

2013 Wood Design Awards - Project Fact Sheet

Centre for Interactive Research on Sustainability

Location: University of British Columbia - Vancouver, BC

Height	Size		Completion	Construction Budget
4	61,086	5,675	2011-08	\$23,000,000
<i>Storeys</i>	<i>sq ft</i>	<i>sq M</i>	<i>Date</i>	<i>\$ Cdn</i>

Project Description:

Located at the University of British Columbia, the Centre for Interactive Research on Sustainability (CIRS) is designed to be the most sustainable building in North America. CIRS houses 200 researchers from private, public, and non-government organization sectors, who work together to advance innovation in sustainable technology and building practices, and to create a springboard for their widespread implementation.

The 5,675 sm 'living lab' is organized into two four-storey wings, linked by an atrium, and includes academic offices, meeting rooms, 'social condenser' spaces, and a daylight 450-seat auditorium. During the design of CIRS, both the ecological and human health impacts of the project's building materials, as well as the visual and tactile expression of the materials, were considered along with cost, durability, and maintenance requirements. In response, wood, one of the most sustainable materials in the world, was chosen as the primary building material.

Additionally, while CIRS itself had to be a sustainable building, the CIRS mission is to accelerate sustainability in society, so creating a building that was both high-performance and replicable was a priority. Competitive construction cost, efficient use of space and flexibility were all important considerations that led the project team to choose a wood structure that utilized conventional construction methods. CIRS is the first large, multi-story institutional building at UBC to be constructed of wood since the passing of British Columbia's 'Wood First Act'.

The expressed wood structure uses FSC-certified and pine-beetle-killed wood. The simple structure includes a combination of pre-fabricated glulam members, dimensional lumber, plywood and a minimal amount of concrete. The moment-frame structure creates an open, column-free floor plate for flexibility of use and interior arrangements, as well as to allow for large openings in the walls, contributing to the project goal of 100% natural daylight and ventilation for all inhabitants. More than a building, CIRS is a research tool that demonstrates the possibilities in sustainable design and construction, serving as a catalyst for change. Including an entire chapter devoted to the use of wood, a Technical Manual and website (cirs.ubc.ca) further disseminate information with lessons learned, on-going updates, and actual performance data from the project.

Designed to exceed LEED Platinum status and registered with the Living Building Challenge, CIRS was designed to be 'net positive' in seven different ways, net-positive energy; structural carbon neutrality; operational carbon; net-zero water; turning passive occupants into active inhabitants; promoting health and productivity; and promoting happiness.

More than a building, CIRS is a research tool that demonstrates the possibilities in sustainable design, serving as a catalyst for change. CIRS maximizes passive environmental strategies and demand reduction, and puts sustainable systems on display. A pre-existing 'desire line' that cuts through the site was retained, used as an urban strategy to highlight the reclaimed water system and engage pedestrians with the project's sustainability goals. Furthermore, researchers study user interactions with the facility to improve building performance and maximize inhabitant health and well-being.

This 'living building' harvests sunlight, captures waste heat from a nearby building, and exchanges heating and cooling with the ground, and returns 600-megawatt-hours of surplus energy back to campus while removing 170 tonnes of GHG emissions annually. Supplying 100% of the facility's water needs, CIRS collects rainwater for potable use and purifies wastewater in an on-site solar aquatics biofiltration system at a rate of 2,300 liters per day. The building massing contributes to the goal of 100% natural daylight and ventilation for all inhabitants; a living roof on the auditorium roof provides a courtyard amenity for upper-level office users; and building-integrated photovoltaics shade operable windows.

The western façade's living solar screen is planted with deciduous vines, once grown in, it will act as a dynamic shading device that responds to seasonal change. In addition to assisting natural ventilation, the publicly accessible atrium is an educational space where all of these strategies are visible. Produced by the sun and a means of storing carbon in the structure of a building, wood is one of the most sustainable materials in the world, which also supports an important sector of the regional economy.

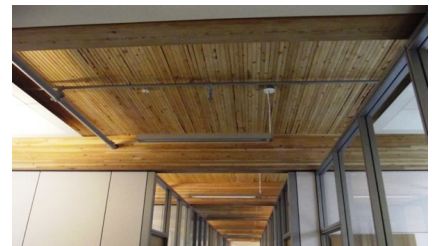
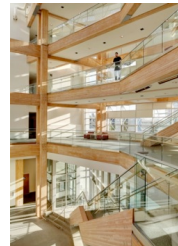
A life cycle assessment (LCA) conducted by researchers at UBC looked at the embodied emissions of carbon dioxide equivalent (CO₂e) from all of the building materials and the storage of CO₂e in the wood products used in the building. The study found that 1074 tonnes of CO₂e are embodied in the construction of the building and 804 tonnes of CO₂e are stored in wood in the

Where the Wood Was Used:

Primary Structural System	Columns, Beams & Braces	y
	Floor Structure	y
	Exterior Walls	y
	Foundation	
	Shear Walls	y
	Bearing Walls	
	Fire Walls	
	Roof Structure (inc. columns and braces)	y
	Stairway & Elevator Shafts	
	Convenience Stairs	y
Secondary Structure	Entrances & Canopies	
	Fire Separations	
	Enclosures for Mechanical Equipment	

Architectural	Partitions (interior)	
	Exterior Curtain Walls	
	Ceilings	y
	Exterior Cladding	y
	Parapets	
	Ceiling Bulkheads	
	Flooring	
	Doors	
	Windows	
	Skylights	
	Trim, Paneling & Features	
	Millwork	y
	Wall and Corner Guards	
	Other Architectural Woodwork	
	Hard Landscaping & Structures	
Perimeter Fencing		

Project Images



Building Project Team Members:

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