



WEST LETHBRIDGE CENTRE

LETHBRIDGE, ALBERTA

PROJECT NO. 05-081 / 05-082

FACT SHEET





South Elevation, Chinook High School



Chinook High School

LEED® SILVER CANDIDATE

WEST LETHBRIDGE CENTRE: THE CROSSINGS BRANCH PUBLIC LIBRARY, CHINOOK HIGH SCHOOL, AND CATHOLIC CENTRAL HIGH SCHOOL - WEST CAMPUS

LETHBRIDGE, ALBERTA



North Elevation, The Crossings Branch Public Library



South Entrance, The Crossings Branch Public Library



South Elevation, Chinook High School and Crossings Branch Public Library

The new West Lethbridge Centre is an innovative approach to educational facility design.

This unique education solution combines a Public High School (700-1100 students) and a Separate High School (300-400 students) with a centralized Public Library. The Centre will be over three football fields in length and will enhance the educational experience of the entire community.

SAHURI + Partners Architecture Inc. in joint venture with J.A. Matthew Architect Ltd. is prime consultant for the new Chinook Public High School.

SAHURI + Partners is prime consultant for the new Crossings Branch Public Library.

Ferrari Westwood Babits Architects Inc. is prime consultant for the new Catholic Central High School - West Campus.

The West Lethbridge Centre is pursuing LEED® Silver certification and to that end, utilizes a centralized mechanical plant which will enhance energy efficiency and overall energy performance of the entire Centre.

Size:

Public High School	131,481 ft. ² - 12,215 m ²
The Crossings Branch Library	22,895 ft. ² - 2,127 m ²
Combined Size:	154,376 ft. ² - 14,342 m ²

Budget:

Public High School	\$ 23M
Public High School Phase II	\$ 12M
Public Library	\$ 8 M

Planned Completion: September 2010



Leadership in Energy and Environmental Design (LEED®): A Green Building Rating System

LEED® is a third party voluntary certification program, accepted nationally and increasing internationally as the benchmark for the design, construction and operation of high performance 'green' buildings. Originally developed by the US Green Building Council (USGBC), LEED® has been adapted by the Canada Green Building Council (CaGBC) to meet the specific climatic conditions, construction practices and building regulations that exist in Canada. Projects are certified by the CaGBC based upon a total point score, following an independent review and audits of selected documentation submitted by a design and construction team, and then awarded one of four levels of certification (Certified, Silver, Gold and Platinum).

LEED® promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water conservation, energy efficiency, building material and resource use, and indoor environmental quality.

Sustainable Site Development

Generally sites are chosen prior to engaging a project architect, but ideally, sites where construction poses a threat to the immediate and surrounding ecosystem should be avoided. Sites that are within existing developed areas with access to existing infrastructure should be sought and favoured. Environmental impact should be minimized by disturbing the smallest area necessary to safely carry out construction activities.

Water Conservation

While currently water and sewer utility costs are considerably lower than energy costs, as the demand for potable water continues to increase and sources diminish, these costs will escalate. By reducing our water use demands, this essential natural resource can be conserved. The development of products and technologies that can reduce water consumption efficiently and cost effectively will aid in achieving this goal.

Energy Efficiency

Improving a building's energy performance not only equates to operational savings, it often results in a more comfortable experience for the building occupants. With soaring energy costs and climate concerns associated with the manner in which we consume energy, we can implement effective strategies to reduce energy consumption, increase energy efficiency, and harness renewable energy sources with minimal environmental impact.

Materials and Resources

It is important when designing a sustainable building to think to the future. What will the needs of the building be in ten, fifty or possibly even one hundred years?

Structures that accommodate future expansion, adaptive reuse or deconstruction rather than demolition are efficient ways of using building materials and land for today and tomorrow.

Indoor Environmental Quality

Canadians spend the majority of their lives indoors where air pollutants often exist at much higher concentrations than occur outdoors. More and more building operators are seeing the correlation between the quality of interior spaces and the productivity of employees. Green buildings have improved ventilation, and avoid materials that contain chemicals that can adversely affect health.

LEED® gives building owners and operators tools that they can use to have an immediate and measurable impact on their buildings' performance.

SUSTAINABLE DESIGN FEATURES:

The West Lethbridge Centre has one centralized mechanical plant which will service all three components. This is more efficient than having three separate mechanical plants, and reduces energy consumption, operational costs and CO2 emissions. These buildings use an innovative heating and ventilation system that separates ventilation air supply from heating. Traditional HVAC systems typically heat spaces by blowing large volumes of heated air – which often requires large fans operating at high speeds and consuming large amounts of energy.

In the West Lethbridge Centre, heat is supplied by way of hot water radiant panels located near the ceilings. Water can hold nearly 3000 times the amount of heat by volume than can air, therefore only small pumps are required to circulate heat. Additionally lower water temperatures are required to attain the same occupant comfort level than is required for air, further reducing energy consumption.

Ventilation air is supplied at low speed through vents located close to the floor – this type of ventilation strategy is known as displacement ventilation. Ventilation air doesn't supply heat to the building, allowing lower air changes to occur, but with much higher quantities of outside air. This greatly improves indoor air quality and reduces the movement of indoor air contaminants.

In an effort to further improve indoor air quality, building materials have been selected that have either very low concentrations of Volatile Organic Compounds (VOCs) or none at all.

VOCs are compounds that at room temperature vaporize and mix with the indoor air and can be in and of themselves toxins or irritants that cause headaches, nausea or other acute symptoms.

In the presence of sunlight many VOCs photochemically react to form Ozone (O₃), a chemical that in the high atmosphere protects us from dangerous ultraviolet radiation from the sun, but in the lower atmosphere where it can be inhaled can lead to respiratory health conditions.

The buildings also use low-flow plumbing fixtures which will reduce overall water consumption by more than 40% compared to standard flow rate fixtures.



The Crossings Branch Public Library

WEST LETHBRIDGE CENTRE PROJECT TEAM:

THE CROSSINGS BRANCH PUBLIC LIBRARY:

Prime Consultant: **SAHURI + Partners Architecture Inc.**
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