

Polysolar

BIPV CASE STUDY

Future Energy Home



Client: E.ON Energy

Location: Berkeley Homes, Kidbrooke Village, London

Project: Future Energy Home

Background: Polysolar was invited to participate in a competition, held at E.ON's Headquarters' in Essen, Germany, to propose a series of BIPV solutions for a new modular offsite construction of a town house from house builder Berkeley Homes PLC. Polysolar was subsequently awarded a contract to develop, design, supply and install a number of integrated solar PV glazing solutions on a trail and demonstration show home at Berkeley Homes Kidbrooke Estate.

Objective: The Smart Energy home incorporates three solar PV installations using Polysolar's PV Glass. Including a roof canopy, that effectively extends the home's square footage by making the roof garden useable throughout the year. Offering protection from the elements and shading as well as being optimally positioned for generating renewable energy. A PV glass balustrade around the roof terrace provides visual screening and protection from the wind, as well as additional dual sided power generation. The installation also included a solar bike and bin store canopy at the front of the town house, enclosing and protecting the contents and offering additional solar generation.

Construction: In addition to the BIPV glazing elements, further smart energy features were also incorporated into the design, including Battery Storage, Electric Vehicle charge points and smart thermostats, all controlled on a single smart phone app. Polysolar designed and commissioned the unique aluminium canopy, balustrade and bike shelter, fabricated and installed by 123V.

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Product: Polysolar's PS-CT-64 series 20% transparent glass glass 6.8mm laminate 1200mm X 600mm with long edge pencil junction boxes. Plus bespoke triple laminate 12mm 600mm X 600mm 20% transparent glass units in the balustrade.



Performance: The combined installed BIPV system is 3.18 kWp and is estimated to generate over 60% of the home's power need, or over 2,200 kWh each year. Combined with battery storage enabling the home to use all the power generated and access off peak tariffs, the householder's annual electricity bill could be less than £100 per annum.

Polysolar's thin-film solar photovoltaic glass combines the benefits of a building construction material with renewable energy technology. Our PV glazing offers a unique multifunctional construction product for developers and designers alike when considering stringent energy and environmental targets.

The sleek aesthetics and wide range of unique product options all optimised for integration into building, makes Polysolar's PV glazing ideal for a wide variety of applications.

Cost Effective Building Material

- Low cost, standardised BIPV panel with a marginal additional cost over existing building materials
- Price competitive per m² installed with conventional cladding materials
- Multifunctional building material offering application benefits in energy saving as well as energy generation

Higher Energy Yields

- Works in low and ambient light, generating electricity even on the duller days and making the panels non position dependent
- Maintains power output at higher temperatures, negating the need for panel ventilation and enabling direct insulation
- Electrical design provides tolerance to shading and reduces system losses

Environmentally Friendly

- High performance glass reduces heat gains and glare control
- Available as double glazed insulated units with u-values for less than only 0.1 W/m² K and g-values of 0.2/m² K respectively
- Low energy and clean earth resources utilised in manufacture of solar technology

