

Tile Support

Insulated Slate & Tile Support System

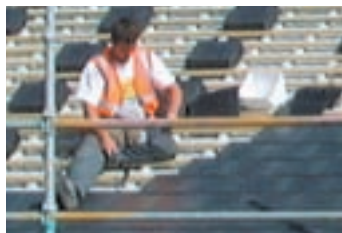
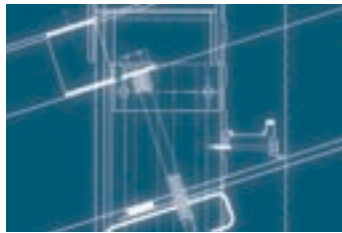
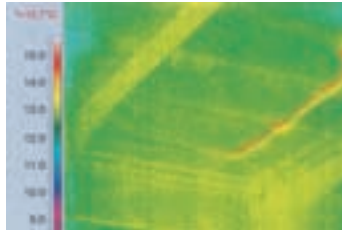
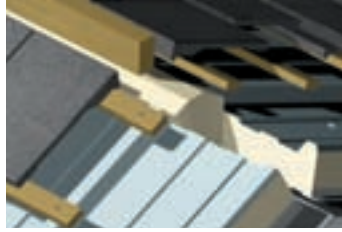


*Insulated Panels
to the Power of*





“ Traditional roof construction supported by modern technology ”



Kingspan Slate & Tile Support

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Introduction

Applications & Construction Methods

System Benefits & Slate & Tile Range

Product Data & Construction Details

Site Installation

Decra & Nu-Lok™ Systems

Insulated Roof Tile System





KS1000 TS Slate & Tile Support System

There is a growing trend towards the use of traditional appearance roof construction materials on low and medium rise buildings. However, these buildings also require faster construction solutions to facilitate early project handover with reduced whole lifecycle operating costs, thus maximising environmental sustainability through lower energy usage and reduced Carbon Dioxide (CO₂) emissions. By combining the latest factory pre-engineered construction technology with traditional materials these objectives can be achieved simultaneously.



Kingspan KS1000 TS Slate & Tile Support System provides a superior structural, weathertight, thermal/low air leakage (Parts L2 & J), safer, fast build platform for the installation of roof tiles or slates. The rapid installation of KS1000 TS allows the building to be made weathertight at an early stage in the construction programme, accelerating the start and completion of internal fit-out trades and enabling earlier client handover.

KS1000 TS Slate & Tile Support System is suitable for application on all forms of pitched roof construction which use tiles and slates which are supported by either conventional timber trusses and purlins or a steel framed structure.

The application of the KS1000 TS Slate & Tile Support System, in conjunction with a steel frame or timber purlins, can allow the utilisation of the roof void to increase usable internal space, without the need for additional internal insulation or dry lining systems.

The KS1000 TS system is suitable for a lifecycle of up to 50 years.



“ Fast build and early project handover ”

The Kingspan KS1000 TS Slate & Tile Support System is suitable for applications on pitched roofed buildings for the commercial, retail, leisure, educational, healthcare, student accommodation, residential and social housing building sectors, where traditional roofing materials and appearances coupled with fast build and early project handover are deciding factors.

Kingspan KS1000 TS Slate & Tile Support System is suitable for application to all forms of pitched roof support structures, including conventional timber trusses and purlins or steel framed structures.

Roof Structure - Timber Trusses & Purlins

The Kingspan KS1000 TS Slate & Tile Support System may be fastened to timber purlins and traditional timber truss construction. When fastening to timber purlins, self drill fasteners of correct dimension and threadform ensure connection integrity between the panel and the support structure.

When using the Kingspan KS1000 TS Slate & Tile Support System with conventional timber truss construction, the tile lath provides the connection interface. The tile lath is a steel top hat section purlin spanning between the timber trusses; it is positioned generally at centres up to 1.5 metres to ensure best design interaction with the truss design. For advice on the use of tile lath, consult Kingspan Technical Design Bureau.



Roof Construction Methods

Roof Structure - Steel Frame & Purlins

KS1000 TS Slate & Tile Support System is fastened to conventional cold formed and hot rolled steel support structures in the same way as any insulated panel.

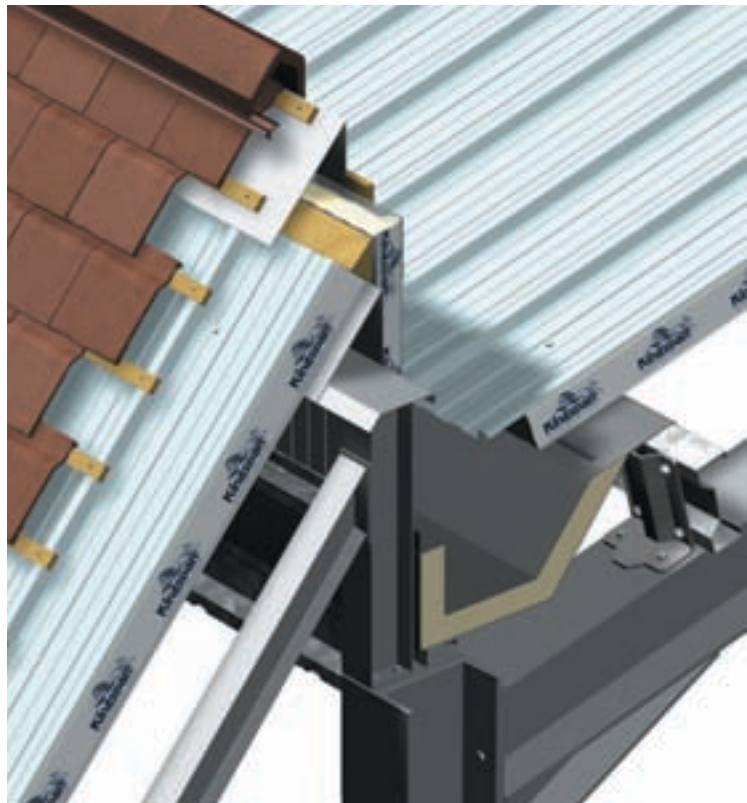
KS1000 TS Slate & Tile Support System has all the advantages of a insulated panel in that it provides excellent spanning capacity and stiffness. Purlin centres in the region of 2 metres are easily accommodated in most applications, providing cost effective use of cladding and supporting structure. Kingspan Multibeam provides the ideal solution for the secondary steel purlins in this type of application.



Mansard Roof

Many commercial buildings call for the functionality of a low pitch or flat roof construction, but still require attractive traditional appearance to suit the aesthetic needs of the designer and the local planners. KS1000 TS Slate & Tile Support System used on a mansard construction in conjunction with Kingspan's Lo-Pitch or Kingzip Standing Seam insulated roof systems.

Conventional slate and tile systems cause complexity for the structural design of the mansard support structure, due to weight and fixing considerations. KS1000 TS Slate & Tile Support System's spanning capability and light weight uses conventional construction methods to produce the desired effect while ensuring that insulation integrity is maintained.



System Benefits

Performance

- Property & Business Protection - Loss Prevention Certification Board (LPCB) LPS 1181 certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability
- Complies with HSE and CDM safety requirements.
- Suitable for new build applications with timber trusses, timber and steel purlins, and flat-to-pitch refurbishment.
- Warm roof construction method can eliminate ceiling linings.
- Fully complies with Part L2 (England & Wales) and Part J (Scotland) Regulations and Standards.
- Lifetime insulation continuity, thermal performance and airtightness ($5\text{m}^3/\text{hr}/\text{m}^2$) certainty.
- Fire rated PIR insulation core.
- Complies with Parts E & H 'Resistance to the passage of sound' for non-domestic buildings. For residential, domestic, education and healthcare building applications, BB93 and HTM 2045 solutions, consult Kingspan Technical Design Bureau.

Build Speed

- Pre-engineered system – enabling rapid site installation of a working platform for application of roof tiles and slates, reducing build times by up to 50%
- Accelerates internal fit-out programme completion, facilitating earlier project handover and income stream

Daylighting

- Incorporates Velux daylighting systems.

Environmental Sustainability

- Environmentally sustainable system - Zero ODP and non-deleterious.
- Energy efficient performance reduces M&E plant and lifetime operating costs by up to 40%.
- Environmentally sustainable solutions reduce lifetime Carbon Dioxide (CO_2) emissions by up to 40%.



Quality & Warranties

- Guaranteed long term performance with up to 30 years to first maintenance and overall life expectancy up to 50 years.
- Quality approved to ISO 9001:2000.

Business Case

- Whole Lifecycle Cost analysis package is available on a project specific basis



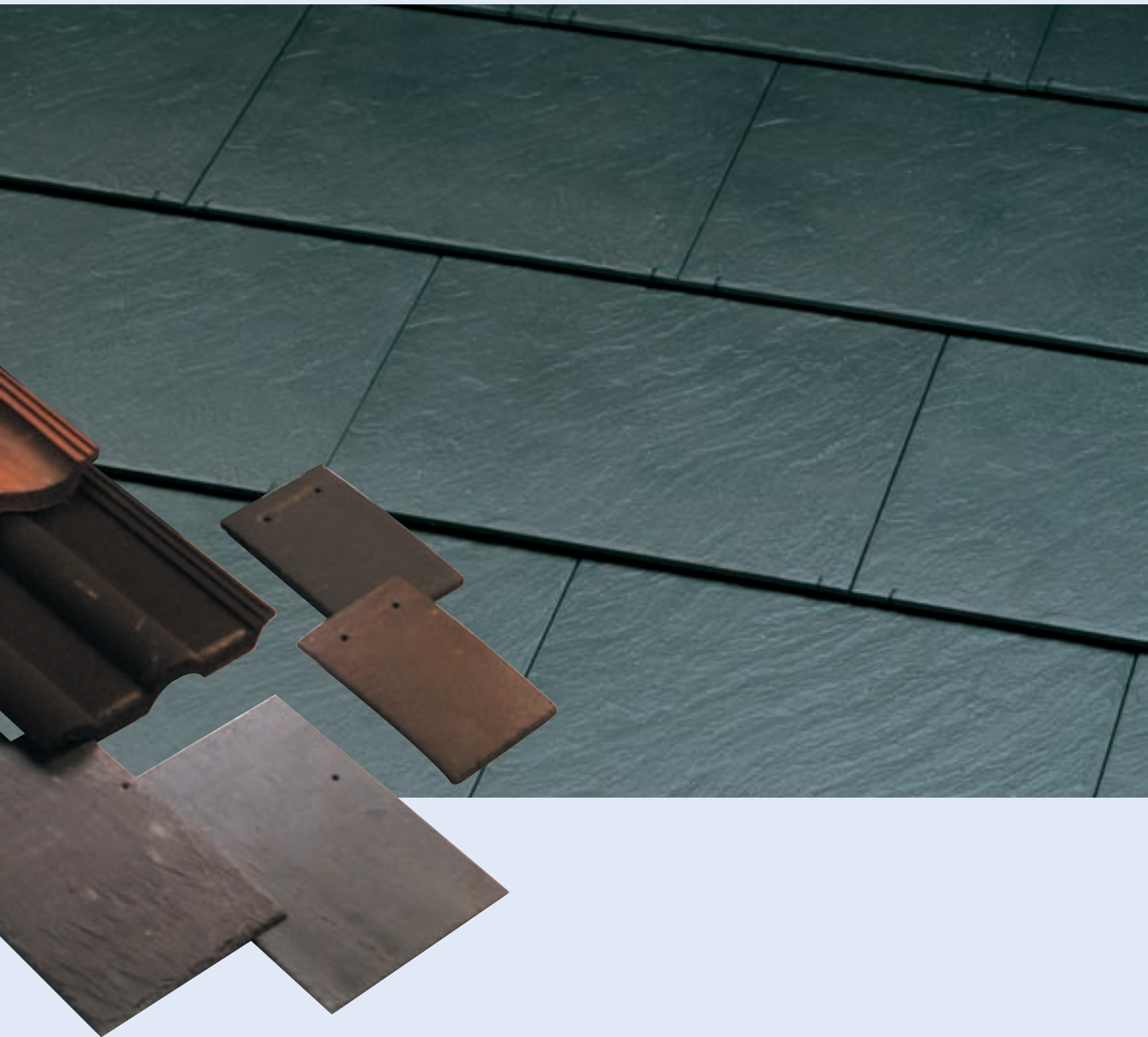
Slate & Tile Range

Slates & Tiles suitable for application with KS1000 TS Slate & Tile Support System

Manufacturer & Product	Dimensions (mm)	Min Slope (degrees)	Max Slope (degrees)	Min HeadLap (mm)	Max HeadLap (mm)	Max Gauge (mm)	Cover Width (mm)	Weight of Tiling (kg/m ²)
MARLEY ROOFING								
Plain	267 x 168	Granular 35 Smooth 35	90	65	–	100	168	100mm Gauge 73.8kg
Heritage	267 x 168	Granular 35 Smooth 35	90	65	–	100	168	100mm Gauge 73.8kg
Thaxden	270 x 168	Granular 35	90	70	–	100	168	100mm Gauge 73.8kg
Marlden	267 x 168	Sandfaced 35	90	65	–	100	168	100mm Gauge 73.8kg
Clansman	270 x 168	35	90	70	–	100	168	100mm Gauge 73.8kg
Ludlow Plus	387 x 229	Granular 30 Smooth 25 Smooth 22.5	90 90 90	75 75 100	100	312	204	75mm Headlap 47kg 100mm Headlap 51kg
Anglia Plus	387 x 230	Granular 30 Smooth 30 Smooth 25	90 90 90	75 75 100	–	312	204	75mm Headlap 47kg 100mm Headlap 51kg
Double Roman	420 x 330	Granular 30 Smooth 25 Smooth 22.5	90 90 90	75 75 100	–	345	300	75mm Headlap 44kg 100mm Headlap 47kg
Ludlow Major	420 x 330	Granular 30 Smooth 25 Smooth 22.5	90 90 90	75 75 100	–	345	295	75mm Headlap 45kg 100mm Headlap 49kg
Mendip	420 x 330	Granular 30 Granular 25 Smooth 22.5	90 90 90	75 100 75	–	345	298	75mm Headlap 46kg 100mm Headlap 49kg
Modern & Duo Modern	420 x 330	Smooth 17.5 Smooth 22.5	90 90	100 75	–	345	292	75mm Headlap 50kg 100mm Headlap 54kg
Wessex	420 x 330	Smooth 15	90	75	–	345	298	75mm Headlap 50kg 100mm Headlap 53kg
Malvern	420 x 330	Smooth 15 Smooth 17.5	90 90	100 17.5	–	17.5° & above below 17.5°	– 296	75mm Headlap 38kg 100mm Headlap 41kg
Bold Roll	420 x 330	– Smooth 17.5	90	75	100	345	296	75mm Headlap 49kg 100mm Headlap 53kg
Edgemere & Duo Edgemere	420 x 330	17.5		75	100	345	290	75mm Headlap 45kg 100mm Headlap 48.5kg
Monarch	325 x 330	Smooth 22.5	90	75	100	250	303	75mm Headlap 24kg 100mm Headlap 26kg
Marquess	325 x 330	Smooth 22.5	90	75	100	250	303	75mm Headlap 24kg 100mm Headlap 26kg
Duo Marquess	325 x 330	Smooth 22.5	90	75	100	250	303	75mm Headlap 24kg 100mm Headlap 26kg
Melbourn	327 x 300	15	90	50	–	250 235		50mm Headlap 15.3kg 65mm Headlap 16.5kg
ETERNIT BUILDING MATERIALS								
Acme	265 x 165	35	90	65	88	100	165	100mm Gauge 64kg
Hawkins	265 x 165	35	90	65	88	100	165	100mm Gauge 66kg
Ashdowne Handcrafted	265 x 165	35	90	65	88	100	165	100mm Gauge 75kg
Sandringham Pantile	395 x 325	22	90	–	–	344	282	344mm Gauge 40kg
ETERNIT SLATES								
Eternit Rivendale+	600 x 300	20	45	90	–	250	300	20.1kg
Eternit 3000	600 x 300	20	45	90	110	–	–	20.1kg
Eternit 2000 T	600 x 300	20	45	90	110	–	300	20.1kg
	500 x 250	20	45	90	110	–	250	20.8kg
Eternit NT Thrutone	600 x 300	20	–	90	110	–	300	20.1kg
	500 x 250	–	–	90	110	–	250	20.8kg

Notes 1. Slate/tile fixing method - as manufacturers recommendations. 2. Any slates or tiles can be incorporated with KS1000 TS. For products not indicated please contact Kingspan Technical Services Department for project specific details.

“Kingspan KS1000 TS is suitable for use with any traditional slate or tile roof”



Slate & Tile Range

Slates & Tiles suitable for application with KS1000 TS Slate & Tile Support System

Manufacturer & Product	Dimensions (mm)	Min Slope (degrees)	Max Slope (degrees)	Min HeadLap (mm)	Max HeadLap (mm)	Max Gauge (mm)	Cover Width (mm)	Weight of Tiling (kg/m ²)
SANDTOFT ROOF TILES								
Pennine Slate	450 x 420 (st)	22.5	-	90	90	195	420	90mm Headlap 79kg
	480 x 280 (sml)	22.5	-	75	75	202	280	75mm Headlap 74kg
Britslate	610 x 305	20	-	65	130	272	305	25kg
	510 x 255	22.5	-	65	115	222	255	25kg
Britlock	360 x 300	17.5	-	75	120	-	300	18kg
Greenwood	342 x 253	30	-	75	-	267	220	50kg
Provincial	342 x 276	30	-	75	-	267	220	52kg
20/20 Interlocking	370 x 223	22.5	-	96	108	267	187	42.6kg
Goxhill Plain	265 x 165	40	-	65	-	100	165	68kg
County Pantile	384 x 267	22.5	-	58	70	320	210	42kg
Europa Tile	381 x 267	22.5	-	56	68	320	195	49kg
Old English Pantile	342 x 252	30	-	72	-	270	210	41kg
Gaelic	342x 255	30	-	75	-	267	220	43kg
Humber Plain	265 x 165	35	-	65	-	100	-	63kg
Double Pantile	420 x 334	22.5 (smooth faced without nail hole)	-	75	-	345	300	46kg
		25 (smooth faced with nail hole)	-	75	-	345	300	46kg
		30 (sand faced with nail hole)	-	75	-	345	300	46kg
Bold Roll	420 x 334	25 (smooth faced)	-	75	-	345	300	49kg
Double Roman	420 x 334	25 (smooth faced)	-	75	-	345	300	43kg
		30 (sand faced)	-	75	-	345	300	43kg
Calderdale Slate	420 x 334	22.5 (without nail hole)	-	75	-	345	300	50kg
		25 (with nail hole)	-	75	-	345	300	50kg
Lindum	420 x 334	25 (smooth faced)	-	75	-	345	300	45kg
		30 (sand faced)	-	75	-	345	300	45kg
Standard Pattern	380 x 230	25 (smooth faced)	-	75	-	305	200	46kg
		30 (sand faced)	-	75	-	305	200	46kg
Shire Pantile	380 x 230	25 (smooth faced)	-	75	-	305	200	47kg
		30 (sand faced)	-	75	-	305	200	47kg
Plain Tile	265 x 165	35	-	65	-	100	165	72kg
RUSSELL ROOF TILES								
Argyll	418 x 330	Smooth 15	90	75	-	343	298	52kg
Cheviot	418 x 330	Granular 30	90	75	-	343	298	49kg
		Smooth 25	90	75	-	343	298	49kg
		Smooth 22.5	90	100	-	318	298	53kg
Derwent	418 x 330	Granular 30	90	75	-	343	298	51kg
		Smooth 17.5	90	75	-	343	298	51kg
Double Roman	418 x 330	Granular 30	90	75	-	343	298	45kg
		Smooth 22.5	90	75	-	343	298	45kg
Grampian	418 x 330	Granular 30	90	75	-	343	298	53kg
		Smooth 22.5	90	75	-	343	298	53kg
		Smooth 17.5	90	100	-	318	298	58kg
Highland	418 x 330	Smooth 22.5	90	75	-	343	298	53kg
		Smooth 17.5	90	100	-	318	298	58kg
Lothian	419 x 330	Smooth 22.5	90	100	-	319	300	48kg
Galloway	419 x 330	Smooth 22.5	90	100	-	319	300	48kg
Pennine	418 x 330	Granular 30	90	75	-	343	298	47kg
		Smooth 22.5	90	75	-	343	298	47kg
Plain	267 x 165	Smooth 35	90	65	-	101	165	78kg

Notes 1. Slate/tile fixing method - as manufacturers recommendations. 2. Any slates or tiles can be incorporated with KS1000 TS. For products not indicated please contact Kingspan Technical Services Department for project specific details.

“ The KS1000 TS system guarantees that construction quality matches the designers specification over the lifetime of the building ”



Slate & Tile Range

Slates & Tiles suitable for application with KS1000 TS Slate & Tile Support System

Manufacturer & Product	Dimensions (mm)	Min Slope (degrees)	Max Slope (degrees)	Min HeadLap (mm)	Max HeadLap (mm)	Max Gauge (mm)	Cover Width (mm)	Weight of Tiling (kg/m ²)
REDLAND ROOFING SYSTEMS								
Landmark Double Pantile	418 x 332	15	90	75	125	343	300	47kg
Landmark Slate	412 x 332	22.5	90	112	159	300	300	50kg
Redland Cambrian	300 x 336	15	90	50	90	250	300	17kg
Redland Saxon	412 x 332	25	90	112	159	300	300	50kg
Redland Richmond	412 x 332	22.5	90	112	159	300	300	50kg
Rosemary Clay	265 x 165	35	90	35	88	115	165	78kg
Redland Heathland	268 x 165	35	90	35	88	115	165	84kg
Redland Downland	268 x 165	35	90	35	88	115	165	78kg
Redland Plain Tile	268 x 165	35	90	35	88	115	165	78kg
Redland Grovebury	418 x 332	15	90	75	125	343	300	47kg
Redland 50 Double Roman	418 x 330	17.5	90	75	125	343	300	45kg
Redland Regent*	418 x 332	12.5	90	75	125	343	300	46kg
Redland Renown	418 x 330	17.5	90	75	125	343	300	44kg
Redland Norfolk Pantile	381 x 227	17.5	90	75	125	306	200	44kg
Redland 49	382 x 226	17.5	90	75	125	306	200	47kg

* Providing there is no sloping valley in the roof. If there is a valley, the minimum pitch is 15 degrees.

LAGAN TILE								
Plain Tile	265 x 165	35	-	65	-	100	165	72kg/m ²
Flat Tile	420 x 330	17.5	54	75	-	345	295	53kg/m ²
*					100	320	295	57kg/m ²
Double Roll Tile	420 x 334	22.5	54	75	-	345	300	49kg/m ²
*					100	320	300	52kg/m ²

*Without special fixings.

DAN MORRISSEY (IRL) LTD								
Rockford 'Double Pantile' Rooftile	420 x 334	17.5	-	75	-	345	300	43.52kg/m ²
Milford Slate Rooftile	420 x 334	22.5	-	75	-	345	300	48.35kg/m ²

Minimum headlap allowed will vary depending on pitch of roof.

ROADSTONE ROOFING								
Plain Tile	265 x 165	35	-	65	-	100	165	76kg
Vertical Cladding Tile	265 x 165	-	-	35	-	115	165	66kg
Stonewold Slates	420 x 332	17.5	-	100	-	320	300	57kg
Mini Slate	270 x 330	25	-	80	95	190	300	42kg @ 190mm Gauge 46kg @ 175mm Gauge
Spanish Roll Tile	420 x 332	17.5	-	75	-	345	300	44.1kg @ 345mm Gauge 47.3kg @ 320mm Gauge
Double Roman Tile	420 x 330	17.5	-	75	-	345	300	43kg @ 345mm Gauge 46kg @ 320mm Gauge
Gemini	270 x 330	25	-	80	95	190	165	42kg @ 190mm Gauge 46kg @ 175mm Gauge

NATURAL SLATES								
	600 x 300	22.5	-	65 variable	-	-	300	35kg Approx
	500 x 250	22.5	-	65 variable	-	-	250	37kg Approx
	400 x 200	22.5	-	65 variable	-	-	200	38kg Approx
	300 x 200	22.5	-	65 variable	-	-	250	40kg Approx

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Slate & Tile Range

Slates & Tiles suitable for application with KS1000 TS Slate & Tile Support System

Manufacturer & Product	Dimensions (mm)	Min Slope (degrees)	Max Slope (degrees)	Min HeadLap (mm)	Max HeadLap (mm)	Max Gauge (mm)	Cover Width (mm)	Weight of Tiling (kg/m ²)
TEGRAL BUILDING PRODUCTS LTD								
<i>FIBRE CEMENT SLATE</i>								
Tegral Thrutone Smooth/relief	600 x 300	25	90	90	110	255-90mm Headlap 245-110mm Headlap	300	19.6kg @ 90mm Headlap 20.4kg @ 110mm Headlap
	500 x 250	30	90	90	100	205-90mm Headlap 200-100mm Headlap	250	20.7kg @ 90mm Headlap 21.3kg @ 100mm Headlap
Tegral Rivendale	600 x 300	25	90	90	110	255-90mm Headlap 245-110mm Headlap	300	19.6kg @ 90mm Headlap 20.4kg @ 110mm Headlap
Tegral Supercem	600 x 300	25	90	90	110	255-90mm Headlap 245-110mm Headlap	300	19.6kg @ 90mm Headlap 20.4kg @ 110mm Headlap
Tegral Graphite Blue	600 x 300	25	90	90	110	255-90mm Headlap 245-110mm Headlap	300	19.6kg @ 90mm Headlap 20.4kg @ 110mm Headlap
<i>CLASSIC NATURAL SLATE</i>								
Tegral Nominal 7mm Slates	600 x 300	22.5	90	70	150	265-70mm Headlap 225-150mm Headlap	300	37kg @ 70mm Headlap 43.8kg @ 150mm Headlap
	500 x 300	22.5	90	70	150	215-70mm Headlap 175-150mm Headlap	300	38.1kg @ 70mm Headlap 46.8kg @ 150mm Headlap
	500 x 250	22.5	90	70	125	215-70mm Headlap 187-125mm Headlap	250	41.9kg @ 70mm Headlap 47.0kg @ 125mm Headlap
	400 x 250	30	90	70	125	165-70mm Headlap 137-125mm Headlap	250	42.8kg @ 70mm Headlap 51.3kg @ 125mm Headlap
	400 x 200	30	90	70	100	165-70mm Headlap 150-100mm Headlap	200	41.4kg @ 70mm Headlap 45.5kg @ 100mm Headlap
<i>RECONSTITUTED SLATE TILES</i>								
Tegral Melbourn	327 x 300	15	90	50	65	250-50mm Headlap 235-65mm Headlap	300	15.3kg @ 250mm Gauge 16.4kg @ 235mm Gauge
<i>CLAY TILES</i>								
Tegral Acme	265 x 165	35	90	65	88	100-65mm Headlap	165	64kg @ 100m Gauge
						88-88mm Headlap		72kg @ 88mm Gauge
Tegral Hawkins	265 x 165	35	90	65	88	100-65mm Headlap	165	66kg @ 100m Gauge
						88-88mm Headlap		75kg @ 88mm Gauge
Tegral Ashdown	265 x 165	35	90	65	88	100-65mm Headlap	165	75kg @ 100m Gauge
						88-88mm Headlap		86kg @ 88mm Gauge
Tegral Trost	395 x 325	22	90	-	-	344	282	40kg
KEYMER HAND MADE CLAY TILES								
Traditional Plain	265 x 165	40	90	65		100	265	100mm Gauge 76kg
Shire Plain	265 x 165	40	90	65		100	265	100mm Gauge 76kg
Kent Peg	250 x 150	40	90	60		95	250	95mm Gauge 79kg
County Peg	250 x 150	40	90	60		95	250	95mm Gauge 79kg

Notes: 1. Slate/tile fixing method - as manufacturers recommendations. 2. Any slates or tiles can be incorporated with KS1000 TS. For products not indicated please contact Kingspan Technical Design Bureau for project specific details. The information given above is for guidance only and the individual manufacturer should be consulted for project specific information.

Slate & Tile Range

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Manufacturer & Product	Dimensions (mm)	Min Slope (degrees)	Max Slope (degrees)	Min HeadLap (mm)	Max HeadLap (mm)	Max Gauge (mm)	Cover Width (mm)	Weight of Tiling (kg/m ²)
SEAN QUINN								
Loch Erne (Double Par)	420 x 334	17.5	44	75	100	345	300-302	43.52kg
Western Slate MK2 (Flat)	420 x 334	17.5	44	75	100	345	300-302	48.50kg
SCOTT ROOF TILES								
Galloway	420 x 330	22.5	90	100	100	319	300	48kg @ 100mm Headlap
Seville	419 x 334	17.5	90	75	100	319	300	52kg @ 75mm Headlap 56kg @ 100mm Headlap
Slemish MK II	419 x 334	17.5	90	75	100	319	300	52kg @ 75mm Headlap 56kg @ 100mm Headlap
Derrie MK II	419 x 334	17.5	90	75	100	319	300	50kg @ 75mm Headlap 54kg @ 100mm Headlap
Villa MK II	419 x 334	17.5	90	75	100	319	300	50kg @ 75mm Headlap 54kg @ 100mm Headlap

Weight is average weight. It increases on lower pitches because of extra coverage per m²

CONDRON CONCRETE WORKS								
Pantile	420 x 330	22.5	-	*75	-	345	9.75 tiles per m ² 345mm Gauge	4.5 tonnes/ 1000 tiles approx
Slate Tile	420 x 330	22.5	-	100	-	320	10.5 tiles per m ² 320mm Gauge	5 tonnes/ 1000 tiles approx
Bullnose Slate Tile	420 x 330	22.5	-	100	-	320	10.5 tiles per m ² 320mm Gauge	5 tonnes/ 1000 tiles approx
3 in 1/Cladding Tile	265 x 500	30	-	-	-	100	20 tiles per m ² 100mm Gauge	3.75 tonnes/ 1000 tiles approx
Plain/Cladding Tile	265 x 165	35	-	-	-	100	60 tiles per m ² 100mm Gauge	1.25 tonnes/ 1000 tiles approx

*Headlap 30° and above = 75mm, below 30° = 100mm

READYMIX								
Concrete Double Roman Tile	420 x 330	22.5	-	75	100	345	9.75 tiles per m ² 345mm Gauge	4.5 tonnes/1000 tiles
Concrete Flat Tile	420 x 330	22.5	-	-	100	320	10.5 tiles per m ² 320mm Gauge	5.2 tonnes/1000 tiles

Full range of product accessories available.

FORTICRETE								
Gemini	270 x 330	22.5	90	80	95	190	300	44kg - 80mm Headlap 48kg - 95mm Headlap
MiniSlate	270 x 330	22.5	90	80	95	190	300	44kg - 80mm Headlap 48kg - 95mm Headlap
Hardrow	381 x 229	30	90	75	-	150	232	87
	457 x 305	25	90	75	-	191	311	83
	457 x 457	20	70	100	-	178	464	88
	610 x 457	17.5	70	127	-	241	468	96
Centurion	385 x 230	12.5	44.5	100	-	285	200	47
V2	385 x 230	17.5	90	75	-	310	203	46

Notes: 1. Slate/tile fixing method - as manufacturers recommendations. 2. Any slates or tiles can be incorporated with KS1000 TS. For products not indicated please contact Kingspan Technical Design Bureau for project specific details. The information given above is for guidance only and the individual manufacturer should be consulted for project specific information.



“ The KS1000 TS System provides warm roof construction and increases usable space ”

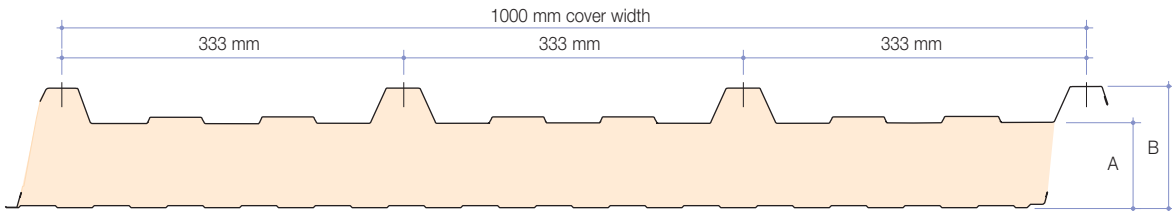
Product Data

Application

The KS1000 TS Slate and Tile Support Roof Panel is a through fixed roof panel, which can be used for all building applications. For minimum roof pitch consult Slate/Tile manufacturer.

Product Reference	Application Description
KS1000 TS	Standard roof panel for use in normal applications.

Dimensions & Weight



A - Core Thickness (mm)	40	50	60	80*	100*
B - Overall Dimension (mm)	75	85	95	115	135
Weight kg/m ² 0.5/0.4 steel	9.9	10.3	10.7	11.5	12.3

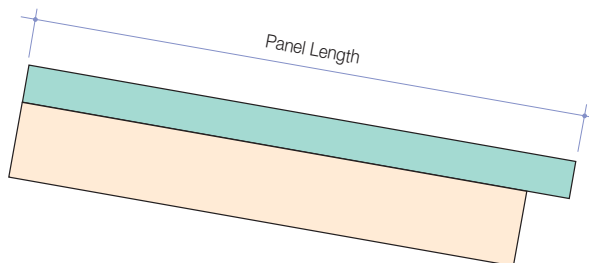
*These panel thicknesses comply with Part L2 (England & Wales) and Part J (Scotland)

Product Tolerance

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

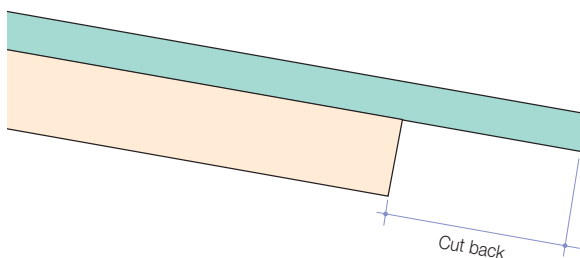
Available Lengths

Standard lengths 1.8 to 12 metres. 12 to 22 metres can be supplied but may be subject to a transport surcharge. Panels less than 1.8m long which require a cut back can be provided, but will be charged at full 1.8m price, plus cutting cost.



Panel End Cut Back

All panels are normally produced with a minimum cut back of 10mm. Cut backs up to 175mm can also be manufactured. If flush ended panels (no cut back) are required they can be manufactured with one end flush and a 10mm cut back on the opposite end, based on panels exceeding 1.8m in length. The recommended cut back for panel end lapping is 150mm. Panels less than 1.8m long which require a cut back can be provided, but will be charged at full 1.8m price, plus cutting cost.



Product Data

Health & Safety

The KS1000 TS system fully complies with The Health & Safety Executive (HSE) regulatory and legal requirements and The Construction (Design & Management) Regulations 1994 (CDM).

Project Safety Management

A Project Safety Planning Supervisor should be appointed to oversee all safety issues during design and construction



Materials - Steel

Substrate

- Plastisol: ZA255 Galvalloy hot-dip alloy coated steel (= 95% Zn/5% Al) to BS EN 10214 : 1995.
- Standard external sheet thickness 0.5mm, standard internal sheet thickness 0.4mm. Other thicknesses can be supplied to special order.

Coatings - External Weather Sheet

- Plastisol: 200 micron thick high performance coating applied to the weatherside of the panel. Designed to achieve high levels of durability and colour stability, is highly resistant to damage in transit and on-site.
- Reverse side of sheet coated with a light grey polyester coating.

Coatings - Internal Liner Sheet

- Lining Enamel: 15 micron thick coating developed for use for the internal lining of insulated panels. Standard colour is "bright white" with an easily cleaned surface.
- Plastisol: 200 micron thick coating used in areas where there is high internal humidity, or a corrosive environment.
- Stelvetite Food & Hygiene Safe: This is a 120 micron thick chemically inert polymer film bonded to steel suitable for cladding the interior of cold stores, food processing buildings and other hygiene applications.

Insulation Core

- High performance fire rated PIR with Zero Ozone Depletion Potential (ZeroODP)

Seals

Factory Applied Side & End Lap Protection

If specifiers require additional under lap corrosion protection, this can be factory applied at extra cost.

Performance

Thermal Insulation

Panel Thickness (mm)	U value W/m ² k
40	0.43
50	0.35
60	0.30
80	0.25*
100	0.21*

U - Thermal transmittance W/m²K

* U-Value calculated in accordance with the method required by the Building Regulations Part L2 (England & Wales) and Building Standards Part J (Scotland)

Airtightness

The KS1000 TS system has an airtightness rating of 5m³/hr/m² when installed to Kingspan's specification and construction details.

Environmental Sustainability

The KS1000 TS system provides a sustainable solution to reduce Global Warming and Climate Change through its high thermal and low air leakage performance over the building's whole lifecycle. This high level of performance enables downsizing of M&E services thereby reducing energy consumption and Carbon emissions (CO₂) by up to 40%.

Biological

The KS1000 TS system is fibre-free and immune to attack from mould, fungi, mildew and vermin and therefore forms no health and safety risk to building occupants. No urea formaldehyde is used in the construction, and the panels are not considered deleterious.

Fire

Regulatory: Steel and aluminium outer and inner facings have Class 1 surface spread of flame to BS476 : Part 7: 1987, and are Class 0, as defined by Building Regulations. The panel surfaces are rated FAA/SAA to BS476: Part 3: 1975.

Acoustics

KS1000 TS panels have a single figure weighted sound reduction $R_w = 25$ dB. Enhanced acoustic solutions are available to comply with Building Regulations 2000 Part E (as amended) 'Resistance to the Passage of Sound' and Building Bulletin 93 'Specification of Acoustic Performance for the Design of School Buildings' on a project specific basis.

Sound Reduction Index (SRI) Tested						
Frequency Hz	125	250	500	1k	2k	4k
SRI dB	17.2	20.0	23.2	23.4	23.2	40.5

Building Regulations

Kingspan Insulated roof and wall systems conform to the following Building Regulations and Standards:

- Approved Documents A, B, E & F
- Part L2 : Conservation of Fuel & Power (England & Wales)
- Part J : Conservation of Fuel & Power (Scotland)
- Part L : Conservation of Fuel & Energy (Ireland)

Product Data

Quality & Durability

Kingspan Insulated Panels are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards, complying with BS5750 : Part 2 and ISO 9001: 2000 standards, ensuring long term reliability and service life.

Guarantees & Warranties

Kingspan will provide product warranties and guarantees on an individual project basis.



Packing

Standard Packing

KS1000 TS panels are stacked external sheet to external 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.

Structural

Unfactored Load/Span Table (use calculated design windload values unfactored)

SPAN CONDITION	Core Thickness (mm)	Load Type	Uniformly Distributed Loads (kN/m ²)								
			Span L in Metres								
			1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	
SINGLE SPAN 	40	Downwards	3.55	3.01	2.58	2.23	1.89	1.50	1.19	0.94	
		Suction	4.21	3.63	3.16	2.78	2.42	2.04	1.75	1.52	
	Outer Sheet 0.5mm steel	50	Downwards	4.04	3.47	3.01	2.63	2.31	1.95	1.58	1.28
			Suction	5.01	4.37	3.84	3.22	2.67	2.26	1.93	1.68
	Inner Sheet 0.4mm steel	60	Downwards	4.49	3.90	3.42	3.01	2.66	2.37	2.00	1.64
			Suction	5.82	5.13	4.29	3.49	2.90	2.45	2.10	1.83
		80	Downwards	5.34	4.72	4.19	3.73	3.34	2.99	2.69	2.43
			Suction	7.48	6.08	4.83	3.94	3.28	2.78	2.39	2.08
		100	Downwards	6.02	5.37	4.81	4.32	3.89	3.51	3.17	2.88
			Suction	8.44	6.52	5.20	4.25	3.55	3.01	2.59	2.26
DOUBLE SPAN 	40	Downwards	3.55	3.01	2.58	2.23	1.94	1.70	1.50	1.33	
		Suction	3.13	2.63	2.26	1.97	1.75	1.56	1.41	1.28	
	Outer Sheet 0.5mm steel	50	Downwards	4.04	3.47	3.01	2.63	2.31	2.04	1.81	1.62
			Suction	3.23	2.73	2.36	2.07	1.84	1.65	1.50	1.37
	Inner Sheet 0.4mm steel	60	Downwards	4.49	3.90	3.42	3.01	2.66	2.37	2.11	1.89
			Suction	3.30	2.81	2.44	2.15	1.92	1.73	1.57	1.44
		80	Downwards	5.34	4.72	4.19	3.73	3.33	2.94	2.62	2.34
			Suction	3.44	2.96	2.58	2.29	2.05	1.86	1.70	1.56
		100	Downwards	6.02	5.37	4.81	4.22	3.70	3.28	2.92	2.63
			Suction	3.52	3.04	2.67	2.38	2.14	1.95	1.78	1.65

Notes:

- Values have been calculated using the limit state method described in the "European Recommendations for the Design of Sandwich Panels" (ECCS document No.66 1991), taking imposed loads, temperature and creep into account.
- For each value individual and combined load cases with appropriate load factors and temperatures have been considered. These are detailed under "Structural Performance" in the Building Design Section of the Kingspan Design & Construction Guide.
- The Table is for medium and light coloured panels.
- The following deflection limits have been used:
Downward loading $\frac{L}{200}$
Suction loading $\frac{L}{150}$
- For intermediate values linear interpolation may be used.
- The standard fastener pattern is shown in KS1000 TS Roof System Section. When the panels are valley fixed to 1.6mm thick cold rolled steel purlins at 2m centres the allowable suction load is 1.8kN/m². For other fastener and purlin arrangements the allowable suction load can be calculated using the procedure shown in the design example under "Structural Performance" in the Building Design Section of the Kingspan Design & Construction Guide.
- The allowable steelwork tolerance between bearing planes of adjacent purlins is $\frac{L}{600}$, where L is the purlin spacing.
- Load span tables for panel specifications not shown are available from:- the Kingspan Technical Design Bureau.

The number of panels in each pack depends on panel thickness and length. The table below is shown as a guide. Quantities are reduced for exceptionally long panels. Typical pack height is 1100mm. Maximum pack weight is 1500kg.

Panel Core Thickness	40	50	60	80	100
No. Panel/Pack (max.)	18	16	14	12	8

Sea Freight

Fully timber crated packs are available on projects requiring delivery by sea freight shipping, at additional cost.

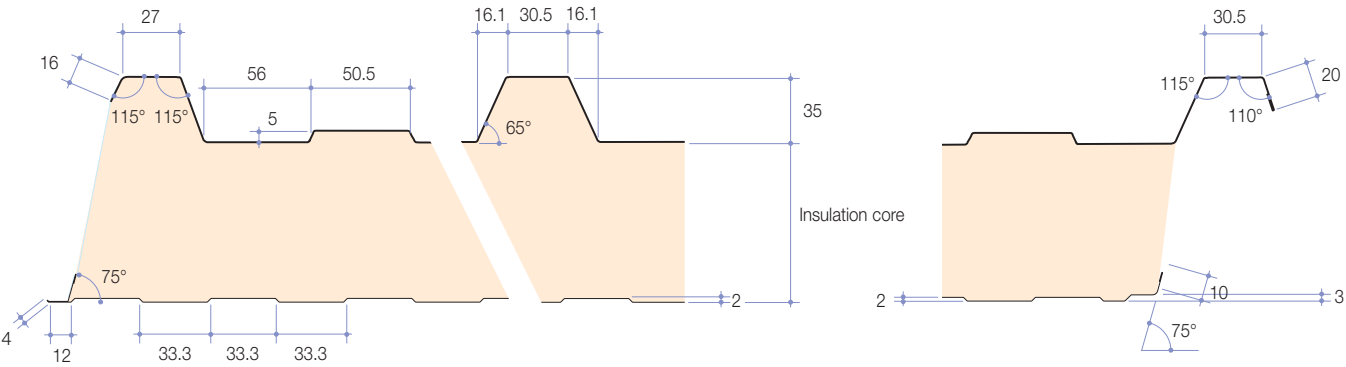
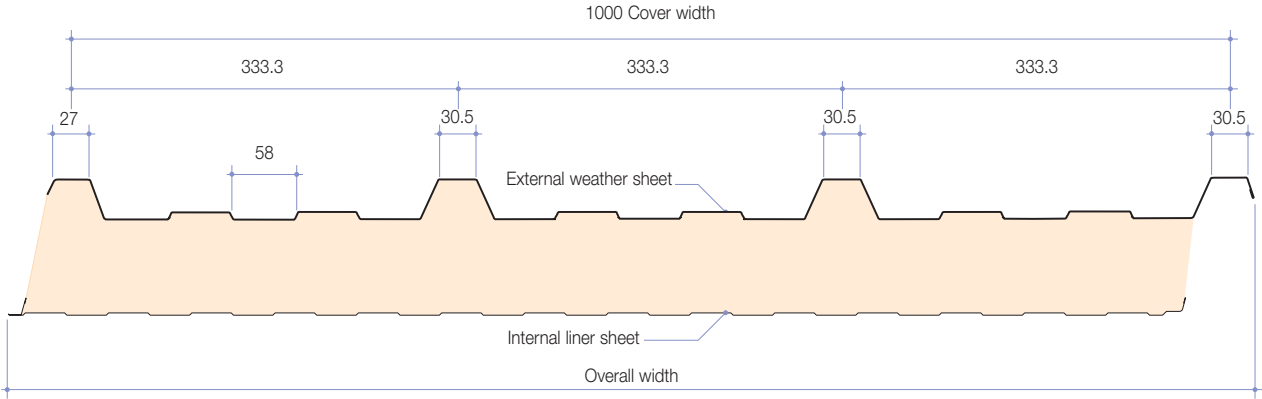
Delivery

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 the Kingspan Technical Design Bureau.

KS1000 TS Dimensions



Available Panel Thicknesses

Insulation Core	Overall Panel Thickness
40	75
50	85
60	95
80	115
100	135

Note: Above dimensions are nominal, actual dimensions will vary due to manufacturing tolerances. Exactly precise dimensions must always be measured from actual samples. All dimensions in millimetres.

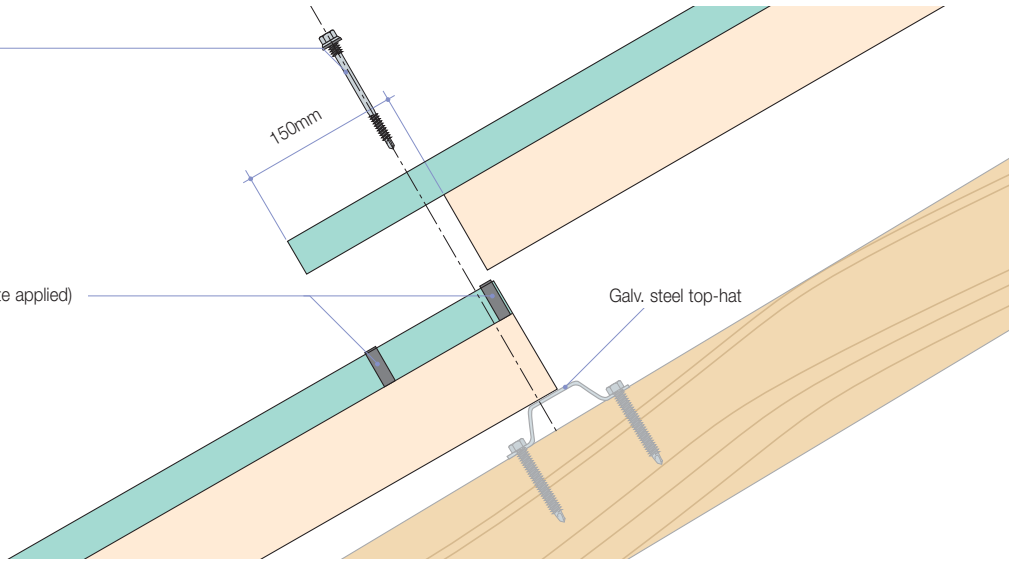
End Lap Details

Timber Trusses

Fixing screw

4mm Ø butyl rubber sealant (Site applied)

Galv. steel top-hat

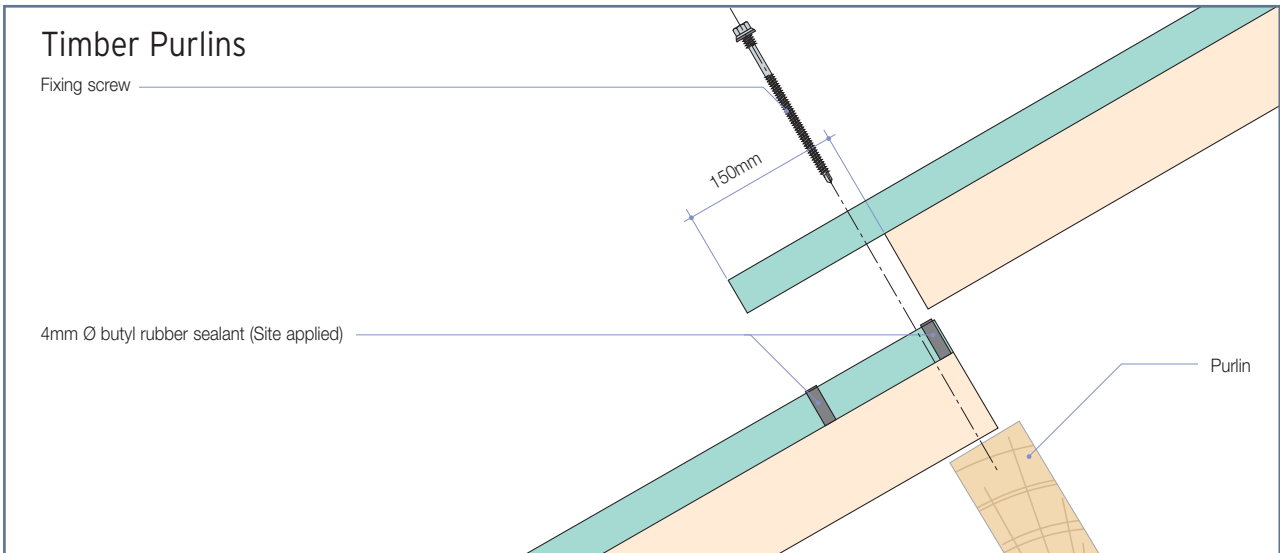


Timber Purlins

Fixing screw

4mm Ø butyl rubber sealant (Site applied)

Purlin

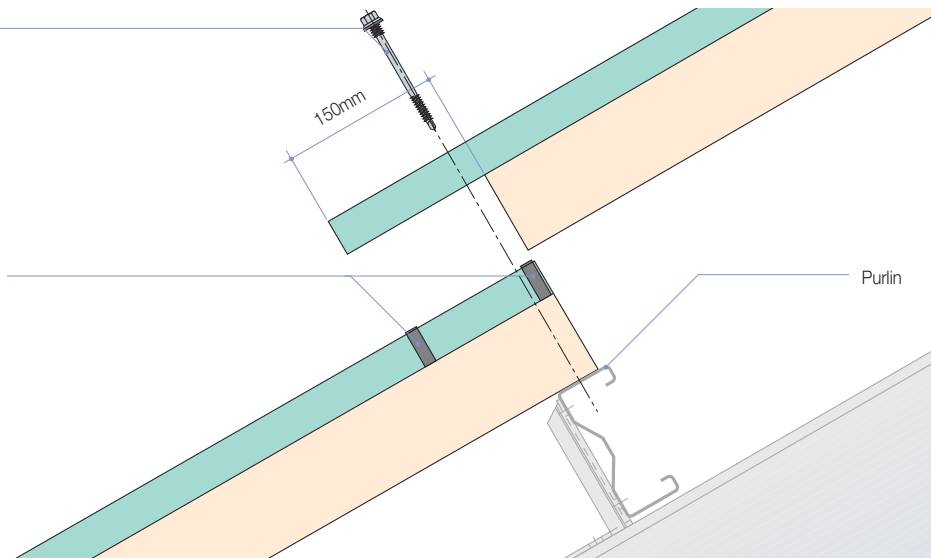


Steel Structure

Fixing screw

4mm Ø butyl rubber sealant (Site applied)

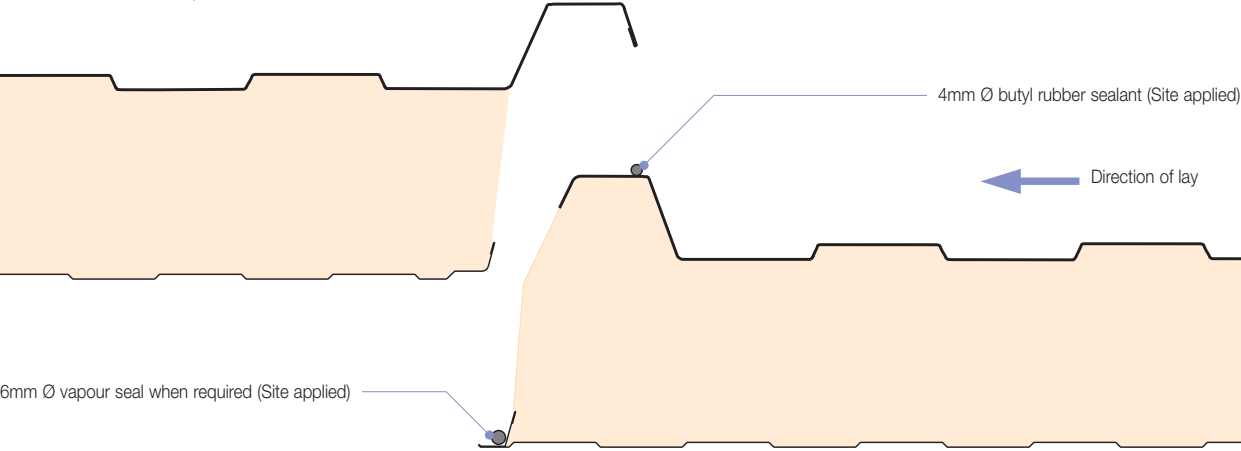
Purlin



Product Data & Construction Details

Side Lap Detail

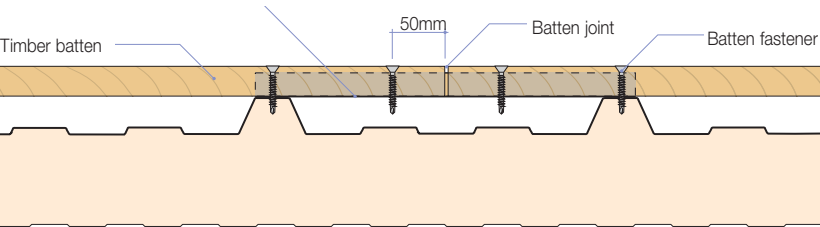
Panel Side Lap



Notes: To ensure correct panel installation roof purlins must be correctly aligned prior to insertion of fixings.
No side lap stitching is required at this stage. This operation is carried out when the timber battens are attached to the crowns.

Batten Jointing - Option 1

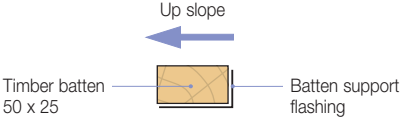
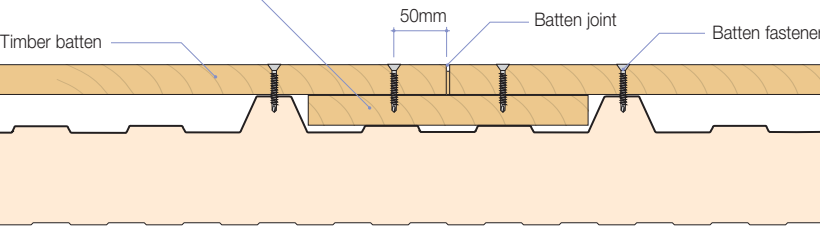
0.7mm thick Plastisol coated steel batten support flashing 20mm x 50mm x 360mm long positioned under batten joint



Important Note:
Battens can only be jointed using Option 1 or Option 2

Batten Jointing - Option 2

Short length of timber batten to lap under joint



Eaves Details

Timber Trusses

Air seal - 8mm Ø butyl rubber sealant if air seal not provided at ceiling level

Internal closure flashing with Air seal - gun-grade sealant to trusses, if air seal not provided at ceiling level

Air seal - continuous bead of gun-grade sealant if air seal not provided at ceiling level

Slate/tile battens by others

Insect mesh fixed to batten and turned under flashing

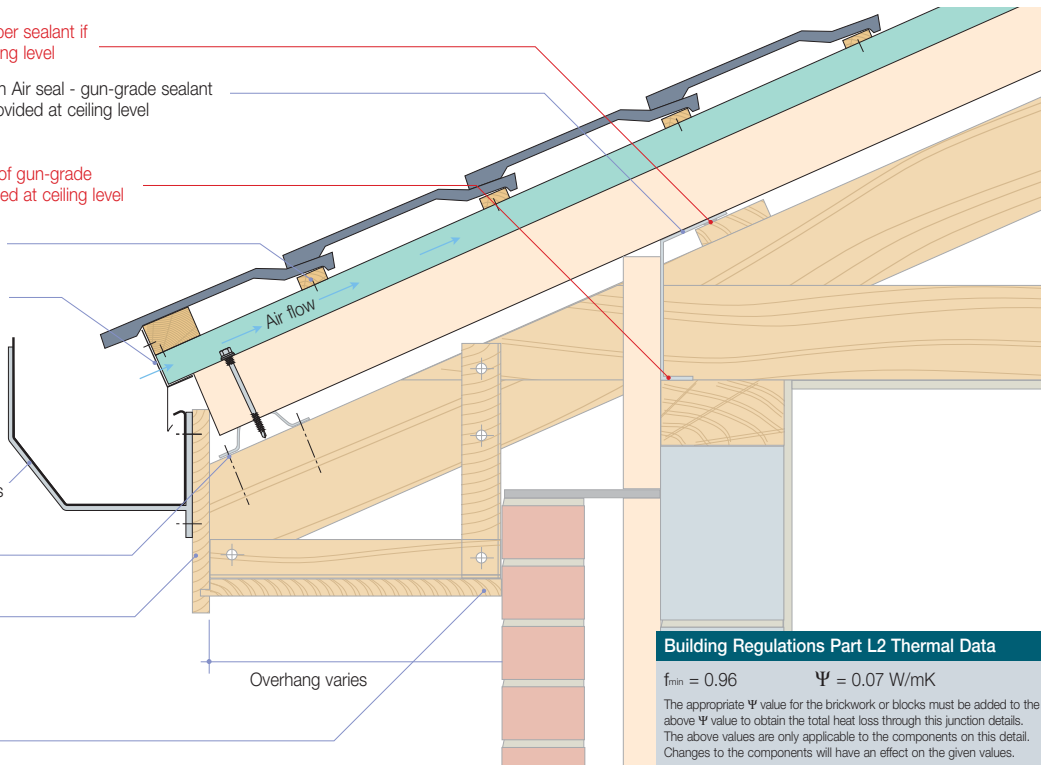
Gutter & brackets by others

Galv. steel top-hat

Timber fascia by others

Timber soffit by others

Overhang varies



Building Regulations Part L2 Thermal Data

$f_{min} = 0.96$ $\Psi = 0.07 \text{ W/mK}$

The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

Timber Purlins

Roof tiles laid to manufacturers recommendations

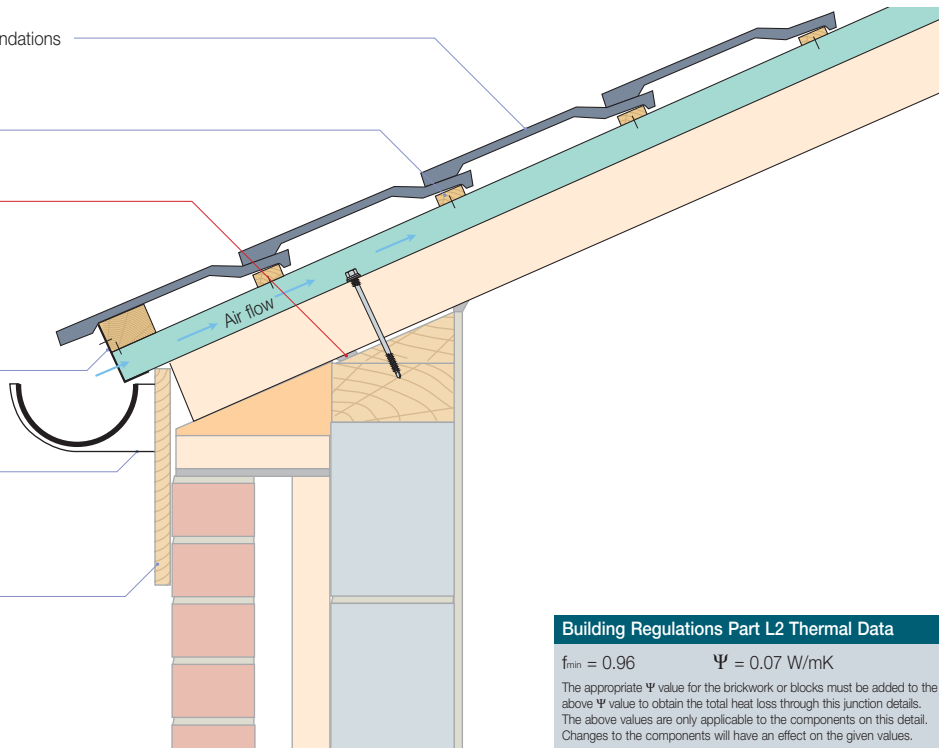
Slate/tile battens by others

Air seal - 8mm Ø butyl rubber sealant

Insect mesh fixed to batten

Gutter & brackets by others

Timber fascia by others



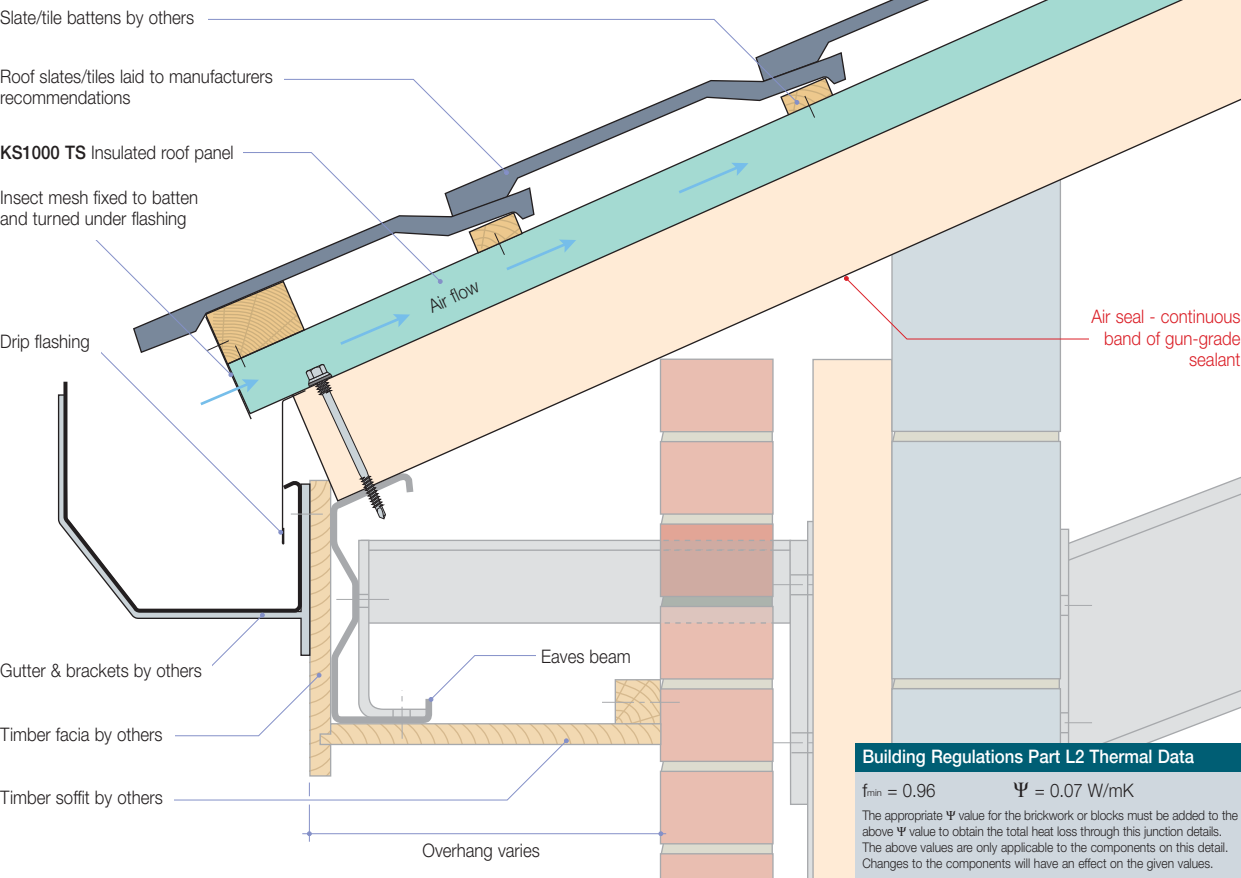
Building Regulations Part L2 Thermal Data

$f_{min} = 0.96$ $\Psi = 0.07 \text{ W/mK}$

The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

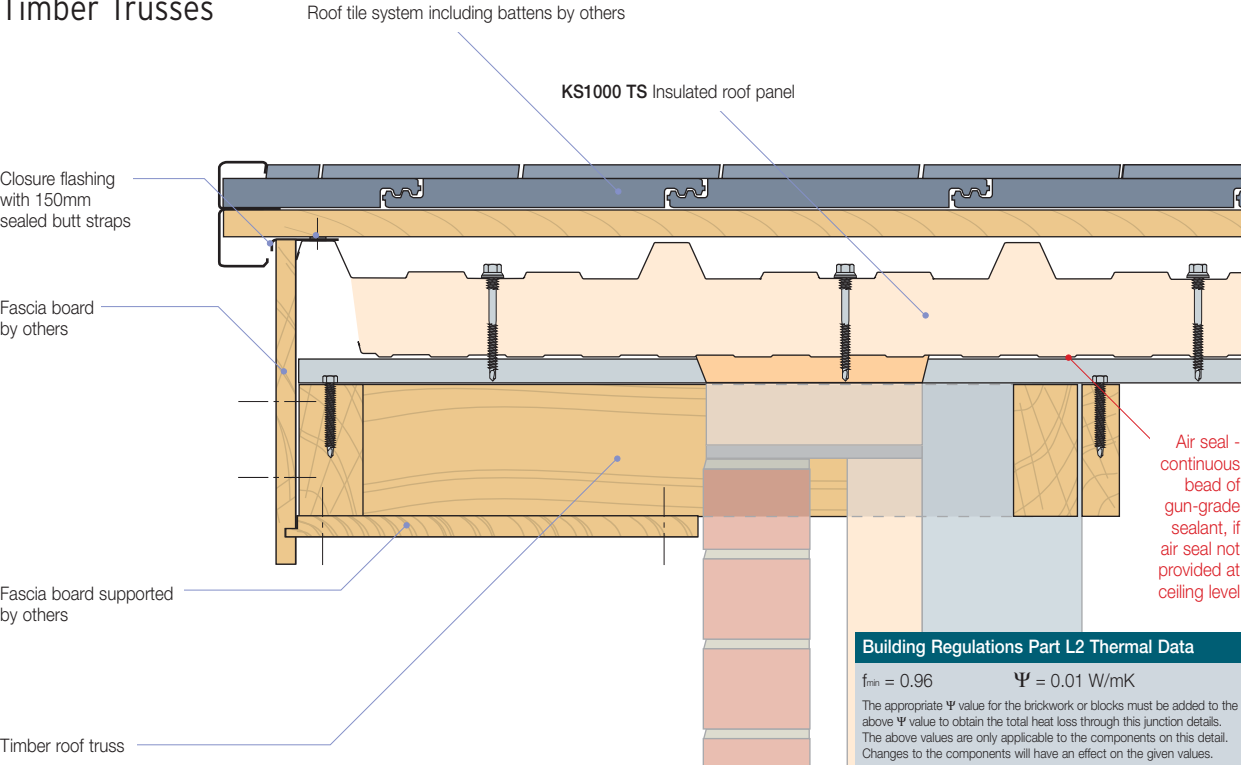
Eaves Details

Steel Structure



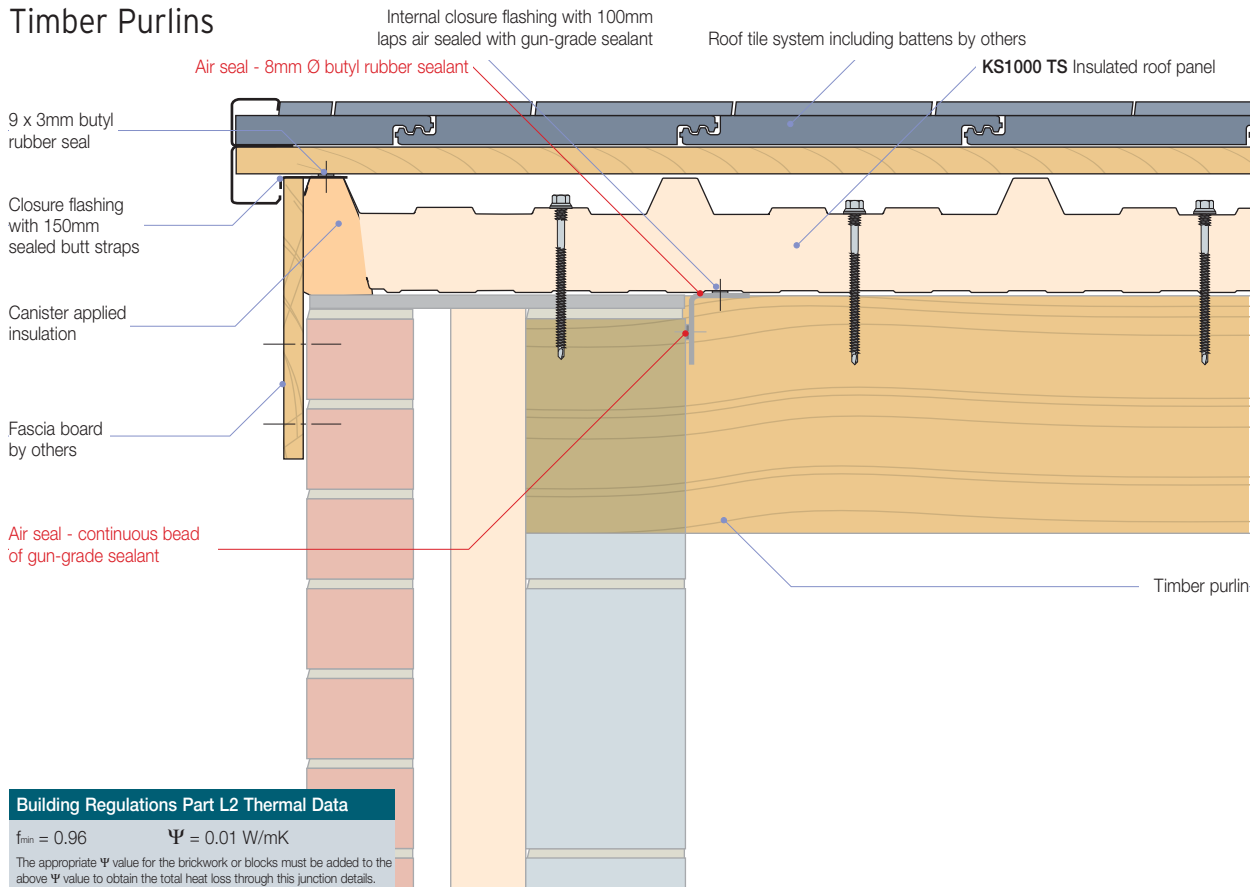
Verge Details

Timber Trusses



Verge Details

Timber Purlins

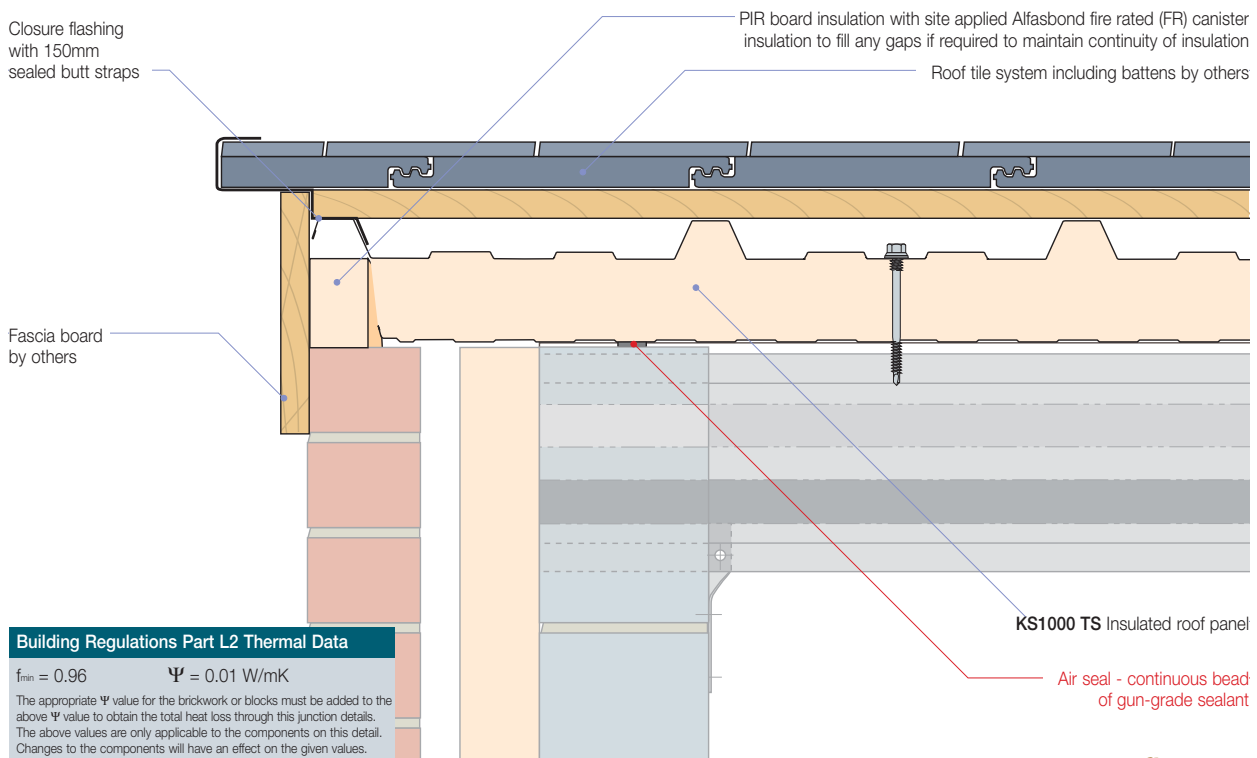


Building Regulations Part L2 Thermal Data

$f_{min} = 0.96$ $\Psi = 0.01 \text{ W/mK}$

The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

Steel Structure



Building Regulations Part L2 Thermal Data

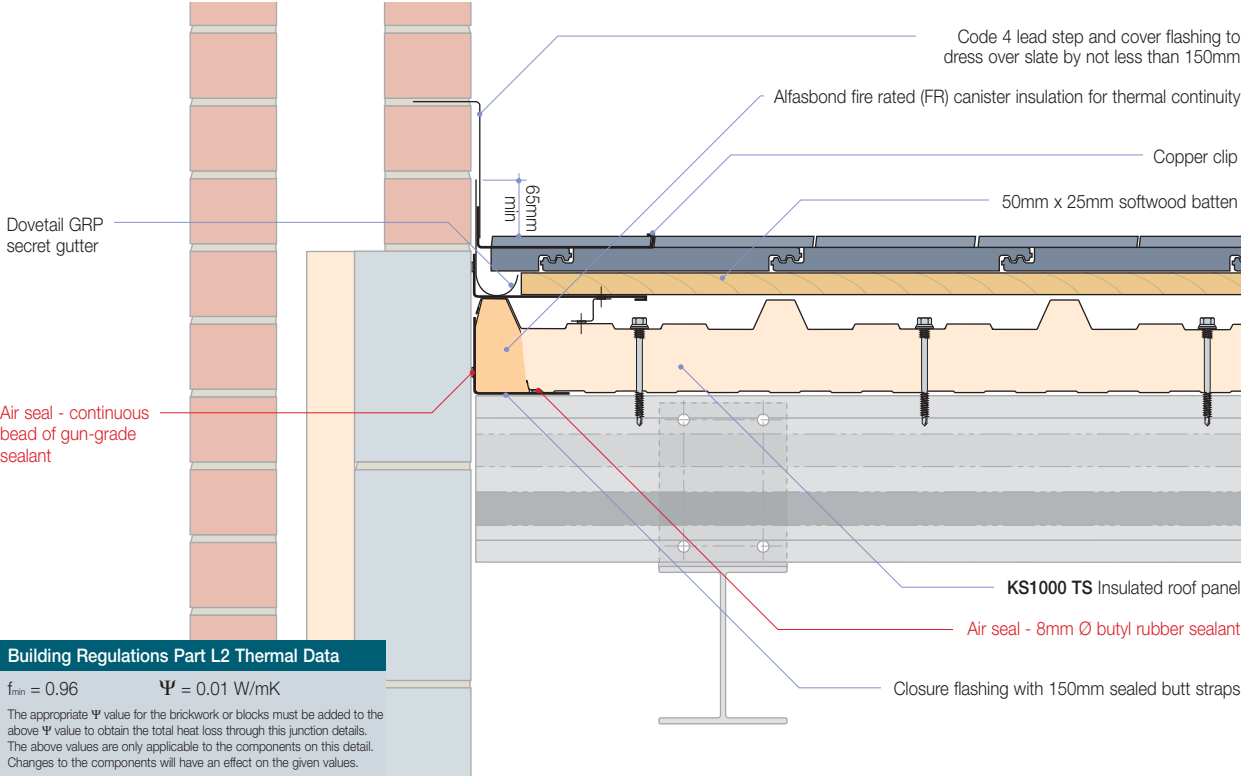
$f_{min} = 0.96$ $\Psi = 0.01 \text{ W/mK}$

The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

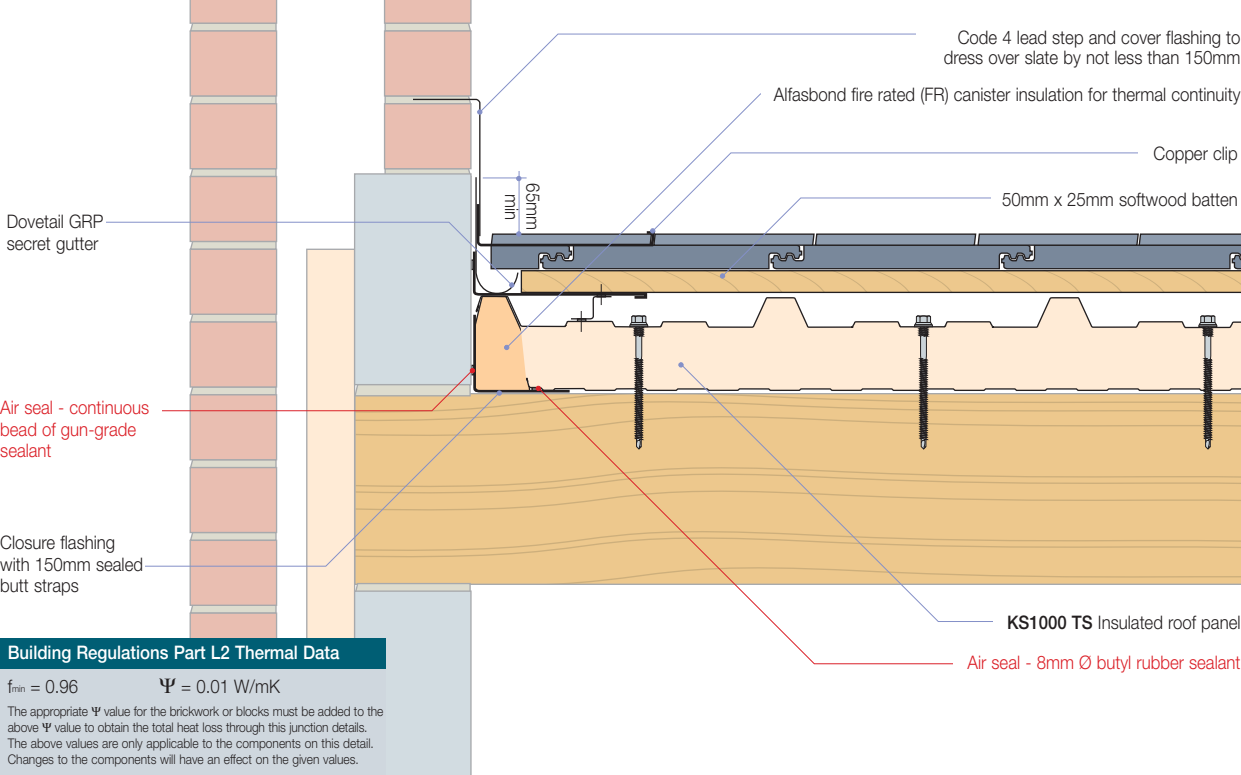
Product Data & Construction Details

Verge Details

Brick Parapet with Steel Structure

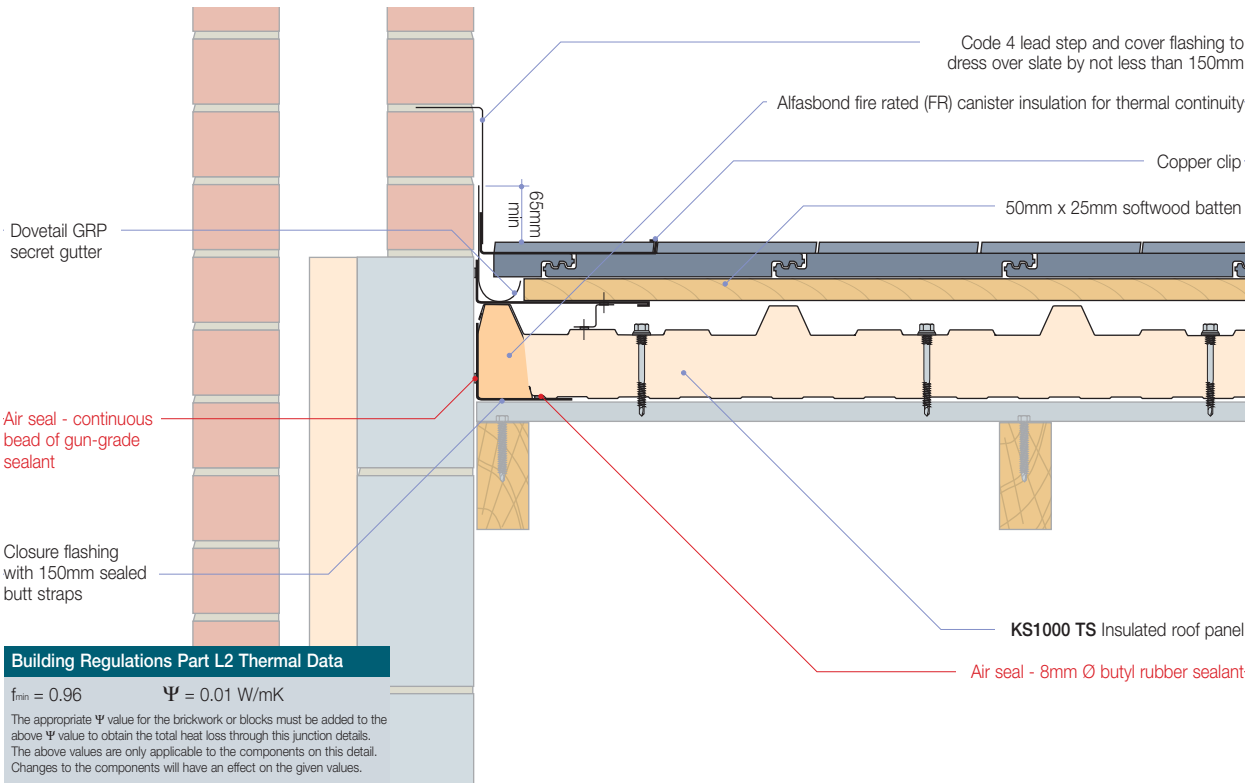


Brick Parapet with Timber Structure



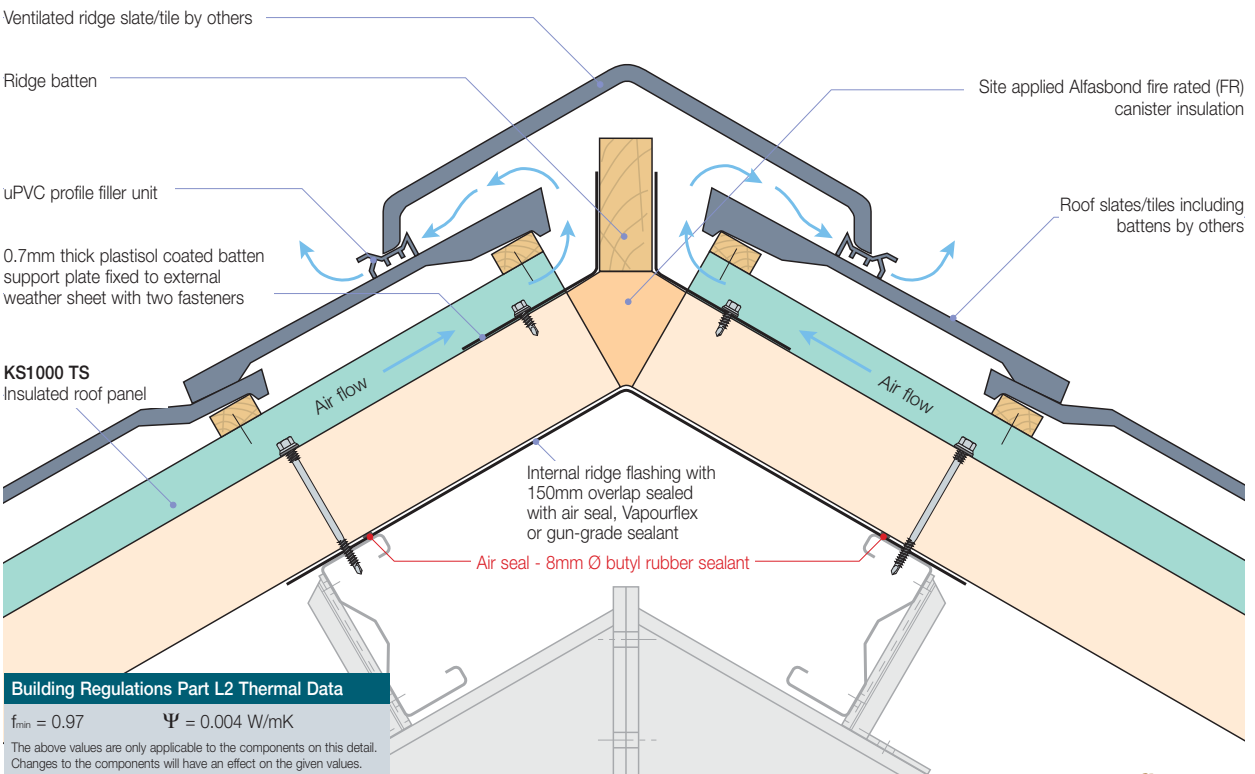
Verge Details

Brick Parapet with Timber Truss Structure



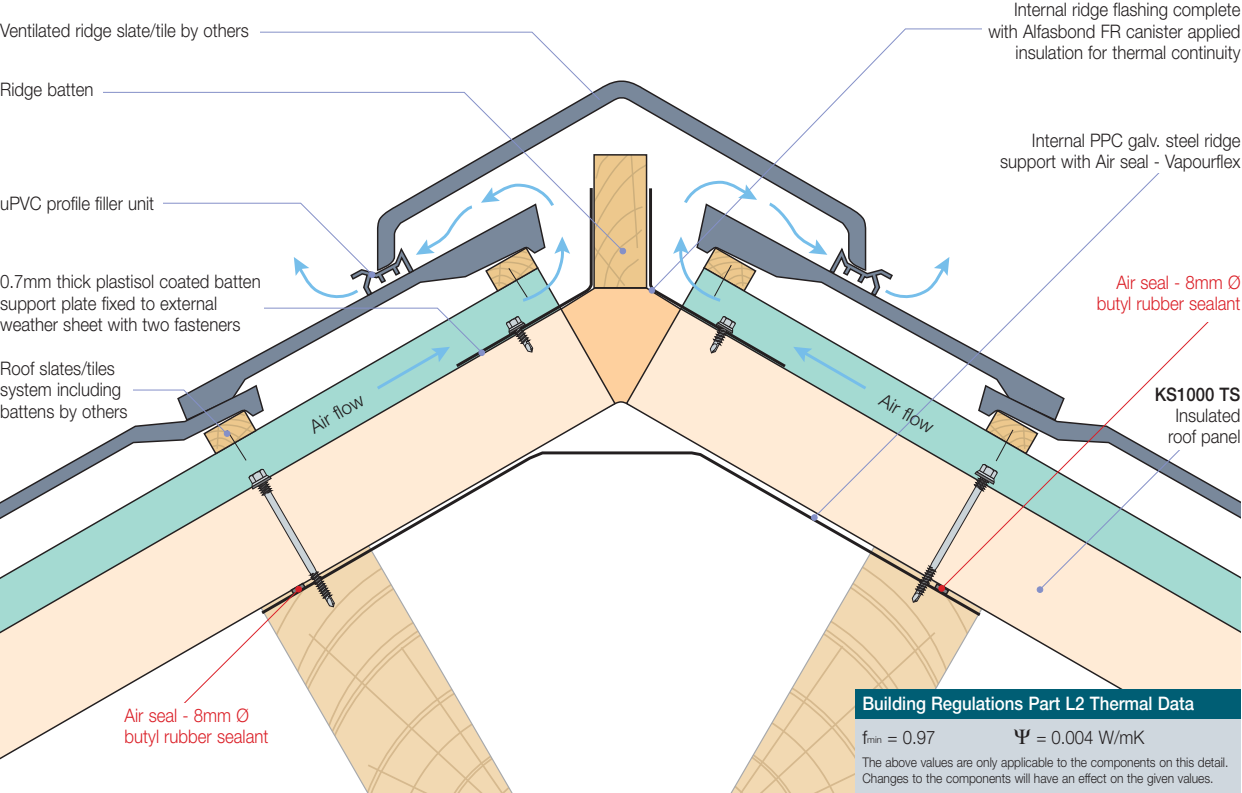
Ridge Details

Steel Structure

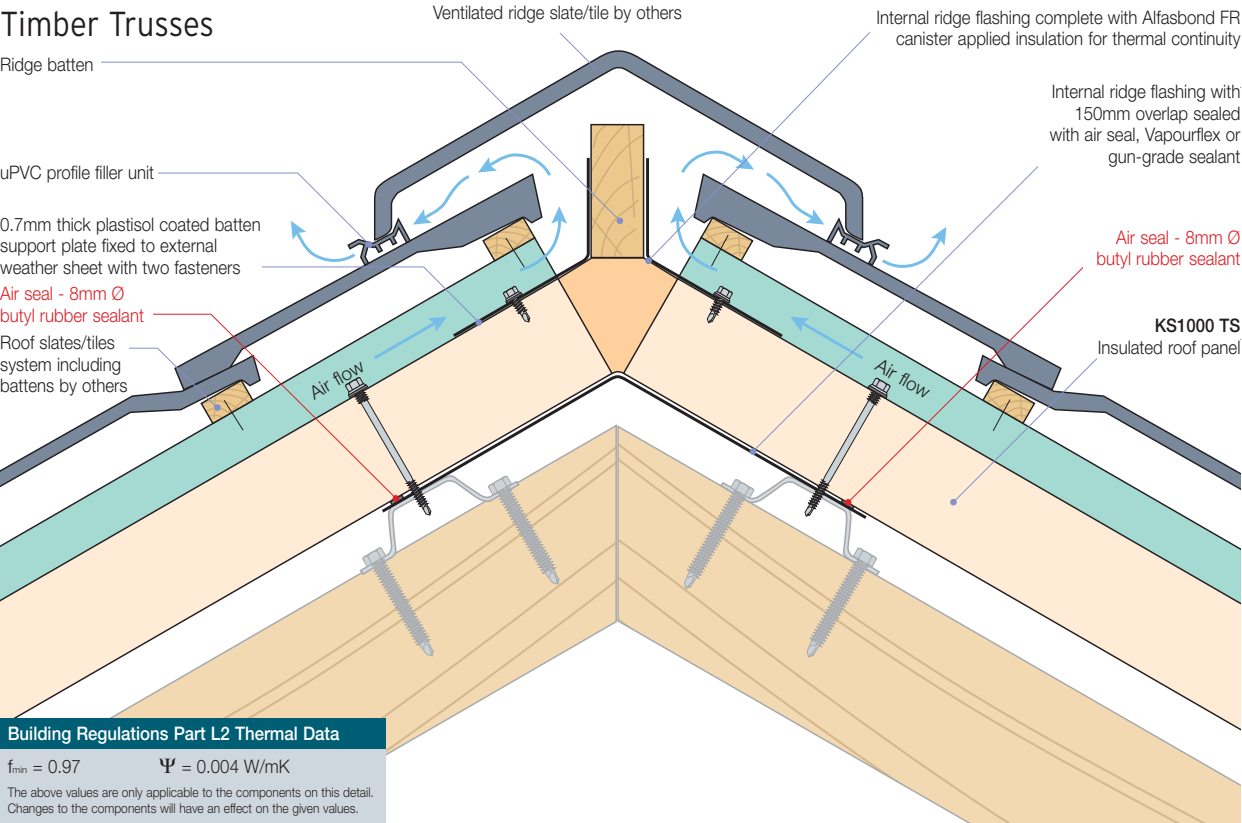


Ridge Details

Timber Purlins

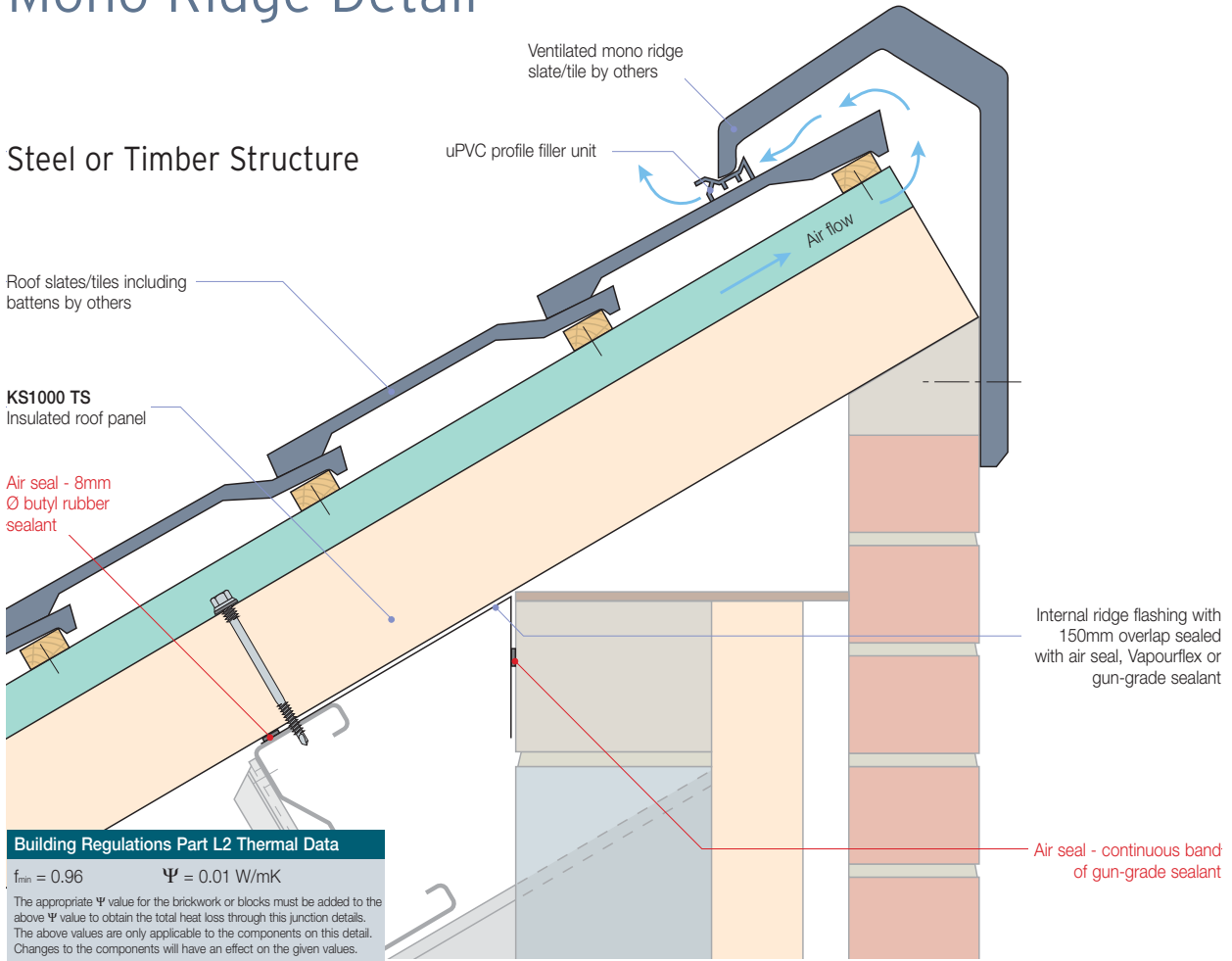


Timber Trusses



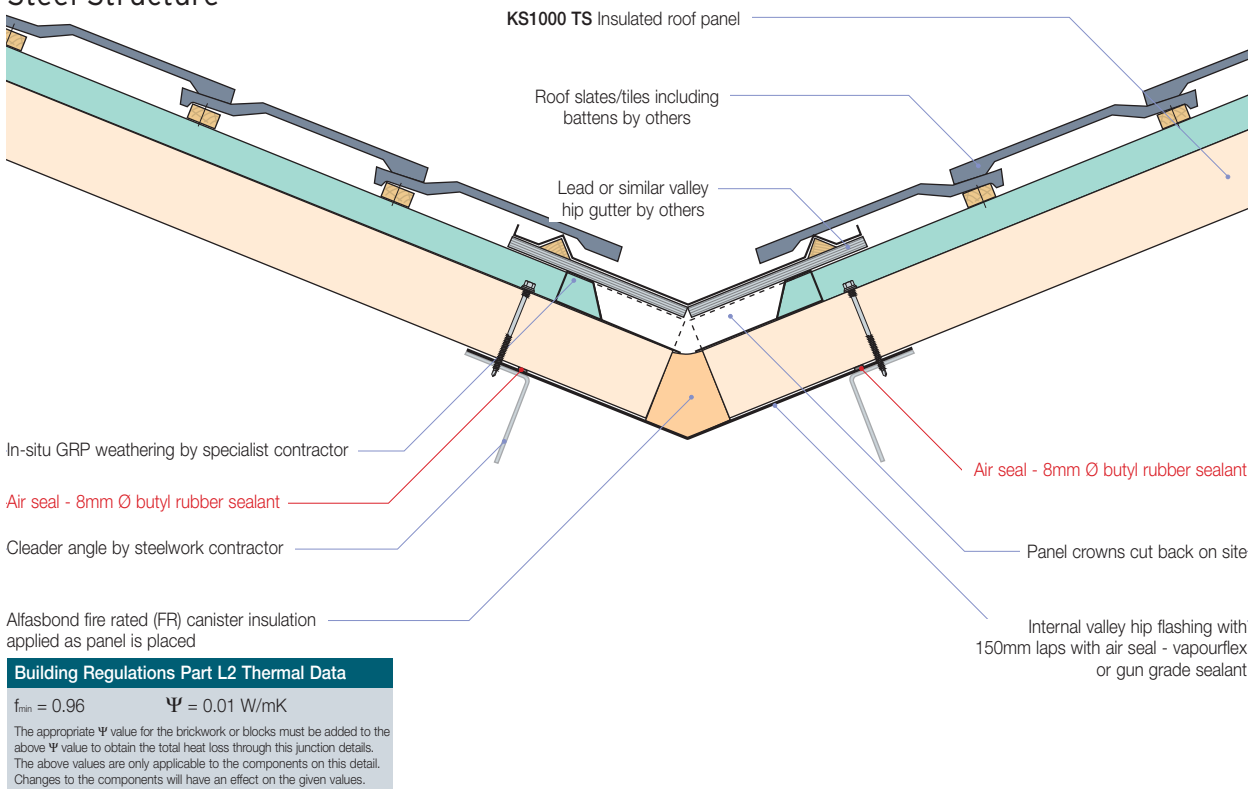
Mono Ridge Detail

Steel or Timber Structure



Valley Hip Details

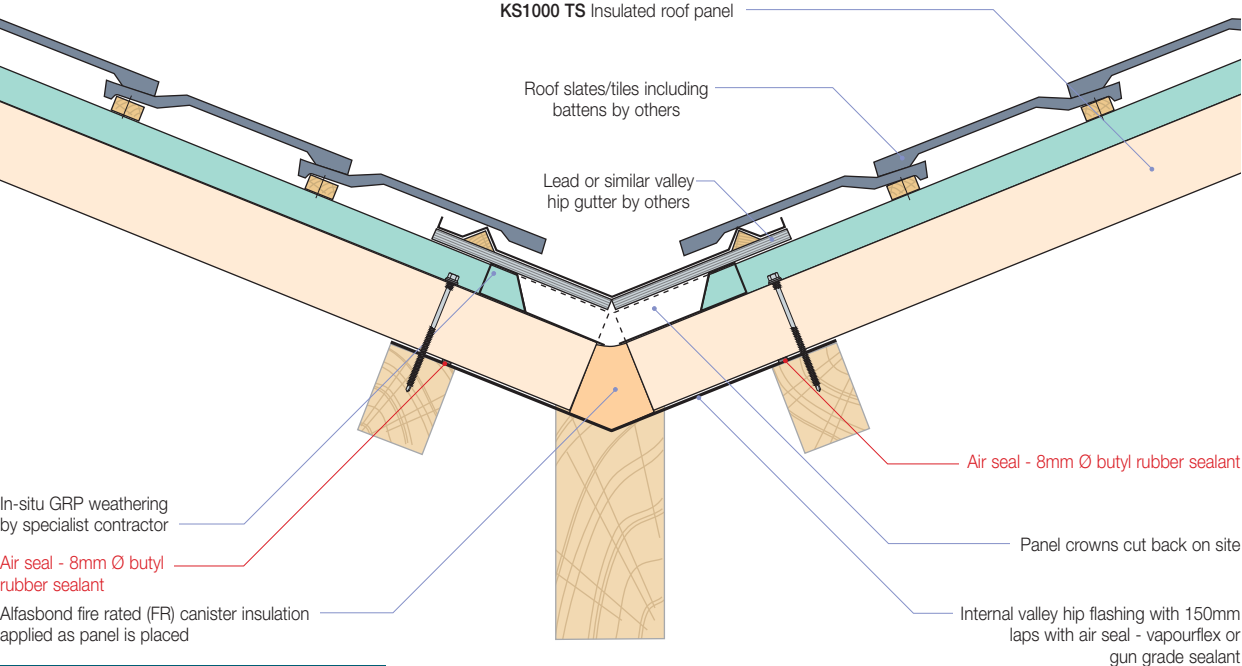
Steel Structure



Product Data & Construction Details

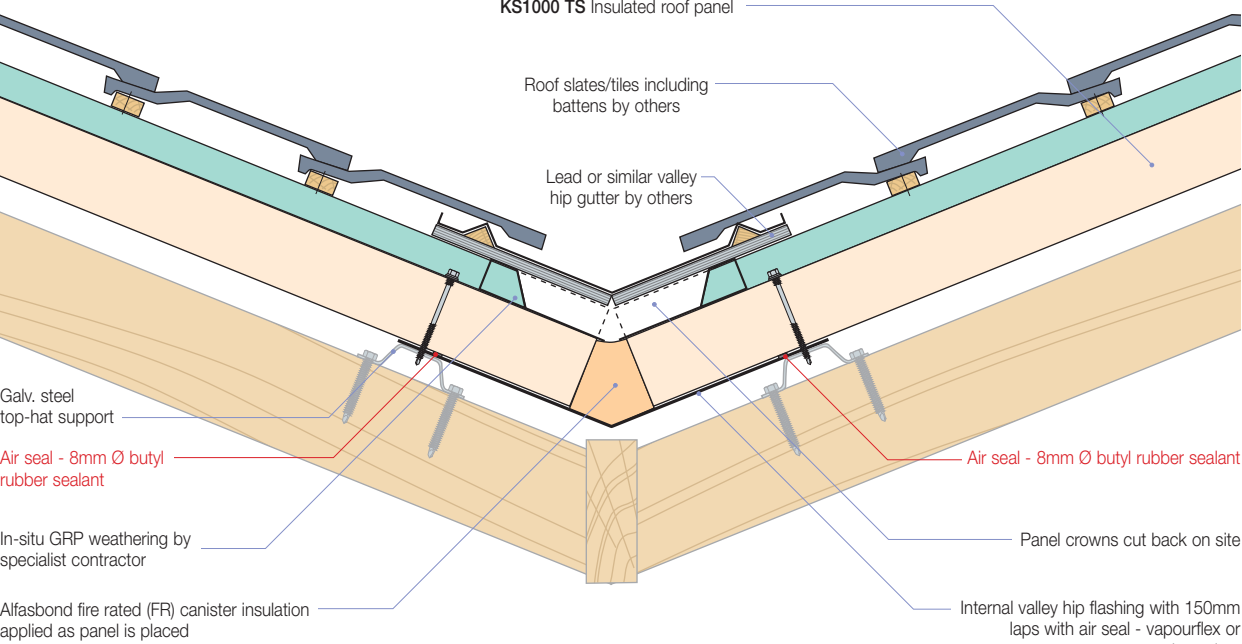
Valley Hip Details

Timber Purlin Structure



Building Regulations Part L2 Thermal Data	
$f_{min} = 0.96$	$\Psi = 0.01 \text{ W/mK}$
<p>The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.</p>	

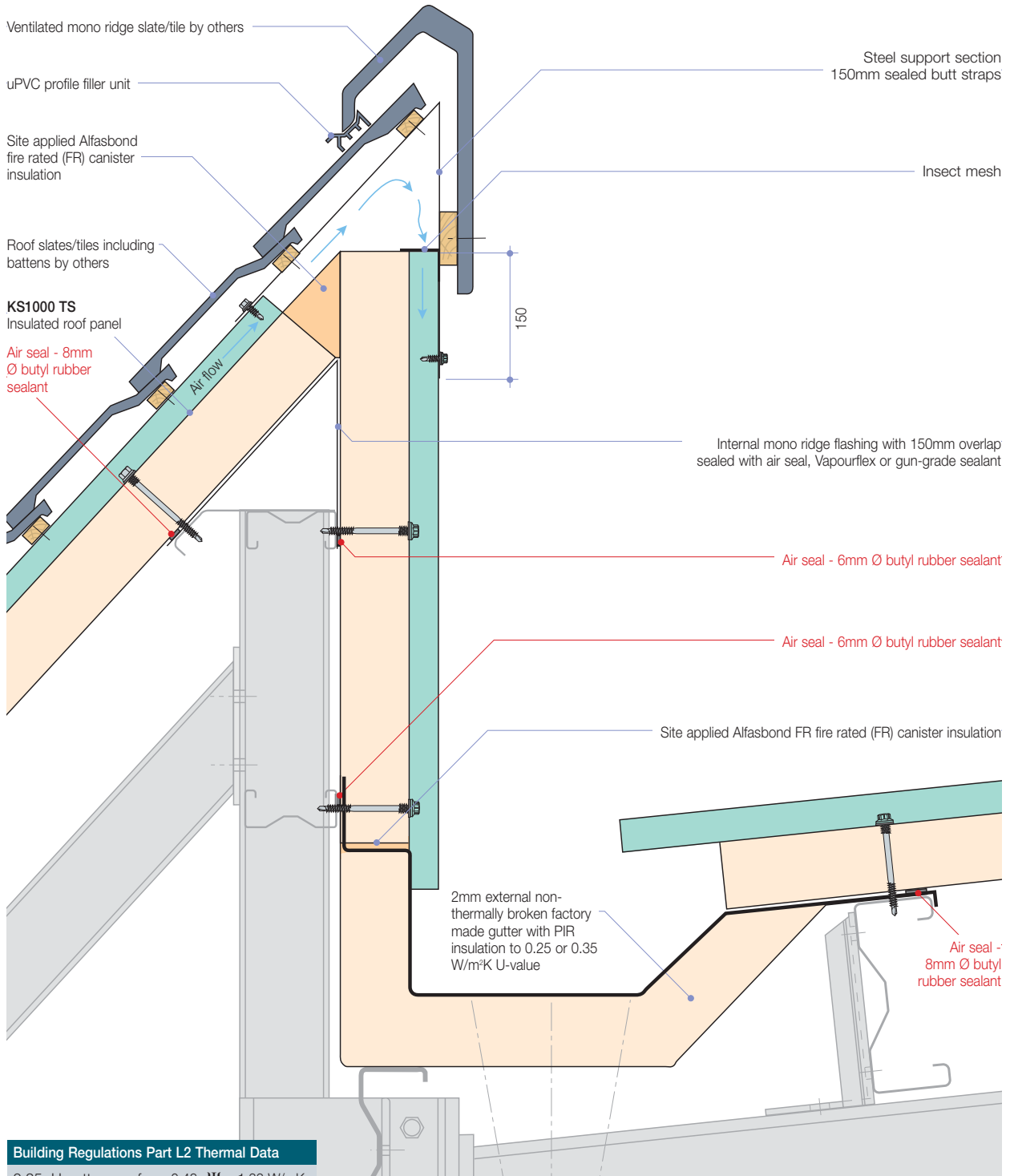
Timber Truss Structure



Building Regulations Part L2 Thermal Data	
$f_{min} = 0.96$	$\Psi = 0.01 \text{ W/mK}$
<p>The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.</p>	

Mansard Detail

Steel Structure or Timber Frame

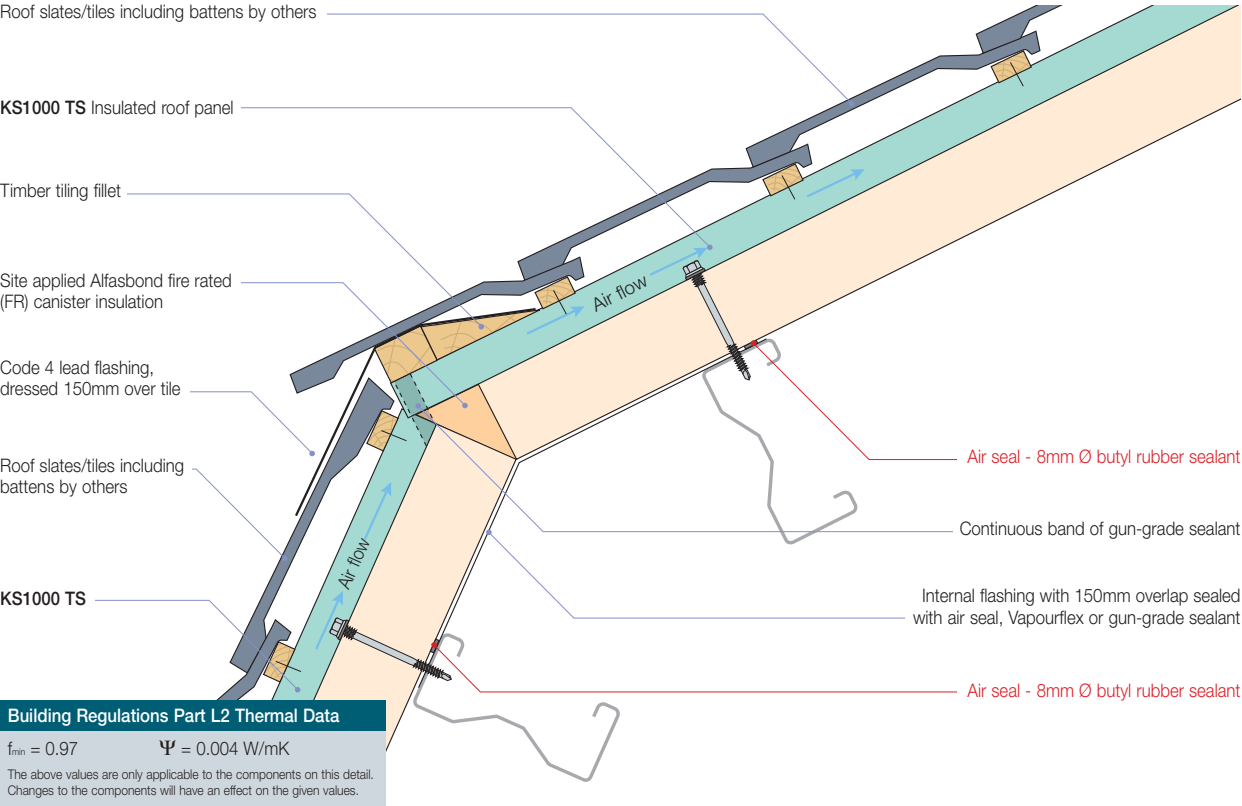


Building Regulations Part L2 Thermal Data		
0.25 U gutter	$f_{min} = 0.48$	$\Psi = 1.33 \text{ W/mK}$
0.35 U gutter	$f_{min} = 0.48$	$\Psi = 1.46 \text{ W/mK}$
0.35 sole width 300mm, values for other widths available on request. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.		

Product Data & Construction Details

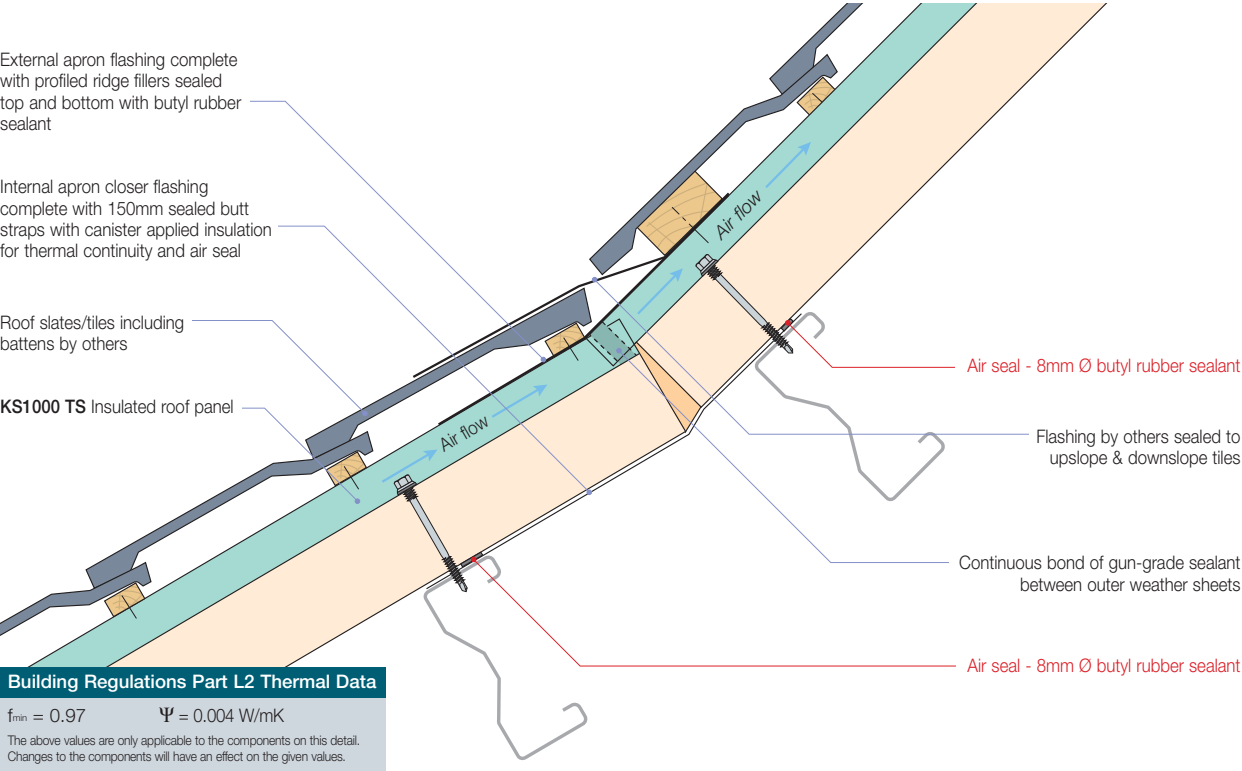
Mansard Detail

Steel Structure or Timber Frame



Change in Roof Slope Detail

Steel Structure or Timber Frame



Lean-to Roof Upstand Detail

Steel Structure or Timber Frame

Upstand flashing by others sealed to top slate/tile chased into brickwork

Air seal - Continuous band of gun-grade sealant

Abutment ventilation system

Site applied Alfasbond fire rated (FR) canister insulation

Continuous 25mm x 50mm batten support angle

0.9mm x 25mm x 40mm metal angle batten fixing bracket set 30mm down from top edge of panel

Internal upstand flashing with 150mm overlap sealed with air seal, Vapourflex or gun-grade sealant

Air seal - 8mm Ø butyl rubber sealant

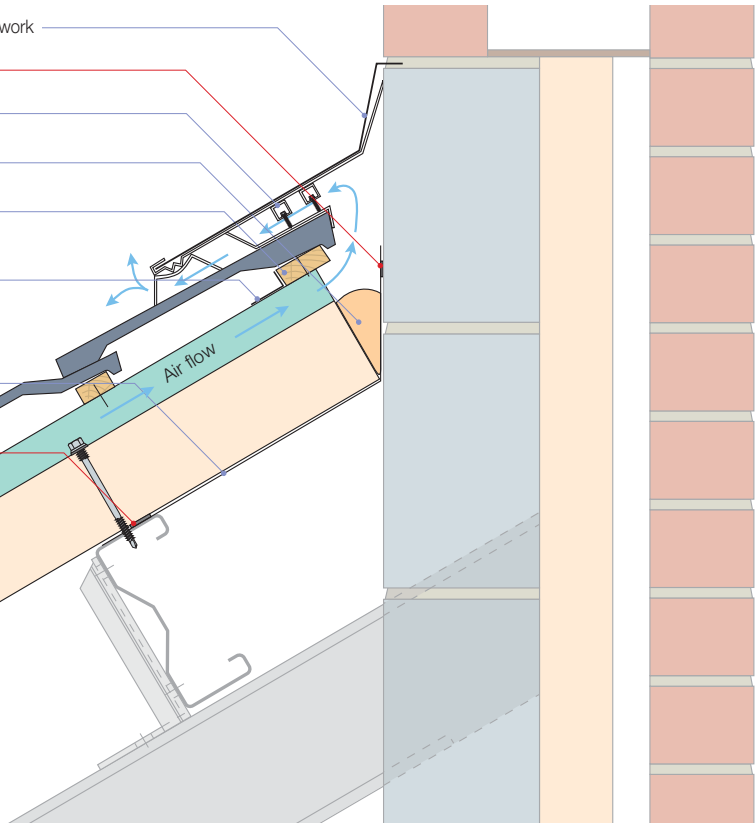
Roof slates/tiles including battens by others

KS1000 TS
Insulated roof panel

Building Regulations Part L2 Thermal Data

$f_{min} = 0.96$ $\Psi = 0.01 \text{ W/mK}$

The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.



Lean-to Flat Roof Detail

Steel Structure or Timber Frame

Flat roof system by others

Upstand flashing by others

Abutment ventilation system

Internal upstand flashing with 150mm overlap sealed with air seal, Vapourflex or gun-grade sealant

Air seal - 8mm Ø butyl rubber sealant

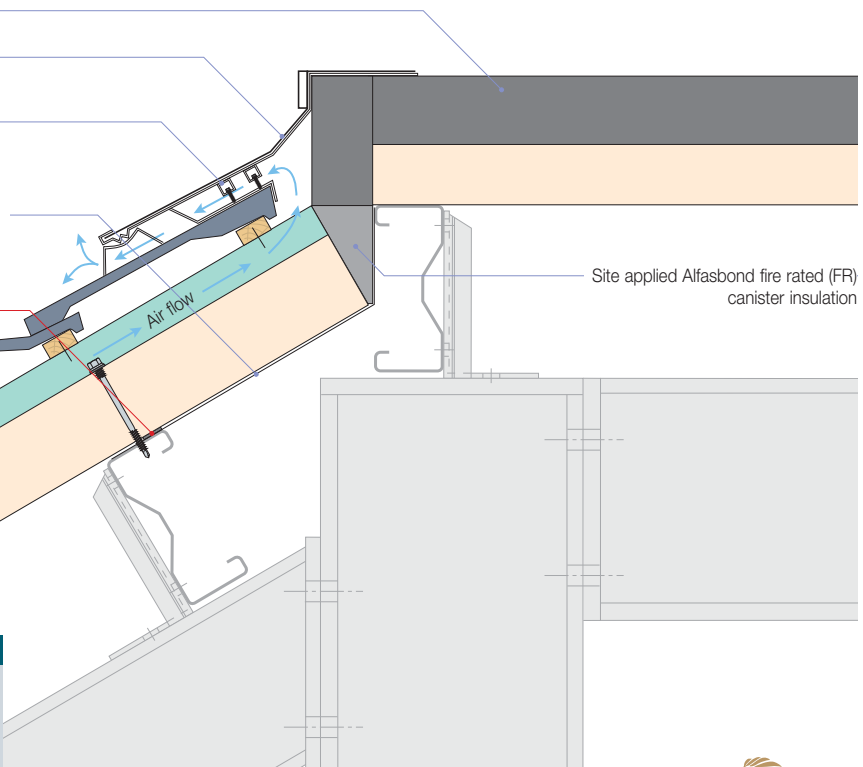
Roof slates/tiles including battens by others

KS1000 TS
Insulated roof panel

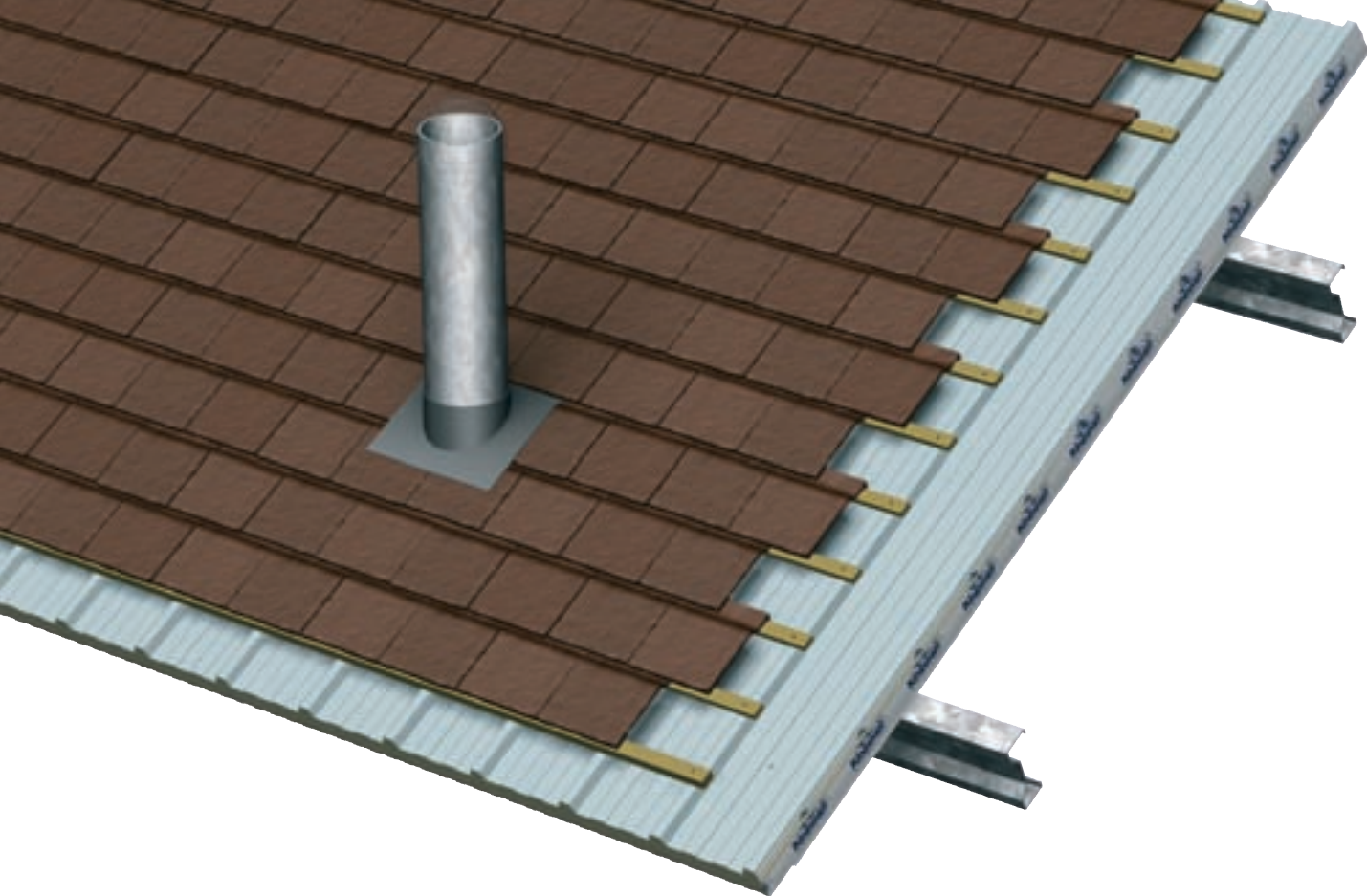
Building Regulations Part L2 Thermal Data

$f_{min} = 0.96$ $\Psi = 0.01 \text{ W/mK}$

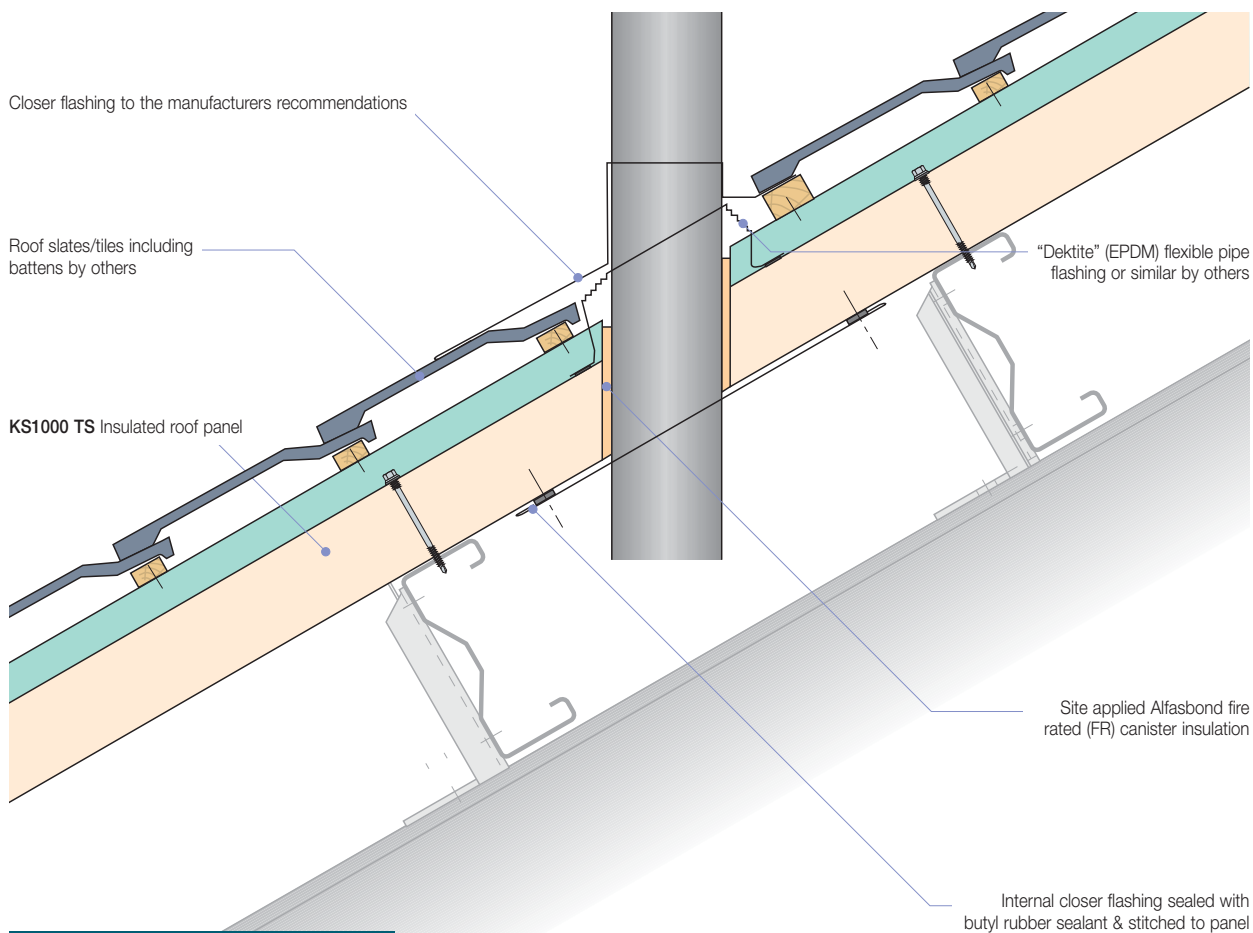
The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.



Product Data & Construction Details



Flue Pipe Detail



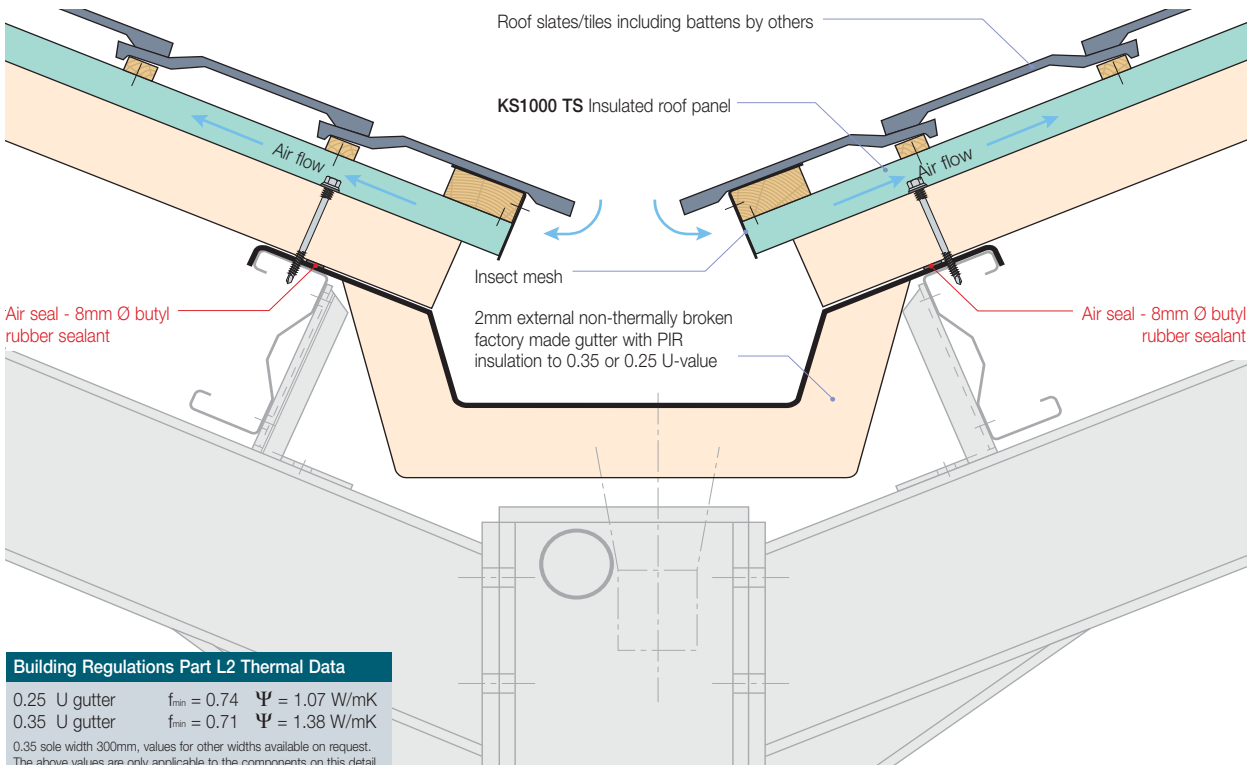
Building Regulations Part L2 Thermal Data

The above penetration detail does not require thermal data

Note: Should extractor flue exhaust high temperature gases/pollutants a suitable fire rated/non-combustible barrier gasket should be installed by specialist contractor.

Valley Gutter Details

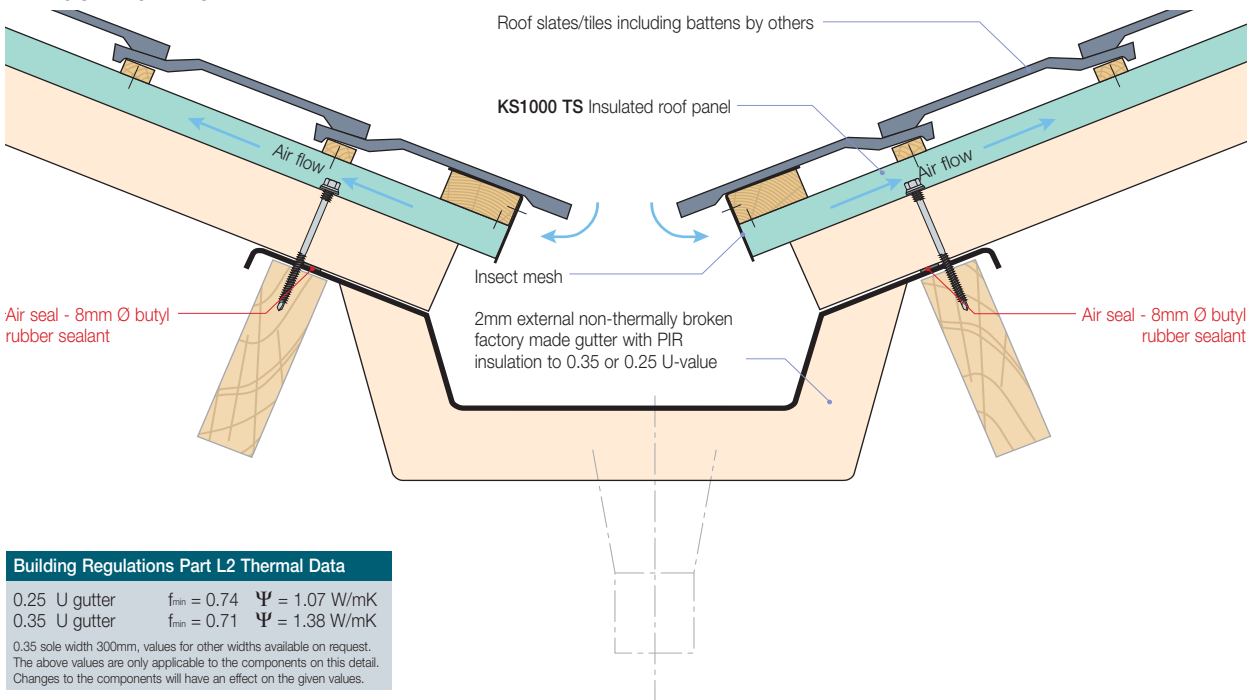
Steel Structure



Building Regulations Part L2 Thermal Data		
0.25 U gutter	$f_{min} = 0.74$	$\Psi = 1.07 \text{ W/mK}$
0.35 U gutter	$f_{min} = 0.71$	$\Psi = 1.38 \text{ W/mK}$

0.35 sole width 300mm, values for other widths available on request.
The above values are only applicable to the components on this detail.
Changes to the components will have an effect on the given values.

Timber Purlins



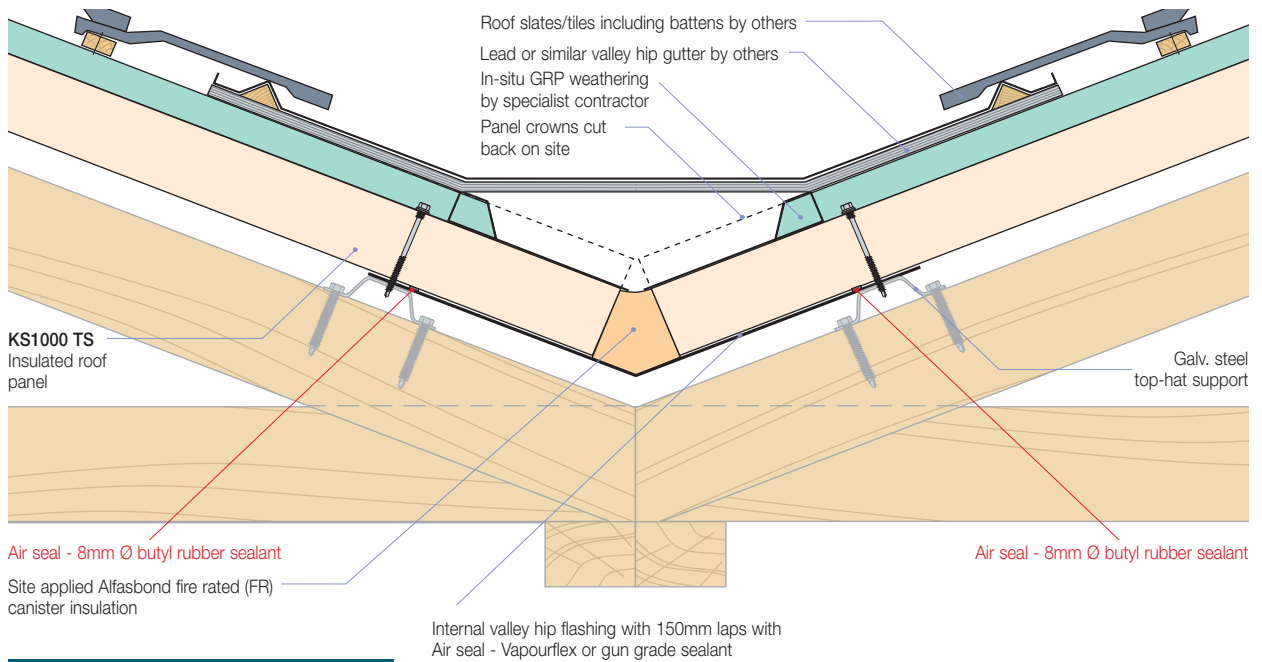
Building Regulations Part L2 Thermal Data		
0.25 U gutter	$f_{min} = 0.74$	$\Psi = 1.07 \text{ W/mK}$
0.35 U gutter	$f_{min} = 0.71$	$\Psi = 1.38 \text{ W/mK}$

0.35 sole width 300mm, values for other widths available on request.
The above values are only applicable to the components on this detail.
Changes to the components will have an effect on the given values.

Product Data & Construction Details

Valley Gutter Details

Timber Trusses



Building Regulations Part L2 Thermal Data

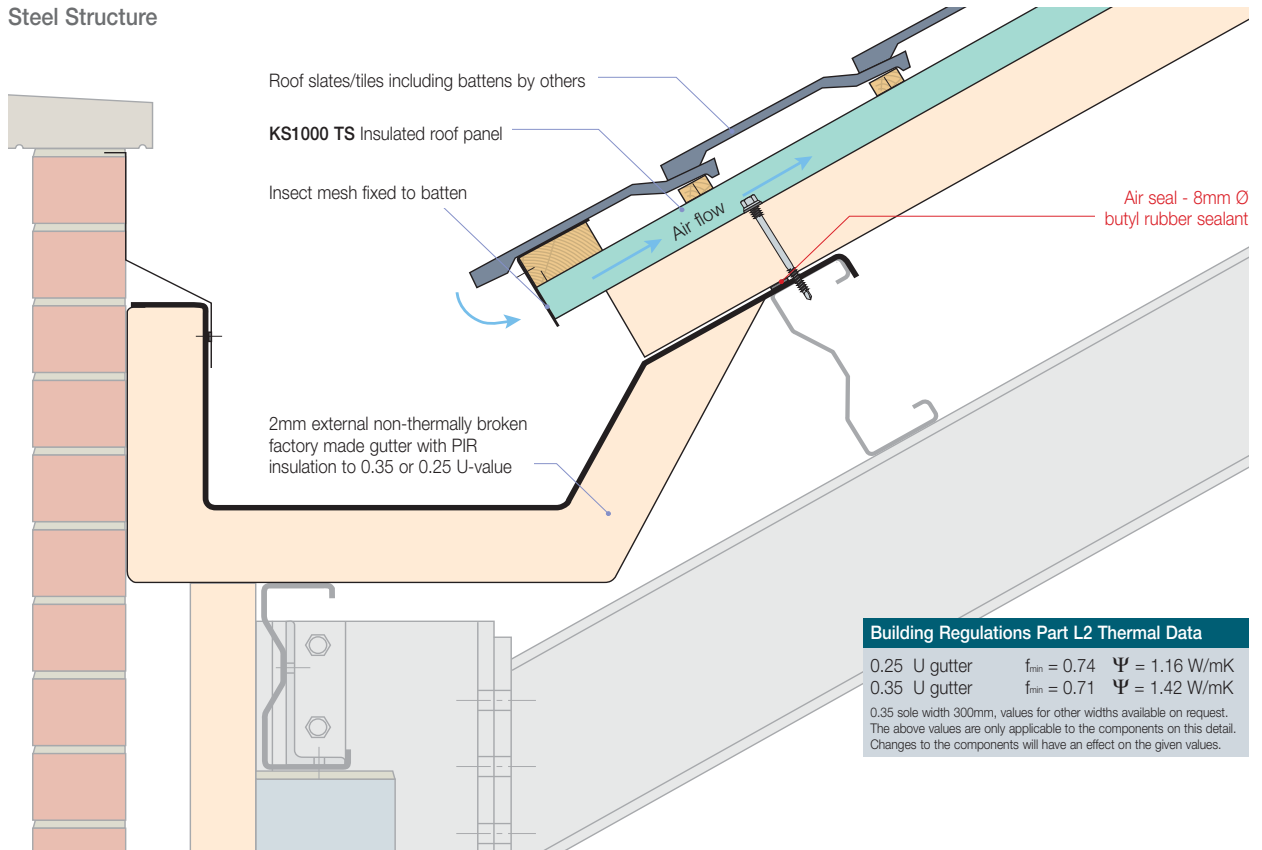
$f_{min} = 0.96$

$\Psi = 0.01 \text{ W/mK}$

The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

Boundary Wall Gutter

Steel Structure



Building Regulations Part L2 Thermal Data

0.25 U gutter

$f_{min} = 0.74$

$\Psi = 1.16 \text{ W/mK}$

0.35 U gutter

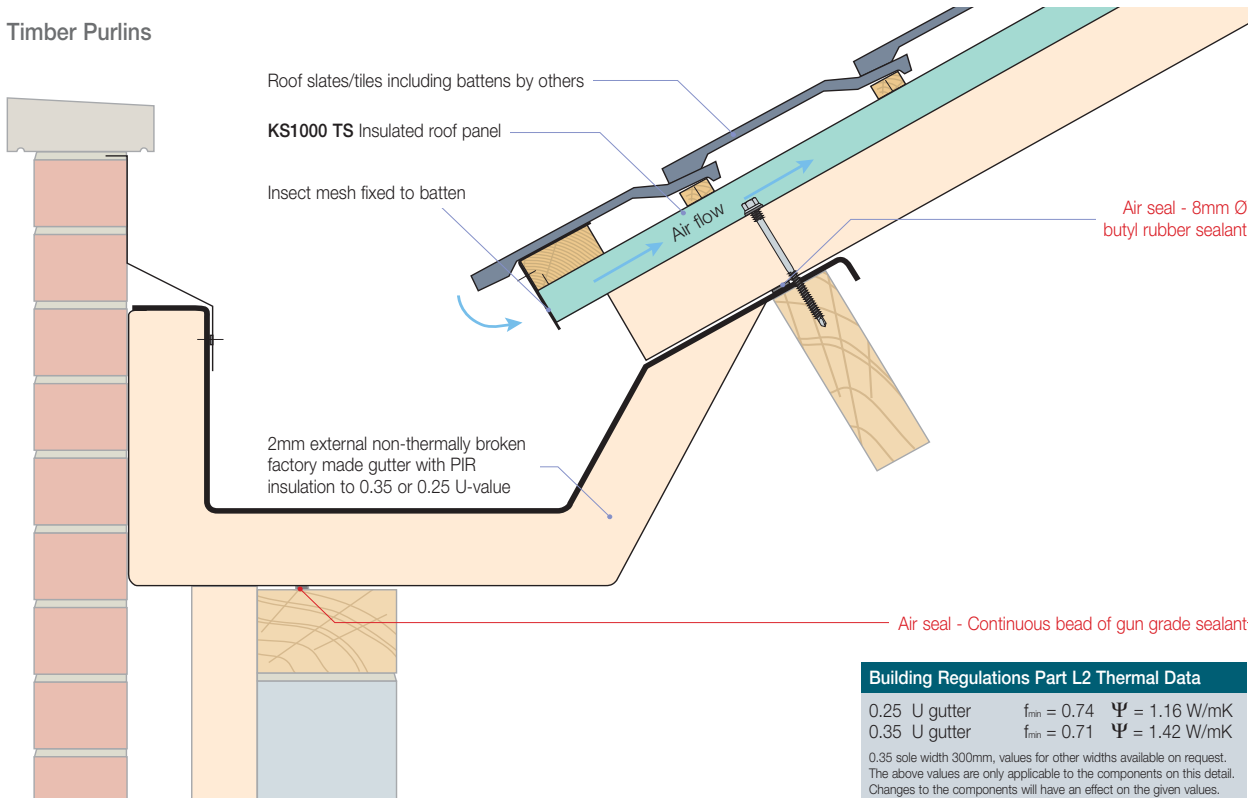
$f_{min} = 0.71$

$\Psi = 1.42 \text{ W/mK}$

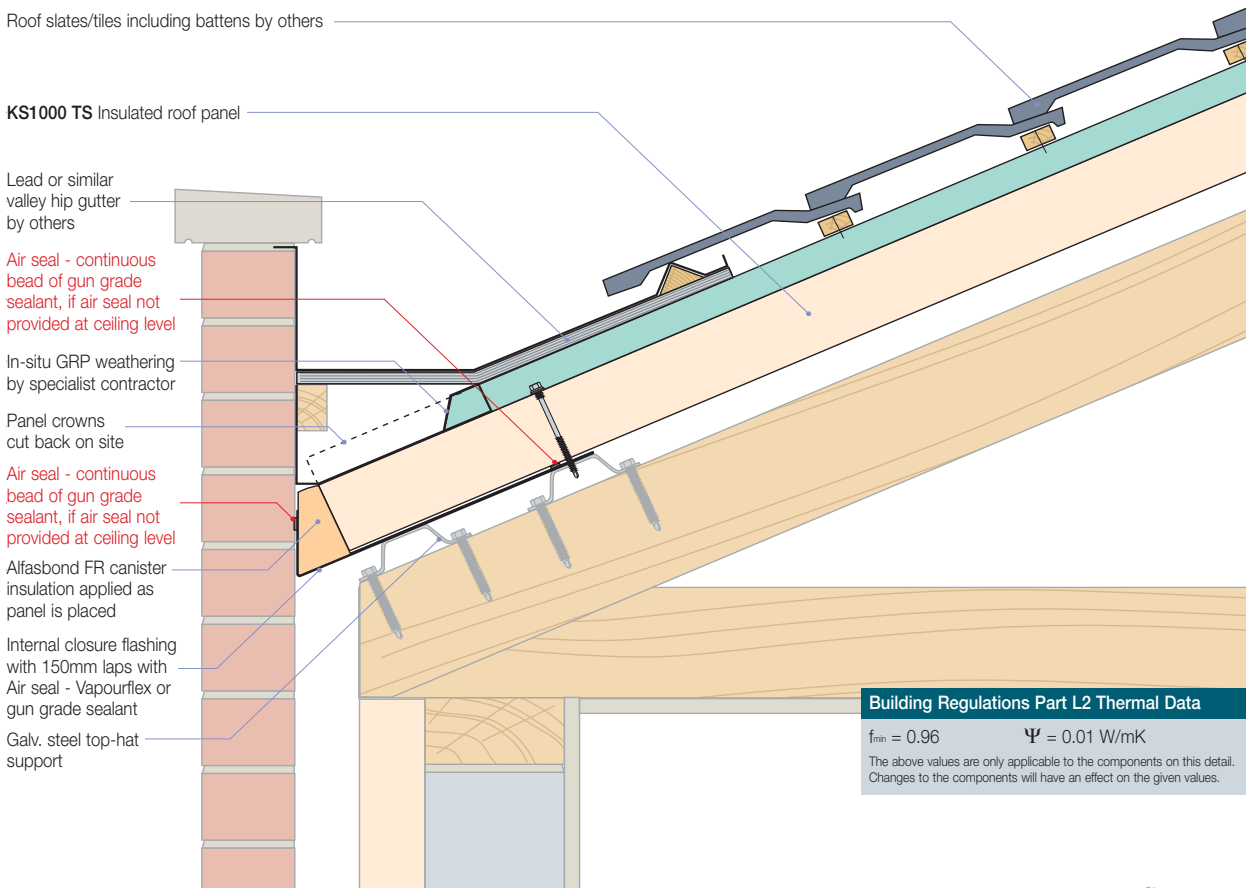
0.35 sole width 300mm, values for other widths available on request. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

Boundary Wall Gutter

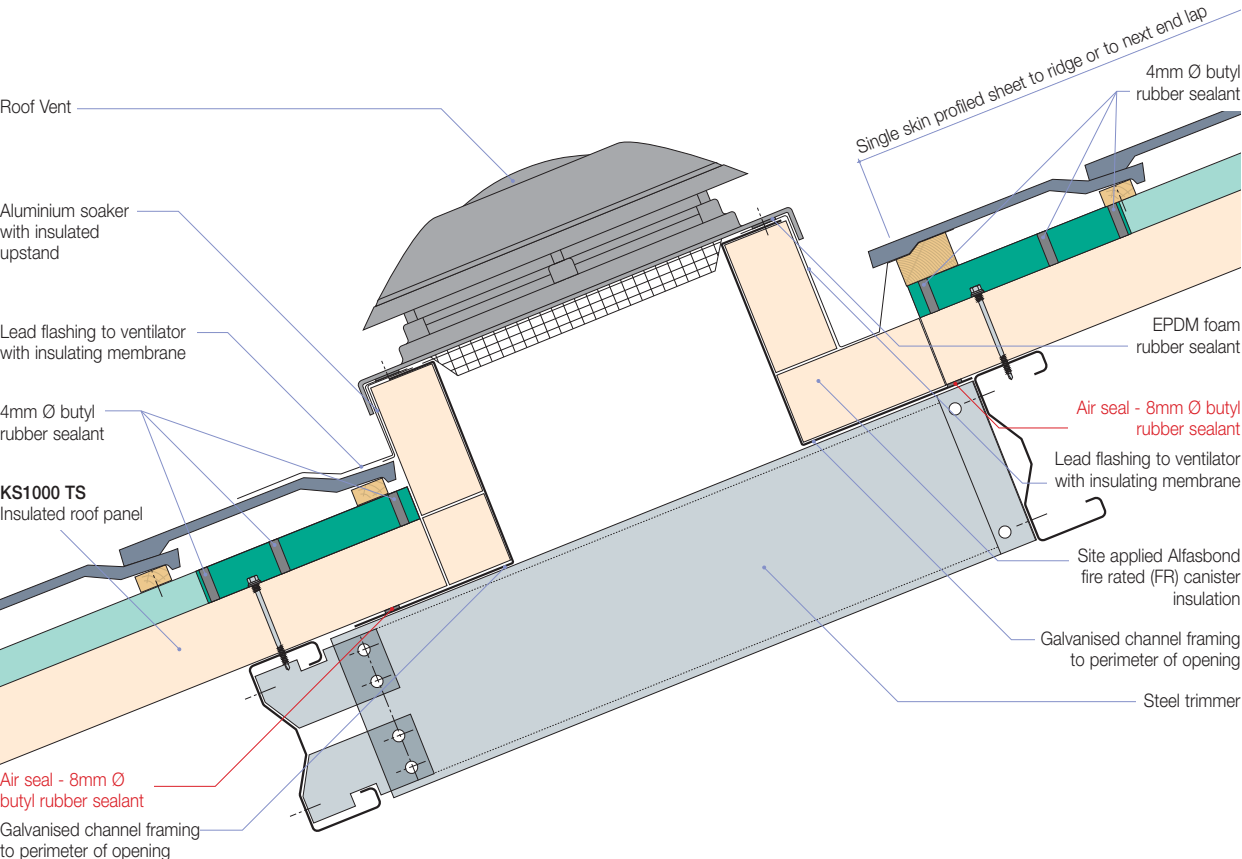
Timber Purlins



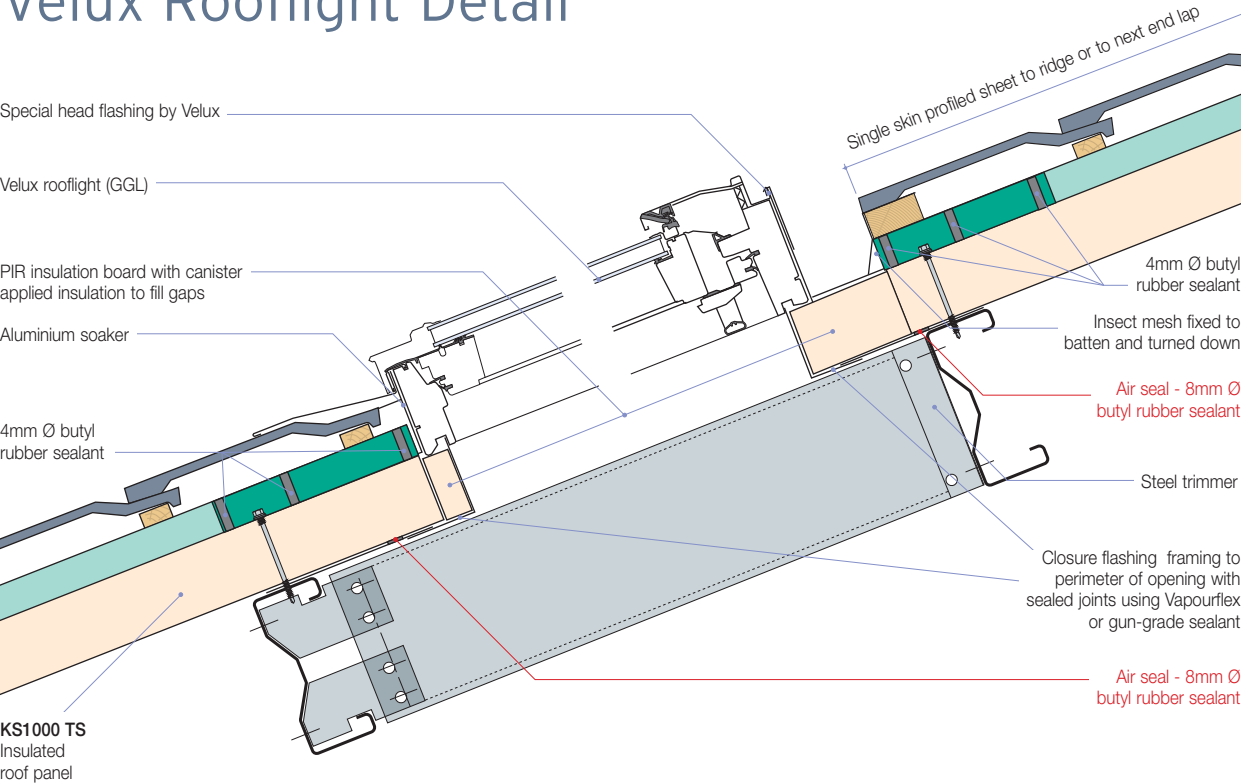
Timber Trusses



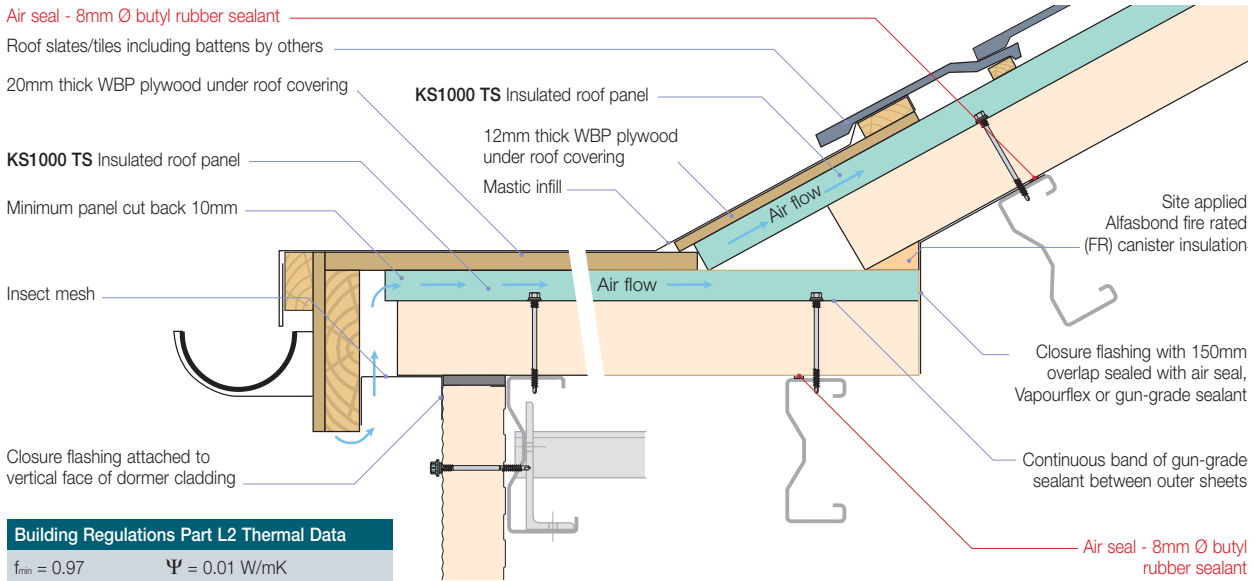
Smoke Vent Detail



Velux Rooflight Detail

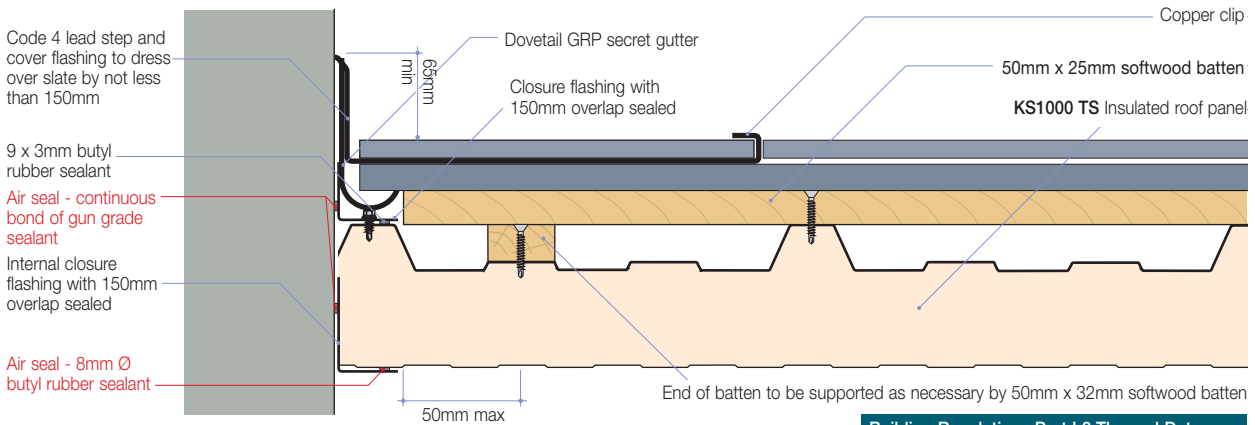


Dormer Head Detail

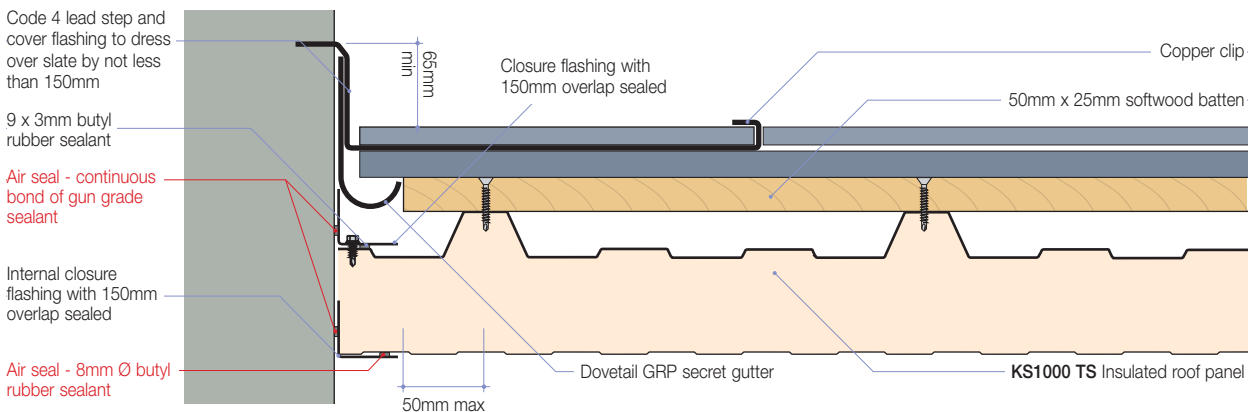


Abutments to Side Dormer

KS1000 TS Crown Abutment



KS1000 TS Valley Abutment



Note: The two abutment details shown above allow for closure dependent upon position of crown to vertical abutment

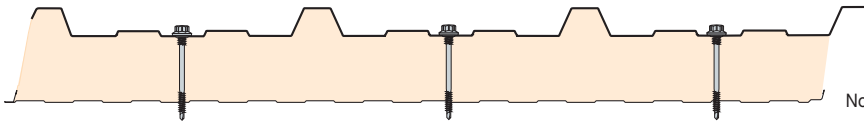


“ For efficient and secure installation ”

Fasteners

Roof Panel to Structure



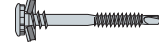
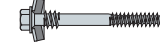
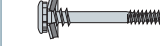



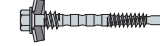
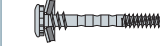

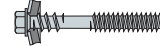
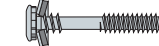
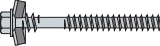
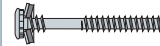
Ridge – Intermediate – Eaves Fastener Locations



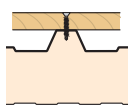
Note: No side lap stitchers required

Fastener Selector Guide - SFS Stadler

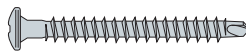
KS1000 TS Roof Panel to Structure, Valley Fixing (with 19mm Ø Sealing Washers)

Purlin Type	Panel Thickness mm	Warranty Period Classification			
		UP TO 10 YEARS CARBON STEEL		OVER 10 YEARS AUSTENITIC STAINLESS STEEL	
		Building Classifications			
		Standard & Temperature Control		High humidity, Low temperature, hygiene	
SFS Intec Code Number					
Cold Formed min.1.5mm max.5mm 	40, 50, 60, 80, 100	Plain Hexagonal Head	Plain Irius Head	Plain Hexagonal Head	Plain Irius Head
					
		SDT5-A19-5.5 x 67	SDT5-L12-A19-5.5 x 67	SXC5-S19-5.5 x 77	SXC5-L12-S19-5.5 x 79
		SDT5-A19-5.5 x 77	SDT5-L12-A19-5.5 x 77	SXC5-S19-5.5 x 87	SXC5-L12-S19-5.5 x 79
		SDT5-A19-5.5 x 97	SDT5-L12-A19-5.5 x 97	SXC5-S19-5.5 x 107	SXC5-L12-S19-5.5 x 89
SDT5-A19-5.5 x 112	SDT5-L12-A19-5.5 x 112	SXC5-S19-5.5 x 130	SXC5-L12-S19-5.5 x 109		
SDT5-A19-5.5 x 137	SDT5-L12-A19-5.5 x 137	SXC5-S19-5.5 x 154	SXC5-L12-S19-5.5 x 129		
Hot Rolled min.5mm max.12mm 	40, 50, 60, 80, 100				
		SDT14-A19-5.5 x 74	SDT14-L12-A19-5.5 x 74	SXC14-S19-5.5 x 76	SXC14-L12-S19-5.5 x 76
		SDT14-A19-5.5 x 93	SDT14-L12-A19-5.5 x 93	SXC14-S19-5.5 x 95	SXC14-L12-S19-5.5 x 95
		SDT14-A19-5.5 x 93	SDT14-L12-A19-5.5 x 93	SXC14-S19-5.5 x 95	SXC14-L12-S19-5.5 x 95
		SDT14-A19-5.5 x 113	SDT14-L12-A19-5.5 x 113	SXC14-S19-5.5 x 114	SXC14-L12-S19-5.5 x 114
SDT14-A19-5.5 x 132	SDT14-L12-A19-5.5 x 132	SXC14-S19-5.5 x 134	SXC14-L12-S19-5.5 x 134		
Timber  *4.9mm pilot hole required through panel	40, 50, 60, 80, 100				
		SDT5-A19-5.5 x 97	SDT5-L12-A19-5.5 x 97	SXCW-S19-6.5 x 105	SXCW-L12-S19-6.5 x 105
		SDT5-A19-5.5 x 112	SDT5-L12-A19-5.5 x 112	SXCW-S19-6.5 x 105	SXCW-L12-S19-6.5 x 105
		SDT5-A19-5.5 x 137	SDT5-L12-A19-5.5 x 137	SXCW-S19-6.5 x 115	SXCW-L12-S19-6.5 x 115
		SDT5-A19-5.5 x 137	SDT5-L12-A19-5.5 x 137	SXCW-S19-6.5 x 135	SXCW-L12-S19-6.5 x 135
SDT5-A19-5.5 x 182	SDT5-L12-A19-5.5 x 182	SXCW-S19-6.5 x 155	SXCW-L12-S19-6.5 x 155		

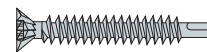
Slate/Tile Timber Batten to KS1000 TS Roof Panel



Batten Thickness mm
25



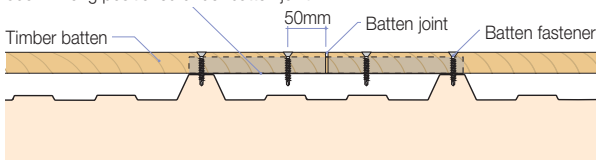
IF2-6.7 x 51 (PH3 Drive Bit)



SD2-S-S10/T20-6 x 45 (Torx 20W Drive Bit)

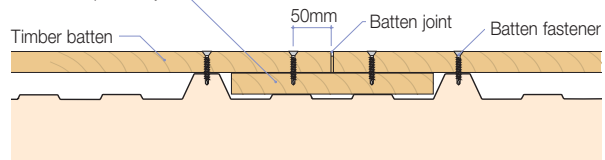
Batten Jointing - Option 1

0.7mm thick Plastisol coated steel batten support flashing 20mm x 50mm x 360mm long positioned under batten joint



Batten Jointing - Option 2

Short length of timber batten to lap under joint



Timber batten 50 x 25



Batten support flashing

Product Data & Construction Details

Fasteners

EJOT Fasteners for KS1000 TS Tile Support Panel

Main Fix: Light steel (1.5 to 3.0mm thick)

Panel Core	Carbon Steel Fasteners	Austenitic Stainless Steel Fasteners
	Valley Fixing	Valley Fixing
40	LSHT 5.5/6.3 x 65 S19	JT3-D3 5.5/6.3 x 82 S
50	LSHT 5.5/6.3 x 76 S19	JT3-D3 5.5/6.3 x 82 S19
60	LSHT 5.5/6.3 x 98 S19	JT3-D3 5.5/6.3 x 98 S19
70	LSHT 5.5/6.3 x 115 S19	JT3-D3 5.5/6.3 x 115 S19
80	LSHT 5.5/6.3 x 115 S19	JT3-D3 5.5/6.3 x 115 S19
100	LSHT 5.5/6.3 x 135 S19	JT3-D3 5.5/6.3 x 135 S19

Main Fix: Heavy steel (4.0 to 12.0mm thick)

Panel Core	Carbon Steel Fasteners	Austenitic Stainless Steel Fasteners
	Valley Fixing	Valley Fixing
40	HSHT 5.5/6.3 x 90 S19	JT3-D12H 5.5/6.3 x 75 S19
50	HSHT 5.5/6.3 x 90 S19	JT3-D12H 5.5/6.3 x 95 S19
60	HSHT 5.5/6.3 x 100 S19	JT3-D12H 5.5/6.3 x 115 S19
70	HSHT 5.5/6.3 x 125 S19	JT3-D12H 5.5/6.3 x 115 S19
80	HSHT 5.5/6.3 x 125 S19	JT3-D12H 5.5/6.3 x 135 S19
100	HSHT 5.5/6.3 x 140 S19	JT3-D12H 5.5/6.3 x 155 S19

Main Fix: Timber (min 50mm thick)

Panel Core	Carbon Steel Fasteners	Austenitic Stainless Steel Fasteners
	Valley Fixing	Valley Fixing
40	LSHT 5.5/6.3 x 98 S19	JT3-D3 5.5/6.3 x 98 S19
50	LSHT 5.5/6.3 x 98 S19	JT3-D3 5.5/6.3 x 98 S19
60	LSHT 5.5/6.3 x 115 S19	JT3-D3 5.5/6.3 x 115 S19
70	LSHT 5.5/6.3 x 135 S19	JT3-D3 5.5/6.3 x 135 S19
80	LSHT 5.5/6.3 x 135 S19	JT3-D3 5.5/6.3 x 135 S19
100	LSHT 5.5/6.3 x 150 S19	JT3-D3 5.5/6.3 x 150 S19

Stitchers: All Substrates

Panel Core	Carbon Steel Fasteners	Austenitic Stainless Steel Fasteners
N/A	SF 6.3 x 25 S16	JT3-2 6.3 x 25 S16

Slate/Tile batten Fastener to crown of Panel

Batten	Carbon Steel Fasteners	Austenitic Stainless Steel Fasteners
25mm	JT2-X2-6.0x60/25	JT3-X2-6.0x60/25

- Please note that all recommendations do not include a cover cap for the fastener as it is not exposed to the elements when the roof is completed.
- Where fasteners are required with an integral head for additional corrosion protection of carbon steel parts please omit the S19 (S16 on stitchers) and insert a CF19 reference (CF15 on stitchers) AT THE START OF THE CODE. A colour coded push on cap, EJOT code EPC16/EPC19, can be used as an alternative.

Ejot UK Limited

Tel: 01977 687040 Fax: 01977 687041

Fastener Locations

Construction Details

SFS INTEC

Tool Kit & Accessories

To be sure of optimum performance it is important that purpose designed tooling is used to install the fasteners correctly.

The fasteners and washers are designed to be driven so that the washer is compressed evenly, thus ensuring a weather tight seal. The screwgun must be fitted with an adjustable, depth sensitive nose piece which can be set to disengage the clutch when the fastener has been installed correctly.

Technical Data

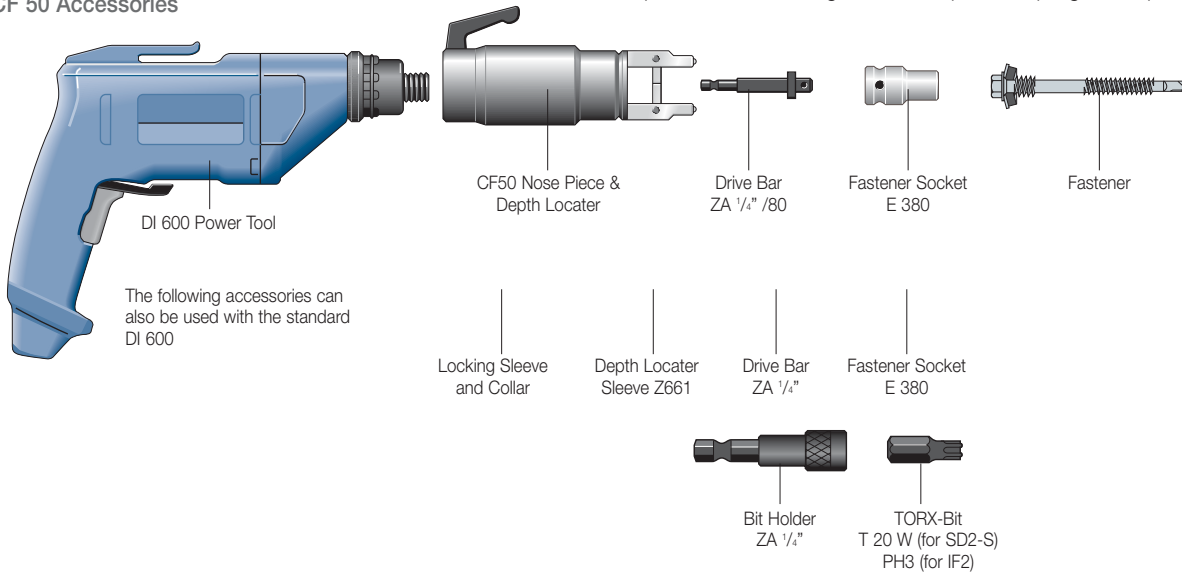
Power Tool:	DI 600
Wattage:	600W
Max. Rev.:	2000 RPM
Power Supply:	110V/220V
Overall Length:	400mm
Weight:	2.4kg

Application

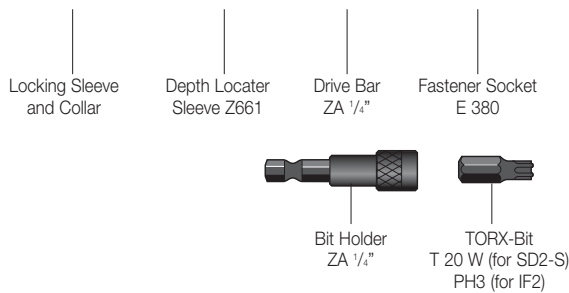
For efficient and secure installation of long self drilling fasteners for KS1000 TS roof panels.

The CF 50 nose piece and drive bar ensures that the fasteners are installed easily without damaging the outer panel and prevents over driving and subsequent dimpling of the panel.

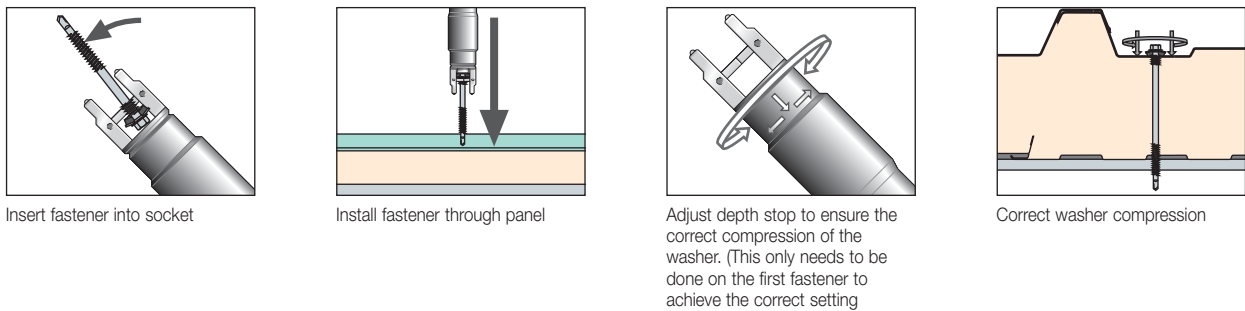
CF 50 Accessories



The following accessories can also be used with the standard DI 600



Fastener Installation Method



Permissible Pullout Values (kN) (based on safety factor of 2)

Fastener Material		Steel Purlin Thickness/350 Nmm ²					Timber 50mm Embedment
		1.5mm	1.6mm	1.8mm	2.0mm	6.0mm	
Carbon	5.5 dia SDT	1.23	1.29	1.41	1.53	4.66	-
	6.3 dia TZC	2.5	2.65	2.85	3.15	7.75	1.9
Stainless	5.5 dia SXC	1.06	1.22	1.53	1.85	7	-
	6.3 dia SXCW	2.5	2.65	2.85	3.15	7.75	1.9

Batten Fixing Permissible pullout values = 0.360kN

Permissible Pullover Values (kN)

(based on safety factor of 2)

Product	Steel Thickness	Fixing Position	Pullover 19 Dia
KS1000 TS	0.5mm	Valley	2.050

Note: Values are derived from full scale tests

SFS intec

Tel: 01132 085500 Fax: 01132 085519
email: www.sfsintec.biz/uk



Kingspan Customer Service

Our Technical Hotline staff support investors, designers and constructors with industry leading experience, knowledge and expertise in providing best practice construction solutions input and advice on any project.

This includes all construction performance and building physics issues, working details, model specifications, lifecycle and siteworks/build method information.

We also provide a comprehensive value added building economics payback service which includes HVAC plant downsizing, energy operating costs and CO₂ emissions reductions.

Our team of regionally based Sales Managers are available to provide immediate customer and project assistance.

Site Installation Methods

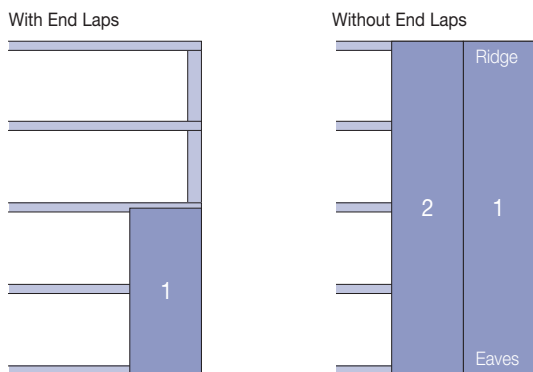
Cladding Contractors Works

The installation of KS1000 TS Slate & Tile Roof System on a particular building must be planned carefully to ensure the work can proceed in safety. The contractor normally prepares a method statement for his client, which indicates who is responsible for safety, what equipment and particularly what safety equipment will be used for each stage of the work and the sequence of installation.

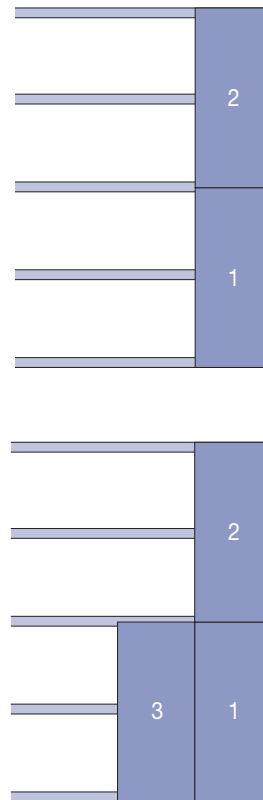
General principles for installation of KS1000 TS are indicated below, however exact procedures and methods are project specific and should be obtained from the contractor.

- Ensure that the purlins have been installed to provide a level fixing plane for the panels.
- Fasten the first panel at the edge of the roof area to be clad, ensuring it is correctly aligned and the right way round for lapping etc., and then fix as per contract drawings. It is desirable to arrange the panels so that any side laps are not exposed to the prevailing wind.
- Panels lap at the sides and ends, so they must be fixed in sequence to ensure reliable performance.
- Install the recommended fasteners in their correct positions to fix the panel to the steelwork. Note that the number of fasteners may have to vary depending on the wind suction load. Fasteners should be installed in the direction of lay.
- The fasteners must be installed correctly to provide a reliable weather seal and any drilling swarf must be removed from the panel to ensure surfaces are clean and dry. Apply the tape seal to the surface before removing backing paper and cut (do not tear) the sealant at the end of the run.
- If the panels have to be cut on site always use a reciprocating type saw (jigsaw or similar), do not use abrasive wheel cutters. After cutting remove swarf from the panel surfaces and burrs from any cut edges. Eye protection should always be worn when cutting or drilling. (See Health & Safety Data Sheet).

1. Start with the eaves panel, with the projecting side and end laps to the outside of the building. Install fasteners and apply sealant as specified.



2. Locate the second panel upslope, so that it overlaps the first, adjusting its position carefully avoiding contact with the sealant. Repeat up to the ridge. Prior to attaching ridge panel attach internal ridge closure flashing, including sealants.
3. Start the second tier from the eaves, side lapping the first panel, sealing and fixing, as specified. Repeat the procedure to complete the roof.
4. If applicable, at the ridge attach ridge fixing plates to external sheet of panel. Apply canister insulation prior to attachment of ridge batten.
5. Attach all relevant flashings and apply sealant as specified.



Installation Tool Kit

The following tools are required for site installation. The list is not exhaustive and additional tools maybe required.

1. Electrical operated screw gun with appropriate fixing attachments - SFS intec
2. Reciprocating type saw or jigsaw
3. Hacksaw
4. Tin snipes
5. Kraft knife

Slate/Tile Contractors Works

1. At specified gauge for slate/tile install timber battens to KS1000 TS panels. Attach battens to every crown using SFS Stadler self-drill, self-tapping screws.
2. Install the batten fasteners using either batten jointing arrangement Option 1 or Option 2 as shown on page 41.
3. Additional battens maybe required at eaves and for other construction details, reference should be made to the contract drawings.

Installation Tool Kit

The following tools are required for correct site installation.

1. SFS intec electrical operated screw gun with appropriate fixing bit (See page 43)
2. Wood saw
3. Temporary 5mm packer is required for Option 2 jointing arrangement.

Decra® Roofing System

To Complement the Kingspan KS1000 TS Slate & Tile Support System

Decra Roof Systems was first established in the UK in 1977 when it introduced to Europe the world's first lightweight roof tile.

This revolutionary new product weighed around 85% less than concrete tiles yet was immensely strong, very fast to fit and very soon offered a 30-year guarantee - not on just the tiles, but on the complete weather security of the whole roof - unheard of then and still unheard of today when compared with more traditional products.

Decra lightweight roof tiles are now by far the most popular in the world, manufactured in four continents and sold and installed in over 70 countries.

In the UK and Ireland today, Decra tiles are available in four different profiles, two gauges and a multitude of colour finishes as standard or to order, but all ceramically glazed for long term colour stability.

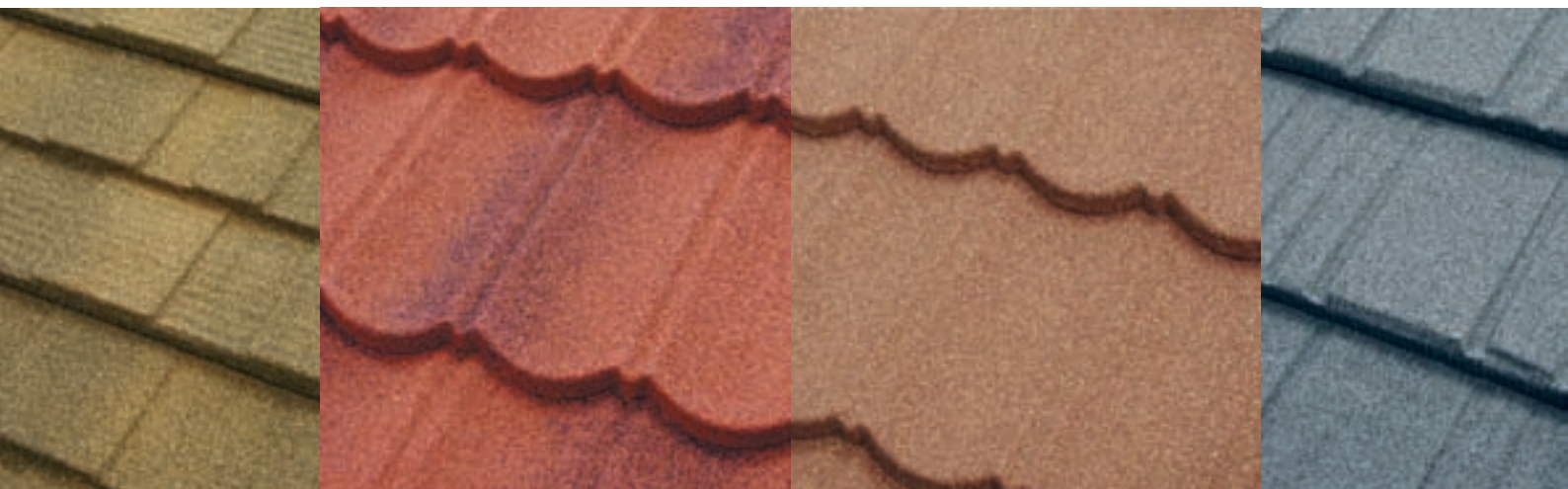
Decra tiles are developed and manufactured to ISO 9001 quality standards and are covered by British Board of Agrément certificates. The company is a member of the Construction Products Association.

Technical Data

Product	Colours	Pitch	Appearance
Decra Classic Tile	5	10°	Traditional clay or concrete pantiles
Decra Plus Tiles	2	10°	High-vandal resistance 0.9mm galvanised Steel. Traditional clay or concrete pantiles
Decra Stratos Tiles	2	12°	Flat format concrete tiles & slates
Decra Oberon Tiles	4	15°	Traditional clay or concrete plain tiles

Designed to provide an attractive and economic finish for all types of roof. A comprehensive choice of accessories, including eaves and tile ventilators, completes the system which is totally dry-fixed throughout.

Each tile has a downturned front edge and an upturned rear edge, and is profiled to provide a strong, overlapping and interlocking roof covering. Once installed, the system provides a durable, weathertight and low maintenance roof.



Decra® the way forward for roof tiles with all the benefits of Kingspan insulated panel technology

Decra® Roof Systems Limited

Telephone: +44 (0) 1293 545058

Fax: +44 (0) 1293 562709

Email: technical@decra.co.uk or sales@decra.co.uk

www.decra.co.uk

Nu-Lok™ Roofing System

To Complement the Kingspan KS1000 TS Slate & Tile Support System

Kingspan are working in close co-operation with Nu-Lok™ Roofing Systems (UK) Ltd on the KS1000 TS Insulated Slate and Tile Support System.

The Nu-Lok™ Roofing System is based upon 1.2mm gauge galvanised steel battens that are ideally suited for the metal top sheet of the KS1000 TS. Nu-Lok™ Metal battens provide additional strength and stiffening to the entire roof installation and a safe and strong ladder way for roof tilers.

In addition, metal to metal fixing promotes the opportunity for the battening to be fixed on site by the roof panel installation crew.

The advantages, however, only begin there. The uniqueness of the Nu-Lok™ Roofing System, which was developed in Australia some 15 years ago, provides for the roof covering to be securely clipped on to the battens, reducing the time required for installation without affecting the robustness of the system or its attractive appearance.

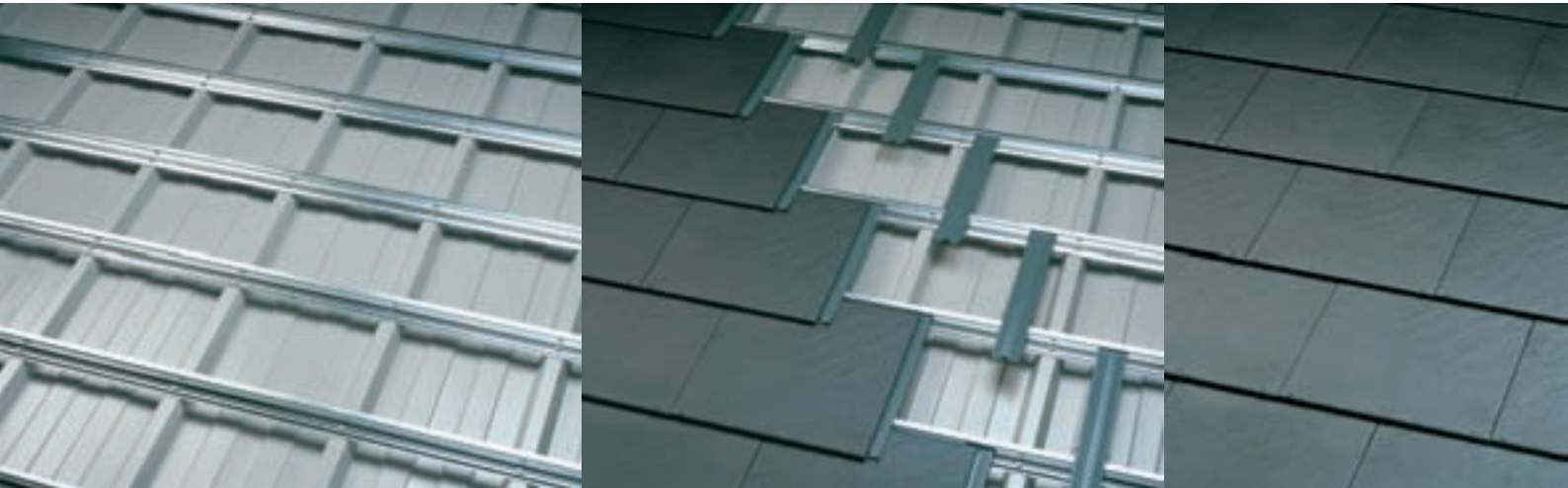
The Nu-Lok™ Ceramic Slate also brings a refreshing newness into roofing. The Nu-Lok™ vitrified Ceramic Slate tile is guaranteed colourfast for 50 years. It simply will not fade over time. Baked at 1200°C this 400 x 400 x 10mm tile has more

than enough strength to retain the weight of a roofer and takes the words "fragile material" out of roofing. Whilst trafficking a tile or slated roof is not recommended, it is always a continuing problem on both new and re-furbished roofs.

Therefore, whilst Nu-Lok™ provides a strong roof covering, the unique Link Channel design which provides side lap weathering and ceramic slate retention, also enables the interchange of individual tiles in seconds without resort to mechanical fixings or any tools.

One further benefit to designers and developers alike is that natural roof slates may be substituted for the Nu-Lok™ Ceramic Slates. Should this be the design preference, then natural slates are used in a single lap format which effectively reduces the quantity, weight, labour and cost of slate material.

Kingspan KS 1000 TS System is complemented by the addition of the Nu-Lok™ Roofing System and gives Designers and Engineers increased opportunity to meet the ever-increasing demands of Client, Governmental and Local Authority Planning requirements.



Nu-Lok™ engineered ceramic slate roof in three easy steps with all the benefits of Kingspan insulated panel technology

Nu-Lok™ Roofing Systems (UK) Ltd:

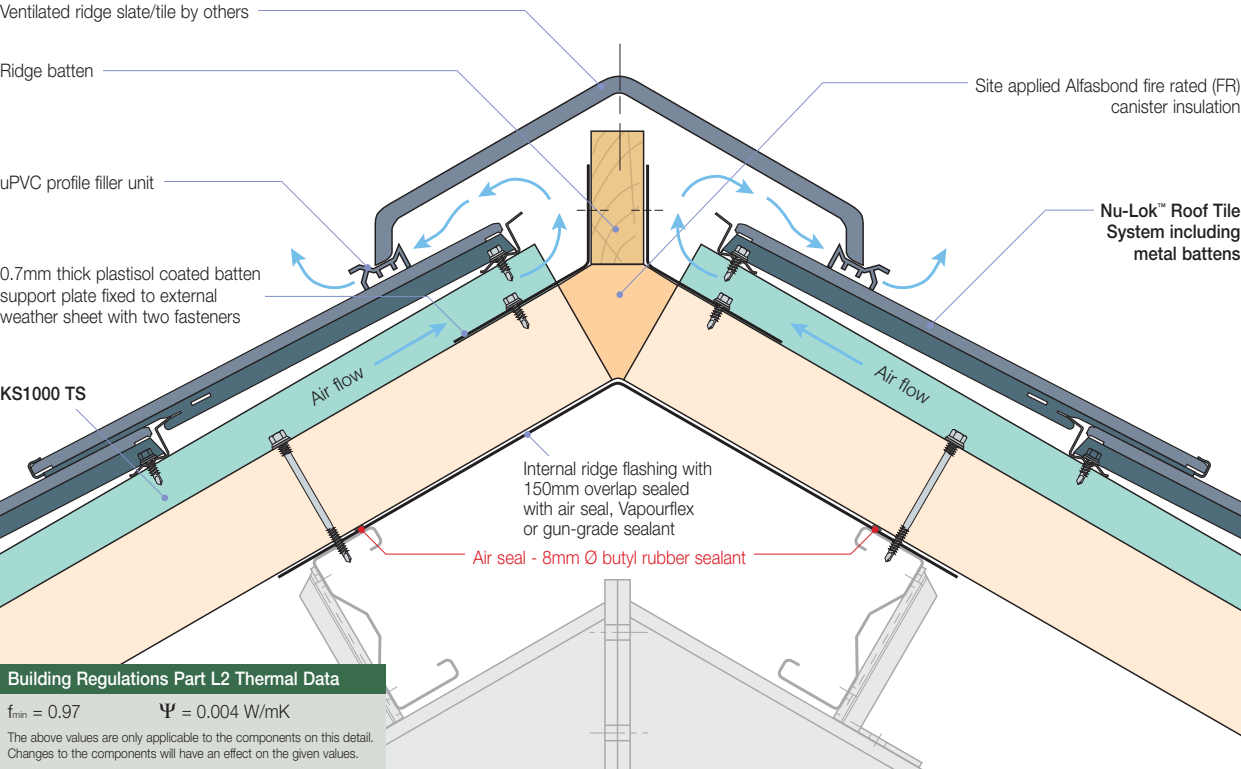
+44 (0) 1895-622689

Nu-Lok™ Roofing Systems (Ireland):

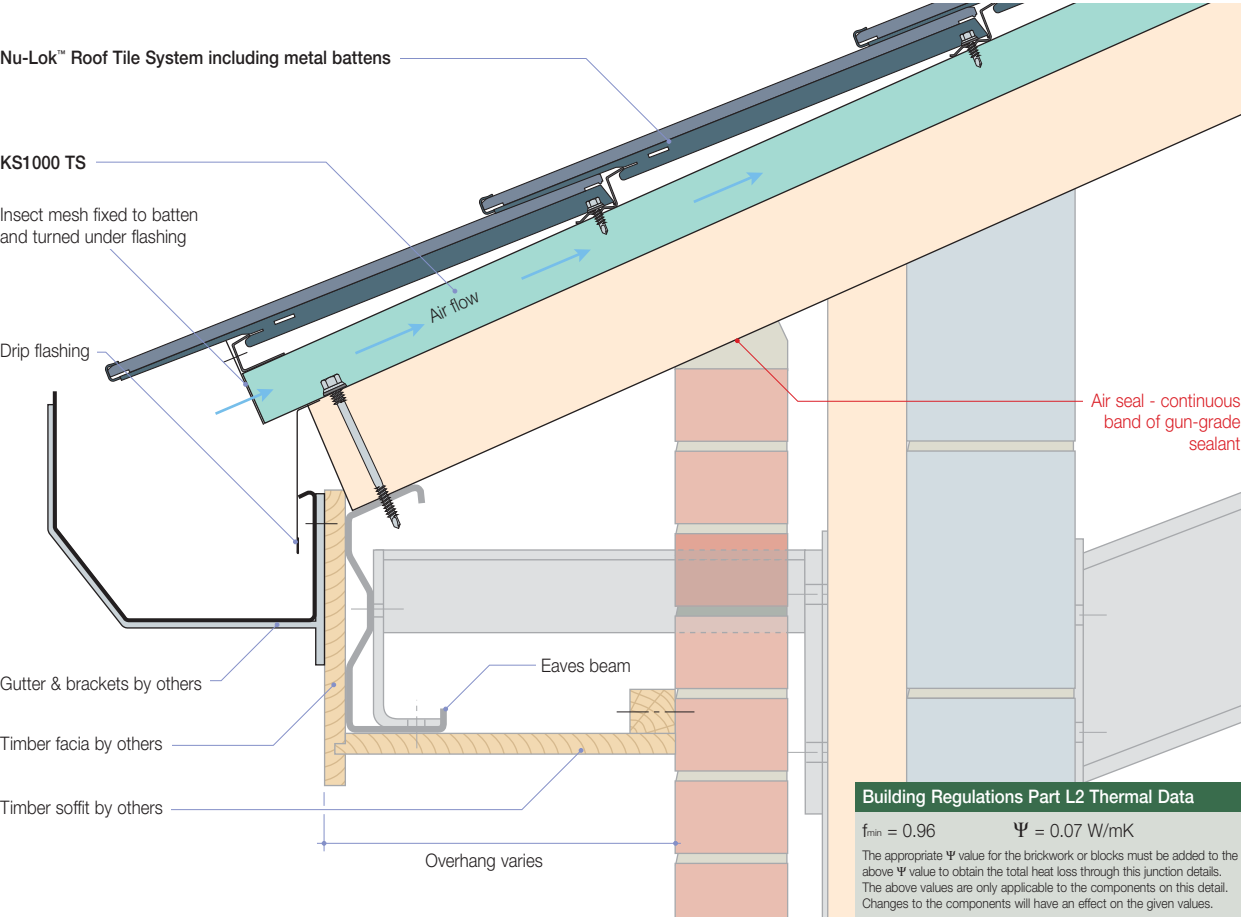
+44 (0) 2825-862717 (North) +353 (0) 1467-1639 (Republic)

Decra & Nu-Lok™
Systems

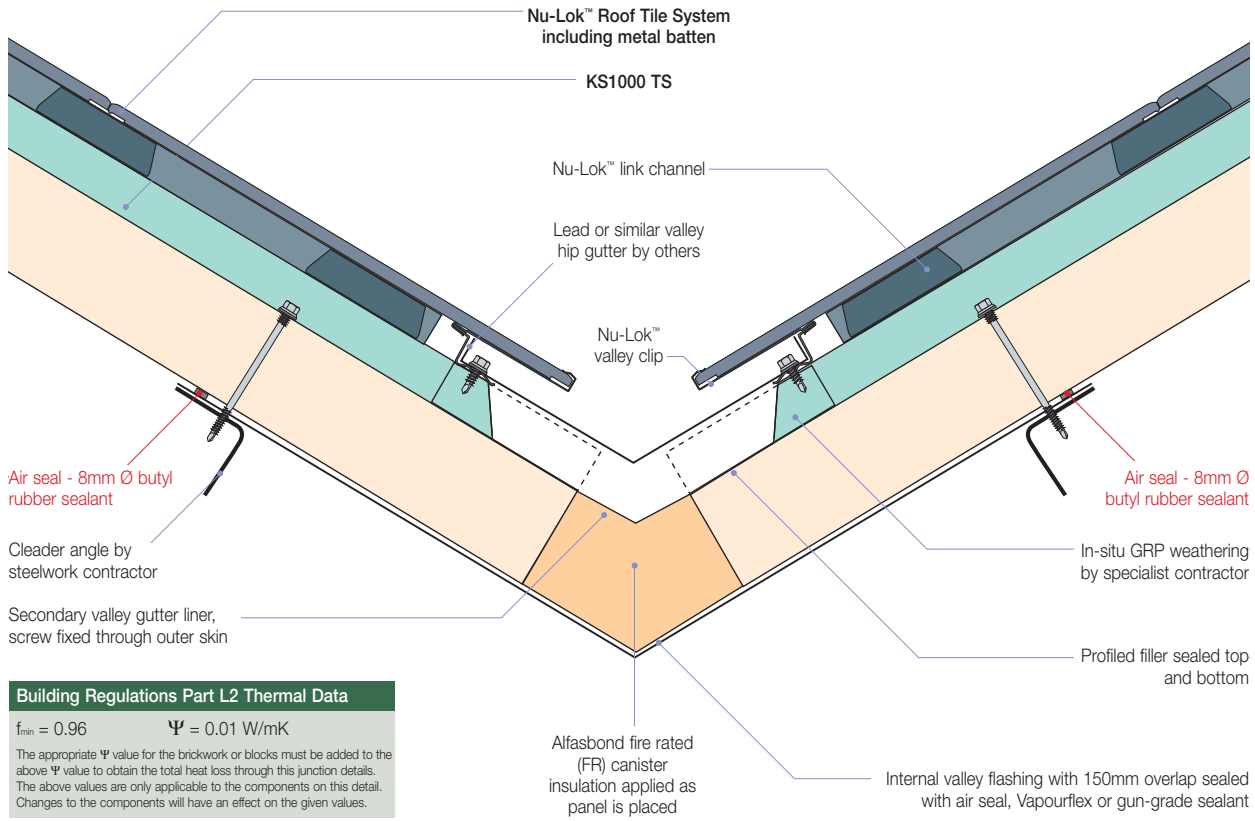
Nu-Lok™ Ridge Detail



Nu-Lok™ Eaves Detail



Nu-Lok™ Valley/Hip Detail

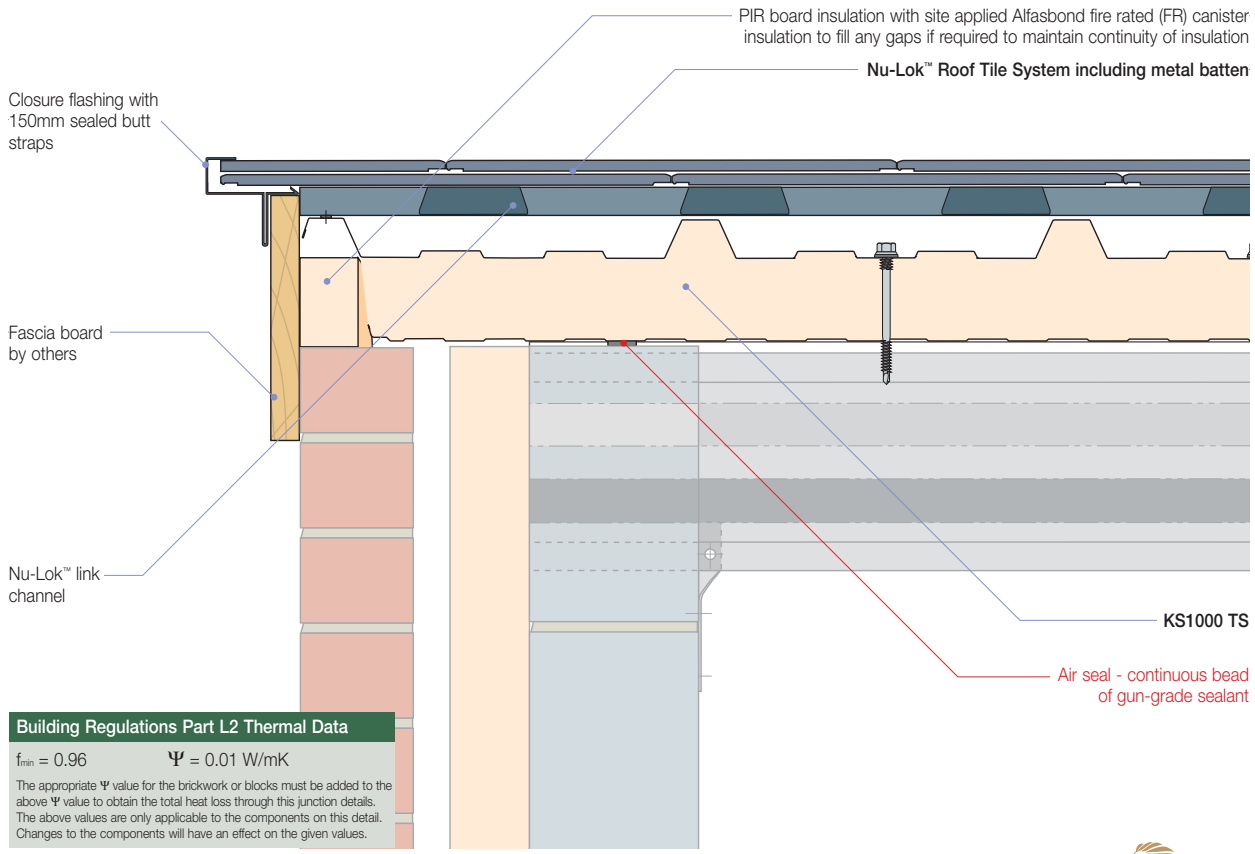


Building Regulations Part L2 Thermal Data

$f_{min} = 0.96$ $\Psi = 0.01 \text{ W/mK}$

The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

Nu-Lok™ Verge Detail



Building Regulations Part L2 Thermal Data

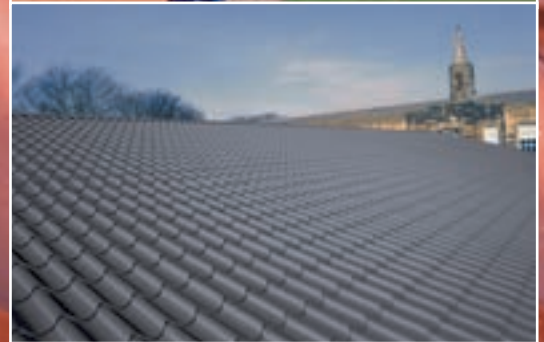
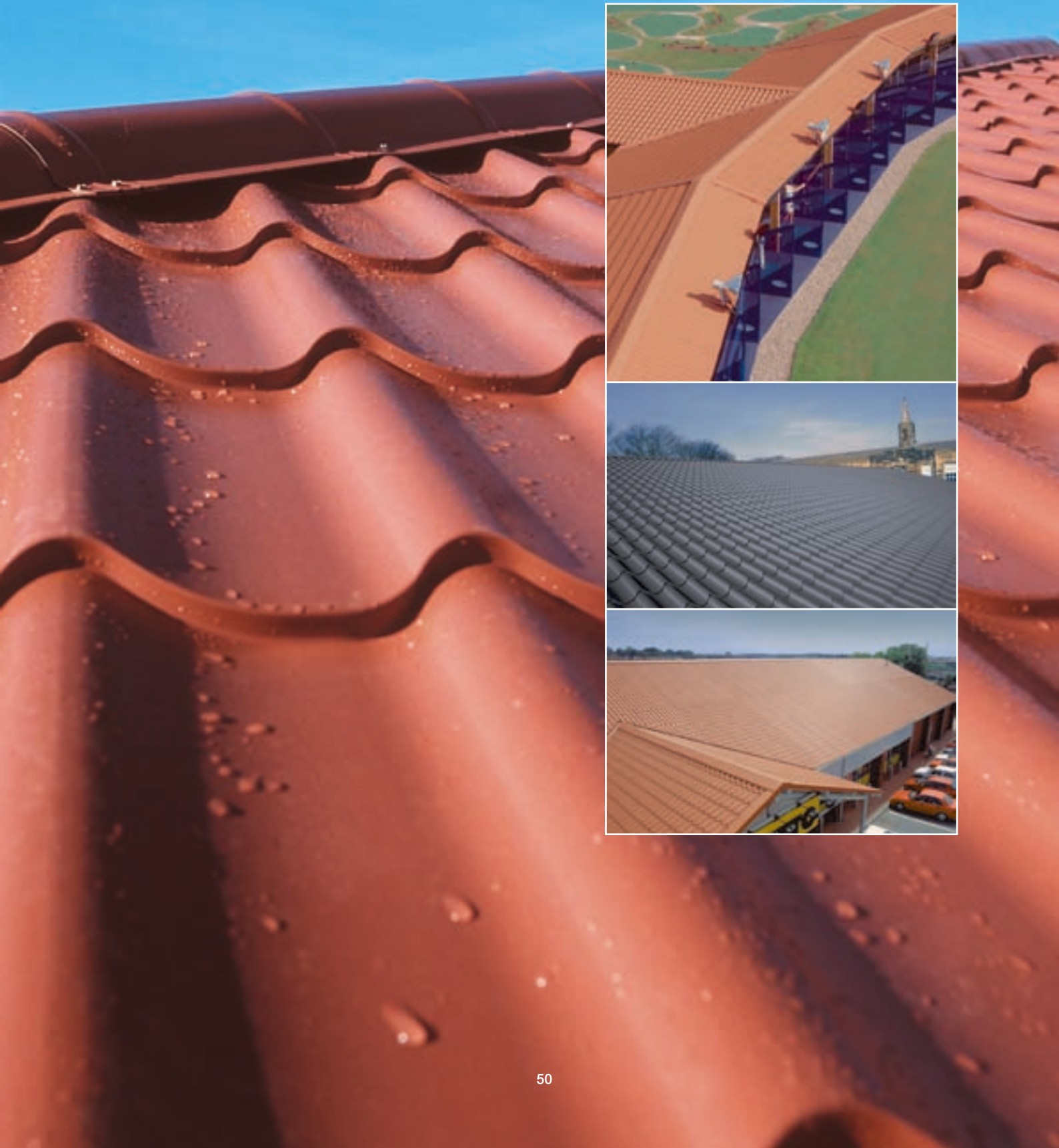
$f_{min} = 0.96$ $\Psi = 0.01 \text{ W/mK}$

The appropriate Ψ value for the brickwork or blocks must be added to the above Ψ value to obtain the total heat loss through this junction details. The above values are only applicable to the components on this detail. Changes to the components will have an effect on the given values.

Decra & Nu-Lok™ Systems



“ Combining traditional looks with modern technology on roof pitches 12 degrees and above ”

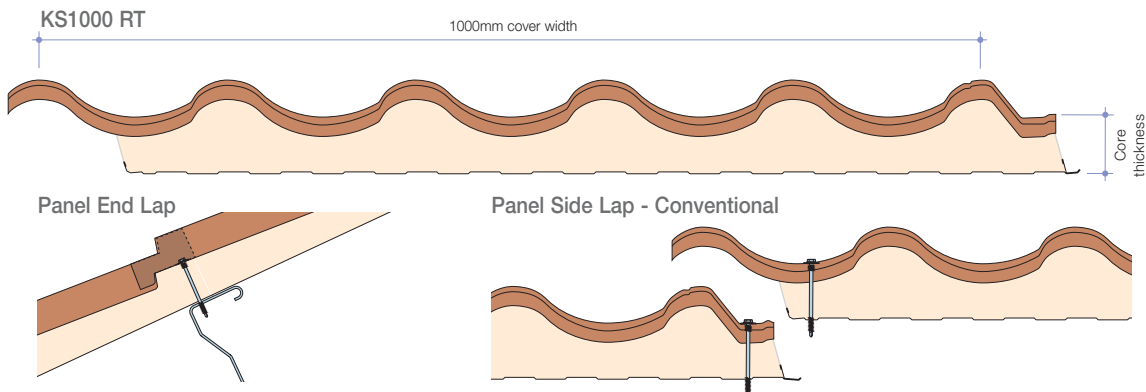


Insulated roof tile system

KS1000 RT

System Benefits

- Complies with HSE and CDM safety requirements.
- Suitable for roof slopes of 12 degrees and above.
- Meets planners objectives for less obtrusive buildings.
- Single-fix construction provides a rapid weathertight roof which facilitates earlier internal fit-out.
- Warm roof construction can easily provide an additional usable storey or lettable space with regulatory compliant rafter level insulation and internal lining
- Increasing building height and incorporating an additional usable storey is particularly beneficial for high density residential, low-rise multi-storey location developments, eg, apartments
- Property & Business Protection - Loss Prevention Certification Board (LPCB) LPS 1181 certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability.
- Fully complies with Part L2 (England & Wales) and Part J (Scotland) Regulations and Standards.
- Lifetime insulation continuity, thermal performance and airtightness ($5\text{m}^3/\text{hr}/\text{m}^2$) certainty.
- Accelerated build speed through pre-engineered, single component, single-fix installation, reduces site time by up to 50%.
- Environmentally sustainable system - Zero ODP and non-deleterious.
- Energy efficient performance reduces M&E plant and lifetime operating costs by up to 40%.
- Environmentally sustainable solutions reduce lifetime Carbon Dioxide (CO_2) emissions by up to 40%.
- Complies with Parts E & H 'Resistance to the passage of sound' for non-domestic buildings. For residential, domestic, education and healthcare building applications, BB93 and HTM 2045 solutions, consult Kingspan Technical Design Bureau.
- Lifetime durability - up to 25 years to first maintenance and overall life expectancy of up to 40 years.
- Incorporates Velux daylighting systems.
- Can incorporate safety and fall arrest systems.
- Quality approved to BS EN ISO 9002.



KS1000 RT Roof Cover Width 1000mm

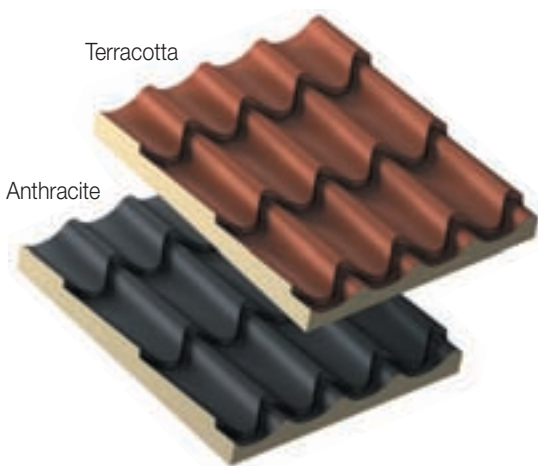
Core Thickness (mm)	45	60	80*	100*
Overall Dimension (mm)	85	100	120	140
U-Value ($\text{W}/\text{m}^2\text{K}$)	0.45	0.32	0.25†	0.20†
Weight kg/m^2 0.7/0.4 steel	12.58	13.23	14.10	14.96

*These panel thicknesses comply with Part L2 (England & Wales) and Part J (Scotland).

U - Thermal transmittance $\text{W}/\text{m}^2\text{K}$.

†U Value calculated in accordance with the method required by the Building Regulations Part L2 (England & Wales) and Building Standards Part J (Scotland).

For further details on this product and product tolerances contact Kingspan Technical Design Bureau.



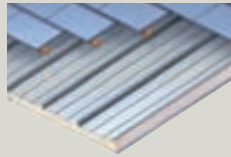
Kingspan Insulated Roof & Wall Systems

Roof Systems

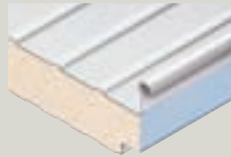
KS1000 RW
Trapezoidal



KS1000 TS
Tile Support



KS 500/1000 ZIP
Kingzip



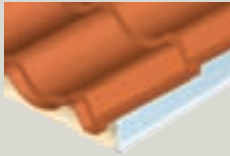
KS1000 LP
Lo-Pitched



KS1000 CR
Curved



KS1000 RT
Roof Tile



Wall Systems

KS600, 900
& 1000
Optimo



KS600, 900
& 1000 MR
Micro-Rib



KS600, 900
& 1000 EB
Euro-Box



KS600, 900
& 1000 FL-S
Flat (Stucco)



KS600, 900
& 1000 MM
Mini-Micro



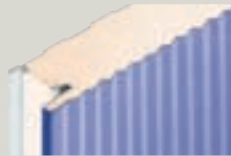
KS600, 900
& 1000 CX
Convex



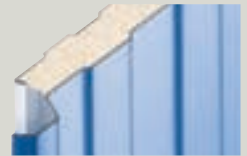
KS600, 900
& 1000 WV
Wave



KS600, 900
& 1000 LS
LongSpan



KS1000 RW
Trapezoidal



Controlled Environment Systems

KS1100/1200 CS



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