Polyfoam Linerboard

For thermal insulation and internal lining of walls

Strong | **Water resistant** | **Versatile** | **Lightweight** | **Ozone friendly** | **Recyclable**

Description

Polyfoam Linerboard is a laminate of Polyfoam high performance, 100% ozone friendly, extruded polystyrene, rigid board insulation and plasterboard. It is highly thermally efficient yet provides an internal lining that prepares the building for habitation.

Polyfoam Linerboard utilises tapered edge plasterboard.

Application

Polyfoam Linerboard is used for the thermal insulation and lining of internal and semi-exposed walls in one simple operation. In wall insulation, the optimum solution has to:

- be practical and simple to install
- have low moisture absorption to 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 Linerboard:

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

Polyfoam Linerboard is recommended for the following wall constructions:

- Internal insulation and lining of masonry walls in new build or refurbishment
- Internal insulation and lining of timber frame walls in new build or refurbishment

Performance

Compression resistance

The rigidity of the Polyfoam board behind the plasterboard will offer an excellent support to the finished internal lining and assist in the resistance of impact, helping to prolong its service life.

Moisture resistance

Walls should be sound and weatherproof before applying a thermal plasterboard laminate. Damp walls could have a detrimental effect on insulation and adhesive performance.

When lining internal walls in refurbishment projects the existing wall is often in a state of disrepair, which can mean dampness. The Polyfoam insulation backing to the plasterboard is resistant to moisture absorption and can offer the best piece of mind solution for an application where, as outlined above any potential moisture ingress is a concern. Ensuring that moisture has a minimal impact on the performance of the product. If in any doubt about adhesive use mechanical fixings.

Thermal insulation

Polyfoam Linerboard is high performance insulated laminate, with aged quoted thermal performance values which are virtually unaffected by moisture on site.

The actual performance in use of Polyfoam Linerboard is outlined in the attached application section U-Value tables.

Fire Performance

Polyfoam Linerboard consists of a 9.5mm plasterboard which offers excellent fire performance as a facing material and Polyfoam insulation which contains a flame retardant to inhibit localised ignition.

When installed on dabs a secondary fixing in the centre of each board will ensure the integrity of the internal finish during evacuation in case of fire.

Handling and storage

Polyfoam Linerboard is supplied on pallets, 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/m³)	Thermal performance Conductivity (W/mK)	Thermal performance Resistance (m²K/W)	Minimum compressive strength (KPa)	Water vapour resistance (MNs/gm)	Moisture absorption (by vol.)	Continuous service temp limits (°C)
Polyfoam Linerboard									
45.5/9.5	2400	1200	30	0.030/0.19	1.55	200	456	0.3%	-50 to +75
36/9.5	2400	1200	30	0.030/0.19	1.25	200	456	0.3%	-50 to +75
30.5/9.5	2400	1200	30	0.030/0.19	1.05	200	456	0.3%	-50 to +75
25/9.5	2400	1200	30	0.030/0.19	0.85	200	456	0.3%	-50 to +75
17.5/9.5	2400	1200	30	0.030/0.19	0.55	200	456	0.3%	-50 to +75

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Installation

Internal insulation and lining of masonry walls in new build or refurbishment

Before fitting the dry lining, the ceiling lining should be in place. The surface to be lined should be clean and dry with all wall paper and loose plaster or other material removed. If heavy fixtures, such as wall cupboards and wash basins, are to be fixed to the wall, timber battens should be provided to accept the structural fixings.

Holes for services, existing skirtings etc should be cut before fixing the board. To accommodate services or obstructions on the wall, cut away the insulation to the depth of the obstruction.

Boards can be either cut or sawn. When cutting the boards, use a sharp knife to cut through the insulation and score the board. The score is then snapped open to give a clean edge.

Adhesive fixing

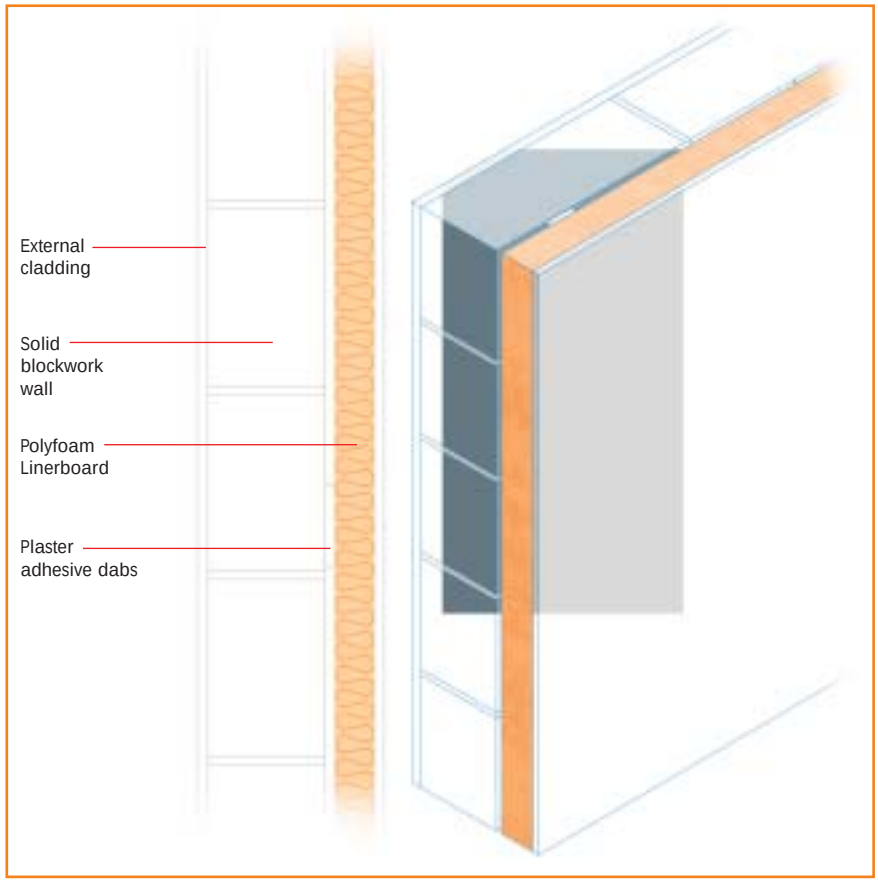
Where the walls are even with a sound plaster finish, Polyfoam Linerboard can be fixed directly with gap filling adhesive. Plaster or cement based adhesives are normally used.

The adhesive is applied in vertical bands at the board edge and down the centre of the board. Bands of adhesive should also be applied around openings, service penetrations and at the junctions with ceilings and floors. This is to reduce air infiltration and the possibility of condensation.

Where the wall is uneven, unplastered brickwork, for example, then Polyfoam Linerboard should be fixed by means of adhesive plaster dabs. Again, there should be a continuous band of adhesive around the perimeter of each wall area to minimise air infiltration.

The Polyfoam Linerboard is immediately offered to the wall, its height adjusted with a footlifter as necessary, and packing strips inserted at the base. It is tapped to align with pre-determined guidelines and adjacent boards. A neat and close line should be achieved at the wall / ceiling junction. Any gap at the base may be filled with proprietary bonding compound or sealant.

With both adhesive and dab fixing methods, secondary mechanical fixings are required. Two fixings are recommended at the top of each board, 25mm in from the edge. The fixings should penetrate at least 35mm into a solid background.



Typical U-Values (W/m^2K) **of masonry walls dry lined with Polyfoam Linerboard**

Polyfoam Linerboard Thickness (mm)	103mm Brick 50mm Cavity 103mm Brick	103mm Brick 50mm Cavity 100mm Block ($\lambda = 0.4$)	103mm Brick 50mm Cavity 100mm Block ($\lambda = 0.11$)	225mm Solid brick
45.5/9.5	0.43	0.42	0.35	0.46
36/9.5	0.49	0.48	0.38	0.54
30.5/9.5	0.54	0.52	0.41	0.60
25/9.5	0.60	0.58	0.44	0.68
17.5/9.5	0.71	0.68	0.51	0.81

Note: The U-Values have been calculated to BS EN ISO 6946: 1997

All PVC insulated electrical cables should be run in trunking or conduit behind the dry lining to avoid direct contact with the insulation.

Mechanical fixing direct to a substrate

It is recommended that mechanical fixings alone are used only where the wall to be lined is flat and a subsequent skim coat of plaster is to be applied.

A variety of proprietary products is available, including self-tapping screws and plug systems. Manufacturer's literature should be checked to ensure the product is suitable for the substrate and for information on fixing length, specification etc.

Mechanical fixing to metal framing

The metal frame should have vertical studs at 600mm centres and have a bearing surface at least 50mm wide. Polyfoam Linerboard is secured using self tapping screws at 200mm maximum centres, located at least 12mm in from the board edge. The screws should be long enough to penetrate at least 15mm into the frame.

Mechanical fixing to timber framing

The studs of the timber frame should be at least 50mm wide and placed at 600mm maximum centres, with additional framing to provide support at all board edges.

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Polyfoam Linerboard is secured by nailing at 150mm maximum centres, at least 12mm in from the board edge. The fixings should be long enough to penetrate at least 25mm into the timber.

Fixtures and fittings

Lightly loaded fittings such as coat hooks can be attached to the plasterboard surface using proprietary plasterboard fixing plugs. Heavier fixtures should be secured back to the main wall, the fixing being sufficiently long to provide a secure fastening.

Detailing

At window reveals, soffits and external corners the insulation should be rebated with a sharp knife to give plasterboard to plasterboard contact at the corner, either for taping or for a corner bead. Soffit boards should be temporarily supported.

The dimensions of the window frame timbers should be chosen to accommodate the thickness of the laminate.

Finishing and decorating

Standard plasterboard jointing techniques are used to finish the board ready for direct application of paint or wallpaper. Where insulation boards are located inside the structure ensure that the voids are ventilated. Insert grilles in all ventilation openings to prevent the entry of vermin.

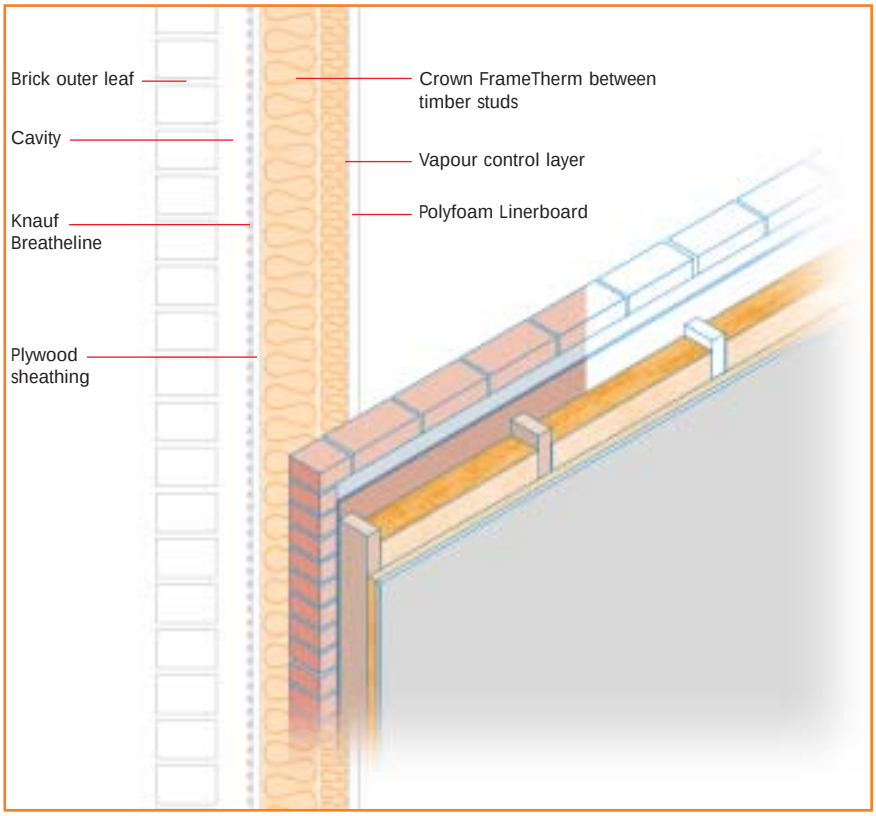
Internal insulation and lining of timber frame walls in new build or refurbishment

Polyfoam Linerboard is used as the internal lining to a 90mm deep timber framed wall filled with Crown FrameTherm to increase its thermal performance.

Crown FrameTherm Rolls or Batts are friction fitted between the timber studs. All joints should be close butted. If non-standard stud spacing is involved the insulation can be simply cut to width and used in the same way.

Subsequently, Polyfoam Linerboard is fixed to the timber frame. It may be nailed or screwed to the timber framework at maximum 150mm centres at least 12mm in from the board edge. The fixings should be long enough to penetrate at least 25mm into the timber.

The board should then be finished and jointed using standard drylining techniques.



Typical U-Values (W/m²K) **of timber frame walls with Crown FrameTherm between the studs dry lined with Polyfoam Linerboard**

90mm deep timber studs filled with:	Internal dry lining of:	Masonry outer leaf	Tile/timber clad outer leaf
Crown FrameTherm 40	**Polyfoam Linerboard 36/9.5**	0.28	0.30
Crown FrameTherm 40	**Polyfoam Linerboard 17.5/9.5**	0.33	0.36

Note: Studs assumed to be 38mm wide at 600 centres (allowances for sole plates etc. give a 15% bridging area for the timber). The U-Values have been calculated to BS EN ISO 6946: 1997

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