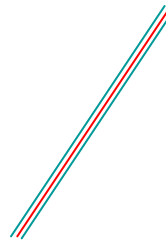




# Fire Testing Laboratory



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## TEST REPORT

FOR

### **THERMORY® USA, LLC**

1213 Wilmette Avenue, Suite 208  
Wilmette, IL 60091

### **Standard Test Method for Surface Burning Characteristics of Building Materials ASTM E84 – 12a**

Test Report No: FH-2403

Assignment No: H-977

Test Date: 05/09/2013

Report Date: 05/09/2013

Subject Material: 0.79" x 5.9" T.M. Ash Decking and 1.02" x 5.7" T.M. Ash Decking

Prepared by: \_\_\_\_\_

Michael J. Rizzo  
Test Engineer

Reviewed by: \_\_\_\_\_

Robert J. Menchetti  
Director, Laboratory Facilities and Testing Services

The results reported in this document apply to specific samples submitted for measurement. No responsibility is assumed for performance of any other specimen. The laboratory's test report in no way constitutes or implies product certification, approval or endorsement by this laboratory. This report may not be reproduced, except in full, without the written approval of the laboratory.

## **INTRODUCTION:**

This report presents the results of specimens tested in accordance with the requirements of ASTM E84-12a Standard Test Method for Surface Burning Characteristics of Building Materials. This test method is also published under the designations ANSI/UL 723, NFPA 255, and UBC 8-1(42-1).

The purpose of this test method is to determine the relative behavior of the material by observing the flame spread along the specimen. Flame spread and smoke developed index are reported. However, there is not necessarily a relationship between these two measurements.

This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled laboratory conditions. It should not alone be used for fire hazard or fire risk assessment of the materials, products, or assemblies under actual fire conditions.

## **MATERIAL TESTED:**

Material submitted by Thermory® USA, of Wilmette, IL was identified by the client as:

- **“0.79" x 5.9" T.M. Ash Decking”**
- **“1.02" x 5.7" T.M. Ash Decking”**

The material was received, in good condition, by NGC Testing Services on April 30, 2013. The material was submitted as nominally 95 in. long boards; twelve (12) boards were submitted for each sample material.

From the boards submitted, NGCTS personnel constructed (3) test specimen decks for each sample material, per ASTM Practice E2579. The specimen decks were constructed on May 8, 2013.

## **MOUNTING METHOD:**

The specimen decks were placed end-to-end, directly on the tunnel ledges, and butted tightly together, to achieve the required 24 ft. length. No additional support was required.

Non-combustible, fiber-reinforced cement board (1/4 in. thick) was placed over the specimen decks as lid protection.



**TEST RESULTS:**

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

The reported flame spread and smoke developed indices, as presented below, are the computed comparison to the standard calibration materials – mineral fiber-reinforced cement board and select grade red oak flooring. The cement board is used to establish relative 0 values for flame spread and smoke developed; red oak decks are used to establish relative 100 values for flame spread and smoke developed.

<u>TEST NO.</u>	<u>MATERIAL TESTED</u>	<u>SIDE EXPOSED</u>	<u>SUPPORT</u>	<u>CALCULATED FLAME SPREAD</u>	<u>CALCULATED SMOKE DEVELOPED</u>	
1	0.79" x 5.9" T.M. Ash Decking	Symmetrical	Self Supporting	36.85	246.91	
2	1.02" x 5.7" T.M. Ash Decking	Symmetrical	Self Supporting	36.83	85.52	
<b>COMPARISON TO STANDARD CALIBRATION MATERIALS</b>						
	<u>MATERIAL TESTED</u>	<u>SIDE EXPOSED</u>	<u>SUPPORT</u>	<u>FLAME SPREAD INDEX *</u>	<u>SMOKE DEVELOPED INDEX*</u>	
	RED OAK FLOORING	Finished	Self Supporting	100	100	
	REINFORCED CEMENT BOARD	Symmetrical	Self Supporting	0	0	
1	0.79" x 5.9" T.M. Ash Decking	Symmetrical	Self Supporting	<b>35</b>	<b>250</b>	
2	1.02" x 5.7" T.M. Ash Decking	Symmetrical	Self Supporting	<b>35</b>	<b>85</b>	
				<u>CLASSIFICATION</u>	<u>FSI</u>	<u>SDI</u>
* Flame Spread / Smoke Developed Index is the result (or the average of the results of multiple tests), rounded to the nearest multiple of 5. Smoke developed results in excess of 200 are rounded to the nearest multiple of 50.				CLASS "A"	0 - 25	0 - 450
				CLASS "B"	26 - 75	0 - 450
				CLASS "C"	76 - 200	0 - 450

<b><u>0.79" x 5.9" T.M. Ash Decking</u></b>		<b><u>1.02" x 5.7" T.M. Ash Decking</u></b>	
<b>FLAME SPREAD INDEX</b>	<b>35</b>	<b>FLAME SPREAD INDEX</b>	<b>35</b>
<b>SMOKE DEVELOPED INDEX</b>	<b>250</b>	<b>SMOKE DEVELOPED INDEX</b>	<b>85</b>

**OBSERVATIONS:**

**0.79" x 5.9" T.M. Ash Decking:** The test specimen exhibited steady ignition at 00:32 (min:sec). The flame front reached a maximum distance of 9.08 feet, achieved at 09:54 (min:sec). After the ignition flame was extinguished, the test specimen continued to flame and was manually extinguished. Once the test specimen was cooled and removed from the furnace, it was observed to have a char length of 9 feet and was discolored to 24 feet.

**1.02" x 5.7" T.M. Ash Decking:** The test specimen exhibited steady ignition at 00:51 (min:sec). The flame front reached a maximum distance of 11.98 feet, achieved at 09:46 (min:sec). After the ignition flame was extinguished, the test specimen briefly continued to flame before self-extinguishing. Once the test specimen was cooled and removed from the furnace, it was observed to have a char length of 10 feet and was discolored to 24 feet.



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ADC DRAFT (IN. H2O) 0.080  
 GAS PRESS. (IN. H2O) 0.278  
 GAS VOL (CF) 49.25  
 BTU/cf 1022  
 SHUTTER (IN.) 3.00  
 TEMP. 13' BURIED 105 F

Flame Spread: 36.85  
 Area under Flame Curve (ft-min): 71.55

TEST#: FH-2403-1 DATE: 5/9/2013

TEST METHOD: ASTM E84-12a

CLIENT: THERMORY USA

PROJECT#: H-977

SAMPLE: 0.79" x 5.9" T.M Ash Decking

MATERIAL: (3) 24" x 95" x Decks

SUPPORT: Self Supporting

REMARKS:

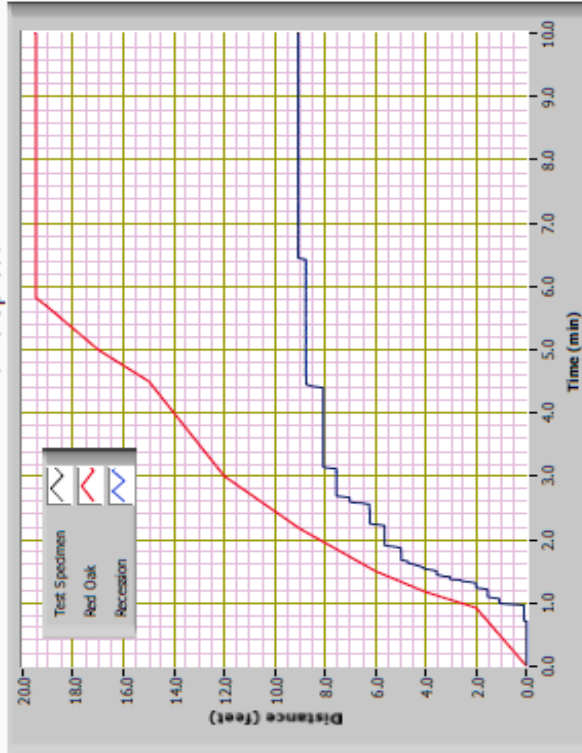
Ignition Time: 0:32

Max Flame Front: 9.08 FT. @ 9:54

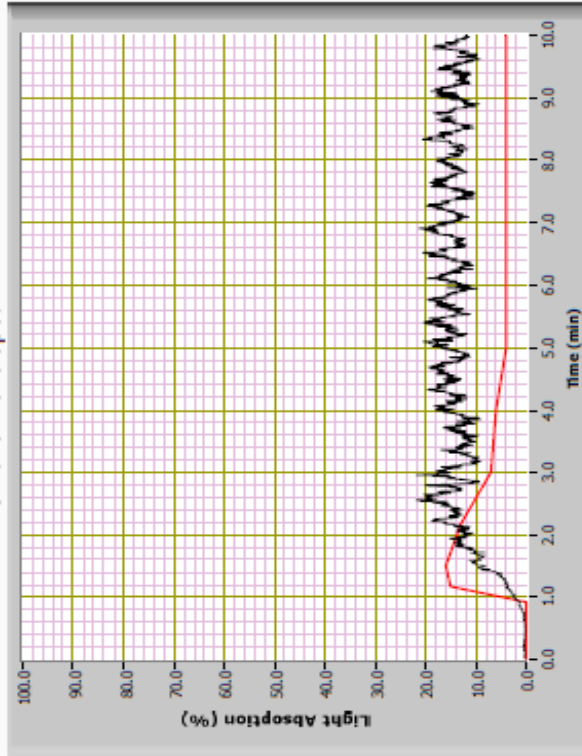
Smoke Developed: 246.91

Area under Smoke Curve (%A-min): 125.92

## Flame Spread



## Smoke Developed



The following data sheets are actual printouts of the computerized data system which monitors the tunnel furnace. The sheets contain all calibration and specimen data needed to calculate the test results.



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TEST#: FH-2403-2      DATE: 5/9/2013

TEST METHOD: ASTM E84-12a

CLIENT: THERMORY USA

PROJECT#: H-977

SAMPLE: 1.02" x 5.7" T.M Ash Decking

MATERIAL: (3) 23" x 95" x Decks

SUPPORT: Self supporting

REMARKS:

Ignition Time: 0:51

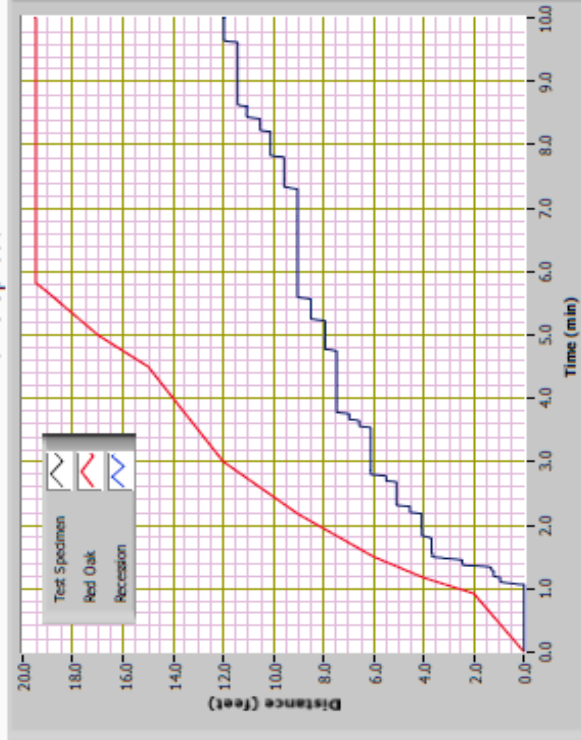
Max Flame Front: 11.98 FT. @ 9:46

ADC DRAFT (IN. H2O)      0.080  
 GAS PRESS. (IN. H2O)    0.277  
 GAS VOL (CF)            49.40  
 BTU/cf                    1022  
 SHUTTER (IN.)            3.00  
 TEMP. 13' BURIED        105 F

Flame Spread:            36.83  
 Area under Flame Curve (ft-min):    71.51

Smoke Developed:        85.52  
 Area under Smoke Curve (%A-min):    43.62

Flame Spread



Smoke Developed

