

SPECIFICATION GUIDE

- The FOAMGLAS® thermal insulation slabs of 600 x 450mm x ... mm are made of alumino silicated cellular glass composition. Type T4 WDS has a density of 115 kg/m³ and a thermal conductivity at 10°C of k = 0.040 W/mK. Type T4 has a density of 120 kg/m³ and a thermal conductivity at 10°C of k = 0.042 W/mK.
- The FOAMGLAS® thermal insulation shall be applied in one (two) layer(s) of ... mm (each).
- The substrate shall be clean, dry and free of any irregularities in excess of 5mm over 2m. If required, an appropriate levelling screed shall be applied.
- On the dry and clean surface, a primer coat of bitumen emulsion type or cutback type shall be applied (coverage: ± 0.4kg/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 dependent on conditions, care being taken to ensure that the hot bitumen is pressed well into the joints, to ensure a vapour-tight seal.
- The blocks are laid in parallel courses with staggered joints. (When a second layer of FOAMGLAS® is required, all joints of the second layer should be staggered with the joints of the first layer).
- When required the upstand of the roofing membrane can be supported by standard lengths of FOAMGLAS® of triangular section of 450mm x...mm x ... mm.

Built-up Felt Roofing

- The first layer of roofing membrane shall be ... (description of layer required) - and shall be fully bonded with hot bitumen Type 95/25 or Type 115/15 (or other adhesive approved by the manufacturer of the cellular glass), taking care not to entrap any moisture or air.
- Subsequent layer(s) to be ... (description) with solar and surface protection provided by (description - graded shingle/chippings/reflective treatment. Alternatively, felts that incorporate a mineral finish for self-protection). Layer(s) to be fully bonded in hot bitumen as above, or torch-applied where applicable.

Mastic Asphalt Roofing

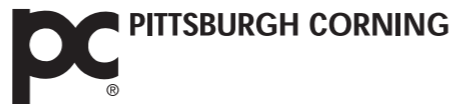
- The first layer only of the two waterproof building paper slip layers, meeting BS1521 class A1F (e.g. Sisalkraft Type 822 or similar kraft/polyethylene), shall be fully bonded in a bitumen top coat to give additional protection from site foot traffic.
- The second layer shall be loose laid beneath the sheathing felt and mastic asphalt, which will be laid to Code of Practice 144 Part 4.

Single Ply Membranes

- Bitumen-compatible SP membranes are to be fully bonded in mop-applied hot bitumen, with laps sealed, all in accordance with the pertinent manufacturer's instructions.
- Non-compatible membranes will require a separating layer (e.g. polyester fleece) prior to loose-laying and heat or solvent-sealing of laps, to manufacturer's instructions. In this instance, ballast will be required to counter wind-uplift.
- The use of mechanical fastenings is not recommended by Pittsburgh Corning, because they jeopardise the vapour-tightness of the structure.
- (In each case) For all work stoppages or at the day's end, care shall be taken to cover the cellular glass surfaces that have not yet received the first layer of the roofing membrane, with a coat of hot bitumen.

Pittsburgh Corning (UK) Limited
63 Milford Road, Reading
Berkshire RG1 8LG
Tel: 0118 950 0655 Fax: 0118 950 9019
email: info@foamglas.co.uk
www.foamglas.co.uk

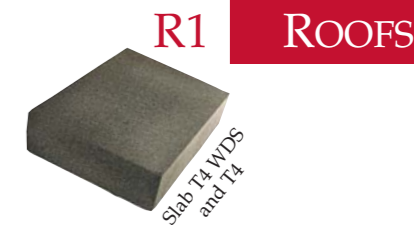
Pittsburgh Corning (UK) Limited assumes no responsibility for errors in, or misinterpretation of the information contained in this leaflet or in its use. Pittsburgh Corning (UK) Limited also retains the right to amend technical specifications without prior notice.



FOAMGLAS® and PC are registered trademarks in the USA and other countries. We reserve the rights of reproduction or translation, in whole or part, in all countries including the CIS.

Designed and Produced by SEL Ltd. Birmingham.

**INSULATION FOR CONCRETE DECKS
- NEW BUILD OR RENOVATION**



USE OF FOAMGLAS®

The physical properties of FOAMGLAS® ensure that its insulation value does not deteriorate with age, making it the most cost-effective insulant when a concrete deck has been specified. Its impermeability to water and water-vapour eliminates the need for expensive and often inefficient vapour barriers. Breather felt and vents are also not necessary. Capable of remaining effective within a temperature range of -273° to +430°C, FOAMGLAS® also has a coefficient of linear expansion similar to concrete, allowing normal thermal movement to take place without damage. 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.

APPLICATIONS

Access or limited access roofs subjected to foot traffic only, where the supporting element is:

- reinforced concrete slab
- prefabricated elements

All roofing membranes complying with relevant Codes of Practice and Building Regulations can be used with FOAMGLAS®. For trafficked areas on the roof deck, it is recommended that concrete roof tiles be laid in bitumen or on rubber support rings. Please contact PITTSBURGH CORNING (UK) LIMITED should further advice be required.

PRELIMINARY CONDITIONS

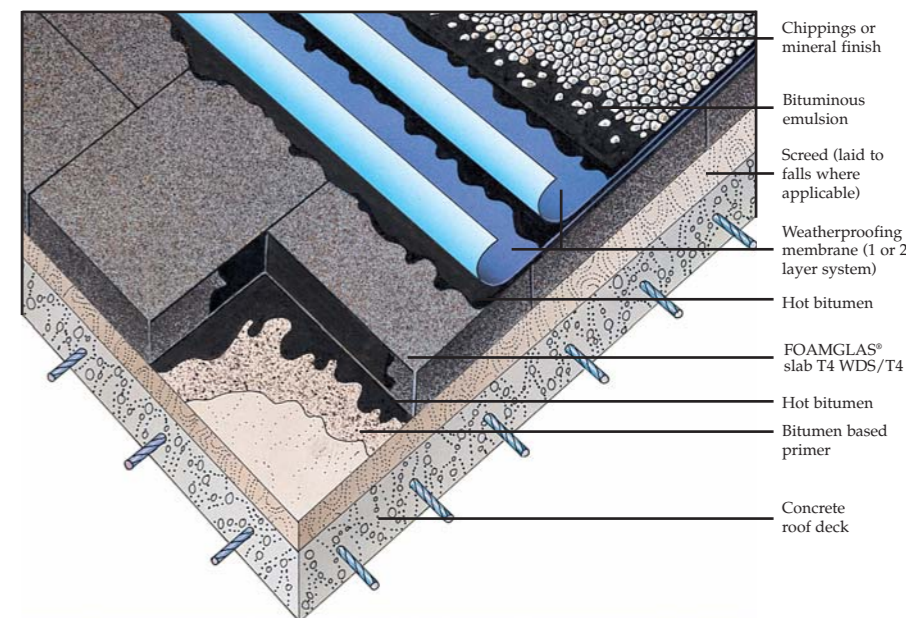
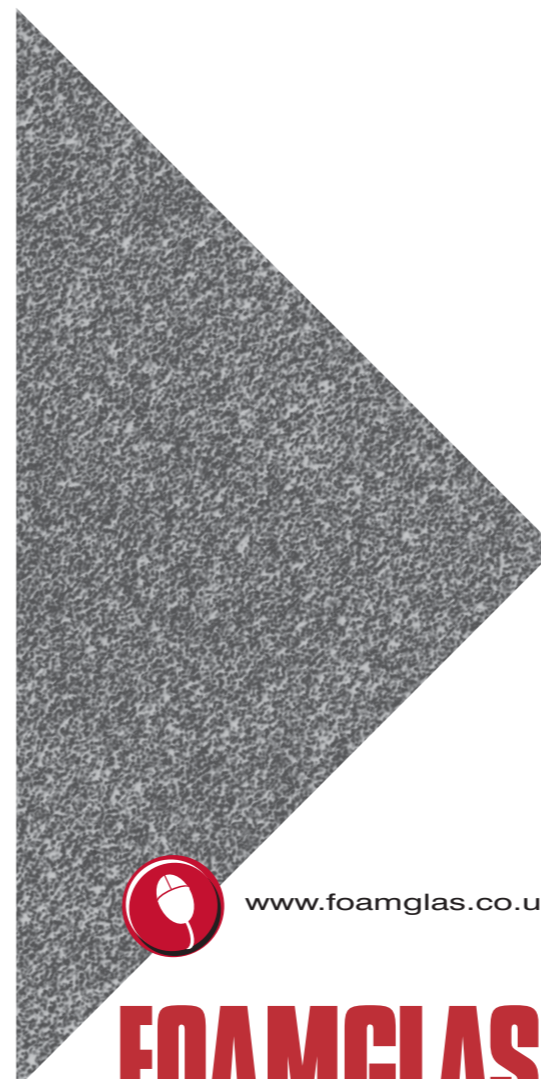
The concrete substrate should comply with the requirements as laid down in the relevant Codes of Practice and Building Regulations. All expansion and movement joints should be continued through the structure.

FOAMGLAS® should be applied to a clean and dry substrate and this should preferably take place when the ambient air temperature and temperature of the substrate are above 5°C.

PREPARATION OF THE SUBSTRATE

Irregularities of the deck should not exceed 5mm over 2m. If composed of pre-cast concrete beams, irregularities must not exceed 3mm between each section.

If uneven, an appropriate levelling screed should be applied to meet these requirements.



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.

FOAMGLAS® FOR ROOFS

SLAB T4 WDS and T4

THICKNESS OF FOAMGLAS® TYPE T4 WDS AND T4

The dew point temperature should be situated in the cellular glass in order to avoid interstitial condensation. The internal and external climatic conditions and the required insulation values determine the thickness of FOAMGLAS® required. The tables opposite give the mean overall U-values obtained for various FOAMGLAS® T4 WDS and T4 thicknesses, which can be used on a steel reinforced concrete slab, without risk of interstitial condensation according to the following design criteria:

- temperature below deck $\leq 22^{\circ}\text{C}$
- relative humidity $\leq 55\%$
- heavy aggregate screed to falls $\leq 150\text{mm}$
- FOAMGLAS® covered by a full roofing membrane (two coat mastic asphalt/built-up felt/suitable single ply membrane)
- external temperature $\geq -10^{\circ}\text{C}$

Calculations are based on no false ceiling, or a ventilated false ceiling.

FOAMGLAS® IN ONE OR TWO LAYERS

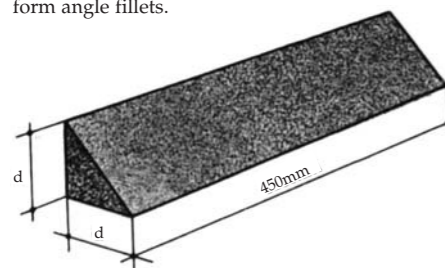
In most instances, the correct application of a single layer of FOAMGLAS® cellular glass will be sufficient. In some circumstances two layers may be necessary, for example:

- negative internal temperature (i.e. cold stores)
- where very high insulation values are demanded (T4 WDS/T4 greater than 160mm).

NOTE: In order to reduce errors on site, care should be taken by the specifier to select either the same thickness of thermal insulation for the two layers, or two obviously different FOAMGLAS® thicknesses.

ANGLE FILLETS

Standard lengths of FOAMGLAS® triangular section are available in sizes up to d=150mm to form angle fillets.



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

Structure & Screed to Falls		Mean Overall U-values for various FOAMGLAS® T4 WDS thicknesses												
Type	L mm	40	50	60	70	80	90	100	110	120	130	140	150	160
Reinforced concrete slab	150	0.67	0.58	0.50	0.45	0.40	0.37	0.34	0.31	0.29	0.27	0.25	0.24	0.22
plus sand/cem. screed	150													
"Hollow pot" concrete deck	160	0.65	0.56	0.49	0.44	0.39	0.36	0.33	0.30	0.28	0.26	0.25	0.23	0.22
plus sand/cem. screed	150													
"Hollow pot" concrete deck	200	0.63	0.54	0.48	0.43	0.39	0.35	0.32	0.30	0.28	0.26	0.24	0.23	0.22
plus sand/cem. screed	150													

Internal Temp 22°C, 55% RH, Winter external -10°C.

Structure & Screed to Falls		Mean Overall U-values for various FOAMGLAS® T4 thicknesses												
Type	L mm	40	50	60	70	80	90	100	110	120	130	140	150	160
Reinforced concrete slab	150	0.70	0.60	0.52	0.46	0.40	0.38	0.35	0.32	0.30	0.28	0.26	0.25	0.23
plus sand/cem. screed	150													
"Hollow pot" concrete deck	160	0.67	0.58	0.51	0.45	0.41	0.37	0.34	0.32	0.29	0.27	0.26	0.25	0.23
plus sand/cem. screed	150													
"Hollow pot" concrete deck	200	0.65	0.56	0.50	0.44	0.40	0.37	0.34	0.31	0.29	0.27	0.26	0.24	0.23
plus sand/cem. screed	150													

Internal Temp 22°C, 55% RH, Winter external -10°C.

Ecologically FOAMGLAS® cellular glass meets the most stringent demands for an environmentally sound material. In manufacturing, 66% post-consumer waste glass is utilised, combined with a manufacturing process which minimises energy. The result is an insulation material which provides high performance throughout the lifetime of the building, through to its eventual disposal as an inert material or its re-use. FOAMGLAS® is totally free from HCFC, HFA and pentane, exceeds the requirements of the Building Regulations and has Agrément Certification.



MEMBRANE RECOMMENDATION

BITUMINOUS FELT

ASPHALT

SINGLE PLY

PRIMER COAT

Primer coat of bitumen emulsion applied by brush or sprayed application. Coverage: $\pm 0.4 \text{ kg/m}^2$.

ADHESIVE

Hot oxidised type 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 dependent upon the degree of evenness of the substrate, the thickness of the FOAMGLAS® slabs, the number of layers and the actual conditions on site.

STORAGE OF THE INSULATION

The cellular glass slabs should be dry during application. For this reason the FOAMGLAS® packs should be protected from the weather or poor site conditions and should be stacked on edge and clear of the ground.

FOAMGLAS® APPLICATION

Slabs of FOAMGLAS® are laid in parallel courses with staggered joints in hot bitumen on top of the previously primed dry substrate.

The hot bitumen is poured onto the substrate in sufficient quantity and 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 joints well butted together and fully adhered.

Cutting is done with a rigid saw or craft knife. Where a double layer of FOAMGLAS® is required, care should be taken that the joints of the second layer are staggered with those of the first layer.

APPLICATION OF THE ROOFING MEMBRANE

Adhesion

The application of the first layer of the roofing membrane should follow on immediately after every two completed rows of FOAMGLAS® have been applied. The membrane is applied in a full bed of hot bitumen. If the membrane to be used is not required to be fully bonded in bitumen to the FOAMGLAS® insulation, e.g. mastic asphalt roofing, it is required that the first layer only of the two waterproof building paper slip layers (e.g. kraft or polyethylene type according to BS1521) be fully bonded in a bitumen top coat to give additional protection from site foot traffic.

The second layer of paper is to remain unbonded and laid loose under the sheathing felt and mastic asphalt, which is laid to Code of Practice 144 Part 4.

If the main roofing membrane is not compatible with bitumen, (e.g. some PVCs) an appropriate separating layer must be used.

Work Stoppages

In order to avoid the retention of rainwater or dew in the open surface cells of the FOAMGLAS® slabs, a bitumen mop coating should be applied to all areas of FOAMGLAS® not yet covered by the roofing membrane.

