Contact Information

Canadian Wood Council
Etienne Lalonde
613-294-3409
firetests@cwc.ca

Canadian Wood Council
Conseil canadien du bois

Largest Ever Mass Timber Fire Test Happening in Ottawa

OTTAWA, Ontario – June 07, 2022 - The Canadian Wood Council has partnered with federal and provincial governments to conduct a series of five separate fire research burns on a full-scale mass timber structure in Ottawa. The largest burn, happening on a 2-storey, 3700 square feet structure, will take place at the end of June, with the following four burns happening over the summer of 2022. The purpose of the project is to support market acceptance of tall and large mass timber buildings in Canada.

With the most certified sustainable forests in the world, Canada is a champion of sustainable forest management and in a position to solidify our global leadership in the bioeconomy and forest sector by advancing mass timber adoption. Mass timber is revolutionizing the building industry as a renewable, nature-based construction material. Recognizing mass timber's vital role in achieving a low carbon, built environment, the Canadian Wood Council and its partners are dedicated to advancing its adoption.

"The Mass Timber Fire Demonstration Tests Program is important for the Canadian design, regulatory & construction industry, including the timber and lumber industry. Wood is the only renewable construction material and vital in the achievement of a sustainable and healthy built environment. This program aims to advance mass timber through science-based research with the goal of educating key decision makers and supporting present and future code changes. The CWC is proud to lead this initiative."

Andrew Bowerbank
Vice President, Market Development
Canadian Wood Council

Photo Credit: Mark Cooper

While there is evidence, research, and case studies that demonstrate comparable, safety and performance of mass timber construction in relation to construction using conventional materials like steel and concrete, misconception is still circulating. By designing and executing a series of demonstration fire research burns on a full-scale mass timber structure, and collecting data from these burns, our objectives are to:

- Showcase, through fire demonstration tests, that mass timber construction is a safe and viable alternative to other more conventional construction systems for constructing large or tall buildings;
- Support the implementation and adoption of the 2020 edition of the National Building Code of Canada;
- Support future code change proposals to extend the use of mass timber to other building types, heights, and sizes;
- Support the transition to Performance-based codes;
- Use the results and finds from the demonstration tests to develop viable solutions to mitigate construction fire risk.

Each burn has been thoughtfully designed by a group of experts to address a specific fire scenario in a residential and office building; more specifically:

Test 1: This test will involve a fire in a fully furnished residential suite as a baseline scenario representing a National Building Code prescribed solution of non-combustible construction permitted for a high building.

Test 2: This test will involve a fire in a fully furnished residential suite of mass timber construction and will include exposed mass timber columns, beams, ceiling and encapsulated (protected) mass timber walls and floor. The purpose of this test is to provide results for comparison to a similar fire (Test 1) within a residential suite constructed to be representative of non-combustible construction.

Test 3: This test is designed to represent a construction site fire scenario and will be completed in the same residential suite used for Test 1. It will have an exposed mass timber wall, ceiling and floor, and a garbage can filled with wood contents will be the initial item ignited to start the test. The purpose of this test is to provide a demonstration of the performance of exposed mass timber in a construction site fire using a realistic ignition source.


Photo Credit: Mark Cooper

As taller and larger mass timber buildings are designed and built, these tests will help support current and future projects by providing fire test data aiding in the development of alternative solutions to satisfy code requirements as well as providing additional test data to support future code development as it relates to mass timber. These tests will contribute to the current body of knowledge on the fire performance of mass timber, based on previous testing, by expanding the scenarios and compartment sizes beyond what has previously been completed. The ability to share these tests with building officials, fire service and other interested stakeholders help address a missing link from previous research.

Steven Craft
Principal
CHM Fire Consultants Ltd.

Test 4: This test is designed to represent a construction site fire scenario with exposed mass timber floors, beams, columns and ceiling involving an open space and wood crib fuel load and with light-frame wood partition walls (exposed framing). The purpose of this test is to provide a demonstration of the performance of exposed mass timber in another realistic but more severe construction site fire scenario to add to the information learned from Test 3.

Test 5: This test is intended to represent a fully furnished open office floor plan with exposed mass timber columns, beams, shaft wall and ceiling. Fire will be ignited at one end of structure and left to spread through the approx. 2,300 sqft space within the first-floor level. This test is intended to demonstrate fire performance and dynamics in a typical occupied open-office space in a mass timber building.

The results of these burns will be published and distributed in partnership with our project sponsors and collaborators and made available to the regulatory, research, design and construction community.

About The Canadian Wood Council: Founded in 1959, the Canadian Wood Council is Canada's unifying voice for the wood products industry. As a national federation of associations, our 14 members represent hundreds of manufacturers across the country. For over 60 years, we have supported our members by accelerating market demand for wood products and championed responsible leadership through excellence in codes, standards, and regulations. We also deliver technical knowledge for the construction sector through our market leading Wood WORKS! initiative.