



RETROFIT OF WINDOWS & DOORS (WIND LOAD PRESSURES)

EXAMPLE FOR: WINDOWS, DOORS & SHUTTERS

EXPOSURE C, 170 M.P.H. 3 SEC GUST

LOCATION: ZONE 4

Mean Roof Height = 15 feet

Existing Openings = 38" x 38" = 1444"

1444" divided by 144 = 10.02 sq. ft.

See Table Opening Pressure = 37.8 positive & 41.0 negative

LOCATION: ZONE 5

See Table

Opening Pressure = 37.8 positive & 50.6 negative

EXAMPLE: GARAGE DOOR

See Table

REPEAT THIS PROCEDURE FOR ALL OPENINGS

SUBMIT THE FOLLOWING IN DUPLICATE:

1. A sketch of the house (floor plan view) showing the location of all openings and identify each opening with a letter or number. Use ink only.
2. N.O.A.'s (Notice of Acceptance) Product Approvals with opening sizes and related pressures highlighted, and add the identifying letter or number at each column.
3. If any opening is to be altered, an Engineer or Architect's signed and sealed detail is required.
4. A Building Permit Application, Owner-Builders Affidavit and recorded Warranty Deed if applicable.
5. The Wind Load Pressure must be prepared, signed and sealed by a professional engineer or architect for structures with an application date after September 1, 1994, the attached charts can only be used on homes built prior to this date.
6. Complete the product approval review form, use as many sheets as needed to list all openings.



CITY OF HALLANDALE BEACH

BUILDING INSPECTIONS DIVISION

400 South Federal Highway

Hallandale Beach, FL 33009

Office 954-457-3023 ● Fax 954-457-1312

PRODUCT APPROVAL SUBMITTAL FORM

Product Approval Submittals shall be treated as Structural Construction Documents. Structural Plan Reviewers will only perform cursory review when the Product Approval Review form bears the date, signature and impressed seal of the designer of record. The designer of record must also provide the following statement:

“I have personally reviewed all of the Product Approval documents listed on this form. I certify that they are all completed and meet the design requirements for all openings on this job.”

Permit #:	
Contractor:	
Contact Name:	
Telephone Number:	
Site Address:	

PLEASE INDICATE APPROPRIATE SUBMITTAL(S):

- | | |
|----------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Bar Joist | <input type="checkbox"/> Storm Panels |
| <input type="checkbox"/> Garage Door | <input type="checkbox"/> Swing Entry Doors |
| <input type="checkbox"/> Glass Block | <input type="checkbox"/> Windows |
| <input type="checkbox"/> Sliding Glass Doors | <input type="checkbox"/> Pre-Stress Concrete Engineering |
| <input type="checkbox"/> Stair Shop Drawings | <input type="checkbox"/> Post-Stress Concrete Engineering |
| <input type="checkbox"/> Storefront/Glazing | <input type="checkbox"/> Gutters/Downspouts |
| <input type="checkbox"/> Other (Describe): | |

IF PRODUCT APPROVALS ARE REJECTED, THIS FORM MUST BE RESUBMITTED WITH CORRECTED PRODUCT APPROVALS. DO NOT FILL OUT ANOTHER FORM.



PRODUCT APPROVAL REVIEW FORM

Contractor Name: _____ Site Address: _____ Permit No.: _____

1 Opening Location	2 Product Approval No. (Notice of Acceptance)	3 Product Approval Design Pressures Rating		4 Opening design Pressures		5 Opening Sizes		6 Shutters Required?		7 Energy Code Required?	
		(+) PSF	(-) PSF	(+) PSF	(-) PSF	Width x Height	Area (SF)	Zone #	Y/N	SHGC	U/factor

Identify openings alphabetically on elevation sheets. Identify vertically stacked glass in the same openings from bottom to top with Sub numbers (A, A1, A2, etc.)

Building Dimensions:

Length = 65ft Width = 50ft

Mean Roof Height, "h" = 14ft

Corner Zone 5 = "a"

Calculation for Zone 5:

.10 X least horizontal dimension, 50ft, = 5ft

Or

.4 X "h", 14ft, = 5.6ft whichever is smaller

Corner Zone 5 = "a" = 5ft

EXPOSURE C, 170 MPH 3 SEC. GUST

LOCATION: ZONE 4

Mean Roof Height = 14ft

Existing Openings = 38' X 38" = 1444"

1444" ÷ 144 = 10.02 sq. ft.

See Table

Opening Pressure

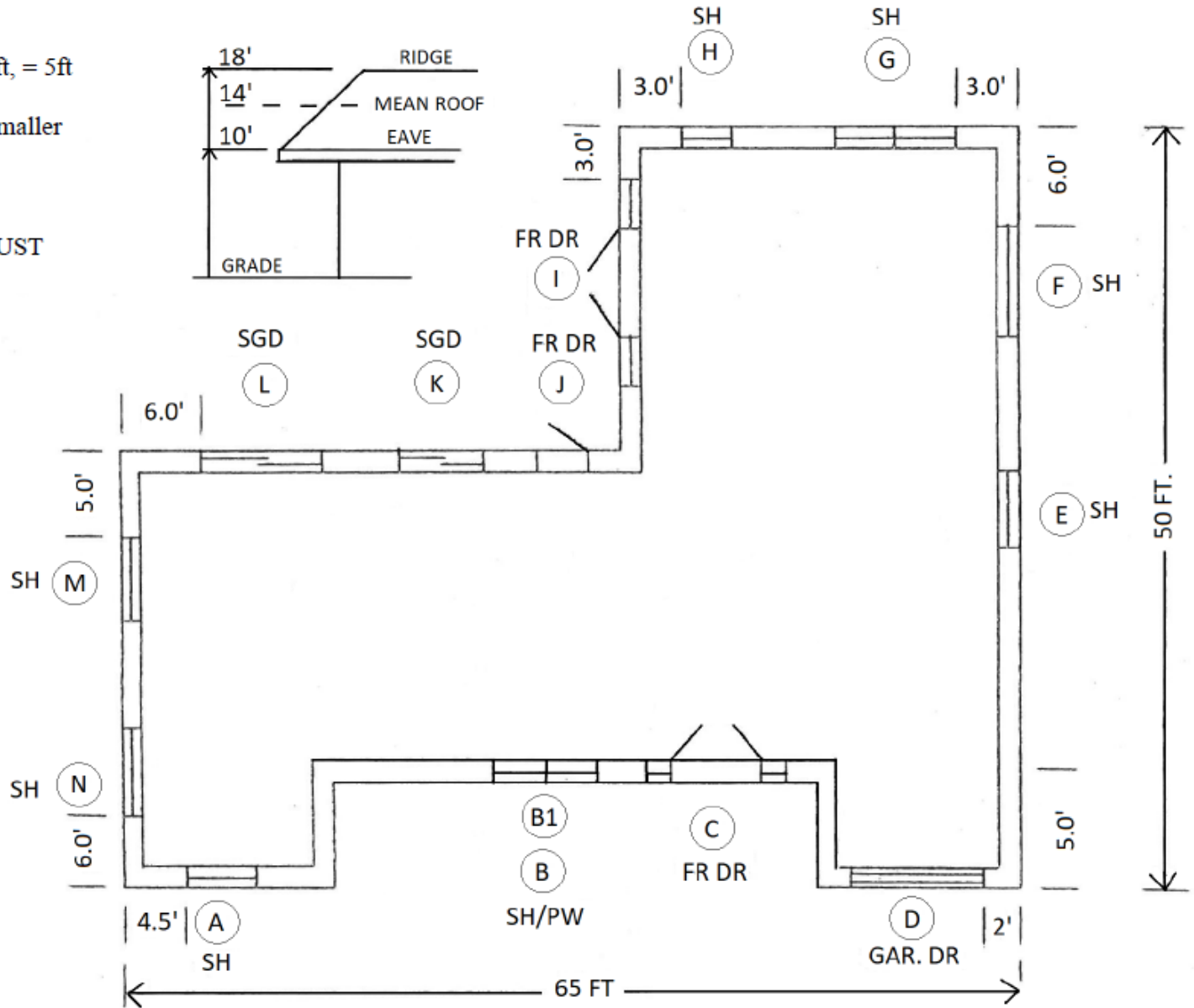
37.8 positive & 41.0 negative

LOCATION: ZONE 5

See Table

Opening Pressure

37.8 positive & 50.6 negative





BROWARD COUNTY BOARD OF RULES AND APPEALS

1 N. University Drive, Suite 3500B
Plantation, FL 33324

Phone: 954-765-4500
Fax: 954-765-4504

broward.org/CodeAppeals

FBC 7th EDITION (2020) FORMAL INTERPRETATION (#24)

DATE: September 10, 2020
TO: All Building Officials
FROM: James DiPietro, Administrative Director
SUBJECT: Retrofit of Windows, Doors, Garage Doors, Shutters and Skylights
FBC Existing Building, Alteration Level I

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P.E., S.I., SECB, F.ASCE, F.SEI
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Roofing Contractor

Board Attorney

Charles M. Kramer, Esq.

Board Administrative Director

James DiPietro

—ESTABLISHED 1971—

At its meeting of September 10, 2020, the Board approved an interpretation of Retrofit of Windows, Doors, Garage Doors, Shutters and Skylights, for detached one and two family dwellings, and multiple single family dwellings, (townhouses) with common roof height < 30 feet.

1. A Florida Professional Engineer or Architect may modify the buck or fasteners as specified in a Notice of Acceptance. Such modification must be documented with a signed and sealed letter or drawing.
2. To obtain the required design pressure for a specific opening at a specific site, an individual must utilize one of the following and submit documentation as indicated.
 - a) A site-specific plan (signed and sealed) by a Florida Professional Engineer or Architect, indicating the location of all retro openings and the required design pressures.
 - b) A site-specific plan (not sealed) indicating the location of all retro openings accompanied by a worst-case design pressure chart (signed and sealed) prepared by a Florida P.E. or Architect.
 - c) A site-specific plan (not sealed) indicating the location of all openings and indicating the required design pressures based on the Broward County Fenestration Voluntary Wind Load Chart. (see attached chart).
3. Buildings with a (height) > 30 feet or more shall have a site-specific design (signed and sealed) by a Florida Professional Engineer or Architect, indicating the location of all retro openings and the required design pressures for each opening.

NOTE: Generic charts, graphs alone, etc. are not acceptable for buildings above 30 feet.

EFFECTIVE DATE: September 12, 2012
RE-ISSUED: October 12, 2017
EFFECTIVE DATE: December 31, 2020

***** PLEASE POST AT YOUR PERMIT COUNTER *****

Broward County Fenestration Voluntary Wind Load Chart*

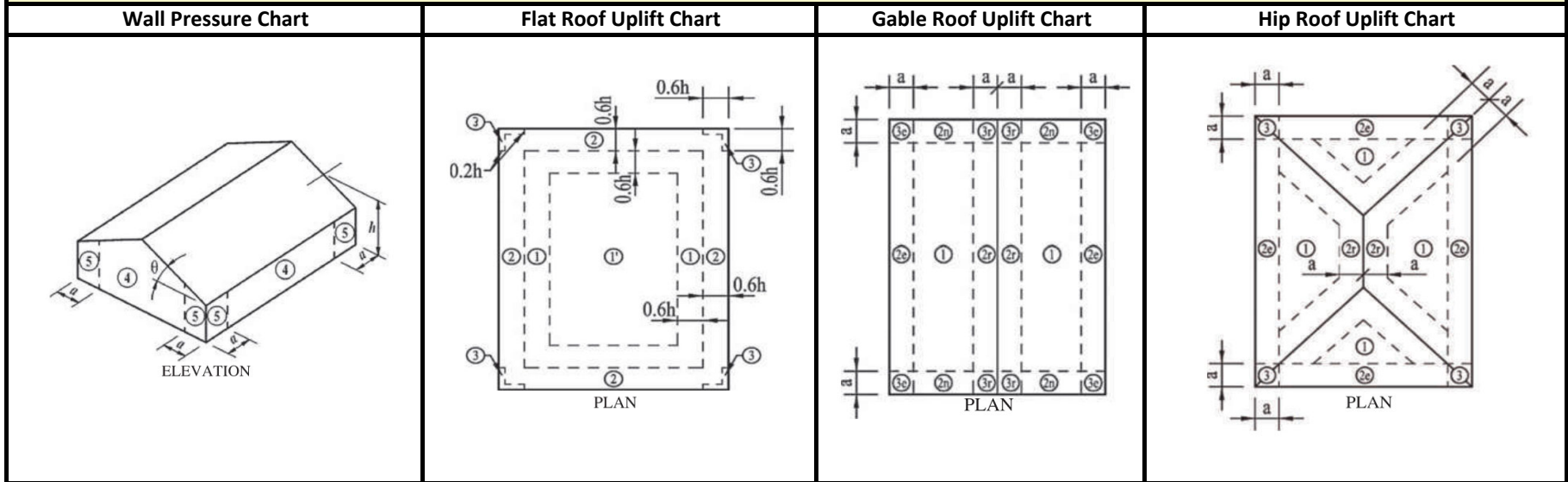
Per ASCE 7-16 Part 1 and FBC (2020) for Retrofitting in Accordance with Formal Interpretation #24

For Detached One-and Two family dwellings and Multiple Single-Family Dwellings (Townhouses) with Mean Roof Height ≤ 30 feet

Wind 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 ($P = 0.6w$) / ** Exposure C or D shall be determined according to ASCE 7-16 Section 26.7 (Exposure Categories)

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 a overhang if it occurs. Calculate the value of, a , = 10% of least horizontal dimension or $0.4 \cdot h$, whichever is smaller, but not 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 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 ≤ 30 Feet.

Wall Pressure For All Roof Types													Garage/Door Pressures			
Mean Roof Height	15 Ft						20 Ft						≤ 30 Ft			
Tributary Area	10	20	35	50	100	500	10	20	35	50	100	500	Effective Wind Area		Positive	Negative
	Wall Positive Pressure		Zone 4 Negative Pressure		Zone 5 Negative Pressure		Width		Height							
Mean Roof Height	25 Ft						30 Ft						14	14	35.4	-41.8
Tributary Area	10	20	35	50	100	500	10	20	35	50	100	500	9	7	38.7	-48.3
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	37.0	-45.0
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

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 height 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 1.51 to 4:12			Gable Roof 4.1 to 6:12		Gable Roof 6.1: to 12:12		Hip Roof 1.51 to 4:12			Hip Roof 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	Overhang	Roof	Overhang	Roof	Overhang	Zone	Roof	Overhang	Roof	Overhang
1	-60.5	1, 2e	-70.1	-80.4	-54.0	-64.3	-63.7	-83.6	1	-63.7	-74.0	-50.8	-60.8
1'	-34.8	2n & 2r	-102	-113	-86.2	-96.5	-70.1	-90.1	2e	-89.4	-99.7	-70.1	-79.0
2	-79.8	3e	-102	-132	-86.2	-116	-86.7	-107	2r	-83.0	-93.3	-70.1	-79.0
3*	-109	3r	-122	-151	-102	-128	-70.1	-90.1	3	-89.4	-119	-70.1	-95.3

Mean Roof Height = 20 Feet

Flat Roof		Gable Roof 1.51 to 4:12			Gable Roof 4.1 to 6:12		Gable Roof 6.1: to 12:12		Hip Roof 1.51 to 4:12			Hip Roof 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	Overhang	Roof	Overhang	Roof	Overhang	Zone	Roof	Overhang	Roof	Overhang
1	-64.2	1, 2e	-74.5	-85.4	-57.4	-68.3	-67.7	-88.9	1	-67.6	-78.6	-54.0	-64.6
1'	-36.9	2n & 2r	-109	-120	-91.5	-102	-74.5	-95.7	2e	-95.0	-106	-74.5	-84.0
2	-84.8	3e	-109	-140	-91.5	-123	-92.1	-113	2r	-88.1	-99.1	-74.5	-84.0
3*	-116	3r	-129	-161	-108	-136	-74.5	-95.7	3	-95.0	-126	-74.5	-101

Mean Roof Height = 25 Feet

Flat Roof		Gable Roof 1.51 to 4:12			Gable Roof 4.1 to 6:12		Gable Roof 6.1: to 12:12		Hip Roof 1.51 to 4:12			Hip Roof 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	Overhang	Roof	Overhang	Roof	Overhang	Zone	Roof	Overhang	Roof	Overhang
1	-67.3	1, 2e	-78.1	-89.5	-60.2	-71.6	-70.9	-93.1	1	-70.9	-82.4	-58.6	-67.7
1'	-38.7	2n & 2r	-114	-125	-96	-107	-78.1	-100	2e	-99.6	-111	-78.1	-88.0
2	-88.8	3e	-114	-147	-96	-129	-96.6	-119	2r	-92.4	-104	-78.1	-88.0
3*	-121	3r	-135	-168	-113	-143	-78.1	-100	3	-99.6	-133	-78.1	-106

Mean Roof Height = 30 Feet

Flat Roof		Gable Roof 1.51 to 4:12			Gable Roof 4.1 to 6:12		Gable Roof 6.1: to 12:12		Hip Roof 1.51 to 4:12			Hip Roof 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	Overhang	Roof	Overhang	Roof	Overhang	Zone	Roof	Overhang	Roof	Overhang
1	-70.0	1, 2e	-81.1	-93.1	-62.6	-74.5	-73.7	-96.8	1	-73.7	-85.6	-58.8	-70.4
1'	-40.2	2n & 2r	-118	-130	-99.8	-112	-81.1	-104	2e	-103	-115	-81.1	-91.4
2	-92.3	3e	-118	-153	-99.8	-134	-100	-123	2r	-96.0	-108	-81.1	-91.4
3*	-126	3r	-141	-175	-118	-148	-81.1	-104	3	-103	-138	-81.1	-110

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