Protected by

Kingspan WARRANTY

Insulated Panels
Standing Seam Systems

KingZip Linea & Infiniti Standing Seam Systems

Design Guide

POWERED BY QuadCore™ TECHNOLOGY

Kingspan®

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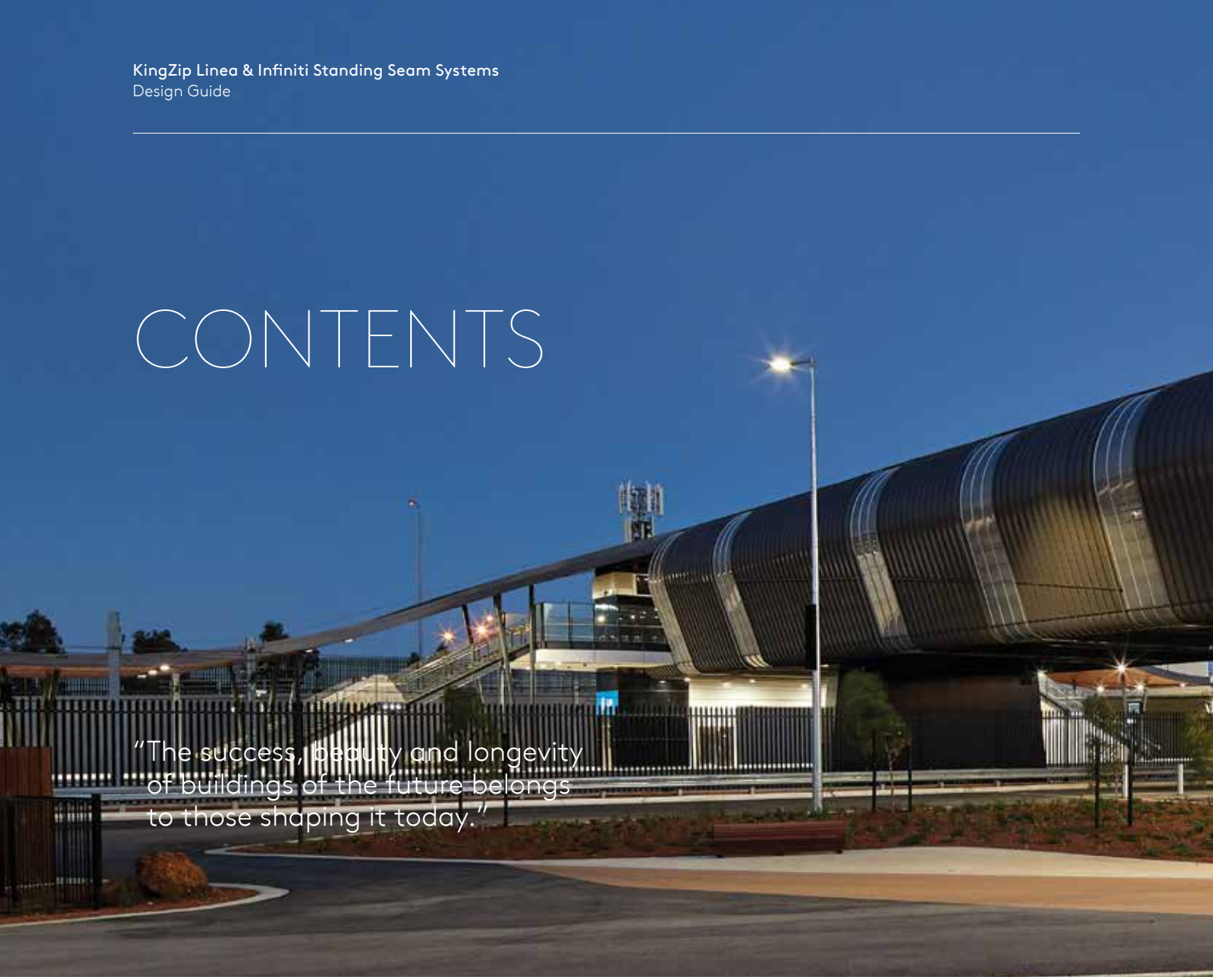
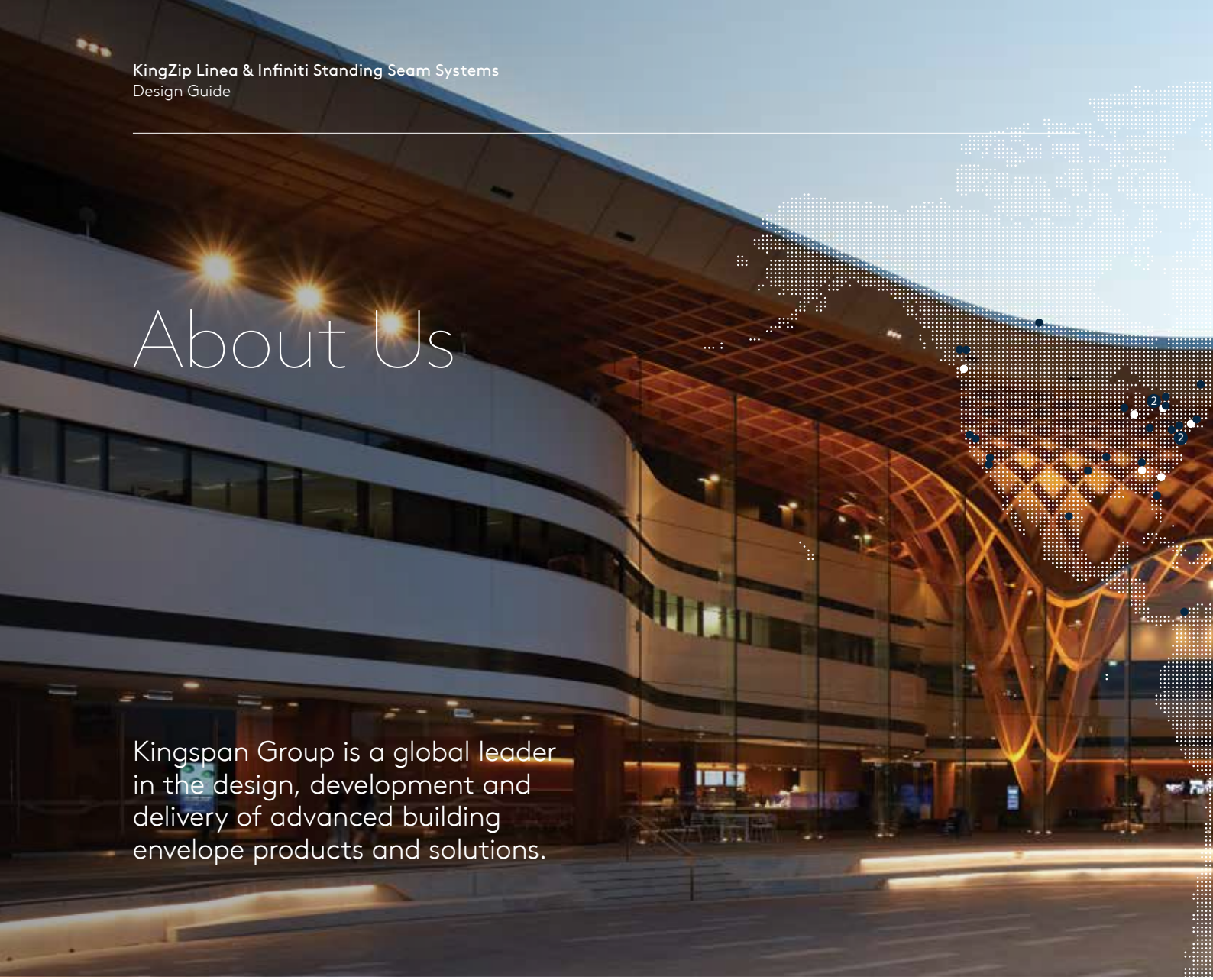


01 INTRODUCTION



About Us

Kingspan Group is a global leader in the design, development and delivery of advanced building envelope products and solutions.

Kingspan at a Glance

The Kingspan brand has always been synonymous with high performance construction systems. Our focus on sustainable, energy efficient building systems and stunning architectural design capability has placed the company in a world leadership position as the most innovative provider of integrated architectural design solutions globally. An expanded portfolio containing innovative and aesthetically stunning products and systems enables Kingspan to deliver a broader range of solutions for a wide variety of applications and building types.

4.7
billion Euro turnover in 2019

129
manufacturing sites worldwide

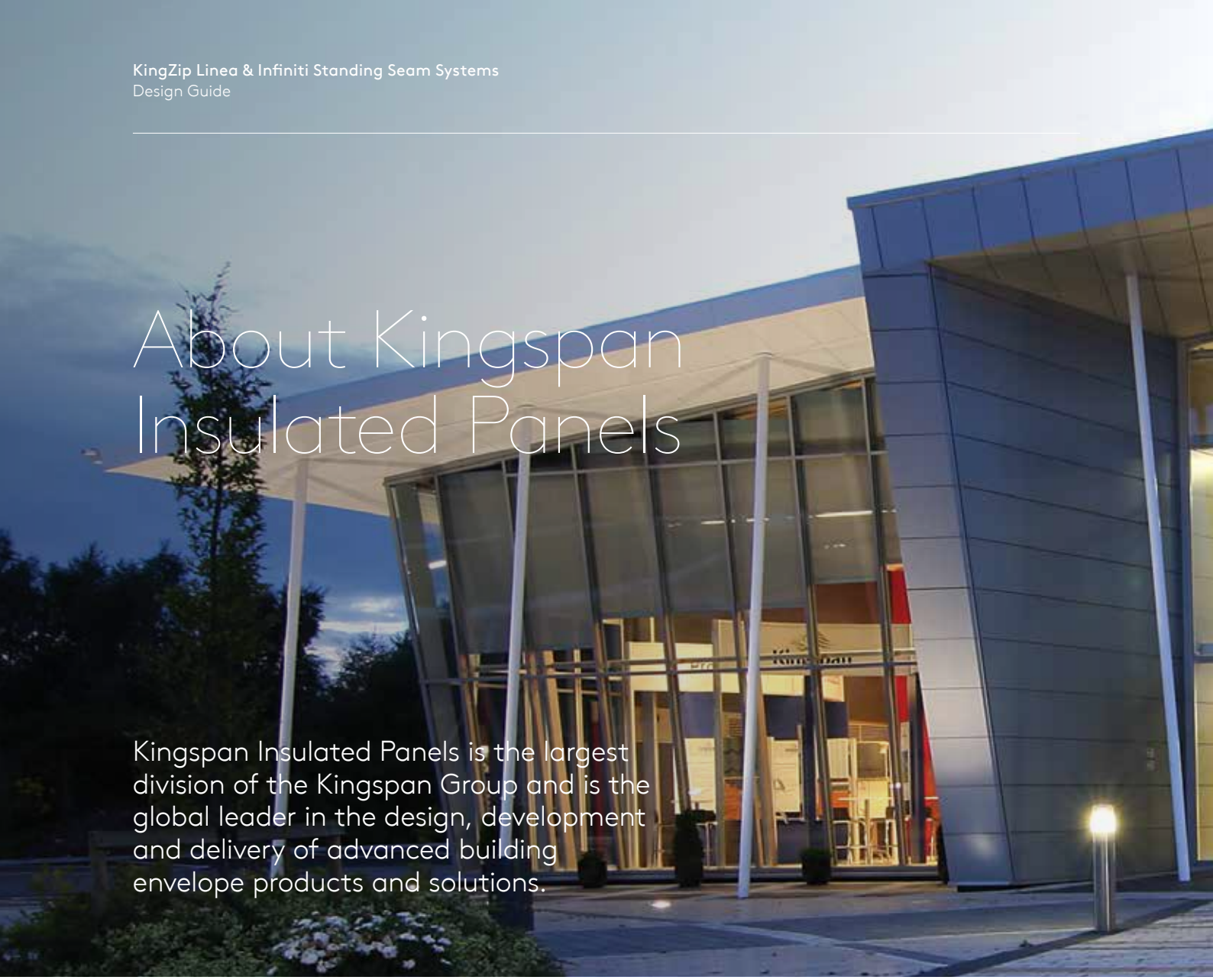
14,000+
employees worldwide

Kingspan has pioneered many innovations in the design and manufacturing of advanced building envelope systems, with sustainability of lifetime performance as a key focus.

Today Kingspan provides architects and design teams with solutions to facilitate their creativity, to offer their clients striking buildings, from master plans through to breathtaking infrastructure and commercial projects.

The Kingspan portfolio includes:

- High Performance Insulated Panel Systems
- Standing Seam Roof Systems
- Coldstore and Cleanroom Systems
- Architectural Facade Systems
- Daylighting Solutions and Safety Systems
- Water and Energy Solutions
- Data and Flooring Technology Systems



About Kingspan Insulated Panels

Kingspan Insulated Panels is the largest division of the Kingspan Group and is the global leader in the design, development and delivery of advanced building envelope products and solutions.

For many years Kingspan Insulated Panels' technology has led the industry in thermal efficiency, fire safety and lifetime durability. Today, Kingspan also offers significant aesthetic flexibility with a vast range of insulated panel profiles supported by state-of-the-art specialist fabrications and accessories. Combined with advanced daylighting and integrated rooftop solar PV solutions, Kingspan can deliver the complete envelope solution.

History

Our first insulated panel factory opened in Ireland in 1972, manufacturing insulated roof and wall panels for industrial buildings.

Since then, we have expanded across the UK, Europe, the Middle East, South East Asia, Australasia and Africa, and have grown our product range to include controlled environment panels, structural steel systems, fabrications, fall protection systems, lighting solutions and rooftop solar photovoltaic systems; enabling us to provide solutions for the whole building envelope.

We go beyond the simple manufacture and supply of high performance products, we provide our customers with solutions that take into account every aspect of the challenges they face.

Performance

Kingspan Insulated Panels is widely recognised in the industry for the high quality and performance of its products as well as its commitment to excellent customer services and technical support.

We are dedicated to maximising construction efficiency while delivering superior lifetime performance and fire protection with complete building envelope solutions underpinned by industry-leading warranties.

Our systems provide advanced structural, thermal, acoustic and fire performance combined with interlocking seams offering exceptional long term weatherisation and durability.

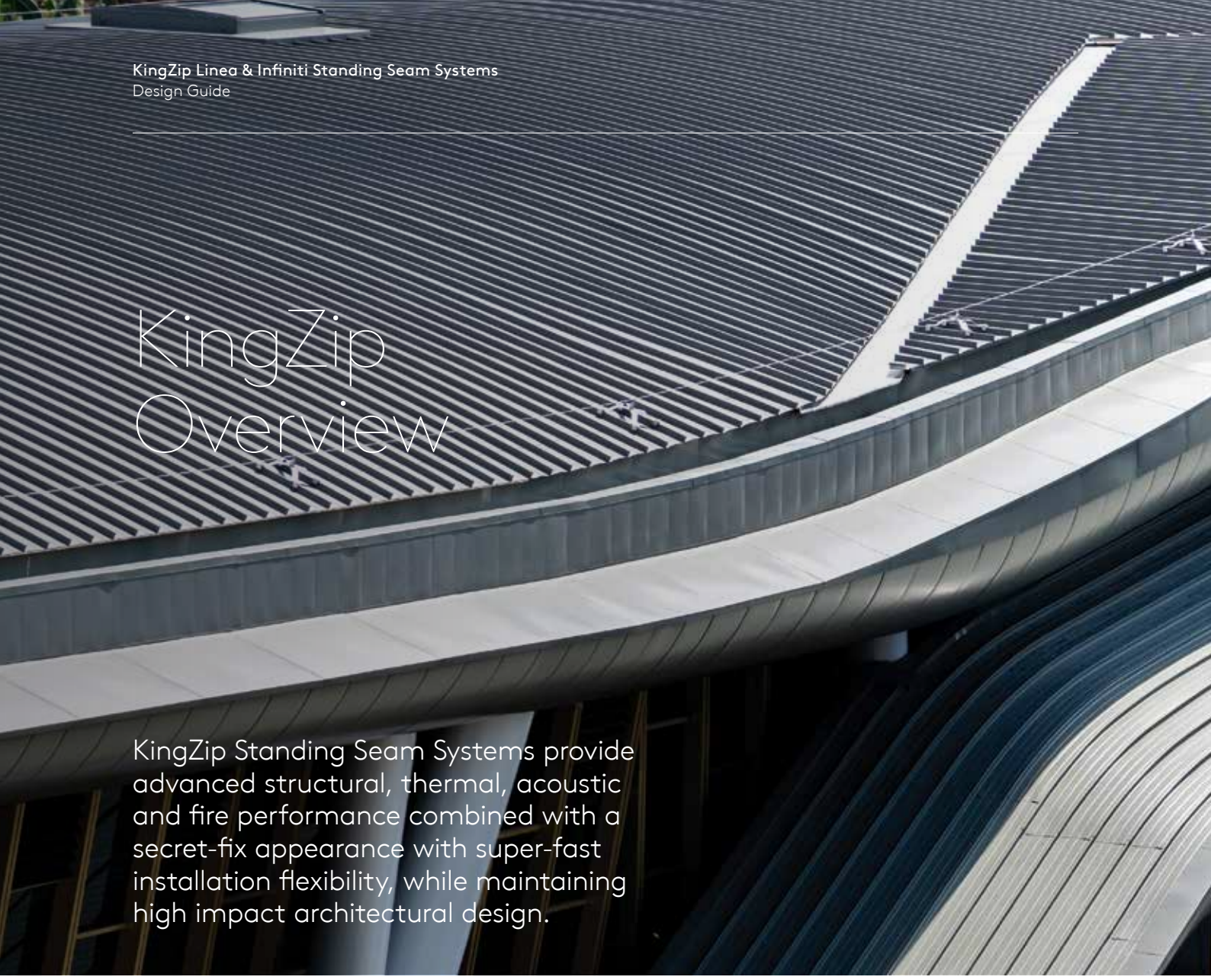
We are continually pioneering new technologies and better ways of building to improve building performance and construction methods.

Quality Assurance

Kingspan strives to continually deliver the best quality products and, with this in mind, all panels are manufactured in production facilities which are certified to ISO 9001.

Kingspan Insulated Panels has attained certification to Environmental Management Standard ISO 14001 across most of its manufacturing sites globally and is currently working to complete accreditation for the remaining sites. The majority of sites have also achieved OHSAS 18001 (Health & Safety).

KingZip Overview



KingZip Standing Seam Systems provide advanced structural, thermal, acoustic and fire performance combined with a secret-fix appearance with super-fast installation flexibility, while maintaining high impact architectural design.

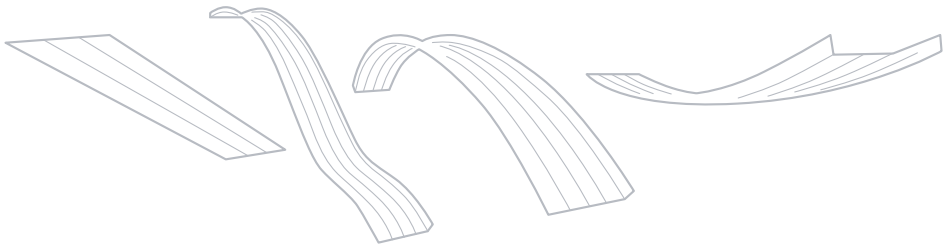
A New Wave in Building Design

Our KingZip Standing Seam Systems are a celebration of nature's architecture and have been designed to maximise flexibility and versatility to help you overcome design limitations and bring your architectural vision to life.

KingZip is available in two formats, KingZip Linea (2D) and Infiniti (3D) and can be manufactured on-site, in lengths from 1 metre up to 150 metres. This allows envelopes to be constructed using very long sheets, eliminating the need for any endlaps and considerably increasing the speed of construction.

All KingZip external weather sheets are available in alloy AA3004, AA3005 or AA5052 aluminium.

Our KingZip Standing Seam Systems fully integrate with our insulated roof, wall and facade systems and accessories to provide a single-source, high-performance, fully-guaranteed package.



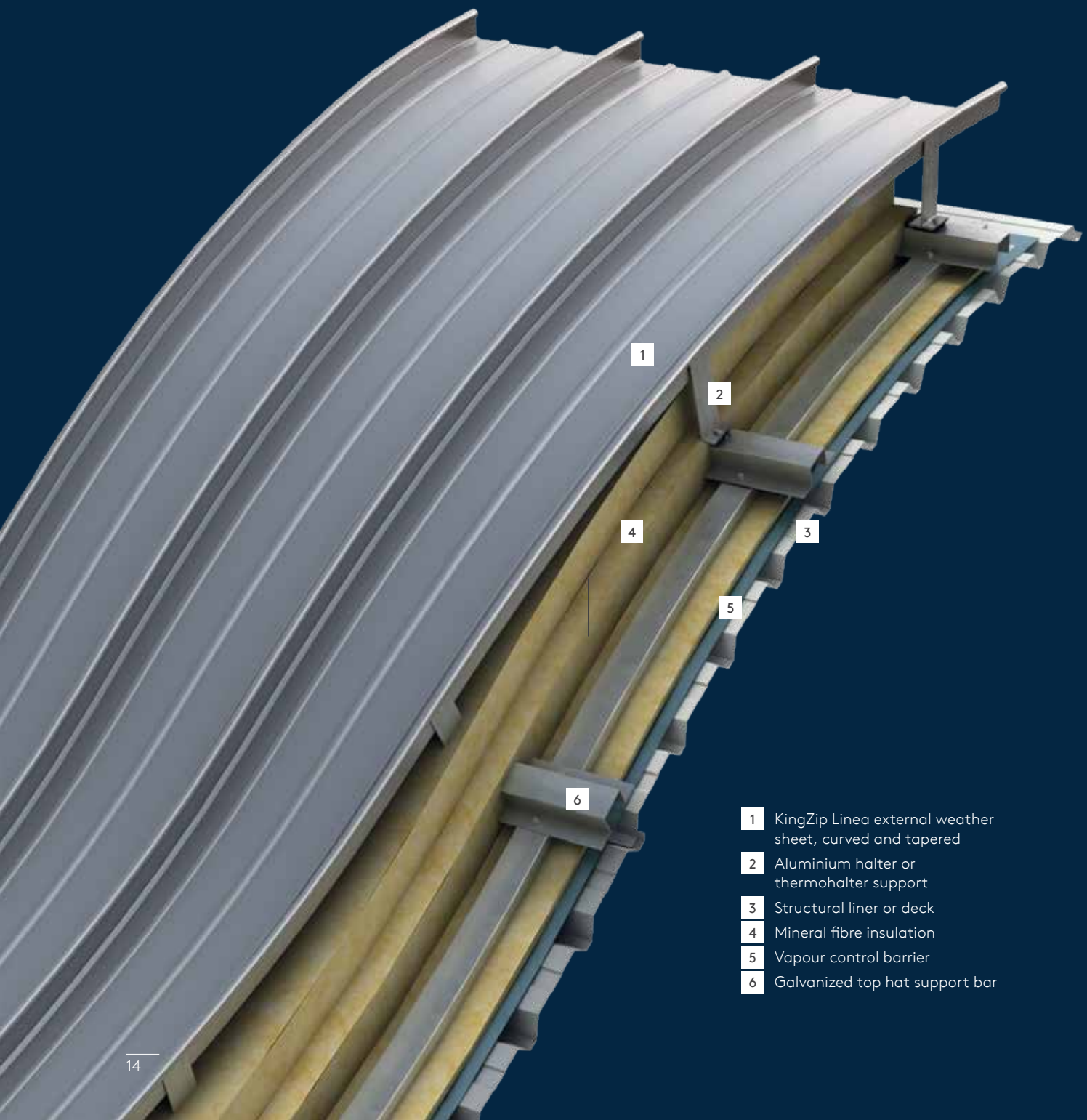
KingZip Linea gives you full flexibility to create functional and technically perfect convex, concave and angular architectural roof shapes.

KingZip Infiniti offers virtually unlimited design capability to develop sophisticated envelopes that are artistic and creative.

02 KINGZIP SOLUTIONS

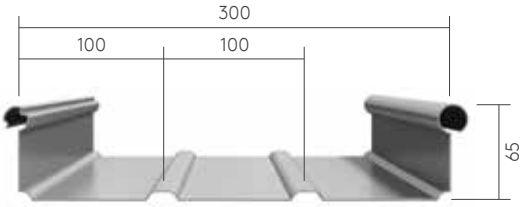
KingZip Linea

KingZip Linea enables you to realise building envelope designs with total flexibility, creating technically perfect angular, convex, concave and tapered architectural forms.

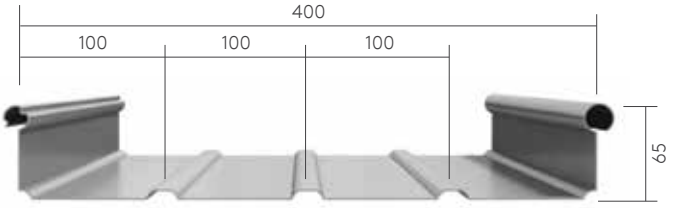


1. KingZip Linea external weather sheet, curved and tapered
2. Aluminium halter or thermohalter support
3. Structural liner or deck
4. Mineral fibre insulation
5. Vapour control barrier
6. Galvanized top hat support bar

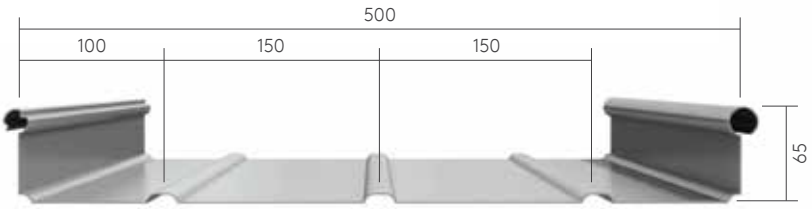
KingZip Linea 300



KingZip Linea 400



KingZip Linea 500



All dimensions are in mm.

KingZip Linea
Specifications

Materials: Steel and Aluminium

Product Dimensions

Nominal thickness (mm):	0.80, 0.90, 1.00, 1.20 (aluminium) / 0.70, 0.90 (steel)
Profile depth (mm):	65
Sheet length (m):	1.5 to 15 (factory rolled – due to transport limitation) 1.5 to 150 (site rolled)
Sheet width (mm):	300, 400 & 500

KingZip Linea Typical Weights

Cover Width	Steel Thickness (mm)				Aluminium Thickness (mm)							
	0.7		0.9		0.8		0.9		1.0		1.2	
	kg/m²	kg/lm	kg/m²	kg/lm	kg/m²	kg/lm	kg/m²	kg/lm	kg/m²	kg/lm	kg/m²	kg/lm
300	8.71	2.61	11.20	3.36	3.47	1.04	3.90	1.17	4.34	1.30	5.20	1.56
400	10.54	4.21	13.55	5.42	3.15	1.26	3.54	1.42	3.94	1.57	4.72	1.89
500	12.37	6.18	15.90	7.95	2.96	1.48	3.33	1.66	3.70	1.85	4.43	2.22

Tolerances

Cover width: +/- 2 mm

Edge squareness: 1 % of sheet cover width

Up to 10 m long: +10 mm / -5 mm
Over 10 m long: +10 mm +(1 mm per metre length over 10 m) / -5 mm

Application

KingZip Linea is designed for use in all roofing applications where the installed roof pitch is 1.5° or greater.

KingZip Linea can also be used as a vertically laid wall cladding solution.

Finishes

The external weather sheets are available in a variety of finishes including; plain stucco embossed finish, stainless steel, Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester, Kingspan Anodised and Kingspan ARS.

The internal liner sheet will generally be a smooth or stucco embossed finish with a polyester coating.

More information on finishes and coatings is available on page 114.

Materials: Steel and Aluminium

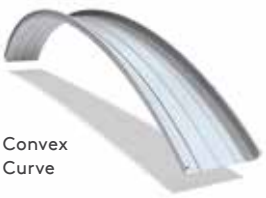
Curving KingZip Linea

KingZip profiles are available in various curved options to suit the required application. The profile can be concave, convex or wave shaped incorporating both curves in one sheet. The sheets will self curve to a certain degree, otherwise they can be mechanically smooth or crimp curved as detailed below. When straight sheets are sprung down to match the curve, the halter brackets need to be set out by approximately an extra 5 mm of the cover width of the sheet, dependant on the radius. This relieves the stress from the pan by allowing the upstands to open out.

Convex Curve	Gauge (mm)	Recommended Support Spacing (m)	Radius (m)
Site sprung curved sheets	0.9 aluminium	1.5	40.0 / 45.0
	1.2 aluminium	1.6	55.0 / 60.0
	0.7 steel	1.6	55.0 / 60.0
Smooth rolled curved sheets	0.9 aluminium	1.5	5.0
	1.2 aluminium	2.0	5.0
	0.7 steel	1.6	12.0
Factory crimp curved sheets	0.9 aluminium	1.5	750 mm
	1.2 aluminium	1.6	750 mm
	0.7 steel	1.6	750 mm

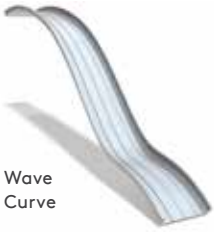
Concave Curve	Gauge (mm)	Recommended Support Spacing (m)	Radius (m)
Site sprung curved sheets	0.9 aluminium	1.6	50.0
	1.2 aluminium	1.6	60.0
	0.7 steel	1.8	90.0
Smooth rolled curved sheets	0.9 aluminium	1.5	8.0
	1.2 aluminium	1.6	8.0
	0.7 steel	1.6	10.0

For other metals and radii outside the above parameters consult our Technical Department.



Convex Curve

Concave Curve



Wave Curve

KingZip Sheet Length and Corresponding Radius to Meet Transportation Criteria

Radius (m)	Maximum Sheet Length for Transport (m)	Radius (m)	Maximum Sheet Length for Transport (m)	Radius (m)	Maximum Sheet Length for Transport (m)	Radius (m)	Maximum Sheet Length for Transport (m)
6.0	10.0	16.0	16.0	26.0	20.5	36.0	24.0
6.5	10.5	16.5	16.5	26.5	20.5	36.5	24.0
7.0	10.7	17.0	16.7	27.0	20.5	37.0	24.5
7.5	11.0	17.5	17.0	27.5	21.0	37.5	24.5
8.0	11.5	18.0	17.2	28.0	21.0	38.0	24.5
8.5	11.7	18.5	17.5	28.5	21.5	39.0	25.0
9.0	12.0	19.0	17.5	29.0	21.5	39.5	25.0
9.5	12.5	19.5	17.7	29.5	21.5	40.0	25.0
10.0	12.7	20.0	18.0	30.0	22.0	40.5	25.5
10.5	13.0	20.5	18.2	30.5	22.0	41.0	25.5
11.0	13.5	21.0	18.5	31.0	22.0	41.5	25.5
11.5	13.7	21.5	18.7	31.5	22.5	42.0	26.0
12.0	14.0	22.0	19.0	32.0	22.0	42.5	26.0
12.5	14.2	22.5	19.2	32.5	22.5	43.0	26.0
13.0	14.5	23.0	19.2	33.0	23.0	43.5	26.5
13.5	14.7	23.5	19.5	33.5	23.0	44.0	26.5
14.0	15.2	24.0	19.7	34.0	23.5	44.5	26.5
14.5	15.5	24.5	20.0	34.5	23.5	45.0	26.5
15.0	15.7	25.0	20.0	35.0	23.5	45.5 to 51.5	27.0
15.5	16.0	25.5	20.2	35.5	24.0		

Above table is indicative only. Contact your local Kingspan Customer Service for advice on transportation conditions and limitations

KingZip Linea
Specifications

Materials: Steel and Aluminium

Tapering

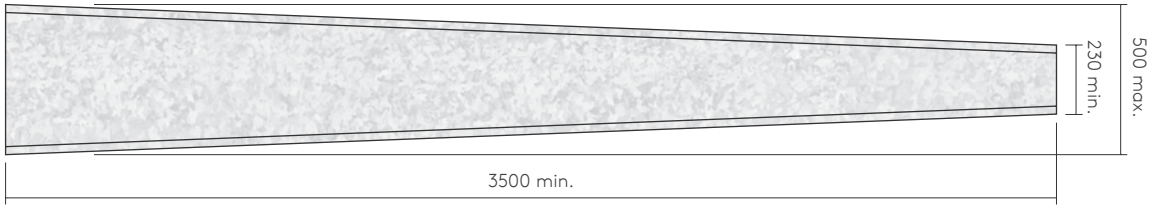
KingZip tapered sheets provide the flexibility to design more complex geometries e.g. curved on plan or dome structures.

Tapered sheets have the same curve radii as Kingzip Linea sheets and can be fully integrated to Kingzip Linea applications.

Minimum length: 3.5 m
Maximum sheet length: 15 m (limited by transport vehicle dimensions)

On-site manufacture up to 150 m

Minimum taper width: 230 mm
Maximum taper width: 500 mm



The standard KingZip sheet can be fabricated to achieve a taper to form a radial roof on plan. The sheet is rolled as normal to the required length and the pan is then marked out with two inclined lines.

The surplus triangular material is cut out and the remaining upstand and pan pieces of the sheet are tacked together and eventually fully welded to create the tapered KingZip ready for installation.

When matching painted surfaces, aluminium tapered sheets are powder-coated after fabrication and the customer must be made aware that a shade variation may occur as the post-applied colour may not match the pre-coated coil used to roll the KingZip.

Materials: Steel and Aluminium

Applicable Roof Pitch

Due to the true standing seam concept of the KingZip system the following pitches may be maintained:

Continuous sheet ridge to eaves	1.5°
Welded end lap joint	1.5°
Welded roof penetrations	1.5°
Laid in rooflights ridge to eaves	1.5°
Rooflights lapped onto KingZip	>4.0°
End lap joints with sealants and fixings	3.0°

Note: Roof pitches must be achieved after consideration of loadings and deflection. Ensure gutter straps and edge flashing details at the eaves do not reduce the above roof pitches to avoid ponding of water at the sheet edge.

End Laps

Where sheets are required to be end lapped then the sheets will need to be notched as shown below. For a pitch greater than 3° the overlap joint must be fixed with end lap rivets (6604/6/3W) and sealed with end lap sealant (TAPE/BM/06).

For a more secure overlap and any pitch below 3°, site welding will ensure that there are no penetrations of the external weathering skin. Please refer to page 202 for detail drawing.

Drumming

The impact of rain or hail on a roof will always produce a noise. This sound energy (vibration) is then transmitted through the roof construction to the inside of the building.

BS5427:2016+A1:2017 states that this noise can be reduced by the introduction of a flexible insulation layer directly under the outer sheets. The insulated KingZip system deadens such sounds with absorption by virtue of the soft insulation being compressed to the underside of the roof sheet.

Lightning Protection

A close liaison should be ensured between the architect, the builder, the lightning protection system engineer and the appropriate authorities throughout the design stages to meet or exceed the requirements of BS EN/IEC 62305.

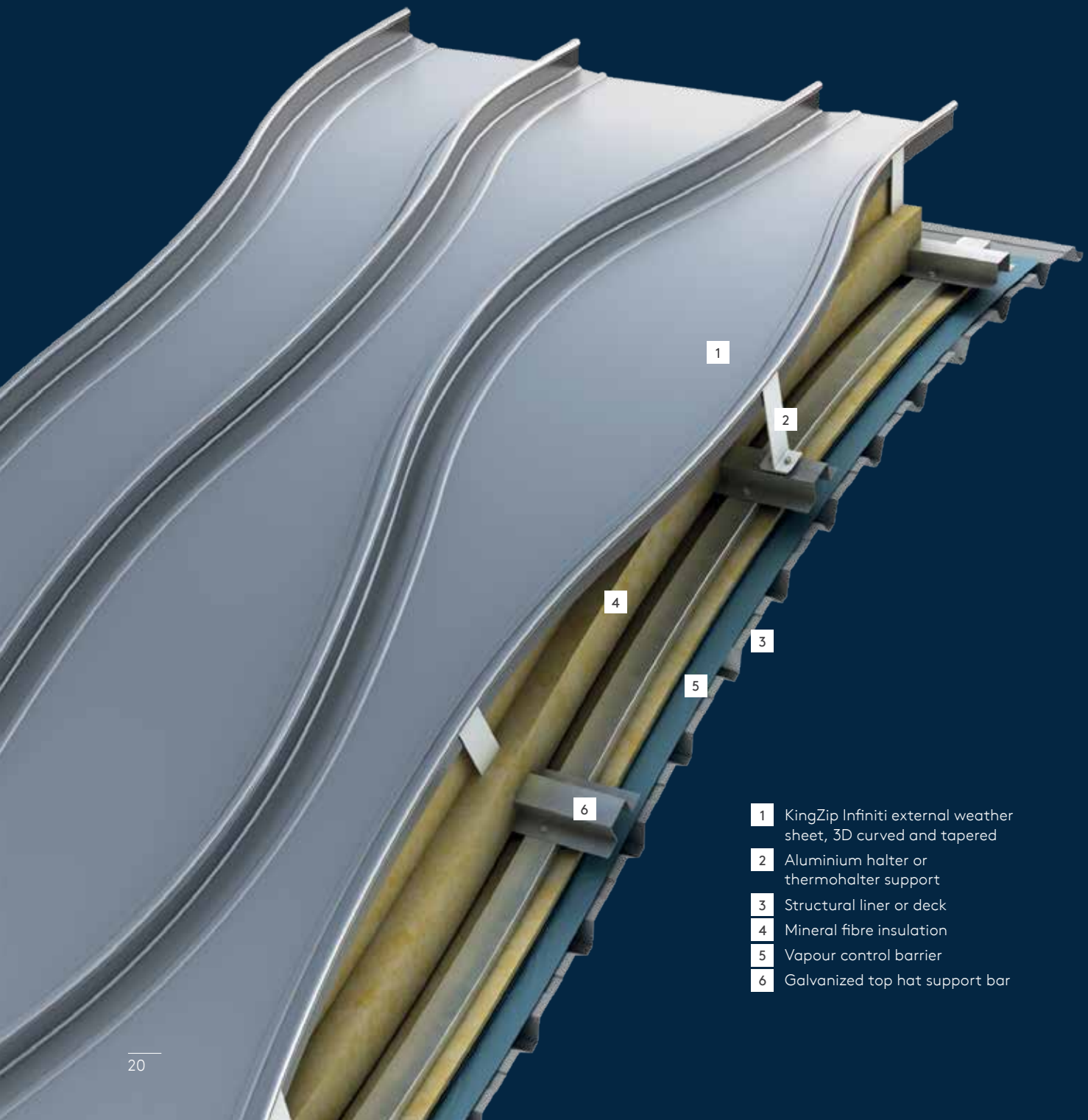
Modern buildings use metal extensively in their structure and there is considerable benefit in utilising such metal parts to maximise the number of parallel conducting paths. The KingZip roof systems combined with the steel frame of the building can be used to provide a principal lightning protection system.

Standards

KingZip Linea is produced to the highest quality manufacturing standard including BS EN ISO 9001: 2008. The product is designed to meet detailed project expectations and has therefore been manufactured to precise standards and tolerances.

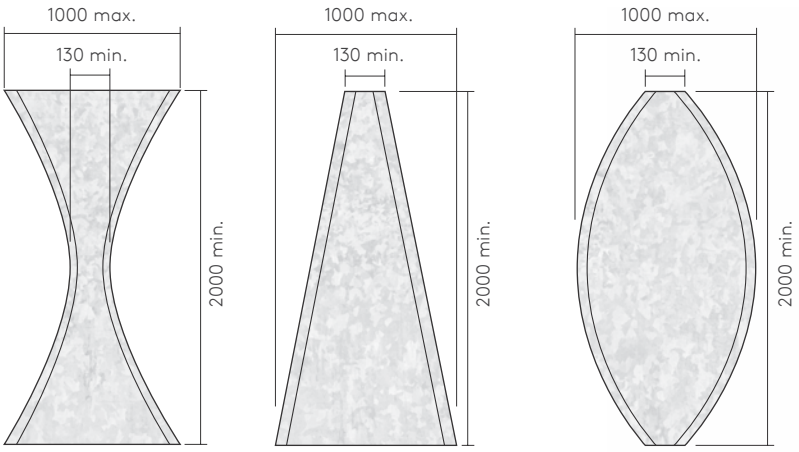
KingZip Infiniti

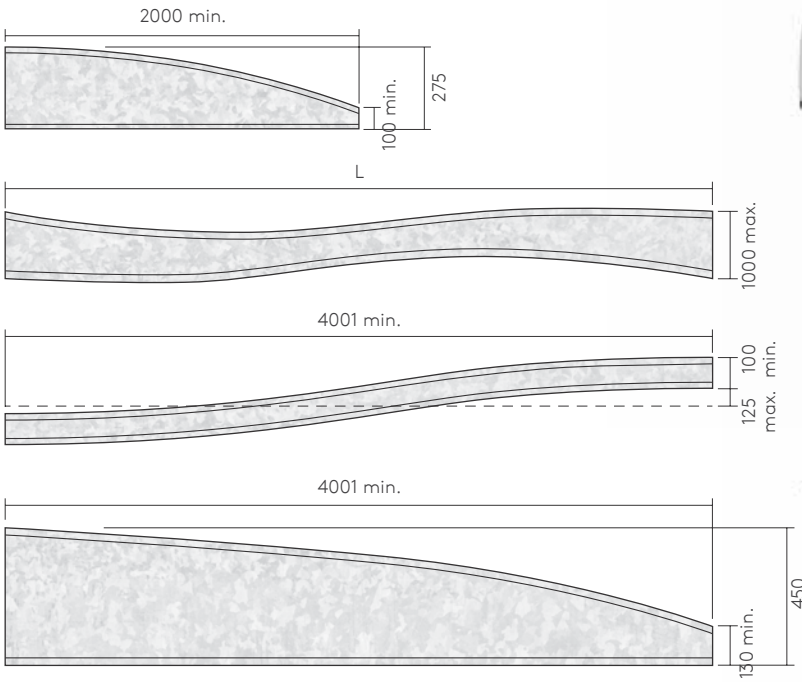
KingZip Infiniti offers you unprecedented freedom to create extraordinary 3D geometric buildings with complex shapes and forms – taking design and construction of the building envelope to new levels.



1. KingZip Infiniti external weather sheet, 3D curved and tapered
2. Aluminium halter or thermohalter support
3. Structural liner or deck
4. Mineral fibre insulation
5. Vapour control barrier
6. Galvanized top hat support bar

Our unlimited manufacturing capability of KingZip Infiniti enables you to realise distinctive and individual buildings that showcase creative and artistic vision on a global stage.





All dimensions are in mm.

KingZip Infiniti
Specifications

Material: Aluminium

Product Dimensions

Nominal thickness (mm):	0.90, 1.00, 1.20
Profile depth (mm):	65
Sheet length (m):	2.75 to 150
Sheet width (mm):	130 to 1000 in any increment
Max / min sheet cross section:	Limits for roll former: Maximum width = 1000 mm (with container side open); 800 mm (with container side closed, need to use edge trimmers) Minimum width = 130 mm Limits for curving machine: Maximum width = 1000 mm Minimum width = 190 mm
Max variable path angle:	+/- 10° on short lengths 1/- 8° as average
Min / max radii on variable width:	Rmin = 10 to 20 m, gauge and shape dependent
Rib path for variable width to follow seam path:	Side mini ribs follow the standing seam path at a distance of 70 to 250 mm from the edges; centre mini rib always follows the centre of the profile

Tolerances

Tolerance: +/- 0.5 % on length.

Application

KingZip Infiniti is designed for use in all roofing applications where the installed roof pitch is 1.5° or greater.

KingZip Infiniti can also be used as a vertically laid wall cladding solution.

Standards

KingZip Infiniti is produced to the highest quality manufacturing standard including BS EN ISO 9001: 2008. The product has been designed to meet detailed project expectations and is manufactured to precise standards and tolerances.

Finishes

A variety of finishes including; plain stucco embossed finish or stainless steel, Kingspan PVDF, Kingspan Spectrum, Kingspan ARS, Kingspan Polyester and Kingspan Anodised are available. More information on finishes and coatings is available on page 114.

The internal liner sheet will generally be a smooth or stucco embossed finish with a polyester coating.

Material: Aluminium

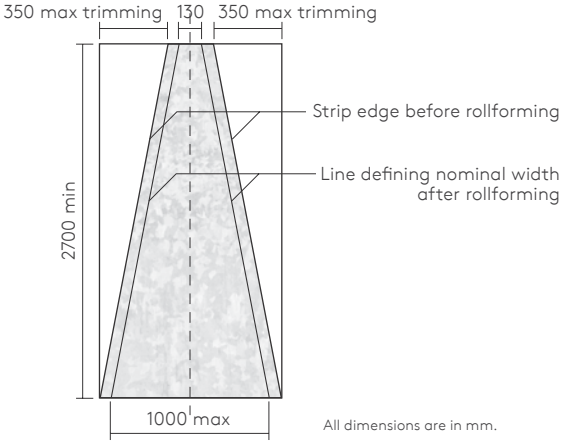
Tapering

Minimum Sheet Tapering Criteria

Limited by trimming action of 700 mm max (350 mm from each edge). From 130 to 800 mm or 300 to 1000 mm.

Maximum Tapering Width

1000 mm (with container side open); 800 mm (with container side closed, need to use edge trimmers).



All dimensions are in mm.

Curving KingZip Infiniti

Max / Min Sheet Concave Radii

Material: aluminium, 2 mini ribs.

The concave curve radii for KingZip Infiniti profiles are available in the following options shown in the below table to suit the required application.

Thickness (mm)	Parallel	Tapered	Freeform
1.2	R = 8000	R = 8000	R = 8000
1.0	R = 10000	R = 10000	R = 10000
0.9	R = 15000	R = 15000	R = 15000

Max / Min Sheet Convex Radii

Material: aluminium.

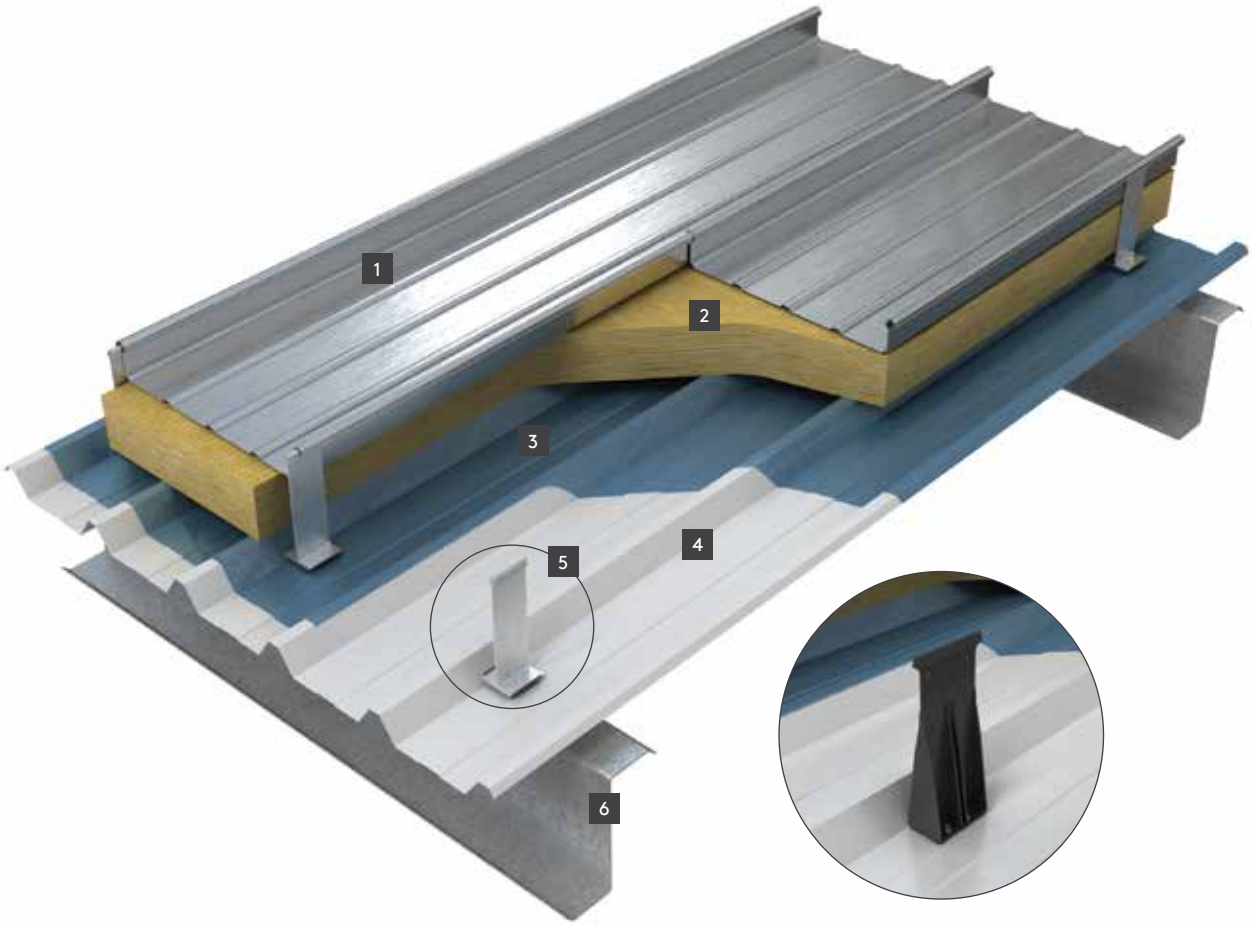
The convex curve radii for KingZip Infiniti profiles are available in the following options shown in the below table to suit the required application.

Thickness (mm)	Parallel	Tapered	Freeform
1.2	R = 1000	R = 1000	R = 1000
1.0	R = 1200	R = 1200	R = 1200
0.9	R = 1800	R = 1800	R = 1800

Note: Profiles may be required to be passed through the curving machine multiple times to get the final curved shape depending on the complexity of the 3D geometry and the sheet curve radius required.

Design Considerations
Construction Types

KingZip Insulated System on Steel Purlins

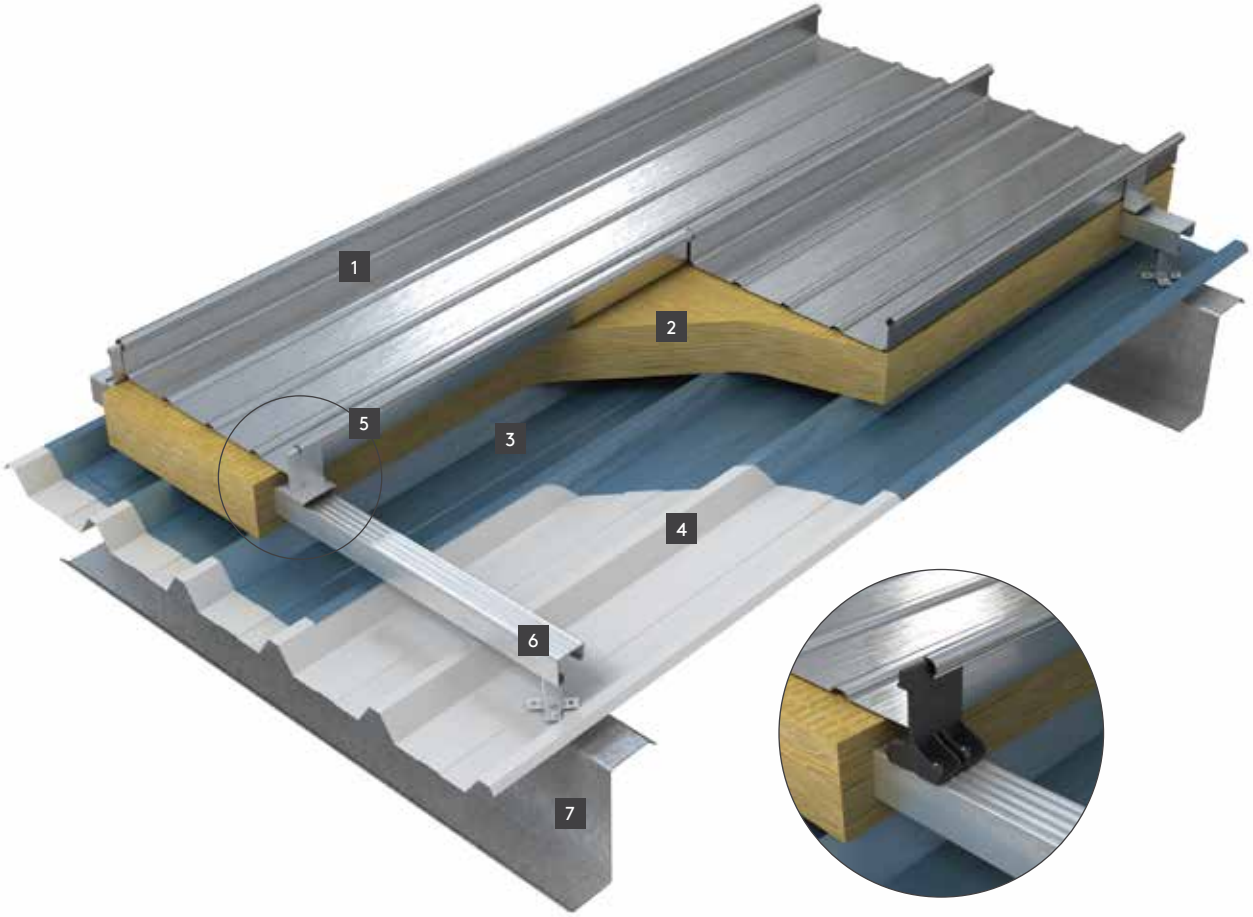


1. KingZip Linea / Infiniti standing seam
2. Single layer mineral fibre insulation
3. Vapour control layer (VCL)
4. Kingspan structural liner
5. Aluminium halter with thermal pad or thermohalter
6. Secondary steelwork – purlin

Spans up to	U-value	R-value	R-value	Rw up to
2 metres	0.91 to 0.26 W/m²K	1.09 to 3.82 m²K/W	6.2 to 21.7 BTU	36 dB

KingZip Standing Seam Systems can be configured to meet the design and performance requirements for aesthetic, thermal, airtightness, acoustic, fire and structural performance. Following are typical construction options, however, systems are fully customisable.

KingZip Insulated System on Steel Purlins with Bar and Bracket System



1. KingZip Linea / Infiniti standing seam
2. Single layer mineral fibre insulation
3. Vapour control layer (VCL)
4. Kingspan structural liner
5. Aluminium halter with thermal pad or thermohalter
6. Quattro spacer system
7. Secondary steelwork – purlin

Spans up to	U-value	R-value	R-value	Rw up to
2 metres	0.24 to 0.12 W/m²K	4.15 to 8.20 m²K/W	23.6 to 47 BTU	50 dB

Design Considerations
Construction Types

KingZip Insulated System on Structural Deck

1. KingZip Linea / Infiniti standing seam
2. Single layer mineral fibre insulation
3. Vapour control layer (VCL)
4. Kingspan structural deck (can be perforated)
5. Aluminium halter with thermal pad or thermohalter

Spans up to	U-value	R-value	R-value	Rw up to	NRC up to
9 metres	1.06 to 0.27 W/m²K	0.93 to 3.69 m²K/W	5.30 to 21 BTU	36 dB	0.8

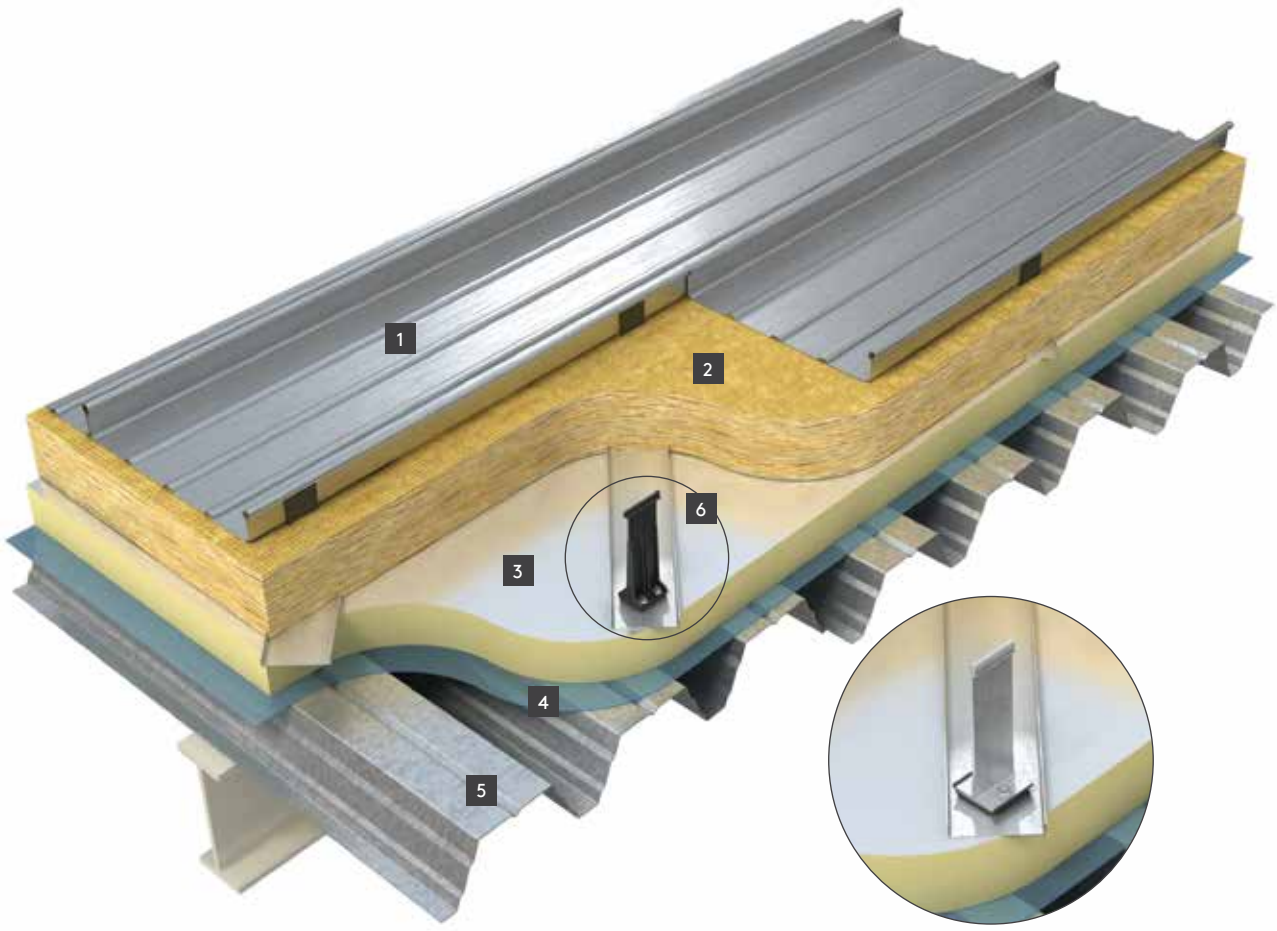
KingZip Enhanced Insulated System on Structural Deck

1. KingZip Linea / Infiniti standing seam
2. Double layer mineral fibre insulation
3. Vapour control layer (VCL)
4. Kingspan structural deck (can be perforated)
5. Aluminium halter with thermal pad or thermohalter
6. Galvanised top hat support channel
7. Quattro spacer system

Spans up to	U-value	R-value	R-value	Rw up to	NRC up to
9 metres	0.18 to 0.10 W/m²K	5.54 to 9.86 m²K/W	31.5 to 56 BTU	53 dB	0.8

Design Considerations
Construction Types

KingZip Enhanced Insulated System on Structural Deck (PIR)



1. KingZip Linea / Infiniti standing seam
2. Single layer mineral fibre insulation
3. Single layer Kingspan TR26 foil faced PIR insulation board
4. Vapour control layer (VCL)
5. Kingspan structural deck (can be perforated)
6. Aluminium halter with thermal pad or thermohalter and support channel

Spans up to	U-value	R-value	R-value	Rw up to	NRC up to
9 metres	0.15 to 0.091 W/m²K	6.66 to 10.9 m²K/W	37.5 to 62 BTU	49 dB	0.8

KingZip Acoustic System on Structural Deck

1. KingZip Linea / Infiniti standing seam
2. Double layer mineral fibre insulation
3. Vapour control layer (VCL)
4. Double layer acoustic plasterboard
5. Mineral wool insulation infill
6. Aluminium halter with thermal pad or thermohalter
7. Galvanised top hat support channel
8. Kingspan structural deck (can be perforated)
9. Secondary steelwork – purlin

Spans up to	U-value	R-value	R-value	Rw up to	NRC up to
9 metres	0.17 to 0.10 W/m²K	5.88 to 10.00 m²K/W	33 to 57 BTU	64 dB	0.8

Design Considerations
Construction Types

KingZip Acoustic System on Structural Deck

1. KingZip Linea / Infiniti standing seam
2. Double layer mineral fibre insulation
3. Vapour control layer (VCL)
4. Kingspan structural deck (can be perforated)
5. Aluminium halter with thermal pad or thermohalter and support channel
6. Mineral wool insulation infill

Spans up to	U-value	R-value	R-value	Rw up to	NRC up to
9 metres	0.65 to 0.18 W/m²K	1.53 to 5.55 m²K/W	9 to 32 BTU	42 dB	0.8

KingZip Roofliner Hybrid System

1. KingZip Linea / Infiniti standing seam
2. Kingspan QuadCore™ Roofliner panel
3. Aluminium halter with thermal pad or thermohalter
4. Secondary steelwork – purlin

Spans up to	U-value	R-value	R-value	Rw up to
4 metres	0.23 to 0.08 W/m²K	4.31 to 12.5 m²K/W	24.5 to 71 BTU	35 dB

Design Considerations
Thermal Performance

One of the key functions of a roof system is to provide thermal insulation. It has significant influence on the overall performance of a building in the following aspects: improving energy efficiency; enhancing thermal comfort; and reducing its carbon footprint. Below you can find the definitions of the key thermal performance measurements of building envelope products and systems.

Thermal Conductivity – Lambda Value (λ)

Thermal conductivity (sometimes referred to as k-value or lambda value (λ)) is a measure of the rate at which temperature differences transmit through a material. The lower the thermal conductivity of a material, the slower the rate at which temperature differences transmit through it, and so the more effective it is as an insulator. Therefore, the lower the thermal conductivity of a building's fabric, the less energy is required to maintain comfortable conditions inside.

Thermal conductivity is a fundamental material property independent of thickness and it is measured in 'watts per metre kelvin' (W/mK).

Heat transfer occurs at a lower rate in materials of low thermal conductivity than in materials of high thermal conductivity. For example, metals typically have high thermal conductivity and are very efficient at conducting heat, while the opposite is true for insulating materials such as insulation. Correspondingly, materials of high thermal conductivity are widely used in heat sink applications and materials of low thermal conductivity are used as thermal insulation.

Thermal Resistance – R-Value

The R-value is a measure of resistance to heat flow through a given thickness of material. So the higher the R-value, the more thermal resistance the material has and therefore the better its insulating properties.

R-values can be calculated by dividing the thickness of a material (in metres) by its thermal conductivity (k-value or lambda value (λ) in W/mK). R-values are therefore expressed in m^2K/W (or $ft^2.°F·hr/Btu$ in North America). The overall R-value of a multi-layered element can be calculated by adding the R-values of its component materials. For instance if you have a material with an R-value of 12 attached to another material with an R-value of 3, then both materials combined have an R-value of 15.

Thermal Transmittance – U-values

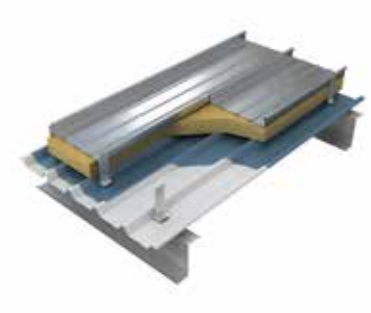
U-value assesses the rate of heat loss through a given thickness of a building element (roof, wall or floor). Ideally you would want a material which gains a small amount of heat in any given time, so you would want the U-value of a material to be low.

U-values are the basic building blocks on which the thermal performance of a building and its associated energy usage is established when assessed, in fact a well insulated building fabric is the key factor in enabling new buildings to deliver their specified energy efficiency.

The U-value of a building element is the inverse of the total thermal resistance (1/R-Value) of that element. The U-value is a measure of how much heat is lost through a given thickness of a particular material, but includes the three major ways in which heat loss occurs – conduction, convection and radiation.

Design Considerations
Thermal Performance

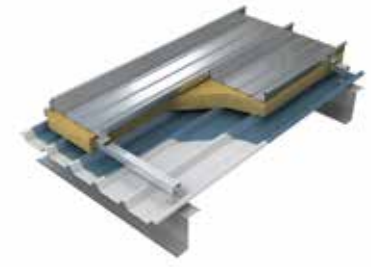
KingZip Insulated System on Steel Purlins



No Thermal Bridge, with 38 mm Deep Liner										
Aluminium halter height* (mm)	85	105	115	135	155	175	195	205	225	245
Insulation thickness (mm)	–	–	–	50	70	90	110	120	140	160
Insulation thickness (mm) (compressed)	–	–	–	38	58	78	98	108	128	148
U-value (W/m²K)	–	–	–	0.91	0.63	0.48	0.39	0.35	0.30	0.26
R-value (m²K/W)	–	–	–	1.09	1.58	2.07	2.5	2.85	3.32	3.82
R-value (BTU)	–	–	–	6.2	9.0	11.8	14.3	16.2	18.9	21.7
Inclusive of Thermal Bridge, with 38 mm Deep Liner										
Thermohalter height (mm)	85	105	115	135	155	175	195	205	225	245
Insulation thickness (mm)	–	–	–	50	70	90	110	120	140	160
Insulation thickness (mm) (compressed)	–	–	–	32	52	72	92	102	122	142
U-value (W/m²K)	–	–	–	1.06	0.69	0.52	0.41	0.37	0.31	0.27
R-value (m²K/W)	–	–	–	0.93	1.44	1.91	2.43	2.69	3.20	3.69
R-value (BTU)	–	–	–	5.30	8.20	10.90	13.80	15.30	18.20	21.00
Weighted Sound Reduction										
System weight (Kg/m²)	–	–	–	13	14	15	15	16	17	18
Rw (dB)	–	–	–	30	31	32	33	34	35	36

*Plus 6 mm thermal pad.

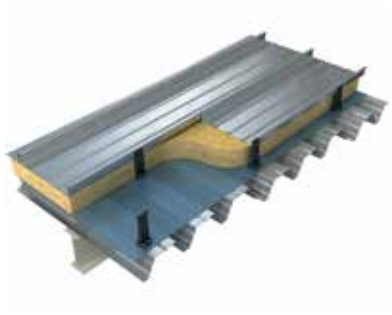
KingZip Insulated System on Steel Purlins with Bar and Bracket System



No Thermal Bridge, with 38 mm Deep Liner										
Aluminium halter height* (mm)	91	91	91	91	91	91	91	91	91	91
Quattro height	185	200	220	240	260	280	300	320	340	360
Insulation thickness (mm)	210	225	250	270	290	310	330	350	370	390
Insulation thickness (mm) (compressed)	173	188	208	228	248	268	288	308	328	348
U-value (W/m²K)	0.25	0.23	0.21	0.19	0.17	0.16	0.15	0.14	0.13	0.13
R-value (m²K/W)	4.00	4.33	4.98	5.26	5.88	6.23	6.65	7.13	7.64	7.64
R-value (BTU)	22.71	24.60	28.20	29.90	33.40	35.40	37.80	40.50	43.40	43.40
Inclusive of Thermal Bridge, with 38 mm Deep Liner										
Thermohalter height (mm)	85	85	85	85	85	85	85	85	85	85
Quattro height	185	200	220	240	260	280	300	320	340	360
Insulation thickness (mm)	210	225	250	270	290	310	330	350	370	390
Insulation thickness (mm) (compressed)	167	182	202	222	242	262	282	302	322	342
U-value (W/m²K)	0.24	0.23	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12
R-value (m²K/W)	4.15	4.33	4.98	5.26	5.88	6.23	6.65	7.13	7.64	8.20
R-value (BTU)	23.60	24.60	28.20	29.90	33.40	35.40	37.80	40.50	43.40	47.00
Weighted Sound Reduction										
System weight (Kg/m²)	23	23.5	24	25	26	27	28	29	30	31
Rw (dB)	38	39	41	42	43	45	46	47	49	50

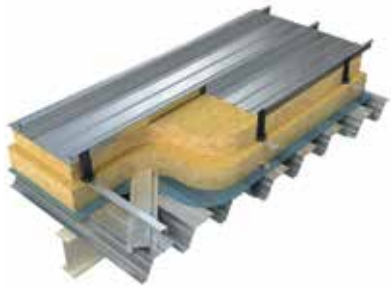
*Plus 6 mm thermal pad.

KingZip Insulated System on Structural Deck



Inclusive of Thermal Bridge, with Structural Deck										
Thermohalter height (mm)	85	115	125	135	155	175	195	205	225	245
Insulation thickness (mm)	–	–	–	40	70	90	110	120	140	160
Insulation thickness (mm) (compressed)	–	–	–	22	52	72	92	102	122	142
U-value (W/m²K)	–	–	–	1.06	0.69	0.52	0.41	0.37	0.31	0.27
R-value (m²K/W)	–	–	–	0.93	1.44	1.91	2.43	2.69	3.20	3.69
R-value (BTU)	–	–	–	5.30	8.20	10.90	13.80	15.30	18.20	21.00
Weighted Sound Reduction										
System weight (Kg/m²)	–	–	–	14	15	16	17	18	19	20
Rw (dB)	–	–	–	30	31	32	33	34	35	36

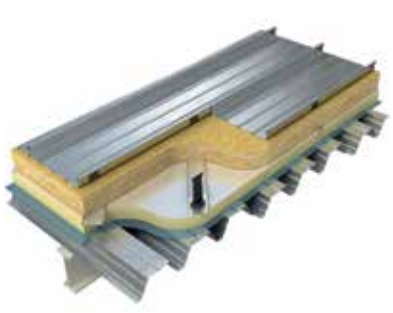
KingZip Enhanced Insulated System on Structural Deck



Inclusive of Thermal Bridge, with Structural Deck										
Thermohalter height (mm)	85	85	85	85	85	85	85	85	85	85
Top hat height	25	25	25	25	25	25	25	25	25	25
Quattro height	185	200	220	240	260	280	300	320	340	360
Insulation thickness (mm)	270	285	305	325	345	365	385	405	425	445
Insulation thickness (mm) (compressed)	230	245	265	285	305	325	345	365	385	405
U-value (W/m²K)	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.10	0.10
R-value (m²K/W)	5.54	6.25	6.69	7.14	7.64	8.27	8.27	9.01	9.86	9.86
R-value (BTU)	31.50	35.50	38.00	40.60	43.40	47.00	47.00	52.20	56.00	56.00
Weighted Sound Reduction										
System weight (Kg/m²)	25	26	27	28	29	30	31	32	33	34
Rw (dB)	42	43	45	46	47	48	50	51	52	53

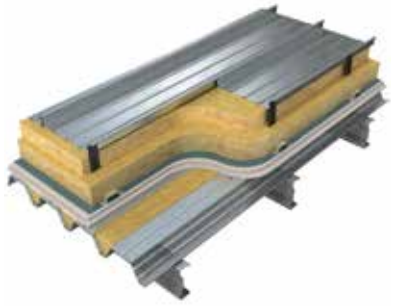
Design Considerations
Thermal Performance

KingZip Enhanced Insulated System on Structural Deck (PIR)



Thermally Broken System on Decking										
Thermohalter height (mm)	245	245	245	245	245	245	245	245	245	245
Kingspan TR26 PIR insulation thickness (mm)	50	60	70	80	90	100	110	120	130	140
Insulation thickness (mm)	200	200	200	200	200	200	200	200	200	200
Insulation thickness (mm) (compressed)	180	180	180	180	180	180	180	180	180	180
U-value (W/m²K)	0.15	0.14	0.13	0.12	0.115	0.11	0.105	0.099	0.095	0.091
R-value (m²K/W)	6.66	7.14	7.69	8.33	8.69	9.10	9.52	10.10	10.52	10.90
R-value (BTU)	37.50	40.50	43.70	47.50	49.30	51.70	54.00	57.40	59.80	62.00
Weighted Sound Reduction										
System weight (Kg/m²)	25	25	26	26	27	27	27	28	29	30
Rw (dB)	40	41	42	43	44	45	46	47	48	49

KingZip Acoustic System on Structural Deck



Thermally Broken System on Acoustic Decking										
Thermohalter height (mm)	85	85	85	85	85	85	85	85	85	85
Top hat height (mm)	25	25	25	25	25	25	25	25	25	25
Additional spacer system height (mm)	185	200	220	240	260	280	300	320	340	360
Insulation thickness (mm)	230	245	265	285	305	325	345	365	385	405
Insulation thickness (mm) (compressed)	205	220	240	260	280	300	320	340	360	380
Mass layer – 2 x 12 mm	24	24	24	24	24	24	24	24	24	24
U-value (W/m²K)	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.11	0.10
R-value (m²K/W)	5.88	6.25	6.66	7.14	7.69	8.33	7.33	9.09	9.09	10.00
R-value (BTU)	33	35	38	41	44	47	47	52	52	57
Weighted Sound Reduction										
System weight (Kg/m²)	40	41	42	44	45	46	46	46	47	47
Rw (dB)	53	54	55	57	58	60	61	62	63	64

KingZip Acoustic System on Structural Deck

Thermally Broken System on Decking										
Thermohalter height (mm)	85	115	125	135	155	175	195	205	225	245
Top hat height (mm)	50	50	50	50	50	50	50	50	50	50
Insulation thickness (mm)	80	120	130	140	160	180	200	210	230	250
Insulation thickness (mm) (compressed)	70	100	110	120	140	160	180	190	210	230
U-value (W/m²K)	0.65	0.42	0.38	0.35	0.29	0.26	0.23	0.22	0.19	0.18
R-value (m²K/W)	1.53	2.38	2.63	2.85	3.44	3.84	4.34	4.54	5.26	5.55
R-value (BTU)	9	14	15	16	20	22	25	26	30	32
Weighted Sound Reduction										
System weight (Kg/m²)	18	20	20.5	21	22	22.5	23	23.5	24	25
Rw (dB)	32	34	35	35	36	37	39	40	41	42

KingZip Roofliner Hybrid System

Thermally Broken System with Kingspan QuadCore™							
Thermohalter height (mm)	85	85	85	85	85	85	85
Roofliner panel thickness (mm)	80	100	125	150	175	200	220
U-value (W/m²K)	0.23	0.18	0.15	0.12	0.10	0.09	0.08
R-value (m²K/W)	4.31	5.54	6.69	8.22	9.94	11.09	12.5
R-value (BTU)	24.5	31.5	38	46.7	56.5	63	71
Weighted Sound Reduction							
System weight (kg/m²)	17.6	18	19.4	20.4	21.4	22.4	23.1
Rw (dB)	31	31	34	34	34	34	35

POWERED BY QuadCore™ TECHNOLOGY

Design Considerations
Thermal Expansion

In addition to thermal performance of the systems, thermal expansion of the KingZip external weather sheets must be considered to ensure system integrity and longevity.

Material	Coefficient of Expansion x 10-6 per °C	Typical Temperature Range (°C)		Overall Movement (mm/m)	Movement about Ambient Temperature (mm/m)	
Aluminium – mill finish or light colour	24	-10	+50	1.44	-0.36	+1.08
Aluminium – dark colour	24	-10	+70	1.92	-0.36	+1.56
Steel – light colour	12	-10	+45	0.66	-0.18	+0.48
Steel – dark colour	12	-10	+70	0.96	-0.18	+0.78

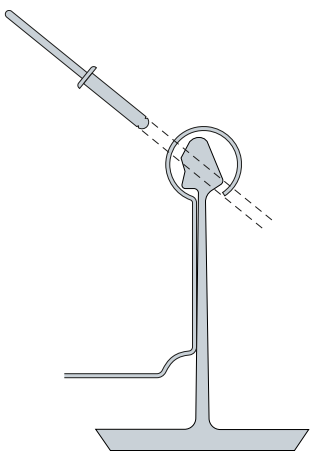
For other metals please contact Technical Department.

The table above shows the expansion of sheets that can be expected due to temperature changes based on UK temperatures as an example.

The ambient temperature during sheet installation has been assumed to be 5 °C. When sheeting during very cold weather the temperature range base should be decreased to -20 °C to assess tolerances for sheet movement.

By inspection, a KingZip sheet 30 m long with a mill finish could experience an expansion of 30 x 1.08 = +32.4 mm in hot weather and a contraction of 30 x 0.36 = -10.8 mm in winter conditions. It is important, therefore, that all roof details take account of all such possible changes in length, especially where the sheets meet abutments or gutters.

Although the halter brackets anchor the sheets to the roof structure, they do not restrict thermal movement and the sheets are free to slide on the halters. To control this movement a 'Fixed Point' should be created and it is usually best to locate it near the ridge so that the flashing is mounted on a static base allowing the sheet to expand into the eaves. Consequently, the drip angle needs to be positioned carefully with adequate clearance to allow for downslope movement due to summer expansion and upslope movement due to winter contraction.



On shallow roof pitches of up to 3° and sheets up to 25 m long, the 'Fixed Point' can be achieved by drilling through the small roll edge of the sheet and the head of the halter bracket and inserting a blind rivet to create a locking mechanism.

On steeper pitches and longer sheets a stronger 'Fixed Point' is required by bolting through the upstand of the sheets and the web of the halter bracket which is then hidden by the ridge foam filler block and aluminium shroud.

Formula for Expansion
F = Force acting on fixed point (kN/clip)
L = Length of standing seam sheet in metres (m)
B = Width of standing seam sheet in metres (m)
G = Self weight of standing seam (kN/m²)
S = The intensity of snow loading (kN/m²)
P = Roof pitch (use average for curves)

$F = L \times B [G \sin P + (S \sin P \times \cos P)] + f$
where
f = frictional force due to thermal movement

F < 0.5 kN = 1 No. rivet
F = 0.5 – 0.7 kN = 2 No. rivets
F = 0.7 – 1.5 kN = 6 mm Ø SS nut and bolt where ridge is covered OR double halter clip and 4 No. rivets where uncovered

F > 1.5 kN = Fix directly through pan of sheet

Design Considerations
Fire Performance

The ability of buildings to perform well in the case of fire and to offer protection to both occupants and property are of primary importance to specifiers, owners, investors and insurers. KingZip Standing Seam Systems have undergone extremely rigorous testing to ensure that they not only meet regulatory standards, but exceed it.

KingZip Standing Seam Systems can achieve high levels of reaction to fire performance in tests specified for regulatory purposes and large scale tests developed by the insurance industry.

In summary:

- **AA Classification**
  The external skin is tested in accordance with BS 476: Part 3 and is given a designation in the range AA to DD. The first letter refers to fire penetration performance should there be a fire on the roof deposited from adjoining burning premises. The second letter refers to the resistance of surface spread of flame resulting from the fire on the roof. Aluminium achieves the designation AA, the highest possible rating.
- **Class O Classification**
  If there is a fire in a building, the wall or ceiling lining material must prevent the spread of fire. The statutory requirements of the Building Regulations approved document B define the highest product performance classification for a lining material as class O. To attain this class, a material has to achieve the highest index performance when tested in accordance with BS 476: Part 6 (for coated aluminium I = 3 & i = 1.5), and a class 1 rating when tested in accordance with BS 476: Part 7. Aluminium satisfies this class O rating.
- **Ignitability**
  BS 476: Part 5 is a test for ignitability. Materials are classified as 'easily ignitable' – X or 'not easily ignitable' – P. Aluminium receives the better rating, P.
- **FM 4471 – Approval Standard for Class 1 Roof Panels**
  Lap seam metal roofing systems are evaluated under Approval Standard 4471, Class 1 Panel Roofs, which includes performance requirements for:
  - Combustibility above and below the roof assembly
  - Wind uplift resistance
  - Foot traffic resistance
  - Hail damage resistance

  KingZip Standing Seam Systems with 300 and 400 mm cover widths have passed all these requirements and are categorised as Class 1 Roof Panels as per FM 4471.
- **ASTM E 108-17**
  Standard Test Methods for Fire Test of Roof Coverings. KingZip Standing Seam System has achieved Class 1A.

- **ASTM E 84**
  Standard Test Method for Surface Burning Characteristics of Building Materials. KingZip Standing Seam System has achieved Class A rating.
- **UAE Fire Code**
  Compliant to the 2018 UAE Fire & Life Safety Code of Practice.
- **NFPA 285**
  Standard Fire Test Method for Evaluation of the Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components. KingZip Standing Seam System has achieved Pass criteria.
- **BS 476-3: 2004**
  Classification and method of test for external fire exposure to roofs. KingZip Standing Seam System has achieved FAA / SAA.
- **BS 476-6: 2009**
  Method of test for fire propagation for products. KingZip Standing Seam System has achieved I < 12 i < 6.
- **BS 476-7: 1997**
  Method of test to determine the classification of the surface spread of flame of products. KingZip Standing Seam System has achieved Class 1 Rating for aluminium / steel inner / outer metal facings.

Design Considerations
Acoustic Performance

Unwanted noise is a form of pollution and whether it is to be kept out of buildings or retained inside, the cladding must provide an adequate level of acoustic insulation. KingZip Standing Seam System has the flexibility to be customised to meet the acoustic requirements of most buildings.

Below you can find the definitions of the main acoustic performance measures relevant to standing seam systems.

Weighted Sound Reduction Index (Rw)

Rw is the weighted sound reduction index in dB (decibels) and it describes the airborne sound insulating power of a building element. It can apply to walls, ceiling / floors, ceiling / roofs, doors or windows.

Rw testing methodology is based on European standards EN ISO 10140-2:2010: Acoustics. Laboratory measurement of sound insulation of building elements-measurement of airborne sound insulation.

Measured over the frequency range 100 to 3150 Hz, the higher the number the greater the sound insulating power of the building element.

Rw Reference Contour																
1/3-octave band (Hz)	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150
Reference contour (dB)	33	36	39	42	45	48	51	52	53	54	55	56	56	56	56	56

KingZip Systems Sound Reduction Performance Overview

A typical KingZip system build-up based on 0.7 mm steel liner and 0.9 mm aluminium top sheet along with a layer of mineral fibre achieving a U-value of 0.25 W/m²K, will have a weighted sound reduction of approximately 36 dB.

Sound reduction levels of up to 50 dB can be achieved with the addition of mass layers such as cement board or moisture resistant gypsum board or using multiple layers of insulation.

For actual values, the construction needs to be tested for the application proposed or run through proprietary acoustic software.

Sound Reduction Index values of all of the KingZip Standing Roof System construction configurations can be found on page 34 as part of the thermal performance tables for your reference.

Sound Transmission Class (STC)

Sound transmission class (STC) is also measured in dB and the testing methodology is based on American standard ASTM E90: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

The higher the STC rating, the better sound insulation the building assembly is to achieve.

STC is calculated by taking the Transmission Loss (TL) values tested at 16 standard frequencies over the range of 125 Hz to 4000 Hz and plotted on a graph. Your curve (tested TL values as per ASTM E90) is compared to standard STC reference curves. If your test graph is closest to a standard STC 35 curve, your building element is said to have an STC Rating of 35 dB.

All sound insulation ratings mentioned in this document are based on (Rw) values. Please contact Kingspan Technical Team for STC Rating requirements.

STC Reference Contour																
1/3-octave band (Hz)	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
Reference contour (dB)	-16	-13	-10	-7	-4	-1	+0	+1	+2	+3	+4	+4	+4	+4	+4	+4

OITC: Outdoor-Indoor Transmission Class

The Outdoor-Indoor Transmission Class (OITC) is defined as the A-weighted sound level reduction of a test specimen in the presence of an idealised mixture of transportation noises: aircraft takeoff, freeway and railroad passby.

The method assigns a single number rating to measured Sound Transmission Loss (TL) data obtained in accordance with ASTM E-90 and then calculated and classified as per ASTM E1332-90 Standard Classification for Determination of Outdoor-Indoor Transmission Class.

The rating is computed from measured TL data in one-third octave bands from 80 Hz to 4000 Hz, inclusive.

Please contact KingZip Technical Services for project specific OITC calculations.

Sound Absorption

Inside a building, noise can echo off walls, floors and ceilings. This effect is known as reverberation. Incorporating perforated liners and dense acoustic slabs within a KingZip system will assist in absorbing some of this sound.

The sound absorption performance of building elements is measured via Noise Reduction Coefficient (NRC). NRC is the arithmetic average, rounded to the nearest multiple of 0.05, of the absorption coefficients for a specific material and mounting condition determined at the octave band centre frequencies of 250, 500, 1000 and 2000 Hz. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.

KingZip Systems can achieve NRC values from 0.50 to 0.80 for our standard perforation patterns. For project specific NRC values please contact our Technical Services Team for assistance.

The Reverberation Time (RT) of a room, or building is defined as the time taken for a sound to decay by 60 dB. This is a function of the size of a room and the nature of its various surfaces (and varies with sound frequency). Its approximate value can be calculated from the formula:

RT = 0.16 V / S A

V = volume of the room.

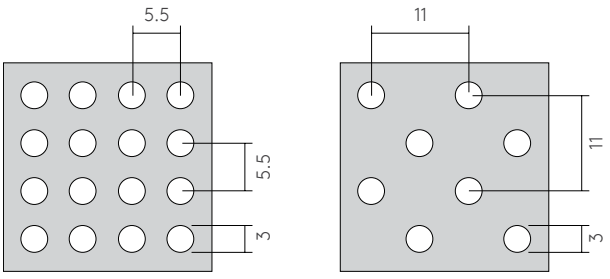
A = area of the surface x its absorption coefficient.

As guidance, the RT values in seconds at 630 Hz for various constructions are:

- 0.55 mm trapezoidal steel sheet = 6.62 seconds
- 0.7 mm steel outer sheet and 0.4 mm steel inner sheet with 80 mm insulation (23 kg/m³) = 2.72 seconds
- Above system with 15 % pan perforations = 1.20 seconds
- System (2) but with 30 % pan perforations and tissue faced acoustic slabs (100 kg/m³) = 0.91 seconds

Perforations

Both our profiled liners and structural deck ranges are available with two standard perforation options to suit acoustic sound absorption specifications. Perforations are applied to the web of structural decks and the pan of the profiled liners. Project specific perforation configurations are available on request.



Design Considerations
Structural Performance

Load Span Tables

KingZip 300

	Span (m)	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00
0.9 mm Aluminium	Upward (kg/m³)	6.56	5.51	4.98	4.05	3.29	2.81	2.22	1.99	1.63	1.46	1.31
	Downward (kg/m³)	6.89	5.63	4.87	4.38	3.77	3.13	2.55	1.86	1.59	1.26	1.11
1.0 mm Aluminium	Upward (kg/m³)	8.48	7.04	6.1	5.28	4.21	3.51	2.81	2.49	2.03	1.89	1.75
	Downward (kg/m³)	6.79	5.59	4.9	4.3	3.6	3	2.89	2.22	1.75	1.35	1.22
1.2 mm Aluminium	Upward (kg/m³)	10.5	8.51	7.21	6.31	5.49	4.56	3.98	3.3	2.79	2.38	2.19
	Downward (kg/m³)	6.81	5.59	4.95	4.3	3.71	3.12	2.99	2.65	2.02	1.65	1.45

KingZip 400

	Span (m)	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00
0.9 mm Aluminium	Upward (kg/m³)	5.22	4.3	3.52	3.39	2.69	2.16	1.88	1.71	1.38	1.22	1.15
	Downward (kg/m³)	5.31	4.35	3.78	3.21	2.89	2.58	2.22	1.65	1.29	1.01	0.89
1.0 mm Aluminium	Upward (kg/m³)	6.89	5.78	4.83	5.78	5.02	4.33	3.89	3.21	2.77	2.48	2.31
	Downward (kg/m³)	5.31	4.35	3.78	3.22	2.87	2.61	2.39	1.79	1.32	1.21	1.01
1.2 mm Aluminium	Upward (kg/m³)	8.02	6.71	5.77	5.09	4.39	3.89	3.19	2.75	2.42	1.99	1.82
	Downward (kg/m³)	5.31	4.35	3.78	3.22	2.87	2.62	2.39	1.91	1.76	1.45	1.28

KingZip 500

	Span (m)	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00
0.9 mm Aluminium	Upward (kg/m³)	3.99	3.21	2.75	2.45	2.11	1.76	1.55	1.21	1.18	1.04	0.85
	Downward (kg/m³)	4.12	3.42	2.99	2.52	2.29	2.01	1.71	1.32	1.01	0.85	0.65
1.0 mm Aluminium	Upward (kg/m³)	5.01	4.11	3.65	3.09	2.75	2.38	1.99	1.62	1.51	1.31	1.19
	Downward (kg/m³)	4.12	3.43	2.98	2.53	2.31	2.01	1.95	1.45	1.32	1.02	0.85
1.2 mm Aluminium	Upward (kg/m³)	5.99	5.01	4.21	3.66	3.39	2.98	2.65	2.19	1.81	1.62	1.49
	Downward (kg/m³)	4.14	3.44	2.99	2.55	2.32	2.15	1.75	1.66	1.45	1.2	0.99

All loads are characteristic working loads in kN/m² based on 4 or more spans.

Download figures based on a deflection limit of span / 200.

Wind uplift figures based on a deflection limit of span / 90.

Loadings take account of KingZip sheet pulling out of the halter bracket under wind uplift using the formula:
P (max) = 1.15 x C x L x W
C = cover width of sheet (m)
L = spacing of the brackets along the sheet (m)
W = wind uplift loading (kN/m²)

Safe load on bracket (P) = 2.80 kN (0.7 mm steel / 0.9 mm aluminium sheet)

Safe load on bracket (P) = 3.10 kN (1.2 mm aluminium sheet)

Fixing Characteristics

Pull Out Strength (kN)

	Steel Thickness (mm) S220 GD Material				
Screw	1.6	2.0	2.5	2.8	3.2
5.5 mm diameter No 3pt	3.5	4.1	6.4	7.5	7.9
6.3 mm diameter No 3pt	4.3	5.3	7.29	8.7	9.2

Washer Pull Over Values (kN)

Sheet	16 GB*	19 GB*	29 GB*
0.7 mm steel	5.6	5.7	6.9
0.7 mm aluminium	1.5	2.2	2.3
0.9 mm aluminium	2.5	2.6	2.6
1.2 mm aluminium	3.9	4.3	4.9

* 16, 19, 29 = washer diameter (mm)

Stitcher Pull Out Values

Sheet	Double Sheets	(kN)
0.7 mm steel	2 x 0.7 mm steel	1.21
0.7 mm aluminium	2 x 0.7 mm aluminium	1.13
0.9 mm aluminium	2 x 0.9 mm aluminium	1.69
1.2 mm aluminium	2 x 1.2 mm aluminium	2.69

Pull Out Values for Bulbtite Rivets Type 6604/6/3W

Sheet	(kN)	Failure Mode
2 x 0.7 mm aluminium	1.50	Rivet pulled through aluminium sheet
2 x 0.9 mm aluminium	1.53	
2 x 1.2 mm aluminium	1.60	
Top hat to 0.70 mm steel deck	1.53	
Top hat to 0.90 mm steel deck	2.20	Rivet failure
Top hat to 1.10 mm steel deck	2.20	
Top hat to 1.25 mm steel deck	2.24	

We recommend a safety factor of 2.0 be applied to the above ultimate capacities to bring them into line with characteristic working loads.

Materials yield – steel 220 N/mm²
– aluminium 200 N/mm²

Design Considerations
Halters: Setting Out, Layouts and Tolerances

Setting Out The Halters

The halter must be installed with the notched side of the halter head facing in the direction of lay (see figure 5).

Aluminium halters have a line in the aluminium base and thermohalters have a label on one side of the stem which indicates the direction of lay. It is usually best to set out the line of the first seam by measuring the positions of the first halter at eaves and ridge. Then, use a string line to position the remaining halters in the slope (for barrel vault roofs it may be necessary to measure the position for every halter).

The halter must lie in a straight line with its web in the line of the KingZip seam, otherwise the sheets will not be free to expand and contract as the temperature changes. Successive lines of halters must be equally straight, and must be parallel to the first line. This can be achieved by using a template which has recesses to engage the halters at the exact cover width of the sheets. The halters are then located in the saw cuts and screwed in position. When the same template is used at each purlin, the seams will stay in a straight line. However, when using WA200 liner, in combination with halters, provided this has been set out straight and level, then the pans of the sheet will act as a template for locating the halters, avoiding the need for the setting out template.

In barrel vault roofs, it is usually essential to make a template as string lines are of very little use in setting out the halters. However, a laser line can be of assistance in these applications. As work proceeds, regular checks should be made to ensure that the setting out has remained correct. Without these checks it is possible for the seams to 'creep' one or two millimetres per sheet, and this would lead to incorrect details. With regular checking, any discrepancy is discovered before it can become serious, and can be corrected in the next few sheets (e.g. reduce the halter spacing by say one millimetre per sheet until the setting out is correct once more).

Halter Setting Out Tolerances

In order to facilitate thermal movement and to ensure that no unwanted fixed points are introduced, it is essential that the setting out of the fixing clips provides a consistent plane to allow sheets to move freely in a straight line. It is important therefore to ensure that the fixing clips are aligned within the tolerances set out below.

Variations on plan between lines of clips

Figure 1. Fixing clips should be set out to the nominal cover width of the panel being fitted.

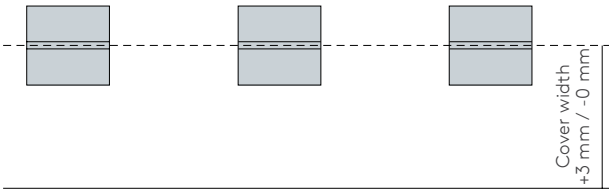


Figure 2. Fixing clips must not be set out off skew of setting line.

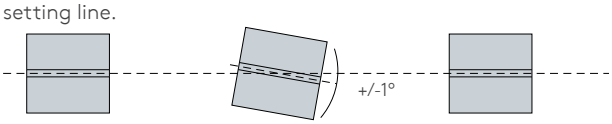
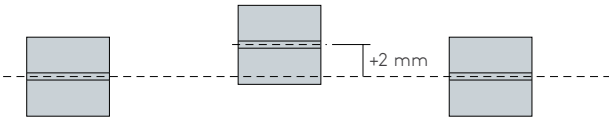


Figure 3. Fixing clips should not vary from the centre of setting out line by more than 2 mm.



Variations of vertical alignment

Figure 4. Fixing clips must be vertical to the line of the roof pitch.

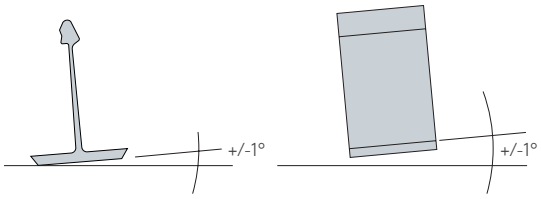


Figure 5. Variations in height between complete rows of fixing clips are limited to +/-5 mm.

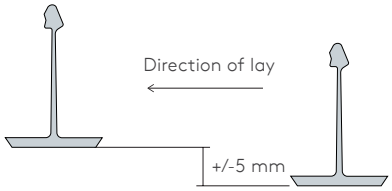
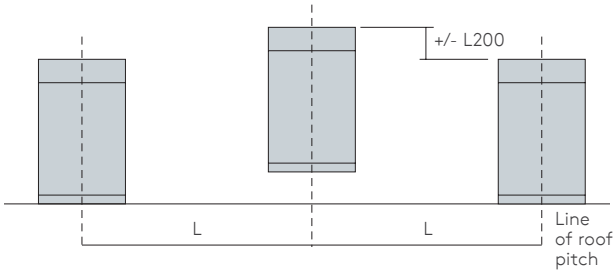


Figure 6. Variations in height i.e. over three purlins, are limited to +/-L/200.



Variations of vertical alignment – for curved roofs

Figure 7. Fixing clips must be perpendicular to the line of the roof curve.

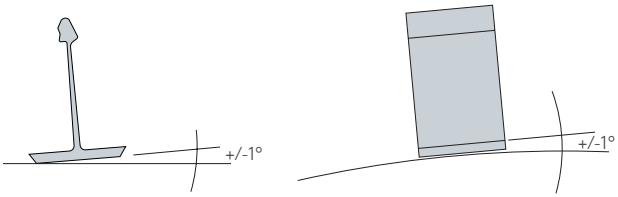


Figure 8. Variations in height between complete rows of fixing clips are limited to +/-5 mm.

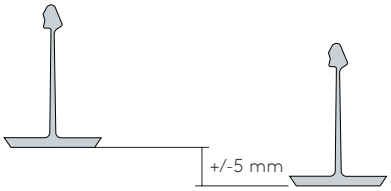
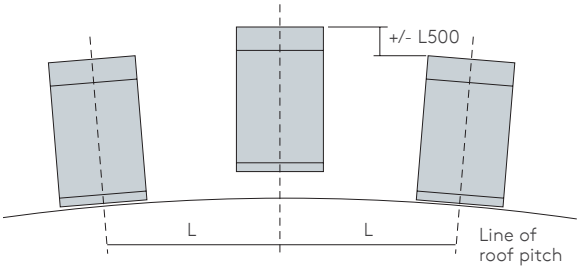


Figure 9. Variations in height i.e. over three purlins, are limited to +/-L/200.



Note: abrupt changes in roof slope may cause unwanted fixed points.

Design Considerations
Halters: Setting out and Layouts

Halter Positioning

The dimensions of individual roof constructions are determined by project design and specifications and should be indicated on the design / working drawings. The following gives an overview of the two most common types of roof configuration.

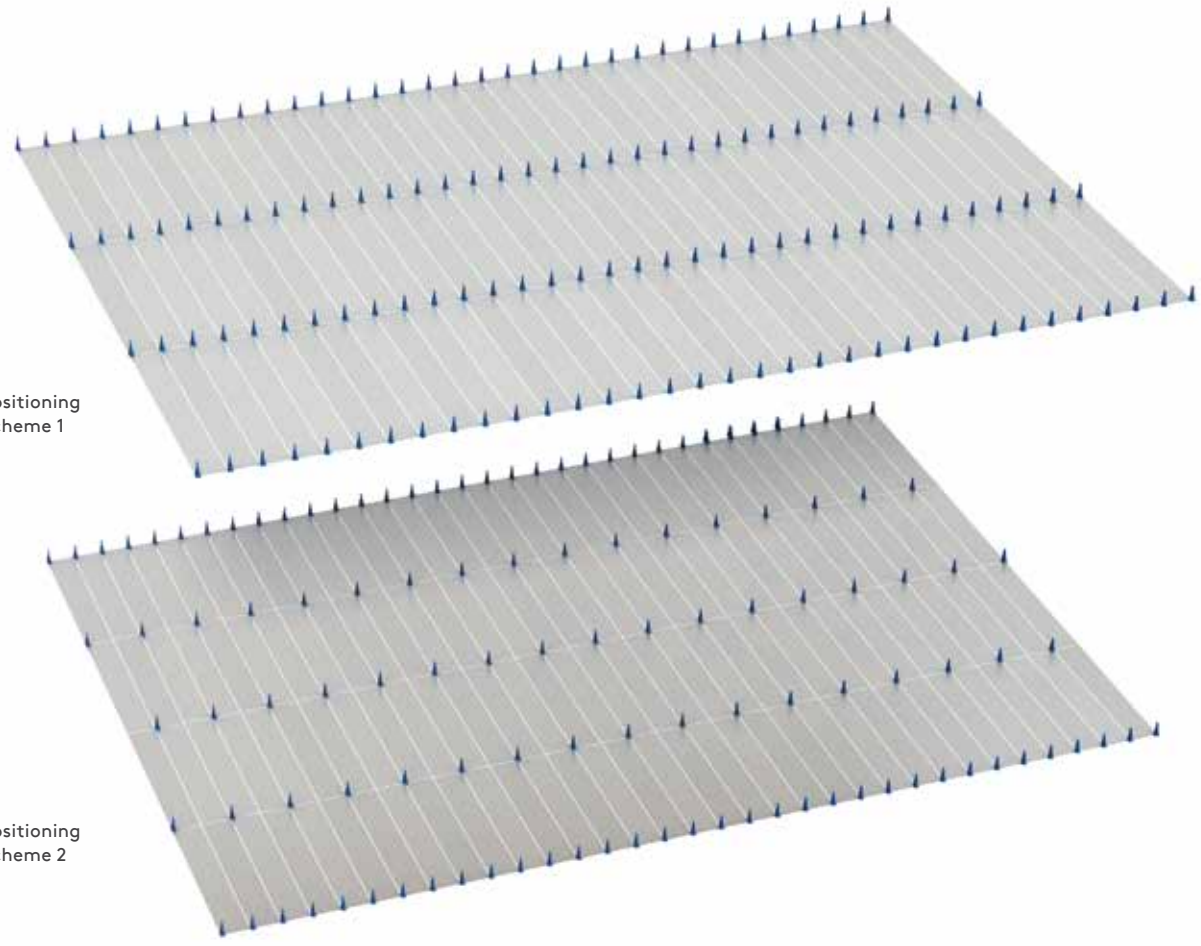
Halters to Purlins

Halter setting out to cater for different wind load scenarios is very important to the design of the system prior to any installation taking place.

Typically a halter would fix directly through to the purlins which are at predetermined centres, but it is important for these also to be located to suit the project specific wind pressures (example Positioning Scheme 1).

In some cases, purlins at eaves and verges may be closer together and halters can again be fixed directly at these closer centres to increase uplift performance (example Positioning Scheme 2).

Below are two examples of load distribution cases for halters fixed to purlins.



Positioning Scheme 1

Positioning Scheme 2

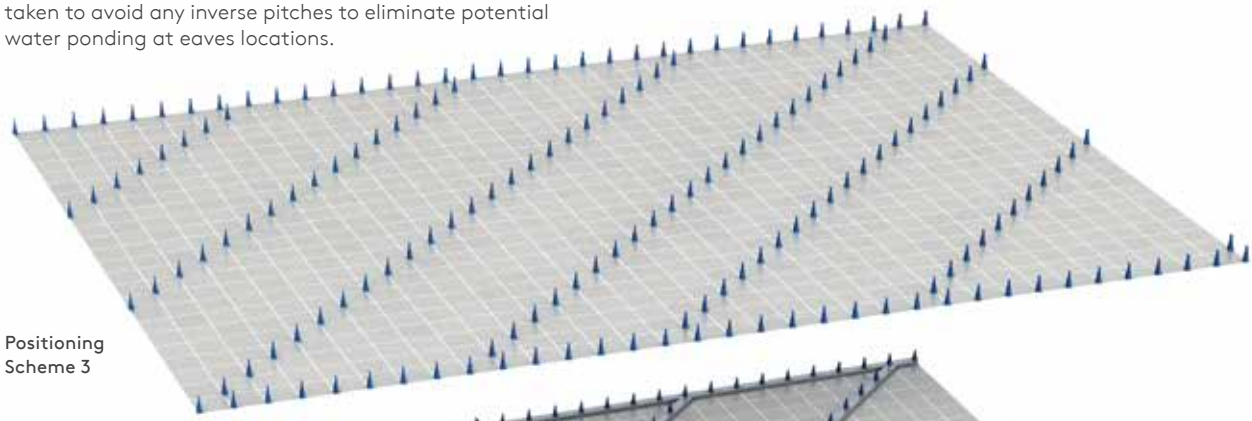
Halters to Structural Decking

Like the halter setting out for purlin roofs, it is extremely important to arrange halters on structural decking to cope with various wind pressures (roof centre, eaves and verge).

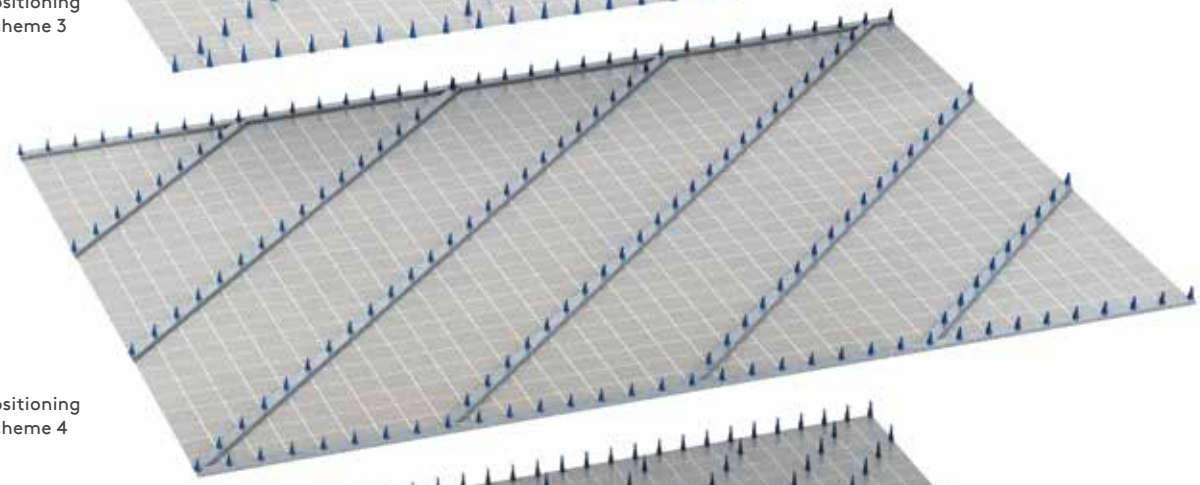
It is also important to distribute load over the decking profiles as shown in Positioning Schemes 3 and 4 below, in a staggered formation.

For higher windload zones refer to example Positioning Scheme 5.

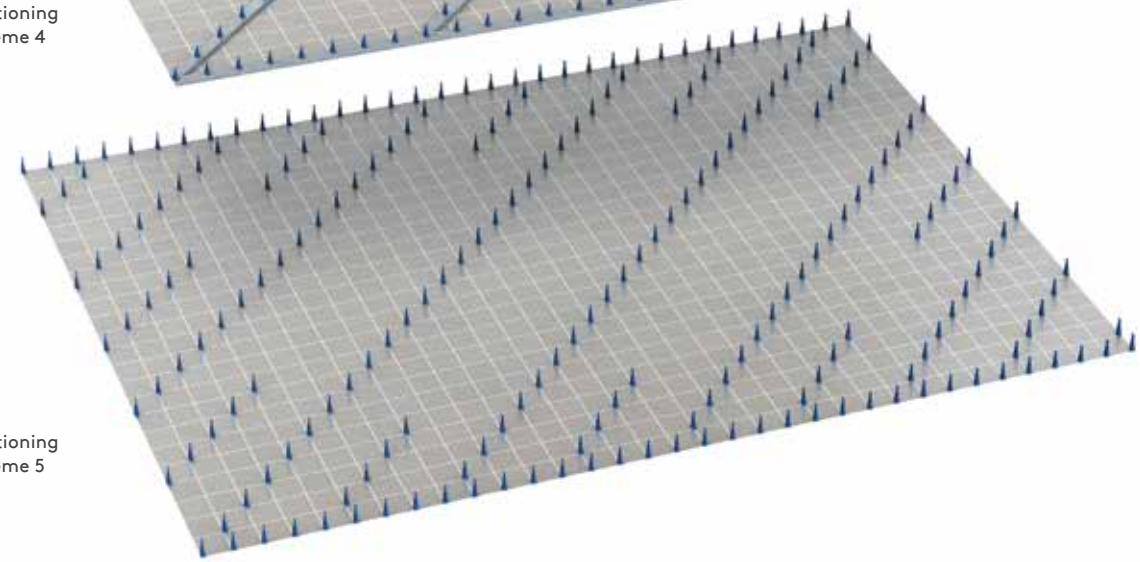
Eaves and ridge halters are installed in a continuous line but care must be taken to avoid any inverse pitches to eliminate potential water ponding at eaves locations.



Positioning Scheme 3



Positioning Scheme 4



Positioning Scheme 5

03 SYSTEM COMPONENTS

System Components
Thermohalter / Aluminium Halter

KingZip Linea and Infiniti external weather sheets are secured to the supporting sub-structure with extruded aluminium halters or thermohalters.

All halters are designed to accommodate free movement of the KingZip external weather sheet during thermal cycling. Aluminium halters and thermohalters are available in a range of heights to accommodate for varying thickness of insulation that is used as part of the standing seam system.

Aluminium Halter

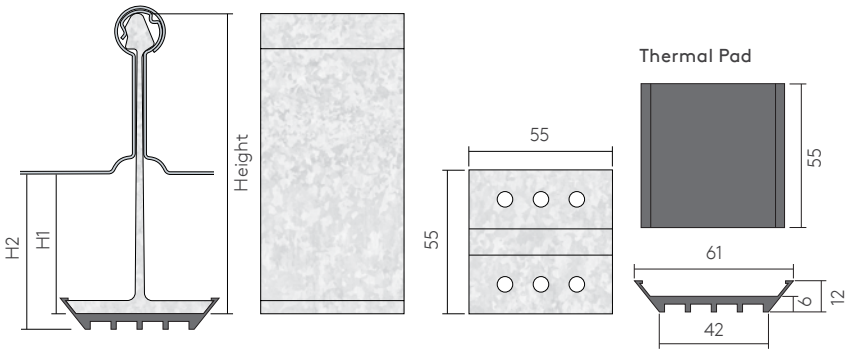
The aluminium halter is a standard component for KingZip Standing Seam Systems and is used to secure the KingZip external weather sheet to the roof structure. It is available as standard with thermal barrier pads and in a variety of heights.

Product Specification

Material:	Halter – extruded aluminium alloy AA6082 T6 / pad – extruded PVC
Lengths:	Standard length is 55mm. Lengths can be increased according to design requirement
Heights:	75, 85, 105, 115, 125, 135, 155, 175, 195, 205, 225 and 245 mm

Dimensions and Weight

Halter Height (mm)	75	85	105	115	125	135	155	175	195	205	225	245
H1 (mm)	10	20	40	50	60	70	90	110	130	140	160	180
H2 (mm)	16	26	46	56	66	76	96	116	136	146	166	186
Weight (g – each)	77	84	98	102	109	113	129	148	150	157	175	194



Thermohalter

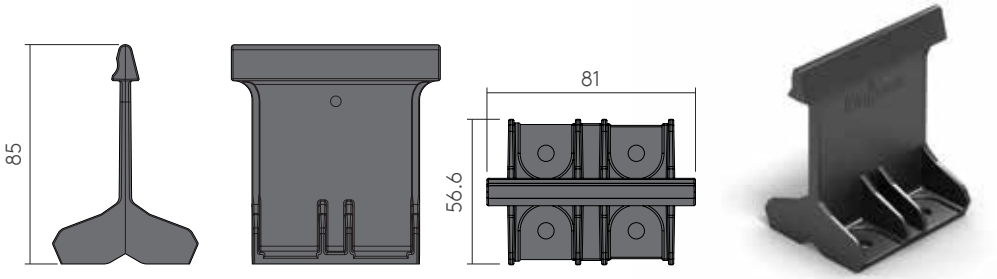
Thermohalters provide enhanced thermal and acoustic performance, mitigating thermal bridging through the roof assembly. Utilising a resin-based material, thermal transmission through the halter is virtually zero. In addition, the exceptional thermal efficiency of the thermohalter, which requires no thermal pad, allows the system height to be reduced, both improving the aesthetics and reducing overall construction costs.

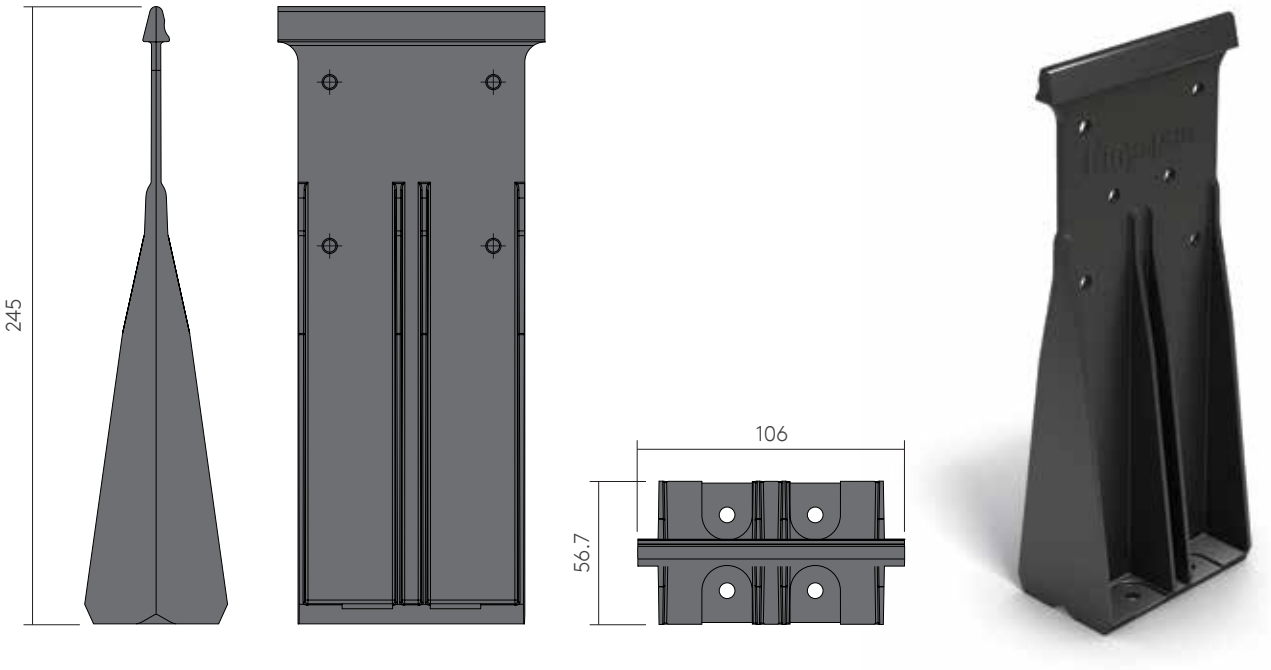
Thermohalters also decrease the friction between the halter and the weathering sheet due to thermal expansion and contraction, which is beneficial for roofs with extremely long sheet lengths.

Product Specification

Heights:	85 to 245 mm
Weight (each):	42 to 224 g

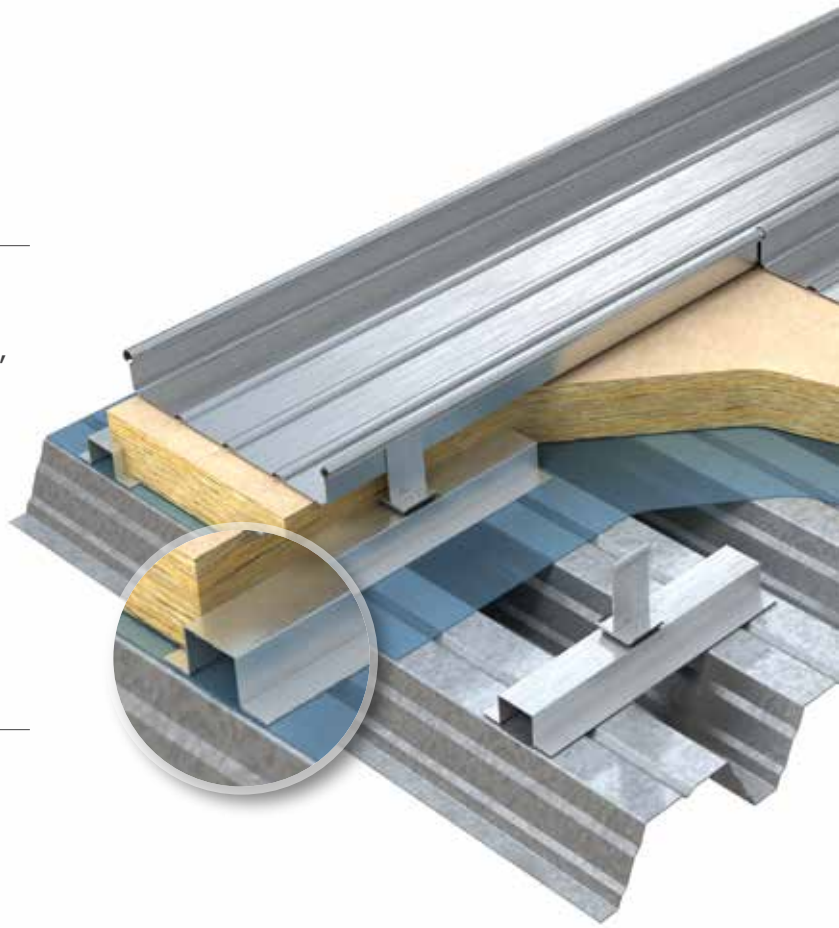
Contact Kingspan Technical Team for confirmation on available thermohalter heights in your region.





System Components
Top Hat

The rolled top hat is one of the standard components of the spacer system that is within the KingZip Standing Seam System, to increase the thermal and acoustic performance.

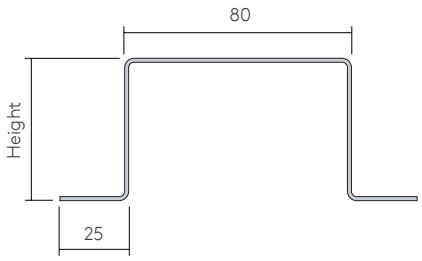


Features and Benefits

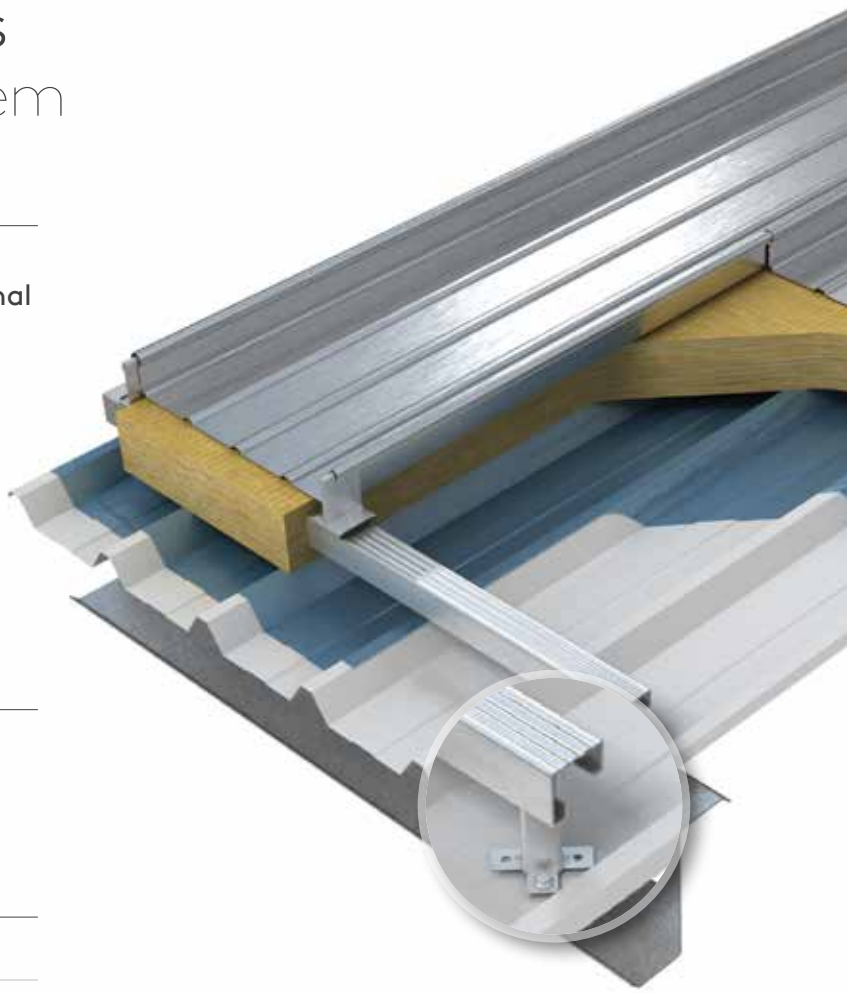
- Provides flexibility for different insulation thickness requirements
- Structural performance
- Also compatible with thermohalter option

Product Specification

Metal type:	Steel – S220GD with a Z275 Galvanised (ASTM A 653). Standard sheet thickness 1.5 mm
Finish:	Galvanised or post coated
Available lengths:	1 m to 11 m
Available heights:	20 mm to 130 mm
Thickness:	1 mm to 2 mm
Product tolerances:	Height: ± 0.5 mm Length: ± 7 mm (0 to 3500 mm) / 0.5 mm for each metre



System Components
Quattro Spacer System



The spacer system is used for separating the outer weathering skin from the internal liner sheet and is crucial to the thermal efficiency and stability of the roof or wall system, supporting the outer sheet and transferring external loads to the structural elements.

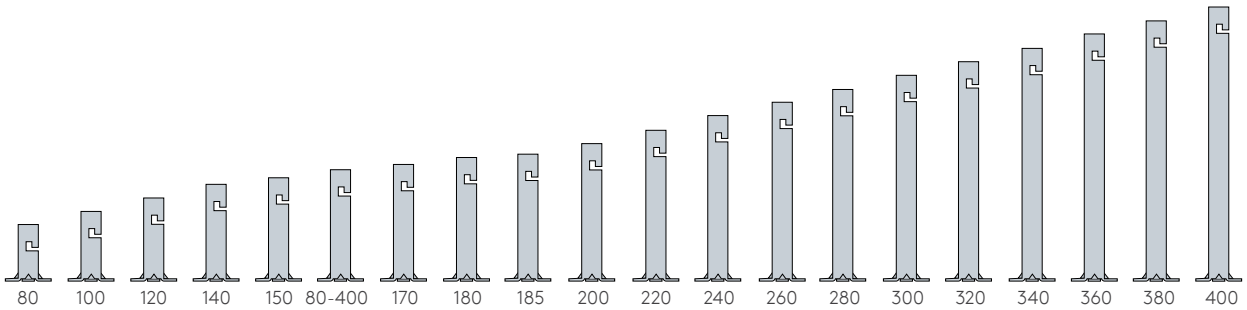
It also stops the low-density insulation from being over compressed and allows flexible constructions accommodating almost any insulation depth.

Features and Benefits

- Available in depths of 80 mm to 400 mm
- Superior mechanical resistance and stability
- Can accommodate insulation as deep as 400 mm
- Inherently strong and stable – fewer brackets needed

Product Specification

Metal type:	Steel
Finish:	Galvanised
Available heights:	80 mm to 400 mm



System Components
Fillers

Profiled filler blocks serve to seal cavities between profiled sheeting and adjacent materials or substrates.

KingZip Ridge Filler

The Ridge Filler is a standard component of the KingZip Standing Seam System. The filler is located within the filler shroud to stop debris passing through to the insulation below.

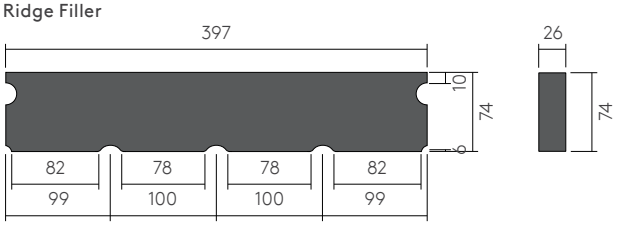
KingZip Eaves Filler

The Eaves Filler is a standard component of the KingZip Standing Seam System. The eaves filler is trapped between the underside of the sheet by the drip angle to stop debris entering.

Product Specification

Material:	Expanded polyethylene EPDM (Ethylene Propylene Diene Monomer)
Available lengths:	Factory manufactured lengths will vary depending on KingZip cover width
Density :	100 kg/m³ (EPDM) /29 kg/m³ (EP)
Water absorption by weight (max):	10 %
Cell type:	Closed
UV resistance:	Good
Chemical resistance:	Good
Product tolerances:	-2 mm +2 mm (each)

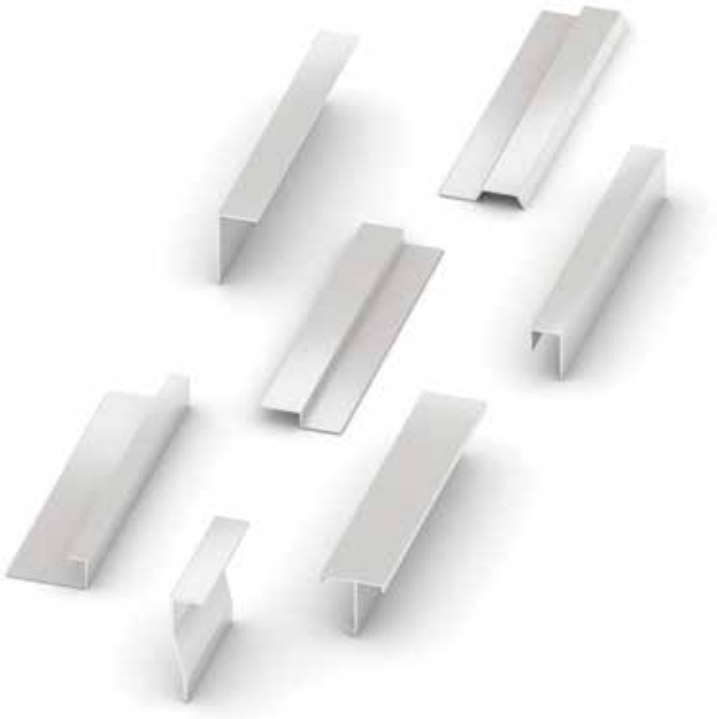
Ridge Filler



Eaves Filler

Note: For tapered KingZip sheets the above dimensions will vary.
All dimensions are in mm.

System Components
KingZip Accessories



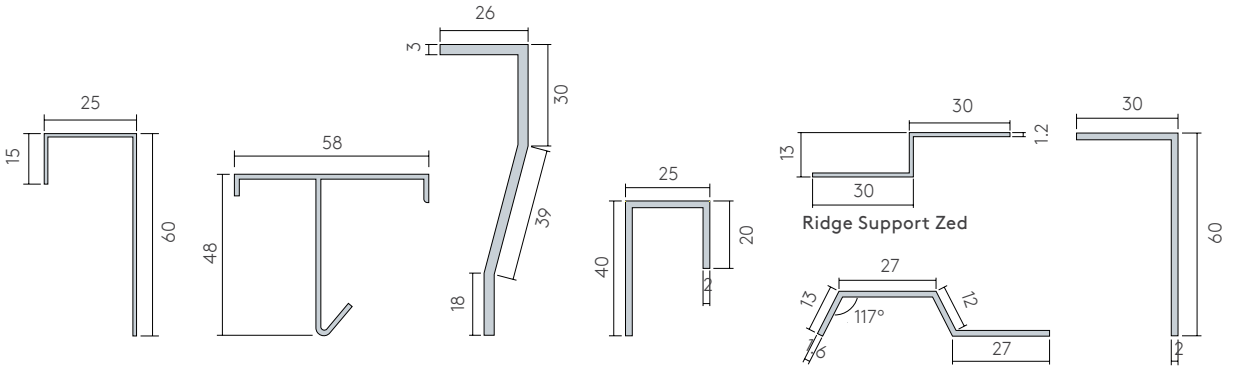
The KingZip range of ridge, eaves and verge accessories are manufactured from 6082 T6 Aluminium Alloy.

The extrusion process ensures uniform and exact dimensions along with an inherent quality and strength. All accessories are supplied in mill finish as standard but can be post coated upon request.

Product Specification

Material:	Steel – S220GD with either a Z275 Galvanised (ASTM A 653) or AZ150 AluZinc (ASTM A 792) coating / aluminium – AA6082 T6 alloy to BS 1474
Lengths:	Factory manufactured lengths up to 3 m
Coatings:	Aluminium will be supplied in mill finish as standard*, for coatings on other substrates please contact Kingspan Technical Department
Product tolerances:	Length: -2 mm +2 mm (3000 mm)

* Filler shrouds are supplied to match roof sheet colour / finish as standard.



Filler Shroud | Verge Flashing Clip | Verge Clip | Verge Channel | Ridge Retainer | Eaves Drip Angle

Dimensions and Weight

	Filler Shroud				Verge Flashing Clip		Verge Clip		Verge Channel		Ridge Support Zed		Ridge Retainer		Eaves Drip Angle	
	Steel	Aluminium			Steel	Alu.	Steel	Alu.	Steel	Alu.	Steel	Alu.	Steel	Alu.	Steel	Alu.
Substrate thickness (mm)	0.7	0.9	1.0	1.2	0.7	2.0	0.7	3.0	0.7	2.0	0.7	1.2	0.7	1.6	0.7	2.0

All dimensions are in mm.

System Components
Vapour Control

Application

Both KingZip Linea and Infiniti Standing Seam Systems can be specified with a vapour control layer (VCL), depending on roof construction and specification.

A VCL will reduce the movement of water vapour from inside the building through the roof construction, thereby reducing the risk of condensation. A VCL will also assist in limiting air permeation through the system.

A range of VCL specifications are available.

Standard Applications

- VCL 170 comprising 3 layers – HDPE woven fabric layer sandwiched between two layers of clear LDPE;
- VCL 250 comprising 3 layers – scrim reinforcement layer sandwiched between two layers of 0.15 mm clear Polyethylene.

High Humidity / Occupancy Applications

- VCL UB300 comprising 5 layers – an aluminium film layer, and an HDPE woven fabric layer, separated and sandwiched between three layers of clear LDPE; and
- VCL 861 comprising 6 layers – four layers consisting one layer of both leno weave and aluminium and two layers of Polymer coating sandwiched between two layers of Polymer Film.

Quality and Durability

Kingspan VCLs are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards complying to ISO 9001, ensuring long term reliability and service.

Site Installation Procedure

A VCL should always be installed on the warm side of the construction, be continuous across its surface and be fully sealed at all laps and cladding penetrations / openings.

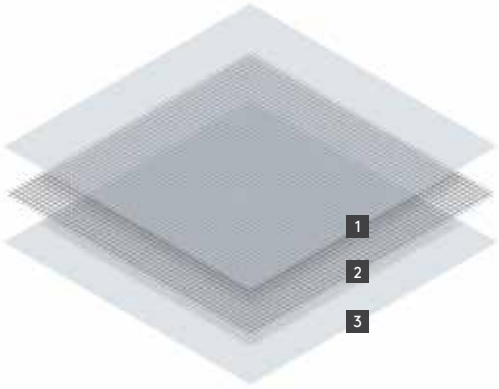
It should be noted that the VCL location within the KingZip system may change based on roof system build up, internal design temperatures and humidifiers combined with VCL specification / performance.

Installation should be conducted by Kingspan approved installers. For a list of approved installers and installation instructions, please contact Kingspan Technical Department.

Performance Data

Product	Weight (gsm)	Tensile Strength (N/50 mm)	Water Vapour Permeability (gm-224-1)	Water Vapour Resistance (MNs/g)	Colour	Size (m)	Pallet Quantity (rolls)
VCL 170	210	MD > 170, XD > 170 (ISO 13934-1)	0.61 (DIN 53122)	336 (BS 3177)	Clear	2.0 x 50	39
VCL 250	285	MD > 550, XD > 550 (ISO 13859-1/2)	0.39 (DIN 53122)	530 (BS 3177)	Clear	2.0 x 50	39
VCL UB300	270	MD > 250, XD > 250 (ISO 527-3)	0.01 (DIN 53122)	25,000 (BS 3177)	Green / Silver	1.6 x 50	25
VCL 861	310	MD > 290, CD > 190 (EN 12311-1)	< 0.005 (ASTM F1249 Mocon 23 °C / 75 % RH)	44,600 (BS 3177)	Blue / Silver	2.0 x 50	25

VCL 170

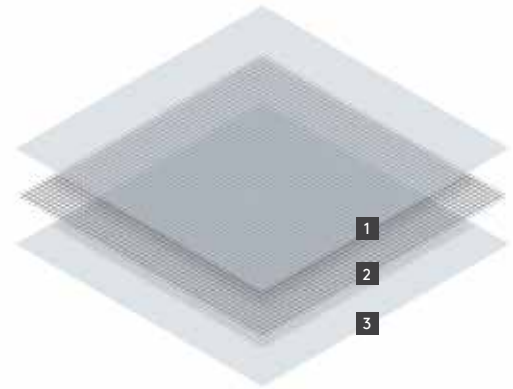


1 Clear LDPE (72.5 g/m²)

2 HDPE woven fabric (65 g/m²)

3 Clear LDPE (72.5 g/m²)

VCL 250

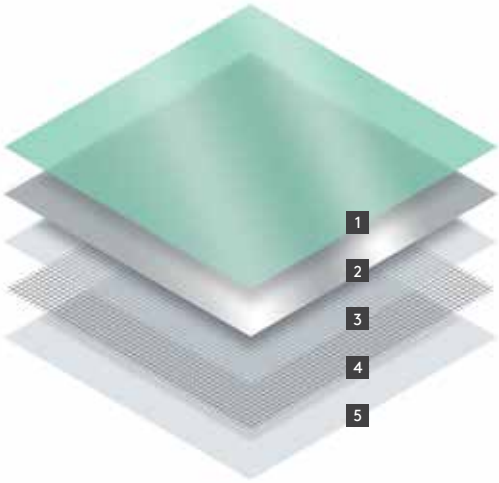


1 Clear LDPE (105 g/m²)

2 HDPE woven fabric (75 g/m²)

3 Clear LDPE (105 g/m²)

VCL UB300



1 Green LDPE (65 g/m²)

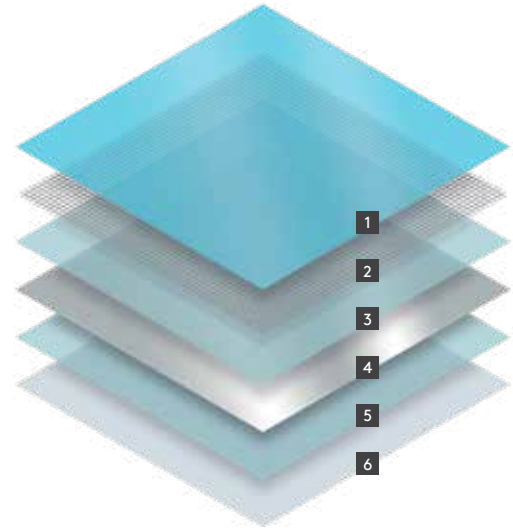
2 Aluminium film (12 g/m²)

3 Clear LDPE (63 g/m²)

4 HDPE woven fabric (65 g/m²)

5 Clear LDPE (72.5 g/m²)

VCL 861



1 Polymer film

2 Leno weave

3 Polymer coating

4 Aluminium

5 Polymer coating

6 Polymer film

System Components
Zipklip

The extruded aluminium Zipklip is an optional component for the KingZip Standing Seam System.

The aluminium Zipklip can be used when additional retrofit items need to be installed over and above the KingZip system. The Zipklip ensures that the standing seam system remains a non-penetrative / secret fix roof system.

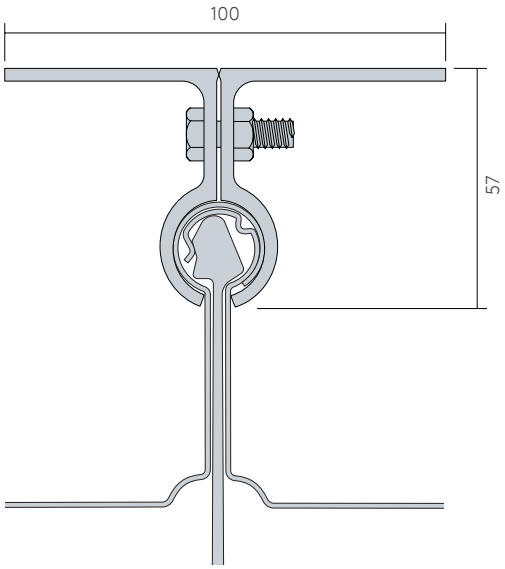
Features and Benefits

- Compatible with Kingspan walkways, PV systems, signage and lighting applications
- Allows KingZip Standing Seam System to be a substrate for Kingspan Facades (eg. Dri-Design) or KingZip roof over-cladding

Product Specification

Material:	Extruded aluminium – AA6082 T6 alloy
Available lengths:	Factory manufactured lengths up to 60 mm as standard. Other lengths available upon request
Weight (each):	160 g
Pull off at seam:	213 kg*
Pull off at halter:	214 kg*

* Test Reports can be provided upon request.



All dimensions are in mm.

System Components
Insulation

We offer a wide range of insulation types to provide a variety of thermal and acoustic performance values.

The range includes:

- glass mineral fibre quilt;
- rock mineral fibre quilt;
- K-Roc semi-rigid mineral fibre slab;
- K-Roc high density mineral fibre slab;
- Kingspan TR26 PIR Insulation Board.

Insulation materials are available unfaced, foil-faced or black tissue-faced, to one or both sides.

Thickness and Density

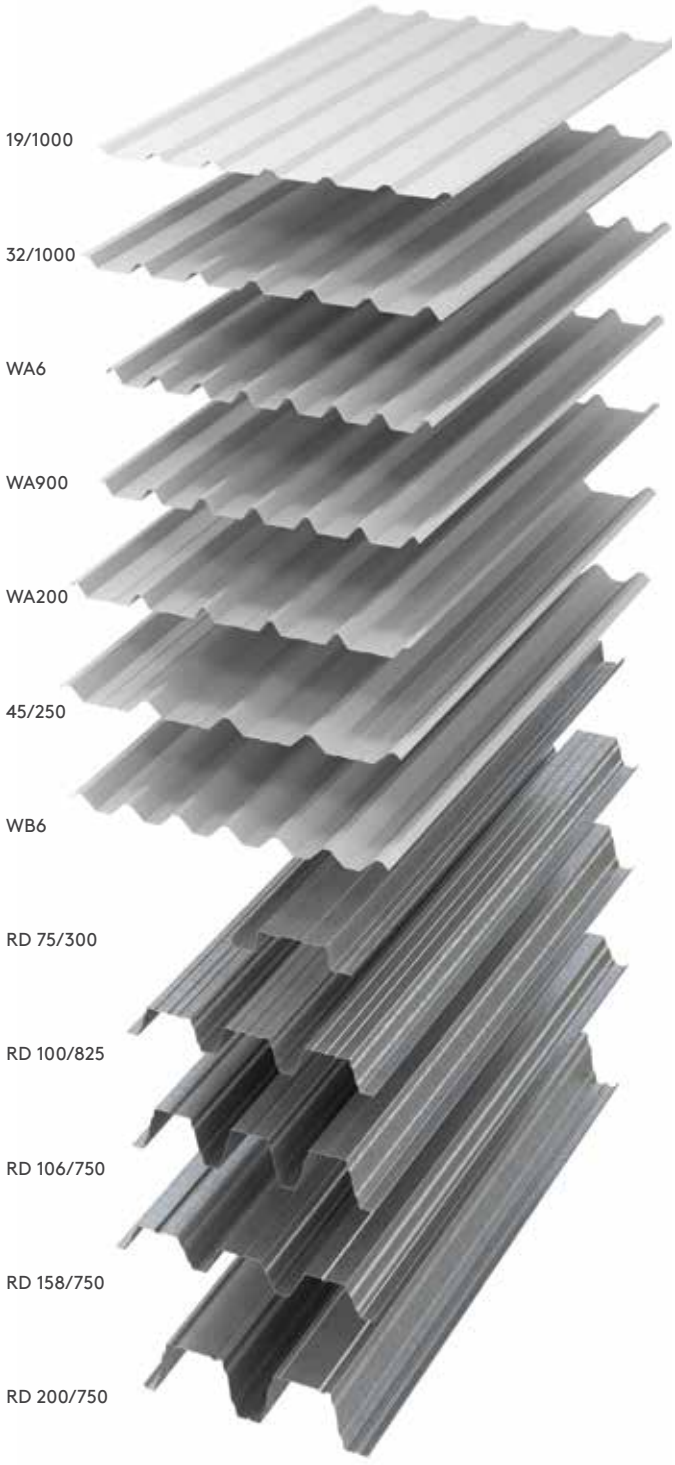
Insulation Type	Thickness Range (mm)	Density Range (kg/m³)	Lambda (WmK)
Glass mineral fibre quilt	30 – 200	12 – 64	0.038 – 0.041
Rock mineral fibre quilt	30 – 200	38 – 60	0.038 – 0.041
K-Roc semi-rigid mineral fibre slab	30 – 200	60 – 80	0.037 – 0.039
K-Roc high density mineral fibre slab	30 – 200	80 – 150	0.035 – 0.037
Kingspan TR26 PIR Insulation Board	70 – 150	35 – 45	0.022

System Components
Profiled Liners and Structural Decks

Profiled liners and structural decks offer a simplified method of roof construction by dispensing with the need for purlins. The liner sheet is used to span the structural frame of the building resulting in fewer components and giving clean, uncluttered lines to the interior of the roof structure.

Use of profiled liners or structural decks can also stiffen the structure and act as bracing if required. Acoustic properties can be designed into the system, thereby engineering sound absorption and transmission characteristics.

Structural decks will span up to 10 m, depending on the design load, and once in place, will provide a strong, walkable surface for the rest of the roofing works.



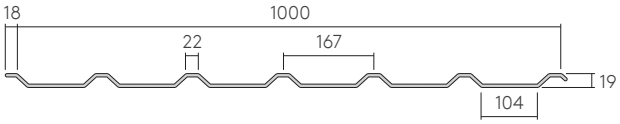
Product Features

Profiles:	19/1000, 32/1000, WA6, WA900, WA200, 45/250, WB6, RD 75/300, RD 100/825, RD 106/750, RD 158/750, RD 200/750
Fixing detail:	Through fix system designed to be fastened with self-tapping or self-drilling fixings
Metal type:	Steel or aluminium in thicknesses 0.50 mm, 0.70 mm, 0.90 mm, 1.00 mm, 1.20 mm and 1.50 mm (dependent on profile type)
Profile:	Perforated options are available upon request
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Colours:	See Kingspan colour charts for range of standard and non-standard colours
Finish:	Mill finish or stucco-embossed (aluminium) / galvanised or AluZinc coated (steel)
Application:	For flat, pitched and curved roofing
Lengths:	From 1.5 m up to 12 m. For longer lengths, consult your local Kingspan Customer Service Department
Product compatibility:	Part of any roof system as a soffit, vertically or horizontally laid
Seals:	The profiled liner and structural decks can be sealed to form a vapour barrier, where allowable, using high performance side and end lap tapes. Where an individual VCL is utilised, then sides or end laps need not be sealed

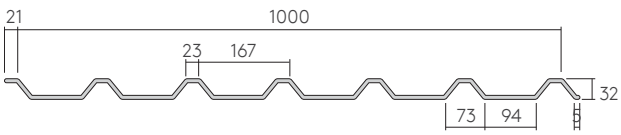
System Components
Profiled Liners and Structural Decks

Profiled Liners

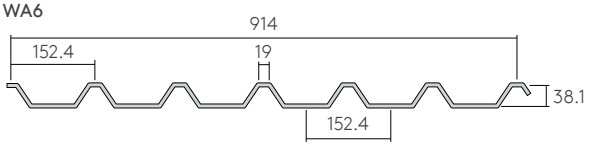
19/1000



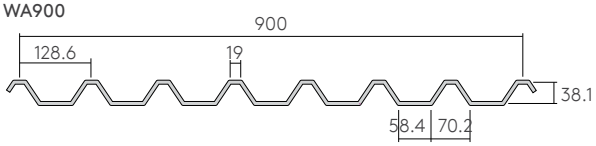
32/1000



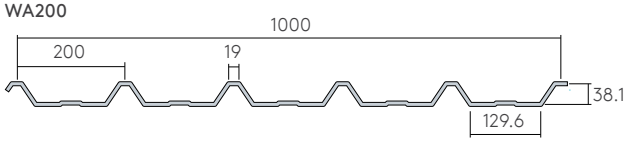
WA6



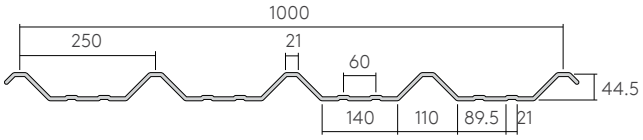
WA900



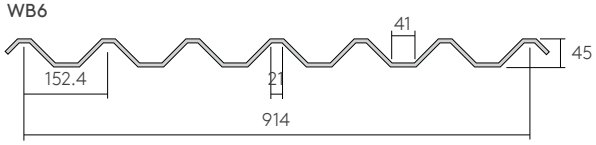
WA200



45/250



WB6



Steel Thickness and Cover Widths

Thickness (mm)	0.40	0.50	0.60	0.70	0.80	0.90	1.00	Cover Width (mm)	FM Certified
19/1000	✓	–	–	✓	–	✓	–	1000	–
32/1000	–	–	–	✓	–	✓	–	1000	–
WA6	–	✓	✓	✓	✓	✓	✓	914	✓
WA900	–	✓	✓	✓	✓	✓	✓	900	–
WA200	–	✓	✓	✓	✓	✓	✓	1000	✓
45/250	–	✓	✓	✓	✓	✓	✓	1000	–
WB6	–	✓	✓	✓	✓	✓	✓	914	–

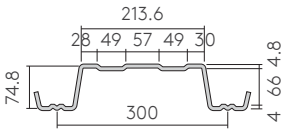
Aluminium Thickness and Cover Widths

Thickness (mm)	0.40	0.50	0.60	0.70	0.80	0.90	1.00	Cover Width (mm)	FM Certified
32/1000	–	–	–	✓	–	✓	–	1000	
WA6	–	✓	✓	✓	✓	✓	✓	914	–
WA900	–	✓	✓	✓	✓	✓	✓	900	–
WA200	–	✓	✓	✓	✓	✓	✓	1000	–
45/250	–	✓	✓	✓	✓	✓	✓	1000	–
WB6	–	✓	✓	✓	✓	✓	✓	914	–

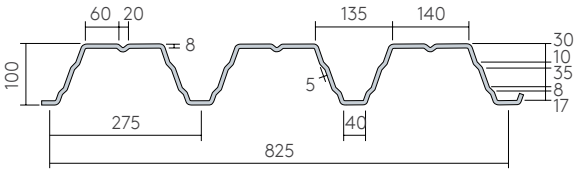
Please contact your local Kingspan Customer Service Department to check the local availability of profiled liners in your region.

Structural Decks

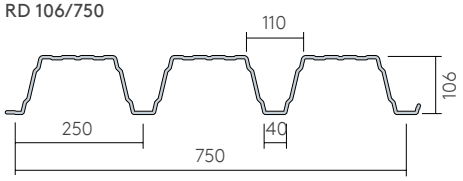
RD 75/300



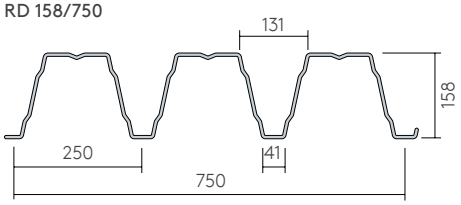
RD 100/825



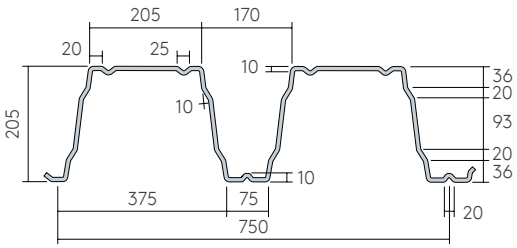
RD 106/750



RD 158/750



RD 200/750



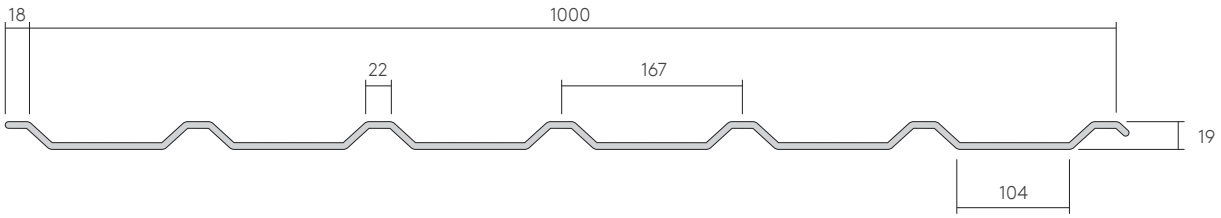
Steel Thickness and Cover Widths

Thickness (mm)	0.70	0.75	0.80	0.88	0.90	1.00	1.20	1.25	1.50	Cover Width (mm)	FM Certified
RD 75/300	✓	–	✓	–	✓	✓	✓	–	✓	300	✓
RD 100/825	✓	–	✓	–	✓	✓	✓	–	✓	825	✓
RD 106/750	–	✓	–	✓	–	✓	–	–	–	750	–
RD 158/750	–	✓	–	✓	–	✓	–	✓	✓	750	–
RD 200/750	✓	–	✓	–	✓	✓	✓	–	✓	750	✓

Please contact your local Kingspan Customer Service Department to check the local availability of structural decks in your region.

System Components
Profiled Liner – 19/1000

The 19/1000 liner profile is typically used for industrial applications as part of a single or twin skin roof or wall cladding solution. The profile can be laid vertically, horizontally or diagonally.



Product Specification

Materials:	Steel: S220GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating
Coatings:	Corus Colorcoat HPS200 Ultra, Colorcoat Prisma, Colorcoat LG, PVDF (aluminium), Colorcoat Highreflect, Colorcoat PE15
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in steel carry a spread of flame and smoke index rating of zero
Product tolerances:	Length: +/-7 mm (0 – 3,500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	N/A
Perforation:	N/A

Dimensions and Weight

Substrate Thickness (mm)	0.40	0.70	0.90
Weight (kg/m²) – Steel	3.498	6.01	7.80

Load Span – Profiled Liner 19/1000

Imposed Load in KN/m²

Profile Thickness (mm)	Span (m)	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
		Single				Double				Multiple			
	0.80	2.50	2.50	2.50	2.26	2.16	2.16	2.16	2.16	2.51	2.51	2.51	2.51
	0.90	1.98	1.98	1.90	1.59	1.86	1.86	1.86	1.86	2.16	2.16	2.16	2.16
	1.00	1.60	1.60	1.39	1.16	1.62	1.62	1.62	1.62	1.89	1.89	1.89	1.89
	1.10	1.32	1.30	1.04	0.87	1.43	1.43	1.43	1.43	1.67	1.67	1.67	1.64
	1.20	1.11	1.00	0.80	0.67	1.27	1.27	1.27	1.27	1.49	1.49	1.49	1.27
	1.30	0.95	0.79	0.63	0.53	1.14	1.14	1.14	1.14	1.34	1.34	1.19	1.00
	1.40	0.82	0.63	0.51	0.42	1.03	1.03	1.03	1.01	1.21	1.20	0.96	0.80
0.40	1.50	0.68	0.51	0.41	0.34	0.94	0.94	0.94	0.82	1.10	0.97	0.78	0.65
	1.60	0.56	0.42	0.34	0.28	0.85	0.85	0.82	0.68	0.98	0.80	0.64	0.53
	1.70	0.47	0.35	0.28	0.24	0.78	0.78	0.68	0.57	0.87	0.67	0.53	0.44
	1.80	0.40	0.30	0.24	0.20	0.72	0.72	0.57	0.48	0.75	0.56	0.45	0.37
	1.90	0.34	0.25	0.20	0.17	0.67	0.61	0.49	0.41	0.64	0.48	0.38	0.32
	2.00	0.29	0.22	0.17	0.14	0.62	0.52	0.42	0.35	0.55	0.41	0.33	0.27
	2.10	0.25	0.19	0.15	0.12	0.58	0.45	0.36	0.30	0.47	0.35	0.28	0.24
	2.20	0.22	0.16	0.13	0.11	0.52	0.39	0.31	0.26	0.41	0.31	0.25	0.21
	0.80	5.08	5.08	4.25	3.54	4.06	4.06	4.06	4.06	4.86	4.86	4.86	4.86
	0.90	4.02	3.73	2.98	2.49	3.37	3.37	3.37	3.37	4.05	4.05	4.05	4.05
	1.00	3.25	2.72	2.17	1.81	2.85	2.85	2.85	2.85	3.43	3.43	3.43	3.43
	1.10	2.69	2.04	1.63	1.36	2.44	2.44	2.44	2.44	2.94	2.94	2.94	2.57
	1.20	2.10	1.57	1.26	1.05	2.11	2.11	2.11	2.11	2.55	2.55	2.38	1.98
	1.30	1.65	1.24	0.99	0.82	1.85	1.85	1.85	1.85	2.24	2.24	1.87	1.56
	1.40	1.32	0.99	0.79	0.66	1.63	1.63	1.63	1.59	1.98	1.87	1.50	1.25
0.70	1.50	1.07	0.81	0.64	0.54	1.45	1.45	1.45	1.29	1.76	1.52	1.22	1.02
	1.60	0.88	0.66	0.53	0.44	1.30	1.30	1.28	1.07	1.58	1.25	1.00	0.84
	1.70	0.74	0.55	0.44	0.37	1.17	1.17	1.07	0.89	1.39	1.05	0.84	0.70
	1.80	0.62	0.47	0.37	0.31	1.06	1.06	0.90	0.75	1.18	0.88	0.71	0.59
	1.90	0.53	0.40	0.32	0.26	0.96	0.95	0.76	0.64	1.00	0.75	0.60	0.50
	2.00	0.45	0.34	0.27	0.23	0.88	0.82	0.65	0.55	0.86	0.64	0.51	0.43
	2.10	0.39	0.29	0.23	0.20	0.81	0.71	0.57	0.47	0.74	0.56	0.44	0.37
	2.20	0.34	0.26	0.20	0.17	0.74	0.61	0.49	0.41	0.64	0.48	0.39	0.32
	0.80	6.75	6.75	6.49	5.41	6.67	6.67	6.67	6.67	7.99	7.99	7.99	7.99
	0.90	5.33	5.33	4.56	3.80	5.53	5.53	5.53	5.53	6.64	6.64	6.64	6.64
	1.00	4.32	4.15	3.32	2.77	4.66	4.66	4.66	4.66	5.61	5.61	5.61	5.24
	1.10	3.57	3.12	2.50	2.08	3.98	3.98	3.98	3.98	4.80	4.80	4.72	3.93
	1.20	3.00	2.40	1.92	1.60	3.44	3.44	3.44	3.44	4.16	4.16	3.64	3.03
	1.30	2.52	1.89	1.51	1.26	3.01	3.01	3.01	3.01	3.65	3.58	2.86	2.38
	1.40	2.02	1.51	1.21	1.01	2.65	2.65	2.65	2.43	3.22	2.86	2.29	1.91
0.90	1.50	1.64	1.23	0.98	0.82	2.36	2.36	2.36	1.98	2.86	2.33	1.86	1.55
	1.60	1.35	1.01	0.81	0.68	2.11	2.11	1.95	1.63	2.56	1.92	1.53	1.28
	1.70	1.13	0.85	0.68	0.56	1.90	1.90	1.63	1.36	2.13	1.60	1.28	1.07
	1.80	0.95	0.71	0.57	0.47	1.72	1.72	1.37	1.14	1.80	1.35	1.08	0.90
	1.90	0.81	0.61	0.48	0.40	1.56	1.46	1.17	0.97	1.53	1.15	0.92	0.76
	2.00	0.69	0.52	0.42	0.35	1.42	1.25	1.00	0.83	1.31	0.98	0.79	0.65
	2.10	0.60	0.45	0.36	0.30	1.31	1.08	0.86	0.72	1.13	0.85	0.68	0.57
	2.20	0.52	0.39	0.31	0.26	1.20	0.94	0.75	0.63	0.98	0.74	0.59	0.49

Safe Imposed (positive) Loads (kN/m²).
The load shown is the ultimate load divided by 1.5.

Tolerances: EN 10143
Handling: European Recommendations
Tests / calculations: EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5
(calculations are to Eurocode, however additional checks such as fixings are required)
Steel quality: EN 10346

Load Span – Profiled Liner 19/1000

Wind Suction Load in KN/m²

Profile Thickness (mm)	Span (m)	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
		Single				Double				Multiple			
	0.80	2.88	2.74	2.19	1.83	1.50	1.50	1.50	1.50	1.81	1.81	1.81	1.81
	0.90	2.56	1.92	1.54	1.28	1.26	1.26	1.26	1.26	1.52	1.52	1.52	1.52
	1.00	2.31	1.40	1.12	0.94	1.07	1.07	1.07	1.07	1.30	1.30	1.30	1.30
	1.10	1.41	1.05	0.84	0.70	0.93	0.93	0.93	0.93	1.12	1.12	1.12	1.12
	1.20	1.08	0.81	0.65	0.54	0.81	0.81	0.81	0.81	0.98	0.98	0.98	0.98
	1.30	0.85	0.64	0.51	0.43	0.71	0.71	0.71	0.71	0.86	0.86	0.86	0.81
	1.40	0.68	0.51	0.41	0.34	0.63	0.63	0.63	0.63	0.77	0.77	0.77	0.64
0.40	1.50	0.55	0.42	0.33	0.28	0.56	0.56	0.56	0.56	0.69	0.69	0.63	0.52
	1.60	0.46	0.34	0.27	0.23	0.51	0.51	0.51	0.51	0.62	0.62	0.52	0.43
	1.70	0.38	0.29	0.23	0.19	0.46	0.46	0.46	0.46	0.56	0.54	0.43	0.36
	1.80	1.28	0.24	0.19	0.16	0.42	0.42	0.42	0.39	0.51	0.46	0.36	0.30
	1.90	0.27	0.20	0.16	0.14	0.38	0.38	0.38	0.33	0.47	0.39	0.31	0.26
	2.00	0.23	0.18	0.14	0.12	0.35	0.35	0.34	0.28	0.43	0.33	0.27	0.22
	2.10	0.20	0.15	0.12	0.10	0.32	0.32	0.29	0.24	0.38	0.29	0.23	0.19
	2.20	0.18	0.13	0.11	0.09	0.30	0.30	0.25	0.21	0.33	0.25	0.20	0.17
	0.80	5.75	5.75	4.74	3.95	3.72	3.72	3.72	3.72	4.55	4.55	4.55	4.55
	0.90	4.54	4.16	3.33	2.77	3.08	3.08	3.08	3.08	3.77	3.77	3.77	3.77
	1.00	3.68	3.03	2.43	2.02	2.60	2.60	2.60	2.60	3.18	3.18	3.18	3.18
	1.10	3.04	2.28	1.82	1.52	2.22	2.22	2.22	2.22	2.72	2.72	2.72	2.72
	1.20	2.34	1.75	1.40	1.17	1.92	1.92	1.92	1.92	2.36	2.36	2.36	2.21
	1.30	1.84	1.38	1.10	0.92	1.68	1.68	1.68	1.68	2.06	2.06	2.06	1.74
	1.40	1.47	1.10	0.88	0.74	1.48	1.48	1.48	1.48	1.82	1.82	1.67	1.39
0.70	1.50	1.20	0.90	0.72	0.60	1.31	1.31	1.31	1.31	1.62	1.62	1.36	1.13
	1.60	0.99	0.74	0.59	0.49	1.17	1.17	1.17	1.17	1.45	1.40	1.12	0.93
	1.70	0.82	0.62	0.49	0.41	1.06	1.06	1.06	0.99	1.30	1.17	0.93	0.78
	1.80	0.69	0.52	0.42	0.35	0.96	0.96	0.96	0.83	1.18	0.98	0.79	0.66
	1.90	0.59	0.44	0.35	0.29	0.87	0.87	0.85	0.71	1.07	0.84	0.67	0.56
	2.00	0.51	0.38	0.30	0.25	0.79	0.79	0.73	0.61	0.96	0.72	0.57	0.48
	2.10	0.44	0.33	0.26	0.22	0.73	0.73	0.63	0.53	0.83	0.62	0.50	0.41
	2.20	0.38	0.28	0.23	0.19	0.67	0.67	0.55	0.46	0.72	0.54	0.43	0.36
	0.80	9.17	8.02	6.41	5.34	5.44	5.44	5.44	5.44	6.69	6.69	6.69	6.69
	0.90	7.24	5.63	4.50	3.75	4.47	4.47	4.47	4.47	5.51	5.51	5.51	5.51
	1.00	5.47	4.10	3.28	2.74	3.75	3.75	3.75	3.75	4.62	4.62	4.62	4.62
	1.10	4.11	3.08	2.47	2.06	3.18	3.18	3.18	3.18	3.93	3.93	3.93	3.89
	1.20	3.17	2.38	1.90	1.58	2.74	2.74	2.74	2.74	3.39	3.39	3.39	3.00
	1.30	2.49	1.87	1.49	1.25	2.39	2.39	2.39	2.39	2.95	2.95	2.83	2.36
	1.40	1.99	1.50	1.20	1.00	2.09	2.09	2.09	2.09	2.59	2.59	2.26	1.89
0.90	1.50	1.62	1.22	0.97	0.81	1.85	1.85	1.85	1.85	2.30	2.30	1.84	1.53
	1.60	1.34	1.00	0.80	0.67	1.65	1.65	1.65	1.61	2.05	1.90	1.52	1.26
	1.70	1.11	0.84	0.67	0.56	1.48	1.48	1.48	1.34	1.84	1.58	1.26	1.05
	1.80	0.94	0.70	0.56	0.47	1.33	1.33	1.33	1.13	1.66	1.33	1.06	0.89
	1.90	0.80	0.60	0.48	0.40	1.20	1.20	1.15	0.96	1.50	1.13	0.91	0.75
	2.00	0.68	0.51	0.41	0.34	1.08	1.08	0.99	0.82	1.29	0.97	0.78	0.65
	2.10	0.59	0.44	0.35	0.30	0.98	0.98	0.85	0.71	1.12	0.84	0.67	0.56
	2.20	0.51	0.39	0.31	0.26	0.89	0.89	0.74	0.62	0.97	0.73	0.58	0.49

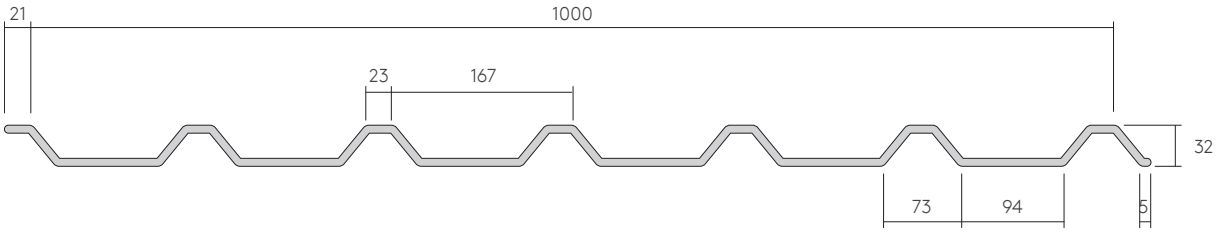
Safe Imposed (positive) Loads (kN/m²).
The load shown is the ultimate load divided by 1.5.

Tolerances: EN 10143
Handling: European Recommendations
Tests / calculations: EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5
(calculations are to Eurocode, however additional checks such as fixings are required)
Steel quality: EN 10346


ADELAIDE CONVENTION CENTRE

System Components
Profiled Liner – 32/1000

The 32/1000 liner profile is typically used for industrial applications as part of a single or twin skin roof or wall cladding solution. The profile can be laid vertically, horizontally or diagonally.



Product Specification

Materials:	Steel: S220GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating. Aluminium: AA3105 alloy to ASTM B209
Coatings:	Corus Colorcoat HPS200 Ultra, Colorcoat Prisma, Colorcoat LG, PVDF (aluminium), Colorcoat Highreflect, Colorcoat PE15
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	N/A
Perforation:	N/A

Dimensions and Weight

Substrate Thickness (mm)		0.70	0.90
Weight (kg/m^2)	– Steel	6.75	8.68
	– Aluminium	2.36	3.039

Load Span – Profiled Liner 32/1000

Steel

Profile Thickness (mm)	Span (m)	Imposed Load (KN/m²) – L/200			Wind Suction Load (KN/m²) – L/200		
		Single	Double	Multiple	Single	Double	Multiple
0.70	1.00	6.49	3.72	4.44	5.76	3.95	4.70
	1.10	5.36	3.22	3.84	4.76	3.42	4.08
	1.20	4.50	2.81	3.37	4.00	3.00	3.58
	1.30	3.84	2.48	2.97	3.41	2.65	3.17
	1.40	3.31	2.20	2.65	2.96	2.36	2.83
	1.50	2.87	1.97	2.37	2.32	2.12	2.54
	1.60	2.37	1.78	2.14	1.91	1.91	2.30
	1.70	1.97	1.61	1.94	1.59	1.73	2.09
	1.80	1.66	1.46	1.77	1.34	1.58	1.90
	1.90	1.41	1.34	1.62	1.14	1.44	1.74
	2.00	1.21	1.23	1.49	0.98	1.33	1.60
	2.10	1.05	1.13	1.37	0.85	1.22	1.41
	2.20	0.91	1.04	1.27	0.74	1.13	1.23
	2.30	0.80	0.97	1.18	0.64	1.05	1.07
	2.40	0.70	0.90	1.09	0.57	0.94	0.94
	2.50	0.62	0.84	1.02	0.50	0.84	0.84
	2.60	0.55	0.78	0.92	0.45	0.74	0.74
0.90	1.00	8.45	5.50	6.59	7.74	5.77	6.90
	1.10	6.99	4.73	5.68	6.40	4.98	5.96
	1.20	5.87	4.11	4.95	5.38	4.34	5.21
	1.30	5.00	3.61	4.36	4.58	3.81	4.59
	1.40	4.31	3.20	3.86	3.91	3.38	4.08
	1.50	3.74	2.85	3.45	3.18	3.02	3.65
	1.60	3.08	2.56	3.10	2.62	2.72	3.28
	1.70	2.57	2.31	2.81	2.18	2.46	2.97
	1.80	2.17	2.10	2.55	1.84	2.23	2.70
	1.90	1.84	1.91	2.33	1.56	2.04	2.47
	2.00	1.58	1.75	2.13	1.34	1.87	2.23
	2.10	1.36	1.61	1.96	1.16	1.72	1.93
	2.20	1.19	1.49	1.81	1.01	1.58	1.68
	2.30	1.04	1.37	1.68	0.88	1.47	1.47
	2.40	0.91	1.28	1.52	0.78	1.29	1.29
	2.50	0.81	1.19	1.35	0.69	1.14	1.14
	2.60	0.72	1.11	1.20	0.61	1.02	1.02

Working load UDL (kN/m²).
Load factor (working load to ultimate) = 1.5
Tables calculated by: Gravity – the SCI to EN 1993-1-3 (Eurocode E3);
Uplift – the SCI to EN 1999 -1-4 (Eurocode EC9).

Load Span – Profiled Liner 32/1000

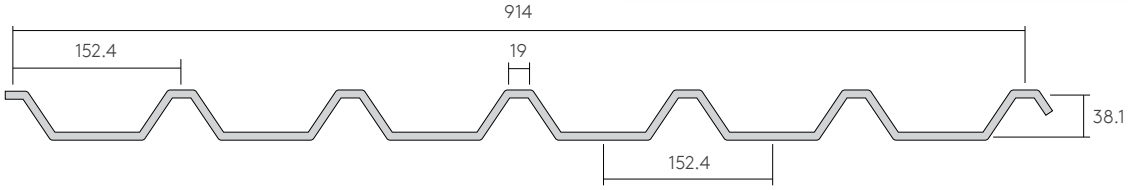
Aluminium

Profile Thickness (mm)	Span (m)	Imposed Load (KN/m²) – L/200			Wind Suction Load (KN/m²) – L/200		
		Single	Double	Multiple	Single	Double	Multiple
0.70	1.00	6.49	3.72	4.44	5.76	3.95	4.70
	1.10	5.36	3.22	3.84	4.76	3.42	4.08
	1.20	4.50	2.81	3.37	4.00	3.00	3.58
	1.30	3.84	2.48	2.97	3.41	2.65	3.17
	1.40	3.31	2.20	2.65	2.96	2.36	2.83
	1.50	2.87	1.97	2.37	2.32	2.12	2.54
	1.60	2.37	1.78	2.14	1.91	1.91	2.30
	1.70	1.97	1.61	1.94	1.59	1.73	2.09
	1.80	1.66	1.46	1.77	1.34	1.58	1.90
	1.90	1.41	1.34	1.62	1.14	1.44	1.74
	2.00	1.21	1.23	1.49	0.98	1.33	1.60
	2.10	1.05	1.13	1.37	0.85	1.22	1.41
	2.20	0.91	1.04	1.27	0.74	1.13	1.23
	2.30	0.80	0.97	1.18	0.64	1.05	1.07
	2.40	0.70	0.90	1.09	0.57	0.94	0.94
	2.50	0.62	0.84	1.02	0.50	0.84	0.84
	2.60	0.55	0.78	0.92	0.45	0.74	0.74
0.90	1.00	8.45	5.50	6.59	7.74	5.77	6.90
	1.10	6.99	4.73	5.68	6.40	4.98	5.96
	1.20	5.87	4.11	4.95	5.38	4.34	5.21
	1.30	5.00	3.61	4.36	4.58	3.81	4.59
	1.40	4.31	3.20	3.86	3.91	3.38	4.08
	1.50	3.74	2.85	3.45	3.18	3.02	3.65
	1.60	3.08	2.56	3.10	2.62	2.72	3.28
	1.70	2.57	2.31	2.81	2.18	2.46	2.97
	1.80	2.17	2.10	2.55	1.84	2.23	2.70
	1.90	1.84	1.91	2.33	1.56	2.04	2.47
	2.00	1.58	1.75	2.13	1.34	1.87	2.23
	2.10	1.36	1.61	1.96	1.16	1.72	1.93
	2.20	1.19	1.49	1.81	1.01	1.58	1.68
	2.30	1.04	1.37	1.68	0.88	1.47	1.47
	2.40	0.91	1.28	1.52	0.78	1.29	1.29
	2.50	0.81	1.19	1.35	0.69	1.14	1.14
	2.60	0.72	1.11	1.20	0.61	1.02	1.02

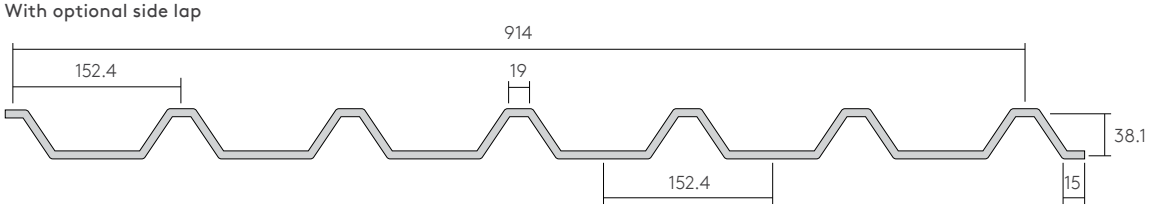
Working load UDL (kN/m²).
Load factor (working load to ultimate) = 1.5
Tables calculated by: Gravity – the SCI to EN 1993-1-3 (Eurocode E3);
Uplift – the SCI to EN 1999 -1-4 (Eurocode EC9).

System Components
Profiled Liner – WA6

The WA6 profile liner is typically used for industrial applications as part of a single or twin skin roof or wall cladding solution. The profile can be laid vertically, horizontally or diagonally.

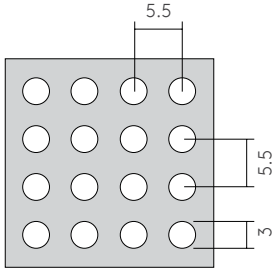


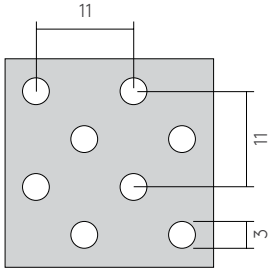
With optional side lap



Product Specification

Materials:	Steel: S220GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating. Aluminium: AA3105 alloy to ASTM B209
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero. FM 4451 and FM 4471 approved
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) /0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	See table
Perforation:	The below perforation options are available: Pan: ✓ Web: ✓ Pan+Web: ✓ Complete Surface: ✓





Dimensions and Weight

Substrate Thickness (mm)		0.50	0.60	0.70	0.80	0.90	1.00
Weight (kg/m^2)	– Steel	4.63	5.55	6.48	7.40	8.33	9.25
	– Aluminium	1.61	1.93	2.26	2.58	2.90	3.22

Convex Curving

Type	Material	Perforation	Min Radius (mm)
Crimped curved	Steel and aluminium	Non-perforated and perforated	500

Load Span – Profiled Liner WA6

Steel at 220 MPa Yield Strength

Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	5.60	4.79	5.59	6.03	3.55	3.88
	1200	3.90	3.34	3.90	3.46	2.94	3.23
	1400	2.79	2.47	2.88	2.15	2.51	2.76
	1600	1.88	1.90	2.21	1.42	2.19	2.40
	1800	1.34	1.51	1.76	0.98	1.94	2.13
	2000	0.99	1.23	1.43	0.70	1.74	1.77
	2200	0.75	1.03	1.19	0.51	1.31	1.31
	2400	0.59	0.87	1.01	0.37	1.00	1.00
	2600	0.48	0.75	0.87	0.28	0.77	0.77
0.60	1000	6.72	5.75	6.71	7.24	4.26	4.66
	1200	4.68	4.01	4.68	4.15	3.53	3.87
	1400	3.34	2.96	3.45	2.59	3.02	3.31
	1600	2.26	2.28	2.65	1.71	2.63	2.88
	1800	1.60	1.81	2.11	1.17	2.33	2.55
	2000	1.18	1.48	1.72	0.83	2.09	2.12
	2200	0.90	1.23	1.43	0.61	1.57	1.57
	2400	0.71	1.05	1.21	0.45	1.19	1.19
	2600	0.57	0.90	1.04	0.34	0.92	0.92
0.70	1000	7.83	6.71	7.82	8.44	4.96	5.44
	1200	5.46	4.68	5.45	4.85	4.12	4.52
	1400	3.90	3.46	4.03	3.02	3.52	3.86
	1600	2.63	2.66	3.10	1.99	3.07	3.36
	1800	1.87	2.12	2.46	1.37	2.72	2.98
	2000	1.38	1.73	2.01	0.97	2.44	2.48
	2200	1.05	1.44	1.67	0.71	1.84	1.84
	2400	0.83	1.22	1.41	0.52	1.39	1.39
	2600	0.67	1.05	1.21	0.39	1.08	1.08
0.80	1000	8.95	7.67	8.94	9.65	5.67	6.22
	1200	6.24	5.35	6.23	5.54	4.71	5.16
	1400	4.46	3.95	4.60	3.45	4.02	4.41
	1600	3.01	3.04	3.54	2.27	3.51	3.84
	1800	2.14	2.42	2.81	1.57	3.10	3.41
	2000	1.58	1.97	2.29	1.11	2.78	2.83
	2200	1.21	1.64	1.91	0.81	2.10	2.10
	2400	0.95	1.39	1.62	0.60	1.59	1.59
	2600	0.76	1.20	1.39	0.45	1.23	1.23
0.90	1000	10.07	8.62	10.06	10.85	6.38	6.99
	1200	7.02	6.02	7.01	6.23	5.30	5.81
	1400	5.01	4.44	5.18	3.88	4.53	4.96
	1600	3.39	3.42	3.98	2.56	3.94	4.32
	1800	2.40	2.72	3.16	1.76	3.49	3.83
	2000	1.78	2.22	2.58	1.25	3.13	3.18
	2200	1.36	1.85	2.15	0.91	2.36	2.36
	2400	1.06	1.57	1.82	0.67	1.79	1.79
	2600	0.86	1.35	1.56	0.50	1.38	1.38
1.00	1000	11.19	9.58	11.18	12.06	7.09	7.77
	1200	7.80	6.68	7.79	6.92	5.89	6.45
	1400	5.57	4.94	5.75	4.31	5.03	5.51
	1600	3.76	3.80	4.42	2.84	4.38	4.81
	1800	2.67	3.02	3.52	1.96	3.88	4.26
	2000	1.97	2.47	2.87	1.39	3.48	3.54
	2200	1.51	2.06	2.39	1.01	2.62	2.62
	2400	1.18	1.74	2.02	0.75	1.99	1.99
	2600	0.95	1.50	1.74	0.56	1.54	1.54

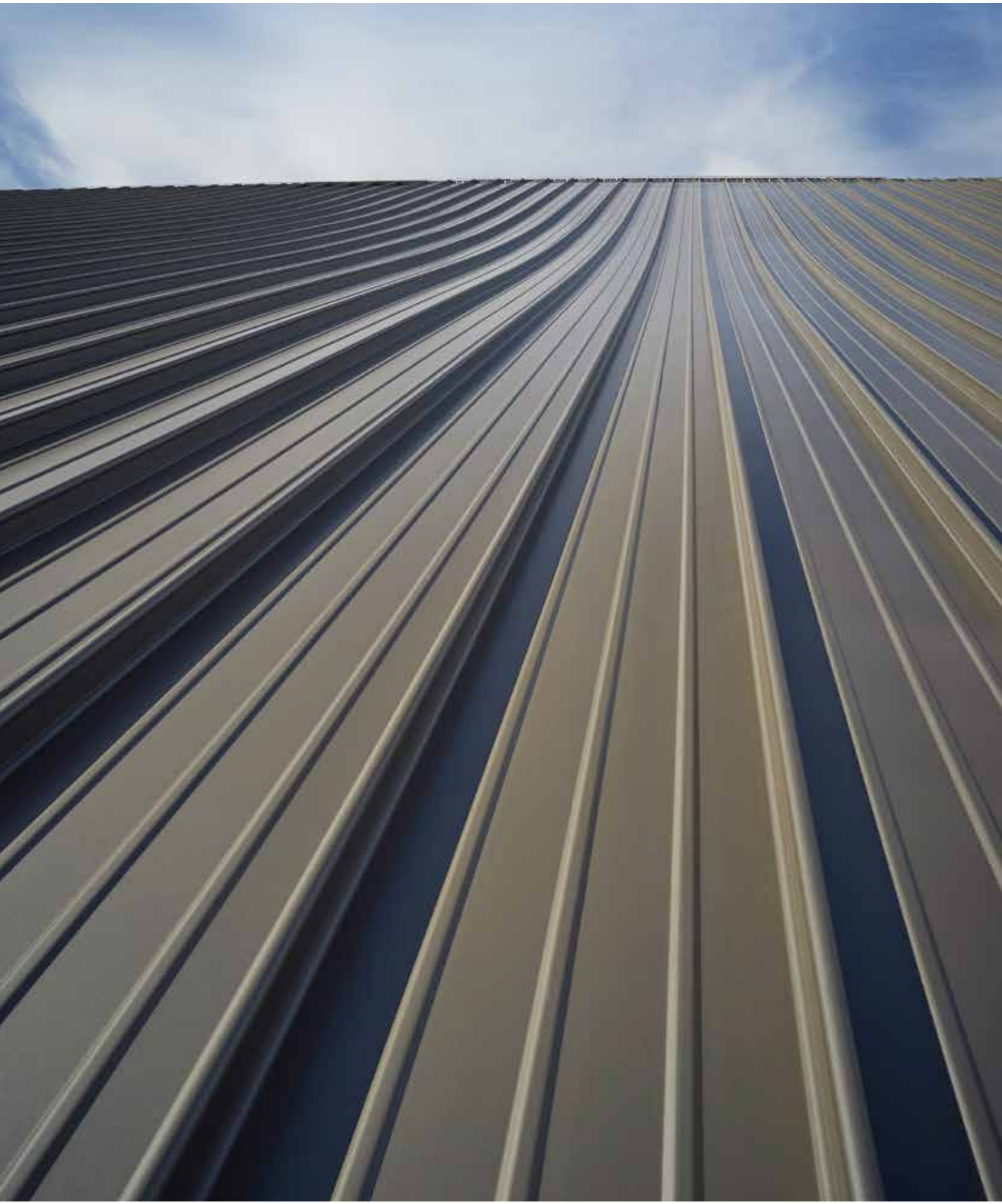
Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

Load Span – Profiled Liner WA6

Aluminium at 130 MPa Yield Strength

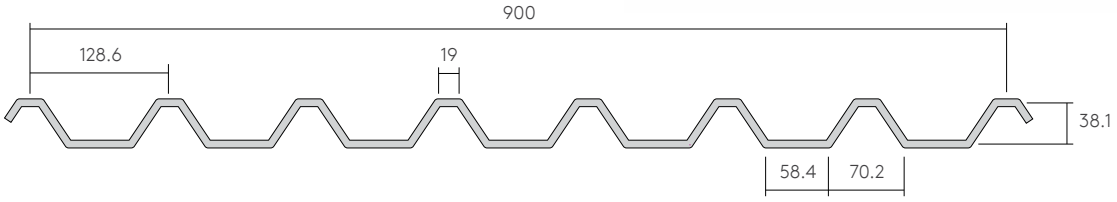
Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	2.58	2.82	3.29	2.06	1.60	1.75
	1200	1.50	1.96	2.29	1.18	1.33	1.46
	1400	0.95	1.45	1.69	0.74	1.14	1.24
	1600	0.64	1.11	1.30	0.48	0.99	1.09
	1800	0.46	0.88	1.03	0.33	0.84	0.84
	2000	0.34	0.72	0.79	0.24	0.60	0.60
	2200	0.26	0.60	0.60	0.17	0.45	0.45
	2400	0.20	0.46	0.46	0.13	0.34	0.34
	2600	0.16	0.37	0.37	0.10	0.26	0.26
0.60	1000	3.10	3.38	3.95	2.47	1.92	2.10
	1200	1.80	2.36	2.75	1.42	1.60	1.75
	1400	1.14	1.74	2.02	0.88	1.36	1.49
	1600	0.77	1.33	1.55	0.58	1.19	1.30
	1800	0.55	1.06	1.23	0.40	1.00	1.00
	2000	0.40	0.86	0.95	0.28	0.72	0.72
	2200	0.31	0.71	0.72	0.21	0.54	0.54
	2400	0.24	0.56	0.56	0.15	0.41	0.41
	2600	0.20	0.44	0.44	0.11	0.31	0.31
0.70	1000	3.61	3.95	4.61	2.88	2.24	2.45
	1200	2.10	2.75	3.21	1.65	1.86	2.04
	1400	1.33	2.03	2.36	1.03	1.59	1.74
	1600	0.90	1.56	1.81	0.68	1.39	1.52
	1800	0.64	1.23	1.44	0.47	1.17	1.17
	2000	0.47	1.00	1.10	0.33	0.84	0.84
	2200	0.36	0.83	0.84	0.24	0.63	0.63
	2400	0.28	0.65	0.65	0.18	0.48	0.48
	2600	0.23	0.52	0.52	0.13	0.37	0.37
0.80	1000	4.13	4.51	5.27	3.29	2.56	2.80
	1200	2.40	3.14	3.66	1.89	2.13	2.33
	1400	1.52	2.31	2.70	1.18	1.82	1.99
	1600	1.03	1.78	2.07	0.78	1.59	1.74
	1800	0.73	1.41	1.64	0.53	1.34	1.34
	2000	0.54	1.15	1.26	0.38	0.97	0.97
	2200	0.41	0.95	0.95	0.28	0.72	0.72
	2400	0.32	0.74	0.74	0.20	0.54	0.54
	2600	0.26	0.59	0.59	0.15	0.42	0.42
0.90	1000	4.65	5.08	5.92	3.71	2.88	3.15
	1200	2.70	3.53	4.12	2.13	2.39	2.62
	1400	1.71	2.60	3.04	1.32	2.04	2.24
	1600	1.16	2.00	2.33	0.87	1.78	1.95
	1800	0.82	1.59	1.85	0.60	1.51	1.51
	2000	0.61	1.29	1.42	0.43	1.09	1.09
	2200	0.46	1.07	1.07	0.31	0.81	0.81
	2400	0.36	0.83	0.83	0.23	0.61	0.61
	2600	0.29	0.66	0.66	0.17	0.47	0.47
1.00	1000	5.16	5.64	6.58	4.12	3.20	3.50
	1200	3.00	3.93	4.58	2.36	2.66	2.91
	1400	1.90	2.89	3.37	1.47	2.27	2.49
	1600	1.29	2.22	2.59	0.97	1.98	2.17
	1800	0.91	1.76	2.05	0.67	1.67	1.67
	2000	0.67	1.43	1.58	0.47	1.21	1.21
	2200	0.52	1.19	1.19	0.34	0.90	0.90
	2400	0.40	0.93	0.93	0.25	0.68	0.68
	2600	0.33	0.74	0.74	0.19	0.52	0.52

Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

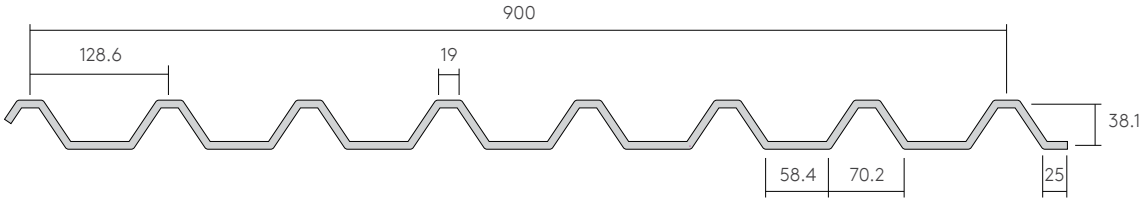


System Components
Profiled Liner – WA900

WA900 is a lightly profiled liner sheet with a profile depth of 38.1 mm and is typically used for industrial applications.

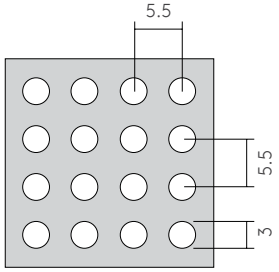


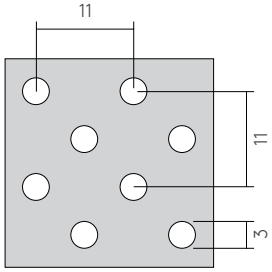
With optional side lap



Product Specification

Materials:	Steel: S220GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating. Aluminium: AA3105 alloy to ASTM B209
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	See table
Perforation:	The below perforation options are available: Pan: ✓ Web: ✓ Pan+Web: ✓ Complete Surface: ✓





Dimensions and Weight

Substrate Thickness (mm)		0.50	0.60	0.70	0.80	0.90	1.00
Weight (kg/m²)	– Steel	4.88	5.86	6.83	7.81	8.78	9.76
	– Aluminium	1.70	2.04	2.38	2.72	3.06	3.40

Convex Curving

Type	Material	Perforation	Min Radius (mm)
Crimped curved	Steel and aluminium	Non-perforated	600
		Perforated	1000

Load Span – Profiled Liner WA900

Steel at 220 MPa Yield Strength

Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	5.59	4.70	5.48	5.96	3.55	3.89
	1200	3.90	3.28	3.82	3.42	2.95	3.23
	1400	2.75	2.42	2.82	2.13	2.52	2.76
	1600	1.85	1.87	2.17	1.41	2.19	2.40
	1800	1.32	1.48	1.73	0.97	1.94	2.13
	2000	0.97	1.21	1.41	0.69	1.74	1.75
	2200	0.74	1.01	1.17	0.50	1.30	1.30
	2400	0.58	0.86	0.99	0.37	0.98	0.98
	2600	0.47	0.74	0.85	0.28	0.76	0.76
0.60	1000	6.71	5.64	6.58	7.16	4.26	4.66
	1200	4.68	3.94	4.59	4.11	3.54	3.87
	1400	3.29	2.91	3.39	2.56	3.02	3.31
	1600	2.23	2.24	2.61	1.69	2.63	2.89
	1800	1.58	1.78	2.07	1.16	2.33	2.56
	2000	1.17	1.45	1.69	0.83	2.09	2.10
	2200	0.89	1.21	1.40	0.60	1.56	1.56
	2400	0.70	1.03	1.19	0.44	1.18	1.18
	2600	0.56	0.88	1.02	0.33	0.91	0.91
0.70	1000	7.83	6.58	7.68	8.35	4.97	5.44
	1200	5.46	4.59	5.35	4.79	4.12	4.52
	1400	3.84	3.39	3.95	2.98	3.52	3.86
	1600	2.60	2.61	3.04	1.97	3.07	3.37
	1800	1.84	2.08	2.42	1.35	2.72	2.98
	2000	1.36	1.70	1.97	0.96	2.44	2.45
	2200	1.04	1.41	1.64	0.70	1.82	1.82
	2400	0.82	1.20	1.39	0.52	1.38	1.38
	2600	0.66	1.03	1.19	0.39	1.06	1.06
0.80	1000	8.95	7.52	8.78	9.54	5.68	6.22
	1200	6.24	5.25	6.12	5.48	4.71	5.16
	1400	4.39	3.87	4.51	3.41	4.03	4.41
	1600	2.97	2.98	3.47	2.25	3.51	3.85
	1800	2.11	2.37	2.76	1.55	3.11	3.41
	2000	1.56	1.94	2.25	1.10	2.79	2.80
	2200	1.19	1.61	1.87	0.80	2.08	2.08
	2400	0.93	1.37	1.59	0.59	1.58	1.58
	2600	0.75	1.18	1.36	0.44	1.22	1.22
0.90	1000	10.07	8.46	9.87	10.73	6.39	7.00
	1200	7.02	5.90	6.88	6.16	5.30	5.81
	1400	4.94	4.36	5.08	3.84	4.53	4.96
	1600	3.34	3.36	3.91	2.53	3.95	4.33
	1800	2.37	2.67	3.11	1.74	3.50	3.83
	2000	1.75	2.18	2.53	1.24	3.13	3.15
	2200	1.34	1.82	2.11	0.90	2.34	2.34
	2400	1.05	1.54	1.78	0.67	1.77	1.77
	2600	0.84	1.32	1.53	0.50	1.37	1.37
1.00	1000	11.19	9.40	10.97	11.93	7.10	7.77
	1200	7.80	6.56	7.65	6.85	5.89	6.46
	1400	5.49	4.84	5.64	4.26	5.03	5.51
	1600	3.71	3.73	4.34	2.81	4.39	4.81
	1800	2.63	2.97	3.45	1.94	3.88	4.26
	2000	1.95	2.42	2.81	1.38	3.48	3.50
	2200	1.48	2.02	2.34	1.00	2.60	2.60
	2400	1.17	1.71	1.98	0.74	1.97	1.97
	2600	0.94	1.47	1.70	0.55	1.52	1.52

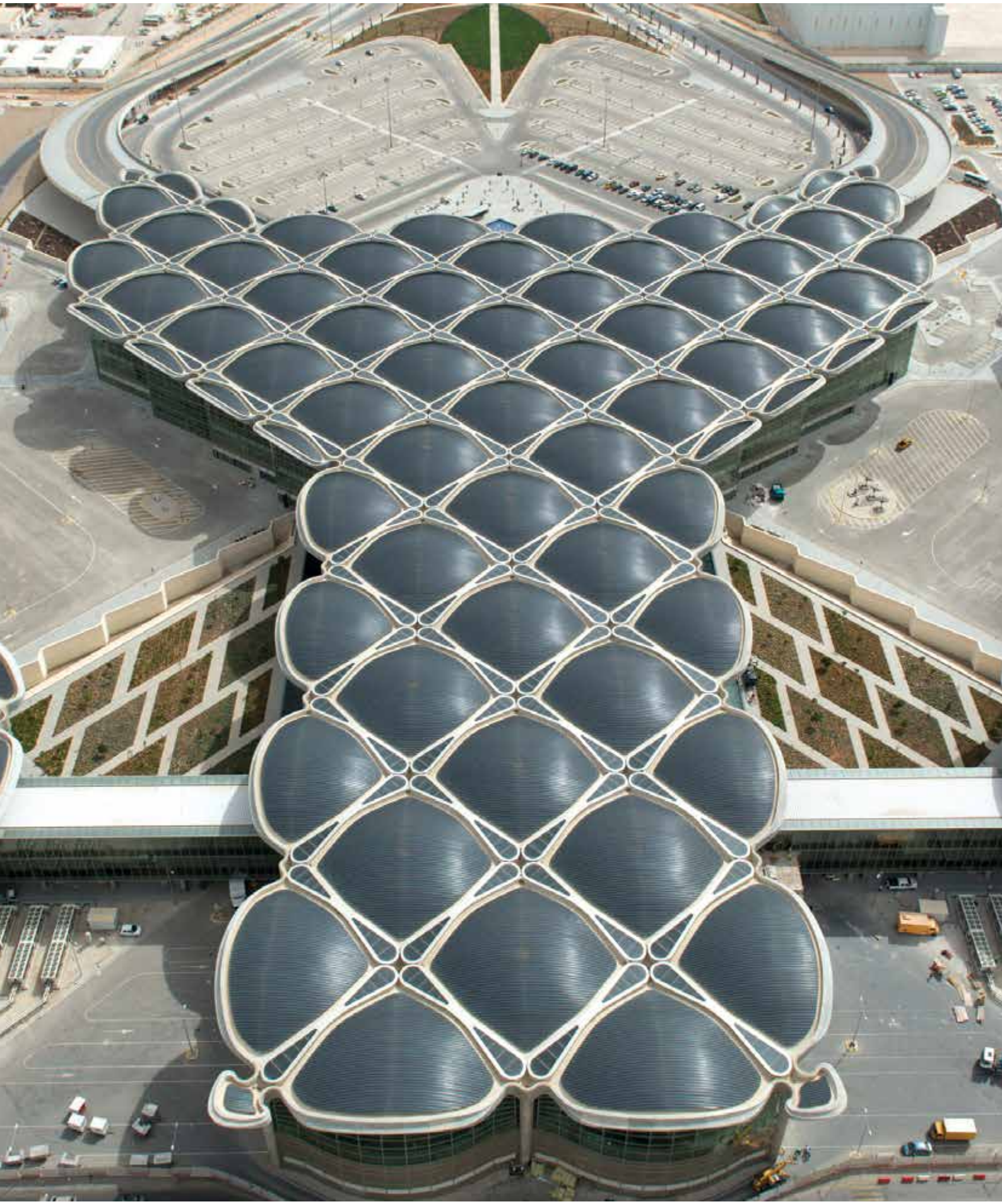
Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

Load Span – Profiled Liner WA900

Aluminium at 130 MPa Yield Strength

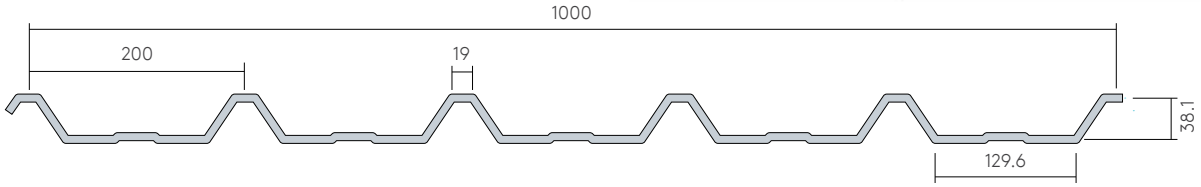
Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	2.55	2.77	3.23	2.03	1.60	1.75
	1200	1.48	1.93	2.25	1.17	1.33	1.45
	1400	0.94	1.42	1.66	0.72	1.13	1.24
	1600	0.64	1.09	1.27	0.48	0.99	1.08
	1800	0.45	0.87	1.01	0.33	0.82	0.82
	2000	0.33	0.71	0.78	0.23	0.59	0.59
	2200	0.26	0.59	0.59	0.17	0.44	0.44
	2400	0.20	0.46	0.46	0.12	0.33	0.33
	2600	0.16	0.37	0.37	0.09	0.26	0.26
0.60	1000	3.06	3.32	3.88	2.44	1.92	2.10
	1200	1.78	2.31	2.70	1.40	1.59	1.74
	1400	1.13	1.71	1.99	0.87	1.36	1.49
	1600	0.76	1.31	1.53	0.57	1.19	1.30
	1800	0.54	1.04	1.21	0.39	0.99	0.99
	2000	0.40	0.85	0.94	0.28	0.71	0.71
	2200	0.31	0.70	0.71	0.20	0.53	0.53
	2400	0.24	0.55	0.55	0.15	0.40	0.40
	2600	0.19	0.44	0.44	0.11	0.31	0.31
0.70	1000	3.57	3.88	4.52	2.85	2.24	2.45
	1200	2.07	2.70	3.15	1.63	1.86	2.04
	1400	1.32	1.99	2.32	1.01	1.59	1.74
	1600	0.89	1.53	1.78	0.67	1.38	1.52
	1800	0.63	1.21	1.41	0.46	1.15	1.15
	2000	0.47	0.99	1.09	0.32	0.83	0.83
	2200	0.36	0.82	0.83	0.23	0.62	0.62
	2400	0.28	0.64	0.64	0.17	0.47	0.47
	2600	0.23	0.51	0.51	0.13	0.36	0.36
0.80	1000	4.08	4.43	5.17	3.25	2.56	2.80
	1200	2.37	3.09	3.60	1.86	2.12	2.33
	1400	1.50	2.27	2.65	1.16	1.81	1.99
	1600	1.02	1.75	2.04	0.76	1.58	1.73
	1800	0.72	1.39	1.62	0.52	1.32	1.32
	2000	0.54	1.13	1.25	0.37	0.95	0.95
	2200	0.41	0.94	0.94	0.27	0.70	0.70
	2400	0.32	0.73	0.73	0.20	0.53	0.53
	2600	0.26	0.58	0.58	0.15	0.41	0.41
0.90	1000	4.58	4.98	5.82	3.66	2.88	3.15
	1200	2.67	3.47	4.05	2.10	2.39	2.62
	1400	1.69	2.56	2.98	1.30	2.04	2.24
	1600	1.14	1.97	2.29	0.86	1.78	1.95
	1800	0.81	1.56	1.82	0.59	1.48	1.48
	2000	0.60	1.27	1.40	0.42	1.07	1.07
	2200	0.46	1.06	1.06	0.30	0.79	0.79
	2400	0.36	0.83	0.83	0.22	0.60	0.60
	2600	0.29	0.66	0.66	0.16	0.46	0.46
1.00	1000	5.09	5.54	6.46	4.07	3.20	3.50
	1200	2.96	3.86	4.50	2.33	2.65	2.91
	1400	1.88	2.84	3.32	1.45	2.27	2.48
	1600	1.27	2.19	2.55	0.95	1.98	2.17
	1800	0.90	1.73	2.02	0.65	1.65	1.65
	2000	0.67	1.41	1.56	0.46	1.19	1.19
	2200	0.51	1.17	1.18	0.33	0.88	0.88
	2400	0.40	0.92	0.92	0.25	0.67	0.67
	2600	0.32	0.73	0.73	0.18	0.51	0.51

Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

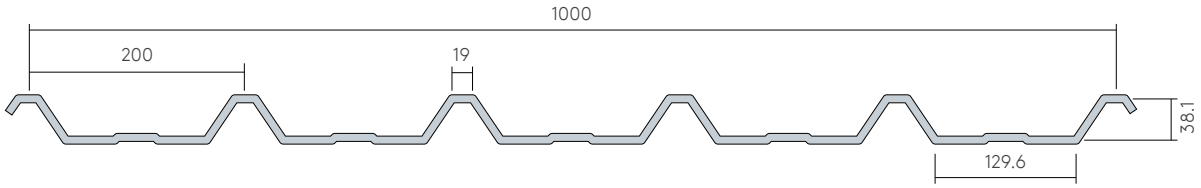


System Components
Profiled Liner – WA200

The WA200 profile liner is typically used for industrial applications as part of a single or twin skin roof solution. The profile can be laid vertically, horizontally or diagonally.

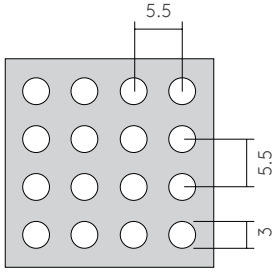


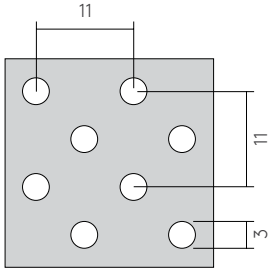
With optional side lap



Product Specification

Materials:	Steel: S220GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating. Aluminium: AA3105 alloy to ASTM B209
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero. FM 4451 and FM 4471 approved
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) /0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	See table
Perforation:	The below perforation options are available: Pan: ✓ Web: ✓ Pan+Web: ✓ Complete Surface: ✓





Dimensions and Weight

Substrate Thickness (mm)		0.50	0.60	0.70	0.80	0.90	1.00
Weight (kg/m^2)	– Steel	4.78	5.74	6.70	7.65	8.61	9.56
	– Aluminium	1.67	2.00	2.33	2.67	3.00	3.33

Convex Curving

Type	Material	Perforation	Min Radius (mm)
Crimped curved	Steel and aluminium	Non-perforated	600
		Perforated	1000
Smooth curved	Steel and aluminium	Non-perforated and perforated	20,000

Load Span – Profiled Liner WA200

Steel at 220 MPa Yield Strength

Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	5.80	3.99	4.65	5.11	5.51	6.03
	1200	4.05	2.78	3.24	2.93	4.58	5.01
	1400	2.77	2.06	2.40	1.82	3.92	4.29
	1600	1.87	1.59	1.85	1.20	2.98	2.98
	1800	1.33	1.26	1.47	0.82	2.07	2.07
	2000	0.98	1.03	1.20	0.58	1.49	1.49
	2200	0.75	0.86	1.00	0.42	1.10	1.10
	2400	0.59	0.73	0.85	0.31	0.83	0.83
	2600	0.47	0.63	0.73	0.23	0.64	0.64
0.60	1000	6.96	4.78	5.58	6.13	6.61	7.24
	1200	4.85	3.34	3.89	3.51	5.50	6.02
	1400	3.33	2.47	2.87	2.18	4.70	5.15
	1600	2.25	1.90	2.21	1.43	3.57	3.57
	1800	1.60	1.52	1.76	0.98	2.48	2.48
	2000	1.18	1.24	1.44	0.69	1.79	1.79
	2200	0.90	1.03	1.20	0.50	1.32	1.32
	2400	0.71	0.88	1.02	0.37	1.00	1.00
	2600	0.57	0.76	0.87	0.27	0.77	0.77
0.70	1000	8.12	5.58	6.51	7.15	7.71	8.44
	1200	5.66	3.90	4.54	4.10	6.41	7.02
	1400	3.88	2.88	3.35	2.55	5.48	6.00
	1600	2.62	2.22	2.58	1.67	4.17	4.17
	1800	1.86	1.77	2.06	1.15	2.90	2.90
	2000	1.38	1.45	1.68	0.81	2.09	2.09
	2200	1.05	1.21	1.40	0.59	1.54	1.54
	2400	0.82	1.03	1.19	0.43	1.17	1.17
	2600	0.66	0.88	1.02	0.32	0.90	0.90
0.80	1000	9.29	6.38	7.44	8.17	8.81	9.65
	1200	6.47	4.45	5.19	4.68	7.33	8.02
	1400	4.43	3.29	3.83	2.91	6.27	6.86
	1600	3.00	2.54	2.95	1.91	4.76	4.76
	1800	2.13	2.02	2.35	1.31	3.31	3.31
	2000	1.57	1.65	1.92	0.93	2.38	2.38
	2200	1.20	1.38	1.60	0.67	1.76	1.76
	2400	0.94	1.17	1.36	0.49	1.33	1.33
	2600	0.76	1.01	1.17	0.36	1.03	1.03
0.90	1000	10.45	7.17	8.37	9.19	9.92	10.86
	1200	7.28	5.01	5.84	5.27	8.24	9.03
	1400	4.99	3.70	4.31	3.27	7.05	7.72
	1600	3.37	2.86	3.32	2.15	5.36	5.36
	1800	2.39	2.27	2.64	1.47	3.73	3.73
	2000	1.77	1.86	2.16	1.04	2.68	2.68
	2200	1.35	1.55	1.80	0.75	1.99	1.99
	2400	1.06	1.32	1.52	0.55	1.50	1.50
	2600	0.85	1.14	1.31	0.41	1.15	1.15
1.00	1000	11.61	7.97	9.30	10.22	11.02	12.06
	1200	8.09	5.57	6.49	5.85	9.16	10.03
	1400	5.54	4.11	4.79	3.64	7.83	8.58
	1600	3.74	3.17	3.69	2.39	5.95	5.95
	1800	2.66	2.53	2.94	1.64	4.14	4.14
	2000	1.96	2.07	2.40	1.16	2.98	2.98
	2200	1.50	1.72	2.00	0.84	2.21	2.21
	2400	1.18	1.46	1.69	0.61	1.67	1.67
	2600	0.95	1.26	1.46	0.45	1.28	1.28

Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

Load Span – Profiled Liner WA200

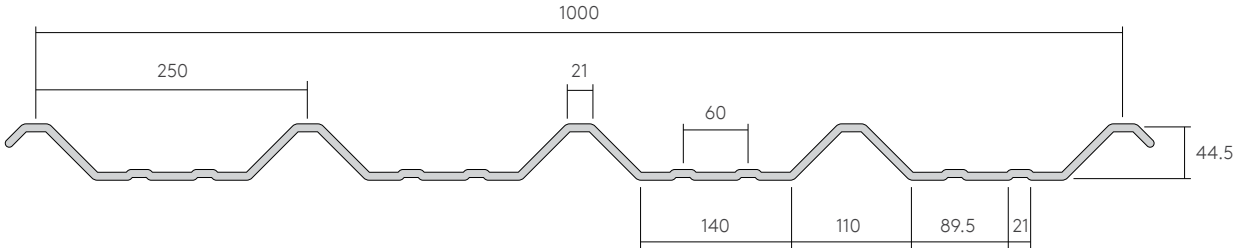
Aluminium at 130 MPa Yield Strength

Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	2.57	2.34	2.73	1.74	2.48	2.72
	1200	1.49	1.63	1.90	1.00	2.06	2.26
	1400	0.95	1.20	1.40	0.62	1.53	1.53
	1600	0.64	0.93	1.08	0.41	1.02	1.02
	1800	0.45	0.73	0.86	0.28	0.71	0.71
	2000	0.34	0.60	0.70	0.20	0.51	0.51
	2200	0.26	0.50	0.58	0.14	0.38	0.38
	2400	0.20	0.42	0.46	0.10	0.28	0.28
	2600	0.16	0.36	0.37	0.08	0.22	0.22
0.60	1000	3.08	2.81	3.28	2.09	2.98	3.26
	1200	1.79	1.96	2.29	1.20	2.48	2.71
	1400	1.14	1.44	1.68	0.74	1.83	1.83
	1600	0.77	1.11	1.29	0.49	1.22	1.22
	1800	0.55	0.88	1.03	0.34	0.85	0.85
	2000	0.40	0.72	0.84	0.24	0.61	0.61
	2200	0.31	0.60	0.69	0.17	0.45	0.45
	2400	0.24	0.50	0.55	0.12	0.34	0.34
	2600	0.19	0.43	0.44	0.09	0.26	0.26
0.70	1000	3.59	3.28	3.83	2.44	3.47	3.80
	1200	2.09	2.29	2.67	1.40	2.89	3.16
	1400	1.33	1.69	1.96	0.87	2.14	2.14
	1600	0.90	1.30	1.51	0.57	1.42	1.42
	1800	0.64	1.03	1.20	0.39	0.99	0.99
	2000	0.47	0.84	0.97	0.28	0.71	0.71
	2200	0.36	0.70	0.81	0.20	0.53	0.53
	2400	0.28	0.59	0.65	0.15	0.40	0.40
	2600	0.23	0.51	0.51	0.11	0.31	0.31
0.80	1000	4.11	3.75	4.38	2.79	3.97	4.35
	1200	2.39	2.61	3.05	1.60	3.30	3.62
	1400	1.51	1.93	2.25	0.99	2.44	2.44
	1600	1.02	1.48	1.73	0.65	1.63	1.63
	1800	0.73	1.18	1.37	0.45	1.13	1.13
	2000	0.54	0.96	1.11	0.32	0.81	0.81
	2200	0.41	0.80	0.93	0.23	0.60	0.60
	2400	0.32	0.67	0.74	0.17	0.45	0.45
	2600	0.26	0.58	0.59	0.12	0.35	0.35
0.90	1000	4.62	4.22	4.92	3.14	4.47	4.89
	1200	2.69	2.94	3.43	1.80	3.72	4.07
	1400	1.70	2.17	2.53	1.12	2.75	2.75
	1600	1.15	1.67	1.94	0.73	1.83	1.83
	1800	0.82	1.32	1.54	0.50	1.27	1.27
	2000	0.60	1.08	1.25	0.35	0.92	0.92
	2200	0.46	0.90	1.04	0.26	0.68	0.68
	2400	0.36	0.76	0.83	0.19	0.51	0.51
	2600	0.29	0.65	0.66	0.14	0.39	0.39
1.00	1000	5.14	4.69	5.47	3.49	4.96	5.43
	1200	2.99	3.26	3.81	2.00	4.13	4.52
	1400	1.89	2.41	2.81	1.24	3.06	3.06
	1600	1.28	1.85	2.16	0.82	2.03	2.03
	1800	0.91	1.47	1.71	0.56	1.41	1.41
	2000	0.67	1.20	1.39	0.39	1.02	1.02
	2200	0.51	1.00	1.16	0.28	0.75	0.75
	2400	0.40	0.84	0.92	0.21	0.57	0.57
	2600	0.32	0.72	0.73	0.15	0.44	0.44

Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

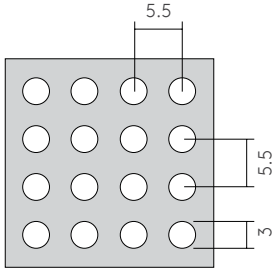
System Components
Profiled Liner – 45/250

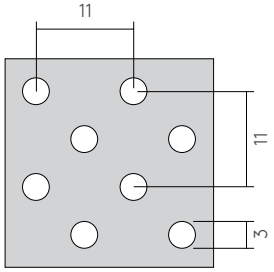
The 45/250 profile liner is typically used for industrial applications as part of a single or twin skin roof or wall cladding solution. The profile can be laid vertically, horizontally or diagonally.



Product Specification

Materials:	Steel: S220GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating. Aluminium: AA3105 alloy to ASTM B209
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	See table
Perforation:	The below perforation options are available: Pan: ✓ Web: ✓ Pan+Web: ✓ Complete Surface: ✓





Dimensions and Weight

Substrate Thickness (mm)		0.50	0.60	0.70	0.80	0.90	1.00	1.20
Weight (kg/m²)	– Steel	4.88	5.86	6.83	7.81	8.78	9.76	–
	– Aluminium	1.70	2.04	2.38	2.72	3.06	3.40	4.08

Convex Curving

Type	Material	Perforation	Min Radius (mm)
Crimped curved	Steel and aluminium	Non-perforated and perforated	500

Load Span – Profiled Liner 45/250

Steel at 220 MPa Yield Strength

Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	5.99	4.33	5.05	5.99	4.97	5.44
	1200	4.17	3.02	3.52	3.78	4.13	4.52
	1400	3.08	2.23	2.60	2.36	3.53	3.87
	1600	2.29	1.72	2.00	1.56	3.08	3.38
	1800	1.62	1.37	1.59	1.07	2.53	2.68
	2000	1.20	1.12	1.30	0.76	1.93	1.93
	2200	0.91	0.93	1.08	0.56	1.44	1.44
	2400	0.71	0.79	0.92	0.41	1.09	1.09
	2600	0.57	0.68	0.79	0.31	0.84	0.84
0.60	1000	7.19	5.20	6.06	7.19	5.96	6.53
	1200	5.01	3.63	4.23	4.54	4.96	5.43
	1400	3.69	2.68	3.12	2.83	4.24	4.64
	1600	2.75	2.07	2.40	1.87	3.70	4.05
	1800	1.95	1.64	1.91	1.29	3.03	3.21
	2000	1.44	1.34	1.56	0.92	2.32	2.32
	2200	1.09	1.12	1.30	0.67	1.72	1.72
	2400	0.86	0.95	1.10	0.50	1.31	1.31
	2600	0.69	0.82	0.95	0.37	1.01	1.01
0.70	1000	8.38	6.07	7.08	8.39	6.96	7.62
	1200	5.84	4.23	4.93	5.29	5.78	6.33
	1400	4.31	3.13	3.64	3.30	4.94	5.41
	1600	3.21	2.41	2.80	2.18	4.31	4.73
	1800	2.27	1.92	2.23	1.50	3.54	3.75
	2000	1.68	1.57	1.82	1.07	2.71	2.71
	2200	1.28	1.31	1.51	0.78	2.01	2.01
	2400	1.00	1.11	1.28	0.58	1.53	1.53
	2600	0.80	0.95	1.10	0.44	1.18	1.18
0.80	1000	9.58	6.93	8.09	9.59	7.95	8.71
	1200	6.68	4.84	5.64	6.05	6.61	7.24
	1400	4.93	3.57	4.16	3.77	5.65	6.19
	1600	3.67	2.75	3.21	2.49	4.93	5.40
	1800	2.60	2.19	2.55	1.72	4.04	4.29
	2000	1.92	1.79	2.08	1.22	3.10	3.10
	2200	1.46	1.49	1.73	0.89	2.30	2.30
	2400	1.14	1.27	1.47	0.66	1.75	1.75
	2600	0.91	1.09	1.26	0.50	1.35	1.35
0.90	1000	10.78	7.80	9.10	10.79	8.95	9.80
	1200	7.51	5.44	6.34	6.80	7.44	8.14
	1400	5.54	4.02	4.68	4.24	6.36	6.96
	1600	4.13	3.10	3.61	2.80	5.55	6.08
	1800	2.92	2.47	2.87	1.93	4.55	4.82
	2000	2.15	2.01	2.34	1.38	3.48	3.48
	2200	1.64	1.68	1.95	1.00	2.59	2.59
	2400	1.28	1.43	1.65	0.74	1.96	1.96
	2600	1.03	1.23	1.42	0.56	1.52	1.52
1.00	1000	11.98	8.67	10.11	11.99	9.94	10.88
	1200	8.35	6.05	7.05	7.56	8.26	9.05
	1400	6.16	4.47	5.20	4.71	7.06	7.74
	1600	4.58	3.44	4.01	3.11	6.16	6.75
	1800	3.25	2.74	3.19	2.15	5.05	5.36
	2000	2.39	2.24	2.60	1.53	3.87	3.87
	2200	1.82	1.87	2.16	1.11	2.87	2.87
	2400	1.43	1.58	1.83	0.83	2.18	2.18
	2600	1.14	1.36	1.58	0.62	1.69	1.69

Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

Load Span – Profiled Liner 45/250

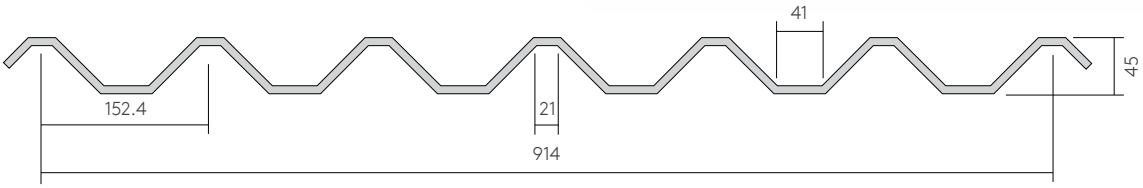
Aluminium at 130 MPa Yield Strength

Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	3.16	2.55	2.97	2.25	2.24	2.45
	1200	1.83	1.77	2.07	1.29	1.86	2.04
	1400	1.16	1.31	1.53	0.80	1.59	1.74
	1600	0.78	1.01	1.17	0.53	1.31	1.31
	1800	0.55	0.80	0.93	0.37	0.91	0.91
	2000	0.41	0.65	0.76	0.26	0.66	0.66
	2200	0.31	0.54	0.63	0.19	0.49	0.49
	2400	0.24	0.46	0.53	0.14	0.37	0.37
	2600	0.20	0.39	0.45	0.11	0.29	0.29
0.60	1000	3.79	3.06	3.57	2.70	2.69	2.94
	1200	2.20	2.13	2.48	1.55	2.23	2.45
	1400	1.39	1.57	1.83	0.96	1.91	2.09
	1600	0.94	1.21	1.41	0.64	1.57	1.57
	1800	0.67	0.96	1.12	0.44	1.10	1.10
	2000	0.49	0.78	0.91	0.31	0.79	0.79
	2200	0.37	0.65	0.75	0.23	0.59	0.59
	2400	0.29	0.55	0.64	0.17	0.45	0.45
	2600	0.23	0.47	0.54	0.13	0.35	0.35
0.70	1000	4.42	3.57	4.16	3.15	3.14	3.43
	1200	2.57	2.48	2.90	1.81	2.61	2.85
	1400	1.62	1.83	2.14	1.13	2.23	2.44
	1600	1.10	1.41	1.64	0.74	1.84	1.84
	1800	0.78	1.12	1.30	0.51	1.28	1.28
	2000	0.57	0.91	1.06	0.36	0.92	0.92
	2200	0.44	0.76	0.88	0.27	0.69	0.69
	2400	0.34	0.64	0.74	0.20	0.52	0.52
	2600	0.27	0.55	0.63	0.15	0.40	0.40
0.80	1000	5.05	4.08	4.76	3.59	3.58	3.92
	1200	2.93	2.84	3.31	2.06	2.98	3.26
	1400	1.86	2.09	2.44	1.29	2.55	2.79
	1600	1.25	1.61	1.88	0.85	2.10	2.10
	1800	0.89	1.28	1.49	0.59	1.46	1.46
	2000	0.65	1.04	1.21	0.42	1.06	1.06
	2200	0.50	0.86	1.00	0.30	0.78	0.78
	2400	0.39	0.73	0.85	0.23	0.60	0.60
	2600	0.31	0.63	0.71	0.17	0.46	0.46
0.90	1000	5.68	4.59	5.35	4.04	4.03	4.41
	1200	3.30	3.19	3.73	2.32	3.35	3.67
	1400	2.09	2.36	2.75	1.45	2.87	3.14
	1600	1.41	1.81	2.11	0.96	2.36	2.36
	1800	1.00	1.44	1.67	0.66	1.65	1.65
	2000	0.74	1.17	1.36	0.47	1.19	1.19
	2200	0.56	0.97	1.13	0.34	0.88	0.88
	2400	0.44	0.82	0.95	0.25	0.67	0.67
	2600	0.35	0.70	0.80	0.19	0.52	0.52
1.00	1000	6.31	5.10	5.95	4.49	4.48	4.90
	1200	3.67	3.55	4.14	2.58	3.72	4.08
	1400	2.32	2.62	3.05	1.61	3.19	3.49
	1600	1.57	2.01	2.34	1.06	2.62	2.62
	1800	1.11	1.60	1.86	0.73	1.83	1.83
	2000	0.82	1.30	1.51	0.52	1.32	1.32
	2200	0.62	1.08	1.26	0.38	0.98	0.98
	2400	0.49	0.91	1.06	0.28	0.74	0.74
	2600	0.39	0.78	0.89	0.21	0.58	0.58

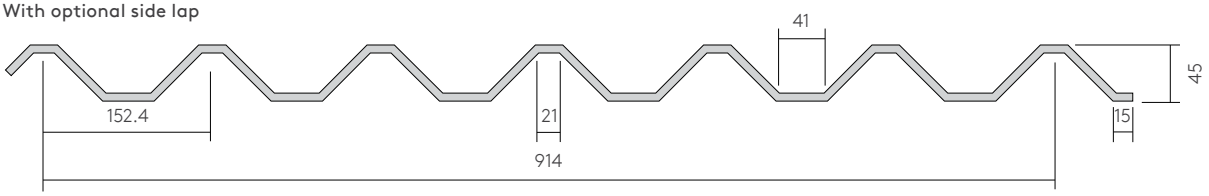
Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

System Components
Profiled Liner – WB6

The WB6 profile liner is typically used for industrial applications as part of a single or twin skin roof or wall cladding solution. The profile can be laid vertically, horizontally or diagonally.

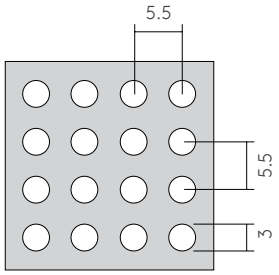


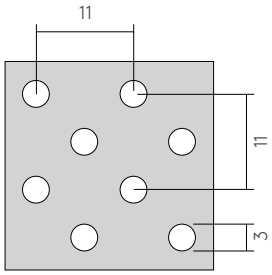
With optional side lap



Product Specification

Materials:	Steel – S220GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating. Aluminium – AA3105 alloy to ASTM B209
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero. For further information, please contact Kingspan Technical Department
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	See table
Perforation:	The below perforation options are available: Pan: ✓ Web: ✓ Pan+Web: ✓ Complete Surface: ✓





Dimensions and Weight

Substrate Thickness (mm)		0.50	0.60	0.70	0.80	0.90	1.00
Weight (kg/m²)	– Steel	4.63	5.55	6.48	7.40	8.33	9.25
	– Aluminium	1.61	1.93	2.26	2.58	2.90	3.22

Convex Curving

Type	Material	Perforation	Min Radius (mm)
Crimped curved	Steel and aluminium	Non-perforated	600
		Perforated	1000

Load Span – Profiled Liner WB6

Steel at 220 MPa Yield Strength

Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	4.58	5.92	6.91	7.37	3.35	3.67
	1200	3.20	4.12	4.81	4.24	2.78	3.05
	1400	2.36	3.04	3.55	2.64	2.37	2.60
	1600	1.82	2.34	2.73	1.75	2.07	2.27
	1800	1.45	1.86	2.16	1.21	1.83	2.01
	2000	1.18	1.51	1.76	0.86	1.54	1.80
	2200	0.93	1.26	1.46	0.63	1.26	1.48
	2400	0.73	1.07	1.24	0.47	1.05	1.23
	2600	0.58	0.92	1.06	0.36	0.88	0.95
0.60	1000	5.50	7.10	8.29	8.85	4.02	4.40
	1200	3.84	4.95	5.77	5.09	3.34	3.66
	1400	2.83	3.65	4.26	3.17	2.85	3.12
	1600	2.18	2.81	3.27	2.10	2.48	2.72
	1800	1.74	2.23	2.60	1.45	2.20	2.41
	2000	1.42	1.82	2.11	1.04	1.85	2.16
	2200	1.12	1.51	1.76	0.76	1.51	1.78
	2400	0.88	1.28	1.49	0.57	1.26	1.48
	2600	0.70	1.10	1.27	0.43	1.06	1.14
0.70	1000	6.42	8.28	9.67	10.32	4.69	5.14
	1200	4.48	5.77	6.73	5.93	3.89	4.27
	1400	3.31	4.26	4.96	3.70	3.32	3.64
	1600	2.55	3.28	3.82	2.45	2.90	3.18
	1800	2.03	2.60	3.03	1.69	2.56	2.81
	2000	1.65	2.12	2.47	1.21	2.15	2.52
	2200	1.31	1.76	2.05	0.89	1.76	2.08
	2400	1.02	1.49	1.73	0.66	1.47	1.72
	2600	0.82	1.28	1.49	0.50	1.24	1.33
0.80	1000	7.33	9.47	11.05	11.79	5.36	5.87
	1200	5.12	6.60	7.70	6.78	4.45	4.88
	1400	3.78	4.87	5.67	4.23	3.80	4.16
	1600	2.91	3.74	4.36	2.80	3.31	3.63
	1800	2.32	2.97	3.46	1.94	2.93	3.22
	2000	1.89	2.42	2.82	1.38	2.46	2.88
	2200	1.50	2.02	2.34	1.01	2.02	2.37
	2400	1.17	1.71	1.98	0.76	1.68	1.97
	2600	0.94	1.46	1.70	0.57	1.41	1.53
0.90	1000	8.25	10.65	12.43	13.27	6.03	6.61
	1200	5.75	7.42	8.66	7.63	5.00	5.48
	1400	4.25	5.48	6.38	4.76	4.27	4.68
	1600	3.27	4.21	4.91	3.15	3.72	4.08
	1800	2.60	3.35	3.89	2.18	3.30	3.62
	2000	2.13	2.73	3.17	1.55	2.77	3.24
	2200	1.68	2.27	2.64	1.14	2.27	2.67
	2400	1.32	1.92	2.23	0.85	1.89	2.21
	2600	1.05	1.65	1.91	0.64	1.59	1.72
1.00	1000	9.17	11.84	13.81	14.74	6.70	7.34
	1200	6.39	8.25	9.62	8.48	5.56	6.09
	1400	4.72	6.08	7.09	5.29	4.75	5.20
	1600	3.64	4.68	5.45	3.50	4.14	4.54
	1800	2.89	3.72	4.33	2.42	3.66	4.02
	2000	2.36	3.03	3.52	1.73	3.08	3.60
	2200	1.87	2.52	2.93	1.27	2.52	2.96
	2400	1.46	2.13	2.48	0.94	2.10	2.46
	2600	1.17	1.83	2.12	0.71	1.77	1.91

Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

Load Span – Profiled Liner WB6

Aluminium at 130 MPa Yield Strength

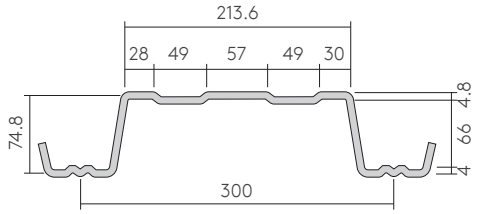
Profile Thickness (mm)	Span (m)	Wind Suction Load (KN/m²)			Imposed Load (KN/m²)		
		Single	Double	Multiple	Single	Double	Multiple
0.50	1000	2.70	3.49	4.07	2.52	1.51	1.65
	1200	1.88	2.43	2.83	1.45	1.26	1.37
	1400	1.19	1.79	2.08	0.90	1.07	1.18
	1600	0.80	1.37	1.60	0.60	0.94	1.03
	1800	0.57	1.09	1.27	0.41	0.83	0.91
	2000	0.42	0.88	0.99	0.29	0.74	0.74
	2200	0.32	0.73	0.75	0.22	0.55	0.55
	2400	0.25	0.58	0.58	0.16	0.42	0.42
	2600	0.20	0.46	0.46	0.12	0.32	0.32
0.60	1000	3.24	4.18	4.88	3.02	1.81	1.99
	1200	2.25	2.91	3.40	1.74	1.51	1.65
	1400	1.43	2.14	2.50	1.08	1.29	1.41
	1600	0.97	1.65	1.92	0.72	1.12	1.23
	1800	0.68	1.30	1.52	0.49	0.99	1.09
	2000	0.50	1.06	1.19	0.35	0.89	0.89
	2200	0.38	0.88	0.90	0.26	0.66	0.66
	2400	0.30	0.70	0.70	0.19	0.50	0.50
	2600	0.24	0.55	0.55	0.15	0.39	0.39
0.70	1000	3.78	4.88	5.70	3.52	2.12	2.32
	1200	2.63	3.40	3.96	2.02	1.76	1.92
	1400	1.67	2.50	2.92	1.26	1.50	1.65
	1600	1.13	1.92	2.24	0.84	1.31	1.44
	1800	0.80	1.52	1.77	0.58	1.16	1.27
	2000	0.59	1.24	1.38	0.41	1.04	1.04
	2200	0.45	1.03	1.05	0.30	0.77	0.77
	2400	0.35	0.81	0.81	0.22	0.59	0.59
	2600	0.28	0.64	0.64	0.17	0.45	0.45
0.80	1000	4.32	5.58	6.51	4.03	2.42	2.65
	1200	3.00	3.88	4.53	2.31	2.01	2.20
	1400	1.91	2.86	3.33	1.44	1.72	1.88
	1600	1.29	2.19	2.56	0.95	1.50	1.64
	1800	0.91	1.74	2.03	0.66	1.33	1.45
	2000	0.67	1.41	1.58	0.47	1.19	1.19
	2200	0.51	1.17	1.20	0.34	0.88	0.88
	2400	0.40	0.93	0.93	0.26	0.67	0.67
	2600	0.32	0.73	0.73	0.19	0.52	0.52
0.90	1000	4.85	6.27	7.32	4.53	2.72	2.98
	1200	3.38	4.37	5.10	2.60	2.26	2.47
	1400	2.15	3.22	3.75	1.62	1.93	2.12
	1600	1.45	2.47	2.88	1.07	1.68	1.85
	1800	1.03	1.96	2.28	0.74	1.49	1.64
	2000	0.76	1.59	1.78	0.53	1.33	1.33
	2200	0.58	1.32	1.34	0.39	0.99	0.99
	2400	0.45	1.04	1.04	0.29	0.75	0.75
	2600	0.36	0.83	0.83	0.22	0.58	0.58
1.00	1000	5.39	6.97	8.14	5.03	3.02	3.31
	1200	3.76	4.85	5.66	2.89	2.51	2.75
	1400	2.39	3.57	4.17	1.80	2.15	2.35
	1600	1.61	2.74	3.20	1.19	1.87	2.05
	1800	1.14	2.17	2.53	0.82	1.66	1.82
	2000	0.84	1.77	1.98	0.59	1.48	1.48
	2200	0.64	1.47	1.49	0.43	1.10	1.10
	2400	0.50	1.16	1.16	0.32	0.84	0.84
	2600	0.40	0.92	0.92	0.24	0.65	0.65

Notes:
1. Deflection limits are L/180 for wind suction loads and L/240 for imposed loads.
2. The values in this load-span table consider load factors of 1.40 for dead load and 1.60 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load-span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load-span table.

System Components
Structural Deck – RD 75/300

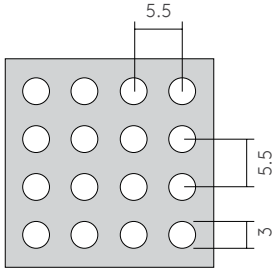
The RD 75/300 structural deck can be manufactured in a variety of gauges and finishes to suit individual applications.

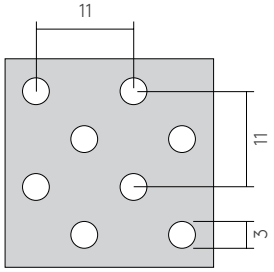
RD 75/300 is easy to handle and is flexible in its use due to its narrow cover width and is very strong in its constructed state.



Product Specification

Materials:	Steel: S350GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero. FM 4451 and FM 4471 approved
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	See table
Perforation:	The below perforation option is available: Pan: – Web: ✓ Pan+Web: – Complete Surface: –





Dimensions and Weight

Substrate Thickness (mm)	0.70	0.80	0.90	1.00	1.20	1.50
Weight (kg/m²) – Steel	9.73	11.12	12.51	13.90	16.68	20.85

Convex Curving

Type	Material	Perforation	Min Radius (mm)
Smooth curved	Steel and aluminium	Non-perforated and perforated	16,000*

* Mill finish only.

Load Span – Structural Deck RD 75/300

Steel at 350 MPa Yield Strength – Wind Suction Load (KN/m²)

Profile Thickness (mm)	Span (mm)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.70	3000	3.08	2.34	1.89	1.59	1.85	1.85	1.85	1.85	2.01	2.01	2.01	2.01
	3250	2.45	1.86	1.51	1.27	1.71	1.71	1.71	1.71	1.87	1.87	1.87	1.87
	3500	1.98	1.51	1.23	1.04	1.60	1.60	1.60	1.60	1.74	1.74	1.74	1.74
	3750	1.63	1.24	1.01	0.86	1.50	1.50	1.50	1.50	1.63	1.63	1.63	1.63
	4000	1.36	1.04	0.85	–	1.41	1.41	1.41	1.41	1.53	1.53	1.53	1.53
	4250	1.15	0.89	–	–	1.33	1.33	1.33	1.33	1.45	1.45	1.45	1.36
	4500	0.98	–	–	–	1.26	1.26	1.26	1.16	1.37	1.37	1.37	1.16
	4750	0.85	–	–	–	1.20	1.20	1.18	1.00	1.31	1.31	1.18	1.00
	5000	–	–	–	–	1.15	1.15	1.03	0.87	1.25	1.25	1.03	0.87
0.80	3000	3.52	2.67	2.16	1.82	2.11	2.11	2.11	2.11	2.30	2.30	2.30	2.30
	3250	2.79	2.12	1.72	1.45	1.96	1.96	1.96	1.96	2.13	2.13	2.13	2.13
	3500	2.26	1.72	1.40	1.19	1.83	1.83	1.83	1.83	1.99	1.99	1.99	1.99
	3750	1.86	1.42	1.16	0.98	1.71	1.71	1.71	1.71	1.86	1.86	1.86	1.86
	4000	1.55	1.19	0.98	–	1.61	1.61	1.61	1.61	1.75	1.75	1.75	1.75
	4250	1.31	1.01	–	–	1.52	1.52	1.52	1.52	1.66	1.66	1.66	1.56
	4500	1.12	0.87	–	–	1.45	1.45	1.45	1.33	1.57	1.57	1.57	1.33
	4750	0.97	–	–	–	1.38	1.38	1.35	1.15	1.49	1.49	1.35	1.15
	5000	0.85	–	–	–	1.31	1.31	1.18	1.00	1.42	1.42	1.18	1.00
0.90	3000	3.96	3.00	2.43	2.04	2.38	2.38	2.38	2.38	2.59	2.59	2.59	2.59
	3250	3.14	2.39	1.94	1.63	2.20	2.20	2.20	2.20	2.40	2.40	2.40	2.40
	3500	2.54	1.94	1.58	1.33	2.06	2.06	2.06	2.06	2.24	2.24	2.24	2.24
	3750	2.09	1.60	1.30	1.11	1.93	1.93	1.93	1.93	2.10	2.10	2.10	2.10
	4000	1.74	1.34	1.10	0.94	1.81	1.81	1.81	1.81	1.97	1.97	1.97	1.97
	4250	1.48	1.14	0.94	–	1.71	1.71	1.71	1.71	1.86	1.86	1.86	1.75
	4500	1.26	0.98	–	–	1.63	1.63	1.63	1.50	1.77	1.77	1.77	1.50
	4750	1.09	0.85	–	–	1.55	1.55	1.52	1.29	1.68	1.68	1.52	1.29
	5000	0.95	–	–	–	1.48	1.48	1.32	1.12	1.60	1.60	1.32	1.12
1.00	3000	4.40	3.34	2.70	2.27	2.64	2.64	2.64	2.64	2.88	2.88	2.88	2.88
	3250	3.49	2.66	2.15	1.82	2.45	2.45	2.45	2.45	2.66	2.66	2.66	2.66
	3500	2.83	2.15	1.75	1.48	2.28	2.28	2.28	2.28	2.48	2.48	2.48	2.48
	3750	2.32	1.78	1.45	1.23	2.14	2.14	2.14	2.14	2.33	2.33	2.33	2.33
	4000	1.94	1.49	1.22	1.04	2.02	2.02	2.02	2.02	2.19	2.19	2.19	2.19
	4250	1.64	1.26	1.04	0.89	1.91	1.91	1.91	1.91	2.07	2.07	2.07	1.95
	4500	1.40	1.09	0.90	–	1.81	1.81	1.81	1.66	1.96	1.96	1.96	1.66
	4750	1.21	0.95	–	–	1.72	1.72	1.69	1.43	1.87	1.87	1.69	1.43
	5000	1.06	–	–	–	1.64	1.64	1.47	1.25	1.78	1.78	1.47	1.25
1.20	3000	5.28	4.01	3.24	2.73	3.17	3.17	3.17	3.17	3.45	3.45	3.45	3.45
	3250	4.19	3.19	2.58	2.18	2.94	2.94	2.94	2.94	3.20	3.20	3.20	3.20
	3500	3.39	2.58	2.10	1.78	2.74	2.74	2.74	2.74	2.98	2.98	2.98	2.98
	3750	2.79	2.13	1.74	1.48	2.57	2.57	2.57	2.57	2.79	2.79	2.79	2.79
	4000	2.33	1.79	1.46	1.25	2.42	2.42	2.42	2.42	2.63	2.63	2.63	2.63
	4250	1.97	1.52	1.25	1.07	2.29	2.29	2.29	2.29	2.48	2.48	2.48	2.34
	4500	1.68	1.30	1.08	0.93	2.17	2.17	2.17	1.99	2.36	2.36	2.36	1.99
	4750	1.46	1.13	0.94	–	2.06	2.06	2.03	1.72	2.24	2.24	2.03	1.72
	5000	1.27	1.00	–	–	1.97	1.97	1.76	1.50	2.14	2.14	1.76	1.50
1.50	3000	6.61	5.01	4.05	3.41	3.96	3.96	3.96	3.96	4.31	4.31	4.31	4.31
	3250	5.24	3.98	3.23	2.72	3.67	3.67	3.67	3.67	4.00	4.00	4.00	4.00
	3500	4.24	3.23	2.63	2.22	3.43	3.43	3.43	3.43	3.73	3.73	3.73	3.73
	3750	3.48	2.67	2.17	1.85	3.21	3.21	3.21	3.21	3.49	3.49	3.49	3.49
	4000	2.91	2.23	1.83	1.56	3.02	3.02	3.02	3.02	3.29	3.29	3.29	3.29
	4250	2.46	1.90	1.56	1.33	2.86	2.86	2.86	2.86	3.11	3.11	3.11	2.92
	4500	2.10	1.63	1.35	1.16	2.71	2.71	2.71	2.49	2.94	2.94	2.94	2.49
	4750	1.82	1.42	1.18	1.01	2.58	2.58	2.54	2.15	2.80	2.80	2.54	2.15
	5000	1.59	1.25	1.04	0.90	2.46	2.46	2.21	1.87	2.67	2.67	2.21	1.87

Notes:
1. Deflection limits as shown on the table above.
2. The values in this load–span table consider load factors of 1.50 for dead load and 1.50 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load span table.

Load Span – Structural Deck RD 75/300

Steel at 350 MPa Yield Strength – Imposed Load (KN/m²)

Profile Thickness (mm)	Span (mm)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.70	3000	2.95	2.17	1.71	1.40	2.95	2.95	2.95	2.95	3.53	3.53	3.53	3.53
	3250	2.29	1.68	1.31	1.07	2.71	2.71	2.71	2.71	3.24	3.24	3.24	2.78
	3500	1.80	1.31	1.02	–	2.51	2.51	2.51	2.20	3.00	3.00	2.67	2.20
	3750	1.44	1.04	–	–	2.33	2.33	2.14	1.76	2.79	2.71	2.14	1.76
	4000	1.16	–	–	–	2.18	2.18	1.74	1.42	2.61	2.21	1.74	1.42
	4250	0.94	–	–	–	2.04	1.82	1.43	1.16	2.45	1.82	1.43	1.16
	4500	–	–	–	–	1.92	1.51	1.18	0.96	2.06	1.51	1.18	0.96
	4750	–	–	–	–	1.73	1.26	0.98	–	1.73	1.26	0.98	–
	5000	–	–	–	–	1.46	1.06	–	–	1.46	1.06	–	–
0.80	3000	3.37	2.48	1.95	1.60	3.37	3.37	3.37	3.37	4.03	4.03	4.03	4.03
	3250	2.61	1.92	1.50	1.22	3.10	3.10	3.10	3.10	3.71	3.71	3.71	3.18
	3500	2.06	1.50	1.17	0.95	2.87	2.87	2.87	2.51	3.43	3.43	3.05	2.51
	3750	1.64	1.19	0.92	–	2.66	2.66	2.45	2.01	3.19	3.10	2.45	2.01
	4000	1.32	0.95	–	–	2.49	2.49	1.99	1.63	2.98	2.53	1.99	1.63
	4250	1.08	–	–	–	2.33	2.08	1.63	1.33	2.79	2.08	1.63	1.33
	4500	0.88	–	–	–	2.19	1.72	1.35	1.09	2.35	1.72	1.35	1.09
	4750	–	–	–	–	1.98	1.44	1.12	0.90	1.98	1.44	1.12	0.90
	5000	–	–	–	–	1.67	1.21	0.94	–	1.67	1.21	0.94	–
0.90	3000	3.79	2.79	2.20	1.80	3.79	3.79	3.79	3.79	4.53	4.53	4.53	4.53
	3250	2.94	2.16	1.69	1.38	3.49	3.49	3.49	3.49	4.17	4.17	4.17	3.58
	3500	2.31	1.69	1.31	1.06	3.22	3.22	3.22	2.83	3.86	3.86	3.43	2.83
	3750	1.85	1.34	1.03	–	3.00	3.00	2.75	2.26	3.59	3.49	2.75	2.26
	4000	1.49	1.07	–	–	2.80	2.80	2.24	1.83	3.35	2.84	2.24	1.83
	4250	1.21	0.86	–	–	2.62	2.34	1.83	1.50	3.14	2.34	1.83	1.50
	4500	0.99	–	–	–	2.47	1.94	1.51	1.23	2.65	1.94	1.51	1.23
	4750	–	–	–	–	2.22	1.62	1.26	1.02	2.22	1.62	1.26	1.02
	5000	–	–	–	–	1.88	1.36	1.05	0.85	1.88	1.36	1.05	0.85
1.00	3000	4.21	3.10	2.44	2.00	4.21	4.21	4.21	4.21	5.04	5.04	5.04	5.04
	3250	3.26	2.40	1.88	1.53	3.87	3.87	3.87	3.87	4.63	4.63	4.63	3.97
	3500	2.57	1.88	1.46	1.18	3.58	3.58	3.58	3.14	4.29	4.29	3.81	3.14
	3750	2.05	1.49	1.15	0.92	3.33	3.33	3.06	2.51	3.99	3.88	3.06	2.51
	4000	1.65	1.19	0.91	–	3.11	3.11	2.48	2.04	3.72	3.16	2.48	2.04
	4250	1.34	0.96	–	–	2.91	2.60	2.04	1.66	3.49	2.60	2.04	1.66
	4500	1.10	–	–	–	2.74	2.16	1.68	1.37	2.94	2.16	1.68	1.37
	4750	0.90	–	–	–	2.47	1.80	1.40	1.13	2.47	1.80	1.40	1.13
	5000	–	–	–	–	2.09	1.51	1.17	0.94	2.09	1.51	1.17	0.94
1.20	3000	5.05	3.72	2.93	2.40	5.06	5.06	5.06	5.06	6.04	6.04	6.04	6.04
	3250	3.92	2.88	2.25	1.83	4.65	4.65	4.65	4.65	5.56	5.56	5.56	4.77
	3500	3.09	2.25	1.75	1.42	4.30	4.30	4.30	3.77	5.14	5.14	4.57	3.77
	3750	2.46	1.78	1.38	1.11	3.99	3.99	3.67	3.02	4.78	4.65	3.67	3.02
	4000	1.98	1.43	1.09	0.87	3.73	3.73	2.98	2.44	4.47	3.79	2.98	2.44
	4250	1.61	1.15	0.87	–	3.50	3.12	2.44	1.99	4.19	3.12	2.44	1.99
	4500	1.32	0.93	–	–	3.29	2.59	2.02	1.64	3.53	2.59	2.02	1.64
	4750	1.08	–	–	–	2.97	2.16	1.68	1.36	2.97	2.16	1.68	1.36
	5000	0.89	–	–	–	2.51	1.82	1.40	1.13	2.51	1.82	1.40	1.13
1.50	3000	6.31	4.66	3.66	3.00	6.32	6.32	6.32	6.32	7.55	7.55	7.55	7.55
	3250	4.90	3.59	2.81	2.29	5.81	5.81	5.81	5.81	6.95	6.95	6.95	5.96
	3500	3.86	2.82	2.19	1.77	5.37	5.37	5.37	4.71	6.43	6.43	5.72	4.71
	3750	3.08	2.23	1.72	1.38	4.99	4.99	4.59	3.77	5.98	5.81	4.59	3.77
	4000	2.48	1.78	1.36	1.08	4.66	4.66	3.73	3.05	5.59	4.74	3.73	3.05
	4250	2.02	1.43	1.08	0.85	4.37	3.90	3.05	2.49	5.24	3.90	3.05	2.49
	4500	1.65	1.16	0.86	–	4.11	3.23	2.52	2.05	4.41	3.23	2.52	2.05
	4750	1.36	0.94	–	–	3.71	2.70	2.10	1.70	3.71	2.70	2.10	1.70
	5000	1.12	–	–	–	3.13	2.27	1.75	1.41	3.13	2.27	1.75	1.41

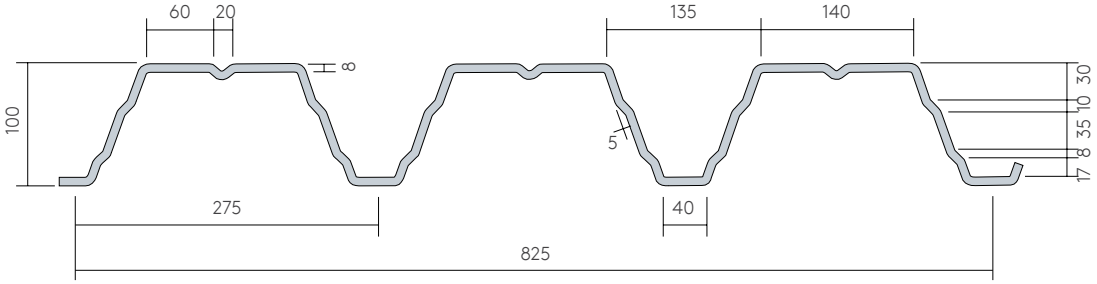
Notes:
1. Deflection limits as shown on the table above.
2. The values in this load–span table consider load factors of 1.50 for dead load and 1.50 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load span table.


Perth Stadium

System Components
Structural Deck – RD 100/825

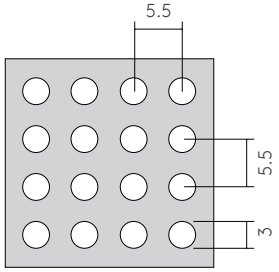
RD 100/825 structural deck offers greater spanning capabilities than traditional liner systems allowing designers to span greater distances between fixing centres and carry greater roof loads.

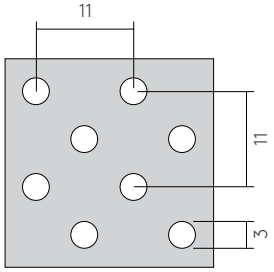
The unique profile design affords simple installation in single, double or multiple span applications.



Product Specification

Materials:	Steel: S350GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in steel carry a spread of flame and smoke index rating of zero. FM 4451 and FM 4471 approved
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	See table
Perforation:	The below perforation option is available: Pan: – Web: ✓ Pan+Web: – Complete Surface: –





Dimensions and Weight

Substrate Thickness (mm)	0.70	0.80	0.90	1.00	1.20	1.50
Weight (kg/m²) – Steel	8.32	9.50	10.69	11.88	14.25	17.82

Convex Curving

Type	Material	Perforation	Min Radius (mm)
Crimp curve	Steel	Non-perforated and perforated	6000

Load Span – Structural Deck RD 100/825

Steel at 350 MPa Yield Strength – Wind Suction Load (KN/m²)

Profile Thickness (mm)	Span (mm)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.70	4400	1.23	0.93	–	–	1.83	1.83	1.76	1.48	2.13	2.13	1.76	1.48
	4650	1.05	–	–	–	1.64	1.64	1.50	1.25	1.91	1.87	1.50	1.25
	4900	0.90	–	–	–	1.48	1.48	1.29	1.08	1.73	1.60	1.29	1.08
	5150	–	–	–	–	1.34	1.34	1.11	0.93	1.57	1.38	1.11	0.93
	5400	–	–	–	–	1.23	1.20	0.97	–	1.43	1.20	0.97	–
	5650	–	–	–	–	1.12	1.05	–	–	1.31	1.05	–	–
	5900	–	–	–	–	1.03	0.93	–	–	1.20	0.93	–	–
	6150	–	–	–	–	0.95	–	–	–	1.09	–	–	–
	6400	–	–	–	–	–	–	–	–	0.97	–	–	–
0.80	4400	1.41	1.06	0.86	–	2.09	2.09	2.02	1.69	2.44	2.44	2.02	1.69
	4650	1.20	0.91	–	–	1.88	1.88	1.71	1.43	2.19	2.13	1.71	1.43
	4900	1.03	–	–	–	1.69	1.69	1.47	1.23	1.97	1.83	1.47	1.23
	5150	0.89	–	–	–	1.54	1.54	1.27	1.06	1.79	1.58	1.27	1.06
	5400	–	–	–	–	1.40	1.37	1.11	0.93	1.63	1.37	1.11	0.93
	5650	–	–	–	–	1.28	1.20	0.97	–	1.49	1.20	0.97	–
	5900	–	–	–	–	1.18	1.06	–	–	1.37	1.06	–	–
	6150	–	–	–	–	1.09	0.94	–	–	1.24	0.94	–	–
	6400	–	–	–	–	1.01	–	–	–	1.11	–	–	–
0.90	4400	1.58	1.20	0.96	–	2.35	2.35	2.27	1.90	2.74	2.74	2.27	1.90
	4650	1.35	1.02	–	–	2.11	2.11	1.93	1.61	2.46	2.40	1.93	1.61
	4900	1.16	–	–	–	1.91	1.91	1.65	1.38	2.22	2.06	1.65	1.38
	5150	1.00	–	–	–	1.73	1.73	1.43	1.20	2.01	1.78	1.43	1.20
	5400	0.87	–	–	–	1.58	1.55	1.24	1.04	1.83	1.55	1.24	1.04
	5650	–	–	–	–	1.44	1.35	1.09	0.92	1.68	1.35	1.09	0.92
	5900	–	–	–	–	1.33	1.19	0.96	–	1.54	1.19	0.96	–
	6150	–	–	–	–	1.22	1.06	–	–	1.40	1.06	–	–
	6400	–	–	–	–	1.13	0.94	–	–	1.25	0.94	–	–
1.00	4400	1.76	1.33	1.07	0.90	2.62	2.62	2.52	2.11	3.05	3.05	2.52	2.11
	4650	1.49	1.13	0.91	–	2.35	2.35	2.14	1.79	2.73	2.67	2.14	1.79
	4900	1.28	0.97	–	–	2.12	2.12	1.84	1.54	2.47	2.29	1.84	1.54
	5150	1.11	–	–	–	1.92	1.92	1.59	1.33	2.24	1.97	1.59	1.33
	5400	0.97	–	–	–	1.75	1.72	1.38	1.16	2.04	1.72	1.38	1.16
	5650	0.85	–	–	–	1.60	1.51	1.21	1.02	1.87	1.51	1.21	1.02
	5900	–	–	–	–	1.47	1.33	1.07	0.90	1.71	1.33	1.07	0.90
	6150	–	–	–	–	1.36	1.18	0.95	–	1.55	1.18	0.95	–
	6400	–	–	–	–	1.26	1.05	–	–	1.38	1.05	–	–
1.20	4400	2.11	1.59	1.29	1.08	3.14	3.14	3.02	2.53	3.66	3.66	3.02	2.53
	4650	1.79	1.36	1.10	0.92	2.82	2.82	2.57	2.15	3.28	3.20	2.57	2.15
	4900	1.54	1.17	0.94	–	2.54	2.54	2.20	1.85	2.96	2.74	2.20	1.85
	5150	1.33	1.01	–	–	2.31	2.31	1.91	1.60	2.68	2.37	1.91	1.60
	5400	1.16	0.89	–	–	2.10	2.06	1.66	1.39	2.45	2.06	1.66	1.39
	5650	1.02	–	–	–	1.92	1.81	1.46	1.22	2.24	1.81	1.46	1.22
	5900	0.90	–	–	–	1.77	1.59	1.28	1.08	2.06	1.59	1.28	1.08
	6150	–	–	–	–	1.63	1.41	1.14	0.96	1.87	1.41	1.14	0.96
	6400	–	–	–	–	1.51	1.26	1.02	–	1.66	1.26	1.02	0.86
1.50	4400	2.64	1.99	1.61	1.35	3.92	3.92	3.78	3.16	4.57	4.57	3.78	3.16
	4650	2.24	1.70	1.37	1.15	3.52	3.52	3.21	2.69	4.10	4.00	3.21	2.69
	4900	1.93	1.46	1.18	0.99	3.18	3.18	2.75	2.31	3.70	3.43	2.75	2.31
	5150	1.67	1.27	1.03	–	2.88	2.88	2.38	2.00	3.36	2.96	2.38	2.00
	5400	1.45	1.11	0.90	–	2.63	2.58	2.07	1.74	3.06	2.58	2.07	1.74
	5650	1.28	0.97	–	–	2.40	2.26	1.82	1.53	2.80	2.26	1.82	1.53
	5900	1.13	–	–	–	2.21	1.99	1.61	1.35	2.57	1.99	1.61	1.35
	6150	1.01	–	–	–	2.04	1.77	1.42	1.20	2.33	1.77	1.42	1.20
	6400	0.90	–	–	–	1.89	1.57	1.27	1.07	2.08	1.57	1.27	1.07

Notes:
1. Deflection limits as shown on the table above.
2. The values in this load-span table consider load factors of 1.50 for dead load and 1.50 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load span table.

Load Span – Structural Deck RD 100/825

Steel at 350 MPa Yield Strength – Imposed Load (KN/m²)

Profile Thickness (mm)	Span (mm)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.70	4400	1.30	0.97	–	–	2.58	2.39	1.90	1.58	3.02	2.39	1.90	1.58
	4650	1.10	–	–	–	2.30	2.02	1.60	1.33	2.70	2.02	1.60	1.33
	4900	0.93	–	–	–	2.07	1.72	1.36	1.13	2.30	1.72	1.36	1.13
	5150	–	–	–	–	1.87	1.47	1.17	0.97	1.98	1.47	1.17	0.97
	5400	–	–	–	–	1.70	1.27	1.01	–	1.71	1.27	1.01	–
	5650	–	–	–	–	1.49	1.10	0.87	–	1.49	1.10	0.87	–
	5900	–	–	–	–	1.30	0.96	–	–	1.30	0.96	–	–
	6150	–	–	–	–	1.14	–	–	–	1.14	–	–	–
	6400	–	–	–	–	1.01	–	–	–	1.01	–	–	–
0.80	4400	1.49	1.10	0.87	–	2.95	2.73	2.17	1.80	3.45	2.73	2.17	1.80
	4650	1.25	0.93	–	–	2.63	2.30	1.83	1.52	3.08	2.30	1.83	1.52
	4900	1.06	–	–	–	2.36	1.96	1.56	1.29	2.63	1.96	1.56	1.29
	5150	0.91	–	–	–	2.14	1.68	1.34	1.10	2.26	1.68	1.34	1.10
	5400	–	–	–	–	1.94	1.45	1.15	0.95	1.95	1.45	1.15	0.95
	5650	–	–	–	–	1.70	1.26	1.00	–	1.70	1.26	1.00	–
	5900	–	–	–	–	1.49	1.10	0.87	–	1.49	1.10	0.87	–
	6150	–	–	–	–	1.31	0.97	–	–	1.31	0.97	–	–
	6400	–	–	–	–	1.15	–	–	–	1.15	–	–	–
0.90	4400	1.67	1.24	0.98	–	3.31	3.07	2.44	2.03	3.88	3.07	2.44	2.03
	4650	1.41	1.04	–	–	2.96	2.59	2.06	1.71	3.47	2.59	2.06	1.71
	4900	1.20	0.88	–	–	2.66	2.21	1.75	1.45	2.96	2.21	1.75	1.45
	5150	1.02	–	–	–	2.40	1.89	1.50	1.24	2.54	1.89	1.50	1.24
	5400	0.88	–	–	–	2.18	1.63	1.30	1.07	2.20	1.63	1.30	1.07
	5650	–	–	–	–	1.91	1.42	1.12	0.93	1.91	1.42	1.12	0.93
	5900	–	–	–	–	1.67	1.24	0.98	–	1.67	1.24	0.98	–
	6150	–	–	–	–	1.47	1.09	0.86	–	1.47	1.09	0.86	–
	6400	–	–	–	–	1.30	0.96	–	–	1.30	0.96	–	–
1.00	4400	1.86	1.38	1.09	0.90	3.68	3.41	2.72	2.25	4.31	3.41	2.72	2.25
	4650	1.57	1.16	0.91	–	3.29	2.88	2.29	1.90	3.85	2.88	2.29	1.90
	4900	1.33	0.98	–	–	2.96	2.45	1.95	1.61	3.29	2.45	1.95	1.61
	5150	1.14	–	–	–	2.67	2.10	1.67	1.38	2.83	2.10	1.67	1.38
	5400	0.98	–	–	–	2.42	1.82	1.44	1.19	2.44	1.82	1.44	1.19
	5650	–	–	–	–	2.12	1.58	1.25	1.03	2.12	1.58	1.25	1.03
	5900	–	–	–	–	1.86	1.38	1.09	0.90	1.86	1.38	1.09	0.90
	6150	–	–	–	–	1.63	1.21	0.95	–	1.63	1.21	0.95	–
	6400	–	–	–	–	1.44	1.07	–	–	1.44	1.07	–	–
1.20	4400	2.23	1.65	1.31	1.08	4.42	4.09	3.26	2.70	5.17	4.09	3.26	2.70
	4650	1.88	1.39	1.10	0.90	3.95	3.46	2.75	2.28	4.62	3.46	2.75	2.28
	4900	1.59	1.18	0.93	–	3.55	2.94	2.34	1.94	3.95	2.94	2.34	1.94
	5150	1.36	1.00	–	–	3.20	2.52	2.00	1.66	3.39	2.52	2.00	1.66
	5400	1.17	0.86	–	–	2.91	2.18	1.73	1.43	2.93	2.18	1.73	1.43
	5650	1.01	–	–	–	2.55	1.89	1.50	1.24	2.55	1.89	1.50	1.24
	5900	0.88	–	–	–	2.23	1.65	1.31	1.08	2.23	1.65	1.31	1.08
	6150	–	–	–	–	1.96	1.45	1.15	0.94	1.96	1.45	1.15	0.94
	6400	–	–	–	–	1.73	1.28	1.01	–	1.73	1.28	1.01	–
1.50	4400	2.79	2.07	1.64	1.35	5.52	5.12	4.07	3.38	6.47	5.12	4.07	3.38
	4650	2.35	1.74	1.37	1.13	4.93	4.32	3.44	2.85	5.78	4.32	3.44	2.85
	4900	1.99	1.47	1.16	0.95	4.43	3.68	2.92	2.42	4.94	3.68	2.92	2.42
	5150	1.70	1.25	0.98	–	4.01	3.15	2.50	2.07	4.24	3.15	2.50	2.07
	5400	1.47	1.08	–	–	3.63	2.72	2.16	1.78	3.66	2.72	2.16	1.78
	5650	1.27	0.93	–	–	3.19	2.37	1.87	1.55	3.19	2.37	1.87	1.55
	5900	1.10	–	–	–	2.79	2.07	1.63	1.35	2.79	2.07	1.63	1.35
	6150	0.96	–	–	–	2.45	1.81	1.43	1.18	2.45	1.81	1.43	1.18
	6400	–	–	–	–	2.16	1.60	1.26	1.03	2.16	1.60	1.26	1.03

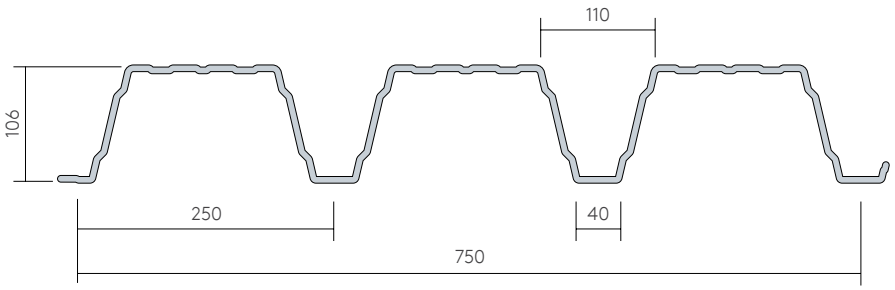
Notes:
1. Deflection limits as shown on the table above.
2. The values in this load–span table consider load factors of 1.50 for dead load and 1.50 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load span table.

System Components
Structural Deck – RD 106/750

RD 106/750 structural deck offers greater spanning capabilities than traditional liner systems.

Using a decking system as the primary covering of the roof allows designers to span greater distances between fixing centres and carry greater roof loads.

The unique profile design affords simple installation in single, double or indeed multiple span applications.

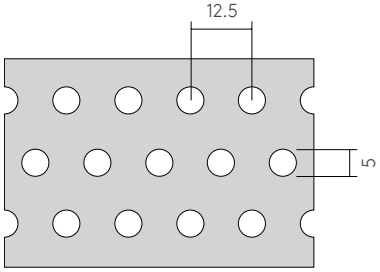


Product Specification

Materials:	Steel: S350GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating
Coatings:	Kingspan Polyester, Colorcoat HPS 200 Ultra
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) /0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	N/A
Perforation:	The below perforation option is available: Pan: – Web: ✓ Pan+Web: – Complete Surface: –

Dimensions and Weight

Substrate Thickness (mm)	0.75	0.88	1.00
Weight (kg/m²) – Steel	9.81	11.51	13.08



Load Span – Structural Deck RD 106/750

Steel at 350 MPa Yield Strength – Imposed Load (KN/m²)

Profile Thickness (mm)	Span (m)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.75	4.40	2.12	1.61	1.28	1.07	2.12	2.12	2.12	2.12	2.36	2.36	2.36	2.06
	4.60	1.87	1.40	1.12	–	1.94	1.94	1.94	1.94	2.19	2.19	2.16	1.80
	4.80	1.65	1.24	–	–	1.78	1.78	1.78	1.78	2.04	2.04	1.90	1.58
	5.00	1.46	1.09	–	–	1.64	1.64	1.64	1.64	1.90	1.90	1.68	1.40
	5.20	1.30	–	–	–	1.52	1.52	1.52	1.52	1.77	1.77	1.50	1.25
	5.40	1.16	–	–	–	1.41	1.41	1.41	1.41	1.66	1.66	1.34	1.11
	5.60	1.04	–	–	–	1.31	1.31	1.31	1.27	1.56	1.50	1.20	1.00
	5.80	–	–	–	–	1.22	1.22	1.22	1.14	1.47	1.35	1.08	–
	6.00	–	–	–	–	1.14	1.14	1.14	1.03	1.38	1.22	–	–
	6.20	–	–	–	–	1.07	1.07	1.07	–	1.30	1.10	–	–
	6.40	–	–	–	–	1.00	1.00	1.00	–	1.23	1.00	–	–
0.88	4.40	2.57	1.93	1.54	1.29	2.64	2.64	2.64	2.64	3.03	3.03	2.97	2.47
	4.60	2.25	1.69	1.35	1.12	2.42	2.42	2.42	2.42	2.80	2.80	2.60	2.16
	4.80	1.98	1.49	1.19	–	2.22	2.22	2.22	2.22	2.60	2.60	2.28	1.90
	5.00	1.75	1.31	1.05	–	2.05	2.05	2.05	2.05	2.42	2.42	2.02	1.68
	5.20	1.56	1.17	–	–	1.89	1.89	1.89	1.89	2.26	2.25	1.80	1.50
	5.40	1.39	1.04	–	–	1.76	1.76	1.76	1.70	2.12	2.01	1.60	1.34
	5.60	1.25	–	–	–	1.63	1.63	1.63	1.52	1.98	1.80	1.44	1.20
	5.80	1.12	–	–	–	1.52	1.52	1.52	1.37	1.86	1.62	1.30	1.08
	6.00	1.01	–	–	–	1.42	1.42	1.42	1.24	1.75	1.46	1.17	–
	6.20	–	–	–	–	1.33	1.33	1.33	1.12	1.65	1.33	1.06	–
	6.40	–	–	–	–	1.25	1.25	1.22	1.02	1.56	1.20	–	–
	6.60	–	–	–	–	1.18	1.18	1.11	–	1.46	1.10	–	–
	6.80	–	–	–	–	1.11	1.11	1.02	–	1.34	1.00	–	–
	7.00	–	–	–	–	1.04	1.04	–	–	1.23	–	–	–
1.00	4.40	2.98	2.23	1.79	1.49	3.13	3.13	3.13	3.13	3.67	3.67	3.43	2.86
	4.60	2.60	1.95	1.56	1.30	2.86	2.86	2.86	2.86	3.39	3.39	3.00	2.50
	4.80	2.29	1.72	1.38	1.15	2.63	2.63	2.63	2.63	3.14	3.14	2.64	2.20
	5.00	2.03	1.52	1.22	1.01	2.42	2.42	2.42	2.42	2.92	2.92	2.34	1.95
	5.20	1.80	1.35	1.08	–	2.24	2.24	2.24	2.20	2.73	2.60	2.08	1.73
	5.40	1.61	1.21	–	–	2.08	2.08	2.08	1.96	2.55	2.32	1.86	1.55
	5.60	1.44	1.08	–	–	1.93	1.93	1.93	1.76	2.39	2.08	1.67	1.39
	5.80	1.30	–	–	–	1.80	1.80	1.80	1.58	2.23	1.87	1.50	1.25
	6.00	1.17	–	–	–	1.68	1.68	1.68	1.43	2.09	1.69	1.35	1.13
	6.20	1.06	–	–	–	1.57	1.57	1.56	1.30	1.95	1.53	1.23	1.02
	6.40	–	–	–	–	1.48	1.48	1.42	1.18	1.83	1.39	1.12	–
	6.60	–	–	–	–	1.39	1.39	1.29	1.08	1.70	1.27	1.02	–
	6.80	–	–	–	–	1.31	1.31	1.18	–	1.55	1.16	–	–
	7.00	–	–	–	–	1.24	1.24	1.08	–	1.42	1.07	–	–

Working load UDL (kN/m²).
The load shown is the ultimate load divided by 1.5.
Tests / calculations EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5 (calculations are to Eurocode, however additional checks such as fixings are required).
Deck self weight has not been allowed for, so has to be included in applied loads.

Load Span – Structural Deck RD 106/750

Steel at 350 MPa Yield Strength – Wind Suction Load (KN/m²)

Profile Thickness (mm)	Span (m)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.75	4.40	2.14	1.66	1.33	1.11	2.12	2.12	2.12	2.12	2.65	2.65	2.55	2.13
	4.60	1.94	1.45	1.16	–	1.94	1.94	1.94	1.94	2.43	2.43	2.23	1.86
	4.80	1.70	1.28	1.00	–	1.78	1.78	1.78	1.78	2.23	2.23	1.97	1.64
	5.00	1.51	1.13	–	–	1.64	1.64	1.64	1.64	2.05	2.05	1.74	1.45
	5.20	1.31	1.00	–	–	1.52	1.52	1.52	1.52	1.90	1.90	1.55	1.29
	5.40	1.20	–	–	–	1.41	1.41	1.41	1.41	1.76	1.73	1.38	1.15
	5.60	1.07	–	–	–	1.31	1.31	1.31	1.31	1.64	1.55	1.24	1.00
	5.80	–	–	–	–	1.22	1.22	1.22	1.18	1.53	1.39	1.11	–
	6.00	–	–	–	–	1.14	1.14	1.14	1.06	1.43	1.26	1.00	–
	6.20	–	–	–	–	1.07	1.07	1.07	–	1.34	1.14	–	–
	6.40	–	–	–	–	1.00	1.00	1.00	–	1.25	1.04	–	–
0.88	4.40	2.64	2.01	1.61	1.34	2.64	2.64	2.64	2.64	3.31	3.31	3.09	2.58
	4.60	2.35	1.76	1.41	1.17	2.42	2.42	2.42	2.42	3.02	3.02	2.71	2.26
	4.80	2.06	1.55	1.24	1.00	2.22	2.22	2.22	2.22	2.78	2.78	2.38	1.99
	5.00	1.83	1.37	1.10	–	2.05	2.05	2.05	2.05	2.56	2.56	2.11	1.76
	5.20	1.62	1.22	–	–	1.89	1.89	1.89	1.89	2.37	2.34	1.87	1.56
	5.40	1.45	1.09	–	–	1.76	1.76	1.76	1.76	2.19	2.09	1.67	1.39
	5.60	1.30	–	–	–	1.63	1.63	1.63	1.59	2.04	1.88	1.50	1.25
	5.80	1.17	–	–	–	1.52	1.52	1.52	1.43	1.90	1.69	1.35	1.13
	6.00	1.06	–	–	–	1.42	1.42	1.42	1.29	1.78	1.52	1.22	1.00
	6.20	–	–	–	–	1.33	1.33	1.33	1.17	1.66	1.38	1.11	–
	6.40	–	–	–	–	1.25	1.25	1.25	1.06	1.56	1.26	1.00	–
	6.60	–	–	–	–	1.18	1.18	1.16	–	1.47	1.15	–	–
	6.80	–	–	–	–	1.11	1.11	1.06	–	1.38	1.05	–	–
	7.00	–	–	–	–	1.04	1.04	–	–	1.28	–	–	–
1.00	4.40	3.06	2.30	1.84	1.53	3.13	3.13	3.13	3.13	3.91	3.91	3.53	2.94
	4.60	2.68	2.01	1.61	1.34	2.86	2.86	2.86	2.86	3.58	3.58	3.09	2.58
	4.80	2.36	1.77	1.42	1.18	2.63	2.63	2.63	2.63	3.28	3.28	2.72	2.27
	5.00	2.09	1.57	1.25	1.04	2.42	2.42	2.42	2.42	3.03	3.01	2.41	2.01
	5.20	1.86	1.39	1.11	–	2.24	2.24	2.24	2.21	2.80	2.68	2.14	1.78
	5.40	1.66	1.24	–	–	2.08	2.08	2.08	2.02	2.59	2.39	1.91	1.59
	5.60	1.49	1.11	–	–	1.93	1.93	1.93	1.81	2.41	2.14	1.71	1.43
	5.80	1.34	1.00	–	–	1.80	1.80	1.80	1.63	2.25	1.93	1.54	1.29
	6.00	1.21	–	–	–	1.68	1.68	1.68	1.47	2.10	1.74	1.39	1.16
	6.20	1.09	–	–	–	1.57	1.57	1.57	1.33	1.97	1.58	1.26	1.05
	6.40	1.00	–	–	–	1.48	1.48	1.46	1.21	1.85	1.44	1.15	–
	6.60	–	–	–	–	1.39	1.39	1.33	1.11	1.74	1.31	1.05	–
	6.80	–	–	–	–	1.31	1.31	1.21	1.00	1.60	1.20	–	–
	7.00	–	–	–	–	1.24	1.24	1.11	–	1.46	1.10	–	–

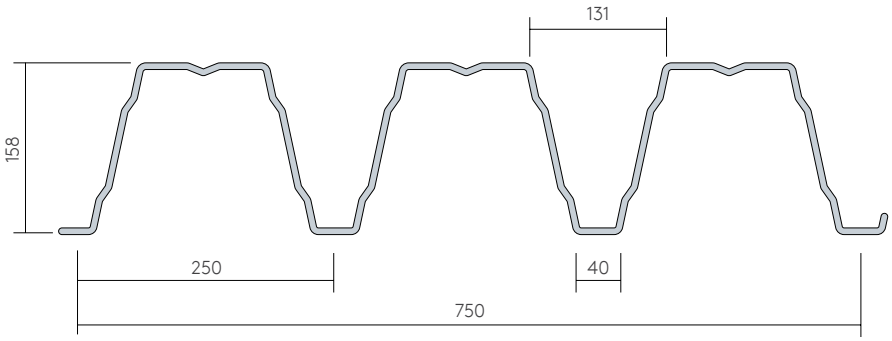
Working load UDL (kN/m²).
The load shown is the ultimate load divided by 1.5.
Tests / calculations EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5 (calculations are to Eurocode, however additional checks such as fixings are required).
Deck self weight has not been allowed for, so has to be included in applied loads.

System Components
Structural Deck – RD 158/750

RD 158/750 structural deck offers greater spanning capabilities than traditional liner systems.

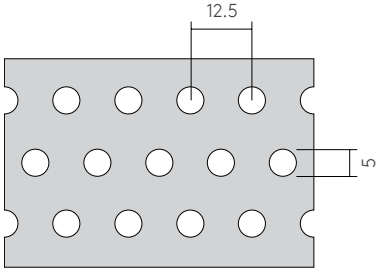
Using a decking system as the primary covering of the roof allows designers to span greater distances between fixing centres and carry greater roof loads.

The unique profile design affords simple installation in single, double or multiple span applications.



Product Specification

Materials:	Steel: S350GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating. Aluminium: AA3105 alloy to ASTM B209
Coatings:	Kingspan Polyester, Colorcoat HPS 200 Ultra
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in either steel or aluminium carry a spread of flame and smoke index rating of zero
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	N/A
Perforation:	The below perforation option is available: Pan: – Web: ✓ Pan+Web: – Complete Surface: –



Dimensions and Weight

Substrate Thickness (mm)	0.75	0.88	1.00	1.25	1.50
Weight (kg/m²) – Steel	11.78	13.82	15.70	19.63	23.55

Load Span – Structural Deck RD 158/750

Steel at 350 MPa Yield Strength – Imposed Load (KN/m²)

Profile Thickness (mm)	Span (m)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
	6.00	2.13	1.59	1.28	1.06	2.08	2.08	2.08	2.08	2.19	2.19	2.19	2.04
	6.20	1.93	1.44	1.16	–	1.97	1.97	1.97	1.97	2.05	2.05	2.05	1.85
	6.40	1.75	1.31	1.05	–	1.86	1.86	1.86	1.86	1.93	1.93	1.93	1.68
	6.60	1.60	1.20	–	–	1.77	1.77	1.77	1.77	1.81	1.81	1.81	1.54
	6.80	1.46	1.09	–	–	1.68	1.68	1.68	1.68	1.71	1.71	1.68	1.40
0.75	7.00	1.34	–	–	–	1.60	1.60	1.60	1.60	1.61	1.61	1.54	1.29
	7.20	1.23	–	–	–	1.52	1.52	1.52	1.50	1.52	1.52	1.42	1.18
	7.40	1.13	–	–	–	1.44	1.44	1.44	1.38	1.44	1.44	1.31	1.09
	7.60	1.05	–	–	–	1.37	1.37	1.37	1.28	1.37	1.37	1.21	1.01
	7.80	–	–	–	–	1.30	1.30	1.30	1.18	1.30	1.30	1.12	–
	8.00	–	–	–	–	1.23	1.23	1.23	1.09	1.23	1.23	1.03	–
	6.00	2.59	1.94	1.55	1.29	2.73	2.73	2.73	2.73	2.76	2.76	2.76	2.49
	6.20	2.34	1.76	1.41	1.17	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.25
	6.40	2.13	1.60	1.28	1.07	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.05
	6.60	1.94	1.46	1.17	–	2.28	2.28	2.28	2.28	2.28	2.28	2.24	1.87
	6.80	1.78	1.33	1.07	–	2.15	2.15	2.15	2.15	2.15	2.15	2.05	1.71
0.88	7.00	1.63	1.22	–	–	2.02	2.02	2.02	1.99	2.02	2.02	1.88	1.57
	7.20	1.50	1.12	–	–	1.91	1.91	1.91	1.82	1.91	1.91	1.73	1.44
	7.40	1.38	1.03	–	–	1.81	1.81	1.81	1.68	1.81	1.81	1.59	1.33
	7.60	1.27	–	–	–	1.72	1.72	1.72	1.55	1.72	1.72	1.47	1.22
	7.80	1.18	–	–	–	1.63	1.63	1.63	1.44	1.63	1.63	1.36	1.13
	8.00	1.09	–	–	–	1.55	1.55	1.55	1.33	1.55	1.55	1.26	1.05
	6.00	3.00	2.25	1.80	1.50	3.29	3.29	3.29	3.29	3.29	3.29	3.29	2.89
	6.20	2.72	2.04	1.63	1.36	3.09	3.09	3.09	3.09	3.09	3.09	3.09	2.62
	6.40	2.47	1.85	1.48	1.24	2.90	2.90	2.90	2.90	2.90	2.90	2.85	2.38
	6.60	2.26	1.69	1.35	1.13	2.72	2.72	2.72	2.72	2.72	2.72	2.60	2.17
	6.80	2.06	1.55	1.24	1.03	2.57	2.57	2.57	2.51	2.57	2.57	2.38	1.98
1.00	7.00	1.89	1.42	1.13	–	2.42	2.42	2.42	2.31	2.42	2.42	2.18	1.82
	7.20	1.74	1.30	1.04	–	2.29	2.29	2.29	2.12	2.29	2.29	2.00	1.67
	7.40	1.60	1.20	–	–	2.17	2.17	2.17	1.95	2.17	2.17	1.85	1.54
	7.60	1.48	1.11	–	–	2.05	2.05	2.05	1.80	2.06	2.06	1.70	1.42
	7.80	1.37	1.02	–	–	1.95	1.95	1.95	1.67	1.97	1.97	1.58	1.31
	8.00	1.27	–	–	–	1.85	1.85	1.85	1.54	1.88	1.83	1.46	1.22
	6.00	3.78	2.84	2.27	1.89	4.41	4.41	4.41	4.41	4.41	4.41	4.36	3.64
	6.20	3.43	2.57	2.06	1.71	4.13	4.13	4.13	4.13	4.13	4.13	3.95	3.30
	6.40	3.12	2.34	1.87	1.56	3.88	3.88	3.88	3.80	3.91	3.91	3.59	3.00
	6.60	2.84	2.13	1.70	1.42	3.65	3.65	3.65	3.46	3.70	3.70	3.28	2.73
	6.80	2.60	1.95	1.56	1.30	3.43	3.43	3.43	3.17	3.52	3.52	3.00	2.50
1.25	7.00	2.38	1.79	1.43	1.19	3.24	3.24	3.24	2.90	3.34	3.34	2.75	2.29
	7.20	2.19	1.64	1.31	1.09	3.06	3.06	3.06	2.67	3.18	3.16	2.52	2.10
	7.40	2.02	1.51	1.21	1.01	2.90	2.90	2.90	2.46	3.03	2.91	2.33	1.94
	7.60	1.86	1.40	1.12	–	2.75	2.75	2.72	2.27	2.90	2.68	2.15	1.79
	7.80	1.72	1.29	1.03	–	2.61	2.61	2.52	2.10	2.77	2.48	1.99	1.65
	8.00	1.60	1.20	–	–	2.48	2.48	2.33	1.95	2.65	2.30	1.84	1.53

Working load UDL (kN/m²).
The load shown is the ultimate load divided by 1.5.
Tests / calculations EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5 (calculations are to Eurocode, however additional checks such as fixings are required).
Deck self weight has not been allowed for, so has to be included in applied loads.

Load Span – Structural Deck RD 158/750

Steel at 350 MPa Yield Strength – Imposed Load (KN/m²)

Profile Thickness (mm)	Span (m)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
1.50	6.00	4.56	3.42	2.74	2.28	5.50	5.50	5.50	5.50	5.54	5.54	5.26	4.38
	6.20	4.13	3.10	2.48	2.07	5.15	5.15	5.15	5.04	5.23	5.23	4.77	3.97
	6.40	3.76	2.82	2.25	1.88	4.84	4.84	4.84	4.58	4.94	4.94	4.34	3.61
	6.60	3.43	2.57	2.06	1.71	4.55	4.55	4.55	4.18	4.68	4.68	3.95	3.29
	6.80	3.13	2.35	1.88	1.57	4.28	4.28	4.28	3.82	4.44	4.44	3.61	3.01
	7.00	2.87	2.15	1.72	1.44	4.04	4.04	4.04	3.50	4.22	4.14	3.31	2.76
	7.20	2.64	1.98	1.58	1.32	3.82	3.82	3.82	3.22	4.01	3.81	3.04	2.54
	7.40	2.43	1.82	1.46	1.22	3.62	3.62	3.56	2.96	3.82	3.51	2.80	2.34
	7.60	2.24	1.68	1.35	1.12	3.43	3.43	3.28	2.74	3.64	3.24	2.59	2.16
	7.80	2.08	1.56	1.25	1.04	3.26	3.26	3.04	2.53	3.48	2.99	2.39	2.00
	8.00	1.92	1.44	1.15	–	3.10	3.10	2.82	2.35	3.32	2.77	2.22	1.85

Working load UDL (kN/m²).
The load shown is the ultimate load divided by 1.5.
Tests / calculations EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5 (calculations are to Eurocode, however additional checks such as fixings are required).
Deck self weight has not been allowed for, so has to be included in applied loads.

Steel at 350 MPa Yield Strength – Wind Suction Load (KN/m²)

Profile Thickness (mm)	Span (m)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.75	6.00	1.84	1.63	1.30	1.09	2.19	2.19	2.19	2.19	2.74	2.74	2.51	2.09
	6.20	1.72	1.48	1.18	–	2.05	2.05	2.05	2.05	2.57	2.57	2.27	1.89
	6.40	1.62	1.34	1.07	–	1.93	1.93	1.93	1.93	2.41	2.41	2.07	1.72
	6.60	1.52	1.22	–	–	1.81	1.81	1.81	1.81	2.27	2.27	1.88	1.57
	6.80	1.43	1.12	–	–	1.71	1.71	1.71	1.71	2.13	2.13	1.72	1.44
	7.00	1.35	1.03	–	–	1.61	1.61	1.61	1.61	2.01	1.97	1.58	1.32
	7.20	1.26	–	–	–	1.52	1.52	1.52	1.52	1.90	1.81	1.45	1.21
	7.40	1.16	–	–	–	1.44	1.44	1.44	1.41	1.80	1.67	1.34	1.11
	7.60	1.07	–	–	–	1.37	1.37	1.37	1.30	1.71	1.54	1.23	1.03
	7.80	–	–	–	–	1.30	1.30	1.30	1.21	1.62	1.43	1.14	–
	8.00	–	–	–	–	1.23	1.23	1.23	1.12	1.54	1.32	1.06	–
0.88	6.00	2.35	1.97	1.58	1.31	2.76	2.76	2.76	2.76	3.44	3.44	3.03	2.53
	6.20	2.20	1.79	1.43	1.19	2.58	2.58	2.58	2.58	3.23	3.23	2.75	2.29
	6.40	2.07	1.62	1.30	1.08	2.42	2.42	2.42	2.42	3.03	3.03	2.50	2.08
	6.60	1.95	1.48	1.18	–	2.28	2.28	2.28	2.28	2.85	2.85	2.28	1.90
	6.80	1.80	1.35	1.08	–	2.15	2.15	2.15	2.15	2.68	2.60	2.08	1.74
	7.00	1.65	1.24	–	–	2.02	2.02	2.02	2.02	2.53	2.39	1.91	1.59
	7.20	1.52	1.14	–	–	1.91	1.91	1.91	1.85	2.39	2.19	1.75	1.46
	7.40	1.40	1.05	–	–	1.81	1.81	1.81	1.71	2.26	2.02	1.62	1.35
	7.60	1.29	–	–	–	1.72	1.72	1.72	1.58	2.15	1.86	1.49	1.24
	7.80	1.20	–	–	–	1.63	1.63	1.63	1.46	2.04	1.72	1.38	1.15
	8.00	1.11	–	–	–	1.55	1.55	1.55	1.35	1.94	1.60	1.28	1.07

Working load UDL (kN/m²).
The load shown is the ultimate load divided by 1.5.
Tests / calculations EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5 (calculations are to Eurocode, however additional checks such as fixings are required).
Deck self weight has not been allowed for, so has to be included in applied loads.

Load Span – Structural Deck RD 158/750

Steel at 350 MPa Yield Strength – Wind Suction Load (KN/m²)

Profile Thickness (mm)	Span (m)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
	6.00	2.90	2.25	1.80	1.50	3.29	3.29	3.29	3.29	4.12	4.12	3.46	2.89
	6.20	2.71	2.04	1.63	1.36	3.09	3.09	3.09	3.09	3.86	3.86	3.14	2.62
	6.40	2.47	1.85	1.48	1.24	2.90	2.90	2.90	2.90	3.62	3.57	2.85	2.38
	6.60	2.26	1.69	1.35	1.13	2.72	2.72	2.72	2.72	3.40	3.25	2.60	2.17
	6.80	2.06	1.55	1.24	1.03	2.57	2.57	2.57	2.51	3.21	2.97	2.38	1.98
1.00	7.00	1.89	1.42	1.13	–	2.42	2.42	2.42	2.31	3.03	2.73	2.18	1.82
	7.20	1.74	1.30	1.04	–	2.29	2.29	2.29	2.12	2.86	2.51	2.00	1.97
	7.40	1.60	1.20	–	–	2.17	2.17	2.17	1.95	2.71	2.31	1.85	1.54
	7.60	1.48	1.11	–	–	2.05	2.05	2.05	1.80	2.57	2.13	1.70	1.42
	7.80	1.37	1.02	–	–	1.95	1.95	1.95	1.67	2.44	1.97	1.58	1.31
	8.00	1.27	–	–	–	1.85	1.85	1.85	1.54	2.32	1.83	1.46	1.22
	6.00	3.78	2.84	2.27	1.89	4.41	4.41	4.41	4.41	5.51	5.45	4.36	3.64
	6.20	3.43	2.57	2.06	1.71	4.13	4.13	4.13	4.13	5.16	4.94	3.95	3.30
	6.40	3.12	2.34	1.87	1.56	3.88	3.88	3.88	3.80	4.85	4.49	3.59	3.00
	6.60	2.84	2.13	1.70	1.42	3.65	3.65	3.65	3.46	4.56	4.10	3.28	2.73
	6.80	2.60	1.95	1.56	1.30	3.43	3.43	3.43	3.17	4.29	3.75	3.00	2.50
1.25	7.00	2.38	1.79	1.43	1.19	3.24	3.24	3.24	2.90	4.05	3.43	2.75	2.29
	7.20	2.19	1.64	1.31	1.09	3.06	3.06	3.06	2.67	3.83	3.16	2.52	2.10
	7.40	2.02	1.51	1.21	1.01	2.90	2.90	2.90	2.46	3.63	2.91	2.33	1.94
	7.60	1.86	1.40	1.12	–	2.75	2.75	2.72	2.27	3.44	2.68	2.15	1.79
	7.80	1.72	1.29	1.03	–	2.61	2.61	2.52	2.10	3.26	2.48	1.99	165
	8.00	1.60	1.20	–	–	2.48	2.48	2.33	1.95	3.07	2.30	1.84	1.53
	6.00	4.56	3.42	2.74	2.28	5.50	5.50	5.50	5.50	6.88	6.58	5.26	4.38
	6.20	4.13	3.10	2.48	2.07	5.15	5.15	5.15	5.04	6.44	5.96	4.77	3.97
	6.40	3.76	2.82	2.25	1.88	4.84	4.84	4.84	4.58	6.05	5.42	4.34	3.61
	6.60	3.43	2.57	2.06	1.71	4.55	4.55	4.55	4.18	5.68	4.94	3.95	3.29
	6.80	3.13	2.35	1.88	1.57	4.28	4.28	4.28	3.82	5.36	4.52	3.61	3.01
1.50	7.00	2.87	2.15	1.72	1.44	4.04	4.04	4.04	3.50	5.05	4.14	3.31	2.76
	7.20	2.64	1.98	1.58	1.32	3.82	3.82	3.82	3.22	4.78	3.81	3.04	2.54
	7.40	2.43	1.82	1.46	1.22	3.62	3.62	3.56	2.96	4.52	3.51	2.80	2.34
	7.60	2.24	1.68	1.35	1.12	3.43	3.43	3.28	2.74	4.29	3.24	2.59	2.16
	7.80	2.08	1.56	1.25	1.04	3.26	3.26	3.07	2.53	3.99	2.99	2.39	2.00
	8.00	1.92	1.44	1.15	–	3.10	3.10	2.82	2.35	3.70	2.77	2.22	1.85

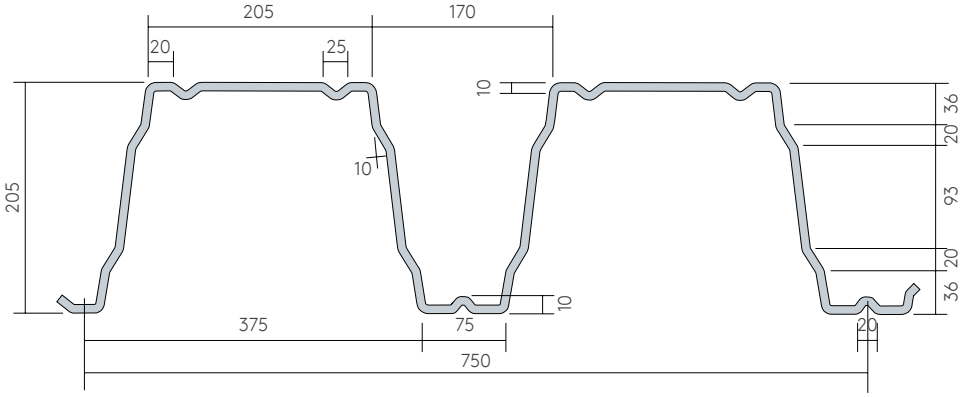
Working load UDL (kN/m²).
The load shown is the ultimate load divided by 1.5.
Tests / calculations EN 1990, EN 1991 1-6, EN 1993 1-3, EN 1993 1-5 (calculations are to Eurocode, however additional checks such as fixings are required).
Deck self weight has not been allowed for, so has to be included in applied loads.

System Components
Structural Deck – RD 200/750

RD 200/750 structural deck offers greater spanning capabilities than traditional liner systems.

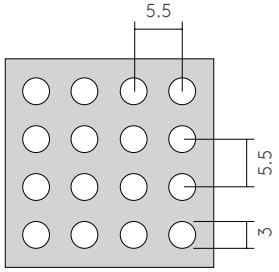
Using a decking system as the primary covering of the roof allows designers to span greater distances between fixing centres and carry greater roof loads.

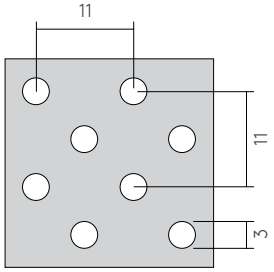
The unique profile design affords simple installation in single, double or multiple span applications.



Product Specification

Materials:	Steel: S350GD with either a Z275 galvanised (ASTM A653) or AZ150 AluZinc (ASTM A792) coating
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester
Lengths:	1.5 m to 12 m
Thickness:	See table
Fire performance:	Kingspan sheets in steel carry a spread of flame and smoke index rating of zero. FM 4451 and FM 4471 approved
Product tolerances:	Length: +/-7 mm (0 – 3500 mm) / 0.5 mm for each metre Width: +/-2 mm Edge squareness: +/-3 mm
Curving:	N/A
Perforation:	The below perforation option is available: Pan: – Web: ✓ Pan+Web: – Complete Surface: –





Dimensions and Weight

Substrate Thickness (mm)	0.70	0.80	0.90	1.00	1.20	1.50
Weight (kg/m²) – Steel	10.61	12.13	13.64	15.16	18.19	22.74

Load Span – Structural Deck RD 200/750

Steel at 350 MPa Yield Strength – Wind Suction Load (KN/m²)

Profile Thickness (mm)	Span (mm)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.70	6000	2.06	1.57	1.28	1.09	2.50	2.50	2.50	2.46	2.91	2.91	2.91	2.46
	6250	1.84	1.41	1.15	0.97	2.31	2.31	2.31	2.19	2.69	2.69	2.61	2.19
	6500	1.65	1.26	1.03	0.88	2.15	2.15	2.15	1.96	2.49	2.49	2.33	1.96
	6750	1.48	1.14	0.93	–	2.00	2.00	2.00	1.76	2.32	2.32	2.09	1.76
	7000	1.34	1.03	0.85	–	1.87	1.87	1.87	1.59	2.16	2.16	1.89	1.59
	7250	1.22	0.94	–	–	1.75	1.75	1.71	1.44	2.02	2.02	1.71	1.44
	7500	1.11	0.86	–	–	1.64	1.64	1.55	1.31	1.90	1.90	1.55	1.31
	7750	1.02	–	–	–	1.54	1.54	1.42	1.20	1.79	1.75	1.42	1.20
	8000	0.93	–	–	–	1.46	1.46	1.30	1.10	1.68	1.60	1.30	1.10
0.80	6000	2.36	1.80	1.46	1.24	2.86	2.86	2.86	2.81	3.32	3.32	3.32	2.81
	6250	2.10	1.61	1.31	1.11	2.65	2.65	2.65	2.50	3.07	3.07	2.98	2.50
	6500	1.88	1.44	1.18	1.00	2.46	2.46	2.46	2.24	2.85	2.85	2.66	2.24
	6750	1.69	1.30	1.07	0.91	2.29	2.29	2.29	2.01	2.65	2.65	2.39	2.01
	7000	1.53	1.18	0.97	–	2.13	2.13	2.13	1.82	2.47	2.47	2.16	1.82
	7250	1.39	1.07	0.88	–	2.00	2.00	1.95	1.65	2.31	2.31	1.95	1.65
	7500	1.27	0.98	–	–	1.88	1.88	1.78	1.50	2.17	2.17	1.78	1.50
	7750	1.16	0.90	–	–	1.76	1.76	1.62	1.37	2.04	2.00	1.62	1.37
	8000	1.07	–	–	–	1.66	1.66	1.49	1.26	1.92	1.83	1.49	1.26
0.90	6000	2.65	2.02	1.65	1.40	3.22	3.22	3.22	3.16	3.74	3.74	3.74	3.16
	6250	2.36	1.81	1.47	1.25	2.98	2.98	2.98	2.82	3.45	3.45	3.35	2.82
	6500	2.12	1.62	1.33	1.13	2.76	2.76	2.76	2.52	3.20	3.20	2.99	2.52
	6750	1.90	1.46	1.20	1.02	2.57	2.57	2.57	2.26	2.98	2.98	2.69	2.26
	7000	1.72	1.33	1.09	0.93	2.40	2.40	2.40	2.04	2.78	2.78	2.43	2.04
	7250	1.56	1.21	0.99	0.85	2.25	2.25	2.20	1.85	2.60	2.60	2.20	1.85
	7500	1.43	1.11	0.91	–	2.11	2.11	2.00	1.69	2.44	2.44	2.00	1.69
	7750	1.31	1.01	–	–	1.99	1.99	1.82	1.54	2.30	2.25	1.82	1.54
	8000	1.20	0.94	–	–	1.87	1.87	1.67	1.42	2.16	2.05	1.67	1.42
1.00	6000	2.95	2.25	1.83	1.55	3.58	3.58	3.58	3.52	4.15	4.15	4.15	3.52
	6250	2.62	2.01	1.64	1.39	3.31	3.31	3.31	3.13	3.84	3.84	3.72	3.13
	6500	2.35	1.80	1.47	1.25	3.07	3.07	3.07	2.80	3.56	3.56	3.33	2.80
	6750	2.12	1.63	1.33	1.14	2.86	2.86	2.86	2.52	3.31	3.31	2.99	2.52
	7000	1.91	1.47	1.21	1.04	2.67	2.67	2.67	2.27	3.09	3.09	2.70	2.27
	7250	1.74	1.34	1.11	0.95	2.50	2.50	2.44	2.06	2.89	2.89	2.44	2.06
	7500	1.58	1.23	1.01	0.87	2.34	2.34	2.22	1.88	2.71	2.71	2.22	1.88
	7750	1.45	1.13	0.93	–	2.21	2.21	2.03	1.72	2.55	2.49	2.03	1.72
	8000	1.33	1.04	0.86	–	2.08	2.08	1.86	1.57	2.40	2.28	1.86	1.57
1.20	6000	3.53	2.70	2.20	1.86	4.29	4.29	4.29	4.22	4.98	4.98	4.98	4.22
	6250	3.15	2.41	1.96	1.67	3.97	3.97	3.97	3.75	4.60	4.60	4.47	3.75
	6500	2.82	2.16	1.77	1.50	3.68	3.68	3.68	3.36	4.27	4.27	3.99	3.36
	6750	2.54	1.95	1.60	1.36	3.43	3.43	3.43	3.02	3.97	3.97	3.59	3.02
	7000	2.30	1.77	1.45	1.24	3.20	3.20	3.20	2.73	3.71	3.71	3.23	2.73
	7250	2.09	1.61	1.33	1.14	3.00	3.00	2.93	2.47	3.47	3.47	2.93	2.47
	7500	1.90	1.47	1.22	1.05	2.81	2.81	2.66	2.25	3.26	3.26	2.66	2.25
	7750	1.74	1.35	1.12	0.96	2.65	2.65	2.43	2.06	3.06	2.99	2.43	2.06
	8000	1.60	1.25	1.04	0.89	2.50	2.50	2.23	1.89	2.88	2.74	2.23	1.89
1.50	6000	4.42	3.37	2.75	2.33	5.36	5.36	5.36	5.27	6.23	6.23	6.23	5.27
	6250	3.94	3.01	2.46	2.09	4.96	4.96	4.96	4.69	5.76	5.76	5.58	4.69
	6500	3.53	2.70	2.21	1.88	4.60	4.60	4.60	4.20	5.34	5.34	4.99	4.20
	6750	3.17	2.44	2.00	1.70	4.29	4.29	4.29	3.77	4.97	4.97	4.48	3.77
	7000	2.87	2.21	1.82	1.55	4.00	4.00	4.00	3.41	4.64	4.64	4.04	3.41
	7250	2.61	2.01	1.66	1.42	3.75	3.75	3.66	3.09	4.34	4.34	3.66	3.09
	7500	2.38	1.84	1.52	1.31	3.52	3.52	3.33	2.82	4.07	4.07	3.33	2.82
	7750	2.18	1.69	1.40	1.21	3.31	3.31	3.04	2.57	3.83	3.74	3.04	2.57
	8000	2.00	1.56	1.29	1.12	3.12	3.12	2.79	2.36	3.60	3.42	2.79	2.36

Notes:
1. Deflection limits as shown on the table above.
2. The values in this load–span table consider load factors of 1.50 for dead load and 1.50 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load span table.

Load Span – Structural Deck RD 200/750

Steel at 350 MPa Yield Strength – Imposed Load (KN/m²)

Profile Thickness (mm)	Span (mm)	Single				Double				Multiple			
		L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300	L/150	L/200	L/250	L/300
0.70	6000	2.61	1.92	1.50	1.22	2.83	2.83	2.83	2.83	3.11	3.11	3.11	3.11
	6250	2.29	1.68	1.31	1.06	2.71	2.71	2.71	2.71	2.98	2.98	2.98	2.79
	6500	2.02	1.47	1.15	0.93	2.58	2.58	2.58	2.47	2.86	2.86	2.86	2.47
	6750	1.79	1.30	1.01	–	2.38	2.38	2.38	2.18	2.75	2.75	2.65	2.18
	7000	1.58	1.15	0.88	–	2.20	2.20	2.20	1.94	2.60	2.60	2.36	1.94
	7250	1.41	1.02	–	–	2.04	2.04	2.04	1.73	2.41	2.41	2.11	1.73
	7500	1.26	0.90	–	–	1.89	1.89	1.89	1.55	2.24	2.24	1.89	1.55
	7750	1.12	–	–	–	1.76	1.76	1.70	1.39	2.09	2.09	1.70	1.39
	8000	1.01	–	–	–	1.64	1.64	1.53	1.25	1.95	1.95	1.53	1.25
0.80	6000	2.99	2.19	1.72	1.40	3.24	3.24	3.24	3.24	3.56	3.56	3.56	3.56
	6250	2.62	1.92	1.50	1.22	3.10	3.10	3.10	3.10	3.41	3.41	3.41	3.19
	6500	2.31	1.68	1.31	1.06	2.94	2.94	2.94	2.82	3.27	3.27	3.27	2.82
	6750	2.04	1.48	1.15	0.93	2.72	2.72	2.72	2.50	3.14	3.14	3.03	2.50
	7000	1.81	1.31	1.01	–	2.51	2.51	2.51	2.22	2.97	2.97	2.70	2.22
	7250	1.61	1.16	0.89	–	2.33	2.33	2.33	1.98	2.75	2.75	2.41	1.98
	7500	1.44	1.03	–	–	2.16	2.16	2.16	1.77	2.56	2.56	2.16	1.77
	7750	1.28	0.92	–	–	2.02	2.02	1.94	1.59	2.39	2.39	1.94	1.59
	8000	1.15	–	–	–	1.88	1.88	1.75	1.42	2.23	2.23	1.75	1.42
0.90	6000	3.36	2.47	1.93	1.57	3.64	3.64	3.64	3.64	4.00	4.00	4.00	4.00
	6250	2.95	2.16	1.68	1.37	3.49	3.49	3.49	3.49	3.83	3.83	3.83	3.59
	6500	2.60	1.89	1.47	1.19	3.31	3.31	3.31	3.17	3.68	3.68	3.68	3.17
	6750	2.30	1.67	1.29	1.04	3.06	3.06	3.06	2.81	3.53	3.53	3.41	2.81
	7000	2.04	1.47	1.14	0.91	2.83	2.83	2.83	2.50	3.34	3.34	3.04	2.50
	7250	1.81	1.31	1.00	–	2.62	2.62	2.62	2.23	3.10	3.10	2.71	2.23
	7500	1.62	1.16	0.88	–	2.44	2.44	2.43	1.99	2.88	2.88	2.43	1.99
	7750	1.44	1.03	–	–	2.27	2.27	2.18	1.78	2.68	2.68	2.18	1.78
	8000	1.29	0.92	–	–	2.11	2.11	1.96	1.60	2.51	2.51	1.96	1.60
1.00	6000	3.73	2.74	2.14	1.75	4.04	4.04	4.04	4.04	4.45	4.45	4.45	4.45
	6250	3.27	2.40	1.87	1.52	3.87	3.87	3.87	3.87	4.26	4.26	4.26	3.99
	6500	2.88	2.10	1.64	1.32	3.68	3.68	3.68	3.52	4.08	4.08	4.08	3.52
	6750	2.55	1.85	1.44	1.16	3.40	3.40	3.40	3.12	3.92	3.92	3.79	3.12
	7000	2.26	1.64	1.26	1.01	3.14	3.14	3.14	2.77	3.71	3.71	3.37	2.77
	7250	2.01	1.45	1.11	0.89	2.91	2.91	2.91	2.47	3.44	3.44	3.01	2.47
	7500	1.80	1.29	0.98	–	2.71	2.71	2.70	2.21	3.20	3.20	2.70	2.21
	7750	1.61	1.15	0.87	–	2.52	2.52	2.42	1.98	2.98	2.98	2.42	1.98
	8000	1.44	1.02	–	–	2.35	2.35	2.18	1.78	2.78	2.78	2.18	1.78
1.20	6000	4.48	3.29	2.57	2.10	4.85	4.85	4.85	4.85	5.33	5.33	5.33	5.33
	6250	3.93	2.88	2.24	1.82	4.65	4.65	4.65	4.65	5.11	5.11	5.11	4.79
	6500	3.46	2.53	1.96	1.59	4.42	4.42	4.42	4.23	4.90	4.90	4.90	4.23
	6750	3.06	2.22	1.72	1.39	4.07	4.07	4.07	3.74	4.71	4.71	4.55	3.74
	7000	2.72	1.97	1.52	1.22	3.77	3.77	3.77	3.33	4.45	4.45	4.05	3.33
	7250	2.42	1.74	1.34	1.07	3.49	3.49	3.49	2.97	4.13	4.13	3.62	2.97
	7500	2.15	1.55	1.18	0.94	3.25	3.25	3.24	2.65	3.84	3.84	3.24	2.65
	7750	1.93	1.37	1.04	–	3.02	3.02	2.91	2.38	3.58	3.58	2.91	2.38
	8000	1.73	1.22	0.92	–	2.82	2.82	2.62	2.14	3.34	3.34	2.62	2.14
1.50	6000	5.60	4.11	3.22	2.62	6.07	6.07	6.07	6.07	6.67	6.67	6.67	6.67
	6250	4.91	3.60	2.81	2.28	5.81	5.81	5.81	5.81	6.39	6.39	6.39	5.99
	6500	4.33	3.16	2.45	1.99	5.52	5.52	5.52	5.28	6.13	6.13	6.13	5.28
	6750	3.83	2.78	2.15	1.74	5.09	5.09	5.09	4.68	5.89	5.89	5.69	4.68
	7000	3.39	2.46	1.90	1.52	4.71	4.71	4.71	4.16	5.56	5.56	5.06	4.16
	7250	3.02	2.18	1.67	1.33	4.37	4.37	4.37	3.71	5.16	5.16	4.52	3.71
	7500	2.69	1.93	1.47	1.17	4.06	4.06	4.05	3.32	4.80	4.80	4.05	3.32
	7750	2.41	1.72	1.30	1.03	3.78	3.78	3.64	2.97	4.47	4.47	3.64	2.97
	8000	2.16	1.53	1.15	0.90	3.52	3.52	3.27	2.67	4.18	4.18	3.27	2.67

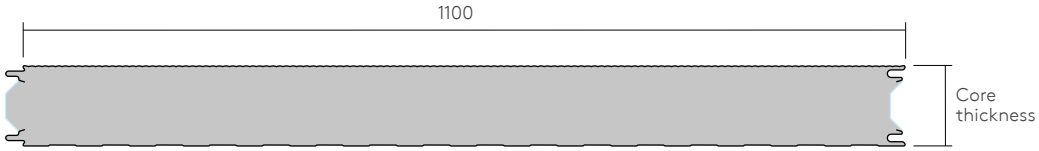
Notes:
1. Deflection limits as shown on the table above.
2. The values in this load–span table consider load factors of 1.50 for dead load and 1.50 for imposed and wind loads.
3. The minimum bearing width allowed for to generate the values in this load span is 60 mm.
4. Detailed static calculations based on project loadings shall supersede this load span table.


HUG

System Components
QuadCore™ Roofliner

QuadCore™ Roofliner is an insulated roof panel, ideal for standing seam finishes, buildings with flat, pitched and curved roofs with a convex or concave radius.

The product range has outstanding performance in the critical building materials performance areas: fire, structural, airtightness, thermal bridging, vapour and weather tightness.



Product Specification

Profiles:	Equi-bead / flat smooth
Fixing detail:	Tongue and groove joint
Insulation core:	Kingspan QuadCore™
Metal type:	S220GD+ZA hot-dip zinc / aluminium Galfan coated metal to BS EN10214: 1992. Standard: 0.7 mm thick external sheet / 0.5 mm thick internal sheet
Coatings:	Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester, Kingspan Anodised and Kingspan ARS
Application:	Insulated panel substrate for KingZip Standing Seam System
Lengths:	From 1.8 m up to 12 m (due to container restrictions). Manufacturing capability up to 16 m
Cover width:	600 mm to 1,200 mm. Standard width 1,100 mm
Fire performance:	ASTM D 1929-16: Self Ignition above 343 °C BS EN 13501-1:2007 + A1:2009: B-s1,d0
Curving:	Kingspan QuadCore™ Roofliner can be used on a curved roof with a radius of 50 m. The panels must be installed across the roof with a facet at panel longitudinal joints

Dimensions and Weight

Core Thickness (mm)	80	100	125	150	175	200	220
Weight (kg/m²) 0.7 steel / 0.5 Steel	13.6	14.4	15.4	16.4	17.4	18.4	19.1
U-Value (W/m²K)	0.23	0.18	0.15	0.12	0.10	0.09	0.08
R-Value (m²K/W)	4.35	5.56	6.67	8.33	10.00	11.00	12.5

The U-values have been calculated using the method required by EN14509 guidelines.

POWERED BY QuadCore™ TECHNOLOGY

Load Span – QuadCore™ Roofliner

Single Span Condition

Panel Thickness (mm)	Load Type	Uniformly Distributed Loads (kN/m²) (Span L in metres)										
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
80	Imposed Load	2.47	1.41	0.77	–	–	–	–	–	–	–	–
	Wind Suction Load	5.38	3.75	2.71	2.02	1.55	1.21	0.97	0.79	0.66	–	–
100	Imposed Load	3.45	2.11	1.28	0.75	–	–	–	–	–	–	–
	Wind Suction Load	7.10	5.10	3.78	2.88	2.24	1.78	1.44	1.18	0.99	0.84	0.72
125	Imposed Load	4.79	3.13	2.07	1.36	0.88	–	–	–	–	–	–
	Wind Suction Load	9.00	6.59	4.99	3.86	3.05	2.45	2.00	1.65	1.39	1.18	1.01
150	Imposed Load	5.97	4.03	2.77	1.92	1.32	0.89	–	–	–	–	–
	Wind Suction Load	6.39	5.14	4.30	3.71	3.26	2.91	2.63	2.19	1.85	1.58	1.36
175	Imposed Load	5.43	4.30	3.42	2.44	1.74	1.23	0.85	–	–	–	–
	Wind Suction Load	5.76	4.64	3.89	3.35	2.95	2.64	2.39	2.19	2.02	1.87	1.74
200	Imposed Load	4.79	3.79	3.12	2.65	2.15	1.57	1.13	0.8	–	–	–
	Wind Suction Load	5.14	4.14	3.47	3.00	2.64	2.36	2.14	1.96	1.81	1.68	1.57
220	Imposed Load	4.27	3.38	2.78	2.35	2.03	1.78	1.33	0.97	0.69	–	–
	Wind Suction Load	4.63	3.74	3.14	2.71	2.39	2.15	1.95	1.78	1.65	1.53	1.43

Double Span Condition

Panel Thickness (mm)	Load Type	Uniformly Distributed Loads (kN/m²) (Span L in metres)										
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
80	Imposed Load	2.95	1.91	1.26	0.82	–	–	–	–	–	–	–
	Wind Suction Load	4.60	3.64	3.03	2.61	2.28	1.82	1.50	1.26	1.06	0.91	0.79
100	Imposed Load	3.89	2.61	1.79	1.23	0.83	–	–	–	–	–	–
	Wind Suction Load	4.60	3.62	3.01	2.58	2.27	2.04	1.85	1.57	1.34	1.16	1.02
125	Imposed Load	4.11	3.16	2.55	1.88	1.38	1.00	0.71	–	–	–	–
	Wind Suction Load	4.20	3.30	2.73	2.34	2.06	1.85	1.69	1.55	1.44	1.35	1.27
150	Imposed Load	3.70	2.83	2.28	1.90	1.62	1.3	1.03	0.76	–	–	–
	Wind Suction Load	3.79	2.97	2.45	2.10	1.85	1.66	1.52	1.40	1.30	1.22	1.15
175	Imposed Load	3.28	2.50	2.00	1.65	1.41	1.22	1.07	0.96	0.76	–	–
	Wind Suction Load	3.39	2.65	2.18	1.87	1.64	1.48	1.35	1.25	1.16	1.09	1.03
200	Imposed Load	2.85	2.15	1.71	1.41	1.19	1.03	0.90	0.80	0.71	0.64	–
	Wind Suction Load	2.98	2.32	1.91	1.63	1.44	1.29	1.18	1.10	1.03	0.97	0.92
220	Imposed Load	2.51	1.88	1.48	1.21	1.02	0.87	0.76	0.67	–	–	–
	Wind Suction Load	2.66	2.06	1.69	1.45	1.27	1.15	1.05	0.98	0.92	0.87	0.82

Unfactored load / span table (use calculated design wind load values unfactored).
Cladding system weight up to 6 kg/m² (0.06 kN/m²).
Outer sheet 0.7 mm (steel), inner sheet 0.5 mm (steel).

Coatings

Finishes and coatings play a key role in architectural design and creative expression, and they are a fundamental part of our world. Choose from a wide range of standard coatings or, for that extra individuality or corporate identity, talk to us about colour and finish options tailored to your specific needs.

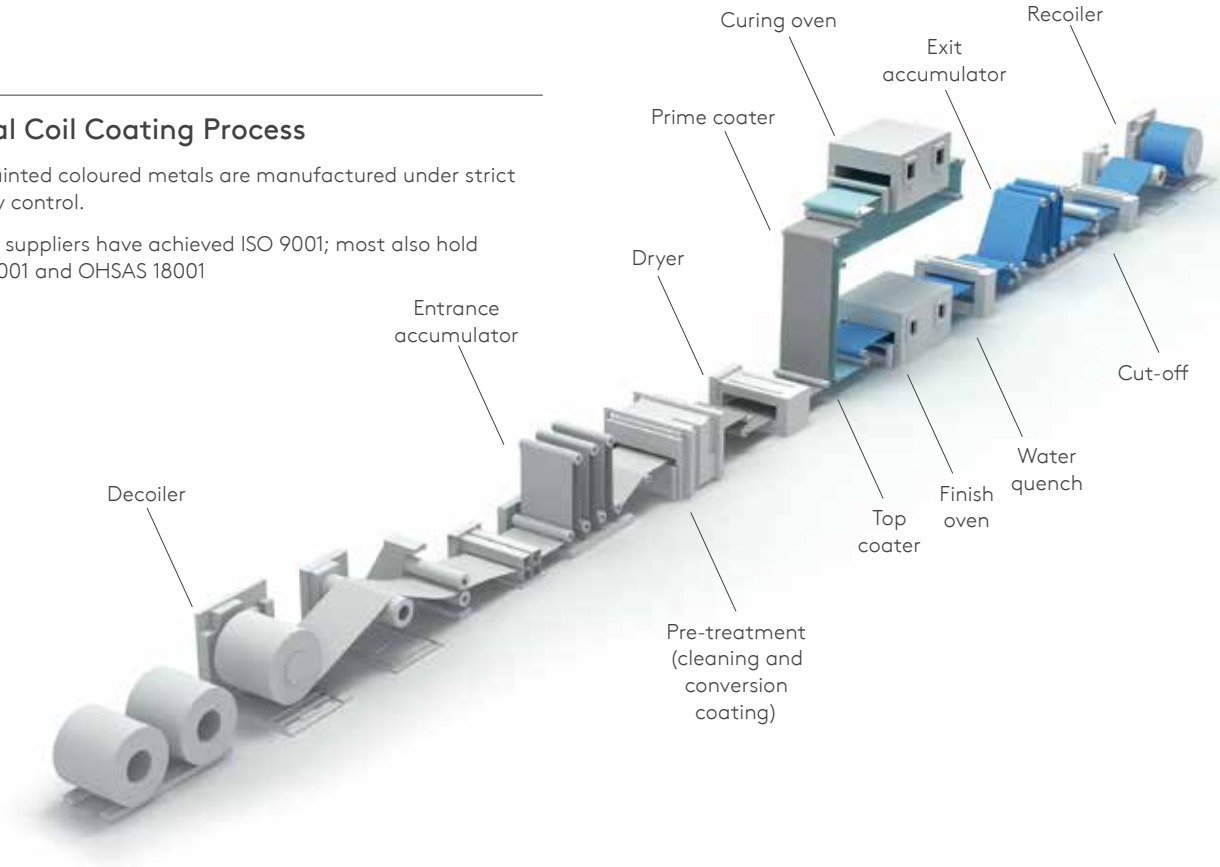
Although aluminium is both stable and durable in most environments, there may be the desire to apply a colour coating for aesthetic reasons. These coatings are applied by world class specialist companies by the reverse-roller coating method.

They are applied prior to the product (with the exception of Colourbond) being rollformed and are stored in gas fired ovens to ensure excellent life span.

Metal Coil Coating Process

Pre-painted coloured metals are manufactured under strict quality control.

All our suppliers have achieved ISO 9001; most also hold ISO 14001 and OHSAS 18001



Coatings
Key Benefits and Options

System	Decorative Life (Years)	Ultimate Life (Years)	Scratch Resistance	Stain Resistance	Colour Fastness	Weathering	Chalking
PVDF (2 coat)	20	25	Good	Excellent	Excellent	Excellent	Excellent
PVDF (3 coat)	25	30	V.Good	Excellent	Excellent	Excellent	Excellent
PVDF (4 coat)	30	35	V Good	Excellent	Excellent	Excellent	Excellent
Spectrum (60 µ)	20	20	Excellent	Excellent	Excellent	Excellent	Excellent
Spectrum (90 µ)	20	20	Excellent	Excellent	Excellent	Excellent	Excellent
Spectrum (120 µ)	20	20	Excellent	Excellent	Excellent	Excellent	Excellent
Polyester (25 µ)	7	10	Good	Moderate	Moderate	Moderate	Moderate
ARS	15	25	Excellent	Excellent	Good	Good	Good
Anodised	20	40	Good	Good	Excellent	Excellent	Excellent

All information may vary based on geographical location. Please contact your local Kingspan Technical Service for local lifespan information for your region.

The lifespan of a metal coating is determined by the geographical location, the local environment, the colour selected and the coating type. For further information on any aspect of the technical data for KingZip Linea or Infiniti, please contact your local Kingspan Technical Department for assistance.

Kingspan PVDF

25-55 µ

Smooth, high-gloss 25-55 µ thermoplastic PVDF coating

Multi-layered coating structure – consists of up to 4 layers of paint

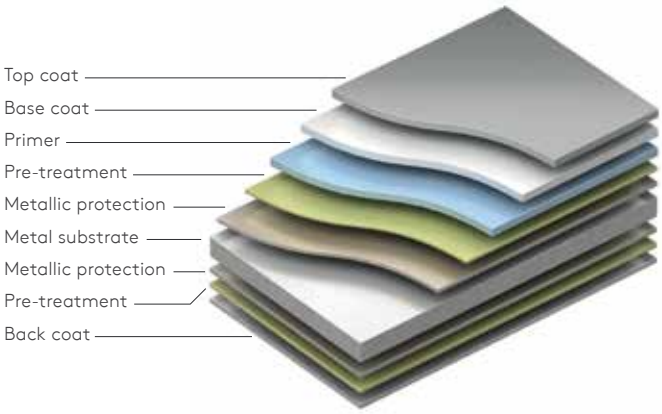
Hardly affected by UV radiation – richness of bright colours and two-tone finishes

High levels of resistance to acids, solvents, bases and heat

20-40

Guaranteed up to 20-35 years depending on location of the building

Highest possible performance with respect to gloss retention, chalking and colour change. However, it is more easily scratched than ARS and must be handled with care.
Can be supplied with a strippable plastic film as additional site protection which must be removed within 48 hours of installation as UV exposure can cause the film to bond irreversibly with the coating finish.



Benefits and Applications

- Class 1 polyvinylidene fluoride / acrylic paint system
- Total coating thickness minimum 25 µ
- Extremely durable system, giving excellent flexibility and chemical resistance
- High-end residential, institutional and commercial applications

Kingspan Spectrum

55 µ

Smooth 55 µ thick PU coating in Solid, Metallic and Diamond finishes

High-build material for applications where durability is important

700 Hours

Good corrosion protection of the metal substrate (700 hours salt spray test)

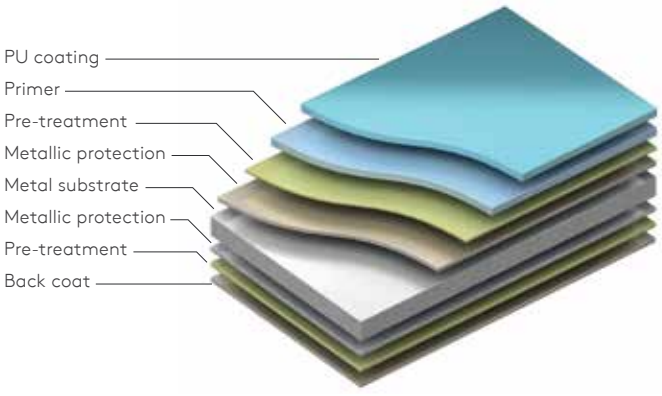
80°C

High level of temperature resistance (80°C for Spectrum Solid and Metallic)

20-40

Guaranteed up to 20 years depending on location of the building

A range of proven smooth polyurethane coatings that delivers aesthetic brilliance and guaranteed performance in a variety of applications and can be applied for more harsh and corrosive atmospheres.



Benefits and Applications

- Innovative paint system available up to 120 µ
- Unique heavy duty anti-corrosive primer and polyamide modified polyurethane final coat
- Ideal where a smooth texture is required
- Increasing use in applications where durability is important

Coatings
Key Benefits and Options

Kingspan Polyester 25 µ

25 µ

Standard 25 µ polyester coating

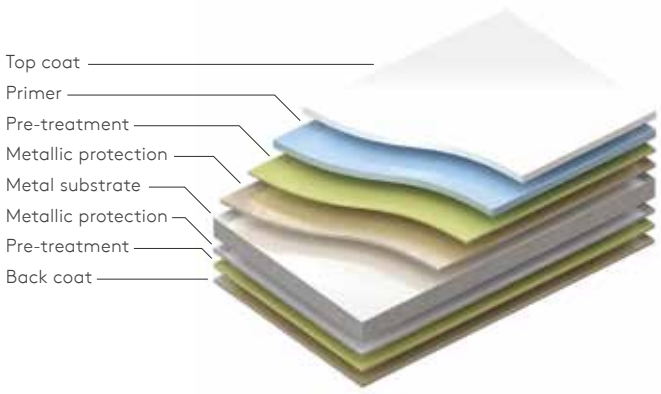
Non-toxic and easy to clean

Good robustness, chemical and humidity corrosion resistance

A cost-effective colour coating with a medium term life for both aluminium and steel with good chemical and humidity corrosion resistance. Generally used on liners or structural decks facing internal environment conditions.

Benefits and Applications

- 25 µ paint system
- Cost effective solution
- Increased colour range



Kingspan ARS

40 µ

Standard 40 µ ARS coating

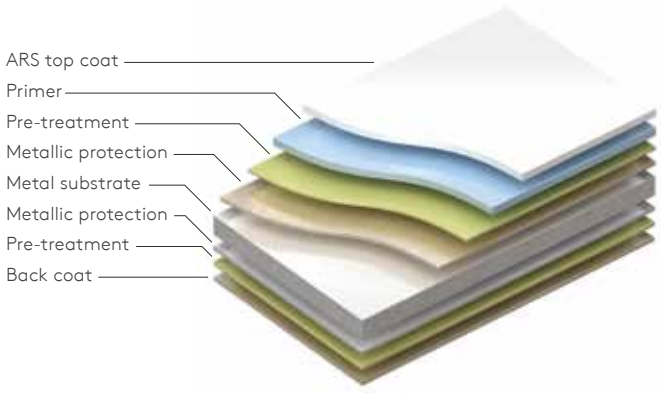
Non-toxic and easy to clean

Good robustness, chemical and humidity corrosion resistance

Kingspan ARS is a polyamide modified polyurethane paint system having improved surface hardness and durability. ARS coatings protect metals from galling, seizing and other physical damages.

Benefits and Applications

- 40 µ paint system
- Highly stippled and extremely hard surface
- Excellent scratch resistance without the need for a protective film
- Very good durability and weatherability
- Superior ultra violet performance



Kingspan Anodised

Standard 3-5 µ anodised surface treatment

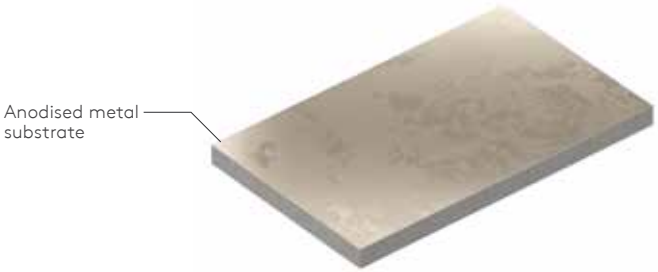
Natural and unique metallic look and feel

Good robustness, chemical and humidity corrosion resistance

Hardly affected by UV radiation – richness of bright colours and two-tone finishes

Guaranteed up to 25-40 years depending on location of the building

Anodising is an electro-chemical process where the surface of the aluminium is modified to create a very hard, but still flexible and transparent layer. Anodised metal does not lose its coating, which grows integrally from the base aluminium and thus neither peels nor flakes, permanently sealing the aluminium roofing underneath against the elements. Anodised coatings will have a smooth metallic look and feel and they can be dyed to almost any colour.



Benefits and Applications

- Natural metallic look and feel
- UV resistant
- No peeling, blistering or fingerprints
- No chalking or fading
- 100 % recyclable
- Durable and weather resistant
- High corrosion resistance
- Graffiti proof

Backing Coat

This is normally a 2 microns lacquer coating with 6 microns chromated epoxy coating providing limited protection and preventing damage to the top coat when in the coil or in stacks of flats / sheets. It is not intended for external exposure.

The 'Decorative Life' is the time period when a decision to repaint may be required. The figures are based on marine or industrial environments and may be extended by 5 years for suburban or rural environments.

The 'Ultimate Life' is based on marine or severe industrial environments and may be extended to 40 years for suburban or rural environments.

Special Finishes / Effects

Available on application. Minimum quantities may apply – please consult the Kingspan Technical Department.

Coatings
Standard Colours

Paint System: Polyester / PVDF / Spectrum

Cream
RAL 9001

Grey White
RAL 9002

Signal White
RAL 9003

Pure White
RAL 9010

Traffic White
RAL 9016

Oyster White
RAL 1013

Light Ivory
RAL 1015

Beige
RAL 1001

Moonstone
RAL 7035

Stone Grey
RAL 7030

Signal Grey
RAL 7004

Silver
RAL 9006

Obsidian
RAL 9007

Graphite
RAL 9023

Gull Grey
RAL 240 80 05

Merlin Grey
RAL 180 40 05

Anthracite Grey
RAL 7016

Jet Black
RAL 9005

Note: The above colours are our standard colours, other colours are available upon request.

Special Colours

Zircon
RAL 5014

Kyanite
RAL 5010

Olive Green
RAL 100 30 20

Juniper Green
RAL 160 20 10

Pale Green
RAL 6021

Traffic Red
RAL 3020

Metallic Colours

Bronze Metallic

Brilliant Champagne Metallic

Champagne Metallic

Natural Metal Effects

Patinated Copper

Weathered Zinc

Coatings
Anodised Colours

Anodised – Standard Mill Finish

Straight Natural

Chromatic Zinc

Champagne Gold

Cobalt Copper

Velvet Copper

Steady Bronze

Anodised – Brush Finish

Elevated Zinc

Razor Steel

Galactic Gold

Gaia Copper

Funky Copper

Utopian Bronze

SRI Values – PVDF

Sr. No	Colour Name	Colour Code	UV Range (300-395) (%)	Visible Range (400-720) (%)	NIR Range (725-2500) (%)	Total Solar Reflectance (%)	Thermal Emittance	SRI hc = 12 ($W.m^{-2}.K^{-1}$)
1	Cream	RAL 9001	13	75	75	73	0.82	89
2	Grey White	RAL 9002	10	65	61	61	0.84	72
3	Pure White	PAL 9010	12	82	76	77	0.90	95
4	Traffic White	RAL 9016	12	83	75	77	0.90	96
5	Beige	RAL 1001	9	23	46	39	0.86	38
6	Oyster White	RAL 1013	10	69	69	67	0.84	80
7	Ivory	RAL 1014	11	55	61	57	0.82	65
8	Light Grey	RAL 7035	10	53	48	49	0.85	55
9	Silver	RAL 9006	34	45	52	49	0.70	53
10	Grey Silver	RAL 9007	24	29	36	33	0.72	28
11	Moss Green	RAL 6005	6	8	13	11	0.86	5
12	Reed Green	RAL 6013	8	19	24	22	0.84	18
13	Pale Green	RAL 6021	10	32	54	44	0.82	47
14	Light Blue	RAL 5012	13	30	41	36	0.85	37
15	Sky Blue	RAL 5015	8	19	41	31	0.87	32

SRI Values – PE

Sr. No	Colour Name	Colour Code	UV Range (300-395) (%)	Visible Range (400-720) (%)	NIR Range (400-720) (%)	Total Solar Reflectance (%)	Thermal Emittance	SRI hc = 12 ($W.m^{-2}.K^{-1}$)
1	Cream	RAL 9001	10	76	68	69	0.86	82
2	Signal Yellow	RAL 1003	6	48	73	61	0.86	71
3	Oyster White	RAL 1013	10	69	69	67	0.84	80
4	Ivory	RAL 1014	11	57	71	63	0.86	75
5	Traffic Red	RAL 3020	7	11	35	24	0.86	22

Determination of Thermal Properties:

- Total Solar Reflectance (according to ASTM E903-01)
- Thermal Emissivity (according to ASTM C1 371-04a)
- Solar Reflectance Index (according to ASTM E1980-0 1)

Solar Reflectance Index (SRI) is determined according to ASTM E1980-01. This method uses the measured TSR (according to ASTM E1903-01) and measured thermal emittance (according to ASTM C1371-04a). SRI gives an estimation of the steady state surface temperature and is quoted at three different convective coefficients (hc) at high (6-10ms-1), medium (2-6 m.s-1) and low (0-2m.s-1) wind speeds. A value of 100 is considered to be the reference white surface and a value of 0 the reference black surface.

Please contact Kingspan Technical Services for SRI values on Anodised Coatings.

04 SPECIFICATION AND CERTIFICATION

Specification
Performance Testing

Kingspan Insulated Panels takes the performance of its products very seriously. Our panels have undergone extremely rigorous testing to ensure that they not only meet regulatory standards, but in most instances go far beyond.

FM 4471 – Approval Standard for Class 1 Roof Panels

Lap seam metal roofing systems are evaluated under Approval Standard 4471, Class 1 Panel Roofs, which includes performance requirements for:

- Combustibility above and below the roof assembly
- Wind uplift resistance
- Foot traffic resistance
- Hail damage resistance

FM 4451 – Approval Standard for Profiled Steel Panels for use as decking in Class 1 Insulated Roof Construction

FM Approvals is the only organisation in the world that tests complete roof assemblies when subjected to multiple perils such as fire testing above and below the deck, wind-uplift testing, hail-damage testing, accelerated weathering, water leakage, foot traffic and corrosion-resistance testing of metal parts.

A roof assembly is tested to meet:

- The interior fire performance requirements using the FM Approvals Construction Materials Calorimeter Test (the only such test in the world developed after many years of research and testing) adopted by NFPA as NFPA 276. Its a pass / fail test giving the rating of Class 1 if the roof assembly passes.
- The exterior fire performance using the ASTM E 108 test method for an A, B or C rating.
- The wind performance using ANSI/FM 4471 for ratings starting from 60 psf up to 150 psf.
- Hail, corrosion and accelerated weathering performance using FM Approvals test methods for hail, corrosion and accelerated weathering. Ratings for hail are MH (moderate hail) and SH (severe hail).

KingZip Standing Seam System has achieved Class A to ASTM E 108.

KingZip Standing Seam System has achieved SH (Severe Hail).

KingZip Standing Seam System has achieved up to 175 psf in wind uplift performance.

UL 580 – Standard for Tests for Uplift Resistance of Roof Assemblies
Kingspan Insulated Panels have achieved 90 psf.

ASTM E 108-17 – Standard Test Methods for Fire Test of Roof Coverings
Kingspan Insulated Panels have achieved Class 1A.

ASTM E 1592-05 (2017) – Standard test method for Structural Performance of Sheet metal roofing and siding systems by uniform static air pressure difference.

ASTM E 1637 – Standard Specification for Structural Standing Seam Aluminium Roof panel systems.

ASTM E 1646-95 (2018) – Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.

ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

CE Marking
KingZip Standing Seam System are all CE marked, declaring minimum guaranteed performance values for the principal characteristics of the panel as set out in the harmonised standard EN 14782.

DIBt (ETA) – European Technical Approval No. 305/2011. European Assessment Document (EAD) 200035-00-0302.

GOST-R Certification.

BS 476 – 3, 6 & 7.

UAE Fire Code – Compliant to the 2018 UAE Fire & Life Safety Code of Practice.

GOST-R DIBt ASTM INTERNATIONAL Standards Worldwide UL CE FM APPROVED

Specification
NBS

Below you can see an example KingZip System Specification for reference. Please contact your local Kingspan Technical Services Team to request customised KingZip NBS Specifications generated for your project.

Metal Profiled / Flat Sheet Cladding / Covering

To be read with Preliminaries / General conditions.

Type of Cladding System

140 Metal Profiled Cladding to Roof:

Drawing reference(s):	_____	
Supports:	Kingspan Multibeam Cold Rolled Purlins	
Bearing width:	60 mm	
Pitch (where applicable):	Refer to Architects drawings, a min of 1.5 deg min after deflection	
External sheets:	Mechanically zipped aluminium secret-fixed standing seam roofing system	
Manufacturer and reference:	KingZip Linea for standard internal & external non-corrosive environments. Kingspan Insulated Panels Manufacturing LLC, www.kingspanpanels.com	
Profile reference:	KingZip Linea 400 with 65 mm standing seam (400 mm cover width) – mechanically zipped aluminium secret fixed standing seam roofing system	
External facings sheet:	Material:	Aluminium alloy – EN AW-3004 AlMn1Mg1. Ultimate tensile strength – min 225 N/mm²
		0.2% Proof stress – min 200 N/mm². Modulus of elasticity – 70,000 N/mm²
	Thickness:	0.9 mm
	Finish / colour:	Kingspan PVDF 3 Coat Paint Finish
Accessories:	Extruded aluminium alloy (EN AW-6082) 85 mm Halters to galvanised mild steel purlins with stainless steel fasteners. Thickness of sub-purlin and bracket to be determined based on length of KingZip Linea sheet but a minimum of 1.6 mm. Thermal barrier pads to halter base	
	Extruded aluminium alloy halters 85 mm	
	Thermal barrier pads	
	Pressed aluminium alloy channel verge cap	
	Pressed aluminium alloy ridge support	
	Ridge closure zed	
	Pressed aluminium alloy drip angle 60 x 30 mm	
	Fabricated aluminium alloy (AA3004) flashings – material and finish as per cladding sheets or as per project requirements	
Side laps:	To be mechanically seamed with a KingZip zipping machine	

End laps:	None required
	Operatives must be fully trained and conversant with system manufacturer's methods for fixing and specifications
Installation:	KingZip Linea sheets to be installed as per cladding manufacturer's instructions
	Only roofing contractors approved by Kingspan Insulated Panels Manufacturing should be employed to install KingZip Linea standing seam roofing system

Performance Compliance

KingZip Linea system shall be tested and comply to:

FM Approval – Compliance with FM 4471 Class 1 Rating

UL Approval – Compliance with UL 580-90.

Surface Spread of Flames – Compliance to BS 476 Part (1997) Class 1 rating

Fasteners

Type(s), size(s), material(s) and finish (es) as specified, or in the absence of such specification, as recommended for the purpose by the cladding manufacturer.

Insulation

Manufacturer and reference:	Kingspan K-Roc Insulation
Material:	Mineral Fibre Insulation Quilt 40 kg/m³ density with one side aluminium foil facing
Thickness:	140 mm compressed to 128 mm to achieve a 'U' value of less than 0.30 W/mK²

Install and secure as the work proceeds ensuring continuity and leaving no gaps. Keep dry.

Vapour Control Layer

Manufacturer and reference:	KingZip Linea for standard internal & external non-corrosive environments. Kingspan Insulated Panels Manufacturing LLC, www.kingspanpanels.com
Material and reference:	VCL 170 – a multi-layer composite membrane comprising a UV light stabilised polyethylene sheet with polypropylene reinforcing scrim.
Sealant tape:	2.5 x 9 mm x 15 m butyl tape
Minimum vapour resistance:	336 MNs/g
Maximum water vapour permeability:	0.61 g/m²/day
	Lay as work proceeds ensuring continuity
	Lap sides and ends of sheets not less than 50 mm and seal with one row of polybutyl sealant tape
	Seal with two rows of sealant tape to perimeter and to pipes, ducts, structural members etc., which pass through – ensuring a full bond over the width of the sealant tape
	Carefully check for tears and punctures and seal them with sealant tape before covering

Specification
NBS

Liner Profile

Manufacturer and reference:	KingZip Linea for standard internal & external non-corrosive environments. Kingspan Insulated Panels Manufacturing LLC, www.kingspanpanels.com
Material:	Galvanised steel, conforming to ASTM A-653 with 275 g/m² galvanising or AZ150 alloy coated to ASTM A-792 finished with two-coat semi gloss polyester standard colour finish to facing side
Profile reference:	WA200
Nominal thickness / gauge:	0.7 mm
External finish:	Two coat Polyester paint in RAL 9002 (Off White) colour
Primary sheet fasteners:	Fixed to main support members with 6.5 mm diameter stainless steel self tapping fasteners complete with 19 mm diameter stainless steel / EPDM bonded washers – thread type and length to suit construction. One fastener in alternate corrugations
End laps:	Minimum 100 mm to coincide with purlin / support position
Side laps:	Single corrugation
Stitching:	Side laps of sheets to be stitched together with aluminium rivets incorporating stainless steel mandrel at approximate 400 mm centres

Profile Fillers

Drawing reference(s):	_____
Manufacturer and reference:	Kingspan Insulated Panels Manufacturing LLC, www.kingspanpanels.com
Material:	EPDM faced polyethylene foam
Colour:	Black
Fixing:	Seal the top, bottom and sides of each profile filler with a single line of non-setting gun-grade, Scapa Tapes ref: 0100 or similar

Locate where shown on drawings and wherever necessary to close off corrugation cavities from the inside and outside of the building. Ensure a tight fit and leave no gaps.

Purpose Made Cold Formed Metal Accessories – External

Drawing reference(s):	_____
Material / finish:	As external face of cladding
Thickness:	0.9 mm
Colour:	To match external face of cladding
Fixing:	Stitch to external face of panels at max. 450 mm centres using secondary fasteners as specified for the cladding system

Purpose Made Cold Formed Metal Accessories – Internal

Drawing reference(s):	_____
Material / finish:	As internal face of cladding
Thickness:	0.7 mm
Colour:	To match internal face of liner sheet
Fixing:	Stitch to internal face of panels at max. 450 mm centres using secondary fasteners as specified for the cladding system

Metal Insulated Gutter

Manufacturer and reference:	Kingspan Insulated Panels Manufacturing LLC, www.kingspanpanels.com
Location:	As shown on drawings
Girth:	As derived from water flow calculations
Skins:	Outer skin to be 1.0 mm gauge 3 coat PVDF aluminium sheet, confirming to alloy AA 3105 temper H24. Liner to be 0.7 mm gauge galvanised steel polyester painted. Colour for external and internal skins of gutter to match that of the roof cladding system
Insulation:	50 mm thick FIRE*safe* PIR boards / high density mineral fibre placed between the two skins
Other requirements:	5 mm thick colour matched galvanised steel supports to be provided at every 500 mm (maximum). Expansion joints to be provided at every 8 metres (maximum) using proprietary T-Pren joints. Gutter shall be supplied in maximum 3 metre lengths and joints shall be site welded by Kingspan approved welding specialist, if required. Proprietary aluminium down spouts shall be welded to the sole of the gutter at site. Weld lines shall be cleaned and post painted to colour match sheets at site

Isolating Tape

A type recommended for the purpose by the cladding manufacturer. Apply to those surfaces of supports which would otherwise be in contact with cladding or accessories after fixing.

Fall Arrest System

Product:	Kingspan SafePro2
Manufacturer and reference:	Kingspan Fabrications, Safety and Lighting Solutions, sub-division of Kingspan Insulated Panels, Greenfield Business Park No 2, Holywell, Flintshire. CH8 7GJ. United Kingdom. www.kingspanpanels.co.uk or equivalent.

Metal Roof Access Walkway

Product reference:	KingZip Walkway with or without handrails
Manufacturer:	Kingspan Insulated Panels Manufacturing LLC, www.kingspanpanels.com
Walkway surface:	Kingspan perforated profiled sheet
Finish:	Natural aluminium or powder coated
Support members:	Extruded aluminium profiles
Fixing:	Zipklip non-penetrative fixing clamp

Specification
CSI MasterSpec

KingZip Standing Seam Roof System

Roofing Part 1 – General

1.1 Definitions

A Sheet Metal Roofing Assembly: Roll-formed sheet metal roofing, liner sheets, attachment system components, miscellaneous metal framing, thermal insulation, vapour control layer and accessories necessary for a complete weather tight system.

1.2 Performance Requirements

A General: Provide complete sheet metal roofing assembly, including, but not limited to on site roll-formed metal roof sheets, factory formed liners, vapour control layer, thermal and acoustic insulation, top hat or spacer sections (if applicable), acoustic boards (if applicable), halters, anchors and fasteners, sheet metal flashing and drainage components related to sheet metal roofing, fascia panels, trim, underlayment, and accessories as indicated and as required for a weather tight installation.

B Wind-Uplift Resistance: Provide portable roll-forming equipment capable of producing sheet metal roofing assemblies that comply with UL 580 for Class 90 wind-uplift resistance.

1. Maintain UL certification of portable roll-forming equipment through the duration of sheet metal roofing work.

C Thermal Movements: Provide sheet metal roofing that allows for thermal movements resulting from the following maximum change range in ambient and surface temperatures by preventing buckling, opening of joints, drill hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide halters that resist rotation and avoid shear stress as a result of sheet metal roofing thermal movements.

1. Temperature Change Range: 67 °C, ambient; 100 °C, material surfaces.

D Water Infiltration: Provide sheet metal roofing that does not allow water infiltration to building interior, with metal flashing and connections of sheet metal roofing lapped to allow moisture to run over and off the material.

E Air Infiltration: Air leakage of not more than 5 $m^3/hr/m^2$ of roof area when tested according to ASTM E 1680 at a static air pressure difference of 50 Pa.

F Water Penetration: No evidence of water leakage under static air pressure when tested according to ASTM E 1646 at a static air pressure difference of 50 Pa.

1.3 Submittals

A Product Data: For each product indicated. Include details of construction relative to materials, dimensions of individual components and profiles, and finishes.

B Shop Drawings: Show fabrication and installation layouts of sheet metal roofing, including plans, elevations, and keyed references to termination points. Distinguish between shop- and field-assembled works. Include the following:

C Samples for Initial Selection: For each type of sheet metal roofing indicated with factory-applied colour finishes.

1. Include similar samples of trim and accessories involving colour selection.

D Samples for Verification: For each type of exposed finish required, prepared on samples of size indicated below:

1. Sheet Metal Roofing: 300 mm long by actual pan width, including finished seam. Include fasteners, halters, closures and other necessary attachments.
2. Trim and Closures: 300 mm long. Include fasteners and other exposed accessories.
3. Accessories: 300 mm long samples for each type of accessory.

E Roll-Forming Equipment Certificate: Issued by UL or certified third parties for manufacturer's portable roll-forming equipment designed for producing sheet metal roofing. Show expiration date no earlier than two months after scheduled end of sheet metal roofing.

F Qualification Data: For installer, including but not limited to manufacturer's current certification document.

G Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency like FM, for sheet metal roofing system and portable roll-forming equipment. Include reports for structural performance

H Warranties: Special warranties specified in this Section.

1.4 Quality Assurance

A Unless accepted otherwise by the Engineer, use manufacturers and installers that employ a Quality Management System complying with the program described in ISO 9001-2000, or similar system.

B Installer Qualifications: Approved installer recommended by manufacturer.

C Roll-Formed Sheet Metal Roofing Fabricator Qualifications: An authorized representative of roll-formed sheet metal roofing manufacturer for fabrication and installation of units required for this.

D Approval of mock-ups is for other material and construction qualities specifically approved by Engineer in writing. Approval of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless such deviations are specifically approved by Engineer in writing.

E Preliminary Roofing Conference: Before starting roof purlin and rafter construction, conduct conference at Project site. Comply with requirements for pre-installation conferences. Review methods and procedures related to roof purlin and rafter construction and sheet metal roofing including, but not limited to, the following:

1. Meet with Employer, Engineer, Employer's insurer if applicable, sheet metal roofing Installer, manufacturer's representative for sheet metal roofing portable roll-forming equipment, purlin and rafter Installer, and installers whose work interfaces with or affects sheet metal roofing including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to sheet metal roofing installation, including portable roll-forming equipment manufacturer's written instructions.
4. Examine purlin and rafter conditions for compliance with requirements, including flatness and attachment to structural members.
5. Review structural loading limitations of purlins and rafters during and after roofing.
6. Review flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect sheet metal roofing.
7. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable.
8. Review temporary protection requirements for sheet metal roofing during and after installation.
9. Review roof observation and repair procedures after sheet metal roofing installation.

F Pre-installation Conference: Conduct conference at Project site.

1. Review methods and procedures related to sheet metal roofing including, but not limited to, the following:
2. Meet with Employer, Engineer, Employer's insurer if applicable and sheet

1.5 Warranty

A Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal roofing that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period:
   a. Paint coating & Colour – 20 years from the date of completion of installation.
   b. Metal – 10 years from the date of completion of installation.

Note: Manufacturer agrees to extend warranty to 20 years if cleaning and maintenance is performed and documented by Employer per Manufacturer's recommendations.

Specification
CSI MasterSpec

B Special Installer's Warranty: Roofing Installer's warranty, on warranty form at end of this Section, signed by Roofing Installer, in which Roofing Installer agrees to repair or replace components of custom-fabricated sheet metal roofing that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures.
   b. Loose parts.
   c. Wrinkling or buckling.
   d. Failure to remain weather-tight, including uncontrolled water leakage.
   e. Deterioration of metals, metal finishes, and other materials beyond normal weathering, including non-uniformity of colour or finish.
   f. Galvanic action between sheet metal roofing and dissimilar materials.
2. Warranty Period: Ten years from the date of completion of installation.

PART 2 – PRODUCTS

2.1 Roofing Sheet Metals

A External sheets: Mechanically Zipped Aluminium Secret Fixed Standing Seam Roofing System.

1. Material:
   Aluminium Alloy – EN AW-3004 AlMn1Mg1. Ultimate tensile strength – min 225 N/mm².
   0.2 % Proof stress – min 200 N/mm². Modulus of elasticity – 70,000 N/mm².

   Steel at 320 MPa Yield Strength.
2. Profile reference: KingZip 65/400 standing seam
3. Nominal thickness / gauge: 0.9 mm or 1 mm or 1.2 mm (select any one)
4. External Finish (select any one): Kingspan Polyester or 2/3/4-coat (select one) Kingspan PVDF / or Kingspan Spectrum 60/90 µ (select one) / Kingspan Anodised painted to manufacturer's standard colour
5. Other requirements: Standing seam sheets to be in one length as much as possible to avoid horizontal laps. Sheets shall be supplied in one length, naturally laid to fall or smooth curved to suit roof radius, avoiding a ridge condition if possible
6. System shall be certified to FM 4471 Class 1 and UL 580 Class90 ratings. System shall have local test(s) certification(s), as applicable.
7. Flashing: Aluminium alloy or galvanised / alloy coated steel, gauge / thickness and finish to match roof cladding system's external / internal sheet, as applicable
8. Accessories: Fix extruded Aluminium Alloy (EN AW-6082) or Thermo (select any one) halters and steel lining sheet to galvanised mild steel purlins with self drilling stainless steel grade 304 or 316 (select any one) fasteners.
   Thickness of sub-purlin and bracket to be determined based on length of sheet but a minimum of 1.6 mm.
   Polyamide thermal barrier pads to halter base.
9. Extruded Aluminium Alloy or Thermo (select any one) Halters
10. Polyamide Thermal Barrier Pads
11. Pressed Aluminium Alloy Channel Verge Cap
12. Pressed Aluminium Alloy Ridge Support
13. Ridge Closure Zed
14. Pressed Aluminium Alloy Drip Angle
15. Fabricated Aluminium Alloy (AA3004) Flashings – Material and finish as per Cladding sheets or as per project requirements.
16. Side Laps: To be mechanically seamed with a zipping machine.
17. Primary cladding sheet fasteners: Carbon steel self-drilling screws complete with stainless steel / EPDM bonded washers – thread type and length to suit construction.

18. End laps: None, unless absolutely required by design
19. Thermal Insulation: As clause 2.6
20. Vapour Control Layer: As clause 2.6

2.3 Steel Liners

A General: Provide profiled liner sheets as follows:

a. Shall be WA200 profile, polyester painted to colour on facing side minimum G90 galvanised or AZ150 alloy coated steel building sheet (coloured finish shall face the internal area of the building). Sheet shall be of structural grade conforming to ASTM A653 and having a cover width of 1000 mm. Sheets shall be crimp curved to suit roof design, where applicable

b. Surface: Solid or perforated, as applicable.

c. Thickness: 0.7 mm, unless otherwise indicated.

d. Exposed Finishes: Apply the following coil coating, as specified or indicated on Drawings:

e. Siliconised-Polyester Coating: Epoxy primer and silicone-modified, polyester- enamel topcoat; with a dry film thickness of not less than 5 microns for primer and 20 microns for topcoat.

f. Colour: As selected by Engineer from manufacturer's full range.

2.4 Miscellaneous Materials

A General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for a complete roofing system and as recommended by fabricator for sheet metal roofing.

B Fasteners: Self-drilling grade 304 or 316 (select any one) stainless steel screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.

1. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
2. Blind Fasteners: High-strength aluminium or stainless-steel rivets.
3. Steel liner fastening to purlins: Self-tapping stainless-steel screws.

C Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, non sag, non-toxic, non staining tape.

D Elastomeric Joint Sealant: ASTM C 920, of base polymer, type, grade, class, and use classifications required to produce joints in sheet metal roofing that will remain weather tight and as recommended by roll-formed sheet metal roofing manufacturer for installation indicated.

E Expansion-Joint Sealant: For hooked-type expansion joints, which must be free to move, provide non setting, non hardening, non migrating, heavy-bodied polyisobutylene sealant.

2.5 Accessories

A Sheet Metal Roofing & Steel Panel Accessories: Provide components required for a complete sheet metal roofing assembly including secondary support components, trim, copings, fascia, corner units, ridge closures, halters, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of sheet metal roofing, unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as sheet metal roofing.
2. Fixations: Provide 304 grade stainless-steel self-drilling screws for liner and halter to purlin fixation.
3. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
4. Closures: Closed-cell, expanded, cellular, rubber or cross-linked, polyolefin foam or closed-cell laminated polyethylene; minimum 25 mm thick, flexible closure strips; cut or pre-molded to match sheet metal roofing profile. Provide closure strips where indicated or necessary to ensure weather tight construction.

Specification
CSI MasterSpec

5. Halters: Provide aluminium halter brackets of a height corresponding to insulation thickness, with thermal pads or thermohalters (select any one) to reduce thermal bridging.
6. Halter supports: Provide 1.5 mm G90 galvanized steel 'top hat' runners per manufacturer's recommendations, height equal to that of acoustic slab, spaced to conform to load requirements.
7. Rivets: Provide bulbtite rivets.

Free sliding aluminium extrusion allowing thermal movement at expansion joints.

B Flashing and Trim: Provide flashing and trim as required to seal against weather and to provide finished appearance. Interior: 0.7 mm thick, zinc-coated steel sheet or aluminium-zinc alloy- coated steel sheet pre-painted with coil coating; exterior: 0.90 mm thick aluminium to match exterior cladding. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fascia, and fillers. Finish flashing and trim with same finish system as adjacent sheet metal roofing.

C Gutters: To be fabricated from minimum 1.2 mm aluminium to suitable dimensions determined by roof / gutter drain calculation. All joints to be site welded by installation contractor. Gutter shall be supported on 5 mm thick painted GI brackets spaced at maximum 500 mm centres.

D T-Pren expansion joints to be provided at 8 metre intervals along the full length of the gutter.

E Downspouts: Formed from 2 mm thick extruded aluminium pipe and placed at intervals as required by gutter drain calculation. Spouts to have welded collars, minimum 50 mm wide.

F Built-in Gutters: Formed from aluminium sheet pre-painted with coil coating, thickness as calculated by manufacturer to withstand foot traffic. Fabricate in minimum 3000 mm long sections

2.6 Insulation (Thermal & Acoustic) And Vapour Control

A Rock-fibre Insulation: ASTM C 665, type indicated below; consisting of fibres manufactured from stone wool

1. Shall be minimum 160 mm thick rock wool blanket at density of 40 kg/m³, compressed to 148 mm during installation, one side reinforced aluminium foil faced, supplied in polyethylene bags, thickness as indicated on the drawings.
2. A net 'U' value of 0.25 W/m²K shall be achieved considering thermal bridging and heat gain through the roofing system connections. Thermal modelling shall be provided to substantiate conformity to thermal insulation.

B Vapour Control Layer: Water vapour permeability shall be less than 0.01 g/m²/day when tested to DIN 53122 and water vapour resistance shall be minimum 25,000 MNs when tested to BS 3177.

1. Shall be a multi-layer composite membrane with a woven polypropylene reinforcing mesh sandwiched between two layers of UV stabilized virgin polyethylene film having an aluminium foil core. The origin shall be UK.

C Use cement board of appropriate thickness and 1250 kg/m³ density for acoustic performance of the roofing system where applicable.

2.7 Fabrication

A General: Fabricate roll-formed sheet metal roofing panels to comply with details shown and roll-formed sheet metal roofing manufacturer's written instructions.

B Fabricate sheet metal roofing to allow for expansion in running work sufficient to prevent leakage, damage, and deterioration of the Work. Form exposed sheet metal work to fit substrates without excessive oil canning, buckling, and tool marks, true to line and levels indicated, and with exposed edges folded back to form hems.

1. Lay out sheet metal roofing so cross seams, when required, are made in direction of flow with higher pans overlapping lower pans.
2. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of metal roofing to profiles, patterns, and drainage arrangements shown and as required for leakproof construction.

C Expansion Provisions: Include provisions for expansion of metal per manufacturer's recommendations.

D Sealant Joints: Where movable, non expandable type joints are indicated or required to produce weathertight seams, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.

E Metal Protection: Where dissimilar metals will contact each other, protect against galvanic action by using PVC barrier tape as per manufacturers recommendations.

2.8 Finishes, General

A Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and specifying finishes.

B Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

Part 3 – Execution

3.1 Examination

A Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, sheet metal roofing supports, and other conditions affecting performance of work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored, and that provision has been made for roof drains, scuppers, flashings, and penetrations through sheet metal roofing.
3. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.

B Examine roughing-in for components and systems penetrating sheet metal roofing to verify actual locations of penetrations relative to seam locations of sheet metal roofing before sheet metal roofing installation.

C Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation, General

A General: Install sheet metal roofing perpendicular to purlins or supports. Anchor sheet metal roofing and other components of the Work securely in place, with provisions for thermal and structural movement. Install fasteners, separators, sealants, and other miscellaneous items as required for a complete roofing system and recommended by fabricator for sheet metal roofing and steel panel manufacturer. Field cutting of sheet metal roofing permitted only on manufacturer advice. Rigidly fasten eave end of sheet metal roofing and allow ridge end free movement due to thermal expansion and contraction. Provide metal closures at rake edges and each side of ridge caps. Flash and seal sheet metal roofing with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws. Locate and space fastenings in uniform vertical and horizontal alignment. Install ridge caps as sheet metal roofing work proceeds. Lap metal flashing over sheet metal roofing to allow moisture to run over and off the material.

B Fasteners: Use fasteners of sizes that will not penetrate completely through substrate.

C Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by using a PVC barrier tape per the manufacturer's recommendations.

D Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

E Fascia: Align bottom of sheet metal roofing and fasten with blind rivets, bolts, or self-tapping screws. Flash and seal sheet metal roofing with weather closures where fascia meet soffits, along lower panel edges, and at perimeter of all openings.

F Walking boards: to be used during construction, as liners are not intended to support foot traffic.

Specification
CSI MasterSpec

3.3 On-Site, Roll-Formed Sheet Metal Installation

A General: Install on-site, roll-formed sheet metal roofing to comply with sheet metal roofing manufacturer's written instructions for UL wind-uplift class indicated. Provide sheet metal roofing of full length from eave to ridge.

B Standing-Seam Sheet Metal Roofing: Fasten sheet metal roofing to supports with concealed halters at each standing-seam joint at location, spacing and with fasteners recommended by the manufacturer.

1. Install halters to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Seamed Joint: Standing seams with manufacturer-approved motorized seamer tool.
4. Free sliding aluminium extrusion allowing thermal movement of the standing seam roofing

3.4 Accessory Installation

A General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete sheet metal roofing assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

B Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 3 m with no joints allowed within 600 mm of corner or intersection.

D Gutters: Join sections with site welding Attach gutters to eaves with painted 5 mm thick GI and painted gutter brackets spaced not more than 500 mm apart, using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

E Downspouts: Join sections with 38 mm telescoping joints. Provide fasteners designed to hold downspouts securely 25 mm away from walls; locate fasteners at top and bottom and at approximately 1500 mm centres.

F Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet sheet metal roofing.

3.5 Cleaning and Protection

A Remove temporary protective coverings and strippable films, if any, as sheet metal roofing is installed. On completion of sheet metal roofing installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.

B Replace panels that have been damaged or have deteriorated beyond successful repair by finish touch-up or similar minor repair procedures.


NORTHERN
BEACHES
COUNCIL

05 INTEGRATED SOLUTIONS

Daylighting
Kingspan Arcade Plus Rooflight

The Arcade Plus Rooflight is an energy-efficient, thermally broken system with an arched aluminium and PVC profile structure. It is particularly suitable for more demanding installations with respect to insulation, sealing and protection against condensation.

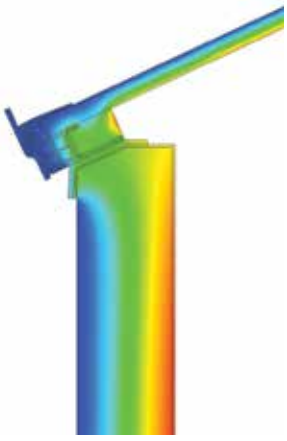
Application areas

- Industrial flat roofs up to a maximum roof pitch of 20° (max. 5° parallel to the ridge)
- Greater pitch angles on request
- Heated industrial halls, sports and exhibition halls, commercial and office buildings
- New-builds and energy efficiency renovation projects

Material

- Aluminium and PVC profile systems
- Panel material made of polycarbonate multiwall panels, PETG, GRP, glass mat

Cross-section of isothermal properties for Kingspan Arcade Plus rooflight without additional insulation in the support area



Cross-section of isothermal properties for Kingspan Arcade Plus rooflight with additional insulation in the support area

Features and benefits

- Available in any length, in spans from 1 to 6 metres
- Excellent U-value performance due to thermally separated profile systems
- High insulation capacity in the support area due to multiwall PVC profiles
- Reduced condensation risk where demands are greater due to optional insulation in the support area
- Thermally broken systems
- Extendable modular design with a wide range of accessories
- Individually adjustable to static requirements
- The entire system has excellent sealing properties
- Reduced heating costs due to highly efficient overall design
- Design options for dispersing high snow or sand loads
- Compatible with safety and fall-through protection systems
- Intelligent connection technology due to EPDM frame safety connection
- Non-fragile Class B in accordance with ACR(M)001:2014 and EN 14963 Class SB1200
- Different glazing options available for a wide range of requirements such as protection against heat, sound, solargain or airtightness
- Approved according to European Technical Approval ETA –17/0482 and type approval

ME Only

- U-value, light transmission and G-value performance are compliant with Dubai Green Building Regulations
- Compliant with UAE Fire and Life Safety Code of Practice 2018 Edition

Kingspan Arcade Plus Rooflight

Glazing Options	Span Width (m)	U-Value (W/m^2K)	Sound Insulation (dB)	Light Transmission[3] (%)	G-Value[3] Opal (%)	Fire Behaviour EN 13501
PC 16/7	2.00 – 6.00	1.8[1]	21	45	46	B-s1,d0
PC 20/7	2.50 – 6.00	1.6	23	44	45	B-s1,d0
PC 10/4 + 10/4	1.00 – 6.00	1.7	24	37	43	E
PC 10/4 + glass mat + PC 10/4[2]	1.00 – 6.00	1.7	24	27	33	E
PC 16/7 + 10/4[2]	2.00 – 6.00	1.3	24	28	37	E
PC 16/7 + glass mat + PC 10/4[2]	2.00 – 6.00	1.3	24	20	29	E
PC 16/7 + 6 mm PETG	2.00 – 6.00	1.8	30	38	43	E
PC 16/7 + PC 16/7	2.00 – 6.00	1.1	25	21	28	E
PC 10/2 with Aerogel filling	1.00 – 3.30	2.0	21	74	71	E
PC 16/3 with Aerogel filling	2.00 – 3.50	1.3	21	65	64	E
PC 20/3 with Aerogel filling	2.50 – 3.50	1.1	21	63	63	E
PC 16/7 IR control white	2.00 – 6.00	1.8[1]	21	22	31	B-s1,d0

1 Vertical installation.
2 Meets the requirements for B roof (t1) 'hard roofing'.
3 Opal glazing only, others on request.

Kingspan Arcade Plus Rooflight – ME Edition

Glazing Options	Thickness (mm)	Weight per Unit (kg/m^2)	Span Width (m)	U-Value (W/m^2K)	Sound Insulation (Db)	Light Transmission (%)	G-Value Opal (%)	Fire Behaviour	
								EN 13501-1	ASTM E84
8/4 OPAL PC MW CRL + 8/4 NO UV OPAL IR PC MW CRL	16 +/ - 1.00	3 +/ - 1.00	1.00 – 6.00	1.9	22	40	32	B-s1,d0	Class A

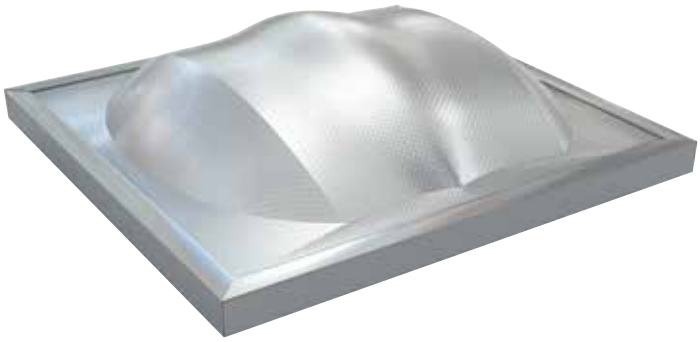
Compliant with UAE Fire and Life Safety Code of Practice 2018 Edition.

U-Value, Light Transmission and G-Value performance are compliant with Dubai Green Building Regulations.

Daylighting
Kingspan Day-Lite Kapture KS1500 DLK

Our first 100 % diffusion rooflight, designed to integrate with the KingZip roof system.

The unique, contoured design of Kingspan Day-Lite Kapture rooflight allows it to capture enhanced levels of natural light at low sun angles – illuminating internal spaces during early morning and late evening. Its advanced nano-prismatic technology efficiently scatters light ensuring excellent levels of light transmission and eliminating hot-spots and glare.



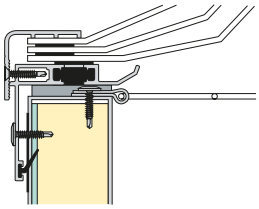
Product Specification

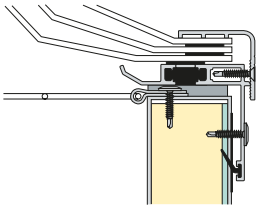
Application:	Suitable for any roof pitch
Fire performance:	Achieves European class B-s1,d0 to EN13501, which can be regarded as an AA (National class) designation or BROOF (t4) (European class)
Non-fragility performance:	Achieves ACR [M]001: 2014 Class B and BS EN 1873:2014 Class SB1200
Warranty:	Guaranteed structural, thermal and UV resistance performance for up to 25 years

Light Transmission

Product Reference	Diffusion (%)	SHGC (G-Value)	Light Transmittance (%)**
Standard	100	0.70	83
Climate control	100	0.45	81

**Light transmission according to EN 410 is as measured on 600 mm x 600 mm samples.





Dimensions, Weight & Performance

Product Reference	KERB O.D		External Dimensions		Daylight Opening Dimensions			Weight (kg)*	U-Value (W/m^2K)	SHGC		Light Transmittance (%)
	Length (mm)	Width (mm)	Length (mm)	Width (mm)	Length (mm)	Width (mm)	Area (m^2)			Diffusion (%)	G-Value (%)	
KS700DLK	780	780	810	810	692	692	12	12	2.2	100	0.70	83
KS700DLKCC	780	780	810	810	692	692	12	12	2.2	100	0.45	81
KS1400DLK	780	1560	810	1590	692	1472	24	24	2.2	100	0.70	83
KS1400DLKCC	780	1560	810	1590	692	1472	24	24	2.2	100	0.45	81
KS1500DLK	1630	1560	1660	1590	1542	1472	44	44	2.2	100	0.70	83
KS1500DLKCC	1630	1560	1660	1590	1542	1472	44	44	2.2	100	0.45	81
KS2750DLK	2845	1560	2875	1590	2757	1472	62	62	2.2	100	0.70	83
KS2750DLKCC	2845	1560	2875	1590	2757	1472	62	62	2.2	100	0.45	81

Notes:
* To be confirmed. Weight does not include kerb or mesh.
Light transmission, according to EN 410, is as measured on 600 mm x 600 mm samples.
Glazing options: CC – climate control

Energy Solutions
Solar PV

We deliver tailored rooftop solar PV systems, designed to maximise on-site energy consumption whilst protecting the structural integrity of your roof with our unique combined panel and PV warranty.

Product Benefits

- Module size of 1.6 m x 0.99 m
- Suitable for pitched and flat roof applications
- Can be installed on new build, retrofit and refurbishment projects
- Customised mounting systems to maximise energy generation
- In-house invertor system design
- Top sheet mounted systems eliminating cold bridging
- Structurally tested in conjunction with KingZip
- Combined PV and roof panel offering
- 25 year performance warranty

Typical Rooftop Solar PV System Output

System Size	Dimension (m²)	Output (Watt / Kilowatt)
1 solar panel	1.6	~ 270 – 295 W
4 solar panels	7	~ 1 kW
370 solar panels	610	~ 100 kW
926 solar panels	1528	~ 250 kW
1852 solar panels	3056	~ 500 kW

Dimensions, Weight & Performance

Roof Type	U-Value (W/m²k)	Fire Rating	BRE Rating*	Lengths (m)
Pitch of 1.5° or more	0.15 – 0.45	FM	A+	1.8 – 25.7

* Dependent on building application.

Facades
Kingspan Facade Solutions on KingZip

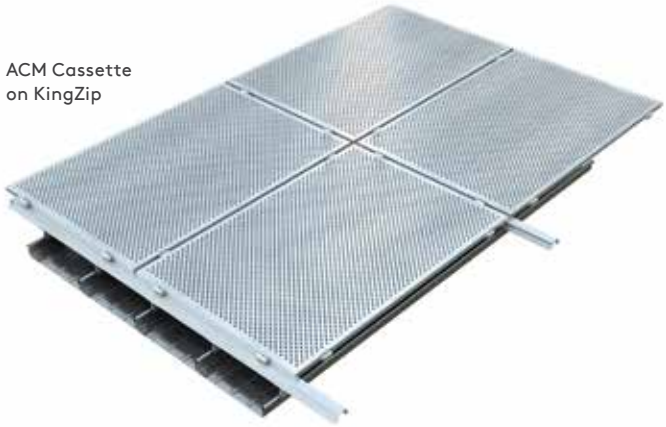
Kingspan Facade systems, such as ACM cassette panels or Shingles, can be mounted on top of KingZip standing seam system to achieve alternative architectural finishes while having a weatherproof non-penetrative base.

Product Benefits

- Alternative architectural finishes to standing seam systems
- Vast range of colours and finishes
- Lightweight and versatile cladding solutions
- Large selection of materials: A2 ACM, solid aluminium, copper, corten, stainless or painted steel and VM zinc

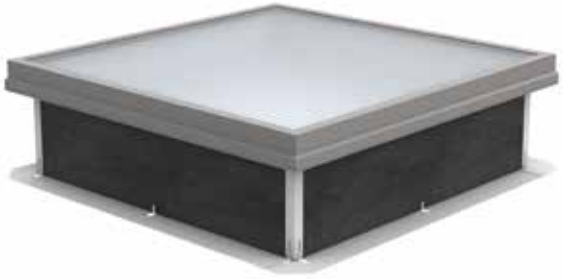
Visit www.kingspanpanels.com for more information on Kingspan Facade cladding solutions including Dri-Design.

Shingle on KingZip



ACM Cassette on KingZip

Safety System
Access Hatches



We custom design and manufacture a range of integrated upstands for vents, access hatches and other penetrations to project specific requirements.

It features a flat or angled insulated galvanised steel kerb and a multi-wall polycarbonate or aluminium cover. The straight metal kerb is made of galvanised steel and insulated.
The skylight may be equipped with side mechanism, a retractable handrail, a ladder and fixing bar, an opening RE protection grid, and can be closed with the locking system.

Features and Benefits

- Ready-to-install solution with all the functions necessary for roof access: handrail, opening protection grid, ladder fixing bar and ladder
- Suitable for reinforced insulation of the skylight – 20 % of savings compared to standard equipment
- A facilitated and safe access to roof
- Frame and cover are factory-assembled to ensure quality and protection
- Optional varnishing of metal kerb
- Optional extra: peripheral guardrails to secure roof access

Applications

This access hatch offers an easy access to the roof and is suitable for all KingZip applications.

Safety System
Smoke Management

We manufacture the industry's most effective heat and smoke vents with multiple options for framing, glazing, listing and lifting loads providing high-performance fire-safety.

As smoke safety is a primary consideration in any construction, Kingspan offers straightforward and effective smoke management solutions that integrate with the KingZip roof system.

Features and Benefits

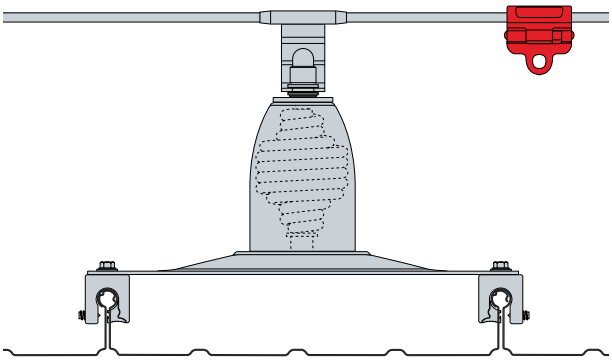
- Ventilating skylights
- Tubular skylights
- Structural and self-flashing curbs
- Safety screens, security grills and external safety cages
- Roof access hatches, gravity vents, solar attic fans and canopies

Safety System
SafePro2

SafePro2 is an innovative personal fall protection system, designed to protect both the worker and the roof to which it is fixed. The SafePro2 system comprises a high-strength steel cable, supported on energy-absorbing roof anchor posts.

Roof anchor posts incorporate force minimisation technology, which limits the load transferred to the roof in a fall arrest event to less than 6 kN. This is a significant improvement on previous types of force control posts which applied a load of 10 kN or more.

SafePro2 is one of the easiest systems available on the market when it comes to design, installation and usage.



Features and Benefits

- Fully compliant with ACR[M]002: 2009 Testing of Roof Anchors on Roof Systems
- High-grade stainless steel and aluminium components, providing superior levels of corrosion resistance, durability and service life
- Advanced fixing design allows efficient installation without the need to access the underside of the roof
- Systems are fixed to the top skin only, with no penetration of the insulation, eliminating thermal bridging
- Can be installed to ensure safe installation and maintenance of Kingspan Energy Rooftop Solar PV
- Highly-evolved force minimisation technology

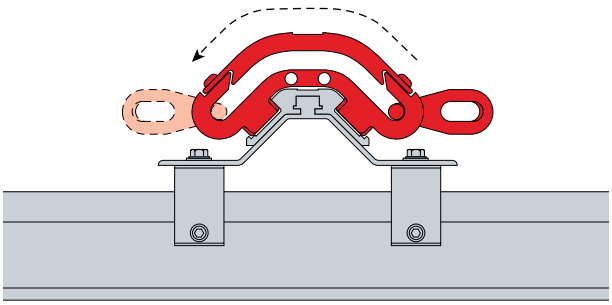
Product Specification

System type:	Anchor
Application:	Personal fall protection system
Fixing detail:	Top-skin (no insulation penetration)
Metal type:	High-grade stainless steel and aluminium
Installation	During or after construction
Testing:	Fully compliant with BS EN 795:C 1997
Load:	Less than 6 kN
Guarantee:	25 year product guarantee

Safety System
SafeTraxx

SafeTraxx is a robust personal fall protection system, comprising a high-grade precision extruded aluminium rail. This flexible rail-based anchor system dissipates forces in a fall arrest event to minimise potential damage, and provide protection, across the whole roof area.

Featuring a discreet low profile rail, the SafeTraxx system minimises aesthetic impact whilst also providing high resistance to wind and snow loading. Various colour options are available to offer a complementary or contrasting finish.



Features and Benefits

- High-grade steel and aluminium components, providing superior levels of corrosion resistance, durability and service life
- Advanced fixing design allows efficient installation without the need to access the underside of the roof
- Systems are fixed to the top skin only, with no penetration of the insulation, eliminating thermal bridging
- Can be installed to ensure safe installation and maintenance of Kingspan Energy Rooftop Solar PV
- Can be installed during or after construction

Product Specification

System type:	Rail
Application:	Personal fall protection system
Fixing detail:	Top-skin (no insulation penetration)
Metal type:	Precision extruded aluminium rail
Installation	During or after construction
Testing:	Fully compliant with BS EN 795:D 1997
Load:	Less than 10 kN
Guarantee:	25 year product guarantee

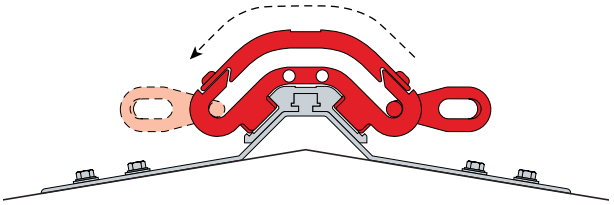
Safety System
SafeRidge

SafeRidge is a personal fall protection system comprising a high-grade precision-extruded aluminium rail, factory-fitted to a steel ridge capping (which is bespoke and fabricated for each roof). This unique rail-based anchor system is designed to dissipate fall arrest forces across a wide roof area, minimising potential damage to the roof.

Featuring a discreet low profile rail, the SafeRidge system minimises aesthetic impact whilst also providing high resistance to wind and snow loading. Various colour options are available to offer a complementary or contrasting finish.

Features and Benefits

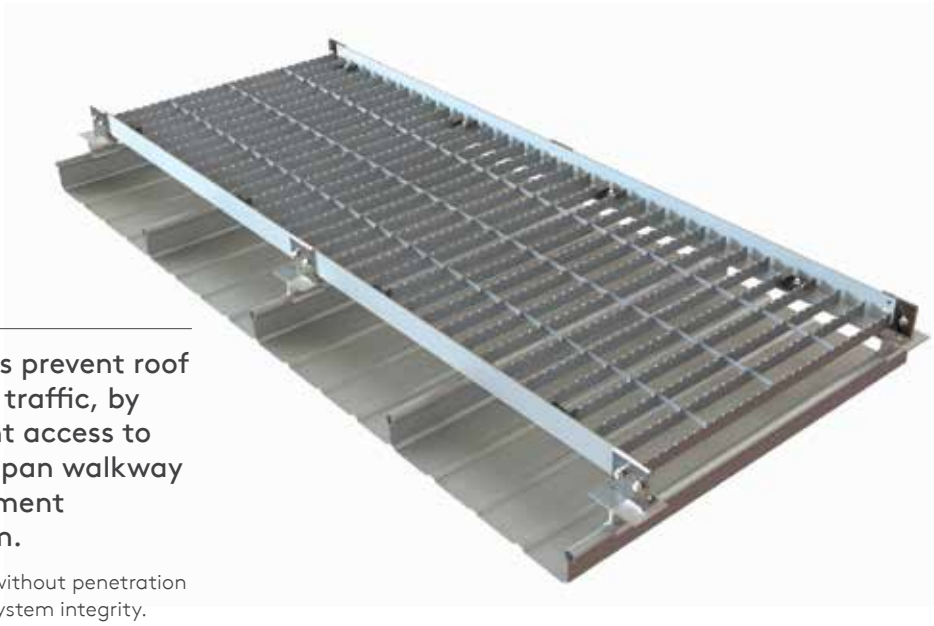
- High-grade steel and aluminium components, providing superior levels of corrosion resistance, durability and service life
- Advanced fixing design allows efficient installation without the need to access the underside of the roof
- System is fixed to the top skin only, with no penetration of the insulation, eliminating thermal bridging
- Can be installed to ensure safe installation and maintenance of Kingspan Energy Rooftop Solar PV



Product Specification

System type:	Rail
Application:	Personal fall protection system
Fixing detail:	Top-skin (no insulation penetration)
Metal type:	High-grade stainless steel and aluminium
Installation	During or after construction
Testing:	Fully compliant with BS EN 795:1997 Class D
Guarantee:	25 year product guarantee

Safety System
Walkways

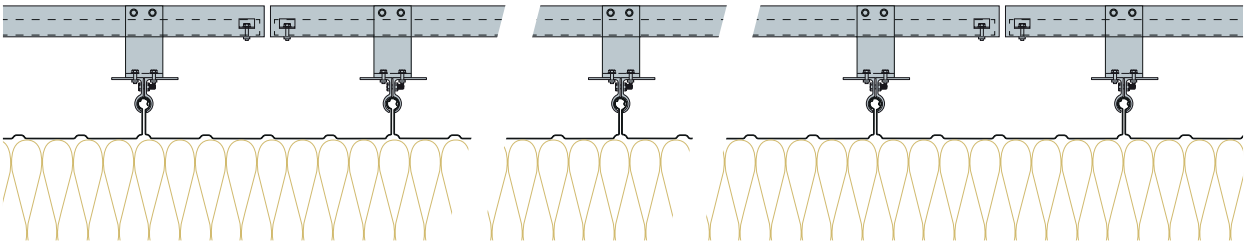


Kingspan aluminium walkways prevent roof sheet damage caused by foot traffic, by allowing a safe and convenient access to and across the roof. The Kingspan walkway system is designed to complement KingZip Standing Seam System.

The walkways are fixed to the roof profile without penetration of the sheeting, maintaining the KingZip system integrity.

Kingspan has developed a system of anchoring clamps that is specifically designed for the KingZip Standing Seam System. The KingZip clip is attached to the rib of the standing seam using a single stainless steel bolt and nut, that can be easily released to allow for the repositioning or the removal of the walkway.

An optional extra for this walkway is a cost effective handrail with slim profiles posts to one or both sides, using a 25 mm diameter aluminium tube and 8 mm stainless steel wires, creating an unobtrusive and safe access walkway.



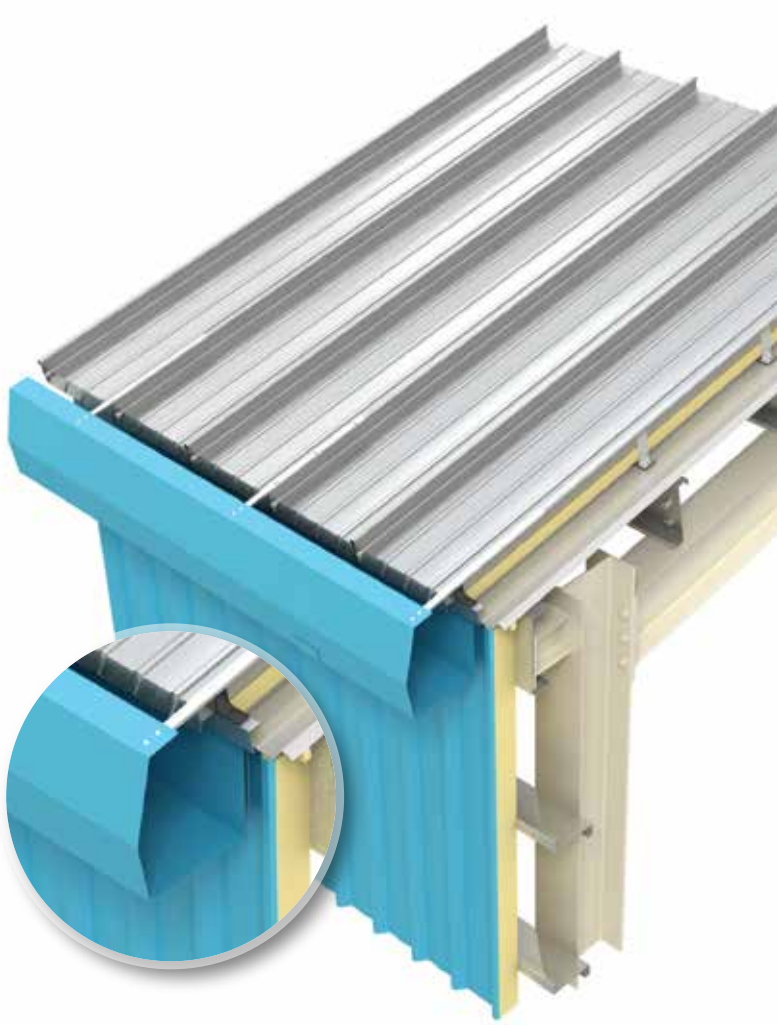
Features and Benefits

- High-grade steel and aluminium components, providing superior levels of corrosion resistance, durability and service life
- Advanced fixing design allows efficient installation without the need to access the underside of the roof
- On roofs up to 6° pitch walkways can be laid to falls. Over 6° levelling kits are available
- Special sections, such as corner units and staircase units, are manufactured to order. Please contact our Technical Department for details
- Handrails are available as an optional extra upon request

Product Specification

Metal type:	External frame: aluminium extrusion 6082TF alloy, thickness 2-3 mm Support rails: aluminium channel 6082TF alloy 3 mm thick Treads: aluminium or steel standard grating system
Size:	3m x 600 mm, with 100 mm upstand integral kick plate each side
System type:	Aluminium walkway
Application:	Personal fall protection system
Fixing detail:	Top-skin (no insulation penetration)
Metal type:	Precision extruded aluminium rail
Installation	During or after construction
Load:	Less than 3 kN
Guarantee:	25 year product guarantee

Rainwater System
Highline Gutters

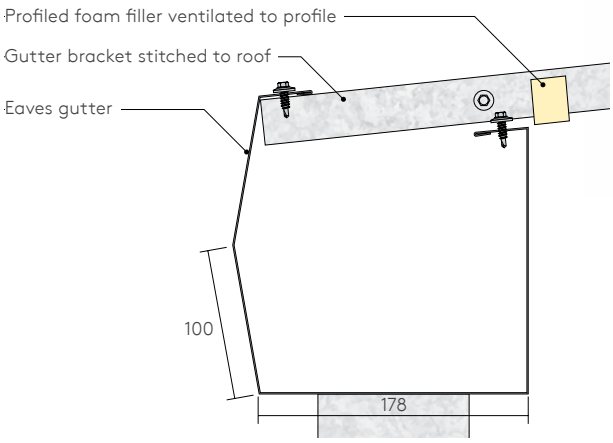


Our Highline gutter systems, available in a variety of colours and finishes, come complete with a full gutter design package.

The Highline gutter systems are a lightweight solution that is quick and efficient to install.

Features and Benefits

- Manufactured from high-quality steel
- Full gutter design package provided to ensure functionality and aesthetics
- Quick and efficient to install
- Available in a range of corrosive resistant finishes
- Standard pre-coat finishes include Kingspan PVDF, Kingspan Spectrum, Kingspan Polyester 25 Micron, Kingspan Anodised and Kingspan ARS
- Rainwater pipes available to match pre-coated gutters upon request



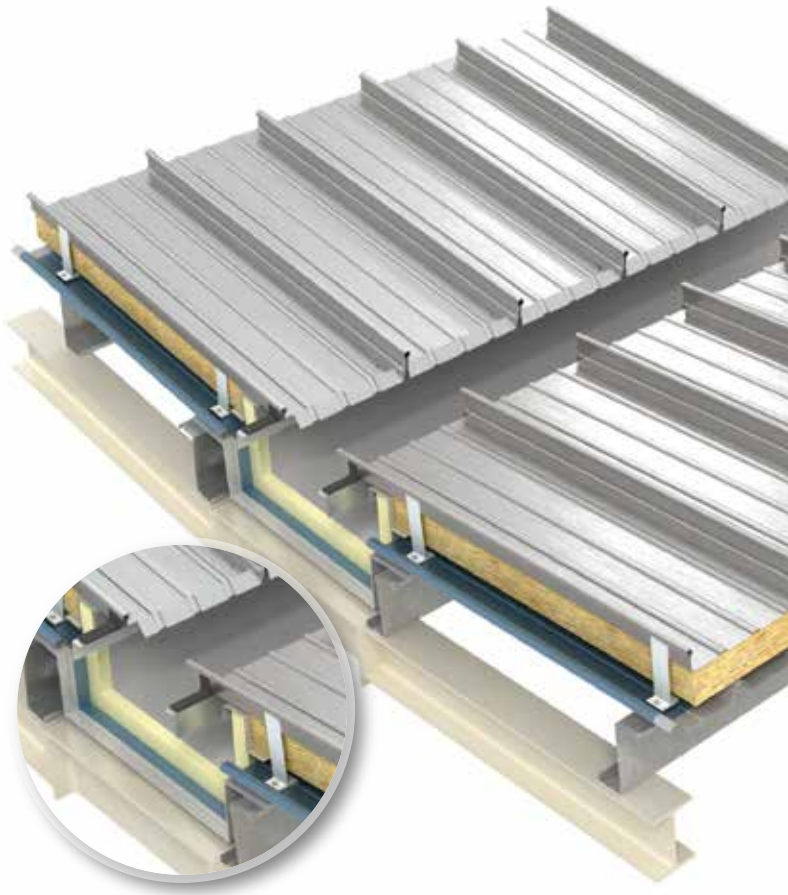
Product Specification

Metal type:	High-quality steel
Lengths:	Available in lengths up to 6 m

Applications

Suitable for external eaves gutter applications for industrial buildings. For further information, rainwater drainage calculations and standard construction details please contact the Kingspan Technical Services Department.

Rainwater System
Insulated Gutters



Our insulated gutter range is suitable for boundary wall, valley and valley-hip applications.

The system is lightweight and available in up to 8 m lengths for quick installation.

Features and Benefits

- Guaranteed for structural and thermal performance
- Available in lengths up to 8 m maximum. Longer lengths mean less joints, less welding and less risk plus faster installation
- Lightweight and easy to install
- Factory-fitted outlets on request, including customer's own syphonic outlets
- Designed to be walkable during installation

Product Specification

Material options:	IKO Armourplan membrane is available in Mid Grey (RAL 7046), whilst Sika-Trocal membrane is available in either Light Grey (RAL 7047) or Slate (RAL 7015), galvanised steel or aluminium
Lengths:	Available in lengths up to 8 m

Applications

Suitable for boundary wall, valley and valley-hip gutter applications for most building types. For further information, rainwater drainage calculations and standard construction details please contact the Kingspan Technical Services Department.

Dimensions & Performance

Core Thickness (mm)	30	40	50	60	70	80	100
U-Value (W/m²K)*	0.67	0.51	0.41	0.35	0.30	0.26	0.21

Notes:
* Based upon 1m² of top sheet, insulation and liner.
The U-value has been calculated using PIR insulation core.

Fabrications
Flashings

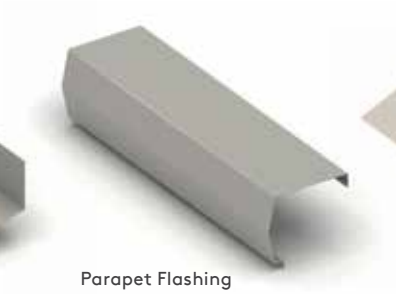
From simple functional flashings to attractive aerofoil eaves, fascia panels and cappings, our range combines functionality, performance and true aesthetics to provide the finishing touch to any building envelope.

With a wide selection of materials, gauges and finishes available, the possibilities for fabricated flashings are endless. Material options include pre-coated steel, galvanised steel and aluminium combined with a selection of insulated backings. Secret-fix joint details are also offered, providing clean uninterrupted lines.

Product Specification

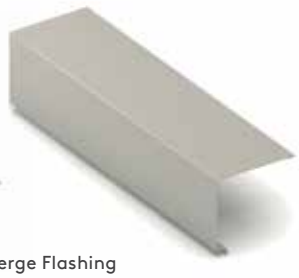
Profiles:	Bullnose, corner, drip, ridge, verge and parapet profiles available
Fixing detail:	Through-fix and secret-fix joint details offered
Metal type:	Available in high-quality steel and aluminium
Lengths:	Available in lengths up to 6 m
Colours:	Please see finishes and coatings section

Drip Flashing



Parapet Flashing

Ridge Flashing



Verge Flashing

Corner Flashing

Bullnose Flashing

Fabrications
Roof Apertures

Our roof aperture units are custom designed to suit individual project needs.

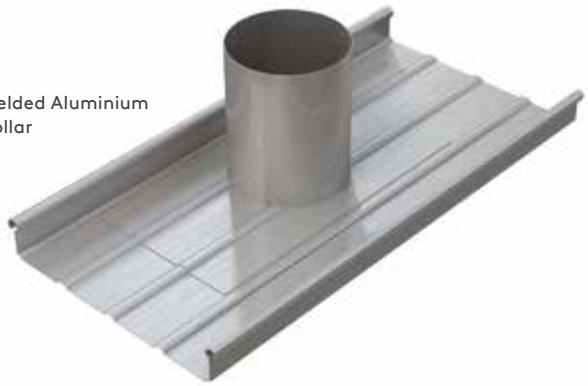
Manufactured from high-quality steel, PPC or anodised aluminium, our roof apertures integrate seamlessly with the KingZip roof system.

Product Specification

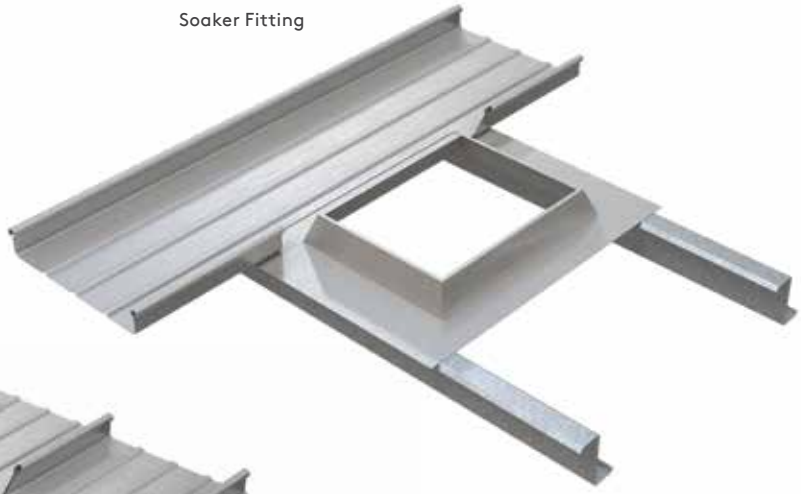
Profiles:	Various module sizes, profiles and shapes
Metal type:	Aluminium, PPC or anodised
Colours:	Standard pre-coat and PPC finishes available

Applications

Factory made or site fabricated and welded on site.



Welded Aluminium Collar



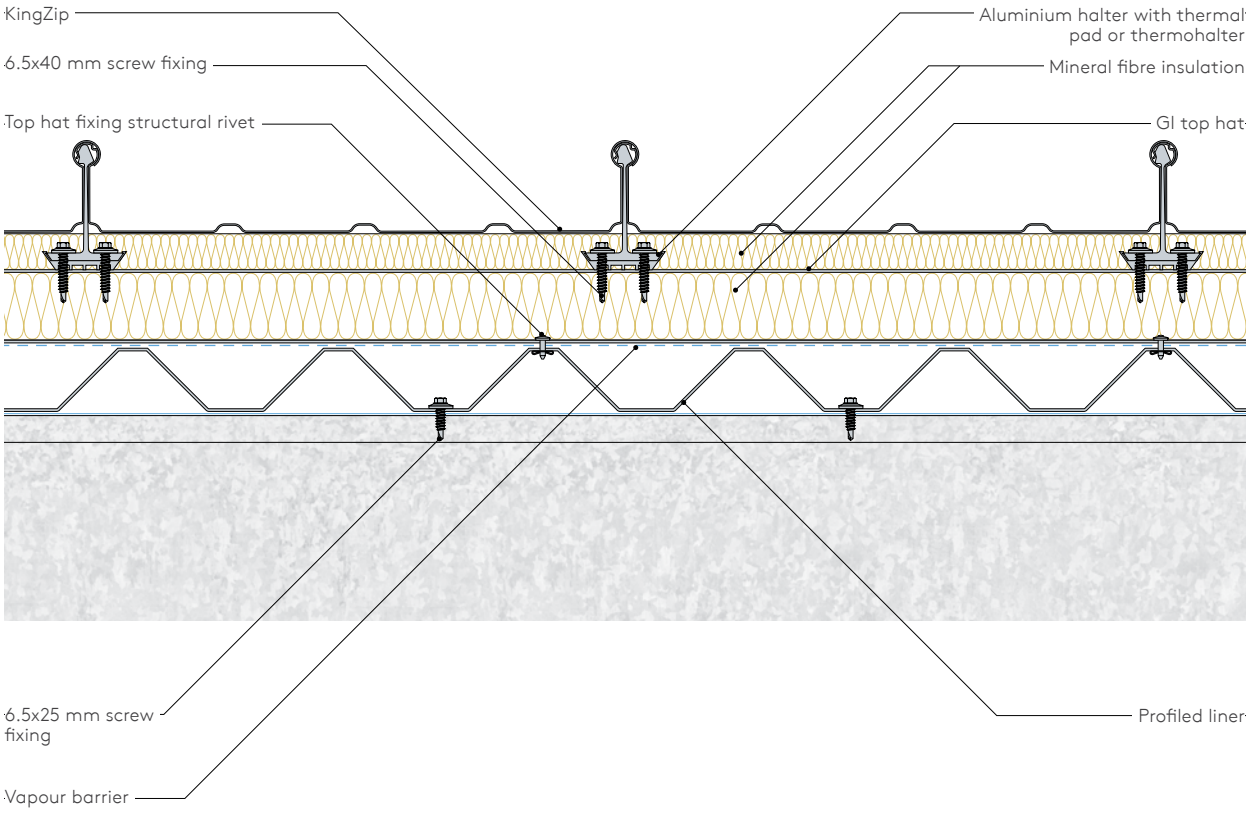
Soaker Fitting

Soaker Welded into Position

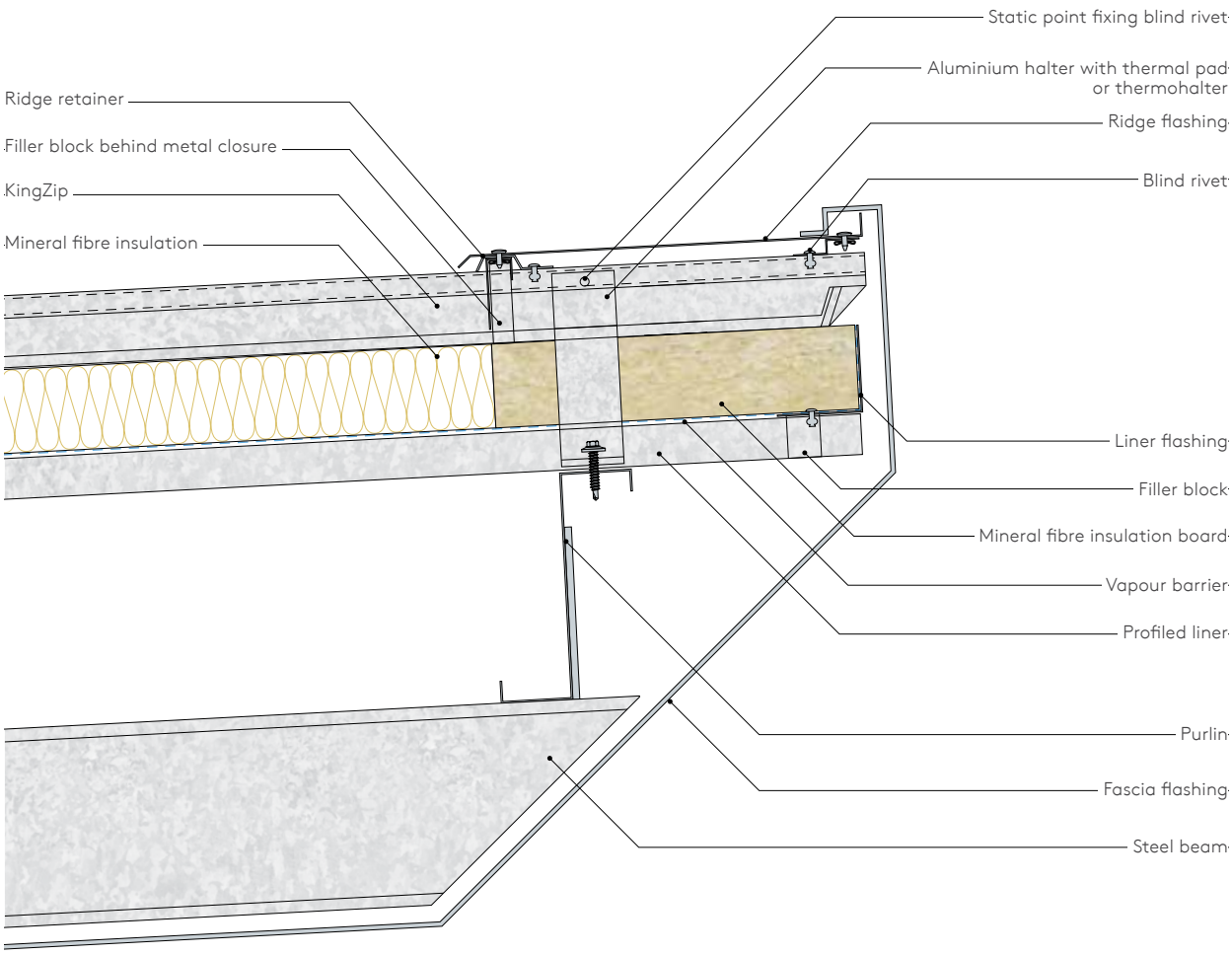
06 CONSTRUCTION DETAILS

Construction Details

KingZip Roof Construction

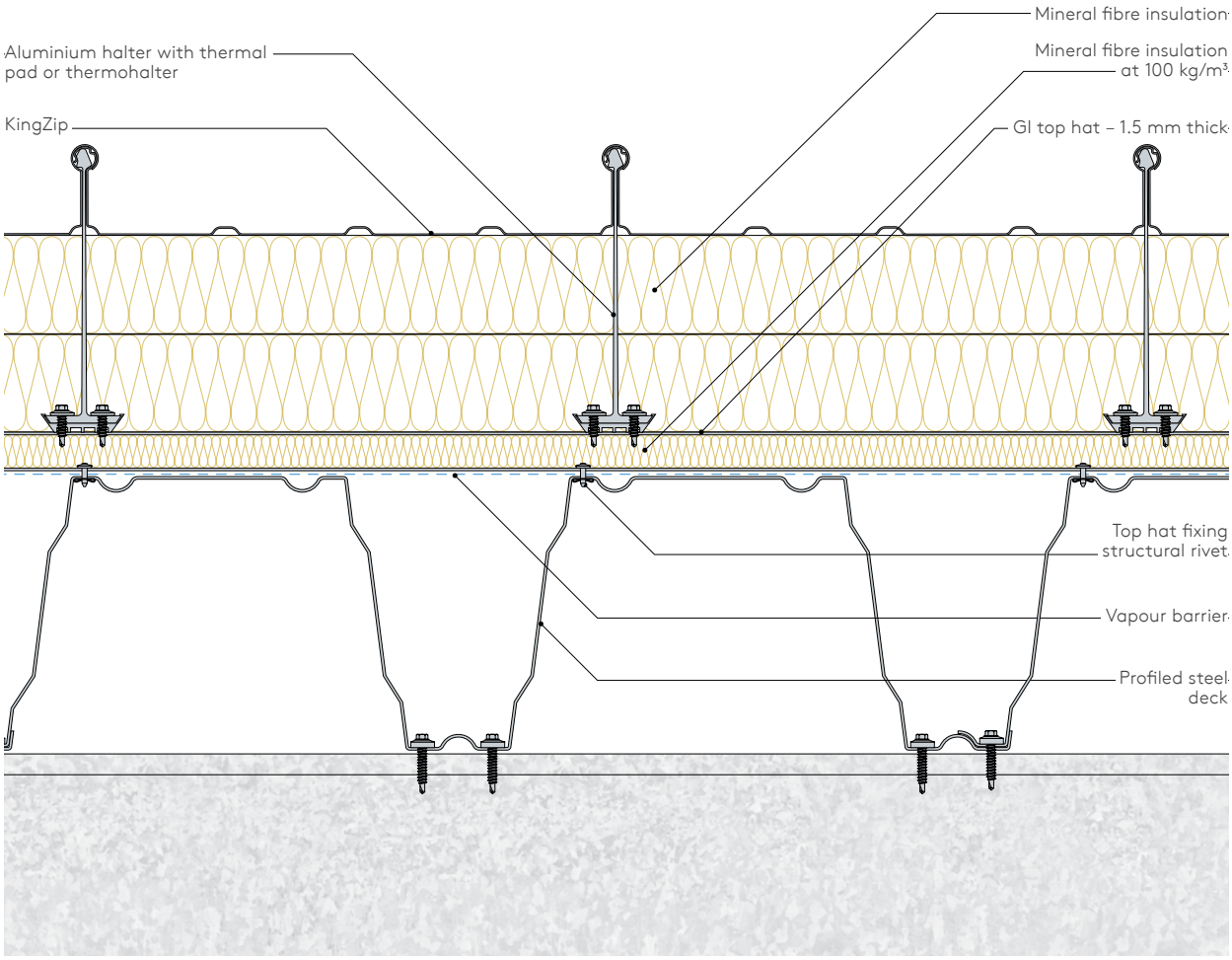


KingZip Apex with Fascia Flashing

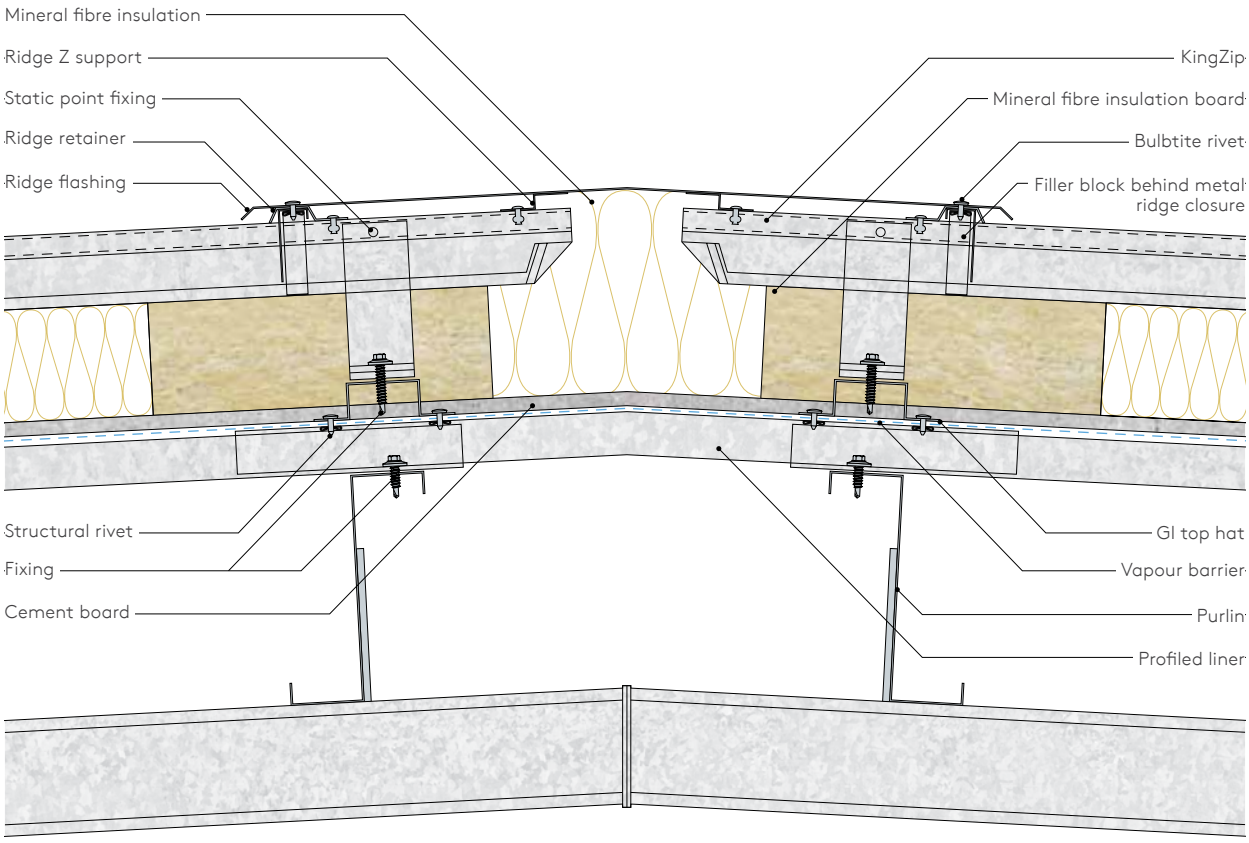


Construction Details

KingZip with Structural Deck

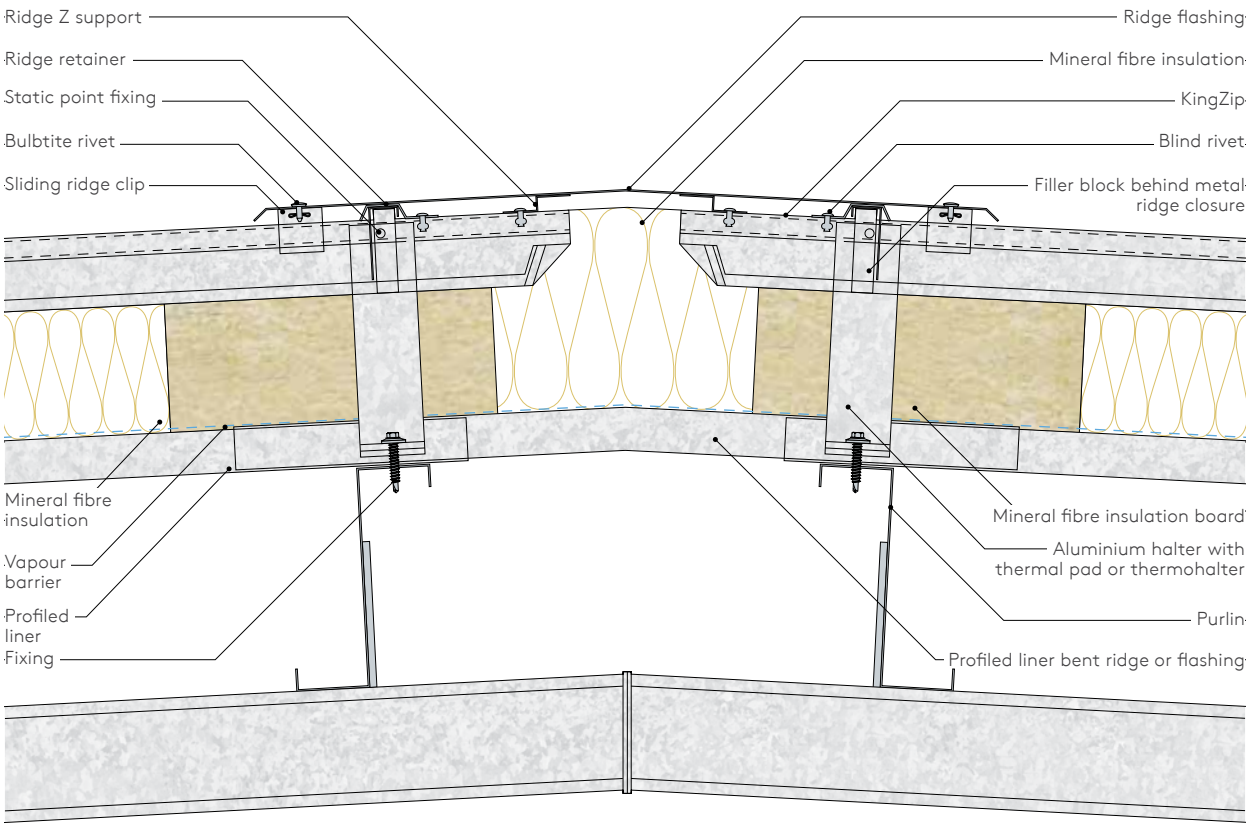


KingZip Typical Ridge – Acoustic

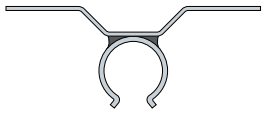


Construction Details

KingZip Double Skin Sliding Ridge

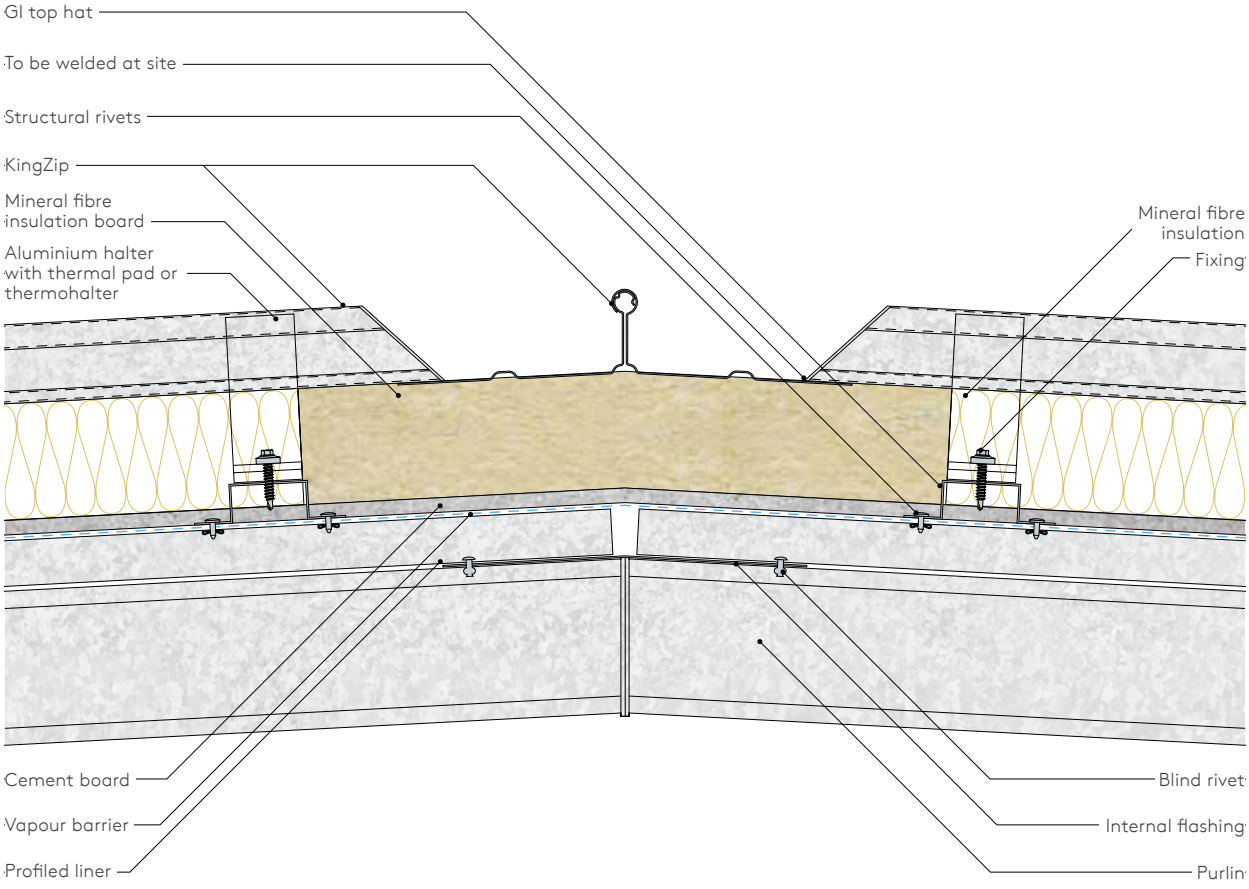


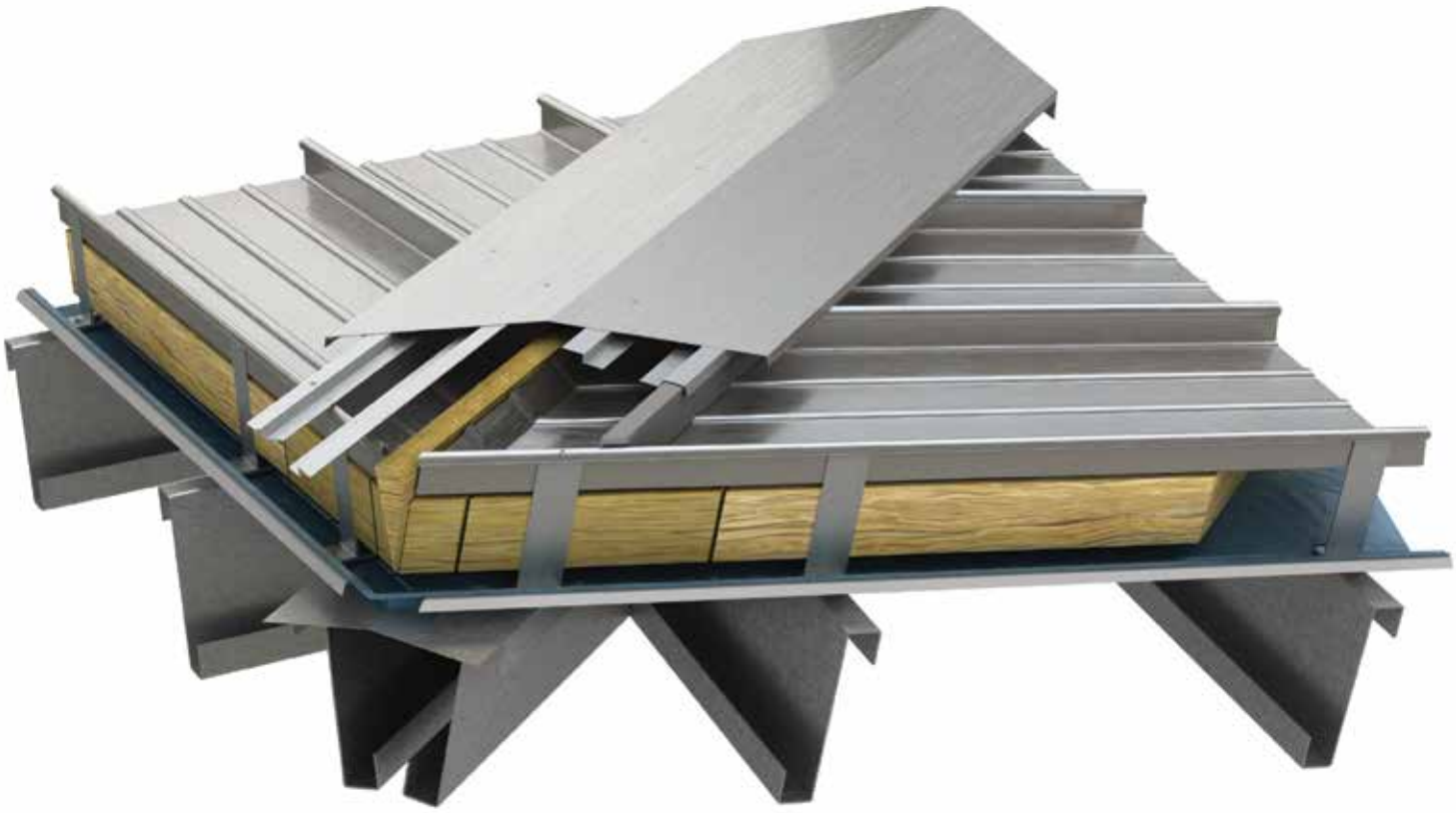
Aluminium sliding ridge clip



Construction Details

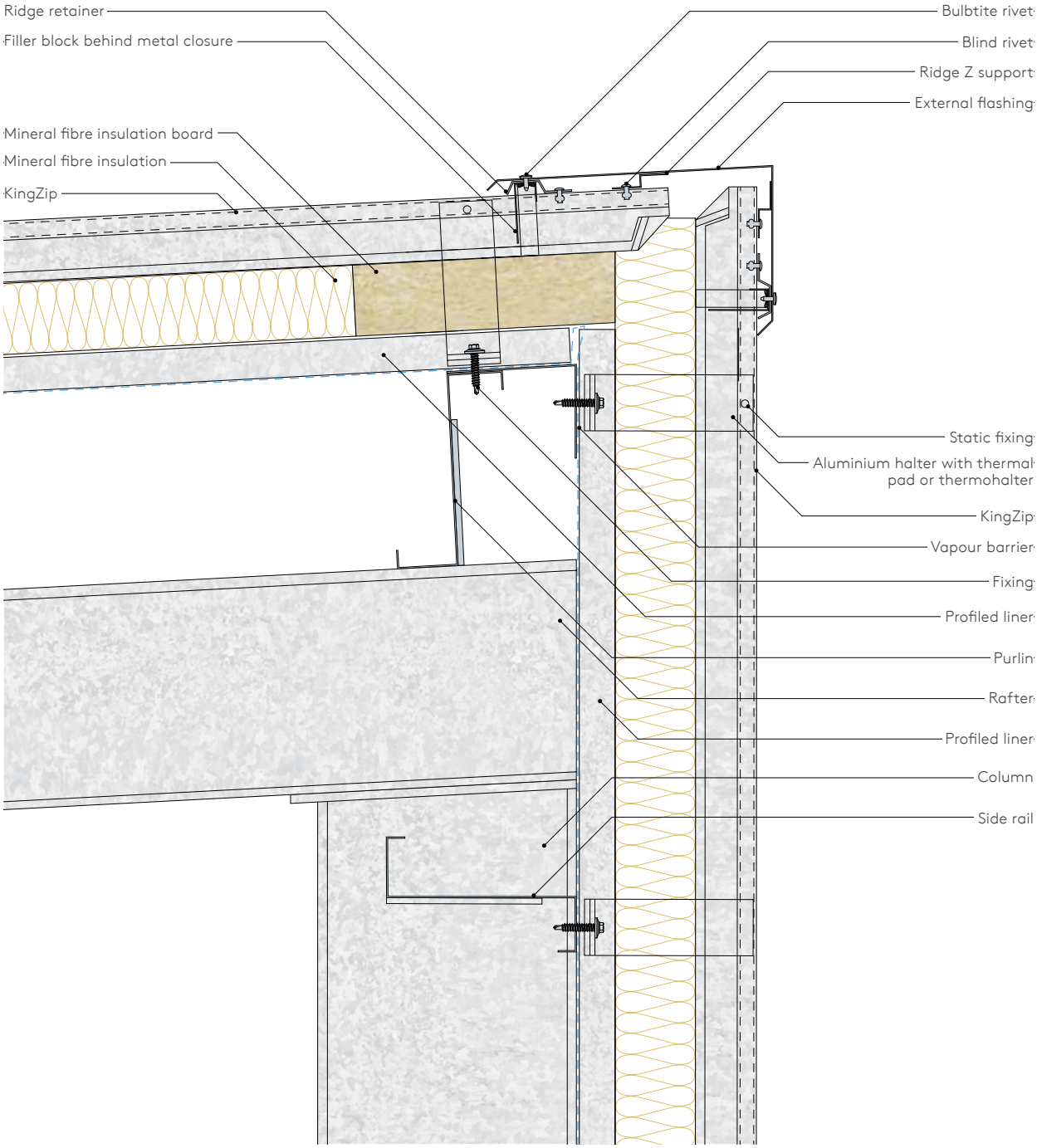
KingZip Welded Hip

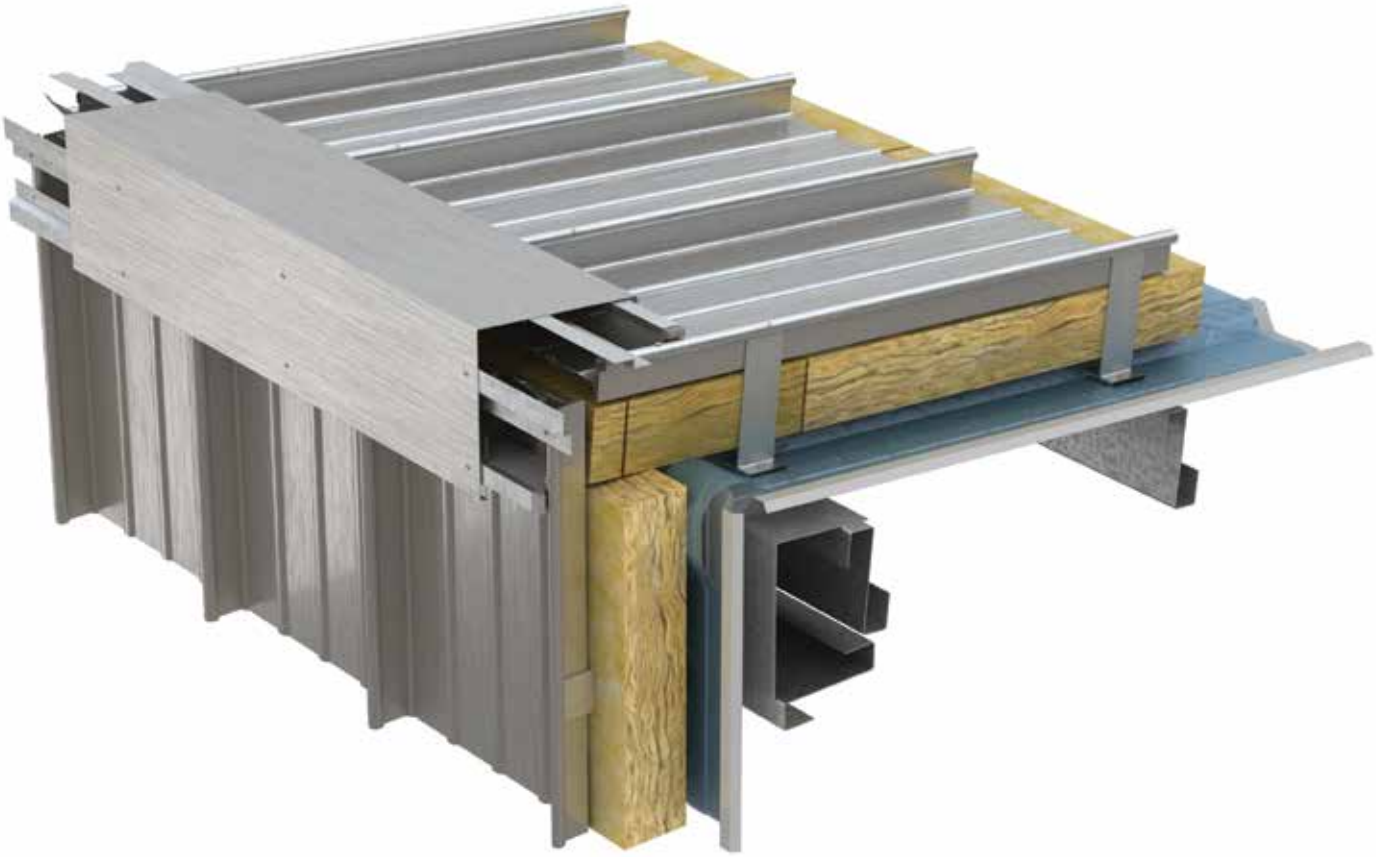




Construction Details

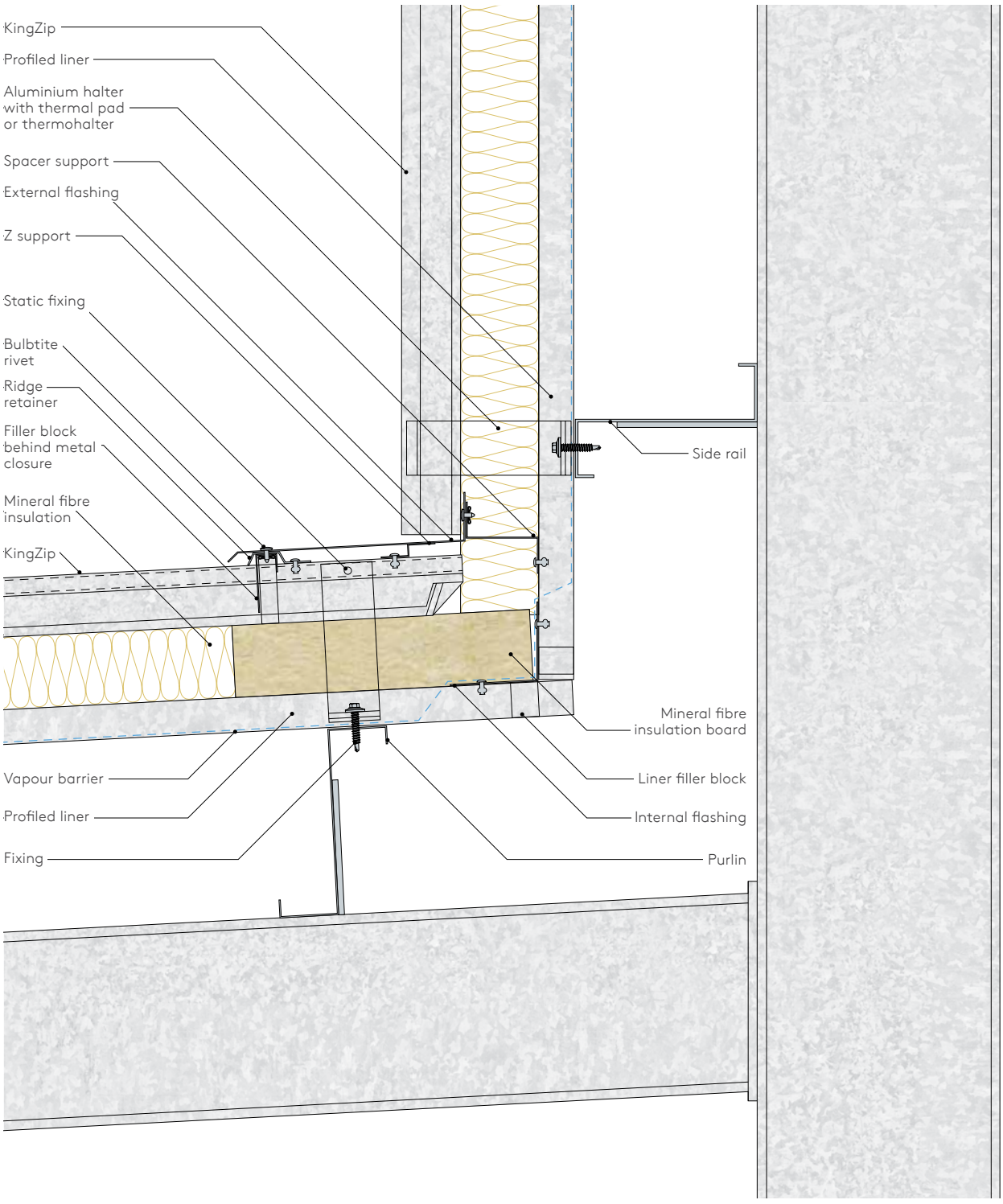
KingZip Double Skin Mono Ridge to Vertical

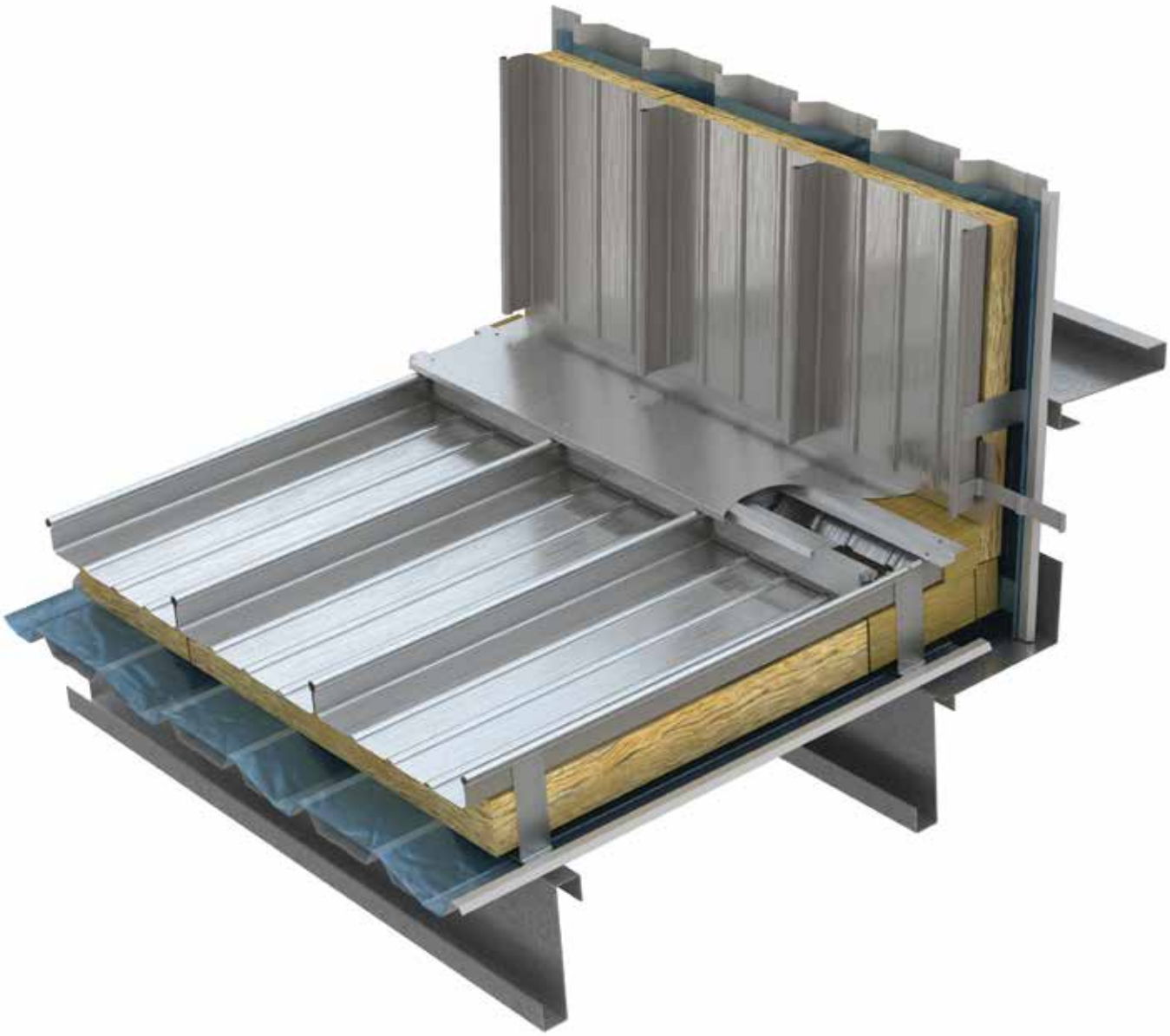




Construction Details

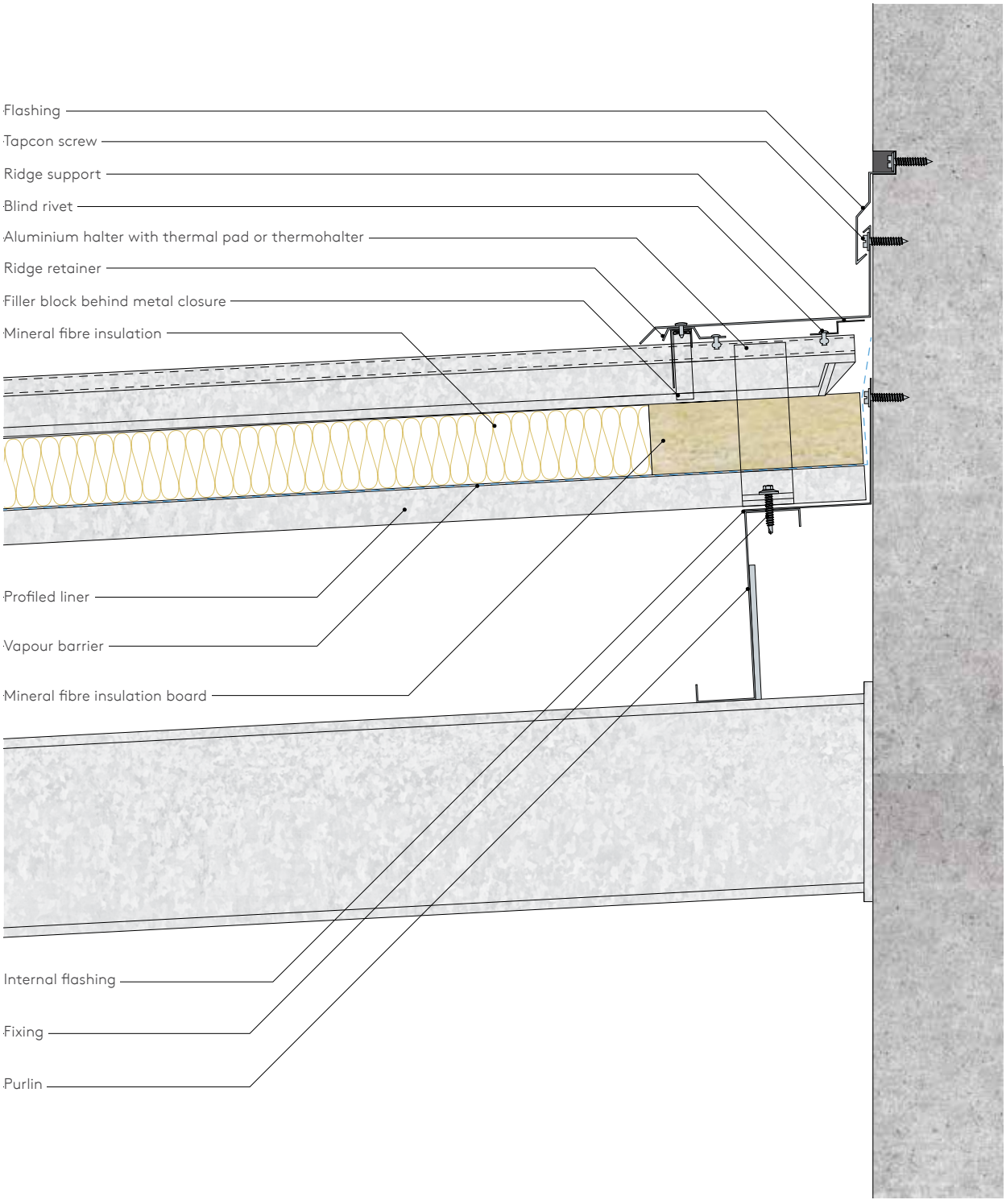
KingZip Double Skin Monoridge to KingZip Wall





Construction Details

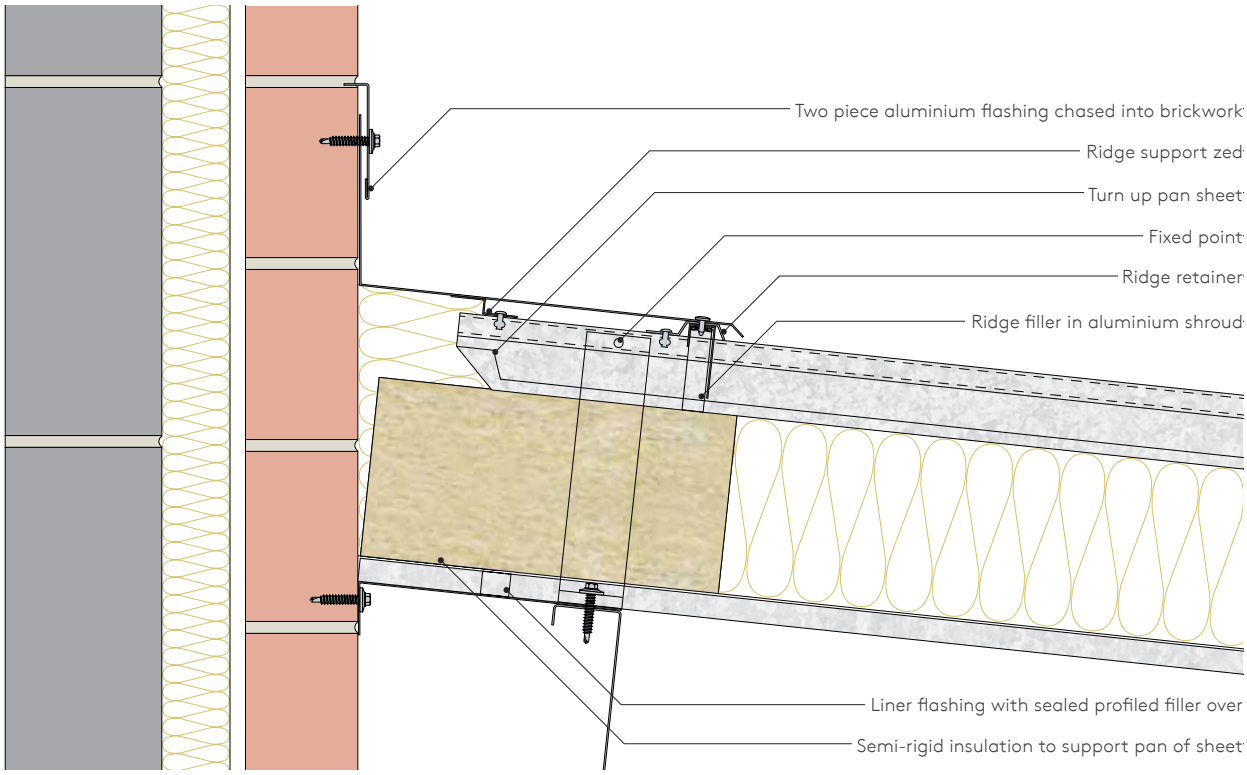
KingZip Apron



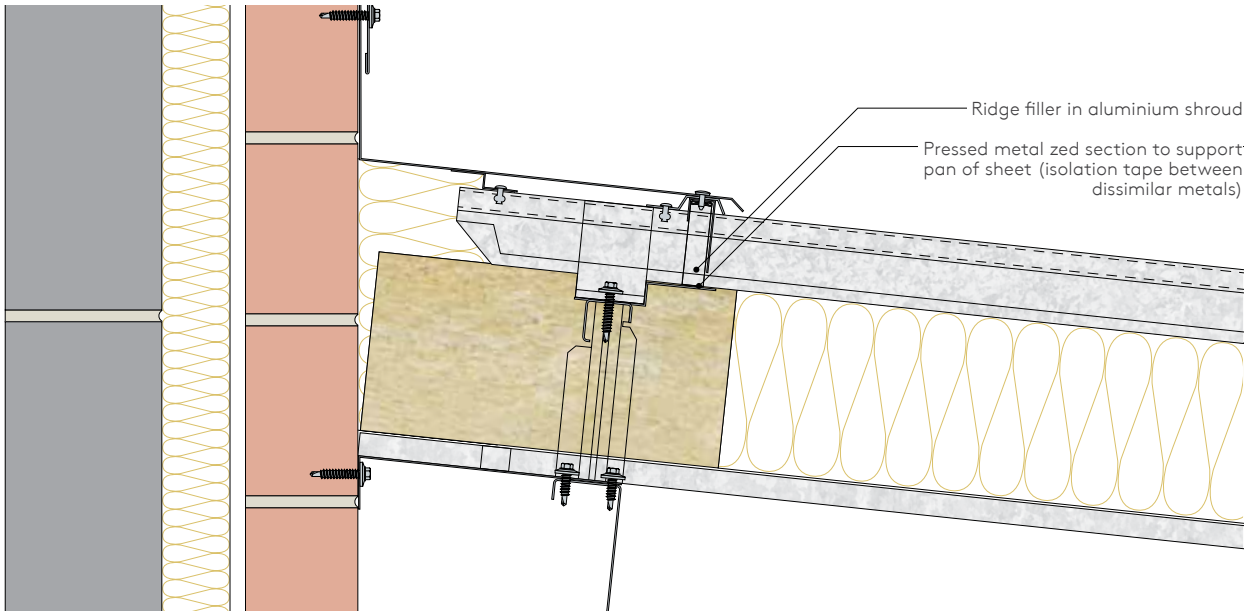
Construction Details

KingZip Ridge Abutment

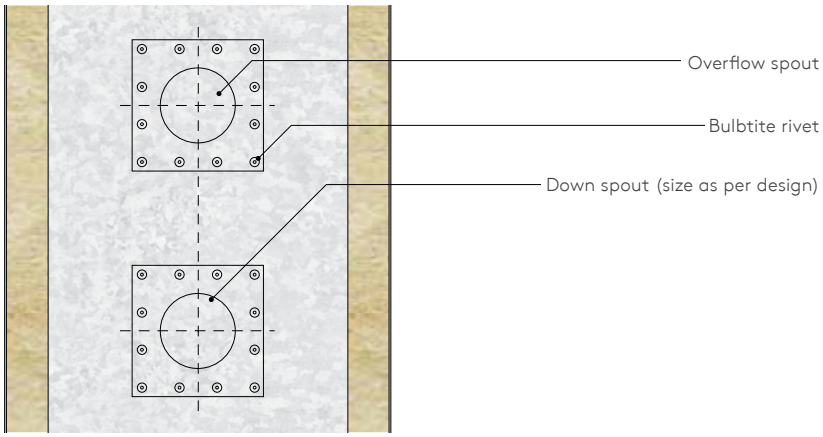
Thermohalter System

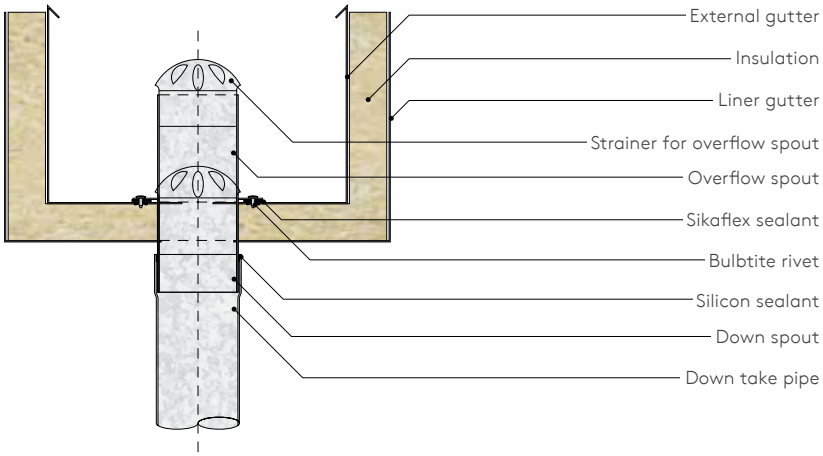


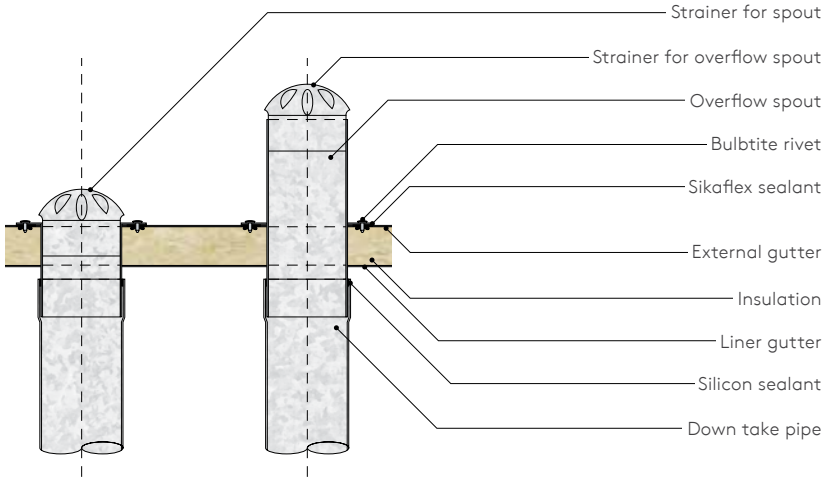
Bar and Bracket System



KingZip Insulated Gutter Down Spout and Overflow Spout Fixing

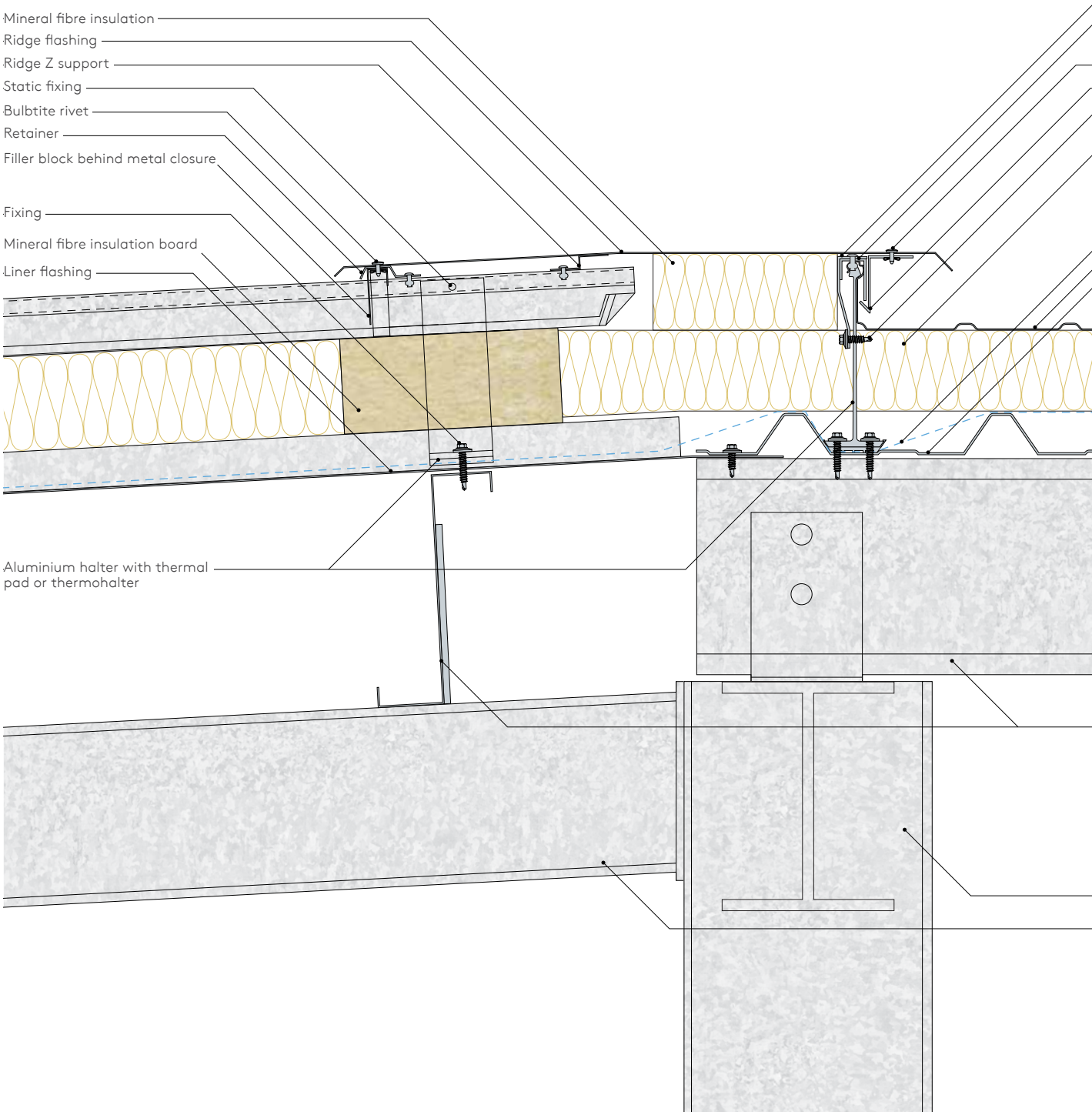


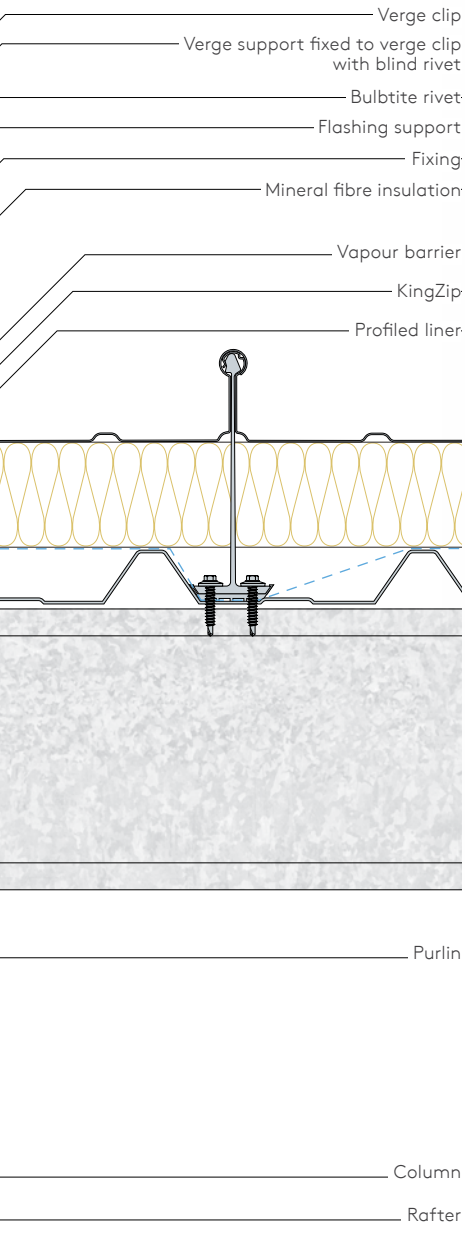




Construction Details

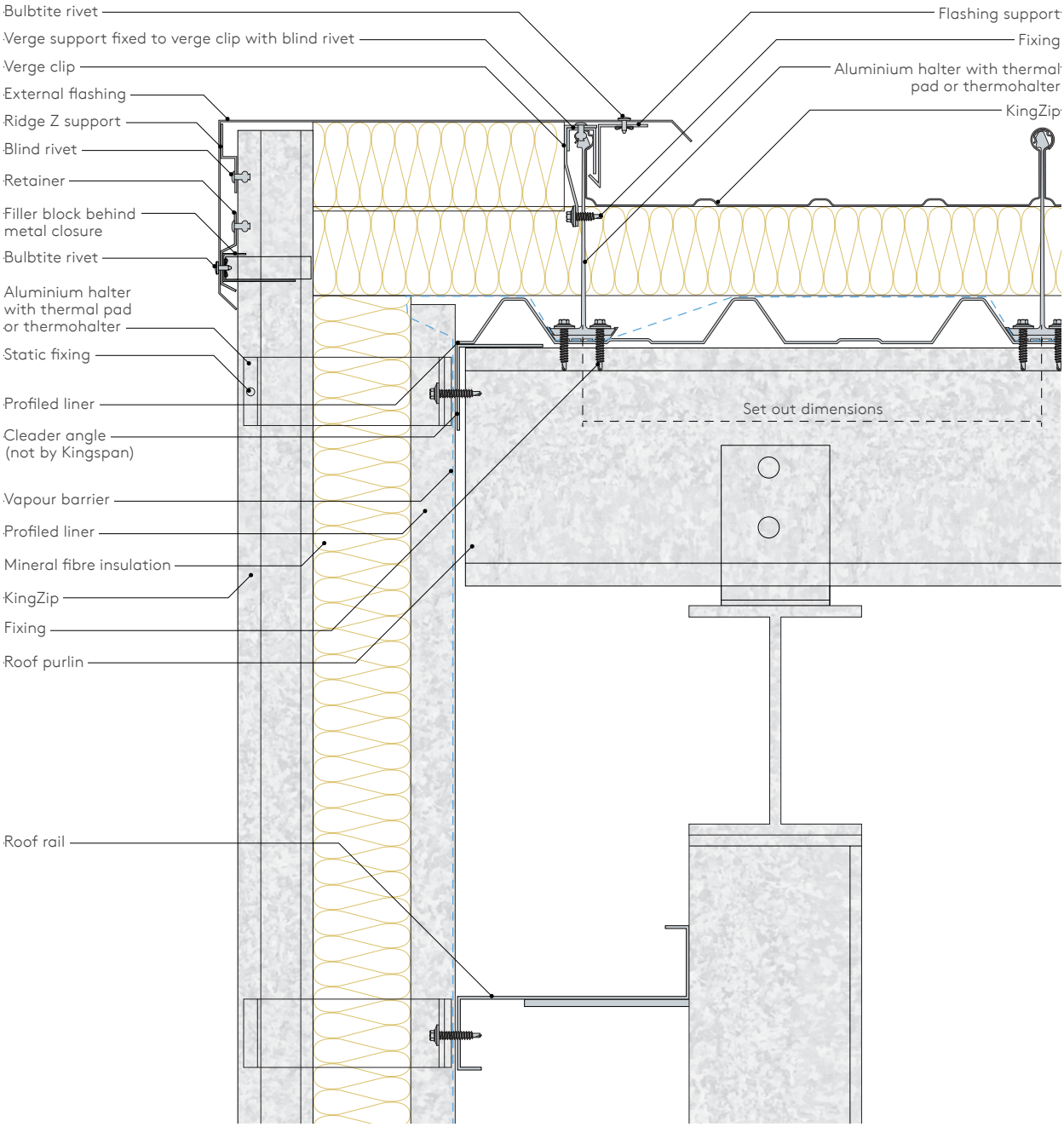
KingZip Double Skin Mono-Ridge to Gable



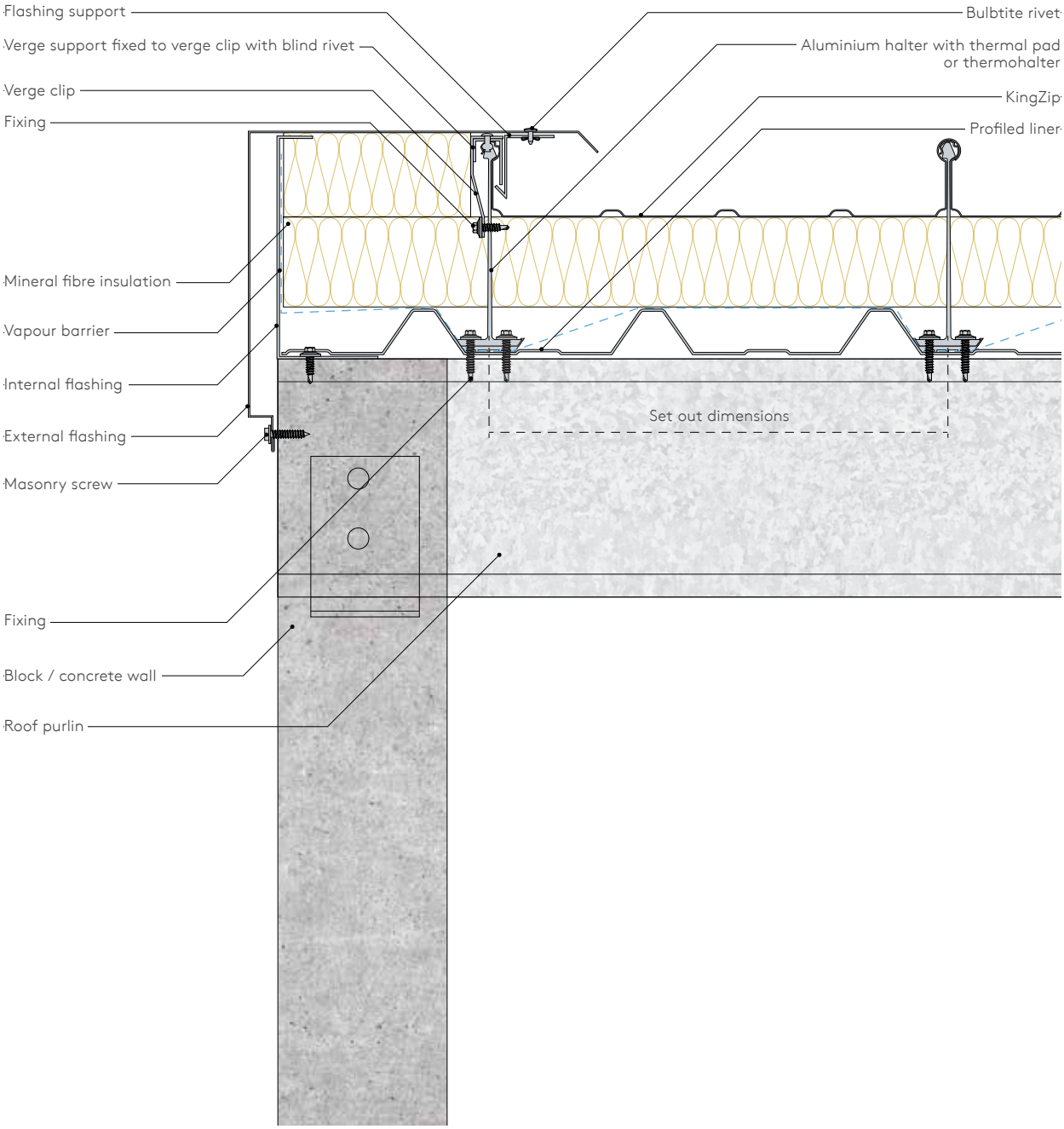

Verge clip
Verge support fixed to verge clip with blind rivet
Bulbtite rivet
Flashing support
Fixing
Mineral fibre insulation
Vapour barrier
KingZip
Profiled liner
Purlin
Column
Rafter

Construction Details

KingZip Double Skin Gable to Vertical

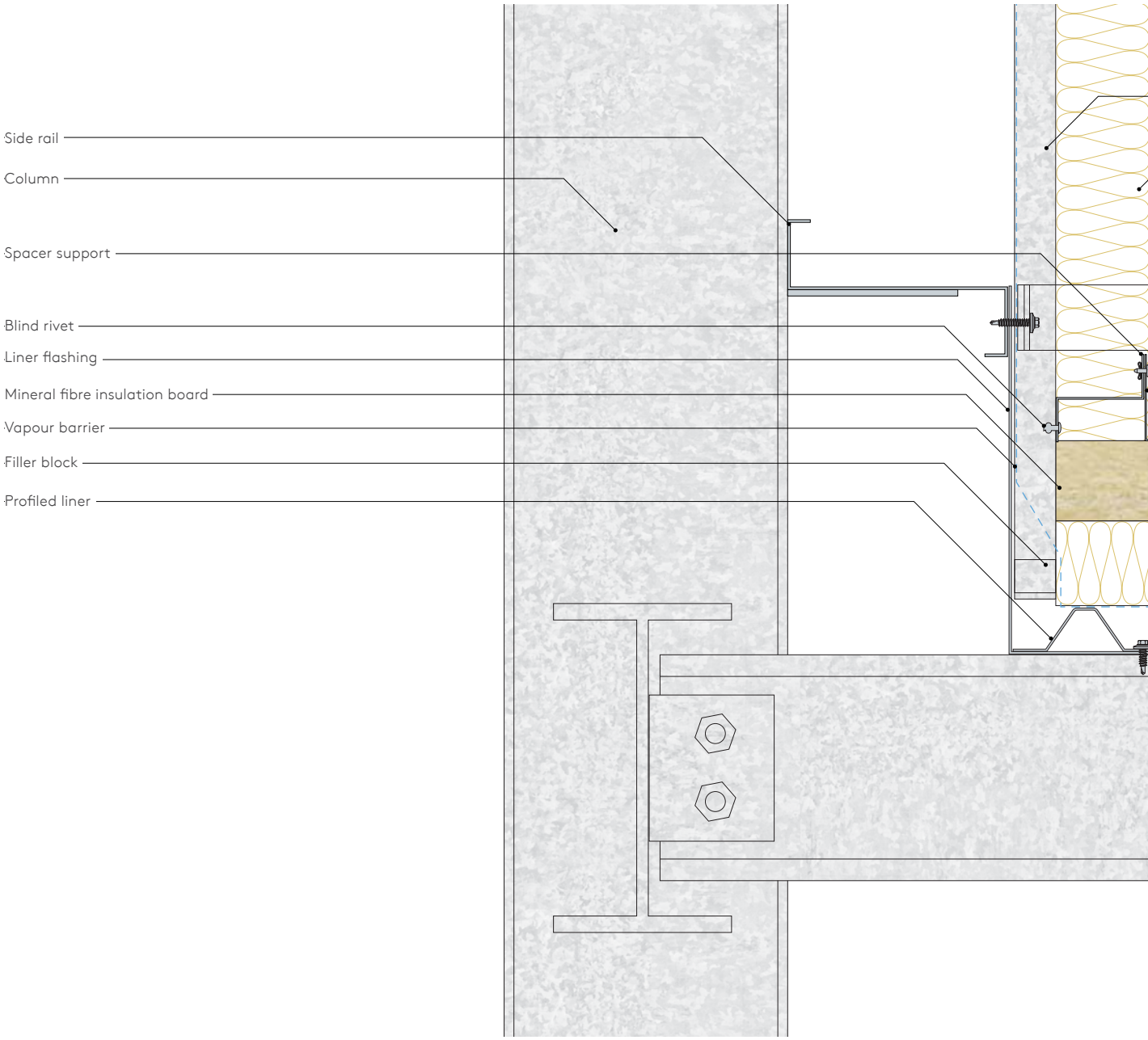


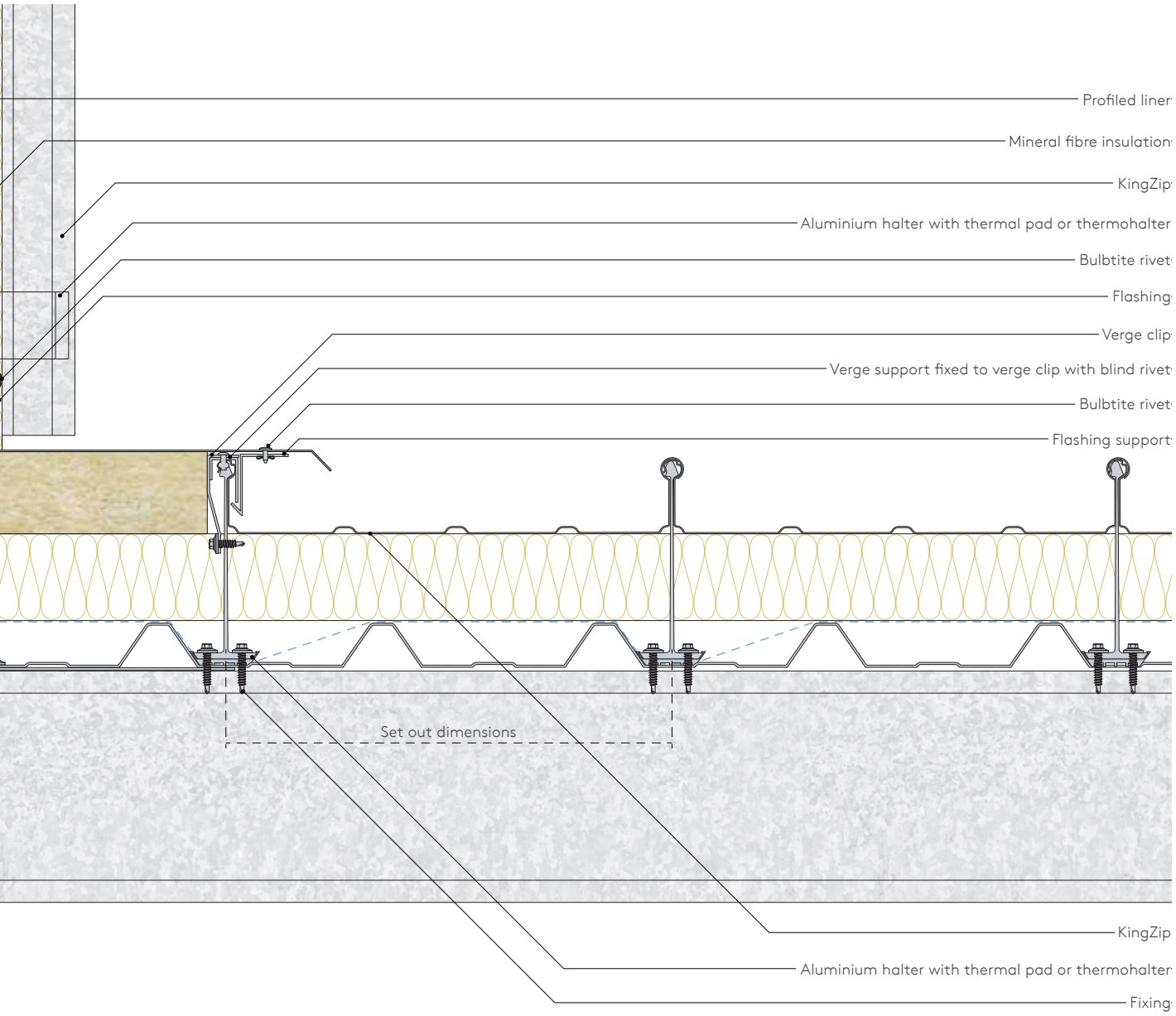
KingZip Double Skin Verge (Gable) to Wall



Construction Details

KingZip Double Skin Eave Free Discharge

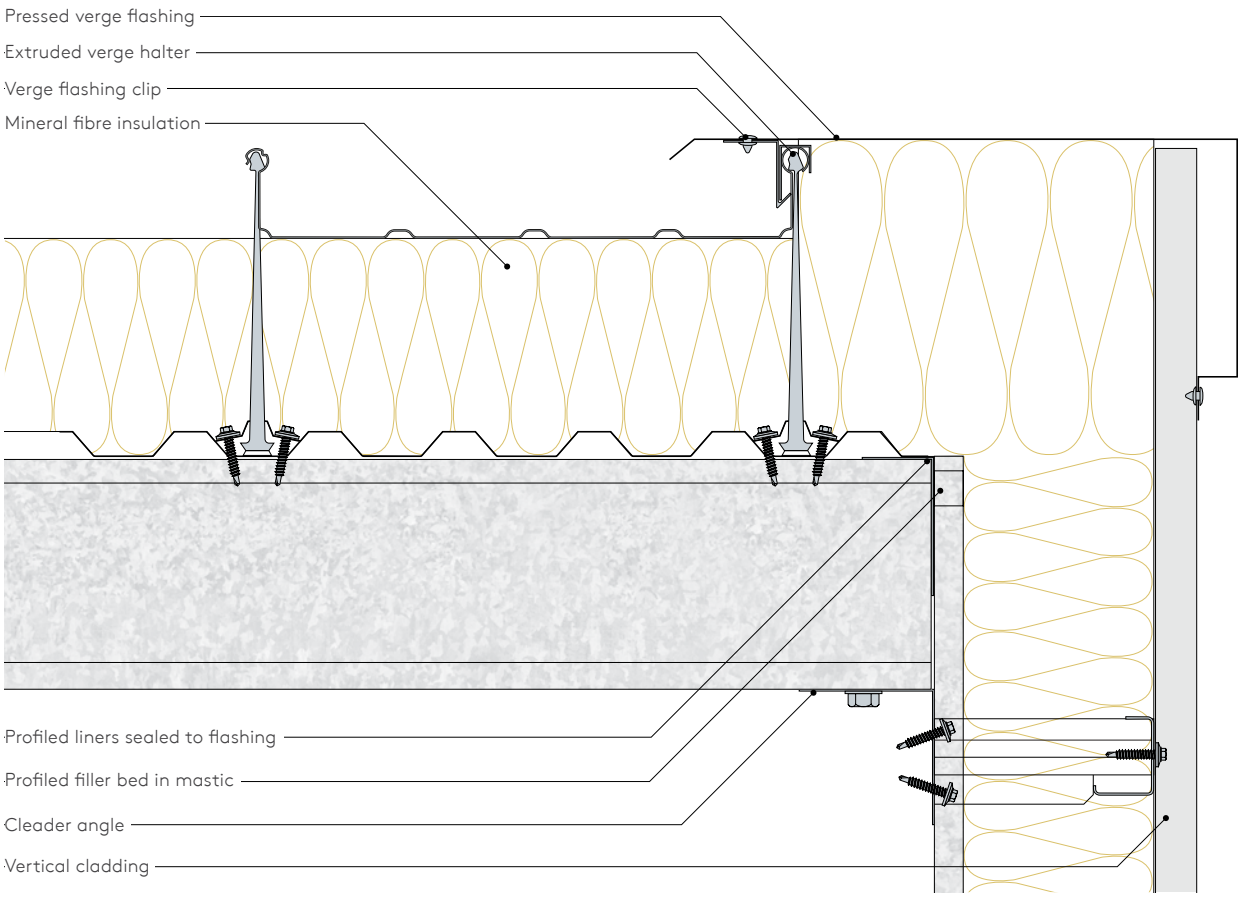



Profiled liner
Mineral fibre insulation
KingZip
Aluminium halter with thermal pad or thermohalter
Bulbtite rivet
Flashing
Verge clip
Verge support fixed to verge clip with blind rivet
Bulbtite rivet
Flashing support
Set out dimensions
KingZip
Aluminium halter with thermal pad or thermohalter
Fixing

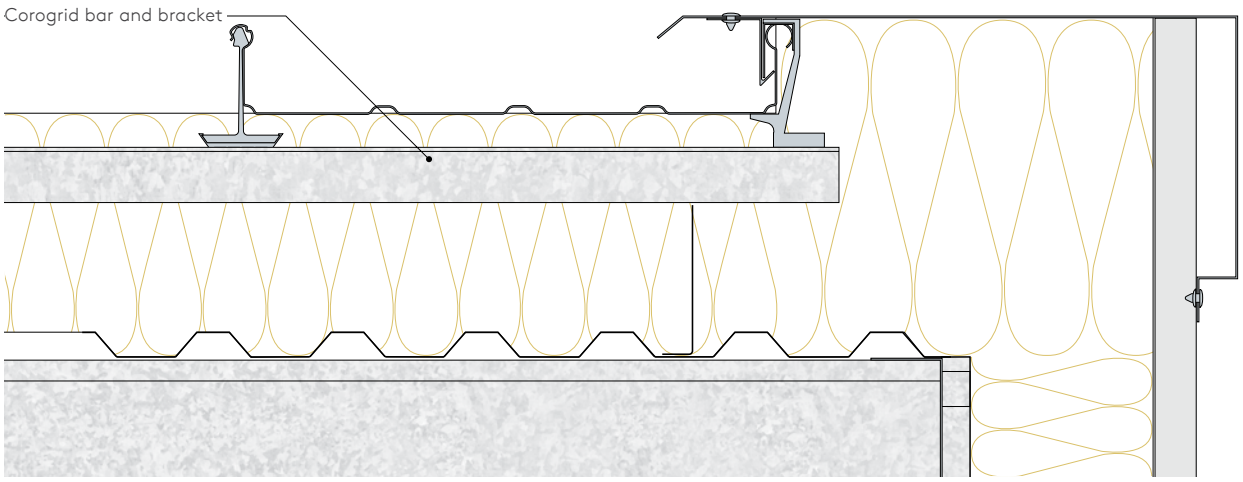
Construction Details

KingZip Insulated Verge

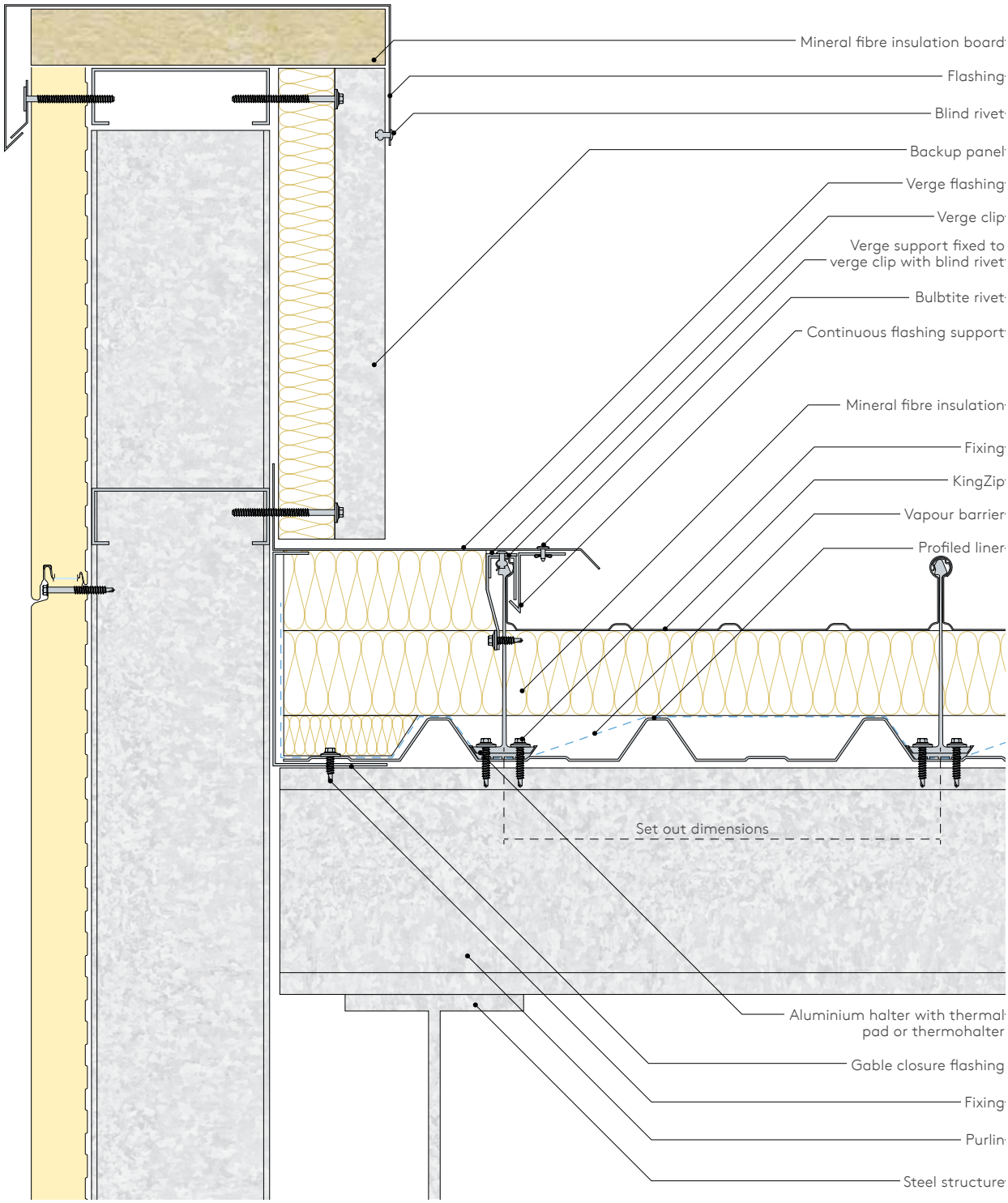
Thermohalter System



Bar and Bracket System

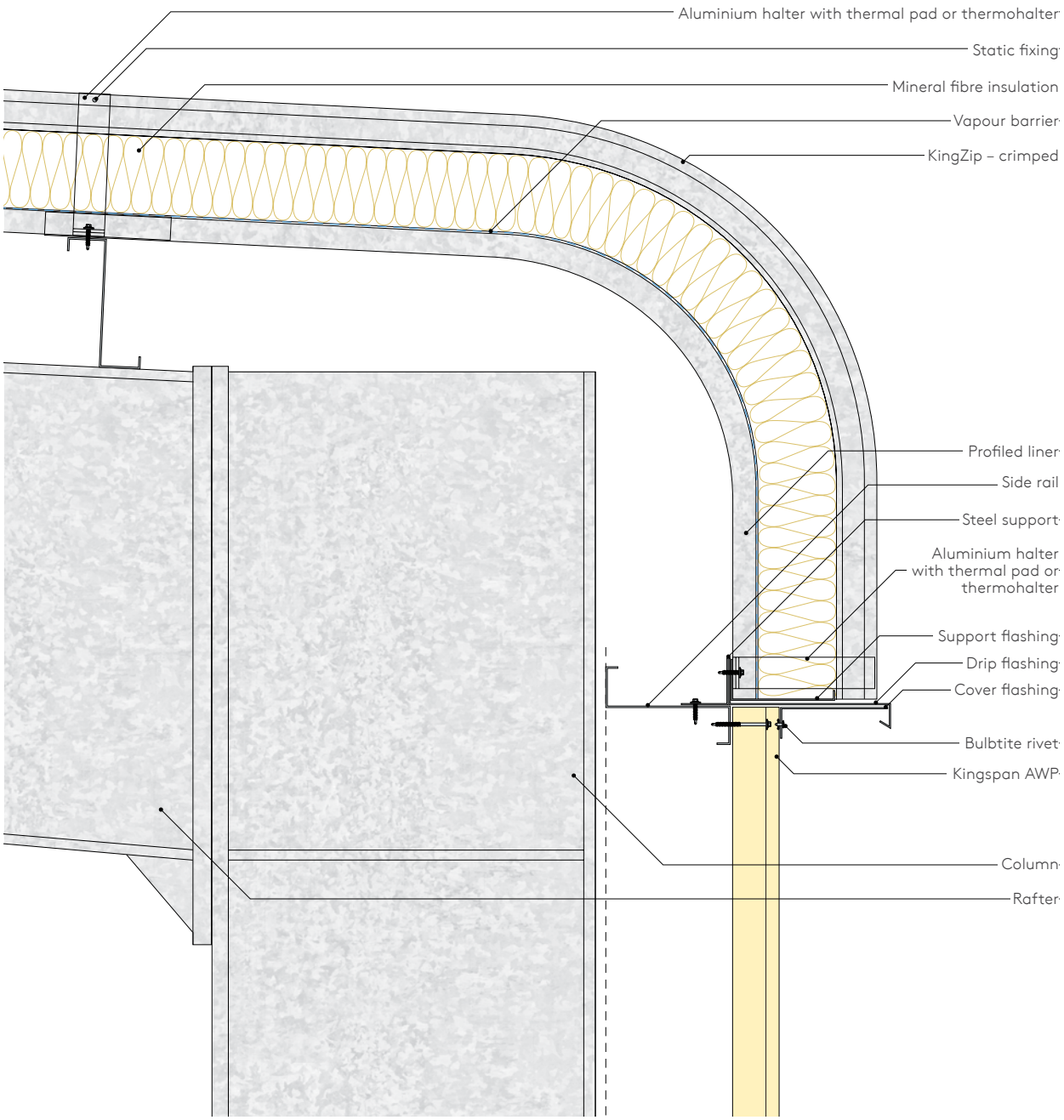


KingZip Thermal System Verge



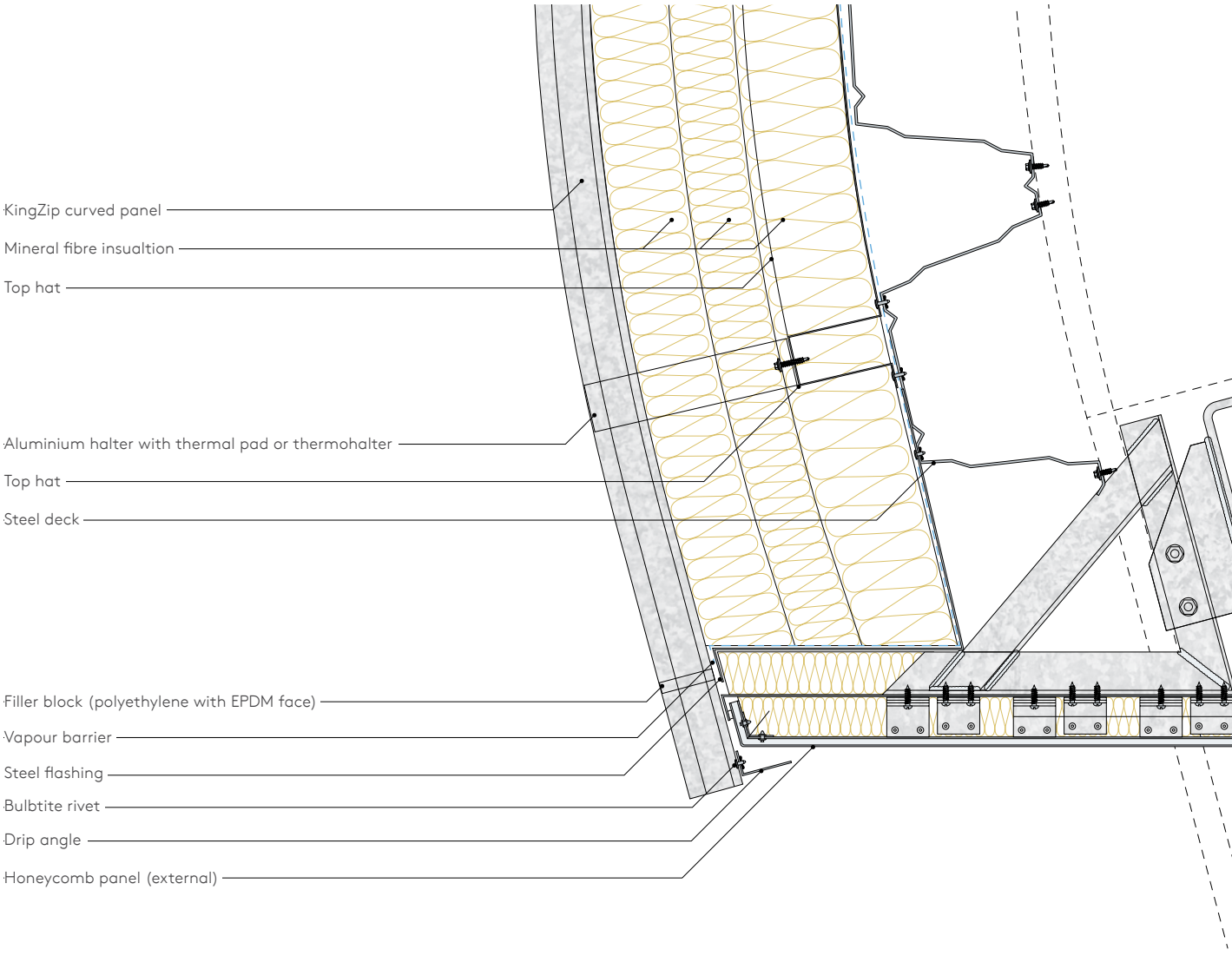
Construction Details

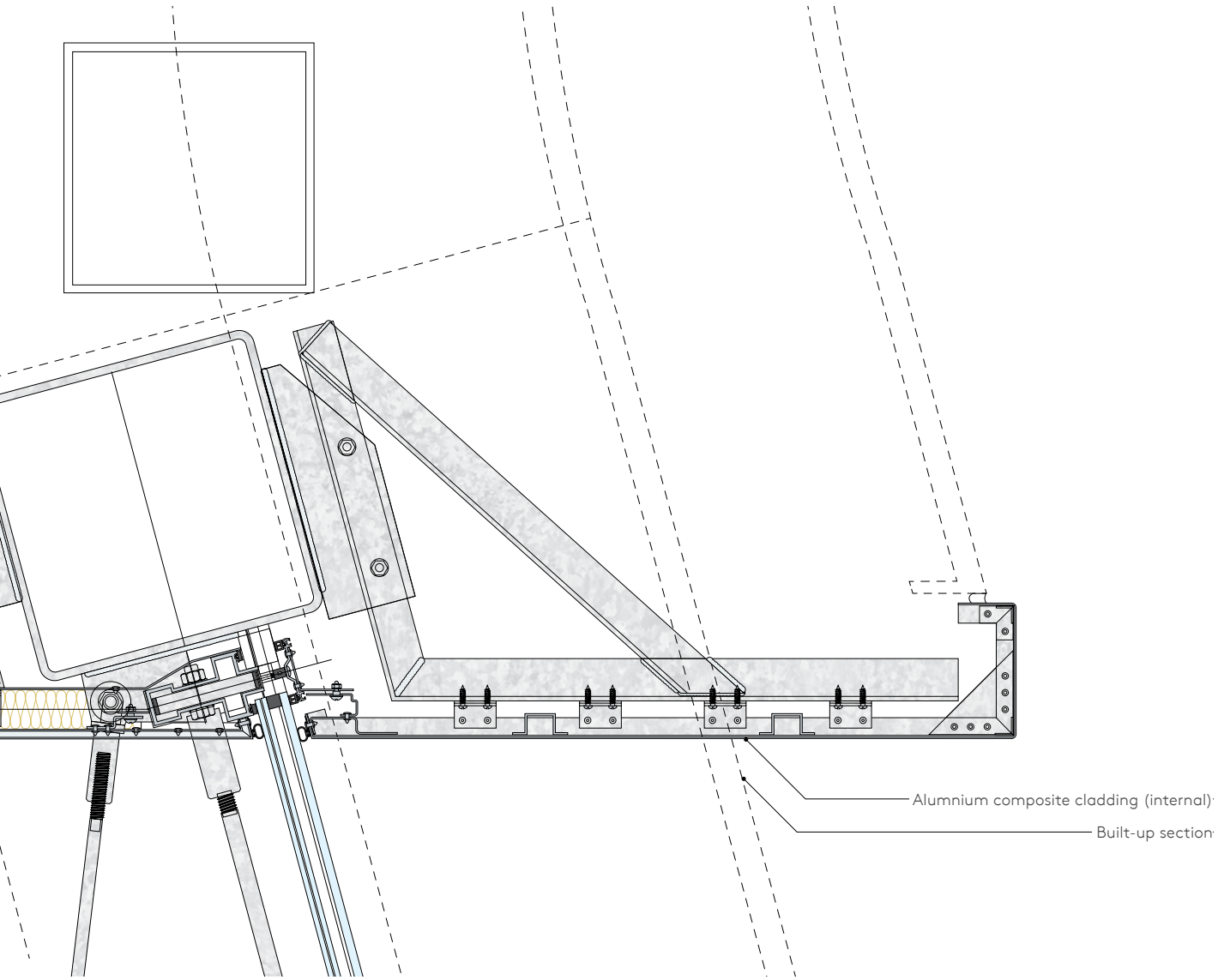
KingZip Double Skin Curved Eave



Construction Details

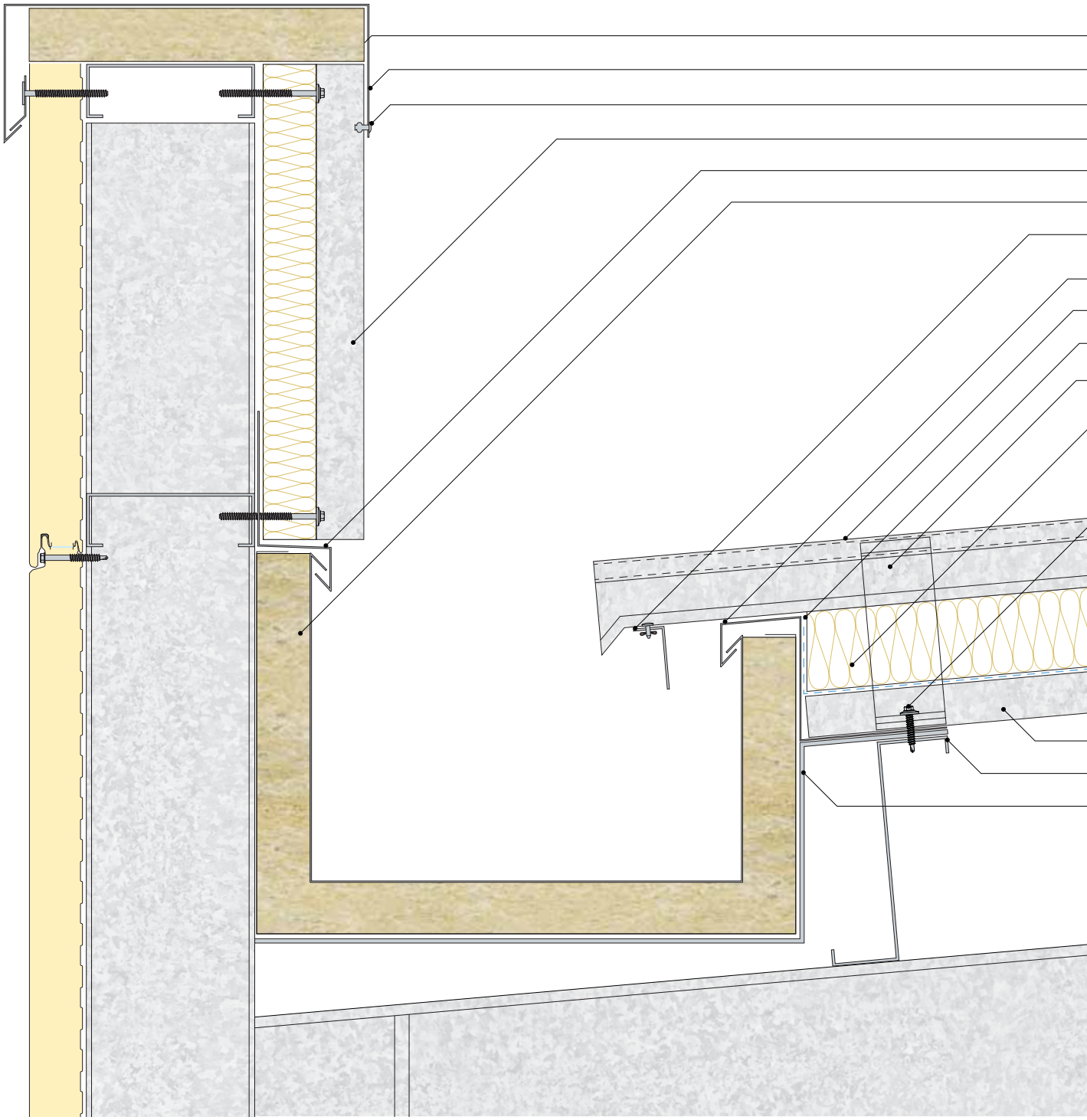
KingZip Curved Eave Drip

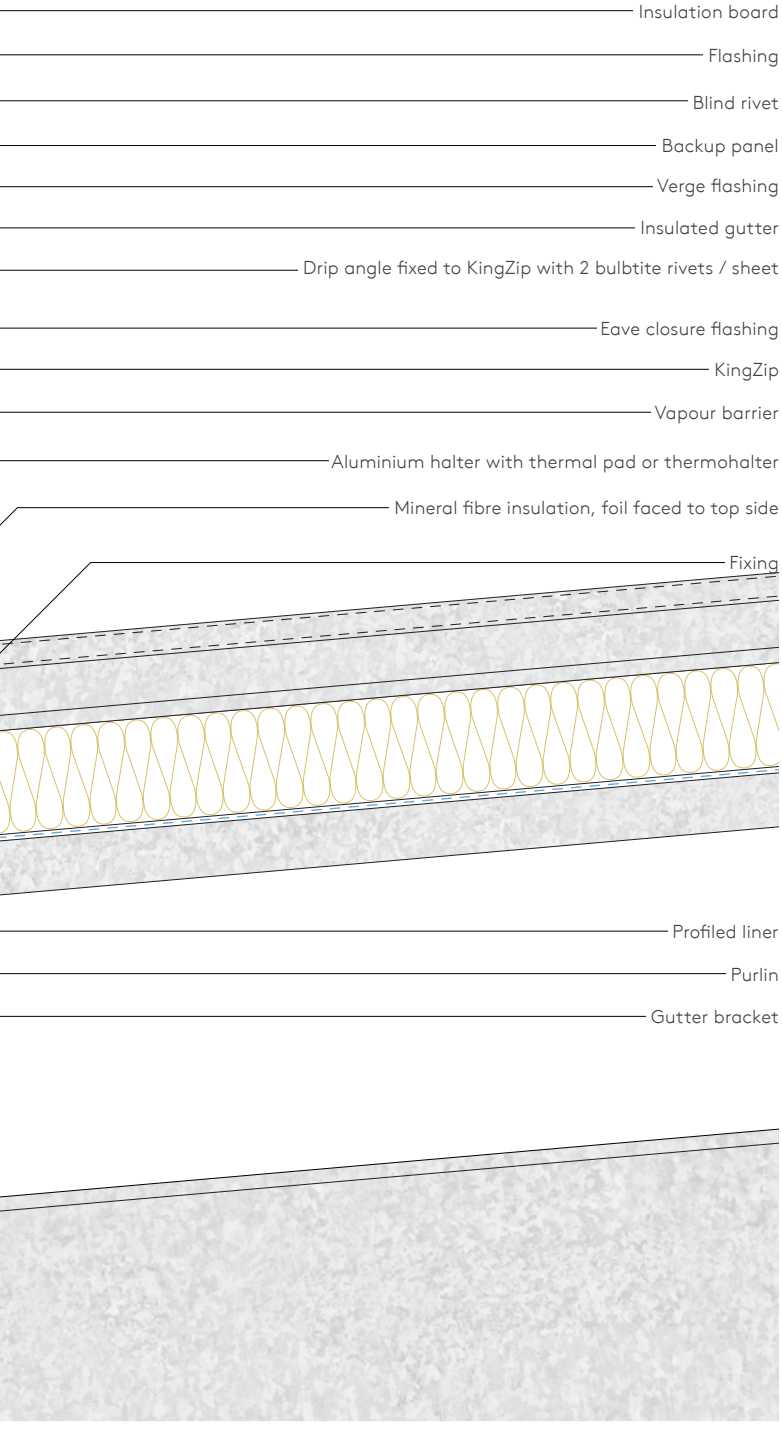



Alumnium composite cladding (internal)
Built-up section

Construction Details

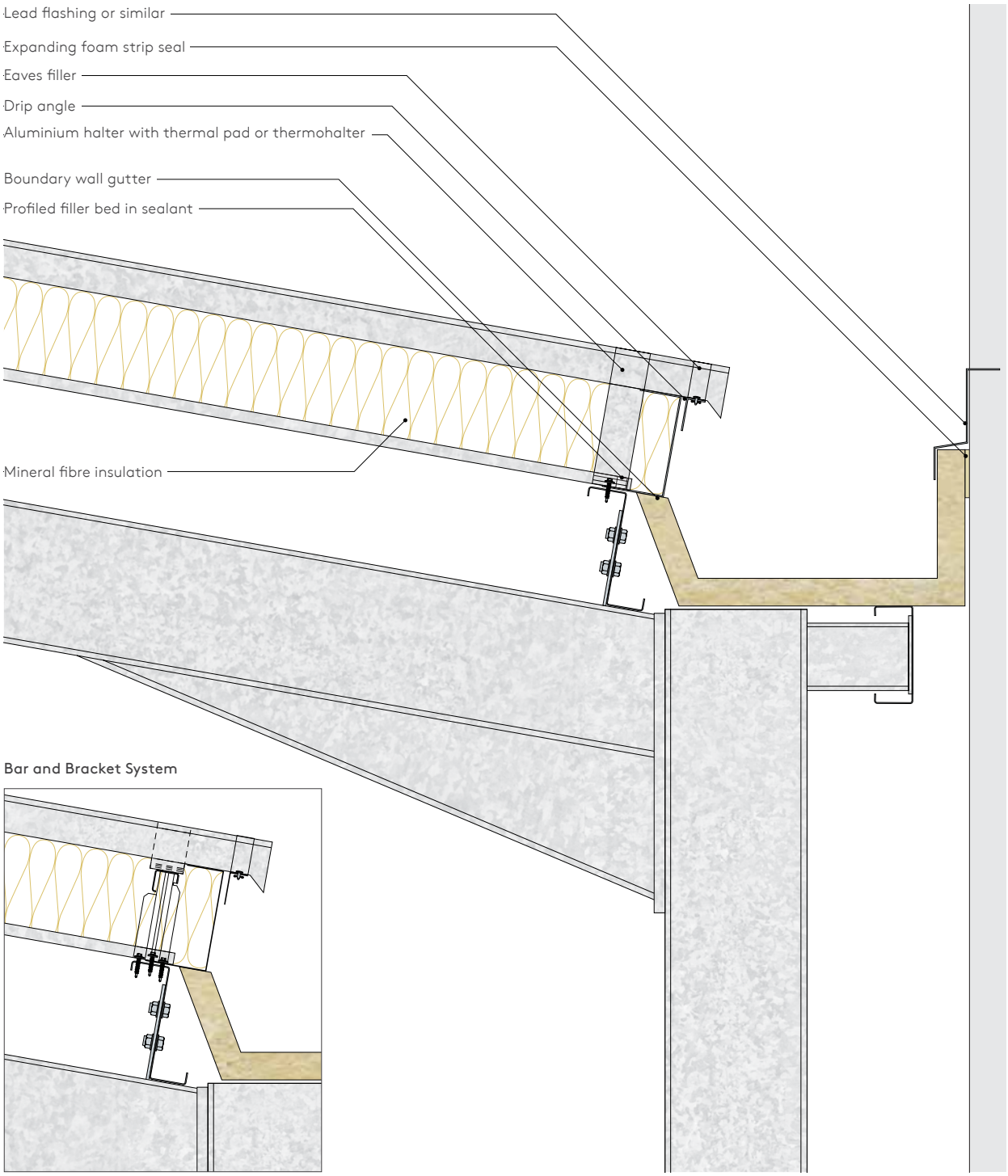
KingZip Thermal Eave




Insulation board
Flashing
Blind rivet
Backup panel
Verge flashing
Insulated gutter
Drip angle fixed to KingZip with 2 bulbtite rivets / sheet
Eave closure flashing
KingZip
Vapour barrier
Aluminium halter with thermal pad or thermohalter
Mineral fibre insulation, foil faced to top side
Fixing
Profiled liner
Purlin
Gutter bracket

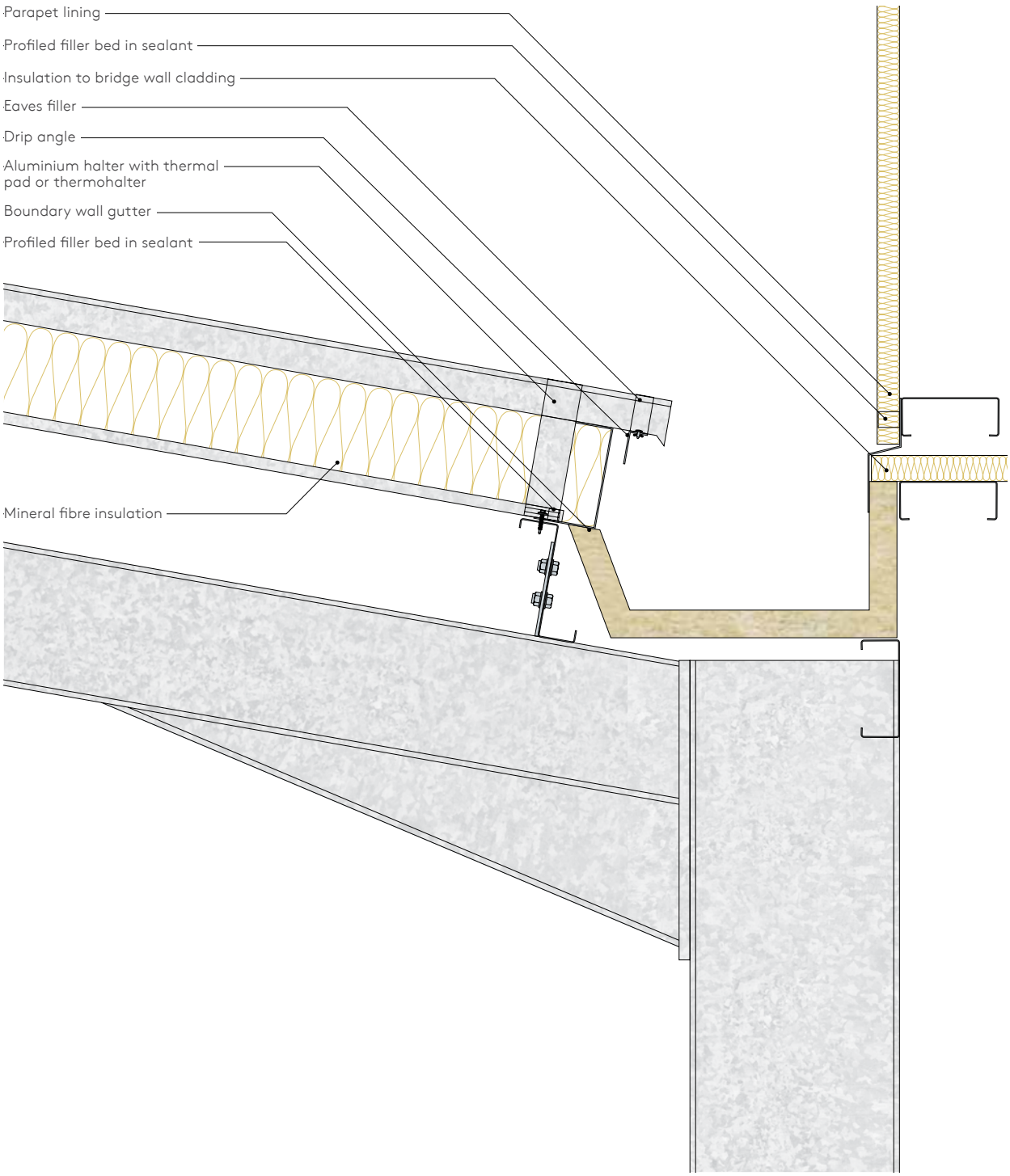
Construction Details

KingZip Eaves with Boundary Wall Gutter



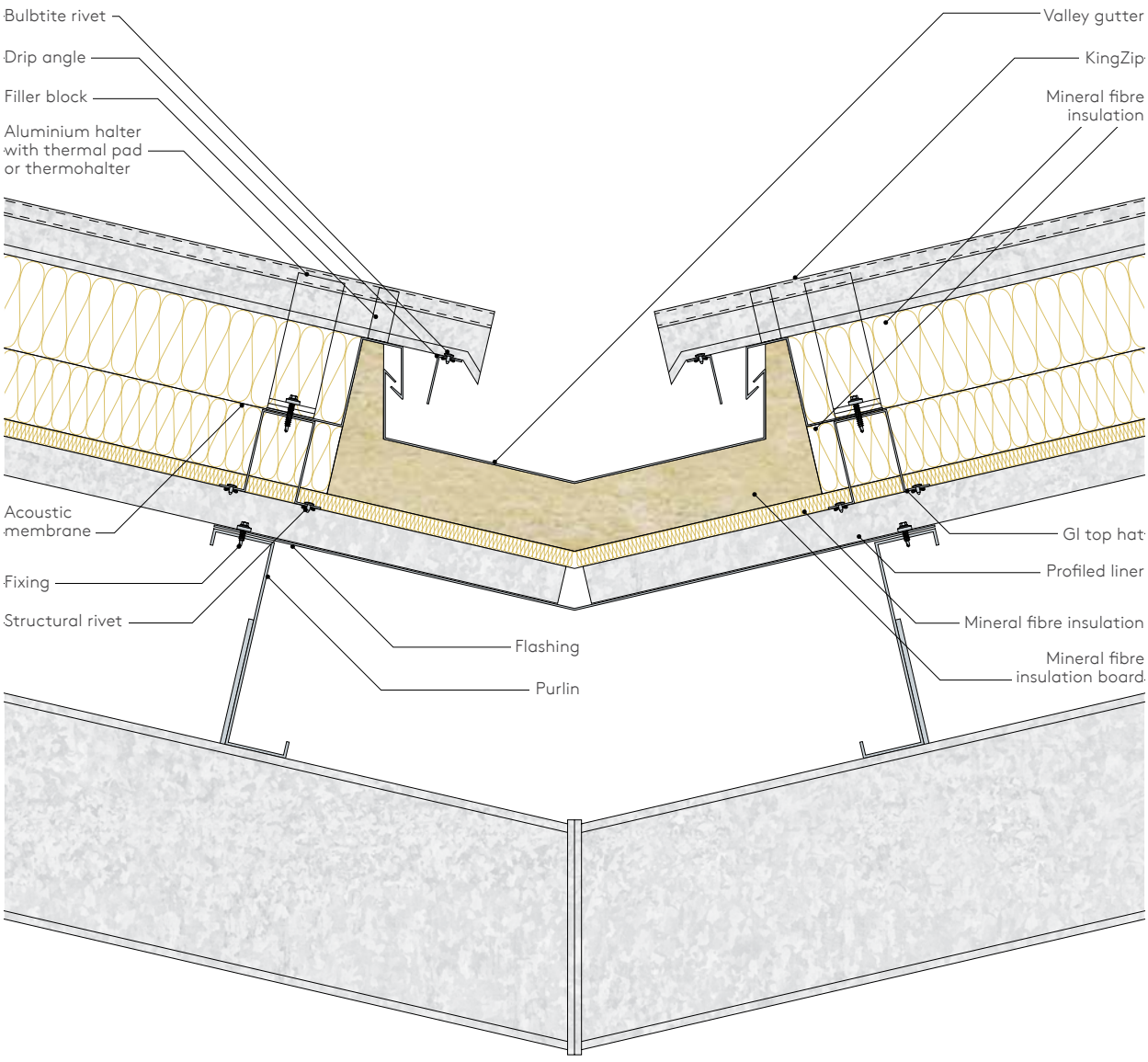
Bar and Bracket System

KingZip Eaves with Internal Parapet

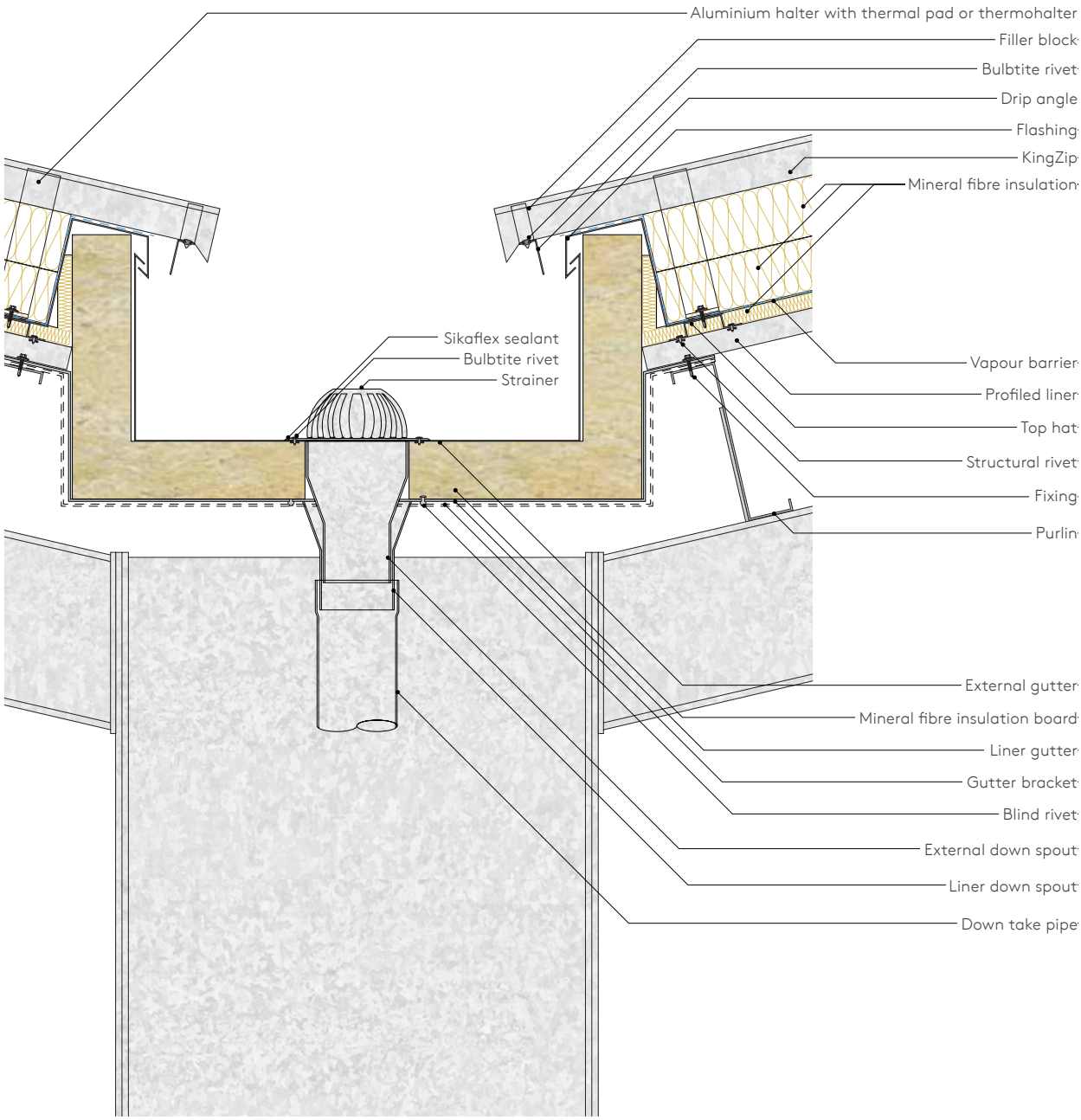


Construction Details

KingZip Typical Valley

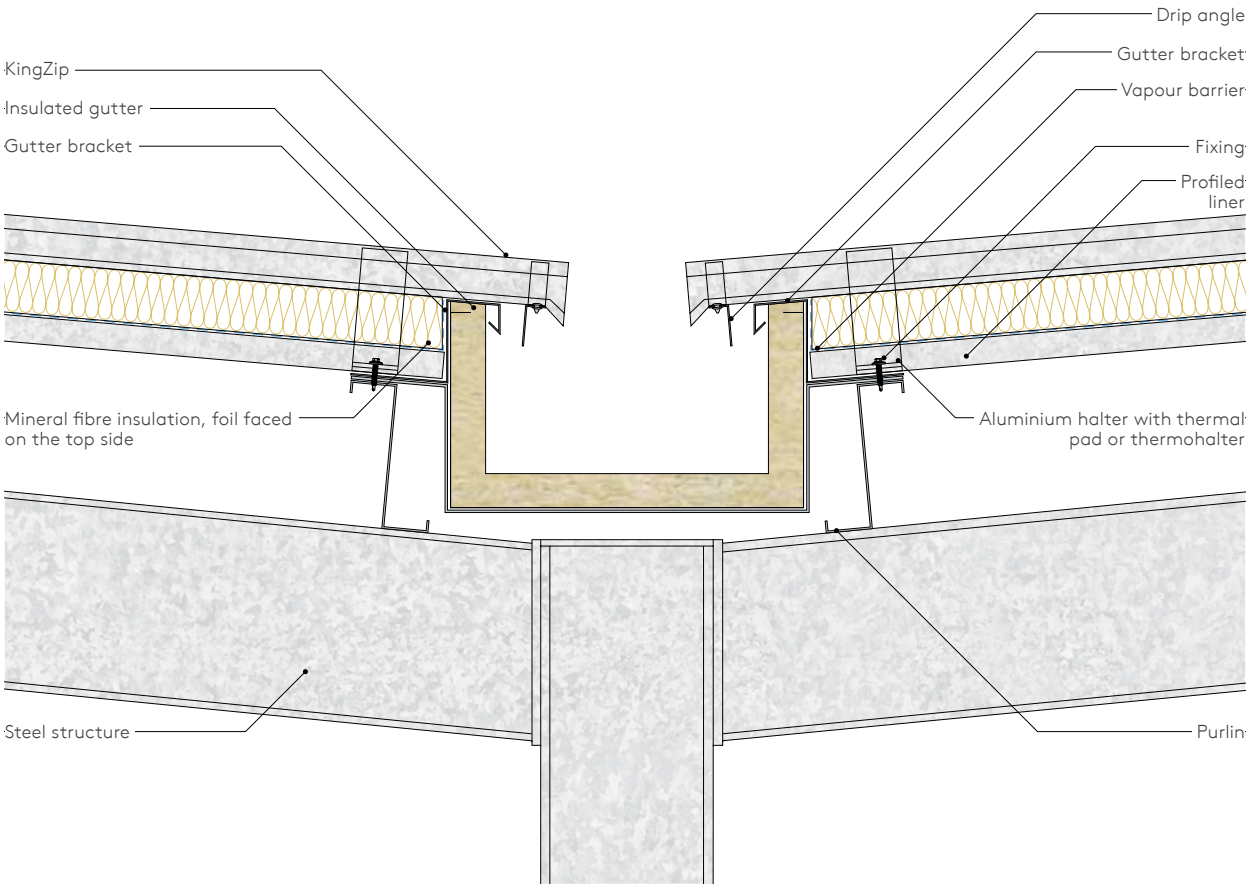


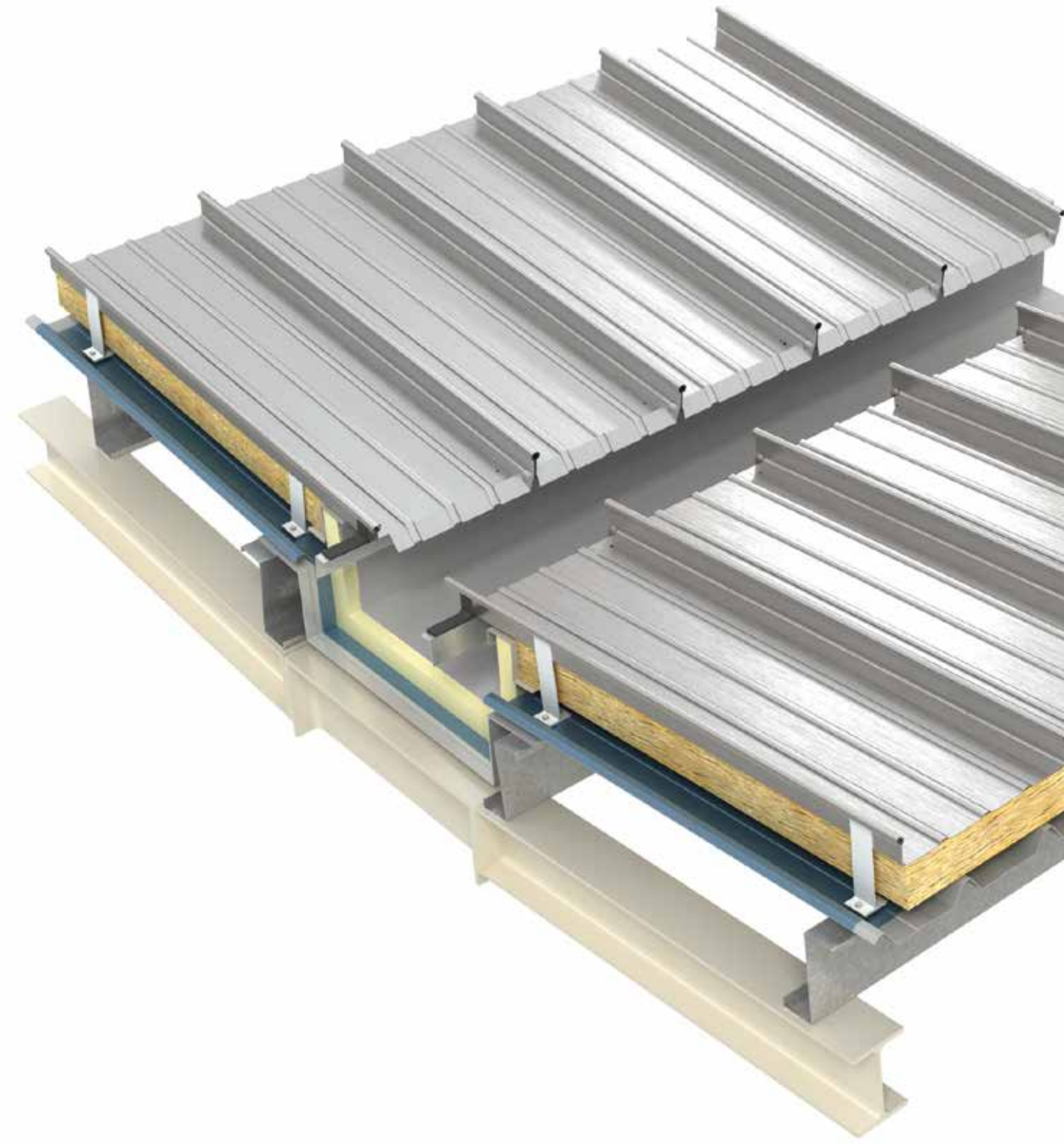
KingZip Insulated Valley Gutter



Construction Details

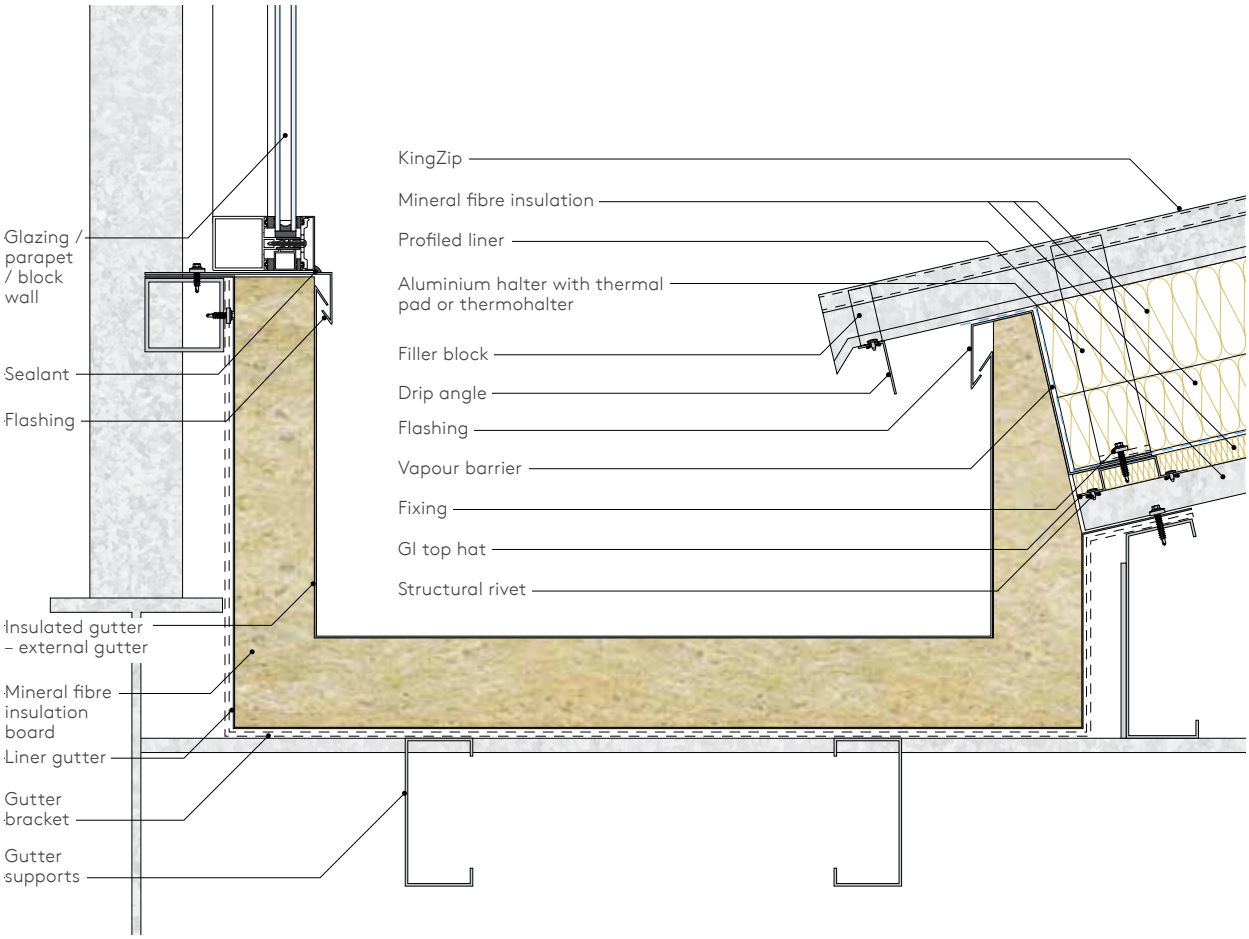
KingZip Thermal Valley Gutter



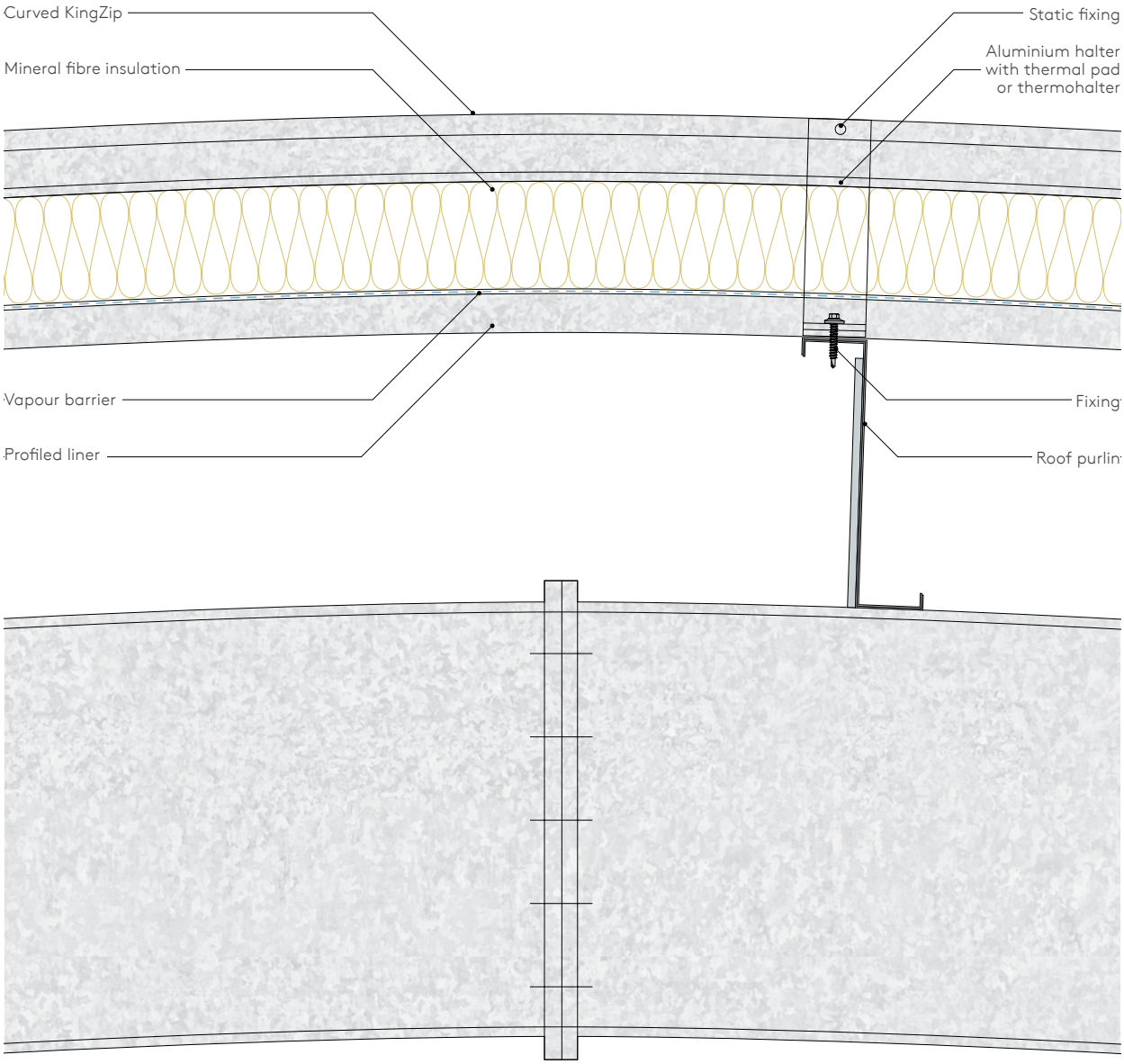


Construction Details

KingZip Insulated Gutter

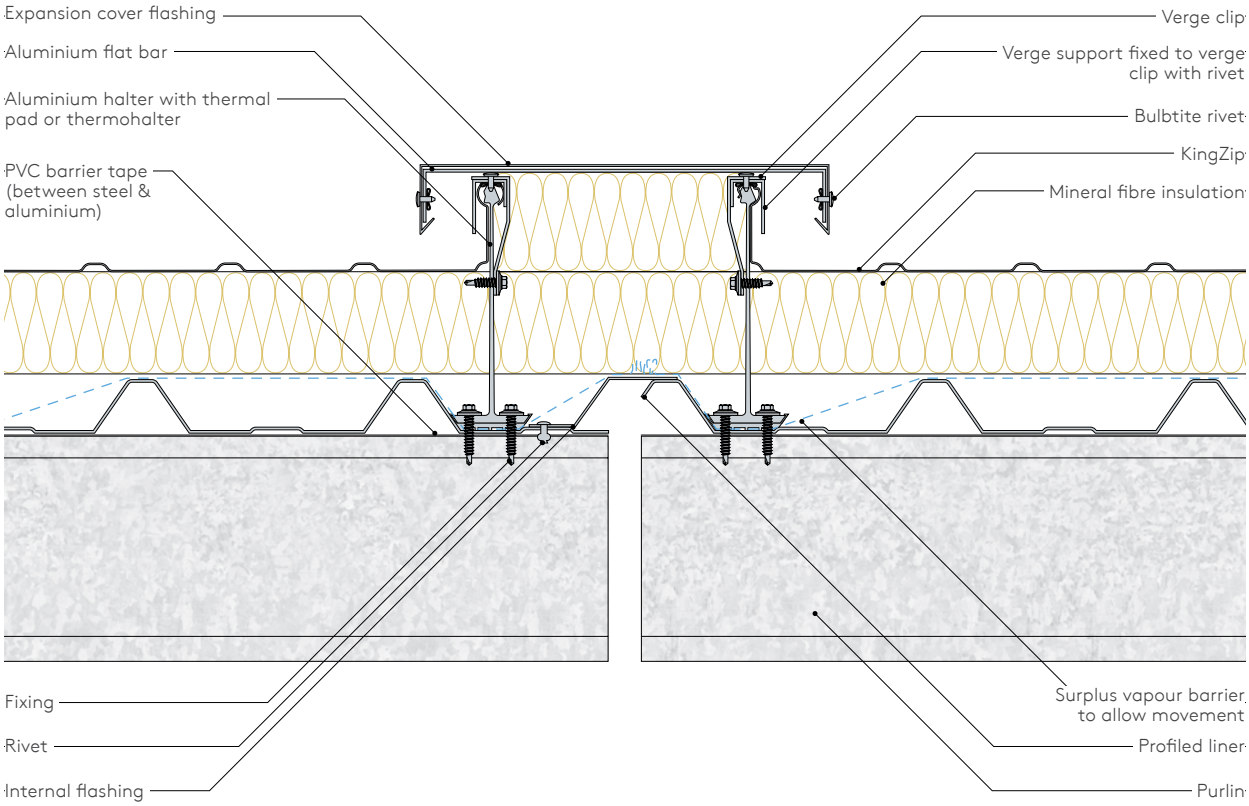


KingZip Double Skin Curved Ridge



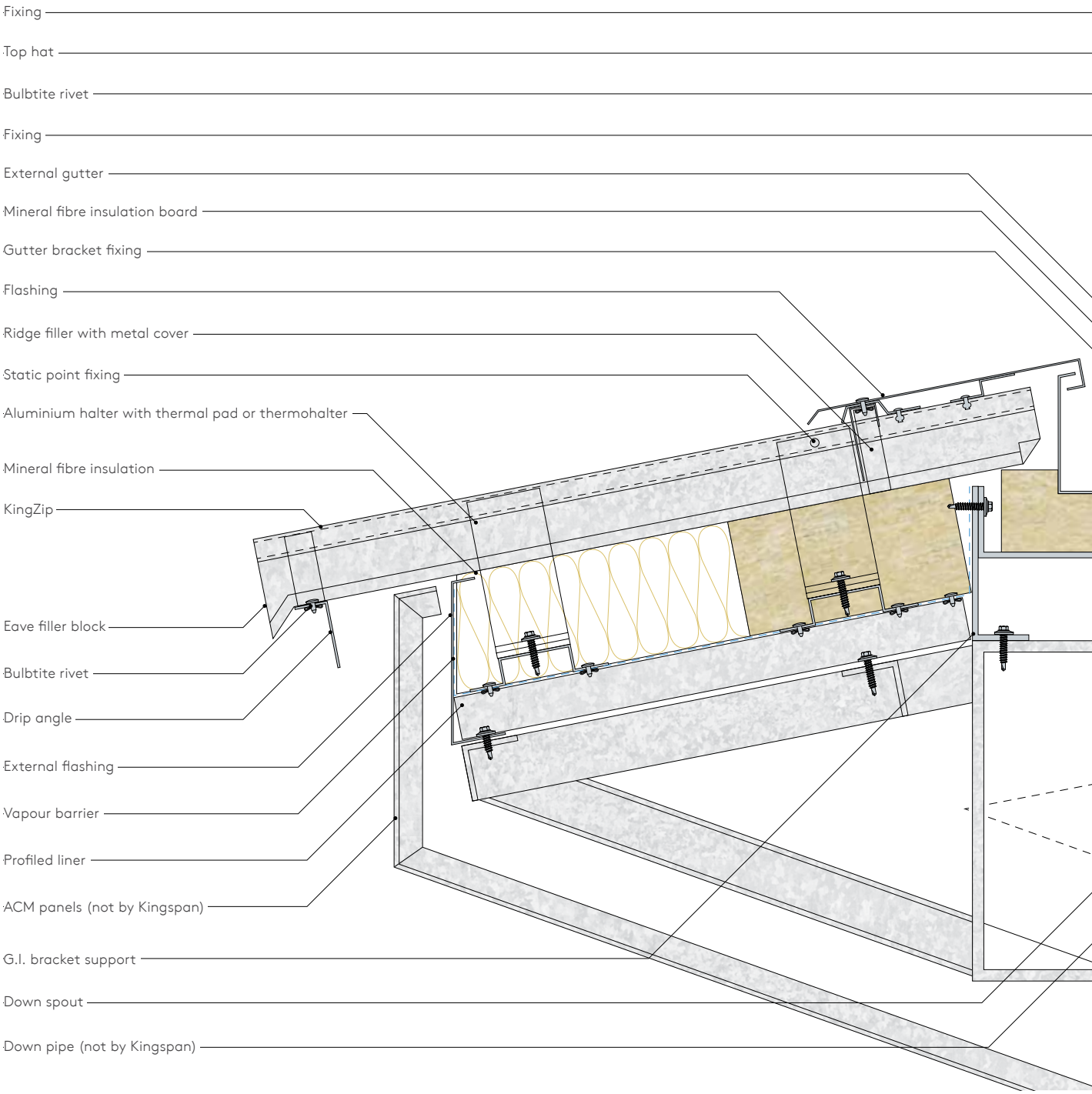
Construction Details

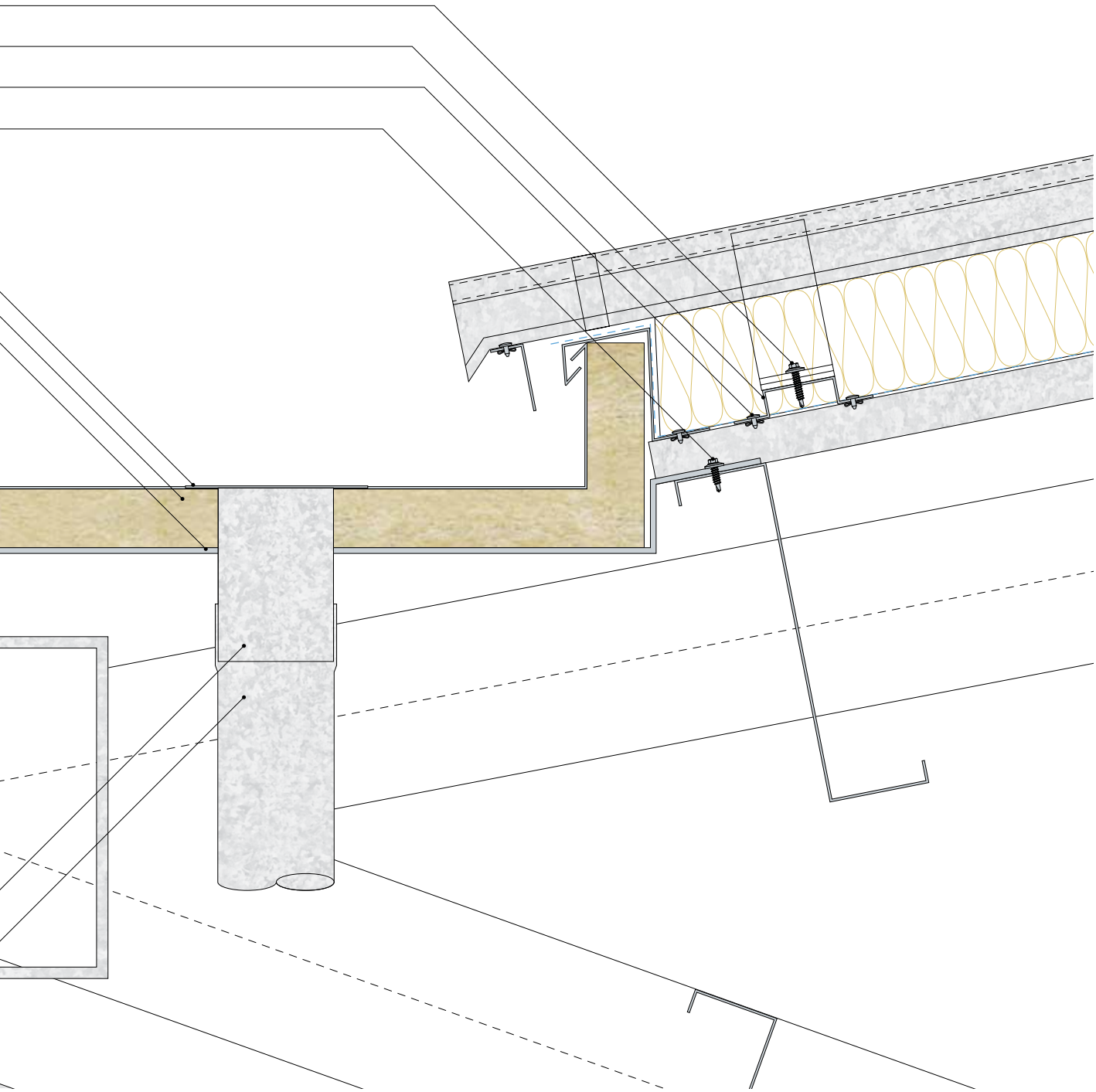
KingZip Expansion Joint



Construction Details

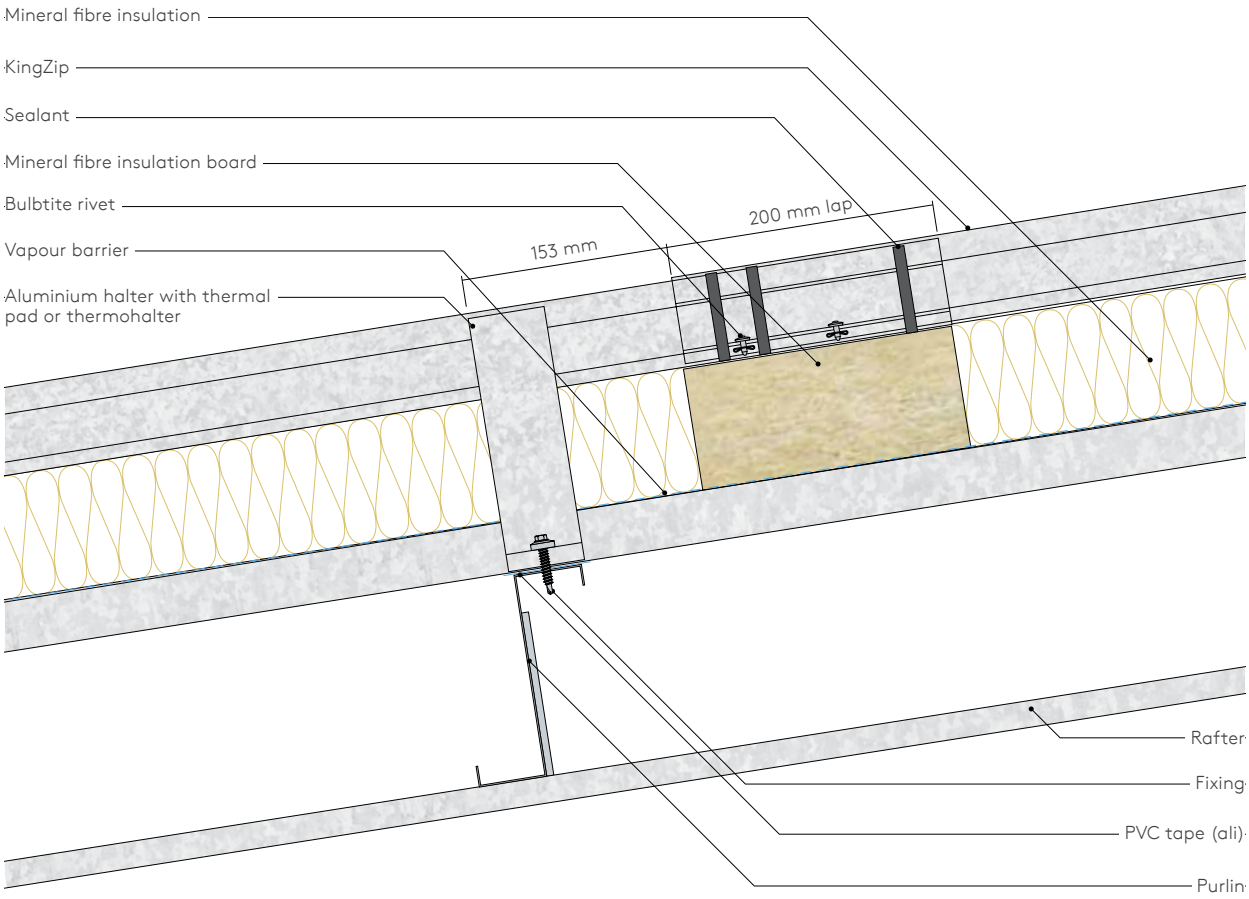
KingZip Inboard Gutter



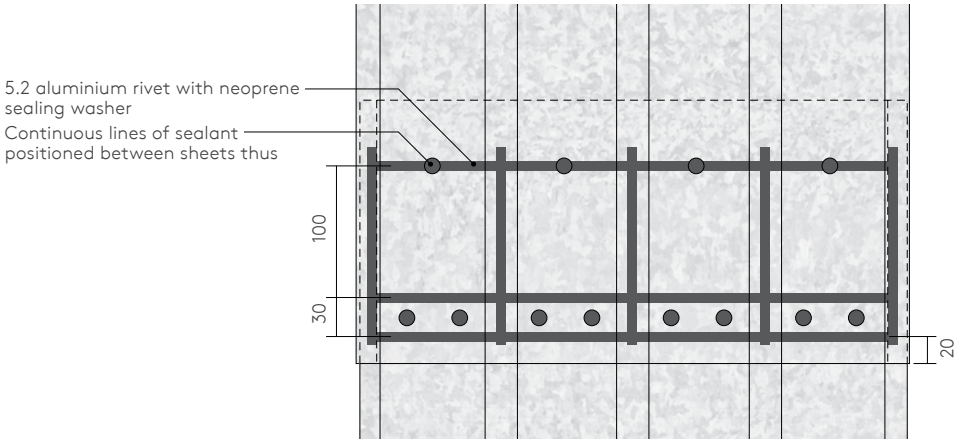


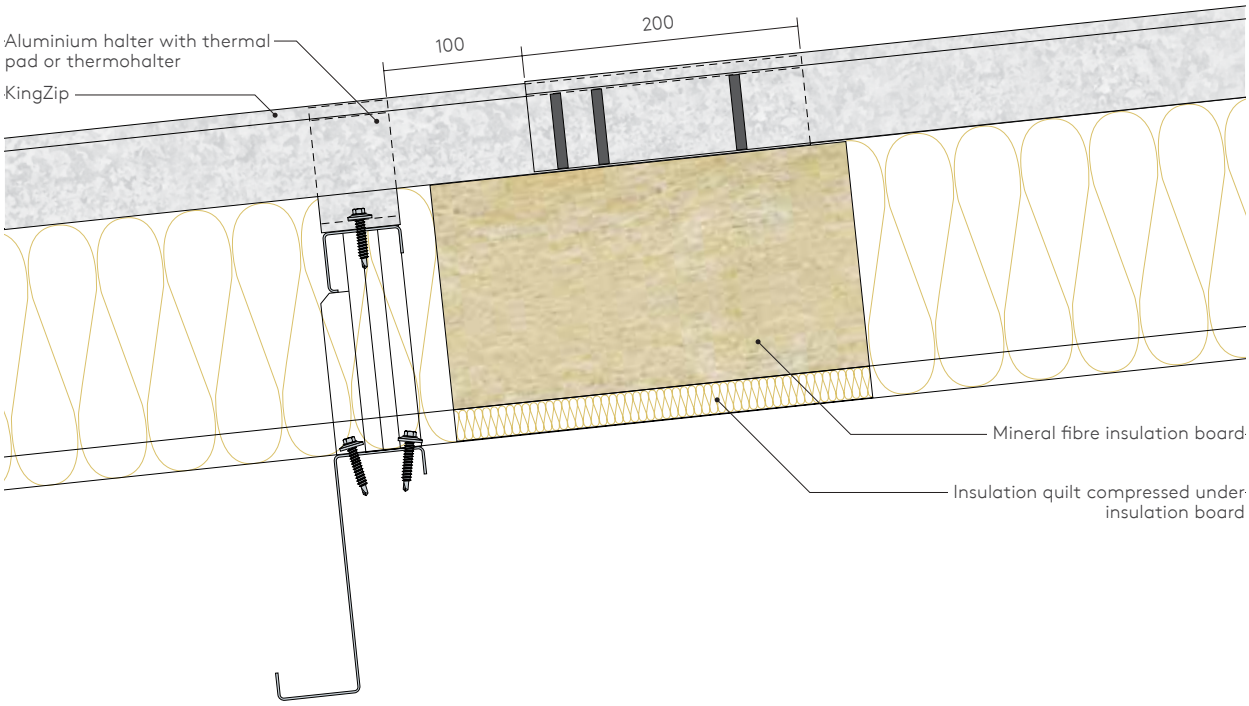
Construction Details

KingZip End Lap



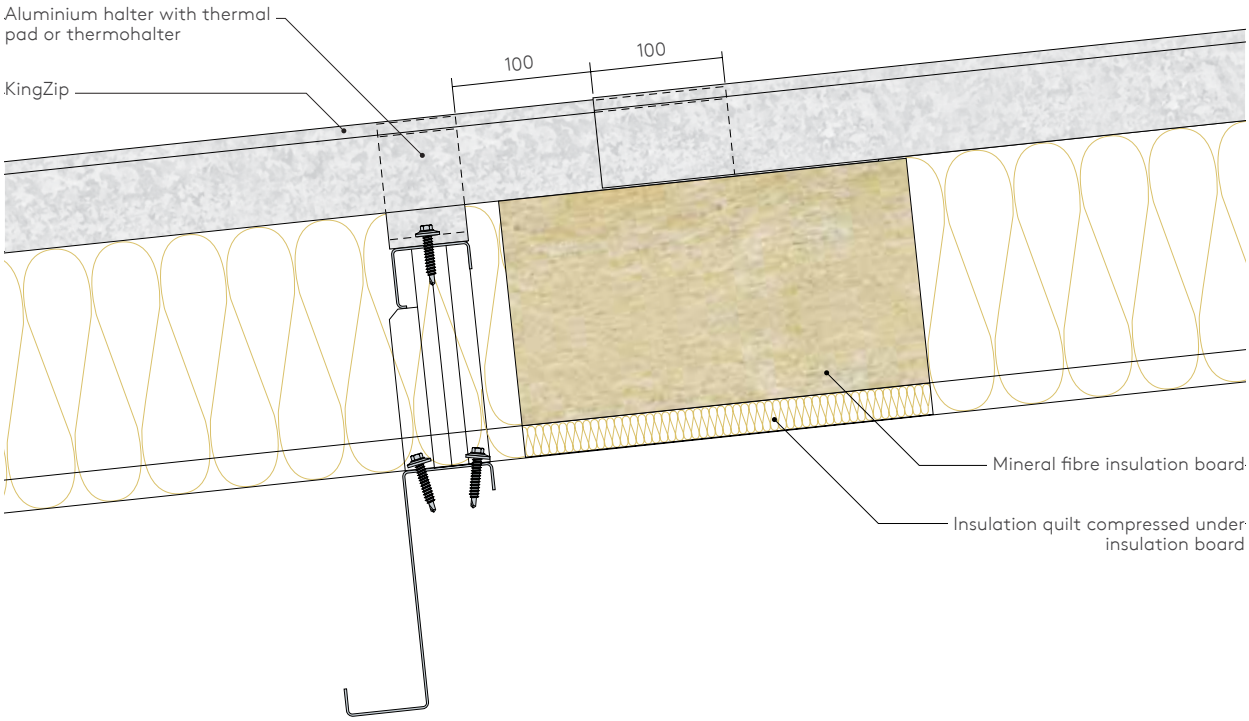
Bar and Bracket System with Riveted Lap





Construction Details

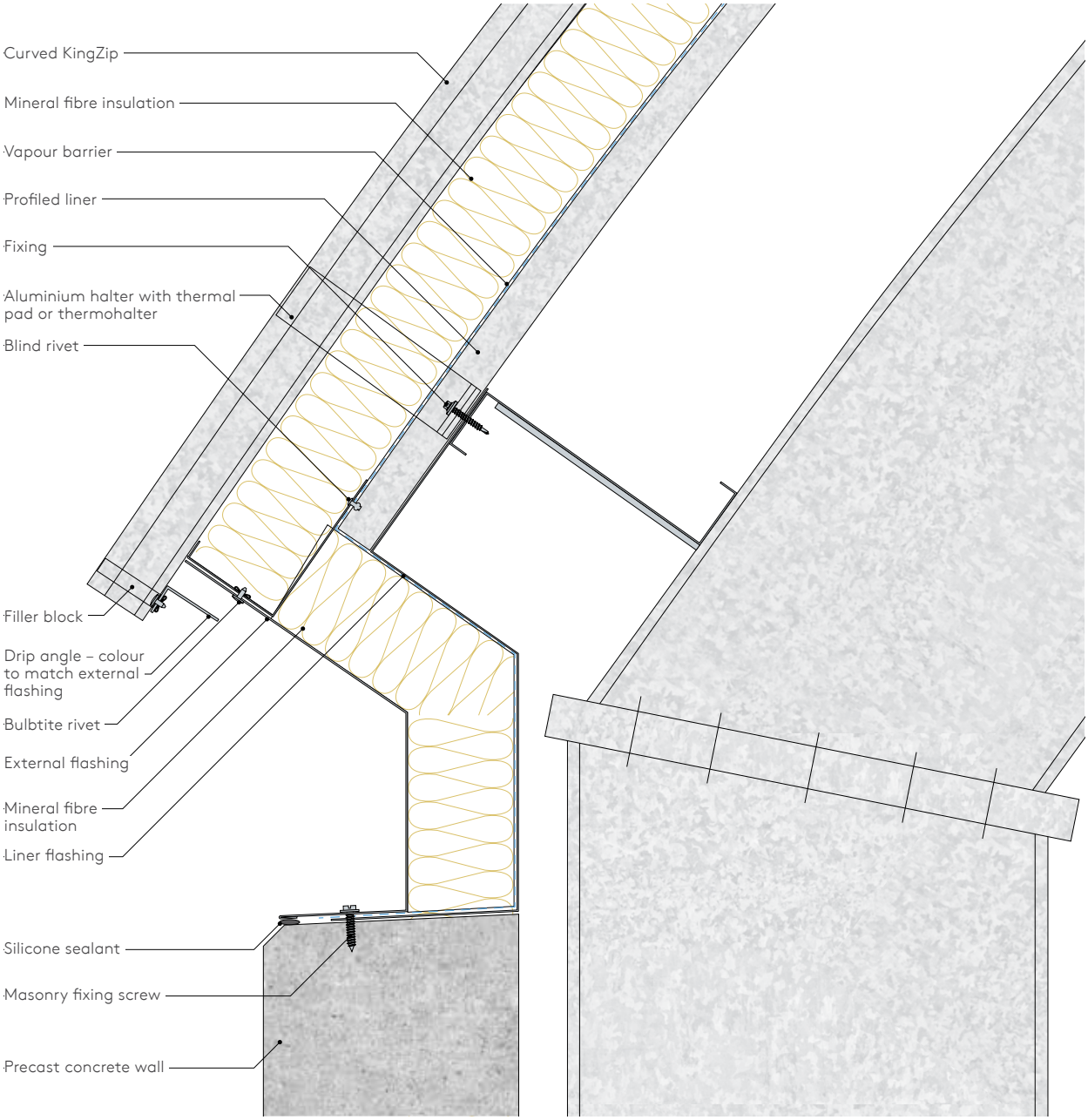
Bar and Bracket System with Welded Lap



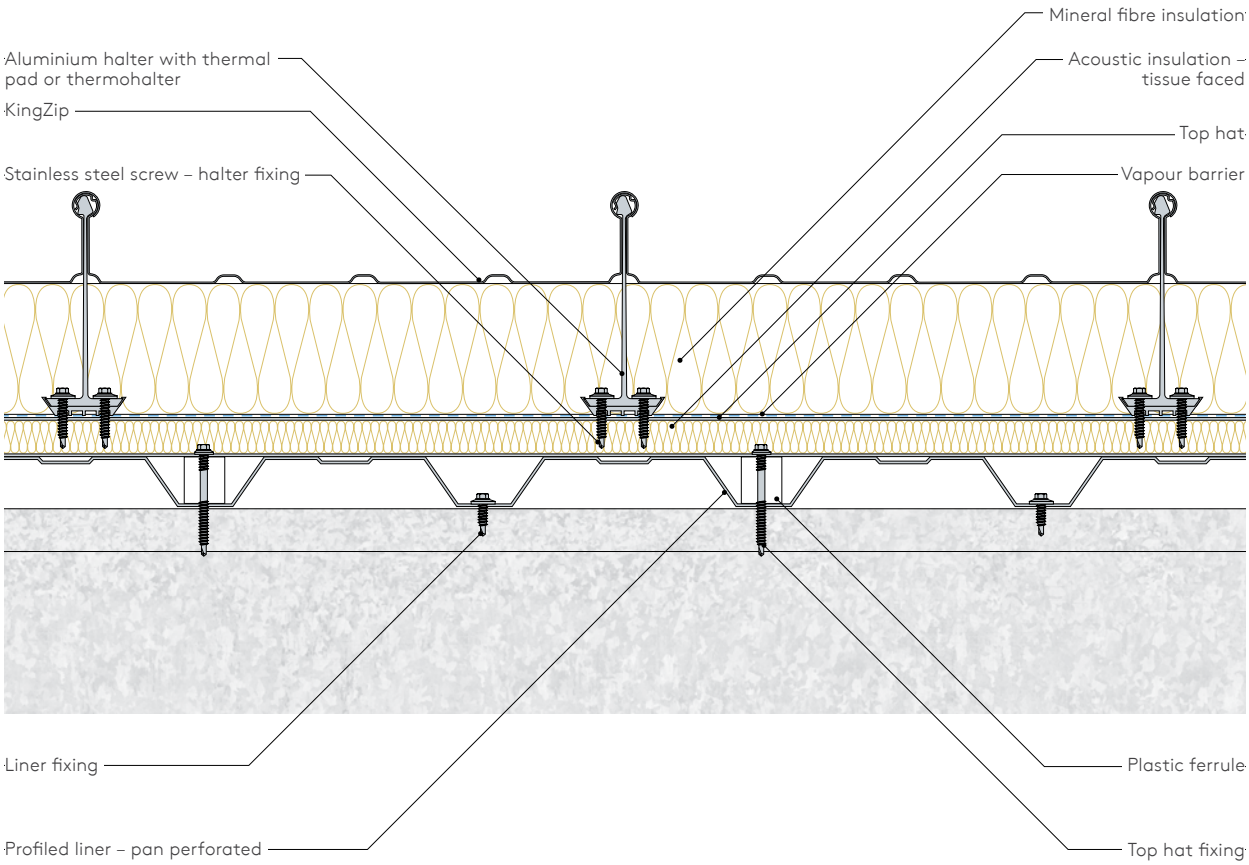

Direction
of lay
80
120

Construction Details

KingZip Double Skin Eave Free Discharge

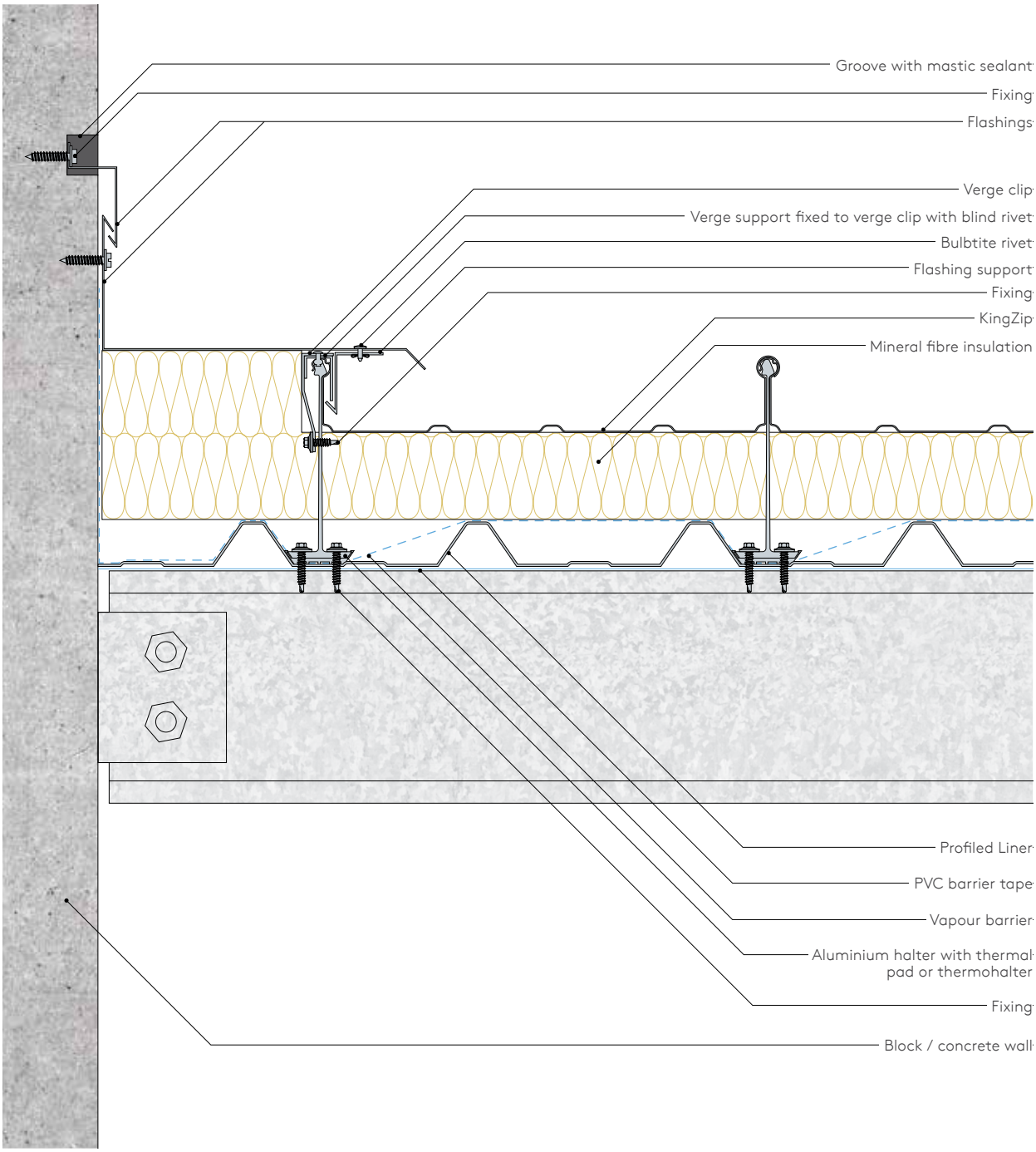


KingZip Roof Construction



Construction Details

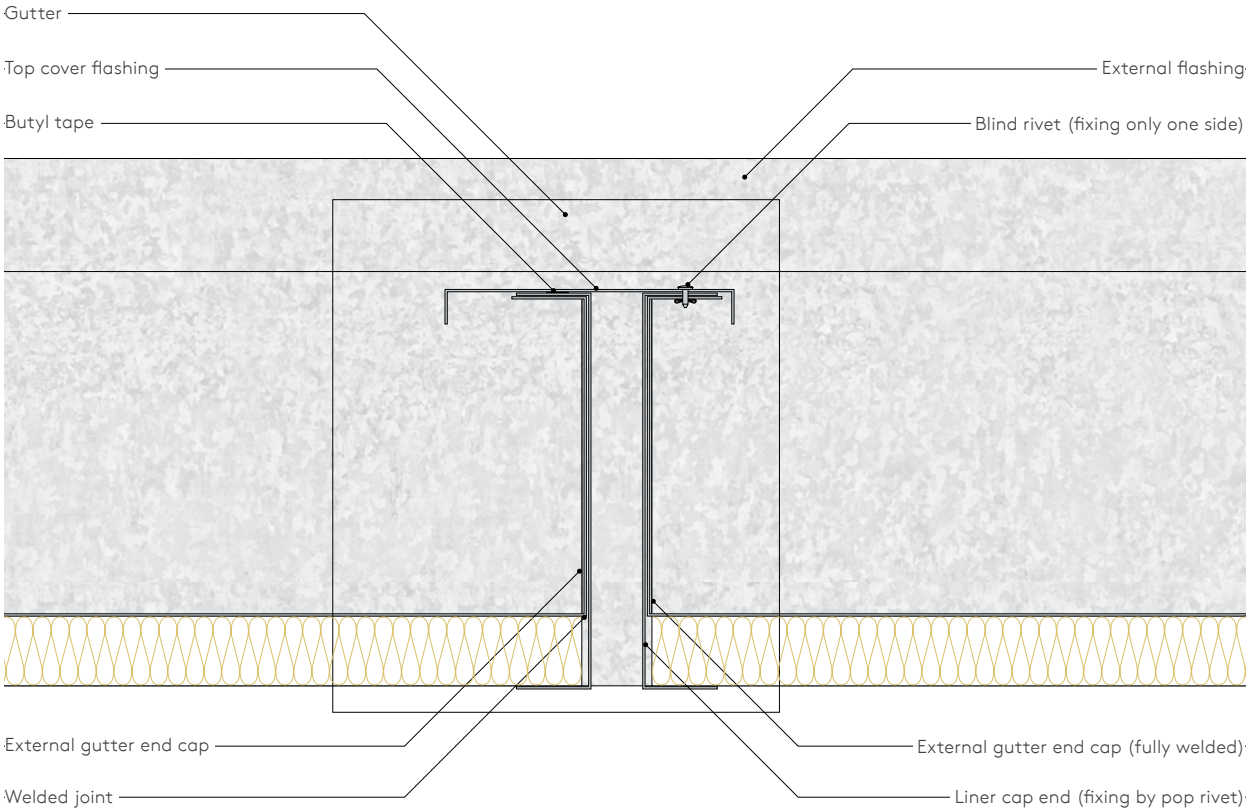
KingZip Typical Gable



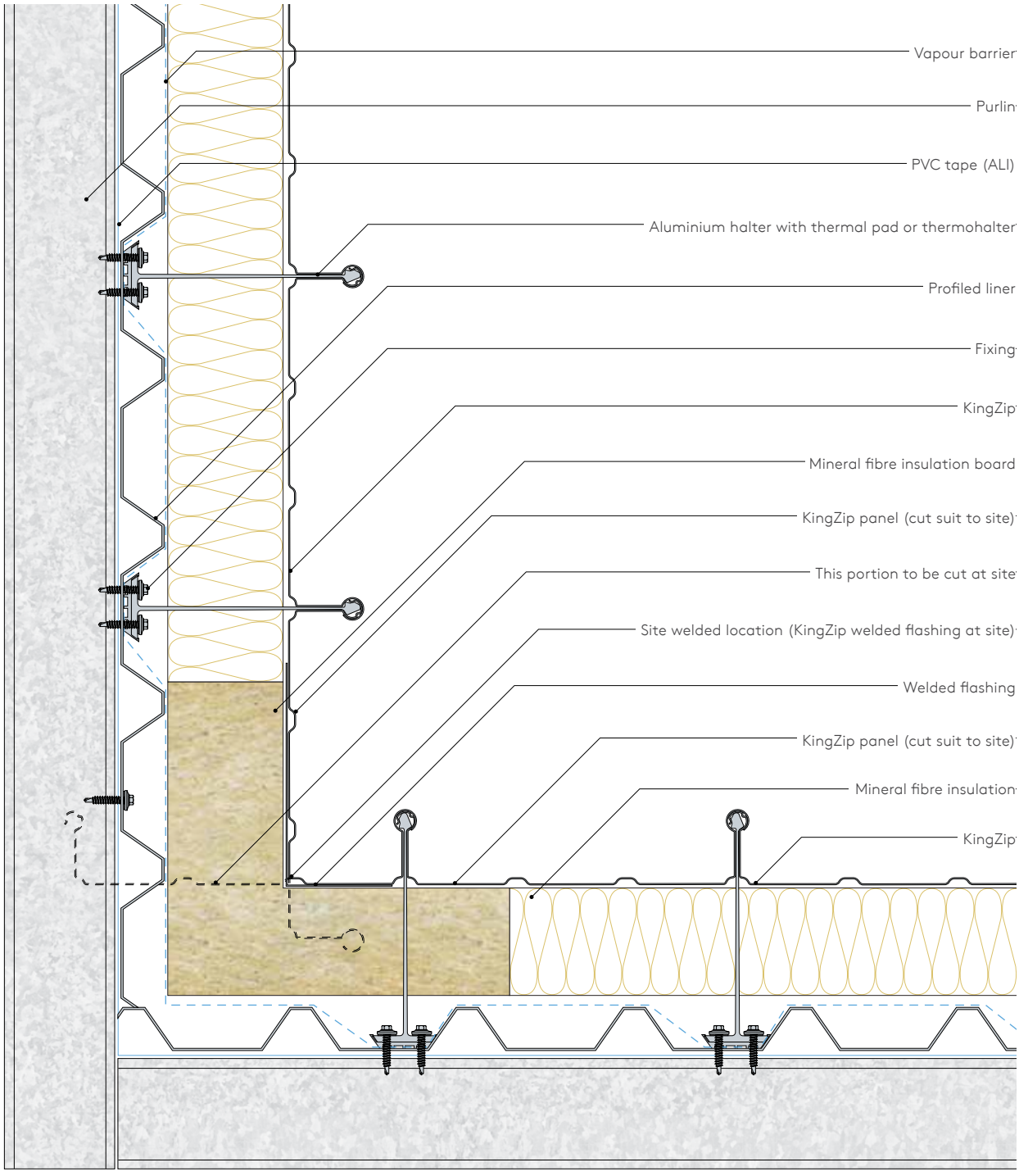

via stairs
Lift
Platform
1

Construction Details

KingZip Insulated Gutter Expansion Joint

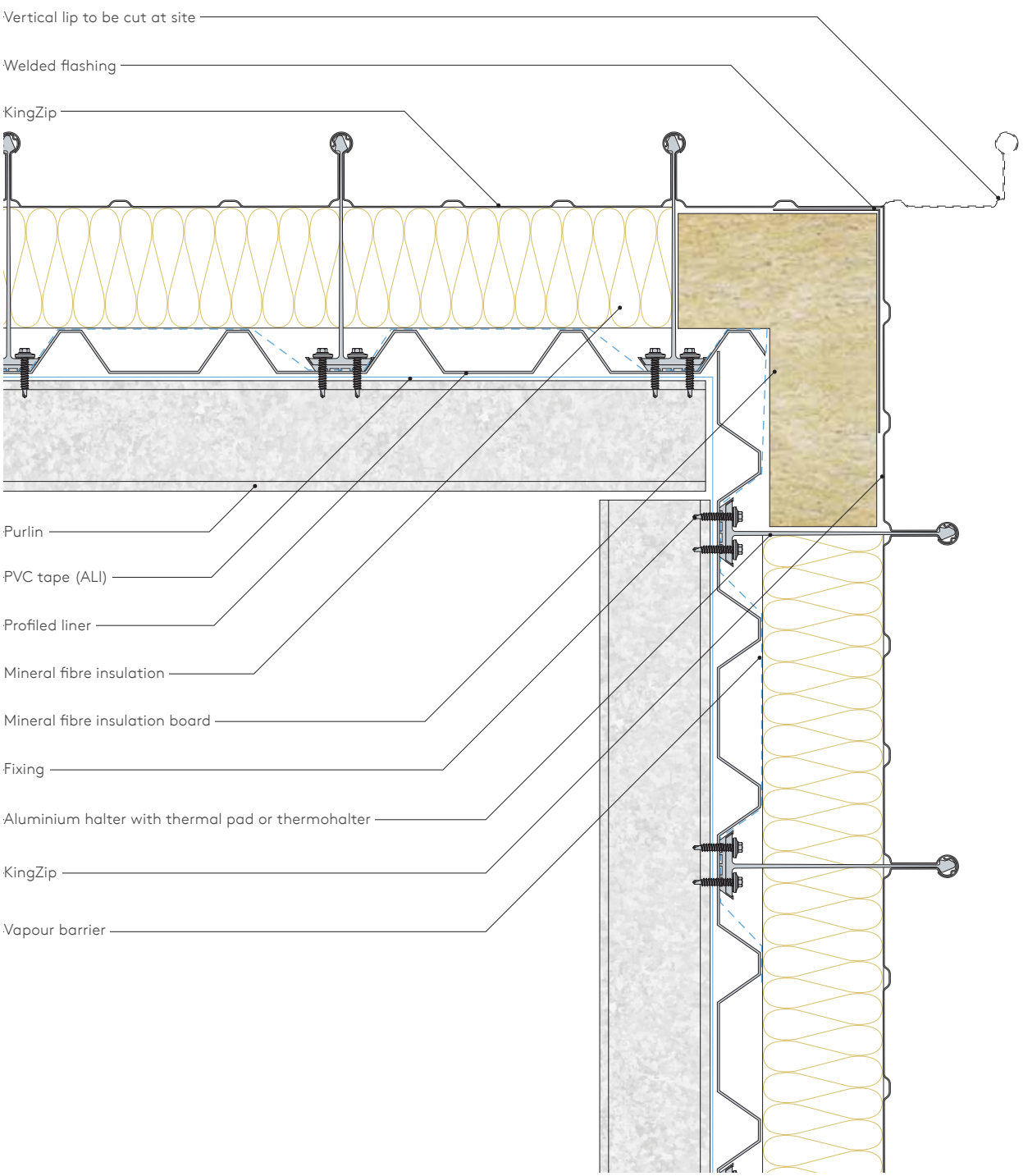


KingZip Typial Wall Internal Corner (welded)

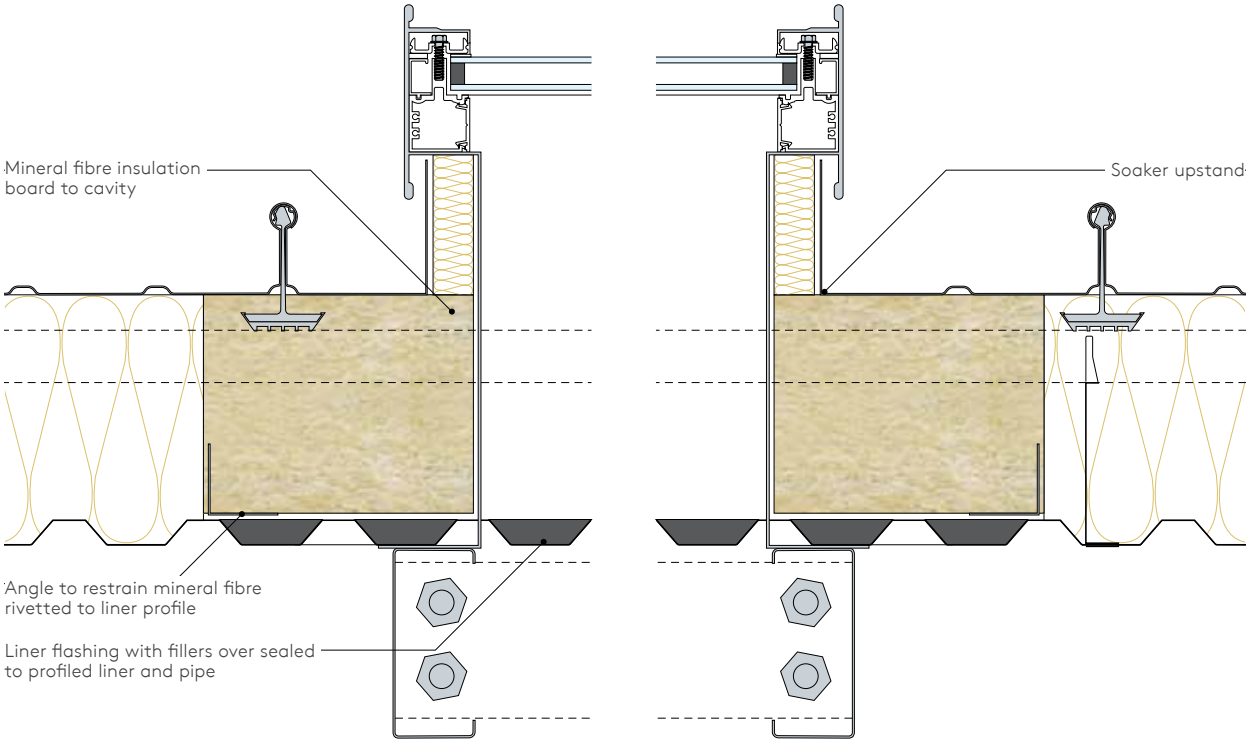


Construction Details

KingZip Typial Wall Corner (welded)



KingZip Roof Window

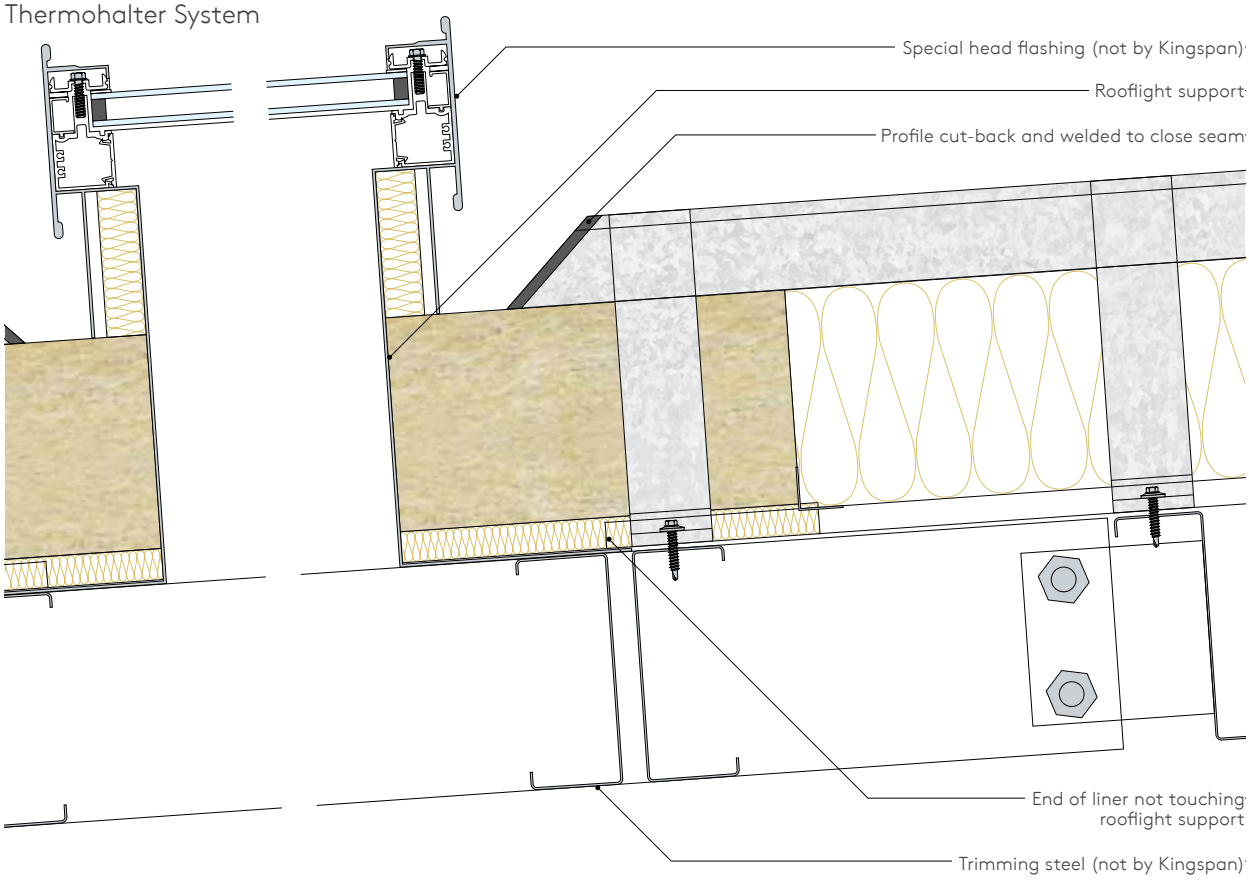



SPORTS

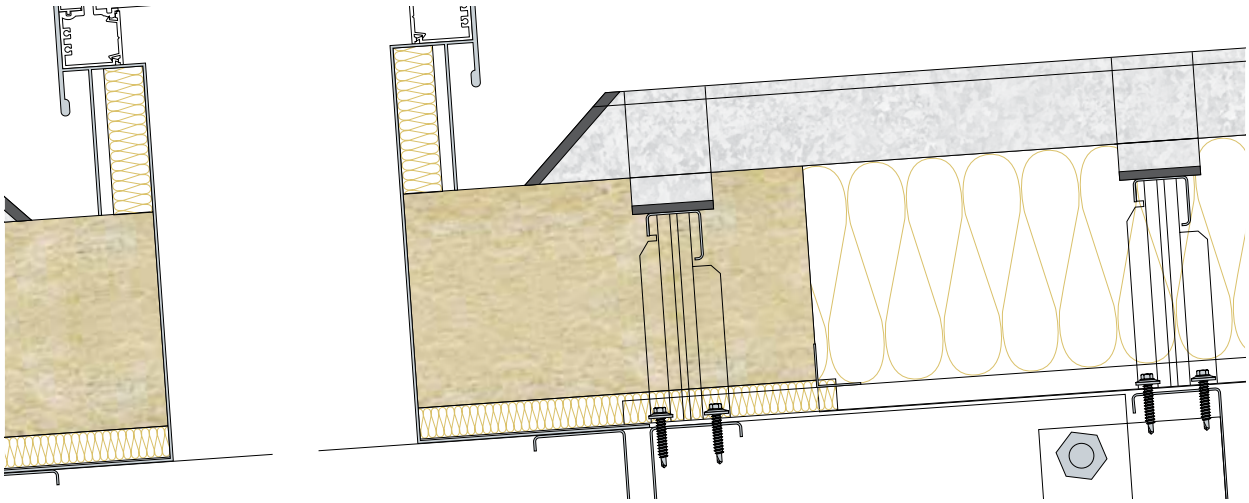
Construction Details

KingZip Roof Window – Upslope

Thermohalter System

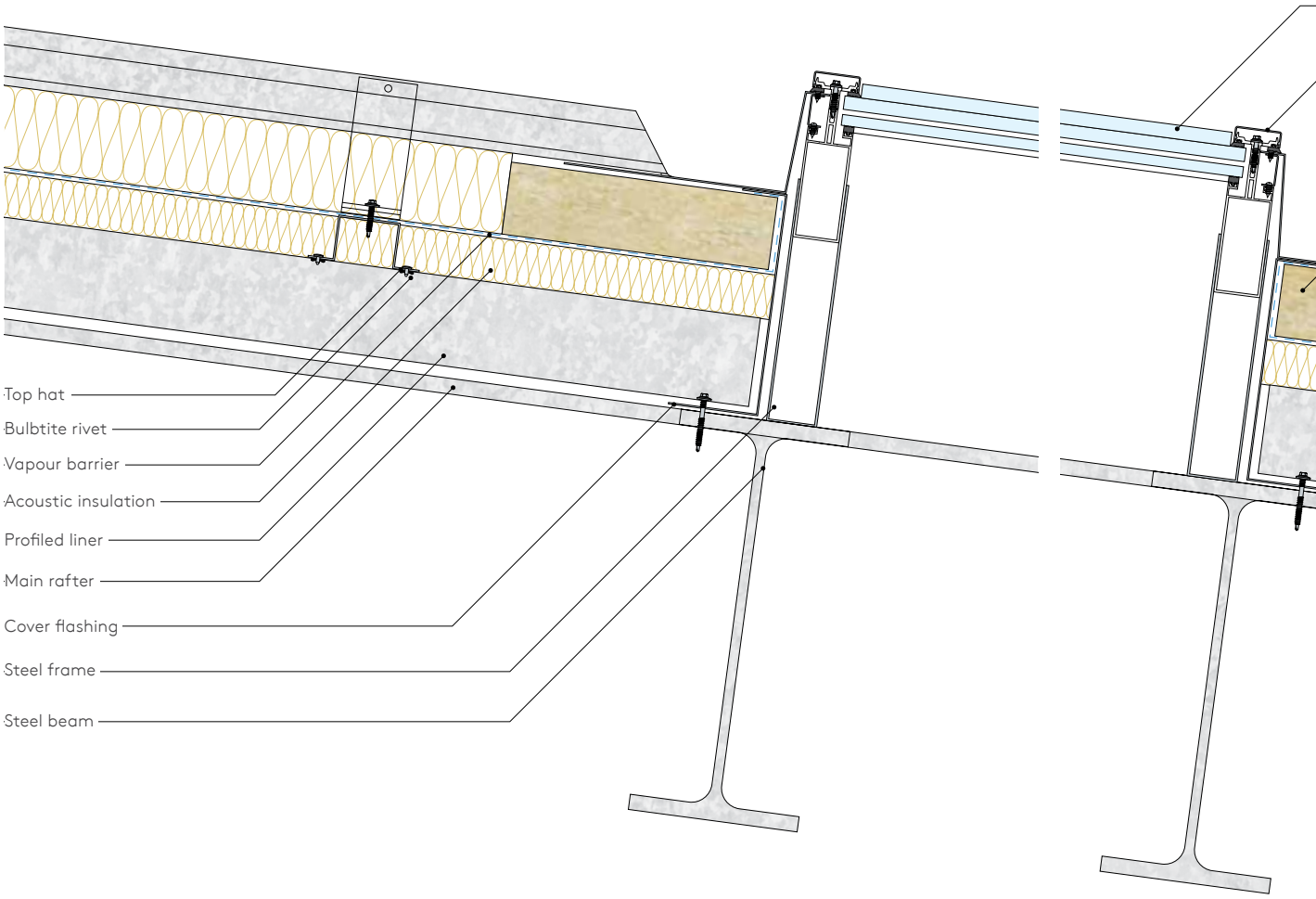


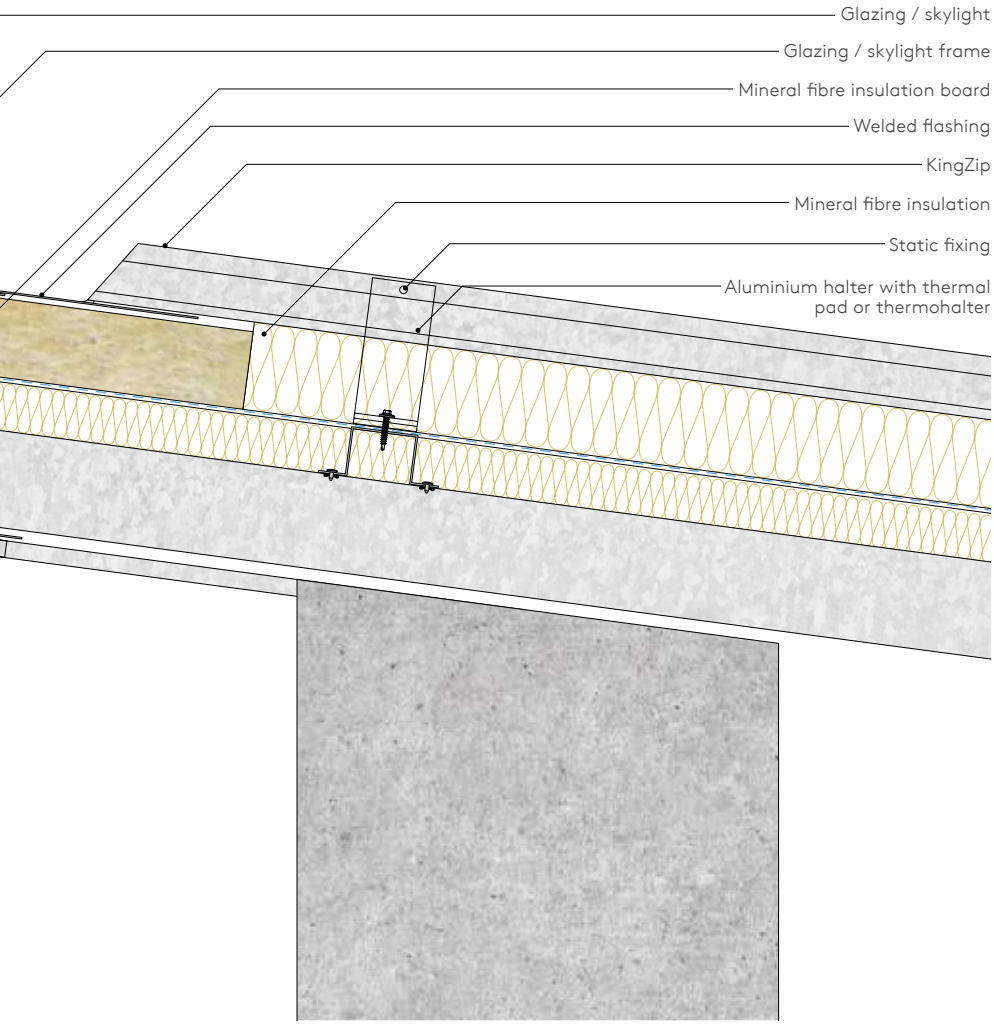
Bar and Bracket System



Construction Details

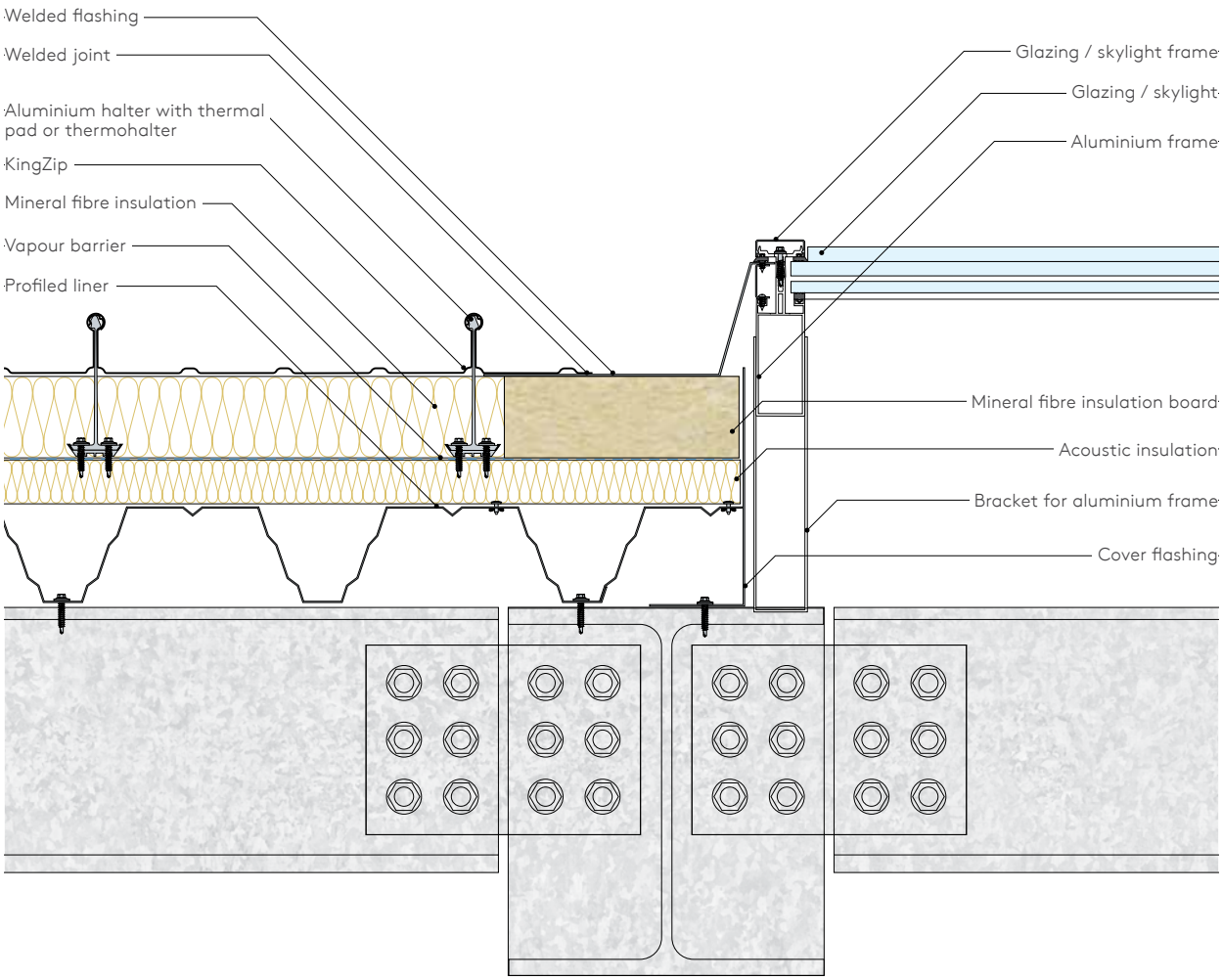
KingZip Roof Panel and Skylight Fixing



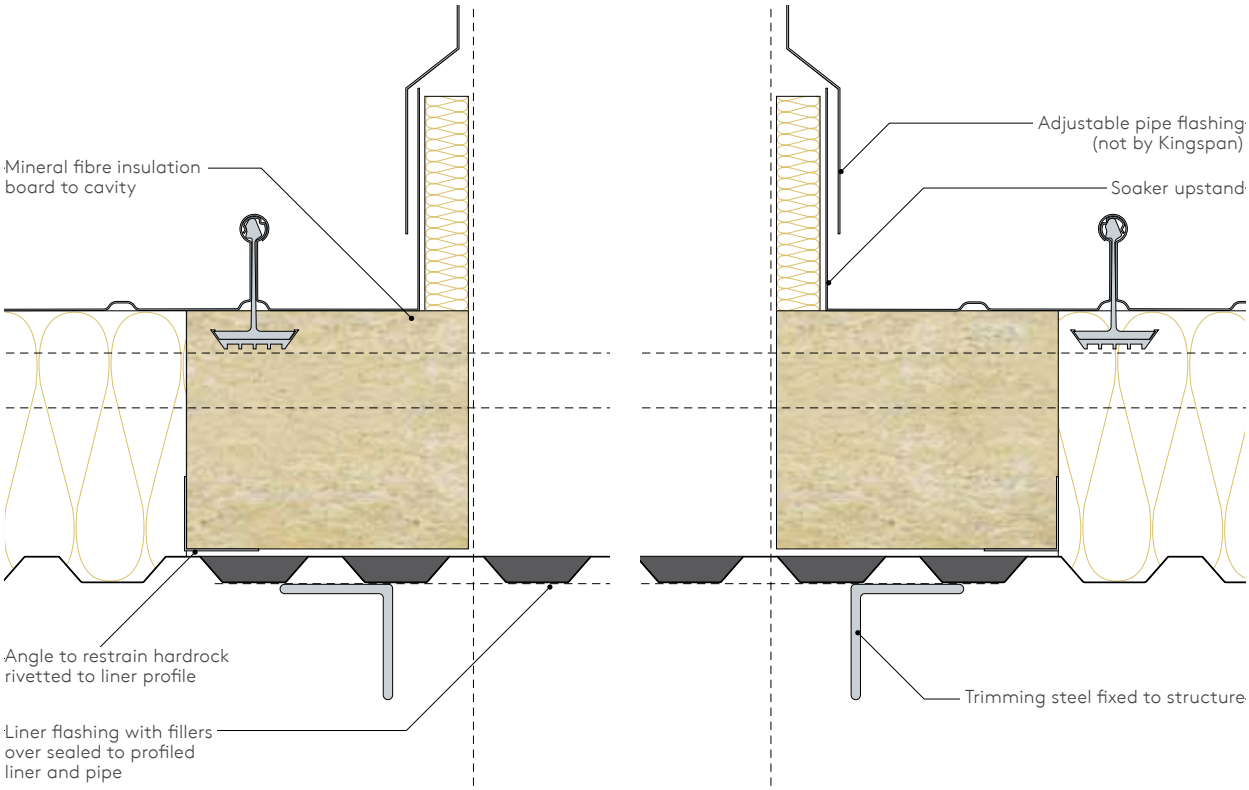

Glazing / skylight
Glazing / skylight frame
Mineral fibre insulation board
Welded flashing
KingZip
Mineral fibre insulation
Static fixing
Aluminium halter with thermal pad or thermohalter

Construction Details

KingZip Roof Panel and Skylight Fixing

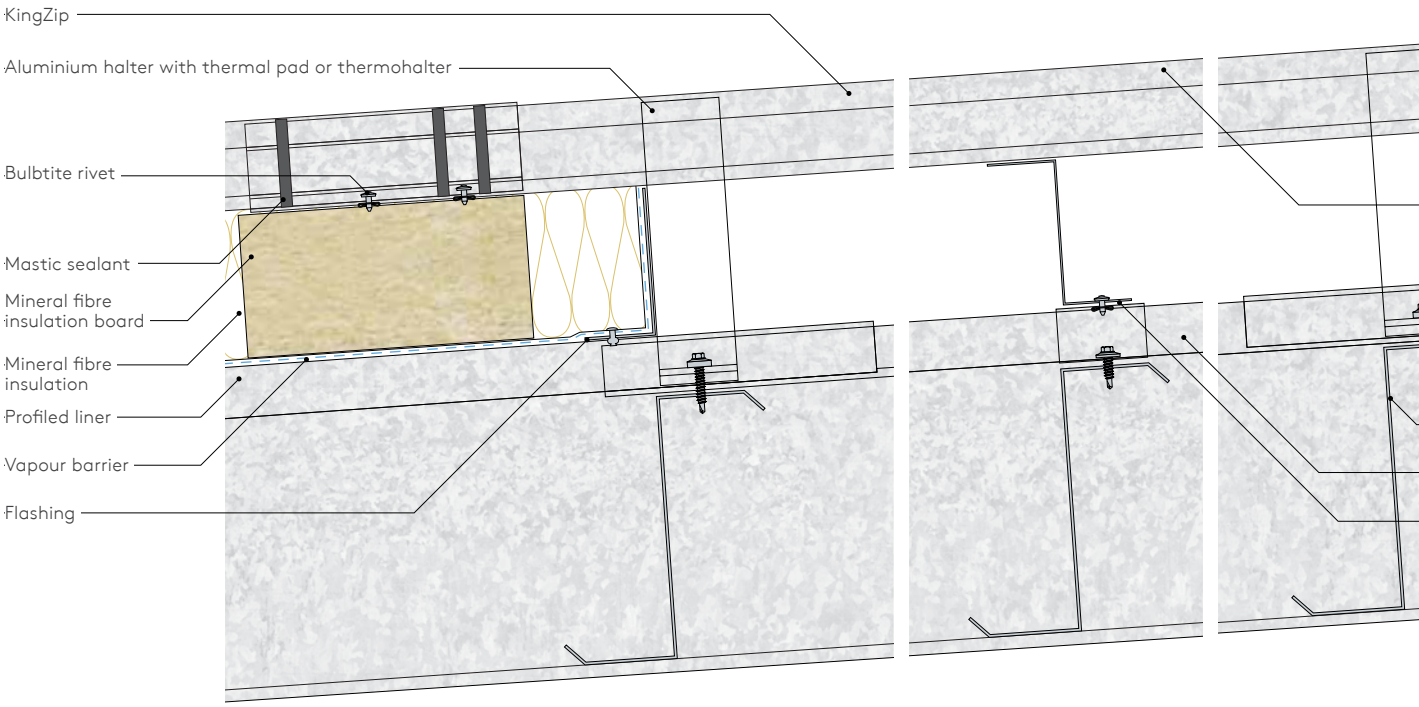


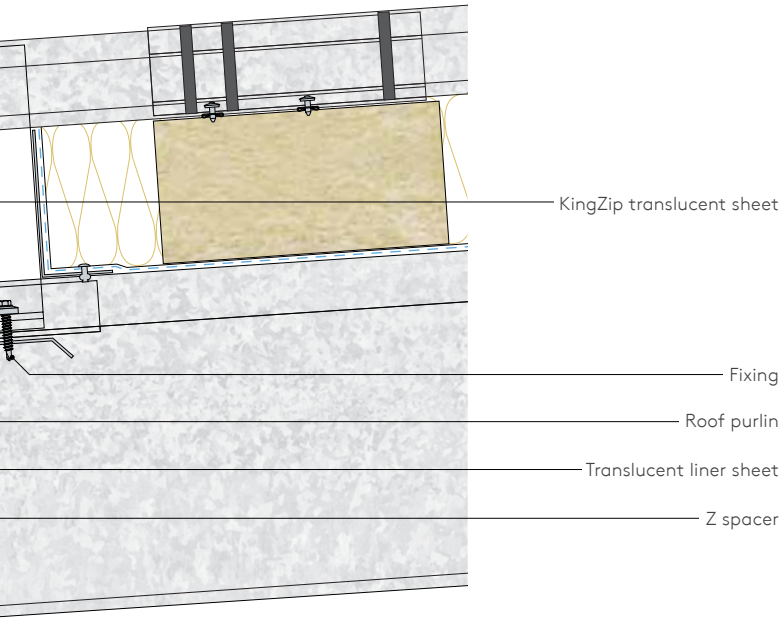
KingZip Opening Through Roof



Construction Details

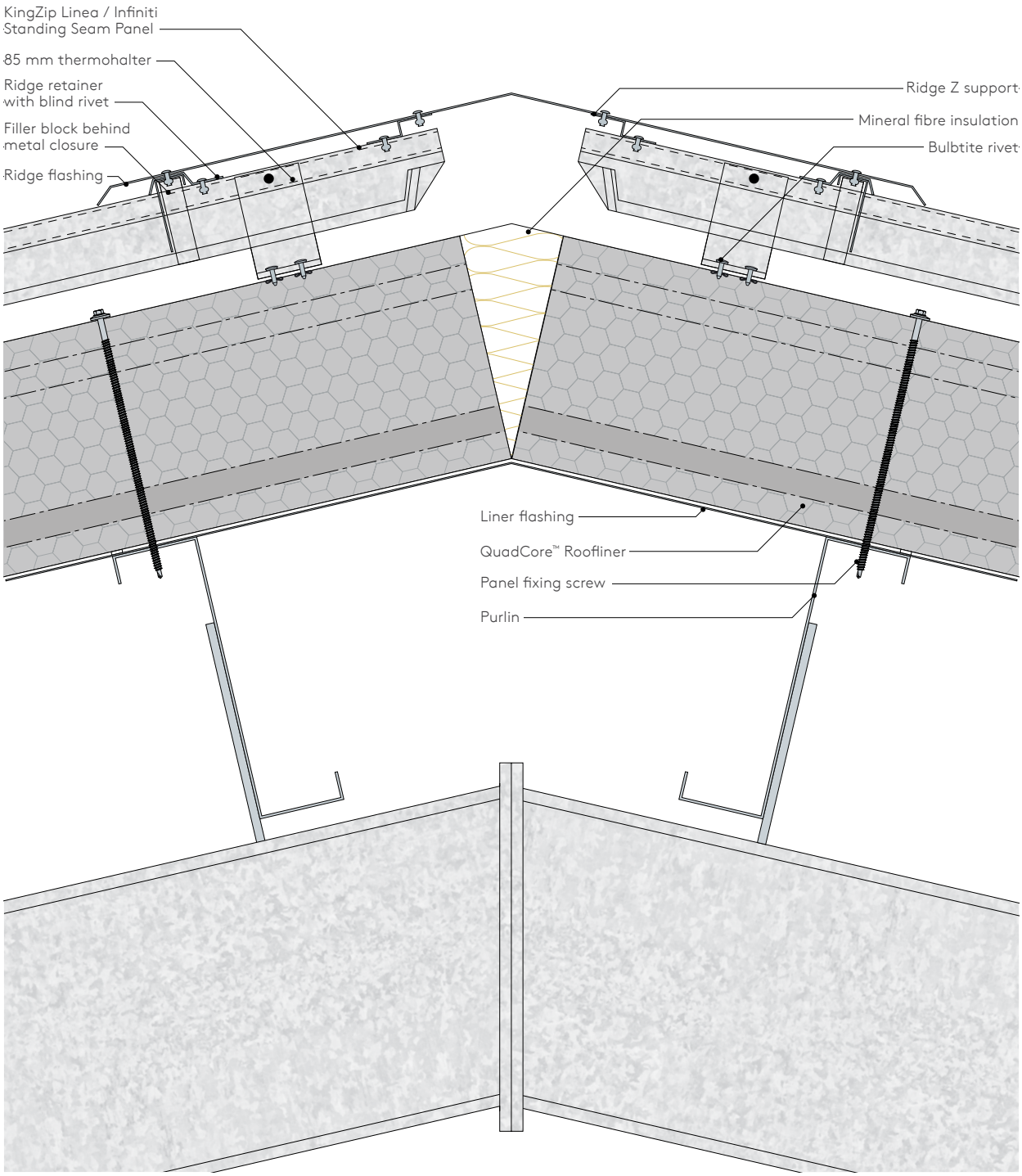
KingZip Translucent Roof



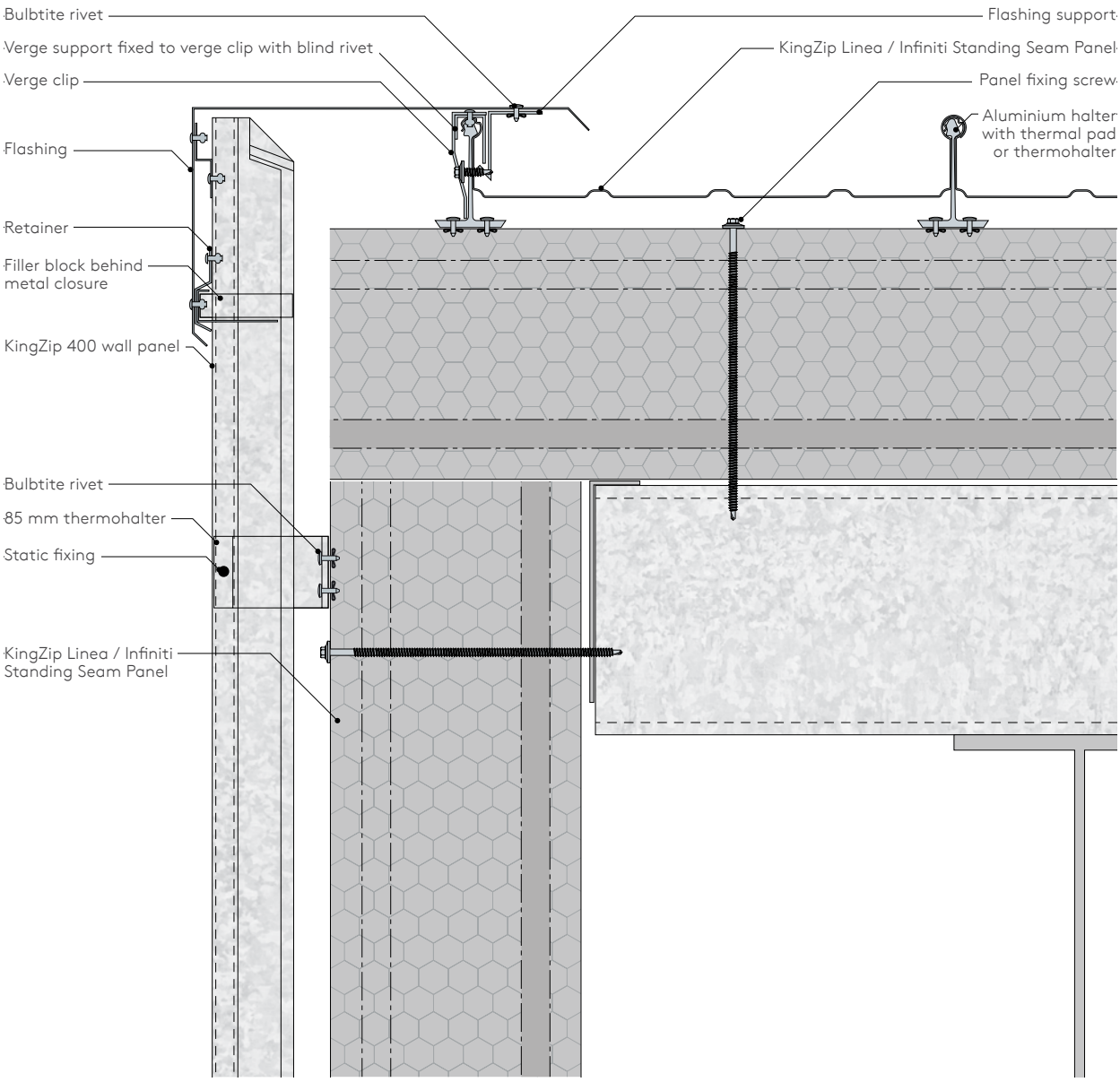

KingZip translucent sheet
Fixing
Roof purlin
Translucent liner sheet
Z spacer

Construction Details

KingZip Roofliner Hybrid System Ridge

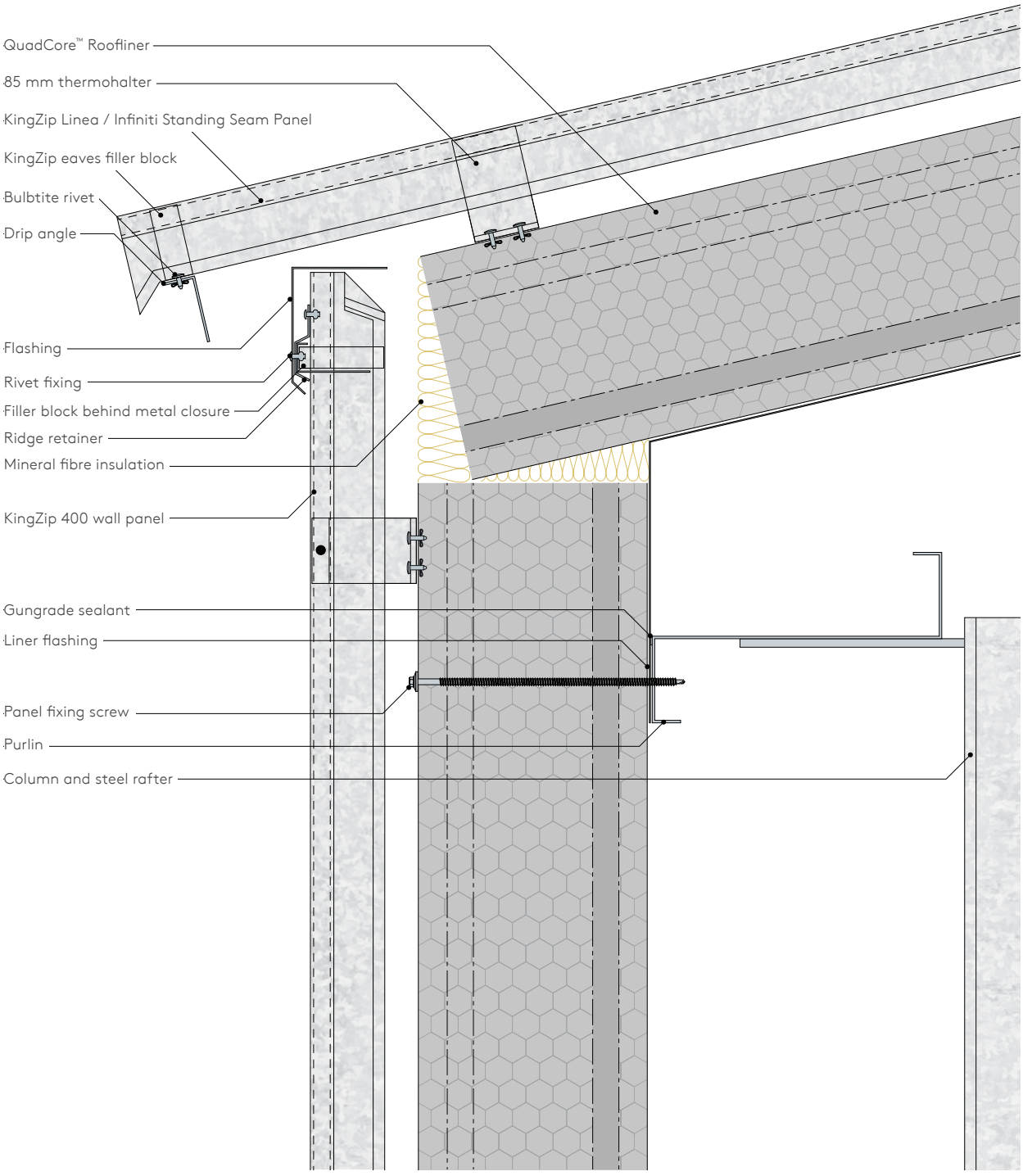


KingZip Roofliner Hybrid System Verge

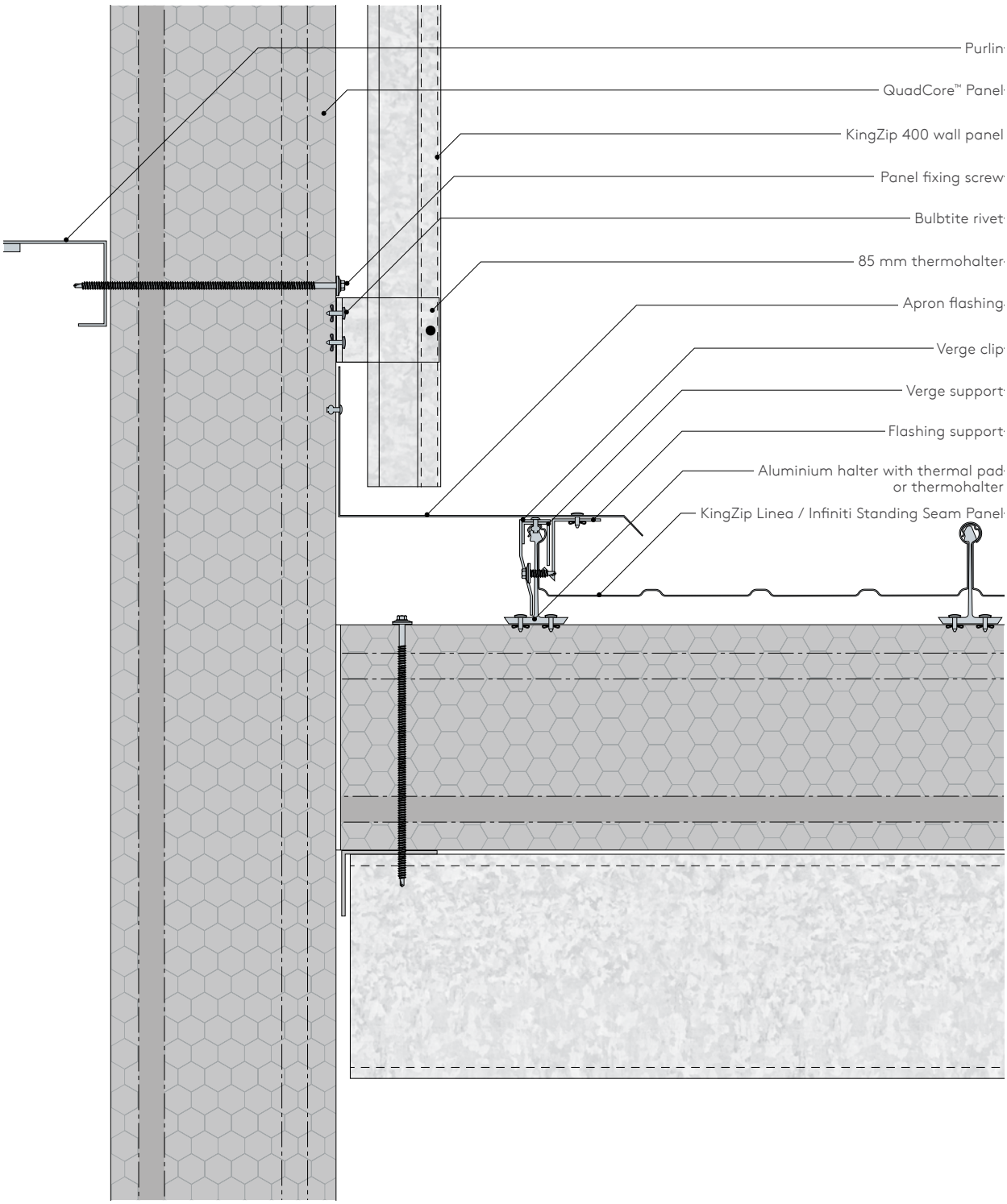


Construction Details

KingZip Roofliner Hybrid System Eave

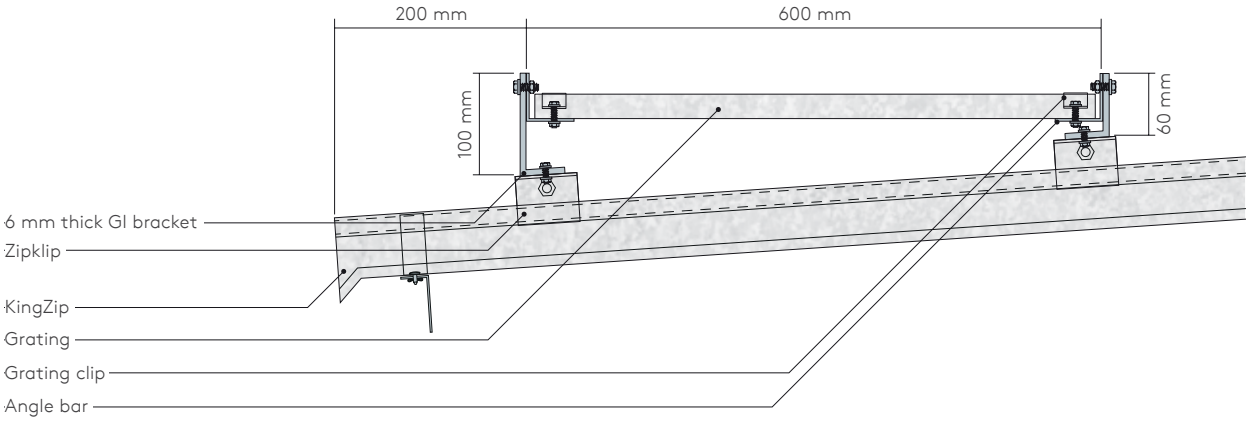


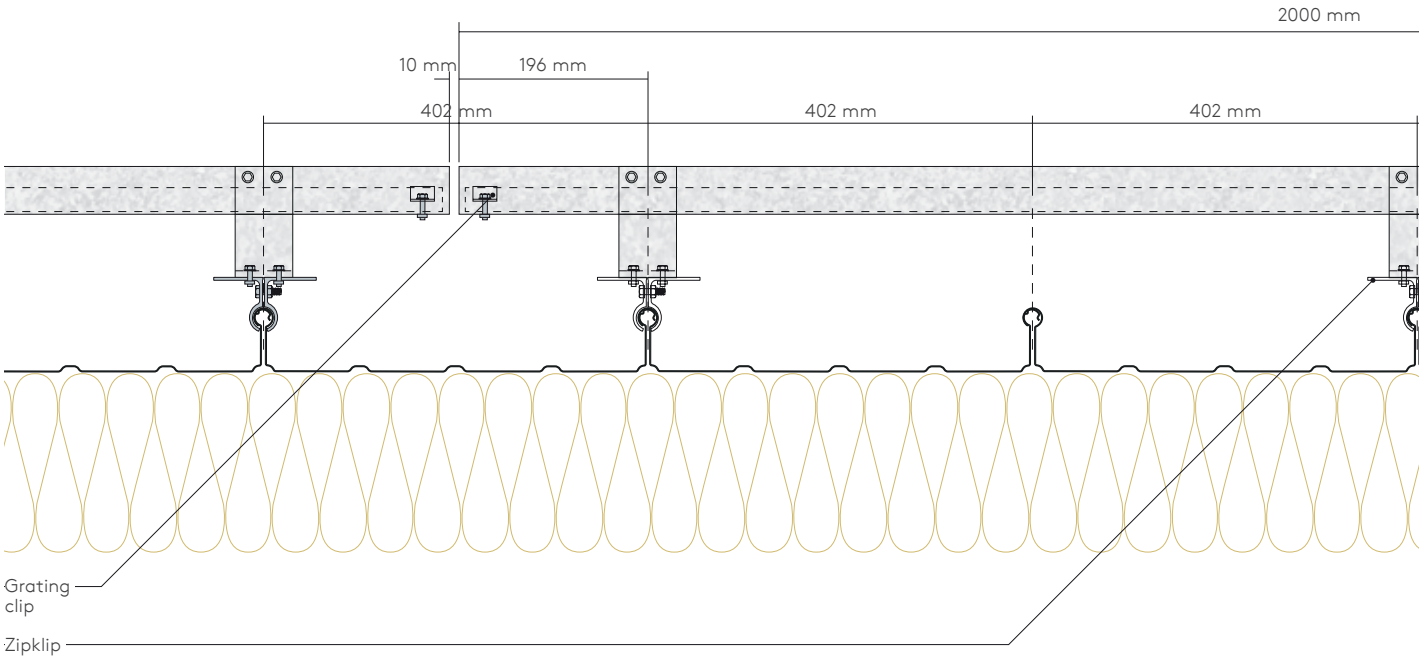
KingZip Roofliner Hybrid System Apron

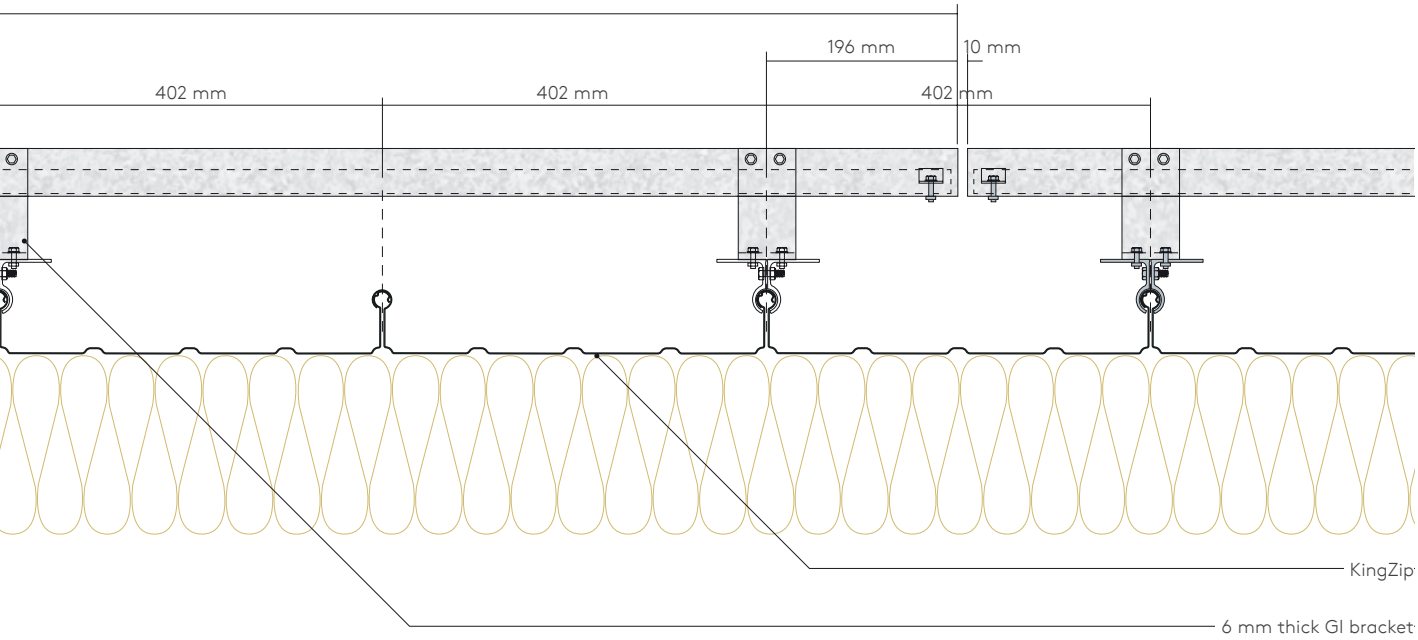


Construction Details

KingZip 600 mm Wide Walkway






196 mm
10 mm
402 mm
402 mm
402 mm
KingZip
6 mm thick GI bracket

Case Study
Abu Dhabi International Airport

The Midfield Complex is integral to the Abu Dhabi 2030 plan, transforming the desert into the 'Garden of the Gulf' through a design that responds to its natural environment. KingZip is used to create the unusual and complex curves that form a centrepiece of the roof design.

With mobile forming and curving machines, KingZip can be manufactured on-site, allowing roofs to be constructed using very long sheet lengths and eliminating the need for any endlaps. This significantly increases the speed of construction. The roof at Abu Dhabi Airport covers almost 320,000 m², so this rapid installation process was extremely advantageous for the project.

Sector: Infrastructure

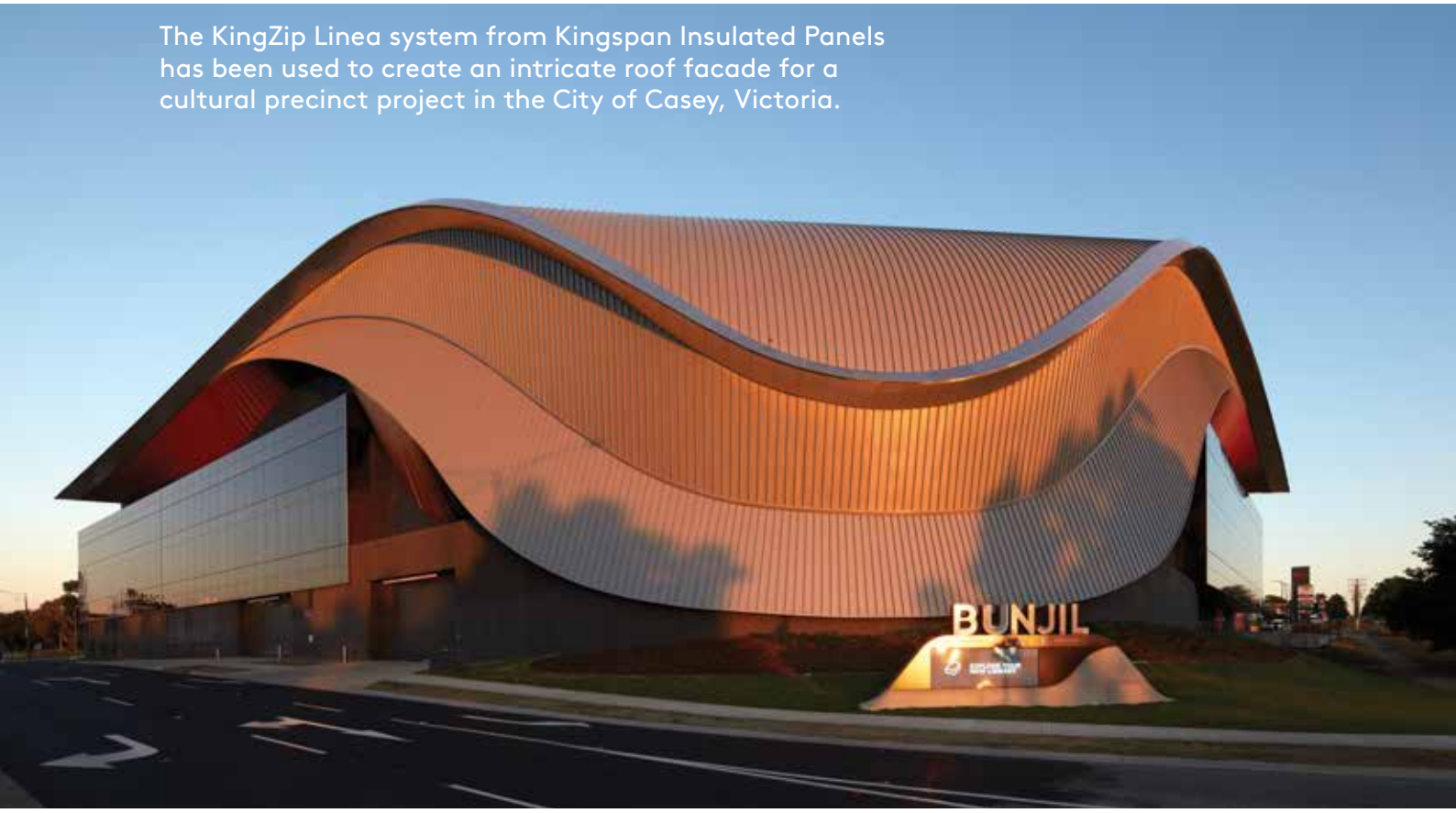
Location: Abu Dhabi

Architect: Kohn Pedersen Fox Associates (KPF)

Product: 320,000 m² KingZip Linea and KingZip Infiniti Stucco Aluminium and 4-coat PVDF RAL 860M Metallic Grey finish

Case Study
Bunjil Place

The KingZip Linea system from Kingspan Insulated Panels has been used to create an intricate roof facade for a cultural precinct project in the City of Casey, Victoria.



The $125 million multi-purpose arts, civic and community facility in the outer Melbourne suburb of Narre Warren holds a library, 800-seat theatre, gathering and meeting spaces, council offices, an art gallery, a flexible event space and an outdoor plaza.

Sector:	Public Buildings
Location:	City of Casey, Narre Warren, Victoria, Australia
Architect:	FJMT
Product:	KingZip Linea Architectural Roofing System

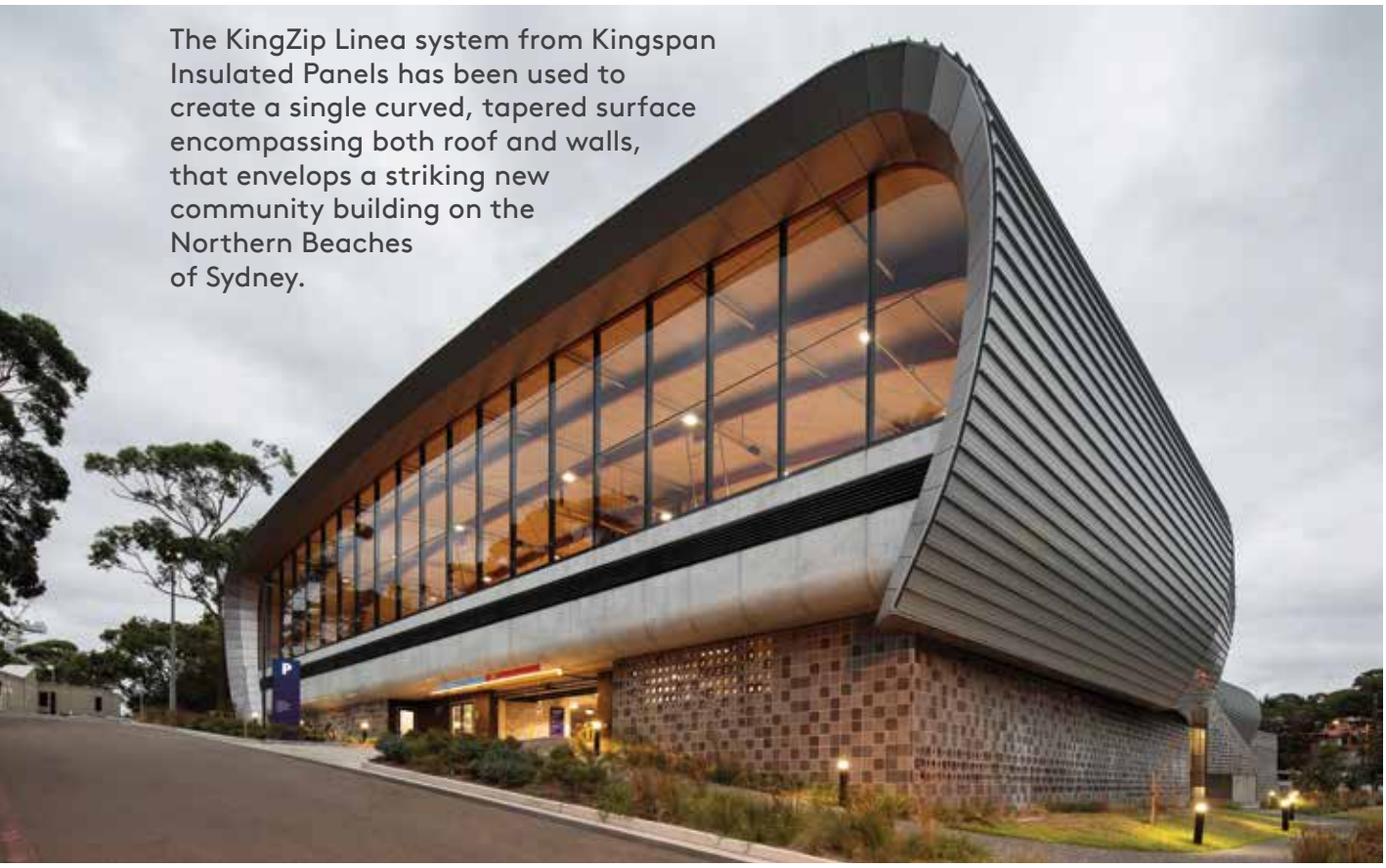
Case Study
Queen Alia International Airport

KingZip was the ideal solution for this project because its flexibility allows architects to meet almost any design need.

The Queen Alia project started as a technical illustration outlining Foster + Partners' vision. An important part of this vision was to create an airport terminal which would provide ease of access to the Levant, whilst also reflecting the regional tastes of the environment. Kingspan, together with Joannou & Paraskevaides, transformed this vision into an award winning architectural building.

Sector:	Infrastructure
Location:	Amman, Jordan
Architect:	Foster + Partners
Product:	KingZip

Case Study
Police Citizens Youth Club



The KingZip Linea system from Kingspan Insulated Panels has been used to create a single curved, tapered surface encompassing both roof and walls, that envelops a striking new community building on the Northern Beaches of Sydney.

The KingZip roof system was used to realise the architectural concept to form an organic cloud-like form, spanning over and around the key functions of the new Police Citizens Youth Club in Dee Why. The centre houses two basketball courts, meeting rooms, café and administrative offices, and car parking. The roof height, which varies by up to five metres, reflects the different internal uses.

Completed in 2017 following two years in development, it is a distinctive, sustainable and innovative architectural landmark, and a standing testament to the versatility of the KingZip Linea system.

Sector:	Public Buildings
Location:	Dee Why, Sydney, Australia
Architect:	FJMT
Product:	KingZip Linea Architectural Roofing System

Case Study
Moro Hub

KingZip Infiniti was key for this project as the client was looking for 3D geometry to ensure a continuous profile and a Dubai Civil Defence approved system.

A key feature of using KingZip on this project was the flexibility to manufacture on site. KingZip Linea and Infiniti are manufactured using mobile facilities that can be deployed worldwide, this enables design requirements to be fulfilled from an aesthetic, specification, performance and construction perspective. Moro Hub is also the first LEED® Platinum data centre in the Middle East.

Sector:	Data Centre
Location:	Dubai, UAE
Architect:	Oger International & Citi Consult
Product	KingZip Infiniti 3D geometric building envelope
	KingZip Linea parallel sheet curve
	SafePro2
	Kingspan halters, flashings and tophats used as part of the system

Case Study
Canberra MRT Station

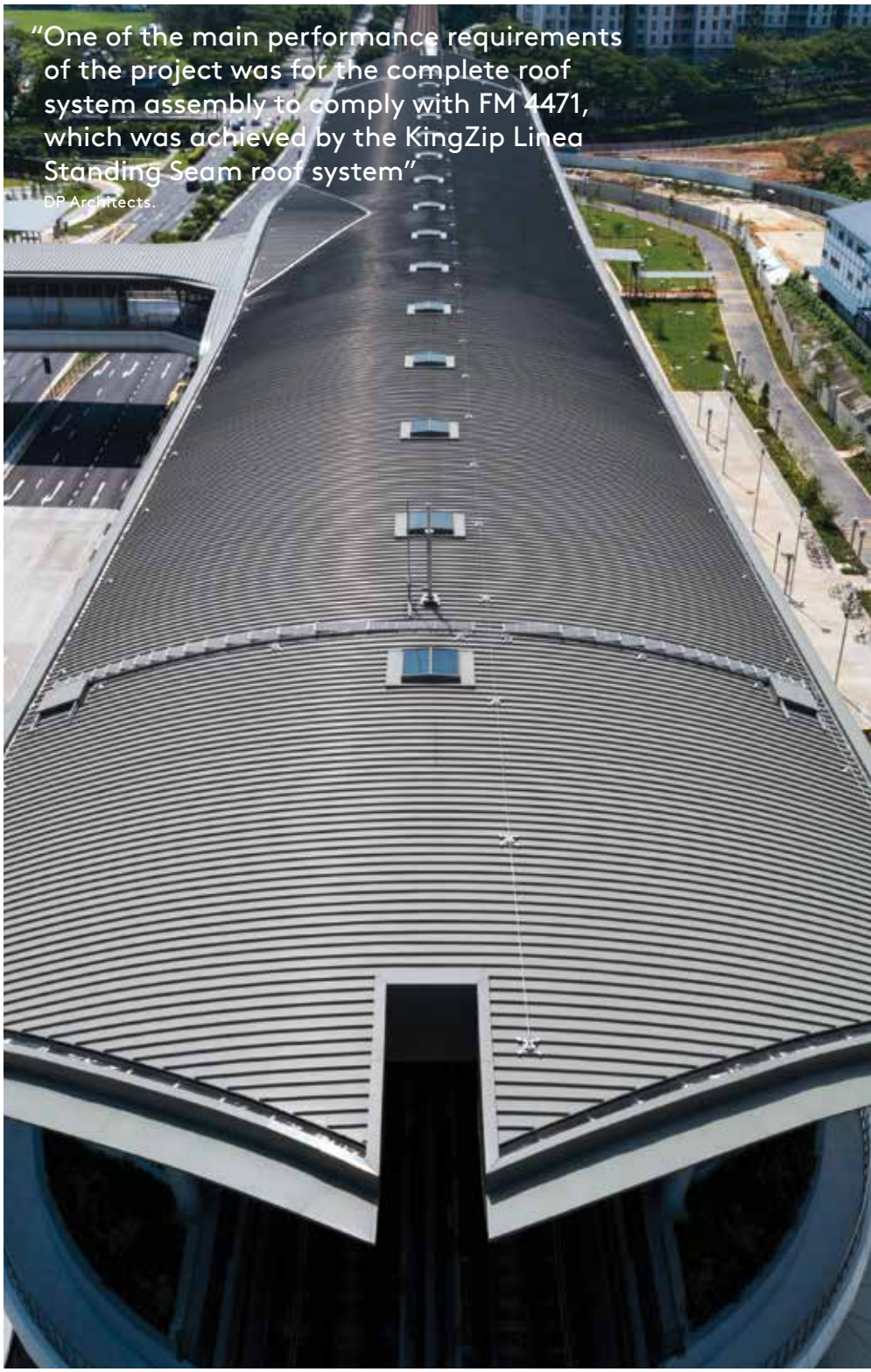
Canberra MRT Station is an elevated track built on the North South Line located along Canberra Link in Sembawang, Singapore.

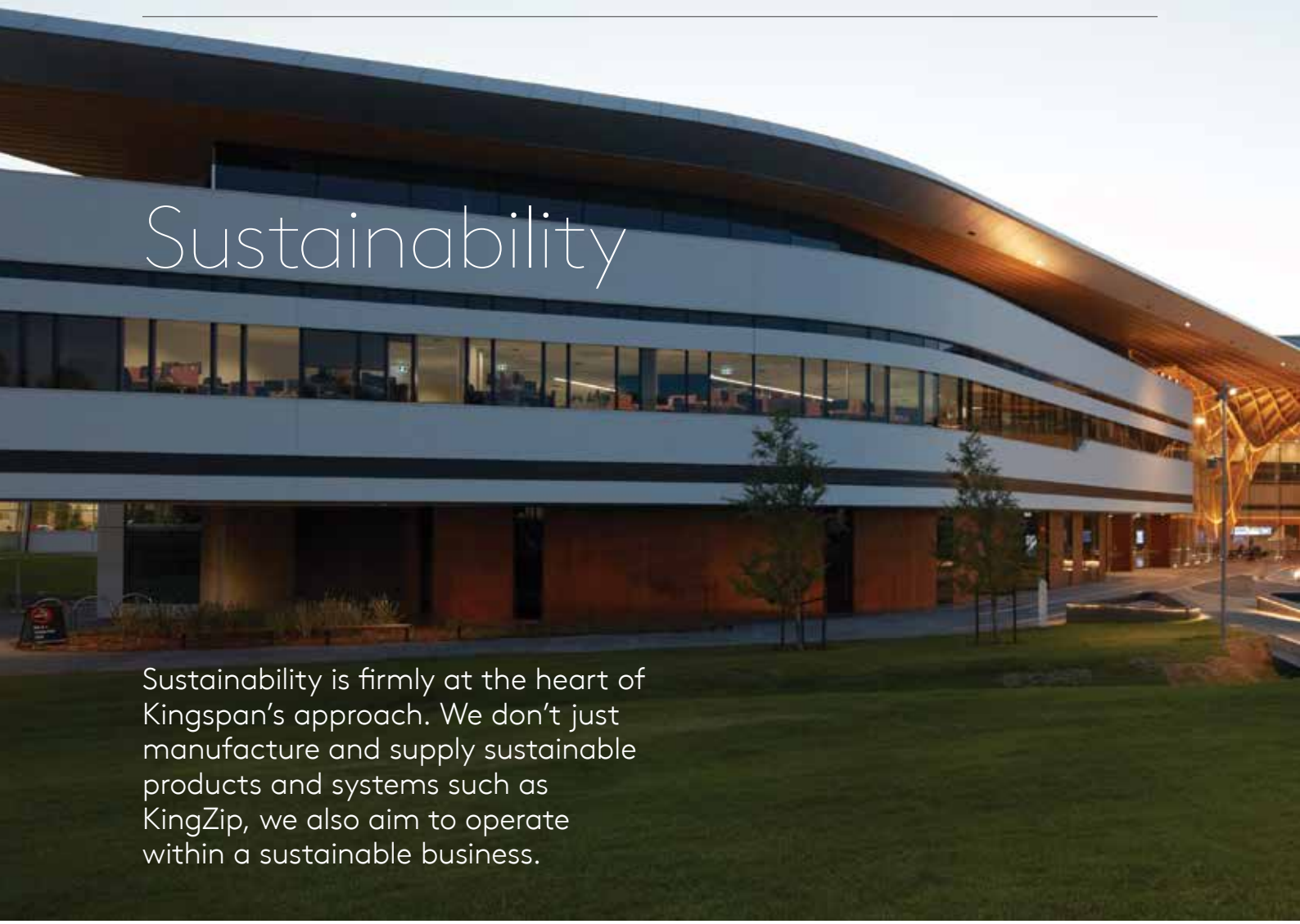
The station's barrel vault roof span was approximately 50 m and the architectural design brief required the roof covering to be in a single length sheet, without end laps.

KingZip Linea Standing Seam System with 65 mm high ribs can be used for roof pitches up to 1.5 degrees and was site rolled and curved for the project.

Being a train station roof, the lining material had to meet Class O of the Building Standards, and had to pass BS 476 Parts 6 & 7. KingZip roof layer and the steel decking layer meets both of these requirements.

Sector:	Infrastructure
Location:	Sembawang, Singapore
Architect:	DP Architects
Product:	KingZip Linea Architectural Roofing System





Sustainability

Sustainability is firmly at the heart of Kingspan's approach. We don't just manufacture and supply sustainable products and systems such as KingZip, we also aim to operate within a sustainable business.

Accreditations

We have made a commitment to ensure that all our facilities are Net-Zero Energy by 2030, with an interim target of 50 % already exceeded. Our KingZip roof systems are manufactured and supplied under ISO 14001: 2004.

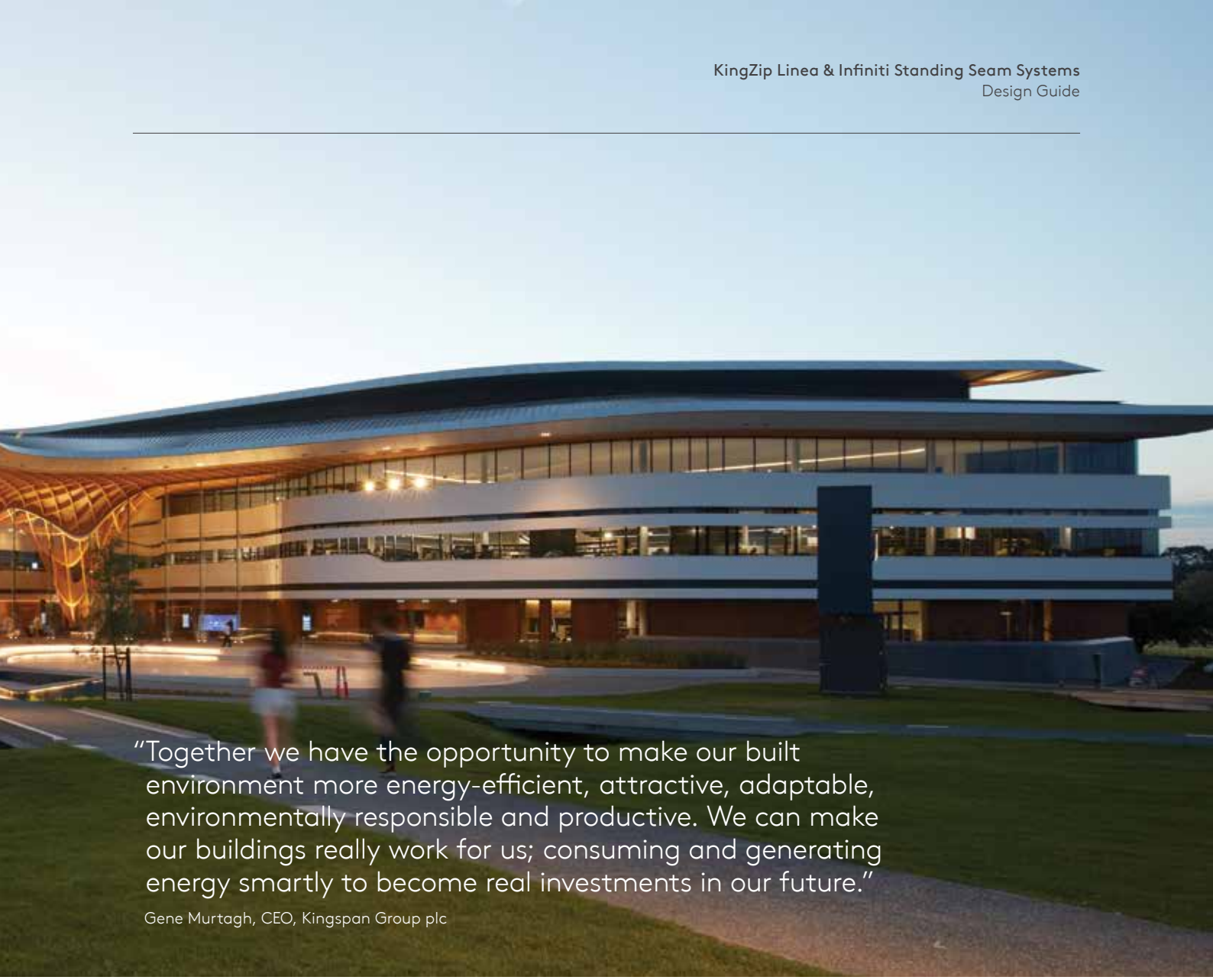
LEED®

LEED® (Leadership in Energy and Environmental Design) is the internationally recognised green building certification system, developed by the US Green Building Council. LEED® gives your customers assurance that a building is designed and built using the latest 'green' technologies, including energy savings, water efficiency, CO_2 emissions reduction and good stewardship of resources.

LEED® v4.1 focuses on how buildings and communities are planned, constructed, maintained and operated. The certification process is designed to inspire project teams to seek innovative solutions that are better for our environment and communities.

Our systems and solutions can have a positive impact by contributing to topics in six of the nine categories:

- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation
- Regional Priority
- Sustainable Sites



"Together we have the opportunity to make our built environment more energy-efficient, attractive, adaptable, environmentally responsible and productive. We can make our buildings really work for us; consuming and generating energy smartly to become real investments in our future."

Gene Murtagh, CEO, Kingspan Group plc

BREEAM®

BREEAM® is the leading environmental assessment method for buildings, with over 110,000 buildings certified and over half a million registered for certification. Specific versions of BREEAM® are available for the UK, the Gulf and Europe.

Our systems and solutions can provide BREEAM® 'credits' on the following categories:

- Hea 02 Indoor air quality
- Hea 04 Thermal comfort
- Hea 05 Acoustic performance
- Ene 01 Reduction of energy use and carbon emissions
- Mat 05 Designing for durability and resilience
- Mat 06 Material efficiency
- Was 05 Adaption to climate change
- Was 06 Design for disassembly and adaptability
- Inn 01 Exemplary performance and innovation

Al Sa'fat and Estidama

KingZip systems can contribute credit points to UAE's two main regulatory Green Building Standards described below.

Al Sa'fat – Dubai

Al Sa'fat is a green building system that classifies buildings into three different categories based on their performance – Silver, Golden and Platinum Sa'fat. Acquiring at least a Silver Sa'fat for all buildings in Dubai is now mandatory to ensure achieving minimum sustainability and energy efficiency requirement in buildings.

Estidama – Abu Dhabi

Estidama is a building design methodology for constructing and operating buildings and communities more sustainably. The program is a key aspect of the 'Abu Dhabi Vision 2030' drive to build the Abu Dhabi emirate according to innovative green standards. Estidama bases its rating system on a Pearl Rating (1 through 5). Since 2010, all buildings must achieve a minimum of 1 Pearl Rating, and all government-funded buildings must achieve a minimum of 2 Pearl Rating in Abu Dhabi.

Kingspan Warranty

Our range of systems and solutions are protected by our industry-leading warranty packages, offering unrivalled performance and coating warranty of up to 40 years.

Complete high-performance roof and wall systems, supplied by one manufacturer, supported by one warranty.

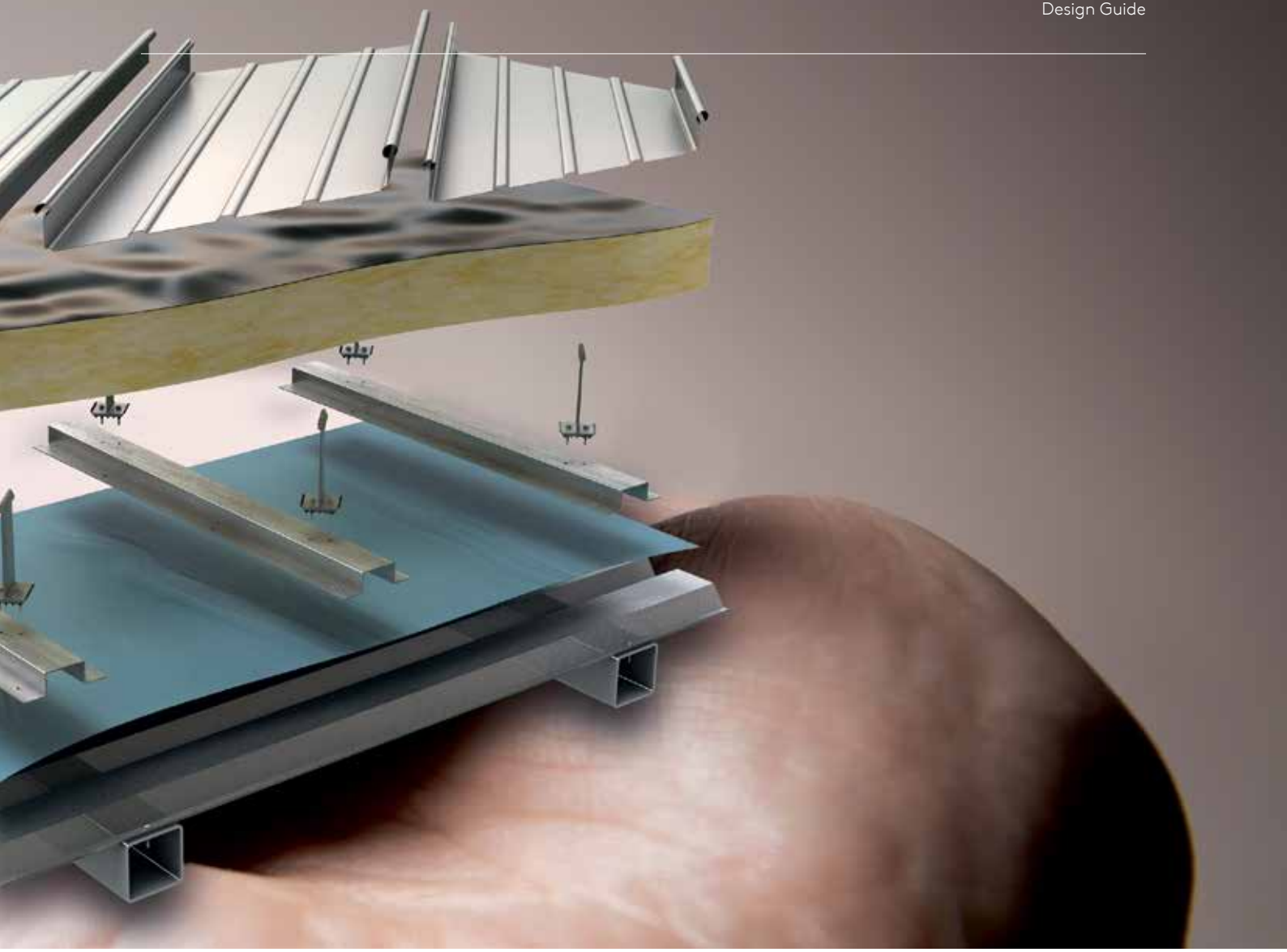
Up to 40 years
KingZip Protection

Up to 40 years
Coating Protection

SYSTEM PROTECTION
Kingspan
WARRANTY

Standard Components

- Thermal insulation
- KingZip coating
- Daylighting
- Insulated gutters
- Fabrications
- KingZip accessories

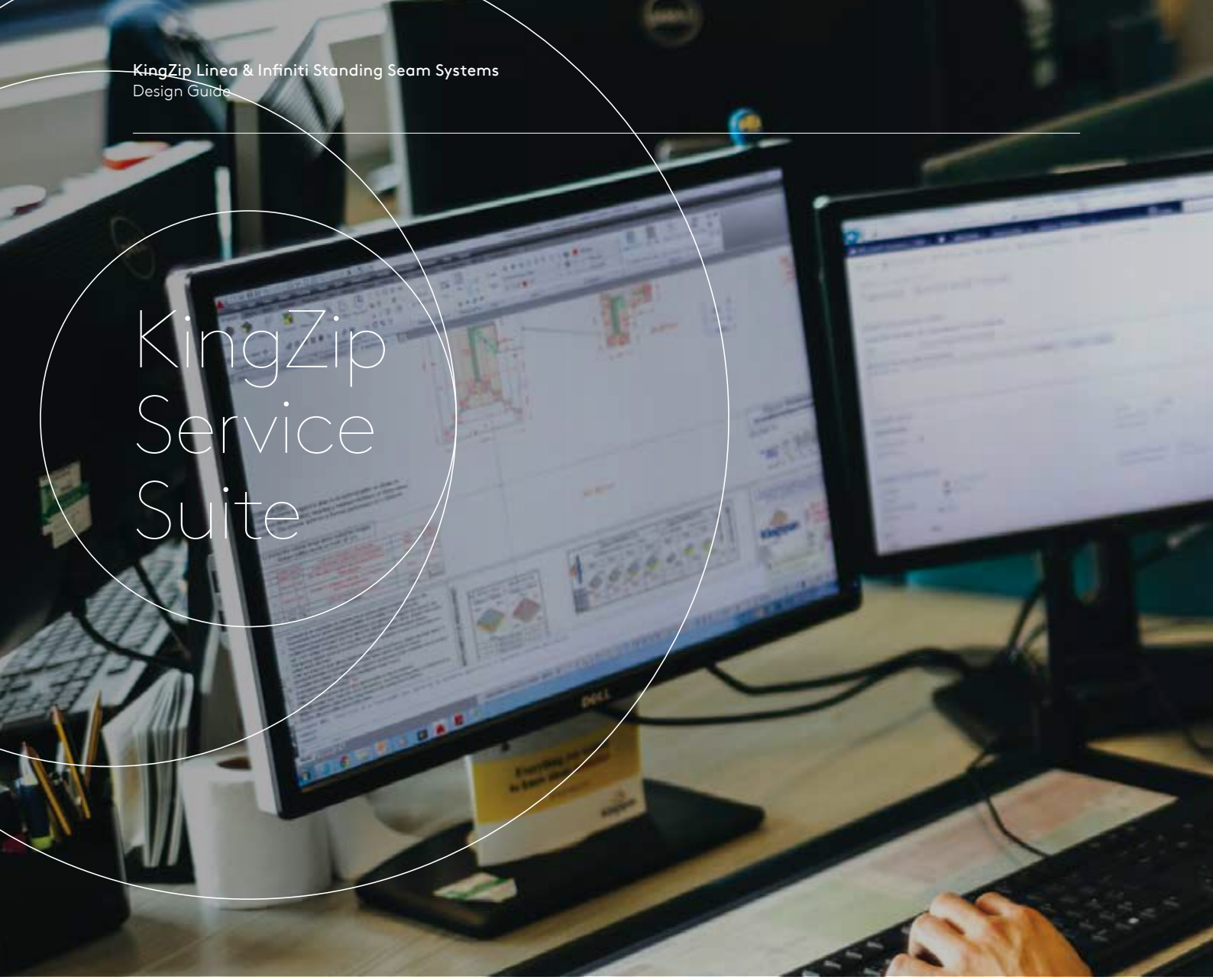


System Benefits

- Up to 40 years structural warranty
- Single-source systems and solutions supplier
- Complete design and installation support
- Warranty transferable with change of ownership

Warranty Requirements

- Products must be installed as per Kingspan technical details and installation guides
- All installers must have received the relevant product training from Kingspan Field Services
- Third party ancillaries will only be warrantied if they meet the product specification as per Kingspan technical details and have been purchased from recommended suppliers
- Warranty must be applied for within six months of final product delivery to site



KingZip Service Suite

We offer a comprehensive suite of services to assist architects and contractors, from the initial concept design stage through to the eventual project handover.

Technical Support Team

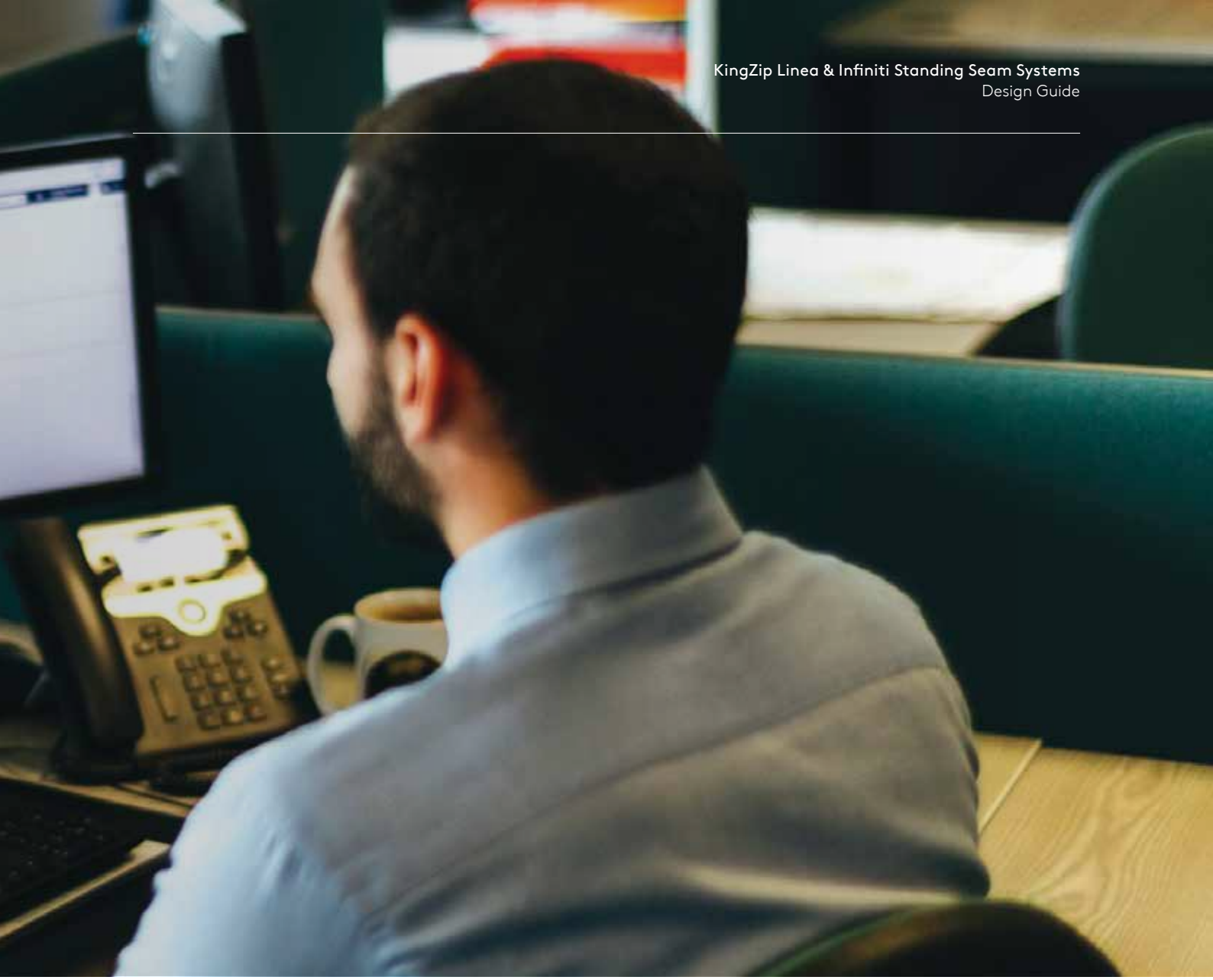
Our technical support team will assist you with all the necessary design and engineering calculations required to realise your design intent.

Project Overview and Review
From initial assessment of the design intent for evaluating the suitability and capabilities of the product to technical guidance at early stages of the project.

Design Calculations
We can provide all the necessary technical calculations required to design the most complex geometric envelopes, using our suite of in-house calculation tools.

NBS / CSI Specification Development
Our regional specification managers can assist you in developing local building code compliant NBS or CSI format specifications, tailor made for your project.

Shop Drawings and BIM Modelling
This is an optional service made available to our customers on a project by project basis which includes development of conceptual or detail design shop drawings and BIM Objects and Modelling design assistance.



Site Inspections / Training

Our field service engineers provide training on installation of KingZip systems for roofing contractors.

The training includes:

- Introduction to KingZip products and accessories
- Product handling
- 2D and 3D System installation best practices

Following the successful completion of training, roofing contractors will be issued with a KingZip Approved Installer Certificate.

We also offer pre-scheduled regular project site inspections to supervise the installation of our systems to ensure KingZip products are installed in line with design requirements, at the customer's request.

CPDs

Our Continuous Professional Development Programme (CPD) seminar, **'Factors to consider when designing standing seam roof systems'**, explores all the design considerations and performance criteria required to design high performance building envelopes using standing seam systems.

To register your interest to attend a CPD seminar, please contact us and one of our Area Sales Managers will contact you to arrange a date and time to suit you.

Contact Details

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

06/2020