

# The New 5- and 6-Storey Wood Mid-Rise Building Opportunity

## FIRE SAFETY

**The Model National Building Code of Canada (NBCC)**, overseen by the Canadian Commission on Building and Fire Codes (CCBFC), sets the minimum performance requirements in terms of safety, health, accessibility, fire and structural protection for all new building construction in Canada. For the wood products industry, this means that predominantly wood buildings are held to the same high standards as those constructed predominantly from steel or concrete.

For the 2015 NBCC, a CCBFC joint task group took a closer look at requirements that currently limit the height of wood buildings to no more than four storeys. Four specific areas were examined: fire protection (building elements); emergency response (fire code requirements); building and plumbing services; and structural and earthquake design. The task group determined that height and area limits for buildings constructed of wood products could safely be increased to six storeys by either introducing new or modifying existing protective measures.

As a result, a series of approximately 40 changes are proposed to increase the permitted use of wood-based construction up to six storeys. The changes include new or revised provisions in the NBCC dealing with fire and life safety, structural and earthquake design, and building envelopes, as well as changes to the National Fire Code dealing with the protection of buildings under construction, alteration and demolition. These proposed changes would apply to residential and office-type buildings. They would also include mixed-type occupancies where buildings may have office, residential, mercantile, assembly, low hazard or storage/garage-type tenants.

Examples of proposed changes to the NBCC include:

- mandatory sprinklers throughout the building, including concealed spaces and balconies;
- a fire-resistance rating of not less than one hour for floor and roof assemblies as well as mezzanines;
- non-combustible cladding for the exterior walls of fifth and sixth floors; and
- non-combustible cladding on roofs that are inaccessible to fire hoses.



*The National Research Council of Canada (NRC) is the country's leading organization responsible for research and development. This includes testing cross laminated timber (CLT) for fire resistance. Photo used by permission of the NRC*

To address emergency responder concerns, provisions requiring increased water supply and greater access for firefighting are also proposed, including a new requirement that a minimum of 25% of the building perimeter be directly accessible by fire responders.

Examples of new measures for buildings under construction (also known as course of construction) include new provisions for:

- marking of exits;
- control of ignition sources;
- access for firefighting;
- control of combustibles on site; and
- fencing – to reduce access to new construction sites.

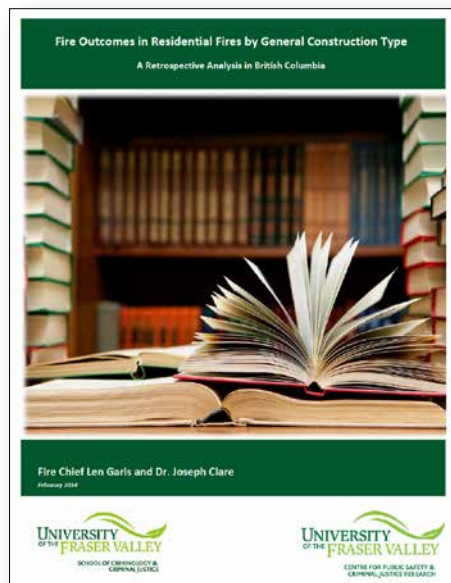
## Focus on Continual Improvement

The majority of safety measures help protect completed buildings, but all buildings are at risk during the construction phase, regardless of the materials used. For this reason, all construction material sectors have a role to play to continually improve the safety of buildings under construction. For example, the wood products industry works closely with fire scientists and other fire safety experts to ensure wood building products meet or exceed strict fire safety standards.

Since the 1960's the Canadian wood products industry has participated in and supported various codes, standards and research activities involving fire safety and education. These include:

- supporting general fire research;
- developing fire test standards – referenced in building codes;
- developing engineering design guides and standards for fire safety published by the Society of Fire Protection Engineers; and
- developing Wood Awareness Guides for use by fire responders.

Province-specific educational materials on fire safety and security for construction sites have also been developed by the wood industry for builders and designers. These materials reinforce the importance of compliance with provincial regulations related to fire safety planning during building construction phases.



*Through a comprehensive survey and analysis of almost 12,000 fires, the Garis and Clare study concluded there is little difference with respect to fire spread, death, and injury rates as a function of building general construction type.*



*A cone calorimeter is used on site at FPIInnovations. It is a key device used in the field of fire testing to study fire behaviour on sample materials. Photo used by permission of FPIInnovations*

The **Canadian Wood Council (CWC)** is the national association representing manufacturers of Canadian wood products used in construction. CWC is a strong advocate for the use of Life Cycle Assessment and communication about environmental attributes through the use of Environmental Product Declarations. Visit us at [www.cwc.ca](http://www.cwc.ca).

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