EVALUATION SUBJECT

HardiePlank® Lap Siding

James Hardie Product Trade Names covered in this evaluation:
HardiePlank® Lap Siding, CemPlank® Siding, Prevail™ Lap Siding

EVALUATION SCOPE:

ASCE 7-10 & 7-16
2017 Florida Building Code (6th Edition) and 2020 Florida Building Code (7th Edition)
2015 and 2018 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 HardiePlank (CemPlank, Prevail Lap) siding fastened to wood or metal framing wood structural panels with nails or screws.

REFERENCE REPORTS:

1. Intertek Report 3148104COQ-002, Transverse load testing on HardiePlank and HardiePanel Fiber-Cement panels
2. Intertek Report 100717048COQ-003, Transverse load testing on HardiePlank and HardieShingle

TEST RESULTS:

Table 1. Results of Transverse Load Testing

Report Number	**3148104COQ-002**		**100717048COQ-003**	
Test Agency	Intertek		Intertek	
Siding Thickness (in.)	0.3125	0.3125	0.3125	0.3125
Siding Width (in.)	5.25	9.25	8.25	8.25
Frame and WSP Type	Wood 2" x 4" SPF w/ 7/16" OSB sheathing	Wood 2" x 4" SPF w/ 7/16" OSB sheathing	Wood 2" x 4" SPF w/ 7/16" OSB sheathing	Wood 2" x 4" SPF w/ 7/16" OSB sheathing
Fastener Spacing (in.)	12	12	8	6
Fastener Type	#8 waferhead screw, 1-5/8" x 0.375" HD	#8 waferhead screw, 1-5/8" x 0.375" HD	4d ring shank siding 1.5" x 0.090" x 0.215"	4d ring shank siding 1.5" x 0.090" x 0.215"
Fastener Length (inches)	1.625	1.625	1.5	1.5
Fastening Method	Blind screwed to OSB	Blind screwed to OSB	Blind screwed to OSB	Blind screwed to OSB
Ultimate Load (psf)	310.4	138.8	152	198
Design Load (psf) [1]	**103.5**	**46.3**	**50.7**	**66.0**
Effective Tributary Area (ft^2)	0.333	0.667	0.389	0.292
Fastener Load , as tested (lb/fastener)	**34.5**	**30.8**	**19.7**	**19.3**
Adjusted withdrawal design load (lb/fastener)[3] , *W'*	81.8	81.8	28.4	28.4
Net Fastener Penetration (in.), *P*	0.438	0.438	0.438	0.438
Wood Specific Gravity[5], *G*	0.50	0.50	0.50	0.50
Nail Shank Diameter (in.), *D*	0.164	0.164	0.090	0.090
Withdrawal design value per NDS 2018 (lb/in. penetration)[6], W	116.9	116.9	40.5	40.5
Adjusted Design Load[4], psf	No Adjustment	No Adjustment	No Adjustment	No Adjustment

Calculated fastener withdrawal load is compared with the test result and the more conservative one will be used.

1. Allowable Design Load is the Ultimate Load divided by a Factor of safety of 3.
2. The siding product complies with ASTM C1186, *Standard Specification for Grade II, Type A Non-asbestos Fiber-Cement Flat Sheets.*
3. The NDS fastener adjusted withdrawal design values, W', are calculated using the following equations:
   $W' = C_d \times 1800 \times G^2 \times D \times P$, $C_d = 1.6$ (deformed shank nails)
   $W' = C_d \times 2850 \times G^2 \times D \times P$, $C_d = 1.6$ (wood screw)
4. Adjusted Design Load, when the fastener load from the testing exceeds the NDS calculated withdrawal capacity (W') = W'/Effective Tributary Area
5. The published specific gravity value for OSB in Table 12.3.3B NDS-2018 is 0.50.
6. NDS Withdrawal design value (lb/inch penetration), W is calculated as follows:
   NDS Eq. 12.2-2 for wood screw: $W = 2850 \times G^2 \times D$
   NDS Eq. 12.2-5 for deformed shank nails: $W = 1800 \times G^2 \times D$

For Table 2A to 2C the design loads are calculated by proportioning the tributary area to each fastener, thereby design load to each fastener will be kept constant. By doing so, the allowable design load for various HardiePlank widths and stud spacing can be determined.

Table 2A, Allowable Design Loads Based on Constant Fastener Load, #8 wafer head screw x 0.375" HD, fasteners concealed (blind screw) at 12" O.C. to WSP sheathing only

For 5.25 inch wide HardiePlank:

Design load = ultimate failure load/FOS = -310.4 psf / 3 = -103.5 psf

Effective tributary = ((plank width exposed to weather X fastener spacing)/144) = ((5.25-1.25) X 12)/144 = 0.333 sq.ft.

Fastener load = design load X tributary area = -103.5 X 0.333 = -34.5 pounds

For 9.25 inch wide HardiePlank:

Design load = ultimate failure load/FOS = -138.8 psf/ 3 = -46.3 psf

Effective tributary = ((plank width exposed to weather X fastener spacing)/144) = ((9.25-1.25) X 12)/144 = 0.667 sq.ft.

Fastener load = design load X tributary area = -46.3.5 X 0.667 = -30.8 pounds

The fastener loads for all other plank widths were linearly interpolated from the two tests based on plank width

Calculated allowable design load = fastener load tested condition divided by area tributary for the condition to be calculated

HardiePlank Width (inches)	Tested Condition, Ultimate (psf)	Fastener Spacing (inches)	Effective Area Tributary (sq.ft.)	Allowable Design Load (PSF)	Fastener Load (lbs)
5.25	**-310.4**	12	0.333	**-103.5**	**-34.5**
6.25		12	0.417	-80.6	-33.6
7.25		12	0.500	-65.3	-32.7
7.5		12	0.521	-62.3	-32.4
8		12	0.563	-56.9	-32.0
8.25		12	0.583	-54.4	-31.8
9.25	**-138.8**	12	0.667	**-46.3**	**-30.8**
9.5		12	0.688	-44.5	-30.6
12		12	0.896	-31.6	-28.3

Table 2B, Allowable Design Loads Based on Constant Fastener Load, 4d ring shank siding nail (1.5"x0.09"x0.215"), fasteners concealed (blind nail) at 8" O.C. to WSP sheathing only

For 8.25 inch wide HardiePlank:

Design load = ultimate failure load/FOS = -152 psf/ 3 = -50.7 psf

Effective tributary = ((plank width exposed to weather X fastener spacing)/144) = ((8.25-1.25) X 8)/144 = 0.389 sq.ft.

Fastener load = design load X tributary area = -50.7 X 0.389 = -19.7 lbs

The fastener loads for all other plank width were calculated based on the same fastener load

Calculated allowable design load = fastener load tested condition divided by area tributary for the condition to be calculated

HardiePlank Width (inches)	Tested Condition, Ultimate (psf)	Fastener Spacing (inches)	Effective Area Tributary (sq.ft.)	Allowable Design Load (PSF)	Fastener Load (lbs)
5.25		8	0.222	-88.7	-19.7
6.25		8	0.278	-70.9	-19.7
7.25		8	0.333	-59.1	-19.7
7.5		8	0.347	-56.7	-19.7
8		8	0.375	-52.5	-19.7
8.25	**-152**	**8**	**0.389**	**-50.7**	**-19.7**
9.25		8	0.444	-44.3	-19.7
9.5		8	0.458	-43.0	-19.7
12		8	0.597	-33.0	-19.7

Table 2C, Allowable Design Loads Based on Constant Fastener Load, 4d ring shank siding nail (1.5"x0.09"x0.215"), fasteners concealed (blind nail) at 6" O.C. to WSP sheathing only

For 8.25 inch wide HardiePlank:

Design load = ultimate failure load/FOS = -198 psf/ 3 = -50.7 psf

Effective tributary = ((plank width exposed to weather X fastener spacing)/144) = ((8.25-1.25) X 6)/144 = 0.292sq.ft.

Fastener load = design load X tributary area = -66 X 0.292 = -19.3 lbs

The fastener loads for all other plank width were calculated based on the same fastener load

Calculated allowable design load = fastener load tested condition divided by area tributary for the condition to be calculated

HardiePlank Width (inches)	Tested Condition, Ultimate (psf)	Fastener Spacing (inches)	Effective Area Tributary (sq.ft.)	Allowable Design Load (PSF)	Fastener Load (lbs)
5.25		6	0.167	-115.8	-19.3
6.25		6	0.208	-92.6	-19.3
7.25		6	0.250	-77.2	-19.3
7.5		6	0.260	-74.1	-19.3
8		6	0.281	-68.6	-19.3
8.25	**-198**	**6**	**0.292**	**-66.0**	**-19.3**
9.25		6	0.333	-57.9	-19.3
9.5		6	0.344	-56.1	-19.3
12		6	0.448	-43.1	-19.3

DESIGN WIND LOAD PROCEDURES:

"Fiber-cement siding transverse load capacity (wind load capacity) is determined from transverse load testing in accordance with ASTM E330 or E72 as noted in Section 4.0 of the ICC ES AC90, Acceptance Criteria for Fiber Cement Siding Used as Exterior Wall Siding (approved October 2018). The allowable or design capacity from the testing is based on a factor of safety of 3 applied to the ultimate test load per AC90. The wind load values are determined from the ASCE 7 equations.

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 (Figures 26.5-1A, 26.5-1B, and 26.5-1C) and ASCE 7-16 (Figures 26.5-1A to -1D, 25.5-2A to -2D), or the figures in the building code as applicable. "

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

$q_z=0.00256*K_z*K_{zt}*K_d*K_eV^2$ *{ref. ASCE 7-16 Eq. 26.10-1}*

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
K_e , ground elevation factor, permitted to take K_e = 1.0
V , basic wind speed (3-second gust MPH) as determined from:
ASCE 7-10 Figures 26.5-1A, B, or C

ASCE 7-16 Figures 26.5-1A, B, or 26.5-2A, B,C or D
2018 IBC Figures 1609.3(1) - 1609.3(8)

Equation 2,

$V=V_{ult}$ *{ref. 2015 IBC & 2017 FBC Section 1602.1 definitions}*

V_{ult} , ultimate design wind speeds (3-second gust MPH) determined from 2017 FBC Figures 1609.3(1) - 1609.3(3); 2020 FBC Figures 1690.3(1) - 1609.3(4);

Equation 3, $p=q_h*(GC_p-GC_{pi})$ *{ref. ASCE 7-10 Eq. 30.4-1 or ASCE 7-16 Eq. 30.3-1}*

q_h , velocity pressure at mean roof height h
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 design load for siding)

To determine design pressure, substitute q_h into Equation 3,

Equation 4, $p=0.00256*K_z*K_{zt}*K_d*V^2*(GC_p-GC_{pi})$ *{ref. 2015 & 2018 IBC}*

or $p=0.00256*K_z*K_{zt}*K_d*V_{ult}^{2*}(GC_p-GC_{pi})$ *{ref. 2017 and 2020 FBC}*

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

Equation 5, 0.6D + 0.6W *{ref. ASCE 7-10 & 7-16 section 2.4.1, load combination 7}*

D , dead load
W , wind load (load due to wind pressure)

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 4, 5, and 6.

To determine the allowable ultimate basic wind speed for Hardie Siding in Table 7, 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 [2015 IBC, 2017 FBC] Section 1609.1.1., to determine the allowable nominal design wind speed (Vasd) for Hardie Siding in Table 7, apply

Equation 9, $V_{asd} = V_{ult} * (0.6)^{0.5}$ *{ref. 2017 and 2020 FBC Eq. 16-33}*

$V_{asd} = V * (0.6)^{0.5}$ *{ref. 2015/2018 IBC Eq. 16-33}*

V_{asd} , Nominal design wind speed (3-second gust mph)
V , Basic design wind speed (3-second gust, mph)

Table 3, Coefficients and Constants used in Determining V and p,

	K_z							Wall Zone 5	
Height (ft)	**Exp B (ASCE 7-16)**	Exp B	Exp C	Exp D		K_{zt}	K_d	GC_p	GC_{pi}
0-15	0.57	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
20	0.62	0.7	0.9	1.08		1	0.85	-1.4	0.18
25	0.66	0.7	0.94	1.12		1	0.85	-1.4	0.18
30	0.70	0.7	0.98	1.16		1	0.85	-1.4	0.18
35	0.73	0.73	1.01	1.19		1	0.85	-1.4	0.18
40	0.76	0.76	1.04	1.22		1	0.85	-1.4	0.18
45	0.785	0.785	1.065	1.245		1	0.85	-1.4	0.18
50	0.81	0.81	1.09	1.27		1	0.85	-1.4	0.18
55	0.83	0.83	1.11	1.29		1	0.85	-1.4	0.18
60	0.85	0.85	1.13	1.31		1	0.85	-1.4	0.18
100	0.99	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

The coefficients and constants listed in Table 3 above were consistent for ASCE 7-10 and ASCE 7-16 except for K_z at Exposure B under 30 ft, where ASCE 7-16 allows to use lower exposure coefficient that previous codes used a more conservative values (resulted in higher design pressure). For the simplicity of the tables, the tables in the following sheet was populated using the more conservative ASCE 7-10 coefficients.

Table 4, 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 5, 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 6, 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 4, 5, and 6 are based on ASCE 7-10 and 7-16, and are consistent with the 2015/2018 IBC, and the 2017/2020 Florida Building Code.

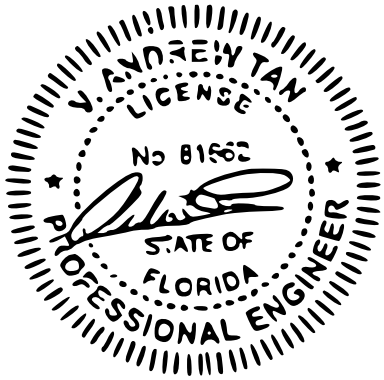


TABLE 7 - MAXIMUM WIND SPEEDS (MPH) HARDIEPLANK LAP SIDING[1]

								2017/2020 FBC (Ultimate Design Wind, Speed, V_{ult}[5,6]), 2018 IBC (Basic Design Wind Speed, V[6,8])			2017 FBC/ 2020 FBC/ 2018 IBC (Nominal Design Wind, Speed, V_{asd}[4,7,9])								
								Applicable to methods specified in Section 1609.1.1 of 2017 FBC, 2020 FBC or 2018 IBC, as applicable			Applicable to methods specified in Exceptions 1 through 3 of Section 1609.1.1 of 2017 FBC, 2020 FBC and 2018 IBC			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[2]	Fastener Spacing	Frame Type[10]	Fastener Spacing (inches)	Building Height[3] (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}
HardiePlank	5/16	5.25	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	268	243	221	207	188	171	-103.5	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	268	236	216	207	183	167	-103.5	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	268	231	212	207	179	164	-103.5	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	268	226	208	207	175	161	-103.5	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	262	223	205	203	173	159	-103.5	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	257	220	203	199	170	157	-103.5	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	253	217	201	196	168	155	-103.5	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	249	215	199	193	166	154	-103.5	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	246	213	197	190	165	153	-103.5	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	243	211	196	188	163	152	-103.5	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	201	178	167	156	138	130	-103.5	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	6.25	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	236	214	195	183	166	151	-80.6	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	236	208	190	183	161	147	-80.6	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	236	204	187	183	158	145	-80.6	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	236	200	184	183	155	142	-80.6	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	231	197	181	179	152	140	-80.6	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	227	194	179	176	150	139	-80.6	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	223	192	177	173	148	137	-80.6	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	220	189	175	170	147	136	-80.6	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	217	188	174	168	145	135	-80.6	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	214	186	173	166	144	134	-80.6	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	177	157	148	137	122	114	-80.6	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	7.25	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	213	193	175	165	150	136	-65.3	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	213	188	171	165	145	133	-65.3	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	213	184	168	165	142	130	-65.3	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	213	180	165	165	139	128	-65.3	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	208	177	163	161	137	126	-65.3	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	204	175	161	158	135	125	-65.3	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	201	172	159	156	134	124	-65.3	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	198	170	158	153	132	122	-65.3	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	195	169	157	151	131	121	-65.3	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	193	167	155	150	130	120	-65.3	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	160	142	133	124	110	103	-65.3	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	7.5	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	208	188	171	161	146	133	-62.3	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	208	183	167	161	142	130	-62.3	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	208	179	164	161	139	127	-62.3	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	208	176	161	161	136	125	-62.3	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	203	173	159	158	134	123	-62.3	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	199	170	157	154	132	122	-62.3	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	196	168	156	152	130	121	-62.3	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	193	166	154	150	129	119	-62.3	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	191	165	153	148	128	119	-62.3	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	188	163	152	146	127	118	-62.3	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	156	138	130	121	107	101	-62.3	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	8	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	198	180	164	154	139	127	-56.9	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	198	175	160	154	136	124	-56.9	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	198	171	157	154	133	122	-56.9	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	198	168	154	154	130	119	-56.9	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	194	165	152	151	128	118	-56.9	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	190	163	150	148	126	116	-56.9	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	187	161	149	145	125	115	-56.9	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	184	159	147	143	123	114	-56.9	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	182	158	146	141	122	113	-56.9	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	180	156	145	139	121	112	-56.9	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	149	132	124	115	102	96	-56.9	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

TABLE 7 - MAXIMUM WIND SPEEDS (MPH) HARDIEPLANK LAP SIDING[1]

								2017/2020 FBC (Ultimate Design Wind, Speed, V_{ult}[5,6]), 2018 IBC (Basic Design Wind Speed, V[6,8])			2017 FBC/ 2020 FBC/ 2018 IBC (Nominal Design Wind, Speed, V_{asd}[4,7,9])								
								Applicable to methods specified in Section 1609.1.1 of 2017 FBC, 2020 FBC or 2018 IBC, as applicable			Applicable to methods specified in Exceptions 1 through 3 of Section 1609.1.1 of 2017 FBC, 2020 FBC and 2018 IBC			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[2]	Fastener Spacing	Frame Type[10]	Fastener Spacing (inches)	Building Height[3] (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}
HardiePlank	5/16	8.25	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	194	176	160	150	136	124	-54.4	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	194	171	156	150	133	121	-54.4	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	194	168	153	150	130	119	-54.4	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	194	164	151	150	127	117	-54.4	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	190	162	149	147	125	115	-54.4	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	186	159	147	144	123	114	-54.4	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	183	157	146	142	122	113	-54.4	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	180	156	144	140	121	112	-54.4	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	178	154	143	138	119	111	-54.4	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	176	153	142	136	118	110	-54.4	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	146	129	121	113	100	94	-54.4	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	9.25	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	179	162	148	139	126	114	-46.3	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	179	158	144	139	122	112	-46.3	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	179	154	142	139	120	110	-46.3	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	179	151	139	139	117	108	-46.3	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	175	149	137	136	115	106	-46.3	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	172	147	136	133	114	105	-46.3	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	169	145	134	131	112	104	-46.3	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	166	143	133	129	111	103	-46.3	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	164	142	132	127	110	102	-46.3	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	162	141	131	126	109	101	-46.3	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	134	119	112	104	92	87	-46.3	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	9.5	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	176	159	145	136	123	112	-44.5	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	176	155	141	136	120	109	-44.5	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	176	152	139	136	117	108	-44.5	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	176	148	136	136	115	106	-44.5	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	172	146	135	133	113	104	-44.5	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	169	144	133	131	112	103	-44.5	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	166	142	132	128	110	102	-44.5	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	163	141	130	126	109	101	-44.5	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	161	139	129	125	108	100	-44.5	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	159	138	128	123	107	99	-44.5	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	132	117	-	102	91	-	-44.5	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	12	No. 8 x 1-5/8" long x 0.375" HD ribbed waferhead screws	Blind screwed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	12	0-15	148	134	122	115	104	94	-31.6	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	148	131	119	115	101	92	-31.6	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	148	128	117	115	99	91	-31.6	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	148	125	115	115	97	89	-31.6	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	145	123	113	112	95	88	-31.6	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	142	121	112	110	94	87	-31.6	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	140	120	111	108	93	86	-31.6	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	138	119	-	107	92	-	-31.6	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	136	118	-	105	91	-	-31.6	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	134	116	-	104	90	-	-31.6	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	111	-	-	86	-	-	-31.6	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	5.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	248	225	204	192	174	158	-88.7	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	248	219	199	192	169	155	-88.7	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	248	214	196	192	166	152	-88.7	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	248	209	192	192	162	149	-88.7	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	243	206	190	188	160	147	-88.7	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	238	203	188	184	157	145	-88.7	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	234	201	186	181	156	144	-88.7	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	230	199	184	178	154	143	-88.7	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	228	197	183	176	152	141	-88.7	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	225	195	181	174	151	140	-88.7	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	186	165	155	144	128	120	-88.7	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	6.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	222	201	183	172	156	142	-70.9	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	222	195	178	172	151	138	-70.9	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	222	191	175	172	148	136	-70.9	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	222	187	172	172	145	133	-70.9	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	217	185	170	168	143	132	-70.9	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	213	182	168	165	141	130	-70.9	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	209	180	166	162	139	129	-70.9	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	206	178	165	160	138	127	-70.9	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	204	176	163	158	136	126	-70.9	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	201	174	162	156	135	125	-70.9	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	166	148	139	129	114	107	-70.9	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	7.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	202	184	167	157	142	129	-59.1	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	202	178	163	157	138	126	-59.1	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	202	175	160	157	135	124	-59.1	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	202	171	157	157	132	122	-59.1	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	198	168	155	153	130	120	-59.1	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	194	166	153	150	129	119	-59.1	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	191	164	152	148	127	118	-59.1	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	188	162	150	146	126	116	-59.1	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	186	161	149	144	124	115	-59.1	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	184	159	148	142	123	115	-59.1	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	152	135	126	118	104	98	-59.1	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

TABLE 7 - MAXIMUM WIND SPEEDS (MPH) HARDIEPLANK LAP SIDING[1]

								2017/2020 FBC (Ultimate Design Wind, Speed, V_{ult}[5,6]), 2018 IBC (Basic Design Wind Speed, V[6,8])			2017 FBC/ 2020 FBC/ 2018 IBC (Nominal Design Wind, Speed, V_{asd}[4,7,9])								
								Applicable to methods specified in Section 1609.1.1 of 2017 FBC, 2020 FBC or 2018 IBC, as applicable			Applicable to methods specified in Exceptions 1 through 3 of Section 1609.1.1 of 2017 FBC, 2020 FBC and 2018 IBC			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[2]	Fastener Spacing	Frame Type[10]	Fastener Spacing (inches)	Building Height[3] (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}
HardiePlank	5/16	7.5	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	198	180	163	154	139	127	-56.8	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	198	175	160	154	135	124	-56.8	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	198	171	157	154	133	121	-56.8	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	198	168	154	154	130	119	-56.8	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	194	165	152	150	128	118	-56.8	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	190	163	150	147	126	116	-56.8	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	187	161	149	145	124	115	-56.8	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	184	159	147	143	123	114	-56.8	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	182	157	146	141	122	113	-56.8	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	180	156	145	139	121	112	-56.8	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	149	132	124	115	102	96	-56.8	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	8	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	191	173	157	148	134	122	-52.5	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	191	168	154	148	130	119	-52.5	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	191	165	151	148	128	117	-52.5	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	191	161	148	148	125	115	-52.5	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	187	159	146	145	123	113	-52.5	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	183	156	144	142	121	112	-52.5	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	180	155	143	140	120	111	-52.5	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	177	153	142	137	118	110	-52.5	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	175	151	141	136	117	109	-52.5	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	173	150	139	134	116	108	-52.5	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	143	127	119	111	98	92	-52.5	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	8.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	187	170	154	145	132	120	-50.7	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	187	165	151	145	128	117	-50.7	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	187	162	148	145	125	115	-50.7	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	187	158	146	145	123	113	-50.7	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	183	156	144	142	121	111	-50.7	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	180	154	142	139	119	110	-50.7	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	177	152	140	137	118	109	-50.7	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	174	150	139	135	116	108	-50.7	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	172	149	138	133	115	107	-50.7	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	170	147	137	132	114	106	-50.7	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	141	125	117	109	97	91	-50.7	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	9.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	175	159	144	136	123	112	-44.3	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	175	155	141	136	120	109	-44.3	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	175	151	139	136	117	107	-44.3	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	175	148	136	136	115	105	-44.3	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	172	146	134	133	113	104	-44.3	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	168	144	133	130	111	103	-44.3	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	165	142	131	128	110	102	-44.3	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	163	140	130	126	109	101	-44.3	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	161	139	129	125	108	100	-44.3	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	159	138	128	123	107	99	-44.3	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	132	117	-	102	90	-	-44.3	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	9.5	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	173	157	142	134	121	110	-43.0	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	173	152	139	134	118	108	-43.0	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	173	149	136	134	115	106	-43.0	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	173	146	134	134	113	104	-43.0	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	169	144	132	131	111	103	-43.0	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	166	142	131	128	110	101	-43.0	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	163	140	129	126	108	100	-43.0	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	160	138	128	124	107	99	-43.0	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	158	137	127	123	106	98	-43.0	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	157	136	126	121	105	98	-43.0	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	130	115	-	100	89	-	-43.0	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	12	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	8	0-15	151	137	125	117	106	97	-33.0	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	151	133	122	117	103	94	-33.0	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	151	130	119	117	101	93	-33.0	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	151	128	117	117	99	91	-33.0	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	148	126	116	115	97	90	-33.0	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	145	124	114	112	96	89	-33.0	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	143	123	113	111	95	88	-33.0	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	141	121	112	109	94	87	-33.0	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	139	120	111	108	93	86	-33.0	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	137	119	110	106	92	86	-33.0	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	114	-	-	88	-	-	-33.0	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	5.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	283	257	233	219	199	181	-115.8	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	283	250	228	219	193	177	-115.8	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	283	244	224	219	189	173	-115.8	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	283	239	220	219	185	170	-115.8	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	277	236	217	215	183	168	-115.8	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	272	232	215	211	180	166	-115.8	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	267	230	212	207	178	164	-115.8	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	263	227	210	204	176	163	-115.8	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	260	225	209	201	174	162	-115.8	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	257	223	207	199	173	160	-115.8	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	213	189	177	165	146	137	-115.8	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

TABLE 7 - MAXIMUM WIND SPEEDS (MPH) HARDIEPLANK LAP SIDING[1]

								2017/2020 FBC (Ultimate Design Wind, Speed, V_{ult}[5,6]), 2018 IBC (Basic Design Wind Speed, V[6,8])			2017 FBC/ 2020 FBC/ 2018 IBC (Nominal Design Wind, Speed, V_{asd}[4,7,9])								
								Applicable to methods specified in Section 1609.1.1 of 2017 FBC, 2020 FBC or 2018 IBC, as applicable			Applicable to methods specified in Exceptions 1 through 3 of Section 1609.1.1 of 2017 FBC, 2020 FBC and 2018 IBC			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[2]	Fastener Spacing	Frame Type[10]	Fastener Spacing (inches)	Building Height[3] (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}
HardiePlank	5/16	6.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	253	230	209	196	178	162	-92.6	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	253	223	204	196	173	158	-92.6	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	253	219	200	196	169	155	-92.6	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	253	214	197	196	166	152	-92.6	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	248	211	194	192	163	150	-92.6	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	243	208	192	188	161	149	-92.6	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	239	205	190	185	159	147	-92.6	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	235	203	188	182	157	146	-92.6	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	233	201	187	180	156	145	-92.6	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	230	199	185	178	154	143	-92.6	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	190	169	158	147	131	123	-92.6	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	7.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	231	210	191	179	163	148	-77.2	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	231	204	186	179	158	144	-77.2	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	231	200	183	179	155	142	-77.2	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	231	195	180	179	151	139	-77.2	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	226	192	177	175	149	137	-77.2	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	222	190	175	172	147	136	-77.2	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	218	187	173	169	145	134	-77.2	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	215	185	172	166	144	133	-77.2	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	212	184	170	164	142	132	-77.2	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	210	182	169	163	141	131	-77.2	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	174	154	145	135	119	112	-77.2	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	7.5	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	227	206	187	175	159	145	-74.1	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	227	200	182	175	155	141	-74.1	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	227	195	179	175	151	139	-74.1	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	227	191	176	175	148	136	-74.1	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	222	189	174	172	146	135	-74.1	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	217	186	172	168	144	133	-74.1	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	214	184	170	166	142	132	-74.1	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	211	182	168	163	141	130	-74.1	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	208	180	167	161	139	129	-74.1	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	206	178	166	159	138	128	-74.1	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	170	151	142	132	117	110	-74.1	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	8	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	218	198	180	169	153	139	-68.6	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	218	192	176	169	149	136	-68.6	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	218	188	172	169	146	133	-68.6	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	218	184	169	169	143	131	-68.6	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	213	181	167	165	141	130	-68.6	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	209	179	165	162	139	128	-68.6	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	206	177	163	159	137	127	-68.6	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	203	175	162	157	135	125	-68.6	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	200	173	161	155	134	124	-68.6	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	198	172	159	153	133	123	-68.6	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	164	145	136	127	112	106	-68.6	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	8.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	214	194	176	166	150	137	-66.0	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	214	189	172	166	146	133	-66.0	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	214	184	169	166	143	131	-66.0	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	214	181	166	166	140	129	-66.0	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	209	178	164	162	138	127	-66.0	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	205	175	162	159	136	125	-66.0	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	202	173	160	156	134	124	-66.0	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	199	171	159	154	133	123	-66.0	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	196	170	157	152	132	122	-66.0	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	194	168	156	150	130	121	-66.0	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	161	142	134	124	110	104	-66.0	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	9.25	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	200	182	165	155	141	128	-57.9	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	200	177	161	155	137	125	-57.9	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	200	173	158	155	134	123	-57.9	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	200	169	156	155	131	120	-57.9	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	196	167	154	152	129	119	-57.9	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	192	164	152	149	127	117	-57.9	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	189	162	150	146	126	116	-57.9	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	186	160	149	144	124	115	-57.9	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	184	159	148	142	123	114	-57.9	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	182	158	146	141	122	113	-57.9	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	150	133	125	117	103	97	-57.9	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18
HardiePlank	5/16	9.5	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	197	179	163	153	139	126	-56.2	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	197	174	159	153	135	123	-56.2	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	197	170	156	153	132	121	-56.2	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	197	167	153	153	129	119	-56.2	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	193	164	151	150	127	117	-56.2	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	189	162	149	147	125	116	-56.2	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	186	160	148	144	124	115	-56.2	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	183	158	146	142	122	113	-56.2	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	181	157	145	140	121	113	-56.2	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	179	155	144	139	120	112	-56.2	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	148	131	123	115	102	95	-56.2	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

TABLE 7 - MAXIMUM WIND SPEEDS (MPH) HARDIEPLANK LAP SIDING[1]

								2017/2020 FBC (Ultimate Design Wind, Speed, V_{ult}[5,6]), 2018 IBC (Basic Design Wind Speed, V[6,8])			2017 FBC/ 2020 FBC/ 2018 IBC (Nominal Design Wind, Speed, V_{asd}[4,7,9])								
								Applicable to methods specified in Section 1609.1.1 of 2017 FBC, 2020 FBC or 2018 IBC, as applicable			Applicable to methods specified in Exceptions 1 through 3 of Section 1609.1.1 of 2017 FBC, 2020 FBC and 2018 IBC			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[2]	Fastener Spacing	Frame Type[10]	Fastener Spacing (inches)	Building Height[3] (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}
HardiePlank	5/16	12	0.090" shank X 0.215" HD X 1.5" long ring shank nail	Blind nailed to WSP	2X4 wood or 20 ga. steel framing, 7/16" thick WSP sheathing	6	0-15	173	157	142	134	121	110	-43.1	0.7	0.85	1.03	h≤60	1	0.85	-1.4	0.18
							20	173	152	139	134	118	108	-43.1	0.7	0.9	1.08		1	0.85	-1.4	0.18
							25	173	149	137	134	115	106	-43.1	0.7	0.94	1.12		1	0.85	-1.4	0.18
							30	173	146	134	134	113	104	-43.1	0.7	0.98	1.16		1	0.85	-1.4	0.18
							35	169	144	132	131	111	103	-43.1	0.73	1.01	1.19		1	0.85	-1.4	0.18
							40	166	142	131	128	110	101	-43.1	0.76	1.04	1.22		1	0.85	-1.4	0.18
							45	163	140	130	126	108	100	-43.1	0.785	1.065	1.245		1	0.85	-1.4	0.18
							50	161	138	128	124	107	99	-43.1	0.81	1.09	1.27		1	0.85	-1.4	0.18
							55	159	137	127	123	106	99	-43.1	0.83	1.11	1.29		1	0.85	-1.4	0.18
							60	157	136	126	121	105	98	-43.1	0.85	1.13	1.31		1	0.85	-1.4	0.18
							100	130	115	-	101	89	-	-43.1	0.99	1.26	1.43	h>60	1	0.85	-1.8	0.18

1. Installation must be in accordance with siding manufacturer's instructions.
2. Fastener length shall be sufficient to penetrate back side of the WSP sheathing by at least 1/4" for nails and 3 full theads for screws.
3. 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).
4. V_{asd} = nominal design wind speed
5. V_{ult} = ultimate design wind speed
6. Wind speed design coefficient assumptions per Section 30.4 of ASCE 7-10 and ASCE 7-16: K_{zt}=1, K_d=0.85, GC_p=-1.4 (h≤60), GC_p=-1.8 (h>60), GC_{pi}=0.18.
7. 2017 and 2020 FBC Section 1609.3.1 Eq. 16-33, $V_{asd} = V_{ult}(0.6)^{0.5}$
8. V = basic design wind speed
9. 2018 IBC Section 1609.3.1 Eq. 16-33, $V_{asd} = V(0.6)^{0.5}$
10. WSP attachment to framing is the responsibility of the project engineer and must be designed to resist the required wind loads in the table.

LIMITATIONS OF USE:

1) In High Velocity Hurricane Zones (HVHZ) install per Miami-Dade County Florida, NOA 17-0406.06

