



Masonry Cavity Wall and Plasterboard Laminate

Cavity Wall Insulation

Celotex
Insulation Specialists

Introduction

Celotex is the brand leading manufacturer of PIR insulation boards, with its range encompassing the thinnest and thickest boards available to the construction industry today. All of the Company's products are manufactured at its plant in Suffolk, from where the dedicated Celotex Technical Centre offers advice and calculations for compliance with current regulations and legislation.

Celotex: We know insulation inside and out.

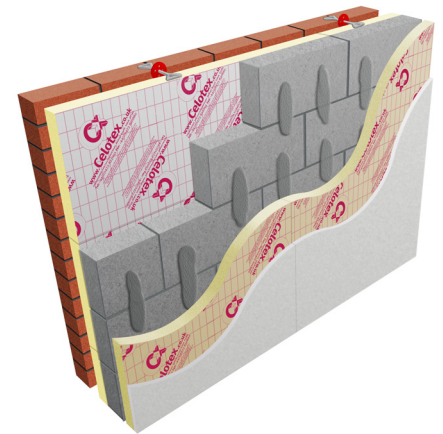
Celotex offers an alternative solution for partial fill cavity wall applications enabling traditional sized cavity wall widths to be maintained.

Celotex CG5000 provides the partial fill cavity wall solution utilising the product's premium lambda value of 0.021W/mK along with super low emissivity aluminium foil facers which provide enhanced thermal performance within a cavity air space.

As a secondary insulation measure, Celotex' plasterboard thermal laminate GD5000/ GS5000 can be installed on the warm side of the inner leaf, providing additional thermal performance and plasterboard as one product.

This combined solution minimises insulation thickness and offers the following benefits:

- Products with a lambda value of 0.021W/mK providing some of the thinnest insulation solutions available today
- Allows for the traditional cavity space of 100mm to be maintained without changing construction methods and risking the loss of plot space
- Provides an alternative solution for meeting the improved U-values required for Part L 2010
- CG5000 features super low emissivity foil facers giving improved thermal insulation within cavity air spaces
- GD5000/GS5000 provides insulation and plasterboard as one product helping reduce installation time and offering maximum flexibility to the installer
- Is suitable for direct bonding (dot & dab) and direct mechanical fixing installations
- Provides reliable long term energy savings for buildings



Celotex CG5000 and GD5000/GS5000

Sustainable Insulation

Celotex PIR insulation has been independently assessed by BRE Global and has been accredited with an A+ rating when compared to the BRE Green Guide.

The results also show that Celotex offers a lower environmental impact than other typical PIR manufacturers.

For further information about Celotex' sustainable insulation solutions, visit the sustainability pages of the website at celotex.co.uk



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Celotex CG5000 Technical Data

Product Code	Thickness (mm)	R-value (m ² K/W)	Weight (kg/m ²)
CG5041	41	1.95	1.52
CG5047	47	2.20	1.71
CG5050	50	2.35	1.81
CG5060	60	2.85	2.16
CG5070	70	3.30	2.48
CG5075	75	3.55	2.64
CG5085	85	4.00	2.96
CG5100	100	4.75	3.38

Celotex GD5000 Technical Data

Product Code	Thickness (mm)	R-value (m ² K/W)	Weight (kg/m ²)
GD5025	25 + 9.5	1.20	7.02
GD5040	40 + 9.5	1.95	7.50
GD5050	50 + 9.5	2.40	7.82
GD5060	60 + 9.5	2.90	8.17

Celotex GS5000 Technical Data

Product Code	Thickness (mm)	R-value (m ² K/W)	Weight (kg/m ²)
GS5025	25 + 9.5	1.20	7.20
GS5040	40 + 9.5	1.95	7.68
GS5050	50 + 9.5	2.40	8.00
GS5060	60 + 9.5	2.90	8.35

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Example U-value Calculation: Partial Fill Cavity Wall with Internal Layer of Celotex

Block lambda (W/mk) 0.15		Dot & Dab			Mechanically fixed direct to wall		
		0.15	0.59	1.13	0.15	0.59	1.13
Variable Layer	Thickness (mm)	U-value (W/m ² K)	U-value (W/m ² K)	U-value (W/m ² K)	U-value (W/m ² K)	U-value (W/m ² K)	U-value (W/m ² K)
Celotex GD5000	25 + 9.5	0.19	0.20	0.21	0.19	0.21	0.21
Celotex GD5000	40 + 9.5	0.17	0.18	0.18	0.17	0.18	0.18
Celotex GD5000	50 + 9.5	0.15	0.16	0.17	0.16	0.17	0.17
Celotex GD5000	60 + 9.5	0.14	0.15	0.15	0.15	0.15	0.16

All U-values shown above assume 50mm CG5000 as the partial fill cavity wall solution with a brick outer leaf (lambda 0.77W/mK) and a 3mm plaster skim. Installing alternative thicknesses of CG5000 within the cavity wall will have an impact on achieved U-value. This solution is also possible using Celotex GS5000 mechanically fixed using battens, which delivers enhanced thermal performance in cavity air spaces. For further information and U-values, please visit our online U-value calculator or contact the Celotex Technical Centre.

Installation Guidelines for Celotex CG5000

- The wall ties used must be suitable for the structural requirements and incorporate a retaining clip to ensure that the insulation is held permanently in place. The insulation is fitted against the inner leaf of the wall.
- BBA-approved wall ties and clips should be used wherever possible. The advice of the wall tie manufacturers should be followed, but Celotex does not consider butterfly ties to be suitable for use with partial-fill cavity insulation.
- The first row of board-retaining wall ties should be installed at least one course below the damp proof course (DPC) and positioned at maximum 600mm centres horizontally, to provide a minimum support of two ties per 1200mm board.
- The second and subsequent rows of ties should be installed at 450mm centres vertically and maximum 900mm centres horizontally. Where required for structural purposes, it may be necessary to install ties at closer centres.
- Always ensure that each full or cut board is retained by no fewer than three ties around its perimeter.
- Fit the boards between the wall ties, and secure in place with a retaining clip on each tie. Ensure that horizontal and vertical joints are tightly butted to minimise heat loss.
- At openings such as doors and windows, use a proprietary insulated cavity closer.
- Where necessary, cut the boards to size using the Celotex Insulation Saw and straight edge.
- Where the cavity is closed at or below DPC level by a methane barrier membrane, use mechanical fixings to secure the board to the brickwork above the DPC. Avoid puncturing the gas barrier membrane.
- At internal (see Fig.1) and external (see Fig.2) angles, ensure that the thickness of the board continues around the angle and that sufficient wall ties are used.

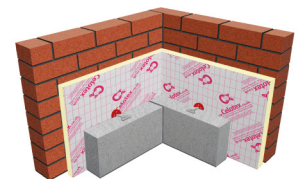


Fig. 1

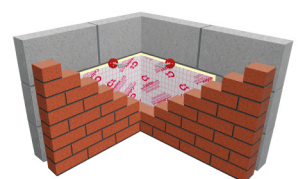


Fig. 2

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Gable walls

At gable walls (see Fig.3) it is recommended that Celotex CG5000 is taken up to the underside of the roof verges. In cold roof constructions, the product should extend at least 250mm above the ceiling insulation. The top edge of the insulation should be protected with a cavity tray.

Cavity fire barriers

The requirements of the Building Regulations relating to fire spread in cavity walls can be met in buildings of all purpose groups without the need for cavity barriers, provided the construction complies with the provisions detailed in: Approved Document B, Volume 1, Diagram 13; and Volume 2, Diagram 34. For further information please refer to Celotex BBA certificate 94/3080

Where cavity fire barriers are required by national building regulations, they should be installed in line with the manufacturer's instructions.

Cavity obstructions

Unavoidable projections into the cavity, such as floor edge beams and steel columns, need careful detailing and may require a horizontal cavity tray.

To comply with the requirement of the National House Building Council (NHBC) or Housing Association Property Mutual (HAPM), a minimum 50mm clear residual cavity should be provided.

For buildings up to 12m high, a minimum clear cavity width of 25mm may be acceptable, subject to exposure. The 25mm minimum constructed residual cavity width must be clear of all obstructions.

Installation Guidelines for Celotex GD5000 and Celotex GS5000

Installation guidelines for internal lining systems using dot and dab

- Ensure that existing walls are permeable. Strip any gloss paint or vinyl wallpaper.
- Use the Celotex Insulation Saw to cut the 1200mm x 2400mm Celotex GD5000 boards to fit the floor-to-ceiling height of the room.
- Ensure a continuous seal at skirting, ceiling level and at openings by applying a continuous band of gypsum adhesive. Gypsum adhesive at perimeter edges can be replaced with thin timber battens.
- Apply further dabs of gypsum adhesive. This should be in accordance with the adhesive manufacturer's instructions.
- Align sheets against the dabs and secure into correct position.
- Once the dabs are set, it is recommended that additional secondary fixings be applied to the Celotex GD5000. Exact fixing details should be in accordance with the recommendations of the fixing manufacturer.
- Joints between the boards must be tightly butted, taped and jointed using appropriate tape and jointing material to create the vapour control layer (VCL).
- Line window and door reveals with thinner Celotex GD5000 boards to reduce the risk of thermal bridging. Fix a batten around the edge of the opening and scribe the board to fit the reveal. Cut the dry lining to suit and mechanically fix into the masonry reveal using proprietary fixings. Finish using an angle fillet at the frame and an angle bead or scrim tape at external corners.
- Please note that to avoid the load being directly applied to the Celotex GD5000, suitable mechanical fixings should be used for other internal fittings. Advice on suitable fixings should be sought directly from the fixing manufacturer.
- Please note that where existing walls are subject to the ingress of excessive moisture, it is recommended that Celotex GD5000 should be installed using mechanical fixings rather than a direct bonding technique.

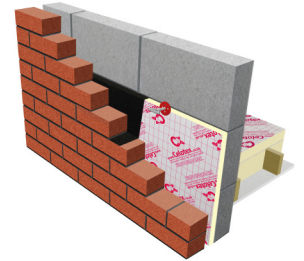


Fig. 3

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Installation guidelines for internal lining systems using mechanical fixings

- Ensure that existing walls are permeable. Strip any gloss paint or vinyl wallpaper.
- Use the Celotex Insulation Saw to cut the 1200mm x 2400mm Celotex GD5000/GS5000 boards to fit the floor-to-ceiling height of the room.
- Secure Celotex GD5000/GS5000 with suitable mechanical fixings. Fixing details should be in accordance with the fixing manufacturer's instructions.
- Joints between the boards must be tightly butted, taped and jointed using appropriate tape and jointing material to create the vapour control layer (VCL).
- Line window and door reveals with thinner Celotex GD5000/GS5000 boards to reduce the risk of thermal bridging. Fix a batten around the edge of the opening and scribe the board to fit the reveal. Cut the dry lining to suit and mechanically fix into the masonry reveal using proprietary fixings. Finish using an angle fillet at the frame and an angle bead or scrim tape at external corners.

Installation guidelines for internal lining systems using mechanical fixings to timber battens

- Celotex GS5000 is recommended for internal wall lining using mechanical fixings to timber battens to maximise thermal performance in cavity air spaces
- Ensure that existing walls are permeable. Strip any gloss paint or vinyl wallpaper.
- Fix treated softwood timber battens to the masonry. They should be set out a maximum of 600mm vertical centres to coincide with the edges of the boards. As a minimum requirement, horizontal battens should be used to support the top and bottom of the board edges.
- Secure Celotex GD5000/GS5000 with suitable mechanical fixings. Fixing details should be in accordance with the fixing manufacturer's instructions.
- Joints between the boards should be tightly butted and finished by taping and jointing using appropriate tape and jointing material to create the VCL.

Installation guidelines for internal lining systems using mechanical fixings to metal lining systems

- Celotex GS5000 is recommended for internal wall lining using mechanical fixings to metal lining systems to maximise thermal performance in cavity air spaces
- Celotex GD5000/GS5000 boards can be fixed to a number of proprietary metal frame lining systems. The system should be fixed in accordance with the manufacturer's instructions.

Certifications and Accreditations

Celotex CG5000 & GD5000/GS5000 are covered by BBA Agreement Certificate No 94/3080 & 12/4926. To download a copy of this certificate, visit the 'literature' pages of the website at celotex.co.uk

Further Information

If you wish to contact Celotex, please visit celotex.co.uk and click on the 'contact us' page.

For information regarding **storage, installation and handling** of Celotex products, or for **Health and Safety** advice, please refer to the 'literature' pages of the website at celotex.co.uk

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