

# Does Your Roof Meet Code?



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It is important to understand that, in addition to designing a roof for thermal and waterproofing performance, a roof covering is responsible for providing external fire protection for both the roof deck and building below. A roof can be exposed to several potential fire risks, including fire spreading from an adjacent building or hot works activities at the roof level, such as welding or torching.

Not all roof membranes and assemblies provide the same degree of fire protection, though. It's critical to understand how fire retardant a roof is when designing a building with combustible construction, if the roof membrane is being exposed to high temperatures, and if the type and occupancy of the building is of a sensitive nature.

Our current *Ontario Building Code* (OBC) requires that a roof covering be tested to achieve a rating of either Class A, Class B, Class C, or unrated (ranging from the highest level of fire protection to the least). This information provides a basis to compare how different roof systems perform when

exposed to simulated fire exposure tests. This article will focus on roofs for buildings that fall under Part 3 of the OBC, and will address only the external fire performance of roofing assemblies. The classification and fire rating of a roof is based on pre-tested assemblies and not the performance of individual components. If alternate roofing components are submitted or installed, the roof assembly may not classify for a rating.

## WHAT IS THE CURRENT OBC REQUIREMENT?

The scope of this article will address only the large and complex buildings that fall under Part 3 of the OBC. Buildings that fall under this classification can include schools, hospitals, office buildings, large apartments, condos, shopping malls, theatres, and industrial buildings. Under Part 3, there are two articles included in Subsection 3.1.15., Roof Covering (see Figure 1 on page 22).

When we interpret these two articles, we can conclude that if your roof assembly (all components including membrane, surfacing,

insulation, vapour barrier, and cover board) has not been tested, does not have a Class A, B, or C rating and is not exempt under the provisions in *Article 3.1.15.2*, then it does not meet the minimum intention of the OBC and, therefore, is not compliant. These requirements apply to either new construction roofs, roof restoration, roof recovery, or roof replacement projects.

## DEFINING A CLASS A, B, OR C FIRE RATING

There are three classifications a tested roof assembly can achieve (and a fourth of "unrated" if it has not been tested or if it has not met the minimum test requirements and failed). See Table 1 on page 23.

The classification of each roof assembly indicates how well the roof system performed against exposure to different fire tests. Although the test and classification do not necessarily illustrate the exact performance of a roof system under real-world fire conditions, they do provide a basis for comparing roof covering materials under simulated fire exposure.





Classification	Fire Exposure Rating	Max. Flame Spread
<b>Class A</b>	<ul style="list-style-type: none"> <li>• Effective against <b>severe</b> fire exposure</li> <li>• High degree of fire protection to the roof deck</li> </ul>	1,830 mm or 6 feet
<b>Class B</b>	<ul style="list-style-type: none"> <li>• Effective against <b>moderate</b> fire exposure</li> <li>• Moderate degree of fire protection to the roof deck</li> </ul>	2,440 mm or 8 feet
<b>Class C</b>	<ul style="list-style-type: none"> <li>• Effective against <b>light</b> fire exposure</li> <li>• Measurable degree of fire protection to the roof deck</li> </ul>	3,960 mm or 13 feet

Table 1: A description of classification ratings.

system meets Code and whether it has a fire rating. Through my research, I have identified some opportunities for stakeholders to simplify and streamline the Code compliance process.

For the OBC, there is an opportunity to provide generalized guidelines that would set the minimum fire rating requirements based on the type of building and occupancy. For UL/ULC, there is an opportunity to increase the ease of searchability in their TGFU database by assigning a unique reference number for tested and rated systems. This would allow designers and manufacturers an easier way of quickly identifying or searching for an approved system. And finally, for manufacturers who are investing heavily into the testing and approval of various systems, there is an opportunity to create a standardized form, letter, or specification verbiage indicating the classification and approved fire rating. ■

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**REFERENCES**

1. Ontario Building Code (2017).
2. ULC Standards (2019), CAN/ULC S107: 2019 Standard Methods of Fire Tests of Roof Coverings.
3. UL LLC (2014), Class A, B, and C Roof Ratings, Helpful Hints for Achieving Code Compliance
4. UL Product Spec Library, 2019, TGFU Database. <http://productspec.ul.com/canada/document.php?id=TEVT7>. GuideInfo

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