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June 26, 2009

Test report number 3182843CRT-001  
Project number 3182843-311

Volterra Architectural Products  
1902 N 22<sup>nd</sup> Ave  
Phoenix, AZ 85009

**ABSTRACT:**

The UTC-6022-7.5 molded urethane, 7/8" thick x 5-1/2" wide, Manufactured by Volterra Architectural Products, was evaluated in accordance with the requirements of ASTM E84-90 Standard Test method for Surface Burning Characteristics of Building Materials.

Flame spread index: 20  
Smoke developed index: 225

**STANDARD USED:**

ASTM E84-90 Surface Burning Characteristics of Building Materials

**INTRODUCTION:**

This report describes the results of the ASTM E84-90 Standard Method of Test for Surface Burning Characteristics of Building Materials performed on specimens of UTC-6022-7.5 molded urethane, 7/8" thick x 5-1/2" wide, submitted by Volterra Architectural Products. The test evaluations were conducted by Intertek.

The purpose of the method is to determine the relative burning behaviour of the material by observing the flame spread along the specimen. Flame spread and smoke density developed are reported, however, there is not necessarily a relationship between these two measurements.

The use of supporting materials on the underside of the test specimen may lower the flame spread index from that which might be obtained if the specimen could be tested without such support. This method may not be appropriate for obtaining comparative surface burning behaviour of some cellular plastic materials. Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place.

This test method is also published under the following designations:

ANSI 2.5      UBC 42-1  
NFPA 255      UL 723

This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use



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**TEST OBJECTIVE:**

The ASTM E84-90 (25 foot tunnel) test method is intended to compare the surface flamespread and smoke developed measurements to those obtained from the tests of mineral fiber cement board and select grade red oak flooring. The test specimen surface (18 inches wide and 24 feet long) is exposed to a flaming fire exposure (adjusted to cause a 25 foot spread of flame along a red oak calibration specimen in 5.5 minutes) during the 10 minute test duration, while flamespread over its surface and density of the resulting smoke are measured and recorded. Test results are presented as the computed comparisons to the standard calibration materials. The mineral fiber cement board forms the zero point, while the red oak flooring is set as 100 for smoke measurements. Thus, with a relative zero established by the non-combustible cement board, all test specimens are compared to select grade red oak flooring, and the results expressed as Flame Spread Index and Smoke Developed Index.

**AUTHORIZATION:**

The test was authorized by Mr. Gerhard Regenauer with purchase order number 164050 dated September 29, 1992.

**SAMPLES DESCRIPTION:**

The test specimens were prepared at Intertek, from samples forwarded by Volterra Architectural Products, Inc.

Specimen Identification: UTC-6022-7.5 molded urethane, 7/8" thick x 5-1/2" wide (1386 in<sup>3</sup>).

Date Received: 09/25/92  
Date Prepared: 09/25/92  
Date Tested: 09/25/92  
Specimen Width (in): 5-1/2  
Specimen Length (ft): 8 (3 panels)  
Specimen Thickness (in): 7/8  
Entire Specimen Weight (lb): 7.98  
Application Rate: n/a

**MOUNTING METHOD:**

The specimen was placed on 2 inch galvanized hexagonal wire mesh which was supported on 3/16 inch round metal rods spaced 2 feet apart throughout the length of the tunnel.

**TEST PROCEDURE:**

The test specimens were placed in the tunnel and supported over the tunnel ledges. The specimen was overlapped 2 inches. The sample was conducted in accordance with the published test method on 09/25/92.



**EQUIPMENT LIST:**

The following equipment was employed in conducting the tests.

<u>Equipment used</u>	<u>Model number</u>	<u>Control number</u>	<u>Calibration date</u>
Steiner Tunnel	ETL 1	N/A	N/A
Manometer 10 inch	826SPRO	F142	10/18/91
Manometer 0.25 inch	826SPRO	F143	10/25/91
Manometer Gage 0.25 inch	2000-00	F140	10/25/91
Manometer Gage 1 inch	4302	F145	11/29/91
Pressure Gage 30 psi	FLUFIL	F144	11/30/91
Nullmatic Controller	524T2	F141	11/30/91
TC Indicator	199AKFX	T449	10/18/91
TC Indicator	199AKFX	T450	10/18/91
Chart Recorder	2503000	T451	10/18/91
Ammeter 5 ADC	2123	A142	10/21/91
Voltmeter 15 VDC	Serial No. V203	V203	19/21/91

**DATE OF TEST:**

September 25, 1992

**TEST REPORT REVISION HISTORY:**

First Issue:	September 30, 1992	Original Document
Second Issue:	June 26, 2009	Revision to company name and address



**TEST RESULTS:**

The test results, computed on the basis of observed flame front advance electronic smoke density measurements are presented in the following table. In recognition of possible variations and limitations of the test method, the results are computed to the nearest number divisible by five, as outlined in the test method.

While no longer a part of this standard test method, the Fuel Contributed Value has been computed, and may be found on the computer printout sheet.

<u>Test specimen</u>	<u>Flame spread index</u>	<u>Smoke developed index</u>
Mineral Fiber/Cement Board	0	0
Red Oak Flooring	100	100
UTC-6022-7.5 molded urethane	200	225

**OBSERVATION:**

The specimen exhibited steady ignition at 00:04 (min:sec). The flame front reached a maximum distance of 3.9 feet, achieved at 01:44 (min:sec). After the ignition flame was extinguished, the specimen did not continue to flame.

After the specimen was cooled and removed from the furnace, it was observed to have an ash length of 4 feet, a char length of 14 feet, and was discoloured to 24 feet.

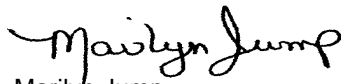
These data sheets which follow are actual print-outs of the computerized data system which monitors the ASTM E84 furnace.

**CONCLUSION:**

The UTC-6022-7.5 molded urethane, 7/8" thick x 5-1/2" wide, submitted by Volterra Architectural Products and previously described, when tested in accordance with ASTM E84-90 Standard Test Method for Surface Burning Characteristics of Building Materials, on 09/25/92 achieved the following results:

Flame spread index: 20  
Smoke developed index: 225

Reviewed and Approved By:

  
Marilyn Jump  
Engineer  
Global Cabling Products Testing

  
Antoine Pelletier  
Engineer  
Global Cabling Products Testing



**Appendix A**  
Test data sheet

This appendix contains 1 page.



Appendix A

Data Sheet  
Surface Burning Characteristics of Building Materials

**Client:** Volterra Architectural Products  
**Project Number:** 3182843  
**Samples description:** UTC-6022-7.5 molded urethane, 7/8" thick x 5-1/2" wide  
**Standard:** ASTM E84-90

**Date:** June 26, 2009  
**Operator:** Amy L. Rice  
**Engineer:** Marilyn Jump  
**Reviewer:** Antoine Pelletier

Flame Spread Index = 20  
Smoke developed index = 225

	<u>Test Specimen</u>	<u>Red Oak</u>
Time To Ignition (min:sec):	00:04	00:37
Time To Max. Flame Spread (min:sec):	01:44	
Max. Flame Spread (ft):	3.9	
Max. Temperature (Deg. F):	490	
Time To Max. Temperature (min:sec):	09:52	
Time To 980 Degrees F (min:sec):	N/A	
Flame Spread x Time Area (min*ft):	36	
Smoke x Time Area (min*%T):	219	97
Temperature x Time Area (min*Deg.F):	4188	9778
Unrounded Flame Spread Index:	18.46	
Unrounded Smoke Developed Index:	225.93	
Total Fuel (natural gas) Consumed (ft <sup>3</sup> ):	47.18	
Temperature x Time Area for GRC Board (min*deg.F)	4842	



**Appendix B**  
Graphical test data

This appendix contains 3 pages.



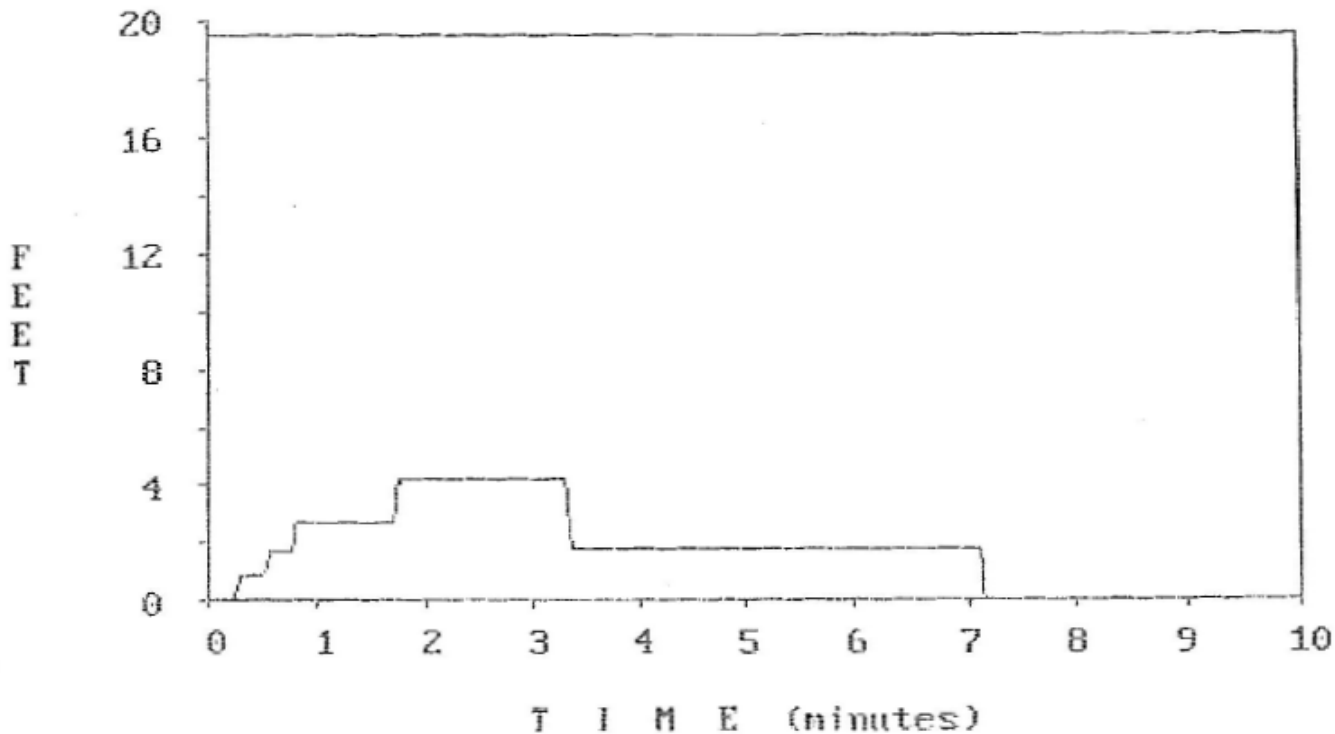
Appendix B

Data Sheet  
Surface Burning Characteristics of Building Materials

**Client:** Volterra Architectural Products  
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**Standard:** ASTM E84-90

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**Engineer:** Marilyn Jump  
**Reviewer:** Antoine Pelletier

Flame spread VS time







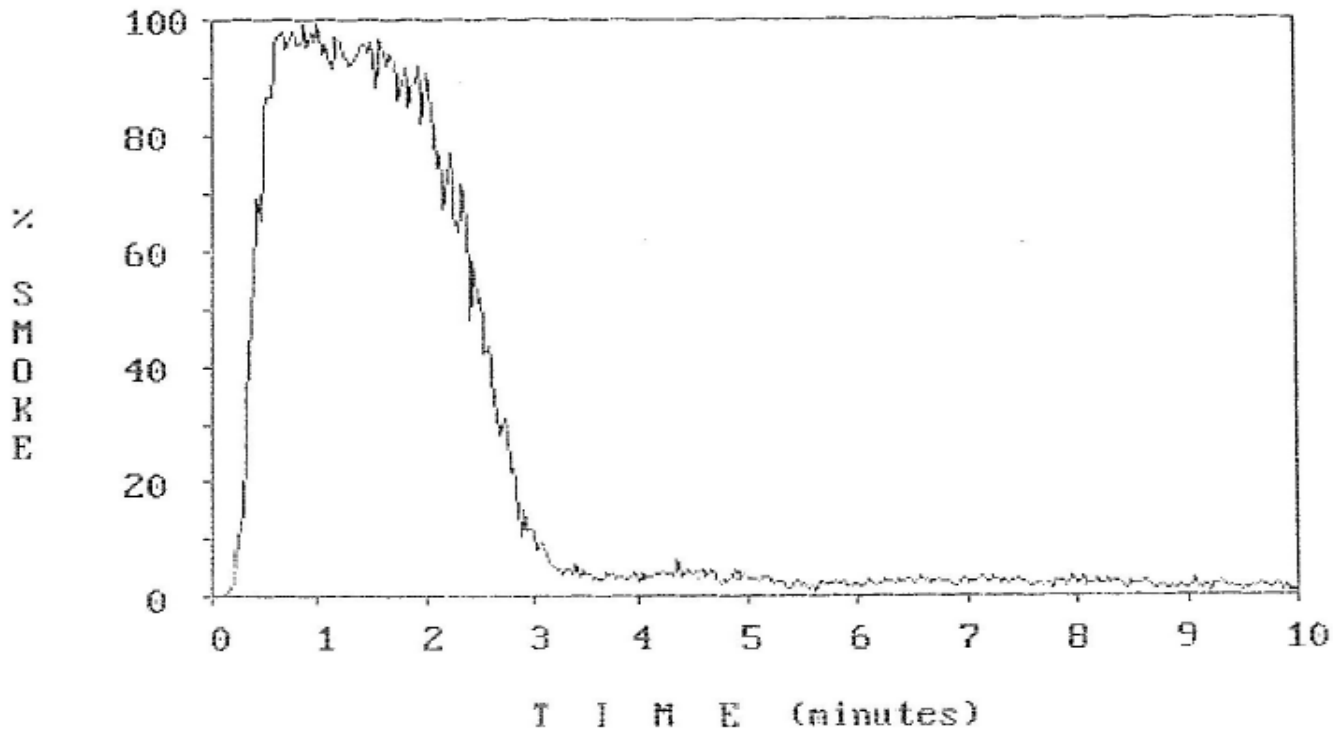
Appendix B

Data Sheet  
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Smoke VS time





Appendix B

Data Sheet  
Surface Burning Characteristics of Building Materials

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Temperature VS time

