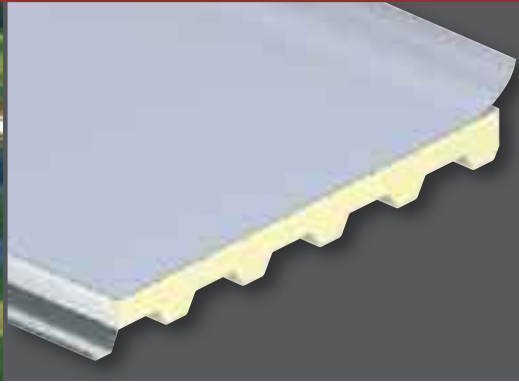


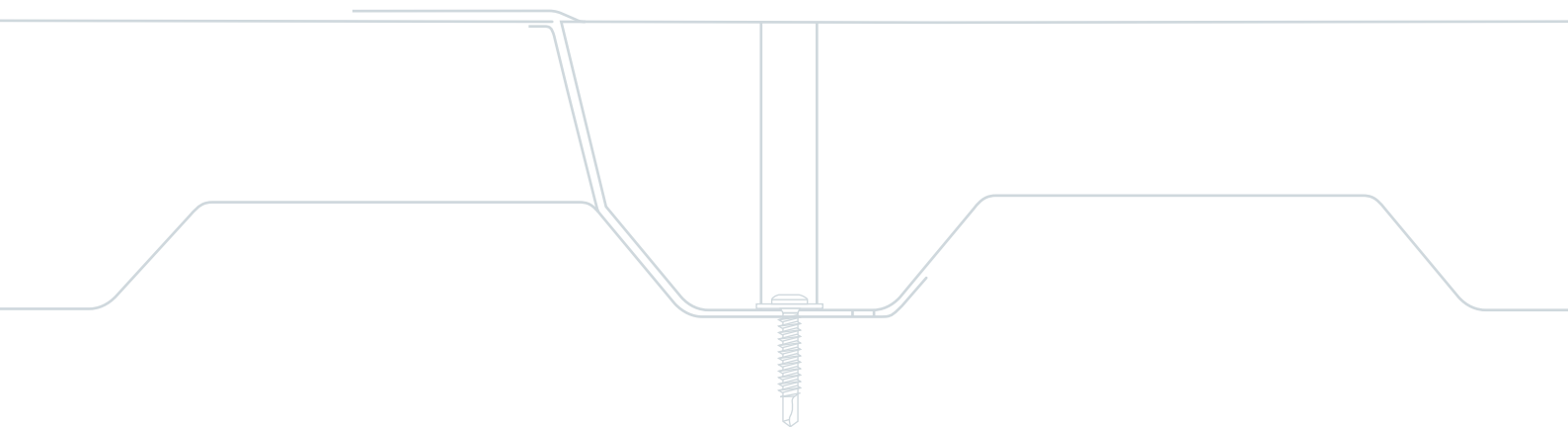


INSULATED **ROOF** SYSTEM



Kingspan Topdek

Insulated Single Ply Roofdeck



Approved to LPS 1181
Certificate No's. 186a & 260a





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Introduction

Kingspan Topdek is an LPCB Insurer Approved insulated membrane roofdeck for flat and pitched roofs above 1:80 (0.72 degrees) finished roofslopes after deflections or curved roofs with a radius greater than 40 metres. An aesthetic standing seam option is also available.

Kingspan Topdek is a single component factory pre-engineered roofdeck comprising a high performance single-ply PVC membrane with **FIREsafe** insulation and a trapezoidal steel structural deck.

It provides fast build, single-fix installation with a unique self-coring 'one-step fix' fastener solution. The product has superior weathertightness, thermal performance, insulation continuity, airtightness, fire performance and structural performance. Kingspan Topdek is suitable for new build and refurbishment applications.

Kingspan Topdek panels are available with the Kingspan Total Guarantee, offering thermal and structural performance guarantee.

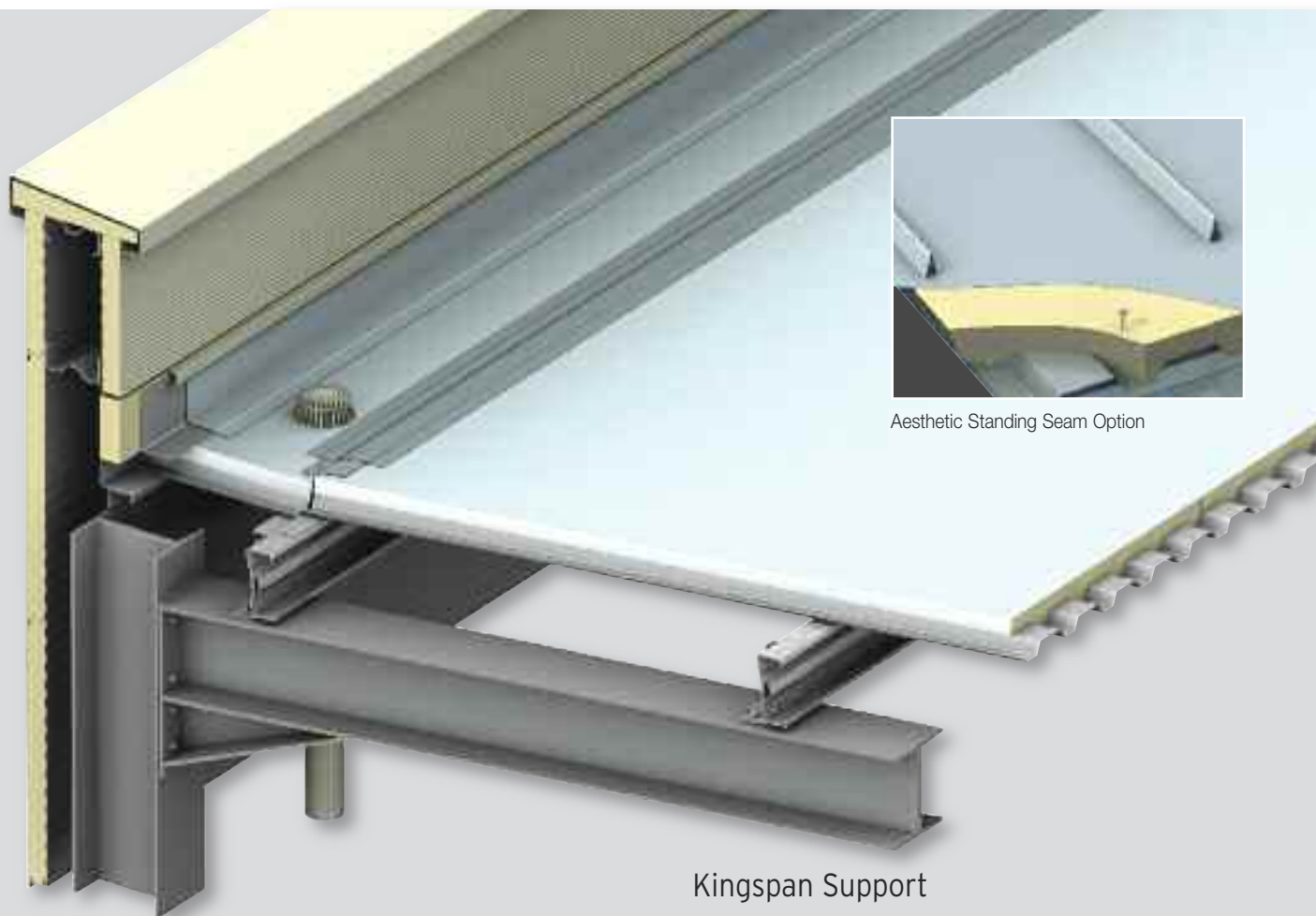
Site installation is supported by a network of trained and accredited contractors.

Kingspan Topdek is compatible with a range of integrated solutions for daylighting, apertures, upstands, insulated gutters, siphonic drainage systems, flashings and safety attachments.

Benefits

- Property & Business Protection – Loss Prevention Certification Board (LPCB) LPS1181 certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability.
- Accelerated build speed through pre-engineered, single component, unique self-coring 'one-step fix' fastener method.
- Can eliminate the need for valley, boundary wall and hip gutters.
- An aesthetic standing seam option is available.
- Fully complies with Part L2 (England & Wales) Building Regulations, Section 6 (Scotland) Technical Handbooks, Part F2 (Northern Ireland) and Part L (Republic of Ireland).
- Available in lengths of 1.5 to 16 metres.
- Pre-finished bright-white internal surface.
- Compatible with common daylighting solutions - domed, pyramid and atria.
- Suitable for flat, pitched or curved roofs.
- Lifetime durability.
- **ECOsafefree**, environmentally sustainable PIR insulation core.
- Guaranteed thermal and structural performance through the Kingspan Total Guarantee.
- **FIBREfree** - No threat of loose fibres into internal environment.
- Quality approved to ISO 9001: 2008.
- Kingspan's manufacturing plants are ISO 14001 (Environmentally) and ISO 18001 (Health & Safety) accredited.





Aesthetic Standing Seam Option

Kingspan Support

Kingspan **envirocare**® Technical Services offer technical advice and support throughout the design and construction process. From the undertaking of Energy Performance Calculations to the creation of project specific NBS specifications, Kingspan **envirocare**® Technical Services can help to ensure that your building complies with the building regulations.

Building Sectors

- Industrial and Manufacturing
- Distribution, Logistics and Transport
- Commercial, Office and Retail
- Leisure, Sport & Hotels
- PFI & PPP
- Student Accommodation, Education and Healthcare
- Residential & Social Housing
- Utilities
- Public & Local Authority
- Justice
- MoD & Defence
- Refurbishment

Please contact Kingspan **envirocare**® Technical Services on:
Tel: 0800 587 0090 (UK) & +353 (0) 42 96 98529 (Ireland)
Email: envirocare@kingspanpanels.com

envirocare®
TECHNICAL SERVICES

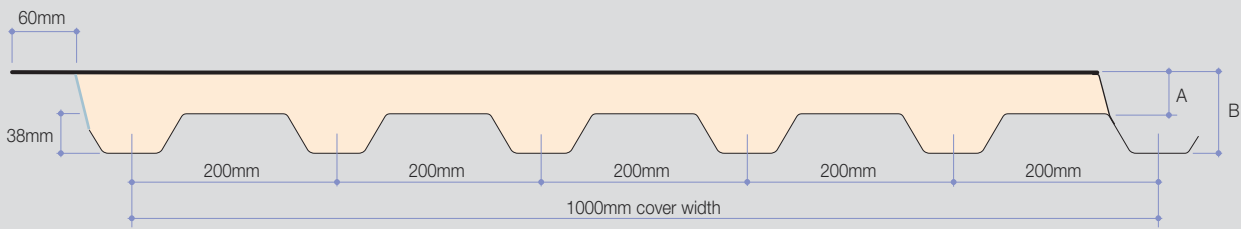
Kingspan's Field Service Engineers offer free contractor training on the installation of Kingspan Topdek and new / existing products at our specially designed Kingspan energi centre in Holywell, North Wales, UK. A site inspection service throughout the construction period with advice on mechanical handling solutions is also available.

Product Data

Application

Kingspan Topdek can be used on building applications with a minimum finished roof pitch after deflections of 1:80 (0.72°) to avoid ponding and on curved and inverted curve roofs with radii greater than 45 metres. It is suitable for all building applications except where there are low temperature controlled environments.

Dimensions & Weight



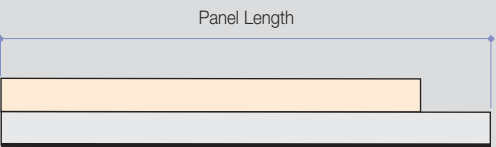
| | | | | |
|---|-------|-------|-------|-------|
| A - Core thickness nominal (mm) | 71 | 80 | 91 | 100 |
| B - Overall dimension (mm) | 109 | 118 | 129 | 138 |
| Standard Weight kg/m ² 1.5mm single ply membrane / steel | 12.19 | 12.55 | 12.99 | 13.39 |

Product Tolerances

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

Available Lengths

Standard lengths 1.5 to 14 metres. Panels less than 1.5m long can be supplied but are subject to additional charge. Longer length panels can be supplied but are subject to additional transport charge.



| Product Reference | Application Description |
|-------------------|--|
| KS1000 TD | KS1000 TD Topdek is an insulated single ply roofdeck with Loss Prevention Certification Board (LPCB) Approval. |

Materials

External Facing

A high performance single-ply membrane in standard colours:

RAL7015 Slate Grey

RAL7016 Anthracite

RAL7047 Light Grey

RAL7046 Mid Grey

Non standard colours are available on request.

Membrane operating temperature range is -40°C to +70°C .

Substrate

Internal sheets are hot-dipped zinc coated metal to BS EN 10326:

2004 (Continuously hot-dip coated strip and sheet of structural steels.

Technical delivery conditions).

Coatings - Internal Liner Sheet

A variety of finishes are available to suit the internal conditions of the building. The standard liner is bright white polyester with an easily cleaned surface. Where internal conditions are more demanding, such as high internal humidity or clean room conditions, Kingspan Aquasafe or Kingspan Cleansafe coatings are available subject to minimum quantities. Reverse side of sheet coated with a light grey polyester coating.

Insulation Core

The core of KS1000 TD is an **ECOsafte**, environmentally sustainable PIR insulation which is non-deleterious with zero Ozone Depletion Potential (zero ODP).

Performance

Thermal Insulation

| Panel Thickness (mm) | U value* W/m²K |
|----------------------|----------------|
| 71 | 0.25 |
| 80 | 0.23 |
| 91 | 0.20 |
| 100 | 0.18 |

* Thermal transmittance W/m²K

Insulation Continuity

KS1000 TD insulated panels are factory pre-engineered to guarantee total insulation continuity.

Airtightness

Fully complies with Part L2 (England & Wales) Building Regulations, Section 6 (Scotland) Technical Handbooks, Part F2 (Northern Ireland) and Part L (Republic of Ireland).

5m³/hr/m² and lower can be achieved.

Biological

KS1000 TD insulated panels are resistant to attack from mould, fungi, mildew and vermin. No urea formaldehyde is used in the construction, and the panels are non-deleterious.

Fire

Steel inner facings have a Class 1 surface spread of flame to BS 476-7: 1997, and are Class 0 as defined by the Building Regulations. The panel is SAB/FAB (Armourplan membrane) or SAA/FAA (Trocal membrane) external exposure roof test to BS 476-3: 2004 KS1000 TD insulated panels are approved by the Loss Prevention Certification Board (LPCB) to LPS1181 Grade EXT-B for roof applications. KS1000 TD insulated panels have a core which has been specially formulated to provide excellent performance in fire tests to deliver the following benefits:

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

Acoustics

All KS1000 TD insulated panels have a single figure weighted sound reduction $R_w = 23\text{dB}$.

Sound Reduction Index (SRI)

| Frequency Hz | SRI dB |
|--------------|--------|
| 125 | 17.9 |
| 250 | 18.1 |
| 500 | 17.4 |
| 1000 | 23.2 |
| 2000 | 30.4 |
| 4000 | 40.3 |

Specification

NBS specifications are available from Kingspan **envirocare**® Technical Services.

Tel: 0800 587 0090 (UK) & +353 (0) 42 96 98529 (Ireland)

Email: envirocare@kingspanpanels.com



Quality

KS1000 TD insulated 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 (Quality management systems. Requirements). Kingspan manufacturing plants are BS EN ISO 14001: 2004 (Environmental management systems. Requirements with guidance for use) and BS OHSAS 18001: 2007 (Occupational health and safety management systems. Requirements) accredited.

Seals

Site Installation

- Single-ply membrane side and end laps are sealed by hot air or solvent welding on site by accredited contractors.
- Site applied butyl air seals are required to perimeter details.
- Site applied butyl seals to end lap and side lap are required for high humidity environments.

Guarantees

KS1000 TD insulated panels are available with the Kingspan Total Guarantee, offering thermal and structural performance guarantee.

Packing

Standard Packing

KS1000 TD insulated panels are stacked weather sheet to weather sheet (to minimise pack height). The top, bottom, sides and ends are protected with foam and timber packing and the entire pack is protective wrapped.

The number of panels in each pack depends on panel thickness, as shown in the table. Typical pack height is 1400mm.

| Panel Core Thickness | 71 | 80 | 91 | 100 |
|-----------------------|----|----|----|-----|
| No. panel/pack (max.) | 10 | 10 | 8 | 8 |

Sea Freight

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

Delivery

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

Structural

Unfactored Load/Span Table

(use calculated design windload values unfactored)

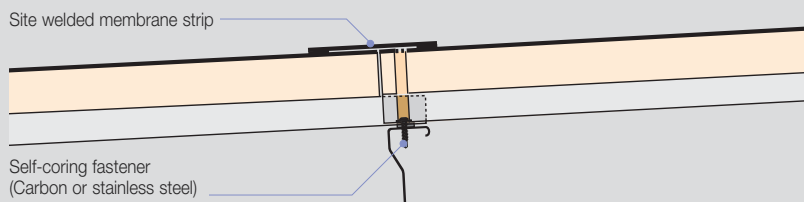
| Span Condition | Uniformly Distributed Loads (kN/m ²) | | | | | | | | | | |
|----------------|--|------|------|------|------|-------|-------|-------|-------|-------|-------|
| | Span L in metres | | | | | | | | | | |
| Downward | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.6 | 2.8 | 3.0 |
| Single | 11.19 | 6.47 | 4.08 | 2.73 | 1.92 | 1.40 | 1.05 | 0.81 | 0.64 | - | - |
| Double | 9.10 | 6.74 | 5.20 | 4.13 | 3.37 | 2.80 | 2.36 | 1.95 | 1.53 | 1.23 | 1.00 |
| Suction | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.6 | 2.8 | 3.0 |
| One Fastener | 1.44 | 1.20 | 1.03 | 0.90 | 0.80 | 0.72 | 0.65 | 0.60 | 0.55 | 0.51 | 0.48 |
| Two Fasteners | 2.88 | 2.40 | 2.06 | 1.80 | 1.60 | 1.44 | 1.31 | 1.20 | 1.11 | 1.03 | 0.96 |
| Five Fasteners | 7.20 | 6.00 | 5.14 | 4.50 | 4.00 | 3.42* | 2.57* | 1.98* | 1.56* | 1.25* | 1.01* |

Notes:

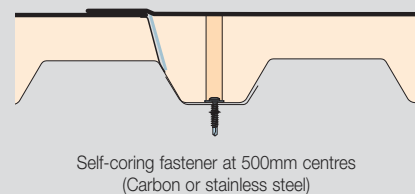
- Above figures are for all panel thicknesses.
- *Fastener table based upon minimum 1.5mm thick steel purlins and suction load on panel.
- The following deflection limits have been used:
Downward loading $L/250$
Suction loading $L/150$
- Wind uplift capacity of the panels is dependent on the fixing pattern and it is usually this design condition which is critical for any roofing system.
- The wind load is unique to each project and calculation for wind loads should be in accordance with BS 6399-2:1997 Loading for buildings. Code of practice for wind loads. For further information please contact Kingspan **envirocare**™ Technical Services.

End Laps

End Lap Application



Side Lap





Crescent Park

Location: Cheltenham

Building Use: Residential

Architect: John F Evans Partnership

Roofing Contractor: Central Cladding Systems Ltd



Installation

Primary panel fasteners
(hidden under membrane flap)

P4

P2

Kingspan Topdek panel (ref: TDP)

Self-coring fasteners in each
corrugation

Site applied end lap seal 2
lines of gun grade butyl for
high humidity environments
only

Kingspan Topdek panel (ref: TDY)
(left to right when viewed from eaves/valley)

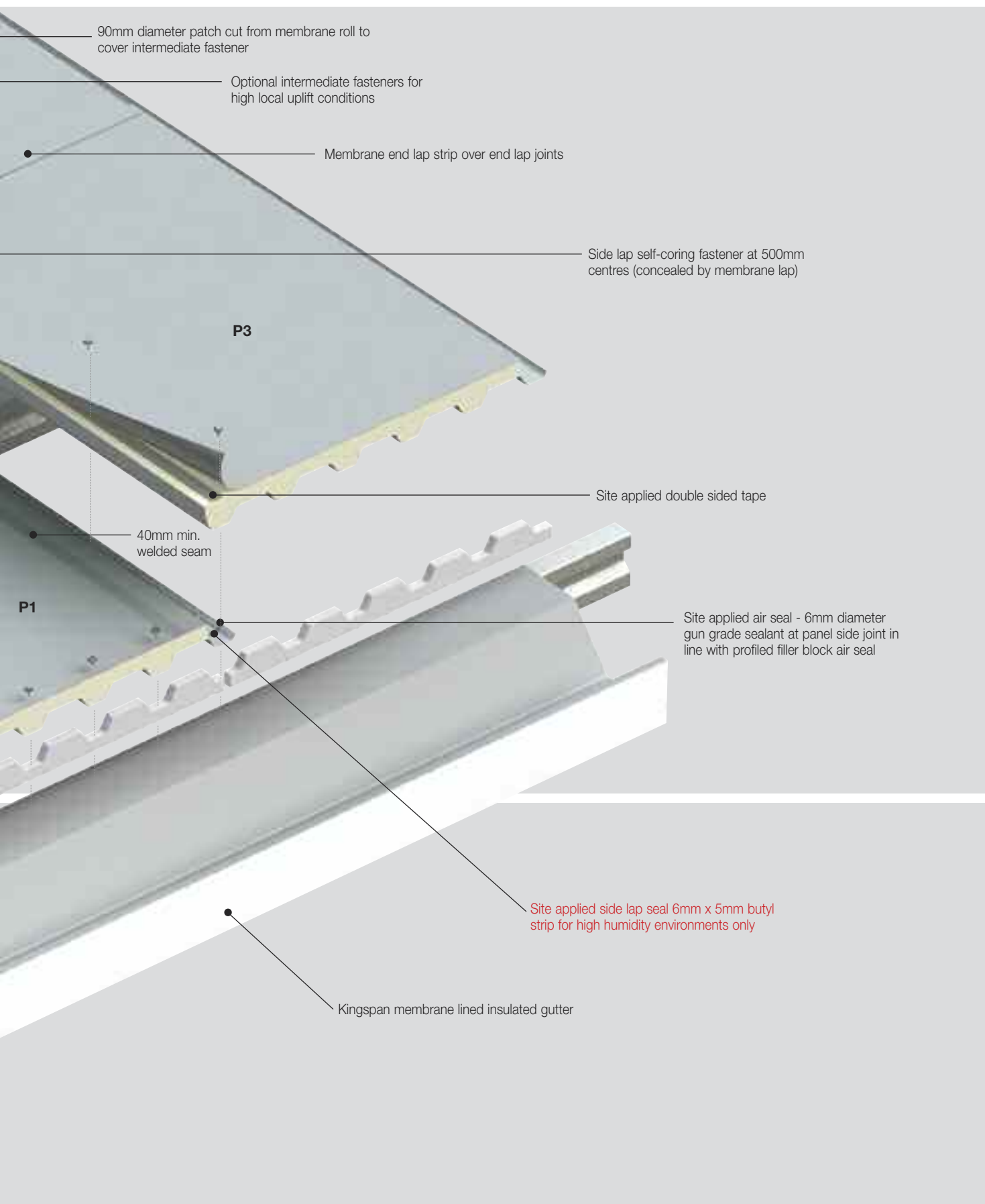
Note: Panel sequence of lay P1 - P4

Self-coring fasteners in each corrugation

Fully sealed filler at all panel ends
(eaves, valley, ridge)

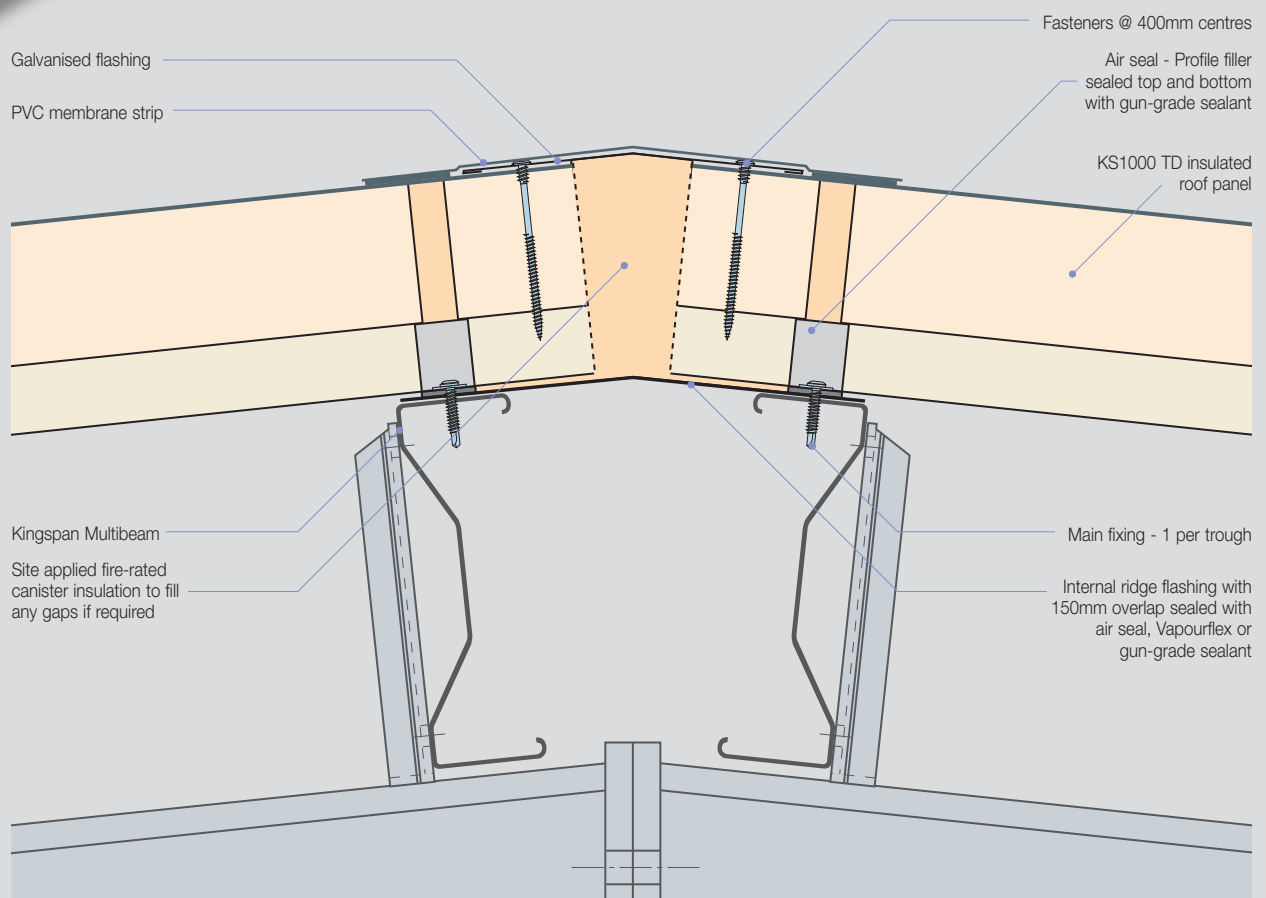
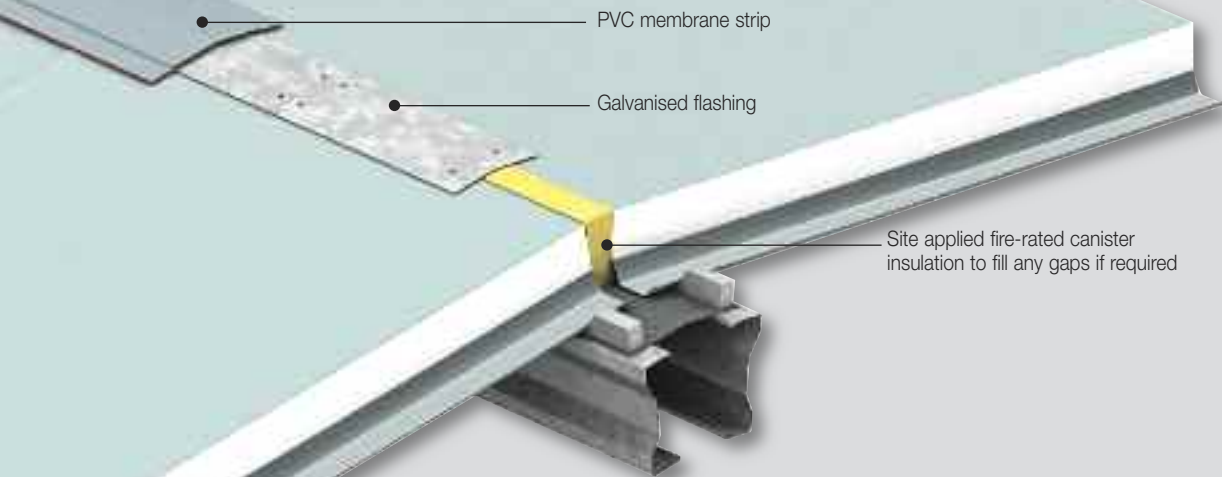
Installation Training

Kingspan Field Service Engineers offer full installation training however, prior to Kingspan Topdek training, all attendees must have undergone PVC welding training from the supplying membrane manufacturer and provide a copy of the certificate from the supplier, i.e Armourplan, or Trocal.

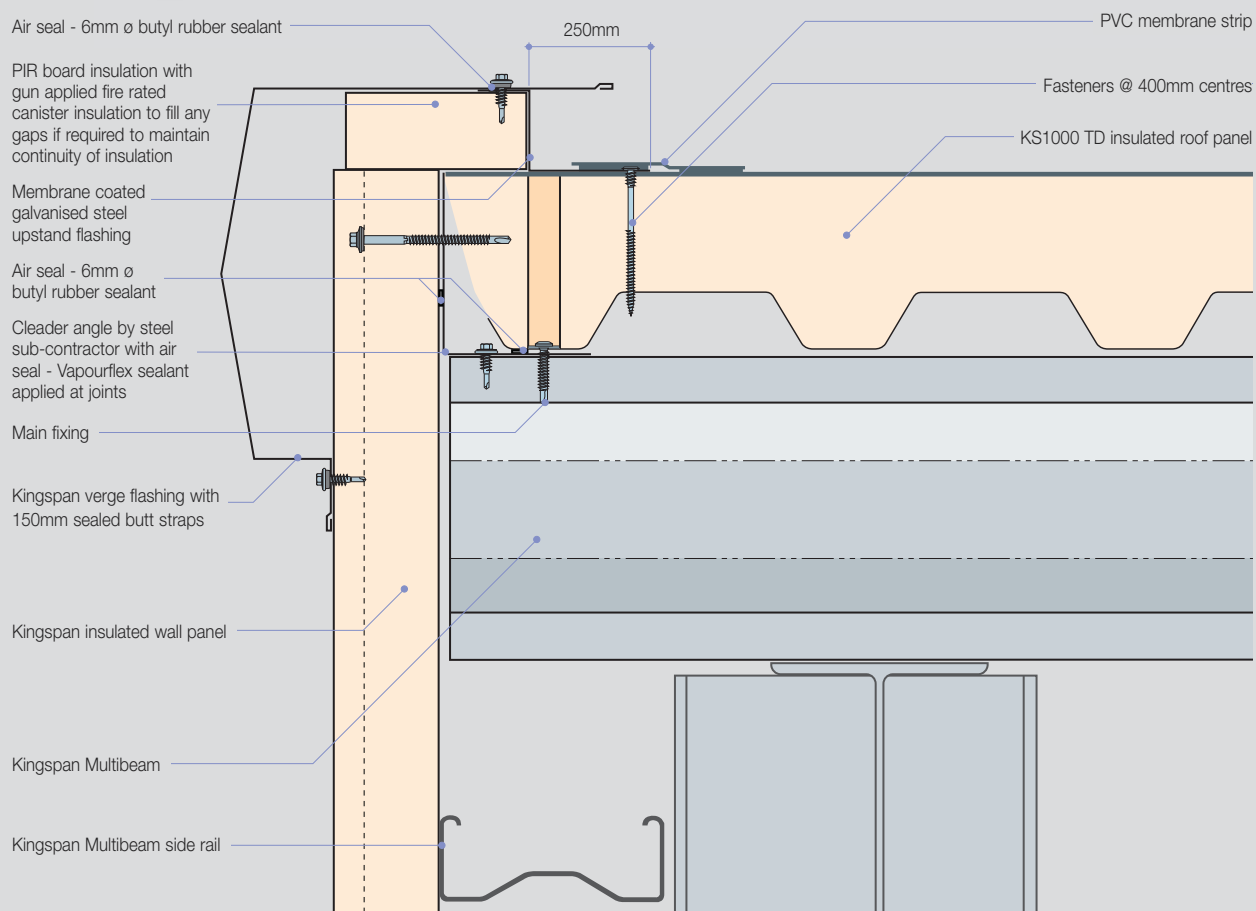
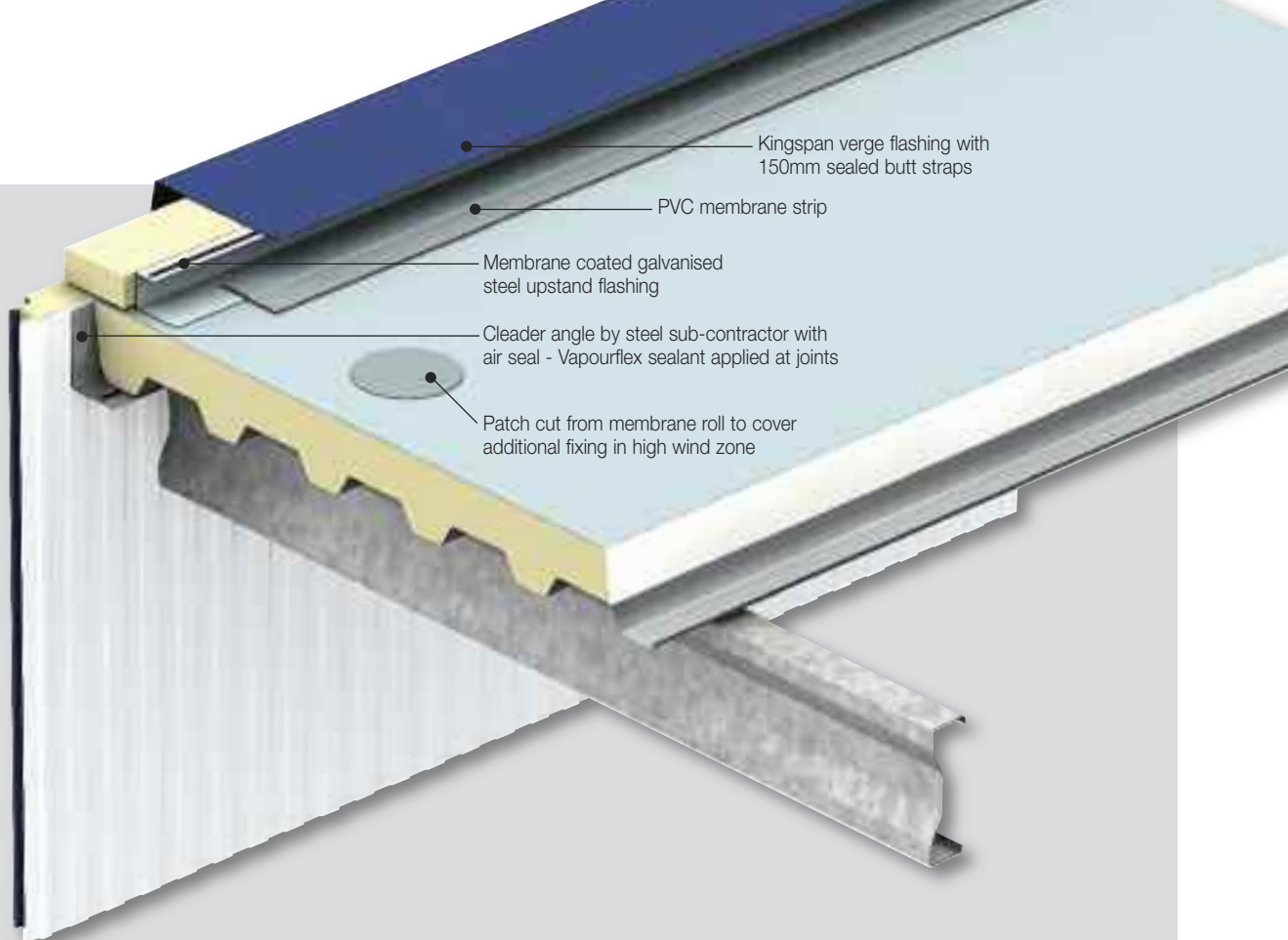


Construction Details

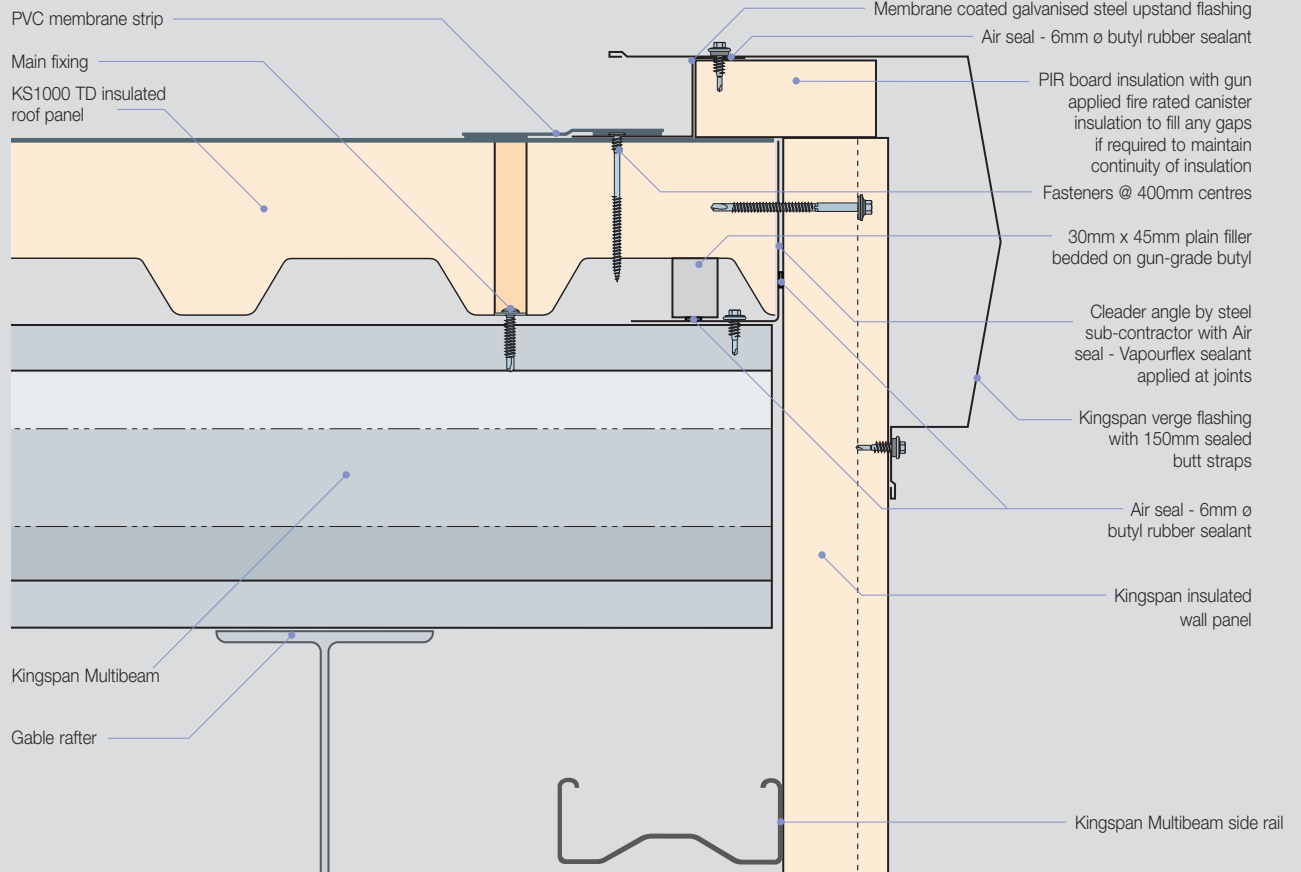
Ridge



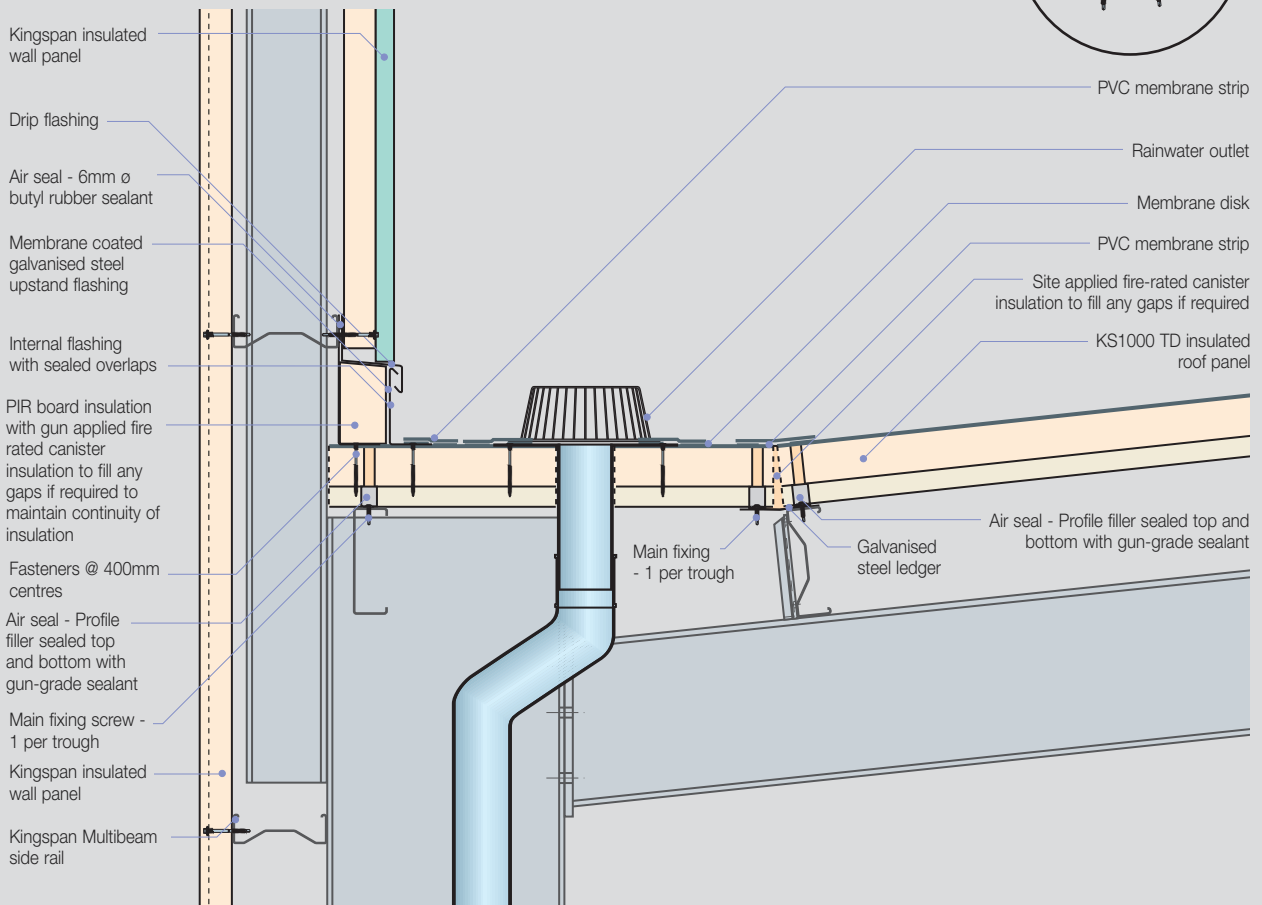
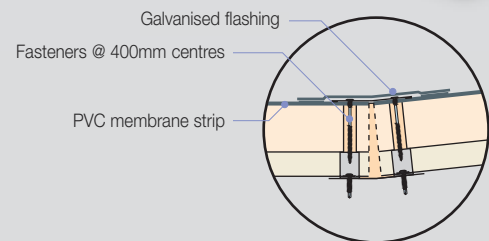
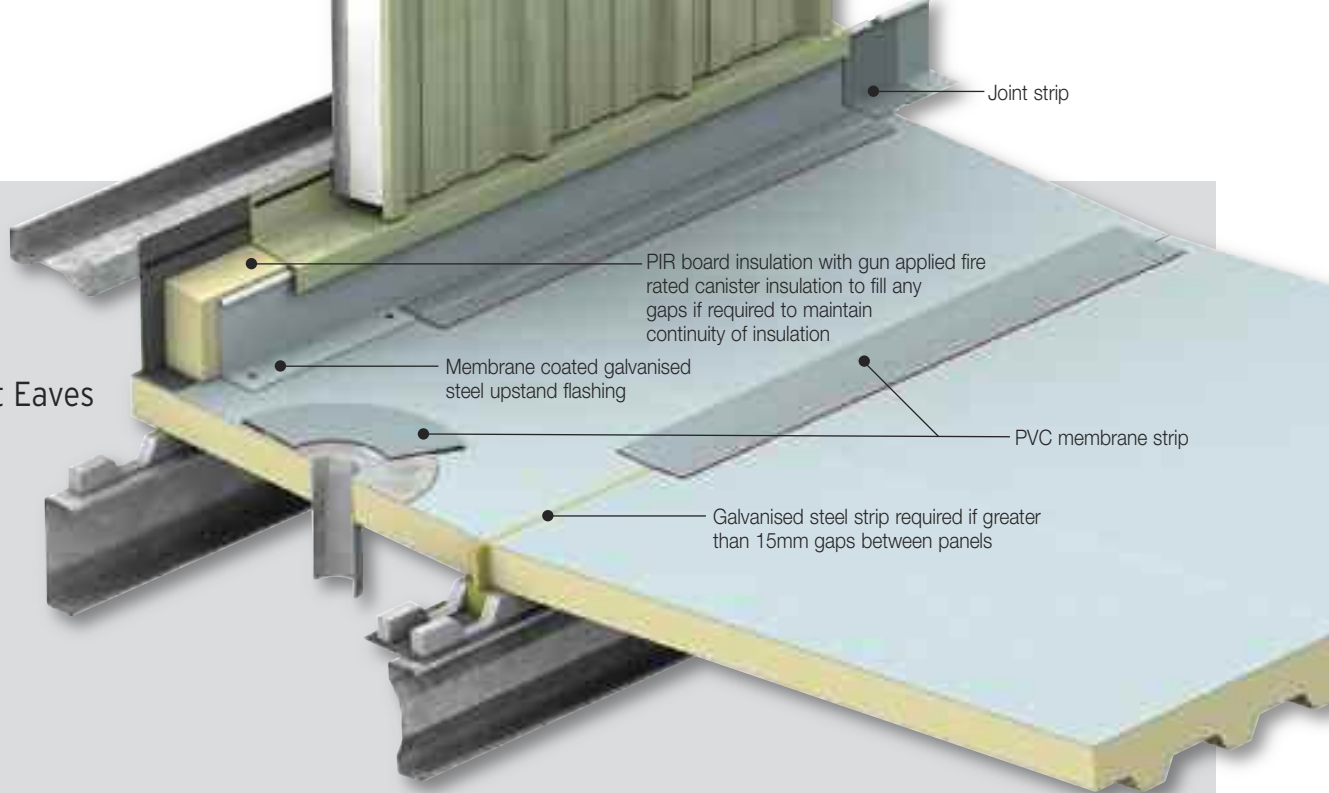
Verge

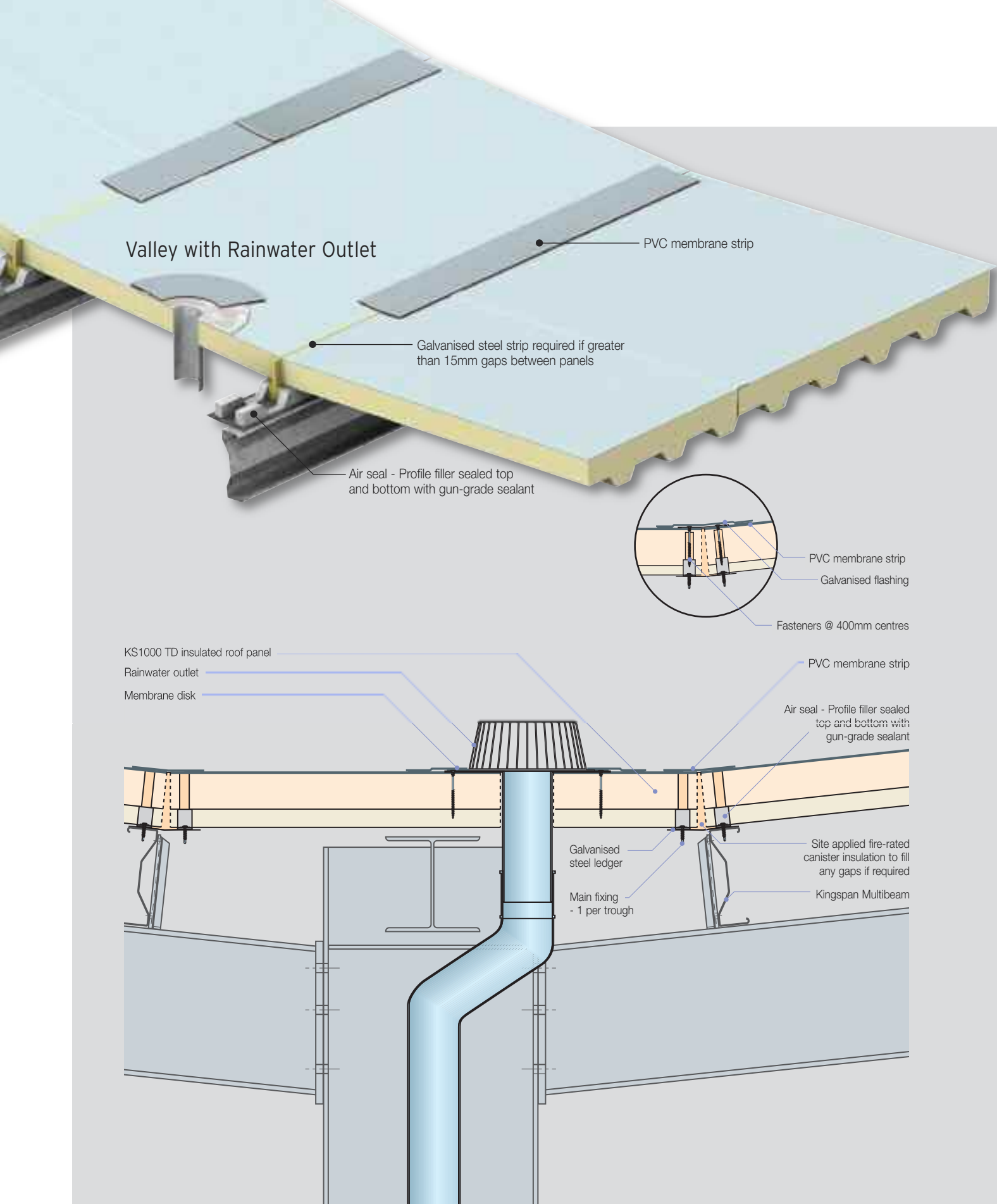


PVC membrane strip



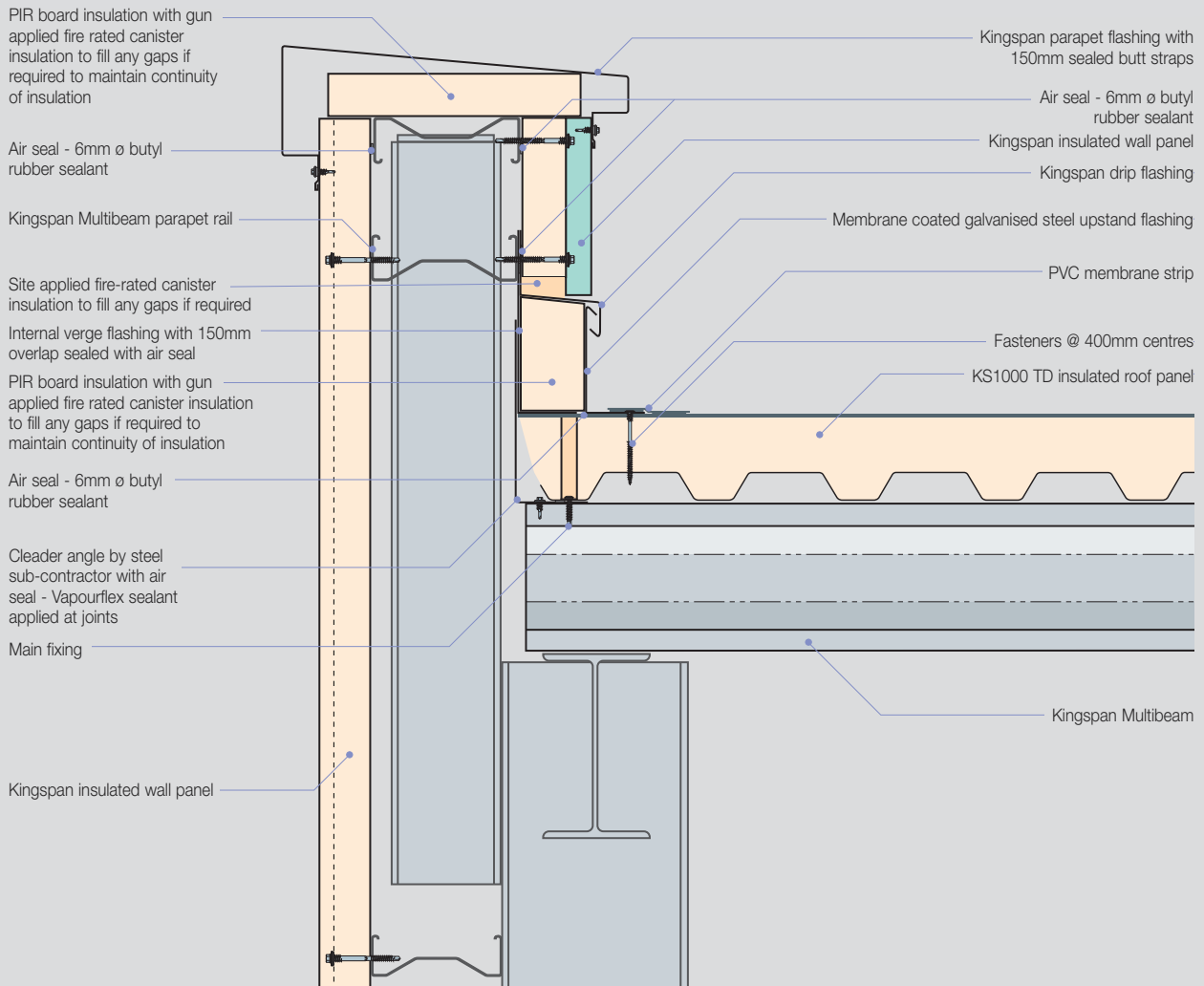
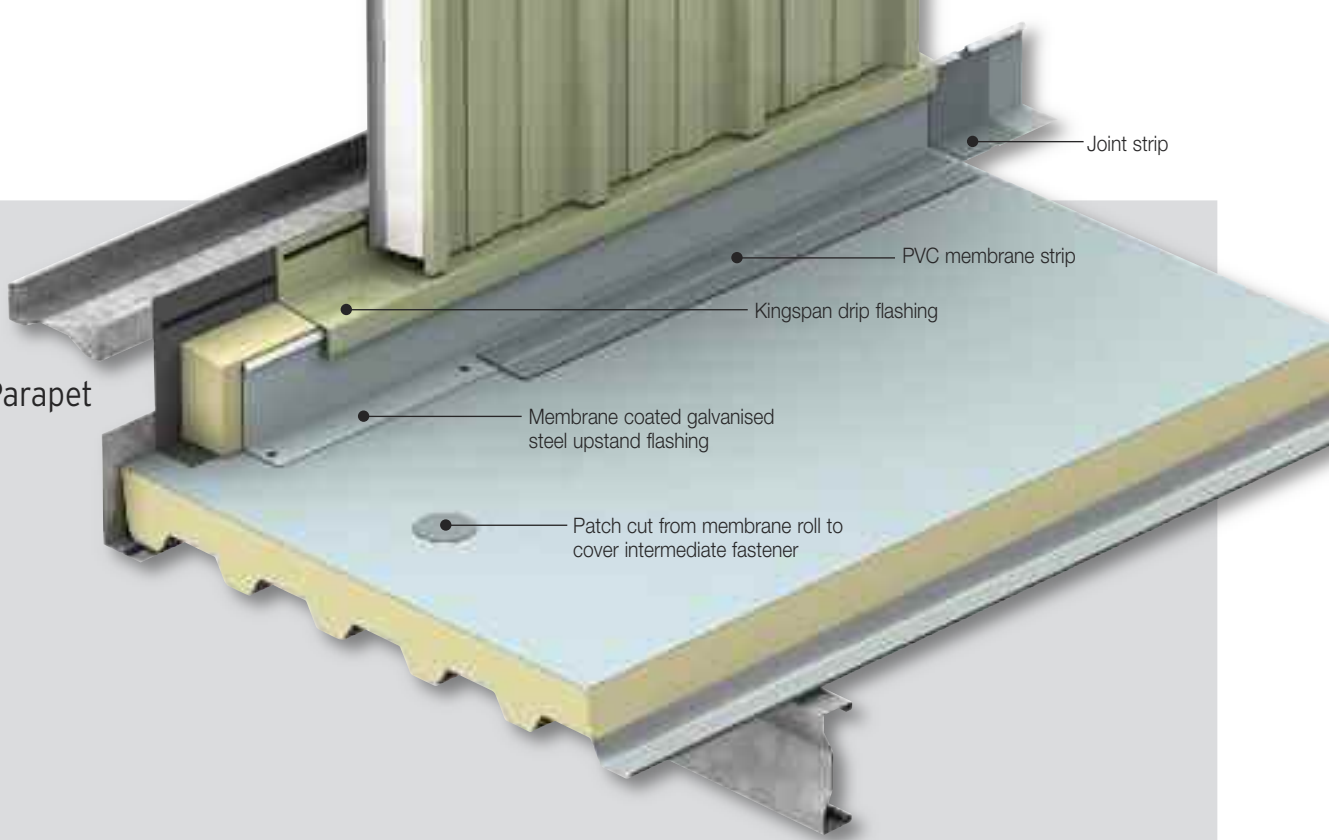
Parapet Eaves



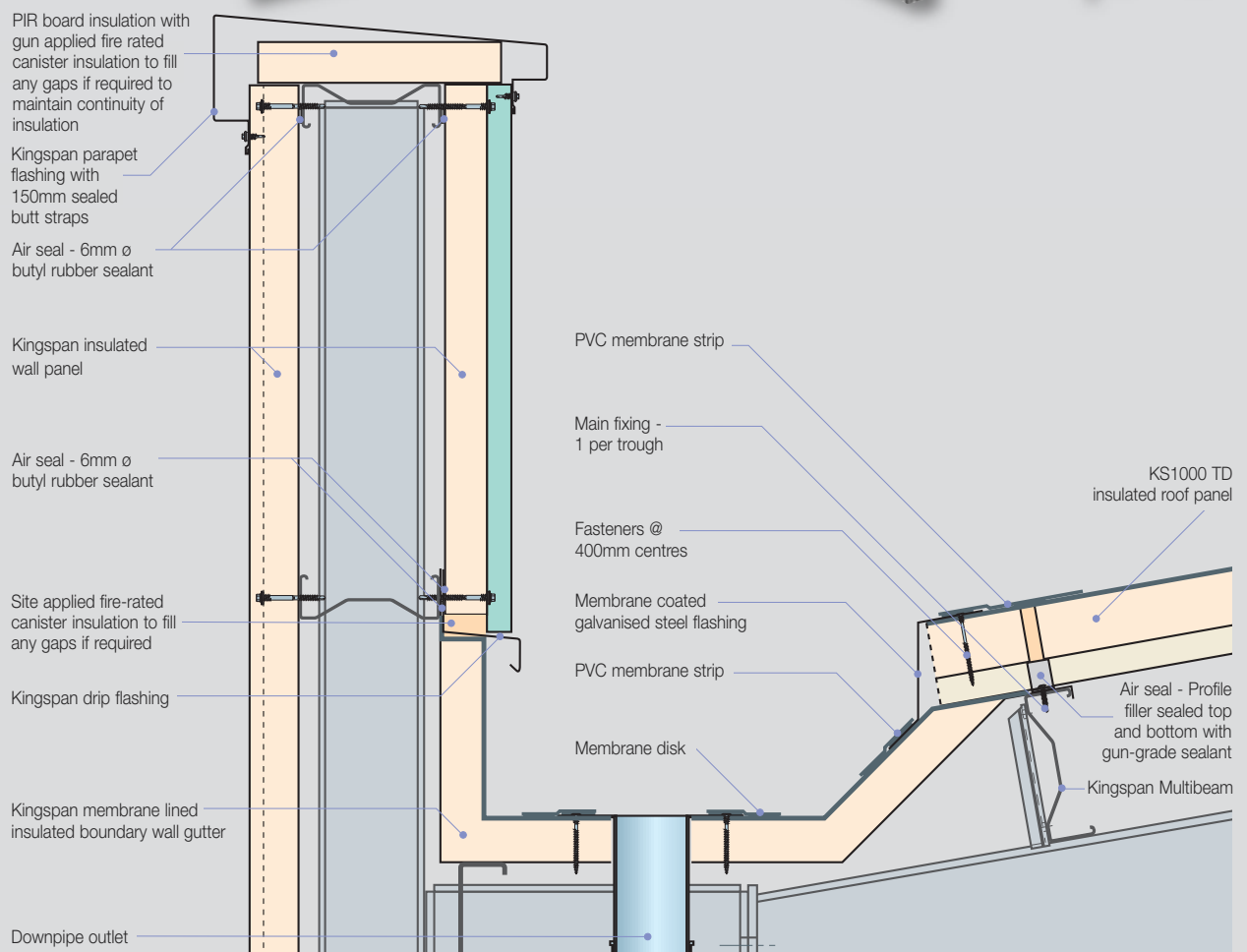
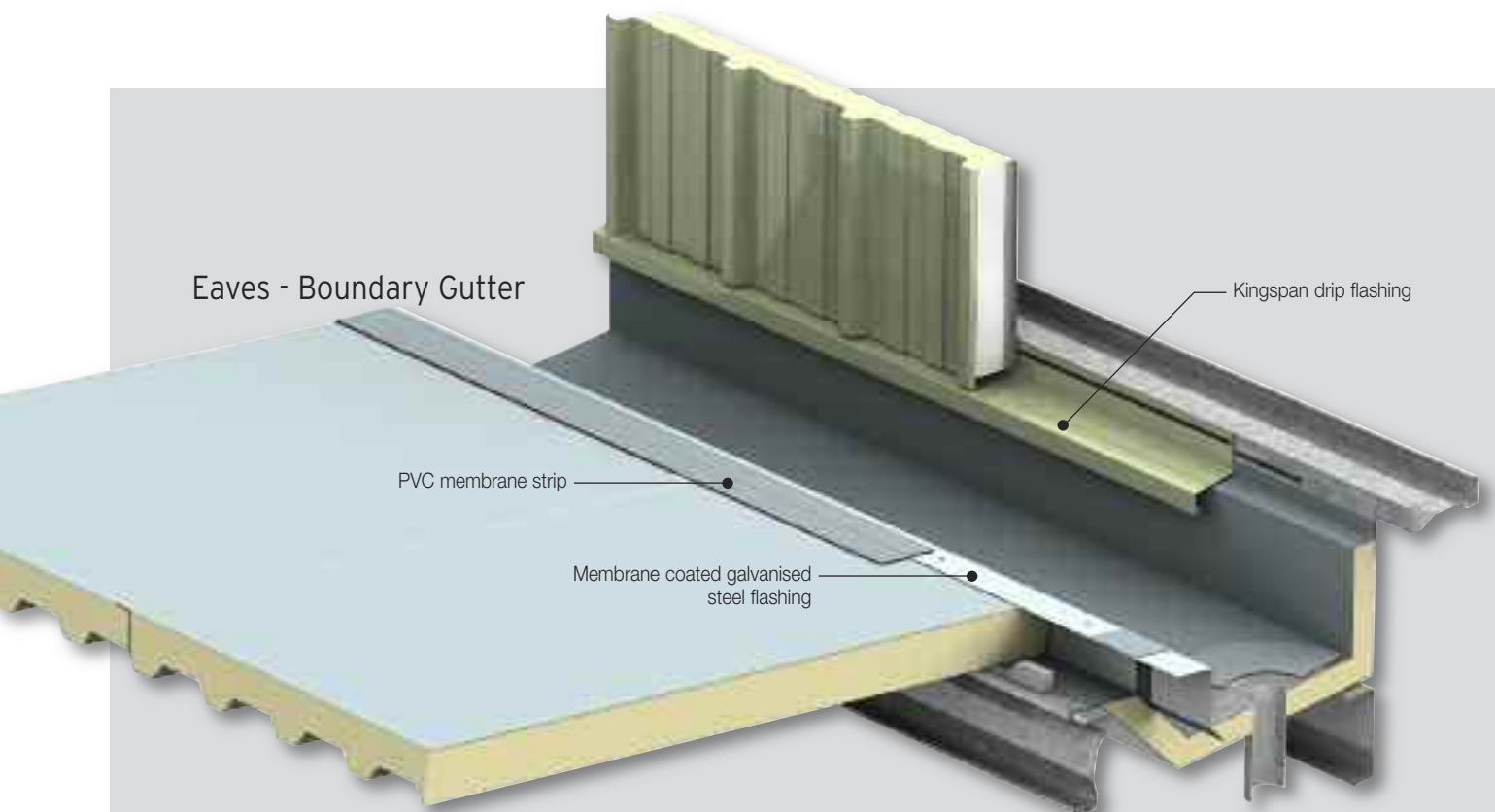


Note: Depth of verge flashing with this detail to be designed to suit calculated water depth.

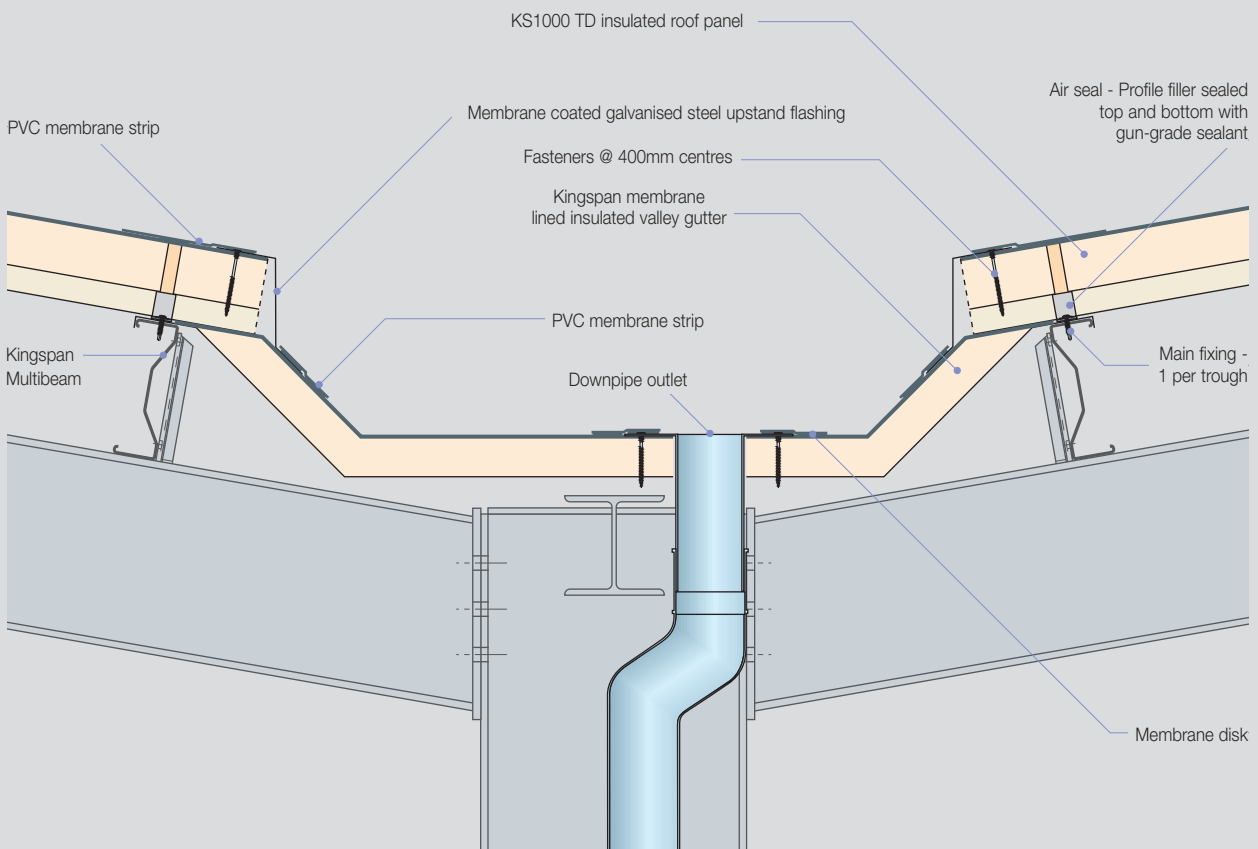
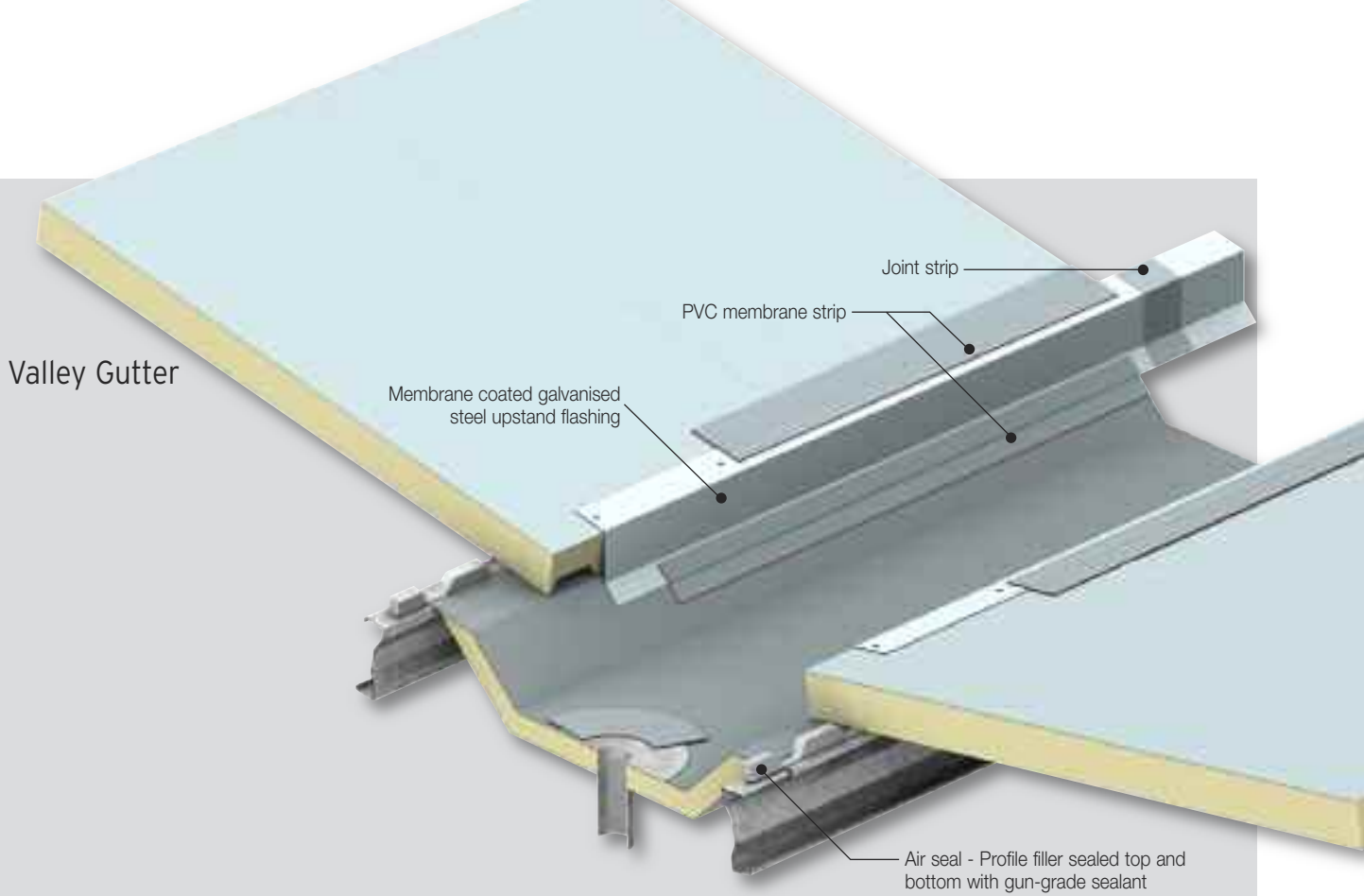
Verge Parapet

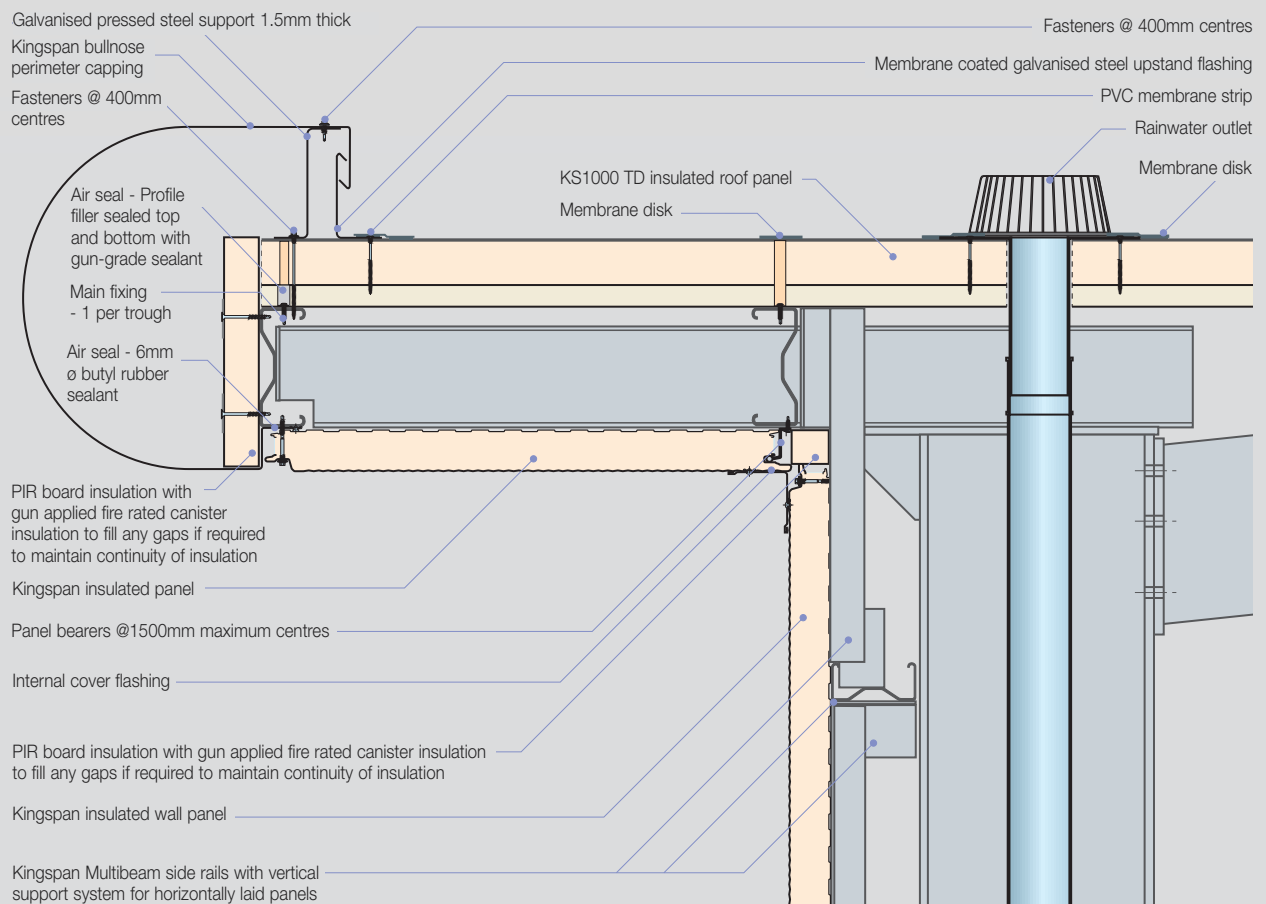
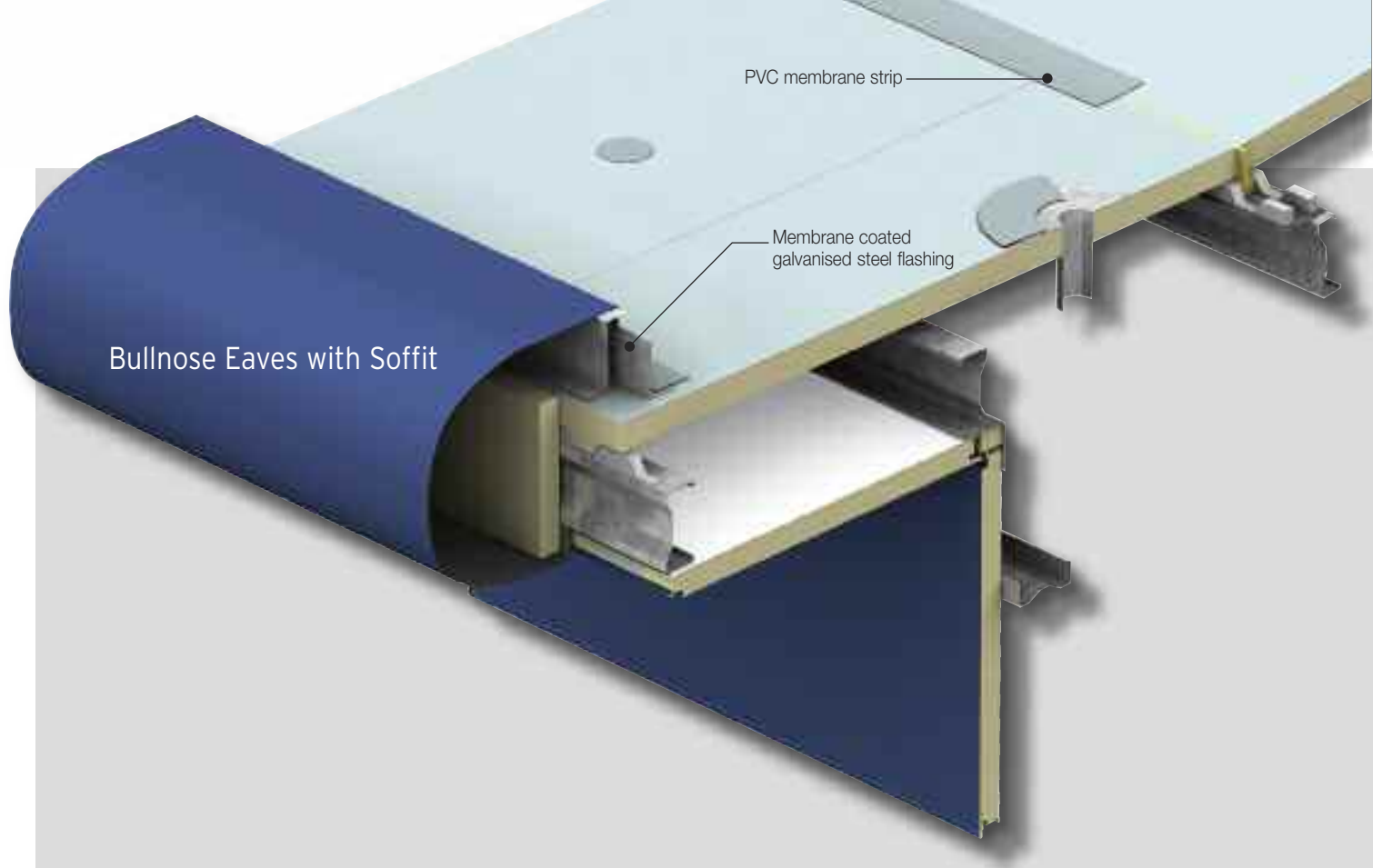


Eaves - Boundary Gutter

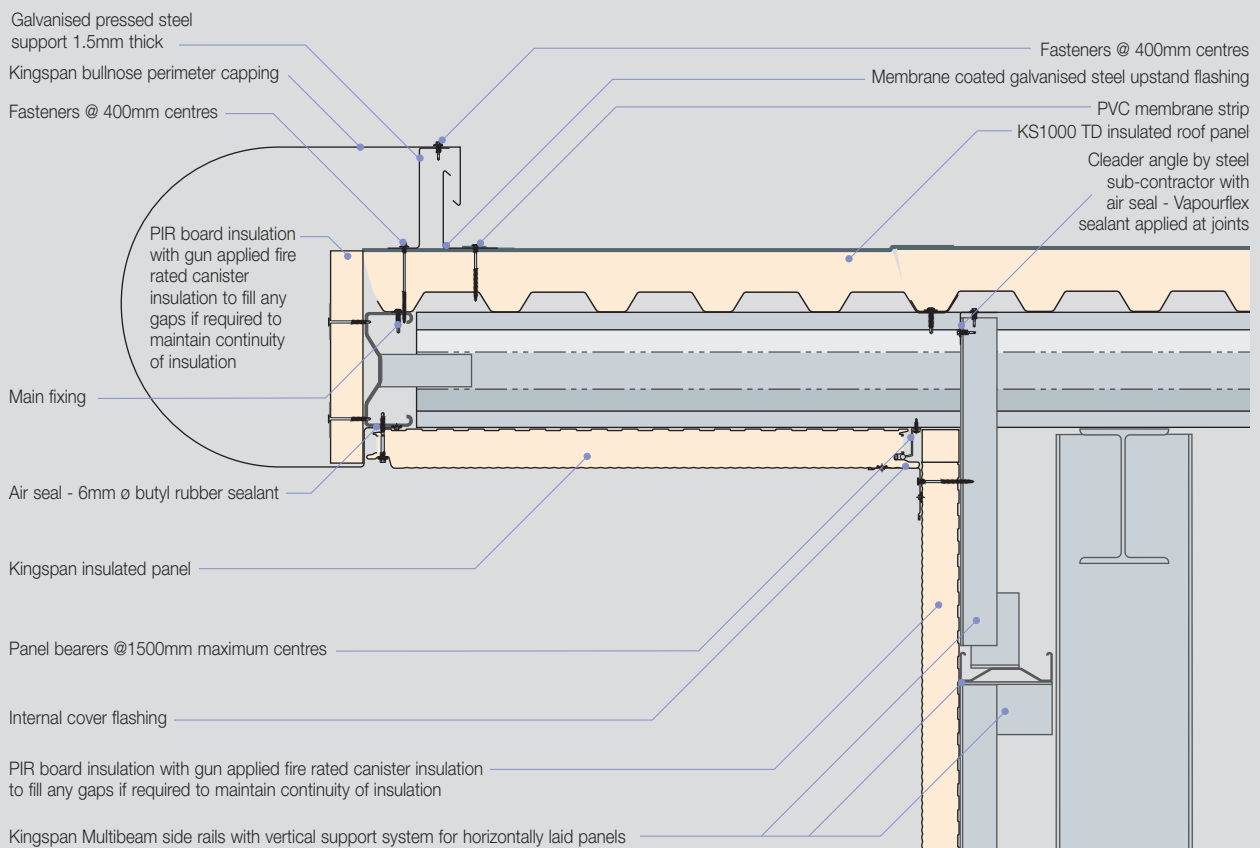
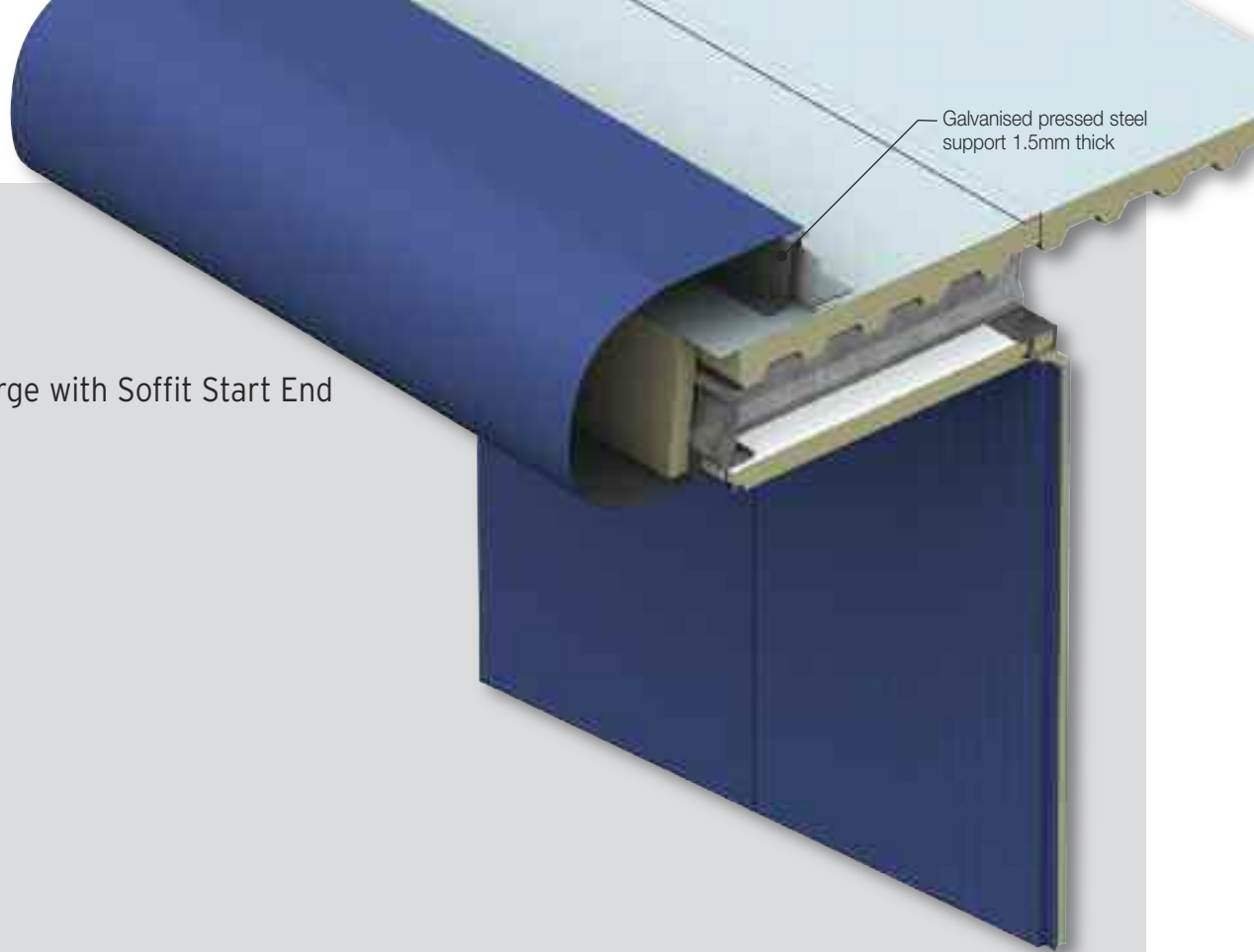


Valley Gutter





Bullnose Verge with Soffit Start End



Bullnose Verge with Soffit Finish End

PVC membrane strip

Membrane coated galvanised steel upstand flashing

PVC membrane strip

KS1000 TD insulated roof panel

Cleader angle by steel sub-contractor with air seal - Vapourflex sealant applied at joints

Fasteners @ 400mm centres

Galvanised pressed steel support 1.5mm thick

Kingspan bullnose perimeter capping

Main fixing

30mm x 45mm
Plain filler bedded
on gun grade butyl

PIR board insulation
with gun applied fire
rated canister
insulation to fill any
gaps if required to
maintain continuity
of insulation

Air seal - 6mm ø butyl
rubber sealant

Kingspan insulated panel

Internal cover flashing

Panel bearers @ 1500mm maximum centres

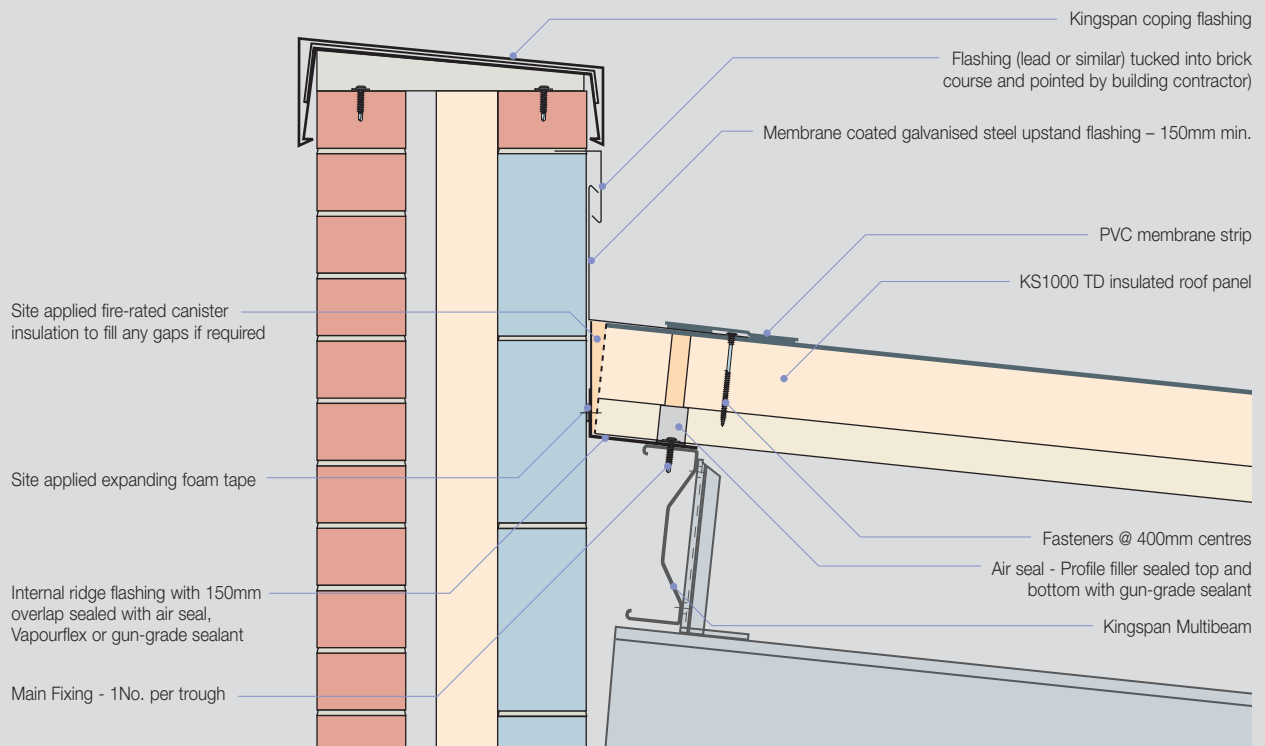
PIR board insulation with gun applied fire rated canister insulation to fill any gaps if required to maintain continuity of insulation

Kingspan insulated wall panel

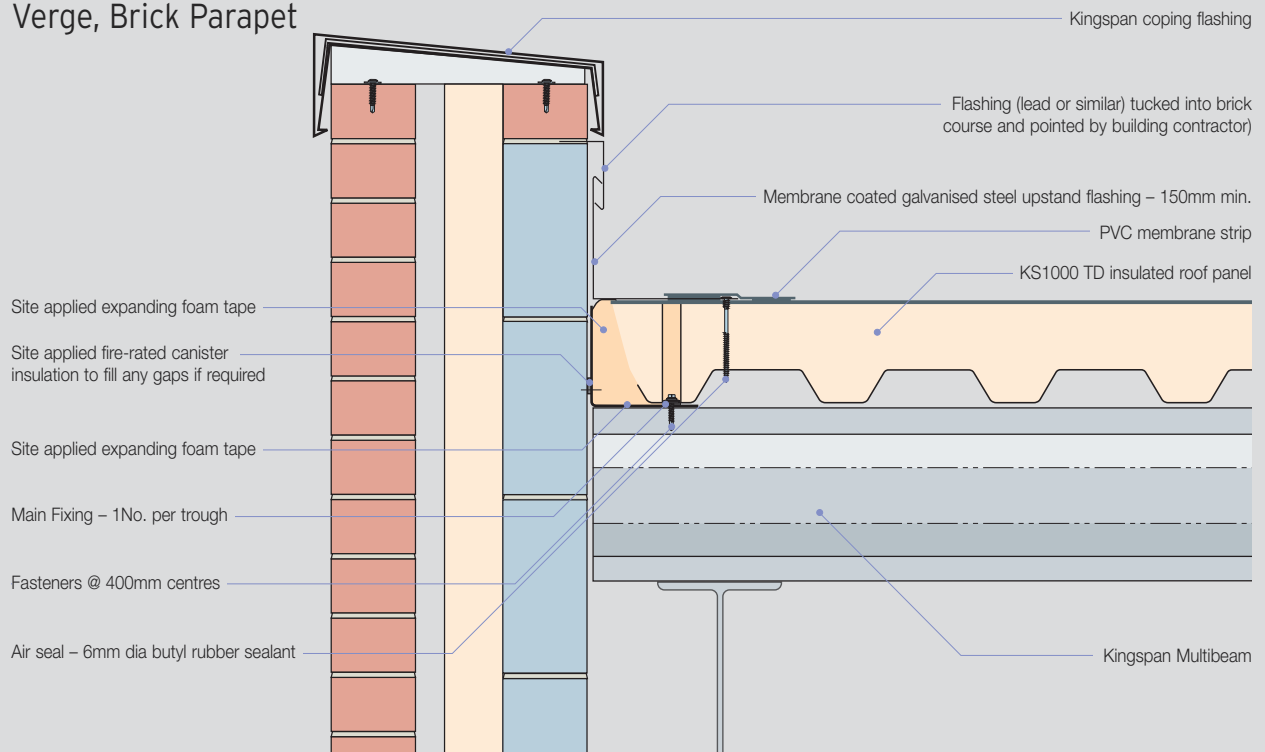
Kingspan Multibeam side rails with vertical support system for horizontally laid panels



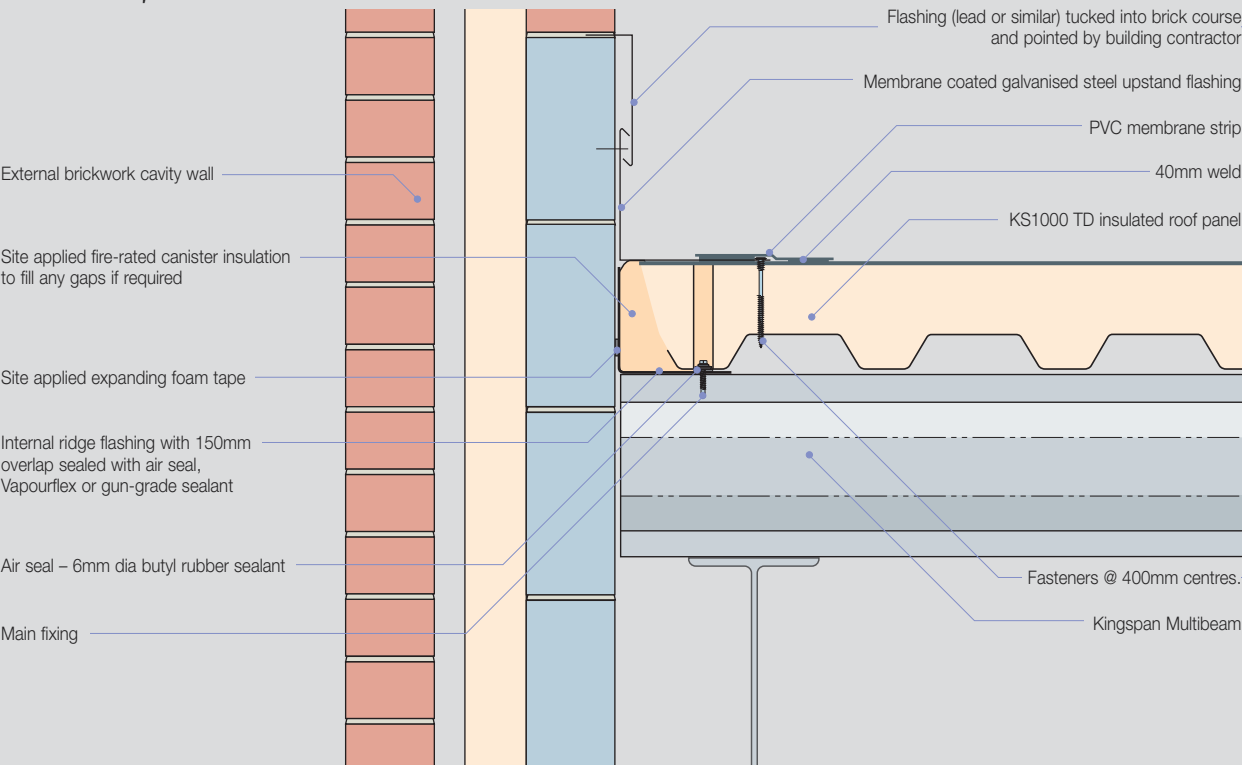
Mono Pitch, Brick Parapet



Verge, Brick Parapet



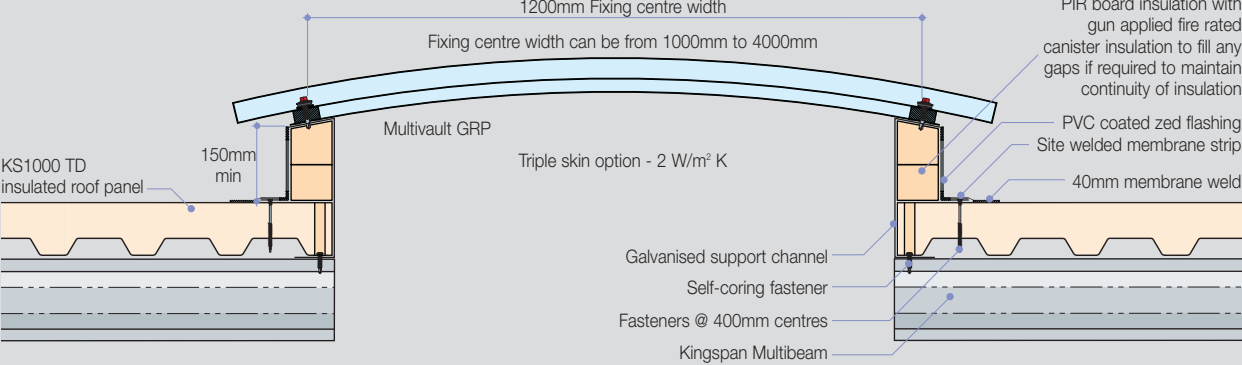
Abutment, Brickwork



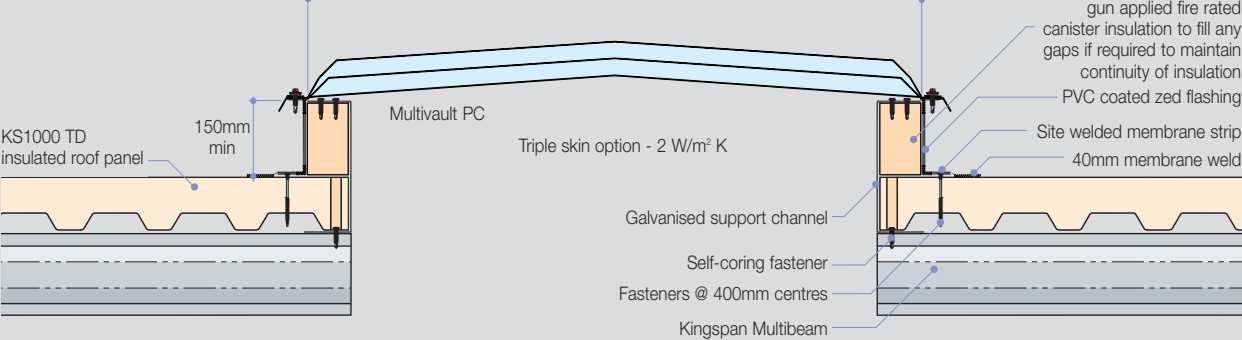
Barrel Vault Rooflights



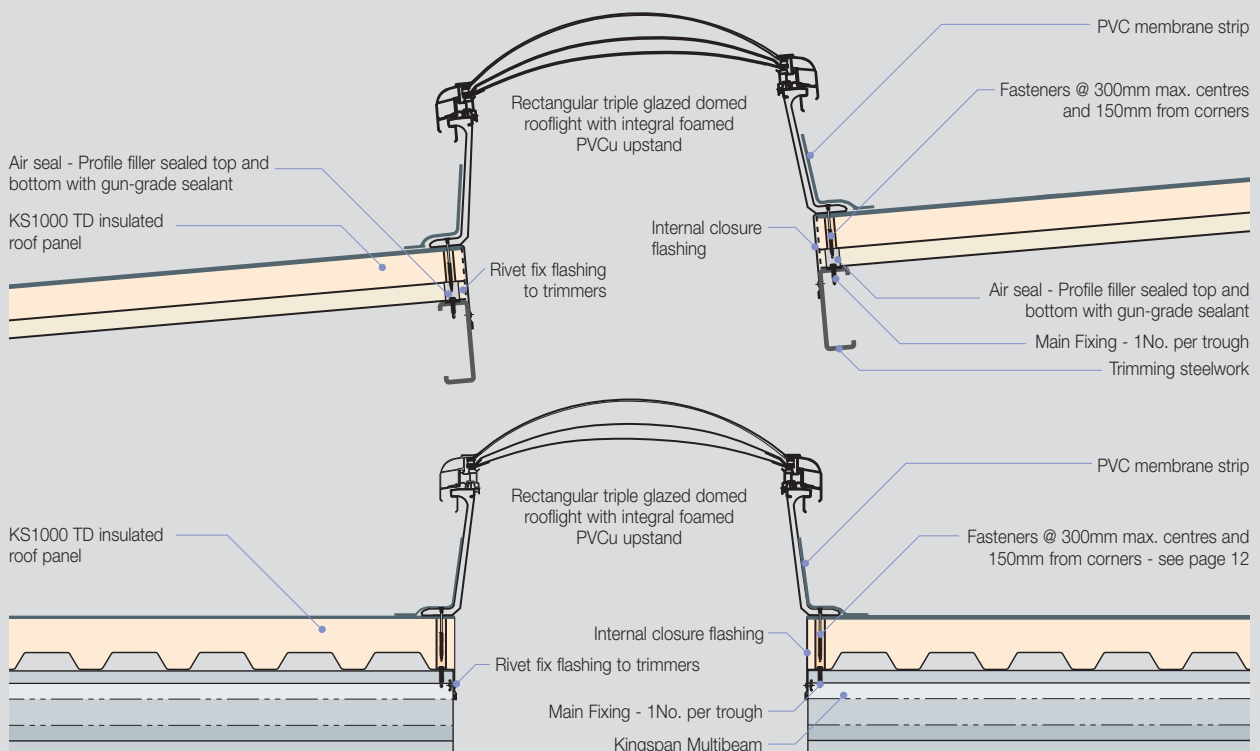
GRP Option



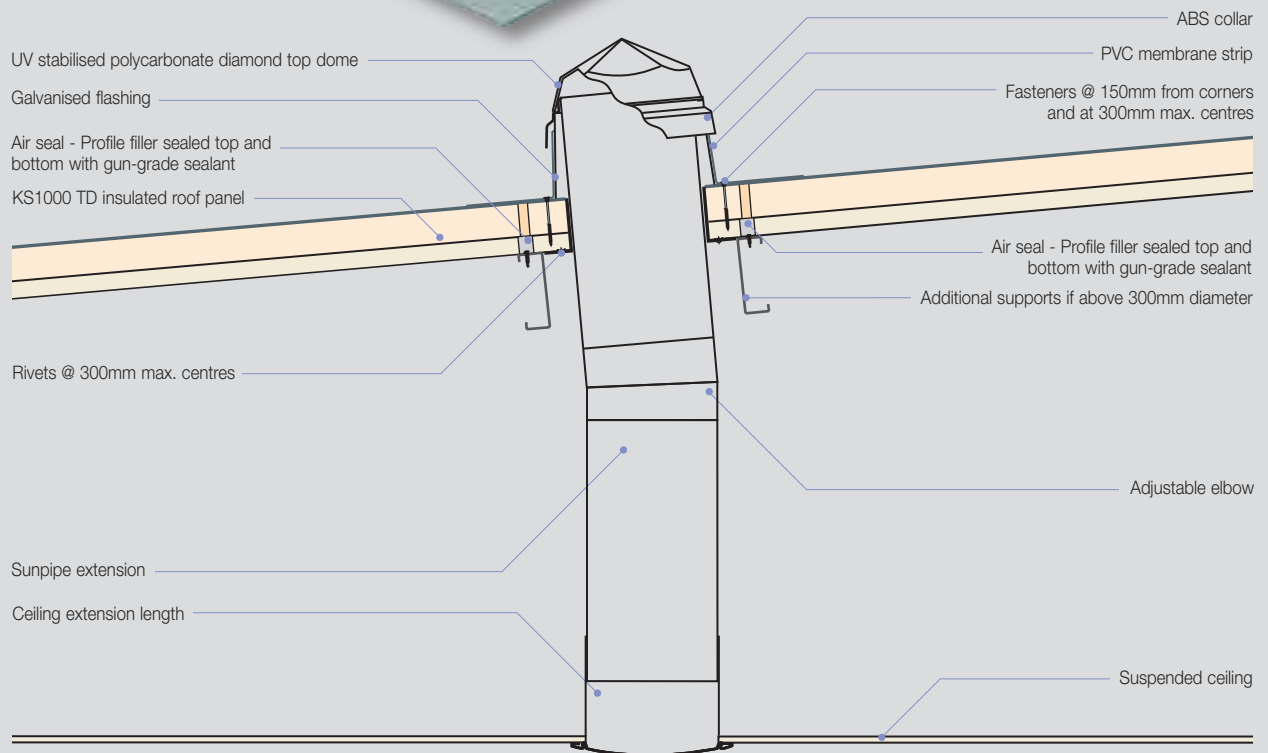
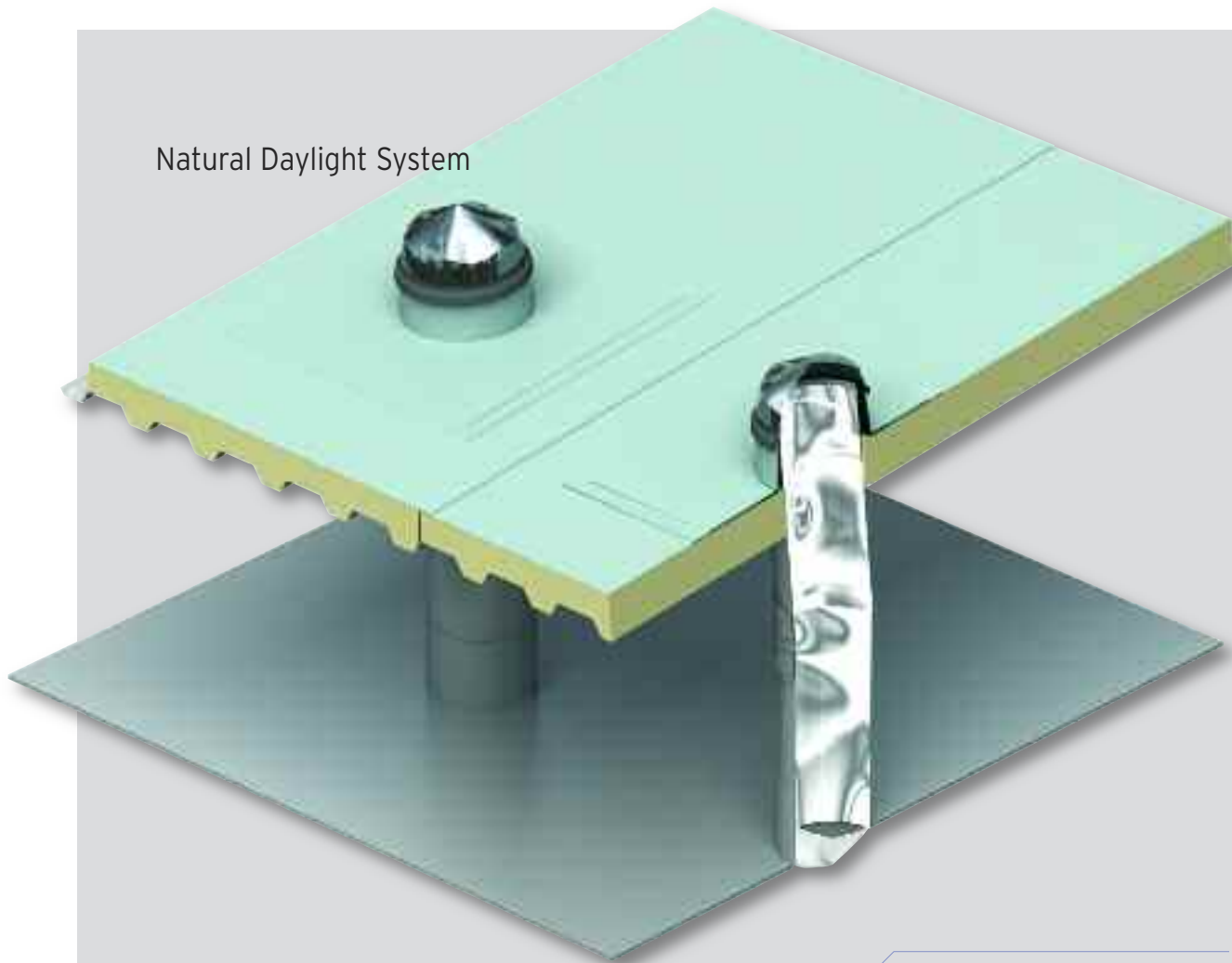
PC Option



Dome Type Rooflights

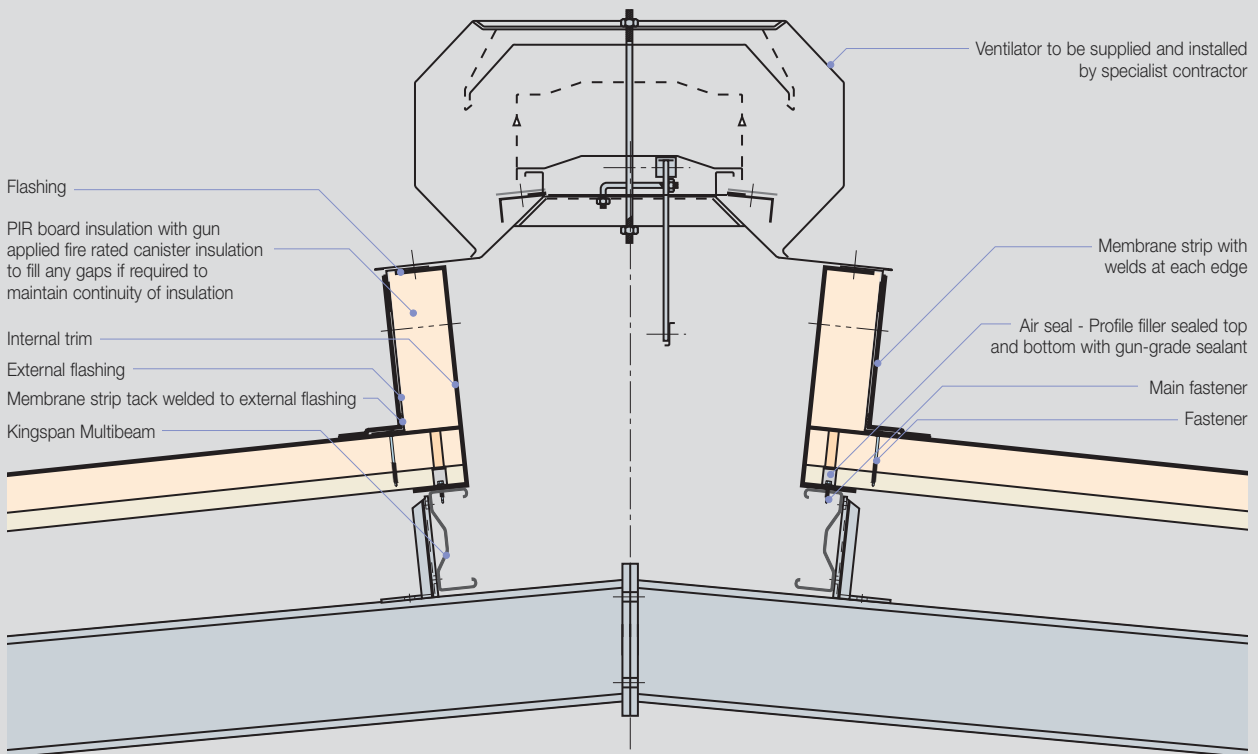


Natural Daylight System

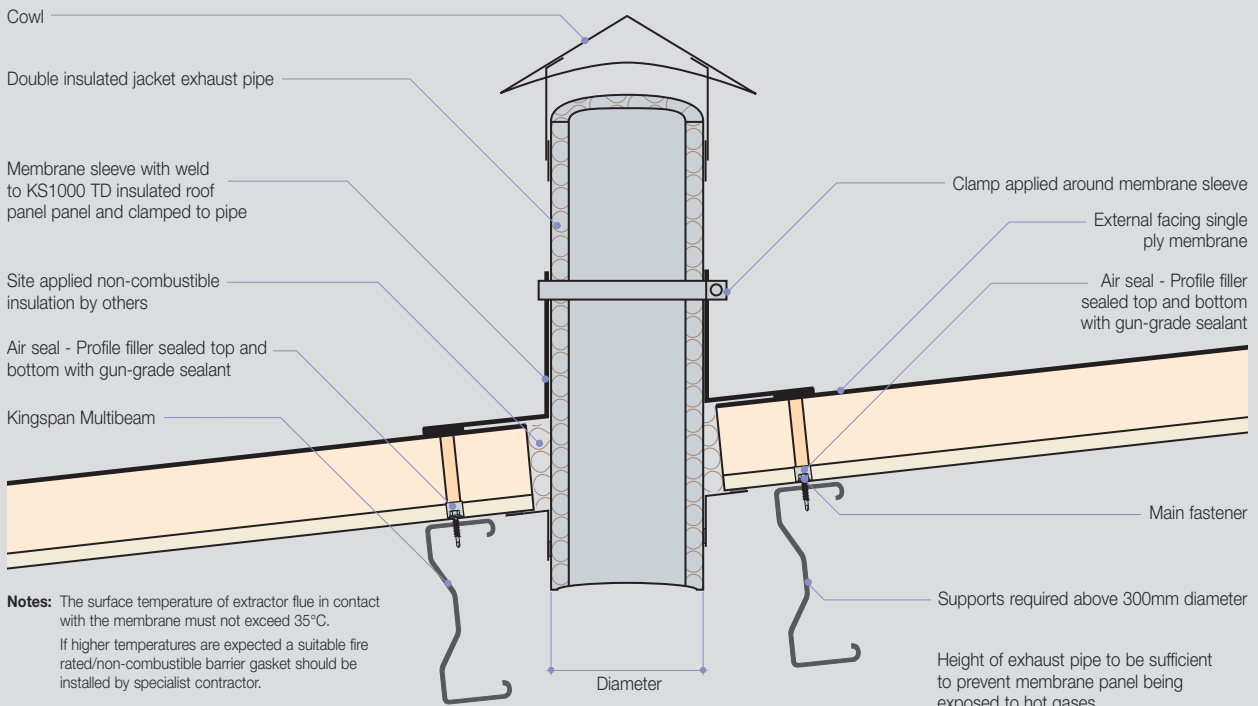


Note: Details supplied by Monodraught Ltd. Sunpipe is a registered Trademark of Monodraught Ltd.

Ridge Ventilator

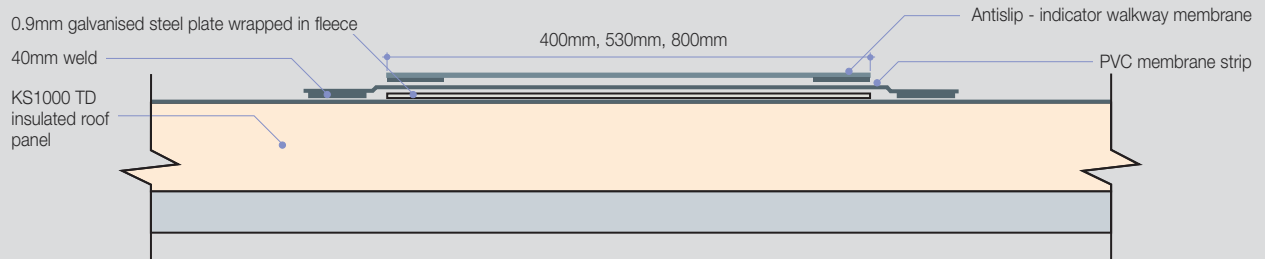


Extractor Flue



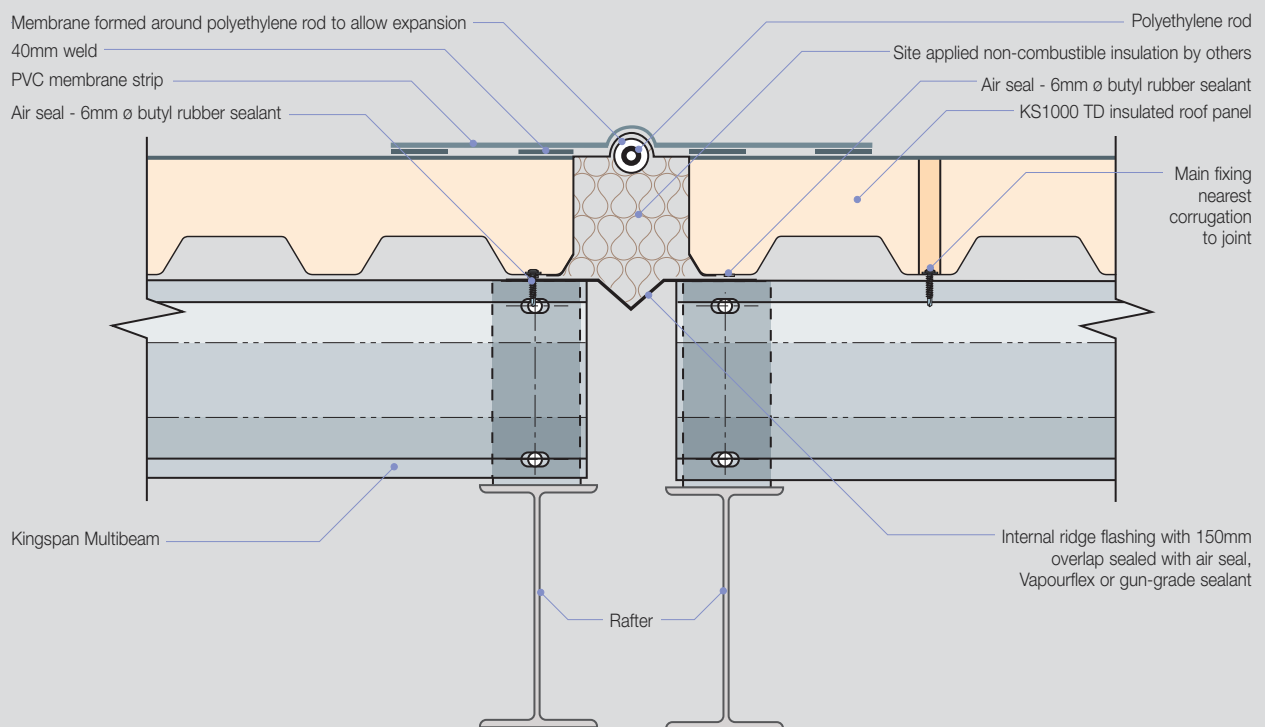
Roof Access Walkways

Typical Walkway Detail (depends on membrane)



Several types of other Walkway are available, contact Kingspan for details.

Expansion Joint










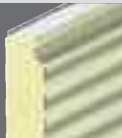

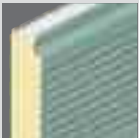



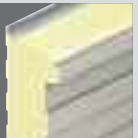


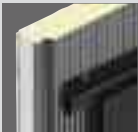
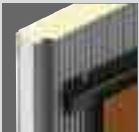
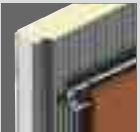







Kingspan Insulated Roof, Wall & Façade Systems

Roof Systems

| | | | | | | | |
|---|---|---|---|---|--|---|---|
| KS1000/2000 RW Trapezoidal | KS1000 SF Secret Fix | KS1000/2000 TS Slate & Tile Support | KS500/1000 ZIP Kingzip® Standing Seam | KS1000 LP Lo-Pitch | Kingspan EnergiPanel™ | KS1000 CR Curved Roof | Kingspan Roof Tile |
|  |  |  |  |  |  |  |  |
| KS1000 FC Box Profile | Kingspan Envirodek® | Kingspan Polycarb Rooflight | Kingspan Upstand Rooflight | KS1000 DR/DRC Trapezoidal | KS1000 TD Topdek | KS1000 Topspan | |
|  |  |  |  |  |  |  | |

Wall & Façade Systems

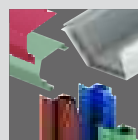
| | | | | | | | |
|---|---|---|---|---|--|---|---|
| KS600, 900 & 1000 Optimo™ | KS600, 900 & 1000 MR Micro-Rib | KS600, 900 & 1000 EB Euro-Box | KS600, 900 & 1000 FL Flat | KS600, 900 & 1000 FL-S Stucco | KS600, 900 & 1000 MM Mini-Micro | KS600, 900 & 1000 CX Convex | KS600, 900 & 1000 WV Wave |
|  |  |  |  |  |  |  |  |
| KS600, 900 & 1000 PL Plank | KS1000 TL Tramline | KS1000 CW CurveWall | KS1000 LV Louvre | KS600, 900 & 1000 LS Longspan™ | KS1000/2000 RW Trapezoidal | KS1000 FC Box Profile | Kingspan EnergiPanel™ |
|  |  |  |  |  |  |  |  |
| Kingspan Thermostone | Kingspan WoodTherm® | Kingspan Thermatile | Kingspan Thermabrick™ | Kingspan Thermatallic™ | Kingspan Render Panel | Kingspan Wall-Lite | KS1000 DR Trapezoidal |
|  |  |  |  |  |  |  |  |

Controlled Environment Systems

| | | | |
|---|---|---|---|
| KS1100 CS Equi-Bead | KS1100 CS Mini-Bead | KS1100 CS Flat | KS1100 CS Micro-Rib |
|  |  |  |  |

Ancillaries

Gutters, Tophats
& Flashings



Kingspan Limited

UK: Telephone: +44 (0) 1352 716100 Fax: +44 (0) 1352 710161 Email: info@kingspanpanels.com
Ireland: Telephone: +353 (0) 42 96 98500 Fax: +353 (0) 42 96 98572 Email: sales.ire@kingspanpanels.com

Details for the following countries; Australia, Belgium, Czech Republic, France, Germany, Hungary, Netherlands, New Zealand, Norway, Poland, Romania, Singapore, Slovakia & Sweden can be found by visiting our website www.kingspanpanels.com or our group website www.kingspan.com

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