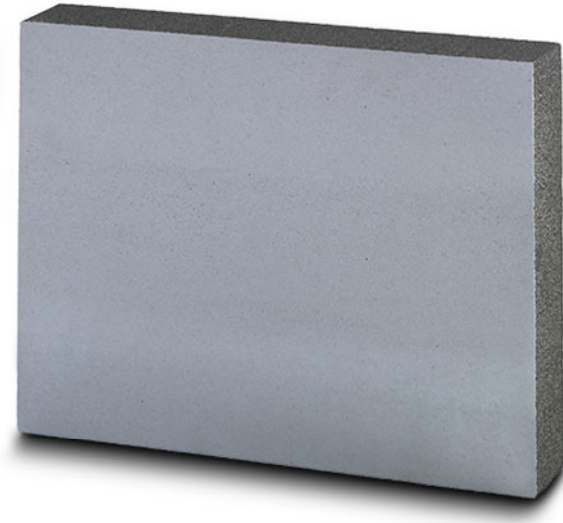


TECHNICAL DATA SHEET

BauderGLAS Inverted Upstand Insulation

Product Description - Cellular Glass with a pre-applied inorganic coating on the topside. Both the core material and the coating have an A1 rated reaction to fire classification and are therefore non-combustible.



Application Fields - Provides an impact and weather resistant non-combustible thermal insulation for use on low level inverted roof upstands including to, and across compartment walls. This product is specifically for use at upstands where BauderGLAS Inverted Insulation is used on the main flat area.

For a comprehensive specification contact Bauder technical department.

Current interpretation of upstand insulation requirements for “Relevant Buildings” are:

1. If the insulation is a thermal break and finishes not more than 150mm above the finished roof level, then it is exempt from the ban. BauderXPS, BauderGLAS or BauderROCK NC 56mm Inverted Upstand Insulation can be used.
2. If the insulation is taken up further above 150mm against a habited wall, then it is required to be a Class A Upstand Board such as BauderGLAS and BauderROCK NC 56mm Inverted Upstand Insulation.
3. If upstand insulation is used against a parapet where it will extend beyond 150mm above the finished roof level, or the 300mm minimum requirement for a thermal break, but not greater than 600mm (height of one board), it is required to be a Class A Upstand Board such as BauderGLAS and BauderROCK NC 56mm Inverted Upstand Insulation. Exceeding the thermal break height requirement with an upstand board should be questioned as to why it is needed.

The above guidance was appropriate at the time of writing but is often open to interpretation and therefore should always be confirmed by the Building Control officer for the project.

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PRODUCT INFORMATION AND TECHNICAL PERFORMANCE ACCORDING TO EN 13167			
Characteristic	Test method	Unit	Value
Density ($\pm 15\%$)	EN 1602	kg/m ³	100
Thickness ± 2 mm	EN 823	mm	50
Length ± 2 mm	EN 822	mm	600
Width ± 2 mm	EN 822	mm	450
Thermal conductivity	EN ISO 10456	W/m.K	$\lambda_{cor} \leq 0.038$ (Manufacturer's declared value)
Reaction to fire	EN 13501-1	-	Euroclass A1
Point load	EN 12430	mm	PL ≤ 1.5
Point load top	EN 12430	mm	PL ≤ 1 (≤ 0.5)
Compressive strength	EN 826 Annexe A	kPa	CS ≥ 400
Bending strength	EN 12089	kPa	BS ≥ 400
Tensile strength	EN 1607	kPa	TR ≥ 100
Dimensional stability after 48h@70°C & 90% RH	EN 1604	DS (70.90)	$\Delta\epsilon_{l,b} \leq 0,5 \%$, $\Delta\epsilon_d \leq 1 \%$
Water absorption on short term	EN 1609	kg/m ²	WS ≤ 0.5
Water vapour transmission	EN 12086	μ	∞
Colour	-	-	Grey (Product is made from natural materials so the colour cannot be guaranteed and can vary from batch to batch)
Freeze thaw	-	-	Resistant

CE – Marking ensure conformity with the mandatory essential requirements of CPD as mentioned in EN13167; within the CEN Keymark certification all mentioned characteristics are certified by an empowered, notified, and accredited 3rd party.

CERTIFICATION AND ENVIRONMENTAL INFORMATION	
BBA Certificate No:	Pending
Environmental Product Declaration (EPD)	B-EPD n° 200010_001_EN
Declaration Of Performance (DoP)	120270065B
Declaration of Conformity (DoC)	-
International Standards Organisation (ISO)	ISO 45001:2018 Health & Safety Cert No. BE 014112 ISO 9001:2015 Quality Management Cert No: BE 014114 ISO 14001:2015 Environmental Management Cert No: BE 014113
BRE Green Guide generic product rating	A+
Ozone depletion potential (ODP)	The insulation is totally inorganic, contains no ozone depleting propellants, flame resistant additives or binders. Without VOC or other harmful substances.
Recycled content	Specially graded recycled glass ($\geq 60\%$)

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BauderGLAS CHARACTERISTICS		
Description	BauderGLAS is manufactured from specially graded recycled glass ($\geq 60\%$) and natural raw materials which are available in abundant supply (sand, dolomite, lime...). The insulation is totally inorganic, contains no ozone depleting propellants, flame resistant additives or binders. Without VOC or other volatile substances.	
Reaction to fire (EN 13501-1)	Material complying with Euroclass A1, non-combustible, no toxic fumes.	
Properties in relation to fire	European Commission Directive 2000/553/EC	Designated Broof(t4) (low vulnerability in Scotland) which is without restriction when used within a ballasted inverted roof construction.
Additional reaction to fire classification report	19984E (Warrington Fire)	
Service temperature limits	From -265°C to $+430^{\circ}\text{C}$	
Water vapour resistance (EN ISO 10456)	$\mu = \infty$	
Hygroscopicity	Zero	
Capillarity	Zero	
Melting point (cf DIN 4102-17)	$>1000^{\circ}\text{C}$	
Thermal expansion coefficient (EN 13471)	$9 \times 10^{-6} \text{ K}^{-1}$	
Specific heat (EN ISO 10456)	1000 J/(kg.K)	

TECHNICAL DATA SHEET

INSTALLATION GUIDANCE

BauderGLAS Inverted Upstand Insulation is designed to be used in conjunction with BauderGLAS Inverted Insulation but can also be used as part of a BauderJFRI EPS and BauderXPS Inverted Roof Insulation System.

BauderGLAS Inverted Upstand Insulation is supplied as a 600 x 450mm board and can be used either way up or cut to size as required. The coated face must be on the outside face. Infill pieces must have a minimum width of 150mm.

When installed, provided that the top surface is protected by an appropriate continuous clip, coping, cill or cover flashing, BauderGLAS Inverted Upstand Insulation is suitable for long term exposure – for example, when used in conjunction with an inverted roof system.

Generally, the upstand insulation should be installed first, so it can be wedged in position at the base by the boards subsequently applied to the flat areas.

However, if there are two layers (or multi layers) of insulation to the horizontal field areas, the bottom layer(s) of insulation can sit at deck level and the upstand board can be installed on top and then wedged into position using the uppermost layer of the insulation to the field area (minimum 100mm).

BauderGLAS Inverted Upstand Insulation boards can be tightly clipped continuously on the top edge with a minimum continuous cover depth of 50mm. They can also be held in place by the downward leg of a pre-formed metal coping or by a suitable metal cover flashing.

BauderGLAS Inverted Upstand Insulation board heights to be maximum of one board, longest length.

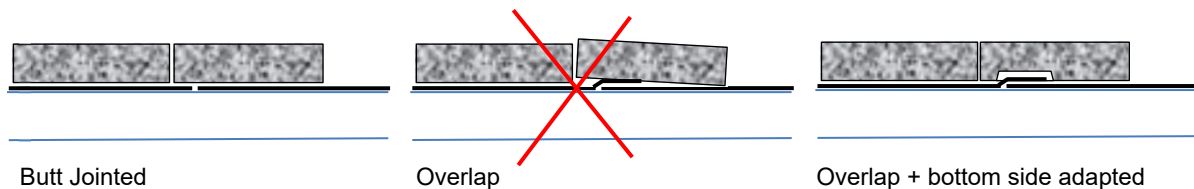
INSTALLATION RECOMMENDATIONS

Installers of the product must take care not to damage the roof waterproofing, particularly in the case of thin Bauder LiquiTEC Cold Applied system which may be more easily damaged.

Adequate measures need to be taken during installation to prevent any damage of the insulation top coating.

Prior to the BauderGLAS Inverted Upstand Insulation being installed the waterproofing must be cleaned of all debris.

If side and end laps are required within the top layer of the chosen Bauder Waterproofing System then the layer of insulation in contact with the waterproofing can be adapted by abrasion, such that the BauderGLAS Inverted Upstand Insulation rests flat on the waterproofing either side of side and end laps. Bauder will state the method to be used within the Bauder Project Specification to achieve continuous contact with the deck/substrate.



Infill pieces must have a minimum width of 150mm.

To maximise insulating performance ALL abutments and insulation joints MUST be tightly butted up. If necessary re-measure, replace or cut/sand down and re-install any insulation which is not fitting correctly.

TECHNICAL DATA SHEET

Shaping and adapting the insulation in case of unevenness

BauderGLAS Inverted Upstand Insulation is easily trimmed and shaped, therefore if the substrate or abutment is uneven, it's easy to modify the insulation by abrading / sanding or cutting to fit. The BauderGLAS Inverted Upstand Insulation layers must be fully supported upon the substrate with no rocking or movement.

Always use the correct PPE as sanding and cutting of the insulation will create offcuts and dust. To ensure the insulation is sitting correctly in position with closed joints and no rocking or movement, remove offcuts and dust from the area prior to laying the insulation.

Useful tools:



Cutting, Sanding and Drilling BauderGLAS Inverted Upstand Insulation

Bauder recommends that designated areas are set out on each roof area to limit the spread of debris accumulated in the cutting and abrading process.

BauderGLAS Inverted Upstand Insulation is easy to cut and adjust.

Many contractors will set up a working area with all the necessary marking out and cutting tools; this ensures all the offcuts and dust is in one working area. Regularly clear away the offcuts and dust to maintain a clear and dust free working and installation area.

Sanding / abrading is used to make small adjustments.

Cutting is used to trim down the insulation (minimum cut size 150 mm wide) to create the staggered layout, and to fit neatly against the adjacent insulation and abutments. To maximise insulating performance ALL abutments and insulation joints **MUST** be tightly butted together. If necessary re-measure, cut and re-install any insulation which is not fitting correctly.

A metal saw or hardpoint timber saw is used for cutting all BauderGLAS Inverted Upstand insulation.

A sawing machine is recommended for maintaining uniform insulation slab edges if the quantity of insulation slabs to be cut is significant.

It is important to use a square edge, mark a line (pic 1), and make a clean and straight cut (pic 2). Prepare a robust, flat working surface which fully supports the insulation. This will ensure accurate, safe and easy cutting of the insulation material.



TECHNICAL DATA SHEET

Cutting the insulation with a saw.

Make sure the insulation is fully supported and not rocking or moving. Saw on the downstroke, DO NOT saw on the upstroke, this will chip the insulation and surface coating.

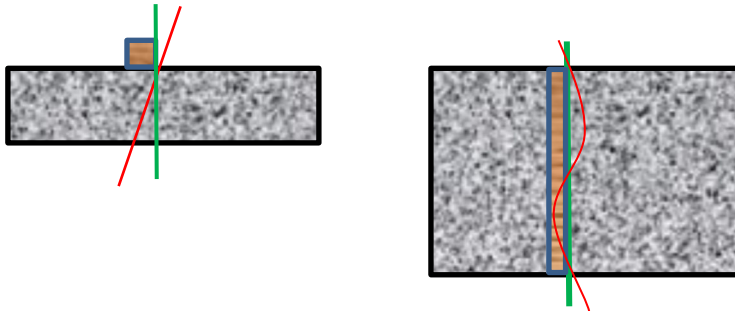
Carefully saw in a straight line (green 😊) if you do not saw in a straight line (red 😞) you will have additional work to sand the insulation until you have a flat surface.

If a diagonal line is to be cut, measure and mark very carefully to ensure the angle is accurate.

To ensure the insulation system is closed up tightly, where possible ensure that the factory machined edges of the insulation butt up against each other; and the cut edges are against an abutment such as a parapet, or roof light etc.

Ensure you saw in a straight line and cut vertically through the insulation.

(green 😊, red 😞)



The cut side of the BauderGLAS Inverted Uprand Insulation should be to the outside (wall/parapet) to prevent open joints and getting misplacements of the next slabs.

Sanding/Abrading BauderGLAS Inverted Uprand Insulation



Use a sanding block to shape the underside of the insulation, to ensure a firm and stable contact with the substrate or an abutment.

Sanding the edge of BauderGLAS Inverted Uprand Insulation, start at the coating and sand with a downwards motion. Do not sand on the upward stroke, since this can possibly chip the insulation and coating (see picture opposite)

Drilling

When drilling BauderGLAS Inverted Uprand Insulation Board always use an appropriate an appropriate power tool.

Drilling should be limited to one work area as much as is possible.

Small holes required in cellular glass board should be drilled with standard masonry bits.

Making larger round holes in BauderGLAS Inverted Uprand Insulation. Take a thermally broken tube with the right diameter and press through the BauderGLAS Inverted Uprand Insulation. Always press from the coated side to the non-coated side. Manual or power hole cutting saws can also be used.

TECHNICAL DATA SHEET

Small repairs to the BauderGLAS Inverted Upstand Insulation coating

Small damage to the BauderGLAS Inverted Upstand Insulation coating or small flakes chipped off, can be repaired using BauderGLAS Inverted Insulation Repair Kit (Grey Colour to match the coating). To ensure a good quality install it is important to repair any damage to the coating. Should there be any major damage, the insulation should be replaced. The BauderGLAS Inverted Insulation Repair Kit is a solvent-free 1-component synthetic resin paste which is purpose manufactured for the BauderGLAS Inverted Upstand Insulation coating. It is packed in 25 kg buckets and has a grey colour.

The BauderGLAS Inverted Insulation Repair Kit is applied with a spatula. Apply the paste evenly and press it into the damaged area, finally smooth off with the spatula, and leave to dry. To prevent the mix drying out, each time after use, replace the plastic film covering on the product before cleaning the edge of the pail and fitting the lid. When the pail is closed correctly the paste will not dry out and will remain useable for a long time. For correct storage and expiry date see the BauderGLAS Inverted Insulation Repair Kit packaging and data sheets.

Below: Using BauderGLAS Inverted Insulation Repair Kit to repair to the edge of the BauderGLAS Inverted Upstand Insulation coating.



(Picture 1)



(Picture 2)



(Picture 3)

TECHNICAL DATA SHEET

TRANSPORT

BauderGLAS Upstand Upstand Insulation Board is transported direct to site from the manufacturer on artic or rigid vehicles. Due to the weight of this material all insulation must be offloaded via a forklift or crane and cannot be handballed.

PRODUCT STORAGE GUIDANCE

Store the materials outdoors with suitable robust UV resistant, flame-retardant tarpaulin. Ensure the product(s) are clear of buildings and any other storage areas. The products must not be exposed to a direct naked flame or other ignition sources, or to solvents or other chemicals. All insulation boards must be kept dry, on pallets and off the ground. The packaging of Bauder Insulation products should not be considered adequate for weather protection. Where there are storage containers on site, these may be suitable for storing products.

Damaged boards must not be used.

PACKAGING MATERIAL

BauderGLAS Inverted Insulation Boards are shrink wrapped in polyethylene with cardboard and delivered to site on wooden pallets.

Pallet size – 1.0 x 1.2 x 1.4m high approx.

Boards per pallet depend on board thickness.

50mm – 32.4m²

HANDLING/PPE

All persons using this product should be fully aware of the manual handling methods as roofing materials are heavy and can cause serious injury. When using this product, installers should be provided with, and wear, suitable personal protective equipment.

PPE should include appropriate safety goggles when cutting, drilling or abrading to protect against dust / projectile material. Wear the PPE generally required for the jobsite with a minimum of gloves to protect against possible sharp edges on the cellular glass board and a suitable dust mask to protect against dust inhalation.

BauderGLAS Inverted Insulation is not toxic.

Safety glasses are a must when handling, cutting, grinding, crushing, or drilling BauderGLAS Inverted Insulation. Wear safety glasses with side shields or dust goggles in dusty environments. Wear goggles for dust protection while cutting or abrading in wind.

A mouth nuisance dust mask (type FFP1 or higher) is useful when cutting or abrading, but not necessary.



BauderGLAS Inverted Insulation Board is recyclable. Off-cuts need to be disposed via an authorised disposal contractor to an approved waste disposal site, observing all relevant regulations.

Please ensure all installation specifications meet any associated Building and Fire Regulation requirements.

Follow the safety instructions as indicated in our Safety Data Sheet.

Always follow the safety instructions valid on the construction site.

SHELF LIFE

When stored correctly, the product has no stated shelf life.

TECHNICAL DATA SHEET

DISPOSAL GUIDANCE
Off-cuts need to be disposed via an authorised disposal contractor to an approved waste disposal site, observing all relevant regulations. (European waste catalogue EWC number 17 06 04 "Insulation material").
RE-USE OPTIONS OF PRODUCT
Please refer to EPD in Certification and Environmental information section. Document can be found at www.bauder.co.uk Product is recyclable.
FURTHER INFORMATION/DOCUMENTS
Current documents such as brochures, installation guides, etc can be found by visiting www.bauder.co.uk

Safety Data Sheets are designed to provide the necessary information to recipients of substances and mixtures in the EU & UK.

This product is classed as an article; therefore, this product does not have a requirement for a Safety Data Sheet.



Can be found via the website