

# Allard Hall Sustainable Building Design

## Design Focus on Social Sustainability

The building was designed to create a welcoming, open, and inspirational learning and research environment for students, faculty, staff, alumni, and the wider legal community. Sustainability in general is an important focus of the building design with an emphasis on sociocultural aspects.

## LEED

This building is LEED gold certified. LEED is an international point-based rating system used to grade a building's excellence in sustainability in seven areas, from water and energy efficiency, to material selection and innovative design. Four levels of certification are possible: certified, silver, gold and platinum.

The policy at UBC is that all new buildings are minimum LEED Gold certified, in this way UBC is aiming for more green buildings.

## Sustainable Transportation

Allard Hall is located near a bus transit hub, so the decision was made to not develop any of the site for further parking. This was to encourage the use of alternate transportation modes besides driving. Cycling, however, is encouraged through supplied bike parking and shower facilities in the building. These are increasingly common features in buildings at UBC.

## Alternate Water Source

Rainwater from the roof drains into the water feature located on the north side of the building, or is stored in a cistern where it can then be used for irrigation so that potable water is not used for irrigation. The water feature is also designed to provide a mild cooling effect for the building in the summer as the breeze crosses it.

Landscaping consists of drought tolerant plants and uses a high-efficiency irrigation system to reduce water consumption significantly (75% estimated).

## Energy

Energy efficiency is one of the fundamental considerations in the sustainable building design and is addressed by several design features. A sustainable feature of the project is its use of a geo-exchange field with 160 wells, located under the ground to the north of the building that extracts ground heat in the winter and removes building heat in the summer. This substantially reduces cooling and heating energy consumption.

Displacement ventilation is used to circulate air throughout the building. Air is supplied at floor height, and rises up as it is warmed to be returned at the ceiling height. Combined with a ductless return air system, the design ensures that the supplied air best serves human-occupied areas of the rooms. This also decreases capital costs and eases maintenance

Envelope design is well insulated, with window shading and overhangs to control sun exposure.

The building is designed to have maximum daylight, with all regularly occupied areas situated along the perimeter of the building to reduce the usage of artificial lighting and therefore save electricity. This is enhanced by the atriums that allow light to infiltrate deeper into the building

## Wood

There is extensive use of Forest Stewardship Council (FSC) wood in the millwork panels in the Franklin Lew Forum and classrooms. FSC ensures wood comes from sustainably managed forests which take into account the needs of the community. Wood is a sustainable building material and adds warmth to the aesthetic of the building. Wood stores carbon, as when trees grow they store carbon dioxide within their structure. This makes it a very sustainable material to build with, especially in a region with a strong forestry industry such as British Columbia.

## Other Materials

The building was constructed with recycled steel and fly-ash concrete, as well using non-toxic paints, adhesives, and materials. These non-toxic materials are low VOC (Volatile Organic Compound) which also improves the air quality of the building, and therefore the wellbeing of the occupants. This building was constructed using 20% recycled materials and 33% local materials, reducing the resource and transportation impact of the building's construction.

## Flexible Design - Now and in the Future

The concrete structure in the former building was very inflexible. The new building was designed so the building can be used in different ways both now and in the future. The building has four floors, plus a partial half-basement. The floor layouts stress an open-area design which allows for multiple uses of the facilities.

Sleek steel stairs, with supports only at floor levels, echo the modern architectural design embodied in neighbouring UBC buildings. Long spanning reinforced concrete beams and three storeys of continuous glazing allow an abundance of natural light to flow into the Franklin Lew Forum, strengthening the building's connection with the campus outside.

Using a two-way floor plate system, the structural engineers RJC, reduced the need for conventional beams and slabs, leading to lower construction costs and achieving the architect's open space concept. In some areas, columns were completely transferred out to create large spaces for lecture halls.

The Franklin Lew Forum features a three-storey space located in the centre of the building, which also features retractable seating to serve as an auditorium or an informal gathering space for students, faculty, staff, and alumni. The Lew Forum is surrounded by flexible study space for building occupants, creating a useable and very communal space. The walls of the Lew Forum open up to create a connection between adjacent spaces to interact with events inside, and to allow natural light to cross through to other areas.

