



Johns Manville

Johns Manville Technical Center
P.O. Box 625005
Littleton, CO 80162-5005
(303) 978-5200 FAX (303) 978-2680

Fire Testing Laboratories
Fire Test Report

Report Number : F-11-026

Date: March 24, 2011

Page 1 of 5

JOHNS MANVILLE TECHNICAL CENTER
Fire Testing Laboratory
March 24, 2011

Subject;
ASTM E84 Surface Burning Characteristics

For;

Bob Freedman
Flatiron Panel Products
1216 Commerce Ct. Unit #4
Lafayette, CO 80026

Submitted by:
Johns Manville Technical Center
PO Box 625005
Littleton, CO 80162-5005

Reported by:

Diane E. Sandoval
Physical and Fire Laboratory Lead
R&D Applied Technology

Approved by:

Diana Fisler
Section Manager
R&D Applied Technology

Approved by:

Rick Packard
Analytical Platform Leader
R&D Applied Technology



® NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR THERMAL INSULATIONS.

NVLAP LAB CODE 100425-0

NOTE: THE CONTENT OF THIS REPORT RELATES ONLY TO THE ITEMS TESTED AND THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE PRIOR CONSENT OF THE ISSUING LABORATORY. USE OF THIS REPORT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT IS PROHIBITED.



Johns Manville

Johns Manville Technical Center

P.O. Box 625005

Littleton, CO 80162-5005

(303) 978-5200 FAX (303) 978-2680

Fire Testing Laboratories

Fire Test Report

Report Number : F-11-026

Date: March 24, 2011

Page 2 of 5

Introduction

Aluminum Honeycomb panels were submitted by B. Freedman, and were tested for flame spread and smoke development in accordance with ASTM test method E84 - 10a "Standard Test Method for Surface Burning Characteristics of Building Materials." The testing of the samples was performed by D. Sandoval and W. Sanborn on March 22, 2011 at the Johns Manville Technical Center located at 10100 West Ute Avenue, Littleton, Colorado.

Sample Description

Aluminum Honeycomb Panel Details

Panel Sample - .500" x 22" x 25' Aluminum Honeycomb Panel

1. Face Sheets - .040" 5052-H32 Aluminum
2. Core - 3/8" Cell, .420" height 3003 Aluminum Commercial Grade Honeycomb Core, .003" Foil.
3. Adhesive - 2 Part Epoxy, Room Temperature Cure

Test Method

ASTM test method E84 - 10a "Standard Test Method for Surface Burning Characteristics of Building Materials."

ASTM E84 Section 7.0 Calibration - Select red grade oak sample was tested on February 3, 2011 and documented in Fire Test Report # F-11-011CAL.

Section 7.1 Fiber Cement Board (1/4" thick) was placed in position on the underside of the lid.

Section 7.2 Tunnel draft: 0.15 inches of H₂O

Section 7.3 Main draft: 0.055 and 0.100 inches of H₂O

Air Velocity: 240 ± 5 ft/minute

Section 7.4 Conditions of the test room are maintained at 73.4 ± 5 degrees F and 50% rH



® NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR THERMAL INSULATIONS.

NVLAP LAB CODE 100425-0

NOTE: THE CONTENT OF THIS REPORT RELATES ONLY TO THE ITEMS TESTED AND THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE PRIOR CONSENT OF THE ISSUING LABORATORY. USE OF THIS REPORT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT IS PROHIBITED.



Johns Manville

Johns Manville Technical Center
P.O. Box 625005
Littleton, CO 80162-5005
(303) 978-5200 FAX (303) 978-2680

Fire Testing Laboratories
Fire Test Report

Report Number : F-11-026

Date: March 24, 2011

Page 3 of 5

Section 7.8 Time for flame to reach the end of the red oak specimen 19.2 ft. may not exceed .5 min ± 15 seconds. The results of the testing were a flame spread index of 91.4 and a smoke developed index of 106.5. This occurred at 5.3 minutes for this calibration which is within the 5 minute and 30 second requirement ± 15 seconds.

These values were calculated in accordance with the test method by calculating the area under the curves for both flame spread and photocell measurement systems.

Another criteria used for determining when the flame has reached the end point is when the thermocouple at 23 feet reaches 980° F. This occurred at 5.2 minutes during this calibration which is outside the specification.

***Exception to the method – Section 5.1.8.3 The exhaust system is to be insulated with at least 2 inches of high temperature mineral composite material from the exhaust end of the fire chamber to the photometer location. Due to recent checks of the duct system, 2 sections of the exhaust are not insulated at this time.**

Test Procedure

Test Specimen Mounting:

The underside of the lid was covered with ¼ inch cement board held in place with binder clips. Five (5) self supporting samples measuring 23.5” x 60” butted together at the ends and mounted below the lid of the tunnel.

Specimen Testing - Using the same settings used for the red oak calibration standard, the preheat sequence was completed, the samples loaded into the tunnel and the test was run monitoring the distance that the flame front travels across the specimen.

Results

The results of these tests are given below. The test method requires that flame spread must be reported by rounding to the nearest multiple of 5. The method also requires that smoke development also be reported rounding to the nearest multiple of 5 unless the smoke development index is 200 or more, which would round smoke development to the nearest 50 points. Data from the test is shown in the results table included in this report



® NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR THERMAL INSULATIONS.

NVLAP LAB CODE 100425-0

NOTE: THE CONTENT OF THIS REPORT RELATES ONLY TO THE ITEMS TESTED AND THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE PRIOR CONSENT OF THE ISSUING LABORATORY. USE OF THIS REPORT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT IS PROHIBITED.



Johns Manville

Johns Manville Technical Center
P.O. Box 625005
Littleton, CO 80162-5005
(303) 978-5200 FAX (303) 978-2680

Fire Testing Laboratories
Fire Test Report

Report Number : F-11-026

Date: March 24, 2011

Page 4 of 5

Results Summary: Aluminum Honeycomb Panel

Sample ID	Test Side	Test Support Materials	Construction Materials	Flame Spread Index	Smoke Developed Index	Rounded Values Flame/Smoke
Surface Burn Test 1	Aluminum	Self supporting	Aluminum Honeycomb Panels	11.2	12.5	10/15

Rating: (For Reference Only)

The National Fire Protection Association Life Safety Code 101, Section 6-5.3, "Interior Wall and Ceiling Finish Classification", has a means of classifying materials with respect to Flame Spread and Smoke Developed when tested in accordance with NFPA 255, "Method of Test Surface Burning Characteristics of Building Materials", (ASTM E84).

The classifications are as follows:

Class A Interior Wall & Ceiling Finish:	Flame Spread	0-25
	Smoke Developed	0-450

Class B Interior Wall & Ceiling Finish:	Flame Spread	26-75
	Smoke Developed	0-450

Class C Interior Wall & Ceiling Finish:	Flame Spread	76-200
	Smoke Developed	0-450



® NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR THERMAL INSULATIONS.

NVLAP LAB CODE 100425-0

NOTE: THE CONTENT OF THIS REPORT RELATES ONLY TO THE ITEMS TESTED AND THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE PRIOR CONSENT OF THE ISSUING LABORATORY. USE OF THIS REPORT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT IS PROHIBITED.



Johns Manville

Johns Manville Technical Center
P.O. Box 625005
Littleton, CO 80162-5005
(303) 978-5200 FAX (303) 978-2680

Fire Testing Laboratories
Fire Test Report

Report Number : F-11-026

Date: March 24, 2011

Page 5 of 5

Results Table 1:

ASTM E84 Tunnel Test			
Surface Burning Characteristics in a 25 Foot Tunnel Furnace			
Johns Manville Technical Center		Test Number:	AH02873
Fire Test Laboratory		Test Duration:	10.00 minutes
10100 W. Ute Ave.		Tested:	3/22/2011
Littleton, CO. 80127			2:11 PM
Material Description :			
Aluminum Honeycomb Panel			
Mounting Method :			
Self supporting			
Test Operation :			
Volume of Gas Used	59.1	cu. ft.	Operator: D. Sandoval
Gas Burning Rate	5.9	cfm	Requestor: Flatiron Panel Products
Max Furnace Flamespread	2.2	ft.	
Flame Spread Index	11.2		
Smoke Density Index	12.5		
Flamespread vs. Time			
Light Absorption vs. Time			
Tunnel Temperature vs. Time			



® NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR THERMAL INSULATIONS.

NVLAP LAB CODE 100425-0

NOTE: THE CONTENT OF THIS REPORT RELATES ONLY TO THE ITEMS TESTED AND THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE PRIOR CONSENT OF THE ISSUING LABORATORY. USE OF THIS REPORT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT IS PROHIBITED.