

Standing Seam Systems

KingZip SF*



Architectural Standing Seam
Roofing System

*Previously Rigidal Ziplok.



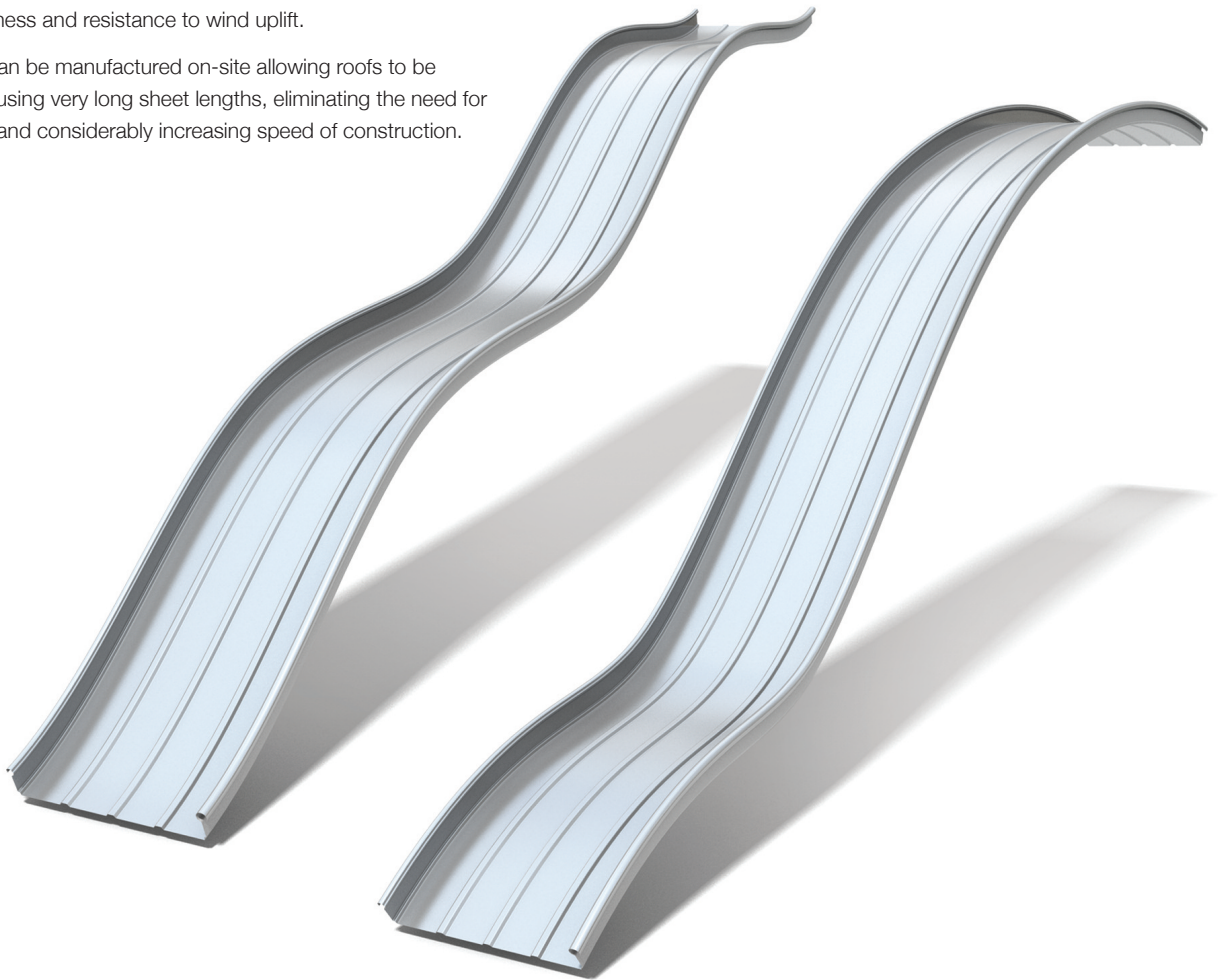
KingZip SF

Offering the ultimate in design flexibility, KingZip SF Standing Seam System is manufactured in aluminium and may also be available in coated steel, stainless steel, zinc or copper and can be supplied smooth, embossed, crimp curved, concave or convex smooth curved, tapered, wave formed or tapered and smooth curved.

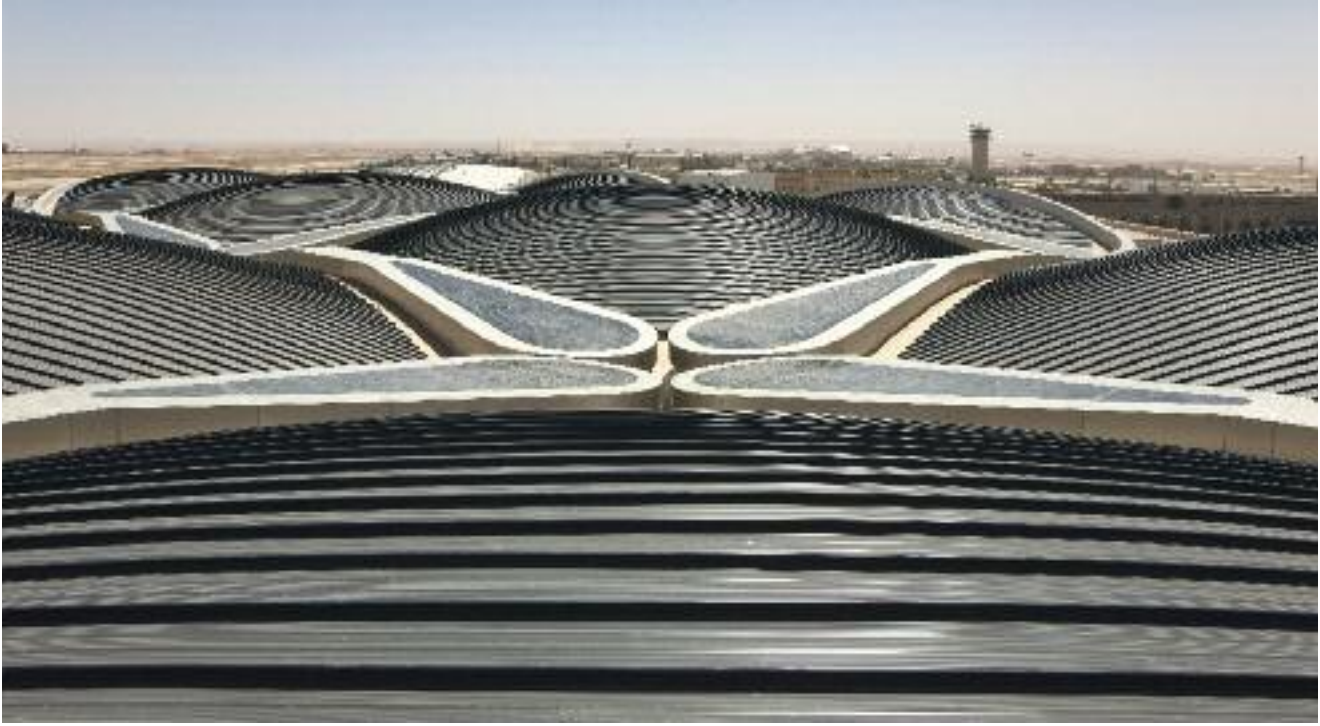
Renowned for their outstanding aesthetic properties and performance characteristics, standing seam roofing systems offer specifiers and contractors cost-effective construction solutions with numerous benefits.

KingZip SF is an FM and UL approved, advanced 'zip-up' standing seam system that creates a continuous weathertight roof. The side laps are 'zipped-up' in conjunction with a unique halter system that is fixed directly to the supporting structure without penetrating the external weather sheet. This method of secret fixing creates a structurally sound roof construction that provides excellent weathertightness and resistance to wind uplift.

KingZip SF can be manufactured on-site allowing roofs to be constructed using very long sheet lengths, eliminating the need for any endlaps and considerably increasing speed of construction.



Cover photo: Queen Alia Airport New Terminal, Jordan.
Nigel Young/Foster + Partners



Queen Alia International Airport New Terminal, Jordan. KingZip SF Standing Seam System.

Features and Benefits

- Design flexibility and superior aesthetics.
- Standard cover widths of 300mm, 400mm and 500mm and can be supplied in any width between 250-600.
- Lengths of 1m to 150m, manufactured on-site.
- Gauges of aluminium typically are 0.8mm, 0.9mm, 1.0mm and 1.2mm.
- Broad range of metal substrates including aluminium, coated steel, stainless steel and copper.
- Lightweight roofing and cladding solutions.
- Network of trained approved contractors.
- Advanced modern on-site production technology.
- Can be naturally curved on site for radii over 50m.
- Can be mechanically smooth curved to 5m convex or 12m concave radii and mechanically crimp convex curved to 500mm radius.
- Tapered sheets can be manufactured on site, using fully automated single pans machinery, in cover widths from 250mm to 500mm.
- Suitable for pitches as low as 1.5° including deflection.
- Simple waterproof detailing and superior weathertightness as well as excellent resistance to wind uplift.
- Bespoke specifications to meet project specific thermal and acoustic requirements.
- Fully integrates with Kingspan insulated panels and accessories as well as BENCHMARK Façade Systems to offer single-source, high performance, fully guaranteed, striking building envelopes.
- Architectural fabrications service available to all contractors.
- Fully complies with Building Regulations.
- Micro-rib option available.
- Up to 30 year guarantee available on a project by project basis.
- Comprehensive colour ranges for coated metal systems.
- Simple fast track installation.
- Non-combustible roofing system – could reduce insurance premiums.
- BS EN ISO 9001 (Quality Management) approved systems.
- Factory Mutual FM 4471 approved and UL 580-90 certified.



KingZip SF

Performance Advantages

Waterproofing

Approximately 90% of all reported roof leakage is experienced within 10% of the total roof area at perimeter details. Regardless of the degree of fall on a roof slope hips, ridges and penetrations can all be a source of water ingress. Eaves/gutter junctions and verges on lower roof pitches can also become points of water entry.

Through robust and proven detailing, Kingspan Insulated Panels is able to eliminate all risk of leakage when installing KingZip SF.

Perimeter Detailing

Water ingress at perimeter details is avoided by overlapping and interlocking the upstand seams of KingZip SF sheets, ensuring water is directed towards the eaves and not back into the building.

For low pitch applications the eaves overhang on the topsheet can be turned down to increase the angle of run-off at the eaves end by approximately 20%. This is sufficient to prevent the possibility of water entering the building via the junction at the gutter.

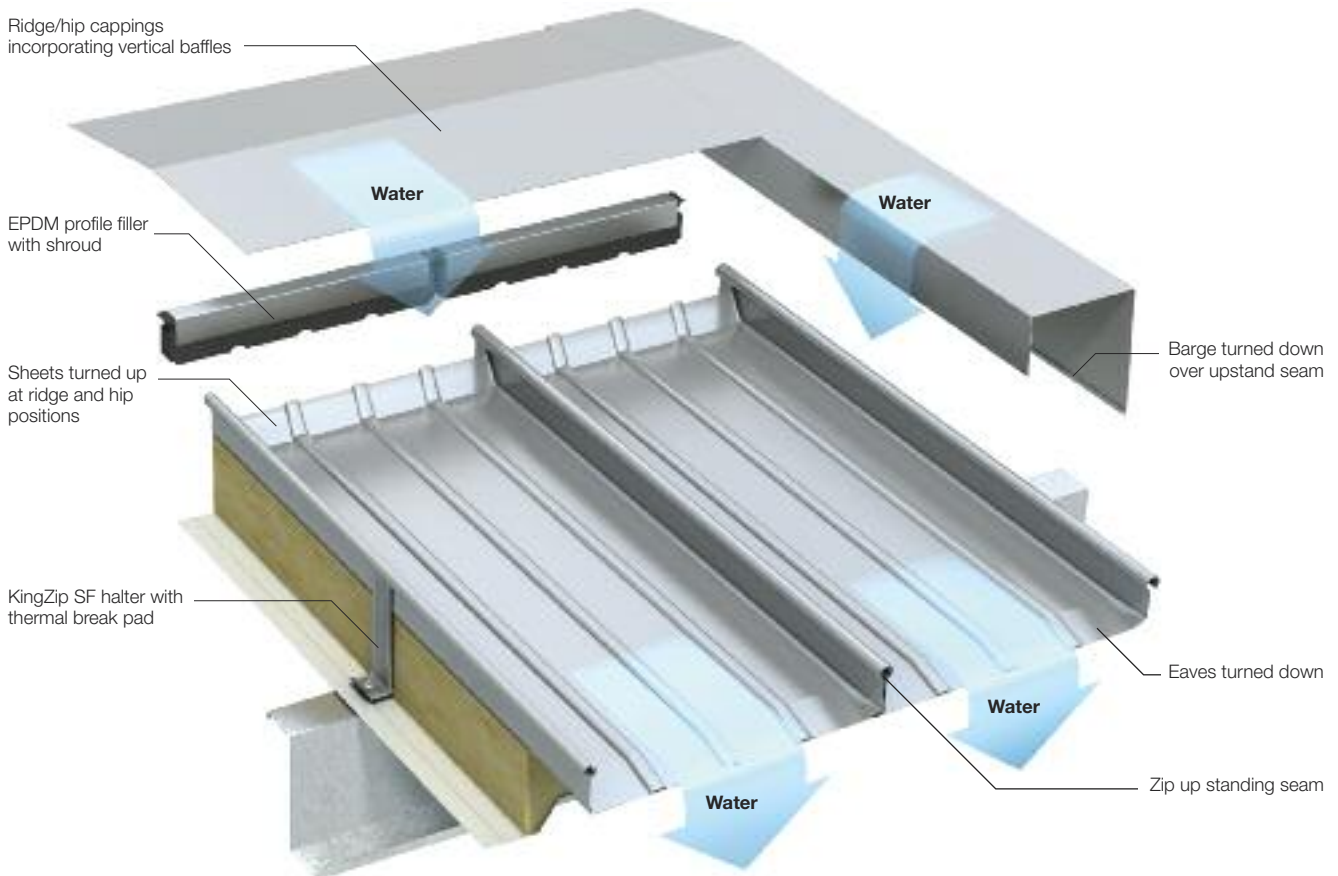
At the hip and ridge positions, the profile can be turned up to form an apex dam across the width of the panel. This detail and the standing seam side lap detail is then overlapped by the verge and ridge flashings.

Secretly Fixed

KingZip SF features a secretly fixed, true standing seam side lap detail providing a continuous weathertight roof and excellent protection in all weather conditions.

Long Lengths

KingZip SF is available in very long lengths and can be rolled on site where sheet lengths exceed those which can be delivered by road. This eliminates the need for endlaps. Lengths of up to 150m can be rolled on site (site-formed) and installed safely.

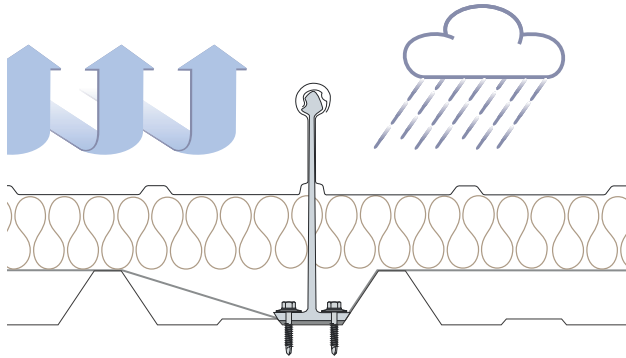


KingZip SF

Performance Advantages

Outstanding Structural Performance

Structural performance is another major factor that can result in roof failure. KingZip SF provides an ideal solution to the most commonly experienced problems.



Halter combined with zip-up standing seam detail provides exceptional weathertightness.

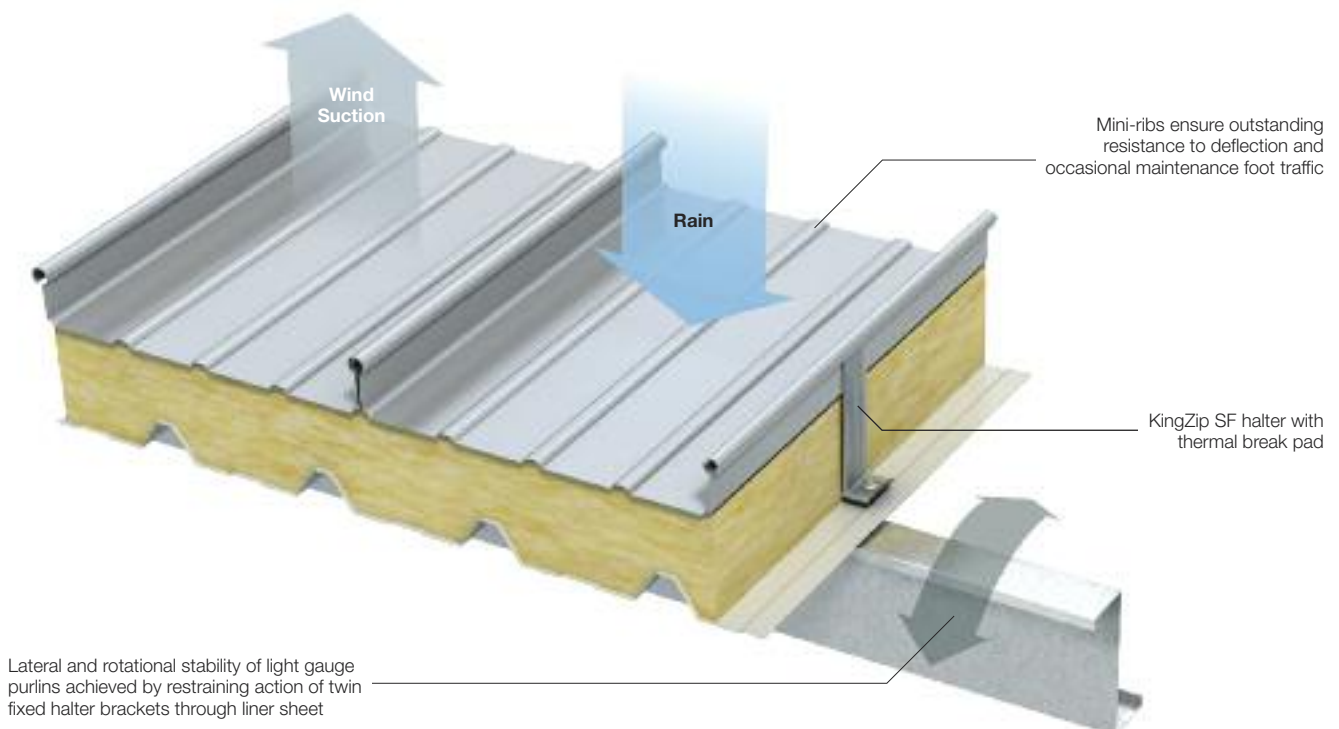
Wind Uplift

KingZip SF systems provide excellent resistance to wind uplift due to their unique fixing method. The thermally broken halters firmly secure the roof system to the steelwork below. The strength of these joints and fixing details is completed by 'zipping' the side laps together to create a secretly fixed roofing envelope with outstanding structural performance.

Complete Roof Envelope



A full range of integrated fascias, gutter and flashings are also available providing the designer/specifier with a complete 'one-stop' roofing solution. Made to individual specifications, all are designed to complement the outstanding aesthetic and performance standards of KingZip SF. A range of fasteners and fixings complete the comprehensive package.





Queen Alia International Airport New Terminal, Jordan. KingZip SF Standing Seam System. Nigel Young/Foster + Partners.

Our cities consume vast quantities of energy, with the heating and cooling of buildings accounting for more than 41% of total consumption in Europe alone* – that's more than transportation and industry.

Not surprisingly, buildings have a dramatic negative global environmental impact, which is unsustainable, given the world's predominant reliance on fossil fuels and their rapidly increasing costs.

Therefore, energy consumption and carbon emissions reduction is an increasingly significant issue for businesses, with integrated design, sustainable construction and optimal operation of buildings now the top priority of regulatory, property stakeholder and individual corporate agendas.

Building Regulations

New regulations/standards manage the amount of energy required to heat and cool a building by taking into account the construction and operation of a building as a whole, rather than as a set of individual elements. For buildings, other than dwellings, the main areas of building design/construction to be assessed include:

- significant increase in insulating performance standards (U and R values);
- a change in the U and R value calculation method to take into account cold bridges;
- increased standards of design detail and site workmanship to reduce incidence of gaps in insulation and effects of cold bridging; and
- rise in standards of fabric airtightness to minimise unwanted air change.

KingZip SF has been specifically designed to exceed the challenges of these new regulations/standards.

Due to the zip-up side lap detail of KingZip SF with halters secured to the steelwork below, a structurally sound roof with excellent resistance to wind uplift is created. By their nature, standing seam systems provide a lightweight construction solution, requiring very little change in site handling methods due to increased weight.

Increased Insulation Levels

The construction of KingZip SF standing seam systems is virtually unaffected by any proposed increase in insulation levels. To accommodate the extra thickness of insulation the only change required will be an increase in the height of the halter.

Continuity of Insulation

It is not unknown for traditional site assembled built-up systems to lack continuity and have gaps where insulation is missing. These systems however tend to utilise a 'Z' spacer system where it is more difficult to ensure continuity of insulation.

With a KingZip SF standing seam system the external weather sheet is fixed to a series of halters, which easily allows the continuity of the insulation to be maintained. The thermally broken halters also minimise the incidence of any cold bridging.

By using KingZip SF standing seam systems installed by approved contractors, you can be confident that 'as built' performance matches the approved design specification.

*Source: Action Plan for Energy Efficiency: Realising the Potential. European Commission, October 2006.



Dubai Sports City Football Academy, Dubai, UAE. KingZip SF Standing Seam System.

Unwanted Air Change

Cooled Buildings

If the building envelope is leaking the higher pressure warm air will move to the lower pressure internal atmosphere and consequently more cold air has to be produced to compensate for the heat gain. On buildings this leads to greater levels of energy consumption and consequently higher CO₂ emissions.

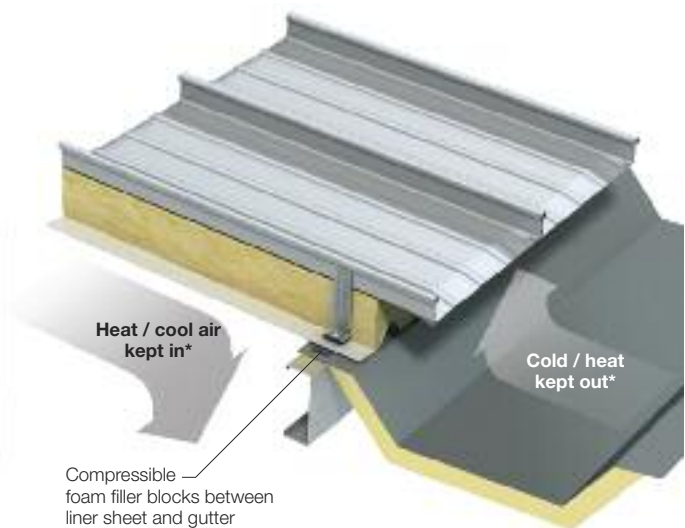
Heated Buildings

As a result of convection, air movement through poorly sealed building envelopes is responsible for an increase in energy consumption levels through unwanted air change. This is thought to account for the highest proportion of heat loss in many buildings. Warm air leakage is also the primary cause of chronic condensation within a roof structure.

During the heating of a building its performance is broadly similar to a hot air balloon as heating the air creates a pressure differential which 'inflates' the fabric of the envelope.

KingZip SF systems should only be installed by approved contractors who are trained by Kingspan to ensure the highest levels possible of workmanship.

Sealing the liner sheet prior to the construction creates an airtight roof that easily meets existing and future air tightness requirements.



* Dependent on prevailing climate

KingZip SF systems are self-venting and therefore reduce any risk of condensation.

Reducing energy loss will not only lower running costs and CO₂ emissions significantly, but will also reduce the actual cost of the building itself by scaling down the size of refrigeration and air handling plant. Major food retailers and other building end users are already enjoying these benefits.



Emirates Engineering Centre, Dubai, UAE. KingZip SF Standing Seam System.

Product Dimensions

Nominal Gauge (mm)	0.8, 0.9, 1.0 & 1.2
Panel Length (mm)	1.5 to 150*
Standard Cover Width (mm)	300, 400 & 500**

*Can be manufactured on or off site. Factory manufactured up to a standard length of 15m (13.7m in Australia due to transport limitations). Please contact our Technical Department for further information.

**KingZip SF 500 must be used only in a fully supported system. Other widths are available on request.

KingZip SF Typical Weights – Aluminium

Cover Width	0.9mm		1.2mm	
	kg/m ²	kg/lm	kg/m ²	kg/lm
300mm	3.87	1.16	5.13	1.54
400mm	3.53	1.41	4.70	1.88
500mm	3.34	1.67	4.44	2.22

Product Tolerances

Cover Width	+2mm / -2mm
Edge Squareness	1% of sheet cover width
- up to 10m long	+10mm / -5mm
- over 10m long	+10mm (+1mm per metre length over 10m) / -5mm

Tapers

KingZip SF panels are available manufactured to a taper. Our state of the art tapering machine is capable of rolling tapers in a single pass from coil, and allows the production of tapered sheet at a similar rate to parallel sheet. The roll former is mobile, allowing tapering to be carried out on site when transport is restricted due to the sheet lengths required.

The taper minimum width is 250mm at one end and 500mm at the other end, on sheets with a minimum length of 3.5m and up to any length maximum. Tapered sheets will self-curve to 40m convex radius and can be machine curved to 12m radius if required.

Curves

KingZip SF can be curved in a variety of options to suit the required application. The profile can be concave, convex or wave shaped, incorporating both curves in one sheet. Profiles with self-curve convex to a large radius, and can be mechanically smooth curved down to as little as 5m radius.

If required, profiles can be crimp curved down to 500mm radius. In some cases the micro-ribbing of the KingZip SF profile can help to produce a clean, curved appearance.

Both springing and curving of KingZip SF profiles can result in stresses in the material causing an 'oil canning' effect in some cases. Mechanical curving can eliminate the majority of these cases, although care must be taken in checking the structure line of curve carefully, plus ensuring that all halters are in line as any discrepancy will affect the line of halters, resulting in poor aesthetics.

KingZip SF

Product Data

Fire Performance

KingZip SF Standing Seam System achieves a Class 0 rating as classified by Building Regulations.

Test	Result
BS 476-3: 2004 External fire exposure roof test	FAA / SAA
BS 476-6: 2009 Fire tests on building materials and structures. Method of test for fire propagation for products	Class 0
BS 476-7: 1997 To determine the classification of the surface spread of flame of products	Class 1 Rating for aluminium/steel inner/outer metal facings
FM 4471 Panel Roofs	Class 1

Acoustic Properties

The KingZip SF system has the flexibility to meet the acoustic requirements of most buildings. For further information, please contact our Technical Department.

Standards & Approvals

KingZip SF is produced to the highest quality standards including BS EN ISO 9001. The product has been designed to fulfil a specific application and is manufactured to precise standards and tolerances, fully compliant with ASTM E1637 and FM 4471.

Kingspan Guarantee

Kingspan Insulated Panels can provide a product and performance warranty on a project by project basis. For further information, please contact our Technical Department.

Packaging

KingZip SF is packed with polystyrene strips between each sheet and banded with timber battens top and bottom.

Fully timber crated packs are available on request.

Delivery

Unless otherwise indicated all deliveries by road transport, direct to the project site. Exported products are subject to additional costs.

Site Installation

For instructions on site installation please contact our Technical Department.



DFC Automotive Park, Dubai Festival City, UAE.
KingZip SF Standing Seam System.

Metal Top Sheet

The external weather sheet is available in 3000 and 5000 series (subject to enquiry) coated or mill finish aluminium, coated/pre-painted Z275 galvanised steel, stainless steel, zinc or copper with the following finishes:

Kingspan PVDF

Provides a long-term aesthetic life of approximately 20 years on aluminium, offering excellent durability and colour stability. This coating is also available as a steel finish with a minimum life of 15 years, subject to regular maintenance.

Kingspan ARS

Abrasion resistant coating for aluminium with good handling characteristics.

Kingspan Spectrum

Kingspan Spectrum 60 micron offers exceptional durability with high anti-corrosive performance and excellent weathering durability.

Kingspan Polyester

A cost-effective colour coating with a medium term life for both aluminium and steel.

Durabond

Durabond is an innovative 120 micron paint system with a unique heavy duty anti-corrosive primer and polyamide modified polyurethane final coat, that can be offered for more harsh and corrosive atmospheres.

Coating Durability

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 please contact our Technical Department.

Load Span Tables

KingZip SF 300

0.9mm Aluminium (self weight 3.87 kg/m²)

Span (m)	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
Download	2.45	2.45	2.45	2.37	1.75	1.37	1.00	0.75
Wind Uplift	3.40	3.40	3.40	2.90	2.40	2.10	1.75	1.20

1.2mm Aluminium (self weight 5.13kg/m²)

Span (m)	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
Download	3.25	3.25	3.25	2.75	2.48	1.87	1.40	1.10
Wind Uplift	3.40	3.40	3.40	3.40	3.20	2.70	2.40	1.60

KingZip SF 400

0.9mm Aluminium (self weight 3.53 kg/m²)

Span (m)	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
Download	1.87	1.87	1.87	1.75	1.37	1.00	0.75	0.55
Wind Uplift	3.00	3.00	2.58	2.20	1.91	1.56	1.25	0.95

1.2mm Aluminium (self weight 4.70 kg/m²)

Span (m)	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
Download	3.00	2.70	2.30	2.00	1.70	1.46	1.08	0.81
Wind Uplift	3.00	3.00	3.00	2.90	2.50	2.10	1.80	1.50

Notes:

1. All loads are characteristic working loads in kN/m² based on 4 or more spans.
2. Download figures based on a deflection limit of span $L/200$.
3. Wind uplift figures based on a deflection limit of span $L/90$.
4. Loadings take account of KingZip SF 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).
5. Safe load on bracket (P) = 2.80kN (0.7mm steel / 0.9mm aluminium sheet).
6. Safe load on bracket (P) = 3.10kN (1.2mm aluminium sheet).

Kingspan Insulated Panels

Kingspan Insulated Panels offers the most comprehensive range of aluminium and steel cladding products available in today's construction market. All Kingspan products are produced to the highest quality standards and designed to fulfil specific applications.

Kingspan offers a wide range of options, providing complete solutions for the building envelope:

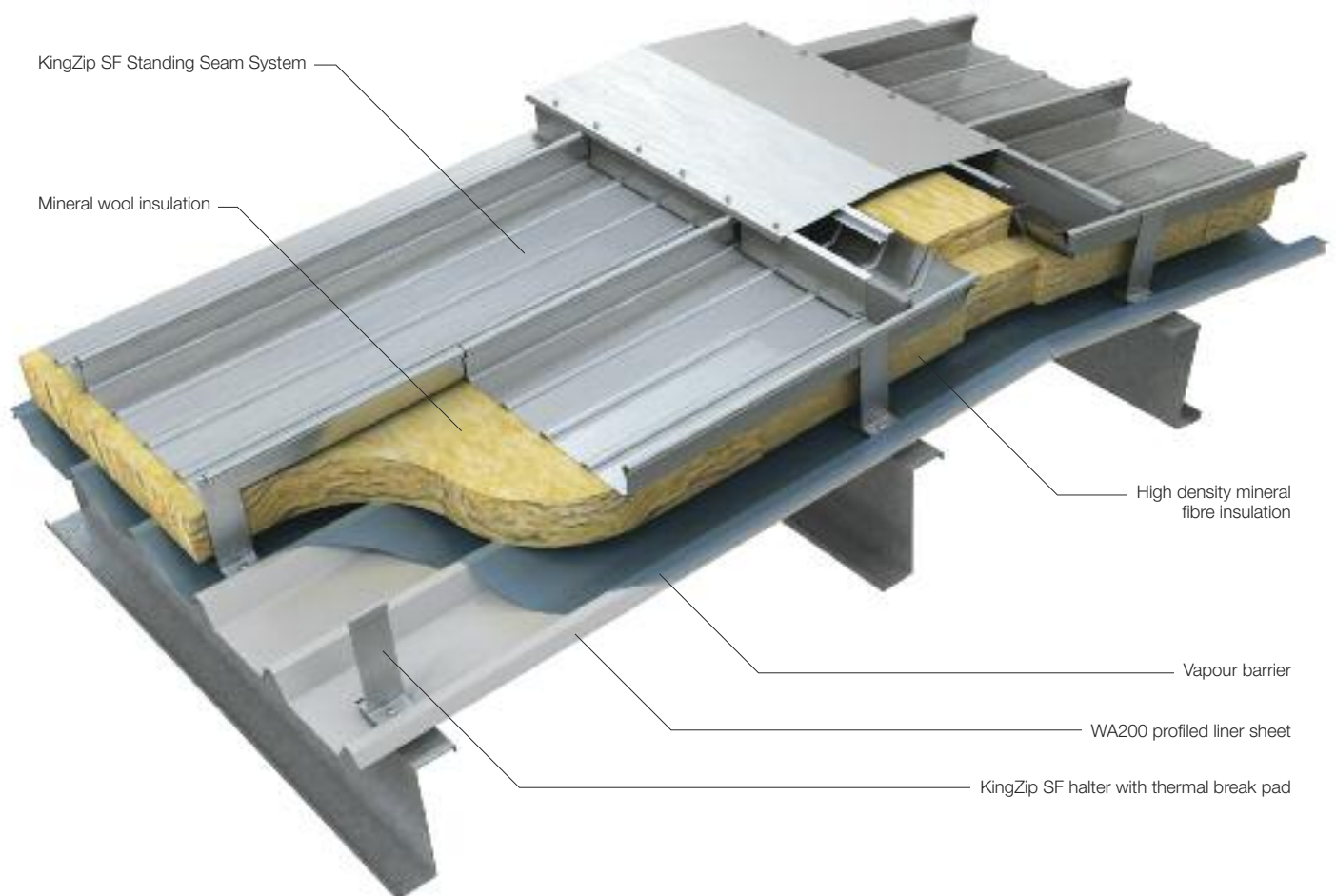
- Insulated Roof & Wall Panels
- Standing Seam Systems
- Fabrications, Safety & Lighting Solutions
- Controlled Environments
- Structural Products & Systems
- Steel Building Solutions
- Insulated Door Components
- Metal Roof & Wall Systems
- Rooftop Solar PV
- BENCHMARK Façade & Roof Systems



Queen Alia Airport New Terminal, Jordan. KingZip SF Standing Seam System.

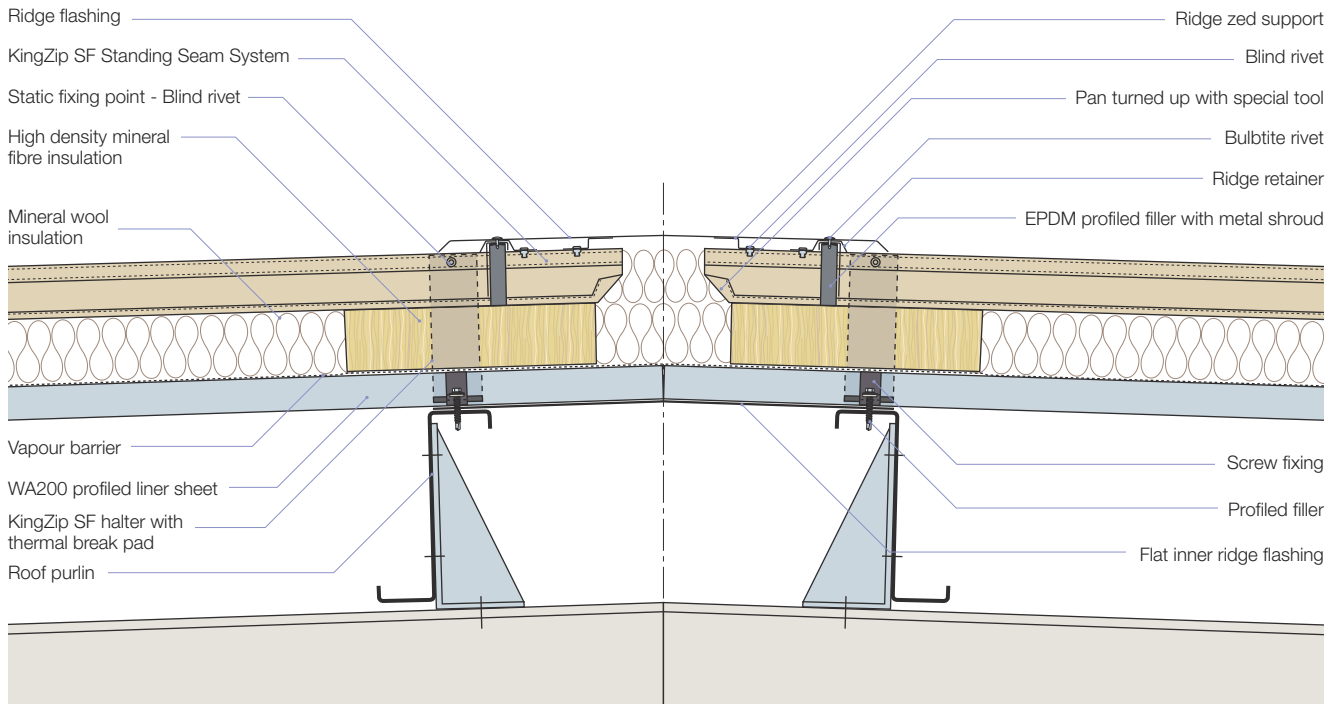


Emirates Engineering Centre, Dubai, UAE. KingZip SF Standing Seam System - on-site roll forming

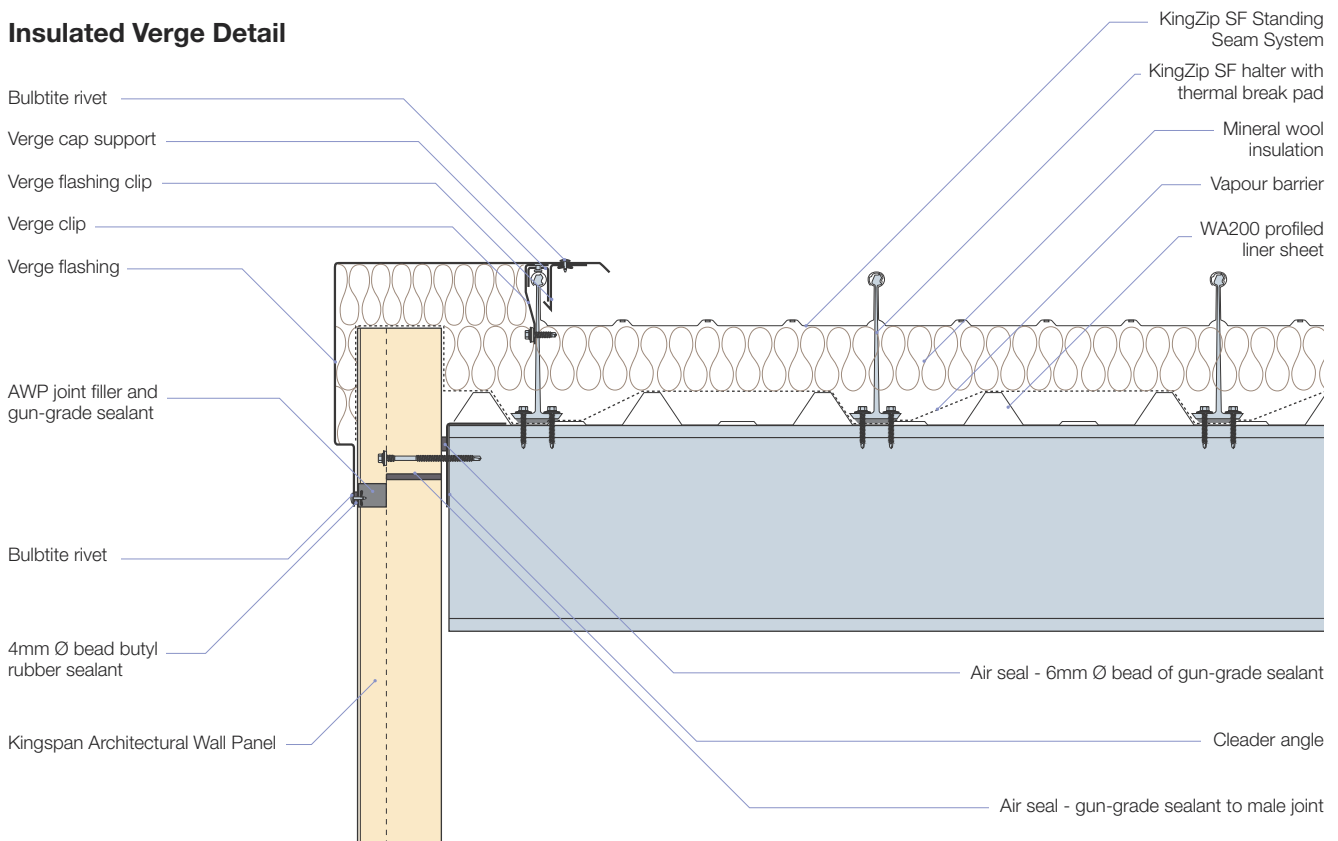


Typical detail for indicative purposes only.

Ridge Detail

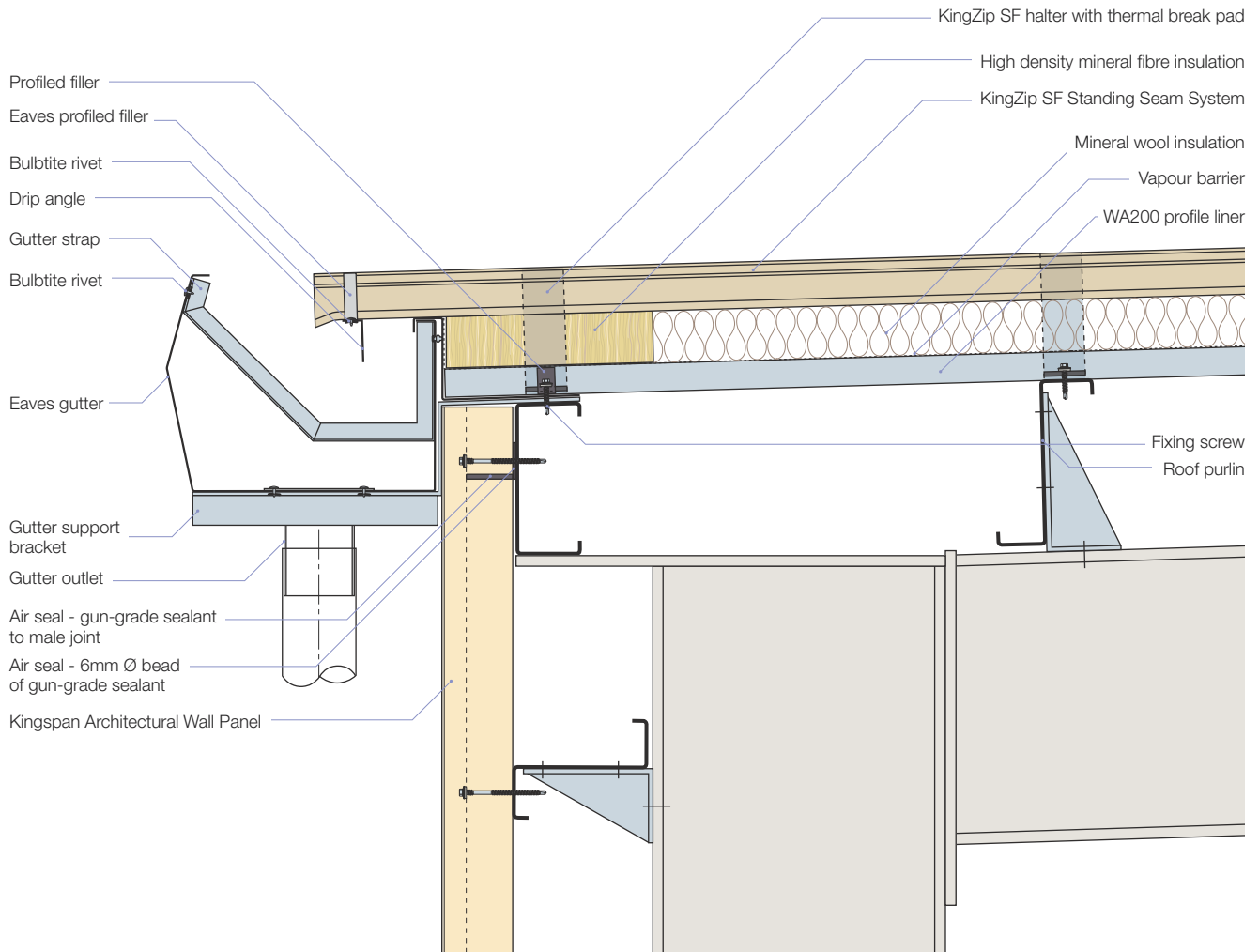


Insulated Verge Detail

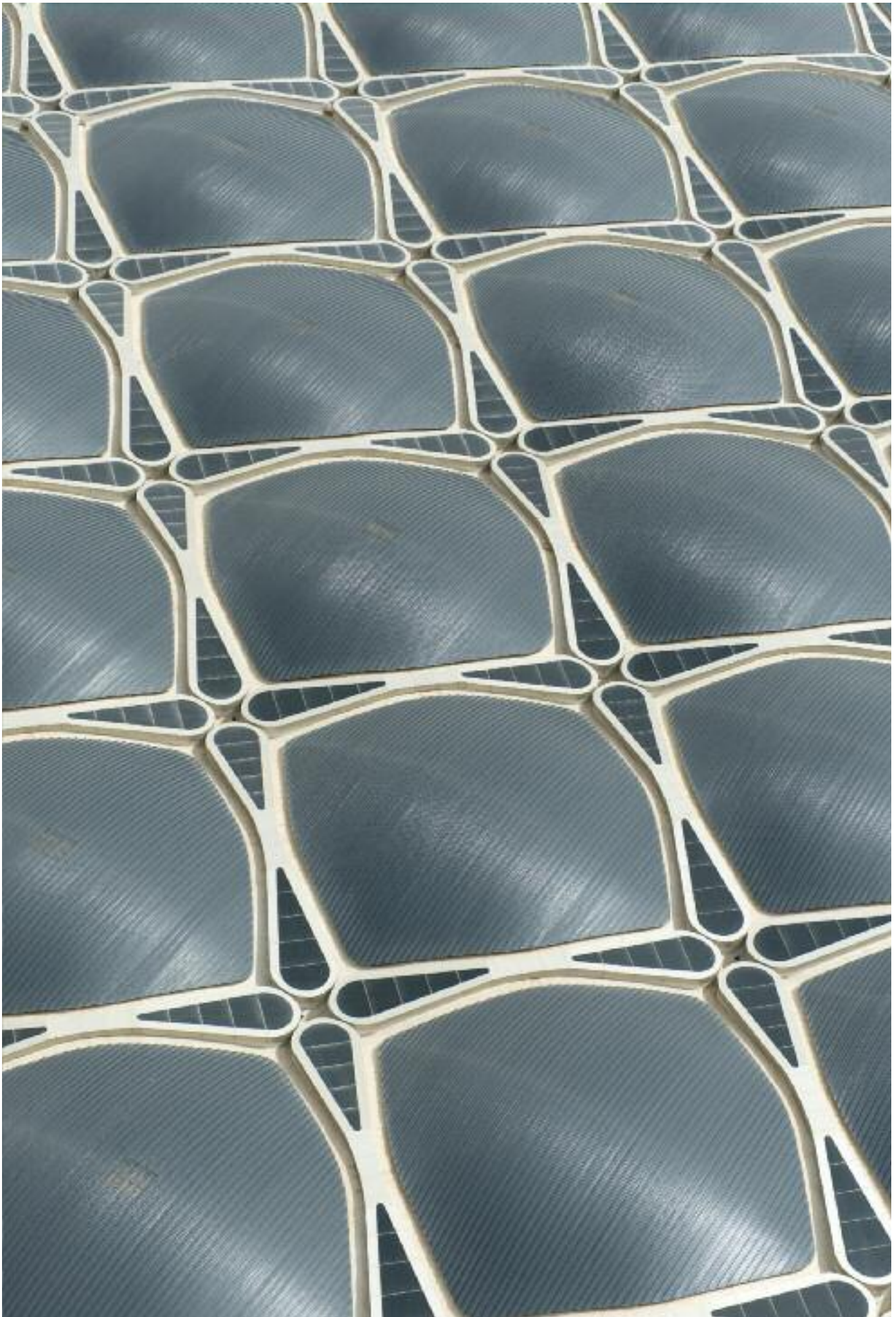


Typical detail for indicative purposes only.

Eaves Detail



Typical detail for indicative purposes only.



Queen Alia International Airport New Terminal, Jordan. KingZip SF Standing Seam System. Nigel Young/Foster + Partners.

