Acrovyn®

Prelaminated Wall Panel Impact Testing

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SUMMARY OF IMPACT TEST REPORT

Rendered to:

CONSTRUCTION SPECIALTIES, INC.
P.O. Box 380
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Test Date: 08/15/90
and: 08/16/90
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TEST PURPOSE: To test the impact resistance of various wall substrates using a 92.5-pound bullet-shaped steel ram.

TEST PROCEDURE: The test specimens were evaluated in general accordance with ANSI/ASTM F476-76, Paragraph 18, "Impact Test". The steel ram was dropped from progressively higher drop heights to produce an impact on the surface of the specimens (measured in ft.lbs.). Each specimen was directly impacted at midspan between anchor locations.

TEST SPECIMENS:

1. 1/2" Gypsum Wall Board
2. 1/2" Gypsum Wall Board with 0.022 Paper Backed Acrovyn
3. 1/2" Gypsum Wall Board with 0.060 Paper Backed Acrovyn
4. 3/8" Wall Panel System
5. 3/8" Wall Panel System on 1/2" Gypsum Wall Board

TEST SPECIMEN MOUNTING: All substrates were mounted to a galvanized stud wall system with the studs located at 16" centers. These specimens were clamped securely into the impact apparatus so the pendulum ram struck the center of the panels between stud locations.

TEST FINDINGS:

1. 1/2" GWB did not resist an impact of 7.7 ft.lbs. (minimum drop height).
2. Adding 0.022 Acrovyn to the 1/2" GWB resisted a full length crack in the GWB up to 23.1 ft.lbs. although it showed localized cracking at the 7.7 ft.lb. impact.
3. Substituting the 0.060 Acrovyn for the 0.022 showed the same initial results as noted above.
4. The 3/8" wall panel system showed a slight bow in the wall at 15.4 ft. lbs. and stress whitening at 23.1 ft.lbs.
5. The 3/8" wall panel system on GWB resisted impacts up to 38.5 ft.lbs. (5 times the impact recorded in #1 above). The galvanized studs buckled on the first two systems at failure (54.0 and 61.7 ft.lbs., respectively). The last sample failed at 61.7 ft.lbs. with no stud buckling but was only subjected to two drops.

NOTE: An impactor weighing 100 lbs. traveling at 3.39 mph delivers an equivalent kinetic energy to that resisted by the 3/8" wall panel system on 1/2" GWB.

ARCHITECTURAL TESTING, INC.

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