

## FLOORING RADIANT PANEL TEST (ASTM-E648)

### FEDERAL FUNDING REQUIREMENTS

The Department of Health & Human Services has adopted the guidelines established in the NFPA Life Safety Code for interior floor finish flammability as pertaining to health care occupancies (hospitals and nursing homes). The code specifies that flooring installed in corridors, lobbies, stairways and exit ways shall be Class I in accordance with the critical radiant flux ratings, interior floor finish. A Class I rating requires a minimum critical radiant flux of 0.45 watts/cm<sup>2</sup> in accordance with standard test method, NFPA 253 (or ASTM-E648), for critical radiant flux of floor covering systems using a radiant heat energy source. For general commercial construction, the guideline is a minimum average critical radiant flux (CRF) of 0.22 watts/cm<sup>2</sup> (Class II). This procedure is routinely performed by independent testing laboratories such as SGS United States Testing Company Inc..

<u>Product Species</u>	<u>Average Critical Radiant Flux (CRF)</u>	<u>Class</u>
Cherry	0.62 watts/cm <sup>2</sup>	I
Red Oak	0.56 watts/cm <sup>2</sup>	I
R/Q, PS, Thermo White Oak	0.54 watts/cm <sup>2</sup>	I
Hickory	0.53 watts/cm <sup>2</sup>	I
Maple / Thermo Maple	0.50 watts/cm <sup>2</sup>	I
Ash	0.45 watts/cm <sup>2</sup>	I
African Mahogany	0.45 watts/cm <sup>2</sup>	I

### GENERAL COMMERCIAL REQUIREMENTS

For general commercial construction, the guideline is a minimum average radiant heat flux of 0.22 watts/cm<sup>2</sup> (Class II).

<u>Product Species</u>	<u>Average Critical Radiant Flux (CRF)</u>	<u>Class</u>
COR	0.42 watts/cm <sup>2</sup>	II
Reclaimed Oak	0.41 watts/cm <sup>2</sup>	II
Walnut	0.35 watts/cm <sup>2</sup>	II

(All flooring that was tested had Pedestrian Finish and was glued using a moisture-cured polyurethane adhesive)

The Flooring Radiant Panel Test is also widely accepted by industry and government agencies such as The Department of Transportation, General Services Administration, and the Veterans Administration. ASTM and NFPA test consensus standards have been completed.

This test was developed because of dissatisfaction with previous procedures. The Flooring Radiant Panel Test measures a vital ingredient of fire: radiant energy. It applies to both corridors and exit ways. The test result indicates whether and how far the corridor flooring will spread the flame front. In the Flooring Radiant Panel Test, a Class I rating implies a more flame-resistant system than a Class II rating.

## **SMOKE DENSITY TEST (ASTM-E662)**

The Department of Health and Human Services has established that floor covering materials used in Health Care Occupancies must have a Smoke Density of 450 or less. The test procedure is the ASTM-E662 or NFPA-258 method.

<u>Product Species</u>	<u>Flaming Mode</u>	<u>Non-Flaming Mode</u>	<u>Smoke Density (Overall Average)</u>
Maple	346	384	365
COR	246	324	285

Due to the expense of testing every species that Nydree has to offer, only a few species have been tested. We do expect all other species to have a Smoke Density of 450 or less.

The influence of smoke is the most frequent cause of death in a fire situation. The results obtained are important criteria when selecting flooring materials.

## **STEINER TUNNEL TEST (ASTM-E84/UL-723)**

The Steiner Tunnel Test is no longer being used as a floor covering flammability test. However, it continues to be the most widely used surface flame spread test for wall and ceiling finishes. It was never designed to be a floor covering test and was only adopted for floors as an interim test method. Keep in mind that there is no correlation between ASTM-E84 test results and ASTM-E648 test results.

When Nydree Flooring is tested using the ASTM –E84 procedure, the flooring achieves a Class C rating. This makes Nydree flooring acceptable for wall and ceiling use whenever Class C interior finishes are required by local building codes.

For more information on the ASTM-E84 test and results, see the document entitled ‘Design for Code Acceptance’ on the Nydree website. Click on Technical and scroll down to the Technical Bulletins section. <http://www.nydreeflooring.com/technical.html>.

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