

Snow and Wind Design

The structures are designed based on your local requirements; most Building Departments will require a given Live Load or Snow Load, Wind Rating and Exposure as detailed below.

Design Loadings: Live Load and Snow Loads

Design Load is based on **PSF / Pounds per Square Foot**.

Design Load is also referred to as Live Load or Snow Load depending on the application.

Design Load PSF Requirements available:

- 10 Pounds PSF Live or Ground Snow Load – Generally refers to rain fall.
- 20 Pounds PSF Live or Ground Snow Load - Moderate Snow Fall or Minimum for Carports.
- 25 Pounds PSF Ground Snow Load - Moderate Snow Fall.
- 30 Pounds PSF Ground Snow Load - Moderate to Heavy Snow Fall.
- 40 Pounds PSF Ground Snow Load - Heavy Mountain Snow Fall.
- 50 Pounds PSF Ground Snow Load - High Mountain Snow Fall.
- 60 Pounds PSF Ground Snow Load - Extreme High Mountain Snow Fall.

Note: Rain and Snow amounts are general and approximate for Design Loads above. Consult your local building department for your areas requirements.

Design Load/Ground Snow Load to Roof Design Load Conversion

Information pertains to Engineering IBC 2006 from General Note #3.

- 10 Pounds PSF Ground Snow Load / 10 Pounds PSF Roof Design Load (Live or Ground Snow Load)
- 20 Pounds PSF Ground Snow Load / 20 Pounds PSF Roof Design Load (Live or Ground Snow Load)
- 25 Pounds PSF Ground Snow Load / 21 Pounds PSF Roof Design Load
- 30 Pounds PSF Ground Snow Load / 25.2 Pounds PSF Roof Design Load
- 40 Pounds PSF Ground Snow Load / 33.6 Pounds PSF Roof Design Load
- 60 Pounds PSF Ground Snow Load / 50.4 Pounds PSF Roof Design Load

Ask your Building Department what Pounds PSF Load they are referring to: Ground Snow Load or Roof Design (live) Load.

Wind Ratings

Wind Rating is based on the Miles Per Hour the cover can withstand. Wind Speeds in the 2006 IBC are "3 second gust wind speed."

Wind Rating Requirements available:

- **90mph** - Average Wind Requirement in U.S.
Most structures are designed based on 90mph wind rating.
- **105mpg or 110mph** - "[High Wind](#)" Areas
High Wind Engineering is available through the IBC 2006 Engineering Report.
- **Exposure B:** Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. Exposure B shall be assumed unless the site meet the definition of another type exposure.
- **Exposure C:** Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet (9144 mm) extending more than 1,500 feet (457.2 m) from the building site in any quadrant this exposure shall also apply to any building located within exposure b type terrain where the building is directly adjacent to open areas of Exposure C type terrain in any quadrant for a distance of more than 600 feet (182.9 m) this category includes flat open country, grasslands and shoreline in hurricane-prone regions.

Permits: Obtaining a permit is generally a simple process of taking the engineering we provide you to your local building department along with a Plot Map. A Plot Map is a basic overhead line sketch illustrating your property including the location of your house, garage, shed, pool, driveway, etc.. and your proposed enclosure. Also required on the Plot Map are details of your neighboring properties, streets, ally's and so forth; the Building Department typically uses this information to verify that you're not imposing on any property line set backs.

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

For more information please email: tech.service@amiluxinternational.com

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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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