

SPECIFICATION GUIDE

KALZIP AF Profile with Readyboard on metal deck

- The FOAMGLAS® thermal insulation boards 1200 x 600mm x ... mm are made of alumino silicated cellular glass composition having a density of 120 kg/m³ and a thermal conductivity at 10°C of k = 0.042 W/mK.
- An “L” shaped metal flashing to the equivalent thickness of the insulation should be fixed to the metal deck at the bottom of the roof slope.
- Two strips of PC11 adhesive are applied to the crowns of the metal deck.
- The boards are supplied bitumen coated and faced on both sides.
- The FOAMGLAS® boards are laid with the 600mm dimension in the direction of the metal deck troughs over the previously applied adhesive. Joints are staggered. In areas of high wind loads, the boards can be mechanically fastened using two fasteners per board with a 75mm² stress plate.
- FOAMGLAS® metal plate in appropriate material is applied to the Readyboard using a gas torch to melt the polyethylene and heat the bitumen surface. The plate is hammered into the FOAMGLAS® with the serrated edge cross-wise to the roof slope. The number and position of plates are to suit the standing seam system.
- A high performance bituminous membrane ± 3mm thick with sanded finish is torch-applied to the surface of the board. Membrane side laps should be 25mm.
- If required by the standing seam system roof manufacturer, a separating layer of polyethylene or glass fibre is laid over the bituminous membrane.
- The fixing cleat for the standing seam roof system is mechanically fixed through to the metal plate as recommended by the standing seam roof manufacturer.
- The standing seam sheet is applied to the cleat as per the manufacturer’s recommendations.

KALZIP AF Profile with Readyboard on timber board or concrete

- The FOAMGLAS® thermal insulation boards 1200 x 600mm x ... mm are made of alumino silicated cellular glass composition having a density of 120 kg/m³ and a thermal conductivity at 10°C of k = 0.042 W/mK.
- A metal flashing or timber batten of equivalent thickness to the insulation should be firmly fixed to the boarding/concrete at the bottom of the roof slope.
- The PC11 adhesive should be applied in strips direct to the deck surface at 150mm centres. Alternatively apply five blobs of PC11 per board.
- The FOAMGLAS® boards are applied using staggered joints direct to the deck. For buildings with high wind-uplift, mechanical fasteners two per board with 75mm² stress plates can be used.
- The FOAMGLAS® metal plate in appropriate material is applied to the Readyboard using a gas torch to melt the polyethylene and heat the bitumen surface. The plate is hammered into the FOAMGLAS® with the serrated edge cross-wise to the roof slope. The number and position of the plates are to suit the standing seam system.
- A high performance bituminous membrane ± 3mm thick with sanded finish is torch-applied to the surface of the board. Membrane side laps should be 25mm.
- If required by the standing seam roof manufacturer, a separating layer of polyethylene or glass fibre is laid over the bituminous membrane.
- The fixing cleat for the standing seam roof system is mechanically fixed through to the metal plate as recommended by the standing seam roof manufacturer.
- The standing seam sheet is applied to the cleat as per the manufacturer’s recommendations.

SPECIFICATION GUIDE (CONT.)

KALZIP AF Profile with T4 slab to metal deck

- The FOAMGLAS® thermal insulation boards 450 x 600mm x ... mm are made of alumino silicated cellular glass composition having a density of 120 kg/m³ and a thermal conductivity at 10°C of k = 0.042 W/mK.
- An “L” shaped metal flashing to the equivalent thickness of the insulation should be fixed to the metal deck at the bottom of the roof slope.
- For plain galvanised or aluminium deck, a primer of cutback bitumen should be applied by brush, roller or spray method and allowed to dry. With painted, colour-coated deck, priming is unnecessary.
- The FOAMGLAS® slab should be applied to the metal deck using a hot bitumen dipping tray. The slab has two edges and the base dipped into hot bitumen and is lifted out and laid in parallel courses with staggered joints, with the long side of the slab laid parallel to the troughs of the deck.
- Lay down the bitumen coated slabs, press firmly into place by foot pressure. All joints to be well butted together to ensure bitumen bonding of the slabs.
- A coating of hot bitumen is applied to the surface of FOAMGLAS®, approximate coverage 4 kg/m² and allowed to dry.
- FOAMGLAS® metal plate in appropriate material is applied to the bitumen surface using a gas torch to soften the bitumen. The plate is hammered into the FOAMGLAS® with the serrated edge cross-wise to the roof slope. The number and position of the plates are to suit the standing seam system.
- A high performance bituminous membrane ± 3mm thick with sanded finish is torch-applied to the bitumen coated surface of the FOAMGLAS®. Membrane side laps should be 25mm.
- If required by the standing seam roof manufacturer, a separating layer of polyethylene or glass fibre is applied over the bituminous membrane.
- The fixing cleat for the standing seam roof system is mechanically fixed through to the metal plate as recommended by the standing seam roof manufacturer.
- The standing seam sheet is applied to the cleat as per the manufacturer’s recommendations.

KALZIP AF Profile with T4 slab to timber or concrete deck

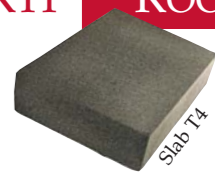
- The FOAMGLAS® thermal insulation boards 450 x 600mm x ... mm are made of alumino silicated cellular glass composition having a density of 120 kg/m³ and a thermal conductivity at 10°C of k = 0.042 W/mK.
- Any joints in the deck sections should be taped using a bituminous applied tape.
- An “L” shaped metal flashing or timber batten to equivalent thickness of the insulation should be firmly fixed to the boarding/concrete at the bottom of the roof slope.
- On the dry and clean surface, a primer coat of bitumen emulsion type or cutback shall be applied (coverage 0.4 kg/m²).
- When the primer coat is completely dry, hot bitumen is applied to the substrate by the pouring can method and the slabs of cellular glass are pressed down and pushed diagonally into position. Bitumen shall be Type 95/25 or Type 115/15 depending on conditions, care being taken to ensure that the hot bitumen is pressed well into the joints to ensure a vapour-tight seal.
- The slabs are laid in parallel courses with staggered joints.
- A coating of hot bitumen is applied to the surface of the FOAMGLAS®, approximate coverage 4 kg/m² and allowed to dry.
- FOAMGLAS® metal plate in appropriate material is applied to the bitumen surface using a gas torch to soften the bitumen. The plate is hammered into the FOAMGLAS® with the serrated edge cross-wise to the roof slope. The number and position of the plates are to suit the standing seam system.
- A high performance bituminous membrane ± 3mm thick with sanded finish is torch-applied to the bitumen coated surface of the FOAMGLAS®. Membrane side laps should be 25mm.
- If required by the standing seam roof manufacturer, a separating layer of polyethylene or glass fibre is applied over the bituminous membrane.
- The fixing cleat for the standing seam roof system is mechanically fixed through to the metal plate as recommended by the standing seam roof manufacturer.
- The standing seam sheet is applied to the cleat as per the manufacturer’s recommendations.

INSULATION FOR THE FOAMGLAS®/KALZIP AF PROFILE ALUMINIUM ROOF SYSTEM - NEW BUILD OR RENOVATION



R11

ROOFS



The FOAMGLAS®/KALZIP AF Profile roof system, where both the insulation and profiled aluminium have proven long-life performance, was developed jointly by both manufacturers.

The KALZIP AF Profile provides an aesthetic and softline appearance to a roof construction, on which the outer sheet is fully supported and which ensures no cold bridges. A bituminous membrane provides secondary protection against water ingress and as the whole system is both air and water-vapour tight, interstitial condensation cannot occur.

This innovative approach to metal standing seam construction was initially developed in France where it has an Agrément Certificate.

USE OF FOAMGLAS®

The use of FOAMGLAS® Readyboard or T4 slab in a standing seam roof situation ensures an airtight construction eliminating the problems caused by ingress of water and penetration of cold air into the roof space. The risk of interstitial condensation in the roof construction is avoided. As well as providing outstanding thermal characteristics, FOAMGLAS® is impervious to attack by vermin, insects or birds. FOAMGLAS® is totally non-combustible and cannot contribute to a fire nor give off toxic fumes or smoke; it is also totally free from HCFC, HFA and pentane. These physical properties remain totally effective for the lifetime of the structure.

KALZIP ALUMINIUM –

FINISHES AVAILABLE

- Natural stucco embossed finish.
- Colour-coated in PVDF polyester or ARS paint systems to a full range of RAL and BS colours.
- ALU Plus Zinc (PEGAL) zinc coating.

APPLICATIONS

Thermal insulation of roofs to be applied externally to a metal, timber board or concrete deck under the Kalzip AF Profile.

PRELIMINARY CONDITIONS

Movement

Wind pressure and wind suction have an important effect on pitched and barrel roofs; thus the thermal insulation and weatherproof sheet must be able to withstand these pressures and movements without failure.

Wind-tight

The use of FOAMGLAS® board or slab considerably improves the wind-tightness of the roof construction.

Condensation

The FOAMGLAS®/KALZIP AF roof system uses a geotextile-type separating membrane placed under the weatherproof sheet.

The roof construction is airtight and therefore condensation cannot occur in the insulant or in the roof construction itself.

PREPARATION OF THE

SUBSTRATE

The metal, timber boarding or concrete deck is applied to a rafter or purlin system and is mechanically fastened.

BUILDING REGULATIONS, Part L & J

All FOAMGLAS® systems meet the requirements of Building Regulations, with regard to air tightness of the building, the avoidance of cold bridging and sustainable construction. FOAMGLAS® systems will continue to fully perform for the lifetime of the building.



www.foamglas.co.uk

FOAMGLAS®
CELLULAR GLASS INSULATION



FOAMGLAS

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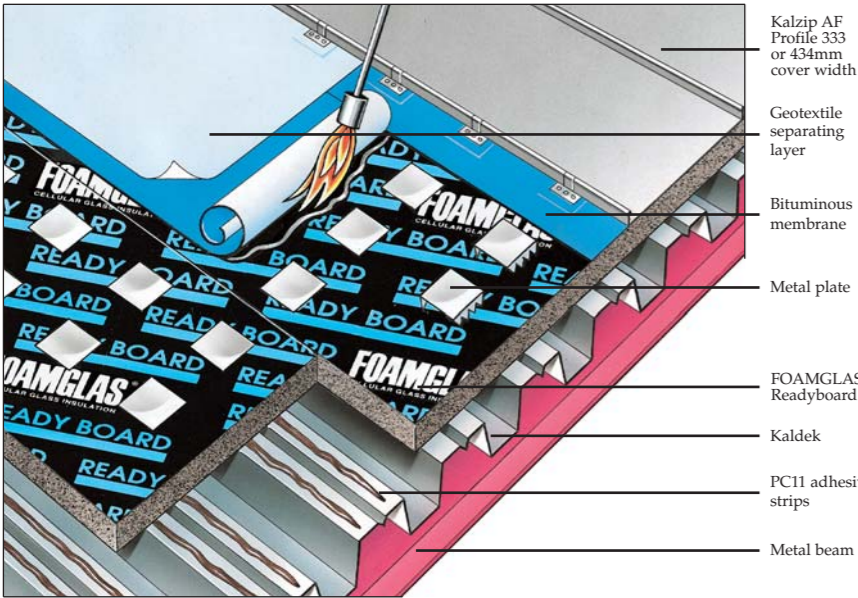
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FOAMGLAS® FOR ROOFS

FOAMGLAS® READYBOARD/
KALZIP AF PROFILE



STANDING SEAM ROOF WITH
TIMBER BOARD OR CONCRETE
DECK

- 1 The timber board or concrete should be fixed to the structural rafters, purlins or beams.
- 2 A metal flashing or timber batten of equivalent thickness to the insulation should be firmly fixed to the boarding/concrete at the bottom of the roof slope.
- 3 PC11 adhesive should be applied in strips direct to the deck surface at 150mm centres. Alternatively apply 5 blobs of PC11 per board. The FOAMGLAS® boards are applied using staggered joints direct to the deck. For buildings with high wind-uplift mechanical fasteners, 2 per board with 75mm² stress plates, can be used.
- 4 The FOAMGLAS® metal plate in galvanised steel is applied to the Readyboard using a gas torch to remove the polyethylene protective layer and melt the bitumen surface. The plate is hammered into the FOAMGLAS® with the serrated edge cross-wise to the roof slope. The number and position of plates are to suit the Kalzip AF Profile and the required resistance to wind-uplift.
- 5 A high performance bituminous membrane ± 3mm thick with sanded finish is torch-applied to the surface of the FOAMGLAS® Readyboard, over the metal plates. The membrane side laps should be 25mm.
- 6 A geotextile membrane is laid over the bitumen membrane surface according to the manufacturer's recommendations.
- 7 Dependent on the position in the roof, a fixed or patented movement clip is used; this is mechanically fixed by screws to the FOAMGLAS® metal plate.
- 8 The standing seam sheet is applied to the fixing clip as per the manufacturer's recommendations.

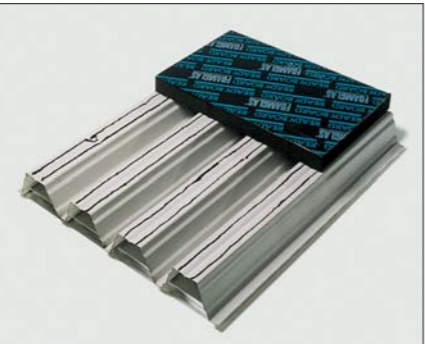
Figures in bold type indicate minimum thicknesses required to meet Part L & J of UK Building Regulations dependent upon building usage.

		FOAMGLAS® Readyboard thickness				
Construction	UNITS	150mm	160mm	180mm	190mm	200mm
Metal Deck	W/m²K		0.25			0.20
Metal Deck with suspended ceiling	W/m²K	0.25			0.20	
Plywood 20mm	W/m²K		0.25			0.20
Plywood with suspended ceiling	W/m²K	0.24			0.20	
Concrete 150mm	W/m²K		0.25			0.20
Concrete with plasterboard ceiling	W/m²K	0.24		0.20		

BUILD-UP OF FOAMGLAS® /KALZIP AF
PROFILE ALUMINIUM ROOF SYSTEM



Kaldek profile.



PC11 adhesive applied to crowns.

FOAMGLAS® FOR ROOFS

FOAMGLAS® SLAB T4/
KALZIP AF PROFILE

The FOAMGLAS® T4 slab Compact Roof System with FOAMGLAS® plates can be used where buildings have high internal humidity, for example swimming pools and process buildings. This system is also suitable where curved roof constructions occur.

THICKNESS OF FOAMGLAS®
T4 SLAB

The table opposite gives the mean overall U-values obtained for various FOAMGLAS® T4 thicknesses with different types of construction, taking into consideration the thermal conductivity of k = 0.042 W/mK and internal conditions of:

- temperature under the ceiling ≤ 20°C
- relative humidity under the ceiling ≥ 65%
- outside ambient temperature ≥ -10°C.

Figures in bold type indicate minimum thicknesses required to meet Part L & J of UK Building Regulations dependent upon building usage.

		FOAMGLAS® T4 thickness				
Construction	UNITS	150mm	160mm	180mm	190mm	200mm
Metal Deck	W/m²K		0.25			0.20
Metal Deck with suspended ceiling	W/m²K	0.25			0.20	
Plywood 20mm	W/m²K		0.25			0.20
Plywood with suspended ceiling	W/m²K	0.24			0.20	
Concrete 150mm	W/m²K		0.25			0.20
Concrete with plasterboard ceiling	W/m²K	0.24		0.20		

T4 SLAB APPLICATION TO
METAL DECK

- 1 The metal deck should be fixed to the rafters, purlins or structural beams according to the manufacturer's recommendations.
- 2 An "L" shaped metal flashing should be fixed to the metal deck at the bottom of the roof slope, to the same height as the insulation thickness.
- 3 With plain galvanised or aluminium deck, a primer of cutback bitumen should be applied either by brush, roller or spray method and allowed to dry. Coverage ± 0.15 kg/m². With painted, colour-coated deck, priming is unnecessary.
- 4 The FOAMGLAS® slab should be applied to the metal deck using a hot bitumen dipping tray. The slab has two edges and the base dipped into the hot bitumen and is then lifted out and laid in parallel courses with staggered joints, with the long side of the slab laid parallel to the troughs of the metal deck.
- 5 Lay down the bitumen coated FOAMGLAS® slabs and press firmly into place by foot pressure. All joints to be well butted together to ensure bitumen bonding of the slabs.

T4 SLAB APPLICATION TO
TIMBER OR CONCRETE DECK

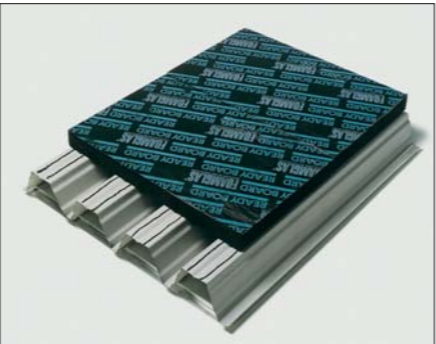
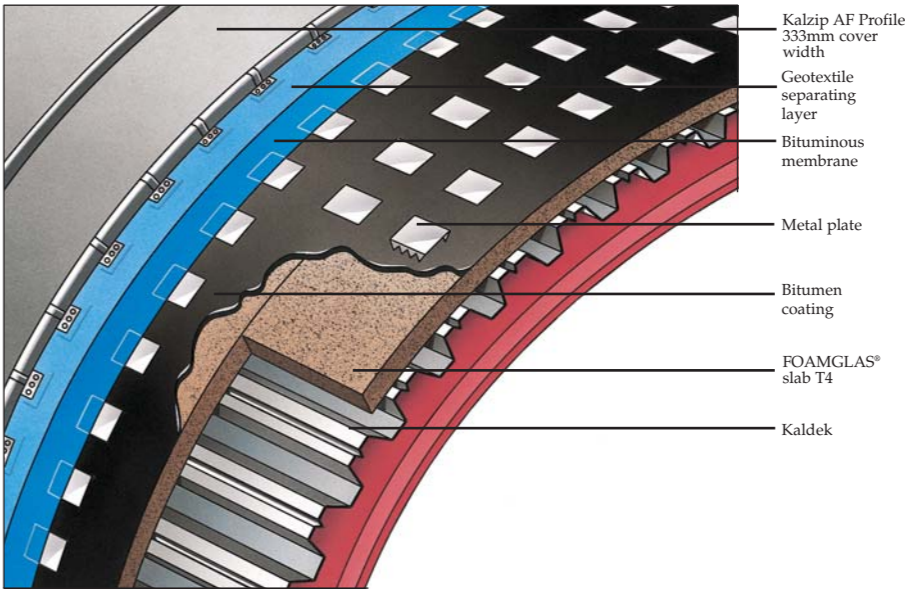
- 1 Any joints in the deck sections should be taped using a bituminous applied tape.
- 2 An "L" shaped metal flashing should be fixed to the deck at the bottom of the roof slope, to the same height as the insulation thickness.
- 3 A primer coat of bitumen emulsion applied by brush or spray application, coverage ± 0.4 kg/m².
- 4 Hot oxidised bitumen should be used, Type 95/25 (application temperature 150°C to 180°C) or Type 115/15 (application temperature 190°C to 220°C), coverage at least 4 kg/m² depending on the degree of evenness of the substrate, the thickness of FOAMGLAS® slabs and the number of layers, and the actual conditions on site.
- 5 Slabs of FOAMGLAS® are laid in parallel courses with staggered joints in hot bitumen on the top of the previously primed, dry substrate. The hot bitumen is poured onto the substrate in sufficient quantity at the right temperature. The slabs are pressed down and pushed in a diagonal direction so that the bitumen is squeezed up into the joints until it shows on top with the joint well butted together and fully adhered. Cutting is done with a rigid saw or craft knife.

FOAMGLAS® PLATE AND STS AF CLIP CENTRES

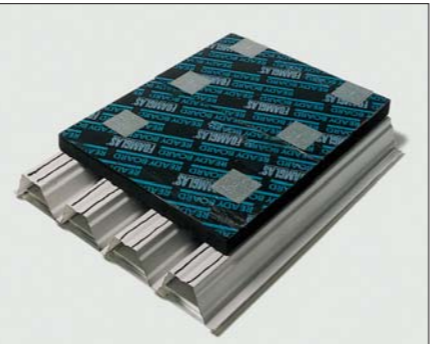
STS AF clip centres for KALZIP AF 333 (0.7mm, 0.8mm, 0.9mm, 1.0mm and 1.2mm) on FOAMGLAS®			STS AF clip centres for KALZIP AF 434 (0.7mm, 0.8mm, 0.9mm, 1.0mm and 1.2mm) on FOAMGLAS®		
STS AF Density (Clips/m²)	Maximum Working* Wind Suction (kN/m²)	STS AF Clip Centres (mm)	STS AF Density (Clips/m²)	Maximum Working* Wind Suction (kN/m²)	STS AF Clip Centres (mm)
4	2.000	750	4	2.000	575
6	2.115	500	6	2.115	384

*An attachment safety factor of 2 has been used for the working wind suction loads. For other wind loadings consult the manufacturer.

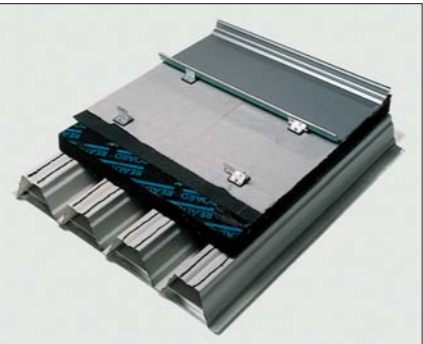
- 6 A coating of hot bitumen is applied to the surface of the FOAMGLAS®, approximate coverage 4 kg/m² and allowed to dry.
- 7 The FOAMGLAS® metal plate in galvanised steel is applied to the bitumen covered surface of the FOAMGLAS®. A gas torch is used to soften the bitumen and the plate hammered into place with the serrated edge cross-wise to the roof slope. The number and position of plates are to suit the Kalzip AF Profile and the resistance to wind-uplift.
- 8 A high performance bituminous membrane ± 3mm thick with sanded finish is torch-applied to the bitumen coated surface of the FOAMGLAS®. Membrane side laps should be 25mm.
- 9 A geotextile membrane is laid over the bitumen membrane surface according to the manufacturer's recommendations.
- 10 Dependent on the position in the roof, a fixed or patented movement clip is used; this is mechanically fixed by screws to the FOAMGLAS® metal plate.
- 11 The standing seam sheet is applied to the fixing clip as per the manufacturer's recommendations.



Readyboard laid onto adhesive.



FOAMGLAS® metal plates pushed into Readyboard.



Bituminous membrane and geotextile membrane laid, followed by Kalzip fixing clips and standing seam sheet.