

**ELECTRONIC DRAFT COPY**

**ASTM E 648 Critical Radiant Flux  
of "Bamboo Flooring"**

A Report To: **Dragonfly Bamboo**  
P.O. Box 71186  
Shorewood, WI 53211  
USA

Phone: (414) 828-6430  
Email: (414) 963-9338

Attention: Emma Poroli

Submitted By: Fire Testing

Report No. 07-02-647  
2 pages + 1 appendix

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**ACCREDITATION**      Standards Council of Canada, Registration #1.

**REGISTRATION**      ISO 9001:2000, registered by QMI, Registration #001109.

**SPECIFICATIONS OF ORDER**

Determine critical radiant flux in accordance with ASTM E 648, as per our Quotation No. 07-002-9801 dated July 17, 2007.

**IDENTIFICATION**                      (Bodycote sample identification number 07-02-S0647)

Bamboo flooring, approximately 15 mm in thickness, identified as "Vertical Natural Satin, CB2961, CB2231".

**TEST RESULTS**

Note: The flooring material was tested in the laydown mode.

**ASTM E 648-06a**  
Critical Radiant Flux of Floor-Covering Systems  
Using a Radiant Heat Energy Source

	<u>Distance</u> <u>Burned (mm)</u>	<u>Critical Radiant</u> <u>Flux (W/cm<sup>2</sup>)</u>	<u>Standard</u> <u>Deviation</u>	<u>Coefficient of</u> <u>Variation</u>
1:	430	0.48	-	-
2:	375	0.56	-	-
3:	355	<u>0.60</u>	-	-
	Average:	0.55	0.06	11.71

**CONCLUSIONS**

With an average critical radiant flux of 0.55 W/cm<sup>2</sup>, the bamboo flooring identified in this report qualifies for use in institutional and commercial applications governed by the General Services Administration and Health, Education and Welfare in the United States, as well as corridors, exitways and general areas under the jurisdiction of The New York and New Jersey Port Authority. The flooring material also meets The Federal Railroad Administration requirements for use in rail cars.

***Note: This is an electronic copy of the report. Signatures are on file with the original report.***

Marc Laniel,  
Fire Testing.

Richard J. Lederle,  
Fire Testing.

*Note: This report consists of 2 pages, including the cover page, that comprise the report "body". It should be considered incomplete if all pages are not present. Additionally, the Appendix of this report comprises a cover page, plus 1 page.*

**APPENDIX**

(1 Page)

**Summary of Test Procedure**

## Bodycote Testing Group

### ASTM E 648-06a

#### Critical Radiant Flux of Floor Covering Systems

#### Using a Radiant Heat Energy Source.

This procedure is used to measure the critical radiant flux of horizontally-mounted floor covering systems exposed to a flaming ignition source in a graded radiant heat energy environment, in a test chamber.

The radiant panel is calibrated to yield a heat flux gradient ranging from 1.1 W/cm<sup>2</sup> at the near end of the specimen to 0.1 W/cm<sup>2</sup> at the far end of the specimen.

The floor covering system (250 x 1070 mm) is mounted on the holder as specified by its end use (e.g. glued directly to cement board, clamped to cement board or clamped over an undercushion).

The system is admitted into the calibrated test chamber, and after a 5 minute pre-heat, is ignited by a pilot flame. The distance at which extinguishment takes place is measured, correlated with the heat flux at that point, and is reported as the critical radiant flux (CRF). This value represents the minimum radiant energy required to sustain propagation of flaming combustion along the surface of the material.

The higher the critical radiant flux, the more resistant the floor covering system is to flame propagation.

NFPA 101 "Life Safety Code" and authorities having jurisdiction refer to the following classifications:

Class I – Critical radiant flux, minimum average of 0.45 watts per square centimeter.

Class II – Critical radiant flux, minimum average of 0.22 watts per square centimeter.

#### Typical Performance Requirements:

<u>Specifier</u>	<u>Minimum CRF (W/cm<sup>2</sup>)</u>	<u>Designated End-Use</u>
General Services	0.45	Institutional
Admin.(USA)	0.22	Commercial
Health, Education	0.45	Institutional
& Welfare (USA)	0.22	Commercial
New York & New Jersey	0.50	Corridors, exitways
Port Authority	0.40	General areas
Federal Railroad Administration	0.50	Rail Cars