



COMMERCIAL TESTING COMPANY

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Standard Method of Test for
Critical Radiant Flux of Floor-Covering Systems
Using a Radiant Heat Energy Source

ASTM International E648-17

Provence/Visan/Laudun/Sablet/St. Peray 5/8" 3-ply Oak Flooring

Report Number 19-03132

Test Number 5054-4079-0319R4
July 18, 2017

Rhone
Santa Fe Springs, California

Commercial Testing Company

(Authorized Signature)

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Since 1974

INTRODUCTION

This test report is a presentation of results of a flammability test on a material submitted by Rhone, Santa Fe Springs, California. The test was conducted in accordance with the ASTM International fire test response standard E648-17, *Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*. This method is sometimes referred to as the flooring radiant panel.

This test method, which has been approved for use by agencies of the Department of Defense and for listing in the DoD *Index of Specifications and Standards*, is technically identical to the method described in NFPA Number 253. It measures the critical radiant flux at flame-out of horizontally mounted complete flooring-covering systems that duplicate or simulate accepted installation practices. Tests on individual components are of limited value and are not valid for certification purposes.

This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of materials, products, or assemblies under actual fire conditions.

PURPOSE

The flooring radiant panel test measures the level of incident radiant heat energy at flame-out of a floor-covering system. It provides a basis for estimating one aspect of fire behavior of systems installed in corridors or exitways. Imposed radiant flux simulates thermal radiation levels likely to impinge on the floors of a building whose upper surfaces are heated by flames or hot gases, or both, from a fully developed fire in an adjacent room or compartment.

TEST PROCEDURE

A gas and air fueled radiant heat energy panel is mounted in the test chamber at a 30° angle to the horizontal plane of the specimen. The panel generates an energy flux distribution ranging along the length of the test specimen from a nominal maximum of 1.0 W/cm² to a minimum of 0.1 W/cm². Air flow through the chamber is controlled at a velocity of 250 feet per minute. The test is initiated using a gas pilot burner brought into contact with the specimen and extinguished after a specified time.

The floor-covering system, fully described in Table I, is tested in triplicate, each specimen measuring 20 cm wide by 100 cm long. Prepared specimens are conditioned a minimum of 96 hours in an atmosphere maintained at 71 ± 2°F and 50 ± 3% relative humidity. Chamber operating conditions are verified on the day of the test by measuring the flux level at the 40 cm mark. An incident flux level of 0.50 ± 0.02 W/cm² indicates proper operation and calibration of the test chamber.

Specimens are placed in the chamber and allowed to preheat for 5.0 minutes followed by a 5.0-minute application of the pilot burner. The specimens are allowed to burn until they self-extinguish, at which time they are removed from the test chamber and the farthest point of flame propagation measured. The critical radiant flux is determined from the flux profile determined during calibration of the test instrument.

TEST RESULT

The test result is presented as the average value of the three specimens tested expressed in terms of Critical Radiant Flux in units of W/cm². All pertinent individual specimen data are presented in Table II. The flux profile shown in the figure is typical of that determined during calibration of the flooring radiant panel instrument used for this test.

TABLE I. FLOOR COVERING SYSTEM

Floor Covering:

Identification: Provence/Visan/Laudun/Sablet/St. Peray 5/8" 3-ply Oak Flooring
 Type Material: T&G Flooring Planks
 Thickness: 5/8-inch
 Size: 7 inches x 86.6 inches

Floor Covering System:

Installation: Free Lay
 Subfloor: Simulated Concrete (Reinforced Cement Board)

TABLE II. TEST RESULT

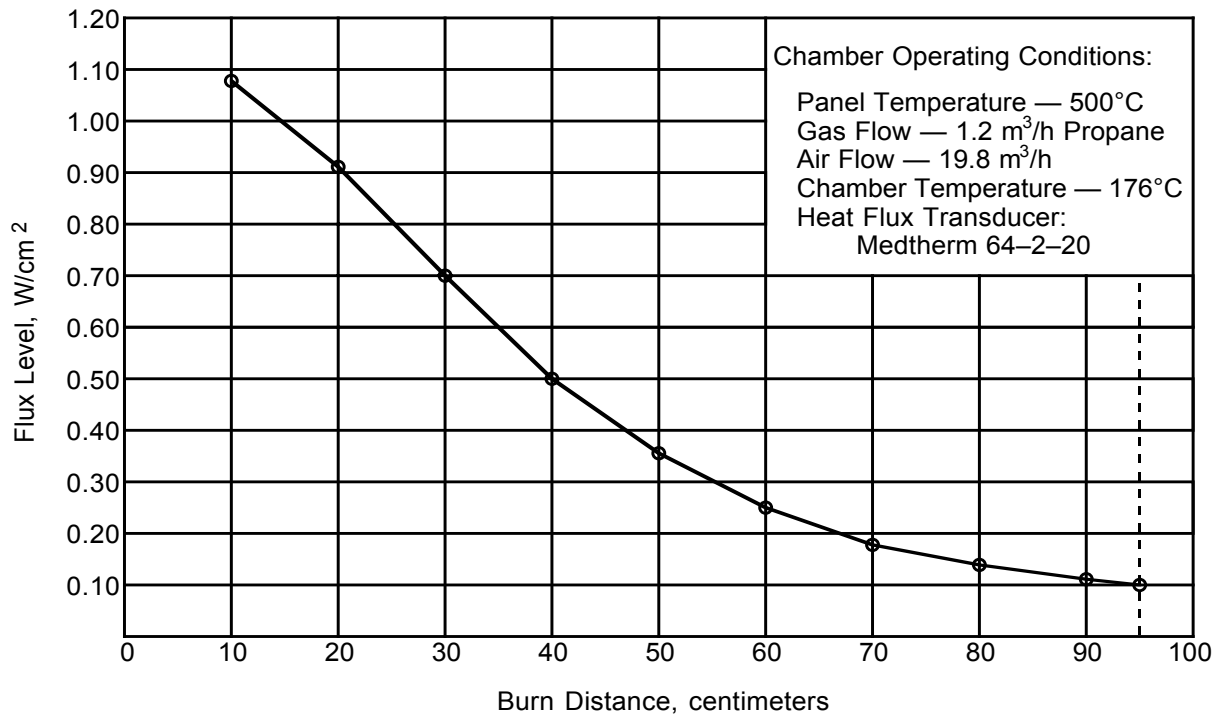
Test Data	#1	#2	#3
Maximum Burn Distance (cm)	42.2	35.1	42.5
Time to Flame Out (min)	23.4	22.9	22.9
Critical Radiant Flux (W/cm ²)	0.46	0.59	0.46
Standard Deviation = 0.08			

Average Critical Radiant Flux **0.50 W/cm²**

The NFPA 101 *Life Safety Code* states in Section 10.2.7.2 that floor coverings other than carpets shall have a minimum critical radiant flux of 0.1 W/cm².

NFPA 101 Classification Class I

TYPICAL FLUX PROFILE





TEST REPORT

DATE: 06-16-2014

TEST NUMBER: 0209181

CLIENT	Rhone
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TEST METHOD CONDUCTED	ASTM E648 Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using A Radiant Heat Energy Source, also referenced as NFPA 253 and FTM Standard 372
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DESCRIPTION OF TEST SAMPLE	
IDENTIFICATION	Provence/Burgundy/Visan/Laudun/Sablet/ St. Peray Collections
CONSTRUCTION	3/4" 3-Ply Oak Flooring
REFERENCE	Rhone

GENERAL PRINCIPLE

This procedure is designed to measure the critical radiant flux at flame out of horizontally mounted floor covering systems exposed to a flaming ignition in a test chamber which provides a graded radiant heat energy environment. The imposed radiant flux simulates the thermal radiation levels likely to impinge on the floors of a building whose upper surfaces are heated by flames from a fully developed fire in an adjacent room or compartment. The test result is an average critical radiant flux (watts/square cm) which indicates the level of radiant heat energy required to sustain flame propagation in the flooring system once it has been ignited. A minimum of three test specimens are tested and the results are averaged. Theoretically, if a room fire does not impose a radiant flux that exceeds this critical level on a corridor floor covering system, flame spread will not occur.

The NFPA Life Safety Code 101 specifies as Class 1 Critical Radiant Flux of .45 watts/sq cm or higher and Class 2 Critical Radiant Flux as .22 - .44 watts/sq cm.

FLOORING SYSTEM ASSEMBLY			
SUBSTRATE	Mineral-Fiber/Cement Board	UNDERLAYMENT	Loose Laid
ADHESIVE	N/A	CONDITIONING	Minimum of 96 hours at 70 ± 5° F and 50 ± 5% relative humidity

	Distance Burned	Time To Flame Out	Critical Radiant Flux
Specimen 1	27 cm	21 minutes	0.77 watts/square cm
Specimen 2	35 cm	28 minutes	0.61 watts/square cm
Specimen 3	30 cm	24 minutes	0.70 watts/square cm

Average Critical Radiant Flux	0.69 Watts/Square Cm
Standard Deviation	0.07 Watts/Square Cm
Coefficient of Variation	9.45 %

*** NOTE: Meets or exceeds Class 1 rating as specified in NFPA Life Safety Code 101 and IBC 804.2 Classification.**

APPROVED BY: *Gary Asbury*



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SCS Global Services does hereby certify that an independent assessment has been conducted on behalf of:

Rhone

14418 Best Ave., Santa Fe Springs, CA, United States

For the following product(s):

Engineered Hardwood:

1/2"-3/4": Bordeaux Collection, Pomerol Collection, Burgundy Collection, Provence Collection, Alsace Collection, Medoc Collection, Visan Collection, Laudun Collection, St. Peray Collection, Sablet Collection

The product(s) meet(s) all of the necessary qualifications to be certified for the following claim(s):

FloorScore®

Indoor Air Quality Certified to SCS-EC10.3-2014 v4.0

Conforms to the CDPH/EHLB Standard Method v1.2-2017 (California Section 01350), effective April 1, 2017, for the school classroom and private office parameters when modeled as Flooring.

Measured Concentration of Total Volatile Organic Compounds (TVOC): Less than/equal to 0.5 mg/m³ (in compliance with CDPH/EHLB Standard Method v1.2-2017)

Registration # SCS-FS-05640

Valid from: August 1, 2019 to April 30, 2020

SCS Global Services is currently the only certification body approved by the Resilient Floor Covering Institute (RFCI) to provide FloorScore® product certification; certified products are only listed on the SCS Green Products Guide, <http://www.scsglobalservices.com/certified-green-products-guide>.



ISO/IEC 17065
Product Certification Body
#0821



A handwritten signature in black ink that reads "Stanley Mathuram".

Stanley Mathuram, PE, Vice President

SCS Global Services

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