

## A Brief Outline of Fire Rating Classifications

**ASTM E-84 (UL 723)** – The ASTM E-84 or UL 723, is the standard test method for surface burning characteristics of building materials. This test is applicable to exposed surfaces for ceilings and walls. Flame spread and smoke density developed are reported.

**FLAME SPREAD RATING** – Flame spread is determined from the relative burning behavior of the material by observing the flame spread along the specimen.

**SMOKE DEVELOPMENT RATINGS** – Smoke development is determined by measuring the amount of smoke density during this test procedure. The International building codes (IBC) requires wall and ceiling finishes to fall within the following categories:

* Class A (1) Best Rating	* Class B (2)	* Class C (3)
- Flame spread of 25 or less	- Flame spread between 26 and 75	- Flame spread between 76 and 200
Shoke development of 450 of less	Shoke development of 450 of less	Shoke development of 450 of less

\* These ratings are for wall finishes which are to be installed over a substrate, such as gypsum board (drywall), not to be used in lieu of gypsum board (drywall). It is also recommended that Class A finishes be used in areas that will be used as a means of exit in case of a fire. In all cases, local codes should apply.

These ratings are determined by small-scale tests conducted by Underwriters Laboratories and other independent testing facilities using the American Society for Testing and Materials E-84 test standard (commonly referred to as the "Tunnel Test"). Fire safety requires proper design of facilities and fire suppression systems, as well as precautions during construction and occupancy. Local codes, insurance requirements and any special needs of the product user will determine the correct fire-rated interior finish and fire suppression system necessary for a specific installation.

**HOURLY FIRE RATINGS ASTM E-119 (UL 263)** – The ASTM E-119 or UL 263, fire test for construction material systems is for "assemblies" or "systems". In this test a complete wall (studs with gypsum/drywall board on both sides) is tested. Painted gypsum (drywall) board is the most common, wherein all joints have been taped and sealed. This meets the one-hour fire rating.

Another part of the E-119 test pertains to the thermal (ignition) barriers. This is relevant only when spray foam insulation is being used. Since most spray foam is quite flammable, the material covering the spray foam is to be a thermal (ignition) barrier. If a fire does occur, the thermal barrier is required to keep the spray foam insulation from increasing in temperature for 15 minutes.

**NFPA 286** – NFPA 286 or "The Corner Burn Test", measures certain fire performance characteristics of finish wall and ceiling covering materials in an enclosure under specific fire exposure conditions. Furthermore, the test determines the extent to which the finish covering materials may contribute to fire growth in a room and the potential for fire spread beyond the room under the particular conditions simulated. It's important to note that NFPA 286 only describes testing methods, and is not intended to evaluate any materials; the standards are simply the means by which officials can determine whether or not a material meets building code requirements. NFPA 286 is acceptable as, or an alternative to, ASTM E-84.

\*\*\*Any products we sell that qualify for any or all of these ratings will have that information on the product data sheets, which are accessible via the company library or the *www.ais1.us* website.