

chroma® | light diffusing applications

Use of 3form Chroma® for Light Diffusing Applications

The use of 3form Chroma in light-diffusing applications is a popular use for this material and has attracted much attention to the Chroma product line. We are pleased to provide this additional information with respect to the conditions of use of Chroma as it applies to the stated requirements for light-diffusing applications as described in the 2015 International Building Code® (IBC).

Chroma has been independently tested and meets the criteria for approved "Light-Transmitting Plastics", as described in the IBC. Chroma was developed for the architectural and design marketplace with one intent being that the panels could be utilized in what is characterized by the IBC as "Light-Transmitting Plastic Diffusing Systems", "Light-Transmitting Plastic Glazing", and "Light-Transmitting Plastic Interior Signs"

"Light-Diffusing Systems" are defined by the 2015 IBC as follows:

LIGHT-DIFFUSING SYSTEM. Construction consisting in whole or in part of lenses, panels, grids or baffles made with light-transmitting plastics positioned below independently mounted electrical light sources, skylights or light-transmitting plastic roof panels. Lenses, panels, grids and baffles that are part of an electrical fixture shall not be considered as a light-diffusing system.

Chroma, when used in a light-diffusing panel system complies with the conditions expressed in Section 2606.7.2 of the IBC for "Light-Transmitting Plastics":

2606.7.2 Installation. Light-transmitting plastic diffusers shall comply with Chapter 8 (Interior Finishes) unless the light-transmitting plastic diffusers will fall from the mountings before igniting at an ambient temperature of at least 200°F (110°C) below the ignition temperature of the panels. The panels shall remain in place at an ambient room temperature of 175°F (79°C) for a period of 15 minutes.

To date, there is no standardized test protocol to demonstrate the material compliance of this section of the IBC. As such, IBC-certified laboratories do not conduct assessments of light-diffusing systems. In the absence of a certified performance test, the thermal properties of Chroma are such that engineering judgment is often employed to justify the use of Chroma panels in light-diffusing systems.

The first criteria of section 2606.7.2, is that the diffuser must fall from its mountings at a temperature of 200°F below the ignition temperature selected material. The ignition temperature of Chroma is 910°F (as measured by ASTM D 1929). Hence, the Chroma panels are required to fall from their mount at a temperature of 710°F. Given that the Chroma sheet forming temperature is near 300°F, (temperature at which the material will sag and form) fallout of the panels will undoubtedly occur prior to reaching the 710°F limit.

The second requirement is that the panels must remain in place for

at least 15 minutes at an ambient room temperature of 175°F. Again, a consideration of Chroma thermal properties, and our experience with Chroma in a variety of applications, indicate that this requirement can be also be easily achieved. The heat deflection temperature (the temperature at which the plastic distorts under a given load) of Chroma is 210°F under a load of 264 psi. Because the Chroma panel does not distort until 210°F, under applied pressure, it is conclusive that the Chroma panel will remain in place for at least 15 minutes at a temperature of 175°F.

2606.7.1 Support. Light -transmitting plastic diffusers shall be supported directly or indirectly from ceiling or roof construction by use of noncombustible hangers. Hangers shall be at least No. 12 steel-wire gage (0.106 inch) galvanized wire or equivalent.

We recommend designs for light-diffusing systems to specify either wire supports or metal frames in order to comply with the IBC.