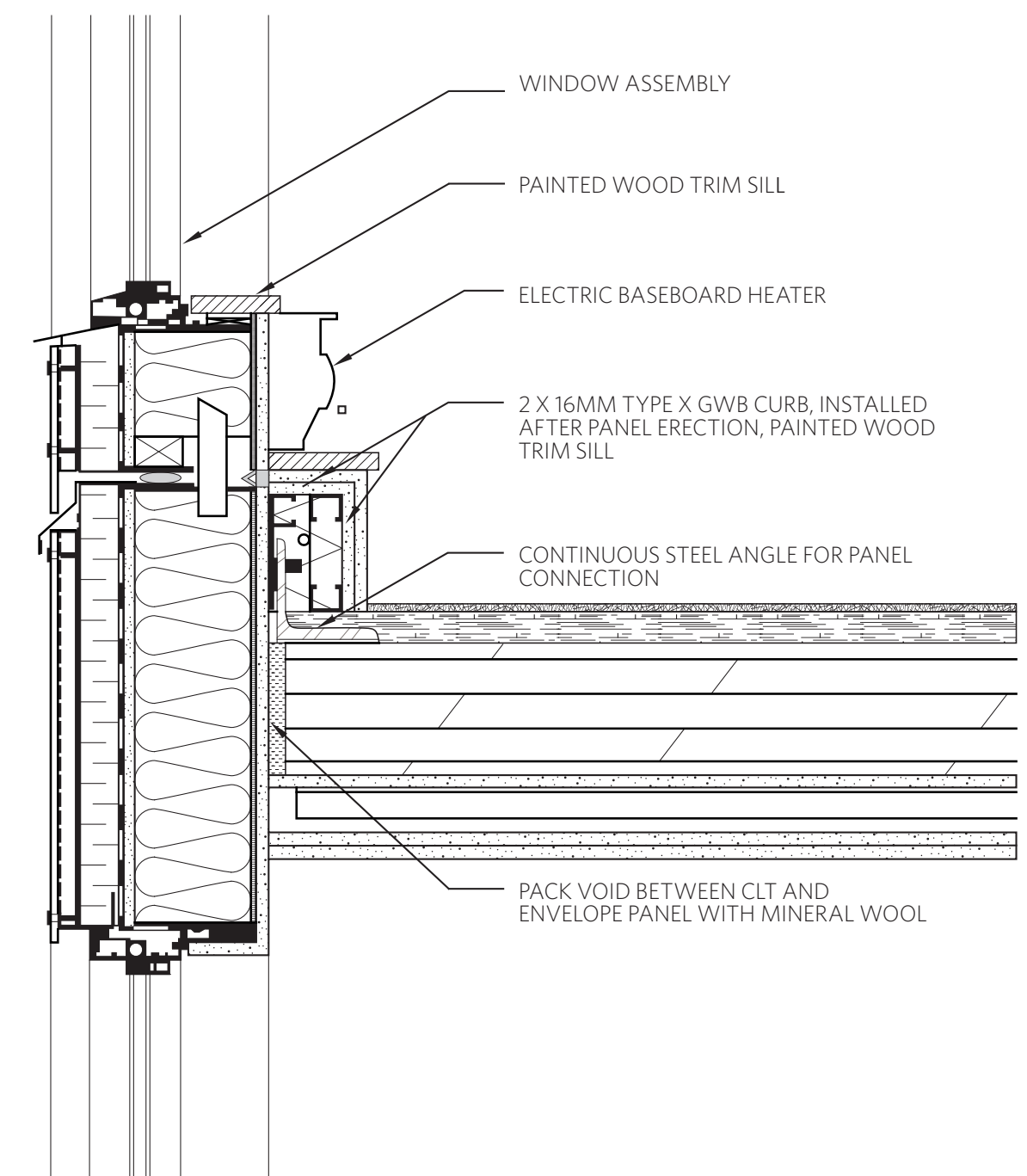
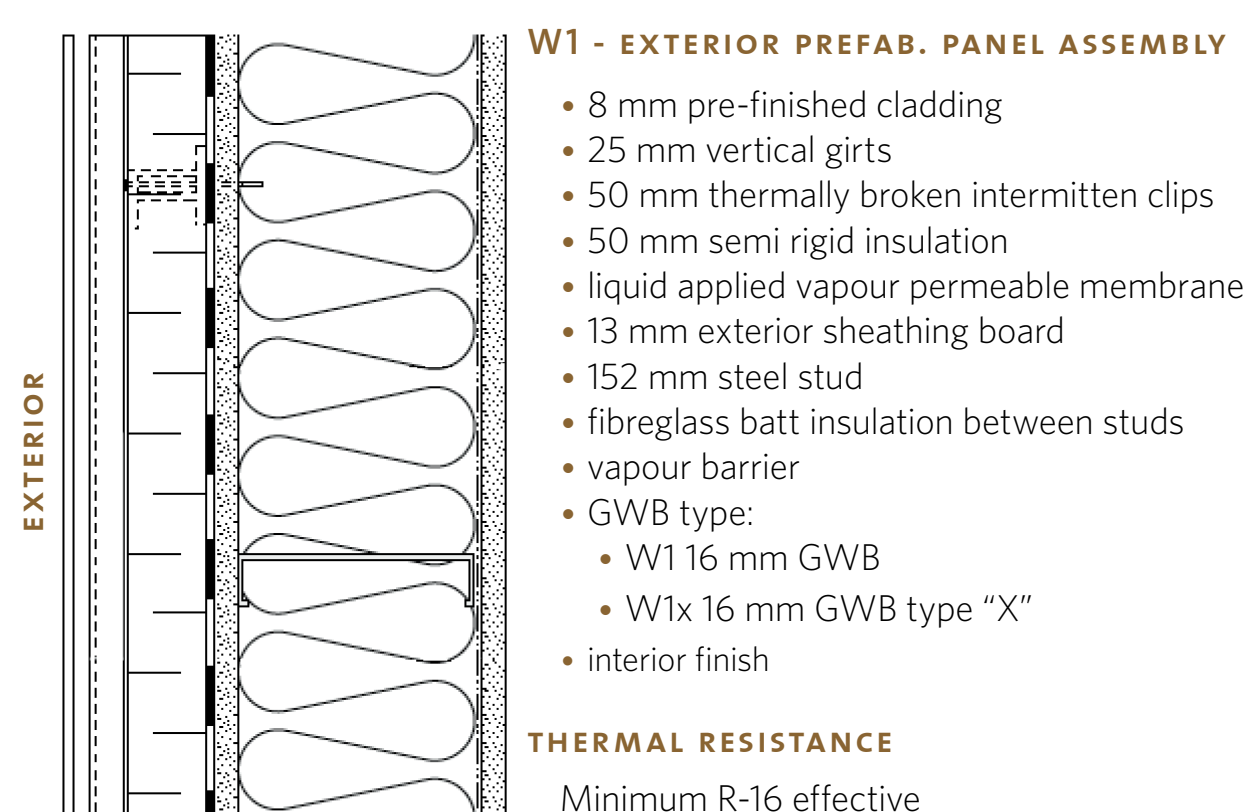
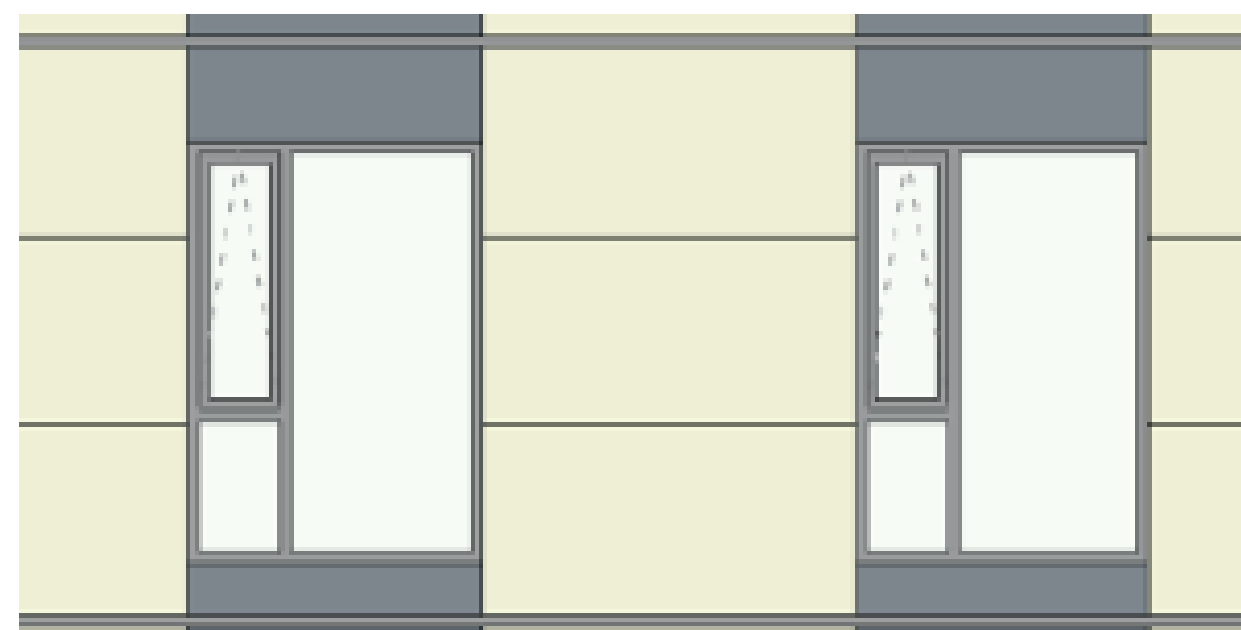
2 PODIUM ENVELOPE

- The ground floor of the building will be enclosed with a glazed curtain wall system
- A three layered CLT panel canopy with double folded standing seam metal roof provides rain coverage for pedestrians.



3 PRE-FABRICATED ENVELOPE PANEL

- The primary envelope is a prefabricated exterior panel system, supported on a steel angle (L127x127x13) mounted at each floor level.
- Panels are 8 m long by 2.81 m high (corresponding to two structural bays and one storey, plus special corner panels).
- Panels are composed of a steel stud and fiberglass batt insulation assembly, with rainscreen wood fibre laminate cladding system and pre-installed window assemblies.
- The structural, window and rainscreen components are prefabricated while the vapour barrier, batt insulation and the interior finishes are applied on site.



Images courtesy of Acton Ostry Architects Inc. and UBC Research Team