

Wind Load Vs. PSF

Wind Pressure of Basic Speed is: $q = (V^2) / 1.6$ { V to the power of 2 divided by 1.6} Where q is the pressure in Pa and V is the wind velocity in m/ sec.

Transferring this to American unit's yields:

$q = (V^2) / 383.6$ where q is the pressure in PSF and V is the velocity in mph.

For Example, Speed of 100 mph gives 26.07 PSF.

Important Note:

This is the wind pressure calculated for the Basic Speed. The actual pressure that operates on the building depends on many other factors, and may be much higher than this value.

Always include this important note when you quote this formula.

Wind (MPH)	Load (PSF)
25	1.63
50	6.52
75	14.66
100	26.07
125	40.73
150	58.65
175	79.84
200	104.28

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Saffir–Simpson Hurricane Scale				
Category	Wind speed		Storm surge	
	mph (km/h) (kn)	ft (m)		
Five	≥ 156 (≥ 250) (≥ 136)	> 18 (> 5.5)		
Four	131–155 (210–249) (114–135)	13–18 (4.0–5.5)		
Three	111–130 (178–209) (96–113)	9–12 (2.7–3.7)		
Two	96–110 (154–177) (83–95)	6–8 (1.8–2.4)		
One	74–95 (119–153) (64–82)	4–5 (1.2–1.5)		
Additional classifications				
Tropical storm	39–73 (63–117) (35–63)	0–3 (0–0.9)		
Tropical depression	0–38 (0–62) (0–34)	0 (0)		

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Category 1 Hurricanes

Hurricane with sustained wind speeds of 74 mph to 95 mph are classified as Category 1 strength. Category 1 hurricanes can cause damage to unanchored mobile homes and some signs. Loose outdoor objects (like lawn furniture) can become projectiles and make matters worse, as flying debris can break windows and strike people and cars. Trees can also be severely damaged by Category 1 hurricane winds, with large branches breaking and some trees being completely uprooted. Power outages may result.

Category 2 Hurricanes

Category 2 hurricanes have winds of 96 to 110 mph. A major problem with Category 2 hurricanes is that winds are strong enough to break power poles, which can in turn create blackouts. Category 2 hurricane winds can also cause damage to residential roofs, windows, and doors. Even windows in big buildings like skyscrapers can be damaged and broken.

Category 3 Hurricanes

Any hurricane of Category 3 strength or higher is considered a "major" hurricane. A Category 3 hurricane has winds of 111 to 130 mph. Along with the type of damage noted above also comes the destruction of some buildings, particularly unanchored or older mobile homes. Other small buildings like sheds and detached garages can also be damaged and destroyed by Category 3 winds. Blackouts may cover large areas.

Category 4 Hurricanes

Category 4 hurricanes are very strong, with winds of 131 to 155 mph. Many types of buildings, including houses, mobile homes, and stores can suffer extreme damage and even destruction. Signs are also destroyed. Trees are snapped and uprooted. Blackouts will be long and widespread.

Category 5 Hurricanes

A Category 5 hurricane packs winds of more than 155 mph. **Category 5 hurricanes cause absolute devastation.** Most buildings in the path of the eye of a landfalling Category 5 hurricane are damaged or destroyed. Trees are blown over. Signs are destroyed. Power lines are knocked over. Some towns hit by Category 5 hurricanes take years to recover, as was the case with Homestead, Florida, which suffered catastrophic devastation after Hurricane Andrew hit in 1992.

What About Category 6 Hurricanes?

While you may have heard some in the media refer to Category 6 hurricanes, there is no official use of that category right now. Category 6 is not even currently included in the Saffir-Simpson Hurricane Scale. However, some scientists who have proposed the idea say that a few, rare hurricanes have had winds high enough to warrant their own, new, stronger hurricane wind-speed category. Should Category 6 ever become an official classification on a hurricane wind scale, it would likely include hurricanes with winds of 175-180 mph or greater.

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