Acoustical Surfaces, Inc.
We identify and
S.T.O.P
Your Noise Problems
Sound Transmission Obscuring Products
Soundproofing, Acoustics,
Noise & Vibration
Control Specialists
™

# Acoustical Surfaces, Inc.

**SOUNDPROOFING, ACOUSTICS, NOISE & VIBRATION CONTROL SPECIALISTS**

123 Columbia Court North • Suite 201 • Chaska, MN 55318
(952) 448-5300 • Fax (952) 448-2613 • (800) 448-0121

Email: sales@acousticalsurfaces.com
Visit our Website: www.acousticalsurfaces.com

## We Identify and S.T.O.P. Your Noise Problems

ASTM E-84 TESTING
FOR MANUFACTURER,
RENDERED TO:
Acoustical Surfaces Inc.
123 Columbia Court North, Suite 201
Chaska, MN 55318
Noise S.T.O.P. Fabrisorb™
Acoustical Wall Panels
VTEC #100-1617
TESTED: OCTOBER 3, 2002

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VTEC Laboratories Inc.

October 30, 2002

Client: Rendered by Manufacturer for:
Acoustical Surfaces Inc.
123 Columbia Court North, Suite 201
Chaska, MN 55318

Subject: Determine Surface Burning Characteristics per ASTM E84
Twenty-Five Foot Tunnel Test Method.

**DISCLAIMER:**

*This is a factual report of the results obtained from the laboratory test of sample products. The results may be applied only to the products tested and should not be construed as applicable to other similar products of the manufacturer. The report is not a recommendation or disapprobation by VTEC Laboratories Inc., of the material tested. While this report may be used for obtaining product acceptance, it may not be used in advertising.*

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VTEC #100-1617 ASTM E84

## I. SCOPE

This report contains the reference to the test method, purposes, test procedure, rounding procedures, preparation, and conditioning of specimens, descriptions of materials, test and post test observation data, and test results.

## II. TEST METHOD

The test was conducted in accordance with ASTM E84, “Standard Test Method for Surface Burning Characteristics of Building Materials”. The 25-foot tunnel method is also described by NFPA 255 and UL 723.

## III. PURPOSE

The purpose of the test is to determine the relative performance of the test material under standardized fire exposure. Results are given for Flame Spread and Smoke Developed Index. The values obtained from burning the test material represent a comparison with that of 1/4" inorganic reinforced cement board expressed as zero and red oak flooring expressed as 100.

The flame spread results of 25-foot tunnel tests are frequently used by building code officials and regulatory agencies in the acceptance of interior finish material for various applications. The most widely accepted classification system is epitomized by the National Fire Protection Association Life Safety Code, NFPA101:

| | | | |
|---|---|---|---|
| Class A* | 0-25 | flame spread | 0-450 smoke developed |
| Class B* | 26-75 | flame spread | 0-450 smoke developed |
| Class C* | 76-200 | flame spread | 0-450 smoke developed |

*Class A, B, and C correspond to I, II, and III, respectively, in other codes such as UBC and BOCA.

This flame spread classification system is based on the premise that the higher the flame spread numbers, the greater the fire spread potential. The actual relationship between the numbers developed under this test and life safety from fire has not been adequately established.

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## IV. TEST PROCEDURE NOTES

The furnace was preheated to a minimum of 150°F as measured by an 18 AWG thermocouple embedded in cement 1/8" below the floor surface of the chamber, 23-1/4' from the centerline of the ignition burners. The furnace was then cooled to 105°F (±5°F) as measured by a thermocouple embedded 1/8" below the floor surface of the test chamber 13' from the fire end.

Prior 10-minute tests with 1/4" inorganic reinforced cement board provided the zero reference for flame spread. Periodic 10-minute tests with unfinished select grade red oak flooring provided for the 100 reference for flame spread and smoke developed as noted in Section III.

### A. Flame Spread

The flame spread distance is observed and recorded at least every 15 seconds or every 2 feet of progression. The peak distance is noted at the time of occurrence. The flame spread distance is plotted over time. The total area under the flame spread distance-time curve is determined; flame front recessions are ignored. The flame spread is then calculated as a function of the area under the curve relative to the standard red oak curve area. The value for flame spread classification for the tested material may be compared with that of inorganic reinforced cement board and select grade red oak flooring.

### B. Smoke Developed

The smoke developed during the test is determined by the reduction in output of a photoelectric cell. A light beam vertically oriented across the furnace outlet duct is attenuated by the smoke passing through the duct. The output of the photoelectric cell is related to the obscuration of the light source through the duct caused by the smoke. A curve is developed by plotting photoelectric cell output against time. The value of smoke developed is derived by calculating the net area under the curve for the test material and comparing this area with the net area under the curve for unfinished select grade 23/32" red oak flooring.

## V. FLAME SPREAD AND SMOKE DEVELOPED ROUNDING PROCEDURES

Single test calculated flame spread and smoke developed values are rounded to the nearest multiple of 5 and reported as flame spread or Smoke Developed Index. Actual test values are available upon request.

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### VI. PREPARATION AND CONDITIONING OF TEST SAMPLES

Three or four sections are generally used in the preparation of a complete test specimen that is 20.5" wide and 24' long. Materials 8' in length may be tested by using three sections 20.5" wide. A 14" length of uncoated 16 gauge steel sheet is used to make up the remainder of the test specimen; it is placed at the fire end of the test chamber. Test specimens are conditioned at a controlled temperature of 73.4°F (±5°F) and a controlled relative humidity of 50±5 percent.

### VII. MATERIAL TESTED

| | | |
|---|---|---|
| 1) | Supplier: | |
| 2) | Burn Number: | 1 |
| 3) | Average Thickness (in.): | 2.029 |
| 4) | Average Weight (psf): | 1.20 |
| 5) | Average Groove Depth: | N/A. |
| 6) | Product Description: | S-2000 Acoustic Wall Panels |
| 7) | Color: | Light Blue |
| 8) | Surface: | Face side exposed |
| 9) | Sample Selection: | Supplier |
| 10) | Date of Selection: | September, 2002 |
| 11) | Material Description by: | Supplier |
| 12) | Method of Mounting: | Self Supporting on Ledges |
| 13) | Sample Conditioning (days): | 16 |

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### VII. MATERIAL TESTED

| | | |
|---|---|---|
| 1) | Specimen Preheat Time (min): | 2:00 |
| 2) | Tunnel brick Temp. (deg. F): | 104 |
| 3) | Ignition Time (seconds): | 11 |
| 4) | Time to End of Tunnel or Flamefront Distance: | 3' @ 0:15 |
| 5) | Time-Distance Curve Area (min./ft.): | 30.3 |
| 6) | Fuel and Temperature:<br>a) Fuel (cu. ft./min.):<br>b) Max. Vent end Temp (deg. F)<br>c) Time to Max. Temp. (min.): | 4.858 |
| 7) | After Flaming: | No |

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**TEST RESULTS**

Test results calculated on the basis of the areas under the curves of flame spread distance, temperature, and smoke density versus time are provided in the table below for calibration materials and for:

**Acoustic Wall Panels**

| Material Description | Flame Spread Index | Smoke Developed Index |
|---|---|---|
| High Density Inorganic | 0 | 0 |
| Red Oak Flooring | 100 | 100 |
| S-2000 Acoustic Wall Panels | 15 | 40 |

**OBSERVATIONS:** Fabric consumed exposing fiber core to 14 feet.

**REMARKS:** Melting and dripping. Fabric melting away in advance of the flame front. No burning on the tunnel floor.

**CONCLUSIONS:** Based on one test, the Flame Spread Index, calculated according to ASTM E84 meets Class A (Class I) - 25 or under flame spread.

Neil Schultz
Executive Director

Amirudin Rahim
Technical Director

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Test No. T- 11036
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