

DESIGN YOUR CONCRETE

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Energise your concrete

Heliatek signs joint development agreement with RECKLI to integrate Heliatek's organic solar panels onto concrete building façades.

Innovative BIPV will enable architects
to design energy harvesting, zero emission, green buildings
to meet EU directive.

Heliatek GmbH, a global leader in high-end solar PV technology, has signed a joint development agreement with RECKLI GmbH, a world leader in the manufacture of elastic molds for concrete building façades. This will enable vertical concrete walls of buildings to become highly efficient solar energy harvesters by integrating Heliatek's organic solar panels directly onto concrete façade blocks. This new Building Integrated Photovoltaic (BIPV) solution will combine energy harvesting to reduce a building's carbon footprint with a discrete, aesthetically pleasing, visual appearance.

Heliatek's award winning organic photovoltaic (OPV) technology is ideally suited to this application, because it is ultra-light, ultra-thin, and ultra-powerful, as it harvests the sun's energy at peak efficiency across a wide range of real world conditions for more of the time than traditional solar technologies. One major problem with conventional solar panels is that their efficiency drops off with every degree in temperature gained. Heliatek's solar technology, in contrast, is unique in that the efficiency of its organic photovoltaic modules remains constant up to 80 °C. This is also the reason why Heliatek's panels can be integrated onto the concrete without any need for ventilation.

Similarly, if the light intensity decreases, the efficiency of conventional solar panels decreases as well. Heliatek's

panels are consistently efficient from full sun down to a tenth of full sun, such as on a cloudy day or when not directly facing the sun, only receiving indirect light. Heliatek estimates that, under real world conditions, the combination of these two factors – temperature independence and superior low light performance – will increase the specific annual harvesting yield of its panels by 10-20 % compared to conventional solar panels, depending on the location and orientation of the PV façade system.

Thibaud Le Séguillon, CEO of Heliatek, explained, "Today, vertical walls are rarely used for solar energy gathering, despite the fact that the vertical building walls offer a much larger installation area than roof tops that are the focus of today's solar building installations. Several factors such as unpleasant design, high system prices and limited performance potential are the reasons why vertical solar installations are not widespread. By integrating our ultra-light, ultra-thin solar panels directly onto the blocks of the concrete façade, the installation costs will be reduced along with the visual impact as the panels become a discrete part of the façade. Our organic solar technology ideally lends itself to gathering solar energy in a wide variety of lighting levels, even when cloudy or North facing, so that the whole building can become a green, energy-harvesting contributor to the global drive to reduce carbon footprint. It offers so many advantages over conventional solar panels that we believe that the

RECKLI/Heliatek solar façade solution will rapidly become the application of choice for many architects once these products come to market in two years.”

Dr. Bernd Trompeter, Managing Director of RECKLI, added, “By 2020, an EU directive will require new buildings to be nearly zero-energy as part of the drive to be green and so, having every wall being an active producer of solar electricity will be a major contributor to achieving truly green buildings. We chose Heliatek as being key in our drive to low carbon, environmentally friendly products for two reasons. First, we are impressed by the effectiveness of their state-of-the-art, organic solar technology. Second, this solar technology has a truly green, zero environmental impact thanks to no toxic ingredients, non-toxic manufacturing with very little energy and material consumption, and ease of disposal as the modules are 99% PET plastic (the same plastic used in water bottles) with the rest also being harmless materials. These factors make Heliatek the first, completely green, solar technology, which is why we are incorporating it into our portfolio. Until now, architects have only had a limited choice of expensive and complex ways of adding solar harvesting to their building. This new BIPV application will serve as a strong lever to start a new, truly green revolution in building design.”

Architecturally, the new Heliatek and RECKLI solar concrete façade will offer several advantages. The solar cells are deposited on a thin, flexible, lightweight plastic sheet so that there are no safety issues unlike with glass modules, which require very secure handling and installation, so that they do not fall. At only 0.5 kilograms per square meter, compared to conventional panels at 10 to 15 kilograms per square meter, structural support issues are minimized. Aesthetically, the BIPV modules can be added to a building’s façade in non-intrusive ways and will be available in a variety of colors and dimensions to enable the architect to be creative with the external appearance of the building.

Heliatek uses a low temperature, roll-to-roll deposition process on plastic to manufacture solar panels, which will be highly cost competitive in mass production within a few years when the new solar façade modules will be available. The manufacturing technology is already in use in the OLED industry, providing Heliatek with proven, mass manufacturing machines and reliable processes that it can draw on to rapidly get to market with high volume production.



*New application possibilities within BIPV:
Heliatek's ultra-thin, organic solar panels will transform the building envelope into an efficient solar energy harvester while blending discretely into a building's design.*

About Heliatek:

Heliatek, a global leader in high-end solar PV technology, was spun-off in 2006 from the Technical University of Dresden (IAPP) and the University of Ulm. It is the global technology leader in the field of organic photovoltaic (OPV) based on small molecules and has just recently set a new world record by achieving a cell efficiency of 9.8 %. Heliatek maintains a total staff of 75 employees and specialists at its facilities in Dresden and Ulm, Germany. Investors in Heliatek include leading industrial and financial companies such as BASF, Bosch, RWE, and Wellington Partners. Say hello to solar and discover more at www.heliatek.com.

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**About RECKLI:**

RECKLI, a world leader in the design and manufacture of elastic formliners, molds and liquid rubbers for the building supplier industry, was founded in 1968 and is a part of InnoTec TSS AG since 1988. Formliners are used in pre-casting factories and in cast-in-situ concrete for attractive surface modulation and shaping of exposed concrete. RECKLI maintains a total staff of over 100 employees and specialists at its facilities in Herne, Germany, and Paris, France. Together with exclusive representatives RECKLI is present in 55 countries. Discover more at www.reckli.com.

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**Formliners****Mould making Technique****Resins for Mould and Pattern making****Concrete Surface****DESIGN YOUR CONCRETE****RECKLI GmbH**

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