

CASE STUDY

Brock Commons Tallwood House

University of British Columbia (UBC),
Vancouver, B.C.



Photo: www.naturallywood.com

Overview

Brock Commons Tallwood House is a landmark 18-storey residence building at UBC in Vancouver with 17 storeys of wood and concrete construction over a single storey concrete podium. At 53 metres, it is the tallest contemporary wood hybrid building in the world to-date. Brock Commons provides the University with over 400 student beds, with a shared ground floor study and social space.

How low carbon materials were used in the project

Flat cross-laminated timber (CLT) floor plates were used with a grid of glulam columns and two concrete building cores. Dropped beams were avoided through the innovative use of two-way spanning CLT supported only on columns at each corner. The result is an open floor area interrupted only by the grid of columns and the building cores, reducing the impact of the structure on the end use of the space.

Erection of the timber elements was completed in less than 70 days, due largely to savings from off-site prefabrication. Careful design of the column connections allowed for quick installation of the floors and columns, facilitating the assembly of two storeys

of structure per week. As the structure was installed prefabricated exterior wall panels were lifted into position with windows and cladding in place, closing the envelope as the building went up.

A Site-Specific Regulation from the British Columbia Building Safety & Standards Branch was required for approval of the building, which exceeds the code-specified height restriction of 6 storeys. To simplify the approval process, building cores were constructed using concrete rather than mass timber, and the timber structure was covered with multiple layers of gypsum board to provide fire resistance exceeding that which would be required for a similar steel or concrete building.

LEVEL OF LEED® TARGETED:
LEED v4 BD+C Gold

CLIENT
University of British Columbia

ARCHITECT
Acton Ostry

TALL WOOD ADVISOR
Architekten Hermann Kaufmann

STRUCTURAL ENGINEER
Fast + Epp

LEED CONSULTANT
Stantec

FIRE AND CODE CONSULTANT
GHL CONSULTANTS

CONTRACTOR
Urban One Builders, Seagate Structures
and Structurlam Products Ltd.

NUMBER OF STOREYS
18

GROSS FLOOR AREA
15,115m²

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Leadership in Energy and Environmental Design (LEED®)

This project is targeting LEED v4 BD+C: NC Gold certification. A highlight credit that the project is pursuing is the new to LEED v4 credit, MRc Building Life-Cycle Impact reduction, Option 4, Whole-Building Life-Cycle Assessment.

References

Acton Ostry (2016). Construction Underway on World's Tallest Timber Tower. Acton Ostry Architects Inc. Vancouver, B.C..

CIRS (2016). Design and Preconstruction of a Tall Wood Building. Brock Commons: Code Compliance. University of British Columbia Centre for Interactive Research on Sustainability (CIRS). Vancouver, B.C..

Naturallywood.com Brock Commons

<http://www.naturallywood.com/emerging-trends/tall-wood/ubc-brock-commons>

UBC (2016). Structure of UBC's tall wood building now complete. University of British Columbia website. URL:

<https://news.ubc.ca/2016/09/15/structure-of-ubcs-tall-wood-building-now-complete/>