June 2, 2008

TO: **PARTIES INTERESTED IN EVALUATION REPORTS ON COPPER-AZOLE WOOD PRESERVATIVE SYSTEMS**

SUBJECT: Proposed Revisions to the Acceptance Criteria for Proprietary Wood Preservative Systems–Common Requirements for Treatment Process, Test Methods and Performance; Appendix A, Copper-Azole Wood Preservative Treatment Systems (Formerly AC143), Subject AC326-Appendix A-0608-R1 (MO/KR)

Dear Madam or Sir:

The revisions proposed to the subject acceptance criteria, as presented in the enclosed criteria draft, are being posted on the ICC-ES web site to allow for public comment. The revisions include:

1. **Sections A1.1 (Purpose), A1.2 (Scope) and A4.0 (Test Methods and Performance Requirements)**. Add reference to foundation and freshwater piling (AWPA UC4C), with applicable code sections.

2. The criteria presents a performance evaluation procedure for proprietary wood preservative systems. The criteria does not need to list the active component compositions and retentions, and the minimum and maximum active components for the preservative systems. The following revisions are proposed to address this issue:

   a. **Section A1.4.1 (Preservative)**. Revise the definition of Copper-Azole to delete specific information on active component compositions. The active component compositions are noted in the quality documentation submitted to ICC-ES.

   b. **Section A3.4.2 (Retention by Assay)**. Delete retentions for each AWPA use category. The retentions are noted in the quality documentation submitted to ICC-ES, and in the final evaluation report.

   c. **Table A1**. Delete the table of minimum and maximum active components. The minimum and maximum active components are shown in the quality documentation submitted to ICC-ES.

You are cordially invited to submit written comments, within 30 days of the date of this letter. An explanation of the alternate criteria process can be found on our web site at http://www.icc-es.org/Criteria_Development/alternative_criteria_process.shtml.

All comments received in the 30-day comment period will be considered. During this same 30-day period, however, the draft criteria will be balloted to the Evaluation Committee. If the public comments raise major issues, generate controversy, or require the criteria to be substantially rewritten, then ICC-ES staff may decide to reballot the criteria; or place a revised draft on the web site for further public comment; or put the criteria on the agenda for a future Evaluation Committee meeting.

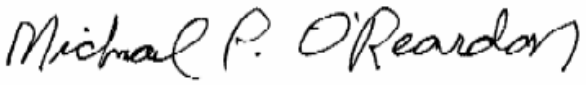
Correspondence received and a memo outlining staff's resolution of the comments in the correspondence will be posted on the web site shortly after the close of the comment period.

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. 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.

If you have any questions, please contact the undersigned at (800) 423-6587, extension 5685, or Ken Roberts, at extension 5687. You may also reach us by e-mail at es@icc-es.org.

Yours very truly,



Michael P. O'Reardon, P.E.
Senior Staff Engineer

MPO/raf

Enclosure

cc: Evaluation Committee

PROPOSED REVISIONS TO APPENDIX A OF THE ACCEPTANCE CRITERIA FOR PROPRIETARY WOOD PRESERVATIVE SYSTEMS—COMMON REQUIREMENTS FOR TREATMENT PROCESS, TEST METHODS AND PERFORMANCE

AC326

Proposed June 2008

~~**Effective March 1, 2008**~~

Previously approved February 2008, October 2007, May 2006, October 2005

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 for purposes of issuing ICC-ES evaluation reports.

PROPOSED REVISIONS TO APPENDIX A OF THE ACCEPTANCE CRITERIA FOR PROPRIETARY WOOD PRESERVATIVE SYSTEMS—COMMON REQUIREMENTS FOR TREATMENT PROCESS, TEST METHODS AND PERFORMANCE

[*ONLY APPENDIX A IS SHOWN HERE. REFER TO WWW.ICC-ES.ORG FOR THE CURRENT VERSION OF AC326, APPROVED FEBRUARY 2008.]*

APPENDIX A
COPPER-AZOLE WOOD PRESERVATIVE TREATMENT SYSTEMS
(Formerly AC143)

A1.0 INTRODUCTION

A1.1 Purpose: The purpose shall be in accordance with Section 1.1 of this criteria. Applicable code sections are noted in Section 1.1 of this criteira. Section 1809.1 (Timber piles) and Section R324.1.7 (Flood-resistant materials) of the IRC are also applicable for this appendix.

A1.2 Scope: This appendix covers Copper-Azole wood-preservative systems for treatment of sawn lumber, timbers, round and square posts and plywood used ~~in contact with the ground (AWPA UC4A and UC4B) or freshwater and~~ out of contact with the ground (above ground) (AWPA UC3B) or in contact with the ground or freshwater (AWPA UC4A and UC4B) or as foundation and freshwater piling (AWPA UC4C). Materials complying with this criteria are suitable for locations requiring preservative-treated wood for fungal decay and/or termite resistance. The ICC-ES Acceptance Criteria for Proprietary Wood Preservative Systems—Common Requirements for Treatment Process, Test Methods and Performance Requirements (AC326) shall be used for evaluating waterborne Copper-Azole wood preservative systems, except when noted otherwise in this appendix.

A1.3 Codes and Referenced Standards: Where standards are referenced in this appendix, these standards shall be applied consistently with the code upon which compliance is based. Codes and standards are listed in Section 1.3 of AC326. Standards not listed in AC326 that are required for evaluation of waterborne Copper-Azole wood preservative systems are listed below:

A1.3.1 American ~~Wood-Preservers'~~ Wood Protection Association (AWPA):

A1.3.1.1 AWPA A2-05©, Standard Methods for Analysis of Waterborne Preservative and Fire-retardant Formulations.

A1.3.1.2 AWPA A3-05©, Standard Methods for Determining Penetration of Preservatives and Fire Retardants.

A1.3.1.3 AWPA A9-01©, Standard Method for Analysis of Treated Wood and Treating Solutions by X-Ray Spectroscopy.

A1.3.1.4 AWPA A11-93©, Standard Method for Analysis of Treated Wood and Treating Solutions by Atomic Absorption Spectroscopy.

A1.3.1.5 AWPA A21-00©, Standard Method for the Analysis of Wood and Wood Treating Solutions by Inductively Coupled Plasma Emission Spectrometry.

A1.3.1.6 AWPA A28-05©, Standard Method for Determination of Propiconazole and Tebuconazole in Wood, in Waterborne Formulations and in Treating Solutions by HPLC.

A1.3.1.7 AWPA A31-05©, Standard Methods for the Analysis of Solutions and Wood for Azoles by Gas Chromatography (GC).

A1.3.1.8 AWPA C1-03©, All Timber Products—Preservative Treatment by Pressure Processes.

A1.3.1.9 AWPA C2-02©, Lumber, Timber, Bridge Ties and Mine Ties – Preservative Treatment by Pressure Processes.

A1.3.1.10 AWPA C5-03©, Fence Posts—Preservative Treatment by Pressure Processes.

A1.3.1.11 AWPA C9-03©, Plywood—Preservative Treatment by Pressure Processes.

A1.3.1.12 AWPA C15-03©,Wood for commercial—Residential Construction Preservative Treatment by Pressure Processes.

A1.3.1.13 AWPA C16-03©, Wood Used On Farms—Preservative Treatment by Pressure Processes.

A1.3.1.14 AWPA P5-05©, Standard for Waterborne Preservatives.

A1.4 Definitions:

A1.4.1 Preservative: Copper-Azole preservatives contain copper and azole(s) and there ~~are waterborne, copper-tebuconazole preservative systems used for treating wood. There~~ are three formulations ~~of Copper-Azole preservatives~~: Type A (CBA-A), Type B (CA-B) and Type C (CA-C).The formulations shall have composition and tolerances as specified in the proprietary quality control documentation.

~~**A1.4.1.1** Copper-Azole Type A preservative (CBA-A) is copper, boric acid and tebuconazole in a 25:25:1 ratio.~~

Appendix A-COPPER-AZOLE WOOD PRESERVATIVE TREATMENT SYSTEMS (Formerly AC143)

~~**A1.4.1.2** Copper-Azole Type B preservative (CA-B) is copper and tebuconazole in a 25:1 ratio.~~

~~**A1.4.1.3** Copper-Azole Type C preservative shall have composition and tolerances as specified in the proprietary quality control documentation.~~

~~These active ingredients may be dissolved in a solution of ethanolamine and/or ammonia in water.~~

~~**A1.4.2 Active Component (Nominal):**~~

~~**A1.4.2.1** The CBA-A preservative shall have the following composition:~~

~~Copper as Cu metal . . . . . 49%~~

~~Boron as Boric Acid (H3BO3) . . . . . 49%~~

~~Azole as Tebuconazole . . . . . 2%~~

~~Subject to the tolerances listed in Table A1.~~

~~**A1.4.2.2** The CA-B preservative shall have the following composition:~~

~~Copper as Cu metal . . . . . 96.1%~~

~~Azole as Tebuconazole . . . . . 3.9%~~

~~Subject to the tolerances listed in Table A1.~~

~~**A1.4.3 Active Component (Minimum, Maximum):** The active components present in the treating solution of CBA-A and CA-B shall be within the ranges shown in Table 1. Active components present in CA-C treating solutions shall be as specified in the quality control documentation.~~

~~**A1.4.4**~~ **A1.4.2 Preservative-treated Wood:** Refer to Section 1.4 of this criteria.

A2.0 BASIC INFORMATION

Basic information required for waterborne Copper-Azole wood preservative systems shall be provided in accordance with Section 2.0 of this criteria.

A3.0 PRESERVATIVE TREATMENT PROCESS

A3.1 General: General requirements for preservative treatment process shall be in accordance with Section 3.1 of this criteira.

A3.2 Treatment Standards:

A3.2.1 Wood Preservative: The preservative shall conform to the composition described in Section A1.4 of this appendix, and to applicable AWPA Analytical Standards as indicated in Section A3.7 of this appendix.

A3.2.2 Material: Copper-azole wood preservatives are used to treat the following materials and wood species:

A3.2.2.1 Dimensional lumber and timbers of the following sapwood species: southern pine, ponderosa pine, red pine, Patula pine, Scots pine—Germany, Scots Pine—Sweden, radiata pine and caribbean pine.

A3.2.2.2 Dimensional lumber and timbers of the following heartwood species: Douglas fir, western hemlock, hem-fir.

A3.2.2.3 Lumber to be labeled “Decking Use Only” shall not exceed a nominal thickness of 2 inches (51 mm) and a nominal width of 8 inches (204 mm) for decking and specialty use of the species listed in Sections A3.2.2.1 and A3.2.2.2.

A3.2.2.4 Round and sawn posts and building poles of southern pine, ponderosa pine, radiata pine, red pine, Douglas fir and western hemlock.

A3.2.2.5 Plywood shall be Exterior or Exposure 1 of the following species and grade classifications: southern yellow pine face veneers, Group 1 or 2, no hardwood core veneers, and Douglas fir face veneers, Group 1 or 2, no hardwood core veneers.

A3.2.3 Physical Quality: Physical quality of treated lumber and plywood shall be in accordance with Section 3.2.3 of this criteria.

A3.2.4 Incising: Incising of lumber shall be in accordance with Section 3.2.4 of this criteria.

A3.3 Treatment Process: Treatment process shall be in accordance with Section 3.3 of this criteria.

A3.4 Results of Treatment: Results of treatment shall be in accordance with Section 3.4 of this criteria.

A3.4.1 Sampling Method: Sampling shall be in accordance with Section 3.4.1 of this criteria.

A3.4.2 Retention by Assay: Retention of CBA-A, CA-B and CA-C shall be in accordance with Section 3.4.2 of this criteria.

Appendix A-COPPER-AZOLE WOOD PRESERVATIVE TREATMENT SYSTEMS (Formerly AC143)

~~Retention of CBA-A and CA-B shall be in accordance with Sections A3.4.2.1,A 3.4.2.2 and A3.4.2.3 of this appendix.~~

~~**A3.4.2.1 Above Ground:** Assay zones shall be the same as shown in AWPA standards. Minimum total retention and minimum retentions (above ground) of each component based on the assay for copper shall not be less than those shown in the following table:~~

~~COMPONENT~~	~~CBA-A~~	~~CA-B~~
~~Copper, as Cu metal~~	~~0.08 pcf (1.3 kg/m^3)~~	~~0.08 pcf (1.3 kg/m^3)~~
~~Boron, as boric acid~~	~~0.08 pcf (1.3 kg/m^3)~~	~~None~~
~~Tebuconazole~~	~~0.0033 pcf (0.053 kg/m^3)~~	~~0.0033 pcf (0.053 kg/m^3)~~
~~**Total**~~	~~0.20 pcf (3.3 kg/m^3)~~	~~0.10 pcf (1.7 kg/m^3)~~

~~The retention by assay shall be determined using the analytical standards specified in Section A3.7 of this appendix.~~

~~**A3.4.2.2 Above Ground—Decking Use Only:** Minimum retentions for heartwood species shall be the same as in Section A3.4.2.1 for aboveground use. Minimum total retention and minimum retentions (aboveground, decking use only) of each component for sapwood species based on the assay for copper shall not be less than those shown in the following table:~~

~~COMPONENT~~	~~CBA-A~~	~~CA-B~~
~~Copper, as Cu metal~~	~~0.064 pcf (1.02 kg/m^3)~~	~~0.064 pcf (1.02 kg/m^3)~~
~~Boron, as boric acid~~	~~0.064 pcf (1.02 kg/m^3)~~	~~None~~
~~Tebuconazole~~	~~0.0026 pcf (0.04 kg/m^3)~~	~~0.0026 pcf (0.04 kg/m^3)~~
~~**Total**~~	~~0.16 pcf (2.56 kg/m^3)~~	~~0.08 pcf (1.28 kg/m^3)~~

~~The retention by assay shall be determined using the analytical standards specified in Section A3.7 of this appendix.~~

~~**A3.4.2.3 Ground Contact:** Assay zones shall be the same as those shown in AWPA standards. Minimum total retention and minimum retentions (ground contact) of each component, based on the assay for copper and balance in the treating solution shall not be less than those shown in the following table:~~

~~COMPONENT~~	~~CBA-A~~	~~CA-B~~
~~Copper, as Cu metal~~	~~0.16 pcf (2.6 kg/m^3)~~	~~0.16 pcf (2.6 kg/m^3)~~
~~Boron, as boric acid~~	~~0.16 pcf (2.6 kg/m^3)~~	~~None~~
~~Tebuconazole~~	~~0.0066 pcf (0.11 kg/m^3)~~	~~0.0066 pcf (0.11 kg/m^3)~~
~~**Total**~~	~~0.41 pcf (6.5 kg/m^3)~~	~~0.21 pcf (1.7 kg/m^3)~~

~~The retention by assay shall be determined using the analytical standards specified in Section A3.7 of this appendix.~~

A3.4.3 Standard Density for Assay Calculation (AWPA Standard A 12): Densities for assay calculation shall be in accordance with Section 3.4.2.3 of this criteria.

A3.4.4 Penetration: Penetration shall be in accordance with Section 3.4.3 of this criteria.

A3.5 Drying after Treatment: Drying after treatment shall be in accordance with Section 3.5 of this criteria.

A3.6 Marking: Marking shall be in accordance with Section 3.6 of AC326.

A3.7 Analysis Standards:

A3.7.1 For copper, use the following as applicable:

- AWPA Standard A9: X-ray Fluorescence Spectroscopy.
- AWPA Standard A11: Atomic Absorption Spectroscopy.
- AWPA Standard A21: Inductively Coupled Plasma. Spectroscopy.

A3.7.2 For boron, use the following as applicable:

- AWPA Standard A2, Section 16: Determination of Boron Using Carminic Acid.
- AWPA Standard A21: Inductively Coupled Plasma Spectroscopy.

A3.7.3 For propiconazole and tebuconazole, use the following as applicable:

- AWPA Standard 28: Determination of Propiconazole and Tebuconazole in Wood, in Waterborne Formulations and in Treating Solutions by HPLC.
- AWPA Standard 31: Analysis of Solutions and Wood for Azoles by Gas Chromatography (GC).

Appendix A-COPPER-AZOLE WOOD PRESERVATIVE TREATMENT SYSTEMS (Formerly AC143)

A3.7.4 For determining penetration of Copper Azole use the following:

- AWPA Standard A3, Section 14: Determining Penetration of Copper Containing Preservatives.

A4.0 TEST METHODS AND PERFORMANCE REQUIREMENTS

The performance characteristics of the Copper-Azole wood preservative system treated wood shall be documented by testing. The testing and performance requirements listed in this appendix document treated wood ~~used in contact with the ground (AWPA UC4A, AWPA UC4B) and in aboveground, weather-exposed (AWPA UC3B)~~ used out of contact with the ground (above ground) (AWPA UC3B) or in contact with the ground or freshwater (AWPA UC4A and UC4B) or as foundation and freshwater piling (AWPA UC4C) conditions. Testing shall be in accordance with AWPA and ASTM standards and shall demonstrate resistance to fungal decay and to subterranean termites. Product sampling shall be in accordance with Section A2.4 of this appendix. The following documentation (Sections A4.1 to A4.8) is needed to substantiate the performance characteristics of the wood preservative products:

A4.1 Laboratory Tests: Testing shall be in accordance with Section 4.1 of this criteria.

A4.2 Simulated Field Tests: Testing shall be in accordance with Section 4.2 of this criteria.

A4.3 Field Tests: Ground-contact field stake testing and aboveground field testing in accordance with Sections A4.3.1 and A4.3.2.

Conditions of Acceptance: Testing shall demonstrate efficacy of the recommended levels of the wood preservative for the products and uses listed in this appendix.

A4.3.1 Ground-contact field stake tests, in accordance with AWPA E7, ~~or~~ ASTM D 1758 or EN252, shall demonstrate performance for ground contact.

A4.3.2 Aboveground field testing in accordance with AWPA E9 (L-joints), AWPA E16 (horizontal lap joints) or AWPA E18 (Ground Proximity) shall demonstrate performance for above ground use. Lap joint test results shall be accepted as valid provided that the nominal mean rating of the joint surfaces for the untreated controls is equal to or greater than 3.0 on a scale of 0 to 5 (0 = sound, and 5 = failure). The test shall be continued until all untreated control samples have failed, and an updated inspection report shall be provided upon the one-year and subsequent re-evaluations until a minimum of five years of exposure is achieved.

A4.4 Preservative Permanence: Testing indicated in Sections A4.4.1, A4.4.2 and A4.4.3 shall be performed.

Conditions of Acceptance: Testing shall demonstrate levels of the wood preservative for the products and uses indicated in this appendix.

A4.4.1 Refer to Section 4.4.1 of this criteria.

A4.4.2 Soil bed depletion testing in accordance with AWPA E14.

A4.4.3 Refer to Section 4.4.2 of this criteria.

A4.5 Effects on Wood Properties: Testing shall be in accordance with Section 4.5 of this criteria.

A4.6 Corrosion: Testing shall be in accordance with Section 4.6 of this criteria.

A4.7 Treatment Testing: Testing shall be in accordance with Section 4.7 of this criteria.

A4.8 Analysis of Test Documentation: Analysis of test data shall be in accordance with Section 4.8 of this criteria.

A5.0 QUALITY CONTROL

Quality control shall be in accordance with Section 5.0 of this criteria.

A6.0 EVALUATION REPORT RECOGNITION

Conditions of use shall be in accordance with Section 6.0 of this criteria.

~~**TABLE A1—PRESENCE OF ACTIVE COMPONENTS IN THE TREATING SOLUTION**~~

~~ACTIVE COMPONENTS~~	~~CBA-A~~		~~CA-B~~	
	~~Minimum Percent~~	~~Maximum Percent~~	~~Minimum Percent~~	~~Maximum Percent~~
~~Copper, as Cu metal~~	~~44.0~~	~~54.0~~	~~95.4~~	~~96.8~~
~~Boron, as Boric Acid~~	~~44.0~~	~~54.0~~	~~None~~	~~None~~
~~Azole as Tebuconazole~~	~~1.8~~	~~2.8~~	~~3.2~~	~~4.6~~