Designation: E2486/E2486M – 13

Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)[1]

This standard is issued under the fixed designation E2486/E2486M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers a procedure for rapidly deforming by impact an EIFS for evaluating the effect of such deformation.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D2794 Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

E631 Terminology of Building Constructions

E2110 Terminology for Exterior Insulation and Finish Systems (EIFS)

3. Terminology

3.1 For general terminology regarding EIFS and building in general, see Terminology E2110 (for EIFS terms) and Terminology E631 (for buildings in general).

4. Summary of Test Method

4.1 Specimens shall be subjected to rapid deformation by a falling standard weight. By gradually increasing the distance the weight drops, the point at which failure occurs can be determined.

4.2 The impact resistance classification shall be determined by the number of joules [inch-lb] achieved when at least six out of ten tests do not display broken reinforcing mesh that is visible to the naked eye under normal lighting conditions.

5. Significance and Use

5.1 This specification determines levels of impact resistance under Classes PB and PI EIFS.

5.2 This test method does not purport to simulate impact encountered in service.

6. Apparatus

6.1 The apparatus shall be as specified in the Apparatus Section of Test Method D2794 with the following exceptions:

6.1.1 The cylindrical weight shall be 1.82 kg [4.0 lb],

6.1.2 The EIFS specimen shall fit below the tube,

6.1.3 The diameter of the hemispherical head shall be 13 mm [1.2 in.] and it shall be made to fit inside the guide tube instead of resting on the test panel, and

6.1.4 Disregard all information concerning the panel support, magnifier, and pin-hole detector.

7. Test Specimens

7.1 The EIFS base coat, reinforcing mesh, and finish coat shall be applied to 600 by 1200 mm [2 by 4 ft] sections of 25-mm [1-in] thick insulation board, unless otherwise specified. Specimens shall be representative of those used in actual construction.

7.2 The reinforcing mesh(es) or reinforced coating shall be continuous and have no laps or joints. The reinforcing mesh(es) shall not be lapped onto the side or back of the specimen.

[1] This test method is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.58 on Exterior Insulation and Finish Systems (EIFS).

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

8. Conditioning

8.1 Allow the specimens to cure a minimum of 28 days at 22 ± 3°C [72 ± 5°F] and 50 ± 5 % relative humidity. Conduct the test in the same environment or immediately on removal.

9. Procedure

9.1 Weigh the specimen and record the weight and the type and density of insulation board used in the specimen.

9.2 Place the specimen on a smooth flat, rigid surface with the coated side up. Be sure the specimen is flat against the surface. No impact shall be made within 100 mm [4 in.] of the edges of the specimen nor within 100 mm [4 in.] from the previous impact points. Raise the weight up the tube to the minimum value of the impact range (see 10.2) where it is expected that less than 40 % of the ten tests will fail. Release the weight so that it drops on the test panel. Ten tests shall be performed at this minimum value.

9.3 Remove the specimen from the apparatus. With the naked eye and under normal lighting conditions, observe the impact area for broken reinforcing mesh. If broken reinforcing mesh is observed in at least four out of the ten tests, repeat the procedure at the next higher impact range. If breakage is observed in more than four out of the ten tests, repeat the procedure at the next lower range. Perform each impact at different locations on the specimen as referenced in 9.2.

9.4 For each drop height, tabulate the number of times the specimen displayed broken reinforcing mesh.

10. Interpretation of Results

10.1 The EIFS tested shall be classified according to the impact range at which six or more impact tests did not display broken reinforcing mesh.

10.2 The following classifications and impact ranges have been established for Class PB EIFS:

Classification	Impact Range
Standard Impact Resistance	2.8-5.6 J [25-49 inch-lb]
Medium Impact Resistance	5.7-10.1 J [50-89 inch-lb]
High Impact Resistance	10.2-17.0 J [90-150 inch-lb]
Ultra High Impact Resistance	Over 17.0 J [150 inch-lb]

11. Report

11.1 Report the following information:

11.1.1 Date of test and date of report,

11.1.2 Identification of the specimen by manufacturer's brand or trade name and its components,

11.1.3 Details of assembly, including a description of components, mixing and applications, and thickness of components,

11.1.4 Type and density of insulation,

11.1.5 Description of reinforcing mesh(es) and coatings used,

11.1.6 Number of layers of each type reinforcing mesh or reinforce coating used,

11.1.7 Weight of specimen per m^2 (ft^2),

11.1.8 The impact resistance in joules [inch-lb] and the impact classification achieved in the test, and

11.1.9 A statement that the tests were conducted in accordance with this method, or a complete description of any deviations from this method.

11.2 Provide before and after photographs of all test specimens.

12. Precision and Bias

12.1 Neither the precision nor the bias of this test method has been determined.

13. Keywords

13.1 exterior insulation and finish systems; EIFS; impact resistance