Advisory Bulletin

BOBRICK

BUILDING VALUE SINCE 1906

TB-73 Surface Burning Characteristics of Various Toilet Partition Materials

Independent Laboratory Testing

Samples of different toilet partition materials were sent to independent fire test laboratories for testing and evaluation to determine the relative surface burning characteristics of these materials. The tests were performed in accordance with the American Society for Testing and Material ASTM E 84-01 "Test for Surface Burning Characteristics of Building Materials"[1] in the United States. ASTM E 84 specifies dimensions of 24" W x 24' L for each test material for horizontal placement in the fire test chamber. A gas-fed flame source is then applied at one end of test specimen. The rate of flame spread and the degree of obscuration in the tunnel (measured by a photoelectric cell) are recorded throughout the 10-minute test. These results are compared to the burning characteristics of two known products: inorganic reinforced cement board (reference value = 0) and red oak flooring (reference value = 100). ASTM E 84 test results are used by the ICC and NFPA to evaluate burning characteristics of materials classified as Interior Wall or Ceiling Finishes[2] in building materials. A full description of the test is available from ASTM.

Bobrick selected this ASTM standard because it is required by the International Building Code® and NFPA 101 Life Safety Code® for classification of Interior Wall or Ceiling Finish. Additionally, in our opinion, this standard provided an objective, repeatable, and comparable procedure with which to analyze the relative surface burning characteristics of different types of toilet partition materials. We believe the test thoroughly evaluates their relative flame spread and smoke development characteristics. A copy of the independent laboratory test results is available upon request.

The appropriate and comparable test in Canada is CAN/ULC-S102.

Results of ASTM E 84 Test

Material Description	Flame Spread Index	Smoke Developed Index	ICC and NFPA Classification[3]
Powder-Coated Metal – 1-1/4" [4]	5	0	Class A
Bobrick 1080 FunderMax Compact Grade Laminate (CGL) - 1/2" [9]	20	150	Class A
Bobrick 1080 FunderMax Compact Grade Laminate (CGL) - 3/4" [9]	25	130	Class A
Bobrick 1080 Compact Grade Laminate (CGL) – 1/2" [4]	30	55	Class B
Bobrick 1080 Compact Grade Laminate (CGL) – 3/4" [4]	30	20	Class B
Bobrick 1180 Compact Grade Laminate (CGL) – 1/2" [4]	15	25	Class A
Bobrick 1180 Compact Grade Laminate (CGL) – 3/4" [4]	15	20	Class A
Bobrick 1090 Solid Color Reinforced Composite (SCRC) – 1/2" [5]	45	120	Class B
Bobrick 1090 Solid Color Reinforced Composite (SCRC) – 3/4" [5]	45	95	Class B
Bobrick 1550 High Pressure Laminate (HPL) – 1" [6]	55	200	Class B
Bobrick 1040 High Pressure Laminate (HPL) – 1" [7]	60	195	Class B
PRIVADA® Cubicles High Pressure Laminate (HPL) - 1" [8]	55	200	Class B

Results of CAN/ULC-S102 Test

Material Description	Flame Spread Index	Smoke Developed Index	Interior Finish Classification
Bobrick 1090 Solid Color Reinforced Composite (SCRC) – 1/2" [10]	30	245	Class B
Bobrick 1090 Solid Color Reinforced Composite (SCRC) – 3/4" [11]	35	115	Class B

Compact Grade Laminate manufacturers', CAN/ULC-S102 test results can be accessed at the following links:

Fundermax	https://fundermax.us/code-compliance-and-testing/
Formica	https://www.formicadocs.info/en-us/search#sort=relevancy&f:DocumentSiteType=[Technical%20Guides]

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Conclusion

Toilet partitions made from Metal, Compact Grade Laminate (CGL) (Bobrick 1080, 1180 Series), Solid Color Reinforced Composite SCRC (Bobrick 1090 Series), and High Pressure Laminate (HPL) (Bobrick 1040 Series) are defined as Interior Wall and Ceiling Finishes[2] and shall be in accordance with ASTM E 84[3] in the United States. The appropriate and comparable test in Canada is CAN/ULC-S102.

Notes

[1] *ASTM E 84 provides comparative classifications 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 the materials, products, or assemblies under actual fire conditions.*

[2] *Definition of Interior Wall or Ceiling Finish: "The exposed interior surfaces of buildings including, but not limited to fixed or movable walls and partitions; toilet room privacy partitions; columns; ceilings; and interior wainscoting, paneling or other finish applied structurally or for decoration, acoustical correction, surface insulation, structural fire resistance or similar purposes, but not including trim.." 2012 International Building Code, Chapter 8 Interior Finishes, Section 802, Definition page 26 Moreover, according to Section 803.12, "where high density polyethylene or polypropylene is used as an interior finish it shall comply with Section 803.1.2", the room corner test for interior wall or ceiling finish material. For more information on the fire code requirements for high density polyethylene (HDPE) or polypropylene (PP), please consult Bobrick Advisory Bulletin TB-90, "Use of Polypropylene (PP) and High-Density Polyethylene (HDPE) as Partitions In Today's Model Codes.*

[3] *International Code Council ICC's International Building Code® and National Fire Protection Association® (NFPA) classify ASTM E 84 test results as follows:*

Interior Wall/Ceiling Finish Classification	Flame Spread Index	Smoke Developed Index
Class A	0 – 25	0 – 450
Class B	26 – 75	0 – 450
Class C	76 – 200	0 – 450

[4] *Source: Data from a test conducted by an independent laboratory in June, 2003.*

[5] *Source: Data from a test conducted by an independent laboratory in November, 2002.*

[6] *Source: Data from a test conducted by an independent laboratory in September, 2013*

[7] *Source: Data from a test conducted by an independent laboratory in January, 2004*

[8] *Source: Data from a test conducted by an independent laboratory in June, 2024*

[9] *Source: Data from a test conducted by independent laboratory in January, 2018.*

[10] *Source: Data from a test conducted by independent laboratory in March, 2023.*

[11] *Source: Data from a test conducted by independent laboratory in December, 2022.*