

Corus Quay Building and District Energy Plant is a recipient of LEED Gold certification by Canada's Green Building Council.

Daikin Chiller Strikes LEED Gold for Toronto Energy Plant

ISSUE:

Daikin chiller technology was the clear choice in a major replacement project in downtown Toronto which demanded more than just high energy efficiency and redundancy. New chillers also had to support the district energy program and have quiet, vibration-free operation around sensitive broadcasting equipment. Located in the East Bay waterfront, the Corus Quay building serves as the headquarters for Corus Entertainment, one of Canada's largest integrated media and entertainment companies. As a media center, the eight-story building houses a fully integrated digital infrastructure to accommodate radio and TV studios, among other areas of production.

The LEED-Gold certified building's sustainable features include reduced power and water consumption (grey-water and rainwater recycling systems); energy efficient lighting; a five-story bio-wall located in the building's atrium for air filtration; and use of recycled building materials.

Following the building's opening, nearby land ownership changes resulted in the decommissioning of the building's temporary energy plant located across the street. As part of the Toronto waterfront's new energy master plan, project owner Enwave Energy Corp., a public-private partnership organization, recommended that Urban Corp. build an in-house plant at the building with future district energy connection potential. A detailed design and construction plan was completed for the new plant to serve the existing Corus building while providing energy to newly planned buildings.

SOLUTION:

As part of the master plan, the new in-house plant was built and installed on the roof of the Corus building. Two Daikin 880-ton dual-compressor centrifugal chillers and 20 Daikin air handlers are among the primary HVAC equipment. "Daikin was the basis of design for the chillers and project owner Enwave quickly decided on the Daikin equipment against other competitors based on the dual-compressor design and energy efficiency," said Kevin Little, director of the industrial sales group at Daikin manufacturer's representative HTS Engineering in Toronto.

"A lot of technology in the building is mission critical and includes a data center. Loads in the building are also intermittent because of the radio and TV stations located within various areas of the structure. The high-heat generating production equipment must be operable for the broadcast facilities at all times," said Paul Pilutti, P. Eng., LEED AP, director of Canadian operations at HTS Engineering. The two Daikin chillers more



NAME:

Corus Quay Building and District Energy Plant

LOCATION:

Toronto, ON, Canada



FACILITY SIZE:

564,000 ft² facility



ISSUE:

Efficient, noise and vibration-free chiller needed to supply chilled water to multiple buildings



SOLUTION:

(2) 880-ton Daikin centrifugal chillers
(20) Daikin Vision®/Destiny® air handlers

SOLUTION (CONTINUED):

than accommodate the Corus building's 700-ton load as well as for future building loads in the district energy network. The dual-compressor chillers also support the Corus building's critical need for redundancy. One of the chillers is connected to a backup electrical generator to avoid disruptions during power outages.

Little added: "The use of VFDs on the compressors is somewhat unusual for dual-compressor chillers but we did it for this job to gain greater load efficiency (to let the machines unload as efficiently as possible)." The Daikin dual-compressor chillers provide installed costs savings of up to 35 percent versus installing two separate chillers.

The building's central plant includes cooling towers, heat exchangers and pumps, as well as two boilers at a total capacity of 20,478 MBH. The system is designed to import and export chilled and hot water from the district energy system. The plant operates remotely from Enwave's Toronto facilities.

HTS Engineering and Daikin Service ensured a smooth transition from the original plant across the street to the new system. "The challenge was to minimize shutdowns in the fully occupied Corus media/office building that runs 24/7 and not affect the sensitive broadcasting equipment located in the

building," Little said. The Daikin chillers have been fully operational since commissioning of the new central plant by a third-party agency.

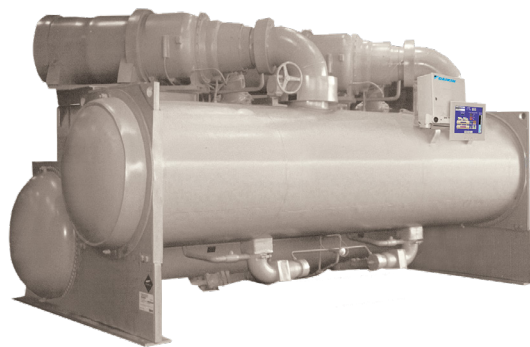


The Daikin chillers supply mission-critical cooling to many locations within the building, including areas like this data center.

OUTCOME:

The chillers were placed online seamlessly and deliver noise-free and vibration-free operation to the delicate broadcasting equipment. The energy performance of the chillers and other plant equipment is closely monitored on the building automation system and delivered on expectations for the LEED-certified building.

The Daikin equipment comprises one of two remotely operated district energy plants expected to serve nine buildings in the East Bay waterfront district by the end of 2018.



Two Daikin 880-ton dual compressor centrifugal chillers provide cooling for the building and will also cool future buildings in the district's energy network.

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– Kevin Little, Director of Industrial Sales,
HTS Engineering, Toronto