

ASTM E 84 Surface Burning Characteristics of "Aluminum Honeycomb Panels"

A Report To: **Rigidized Metals Corp.**
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Attention: Dan Hellwig

Submitted by: Fire Testing

Report No. 09-002-144(A)
4 Pages

Date: March 16, 2009

Bodycote Testing Group

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For: Rigidized Metals Corp.

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ACCREDITATION Standards Council of Canada, Registration #1.

SPECIFICATIONS OF ORDER

Determine the Flame Spread and Smoke Developed Indices based upon a single test conducted in accordance with ASTM E 84-08a, as per your Purchase Order Number 55068 and our Quotation No. 08-002-12068 RV1 dated February 25, 2009.

SAMPLE IDENTIFICATION (Bodycote sample identification number 09-002-S0144-1)

Aluminum honeycomb panel with aluminum faces identified as "PHCA.61A/A-001".

TEST PROCEDURE

The method, designated as ASTM E 84-08a, "Standard Method of Test for Surface Burning Characteristics of Building Materials", is designed to determine the relative surface burning characteristics of materials under specific test conditions. Results are expressed in terms of Flame Spread Index (FSI) and Smoke Developed (SD).

Although the procedure is applicable to materials, products and assemblies used in building construction for development of comparative surface spread of flame data, the test results may not reflect the relative surface burning characteristics of tested materials under all building fire conditions.

SAMPLE PREPARATION

The sample consisted of 3 sections, each approximately 96 inches in length by 21 inches in width by 5/8 inches in thickness, butted together to form the requisite specimen dimensions. Prior to testing, the sample was conditioned at a temperature of $73 \pm 5^{\circ}\text{F}$ and a relative humidity of $50 \pm 5\%$. During testing the specimen was self-supporting.

The testing was performed on: 2009-02-27

SUMMARY OF TEST PROCEDURE

The tunnel is preheated to 150°F , as measured by the floor-embedded thermocouple located 23.25 feet downstream of the burner ports, and allowed to cool to 105°F , as measured by the floor-embedded thermocouple located 13 feet from the burners. At this time the tunnel lid is raised and the test sample is placed along the ledges of the tunnel so as to form a continuous ceiling 24 feet long, 12 inches above the floor. The lid is then lowered into place.

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SUMMARY OF TEST PROCEDURE (continued)

Upon ignition of the gas burners, the flame spread distance is observed and recorded every 15 seconds. Flame spread distance versus time is plotted, ignoring any flame front recessions. Calculations are based on comparison with flame spread characteristics of select red oak, determined in calibration trials and arbitrarily established as 100. If the area under the curve (A) is less than or equal to 29.7 m·min, curve (A) is less than or equal to 97.5 min·ft, $FSI = 0.515 \cdot A$; if greater, $FSI = 4900/(195-A)$. Smoke Developed is determined by comparing the area under the obscuration curve for the test sample to that of inorganic reinforced cement board and red oak, arbitrarily established as 0 and 100, respectively.

TEST RESULTS

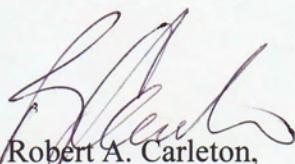
<u>SAMPLE</u>	<u>FSI</u>	<u>SD</u>
"Aluminum Honeycomb Panel with Aluminum Faces"	<5	25

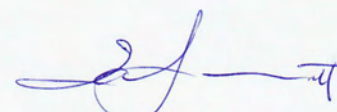
Observations of Burning Characteristics

- The sample began to ignite after approximately 6.75 minutes exposure to the test flame.
- The flame front propagated to a maximum distance of 1.5 feet at approximately 8.5 minutes.
- Smoke Developed was recorded during the test (see accompanying chart).

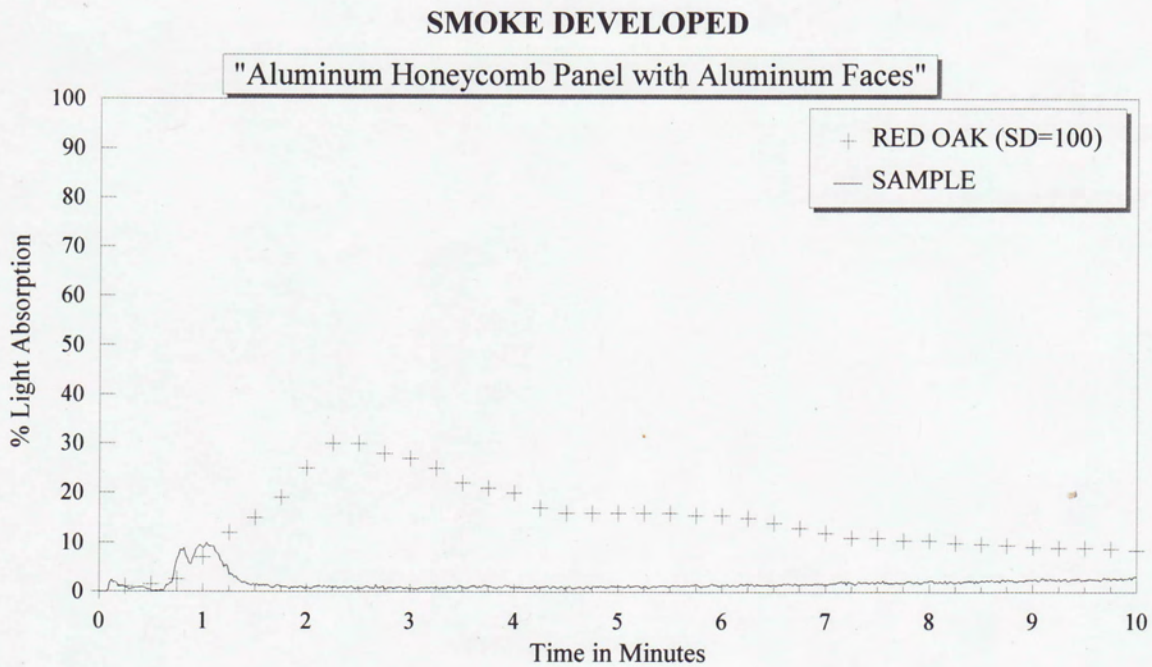
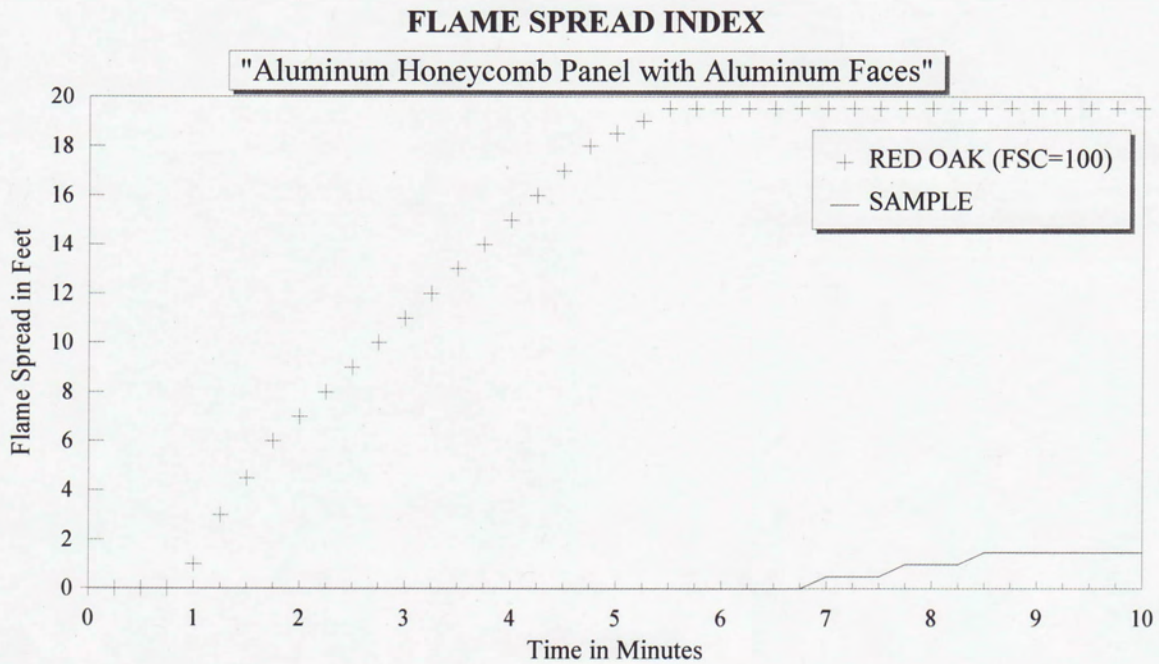
Authorities having jurisdiction usually refer to these categories:

	<u>Flame-Spread Index</u>	<u>Smoke Development</u>
Class 1 or A	0 - 25	450 Maximum
Class 2 or B	26 - 75	450 Maximum
Class 3 or C	76 - 200	450 Maximum


Robert A. Carleton,
Fire Testing.


Ian Smith,
Fire Testing.

Note: This report consists of 4 pages, including the cover page, that comprise the report "body". It should be considered incomplete if all pages are not present.



FSI
<5

SD
25