

KUSKANAX RIVER FOOTBRIDGE

LOCATION

Nakusp, British Columbia

SIZE

36 metres long

COMPLETION

2013

STRUCTURAL ENGINEER

Omega Engineering LLP.

**WOOD SUPPLY AND
INSTALLATION**

Madden Timber Frames

**CONCRETE AND STEEL
INSTALLATION**

Landmark Management Ltd.

PROJECT OWNER

Village of Nakusp

PROJECT OVERVIEW

In the spring of 2012 the Village of Nakusp sought proposals for the design and construction of a 36 metre-long clear span replacement structure for the existing Kuskanax River footbridge at Nakusp Hot Springs. The only specific design criteria were that the bridge must be covered, and must be able to accommodate mobility impaired users and horses.

The total budget, including engineering and project management, was a modest \$425,000. Nonetheless, the Village was hoping for a signature structure that would

become a destination for locals and tourists alike. Also, as an early adopter of B.C.'s Wood First legislation, and with its history intertwined with the forest industry, the Village was very interested in using local wood where possible.

The winning proposal was a hybrid solution with a steel girder understructure supporting a solid air-dried Douglas-fir wood deck, posts, railings and roof structure. It featured a central viewing platform, which quickly became the defining element of the design.



Photo courtesy of Rory McLeod, courtesy of Madden Timber Construction

“In specifying that the bridge would be constructed with wood, the Village council chose the option that had the most potential to benefit the local economy. The result is a bridge that not only blends in beautifully with the natural environment but also one where the timber construction was done by a local Nakusp company.”

Linda Tynan CAO, Village of Nakusp

The design made use of the efficient relationship between the two construction materials. Firstly, the steel supporting beams, which are mostly hidden, were sized and designed purely for efficiency.

Secondly, the wood superstructure, which gives the bridge its unique character, is protected by its overhanging roof. This gives it an indefinite service life, without the need for preservative treatment.

This strategy linked in well with the Village’s desire for a low maintenance structure. The new bridge provides a welcoming entrance to the many trails and recreational activities in the area.

WOOD USE

Using wood for the upper portions of the bridge was a critical aspect of keeping the construction simple. As the superstructure was erected, the steel girders deflected under the load, causing secondary bending in the wood elements above. The wood joints were designed to be simple, robust and flexible enough to address the changes in dimensions that occurred as the structure was erected. All of the timber components and roof system were 3D modeled and pre-cut in a workshop. Manufacturing of the timber offsite allowed for less site disturbance, and reduced labour costs.

The cost of wood and the possibility of local supply of this material made it very desirable for use in the bridge. Wood was by far the best material for the deck, posts and roof superstructure, and contributed to the project being completed on time and on budget.



Photos courtesy of Omega Engineering

FOR MORE INFORMATION

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

For more examples of innovative wood building projects throughout British Columbia, visit:

naturallywood.com