The Child Development Centre, Alberta's First LEED® Platinum Building
A perspective on energy efficiency

The University of Calgary, took great initiative in its Sustainability Policy in 2005, when it started construction on its Child Development Centre (CDC). It was the University's primary goal that the design of the building would attain LEED® Platinum certification, which it did in 2007, becoming Alberta's first LEED® Platinum building, Canada's second, and the world's first in a cold climate. The university partnered with Kasian Architecture Interior Design and Planning, R.C. Peterson Ltd. and construction managers and Ellis-Don Construction, to realize its vision.

The CDC achieved the highest LEED® standards for energy efficiency and other LEED® areas. The 11,612 m2 building had the largest photovoltaic array in Western Canada at the time of construction, which can produce 40,000 kWh of electricity annually. Located above the building's windows, the solar panels have the double function of serving as shades, which lessen the peak cooling load during summer months. WADE Canada member Sedmek Inc. was the contractor in charge of the solar PV installation.

"Because the Child Development Centre was designed to use about one third the energy of a conventional building of its size, the 325 m2 photovoltaic array offsets about 10 percent of the CDC's annual building system energy costs," said Dr. Jim Love, Chair in Sustainable Building Technologies at the University of Calgary's Faculty of Environmental Design. Dr. Love was the energy engineer for this project.

Even the ventilation system was designed to be energy efficient through the low velocity under-floor air supply system.

Considerable detail was considered in the CDC's building and design including energy efficient construction materials such as the concrete mixed with 50 percent fly-ash from Alberta's coal fired generation plants, contributing to an overall 75 percent post-industrial recycled content for building materials. To reduce urban heat island effect, the CDC has a "cool roof" with high emissivity and reflectance properties to redirect solar radiation into the atmosphere.

Waste materials were sorted on site and sent to a variety of receiving facilities, such as metal recyclers, to achieve 83 percent diversion of waste from landfill.

The CDC's elongated east-west footprint allows more effective shading of south-facing glass (buildings typically have a daytime excess of heat from internal gain from lights, people and equipment during the daytime) and increases the amount of low glare illumination via north-facing windows.

As a result of these energy efficient materials and DE installations it was estimated the CDC's energy costs would be reduced by 64 percent, compared to a building of the same size, thus also saving 800 tons of CO2 annually.

In addition to the CDC, the University of Calgary is targeting LEED® Gold and LEED® Silver for 5 new buildings currently under construction.

The university is expecting to complete its co-generation plant in 2011. This will reduce heating and cooling CO2 emissions by 123,000 tons CO2. Combined with the energy efficiency of recently added buildings and retrofit measures, this will reduce the University's 2012 GHG emissions to 30 percent below 1990 levels.

For more information, please visit: http://www.ucalgary.ca or contact:

Patricia Faucher
Director of Communications
pfaucher@wadecanada.ca
514.844.8448