COMMERCIAL TESTING COMPANY

Standard Test Method for
SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS

ASTM E 84-91a

Material Tested: Sound Absorbent Wedges

Report Number 95956

Test Number 2511-0886
November 30, 1993

Prepared for:

USA Foam
Indianapolis, Indiana

COMMERCIAL TESTING COMPANY

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INTRODUCTION:

This report represents test results on a material submitted for testing by USA Foam of Indianapolis, Indiana.

The test was conducted in accordance with the American Society for Testing and Materials Standard Test Method for "Surface Burning Characteristics of Building Materials," E 84-91a, also known as the Steiner Tunnel Test. This method is similar to ANSI 2.5, NFPA No. 255, UBC No. 42-1, and UL No. 723. This method has been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards.

The E 84 standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions. It should not be used for the appraisal, description, or regulation of the fire hazard or fire risk of the materials. No consideration is made for results that may be obtained if the material being evaluated were tested in combination with other materials.

In the light of present knowledge, fire performance of any material cannot be evaluated on the basis of one test. However, results of this test may be used as one element of a fire risk assessment that takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

PURPOSE:

The purpose of the test is to determine the relative 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 select grade red oak and inorganic fiber reinforced cement board under specific fire exposure conditions. The test exposes a nominal 24-feet long by 21-inches wide specimen to a controlled air flow and flaming fire adjusted to spread the flame along the entire length of a red oak specimen in 5½ minutes during a 10-minute test duration while flamespread over its surface and density of the resulting smoke are measured and recorded. Test results are calculated relative to the red oak specimen, which has an arbitrary rating of 100, and the cement board, which has a rating of 0. The test results are expressed as Flamespread Index and Smoke Density. However, there is not necessarily a relationship between these two measurements.

TEST PROCEDURE:

The test specimens, selected and identified by the Client, were conditioned to equilibrium in an atmosphere with the temperature maintained between 69°F and 73°F, and the relative humidity between 47 and 53 percent. The zero reference and other parameters critical to furnace operation were verified by conducting a 10-minute burn using ¼-inch cement board. Periodic tests

using NOFMA certified select grade red oak flooring provided data for the 100 reference. The test specimens were then tested in accordance with test method procedures.

TEST SAMPLE:

Material Identification: Sound Absorbent Wedges
Type Material: Polyurethane Foam
Description:

Six test panels were submitted for testing. The foam samples measured 2 feet wide by 4 feet long. The material had a pyramid (wedge) shaped surface measuring 2 inches thick.

Mounting Procedure:

The test samples were placed end-to-end on the ledges of the tunnel furnace supported by ½-inch diameter steel rods placed on 2-foot centers. This method of sample support is described in Appendix X1 of the standard, Guide to Mounting Methods, Section X1.1.6.

TEST RESULTS:

Test results, calculated on the basis of observed flame propagation and the integrated area under the recorded smoke density curve, are presented below. In recognition of possible variations due to limitations of the test method, the results are rounded to the nearest number divisible by five. Graphic presentation of flame spread and smoke development data is presented in the computer generated graph at the end of the report.

Test Specimen	FLAMESPREAD INDEX	SMOKE DENSITY
GRC Board	0	0
Red Oak	100	100
Sound Absorbent Wedges	50	260

OBSERVATIONS:

Specimen ignition over the burners was noted at 0.12 minutes into the test with a maximum flame spread distance of 10.15 feet recorded at 0.74 minutes. The maximum temperature recorded during the test was 443°F.

.....ASTM E 84 TEST DATA.....

CLIENT: USA FOAM
TEST NUMBER: 2511-0886
MATERIAL TESTED: SOUND ABSORBENT WEDGES
DATE TESTED: 30 NOVEMBER 1993

TEST RESULTS:

TIME TO IGNITION = 0.12 minutes
MAXIMUM FLAMESPREAD DISTANCE = 10.15 feet
TIME MAXIMUM SPREAD = 0.74 minutes

FLAMESPREAD INDEX = 50
SMOKE DENSITY INDEX = 260