



## EPCOR Tower in Edmonton

# Using innovative and efficient technologies for energy and water conservation

EPCOR Tower was constructed in 2011 with sustainability in mind, earning a LEED Gold certification for Core and Shell in August 2013. Committed to their vision, Qualico has implemented a comprehensive environmental performance management system for EPCOR Tower. This system includes many policies, procedures and programs (e.g. waste diversion, green cleaning program and environmental procurement) aimed at reducing the carbon footprint of EPCOR Tower and improving the quality of life for those who work in and visit EPCOR Tower. In early 2015 EPCOR Tower achieved BEST Gold certification and won the 2015 Regional TOBY award, demonstrating the success of Qualico's sustainability initiatives.

An operational focus for EPCOR Tower is reducing energy consumption. Energy savings are being realized in part through consistent and efficient use of the Honeywell building management system (BMS). The BMS allows Qualico to meet the comfort and safety needs of their occupants while ensuring the operational and energy efficiency of the building. The extensive system manages the HVAC, energy, lighting, air quality, gas detection, and smoke management of EPCOR Tower; the BMS goes into un-occupied mode after-hours, which further reduces energy usage.

EPCOR Tower yields 23% energy reduction when compared to ASHRAE 90.1-04. This is in part due to the use of the impressive earth tube system located under EPCOR Tower and below the frost line where the temperature is a consistent 6 oC. The principle of earth tubes is a geothermal exchange between the air and the surrounding earth through a conductive material, concrete in EPCOR Tower's case. EPCOR Tower takes advantage of the earth tube to pre-heat and pre-cool the building's outdoor air. The earth tube saves approximately 1,473,994 kW/year in heating mode and 84,874 kW/year in cooling mode.



> EPCOR Tower, Edmonton, BEST Gold

### Other systems that help to reduce mechanical operating costs are:

- High performance building envelope – the triple glazed exterior curtain wall system eliminates the need for perimeter radiant heating;
- Heat recovery ventilation – exhaust air contains waste heat, which is used to preheat the fresh air supply, without air mixing;
- Free-cooling – lowering the chilled water temperature for the building by using naturally cool air (cooling towers). Winter free-cooling can be used for 39% of the year in Edmonton;
- Stack condenser – waste heat from the boilers is used to pre-heat return boiler water and heat glycol for in-slab heating; the stack condensing system contributes significantly to the 95.5% boiler plant efficiency.

The reduction of water consumption is another focus area for EPCOR Tower and is realized in part through the use of a large, 725 m<sup>3</sup>, stormwater storage tank located under the parkade. This tank significantly reduces the need for potable water for irrigation and toilet flushing by an estimated 63%. Low-flow urinals, lavatories, and showers and dual-flush toilets combined with the lack of permanent irrigation also aid in reducing water consumption.

The myriad of the sustainability efforts from Qualico ensures that EPCOR Tower is one of the most attractive, healthy and efficient buildings in Edmonton, Alberta.