Wind Velocity Chart

The correlation between dynamic wind speed and static equivalent pressure is formulaic in nature. Dynamic wind speeds at various locations in the United States are determined from wind speed maps in the ASCE/ SEI 7 document. These wind speed maps are based on the historical weather data and provide the maximum expected 3 second wind gust speed. ASCE/ SEI 7 also details a calculation procedure for determining the required design pressure (also known as the wind load or DP) for a specific building opening application. In addition to wind speed, this process applies various factors for application details including the building use, the surrounding terrain, the building height and dimensions, the size and location of openings in the building, etc. It is important to note that this process is application specific – the required design pressure is not merely a conversion of wind speed using the previously indicated equations – it is dependent on many other factors.

CLASS/DESIGN PRESSURE IN PSF (INCHES OF WATER)	CLASS/DESIGN PRESSURE EQUIVALENT WIND VELOCITY IN (MPH)	STRUCTURAL TEST PRESSURE IN PSF (INCHES OF WATER)	STRUCTURAL TEST PRESSURE IN EQUIVALENT WIND VELOCITY IN (MPH)	WATER TEST PRESSURE IN PSF (INCHES OF WATER)	WATER TEST PRESSURE EQUIVALENT WIND VELOCITY IN (MPH)
15 (2.88)	77.52	22.50 (4.32)	94.94	2.86 (0.55)	24.67
20 (3.84)	89.51	30.00 (5.76)	109.63	3.00 (0.58)	33.85
25 (4.80)	100.08	37.50 (7.20)	122.57	3.75 (0.72)	38.76
30 (5.76)	109.63	45.00 (8.64)	134.27	4.50 (0.86)	42.46
35 (6.72)	118.42	52.50 (10.08)	145.03	5.25 (1.01)	45.86
40 (7.68)	126.59	60.00 (11.52)	155.04	6.00 (1.15)	49.03
45 (8.64)	134.27	67.50 (12.96)	164.45	6.75 (1.30)	52
50 (9.60)	141.53	75.00 (14.40)	173.34	7.50 (1.44)	54.82
55 (10.56)	148.44	82.50 (15.84)	181.8	8.25 (1.58)	57.49
60 (11.52)	155.04	90.00 (17.28)	189.89	9.00 (1.73)	60.05
65 (12.48)	161.37	97.50 (18.72)	197.64	9.75 (1.87)	62.5
70 (13.44)	167.47	105.00 (20.16)	205.1	10.50 (2.02)	64.86
75 (14.40)	173.34	112.50 (21.60)	212.3	11.25 (2.16)	67.14
80 (15.36)	179.03	120.00 (23.04)	219.26	12.00 (2.30)	69.34
85 (16.32)	184.54	127.50 (24.48)	226.01	12.00 (2.30)	69.34
90 (17.28)	189.89	135.00 (25.92)	232.56	12.00 (2.30)	69.34
95 (18.24)	195.09	142.50 (27.36)	238.94	12.00 (2.30)	69.34
100 (19.20)	200.16	150.00 (28.80)	245.14	12.00 (2.30)	69.34

AIR INFILTRATION IN PSF (INCHES OF WATER)	
1.57 (0.30)	25.08
6.24 (1.20)	50.00

These values are calculated from the Ensewiler Formula, $P = 0.00256\ V^2$, where V = Wind Velocity in MPH and P = the Differential Pressure across the window in Pounds per Square Foot (PSF).The equation assumes the direction of wind is perpendicular to the window and

there are no effects from surrounding terrain or the shape of the building in which it is installed. Positive (+) pressures act inward and Negative (-) pressures act outward on the window.

An easier way to perform this calculation would be as follows:
Square Root of PSF X 20.016 (e.g. 15 Sq.Rt. = 3.87 X 20.016 = 77.52)