Gyproc ThermaLine PIR

Keeping the warmth within; creating energy efficient homes

British Gypsum
SAINT-GOBAIN

Creating modern homes through large conversion projects

- Conversion of existing buildings can transform the old and outdated, into something that can quite literally take your breath away
- Creating a unique modern home by converting an old barn, school, chapel or church, requires lots of creativity and determination
- Brick or stone walls will invariably be of solid construction; therefore the addition of the insulation necessary will need to be to the internal face of the external walls

Extending, renovating or simply improving homes

- Where mortgage availability remains restricted and the ability, or desire to move is limited, the option of extending, converting or renovating is attractive to many homeowners

- Renovation or conversion of any kind breathes new life into an existing property and can enhance the value of a home for future investment purposes

- Energy price increases have made consumers more open to improve the efficiency of their homes. Around a third of the heat in an un-insulated home is lost through the walls; therefore insulating walls could cut heating costs considerably

Creating a warm additional living space

- Changes in lifestyle, including an increase in working from home and the need for home offices, extended families, and more recreational pursuits, all call for additional living space in our homes
- Between a quarter and a third of the volume in the average home is tucked away in the roof, or within integral garages. Some of this space may be used for storage, but it can also be turned into valuable extra living space
- Creating warm rooms through conversion of these previously uninhabited areas doesn't require an increase in the footprint of the home, and is often an ideal scenario

Building sustainable new homes for the future

- Around a quarter of the UK's current carbon emissions (about 150 million tonnes of carbon dioxide each year) arise from the way we heat, light and run our homes. Yet we need more homes, so it's imperative that new homes are built in a way to minimise the use of energy and reduce harmful carbon dioxide emissions
- We have both a responsibility and opportunity to build high standards of sustainability and energy efficiency into the homes that will be used in the future
- Our homes have the potential to affect our health, wealth and happiness. New homes that are well constructed, with an optimum standard of energy performance, will benefit from lower heating costs, reduced carbon dioxide (CO_2) emissions and greater comfort for its occupants

Why we need thermal insulation

The energy used in homes accounts for more than a quarter of energy use and carbon dioxide (CO_2) emissions in Great Britain. Therefore they're a key target in the fight against global warming.

Low energy heating and cooling systems, more efficient appliances and renewable energy are important in reducing emissions. However, it is increasingly recognised that optimum fabric insulation (walls, roof and floor) provides the essential base for any low energy construction.

Successive Building Regulations have gradually increased insulation standards and there is an ambitious target for new homes to achieve zero carbon rating from 2016. By bringing home extensions and improvements within the scope of Building Regulations, standards of insulation in existing homes are also being increased.

Voluntary schemes, like the Green Deal, allow existing homeowners to fund selected energy efficiency improvements, such as internal wall insulation, via energy bills. This will further drive demand for insulation.

On top of this, increasing 'green' pressures, and initiatives such as the BRE Environmental Assessment Method (BREEAM), are putting further emphasis on insulation standards as part of a broader sustainability agenda. BREEAM is the world's foremost environmental assessment method and rating system for buildings.

'Fabric First'

A highly insulated fabric is an essential first step for any low energy building. It reduces the need for radical design change and use of 'renewable' technologies, providing a reliable energy saving base that can be added-to as new technologies develop. It provides a way of 'future-proofing' any development – keeping pace with inevitable rises in building standards whilst providing optimum energy and cost savings from day one.

Why British Gypsum?

We're the experts in internal lining, with nearly 100 years worth of experience in providing solutions for all types of buildings.

We go out of our way to ensure that every British Gypsum system provides the highest level of quality and performance to fully meet your requirements. We then make sure that you have all the technical support you need to advise, both for you and your client.

We'll help with design, detailing and installation guidance and then provide a meaningful warranty that the system will perform, as expected, throughout its installed life.

We've got the UK's best training facilities, best instructors and our courses have been designed in conjunction with leading trade and industry bodies to ensure that we are teaching the skills needed on site.

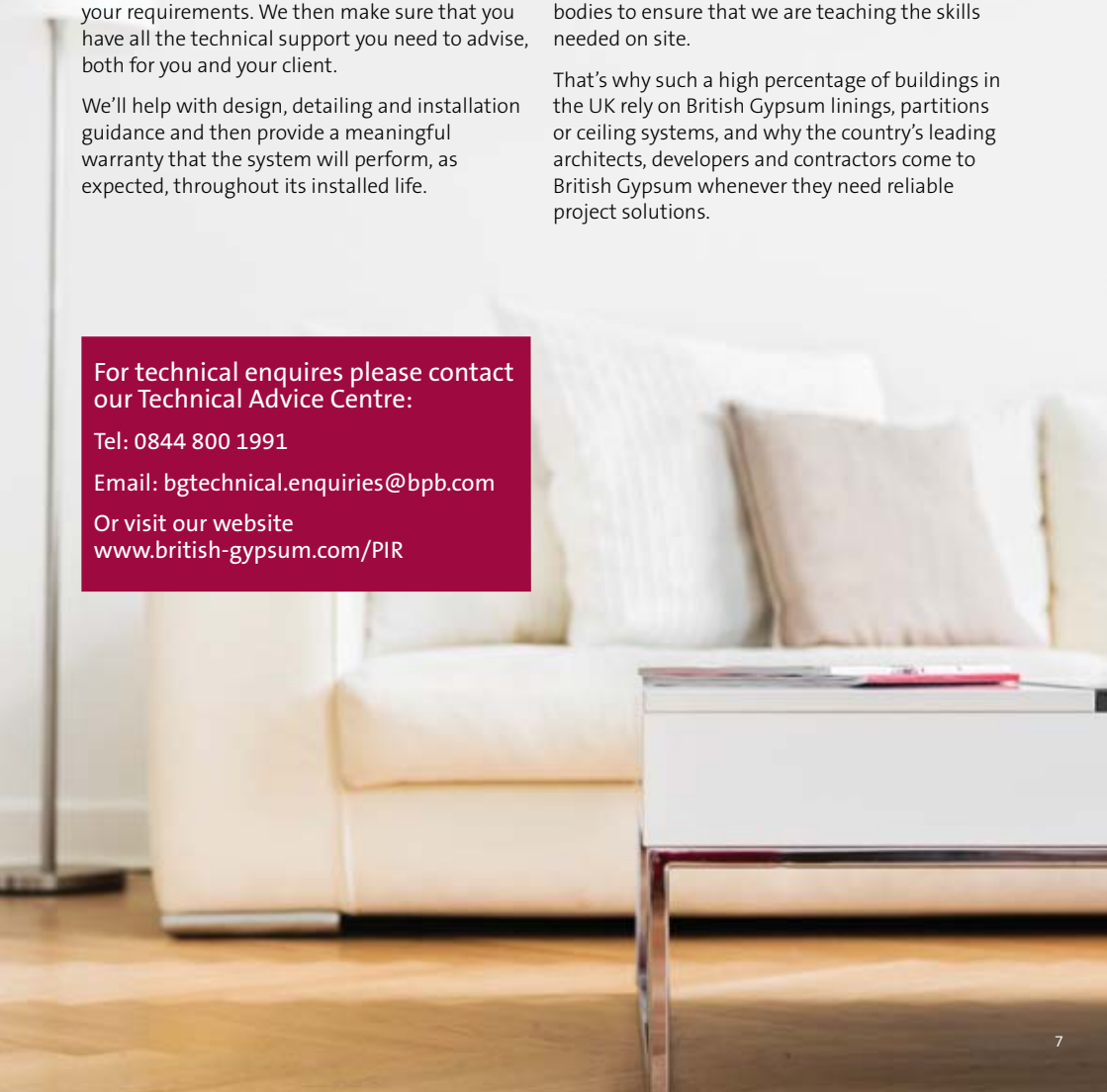
That's why such a high percentage of buildings in the UK rely on British Gypsum linings, partitions or ceiling systems, and why the country's leading architects, developers and contractors come to British Gypsum whenever they need reliable project solutions.

For technical enquires please contact our Technical Advice Centre:

Tel: 0844 800 1991

Email: bgtechnical.enquiries@bpb.com

Or visit our website www.british-gypsum.com/PIR



Why internal lining?

Around 35% of heat is lost through un-insulated walls – for a little extra cost this figure can be dramatically reduced.

Putting the insulation layer inside the main structure has many benefits. Walls feel warmer to the touch and respond faster to heating, so rooms become comfortable quicker. As a continuous internal layer they prevent thermal downgrading from cold bridging and can be used in conjunction with cavity insulation to achieve very high insulation standards.

Thermal laminates are great for topping-up existing insulation or, as combination solutions, meeting demanding thermal Building Regulation in new buildings. They're especially good for room-in-the-roof constructions and are the most viable insulation solution for the UK's 7 million older solid-walled homes – one of our biggest insulation challenges.

Thermal laminates give the best of both worlds; insulation and a new high quality lining, fitted together. They are simple to fit and cost effective, keeping rooms warm in the winter and cool in the summer.

New Gyproc ThermaLine PIR

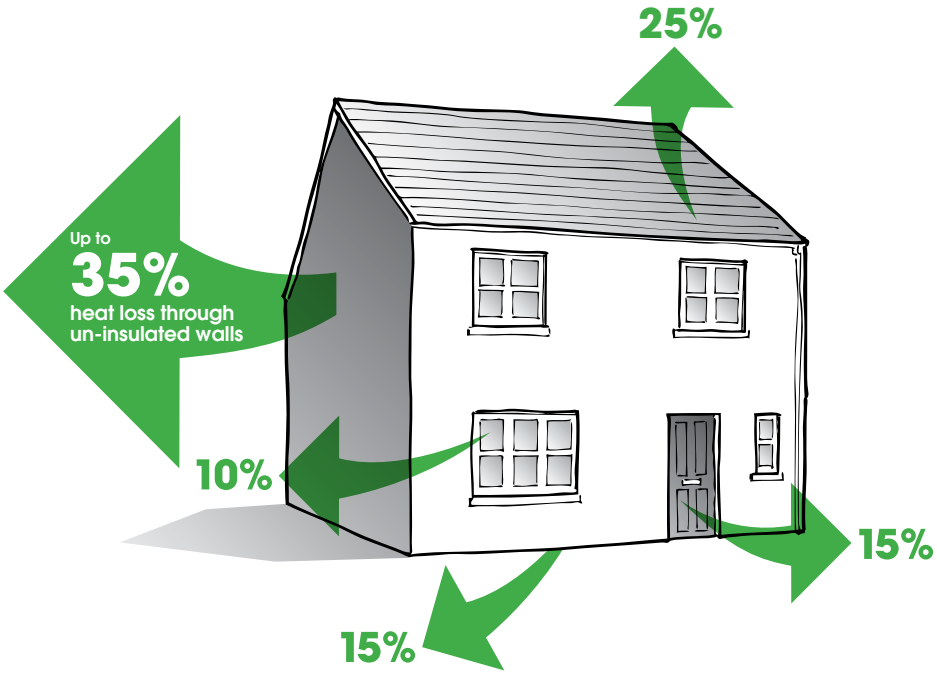
The latest addition to the ThermaLine range packs enhanced performance into a lower thickness, without costing the earth. Save energy, save space, save money – it couldn't be simpler.

Highly efficient PIR foam and 12.5mm Gyproc plasterboard are a winning combination. The closed cell PIR foam is rigid and lasts the building life – no shrinkage or degrading. The multi-layer membrane on both faces of the insulation controls moisture and provides excellent adhesion for dot and dab fixing to masonry walls.

Because it provides more thermal performance at lower thicknesses than standard laminates it also saves room space, or can be used to provide higher thermal standards at the same thickness.

The facts:

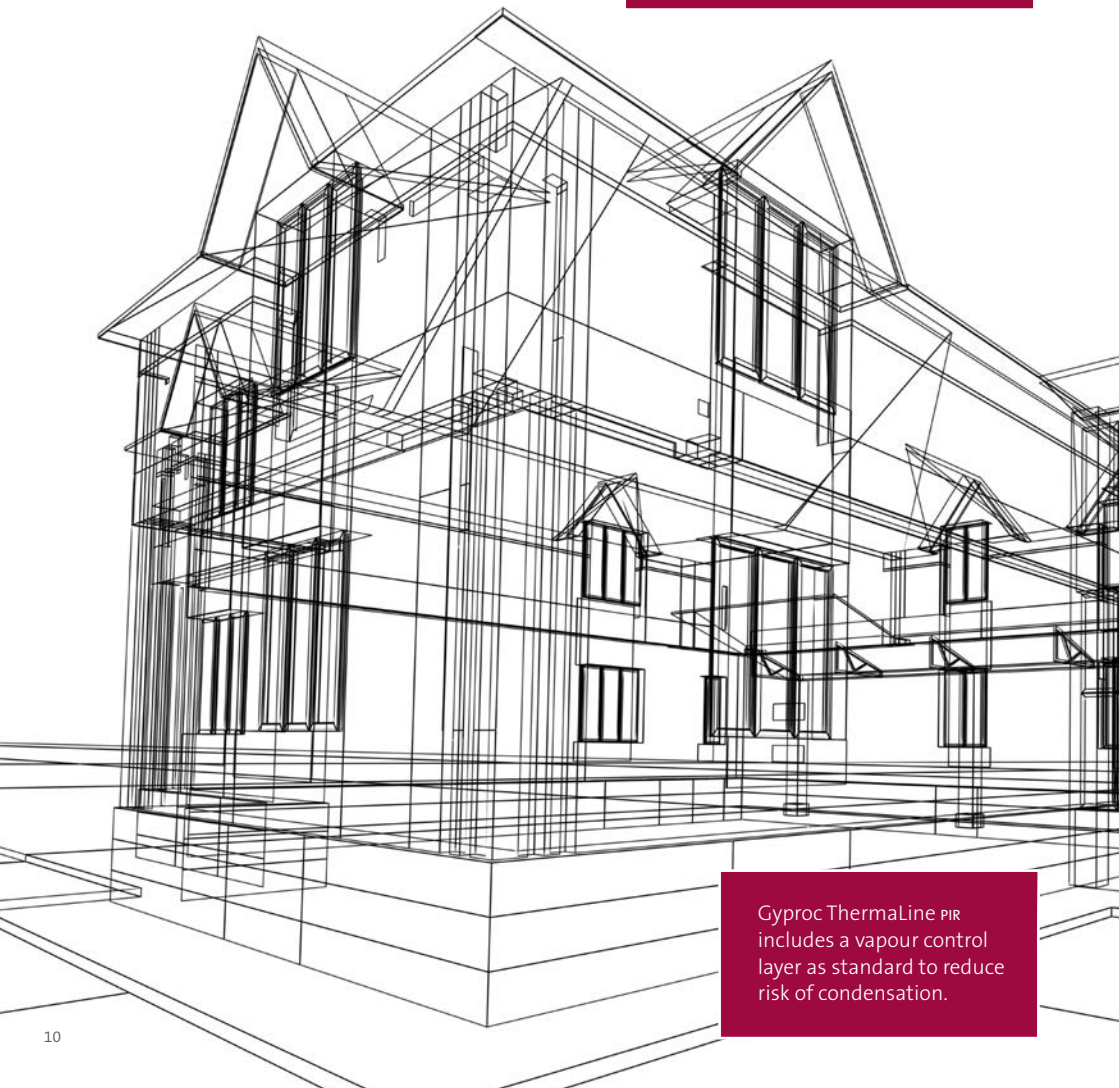
- A cost effective superior performance board
- Compatible with British Gypsum systems and covered by our **SpecSure®** guarantee
- British Gypsum systems allow compatibility with all backgrounds and framing solutions



Delivering high performing solutions

The new range of Gyproc ThermaLine PIR laminates, with sizes ranging from 38mm to 93mm, provides the perfect way to enhance thermal insulation for both new and existing buildings, whilst fixing in one simple operation.

Gyproc ThermaLine PIR is also available as a moisture resistant variant, which incorporates water repellent additives in the plasterboard core and paper liners, for use within bathrooms and kitchens.



Gyproc ThermaLine PIR includes a vapour control layer as standard to reduce risk of condensation.

Gyproc ThermaLine PIR is installed as part of the DriLyner and GypLyner lining systems from British Gypsum, providing a simple and effective technique for drylining brick, block, stone and concrete walls in both new-build homes and refurbishment projects.

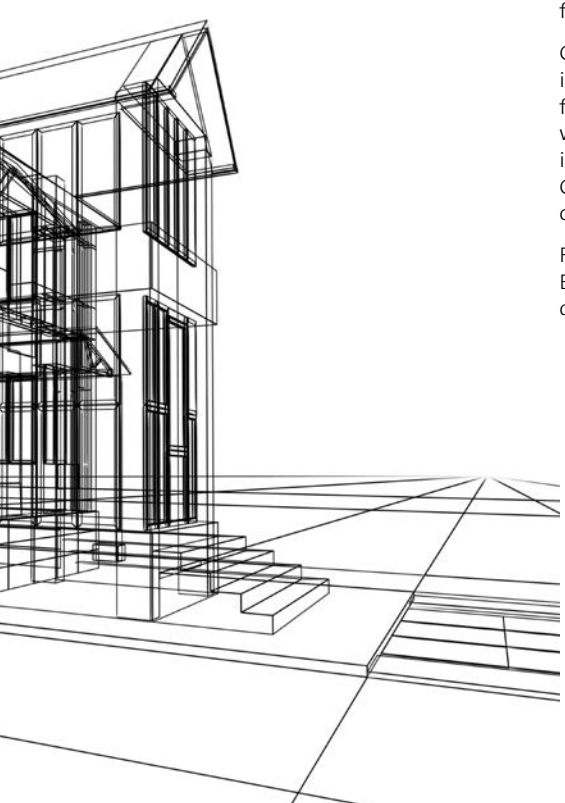
The DriLyner TL system uses Gyproc Dri-Wall Adhesive dabs to bond ThermaLine PIR laminates directly to the wall. The cavity between Gyproc ThermaLine PIR and the background can be used to incorporate services; however the insulating backing should not be chased to accommodate services.

The DriLyner RF system provides a method of fixing ThermaLine PIR laminates directly to solid walls using blobs of Gyproc Sealant. Backgrounds for DriLyner RF must be sound and flat, e.g. existing plastered walls or level brick, block or fair-faced concrete.

GypLyner UNIVERSAL wall lining is a virtually independent metal frame system suitable for all internal non-loadbearing applications where wall surface quality is poor, or a cavity is required to accommodate services. Use the GypLyner UNIVERSAL lining if a cavity thickness over 25mm is required.

For full installation details, refer to the British Gypsum **SITE BOOK**, available to download from: www.british-gypsum.com

Gyproc ThermaLine PIR incorporates 12.5mm Gyproc WallBoard to provide additional fire and acoustic performance, where it's required, for example within room-in-the-roof applications.



Creating modern homes through conversion or renovation of existing buildings, or material alterations to existing homes

Existing construction plastered 215mm brick external wall

To upgrade:

- Ensure the background is dry and completely weathertight
- Install DriLyner RF directly to existing plastered walls subject to suitability of background
- Or GypLyner UNIVERSAL can be used where wall surface quality is poor or uneven, or a cavity is required to accommodate services
- Fix Gyproc ThermaLine PIR incorporating integral vapour control layers

Performance table (U-value W/m²K)

Gyproc ThermaLine PIR thickness (mm)	DryLyner RF wall lining	GypLyner UNIVERSAL wall lining
38	0.60	0.56
53	0.42	0.42
63	0.36	0.36
78*	0.29	0.29
93*	0.24	0.25

*Available later in the year. For more information visit www.british-gypsum.com

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Creating modern homes through conversion or renovation of existing buildings, or material alterations to existing homes

Existing construction plastered 400mm limestone or sandstone external wall

To upgrade:

- Ensure the background is dry and completely weathertight
- Install DriLyner RF directly to existing plastered walls, subject to suitability of background
- Or GypLyner UNIVERSAL can be used where wall surface quality is poor or uneven, or a cavity is required to accommodate services
- Fix Gyproc ThermaLine PIR incorporating integral vapour control layers

Performance table (U-value W/m²K)

Gyproc ThermaLine PIR thickness (mm)	DryLyner RF wall lining	GypLyner UNIVERSAL wall lining
38	0.63	0.59
53	0.44	0.43
63	0.37	0.37
78*	0.29	0.30
93*	0.25	0.25

*Available later in the year. For more information visit www.british-gypsum.com

Converting an integral garage into warm habitable living space

Existing construction-bare-faced 215mm brick external wall

To upgrade:

- Ensure the background is dry and completely weathertight
- Install DriLyner TL, subject to suitability of background
- Or GypLyner UNIVERSAL can be used where wall surface quality is poor or uneven, or a cavity is required to accommodate services
- Fix Gyproc ThermaLine PIR incorporating integral vapour control layers

Performance table (U-value W/m²K)

Gyproc ThermaLine PIR thickness (mm)	DryLyner TL wall lining	GypLyner UNIVERSAL wall lining
38	0.59	0.57
53	0.42	0.43
63	0.35	0.36
78*	0.28	0.29
93*	0.24	0.25

*Available later in the year. For more information visit www.british-gypsum.com

Converting loft space to create additional living space

Existing construction – tiled or slated roof on tiling battens, sarking felt and 50mm ventilated cavity, and timber stud walls

To upgrade:

- Install 100mm Isover Frame Batt 35 between the rafters and within timber stud walls
- Fix Gyproc ThermaLine PIR incorporating integral vapour control layer to sloping ceiling softwood rafters and timber stud walls

Performance table (U-value W/m²K)

	Ceiling lining		Wall lining
Gyproc ThermaLine PIR thickness (mm)	150mm x 38mm rafters at 600mm centres	150mm x 50mm rafters at 400mm centres	100mm timber stud
38	0.26	0.28	0.28
53	0.22	0.24	0.23
63	0.20	0.22	0.21
78*	0.18	0.19	0.19
93*	0.16	0.17	0.17

*Available later in the year. For more information visit www.british-gypsum.com

Incorporating warm roofs in new homes to create additional living space

Construction of a room-in-the-roof

- Tiled or slated roof on tiling battens on breather membrane
- 150mm Isover Frame Batt 35 between the rafters and within timber stud walls
- Gyproc ThermaLine PIR, incorporating integral vapour control layer, to sloping ceiling softwood rafters and timber stud walls

Performance table (U-value W/m²K)

	Ceiling lining		Wall lining
Gyproc ThermaLine PIR thickness (mm)	**150mm x 38mm rafters at 600mm centres**	**150mm x 50mm rafters at 400mm centres**	**100mm timber stud**
38	0.20	0.21	0.22
53	0.17	0.19	0.19
63	0.16	0.18	0.17
78*	0.14	0.16	0.15
93*	0.14	0.15	0.14

*Available later in the year. For more information visit www.british-gypsum.com

Creating modern, energy efficient new homes

Construction of timber frame buildings

- 103mm brick
- 50mm clear cavity
- Breather membrane
- 9mm OSB breathing board
- Timber studs
- Gyproc ThermaLine PIR incorporating integral vapour control layers

Performance table (U-value W/m²K)

Gyproc ThermaLine PIR thickness (mm)	90mm timber studs with 90mm Isover Frame Batt 32	140mm timber studs with 140mm Isover Frame Batt 32
38	0.26	0.20
53	0.22	0.18
63	0.20	0.16
78*	0.18	0.15
93*	0.16	0.13

*Available later in the year. For more information visit www.british-gypsum.com

Creating warm, comfortable rooms which adjoin unheated spaces

Construction of block wall

- Single skin block wall
- Includes R-value for the unheated space (Ru) of 0.25 m^2 K/W (this could vary depending upon the exact situation)
- Gyproc ThermaLine PIR incorporating vapour control layer, to warm room walls which adjoin unheated spaces

Performance table (U-value W/m^2K)

Gyproc ThermaLine PIR thickness (mm)	100mm block 0.11 W/mK	140mm block 0.11 W/mK	140mm block 0.47 W/mK
38	0.41	0.37	0.51
53	0.32	0.29	0.38
63	0.28	0.26	0.32
78*	0.23	0.22	0.26
93*	0.20	0.19	0.22

*Available later in the year. For more information visit www.british-gypsum.com

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Creating modern, energy efficient new homes

Construction of traditional masonry buildings

- 103mm brick
- 100mm cavity with 100mm Isover CWS
- 100mm blocks
- Gyproc Soundcoat Plus to limit air leakage and the resulting heat loss
- Gyproc ThermaLine PIR incorporating integral vapour control layers

Performance table (U-value W/m^2K)

Gyproc ThermaLine PIR thickness (mm)	Block 0.11 W/mK	Block 0.47 W/mK
38	0.18	0.20
53	0.16	0.18
63	0.15	0.17
78*	0.14	0.15
93*	0.13	0.14

*Available later in the year. For more information visit www.british-gypsum.com

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EMS 543324 FM 52358

Technical enquiries
British Gypsum
Technical Advice Centre
East Leake
Loughborough
Leicestershire
LE12 6HX

Telephone: 0844 800 1991
Fax: 0844 561 8816

Email: bgtechnical.enquiries@bpb.com

Training enquiries: 0844 561 8810
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