



ICC Evaluation Service, Inc.
Los Angeles Business/Regional Office
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April 30, 2009

TO: PARTIES INTERESTED IN EVALUATION REPORTS ON VINYL SIDING

SUBJECT: Proposed Revisions to the Acceptance Criteria for Vinyl Siding, Subject AC37-0609-R1 (DP/MB)

Hearing Information:

Wednesday, June 3, 2009

8:00 a.m.

DoubleTree Hotel

808 South 20th Street

Birmingham, Alabama 35205

(800) 222-8733

Dear Madam or Sir:

The enclosed proposed revisions to the subject acceptance criteria are based on a proposal submitted on behalf of an evaluation report applicant. The revisions include:

1. Revisions are proposed by the Foam Sheathing Coalition to include wall covering assemblies of vinyl siding applied over foam plastic sheathing. Where the current criteria assumes the sheathing is capable of independently resisting the design wind loads, the new, proposed Section 3.3 treats the vinyl siding and foam plastic sheathing as a wall covering assembly.

The proposal is based the same test program used for approved changes (RB195-07/08) that will be included in Section R703 of the 2009 *International Residential Code* (IRC). The test program involved conducting negative pressure tests of combinations of foam sheathings and vinyl sidings, to evaluate the ability of the wall covering assembly (vinyl siding applied over foam plastic sheathing) to resist negative wind pressures; and positive pressure tests of foam plastic sheathing products, to evaluate the ability of the foam plastic sheathing to independently resist positive wind pressures. The test results were used to develop the prescriptive wall covering assembly provisions and pressure equalization factors (PEF) adopted into 2009 IRC Section R703.11.2, such that the wall covering assembly, as a whole, addresses both positive and negative wind pressures.

These proposed revisions do not affect current report holders except when they seek recognition of wall covering assemblies consisting of vinyl siding and foam plastic sheathing.

2. Revisions are proposed by the Vinyl Siding Institute (VSI) to update the reference to ASTM D 5206-06a, which includes editorial clarifications of the wind-load resistance test setup, procedure and reporting requirements.
3. Revisions are proposed for recognition under the 2009 IBC and IRC, in addition to the 2006 IBC and IRC. Beginning in 2010, ICC-ES will require compliance with the 2009 I-Codes. Under the 2009 IBC and IRC, the reference is to the 06a version of ASTM D 3679. Therefore, for recognition under the 2009 Codes, new data will be needed to show compliance with the lead content requirements of Section 4.6 of ASTM D 3679-06a.
4. The following revisions are proposed for Section 3.2.5.3.4:
 - a. Revisions are proposed on behalf of an evaluation report applicant to the first sentence of Section 3.2.5.3.4, to clarify that the *maximum* average of the five pressure differential readings across the siding must be divided by the *maximum* overall pressure reading across the test wall to determine the PEF *for a given test*. Such a revision would clarify that the PEF is meant to be based on predicting the maximum pressure for one wall assembly layer based on the maximum pressure for the overall wall assembly, even though the maximums may not occur at the same time during the test.
 - b. Additional revisions are proposed by VSI to Section 3.2.5.3.4, pertaining to the evaluation of the Pressure Equalization Factor (PEF) test results. The proposed revisions seek to clarify that the average of three tests *at each* pressure level must not exceed 15 percent. Otherwise, the highest PEF at that pressure level must be used as that pressure level's PEF, and be used to determine the overall PEF for the siding. This revision clarifies the intent of the criteria as it was approved at the October 2008 Evaluation Committee meeting.

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 **May 19, 2009**, 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 **May 29, 2009**.
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 **May 29, 2009**.
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 3275, or Michael Beaton, P.E., Vice President - Whittier Operations, at extension 3289. You may also reach us by e-mail at es@icc-es.org.

Yours very truly,

A handwritten signature in black ink, appearing to read 'D Pereg'.

David Pereg, P.E.
Staff Engineer

DP/gh

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) 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 VINYL SIDING

AC37

Proposed April 2009

Previously approved October 2008, December 2006, September 2003,
January 2002, January 2001, April 1996, July 1994, April 1991

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 THE ACCEPTANCE CRITERIA FOR VINYL SIDING

1.0 INTRODUCTION

1.1 Purpose: The purpose of this acceptance criteria is to establish requirements for vinyl siding, with or without foam plastic backing, to be recognized in an ICC Evaluation Service, Inc. (ICC-ES), evaluation report under the 2009 and 2006 International Building Code® (IBC), the 2009 and 2006 International Residential Code® (IRC), the BOCA® National Building Code/1999 (BNBC), the 1999 Standard Building Code® (SBC) and the 1997 Uniform Building Code™ (UBC). Bases of recognition are 2009 and 2006 IBC Section 1404.9, 2009 and 2006 IRC Section R703.4, BNBC Section 106.4, SBC Section 103.7 and UBC Section 104.2.8.

The reason for development of this criteria is to establish requirements for the legacy codes based on requirements in the current International Codes, to clarify requirements for wind load testing when the code-prescribed minimums are exceeded, to address requirements of the IBC that the siding materials be certified and labeled as conforming to ASTM D 3679, and to establish requirements for foam-plastic-backed vinyl siding; and for unbacked vinyl siding installed over foam plastic sheathing.

1.2 Scope:

1.2.1 This acceptance criteria is for vinyl siding complying with ASTM D 3679, with or without foam plastic backing and is limited to siding located on exterior walls of Type V construction in jurisdictions using the IBC and the BNBC, unless there is compliance with Section 3.4 of this criteria. This acceptance criteria is also limited to siding located on exterior walls of Type V construction in jurisdictions using the UBC, and to vinyl siding located on exterior walls of Type VI construction in jurisdictions using the SBC.

This acceptance criteria is also for vinyl siding complying with ASTM D 3679 located on exterior walls of any type of construction in jurisdictions using the IRC.

1.2.2 This criteria establishes wind load criteria for the IBC, IRC, BNBC, SBC and UBC.

1.2.3 This criteria includes provisions for foam-plastic-backed vinyl siding.

1.2.4 This criteria includes provisions for unbacked vinyl siding installed over foam plastic sheathing, as a wall covering assembly capable of resisting full positive and negative design wind pressures, for jurisdictions using the IBC and IRC.

1.3 Reference Standards:

1.3.1 2009 International Building Code® (2009 IBC), International Code Council.

1.3.2 2009 International Residential Code® (2009 IRC), International Code Council.

1.3.3 2006 International Building Code® (2006 IBC), International Code Council.

1.3.4 2006 International Residential Code® (2006 IRC), International Code Council.

1.3.5 BOCA® National Building Code/1999 (BNBC).

1.3.6 1999 Standard Building Code® (SBC).

1.3.7 1997 Uniform Building Code™ (UBC).

1.3.8 ASTM D 3679-06a 04, Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding, ASTM International.

1.3.9 ASTM D 4756-06, Practice for Installation of Rigid Poly (Vinyl Chloride) (PVC) Siding and Soffit, ASTM International.

1.3.10 ASTM D 5206-06a 96 (2002), Test Method for the Wind Load Resistance of Rigid Poly (Vinyl Chloride) (PVC), Siding, ASTM International.

1.3.11 ASTM E 330-02, Test Method for Structural Performance of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference, ASTM International.

1.3.12 NFPA 268-07 04, Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using Radiant Heat Energy Source, National Fire Protection Association, Inc.

1.4 Definitions:

1.4.1 Backing Material: Foam Plastic Backing: A layer (or layers) of plastic that has been intentionally expanded to produce a reduced-density plastic containing voids consisting of open or closed cells distributed throughout the plastic.

1.4.2 Foam-plastic-backed Siding: A vinyl cladding product sold with manufacturer-installed foam plastic backing material as an integral part of the product. The vinyl cladding portion of backed vinyl siding meets the definition of vinyl siding. Backed vinyl siding is intended to be installed only with the integral backing.

1.4.3 Allowable Pressures: Where it states in this criteria that allowable pressure shall be determined in accordance with Annex A1 of ASTM D 3679, the allowable pressure shall be determined by solving for the design pressure, D_p , as defined in Annex A1 of ASTM D 3679, using the applicable pressure equalization factors (PEFs) noted in this criteria.

1.4.4 Vinyl Siding: A shaped material, made principally from rigid polyvinyl chloride (PVC), that is used to clad exterior walls of buildings.

2.0 BASIC INFORMATION

The applicant for an evaluation report shall submit the following:

2.1 General:

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

2.1.2 Installation Instructions: Installation details and limitations, fastening methods, joint treatments and face treatments. Installation instructions shall be in accordance with ASTM D 4756.

PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR VINYL SIDING

2.1.3 Packaging and Identification: A description of the method of packaging and field identification of the siding. Identification provisions shall include the requirements of Section 7 of ASTM D 3679, the evaluation report number, and (when recognition under the UBC is considered) the words “conforms to UBC Standard 14-2.”

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

2.2 Testing Laboratories and Reports of Tests:

2.2.1 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.

2.2.2 Test reports shall comply with AC85. Test reports shall include test specimen description, details of the test method, manner of testing, test results, calculated results, and photographs, when necessary. The test reports shall also include information required by the applicable ASTM or UBC standard.

2.2.3 Sampling of the siding for tests under this criteria shall comply with Section 3.1 of AC85.

3.0 PERFORMANCE REQUIREMENTS FOR VINYL SIDING

3.1 Unbacked Vinyl Siding Installed over Solid Sheathing, with the Sheathing Resisting the Full Positive and Negative Design Wind Pressures:

3.1.1 General: Installation shall comply with ASTM D 4756. Installation shall also comply with 2009 IBC Section 1405.14, 2006 IBC Section 1405.13, 2009 or 2006 IRC Section R703.11.1 and Table R703.4, BNBC Section 1406.3.3, SBC Section 1403.9, and UBC Section 1404, for recognition under the respective codes, except where wind loads in excess of the code-prescribed minimums are sought.

3.1.2 Vinyl Siding: The siding shall conform to the requirements of ASTM D 3679.

EXCEPTION: For recognition under the 2006 IBC and/or the 2006 IRC, data to show compliance with the lead content requirements of Section 4.6 of ASTM D 3679, is not required.

3.1.3 Wind Loads under the IBC, BNBC, SBC and UBC: For applications where the basic wind speed (3-second gust) does not exceed 100 miles per hour (45 m/s) [80 miles per hour (36 m/s) (fastest mile) under the BNBC, SBC and UBC], and the building height is less than or equal to 40 feet (12 192 mm) in Exposure C areas, installation shall comply with the prescriptive requirements of 2009 IBC Section 1405.14, 2006 IBC Section 1405.13, BNBC Section 1406.3.3, SBC Section 1403.9 or UBC Section 1404, as applicable.

For applications in excess of the prescriptive requirements, negative wind load resistance tests shall be conducted in accordance with ASTM D 5206. The installation method must be superior to the prescriptive installation method in the applicable code. The test assembly shall be constructed in a manner consistent with the construction methods and materials that are to be recognized in the evaluation report. Allowable wind

pressures shall be determined in accordance with Annex A1 of ASTM D 3679.

Positive wind loading is not considered, since the siding ~~shall~~ must be applied over solid sheathing capable of resisting design wind pressures. Where construction is located in areas where the basic wind speed (3-second gust) does not exceed 100 miles per hour (45 m/s) and the building heights do not exceed 40 feet (12 192 mm), solid sheathing, as noted in 2009 IBC Section 1405.14.1, 2006 IBC Section 1405.13.1, BNBC Section 2305.8.1, SBC Section 2308.2, and UBC Section 1404.2, as applicable, is acceptable.

3.1.4 Wind Loads under the IRC: For applications where the basic wind speed (3-second gust) is less than 110 mph (49 m/s) in Exposure B, and does not exceed 90 mph (40 m/s) in Exposure C or 85 mph (37 m/s) in Exposure D, installation shall comply with the prescriptive requirements of IRC Section R703.11.1 and Table R703.4, as applicable.

For applications in excess of the prescriptive requirements, design shall be in accordance with Section R301.2.1.1 of the IRC, and negative wind load resistance tests shall be conducted in accordance with ASTM D 5206. The test assembly shall be constructed in a manner consistent with the construction methods and materials that are to be recognized in the evaluation report. Allowable negative wind pressures shall be determined in accordance with Annex A1 of ASTM D 3679. Positive wind loading is not considered since the siding ~~shall~~ must be applied over solid sheathing capable of independently resisting design wind pressures. The wind load rating for the siding is applicable where siding is applied over sheathing capable of independently resisting full design wind pressures, both positive and negative

3.2 Foam-plastic-backed Vinyl Siding Installed over Solid Sheathing, with the Sheathing Resisting the Full Positive and Negative Design Wind Pressures:

3.2.1 General: Installation shall comply with ASTM D 4756. Installation shall also comply with 2009 IBC Section 1405.14, 2006 IBC Section 1405.13 and IRC Section R703, as applicable, except where wind loads in excess of the code-prescribed minimums are sought.

3.2.2 Foam Plastic Backing: Foam plastic backing shall comply with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), except that measurement of thermal resistance under Section 4.5.7 of AC12 is not required.

3.2.3 Retention of Backing Material After Installation: The backed vinyl siding shall be designed such that, when installed in accordance with the manufacturer’s instructions and ASTM D 4756, the foam backing material is held in place by the attachment of the siding, and does not depend on the use of an adhesive to retain the backing material.

3.2.4 Vinyl Siding: Except as provided in the following sections, vinyl siding used in foam-backed siding, exclusive of any backing material, shall comply with ASTM D 3679.

3.2.4.1 Surface Distortion: Foam-plastic-backed vinyl siding shall comply with the surface distortion requirements of ASTM D 3679, Section 5.8, when tested with any backing material in place.

PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR VINYL SIDING

3.2.4.2 Weathering: Foam-plastic-backed vinyl siding shall comply with the weathering requirements of ASTM D 3679, Section 5.10, when tested with any backing material in place.

3.2.5 Wind Load: Foam-plastic-backed vinyl siding shall be tested for wind-load resistance with any backing material in place. When tested in accordance with ASTM D 5206, foam-backed vinyl siding shall withstand a minimum test pressure of 30.58 psf (1.465 kPa).

3.2.5.1 Wind Load under the IBC: For applications where the basic wind speed (3-second gust) does not exceed 100 miles per hour (45 m/s) ~~100 miles per hour (fastest mile) (35 m/s) under the UBC~~, and the building height is less than or equal to 40 feet (12 192 mm) in Exposure C areas, installation shall comply with the prescriptive requirements of 2009 IBC Section 1405.14 or 2006 IBC Section 1405.13, as applicable.

For applications in excess of the prescriptive requirements, negative wind-load resistance tests shall be conducted in accordance with ASTM D 5206. The installation method must be superior to the prescriptive installation method in the applicable code. The test assembly shall be constructed in a manner consistent with the construction methods and materials that are to be recognized in the evaluation report. Allowable wind pressures shall be determined in accordance with Annex A1 of ASTM D 3679, using a pressure equalization factor (PEF) of 0.70. Individual report holders may apply a different value for the PEF, provided testing in accordance with Section 3.2.5.3 is submitted to ICC-ES.

Positive wind loading is not considered, since the siding must be applied over solid sheathing capable of resisting design wind pressures. Where construction is located in areas where the basic wind speed (3-second gust) does not exceed 100 miles per hour (45 m/s) ~~95 miles per hour (fastest mile) (42 m/s) under the UBC~~ and the building heights do not exceed 40 feet (12 192 mm), solid sheathing as noted in 2009 IBC Section 1405.14.1 or 2006 IBC Section 1405.13.1, as applicable, is acceptable.

3.2.5.2 Wind Load under the IRC: For applications where the basic wind speed (3-second gust) is less than 110 mph (49 m/s) in Exposure B, and does not exceed 90 mph (40 m/s) in Exposure C or 85 mph (37 m/s) in Exposure D, installation shall comply with the prescriptive requirements of IRC Section R703.4, as applicable.

For applications in excess of the prescriptive requirements, design shall be in accordance with IRC Section R301.2.1.1, as applicable, and negative wind-load resistance tests shall be conducted in accordance with ASTM D 5206. The test assembly shall be constructed in a manner consistent with the construction methods and materials that are to be recognized in the evaluation report. Allowable negative wind pressures shall be determined in accordance with Annex A1 of ASTM D 3679, using a pressure equalization factor (PEF) of 0.70. Individual report holders may apply a different value for the PEF, provided testing in accordance with Section 3.2.5.3 is submitted to ICC-ES. Positive wind loading is not considered since the siding shall be applied over solid sheathing capable of independently resisting design wind pressures. The wind load rating for the siding is applicable where siding is applied over sheathing capable of independently resisting full design wind pressures, both positive and negative.

3.2.5.3 Determination of Alternate Values for PEF: To establish an alternate value for PEF (pressure equalization factor), testing shall be conducted as described in this section of the criteria.

3.2.5.3.1 Test Specimens: The report holder shall propose to ICC-ES profiles that are representative of the products to be qualified. Basis for choosing profiles shall include relative stiffness, nailing hem and exposure area.

3.2.5.3.2 Test Wall Construction: The test wall shall measure nominally 4 feet wide by 8 feet high, and be constructed of 2-by-4 spruce-pine-fir No. 2 lumber, or equivalent using four studs, spaced 16 inches (406 mm) on center, fastened to the top and bottom plates with No. 8 by 3-inch-long (76 mm) drywall screws. Exterior sheathing shall be nominally ½-inch-thick (12.7 mm) oriented strand board (OSB) sheathing. A vertical joint in the exterior sheathing shall be located over the center of one of the intermediate studs. Sheathing shall be covered with an approved water-resistive barrier. The interior of the test wall shall be sheathed with ½-inch-thick (12.7 mm) unpainted and unfinished gypsum wall board. There shall be a taped horizontal joint in the gypsum wall board. A standard duplex electrical outlet with plastic outlet box shall be installed in the wall. The vinyl siding shall be installed in a manner representative of field installation.

3.2.5.3.3 Procedure: A test chamber shall be constructed that incorporates a vacuum chamber, an exterior chamber, a test wall and an interior chamber (see Figure 1). The test protocol begins when the pressure in the vacuum chamber is reduced to a specified level. The three pressure levels used in a vacuum chamber shall be 50 psf (2.39 kPa) (low pressure), 75 psf (3.59 kPa) (medium pressure), and 105 psf (5.03 kPa) (high pressure). Once the pressure is stabilized, two pneumatically actuated, 4-inch-diameter (102 mm) valves, located between the exterior chamber and the vacuum chamber, shall be opened instantaneously and simultaneously. System pressures shall be measured at several locations using high-speed, high-resolution pressure transducers. Each test wall shall employ five pressure measurement locations on the exterior surface of the sheathing, directly behind the cladding. Pressure shall also be measured in the center of the wall cavity.

3.2.5.3.4 Conditions of Acceptance: The maximum average of the five pressure differential readings across the siding shall be divided by the maximum overall pressure reading across the test wall for a given test to determine the PEF for the product. The test shall be performed three times at each pressure level. Where the variation in the average value for the three tests at a given pressure exceeds 15 percent, the maximum value of PEF shall be used. If any of the three PEF results for each test pressure level varies by more than 15 percent from the average of the results for the three tests at that pressure level, the highest PEF shall be used. The PEF for the siding shall be the average of the three low, medium and high pressure PEF values, or 0.36, whichever is higher.

3.2.5.3.5 Test Report: A comprehensive test report, including test specimen selection criteria, test specimen installation, test wall fabrication, test results and calculations, shall be prepared by a registered design professional and submitted to ICC-ES for review.

3.3 Unbacked Vinyl Siding Installed over Foam Plastic Sheathing as a Wall Covering Assembly Capable of Resisting Full Positive and Negative Design Wind Pressures:

3.3.1 General: The requirements of this section shall apply when recognition is sought of unbacked vinyl siding installed over light-frame walls sheathed on the exterior side solely with foam plastic sheathing that is not capable of independently resisting the full negative design wind pressure. Installation of the vinyl siding shall comply with ASTM D 4756. Installation shall also comply with 2009 IBC Section 1405.14, 2006 IBC Section 1405.13 and IRC Section R703, except where wind loads in excess of the code-prescribed minimums are sought.

3.3.2 Vinyl Siding: Vinyl siding shall comply with ASTM D 3679.

3.3.3 Foam Plastic Sheathing: Foam plastic sheathing shall comply with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), as follows:

3.3.3.1 Minimum nominal by 1/2-inch-thick (12.7 mm) extruded polystyrene, complying with ASTM C 578 Type X, or

3.3.3.2 Minimum nominal by 1/2-inch-thick (12.7 mm), foil-faced, extruded polyisocyanurate, complying with ASTM C 1289 Type I Class 1, or

3.3.3.3 Minimum nominal 1-inch-thick (25.4 mm) expanded polystyrene, complying with ASTM C 578 Type II.

3.3.3.4 Measurement of thermal resistance under Section 4.5.7 of AC12 is not required.

3.3.4 Wind Loads:

3.3.4.1 General: The allowable negative wind pressure for the assembly shall not exceed the value obtained for the vinyl siding as determined in accordance with Section 3.1 with equivalent siding fastening.

3.3.4.2 IBC:

3.3.4.2.1 General: Allowable negative wind pressure resistance of foam plastic sheathing and siding together as a wall covering assembly shall be determined in accordance with Section 3.3.4.2.2. Allowable positive wind pressure resistance of the wall covering assembly shall be based on the foam plastic solid sheathing in accordance with Section 3.3.4.2.3.

3.3.4.2.2 Negative wind resistance tests shall be conducted in accordance with ASTM D 5206, except the required plastic film shall be located between the foam plastic sheathing and the wall framing (not between the vinyl siding and the foam plastic sheathing) and the foam plastic sheathing shall not be perforated with 2-inch-diameter (51 mm) holes. The test assemblies shall be constructed in a manner consistent with the construction methods and materials that are to be recognized in the evaluation report. A minimum of three identical assemblies shall be tested in accordance with ASTM D 5206 Section 9.5 (Procedure B) and the lowest tested failure pressure value (not the average for all specimens) shall be used as the failure pressure for the assembly.

The allowable negative wind pressure for the wall covering assembly (foam plastic sheathing plus siding)

shall be determined in accordance with Annex A1 of ASTM D 3679, using a pressure equalization factor (PEF) acting across the wall covering assembly assumed to be 1.0; or assumed to be as follows:

1. A PEF of 0.7 shall be used for wall covering assemblies consisting of unbacked vinyl siding and foam plastic sheathing complying with Section 3.3.3, when application is limited to use on wall assemblies having a minimum 1/2-inch-thick (12.7 mm) gypsum wallboard on the inside face.
2. A PEF of 1.0 shall be used when wall covering assemblies as described in Item 1, above, are used on wall assemblies without a minimum 1/2-inch-thick (12.7 mm) gypsum wallboard on the inside face.

Individual report applicants may apply a different value for the PEF, provided testing in accordance with Section 3.2.5.3 (on a test wall constructed in a manner consistent with the recognition being sought) is submitted to ICC-ES. The PEF shall not be less than 0.6.

3.3.4.2.3 Allowable positive wind pressure resistance of the foam plastic sheathing and, thus, the wall covering assembly, shall be determined in accordance with Section 3.3.4.2.3.1 or 3.3.4.2.3.2.

3.3.4.2.3.1 Testing Approach: The allowable positive wind pressure resistance of the foam plastic sheathing alone shall be determined in accordance with ASTM E 330 using three, 4-foot by 8-foot (1219 by 2438 mm) full-scale wall assembly specimens. The test assembly shall be constructed in a manner consistent with the construction methods and materials that are to be recognized in the evaluation report. A vertical joint in the foam plastic sheathing shall be located over the center of one of the intermediate studs. The minimum tested positive pressure resistance at foam plastic sheathing failure (rupture) or loss of bearing at sheathing edges shall be taken as the ultimate positive pressure resistance. The ultimate positive pressure resistance shall be divided by a safety factor of 1.5 and the pressure equalization factor (PEF) to determine the allowable positive wind pressure resistance of the foam plastic sheathing and, thus, the wall covering assembly. The PEF acting across the wall covering assembly shall be taken as 1.0; or as the following:

1. A PEF of 0.7 shall be used for wall covering assemblies consisting of unbacked vinyl siding and foam plastic sheathing complying with Section 3.3.3, when application is limited to use on wall assemblies having a minimum 1/2-inch-thick (12.7 mm) gypsum wallboard on the inside face.
2. A PEF of 1.0 shall be used when wall covering assemblies as described in Item 1 above are used on wall assemblies without a minimum 1/2-inch-thick (12.7 mm) gypsum wallboard on the inside face.

As an alternate, the PEF may be determined by testing as described in Section 3.2.5.3, except the exterior of the test wall shall be constructed in a manner consistent with the construction methods and materials that are to be recognized in the evaluation report. A

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vertical joint in the foam plastic sheathing shall be located over the center of one of the intermediate studs. The test chamber shall be set up to apply a positive load to the exterior side of the test wall. The PEF shall be determined in accordance with Section 3.2.5.3.4, except the PEF shall be the maximum pressure differential measured across the foam plastic sheathing divided by the maximum overall pressure reading across the test wall for a given test. If any of the three PEF results for each test pressure level varies by more than 15 percent from the average of the results for the three tests at that pressure level, the highest PEF shall be used. The PEF for the foam plastic sheathing shall be the average of the low, medium and highest pressure PEF values, or 0.60, whichever is higher.

3.3.4.2.3.2 Calculation Approach: Detailed engineering calculations and/or analysis shall be submitted for positive wind pressure resistance of foam plastic sheathing or for interpolation between assembly conditions represented by load tests conducted in accordance with Section 3.3.4.2.3.1. Where not based on full-scale testing per Section 3.3.4.2.3.1, material bending strength properties acceptable to ICC-ES shall be used to calculate the allowable positive wind pressure resistance of the foam plastic sheathing. The calculations and/or analysis shall be prepared by a registered design professional.

3.3.4.3 IRC: Where the basic wind speed (3-second gust) does not exceed 90 mph (40 m/s) in Exposure B, installation of the vinyl siding and foam plastic sheathing shall comply with the prescriptive requirements of 2009 IRC Section R703.11.2.1.

Where the basic wind speed (3-second gust) exceeds 90 mph (40 m/s), or the Exposure Category is C or D, allowable negative wind pressures for the wall covering assembly conditions noted in 2009 IRC Section R703.11.2.2 shall be determined by multiplying the allowable wind pressures of vinyl siding, determined in accordance with Section 3.1, by the adjustment factors in 2009 IRC Section R703.11.2.2; allowable positive wind pressures shall be determined in accordance with Section 3.3.4.2.2.

For assembly conditions not described in 2009 IRC Section R703.11.2, testing, in accordance with Section 3.3.4.2 is required to establish allowable negative and positive wind pressures.

3.4 Ignition Resistance: For recognition under the IBC and BNBC, for construction other than Type V, the siding shall comply with 2009 IBC Section 1406.2, 2006 IBC Section 1406.2 and or BNBC Section 1407.2.1, as applicable. For SBC compliance, exterior walls shall not exhibit sustained flaming where tested in accordance with NFPA 268.

4.0 QUALITY CONTROL

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

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

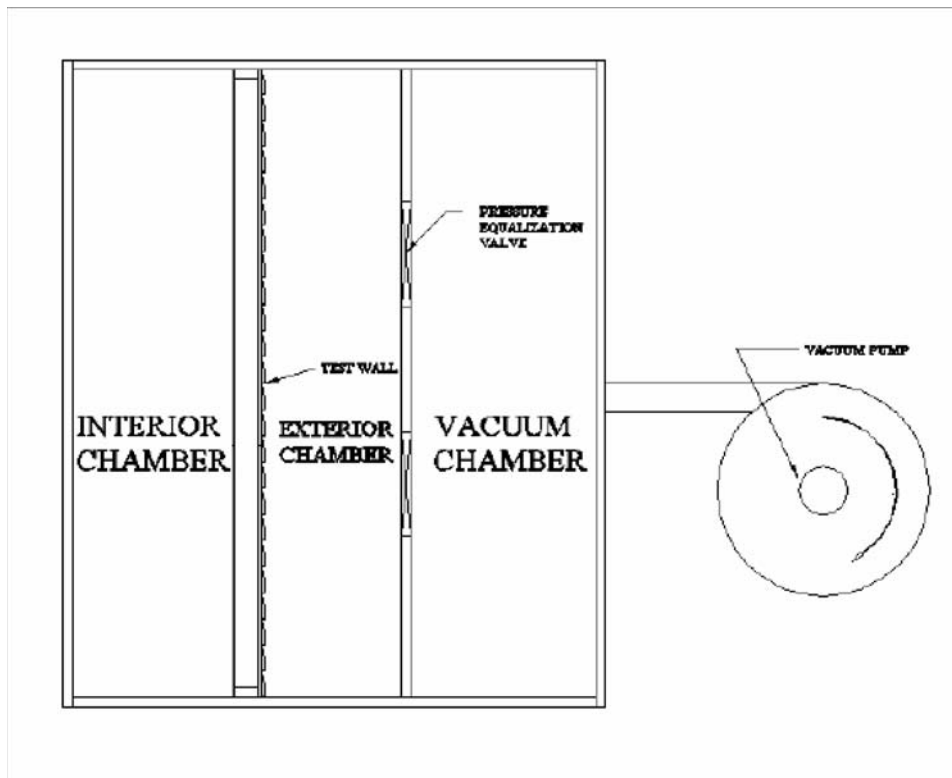


FIGURE 1