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ARCHITECT

Cohos Evamy integratedesign™
Edmonton, Alberta

GLAZING CONTRACTOR

Beacon Glass Products Ltd.
St. Albert, Alberta

FEATURED PRODUCTS

7500 Wall™ Curtain Wall System
2000 Skylight
360 Insulclad™ Thermal Entrances
350 Medium Stile Entrances

PCL Centennial Learning Centre

EDMONTON, ALBERTA

PCL Centennial Learning Centre

EDMONTON, ALBERTA

PROJECT PROFILE

OFFICE

MARKING 100 YEARS OF BUSINESS WITH A LEED GOLD® BUILDING

Many companies choose to mark their 100th year in business with celebratory parties and commemorative pens. But Canadian-based PCL, a leading construction group, had its sights on something bigger, and decided to celebrate its significant milestone with a building. Located in Edmonton, Alberta, Canada, the \$13 million PCL Centennial Learning Centre would serve as the new training and development hub for the PCL family of companies and as a tribute to the company's past, present and future generations.

From conception, PCL wanted to create a building that would honor the company's century mark, embrace sustainable design and reduce environmental impact for another 100 years. With the goal of obtaining LEED® certification, PCL worked with Cohos Evamy integratedesign™, prime consultants on the state-of-the-art 2,700-square-meter (29,062-square-foot) building.

Using LEED® principles, PCL was able to deliver a striking facility that consumes fewer resources and less energy, ultimately resulting in lower operating costs. The sustainable agenda was achieved without adding a premium to the original budget. When the PCL Centennial Learning Centre opened its doors, it initially targeted LEED Silver® certification by the U.S. Green Building Council (USGBC) but it went on to achieve LEED Gold® and was the first private-sector building in Alberta to do so.

DESIGN HIGHLIGHTS

The building design consisted of 75% glazed elements, including a multifunctional central skylight. The combination of all the glazed elements created a sense of openness and airiness throughout the building. In addition to providing daylighting, the central skylight plays a large role in the concept of a "solar chimney," which the architect designed to increase energy efficiency. As inside temperature increases, the rising warm air builds up at the top of the chimney. Motorized

louvers open to allow hot air to escape and cool air from the outside to enter the building, reducing the need for mechanical air conditioning and lowering energy costs.

CHALLENGES

- One of the principal objectives of the building was energy efficiency. Edmonton's northern continental climate, with extreme seasonal temperatures, made thermal performance a critical component of the building design. The systems would also need to meet additional challenges such as condensation resistance and wind-load performance.
- The solar chimney was a unique design element. Precise engineering was required to structurally support the glass curtain wall on both sides with a skylight above. In addition, the skylight required superior thermal capabilities, including triple glazing, in order to prevent heat from escaping the solar chimney.

SOLUTIONS

- To ensure maximum thermal performance, the team utilized triple-glazed 7500 Wall™, featuring an IsoWeb™ glass-reinforced nylon thermal break. Used for both curtain wall and strip window applications, 7500 Wall™ was a prominent feature in the building's spacious Grand Hall, which overlooks the site's beautifully landscaped gardens.
- The system accommodated 360 Insulclad™ Thermal Entrances that not only provided thermal efficiency, but also the durability to withstand heavy traffic.
- In order to achieve the long, open glass "spine" that bisects the building, 2000 Skylight was incorporated into the 7500 Wall™ on multiple sides and anchored to the steel structural support at critical points. The 2000 Skylight, with its insulating thermal break placed at the exterior of the glass plane, minimized heat loss and condensation, and was a key component of the solar chimney.



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