



November 7, 2008

TO: PARTIES INTERESTED IN EVALUATION REPORTS ON VINYL SIDING

SUBJECT: Acceptance Criteria for Vinyl Siding, Subject AC37-1008-R1 (MB/CA)

Dear Madam or Sir:

Enclosed is a copy of the revised acceptance criteria approved by the ICC-ES Evaluation Committee on October 21, 2008, effective November 1, 2008.

In addition to revisions proposed in the staff letter dated September 12, 2008, and the staff memo dated October 10, 2008, additional revisions were made at the hearing to Sections 3.1.3, 3.2.5.2 and 3.2.5.3.4.

Evaluation reports issued on or after the effective date noted above, and falling within the scope of this criteria, will be required to comply with the enclosed edition of the criteria. Evaluation reports issued prior to the effective date may be in compliance either with the enclosed acceptance criteria or with the previous edition. Evaluation reports based on a superseded version of an acceptance criteria must be brought into compliance with the most recent edition at the time the reports are reissued. Therefore, applicants should submit data verifying compliance at the time they apply for re-examination.

If you have any questions, please contact Michael Beaton, Vice President, Whittier Operations, at (800) 423-6587, extension 3289. You may also reach us by e-mail at es@icc-es.org.

Yours very truly,

A handwritten signature in black ink that reads "Kurt Stochlia".

Kurt Stochlia, P.E.
Vice President

KS/md

Enclosure

cc: Evaluation Committee



ACCEPTANCE CRITERIA FOR VINYL SIDING

AC37

Approved October 2008

Effective November 1, 2008

Previously approved 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.

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.

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ACCEPTANCE CRITERIA FOR VINYL SIDING (AC37)

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 2006 *International Building Code*® (IBC), the 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 IBC Section 1404.9, 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.

1.2 Scope:

1.2.1 This acceptance criteria is for vinyl siding, with or without foam plastic backing complying with ASTM D 3679 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.

1.3 Reference Standards:

1.3.1 2006 *International Building Code*® (IBC), International Code Council.

1.3.2 2006 *International Residential Code*® (IRC), International Code Council.

1.3.3 BOCA® *National Building Code/1999* (BNBC).

1.3.4 1999 *Standard Building Code*® (SBC).

1.3.5 1997 *Uniform Building Code*™ (UBC).

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

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

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

1.3.9 NFPA 268-01, 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 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.

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:

3.1.1 General: The siding shall conform to the requirements of ASTM D 3679.

ACCEPTANCE CRITERIA FOR VINYL SIDING (AC37)

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

3.1.2 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 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 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 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 Section 1405.13.1 of the IBC, Section 2305.8.1 of the BNBC, Section 2308.2 of the SBC, and Section 1404.2 of the UBC, is acceptable.

3.1.3 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 R703.4.

For applications in excess of the prescriptive requirements, design shall be in accordance with Section R301.2.1.1 of the IRC, and 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 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:

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

3.2.2 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:

3.2.4.1 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.

3.2.4.2 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.

3.2.4.3 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) [80 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 IBC Section 1405.13.

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 Section 1405.13.1 of the IBC 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,

ACCEPTANCE CRITERIA FOR VINYL SIDING (AC37)

installation shall comply with the prescriptive requirements of IRC Section R703.4.

For applications in excess of the prescriptive requirements, design shall be in accordance with IRC Section R301.2.1.1 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 on center, fastened to the top and bottom plates with No. 8 by 3-inch-long drywall screws. Exterior sheathing shall be nominally ½-inch-thick oriented strand board (OSB) sheathing. A vertical joint in the exterior sheathing shall be located over the center of one of the studs. Sheathing shall be covered with an approved water-resistive barrier. The interior of the test wall shall be sheathed with ½-inch-thick 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 (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 average of the five pressure differential readings across the siding shall be divided by the overall pressure reading across the test wall 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. The PEF for the siding shall be the average of the three 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 Ignition Resistance: For recognition under the IBC and BNBC, for construction other than Type V, the siding shall comply with Section 1406.2 of the IBC and Section 1407.2.1 of the BNBC. 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. ■

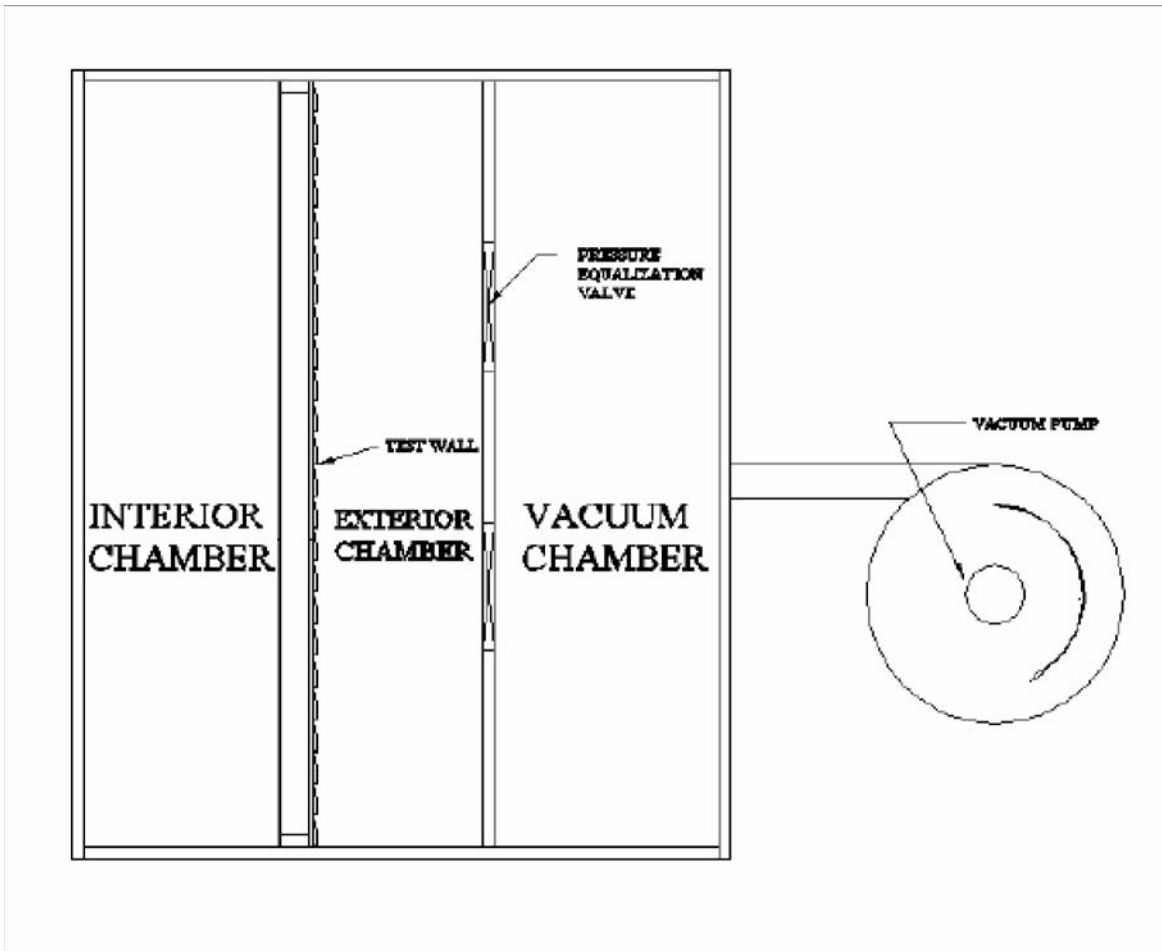


FIGURE 1