

INTERPRETIVE MEMORANDUM 2002 – 12R

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: Henry H. Fry
Deputy Assistant Secretary

Date: July 1, 2002
Revised March 7, 2005 to include “XLS Revolux” fabric

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.

SHADE FABRIC EQUIVALENCY TO "BURN-OUT" CEILING

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.

1. "Enduro Shade", manufactured by Enduro Products, a division of Hende 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.

SHADE FABRIC EQUIVALENCY TO "BURN-OUT" CEILING

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.

2. "XLS Revolux", manufactured by Ludvig Svensson, Inc., Charlotte, NC.

This office is in receipt of a March 1, 2005, request from Mr. Mark Gauchet, Architect, Lachin Oubre' & Associates, APC, Metairie, LA, to evaluate the requirement for sprinkler protection in spaces using the referenced material as a secondary ceiling treatment below the sprinklers at the primary ceiling, and after review, makes the following observations and determination.

The fabric under consideration is XLS Revolux. The fabric is proposed to be installed below a sloping, glazed, gabled roof. Sprinkler heads shall be installed on the underside of the glazed roof. XLS Revolux fabric shall be installed below the glass roof and sprinklers, as indicated on the attached building section.

XLS Revolux is manufactured from 100% flame retardant materials and is composed of 4mm wide aluminum and plastic strips held together with a strong yarn binder. Weight of the test sample was 3.0 ounces per square yard.

The March 1, 2005 submittal package includes testing procedure and test results of XLS Revolux fabric, as tested by Commercial Testing Laboratory, Dalton GA, on July 12, 2001. Test criteria was in accordance with NFPA 701, "Standard Methods of Fire Tests for Flame Retardant Textiles and Films". Weight of the test sample was 3.0 ounces per square yard.

Test results were calculated on the basis of observed flame propagation and the integrated area under the recorded smoke density curve. Resulting flame spread and smoke developed data are as follows.

XLS 16 Revolux:

Flame Spread Index 100

Smoke Developed Index 20

NFPA 101 Classification Class A

SHADE FABRIC EQUIVALENCY TO "BURN-OUT" CEILING

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Based on a review of the documentation described above, this office hereby determines that XLS Revolux, as specifically described and tested above, will "burn-out" upon exposure to fire. Therefore, the resulting space above the fabric is hereby recognized as a "single ceiling" with sprinkler protection and is acceptable to this office. This determination is subject to the following stipulations:

1. Installation of XLS Revolux fabric shall be limited to the description as provided above and submitted in the March 1, 2005 submittal package.

JCC/md