



# Slave Lake Government Centre and Library

Canadian  
Wood  
Council

Conseil  
canadien  
du bois





Photo: Steve Nagy Photography

Cover Photo: Steve Nagy Photography

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# Introduction

Located 250 km north of Edmonton, the Town of Slave Lake, Alberta, is home to 7,000 residents and serves as a regional hub for a population of 25,000. It's economic base includes tourism, oil, gas and forestry industries.

The new Slave Lake Government Centre and Library was designed and built to consolidate a number of government services, in outdated facilities, that were distributed throughout the community of Slave Lake. The new building, which is a combination of renovated space and new construction (Figure 1), has streamlined the delivery of public services in Slave Lake and provided a central place where citizens can meet, interact and conduct daily business in one stop.

“ The building is the Town centerpiece.... The ceiling in the council chamber is quite stunning... Library enrolment has increased and it has become a magnet for residents of all ages. ”

Mayor Karina Pillay-Kinnee

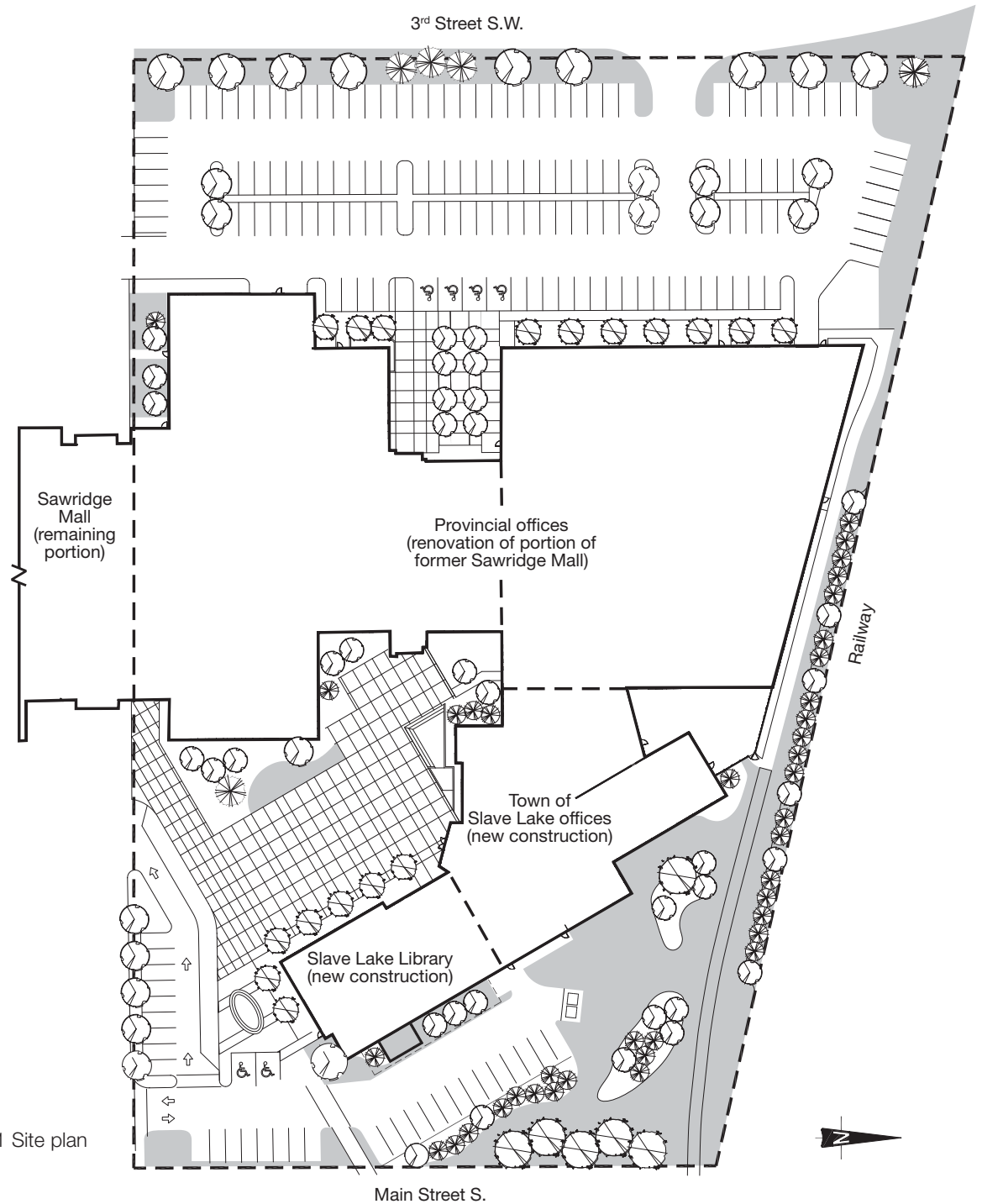


FIGURE 1 Site plan

## Building Description

The Slave Lake Government Centre and Library allowed the centralization of government services and replaced Town offices that were outdated. The project involved acquiring and renovating redundant space from the existing Sawridge Mall and constructing new space. In an arrangement that benefitted the Sawridge Corporation and the Town of Slave Lake, the Town purchased the north half of Sawridge Mall. A firewall was constructed to separate the remainder of the mall from the renovated north portion and the new construction.

The Town of Slave Lake owns the building and leases office space to several Alberta government offices. The renovation and part of the new construction houses Government of Alberta offices. The other part of the new construction houses the Town of Slave Lake municipal offices and the Slave Lake Library (Figure 2).

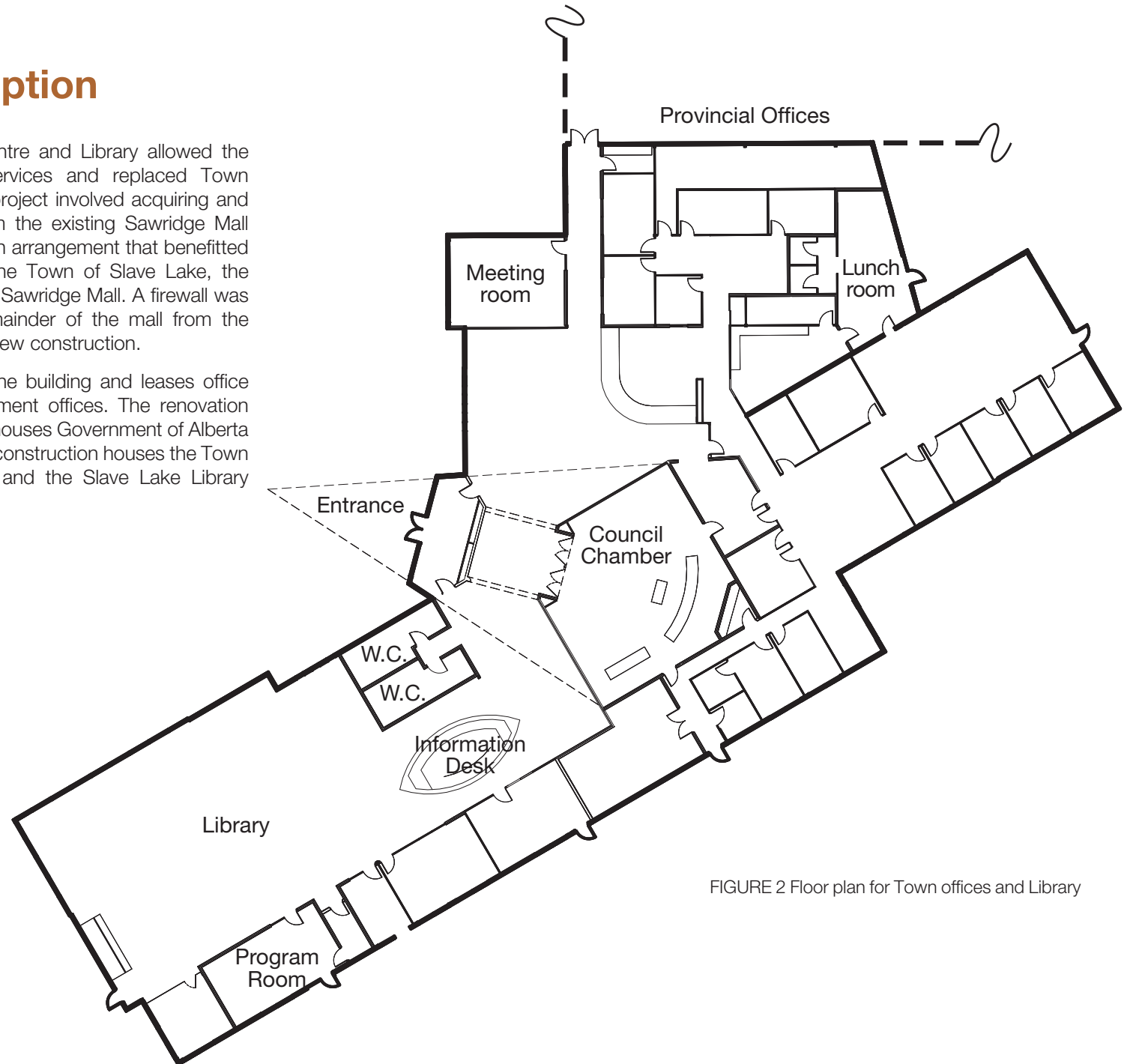


FIGURE 2 Floor plan for Town offices and Library



Photo: Steve Nagy Photography

The renovation involved upgrading the walls and roof of the existing structure and adding high-performance windows and adapting the space for offices using the existing structure. The walls were constructed to R30 (RSI 5.28) and the roof to R50 (RSI 8.8).

The new construction is comprised of glulam columns beams supporting wood roof decking, with wood-frame exterior walls. The total area of the building is 7,863 m<sup>2</sup> (84,900 ft.<sup>2</sup>), of which 6,009 m<sup>2</sup> (65,000 ft.<sup>2</sup>) is leased by the Province and 1,854 m<sup>2</sup> (19,900 ft.<sup>2</sup>) is used for the Slave Lake municipal offices and

Library. The provincial area includes office space for 13 government departments and a courthouse with two courtrooms. The Municipal area includes office and meeting space, the council chamber, and the municipal library.

This new community hub and government centre is a one-stop, service-oriented landmark for the citizens of the Slave Lake region. Centralizing services was seen as a way to reduce car use and increase foot traffic. The result is a more pedestrian friendly and green downtown that maximizes green space, preserves the site's existing trees and offers a public



Photo: Manasc Isaac

square and walkways. The project was designed to achieve at least a LEED® Silver certification. Demolition and renovation started in January 2008, new construction began in May 2008, and the new facility was ready for use in December 2009.

## Design Development

Planning for the facility was begun by the Town of Slave Lake and the Government of Alberta in 2004 by establishing area, size and function needs for each of the departments. Architects Manasc Isaac met with department representatives to understand their needs and the working relationships between departments.

The centrally-located facility was intended to become a permanent anchor for the town, revitalizing the downtown area while enhancing the presence of provincial government services. Using the SMART™ (Specific, Measurable, Achievable, Realistic and Timely) project management process, Manasc Isaac consulted Town representatives, citizens and provincial representatives to define a number of success factors for the facility that included:

- “a facility that is friendly to the street, encourages walking and bicycling and reflects the culture, history, and future viability of the community”
- “a bright, attractive, and welcoming building that draws people to it”
- “uses best practices to achieve long-term sustainable design”
- “demonstrates commitment to stewardship of the environment and the community of Slave Lake”

## New Construction

The new portion of the building is comprised of glulam beams and columns with steel decking and wood-frame exterior walls, serving as shearwalls. Wood was selected for its architectural appeal and for the connection of the Town Slave Lake to the forest and tourism industries.

The new building is supported on timber piles with concrete pile caps. This matches the sub-surface foundation system used for the original Sawridge Mall to which the new building areas are connected. The piles are 305 mm (12 in.) diameter treated Douglas fir piles.

Wood piles installed below the water table have been known to last for centuries. However, because ground water levels may vary, treated piles timber foundations are recommended even in areas where the water table is known to be high.

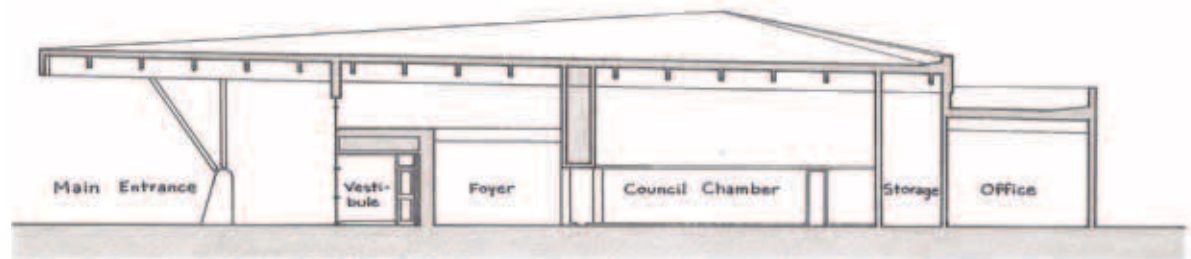


FIGURE 3 Cross-section through the Council Chamber and main entrance



Photo: Steve Nagy Photography



## Reused Materials

The Slave Lake Government Centre and Library made use of wood materials obtained from a deconstructed church in Edmonton. The Courtroom seating in the Provincial portion of the building is provided by pews salvaged from the church in Edmonton and the pews were refinished to match the rest of the wood trim.

The roof decking in the Council Chamber is 3.6 x 12.5 mm (1 ½ x 5 in.) yellow cedar decking salvaged from the church. Structural uses for glulam beams also salvaged from the church were investigated but it was determined the glulam should be used for non-structural applications. The glulam was reprocessed and used for the louvers on the building exterior. For protection from the elements, the glulam louvers were treated with one coat of Timberlox® oil base semi-transparent stain and two coats of ClovaThane® aliphatic urethane.



Photos: Manasc Isaac

## Sustainable Design

The Slave Lake Government Centre and Library was designed to achieve the Leadership in Energy and Environmental Design (LEED®) Silver rating level. By engaging in a collaborative process with the community of Slave Lake, Manasc Isaac integrated a number of sustainable design and urban design strategies that enhance the Town of Slave Lake's new building. These strategies include:

- Making use of redundant space in Sawridge Mall and placing a high priority on urban revitalization, enhanced green space and site landscaping.
- Retarding storm water runoff from the site to the surrounding, low-lying area.
- Reducing energy consumption 45% below the requirements of the Model National Energy Code for Buildings (MNECB) through high-performance walls, windows, roof and mechanical system.
- Incorporating a construction waste management plan in the construction specifications to divert the maximum amount of waste from landfill.
- Using regional materials and reused wood materials.
- Specifying low-emitting materials to minimize the emission of indoor air contaminants.
- Maximizing the use of daylight to reduce the need for electric lighting.



Photo: Steve Nagy Photography

## Building Code Requirements

The building was designed to the Alberta Building Code for A (Assembly) and D (Office) occupancies. It is a sprinklered, single-story building accessible for fire-fighting from three streets. These conditions permitted the use of wood-frame and heavy timber construction.

## The Environmental benefits of Using Wood

The United Nations' Intergovernmental Panel on Climate Change deems buildings to be the greatest opportunity for making considerable reductions in carbon dioxide emissions. Using sustainably harvested wood as a construction material is a simple and cost-effective step in this direction.

## Carbon Dioxide

Carbon dioxide is a key factor of global warming and it is also a major ingredient of wood. As trees grow, they draw carbon dioxide from the atmosphere and, using solar energy, convert the carbon dioxide into wood fibre (50% of wood is carbon) while releasing oxygen back into the atmosphere. If trees are harvested before they burn or decay, the carbon is stored indefinitely in the wood products, and new trees are planted to begin the cycle again. Wood products sequester more carbon dioxide than the amount emitted during harvesting, transportation and manufacturing, which means they actually have a negative greenhouse gas footprint.

“**Specifying wood in public procurement can help fulfil national and local climate change programmes.** Encouraging the use of wood products can act as a greener alternative to more fossil-fuel intensive materials. Substituting a cubic metre of wood for other construction materials (concrete, blocks or bricks) results in the significant average of 0.75 to 1 t CO<sub>2</sub> savings.”

International Institute for Environment and Development  
<http://www.iied.org>

Photo: Steve Nagy Photography





Photos: Steve Nagy Photography

## Wood and Life Cycle Assessment

Life cycle assessment is a scientific measure of the environmental impact of a product throughout its entire life – from resource extraction through to product manufacturing, on-site building construction, occupancy, and eventual demolition, as well as disposal, reuse, or recycling. Numerous life cycle assessment studies worldwide have shown that wood products yield clear environmental advantages over other building materials at every stage.

Life cycle assessment takes away environmental performance guesswork by calculating actual outcomes based on quantifiable indicators of environmental impact, such as global warming potential, resource use, embodied energy, air pollution, water pollution and solid waste.

The ATHENA® EcoCalculator for Assemblies is a tool based on life cycle assessment that allows architects, engineers and others to quickly assess and compare environmental impacts of hundreds of building assemblies that are commonly used in construction. The ATHENA EcoCalculator is available free at [www.athenasmi.ca](http://www.athenasmi.ca)

Scientific analysis of building materials shows that wood has the lowest environmental footprint of all major building materials (Figure 4).

As environmental awareness grows, building professionals are finding wood is an excellent choice for green construction designs that minimize the use of energy, water and materials, and reduce negative impacts on human health and the environment. Wood is a high-performance and versatile choice for any new construction or renovation. Wood is light in weight, yet strong. It has excellent load-bearing and thermal properties, is easy to work with, and is well suited for large or small projects. Wood adds warmth and beauty to any building, enhancing the well being of occupants.

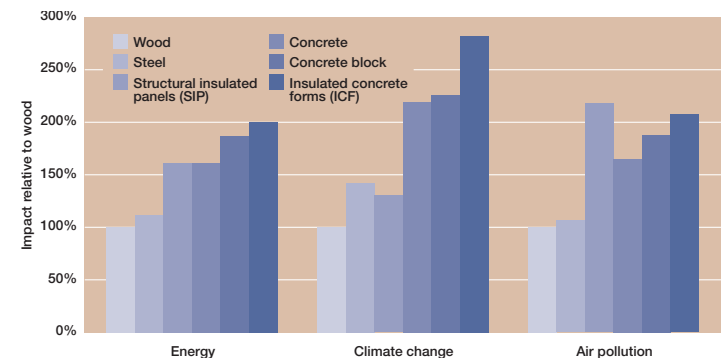


FIGURE 4: Embodied environmental impacts of various exterior wall assemblies



Photo: Steve Nagy Photography

## Conclusions

The Slave Lake Government Centre and Library reorganized and centralized government services. Reused and new wood construction was used to provide a comfortable, attractive working and public services environment. The building is designed to meet LEED® Silver and reduces energy consumption 45% below the Model National Energy Code for Buildings requirements. The facility has provided a new focal point for the Town of Slave Lake, combining government services, shopping, library services and public functions, all in one location.

Photo: Steve Nagy Photography





Photo: Craig Boyko, Images Resources, Art Gallery of Ontario  
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## Project Team

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### Mechanical/Electrical

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Canadian Wood Council

Conseil canadien du bois



[www.wood-works.org](http://www.wood-works.org)

Wood WORKS! is a Canadian Wood Council initiative  
[www.cwc.ca](http://www.cwc.ca)

**For more information on WoodWORKS!**

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