

Insulated Roof & Wall Panels

Slate & Tile Support



Slate & Tile Support Roof System
KS1000/2000 TS

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Slate & Tile Support KS1000/2000 TS

Slate & Tile Support is an advanced insulated panel system that has been designed to support either slate or tiles.

The system provides all of the advantages of insulated panel technology including superior thermal performance and low air leakage, and is available in 1m (KS1000 TS) and 2m (KS2000 TS) wide options. Once installed the envelope is fully weathertight, allowing internal fit-out to commence, and creates a ready platform for the chosen slate or tile system to be installed.

Slate & Tile Support is suitable for use on pitched* roofs creating all the benefits of a modern warm roof construction. This system combines speed of installation with the aesthetic appeal of a traditional vernacular roof finish, making it suitable for any project where this appearance is required.

*The pitch is determined by the slate or tile supplier.

Features & Benefits

- Property and Business Protection – Loss Prevention Certification Board (LPCB) LPS 1181 certified insurer approved FIREsafe system delivers certainty of performance and insurability.
- Fully complies with Part L2 (England and Wales) Building Regulations, Section 6 (Scotland) Technical Handbooks, Part F2 (Northern Ireland) and Part L (Republic of Ireland).
- Lifetime insulation continuity, thermal performance and airtightness ($3\text{m}^3/\text{hr}/\text{m}^2$) certainty.

Introduction

- KS1000 TS is available in lengths up to 29m and KS2000 TS is available in lengths up to 20m.
- KS1000 TS is available with factory-applied weather seals to side and end laps, and KS2000 TS is available with factory-applied seals to the side laps only.
- Integrates with the Kingspan Roof Mounted PV System.
- May be Green Guide A+ rated, subject to project specific assessment.
- A wide range of slates and tiles can be installed in conjunction with the system.
- Guaranteed for thermal and structural performance through the Kingspan Guarantee.
- Suitable for new build with timber trusses, timber and steel purlins and flat to pitch refurbishment applications.
- Compliant with BS EN ISO 9001 (Quality), BS EN ISO 14001 (Environmental) and BS OHSAS 18001 (Health & Safety).
- Post 2004 Kingspan insulated panels are fully recyclable at the end of their life.
- Accelerated build speed through pre-engineered, single component, single-fix installation. Up to 50% faster than traditional construction methods.
- Warm roof construction that can eliminate ceiling linings and increase usable space.
- Provides a weathertight safe working platform for the installation of slates or tiles.

Slate & Tile Support KS1000/2000 TS

Cost Analysis

Cost Analysis*

System	Building Material Costs	Preliminary Savings	Total Comparable Cost
Traditional Timber Trusses Cold Roof	£29,791	-	£29,791
Timber Trusses & KS1000 TS	£37,911	£11,700	£26,211
Steel Framework & KS1000 TS	£39,740	£23,400	£16,340

*A comprehensive cost analysis document supporting these findings can be issued upon request.

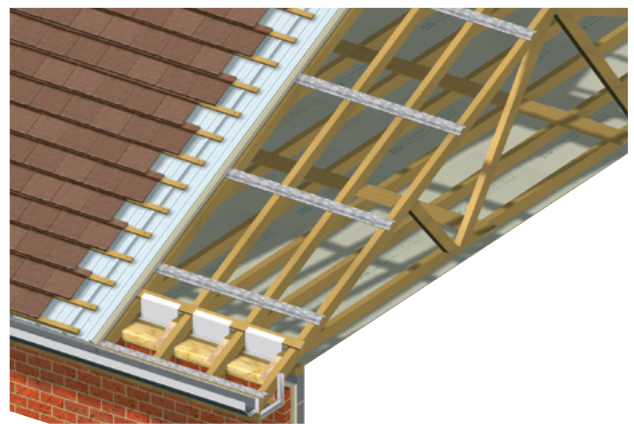
In 2013, MJ Newton Construction Consultants were commissioned to prepare a detailed cost comparison of a traditional cold roof system (MMMMF insulation at the joists, timber trusses, felt, battens and slate) versus two roof constructions of the same performance, using the Kingspan Slate & Tile Support System, KS1000 TS. The first system was a timber trussed rafter system and the second was a steel frame and purlin system.

The comparison is based on a 20m length roof section, with an overall floor area of 4,130m². The cost breakdown for the traditional cold roof system was provided by Shack Architecture, using architectural details and sections that they had created for a live scheme within the healthcare sector.

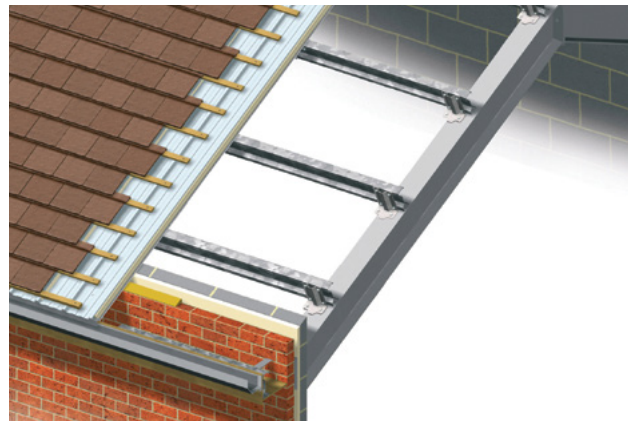
Based on the size of this project, MJ Newton calculated that the preliminary costs, such as management, site equipment, tools and services etc, would amount to £11,700 per week and for a contract duration of 60 weeks. The study showed:

- The materials for a traditional cold roof system cost £29,791.
- The materials for a timber trussed rafter system and KS1000 TS cost £37,011, however, this building would be water tight a week earlier, creating a saving of £11,700 - a 12% saving on the traditional cold roof system.
- The materials for a steel frame & purlin system and KS1000 TS cost £39,740, however, this building would be water tight two weeks earlier, creating a saving of £23,400 - a 45% saving on the traditional cold roof system.

Timber Trusses & KS1000 TS



Steel Framework & KS1000 TS



Slate & Tile Support KS1000/2000 TS

Product Data

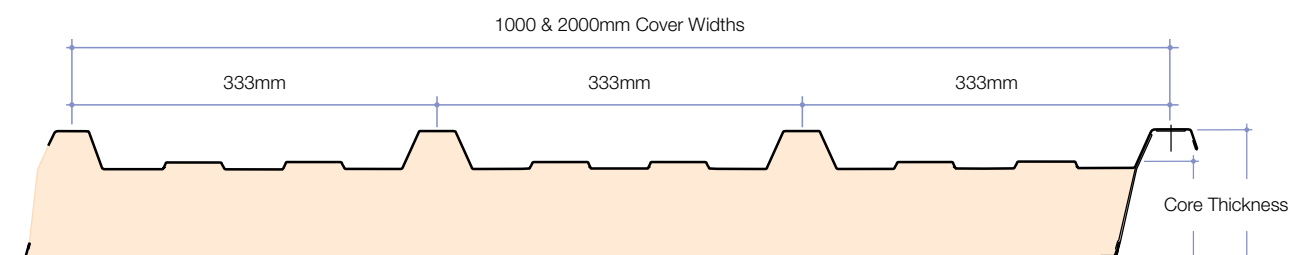
Applications

Slate & Tile Support is a through-fixed roof panel system which can be used in conjunction with slates or tiles to create the ultimate vernacular roof system.

Available Lengths

Standard Lengths	1.8 - 12m
Longer Lengths* (KS1000 TS only)	12 – 29.3m
Longer Lengths* (KS2000 TS only)	12 - 20.5m
Shorter Lengths*	Below 1.8m

* Non-standard lengths. Additional costs and transport restrictions may apply for non-standard lengths. All lengths may change for export (outside of the UK).



Dimensions, Weight and Thermal Performance

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
U-value (W/m²K)	0.46	0.38	0.35	0.30	0.25	0.20	0.18	0.16	0.15	0.14
Weight kg/m² 0.5 steel / 0.4 steel	9.9	10.3	10.7	11.0	11.5	12.3	12.8	13.1	13.7	14.2

Note:

The U-values have been calculated using the method required by the appropriate National Building Regulations.

Slate & Tile Support KS1000/2000 TS

Product Data

Insulation Core

Slate & Tile Support panels are manufactured with an ECOsafe and FIREsafe polyisocyanurate (PIR) core.

Fire

The external and internal faces of the panels to be Class 0 in accordance with the Building Regulations when tested to BS 476: Part 6: 2009 and Part 7: 1997. The panels are rated SAA when tested to BS 476: Part 3: 2004.

The FIREsafe system has passed all the requirements of LPS 1181: 2005: Part 1: Issue 1.1, ceiling lining tests by the Loss Prevention Certification Board (LPCB) certified to LPS 1181 Grade EXT – B*.

*LPCB is limited to a maximum slate or tile weight of 54kg/m².



Environmental

This ECOsafe system may achieve a Green Guide A+ rating and is subject to project specific assessments.

Air Leakage

An air leakage rate of 3m³/hr/m² at 50Pa or less can be achieved when using Kingspan insulated roof and wall panels.

Acoustic

Sound Reduction Index (SRI)

Hz*	63	125	250	500	1K	2K	4K	8K
SRI (dB)	20	18	20	24	20	29	39	47

*Frequency.

Slate & Tile Support has a single figure weighted sound reduction $R_w = 25\text{dB}$.

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.

Materials

Substrate

- Kingspan XL Forté, Kingspan Spectrum, Kingspan AQUAsafe, and Kingspan CLEANsafe: Materials used are S220GD+ZA hot-dip zinc / aluminium Galfan coated steel to BS EN10346: 2009, and austenitic Grade 304 stainless steel to BS EN 10088: Part 2: 2005. Standard external sheet thickness 0.5mm and standard internal sheet thickness 0.4mm.

Coatings - External Weather Sheet

- Kingspan XL Forté: Consists of a 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

- Kingspan AQUAsafe: An internal coating that has been developed to suit high humidity internal environments.
- Kingspan CLEANsafe 15: A bright white polyester internal coating, with an easily cleaned surface.
- Kingspan CLEANsafe 304: A stainless steel internal liner that has been developed for buildings with an aggressive / corrosive internal environment.

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Product Data

Panel End Cut Back

Standard Cut Back Eaves	75mm
Standard Cut Back End Lap	150mm
Minimum Cut Back	20mm
Maximum Cut Back	300mm

Product Tolerance

Cut to Length	-5mm +5mm
Cover Width (KS1000 TS only)	-2mm +2mm
Cover Width (KS2000 TS only)	-2mm +4mm
Thickness (KS1000TS, ≤100mm KS2000 TS)	-2mm +2mm
Thickness (>100mm KS2000 TS only)	-2.0% +2.0%
End Square	-3mm +3mm

Handing

Slate & Tile Support panels can be manufactured in both left to right handed (LH) and right to left handed (RH).

Seals

Optional factory-applied side and end lap weather seals available with KS1000 TS. Side lap seals only available with KS2000 TS.

Quality & Durability

Slate & Tile Support panels are manufactured from the highest quality materials, using state-of-the-art production equipment to rigorous quality control standards; ensuring long term reliability and service life. The panels are fully compliant with BS EN ISO 9001 (Quality), BS EN ISO 14001 (Environmental) and BS OHSAS 18001 (Health and Safety).

Guarantee

The Kingspan Guarantee covers the structural and thermal performance for a period of up to 25 years.

Packing

KS1000 TS 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	100-120	137-150
Number of Panels in Pack	17	15	13	11	7	6

KS2000 TS panels are crown stacked weather face up and the number per pack depends on the panel length and type of offloading method. The panels are strapped onto panel skids on the trailer bed.

Sea Freight

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

Delivery

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

Site Installation Procedure

Site assembly instructions are available from Kingspan Technical Services.

Slate & Tile Support KS1000/2000 TS

Load / Span Tables

Structural Tables

Unfactored load / span tables (use unfactored calculated design wind load values).

Tile Weight: Up to 15kg/m² (0.15kN/m²)

Single Span Condition

Panel Thickness (mm)	Load Types	Uniformly Distributed Loads kN/m ²							
		Span L in Metres							
		1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
40	Downwards	4.54	3.88	3.38	2.89	2.39	1.90	1.66	1.41
	Suction	5.17	4.59	4.26	3.98	3.67	3.36	3.13	2.90
50	Downwards	5.22	4.55	4.00	3.45	2.90	2.35	2.07	1.79
	Suction	5.92	5.32	4.99	4.67	4.34	4.01	3.72	3.42
60	Downwards	5.86	5.16	4.57	3.98	3.39	2.79	2.48	2.17
	Suction	6.63	6.02	5.67	5.33	4.98	4.64	4.29	3.95
70	Downwards	6.43	5.72	5.09	4.46	3.82	3.19	2.85	2.51
	Suction	7.32	6.71	6.35	5.99	5.64	5.28	4.88	4.48
80	Downwards	7.00	6.27	5.60	4.94	4.27	3.60	3.23	2.86
	Suction	7.98	7.36	6.99	6.63	6.26	5.89	5.44	5.00
100	Downwards	8.01	7.24	6.51	5.79	5.06	4.33	3.91	3.50
	Suction	8.96	8.35	7.86	7.38	6.89	6.41	6.02	5.63

Double Span Condition

Panel Thickness (mm)	Load Types	Uniformly Distributed Loads kN/m ²							
		Span L in Metres							
		1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
40	Downwards	4.11	3.38	3.06	2.75	2.42	2.11	1.93	1.76
	Suction	4.69	3.96	3.64	3.32	3.00	2.68	2.51	2.34
50	Downwards	4.34	3.60	3.26	2.94	2.60	2.27	2.09	1.91
	Suction	4.96	4.22	3.88	3.56	3.25	2.89	2.71	2.53
60	Downwards	4.56	3.80	3.45	3.11	2.76	2.42	2.23	2.04
	Suction	5.20	4.44	4.10	3.77	3.42	3.08	2.89	2.70
70	Downwards	4.74	3.96	3.61	3.25	2.90	2.54	2.34	2.15
	Suction	5.44	4.67	4.32	3.97	3.62	3.27	3.07	2.88
80	Downwards	4.92	4.13	3.76	3.40	3.03	2.67	2.46	2.26
	Suction	5.60	4.87	4.51	4.15	3.79	3.43	3.23	3.03
100	Downwards	5.23	4.42	4.04	3.66	3.28	2.89	2.67	2.46
	Suction	5.75	4.96	4.59	4.23	3.86	3.50	3.29	3.09

Notes:

1. Values have been calculated using the limit state method described in BS EN 14509, for medium and light coloured panels.
2. For each value, individual and combined load cases with appropriate load factors and temperatures have been considered.
3. The table is for medium and light coloured panels, as recommended by Kingspan for roofs.
4. The following deflection limits have been used: Downward loading L/200, Suction loading L/150
5. For intermediate values, linear interpolation may be used.
6. The actual wind suction load resisted by the panel is dependent on the number of fasteners used and the material of the purlin. The fastener calculation should be carried out in accordance with the appropriate standard. For further advice please contact Kingspan Technical Services.
7. The allowable steelwork tolerance between bearing planes of adjacent purlins is ± 5 mm. For span information on panel thicknesses over 100mm, please contact Kingspan Technical Services.

Tile Weight: Up to 45kg/m² (0.45kN/m²)

Single Span Condition

Panel Thickness (mm)	Load Types	Uniformly Distributed Loads kN/m ²							
		Span L in Metres							
		1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
40	Downwards	3.91	3.23	2.65	2.09	1.62	1.16	0.89	0.61
	Suction	5.33	4.79	4.45	4.11	3.81	3.52	3.26	2.99
50	Downwards	4.54	3.81	3.18	2.56	2.04	1.52	1.29	0.89
	Suction	6.08	5.53	5.17	4.82	4.50	4.18	3.92	3.50
60	Downwards	5.13	4.37	3.69	3.02	2.45	1.88	1.53	1.18
	Suction	6.79	6.23	5.85	5.48	5.14	4.81	4.41	4.01
70	Downwards	5.66	4.87	4.15	3.43	2.82	2.21	1.82	1.44
	Suction	7.48	6.92	6.53	6.15	5.80	5.45	4.99	4.54
80	Downwards	6.19	5.38	4.61	3.85	3.20	2.56	2.14	1.73
	Suction	8.14	7.57	7.17	6.78	6.42	6.06	5.56	5.07
100	Downwards	7.14	6.27	5.44	4.60	3.89	3.18	2.71	2.25
	Suction	9.91	8.35	7.71	7.07	6.52	5.98	5.62	5.27

Double Span Condition

Panel Thickness (mm)	Load Types	Uniformly Distributed Loads kN/m ²							
		Span L in Metres							
		1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
40	Downwards	3.62	2.97	2.62	2.27	1.97	1.67	1.48	1.29
	Suction	4.86	4.21	3.84	3.48	3.17	2.87	2.67	2.48
50	Downwards	3.84	3.17	2.80	2.44	2.12	1.81	1.61	1.42
	Suction	5.14	4.47	4.09	3.72	3.40	3.09	2.88	2.63
60	Downwards	4.04	3.35	2.97	2.59	2.26	1.94	1.73	1.53
	Suction	5.38	4.70	4.32	3.94	3.61	3.29	3.07	2.86
70	Downwards	4.21	3.51	3.11	2.72	2.38	2.05	1.83	1.62
	Suction	5.62	4.93	4.54	4.15	3.81	3.48	3.26	3.04
80	Downwards	4.38	3.66	3.26	2.85	2.51	2.16	1.94	1.72
	Suction	5.83	5.13	4.73	4.33	3.99	3.65	3.42	3.20
100	Downwards	4.67	3.93	3.51	3.09	2.72	2.36	2.12	1.88
	Suction	5.66	4.96	4.56	4.17	3.83	3.50	3.28	3.06

Notes:

1. Values have been calculated using the limit state method described in BS EN 14509, for medium and light coloured panels.
2. For each value, individual and combined load cases with appropriate load factors and temperatures have been considered.
3. The table is for medium and light coloured panels, as recommended by Kingspan for roofs.
4. The following deflection limits have been used: Downward loading L/200, Suction loading L/150
5. For intermediate values, linear interpolation may be used.
6. The actual wind suction load resisted by the panel is dependent on the number of fasteners used and the material of the purlin. The fastener calculation should be carried out in accordance with the appropriate standard. For further advice please contact Kingspan Technical Services.
7. The allowable steelwork tolerance between bearing planes of adjacent purlins is ± 5 mm. For span information on panel thicknesses over 100mm, please contact Kingspan Technical Services.

Slate & Tile Support KS1000/2000 TS

Load / Span Tables

Tile Weight: Up to 90kg/m² (0.90kN/m²)

Single Span Condition

Panel Thickness (mm)	Load Types	Uniformly Distributed Loads kN/m ²							
		Span L in Metres							
		1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
40	Downwards	4.59	3.38	3.02	2.22	1.57	0.93	-	-
	Suction	6.47	5.76	5.27	4.79	4.43	4.07	-	-
50	Downwards	5.21	4.40	3.55	2.71	1.99	1.28	-	-
	Suction	7.25	6.53	6.03	5.53	5.15	4.78	-	-
60	Downwards	5.79	4.96	4.06	3.17	2.39	1.62	-	-
	Suction	7.98	7.25	6.74	6.23	5.84	5.45	-	-
70	Downwards	6.33	5.48	4.54	3.60	2.77	1.94	-	-
	Suction	8.68	7.95	7.43	6.92	6.52	6.12	-	-
80	Downwards	6.86	5.99	5.01	4.04	3.16	2.28	1.64	1.00
	Suction	9.34	8.61	8.09	7.57	7.16	6.75	6.40	6.06
100	Downwards	7.81	6.92	5.86	4.81	3.85	2.89	2.18	1.47
	Suction	10.09	9.38	8.86	8.35	7.66	6.98	6.48	5.98

Double Span Condition

Panel Thickness (mm)	Load Types	Uniformly Distributed Loads kN/m ²							
		Span L in Metres							
		1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
40	Downwards	4.44	3.52	2.94	2.36	1.97	1.58	-	-
	Suction	6.27	5.36	4.78	4.24	3.82	3.43	-	-
50	Downwards	4.67	3.73	3.13	2.53	2.12	1.72	-	-
	Suction	6.58	5.65	5.06	4.47	4.07	3.67	-	-
60	Downwards	4.89	3.92	3.30	2.69	2.26	1.84	-	-
	Suction	6.85	5.90	5.30	4.70	4.29	3.88	-	-
70	Downwards	5.08	4.09	3.45	2.82	2.38	1.95	-	-
	Suction	7.10	6.15	5.54	4.93	4.51	4.09	-	-
80	Downwards	5.26	4.26	3.61	2.96	2.51	2.06	1.73	1.40
	Suction	7.33	6.36	5.74	5.13	4.70	4.27	3.96	3.65
100	Downwards	5.58	4.55	3.87	3.20	2.73	2.26	1.91	1.56
	Suction	7.16	6.20	5.58	4.96	4.54	4.12	3.81	3.50

Notes:

1. Values have been calculated using the limit state method described in BS EN 14509, for medium and light coloured panels.
2. For each value, individual and combined load cases with appropriate load factors and temperatures have been considered.
3. The table is for medium and light coloured panels, as recommended by Kingspan for roofs.
4. The following deflection limits have been used: Downward loading L/200, Suction loading L/150
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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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