Triffo Hall was originally built as the South Lab in 1915 and has seen countless different uses over the next century. In 2006-07, it was completely renovated, taking the building back to original masonry, steel and concrete while elevating its environmental performance to the top. The new design uses extensive daylighting, energy-efficient materials and rainwater harvesting, among other innovative features.

Triffo Hall was the university’s first LEED® certified project and was the oldest Gold certified structure in Canada. It is now home to the Faculty of Graduate Studies and Research, the Graduate Students’ Association, USchool and other offices.
**ENERGY**

- Uses 25 per cent less energy compared to a model building meeting minimum code compliance.  
  *Model based on the MNECB 1997 energy budget.*
- Energy-efficient radiant panels provide heating and cooling customized for occupants’ workspaces.
- Exhaust air is used to preheat fresh air intake
- Lighting adjusts based on daylight and motion sensors.
- Aerogel insulates skylights and windows while retaining natural white light.
- 460 MWh of green power purchased for the building’s first two years of operations.
- High efficiency lighting
- 87 per cent of regularly occupied spaces are daylit.

**ENVELOPE**

- 62 per cent of the building envelope was upgraded to modern, energy-efficient materials.
- Low thermal emissivity glass and metal-clad wooden window frames are more energy efficient.  
  *Double-glazed and argon gas filled windows.*
- Reflective roof keeps building cooler in summer and gathers snow to insulate in the winter.  
  *High-albedo with Solar Reflectance Index of 83.*
- Original skylight replaced with highly insulating polycarbonate panels.

**CONSTRUCTION & DEMOLITION MATERIALS**

- Adhesives, paints and carpets are low-VOC emitting.  
  *Volatile organic compounds can cause health problems when inhaled or consumed.*
- 56 per cent of wood used in construction was certified by the Forest Stewardship Council (FSC)
- Concrete used in construction contains 100 per cent recycled fly ash from post-industrial sources.  
  *Fly ash can be used as a replacement for Portland cement.*
- 16 per cent of materials used in construction were recycled-content materials.
- Sound dampening walls encourage collaboration and interaction in central meeting spaces.

**EDUCATIONAL PROGRAMING**

- Building tours available on request.
- Green Buildings signage identifies interactive sustainability elements and education on Triffo Hall’s hidden green building features.
WATER

- Designed to use 57 per cent less water compared to a model building meeting minimum code compliance.
- Low-flow faucets are sensor controlled.
- Dual-flush toilets require less water when properly used.
- Waterless urinals installed in men’s washrooms.
- Rainwater is harvested from the roof and used for toilet flushing and for landscape irrigation. This custom system reduces rainwater runoff by 58 per cent, a similar rate to a 10-20 cm deep green roof.
- The cooling system is closed loop, saving water compared to a once-through system.

LOW IMPACT DEVELOPMENT

- 76 per cent of construction waste was diverted from landfill.
- Minimal interior finishes were used, reducing resource needs.
- By renovating instead of building a new structure, less waste was generated and there was less impact on the land.
- 98 per cent of the existing building fabric was maintained, including all interior brick walls, the polished concrete floor and a recovered hardwood floor.

CAMPUS-WIDE PROGRAMS AND POLICIES

- District Energy System efficiently delivers heating, cooling and electricity. Connected buildings do not require chillers or boilers.
- The Building Automation System adjusts temperature depending on weather and occupant schedules.
- Buildings are cleaned using high efficiency machines to save resources and ozonated water to avoid harsh chemicals in the indoor environment.
- Grounds are landscaped with native and drought tolerant plants in mulch beds to minimize irrigation in Alberta’s hot, dry summers.
- Water from annual fire pump testing is stored and used for irrigation.

TRIFFO HALL

Architects: Group 2 [Barry Johns]
Engineering: Reed Jones Christofferson, Hemisphere, Washea Mah
Construction: Binder Construction
Commissioning: Independent Commissioning Solutions Inc.
Landscape: Group 2 [Barry Johns]
Sustainability: Group 2 [Barry Johns]

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