



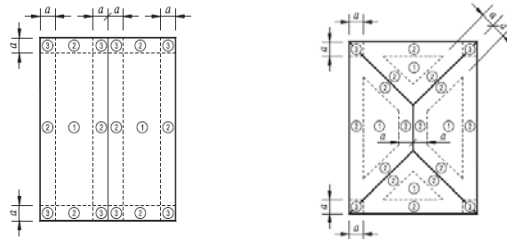
Table 133: Zilla® Phantom® XL – 16” Rafter Spacing, ½” Plywood Sheathing  
Maximum Module Size 79” x 40” - Typical 72 Cell Module

7° < Roof Pitch ≤ 27°						
Edge Wind Zone 3						
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 (urban/ 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 (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 (flat, unobstructed areas / shorelines)	110 mph	standard	standard	standard	standard	standard
	120 mph	custom	custom	custom	custom	custom
	85 mph	standard	standard	standard	standard	standard
	90 mph	standard	standard	standard	standard	standard
	100 mph	standard	standard	standard	standard	standard
	110 mph	custom	custom	custom	custom	custom
	120 mph	custom	custom	custom	custom	custom

Tabulated values are based upon the following:

- a. Building height is less than or equal to 30 feet.
- b. Residential gable/hip roofs with roof slope greater than 7 degrees and less than or equal to 27 degrees.
- c. Maximum photovoltaic module size is 79 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.
- k. Edge Wind Zone 3 shall be treated as Zone 2 for  $\theta \leq 25^\circ$ .

Wind Zones for Gable/Hip Roofs with  $7^\circ < \theta \leq 27^\circ$ :



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™**

77 Waneka Pkwy | Lafayette, CO 80026 | 720.880.6700 | fax 303.655.0379 | zillarc.com