

## Fire safety of roofs with PV panels mounted on top: case study of large roofs

For some years, Europe has witnessed tremendous growth in the installation of photovoltaic (PV) panels. As part of the PV panel offering, Building Applied Photo-Voltaic (BAPV) panels can be easily mounted on new and existing buildings. However, no harmonized European assessment methods have been defined for the fire performance of these panels since they are not covered by the Construction Products Regulation (CPR). Furthermore, there is a need to consider the fire safety of the complete system, i.e. PV panels in combination with the building construction and roofs in particular. Insurers and regulators have started to consider the issue and it is of utmost importance to find harmonized rules across Europe, agreed between the various stakeholders.

### As the Modern Building Alliance:

- We support the increasing use of PV modules which enable the generation of a large amount of renewable energy.
- Fires involving PV systems can be caused by external fire sources as well as by faults in the PV panels themselves or faults in the connected electrical installations (cables, converters, batteries, inverters, combiner box...). It is therefore essential to minimize the risk by securing the proper installation and maintenance of the PV systems by a qualified/certified installer.
- The interaction of the following parameters influences the fire performance of a roof in combination with PV panels mounted above:
  - fire performance of the PV panel;
  - the roofing system; and
  - installation parameters (size of PV panels, geometry of the mounting and fixing systems, gap between PV Panels and roof, inclination and others).
- A holistic approach is needed to assess fire safety when PV panels are mounted on a roof. All types of fire spread (within the building as well as to neighboring buildings) should be prevented and limited.
- Large scale system testing should be the basis for assessing the fire performance of the combination of a roof build-up with a PV system. The main information that can be acquired from these tests are the risk and speed of fire penetrating the roof construction and the speed and extent of fire spread beyond the boundary of the PV system.

In addition, the following need to be considered to ensure fire safety of a building if PV panels are mounted above its roof:

- distance between the arrays;
- distance to roof lights and penetrations;
- distance to the edge of the building and nearby buildings;
- location of inverters; and
- possibility of fire fighter access.

The Modern Building Alliance will continue its work in this domain and further contribute to discussions in the Fire Information Exchange Platform (FIEP) and with research institutes, with a view to developing a holistic assessment method for complete roofing systems incorporating PV arrays.

## About the Modern Building Alliance

We are an alliance of trade associations and companies representing the plastics industry in the construction sector. Plastics are increasingly used in building and construction applications to make our buildings more sustainable, from window frames and durable pipes to state-of-the-art insulation solutions. An essential pillar of our cause is the ambition for greater fire safety across the construction industry. It is a key driver of our product design and manufacturing: improving the fire safety in buildings is a joint responsibility of the whole value chain involved in building and construction. That's why, by engaging with policy makers and stakeholders, we are committed to supporting the EU in ensuring safe and sustainable construction for people across Europe.

