AIM LINER UNITS

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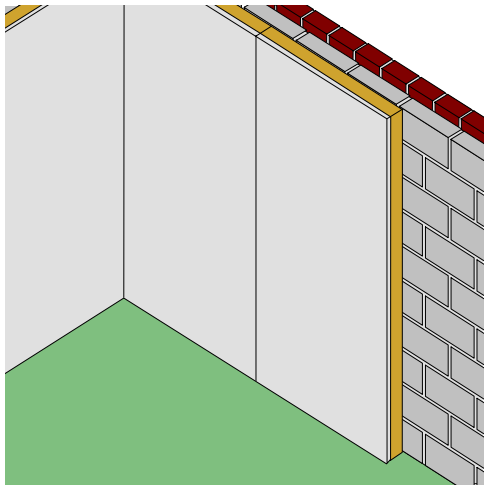
Choice of Insulation -

Square or taper edge plasterboard - bonded to AIM insulation slab.



LAMELLA (LAM).

Lamellas are made from high density rock wool slab, which is cut into blocks and rotated through 90 degrees before being bonded to the plasterboard. Lamella rock wool is incombustible and is especially suitable for acoustic applications.

EXTRUDED POLYSTYRENE (XPS).

Small closed cell extruded polystyrene for optimum insulation, high compressive strength and resistance to moisture.

EXPANDED POLYSTYRENE (EPS).

Versatile expanded polystyrene for optimum value and light weight.

POLYURETHANE (PUR).

Polyurethane foam has very low thermal conductivity and is particularly suitable for applications where space is at a premium.

Introduction

AIM Liner Units are manufactured from plasterboard bonded to insulation. The Liner Units are available with an optional aluminium foil vapour barrier between plasterboard and insulation.

AIM Liner Units are used to provide an insulated internal lining for walls and ceilings. The Liner Units will provide considerably enhanced insulation, improved sound reduction and a smooth plasterboard internal finish. The gypsum plaster facing material should not be used in continuously damp conditions or externally on a building.

Standards

The plasterboard satisfies the requirements of BS 1230:1985 'Gypsum Plasterboard'. The insulation satisfies the requirements of BS5422:1977 'Specification for the use of thermal insulating materials'. The surface of the plasterboard complies with the performance requirements of Class O of the Building Regulations. The plasterboard is incombustible to BS 476 part 4, rated Class 1 Surface Spread of Flame to BS 476 part 7, and achieves index of performance (I) not exceeding 12 and sub-index(i1) not exceeding 6 (both sides) to BS 476 part 6.

AIM Liner Units Board length 2400 mm Board width 1200 mm

			Lamella rock wool			Extruded polystyrene			Expanded polystyrene			Polyurethane		
			Conductivity	0.044	W/mK	Conductivity	0.029	W/mK	Conductivity	0.038	W/mK	Conductivity	0.024	W/mK
Facing	Overall Unit Thickness	Insulation Thickness	Thermal Resistance R Value	Board Weight kg	Weight / sq metre	Thermal Resistance R Value	Board Weight kg	Weight / sq metre	Thermal Resistance R Value	Board Weight kg	Weight / sq metre	Thermal Resistance R Value	Board Weight kg	Weight / sq metre
12.5 or	26.5	17	0.424	31.4	10.9	0.624	27.5	9.5	0.485	27.0	9.4	0.746	27.5	9.5
9.5	29.5	20	0.493	32.3	11.2	0.728	27.7	9.6	0.564	27.2	9.4	0.871	27.7	9.6
mm	39.5	30	0.720	35.5	12.3	1.072	28.6	9.9	0.827	27.8	9.7	1.288	28.6	9.9
plaster-	49.5	40	0.947	38.7	13.4	1.417	29.4	10.2	1.091	28.4	9.9	1.705	29.4	10.2
board*	59.5	50	1.174	41.8	14.5	1.762	30.3	10.5	1.354	29.0	10.1	2.121	30.3	10.5
λ =	69.5	60	1.402	45.0	15.6	2.107	31.2	10.8	1.617	29.6	10.3	2.538	31.2	10.8
0.25	79.5	70	1.629	48.2	16.7	2.452	32.0	11.1	1.880	30.2	10.5	2.955	32.0	11.1
W/mK	89.5	80	1.856	51.3	17.8	2.797	32.9	11.4	2.143	30.8	10.7	3.371	32.9	11.4
	99.5	90	2.083	54.5	18.9	3.141	33.8	11.7	2.406	31.4	10.9	3.788	33.8	11.7
	110	100	2.311	57.7	20.0	3.486	34.6	12.0	2.670	32.0	11.1	4.205	34.6	12.0
	120	110	2.538	60.8	21.1	3.831	35.5	12.3	2.933	32.6	11.3	4.621	35.5	12.3
	130	120	2.765	64.0	22.2	4.176	36.4	12.6	3.196	33.2	11.5	5.038	36.4	12.6

*Data in table relates to 9.5mm plasterboad

Fixing Details

Preparation

The ceiling lining should be in place prior to fitting AIM Liner Units. Wall mounted services must be installed to allow for the extra depth taken by the units. Where the Liner Units are being fitted to an existing building the surfaces should be relatively clean and free of flaking materials, especially if the adhesive fixing method is to be used. AIM Liner Units will not accept any structural fittings, so where these are required provision must be made to connect them to the structural support wall.

Adhesive Fixing

If the background is suitable AIM Liner Units can be directly fixed to the existing wall by a suitable gap filling adhesive or bonding compound. Suitable products are manufactured by Ardex, British Gypsum, Knauf, Redland and others. Certain surfaces, such as high density smooth concrete or high suction masonry may require priming. The adhesive manufacturers guidelines should be followed throughout. The adhesive should be applied in 200mm wide bands around the perimeter, and down the centre of the Units. The adhesive must be applied to the back of the Units to achieve a good key with the insulation, and also applied to the wall surface. The Liner Units are then offered up to the supporting wall and tapped into position.

When the adhesive has hardened secondary mechanical fixings are driven through the AIM Liner Units into the supporting wall. Two fixings are used at the top of the boards and three at the base, under the skirting board line.

Mechanical Fixing to Metal Framing

AIM Liner Units may be fixed using a proprietary frame system (offered by most plasterboard manufacturers). The bearing surface of the metal frame should be at least 50mm wide and should be fixed to the existing wall in accordance with the manufacturers instructions. The frame uprights should be positioned to coincide with the vertical joints between adjacent liner boards and also at the centre of each board, (i.e. at maximum centres of 600mm). The liner units are then secured to the metal frame using self drilling screws designed for fixing plasterboard and sufficiently long to ensure 15mm penetration of the frame. Fixing should be at a maximum of 200mm centres along all frame positions and at approx. 12mm from both long edges of the board.

When the flatness of the final surface is critical, for example where ceramic tiles are to be directly adhered to the plasterboard, it is recommended that two metal studs are used back to back at the joints between adjacent boards. The extra bearing surfaces help to prevent any distortion of the insulation which may occur if the fixings are over tightened.

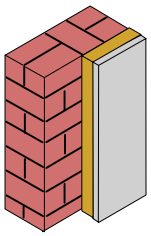
Mechanical Fixing to Timber Framing or Battens

All four edges of the AIM Liner Units should be supported by battens or timber framing and a further vertical support is required at the centre of the units. The battens must allow a nail penetration of at least 25mm and should be at least 50mm wide to allow sufficient bearing. When the flatness of the final surface is critical, for example where ceramic tiles are to be directly adhered to the plasterboard, it is recommended that two timber battens are used back to back (or a single 100mm wide batten) at the joints between adjacent boards.

The AIM Liner Units are fixed by nails which must be long enough to allow at least 25mm penetration into the timber. Fixing should be at a maximum of 150mm centres along all batten positions and at least 12mm from the edges of the board. Nails should not be overdriven.

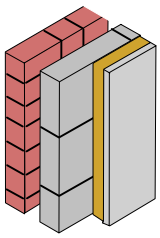
Typical Constructions and U values

SOLID MASONRY



225mm solid brick wall

CAVITY WALL*



* Cavity wall without cavity insulation. 103mm Brick outer - 50mm cavity -100mm block or brick inner

Notes to table

1. The table gives the U value of a liner unit primarily attached by adhesive, but also with 3 mechanical fasteners at the base of each board and 2 mechanical fasteners at the top of each board.
2. The calculations assume that there are no air gaps in the insulation layer. This means that the insulation must be installed to butt tightly.

AIM Liner Units - U values of typical constructions (W/m²K)

Calculated in accordance with BS EN ISO 6946 : 1997 and Approved Document L2

Insulation Thickness	Solid brick 225mm -> AIM Liner Unit								Brick outer -> 50mm cavity -> brick or block inner (λ=0.59W/mK) -> AIM Liner Unit								Brick outer -> 50mm cavity -> lightweight block inner (λ=0.19W/mK) -> AIM Liner Unit							
	LAM	XPS	EPS	PUR	LAM	XPS	EPS	PUR	LAM	XPS	EPS	PUR
17	1.13	0.92	1.06	0.83	0.93	0.79	0.88	0.72	0.72	0.63	0.69	0.58
20	1.05	0.84	0.98	0.75	0.88	0.73	0.83	0.66	0.68	0.59	0.65	0.55
30	0.85	0.66	0.78	0.58	0.73	0.58	0.68	0.52	0.59	0.49	0.56	0.45
40	0.71	0.54	0.65	0.47	0.63	0.49	0.58	0.43	0.52	0.42	0.49	0.38
50	0.62	0.45	0.56	0.39	0.55	0.42	0.50	0.37	0.47	0.37	0.43	**0.33**
60	0.54	0.39	0.49	**0.34**	0.49	0.37	0.45	**0.32**	0.42	**0.33**	0.39	0.29
70	0.48	**0.35**	0.43	0.30	0.44	**0.33**	0.40	0.28	0.39	0.30	**0.35**	0.26
80	0.44	0.31	0.39	0.27	0.40	0.29	0.36	0.25	0.36	0.27	0.33	0.23
90	0.40	0.28	**0.35**	0.24	0.37	0.27	**0.33**	0.23	**0.33**	0.25	0.30	0.21
100	0.37	0.26	0.32	0.22	**0.34**	0.25	0.31	0.21	0.31	0.23	0.28	0.20
110	**0.34**	0.24	0.30	0.20	0.32	0.23	0.28	0.19	0.29	0.21	0.26	0.18
120	0.31	0.22	0.28	0.19	0.30	0.21	0.26	0.18	0.27	0.20	0.24	0.17

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