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Testing, calibrating, advising

## ASTM E 84 Surface Burning Characteristics of "Modelpan" Board Material

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4 Pages

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**ACCREDITATION** To ISO/IEC 17025 for a defined Scope of Testing by the International Accreditation Service

### **SPECIFICATIONS OF ORDER**

Determine the Flame Spread and Smoke Developed Indices based upon a single test conducted in accordance with ASTM E 84-16, as referenced in ICC ES AC 386, Section 3.1.11, as per Exova Building Science Project No.: 16-06-P0117 (R), Exova Work Order No. 536108, and Exova Proposal No. 16-006-401691 Rv 6 (M).

*Note: This report supersedes 16-002-526, originally issued on September 30, 2016. It is revised herein by request, to amend the report title (Sample Identification) and contact details.*

### **SAMPLE IDENTIFICATION**

(Exova sample identification number 16-06-P0117)

Board material, described as; "a fire protective glass fiber reinforced magnesium-oxide board material", identified as: "Modelpan"

### **TEST PROCEDURE**

The method, designated as ASTM E 84-16 "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 test specimen consisted of a total of 7 sections of material, each approximately 0.5 inches (13 mm) in thickness by 21.5 inches (546 mm) in width by 43.25 inches (1099 mm) in length. The sections were butted together end-to-end to create the requisite specimen length. Prior to testing, the specimen was conditioned to constant weight at a temperature of 73 ± 5°F (23 ± 3°C) and a relative humidity of 50 ± 5%. During testing, the specimen was self-supporting.

The testing was performed on: 2016-09-30

### **SUMMARY OF TEST PROCEDURE**

The tunnel is preheated to 150 ± 5°F (66 ± 2.8°C), as measured by the floor-embedded thermocouple located 23.25 feet (7087 mm) downstream of the burner ports, and allowed to cool to 105 ± 5°F (40.5 ± 2.8°C), as measured by the floor-embedded thermocouple located 13 feet (3962 mm) 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 (7315 mm) long, 12 inches (305 mm) above the floor. Three 8 foot (2438 mm) sections of 0.25 inch (6 mm) cement board are then placed on the back side of the sample end-to-end, to protect the tunnel lid, and the lid is then lowered into place.

**SUMMARY OF TEST PROCEDURE (continued)**

Upon ignition of the gas burners, the flame spread distance is observed and recorded every second. Flame spread distance versus time is plotted. Calculations ignore all flame front recessions and Flame Spread Index (FSI) is determined by calculating the total area under the curve for the test sample. If the area under the curve (A) is less than or equal to 97.5 min·ft, then  $FSI = 0.515 \cdot A$ ; if greater,  $FSI = 4900/(195 \cdot A)$ . FSI is then rounded to the nearest multiple of 5.

Smoke Developed (SD) is determined by dividing the total area under the obscuration curve by that of red oak, and multiplying by 100. SD is then rounded to the nearest multiple of 5 if less than 200. SD values over 200 are rounded to the nearest multiple of 50.

**TEST RESULTS**

<u>SAMPLE</u>	<u>Flame Spread Index (FSI)</u>	<u>Smoke Developed Index (SDI)</u>
"Modelpan"	0	5

**Observations of Burning Characteristics**

- The specimen did not ignite. Discoloration was observed in the test flame impingement area.

**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

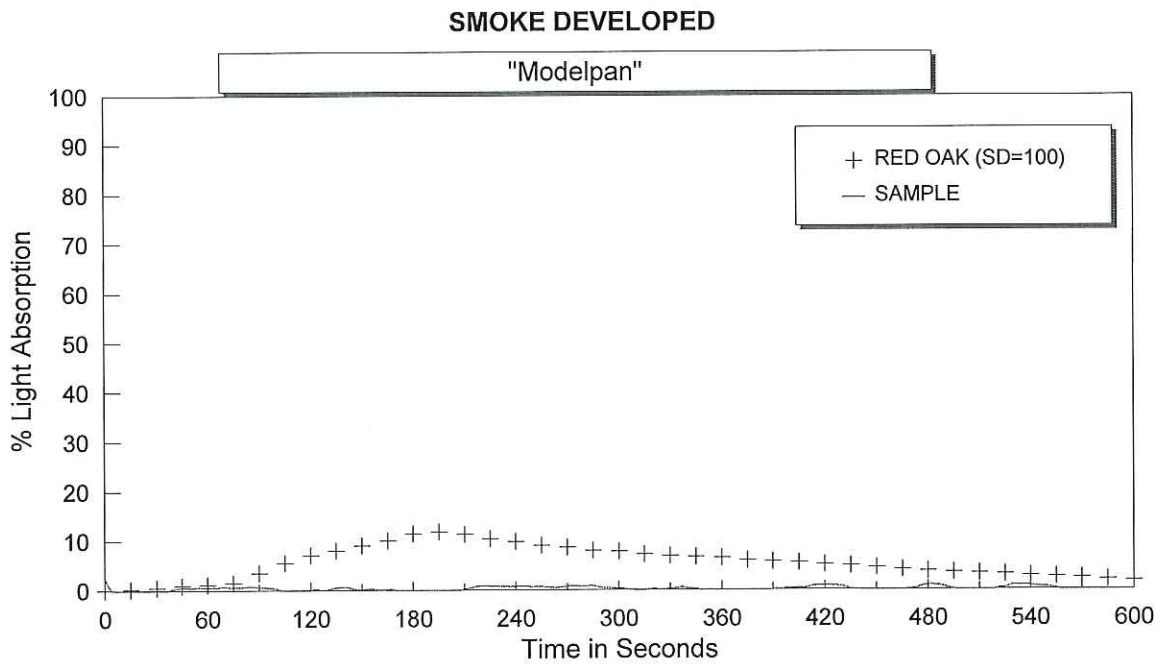
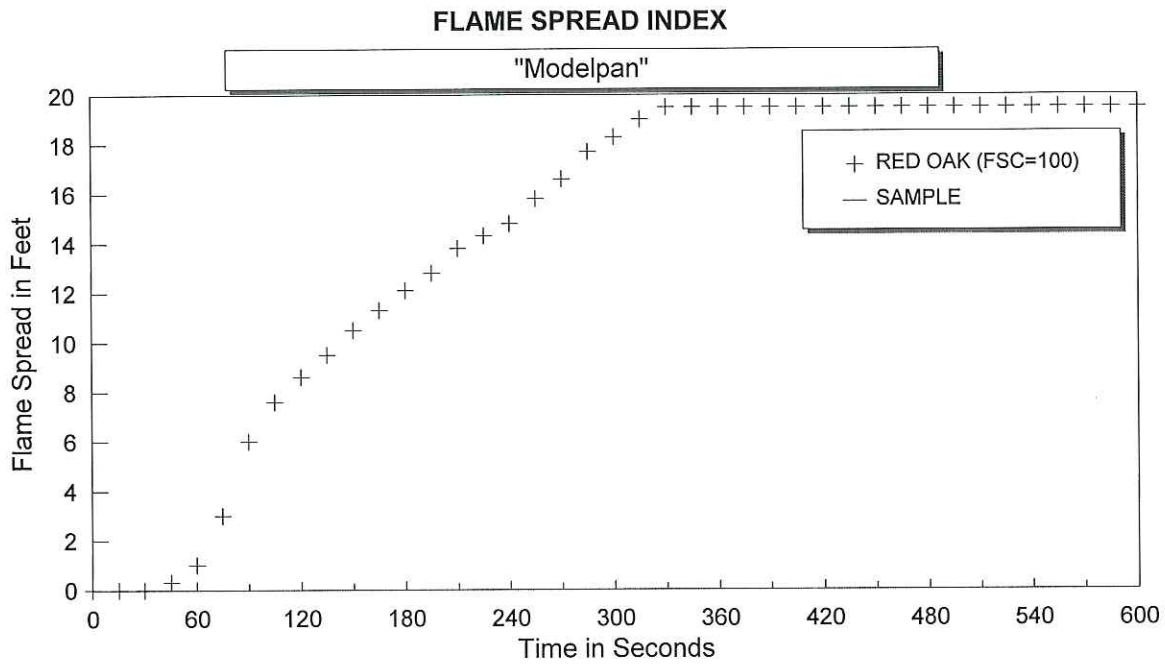


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**Flame Spread  
Index (FSI)**  
0

**Smoke Developed  
Index (SDI)**  
5

**Maximum Air  
Temperature (°F)**  
530