

LEED Gold Certified: Mountain Equipment Co-op Sells It



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Canada's greenest outdoor retailers, Mountain Equipment Co-op, recently received LEED (Leadership in Energy and Environmental Design) Gold certification for its Burlington, Ontario outlet. This is the first MEC store to receive LEED Canada certification.

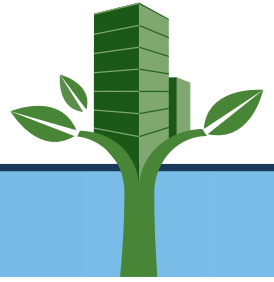
The, which houses retail, warehouse, and administrative space, is a model for sustainable retail. From environmentally-appropriate materials to a combined solar thermal and PV system to a first-of-its-kind cooling system, this 2,500 m² building sets the bar high.

"Unlike some retailers who simply want a LEED plaque on the wall for marketing purposes, Mountain Equipment Co-op really goes the extra mile with its stores – pushing the retail building industry forward towards innovative technologies and efficient design," says Stephen Carpenter, president of Enermodal Engineering, the LEED consultant, mechanical/electrical engineer, and commissioning agent on the project.

The core of MEC Burlington is its one-of-a-kind mechanical system. The cooling system uses six ice thermal storage units, the first-of-their-kind in Canada. The system makes ice at night (to shift the peak cooling electrical load to night time when there is less demand for energy), then cools the building during the day by circulating liquid refrigerant between the ice tank outside and the fan coils at the store ceiling. When outdoor conditions permit, the occupants can naturally cool the building with operable windows and a ventilating clerestory.

A rooftop Energy Recovery Ventilator (ERV) and a true under floor displacement ventilation system supply 100% outside air to floor grilles in the runway around the main floor and mezzanine retail area. In winter, ventilation air is pre-conditioned by the ERV, then further warmed by hot water pipes wrapped around the underfloor ducts set in the radiant heated floor. All spaces are heated by hot water radiant floors and two modulating condensing gas boilers.

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While the building itself is modeled to consume 68% less energy than a conventional building, due to its solar energy generation, it achieved predicted energy cost savings of 70%.

Solar energy is collected by a hybrid PV and solar thermal system that consists of roof-mounted parabolic mirrors which track and focus sunlight onto PV cells. A heat transfer fluid cools the PV cells and is piped to a thermal storage tank and heat exchangers in the building.

Many green buildings have one rain cistern; MEC Burlington has two. One collects stormwater runoff from the parking lot for irrigation, another collects rainwater from the roof for toilet flushing. As a result, MEC Burlington achieved a remarkable predicted indoor water savings of 82%, and no potable water is used for irrigation.

Lighting is typically a major energy load for retail stores as products must be displayed effectively, and some lights are on for security purposes during off-hours. To minimize unnecessary lighting, MEC Burlington features bi-level lighting which allows for lights to be at half their maximum luminescence when an area is unoccupied and automatically increase to full levels when occupied. In the warehouse and washrooms, lights are off as a default and only turn on when the occupancy sensors detect movement. These measures meant the interior lighting design achieves 63% energy cost savings over a conventional building.

Understanding that a building is only as green as the sum of its parts (and how easily these parts can be reused), MEC's decommissioning was considered during its design. MEC Burlington is designed for simple disassembly and material recycling or reuse. MEC Burlington's structure is comprised of wood – a renewable resource. Additionally, 97% of this wood is FSC-certified, ensuring it was sustainably grown and harvested.

MEC, founded by six Canadian mountain climbers in 1971, has grown to over 3 million members and become the largest outdoors store in Canada. Its branch stores span 12 cities and sell outdoor and adventure gear and equipment. MEC exists to serve its members, and this includes promoting a healthy environment and retail experience.

LEED is the most recognized and prestigious green building rating system in North America. LEED Canada is administered by the Canada Green Building Council, which uses the rating system to designate buildings—Certified, Silver, Gold, and Platinum – according to the green features they incorporate.

Enermodal Engineering is the largest consulting firm in Canada exclusively committed to creating buildings and communities that are energy and resource efficient. With a professional staff in Kitchener, Calgary, Edmonton, Denver, and Toronto, Enermodal is working on over 250 buildings pursuing LEED across North America and is responsible for over 45% of LEED Canada certifications.