

ASCE 7 Design Wind Speed Analysis

**AZEK Cellular PVC Cladding
3.5", 5.5" and 7.25" Solid Boards
3.2" and 5.5" Tongue & Groove Boards**

Report L2798.02-122-34

Rendered to:

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	PROJECT: ASCE 7 Wind Speeds – AZEK Cellular PVC Cladding	BY: ARK DATE: 03/21/2024
	PROJECT NO.: L2798.02-122-34	CKD: TAD SHEET: 2 OF 22

Scope


Architectural Testing, Inc., an Intertek company, was contracted by AZEK Building Products to perform ASCE 7 analyses of their cellular PVC cladding products, with tested results summarized in Intertek Code Compliance Research Report CCRR-0266 dated 11/25/2023. The tested allowable design pressures are used to calculate corresponding wind speeds for ASCE 7-10 and ASCE 7-16.

The reference materials utilized in this project include the following:

ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures. American Society of Civil Engineers, 2010.

ASCE/SEI 7-16 Minimum Design Loads and Associated Criteria for Buildings and Other Structures. American Society of Civil Engineers, 2017.

CCRR-0266 Code Compliance Research Report – AZEK Cellular PVC Cladding. Intertek, 11/25/2023.

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Assumptions

Certain assumptions have been made in determining the wind speeds reported herein.

ASCE 7-10 Ultimate Wind Speed Assumptions

- Tested Pressures are Ultimate, Wind Load Factor equal to 1.0.
- Wind Directionality Factor (K_d) equal to 0.85.
- The Building is Considered Enclosed, Internal pressure coefficient (GC_{pi}) equal to +/-0.18.
- External pressure coefficient (GC_p) equal to -1.4.
- The effects of topographic features have not been considered, Topographic Factor (K_{zt}) equal to 1.0.
- Ultimate Test Pressures listed in Intertek Reports are divided by a Safety Factor.
- The wind speed has been limited to 210 mph.
- ASD wind load factor of 0.6 applied per ASCE 7-10.

ASCE 7-16 Ultimate Wind Speed Assumptions

- Tested Pressures are Ultimate, Wind Load Factor equal to 1.0.
- Wind Directionality Factor (K_d) equal to 0.85.
- The Building is Considered Enclosed, Internal pressure coefficient (GC_{pi}) equal to +/-0.18.
- External pressure coefficient (GC_p) equal to -1.4.
- The effects of topographic features have not been considered, Topographic Factor (K_{zt}) equal to 1.0.
- Ultimate Test Pressures listed in Intertek Reports are divided by a Safety Factor.
- Ground Elevation Factor (K_e) equal to 1.0
- The wind speed has been limited to 210 mph.
- ASD wind load factor of 0.6 applied per ASCE 7-16.

Analyses

Assemblies Ultimate Wind Speeds per ASCE 7-10/7-16

The Ultimate Wind Speeds are converted to the respective ASD Design Pressures per ASCE 7-10 and ASCE 7-16 as shown on page 20. The ASD Allowable Design Wind Pressures for the new assemblies are presented in the table below.

Table 1 AZEK Cellular PVC Cladding – ASD Design Pressures

Product	Assembly Description	Joist Spacing	Test Design Pressure	ASD ASCE 7 Design Pressure
3.5" Solid Board	Two (2) #10 x 2-1/2" long <i>TOPLoc™</i> stainless steel screws into 1.5" thick Southern Pine Furring Strips	16"	631 psf	378.6 psf
	Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1.5" thick Southern Pine Furring Strips	16"	631 psf	378.6 psf
	Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into 1.5" thick Southern Pine Furring Strips	16"	382 psf	229.2 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	16"	631 psf	378.6 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	16"	319 psf	191.4 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	16"	473 psf	283.8 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	16"	535 psf	321.0 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	16"	631 psf	378.6 psf

Table 1 AZEK Cellular PVC Cladding – ASD Design Pressures (continued)

Product	Assembly Description	Joist Spacing	Test Design Pressure	ASD ASCE 7 Design Pressure
5.5" Solid Board	Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> trim board carbon steel fasteners into 1.5" thick Southern Pine Furring Strips, and three (3) <i>Cortex</i> fasteners at the end of each plank	16"	223 psf	133.8 psf
	Two (2) #8 x 2.5" long stainless steel trim-head screws into 1.5" thick Southern Pine Furring Strips	16"	351 psf	210.6 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	16"	351 psf	210.6 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	16"	203 psf	121.8 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	16"	301 psf	180.6 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	16"	340 psf	204.0 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	16"	351 psf	210.6 psf
	7.25" Solid Board	Two (2) #10 x 2-1/2" long <i>TOPLoc™</i> stainless steel screws into 1.5" thick Southern Pine Furring Strips	16"	454 psf
Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1.5" thick Southern Pine Furring Strips		16"	372 psf	223.2 psf

Table 1 AZEK Cellular PVC Cladding – ASD Design Pressures (continued)

Product	Assembly Description	Joist Spacing	Test Design Pressure	ASD ASCE 7 Design Pressure
7.25" Solid Board	Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into 1.5" thick Southern Pine Furring Strips	16"	216 psf	129.6 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	16"	313 psf	187.8 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	16"	154 psf	92.4 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	16"	228 psf	136.8 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	16"	258 psf	154.8 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	16"	325 psf	195.0 psf
3.2 inch AZEK Tongue & Groove Board	One (1) #8 x 2-1/2" stainless steel trim-head screw @ 45° through root of tongue into each 1.5" thick Southern Pine Furring Strip	16"	294 psf	176.4 psf
	Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into each 1.5" thick Southern Pine Furring Strip	16"	382 psf	229.2 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	16"	382 psf	229.2 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	16"	349 psf	209.4 psf

Table 1 AZEK Cellular PVC Cladding – ASD Design Pressures (continued)

Product	Assembly Description	Joist Spacing	Test Design Pressure	ASD ASCE 7 Design Pressure
3.2 inch AZEK Tongue & Groove Board	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	16"	382 psf	229.2 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	16"	382 psf	229.2 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	16"	382 psf	229.2 psf
5.5 inch AZEK Tongue & Groove Board	One (1) #10 x 2-1/2" stainless steel trim-head screw @ 45° through root of tongue into each 1.5" thick Southern Pine Furring Strip	16"	144 psf	86.4 psf
	One (1) #10 x 2-1/2" <i>TOPLoc™</i> stainless steel screw into each 1.5" thick Southern Pine Furring Strip	16"	177 psf	106.2 psf
	One (1) #10 x 2-1/2" long <i>OMG FastenMaster® Cortex</i> concealed fastener into each 1.5" thick Southern Pine Furring Strip	16"	158 psf	94.8 psf
	Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into each 1.5" thick Southern Pine Furring Strip	16"	294 psf	176.4 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	16"	294 psf	176.4 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	16"	203 psf	121.8 psf
	Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	16"	294 psf	176.4 psf

Table 1 AZEK Cellular PVC Cladding – ASD Design Pressures (continued)

Product	Assembly Description	Joist Spacing	Test Design Pressure	ASD ASCE 7 Design Pressure
5.5 inch AZEK Tongue & Groove Board	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	16"	294 psf	176.4 psf
	Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	16"	294 psf	176.4 psf

An example calculation for the Ultimate Wind Speeds per ASCE 7-10 and ASCE 7-16 for the new assemblies is presented on page 21. The resulting wind speeds are included in Table 2 through Table 6 which can be found on page 9 through page 19.

Table 2 ASCE 7 Wind Speeds for 3.5" Solid Board

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2-1/2" long <i>TOPLoc™</i> stainless steel screws into 1.5" thick Southern Pine Furring Strips	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1.5" thick Southern Pine Furring Strips	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into 1.5" thick Southern Pine Furring Strips	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 2 ASCE 7 Wind Speeds for 3.5" Solid Board (continued)

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 3 ASCE 7 Wind Speeds for 5.5" Solid Board

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> trim board carbon steel fasteners into 1.5" thick Southern Pine Furring Strips, and three (3) <i>Cortex</i> fasteners at the end of each plank	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #8 x 2.5" long stainless steel trim-head screws into 1.5" thick Southern Pine Furring Strips	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 3 ASCE 7 Wind Speeds for 5.5" Solid Board (continued)

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 4 ASCE 7 Wind Speeds for 7.25" Solid Board

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2-1/2" long <i>TOPLoc™</i> stainless steel screws into 1.5" thick Southern Pine Furring Strips	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1.5" thick Southern Pine Furring Strips	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into 1.5" thick Southern Pine Furring Strips	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 4 ASCE 7 Wind Speeds for 7.25" Solid Board (continued)

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	15	210	210	209
	20	210	210	203
	25	210	210	199
	30	210	210	196
	40	210	207	191
	50	210	202	188
	60	210	199	185
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 5 ASCE 7 Wind Speeds for 3.2 inch AZEK Tongue & Groove Board

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
One (1) #8 x 2-1/2" stainless steel trim-head screw @ 45° through root of tongue into each 1.5" thick Southern Pine Furring Strip	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into each 1.5" thick Southern Pine Furring Strip	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 5 ASCE 7 Wind Speeds for 3.2 inch AZEK Tongue & Groove Board (continued)

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 6 ASCE 7 Wind Speeds for 5.5 inch AZEK Tongue & Groove Board

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
One (1) #10 x 2-1/2" stainless steel trim-head screw @ 45° through root of tongue into each 1.5" thick Southern Pine Furring Strip	15	210	210	202
	20	210	210	197
	25	210	210	193
	30	210	206	190
	40	210	200	185
	50	210	196	182
	60	210	192	179
One (1) #10 x 2-1/2" <i>TOPLoc™</i> stainless steel screw into each 1.5" thick Southern Pine Furring Strip	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	205
	50	210	210	201
	60	210	210	198
One (1) #10 x 2-1/2" long <i>OMG FastenMaster® Cortex</i> concealed fastener into each 1.5" thick Southern Pine Furring Strip	15	210	210	210
	20	210	210	206
	25	210	210	202
	30	210	210	199
	40	210	210	194
	50	210	205	190
	60	210	201	187
Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> face-fastened into each 1.5" thick Southern Pine Furring Strip	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 6 ASCE 7 Wind Speeds for 5.5 inch AZEK Tongue & Groove Board (continued)

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2-3/4" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 7/16" Plywood or OSB over 2x Wood Stud	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 1/2" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) #10 x 2-1/2" screws or Two (2) #10 x 2" long <i>OMG FastenMaster® Cortex</i> concealed fasteners into 3/4" Plywood or OSB	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 18 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

Table 6 ASCE 7 Wind Speeds for 5.5 inch AZEK Tongue & Groove Board (continued)

Assembly Description	Building Height (ft)	ASCE 7-10 or ASCE 7-16 Ultimate Wind Speed (mph)		
		Exp B	Exp C	Exp D
Two (2) <i>OMG FastenMaster® Cortex Driller</i> concealed fasteners into 16 Ga. Hat Channel	15	210	210	210
	20	210	210	210
	25	210	210	210
	30	210	210	210
	40	210	210	210
	50	210	210	210
	60	210	210	210

ASCE 7-10 or ASCE 7-16 Design Wind Pressures for Siding Products

ASD Wind Load Factor: 0.6

Ultimate Pressure	ASD Design Pressure
631.0 psf	378.6 psf
382.0 psf	229.2 psf
319.0 psf	191.4 psf
473.0 psf	283.8 psf
535.0 psf	321.0 psf
223.0 psf	133.8 psf
351.0 psf	210.6 psf
203.0 psf	121.8 psf
301.0 psf	180.6 psf
340.0 psf	204.0 psf
454.0 psf	272.4 psf
372.0 psf	223.2 psf
216.0 psf	129.6 psf
313.0 psf	187.8 psf
154.0 psf	92.4 psf
228.0 psf	136.8 psf
258.0 psf	154.8 psf
325.0 psf	195.0 psf
294.0 psf	176.4 psf
349.0 psf	209.4 psf
144.0 psf	86.4 psf
177.0 psf	106.2 psf
158.0 psf	94.8 psf

ASCE 7-10/7-16 Ultimate Wind Speeds – Example Calculation

5.5 inch AZEK Tongue & Groove Board

(Assume $K_e = 1.0$ for ASCE 7-16)

Design Wind Pressures for Components and Cladding

ASCE 7-10 and ASCE 7-16 for Ground Elevation Factor, $K_e = 1.0$

For Buildings ≤ 60 ft tall

Manufacturer AZEK Building Products

Assembly One (1) #10 x 2-1/2" stainless steel trim-head screw @ 45° through root of tongue into each 1.5" thick Southern Pine Furring Strip

Design Pressure	86.4 psf
Component Area	1.0 ft ²
Tested Pressure Type:	ASD
Wind Load Factor:	0.6
Building Roof Slope (θ):	45.0 degrees
External Pressure Coefficient (GC_p):	-1.40 Based on Zone 5 Corner Pressures
Topographic Factor (K_{zt}):	1.00
Wind Directionality Factor (K_d):	0.85
Enclosure Classification:	Enclosed
Internal Pressure Coefficient (GC_{pi}):	0.18

Assembly	Design Pressure	Building Roof Height (z):	Exposure B		Exposure C		Exposure D	
			Exposure Coeff (K_r):	Wind Speed	Exposure Coeff (K_r):	Wind Speed	Exposure Coeff (K_r):	Wind Speed
One (1) #10 x 2-1/2" stainless steel trim-head screw @ 45° through root of tongue into each 1.5" thick Southern Pine Furring Strip	86.4 psf	15'	0.70	210 mph	0.85	210 mph	1.03	202 mph
	86.4 psf	20'	0.70	210 mph	0.90	210 mph	1.08	197 mph
	86.4 psf	25'	0.70	210 mph	0.95	210 mph	1.13	193 mph
	86.4 psf	30'	0.70	210 mph	0.98	206 mph	1.16	190 mph
	86.4 psf	40'	0.76	210 mph	1.04	200 mph	1.22	185 mph
	86.4 psf	50'	0.81	210 mph	1.09	196 mph	1.27	182 mph
	86.4 psf	60'	0.85	210 mph	1.14	192 mph	1.31	179 mph



PROJECT: ASCE 7 Wind Speeds – AZEK Cellular PVC Cladding

BY: ARK DATE: 03/21/2024

PROJECT NO.: L2798.02-122-34

CKD: TAD SHEET: 22 OF 22

Revision Log

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0	03/21/24	N/A	Original report issue