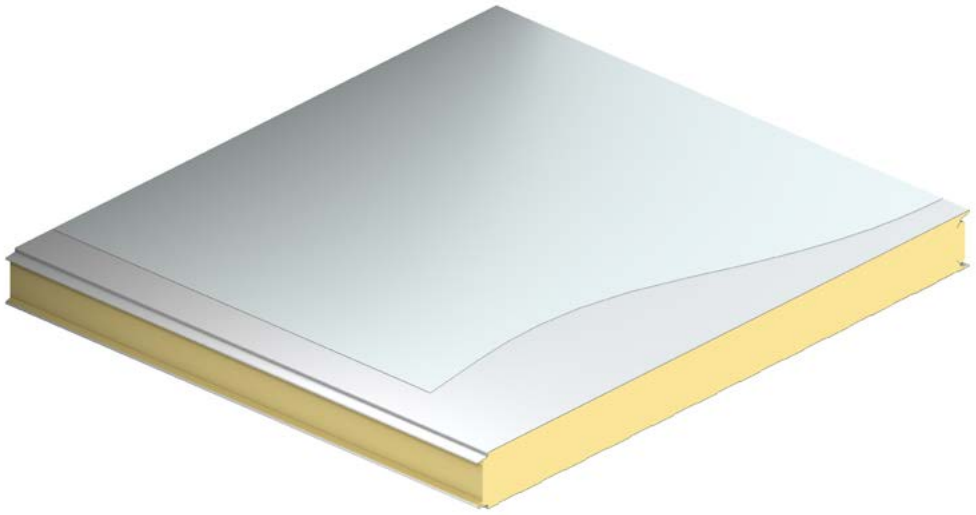
Insulated Panels
New Zealand

KSN1100CS Roofliner Panel
Product Data Sheet



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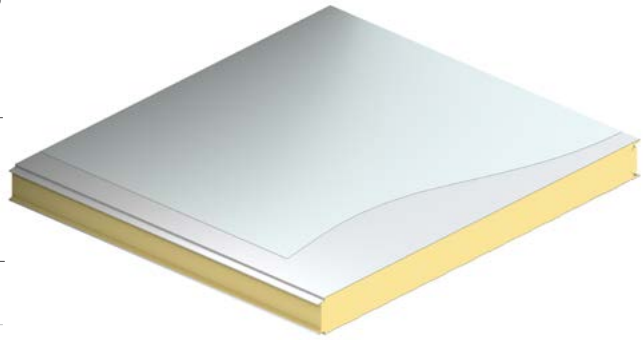
Product Data Sheet
KSN1100CS Roofliner Panel

The KSN1100CS Roofliner panel is a PIR insulated roof panel substrate, used as an insulated roof deck under a site applied single ply-membrane, or under a fully supported or self-supported standing seam roof system.

Suitable for buildings with flat and pitched roofs, Roofliner insulated panels enhance weathertightness, thermal, airtightness, fire resistance and the structural performance of a building.

Applications

The Roofliner panel maybe used on all building types including low temperature and controlled environments. For building in high external corrosions zones refer to the membrane manufacturers literature.



Manufacture

Panels are manufactured in a Kingspan owned facility in Christchurch, New Zealand.

Available Lengths

Standard lengths	2.4m to 17.0m
Longer Lengths (for projects involving lengths over 17m, contact Kingspan)	17.0m to 24.0m

Fixing Method

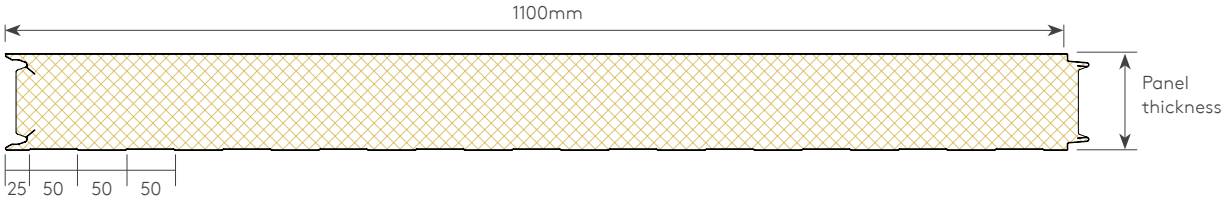
Through-fix.



Panel Performance

A - Core Thickness (mm)	50	75	100	125	150	200
Material R value (m^2.K/W)*	2.05	3.14	4.26	5.59	6.72	8.97
Installed R value (m^2.K/W)**	2.17	3.26	4.38	5.71	6.84	9.09
Weight (kg/m^2)***	12.1	13.1	14.1	15.1	16.1	18.1

* Material R value = the aged thermal value @ 15°C, as independently tested and calculated to AS/NZS4859 parts 1&2: 2018 before installation Note this is for the product only before installation.
** Installed R value = the thermal resistance of the installed product and includes air films as per NZS 4214
*** other steel thicknesses both external and internal are available and could alter the weight. Actual weight subject to vary ±10% due to manufacturing and raw material tolerances



Materials

Exterior Weather Sheet:

- 0.55mm thick Z275 G300 coated steel in accordance with AS1397:2021 (Standard)
- Paint coating in accordance with AS/NZS 2728:2013
- Standard Colour – Titania
- Other colours/coatings available on extended lead time and cost

Insulation Core:

- Non-hygroscopic polyisocyanurate (PIR), with zero Ozone Depletion Potential (Zero ODP).
- PIR foam is a thermosetting material. It does not melt, flow or drip when exposed to fire. It forms a strong char that helps protect the foam core and prevent flame spread within the panels.

Internal Liner Sheet:

- 0.55mm thick Z275 G300 coated steel in accordance with AS1397:2021.
- Standard Colour – Titania
- Other colours available on extended lead time and cost

Fasteners

All fixings (screws, rivets or bolts) to be either carbon (min. Class 4) or stainless steel.

Flashings

Flashings recommended to be steel to achieve fire performance. Use of aluminium is at designer discretion and responsibility.

Structure

The panel is considered a cladding element which is connected to a supporting structure.

Acoustic Performance

KSN1100CS Roofliner Panels have a single figure weighted sound reduction index of R_w = 24dB*. Results are based on panels with a similar profile and core material.

Frequency (Hz)	125	250	500	1000	2000	4000	STC	Rw
SRI (dB)	17.2	18.2	19.1	24.8	37.3	39.5	21	**24**

* Please contact Technical Services for project specific support and product specification.

Product Tolerances

Length < 3 m	±5 mm
Length > 3 m	±10 mm
Cover Width	±2 mm
Thickness < 100 mm	±2 mm
Thickness > 100 mm	±2%
Squareness	≤0.6% of width

British Assessment Bureau UKAS MANAGEMENT SYSTEMS 8289 ISO 9001 QUALITY MANAGEMENT

British Assessment Bureau UKAS MANAGEMENT SYSTEMS 8289 ISO 14001 ENVIRONMENTAL MANAGEMENT

British Assessment Bureau UKAS MANAGEMENT SYSTEMS 8289 ISO 45001 HEALTH & SAFETY MANAGEMENT

NZGBC TE KAUNIHERA HANGANGA TAUTAIAO Member 2026–2027

NZBC Compliance

Insulated panels have been used around New Zealand, on many building types for in excess of 20 years.

When designed, used, installed and maintained in accordance with Kingspan standard details, the KSN1100CS Roofliner Panel is compliant with the applicable sections of the NZBC:

B1 Structure — B1.3.1; B1.3.2; B1.3.3(a, b, c, f, g, h, j); B1.3.4

B2 Durability — B2.3.1(b)

C3 Fire Affecting Areas Beyond the Fire Source — C3.4(a); C3.5; C3.7

E2 External Moisture — E2.3.2; E2.3.7

E3 Internal Moisture — E3.3.5

F2 Hazardous Building Materials — F2.3.1

H1 Energy Efficiency — H1.3.1

Masterspec

Masterspec CBI 4257KR.

masterspec partner

The KSN1100CS Coldstore Panel is listed in Masterspec's product database and online specifications tool.

Fire Performance

The KSN1100CS Roofliner panel has been rigorously tested to both NZ and international building standards and the standards expected of the insurance industry.

BPS 8.5.1.2(d) Internal Surface Finish (NZBC C.4.17.1) (to ISO 9705)	
(50-150 mm panel)	**(200 mm panel)**
Standard Details	Standard Details
Group 1S	Group 2S

BPS 8.4.1.2(b) External Radiation (NZBC C.5.8) (to ISO 5660-1)	
Building Code Document	**Cladding Material Type**
NZBC Acceptable Solutions C/AS1 Table 5.1	< 100kW/m² and < 25 MJ/m²
NZBC Acceptable Solutions C/AS2 Table C1.3	Type A

BPS 8.5.7.1(b) Foam Plastic Core (NZBC C.4.17.2)

Core meets the fire requirements of AS 1366.2



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.

Up to 15 years for a coldstore/processing application. Refer to Kingspan for further details. All guarantees are subject to a maintenance regime. Specialist coatings are available for marine and other more corrosive areas.

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 to health.

Quality and Durability

KSN1100CS Roofliner Panels are manufactured from the highest quality materials using state-of-the-art production equipment at our Christchurch manufacturing facility, which is certified to ISO 9001:2015 for the manufacture and supply of PIR insulated metal panels.

Delivery & Packing

Standard Packing

Protective film is applied to the external face.

Kingspan panels are stacked horizontally with the exterior side facing up.

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. For longer length panels ensure all handling equipment is adequately sized for the panel length.

Handling guidelines are available from Kingspan Technical Services.



Span Tables — External Roof AMBIENT

Under site-applied Membrane



Single



Multi*

Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa Span L in metres																						
				1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	5.2	5.4	5.6
50	Pressure	ULS	ALL	1.17	0.99	0.84																			
		SLS	Single	1.17	0.99	0.84																			
			Multi	1.17	0.99	0.84																			
	Suction	ULS	ALL	1.59	1.40	1.26																			
		SLS	Single	1.59	1.40	1.26																			
			Multi	1.43	1.26	1.13																			
75	Pressure	ULS	ALL	5.16	4.47	3.94	3.52	3.17	2.88	2.63	2.42	2.24	2.08	1.94	1.81	1.70	1.60	1.51							
		SLS	Single	4.44	3.74	3.19	2.74	2.38	2.07	1.81	1.59	1.40	1.24	1.09	0.95	0.82	0.71	0.61							
			Multi	4.53	3.86	3.33	2.91	2.56	2.28	2.03	1.83	1.65	1.49	1.35	1.22	1.11	1.01	0.92							
	Suction	ULS	ALL	5.61	4.92	4.39	3.96	3.62	3.33	3.08	2.87	2.69	2.53	2.39	2.26	2.15	1.95	1.78							
		SLS	Single	4.70	4.00	3.45	3.00	2.63	2.31	2.00	1.74	1.52	1.33	1.18	1.04	0.91	0.78	0.67							
			Multi	4.79	4.11	3.59	3.16	2.82	2.53	2.29	2.09	1.91	1.75	1.61	1.48	1.37	1.26	1.08							
100	Pressure	ULS	ALL	9.07	7.92	7.02	6.31	5.72	5.23	4.82	4.47	4.16	3.89	3.65	3.42	3.06	2.74	2.48	2.24	2.04	1.86	1.71	1.57		
		SLS	Single	7.76	6.56	5.61	4.84	4.21	3.68	3.24	2.86	2.53	2.25	2.00	1.79	1.60	1.43	1.29	1.16	1.04	0.92	0.81	0.71		
			Multi	6.11	5.23	4.56	4.04	3.62	3.27	2.99	2.75	2.54	2.36	2.21	2.07	1.95	1.84	1.69	1.55	1.43	1.31	1.21	1.11		
	Suction	ULS	ALL	11.85	10.38	9.25	8.33	7.59	6.97	6.09	5.27	4.61	4.07	3.62	3.24	2.92	2.65	2.42	2.22	2.04	1.88	1.75	1.63		
		SLS	Single	8.04	6.83	5.88	5.12	4.49	3.96	3.52	3.14	2.81	2.51	2.22	1.98	1.76	1.58	1.41	1.27	1.15	1.04	0.95	0.85		
			Multi	8.18	7.02	6.11	5.39	4.79	4.30	3.88	3.53	3.22	2.96	2.71	2.49	2.30	2.04	1.75	1.51	1.32	1.16	1.04	0.93		
125	Pressure	ULS	ALL	8.89	7.76	6.88	6.18	5.60	5.13	4.72	4.37	4.07	3.81	3.57	3.37	3.18	3.02	2.87	2.71	2.47	2.26	2.07	1.90	1.75	1.62
		SLS	Single	8.89	7.76	6.88	6.08	5.33	4.71	4.18	3.72	3.33	2.99	2.69	2.42	2.19	1.98	1.79	1.63	1.48	1.35	1.23	1.12	1.02	0.93
			Multi	6.05	5.18	4.52	3.99	3.57	3.23	2.94	2.70	2.49	2.31	2.16	2.02	1.90	1.80	1.70	1.61	1.54	1.46	1.40	1.34	1.28	1.23
	Suction	ULS	ALL	13.82	12.11	10.78	9.72	8.85	8.12	7.51	6.67	5.83	5.14	4.57	4.09	3.69	3.34	3.05	2.79	2.56	2.37	2.19	2.04	1.90	1.78
		SLS	Single	9.80	8.39	7.27	6.37	5.63	5.00	4.47	4.02	3.63	3.28	2.98	2.72	2.48	2.27	2.06	1.87	1.70	1.55	1.41	1.30	1.19	1.10
			Multi	9.91	8.53	7.46	6.59	5.89	5.30	4.80	4.38	4.01	3.69	3.41	3.16	2.93	2.72	2.53	2.36	2.15	1.90	1.68	1.50	1.34	1.21
150	Pressure	ULS	ALL	8.68	7.57	6.72	6.03	5.47	5.00	4.60	4.26	3.97	3.71	3.48	3.28	3.10	2.94	2.79	2.65	2.53	2.42	2.32	2.20	2.03	1.87
		SLS	Single	8.68	7.57	6.72	6.03	5.47	5.00	4.60	4.26	3.97	3.67	3.32	3.01	2.74	2.50	2.28	2.09	1.91	1.75	1.61	1.47	1.36	1.25
			Multi	5.95	5.09	4.44	3.92	3.50	3.16	2.87	2.63	2.43	2.25	2.10	1.96	1.85	1.74	1.64	1.56	1.48	1.41	1.35	1.29	1.23	1.18
	Suction	ULS	ALL	15.38	13.48	12.00	10.82	9.85	9.04	8.36	7.77	7.08	6.24	5.55	4.96	4.47	4.05	3.69	3.38	3.10	2.86	2.65	2.46	2.29	2.14
		SLS	Single	11.33	9.74	8.49	7.48	6.64	5.94	5.34	4.82	4.37	3.98	3.64	3.33	3.06	2.82	2.60	2.40	2.22	2.07	1.91	1.76	1.62	1.50
			Multi	11.41	9.85	8.64	7.66	6.85	6.19	5.62	5.14	4.72	4.35	4.03	3.74	3.48	3.26	3.05	2.85	2.67	2.51	2.36	2.16	1.95	1.78
200	Pressure	ULS	ALL	11.64	10.16	9.01	8.09	7.34	6.72	6.19	5.73	5.34	4.99	4.69	4.42	4.18	3.96	3.76	3.58	3.42	3.27	3.13	3.00	2.89	2.78
		SLS	Single	11.64	10.16	9.01	8.09	7.34	6.72	6.19	5.73	5.27	4.81	4.40	4.03	3.71	3.41	3.15	2.91	2.69	2.49	2.31	2.14	1.99	1.85
			Multi	8.31	7.15	6.25	5.53	4.95	4.47	4.07	3.73	3.44	3.19	2.97	2.78	2.61	2.45	2.32	2.20	2.09	1.99	1.89	1.81	1.73	1.66
	Suction	ULS	ALL	19.67	17.24	15.34	13.83	12.58	10.87	9.29	8.03	7.02	6.19	5.51	4.93	4.44	4.03	3.67	3.36	3.09	2.85	2.64	2.46	2.29	2.14
		SLS	Single	13.72	11.87	10.41	9.24	8.27	7.45	6.75	6.15	5.62	5.16	4.75	4.39	4.06	3.77	3.50	3.26	3.04	2.85	2.64	2.46	2.29	2.14
			Multi	13.77	11.94	10.50	9.35	8.40	7.61	6.94	6.37	5.87	5.43	5.05	4.71	4.40	4.03	3.67	3.36	3.09	2.75	2.44	2.10	1.82	1.58

*Multi = panel connected to multiple purlins, i.e. double/triple span condition (or greater).

For span conditions, refer to notes on page 6.

Span Tables — External Roof CHILLER (0°C)

Under site-applied Membrane



Single



Multi*

Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa Span L in metres															
				1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5
75	Pressure	ULS	ALL	3.94	3.52	3.17	2.88	2.63	2.42											
		SLS	Single	3.19	2.74	2.38	2.07	1.81	1.59											
			Multi	3.33	2.91	2.56	2.28	2.03	1.83											
	Suction	ULS	ALL	4.39	3.96	3.62	3.33	3.08	2.87											
		SLS	Single	3.23	2.69	2.25	1.82	1.39	1.05											
			Multi	3.59	3.16	2.82	2.44	1.64	1.12											
100	Pressure	ULS	ALL	7.02	6.31	5.72	5.23	4.82	4.47	4.16	3.89	3.65	3.42	3.06	2.74					
		SLS	Single	5.61	4.84	4.21	3.68	3.24	2.86	2.53	2.25	2.00	1.79	1.60	1.43					
			Multi	4.56	4.04	3.62	3.27	2.99	2.75	2.54	2.36	2.21	2.07							
	Suction	ULS	ALL	9.25	8.33	7.59	6.97	6.09	5.27	4.61	4.07	3.62	3.24	2.92	2.65					
		SLS	Single	5.88	5.12	4.35	3.72	3.19	2.75	2.38	1.99	1.61	1.30	1.04	0.82					
			Multi	6.11	5.39	4.79	4.30	3.25	2.36	1.75	1.30	0.82								
125	Pressure	ULS	ALL	6.88	6.18	5.60	5.13	4.72	4.37	4.07	3.81	3.57	3.37	3.18	3.02	2.87	2.71			
		SLS	Single	6.88	6.08	5.33	4.71	4.18	3.72	3.33	2.99	2.69	2.42	2.19	1.98	1.79	1.63			
			Multi	4.52	3.99	3.57	3.23	2.94	2.70	2.49	2.31	2.16	2.02	1.90	1.80	1.70	1.61			
	Suction	ULS	ALL	10.78	9.72	8.85	8.12	7.51	6.67	5.83	5.14	4.57	4.09	3.69	3.34	3.05	2.79			
		SLS	Single	7.27	6.37	5.63	5.00	4.44	3.88	3.41	3.01	2.66	2.36	2.10	1.84	1.56	1.32			
			Multi	7.46	6.59	5.89	5.30	4.80	4.38	3.71	2.87	2.27	1.82	1.36	0.97	0.69				
150	Pressure	ULS	ALL	6.72	6.03	5.47	5.00	4.60	4.26	3.97	3.71	3.48	3.28	3.10	2.94	2.79	2.65	2.53	2.42	2.32
		SLS	Single	6.72	6.03	5.47	5.00	4.60	4.26	3.97	3.67	3.32	3.01	2.74	2.50	2.28	2.09	1.91	1.75	1.61
			Multi	4.44	3.92	3.50	3.16	2.87	2.63	2.43	2.25	2.10	1.96	1.85	1.74	1.64	1.56	1.48	1.41	1.35
	Suction	ULS	ALL	12.00	10.82	9.85	9.04	8.36	7.77	7.08	6.24	5.55	4.96	4.47	4.05	3.69	3.38	3.10	2.86	2.65
		SLS	Single	8.49	7.48	6.64	5.94	5.34	4.82	4.37	3.92	3.51	3.15	2.83	2.55	2.30	2.08	1.89	1.71	1.50
			Multi	8.64	7.66	6.85	6.19	5.62	5.14	4.72	4.35	4.03	3.29	2.71	2.25	1.83	1.42	1.11	0.87	0.68
200	Pressure	ULS	ALL	9.01	8.09	7.34	6.72	6.19	5.73	5.34	4.99	4.69	4.42	4.18	3.96	3.76	3.58	3.42	3.27	3.13
		SLS	Single	9.01	8.09	7.34	6.72	6.19	5.73	5.27	4.81	4.40	4.03	3.71	3.41	3.15	2.91	2.69	2.49	2.31
			Multi	6.25	5.53	4.95	4.47	4.07	3.73	3.44	3.19	2.97	2.78	2.61	2.45	2.32	2.20			
	Suction	ULS	ALL	15.34	13.83	12.58	10.87	9.29	8.03	7.02	6.19	5.51	4.93	4.44	4.03	3.67	3.36	3.09	2.85	2.64
		SLS	Single	10.41	9.24	8.27	7.45	6.75	6.15	5.62	5.16	4.75	4.39	4.06	3.77	3.49	3.20	2.94	2.71	2.50
			Multi	10.50	9.35	8.40	7.61	6.94	6.37	5.60	3.93	2.75	1.91	1.31	0.87					

*Multi = panel connected to multiple purlins, i.e. double/triple span condition (or greater).

For span conditions, refer to notes on page 6.

Span Tables — External Roof FREEZER (-25°C)

Under site-applied Membrane



Single



Multi*

Panel Thickness (mm)		Criteria	Static Scheme	Uniformly distributed loads kPa Span L in metres												
				2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4
125	Pressure	ULS	ALL	6.18	5.60	5.13	4.72	4.37	4.07	3.81	3.57	3.37	3.18			
		SLS	Single	6.08	5.33	4.71	4.18	3.72	3.33	2.99	2.69	2.42	2.19			
			Multi	3.99	3.57	3.23	2.94									
	Suction	ULS	ALL	9.72	8.85	8.12	7.51	6.67	5.83	5.14	4.57	4.09	3.69			
		SLS	Single	6.20	5.28	4.52	3.89	3.36	2.70	2.15	1.68	1.29	0.97			
			Multi	6.59	4.44	1.99										
150	Pressure	ULS	ALL	6.03	5.47	5.00	4.60	4.26	3.97	3.71	3.48	3.28	3.10	2.94	2.79	2.65
		SLS	Single	6.03	5.47	5.00	4.60	4.26	3.97	3.67	3.32	3.01	2.74	2.50	2.28	2.09
			Multi	3.92	3.50	3.16	2.87	2.63	2.43	1.77						
	Suction	ULS	ALL	10.82	9.85	9.04	8.36	7.77	7.08	6.24	5.55	4.96	4.47	4.05	3.69	3.38
		SLS	Single	7.48	6.64	5.79	5.05	4.42	3.89	3.43	3.03	2.53	2.09	1.72	1.40	1.12
			Multi	7.66	6.85	6.19	4.06	2.25	1.08							
200	Pressure	ULS	ALL	8.09	7.34	6.72	6.19	5.73	5.34	4.99	4.69	4.42	4.18	3.96	3.76	3.58
		SLS	Single	8.09	7.34	6.72	6.19	5.73	5.27	4.81	4.40	4.03	3.71	3.41	3.15	2.91
			Multi	5.53	4.95	4.47	4.07									
	Suction	ULS	ALL	13.83	12.58	10.87	9.29	8.03	7.02	6.19	5.51	4.93	4.44	4.03	3.67	3.36
		SLS	Single	9.24	8.27	7.45	6.75	6.15	5.62	5.05	4.55	4.11	3.72	3.37	3.07	2.79
			Multi	9.35	8.40	5.70	1.94									

*Multi = panel connected to multiple purlins, i.e. double/triple span condition (or greater).

Notes

Span tables have been provided based on internal room temperatures (ambient, chiller, freezer) and eternal roof. Check both ULS and SLS capacity against project wind loads.

External Roof:

1. Values have been calculated in accordance with AS/NZS 1170.0 and also take into account the methods described in EN 14509:2011 titled 'Self-supporting double skin metal face insulating panels (Light coloured) – Factory made products – Specifications', taking gravity loads and temperature 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. A deflection limit of L/150 was used upward and L/200 downward.
4. The table is for an internal temperature of 0°C for chiller and -25°C for freezer and an external surface temperature of 60°C (light coloured membrane).
5. The actual wind suction load resisted by the panel is also 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 80mm.
6. The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
7. The allowable steelwork tolerance between bearing panels of adjacent supports is +/- 5mm or L/600, whichever is the least.
8. Load span tables for the panel specifications not shown are available from Kingspan Technical Services.
9. Membrane colour is assumed to be either white or light grey. For any other colour, please contact Kingspan.
10. In the tables, panels in multiple span conditions are not stress cut. If stress cut then use the applicable span condition after cutting and fix either side of the cut.
11. The gravity load of the panel has been considered in the tables. No other loads or penetrations have been considered.
12. Refer Kingspan for longterm snow load applications.

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For the product offering in other markets please contact your local sales representative or visit www.kingspanpanels.com

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To ensure you are viewing the most recent and accurate product information, please visit: https://kingspannz.info/KSN1100CS-Roofliner-Data-Sheet

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