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Double Stud XL Span Tables

72 Cell Modules
24″ Rafter Spacing
7/16″ OSB

Roof Pitch 0-7 Degree
Interior Wind Zone 1, page 2
Edge Wind Zone 2, page 3
Edge Wind Zone 3, page 4

Roof Pitch 7-27 Degree
Interior Wind Zone 1, page 5
Edge Wind Zone 2, page 6
Edge Wind Zone 3, page 7

Roof Pitch 27-45 Degree
Interior Wind Zone 1, page 8
Edge Wind Zone 2, page 9
Edge Wind Zone 3, page 10

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Table 173: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

Roof Pitch ≤ 7°						
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 (urban/ suburban)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	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 less than or equal to 7 degrees.*
c. *Maximum photovoltaic module size is 79 inches long by 41 inches wide.*
d. *Standard Zilla Double Stud XL spaced at 48" OC assumes photovoltaic modules supported by two continuous rails spanning a maximum of 48" parallel to the short side of the module.*
e. *Standard Zilla Double Stud XL design pertains only to the Double Stud XL connection. Design of rails attached to the Double Stud XL and existing structure are outside the scope of this design.*
f. *Photovoltaic modules are parallel with the roof slope.*
g. *Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.*
h. *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 unbroken ice.*
i. *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*
j. *The snow load indicated in the tables is the snow load applied to the modules.*
k. *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 $\vartheta \leq 7°$:

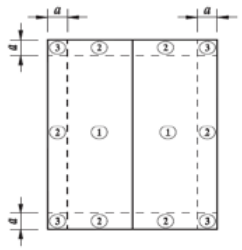

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Table 174: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

Roof Pitch ≤ 7°						
Edge Wind Zone 2						
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	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	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 roofs with roof slope less than or equal to 7 degrees.
c. Maximum photovoltaic module size is 79 inches long by 41 inches wide.
d. Standard Zilla Double Stud XL spaced at 48" OC assumes photovoltaic modules supported by two continuous rails spanning a maximum of 48" parallel to the short side of the module.
e. Standard Zilla Double Stud XL design pertains only to the Double Stud XL connection. Design of rails attached to the Double Stud XL and existing structure are outside the scope of this design.
f. Photovoltaic modules are parallel with the roof slope.
g. Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.
h. 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 unbroken ice.
i. 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
j. The snow load indicated in the tables is the snow load applied to the modules.
*k. 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 $\vartheta \leq 7°$:

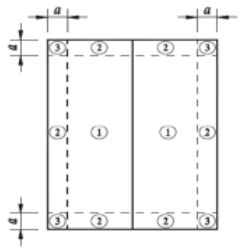

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Table 175: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

Roof Pitch ≤ 7°						
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	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	custom	custom	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	custom	custom	custom	custom	custom
	120 mph	custom	custom	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	custom	custom	custom	custom	custom
	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 roofs with roof slope less than or equal to 7 degrees.
c. Maximum photovoltaic module size is 79 inches long by 41 inches wide.
d. Standard Zilla Double Stud XL spaced at 48" OC assumes photovoltaic modules supported by two continuous rails spanning a maximum of 48" parallel to the short side of the module.
e. Standard Zilla Double Stud XL design pertains only to the Double Stud XL connection. Design of rails attached to the Double Stud XL and existing structure are outside the scope of this design.
f. Photovoltaic modules are parallel with the roof slope.
g. Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.
h. 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 unbroken ice.
i. 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
j. The snow load indicated in the tables is the snow load applied to the modules.
*k. 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 $\vartheta \leq 7°$:

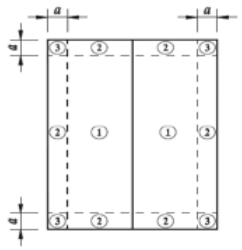

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Table 176: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

7° < Roof Pitch ≤ 27°						
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 (urban/ suburban)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	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 41 inches wide.*
d. *Standard Zilla Double Stud XL spaced at 48" OC assumes photovoltaic modules supported by two continuous rails spanning a maximum of 48" parallel to the short side of the module.*
e. *Standard Zilla Double Stud XL design pertains only to the Double Stud XL connection. Design of rails attached to the Double Stud XL and existing structure are outside the scope of this design.*
f. *Photovoltaic modules are parallel with the roof slope.*
g. *Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.*
h. *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 unbroken ice.*
i. *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*
j. *The snow load indicated in the tables is the snow load applied to the modules.*
k. *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.*
l. *Edge Wind Zone 3 shall be treated as Zone 2 for $\vartheta \leq 25°$.*

Wind Zones for Gable/Hip Roofs with $7° < \vartheta \leq 27°$:

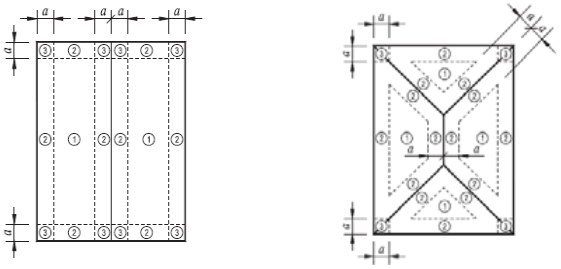

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Table 177: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

7° < Roof Pitch ≤ 27°						
Edge Wind Zone 2						
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	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	custom	custom	custom	custom	custom

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i. *ASCE 7-10 Wind Load Parameters:*
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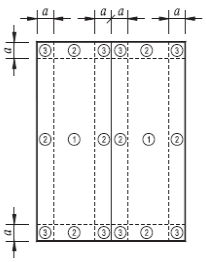
l. *Edge Wind Zone 3 shall be treated as Zone 2 for $\vartheta \leq 25°$.*

Wind Zones for Gable/Hip Roofs with $7° < \vartheta \leq 27°$:



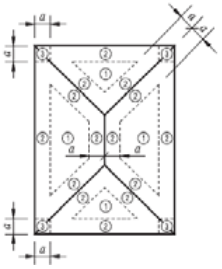


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Table 178: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

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	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	custom	custom	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	custom	custom	custom	custom	custom
	110 mph	custom	custom	custom	custom	custom
	120 mph	custom	custom	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	custom	custom	custom	custom	custom
	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.*
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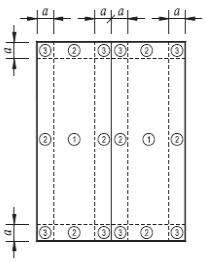
g. *Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.*
h. *ASCE 7-10 Wind Exposure Categories:*
    i. *Exposure B = Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.*
    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 unbroken ice.*
i. *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*
j. *The snow load indicated in the tables is the snow load applied to the modules.*
k. *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.*
l. *Edge Wind Zone 3 shall be treated as Zone 2 for $\vartheta \leq 25°$.*

Wind Zones for Gable/Hip Roofs with $7° < \vartheta \leq 27°$:



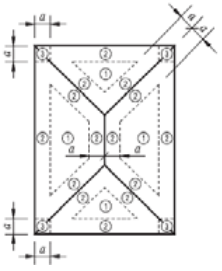


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Table 179: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

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 (urban/ suburban)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
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	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	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 roofs with roof slope greater than 27 degrees and less than or equal to 45 degrees.

c. Maximum photovoltaic module size is 79 inches long by 41 inches wide.

d. Standard Zilla Double Stud XL spaced at 48" OC assumes photovoltaic modules supported by two continuous rails spanning a maximum of 48" parallel to the short side of the module.

e. Standard Zilla Double Stud XL design pertains only to the Double Stud XL connection. Design of rails attached to the Double Stud XL and existing structure are outside the scope of this design.

f. Photovoltaic modules are parallel with the roof slope.

g. Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.

h. 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 unbroken ice.*

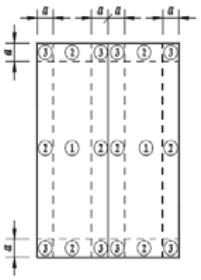
i. ASCE 7-10 Wind Load Parameters:

- *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*

j. The snow load indicated in the tables is the snow load applied to the modules.

*k. 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° < ϑ ≤ 45°:



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Zilla Corporation
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2275 W Midway Blvd, Unit C
Broomfield, CO 80020 USA
(720) 880-6700 | www.zillarac.com

Table 180: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

27° < Roof Pitch ≤ 45°						
Edge Wind Zone 2						
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	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	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 roofs with roof slope greater than 27 degrees and less than or equal to 45 degrees.*
c. *Maximum photovoltaic module size is 79 inches long by 41 inches wide.*
d. *Standard Zilla Double Stud XL spaced at 48" OC assumes photovoltaic modules supported by two continuous rails spanning a maximum of 48" parallel to the short side of the module.*
e. *Standard Zilla Double Stud XL design pertains only to the Double Stud XL connection. Design of rails attached to the Double Stud XL and existing structure are outside the scope of this design.*
f. *Photovoltaic modules are parallel with the roof slope.*
g. *Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.*
h. *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 unbroken ice.*
i. *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*
j. *The snow load indicated in the tables is the snow load applied to the modules.*
k. *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° < ϑ ≤ 45°:

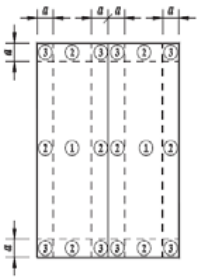

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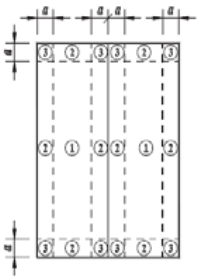
Table 181: Zilla® Double Stud XL – 24" Rafter Spacing, 7/16" OSB, 48" Continuous Rail Spans Maximum Module Size 79" x 41"- Typical 72 Cell Module

27° < Roof Pitch ≤ 45°						
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	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
C (rural)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	standard	custom	custom	custom
D (flat, unobstructed areas / shorelines)	**85 mph**	standard	standard	custom	custom	custom
	90 mph	standard	standard	custom	custom	custom
	100 mph	standard	standard	custom	custom	custom
	110 mph	standard	standard	custom	custom	custom
	120 mph	standard	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 roofs with roof slope greater than 27 degrees and less than or equal to 45 degrees.*
c. *Maximum photovoltaic module size is 79 inches long by 41 inches wide.*
d. *Standard Zilla Double Stud XL spaced at 48" OC assumes photovoltaic modules supported by two continuous rails spanning a maximum of 48" parallel to the short side of the module.*
e. *Standard Zilla Double Stud XL design pertains only to the Double Stud XL connection. Design of rails attached to the Double Stud XL and existing structure are outside the scope of this design.*
f. *Photovoltaic modules are parallel with the roof slope.*
g. *Loads per ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.*
h. *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 unbroken ice.*
i. *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*
j. *The snow load indicated in the tables is the snow load applied to the modules.*
k. *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° < ϑ ≤ 45°:



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