



The Abbotsford Regional Hospital and Cancer Centre was the first hospital in Canada to earn LEED®-NC Gold certification.

CASE STUDY

Healthcare Facility

Facility at a glance

Name

Abbotsford Regional Hospital and Cancer Centre

Location

Abbotsford, British Columbia CA

Facility size

645,000 ft²

Issue

Meet sustainability LEED green building standards and Natural Resources Canada's commercial building incentive program

Solution

Daikin centrifugal chillers plus Vision™, Skyline™ and Destiny™ air handlers

Abbotsford Hospital sets new standards for patient care facilities and environmental sustainability

Issues

One of the design goals for the 300-bed acute care facility was to meet sustainability standards such as the LEED green building rating system and to obtain Natural Resources Canada's commercial building incentive program, all in a cost-effective manner. To meet those goals, the hospital's P3 design/construction team rethought typical hospital design practice and created cost effective, energy-efficient solutions.

Solution

The HVAC design greatly contributed to the hospital's energy-saving strategy. The system includes two high-efficiency gas-fired hot water boilers and a flue gas heat recovery system. A high-efficiency chilled water generation system with two Daikin 900-ton centrifugal chillers configured in series counter-flow, allows for energy recovery on both chillers at peak efficiency throughout various load ranges.

The system also incorporates special air handling units which were custom designed to meet stringent indoor air quality requirements, as well as Daikin air handlers for make-up air in the mechanical room and heat recovery of exhaust air.

Outcome

Combined with other sustainable design efforts, the hospital consumes approximately 28% less energy than a code-compliant hospital. This translates to 3,120 metric tons of CO₂ savings annually and an equivalent energy operating cost savings of approximately \$480,000 CAD per year which can be redirected into providing healthcare.

Savings and Sustainability Results



Energy Savings Consumes **28% less energy than a code compliant hospital**

Annual CO₂ Savings **3,120 metric tons**

Annual Energy Operating Cost Savings **Approximately \$480,000 CAD**



Two 900-ton Daikin Centrifugal Chillers installed in series counter-flow configuration at Abbotsford Hospital.