TEST REPORT

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EVALUATION CENTER
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16015 Shady Falls Road
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RENDERED TO

Vescom America
P.O Box 1698
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Report of Testing “VA-WC-20-OS-17” for compliance with the applicable requirements of the following criteria: ASTM E84-16 TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (UL 723, UBC 8-1, NFPA 255)

ABSTRACT

Specimen I. D.	**"**VA-WC-20-OS-17**"**
Test Standard:	ASTM E84-16 TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (UL 723, UBC 8-1, NFPA 255)
Test Date:	April 10, 2017
Client:	Vescom America
Test Results:	
	FLAME SPREAD INDEX 10
	SMOKE DEVELOPED INDEX 45

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I. INTRODUCTION

This report describes the results of the ASTM E84-16 TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS a method for determining the comparative surface burning behavior of building materials. This test is applicable to exposed surfaces, such as ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period.

The purpose of the method is to determine the relative burning behavior 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 behavior 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:

NFPA 255
UL 723
UBC 8-1

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.

II. PURPOSE

The ASTM E84 (25 foot tunnel) test method is intended to compare the surface flame spread and smoke developed measurements to those obtained from tests of 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 during the 10 minute test duration, while flame spread 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 furnace is considered under calibration when a 10 minute test of red oak decking will pass flame out the end of the tunnel in five minutes, 30 seconds, plus or minus 15 seconds. The fiber cement board which complies with Annex A3 of the ASTM E 84 standard forms the zero point for both flame spread and smoke developed indexes, while the red oak flooring smoke developed index is set as 100.

III. TEST PROCEDURE

The tests were conducted in accordance with the procedures outlined in the ASTM E84. The specimens are placed directly on the tunnel ledges. As required by the standard, one or more layers of 0.25 inch thick reinforced concrete board are placed on top of the test sample between the sample and the tunnel lid. After the test, the samples are removed from the tunnel, examined and disposed of.

Building Code Classification:
According to the 2015 International Building Code Section 803.1.1, interior and ceiling finish materials are classified based on the results from the ASTM E 84 Flame Spread Index and Smoke Developed Index values.

The 2015 International Building Code classifications are listed below. The National Fire Protection Association publication *NFPA 101 Life Safety Code* also uses the same classification system when tests are conducted per NFPA 253 (ASTM E 84).

Class A: Flame Spread Index 0-25; Smoke-Developed Index 0-450

Class B: Flame Spread Index 26-75; Smoke-Developed Index 0-450

Class C: Flame Spread Index 76-200; Smoke-Developed Index 0-450

IV. REVISION SUMMARY

DATE	SUMMARY
April 13, 2017	Original

V. DESCRIPTION OF TEST SPECIMENS

Date Received:	3/9/17
Date placed under conditioning:	3/28/17
Conditioning (73°F & 50% R.H.):	13 days
Specimen Width (in):	24
Specimen Length (ft):	24
Specimen Thickness (in):	0.02
Specimen weight (lbs):	4.4 (fabric only)
Total Specimen Weight (lbs):	91 (sample + substrate)
Adhesive/Coverage Rate:	Roman Eco-788 / 200 sq. ft. / gal.

Specimen Description:
The specimen was described by the client as “20 oz Type II PVC wallcovering with Osnaburg (Polyester/Cotton) backing”.

The 24-ft. long test specimen consisted of three 8-ft. long sections of wallcovering material adhered to ¼-in. thick cement board. The test specimen was prepared at the Intertek in Elmendorf, Texas on March 28, 2017 by Intertek technicians. The adhesive was applied using a 3/8-in. thick nap roller.

The product was received by our personnel in good condition and given an identification number of SAT1703091104-001.

Mounting Method:
The specimen was self-supporting. The finished side was exposed to the flames.

VI. TEST RESULTS & OBSERVATIONS

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The test results, computed on the basis of observed flame front advance and electronic smoke density measurements are presented in the following table.

Test Specimen	Flame Spread Index	Smoke Developed Index
"VA-WC-20-OS-17"	10	45

The data sheets are included in Appendix A. These sheets are actual print-outs of the computerized data system which monitors the tunnel furnace, and contain all calibration and specimen data needed to calculate the test results.

VII. OBSERVATIONS

During the test, the specimen was observed to behave in the following manner.

Time (min:sec)	Observations
0:00	The test burners were turned on.
0:06	Blistering was observed.
0:15	Charring was observed.
0:16	Steady ignition was observed.
2:04	Small burning pieces began to fall.
10:00	The test burners were shut off.

After the test, the specimen was observed to be damaged as follows:

Distance (FEET)	Damage Descriptions
0 - 7	The sample was consumed.
7 - 10	The sample was heavily discolored, partially melted, and blistered.
10 - 19	The sample was heavily discolored and blistered.
19 - 24	The sample was heavily discolored.

APPENDIX A

ASTM E84
DATA SHEETS

TEST RESULTS

FLAMESPREAD INDEX: 10

SMOKE DEVELOPED INDEX: 45

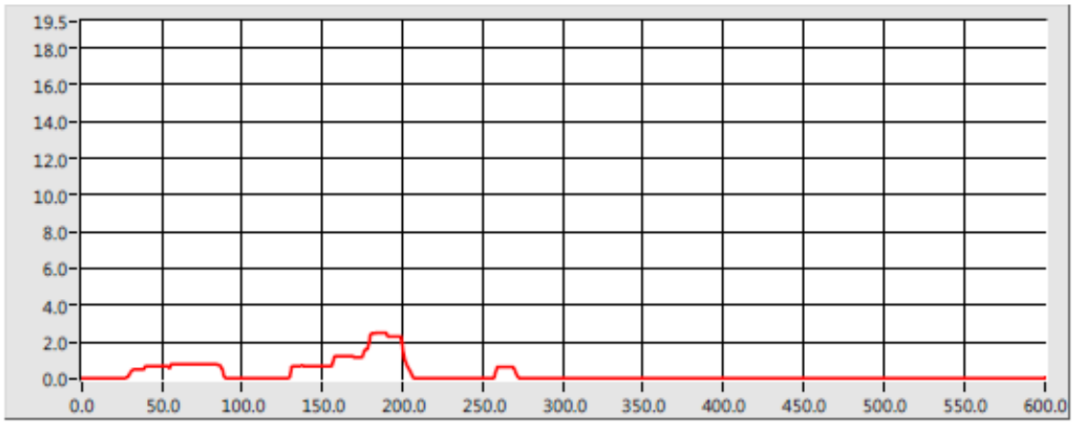
SPECIMEN DATA . . .

Time to Ignition (sec):	16
Time to Max FS (sec):	184
Maximum FS (feet):	2.5
Time to 980 F (sec):	Never Reached
Time to End of Tunnel (sec):	Never Reached
Max Temperature (F):	552
Time to Max Temperature (sec):	554
Total Fuel Burned (cubic feet):	44.00
FS*Time Area (ft*min):	19.4
Smoke Area (%A*min):	32.1
Unrounded FSI:	10.0

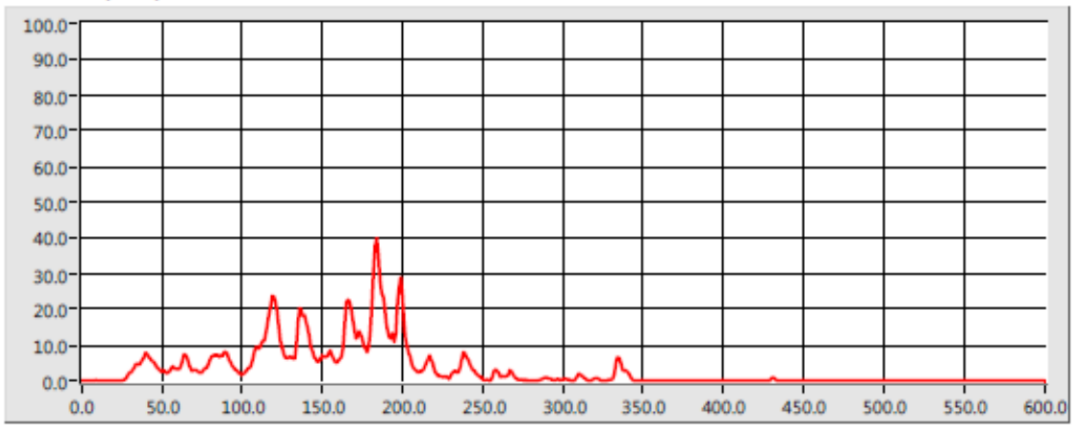
CALIBRATION DATA . . .

Time to Ignition of Last Red Oak (Sec):	47.0
Red Oak Smoke Area (%A*min):	68.7

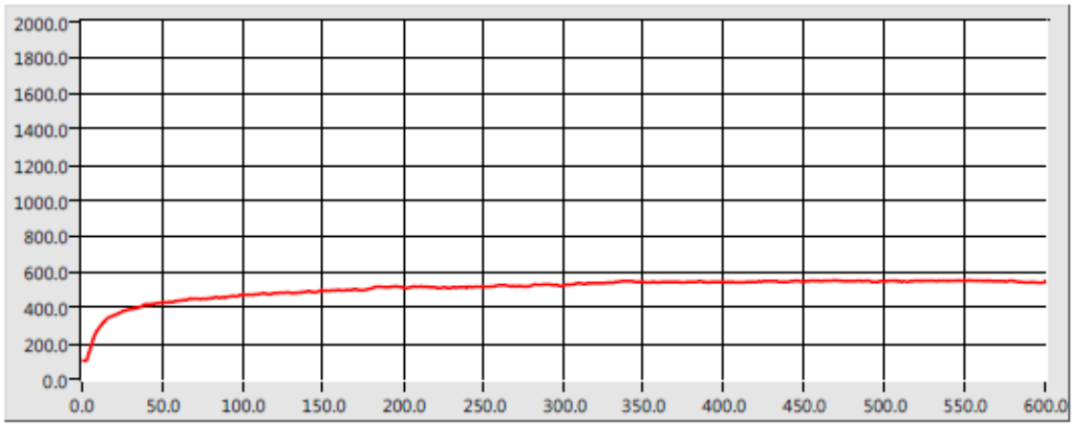
FLAME SPREAD (ft)



Smoke (%A)



Temperature (℉)



Time (sec)

600