Test Results | THERMORY® Radiata Pine
Fire Rating

Fire Rating

TESTED

- The rate of fire spread and smoke production in THERMORY® Radiata Pine.

RESULTS

- Class C was achieved, which is comparable to kiln-dried Red Oak.

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TEST REPORT

FOR

Thermory USA, LLC

1213 Wilmette Avenue
Wilmette, IL 60091

]

Standard Test Method for
Surface Burning Characteristics of Building Materials
ASTM E84 – 21a

Test Report No: FH-3019

Assignment No: H-1573

Test Date: 04/04/2022

Report Date: 04/11/2022

Subject Material: 0.79" x 5.5" Benchmark Clear Pine C19 Cladding

Prepared by: _____

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Reviewed by: _____

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TEST REPORT REVISION HISTORY:

DATE	SUMMARY
April 11, 2022	Original issue date. Original NGCTS report FH-3019.

INTRODUCTION:

This report presents the results of a specimen tested in accordance with the requirements of ASTM E84-21a, Standard Test Method for Surface Burning Characteristics of Building Materials. This test method is also published under the designation UL 723.

The purpose of this test method is to determine the relative behavior of the material by observing the flame spread along the specimen. Flame spread and smoke developed indexes are reported. However, there is not necessarily a relationship between these two measurements.

This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled laboratory conditions. It should not alone be used for fire hazard or fire risk assessment of the materials, products, or assemblies under actual fire conditions.

TEST SPECIMENS:

A single thermally modified wood cladding specimen was submitted for testing, directly to NGC Testing Services (NGCTS), by the client. The test specimen, which was received by NGCTS on March 30, 2022, was identified by the client as:

0.79" x 5.5" Benchmark Clear Pine C19 Cladding

The submitted test specimen consisted of multiple tongue and groove boards of wood cladding, each measuring nominally 3/4 in. thick by 5-1/2 wide by 108 in. long. Upon receipt, the submitted wood cladding was placed in a conditioning room, with an atmosphere of 73.4 ± 5°F and 50 ± 5% relative humidity, to condition to equilibrium for five days prior to testing.

From the cladding boards submitted, NGCTS personnel constructed three test specimen decks per Standard Practice ASTM E2579. The constructed test specimen decks were each one board long and four boards wide, resulting in total deck sizes of nominally 21 in. wide by 75 in. and 108 in. long.

Three trimmed sections from the test specimen were taken, and the average moisture content was determined using the secondary oven-drying method (method B) in ASTM D4442, Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials. The calculated average moisture content of the test specimen was determined to be 3%.

MOUNTING METHOD:

The (3) constructed decks of the sectioned test specimen were placed directly on the tunnel ledges (smooth faces exposed to the burners) and butted tightly together, achieving the required specimen size. No additional support was required.

Non-combustible, fiber-reinforced cement board (1/4 in. thick) was placed over the back (i.e., unexposed) side of the test specimen decks as lid protection.

TEST RESULTS:

The test results, computed based on observed flame front advancement and electronic smoke density measurements, are presented in the tables below.

The reported flame spread and smoke developed indexes are the computed comparison to the standard calibration materials – mineral fiber-reinforced cement board, select grade red oak flooring and HPLC grade liquid heptane. The mineral fiber-reinforced cement board is used to establish relative 0 values for flame spread and smoke developed; the select grade red oak flooring is used to establish relative 100 value for flame spread; and the heptane is used to establish the area for calculation of smoke-developed index.

Test Specimen	Flame Spread Index (FSI)	Smoke Developed Index (SDI)
0.79" x 5.5" Benchmark Clear Pine C19 Cladding	115	95

TEST NO.	MATERIAL TESTED	SIDE EXPOSED	SUPPORT	CALCULATED FLAME SPREAD	CALCULATED SMOKE DEVELOPED
1	0.79" x 5.5" Benchmark Clear Pine C19 Cladding	Smooth Face	Self-Supporting	113.39	95.82

	MATERIAL TESTED	SIDE EXPOSED	SUPPORT	FLAME SPREAD INDEX (FSI)*	SMOKE DEVELOPED INDEX (SDI)*
	RED OAK FLOORING / HEPTANE	FINISHED / N/A	SELF-SUPPORTING	100	100
	REINFORCED CEMENT BOARD	SYMMETRICAL	SELF-SUPPORTING	0	0
1	0.79" x 5.5" Benchmark Clear Pine C19 Cladding	Smooth Face	Self-Supporting	115	95

* Flame Spread / Smoke Developed Index is the result (or the average of the results of multiple tests), rounded to the nearest multiple of 5. Smoke developed results in excess of 200 are rounded to the nearest multiple of 50.

CLASSIFICATION	FSI	SDI
CLASS A	0 - 25	0 - 450
CLASS B	26 - 75	0 - 450
CLASS C	76 - 200	0 - 450

The following data sheet is a printout from the data acquisition system which monitors the tunnel furnace. The data sheet contains all calibration and specimen data needed to calculate the test results.

NGC TESTING SERVICES
ACOUSTICAL • FIRE • STRUCTURAL • ANALYTICAL

Fire Testing Laboratory

TEST#: FH-3019 DATE: 4/4/2022

TEST METHOD: ASTM E84-21a

CLIENT: Thermory USA, LLC
PROJECT#: H-1573
SAMPLE: Benchmark Clear Pine C19 Cladding
MATERIAL: (1) 3/4" x 21" x 75", (2) 3/4" x 21" x 108" Decks
SUPPORT: Self-Supporting
REMARKS:
Ignition Time: 0:21
Max Flame Front:19.50 FT. @ 5:37

ADC DRAFT (IN. H2O)	0.080
GAS PRESS. (IN. H2O)	0.284
GAS VOL (CF)	49.99
BTU/cf	1021
SHUTTER (IN.)	3.00
TEMP. 13' BURIED	105 F
Flame Spread:	113.39
Area under Flame Curve (ft-min):	151.79

Smoke Developed: 95.82
Area under Smoke Curve (%A-min): 45.33

Flame Spread

Smoke Developed

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