



# COMMERCIAL TESTING COMPANY

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Standard Test Method for  
SURFACE BURNING CHARACTERISTICS  
OF BUILDING MATERIALS

ASTM E 84-91a

Material Tested: Tek Wall 1000

Report Number 89770


Test Number 2383-4866

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Prepared for:

Mastercraft  
Spindale, North Carolina

COMMERCIAL TESTING COMPANY



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## INTRODUCTION:

This report represents test results on a material submitted for testing by Mastercraft of Spindale, North Carolina

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.

These test results represent only the sample tested and are not necessarily indicative of apparent identical or similar materials. All test data are on file and available for review by authorized persons.

## PURPOSE:

The purpose of this test method 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-foot 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 5 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



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on the day of the test by conducting a 10-minute burn using 1/2-inch cement board. Periodic tests using NQFMA 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 SPECIMENS:

Identification: Tek Wall 1000

#### Construction:

Warp: 10.2 Olefin

Fill: 2400 d Olefin

EPI: 25

PPI: 16

Finish: Acrylic and Fluorochemical

Weight: 10.4 ounces per square yard

#### Mounting:

Three specimens each measuring 2 feet by 8 feet were prepared by adhering the fabric to 1/4-inch GRC board using Salmix 7 Adhesive. The adhesive was spread onto the board using a 1/32 x 1/32 x 1/32 notched trowel, the fabric placed onto the board, and smoothed with a roller to assure proper bond. The prepared specimens were stored in an atmosphere maintained between 69 and 73°F and 47 to 53 percent relative humidity for 8 days.

#### 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. Data for flame spread and smoke development are shown as solid lines on the computer generated graph at the end of the report.

Test Specimen	FLAMESPREAD	SMOKE
	INDEX	DENSITY
GRC Board	0	0
Red Oak	100	100
Tek Wall 1000	15	10

#### OBSERVATIONS:

Specimen ignition was recorded at 3.90 minutes with a maximum flame spread distance of 5.0 feet at 7.48 minutes. The maximum temperature recorded during the test was 584°F.



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