

TEST: ASTM E648

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

SCOPE/PURPOSE OF TEST

To measure the ability of a flooring material categorized as “interior floor finish” to limit the progression of a fire through a corridor. The test attempts to simulate a situation where the flooring material in the corridor would be subjected to igniting flames and radiant heat emanating from a fire in a room adjacent to the corridor. The test was designed to achieve a more realistic rating for flooring materials which had been previously tested by the ASTM E84 Tunnel Test, which tests all materials in the ceiling of the test chamber.

BRIEF DESCRIPTION OF TEST

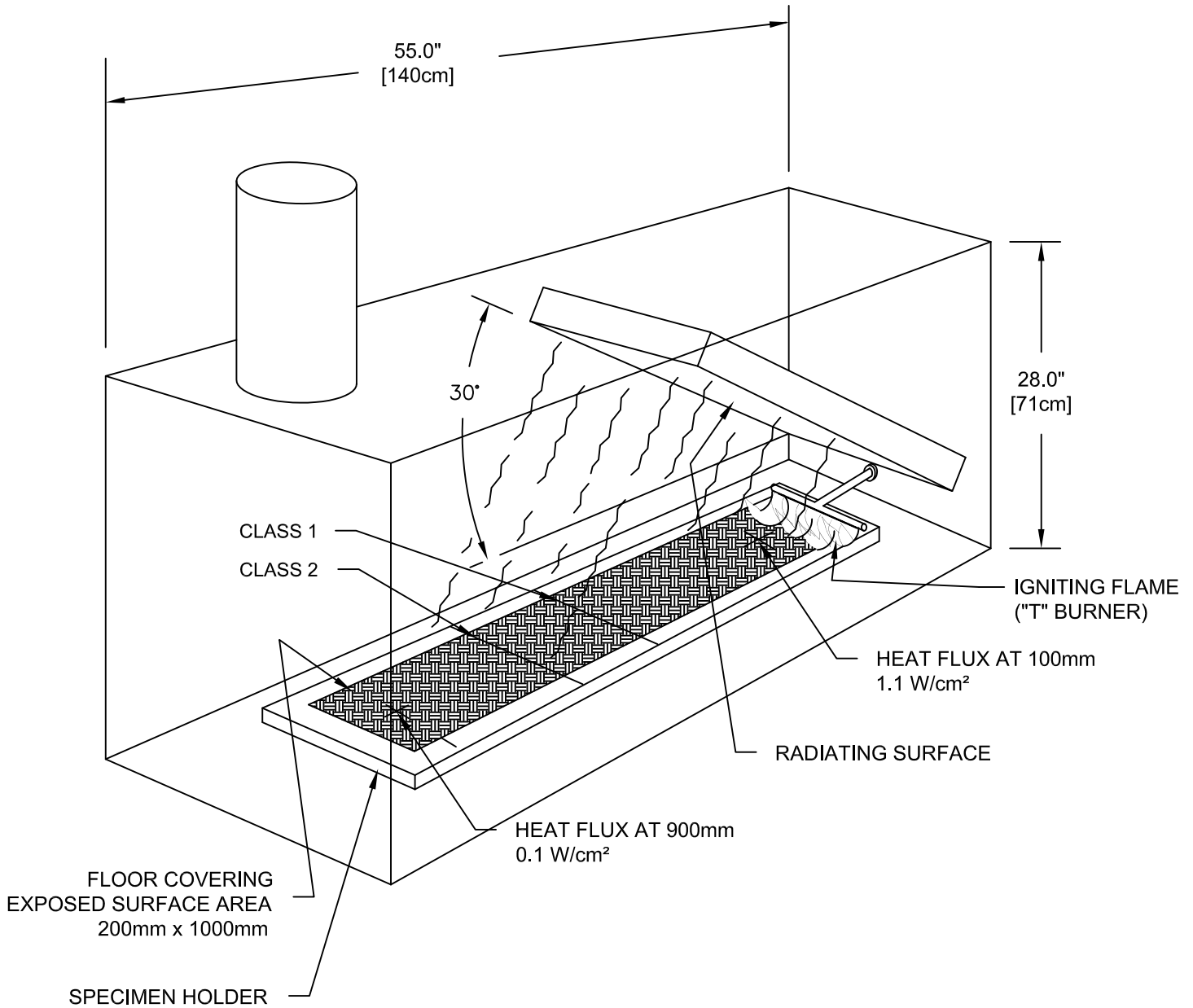
A test specimen, 9” x 41”, is placed on the floor of the test chamber. A gas-fired radiant heater is situated above the test specimen. The exposed specimen face, 8” x 40”, experiences a heat flux of about 1.1 watts/cm² at the point closest to the radiant heater. The heat experienced by the specimen declines until it reaches a low of about 0.1 W/cm² at the far end of the specimen.

A multi-flamelet burner sits 2” above the near end of the test specimen. After a 5 minute period, the multi-flamelet burner is placed in contact with the near end of the test specimen. If flaming is indicated on the specimen, the test is continued to the point where the flaming or surface burning extinguishes. This point of extinguishment is referred to as the “critical radiant flux at flameout”. The less distance the specimen burns, the higher the “critical radiant flux” value. The higher the value, the better the classification of the tested material.

CLASSIFICATION SYSTEM

Values which are usually cited by model building codes written by NFPA (National Fire Protection Agency) and ICC (International Code Council) for interior floor finish materials:

Class	Minimum Critical Radiant Flux at Flameout
1	0.45 W/cm ²
2	0.22 W/cm ²



ASTM E648

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

Sketches of Tests: ASTM E648
Building Codes: ASTM E648
Rail Cars: ASTM E648
Buses/Vans: ASTM E648
(CAD) TM: ASTM_E648



Received: 04/28/2017	Completed: 05/09/2017	Letter: M	JB	P.O.#:	Test Report #: 3-18549-0-
Client's Identification	Lot No.: Temporary Surface Protection. Date of Mfg.: April 2017. Style: Skudo HT Mat. Composition: 100% Polyester Non-Woven Textile with High Traffic Coating. (see continuation)				
Tested For: Brendon Smith	Key Test: ASTM E 648 (BLDG) WIT				795
Skudo USA					
2330 Alberta Drive, # 200	Tel: 1-(972)-993-0777				Ext:
Dallas, TX 75229	Fax: 1-()- -				

CLIENT'S IDENTIFICATION (continuation):

[Release paper removed prior to testing.]

ASTM E 648: LE 2015; V 09/15 PC: 48H or 96H NTR 04/12 /dl SM/mg
 NFPA 101: LE 2015; V 04/15
 NFPA 5000: LE 2015; V 04/15
 IBC: LE 2015; V 03/15

APPROXIMATE THICKNESS OF MATERIAL (as measured by Govmark): 0.038"

BRIEF DESCRIPTION OF TEST: The test specimen is placed on the floor of the test chamber. A gas-fired radiant heater is situated above the test specimen. A multi-flamelet burner is positioned above the specimen at the test starting point. After a 5 minute preheat period, the multi-flamelet burner is lowered to impinge on the end of the test specimen.

The test continues until all burning of the specimen extinguishes (flameout). The specimen burn distance (flame front progression) is compared against a graph which contains heat flux levels from the 0" point to the 40" point. The heat flux at the distance burned is reported.

TEST PERFORMED: ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source (NFPA Designation No. 253)

SPECIMEN PREPARATION:

- Each specimen was laid flat over a 1/4" Etera board (a cement asbestos substitute). No bonding agent was used. [PC: 48H]
- Each specimen was bonded to a 1/4" Etera board (a cement asbestos substitute) using multi-purpose carpet adhesive. [PC: 96H]
- Each specimen, with self adhesive backing, was bonded to a 1/4" Etera board (a cement asbestos substitute). [PC: 96H]
- Each specimen was placed over a rubber coated jute and animal hair 50 oz/yd² cushioning material. [PC: 48H]

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RESULTS:

Specimen #	Furthest Progression of Flame Front at Flame Out		Critical Radiant Flux (watts/cm ²)	Time to Flame Front Flame Out* (mm:ss)
	(inches)	(cm)		
1	2.1	5.33	0.97	10:00
2	3.0	7.62	0.96	10:00
3	3.7	9.40	0.95	10:00
Avg:			0.96	

* Note: As measured from time zero (insertion of specimen into chamber).

Standard Deviation of Critical Radiant Flux: 0.01

CODE CLASSIFICATION -- As cited by:

- (1) The 2015 Edition of NFPA 101 Life Safety Code paragraph, 10.2.7.4
- (2) The 2015 Edition of NFPA 5000 Building Construction & Safety Code, paragraph 10.7.4
- (3) The 2015 Edition of the International Building Code, paragraph 804.2

Class I: Minimum 0.45 watts/cm²
 Class II: Minimum 0.22 watts/cm²

OBSERVATIONS (of burning characteristics):

All Specimens
 Specimen #'s _____

- Premature ignition during the 5 min preheat, respectively for specimens 1, 2, and 3 (mm:ss): _____ : _____ , _____ : _____ , _____ : _____ .
- Penetration of the flame to the substrate
- Delamination
- Blistering
- Melting
- Sagging
- Shrinkage
- OTHER: Describe: _____

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REMARKS: Test was conducted in the presence of Wayne Aaron (Texchem U.K. Limited).

CONCLUSION: Based on the above Results and Code Classification, the item tested is assigned a:

- Class I rating
- Class II rating
- Fails to achieve a minimum classification thereby rendering the product unsuitable in terms of code requirement

CERTIFICATION: I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified above.



 AUTHORIZED SIGNATURE
 GOVMARK
 /pm /mo

TEXC-UK/SKU-TX/SKU-AU

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Douglas W. Lipp

MAY 10 2017



