



# Kingspan Trapezoidal RW

## Product Data Sheet

KS1000 RW  
Trapezoidal Roof and Wall Panel



# KS1000 RW Trapezoidal Roof & Wall Panel

## Product Data Sheet

Kingspan roof and wall panel systems present a superior system compared to conventional multi-part site assembled systems. They are quicker to install, require less manual labour and provide guaranteed thermal performance. The Trapezoidal roof and wall panel (KS1000 RW) is a through fixed system which can be used for building applications with roof slopes of 4° and above in both vertical and horizontal wall applications.

Alternative specifications are available for lower pitches, low temperature and high humidity environments, contact Kingspan Technical Services to discuss your requirements.

### Applications

The Kingspan Trapezoidal roof and wall panel system is suitable for most new build and refurbishment building applications as a roof and wall element. The steel exterior and interior lining is available in a range of coatings and colours for standard, coastal and high humidity environments.

### Manufacture

Panels are manufactured in a Kingspan-owned facility in Sydney, Australia. Lead times are typically 4-5 weeks for stocked coatings and colours. Non stocked coatings/colours require extra lead time.



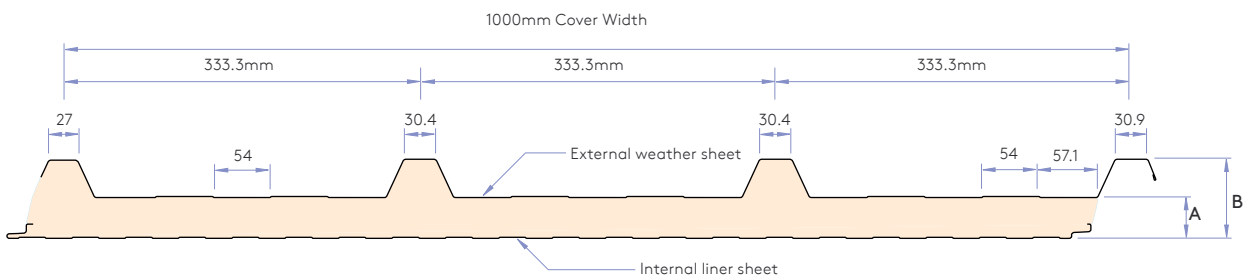
### Available Lengths

Standard lengths are from 2m to 11.8m including endlap/gutter cutback. (Eg. 11.65m + 0.15m lap).

Factory made cutbacks are available in 0.075m or 0.150m.

### Panel Performance

A - Core Thickness (mm)	40	60	70	100	120
B - Overall Dimension (mm)	75	95	105	135	155
R Value (m <sup>2</sup> .K/W)	2.39	3.44	3.96	5.50	6.53
Weight (kg/m <sup>2</sup> ) 0.5/0.4 steel	10.30	10.70	11.10	12.30	13.10



## NZBC Compliance

The KS1000 RW panel has been used around New Zealand, on many building types for in excess of 15 years.

When designed, used, installed and maintained in accordance with Kingspan standard details, the KS1000 RW panel is compliant with the following clauses on the NZBC:

- B1 Structure
- B2 Durability
- C3 Spread of fire
- E2 External Moisture
- H1 Energy Efficiency



## Fire Performance

The KS1000 RW panel has been rigorously tested to both NZ and international building standards and the standards expected of the insurance industry.

Internal Surface Finish (NZBC C.4.17.1)			
Standard Details		Firewall Details	
Group 2S		Group 1S	
External Radiation (NZBC C.5.8)			
Total Heat THRR	Peak Heat PHRR	>1m from boundary	<1m from boundary
5 MJ/m <sup>2</sup>	24 kW/m <sup>2</sup>	✓	✓

### Foam Plastic Core (NZBC C.4.17.2)

Core meets the requirements of AS 1366.2

## Sprinkler Code NZS 4541:2007

The Sprinkler Standard NZS 4541:2007 contains levels of sprinkler protection required for buildings constructed with “Approved” and “Not Approved” panels - refer to section 212 and Appendix J.

Kingspan PIR panels are classed as “Approved” as they have FM Global approval.



**masterspec**

## Firewall

Various tested firewall solutions are available. All of these solutions require a specific construction to match the tested performance. Contact Kingspan with your specific requirements and we will provide an appropriate solution.

## Insurance

Kingspan panels have achieved FM Global

- **FM4880 Class 1** - unlimited height (the highest classification available)
- **FM4881 - External Wall System** - no height restriction
- **FM4771 - External Roof**

Note: 120mm panels are not listed on our FM certificate as they are a new variant.

## Acoustic Performance

For sound transmission reduction, Kingspan panels typically have a single figure weighted sound reduction index (SRI) of Rw=24dB. For New Zealand specific acoustic solutions contact Kingspan Technical Services.

Frequency (Hz)	125	250	500	1000	2000	4000	Rw
SRI (dB)	17	21	26	26	26	42	24

## Materials

### Exterior Weather Sheet:

- 0.5mm thick Zinalume G300S AZ150/200 or AM100/150 coated steel to AS1397
- Colours as per the Kingspan Australian colour guide available in hard copy and on the website

### Insulation Core:

- Polyisocyanurate (PIR), with zero Ozone Depletion Potential (Zero ODP). Available in FM Global insurer approved FIREsafe certified product range.
- PIR foam is a thermosetting material. It does not melt, flow or drip when exposed to fire. It will form a strong char that helps protect the foam core and prevent flame spread within the panels.

### Internal Liner Sheet:

- 0.4mm thick Zinalume G300S AZ100 coated steel to AS1397
- Rib Profile
- Colour: Standard White Liner
  - other colours available on extended lead time and price
  - AQUAsafe 55 (white) stocked in limited quantities for high humidity environments

### Ancillaries:

Kingspan also provides daylighting systems, profiled foam closers, butyl tapes, insulated gutters, and other ancillary items.

## Product Selection Assistance

Sales representatives are available nationwide to answer queries on product options, assist with detailing, spans, colour swatches and other queries. They can also provide early stage budget estimates and co-ordinate the provision of project specifications.

## Technical Assistance

Our technical team is available to provide specific advice on panel spans, product specifications, standard and bespoke detailing, panel optimisation, fire wall options, project specific acoustic solutions, panel guarantees, thermal condensation risk calculation along with general building science cladding advice.

Kingspan Technical Services can provide 'side by side' assistance with regard to project detailing, attending design meetings, providing training and undertaking site visits when required.

## Guarantees

Kingspan will provide product guarantees on an individual project basis.

Guarantees are typically up to 15 years in a non marine/geothermal environment. All guarantees are subject to a maintenance regime. Specialist coatings are available for marine and other more corrosive areas.

## Environmental

Kingspan Insulated Panels Australian manufactured products have achieved a GreenTag<sup>Cert</sup>™ Gold Plus certification with a GreenRate® Level A. Kingspan was the first insulated panel manufacturer to receive this globally respected third party certification which allows specifiers to easily achieve points for both the Green Building Councils of Australia and New Zealand under the Green Star® programs. Full Green Tag certificates are available at [www.kingspanpanels.co.nz](http://www.kingspanpanels.co.nz)



Kingspan has undertaken a Life Cycle assessment of the KS1000 RW panels, and have published an Environmental Product Declaration (EPD) on their performance. The result shows that the Australian made panels are consistent with the Green Guide A+ rating achieved by the UK sourced materials.

## Westmere School | Te Rehu, Auckland

New build • Roof: KS1000 RW • Wall: KS1000 RW



## Biological

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

## Quality and Durability

KS1000 RW trapezoidal panels are manufactured to ISO 9001 standards from the highest quality materials, using state of the art production equipment to rigorous quality control standards, ensuring long term reliability and service life.

## Delivery & Packing

### Standard Packing

Protective film is applied to the external face.

Kingspan roof panels are stacked horizontally (weather sheet to weather sheet minimise pack height).

The number of panels in each pack depends on panel thickness.

### Delivery

All deliveries (unless indicated otherwise) are by road transport to project site by flat bed truck for off loading by crane or fork hoist.

Off loading is the responsibility of the installer.

Handling guidelines are available from Kingspan Technical Services.

### Site Installation Procedure

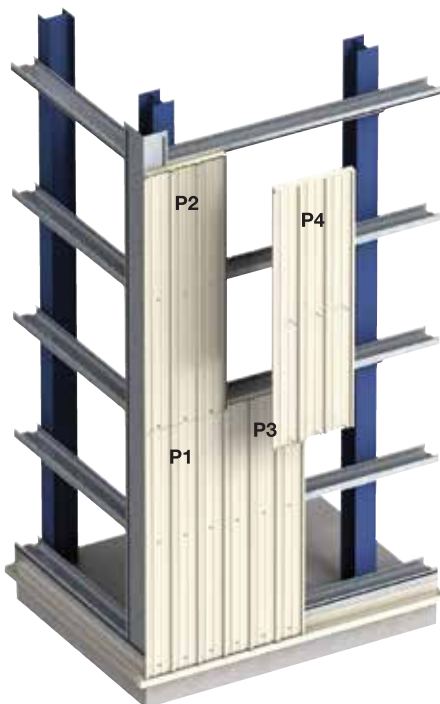
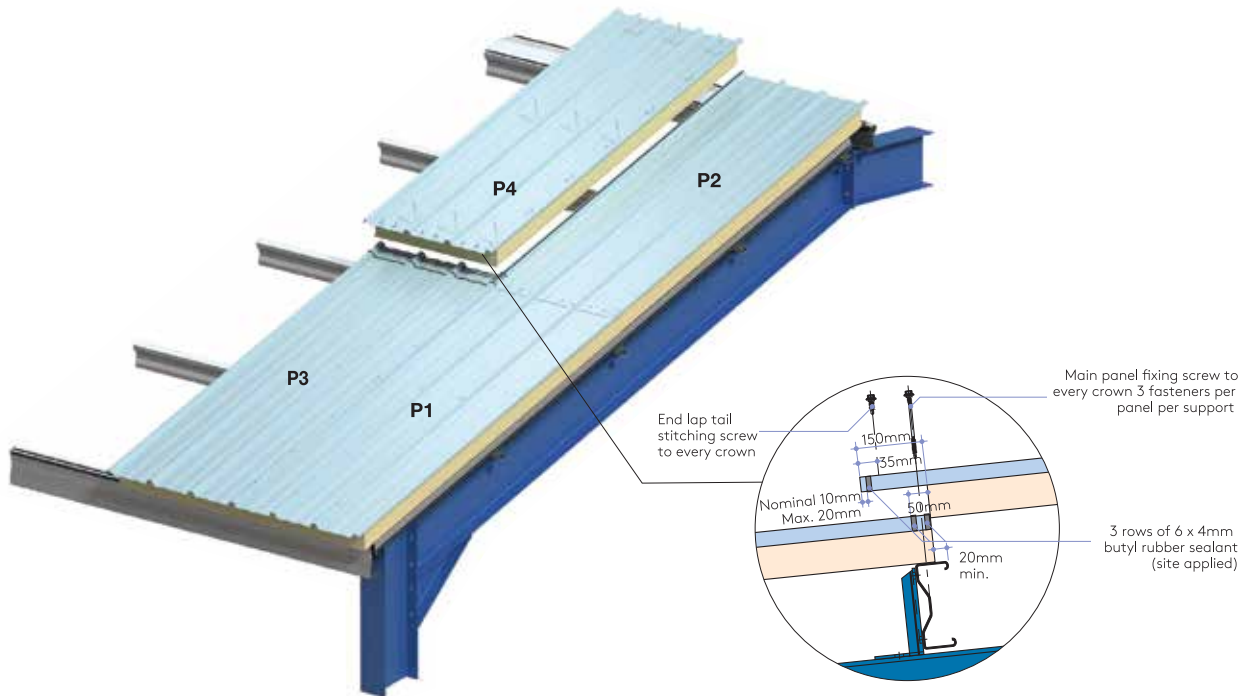
A site assembly instruction brochure is available from Kingspan Technical Services.

## Remarkable Ski Field, Queenstown

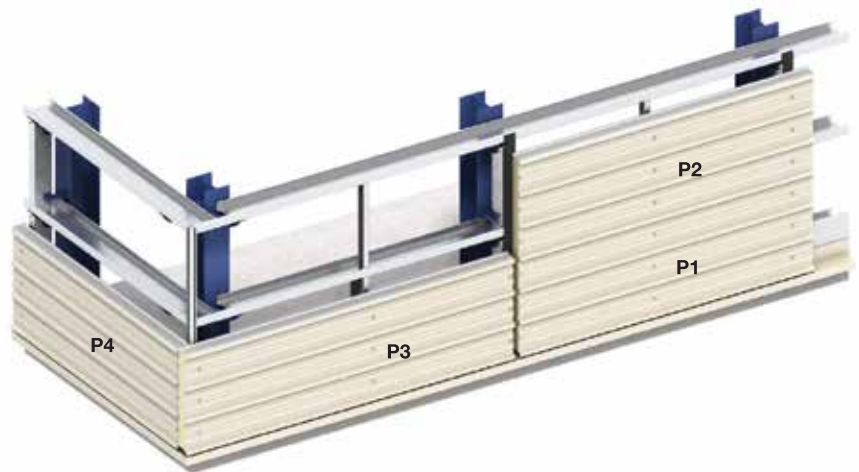
New build • Roof: KS1000 RW • Wall: KS1000 RW



# KS1000 RW Trapezoidal Roof & Wall Panel Installation



Vertical Wall



Horizontal Wall

# Kingspan Trapezoidal Roof & Wall Panel

## Span Tables – Roof

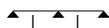
Span capability of composite systems can depend on a number of external factors. The following table is based on typical light colour selections. For darker colours contact Kingspan Technical Services.

### Single Span Condition



Panel Thickness (mm)	Load Type	Span L in metres								
		1.8	2.2	2.6	3.0	3.4	3.8	4.2	4.6	5.0
<b>Uniformly distributed loads kN/m<sup>2</sup></b>										
<b>Ultimate Limit State (ULS)</b>										
40	Pressure	3.72	2.67	2.00	1.53					
	Suction	4.94	3.54	2.51	1.88					
60	Pressure	5.19	3.89	2.97	2.33	1.86	1.50			
	Suction	6.90	4.52	3.20	2.40	1.88	1.52			
70	Pressure	5.78	4.40	3.41	2.71	2.18	1.78	1.50		
	Suction	7.58	4.97	3.52	2.64	2.07	1.67	1.45		
100	Pressure	7.55	5.94	4.74	3.83	3.12	2.60	2.18	1.83	1.56
	Suction	9.63	6.32	4.49	3.36	2.63	2.12	1.74	1.47	1.26
120	Pressure	7.86	6.27	5.07	4.14	3.42	2.85	2.37	2.01	1.71
	Suction	10.59	6.96	4.98	3.75	2.91	2.34	1.92	1.62	1.38
<b>Serviceability Limit State (SLS)</b>										
40	Pressure	2.72	1.55	0.91	0.55					
	Suction	3.83	2.31	1.49	1.00					
60	Pressure	4.07	2.50	1.59	1.03	0.68	0.44			
	Suction	5.79	3.75	2.55	1.80	1.31	0.98			
70	Pressure	4.64	2.94	1.93	1.30	0.89	0.60	0.50		
	Suction	6.63	4.42	3.09	2.24	1.67	1.27	1.10		
100	Pressure	6.33	4.26	2.96	2.09	1.50	1.08	0.79	0.57	0.41
	Suction	9.14	6.32	4.49	3.36	2.63	2.12	1.70	1.38	1.13
120	Pressure	7.86	5.76	4.28	3.27	2.55	2.02	1.61	1.30	1.07
	Suction	8.05	5.98	4.56	3.50	2.80	2.26	1.86	1.55	1.30

### Double Span Condition



Panel Thickness (mm)	Load Type	Span L in metres								
		1.8	2.2	2.6	3.0	3.4	3.8	4.2	4.6	5.0
<b>Uniformly distributed loads kN/m<sup>2</sup></b>										
<b>Ultimate Limit State (ULS)</b>										
40	Pressure	3.72	2.67	2.00	1.53	1.20	0.96	0.78	0.63	
	Suction	4.94	3.54	2.51	1.88	1.47	1.19	0.99	0.83	
60	Pressure	5.19	3.89	2.97	2.33	1.86	1.50	1.25	1.04	
	Suction	6.90	4.52	3.20	2.40	1.88	1.52	1.25	1.05	
70	Pressure	5.78	4.40	3.41	2.71	2.18	1.78	1.48	1.24	1.04
	Suction	7.58	4.97	4.52	2.64	2.07	1.67	1.37	1.16	0.99
100	Pressure	7.55	5.94	4.74	3.83	3.12	2.60	2.18	1.83	1.56
	Suction	9.63	6.32	4.49	3.36	2.63	2.12	1.74	1.47	1.26
120	Pressure	7.86	6.27	5.07	4.14	3.42	2.85	2.37	2.01	1.71
	Suction	10.59	6.96	4.98	3.75	2.91	2.34	1.92	1.62	1.38
<b>Serviceability Limit State (SLS)</b>										
40	Pressure	2.57	1.83	1.38	1.07	0.86	0.70	0.56	0.40	
	Suction	1.94	1.45	1.14	0.94	0.80	0.69	0.61	0.54	
60	Pressure	2.96	2.15	1.64	1.30	1.05	0.87	0.73	0.61	0.50
	Suction	2.33	1.76	1.41	1.17	1.00	0.87	0.78	0.70	0.60
70	Pressure	3.10	2.26	1.73	1.38	1.12	0.93	0.78	0.66	0.53
	Suction	2.50	1.90	1.52	1.27	1.08	0.95	0.85	0.76	0.66
100	Pressure	3.53	2.60	2.01	1.61	1.32	1.10	0.93	0.80	0.61
	Suction	3.02	2.30	1.85	1.55	1.33	1.17	1.05	0.95	0.84
120	Pressure	3.85	2.83	2.22	1.78	1.46	1.23	1.04	0.89	0.77
	Suction	3.18	2.43	1.94	1.60	1.37	1.20	1.06	0.95	0.86

#### Notes:

- Values have been calculated in accordance with AS/NZS 1170.0, and also take into account the methods described in EN 14509:2006 titled 'Self-supporting double skin metal face insulating panels (Light coloured) - Factory made products - Specifications', taking imposed loads (excluding snow), temperature and creep into account.
- 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.
- Deflection limit for pressure loading is L/200 and suction loading is L/150.
- The allowable steelwork tolerance between bearing panels of adjacent supports is +/- 5mm or L/600, whichever is the least.
- 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.
- The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
- For FM approved applications, a maximum span of 2000mm applies.
- Load span tables for other panel specifications not shown are available from Kingspan Technical Services.

# Kingspan Trapezoidal Roof & Wall Panel

## Span Tables – Wall

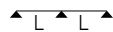
Span capability of composite systems can depend on a number of external factors. The following table is based on typical light colour selections. For darker colours contact Kingspan Technical Services.

### Single Span Condition



Panel Thickness (mm)	Load Type	Span L in metres								
		1.8	2.2	2.6	3.0	3.4	3.8	4.2	4.6	5.0
<b>Uniformly distributed loads kN/m<sup>2</sup></b>										
<b>Ultimate Limit State (ULS)</b>										
40	Pressure	3.93	2.87	2.17	1.69	1.35	1.10	0.92		
	Suction	4.76	3.47	2.45	1.82	1.40	1.12	0.91		
60	Pressure	5.47	4.14	3.21	2.55	2.06	1.70	1.42	1.20	1.03
	Suction	6.85	4.45	3.13	2.33	1.80	1.43	1.17	0.97	0.82
70	Pressure	6.10	4.69	3.68	2.59	2.40	1.99	1.67	1.42	1.22
	Suction	7.53	4.90	3.45	2.57	1.99	1.58	1.29	1.07	0.91
100	Pressure	7.97	6.34	5.10	4.16	3.43	2.87	2.43	2.08	1.79
	Suction	9.56	6.24	4.40	3.28	2.54	2.02	1.65	1.37	1.16
120	Pressure	8.37	6.78	5.55	4.59	3.81	3.21	2.73	2.34	2.04
	Suction	10.5	6.90	4.89	3.60	2.79	2.25	1.83	1.53	1.29
<b>Serviceability Limit State (SLS)</b>										
40	Pressure	3.93	2.87	2.17	1.69	1.23	0.89	0.66		
	Suction	4.76	3.47	2.27	1.50	1.03	0.72	0.52		
60	Pressure	5.47	4.14	3.21	2.55	2.06	1.59	1.21	0.93	0.73
	Suction	6.85	4.45	3.13	2.33	1.80	1.38	1.02	0.78	0.60
70	Pressure	6.10	4.69	3.68	2.59	2.40	1.99	1.54	1.21	0.96
	Suction	7.53	4.90	3.45	2.57	1.99	1.58	1.29	1.04	0.81
100	Pressure	7.97	6.34	5.10	4.16	3.43	2.87	2.43	2.03	1.64
	Suction	9.56	6.24	4.40	3.28	2.54	2.02	1.65	1.37	1.16
120	Pressure	8.37	6.78	5.55	4.59	3.81	3.21	2.73	2.34	2.04
	Suction	10.5	6.90	4.89	3.60	2.79	2.25	1.83	1.53	1.29

### Double Span Condition



Panel Thickness (mm)	Load Type	Span L in metres								
		1.8	2.2	2.6	3.0	3.4	3.8	4.2	4.6	5.0
<b>Uniformly distributed loads kN/m<sup>2</sup></b>										
<b>Ultimate Limit State (ULS)</b>										
40	Pressure	3.93	2.87	2.17	1.69	1.35	1.10	0.92		
	Suction	4.76	3.47	2.45	1.82	1.40	1.12	0.91		
60	Pressure	5.47	4.14	3.21	2.55	2.06	1.70	1.42	1.03	
	Suction	6.85	4.45	3.13	2.33	1.80	1.43	1.17	0.82	
70	Pressure	6.10	4.69	3.68	2.59	2.40	1.99	1.67	1.42	1.22
	Suction	7.53	4.90	3.45	2.57	1.99	1.58	1.29	1.07	0.91
100	Pressure	7.97	6.34	5.10	4.16	3.43	2.87	2.43	2.08	1.79
	Suction	9.56	6.24	4.40	3.28	2.54	2.02	1.65	1.37	1.16
120	Pressure	8.37	6.78	5.55	4.59	3.81	3.21	2.73	2.34	2.04
	Suction	10.5	6.90	4.89	3.60	2.79	2.25	1.83	1.53	1.29
<b>Serviceability Limit State (SLS)</b>										
40	Pressure	2.69	1.96	1.51	1.20	0.99	0.83			
	Suction	1.82	1.32	1.01	0.81	0.66	0.56			
60	Pressure	3.11	2.31	1.80	1.46	1.21	1.03	0.84	0.67	
	Suction	2.18	1.60	1.25	1.01	0.84	0.72	0.62	0.54	
70	Pressure	3.13	2.33	1.83	1.48	1.24	1.05	0.87	0.72	0.61
	Suction	2.34	1.72	1.35	1.09	0.91	0.78	0.68	0.59	0.50
100	Pressure	3.19	2.40	1.90	1.55	1.31	1.12	0.97	0.86	0.68
	Suction	2.82	2.09	1.64	1.34	1.13	0.97	0.84	0.74	0.66
120	Pressure	4.05	3.06	2.41	2.00	1.68	1.46	1.26	1.12	0.99
	Suction	3.06	2.30	1.82	1.48	1.26	1.07	0.94	0.82	0.73

#### Notes:

- Values have been calculated in accordance with AS/NZS 1170.0, and also take into account the methods described in EN 14509:2006 titled 'Self-supporting double skin metal face insulating panels (Light coloured) - Factory made products - Specifications', taking imposed loads (excluding snow), temperature and creep into account.
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- 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.
- The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
- For FM approved applications, a maximum span of 2000mm applies.
- Load span tables for other panel specifications not shown are available from Kingspan Technical Services.

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## New Zealand

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For the product offering in other markets please contact your local sales representative or visit [www.kingspanpanels.com](http://www.kingspanpanels.com)

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09/2019

