APPLIED TEXTILES
LAB SERVICES

ASTM E84 - 99 ADHERED SURFACE BURNING CHARACTERISTICS

SPANK 9901/01

REPORT NO. 75157

Septemer 11, 2000

Prepared For:
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ABSTRACT

TEST MATERIAL:	SPANK 9901/01
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:	SEPTEMER 11, 2000
TEST RESULTS:	**FLAME SPREAD INDEX 20** **SMOKE DEVELOPED INDEX 0**

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

Class A or 1

Standard Classification System:

Class	Flame Spread Index	Smoke Development Rating
1 or A	0 - 25	450 maximum
2 or B	26 - 75	450 maximum
3 or C	76 - 200	450 maximum

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.

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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 E84-98, *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 should be used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions and should not be used to describe or appraise the fire-hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of the test may be used as elements of a fire hazard assessment or a fire risk assessment, which takes into, account all of the factors which are pertinent to an assessment of the fire hazard or fire risk of a particular end use.

This test method is also published under the following designations:

ANSI 2.5
NFPA 255
UBC 42-1
UL 723

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

II. PURPOSE

The purpose of the test is to determine the comparative surface-burning behavior of a material by observing the flame spread along the surface of the specimen. It is intended to provide comparative measurements of surface flame spread and smoke development of materials with that of a select grade red oak and inorganic fiber reinforced cement (GRC) 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, flamespread 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 GRC 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 GRC board. 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: **SPANK 9901/01**

Date Received: 8/22/00

Adhesive or coating application rate: 280-sq. ft./gal. Sairmix 7 high temp bonding mortar.

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 fabric 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 X1.9.1.

IV. TEST RESULTS

The test results computed on the basis of observed flame front advance and electronic smoke density measurements are presented in the following table. In recognition of possible variations and limitations of the test method, the results are computed to the nearest number divisible by five, as outlined in the test method.

While no longer a part of this standard test method, the Fuel Contributed Value has been computed, and may be found on the computer print sheet in the Appendix.

Test Specimen	Flame Spread Index	Smoke Developed
GRC Board	0	0
Red Oak Flooring	100	100
SPANK 9901/01	**20**	**0**

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.

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APPENDIX

ASTM E84 DATA SHEET

FABRIC: "SPANK 9901/01"

DATE: 09-11-00
PROJECT NUMBER: 75157

TEST RESULTS:	**FLAMESPREAD INDEX**	**20**
	SMOKE DEVELOPED INDEX	**0**

SPECIMEN DATA

TIME TO IGNITION	00.20 (MIN)
MAXIMUM FS	03.78 (FEET)
TIME TO MAX FS	00.73 (MIN)
TIME TO 980°F	980°F NOT REACHED

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ASTM E 84 TEST DATA

Material Tested: Spank 9901/01
Date: September 11, 2000

Test Results:

Time to Ignition	=	00.20 minutes
Maximum Flamespread Distance	=	03.78 feet
Time to Maximum Spread	=	00.73 minutes
Flame Spread Index	=	20
Smoke Developed Index	=	0