Program of the Canadian Wood Council

# 2015 WOOD DESIGN AWARDS - WINNER

## Institutional Wood Design: Small

**McFarland Marceau Architects Ltd.**

UBCO Fitness and Wellness Centre, Kelowna, BC

*"A striking and beautifully formed design statement which causes the users to reconsider the potentials for wood. The design required an innovative structural solution which used existing technology in new ways to achieve the desired forms."*

*- jury comments*

High resolution images available. Please e-mail mmclaughlin@wood-works.ca

The new Fitness and Wellness Centre for the University of British Columbia's Okanagan campus is an athletic training facility that pushes the structural performance and aesthetic potential of mass timber construction. The design explores innovative approaches to cross-laminated timber (CLT), using jointing and detailing techniques to render mass timber in a curvaceous, light weight, and efficient manner – befitting a building for athletes. Located in Kelowna, BC, the two-storey, 820 m2 building is an addition to an existing gymnasium complex and provides new space for cardio' training, strength training, yoga, dance, spin classes, and martial arts, and will eventually accommodate an interior climbing wall. The addition shifts away from the existing gym to frame a small park to the north and preserve views along the main pedestrian spine of the campus.

Tethered to the existing building by a narrow link, the new structure is freed to find its own expression. An alternative building code solution permits the new building to be constructed of wood, in contrast to the existing steel and concrete gym. The athleticism of the human body finds shape in the dynamic form of the second storey, which is poised over a quiet base. In the exploration of a lithe structure of significant span, CLT panels (normally used for walls and decks) are repurposed as deep, slender beams - slotted together with simple stainless steel tight-fit connections to form a structural grid. This cellular strategy is the basis of some of the lightest, most efficient structures created by nature; light materials made stronger by their honeycomb geometry.

The structural forces reach their crux in the moment joint that connects the CLT members at the north edge of the roof. This athletic joint links the forces of column and beam together, allowing each to be lighter weight and more efficient. Moment joints are notoriously difficult to achieve in wood and the project team knows of no other instance where a column-to-beam moment joint has been achieved with CLT.

The project also explores the efficiency of achieving complex shapes from CLT panels. Components have been calibrated - like the pieces of a balsa wood aircraft model - to be stamped from larger sheets of cross-laminated SPF lumber with minimal waste. Roof and floor decks exploit CLT's two-way spanning ability to facilitate cantilevers and shallow structure. Where added strength is required, CLT is detailed as a composite system in concert with concrete topping. This permits large beam-free areas of floor and roof, highlighted by the slender interior bridge, the floor structure above the lower corridor and the roof of the linking structure - all of which span over 6m.

The low ecological footprint of CLT and its carbon sequestering properties mesh with the sustainable ethos of the university. Coupled with such green elements as a campus geo-exchange heating system, natural light and ventilation, passive sun-shading, and recycled and low-emitting materials, it makes for a healthy environment. The resultant architecture is light-filled, efficient, warm and inviting – providing flexible space and added motivation for users of the fitness centre.