



**INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
UNIFORM EVALUATION SERVICE**

**EVALUATION CRITERIA FOR
HIGH DENSITY POLYETHYLENE (HDP) LATH
USED IN CEMENTITIOUS EXTERIOR WALL COATINGS
OR EXTERIOR CEMENT PLASTER (STUCCO)**

EC 014 - 2016

(Adopted - August 2013, Adopted Revision – January 2016)

1.0 INTRODUCTION

1.1 Purpose: The purpose of this evaluation criteria is to establish requirements for high density polyethylene (HDP) lath to be recognized in an independently reviewed evaluation report under the 2015, 2012 and 2009 *International Building Code*[®] (IBC) and the 2015, 2012 and 2009 *International Residential Code*[®] (IRC). Bases of recognition are IBC Section 104.11 and IRC Section R104.11. The reason for the development of this criteria is to provide guidelines for the evaluation of the use of HDP lath in cementitious exterior wall coatings, exterior cement plaster (stucco), and exterior cement plaster (stucco) intended to support precast stone veneer, since the prescriptive requirements of Chapter 25 of the IBC and Chapter 7 of the IRC do not provide requirements for the application of HDP lath.

1.2 Scope: This evaluation criteria is limited to fraction melt HDP lath used in cementitious exterior wall coatings recognized in a current evaluation report, or exterior cement plaster (stucco) complying with Chapter 25 of the IBC or UBC or Chapter 7 of the IRC. This criteria also covers the use of HDP Lath to reinforce exterior cement plaster (stucco) intended to support precast stone veneer.

2.0 Codes and Reference Standards

- 2.1** 2015, 2012 and 2009 *International Building Code*[®] (IBC), International Code Council.
- 2.2** 2015, 2012 and 2009 *International Residential Code*[®] (IRC), International Code Council.
- 2.3** ASTM D3776-09a, Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
- 2.4** ASTM D4976-06, Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.
- 2.5** ASTM E329-11c, Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
- 2.6** ASTM E2098-00(2006), Standard Test Method for Determining Tensile Breaking Strength of Glass Fiber Reinforcing Mesh for Use in Class PB Exterior Insulation and Finish Systems (EIFS), after Exposure to a Sodium Hydroxide Solution.
- 2.7** ICC-ES Acceptance Criteria for Cementitious Exterior Wall Coatings (AC11).
- 2.8** ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath) (AC191).
- 2.9** ICC-ES Acceptance Criteria for Precast Stone Veneer (AC51).
- 2.10** ISO/IEC 17011:2004 Conformity Assessment--General Requirements for Accreditation Bodies Accrediting Conformity Assessment Bodies
- 2.11** ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories



3.0 DEFINITIONS

High density polyethylene (HDP) lath: an alkali resistant, nonmetallic, extruded polyethylene lath that is used as a plaster base for exterior applications of exterior cement plaster or cementitious exterior wall coatings. The lath shall have minimum ¼- inch (6.4 mm) by ¼- inch (6.4 mm) square openings turned at 45 degrees to the length of the lath. A ¼- inch (6.4 mm) self-furring rib shall occur every third strand.

The products may be manufactured in flat sheets, bundles, or rolls of various lengths and widths with and without pre-attached, code-complying weather-resistive barriers.

4.0 BASIC INFORMATION

4.1 General: The following information shall be submitted:

4.1.1 Product Description: Complete information concerning the lath specifications, including type, thread mass, size of openings, thickness, weight, storage instructions and the manufacturing process.

4.1.2 Installation Instructions: Installation details and limitations.

4.1.3 Packaging and Identification: A description of the method of packaging and field identification of the lath. Identification provisions shall include the evaluation report number.

4.1.4 Field Preparation: A description of procedures for field preparation, if any.

4.2 Testing Laboratories: Testing laboratories shall be accredited for the applicable testing procedures in accordance with ISO/IEC 17025 by a recognized accreditation body conforming to ISO/IEC 17011. Testing at a non-accredited laboratory shall be permitted by IAPMO UES, provided the testing is conducted under the supervision of an accredited laboratory and the supervising laboratory issues the test report.

4.3 Test Reports: Test reports shall include all of the applicable information required the applicable test standard, UES Test Report Requirements Procedure No. ES-025 or equivalent, and Section 12 of ASTM E329.

4.4 Product Sampling: Sampling of the lath for tests under this criteria shall be conducted by the testing laboratory at the manufacturing locations. As an alternative, the specimens may be submitted to the laboratory by the manufacturer, provided the testing laboratory or accredited inspection agency compares the samples with the product specifications and concludes the materials comply. The stucco material used in the testing shall be identified in the test report with the bag labeling.

5.0 TEST AND PERFORMANCE REQUIREMENTS

5.1 Mass per Unit Area: The lath shall be conditioned and tested in accordance with ASTM D3776, Option A. A minimum of five replicate specimens shall be tested. Results shall be reported in units of oz/yd² (g/m²).

5.2 Tensile Strength: The lath shall be tested on the same specimens measured according to Section 5.1 of this criteria in accordance with ASTM E2098,. Tests shall be conducted on specimens with the long dimension in the self-furring direction The minimum tensile strength of all test specimens, with and without alkali conditioning, shall have a minimum of a 65- pound (289 N) breaking force for a 2- inch (51 mm) wide strip.

5.3 Structural Tests:

5.3.1 Structural tests of cementitious exterior coating systems incorporating the HDP lath shall be conducted in accordance with Section 3.2.12 of AC11. Alternatively, recognition of a specific assembly with HDP lath shall comply with Section 4.3 of AC11.

5.3.2 Structural tests of exterior cement plaster (stucco) incorporating the HDP lath shall be conducted in accordance with Sections 3.7.1 and 3.7.2 of AC191. Alternatively, a specific exterior cement plaster (stucco) assembly with HDP lath may be qualified under AC11 as a proprietary system.

5.3.3 Attachment: The attachment of the HDP lath shall be tested in accordance with Sections 5.3.3.1, 5.3.3.2 and 5.3.3.3 of this criteria.

5.3.3.1 Test Assemblies: Three test frames measuring 12 inches (305 mm) high by 20 inches (508 mm) wide shall be prepared. Wood framing shall be nominally 2-by-4 having a maximum specific gravity of 0.42. The test frame shall have one intermediate stud and shall be sheathed with 1/2-inch (13 mm) regular gypsum sheathing board attached in accordance with the IBC. A test panel shall be prepared measuring 6 inches (152 mm) high by 16 inches (406 mm) wide and consisting of a water-resistive barrier (provided to prevent adhesion of the test panel to the test frame); HDP lath, which is attached through the water-resistive barrier to the intermediate framing member with one fastener; and the applicable coating (cementitious exterior wall coating or exterior cement plaster, or exterior cement plaster with precast stone veneer with the maximum veneer weight, as applicable), which is embedded in the lath. The coatings shall be cured a minimum of 28 days. Refer to Figure 1 for an illustration of the test assembly.

5.3.3.2 Test Procedure: After curing, a vertical load shall be applied uniformly across the entire width of the sample until failure. A casing bead may be used on the top edge to prevent crushing, as seen in Figure 1 of AC11.

5.3.3.3 Conditions of Acceptance: The minimum load at failure for cementitious exterior wall coatings utilizing the HDP lath shall be 12 pounds (53 N). For exterior cement plaster (stucco) utilizing the HDP lath, the minimum load at failure shall be 18 pounds (80 N). For exterior cement plaster (stucco) utilizing HDP lath and used to support precast stone veneer, the minimum load at failure shall be 48 pounds (373 N). These conditions of acceptance are based on a weight of cementitious exterior wall coatings of 6.0 psf (287 Pa), of exterior cement plaster (stucco) of 9.0 psf (431 Pa) and of precast stone veneer used with exterior cement plaster of 24 psf (1149 Pa). The test loads are based on a maximum fastener tributary area of 96 in² (61,935 mm²) and an applied factor of safety of three.

5.4 Embedment: Embedment testing of the HDP lath into cementitious exterior wall coatings or exterior cement plaster (stucco) shall comply with Section 3.7.3 of AC191. When testing is of cementitious exterior wall coatings the test procedure shall utilize cementitious exterior wall coating instead of portland cement plaster (stucco) and the minimum embedment length shall be 1/8 inch (3.2 mm).

5.5 Fastener Attachment: The fastener attachment testing shall comply with Section 3.7.4 of AC191. When testing is on cementitious exterior wall coatings, the test procedure shall utilize cementitious exterior wall coating instead of portland cement plaster (stucco).

- 5.6 Fire Exposure Tests:** Fire exposure tests of cementitious exterior coating systems, exterior cement plaster (stucco), or exterior cement plaster with precast stone veneer incorporating the HDP lath in the base coat shall be conducted in accordance with the applicable sections of AC11.

6.0 QUALITY CONTROL

- 6.1** Quality documentation complying with IAPMO-UES Minimum Requirements for Listee's Quality Assurance System (IAPMO-UES 010) or equivalent shall be submitted. Provisions shall be included in the documentation to verify that the HDP lath has a minimum tensile strength of 65 pounds (289 N) breaking force for a 2 inch (51 mm) wide strip with the long dimension in the self-furring direction when tested in accordance with ASTM E2098.
- 6.2** Third-party follow-up inspections are not required under this evaluation criteria.

7.0 EVALUATION REPORT RECOGNITION

- 7.1** When the HDP lath is recognized for use with cementitious exterior wall coating systems, the evaluation report shall state the name of each cementitious exterior wall coating system and the applicable evaluation report number for each system that has been qualified for use with the lath.
- 7.2** Precast stone veneer shall be recognized in a current evaluation report as complying with AC51.
- 7.3** When the HDP lath is recognized for exterior cement plaster supporting precast stone veneer, the evaluation report shall state the name of each precast stone veneer and the applicable evaluation report number for each system that has been qualified for use with the HDP lath.
- 7.4** Assemblies shall be limited to non-rated, combustible construction unless satisfactorily tested in accordance with Section 3.5 of this criteria.
- 7.5** The HDP lath shall be furred to the depth required by the evaluation report on the cementitious exterior wall coating, but not less than the depth required in Section 3.1.12 of AC11, or the depth required by the IBC or IRC for exterior cement plaster (stucco).