



EVALUATION SUBJECT

Artisan® Lap Siding

James Hardie Product Trade Names covered in this evaluation:
Artisan® Lap Siding

EVALUATION SCOPE:

ASCE 7-22 (referenced in 2023 FBC)
2023 Florida Building Code (8th Edition)

EVALUATION PURPOSE:

This analysis is to determine the maximum design 3-second gust wind speed to be resisted by an assembly of Artisan® Lap Siding fastened to wood with nails.

REFERENCE REPORTS:

1. QAI Test Report No. RJ8796P-1-R1, revision date 2/6/23.
2. QAI Test Report No. RJ8796P-2-R2, revision date 2/6/23.

TEST RESULTS:

Table 1A - Test Results and Analysis of Transverse Load Testing												
Report Number	RJ8796P-1				RJ8796P-2				Analysis for Installation into SPF Framing (SG = 0.42)			
Test Agency	QAI				QAI				Analysis for Installation into SPF Framing (SG = 0.42)			
Thickness (in.)	0.625				0.625				0.625			
Width (in.)	7.25	7.25	8.25	8.25	7.25	7.25	8.25	8.25	7.25	7.25	8.25	8.25
Frame Type	2X4 wood Framing (minimum SG= 0.44)				2X4 wood Framing (minimum SG= 0.42)				2X4 wood Framing (minimum SG= 0.42)			
Frame Spacing (in.)	16	24	16	24	16	24	16	24	16	24	16	24
Fastener Type	8d galv. smooth shank siding nails, 0.092" x 0.219" x 2.5"				8d galv. smooth shank siding nails, 0.092" x 0.219" x 2.5"				6d galv. smooth shank siding nails, 0.092" x 0.219" x 2.0"			
Fastening Method	Blind nail				Blind nail				Blind nail			
Ultimate Load (psf)	197.9	139.7	122.9	99.3	197.9	139.7	122.9	99.3	197.9	139.7	122.9	99.3
Design Load ² (psf)	66.0	46.6	41.0	33.1	66.0	46.6	41.0	33.1	66.0	46.6	41.0	33.1
Effective Tributary Area (sqft)	0.667	1.000	0.778	1.167	0.667	1.000	0.778	1.167	0.667	1.000	0.778	1.167
Fastener Load, as tested (lb/fastener)	44.0	46.6	31.9	38.6	44.0	46.6	31.9	38.6	44.0	46.6	31.9	38.6
NDS Allowable Fastener Withdrawal Capacity from Framing (from Table 1B below)	48.9	48.9	48.9	48.9	43.5	43.5	43.5	43.5	31.9	31.9	31.9	31.9
Fastener Load (as tested) exceeds NDS Allowable Fastener Withdrawal Capacity (Yes/No)	No	No	No	No	Yes	Yes	No	No	Yes	Yes	No	Yes
Adjusted Design Load ³ (psf)	No Adjustment	No Adjustment	No Adjustment	No Adjustment	65.3	43.5	No Adjustment	No Adjustment	47.9	31.9	No Adjustment	27.4

1. Artisan Lap Siding complies with ASTM C1186, *Standard Specification for Grade II, Type A Non-asbestos Fiber-Cement Flat Sheets*.
2. Allowable Design Load is the Ultimate Load divided by a Factor of safety of 3.
3. Adjusted Design Load is recalculated if allowable fastener load as tested exceeds the NDS withdrawal capacity for the fastener

Table 1B - Fastener Withdrawal Capacity into Wood (based in NDS-2018)				
Fastener Type	Fastener Penetration into Wood, P (in.)	Wood Specific Gravity, G	Nail Shank Dia., D (in.)	Calculated Reference Design Withdrawal Value, W' (lb.) ^{1,2}
8d galv. siding nail, 0.092" x 0.219 HD x 2.5"	1.875	0.44	0.092	48.9
8d galv. siding nail, 0.092" x 0.219 HD x 2.5"	1.875	0.42	0.092	43.5
6d galv. siding nail, 0.092" x 0.219 HD x 2.0"	1.375	0.42	0.092	31.9

1. Withdrawal values calculated per NDS Eq. 12.2-3 for smooth shank nails: $W' = C_d \times 1380 \times G^{2.5} \times D \times P$ where $C_d = 1.6$
2. Withdrawal values calculated per NDS Eq. 12.2-3 for deformed shank nails: $W' = C_d \times 1800 \times G^2 \times D \times P$ where $C_d = 1.6$

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/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 7-22 (Figures 26.5-1A to -1D), or the figures in the 2023 FBC as applicable.

Equation 1, $q_z = 0.00256 \cdot K_z \cdot K_{zt} \cdot K_e \cdot V^2$ (ref. ASCE 7-22, 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_e , ground elevation factor, permitted to take $K_e = 1.0$ for all elevations
 V , basic wind speed (3-second gust MPH) as determined from:
ASCE 7-22 Figures 26.5-1A, B, C, or D
2023 FBC Figures 1609.3(1) -1609.3(4)

Equation 2,

$$V = V_{ult}$$

V_{ult} , ultimate design wind speeds (3-second gust MPH) determined from 2023 FBC Figures 1609.3(1) - 1609.3(4)

Equation 3,

$$p = q_h K_d (G C_p - G C_{pi}) \quad h \leq 60 \text{ ft}$$

q_h , velocity pressure evaluated at mean roof height h

$G C_p$, product of external pressure coefficient and gust-effect factor

$G C_{pi}$, product of internal pressure coefficient and gust-effect factor

K_d , wind directionality factor

p , design pressure (PSF) for siding (allowable design load for siding)

{ref. ASCE 7-22 Eq. 30.3-1}

{ref. ASCE 7-22 Section 26.10}

{ref. ASCE 7-22 Figure 30.3-1 for walls}

{ref. ASCE 7-22 Table 26.13-1}

{ref. ASCE 7-22 Section 26.6}

To determine design pressure p , substitute q_h into Equation 3.

Equation 4,

$$p = 0.00256 K_z K_{xt} K_d K_e V_{ult}^{2.5} (G C_p - G C_{pi})$$

Allowable Stress Design, ASCE 7-22 Section 2.4.1, load combination 7,

Equation 5,

$$0.6D + 0.6W$$

D , dead load

W , wind load (load due to wind pressure)

{ref. ASCE 7-22 section 2.4.1, load combination 7}

To determine the Allowable Stress Design Pressure, apply the load factor for W (wind) from Equation 5 to p (design pressure) determined from equation 4

Equation 6,

$$p_{asd} = 0.6 [p]$$

Equation 7,

$$p_{asd} = 0.6 [0.00256 K_z K_{xt} K_d K_e V^2 (G C_p - G C_{pi})]$$

Equation 7 is used to populate Table 4, 5, and 6.

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

Equation 8,

$$V_{ult} = (p_{asd} / 0.6 * 0.00256 * K_z * K_{xt} * K_d * K_e * V^2 (G C_p - G C_{pi}))^{0.5}$$

Applicable to methods specified in Exceptions 1 through 3 of [2023 FBC] Section 1609.1.1., to determine the allowable nominal design wind speed (V_{asd}) in Table 6, apply the conversion formula below,

Equation 9,

$$V_{asd} = V_{ult} * (0.6)^{0.5}$$

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

V_{ult} , Ultimate design wind speed (3-second gust, mph) determined from Figure 1609.3(1), 1609.3(2), 1609.3(3) or 1609.3(4)

{ref. 2023 FBC Eq. 16-17}

Table 2 - Coefficients and Constants used in Determining V and p.										
	K _z								Wall Zone 5	
Height (ft)	Exp B (ASCE 7-22)	Exp B	Exp C	Exp D		K _{zt}	K _d	K _e	GC _p	GC _{pi}
0-15	0.57	0.70	0.85	1.03	h≤60	1	0.85	1	-1.4	0.18
20	0.62	0.70	0.90	1.08		1	0.85	1	-1.4	0.18
25	0.66	0.70	0.94	1.12		1	0.85	1	-1.4	0.18
30	0.70	0.70	0.98	1.16		1	0.85	1	-1.4	0.18
35	0.72	0.72	1.01	1.19		1	0.85	1	-1.4	0.18
40	0.74	0.74	1.04	1.22		1	0.85	1	-1.4	0.18
45	0.765	0.765	1.065	1.245		1	0.85	1	-1.4	0.18
50	0.79	0.79	1.09	1.27		1	0.85	1	-1.4	0.18
55	0.81	0.81	1.11	1.29		1	0.85	1	-1.4	0.18
60	0.83	0.83	1.13	1.31		1	0.85	1	-1.4	0.18
100	0.95	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18

The coefficients and constants listed in Table 2 above were consistent for ASCE 7-22 except for K_z at Exposure B under 30 ft, where ASCE 7-22 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 3 - Allowable Stress Design Pressure P_{asd} for Component and Cladding (C&C) to be Resisted at Various Wind Speeds for 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)	Wind Exposure Category 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	-14.9	-16.4	-18.0	-19.6	-21.4	-25.1	-29.1	-33.4	-38.0	-42.9	-48.1	-53.6	-59.4	-65.5
40	-15.3	-16.8	-18.5	-20.2	-22.0	-25.8	-29.9	-34.3	-39.1	-44.1	-49.5	-55.1	-61.1	-67.3
45	-15.8	-17.4	-19.1	-20.9	-22.7	-26.7	-30.9	-35.5	-40.4	-45.6	-51.1	-57.0	-63.1	-69.6
50	-16.3	-18.0	-19.7	-21.6	-23.5	-27.5	-31.9	-36.7	-41.7	-47.1	-52.8	-58.8	-65.2	-71.9
55	-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
60	-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
100	-24.6	-27.1	-29.7	-32.5	-35.4	-41.5	-48.1	-55.3	-62.9	-71.0	-79.6	-88.7	-98.2	-108.3

Table 4 - Allowable Stress Design Pressure P_{asd} for Component and Cladding (C&C) to be Resisted at Various Wind Speeds for 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)	Wind Exposure Category 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 Pressure P_{asd} for Component and Cladding (C&C) to be Resisted at Various Wind Speeds for 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)	Wind Exposure Category 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 7-22, and consistent with the 2023 FBC.

Wind Speed Calculation Example:

The following is an example of the wind speed calculation for Table 6:

$$P_{asd} = -41.0 \text{ psf}; K_z = 0.7 \text{ (Exp B)}; K_{zt} = 1; K_d = 0.85; K_e = 1; GC_p = -1.4; GC_{pi} = 0.18$$

Use Equation 6:

$$V = V_{ult} = \sqrt{\frac{P_{asd}}{0.6 \times 0.00256 \times K_z \times K_{zt} \times K_d \times K_e \times (GC_p - GC_{pi})}} = \sqrt{\frac{-41.0}{0.6 \times 0.00256 \times 0.7 \times 1 \times 0.85 \times 1 \times (-1.4 - 0.18)}} = 168 \text{ mph}$$

Use Equation 7:

$$V_{asd} = V \times \sqrt{0.6} = 168 \times \sqrt{0.6} = 130 \text{ mph}$$

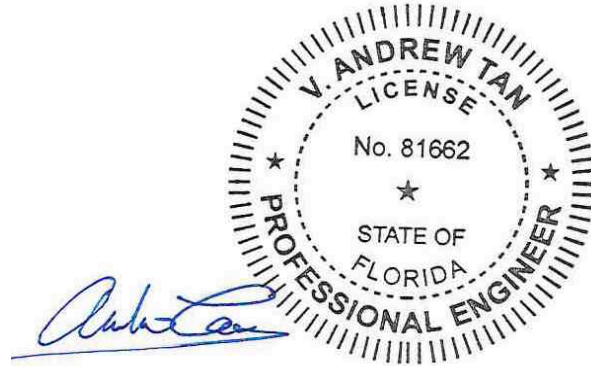


TABLE 6 - MAXIMUM WIND SPEED (mph) FOR ARTISAN LAP SIDINGS⁷

TABLE 6 - MAXIMUM WIND SPEED (mph) FOR ARTISAN LAP SIDINGS ⁷																								
								2023 FBC (Ultimate Design Wind Speed, V _{ult} ⁴)			2023 FBC (Nominal Design Wind, Speed, V _{asd} ^{3,6})			Coefficients used for calculations ⁵										
								Applicable to methods specified in Section 1609.1.1. of 2023 FBC			Applicable to methods specified in Exceptions 1 through 3 of Section 1609.1.1 of 2023 FBC													
								Wind exposure category			Wind exposure category													
Product	Product Thickness (inches)	Width (inches)	Fastener Type	Fastener Spacing	Frame Type	Stud Spacing (inches)	Building Height ² (feet)	B	C	D	B	C	D	Design Load (PSF)	K _z				K _{zt}	K _d	K _e	GC _p	GC _{pi}	
															Exp B	Exp C	Exp D							
Artisan® Lap Siding	5/8	8.25	6d galv. smooth shank siding nails, 0.092" x 0.219" x 2.0"	Blind nail	2X4 Wood, SG ≥ 0.42	16	0-15	168	153	139	130	118	108	-41.0	0.70	0.85	1.03	hs60	1	0.85	1	-1.4	0.18	
							20	168	149	136	130	115	105	-41.0	0.70	0.9	1.08		1	0.85	1	-1.4	0.18	
							25	168	145	133	130	113	103	-41.0	0.70	0.94	1.12		1	0.85	1	-1.4	0.18	
							30	168	142	131	130	110	101	-41.0	0.70	0.98	1.16		1	0.85	1	-1.4	0.18	
							35	166	140	129	129	109	100	-41.0	0.72	1.01	1.19		1	0.85	1	-1.4	0.18	
							40	164	138	128	127	107	99	-41.0	0.74	1.04	1.22		1	0.85	1	-1.4	0.18	
							45	161	137	126	125	106	98	-41.0	0.77	1.07	1.25		1	0.85	1	-1.4	0.18	
							50	159	135	125	123	105	97	-41.0	0.79	1.09	1.27		1	0.85	1	-1.4	0.18	
							55	157	134	124	121	104	96	-41.0	0.81	1.11	1.29		1	0.85	1	-1.4	0.18	
							60	155	133	123	120	103	95	-41.0	0.83	1.13	1.31		1	0.85	1	-1.4	0.18	
Artisan® Lap Siding	5/8	8.25	6d galv. smooth shank siding nails, 0.092" x 0.219" x 2.0"	Blind nail	2X4 Wood, SG ≥ 0.42	24	100	129	112	-	100	87	-	-41.0	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18	
							0-15	138	125	113	107	97	88	-27.4	0.70	0.85	1.03	hs60	1	0.85	1	-1.4	0.18	
							20	138	121	111	107	94	86	-27.4	0.70	0.9	1.08		1	0.85	1	-1.4	0.18	
							25	138	119	-	107	92	-	-27.4	0.70	0.94	1.12		1	0.85	1	-1.4	0.18	
							30	138	116	-	107	90	-	-27.4	0.70	0.98	1.16		1	0.85	1	-1.4	0.18	
							35	136	115	-	105	89	-	-27.4	0.72	1.01	1.19		1	0.85	1	-1.4	0.18	
							40	134	113	-	104	87	-	-27.4	0.74	1.04	1.22		1	0.85	1	-1.4	0.18	
							45	132	112	-	102	86	-	-27.4	0.77	1.07	1.25		1	0.85	1	-1.4	0.18	
							50	130	110	-	100	85	-	-27.4	0.79	1.09	1.27		1	0.85	1	-1.4	0.18	
							55	128	-	-	99	-	-	-27.4	0.81	1.11	1.29		1	0.85	1	-1.4	0.18	
Artisan® Lap Siding	5/8	7.25	6d galv. smooth shank siding nails, 0.092" x 0.219" x 2.0"	Blind nail	2X4 Wood, SG ≥ 0.42	16	60	126	-	-	98	-	-	-27.4	0.83	1.13	1.31		1	0.85	1	-1.4	0.18	
							100	-	-	-	-	-	-	-27.4	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18	
							0-15	182	165	150	141	128	116	-47.9	0.70	0.85	1.03	hs60	1	0.85	1	-1.4	0.18	
							20	182	161	147	141	124	114	-47.9	0.70	0.9	1.08		1	0.85	1	-1.4	0.18	
							25	182	157	144	141	122	112	-47.9	0.70	0.94	1.12		1	0.85	1	-1.4	0.18	
							30	182	154	141	141	119	110	-47.9	0.70	0.98	1.16		1	0.85	1	-1.4	0.18	
							35	180	152	140	139	117	108	-47.9	0.72	1.01	1.19		1	0.85	1	-1.4	0.18	
							40	177	149	138	137	116	107	-47.9	0.74	1.04	1.22		1	0.85	1	-1.4	0.18	
							45	174	148	137	135	114	106	-47.9	0.77	1.07	1.25		1	0.85	1	-1.4	0.18	
							50	171	146	135	133	113	105	-47.9	0.79	1.09	1.27		1	0.85	1	-1.4	0.18	
Artisan® Lap Siding	5/8	7.25	6d galv. smooth shank siding nails, 0.092" x 0.219" x 2.0"	Blind nail	2X4 Wood, SG ≥ 0.42	24	55	169	145	134	131	112	104	-47.9	0.81	1.11	1.29		1	0.85	1	-1.4	0.18	
							60	167	143	133	130	111	103	-47.9	0.83	1.13	1.31		1	0.85	1	-1.4	0.18	
							100	140	121	114	108	94	88	-47.9	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18	
							0-15	149	135	123	115	105	95	-31.9	0.70	0.85	1.03	hs60	1	0.85	1	-1.4	0.18	
							20	149	131	120	115	102	93	-31.9	0.70	0.9	1.08		1	0.85	1	-1.4	0.18	
							25	149	128	118	115	99	91	-31.9	0.70	0.94	1.12		1	0.85	1	-1.4	0.18	
							30	149	126	116	115	97	89	-31.9	0.70	0.98	1.16		1	0.85	1	-1.4	0.18	
							35	147	124	114	114	96	88	-31.9	0.72	1.01	1.19		1	0.85	1	-1.4	0.18	
							40	145	122	113	112	94	87	-31.9	0.74	1.04	1.22		1	0.85	1	-1.4	0.18	
							45	142	121	112	110	93	86	-31.9	0.77	1.07	1.25		1	0.85	1	-1.4	0.18	
Artisan® Lap Siding	5/8	8.25	8d galv. smooth shank siding nails, 0.092" x 0.219" x 2.5"	Blind nail	2X4 Wood, SG ≥ 0.42	24	50	140	119	110	108	92	86	-31.9	0.79	1.09	1.27		1	0.85	1	-1.4	0.18	
							55	138	118	-	107	91	-	-31.9	0.81	1.11	1.29		1	0.85	1	-1.4	0.18	
							60	137	117	-	106	91	-	-31.9	0.83	1.13	1.31		1	0.85	1	-1.4	0.18	
							100	114	-	-	88	-	-	-31.9	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18	
							0-15	151	137	125	117	106	97	-33.1	0.70	0.85	1.03	hs60	1	0.85	1	-1.4	0.18	
							20	151	134	122	117	103	94	-33.1	0.70	0.9	1.08		1	0.85	1	-1.4	0.18	
							25	151	131	120	117	101	93	-33.1	0.70	0.94	1.12		1	0.85	1	-1.4	0.18	
							30	151	128	118	117	99	91	-33.1	0.70	0.98	1.16		1	0.85	1	-1.4	0.18	
							35	149	126	116	116	98	90	-33.1	0.72	1.01	1.19		1	0.85	1	-1.4	0.18	
							40	147	124	115	114	96	89	-33.1	0.74	1.04	1.22		1	0.85	1	-1.4	0.18	
45	145	123	114	112	95	88	-33.1	0.77	1.07	1.25		1	0.85	1	-1.4	0.18								
Artisan® Lap Siding	5/8	8.25	8d galv. smooth shank siding nails, 0.092" x 0.219" x 2.5"	Blind nail	2X4 Wood, SG ≥ 0.42	24	50	143	121	112	110	94	87	-33.1	0.79	1.09	1.27		1	0.85	1	-1.4	0.18	
							55	141	120	112	109	93	86	-33.1	0.81	1.11	1.29		1	0.85	1	-1.4	0.18	
							60	139	119	111	108	92	86	-33.1	0.83	1.13	1.31		1	0.85	1	-1.4	0.18	
							100	116	-	-	90	-	-	-33.1	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18	

TABLE 6 - MAXIMUM WIND SPEED (mph) FOR ARTISAN LAP SIDINGS¹

TABLE 6 - MAXIMUM WIND SPEED (mph) FOR ARTISAN LAP SIDINGS ⁷																								
								2023 FBC (Ultimate Design Wind Speed, V _{ult} ⁴)			2023 FBC (Nominal Design Wind, Speed, V _{asd} ^{3,6})													
								Applicable to methods specified in Section 1609.1.1. of 2023 FBC			Applicable to methods specified in Exceptions 1 through 3 of Section 1609.1.1 of 2023 FBC													
								Wind exposure category			Wind exposure category			Design Load (PSF)		Coefficients used for calculations ⁵								
Product	Product Thickness (inches)	Width (inches)	Fastener Type	Fastener Spacing	Frame Type	Stud Spacing (inches)	Building Height ² (feet)	B	C	D	B	C	D			Exp B	Exp C	Exp D						
Artisan® Lap Siding	5/8	7.25	8d galv. smooth shank siding nails, 0.092" x 0.219" x 2.5"	Blind nail	2X4 Wood, SG ≥ 0.42	16	0-15	213	193	175	165	149	136	-65.3	0.70	0.85	1.03	hs60	1	0.85	1	-1.4	0.18	
							20	213	188	171	165	145	133	-65.3	0.70	0.9	1.08		1	0.85	1	-1.4	0.18	
							25	213	184	168	165	142	130	-65.3	0.70	0.94	1.12		1	0.85	1	-1.4	0.18	
							30	213	180	165	165	139	128	-65.3	0.70	0.98	1.16		1	0.85	1	-1.4	0.18	
							35	210	177	163	162	137	126	-65.3	0.72	1.01	1.19		1	0.85	1	-1.4	0.18	
							40	207	174	161	160	135	125	-65.3	0.74	1.04	1.22		1	0.85	1	-1.4	0.18	
							45	203	172	159	158	134	124	-65.3	0.77	1.07	1.25		1	0.85	1	-1.4	0.18	
							50	200	170	158	155	132	122	-65.3	0.79	1.09	1.27		1	0.85	1	-1.4	0.18	
							55	198	169	157	153	131	121	-65.3	0.81	1.11	1.29		1	0.85	1	-1.4	0.18	
							60	195	167	155	151	130	120	-65.3	0.83	1.13	1.31		1	0.85	1	-1.4	0.18	
							100	163	142	133	126	110	103	-65.3	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18	
Artisan® Lap Siding	5/8	7.25	8d galv. smooth shank siding nails, 0.092" x 0.219" x 2.5"	Blind nail	2X4 Wood, SG ≥ 0.42	24	0-15	174	158	143	135	122	111	-43.5	0.70	0.85	1.03	hs60	1	0.85	1	-1.4	0.18	
							20	174	153	140	135	119	108	-43.5	0.70	0.9	1.08		1	0.85	1	-1.4	0.18	
							25	174	150	137	135	116	106	-43.5	0.70	0.94	1.12		1	0.85	1	-1.4	0.18	
							30	174	147	135	135	114	104	-43.5	0.70	0.98	1.16		1	0.85	1	-1.4	0.18	
							35	171	145	133	133	112	103	-43.5	0.72	1.01	1.19		1	0.85	1	-1.4	0.18	
							40	169	142	132	131	110	102	-43.5	0.74	1.04	1.22		1	0.85	1	-1.4	0.18	
							45	166	141	130	129	109	101	-43.5	0.77	1.07	1.25		1	0.85	1	-1.4	0.18	
							50	163	139	129	127	108	100	-43.5	0.79	1.09	1.27		1	0.85	1	-1.4	0.18	
							55	161	138	128	125	107	99	-43.5	0.81	1.11	1.29		1	0.85	1	-1.4	0.18	
							60	159	137	127	124	106	98	-43.5	0.83	1.13	1.31		1	0.85	1	-1.4	0.18	
							100	133	116	-	103	90	-	-43.5	0.95	1.26	1.43	h>60	1	0.85	1	-1.8	0.18	

1. Installation must be in accordance with siding manufacturer's instructions.
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. V_{asd} = nominal design wind speed
4. V_{ult} = ultimate design wind speed
5. Wind speed design coefficient assumptions per Section 30.4 of ASCE 7-22: $K_{zt}=1$, $K_d=0.85$, $K_e=1$; $GC_p=-1.4$ (h≤60), $GC_p=-1.8$ (h>60), $GC_{pi}=0.18$.
6. 2023 FBC Section 1609.3.1 Eq. 16-17, $V_{asd} = V_{ult}(0.6)^{0.5}$

LIMITATIONS OF USE:

Fastener pull out must be evaluated when installed with species of wood studs other than that which was tested.

