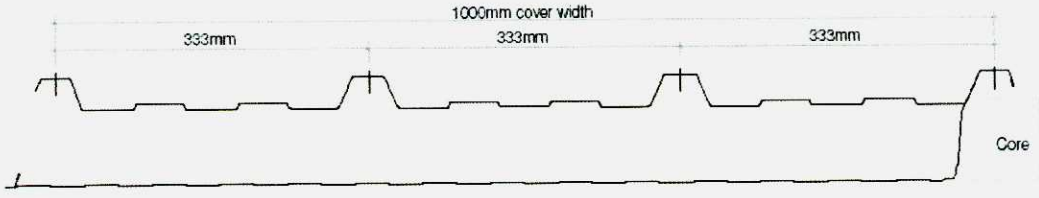
Kingspan
Insulated Panels

Product Data Sheet

Product: **KS1000RW Trapezoidal EcoSafe Insulated Roof Panel**



APPLICATION

The KS1000RW Trapezoidal EcoSafe Insulated Roof Panel is a through fixed roof panel, which can be used for all building applications, where the roof slope is 4° or more after deflection.

AVAILABLE LENGTHS

- Standard lengths 1.8 - 12m
- Longer lengths (non-standard) 12 - 29.3m
- Shorter lengths (non-standard) below 1.8m

Please note: additional costs and transport restrictions may apply to for non-standard lengths. All lengths may change for export (outside of UK).

DIMENSIONS & WEIGHT

Core Thickness (mm)	**40**	**50**	**60**	**70**	**80**	**100**	**115**	**120**	**137**	**150**
Overall Thickness (mm)	71	81	91	101	111	131	146	151	168	181
Weight kg/m^2 0.5/0.4 steel	9.9	10.3	10.7	11.0	11.5	12.3	12.8	13.1	13.7	14.2
Weight kg/m^2 0.7/0.5 alum.	5.5	5.9	6.3	6.7	7.1	7.9	8.5	8.7	9.4	9.9

PANEL END CUT BACK

- Standard cutback eaves 75mm
- Standard cutback endlap 150mm
- Minimum cutback 20mm
- Maximum cutback 300mm

HANDING

The KS1000RW Trapezoidal EcoSafe Insulated Roof Panel can be manufactured in either left to right handed (LH) or right to left handed (RH).

PRODUCT TOLERANCES

Cut to Length	-0.05% + 0.1%
Liner Sheet Length	-0.1% + 0.1%
Cover Width	-0mm + 3mm
Thickness	-2mm + 2mm
End Square	-3mm + 3mm

ADUR & WORTHING
PLANNING SERVICES

PLAN	AWDM/ 1358/12.
DATE VALID	- 7 NOV 2013

MATERIALS

Substrate

Kingspan XL Forte™, Kingspan Spectrum®, Kingspan AquaSafe, and Kingspan CleanSafe:
Material S220GD+ZA hot-dip zinc/aluminium Galfan coated steel to BS EN10346: 2009 Standard external sheet thickness 0.5mm, standard internal sheet thickness 0.4mm.

Bright White Polyester:
Material Hot dip zinc coated to BS EN 10346: 2009, Standard internal steel thickness 0.4mm.

Stainless Steel
Austenitic Grade 304 stainless steel to BS EN 10088-2, thickness 0.4mm.

Aluminium
For aluminium options please contact Kingspan envirocare Technical Services.

Coatings - External Weather Sheet

Kingspan XL Forte™
Consists of multi-layer organic coating, embossed with a traditional leather-grain finish.

Kingspan Spectrum®
Consists of a coated semi-gloss finish with slight granular effect.

Coatings - Internal Liner Sheet

Bright White Polyester:
The coating has been developed for use as the internal lining of insulated panels. Standard colour is "bright white" with an easily cleaned surface.

Kingspan AquaSafe:
The coating has been developed for use as the internal lining of insulated panels to suit high humidity internal environments (class 5 as defined by the Building Regulations).

Kingspan CleanSafe:
The coating has been developed for use as the internal lining of insulated panels where a high level of cleanliness and hygiene is required, and the panels are to be cleaned down on a regular basis.

Stainless Steel
The stainless steel liner has been developed for use as the internal lining of insulated panels in buildings with a very aggressive/corrosive internal environment.

INSULATION CORE

Polyisocyanurate (PIR): EcoSafe LPCB certificated PIR formulation / FM approved PIR formulation.

ENVIRONMENTAL

The KS1000RW Trapezoidal EcoSafe Insulated Roof Panels have a Green Guide A + rating as per the BRE Global "The Green Guide To Specification", Green Guide 2008 ratings. Green Guide element no. 81255001.

SEALS

Factory Applied Side & End Lap External Weather Seals, Kingspan Ref: (FAWS).

PERFORMANCE

THERMAL INSULATION

The Kingspan KS1000RW Trapezoidal EcoSafe Insulated Roof Panels have a Thermal Transmittance (U value), calculated using the method required by the Building Regulations Part L2 (England & Wales) and Building Standards Section 6 (Scotland).

Core Thickness (mm)	40	50	60	70	80	100	115	120	137	150
U Value (W/m^{2}K)	0.46	0.38	0.35	0.30	0.25	0.20	0.18	0.16	0.15	0.14

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BIOLOGICAL
Kingspan panels are normally immune to attack from mould, fungi, mildew and vermin. No urea formaldehyde is used in the construction, and the panels are not considered deleterious.

FIRE
The external and internal faces of the panel to be Class 0 in accordance with the Building Regulations when tested to BS476: Parts 6: 1989 and Part 7: 1987.
The panel is rated SAA when tested to BS476: Part 3: 2004.
The system has passed all the requirements of LPS1181: 2005: Part 1: Issue 1, ceiling lining tests.
Loss Prevention Certification (LPCB) certified to LPS 1181 Grade EXT – B and FM approval to FMRC 4880 Class 1 fire classification, unlimited height, for roof applications.

ACOUSTIC
Sound Reduction Index (SRI)

Frequency Hz	63	125	250	500	1k	2k	4k	8k
SRI dB	20	18	20	24	20	29	39	47

All KS1000RW Trapezoidal EcoSafe Insulated Roof Panels have a single figure weighted sound reduction Rw = 25dB.

AIR LEAKAGE
Overall air leakage for the complete envelope can achieve $5m^3/hr/m^2$ at 50Pa (when Kingspan panels are used for roof and wall). Please note: lower air leakage rates can be achieved subject to panel specification.

QUALITY & DURABILITY
KS1000RW Trapezoidal EcoSafe Insulated Roof Panels are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards, complying with ISO 9001 standard, ensuring long term reliability and service life. The panel has also been manufactured under Environmental Management System Certification ISO 14001.Compliant to BS OHSAS 18001 Occupational Health and Safety.

GUARANTEES
Kingspan TOTAL Panel Guarantee covering the structural and thermal performance for a period of up to 25 years and Kingspan coating guarantee for a period of up to 40 years (subject to project specific information).

PACKING
KS1000RW Trapezoidal EcoSafe Insulated Roof Panels are stacked weather sheet to weather sheet (to minimise pack height). The top, bottom, sides and ends are protected with foam and timber packing and the entire pack is wrapped in plastic.

Core Thickness (mm)	40	50	60	70	80	100	115	120	137	150
No. of panels in pack	17	15	13	11	11	7	7	7	6	6

SEA FRIEGHT
Fully timber crated packs are available on projects requiring delivery by sea freight shipping, at additional cost. Alternatively, steel containers can be used. Special loading charges apply.

DELIVERY
All deliveries (unless indicated otherwise) are by road transport to project site. Off loading is the responsibility of the client.

SITE INSTALLATION PROCEDURE
Site assembly instructions are available from Kingspan envirocare Technical Services.

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STRUCTURAL

Unfactored load/span table (use calculated design snow & wind load values unfactored).

Outer Sheet 0.5mm (Steel), Inner Sheet 0.4mm (steel).

Single Span Condition

Panel Thickness mm	Load Type	Uniformly distributed loads kN/m² Span L in metres							
		1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
40	Downwards	3.25	2.28	1.80	1.31	1.04			
	Suction	3.80	3.20	2.82	2.21	1.86			
50	Downwards	3.85	2.77	2.22	1.67	1.35	1.03	0.84	
	Suction	4.49	3.85	3.34	2.78	2.36	1.94	1.68	
60	Downwards	4.41	3.25	2.64	2.03	1.67	1.30	1.07	0.84
	Suction	5.15	4.48	3.87	3.25	2.77	2.28	1.99	1.70
70	Downwards	4.92	3.68	3.02	2.35	1.95	1.54	1.28	1.01
	Suction	5.81	5.11	4.40	3.68	3.14	2.59	2.26	1.93
80	Downwards	5.42	4.12	3.40	2.68	2.24	1.80	1.51	1.22
	Suction	6.44	5.72	4.92	4.12	3.51	2.90	2.53	2.16
100	Downwards	6.32	4.90	4.10	3.30	2.80	2.29	1.95	1.61
	Suction	7.60	6.85	5.94	5.03	4.29	3.55	3.10	2.65
115	Downwards	6.32	4.90	4.10	3.30	2.80	2.29	1.95	1.61
	Suction	7.60	6.85	5.94	5.03	4.29	3.55	3.10	2.65
120	Downwards	7.05	5.74	4.74	3.96	3.34	2.83	2.40	2.05
	Suction	8.71	7.73	6.76	6.01	5.02	4.25	3.65	3.17
137	Downwards	10.27	8.47	7.08	5.98	5.09	4.36	3.75	3.24
	Suction	12.70	10.75	8.61	7.06	5.90	5.01	4.31	3.75
150	Downwards	10.27	8.47	7.08	5.98	5.09	4.36	3.75	3.24
	Suction	12.70	10.75	8.61	7.06	5.90	5.01	4.31	3.75

Double/Multi Span Condition

Panel Thickness mm	Load Type	Uniformly distributed loads kN/m² Span L in metres							
		1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
40	Downwards	2.96	2.33	1.99	1.65	1.44	1.23	1.10	0.96
	Suction	3.11	2.50	2.18	1.85	1.66	1.46	1.33	1.19
50	Downwards	3.16	2.50	2.15	1.79	1.57	1.35	1.20	1.05
	Suction	3.34	2.70	2.36	2.01	1.80	1.59	1.46	1.32
60	Downwards	3.34	2.66	2.29	1.91	1.68	1.45	1.30	1.14
	Suction	3.54	2.88	2.52	2.16	1.94	1.72	1.57	1.42
70	Downwards	3.49	2.79	2.40	2.01	1.77	1.53	1.36	1.20
	Suction	3.74	3.06	2.69	2.31	2.08	1.85	1.70	1.54
80	Downwards	3.65	2.92	2.52	2.12	1.87	1.61	1.44	1.27
	Suction	3.92	3.22	2.83	2.44	2.20	1.96	1.80	1.64
100	Downwards	3.92	3.16	2.73	2.30	2.03	1.76	1.58	1.39
	Suction	4.23	3.50	3.09	2.68	2.42	2.16	1.99	1.81
115	Downwards	3.92	3.16	2.73	2.30	2.03	1.76	1.58	1.39
	Suction	4.23	3.50	3.09	2.68	2.42	2.16	1.99	1.81
120	Downwards	4.35	3.64	3.09	2.67	2.33	2.05	1.82	1.63
	Suction	4.69	4.00	3.47	3.06	2.74	2.47	2.25	2.07
137	Downwards	5.00	4.20	3.59	3.11	2.72	2.41	2.15	1.93
	Suction	5.37	4.60	4.00	3.54	3.17	2.86	2.61	2.40
150	Downwards	5.00	4.20	3.59	3.11	2.72	2.41	2.15	1.93
	Suction	5.37	4.60	4.00	3.54	3.17	2.86	2.61	2.40

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Notes:

1. Values have been calculated using the method described in BS EN 14509 2006, for medium and light coloured panels.

2. Deflection limit for: downward loading is L/200 and suction loading is L/150.

3.The actual wind suction load resisted by the panel is dependant on the number of fasteners used and the purlin thickness as well as the fastener material.

4.The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan envirocare Technical Services.

5. The allowable steelwork tolerance between bearing planes of adjacent supports is +/- 5mm.

6. Load span tables for the panel specifications not shown are available from Kingspan envirocare Technical Services.

7. FM approved panels spans must be limited to a maximum of 2 metres in single/double/multi-span condition.