

BCAB

Building Code Advisory Board of Palm Beach County

TECHNICAL ADVISORY

Issued on 06-17-19

Revised 03-16-21

By The Building Code Advisory Board

Subject: Proprietary Wind Load Chart for Alterations Level I

This Technical Advisory is intended to provide a proprietary wind load chart for use in all jurisdictions within Palm Beach County. We believe the voluntary use of this chart will help to promote uniformity between the various municipalities, eliminate the need for “sealed engineering” and provide ease of access for contractors/owner builders. Furthermore, it is intended this chart be used only within the following stated limitations:

Limitations:

- Replacement/installation of components & cladding (i.e., windows, doors, garage doors, shutters, reroofing as cited in the 2020 FBC(*Existing*) Chapter 7 Alterations I
- Chart applies to only One & Two family dwellings and Multiple Single Family Dwellings (Townhouses) with a mean roof height ≤ 30 feet
- Wind 170mph, Exposure C, $K_d = .85$, $K_{zt} = 1.0$

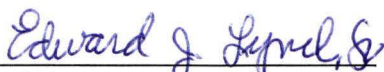
Please Note:

1. In no way should it be construed that this technical bulletin negates any requirement for a design professional as stated in 2020 Amendments to the FBC 107.3.4
2. Any structure outside the aforementioned limitations will require a worst-case design pressure chart (signed & sealed) prepared by a Florida P.E. or Architect.

In review of this subject, the Board has rendered the following opinion:

- Voluntary use of the attached chart is acceptable in all jurisdictions within Palm Beach County as long as its use is constrained to the aforementioned limitations.

For The Building Code Advisory Board



Edward Lynch, Chair

The Building Code Advisory Board of Palm Beach County was created by a Special Act of the Florida Legislature, at the request of the building code enforcement and construction industries. The purpose of the Board is to advise the Board of County Commissioners and local governments concerning the adoption of building codes and their enforcement throughout the County. The Act also granted Palm Beach County special powers concerning building codes, in the interest of the public's health, safety and general welfare.

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SIMPLIFIED ROOF UPLIFT CHART FOR ROOFING APPLICATIONS

This simplified chart represents the worst-case wind pressures for the various roof slopes and heights. This chart is based on a Tributary Area = 10 SF which is required for roofing applications. If the roof height is less than 30 feet, but not exactly 15, 20, or 25 feet, you will need to go to the next higher roof height. If your roof is higher than 30 feet, these charts do not apply. Refer to Roof Chart Diagrams on Page 1 for Roof Zone Locations.

MEAN ROOF HEIGHT = 15 FEET

Flat Roof		Gable Roof			Hip Roof			
		1.51 to 4:12		4.1 to 6:12	6.1 to 12:12	1.51 to 4:12		4.1 to 6:12
Positive*	15.4/38.0	Positive 23.2		Positive 23.2	Positive 34.7	Positive 28.3		Positive 28.3
Zone		Zone	Roof	Roof	Roof	Zone	Roof	Roof
1	-60.5	1, 2e	-70.1	-54	-63.7	1	-63.7	-50.8
1'	-34.8	2n & 2r	-102	-86.2	-70.1	2e	-89.4	-70.1
2	-79.8	3e	-102	-86.2	-86.7	2r	-83	-70.1
3*	-109	3r	-102	-102	-70.1	3	-89.4	-70.1

MEAN ROOF HEIGHT = 20 FEET

Flat Roof		Gable Roof			Hip Roof			
		1.51 to 4:12		4.1 to 6:12	6.1 to 12:12	1.51 to 4:12		4.1 to 6:12
Positive*	16.4/40.3	Positive 24.6		Positive 24.6	Positive 36.9	Positive 30.1		Positive 30.1
Zone		Zone	Roof	Roof	Roof	Zone	Roof	Roof
1	-64.2	1, 2e	-74.5	-57.4	-67.7	1	-67.6	-54
1'	-36.9	2n & 2r	-109	-91.5	-74.5	2e	-95	-74.5
2	-84.8	3e	-109	-91.5	-92.1	2r	-88.1	-74.5
3*	-116	3r	-129	-108	-74.5	3	-95	-74.5

MEAN ROOF HEIGHT = 25 FEET

Flat Roof		Gable Roof			Hip Roof			
		1.51 to 4:12		4.1 to 6:12	6.1 to 12:12	1.51 to 4:12		4.1 to 6:12
Positive*	17.2/42.3	Positive 25.8		Positive 25.8	Positive 38.7	Positive 31.5		Positive 31.5
Zone		Zone	Roof	Roof	Roof	Zone	Roof	Roof
1	-67.3	1, 2e	-78.1	-60.2	-70.9	1	-70.9	-58.6
1'	-38.7	2n & 2r	-114	-96	-78.1	2e	-99.6	-78.1
2	-88.8	3e	-114	-96	-96.6	2r	-92.4	-78.1
3*	-121	3r	-135	-113	-78.1	3	-99.6	-78.1

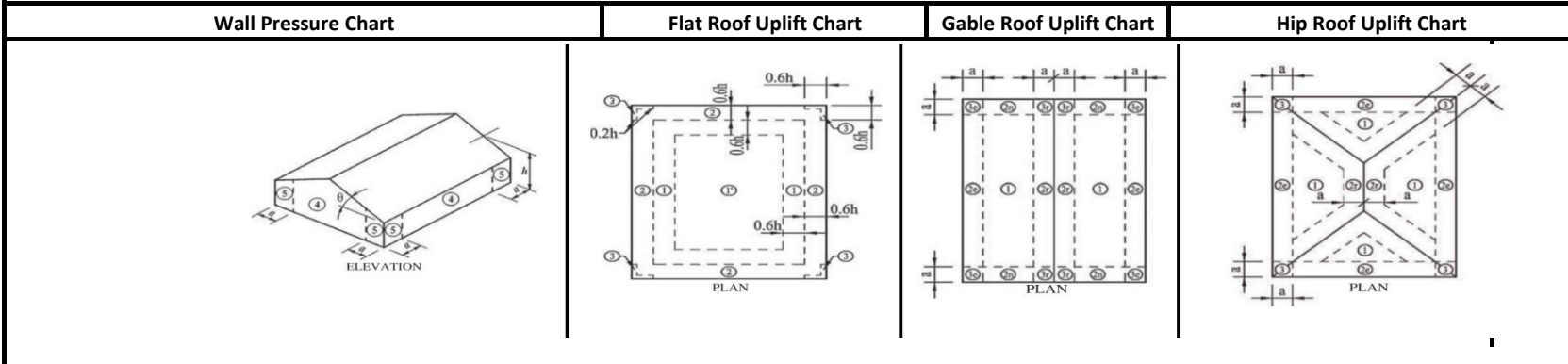
MEAN ROOF HEIGHT = 30 FEET

Flat Roof		Gable Roof			Hip Roof			
		1.51 to 4:12		4.1 to 6:12	6.1 to 12:12	1.51 to 4:12		4.1 to 6:12
Positive*	17.9/43.9	Positive 26.8		Positive 26.8	Positive 40.2	Positive 32.8		Positive 32.8
Zone		Zone	Roof	Roof	Roof	Zone	Roof	Roof
1	-70	1, 2e	-81.1	-62.6	-73.7	1	-73.7	-58.8
1'	-40.2	2n & 2r	-118	-99.8	-81.1	2e	-103	-81.1
2	-92.3	3e	-118	-99.8	-100	2r	-96	-81.1
3*	-126	3r	-141	-118	-81.1	3	-103	-81.1

**If Parapet >= 3Ft occurs around entire building use the same Zone 2 pressure for Zone 3 and use the higher positive pressure shown.*

Per ASCE 7-16 Part 1 and FBC (2020) For Detached One-and-Two family dwellings and Multiple Single-Family Dwellings (Townhouses) with Mean Roof Height \leq 30 feet. Wind V_{ult} 170 mph (3- second gust) / Exposure C^{**} / $K_d = 0.85$ / $K_{zt} = 1.0$ / Pressures are in PSF / Not for use in Coastal (Exposure 'D' areas). *Using Allowable Stress Design methodology ($O = 0.6w$) / **Exposure Category C or D shall be determined according to Chapter 16 Florida Building Code or Chapter 3 Florida Residential Code.

ROOF AND WALL ZONE CHART DIAGRAMS



Instructions on how to use these charts: Determine Mean Roof Height, h , which is top of roof for flat roofs or the mean roof height for pitched roofs. Find your least horizontal dimension for your building, not including an overhang if it occurs. Calculate the value of a , $a = 10\%$ of least horizontal dimension or $0.4 \cdot h$, whichever is smaller, but no less than either 4% of least horizontal dimension or 3 feet. If your roof height is less than 30 feet, but not exactly 15, 20, or 25 feet, you will need to go to the next higher roof height. If your Mean Roof Height is higher than 30 feet, these charts do not apply. Review the diagram which illustrate the wall and the roof zones and determine the wind zone in which the component is located. Determine the tributary area of the component. If the tributary area falls in between values, use the value of the smaller tributary area. Select the positive and negative wind pressures corresponding to the wall or roof zone where your component is located. Door pressures shown are for the most common door sizes and are worst case for heights \leq 30 Feet.

WALL PRESSURE FOR ALL ROOF TYPES													GARAGE/ DOOR PRESSURES				
Mean Roof Height	15 Feet						20 Feet						\leq 30 Feet				
	Tributary Area	10	20	35	50	100	500	10	20	35	50	100	500	Effective Wind Area		Positive	Negative
	38	36.2	34.9	34	32.3	28.3	40.3	38.5	37	36.1	34.3	30.1	Width	Height			
Wall Positive Pressure														8	8	38.6	-48.2
Zone 4 Negative Pressure	-41.2	-39.5	-38.1	-37.2	-35.5	-31.5	-43.7	-41.9	-40.5	-39.5	-37.7	-33.5	10	10	37.4	-45.7	
Zone 5 Negative Pressure	-50.8	-47.4	-44.6	-42.9	-39.5	-31.5	-54	-50.4	-47.4	-45.6	-41.9	-33.5					
Mean Roof Height	25 Feet						30 Feet						\leq 30 Feet				
Tributary Area	10	20	35	50	100	500	10	20	35	50	100	500	14	14	35.4	-41.8	
Wall Positive Pressure	-42.3	40.4	38.8	37.8	35.9	31.5	43.9	41.9	40.3	39.3	37.3	32.8	16	7	37	-45	
Zone 4 Negative Pressure	-45.8	-43.9	-42.4	-41.4	-39.5	-35.1	-47.6	-45.7	-44.1	-43.1	-41.1	-36.5	3	7	41.8	-54.6	
Zone 5 Negative Pressure	-56.6	-52.8	-49.7	-47.8	-43.9	-35.1	-58.8	-54.7	-51.7	-49.6	-45.7	-36.5	6	7	39.8	-50.6	