

CASE STUDY

Wood Innovation & Design Centre
University of Northern British Columbia (UNBC),
Prince George, B.C.



Photo: Ed White

Overview

When completed in 2014 the Wood Innovation & Design Centre (WIDC) in downtown Prince George was, at 6 storeys, one of the tallest modern timber buildings in North America. Built in part to house a new Master of Engineering in Integrated Wood Design program at UNBC, the building features an open atrium and demonstration space, a lecture theatre, a workshop and laboratory, and spaces for faculty offices and classrooms. The upper three storeys of the building were left unfinished as rental space to be fit out to meet tenants' requirements.

How low carbon materials were used in the project

Building services were hidden by staggering the elevation of the cross-laminated timber (CLT) floor panels, creating voids for ducting, sprinklers, and lighting. Wood slats are also used to finish the walls and ceiling of the lecture theatre, creating visual appeal and contributing to the acoustics of the room.

The building makes extensive use of wood materials: CLT roof and floor panels are supported on a frame of

glulam columns and beams; lateral bracing is provided by CLT shearwalls and a CLT structural core; and the sparse timber cladding is a mixture of charred and natural western red cedar on structural insulated panels and glazing with laminated veneer lumber (LVL) mullions. Interior finishes include stained wooden panels and slats, and an exposed wood stair with edge-laminated LVL treads rising from the demonstration space.

LEVEL OF LEED OBTAINED:
LEED® Canada CS 2009 Gold

WOOD RELATED LEED CREDITS ACHIEVED:

MRC5 - Regional Materials
IEQc4.4 - Low-Emitting Materials:
Composite Wood and Agrifiber Products
IDc1.1 - Exemplary Performance: MRC5
IDc1.2 - Life Cycle Analysis of a High Rise Wood Building

CLIENT

Province of British Columbia
Ministry of Jobs, Tourism and Skills
Training and Responsible for Labour

ARCHITECT

Michael Green Architecture (MGA)

STRUCTURAL ENGINEER

Equilibrium Consulting Inc.

MECHANICAL ENGINEER

MMM Group Ltd.

LEED CONSULTANT

MMM Group Ltd.

CONTRACTOR

PCL Constructors Westcoast Inc.

NUMBER OF STOREYS

6

GROSS FLOOR AREA

4,820m²



Photo: Ema Peter

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ENVIRONMENTAL IMPACT OF WOOD USE (Post-Construction Calculation)

V VOLUME OF WOOD:
1519 cubic meters (53,623 cu ft.) of
lumber and sheathing

**T U.S. AND CANADIAN FORESTS
GROW THIS MUCH WOOD IN:**
4 minutes

C CARBON STORED IN THE WOOD:
1,099 metric tons of CO₂

**A AVOIDED GREEN HOUSE GAS
EMISSIONS:**
420 metric tons of CO₂

**✓ TOTAL POTENTIAL CARBON
BENEFIT:**
1,519 metric tons of CO₂

EQUIVALENT TO:
C 290 cars off the road each year

H Energy to operate a home for
129 years

Based on: image by naturally:wood



Leadership in Energy and Environmental Design (LEED®)

The Wood Innovation & Design Centre is certified LEED Gold under the LEED Canada 2009 Core and Shell rating system. The project achieved one Innovation in Design (ID) point for exemplary performance for using regional materials. To achieve this ID credit, at least 40% of the materials used on the project were extracted and manufactured within 800 km by road and 2,400 km by rail or water. An additional ID point was achieved by undertaking a life-cycle assessment of the building.

Awards

- 2016 Governor General's Award in Architecture
- 2015 RAIC Award of Excellence for Innovation in Architecture
- 2015 Lieutenant-Governor of BC Award in Architecture (Merit)
- 2015 AIBC Innovation Award

References

naturally:wood (2015). Case Study: Wood Innovation & Design Centre. naturally:wood, Vancouver, B.C.: Forest Innovation Initiative (FII).

Michael Green Architecture Ltd. (2017), Wood Innovation & Design Centre. Accessed Feb. 2017. URL: <http://mg-architecture.ca/work/wood-innovation-design-centre/>

WoodWorks (2015). Wood Innovation & Design Centre: A Technical Case Study. <http://wood-works.ca/wp-content/uploads/151203-WoodWorks-WIDC-Case-Study-WEB.pdf>