

## British Gypsum

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Agrément Certificate  
**13/5016**  
Product Sheet 1

### BRITISH GYPSUM INTERNAL WALL INSULATION SYSTEMS

### GYPLYNER UNIVERSAL INSULATED DRY LINING SYSTEM

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Gyplyner UNIVERSAL Insulated Dry Lining System, comprising Gyproc ThermalLine SUPER and Gyproc ThermalLine PIR insulated plasterboards, for use as an internal insulated dry lining system to external masonry walls in new and 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 system can contribute to limiting heat loss through walls and roofs. The U values achieved will depend on the overall construction and insulation thickness (see section 6).

**Condensation risk** — the system can limit the risk of surface and interstitial condensation; however, an assessment should be made in each case (see section 7).

**Behaviour in relation to fire** — the boards have a classification of B-s1, d0\* to BS EN 13501-1 : 2007 (see section 8).

**Durability** — under normal conditions, the boards are rot-proof, dimensionally stable and durable and will have a service life equal to the building in which they are installed (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

A handwritten signature in black ink, appearing to read 'John Albon'.

John Albon — Head of Approvals  
Energy and Ventilation

A handwritten signature in black ink, appearing to read 'Claire Curtis-Thomas'.

Claire Curtis-Thomas  
Chief Executive

Date of Second issue: 19 June 2014

Originally certificated on 9 July 2013

Certificate amended on 9 July 2014 to add reference to CE marking.

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](http://www.bbacerts.co.uk)

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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# Regulations

In the opinion of the BBA, GyplYner UNIVERSAL 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)

<b>Requirement:</b> B2(1)	<b>Internal fire spread (linings)</b>
<b>Comment:</b>	The system is unrestricted under this Requirement. See section 8.1 of this Certificate.
<b>Requirement:</b> C2(c)	<b>Resistance to moisture</b>
<b>Comment:</b>	The system can contribute to satisfying this Requirement. See sections 7.1 and 7.6 of this Certificate.
<b>Requirement:</b> L1(a)(i)	<b>Conservation of fuel and power</b>
<b>Comment:</b>	The system can contribute to a building satisfying this Requirement. See section 6 of this Certificate.
<b>Regulation:</b> 7	<b>Materials and workmanship</b>
<b>Comment:</b>	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 26	<b>CO<sub>2</sub> emission rates for new buildings</b>
<b>Comment:</b>	The system can contribute to a building satisfying this Regulation when compensating fabric and/or services measures are taken. See section 6 of this Certificate.
<b>Regulation:</b> 26A	<b>Fabric energy efficiency rates for new dwellings (applicable to England only)</b>
<b>Comment:</b>	The system can contribute to a building satisfying this Regulation when compensating fabric measures are taken. See section 6 of this Certificate.



## The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b> 8(1)	<b>Durability, workmanship and fitness of materials</b>
<b>Comment:</b>	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 9	<b>Building standards applicable to construction</b>
<b>Standard:</b> 2.5	<b>Internal linings</b>
<b>Comment:</b>	The system is unrestricted under this Standard, with reference to clause 2.5.1 <sup>(1)</sup> . See section 8.1 of this Certificate.
<b>Standard:</b> 3.15	<b>Condensation</b>
<b>Comment:</b>	The system can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)(2)</sup> , 3.15.4 <sup>(1)(2)</sup> and 3.15.5 <sup>(1)(2)</sup> . See sections 7.1 and 7.7 of this Certificate.
<b>Standard:</b> 6.1(b)	<b>Carbon dioxide emissions</b>
<b>Standard:</b> 6.2	<b>Building insulation envelope</b>
<b>Comment:</b>	The system can contribute to satisfying clauses or parts of 6.1.1 <sup>(1)(2)</sup> , 6.1.2 <sup>(1)(2)</sup> , 6.1.3 <sup>(1)(2)</sup> , 6.1.4 <sup>(2)</sup> , 6.1.6 <sup>(1)</sup> , 6.1.8 <sup>(2)</sup> , 6.1.10 <sup>(2)</sup> , 6.2.1 <sup>(1)(2)</sup> , 6.2.3 <sup>(1)</sup> , 6.2.4 <sup>(1)</sup> , 6.2.5 <sup>(1)(2)</sup> , 6.2.6 <sup>(2)</sup> , 6.2.7 <sup>(2)</sup> , 6.2.9 <sup>(1)</sup> , 6.2.11 <sup>(1)</sup> and 6.2.13 <sup>(2)</sup> of these Standards. See section 6 of this Certificate.
<b>Standard:</b> 7.1(a)(b)	<b>Statement of sustainability</b>
<b>Comment:</b>	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 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ], 7.1.6 <sup>(1)(2)</sup> [Aspects 1 <sup>(1)(2)</sup> and 2 <sup>(1)</sup> ] and 7.1.7 <sup>(1)(2)</sup> [Aspect 1 <sup>(1)(2)</sup> ]. See section 6 of this Certificate.
<b>Regulation:</b> 12	<b>Building standards applicable to conversions</b>
<b>Comment:</b>	All comments given for these system under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012

<b>Regulation:</b> 23	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	The system is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 29	<b>Condensation</b>
<b>Comment:</b>	The system can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
<b>Regulation:</b> 34	<b>Internal fire spread – Linings</b>
<b>Comment:</b>	The system is unrestricted under this Regulation. See section 8.1 of this Certificate.
<b>Regulation:</b> 39(a)(i)	<b>Conservation measures</b>
<b>Regulation:</b> 40(2)	<b>Target carbon dioxide emission rate</b>
<b>Comment:</b>	The system can contribute to a building meeting these Regulations. See section 6 of this Certificate.

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 1 Description (1.2) and 16 Installation (16.3 and 16.7) of this Certificate.

## Additional Information

### NHBC Standards 2014

NHBC accepts the use of Gyplyner UNIVERSAL Insulated Dry Lining System, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 8.2 *Wall and ceiling finishes*.

### CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13950 : 2005. An asterisk (\*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

## Technical Specification

### 1 Description

1.1 Gyplyner UNIVERSAL Insulated Dry Lining System consists of Gyproc Thermaline SUPER insulated plasterboard and Gyproc Thermaline PIR insulated plasterboard mechanically fixed to the Gypframe metal frame (see Figure 1). Gyproc Thermaline SUPER comprises Gyproc WallBoard plasterboard<sup>(1)</sup>, composite front foil-facing, phenolic<sup>(2)</sup> insulation with a glassfibre tissue reverse facing. Gyproc Thermaline PIR insulated plasterboard comprises Gyproc WallBoard plasterboard<sup>(1)</sup>, Walki DT AL 120 front foil-facing, polyisocyanurate (PIR)<sup>(3)</sup> insulation with Walki DT AL 120 reverse-facing.

(1) The plasterboard component is manufactured in accordance with BS EN 520 : 2004.

(2) Manufactured in accordance with BS EN 13166 : 2012.

(3) Manufactured in accordance with BS EN 13165 : 2012.

Figure 1 Gyplyner UNIVERSAL – system components



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

*Table 1 Nominal characteristics of Gyproc ThermalLine SUPER and Gyproc ThermalLine PIR*

Characteristic (unit)	Gyproc ThermalLine SUPER	Gyproc ThermalLine PIR
Length	2400 mm	2400 mm
Width	1200 mm	1200 mm
Insulation thickness	40 mm to 80 mm	25 mm to 80 mm
Nominal density of insulation	35 kg·m <sup>-3</sup>	>27 kg·m <sup>-3</sup>
Thickness of plasterboard	9.5 mm	12.5 mm
Edge profile of the insulated dry lining	Tapered edge	Tapered edge
Minimum compressive strength for the insulation at 10% compression	100 kPa	140 kPa

1.3 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 Channel Connector	—
GL8	Gypframe Track (floor and ceiling track for fixing vertical GL1 Channels to)	3600
GL11	Gyplyner 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 thicknesses ≤ 0.79 mm)	—
—	British Gypsum Drywall Screws (for fixing Gyproc ThermalLine SUPER boards to a metal frame ≤ 0.79 mm thick)	—

1.4 Ancillary items, which are outside the scope of this Certificate, include:

- Gypframe 99 FC 50 Fixing Channel
- Gypframe Service Support Plate
- Gyproc ThermalLine insulated plasterboard for window reveals
- British Gypsum joint tape and jointing compound or plaster for skim coat.

## 2 Manufacture

2.1 Gyproc WallBoards, manufactured to BS EN 520 : 2004, Type A, 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 operated by the manufacturer are being maintained.

2.3 The management system of British Gypsum has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by BSI (Certificates FM550533 and EMS 543324 respectively).

## 3 Delivery and site handling

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

3.2 It is essential that the boards are raised off the ground and stored inside or under cover on a dry, level surface in a well-ventilated area. The boards must be protected from rain, snow and prolonged exposure to sunlight and any that have been allowed to get wet should not be used.

3.3 The boards must not be exposed to a naked flame or other ignition sources.

# Assessment and Technical Investigations

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

## Design Considerations

### 4 General

4.1 Gyplyner UNIVERSAL Insulated Dry Lining System is for use as an insulating dry lining system for solid or cavity masonry walls of new and existing domestic and non-domestic buildings. It should be installed in accordance with the Certificate holder's instructions.

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 having regard to 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, BS EN 1996-3 : 2006 and their respective UK National Annexes
- BS 8000-3 : 2001.

4.4 Since insulating dry linings are not intended to offer resistance to rain penetration or rising dampness, walls to be insulated with dry lining must already be rain resistant and show no signs of water ingress or rising damp.

4.5 It is recommended that services which penetrate the dry lining, eg light switches and power outlets, are kept to a minimum to limit damage to vapour checks. All perimeters of the board, around service penetrations and openings, at junctions and around the perimeter of suspended timber floors must be sealed with a suitable sealant.

4.6 It is essential that the boards are butted as close as possible to minimise any gaps between them (see section 1.6 of this Certificate).

4.7 De-rating of any electrical cables in areas where the system restricts the flow of air should be considered.

4.8 With dry lining installations that form a void of 25 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 a conduit or capping, must be used to ensure cables do not come into contact with the insulation.

4.9 The installation of insulating dry lining 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. New work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads, sills and in relation to ceiling height. Where the dimensions of fixtures are critical (eg bathrooms), these 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 : 2007, BRE Report BR 443 : 2006 and BRE Digest 465 : 2002, using the declared thermal conductivity ( $\lambda_D^*$  value) for the insulation component as given in Table 3 and a default value of  $0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  for the 9.5 mm (SUPER) and 12.5 mm (PIR) plasterboard.

Table 3 Thermal conductivities for the insulation at different thicknesses

	Overall thickness (mm)	Thickness (t) of insulation (mm)	$\lambda_D^*$ value ( $\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ )
ThermaLine SUPER	50	$25 < t < 44$	0.021
	60, 70, 80, 90	$t \geq 45$	0.020
ThermaLine PIR	38-93	25-80	0.022

6.2 The U value of a wall will depend on the insulation type and thickness, the number/type of fixings and the insulating value of the substrate masonry and its finishes. Example U values in Table 4 indicate that the product can achieve design values as low as  $0.25 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ . For improved thermal/carbon emissions performance, the designer should consider additional fabric and/or services measures.

Table 4 Example U values for walls

Target U value for lining to walls <sup>(1)</sup> (W·m <sup>-2</sup> ·K <sup>-1</sup> )	ThermaLine SUPER thickness requirement <sup>(1)</sup> (mm)		ThermaLine PIR thickness requirement <sup>(1)</sup> (mm)	
	215 mm brickwork $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (retro-fitting)	200 mm dense blockwork $\lambda = 1.75 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (new-build)	215 mm brickwork $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (retro-fitting)	200 mm dense blockwork $\lambda = 1.75 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (new-build)
0.18	— <sup>(2)</sup>	— <sup>(2)</sup>	— <sup>(2)</sup>	— <sup>(2)</sup>
0.19	— <sup>(2)</sup>	— <sup>(2)</sup>	— <sup>(2)</sup>	— <sup>(2)</sup>
0.25	90	90	93	93
0.26	90	90	93	93
0.30	80	80	78	78
0.35	70	70	63	78

(1) Product installed on 18 mm steel lining channel and bracket (ignored for purpose of calculation) using 5.55 steel Gyproc drywall screws per square metre with a cross sectional area of 10.46 mm<sup>2</sup>.

(2) See Section 6.2.

6.3 Designers must limit heat loss at junctions between the wall and other elements. Detailed guidance on limiting heat loss by air infiltration can be found in:

**England and Wales** — Approved Documents to Part L and for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). See also SAP 2009 Appendix K and the *iSBEM User Manual for new-build*

**Scotland** — Accredited Construction Details (Scotland)

**Northern Ireland** — Accredited Construction Details (version 1.0).

## 7 Condensation risk

### 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 : 2011, Annex D and Appendix G.

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

7.3 A condensation risk analysis of the specific construction should be undertaken to BS EN ISO 13788 : 2012 using the water vapour transmission values for each component given in Table 5 for each layer.

Table 5 Water vapour transmission values

Material	Thickness (mm)	Water vapour resistance (MN·s·g <sup>-1</sup> )	Water vapour resistivity (MN·s·g <sup>-1</sup> ·m <sup>-1</sup> )
Glass tissue	0.37	3.4	—
Phenolic foam	40-80	—	439
Aluminium foil	0.26	111	—
PIR	25-80	—	300
Facing	—	4000	—

7.4 Where calculations to Annex D of BS 5250 : 2011 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* section) 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 W·m<sup>-2</sup>·K<sup>-1</sup> 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 W·m<sup>-2</sup>·K<sup>-1</sup> at any point. Guidance may be obtained from Annex G of BS 5250 : 2011 and BRE Report BR 262 : 2002.

## 8 Behaviour in relation to fire



8.1 The system has been classified as Bs1, d0\* to BS EN 13501-1 : 2007 and is unrestricted with respect to surface spread of flame under the Building Regulations.

8.2 When properly installed, the insulation will be contained between the wall and internal lining board until one is compromised. Therefore, the insulation will not contribute to the development of a fire or present a smoke or toxic hazard as the fire develops.

## 9 Proximity of flues and appliances

When the system is installed in close proximity to certain flue pipes and or heat producing appliances, the relevant provisions of the national Building Regulations should be met:

*England and Wales* — Approved Document J

*Scotland* — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)</sup> to 3.19.4<sup>(1)</sup>

(1) Technical Handbook (Domestic).

*Northern Ireland* — Technical Booklet L.

## 10 Materials in contact — wiring installations

10.1 As with any form of insulation, 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 must be protected by a suitable conduit or PVC-U trunking. The installation of electrical services must be carried out in accordance with BS 7671 : 2008.

## 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's instructions must be followed. Any objects fixed to the wall, other than lightweight items, are outside the scope of this Certificate.

## 13 Maintenance

The system, if damaged during use, can be readily removed and replaced.

## 14 Durability



The durability of the materials is satisfactory. Provided the system is fixed to a satisfactory stable and durable wall, it should have a life equal to the building in which they are installed. Under normal conditions of occupancy they are 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 laminates can be recycled using the British Gypsum Plasterboard Recycling scheme (PRS). Gypframe metal components are widely recycled.

# Installation

## 16 General

16.1 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.

16.2 The dwelling 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.

16.3 Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards.

16.4 Before starting to fit the systems, 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.

16.5 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 damp-proof course application).

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

16.7 The boards can be cut using a fine-toothed saw. Cutting should be done in a ventilated space, outside or in an area with dust extraction.

16.8 Boards are cut using a fine-toothed saw, to fit around windows, doors, air bricks. Care must be taken when trimming the insulation of the Gyproc Thermaline SUPER plasterboard 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.

## 17 Procedure

17.1 For existing walls, picture rails and projecting window boards may have to be removed.

17.2 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.

17.3 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 to 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 Gyplyner UNIVERSAL construction details

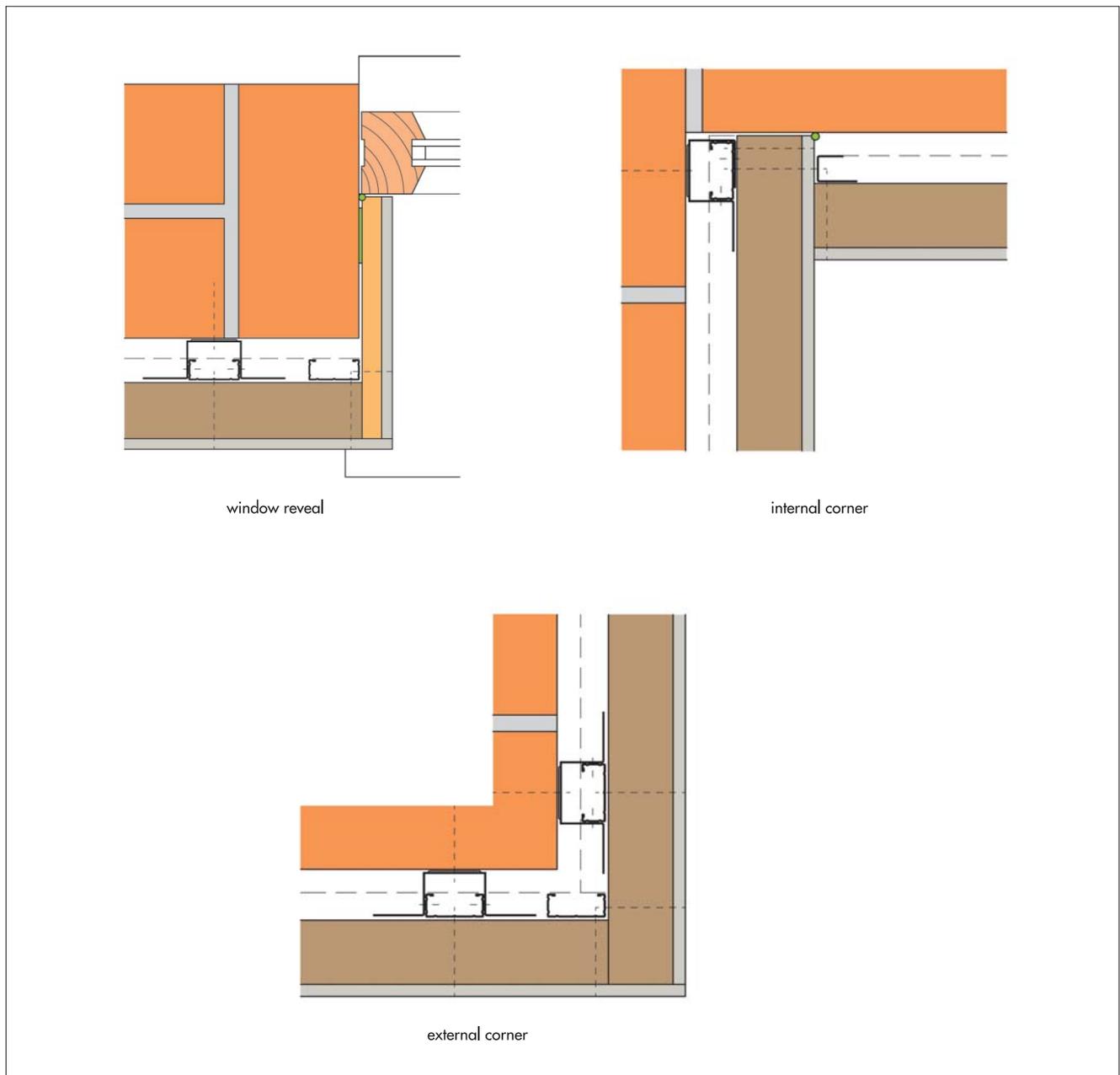
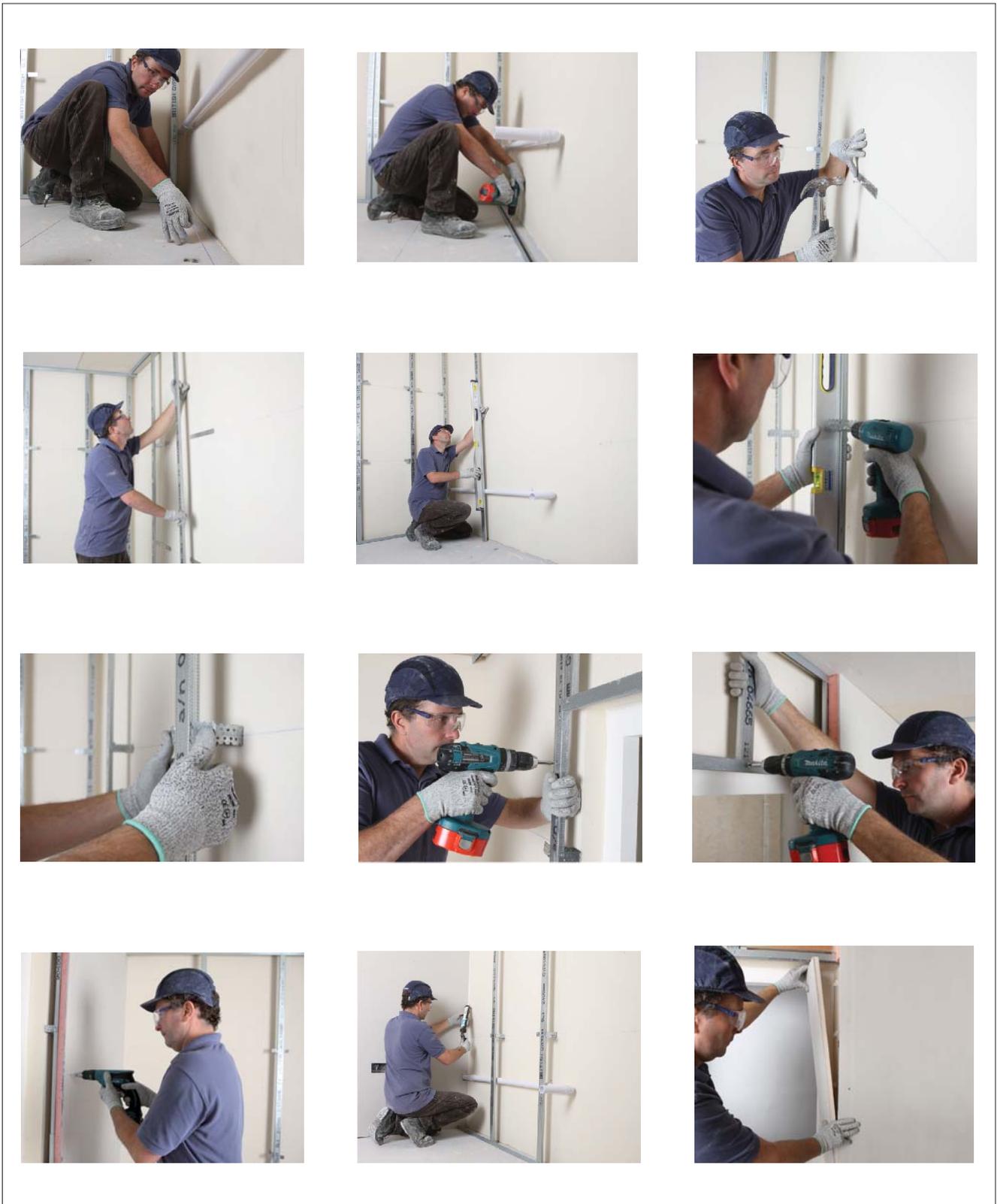


Figure 3 Gyplyner UNIVERSAL installation details



17.4 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 GL1 Gyplyner Anchors.

17.5 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 is 55 mm. 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 length screws should be selected to provide a nominal 10 mm penetration into the Gypframe. Boards should be lightly butted, inserting screws not closer than 10 mm from bound edges and 13 mm from cut edges.

17.6 Gypframe GL1 Lining Channels are positioned either side of a 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 to using British Gypsum Wafer Head Drywall Screws.

17.7 To avoid thermal bridging, the system should be used to line window reveals and 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.

### Finishing

17.8 Jointing and finishing of the plasterboard lining is carried out in the appropriate manner applying plasterer's joint tape to all joints and a thin coat of plaster.

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

## Technical Investigations

### 18 Tests

Tests were carried out to determine:

*Gyplyner UNIVERSAL Insulated Dry Lining System:*

- soft body impact

*Gyproc ThermalLine SUPER:*

- inter-laminate bond strength
- dimensional accuracy

*Gyproc ThermalLine PIR:*

- inter-laminate bond strength
- dimensional accuracy
- bond strength.

### 19 Investigations

19.1 An assessment was made of the results of test data to BS EN 13166 : 2012 relating to:

- vapour resistance
- declared thermal conductivity ( $\lambda_D$  value)
- thermal performance and condensation risk analysis were carried out.

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

## Bibliography

- BS 5250 : 2011 *Code of practice for control of condensation in buildings*
- BS 6576 : 2005 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*
- BS 7671 : 2008 *Requirements for electrical installations — IET Wiring Regulations — Seventeenth edition*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS EN 520 : 2004 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 1996-1-1 : 2005 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- NA to BS EN 1996-1-1 : 2005 *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 *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 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — Specification*
- BS EN 13166 : 2012 *Thermal insulation products for buildings — Factory made phenolic foam (PF) products — Specification*
- BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 13950 : 2005 *Gypsum plasterboard 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 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
- 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 EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*
- BRE Digest 465 : 2002 *U-values for light steel-frame construction*
- BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*
- BRE Report BR 262 : 2002 *Thermal Insulation: avoiding risks*
- BRE Report BR 443 : 2006 *Conventions for U-value calculations*

## 20 Conditions

20.1 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.

20.2 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.

20.3 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.

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

20.5 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.

20.6 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.