

## THE FRED KAISER BUILDING AT UBC

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| CLIENT:             | UBC Properties Trust   |
| CONSTRUCTION VALUE: | \$18 million   |
| PROJECT SIZE:       | 96,000 sq.ft.  |
| LOCATION:           | Vancouver, BC  |
| COMPLETION DATE:    | 2005   |
| SCOPE OF SERVICES:  | Architecture (with architects Alliance) and Mechanical Engineering |



This new building for the University of British Columbia provides energy efficient, flexible lab space for the Electrical and Computer Engineering faculty and the offices of the Dean of Applied Science. The facility houses almost 700 occupants consisting of faculty, researchers, administrators and students.

The design addresses the university's key issues of spatial flexibility; environmental sustainability; and contextual integration with other facilities on Main Mall, while providing a stimulating, exciting learning environment. The open plan organization of the building allows for highly flexible lab space anticipating the ever-changing needs of the users.

The building is designed to be open, welcoming and transparent, with generous expanses of glass providing views both into and out of the building. The building activity is centred around atriums which create places for meeting, discussing and relaxing.

The Fred Kaiser Building is contemporary and straight forward, with rich interior spaces accented with glazed bridges, wood finishes and warm coloured flooring and wall colours.

The building is conditioned using in-slab radiant heating and cooling - the test simulations indicate that the building will consume 45% less energy than a traditional building.





Sustainable features include:

#### **SUSTAINABLE SITES**

The building has a small environmental footprint due to the superimposition of program over the existing Civil and Mechanical Engineering building. It occupies an infill site, which reinforces UBC campus planning principles and respects existing pedestrian networks and a grove of heritage trees. The new building was able to utilize the existing site services infrastructure with the only new net addition of a steam heating service. Existing water supply was upgraded for the sprinkler systems, while the existing storm drains and sanitary drains remained the same size since the net new added capacity compared to the previous existing building services ended up not requiring an upgrade to their sizes.

#### **WATER EFFICIENCY**

Plumbing systems consist of very low-flow fixtures (dual flush toilets, waterless urinals, infrared activated lavatory faucets) which reduces potable water consumption by over 50% compared to a conventionally fixtured building.

#### **ENERGY AND ATMOSPHERE**

Approximately 75% of the new building uses a radiant heating/cooling slab ceiling as the primary indoor space temperature control. This building is the fifth completed and operating large-scale application of a radiant slab cooling/heating ceiling system in North America. The building cooling system is unique to North America, however, and uses the first application of a night-time-operated cooling tower to generate the slab radiant cooling in the summertime.

It is also the only building in North America to combine an induced demand-controlled natural ventilation system with a radiant heating/cooling ceiling slab system.

#### **MATERIALS AND RESOURCES**

Materials are selected based upon point of origin, recycled content, resource efficiency and reduced volatile off gassing. 95% of the steel used on the project is recycled. High volume flyash concrete reduces consumption of Portland cement, the production of which is a major contributor to GHGE (green house gas emissions).

#### **INDOOR ENVIRONMENTAL QUALITY**

Building ventilation system consists of a CO2 sensor controlled “demand ventilation” system, using natural ventilation as the primary mode, with supplemental powered fans in individual rooms to supplement the natural ventilation system. Opening windows are provided at all perimeter zones for individual occupant control.