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Agrément Certificate
22/6417
Product Sheet 2

ROCKWOOL RAINSCREEN INSULATION

NYROCK RAINSCREEN 032 FOR USE IN TIMBER- OR STEEL-FRAME CONSTRUCTIONS

This Agrément Certificate Product Sheet⁽¹⁾ relates to NyRock⁽²⁾ Rainscreen 032 for use in timber- or steel-frame constructions, a mineral wool insulation slab. The product is for use as partial fill insulation on new and existing conventional timber- or steel-frame walls, in domestic and non-domestic buildings with a masonry outer leaf.

(1) Hereinafter referred to as 'Certificate'.
(2) NyRock is a registered trademark.

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 product has a declared thermal conductivity (λ_D) of $0.032 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (see section 6).

Condensation — the product can contribute to limiting the risk of condensation (see section 7).

Behaviour in relation to fire — the product has a reaction to fire classification of A1 to EN 13501-1 : 2018 (see section 8).

Durability — the product will have a life equivalent to that of the wall structure in which it is incorporated (see section 11).



The BBA has awarded this Certificate to the company named above for the product described herein. This product 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: 2 November 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.*

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Regulations

In the opinion of the BBA, NyRock Rainscreen 032 slab for use in timber- or steel-frame constructions, 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:	B3(4)	Internal fire spread (structure)
Comment:		The product can contribute to satisfying this Requirement. See section 8.1 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The product is unrestricted by this Requirement. See section 8.1 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See sections 7.1, 7.2 and 7.5 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The product is unrestricted by this Regulation. See section 8.1 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)
Regulation:	26C	Target primary energy rates for new buildings (applicable to England only)
Comment:		The product can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	8(3)	Fitness and durability of materials and workmanship
Comment:		The product is unrestricted by this Regulation. See section 8.1 of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.4 ⁽¹⁾ and 2.4.6 ⁽²⁾ . See section 8.1 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is unrestricted by this Standard, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 8.1 of this Certificate.

Standard:	2.7	Spread on external walls
Comment:		The product is unrestricted by this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See section 8.1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product 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 7.5 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Comment:		The product can contribute to satisfying this Standard with reference to clauses, or parts of 6.1.1 ⁽¹⁾⁽²⁾ and 6.1.6 ⁽¹⁾⁽²⁾ . See sections 6.1 and 6.2 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying this Standard, with reference to clauses, or parts of, 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽²⁾ . See sections 6.1 and 6.2 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product 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 product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾ [Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.7 ⁽¹⁾ [Aspect 1 ⁽¹⁾], 7.1.9 ⁽²⁾ [Aspects 1 ⁽²⁾], and 7.1.10 ⁽²⁾ [Aspects 1 ⁽²⁾]. See sections 6.1 and 6.2 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		Comments made in relation to the product 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:	23(1)	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	23(2)	Fitness of materials and workmanship
Comment:		The product is unrestricted by this Regulation. See section 8.1 of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to satisfying this Regulation. See sections 7.1 and 7.2 of this Certificate.
Regulation:	35(4)	Internal fire spread - structure
Comment:		The product can contribute to satisfying this Regulation. See section 8.1 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The product is unrestricted by this Regulation. See section 8.1 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Comment:		The product can contribute to satisfying this Regulation. See sections 6.1 and 6.2 of this Certificate.

Regulation:	40(2)	Target carbon dioxide emission rate
Regulation:	43B	Nearly zero-energy requirements for new buildings
Comment:	The product can contribute to satisfying these Regulations. 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 section: 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, subject to a 50 mm minimum residual cavity being maintained, NyRock Rainscreen 032 for use in timber- or steel-frame constructions, provided it is installed, used, and maintained in accordance with this Certificate can satisfy or contribute to satisfying the relevant requirements, in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls*, 6.2 *External timber framed walls*, and 6.10 *Light steel framing*.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product, in accordance with Designated Standard EN 13162 : 2012.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13162 : 2012.

Technical Specification

1 Description

NyRock Rainscreen 032 for use in timber- or steel-frame constructions is a mineral wool insulation slab. The slabs have the nominal characteristics shown in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	NyRock Rainscreen 032
Length (mm)	1200
Width (mm)	600
Thickness (mm)	50 to 200 ⁽¹⁾⁽²⁾
Edge profile	Square

(1) Other slab thicknesses within the above range are available on request in 5 mm increments.

(2) Higher thicknesses can be achieved by double layering.

2 Manufacture

2.1 Raw materials, mixed to a controlled formulation, are melted in a furnace to produce molten stone. Stone fibres are produced from the molten stone using a rotary spinning process. The fibres are treated with a resin and formed into a continuous length of insulation to the required thickness. The insulation then passes into an oven which cures the resin. The insulation is then cut to the required dimensions to form the slabs.

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 the manufacturer has been assessed and registered as meeting the requirements of ISO 9001 : 2015 and ISO 14001 : 2015 by BSI (Certificates FM 02262 and EMS 70301 respectively).

3 Delivery and site handling

3.1 The slabs are delivered to site in polythene-wrapped packs. Each pack contains a label bearing the Certificate holder's name, slab dimensions and the BBA logo incorporating the number of this Certificate.

3.2 The slabs should be stored clear of the ground, on a clean level surface and preferably under cover to protect them from prolonged exposure to moisture or mechanical damage.

3.3 Appropriate dust masks, gloves and long-sleeved clothing should be worn during cutting and handling of the product.

3.4 Damaged, contaminated or wet slabs must not be used.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on NyRock Rainscreen 032 for use in timber- or steel-frame constructions.

Design Considerations

4 Use

4.1 NyRock Rainscreen 032 for use in timber- or steel-frame constructions is satisfactory for use as partial fill cavity wall insulation and is effective in reducing the U value (thermal transmittance) of external walls of timber-frame or steel-frame buildings, with a masonry outer leaf (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks). The product is for use in new and existing domestic and non-domestic buildings. It is essential that such walls are designed and constructed to incorporate the normal precautions against moisture ingress, including the use of a breather membrane over the timber sheathing in framing board applications.

4.2 The wall and sub-frame should be structurally sound, and should have been designed and constructed in accordance with the following Standards:

- BS 8000-3 : 2020
- BS EN 351-1 : 2007
- BS EN 845-1 : 2013
- BS EN 1993-1-2 : 2005
- BS EN 1993-1-3 : 2006
- BS EN 1995-1-1 : 2004
- BS EN 1996-1-1 : 2005
- BS EN 1996-1-2 : 2005
- BS EN 1996-2 : 2006
- BS EN 1996-3 : 2006.

4.3 Wall ties and fixings to BS EN 845-1 : 2013 should be used for structural stability in accordance with, BS EN 1996-1-1 : 2005 and BS EN 1996-2 : 2006.

4.4 Services which penetrate the dry lining (eg light switches and power outlets) must be kept to a minimum to limit damage to vapour checks. In addition, to preserve the fire resistance of the wall, any penetrations should be enclosed in plasterboard, stone mineral wool or a suitably tested proprietary fire-rated system.

4.5 A vapour control layer (vcl) which should be a minimum thickness of 0.125 mm (500 gauge) polyethylene, or plasterboard backed with a vapour control membrane or similar, should be installed behind the internal finish,.

4.6 Care must be taken in the overall design and construction of walls incorporating the product to ensure the provision of appropriate:

- cavity trays and damp-proof courses (dpc).
- cavity barriers
- resistance to the ingress of precipitation, moisture and dangerous gases from the ground.
- resistance to sound transmission when flanking separating walls and floors.

4.7 Cavity battens or boards should be used to prevent thermal bridging by mortar droppings.

Buildings up to and including 25 metres high

4.8 The minimum residual cavity width to be maintained during construction must be 25 mm. To achieve this, a greater nominal residual cavity width may need to be specified at the design stage (to allow for inaccuracies inherent in the building process). The specifier may either:

- design a nominal residual cavity width of 50 mm (a residual cavity nominally at least 50 mm wide will be required by the NHBC), or
- design a cavity width which takes into account the dimensional tolerances of the components which make up the wall (by reference to the British Standards relating to the bricks, blocks and boards, or by using the data from the respective manufacturers). Allowances may need to be made for the quality of building operatives and the degree of site supervision or control available. The limitations in respect of exposure of the proposed building as set out in Table 2 must also be observed.

Table 2 Maximum allowable total exposure factors of different constructions

Construction	Maximum allowable exposure factor E ⁽¹⁾
All external masonry walls protected by: rendering (to BS EN 13914-1 : 2016), tile or slate hanging, or timber, plastic or metal weatherboarding or cladding.	No restriction
One or more external masonry walls constructed from facing clay brickwork or natural stone, the porosity of which exceeds 20% by volume. Mortar joints must be flush pointed or weatherstruck.	100
One or more external masonry walls constructed from calcium silicate bricks, concrete blocks, reconstituted stone, or natural stone, the porosity of which is less than 20% by volume, or any material with raked mortar joints.	88

(1) To BS 5618 : 1985.

4.9 From ground level, the maximum height of continuous cavity walls must not exceed 12 metres; above 12 metres, the maximum height of continuous cavity walls must not exceed 7 metres. In both cases, breaks should be in the form of continuous horizontal cavity trays and weepholes discharging to the outside.

Buildings over 25 metres in height

4.10 The width of the residual clear cavity to be achieved is a minimum of 50 mm, and the following additional requirements apply:

- the specifier must take extra care when detailing to ensure that the introduction of the insulation does not affect the weather resistance of the wall. Above average site supervision is recommended during installation of the product
- where, for structural reasons, the cavity width is reduced (eg by the intrusion of ring beams), a minimum residual cavity width of 25 mm must be maintained and extra care must be taken with fixings and weatherproofing (eg the inclusion of cavity trays with weepholes).

4.11 An external render coat or other suitable finish should be applied in locations where such application would be normal practice; care should be taken to ensure that the residual cavity is not bridged by mortar.

5 Practicability of installation

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

6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2017, BS EN ISO 10211 : 2017, and BRE Report BR 443 : 2019 (where relevant), using a thermal conductivity (λ_D) of $0.032 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.

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 and its internal finish. Calculated U values for example constructions are given in Tables 3 and 4.

Table 3 Example U values — timber-frame

U Value ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)	Timber-frame ⁽¹⁾⁽²⁾	
	Insulation thickness installed against the sheathing board – no insulation in the 140 mm timber-frame (mm) ⁽³⁾	Insulation thickness installed against the sheathing board – fully filled with insulation in the 140 mm timber-frame (mm) ⁽⁴⁾
0.17	160	65
0.18	150	60
0.20	135	50
0.21	125	50
0.22	120	50
0.23	115	50
0.25	105	50
0.26	100	50
0.27	95	50
0.28	90	(5)
0.30	80	(5)
0.35	65	(5)

(1) Construction, external to internal, comprises 102.5 mm brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), 50 mm clear cavity, NyRock Rainscreen 032, breather membrane, 9 mm timber oriented strand board (OSB) sheathing board ($\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), 140 mm timber-frame (15% fraction), vapour control layer (vcl) and 15 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(2) Calculations based upon cavity wall ties of 4.4 stainless-steel fixings per m^2 (6.6 mm^2 cross-sectional area, $\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(3) Insulation installed against the timber sheathing board with no insulation in the timber-frame.

(4) Insulation installed against the timber sheathing board with 140 mm of insulation in the timber-frame ($\lambda = 0.035 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) with a 15% timber-frame fraction.

(5) Achieves the U Value with no additional insulation.

Table 4 Example U values — Steel - frame

U Value ($W \cdot m^{-2} \cdot K^{-1}$)	Steel-frame ⁽¹⁾⁽²⁾	
	Insulation thickness installed against the sheathing board – no insulation in the 90 mm steel-frame (mm) ⁽³⁾	Insulation thickness installed against the sheathing board – fully filled with insulation in the 90 mm steel-frame (mm) ⁽⁴⁾
0.17	160	115
0.18	150	110
0.20	135	90
0.21	130	85
0.22	120	75
0.23	115	70
0.25	105	60
0.26	100	55
0.27	95	50
0.28	90	50
0.30	80	50
0.35	65	50

(1) 102.5 mm brick ($\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$), 50 mm clear cavity, NyRock Rainscreen 032, breather membrane, 9 mm timber OSB (oriented strand board) sheathing board ($\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$), 90 mm light-steel-frame system (0.2% fraction), vcl and 15 mm plasterboard ($\lambda = 0.25 W \cdot m^{-1} \cdot K^{-1}$).

(2) Calculations based upon cavity wall ties of 4.4 stainless-steel fixings per m^2 (6.6 mm^2 cross-sectional area, $\lambda = 17 W \cdot m^{-1} \cdot K^{-1}$).

(3) Insulation installed against the timber sheathing board with no insulation in the steel-frame.

(4) Insulation installed against the timber sheathing board with 90 mm of insulation in the steel frame ($\lambda = 0.038 W \cdot m^{-1} \cdot K^{-1}$) with a 0.2% steel-frame fraction.

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

7.2 For the purpose of calculations, the water vapour diffusion resistance factor (μ) of the product may be taken as 1.

7.3 A vapour control layer (vcl) should be used in all constructions should the condensation risk analysis show this is necessary.

Surface condensation



7.4 In England and Wales, walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred in section 6.3.



7.5 In Scotland, walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $1.2 W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

8 Behaviour in relation to fire



8.1 The product has a reaction to fire classification⁽¹⁾ of A1 to EN 13501-1 : 2018, and is not subject to any restriction on building height or proximity to boundaries.

(1) MPA NRW report No. 231001026-3, dated 9 November 2020, Copies can be obtained from the Certificate holder.

8.2 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity closers and barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction.

9 Water resistance

9.1 Constructions incorporating the product and built in accordance with the Standards listed in section 4.2, will resist the transfer of precipitation to the inner leaf and satisfy the requirements of the national Building Regulations.

9.2 In all situations, it is particularly important to ensure during installation that:

- wall ties are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the brick leaf and any debris removed from the cavity
- mortar droppings are cleaned from the exposed edges of installed slabs
- insulation slabs are properly installed and butt-jointed
- installation is carried out to the highest level on each wall, or the top edge of the insulation is protected by a cavity tray
- at lintel level, a cavity tray, stop ends and weep holes are provided
- cavity battens and/or boards are used during construction to prevent bridging by mortar droppings
- dpc at ground level do not project into the cavity as they can form a trap for mortar bridging
- raked or recessed mortar joints are avoided in very severe exposure areas.

10 Maintenance

Once installed, the product does not require any regular maintenance and has suitable durability (see section 11), provided the masonry outer leaf is maintained in a weathertight condition.

11 Durability



The product is unaffected by the normal conditions in a wall and is durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.

Installation

12 General

12.1 Installation of the product should be in accordance with the Certificate holder's instructions and current good building practice.

12.2 The product can be cut using a fine-toothed saw or sharp knife, but care must be taken to prevent damage, particularly to edges.

12.3 Cavity barriers should be provided at the junction of the external wall and roof space as required by the documents supporting the national Building Regulations.

12.4 It is important to ensure a tight fit between slabs. Trimming must be accurate, to achieve close-butted joints and continuity of insulation.

12.5 The slabs are fixed against the external face of the sheathing board in conjunction with the masonry outer leaf.

13 Procedure

13.1 The slabs should be carefully cut using a sharp knife to fit around any protrusions into the cavity.

13.2 Slabs should be close butted at all vertical and horizontal joints, and at corners. The horizontal joints of the slabs should be staggered, brick bond pattern, and in accordance with good practice.

13.3 To assist installation, the product may be initially fixed using suitable insulation-retaining clips with a minimum head diameter of 70 mm; one fixing per slab is normally sufficient (see Figure 1).

13.4 Fixings should have a minimum head diameter of 70 mm. A typical final fixing pattern has three fixings per slab with one metal fixing at the centre of every slab. Note that the adequacy of this or any other fixing pattern should be verified on a case-by-case basis through assessment by a suitably experienced and qualified individual.

13.5 For a typical installation, a breathable membrane is placed between the sheathing board and the product (see Figures 2 and 3).

13.6 A vcl is placed between the plasterboard and the frame (see Figures 2 to 3). Designers should, however, choose a suitable construction on a case-by-case basis for a particular installation.

13.7 The insulation should be installed to coincide with the steel- or timber-frame, with retaining discs used in conjunction with the wall ties at no more than 600 mm horizontally and 450 mm vertically.

Double layering

13.8 The product may be installed in a two-layer system, which is identical to the single layer system but the vertical joints in the second layer must be staggered to the first layer. The final fixings should be installed as per the Certificate holder's instructions.

13.9 The first layer of the insulation is installed using one central mechanical fixing per slab, ensuring this fixing does not interfere with the final fixing pattern for the product.

13.10 The second layer is positioned with the vertical joints staggered; the final fixings should be installed as per the Certificate holder's instructions.

Figure 1 Typical fixing pattern

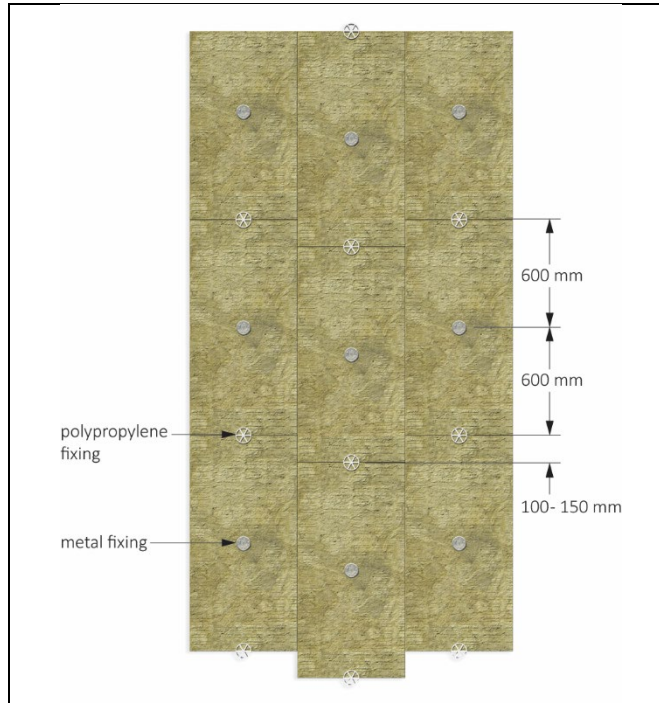


Figure 2 Example Lightweight steel-frame

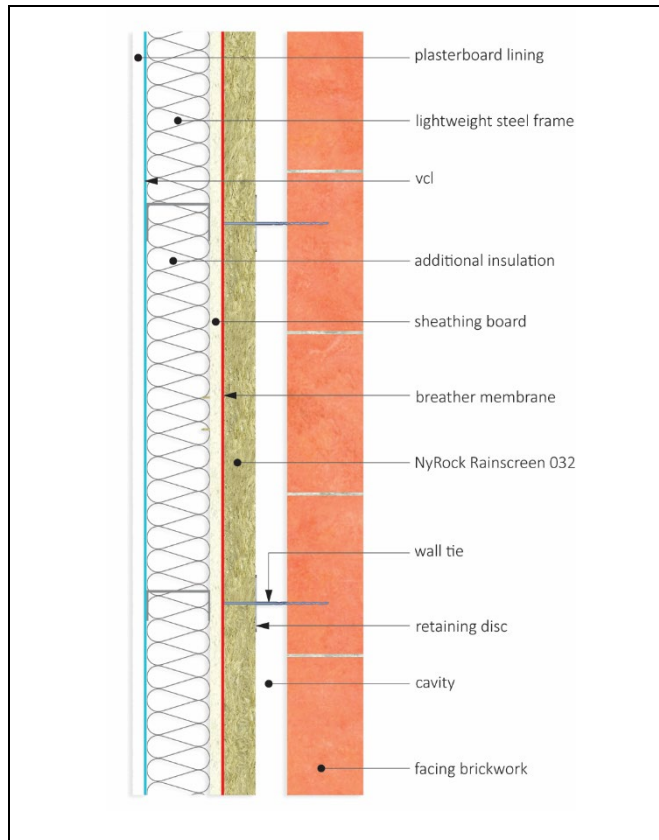
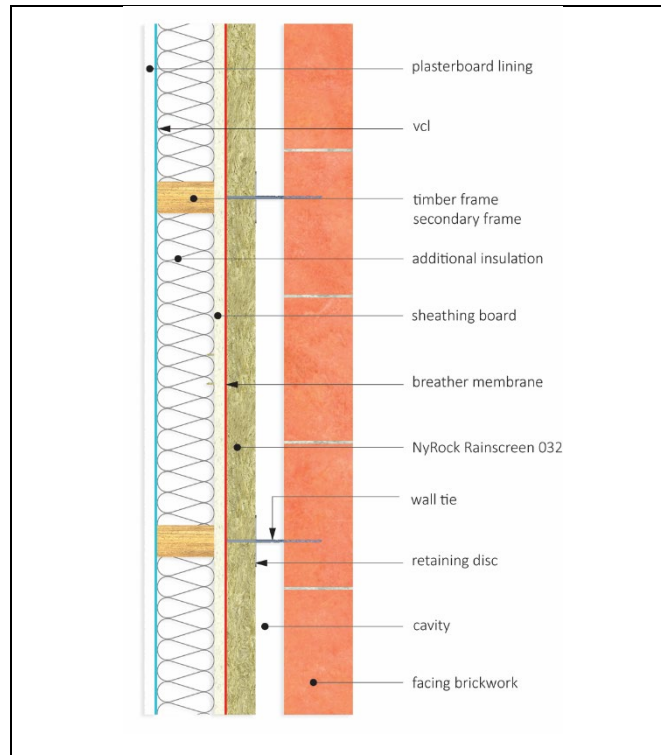


Figure 3 Example Timber-frame



Mortar droppings

13.11 As the outer facing brickwork is being built, excess mortar should be removed from the cavity face and mortar droppings cleaned from the installed insulation slabs. Use of a cavity board or a cavity batten will protect the installed insulation slab and help to keep the cavity clean.

Technical Investigations

14 Tests

Results of tests were assessed to determine:

- reaction to fire.
- thermal conductivity.
- short-term water absorption.
- density of air-dry slabs.
- dimensional accuracy.
- dimensional stability.

15 Investigations

15.1 Existing data on, durability, and properties in relation to fire were evaluated.

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

15.3 A series of U Value calculations were carried out.

15.4 An assessment of the risk of interstitial condensation was made.

15.5 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 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 5618 : 1985 *Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems*
- BS 8000-3 : 2020 *Workmanship on construction sites. Masonry. Code of practice*
- BS EN 351-1 : 2007 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*
- BS EN 845-1 : 2013 + A1 : 2016 : *Specification for ancillary components for masonry. Wall ties, tension straps, hangers and brackets*
- BS EN 1993-1-2 : 2005 : *Eurocode 3. Design of steel structures. General rules. Structural fire design*
NA to BS EN 1993-1-2 : 2005 : *UK National Annex to Eurocode 3. Design of steel structures. General rules. Structural fire design*
- BS EN 1993-1-3 : 2006 *Eurocode 3: Design of steel structures — General rules — Supplementary rules for cold formed members and sheeting*
NA to BS EN 1993-1-3 : 2006 : *UK National Annex to Eurocode 3. Design of steel structures. General rules. Supplementary rules for cold-formed members and sheeting*
- BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5: Design of timber structures — General — Common rules and rules for buildings*
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- 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 + A1 : 2014 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 13914-1 : 2016 *Design, preparation and application of external rendering and internal plastering — External rendering*
- BS EN ISO 6946 : 2017 *Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods*
- BS EN ISO 10211 : 2017 *Thermal bridges in building constructions — Heat flows and surface temperatures — Details calculations*
- EN 13162 : 2012 + A1 : 2015 *Thermal insulation products for buildings – Factory made mineral wool (MW) products - specification*

EN 13501-1 : 2018 *Fire classification of construction products and building elements. Classification using data from reaction to fire tests*

ISO 9001 : 2015 *Quality management systems — Requirements*

ISO 14001 : 2015 *Environmental management systems. Requirements with guidance for use*

BS EN ISO 10211 : 2017 : *Thermal bridges in building construction. Heat flows and surface temperatures. Detailed calculations*

16 Conditions

16.1 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.