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PROJECT: RIO-2554-15

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PROJECT RIO-2554-15
ENGINEERING EVALUATION REPORT FOR ATTACHING JAMES HARDIE® BRAND

FIBER-CEMENT SOFFIT PANELS TO WOOD AND METAL FRAMED WALLS WITH VARIOUS FASTENERS

JAMES HARDIE BUILDING PRODUCTS, INC.
10901 ELM AVENUE
FONTANA, CA 92337

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AS PRODUCT EVALUATOR, THE UNDERSIGNED CERTIFIES THAT THE LISTED PRODUCTS ARE IN COMPLIANCE WITH THE REQUIREMENTS OF THE ASCE 7 - 10, THE 2014 FLORIDA BUILDING CODE, AND THE 2012 INTERNATIONAL BUILDING CODE.

PREPARED BY:

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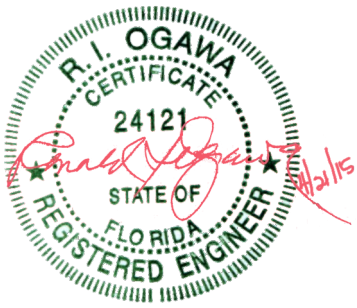

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EVALUATION SUBJECT

HardieSoffit® Panels

James Hardie Product Trade Names covered in this evaluation:
HardieSoffit® Panel, CemSoffit® Panel

EVALUATION SCOPE:

ASCE 7-10
2014 Florida Building Code
2012 International Building Code®

EVALUATION PURPOSE:

This analysis is to determine the maximum design 3-second gust wind speed to be resisted by an assembly of HardieSoffit (Cemsoffit) panel fastened to wood or metal framing with nails or screws.

REFERENCE REPORTS:

1. Intertek, Report 3067913, (ASTM C1186) Material properties HardieSoffit Panels

2. Ramtech Laboratories, Inc. Report 11436-99/1608 (ASTM E330) Transverse Load Test, 1/4" Thick by 16 inch wide HardieSoffit Vented Panels installed on 2X4 SG=0.4 wood studs spaced at 24 inches on center with a 1-1/2 inch long by 0.083 inch shank diameter by 0.187 inch head diameter ring shank nail

3. Ramtech Report IC-1228-93 (ASTM E330) Transverse Load Test, 1/4" Thick by 48 inch wide HardieBacker* Panels installed on 2X4 Hem-Fir wood studs spaced at 16 inches on center with a 6d common nail

4. Ramtech Report IC-1054-89 (ASTM E330) Transverse Load Test, 1/4" Thick by 48 inch wide HardiTex* Baseboard installed on 2X4 20 gauge metal studs spaced at 16 inches on center with a No. 8 X 1" Long X 0.323" Head Diameter Bugle Head Screw

5. Ramtech Report IC-1055-89 (ASTM E330) Transverse Load Test, 1/4" Thick by 48 inch wide HardiTex* Baseboard installed on 2X4 20 gauge metal studs spaced at 24 inches on center with a No. 8 X 1" Long X 0.323" Head Diameter Bugle Head Screw

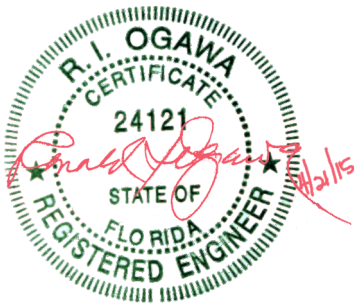
*HardieBacker and HardiTex panels and HardieSoffit panels are identical in composition, dimension, and manufacturing method. Therefore, results for Transverse Load tests on HardieBacker and HardiTex, apply to HardieSoffit.

TEST RESULTS:

Table 1, Results of Transverse Load Testing

						Fastener Spacing (in.)				
Report Number	Test Agency	Thickness (in.)	Width (in.)	Frame Type	Frame Spacing (in.)	Perimeter Supports	Field Supports	Fastener Type	Ultimate Load (PSF)	Allowable Design Load[1] (PSF)
11436-99/1608	Ramtech	0.25	16	2X4 wood SG=0.40	24	8	8	1.5 in. long X 0.083 in. shank X 0.187 in. HD, ring shank nail	-249	-83.0
IC-1228-93	Ramtech	0.25	48	2X4 wood Hem-Fir	16	6	6	6d common nail	-140	-46.7
IC-1054-89	Ramtech	0.25	48	2X4 20 gauge metal	16	6	6	No. 8 X 1 in. long X 0.323 in. head diameter ribbed bugle head screws	-169.9	-56.6
IC-1055-89	Ramtech	0.25	48	2X4 20 gauge metal	24	6	6	No. 8 X 1 in. long X 0.323 in. head diameter ribbed bugle head screws	-91.9	-30.6

1. Allowable Load is the Ultimate Load divided by a Factor of safety of 3.
2. HardieSoffit Panel complies with ASTM C1186, *Standard Specification for Grade II, Type A Non-asbestos Fiber-Cement Flat Sheets.*



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DESIGN WIND LOAD PROCEDURES:

Fiber-cement siding transverse load capacity (wind load capacity) is determined via compliance testing to transverse load national test standards. Via the transverse load testing an allowable design load is determined based on a factor of safety of 3 applied to the ultimate test load.

Since the allowable design load is based on factor of safety of 3, allowable design loads on fiber-cement siding correlate directly to required design pressures for Allowable Stress Design, and therefore should be used with combination loading equations for Allowable Stress Design (ASD).

By using the combination loading equations for Allowable Stress Design (ASD), the tested allowable design loads for fiber-cement siding are aligned with the wind speed requirements in ASCE 7-10 Figure 26.5-1A, Figure 26.5-1B, and Figure 26.5-1C.

For this analysis, to calculate the pressures in Tables 3, 4, and 5, the load combination will be in accordance with ASCE 7-10 Section 2.4 *combining nominal loads using allowable stress design*, load combination 7. Load combination 7 uses a load factor of 0.6 applied to the wind velocity pressure.

Equation 1, $q_z=0.00256*K_z*K_{zt}*K_d*V^2$ *{ref. ASCE 7-10 equation 30.3-1}*

q_z , velocity pressure at height z
K_z , velocity pressure exposure coefficient evaluated at height z
K_{zt} , topographic factor
K_d , wind directionality factor
V , basic wind speed (3-second gust MPH) as determined from [2012 IBC, 2014 FBC] Figures 1609A, B, or C; ASCE 7-10 Figures 26.5-1A, B, or C

Equation 2,

$V=V_{ult}$ *{ref. 2012 IBC & 2014 FBC Section 1602.1 definitions}*

V_{ult} , ultimate design wind speeds (3-second gust MPH) determined from [2012 IBC, 2014 FBC] Figures 1609A, B, or C; ASCE 7-10 Figures 26.5-1A, B, or C

Equation 3, $p=q_z*(GC_p-GC_{pi})$ *{ref. ASCE 7-10 equation 30.6-1}*

GC_p , product of external pressure coefficient and gust-effect factor
GC_{pi} , product of internal pressure coefficient and gust-effect factor
p , design pressure (PSF) for siding (allowable desgn load for siding)

To determine design pressure, substitute q_z into Equation 3,

Equation 4, $p=0.00256*K_z*K_{zt}*K_d*V_{ult}^{2}*(GC_p-GC_{pi})$

Allowable Stress Design, ASCE 7-10 Section 2.4.1, load combination 7

Equation 5, 0.6D + 0.6W *{ref. ASCE 7-10 section 2.4.1, load combination 7}*

D , dead load
W , wind load

To determine the Allowable Stress Design Pressure, apply the load factor for W (wind) from Equation 4 to p (design pressure) determined from equation 4

Equation 6, $p_{asd} = 0.6*[p]$

Equation 7, $p_{asd} = 0.6*[0.00256*K_z*K_{zt}*K_d*V_{ult}^{2}*(GC_p-GC_{pi})]$

Equation 7 is used to populate Table 3, 4, and 5.

To determine the allowable ultimate basic wind speed for Hardie Siding in Table 6, solve Equation 7 for V_{ult},

Equation 8, $V_{ult} = (p_{asd}/0.6*0.00256*K_z*K_{zt}*K_d*(GC_p-GC_{pi}))^{0.5}$

Applicable to methods specified in Exceptions 1 through 3 of [2012 IBC, 2014 FBC] Section 1609.1.1., to determine the allowable nominal design wind speed (Vasd) for Hardie Siding in Table 6, apply the conversion formula below,

Equation 9, $V_{asd} = V_{ult} * (0.6)^{0.5}$ *{ref. 2012 IBC & 2014 FBC Section 1609.3.1}*

V_{asd} , Nominal design wind speed (3-second gust mph) *{ref. 2012 IBC & 2014 FBC Section 1602.1}*

Table 2, Coefficients and Constants used in Determining V and p,

	K_z						Wall Zone 5	
Height (ft)	Exp B	Exp C	Exp D		K_{zt}	K_d	GC_p	GC_{pi}
0-15	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
20	0.7	0.9	1.08		1	0.85	-1.4	0.18
25	0.7	0.94	1.12		1	0.85	-1.4	0.18
30	0.7	0.98	1.16		1	0.85	-1.4	0.18
35	0.73	1.01	1.19		1	0.85	-1.4	0.18
40	0.76	1.04	1.22		1	0.85	-1.4	0.18
45	0.785	1.065	1.245		1	0.85	-1.4	0.18
50	0.81	1.09	1.27		1	0.85	-1.4	0.18
55	0.83	1.11	1.29		1	0.85	-1.4	0.18
60	0.85	1.13	1.31		1	0.85	-1.4	0.18
100	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

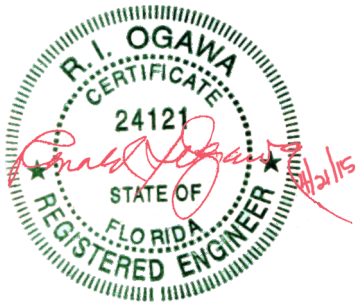

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Table 3, Allowable Stress Design - Component and Cladding (C&C) Pressures (PSF) to be Resisted at Various Wind Speeds - Wind Exposure Category B,

Wind Speed (3-second gust)	100	105	110	115	120	130	140	150	160	170	180	190	200	210
Height (ft)	B	B	B	B	B	B	B	B	B	B	B	B	B	B
0-15	-14.4	-15.9	-17.5	-19.1	-20.8	-24.4	-28.3	-32.5	-37.0	-41.7	-46.8	-52.1	-57.8	-63.7
20	-14.4	-15.9	-17.5	-19.1	-20.8	-24.4	-28.3	-32.5	-37.0	-41.7	-46.8	-52.1	-57.8	-63.7
25	-14.4	-15.9	-17.5	-19.1	-20.8	-24.4	-28.3	-32.5	-37.0	-41.7	-46.8	-52.1	-57.8	-63.7
30	-14.4	-15.9	-17.5	-19.1	-20.8	-24.4	-28.3	-32.5	-37.0	-41.7	-46.8	-52.1	-57.8	-63.7
35	-15.1	-16.6	-18.2	-19.9	-21.7	-25.4	-29.5	-33.9	-38.6	-43.5	-48.8	-54.4	-60.2	-66.4
40	-15.7	-17.3	-19.0	-20.7	-22.6	-26.5	-30.7	-35.3	-40.1	-45.3	-50.8	-56.6	-62.7	-69.1
45	-16.2	-17.9	-19.6	-21.4	-23.3	-27.4	-31.7	-36.4	-41.5	-46.8	-52.5	-58.5	-64.8	-71.4
50	-16.7	-18.4	-20.2	-22.1	-24.1	-28.2	-32.7	-37.6	-42.8	-48.3	-54.1	-60.3	-66.8	-73.7
55	-17.1	-18.9	-20.7	-22.6	-24.7	-28.9	-33.6	-38.5	-43.8	-49.5	-55.5	-61.8	-68.5	-75.5
60	-17.5	-19.3	-21.2	-23.2	-25.2	-29.6	-34.4	-39.5	-44.9	-50.7	-56.8	-63.3	-70.1	-77.3
100	-25.6	-28.2	-31.0	-33.8	-36.9	-43.3	-50.2	-57.6	-65.5	-74.0	-82.9	-92.4	-102.4	-112.9

Table 4, Allowable Stress Design - Component and Cladding (C&C) Pressures (PSF) to be Resisted at Various Wind Speeds - Wind Exposure Category C,

Wind Speed (3-second gust)	100	105	110	115	120	130	140	150	160	170	180	190	200	210
Height (ft)	C	C	C	C	C	C	C	C	C	C	C	C	C	C
0-15	-17.5	-19.3	-21.2	-23.2	-25.2	-29.6	-34.4	-39.5	-44.9	-50.7	-56.8	-63.3	-70.1	-77.3
20	-18.6	-20.5	-22.5	-24.6	-26.7	-31.4	-36.4	-41.8	-47.5	-53.7	-60.2	-67.0	-74.3	-81.9
25	-19.4	-21.4	-23.5	-25.6	-27.9	-32.8	-38.0	-43.6	-49.6	-56.0	-62.8	-70.0	-77.6	-85.5
30	-20.2	-22.3	-24.5	-26.7	-29.1	-34.2	-39.6	-45.5	-51.8	-58.4	-65.5	-73.0	-80.9	-89.2
35	-20.8	-23.0	-25.2	-27.6	-30.0	-35.2	-40.8	-46.9	-53.3	-60.2	-67.5	-75.2	-83.3	-91.9
40	-21.5	-23.7	-26.0	-28.4	-30.9	-36.3	-42.0	-48.3	-54.9	-62.0	-69.5	-77.4	-85.8	-94.6
45	-22.0	-24.2	-26.6	-29.1	-31.6	-37.1	-43.1	-49.4	-56.2	-63.5	-71.2	-79.3	-87.9	-96.9
50	-22.5	-24.8	-27.2	-29.7	-32.4	-38.0	-44.1	-50.6	-57.6	-65.0	-72.9	-81.2	-89.9	-99.2
55	-22.9	-25.2	-27.7	-30.3	-33.0	-38.7	-44.9	-51.5	-58.6	-66.2	-74.2	-82.7	-91.6	-101.0
60	-23.3	-25.7	-28.2	-30.8	-33.6	-39.4	-45.7	-52.4	-59.7	-67.4	-75.5	-84.1	-93.2	-102.8
100	-32.6	-35.9	-39.4	-43.1	-46.9	-55.0	-63.8	-73.3	-83.4	-94.1	-105.5	-117.6	-130.3	-143.6

Table 5, Allowable Stress Design - Component and Cladding (C&C) Pressures (PSF) to be Resisted at Various Wind Speeds - Wind Exposure Category D,

Wind Speed (3-second gust)	100	105	110	115	120	130	140	150	160	170	180	190	200	210
Height (ft)	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0-15	-21.2	-23.4	-25.7	-28.1	-30.6	-35.9	-41.6	-47.8	-54.4	-61.4	-68.8	-76.7	-85.0	-93.7
20	-22.3	-24.6	-27.0	-29.5	-32.1	-37.7	-43.7	-50.1	-57.0	-64.4	-72.2	-80.4	-89.1	-98.2
25	-23.1	-25.5	-28.0	-30.6	-33.3	-39.0	-45.3	-52.0	-59.1	-66.8	-74.9	-83.4	-92.4	-101.9
30	-23.9	-26.4	-29.0	-31.6	-34.5	-40.4	-46.9	-53.8	-61.3	-69.2	-77.5	-86.4	-95.7	-105.5
35	-24.5	-27.1	-29.7	-32.5	-35.3	-41.5	-48.1	-55.2	-62.8	-70.9	-79.5	-88.6	-98.2	-108.3
40	-25.2	-27.7	-30.5	-33.3	-36.2	-42.5	-49.3	-56.6	-64.4	-72.7	-81.5	-90.9	-100.7	-111.0
45	-25.7	-28.3	-31.1	-34.0	-37.0	-43.4	-50.3	-57.8	-65.7	-74.2	-83.2	-92.7	-102.7	-113.3
50	-26.2	-28.9	-31.7	-34.6	-37.7	-44.3	-51.3	-58.9	-67.1	-75.7	-84.9	-94.6	-104.8	-115.5
55	-26.6	-29.3	-32.2	-35.2	-38.3	-45.0	-52.2	-59.9	-68.1	-76.9	-86.2	-96.1	-106.4	-117.4
60	-27.0	-29.8	-32.7	-35.7	-38.9	-45.7	-53.0	-60.8	-69.2	-78.1	-87.6	-97.6	-108.1	-119.2
100	-37.0	-40.8	-44.7	-48.9	-53.2	-62.5	-72.5	-83.2	-94.6	-106.8	-119.8	-133.4	-147.9	-163.0

Tables 3, 4, and 5 are based on ASCE 7-10 and consistent with the 2012 IBC, 2012 IRC and the 2014 Florida Building Code

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Table 6, Allowable Wind Speed (mph) for HardieSoffit Panel *(Analytical Method in ASCE 7-10 Chapter 30 C&C Part 1 and Part 3)*[7]

								2012 IBC, 2014 FBC Allowable, Ultimate Design Wind, Speed, V_{ult}[3], (3-second gust mph) Applicable to methods specified in [2012 IBC, 2014 FBC] Section 1609.1.1. as determined by [2012 IBC, 2014 FBC] Figures 1609A, B, or C.			*2012 IBC, 2014 FBC* Allowable, Nominal Design Wind, Speed, V_{asd}[4,5], (3-second gust mph) Applicable to methods specified in Exceptions 1 through 3 of [2012 IBC, 2014 FBC] Section 1609.1.1.			**Coefficients used in Table 6 calculations for V_{ult}**							
								Wind exposure category			Wind exposure category			Siding	K_z							
Product	Product Thickness (inches)	Width (inches)	Fastener Type	Fastener Spacing	Frame Type	Stud Spacing (inches)	Building Height[2, 6] (feet)	B	C	D	B	C	D	Allowable Design Load (PSF)	Exp B	Exp C	Exp D		K_{zt}	K_d	GC_p	GC_{pi}
HardieSoffit®	1/4	16	1.5 in. long X 0.083 in. shank X 0.187 in. HD, ring shank nail	8	2X4 wood SG=0.40	16	0-15	240	218	198	186	169	153	-83.0	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	240	211	193	186	164	150	-83.0	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	240	207	190	186	160	147	-83.0	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	240	203	186	186	157	144	-83.0	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	235	200	184	182	155	142	-83.0	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	230	197	182	178	152	141	-83.0	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	226	194	180	175	151	139	-83.0	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	223	192	178	173	149	138	-83.0	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	220	190	177	171	147	137	-83.0	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	218	189	175	169	146	136	-83.0	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	180	160	150	139	124	116	-83.0	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardieSoffit®	1/4	16	1.5 in. long X 0.083 in. shank X 0.187 in. HD, ring shank nail	8	2X4 wood SG=0.40	24	0-15	240	218	198	186	169	153	-83.0	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	240	211	193	186	164	150	-83.0	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	240	207	190	186	160	147	-83.0	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	240	203	186	186	157	144	-83.0	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	235	200	184	182	155	142	-83.0	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	230	197	182	178	152	141	-83.0	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	226	194	180	175	151	139	-83.0	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	223	192	178	173	149	138	-83.0	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	220	190	177	171	147	137	-83.0	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	218	189	175	169	146	136	-83.0	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	180	160	150	139	124	116	-83.0	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardieSoffit®	1/4	48	6d common	6	2X4 wood Hem-Fir	16	0-15	180	163	148	139	126	115	-46.7	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	180	159	145	139	123	112	-46.7	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	180	155	142	139	120	110	-46.7	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	180	152	140	139	118	108	-46.7	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	176	150	138	136	116	107	-46.7	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	173	148	136	134	114	106	-46.7	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	170	146	135	132	113	104	-46.7	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	167	144	134	129	112	103	-46.7	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	165	143	132	128	111	103	-46.7	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	163	142	131	126	110	102	-46.7	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	135	120	112	105	93	87	-46.7	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardieSoffit®	1/4	48	Min. No 8 X 1 in. long X 0.323 in head diameter ribbed bugle head screw[1]	6	Min. No. 20 gauge X 3.625 in. X 1.375 in metal stud	16	0-15	198	180	163	153	139	126	-56.6	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	198	175	159	153	135	123	-56.6	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	198	171	157	153	132	121	-56.6	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	198	167	154	153	130	119	-56.6	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	194	165	152	150	128	118	-56.6	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	190	162	150	147	126	116	-56.6	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	187	161	148	145	124	115	-56.6	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	184	159	147	143	123	114	-56.6	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	182	157	146	141	122	113	-56.6	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	180	156	145	139	121	112	-56.6	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	149	132	124	115	102	96	-56.6	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

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								2012 IBC, 2014 FBC			*2012 IBC, 2014 FBC*										
								Allowable, Ultimate Design Wind, Speed, V_{ult}[3], (3-second gust mph)			Allowable, Nominal Design Wind, Speed, V_{asd}[4,5], (3-second gust mph)										
								Applicable to methods specified in [2012 IBC, 2014 FBC] Section 1609.1.1. as determined by [2012 IBC, 2014 FBC] Figures 1609A, B, or C.			Applicable to methods specified in Exceptions 1 through 3 of [2012 IBC, 2014 FBC] Section 1609.1.1.										
								Wind exposure category			Wind exposure category			Siding	K_z							
Product	Product Thickness (inches)	Width (inches)	Fastener Type	Fastener Spacing	Frame Type	Stud Spacing (inches)	Building Height[2, 6] (feet)	B	C	D	B	C	D	Allowable Design Load (PSF)	Exp B	Exp C	Exp D		K_{zt}	K_d	GC_p	GC_{pi}
HardieSoffit®	1/4	48	Min. No 8 X 1 in. long X 0.323 in head diameter ribbed bugle head screw[1]	6	Min. No. 20 gauge X 3.625 in. X 1.375 in metal stud	24	0-15	146	132	120	113	102	93	-30.6	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	146	128	117	113	99	91	-30.6	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	146	126	115	113	97	89	-30.6	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	146	123	113	113	95	88	-30.6	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	143	121	112	110	94	86	-30.6	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	140	119	110	108	93	85	-30.6	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	137	118	109	106	91	85	-30.6	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	135	117	108	105	90	84	-30.6	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	134	116	107	104	90	83	-30.6	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	132	115	106	102	89	82	-30.6	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	109	97	91	85	75	70	-30.6	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

Coefficients used in Table 6 calculations for V_{ult}

1. Screws shall penetrate the metal framing at least three full threads.
2. Building height = mean roof height (in feet) of a building, except that eave height shall be used for roof angle Θ less than or equal to 10° (2-12 roof slope).
3. Vult = the ultimate design wind speed (3-second gust mph) as determined by [2012 IBC, 2014 FBC] Figures 1609A, 1609B, or 1609C; ASCE 7-10 Figures 26.5-1A, 26.5-1B, or 26.5-1C.
4. Vasd = the nominal design wind speed applicable to methods specified in Exceptions 1 through 3 of [2012 IBC, 2014 FBC] Section 1609.1.1.
5. The wind speeds in [2012 IBC, 2014 FBC] Figures 1609A, 1609B and 1609C are ultimate design wind speeds, Vult, and shall be converted in accordance with [2012 IBC, 2014 FBC] Section 1609.3.1 to nominal design wind speeds, Vasd, when the provisions of the standards referenced in [2012 IBC, 2014 FBC] Section 1609.1.1. Exceptions 1 through 3 are used.
6. Linear interpolation of building height and wind speed is permitted.
7. Wind speed design assumptions per Analytical Method in ASCE 7-10 Chapter 30 C&C Part 1 and Part 3: K_{zt}=1, K_d=0.85, GC_p=-1.4 (h≤60), GC_p=-1.8 (h>60), GC_{pi}=0.18.

LIMITATIONS OF USE:

1) Fastener pullout must be evaluated when installed a species of wood studs other than that which was tested.
2) In High Velocity Hurricane Zones (HVHZ) install per Miami-Dade County Florida, NOA 15-0122.04.