Advisory Bulletin

BOBRICK
BUILDING VALUE SINCE 1906

TB-78 Impact-Resistance of Various Toilet Partition Materials

INDEPENDENT LABORATORY TESTING

Samples of six different toilet partition materials including [High-Density Polyethylene (HDPE), Powder-Coated Metal (Metal), Stainless Steel (SS), High Pressure Laminate (HPL), Compact Grade Laminate, Black-Core (CGL), and Solid Color Reinforced Composite (SCRC)] were sent to an independent laboratory for testing and evaluation to determine the relative impact-resistance of these materials. The tests were performed in accordance with the American Society for Testing and Material ASTM D 2794-93(1999)e1 "Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation/Impact." This test was developed to evaluate the effect of rapid deformation (by impact) on a coating film and its substrate by dropping a hemispherical indenter onto a test specimen from various heights. The indenter's weight and/or drop-height are varied until the impact force (in inch-lbs) caused visible damage to the surface of the test sample. A full description of the test is available from ASTM.

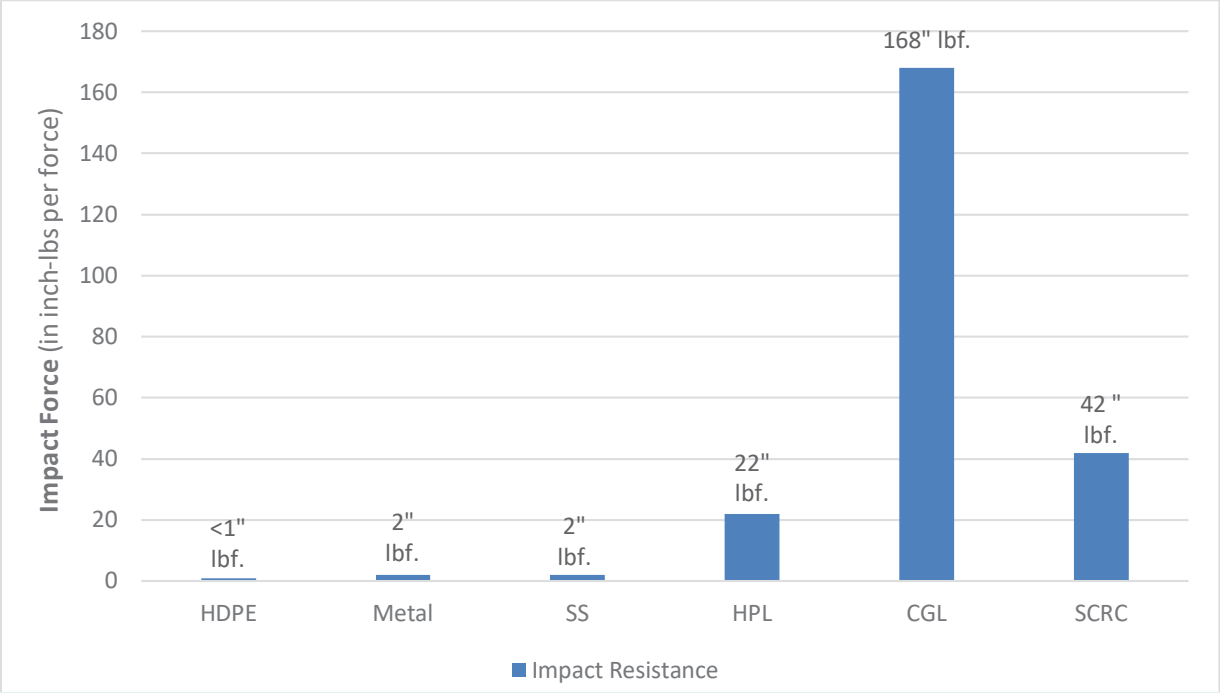
Bobrick selected this ASTM standard because, in our opinion, this standard provided an objective, repeatable, and comparable procedure with which to analyze the relative impact-resistance properties of different materials. In the tests conducted, a 0.625" hemispherical indenter with 2-lb impact weight was utilized. In order to accommodate different types of material composition/construction, material failure was defined as visible damage to the surface of the test sample. A comparison of the impact force can be used to evaluate the relative impact-resistance of the different materials. A copy of the independent laboratory test result is available upon request.

continued . . .

Revised 7/23/20 Printed in U.S.A

RESULTS OF TEST[1]

Material Samples[2]	Impact Force[3]
High-Density Polyethylene (HDPE)[4]	<1 inch-lbf
Powder-Coated Metal	2 inch-lbf
Stainless Steel (SS)	2 inch-lbf
High Pressure Laminate, (HPL)[5]	22 inch-lbf
Compact Grade Laminate, Black-Core (CGL)	168 inch-lbf
Solid Color Reinforced Composite, (SCRC)	42 inch-lbf



Source: **Data is from test conducted by an independent laboratory in November 2018 for all materials except HPL; HPL was tested in February 2019.**

CONCLUSION

Of the materials tested, Compact Grade Laminate and Solid Color Reinforced Composite exhibited the greatest resistance to material deformation by impact.

Notes:

[1] *Testing was performed at ambient laboratory conditions of 24±2ºC and 50±5% relative humidity.*

[2] *Testing was performed on a 3" x 3" panel sample*

[3] *Impact Force is the force (in inch-lbs) applied that caused visible damage to the test specimen surface.*

[4] *HDPE tested was NFPA 286 compliant as required for toilet partitions by the ICC and NFPA model codes.*

[5] *Top and bottom faces of 7/8" thick 3-ply, 45-lb density particle board were laminated with 1/16" thick high pressure plastic laminate.*