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March 29, 2024

TO: PARTIES INTERESTED IN FAÇADE AND WALL CLADDING COMPOSITE PANELS

SUBJECT: Proposed Acceptance Criteria for Façade and Wall Cladding Composite Panels, Subject AC567-0624-R1(AI/EP)

Hearing Information:

WebEx Event Meeting

[Tuesday, June 25, 2024](#)

8:00 am Pacific Daylight Time

Click the date above to register

Dear Colleague:

You are invited to comment on a proposed new ICC-ES Acceptance Criteria for Façade and Wall Cladding Composite Panels (AC567), which will be discussed at the Evaluation Committee hearing noted above. The proponent is GammaStone North America, Inc.

The proposed criteria provides guidance on determining capacities of panels comprised of a pre-formed foam plastic core factory-adhered to dimension stone facing on the exterior side and a stainless skin on the interior side. The panels are manufactured with or without integrated metal clips attached to the interior metal skin to form a system that is used as an exterior wall cladding or interior wall finish. The panels are mechanically connected to the substructure.

The proposed requirements are similar to the requirements set forth in ICC-ES *Acceptance Criteria for Sandwich Panels* (AC04), ICC-ES *Acceptance Criteria for Metal Composite Material* (AC25), and ICC-ES *Acceptance Criteria for Façade and Wall Cladding Systems with Porcelain, Ceramic or Terra Cotta Panels* (AC504).

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 **April 25, 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 this deadline will not be considered at the meeting.
 - c. The deadline for submitting rebuttal comments, from the proponent noted in this letter, is **May 16, 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 **May 30, 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 **June 11, 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 5682, or Eric Polzin, P.E., Senior Staff Engineer and Manager of Environmental Programs, at extension 5270. You may also reach us by e-mail at es@icc-es.org.

Yours very truly,



Alaina Ingram, E.I.
Evaluation Specialist

Al/js

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 FAÇADE AND WALL CLADDING COMPOSITE PANELS

AC567

Proposed March 2024

PREFACE

Evaluation reports issued by ICC Evaluation Service, LLC (ICC-ES), are based upon performance features of the International family of codes, and may include other codes, as applicable. For alternative materials design and methods of construction and equipment, see Section 104.2.3 of the 2024 International Building Code® (IBC), Section 104.11 of the 2021 IBC and earlier editions, and Section R104.11 of the 2021 IRC and earlier editions.

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 FAÇADE AND WALL CLADDING COMPOSITE PANELS (AC567)

1.0 INTRODUCTION

1.1 Purpose: The purpose of this acceptance criteria is to establish requirements for façade and wall cladding systems consisting of composite panels as specified in Section 1.2, to be evaluated in an ICC Evaluation Service, LLC (ICC-ES), evaluation report under the 2024, 2021 and 2018 *International Building Code*® (IBC) and the 2024, 2021 and 2018 *International Residential Code*® (IRC). Bases of evaluation are 2024 IBC Section 104.2.3 (2021 and 2018 IBC Section 104.11) and 2024 IRC Section R104.2.2 (2021 and 2018 IRC Section R104.11).

1.2 Scope: This criteria is applicable to façade and wall composite cladding panels, comprised of a pre-formed foam plastic core factory-adhered to dimension stone facing on the exterior side and a corrosion resistant metal skin on the interior side. The panels are manufactured with or without integrated metal clips attached to the interior metal skin to form a system that is used as an exterior wall cladding or interior wall finish. The panels are mechanically connected to the substructure. Installation is limited to Type V-B construction, unless compliance with Section 4.5 of this criteria is shown.

1.3 Codes and Referenced Standards: Where standards are referenced in this criteria, the standards shall be applied consistent with the requirements of the applicable code.

1.3.1 2024, 2021 and 2018 *International Building Code*® (IBC), International Code Council.

1.3.2 2024, 2021 and 2018 *International Residential Code*® (IRC), International Code Council.

1.3.3 ANSI/FM 4880-2017 (-2015), American National Standard for Evaluating the Fire Performance Insulated Building Panel Assemblies and Interior Finish Materials, FM Approvals.

1.3.4 ASTM C271-16(2022), Standard Test Method for Density of Sandwich Core Materials, ASTM International.

1.3.5 ASTM C297-16, Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions, ASTM International.

1.3.6 ASTM C365-22, Standard Test Method for Flatwise Compressive Properties of Sandwich Cores, ASTM International.

1.3.7 ASTM C880-23, Standard Test Method for Flexural Strength of Dimension Stone, ASTM International.

1.3.8 ASTM C1354-22, Standard Test Methods for Strength of Individual Stone Anchorages in Dimension Stone, ASTM International.

1.3.9 ASTM E72-22, Standard Test Methods of Constructing Strength Tests of Panels for Building Construction, ASTM International.

1.3.10 ASTM E84-21a (-2018B, -16), Standard Test Methods for Surface Burning Characteristics of Building Materials.

1.3.11 ASTM E119-20 (-2018B, -16), Standard Test Methods for Fire Resistance of Building Construction and Materials.

1.3.12 ASTM E330-14(2021), Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

1.3.13 ICC-ES *Acceptance Criteria for Foam Plastic Insulation* (AC12), International Code Council.

1.3.14 ISO 21930-2017 Sustainability in Buildings and Civil Engineering Works - Core Rules for Environmental Product Declarations of Construction Products and Services, International Organization for Standardization (ISO).

1.3.15 NFPA 259-23 (-18), Standard Test Method for Potential Heat of Building Materials, National Fire Protection Association.

1.3.16 NFPA 268-22 (-19, -17), Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source, National Fire Protection Association.

1.3.17 NFPA 285-23 (-19, -12), Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components, National Fire Protection Association.

1.3.18 NFPA 286-23 (-15), Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth, National Fire Protection Association.

1.3.19 UL 263-2011 with revisions through August 2021 (-2011 with revisions through March 2018, -2011 with revisions through June 2015), Standard Fire Tests of Building Construction and Materials, UL LLC.

1.3.20 UL 723-2018 (-2008), Test Methods for Surface Burning Characteristics of Building Materials, UL LLC.

1.3.21 UL 1040-1996 with revisions through April 2017 (-96 with revisions through October 2012), Fire Test of Insulated Wall Construction, UL LLC.

1.3.22 UL 1715-1997 with revisions through April 2017 (-97 with revisions through January 2013), Fire Test of Interior Finish Material, UL LLC.

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 of all components of the façade or wall cladding system.

2.1.2 Installation Instructions: Published installation instructions noting installation requirements and/or limitations.

2.1.3 Packaging and Identification: The method of packaging and field identification of the façade or wall cladding system components shall be specified. A label on the panels and packaging of the substructure components

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shall bear the manufacturer's name, the product name, the manufacturing location and the ICC-ES evaluation report number. Product identification shall be in accordance with the product identification provisions of the ICC-ES Rules of Procedure for Evaluation Reports.

2.2 Panel Cores:

2.2.1 Foam plastic specifications are to include the density, thickness, foam manufacturer and the type, catalog number, etc.

2.2.2 When the core material does not completely fill the portion between panel facings, voids shall be detailed or properly described. The method used to maintain voids during foaming or bonding shall be described.

2.3 Metal Facers: Information on metal skin facers shall include tensile and yield strengths, thickness, and finishes (if applicable).

2.4 Adhesives: The panel or system manufacturer shall certify the core's adhesive bond durability based on satisfactory field performance.

2.5 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.

2.6 Test Reports: Test reports shall comply with AC85.

2.7 Product Sampling: Test specimens must be truly representative of standard manufactured product. The test specimens of the components of the façade or wall cladding system must be sampled in accordance with Section 3.1 of AC85 unless noted otherwise.

2.8 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 COMPONENT REQUIREMENTS

3.1 Panel Cores:

3.1.1 Expanded polystyrene (EPS) foam plastic cores shall comply with IBC Sections 2602.1 and 2603 and IRC Section R316, and the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

3.1.2 Thermoplastic polymer (TEP) foam plastic cores shall be subjected to the following tests:

3.1.2.1 Density – ASTM C271

3.1.2.2 Tensile – ASTM C297

3.1.2.3 Compressive – ASTM C365

3.1.2.4 Conditions of Acceptance: The average density, tensile strength and compressive strength shall be within 10 percent of the manufacturer's specifications.

3.1.3 Surface-burning Characteristics:

3.1.3.1 Flame Spread Index: Except as noted in Section 4.5.4 of this criteria, foam plastic cores shall exhibit a flame spread index of 75 or less when tested at the maximum thickness intended for use in accordance with ASTM E84 or UL 723.

3.1.3.2 Smoke Developed Index: Foam plastic cores shall exhibit a smoke-developed index of 450 or less when tested at the maximum thickness intended for use in accordance with ASTM E84 or UL 723.

4.0 TEST AND PERFORMANCE REQUIREMENTS

4.1 Transverse Load Tests:

4.1.1 Allowable transverse loads of panels shall be determined in accordance with Section 4.1.2. Allowable transverse loads of systems (i.e., the wall cladding panel and its anchoring system) shall be determined in accordance with Section 4.1.3.

4.1.2 Panels:

4.1.2.1 Test Specimens: At least three positive and three negative load tests of the panel or system shall be conducted. If multiple facing thicknesses are desired, testing shall include at least the minimum and maximum facing thicknesses intended for evaluation.

4.1.2.2 All wall panels shall be loaded in increments to failure with deflections taken to obtain deflection and set characteristics. Application of load and duration of load application shall be in accordance with Sections 4.2 and 4.3 of ASTM E72. Specimens shall be tested at the maximum panel width intended for evaluation. Specimens shall be installed in the test frame as a single span condition. Where preloading is applied, the loading, deflection and recovery shall be noted. The amount of preloading shall not exceed 10 percent of the final allowable load unless permitted by the ICC-ES.

4.1.2.3 Deflection readings are to be taken at mid-span and at supports.

4.1.2.4 Conditions of Acceptance:

Allowable loading shall be based on a factor of safety of 3.0 applied to the average maximum sustained load or pressure, as applicable, if all of the following are satisfied:

- a. If any of the individual test results vary by more than 15% of the average, the lowest test result shall be used as the maximum sustained load. Otherwise, the average of the test results may be used as the maximum sustained load.
- b. **Exterior Walls:** With the design load imposed, exterior wall panel deflections shall not exceed the deflection limits of $L/240$. Positive and negative pressure conditions shall be considered. Wall panels with different facing materials on opposite faces shall be tested for loads acting both inwardly and outwardly where there is a question of the most critical direction.
- c. **Interior Walls and Partitions:** With a minimum 5-pound-per-square-foot (239 Pa) horizontal loading imposed, interior wall panel deflections shall not exceed the deflection limits of $L/240$.

4.1.3 Systems:

4.1.3.1 Test Specimens: At least three positive and three negative load tests of the panel or system shall be conducted. If multiple facing thicknesses are desired, testing shall include at least the minimum and maximum facing thicknesses intended for evaluation.

4.1.3.2 Transverse load tests of the façade or wall cladding system shall be tested in accordance with ASTM E330 Procedure B with the pressure applied to the façade or wall cladding panels. Testing shall represent the critical conditions of installation. Critical conditions of installation are to include the maximum spacing of framing and maximum panel attachment spacing to be included in the

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evaluation report. Application of load to ultimate shall consist of at least six increments, with a 10-second load duration for each increment. For negative load direction tests, the plastic film is to be applied to the inner face of the panels. For positive load direction tests, the plastic film is to be applied to the outer face of the panels.

The test assemblies shall have a minimum height and width that is a minimum of two times the height of the largest panel to be evaluated but not less than 4 feet (1219 mm). Additionally, the test assemblies shall have a minimum height (for systems with vertically spaced substructure) or width (for systems with horizontally spaced substructure) that is two times the maximum spacing of the substructure framing used for panel attachment. Relative movement between the façade or cladding panels and any part of the test assembly or test apparatus shall not be restricted during testing. Substructure spacing shall be located at the maximum spacing at which evaluation is desired. ICC-ES shall approve any variations from the spacing requirements prior to commencement of tests. For cantilevered conditions, the movement of the cantilevered end of the panels shall not be restricted during testing.

4.1.3.3 Load deflection readings at the midpoint of panel spans and cantilevered ends shall be reported.

4.1.3.4 Conditions of Acceptance:

1. Allowable loading shall be based on a factor of safety of 3.0 applied to the average maximum sustained load or pressure, as applicable, if all of the following are satisfied:

- a. If any of the individual test results vary by more than 15% of the average, the lowest test result shall be used as the maximum sustained load. Otherwise, the average of the test results may be used as the maximum sustained load.
- b. Allowable load does not exceed the allowable values for anchors established in accordance with Section 4.4.
- c. Allowable load does not exceed the allowable values for the panels established in accordance with Section 4.1.1.

2. Other factors of safety can be considered based on unique conditions of installation or material used.

4.2 Flexural Testing: Testing to determine the flexural strength of the façade or wall cladding panels shall be performed in accordance with ASTM C880. Each panel thickness must be tested. The number of test specimens for each thickness shall meet the criteria of the standards referenced with the following exceptions:

4.2.1 The tested results of no one sample may vary from the average tested value by more than 15%. If a tested value from one individual sample varies by more than 15% from the average tested value, additional samples will be tested until no individual sample varies by more than 15% from the average or six additional samples are tested with no tested results varying by more than 15% from the average tested value. The average flexural breaking strength shall be used to 'fingerprint' the panels for quality control documentation as indicated in Section 5.3.

4.3 Individual Anchor Tests: Five specimens shall be tested of each configuration of anchor and panel with worst-case configuration of anchor and panel. The

individual anchor to panel connection strengths shall be determined in accordance with ASTM C1354. The average connection strength, for each type test described in Section 4.5.1 and 4.5.2, must be reduced by a safety factor of 4 to determine the maximum allowable connection strength. No individual test result shall vary from the average of all individual test results by more than 15%. If one individual test result varies from the average by more than 15%, the lowest tested value may be used or additional tests may be performed until no individual test result varies from the average by no more than 15%.

4.3.1 Gravity Load Test: Test loads shall be applied in the gravity load direction, parallel to the exterior surface of the tile, as described in ASTM C1354 Sections 7.3 and 9.

4.3.2 Transverse Wind Load Test: Test loads shall be applied in the negative direction (outward from the exterior surface of the panel), as described in ASTM C1354 Sections 7.2.2 and 9.

4.4 Temperature Cycling:

4.4.1 Procedure: Five test panels shall be subjected to 25 consecutive cycles. The panels shall be installed vertically and attached to a corrosion resistant frame with anchors in a manner representative of end-use. Each cycle shall consist of one hour of water exposure at room temperature, followed by six hours at minus 40°F (4.4°C), followed by two hours at 70°F (21.1°C), followed by 14 hours at 180°F (82.2°C), followed by 1 hour at 70°F (21.1°C). Between cycles, such as on weekends and holidays, the samples shall be maintained at an ambient temperature of 70°F (21.1°C). A ±5°F tolerance is allowed on the specified temperatures. Spray nozzles for the water exposure shall be located approximately 7 feet (2.13 m) away from the panels and shall deliver 6 inches (152 mm) of water per hour at a water temperature of 40°F (4.4°C) to 60°F (15.6°C).

4.4.2 Conditions of Acceptance:

4.4.2.1 After exposure there shall be no delamination, cracking, checking, crazing, erosion or other characteristic that might affect performance as an exterior wall covering of any panel specimen when viewed under 5x magnification. Additionally, there shall be no sign of failure or distress at anchor locations.

4.4.2.2 In addition, specimens shall be cut from the panels after exposure and tested in accordance with Sections 4.2 and 4.3. The average flexural and anchor strength values shall be at least 85% of the average flexural and anchor strength values of the control specimens determined in Sections 4.2 and 4.3. If either of the average values fall below 85%, then the allowable loads determined in 4.1 shall be linearly adjusted based on the greatest reduction of average values.

4.5 Types I, II, III and IV Construction (Optional): When evaluation is sought for use on exterior walls of any height in Types I through IV construction, the panel shall meet the requirements set forth in IBC Section 2603.5 and this section.

4.5.1 Fire-resistance-rated Walls: Where the panel is required to have a fire-resistance rating, data based on testing in accordance with ASTM E119 or UL 723 shall be

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submitted to substantiate that the fire-resistance rating is maintained.

4.5.2 Potential Heat: Except as noted in IBC Section 2603.5.3, the potential heat of the foam plastic insulation shall be determined by tests conducted in accordance with NFPA 259 and shall be expressed in Btu per square feet (mJ/m^2). The potential heat of foam plastic insulation in any portion of the panel shall not exceed the potential heat of the insulation contained in the wall assembly testing in accordance with Section 4.6.5.

4.5.3 Flame Spread and Smoke-developed Indices: Except as noted in IBC Section 2603.5.4, the panel core and facing shall be tested separately in the thickness intended for use, but not to exceed 4 inches (102 mm), and shall each exhibit a flame spread index of 25 or less and smoke-developed index of 450 or less when tested in accordance with ASTM E84 or U 723.

4.5.4 Vertical and Lateral Fire Propagation: Except as noted in IBC Section 2603.5.5, the exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

4.5.5 Ignition: Except as noted in IBC Section 2603.5.7, the panel shall not exhibit sustained flaming where tested in accordance with NFPA 268. Where a material is intended to be installed in more than one thickness, tests of the minimum and maximum thickness intended for use shall be performed. Incident radiant heat flux exposure and associated fire separation distances shall be in accordance with Section 1405.1.1.1 of the IBC.

4.6 Use Without a Code-prescribed Thermal Barrier (Optional): When evaluation is sought for interior without a code-prescribed thermal barrier, the panel shall be tested in accordance with NFPA 286 (with the acceptance criteria given in IBC Section 803.1.1.1), FM 4880, UL 1040, or UL 1715. Panels shall be tested in the manner intended for use.

5.0 QUALITY CONTROL

5.1 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. Each evaluated manufacturing facility shall be inspected annually in accordance with AC304.

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

5.3 The average flexural breaking strength described in Section 4.2 shall be used to 'fingerprint' the panels for quality control documentation.

6.0 EVALUATION REPORT REQUIREMENTS

6.1 The following statements shall appear in the Conditions of Use section of the evaluation report:

- If compliance with Section 4.1.3 of this criteria is not shown, the report shall state that the design and capacity of the panels attached the building framing and attachment accessories shall be submitted to and approved by the code official for each project.

- If compliance with Section 4.5 of this criteria is not shown, the report shall include a statement that installation of the panel is limited to Type V-B construction.

- If compliance with Section 4.5 of this criteria is shown, the report shall indicate the applicable fire separation distance(s) for use in Types I-IV construction. The report shall also indicate that when required by Section 1405.1.3 of the IBC, fireblocking in concealed spaces shall be provided, as applicable.

- If compliance with Section 4.6 of this criteria is not shown, the report shall include a statement that the foam plastic insulation shall be separated from the interior of a building by a thermal barrier complying with the applicable building code.

- For exterior walls, a water-resistive barrier complying with the applicable building code is required.

- In areas where the probability of termite infestation is "very heavy" in accordance with IBC Figure 2603.8 and 2024 IRC Figure R305.4 (2021 and 2018 IRC Section R318.4), the panels shall meet the requirements set forth in IBC Section 2603.8 or 2024 IRC Section R305.4 (2021 and 2018 IRC Section R318.4), as applicable.

6.2 The report shall indicate the allowable transverse loads for the panel or system and individual anchor attachments, as applicable. For systems, a statement indicating the allowable deflection of the framing supporting the panels.

For systems, an accurate description, including figures, of the components used in the substructure and its attachment to panels shall be included in the evaluation report.

7.0 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. ■