KAWNEER

PROJECTPROFILE

PCL Centennial Learning Centre

Edmonton, Alberta, Canada

ARCHITECT
Cohos Evamy integratedesign™
Edmonton, Alberta, Canada

GLAZING CONTRACTOR
Beacon Glass Products Ltd.
St. Albert, Alberta, Canada

KAWNEER PRODUCTS
7500 Wall®
2000 Skylight
360 Insulclad® Thermal Entrances
350 Medium Stile Entrances

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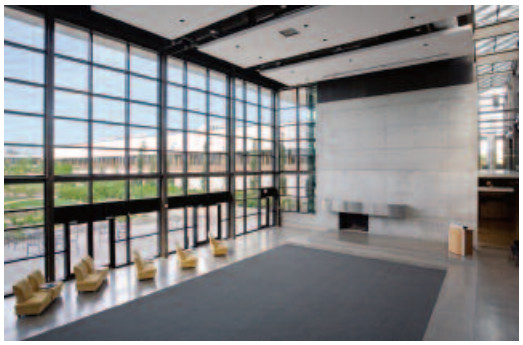

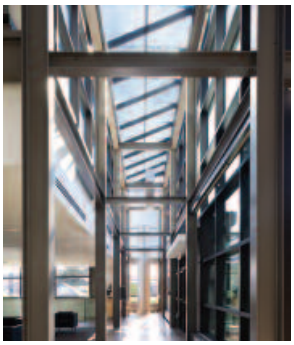

MARKING 100 YEARS OF BUSINESS WITH A GOLD LEED CERTIFIED BUILDING

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 not only honor the company's century mark, but more importantly, one that embraced sustainable design and would 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. Cohos Evamy provided a range of integrated design services including the architecture and structural engineering.

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

Design Highlights

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

Challenges

- One of the principal objectives of the building, which featured multiple glazed elements, 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 would require 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 also accommodated 360 Insulclad® Entrances that not only provided thermal efficiency, but 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. 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.

Featured Products

- 7500 Wall® curtain wall and strip windows, 2000 Skylight, 360 Insulclad® Entrances, 350 Medium Stile Entrances on the interior.

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