

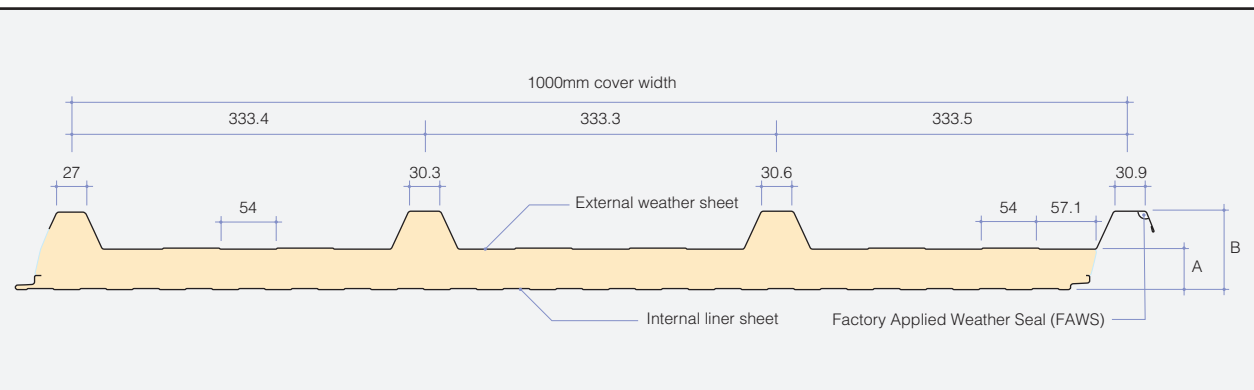
# Insulated Roof & Wall Panels

# Trapezoidal Roof Panel (KS1000 RW) Data Sheet



## Product overview

Kingspan roof panel systems present a superior system compared to conventional multi-part site assembled systems. Kingspan KS1000RW is manufactured with an ECOsafe and FIREsafe Polyisocyanurate (PIR) core. They are quicker to install, require less manual labour and are designed to meet thermal building regulation compliance. The Trapezoidal roof panel (KS1000 RW) is a through fixed system which can be used for building applications with roof slopes of 4° or more. Specifications are available for lower pitches on request from Kingspan Technical Services. FAWS (Factory Applied Weather Seal) is now standard on this product.



## Application

The Kingspan Trapezoidal roof panel system is suitable for most new build and refurbishment building applications as a roofing element. A choice of exterior and interior finishes caters for a range of colours and coatings in standard and high humidity environments.

## Panel Properties and Thermal Performance

A – Core Thickness (mm)	40	60	70	100
B – Overall dimension (mm)	75	95	105	135
R-value (m <sup>2</sup> K/W)	2.34	3.36	3.87	5.35
U-value (W/m <sup>2</sup> K)	0.43	0.30	0.26	0.19
Weight Kg/m <sup>2</sup>	9.9	10.7	11.1	12.3
0.5mm Ext. Steel/0.4 Int. Steel				

## Available Lengths

Standard Lengths	2.0m – 13.7m
Longer Lengths*	13.7m – 16.1m
Shorter Lengths*	0.5m – 1.99m
Transported by Rail	12.0m
Export of Australia	11.8m

Notes: \* Additional costs and transport restrictions will apply for non-standard lengths.

## Insulation Core

The core of the KS1000RW panel is an environmentally sustainable ECOsafe and FIREsafe Polyisocyanurate(PIR) insulation which is not-deleterious with zero Ozone Depletion Potential. The rigid PIR insulation is closed cell and CFC/HCFC-free.

The auto adhesive properties of the core bond to the external and internal faces, providing strength and rigidity to the panels.

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Product Tolerances	RW		
Length	<6m	6-12m	>12m
Length	±4mm	±6mm	±8mm
Width	±3mm	±3mm	±3mm
Thickness	<50mm	50-100m	100m+
Thickness	±2mm	+3mm/-2mm	±3mm
Squareness	±0.5%mm of width	±0.5%mm of width	±0.5%mm of width

## Biological

Kingspan Trapezoidal roof systems 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.

## Environmental

Kingspan has undertaken a Life Cycle Assessment of the Trapezoidal roof system (KS1000RW), and have published an Environmental Product Declaration (EPD) on their performance. The result documents that the KS1000RW insulated panels are listed as a Type 3 Ecolabel with the Australian EPD Programme. The KS1000RW is certified with Ecospecifer Global Green Tag as a Greentag Gold Plus with a GreenRate Level A rating.

## FM Approval

Kingspan KS1000RW Wall systems are an FM Global FMRC 4880 Approved. Kingspan Trapezoidal roof panels (KS1000RW) are FM Global 4471 certified roofing product.

## Fire Performance

Kingspan products have an extensive fire testing background, which covers both insurance and regulatory areas. When tested to AS/NZS 1530.3 for fire hazards, Kingspan panels achieved the fire hazard results as outlined in the below table.

<b>Ignitability Index</b>	<b>0</b>
Spread of Flame Index (SFI)	0
Heat Evolved Index	0
Smoke Development Index (SDI)	2

The Kingspan Trapezoidal roof system (KS1000RW) meets the requirements of the BCA Specification C1.10a as a Group 2 product, when tested to ISO9705.

## Quality & Durability

Kingspan Trapezoidal roof panels are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality standards, ensuring long-term reliability and service life. The manufacturing plant where the product is made is fully compliant with ISO 9001(Quality), ISO 14001(Environmental) and OHSAS 18001 (Health and Safety).

## Panel Cut Backs

Minimum Cut Back	50mm
End Lap Horizontally Laid	75mm
End Lap Vertically Laid	75mm
Maximum Cut Back*	200mm

Note\* It's important to note that the cut core and steel will not be removed and will have to be carried out on site by the installer for cut backs larger than 150mm.

## Acoustic Performance

For sound transmission reduction, Kingspan panels typically have a single figure weighted sound reduction index (SRI) of  $R_w = 24\text{dB}$ . For specific acoustic solutions contact Kingspan Technical Services.

Frequency (Hz)	SRI (dB)
63	13
125	17
250	21
500	26
1000	26
2000	26
4000	42
8000	52
$R_w$	24

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## CodeMark Certification

The Trapezoidal roof system (KS1000RW) is CodeMark certified to comply with various sections of the Building Code of Australia. For further details please refer to the CodeMark Certificate which can be found on the ABCB website. Please see: [www.abcb.gov.au/Product-Certification/CodeMark-Certification-Scheme](http://www.abcb.gov.au/Product-Certification/CodeMark-Certification-Scheme).

## Cyclonic Applications

A significant part of the Australian coastline is deemed to be in cyclonic regions. As a result of this, Kingspan have carried out testing on the KS1000RW in accordance with the requirements of the BCA B1.2 for low-high-low performance requirements. For further details please contact Kingspan Technical Services for project specific details.

## Site Installation Procedure

Site assembly instructions are available from Kingspan Technical Services. Kingspan recommend that the appointed contractor attend the appropriate product installation training course prior to installation, which is provided by Kingspan Field Services.

## Materials

### Exterior Weather Sheet

- Substrate to be minimum 0.5mm thick Zinalume AM100/AM150 coated steel to AS1397.

### Internal Liner Sheet

Substrate to be minimum 0.4mm thick steel coated steel to AS1397.

- CleanSafe15 - The coating has been developed for use as the internal lining of insulated panels. Standard colour is "bright White" with an easily cleaned surface.
- Other finishes are available on a project specific bases

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## Accreditations



WAIS Sports Centre

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## Spans

Span capability of composite systems can depend on a number of external factors. The following table is based on light colour selections. For darker colours contact Kingspan Technical Services.

### NOTES:

1. Values have been calculated using the methods described in En14509:2006 titled " Self -supporting double skin metal faced insulating panels(light coloured) - Factory made products-Specifications", Taking imposed loads (excluding snow), temperature and creep into account.
2. The serviceability limit state is defined by local buckling, bending or crushing failure at an intermediate support or the exceedance of a specified deflection limit.
3. Deflection limit for pressure loading is L/200 and suction loading is L/150.
4. The allowable steelwork tolerance between bearing planes of adjacent supports is +/- 5mm.
5. The actual wind suction load resisted by the panel is dependant on the number of fasteners used and the support width as well as the fastener material. This table is based on a support width of 60mm.
6. The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
7. Load span tables for the panel specifications not shown are available from Kingspan Technical Services.

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## Australia

### Kingspan Insulated Panels Pty Ltd

38-52 Dunheved Circuit, St Marys  
NSW 2760 Australia  
Tel +61 (02) 8889 3000  
Fax +61 (02) 8889 3099  
Email info@kingspanpanels.com.au  
Web kingspanpanels.com.au

## Structural Load/Span Table – Ext Sheet: .05mm Steel/Inner Sheet 0.4mm

Single Span Condition		Span L in metres										
Panel Thickness mm	Load Type	1.0	1.4	1.8	2.2	2.6	3.0	3.4	3.8	4.2	4.6	5.0
		Uniformly distributed loads kN/m <sup>2</sup>										
Ultimate Limit State												
40mm	Pressure	8.67	5.45	3.72	2.67	2.00	1.53					
	Suction	11.00	7.04	4.94	3.54	2.51	1.88					
60mm	Pressure	10.59	7.19	5.19	3.89	2.97	2.33	1.86	1.50			
	Suction	14.15	9.81	6.90	4.52	3.20	2.40	1.88	1.52			
70mm	Pressure	11.21	7.83	5.78	4.40	3.41	2.71	2.18	1.78	1.50		
	Suction	15.39	10.99	7.58	4.97	3.52	2.64	2.07	1.67	1.45		
100mm	Pressure	13.08	9.75	7.55	5.94	4.74	3.83	3.12	2.60	2.18	1.83	1.56
	Suction	19.11	14.54	9.63	6.32	4.49	3.36	2.63	2.12	1.74	1.47	1.26
Serviceability Limit State												
40mm	Pressure	11.08	5.12	2.72	1.55	0.91	0.55					
	Suction	14.74	6.95	3.83	2.31	1.49	1.00					
60mm	Pressure	13.84	7.04	4.07	2.50	1.59	1.03	0.68	0.44			
	Suction	18.56	9.65	5.79	3.75	2.55	1.80	1.31	0.98			
70mm	Pressure	11.30	7.77	4.64	2.94	1.93	1.30	0.89	0.60	0.50		
	Suction	14.50	10.70	6.63	4.42	3.09	2.24	1.67	1.27	1.10		
100mm	Pressure	-	9.96	6.33	4.26	2.96	2.09	1.50	1.08	0.79	0.57	0.41
	Suction	-	13.85	9.14	6.44	4.72	3.55	2.73	2.14	1.70	1.38	1.13
Double Span Condition		Span L in metres										
Panel Thickness mm	Load Type	1.0	1.4	1.8	2.2	2.6	3.0	3.4	3.8	4.2	4.6	5.0
		Uniformly distributed loads kN/m <sup>2</sup>										
Ultimate Limit State												
40mm	Pressure	8.67	5.45	3.72	2.67	2.00	1.53	1.20	0.96	0.78	0.63	
	Suction	11.00	7.04	4.94	3.54	2.51	1.88	1.47	1.19	0.99	0.83	
60mm	Pressure	10.59	7.19	5.19	3.89	2.97	2.33	1.86	1.50	1.25	1.04	0.87
	Suction	14.15	9.81	6.90	4.52	3.20	2.40	1.88	1.52	1.25	1.05	0.90
70mm	Pressure	11.21	7.83	5.78	4.40	3.41	2.71	2.18	1.78	1.48	1.24	1.04
	Suction	15.39	10.99	7.58	4.97	3.52	2.64	2.07	1.67	1.37	1.16	0.99
100mm	Pressure	13.08	9.75	7.55	5.94	4.74	3.83	3.12	2.60	2.18	1.83	1.56
	Suction	19.11	14.54	9.63	6.32	4.49	3.36	2.63	2.12	1.74	1.47	1.26
Serviceability Limit State												
40mm	Pressure	6.89	3.90	2.57	1.83	1.38	1.07	0.86	0.70	0.56	0.40	
	Suction	5.07	2.87	1.94	1.45	1.14	0.94	0.80	0.69	0.61	0.54	
60mm	Pressure	7.59	4.42	2.96	2.15	1.64	1.30	1.05	0.87	0.73	0.61	0.50
	Suction	5.86	3.40	2.33	1.76	1.41	1.17	1.00	0.87	0.78	0.70	0.60
70mm	Pressure	7.84	4.60	3.10	2.26	1.73	1.38	1.12	0.93	0.78	0.66	0.53
	Suction	6.20	3.63	2.50	1.90	1.52	1.27	1.08	0.95	0.85	0.76	0.66
100mm	Pressure	8.57	5.15	3.53	2.60	2.01	1.61	1.32	1.10	0.93	0.80	0.61
	Suction	7.21	4.33	3.02	2.30	1.85	1.55	1.33	1.17	1.05	0.95	0.84