Calculation of the reaction force on the top of the solar bracket

How does wind force affect solar panel structure stability?

1.08 . The design of solar panel supporting structure is done and the effects of wind force on its structure stability is analysed. Due to the wind force,a reaction force is experienced on the structure and the structure will retain its stable state,only if this reaction force is compensated by the force due the self-weight of the structure.

How to calculate reaction force?

This reaction force can be calculated by using the following expression. The structure is symmetric along any vertical plane. In this model, we consider either left or right half of the structure along the vertical plane. So, the reaction force, FR is expected to distribute in all the base legs equally, in either left or right portion.

How do you calculate support reactions?

Procedure for Computation of Support Reactions o Sketch a free-body diagram of the structure, identifying all the unknown reactions using an arrow diagram. o Check the stability and determinacy of the structure using equation 3.3 or 3.4. If the structure is classified as determinate, proceed with the analysis.

How do you find the vertical reaction force at support B?

We need to solve another equation in order to find B y (the vertical reaction force at support B). 2. Sum of Horizontal Forces (SFy = 0) Sum the forces in the y (vertical) direction and let the sum equal zero. Remember to include all forces including reactions and normal loads such as point loads.

How to analyze a beam structure?

Determining reactions at supportsis always the first step in analyzing a beam structure,and it is generally the easiest. It involves calculating the reaction forces at the supports (supports A and B in the below example) due to the forces acting on the beam.

Why are the support reactions at Point C and b equal in magnitude?

Applying the equations of equilibrium,and noting that due to symmetry in loading,the support reactions at point C and B are equal in magnitude,provides the following: Analysis of the primary structure AC. Computation of support reaction.

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