



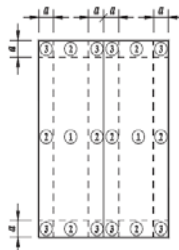
Table 89: Zilla® Phantom® XL – 24” Rafter Spacing, ½” Plywood Sheathing  
Maximum Module Size 66” x 40” - Typical 60 Cell Module

| 27° < Roof Pitch ≤ 45°                                |                  |                 |                  |                  |                  |                  |
|---|------------------|-----------------|------------------|------------------|------------------|------------------|
| Interior Wind Zone 1                                  |                  |                 |                  |                  |                  |                  |
| Exposure  | Basic Wind Speed | 0 psf Snow Load | 10 psf Snow Load | 20 psf Snow Load | 30 psf Snow Load | 40 psf Snow Load |
| B<br>(urban/<br>suburban)                             | 85 mph           | standard        | standard         | standard         | standard         | standard         |
|   | 90 mph           | standard        | standard         | standard         | standard         | standard         |
|   | 100 mph          | standard        | standard         | standard         | standard         | standard         |
|   | 110 mph          | standard        | standard         | standard         | standard         | standard         |
| C<br>(rural)  | 120 mph          | standard        | standard         | standard         | standard         | standard         |
|   | 85 mph           | standard        | standard         | standard         | standard         | standard         |
|   | 90 mph           | standard        | standard         | standard         | standard         | standard         |
|   | 100 mph          | standard        | standard         | standard         | standard         | standard         |
| D<br>(flat,<br>unobstructed<br>areas /<br>shorelines) | 110 mph          | standard        | standard         | standard         | standard         | standard         |
|   | 120 mph          | standard        | standard         | standard         | standard         | standard         |
|   | 85 mph           | standard        | standard         | standard         | standard         | standard         |
|   | 90 mph           | standard        | standard         | standard         | standard         | standard         |
|   | 100 mph          | standard        | standard         | standard         | standard         | standard         |
|   | 110 mph          | standard        | standard         | standard         | standard         | standard         |
|   | 120 mph          | standard        | standard         | standard         | standard         | custom           |

Tabulated values are based upon the following:

- a. Building height is less than or equal to 30 feet.
- b. Residential gable roofs with roof slope greater than 27 degrees and less than or equal to 45 degrees.
- c. Maximum photovoltaic module size is 66 inches long by 40 inches wide.
- d. Standard Phantom System has photovoltaic modules supported by four Phantoms; two Phantoms per long side of the module.
- e. Photovoltaic modules are parallel with the roof slope.
- f. Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.
- g. ASCE 7-10 Wind Exposure Categories:
  - i. 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.
  - ii. Exposure C = Open terrain with scattered obstructions having heights generally less than 30 ft. Includes flat open country and grasslands.
  - iii. Exposure D = Flat, unobstructed areas and water surfaces. This category includes smooth mud flats, salt flats, and
- h. ASCE 7-10 Wind Load Parameters:
  - i. Risk Category II
  - ii. Topographic Factor ( $K_{zt}$ ) = 1.0 [\*Note: This value has been set to 1.0 under the assumption that the system is NOT located on the upper half of a hill or ridge or near the crest of an escarpment.]
  - iii. Directionality Factor ( $K_d$ ) = 0.85
- i. The snow load indicated in the tables is the snow load applied to the modules.
- j. Edge Wind Zone is defined by ASCE 7-10 as **a** with **a** being equal to: 10 percent of least horizontal dimension or 0.4h (h = height of building), whichever is smaller, but not less than either 4 percent of least horizontal dimension or 3 feet.

Wind Zones for Gable Roofs with 27° <  $\theta$  ≤ 45°:



For installations that do not conform to the assumptions listed above contact Zilla for a more complete engineering analysis.

The tables provided are for reference only. It is the responsibility of the installer to verify the suitability of the Zilla Phantom XL System for installation and the suitability of the existing structure to handle the applicable loads.

**So Simple It's Scary™**

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