ICC EVALUATION SERVICE

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December 29, 2009

TO: **PARTIES INTERESTED IN EVALUATION REPORTS ON WOOD-BASED EXTERIOR COMPOSITE TRIM TREATED WITH ZINC BORATE (ZB) PRESERVATIVE BY A NON-PRESSURE PROCESS**

SUBJECT: Proposed Acceptance Criteria for Wood-based Exterior Composite Trim Treated with Zinc Borate (ZB) Preservative by a Non-pressure Process, Subject AC424-0210-R1 (MO/MR)

Hearing Information:
Tuesday, February 2, 2010
8:00 a.m.
Sheraton Gateway Hotel Los Angeles
6101 West Century Boulevard
Los Angeles, California 90045
(888) 627-7104

Dear Madam or Sir:

The proposed acceptance criteria will be on the agenda for the Evaluation Committee hearing noted above. This is a new criteria covering wood-based exterior composite trim, treated with zinc borate (ZB) preservative by a non-pressure process, that is used as nonload-bearing architectural trim, and/or door and window trim on buildings of combustible, nonfire-resistance-rated construction, IBC Type VB, and all construction types permitted under the IRC. The trim is installed over solid backing material, either approved exterior sheathing or approved exterior wall coverings.

A new acceptance criteria is proposed to address this product after the staff and the proponent considered three other criteria: the ICC-ES Acceptance Critiera for Treated-engineered-wood Siding (AC321), the ICC-ES Acceptance Criteria for Zinc Borate (ZB) Preservative Treatment of Structural Composite Lumber by Non-pressure Processes (AC203), and the ICC-ES Acceptance Criteria for Rigid Cellular PVC Nonload-bearing Exterior Trim (AC227). The trim product is considered outside the scope of AC321, which covers zinc borate (ZB) engineered composite wood siding, since the trim is thicker than the siding product and the minimum retention of the trim is listed as 0.75 percent retained zinc borate, which is lower than the 1.46 percent retention required for engineered wood siding covered under AC321. The trim is produced in thicknesses of ¾ inch and 1 inch [industry nomenclature 4/4 and

5/4] as compared to siding that is $^{7}/_{16}$ inch and $^{9}/_{16}$ inch thick. The trim product is also considered outside the scope of AC227, since this criteria concerns a PVC trim product.

The trim product is defined in Section 1.4.1 of the proposed criteria as a wood-based exterior composite trim treated with zinc borate (ZB) preservative by a non-pressure process. The trim is formed into boards with smooth and textured surfaces in thicknesses of ¾ inch and 1 inch [industry nomenclature 4/4 and 5/4]. The trim can be cut and machined with standard woodworking tools and attached to the structure with nails or screws.

The product test and performance requirements are noted in Section 3.0, with appropriate test methods and procedures noted in Section 4.0. The minimum performance requirements for the trim product are noted in Table 2 of the criteria.

Section 3.1 notes that the product has no structural performance requirements. Staff has included a requirement that a structural analysis be submitted evaluating the nail-head pull-through testing to determine negative transverse wind load capacities.

You are cordially invited to submit written comments on agenda items, or to attend the Evaluation Committee hearing and present verbal comments. If you wish to contribute to the hearing, please note the following:

1. Written comments that are received by the Los Angeles business/regional office by **January 19, 2010,** will be forwarded to the committee prior to the hearing, and will be posted on the ICC-ES web site shortly after the comment deadline.

2. Written comments received up to ten days before the meeting, and staff memos responding to comments, will be posted to the web site on **January 28, 2010**.

3. ICC-ES is no longer providing printed copies at the meeting of proposed acceptance criteria, staff memos or public comments. These documents will be available on a limited number of CDs at the meeting, for uploading to computers; and ICC-ES will make arrangements with the hotel business center to have hard copies available for photocopying.

4. Written comments that miss the deadline noted in item (1), above, will only be available at the meeting if you provide 35 copies, collated, stapled, and three-hole punched, either at the meeting itself or to the Los Angeles business/regional office by **January 28, 2010**.

5. If you plan to speak for more than 15 minutes, or offer a visual presentation lasting longer, you should notify ICC-ES staff as far as possible in advance. There will be a computer, projector, and screen available at the meeting for anyone wishing to make a visual presentation, and presentations in most cases will need to be in PowerPoint format. Also, ICC-ES will need to be provided with

your presentation at least a half-hour before the start of the relevant meeting session (morning or afternoon) on either a CD or a flash card.

6. If you have any special needs related to a presentation, you should contact ICC-ES staff well in advance of the meeting.

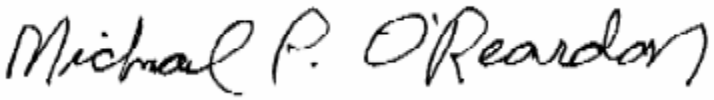
7. Any visual aids for viewing at committee meetings (charts, overhead transparencies, slides, videos, electronic presentations, etc.) will be permitted only if a copy is provided to ICC-ES, before the presentation, in a medium that can be retained with other records of the meeting.

8. Any materials submitted for committee consideration are considered nonconfidential and available for public discussion, as noted in Section 2.7 of the ICC-ES Rules of Procedure for the Evaluation Committee.

9. Prior to the meeting, you should refrain from trying to communicate directly with committee members about agenda items, either verbally or in writing. Committee members reserve the right to refuse such communications.

Your cooperation with these guidelines is much appreciated, as is your interest in the deliberations of the Evaluation Committee. If you have any question, please contact the undersigned at (800) 423-6587, extension 5685, or Mike Rhodebeck, Staff Engineer, at extension 5699. You may also reach us by e-mail at es@icc-es.org.

Yours very truly,



Michael O'Reardon, P.E.
Regional Manager

MPO/raf

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 ($^2/_3$) 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 one year 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. Materials delivered to ICC-ES at least ten days before the scheduled meeting will be posted on the ICC-ES web site (www.icc-es.org) prior to the meeting. After this time, parties wishing to submit materials for consideration by the Evaluation Committee must deliver a sufficient number of copies as directed by ICC-ES. Consideration of materials not received by ICC-ES at least ten days before the meeting is at the discretion of the Evaluation Committee. Following the meeting, ICC-ES will make all materials considered by the Evaluation Committee available on the web site for a maximum period of one year following the meeting. The committee reserves the right to refuse recognition of communications which do not comply with the provisions of this section.

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 Actions of the Evaluation Committee may be

appealed in accordance with the ICC-ES Rules of Procedure for Appeal of Acceptance Criteria or the ICC-ES Rules of Procedure for Appeals of Evaluation Committee Technical Decisions.

5.0 COMMITTEE BALLOTING FOR ACCEPTANCE CRITERIA

5.1 Acceptance criteria may be issued without a public hearing following a 30-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 March 18, 2008

ICC EVALUATION SERVICE

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

PROPOSED ACCEPTANCE CRITERIA FOR WOOD-BASED EXTERIOR COMPOSITE TRIM TREATED WITH ZINC BORATE (ZB) PRESERVATIVE BY A NON-PRESSURE PROCESS

AC424

Proposed December 2009

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*® 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.

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

PROPOSED ACCEPTANCE CRITERIA FOR WOOD-BASED EXTERIOR COMPOSITE TRIM TREATED WITH ZINC BORATE (ZB) PRESERVATIVE BY A NON-PRESSURE PROCESS

1.0 INTRODUCTION

1.1 Purpose: The purpose of this acceptance criteria is to establish requirements for wood-based exterior composite trim treated with zinc borate (ZB) preservative by a non-pressure process to be recognized in an ICC Evaluation Service, Inc. (ICC-ES), evaluation report under the 2009 *International Building Code*® (IBC) and the 2009 *International Residential Code*® (IRC). Bases of recognition are IBC Section 104.11 and IRC Section R104.11. Applicable code sections are IBC Sections 1401 (Exterior Walls – General), 1403 (Performance Requirements), 1404 (Materials), 2303.1.8 (Preservative-treated Wood), and 2304.11 (Protection against Decay and Termites); and IRC Sections R317 (Protection of Wood and Wood Based Products against Decay), R318 (Protection against Subterranean Termites), R701 (Wall Covering –General), and R703 (Exterior Covering).

The reason for the development of this criteria is to allow the evaluation of wood-based exterior composite trim treated with ZB preservative by a non-pressure process, since the codes do not provide standards for evaluation of preservative-treated exterior trim.

1.2 Scope: Wood-based exterior composite trim treated with ZB preservative by a non-pressure process is used as nonload-bearing architectural trim and door and window trim on buildings of combustible, nonfire-resistance-rated construction, IBC Type VB, and all construction types permitted under the IRC. The trim is installed over

solid backing material, either approved exterior sheathing or approved exterior wall coverings.

1.3 Codes and Referenced Standards:

1.3.1 Codes:

1.3.1.1 2009 *International Building Code*® (IBC), International Code Council

1.3.1.2 2009 *International Residential Code*® (IRC), International Code Council

1.3.2 American Wood Protection Association (AWPA) Standards:

1.3.2.1 2009 AWPA Book of Standards©.

1.3.2.2 AWPA U1-09©, *Commodity Specification J: Nonpressure Composites.*

1.3.2.3 AWPA T1-09©, *Section J: Nonpressure Composites.*

1.3.2.4 AWPA A2-09©, Standard Methods for Analysis of Waterborne Preservatives and Fire-retardant Formulations.

1.3.2.5 AWPA A9-08©, Standard Method for Analysis of Treated Wood and Treating Solutions by X-Ray Spectroscopy.

1.3.3 ASTM International Standards:

1.3.3.1 ASTM D 4442 - 07, Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.

1.3.3.2 ASTM D 1037 - 06a, Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.

1.3.4 ANSI A135.6 - 2006, American National Standard, Hardboard Siding, Composite Panel Association, American National Standards Institute.

1.3.5 ICC-ES Acceptance Criteria for Zinc Borate (ZB) Preservative Treatment of Structural Composite Lumber by Non-pressure Processes (AC203).

1.3.6 ICC-ES Acceptance Criteria for Proprietary Wood Preservative Systems—Common Requirements for Treatment Process, Test Methods and Performance (AC326).

1.4 Definitions:

1.4.1 Wood-based Exterior Composite Trim Treated with Zinc Borate (ZB) Preservative by a Non-pressure Process: The wood-based exterior composite trim treated with ZB preservative by a non-pressure process is a wood composite treated with zinc-borate in a non-pressure process. The trim is formed into boards, with smooth or textured surfaces, in thicknesses of ¾ inch and 1 inch (19 mm and 25.4 mm) [industry nomenclature 4/4 and 5/4]. The trim can be cut and machined with standard woodworking tools and attached to the structure with nails or screws.

1.4.2 Lap: When the term lap or laps is used in this criteria, it refers to a length of trim typically 16 feet (4.8 m) long. The width of lap is between 2 inches (51 mm) and 16 inches (406 mm).

2.0 BASIC INFORMATION

2.1 General: The following information shall be submitted:

2.1.1 Product Description: Complete information concerning material specifications, thickness, size and the manufacturing process.

2.1.2 Installation Instructions: Installation details and limitations, fastening methods, joint treatments and face treatments.

2.1.3 Packaging and Identification: A description of the method of packaging and field identification of the ZB preservative-treated exterior wood fiber composite trim. Identification provisions shall include the evaluation report number and the name or logo of the inspection agency.

2.1.4 Field Preparation: A description of the methods of field-cutting, application and finishing.

2.2 Testing Laboratories: 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.

2.3 Test Reports: Test reports shall comply with AC85.

2.4 Product Sampling: Sampling of the ZB preservative-treated exterior wood fiber composite trim for tests under this criteria shall comply with Section 3.1 of AC85.

3.0 TEST AND PERFORMANCE REQUIREMENTS

3.1 Structural Performance: Wood-based exterior composite trim treated with ZB preservative by a non-pressure process is not to be used as a structural material and has no structural performance requirements. A structural analysis shall be submitted evaluating the nail-head pull-through testing (see Sections 3.2.3 and 4.2), to determine allowable negative transverse wind load capacities. The allowable load capacities will be included in the final evaluation report, with descriptions of the assemblies including number, size, type and spacing of fasteners.

3.2 Physical and Mechanical Properties: Wood-based exterior composite trim treated with ZB preservative by a non-pressure process shall meet the physical and mechanical property performance requirements of Sections 3.2.1 through 3.2.7.

3.2.1 Thickness Swelling: The thickness swelling shall be tested in accordance with the test procedures specified in Section 4.1, and shall conform to the specification limit set forth in Table 2.

3.2.2 Water Absorption: The water absorption shall be tested in accordance with the test procedures specified in Section 4.1, and shall conform to the specification limit set forth in Table 2.

3.2.3 Nail-head Pull-through: The nail-head pull-through shall be tested in accordance with Section 4.2, and shall conform to the specification limit set forth in Table 2.

3.2.4 Lateral Nail Resistance: The lateral nail resistance shall be tested in accordance with Section 4.3, and shall conform to the specification limit set forth in Table 2.

3.2.5 Modulus of Rupture: The modulus of rupture shall be tested in accordance with Section 4.4, and shall conform to the specification limit set forth in Table 2.

3.2.6 Hardness: The hardness shall be tested in accordance with Section 4.5, and shall conform to the specification limit set forth in Table 2.

3.2.7 Impact: The impact resistance shall be tested in accordance with Section 4.6, and shall conform to the specification limit set forth in Table 2.

3.3 Durability: Wood-based exterior composite trim treated with ZB preservative by a non-pressure process shall comply with the durability performance requirements specified in Sections 3.3.1 through 3.3.5.

3.3.1 Accelerated Aging: The accelerated aging percent thickness swell and percent strength retention shall be tested in accordance with Section 4.7, and shall conform to the specification limit set forth in Table 2.

3.3.2 Weatherability of Substrate: The weatherability of substrate percent residual thickness swell shall be tested in accordance with Section 4.8, and shall conform to the specification limit set forth in Table 2.

3.3.3 Decay and Termite Resistance: Testing for termite and decay resistance shall be in accordance with Section 4.9.

3.3.4 Minimum Retention: The percent retained of zinc borate shall be tested in accordance with Section 4.10, and shall conform to the specification limit set forth in Table 2.

3.3.5 Thickness Tolerances: The thickness tolerances for the various nominal thicknesses of the trim are set forth in Table 1.

3.4 Moisture Content: The moisture content at time of sampling at the manufacturing site and at time of testing shall be determined by the testing procedures described in Section 4.11, and shall conform to the specification limits set forth in Table 2 .

3.5 Corrosion of Metals and Fasteners: Evaluation to determine the corrosion of metals and fasteners in contact with the wood-based exterior composite trim treated with ZB preservative by a non-pressure process shall be in accordance with Section 4.12.

4.0 TEST METHODS

4.1 Thickness Swelling and Water Absorption: Thickness swelling and water absorption testing shall comply with Method B of Section 23 of ASTM D 1037, with the following amendments:

4.1.1 Number of Tests: At least three nominally 12-inch-wide laps of nominally 5/4 trim, and at least three nominally 12-inch-wide (305 mm) laps of nominally 4/4 trim, shall be tested. One test specimen shall be cut from each lap.

4.1.2 Test Specimen Cutting Location: From each nominally 12-inch-wide lap, the cutting of the test specimen shall conform to "Figure 2. Test Specimen Cutting Diagram – Lap Siding," in ANSI A135.6.

4.1.3 Test Specimen Dimensions: The test specimens as cut in accordance with ANSI A135.6 shall be 12 inches (305 mm) in length by the actual width of the nominally 12-inch lap.

4.2 Nail-head Pull-through: Nail-head pull-through testing shall comply with Section 15 of ASTM D 1037, with the following amendments:

4.2.1 Number of Tests: At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Three test specimens shall be cut from each lap.

4.2.2 Test Specimen Cutting Location: From each nominally 12-inch-wide lap, the cutting of the test specimen shall conform to "Figure 2 - Test Specimen Cutting Diagram – Lap Siding," in ANSI A135.6 .

4.2.3 Test Specimen Dimensions: Nail-head pull-through test specimen dimensions shall conform to the dimensions specified in "Figure 2 - Test Specimen Cutting Diagram – Lap Siding," in ANSI A135.6 .

4.2.4 Conformance to ANSI A135.6 Test Modifications: Specimens shall be tested in the dry condition. Three 6-penny [0.113 inch (2.9 mm) wire diameter] common nails shall be used per specimen. The nails shall be driven into the specimen at least 1

inch (25 mm) apart. The holding fixture shall consist of a plate with a 1½-inch-diameter (38 mm) opening centered in it, and the speed of testing shall be at a rate of 0.125 – 0.175 inch (3.2 – 4.5 mm) per minute. For embossed products, thickness should be disregarded.

4.3 Lateral Nail Resistance: Lateral nail resistance testing shall comply with Section 13 of ASTM D 1037, with the following amendments:

4.3.1 Number of Tests: At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Three test specimens shall be cut from each lap.

4.3.2 Test Specimen Cutting Location: From each nominally 12-inch-wide lap, the cutting of the test specimen shall conform to “Figure 2 - Test Specimen Cutting Diagram – Lap Siding,” in ANSI A135.6.

4.3.3 Test Specimen Dimensions: Nail-head pull-through test specimen dimensions shall conform to the dimensions specified in “Figure 2 - Test Specimen Cutting Diagram – Lap Siding,” in ANSI A135.6.

4.3.4 Conformance to ANSI A135.6 Test Modifications: Specimens shall be tested in the dry condition. One 8-penny, 0.131-inch-diameter (3.3 mm) nail shall be used per specimen, spaced $^{3}/_{8}$ inch (9.5 mm) from any specimen edge. Galvanized nails may bend; therefore, a steel carding pin or steel drill rod of the same diameter is recommended. Testing speed shall be 0.125 – 0.175 inch (3.2 – 4.5 mm) per minute. For embossed products, thickness should be disregarded.

4.4 Modulus of Rupture: Modulus of Rupture testing shall comply with Section 9 of ASTM D 1037, with the following amendments:

4.4.1 Number of Tests: At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Two test specimens shall be cut from each lap.

4.4.2 Test Specimen Cutting Location: From each nominally 12-inch-wide lap, the location for cutting of the test specimens shall conform to "Figure 2 - Test Specimen Cutting Diagram – Lap Siding," in ANSI A135.6. Only the MOR test specimens that are shown running parallel to the length of the lap shall be cut, and the dimensional requirements for the MOR test specimens that are in Figure 2 of ANSI A135.6 shall be ignored. (See Section 4.5.3 of this criteria for required dimensions).

4.4.3 Test Specimen Dimensions: For 4/4 trim, the test specimens shall be 3 inches (76 mm) wide by 20 inches (508 mm) long. For 5/4 trim, the test specimens shall be 3 inches (76 mm) wide by 26 inches (660 mm) long.

4.5 Hardness: Hardness testing shall comply with Section 9 of ASTM D 1037, with the following amendments:

4.5.1 Number of Tests: At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Two test specimens shall be cut from each lap.

4.5.2 Test Specimen Cutting Location: From each nominally 12-inch-wide lap, the cutting of the test specimen shall conform to "Figure 2 - Test Specimen Cutting Diagram – Lap Siding," in ANSI A135.6.

4.5.3 Test Specimen Dimensions: Hardness test specimen dimensions shall conform to the dimensions specified in "Figure 2 - Test Specimen Cutting Diagram – Lap Siding," in ANSI A135.6.

4.5.4 Conformance to ANSI A135.6 Test Modifications: The test is conducted on the back (unembossed) face only. The test is not conducted on the embossed face.

4.6 Impact: Impact testing shall comply with Section 21 of ASTM D 1037, with the following amendments:

4.6.1 Number of Tests: At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Two test specimens shall be cut from each lap.

4.6.2 Test Specimen Cutting Location: From each nominally 12-inch-wide lap, the cutting of the test specimen shall conform to “Figure 2 - Test Specimen Cutting Diagram – Lap Siding,” in ANSI A135.6.

4.6.3 Test Specimen Dimensions: Impact test specimens shall be 9 inches (229 mm) in length by the actual width of the nominally 12-inch-wide lap.

4.6.4 Conformance to ANSI A135.6 Test Modifications: The initial drop shall be made from 9 inches (225 mm). Failure shall be when a visible fracture occurs at the bottom surface of the specimen.

4.7 Accelerated Aging: Accelerated Aging testing shall comply with Section 7 of ASTM D 1037, with the following amendments

4.7.1 Number of Tests: At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Four test specimens shall be cut from each lap. Two of the test specimens will be controls (not exposed to accelerated aging) and two of the test specimens will be exposed to the conditions of accelerated aging.

4.7.2 Test Specimen Cutting Location: All four test specimens shall be cut parallel to the lap length direction. After cutting all other test specimens required by this acceptance criteria, the accelerated aging test specimens shall be cut anywhere from the remaining length of the laps.

4.7.3 Test Specimen Dimensions: For 4/4 trim, the test specimens shall be 3 inches (76 mm) wide by 20 inches (508 mm) long. For 5/4 trim, the test specimens shall be 3 inches (76 mm) wide by 26 inches (660 mm) long.

4.7.4 Properties of Interest from the Accelerated Aging Test:

4.7.4.1 Thickness swelling.

4.7.4.2 Modulus of rupture percent strength retention.

4.7.5 Modulus of Rupture Percent Strength Retention: The aged MOR or the MOR after treatment in the exposure cycles of this test method is to be calculated based on the dimensions and mass of the dry specimens (before treatment). The percent strength retention is the aged MOR divided by the dry MOR (the samples that were not subject to the 6-cycle aging treatment) times 100.

4.8 Weatherability of Substrate: Weatherability of substrate testing shall comply with Section 4.1 of ANSI A135.6, with the following amendments:

4.8.1 Number of Tests: At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Two test specimens shall be cut from each lap.

4.8.2 Test Specimen Cutting Locations: From each nominally 12-inch-wide lap, the cutting of the test specimen shall conform to “Figure 2 - Test Specimen Cutting Diagram – Lap Siding,” in ANSI A135.6.

4.8.3 Conformance to ANSI A135.6 Test Modifications: The thickness is measured at a spot of no slope or minimal slope.

4.9 Decay and Termite Resistance: Testing shall be in accordance with Sections 4.1 to 4.4 of AC326 and shall document a service condition of AWPA UC3A, coated millwork, siding and trim exposed to all weather cycles, not exposed to prolonged wetting. An analysis of the test data shall be provided in accordance with Section 4.8 of AC326.

4.10 Minimum Retention of Zinc Borate (ZB): The retention of ZB shall be determined by one of the following methods:

(1) Determination of boron shall be in accordance with AWPA Standard A2, Section 16.

(2) Determination of zinc shall be performed using energy dispersive x-ray fluorescence (ED-XRF), as described in AWPA Standard A9.

At least three nominally 12-inch-wide laps of 5/4 trim and at least three nominally 12-inch-wide laps of 4/4 trim shall be tested. Two test specimens shall be cut from each lap. The test specimens may be cut anywhere on the laps after all other test specimens for the other tests have been removed.

4.11 Moisture Content: Moisture content testing shall comply with Method B of ASTM D 442.

4.12 Corrosion of Metals and Fasteners: Evaluation for corrosion of metals and fasteners in contact with wood-based exterior composite trim treated with ZB preservative by a non-pressure process shall be in accordance with Section 4.6 of AC326. An analysis of the test data shall be provided in accordance with Section 4.8 of

AC326. The analysis shall define the types of metals and fasteners that may be in contact with the ZB treated trim.

5.0 QUALITY CONTROL

5.1 The products shall be manufactured under an approved quality control program with inspections by an agency accredited by the International Accreditation Service (IAS) or otherwise acceptable to ICC-ES.

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

6.0 EVALUATION REPORT RECOGNITION

The following conditions of use shall be included in the evaluation report for wood-based exterior composite trim treated with zinc borate preservative by a non-pressure process:

6.1 [Product trade name] trim shall be used only as a nonload-bearing exterior trim.

6.2 [Product trade name] trim shall be limited to combustible, nonfire-resistance-rated construction, IBC Type VB, and all construction types permitted under the IRC. The trim shall be installed over solid backing material, either approved exterior sheathing or approved exterior wall coverings.

6.3 [Product trade name] trim shall be limited to the exterior trim products, sizes and dimensions that are listed in the evaluation report. ■