

# THE HEIGHTS

## PROJECT OVERVIEW

The Heights is a six-storey mixed-use building located on the corner of Hastings and Skeena streets in the rapidly evolving Vancouver Heights neighbourhood. The 5,600 square metre building includes a basement parking garage, street level retail and five storeys of apartments above, with a total of 85 suites. The parking and retail space are constructed in concrete, while the five storeys of residential accommodation are of wood-frame construction.

The site was rezoned under the City of Vancouver's 'Rental 100' program, which offers developers additional density, reduced parking requirements and a waiver of community amenity charges if they commit to constructing and operating a rental apartment building for a period of 60 years.

This long-term commitment means that the operating costs of the building assume a greater importance to the developer than would

**LOCATION**  
Vancouver, British Columbia

**SIZE**  
5,600 m<sup>2</sup>

**COMPLETION**  
2017

**ARCHITECT**  
Cornerstone Architecture

**STRUCTURAL ENGINEER**  
Weiler Smith Bowers Consulting

**CONSTRUCTION MANAGER**  
Peak Construction

**PROJECT OWNER**  
8th Avenue Development Group Ltd.

be the case in a similar structure built for sale as condominiums. Cornerstone Architecture saw this as an opportunity to create an ultra-low energy Passive House building - one that would use 80% less energy than a code minimum equivalent.

A Passive House building has a highly insulated and airtight envelope, triple glazed windows, heat recovery ventilation and an air change rate reduced to the minimum level required to maintain healthy indoor air. Scott Kennedy, Partner at Cornerstone Architecture, made a business case to the building owner that these measures would cost no more than a conventionally designed building and heating system, and that energy bills would be 90% less than for a regular building. The City of Vancouver also approved this approach, which supported its housing affordability and energy conservation objectives.



Rendering courtesy of Cornerstone Architecture

*“The Heights is aiming to be one of Canada’s most energy efficient new buildings through super insulation and greatly improved airtightness. Wood lends itself well to super insulated structures as wood itself is an insulator. Wood also lends itself to very airtight buildings as sheet goods (plywood, OSB) can be taped to function as a simple and effective air barrier.”*

*Chris Higgins, Green Building Planner, City of Vancouver*

## WOOD USE

In addition to being the most economical construction material for this size and type of building, wood lends itself to Passive House construction. Being a natural insulator, it minimizes thermal bridging and contributes positively to the overall performance of the building envelope.

Passive House certification has only been available in Canada since 2014, and some contractors and trades people are unfamiliar with its requirements. Kennedy worked with Peak Construction to ensure the sub-trades would be aware of any new site requirements and Passive House-specific procedures, such as the careful sealing and taping of all joints for air-tightness. Peak Construction also sent several members of its crew to train at the High Performance Building Laboratory at the British Columbia Institute of Technology.

The building is constructed with conventional 2x6 exterior walls; interior load-bearing and non-load-bearing walls, wood I-joint floors and plywood sheathing and decking. The only non-standard aspect of construction is the secondary 2x4 wall that parallels the exterior walls. With a 50mm gap between these two walls, the overall depth of insulation can be 300mm. The vapour barrier, which in conventional construction is installed behind the interior drywall, is provided by polymer coated rigid insulation that fills the 50mm gap. The inner wall accommodates all the services, ensuring there are no penetrations through the vapour barrier.

On completion, The Heights will be the largest Passive House certified building in Canada and will demonstrate the adaptability of traditional wood-frame construction to a new generation of high performance buildings.



Photo courtesy of Cornerstone Architecture

## ESTIMATED ENVIRONMENTAL IMPACT OF WOOD USE

<p><b>V</b> Volume of wood products used: <b>594 cubic metres</b></p>	<p><b>GHG EMISSIONS ARE EQUIVALENT TO:</b></p>
<p><b>T</b> U.S. and Canadian forests grow this much wood in: <b>2 minutes</b></p>	<p><b>341 cars off the road for a year</b></p>
<p><b>C</b> Carbon stored in the wood: <b>516 metric tons of CO<sub>2</sub></b></p>	<p><b>Energy to operate 170 homes for a year</b></p>
<p><b>CO<sub>2</sub></b> Avoided greenhouse gas emissions: <b>1,096 metric tons of CO<sub>2</sub></b></p>	<p><small>*Estimated by the Wood Carbon Calculator for Buildings, <a href="http://cwc.ca/carboncalculator">cwc.ca/carboncalculator</a>.</small></p>
<p><b>✓</b> Total potential carbon benefit: <b>1,612 metric tons of CO<sub>2</sub></b></p>	<p><small>*CO<sub>2</sub> refers to CO<sub>2</sub> equivalent.</small></p>

## FOR MORE INFORMATION

This profile is published by Forestry Innovation Investment, the Government of British Columbia’s market development agency for forest products.

For more examples of innovative wood building projects throughout British Columbia, visit:

[naturallywood.com](http://naturallywood.com)

The wood grain featured in this profile is Douglas fir.