



International Fireproof Technology, Inc.

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To Whom It May Concern,

DC315 is a single component water based intumescent coating, specifically designed to meet Alternative Thermal and Ignition Barrier requirements for Spray Polyurethane Foam plastics and meet interior finish requirements of the tested assembly. Based on large scale fire testing to the NFPA 286, DC 315 complies with 2012 IBC Section 803.1.2 and Section 2603.10; 2015 IBC Section 803.1.2.1, 803.11, 2603.9 and 2603.7.2. In accordance with these code sections all testing is conducted on the finished manufactured foam plastic assembly, in both horizontal and vertical orientations and at the maximum thickness intended for use.

DC315 carries Code Compliance Research Report #1076, issued by Intertek, listing the fully tested assemblies which have met the prescriptive testing required as per 2603.9 and 803.1.2.1. This report verifies the fire testing completed with DC315 as required by code.

In keeping with the IFTI mantra that the proof is in the testing, we felt it necessary to demonstrate the long-term protection and durability of DC315 and its ability to with stand expected service conditions. Results of testing are reported below-

Flexibility	ASTM D 522	No cracking or peeling on a 12.5 mm mandrel
Self-lifting	As per Section 132.1 of CGSB 1-GP-71	no blistering, wrinkling, loosening, softening or other defects due to the application of a second similar coat
Adhesion to substrate at specified thickness	ASTM D 3359, Method A	Min. adhesion rating ² : 4A
Adhesion to substrate – resistance to high humidity	ASTM D 3359, Method A after conditioning ³	Min. adhesion rating: 4A
Adhesion – pull-off strength	ASTM D 4541	Report value – no sign of failure of coating,
Impact resistance, 7 days dry	ASTM D 2794	Direct 30 in-lb Indirect 10 in-lb
Moisture resistance	ASTM D 4585 ⁵	No blistering, no wrinkling, and no loss of adhesion (ASTM D 3359)
Fungal/Mildew resistance	ASTM C 1338	No more fungal growth than control specimen ⁶

Currently building code specifies that SPF insulation be protected by ½” gypsum or equivalent. It is therefore reasonable to choose ½” gypsums as a product to establish this benchmark of durability. Testing conducted by IAS Accredited lab QAI documented the ability of DC315/SPF assembly to withstand greater hard and soft body impacts and greater concentrated loads that lead to the failure of ½” gypsum boards ability to withstand and therefore the ability of the gypsum to protect the underlying SPF from fire. The results are posted in the following tables.

Concentrated Load Test

Assembly (1): 3/8 inch gypsum covering				
Test Results	Sample 1	Sample 2	Sample 3	Average
Deflection at Ultimate Load	0.1012	0.0983	0.0963	0.0986
Ultimate Load, lbs	156	147	159	154

Assembly (2): 1/2 inch gypsum covering				
Test Results	Sample 1	Sample 2	Sample 3	Average
Deflection at Ultimate Load	0.0981	0.0924	0.0951	0.0952
Ultimate Load, lbs	181	183	186	183

Assembly (3): SWD Quick-Shield 112 F spray applied foam and the foam was coated with 18 mil (wft) of DC315				
Test Results	Sample 1	Sample 2	Sample 3	Average
Deflection at Ultimate Load	0.0912	0.0932	0.0981	0.0941
Ultimate Load, lbs	376	372	381	376

Assembly (4): SWD Quick-Shield 112 F spray applied foam, and the foam was coated with 3 mil (wft) primer and 24 mil (wft) of DC315				
Test Results	Sample 1	Sample 2	Sample 3	Average
Deflection at Ultimate Load	0.0234	0.0251	0.0274	0.0253
Ultimate Load, lbs	423	428	416	423

Impact Load Test

Assembly (1): 3/8 inch gypsum covering				
Test Results	Sample 1	Sample 2	Sample 3	Average
Ultimate Impact Height Observed	< 6 inches	< 6 inches	< 6 inches	< 6 inches
Impact Failure Point	NA	NA	NA	-
Proof Load	NA	NA	NA	-
Deflection @ Proof Load	NA	NA	NA	-

Assembly (2): 1/2 inch gypsum covering				
Test Results	Sample 1	Sample 2	Sample 3	Average
Ultimate Impact Height Observed	6 inches	6 inches	6 inches	6 inches
Impact Failure Point	12 inches	12 inches	12 inches	-
Proof Load @ 6" Impact, lbs	183	183	183	183-
Deflection @ Proof Load	0.0489	0.0514	0.0503	0.0502

Assembly (3): SWD Quick-Shield 112 F spray applied foam and the foam was coated with 18 mil (wft) of DC315				
Test Results	Sample 1	Sample 2	Sample 3	Average
Ultimate Impact Height Observed	18 inches	18 inches*	18 inches*	18 inches*
Impact Failure Point	>30 inches*	>30 inches*	>30 inches*	-
Proof Load @ 18" Impact, lbs	183	183	183	183-
Deflection @ Proof Load	0.0580	0.0390	0.0480	0.0483

*small chips less than 1/2" in diameter of coating delaminated from the foam substrate was observed after the 18" drop height.

Assembly (4): SWD Quick-Shield 112 F spray applied foam, and the foam was coated with 3 mil (wft) primer and 24 mil (wft) of DC315				
Test Results	Sample 1	Sample 2	Sample 3	Average
Ultimate Impact Height Observed	24 inches	24 inches*	24 inches*	24 inches*
Impact Failure Point	>30 inches*	>30 inches*	>30 inches*	-
Proof Load @ 24 Impact", lbs	183	183	183	183-
Deflection @ Proof Load	0.0623	0.0419	0.0536	0.0526

Falling Ball Impact

Assembly (1): 3/8 inch gypsum covering				
Test Results	Sample 1	Sample 2	Sample 3	Average
Impact Failure Point (Front)	42 inches	42 inches	36 inches	42 inches
Impact Failure Point (Back)	30 inches	30 inches	30 inches	30 inches

Impact Failure Point (Complete Penetration)	72 inches	68 inches	72 inches	72 inches
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Assembly (2): 1/2 inch gypsum covering				
Test Results	Sample 1	Sample 2	Sample 3	Average
Impact Failure Point (Front)	42 inches	42 inches	42 inches	42 inches
Impact Failure Point (Back)	24 inches	24 inches	24 inches	24 inches
Impact Failure Point (Complete Penetration)	78 inches	78 inches	72 inches	78 inches

Assembly (3): SWD Quick-Shield 112 F spray applied foam and the foam was coated with 18 mil (wft) of DC315				
Test Results	Sample 1	Sample 2	Sample 3	Average
Impact Point @ Defined Cracking ¹	48 inches	48 inches	48 inches	48 inches
Impact Failure Point (Complete Penetration) ²	Not Observed	Not Observed	Not Observed	-

Assembly (4): SWD Quick-Shield 112 F spray applied foam, and the foam was coated with 3 mil (wft) primer and 24 mil (wft) of DC315				
Test Results	Sample 1	Sample 2	Sample 3	Average
Impact Point @ Defined Cracking ¹	48 inches	48 inches	48 inches	48 inches
Impact Failure Point (Complete Penetration) ²	Not Observed	Not Observed	Not Observed	-

The fire performance of all products used in building construction are tested as intended to be used and installed in the field. Regardless whether some amount of damage will have an impact on the overall performance, it is generally recognized that any damage should be repaired to ensure the continued fire performance of the product.

NFPA 286 fire testing of DC315 has been conducted on the specific spray applied foam systems listed in DC315 Code Evaluation reports in accordance with IBC Section 2603.9 and has met the criteria required by IBC Code Section 803.1.2.

803.1.2 Room corner test for interior wall or ceiling finish materials.

Interior wall or ceiling finish materials shall be permitted to be tested in accordance with NFPA 286. Interior wall or ceiling finish materials tested in accordance with NFPA 286 shall comply with Section 803.1.2.1.

803.1.2.1 Acceptance criteria for NFPA 286.

The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m².

DC315 testing includes both vertical and horizontal assemblies to ensure any end use configuration is addressed, and is conducted using the maximum thickness of SPF for which recognition is sought.

Attached documentation further supports the use of DC315 as a long term durable alternative thermal barrier over SPF-

1. DC315 CCRR 1076 Compliance report to AC377 including AC456
2. DC315 ICC-ES report 3702 Compliance report to AC377 including AC456



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