EcoFasten®

For Installers. **By Installers.**

FLORIDA PRODUCT APPROVAL PRESSURE TABLES

CLICKFIT®

As an industry leader, **EcoFasten** recognizes the need for consistency and uniformity in products and processes, and we are proud to have received approval for the **ClickFit System** in the State of Florida. This approval includes the High-Velocity Hurricane Zone (HVHZ), under the strict requirements of the 2020 Florida Building Code.

Florida Product Approval (FL# 41395) covers our **ClickFit System** for installation on composition shingle roof attachments. There are three approved roof attachments, two with a traditional metal flashing, and the other with an **Ultragrip Technology™** flashing system.

Additionally, this thorough evaluation process includes testing for resistance to high wind forces and wind-driven rain. Our code compliance applies to all regions within the state of Florida, both inside and outside the high-velocity hurricane zones.

FBC DIVISION
PRODUCT APPROVAL
FL#39871
FL#41395
FL#41656
STATE OF FLORIDA
HIGH-VELOCITY HURRICANE ZONES

APPROVED ROOF ATTACHMENTS

GF-1 W/ CF L-FOOT

3012010
3012011
3012013

2012022

3016017

CF SMART FOOT

2012028

3016018

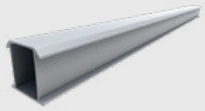
QB-1

3017013
3017014

3017010

3017011
3017012

MOUNTING SYSTEM COMPONENTS



RAIL

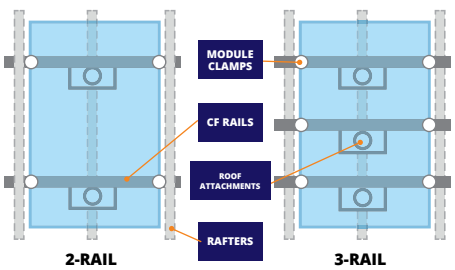
SPLICE

END CAP

MID CLAMP

END CLAMP

RAIL CONFIGURATIONS



2-RAIL
Standard Rack Configuration

3-RAIL
Extra Support for Module Frames

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 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	14	13	18	15	22	17	19	17	25	21	29	22	23	21	29	25	35	27
21-27°	11	9	15	13	17	13	14	12	21	17	23	17	17	14	25	20	28	20
28-45°	11	10	13	10	16	14	14	13	17	13	21	18	17	15	20	16	25	22
Roof Slope	130 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	17	15	22	18	26	20	22	20	29	24	34	26	27	24	34	29	41	31
21-27°	13	10	18	15	21	15	17	14	24	20	28	20	20	16	29	24	33	24
28-45°	13	11	15	12	18	16	17	15	20	16	25	21	20	18	24	19	29	26
Roof Slope	140 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	19	17	25	21	30	23	26	23	34	28	40	30	31	28	40	33	48	36
21-27°	15	12	21	17	24	17	20	16	28	23	32	23	23	19	34	28	38	28
28-45°	15	13	17	14	21	19	20	17	23	18	29	25	23	21	28	22	34	30
Roof Slope	150 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	22	20	29	24	34	26	30	27	38	32	46	35	35	32	46	38	55	42
21-27°	17	14	24	20	27	20	23	18	33	27	37	27	27	22	39	32	44	32
28-45°	17	15	20	16	24	21	22	20	27	21	33	29	27	24	32	25	39	34
Roof Slope	160 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	25	23	33	27	39	30	34	31	44	37	52	40	40	37	52	44	62	47
21-27°	19	16	28	23	31	23	26	21	37	30	42	30	31	25	44	36	50	36
28-45°	19	17	23	18	28	24	25	23	30	24	37	33	30	27	36	28	45	39

PRESSURE TABLES

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

Roof Slope	170 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	28	26	37	31	44	33	38	35	49	41	59	45	45	41	59	49	70	53
21-27°	22	18	31	25	35	25	29	24	42	34	47	34	35	28	50	41	56	41
28-45°	21	19	25	20	31	27	29	26	34	27	42	37	34	31	41	32	50	44

Roof Slope	175 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	30	27	39	33	46	35	40	37	52	44	62	48	48	44	62	52	74	57
21-27°	23	19	33	27	37	27	31	25	44	36	50	36	37	30	53	43	59	43
28-45°	23	20	27	21	33	29	30	27	36	29	45	39	36	32	43	34	53	46

Roof Slope	180 MPH																	
	Exposure B						Exposure C						Exposure D					
	Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)		Group 1 (Gable / Hip)		Group 2 (Gable / Hip)		Group 3 (Gable / Hip)	
8-20°	32	29	41	35	49	37	43	39	55	46	66	50	51	46	66	55	79	60
21-27°	24	20	35	28	39	28	32	26	47	38	53	38	39	31	56	46	63	46
28-45°	24	21	28	23	35	31	32	29	38	30	47	41	38	34	46	36	56	49

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 greater than or equal to 2" and less than or equal to 6" (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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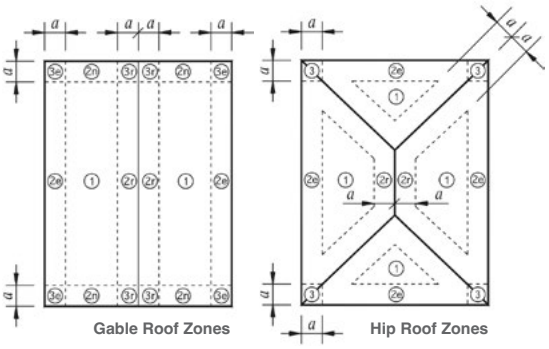
Grouping of ASCE 7-16 Roof Zones (Gable)						
Roof Slope	8-27°			28-45°		
Group	1	2	3	1	2	3
Roof Zones	1 2e	2n 2r 3e	3r	1 2e 2r	2n 3r	3e

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



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.