



ELEMENT5
MODERN TIMBER BUILDINGS

OAKVILLE FIREHALL



PROJECT TEAM

Lett Architects Inc.
Gillam Group | Chandos
H.H Angus & Associates
LEA Consulting Ltd.
MCH | Element5

HIGHLIGHTS

Integrated Project Delivery
Mass timber + steel hybrid
Tall walls
CLIPs building envelope

OAKVILLE FIREHALL



Strong and resilient mass timber construction is a perfect fit for fire stations and other emergency services buildings. Prefabricated components like the Cross-Laminated Insulated Panels (CLIPs) that were used for Oakville Fire Station #8 are reinventing the way we build.

E5 SERVICES PROVIDED:

- Cost consulting
- Design consulting
- Coordination with steel
- 3D and BIM modelling
- Shop drawings
- Supply of mass timber elements
- Assembly

MATERIALS:

- Glulam columns and beams
- Cross-Laminated Timber
- CLIPs (Cross-Laminated Insulated panels)

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PROJECT DETAILS:

Expanding the concept of protective services to include protection of the environment, Oakville Fire Station #8 is a sustainably sourced, prefabricated mass timber design that delivers a strong and resilient building with a reduced carbon footprint.

A true team effort, the project used an Integrated Project Delivery (IPD) process for design and construction.

With the exception of the steel frame in the apparatus bay, glulam and CLT form the structural and envelope elements as a complete mass timber solution that is modular, panelized and easily repeatable. The firehall clearly demonstrates how wood systems can easily and efficiently meet the design and performance requirements of a post-disaster shelter.

The use of factory-built mass timber components for the structure and building enclosure suited the project's aggressive schedule while increasing site safety and project sustainability.

The fire station features a sophisticated, naturally durable, black wood siding produced with a manufacturing technique that dates back to 18th century Japan. Shou Sugi Ban (also called Yakasugi) is a method of finishing and preserving wood by charring it with fire.






This effective and natural treatment renders the wood much less susceptible to insect infestation, decay and rot without needing to apply chemicals or additional treatments. Furthermore, the charring of the wood produces a naturally flame-retardant finish that makes it more fire resistant than untreated wood.

CLIPs can be designed to meet diverse requirements and manufactured to varying degrees of completion in the factory where windows, doors, and most types of cladding can be pre-installed. Though primarily made with wood fibre insulation or EPS, other insulation materials can be used and the assembly can be customized to meet any performance standard, including Passive House.



CARBON CALCULATOR

RESULTS:

-  Volume of wood products used: 154 cubic meters (5,438 cubic feet)
-  U.S. and Canadian forests grow this much wood in: 25 seconds
-  Carbon stored in the wood: 119 metric tons of carbon dioxide
-  Avoided greenhouse gas emissions: 46 metric tons of carbon dioxide
-  Total potential carbon benefit: 165 metric tons of carbon dioxide

EQUIVALENT TO:

-  35 cars off the road for a year
- Energy to operate  17 homes for a year

COST CONSULTING



DESIGN CONSULTING



ENGINEERING



FABRICATION



ASSEMBLY

