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December 29, 2009

**TO: PARTIES INTERESTED IN EVALUATION REPORTS ON ZINC BORATE (ZB) PRESERVATIVE TREATMENT OF STRUCTURAL COMPOSITE WOOD PRODUCTS BY NON-PRESSURE PROCESSES**

**SUBJECT: Proposed Revisions to the Acceptance Criteria for Zinc Borate (ZB) Preservative Treatment of Structural Composite Lumber Wood Products by Non-Pressure Processes, Subject AC203-0210-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:

Proposed revisions to the subject acceptance criteria will be on the agenda for the Evaluation Committee hearing noted above. The following are the proposed revisions for consideration by the committee:

1. The title of the criteria and other appropriate sections of the criteria have been modified to expand the scope of the criteria to include any structural composite wood product, not just lumber.
2. Section 1.0 was modified to reference the 2009 IBC and IRC and to add applicable code sections for preservative-treated wood.
3. Section 1.3 was modified to update to current codes and standards.
4. New Section 1.3.9 was added to reference the ICC-ES Acceptance Criteria for Treated-engineered-wood Siding (AC321).
5. A definition for structural composite wood products was added to Section 1.4.2.
6. Section 3.2.2 was revised to add reference to AWPA T1, Section J, Table J3, for minimum retentions for composite wood products not listed under the ICC-ES Acceptance Criteria for Structural Wood-based Products (AC47) and the ICC-ES Acceptance Criteria for Treated-engineered-wood Siding (AC321). Products listed in

Table J3 provide minimum ZB retentions for laminated strand lumber (LSL), oriented strand board (OSB) and engineered wood siding.

7. Table 1 was modified to refer to AC47 products only.

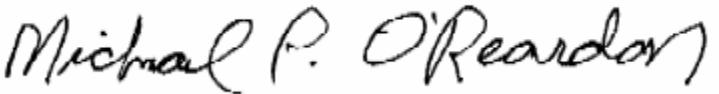
You are cordially invited to submit written comments on agenda items, or to attend the Evaluation Committee hearing and present verbal comments. If you wish to contribute to the hearing, please note the following:

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](mailto: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 ( $\frac{2}{3}$ ) 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 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](http://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

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

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***

# PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR ZINC BORATE (ZB) PRESERVATIVE TREATMENT OF STRUCTURAL COMPOSITE LUMBER WOOD PRODUCTS BY NON-PRESSURE PROCESSES

AC203

Proposed December 2009

Previously approved February 2006 and July 2002

## 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 purpose of issuing ICC-ES evaluation reports.*

# PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR ZINC BORATE (ZB) PRESERVATIVE TREATMENT OF STRUCTURAL COMPOSITE LUMBER WOOD PRODUCTS BY NON-PRESSURE PROCESSES

## 1.0 INTRODUCTION

**1.1 Purpose:** The purpose of this acceptance criteria is to establish requirements for zinc borate (ZB) preservative treatment of structural composite ~~lumber~~ wood products by a non-pressure process to be recognized in an ICC Evaluation Service, Inc. (ICC-ES), evaluation report under the ~~2009~~ 2003 *International Building Code*<sup>®</sup> (IBC), the ~~2009~~ 2003 *International Residential Code*<sup>®</sup> (IRC) and the ~~1997~~ Uniform Building Code<sup>®</sup> (UBC). Bases of recognition are IBC Section 104.11, IRC Section R104.11 and UBC Section 104.2.8. Applicable code sections are IBC Sections 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) and R318 (Protection against Subterranean Termites).

The reason for the development of the criteria is to provide a guideline for the evaluation of ZB in ~~SCL~~ preservative treatment of structural composite wood products, since the requirements in Section ~~2303~~ 2303.1.8 of the IBC, Sections ~~R323~~ R317 and R318 of the IRC, and ~~Chapter 23 of the UBC~~ do not include requirements for the preservative treatment of structural composite ~~lumber~~ wood products by non-pressure processes.

**1.2 Scope:** This acceptance criteria applies to ~~SCL~~ ZB preservative treatment of structural wood composite products recognized in a current ICC-ES evaluation report. The ZB treated ~~SCL~~ structural composite wood products are limited to locations that are above ground and protected from the weather, although the products are permitted to be used as sill plates over concrete footings and slabs. In-process treatment with ZB is a non-pressure treatment process.

### 1.3 Codes and Referenced Standards:

**1.3.1** ~~2003~~ 2009 *International Building Code*<sup>®</sup>, International Code Council.

**1.3.2** ~~2003~~ 2009 *International Residential Code*<sup>®</sup>, International Code Council.

~~1.3.3~~ 1997 *Uniform Building Code*<sup>™</sup>.

**1.3.4** ~~2005~~ American Wood Preservers' Association (AWPA) *Book of Standards*.

**1.3.5** American Wood Protection Association (AWPA) *Standards*:

**1.3.5.1** AWPA U1-09<sup>®</sup>, *Commodity Specification J: Nonpressure Composites*

**1.3.5.2** AWPA T1-09<sup>®</sup>, *Section J: Nonpressure Composites*

~~1.3.5.3~~ AWPA A2-05 09<sup>®</sup>, *Standard Methods for Analysis of Waterborne Preservatives and Fire-retardant Formulations*, ~~American Wood Preservers' Association~~.

**1.3.5.4** AWPA A9-04 08<sup>®</sup>, *Standard Method for Analysis of Treated Wood and Treating Solutions by X-Ray Spectroscopy*, ~~American Wood Preservers' Association~~.

~~1.3.5.5~~ AWPA N2-04, *Standard for the Preservative Treatment of Composite Wood Products by Nonpressure Processes*, ~~American Wood Preservers' Association~~.

**1.3.5.6** AWPA P18-04 07<sup>®</sup>, *Nonpressure Preservatives*, ~~American Wood Preservers' Association~~.

**1.3.6** ICC-ES Acceptance Criteria for Quality Control Manuals Documentation (AC10).

**1.3.7** ICC-ES Acceptance Criteria for Test Reports and Product Sampling (AC85).

**1.3.8** ICC-ES Acceptance Criteria for Structural Wood-based Products (AC47).

**1.3.9** ICC-ES Acceptance Criteria for Treated-engineered-wood Siding (AC321).

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

## 1.4 Definitions:

**1.4.1 Zinc Borate (ZB):** Zinc borate is a sparingly soluble borate having the approximate composition  $2ZnO \cdot 3B_2O_3 \cdot 3.5H_2O$ , and formula weight 441.88. Zinc borate is described and recognized in AWPA Standard P18, Section 1.

**1.4.2 Structural Composite Wood Products:** Wood products recognized under AC47, AC321 and AWPA T1, Section J, Table J3.

## 2.0 BASIC INFORMATION

**2.1 General:** The following information shall be submitted:

**2.1.1 Product Description:** Complete information concerning material specifications, compositions, formulations and manufacturing processes shall be provided.

**2.1.2 Packaging and Identification:** A description of the method of packaging and field identification of the ZB treated ~~SCL~~ structural composite wood products. Identification provisions shall include the evaluation report number and, if applicable, the name or logo of the inspection agency. Also, each piece of ~~SCL~~ structural composite wood product shall be legibly branded with, marked with, or otherwise have permanently affixed, the following information:

**2.1.2.1** Identity of the company and plant manufacturing the ZB treated ~~SCL~~ structural composite wood products.

**2.1.2.2** Preservative symbol or name.

**2.1.2.3 End Use Limits:** Treated ~~SCL~~ structural wood composite products are limited to locations that are above ground and protected from the weather, although the products can be used as sill plates installed over concrete slabs and foundations.

**2.2 Testing Laboratories:** Testing laboratories shall comply with Section 2.0 of the ICC-ES Acceptance Criteria

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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 treated SCL structural composite wood products for tests under this criteria shall comply with Section 3.1 of AC85.

**3.0 TEST AND PERFORMANCE REQUIREMENTS**

**3.1 General Requirements:** Information shall be submitted concerning the ability of the SCL structural composite wood product to resist wood-destroying organisms. This information shall consider wood species, resin type and content, and method of production. The manufacturer of the SCL structural composite wood products shall submit to ICC-ES data in accordance with AWPA ~~N2 U1~~ Appendix J, T1 Section J, Appendix F of the AWPA Standards Book and the applicable sections of AC326.

Information regarding the effect the ZB treatment has on the physical and mechanical properties of the SCL structural composite wood product shall be submitted.

**3.1.1** Preservative treatment of SCL structural composite wood products with ZB shall be a part of the manufacturing process, in conjunction with the application of adhesive, polymer, or other additives to the wood elements before consolidation and pressing.

**3.1.2** Application of ZB shall be conducted on a mass/mass basis, expressed as a percentage of the weight of ZB to the weight of dry wood fiber.

**3.1.3** Zinc borate is permitted to be applied in a dry powder or water-based slurry form.

**3.1.4** Incising prior to treatment is not required.

**3.1.5** Kiln drying after treatment is not required.

**3.2 Results of Treatment:**

**3.2.1** Retention shall be determined by assay analysis of the treated SCL structural composite wood product as described in Section 3.3 of this criteria.

**3.2.2** Minimum retention of ZB preservative in SCL structural composite wood product shall comply with the following:

**3.2.2.1** Products complying with AC47 refer to Table 1 of this criteria.

**3.2.2.2** Products complying with AC321 refer to AWPA T1, Section J, Table J3.

**3.2.2.3** Products not recognized under AC47 or AC321 shall comply with AWPA T1, Section J, Table J3.

**3.3 ZB Determination Methods:** The retention of ZB shall be determined by one of the two following methods:

**3.3.1** Determination of boron in treated SCL structural composite wood product shall be in accordance with AWPA Standard A2, Section 16.

**3.3.2** Determination of zinc in treated SCL structural composite wood products shall be performed using energy dispersive x-ray fluorescence (ED-XRF), as described in AWPA Standard A9.

**3.4 Corrosion of Metals:** Evaluation for corrosion of metals shall be in accordance with Section 4.6 of AC326.

**4.0 QUALITY CONTROL**

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

**4.2** The manufacturing facility where the ZB treated SCL structural composite wood products covered under AC47 are fabricated shall be audited by the approved independent inspection agency in accordance with the audit requirements specified in Appendix A of AC47.

**4.3** The manufacturing facility where the ZB treated structural composite wood products covered under AC321 are fabricated shall be inspected by the approved independent inspection agency in accordance with the inspection requirements specified in Section 5.0 of AC321.

**4.4** A quality ~~control manual~~ documentation complying with the ICC-ES Acceptance Criteria for Quality ~~Control Manuals~~ Documentation (AC10) shall be submitted. The quality ~~control manual~~ documentation shall also comply with the applicable requirements of the AWPA Book of Standards. ■

**PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR ZINC BORATE (ZB) PRESERVATIVE TREATMENT OF STRUCTURAL COMPOSITE LUMBER WOOD PRODUCTS BY NON-PRESSURE PROCESSES**

**TABLE 1—AC47 PRODUCTS**

1.0 Results of treatment for structural composite lumber:		
1.1 Retention shall be determined by assay analysis of the treated <u>SCL AC47</u> product		
1.1.1 Sampling frequency per billets produced		
Less than 10 billets:	Sample from first billet.	
10 to 40 billets:	Sample from first and last billet.	
41 to 80 billets	Sample from first, 60 <sup>th</sup> and 80 <sup>th</sup> billet.	
Over 80 billets:	Sample from first, every 40 <sup>th</sup> , and last billet.	
1.1.2 Replicates per sampling frequency	3	
1.1.3 Sampling zone for assay	Full cross section	
1.2 Minimum sample retention of ZB preservative treatment in <u>SCL AC47</u> product, expressed as a percent of weight of ZB/weight of dry wood fiber <sup>1</sup>	Decay	Termites
	0.75 percent	0.90 percent
1.3 Minimum penetration	Full cross section	

<sup>1</sup>The tabulated retention level is a minimum for SCL AC47 products. The manufacturer of the SCL product shall submit data in accordance with Section 3.1 of this acceptance criteria, to verify the minimum retention level for a SCL product manufactured with a known wood species, adhesive type, and manufacturing process.