Wood Design & Building®

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Norwegian Wild Reindeer Centre Pavilion

Rigid outer shell contrasts organic inner core

Transportation

Wood makes a comeback in transportation buildings

Fasteners and Connectors

Innovations in wood products drive advances

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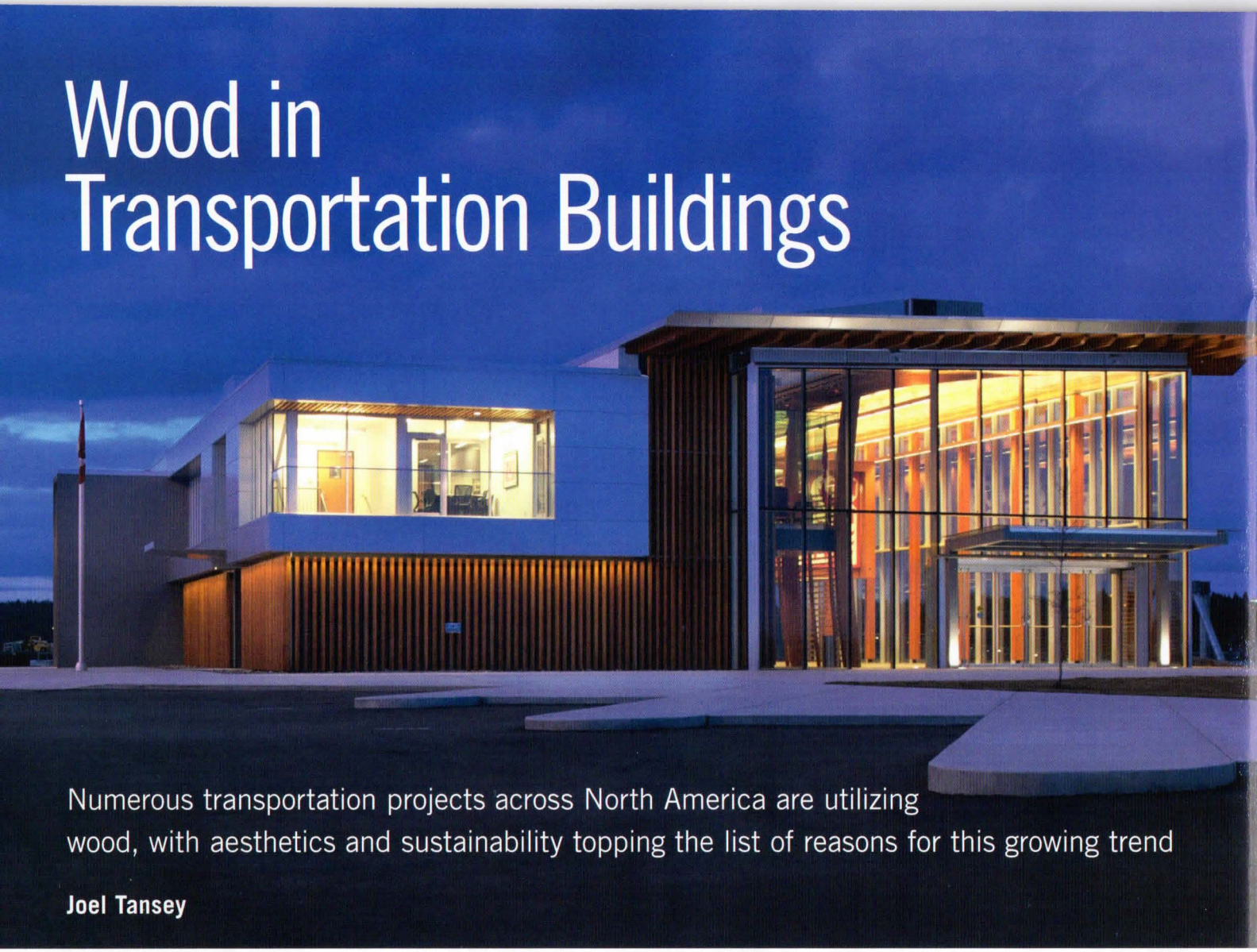
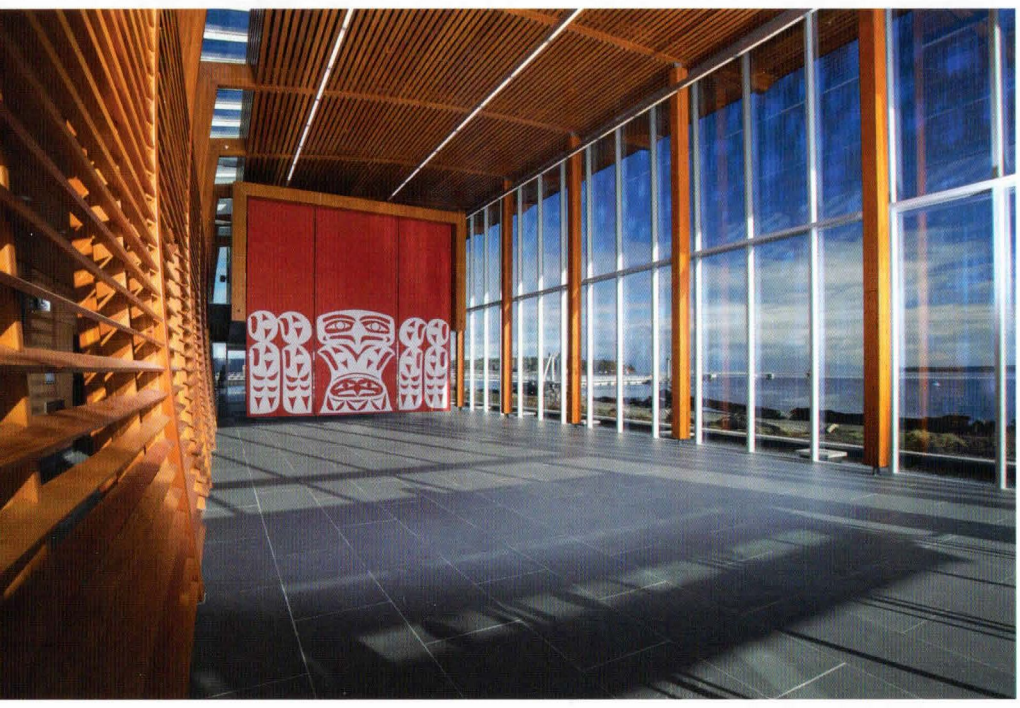
Six dollars

Wood in Transportation Buildings



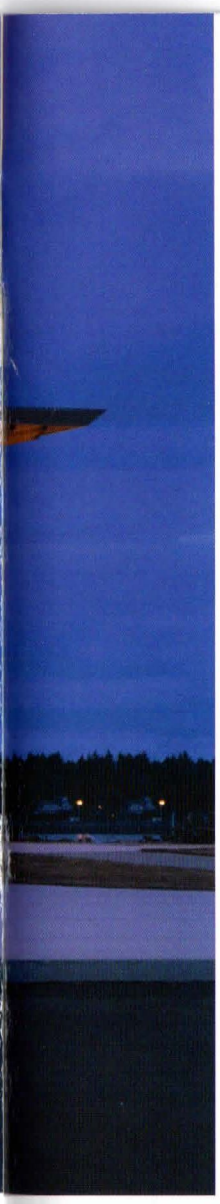
Numerous transportation projects across North America are utilizing wood, with aesthetics and sustainability topping the list of reasons for this growing trend

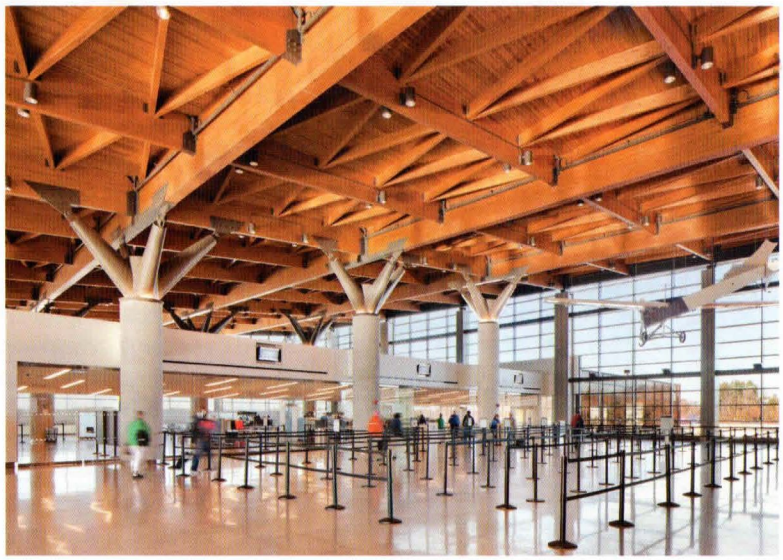
Joel Tansey



The use of wood in transportation has a long, storied history. Its importance was especially felt when it came to building railways. British Columbia, for example, only joined confederation in 1871 on the condition that the federal government extend the transcontinental railway to the Pacific coast. The use of wood structures, specifically wooden trestle bridges, through the mountainous terrain in Canada's west allowed the railroad to be completed in 1885. Wooden trestle bridges also played a central role in the completion of the transcontinental railroad in the United States.

The historical use of wood use in airport buildings and railway stations is equally significant. In the U.S., wooden hangars were built as part of the U.S. Navy's coastal defense plan during World War II. Seven of the original hangars from that era still stand today as some of the largest wood-supported structures in the world. In BC,





Left Nanaimo Cruise Ship Terminal Building.
PHOTO CREDIT: HA Photography

This page Portland International Jetport.
PHOTO CREDIT: Robert Benson Photography

wood was also used as a primary building material for railway stations and in 1941, a vast hangar was completed using heavy timber bowstring trusses at Boundary Bay Airport south of Vancouver. More recently, a new terminal was completed in 2010 featuring a glulam-framed roof.

According to a 2010 report, *Wood in Transportation*, a revival of wood use is occurring "now that the wood industry has introduced new engineered wood products whose dimensional stability and predictable performance facilitate integration with other industrial materials." Consequently, the industry is seeing the emergence of a new generation of hybrid structures, making wood a preferred material for use in projects such as airport terminals, railway stations and ferry terminals.

BC has led the way north of the border with numerous rail stations and airports built in the past five years, including several Skytrain stations along the Canada Line which were built for the 2010 Winter Olympics. In the U.S., buildings such as Jackson Hole Airport in Wyoming and Raleigh-Durham airport in North Carolina are examples of terminals that made good use of wood in their design, but there are other recent examples as well. In all of the examples used for this story, aesthetics and sustainability were primary concerns of the architects and it is clear that the use of wood helped them achieve these goals.

Portland International Jetport

With a design inspired by the shipbuilding history of Maine, the year-and-a-half-old terminal cost about $75 million and took four years to construct. The Jetport served nearly 1.7 million passengers in 2011 (the year the new terminal opened) and has flights to destinations along the east coast and midwestern United States. Southern yellow pine, chosen for its strength, was used as a primary building material for the entire roof above the checkpoint and mechanical spaces. Jim Stanislaski, the project manager from Gensler who designed the jetport, feels wood gives passengers a real sense of place and gives the terminal a local identity.

"You see a lot of airport terminals today and they are pretty much glass, aluminum, steel. We wanted a terminal that really fit well with the local environment for Portland." He credits Paul Bradbury, director of the jetport, with having a solid vision for the project and the desire to create a distinctive terminal with a regional identity.

Stanislaski feels it was especially important to create a nice environment in the security screening area.

"Most of those airport spaces are kind of dark, angry spaces. They've got 10-ft. ceilings and they are cramped. What we did here is we celebrated the space so in the places where people [congregate] more often, they've got something beautiful to look at."

DeStefano & Chamberlain Inc. were the specialty engineers for the design of the timber framing.

"It was clearly an aesthetic decision [to use wood in the design],"adds Jim DeStefano. "[The frames] are incredibly cool-looking structures."

Gensler wanted airport customers to see how the roof structure works. "Even if