HSBC Tower

CASE STUDY

Challenge

With the original equipment serving HSBC Tower approaching the forty-year-old mark and reaching the end of its useful life, the facility had become inefficient and costly for Majestic Management to maintain. The property manager also struggled to keep tenants comfortable, being unable to provide the simultaneous heating and cooling they desired. Majestic Management sought to convert the building's antiquated equipment into reliable energy efficient systems, and modernize the building's zoning and ventilation in order to provide the comfort levels expected in a contemporary office space. With the building fully occupied, upgrades needed to be completed with minimal disruption to business operations.

Solution

Relying on a trusted partnership

Based on a long-term relationship that spanned more than forty years, Majestic Management consulted with Trane, its trusted advisor for engineering design, equipment and service. Trane met with the building management team, engineers and owner's representatives to discuss the challenges, listen to their ideas and begin to outline objectives.

Developing a turnkey solution to optimize performance

Drawing from its portfolio of products and services, Trane moved forward, with conceptual input from Mr. Bob Hillhouse, B. Math CS EEE, Majestic Management, to develop a turnkey design/build solution that would help enable building systems to perform as intended to answer long-term efficiency and comfort goals. The solution included not only the replacement of aging air handling units, chillers, boilers and controls, but also the implementation of a system redesign and energy saving strategies.

Enhancing tenant comfort

To improve comfort, a dedicated heat recovery chiller and water-cooled screw chiller were installed to match the capacity of the existing chiller. The chiller combination enables simultaneous heating and cooling to better control temperatures and create zones to satisfy individual comfort preferences. The ventilation system was also modernized with the installation of new air handlers with dynamic air filtration.

HSBC Tower

Prince George, BC

PROJECT HIGHLIGHTS

Majestic Management manages the major share of private leasable office space in Prince George, BC, including the HSBC Tower. Wishing to upgrade its portfolio, the firm implemented a turnkey design/build project at the building that resulted in a 50 percent energy savings and $100,000 in incentives.

The leading international bank in Canada, HSBC serves customers worldwide through an international network of approximately 6,000 offices in seventy-one countries and territories.

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CASE STUDY

Improving system efficiency

The two new chillers operate efficiently to reduce energy consumption. The dedicated heat recovery chiller recovers and reuses return air heat, eliminating the need to use boilers during shoulder season and at the beginning of winter. When outdoor temperatures rise, the water-cooled screw chiller works with the dedicated heat recovery chiller to satisfy the cooling load.

The redesigned HVAC system includes additional energysaving strategies and equipment. The cooling towers were reworked to include a free cooling option. Boiler piping was revised and boilers were replaced with low temperature condensing boilers to reduce gas consumption. Variable frequency drives were included on the new boilers and on other equipment to reduce fan, gas, and electrical energy use and operational costs.

Induction box operation was also modified to allow switching between warm water, cool air, and cold water warm air. The large fin capacity of the induction boxes allowed boiler temperatures to be lowered to 35° C.

About HSBC Tower

HSBC building maintenance manager, Joe Van Calsteren, monitors operation of the Trane Series R® Helical Rotary water-cooled screw chiller.

Results

Essential for the upgrade project's success, Majestic Management, Trane, engineers, and suppliers worked as an integrated team to implement upgrades at the HSBC Tower. As a result of the collective contributions of the retrofit team members, the project is realizing multiple benefits including improved tenant comfort, drastically reduced energy costs, and lower life cycle costs.

Every perimeter office is now a separate zone, maintaining better temperature control to help satisfy individual comfort preferences. Energy costs have decreased by more than 50 percent, enabling the building manager to save just over $100,000 a year in electricity costs and approximately $50,000 annually in gas costs. The project was awarded energy incentives of $100,000, and an additional $100,000 in tax incentives.

"We've always had Trane involved with the building, and we've been quite happy with the solutions they've provided," said Bob Hillhouse, B. Math CS EEE, Majestic Management. "We've had huge improvements in energy efficiency. In fact, we've been advised that this building ranks within the top ten most energy efficient buildings in Canada."

TRANE

Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit *trane.com* or *tranetechnologies.com*.

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