

Presentation at Ecobuild on 5th March 2009.

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Kingspan®

**Low Carbon Cladding Systems for
Gazeley's Blue Planet, Chatterley
Valley Project.**

Mark Harris - Divisional Building Technology Director.

- **Gazeley Chatterley Valley : A unique project.**
- **Kingspan's Contribution**
- **What are we doing to deliver low carbon systems?**
- **Performance Measurement.**
- **Summary**

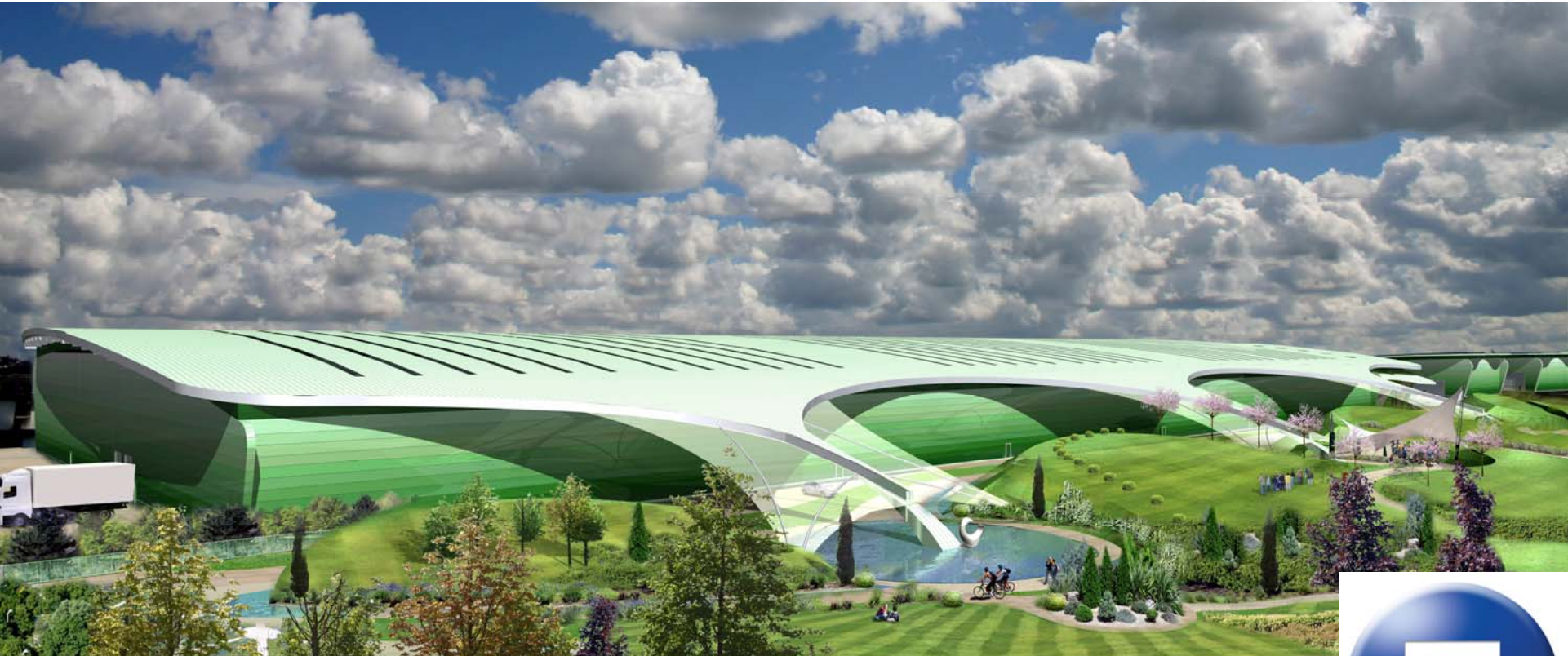


What is Blue Planet, Chatterley Valley?



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UK's First Carbon Positive Logistics Warehouse



c h e t w o o d s®
a r c h i t e c t s



Innovate | Construct | Sustain

Blue Planet, Chatterley Valley.



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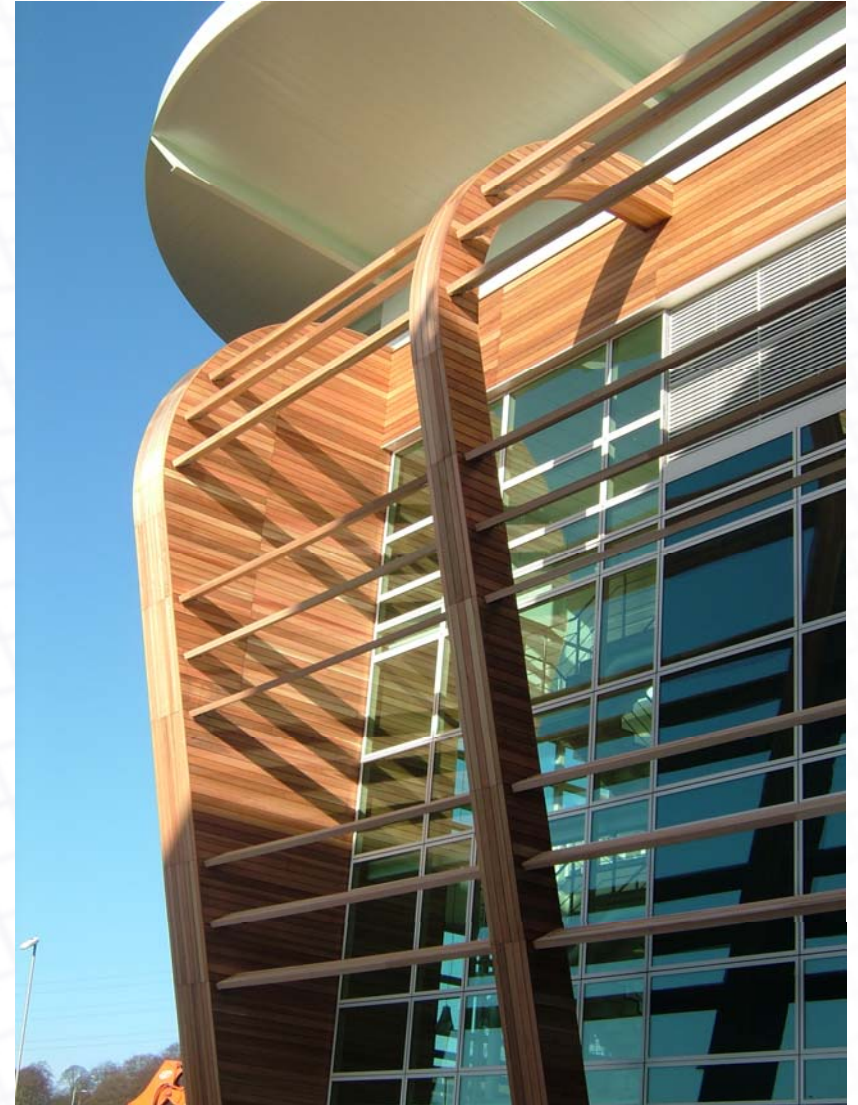


Blue Planet, Chatterley Valley.

- **34,000m² Warehouse**
- **1502m² 3 Storey Offices**
- **501m² Ancillary Storage**
- **20m² Gate House**



- **235 Space Car Park**
- **90 HGV Spaces**
- **38 Dock Levellers**



On Site Energy Generation

- **Bio-Mass Micro Power Station – power & heat**
- **ETFE Rooflights implanted with solar PV cells**
- **Kingspan EnergiPanel on Southern elevation**
- **Solar Thermal hot water system for offices**
- **Kinetic energy plates in access road.**

Net Positive Overall Energy Generation.



Energy Saving Features

- **Underfloor heating to warehouse fuelled by on-site bio-mass micro powerstation**
- **T5 Lighting in office linked to movement detectors**
- **T8 Lighting in warehouse linked to movement detectors and daylight saving controls**
- **Super thermal efficiency & airtightness 75% better than regulatory requirements**
- **Natural ventilation**
- **Optimised daylighting in offices**



Environmental initiatives

- Landscaping with native species vegetation
- Rainwater collection for reuse in offices
- Low water use sanitary appliances
- Office partitions manufactured from waste
- Marmoleum floor coverings from renewable natural raw materials
- Carpet tiles from at least 80% post industrial waste
- Ceiling tiles from recyclable materials
- FSC approved timber.



Kingspan Cladding Products Used -

- **Roof –**
 - **KS1000 CR- Curved roof panels**

- **Walls –**
 - **KS1000 MR – Architectural wall panels**
 - **KS1000 EP – EnergiPanel – insulated solar collector**
 - **KS1000 RW – Trapezoidal profile panel**
 - **KS1000 WL – Polycarbonate integrated wall lite system.**

**Total of 49,735m² Insulated Cladding Panels
611m² Wall lites**

Cladding Contractor – FK Roofing Services.

- **Roof Panels – 30,000m² installed in 6 weeks.**
- **27m long roof panels craned into position.**
- **Very low air infiltration achieved – 1.81 m³/m²hr.**
- **Waste managed on site – panel packaging reused or recycled.**

Cladding Installation.



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FKRS
FK Roofing Services

Cladding Installation.



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FKRS
FK Roofing Services

Cladding Installation.



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FKRS
FK Roofing Services

‘To be a global leader in sustainable business and establish a leading position in providing sustainable, renewable and affordable solutions for the construction sector.’

Kingspan Limited (Insulated Panels) Sustainability Strategy

Sustainability Vision

“To be a global leader in sustainable business and establish a leading position in providing sustainable, renewable and affordable best practice solutions for the construction sector”

Sustainability Policy

Kingspan Insulated Panels is the most highly recognized brand for insulated cladding panels in the markets which it services across the world.

Striving for sustainability in all our business products and operations is our corporate and personal responsibility. Kingspan Insulated Panels aims to adopt and apply best practice sustainability principles by ensuring environmental, social and economic parameters are considered in an integrated way in product and service delivery.

To this end, Kingspan Insulated Panels will:



- Incorporate the ethos of sustainability into the vision and values of the organisation.
- Continually improve operational performance through the setting of long-term objectives and targets related to sustainability and review progress regularly.
- Comply or exceed applicable legal and policy requirements related to the environmental and social aspects of the organisation.
- Optimize energy and raw material usage and prevent or minimise pollution and environmental damage.
- Continually monitor sustainability performance and actively communicate progress annually in the form of a published Sustainability Report, using the Global Reporting Initiative (GRI) guidelines.
- Communicate and actively promote awareness and acceptance of this policy to everyone working for or on behalf of the organisation (including employees, shareholders, suppliers/sub-contractors and customers).
- Ensure employees are given adequate training in sustainability issues and are fully involved in helping deliver the Sustainability Vision & Policy.
- Implement a Code of Conduct and supporting sustainability guidelines for key suppliers and contractors and other interested parties to ensure they comply with the Kingspan Insulated Panels Sustainability Policy.

Kingspan Insulated Panels is dedicated to adopting and becoming fully involved in supporting the implementation of the Sustainability Policy. The responsibility for implementing this vision and strategy lies with the Divisional Managing Director.

This policy forms a framework for our activities, product design, services and decision-making and promotes engagement of the entire organisation and will be reviewed annually.

7 long term sustainability objectives



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- **Sustainable Product Stewardship**
- **Carbon management – beyond carbon neutral**
- **Optimise use of resources**
- **Sustainable building design**
- **Ethical procurement & supply chain management.**
- **Stakeholder engagement**
- **Social responsibility.**

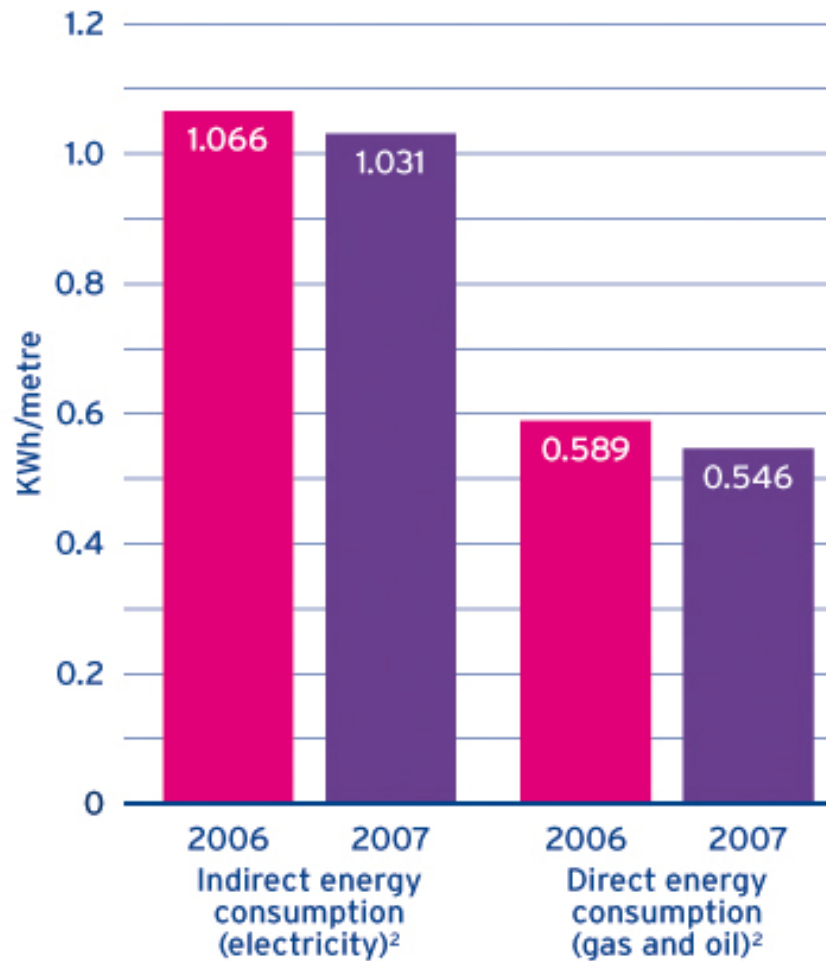
Progress to date

- **Carbon foot printing and carbon management system being implemented for whole business. – BRE Environmental Profiling chosen for products.**
- **Independent energy audits undertaken at all sites – target reductions in place**
- **Waste reductions targeted at all sites**
- **All plants ISO 14001 certified.**

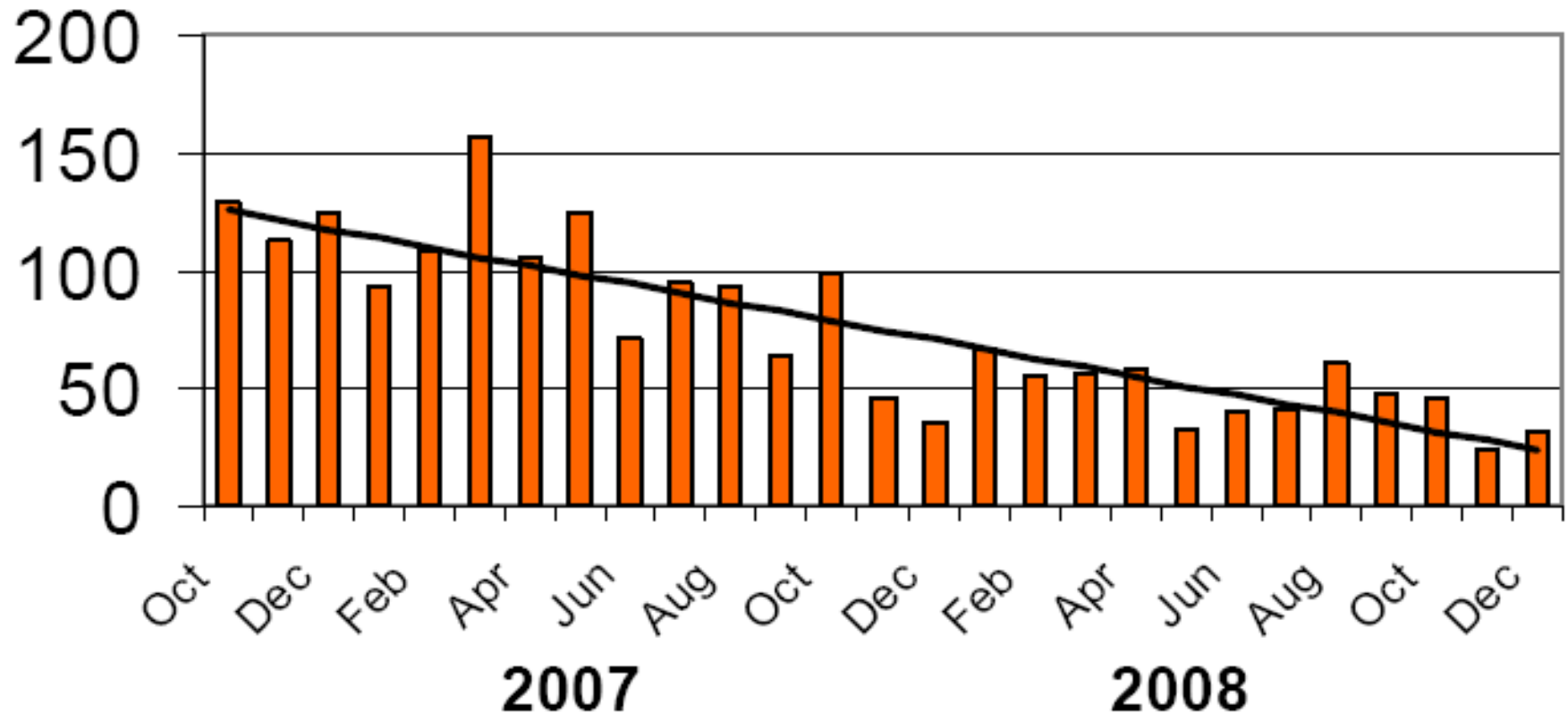
- **Sustainability Report GRI Level C published for 2006 & 2007. Report for 2008 due in the Spring.**

Get our own house in order – minimise our impacts

Progress to date - Energy

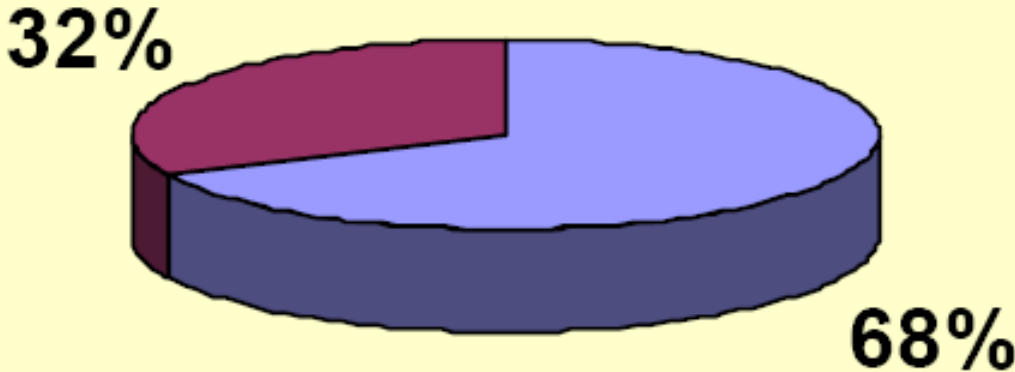


Divisional Waste to Landfill - Tonnes



2006 waste

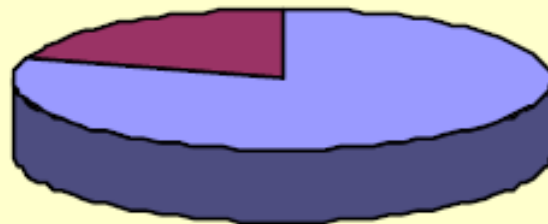
■ Recycled ■ Landfill



2007 waste

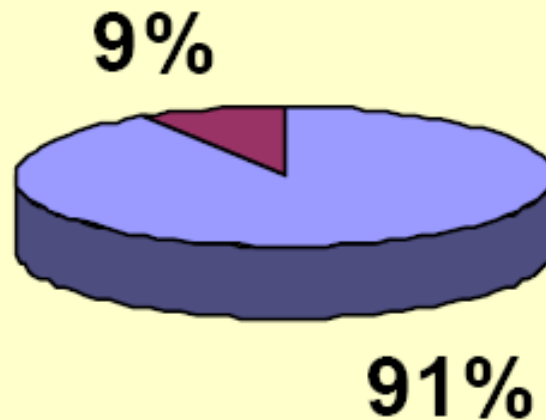


20%



80%

2008 waste

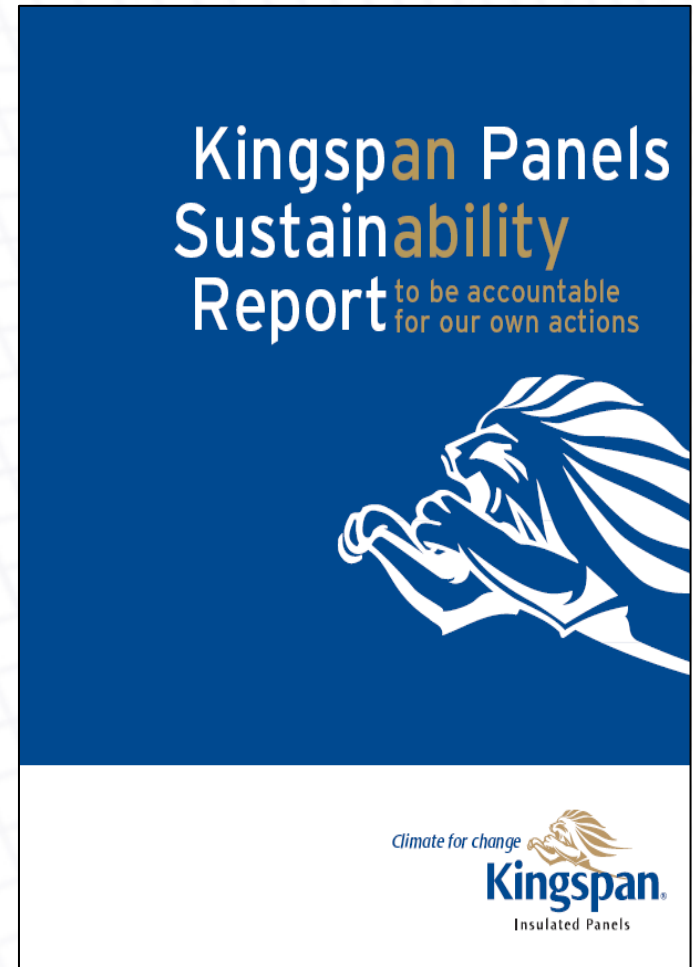


Kingspan Panels GRI Sustainability Report



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- Report follows Global Reporting Initiative Guidelines.
- Our second annual report published in June 2008.
- GRI Level C
- 2008 report target to achieve Level B



Impact Measurement - BRE

- Quantified embodied environmental performance.
- All associated “embodied” impacts of a product.

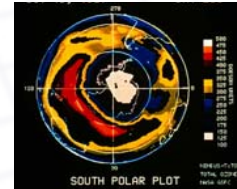
Cradle to grave data



Quantify Environmental Impacts



Assessed to ISO 9001: 2000
Certificate Number ENP 358



Ecopoints

- Complies with *International Standards* (Series 14020 & 14040)

BRE certificates and appendices



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BRE Certification Ltd

CERTIFICATE OF REGISTRATION

This is to certify

Kingspan Limited
 Greenfield Business Park No. 2, Greenfield, Holywell
 Flintshire CH8 7GJ

has complied with the requirements identified in the

Scheme Document SD 028

and is authorised to use the BRE Certification Mark on publications related to the Environmental Profiles of the following products;

Kingspan CX, EB, FL, MM, MR, Optimo and WV wall panels and Kingspan RW roof panels incorporating the Kingspan EcoSafe insulation core

See Appendices a - h for details of Environmental Profiles

Certificate No. ENP 358
 Issue 1
 Valid from 6 February 2007
 Valid Until 5 February 2010

Signed on behalf of BRE Certification

 Chris Beedel



BRE Certification Ltd, Garston, Watford WD25 9XX. Tel 01923 664100 Fax 01923 664603 www.brecertification.co.uk
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Approved Environmental Profile

Characterised and Normalised Data for
 1 square metre over 60 Year Study Period: External Wall: Industrial Sheet Composite Wall Cladding Panels: KS 600/900/1000 AWP Panel with EcoSafe insulation core. Ext Facing: 0.63mm zinc/aluminium coated steel, polyurethane finish. Int Facing: 0.4mm. Insulation panel 70mm core thickness. Butyl rubber sealant, steel fixings.
 70mm core thickness. Butyl rubber sealant, steel fixings. (Data for other constituent materials are available from BRE)

Quality of Data for Certified Material (Data for other constituent materials are available from BRE)

Start Date	1 January 2005
End Date	31 December 2005
Source of Data	Company Records
Geography	UK
Representativeness	1 Site representing 100% of Kingspan EcoSafe insulation core.
LCA Methodology	BRE Environmental Profiles Methodology
Allocation	100% to product
Date of Data Entry	19 December 2006
Boundary	Cradle to Grave over 60 Year Study Period
Comments	

Issue

	Characterised Data	Unit
Climate Change	130	kg CO2 eq. (100yr)
Acid Deposition	0.63	kg SO2 eq.
Ozone Depletion	0.000023	kg CFC11 eq.
Pollution to Air: Human Toxicity	0.94	kg tox.
Pollution to Air: Photochemical Ozone Creation Potential	0.5	kg ethene eq.
Pollution to Water: Human Toxicity	0.000068	kg tox.
Pollution to Water: Ecotoxicity	1000	m ³ tox.
Fossil Fuel Depletion	0.07	kg PO4 eq.
Minerals Extraction	0.048	tonnes
Water Extraction	0.061	tonnes
Waste Disposal	3600	litres
Import Pollution & Congestion: Freight	0.033	tonnes
Land Use Change	5600	tonne.km

Normalised Data

	UK Climate Impacts
Climate Change	0.01
Acid Deposition	12300 kg CO2 eq. (100yr)
Ozone Depletion	58.9 kg SO2 eq.
Pollution to Air: Human Toxicity	0.000079
Pollution to Air: Photochemical Ozone Creation Potential	0.01
Pollution to Water: Human Toxicity	90.7 kg tox.
Pollution to Water: Ecotoxicity	0.0058
Pollution to Water: Eutrophication	0.0057
Fossil Fuel Depletion	0.0087
Minerals Extraction	0.012
Water Extraction	8.01 kg PO4 eq.
Waste Disposal	4.09 tonne
Import Pollution & Congestion: Freight	0.0087
Land Use Change	0.0045
Energy	418000 litres
Water	1.3
Waste	7.19 tonnes
Land Use Change	1.2
Energy	4140 tonne.km
Water	(L)

Ecopoints

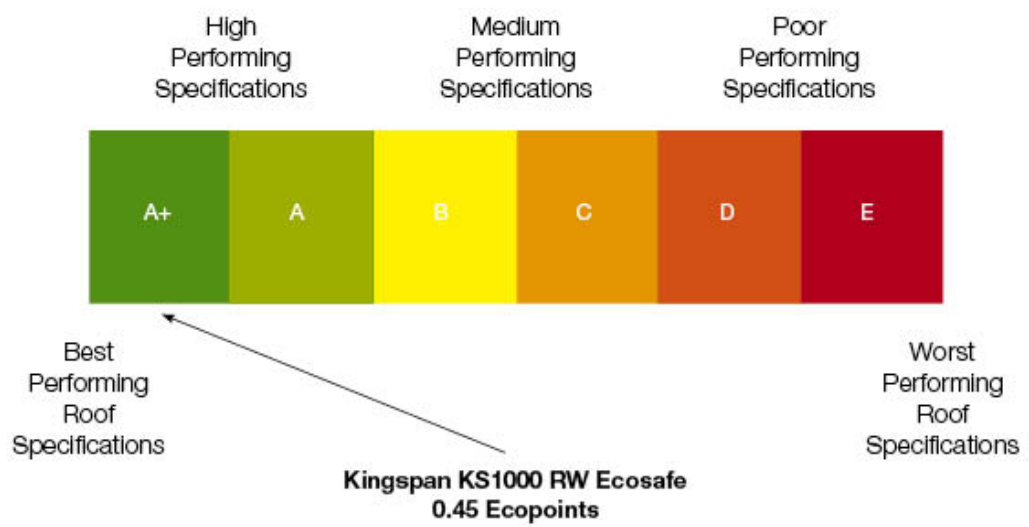
0.91

Valid From: 06/02/07
 Valid To: 05/02/10
 C K Beedel

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Roof Specification

*Coated steel composite roofing system, insulation, on steel roof structure.



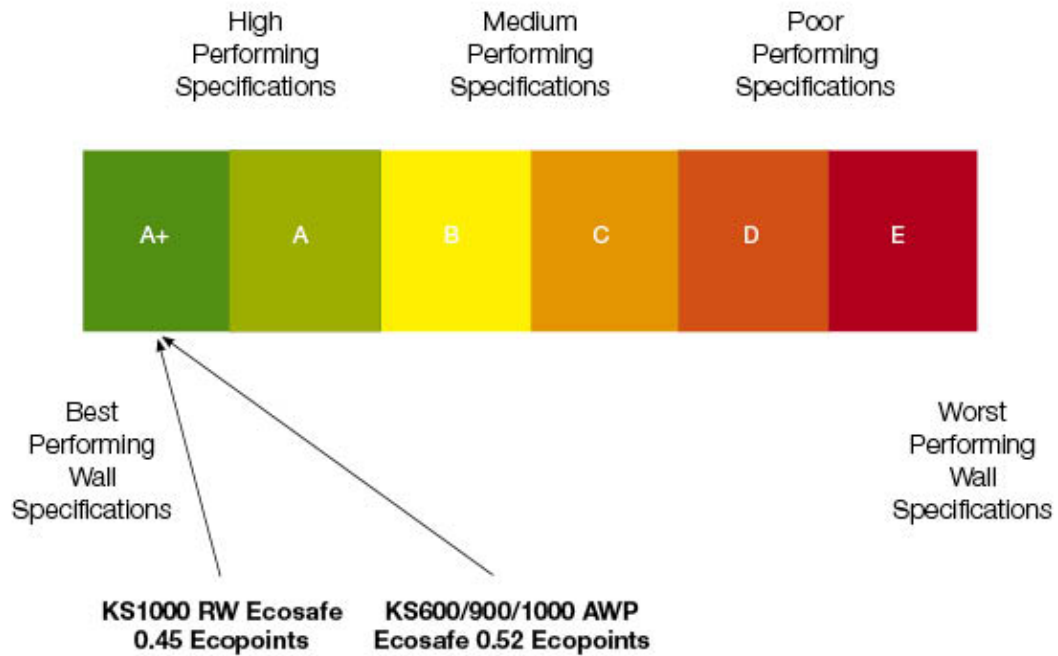
2008 Green Guide Ratings – Walls A+



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Wall Specification

*Coated steel insulated composite panels.



Data is expressed as KgCO_2 per square metre for Cradle to Grave Based on 30 year life

Extrapolated from BRE Environmental Profile data.

- Roof –
 - KS1000 CR – 32.0
- Walls –
 - KS1000 MR – 32.3
 - KS1000 EP – 28.5
 - KS1000 RW – 32.6
 - KS1000 WL – 28.2*

**The impact of
1m² panel is equivalent
to driving a 2 litre diesel
car approximately
130 miles!**

* University of Bath Data

Kingspan panels can now help deliver more credits –



MW1 - Materials – up to 3 Credits

MW 8 - Responsible Sourcing – up to 3 Credits

P1 Refrigerant GWP – up to 1 credit (EP)

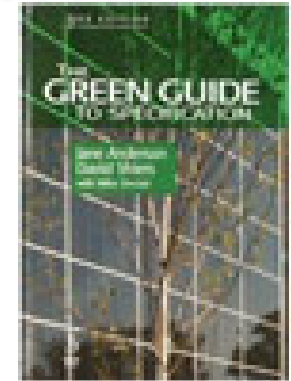
P4 (2006) / Mat 6 (2008) – insulation - up to 2 Credits

E1- CO₂ Reduction – up to 15 credits (Envirocare / EP)

P11 Low / Zero Carbon Technologies – up to 3 credits (EP)

P6 – NOx emissions – up to 1 credit (EP)

HW11 – Ventilation rates – up to 3 credits (EP)



Kingspan **Energi**Panel

Kingspan EnergiPanel



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Kingspan EnergiPanel™

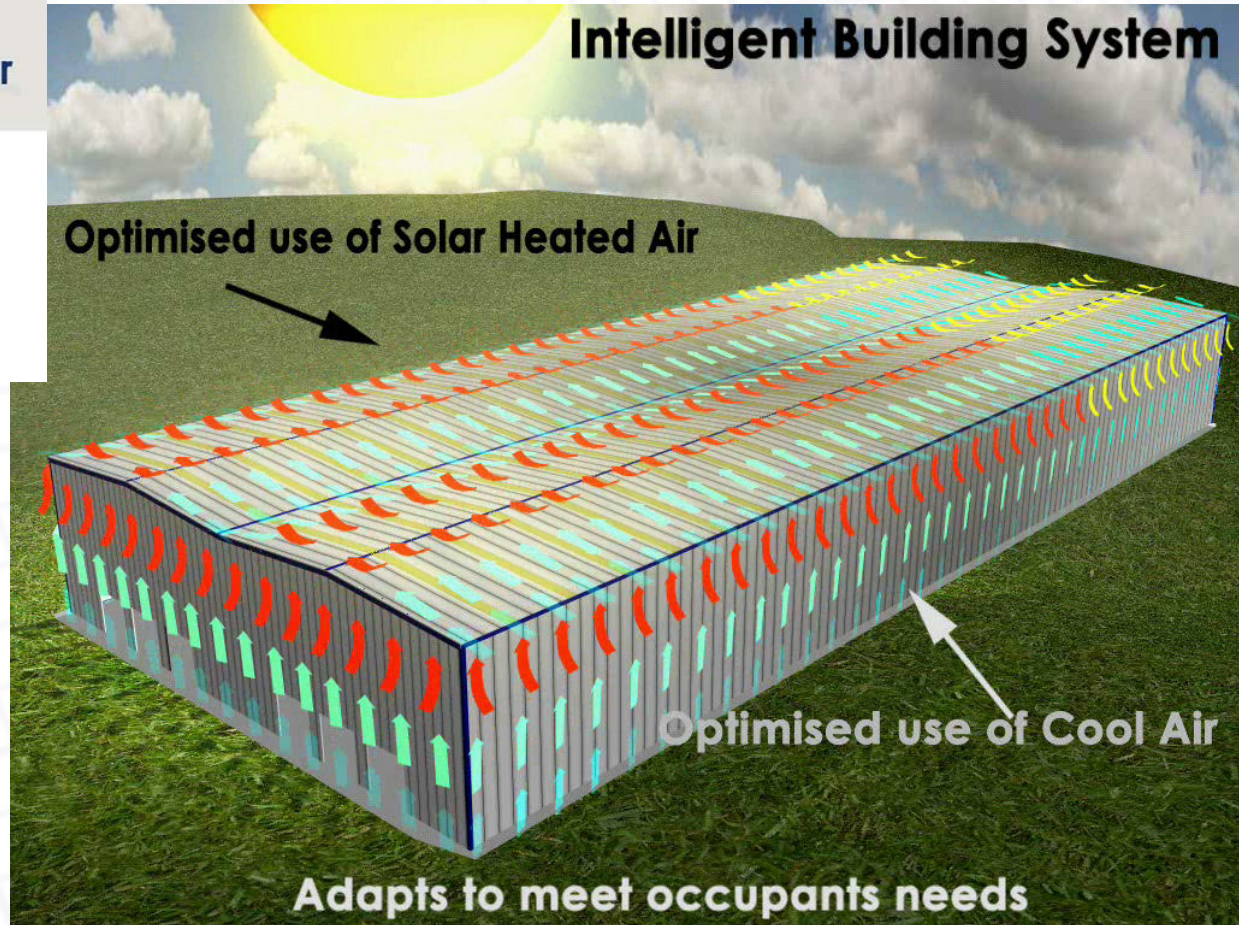
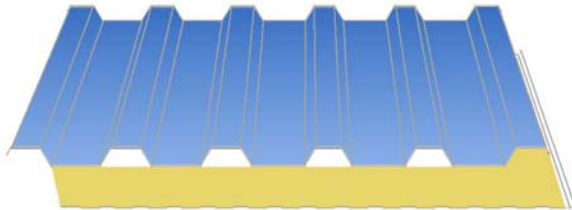


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Insulated Panels



Kingspan
Energi Panel - Solar Energy Collector
Innovative solutions from Kingspan Insulated Panels



Kingspan Wall Lite above Dock Levellers



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Kingspan Wall Lite above Dock Levellers



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- **Gazeley's Blue Planet Chatterley Valley Building is unique –**
 - **Carbon positive development – first in UK**
 - **Fusion of on-site energy generation with energy saving initiatives and environmental initiatives.**
- **Kingspan is proud to contribute to the success of this building through –**
 - **Low carbon cladding solutions**
 - **Durable – guaranteed performance**
 - **Provision of EnergiPanel to create renewable energy**
 - **Product characteristics that contribute to optimisation of BREEAM credits**