

Insulated Roof
& Wall Panels

KS1000 RT
Roof Tile



KS1000 RT Roof Tile



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Introduction



Kingspan Roof Tile offers traditional appearance, with the benefits of an off-site pre-engineered, single component system, providing rapid and superior quality construction.

Kingspan Roof Tile panels are Loss Prevention Certification Board (LPCB) certified to LPS 1181 and are insurer approved FireSafe providing exceptional fire performance.



Roof Pitches

Kingspan Roof Tile panels are suitable for applications on buildings with roof pitches of 12° and above using the following construction methods

- **Timber truss systems.**
- **Timber purlin systems.**
- **Steel purlin systems.**
- **Flat-to-pitch over-roofing systems.**

Building Applications

Kingspan Roof Tile panels are suitable for all building applications including office and commercial, education and domestic. Its traditional appearance lends itself for use within built up urban areas and rural locations.

Applications



Low maintenance and no individual tile damage, weathertightness guarantee

Kingspan Roof Tile benefits from all of the advantages of constructing with insulated panels compared with traditional construction methods. These include:

- Lower roof pitches.
- Construction applications.
- End user benefits.
- Speed of construction.
- Regulation compliance.
- Environmentally sustainable.



Applications



Lower Roof Pitches

- A lower factory pre-engineered specification providing lower roof slope construction than traditional slate or tile methods.
- Kingspan Roof Tile panels are suitable for roof applications with roof pitch of minimum 12° after deflection.
- Traditional appearance meets planners objectives for less obtrusive buildings.

Construction Applications

- Kingspan Roof Tile panels can be used in conjunction with timber, steel and flat-to-pitch support structures and framing systems.
- A comprehensive range of integrated and complimentary accessories available.

End User Benefits

- Additional space due to warm roof construction method.
- Low maintenance and no individual tile damage.
- Weathertightness guarantee.

Speed of Construction

- Single component, single fix installation can provide 50% faster installation times, allowing internal fit out to begin earlier.
- Kingspan Roof Tile panels can be installed using mechanical handling equipment, thus further increasing the build speed.
- Eliminates the need to fix individual tiles.
- Fixes directly to roof structure - no need for separate roof felt and insulation materials.



Regulation Compliance

- Fire Rated - Loss Prevention Certification Board (LPCB) certified to LPS 1181 and insurer approved
- Fully Complies with the Building Regulations Approved Documents L2A & L2B (England & Wales) and Technical Handbooks Domestic and Non-domestic, Sections 6 (Scotland).
- Low air leakage - 10m³/hr/m².
- Warm roof construction method providing thermal, airtightness and insulation continuity for the lifetime of the Energy Performance Certificate issued.
- No interstitial condensation risk or cold bridges within the roof construction.

Environmentally Sustainable

- Zero Ozone Depletion Potential (Zero ODP).

Applications



Kingspan Roof Tile panels are suitable for construction with all types of roof structure or frame systems which incorporate roof pitches of 12° and above after deflection.

The ability of the roofing system to be used with different frame systems or roof structures allow it to be used on varying building applications including residential, commercial, retail or domestic properties.

Timber Truss & Timber Purlin Construction

Kingspan Roof Tile panels are suitable for application with traditional timber truss or timber purlin roof structures.

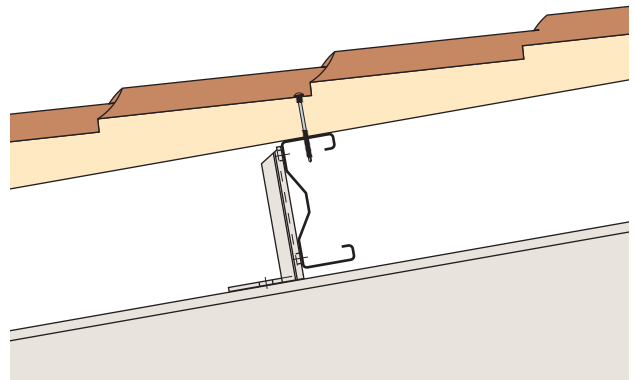
When used with conventional timber truss construction, tile batten laths provide the connection between the Kingspan Roof Tile panel and the structure. Steel batten laths act as a support purlin and span between the timber trusses.

When used on timber purlin roof structures the Kingspan Roof Tile panels are fixed directly with self drill type fasteners, which have the correct thickness and size to ensure correct fastener embedment.

Steel Purlin Construction

Kingspan Roof Tile panels can be fixed to conventional cold formed, hot rolled or rectangular hollow section steel purlins in the same way as any other insulated roof panel system.

The system has all the advantages of any insulated roof panel system, ie, providing excellent spanning capability and structural performance.



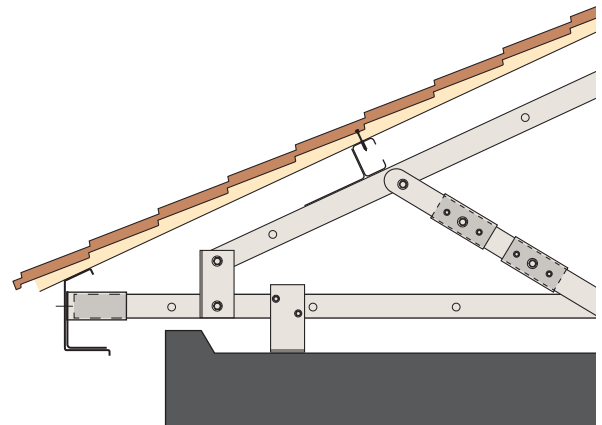
Flat-to-Pitch Over-Roofing System Construction

A Flat-to-Pitch light-gauge, roof framing system is widely used to convert conventional flat roof buildings to a more attractive pitched roof, without imposing undue load on the existing structure.

This is a proven method of providing a pitched over-roof refurbishment solution for existing flat roof buildings.

Kingspan Roof Tile complements this method by providing a complete change to the visual appearance of the building's form, thus enhancing the aesthetics and property value. The application of the Kingspan Roof Tile panel on roof pitches down to 12° can make a building's 'site line' and ridge level less obtrusive.

This can be an important planning factor, particularly within urban and other sensitive areas.



Applications



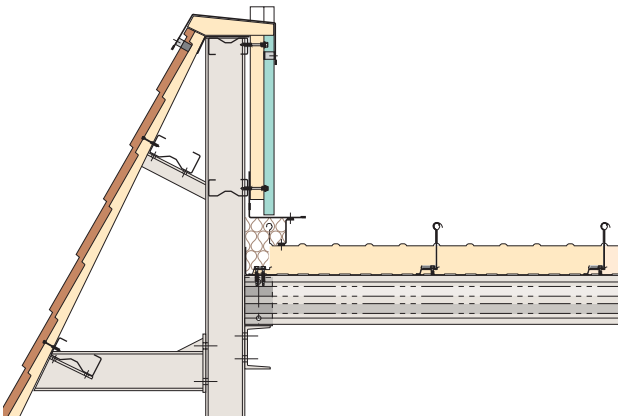
Mansard Features

Many commercial and retail buildings incorporate a low pitch or flat roof construction but still require an attractive traditional façade to meet the aesthetic needs of the design team and local planners.

The Kingspan Roof Tile can help achieve these requirements. The traditional tile effect finish offers improved aesthetics compared with many alternatives including render and blockwork.

Kingspan Roof Tile is widely used in mansard applications in conjunction with other Kingspan insulated roof systems:

- KS1000 RW Trapezoidal.
- KS1000 LP Lo-Pitch.
- KS500/1000 ZIP Kingzip® Standing Seam.



Product Data



Application

Kingspan Roof Tile panels are designed to be used on roof structures with a minimum pitch of 12° or more, after deflection. The system is suitable for use on both domestic and non-domestic building applications.

NB. The sealing and construction details shown in this brochure are applicable to all roof pictures above this minimum pitch.

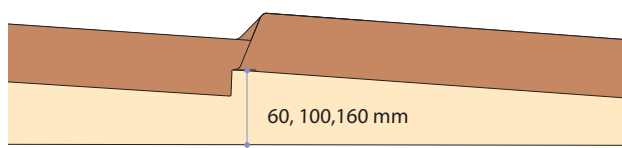


Product Data

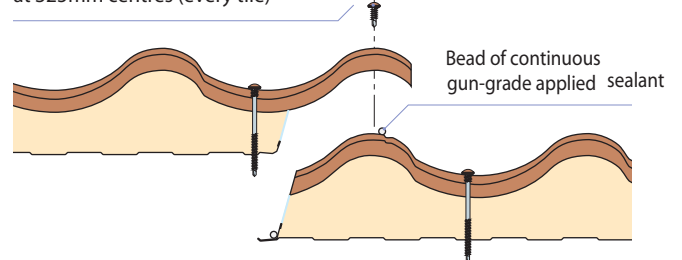
Dimensions and weight

Core Thickness A (mm)	60	100	160
Overall Dimension B (mm)	100	140	200
Weight kg/m ² 0.5/0.4 steel	11.3	13.1	15.8

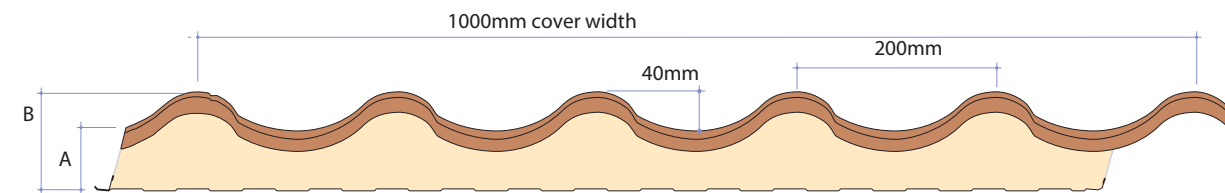
Core Thickness - Dimension A



Low profile headed stitcher at 325mm centres (every tile)



Panel Side Lap



Materials

Kingspan Roof Tile panels comprise steel facings encapsulating a FireSafe PIR insulation core. The steel facings are available in a number of material options to suit specified design conditions.

External Coating
Kingspan Roof Tile's external weather side coating consists of a high performance coating Deep Matt. Colours available are Terracotta and Anthracite (R9005).

Steel Substrate – External Face

0.5mm nominal thickness hot dipped coated steel to Grade Fe 220 G to BS EN 10147.

Steel Substrate - Internal Liner

0.4mm nominal thickness stucco embossed hot dipped coated steel to Grade Fe 220 G to BS EN 10147.

Internal Liner Coating

The standard liner is bright white enamel and is suitable for typical internal environments. Where internal conditions are more demanding, such as high internal humidity or clean room conditions, Plastisol or Foodsafe coatings are available subject to minimum quantities.

Product Data

Available Lengths

Kingspan Roof Tile panels are manufactured cut to length in modular sizes.

Variance in the panel length is taken up under the ridge flashing. When detailing the ridge junction the designer must ensure that the chosen panel length is long enough to provide a sound practical junction detail. In practical terms a shortfall of length no greater than 40mm from the ridge line will ensure good insulation continuity of the infill insulation. Where this is not the case the next panel size up must be chosen and the surplus length cut to suit the site dimension.

Consideration must be given to lifting and handling methods. In practical terms mechanical handling techniques should be considered for the Kingspan Roof Tile applications due to the minimum pitch of 12° being required. Mechanical handling can facilitate faster installation and reduces the amount of manual lifting on-site.

Implications of Panel Length

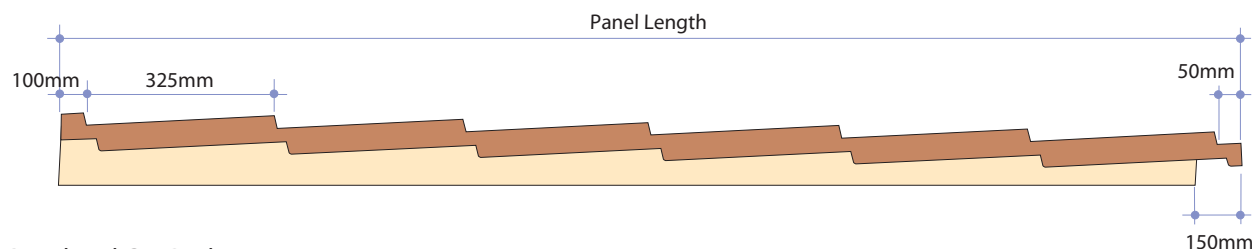
It is recommended that the Kingspan Roof Tile panel is laid in a single length, ridge to eaves, with no panel to panel end laps.

Where the distance from eaves to ridge exceeds the maximum pitch length, please contact Kingspan Field Service Engineers for installation guidance.

Tile Pitch

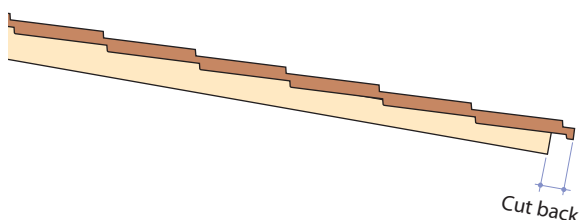
Kingspan Roof Tile panels are manufactured with a standard end laps and pitch length. Manufactured panel length is therefore a multiple of the pitch. The pitch length of the Kingspan Roof Tile is 325mm with a standard eaves overhang of 150mm.

In circumstances where the Kingspan Roof Tile panel length is greater than the roof pitch the panels are site cut at the apex and the junction covered by the ridge flashing.



Panel End Cut Back

All panels are produced with a standard (right) cut back of 150mm

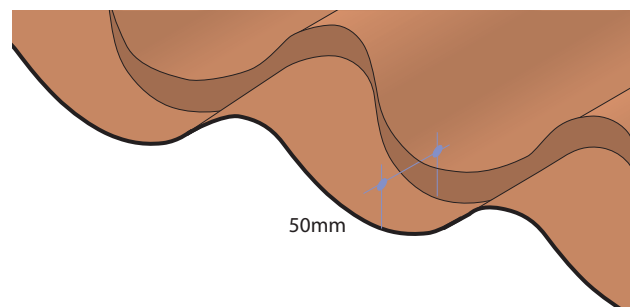


Panel Lengths (mm)

No. of Tiles	Tile Length 325mm	No. of Tiles	Tile Length 325mm	No. of Tiles	Tile Length 325mm
6	2100	21	6975	36	11850
7	2425	22	7300	37	12175
8	2750	23	7625	38	12500
9	3075	24	7950	39	12825
10	3400	25	8275	40	13150
11	3725	26	8600	41	13475
12	4050	27	8925	42	13800
13	4375	28	9250	43	14125
14	4700	29	9575	44	14450
15	5025	30	9900	45	14775
16	5350	31	10225	46	15100
17	5675	32	10550	47	15425
18	6000	33	10875	48	15750
19	6325	34	11200	-	-
20	6650	35	11525	-	-

Product Tolerances

Cut to Length (%)	-0.05	+0.1
Liner Sheet Length (%)	-0.1	+0.1
Cover Width (mm)	-0	+3
Thickness (mm)	-2	+2
End Square (mm)	-3	+3



Product Data

Insulation Core

The core of Kingspan Roof Tile is a FireSafe, closed cell IPN insulation which is non-deleterious.

Air leakage

Less than $10 \text{ m}^3/\text{hr}/\text{m}^2$ to comply with Building Regulations when fitted in accordance with good detail and site workmanship. Low air leakage specifications are available on a project-by-project basis from Kingspan **enviro care** Technical Services.

Seals

Factory Applied Side Joint Tape

All Kingspan Roof Tile panels are supplied with a vapour control tape to side laps.

Site Installed Seals

Additional liner seals can be easily installed during construction to provide a high degree of air and vapour seal to the building envelope.

Performance

Thermal Insulation

Panel Thickness (mm)	U-value * ($\text{W}/\text{m}^2\text{K}$)
60	0.380
100	0.226
160	0.141

* Thermal transmittance $\text{W}/\text{m}^2\text{K}$

** U-value calculated in accordance with the EN 14509

Biological

Kingspan Roof Tile panels are immune to attack from mould, fungi, mildew and vermin. No urea formaldehyde is used in the manufacture of the panels.

Fire

Kingspan Roof Tile is approved by the Loss Prevention Certification Board (LPCB) to LPS 1181. Kingspan Roof Tile panels have a FireSafe core which has been specially formulated to provide the following benefits:

- Stable protective char.
- No flash over.
- No flame spread.
- No flame propagation.

Acoustics

Kingspan Roof Tile panels have a single figure weighted sound reduction $R_w = 24\text{dB}$.

Sound Reduction Index (SRI)

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
SRI (dB)	20.3	18.8	20.6	21.8	22.0	32.4	37.6	44.4

Specification

Specifications are available from Kingspan **enviro care** Technical Services.

Email: envirocare@kingspanpanels.com

Quality

Kingspan Roof Tile panels are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards, approved to BS EN ISO 9001: 2000.

Guarantees & Warranties

Kingspan insulated panels are available with the Kingspan TOTAL Guarantee, offering 25 years thermal and structural performance guarantee.

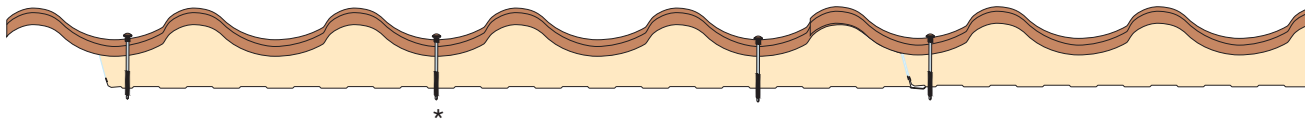
Delivery

All deliveries (unless indicated otherwise) are by road transport to project site. Off-loading is the responsibility of the cladding contractor or installer.

Product Data

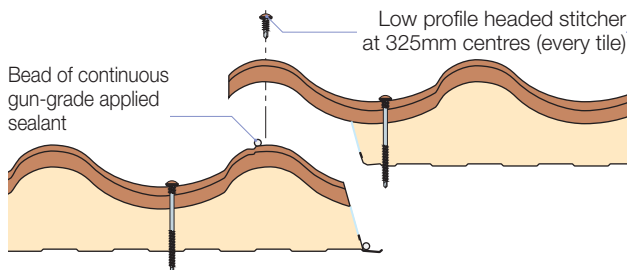
Fastener Positions & Types

Standard Fastener Layout



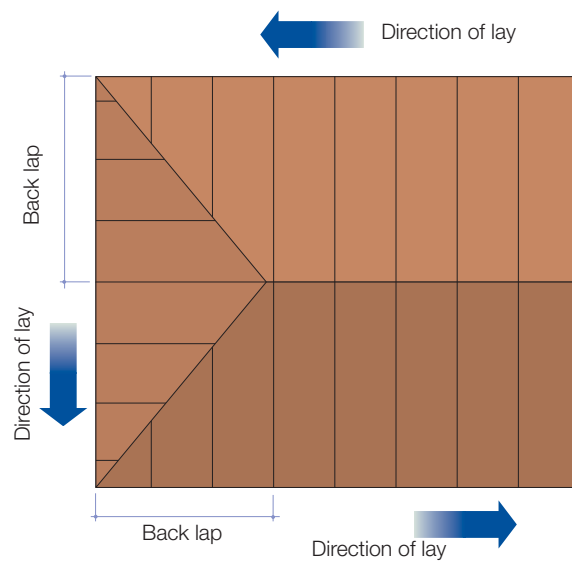
*Additional fasteners to suit wind uplift conditions

Panel Side Lap



Direction of Lay

The panels are manufactured to suit a left to right direction of lay only. It will be necessary to back lap panels in to hip and valleys however we would suggest back lapping is kept to the minimum necessary to maintain a working line and avoid health and safety issues.



Fasteners

Kingspan recommend 19mm washered anti-corrosion coated carbon steel fasteners complete with colour matched head.

When fixing to timber trusses, timber purlins and hot rolled steel structures, or in coastal and non-standard environments, please contact Kingspan **envirocare** Technical Services on: +44 (0) 800 587 0090.

Product Data

Roof Panel – Application

This specification covers the use of Kingspan Roof Tile panels on buildings with the normal internal environment comprising of an air leakage rate less than $10\text{m}^3/\text{hr}/\text{m}^2$ and a Class 2 humidity to BS EN ISO 13788 (Offices & Shops).

Materials

Insulation Core

FireSafe insulation core providing a non-deleterious closed cell insulation. Zero Ozone Depletion Potential (Zero ODP) in compliance with the Montreal Protocol.

Steel Substrate – External Face

0.5mm nominal thickness hot dipped coated steel to Grade Fe 220 G to BS EN 10147.

External Coating

External weather coating colour to consist of a high performance polymer coating, 50 micron thickness.

Steel Substrate - Internal Liner

0.4mm nominal thickness stucco embossed hot dipped coated steel to Grade Fe 220 G to BS EN 10147.

Internal Liner Coating

Standard bright white liner coating providing an easy clean surface.

Performance

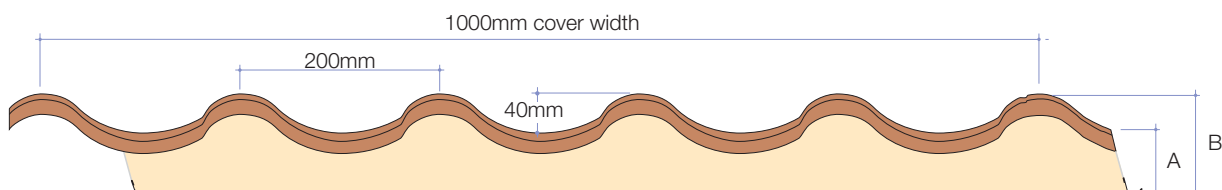
Thermal

U-value of $0.25\text{ W}/\text{m}^2\text{K}$ for a panel thickness of 80mm derived from an aged thermal conductivity of $0.020\text{ W}/\text{m}^2\text{K}$.

Fire

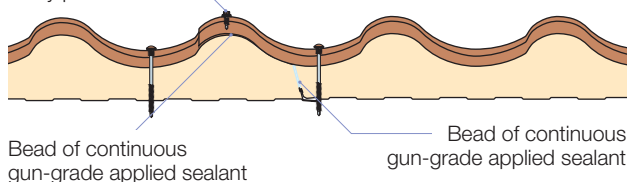
External surface SAA to BS 476: Part 3, Class 0 internal face, based on a satisfactory index of performance when tested to BS 476: Parts 6 & 7. Complies with insurance approval LPS 1181.

Panel Dimensions



Side Lap

Stitch side lap every profile



Fillers and Seals

Side Lap

All side laps to be sealed along the full length with an unbroken bead of non-curing gun-grade sealant to external and internal sheets.

Fillers

Where fillers are to be used to close off the profile of the panel e.g. under the ridge and verge flashing, they are to be made from black EPDM foam fillers.

Fasteners

Primary Fasteners

All fasteners must be high thread self-drill self-tap screws fitted with 19mm non-ferrous washers. The screws will be manufactured from anti-corrosion coated carbon steel and have a colour matched head.

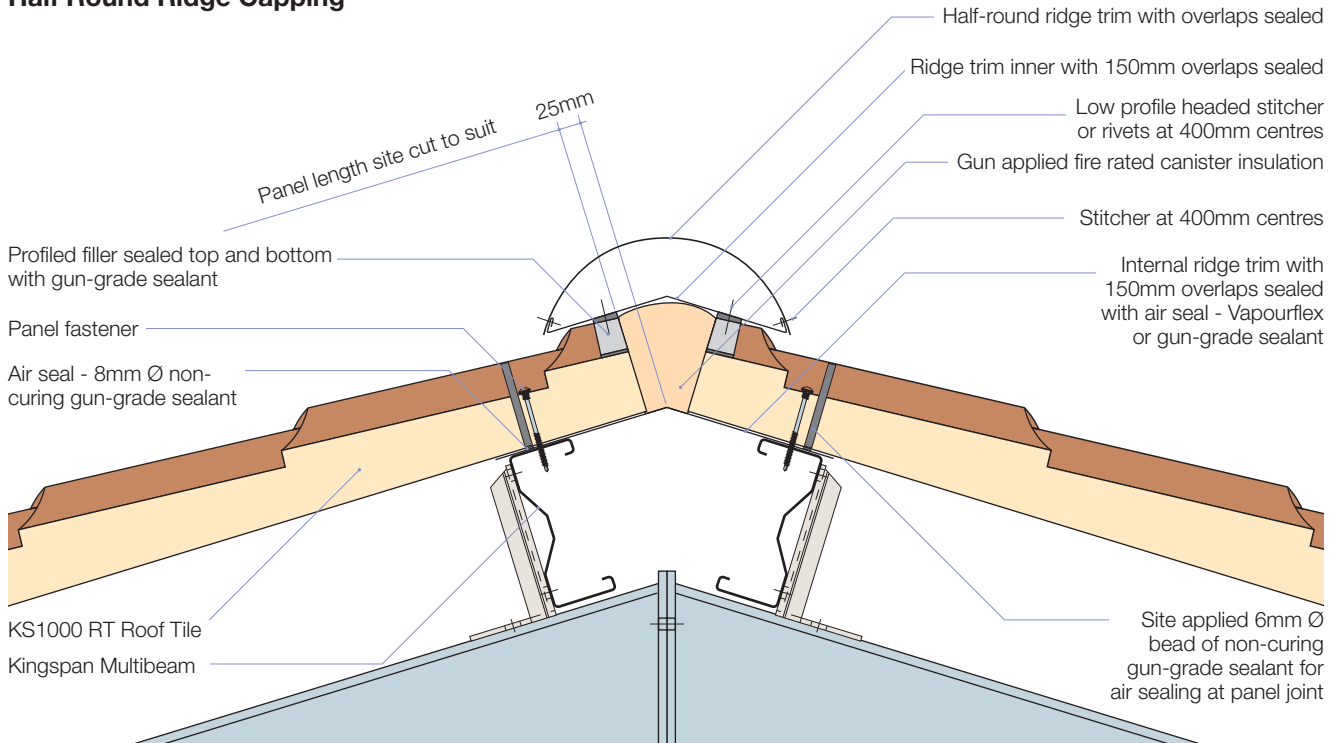
On fixing the profiles the primary fasteners will be placed in the concealed sidelap and the valley of the profile.

The number of roof fixings and their location must be as recommended by Kingspan and must be able to resist wind suction loads calculated in accordance with BS 6399 - 2: 1997.

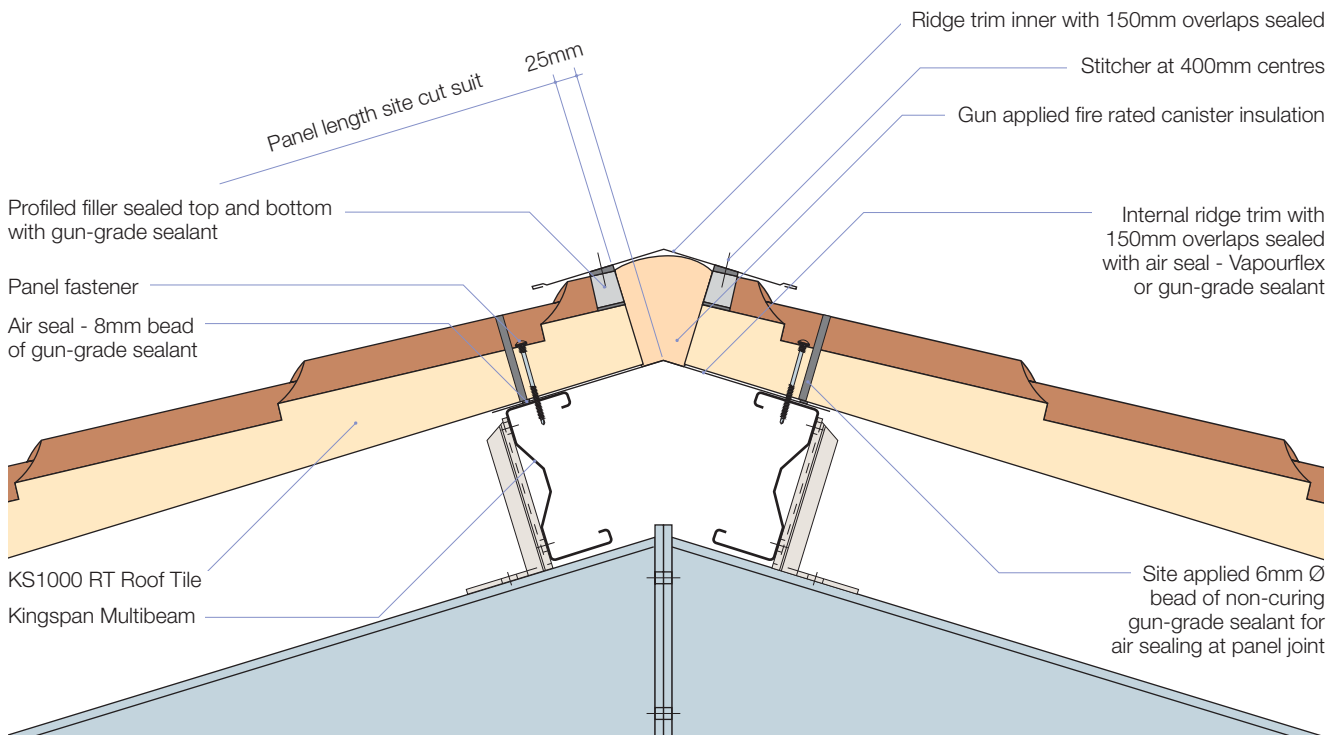
Stitchers

Stitching screws for flashings will be anti-corrosion coated carbon steel to resist corrosion. Stitchers will be fitted with 15mm non-ferrous washers, fixed at 325mm centres (i.e. every tile).

Half Round Ridge Capping

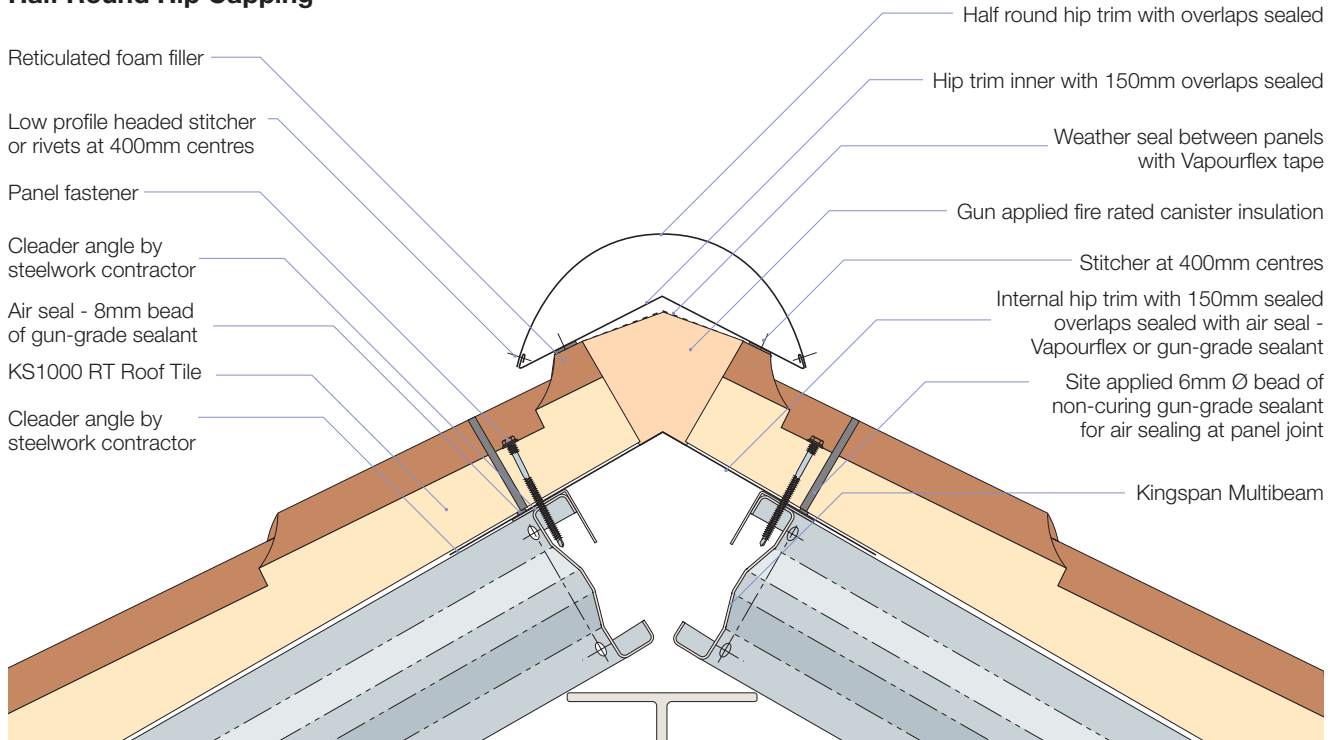


Angle Ridge Capping

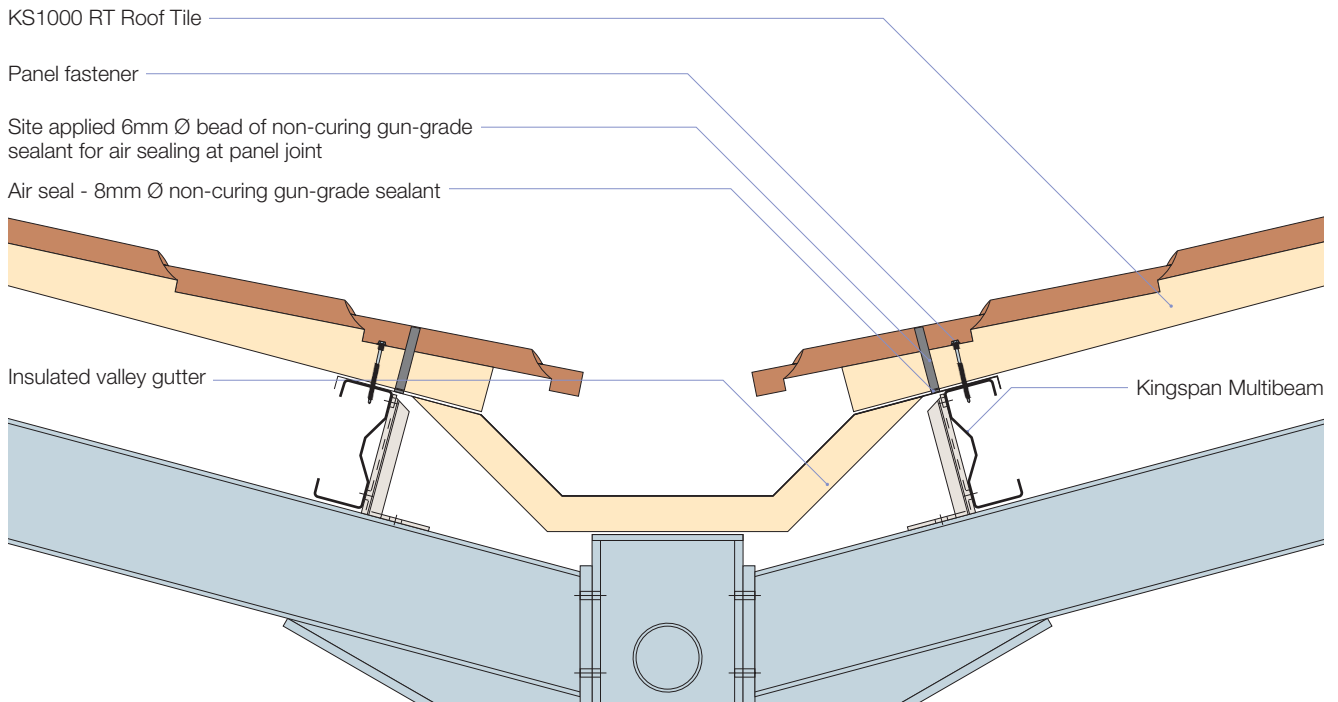


Note: Project specific construction details must be used. Please refer to Kingspan Design and Construction Guide for further information.

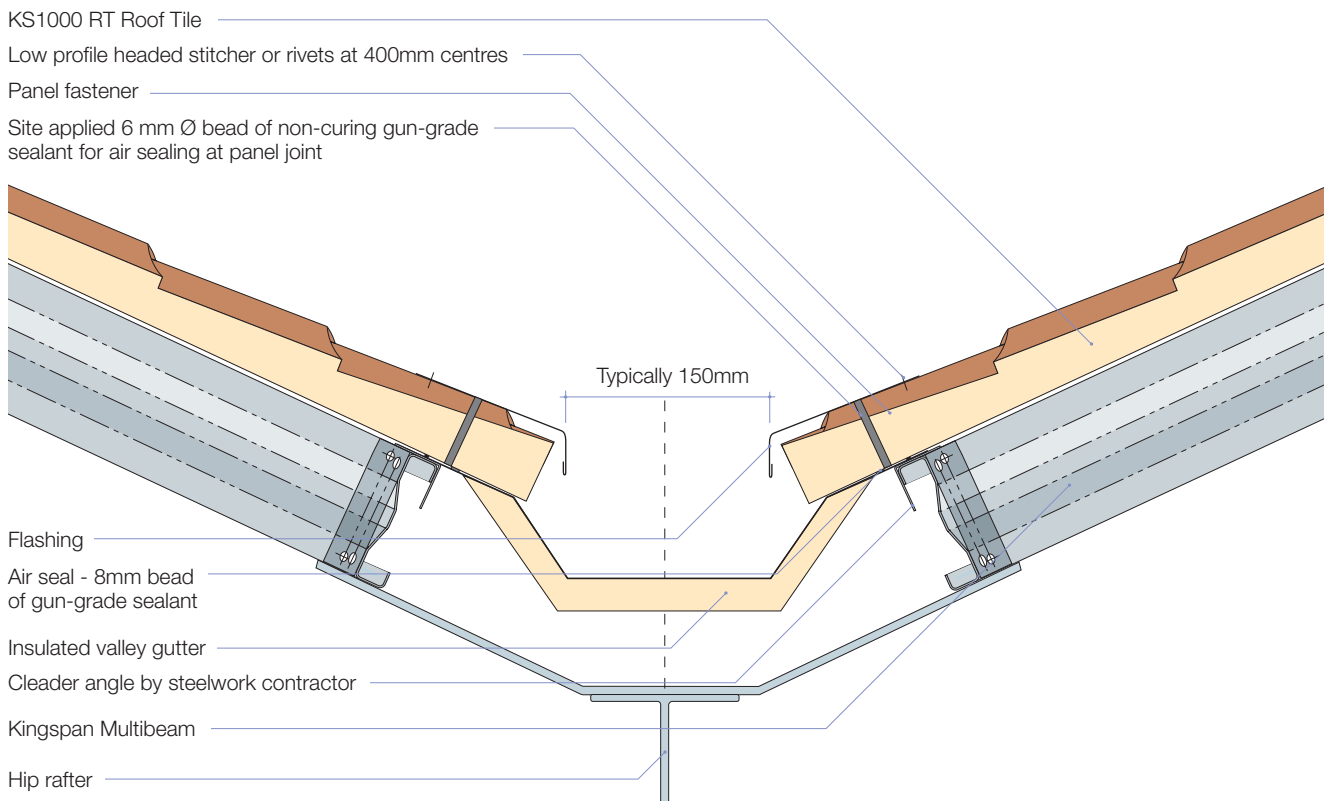
Half Round Hip Capping



Valley Detail

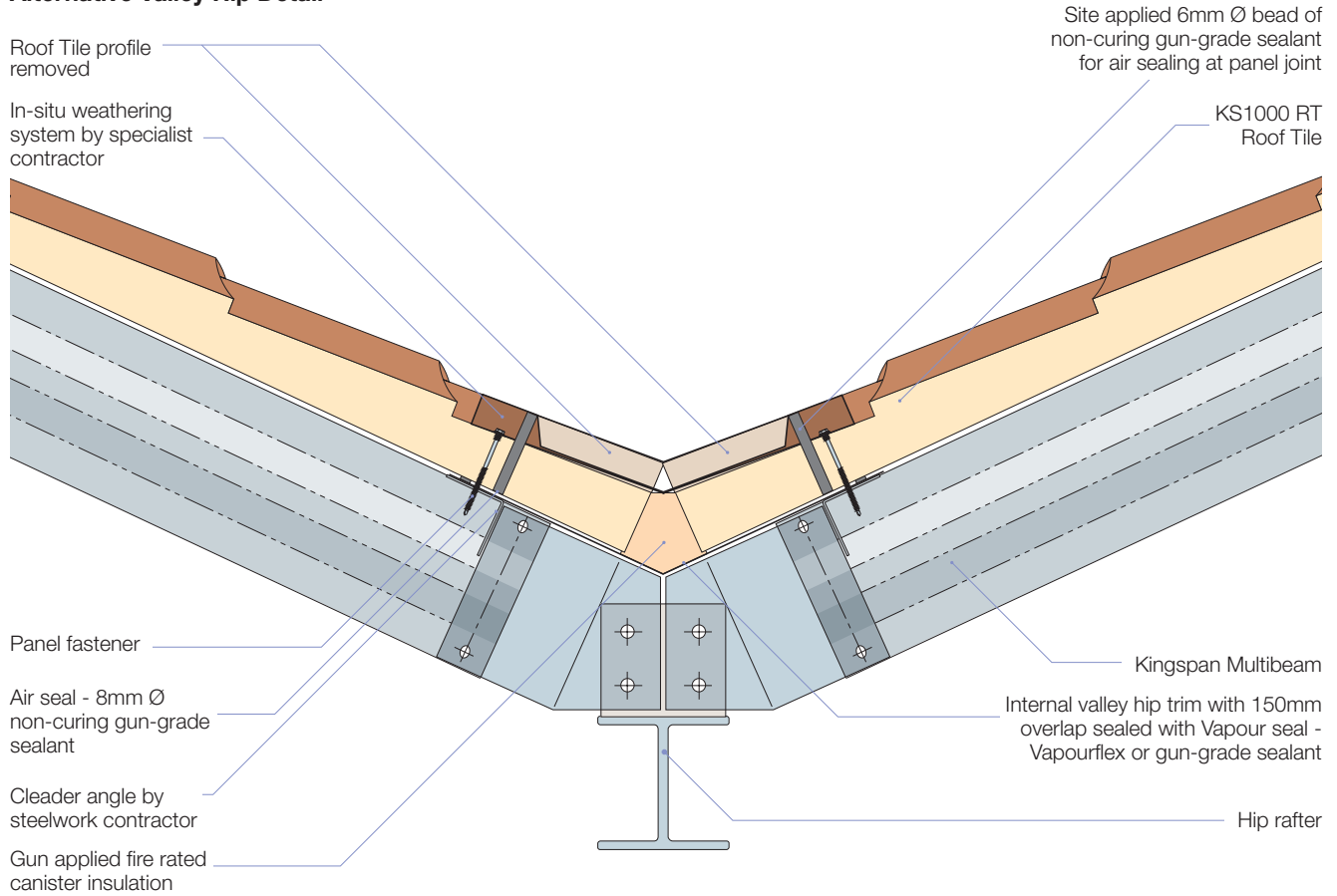


Valley Hip Detail

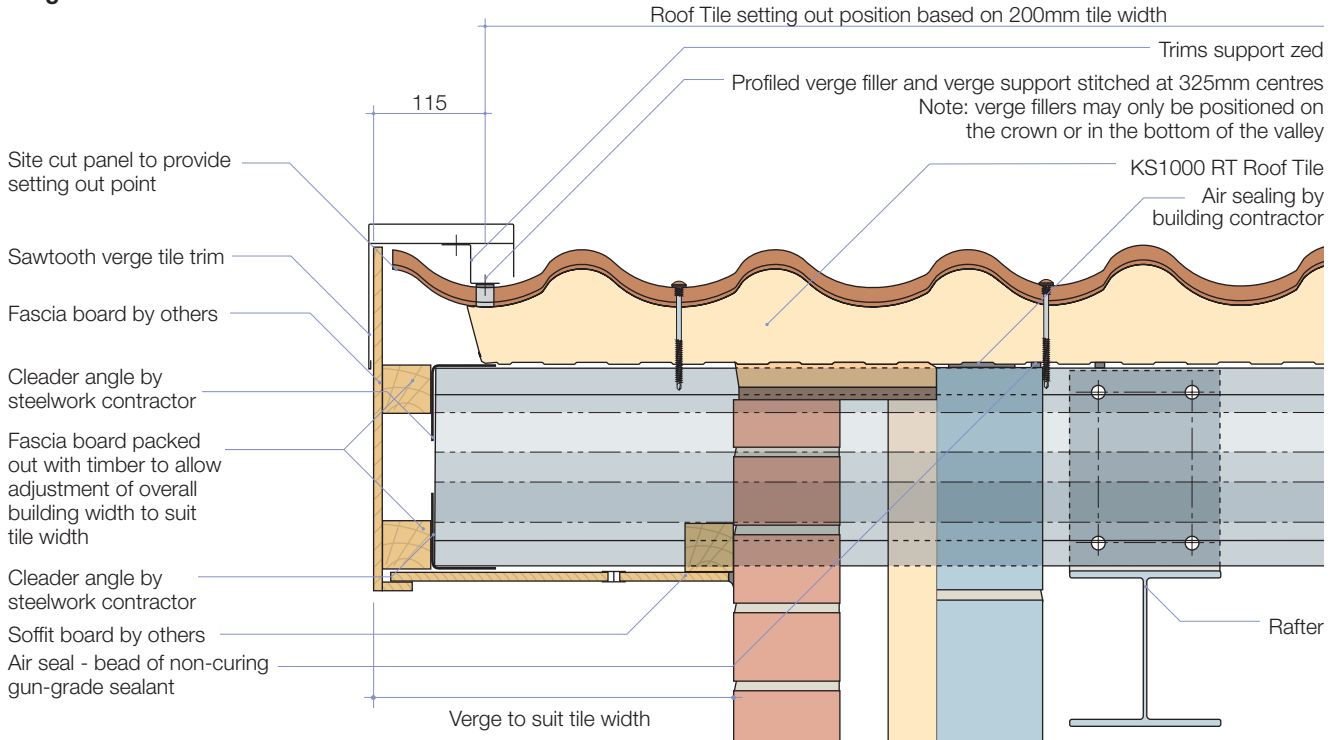


Note: Project specific construction details must be used. Please refer to Kingspan Design and Construction Guide for further information.

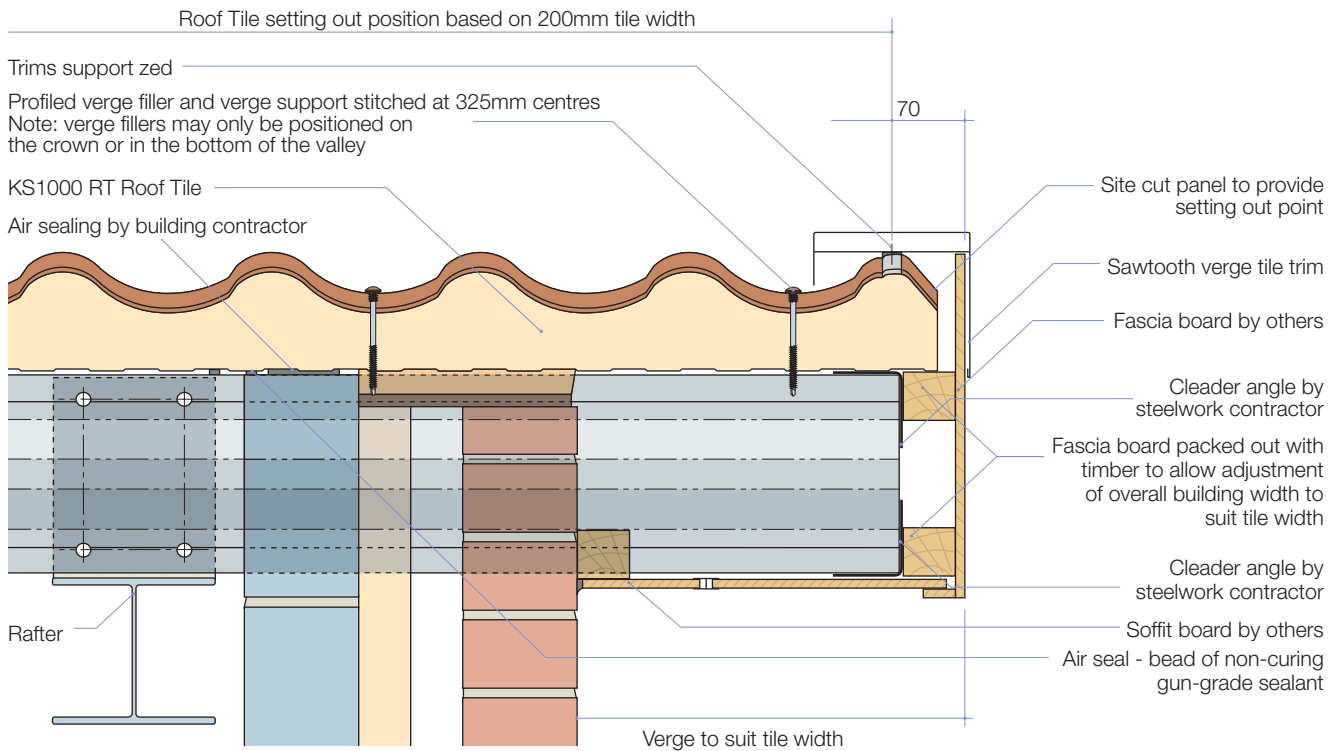
Alternative Valley Hip Detail



Verge Detail



Verge Detail



Note: Project specific construction details must be used. Please refer to Kingspan Design and Construction Guide for further information.

Eaves Detail

Site applied 6 mm Ø bead of non-curing gun-grade sealant for air sealing at panel joint

Air sealing by building contractor

KS1000 RT Roof Tile

Panel fastener

160mm Cutback

Ogee external gutter

Fascia board packed out with timber to allow adjustment of overall building width to suit tile width

Fascia board by others

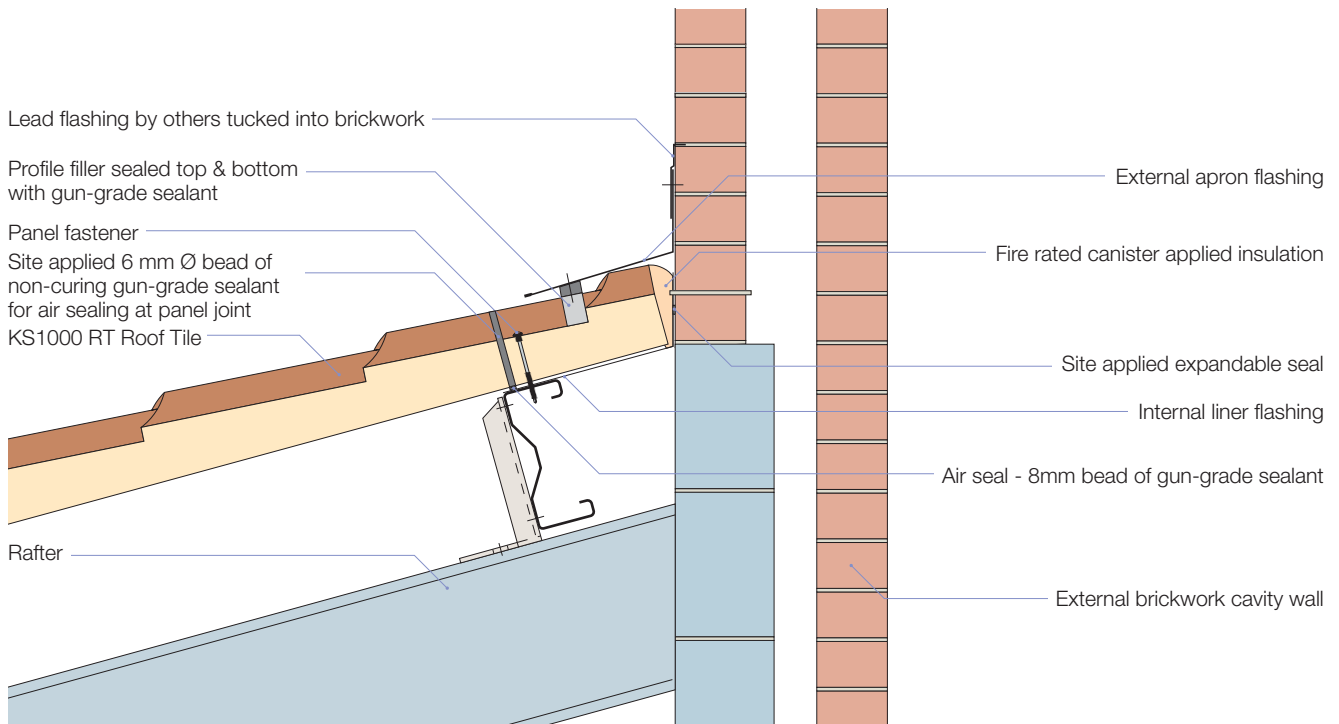
Kingspan Eaves Beam

Soffit board by others

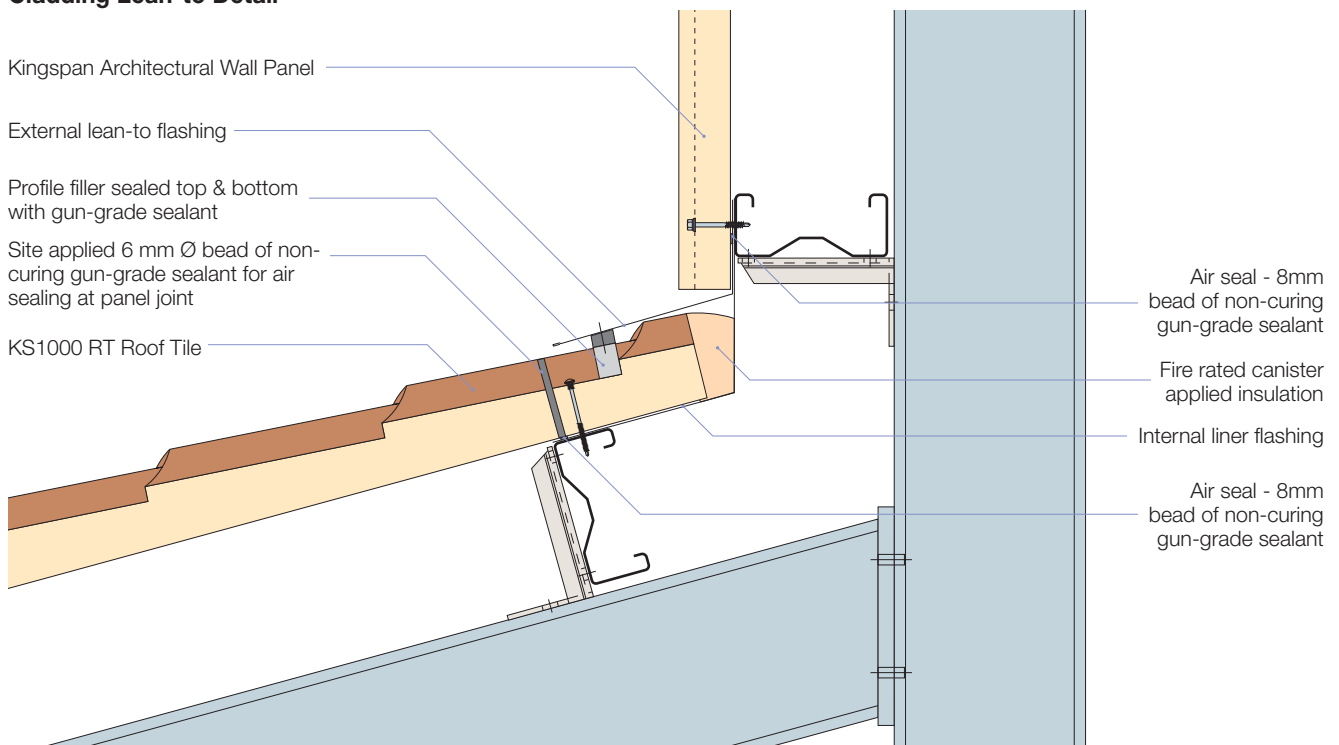
Overhang to suit Roof Tile panel length

Note: Project specific construction details must be used. Please refer to Kingspan Design and Construction Guide for further information.

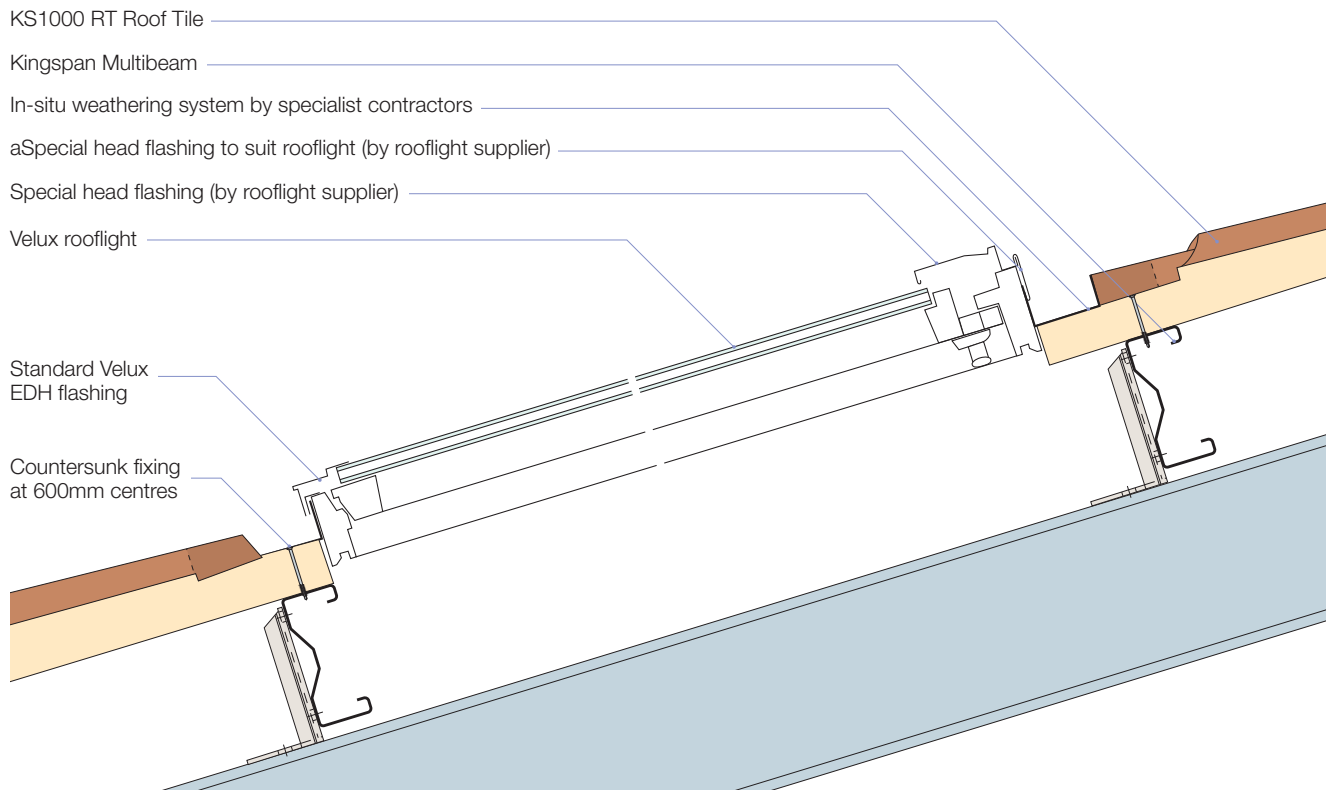
Brickwork Lean-to Detail



Cladding Lean-to Detail



Velux Type Rooflight Detail



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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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