Wood *WORKS!* BC

wood WORKS! Project of the Canadian Wood Council

2012 WOOD DESIGN AWARDS - WINNER

Wood Innovation

Gerald Epp, StructureCraft Builders

Commercialization of Mechanically- Fastened
CLT (Cross Laminated Timber) at Fire Hall 15, Vancouver

The jury noted that this award winning firm is "innovative, brave and courageous – and knows how to "think outside the box".

StructureCraft's CLT product is an appearance-grade solid wood roof, floor and wall panel created from ordinary dimensional lumber, laid plank-wise in layers at varying angles, mechanically-fastened together and customized to suit occupancy, loading, span and desired finish and acoustic performance. CLT was utilized in Fire Hall 15 due to its intense use of wood with its beneficial properties: renewable, locally-available, strong, lightweight, high thermal mass coefficient, aesthetically pleasing, low embodied energy and sequestering carbon. Innovations included the use of mechanical fasteners rather than glue to connect the layers of lumber. The advantages to StructureCraft's mechanically-fastened CLT include its availability in any transportable size and thickness; shop-applied architectural textures and finishes can be provided on exposed faces; large panels are rapidly erected, thereby reducing site costs; and acoustic treatments can be integrated into the panels if desired.

Wood Innovation

Brian Woudstra, StructureCraft Builders

Commercialization of the WoodWave © Structural Panel
at Alberni District Secondary School, Port Alberni

A first step in the commercialization of the WoodWave Structural Panel, StructureCraft supplied and installed the WoodWave to replace standard steel decking on open web steel joists. The idea began in response to the desire for structural efficiency along with acoustical absorption, requiring a panel with some depth, hollow and with perforations. The end result was a structural-architectural-acoustic panel which carried the Port Alberni snow loads, supplied an appearance-grade ceiling and absorbed the gymnasium choice.

The 5,600 square foot WoodWave roof deck was erected in one day, and consisted of 10 panels 11' wide X up to 54' long. Wood products used included SPF lumber from pine-beetle-affected forests in BC and Douglas fir plywood from BC forests. The fabrication involved a completely unique process including a custom computer numerically-controlled (CNC) cutting, splicing and screw-reinforcing of each 2X4 strand. The result is a composite multiple span panel whose structural performance is complex, but in which each component performs at optimal efficiency.