

# naturally:wood

British Columbia wood. Sustainable by nature. Innovative by design.

## VENUES 1

## MEDIA BACKGROUNDER



### RICHMOND OLYMPIC OVAL

The Richmond Olympic Oval is the crown jewel of the 2010 Olympic venues. As one of the world's largest speed-skating facilities, the Oval showcases the ingenuity and innovation of Canada's wood products, with a massive wood wave roof encompassing 6.5 acres. This innovative roof system is one of the longest clear spans in North America and is rapidly gaining international attention.

The 33,000 square-metre Oval, with a 400-metre track and capacity for approximately 8,000 guests, is the first building in the world to include a roof of this design built almost entirely from wood. The facility is a highly visible structure providing the opportunity to market B.C. wood products and 'know how' to a worldwide audience.

The Oval shows how green development practices make business sense. It is designed to qualify for LEED Silver certification, which is highly unusual for a facility of this type and size since LEED typically applies to residential or office developments. The Oval has also achieved Green Globes certification – currently four out of five but very close to achieving the fifth.

Features to achieve the LEED rating include:

- Capturing heat energy required to make ice (the speed-skating oval surface is roughly equivalent to six international hockey rinks) and using it elsewhere in the building. The heat energy may also be used to provide low-cost heating and cooling for the urban neighbourhood being created around the building.
- Collecting rainwater from the building's roof and using it to help meet the building's water needs – much of it will flow into the building's pipes to supplement toilet flushing and the rest will be directed into a picturesque pond being built in front of the Oval. (The storm water collection system will also incorporate a dramatic public art project, created by internationally acclaimed Musqueam artist Susan Point.)
- Other economic and environmentally sensitive approaches include placing the building back from the Fraser River foreshore, preserving trees along Hollybridge Canal, diverting recyclable construction materials away from the landfill and incorporating the use of healthier building materials, such as wood laminates and sealants.

Cuttings from oak trees planted on the site when it was owned by Richmond pioneer Samuel Brighthouse will be propagated by the city and planted along the site's picturesque new Samuel Brighthouse Heritage Boulevard.

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## Wood Use

The building's superstructure is constructed almost entirely from wood.

The roof encompasses 6.5 acres and features one of the longest clear spans in North America. It is made up of glulam beam arches and prefabricated one-of-a-kind wood wave panels.

The unique, innovative wood wave roof panel system design features hollow, triangular-shaped composite wood-steel arches, which span approximately 100 metres and conceal mechanical, electrical and plumbing services. Spanning the 13 metres between arches are 452 prefabricated WoodWave Structural Panels consisting of ordinary 2x4s arranged geometrically to optimize both structural and acoustic efficiency. Its name comes from the fact it is built completely of lumber and plywood fastened together in a wave-like form to serve as a structural roof, as a finished ceiling and as a noise-reducing panel.

StructureCraft Builders, ([www.structurecraft.com](http://www.structurecraft.com)) a Delta-based design-build company, developed the WoodWave panel system. Research and extensive testing verified it met performance criteria in the areas of structural capacity, acoustics, architecture, sustainability, constructability, lighting, combustibility, maintenance and durability. The roof panel system was conceived, engineered, fabricated and erected by StructureCraft and related company, Fast + Epp Structural Engineers.

In total, the roof system uses about one million board feet of Douglas-fir lam-stock lumber in the glulam beams, another one million board feet of 2x4 spruce-pine-fir commodity dimension lumber – primarily lumber affected by the mountain pine beetle infestation in B.C.'s Interior – and about 19,000 sheets of four-foot-by-eight-foot Douglas-fir plywood in the roof panels. The roof is believed to be the largest surface ever covered in beetle-affected wood – showing that the wood remains structurally sound and attractive.

By specifying mountain pine beetle wood, the Oval's roof becomes an important tool in mitigating the impact of climate change for two key reasons. First, rather than leaving the wood to decay in the forest where it would release carbon dioxide and contribute to the greenhouse gas in the atmosphere, the wood continues to store the carbon dioxide in its lumber form. Second, using wood as a substitute for other more energy consumptive building materials such as steel and concrete helps to reduce the impact on climate change.

Structurlam Products Ltd. ([www.structurlam.com](http://www.structurlam.com)) produced 112 Douglas-fir glulam sections for the roof system superstructure, each almost 75 feet in length. More than 30 Douglas-fir struts were fabricated to support the building's exterior canopy and to partially support the roof over the main entrance of the facility.

Structurlam; StructureCraft Builders Inc., and George Third and Sons Ltd., which installed the roof system, worked together to engineer and create one of the most unusual blends of structural materials and systems ever attempted.

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The last of the wood wave roof panels was installed on January 15, 2008. The Oval opened on schedule in the fall of 2008.

[www.richmond.ca/discover/events/oval/oval.htm](http://www.richmond.ca/discover/events/oval/oval.htm)

## Testimonials

“I’ve had the fortune of being at four Olympic Games . . . there’s no venue like this one. This one takes the cake.” Jack Poole, chair of the Olympic Organizing Committee.

“For me there was an instant connection with the building. It’s an incredible building. The aesthetics are beautiful. You can tell a lot of care and thought went into it. It is a building every Canadian can be proud of.” Clara Hughes, 5,000-metre gold medal champion from Turin Olympics

“To me the roof is the most spectacular part. From the inside, it’s like looking up at the stars. I also think the part about using pine beetle damaged wood for the roof is neat.” Kristina Groves, 2008 1,000-metre World Cup champion

“I love it, it is the most beautiful – hands down, it is the most beautiful oval in the world. I really like skating on it.” Christine Nesbitt, winner of 12 World Cup medals in 2007-08.”

*British Columbia, Canada, is home to over 40 native wood products species and modern structural and finishing products that offer limitless innovative building and design solutions. It also has responsible producers who harvest legally; regenerate promptly; reduce waste and support recovery and recycling; reduce greenhouse gases and help fight climate change; and welcome independent scrutiny of how forests are managed.*

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For more information, visit [www.naturallywood.com](http://www.naturallywood.com)*

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