



December 28, 2007

**TO: PARTIES INTERESTED IN EVALUATION REPORT ON WATER-RESISTIVE AND AIR BARRIERS**

**SUBJECT: Proposed Revisions to the Acceptance Criteria for Water-resistive Barriers, Subject AC38-0208-R1 (ST/MB)**

**Hearing Information:**

Thursday, February 7, 2008

8:00 a.m.

**The Westin Los Angeles Airport**

5400 West Century Boulevard

Los Angeles, California 90045

(310) 216-5858

Dear Madam or Sir:

The enclosed proposed revisions to the above-referenced acceptance criteria will be considered at the Evaluation Committee hearing noted above. We have received a request from an applicant to revise the acceptance criteria to provide for the optional evaluation of the air permeance of water-resistive barriers. Some legacy reports had recognition of the air barrier capabilities of some water-resistive barriers; however, no ICC-ES criteria currently contains provisions for the evaluation of this characteristic.

The proposed revision is based on material properties only, so it is consistent with the other provisions in AC38. The conditions of acceptance are based on the air barrier material requirements of the Canadian Construction Materials Center, which have been in effect since 1996. The proposed test method and minimum value have also been adopted in the Massachusetts State Energy Code (Section 1304.3.1) and have been proposed for consideration by ICC for the 2007/2008 code change cycle under two proposed changes to the *International Energy Conservation Code*<sup>®</sup> (IECC). The proposed changes are EC62-07/08 and EC124-07/08. As part of this proposed revision, the IECC has been included, since the scoping provisions for air sealing are contained in this code.

The criteria has also been editorially revised as follows:

- a. Update references to the 2006 editions of the IBC and IRC.

- b. Revise Section 3.2 of the criteria to reflect revised language contained in the 2006 IRC.
- c. Revise Tables 2 and 3 to reflect the current terminology contained in the referenced standard.
- d. Remove reference to CCMC Technical Guide 07102 and insert the water-ponding test procedure contained in the CCMC Technical Guide.

You are cordially invited to submit written comments, or to attend the Evaluation Committee hearing and present verbal comments. Written comments will be forwarded to the committee, **prior to the hearing**, if received by **January 23, 2008**. If the deadline is missed, you must provide 35 copies of the submittal material, collated, stapled and three-hole punched, to the Los Angeles business/regional office before the committee meeting. Your consideration in providing written responses by the deadline would be greatly appreciated. Consideration of written comments and presentations of a significant nature received the week of the hearing or at the hearing may be delayed until a future meeting as the committee and staff may not have adequate time for review.

**Comments from interested parties that are submitted in response to proposed acceptance criteria will be posted on the ICC-ES web site prior to the meeting. Postings will occur shortly after the comment deadline (January 23, 2008). Staff memos responding to some of the comments, and comments received after the January 23 deadline, will be posted on February 1, 2008.**

**The purpose for posting the comments prior to the meeting is to help interested parties be better prepared to discuss the issues at the meeting.**

Any written material submitted for committee consideration will be available for public distribution as set forth in Section 2.7 of the Rules of Procedure for the Evaluation Committee (copy enclosed).

Visual aids (including, but not limited to, charts, overhead transparencies, slides, videos, or presentation software) for viewing at meetings will be permitted only if the presenter provides to ICC-ES, before the presentation, a copy of the visual aid(s) in a medium that can be retained by ICC-ES with its record of the meeting, and that can also be provided to interested parties.

Your cooperation is requested in forwarding to the Los Angeles business/regional office all material directed to the Evaluation Committee. Parties interested in the deliberations of the committee should refrain from communicating, whether in writing or verbally, with committee members regarding agenda items. The committee reserves the right to refuse communications that do not comply with this request.

Newly approved acceptance criteria may involve test methods or test protocols that are not currently included in the scope of testing services offered by accredited testing

laboratories. As noted in the ICC-ES Rules of Procedure for Evaluation Reports, the scope of the laboratory's accreditation must include the type of testing that is to be reported to ICC-ES. We encourage accredited laboratories to expand their scopes of accreditation to include testing under newly approved acceptance criteria. Please note that testing laboratories must be accredited by the International Accreditation Service (IAS) or by another accreditation body that is a signatory to the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement. For further information, please contact IAS at (562) 699-0541, extension 3309, or send an e-mail to [pmccullen@iasonline.org](mailto:pmccullen@iasonline.org).

If you have any questions, please contact the undersigned at (800) 423-6587, extension 4313, or Mike Beaton, senior regional manager, at extension 3292. You may also reach us by e-mail at [es@icc-es.org](mailto:es@icc-es.org).

Yours very truly,

A handwritten signature in black ink, appearing to read "Steven Thorsell". The signature is fluid and cursive, with a long horizontal stroke at the beginning and a large, looped "S" at the end.

Steven Thorsell  
Director of ICC-ES Projects

SRT/MB/aam

Enclosures

cc: Evaluation Committee



## ICC EVALUATION SERVICE, INC., RULES OF PROCEDURE FOR THE EVALUATION COMMITTEE

### 1.0 PURPOSE

The purpose of the Evaluation Committee is to monitor the work of ICC-ES, in issuing evaluation reports; to evaluate and approve acceptance criteria on which evaluation reports may be based; and to sponsor related changes in the applicable codes.

### 2.0 MEETINGS

**2.1** The Evaluation Committee shall schedule meetings that are open to the public in discharging its duties under Section 1, subject to Section 3.

**2.2** All scheduled meetings shall be publicly announced.

**2.3** Two-thirds ( $\frac{2}{3}$ ) of the voting Evaluation Committee members shall constitute a quorum. A majority vote of members present is required on any action.

**2.4** In the absence of the nonvoting chairman-moderator, Evaluation Committee members present shall elect an alternate chairman from the committee for that meeting. The alternate chairman shall be counted as a voting committee member for purposes of maintaining a committee quorum and to cast a tie-breaking vote of the committee.

**2.5** Minutes of the meetings shall be kept.

**2.6** An electronic audio record of meetings shall be made by ICC-ES; no other audio, video, electronic or stenographic recordings of the meetings will be permitted. Visual aids (including, but not limited to, charts, overhead transparencies, slides, videos, or presentation software) viewed at meetings shall be permitted only if the presenter provides ICC-ES before presentation with a copy of the visual aid in a medium which can be retained by ICC-ES with its record of the meeting and which can also be provided to interested parties requesting a copy. A copy of the ICC-ES recording of the meeting and such visual aids, if any, will be available to interested parties upon written request made to ICC-ES together with a payment as required by ICC-ES to cover costs of preparation and duplication of the copy. These materials will be available beginning five days after the conclusion of the meeting but will no longer be available after 30 days have elapsed from the conclusion of the meeting.

**2.7** Parties interested in the deliberations of the committee should refrain from communicating, whether in writing or verbally, with committee members regarding agenda items. All written communications and submissions regarding agenda items should be delivered to ICC-ES. All such written communications and submissions shall be considered nonconfidential and available for discussion in open session of an Evaluation Committee meeting, and shall be delivered at least ten days before the scheduled Evaluation Committee meeting if they are to be forwarded to the committee. Correspondence received by ICC-ES will not

be released to any party, except to the Evaluation Committee, prior to the meeting without permission of the author. The committee reserves the right to refuse recognition of communications which do not comply with the provisions of this section. All such communications and submissions will be available from ICC-ES upon written request and payment of costs associated with duplication. The materials will be available beginning five days after the conclusion of the meeting but will no longer be available after 30 days have elapsed from the conclusion of the meeting.

### 3.0 CLOSED SESSIONS

Evaluation Committee meetings shall be open except that the chairman may call for a closed session to seek advice of counsel.

### 4.0 ACCEPTANCE CRITERIA

**4.1** Acceptance criteria are established by the committee to provide a basis for issuing ICC-ES evaluation reports on products and systems under codes referenced in Section 2.0 of the Rules of Procedure for Evaluation Reports. They also clarify conditions of acceptance for products and systems specifically regulated by the codes.

Acceptance criteria may involve a product, material, method of construction, or service. Consideration of any acceptance criteria must be in conjunction with a current and valid application for an ICC-ES evaluation report, an existing ICC-ES evaluation report, or as otherwise determined by the Evaluation Committee.

#### 4.2 Procedure:

**4.2.1** Proposed acceptance criteria shall be developed by the ICC-ES staff and discussed in open session with the Evaluation Committee during a scheduled meeting, except as permitted in Section 5.0 of these rules.

**4.2.2** Proposed acceptance criteria shall be available to interested parties at least 30 days before discussion at the committee meeting.

**4.2.3** The committee shall be informed of all pertinent written communications received by ICC-ES.

**4.2.4** Attendees at Evaluation Committee meetings shall have the opportunity to speak on acceptance criteria listed on the meeting agenda, to provide information to committee members.

**4.3** Approval of acceptance criteria shall be as specified in Section 2.3 of these rules.

**4.4** The action of the Evaluation Committee may be appealed in accordance with the ICC-ES Rules of Procedure for Appeal of Acceptance Criteria.

**5.0 COMMITTEE BALLOTING FOR ACCEPTANCE CRITERIA**

**5.1** Acceptance criteria may be issued without a public hearing following a 45-day public comment period and a majority vote for approval by the Evaluation Committee when, in the opinion of ICC-ES staff, one or more of the following conditions have been met:

1. The subject is nonstructural, does not involve life safety, and is addressed in nationally recognized standards or generally accepted industry standards.
2. The subject is a revision to an existing acceptance criteria that requires a formal action by the Evaluation Committee, and public comments raised were resolved by staff with commenters fully informed.
3. Other acceptance criteria and/or the code provide precedence for the revised criteria.

**5.2** Negative votes must be based upon one or more of the following, for the ballots to be considered valid and require resolution:

- a. *Lack of clarity:* There is insufficient explanation of the scope of the acceptance criteria or insufficient description of the intended use of the product or system; or the acceptance criteria is so unclear as to be unacceptable. (The areas where greater clarity is required must be specifically identified.)
- b. *Insufficiency:* The criteria is insufficient for proper evaluation of the product or system. (The provisions of the criteria that are in question must be specifically identified.)
- c. *The subject of the acceptance criteria is not within the scope of the applicable codes:* A report issued by ICC-ES is intended to provide a basis for approval under the codes. If the subject of the acceptance criteria is not regulated by the codes, there is no basis for issuing a report, or a criteria. (Specifics must be provided concerning the inapplicability of the code.)
- d. *The subject of the acceptance criteria needs to be discussed in a public hearings.* The committee member

requests additional input from other committee members, staff or industry.

**5.3** An Evaluation Committee member, in voting on an acceptance criteria, may only cast the following ballots:

- Approved
- Approved with Comments
- Negative: Do Not Proceed

**6.0 COMMITTEE COMMUNICATION**

Direct communication between committee members, and between committee members and an applicant or concerned party, with regard to the processing of a particular acceptance criteria or evaluation report shall take place only in a public hearing of the Evaluation Committee. Accordingly:

**6.1** Committee members receiving an electronic ballot should respond only to the sender (staff). Committee members who wish to discuss a particular matter with other committee members, before reaching a decision, should ballot accordingly and bring the matter to the attention of ICC-ES staff, so the issue can be placed on the agenda of a future committee meeting.

**6.2** Committee members who are contacted by an applicant or concerned party on a particular matter that will be brought to the committee will refrain from private communication and will encourage the applicant or concerned party to forward their concerns through the ICC-ES staff in writing, and/or make their concerns known by addressing the committee at a public hearing, so that their concerns can receive the attention of all committee members. ■

*Effective November 6, 2006*



## PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR WATER-RESISTIVE BARRIERS

AC38

Proposed December 2007

Previously approved June 2004, July 2000, September 1990

### PREFACE

Evaluation reports issued by ICC Evaluation Service, Inc. (ICC-ES), are based upon performance features of the International family of codes and other widely adopted code families, including the Uniform Codes, the BOCA National Codes, and the SBCCI Standard Codes. Section 104.11 of the *International Building Code*<sup>®</sup> 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.

Similar provisions are contained in the Uniform Codes, the National Codes, and the Standard Codes.

ICC-ES may consider alternate criteria, provided the report applicant submits valid data demonstrating that the alternate criteria are at least equivalent to the criteria proposed in this document, and otherwise meet the applicable performance requirements of the codes. Notwithstanding that a product, material, or type or method of construction meets the requirements of the criteria proposed in this document, or that it can be demonstrated that valid alternate criteria are equivalent to the criteria in this document and otherwise meet the applicable performance requirements of the codes, ICC-ES retains the right to refuse to issue or renew an evaluation report, if the product, material, or type or method of construction is such that either unusual care with its installation or use must be exercised for satisfactory performance, or malfunctioning is apt to cause unreasonable property damage or personal injury or sickness relative to the benefits to be achieved by the use of the product, material, or type or method of construction.

# PROPOSED REVISIONS TO ACCEPTANCE CRITERIA FOR WATER-RESISTIVE BARRIERS

## 1.0 INTRODUCTION

**1.1 Purpose:** The purpose of this criteria is to establish requirements for recognition of water-resistive barriers in ICC Evaluation Service, Inc. (ICC-ES), evaluation reports under the 2003~~6~~ *International Building Code*<sup>®</sup> (IBC), the 2003~~6~~ *International Residential Code*<sup>®</sup> (IRC), the BOCA<sup>®</sup> *National Building Code/1999* (NBBC), the 1999 *Standard Building Code*<sup>®</sup> (SBC) and the 1997 *Uniform Building Code*<sup>™</sup> (UBC).

**1.2 Scope:** This criteria is limited to sheet materials used on exterior walls as water-resistive barriers under Sections 1404.2 and 2510.6 of the IBC, ~~Section R703 of the IRC and Section 1404.3 of the NBBC; weather-resistant sheathing paper under Section R703 of the IRC;~~ moisture protection barriers under Section 2303.3 of the SBC; and weather-resistive barriers under Sections 1402.1 and 2506.4 of the UBC and optionally as air barrier material under IECC Sections 402.4.1 and 502.4.3.

### 1.3 Definitions:

**1.3.1 Water-resistive Barrier:** For the purposes of this criteria, the term water-resistive barrier describes a material that is intended to perform as a secondary barrier behind an exterior cladding, providing a means to resist penetration of liquid water that penetrates behind the exterior covering or cladding, and includes within its scope water-resistive barriers under Section 1404.2 of the IBC, Section R703 of the IRC and Section 1404.3 of the NBBC; ~~weather-resistant sheathing papers under Section R703 of the IRC;~~ moisture protection barriers under Section 2303.3 of the SBC; and weather-resistive barriers under Section 1402.1 of the UBC.

**1.3.2 Paper-based Barrier:** Paper-based barriers are building papers composed predominantly of sulfate pulp fibers, that comply with UBC Standard 14-1, and that are intended for use as water-resistive barriers.

**1.3.3 Felt-based Barrier:** Felt-based barriers are asphalt-saturated organic felts that comply with ASTM D 226, and are intended for use as water-resistive barriers.

**1.3.4 Polymeric-based Barrier:** Polymeric-based barriers are proprietary polymeric sheet materials for use as water-resistive barriers.

**1.3.5 Air Barrier Material:** A material in building construction that is designed and installed to reduce air leakage either into or through an opaque wall.

### 1.4 Codes and Reference Documents:

**1.4.1** 2003~~6~~ *International Building Code*<sup>®</sup> (IBC), International Code Council.

**1.4.2** 2003~~6~~ *International Residential Code*<sup>®</sup> (IRC), International Code Council.

**1.4.3** 2006 *International Energy Conservation Code*<sup>®</sup> (IECC), International Code Council.

**1.4.4** BOCA<sup>®</sup> *National Building Code/1999* (NBBC).

**1.4.5** 1999 *Standard Building Code*<sup>®</sup> (SBC).

**1.4.6** 1997 *Uniform Building Code*<sup>™</sup> (UBC).

**1.4.7** UBC Standard 14-1 (1997), Kraft Waterproof Building Paper.

**1.4.8** ~~Canadian Construction Materials Centre (CCMC) Technical Guide for Sheathing, Membrane, Breather type, 07102, issued July 13, 1993, updated June 10, 1999. A copy of the technical guide can be obtained from CCMC at 45 O'Connor Street, Suite 1200, Ottawa, Ontario, K1P6N7, Canada, (613) 993-6189.~~

**1.4.8** ASTM D 226-97a, Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing, ASTM International.

**1.4.9** ASTM D 779-03, Standard Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method, ASTM International.

**1.4.10** ASTM D 5034-95, Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test), ASTM International.

**1.4.11** ASTM E 96-00e01, Test Method for Water Vapor Transmission of Materials, ASTM International.

**1.4.12** ASTM E 2178-03 Standard Test Method for Air Permeance of Building Materials. ASTM International.

**1.4.13** AATCC Test Method 127-1985, Water Resistance: Hydrostatic Pressure Test. (A copy of the test method may be obtained from the American Association of Textile Chemists and Colorists, at PO Box 12215, 1 Davis Drive, Research Triangle Park, North Carolina, (919) 549-8141.)

## 2.0 BASIC INFORMATION AND REPORTS OF TESTS

**2.1 Product Description:** Descriptions of the materials and the manufacturing process shall be submitted.

**2.2 Installation Instructions:** Installation instructions shall be submitted. The instructions shall include requirements that the barrier be installed horizontally on vertical walls, with the upper layer lapped over the lower layer not less than 2 inches (51 mm), and that where vertical joints occur, the barrier shall be lapped not less than 6 inches (152 mm) and must include the maximum exposure time permitted by the manufacturer. If the material is to be evaluated as an air barrier material in addition to a water-resistive barrier, installation instructions shall identify specific installation provisions for air barrier material applications.

**2.3 Packaging and Identification:** A description of the method of packaging and identifying the material shall be submitted. Product labeling shall include the evaluation report number at regular intervals.

### 2.4 Testing Laboratories, Reports of Tests and Product Sampling:

**2.4.1** Testing laboratories shall comply with Section 2.0 of the ICC-ES Acceptance Criteria for Test Reports (AC85) and Section 4.2 of the ICC-ES Rules of Procedure for Evaluation Reports.

**2.4.2** Test reports shall comply with AC85.

**2.4.3** Test specimens shall be sampled in accordance with Section 3.2 of AC85.

**2.4.4** Unless otherwise specified in the applicable test method, a minimum of five specimens shall be tested.

## PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR WATER-RESISTIVE BARRIERS

### 3.0 REQUIRED DATA

**3.1** For paper-based barriers under the IBC, IRC or UBC, reports of tests demonstrating compliance with UBC Standard 14-1 shall be submitted. Test methods for dry tensile strength, water resistance and water vapor transmission tests are noted in Table 2 of this criteria.

**3.2** For felt-based barriers under the IBC, IRC, BNBC, SBC or UBC, reports of tests demonstrating compliance with ASTM D 226, and with Section 3.3.4 of this criteria, shall be submitted. ~~For use in areas enforcing the IRC, the barrier shall also weigh not less than 14 pounds per 100 square feet (0.683 kg/m<sup>2</sup>).~~

**3.3** For polymeric-based barriers under the IBC, IRC, BNBC, SBC or UBC, data in accordance with Sections 3.3.1 through 3.3.4 of this criteria shall be submitted. Test methods for dry tensile strength or dry breaking force, water-resistance and water vapor transmission tests are noted in Table 3 of this criteria.

**3.3.1** Reports of dry tensile strength tests shall be conducted in accordance with ASTM D 828 or D 882. Reports of dry breaking force tests shall be conducted in accordance with ASTM D 5034, using the Grab Method set forth in Section 4.2.1.1 of ASTM D 5034 and using a constant-rate-extension (CRE) testing machine as described in Section 4.2.2.1 of ASTM D 5034. Test specimens shall be tested in both warp (machine) and filling (cross) direction as set forth in Section 7.3 of ASTM D 5034. The number of test specimens shall be as required in Section 7.3 of ASTM D 5034. Minimum conditions of acceptance shall be as noted in Table 1 of this criteria.

**3.3.2** Water-resistance tests shall be conducted in accordance with ASTM D 779. For Grade D barriers, where testing in accordance with ASTM D 779 is not applicable, tests shall be conducted in accordance either with the water ponding test ~~specified in Section 6.4.5 of CCMC 07102, or with Section 4.2 set forth in either Section 4.2.1 or 4.2.2~~ of this criteria. For each of the three specified tests, the testing shall be conducted on both control and weathered specimens. Control specimens shall be conditioned at 73°F (23.7°C) and 50 percent relative humidity for a minimum of 40 hours. Weathered specimens shall be conditioned in accordance with Section 4.1 of this criteria.

For tests conducted under ASTM D 779, minimum conditions of acceptance shall be as noted in Table 1 of this criteria. For tests conducted under Section 6.4.5 of CCMC 07102, conditions of acceptance shall be that no water shall transmit through the membrane. For tests conducted under Section 4.2 of this criteria, the condition of acceptance is that no leakage is permitted on the underside of any specimen.

**3.3.3** Reports shall be submitted of water-vapor transmission tests conducted in accordance with ASTM E 96, Desiccant Method. Conditions of acceptance shall be as noted in Table 1 of this criteria.

**3.3.4** Reports shall be submitted of tests demonstrating that the material does not crack when bent over a  $\frac{1}{16}$ -inch-diameter (1.6 mm) mandrel at a temperature of 32°F (0°C).

**3.4** When the product is to be evaluated as an air barrier material, reports of air permeance testing in accordance with ASTM E 2178 shall be submitted. A minimum of five specimens shall be tested. Minimum conditions of

acceptance shall be an air permeance less than or equal to 0.02 L/(s·m<sup>2</sup>) @ 75 Pa (0.004 cfm/ft<sup>2</sup> @ 0.3 inch w.g. (1.57 psf)) for all five specimens.

### 4.0 TEST METHODS

**4.1 Weathering Tests:** This test method applies to polymeric-based barriers.

**4.1.1 General:** Three samples, each measuring 18 inches by 48 inches (457 mm by 1219 mm), are required. One sample shall be used for preparing control specimens and shall be conditioned at 73°F (23.7°C) and 50 percent relative humidity for a minimum of 40 hours. Two samples shall be exposed to ultraviolet light, followed by exposure to accelerated aging in accordance with Sections 4.1.2 and 4.1.3 of this criteria.

**4.1.2 Ultraviolet Light Exposure:** Two 18-inch-by-48-inch (457 mm by 1219 mm) samples shall be exposed to light from ultraviolet sun lamps for 210 hours (10 hours per day for 21 days) in an enclosure as depicted in Figure 1. Ultraviolet light exposure shall be directed on the sample surfaces that will be exposed to sunlight in normal application. Lamps and enclosure shall be adjusted so the specimen temperature is between 135°F and 140°F (57°C and 60°C). Sunlamp bulbs shall be General Electric Type H275 RUV (275 W) or equivalent bulbs, providing UV characteristics of 5.0 W/m<sup>2</sup>/nm irradiance at a wavelength of 315 to 400 nm at 1 meter.

**4.1.3 Accelerated Aging:** Three 10-inch-square (254 mm<sup>2</sup>) specimens shall be cut from the ultraviolet-light-exposed samples. The three specimens shall be subjected to 25 cycles of drying and soaking as follows:

1. Oven drying at 120°F (49°C) for three hours, with all surfaces exposed.
2. Immersion in room-temperature water for three hours, with all surfaces exposed.
3. After removal from the water, specimens are blotted dry, then air-dried for 18 hours at a 75°F ± 5°F (23.8°C ± 2.8°C) room temperature, with all surfaces exposed.

**4.2 Alternate Water-resistance Test Method:** ~~This~~ These test methods are applicable to polymeric-based barriers, and may be used in lieu of the water-resistance test method described in ASTM D 779 ~~or CCMC 07102.~~

**4.2.1** Control specimens and weathered specimens that have been conditioned in accordance with Section 4.1 of this criteria shall be tested in accordance with AATCC Test Method 127, except that the specimens shall be held at a hydrostatic head of 55 cm for a period of five hours.

**4.2.2 Water Ponding Test:** A ring shall be constructed with a sample of the membrane fastened between two 200-millimeter-diameter aluminum rings using a rubber-type gasket. The membrane shall be placed between the rings and cupped to permit a depth of 30.5 mm of tap water to be exposed on 160 cm<sup>2</sup> of its surface. The test shall be conducted at room temperature (20±2°C and 65±3% RH). The ring shall be raised about 250 mm above a sheet of plain craft paper placed underneath the membrane to aid in monitoring any passage of water.

The membrane shall be maintained at constant conditions of temperature (20±2°C) and relative humidity (65±3%) and inspected at frequent intervals over a period of two hours. Ten test specimens shall be chosen at random from the membrane supplied.

**PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR WATER-RESISTIVE BARRIERS**

No water seepage shall be observed through the membrane during the water ponding test. (Copied with permission from CCMC Guide MF07102, Technical Guide for Sheathing, Membrane, Breather-type, Section 6.4.5. The CCMC Guide is published by Canadian Construction Materials Centre.)

**5.0 SPECIAL REQUIREMENTS**

**5.1** For use over wood-based sheathing with exterior portland cement plaster, exterior insulation and finish systems or cementitious exterior coatings in jurisdictions using the UBC or IBC, IRC or UBC, ~~two layers of a Grade D~~ the water-resistive barrier shall be installed in accordance with IBC, ~~See Section 2506.4 of the UBC or Section 2510.6 of the IBC~~, IRC Section R703.6.3 or UBC Section 2506.4, as applicable.

**5.2** For recognition of Grade D barriers as having a 60-minute water-resistance rating, data shall be submitted in accordance with either Section 5.2.1 or 5.2.2.

**5.2.1** For paper-based barriers or polymeric-based barriers tested for water resistance in accordance with ASTM D 779, tests shall demonstrate a minimum water resistance of 60 minutes.

**5.2.2** For polymeric-based barriers tested in accordance with Section 4.2 of this criteria, tests shall demonstrate that the barrier resists a hydrostatic head of 55 cm for a period of five hours.

**6.0 QUALITY CONTROL**

**6.1** A quality control manual complying with the ICC-ES Acceptance Criteria for Quality Control ~~Manuals Documentation~~ (AC10) shall be submitted.

**6.2** Third-party follow-up inspections are not required under this acceptance criteria. ■

**TABLE 1—GRADE REQUIREMENTS FOR WATER-RESISTIVE BARRIERS**

PHYSICAL PROPERTY REQUIREMENT	GRADE			
	A	B	C	D
Average dry tensile strength, minimum, pounds per inch width, both directions, (Sections 3.1, 3.2 and 3.3)	20	20	20	20
Average dry breaking force, minimum, pounds force, for polymeric woven and non-woven barriers (Section 3.3)				
Warp (machine) direction	40	40	40	40
Filling (cross) direction	35	35	35	35
Average water resistance, permeation of water through membrane, hours, minimum	24	16	8	1/6
Average water vapor transmission, grams per sq. meter per 24 hours:				
Maximum	4	6	—	—
Minimum	—	—	—	35

For SI: 1 pound per inch = 175 N/m, 1 pound-force = 0.454 kg-force.

**TABLE 2—TEST PROCEDURES FOR PAPER-BASED BARRIERS**

TEST REQUIREMENT	TEST PROCEDURE
Dry tensile strength	ASTM D 828
Water resistance	ASTM D 779
Water vapor transmission	ASTM E 96, Desiccant Method at 74.3°F (23°C)

**TABLE 3—TEST PROCEDURES FOR POLYMERIC-BASED, WOVEN AND NON-WOVEN BARRIERS**

TEST REQUIREMENT	TEST PROCEDURE
Dry tensile strength, or Dry breaking force	ASTM D 828 or ASTM D882, or ASTM D 5034 (Grab Method)
Water resistance	ASTM D 779, <del>CCMC 07102</del> Section 4.2.2 of this criteria, or AATCC Test Method 127
Water vapor transmission	ASTM E 96, <del>Method A or B</del> Desiccant or Water Method at 74.3°F (23°C)

PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR WATER-RESISTIVE BARRIERS

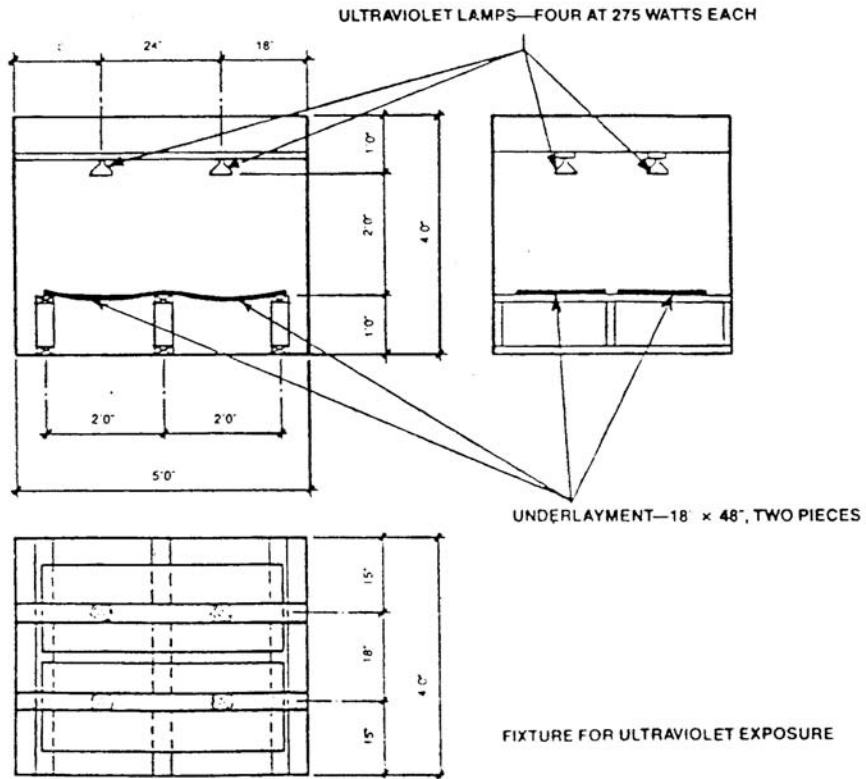


FIGURE 1