

Issue Date: 10-31-2016
Revision Date: 10-25-2019
Renewal Date: 10-31-2020

DIVISION: 07 00 00 -THERMAL AND MOISTURE PROTECTION
Section: 07 45 00 – Fiber-reinforced Cementitious Panels

REPORT HOLDER:

Nichiha USA Inc.
6465 E. Johns Crossing, Suite 250
Johns Creek, Georgia 30097
www.nichiha.com

REPORT SUBJECT:

NichiProducts™ Fiber-Cement Siding Products

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2018, 2015, and 2012 *International Building Code*® (IBC)
- 2018, 2015, and 2012 *International Residential Code*® (IRC)
- 2017 *Florida Building Code – Building* (FBC) and *Residential* (FRC) (including HVHZ) (see Section 9)
- 2016 *California Building Code – Building* (CBC) and *Residential* (CRC) (see Section 9)

NOTE: This report references 2018 International Code sections. Section numbers for the 2015 IBC, 2017 FBC and 2016 CBC are noted in parentheses where different.

1.2 The NichiProducts™ siding products described in this report have been evaluated for the following properties (see Table 1):

- Physical properties
- Wind resistance
- Surface burning characteristics
- Noncombustibility
- Weather protection

1.3 The NichiProducts™ siding products have been evaluated for the following uses (see Table 1):

- Use as an exterior wall covering in accordance with IBC Section 1405.16 and IRC Section R703.10.
- Use on exterior walls in Types I, II, III, and IV construction

- Use on exterior walls permitted to be of Type V construction.

2.0 STATEMENT OF COMPLIANCE

The NichiProducts™ siding products recognized in this report comply with the Codes listed in Section 1.1, for the properties stated in Section 1.2, and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.

3.0 DESCRIPTION

3.1 NichiProducts™ Fiber Cement Siding Products:

The siding products are used for lap and panel siding. A description of the siding products, their dimensions and their intended application is in Table 2.

4.0 PERFORMANCE CHARACTERISTICS

4.1 Physical Properties: The siding products comply with ASTM C1186, Type A, Grade II, in accordance with 2018 IBC Section 1403.10 [1404.10] and IRC Section R703.10.

4.2 Wind Resistance: The maximum allowable wind pressure for each of the siding products is described in Tables 3, 4, 5 and 6.

4.3 Surface Burning Characteristics: The siding products have a flame spread index of 0 and a smoke-developed index of 0, when tested in accordance with ASTM E84.

4.4 Noncombustibility: The siding products are noncombustible building construction materials complying with IBC Section 703.5 as determined by testing in accordance with ASTM E136.

4.5 Weather Protection: Siding products are installed in accordance with Section 5.2 of this report.

4.6 Fire-resistance-rated Construction: Fire-resistance-rated construction is outside the scope of this report.



5.0 INSTALLATION

5.1 General:

The siding must be installed in accordance with the Nichiha USA Inc., published installation instructions, the applicable Code, and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation.

5.2 Application:

Under the 2018 IBC, the siding products must be installed over a water-resistive barrier complying with Sections 1403.2 [1404.2] and 1402.5 [1403.5] and must be attached as described for the specific assembly in Tables 3, 4, 5, 6, 7, and 8.

Under the IRC, the siding products must be installed over a water-resistive barrier complying with Section R703.2. Lap siding and panel siding may be installed as described in Table R703.3(1), for areas in which the design pressure does not exceed 30 pounds per square foot and the mean roof height does not exceed the limits in Table R703.3.1, or as described in Tables 3 through 6. For conditions that exceed these limits, the panels must be installed as described in Table 9.

6.0 CONDITIONS OF USE

6.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict, this report governs.

6.2 When allowable wind speed is determined in accordance with Table 3, the allowable wind speed must be equal to or greater than the design wind speed calculated in accordance with the applicable Code.

6.3 When the wall construction includes a combustible water-resistive barrier and is required to be of Type I, II, III, or IV construction, use of the siding products is limited to a maximum 40 feet in height above grade plane except under the 2018 [2015] IBC where data has been presented to the building official demonstrating compliance with the Exception to Section 1402.5 [1403.5].

6.4 The NichiProducts™ siding products are produced under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Reports of tests in accordance with ASTM C1186, ASTM E84, ASTM E136, and ASTM E330.

7.2 Intertek Listing Report "Nichiha USA, Inc. - NichiProducts™ Fiber-Cement Siding Products" on the [Intertek Directory of Building Products](#).

7.3 Documentation of an Intertek approved quality control system for the manufacturing of products recognized in this report.

8.0 IDENTIFICATION

The NichiProducts™ siding products are identified with the Nichiha USA Inc., name, and address, the product name, the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0258).



9.0 OTHER CODES

9.1 California Building Code

9.1.1 Scope of Evaluation:

The NichiProducts™ siding products were evaluated for compliance with the 2016 California Building Code, including Chapter 7A. The siding products are noncombustible materials as defined in CBC Section 202 and as permitted for use on exterior walls in CBC Section 707A.3.

9.1.2 Conclusion:

The siding products, described in Sections 2.0 through 7.0 of this report, comply with the 2016 California Building Code, subject to the conditions noted in Section 6.0 of this report. Section numbers for the CBC – Building and Residential correspond to the 2015 IBC and IRC section numbers.





9.2 Florida Building Code

9.2.1 Scope of Evaluation:

The NichiProducts™ siding products were evaluated for compliance with the 2017 *Florida Building Code – Building* and *Florida Building Code – Residential*.

9.2.2 Conclusion:

The siding products described in Sections 2.0 through 7.0 of this report, comply with the 2017 *Florida Building Code – Building* and *Florida Building Code – Residential*, subject to the following conditions:

- Use of the NichiProducts Siding in Types I, II, III or IV construction, is as permitted in *Florida Building Code – Building*, Section 1406.2.1.
- Attachment of NichiProducts for compliance with the High-Velocity Hurricane Zone (HVHZ) provisions of the 2017 *Florida Building Code – Building* and the *Florida Building Code – Residential* is described in Table 8 of this report.
- In HVHZ applications, the NichiProducts siding must be installed over CBS construction or 5/8 in. (5-Ply) plywood

supported by 2 by 6 wood or No. 18 gage metal studs, spaced at 16 inches on center.

- Section numbers for the FBC – Building and Residential correspond to the 2015 IBC and IRC section numbers.
- Intertek is an approved *evaluation entity* and *quality assurance entity* pursuant to Florida Statute 553.842 – *Product Evaluation and Approval*.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

10.3 Reference to the <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

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TABLE 1 – PROPERTIES EVALUATED

PROPERTY	2018 and 2015 IBC SECTION ¹	2018 and 2015 IRC SECTION ¹	2017 FBC – Building ¹	2017 FBC – Residential ¹	2016 CBC ¹
Physical properties	1403.10 [1404.10]	R703.10	1404.10	R703.10	1404.10
Surface burning characteristics	1403.10 [1404.10]	R703.10	1404.10	R703.10	1404.10
Noncombustibility	703.5	NA	703.5	NA	202, 703.5
Wind resistance	1404.16 [1405.16]	R703.16	1405.16	703.1.2	1405.16
Weather resistance	1403.2 [1404.2]	R703.2	1404.2	R703.2	1404.2

¹ Section numbers may be different for earlier versions of the International, California, and Florida Codes.

TABLE 2 – NICHIIHA SIDING DESCRIPTION

Product Name	Nominal Thickness (in.)	Siding Dimensions	Intended Use	Description
NichiBoard™ plank	5/16	Width: 5.25, 6.25, 7.25, 8.25, 9.25 and 12 inches Length: 12 feet	Lap siding	Smooth or Cedar finish
NichiPanel™ sheets	5/16	4 feet by 8 feet 4 feet by 10 feet 4 feet by 12 feet	Panel siding	Cedar, Smooth, Stucco and Grooved- 8-in.-oc- Cedar finish
NichiStraight™ and NichiStaggered™ lap panels	5/16	16 inches wide by 4 foot long	Lap panel siding	Designed to look like individual cedar shakes
NichiShake™ cladding	5/16	Width: 6.25, 8.25 and 12 inches Length: 18 inches	Lap shingle siding	Designed to look like individual cedar shakes
NichiSoffit™	1/4	12, 16 inches wide by 12 feet long; 24, 48 inches wide by 8 feet long	Soffit	Vented or Nonvented; Smooth or Cedar finish



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Table 3 - Design Loads for Negative Transverse Wind Load (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
5.25" / 6.25" NichiBoard™	6d Double HD MAZE Coil Nail	Face	16	5.25/6.25	SPF	-49.5	15	143	130	118	185	168	153
							20	143	126	115	185	163	149
							25	143	124	113	185	160	146
							30	143	121	111	185	156	144
							40	138	118	109	178	152	140
							50	133	115	106	172	148	137
			60	130	113	105	168	146	135				
			15	170	162	147	210	209	190				
			20	170	157	144	210	203	185				
			25	170	154	141	210	199	182				
			30	170	151	139	210	195	179				
			40	170	146	135	210	189	174				
		50	166	143	132	210	184	171					
		60	162	140	130	209	181	168					
		15	117	106	97	151	137	125					
		20	117	103	94	151	133	122					
		25	117	101	93	151	130	119					
		30	117	99	91	151	128	117					
		40	112	96	89	145	124	114					
		50	109	94	87	141	121	112					
		60	106	92	86	137	119	110					
		15	146	132	120	188	171	155					
		20	146	128	117	188	166	151					
		25	146	126	115	188	162	149					
30	146	123	113	188	159	146							
40	140	119	110	180	154	142							
50	135	117	108	175	151	140							
60	132	115	106	171	148	137							
5.25" / 6.25" NichiBoard™	MAZE 8d nail – 2-1/2 inches long, 0.279-inch dia. head, 0.123-inch dia. shank	Face	16	5.25/6.25	SPF	-85	15	170	170	155	210	210	200
							20	170	166	151	210	210	195
							25	170	162	148	210	209	191
							30	170	159	146	210	205	188
							40	170	154	142	210	199	184
							50	170	150	140	210	194	180
60	170	147	137	210	190	177							
5.25" / 6.25" NichiBoard™	6d Double HD MAZE Coil Nail	Blind	16	5.25/6.25	SPF	-35.1	15	121	110	100	156	142	129
							20	121	107	97	156	138	126
							25	121	104	96	156	135	123
							30	121	102	94	156	132	121
							40	116	99	92	150	128	118
							50	112	97	90	145	125	116
			60	110	95	88	142	123	114				
			15	99	90	--	127	116	--				
			20	99	87	--	127	112	--				
			25	99	85	--	127	110	--				
			30	99	--	--	127	108	--				
			40	95	--	--	122	--	--				
		50	92	--	--	118	--	--					
		60	90	--	--	116	--	--					





Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
5.25" / 6.25" NichiBoard™	Double HD MAZE Asphalt & Fiberglass Shingle Nail	Blind	12	5.25/6.25	7/16" OSB	-41.0	15	130	118	108	168	153	139
							20	130	115	105	168	149	136
							25	130	113	103	168	145	133
							30	130	110	101	168	142	131
							40	125	107	99	162	138	128
							50	121	105	97	157	135	125
			16	5.25/6.25	7/16" OSB	-30.7	15	113	103	93	146	132	120
							20	113	100	91	146	129	117
							25	113	98	89	146	126	115
							30	113	96	88	146	123	113
							40	108	93	86	140	120	111
							50	105	91	--	136	117	108
			16	5.25/6.25	SPF	-56.1	60	103	89	--	132	115	107
							15	153	139	126	197	179	163
							20	153	135	123	197	174	159
							25	153	132	121	197	170	156
							30	153	129	119	197	167	153
							40	147	125	116	189	162	149
			24	5.25/6.25	7/16" OSB	-20.5	50	142	122	113	183	158	146
							60	139	120	112	179	155	144
							15	92	--	--	119	108	--
							20	92	--	--	119	105	--
							25	92	--	--	119	--	--
							30	92	--	--	119	--	--
24	5.25/6.25	SPF	-37.4	40	89	--	--	114	--	--			
				50	86	--	--	111	--	--			
				60	--	--	--	108	--	--			
				15	125	113	103	161	146	133			
				20	125	110	100	161	142	130			
				25	125	108	99	161	139	127			
5.25" / 6.25" NichiBoard™	Aerosmith Fastening Systems, VersaPin	Face	16	5.25/6.25	20 GA Steel	-136.3	30	125	105	97	161	136	125
							40	120	102	94	154	132	122
							50	116	100	93	150	129	119
							60	113	98	91	146	127	118
							15	170	170	170	210	210	210
							20	170	170	170	210	210	210
		24	5.25/6.25	20 GA Steel	-90.9	25	170	170	170	210	210	210	
						30	170	170	170	210	210	210	
						40	170	170	170	210	210	210	
						50	170	170	170	210	210	210	
						60	170	170	170	210	210	210	
						15	170	170	160	210	210	207	
		Blind	5.25/6.25	20 GA Steel	-27.5	20	170	170	156	210	210	202	
						25	170	168	154	210	210	198	
						30	170	164	151	210	210	195	
						40	170	159	147	210	206	190	
						50	170	156	144	210	201	186	
						60	170	153	142	210	197	183	
Blind	5.25/6.25	20 GA Steel	-27.5	15	107	97	88	138	125	114			
				20	107	94	86	138	122	111			
				25	107	92	--	138	119	109			
				30	107	90	--	138	117	107			
				40	103	88	--	132	113	--			
				50	99	86	--	128	111	--			
60	97	--	--	125	109	--							



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Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
7.25" NichiBoard™	6d Double HD MAZE Coil Nail	Face	16	7.25	SPF	-42.7	15	133	121	110	172	156	142
							20	133	117	107	172	152	138
							25	133	115	105	172	148	136
							30	133	113	103	172	145	134
							40	128	109	101	165	141	130
							50	124	107	99	160	138	128
			60	121	105	97	156	135	126				
			DF	-66.0	15	166	150	136	210	194	176		
					20	166	146	133	210	188	172		
					25	166	143	131	210	184	169		
					30	166	140	129	210	181	166		
					40	159	136	125	205	175	162		
	50	154			133	123	199	171	159				
	60	150	130	121	194	168	156						
	SPF	-28.4	24	7.25	SPF	-28.4	15	109	99	90	140	127	116
							20	109	96	88	140	124	113
							25	109	94	86	140	121	111
							30	109	92	--	140	119	109
							40	104	89	--	135	115	106
							50	101	87	--	130	112	--
	60	99	86	--	127	110	--						
	DF	-44.0	24	7.25	DF	-44.0	15	135	123	111	175	158	144
							20	135	119	109	175	154	140
							25	135	117	107	175	151	138
30							135	114	105	175	147	136	
40							130	111	102	167	143	132	
50							126	108	100	162	140	130	
60	123	106	99	158	137	128							
Blind	-26.1	16	7.25	SPF	-26.1	15	104	95	86	135	122	111	
						20	104	92	--	135	119	108	
						25	104	90	--	135	116	106	
						30	104	88	--	135	114	--	
						40	100	85	--	129	110	--	
						50	97	--	--	125	108	--	
60	95	--	--	122	106	--							
MAZE 8d nail – 2-1/2 inches long, 0.279-inch dia. head, 0.123-inch dia. shank	Face	16	7.25	SPF	-85	15	170	170	155	210	210	200	
						20	170	166	151	210	210	195	
						25	170	162	148	210	209	191	
						30	170	159	146	210	205	188	
						40	170	154	142	210	199	184	
						50	170	150	140	210	194	180	
60	170	147	137	210	190	177							





Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
7.25" NichiBoard™	Double HD MAZE Asphalt & Fiberglass Shingle Nail	Blind	12	7.25	7/16" OSB	-35.3	15	121	110	100	156	142	129
							20	121	107	98	156	138	126
							25	121	105	96	156	135	124
							30	121	102	94	156	132	122
							40	116	99	92	150	128	118
							50	113	97	90	145	125	116
							60	110	95	89	142	123	114
			24	7.25	SPF	-25.2	15	102	93	--	132	120	109
							20	102	90	--	132	117	106
							25	102	88	--	132	114	--
							30	102	87	--	132	112	--
							40	98	--	--	127	108	--
							50	95	--	--	123	106	--
							60	93	--	--	120	--	--
7.25" NichiBoard	MAZE R-104 (1-3/4 in. long, 0.144 in. shank, 0.326 in. head)	Blind	16	7.25	SPF	-53	15	148	135	122	192	174	158
							20	148	131	119	192	169	154
							25	148	128	117	192	165	151
							30	148	125	115	192	162	149
							40	142	122	112	184	157	145
							50	138	119	110	178	153	142
							60	134	116	108	173	150	140





Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Desi	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
7.25" NichiBoard™	Aerosmith Fastening Systems, VersaPin	Face	16	7.25	20 GA Steel	-117.5	15	170	170	170	210	210	210
							20	170	170	170	210	210	210
							25	170	170	170	210	210	210
							30	170	170	170	210	210	210
							40	170	170	167	210	210	210
							50	170	170	164	210	210	210
			60	170	170	162	210	210	209				
			15	170	164	149	210	210	192				
			20	170	159	145	210	205	188				
			25	170	156	143	210	201	184				
			30	170	152	140	210	197	181				
			40	170	148	137	210	191	176				
			50	168	145	134	210	187	173				
			60	164	142	132	210	183	170				
8.25" NichiBoard™	6d Double HD MAZE Coil Nail	Face	16	8.25	SPF	-37.5	15	125	113	103	161	146	133
							20	125	110	100	161	142	130
							25	125	108	99	161	139	127
							30	125	105	97	161	136	125
							40	120	102	95	155	132	122
							50	116	100	93	150	129	120
							60	113	98	91	146	127	118
							15	155	141	128	200	182	165
							20	155	137	125	200	177	161
			25	155	134	123	200	173	158				
			30	155	131	121	200	169	156				
			40	149	127	118	192	164	152				
			50	144	124	115	186	161	149				
			60	141	122	113	182	158	146				
			15	102	92	--	132	119	108				
			20	102	90	--	132	116	106				
			25	102	88	--	132	114	--				
			30	102	86	--	132	111	--				
	40	98	--	--	126	108	--						
	50	95	--	--	122	105	--						
	60	92	--	--	119	--	--						
	15	127	115	104	164	148	135						
	20	127	112	102	164	144	132						
	25	127	109	100	164	141	129						
	30	127	107	98	164	138	127						
	40	122	104	96	157	134	124						
	50	118	102	94	152	131	121						
	60	115	100	93	148	129	120						
	15	170	170	155	210	210	200						
	20	170	166	151	210	210	195						
25	170	162	148	210	209	191							
30	170	159	146	210	205	188							
40	170	154	142	210	199	184							
50	170	150	140	210	194	180							
60	170	147	137	210	190	177							
8.25" NichiBoard™	MAZE 8d nail – 2-1/2 inches long, 0.279-inch dia. head, 0.123-inch dia. shank	Face	16	8.25	SPF	-85	15	170	170	155	210	210	200
							20	170	166	151	210	210	195
							25	170	162	148	210	209	191
							30	170	159	146	210	205	188
							40	170	154	142	210	199	184
							50	170	150	140	210	194	180
60	170	147	137	210	190	177							





Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
8.25" NichiBoard™	Double HD MAZE Asphalt & Fiberglass Shingle Nail	Blind	12	8.25	7/16" OSB	-29.5	15	111	100	91	143	130	118
							20	111	98	89	143	126	115
							25	111	96	87	143	123	113
							30	111	94	86	143	121	111
							40	106	91	--	137	117	108
							50	103	89	--	133	114	106
	60		100	87	--	130	112	--					
	MAZE R-104, 1-3/4" long, 0.326 in. dia. head, 0.144 in. dia. shank		16	8.25	SPF	-46	15	138	126	114	178	162	147
							20	138	122	111	178	157	143
							25	138	119	109	178	154	141
							30	138	117	107	178	151	139
							40	133	113	105	171	146	135
		50					128	111	103	166	143	132	
	60	125	108	101	162	140	130						
	Aerosmith Fastening Systems, VersaPin	16	8.25	20 GA Steel	-103.3	15	170	170	170	210	210	210	
						20	170	170	167	210	210	210	
						25	170	170	164	210	210	210	
						30	170	170	161	210	210	208	
						40	170	170	157	210	210	203	
						50	170	166	154	210	210	199	
		60	170	163	151	210	210	195					
		24	8.25	20 GA Steel	-68.8	15	169	153	139	210	198	180	
						20	169	149	136	210	193	176	
						25	169	146	134	210	188	173	
30						169	143	131	210	185	170		
40						162	139	128	210	179	165		
50	157					136	126	203	175	162			
60	153	133	124	198	172	160							





Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
9.25" NichiBoard™	6d Double HD MAZE Coil Nail	Face	16	9.25	SPF	-33.4	15	118	107	97	152	138	125
							20	118	104	95	152	134	122
							25	118	102	93	152	131	120
							30	118	100	92	152	129	118
							40	113	97	89	146	125	115
							50	110	94	88	141	122	113
							60	107	93	86	138	120	111
			DF	-51.7	15	147	133	121	189	172	156		
					20	147	129	118	189	167	152		
					25	147	126	116	189	163	150		
					30	147	124	114	189	160	147		
					40	141	120	111	182	155	143		
					50	136	117	109	176	152	140		
					60	133	115	107	172	149	138		
	SPF	-22.3	24	9.25	SPF	-22.3	15	96	87	--	124	113	--
							20	96	--	--	124	110	--
							25	96	--	--	124	107	--
							30	96	--	--	124	--	--
							40	92	--	--	119	--	--
							50	89	--	--	115	--	--
							60	87	--	--	113	--	--
	DF	-34.5	24	9.25	DF	-34.5	15	120	109	99	154	140	127
							20	120	106	96	154	136	124
							25	120	103	95	154	133	122
							30	120	101	93	154	131	120
							40	115	98	91	148	127	117
							50	111	96	89	144	124	115
							60	109	94	87	140	122	113
SPF	-85	16	9.25	SPF	-85	15	170	170	155	210	210	200	
						20	170	166	151	210	210	195	
						25	170	162	148	210	209	191	
						30	170	159	146	210	205	188	
						40	170	154	142	210	199	184	
						50	170	150	140	210	194	180	
						60	170	147	137	210	190	177	
9.25" NichiBoard™	Double HD MAZE Asphalt & Fiberglass Shingle Nail	Blind	12	9.25	7/16" OSB	-23.5	15	99	90	--	127	116	105
							20	99	87	--	127	112	--
							25	99	85	--	127	110	--
							30	99	--	--	127	108	--
							40	95	--	--	122	--	--
							50	92	--	--	118	--	--
							60	90	--	--	116	--	--
	SPF	-34	16	9.25	SPF	-34	15	119	108	98	153	139	126
							20	119	105	96	153	135	123
							25	119	102	94	153	132	121
							30	119	100	92	153	130	119
							40	114	97	90	147	126	116
							50	110	95	88	143	123	114
							60	108	93	87	139	120	112





Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
9.25" NichiBoard™	Aerosmith Fastening Systems, VersaPin	Face	16	9.25	20 GA Steel	-92.1	15	170	170	161	210	210	208
							20	170	170	157	210	210	203
							25	170	169	155	210	210	200
							30	170	165	152	210	210	196
							40	170	160	148	210	207	191
							50	170	157	145	210	202	188
			60	170	154	143	210	199	185				
			24	9.25	20 GA Steel	-61.4	15	160	145	132	206	187	170
							20	160	141	129	206	182	166
							25	160	138	126	206	178	163
							30	160	135	124	206	174	160
							40	153	131	121	198	169	156
							50	148	128	119	192	165	153
							60	145	126	117	187	162	151





Table 3 - Continued (NichiBoard™ Plank)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
12" NichiBoard™	6d Double HD MAZE Coil Nail	Face	16	12	SPF	-25.8	15	103	94	85	134	121	110
							20	103	91	--	134	118	108
							25	103	89	--	134	115	106
							30	103	87	--	134	113	--
							40	99	--	--	128	110	--
							50	96	--	--	124	107	--
					60	94	--	--	121	105	--		
					15	129	117	106	166	151	137		
					20	129	113	104	166	147	134		
					25	129	111	102	166	143	131		
					30	129	109	100	166	140	129		
					40	123	106	97	159	136	126		
			50	120	103	96	154	133	123				
			60	117	101	94	151	131	121				
			15	--	--	--	109	--	--				
			20	--	--	--	109	--	--				
			25	--	--	--	109	--	--				
			30	--	--	--	109	--	--				
			40	--	--	--	--	--	--				
			50	--	--	--	--	--	--				
			60	--	--	--	--	--	--				
			15	105	95	87	136	123	112				
			20	105	93	--	136	120	109				
			25	105	91	--	136	117	107				
30	105	89	--	136	115	105							
40	101	86	--	130	111	--							
50	98	--	--	126	109	--							
60	95	--	--	123	107	--							
12" NichiBoard™	Aerosmith Fastening Systems, VersaPin	Face	16	12	20 GA Steel	-71.0	15	170	156	142	210	201	183
							20	170	151	138	210	196	179
							25	170	148	136	210	191	175
							30	170	145	133	210	187	172
							40	165	141	130	210	182	168
							50	160	138	128	206	178	165
							60	156	135	126	201	175	162
							15	140	127	116	181	164	149
							20	140	124	113	181	160	146
			25	140	121	111	181	156	143				
			30	140	119	109	181	153	141				
			40	135	115	106	174	149	137				
			50	130	112	104	168	145	134				
			60	127	110	103	164	142	132				
			15	140	127	116	181	164	149				
			20	140	124	113	181	160	146				
			25	140	121	111	181	156	143				
			30	140	119	109	181	153	141				
40	135	115	106	174	149	137							
50	130	112	104	168	145	134							
60	127	110	103	164	142	132							

Notes:

1. NichiBoard™ fiber cement lap siding may only be installed on vertical walls. Fasteners must be installed in a way that does not damage the board during installation. Where necessary, pre-drilled holes may be used in combination with hand-nailed fasteners to avoid damage to the fiber cement product.
2. ASCE 7-05 Basic Wind Speeds are based upon occupancy category II, a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (GCpi) equal to +/-0.18, and an external pressure coefficient (GCp) equal to -1.4. The effects of topographic features have not been considered and the wind speed has been limited to 170mph.
3. ASCE 7-10 and SCE 7-16 Ultimate Wind Speeds are based upon a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (GCpi) equal to +/-0.18, and an external pressure coefficient (GCp) equal to -1.4. Under ASCE 7-16, the wind speeds are based on Ke = 1.0. The effects of topographic features have not been considered and the wind speed has been limited to 210mph.
4. The values in this table are based on testing per ASTM E330 and represent the allowable capacity of the siding to resist the wind pressures associated with the corresponding wind speed.
5. Fastener specifications for those used in testing are outlined in Table 9 of this Intertek CCRR. These specifications may be used by the designer of record to determine the acceptability of alternative fasteners.
6. Allowable design pressures in highlighted cells have been adjusted based on the listed allowable withdrawal capacity of the tested fastener.
7. Framing and bracing are beyond the scope of this evaluation report.
8. Allowable design pressures for assemblies described in this table may be applied where the NichiBoard Plank is attached to ASTM C90 fully-grouted CMU block wall using ITW Ramset TE Series power actuated fasteners (ICC-ES ESR-1799). Minimum fastener embedment is 1 inch; fasteners must be placed a minimum of 5.1 inches from the edge of the wall.



Intertek



PCA-101



Table 4 - Design Loads for Negative Transverse Wind Load (NichiPanel™ Sheet)^{1,4,7}

Panel Fastener ⁵	Fastener Spacing		Framing Type	Framing Spacing	Allowable Design Pressure ⁶ (psf)	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
	Perimeter (in)	Field (in)					Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
6d Double HD MAZE Coil Nail	6	12	SPF Lumber	16"o.c.	-28.7	15	109	99	90	141	128	116
						20	109	96	88	141	124	113
						25	109	94	86	141	122	111
						30	109	92	--	141	119	109
						40	105	90	--	135	116	107
						50	101	87	--	131	113	--
						60	99	86	--	128	111	--
6d Double HD MAZE Coil Nail	8	8	SPF Lumber	16"o.c.	-43.0	15	134	121	110	173	157	142
						20	134	118	108	173	152	139
						25	134	115	106	173	149	136
						30	134	113	104	173	146	134
						40	128	110	101	166	142	131
						50	124	107	99	160	138	128
						60	121	105	98	157	136	126
			SPF Lumber	24"o.c.	-30.4	15	112	102	93	145	132	120
						20	112	99	91	145	128	117
						25	112	97	89	145	125	115
						30	112	95	87	145	123	113
						40	108	92	85	139	119	110
						50	105	90	--	135	116	108
						60	102	88	--	132	114	106
MAZE CEM-6 nail: 2 in. long, 0.278 in. head, .119 in. shank	6	6	SPF Lumber	16"o.c.	-75	15	170	160	146	210	207	188
						20	170	156	142	210	201	183
						25	170	152	139	210	196	180
						30	170	149	137	210	192	177
						40	169	145	134	210	187	173
				50	164	141	131	210	182	169		
				24"o.c.	-40.6	15	130	118	107	168	152	138
						20	130	115	105	168	148	135
						25	130	112	103	168	145	133
						30	130	110	101	168	142	130
40	125	107	98			161	138	127				
6d Double HD MAZE Coil Nail	4	4	SPF Lumber	16"o.c.	-85.9	15	170	170	156	210	210	201
						20	170	167	152	210	210	196
						25	170	163	149	210	210	193
						30	170	160	147	210	206	189
						40	170	155	143	210	200	185
						50	170	151	140	210	195	181
						60	170	149	138	210	192	178
			24"o.c.	-60.9	15	159	144	131	205	186	169	
					20	159	140	128	205	181	165	
					25	159	137	126	205	177	162	
					30	159	134	124	205	174	159	
					40	153	130	120	197	168	156	
					50	148	127	118	191	165	152	
					60	144	125	116	186	162	150	





Table 4 - Continued (NichiPanel™ Sheet)^{1,4,7}

Panel Fastener ⁵	Fastener Spacing		Framing Type	Framing Spacing	Allowable Design Pressure ⁶ (psf)	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
	Perimeter (in)	Field (in)					Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
8d Masonite Siding Nails	6	12	SPF Lumber	16"o.c.	-39.9	15	129	117	106	166	151	137
						20	129	114	104	166	147	134
						25	129	111	102	166	143	131
						30	129	109	100	166	141	129
						40	124	106	98	160	136	126
						50	120	103	96	155	133	123
						60	117	101	94	151	131	122
				24"o.c.	-26.6	15	105	95	87	136	123	112
						20	105	93	--	136	120	109
						25	105	91	--	136	117	107
						30	105	89	--	136	115	105
						40	101	86	--	130	111	--
						50	98	--	--	126	109	--
						60	95	--	--	123	107	--
8d Masonite Siding Nails	8	8	SPF Lumber	16"o.c.	-59.9	15	158	143	130	204	185	168
						20	158	139	127	204	180	164
						25	158	136	125	204	176	161
						30	158	133	123	204	172	158
						40	151	129	119	195	167	154
						50	147	126	117	189	163	151
						60	143	124	115	185	160	149
				24"o.c.	-39.9	15	129	117	106	166	151	137
						20	129	114	104	166	147	134
						25	129	111	102	166	143	131
						30	129	109	100	166	141	129
						40	124	106	98	160	136	126
						50	120	103	96	155	133	123
						60	117	101	94	151	131	122
8d Masonite Siding Nails	6	6	SPF Lumber	16"o.c.	-79.9	15	170	165	150	210	210	194
						20	170	161	147	210	207	189
						25	170	157	144	210	203	186
						30	170	154	142	210	199	183
						40	170	149	138	210	193	178
						50	169	146	135	210	188	175
						60	165	143	133	210	185	172
				24"o.c.	-53.3	15	149	135	123	192	174	158
						20	149	131	120	192	169	155
						25	149	128	118	192	166	152
						30	149	126	116	192	162	149
						40	143	122	113	184	158	145
						50	138	119	110	179	154	143
						60	135	117	109	174	151	140





Table 4 - Continued (NichiPanel™ Sheet)^{1,4,7}

Panel Fastener ⁵	Fastener Spacing		Framing Type	Framing Spacing	Allowable Design Pressure ⁶ (psf)	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
	Perimeter (in)	Field (in)					Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
8d Masonite Siding Nails	4	4	SPF Lumber	16" o.c.	-119.8	15	170	170	170	210	210	210
						20	170	170	170	210	210	210
						25	170	170	170	210	210	210
						30	170	170	170	210	210	210
						40	170	170	169	210	210	210
						50	170	170	166	210	210	210
						60	170	170	163	210	210	210
	24" o.c.	-79.9	15	170	165	150	210	210	194			
			20	170	161	147	210	207	189			
			25	170	157	144	210	203	186			
			30	170	154	142	210	199	183			
			40	170	149	138	210	193	178			
			50	169	146	135	210	188	175			
			60	165	143	133	210	185	172			



Table 4 - Continued (NichiPanel™ Sheet)^{1,4,7}

Panel Fastener ⁵	Fastener Spacing		Framing Type	Framing Spacing	Allowable Design Pressure ⁶ (psf)	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³				
	Perimeter (in)	Field (in)					Exp B	Exp C	Exp D	Exp B	Exp C	Exp D		
Grabber #8 Flat Wafer Head Screws	6	12	SPF Lumber	16"o.c.	-55.9	15	152	138	126	197	179	162		
						20	152	134	123	197	173	158		
						25	152	131	120	197	170	156		
						30	152	129	118	197	166	153		
						40	146	125	115	189	161	149		
						50	142	122	113	183	158	146		
				60	138	120	111	179	155	144				
				24"o.c.	-37.3	15	124	113	103	161	146	132		
						20	124	110	100	161	142	129		
						25	124	107	98	161	139	127		
						30	124	105	97	161	136	125		
						40	119	102	94	154	132	122		
			50			116	100	92	149	129	119			
			20 GA Steel	16"o.c.	-48.5	16"o.c.	-48.5	15	142	129	117	183	166	151
								20	142	125	114	183	162	148
								25	142	123	112	183	158	145
								30	142	120	110	183	155	142
								40	136	116	108	176	150	139
								50	132	114	105	170	147	136
				60	129	112	104	166	144	134				
				24"o.c.	-32.4	24"o.c.	-32.4	15	116	105	96	150	136	123
								20	116	102	93	150	132	121
								25	116	100	92	150	129	118
								30	116	98	90	150	127	116
40	111	95						88	144	123	113			
50	108	93	86					139	120	111				
60	105	91	--	136	118	109								
Grabber #8 Flat Wafer Head Screws	8	8	SPF Lumber	16"o.c.	-83.8	15	170	169	154	210	210	199		
						20	170	165	150	210	210	194		
						25	170	161	147	210	208	190		
						30	170	158	145	210	204	187		
						40	170	153	141	210	198	182		
						50	170	149	138	210	193	179		
				60	169	147	136	210	190	176				
				24"o.c.	-55.9	24"o.c.	-55.9	15	152	138	126	197	179	162
								20	152	134	123	197	173	158
								25	152	131	120	197	170	156
								30	152	129	118	197	166	153
								40	146	125	115	189	161	149
			50					142	122	113	183	158	146	
			60	138	120	111	179	155	144					
			20 GA Steel	16"o.c.	-72.8	16"o.c.	-72.8	15	170	158	143	210	204	185
								20	170	153	140	210	198	181
								25	170	150	137	210	194	177
								30	170	147	135	210	190	174
								40	167	143	132	210	184	170
								50	162	139	129	209	180	167
				60	158	137	127	204	177	164				
				24"o.c.	-48.5	24"o.c.	-48.5	15	142	129	117	183	166	151
								20	142	125	114	183	162	148
								25	142	123	112	183	158	145
30	142	120						110	183	155	142			
40	136	116						108	176	150	139			
50	132	114	105					170	147	136				
60	129	112	104	166	144	134								





Table 4 - Continued (NichiPanel™ Sheet)^{1,4,7}

Panel Fastener ⁵	Fastener Spacing		Framing Type	Framing Spacing	Allowable Design Pressure ⁶ (psf)	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³				
	Perimeter (in)	Field (in)					Exp B	Exp C	Exp D	Exp B	Exp C	Exp D		
Grabber #8 Flat Wafer Head Screws	6	6	SPF Lumber	16"o.c.	-111.8	15	170	170	170	210	210	210		
						20	170	170	170	210	210	210		
						25	170	170	170	210	210	210		
						30	170	170	167	210	210	210		
						40	170	170	163	210	210	210		
						50	170	170	160	210	210	207		
				60	170	170	158	210	210	203				
				24"o.c.	-74.5	15	170	160	145	210	206	187		
						20	170	155	142	210	200	183		
						25	170	152	139	210	196	180		
						30	170	149	137	210	192	176		
						40	169	144	133	210	186	172		
			50			164	141	131	210	182	169			
			20 GA Steel	16"o.c.	-97.0	16"o.c.	-97.0	15	170	170	166	210	210	210
								20	170	170	162	210	210	209
								25	170	170	159	210	210	205
								30	170	170	156	210	210	201
								40	170	165	152	210	210	196
								50	170	161	149	210	208	192
				24"o.c.	-64.6	24"o.c.	-64.6	15	164	149	135	210	192	174
								20	164	145	132	210	187	170
								25	164	141	130	210	183	167
								30	164	138	127	210	179	164
								40	157	134	124	203	174	160
50	152	131						122	197	170	157			
Grabber #8 Flat Wafer Head Screws	4	4	SPF Lumber	16"o.c.	-136.0	15	170	170	170	210	210	210		
						20	170	170	170	210	210	210		
						25	170	170	170	210	210	210		
						30	170	170	170	210	210	210		
						40	170	170	170	210	210	210		
						50	170	170	170	210	210	210		
				24"o.c.	-90.6	24"o.c.	-90.6	15	170	170	160	210	210	207
								20	170	170	156	210	210	202
								25	170	167	153	210	210	198
								30	170	164	151	210	210	195
								40	170	159	147	210	206	190
								50	170	156	144	210	201	186
			20 GA Steel	16"o.c.	-136.0	16"o.c.	-136.0	15	170	170	170	210	210	210
								20	170	170	170	210	210	210
								25	170	170	170	210	210	210
								30	170	170	170	210	210	210
								40	170	170	170	210	210	210
								50	170	170	170	210	210	210
				24"o.c.	-90.6	24"o.c.	-90.6	15	170	170	160	210	210	207
								20	170	170	156	210	210	202
								25	170	167	153	210	210	198
								30	170	164	151	210	210	195
								40	170	159	147	210	206	190
								50	170	156	144	210	201	186





Table 4 - Continued (NichiPanel™ Sheet)^{1,4,7}

Panel Fastener ⁵	Fastener Spacing		Framing Type	Framing Spacing	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
	Perimeter (in)	Field (in)					Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
Aerosmith Fastening Systems, VersaPin	6	12	20 GA Steel	16"o.c.	-29.3	15	110	100	91	142	129	117
						20	110	97	89	142	126	115
						25	110	95	87	142	123	113
						30	110	93	86	142	120	111
						40	106	90	--	137	117	108
						50	102	88	--	132	114	106
						60	100	87	--	129	112	--
Aerosmith Fastening Systems, VersaPin	8	8	20 GA Steel	16"o.c.	-43.9	15	135	123	111	174	158	144
						20	135	119	109	174	154	140
						25	135	117	107	174	150	138
						30	135	114	105	174	147	135
						40	130	111	102	167	143	132
						50	126	108	100	162	140	129
						60	123	106	99	158	137	127
Aerosmith Fastening Systems, VersaPin	6	6	20 GA Steel	16"o.c.	-58.5	15	156	141	129	201	183	166
						20	156	137	126	201	178	162
						25	156	135	123	201	174	159
						30	156	132	121	201	170	156
						40	150	128	118	193	165	152
						50	145	125	116	187	161	149
						60	141	123	114	183	158	147
Aerosmith Fastening Systems, VersaPin	4	4	20 GA Steel	16"o.c.	-87.9	15	170	170	158	210	210	203
						20	170	169	154	210	210	199
						25	170	165	151	210	210	195
						30	170	161	148	210	208	192
						40	170	157	145	210	202	187
						50	170	153	142	210	198	183
						60	170	150	140	210	194	180
	24"o.c.	-35.6	15	122	110	100	157	143	129			
			20	122	107	98	157	139	126			
			25	122	105	96	157	136	124			
			30	122	103	95	157	133	122			
			40	117	100	92	151	129	119			
			50	113	98	90	146	126	117			
			60	110	96	89	143	124	115			

Notes:

- NichiPanel™ fiber cement flat sheet siding may only be installed on vertical walls. Fasteners must be installed in a way that does not damage the board during installation. Where necessary, pre-drilled holes may be used in combination with hand-nailed fasteners to avoid damage to the fiber cement product.
- ASCE 7-05 Basic Wind Speeds are based upon occupancy category II, a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (Gcpi) equal to +/- 0.18, and an external pressure coefficient (GCp) equal to -1.4. The effects of topographic features have not been considered and the wind speed has been limited to 170mph.
- ASCE 7-10 and ASCE 7-16 Ultimate Wind Speeds are based upon a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (Gcpi) equal to +/-0.18, and an external pressure coefficient (GCp) equal to -1.4. Under ASCE 7-16, the wind speeds are based on Ke = 1.0. The effects of topographic features have not been considered and the wind speed has been limited to 210mph.
- The values in this table are based on testing per ASTM E330 and represent the allowable capacity of the siding to resist the wind pressures associated with the corresponding wind speed.
- Fastener specifications for those used in testing are outlined in Table 9 of this Intertek CCRR. These specifications may be used by the designer of record to determine the acceptability of alternative fasteners.
- Allowable design pressures in highlighted cells have been adjusted based on the listed allowable withdrawal capacity of the tested fastener.
- Framing and bracing are beyond the scope of this evaluation report.
- Allowable design pressures for assemblies described in this table may be applied where the NichiPanel is attached to ASTM C90 fully-grouted CMU block wall using ITW Ramset TE Series power actuated fasteners (ICC-ES ESR-1799). Minimum fastener embedment is 1 inch; fasteners must be placed a minimum of 5.1 inches from the edge of the wall.





Table 5 - Design Loads for Negative Transverse Wind Load (NichiStraight™/NichiStaggered™ Lap Panel)^{1,4,7}

Siding Type	Siding Fastener ⁵	Face/Blind	Effective Fastener Spacing		Framing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
			Frame/Horizontal (in)	Field (in)				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
NichiStraight™/NichiStaggered™	6d Double HD MAZE Coil Nail	Blind	12	8.625	7/16" OSB	-23.5	15	99	90	--	128	116	105
							20	99	87	--	128	113	--
							25	99	85	--	128	110	--
							30	99	--	--	128	108	--
							40	95	--	--	122	--	--
							50	92	--	--	119	--	--
			60	90	--	--	116	--	--				
			15	122	111	101	158	143	130				
			20	122	108	98	158	139	127				
			25	122	105	96	158	136	125				
			30	122	103	95	158	133	122				
			40	117	100	92	151	129	119				
	50	113	98	91	146	126	117						
	60	111	96	89	143	124	115						
	15	100	90	--	129	117	106						
	20	100	88	--	129	113	--						
	25	100	86	--	129	111	--						
	30	100	--	--	129	109	--						
	40	96	--	--	123	106	--						
	50	93	--	--	120	--	--						
	60	90	--	--	117	--	--						
	15	170	155	141	210	200	181						
	20	170	150	137	210	194	177						
	25	170	147	134	210	189	174						
30	170	144	132	210	186	171							
40	164	140	129	210	180	167							
50	158	136	127	205	176	163							
60	154	134	125	199	173	161							
NichiStraight™/NichiStaggered™	#8-18 Wafer Head ROCK-ON™ Screws	Blind	24	8.625	20 GA Steel	-49.6	15	144	130	118	185	168	153
							20	144	127	116	185	163	149
							25	144	124	114	185	160	147
							30	144	121	112	185	157	144
							40	138	118	109	178	152	140
							50	133	115	107	172	149	138
							60	130	113	105	168	146	136

Notes:

1. **NichiStraight™/NichiStaggered™ Lap Panel** fiber cement siding may only be installed on vertical walls. Fasteners must be installed in a way that does not damage the board during installation. Where necessary, pre-drilled holes may be used in combination with hand-nailed fasteners to avoid damage to the fiber cement product.
2. ASCE 7-05 Basic Wind Speeds are based upon occupancy category II, a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (Gcpi) equal to +/- 0.18, and an external pressure coefficient (GCp) equal to -1.4. Under ASCE 7-16, the wind speeds are based on Ke = 1.0. The effects of topographic features have not been considered and the wind speed has been limited to 170mph.
3. ASCE 7-10 and ASCE 7-16 Ultimate Wind Speeds are based upon a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (Gcpi) equal to +/-0.18, and an external pressure coefficient (GCp) equal to -1.4. Under ASCE 7-16, the wind speeds are based on Ke = 1.0. The effects of topographic features have not been considered and the wind speed has been limited to 210mph.
4. The values in this table are based on testing per ASTM E330 and represent the allowable capacity of the siding to resist the wind pressures associated with the corresponding wind speed.
5. Fastener specifications for those used in testing are outlined in Table 9 of this Intertek CCRR. These specifications may be used by the designer of record to determine the acceptability of alternative fasteners.
6. Allowable design pressures in highlighted cells have been adjusted based on the listed allowable withdrawal capacity of the tested fastener.
7. Framing and bracing are beyond the scope of this evaluation report.
8. Allowable design pressures for assemblies described in this table may be applied where the NichiStraight/NichiStaggered lap panels are attached to ASTM C90 fully-grouted CMU block wall using ITW Ramset TE Series power actuated fasteners (ICC-ES ESR-1799). Minimum fastener embedment is 1 inch; fasteners must be placed a minimum of 5.1 inches from the edge of the wall.





Table 6 - Design Loads for Negative Transverse Wind Load (NichiShake™ Shingles)^{1,4,7}

Siding Fastener ⁵	Fasteners per Shake			Sheathing Type	Allowable Design Pressure (psf) ⁶	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
	6-1/4" Width	8-1/4" Width	12" Width				Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
	6d Double HD MAZE Coil Nail	2	2				3	7/16" OSB	-30.6	15	113	102
20				113	99	91				146	128	117
25				113	97	89				146	126	115
30				113	95	88				146	123	113
40				108	93	85				140	119	110
50				105	90	--				135	117	108
60				102	89	--				132	115	106

Notes:

- NichiShake™ fiber-cement shingle siding may only be installed on vertical walls. Fasteners must be installed in a way that does not damage the board during installation. Where necessary, pre-drilled holes may be used in combination with hand-nailed fasteners to avoid damage to the fiber cement product.
- ASCE 7-05 Basic Wind Speeds are based upon occupancy category II, a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (GCpi) equal to +/- 0.18, and an external pressure coefficient (GCp) equal to -1.4. Under ASCE 7-16, the wind speeds are based on Ke = 1.0. The effects of topographic features have not been considered and the wind speed has been limited to 170mph.
- ASCE 7-10 and ASCE 7-16 Ultimate Wind Speeds are based upon a wind directionality factor (Kd) equal to 0.85, an internal pressure coefficient (GCpi) equal to +/-0.18, and an external pressure coefficient (GCp) equal to -1.4. Under ASCE 7-16, the wind speeds are based on Ke = 1.0. The effects of topographic features have not been considered and the wind speed has been limited to 210mph.
- The values in this table are based on testing per ASTM E330 and represent the allowable capacity of the siding to resist the wind pressures associated with the corresponding wind speed.
- Fastener specifications for those used in testing are outlined in Table 9 of this Intertek CCRR. These specifications may be used by the designer of record to determine the acceptability of alternative fasteners.
- Allowable design pressures in highlighted cells have been adjusted based on the listed allowable withdrawal capacity of the tested fastener.
- Framing and bracing are beyond the scope of this evaluation report.





Table 7 – Design Loads for Negative Transverse Wind Load (NichiSoffit™)

	Fastener Spacing (in.)	Framing Type	Framing Spacing (in.)	Allowable Design Pressure (psf)	Building Height (ft)	ASCE 7-05 Basic Wind Speed (MPH) ²			ASCE 7-10 Ultimate Wind Speed (MPH) ³		
						Exp B	Exp C	Exp D	Exp B	Exp C	Exp D
1-3/4-in.-long Maze double hot dipped galvanized ring-shank nails (0.125-in. shank dia., 0.365-in. head dia.)	8	Wood, 2 x 4, min. specific gravity 0.42	12 Max. 16-inch-wide panels	-84.4	15	170	169	154	210	210	199
					20	170	165	150	210	210	194
					25	170	161	147	210	208	190
					30	170	158	145	210	204	187
					40	170	153	141	210	198	182
					50	170	149	138	210	193	179
MAZE CEM-6 nail: 2 in. long, 0.278 in. dia. head, 0.119 in. dia. shank	6	Wood, 2 x 4, min. specific gravity 0.42	16 Max. 24-inch-wide panels	-70	15	170	155	141	210	200	181
					20	170	150	137	210	194	177
					25	170	147	134	210	189	174
					30	170	144	132	210	186	171
					40	164	140	129	210	180	167
					50	158	136	127	205	176	163
1-1/2-in.-long 4d hot dipped galvanized ring-shank nails (0.120-in. shank dia., 0.219-in. head dia.)	8	Wood, 2 x 4 min. specific gravity 0.42	24 Max. 16-inch-wide panels	-37.6	15	124	113	103	161	146	132
					20	124	110	100	161	142	129
					25	124	107	98	161	139	127
					30	124	105	97	161	136	125
					40	119	102	94	154	132	122
					50	116	100	92	149	129	119
6d lap siding nails (0.12-in shank dia., 2-in. long, 17/64-in. head dia.)	8	Wood, 2x4, min. specific gravity 0.42	24 Max. 48-inch-wide panels	-18.3	15	--	--	--	109	--	--
					20	--	--	--	109	--	--
					25	--	--	--	109	--	--
					30	--	--	--	109	--	--
					40	--	--	--	--	--	--
					50	--	--	--	--	--	--
#8 x 1-1/4-in. self-piercing lath screws	8	No. 20 gage steel	24 Max. 48-inch-wide panels	-21.6	15	96	87	--	124	113	--
					20	96	--	--	124	110	--
					25	96	--	--	124	107	--
					30	96	--	--	124	--	--
					40	92	--	--	119	--	--
					50	89	--	--	115	--	--
60	87	--	--	113	--	--					



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**Table 7 - Continued**

Notes:

1. **NichiSoffit™ sheets** may only be installed on soffits. Fasteners must be installed in a way that does not damage the board during installation. Where necessary, pre-drilled holes may be used in combination with hand-nailed fasteners to avoid damage to the fiber cement product.
2. ASCE 7-05 Basic Wind Speeds are based upon occupancy category II, a wind directionality factor (K_d) equal to 0.85, an internal pressure coefficient (G_{Cpi}) equal to +/- 0.18, and an external pressure coefficient (G_{Cp}) equal to -1.4. The effects of topographic features have not been considered and the wind speed has been limited to 170mph.
3. ASCE 7-10 and ASCE 7-16 Ultimate Wind Speeds are based upon a wind directionality factor (K_d) equal to 0.85, an internal pressure coefficient (G_{Cpi}) equal to +/-0.18, and an external pressure coefficient (G_{Cp}) equal to -1.4. Under ASCE 7-16, the wind speeds are based on $K_e = 1.0$. The effects of topographic features have not been considered and the wind speed has been limited to 210 mph.
4. The values in this table are based on testing per ASTM E330 and represent the allowable capacity of the siding to resist the wind pressures associated with the corresponding wind speed.
5. Fastener specifications for those used in testing are outlined in Table 9 of this Intertek CCRR. These specifications may be used by the designer of record to determine the acceptability of alternative fasteners.
6. Allowable design pressures in highlighted cells have been adjusted based on the listed allowable withdrawal capacity of the tested fastener.
7. Framing and bracing are beyond the scope of this evaluation report.



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**Table 8 – Design Loads for Negative TAS 202 and TAS 203 Transverse Load (Florida Building Code)**

Siding Type And Nominal Thickness (in.)	Framing Material	Fastening Method	Fasteners and Fastening	Allowable Design Pressure (psf)
NichiBoard up to 9.25" width (5/16" thick)	2x4 S.P.F. studs 16" o.c. 5/8" APA Plywood	FACE Nail	MAZE 8d CEM-8 nail (2-1/2 in. long, 0.279 in. dia. head, 0.123 in. dia. shank) through plywood into studs 16 in. o.c.	-85 psf
NichiPanel (5/16")	2x4 S.P.F. studs 16" o.c. 5/8" APA Plywood	FACE Nail	MAZE CEM-6 nails (2 in. long, 0.278 in. di. Head, 0.119 in. dia. shank) through plywood into studs every 6 in. perimeter and field	-75 psf
NichiStaggered/ NichiStraight (5/16")	2x4 S.P.F. studs 16" o.c. 5/8" APA Plywood	BLIND Nail	MAZE 8d CEM-8 nail (2-1/2 in. long, 0.279 in. dia. head, 0.123 in. dia. shank) through plywood into studs 16 in. o.c.	-70 psf
NichiSoffit up to 24" width (1/4" thick)	2x4 S.P.F. studs 16" o.c.	FACE Nail	MAZE CEM-6 nails (2 in. long, 0.278 in. dia. head, 0.119 in. dia. shank) into studs every 6 in. perimeter and field	-70 psf

Notes:

1. **NichiPanel products** may only be installed on vertical walls. **NichiSoffit** may only be installed on soffits. Fasteners must be installed in a way that does not damage the board during installation. Where necessary, pre-drilled holes may be used in combination with hand-nailed fasteners to avoid damage to the fiber cement product.
2. The values in this table are based on testing per TAS 202 and 203 and represent the allowable design pressures of the siding.
3. Framing and bracing are beyond the scope of this evaluation report.



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Table 9 - Specifications of Tested Fasteners

Siding Fastener	Length (in)	Head Diameter (in)	Shank Diameter (in)	1, 2, 3, Material	5, Siding Type	Minimum Fastener Penetration into Material (in)	Fastener Withdrawal Value (lbs)
6d Double HD MAZE Coil Nail	2	0.237	0.099	SPF	NichiPanel™	1 ¹¹ / ₁₆	42.2
					NichiBoard™ (Face)	1 ³ / ₈	34.4
					NichiBoard™ (Blind)	1 ¹¹ / ₁₆	42.2
					NichiStraight™/NichiStaggered™	1 ³ / ₈	34.4
	2.5	0.236	0.097	SPF	NichiBoard™ (Face)	1 ³ / ₈	53.1
					NichiBoard™ (Blind)	1 ¹¹ / ₁₆	65.2
					NichiStraight™/NichiStaggered™	7 ⁷ / ₁₆ " OSB	16.9
					NichiShake™	7 ⁷ / ₁₆ " OSB	16.9
6d Ring Shank Double HD MAZE Coil Nail	2	0.233	0.105	SPF	NichiBoard™ (Face)	1 ⁷ / ₈	45.9
					NichiBoard™ (Blind)	2 ³ / ₁₆	53.6
					NichiFrontier™ (Face)	1 ¹ / ₈	29.8
					NichiFrontier™ (Blind)	1 ⁹ / ₁₆	41.4
8d Masonite Siding Nails	2.5	0.313	0.118	SPF	NichiStraight™/NichiStaggered™	7 ⁷ / ₁₆ " OSB	17.9
					NichiPanel™	2 ³ / ₁₆	65.2
					NichiBoard™ (Face)	1 ¹ / ₈	35.5
					NichiBoard™ (Blind)	1 ⁷ / ₁₆	45.4
Double HD MAZE Asphalt & Fiberglass Shingle Nail	1.75	0.365	0.125	SYP	NichiBoard™ (Blind)	1 ⁷ / ₁₆	70.1
					NichiBoard™ (Face)	7 ⁷ / ₁₆ " OSB	21.3
					NichiBoard™ (Blind)	7 ⁷ / ₁₆ " OSB	21.3
					NichiPanel™	1 ⁵ / ₁₆	85.0
Grabber #8 Flat Wafer Head Screws ⁶	1.625	0.406	0.166	20 GA Steel	NichiPanel™	--	88.3
					NichiPanel™	--	94.7
Aerosmith Fastening Systems, VersaPin ⁷	1.5	0.301	0.106	20 GA Steel	NichiBoard™ (Face)	--	94.7
					NichiBoard™ (Blind)	--	94.7
#8-18 Wafer Head ROCK- ON™ Screws ⁸	1.375	0.251	0.107	20 GA Steel	NichiPanel™	--	94.7
					NichiStraight™/NichiStaggered™	--	95.0
Aerosmith Fastening Systems, SurePin ⁹	1.25	0.300	0.145	Concrete Block	NichiBoard™ (Face)	3/4	233.1
					NichiBoard™ (Blind)	1 ¹ / ₈	233.8
Aerosmith Fastening Systems, SurePin ⁹	2	0.300	0.145	Concrete Block	NichiStraight™/NichiStaggered™	1 ¹ / ₈	233.8

Notes:

- SPF (Spruce-Pine-Fir) framing material is assumed to have a Specific Gravity of 0.42 or greater.
- DF (Douglas Fir) framing material is assumed to have a Specific Gravity of 0.5 or greater.
- OSB sheathing material is assumed to have a Specific Gravity of 0.5 or greater. Where fasteners are installed through OSB sheathing into SPF studs, a Specific Gravity of 0.42 shall be assumed for the entire fastener penetration depth.
- SYP (Southern Yellow Pine) framing material is assumed to have a Specific Gravity of 0.5 or greater.
- Alternative fasteners must meet the minimum head and shank diameters listed in Table 8. The required length and withdrawal capacity shall be determined by the design professional of record in accordance with the requirements of Table 3. 4. 5. 6, and 7 of this Intertek CCRR.
- Fastener pull-out capacity based on manufacturer (Grabber Construction Products, Inc.) technical data sheet and a safety factor of 3.
- Fastener pull-out capacity based on PEI Product Report PER-06014 and a safety factor of 3.
- Fastener pull-out capacity based on ITW Buildex and Illinois Tool Works, Inc. Product Report No. 02722 and a safety factor of 3.
- Fastener pull-out capacity based on PEI Product Report PER-07021 and a safety factor of 5.

