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**ASTM E 84 Surface Burning Characteristics
of "Primacoustic" Ceiling Tile**

A Report To: **Radial Engineering Ltd.**
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Submitted by: Fire Testing

Report No. 08-002-854
4 Pages

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REGISTRATION ISO 9001:2000, registered by QMI, Registration #001109.

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 our Quotation No. 08-002-7511 accepted October 23, 2008.

SAMPLE IDENTIFICATION (Bodycote sample identification number 08-002-S0854)

Ceiling tile material identified as: "Brand: Primacoustic; Model: Thunder Tile".

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, which consisted of 12 sections of the ceiling tile material, each approximately 24 inches in length by 21 inches in width by 1 inch in thickness, was conditioned at a temperature of $73 \pm 3^{\circ}\text{F}$ and a relative humidity of $50 \pm 5\%$ prior to testing. During testing the sample was self-supporting.

The testing was performed on: 2008-11-03

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.

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. If the area under the curve (A) is less than or equal to 97.5 min·ft, FSI = 0.515·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>
"Brand: Primacoustic; Model: Thunder Tile"	5	15

Observations of Burning Characteristics

- The sample began to propagate flame approximately 0.75 minutes after exposure to the test flame.
- The flame front propagated to a maximum distance of 1 foot at approximately 1.75 minutes and receded to the baseline by approximately 4 minutes. Some delamination was observed in the latter stages of the test.
- Smoke Developed was recorded during the test, coinciding with flaming involvement (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

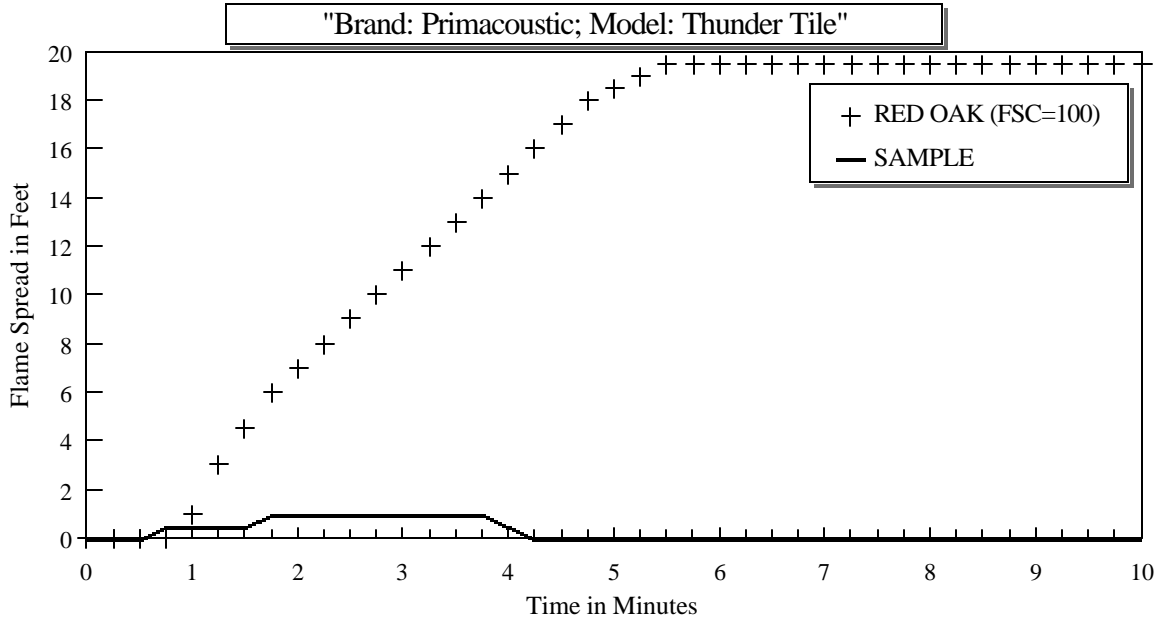
Note: This is an electronic copy of the report. Signatures are on file with the original report.

Robert A. Carleton,
Fire Testing.

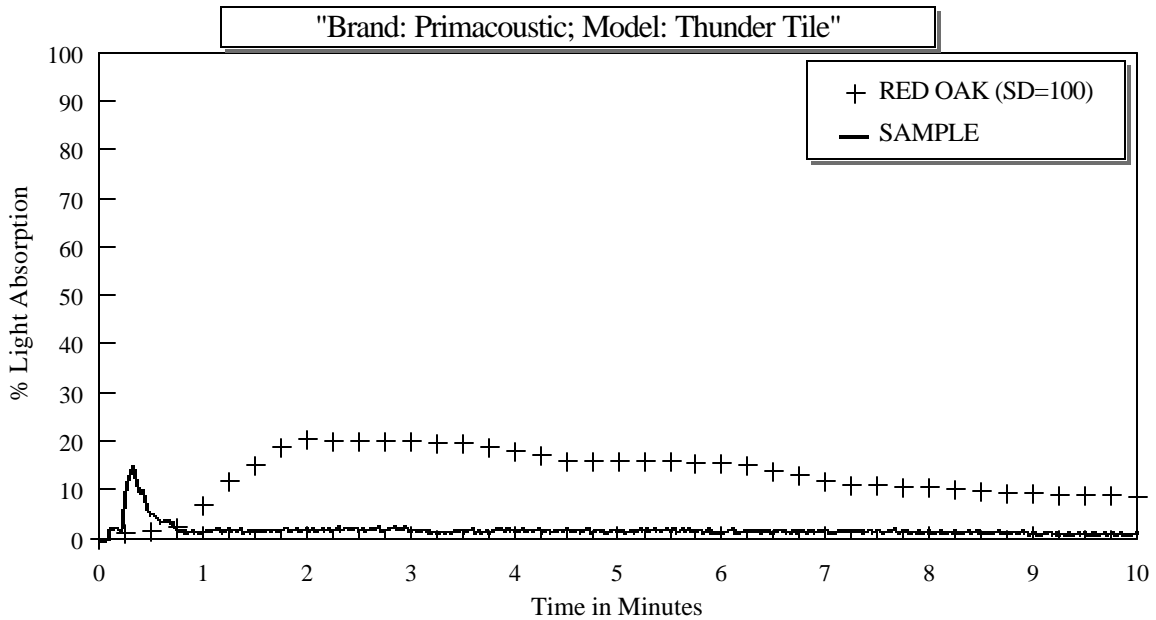
Ian Smith,
Fire Testing.

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.

FLAME SPREAD INDEX



SMOKE DEVELOPED



FSI
5

SD
15