



Polysolar

Architectural Building Integrated Photovoltaics

Polysolar is a recognised global leader in the development, design and delivery of Building Integrated Photovoltaic (BIPV) solutions. Producing a range of innovative transparent photovoltaic glass technologies for applications within the built environment.

Building Integrated Photovoltaics (BIPV)

As the name would suggest, BIPV is the concept of integrating photovoltaics into the building envelope whereby the solar photovoltaic modules replace conventional construction materials, delivering a multifunctional and environmental building material. Where roof space is limited, BIPV is often the best solution to meeting renewable energy and carbon commitment requirements.

Transparent PV glazing

Along with our design and integration expertise in BIPV solutions, Polysolar is a developer, manufacturer and distributor of next generation thin-film photovoltaic products. We focus on transparent solar glazing technologies. Our standard and bespoke products are designed to meet most project-specific architectural requirements and are fully IEC and MCS certified and warranted



KM 642424



MCS 017 Bespoke BIPV Products



Polysolar Thin-film Technology

Polysolar's thin-film photovoltaic technologies consists of the active photo absorbing material being vacuum deposited and laminated between two sheets of glass with transparent conductive coatings. Polysolar offers a range of solar thin-film technologies including Amorphous Silicon (a-Si), Cadmium Telluride (CdTe), and Copper Indium Gallium Selenide (CIGS). The panels comprise a heat strengthened glass laminate, unframed, with edge or back mounted bypass diode junction box and standard solar connectors. These innovative panels offer the latest in PV technology with a range of transparencies up to 50%. Polysolar can offer bespoke design services to aid in architectural design flexibility with options including size, glass type, insulated units, transparency, colour and surface finish.

High efficiency in non-optimal positions

There is significant potential for installation across a wide range of building surfaces, including vertical façades, flat roofs, rooflights, and structural elements.

More consistent energy yield

Efficiency under low-light and ambient conditions ensures that energy is generated more consistently throughout the day and across the year, providing a closer alignment with energy demand and improving overall system performance.

Higher efficiency over a greater temperature range

Higher efficiency across a broader temperature range allows for maximum energy production while eliminating the need for additional façade or roof ventilation. This makes the system particularly suitable for use in double-glazed applications.

Initial installation costs similar to conventional building materials

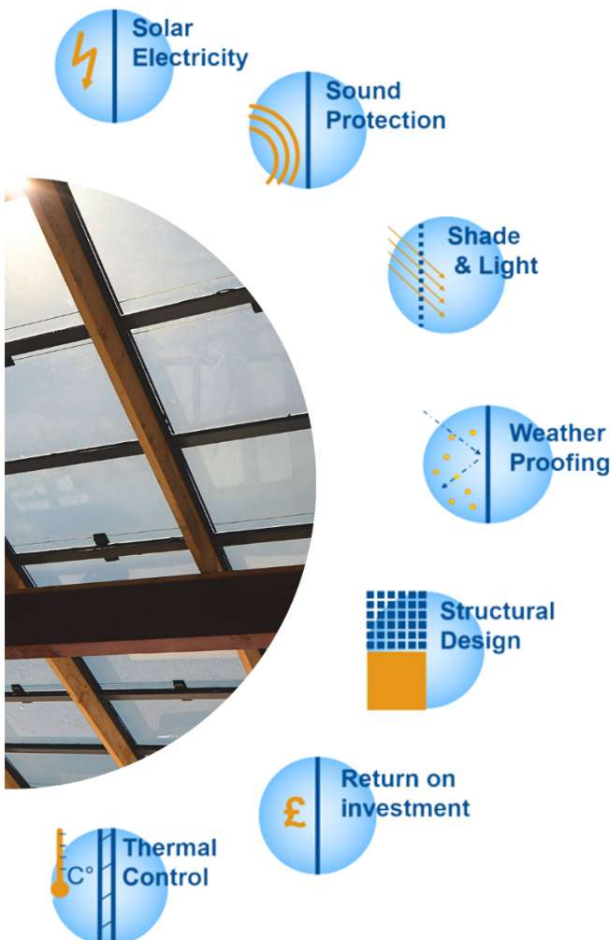
The minimal additional costs, coupled with the extra thermal benefits that standard glass does not provide, make photovoltaic glass an economically competitive option.

Dual sided operation

Panels will absorb light from both sides of the panel, maximising the energy yield potential as in bifacial cells.

Tough and rigid panels

Laminated glass/glass modules increase the panel's functionality and potential for installation applications. Toughened, tempered glass is available to customer specification.





With the wide range of solar technologies now available, there are considerable opportunities to integrate BIPV into many types of building structures, including façades, skylights, atriums, carports, canopies, EV stations, greenhouses and numerous other applications. The advantages of BIPV are extensive, offering not only a source of carbon-free renewable energy but also improved thermal performance in buildings and enhanced living environments, while requiring fewer construction resources and providing a financial return to the owner.

Multifunctional

BIPV glazing serves as an integral component of the building envelope, contributing to both weatherproofing and structural design, while also providing effective thermal regulation and generating renewable electricity on site.

Thermal control

Polysolar's double-glazed PV units achieve insulation with a U-value of less than 1 W/m²K and a thermal transmittance (G-value) of 0.2%, making our BIPV glazing superior to triple glazing and low-E glass, and significantly enhancing a building's thermal performance.

Solar shading

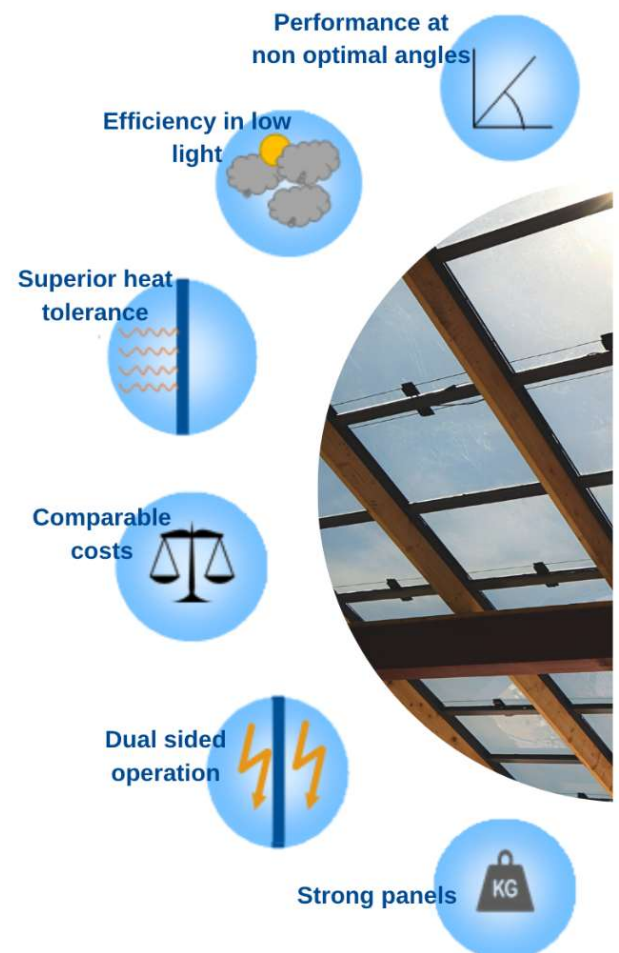
BIPV glass significantly reduces solar gain within a building, eliminating the need for external shading structures such as brise soleil, while also minimising glare. Polysolar offers a variety of transparencies and colours to suit different design requirements.

Building regulations

BIPV is an effective means of improving a building's BREEAM rating. It can also help reduce carbon tax, support futureproofing efforts, and assist in meeting corporate CO₂ commitments, all while complying with current building standards.

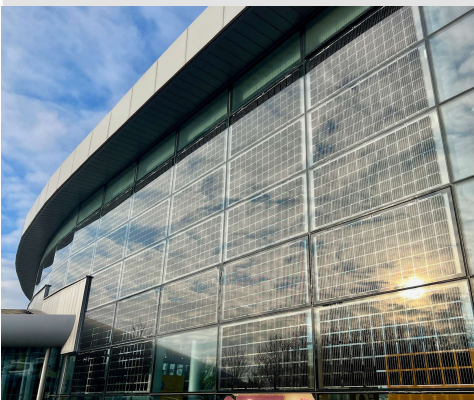
Marginal additional cost in construction

By replacing conventional building envelope materials with solar PV modules, the additional cost of energy generation becomes minimal within the overall build, and in some cases even lower on a cost-per-square-metre basis. When combined with the multifunctional benefits of PV glass and its ability to reduce energy consumption, these extra costs can be effectively offset.



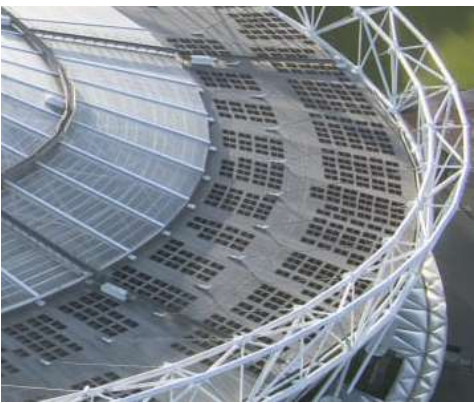


Polysolar BIPV solutions



Façades and Skylights

Polysolar's frameless photovoltaic glass panels offer an aesthetic, efficient solution for façades, skylights, or glasshouses, performing well even at non-optimal angles. With transparent options up to 50% and compatibility with curtain walling or bonded rainscreen systems, they provide both function and design. Polysolar collaborates with leading glazing companies to deliver complete integration.



Lightweight Solutions

Polysolar's lightweight PV panels provide a solution where standard panels can't be used, adhering directly to roofs with tested adhesives and requiring no metal mounts. At just 3 kg/m², they suit low-load roofs, membrane roofs, facades, and agrivoltaic projects, combining minimal weight with frameless design for seamless, functional integration in challenging applications.



Structures

Incorporating PV into canopies and walkways offers an excellent way to make more productive use of what is often a large, underutilised area, while also providing opportunities for larger-scale structural applications. A key advantage of using BIPV in canopy designs is its dual-sided operation, which enhances overall energy yield. Suitable for everything from service stations and bus shelters to market stalls, swimming pools, and expansive public or commercial spaces.



Carports

Carports provide an ideal structure for integrating PV panels, thanks to their robust framework and flexible positioning in relation to the sun. With the rapid growth of electric vehicles, solar carports can generate the on-site renewable energy needed for charging points, while making efficient use of space and offering both shelter and power generation.

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