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FABRIC FLAME TESTS: VERTICAL OR HORIZONTAL?

Flame retardant fabrics for use in draperies are to be tested to the standards of NFPA 701, California Title 19, or City of Boston IX-1. These three standards and test procedures are somewhat similar in that all involve a **vertical** flame test of swatches of fabrics. The various tests, however, do have subtle differences, so always check with your local authorities. These tests are designed to rate "*temporary, decorative fabrics and films*" that are not structurally parts of buildings. These tests measure resistance to ignition from a relatively small flame source (such as a match or Bunsen burner). There is no federally approved standard for the United States, but the National Fire Protection Association's (NFPA) standard for draperies has been accepted by life safety officials in all states except California and the City of Boston.

Fire marshals, building inspectors, general contractors, and architects will frequently ask for a class rating of the fabric (wanting a class A, sometimes accepting a class B). This rating, designed for building materials, is obtained using the **horizontal**, Steiner tunnel test and measures the surface burning characteristics of structural materials (that is, the amount of smoke, gases, and heat generated) when burned over a long period of time by a large flame [blast furnace]. The International Building Code (IBC) specifies this test and procedure, which is known as IBC 8-1 or ASTM E-84 or NFPA 255 or UL 723 or ANSI 2.5. All these names refer to the **exact** same test. They are equivalent. The Underwriters Laboratories (UL) test 723 was developed by the UL and then adopted and refined by both the NFPA (code 255) and the American Society for Testing and Materials (ASTM E-84). All these organizations have revised their individual standards to agree and now use the same procedures and standard.

The IBC code, in Article 4, section 405.3.6, states that draperies and other decorative fabrics and films must be governed not by the IBC code but, rather, by the International Fire Code (IFC) Article 9, section 902.4.6. This section of the IFC states that draperies must meet the requirements of NFPA 701, or any overriding local statute (such as California or Boston).

Do note, however, that as soon as you glue or otherwise fasten a fabric to a permanent wall, the fabric is no longer "temporary" and, instead, has become a building material. Then, the IBC code is effective, and the horizontal test is appropriate. Very few of Rose Brand's fabrics have been tested horizontally and, therefore, cannot be recommended for this use. Our experience is that almost all fabrics that pass the NFPA 701 test will easily earn a rating of "A" in the ASTM E-84 procedure.

In addition to the above, NFPA Life Safety Code 101, chapter 8, Section 1.2.3 states that vertical burn tests are intended to assess the possible burning rate of fabrics and films that are used as decorative materials in buildings and rooms of public assembly. Rose Brand makes use of both the laboratory test NFPA 701 and the field test approximation, code NFPA 705 (2003 ed.), to assess and check the claims made by manufacturers, foreign and domestic, in order to market and sell our products as "flame-retardant".