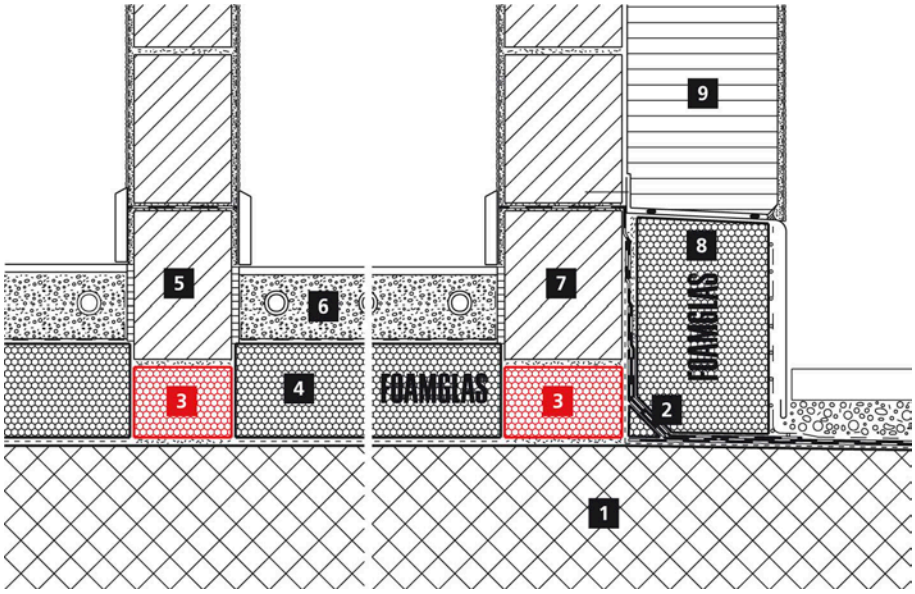
FOAMGLAS® PERINSUL S (Standard)
FOAMGLAS® PERINSUL HL (High Load)

Load-bearing insulation element for brickwork/masonry

FOAMGLAS® Building

Schematic drawing

System 5.2



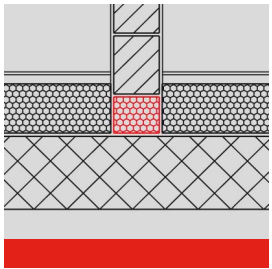
1. Concrete deck
2. Bituminous waterproofing membrane
3. FOAMGLAS® PERINSUL element, laid in a bed of mortar
4. Floor insulation
5. Load-bearing wall
6. Cement / anhydrite screed
7. Outer wall (brickwork)
8. FOAMGLAS® insulation of base area
9. Exterior insulation, rendered

FOAMGLAS® product properties

Waterproof – Resistant to vermin – High compressive strength – Non-combustible – Impervious to water vapour – Dimensionally stable – Acid resistant – Easily cut to shape – Ecological

Advantages of the FOAMGLAS® system

- **Quality**: Uniform thermal performance and load-bearing capacity (without additional support elements).
- **Cost efficiency**: Efficient and cost effective solution that maximises thermal efficiency and reduces energy loss.
- **Sustainability**: Produced from abundant mineral resources with full recycleability. Provides a long term performance solution.
- **Safety**: The elements can easily be cut, assembled or used as smaller parts, without structural loss. There is no risk of damage from torch-applied bituminous water-proofing layers and contact with hot bitumen.
- **Functionality**: Insulation and load-bearing element in one single functional layer. Minimises thermal bridges and capillary masonry dampness at the wall base. The insulation element can be combined with all commonly used type and size of bricks / blocks.



FOAMGLAS®
Building

System 5.2

Recommendations for architects

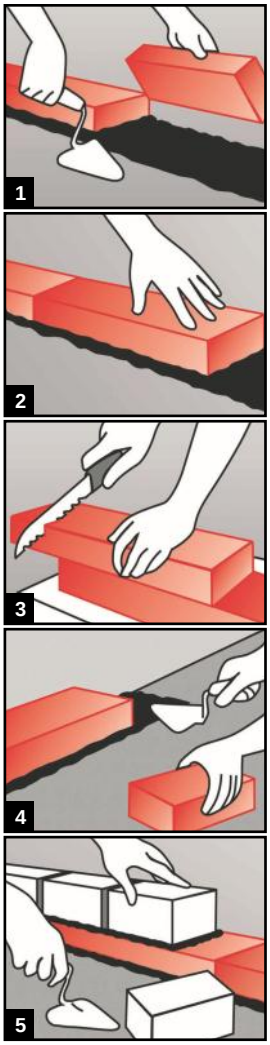
- FOAMGLAS® PERINSUL elements can be used for insulation of both load-bearing and non load-bearing walls. They are mainly used at the wall base above basement decks, or above foundation slabs in contact with subsoil as well as for partition walls constructed on insulated floors.
- However, FOAMGLAS® PERINSUL elements should not be used as load-bearing top at the coping of a wall, because of uncontrollable dynamic impact due to buckling, changes in temperature, angular twists, eccentricities, etc.
- When using FOAMGLAS® PERINSUL under load-bearing walls, the structural engineer must check the admissible loads.
- FOAMGLAS® PERINSUL does not replace the damp-proofing.
- **For a technically correct implementation, relevant local building codes and guidelines must be observed.**

Installation instructions

- Apply a layer of cement mortar, thickness ~ 1 cm on the substrate. (1)
- Install the FOAMGLAS® PERINSUL elements in a row, fully bonded to the bed of mortar, joined without mortar and tightly butted. (2 / 3 / 4)
- Construct the brickwork according to the specifications of the supplier. In the case of hollow concrete blocks the first layer of blocks is installed upside down onto the FOAMGLAS® PERINSUL and the hollows (holes) are filled with concrete – alternatively a first row of solid blocks can be installed. (5)

Recommendations for the contractor

- The build-up and tolerances of the substrate have to be in accordance with relevant standards and guidelines.
- In order to eliminate settlement or subsidence, FOAMGLAS® PERINSUL must be fully supported and cannot be used to bridge a void.
- Mortar in between the tight-butted joints must be avoided, in order to guarantee a continuous thermal break.
- **Please contact our technical consultants; they can help you by providing support or on-site assistance free of charge.**



Specification System 5.2

Description, requirements specification

As thermal break or thermal barrier, compression-proof cellular glass insulation element # FOAMGLAS® PERINSUL is used. This insulation element allows to prevent or to reduce the flow of thermal energy in different areas for instance: at the junction between walls and foundation slabs, under parapets, under door thresholds, under window frames. Cellular glass insulation resists to thermal ageing. FOAMGLAS® PERINSUL is set into a bed of cement mortar under brickwork, under window frames and doorsteps. The insulation provides constant and uniform thermal performance and load-bearing capacity.

Material

As thermal break or thermal barrier, compression-proof cellular glass element # FOAMGLAS® PERINSUL is used, which is made of recycling glass (for a minimum of 60%). All sides of the insulation element are coated with bitumen. The upper and lower surfaces are additionally covered with a non-woven fabric and a PE foil, suited for use with cement mortar. Cellular glass insulation conforms to the European standards (EN 13167 and ETA), and is covered by the CE and Keymark certification schemes, which are the approved CEN production licenses.
The production of cellular glass is certified to ISO 9001: 2008.

Length 45 cm x Thickness 5 cm – Width: 11,5; 14; 17,5; 24; 30; 36,5 cm
or
Length 45 cm x Thickness 8 cm – Width: 25; 30 cm
or
Length 45 cm x Thickness 10 cm – Width: 24; 30 cm
or
Length 45 cm x Thickness 11,5 cm – Width: 11,5; 14; 17,5; 24; 36,5 cm

Other dimensions and thicknesses are available on request.

Product data in line with EN 13167[1)] and ETA[2)]

	PERINSUL S (Standard)	**PERINSUL HL (High Load)**
Density (± 15 %) (EN 1602)	165 kg/m³	200 kg/m³
Thickness (EN 823) ± 2 mm	50, 80, 100 and 115 mm	50, 80, 100 and 115 mm
Length (EN 822) ± 2 mm	450 mm	450 mm
Width (EN 822) ± 2 mm	115 to 365 mm	115 to 365 mm
Thermal conductivity (EN ISO 10456)	λ_D ≤ 0.050 W/(m·K)	λ_D ≤ 0.058 W/(m·K)
Fire behaviour (EN 13501-1)	Euroclass F (Core material Euroclass A1)	Euroclass F (Core material Euroclass A1)
Point load behaviour (EN 12430)	PL ≤ 1.0 mm	PL ≤ 1.0 mm
Compressive strength (EN 826-A)	CS ≥ 1.6 MPa	CS ≥ 2.75 MPa
Flexural modulus of elasticity	E = 1500 MN/m²	E = 1500 MN/m²
BRE Green Guide Rating	C	C
Compressive strength (EN 772-1) in bed of cement mortar[3)], average	f_b = 1.8 MPa	f_b = 2.9 MPa
Compressive strength of masonry structure f_k[3)]	KZ: sand-lime brick: 1.20 MPa P: full terracotta wall brick: 0.90 MPa SB: hollow brick for walls: 0.90 MPa	KZ: sand-lime brick: 1.90 MPa P: full terracotta wall brick: 1.60 MPa SB: hollow brick for walls: 1.60 MPa

[1)] **PERINSUL S**: The CE marking is a certification which conforms to the principal requirements of CPD carnet (customs clearance carnet), as defined by EN 13167. With CEN-Keymark, all declared product data are third-party certified, monitored and accredited.
[1)] **PERINSUL HL**: Because EN 13167 is limiting the compressive strength to 1.6 N/mm², we applied for ETA process which will allow the declaration of a higher compressive strength and to obtain the CE marking. Currently, the requirements of EN 1996-1-1 (Eurocode 'Design of Masonry structures') are under consideration in the assessment procedure for ETA.
[2)] ETA has been applied for and its issue is expected for 2012.
[3)] According to EN 1996-1-1 (Eurocode 6 'Design of Masonry structures') and wall elements tested under bespoke requirements of EN-1052-1 in MPa or N/mm².

FOAMGLAS® PERINSUL S (Standard)
FOAMGLAS® PERINSUL HL (High load)

Load-bearing insulation element for brickwork/masonry

Installation

Preparation of the substrate

A level and smooth surface is required which should allow a bed of cement mortar band as foundation in a thickness of 10 to 15 mm. The substrate should be structurally stable and compression-proof to exclude creep and subsidences .

Installation of the insulation elements

The installation recommendations of the manufacturer should be observed. The insulation blocks are set in a bed of cement mortar with tightly butted joints. The insulation blocks should neither be tapped with the cutting edge of the trowel nor with other cutting tools.
Vertical joints are tight-butted as much as possible and should not be filled with mortar.

Under masonry

The first course of brick is set into a full strip of mortar placed on the insulation. A strong bond with the insulation is achieved.
In case that the masonry structure is made of glued building blocks, the first row of blocks should anyhow be set into a strip of mortar. If hollow concrete blocks are used, the first row of blocks should be set upside down and the hollows be filled with mortar.
As applies for all masonry wall construction, only install the insulation element on frost-free days.

Under window frames and door thresholds

As no point loads are allowed on the insulation, a sufficiently large fibre ciment board should be fitted in between the insulation and the window frame. Door thresholds should be set down in a bed of cement mortar.

Important

1. The structural analysis of the admissible load on the insulation, depending on the construction type, is to be done by an engineering office, using the calculation method of Eurocode 6 (BS EN 1996-1-1).
2. Verification is required that the maximum load does not exceed anywhere and not just locally.
3. Compression of the bituminous coating on the insulation elements will not exceed 1 mm in the long term.
4. When placing the thermal break or thermal barrier, the building dilatation and settling joints should be observed.

Technical Support Services for

1. Writing of a requirement specification and installation guide for your construction project.
2. Calculation of the insulation thickness to meet U-value requirements.
3. Calculation of the insulation thickness to prevent dampness and thermal bridging.
4. Assessment of building material compatibility.
5. Assistance with structural wall design or the planning of details.
6. Examination of the possibilities for a non-standard construction.

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