

Polyfoam Cavityboard

For thermal insulation of masonry cavity walls



Strong



Water resistant



Versatile



Lightweight



Ozone friendly



Recyclable

Description

Polyfoam Cavityboard is a high performance, 100% ozone friendly, extruded polystyrene, rigid board insulation. It is lightweight, yet has excellent rigidity and long term effectiveness, even when exposed to moisture.

Polyfoam Cavityboard is supplied with interlocking rebated edges that help to create a complete insulated envelope with fewer gaps and also help to restrict moisture ingress across the finished construction.

Application

Polyfoam Cavityboard is used for the insulation of partial fill cavity walls or external wall insulation as part of a cladding/render finish. In wall insulation, the optimum solution has to:

- be practical and simple to install
- have rebated edges to give the maximum wall coverage
- perform correctly if exposed to water during installation or in application (damp cavities or damp walls should not impact performance)
- be a good thermal performer
- be stable in the long term

The following range of applications are the key areas of use of Polyfoam Cavityboard:

- Housing
- Offices
- Schools
- Hospitals
- Retail developments
- Public buildings



Polyfoam Cavityboard is recommended for the following wall constructions:

- Partial Fill Cavity Wall insulation in new build
- External wall insulation in new build or refurbishment

Note: Our recommended solution for full fill cavity walls is Crown DriTherm- please contact our Technical Support team for more information.

Performance

Compression resistance

The rigidity of Polyfoam Cavityboard makes the board easy to handle and less prone to site damage than less robust materials.

In external render systems the rigidity of the Polyfoam board behind the metal lath and render will offer an excellent support to the lath and assist in the resistance of impact, helping to prolong its service life.

Moisture resistance

As can be seen in the attached detail drawings. Polyfoam Cavityboard can be used to insulate foundation walls below dpc level. The boards are resistant to moisture absorption and can be laid in ground water or up against wet concrete with minimal impact on the performance of the product. The interlocking rebated edge sheds any water into the cavity away from the inner leaf in the unlikely event that it penetrates the gap between two boards.

Thermal insulation

Polyfoam Cavityboard is a high performance insulant, with aged quoted thermal performance values which are virtually unaffected by moisture on site.



The actual performance in use of Polyfoam Cavityboard with the numerous potential block and internal finish options is outlined in the attached U-Value tables.

Fire Performance

Polyfoam Cavityboard contains a flame retardant to inhibit localised ignition. The use of Polyfoam Cavityboard will not prejudice the fire resistance of the wall.

Certification

Polyfoam Cavityboard is 3rd party certified by the British Board of Agrément.

Handling and storage

Polyfoam Cavityboard is supplied in polythene packs, labelled with identifying product and manufacturing data.

The boards are easy to handle and non-irritant, no special protective clothing is required to install them.

Polyfoam products should not be left exposed to prolonged sunlight as this will result in surface degradation. Where outside storage for extended periods is required cover with opaque/light coloured sheeting.

Ensure the boards are not stored close to open flame or other ignition source, also avoiding volatile compounds and chemicals such as solvents.

Product Data

Thickness (mm)	Length (mm)	Width (mm)	Nominal density (kg/m ³)	Thermal performance		Minimum compressive strength (KPa)	Water vapour resistance (MNs/gm)	Moisture absorption (by vol.)	Continuous service temp limits (°C)
				Conductivity (W/mK)	Resistance (m ² K/W)				
75	1200	450	30	0.029	2.55	100	350	0.3%	-50 to +75
60	1200	450	30	0.029	2.05	100	350	0.3%	-50 to +75
50	1200	450	30	0.029	1.70	100	350	0.3%	-50 to +75
40	1200	450	30	0.029	1.35	100	350	0.3%	-50 to +75
35	1200	450	30	0.029	1.20	100	350	0.3%	-50 to +75
30	1200	450	30	0.029	1.00	100	350	0.3%	-50 to +75
25	1200	450	30	0.029	0.85	100	350	0.3%	-50 to +75

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Installation

Partial cavity fill

Polyfoam Cavityboard is supplied in 1200 x 450mm boards.

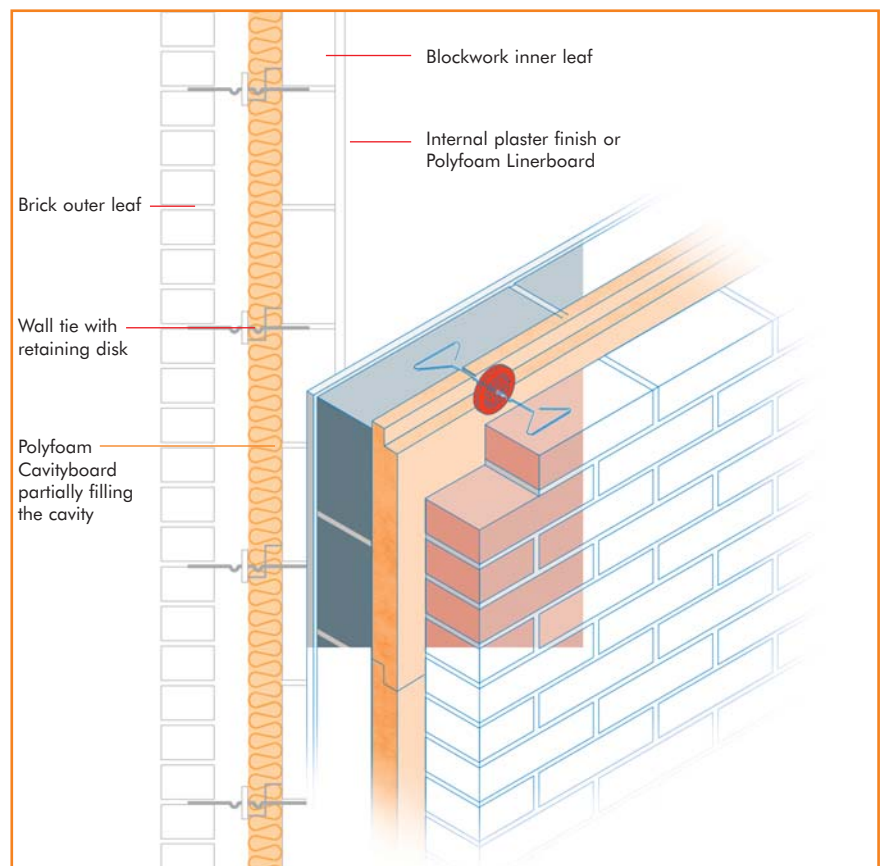
Wall ties with insulation retaining clips must be used. Normally ties are spaced at 450mm vertical centres. Horizontal centres vary according to the width of the cavity and the type of tie used but should not be more than 900mm. Manufacturers recommendations must be followed.

Construction practice will vary from site to site. Where design details differ from those illustrated please do not hesitate to contact Knauf Insulation for any clarification required.

Polyfoam Cavityboard should be cut and fitted carefully around openings and to suit wall lengths. The boards can be cut with a long bladed knife, saw or bricklayer's trowel.

Avoid thermal bridges by taking the Polyfoam Cavityboard to the back of frames, sills and cavity closers. Also, ensure the wall insulation starts at least 150mm below the top of the perimeter floor insulation and is supported on ties (as shown in step 2).

1. Bring the first leaf to the level of the first row of wall ties and remove any excess mortar.
2. Trim the bottom of the board to fit the space between the bottom of the cavity and the first row of wall ties. Fit the board so that the shiplap joint will shed water away from the inner leaf. Cut small notches in the upper edge of the Polyfoam Cavityboard to accommodate the wall ties.
3. Build the second leaf up to the level of the insulation board. Adjust retainers so that the board are held firmly against the inner leaf. Do not let the second leaf overtake the Polyfoam Cavityboard so as to create a trough.
4. Build up the first leaf a further 450mm, clean off any excess mortar and fit the second row of boards. The vertical joints should be staggered so that they do not line up with the joint in the board below. Ensure that the board is tightly fitted against the row of boards below. There should be at least four retainers per board.
5. Raise the second leaf to the level of the first and repeat previous sequence to completion. As with normal masonry cavity construction, no mortar should remain in the cavity. Particular care should be taken to keep board joints tightly butted and free from mortar. To facilitate keeping the top edges of insulation clean it is recommended that a board be used.



Typical U-Values (W/m²K) of masonry cavity walls insulated with Polyfoam Cavityboard

Polyfoam Cavityboard Thickness (mm)	Brick outer leaf/cavity/100mm block inner leaf-type:				
	Dense Block ($\lambda=1.13$)	Medium Block ($\lambda=0.53$)	Lightweight Block ($\lambda=0.35$)	Standard Aircrete ($\lambda=0.16$)	Lightweight Aircrete ($\lambda=0.11$)
Internal finish of lightweight plaster					
75	0.31	0.30	0.29	0.27	0.26
60	0.37	0.35	0.34	0.32	0.30
50	0.42	0.40	0.39	0.35	0.33
40	0.49	0.47	0.45	0.40	0.37
35	0.54	0.51	0.49	0.43	0.40
30	0.59	0.56	0.53	0.47	0.43
25	0.66	0.62	0.59	0.51	0.46
Internal finish of 17.5/9.5mm Polyfoam Linerboard					
75	0.26	0.25	0.25	0.23	0.22
60	0.30	0.29	0.28	0.26	0.25
50	0.33	0.32	0.31	0.29	0.27
40	0.37	0.36	0.35	0.32	0.30
35	0.40	0.38	0.37	0.34	0.32
30	0.42	0.41	0.39	0.36	0.33
25	0.46	0.44	0.42	0.38	0.35

Note: For 60 and 75mm residual cavity is less than 50mm. Block sizes assumed to be 440 x 215 x 100mm, mortar joints assumed to be 10mm, wall ties assumed to be stainless steel with cross sectional area of 12.5mm². The U-Values have been calculated to BS EN ISO 6946: 1997

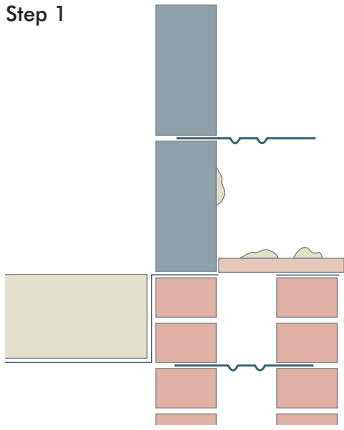
Polyfoam Cavityboard

For thermal insulation of masonry cavity walls

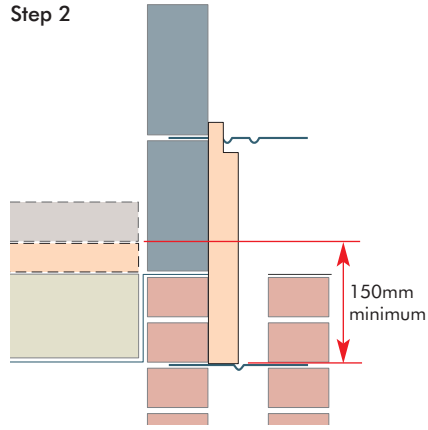


Partial cavity fill - continued

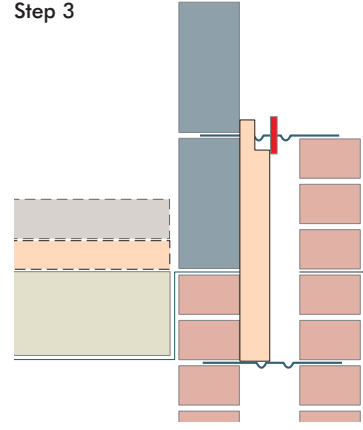
Step 1



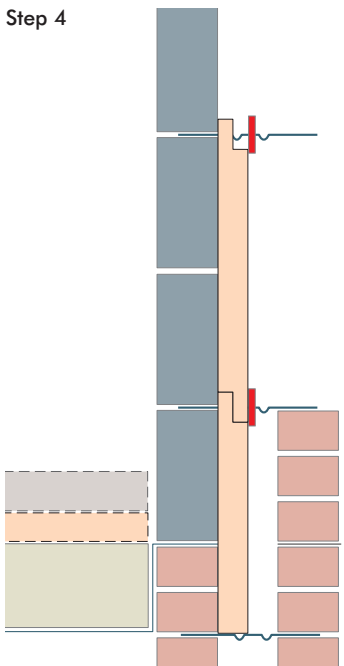
Step 2



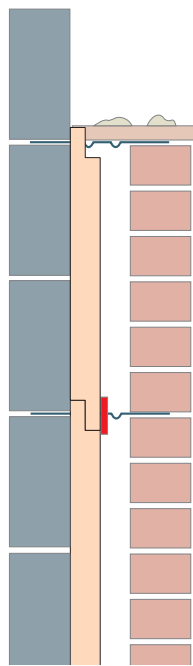
Step 3



Step 4



Step 5



Polyfoam Cavityboard



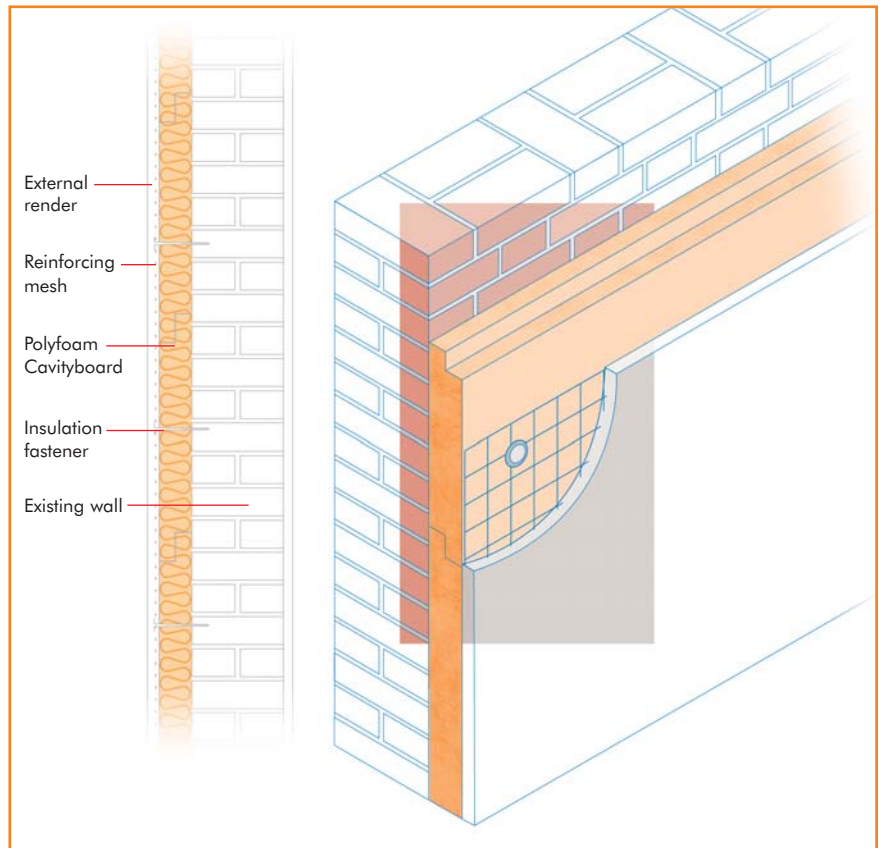
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External wall insulation

Polyfoam Cavityboard can also be used for the external insulation of masonry walls, either solid, panel or cavity construction.

The boards are easy to cut with a knife or saw to fit around openings.

1. Remove all loose and flaking materials from the wall, making good all hollow areas to give a smooth, stable substrate.
2. Temporarily fix Polyfoam Cavityboard using simple friction fit mechanical fixings. These are sufficient as temporary fixings but must not be relied upon as the final structural fixing. Use one or two fixings per board. The rebate in the edge of Polyfoam Cavityboard should be orientated so that it sheds water outwards.
3. Secure expanded metal lath using expanding fixings which extend through the insulation into the masonry wall. Normally nine fixings per square metre are required, but this largely depends on the pull-out force achieved by the particular fixing being used and the nature of the substrate. Please refer to fixing manufacturer for further information.
4. Provide beads around openings, at corners and at the perimeter of the insulated area, at structural joints and to form expansion joints. Where they occur, DPCs should be extended through the insulation and render.
5. Apply sand/cement render in two coats. The first coat is a 12mm scratch coat, 4:1 mix. The second is a 5:1 or 6:1 mix.



Typical U-Values (W/m²K) of external walls insulated with Polyfoam Cavityboard

Polyfoam Cavityboard Thickness (mm)	225mm brick 13mm dense plaster	200mm No Fines concrete dry lined	103mm Brick 50mm cavity 103mm brick 13mm dense plaster	150mm 1500kg/m ³ density block dry lined
75	0.31	0.33	0.30	0.31
60	0.37	0.39	0.36	0.37
50	0.43	0.45	0.41	0.42
40	0.50	0.53	0.48	0.49
35	0.55	0.59	0.52	0.53

Note: Fixings assumed to be stainless steel with cross sectional area of 12.5mm². The U-Values have been calculated to BS EN ISO 6946: 1997

What thickness would I need with my chosen concrete block?

Typical U-Values (W/m²K) of masonry cavity walls insulated with Polyfoam Cavityboard, based on 100mm brick, cavity, 100mm block with lightweight plaster internal finish

Block	Thermal conductivity	U-Values with Polyfoam Cavityboard xxxmm thick						
		25mm	30mm	35mm	40mm	50mm	60mm	75mm
ARC Eurolite Super	0.09	0.44	0.41	0.38	0.36	0.32	0.29	0.25
Celcon Super Solar	0.10	0.45	0.42	0.39	0.37	0.32	0.29	0.25
Durox Supabloc 400	0.10	0.45	0.42	0.39	0.37	0.32	0.29	0.25
Tarmac Toplite GTI Ultra	0.10	0.45	0.42	0.39	0.37	0.32	0.29	0.25
Celcon Solar	0.11	0.46	0.43	0.40	0.37	0.33	0.30	0.26
Durox Supabloc	0.11	0.46	0.43	0.40	0.37	0.33	0.30	0.26
Tarmac Toplite GTI	0.11	0.46	0.43	0.40	0.37	0.33	0.30	0.26
Thermalite Turbo	0.11	0.46	0.43	0.40	0.37	0.33	0.30	0.26
Thermalite Shield 2000	0.14	0.49	0.45	0.42	0.39	0.35	0.31	0.27
Celcon Standard	0.15	0.50	0.46	0.43	0.40	0.35	0.31	0.27
ARC Eurolite Standard	0.16	0.51	0.47	0.43	0.40	0.35	0.32	0.27
Durox Supabloc 4	0.16	0.51	0.47	0.43	0.40	0.35	0.32	0.27
Tarmac Toplite Standard	0.16	0.51	0.47	0.43	0.40	0.35	0.32	0.27
Durox Supabloc 7	0.17	0.52	0.47	0.44	0.41	0.36	0.32	0.27
Celcon Hi-Seven	0.19	0.53	0.49	0.45	0.42	0.36	0.32	0.28
Tarmac Toplite 7	0.19	0.53	0.49	0.45	0.42	0.36	0.32	0.28
Thermalite HiStrength 7	0.19	0.53	0.49	0.45	0.42	0.36	0.32	0.28
ARC Ultralite	0.21	0.54	0.49	0.45	0.42	0.37	0.33	0.28
ARC Boralite	0.22	0.54	0.50	0.46	0.43	0.37	0.33	0.28
Besblock Pumice	0.24	0.60	0.54	0.50	0.46	0.39	0.35	0.29
Interfuse Fibotherm	0.25	0.56	0.51	0.47	0.43	0.38	0.33	0.28
Plasmor Fibolite	0.25	0.56	0.51	0.47	0.43	0.38	0.33	0.28
Fyfe Pumalite (2.8N)	0.27	0.57	0.52	0.47	0.44	0.38	0.34	0.29
Fyfe Pumalite (3.5N)	0.30	0.58	0.52	0.48	0.44	0.38	0.34	0.29
Plasmor Aglite	0.32	0.58	0.53	0.48	0.45	0.39	0.34	0.29
ARC Pumice	0.34	0.59	0.53	0.49	0.45	0.39	0.34	0.29
ARC Superlite	0.34	0.59	0.53	0.49	0.45	0.39	0.34	0.29
RMC Readyblock 1100	0.34	0.59	0.53	0.49	0.45	0.39	0.34	0.29
Sellite 3.5N	0.36	0.59	0.54	0.49	0.45	0.39	0.35	0.29
Fyfe Pumalite (7.0N)	0.38	0.60	0.54	0.49	0.46	0.39	0.35	0.29
Besclock Insulite	0.39	0.60	0.54	0.50	0.46	0.39	0.35	0.29
Humberside Lightweight	0.40	0.60	0.54	0.50	0.46	0.40	0.35	0.29
Stocks Insulite	0.40	0.60	0.54	0.50	0.46	0.40	0.35	0.29
Newlay Newlite	0.42	0.60	0.55	0.50	0.46	0.40	0.35	0.30
Plasmor Stranlite	0.42	0.60	0.55	0.50	0.46	0.40	0.35	0.30
Rainsford Lightweight	0.42	0.60	0.55	0.50	0.46	0.40	0.35	0.30
Armstrong Standard	0.44	0.61	0.55	0.50	0.46	0.40	0.35	0.30
Interfuse Interlyte (3.5N)	0.44	0.61	0.55	0.50	0.46	0.40	0.35	0.30
Tarmac Hemelite (3.5N)	0.47	0.61	0.55	0.50	0.46	0.40	0.35	0.30
ARC Fenlite	0.48	0.61	0.55	0.51	0.47	0.40	0.35	0.30
ARC Evalite	0.51	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Camas Lightweight	0.51	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Interfuse Interlyte (7N)	0.51	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Lignacite (3.5N)	0.51	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Pocklington Teclite	0.51	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Sellite 7.0N	0.51	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Tarmac Hemelite (7.0N)	0.51	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Ensor Modulite	0.52	0.62	0.56	0.51	0.47	0.40	0.35	0.30
Lignacite (7.0N)	0.55	0.62	0.56	0.51	0.47	0.41	0.36	0.30
RMC Readyblock 1400	0.59	0.63	0.57	0.52	0.47	0.41	0.36	0.30
ARC Solo	0.81	0.64	0.58	0.53	0.48	0.41	0.36	0.31
Besblock Bescrete	0.99	0.65	0.58	0.53	0.49	0.42	0.37	0.31
Forticrete Common	0.99	0.65	0.58	0.53	0.49	0.42	0.37	0.31
Newlay Newcon	0.99	0.65	0.58	0.53	0.49	0.42	0.37	0.31
Rainsford Dense	0.99	0.65	0.58	0.53	0.49	0.42	0.37	0.31
Stocks Dense	0.99	0.65	0.58	0.53	0.49	0.42	0.37	0.31
Lignacrete	1.00	0.65	0.59	0.53	0.49	0.42	0.37	0.31
Interfuse Intercrete	1.05	0.65	0.59	0.53	0.49	0.42	0.37	0.31
Plasmor Plascon	1.06	0.65	0.59	0.53	0.49	0.42	0.37	0.31
Camas Dense	1.10	0.66	0.59	0.53	0.49	0.42	0.37	0.31
ARC Standard Dense	1.12	0.66	0.59	0.54	0.49	0.42	0.37	0.31
ARC Evalast	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Armstrong Dense	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Ensor Dense	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Pocklington Tecrete	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Redland Strongcrete	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
RMC Readyblock Dense	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Tarmac Topcrete	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Tilcon Trublock	1.13	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Humberside dense	1.15	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Fyfecrete Standard	1.20	0.66	0.59	0.54	0.49	0.42	0.37	0.31
Forticrete High Strength	1.28	0.66	0.59	0.54	0.49	0.42	0.37	0.31

Notes: If Internal finish is plasterboard the U-Value will be better than that indicated in this table.

For 60mm and 75mm Polyfoam Cavityboard overall cavity remains 100mm. Residual cavity is less than 50mm as outlined in Polyfoam Cavityboard BBA certificate.

 Indicates Elemental U-Value compliance in England, Wales and Scotland

 Indicates Elemental U-Value compliance in England and Wales only

Using the chart

Step 1 Find your block in the left hand column.

Step 2 Find your required U-value and read off the thickness of Polyfoam Cavityboard needed to achieve this.

OR

Find your chosen thickness of Polyfoam Cavityboard and read off the U-value.

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