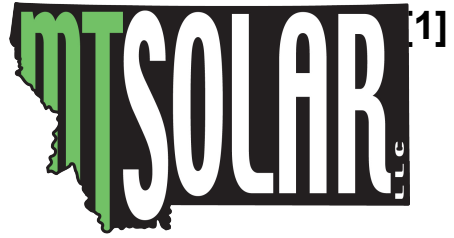


MT SOLAR GROUND MOUNT CALCULATOR



MT SOLAR LLC

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SITE VARIABLES		PROJECT INFORMATION		DATE:	1/31/2019
				Customer:	
				Email Address:	
				Phone Number:	
				Project Name:	
				Project Address:	
				City/State/ZIP:	CO
				Solar Module:	
				Solar Module Color:	
		NOT TO SCALE 			
		FOUNDATION DEPTH CALCULATIONS			
		Force at Top of Pole 1,883.4 lbs. <i>Pe</i> Array Center Height Above Grade 4.1 ft <i>H</i> Site Soil Lateral Bearing Capacity [4] 400 psf <i>Pba</i> Site Soil Vertical Bearing Capacity [5] 3,000 psf Vertical Bearing Area of Hole 4.91 squ. ft. Max Vertical Bearing Capacity 14,719 lbs. Hole Dimension 2.50 ft. <i>b</i> Allowable Lateral Soil Pressure [9] 1,633.33 <i>S1</i> Variable [10] 1.08 <i>A</i> Foundation Depth Required (ft.) [11] 4.9 ft. <i>L</i>			
		WIND FORCE CALCULATIONS (per Pole)			
		Array N/S Dimensions (ft.) 11.00 ft Per Pole E/W Dimensions (ft.) 11.00 ft <i>B</i> Total Square Feet of Array per Pole 121.00 sq/ft Tilt Angle in Radians 0.79 Effective Vert Dimension at Tilt Angle (ft.) 7.78 ft <i>s</i> Effective Horizontal Dimension at Tilt Angle (ft.) 7.78 ft Effective Squ Ft. at Tilt Angle 85.56 sq/ft <i>As</i> Total Array Height at Tilt Including Clearance (ft.) 7.94 ft <i>h</i> Simple Wind PSF 36.86 psf Simple Wind Force Total 3,154.08 lb/ft Height/Exposure Coefficient ASCE 7-10 29.3-1 0.57 <i>Kz</i> Terrain Coefficient 1.00 <i>Kzt</i> Wind Directionality Factor ASCE 7-10 26.6-1 0.85 <i>Kd</i> Wind Force PSF (Qz) 17.86 lb/ft <i>Qz</i> Gust Factor ASCE 7-10 26.9.1 0.85 <i>G</i> Ratio s/h 0.98 <i>Chart Row 0.9f</i> Ratio B/s [6] 1.41 <i>Chart Column 1</i> Force Coefficient Cf ASCE 7-10 29.4-1 [7] 1.45 <i>Cf</i> Effective Wind Load PSF [8] 22.01 Effective Wind Total Force Per Pole (Case A) 1,883.45 <i>F</i> Snow Load Total Vertical Force Per Pole (lbs.) 3,422.4 TOTAL Force Per Pole Normal to Panels (lbs.) 3,751.8			

[1] MT SOLAR FOUNDATION CALCULATOR NOTES:

[2] Use ROUND for driven piles with spade plates.

[3] SITE VARIABLES
Mount Duty Classification

[4] FOUNDATION DEPTH CALCULATIONS
Site Soil Lateral Bearing Capacity
Note; IBC 2012 Table Value x2 for pole foundations as per IBC 1806.3.4

[5] FOUNDATION DEPTH CALCULATIONS
Site Soil Vertical Bearing Capacity
Note: IBC 2012 Table Value

[6] WIND FORCE CALCULATIONS
Ratio B/s
Note: If Cell is Red Consider Condition C. Reference ASCE 7-10 29.4-1 Note 3

[7] WIND FORCE CALCULATIONS
Force Coefficient Cf ASCE 7-10 29.4-1
Note: See ASCE 7-10 29.4-1 Case A and Case B

[8] WIND FORCE CALCULATIONS
Effective Wind Load PSF
Note: Minimum loading is 16PSF applied to the whole area. Reference ASCE 7-10 29.8

[9] FOUNDATION DEPTH CALCULATIONS
Allowable Lateral Soil Pressure
Note: $S_1 = P_b a^* L / 3$ (allowable lateral soil pressure at 1/3 embedment depth)

[10] FOUNDATION DEPTH CALCULATIONS
Variable
Note: $A = 2.34 * P_e / (S_1 * b)$

[11] FOUNDATION DEPTH CALCULATIONS
Foundation Depth Required (ft.)
Note: $L = 0.5 * A * (1 + \text{SQRT}(1 + (4.36 * (H) / A)))$ (IBC 2012 Eqn. 18-1)

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Calculations based on ASCE 7-10 and IBC 2012
All information for project estimation purposes only.