



HPVA LABORATORIES

42777 Trade West Drive, Sterling, VA 20166 703-435-2900

Report On
Surface Burning Characteristics of Building Materials
As Determined By
ASTM E84 Test Method

Prepared For:

Test Number:

Date of Issue:



ACCREDITED®

Testing
Laboratory

TL - 224



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I. SCOPE

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

II. TEST METHOD

The test was conducted in accordance with ASTM E 84-19b, "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 and select grade red oak flooring.

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 International Code Council (ICC) and National Fire Protection Association (NFPA) Life Safety Code, NFPA 101:

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 historical 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.

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 are used to calibrate the tunnel for flame spread. HPLC grade heptane is used to calibrate the tunnel's smoke system.

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 orientated 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 HPLC grade liquid heptane.

V. FLAME SPREAD RATING AND SMOKE DEVELOPED CLASSIFICATION

Single test calculated flame spread and smoke developed values are averaged and rounded to the nearest multiple of 5 and reported as the Flame Spread Index and Smoke Developed Index.

VI. PREPARATION AND CONDITIONING OF TEST SAMPLES

Three or four sections are generally used in the preparation of a complete test specimen which is 20" - 24" wide and 24' long. Materials 8' in length may be tested by using three sections 20" - 24" wide by 8' long for a total specimen length of 24'. 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. Prior to testing, three 8' long sections of 1/4" inorganic reinforced cement board are placed on the back side of the specimens to protect the furnace lid assembly. Test specimens are conditioned at a controlled temperature of 73.4 ± 5°F and a controlled relative humidity of 50 ± 5 percent.

VII. LABORATORY ACCREDITATION

HPVA Laboratories is an internationally accredited testing laboratory according to ISO/IEC 17025 and recognized by state and local building code jurisdictions. International Accreditation Service (IAS) Accredited Testing Laboratory Number: TL-224.



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Test Number:**Test Date:****Report Prepared For:****Material Tested:****Sample Information:****Detailed Product
Description:****Mounting Method:****Sample Selection:****Surface Exposed:****Average Thickness (in.):****Conditioning Days:****Sample Color:****Total Weight (lbs.):****Test Results****Ignition Time (seconds):****Flame Spread Index:****Max. Temperature (F):****Smoke Developed Index:****Max. Flame Spread Distance (ft):****Class Rating:****Observations:****Remarks:****Test Operator:****Reader:**

Report Prepared By:

Report Reviewed By:

Laboratory Technician II - Fire Testing

Sr. Manager of Product Testing

This is a factual report of the results obtained from laboratory tests 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. HPVA Laboratories does not verify the description of the materials and products when the description is provided by the client. This report is not a recommendation or a disapprobation by HPVA Laboratories of the material or product tested. While this report may be used for obtaining product acceptance, it may not be used in advertising.



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Appendix:

November 27, 2019

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The specimens are fabricated in accordance with ASTM E-2573 Standard for Specimen Preparation and Mounting of Site-Fabricated Stretch Systems to Assess Surface Burning Characteristics under ASTM E-84.

Product:

1" Novawall Radius Edge and Midwall Track

This sample is being submitted by:

Novawall Systems, Inc.
881 South Pickett Street
Alexandria, VA 22302
703-461-0113 Phone
703-461-0436 Fax

The test conducted was the ASTM E-84 (Twenty-Four Foot Tunnel Furnace Test Method) in accordance with ASTM E-2573.

Product Description:

1" (25mm) Radius Edge Track Panels. The test specimen was fabricated in three 8' lengths by 24" wide panels or sections. Each section consisted of a sheet of 5/8" thick drywall to which a complete 1" (25mm) thick Novawall Radius Edge and Midwall track assembly were attached by mechanical fastener. The Radius Edge track dimensions are 1" (25mm) tall by 1" (25mm) wide by 8' (2438.4mm) long installed at the perimeter edges of each section. The Radius Midwall track dimensions are 1" (25mm) tall by 1.5" (38.1mm) wide by 8' (2438.4mm) long installed centered on each panel or section.

At the perimeter of each panel or section, Radius Edge Track were attached. Radius Midwall extrusions were attached to the drywall substrate to create a joint condition centered longitudinally between the gas burners on each panel or section. The joint condition was included to comply with ASTM E-2573 Standard for Specimen Preparation and Mounting of Site-Fabricated Stretch Systems to Assess Surface Burning Characteristics. The procedure conditions used in the field must be included in a test if they may have an adverse effect on the test results. Midwall joint conditions are required in most Novawall installations.

The cells or areas, bounded by the extrusions were filled by a 1" (25mm) thick layer of 6PCF Rigid Fiberglass core attached by mechanical fasteners. The fabric used was Guilford of Maine FR701 Fabric made with Terratex (100% recycled polyester), sold by Guilford of Maine. The fabric was installed as sold by Guilford of Maine, without treatment.