

Energy around the solar clock

Solar Data Systems

Solar-Log™



Europe's highest-yield solar façade

An impressive building stands in Wallisellen, Switzerland. Not only does the multi-storey office building immediately catch the eye, the building's vital statistics are also remarkable.

With its solar façade, the "K3 Handwerkcity" commercial building produces more solar energy than any other building in the whole of Europe*, making it the highest-yielding solar façade building on the continent. We're talking about 400,000 kWh per year, generated on a 3,900 m² solar panel surface. This in turn corresponds to an installed capacity of 663 kWp. The monocrystalline modules are particularly powerful and are installed almost across the entire surface area, so that there are only minimal areas without modules around doors and windows.

The major advantage of the solar power system in Wallisellen is that it produces electricity around the solar clock. Although a purely roof-based system would produce around 30% more energy than façade systems, the "K3 Handwerkcity" system is a combination of a façade and roof system, and thus utilises the advantages of both variants. In addition, care was also taken to ensure that no shading occurs. This means that the system captures every ray of sunlight from every angle, generating 100% solar energy. But that's not all: values around 40 kWh are still achieved up to one hour after sunset.

The solar façade also shows its advantages in winter. During these months the sun hits the panels at a flatter angle. A pure roof system is then at a disadvantage. The vertical panels, on the other hand, are little bothered by this and achieve consistently high yields even with the winter sun.

The 2,100 solar panels in Wallisellen generate solar energy primarily for the building's own needs. This is managed in the building's energy centre and monitored by a Solar-Log™ PV monitoring system. The control centre extends over two floors. This is partly due to two almost 5-metre-high water tanks. Hot water, i.e. energy in warm form, is stored in one of the tanks, while cold water, i.e. energy in cold form, is stored in the other tank. This means that the required form of energy is available for both cooling and heating the building. A heat pump and a biogas-powered combined heat and power unit round off the self-sufficient energy system.

This combination of different systems for generating and using energy enables the building to entirely meet its own needs. This is roughly equivalent to the annual electricity consumed by 100 households. The CO₂ balance is also impressive thanks to the perfectly coordinated components: the solar power system alone saves 140 tonnes of CO₂ per year compared with conventional energy production.

* As of April 2020

Idea

When characters have a brainwave in cartoons or animated films, a light bulb appears above their heads. They've obviously had a bright idea. And that's not so far-fetched as it might at first seem. Because the human brain can actually generate up to 23 watts – enough to illuminate a whole lot of LEDs with just our thoughts.