ICC EVALUATION SERVICE

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ACCEPTANCE CRITERIA FOR WOOD STRUCTURAL PANELS LAMINATED WITH AN INERT, INORGANIC FIRE SHIELD

AC264

Approved October 2004

Effective November 1, 2004

(Editorially revised February 2010)

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.

This acceptance criteria has been issued to provide all interested parties with guidelines for demonstrating compliance with performance features of the applicable code(s) referenced in the acceptance criteria. The criteria was developed and adopted following public hearings conducted by the ICC-ES Evaluation Committee, and is effective on the date shown above. All reports issued or reissued on or after the effective date must comply with this criteria, while reports issued prior to this date may be in compliance with this criteria or with the previous edition. If the criteria is an updated version from the previous edition, a solid vertical line (|) in the margin within the criteria indicates a technical change, addition, or deletion from the previous edition. A deletion indicator (→) is provided in the margin where a paragraph has been deleted if the deletion involved a technical change. This criteria may be further revised as the need dictates.

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 set forth in this document, and otherwise demonstrate compliance with the performance features of the codes. Notwithstanding that a product, material, or type or method of construction meets the requirements of the criteria set forth in this document, or that it can be demonstrated that valid alternate criteria are equivalent to the criteria 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 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 if 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.

ACCEPTENCE CRITERIA FOR WOOD STRUCTURAL PANELS LAMINATED WITH AN INERT, INORGANIC FIRE SHIELD (AC264)

1.0 INTRODUCTION

1.1 Purpose: The purpose of this criteria is to establish requirements for wood structural panels laminated with an inert, inorganic fire shield to be recognized in an ICC Evaluation Service, Inc. (ICC-ES), evaluation report under the 2009 *International Building Code*® (2009 IBC), the 2009 *International Residential Code*® (2009 IRC), the 2006 *International Building Code*® (2006 IBC) and the 2006 *International Residential Code*® (2006 IRC). The bases of recognition are IBC Section 104.11 and IRC Section R104.11. Applicable code sections are listed in Section 1.2.

1.2 Scope: Wood structural panels laminated with an inert, inorganic fire shield are used for the following applications:

1.2.1 Roof sheathing in buildings of Type III, IV and V construction for a distance of 4 feet (1220 mm) on both sides of a fire wall to provide continuity [2009 IBC Section 706.6 (Section 705.6 for the 2006 IBC), Exception 4.3, and 2009 IRC Section R302.2.2(2) (Section 317.2.2[2] for the 2006 IRC), Exception].

1.2.2 Exterior wall and roof sheathing in buildings of Type I and II construction as described in IBC Section 603.1 (Exceptions 25.2 and 25.3) (Exceptions 1.2 and 1.3 for the 2006 IBC).

1.2.3 Class A interior finish material for walls and ceilings of Type V construction (IBC Section 803).

1.2.4 Thermal barrier for separating foam plastic insulation from the interior of a building (IBC Section 2603.4).

1.2.5 Component of fire-resistance-rated construction (IBC Section 703).

1.2.6 Component of fire classified roof covering assemblies (IBC Section 1505.1).

1.3 Codes and Referenced Standards: Where standards are referenced in this criteria, these standards shall be applied consistently with the code upon which compliance is based.

1.3.1 Codes:

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

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

1.3.1.3 2006 *International Building Code*® (2006 IBC), International Code Council.

1.3.1.4 2006 *International Residential Code*® (2006 IRC), International Code Council.

1.3.2 ASTM International, Reference Standards:

1.3.2.1 ASTM E 84-07 (84-04 for the 2006 IBC), Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3.2.2 ASTM E 108-07a (108-04 for the 2006 IBC), Standard Test Methods for Fire Tests of Roof Coverings.

1.3.2.3 ASTM E 119-07 (119-00a for the 2006 IBC), Standard Test Methods for Fire Tests of Building Construction and Materials.

1.3.2.4 ASTM D 5516-03, Standard Test Method for Evaluating the Flexural Properties of Fire-Retardant Treated Softwood Plywood Exposed to Elevated Temperatures.

1.3.2.5 ASTM D 6305-02^{e01}, Standard Practice for Calculating Bending Strength Design Adjustment Factors for Fire-Retardant-Treated Plywood Roof Sheathing.

1.3.3 NFPA 286-06 (286-00 for the 2006 IBC), Standard Test Method of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth, National Fire Protection Association.

1.3.4 UL 790-04, Standard for Tests for Fire Resistance of Roof Covering Materials.

1.3.5 UL 1715 -97, Standard for Fire Test for Interior Finish Material, Underwriters Laboratories Inc.

1.3.6 UBC 26-2, Test Method for the Evaluation of Thermal Barriers, 1997 *Uniform Building Code*™.

1.3.7 ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

1.4 Definitions:

1.4.1 Wood Structural Panels Laminated with an Inert, Inorganic Fire Shield: A proprietary, inert, inorganic fire shield at a minimum thickness of 0.045 inch (1.1 mm) bonded to one side or two sides of a wood structural panel complying with Section 2303.1.4 of the IBC.

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, fastener materials, and installation manual.

2.1.3 Packaging and Identification: A description of the method of packaging and field identification of the panel. Identification provisions must 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: Products shall be sampled in accordance with Section 3.1 of AC85.

3.0 TEST AND PERFORMANCE REQUIREMENTS

3.1 Surface-burning Characteristics and Stability: The wood structural panels laminated with an inert, inorganic fire shield shall be tested to document interior finish classification in accordance with Section 803.1 of the IBC, stability of interior finish in accordance with Section 803.10 of the 2009 IBC (803.3 of the 2006 IBC) and compliance with the performance characteristics of Section 2303.2 of the IBC. The test methods are noted in Section 4.1 of this acceptance criteria.

3.2 Durability—Structural Flexural Performance When Exposed to Elevated Temperatures: The panels shall be exposed to elevated temperatures and tested for flexure to document degradation. The test methods are noted in Section 4.2 of this acceptance criteria.

3.3 Thermal Barrier: The panels shall be tested to document use as a thermal barrier for separating foam plastic insulation from the interior of a building. The tests methods are noted in Section 4.3 of this acceptance criteria.

3.4 Fire-resistance-rated Assemblies: When the panels are used in a fire-resistance-rated assembly, fire testing of the assembly shall be performed to determine the fire-resistance rating. The test methods are noted in Section 4.4 of this acceptance criteria.

3.5 Fire Classified Roof Covering Assemblies: When the panels are used in a fire classified roof covering assembly, fire testing of the assembly shall be performed to determine the classification (Class A, B or C). The test methods are noted in Section 4.5 of this acceptance criteria.

3.6 Substrates: Documentation shall be submitted demonstrating that the wood structural panels used to manufacture the panels comply with Section 2303.1.4 of the IBC. The documentation shall consist of either a current ICC-ES evaluation report on the wood structural panels or test data from an accredited testing laboratory.

4.0 TEST METHODS

4.1 Surface-burning Characteristics and Stability:Structural Tests:

4.1.1 Surface-burning Characteristics: The surface-burning characteristics of the wood structural panels laminated with an inert, inorganic fire shield shall be determined by testing in accordance with ASTM E 84. The laminated samples shall be tested with the inert, inorganic fire shield exposed to the interior of the tunnel. Test samples shall be constructed with a joint running the length of the tunnel and with fasteners driven through the wood structural panels, from the side of the panel with the wood surface and penetrating the inert, inorganic fire shield, with the nail points protruding through the fire shield and exposed in the tunnel. Fasteners shall be corrosion-resistant roofing nails, spaced a minimum of 8 inches (203.2 mm) on center along the length of the tunnel, one row on each side of the panel joint. Testing shall be performed on samples that have been subjected to elevated temperatures in accordance with ASTM D 5516. Testing shall be performed on each type of wood structural panel that is laminated with the inert, inorganic fire shield for which recognition is sought. The testing shall be continued for an additional 20-minute period.

Conditions of Acceptance: The product shall have a flame-spread index not exceeding 25 and a smoke-developed rating not exceeding 450, Class A Interior Finish. The flame front shall not progress more than 10.5 feet (3200 mm) beyond the centerline of the burners at any time during the test.

4.1.2 Stability: Stability of the panels shall be determined by testing in accordance with the test methods indicated in Section 4.3 of this acceptance criteria.

Conditions of Acceptance: Testing shall demonstrate that the inert, inorganic fire shield does not detach when subjected to room temperatures of 200°F (93°C) for not less than 30 minutes.

4.2 Durability—Structural Flexural Performance When Exposed to Elevated Temperatures: Testing for exposure to elevated temperatures is conducted in accordance with ASTM D 5516 with design values determined in accordance with ASTM D 6305. Testing shall be performed on each type of wood structural panel that is laminated with the inert, inorganic fire shield for which recognition is sought.

Conditions of Acceptance: The samples exposed to elevated temperatures shall have design values equal to or better than those of the control samples. The inert, inorganic fire shield shall not delaminate from the panels for the duration of the testing for more than 10 percent of the surface area of the panel. An engineering analysis shall be submitted evaluating the test data.

4.3 Thermal Barrier: Samples of the product shall be tested in accordance with Sections 4.3.1 and 4.3.2.

4.3.1 Samples of the product shall be installed on walls and tested in accordance with Section 4.3 of the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12). The test assembly shall include foam plastic insulation at the maximum thickness intended for use, covered with the panels installed with horizontal and vertical joints. Details of panel attachment, joints, joint treatments and joint backing shall be described in the test report. The type of foam plastic insulation and the density shall be specified in the test report. Testing shall be performed on each type of wood structural panel that is laminated with the inert, inorganic fire shield for which recognition is sought. Testing shall be performed for both ceiling and wall conditions. When testing is not performed for both ceiling and wall conditions, the evaluation report will be limited to the condition tested.

Conditions of Acceptance: The tests shall demonstrate compliance with the performance requirements in the applicable test standard, and the panels shall stay in place for the full 15-minute test period.

4.3.2 Samples of the product shall be tested in accordance with Section 4.1 of AC12 for a minimum of 15 minutes.

Conditions of Acceptance: The average rise from ambient temperature at the beginning of the tests shall not be more than 250°F (120°C), and the samples shall remain in place for the duration of the test.

4.4 Fire-resistance-rated Assembly: The wood structural panels laminated with an inert, inorganic fire shield shall be tested as a component of a fire-resistive-

rated assembly, wall, floor-ceiling, or roof-ceiling construction under ASTM E 119. Testing shall be performed on each type of wood structural panel that is laminated with the inert, inorganic fire shield for which recognition is sought. The fire-resistance-rated assembly shall be completely described in the test report, with the hourly (F) rating and, if applicable, the temperature (T) rating.

Conditions of Acceptance: The assembly shall have a minimum fire-resistance rating of one hour.

4.5 Fire Classified Roof Covering Assemblies: The wood structural panels laminated with an inert, inorganic fire shield shall be tested as a component of a fire classified roof covering assembly under ASTM E 108 or UL 790. Testing shall be performed on each type of wood structural panel for which recognition is sought. The fire classified roof covering assembly shall be completely described in the test report, along with the corresponding fire classification (Class A, B or C).

Conditions of Acceptance: The assembly shall perform to the conditions specified by the test standard for the classification for which recognition is sought.

5.0 QUALITY CONTROL

5.1 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.

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

6.0 EVALUATION REPORT RECOGNITION

The evaluation report on wood structural panels laminated with an inert, inorganic fire shield covered by this acceptance criteria shall include a detailed description of the fire-resistance-rated assemblies tested as described in Section 4.4 of this criteria.

The following shall be included in the Conditions of Use for evaluation reports on wood structural panels laminated with an inert, inorganic fire shield covered by this acceptance criteria:

6.1 The scope of this evaluation report does not include the structural design of the panels. The structural system shall be designed in accordance with the *International Building Code* or the *International Residential Code*.

6.2 The wood structural panels laminated with an inert, inorganic fire shield shall only be used for the applications noted in Section 1.2 of this acceptance criteria.

6.3 When installed as roof sheathing in buildings of Type III, IV and V construction for a distance of 4 feet (1220 mm) on both sides of a fire wall to provide continuity, the panels shall be installed with the inert, inorganic fire shield facing the interior of the building.

6.4 When installed as exterior roof or wall sheathing in buildings of Type I or II construction, inorganic fire shield shall be laminated to each side of the panels.

6.5 When installed as a component of an interior or exterior fire-resistance-rated wall assembly or fire classified roof covering assembly, the panels shall be installed with the inert, inorganic fire shield in the exact configuration that was presented in the actual fire test for the specific application for which recognition is being sought.

6.6 When installed as a Class A interior finish or as a thermal barrier for foam plastic insulation, the panels shall be installed with the inert, inorganic fire shield facing the interior of the building. ■