



# DEPARTMENT OF PUBLIC SAFETY AND CORRECTIONS

## Public Safety Services



M. J. "MIKE FOSTER, JR.  
GOVERNOR

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STATE FIRE MARSHAL

### INTERPRETIVE MEMORANDUM 2002 - 12

To: Licensed Architects  
Licensed Engineers  
Licensed Sprinkler Contractors  
Licensed Fire Alarm Contractors  
Licensed Fire Suppression Contractors  
Felicia Cooper, Deputy State Fire Marshal Administrator  
Stephen Gogreve, Manager of Inspections/Arson  
Pat Day, Supervisor of Health Care Inspections  
Marc Reech, Executive Staff Officer  
Plan Review Staff

From: Jean Carter, Architect Supervisor  
Fidel Fremin, Architect Supervisor  
Henry Reed, Architect Supervisor  
Cindy Obier, Architect Supervisor  
Don Zeringue, Chief Architect

Approved by: Mark Gates,  
Deputy Assistant Secretary

Date: July 1, 2002

**Re: SHADE FABRIC EQUIVALENCY TO "BURN-OUT" CEILING**

Due to the increasing use of shade fabrics utilized within the landscape nursery departments of large mercantile "big box" stores, this office has reviewed testing data and established determinations regarding sprinkler protection below these fabric "ceilings". Certain shade fabrics, when burned, fall outside the scope of sprinkler protection, when used as the only "ceiling" material in an exterior space. Please note the following excerpt from NFPA 13, 1999 edition:

13:5-1.1 The requirements for spacing, location, and position of sprinklers shall be based on the following principles:

(1) Sprinklers shall be installed throughout the premises.

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It is the intent of the code that sprinklers are not required if there is no ceiling plane to capture heat and serve as a catalyst to fuse the sprinkler heads. It is the intent of this interpretive memorandum to evaluate shade fabric products and determine potentially successful burn-out of the fabric upon exposure to fire. If burn-out of the fabric is successful, then it is a determination of this office that a “ceiling” does not exist and therefore, sprinklers are not required in the associated “no ceiling” exterior space.

Enduro Shade is manufactured by Enduro Products, a division of Hendee Enterprises, Houston, Texas.

This office is in receipt of a March 13, 2002, request from Mr. Bob Morgan, P.E., Fire Protection Engineer, TVA Fire & Life Safety, Inc., Plano, Texas, to evaluate the requirement for sprinkler protection in spaces using the referenced material as a finished ceiling, and after review, makes the following observations and determination.

Enduro Shade fabric is a fire retardant, vinyl impregnated polyester yarn, woven and heat set for stability. Enduro Shade is manufactured as an open web fabric with either a 37% or a 20% clear/open air ratio. Smoke and heat will easily pass through the fabric. Enduro Shade is listed with a Class A fire and smoke rating.

Mr. Morgan provides lab and fire testing performed and published in an August 17, 1976 Memorandum Report titled: Lab Test Report For Enduro Shade, prepared by Mr. David Hall, Ph.D., P.E., Fabric and Textile Institute Vice President, Fiber and Polymer Science, with the company Context, Inc., Consultants To The Tufted Textile Industry, Auburn, Alabama. An excerpt of the referenced Memorandum Report is reiterated as follows:

### **Part 13. Oxygen Index – Flammability**

The oxygen index, or the amount of oxygen required to achieve burning, was measured by ASTM D 2863 (Modified). The oxygen index value for both warp and filling directions was 24.0. Copious amounts of smoke were generated during this test. This indicates that more oxygen than is available in ordinary air is required to maintain combustion. Therefore, this material would fail the vertical flame test, which is considered the most severe test for flammability of fabrics.

The NFPA 101 Life Safety Code and adopted national fire codes require fire protection features that will provide a minimum acceptable level of safety. The features required by these codes may be altered, substituted, or omitted, if alternative features are proposed that will provide a level of safety equivalent to that provided by compliance with specific requirements of these codes.

Based on a review of the documentation described above, this office hereby determines that Enduro Shade, as specifically described and tested above, will burn-out upon exposure to fire whereby the applicable space is hereby recognized as “exterior to the sprinklered premises”, subject to the following stipulations:

- A. Enduro Shade shall be utilized in an exterior environment only.
- B. Enduro Shade shall be utilized with no additional ceiling plane provided above the fabric. Enduro Shade shall be the only “ceiling” within the exterior unsprinklered space.

JCC/jcc