Technical Information

Mounting on wooden grounding

Installation restrictions for mounting Sunny Boy, Sunny Mini Central and Sunny Tripower to wood

When selecting a suitable installation site for inverters, the question often arises whether it is also possible to mount the unit on wooden walls.

In general, SMA Solar Technology AG advises against mounting on wooden grounds.

The decision ultimately rests with the installer, because only he can judge the overall situation on site and (together with the customer) make a risk/benefit assessment.

The following presents the risks and restrictions of mounting on wood, which should be taken into consideration when selecting the installation site.

Aspects for Judging the Risks of a Mounting on Wood

- **Electrical Device as Possible Cause of Fire**

  Every electrical device can burn in the event of a technical defect. This includes the usual household devices and cannot be ruled out in the case of inverters. With the SMA inverters Sunny Boy, Sunny Mini Central and Sunny Tripower, a possible, even if extremely improbable, internal fire is kept inside the device by the metal housing. The spread of the fire is thus restricted or totally prevented.

  However, there is always a slight risk of the inverter catching fire and the fire spreading to neighboring wooden surfaces. For this reason the installation guide recommends mounting on noncombustible surfaces.

- **Long-term Heat Influences on the Wooden Ground**

  The mounting ground at the rear of the inverter is heated when the inverter is in operation. This happens for hours of every day, over a period of 20 years and longer. If the mounting is on wood the constant heating dries the wood out, making self-combustion a possibility.

  SMA Solar Technology AG has had this influence examined and the results published in an external expert report. This report was based on timber typically used for building in Europe, and on the assumption of a vertical mounting of the inverter. The mounting ground was a solid wood wall, at least 10 mm thick. The different species of wood included: spruce, pine, beech, oak, larch, Douglas fir, Sipo, Meranti, linden and birch. The test was conducted exclusively for the SMA inverters Sunny Boy, Sunny Mini Central and Sunny Tripower. The results also apply for other devices using the same housings (e.g. corresponding Windy Boy, Sunny Island models).

  Self-combustion was ruled out by the expert report. It is advisable, however, to ensure air exchange between the wooden wall and the housing, which provides additional safety. Thus, in the case of new systems with inverters with flat rear panels (e.g. Sunny Mini Central), washers should be used to establish a clearance of at least 0.5 mm between the metal and the wood.

  There are instances where recommendation has been made to install sheet metal on the wooden wall, because this is noncombustible. However, this would not permit air exchange between the wooden wall and the sheet metal which is heated by the inverter. The prevention of air exchange creates the risk of self-combustion. The above recommendation is therefore invalid and a mounting of this sort is not permissible.

  A statement concerning other wood products cannot be made (e.g. chipboard, fiberboard, etc.). Questions of suitability should be addressed to the manufacturer of the wood product. The assumed highest temperature which can be reached on a sustained basis during operation is 80 °C.

- **Wood Dust**

  When selecting the installation site, attention should be paid not only to the mounting ground but also to the accumulation of dust from inflammable materials. Through the sustained influence of heat, wood dust can ignite at significantly lower temperatures than solid wood. Consequently, there should be low dust accumulation (inflammable) at the installation site and any dust should be regularly removed from the inverter.