IRONRIDGE

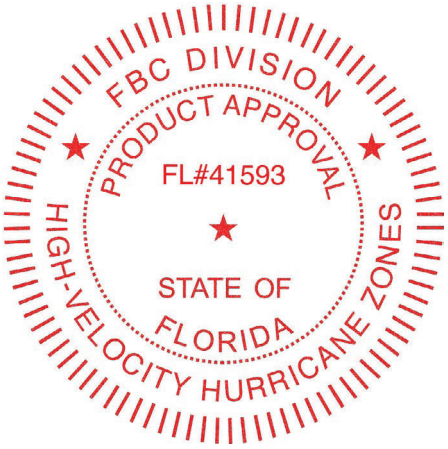
TECHBULLETIN

FLORIDA PRODUCT APPROVAL FOR AIRE FLUSH MOUNT
STREAMLINES SOLAR DESIGN & PERMITTING

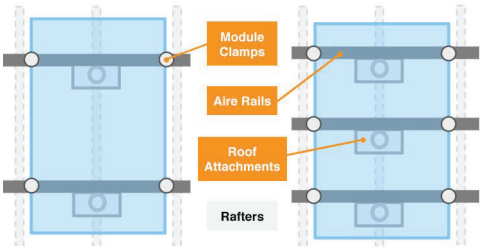
Commited to Safe Solar in Extreme Environments

IronRidge offers the most solar attachment choices for High Velocity Hurricane Zones (HVHZ) in Florida. Our systems are formally approved, in accordance with the 2020 Florida Building Code—providing solutions for many roof types. The rigorous evaluation process for Florida Product Approval includes testing to high-wind resistance, wind-driven rain, and ongoing auditing of quality assurance programs.

Our Florida Product Approval (FL#41593) covers many IronRidge Flush Mount components and applies to all regions of the state of Florida—both inside and outside the high-velocity hurricane zones (HVHZ), with up to 180 PSF of wind pressure when using 3-rail systems. The approval also lists allowable rail spans for configurations using either A1 or A2 Aire mounting rails as well as multiple IronRidge and QuickMount Roof Attachments (covering 2- and 3-rail systems as well as larger format modules, up to 92.5” long).



Florida-Approved Configurations & Components

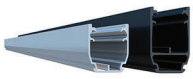


2-Rail
Standard Rack Configuration

3-Rail
Extra Support for Module Frames

Aire Lock
Universal Mid & End Clamps

Aire Lock Stealth
Hidden End Clamp (Cleaner Aesthetics)



Aire Rails
A1 & A2 Racking Rails

Aire Rail Ties
Bonded Structural Splice for Aire Rails

FlashVue
Composition Shingle Roof Attachment

FlashFoot2
Composition Shingle Roof Attachment

Knockout Tile
Flat, S, & W Tile Roof Attachment

Aire Dock
Attachment Hardware

L-Mount
Composition Shingle Roof Attachment

Slotted L-Foot
Alternative Attachment & Anchoring Options

QBase Mount
Universal Tile Attachment

Halo UltraGrip
Composition Shingle Roof Attachment

Pressure Tables

The following tables provide a quick reference for the maximum wind uplift pressures on gable and hip roofs at different tilt angles.

Maximum Wind Uplift Pressure (psf)																		
Roof Slope	120 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	17	15	22	18	26	20	23	21	29	25	35	27	27	24	35	29	42	32
21-27°	13	10	18	15	21	15	17	14	25	20	28	20	20	17	30	24	33	24
28-45°	13	11	15	12	19	16	17	15	20	16	25	22	20	18	24	19	30	26
Roof Slope	130 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	20	18	26	21	31	23	27	24	34	29	41	31	32	29	41	34	49	37
21-27°	15	12	22	18	24	18	20	16	29	24	33	24	24	20	35	28	39	28
28-45°	15	13	18	14	22	19	20	18	24	19	29	26	24	21	28	22	35	30
Roof Slope	140 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	23	21	30	25	35	27	31	28	40	33	48	36	37	33	48	40	57	43
21-27°	17	14	25	21	28	21	23	19	34	28	38	28	28	23	40	33	45	33
28-45°	17	15	21	16	25	22	23	21	28	22	34	30	28	25	33	26	41	35
Roof Slope	150 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	26	24	34	29	41	31	35	32	46	38	55	42	42	38	55	46	65	50
21-27°	20	16	29	24	33	24	27	22	39	32	44	32	32	26	46	38	52	38
28-45°	20	18	24	19	29	25	27	24	32	25	39	34	32	28	38	30	47	41
Roof Slope	160 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	30	27	39	33	46	35	40	36	52	44	62	47	48	43	62	52	74	56
21-27°	23	18	33	27	37	27	31	25	44	36	50	36	36	30	52	43	59	43
28-45°	23	20	27	21	33	29	30	27	36	28	45	39	36	32	43	34	53	46

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Maximum Wind Uplift Pressure (psf)																		
Roof Slope	170 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	34	31	44	37	52	40	45	41	59	49	70	53	54	49	70	59	83	64
21-27°	26	21	37	30	42	30	35	28	50	41	56	41	41	33	59	48	67	48
28-45°	26	23	30	24	37	33	34	31	41	32	50	44	41	36	48	38	60	52
Roof Slope	175 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	36	33	46	39	55	42	48	44	62	52	74	57	57	52	74	62	88	67
21-27°	27	22	39	32	44	32	37	30	53	43	59	43	44	35	63	51	71	51
28-45°	27	24	32	25	40	34	36	32	43	34	53	46	43	39	51	41	63	55
Roof Slope	180 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
	Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip		Gable / Hip	
8-20°	38	34	49	41	58	45	51	46	66	55	79	60	61	55	79	66	94	71
21-27°	29	23	42	34	47	34	39	31	56	46	63	46	46	37	66	54	75	54
28-45°	29	25	34	27	42	36	38	34	46	36	56	49	46	41	54	43	67	58

Footnotes:

1. The pressure forces tabulated are per ASD (Allowable Stress Design) method and Florida Building Code 2020
2. The pressure values are calculated based on a single module area of 21 sqft as the maximum allowed and 25 foot building height defined as the average of the roof ridge and eave height.
3. The pressures are calculated for non-exposed modules in the array as defined by ASCE 7-16 Section 29.4.4. For exposed modules the pressure shall be multiplied by an edge factor of 1.5.
4. The table is applicable to an array which maintains a minimum edge distance (to ridge, eave, side rake or hip) of 2 x h2 (h2 is the clearnace from the roof surface to the topside of the module), and contains modules that meet the dimensional limits of ASCE 7-16
5. The tablulated values are based on the selected ultimate design wind speeds.
6. The pressure values are for a module top surface that is less than or equal to 10” (h2) above the roof surface.
7. Provided pressure for Hip roofs with Roof Slopes of 28-45° are calculated for the worst-case condition of a 45° roof slope per ASCE 7-16 Fig 30.3-2H.

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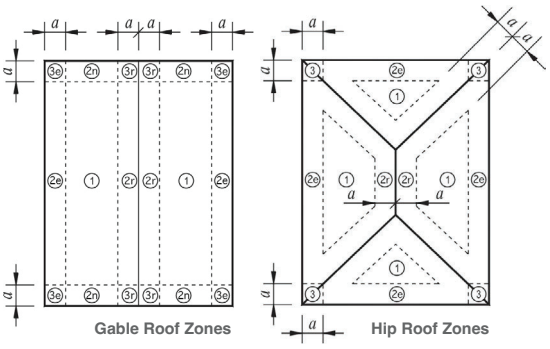
Grouping of ASCE 7-16 Roof Zones (Gable)						
Roof Slope	8-27°			28-45°		
Group	1	2	3	1	2	3
Roof Zones	1 2e	2n 2r 3e	3r	1 2e 2r	2n 3r	3e

Grouping of ASCE 7-16 Roof Zones (Hip)									
Roof Slope	8-20°			21-27°			28-45°		
Group	1	2	3	1	2	3	1	2	3
Roof Zones	1	2r	2e 3	1	2e 2r	3	1	2e	2r 3



Gable Roof Zones Hip Roof Zones

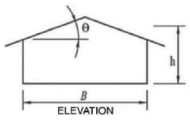
Notation (Per ASCE 7-16)

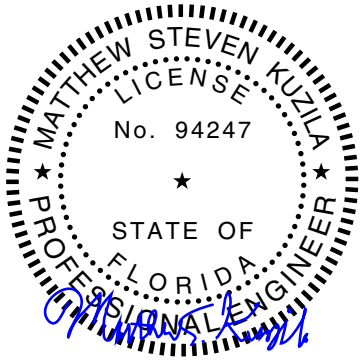
a = 10% of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m). If an overhang exists, the edge distance shall be measured from the outside edge of the overhang. The hotiontal dimensions used to compute the edge distance shall not include any overhang distances.

B = Horizontal dimension of building measured normal to wind direction, in ft (m).

h = Mean roof height, in ft (m).

θ = Angle of plane of roof from horizontal, in degrees.





This item has been electronically signed and sealed by Matthew S Kuzila on the 03/27/2023 using a SHA authentication code. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Expires 2.28.2025

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