

GLENMORE LANDFILL ADMINISTRATION BUILDING

LOCATION

Kelowna, British Columbia

SIZE

650 m²

COMPLETION

2014

ARCHITECT

CEI Architecture

STRUCTURAL ENGINEER

Bush Bohlman & Partners

GENERAL CONTRACTOR

Delnor Construction

PROJECT OWNER

City of Kelowna

PROJECT OVERVIEW

The new 650-square metre administration building at Kelowna's Glenmore Landfill is an example of site-specific sustainable design, in which wood features prominently as both a structural and finish material.

The facility includes change rooms in the lower level, and office space and a training suite on the upper floor. A visitors' area offers information on the landfill, educating school groups and the general public on the work undertaken at the site, including the impact of recycling and other smart environmental practices.

The design aimed to reduce the energy use of the building by more than 40 per cent when compared to current standard building practices, and was constructed to minimize impact on the local ecology. By adopting conservation strategies and using available passive energy, the design has minimized the consumption of energy, water and materials.

The sustainable features of the building reflect its context and program. Solar panels on the roof heat the building's water, and composting toilets were used throughout, reducing the building's impact on the city sewer system. Greywater is diverted back into the landfill to boost the production of methane gas, which is harnessed as fuel for the building. Air is drawn into the structure through an Earth tube located underground, which moderates the air temperature and reduces the need for heating or cooling systems.

Other unique features of the building include: gabion basket retaining walls to showcase the recycled material from the landfill; recycled glass/concrete countertops; a salvaged wood reception desk; and an illuminated wall feature made from 1,000 reclaimed cola bottles.



Photo courtesy of Andrew Lipsett

“Using wood in many aspects of the facility’s construction resulted in an atmosphere that you feel ‘welcomed’ to. The warm, natural appearance complements the environment outside, which we are preserving at the same time.”

Steve Walker, Project Technician Design & Construction Services, City of Kelowna

WOOD USE

Wood is used extensively throughout the building, particularly in the roof structure and exterior sun shades, complementing the building’s strong environmental agenda.

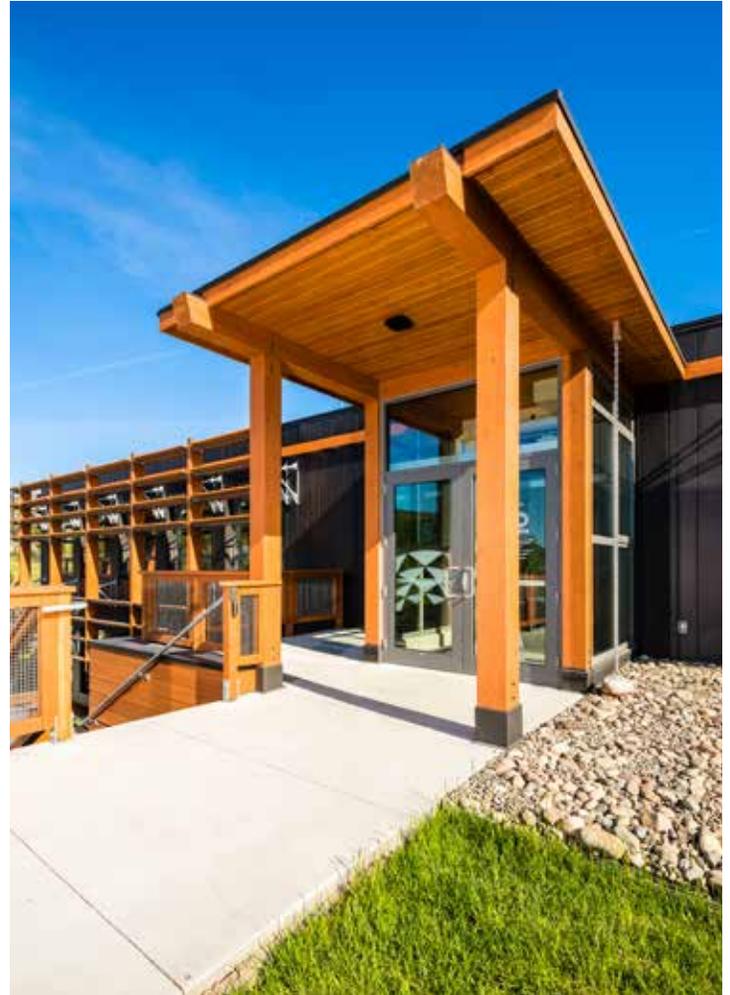
Plywood sheathed wood frame shear walls brace a wood roof structure that utilizes spruce/pine/fir (SPF) lumber for short spans and engineered lumber for long spans. The ceilings inside the building feature Mountain Pine Beetle wood, known for its distinctive blue colour, caused by the fungus carried by the beetles. Although discoloured, this wood does not lose any of its structural strength.

The building also features an angled clerestory window, and where this angle occurs the two sets of wood joists are moment-connected

using screws in a circular pattern. The ends of the clerestory have exposed Douglas-fir tongue and groove decking.

Above the main entrance, the roof structure of the exterior canopy is exposed. Here Douglas-fir tongue and groove decking and glulam beams provide visitors with a strong impression as they enter and leave the building.

Exterior sun shade structures, made from large thermally modified timber (TMT), rise the full height of the building. The blades are angled to give shade during the peak summer season but allow for passive solar heating in the cooler months. TMT, which has enhanced durability in exposed locations, is also used for the treads of the exterior steel stairs.



Photos courtesy of Andrew Lipsett

FOR MORE INFORMATION

This profile is published by Forestry Innovation Investment, the Government of British Columbia’s market development agency for forest products.

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