

November 17, 2023

**TO: PARTIES INTERESTED IN WOOD STRUCTURAL PANEL INSULATED
ROOF SHEATHING (WSPIRS)**

**SUBJECT: Proposed New Acceptance Criteria for Wood Structural Panel Insulated Roof
Sheathing, Subject AC560-0224-R1 (EP/YM)**

Hearing Information:

WebEx Event Meeting

[Wednesday, February 21, 2024](#)

8:00 am Pacific Standard Time

Click the date above to register

Dear Colleague:

You are invited to comment on a proposed new ICC-ES acceptance criteria, AC560, which will be discussed at the Evaluation Committee hearing noted above. The purpose of the criteria is to establish requirements for wood structural panel insulated roof sheathing (WSPIRS) to be the subject of an ICC Evaluation Service, LLC (ICC-ES), evaluation report under the 2021, 2018 and 2015 *International Building Code*® (IBC) and the 2021, 2018 and 2015 *International Residential Code*® (IRC).

The proponent of the proposed criteria is Huber Engineered Woods, LLC. The scope of the proposed criteria is limited to wood structural panels that are factory adhered with non-structural adhesive to rigid foam plastic insulation no greater than 4 inches (10.2 cm) thick complying with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

The adhesive is considered non-structural because it is only used for transportation to jobsite and installation, and the WSPIRS is mechanically attached.

The scope of the criteria is also limited to WSPIRS panels that are attached to existing roof decks that are solidly sheathed with wood structural panels greater than or equal to 1/4-inch (6.4 mm) in thickness. The proposed incorporates provisions to evaluate the product for the following performance characteristics:

- Wind uplift testing per ASTM E330
- Gravity load testing per ASTM E72
- Roof assembly fire classification per ASTM E108 or UL 790
- Air barrier assembly performance per ASTM E2357 (optional)

You are invited to submit written comments on this or any other agenda item and attend the Evaluation Committee hearing to support your written comments in person. If you wish to contribute to the discussion, please note the following:

1. Regarding written comments and presentations:

- a. You should submit these via e-mail to es@icc-es.org by the applicable due date.
 - b. The deadline for submitting written comments is **December 14, 2023**. These comments will be forwarded to the committee and posted on the ICC-ES web site shortly after the deadline. Comments that are not submitted by this deadline will not be considered at the meeting.
 - c. The deadline for submitting rebuttal comments, from the proponent noted in this letter, is **January 10, 2024**. These comments will be forwarded to the committee and posted on the ICC-ES web site shortly after the deadline. Comments that are not submitted by the deadline will not be considered at the meeting.
 - d. The deadline for submitting a presentation is **January 24, 2024**. If a company wants to present a visual presentation at the hearing, it shall be received in PowerPoint format. These will be forwarded to the committee and posted on the ICC-ES web site approximately two weeks before the hearing. Presentations that are not submitted by the deadline cannot be presented at the meeting. **Note:** Videos will not be posted on the web site.
 - e. ICC-ES staff memo addressing public comments, rebuttal comments, and presentations (as deemed necessary) will be posted to the ICC-ES web site on **February 7, 2024**.
2. Keep in mind that all materials submitted for committee consideration are part of the public record and will not be treated as confidential. It is the presenter's responsibility to certify to ICC-ES staff that no materials infringe copyright.
 3. Please do not communicate with committee members before the meeting about any items on the agenda.

We appreciate your interest in the work of the Evaluation Committee. If you have any questions, please contact me at (800) 423-6587, extension 5270, or Yamil Moya, P.E., at extension 3691. You may also reach us by e-mail at es@icc-es.org.

Yours very truly,



Eric J. Polzin, P.E.
Senior Staff Engineer and
Manager of Environmental Programs

EP/lis

Encl.

cc: Evaluation Committee

ICC EVALUATION SERVICE, LLC, RULES OF PROCEDURE FOR THE EVALUATION COMMITTEE

1.0 PURPOSE

The purpose of the Evaluation Committee is to review and approve acceptance criteria on which evaluation reports may be based.

2.0 MEMBERSHIP

2.1 The Evaluation Committee has a membership of not fewer than nine, with one of the members named by the ICC-ES president each year to serve as the chairman–moderator.

2.2 All members of the committee shall be representatives of a body enforcing regulations related to the built environment.

2.3 Persons are appointed to the committee by the ICC-ES president, from among individuals who have formally applied for membership.

2.4 The ICC-ES Board of Managers, using simple majority vote, shall ratify the nominations of the president.

2.5 Committee membership is for one year, coinciding with the calendar year. Members may be renominated and reappointed.

2.6 In the event that a member is unable to attend a committee meeting or complete a term on the committee, the ICC-ES president may appoint a replacement to fill in at the meeting or for the remainder of the member's term. Any replacement appointed for only one meeting must have prior experience as a member of the Evaluation Committee. Appointments under this section (Section 2.6) are subject to ratification as noted in Section 2.4.

3.0 MEETINGS

3.1 The Evaluation Committee shall schedule meetings that are open to the public in discharging its duties under Section 1.0, subject to Section 3.0.

3.2 All scheduled meetings shall be publicly announced. There shall be three to six meetings per year (as necessary).

3.3 More than half of the Evaluation Committee members, counting the chairman, shall constitute a quorum. A majority vote of members present is required on any action. To avoid any tie vote, the chairman may choose to exercise or not exercise, as necessary, his or her right to vote.

3.4 In the absence of the 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.

3.5 Minutes shall be kept and shall be the official record of each meeting.

3.6 An electronic record of meetings may be made by ICC-ES if deemed necessary; no other audio, video, electronic recordings of the meetings will be permitted. Visual aids (including, but not limited to, charts, slides, videos, or presentation software) viewed at meetings shall be permitted only if the presenter provides ICC-ES before the 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.

3.7 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 must be delivered to ICC-ES and shall be considered nonconfidential and available for discussion in open session of an Evaluation Committee meeting. Such materials will be posted on the ICC-ES web site (www.icc-es.org) prior to the meeting. Comments and submissions not meeting the following deadlines will not be considered at the meeting:

- Initial comments on agenda items shall be submitted at least 28 days before the scheduled meeting.
- A rebuttal comment period shall follow, whereby rebuttal comments to the initial comments may be submitted by the proponent at least 21 days before the scheduled meeting.
- Those planning on giving a visual presentation at the meeting must submit their presentation, in PowerPoint format only, at least 10 days before the scheduled meeting.

The committee reserves the right to refuse recognition of communications which do not comply with the provisions of this section.

4.0 CLOSED SESSIONS

Evaluation Committee meetings shall be open except that at the discretion of the chairman, staff counsel may be necessary. Also, matters related to clients or potential clients covered by confidentiality requirements of ICC-ES Rules of Procedure for Evaluation Reports are discussed only during closed meetings.

5.0 ACCEPTANCE CRITERIA

5.1 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, or method of construction. 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 ICC-ES President.

EXCEPTIONS: The following acceptance criteria are controlled by the ICC-ES executive staff and are not subject to committee approval:

- The Acceptance Criteria for Quality Documentation (AC10)
- The Acceptance Criteria for Test Reports (AC85)
- The Acceptance Criteria for Inspections and Inspection Agencies (AC304)

5.2 Procedure:

5.2.1 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 4.0 of these rules.

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

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

5.2.4 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. In the interest of fairness, each speaker requesting to testify on a proposed acceptance criteria or proposed changes to an existing acceptance criteria will be given the same amount of time, as follows:

- a. A 10-minute time limit applies to speakers giving their first testimony on any item, which applies to both verbal testimony and/or visual presentations.
- b. A 5-minute time limit applies to speakers returning to the microphone to offer additional testimony and/or to rebut testimony given by others.
- c. A 2-minute time limit applies to speakers offering testimony on the staff recommendation to criteria.

Should a company have multiple speakers, the speaker time limits above apply the company, in that multiple speakers from the same company shall share the testimony time, i.e., multiple speakers from the same company shall not each get their own testimony times. Time limits do not include time needed to answer questions from the staff and/or committee members. The chairman-moderator shall have limited authority to modify time limitations on testimony. The chairman-moderator shall also have the authority to adjust time limits as necessary in order to get through the hearing agenda.

An automatic timing device shall keep time for testimony and shall provide the time remaining to the speaker testifying. Interruptions during testimony will not be tolerated. It is the responsibility of the chairman-moderator to maintain decorum and order during all testimony.

5.3 Approval of any action on an acceptance criteria shall be as specified in Section 3.3 of these rules. Possible actions made by the Evaluation Committee include: Approval; Approval with Revisions; Disapproval; or Further

Study. The Evaluation Committee must give the reason(s) for any Disapproval or Further Study actions with specific recommendations.

5.4 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.

6.0 COMMITTEE BALLOTING FOR ACCEPTANCE CRITERIA

6.1 Acceptance criteria may be revised without a public hearing following a 30-day public comment period and a majority vote for approval by the Evaluation Committee (i.e., alternative criteria development process), when at the discretion of the ICC-ES executive staff, the subject is a revision that requires formal action by the Evaluation Committee.

6.2 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 public hearings.* The committee member requests additional input from other committee members, staff or industry.

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

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

7.0 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:

7.1 Committee members receiving an electronic ballot should respond only to the sender (ICC-ES staff). Committee members who wish to discuss a particular matter with other committee members, before reaching a

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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.

7.2 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.■

Revised November 2023

PROPOSED ACCEPTANCE CRITERIA FOR WOOD STRUCTURAL PANEL INSULATED ROOF SHEATHING (WSPIRS)

AC560

Proposed (November 2023)

PREFACE

Evaluation reports issued by ICC Evaluation Service, LLC (ICC-ES), are based upon performance features of the International family of codes. (Some reports may also reference older code families such as the BOCA National Codes, the Standard Codes, and the Uniform Codes, or other codes as designated by the ICC-ES president.) 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.

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

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

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PROPOSED ACCEPTANCE CRITERIA FOR WOOD STRUCTURAL PANEL INSULATED ROOF SHEATHING (WSPIRS) (AC560)

1.0 INTRODUCTION

1.1 Purpose: The purpose of this criteria is to establish requirements for wood structural panel insulated roof sheathing to be the subject of an ICC Evaluation Service, LLC (ICC-ES), evaluation report under the 2021, 2018 and 2015 *International Building Code*® (IBC) and the 2021, 2018 and 2015 *International Residential Code*® (IRC). Bases of evaluation are IBC Section 104.11 and IRC Section R104.11.

The reason for the development of this criteria is that the codes do not provide guidance for evaluating wood structural panel insulated roof sheathing in roofs.

1.2 Scope: This criteria is applicable to mechanically attached wood structural panel insulated roof sheathing (WSPIRS). The criteria is limited to products that are installed over roof decks that are solidly sheathed with wood structural panels greater than or equal to ¼ inch (6.4mm) in thickness, meeting the requirements of Chapters 15 and 23 of the IBC and / or Chapters 8 and 9 of the IRC, as applicable. The criteria is limited to products that utilize rigid foam plastic insulation that is no greater than 4 inches (10.2 cm) in thickness. Products evaluated under this acceptance criteria shall be limited to use in non-fire-resistance rated Type V construction under the IBC and all types of construction under the IRC. Products evaluated under this criteria shall be limited to use on roofs with a slope of 2:12 or greater.

1.3 Codes and Referenced Standards:

1.3.1 2021, 2018 and 2015 *International Building Code*®, International Code Council.

1.3.2 2021, 2018 and 2015 *International Residential Code*®, International Code Council.

1.3.3 2021, 2018 and 2018 *International Energy Conservation Code*®, International Code Council.

1.3.4 ASTM E108-17, Standard Test Methods for Fire Tests of Roof Coverings, ASTM International.

1.3.5 ASTM E330/E330M-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference, ASTM International.

1.3.6 ASTM E2357-18, Standard Test Method for Determining Air Leakage of Air Barriers Assemblies, ASTM International.

1.3.7 DOC PS 1-19, Structural Plywood, U.S. Department of Commerce, National Institute of Standards and Technology.

1.3.8 DOC PS 2-18, Performance Standard for Wood-Based Structural-Use Panels, U.S. Department of Commerce, National Institute of Standards and Technology.

1.3.9 UL 790-2004, Standard test Methods for Fire Tests of Roof Coverings – with Revisions through October 2018, Underwriters Laboratories, Inc.

1.4 Definitions

1.4.1 Wood Structural Panel (WSP): Products conforming with the requirements of DOC PS 1 or DOC PS 2.

1.4.2 Wood Structural Panel Insulated Roof Sheathing (WSPIRS): Wood structural panel insulated roof sheathing (WSPIRS) consists of a wood structural panel, as described in Section 1.4.1, that is factory adhered with non-structural adhesive to rigid foam plastic insulation complying with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12). The wood structural panel may be factory-laminated with an alternative roof underlayment complying with the ICC-ES Acceptance Criteria for Wood Structural Panel Roof Sheathing Factory-laminated with an Alternative Roof Underlayment (AC266).

2.0 BASIC INFORMATION

2.1.1 General: The following information shall be submitted:

2.1.2 Product Description: Details regarding available thicknesses, widths and lengths.

2.1.3 Installation Instructions: Complete installation instructions shall be submitted. Installation instructions shall include fasteners (type, material, finish, head configuration) to be used during the installation, fastener spacing, handling and storage requirements and joint treatment.

2.1.4 Packaging and Identification: A description of the method of packaging and field identification. Product identification shall also be in accordance with the product identification provisions of the ICC-ES Rules of Procedure for Evaluation Reports.

2.1.5 Field Preparation: Method of field-cutting and trimming; and treatment of cut edges and cut ends as required.

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 sheathing for tests under this criteria shall comply with Section 3.2 of AC85.

2.5 Qualification Test Plan: A qualification test plan shall be submitted to and approved by ICC-ES staff prior to any testing being conducted.

3.0 WIND UPLIFT AND GRAVITY LOAD REQUIREMENTS

3.1 General: WSPIRS panels used for testing in accordance with Sections 3.2 and 3.3 shall be assembled from the constituent components (WSP and insulation board) at the laboratory without the use of any adhesive.

3.2 Wind Uplift: Three tests shall be performed for each configuration in accordance with ASTM E330. The representative roof deck assembly shall be described in the test report including rafter size, type, species of wood, spacing, sheathing type, sheathing thickness, and fastening schedule. The WSPIRS shall be described in the test report including insulation type, insulation thickness, WSP type, WSP thickness and fastening schedule. Fasteners shall be described by size, type and spacing. Framing members shall be supported to resist deflection or rotation under

PROPOSED ACCEPTANCE CRITERIA FOR WOOD STRUCTURAL PANEL INSULATED ROOF SHEATHING (WSPIRS) (AC560)

applied load. A membrane shall be placed between the WSPIRS and the existing roof deck such that the test load is applied to the underside of the WSPIRS only. Deflection readings are to be taken on the outer surface of the WSPIRS at mid-span between rows of fasteners and between rafters. The assembly shall be tested to failure.

Conditions of Acceptance: If any of the individual test results vary greater than 15% of the average, then the lowest test result shall be used as the failure load. Otherwise, the average of the test results may be used as the failure load.

The allowable uplift load shall be the failure load divided by a safety factor of three, or the average load at which a WSPIRS deflection of $L/180$ is exhibited, whichever is less. Allowable wind loads shall not exceed established allowable values for withdrawal or fastener head pull through of mechanical connectors such as nails, screws, and staples. Allowable loads shall not exceed established allowable values for the underlying roof deck assembly.

3.3 Gravity Load Requirements: Three tests shall be performed for each configuration in accordance with transverse uniform load provisions outlined in Section 19 of ASTM E72. The representative roof deck assembly shall be described in the test report including rafter size, type, species of wood, spacing, sheathing type, sheathing thickness, and fastening schedule. The WSPIRS shall be described in the test report including insulation type, insulation thickness, WSP type, WSP thickness and fastening schedule. Fasteners shall be described by size, type and spacing. Framing members shall be supported to resist deflection or rotation under applied load. Deflection readings are to be taken on the outer surface of the WSPIRS at mid-span between rows of fasteners and between rafters. The assembly shall be tested to failure.

Conditions of Acceptance: If any of the individual test results vary greater than 15% of the average, then the lowest test result shall be used as the failure load. Otherwise, the average of the test results may be used as the failure load.

The allowable normal load duration gravity load shall be the failure load divided by a factor of three, or the average load at which WSPIRS deflection of $L/180$ is exhibited, whichever is less. Allowable loads shall not exceed established allowable values for the underlying roof deck assembly.

4.0 Fire Classification (Optional):

Testing shall be in accordance with ASTM E108 or UL 790 for classification as a Class A, B, or C roof assembly. Installation shall be representative of typical construction.

5.0 Air Barrier Assembly (Optional):

When the product is to be evaluated as a component of an air barrier assembly, reports of air leakage testing in accordance with ASTM E2357 shall be submitted. A minimum of two assemblies shall be tested. The assemblies shall include panel joints and shall be representative of the specific configuration for which assembly performance evaluation is sought. Minimum conditions of acceptance shall be an average air leakage

less than or equal to 0.04 cfm/ft^2 ($0.2 \text{ L/s}\cdot\text{m}^2$) under a pressure differential of 0.3 inch water gauge (w.g.) (1.57 psf [75 pa]) for both assemblies. The test report shall indicate which cycling procedure was used (four stages of 500 cycles or two stages of 1000 cycles).

6.0 QUALITY CONTROL

6.1 The products shall be manufactured under an approved quality control program with inspections by ICC-ES or by a properly accredited inspection agency that has a contractual relationship with ICC-ES.

6.2 Quality documentation complying with the ICC-ES Acceptance Criteria for Quality Documentation (AC10) shall be submitted. A qualifying inspection shall be conducted at each manufacturing facility when required by the ICC-ES Acceptance Criteria for Inspections and Inspection Agencies (AC304).

6.3 Ongoing follow-up inspections, by ICC-ES or by a properly accredited inspection agency that has a contractual relationship with ICC-ES, are required under this acceptance criteria.

7.0 EVALUATION REPORT

The evaluation report shall include:

1. Basic information referenced in Section 2.1 of the criteria.
2. Allowable uniform loads including span ratings and fastening methods for the WSPIRS.
3. A statement that allowable uniform loads for the WSPIRS shall not exceed established allowable values for the underlying roof deck assembly.
4. A statement that the products are limited to use in Type V, non-fire-resistance rated construction under the IBC.
5. A statement that use of the WSPIRS as a horizontal diaphragm component is outside of the scope of the evaluation report.
6. A statement that the WSPIRS shall be separated from the interior of the building by an approved thermal barrier in accordance with Section 2603.4 of the IBC and Section R316.4 of the IRC, as applicable.
7. A statement that the existing roof sheathing may be classified as an ignition barrier in attics in accordance with Section 2603.4.1.6 of the IBC and Section R316.5.3 of the IRC as applicable. When the existing roof sheathing is classified as an ignition barrier, entry to the attic may only be made to service utilities, and no storage is permitted.

8.0 ENVIRONMENTAL PRODUCT DECLARATION (Optional):

Environmental impacts shall be assessed via an Environmental Product Declaration (EPD) based on a Life Cycle Assessment (LCA). The LCA and EPD shall be conducted in accordance with ISO 21930 and the appropriate Product Category Rule(s) for the product type. ■