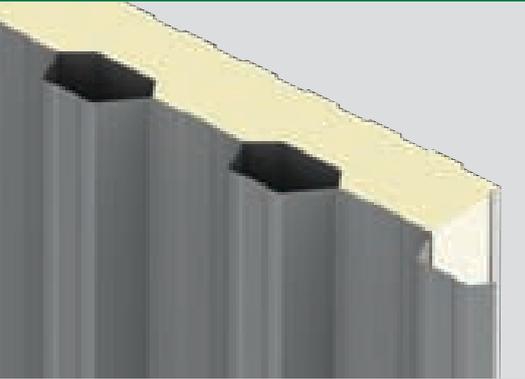
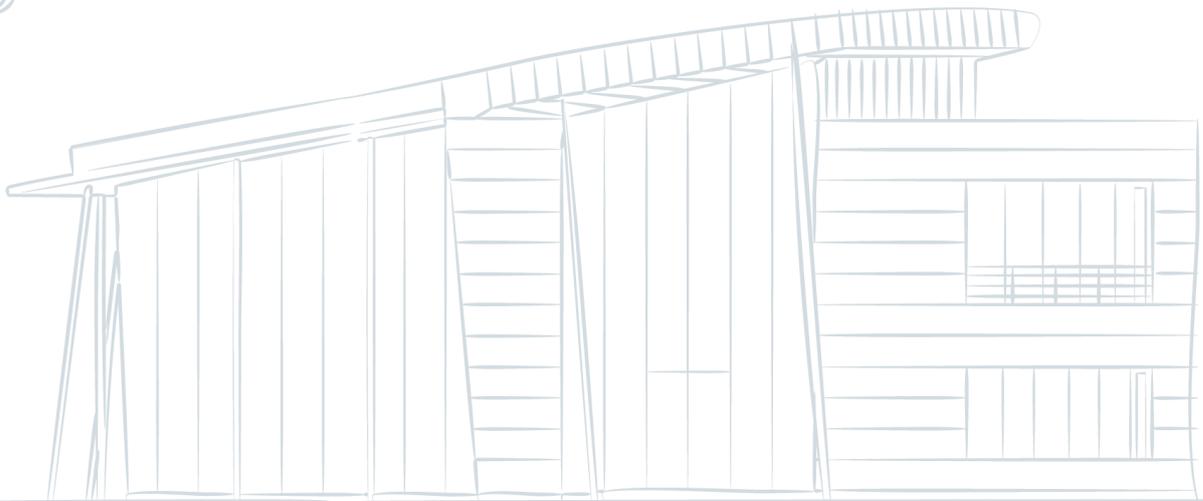
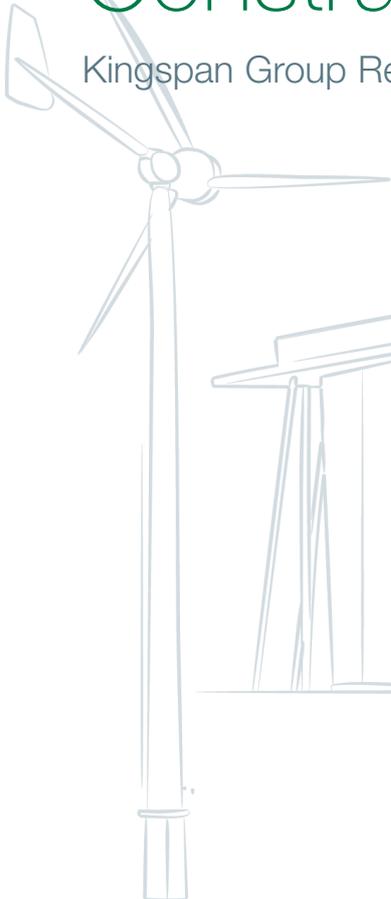


RENEWABLE SYSTEMS



Integrated Renewable Construction Solutions

Kingspan Group Renewable Solutions





The paper we have printed on is from 80% post-consumer waste and the remaining 20% pulp is TCF (Totally Chlorine Free). This fibre is FSC certified (see fsc.org for details). In recognition, the range has been awarded both the NAPM and Eugropa recycled marks, two of the most prestigious and recognisable recycled certificates available. The ink we have used is vegetable based, allowing the document to be recycled.



Sustainable Forest

Recyclable

Vegetable Based



Kingspan Wall-Lite Systems

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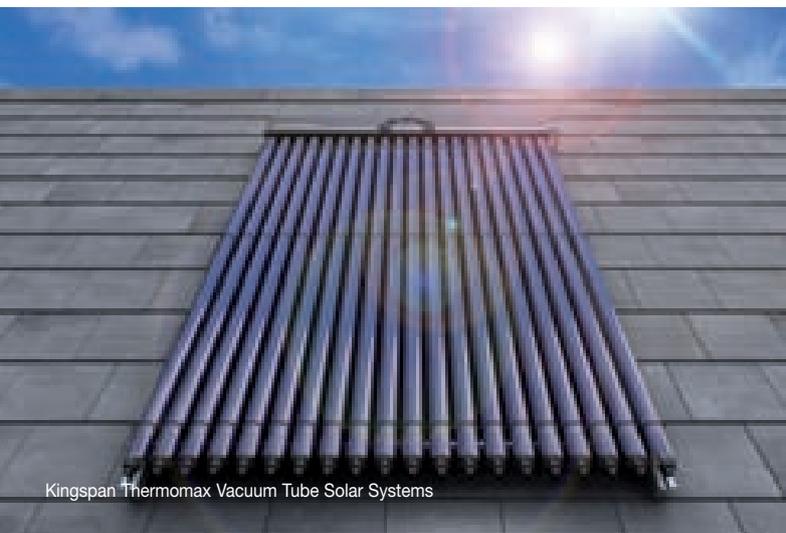
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Green Roof Systems
Image courtesy of Alumasc Exterior Building Products Ltd.



Kingspan EnergiPanel™ used on Plot 5020 Western Approach, Bristol

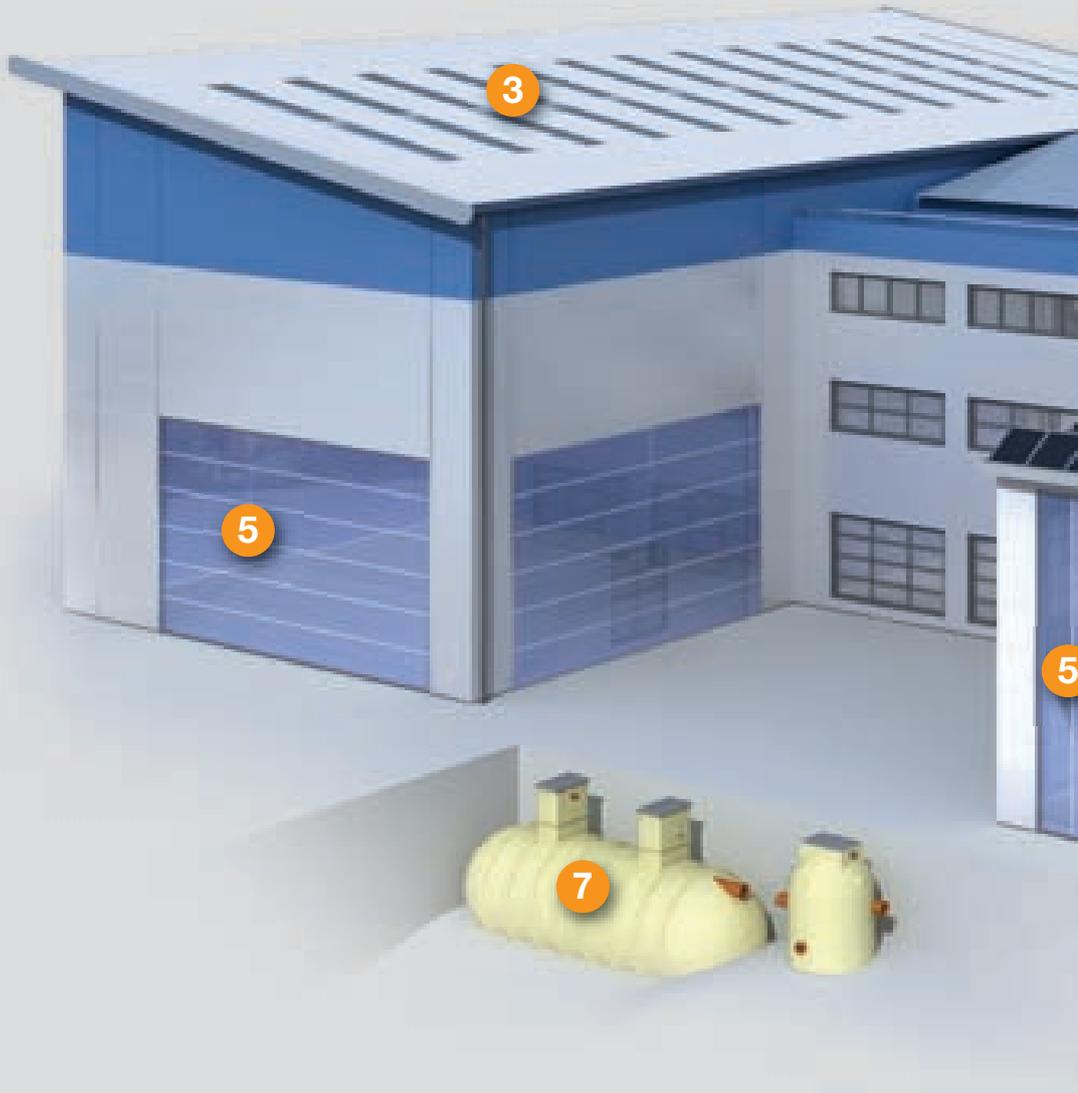


Kingspan Thermomax Vacuum Tube Solar Systems



Kingspan Rainwater Harvesting and Attenuation

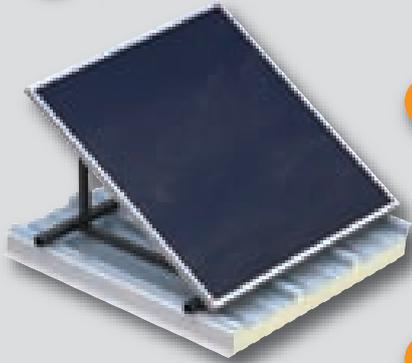
Product Selector



1 Kingspan EnergiPanel™



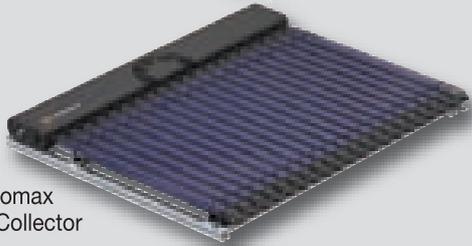
2 Solamax Panel

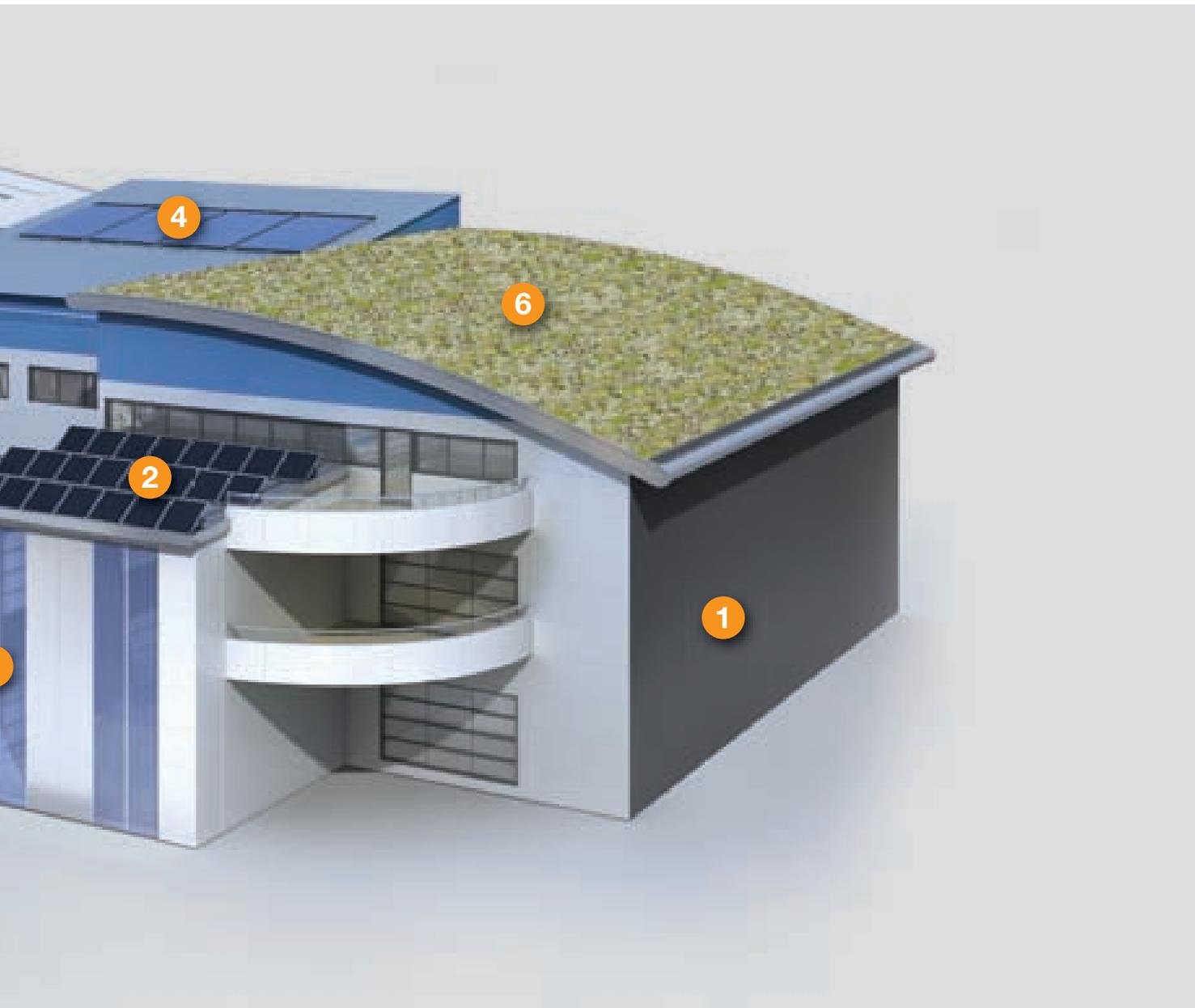


3 Kingspan Polycarb Rooflight



4 Thermomax Solar Collector

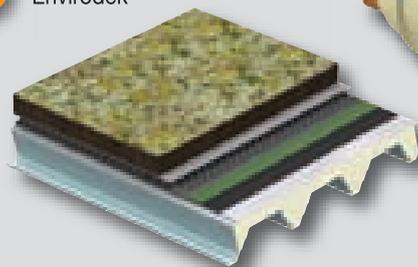




5 Kingspan Wall-Lite



6 Kingspan Envirodek™



7 Kingspan SUDS Solutions



Kingspan Insulated Panels

Kingspan EnergiPanel™

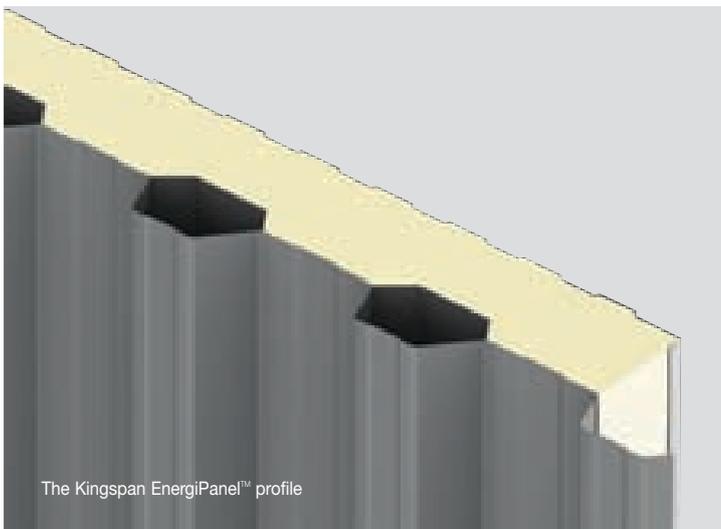
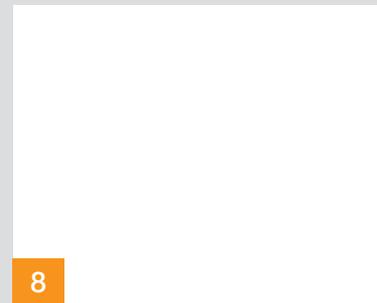
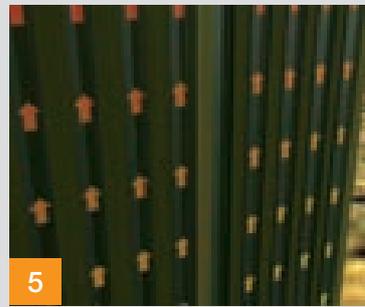
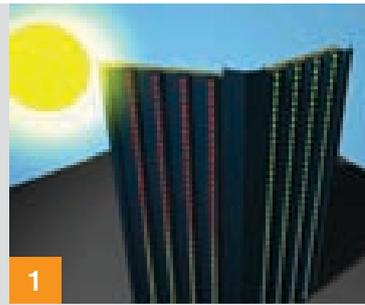
At a time when we are urgently looking to reduce our carbon emissions through a combination of more energy efficient buildings and sources of renewable energy, Kingspan Insulated Panels has come up with a simple, but very effective solution with their new Kingspan EnergiPanel™ system.

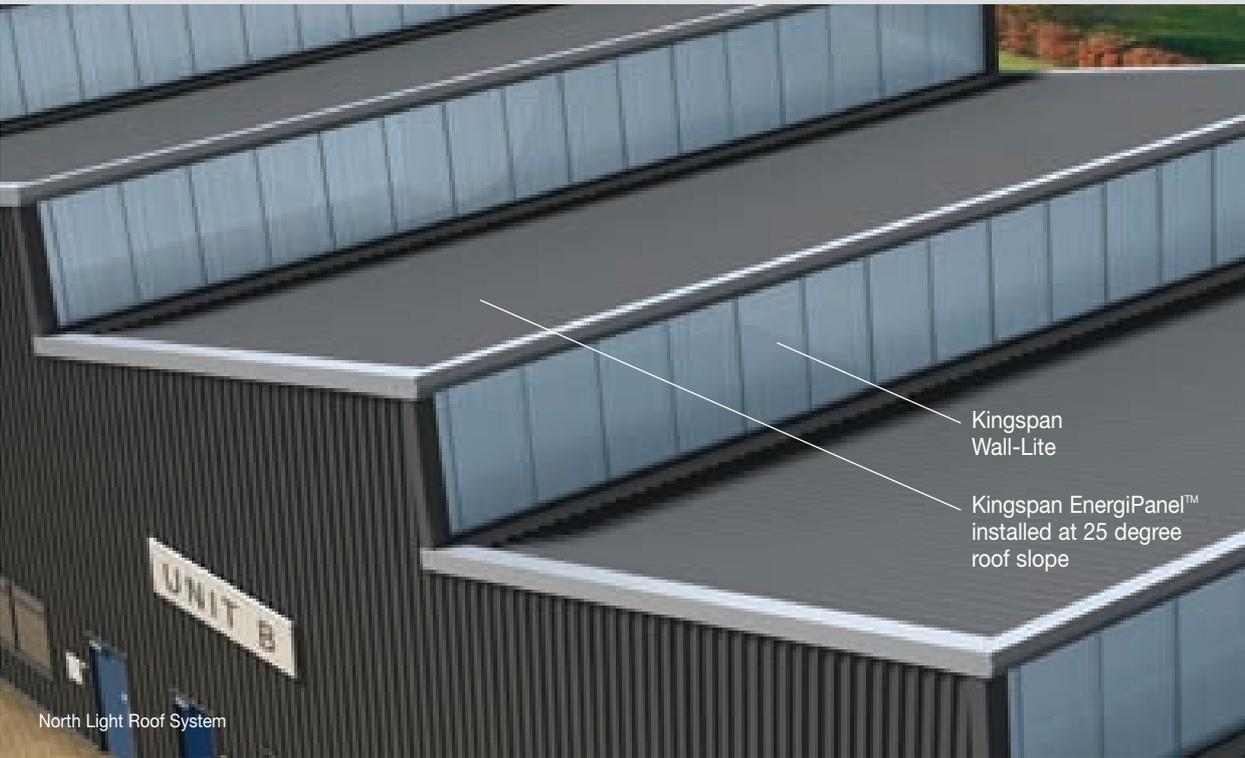
Kingspan EnergiPanel™ is an innovative insulated solar air heating complete wall system designed for roof and wall applications as a supplement to the main heating system. The system comprises a modified version of a standard Kingspan KS1000 FC Five Crown Box Profile panel. Profiled hollows beneath the crowns allow air movement up through the panel (images 1-2) and the air is warmed by the simple process of using the outer steel skin as a solar energy absorber (images 3-6). The darker the external colour of the panel the greater the solar absorption.

The rate of airflow up through the panel is determined by the temperature of incoming air. Temperature sensors constantly monitor the external air temperature and varies the fan speed to ensure the supply air temperature is above the required internal temperature of the building. The regular circulation of warm fresh air drawn into the building improves the overall quality of indoor air, making the working environment healthier and more comfortable (images 7-8).

The system offers a low cost and reliable renewable energy source which can provide a rapid payback on investment. Kingspan's large scale test facilities have shown that heating costs can be reduced by as much as 20%*, offering the potential to significantly reduce a building's carbon emission rate. The introduction of a renewable source of energy into the building composition can also increase the chances of achieving planning permission where Merton pro-renewables planning policies are being implemented.

*To obtain computer modelled indicative data for your building, please contact Kingspan **envirocare**™ Technical Services on 0800 587 0090.







Homebase, Wrexham

Kingspan Polycarb Rooflight

The Kingspan Polycarb Rooflight allows natural light to penetrate in to the building, therefore reducing the need for artificial lighting. The rooflight system, which is designed for use with the KS1000 RW/SF system, is made from polycarbonate, a lightweight, high performance, durable plastic. It has superior UV resistance and will not discolour over time coupled with a U-value of 1.64W/m²K.

Benefits of the Kingspan Polycarb Rooflight include:

- Non-Fragile: HSE tested ACR [M] 001:2004 Category Class B
- Thermal performance: U-value 1.64W/m²K – Part L2 (England & Wales) and Section 6 (Scotland) Technical Handbook compliant
- Excellent light transmission – up to 63% to EN410 standard
- Available as either clear or opal finish
- Available in lengths of 1.8 – 6.44m
- Fire Performance – Class 1Y
- Single component: fast installation leading to accelerated build speed
- Simple to fix: no glazing experience necessary
- Lightweight and durable
- Cost effective

The Kingspan Polycarb Rooflight is 100% recyclable, which means that at the end of its life, it can be completely recycled unlike many composite rooflights in which only certain elements can be recycled. Through recycling, a number of benefits can be achieved. Substantial energy savings can be made by using waste materials rather than raw materials, these energy savings can be made from reducing transportation emissions and the processing of raw materials.

The amount of material that ends up in landfill is reduced. This not only prolongs the life of the currently diminishing landfill sites but also reduces the amount of gases released in to the atmosphere from this process.

Polycarbonate also has a scrap value, potentially rendering the process of removing and disposing of the panel at end of life cost neutral/positive. Therefore using a 100% recyclable polycarbonate rooflight has both economic and environmental benefits.



Kingspan Polycarb Rooflight installed with KS1000 RW



MFI, Speke



Kingspan Wall-Lite installed on factory



Different colours are available in the Kingspan Wall-Lite

Kingspan Wall-Lite

The Kingspan Wall-Lite is a translucent wall panel that allows natural daylight into buildings, whilst maintaining thermal efficiency and aesthetic appearance.

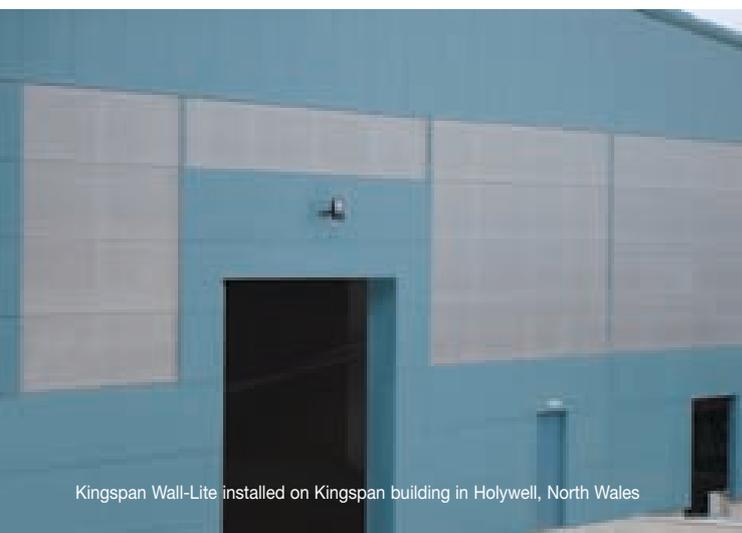
The Kingspan Wall-Lite is made from polycarbonate and offers excellent interior levels of natural light without compromising the performance of the building. This can help to lower both energy bills and CO₂ emissions, whilst allowing occupants to enjoy high levels of daylight. The system is suitable for use as an alternative to traditional vertical daylighting systems and need not restrict design options as it integrates fully, with Kingspan's range of Architectural Wall panels, Kingspan Optimo™, and Kingspan's range of complete wall and façade systems including the Thermabrick™, Thermastone and Thematile systems.

The Kingspan Wall-Lite is UV resistant, lightweight and offers a U-value of 1.26 W/m²K offering designers and installers choice of freedom to create energy efficient buildings of distinction.

Kingspan Wall-Lite is suitable for applications on all types of buildings and is suitable for both vertical and horizontal applications. It is a single component system and does not require glazing experience to fit, thereby reducing installation times and the need to rely on skilled sub-contractors.

Benefits of the Kingspan Wall-Lite include:

- U-value 1.26 W/m²K - fully complies with Part L2 (England & Wales) Building Regulations and Section 6 (Scotland) Technical Handbooks.
- Excellent light transmission - up to 55% to EN410.
- Up to 25 years life expectancy.
- Fully recyclable at end of life with minimal impact on the environment.
- Factory manufactured: ensures excellent fit with all Kingspan Architectural Wall Panel and Optimo™ systems.
- Available in a range of colours.
- High degree of colour fastening over guaranteed period.
- Available in lengths from 1.8m up to 8m.
- Fire properties: Class 1Y.
- Single component: fast installation leading to accelerated build speed.
- Simple to fix and no glazing experience necessary.
- Lightweight and durable.
- Excellent impact and thermal performance compared to glass glazing systems.
- Factory fitted aluminium spacers to facilitate faster installation and reduce site wastage.
- Manufacturing sites are ISO 9001: 2000 (Quality) and ISO 14001 (Environmental) accredited.



Kingspan Wall-Lite installed on Kingspan building in Holywell, North Wales

The Kingspan Wall-Lite is 100% recyclable at the end of life and any off-cuts during the manufacturing process are used in the production of new material. This reduces the amount of virgin material used and reduces any environmental impact.

For further information please contact:

Kingspan Insulated Panels

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 email: info@kingspanpanels.com
www.kingspanpanels.com



Sedum is ideal for extensive roofing systems

Kingspan Envirodek™

Kingspan Envirodek™ is a structural green roof system that offers a range of sustainable and environmental benefits over traditional roofing systems. These benefits include:

- Enhancement of air quality, by lowering CO₂ levels
- Storm water attenuation
- Increased acoustic performance
- Promotion of biodiversity or retention of existing biodiversity
- Increasing the life expectancy of the roof.

For many modern buildings the difficulty for designers has been to find a roofing system which can carry the load of a green roof whilst also being:

- Cost effective
- Quick and safe to install
- Well insulated and energy efficient
- Quickly weather tight
- A lightweight decking support to intensive green roofs (as opposed to reinforced concrete decks).

The development of the Kingspan Envirodek™ structural insulated roof deck has resolved this difficulty and offers the following additional benefits:

- Installation rates of up to 1000m² per day with the aid of mechanical handling equipment
- Double spans of 6m can be achieved
- Suitable for curved roofs down to 15m concave and 30m convex radius.

The advantages of the system include:

Environmental

- Masking buildings allowing them to blend into the local environment.
- Practical use of waste materials incorporated into the system build up.
- Reducing urban temperatures and controlling air humidity.
- Reduction of ground based ozone.
- Improved air quality due to reduced CO₂ levels.
- Aids storm water management, used in conjunction with storm water attenuation systems e.g. Kingspan Environmental & Renewables Stormwater Attenuation System.
- Aids noise reduction.
- Enhances thermal performance.

Ecological

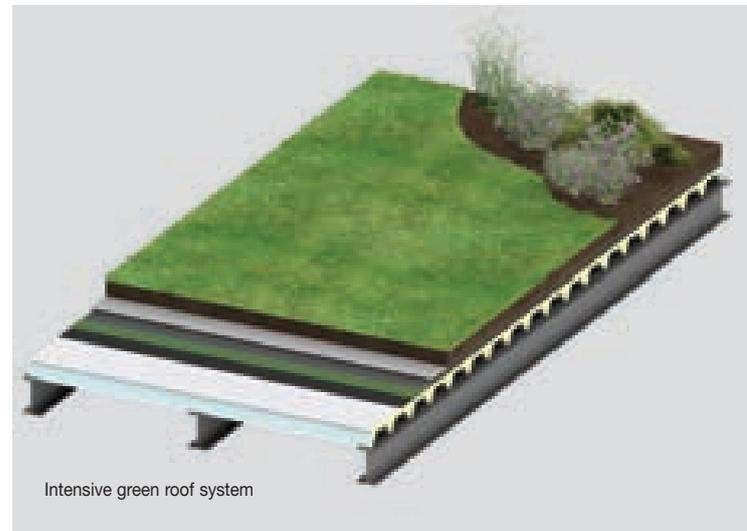
- Can be designed to offer habitat for plants and birds.
- Aids biodiversity.

Financial

- Reduced lifecycle costs by extending the life of the waterproofing.
- Cost effective installation.
- Internal polyester liner finish provided as standard.
- Can assist with planning consent.
- Can increase property values.
- Enhances workplace productivity by improving working environment.



Kingspan Envirodek™ used on office block in Rotherham



Intensive green roof system

Contacts

Field Service Support

Kingspan's team of Field Service Engineers offer:

- Free contractor training on the installation of new and existing products at our specially designed facility at Holywell, North Wales - both theoretical and practical workshops
- Kingspan training scheme - issue of identification cards certifying product training undertaken
- Pre-contract technical support and advice on specification compliance
- Site inspection service throughout contract period to ensure practical specification compliance with reports
- Guarantee certification
- Advice on mechanical handling solutions

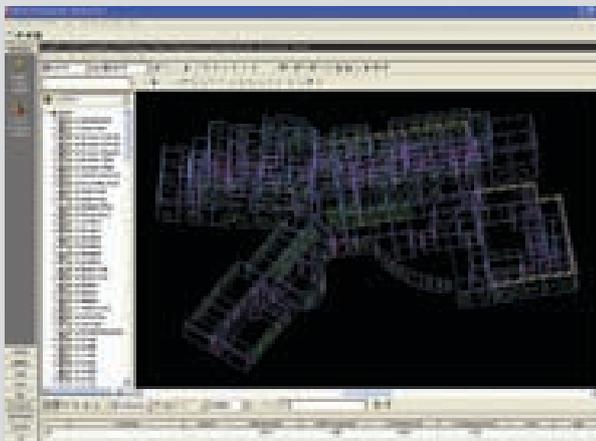


Kingspan **envirocare**® Technical Services

Kingspan support all of their products with Kingspan **envirocare**® Technical Services for designers, specifiers and contractors.

This includes a free computer-aided service designed to give fast, accurate technical support and advice. Contact us with your project specification and we can:

- Provide whole building energy performance calculation service for Building Regulation Part L2 & Section 6 compliance, using DCLG approved software
- Give advice on BREEAM credit availability using Kingspan panels
- Give EPBD optimisation and rating advice/guidance
- Provide project specific model specifications in NBS format
- Attend design meetings
- Generate construction/junction details in line with current Building Regulations
- Provide thermal calculations for junctions (Ψ & f min values)
- Provide design wind load and snow load calculations
- Provide condensation risk and thermal performance calculations
- Provide roof drainage calculations
- Provide building physics solutions
- Provide construction details approval service prior to installation
- Provide fire/insurance solutions
- Provide technical advice to comply with the Kingspan 25 year Kingspan Total Panel Guarantee



enviro**care**®
TECHNICAL SERVICES
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Kingspan Off-Site

Sustainable Urban Drainage Solutions (SUDS)

Managing the Stormwater Challenge

As more river valleys become developed with hard surfaces (paths, roads and roofed areas) the volume of rainwater that runs off the land increases.

This can have a severe effect in a watercourse where flash floods can occur downstream where the volume of water entering the system can be extremely high due to a cumulative effect of development upstream.

- Global warming has also had an impact on the level of rainfall, which has gradually increased over the past few decades. This has accentuated the problem of stormwater entering waterways.
- Flash floods along with rising sea levels have been responsible for some severe flooding in the UK in recent years. This has led to rising insurance claims and leaving some areas as blackspots where insurance against flood damage cannot be obtained.

Government Policy & Building Regulations

- Building Regulations Part H3
- Planning Policy Statement 3 (PPS3)
- Planning Policy Statement 25 (PPS25)
- CIRIA publications: 'The SUDS manual (C697)' and 'Site handbook for the construction of SUDS (C698)'

Sustainable Urban Drainage Systems

To address this problem, the drainage systems of towns, cities and developments have been surveyed and a policy of Sustainable Urban Drainage Systems (SUDS) has been developed to counteract the problems being encountered.

- SUDS addresses issues of the quantity and quality of the water run-off from sites. Attenuation systems (tanks and rainwater harvesting systems) and separators (to remove oil contaminants from discharges) are required.

How Does An Attenuation System Work?

When the peak inflow rate in a storm exceeds the allowed discharge into the watercourse, the excess flow has to be 'attenuated' on the site for the duration of the storm. This is then released at, or less than, the allowed discharge rate after the storm.

To store the excess volume and allow the correct discharge rate to go to the watercourse, a flow regulator is installed to 'bleed off' the correct maximum flow rate. The flow regulator can be a vortex type system or a simple orifice plate system.

The remainder of the water is stored either **in-line** or **off-line**, depending on the design.

Selecting the Right Solution

Sustainable Drainage Systems encompass much more than just installing a single product. The objective is to deal with the flow at source rather than traditional techniques that simply transfer the problem further down the drainage system.

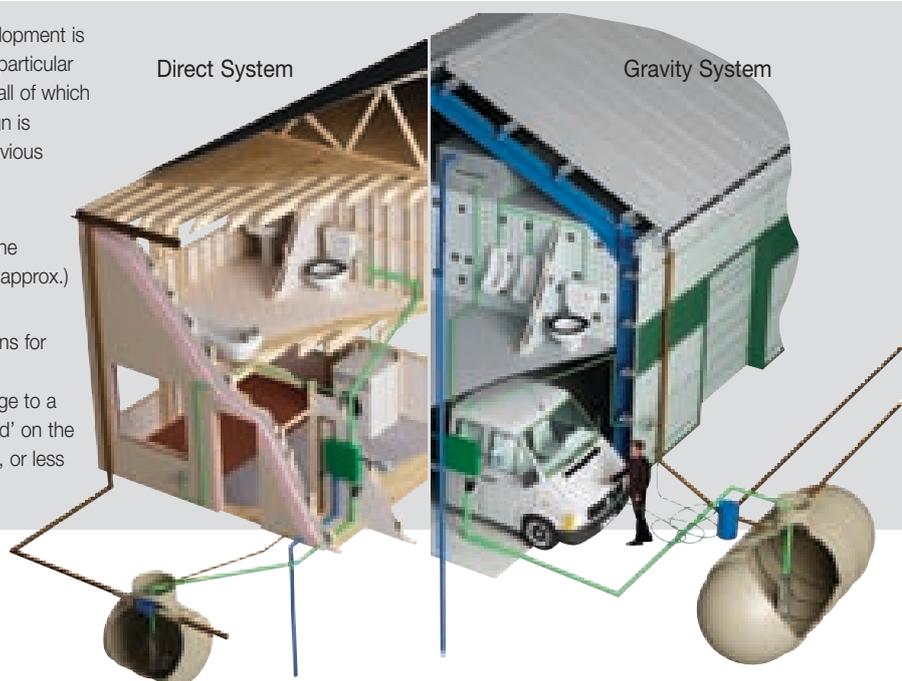
Each site should be tackled with management and control measures designed to meet many of the following objectives:

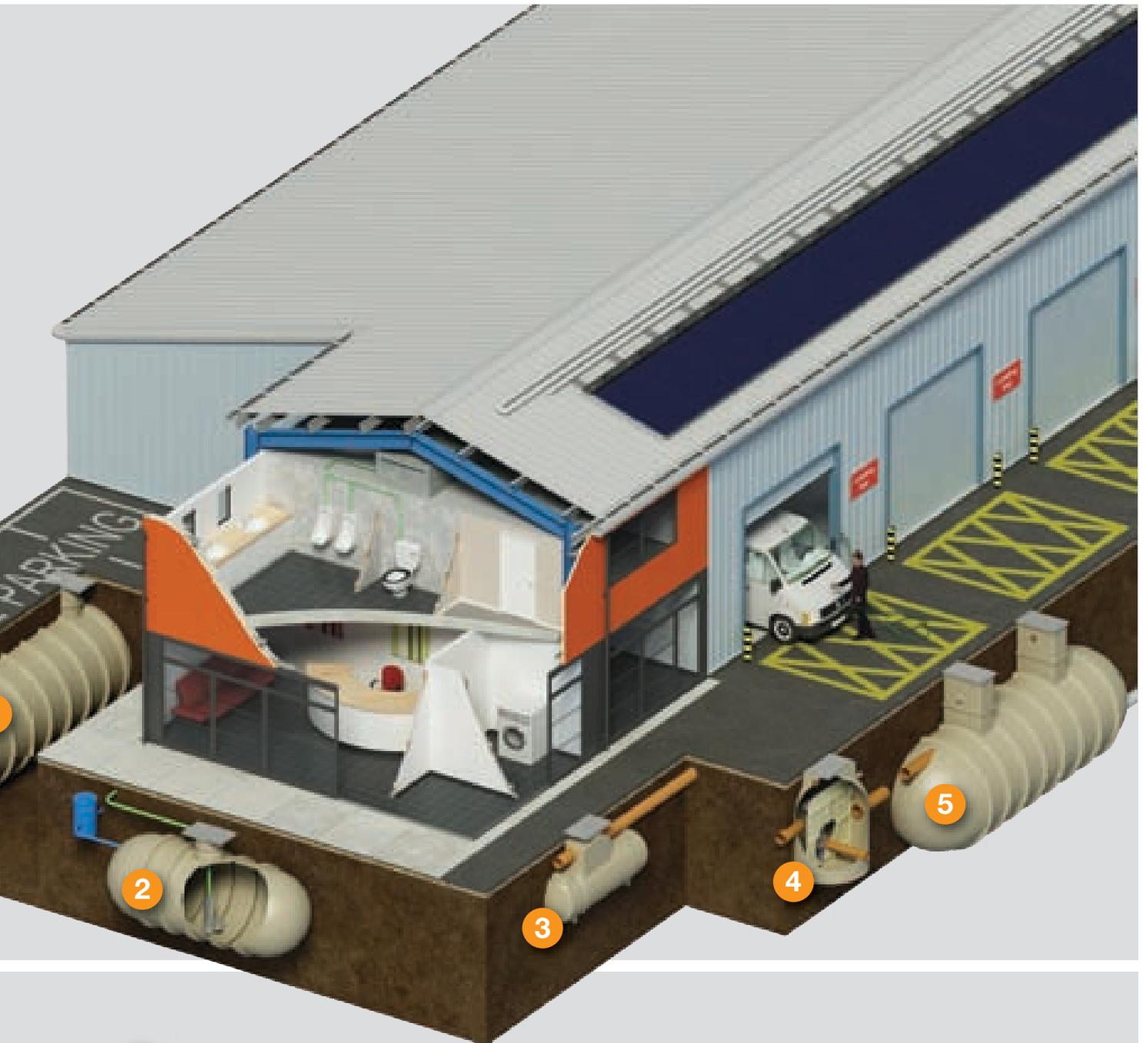
- Control and management of stormwater run-off
- Reduce the impact of urbanisation
- Ensure the protection and enhancement of local water quality
- Enhancing the natural recharge of groundwater
- Reusing stormwater to reduce load on local resources
- Natural integration to the local environment

The Kingspan Off-Site range of Attenuation products have been engineered not only as process solutions, but also to offer the user a modular system that incorporates the best practice in SUDS design.



- To size the systems required, the flow rate from the development is calculated from rainfall records and the run-off rate for a particular type of surface, i.e. roadway, roofed area, grassed area, all of which allow surface water to run off at different rates. The design is normally based on the highest recorded rainfall in the previous 30 years, but this can vary.
- Most authorities limit the amount of rainfall run-off from a development to a level where the rate does not exceed the rate of discharge from a green field site (5 litres/sec/acre approx.) but this must be specified by the local authorities.
- A technical engineer should provide the design calculations for the surface water run-off in order to size a system. This should also include the flow rate allowed for discharge to a watercourse, and the required storage volume 'attenuated' on the site for the duration of the storm. This is then released at, or less than, the allowed discharge rate after the storm.





- 1 Pumping Stations
- 2 Rainwater Harvesting
- 3 Oil/Water Separators
- 4 Stormwater Flow Control
- 5 Stormwater Attenuation Tanks

For further information please contact:

Kingspan Off-Site

Eltisley Road, Great Gransden, Sandy, Bedfordshire, SG19 3AR

Tel: 0844 967 0455, fax: +44 (0) 1767 676 444

Email: sales@kingspanoffsite.co.uk

www.kingspanoffsite.com

Kingspan Renewables

Solamax

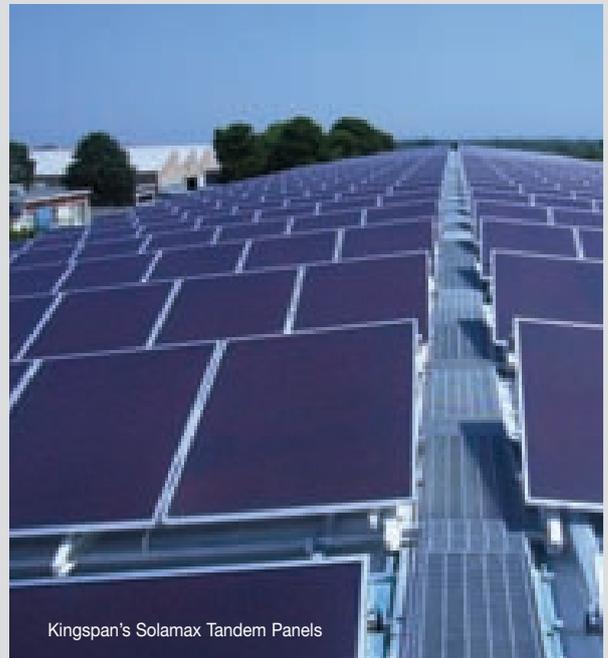
Thin Film Photovoltaic Panels

The Solamax Tandem range, which uses Photovoltaic (PV) technology to convert sunlight directly into electricity, represents the best product of its kind today.

Kingspan offer the full service from system design to specification and installation through expert installation partners. This, together with high quality manufacturing by Mitsubishi using the best raw materials takes the Solamax Tandem range to a new level in photovoltaic product and service.

Solamax Tandem is a new generation of thin film photovoltaic, a major development in the solar market place.

Tandem technology guarantees high energetic yields, particularly in the most extreme situations. Factors that often hamper performance including widespread radiation, partial overshadow, high temperatures and less than perfect orientation are in most cases overcome. With Tandem technology these factors have little effect on performance. In most cases Tandem technology guarantees yields of up to 10% more than silicon crystalline products. Solamax Tandem offers a fast pay-back making it a sound economical investment.



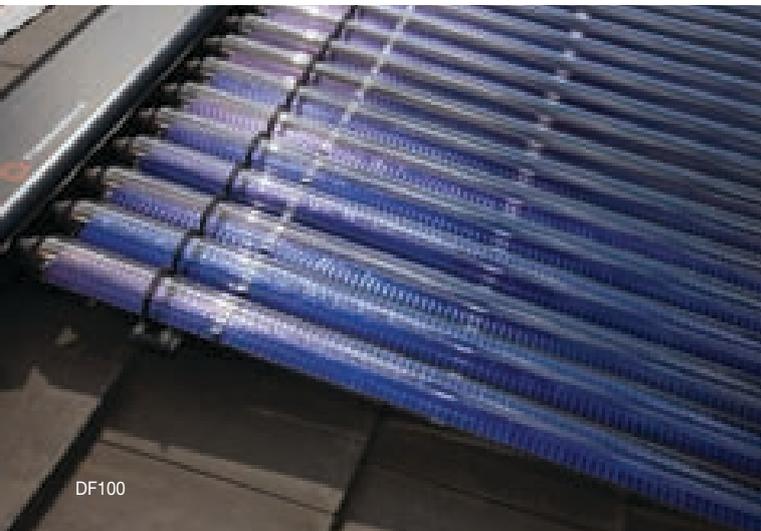
Kingspan's Solamax Tandem Panels



Kingspan's Solamax Tandem Panels



Available as DF100, HP100 and HP200



DF100

Thermomax

Solar Thermal Vacuum Tube Systems

Thermomax solar systems provide hot water in all seasons. Solar thermal technology transforms direct and diffuse solar radiation into useable heat using a solar collector.

The unique design of the collectors uses vacuum technology to ensure the most effective transfer of energy into heat. This means the Thermomax solar collector has extra performance in comparison with traditional flat plate collectors, providing heat not only in warm, sunny days, but also in cooler, windy or humid conditions.

In addition to domestic hot water, the superior performance of a Thermomax vacuum tube collector can also provide central heating support for standard or under floor heating and more specialised industrial hot water heating for high temperature applications and solar cooling.

- Provides up to 70% of your annual hot water needs.
- Full design and installation service from a worldwide network of approved installers.
- Simple maintenance.
- ISO 9001: 2000 Certified and Solar Keymark Approved.
- Free, clean and safe energy.
- Future proofed and environmentally friendly.
- Grants available through many Government schemes.

For further information please contact:

Kingspan Renewables

Balloo Crescent, Bangor, Co Down, BT19 7UP, Northern Ireland

Tel: +44 (0) 28 9127 0411 Fax: +44 (0) 28 9127 0572

email: info@kingspan-renewables.com

www.kingspan-renewables.com

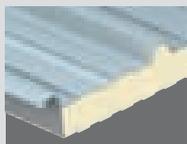


Kingspan's Thermomax systems can be used in both domestic and non-domestic applications

Kingspan Insulated Roof, Wall & Façade Systems

Roof Systems

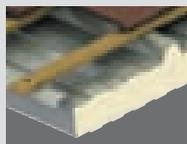
KS1000 RW
Trapezoidal



KS1000 SF
Secret Fix



KS1000 TS Slate
& Tile Support



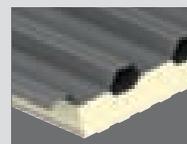
KS500/1000 ZIP
Kingzip® Standing
Seam



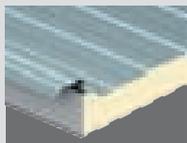
KS1000 LP
Lo-Pitch



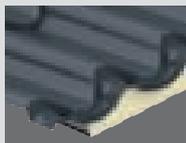
Kingspan
EnergiPanel™



KS1000 CR
Curved Roof



Kingspan
Roof Tile



KS1000 FC
Box Profile



Kingspan
Envirodek™



Kingspan
Polycarb Rooflight



Wall & Façade Systems

KS600, 900
& 1000
Optimo™



KS600, 900
& 1000 MR
Micro-Rib



KS600, 900
& 1000 EB
Euro-Box



KS600, 900
& 1000 FL
Flat



KS600, 900
& 1000 FL-S
Stucco



KS600, 900
& 1000 MM
Mini-Micro



KS600, 900
& 1000 CX
Convex



KS600, 900
& 1000 WV
Wave



KS600, 900
& 1000 LS
Longspan™



KS1000 RW
Trapezoidal



KS1000 FC
Box Profile



Kingspan
EnergiPanel™



Kingspan
Thermatile



Kingspan
Thermabrick™



Kingspan
Thermastone



Kingspan
WoodTherm™



Kingspan
Render Panel

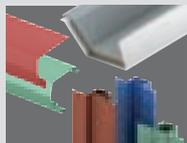


Kingspan
Wall-Lite



Ancillaries

Gutters, Tophats &
Flashings



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