ICC EVALUATION SERVICE

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ACCEPTANCE CRITERIA FOR COLD, LIQUID-APPLIED, BELOW-GRADE, EXTERIOR DAMPPROOFING AND WATERPROOFING MATERIALS

AC29

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PREFACE

Evaluation reports issued by ICC Evaluation Service, LLC (ICC-ES), are based upon performance features of the International family of codes. (Some reports may also reference older code families such as the BOCA National Codes, the Standard Codes, and the Uniform Codes.) Section 104.11 of the *International Building Code*® reads as follows:

> **The provisions of this code are not intended to prevent the installation of any materials or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.**

This acceptance criteria has been issued to provide interested parties with guidelines for demonstrating compliance with performance features of the codes referenced in the criteria. The criteria was developed through a transparent process involving public hearings of the ICC-ES Evaluation Committee, and/or on-line postings where public comment was solicited.

New acceptance criteria will only have an "approved" date, which is the date the document was approved by the Evaluation Committee. When existing acceptance criteria are revised, the Evaluation Committee will decide whether the revised document should carry only an "approved" date, or an "approved" date combined with a "compliance" date. The compliance date is the date by which relevant evaluation reports must comply with the requirements of the criteria. See the ICC-ES web site for more information on compliance dates.

If this criteria is a revised edition, a solid vertical line (|) in the margin within the criteria indicates a technical change from the previous edition. A deletion indicator (→) is provided in the margin where wording has been deleted if the deletion involved a technical change.

ICC-ES may consider alternate criteria for report approval, provided the report applicant submits data demonstrating that the alternate criteria are at least equivalent to the criteria set forth in this document, and otherwise demonstrate compliance with the performance features of the codes. ICC-ES retains the right to refuse to issue or renew any evaluation report, if the applicable product, material, or method of construction is such that either unusual care with its installation or use must be exercised for satisfactory performance, or if malfunctioning is apt to cause injury or unreasonable damage.

NOTE: The Preface for ICC-ES acceptance criteria was revised in July 2011 to reflect changes in policy.

Acceptance criteria are developed for use solely by ICC-ES for purpose of issuing ICC-ES evaluation reports.

ACCEPTANCE CRITERIA FOR COLD, LIQUID-APPLIED, BELOW-GRADE, EXTERIOR DAMPPROOFING AND WATERPROOFING MATERIALS (AC29)

1.0 INTRODUCTION

1.1 Purpose: The purpose of this acceptance criteria is to establish requirements for cold, liquid-applied, below-grade, exterior dampproofing and waterproofing materials to be recognized in an ICC Evaluation Service, LLC (ICC-ES), evaluation report under the 2009 and 2006 *International Building Code*® (IBC), the 2009 and 2006 *International Residential Code*® (IRC), the BOCA® *National Building Code*/1999 (BNBC), the 1999 *Standard Building Code*© (SBC) and the 1997 *Uniform Building Code*™ (UBC). Bases of recognition are IBC Section 104.11, IRC Section R104.11, BNBC Section 106.4, SBC Section 103.7 and UBC Section 104.2.8.

1.2 Scope: This acceptance criteria is limited to a fluid-applied membranes, intended for use as below-grade waterproofing or dampproofing. The membranes are alternatives to dampproofing and waterproofing materials described in Section 1805 of the 2009 IBC, Section 1807 of the 2006 IBC, Section R406 of the 2009 and 2006 IRC, Appendix Chapter 18 of the UBC, Section 1813 of the BNBC and Section 1814 of the SBC.

1.3 Reference Standards:

1.3.1 2009 and 2006 *International Building Code*® (IBC), International Code Council.

1.3.2 2009 and 2006 *International Residential Code*® (IRC), International Code Council.

1.3.3 BOCA® *National Building Code*/1999 (BNBC).

1.3.4 1999 *Standard Building Code*© (SBC).

1.3.5 1997 *Uniform Building Code*™ (UBC).

1.3.6 ASTM C 836-06, Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course, ASTM International.

1.3.7 ASTM D 2939-03, Standard Test Methods for Emulsified Bitumens Used as Protective Coatings, ASTM International.

1.3.8 ASTM E 96-05, Standard Test Methods for Water Transmission of Materials, ASTM International.

1.3.9 ASTM C 1306-95, Standard Test Method for Hydrostatic Pressure Resistance of a Liquid-Applied Waterproofing Membrane, ASTM International.

1.3.10 ASTM E 154-99, Standard Test Method for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or Ground Cover, ASTM International.

1.3.11 ASTM D 5385-93(2006), Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes, ASTM International.

1.4 Definitions:

1.4.1 Dampproofing: Treatment of a surface or structure located below grade to resist the passage of water vapor and restrict the flow of water in liquid form under conditions of no hydrostatic pressure.

1.4.2 Waterproofing: Treatment of a surface or structure located below grade to resist the passage of water in vapor or liquid form, under conditions of hydrostatic pressure.

1.4.3 Hydrostatic Pressure: Pressure exerted by water at rest.

2.0 BASIC INFORMATION

The applicant for an evaluation report concerning exterior dampproofing and waterproofing materials shall submit the following:

2.1 General:

2.1.1 Product Description: The description shall include the following:

2.1.1.1 Material specifications.

2.1.1.2 Wet and dry film thicknesses.

2.1.1.3 Percent-solids content of the waterproofing and dampproofing materials.

2.1.1.4 Type and amount of priming material applied to the substrate prior to the application of the membrane.

2.1.1.5 For multicomponent systems, the mix ratio, mixing procedure, and working time for the material.

2.1.1.6 Amount of liquid material per shipping container.

2.1.1.7 Shelf life, including identification provisions.

2.1.1.8 Type and amount of sealer materials applied as a top coat to the dampproofing and waterproofing materials, if applicable.

2.1.1.9 Description of the base material and thinning agent.

2.1.1.10 Description of protective barriers, as applicable.

2.1.2 Installation Instructions: The installation instructions shall include the following:

2.1.2.1 The application rate of liquid material applied to substrate, measured in gallons per square foot and dry film thickness. Application procedures shall specify substrates, such as portland cement plaster, treated wood, parged and/or unparged masonry or concrete. Conditions necessary for proper application, such as ambient temperature, age of substrate, substrate temperature, site condition (such as wet or muddy), and material temperature, shall be included.

2.1.2.2 Preparation of materials prior to application, including components, proportions, temperature and humidity conditions, method of mixing and pot life of mixture.

2.1.2.3 Maximum spacing, method of installation, and other information on expansion and control joints.

2.1.2.4 Details and instructions for terminations/ flashing of waterproofing and dampproofing system.

2.1.2.5 Type, location, and installation procedures for all flashing, counterflashing, caulking and other special treatments.

2.1.2.6 Conditions necessary for proper application of protective barriers, if applicable.

2.1.2.7 Inspection procedures to verify proper application.

2.1.3 Instructions on Substrate Preparation: Substrate preparation shall address the following:

2.1.3.1 Removal of deleterious materials that may affect bond and performance of the dampproofing and/or waterproofing materials.

2.1.3.2 Treatment of voids, cracks, tie-rod holes, joints, honeycombed areas, brick ledges and other excessively rough areas.

2.1.3.3 Compatibility of primers and other substrate conditioning materials with the dampproofing and waterproofing material.

2.1.3.4 Cure time, drying period and other time-related requirements.

2.1.4 Packaging and Identification: A description of the method of packaging and field identification of the waterproofing or dampproofing membrane. Identification provisions shall include the evaluation report number and the manufacturer's name/logo.

2.1.5 Field Preparation: A description of the methods of field storing, application and finishing.

2.2 Testing Laboratories and Reports of Tests:

2.2.1 Testing laboratories shall comply with the ICC-ES Acceptance Criteria for Test Reports (AC85), and Section 4.2 of the ICC-ES Rules of Procedure for Evaluation Reports.

2.2.2 Test reports shall comply with AC85. Test reports shall include test specimen description, details of the test method, manner of testing, test results, calculated results, and photographs, when necessary. The test reports shall also include information required by the applicable ASTM standard or this acceptance criteria.

2.2.3 Sampling of materials to be tested shall comply with Section 3.2 of AC85. Witnessing of assembly of the test specimens shall comply with Section 3.3 of AC85.

3.0 TEST AND PERFORMANCE REQUIREMENTS

3.1 General: Cold, liquid-applied, dampproofing and waterproofing products shall comply with the properties and test methods indicated in Table 1 of this acceptance criteria. Testing of the material shall be done for each substrate material type for which recognition is sought. Soil conditioning of test specimens shall be in accordance with Section 3.2.

3.2 Preparation of Test Specimens (Soil Conditioning): Test specimens for the hydrostatic pressure over cracks testing of waterproofing products, and the resistance to decay testing of dampproofing and waterproofing products as designated in Table 1, shall be prepared as follows: The soil is prepared in accordance with the applicable portions of Section 13 of ASTM E 154. Three specimens for each test are buried in the soil and incubated in accordance with Section 13.5. The incubation period is determined in accordance with Section 13.6. After the conditioning period, the specimens are removed from the soil and washed clean of all soil prior to testing.

4.0 QUALITY CONTROL

4.1 Quality documentation complying with the ICC-ES Acceptance Criteria for Quality Documentation (AC10) shall be submitted.

4.2 Third-party follow-up inspections are not required under this criteria.

5.0 EVALUATION REPORT RECOGNITION

The following information shall be included in the evaluation report:

5.1 The thickness of the coating

5.2 The temperature used in the low-temperature crack bridging test as the lowest recognized temperature, if the temperature is higher than the standard temperature of -15°F (-26°C).

5.3 For recognition of dampproofing coatings, the evaluation report shall include a statement that subsurface soil investigation of the level of groundwater at the construction site shall be performed to verify the nonexistence of hydrostatic pressure.

5.4 The allowable hydrostatic pressure for waterproofing products. ■

TABLE 1—TESTING

PROPERTIES		NUMBER OF SPECIMENS	CONDITIONING	TEST METHOD	REQUIREMENTS
Required for both dampproofing and waterproofing products					
Resistance to decay[1]	Weight loss	1	ASTM E 154, Section 13, See Section 3.2	ASTM E 154, Section 13	10 percent maximum weight loss
	Water vapor permeance	3		ASTM E 96, Desiccant Method, Procedure A	1 perm maximum water vapor transmission
Resistance to water		3	NA	ASTM D 2939, Section 15	No blistering or reemulsification
Remain in place during application		1	NA	ASTM C 836, Section 6.8	As recommended by manufacturer[2] ± 5 mils
Adhesion strength		3	NA	ASTM C 836, Section 6.9	1 lbf./in. on surfaces desired
Additional requirements for waterproofing products only					
Hydrostatic pressure over cracks[1, 4]		3	ASTM E 154, Section 13, See Section 3.2	ASTM C 1306 or ASTM D 5385	50 percent of lowest value achieved[5]
Low-temperature crack bridging[3]		5	NA	ASTM C 836, Section 6.7	No cracking, splitting, pinholes or loss of adhesion
Extensibility after heat aging		3	NA	ASTM C 836, Section 6.11	¼ inch, no cracking

For **SI**: 1 inch = 25.4 mm, 1 mil = 0.0254 mm, 1 lbf./in. = 0.175 N/mm, 1 perm = 5.745×10^{-11} kg/pa·s·m^2.

[1] Test samples to be conditioned in accordance with Section 3.2. Sections 13.5.1.2 and 13.5.1.3 of ASTM E 154 may be revised, allowing the test specimen to be placed directly on the concrete before placement into the soil.

[2] Manufacturer to recommend the actual wet and dry film thicknesses for testing. The reported thicknesses will be part of the evaluation report.

[3] The test temperature is recommended by the manufacturer. The test temperature must be reported in the test report and be part of the evaluation report.

[4] The test specimen shall be tested over a minimum $^1/_{16}$-inch crack.

[5] Fifty percent of the lowest hydrostatic pressure will be reported in the evaluation report as the maximum allowable hydrostatic pressure.