ASTM E84 - 01 ADHERED SURFACE BURNING CHARACTERISTICS

Elan 6016

REPORT NO. 10440

July 1, 2003

Prepared For:
Pollack
150 Varick Street
New York, NY 10013
TEST MATERIAL:       Elan 6016

TEST STANDARD:       ASTM E84 Standard Test Method for SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (ANSI 2.5, NFPA 255, UBC 42-1, UL 723)

TEST DATE:           July 1, 2003

TEST RESULTS:        FLAME SPREAD INDEX       15
                      SMOKE DEVELOPED INDEX       0

According to the standard classification system cited by building codes, this fabric is:

Class 1 or A

Standard Classification System:

<table>
<thead>
<tr>
<th>Class</th>
<th>Flame Spread Index</th>
<th>Smoke Development Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or A</td>
<td>0 - 25</td>
<td>450 maximum</td>
</tr>
<tr>
<td>2 or B</td>
<td>26 - 75</td>
<td>450 maximum</td>
</tr>
<tr>
<td>3 or C</td>
<td>76 - 200</td>
<td>450 maximum</td>
</tr>
</tbody>
</table>

Class A, B and C corresponds to Type I, II and III respectively in other codes such as SBCCI, BOCA and ICBO. They do not preclude a material being otherwise classified by the authority of jurisdiction.

The description of the test procedure and specimen evaluated, as well as the observations and results obtained, contained herein are true and accurate within the limits of sound engineering practice. These test results were obtained from an outside source. A copy of the original document is kept on file at Applied Textiles.
I. INTRODUCTION

This report is a presentation of results of a surface flammability test on a material submitted by customer. The test was conducted in accordance with the American Society for Test and Materials fire test response standard E84-00a, Surface Burning Characteristics of Building Materials, sometimes referred to as the Steiner tunnel test. This test is applicable to exposed surfaces such as walls and ceilings. The test is conducted with the specimen in the ceiling position with the surface to be evaluated exposed face down to the ignition source. The method, which is similar to NFPA No. 255 and UL No. 723, is an American National (ANSI) Standard and has been approved for use by agencies of the Department of Defense for listing in the DoD Index of Specifications and Standards.

This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of materials, products, or assemblies under actual fire conditions.

This test method is also published under the following designations:

- ANSI 2.5
- NFPA 255
- UBC 42-1
- UL 723

(1) American Society for Testing and Materials (ASTM), Committee E-5 on Fire Standards
II. PURPOSE

The purpose of the test is to provide only the comparative measurements of surface flame spread and smoke development of materials with that of select grade red oak and reinforced cement board under specific fire exposure conditions. The test exposes a nominal 24-foot long by 20-inch wide test specimen to a controlled airflow and flaming fire adjusted to spread the flame along the entire length of a red oak specimen in 5.50 minutes. During the 10-minute test duration, flame spread over the specimen surface and density of the resulting smoke are measured and recorded. Test results are calculated relative to red oak, which has an arbitrary rating of 100, and reinforced cement board, which has a rating of 0.

The test results are expressed as Flame Spread Index and Smoke Developed Index. The Flame Spread Index is defined in ASTM E 176 as “a number or classification indicating a comparative measure derived from observations made during the progress of the boundary of a zone of flame under defined test conditions.” The Smoke Developed Index, a term specific to ASTM E-84, is defined as “a number or classification indicating a comparative measure derived from smoke obscuration data collected during the test for surface burning characteristics.” There is not necessarily a relationship between the two measurements.

The method does not provide for measurement of heat transmission through the surface tested, the effect of aggravated flame spread behavior of an assembly resulting from the proximity of combustible walls and ceilings, or classifying a material as noncombustible solely by means of a Flame Spread Index.

The zero reference and other parameters critical to furnace operation are verified on the day of the test by conducting a 10-minute test using ¼-inch reinforced cement board (GRC). Periodic tests using NOFMA certified 23/32-inch select grade red oak flooring provide data for the 100 reference.

III. DESCRIPTION OF TEST SPECIMENS

Specimen Identification: Elan 6016

Date Received: June 19, 2003
Mounting Method:
Three test panels, each measuring 2 feet wide by 8 feet in length, were prepared by adhering the material to a 1/4" thick GRC board using Sairmax 7 High Temperature Bonding Mortar. The adhesive was applied to the smooth side of the GRC board, the material placed into the adhesive, and smoothed with a brush and roller. After dead stacking overnight, the prepared test samples were transferred to storage racks and conditioned to equilibrium in an atmosphere with the temperature maintained at 71 ± 2°F and the relative humidity at 50 ± 5 percent. This method of sample preparation is described in Appendix X1 of the E84 standard, Guide to Mounting Methods, Section X1.1.2.2 and X1.1.2.3.

IV. TEST RESULTS

The test results, calculated on the basis of observed flame propagation and the integrated area under the recorded smoke density curve, are presented below. The Flame Spread Index obtained in E84 is rounded to the nearest number divisible by five. Smoke Developed Indices are rounded to the nearest number divisible by five unless the Index is greater than 200. In that case, the Smoke Developed Index is rounded to the nearest 50 points. Flame Spread and Smoke Development data are presented graphically in the computer printout at the end of this report.

<table>
<thead>
<tr>
<th>Test Specimen</th>
<th>Flame Spread Index</th>
<th>Smoke Developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRC Board</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Red Oak Flooring</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Elan 6016</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
</table>

The data sheets are included in the Appendix. These sheets are copies of the actual printouts of the computerized data system, which monitors the ASTM E84 apparatus, and contain all calibration and specimen data needed to calculate the test results.
APPENDIX

ASTM E84 DATA SHEET

FABRIC: "Elan 6016"

DATE: 7-1-03
PROJECT NUMBER: 10440

<table>
<thead>
<tr>
<th>TEST RESULTS</th>
<th>FLAMESPREAD INDEX</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SMOKE DEVELOPED INDEX</td>
<td>0</td>
</tr>
</tbody>
</table>

SPECIMEN DATA

| TIME TO IGNITION | 00.73 (MIN) |
| MAXIMUM FS       | 03.65 (FEET) |
| TIME TO MAX FS   | 05.73 (MIN)  |
Client: Applied Textiles
Test Number: 3455-5820
Material Tested: Elan 6016
Date: July 1, 2003

Test Results:

- Time to Ignition = 00.73 minutes
- Maximum Flamespread Distance = 03.65 feet
- Time to Maximum Spread = 05.73 minutes

- Flame Spread Index = 15
- Smoke Developed Index = 0