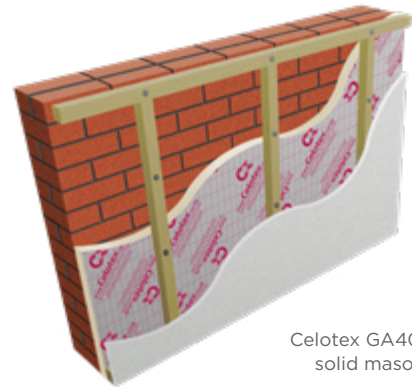


# Solid Masonry Wall - Internal Applications

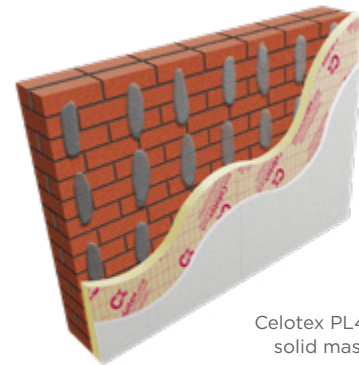
Use [Celotex GA4000](#) or [Celotex PL4000](#) high performance thermal insulation in [internal solid masonry wall applications](#) to minimise insulation thickness and give the following benefits:

- Reduces heat bridges formed by mortar joints
- Ideal where no wall cavity exists
- Provides reliable long term energy savings for buildings
- Low emissivity foil facers give improved thermal insulation performance within cavity air spaces
- Provides a vapour control layer (VCL) when board joints are taped
- Particularly suited to refurbishment projects

**Note: these solutions are only suitable with walls of at least 200mm thickness - for thinner walls, contact [Celotex](#) directly**



Celotex GA4000 in a solid masonry wall



Celotex PL4000 in a solid masonry wall

## Celotex GA4000 Technical Data

Thickness (mm)	R-value (m <sup>2</sup> K/W)	Maximum Board Weight (kg/m <sup>2</sup> )
GA4050	2.25	1.92
GA4060	2.70	2.26
GA4070	3.15	2.61
GA4075	3.40	2.78
GA4080	3.60	2.96
GA4090	4.05	3.31
GA4100	4.50	4.15

For product information for your project, please contact either our [technical team](#) or our [specification team](#).

## Celotex PL4000 Technical Data

Thickness (mm)	R-value (m <sup>2</sup> K/W)	Maximum Board Weight (kg/m <sup>2</sup> )
PL4015 + 12.5 <sup>†</sup>	0.70 <sup>‡</sup>	9.69 <sup>‡</sup>
PL4025 + 12.5 <sup>†</sup>	1.20 <sup>‡</sup>	9.99 <sup>‡</sup>
PL4040 + 12.5 <sup>†</sup>	1.85 <sup>‡</sup>	10.46 <sup>‡</sup>
PL4050 + 12.5 <sup>†</sup>	2.30 <sup>‡</sup>	10.96 <sup>‡</sup>
PL4060 + 12.5 <sup>†</sup>	2.75 <sup>‡</sup>	11.31 <sup>‡</sup>
PL4065 + 12.5 <sup>†</sup>	3.00 <sup>‡</sup>	11.48 <sup>‡</sup>

<sup>†</sup> 12.5mm tapered edge plasterboard is laminated to the insulation thickness  
<sup>‡</sup> insulation component only



We have an experienced team of energy assessors who can carry out SAP calculations, water calculations, airtightness testing and much more. [Contact us](#).



Celotex presents a comprehensive range of thermal bridging models featuring our PIR insulation products. This tool helps you identify the build-up required to reduce heat loss through a typical junction of elements or at openings. [Sign up now](#).

## Example U-value calculation: Dry Line Wall with Celotex GA4000

Construction	Thickness (mm)	
Outside surface resistance	-	
Brick	215	
Variable layer	See below	
Board joints sealed to create VCL & air leakage barrier	-	
Cavity (low emissivity) - 25 x 47 battens @ 600 ctrs	25	
Plasterboard	12.5	
Inside surface resistance	-	
Variable Layer	Thickness (mm)	U-value (W/m2K)
Celotex GA4000	50	0.30
Celotex GA4000	60	0.26
Celotex GA4000	70	0.23
Celotex GA4000	75	0.22
Celotex GA4000	80	0.21
Celotex GA4000	90	0.19
Celotex GA4000	100	0.18

## Example U-value calculation: Internal Solid Wall with Celotex PL4000

Construction	Dot & Dab	Direct Fix	Timber Battens	Metal Lining System	
Outside surface resistance	-	-	-	-	
Brick	215	215	215	215	
Cavity	15	-	25	25	
Variable layer	See below	See below	See below	See below	
Board joints sealed to VCL	-	-	-	-	
Plaster skim	-	-	-	-	
Inside surface resistance	-	-	-	-	
Variable Layer	Thickness (mm)	U-value (W/m2K)	U-value (W/m2K)	U-value (W/m2K)	U-value (W/m2K)
Celotex PL4000, joints taped as VCL	60 + 12.5†	0.30	-	0.29	0.30
Celotex PL4000, joints taped as VCL	65 + 12.5†	0.28	0.29	0.28	0.28

† 12.5mm tapered edge plasterboard is laminated to the insulation thickness

### U-value

For U-values see variable layer list, or for more options, refer to our online U-value calculator at [celotex.co.uk](http://celotex.co.uk)

## Installation Guidelines for Celotex GA4000

Celotex insulation boards should not be installed when the temperature is at or below 4°C and falling.

- Existing walls should be assessed to ensure they are of sound condition and are suitable to take the internal linings.
- Existing vinyl wallpaper and gloss paint should be removed leaving the wall surface clean and free from dust and loose materials.
- Ensure that the existing wall is dry with any remedial work undertaken to remove dampness before installation of insulation boards.
- Use the Celotex Insulation Saw to cut the 1200mm x 2400mm Celotex GA4000 boards to fit the floor-to-ceiling height of the room.
- For optimum thermal performance, the unprinted foil surface should face the batten cavity.
- Fix horizontal battens over the insulation at the top and bottom of the wall to hold the boards in place.
- Seal all board joints to create a vapour control layer (VCL) using the Celotex Insulation Tape.
- Add further vertical battens over the insulation at appropriate spacing to provide adequate fixings for the selected lining system. Ensure that a batten coincides with each lining board joint.
- Apply an appropriate sealant around the perimeter of the insulation to provide a vapour seal.
- Additional battens are required around all the openings to provide fixings for linings and grounds for skirtings etc. Battens should be minimum 50mm x 25mm treated softwood.
- The batten depth must be increased to take account of the conduit, if cabling is to be located within the cavity created by the battens.
- Use independent horizontal battens for heavy wall mounted components. Longer fixings may be necessary to fit heavy items to the masonry, independently of the battens.
- Line window and door reveals with thinner Celotex TB4000 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 Celotex PL4000

### Installation guidelines for internal lining systems using dot & dab

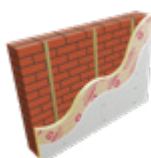
- Existing walls should be assessed to ensure they are of sound condition and are suitable to take the internal linings.
- Existing vinyl wallpaper and gloss paint should be removed leaving the wall surface clean and free from dust and loose materials.
- Ensure that the existing wall is dry with any remedial work undertaken to remove dampness before installation of insulation boards.
- Use the Celotex Insulation Saw to cut the 1200mm x 2400mm Celotex PL4000 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 PL4000. 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 PL4000 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 PL4000, suitable mechanical fixings should be used for other internal fittings. Advice on suitable fixings should be sought directly from the fixing manufacturer. corners.

### Installation guidelines for internal lining systems using mechanical fixings

- Existing walls should be assessed to ensure they are of sound condition and are suitable to take the internal linings.
- Existing vinyl wallpaper and gloss paint should be removed leaving the wall surface clean and free from dust and loose materials.
- Ensure that the existing wall is dry with any remedial work undertaken to remove dampness before installation of insulation boards.



Celotex PL4000 in a direct fix application



Celotex PL4000 in a timber batten application



Celotex PL4000 in a metal fix application

- Use the Celotex Insulation Saw to cut the 1200mm x 2400mm Celotex PL4000 boards to fit the floor-to-ceiling height of the room.
- Secure Celotex PL4000 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 PL4000 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

- Existing walls should be assessed to ensure they are of sound condition and are suitable to take the internal linings.
- Existing vinyl wallpaper and gloss paint should be removed leaving the wall surface clean and free from dust and loose materials.
- Ensure that the existing wall is dry with any remedial work undertaken to remove dampness before installation of insulation boards.
- 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.
- Galvanised clout nails or timber drywall screws should then be used to fix the boards to the battens. Specific advice on suitable fixings should be sourced directly from the fixings manufacturer.
- 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 PL4000 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.

Following the Independent Review of Building Regulations and Fire Safety (the Hackitt review), the UK government is considering changes to the Building Regulations. You should consult your building designer and Building Control Officer before specifying any particular product.

### Certifications and accreditations

Celotex products GA4000 and XR4000 are covered by BBA Agrément Certificate No [17/5405](#) and [16/5357](#). To download a copy of this certificate, visit the 'literature' pages on our website.

### Further information

If you wish to contact Celotex, please do so through the '[contact us](#)' page on our website.

For information regarding storage, installation and handling of Celotex products, or for health & safety information, please refer to our online 'literature' pages.

Celotex has a policy of continuous product development and reserves the right to alter product designs or specifications without prior notice.

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