

ARMSTRONG 

FLAGSHIP EFFICIENCY

A COMMERCIAL
FACILITY
CASE STUDY

The RBC Centre is estimated to achieve a 50% energy savings relative to similar towers built to a different code.

“I’ve had no failures and no unplanned maintenance. The installation went well, and the pumps and heat exchangers have been working exactly as expected.”

Darren Riemer
Operations Manager

RBC Tower

A flexible HVAC system includes flexible HVAC controls that provide individual cooling at high efficiencies. The system draws on Toronto’s Enwave deep lake water system to minimize operating costs.

Background

When the development of the RBC Tower was first considered in 2003, RBC knew they wanted a LEED certified facility. RBC Dexia and Cadillac Fairview, the developers selected for the project, announced that they planned for this to be a leading installation in Toronto’s commercial real estate market.

“If we were going to have a flagship location, we wanted it to align very strongly with the values of our organization,” says Linda Mantia, Senior Vice-President, procurement and corporate real estate for RBC.

One decision that played an important role in driving the energy efficiency of the building was the choice to connect to the Enwave Deep Lake Water Cooling (DLWC) system.

Toronto’s Deep Lake Water Cooling is an innovative cooling system that brings an alternative to conventional air conditioning.

The DLWC system operates as follows:

- Three intake pipes draw icy cold water from five kilometres off the shore of Lake Ontario at a depth of 83 metres below the surface to the city pumping station.
- Heat exchangers facilitate the energy transfer between the lake water and the closed chilled water supply loop.

Benefits

All of the telecommunications wiring, and heating, ventilation and air-conditioning pipes are housed in a 45-centimetre raised-floor space. This allows office workers to set their own heating and cooling comfort levels via floor diffusers, which are located about every 180 square feet.

The Vertical In-Line design with Suction Guide and Flo-Trex valves offers many advantages over the standard horizontal configuration.

- Combining savings in floor space, installation accessories, piping costs and inertia base costs, VIL pumps offer the lowest installed cost of any pumping unit.
- VIL pumps reduce mechanical room pipe and piping costs by up to 40%.
- VIL pumps also offer reduced maintenance costs due to the advantages of split coupling and outside mechanical seal.

Tech-Facts

Main equipment

- Five Plate & Frame heat exchangers
- Two domestic cold water boosters
- 38 Vertical In-Line pumps complete with Suction Guides and Flo-trex valves

Environmental benefits

Use of DLWC deep lake water cooling — an innovative, green, renewable energy resource — reduces demand for electricity. The HVAC systems in the RBC Tower are over 90% more efficient than some alternative methods.

Facility details

- LEED Gold new construction
- 1.2 million square feet leasable office space
- 43 floors

TORONTO
+1 416 755 2291

BUFFALO
+1 716 693 8813

BIRMINGHAM
+44 (0) 8444 145 145

MANCHESTER
+44 (0) 8444 145 145

BANGALORE
+91 (0) 80 4906 3555

SHANGHAI
+86 21 3756 6696