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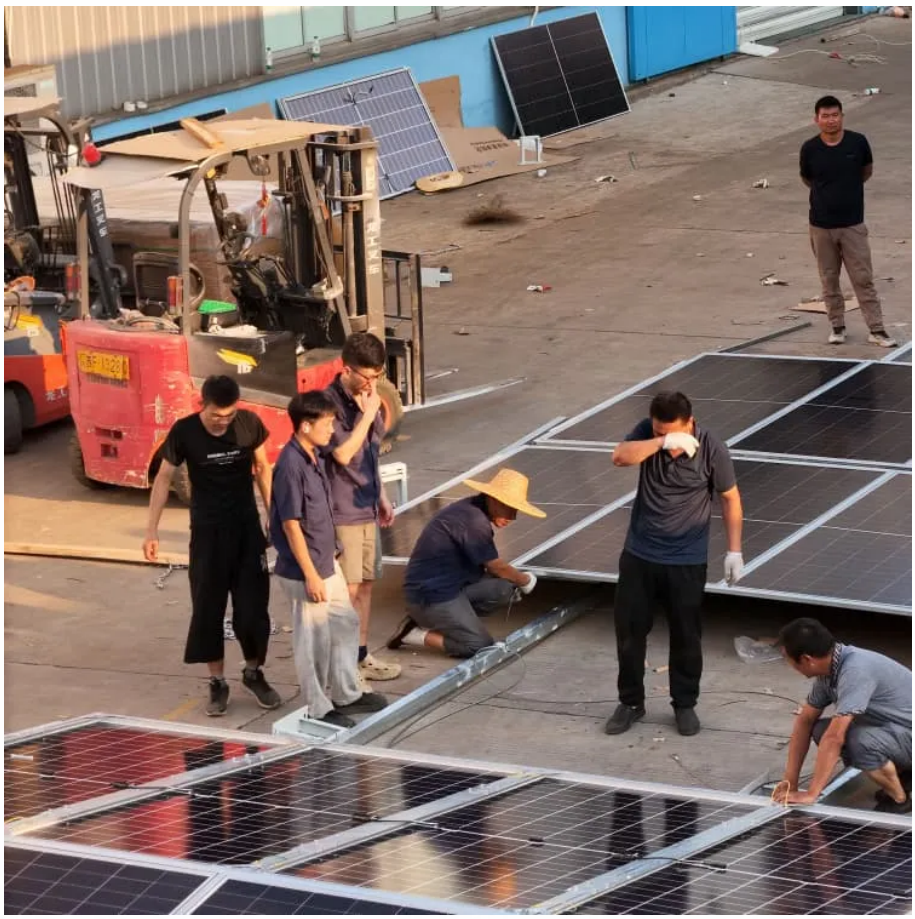
Solar glass mechanical load



Overview

Does glass superstrate provide mechanical rigidity of PV modules?

The glass superstrate provides the mechanical rigidity of the PV module since it comprises more than 72% of the module thickness and has a high mechanical stiffness of E = 73 GPa, which governs the deflection of the whole module. Fig. 19 shows the deflection across the PV module diagonal for PV modules with different glass stiffness.

Does a glass–glass PV module have thermo-mechanical performance and resistance?

To further explore the thermo-mechanical performance and resistance of the selected glass–glass PV module, the simultaneous action of gravity load G and a superimposed uniform load q was taken into account in the analysis of results (see also the schematic setup of Figure 3).

How do deflection and deflation-rate checks for glass–glass PV modules in fire conditions?

Deflection and deflection-rate checks for the examined glass–glass PV modules in fire conditions, as a function of the superimposed mechanical loads G + q (Abaqus), based on the performance indicators by Equations (10) and (11).

Why do PV modules need a homogeneous mechanical load?

Various mechanical stresses can arise in PV modules due to manufacturing processes, transportation, handling during installation, wind, hail, snow, and thermo-mechanical loads. Numerous studies investigate a homogeneous mechanical load according to IEC 61215 which is crucial for the development of novel module designs.

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