

ICC-ES Evaluation Report


ESR-4548

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<p>DIVISION: 07 00 00 — THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 46 33 — Plastic Siding</p>	<p>REPORT HOLDER: EOVATIONS, LLC</p>	<p>EVALUATION SUBJECT: 0.375-IN. X 8.25-IN. (7-IN. REVEAL) EOTEK SIDING AND DECKORATOR CLADDING</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018 and 2015 [International Building Code® \(IBC\)](#)
- 2018 and 2015 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Exterior Veneer
- Durability
- Wind load resistance
- Flame spread

2.0 USES

Eotek Siding is an exterior wall covering, which is applied on the exterior side of exterior walls for the purpose of providing a weather-resisting barrier. *Eotek Siding* is a combustible material which has been evaluated for use in all construction types under the conditions of use in accordance with Section 5.0 of this report.

Deckorator Cladding is an exterior wall covering, which is applied on the exterior side of exterior walls for the purpose of providing a weather-resisting barrier. *Deckorator Cladding* is a combustible material which has been evaluated for use in all construction types under the conditions of use in accordance with Section 5.0 of this report.

3.0 DESCRIPTION

3.1 *Eotek Siding* is a polymer composite siding. It has a height of 8.25 inches (210 mm) and a thickness of 0.375 inch (9 mm) and is a lap siding product. *Eotek Siding* is composed of a mineral-polymer mix, which through the manufacturing process creates an internal fiber structure, which adds stiffness to the siding.

3.2 *Deckorator Cladding* is a mineral-polymer composite plank used as a siding. It is available under 3 trade names; *Deckorator Vault*, *Deckorator Frontier*, and *Deckorator Voyage*. The plank is available in widths of 3.5 inches (90 mm), 5.5 inches (140 mm), and 7.25 inches (184 mm). *Deckorator Cladding* has a thickness of 0.835 inch (21 mm). The cladding is available with square edges or with slotted edges ([Figure 3](#)). The cladding is installed on top of 1.5 inch wide x 0.75 inch thick furring strips made of wood or the same material as the cladding, attached to a minimum of 7/16-inch thick PS1 or PS2 wood sheathing. *Deckorator Cladding* is

composed of a mineral-polymer mix, which through the manufacturing process creates an internal fiber structure, which adds stiffness to the siding.

4.0 DESIGN AND INSTALLATION

4.1 General:

4.1.1 Design: The scope of this report is limited to evaluation of *Eotek Siding* and *Deckorator Cladding* used as an exterior wall covering on buildings. Details related to incorporation of the product beyond that scope are the responsibility of the designer in responsible charge.

4.1.2 Pressure Equalization Factor: Design values do not consider pressure equalization. Pressure equalization factor may be applied, as appropriate, in accordance with ASCE 7.

4.2 Installation:

4.2.1 General: *Eotek Siding* and *Deckorator Cladding* shall be fabricated, identified and erected in accordance with this report, the approved construction documents and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report shall govern. Approved construction documents shall be available at all times on the jobsite during installation.

4.2.2 Eotek Siding Overlap and Nailing: *Eotek Siding* must be installed with an overlap of 1 $\frac{1}{4}$ inches (32 mm) between siding panels. Nails used to install siding must have a minimum nominal shank diameter of 0.092 inch (2 mm); nails must not cause splitting or cracking of the siding. A 1 $\frac{1}{4}$ -inch starter strip is required for installation; this starter strip is to be gapped $\frac{1}{4}$ inch (6 mm) from the skirting board. All starter strips and siding must be gapped $\frac{1}{16}$ inch (2 mm) at their ends from any adjacent trim board; additionally, all siding ends at joints are to touch (without being force fit), occur over a stud, and be staggered a minimum of 32 inches (0.82 m) apart. Flashing as described in Section 1404.4 of 2018 IBC or Section 1405.4 of 2015 IBC, a water-resistive barrier as described in Section 1403.2 of 2018 IBC or Section 1404.2 of 2015 IBC, and a means for providing drainage of water that enters the assembly to the exterior are also required.

4.2.3 Deckorator Cladding Installation. *Deckorator Cladding* must be installed horizontally, vertically or at up to a 45 degree diagonal on top of $\frac{3}{4}$ inch thick furring strips made of lumber or *Deckorator Cladding* material (See [Figure 5](#)). The cladding product must be installed perpendicularly to the furring strips for horizontal and vertical use and at up to a 45 degree angle to the furring strips for diagonal installation. When using *Deckorator Cladding* material furring strips, the furring strips must be screwed to minimum of $\frac{7}{16}$ inch (11.1 mm) PS2 wood sheathing using No.8 x 1 $\frac{5}{8}$ inch Starborn Deckfast 305 Stainless Flathead Screws spaced a minimum of 12 inches (305 mm) on center mid width of the furring strip. Fasteners are not required to penetrate into framing members. Wall framing and sheathing must be installed in accordance with the code.

Deckorator Cladding with square edges must be screwed to the furring strips using (2) No.10 x 2 inch Starborn Cap-Tor xd Headcoat 305 Stainless Steel Screws at each location where the cladding occurs over a furring strip with a minimum $\frac{3}{4}$ inch (19 mm) end and edge distance.

Deckorator Cladding with slotted edges must be attached to the furring strips using *Deckorator Stowaway Clips* (hidden fastener) using a 0.125 x 1 $\frac{5}{8}$ grade 305 stainless steel screw at each location where the cladding occurs over a furring strip.

End butt joints of square and slotted edge cladding must be supported by placing a second furring strip cutoff adjacent to the full furring strip such that the end of one cladding board may be attached to the full furring strip and the end of the other cladding board may be attached to the cutoff furring strip (See [Figure 4](#)). The cutoff furring strip must be long enough that (2) #8 x 1 $\frac{5}{8}$ inch Starborn Deckfast 305 Stainless Steel Flathead Screws can be installed with a minimum $\frac{3}{4}$ inch end distance to mount the cutoff strip to the wall wood sheathing. Cutoff furring strip screws must not be more than 12 inches (305 mm) apart and outside the width of the cladding board.

Cladding ends and edges of boards must be spaced to accommodate for thermal expansion and contraction. Where installation occurs above 32°F (0°C) cladding ends must be installed with a minimum separation of $\frac{1}{16}$ inch (1.6 mm) and edges must be installed with a minimum separation distance of $\frac{1}{8}$ inch (3.2 mm). A minimum separation distance of $\frac{1}{8}$ inch (3.2 mm) must be used when abutting solid objects. Where installation occurs below 32°F (0°C) cladding ends must be installed with a minimum separation of $\frac{1}{8}$ inch (3.2 mm) and edges must be installed with a minimum separation distance of $\frac{3}{16}$ inch (4.8 mm). A minimum separation distance of $\frac{1}{4}$ inch (6.4 mm) shall be used when abutting solid objects.

5.0 CONDITIONS OF USE

The *Eotek Siding* and *Deckorator Cladding* described in this report comply with, or are 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 *Eotek Siding* and *Deckorator Cladding* shall not be used as part of a fire-rated assembly unless suitable evidence and details are submitted and approved by the authority having jurisdiction.
- 5.2 Where installed in Types I, II, III or IV construction, buildings cladded with *Eotek Siding* or *Deckorator Cladding* must not be closer than 10 feet (3.05 m) to adjacent structures and must be limited to 40 feet (12.19 m) in height above the grade plane.
- 5.3 *Eotek Siding* and *Deckorator Cladding* must be installed in accordance with the manufacturer's published installation instructions, this report, and the applicable code.
- 5.4 *Eotek Siding* and *Deckorator Cladding* are manufactured in Selma, Alabama, under a quality control program with inspections by ICC-ES.
- 5.5 Fastener loads for attachment to lumber and wood sheathing must not exceed the design values determined in accordance with ANSI/AF&PA NDS-2018 National Design Specification for Wood Construction.

6.0 EVIDENCE SUBMITTED

- 6.1 Report of test in accordance with ASTM D5206.
- 6.2 Report of durability testing, including impact resistance, ultraviolet light resistance and linear thermal expansion.
- 6.3 Report of test in accordance with ASTM E84.
- 6.4 Report of test in accordance with NFPA 268.
- 6.5 Report of test in accordance with ASTM D6109.
- 6.6 Fastener testing in accordance with ASTM D1037 and ASTM D1761.
- 6.7 Report of tests in accordance with ASTM D7032.

7.0 IDENTIFICATION

- 7.1 *Eotek Siding* and *Deckorator Cladding* are identified with the following information:
 - 7.1.1 The ICC-ES Evaluation Report number (ESR-4548).
 - 7.1.2 Production lot number (traceable to the manufacturing plant location and date).
 - 7.1.3 Product Trade Name (*Eotek Siding* or *Deckorator Cladding*)
- 7.2 The report holder's contact information is the following:

EOVATIONS, LLC
5 MEADOWCRAFT PARKWAY
SELMA, ALABAMA 36701
www.eotek.com

TABLE 1—0.375-INCH EOTEK SIDING PROPERTIES

ALLOWABLE PRESSURE ¹	16-inch On Center studs	39 psf
	24-inch On Center studs	30 psf
ALLOWABLE PRESSURE FASTENING DETAILS	0.092-inch x 2-inch Galvanized Ring Shank Nails Spacing: 16 inches or 24 inches on center Edge Distance: $\frac{3}{4}$ inch End Distance: $\frac{3}{8}$ inch Minimum Penetration into Framing: $1\frac{3}{16}$ inch Siding Overlap: $1\frac{1}{4}$ inch	
COEFFICIENT OF LINEAR EXPANSION (PARALLEL TO MACHINE DIRECTION)	Less than 15×10^{-6} inch/inch/°F	
FLAME-SPREAD INDEX (ASTM E84)	Less than 200	
RADIANT HEAT EXPOSURE (NFPA 268)	Siding did not exhibit sustained flaming during the test when exposed to 12.5 kW/m ² meeting the requirement for a 5 ft separation distance in accordance with 2018 IBC Table 1405.1.1.1.2	

For **SI**: 1 inch = 25.4 mm; 1 psf = 0.0479 kPa; 1 inch/inch/°F = 1.8 mm/mm/°C

¹ Safety Factor of 1.5

TABLE 2 – DECKORATOR CLADDING PROPERTIES

ALLOWABLE PRESSURE ¹ (VERTICAL, HORIZONTAL AND DIAGONAL ORIENTATIONS)	39 psf
FURRING STRIP SPACING	24 inches on center
FURRING STRIP FASTENER TO SHEATHING SPACING	12 inches on center
FURRING STRIP FASTENER	#8 x $1\frac{5}{8}$ inch Starborn Deckfast 305 Stainless Flathead Screws
WALL EXTERIOR SHEATHING	Minimum $\frac{7}{16}$ inch PS2 OSB
CLADDING TO FURRING STRIP FASTENER	Square Edge: #10 x 2 inch Starborn Cap-Tor xd Headcoat 305 Stainless Steel Screws Slotted Edge: Deckorator Stowaway Clip (hidden fastener) with a 0.125 x $1\frac{5}{8}$ grade 305 stainless steel screw
CLADDING TO FURRING STRIP FASTENER SPACING	Square Edge: 2 Fasteners at every Furring Strip Slotted Edge: 2 Fasteners at every Furring Strip
COEFFICIENT OF LINEAR EXPANSION (PARALLEL TO MACHINE DIRECTION)	Less than 15×10^{-6} inch/inch/°F
FLAME-SPREAD INDEX (ASTM E84)	Less than 200
RADIANT HEAT EXPOSURE (NFPA 268)	Siding did not exhibit sustained flaming during the test when exposed to 12.5 kW/m ² meeting the requirement for a 5 ft separation distance in accordance with 2018 IBC Table 1405.1.1.1.2

For **SI**: 1 inch = 25.4 mm; 1 psf = 0.0479 kPa; 1 inch/inch/°F = 1.8 mm/mm/°C

¹ Safety Factor of 1.5

TABLE 3—MAXIMUM BASIC WIND SPEEDS (3-SECOND GUST) (MPH)

PRODUCT	FASTENER TYPE	FASTENER SPACING	FRAME TYPES	STUD SPACING (inch)	HEIGHT OF BUILDING (feet)	MAXIMUM BASIC WIND SPEED (mph) FOR EXPOSURE CATEGORY (NOMINAL DESIGN WIND SPEED $V_{asd}^{3,4,7}$)			MAXIMUM BASIC WIND SPEED (mph) FOR EXPOSURE CATEGORY (ULTIMATE DESIGN WIND SPEED $V_{ult}^{2,5}$)		
						B	C	D	B	C	D
3/8-inch x 8 1/4-inch (7-inch Reveal) Eotek Siding	0.092-inch x 2-inch Galvanized Ring Shank Nails	3/4-inch Edge Distance 3/4-inch End Distance	2x4 SPF ¹ Lumber	16	15	127	115	104	164	149	135
					20	127	112	102	164	144	132
					40	122	104	96	157	134	124
					60	115	99	93	148	128	120
3/8-inch x 8 1/4-inch (7-inch Reveal) Eotek Siding	0.092-inch x 2-inch Galvanized Ring Shank Nails	3/4-inch Edge Distance 3/4-inch End Distance	2x4 SPF ¹ Lumber	24	15	111	101	92	144	130	118
					20	111	98	89	144	126	115
					40	107	91	84	138	118	--
					60	101	87	--	130	113	--
Product	Cladding Orientation	Fasteners	SHEATHING	FURRING STRIP SPACING (inch)	HEIGHT	B	C	D	B	C	D
3.5, 5.5 or 7.25 inch Square Edge Deckorator Cladding on 3/4-inch Deckorator Furring Strips	Vertical, Horizontal, Diagonal	Cladding: #10 x 2 inch Starborn Cap-Tor x d Headcoat 305 Stainless Screws, (2) at every furring strip, 3/4" edge and end distance Furring Strip: #8 x 1 5/8 inch Starborn Deckfast 305 Stainless Flathead Screws, 12 inch on center	Minimum 7/16 inch PS2 OSB	24	15	127	115	104	164	149	135
					20	127	112	102	164	144	132
					40	122	104	96	157	134	124
					60	115	99	93	148	128	120
3.5, 5.5 or 7.25 inch Slotted Edge Deckorator Cladding on 3/4-inch Deckorator Furring Strips	Vertical, Horizontal, Diagonal	Cladding: Deckorator Stowaway Clip (hidden fastener) (2) at every furring strip Furring Strip: #8 x 1 5/8 inch Starborn Deckfast 305 Stainless Flathead Screws, 12 inch on center	Minimum 7/16 inch PS2 OSB	24	15	127	115	104	164	149	135
					20	127	112	102	164	144	132
					40	122	104	96	157	134	124
					60	115	99	93	148	128	120

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa; 1 MPH = 1.61 KmPH

¹Values are applicable for species of wood having specific gravity of 0.42 or greater

²Wind speed design assumptions per Section 30.4 of ASCE 7-10 and 7-16: $K_{zt}=1$, $K_d=0.85$, $GC_{pi}=\pm 0.18$, $GC_{pe}=-1.4$, $K_e=1.0$ (ASCE 7-16)

³Wind speed design assumptions per Section 6.5 Method 2 of ASCE 7-10 and 7-16: $K_{zt}=1$, $K_d=0.85$, $GC_{pi}=\pm 0.18$, $GC_{pe}=-1.4$, $K_e=1.0$ (ASCE 7-16)

⁴ V_{asd} =Nominal design wind speed

⁵ V_{ult} =Ultimate design wind speed

⁶Minimum fastener penetration into wood framing must be 1 inch

⁷2015 IBC Section 1609.3.1 Equation 16-33. $V_{asd}=V_{ult}\sqrt{0.6}$. 2018 IBC Section 1609.3.1 Equation 16-33 $V_{asd}=V\sqrt{0.6}$

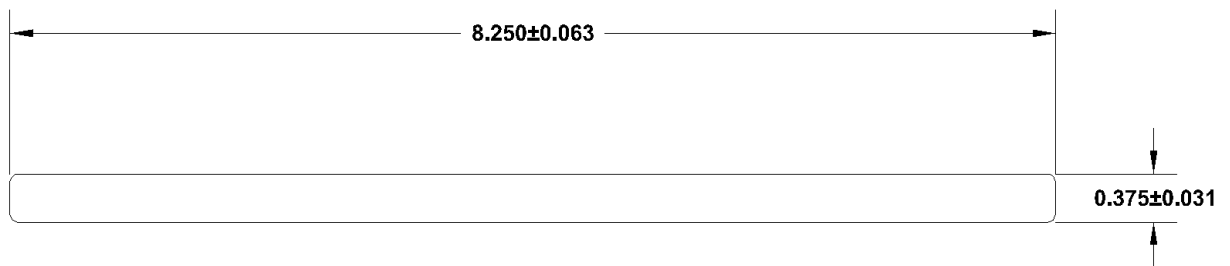


FIGURE 1—0.375-INCH X 8.25-INCH EOTEK SIDING CROSS-SECTIONAL DRAWING



FIGURE 2—EOTEK SIDING INSTALLATION

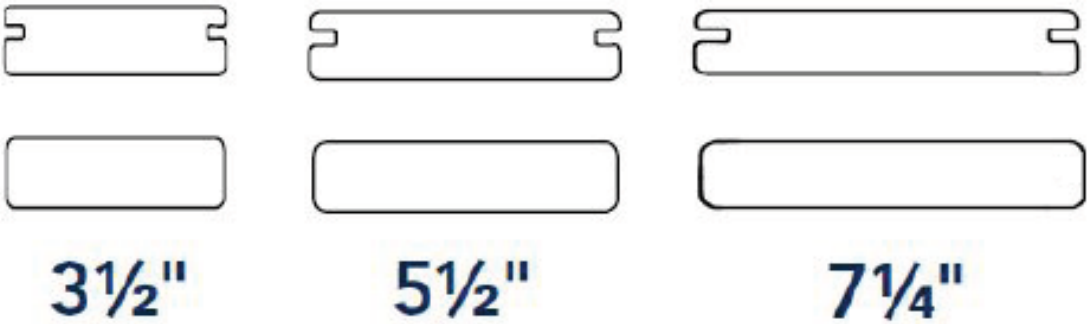


FIGURE 3 – DECKORATOR CLADDING CROSS SECTIONS; SLOTTED EDGE (TOP), SQUARE EDGE (BOTTOM)

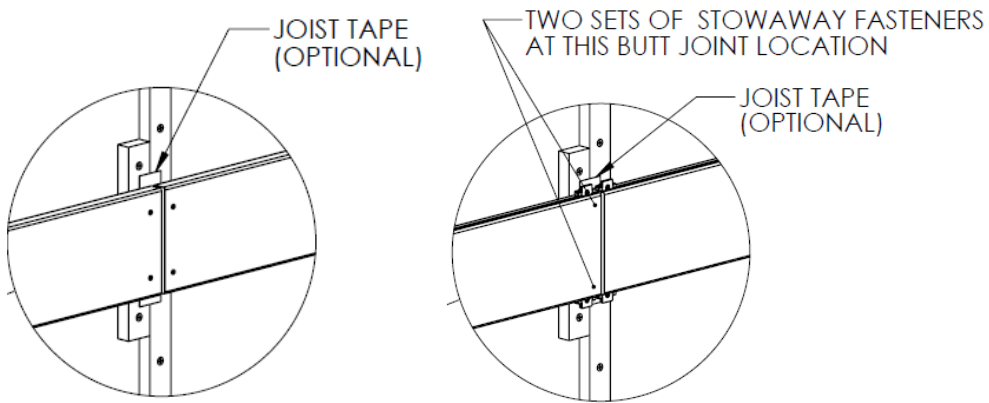


FIGURE 4 – DECKORATOR CLADDING BUTT JOINT INSTALLATION (SQUARE EDGE ON LEFT SLOTTED EDGE ON RIGHT)

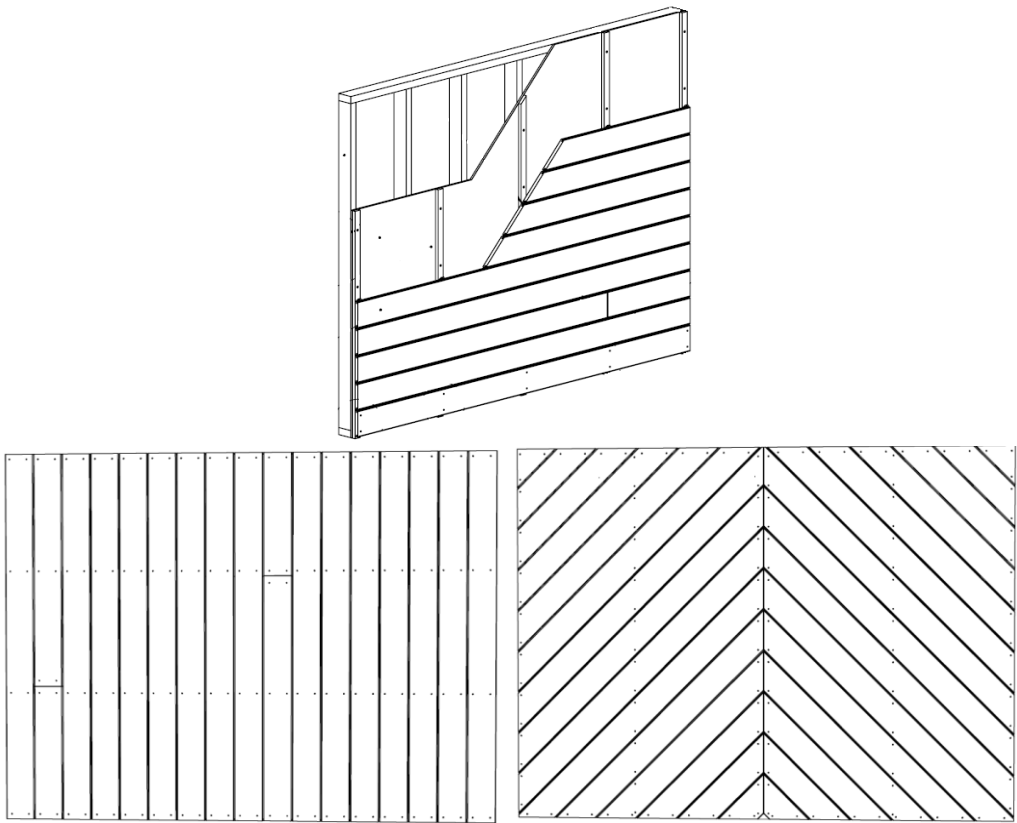


FIGURE 5 – DECKORATOR CLADDING; HORIZONTAL (TOP), VERTICAL (LEFT) AND DIAGONAL (RIGHT) APPLICATIONS