



THE UNIVERSITY OF BRITISH COLUMBIA

sustainability

COAL & MINERAL PROCESSING LABORATORY Addition

ARCHITECT | Johnston Davidson Architecture
STRUCTURAL ENGINEER | Axis Engineering
CONSTRUCTION MANAGER | Ledcor Construction
ADDRESS | 2332 East Mall, Vancouver BC





Photos: Wendy Niamath | Courtesy: Johnston Davidson Architecture

The Coal and Mineral Processing Laboratory Addition, part of the Norman B. Keevil Institute of Mining Engineering, sits adjacent to the original building from 1981. The addition, while small in area, provides a relaxing recreational space for mining engineering students, faculty, and staff. In contrast to the existing concrete building, the upper two levels of the laboratory addition are supported by exposed glue laminated timber (GLT) columns and beams. On the exterior, the building is clad in zinc-shingled tiles. The material choices aim to bring a sense of lightness, warmth, colour, and transparency to the space.



GLT
Columns and beams

GROSS FLOOR AREA
254 m²

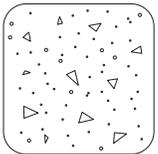
MEP CONSULTANT
Mechanical: AME Group
Electrical: Sandwell



METAL CLADDING
Zinc-shingled tiles

HEIGHT
12.2 m | 3 storey

CONSTRUCTION
2010 - 2011



CONCRETE
Foundation and first floor

PROGRAM
Academic

PROJECT COST
CDN\$4,0M (2011)

FUNCTIONS
Classrooms, laboratory, and lounge



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EARTH SCIENCES BUILDING

ARCHITECT | Perkins and Will Architects
STRUCTURAL ENGINEER | Equilibrium Consulting
CONSTRUCTION MANAGER | Bird Construction
ADDRESS | 2219 Main Mall, Vancouver BC

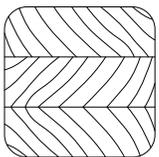
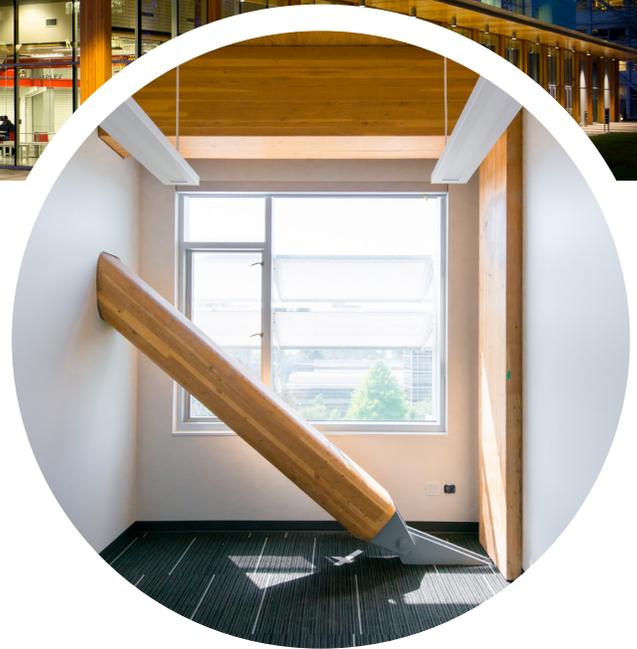


Photo: Martin Tessler | Courtesy: Perkins and Will Architects

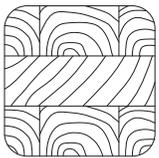


Photos: Martin Tessler | Courtesy: Perkins and Will Architects

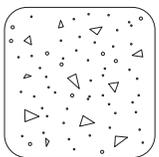
The Earth Sciences Building houses UBC Faculty of Science departments and the Pacific Museum of the Earth. The building features a free-floating cantilevered cross-laminated timber (CLT) staircase in its atrium. CLT panels also form the primary structure of the office wing, as well as an exterior canopy and interior ceiling finishes. The structure has diagonal glue laminated timber (GLT) braces at the end walls on each story to resist seismic loads. Using over 1,300 tons of CLT, UBC's Earth Sciences Building is one of the largest panelized wood structure and the largest building application of CLT in North America.



GLT
Columns and beams



CLT
Structure for office wing, cantilevered stairs and exterior canopy



CONCRETE
Foundation and structure for lab wing

GROSS FLOOR AREA
5,675 m²

HEIGHT
21.8 m | 5 storeys

PROGRAM
Academic

FUNCTIONS
Offices, lecture halls, and laboratories

CERTIFICATION
LEED Gold (2014)

MEP CONSULTANTS
Mechanical: Stantec
Electrical: Acumen Engineering

SUSTAINABILITY CONSULTANT
Perkins and Will Architects

CONSTRUCTION
2012

PROJECT COST
CDN\$74,7M (2013)

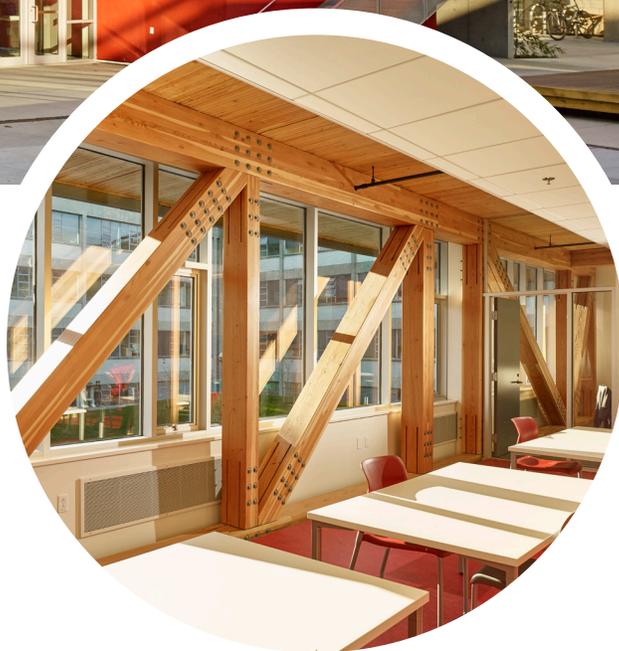
ENGINEERING STUDENT CENTRE

ARCHITECT | Urban Arts Architecture
STRUCTURAL ENGINEER | Fast + Epp
CONSTRUCTION MANAGER | Syncra Construction Corporation
ADDRESS | 2335 Engineering Road, Vancouver BC

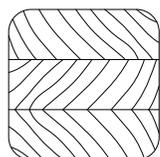




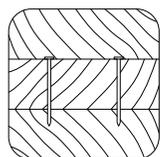
Photos courtesy of: www.naturallywood.com



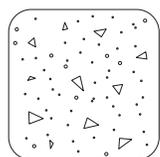
The Engineering Student Centre provides space for UBC engineering students to study, gather, socialize, and create a community. The building is also home to the UBC Engineering Undergraduate Society and its main offices. Locally sourced wood was selected as the primary building material. The structure features glue laminated timber (GLT) columns on the periphery, as well as a truss system that suspends the second floor from the roof to create an open space on ground floor. The roof, floor, and shear elements are formed by nail-laminated timber (NLT), and the service zone is conventional stick frame construction.



GLT
Trusses and columns



NLT
Roof, floor, and shear elements



CONCRETE
Foundation

GROSS FLOOR AREA
1,083m²

HEIGHT
10.2 m | 2 storeys

PROGRAM
Academic

FUNCTIONS
Social and study spaces, retail and food services

CERTIFICATION
LEED Gold (2017)

MEP CONSULTANT
Mechanical: MCW Consultants
Electrical: Stantec

SUSTAINABILITY CONSULTANT
Stantec

CONSTRUCTION
2014-2015

PROJECT COST
CDN\$5,8M (2015)



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FIRST NATIONS LONGHOUSE

ARCHITECT | McFarland Marceau Architects

STRUCTURAL ENGINEER | CWMM Consulting Engineers

ADDRESS | 1985 West Mall, Vancouver BC





Photos: Don Erhardt



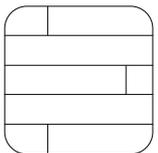
The First Nation Longhouse is part of the First Nations House of Learning, which hosts academic programs and serves as a community centre for First Nations, Métis, and Inuit students, faculty, and staff on campus. The structure is shaped like the typical Musqueam-style longhouse, using regionally harvested western red cedar and traditional Coast Salish techniques in its construction. The building features heavy timber columns and beams, light wood framed walls, naturally weathered shiplap exterior cladding, and a copper roof. The Longhouse's use of wood acknowledges and emphasizes the First Nations' history and cultural practice of using wood in construction.



HEAVY TIMBER
Columns and beams

GROSS FLOOR AREA
2,000 m²

CONSTRUCTION
1993



WOOD PANEL
Weathered wood siding

HEIGHT
6.4 m | 1 storey

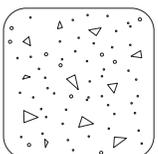
PROJECT COST
CDN\$4,2M (1993)



METAL
Copper roof

PROGRAM
Academic | Community

FUNCTIONS
Offices, classrooms, library, and event space



CONCRETE
Foundation



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FOREST SCIENCES CENTRE

ARCHITECT | Dalla-Lana Griffin Dowling Knapp Architects

STRUCTURAL ENGINEER | CWMM Consulting Engineers

CONSTRUCTION MANAGER | Swagger Construction

ADDRESS | 2424 Mail Mall, Vancouver BC



Photo: Don Erhardt



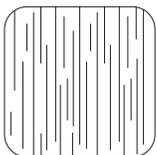
Photos: Don Erhardt



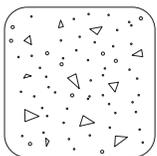
The Forest Sciences Centre is home to the UBC Faculty of Forestry. This building is a collection of three building blocks: an office block, a laboratory, and a wood processing centre, all of which surround a large central atrium. The atrium is known for its 13-meter-tall parallel strand lumber (PSL) columns and a branch-like system of trusses, used to support the skylight roof. The columns are connected to the branches using hybrid steel-to-wood connections. The atrium walls are lined with Douglas-fir boards and big-leaf maple wood veneer.



PSL
Columns, beams,
and trusses



WOOD PANEL
Atrium wall
cladding



CONCRETE
Foundation,
basement, and
laboratory block

GROSS FLOOR AREA
21,500 m²

HEIGHT
23.5 m | 5 storeys

PROGRAM
Academic

FUNCTIONS
Classrooms, lecture theatres,
laboratories, office space, study
areas

MEP CONSULTANT
Mechanical: DW Thompson
Consultants
Electrical: Freundlich &
Associates

CONSTRUCTION
1996-1998

PROJECT COST
CDN\$50,2M (1998)



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INDIAN RESIDENTIAL SCHOOL HISTORY AND DIALOGUE CENTRE

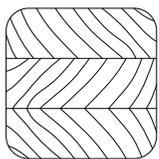
ARCHITECT | Formline Architecture
STRUCTURAL ENGINEER | Bush Bohlman & Partners
CONSTRUCTION MANAGER | Bird Construction
ADDRESS | 1985 Learner's Walk, Vancouver BC



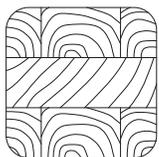


Photos: Andrew Latreille | Courtesy: Formline Architecture

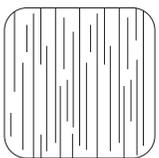
The Indian Residential School History and Dialogue Centre (IRSHDC) is home to a collection of records related to Canada's Indian Residential School system. The building features several symbolic architectural elements such as large standing windows, the copper roof and the charred cedar plank siding. In combination with the concrete foundation and steel columns, the building features glue laminated timber (GLT) columns and beams, and cross-laminated timber (CLT) wall and roof panels. Along the interior staircase, the woven western red cedar wall represents the culture of basket weaving and bulrush mats used in longhouses.



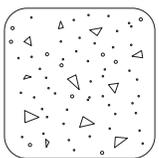
GLT
Columns and beams



CLT
Exterior walls and roof



WOOD PANEL
Cladding



CONCRETE
Foundation, columns, and exterior walls on lower level

GROSS FLOOR AREA
606 m²

HEIGHT
8.4 m | 2 storeys

PROGRAM
Academic | Community

FUNCTIONS
Record library, exhibition space, research stations, meeting rooms, and lounge

MEP ENGINEER
Mechanical: Smith and Andersen
Electrical: AES Engineering

CONSTRUCTION
2016 - 2017

PROJECT COST
CDN\$5,8M (2017)



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MARINE DRIVE COMMONSBLOCK

ARCHITECT | Hotson Bakker Boniface Haden and B+H Architects

STRUCTURAL ENGINEER | Read Jones Christoffersen Ltd.

CONSTRUCTION MANAGER | Scott Construction

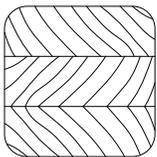
ADDRESS | 2205 Lower Mall, Vancouver BC





Photos: Bob Matheson | Courtesy: Dialog

Located within the Marine Drive Residence complex, the commons block provides socializing space and amenities for its students. The building features a hybrid structure: a concrete foundation and core, wood frame exterior walls and mass timber structural elements. Its most distinct feature is the series of exposed heavy timber columns and parallel-strand lumber (PSL) beams, which were prefabricated using locally sourced wood. The structure also features exposed glue laminated timber (GLT) columns and beams. The use of wood creates a natural connection between the building and its site environment.



GLT
Columns and beams

GROSS FLOOR AREA
1510 m²

MEP CONSULTANT
Mechanical: Sterling, Cooper and Associates
Electrical: MCW Consultants



HEAVY TIMBER
Columns

HEIGHT
8.8 m | 1 storey

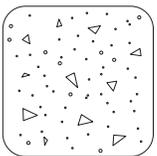
CONSTRUCTION
2009



PSL
Beams

PROGRAM
Student residence | Community

FUNCTIONS
Amenity and social spaces



CONCRETE
Foundation and centre wall



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OLD BARN COMMUNITY CENTRE

ARCHITECT | RLA Architects

STRUCTURAL ENGINEER | Bogdonov Pao Associates Ltd.

CONSTRUCTION MANAGER | Donovan Management

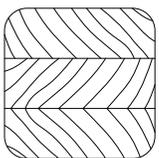
ADDRESS | 6308 Thunderbird Blvd, Vancouver BC



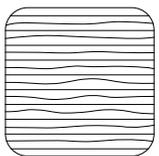


Photos courtesy: RLA Architects

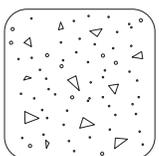
The Old Barn Community Centre provides a social and recreational space for its surrounding UBC communities. The building is upheld by a series of glue laminated timber (GLT) columns and beams. Laminated veneer lumber (LVL) is also used as beams in some parts of the building. Utilizing traditional materials such as cedar shake and lap siding, the structure combines a post and beam structure and traditionally shaped roof lines with modern glazing systems. The centre is located on a site that was previously occupied by the Old Horse Barn, a 1920-vintage barn home to a team of Clydesdale horses.



GLT
Columns and beams



LVL
Beams



CONCRETE
Foundation

GROSS FLOOR AREA
3,234 m²

HEIGHT
8.7 m | 2 storeys

PROGRAM
Community

FUNCTIONS
Social spaces, fitness centre,
activity rooms, event venues, and
a coffee shop

MEP CONSULTANT
Mechanical & Electrical:
Kay Design
Plumbing: Ron Wong
and Associates

CONSTRUCTION
2005 - 2006

PROJECT COST
CDN\$2,9M (2006)