

**MEMO – October 21, 2019**

**Subject: Flame Spread Rating of exposed OSB (sheathing, I-Joist and other products)**

It has come to our attention that flame spread ratings have been neglected over the years, especially in the construction of houses. Products such as OSB floor sheathing and Wood I-Joists have been the popular choice over the years for floor structures, with great benefits, but flame spread rating is a concern.

The National Building Code of Canada (NBC) requires the flame spread rating of all exposed interior finishes to be no more than 150. Sentence 9.10.17.1.(1) of the 2010 NBC states the following:

**9.10.17.1. Flame Spread Rating of Interior Surfaces**

- 1) Except as otherwise provided in this Subsection, the exposed surface of every interior wall and ceiling, including skylights and glazing, shall have a surface *flame-spread rating* of not more than 150.

For example, this would include exposed wood I-Joists and floor sheathing in a house's basement, when the ceilings are left unfinished. Another example would be in unfinished garages, where OSB wall and roof sheathing are left exposed.

Flame spread rating should not to be confused with fire resistance rating. A flame spread rating is an index or classification (the number, such as 150, has no units), whereas a fire resistance rating is measured in units of time (such as a 45 minute rating).

The definition of **flame spread rating** as per the NBC is:

*Flame-spread rating* means an index or classification indicating the extent of spread-of-flame on the surface of a material or an assembly of materials as determined in a standard fire test as prescribed in this Code.

After researching some popular products containing OSB and inquiring to some manufacturers about their product's flame spread rating, the general consensus was that most products have not been tested – except for those specifically designed as fire retardant products. The NBC Appendix D also indicates insufficient testing (under CAN/ULC-S102). It should also be noted that some products have been tested for use in the United States under ASTM E84, but while ASTM E84 and CAN/ULC-S102 have similarities, they provide different results. Only CAN/ULC-S102 tested products can be accepted according to the NBC.

Where there is no sufficient testing on those common products, we have to assume that the flame spread rating may be over 150, meaning that **all OSB products on interior surfaces should be covered or protected**, unless data or reports from the manufacturer can be provided showing a flame spread rating of 150 or lower.

**Options to achieve compliance**

The following options below should be considered at the design stage of your project, in order to plan ahead and ensure compliance with NBC sentence 9.10.17.1.(1) in regards to Flame Spread Rating (FSR).

(Note that there are other options, these are just examples)

- If you intend to leave the basement ceiling unfinished:
  - **Use Plywood floor sheathing instead of OSB.** Plywood has an FSR of 150 or below according to testing.
  - **Use lumber (S-P-F) for floor decking instead of OSB sheathing.** Lumber is tested to have FSR (S-P-F) of 150 or less.
  - **Use Open Web Wood Joists or Floor Truss instead of Wood I-Joists.** Open web joist, **if they contain no OSB**, would have an FSR of 150 or less. Contact your provider to inquire about OSB in their product.
  - **Use dimensional lumber floor joists instead of Wood I-Joist.**
  - **Paint all exposed OSB with specialty paint that will provide an FSR of 150 or below.** To make this process easier, you may want to paint the items, prior to electrical, plumbing and ventilation rough-ins, or even pre-paint the joist and/or sheathing prior to installation.
  - **Use OSB products that have been tested and assigned a flame spread rating of 150 or less.** There are OSB products available that will, meet the required flame spread limit.
  
- If you intend to finish your basement ceiling, most common finishes, such as but not limited to gypsum board or drop ceilings will meet flame spread rating requirements. This option however, **can only be considered** if you intend to finish the ceiling **prior to having the required Final Inspection** completed. Finishing the ceiling in the future will not be acceptable.

## **Inspection**

Going forward, the GMRSC Building Inspectors will be looking for NBC compliance regarding this matter, first during plans review, and then during inspection.

Please be aware of this concern and plan ahead as this may implicate added cost, which may be minor if planned for during design and construction. However the added cost may be increased if this is not dealt with at the planning stage – fixing issues on-site during construction may involve unplanned or un-budgeted costs.

The increased cost of construction, if the intention was to leave the basement ceiling unfinished, may be approximately 1% on a complete house, obviously depending on the style or type of house.

If you have any questions or concerns, please contact a Building Inspector of the Greater Miramichi Regional Service Commission.

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