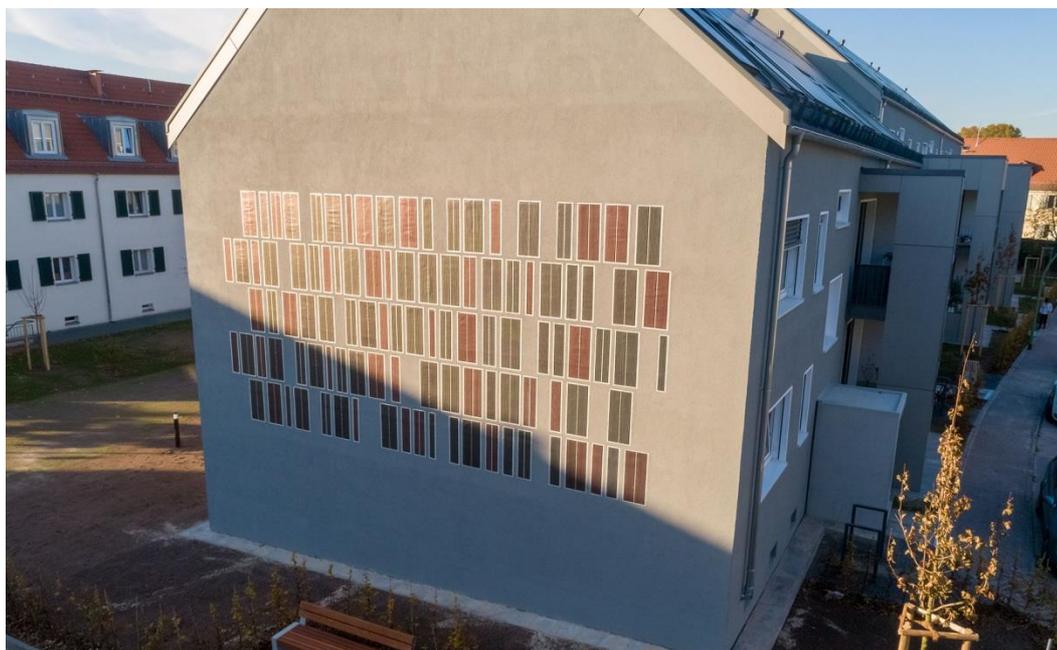


Thursday, December 6, 2018

The first thermal insulation composite system with integrated photovoltaics

As part of the renovation of a residential building belonging to the Frankfurter Wohnungsbaugesellschaft ABG, the first "in-plaster" photovoltaic system based on organic photovoltaic (OPV) technology in the world was implemented. The system in this residential building thus makes its contribution to a plus-energy building.



A multifunctional façade system, in the plaster layer of the building. This OPV system supplements the functionality of the thermal insulation composite system (TICS) as an "active component". ©OPVIUS GmbH

Kitzingen, Germany: the future of the building envelope is the focus of the four-year-old cooperation between DAW SE and the OPVIUS GmbH company. An ambitious sustainability strategy has been a major feature of this cooperation from the very beginning. The result of the cooperation is revealed in the recently completed project in Frankfurt: a multifunctional façade system was installed in the plaster layer of the building. This OPV system supplements the functionality of the thermal insulation composite system (TICS) as an "active component".

The concept behind it is that in the future, it will not only be possible to include the energetic recordings of the building envelope in energy balancing from passive components, such as thermal insulation, but also that a combination of active energy generation and passive thermal insulation will lead to a total balancing.

The integration of renewable energies in the building sector – particularly in renovation projects – generally represents an enormous challenge. Hitherto, the integration of photovoltaic has almost exclusively been possible in new construction projects, as the format of photovoltaic modules available is not compatible with building geometries. Moreover, the design flexibility of the modules is severely limited. The construction of

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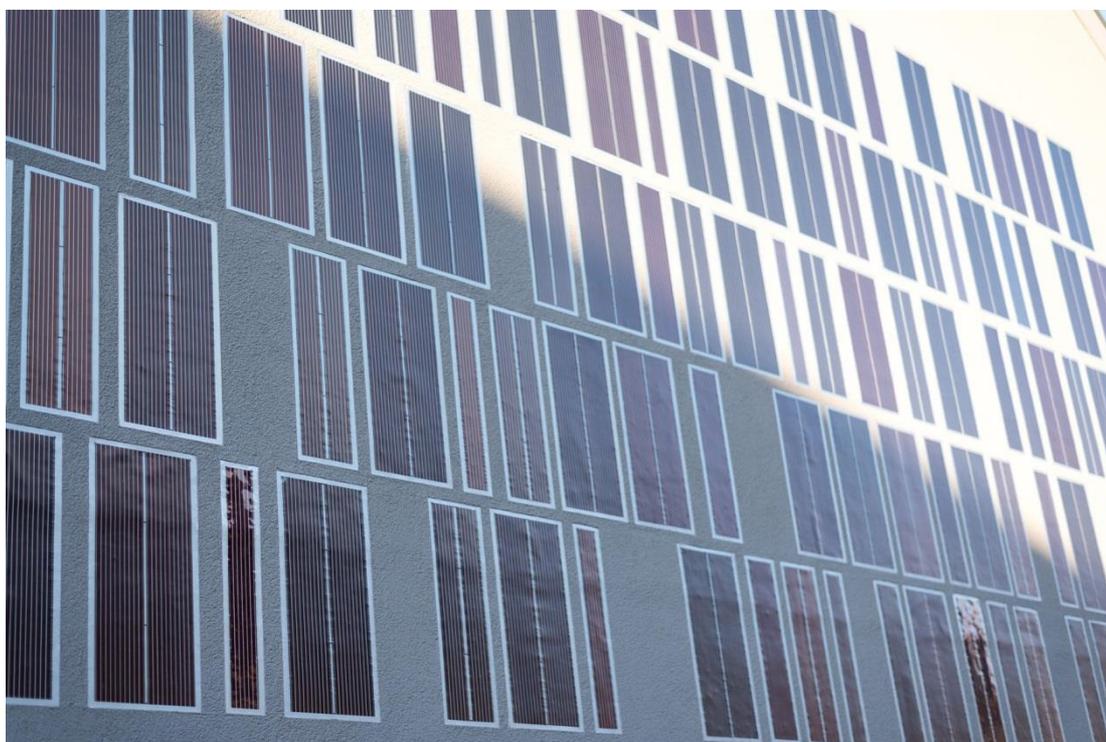
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façades with classical, glass-based modules generally requires curtain walls, which are complicated and expensive to build.

In Frankfurt, DAW and OPVIUS have now been able to show that thanks to the OPVIUS OPV technology, it is possible to integrate printed OPV solar modules into a conventional façade product. This results in a thermally insulated façade with a classical TICS and an OPV-based, flexible plaster tile incorporated into the surface of the plaster. The façade not only includes an energetically valuable component but also experiences an aesthetic upgrading as a result of the OPV inlays. The system developed is transferable to all building types and façades constructed with TICS today, and thus represents an actual solution to the problem of PV façades in existing housing stock.

"The German Energy Saving Ordinance allows us to include yields from building-integrated photovoltaics in the primary energy balance of buildings, thereby counteracting the strong increases in the insulation thicknesses", explains Dr. Thomas Loewenstein, Project Leader at DAW SE: "This is therefore an outstanding result for the future, whereby the enrichment of passive thermal insulation by an active component provides a financial upgrading of façades."

"The design freedom afforded by OPV in combination with a favourable, conventional building product opens up entirely new markets. In respect of the energy transition and the forthcoming energetic renovation of a huge number of existing buildings, this represents a new as well as simple solution for the future" according to Hermann Issa, Senior Director Business Development & Sales at OPVIUS GmbH.



Thermally insulated façade with a classical TICS and an OPV-based, flexible plaster tile, incorporated into the surface of the plaster ©OPVIUS GmbH

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About DAW SE – Deutsche Amphibolin-Werke

DAW has been developing, producing and selling innovative coating systems since 1895. As an independent, fifth-generation, family-owned company based in Ober-Ramstadt, it has established itself as the third-largest manufacturer of building paints in Europe, and has been the market leader in Germany, Austria and Turkey for many decades. The DAW Group of Companies is the home of numerous leading brands, such as Alpina and Caparol. Its product range includes top-quality paints, lacquers, glazes and building-chemical coatings as well as material for façade and insulating technology. DAW is an innovation driver for coating agents, thermal insulation and building protection, and is recognised as a quality leader in the field of sustainability.

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About OPVIUS

OPVIUS GmbH, founded in 2012 and located in Nuremberg and Kitzingen (INNOPARK Kitzingen), is among the world leaders in the field of organic photovoltaics. OPVIUS produces organic solar cells with a focus on client-specific solutions. In addition, the company is also active in the field of research and development, in order to continue to provide its clients with creative and innovative solutions. In this regard, OPVIUS uses a unique production process, combining printing, lamination, and laser techniques. This advanced technology is easily scalable and allows the production of the utmost individual, customer-specific designs. OPVIUS also helps clients with system solutions in order to integrate OPVs into already existing or new products.

OPVIUS is part of the HOCH.REIN GROUP, an international, medium-sized investment holding with the aim to promote entrepreneurship. The fields of business activity encompass the areas "New Technologies", "Industrial Production", "Real Estate & IT Services" as well as "Alternative Energies & Trading".

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