Fire and Building Code Requirements

Q. What are the surface burning characteristics of MemBrain?
A. MemBrain has been optimized to meet or exceed the surface burning requirements of the International Building Code (IBC) fire resistant classifications for building constructions. MemBrain has a Class A or I surface burning designation as specified by building codes and has the following average flame spread characteristics when tested in accordance with ASTM E 84, “Standard Test Method for Surface Burning Characteristics of Building Materials”, while following the mounting methods described in Appendix X1, “Guide to Mounting Methods” and Section X1.8, “Thin Membranes”:

Self-supporting, stapled to 1 inch thick, unfaced, rigid fiber glass insulation board:

Flame Spread Index (FSI) = 20
Smoke Developed Index (SDI) = 5

Supported by poultry netting placed on rods:

Flame Spread Index (FSI) = 15
Smoke Developed Index (SDI) = 55

Q. Is MemBrain suitable for exposed applications?
A. While MemBrain meets the fire rating requirements for exposed applications, the film’s material properties have not been evaluated for long-term ultraviolet light exposure. Therefore, MemBrain should only be used in exposed building applications where the product will not see any direct or indirect (reflected) ultraviolet light exposure due to solar or electrical sources. CertainTeed is currently developing an enhanced MemBrain product for ultraviolet light exposure applications, such as basement wall insulation.

Q. How do the Building Codes use flame spread and smoke developed indices?
A. Fire codes are intended to establish minimum requirements that provide a reasonable degree of safety from fire in buildings and structures. These requirements vary depending on the use, occupancy and construction details of the specific building. From the standpoint of building materials, the codes are generally concerned with flammability ratings of interior finish materials, combustibility of the constructions and the components, and the ability of a construction to resist exposure to fire.
Q. How are building materials classified for surface burning characteristics?
A. Building codes have established three classes of performance, based upon flame spread and smoke developed indices, which are used to specify requirements within the code.

<table>
<thead>
<tr>
<th>Class Designation</th>
<th>Flame Spread Index</th>
<th>Smoke Developed Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>A or I</td>
<td>0-25</td>
<td>0-450</td>
</tr>
<tr>
<td>B or II</td>
<td>26-75</td>
<td>0-450</td>
</tr>
<tr>
<td>C or III</td>
<td>76-200</td>
<td>0-450</td>
</tr>
</tbody>
</table>

Special considerations are required for return air plenums where the flame spread and smoke developed indices are 25 and 50 or less, respectively.

Q. How are building constructions classified with respect to fire resistance?
A. The International Building Code (IBC) has five classifications – Types I through V – for building constructions. In general, Types I and II are fire-resistive buildings constructed from steel, iron concrete or masonry. All insulation products and facings require flame spread and smoke developed indices not to exceed 25 and 450, respectively. MemBrain can be used in Types I and II buildings.

Types III, IV and V constructions allow for wood framing. Vapor retarders are not required to have flame spread and smoke developed indices less than or equal to 25 and 450, respectively, as long as the material is in substantial contact with the unexposed surface of the ceiling, floor or wall finish. MemBrain can be used in Types III, IV and V buildings.