

ICC-ES Evaluation Report

ESR-4449

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Subject to renewal January 2025


This report also contains:

- CBC Supplement

- FBC Supplement

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| <p>DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 46 00— Siding</p> | <p>REPORT HOLDER: ASSOCIATED MATERIALS, INC.</p> | <p>EVALUATION SUBJECT: ASCEND™ COMPOSITE CLADDING AND ALIGN™ COMPOSITE CLADDING</p> |  |
|---|---|--|---|

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2024, 2021, 2018, 2015, 2012, 2009, and 2006 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018, 2015, 2012, 2009, and 2006 [International Residential Code® \(IRC\)](#)
- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 [International Energy Conservation Code® \(IECC\)](#)

Properties evaluated:

- Exterior veneer
- Durability
- Wind resistance
- Surface-burning characteristics
- Thermal resistance (R-values)
- Fire-resistance-rated walls
- Ignition resistance (Types I, II, III and IV Construction)
- Protection against termites

1.2 Evaluation to the following green code(s) and/or standards:

- 2022 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 [National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 3.1

2.0 USES

ASCEND™ and ALIGN™ Composite Cladding are used as an exterior wall covering over a code-complying sheathing or substrate capable of supporting the imposed loads on buildings of all types of construction under the IBC and on structures constructed in accordance with the IRC.

3.0 DESCRIPTION

3.1 General:

ASCEND™ and ALIGN™ Composite Cladding are comprised of a cap extruded from either polyvinyl chloride (PVC) resin or acrylonitrile styrene acrylate (ASA) resin mixed into a proprietary blended compound adhered to an expanded polystyrene foam plastic backing. The EPS foam plastic backing is manufactured using BASF NEOPOR® F2300 expanded polystyrene beads produced by BASF, as recognized in ICC-ES evaluation report [ESR-2784](#) which complies with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

The cladding is available in the profiles described in [Table 1](#). Panels are formed with an upper edge having nail slots and a lower edge that stacks into the upper edge of the lower course. The cladding is available in a range of colors.

The attributes of ASCEND™ and ALIGN™ Composite Cladding have been verified as conforming to the requirements of (i) 2022 CALGreen Section A4.405.1.3 (prefinished building materials) and Section A5.406.1.2 (reduced maintenance); (ii) I ICC 700-2020 Sections 601.7 and 11.601.7, ICC 700-2015 and ICC 700-2012 Sections 601.7, 11.601.7, and 12.1(A).601.7 (site-applied finishing materials) and (iii) ICC 700-2008 Section 601.7 (site-applied finishing materials). Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.2 Surface burning Characteristics:

The cladding has a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 (UL 723).

3.3 Thermal Resistance:

The cladding has a thermal resistance (*R*-value) as shown in [Table 2](#) when tested in accordance with ASTM C1363. The cladding is used to satisfy the continuous insulation requirements of 2024, 2021, 2018 and 2015 IRC Table N1102.1.2 [2012 IRC Table N1102.1.1 (2009 and 2006 IRC Table N1102.1)].

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation of ASCEND™ and ALIGN™ Composite Cladding, including corners, starter strips, trim and other accessory items, must be in accordance with the report holder's published installation instructions, and this report. In the event of a conflict between the report holder's published installation instructions and this report, this report must govern. A copy of the report holder's published installation instructions must be available on the jobsite during installation.

The cladding must be installed over solid or foam plastic sheathing with an approved water-resistive barrier as required by the applicable code. Flashing in accordance with the applicable code must be installed at all openings, penetrations, abutments with dissimilar materials, and at terminations of the cladding and soffit, to maintain the weather tightness of the assembly.

Accessory components such as corners, starter strips and trim must be fastened in accordance with the report holder's published installation instructions.

Wood furring strips or wood stud framing must have a minimum specific gravity of 0.42 and must be of sufficient strength to resist the imposed loads required by the applicable code.

Fasteners for attaching the cladding to framing must be corrosion-resistant nails long enough to penetrate the underlying framing at least $\frac{3}{4}$ inch (19.1 mm). When sheathing other than wood-based sheathing is used, fasteners must penetrate a minimum of $1\frac{1}{4}$ inches (31.8 mm) into framing.

Corrosion-resistant staples may be used where indicated in [Table 3](#). Staples must be No. 16 gage, with a minimum length of $1\frac{1}{2}$ inches (38 mm) and a crown width of $\frac{7}{16}$ inch (11.1 mm). For installation over framing and wood-based sheathing (minimum equivalent specific gravity, $G=0.42$), minimum staple embedment into framing must be $\frac{3}{4}$ inch (19.1 mm).

4.2 Wind Resistance:

4.2.1 General: The design wind pressure must be determined in accordance with the requirements of Chapter 16 of the IBC or Section R301.2.1.1 of the IRC, as applicable. ASCEND™ and ALIGN™ Composite Cladding must not be used where design wind pressure exceeds the allowable negative wind load as indicated in [Table 3](#), subject to the conditions in Sections 4.2.2 and 4.2.3 of this report.

4.2.2 IBC: For buildings constructed under the requirements of the IBC, cladding must be installed as described in 2024 IBC Section 1404.15 {2021 and 2018 IBC Section 1404.14 [2015, 2012 and 2009 IBC

Section 1405.14 (2006 IBC Section 1405.13)] and Section 4.1 of this report, over sheathing materials addressed in IBC Section 2304.6 that are capable of independently resisting both positive and negative wind pressures occurring under design conditions at the building location. The allowable negative wind loads for ASCEND™ and ALIGN™ Composite Cladding are shown in [Table 3](#). Positive wind pressures are not considered for the siding, since the sheathing must be capable of supporting the imposed loads, including but not limited to, positive and negative transverse wind pressures.

4.2.3 IRC: For buildings constructed in accordance with the IRC, the cladding must be installed as described in Section 4.2.1 and in accordance with one of the following conditions:

- Under the 2024, 2021 and 2018 IRC, installation over sheathing other than foam plastic sheathing, in application where the design wind pressure does not exceed 30 psf or the ultimate wind speed (3-second gust) does not exceed the limits in Table R703.3(1) installation shall comply with the prescriptive requirements of IRC Section R703.11.1 and Table R703.3(1).
- Under the 2015 IRC, installation over sheathings other than foam plastic sheathings, in applications where the design wind pressure does not exceed 30 psf or the ultimate wind speed (3-second gust) does not exceed the limits in R703.11.2.1 and R703.11.2.2, installation shall comply with the prescriptive requirements of IRC Section R703.11.1 and Table R703.3(1).
- Under the 2012, 2009 and 2006 IRC, in applications where the building's mean roof height does not exceed 30 feet (9 144 mm) and 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 (38 m/s) in Exposure D, sheathing, other than foam plastic, must be as required by Table R703.4 of the 2012, 2009 and 2006 IRC.
- For wind conditions exceeding those listed above, the cladding must be installed over sheathing that is capable of independently resisting both positive and negative wind pressures occurring under the design conditions at the building location. The allowable negative wind loads for the siding are as shown in [Table 3](#). Positive wind pressures are not considered for the cladding, since sheathing must be capable of supporting the imposed loads, including but not limited to, positive and negative transverse wind pressures.
- For installation over foam plastic sheathing, the cladding must be installed in accordance with Section R703.11.2 of the IRC.

4.2.4 Negative Wind Pressures: Allowable negative wind pressures for siding installed over sheathing materials not addressed in Sections 4.2.2 and 4.2.3 are outside the scope of this report.

4.3 Ignition Resistance

Under the 2024 IBC Section 1405.1.1, when the exterior wall is sheathed with fire retardant treated wood sheathing, the siding can be used on the exterior side of exterior walls on buildings of Type I, II, III or IV-HT construction. Under the 2021, 2018 and 2015 IBC Section 1405.1.1 (2009 and 2006 IBC Section 1406.1.1, when the exterior wall is sheathed with fire retardant treated wood sheathing, the siding can be used on the exterior side of exterior walls on buildings of Type I, II, III or IV construction. The siding shows no sustained flaming at a maximum tolerable level of incident radiant heat flux of 12.5 kW/m², when tested in accordance with NFPA 268. The minimum fire separation distance required shall be determined from 2024, 2021 and 2018 IBC Table 1405.1.1.1.2 [2015 and 2012 IBC Table 1406.2.1.1.2 (2009 and 2006 Table 1406.2.1.2)]. The installation of the siding must comply with the applicable requirements in 2024, 2021 and 2018 IBC Section 1405.1 [2015, 2012, 2009 and 2006 IBC Section 1406.1]. When the exterior wall is required to be fire-resistance-rated, the fire separation distance must be in accordance with 2024, 2021, 2018, 2015, 2012, and 2009 IBC Section 705.5 [2006 IBC Section 704.5].

4.4 Fire-resistance-rated Walls:

The cladding may be installed over code-complying, exterior, fire-resistance-rated bearing or nonbearing walls rated for exposure to fire from the inside under the IBC, without affecting the hourly rating of the walls.

4.5 Termite Resistance:

The ASCEND™ Composite Cladding is recognized for installation in areas subject to subterranean termites. Locations requiring protection from termites are described in 2024, 2021, 2018 and 2015 IBC Section 2603.8 [2012 IBC Section 2603.9 (2009 and 2006 IBC Section 2603.8)] or 2024 IRC Section R303.7 (2021, 2018, 2015, 2009 and 2006 IRC Section R318).

5.0 CONDITIONS OF USE:

The ASCEND™ and ALIGN™ Composite Cladding described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the report holder's published installation instructions and the applicable code. If there is a conflict between the installation instructions and this report, this report governs.

- 5.2 ASCEND™ and ALIGN™ Composite Cladding must be installed only on exterior walls covered by solid sheathing except as noted in Section 4.2.3 and a water-resistive barrier.
- 5.3 The exterior walls must be braced or sheathed to resist racking loads with approved materials in accordance with the requirements of the applicable code.
- 5.4 ASCEND™ and ALIGN™ Composite Cladding is manufactured under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with Section 3.1.2 and 3.2.3 of the [ICC-ES Acceptance Criteria for Vinyl Siding \(AC37\)](#), dated February 2014 (editorially revised February 2024).
- 6.2 Data in accordance with Section 3.1, 4.1 and 4.6 of the [ICC-ES Acceptance Criteria for Rigid Cellular PVC Nonload-Bearing Exterior Trim \(AC227\)](#), dated December 2004 (editorially revised February 2024).
- 6.3 Reports of test in accordance with AWPA E1, Standard Method for Laboratory Evaluation to Determine Resistance to Subterranean Termites.

7.0 IDENTIFICATION

- 7.1 Each package of ASCEND™ and ALIGN™ Composite Cladding described in this report is identified, with the report holder’s name (Associated Materials, Inc.) and address, the product designation, the manufacturing date code, the R-value and the evaluation report number (ESR-4449).
- 7.2 The report holder’s contact information is the following:

ASSOCIATED MATERIALS, INC.
3773 STATE ROAD
CUYAHOGA FALLS, OHIO 44223
(330) 922-6009
www.associatedmaterials.com

TABLE 1 — PRODUCT PROFILES

| PRODUCT NAME | DESCRIPTION | | | |
|------------------------------|--------------------------------|-------------------------------|---------------------|-----------------------------|
| | Length (ft) | Width (in) | Panel Exposure (in) | Panel Projection (in) |
| ASCEND™ 7" Composite Plank | 12 ¹ / ₄ | 8 ¹ / ₄ | 7 | ³ / ₄ |
| ASCEND™ 12" Board and Batten | 12 | 13.6 | 12 | ³ / ₄ |
| ALIGN™ 7" Composite Plank | 12 ¹ / ₄ | 8 ¹ / ₄ | 7 | ³ / ₄ |
| ALIGN™ 12" Board and Batten | 12 | 13.6 | 12 | ³ / ₄ |

For SI: 1 inch = 25.4 mm

TABLE 2 — THERMAL RESISTANCE (R-VALUE)

| PRODUCT NAME | R-VALUE (°F-ft ² -h/Btu) |
|------------------------------|-------------------------------------|
| ASCEND™ 7" Composite Plank | 2.0 |
| ASCEND™ 12" Board and Batten | 1.6 |
| ALIGN™ 7" Composite Plank | 2.0 |
| ALIGN™ 12" Board and Batten | 1.6 |

For SI: 1 inch = 25.4 mm; 1°F.ft².hr/Btu = 0.176 110°K.m²/W.

TABLE 3 – ASCEND™ COMPOSITE CLADDING ALLOWABLE NEGATIVE WIND PRESSURES

| PRODUCT NAME | FASTENER SPACING | FASTENER TYPE | ALLOWABLE NEGATIVE WIND PRESSURE (psf) |
|------------------------------|------------------|---|--|
| ASCEND™ 7" Plank | 24 inches o.c. | Corrosion-resistant nails long enough to penetrate the underlaying framing at least $\frac{3}{4}$ inch (19.1 mm) | 53 |
| | 24 inches o.c. | No. 16 gauge corrosion-resistant staples with a minimum length of $1\frac{1}{2}$ inches (38 mm) and a crown width of $\frac{7}{16}$ inch (11.1 mm) | 32 |
| ASCEND™ 12" Board and Batten | 12 inches o.c. | Corrosion-resistant smooth shank roofing nails with a steel shank diameter of $\frac{1}{8}$ -inch (3.18 mm) and a $\frac{3}{8}$ -inch (9.53 mm) head long enough to penetrate the underlaying framing at least $\frac{3}{4}$ inch (19.1 mm) | 50 |
| | 8 inches o.c. | Corrosion-resistant smooth shank roofing nails with a steel shank diameter of $\frac{1}{8}$ -inch (3.18 mm) and a $\frac{3}{8}$ -inch (9.53 mm) head long enough to penetrate the underlaying framing at least $\frac{3}{4}$ inch (19.1 mm) | 61 |
| | 12 inches o.c. | No. 16 gauge corrosion-resistant staples with a minimum length of $1\frac{1}{2}$ inches (38 mm) and a crown width of $\frac{7}{16}$ inch (11.1 mm) | 61 |
| | 8 inches o.c. | No. 16 gauge corrosion-resistant staples with a minimum length of $1\frac{1}{2}$ inches (38 mm) and a crown width of $\frac{7}{16}$ inch (11.1 mm) | 117 |
| | 12 inches o.c. | Corrosion-resistant No. 8 self-drilling pan head screws with a minimum length of $1\frac{1}{2}$ inch (38.1 mm) | 53 |

For SI: 1 inch = 25.4 mm

TABLE 3 – ALIGN™ COMPOSITE CLADDING ALLOWABLE NEGATIVE WIND PRESSURES

| PRODUCT NAME | FASTENER SPACING | FASTENER TYPE | ALLOWABLE NEGATIVE WIND PRESSURE (psf) |
|-----------------------------|------------------|---|--|
| ALIGN™ 7" Plank | 24 inches o.c. | Corrosion-resistant nails long enough to penetrate the underlaying framing at least $\frac{3}{4}$ inch (19.1 mm) | 53 |
| | 24 inches o.c. | No. 16 gauge corrosion-resistant staples with a minimum length of $1\frac{1}{2}$ inches (38 mm) and a crown width of $\frac{7}{16}$ inch (11.1 mm) | 32 |
| ALIGN™ 12" Board and Batten | 12 inches o.c. | Corrosion-resistant smooth shank roofing nails with a steel shank diameter of $\frac{1}{8}$ -inch (3.18 mm) and a $\frac{3}{8}$ -inch (9.53 mm) head long enough to penetrate the underlaying framing at least $\frac{3}{4}$ inch (19.1 mm) | 50 |
| | 8 inches o.c. | Corrosion-resistant smooth shank roofing nails with a steel shank diameter of $\frac{1}{8}$ -inch (3.18 mm) and a $\frac{3}{8}$ -inch (9.53 mm) head long enough to penetrate the underlaying framing at least $\frac{3}{4}$ inch (19.1 mm) | 61 |
| | 12 inches o.c. | No. 16 gauge corrosion-resistant staples with a minimum length of $1\frac{1}{2}$ inches (38.1 mm) and a crown width of $\frac{7}{16}$ inch (11.1 mm) | 61 |
| | 8 inches o.c. | No. 16 gauge corrosion-resistant staples with a minimum length of $1\frac{1}{2}$ inches (38.1 mm) and a crown width of $\frac{7}{16}$ inch (11.1 mm) | 117 |
| | 12 inches o.c. | Corrosion-resistant No. 8 self-drilling pan head screws with a minimum length of $1\frac{1}{2}$ inch (38.1 mm) | 53 |

For SI: 1 inch = 25.4 mm

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 46 00—Siding

REPORT HOLDER:

ASSOCIATED MATERIALS, INC.

EVALUATION SUBJECT:

ASCEND™ COMPOSITE CLADDING AND ALIGN™ COMPOSITE CLADDING

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that ASCEND™ Composite Cladding and ALIGN™ Composite Cladding, described in ICC-ES evaluation report ESR-4449, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2022 California Building Code (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD)AKA: California Department of Health Care Access and Information (HCAI) and the Division of the State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS**2.1 CBC:**

The ASCEND™ Composite Cladding and ALIGN™ Composite Cladding, described in Sections 2.0 through 7.0 of the evaluation report ESR-4449, comply with CBC Chapter 14, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapter 14, as applicable.

The ASCEND™ Composite Cladding and ALIGN™ Composite Cladding may be used in the exterior design and construction of exterior walls in new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or Wildland–Urban Interface Fire Area, provided installation is in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report, the additional requirements of CBC Sections 701A.3 and 707A.3 (Item 5) based on ASTM E2707 testing of the assembly, and when the exterior side of the exterior wall is constructed with minimum 5/8-inch-thick Type X glass-mat sheathing complying with ASTM C1177, one layer of DuPont™ Tyvek® HomeWrap® ([ESR-2375](#)) and the ASCEND™ Composite Cladding or and ALIGN™ Composite Cladding.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The ASCEND™ Composite Cladding and ALIGN™ Composite Cladding, described in Sections 2.0 through 7.0 of the evaluation report ESR-4449, comply with CRC Section R703, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report and the applicable provisions of the CRC.

The ASCEND™ Composite Cladding and ALIGN™ Composite Cladding may be used in the exterior design and construction of exterior walls in new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or Wildland–Urban Interface Fire Area, provided installation is in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report, the additional requirements of CRC Sections R337.1.3 and R337.7.3 (Item 5) based on ASTM E2707 testing of the assembly, and when the exterior side of the exterior wall is constructed with minimum 5/8-inch-thick Type X glass-mat sheathing complying with ASTM C1177, one layer of DuPont™ Tyvek® HomeWrap® ([ESR-2375](#)) and the ASCEND™ Composite Cladding or and ALIGN™ Composite Cladding .

The products included in this supplement have not been evaluated for compliance with the *International Wildland–Urban Interface Code*®.

This supplement expires concurrently with the evaluation report, reissued January 2024 and revised September 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 46 00—Siding

REPORT HOLDER:

ASSOCIATED MATERIALS, INC.

EVALUATION SUBJECT:

ASCEND™ COMPOSITE CLADDING AND ALIGN™ COMPOSITE CLADDING

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that ASCEND™ Composite Cladding and ALIGN™ Composite Cladding, described in ICC-ES evaluation report ESR-4449, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 Florida Building Code—Building
- 2023 Florida Building Code—Residential

2.0 CONCLUSIONS

The ASCEND™ Composite Cladding and ALIGN™ Composite Cladding, described in Sections 2.0 through 7.0 of the evaluation report ESR-4449, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*. The design must be determined in accordance with the *Florida Building Code—Building* and *Florida Building Code—Residential*, as applicable. The installation requirements noted in the ICC-ES evaluation report ESR-4449 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* and *Florida Building Code—Residential*, as applicable.

Use of the ASCEND™ Composite Cladding and ALIGN™ Composite Cladding for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued January 2024 and revised September 2024.