



HARDWOOD PLYWOOD & VENEER ASSOCIATION  
LABORATORY AND TESTING SERVICE

P.O. Box 2789, Reston, Virginia 20195 U.S.A. 1825 Michael Faraday Drive, Reston, Virginia 20190 703-435-2900 FAX 703-435-2537

The test report attached verifies the fire performance for Armstrong Sheet Flooring. The product tested is representative of, but may not be identical to the product you are purchasing. Changes in product formulation that occur for a variety of reasons may cause fluctuations in results. The above referenced data is representative of the current formulation of these products. Specifications and interpretation of fire test methods are subject to ongoing development. To assure that the information continues to be current, it is suggested that you request product certification for a specific project. The certification will reference the current applicable independent laboratory test reports.

Report On  
Critical Radiant Flux  
Of Floor Covering Systems  
Using A Radiant Heat Energy Source

Determined By

ASTM E 648

Test Method

PREPARED FOR:

Armstrong World Industries, Inc  
Innovation Center  
Lancaster, PA

TEST NUMBER FRP-734

MATERIAL TESTED:

Armstrong Vinyl Floor Tile

DATE OF ISSUE 05/23/07

(PAGE 1 OF 5)

## SCOPE

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

## II TEST METHOD

The test was conducted in accordance with ASTM Designation E 648, "Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source." The test is also described by NFPA No. 253.

## III PURPOSE

The purpose of the test is to determine the critical radiant flux of horizontally-mounted floor covering systems exposed to a flaming ignition source in a graded radiant heat energy environment maintained in a test chamber. The specimen may be mounted over underlayment, a simulated concrete structural floor, bonded to a simulated structural floor, or otherwise mounted in a typical and representative way.

The test method provides a basis for estimating one aspect of fire exposure behavior for floor covering systems. The imposed radiant flux is designed to simulate the thermal radiation levels likely to impinge on the floors of a building whose upper surfaces are heated by flames and/or hot gases from a fully developed fire in an adjacent room or compartment. The method was developed to simulate an important fire exposure component of fires which may develop in corridors or exitways of buildings and is not intended for routine use in estimating flame spread behavior of floor covering in building areas other than corridors or exitways.

## IV TEST PROCEDURE

The basic elements of the test chamber are: 1) an air-gas, fueled radiant heat energy panel inclined at 30° to and directed at 2) a horizontally-mounted floor covering system specimen. The radiant panel generates a radiant energy flux distribution ranging along the 100-cm length of the test specimen from a nominal maximum of 1.0 watts/cm<sup>2</sup> to a minimum of 0.1 watts/cm<sup>2</sup>. The test is initiated by open flame ignition from a pilot burner. The distance burned to flame-out is converted to watts/cm<sup>2</sup> and reported as critical radiant flux.

## V. PREPARATION AND CONDITIONING OF TEST SAMPLES

The test specimen is 42" long and 10" wide and is mounted in a stainless steel holder which exposes 100 cm. x 20 cm. The floor covering system specimen should simulate actual installation practices. Typical examples follow:

- a) A carpet mounted over the standard cushion or the standard simulated concrete floor.
- b) A carpet with or without integral cushion pad bonded to high density inorganic sheet simulating a concrete subfloor.
- c) A resilient floor bonded to a high density inorganic sheet simulating a concrete subfloor.
- d) A hardwood floor nailed to a plywood subfloor, then sanded and finished according to standard practice.

A minimum of three specimens per sample are tested after conditioning to standard laboratory conditions of  $70^{\circ}\text{F} \pm 5^{\circ}\text{F}$  and  $50\% \text{RH} \pm 5\%$ .



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DATE OF TEST 05/15/2007

MATERIAL TESTED

- 1) Manufacturer: Armstrong World Industries, Inc.  
Lancaster, PA
  
- 2) Nominal Dimensions (inches) N/A
  
- 3) Average Thickness (inches) .374 .374 .376
  
- 4) Average Density (lbs/sq ft) 2.640 2.640 2.640
  
- 5) Product Description: Lot #268 = Armstrong Natural Creations  
Luxury Vinyl Tile with .040" wear layer applied to 1/4" cement  
board using Armstrong S-599 adhesive and S-51 trowel according  
to Armstrong's instructions.
  
- 6) Color Brown
  
- 7) Surface Face side exposed
  
- 8) Sample Selection Manufacturer
  
- 9) Material Description by Manufacturer
  
- 10) Date of Selection 05/07
  
- Purpose of Test Critical Radiant Flux Determination
  
- 12) Method Of Mounting: Backed with 1/2" mill board.

REMARKS: Thickness and density measurements include 1/4" cement board and adhesive.



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(PAGE 5 OF 5)  
MATERIAL TESTED:

DATE OF TEST 05/15/2007

Armstrong Vinyl Floor Tile

VII. OPERATING DATA

Burn Number	1	2	3
1) Days in Conditioning	07	07	07
2) Date Flux Profile Run	05/15/07	05/15/07	05/15/07
3) Specimen Preheat Time (min)	5:00	5:00	5:00
4) Initial Chamber Temperatures (degrees C)	139	137	139
5) Room Temperature (degrees F)	72	72	72
6) Total Burn Length (cm)	19.5	23.0	19.5
7) Time to Maximum Burn Length (minutes)	8:29	7:42	7:48

VIII TEST RESULTS

Burn Number	1	2	3
1 Critical Radiant Flux	.94	.85	.94
2) Average Critical Radiant Flux	.91		
3 Standard Deviation	.05		
4) Coefficient of Variation (%)	5		

REMARKS: Samples extinguished before pilot was removed at 10:00.

REPORT PREPARED BY:

THOMAS A. WILSON  
SENIOR FIRE TECHNOLOGIST

REPORT REVIEWED BY:

BRIAN SAUSE  
DIRECTOR - TESTING, CERTIFICATION  
& STANDARDS

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