

British Gypsum internal wall insulation systems

GypLyner Single insulated dry lining system

British Board of Agrément Certificate No. 13/5016



Saint-Gobain Construction Products UK Limited
trading as British Gypsum

Head Office
East Leake
Loughborough
Leicestershire, LE12 6HX

Tel: 0844 800 1991 Fax: 0844 561 8816

e-mail: bgtechnical.enquiries@bpb.com

website: www.british-gypsum.com



Agrément Certificate

13/5016

Product Sheet 5

BRITISH GYPSUM INTERNAL WALL INSULATION SYSTEMS

GYPLYNER SINGLE INSULATED DRY LINING SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the GyPLYNER SINGLE Insulated Dry Lining System, comprising Gyproc ThermaLine PIR insulated plasterboard. The system is for use, with height restrictions in some cases, as an internal insulated dry lining for external masonry walls in new or existing domestic and non-domestic buildings. The system is attached to the existing wall using mechanical fixings on a metal frame.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Thermal performance — the insulation component of the system has a declared thermal conductivity value (λ_D) of 0.022 W·m⁻¹·K⁻¹ (see section 6).

Condensation — the system can contribute to limiting the risk of surface condensation; however, the risk of interstitial condensation should be assessed for each case (see section 7).

Behaviour in relation to fire — Gyproc ThermaLine PIR insulated plasterboard has a reaction to fire classification of B-s1, d0 to BS EN 13501-1 : 2018 and its use is restricted in some cases (see section 8).

Durability — the system is durable, rot proof and sufficiently stable to remain effective for the life of the building (see section 14).

The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 24 March 2022

Hardy Giesler
Chief Executive Officer

The BBA is a UKAS accredited certification body – Number 113.

*The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.*

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

©2022

Regulations

In the opinion of the BBA, the GypLyner SINGLE Insulated Dry Lining System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B2(1)	Internal fire spread (linings)
Comment:	The system is unrestricted under this Requirement. See section 8.1 of this Certificate.	
Requirement:	B3(4)	Internal fire spread (structure)
Comment:	The system can contribute to satisfying this Requirement. See section 8.2 of this Certificate.	
Requirement:	B4(1)	External fire spread
Comment:	The system is restricted by this Requirement. See sections 8.1 and 8.3 of this Certificate.	
Requirement:	C2(c)	Resistance to moisture
Comment:	The system can contribute to satisfying this Requirement. See sections 7.1, 7.2 and 7.6 of this Certificate.	
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:	The system can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.	
Regulation:	7(1)	Materials and workmanship
Comment:	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.	
Regulation:	7(2)	Materials and workmanship
Comment:	The system is restricted under this Regulation. See sections 8.1 and 8.3 of this Certificate.	
Regulation:	26	CO₂ emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:	The system can contribute to satisfying these Regulations, but compensating fabric and/or services measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.	



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.	
Regulation:	9	Building standards applicable to construction
Standard:	2.4	Cavities
Comment:	The system can contribute to satisfying this Standard, with reference to clause 2.4.2 ⁽¹⁾⁽²⁾ . See section 8.2 of this Certificate.	
Standard:	2.5	Internal linings
Comment:	The system is unrestricted by this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See sections 8.1 and 8.4 of this Certificate.	

Standard: Comment:	3.15	Condensation The system can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See sections 7.1, 7.2 and 7.7 of this Certificate.
Standard: Comment:	6.1(b)	Carbon dioxide emissions The system can contribute to satisfying clauses, or parts of, 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.3 ⁽¹⁾ , 6.1.4 ⁽¹⁾ , 6.1.6 ⁽¹⁾⁽²⁾ and 6.1.8 ⁽²⁾ of this Standard, but compensating fabric and/or service measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.
Standard: Comment:	6.2	Building insulation envelope The system can contribute to satisfying clauses, or parts of, 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.6 ⁽¹⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ of this Standard, but compensating fabric and/or service measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.
Standard: Comment:	7.1(a)(b)	Statement of sustainability The system can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 [Aspects ⁽¹⁾⁽²⁾]. See section 6.1 of this Certificate.
Regulation: Comment:	12	Building standards applicable to conversions Comments in relation to the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation: Comment:	23	Fitness of materials and workmanship The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	29	Condensation The system can contribute to satisfying this Regulation. See sections 7.1 and 7.2 of this Certificate.
Regulation: Comment:	34	Internal fire spread — linings The system is unrestricted under this Regulation. See section 8.1 of this Certificate.
Regulation: Comment:	35(4)	Internal fire spread - structure The system can contribute to satisfying this Regulation. See sections 8.2 and 8.4 of this Certificate.
Regulation: Regulation: Comment:	39(a)(i) 40(2)	Conservation measures Target carbon dioxide emission rate The system can contribute to a building satisfying these Regulations but compensating fabric and/or service measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.3) and 17 *General* (17.8) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, the GypLyner SINGLE Insulated Dry Lining System, if installed, used and maintained in accordance with this Certificate, and provided the bonded plasterboard facing is a minimum of 12.5 mm thick, with the product mechanically fixed back to the structure - can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls* and 9.2 *Wall and ceiling finishes*.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the Gyproc ThermaLine PIR insulated plasterboard in accordance with Designated Standard EN 13950 : 2014.

Technical Specification

1 Description

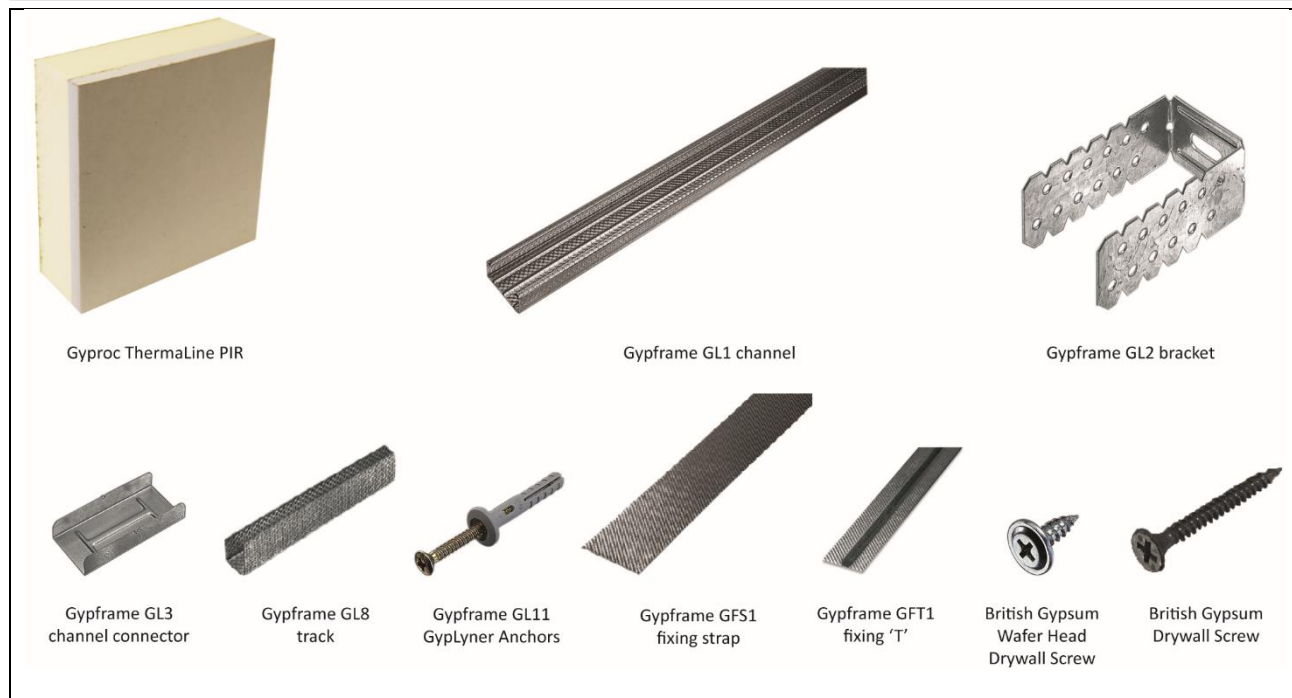
1.1 The GypLiner SINGLE Insulated Dry Lining System consists of Gyproc ThermaLine PIR insulated plasterboard, mechanically fixed to the Gypframe metal frame (see Figure 1).

1.2 Gyproc ThermaLine PIR insulated plasterboard comprises Gyproc WallBoard plasterboard⁽¹⁾, bonded to a polyisocyanurate (PIR)⁽²⁾ insulation board which has a composite foil/kraft paper facing on both sides.

(1) Manufactured to comply with the requirements of BS EN 520 : 2004.

(2) Manufactured to comply with the requirements of BS EN 13165 : 2012.

Figure 1 GypLiner SINGLE — system components



1.3 The boards are available with the nominal characteristics shown in Table 1.

Table 1 Nominal characteristics of Gyproc ThermaLine PIR

Characteristic (unit)	Gyproc ThermaLine PIR
Length (mm)	2400
Width (mm)	1200
Insulation thickness (mm)	25 to 80
Thickness of plasterboard (mm)	12.5
Edge profile of the insulated dry lining	Tapered
Minimum compressive strength for the insulation at 10% compression (kPa)	140

1.4 The Gypframe metal frame components are shown in Figure 1 and listed in Table 2.

Table 2 Gypframe metal frame components

Product code	Application	Length (mm)
GL1	Gypframe Lining Channel (vertical channel for board fixing)	2400, 2700, 3000, 3600
GL2	Gypframe Bracket	195 (flat)
GL3	Gypframe Track (floor and ceiling track, for fixing vertical GL1 Channels to)	—
GL8	Gypframe Track (floor and ceiling track, for fixing vertical GL1 Channels to)	3600
GL11	GypLynr Anchors (for fixing GL2 brackets to masonry walls)	—
GFS1	Gypframe Fixing Strap	2400
GFT1	Gypframe Fixing 'T'	2400
—	British Gypsum Wafer Head Drywall Screws (for fixing metal components of combined total thickness ≤ 0.79 mm)	—
—	British Gypsum Drywall Screws (for fixing Gyproc ThermaLine PIR boards to a metal frame ≤ 0.79 mm thick)	—

1.5 Ancillary items for use with the system, which are outside the scope of this Certificate, include:

- Gypframe 99 FC 50 Fixing Channel
- Gypframe Service Support Plate
- British Gypsum joint tape and jointing compound or plaster for skim coat.

2 Manufacture

2.1 Gyproc WallBoards are factory bonded to the chosen insulation. The Gypframe metal components are manufactured using conventional techniques to controlled specifications.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of the Certificate holder has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015, BS EN ISO 14001 : 2015 and BS ISO 45001 : 2018 by BSI (Certificates FM550533, EMS 543324 and OHS 550586 respectively).

3 Delivery and site handling

3.1 The boards are delivered to site in polythene-wrapped packs on pallets. Each board has the manufacturing code printed on the surface and each pack contains a label bearing the Certificate holder's name, product description and manual handling advice. The larger metal frame components are delivered in packs of ten, with smaller items in boxes of between 50 and 1000 units.

3.2 The boards must be protected from prolonged exposure to sunlight and moisture, and should be stored inside, under cover and protected with opaque polythene sheeting. The boards should be stacked flat, and raised above ground level (to avoid contact with ground moisture).

3.3 Care must be taken when handling the boards to avoid crushing the edges or corners. The boards must not be exposed to open flame or other ignition sources, or to solvents or other chemicals. If damaged or wet, the products should be discarded.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the GypLyner SINGLE Insulated Dry Lining System.

Design Considerations

4 Use

4.1 The GypLyner SINGLE Insulated Dry Lining System is satisfactory for use as an internal insulating dry lining system to improve the thermal insulation of solid or cavity masonry walls of new or existing, domestic and non-domestic buildings. The steel frame and track are attached directly to the masonry wall (see section 18). The system should be installed in accordance with the Certificate holder's instructions and this Certificate.

4.2 The system may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks. It is essential that such walls are constructed taking account of the local wind-driven rain index.

4.3 Walls should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 and their respective UK National Annexes
- BS 8000-3 : 2001.

4.4 The system is not intended to offer resistance to rain penetration; walls, therefore, must already be rain resistant and show no signs of water ingress, rain penetration or damp from ground moisture, and be at least two bricks or 200 mm in thickness.

4.5 It is essential that the boards are butted as close as possible, to minimise any gaps between them (see section 17 of this Certificate).

4.6 Services which penetrate the dry lining, eg light switches and power outlets, should be kept to a minimum to limit damage to vapour checks. All perimeters of the board, around service penetrations, openings, junctions and around the perimeter of suspended timber floors must be sealed with a suitable sealant.

4.7 It is essential that proper care and attention is given to maintaining the integrity/continuity of the insulation and facings.

4.8 With installations that form a void of 20 mm or more, services can be incorporated behind the dry lining, making the chasing of the wall unnecessary. Where the services have a greater depth than the void, the wall should be chased rather than the insulation. Suitable isolation methods, such as conduit or capping, must be used to ensure cables do not come into contact with the insulation.

4.9 The installation of the system requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. Thinner boards should be selected to suit site-specific door and window reveal conditions. All work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills and in relation to ceiling height. Where the dimensions of fixtures are critical (eg bathrooms), they should be checked before installation.

4.10 If present, mould or fungal growth should be treated prior to the application of the system.

5 Practicability of installation

The system is designed to be installed by a competent general builder, or a contractor, experienced with this type of system.

6 Thermal performance



6.1 Calculations of thermal transmittance (U value) of a specific construction using insulated dry lining should be carried out in accordance with BS EN ISO 6946 : 2017, BRE Report BR 443 : 2019 and BRE Digest 465 : 2002, using the declared thermal conductivity (λ_D) value of $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and a default emissivity of 0.9 for the insulation component of ThermaLine PIR, and a default value of $0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the 12.5 mm plasterboard.

6.2 The U value of a completed wall construction will depend on the insulation thickness, number and type of fixings, the insulating value of the substrate masonry and its internal finish. Calculated U values for example wall constructions are given in Table 3. For improved thermal/carbon emissions performance, the designer should consider additional fabric and/or services measures.

Table 3 Example U values for walls

Target U value for lining to walls ⁽¹⁾ ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)	ThermaLine PIR thickness requirement ⁽¹⁾ (mm)	
	<u>Retrofit</u> 215 mm brickwork ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) & 13 mm plaster ($\lambda = 0.57 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)	<u>New Build</u> 15 mm render ($\lambda = 1.0 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) & 200 mm dense blockwork ($\lambda = 1.75 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)
0.17	— (2)	— (2)
0.18	— (2)	— (2)
0.20	— (2)	— (2)
0.21	— (2)	— (2)
0.22	— (2)	— (2)
0.23	— (2)	— (2)
0.25	— (2)	— (2)
0.26	— (2)	— (2)
0.27	93	— (2)
0.28	93	93
0.30	93	93
0.35	78	78

(1) Product installed on an 18 mm steel lining channel and bracket system (ignored for purpose of calculation) (18mm air cavity $R = 0.180 \text{ m}^2\cdot\text{K}^{-1}\cdot\text{W}$), using 10.76 steel ($\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) Gyproc drywall screws per square metre with a cross-sectional area of 10.46 mm^2 .

(2) See section 6.2.

Junctions

6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

7 Condensation

Interstitial condensation



7.1 Walls incorporating the system will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2021.

7.2 A condensation risk analysis of the specific construction should be undertaken to BS EN ISO 13788 : 2012 and BS 5250 : 2021, using the water vapour transmission values for each component given in Table 4 of this Certificate.

Table 4 Water vapour transmission values

Insulation Product	Material	Thickness (mm)	Water vapour resistance ($\text{MN}\cdot\text{s}\cdot\text{g}^{-1}$)	Water vapour resistivity ($\text{MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$)
ThermaLine PIR	Composite foil / kraft paper facing both sides	-	4000	-
	PIR foam core	25 to 80	—	300
	Plasterboard	12.5	-	50

7.3 The risk of summer condensation on the foil component must be considered for solid masonry walls oriented from ESE through south to WSW, in accordance with BRE Report BR 262 : 2002, section 3.10.

7.4 Where calculations to BS 5250 : 2021 indicate a risk of persistent condensation, a site-specific dynamic analysis to BS EN 15026 : 2007 should be considered.

7.5 Provided all joints between the system are sealed (see section 4.5 and the *Installation* part of this Certificate) in accordance with the Certificate holder's instructions, the system can offer a significant resistance to water vapour transmission.

Surface condensation



7.6 Walls incorporating the system will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in section 6.3 of this Certificate.



7.7 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point. Guidance may be obtained from BS 5250 : 2021 and BRE Report BR 262 : 2002.

8 Behaviour in relation to fire



8.1 Gyproc ThermaLine PIR insulated plasterboard has a reaction to fire classification⁽¹⁾ of B-s1, d0 to BS EN 13501-1 : 2018.

(1) BRE Global Classification Report : BRE Q100947 – 1011 Issue 2 27.02.20. A copy may be obtained from the Certificate holder.

8.2 The Certificate holder has not declared a reaction to fire classification for the reverse side and so where this forms the face of an internal cavity, the cavity should be subdivided with cavity barriers in accordance with the requirements of the documents supporting the national Building Regulations.



8.3 In England and Wales, this system should not be used on buildings with a storey more than 18 m above the ground but may be used on buildings at any proximity to a boundary.



8.4 In Scotland and Northern Ireland, the use of the system is unrestricted by the national Building Regulations in terms of height and proximity to a boundary.

9 Proximity of flues and appliances

Detailed guidance can be found in the documents supporting the national Building Regulations for the provisions that are applicable when the system is installed in close proximity to certain flue pipes and/or heat-producing appliances.

10 Materials in contact — wiring installations

10.1 As with any form of installation, de-rating of electrical cables should be considered where the insulation restricts the air cooling of cables.

10.2 Electrical cables that are likely to come into contact with the insulation component of the thermal liner are required to be protected by a suitable conduit or PVC-U trunking. The installation of electrical services must be carried out in accordance with BS 7671 : 2018.

11 Infestation

Use of the system does not in itself promote infestation. The creation of voids within the structure (for example, gaps between the wall lining and the system) may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure, wherever possible, that all voids are sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

12 Wall-mounted fittings

The recommendations of the Certificate holder must be followed. Any objects fixed to the wall, other than lightweight items, are outside the scope of this Certificate.

13 Maintenance

If the system is damaged during use, it can be readily removed and replaced.

14 Durability



The durability of the system is satisfactory. Provided it is fixed to a satisfactory stable and durable substrate, the system will have a life equal to the building in which it is installed. Under normal conditions of occupancy it is unlikely to suffer damage, but if damage does occur, the system can be repaired or replaced.

15 Reuse and recyclability

Gyproc WallBoard and Gyproc ThermaLine PIR can be recycled using the British Gypsum Plasterboard Recycling Scheme (PRS). Gyproframe metal components are widely recycled.

Installation

16 Pre-installation survey

16.1 The Certificate holder's instructions must be followed.

16.2 A detailed survey of the property should be carried out before work starts. The walls must be made good if required and be dry and structurally sound with no evidence of damp, contamination or frost damage, before the system and its ancillary items are installed.

16.3 The survey should include a detailed examination of the internal and external fabric of the building, ensuring that any leaking external pipework and blocked gutters are made good. The efficiency, type and continuity of existing damp-proof course materials (if any) should be checked. For existing buildings where there is no dpc, the requirement for one must be determined.

16.4 The suitability of projecting window sills, verge and eaves overhangs should be checked. Mortar joints should also be examined and repointed, if required.

16.5 The existing ventilation provision should be assessed and updated if necessary.

16.6 There should be no gaps at the perimeter (such as floors and ceilings) or junctions (such as internal corners), or around openings or service penetrations. Existing gaps should be sealed before installation commences.

16.7 A detailed inspection of existing timbers for dry or wet rot and insect attack should also be carried out, eg the timber floor joists. Existing metal studs or joists should be inspected for corrosion. Decayed timbers or corroded metal must be replaced before installation commences.

17 General

17.1 A qualified plumber is required to make alterations to heating systems. A qualified electrician must be used to make good the electrical wirings and services.

17.2 The building should be examined for the following:

- suitability of substrate
- detailing around windows and doors
- position and numbers of electrical sockets and switches
- wall fittings and fixtures — including coving and skirting
- areas where flexible sealants must be used
- ventilation plates.

17.3 Before starting to fit the system, the position of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All plaster coving, skirting board and laminate floor angle bead must be removed.

17.4 Before fixing the system, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out (information is given in BS 6576 : 2005 for dry lining in conjunction with a chemical dpc application).

17.5 Care must be taken when exposing electrical cables (see section 10).

17.6 All insulated dry lining installations require careful planning and setting out. Installation should start from an internal corner or a window or door reveal, and vertical chalk guidelines should be marked on the wall at 1200 mm centres to indicate the positioning of the boards. Installation should be in accordance with BS 8212 : 1995, good dry lining practice and the Certificate holder's instructions. Typical installation methods are shown in Figures 2 and 3.

17.7 Additional consideration should also be given to the fixing of such features as cupboards and radiators.

17.8 The boards can be cut using a fine-toothed saw. Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards and cutting should be done in a ventilated space, outside or in an area with dust extraction.

17.9 Boards are cut to fit around windows, doors and air bricks. Care must be taken when trimming the insulation of the Gyproc ThermaLine PIR to ensure the foil is not damaged. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured. A 400 mm return is suggested on the internal / external wall junction. Suitable provisions will also need to be adopted at junctions and other details such as separating floors. Further guidance can be obtained from BRE Report BR 262 : 2002.

18 Procedure

18.1 Picture rails and projecting window boards may have to be removed from existing walls.

18.2 The wall should be surveyed to establish its flatness and suitability for receiving the system. The system may be used on any stable, dry walls capable of taking the fixings for the metal frame.

18.3 The required cavity depth, up to a maximum of 55 mm (between the surface of the internal wall and the face of the lining channels), should be determined. Chalk lines are marked on the floor and ceiling to indicate positioning of the Gypframe GL8 Tracks, which are then fixed to the perimeters at 600 mm centres using appropriate fixings. Horizontal board joints should be backed with Gypframe GFS1 Fixing Strap or Gypframe GFT1 Fixing T. Typical installation methods are shown in Figures 2 and 3.

Figure 2 GyLyner SINGLE construction details

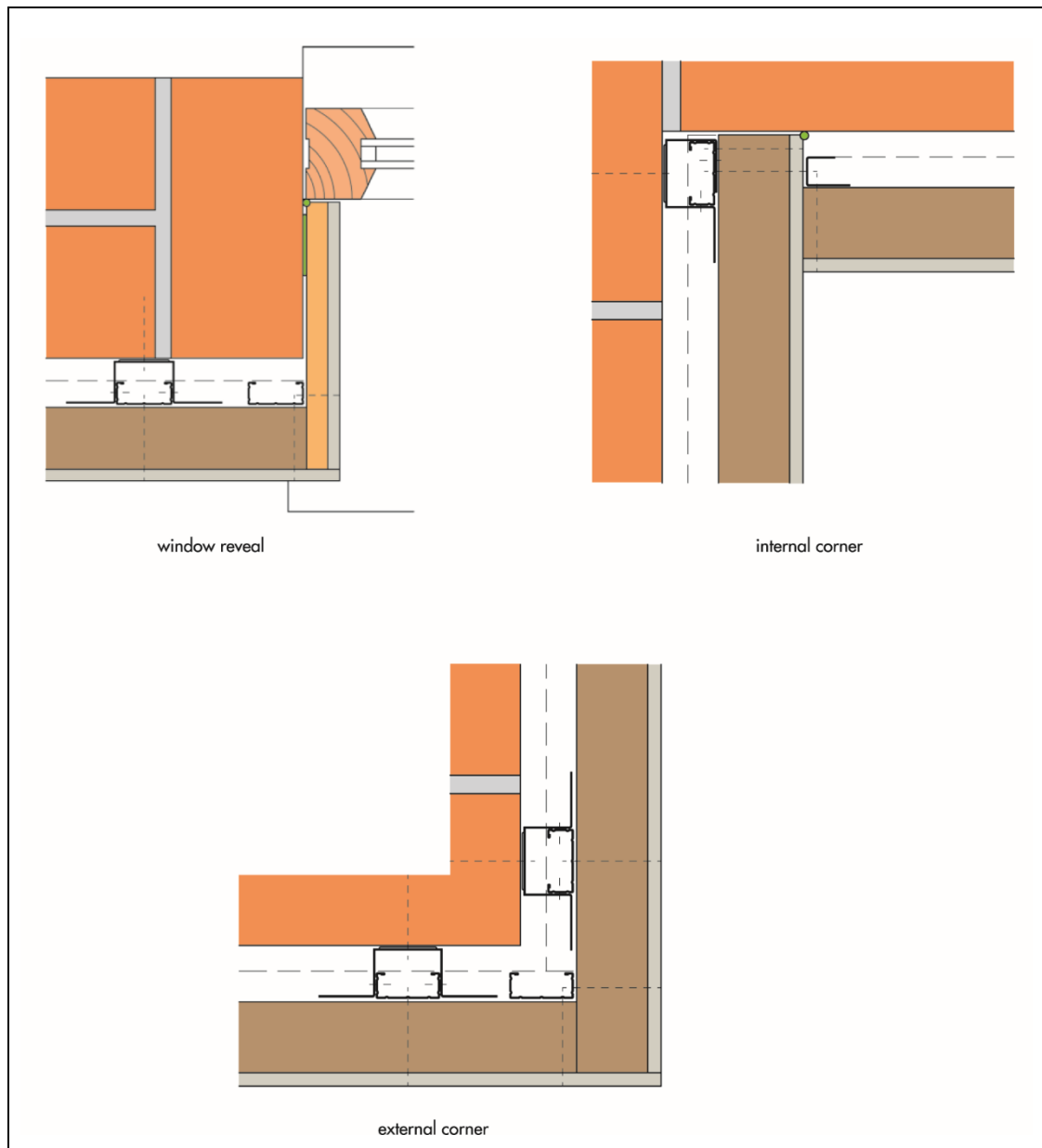


Figure 3 GypLyner SINGLE installation details



18.4 Vertical lines are marked on the wall at maximum 600 mm vertical centres and 800 mm horizontal centres to indicate the fixing positions for Gypframe GL2 Brackets. The brackets are then fixed into position using Gypframe GL11 GypLyner Anchors.

18.5 Gypframe GL1 Lining Channels are friction-fitted at 600 mm centres into the Gypframe GL8 Tracks, extending if required. The Gypframe Bracket legs are bent forward and each leg fixed to the Gypframe GL1 Lining Channel using British Gypsum Wafer Head Drywall Screws. The protruding bracket legs are bent back to sit clear of the channel face. The maximum distance between the surface of the wall and the top of the Gypframe GL1 Lining Channel must be 55 mm.

18.6 At internal angles, a Gypframe GL1 Lining Channel is positioned tight into the corner and the boards are fixed to all the framing members using British Gypsum Drywall Screws at 300 mm centres, reduced to 200 mm centres at external corners. The appropriate screws should be selected to provide a nominal 10 mm penetration into the Gypframe.

Boards should be lightly butted, inserting screws no closer than 10 mm from bound edges and 13 mm from cut edges.

18.7 Gypframe GL1 Lining Channels are positioned either side of the door opening to compensate for the thickness of the plasterboard to be fixed into the reveal. A length of Gypframe GL8 Track is cut and fixed to the side of the channel to form the head of the opening. Short lengths of Gypframe GL1 Lining Channel are positioned above the opening to maintain appropriate support centres and fixed using British Gypsum Wafer Head Drywall Screws.

18.8 To avoid thermal bridging, the system should be used to line window reveals; suitable provisions will also need to be made at junctions and other details such as separating floors. Further guidance can be obtained from BRE Report BR 262 : 2002.

19 Finishing

19.1 Jointing and finishing of the plasterboard lining is carried out in the appropriate manner in accordance with BS EN 13914-2 : 2016, applying plasterers' joint tape to all joints. A finishing skim coat of plaster should be applied to complete the installation.

19.2 Any gaps between the ceiling and the wall must be filled.

Technical Investigations

20 Tests

Results of tests were assessed to determine:

- thermal conductivity
- vapour resistance
- inter-laminate bond strength
- dimensional accuracy
- soft body impact.

21 Investigations

21.1 Data on durability and properties in relation to fire were evaluated.

21.2 A calculation was undertaken to confirm the thermal conductivity (λ_D) values.

21.3 A condensation risk analysis was carried out.

21.4 A series of U value calculations was carried out.

21.5 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

- BRE Digest 465 : 2002 *U-values for light steel-frame construction*
- BRE Report BR 262 : 2002 *Thermal Insulation: avoiding risks*
- BRE Report BR 443 : 2019 *Conventions for U-value calculations*
- BS 5250 : 2021 *Management of moisture in buildings. Code of practice*
- BS 6576 : 2005 + A1 : 2012 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*
- BS 7671 : 2018 *Requirements for electrical installations — IET Wiring Regulations*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*
- BS EN 520 : 2004 + A1 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- BS EN 1996-1-2 : 2005 *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
- NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
- BS EN 1996-2 : 2006 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 1996-3 : 2006 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- BS EN 13165 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — Specification*
- BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 13914-2 : 2016 *Design preparation and application of external rendering and internal plastering — Internal plastering*
- BS EN 13950 : 2014 *Gypsum board thermal/acoustic insulation composite panels. Definitions, requirements and test methods.*
- BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
- BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*
- BS EN ISO 13788 : 2012 *Hygrothermal performance of building components and building elements — Internal surface temperature to avoid critical surface humidity and interstitial condensation — Calculation methods*
- BS ISO 45001 : 2018 *Occupational health and safety management systems — Requirements with guidance for use*

22 Conditions

22.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

22.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

22.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

22.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

22.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

22.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

Saint-Gobain Construction Products UK Limited
trading as British Gypsum

Head Office
East Leake
Loughborough
Leicestershire, LE12 6HX

Tel: 0844 800 1991 Fax: 0844 561 8816

e-mail: bgtechnical.enquiries@bpb.com

website: www.british-gypsum.com



Agrément Certificate

13/5016

Product Sheet 5

BRITISH GYPSUM INTERNAL WALL INSULATION SYSTEMS

GYPLYNER SINGLE INSULATED DRY LINING SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the GyPLYNER SINGLE Insulated Dry Lining System, comprising Gyproc ThermaLine PIR insulated plasterboard. The system is for use, with height restrictions in some cases, as an internal insulated dry lining for external masonry walls in new or existing domestic and non-domestic buildings. The system is attached to the existing wall using mechanical fixings on a metal frame.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Thermal performance — the insulation component of the system has a declared thermal conductivity value (λ_D) of 0.022 W·m⁻¹·K⁻¹ (see section 6).

Condensation — the system can contribute to limiting the risk of surface condensation; however, the risk of interstitial condensation should be assessed for each case (see section 7).

Behaviour in relation to fire — Gyproc ThermaLine PIR insulated plasterboard has a reaction to fire classification of B-s1, d0 to BS EN 13501-1 : 2018 and its use is restricted in some cases (see section 8).

Durability — the system is durable, rot proof and sufficiently stable to remain effective for the life of the building (see section 14).

The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 24 March 2022

Hardy Giesler
Chief Executive Officer

The BBA is a UKAS accredited certification body – Number 113.

*The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.*

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

©2022

Regulations

In the opinion of the BBA, the GypLyner SINGLE Insulated Dry Lining System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B2(1)	Internal fire spread (linings)
Comment:	The system is unrestricted under this Requirement. See section 8.1 of this Certificate.	
Requirement:	B3(4)	Internal fire spread (structure)
Comment:	The system can contribute to satisfying this Requirement. See section 8.2 of this Certificate.	
Requirement:	B4(1)	External fire spread
Comment:	The system is restricted by this Requirement. See sections 8.1 and 8.3 of this Certificate.	
Requirement:	C2(c)	Resistance to moisture
Comment:	The system can contribute to satisfying this Requirement. See sections 7.1, 7.2 and 7.6 of this Certificate.	
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:	The system can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.	
Regulation:	7(1)	Materials and workmanship
Comment:	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.	
Regulation:	7(2)	Materials and workmanship
Comment:	The system is restricted under this Regulation. See sections 8.1 and 8.3 of this Certificate.	
Regulation:	26	CO₂ emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:	The system can contribute to satisfying these Regulations, but compensating fabric and/or services measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.	



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.	
Regulation:	9	Building standards applicable to construction
Standard:	2.4	Cavities
Comment:	The system can contribute to satisfying this Standard, with reference to clause 2.4.2 ⁽¹⁾⁽²⁾ . See section 8.2 of this Certificate.	
Standard:	2.5	Internal linings
Comment:	The system is unrestricted by this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See sections 8.1 and 8.4 of this Certificate.	

Standard: Comment:	3.15	Condensation The system can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See sections 7.1, 7.2 and 7.7 of this Certificate.
Standard: Comment:	6.1(b)	Carbon dioxide emissions The system can contribute to satisfying clauses, or parts of, 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.3 ⁽¹⁾ , 6.1.4 ⁽¹⁾ , 6.1.6 ⁽¹⁾⁽²⁾ and 6.1.8 ⁽²⁾ of this Standard, but compensating fabric and/or service measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.
Standard: Comment:	6.2	Building insulation envelope The system can contribute to satisfying clauses, or parts of, 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.6 ⁽¹⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ of this Standard, but compensating fabric and/or service measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.
Standard: Comment:	7.1(a)(b)	Statement of sustainability The system can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 [Aspects ⁽¹⁾⁽²⁾]. See section 6.1 of this Certificate.
Regulation: Comment:	12	Building standards applicable to conversions Comments in relation to the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation: Comment:	23	Fitness of materials and workmanship The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	29	Condensation The system can contribute to satisfying this Regulation. See sections 7.1 and 7.2 of this Certificate.
Regulation: Comment:	34	Internal fire spread — linings The system is unrestricted under this Regulation. See section 8.1 of this Certificate.
Regulation: Comment:	35(4)	Internal fire spread - structure The system can contribute to satisfying this Regulation. See sections 8.2 and 8.4 of this Certificate.
Regulation: Regulation: Comment:	39(a)(i) 40(2)	Conservation measures Target carbon dioxide emission rate The system can contribute to a building satisfying these Regulations but compensating fabric and/or service measures may need to be taken. See sections 6.1 and 6.2 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.3) and 17 *General* (17.8) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, the GypLyner SINGLE Insulated Dry Lining System, if installed, used and maintained in accordance with this Certificate, and provided the bonded plasterboard facing is a minimum of 12.5 mm thick, with the product mechanically fixed back to the structure - can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls* and 9.2 *Wall and ceiling finishes*.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the Gyproc ThermaLine PIR insulated plasterboard in accordance with Designated Standard EN 13950 : 2014.

Technical Specification

1 Description

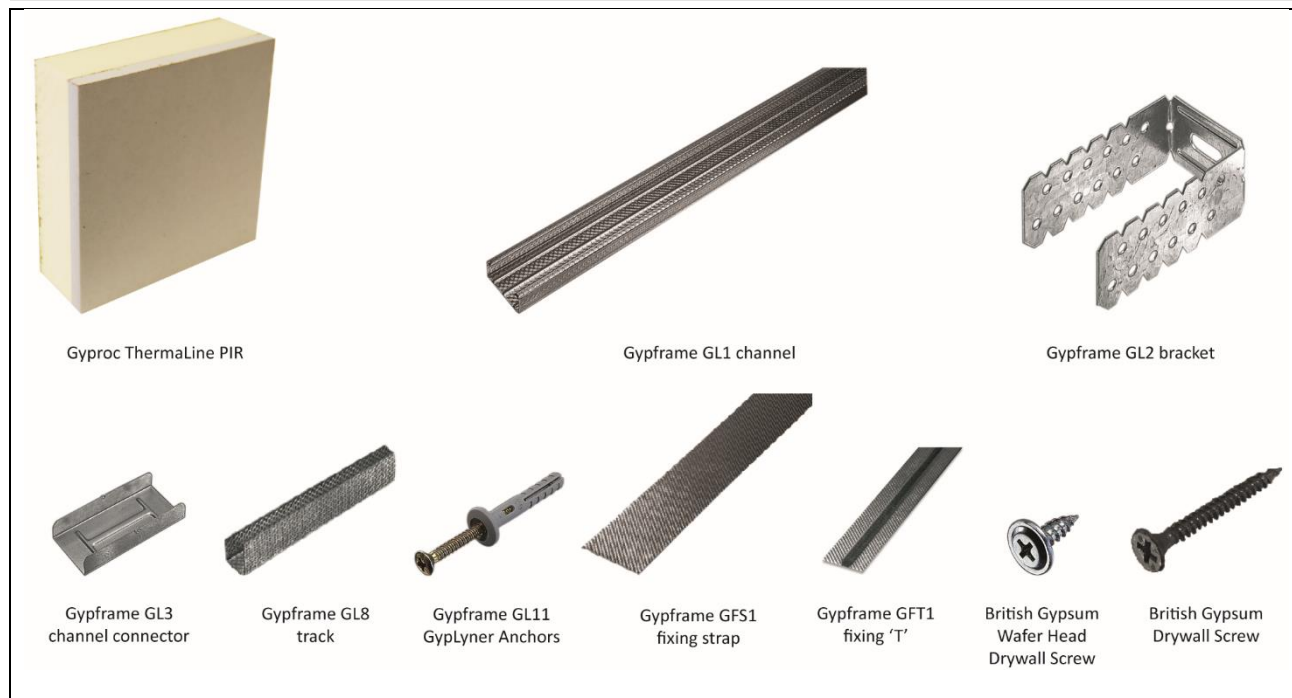
1.1 The GypLynr SINGLE Insulated Dry Lining System consists of Gyproc ThermaLine PIR insulated plasterboard, mechanically fixed to the Gypframe metal frame (see Figure 1).

1.2 Gyproc ThermaLine PIR insulated plasterboard comprises Gyproc WallBoard plasterboard⁽¹⁾, bonded to a polyisocyanurate (PIR)⁽²⁾ insulation board which has a composite foil/kraft paper facing on both sides.

(1) Manufactured to comply with the requirements of BS EN 520 : 2004.

(2) Manufactured to comply with the requirements of BS EN 13165 : 2012.

Figure 1 GypLynr SINGLE — system components



1.3 The boards are available with the nominal characteristics shown in Table 1.

Table 1 Nominal characteristics of Gyproc ThermaLine PIR

Characteristic (unit)	Gyproc ThermaLine PIR
Length (mm)	2400
Width (mm)	1200
Insulation thickness (mm)	25 to 80
Thickness of plasterboard (mm)	12.5
Edge profile of the insulated dry lining	Tapered
Minimum compressive strength for the insulation at 10% compression (kPa)	140

1.4 The Gypframe metal frame components are shown in Figure 1 and listed in Table 2.

Table 2 Gypframe metal frame components

Product code	Application	Length (mm)
GL1	Gypframe Lining Channel (vertical channel for board fixing)	2400, 2700, 3000, 3600
GL2	Gypframe Bracket	195 (flat)
GL3	Gypframe Track (floor and ceiling track, for fixing vertical GL1 Channels to)	—
GL8	Gypframe Track (floor and ceiling track, for fixing vertical GL1 Channels to)	3600
GL11	GypLynr Anchors (for fixing GL2 brackets to masonry walls)	—
GFS1	Gypframe Fixing Strap	2400
GFT1	Gypframe Fixing 'T'	2400
—	British Gypsum Wafer Head Drywall Screws (for fixing metal components of combined total thickness ≤ 0.79 mm)	—
—	British Gypsum Drywall Screws (for fixing Gyproc ThermaLine PIR boards to a metal frame ≤ 0.79 mm thick)	—

1.5 Ancillary items for use with the system, which are outside the scope of this Certificate, include:

- Gypframe 99 FC 50 Fixing Channel
- Gypframe Service Support Plate
- British Gypsum joint tape and jointing compound or plaster for skim coat.

2 Manufacture

2.1 Gyproc WallBoards are factory bonded to the chosen insulation. The Gypframe metal components are manufactured using conventional techniques to controlled specifications.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of the Certificate holder has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015, BS EN ISO 14001 : 2015 and BS ISO 45001 : 2018 by BSI (Certificates FM550533, EMS 543324 and OHS 550586 respectively).

3 Delivery and site handling

3.1 The boards are delivered to site in polythene-wrapped packs on pallets. Each board has the manufacturing code printed on the surface and each pack contains a label bearing the Certificate holder's name, product description and manual handling advice. The larger metal frame components are delivered in packs of ten, with smaller items in boxes of between 50 and 1000 units.

3.2 The boards must be protected from prolonged exposure to sunlight and moisture, and should be stored inside, under cover and protected with opaque polythene sheeting. The boards should be stacked flat, and raised above ground level (to avoid contact with ground moisture).

3.3 Care must be taken when handling the boards to avoid crushing the edges or corners. The boards must not be exposed to open flame or other ignition sources, or to solvents or other chemicals. If damaged or wet, the products should be discarded.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the GypLyner SINGLE Insulated Dry Lining System.

Design Considerations

4 Use

4.1 The GypLyner SINGLE Insulated Dry Lining System is satisfactory for use as an internal insulating dry lining system to improve the thermal insulation of solid or cavity masonry walls of new or existing, domestic and non-domestic buildings. The steel frame and track are attached directly to the masonry wall (see section 18). The system should be installed in accordance with the Certificate holder's instructions and this Certificate.

4.2 The system may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks. It is essential that such walls are constructed taking account of the local wind-driven rain index.

4.3 Walls should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 and their respective UK National Annexes
- BS 8000-3 : 2001.

4.4 The system is not intended to offer resistance to rain penetration; walls, therefore, must already be rain resistant and show no signs of water ingress, rain penetration or damp from ground moisture, and be at least two bricks or 200 mm in thickness.

4.5 It is essential that the boards are butted as close as possible, to minimise any gaps between them (see section 17 of this Certificate).

4.6 Services which penetrate the dry lining, eg light switches and power outlets, should be kept to a minimum to limit damage to vapour checks. All perimeters of the board, around service penetrations, openings, junctions and around the perimeter of suspended timber floors must be sealed with a suitable sealant.

4.7 It is essential that proper care and attention is given to maintaining the integrity/continuity of the insulation and facings.

4.8 With installations that form a void of 20 mm or more, services can be incorporated behind the dry lining, making the chasing of the wall unnecessary. Where the services have a greater depth than the void, the wall should be chased rather than the insulation. Suitable isolation methods, such as conduit or capping, must be used to ensure cables do not come into contact with the insulation.

4.9 The installation of the system requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. Thinner boards should be selected to suit site-specific door and window reveal conditions. All work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills and in relation to ceiling height. Where the dimensions of fixtures are critical (eg bathrooms), they should be checked before installation.

4.10 If present, mould or fungal growth should be treated prior to the application of the system.

5 Practicability of installation

The system is designed to be installed by a competent general builder, or a contractor, experienced with this type of system.

6 Thermal performance



6.1 Calculations of thermal transmittance (U value) of a specific construction using insulated dry lining should be carried out in accordance with BS EN ISO 6946 : 2017, BRE Report BR 443 : 2019 and BRE Digest 465 : 2002, using the declared thermal conductivity (λ_D) value of $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and a default emissivity of 0.9 for the insulation component of ThermaLine PIR, and a default value of $0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the 12.5 mm plasterboard.

6.2 The U value of a completed wall construction will depend on the insulation thickness, number and type of fixings, the insulating value of the substrate masonry and its internal finish. Calculated U values for example wall constructions are given in Table 3. For improved thermal/carbon emissions performance, the designer should consider additional fabric and/or services measures.

Table 3 Example U values for walls

Target U value for lining to walls ⁽¹⁾ ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)	ThermaLine PIR thickness requirement ⁽¹⁾ (mm)	
	Retrofit 215 mm brickwork ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) & 13 mm plaster ($\lambda = 0.57 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)	New Build 15 mm render ($\lambda = 1.0 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) & 200 mm dense blockwork ($\lambda = 1.75 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)
0.17	— (2)	— (2)
0.18	— (2)	— (2)
0.20	— (2)	— (2)
0.21	— (2)	— (2)
0.22	— (2)	— (2)
0.23	— (2)	— (2)
0.25	— (2)	— (2)
0.26	— (2)	— (2)
0.27	93	— (2)
0.28	93	93
0.30	93	93
0.35	78	78

(1) Product installed on an 18 mm steel lining channel and bracket system (ignored for purpose of calculation) (18mm air cavity $R = 0.180 \text{ m}^2\cdot\text{K}^{-1}\cdot\text{W}$), using 10.76 steel ($\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) Gyproc drywall screws per square metre with a cross-sectional area of 10.46 mm^2 .

(2) See section 6.2.

Junctions

6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

7 Condensation

Interstitial condensation



7.1 Walls incorporating the system will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2021.

7.2 A condensation risk analysis of the specific construction should be undertaken to BS EN ISO 13788 : 2012 and BS 5250 : 2021, using the water vapour transmission values for each component given in Table 4 of this Certificate.

Table 4 Water vapour transmission values

Insulation Product	Material	Thickness (mm)	Water vapour resistance ($\text{MN}\cdot\text{s}\cdot\text{g}^{-1}$)	Water vapour resistivity ($\text{MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$)
ThermaLine PIR	Composite foil / kraft paper facing both sides	-	4000	-
	PIR foam core	25 to 80	—	300
	Plasterboard	12.5	-	50

7.3 The risk of summer condensation on the foil component must be considered for solid masonry walls oriented from ESE through south to WSW, in accordance with BRE Report BR 262 : 2002, section 3.10.

7.4 Where calculations to BS 5250 : 2021 indicate a risk of persistent condensation, a site-specific dynamic analysis to BS EN 15026 : 2007 should be considered.

7.5 Provided all joints between the system are sealed (see section 4.5 and the *Installation* part of this Certificate) in accordance with the Certificate holder's instructions, the system can offer a significant resistance to water vapour transmission.

Surface condensation



7.6 Walls incorporating the system will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in section 6.3 of this Certificate.



7.7 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point. Guidance may be obtained from BS 5250 : 2021 and BRE Report BR 262 : 2002.

8 Behaviour in relation to fire



8.1 Gyproc ThermaLine PIR insulated plasterboard has a reaction to fire classification⁽¹⁾ of B-s1, d0 to BS EN 13501-1 : 2018.

(1) BRE Global Classification Report : BRE Q100947 – 1011 Issue 2 27.02.20. A copy may be obtained from the Certificate holder.

8.2 The Certificate holder has not declared a reaction to fire classification for the reverse side and so where this forms the face of an internal cavity, the cavity should be subdivided with cavity barriers in accordance with the requirements of the documents supporting the national Building Regulations.



8.3 In England and Wales, this system should not be used on buildings with a storey more than 18 m above the ground but may be used on buildings at any proximity to a boundary.



8.4 In Scotland and Northern Ireland, the use of the system is unrestricted by the national Building Regulations in terms of height and proximity to a boundary.

9 Proximity of flues and appliances

Detailed guidance can be found in the documents supporting the national Building Regulations for the provisions that are applicable when the system is installed in close proximity to certain flue pipes and/or heat-producing appliances.

10 Materials in contact — wiring installations

10.1 As with any form of installation, de-rating of electrical cables should be considered where the insulation restricts the air cooling of cables.

10.2 Electrical cables that are likely to come into contact with the insulation component of the thermal liner are required to be protected by a suitable conduit or PVC-U trunking. The installation of electrical services must be carried out in accordance with BS 7671 : 2018.

11 Infestation

Use of the system does not in itself promote infestation. The creation of voids within the structure (for example, gaps between the wall lining and the system) may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure, wherever possible, that all voids are sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

12 Wall-mounted fittings

The recommendations of the Certificate holder must be followed. Any objects fixed to the wall, other than lightweight items, are outside the scope of this Certificate.

13 Maintenance

If the system is damaged during use, it can be readily removed and replaced.

14 Durability



The durability of the system is satisfactory. Provided it is fixed to a satisfactory stable and durable substrate, the system will have a life equal to the building in which it is installed. Under normal conditions of occupancy it is unlikely to suffer damage, but if damage does occur, the system can be repaired or replaced.

15 Reuse and recyclability

Gyproc WallBoard and Gyproc ThermaLine PIR can be recycled using the British Gypsum Plasterboard Recycling Scheme (PRS). Gyproframe metal components are widely recycled.

Installation

16 Pre-installation survey

16.1 The Certificate holder's instructions must be followed.

16.2 A detailed survey of the property should be carried out before work starts. The walls must be made good if required and be dry and structurally sound with no evidence of damp, contamination or frost damage, before the system and its ancillary items are installed.

16.3 The survey should include a detailed examination of the internal and external fabric of the building, ensuring that any leaking external pipework and blocked gutters are made good. The efficiency, type and continuity of existing damp-proof course materials (if any) should be checked. For existing buildings where there is no dpc, the requirement for one must be determined.

16.4 The suitability of projecting window sills, verge and eaves overhangs should be checked. Mortar joints should also be examined and repointed, if required.

16.5 The existing ventilation provision should be assessed and updated if necessary.

16.6 There should be no gaps at the perimeter (such as floors and ceilings) or junctions (such as internal corners), or around openings or service penetrations. Existing gaps should be sealed before installation commences.

16.7 A detailed inspection of existing timbers for dry or wet rot and insect attack should also be carried out, eg the timber floor joists. Existing metal studs or joists should be inspected for corrosion. Decayed timbers or corroded metal must be replaced before installation commences.

17 General

17.1 A qualified plumber is required to make alterations to heating systems. A qualified electrician must be used to make good the electrical wirings and services.

17.2 The building should be examined for the following:

- suitability of substrate
- detailing around windows and doors
- position and numbers of electrical sockets and switches
- wall fittings and fixtures — including coving and skirting
- areas where flexible sealants must be used
- ventilation plates.

17.3 Before starting to fit the system, the position of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All plaster coving, skirting board and laminate floor angle bead must be removed.

17.4 Before fixing the system, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out (information is given in BS 6576 : 2005 for dry lining in conjunction with a chemical dpc application).

17.5 Care must be taken when exposing electrical cables (see section 10).

17.6 All insulated dry lining installations require careful planning and setting out. Installation should start from an internal corner or a window or door reveal, and vertical chalk guidelines should be marked on the wall at 1200 mm centres to indicate the positioning of the boards. Installation should be in accordance with BS 8212 : 1995, good dry lining practice and the Certificate holder's instructions. Typical installation methods are shown in Figures 2 and 3.

17.7 Additional consideration should also be given to the fixing of such features as cupboards and radiators.

17.8 The boards can be cut using a fine-toothed saw. Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards and cutting should be done in a ventilated space, outside or in an area with dust extraction.

17.9 Boards are cut to fit around windows, doors and air bricks. Care must be taken when trimming the insulation of the Gyproc ThermaLine PIR to ensure the foil is not damaged. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured. A 400 mm return is suggested on the internal / external wall junction. Suitable provisions will also need to be adopted at junctions and other details such as separating floors. Further guidance can be obtained from BRE Report BR 262 : 2002.

18 Procedure

18.1 Picture rails and projecting window boards may have to be removed from existing walls.

18.2 The wall should be surveyed to establish its flatness and suitability for receiving the system. The system may be used on any stable, dry walls capable of taking the fixings for the metal frame.

18.3 The required cavity depth, up to a maximum of 55 mm (between the surface of the internal wall and the face of the lining channels), should be determined. Chalk lines are marked on the floor and ceiling to indicate positioning of the Gypframe GL8 Tracks, which are then fixed to the perimeters at 600 mm centres using appropriate fixings. Horizontal board joints should be backed with Gypframe GFS1 Fixing Strap or Gypframe GFT1 Fixing T. Typical installation methods are shown in Figures 2 and 3.

Figure 2 GyLyner SINGLE construction details

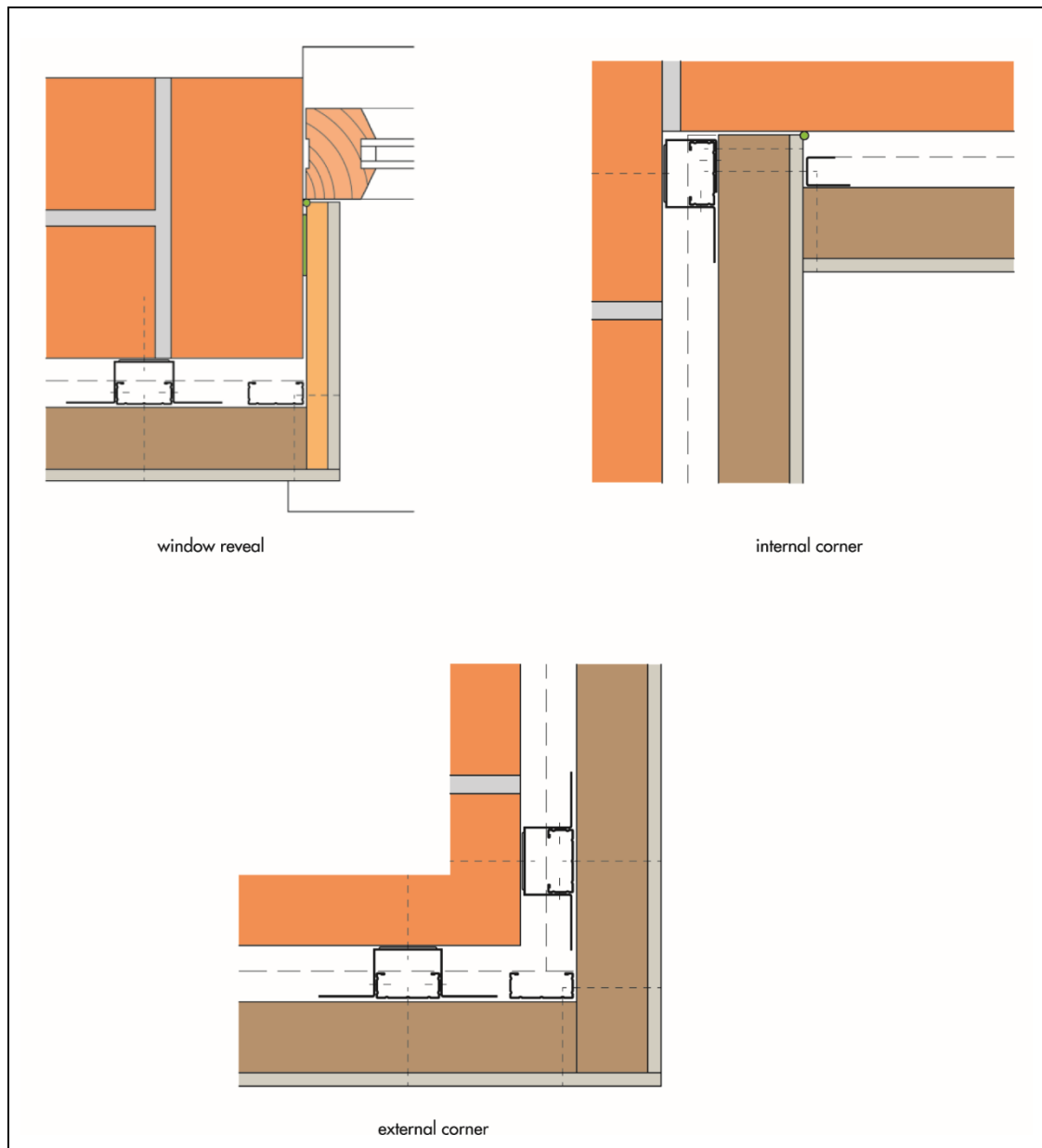


Figure 3 GypLyner SINGLE installation details



18.4 Vertical lines are marked on the wall at maximum 600 mm vertical centres and 800 mm horizontal centres to indicate the fixing positions for Gypframe GL2 Brackets. The brackets are then fixed into position using Gypframe GL11 GypLyner Anchors.

18.5 Gypframe GL1 Lining Channels are friction-fitted at 600 mm centres into the Gypframe GL8 Tracks, extending if required. The Gypframe Bracket legs are bent forward and each leg fixed to the Gypframe GL1 Lining Channel using British Gypsum Wafer Head Drywall Screws. The protruding bracket legs are bent back to sit clear of the channel face. The maximum distance between the surface of the wall and the top of the Gypframe GL1 Lining Channel must be 55 mm.

18.6 At internal angles, a Gypframe GL1 Lining Channel is positioned tight into the corner and the boards are fixed to all the framing members using British Gypsum Drywall Screws at 300 mm centres, reduced to 200 mm centres at external corners. The appropriate screws should be selected to provide a nominal 10 mm penetration into the Gypframe.

Boards should be lightly butted, inserting screws no closer than 10 mm from bound edges and 13 mm from cut edges.

18.7 Gypframe GL1 Lining Channels are positioned either side of the door opening to compensate for the thickness of the plasterboard to be fixed into the reveal. A length of Gypframe GL8 Track is cut and fixed to the side of the channel to form the head of the opening. Short lengths of Gypframe GL1 Lining Channel are positioned above the opening to maintain appropriate support centres and fixed using British Gypsum Wafer Head Drywall Screws.

18.8 To avoid thermal bridging, the system should be used to line window reveals; suitable provisions will also need to be made at junctions and other details such as separating floors. Further guidance can be obtained from BRE Report BR 262 : 2002.

19 Finishing

19.1 Jointing and finishing of the plasterboard lining is carried out in the appropriate manner in accordance with BS EN 13914-2 : 2016, applying plasterers' joint tape to all joints. A finishing skim coat of plaster should be applied to complete the installation.

19.2 Any gaps between the ceiling and the wall must be filled.

Technical Investigations

20 Tests

Results of tests were assessed to determine:

- thermal conductivity
- vapour resistance
- inter-laminate bond strength
- dimensional accuracy
- soft body impact.

21 Investigations

21.1 Data on durability and properties in relation to fire were evaluated.

21.2 A calculation was undertaken to confirm the thermal conductivity (λ_D) values.

21.3 A condensation risk analysis was carried out.

21.4 A series of U value calculations was carried out.

21.5 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

- BRE Digest 465 : 2002 *U-values for light steel-frame construction*
- BRE Report BR 262 : 2002 *Thermal Insulation: avoiding risks*
- BRE Report BR 443 : 2019 *Conventions for U-value calculations*
- BS 5250 : 2021 *Management of moisture in buildings. Code of practice*
- BS 6576 : 2005 + A1 : 2012 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*
- BS 7671 : 2018 *Requirements for electrical installations — IET Wiring Regulations*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*
- BS EN 520 : 2004 + A1 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- BS EN 1996-1-2 : 2005 *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
- NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
- BS EN 1996-2 : 2006 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 1996-3 : 2006 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- BS EN 13165 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — Specification*
- BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 13914-2 : 2016 *Design preparation and application of external rendering and internal plastering — Internal plastering*
- BS EN 13950 : 2014 *Gypsum board thermal/acoustic insulation composite panels. Definitions, requirements and test methods.*
- BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
- BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*
- BS EN ISO 13788 : 2012 *Hygrothermal performance of building components and building elements — Internal surface temperature to avoid critical surface humidity and interstitial condensation — Calculation methods*
- BS ISO 45001 : 2018 *Occupational health and safety management systems — Requirements with guidance for use*

22 Conditions

22.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

22.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

22.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

22.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

22.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

22.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.