

# Code Official Corner

## Foam Plastic as Interior Finish

By John Swanson, Deputy Fire Marshal

The fire at the Station Nightclub on February 20, 2003 in West Warwick, Rhode Island was one of the deadliest fires in American history. Pyrotechnics used during a performance started acoustical foam on fire, and the blaze spread quickly throughout the building, making the space untenable. One hundred people lost their lives in the fire and another 230 were injured.

Since the Station Nightclub fire, model building-and-fire codes have established additional, more stringent requirements for foam materials used as interior finish. International Code changes also include a mandate for assembly occupancies to have main exit doors that account for 50 percent of required egress from the space, and a requirement for crowd managers to assist with evacuation and early fire department notification.

Code officials and designers may find it challenging to understand, and distinguish between, several different testing criteria outlined in the interior finish and decoration requirements in the model codes (Chapter 8 of the Minn. State Building/Fire Codes). References to ASTM E84, Steiner Tunnel Test, NFPA 286, NFPA 265, NFPA 701 and others can be confusing to designers and code officials who must correctly apply code requirements. Misapplication of these test standards can have serious consequences.

Use of foam plastic materials as interior finish has increased significantly in recent years due to its excellent sound-deadening characteristics and the cushioning it provides to protect from injury. However, foam products used as interior finish often do not comply with all the building and fire code requirements. Foam frequently complies with a Class A flame-spread rating when tested to ASTM E84, but both building and fire codes have additional requirements for foam plastics used as interior finish.

Foam receives high marks on the ASTM E84 test primarily because the product melts in the test chamber, leaving no test sample to burn. In 'real world' applications, though, this is a huge problem because building occupants do not want melting plastic falling on them as they exit a burning building. The International Fire Code and the International Building Code allow exposed foam plastic as interior finish if it complies with the appropriate flame-spread rating from Table 803.3 and one of the following standards; NFPA 286, FM 4880, UL 1040 or UL 1715. These large-scale fire tests differ from ASTM E84 because they try to address the proposed end-use configuration and application. It is important for code officials and designers to know that many of the foam plastics on the market comply with only ASTM E84 and not to these other standards.

Designers and code officials share a common goal of ensuring the safest possible environment for all occupants of a building. Our society has seen too many devastating fires involving noncompliant interior finishes that have caused hundreds of preventable deaths and injuries. By working together to ensure that interior finishes comply with building and fire codes, code officials and designers can create a safer building — one in which the odds of surviving a fire increase.