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**Agrément Certificate**
**19/5609**
Product Sheet 2 Issue 3

## KNAUF INSULATION

# ROCKSILK RAINSCREEN SLAB FOR USE IN TIMBER FRAME, STEEL FRAME OR CROSS LAMINATED TIMBER CONSTRUCTIONS

This Agrément Certificate Product Sheet(1) relates to Rocksilk(2) RainScreen Slab for use in Timber Frame, Steel Frame or Cross Laminated Timber Constructions, a mineral wool insulation slab, for use as insulated sheathing on new and existing conventional timber-frame, steel-frame or cross laminated timber walls with a masonry outer leaf, in domestic and non-domestic buildings.

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

### The assessment includes

**Product factors:**
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

**Process factors:**
- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

**Ongoing contractual Scheme elements†:**
- regular assessment of production
- formal 3-yearly review

**KEY FACTORS ASSESSED**

Section 1. Mechanical resistance and stability
Section 2. Safety in case of fire
Section 3. Hygiene, health and the environment
Section 4. Safety and accessibility in use
Section 5. Protection against noise
Section 6. Energy economy and heat retention
Section 7. Sustainable use of natural resources
Section 8. Durability

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 Third issue: 22 April 2024
Originally certified on 28 May 2019

Hardy Giesler
Chief Executive Officer

*This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.*

*The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).*

***Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.***

***The Certificate should be read in full as it may be misleading to read clauses in isolation.***

*Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.*

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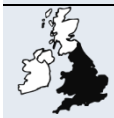
## SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

## Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Rocksilk RainScreen Slab for use in Timber Frame, Steel Frame or Cross Laminated Timber 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 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 2 of this Certificate. |
| **Requirement:** | **B4(1)** | **External fire spread (structure)** |
| Comment: | | The product is unrestricted by this Requirement. See section 2 of this Certificate. |
| **Requirement:** | **C2(a)** | **Resistance to moisture** |
| Comment: | | The product can contribute to satisfying this Requirement. See section 3 of this Certificate. |
| **Requirement:** | **C2(b)** | **Resistance to moisture** |
| Comment: | | The product can contribute to satisfying this Requirement. See section 9 of this Certificate. |
| **Requirement:** | **C2(c)** | **Resistance to moisture** |
| Comment: | | The product can contribute to satisfying this Requirement. See section 3 of this Certificate. |
| **Requirement:** | **L1(a)(i)** | **Conservation of fuel and power** |
| Comment: | | The product can contribute to satisfying this Requirement. See section 6 of this Certificate. |
| **Regulation:** | **7(1)** | **Materials and workmanship** |
| Comment: | | The product is acceptable. See sections 8 and 9 of this Certificate. |
| **Regulation:** | **7(2)** | **Materials and workmanship** |
| Comment: | | The product is unrestricted by this Regulation. See section 2 of this Certificate. |
| **Regulation:** | **25B** | **Nearly zero-energy requirements for new buildings** |
| **Regulation:** | **26** | **$CO_2$ 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)** |
| **Regulation:** | **26C** | **Energy efficiency rating (applicable to Wales only)** |
| Comment: | | The product can contribute to satisfying these Regulations. See section 6 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 sections 8 and 9 of this Certificate. |

| | | |
|---|---|---|
| **Regulation** | **8(3)** | **Fitness and durability of materials and workmanship** |
| Comment: | | The product is unrestricted by this Regulation. See section 2 of this Certificate. |
| **Regulation:** | **9** | **Building standards – construction** |
| Standard: | 2.4 | Cavities<br>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 2 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 2 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 2 of this Certificate. |
| Standard: | 3.4 | Moisture from the ground |
| Comment: | | The product can contribute to satisfying this Standard, with reference to clauses 3.4.1(1)(2) and 3.4.5(1)(2). See section 3 of this Certificate. |
| Standard: | 3.10 | Precipitation |
| Comment: | | The product can contribute to satisfying this Standard, with reference to clauses 3.10.1(1)(2) and 3.10.3(1)(2). See section 9 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 section 3 of this Certificate. |
| Standard: | 6.1(b)(c) | Energy demand |
| Comment: | | The product can contribute to satisfying this Standard, with reference to 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). See section 6 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(1)(2), 6.2.5(2), 6.2.6(1)(2), 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). See section 6 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 at least 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), 7.1.6(1)(2), 7.1.7(1), 7.1.9(2) and 7.1.10(2). See section 6 of this Certificate. |
| **Regulation:** | **12** | **Building standards – conversion** |
| Comment: | | All comments given for 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)(a)(i)** | **Fitness of materials and workmanship** |
| Comment: | **(iii)(b)(i)(ii)** | The product is acceptable. See sections 8 and 9 of this Certificate. |
| **Regulation:** | **23(2)** | **Fitness of materials and workmanship** |
| Comment: | | The product is unrestricted by this Regulation. See section 2 of this Certificate. |

| | | |
|---|---|---|
| **Regulation:** | **28(a)** | **Resistance to moisture and weather** |
| Comment: | | The product can contribute to satisfying this Regulation. See section 3 of this Certificate. |
| **Regulation:** | **28(b)** | **Resistance to moisture and weather** |
| Comment: | | The product can contribute to satisfying this Regulation. See section 9 of this Certificate. |
| **Regulation:** | **29** | **Condensation** |
| Comment: | | The product can contribute to satisfying this Regulation. See section 3 of this Certificate. |
| **Regulation:** | **35(4)** | **Internal fire spread – structure** |
| Comment: | | The product can contribute to satisfying this Regulation. See section 2 of this Certificate. |
| **Regulation:** | **36(a)** | **External fire spread** |
| Comment: | | The product is unrestricted by this Regulation. See section 2 of this Certificate. |
| **Regulation:** | **39(a)(i)** | **Conservation measures** |
| **Regulation:** | **40(2)** | **Target carbon dioxide emission rate** |
| **Regulation:** | **43(1)(2)** | **Renovation of thermal elements** |
| **Regulation:** | **43(b)** | **Nearly zero-energy requirements for new buildings** |
| Comment: | | The product can contribute to satisfying these Regulations. See section 6 of this Certificate. |

## Additional Information

### NHBC Standards 2024

In the opinion of the BBA, Rocksilk RainScreen Slab for use for use in Timber Frame, Steel Frame or Cross Laminated Timber Constructions, if 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 framed walls and floors*.

## Fulfilment of Requirements

The BBA has judged Rocksilk RainScreen Slab for use in Timber Frame, Steel Frame or Cross Laminated Timber Constructions to be satisfactory for use as described in this Certificate. The product has been assessed as insulated sheathing on new and existing conventional timber frame, steel frame or cross laminated timber walls in domestic and non-domestic buildings with a masonry outer leaf.

## ASSESSMENT

## Product description and intended use

The Certificate holder provided the following description for the product under assessment. Rocksilk RainScreen Slab for use in Timber Frame, Steel Frame or Cross Laminated Timber Constructions comprises slabs of rigid rock mineral wool (MW) treated with a water-repellent additive.

The product has the nominal characteristics given in Table 1.

*Table 1 Nominal characteristics*

| Characteristic (unit) | Value |
|---|---|
| Length (mm) | 1200 |
| Width (mm) | 600 |
| Thickness (mm)(1)(2) | 50, 75, 100, 120, 150, 180, 200, 210 and 250 |
| Edge profile | Square |

(1) Other slab thicknesses within the above range are available on request
(2) Higher thicknesses can be achieved by double layering.

Ancillary Items

The Certificate holder recommends the following ancillary items for use with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- additional insulation for use between timber/steel frame studs
- insulation fixings with retaining discs (minimum 70 mm diameter)
- brick ties and tie channels
- sheathing and lining board
- breather membranes
- air and vapour control layer (AVCL).

## Product assessment – key factors

The product was assessed for the following key factors, and the outcomes of the assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

### 1 Mechanical resistance and stability

Not applicable.

### 2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 The product was tested for reaction to fire and the classification is given in Table 2.

*Table 2 Reaction to fire classification(1)*

| Product assessed | Assessment method | Requirement | Result |
|---|---|---|---|
| Rocksilk RainScreen Slab | BS EN 13501-1 : 2007 | Value achieved | A1 |

(1) Exova Warringtonfire. Report No 355031, 28 July 2015, copies available from the Certificate holder on request.

2.1.2 On the basis of data assessed, the product will be unrestricted with respect to height and proximity to a relevant boundary by the documents supporting the national Building Regulations.

2.1.3 Designers must 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.

2.2 Fire resistance

Where the product is incorporated in a wall construction where fire resistance is required by the documents supporting the national Building Regulations, the fire resistance of the wall construction should be confirmed by a suitably experienced and competent individual.

## 3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Effectiveness against rising damp

3.1.1 The product was tested for short-term water absorption by partial immersion and the result is given in Table 3.

*Table 3 Short term water absorption by partial immersion*

| Product assessed | Assessment method | Requirement | Result |
|---|---|---|---|
| Rocksilk RainScreen Slab | BS EN 1609 : 2013 | ≤ 1 $kg \cdot m^{-2}$ | Pass |

3.1.2 On the basis of data assessed, the product, when used with a suitably drained cavity, will not transfer moisture by capillary absorption and may be used in situations where it bridges the damp-proof course (DPC) in walls. Dampness from the ground will not pass through to the inner leaf, provided the wall is detailed in accordance with the requirements and provisions of the national Building Regulations.

3.2 Water vapour permeability

3.2.1 For the purpose of assessing the risk of interstitial condensation, the water vapour resistivity may be taken as stated in Table 4.

*Table 4 Water vapour resistivity*

| Product assessed | Assessment method | Requirement | Result |
|---|---|---|---|
| Rocksilk RainScreen Slab | BS EN ISO 10456 : 2007 | Declared value | 5 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$ |

3.2.2 An AVCL must be used in all constructions where the condensation risk analysis shows this is necessary.

## 4 Safety and accessibility in use

Not applicable.

## 5 Protection against noise

Not applicable.

## 6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The product was tested for thermal conductivity and the result is given in Table 5.

*Table 5 Thermal conductivity*

| Product assessed | Assessment method | Requirement | Result |
|---|---|---|---|
| Rocksilk RainScreen Slab | BS EN 13162 : 2012 | Declared value ($\lambda_D$) | 0.034 $W \cdot m^{-1} \cdot K^{-1}$ |

6.2 Thermal performance

6.2.1 The U value of a completed wall construction will depend on the insulation thickness, number and type of fixings, the rainscreen support system, and the insulating value of the substrate and its internal finish. Example U values are given in Tables 6 to 8.

*Table 6 Example U values – timber frame*[1][2]

| U value ($W \cdot m^{-2} \cdot K^{-1}$) | Nearest available insulation thickness installed against the sheathing board – no insulation in the 140 mm timber frame (mm)[3] | Nearest available insulation thickness installed against the sheathing board – fully filled with insulation in the 140 mm timber frame (mm)[4] |
|---|---|---|
| 0.13 | 250 | 150 |
| 0.15 | 200 | 100 |
| 0.17 | 180 | 75 |
| 0.18 | 180 | 75 |
| 0.21 | 150 | 50 |
| 0.26 | 100 | 50 |
| 0.28 | 100 | —[5] |
| 0.30 | 100 | —[5] |
| 0.35 | 75 | —[5] |

(1) Construction, external to internal: 102.5 mm brick ($\lambda$ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$), 50 mm clear cavity (R = 0.18 $m^2 \cdot K \cdot W^{-1}$), Rocksilk RainScreen Slab insulation, vapour permeable membrane, 9 mm timber OSB (oriented strand board) sheathing board ($\lambda$ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$), 140 mm timber frame ($\lambda$ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$, 15% fraction), AVCL and 15 mm plasterboard ($\lambda$ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).
(2) Calculations based upon 4.4 per $m^2$ stainless steel cavity wall ties ($\lambda$ = 17 $W \cdot m^{-1} \cdot K^{-1}$) with a 6.6 $mm^2$ cross-sectional area.
(3) Air cavity (R = 0.18 $m^2 \cdot K \cdot W^{-1}$) with a 15% timber frame fraction ($\lambda$ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$).
(4) Insulation ($\lambda$ = 0.035 $W \cdot m^{-1} \cdot K^{-1}$), with a 15% timber frame fraction ($\lambda$ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$).
(5) Achieves the U value with no additional insulation.

*Table 7 Example U values — steel frame*[1][2]

| U value ($W \cdot m^{-2} \cdot K^{-1}$) | Nearest available insulation thickness installed against the sheathing board – no insulation in the 90 mm steel frame (mm)[3] | Nearest available insulation thickness installed against the sheathing board – fully filled with insulation in the 90 mm steel frame (mm)[4] |
|---|---|---|
| 0.13 | 250 | 180 |
| 0.15 | 200 | 150 |
| 0.17 | 180 | 120 |
| 0.18 | 180 | 120 |
| 0.21 | 150 | 100 |
| 0.26 | 120 | 75 |
| 0.28 | 100 | 50 |
| 0.30 | 100 | 50 |
| 0.35 | 75 | 50 |

(1) Construction, external to internal: 102.5 mm brick ($\lambda$ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$), 50 mm clear cavity (R = 0.18 $m^2 \cdot K \cdot W^{-1}$), Rocksilk RainScreen Slab insulation, vapour permeable 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 ($\lambda$ = 50 $W \cdot m^{-1} \cdot K^{-1}$, 0.2% fraction), AVCL and 15 mm plasterboard ($\lambda$ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).
(2) Calculations based upon 4.4 per $m^2$ stainless steel cavity wall ties ($\lambda$ = 17 $W \cdot m^{-1} \cdot K^{-1}$) with a 6.6 $mm^2$ cross-sectional area.
(3) Air cavity (R = 0.18 $m^2 \cdot K \cdot W^{-1}$), with a 0.2% steel frame fraction ($\lambda$ = 50 $W \cdot m^{-1} \cdot K^{-1}$).
(4) Insulation ($\lambda$ = 0.038 $W \cdot m^{-1} \cdot K^{-1}$), with a 0.2 % steel frame fraction ($\lambda$ = 50 $W \cdot m^{-1} \cdot K^{-1}$).

*Table 8 Example U values — cross laminated timber[(1)(2)]*

| U value ($W \cdot m^{-2} \cdot K^{-1}$) | Nearest available insulation thickness installed against the CLT panel (mm) |
|---|---|
| 0.13 | 210 |
| 0.15 | 180 |
| 0.17 | 150 |
| 0.18 | 150 |
| 0.21 | 120 |
| 0.26 | 100 |
| 0.28 | 75 |
| 0.30 | 75 |
| 0.35 | 50 |

(1) Construction, external to internal: 102.5 mm brick ($\lambda$ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$), 50 mm clear cavity (R = 0.18 $m^2 \cdot K \cdot W^{-1}$), Rocksilk RainScreen Slab insulation, vapour permeable membrane, 100 mm cross laminated timber ($\lambda$ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$), AVCL, 25 mm air cavity (R = 0.18 $m^2 \cdot K \cdot W^{-1}$, with a 11.8 % timber batten fraction, $\lambda$ = 0.13 $W \cdot m^{-1} \cdot K^{-1}$) and 15 mm plasterboard ($\lambda$ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$).

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

6.2.2 The product can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

## 7 Sustainable use of natural resources

Not applicable.

## 8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the product were assessed.

8.2 The product was tested for dimensional stability and the results are given in Table 9.

*Table 9 Dimensional stability*

| Product assessed | Assessment method | Requirement | Result |
|---|---|---|---|
| Rocksilk RainScreen Slab | BS EN 1604 : 2013 (70°C and 90 % RH for 48 hours) | Length, width and reduction in thickness ≤ 1 % change | Pass |

8.3 Service life

Under normal service conditions, the product will have a life at least equivalent to the structure in which it is incorporated, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

## PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

## 9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 The wall and sub-frame must be designed and constructed in accordance with the relevant recommendations of:

- BS 5250 : 2021
- BS 8000-3 : 2020
- BS EN 351-1 : 2023
- BS EN 845-1 : 2013
- BS EN 1992-1-1 : 2004 and its UK National Annex
- BS EN 1992-1-2 : 2004 and its UK National Annex
- BS EN 1993-1-1 : 2005 and its UK National Annex
- BS EN 1993-1-2 : 2005 and its UK National Annex
- BS EN 1993-1-3 : 2006 and its UK National Annex
- BS EN 1995-1-1 : 2004 and its UK National Annex
- BS EN 1996-1-1 : 2005 and its UK National Annex
- BS EN 1996-1-2 : 2005 and its UK National Annex
- BS EN 1996-2 : 2006 and its UK National Annex
- BS EN 1996-3 : 2006 and its UK National Annex.
- BS EN 16351 : 2021
- BS ISO 16696-1 : 2019.

9.1.3 It is essential that walls are designed and constructed to incorporate the normal precautions against moisture ingress, including the use of a breather membrane over the sheathing in framing board applications.

9.1.4 As with other forms of wall insulation, where buildings need to comply with the *NHBC Standards* 2024, specifiers must observe the requirements of that document.

9.1.5 The wall and sub-frame to which the product is fixed, or which it is installed between, must be structurally sound and constructed in accordance with section 9.1.6. However, when designing the wall for strength, stability and racking, no contribution from the insulation must be assumed.

9.1.6 Care must also be taken in the overall design and construction of elements incorporating the product to ensure appropriate:

- sheathing or bracing for frame elements. The product must not be relied on to provide any structural contribution, eg racking strength
- fire resistance, for both elements and junctions
- continuity of insulation to minimise thermal bridging
- resistance to the ingress of precipitation and moisture from the ground.

9.1.7 Timber- or steel-frame wall ties with insulation-retaining fixings and, if required, any additional ties to BS EN 845-1 : 2013, must be used for structural stability in accordance with BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, and their UK National Annexes.

9.1.8 External masonry walls must be in good condition and must resist the ingress of rain.

9.1.9 The designer must select a construction appropriate to the local wind-driven rain index to BS EN 1996-2 : 2006 and its UK National Annex, paying due regard to the design detailing, workmanship, and materials to be used. It is essential that such walls are designed and constructed to incorporate the normal precautions against moisture ingress.

9.1.10 The product must be kept dry before the external masonry leaf is constructed.

9.1.11 The construction must be made weathertight as soon as practically possible to ensure maximum protection of the product.

9.1.12 Calculations of the thermal transmittance (U value) of a wall must be carried out in accordance with BS EN ISO 6946 : 2017, BRE Report BR 443 : 2019, BRE Digest 465 : 2002 and BS EN ISO 10211 : 2017.

9.1.13 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.

9.1.14 Cavity barriers must be provided as required by the documents supporting the national Building Regulations.

*Interstitial condensation*

9.1.15 An assessment of the risk of interstitial condensation for the specific construction must be carried out in accordance with BS EN ISO 13788 : 2012 using the declared water vapour resistivity in Table 4 of this Certificate.

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

9.1.17 If the product is to be used in the external wall of rooms expected to have high humidity, care must be taken to provide adequate permanent ventilation to avoid possible problems from the formation of interstitial condensation.

9.1.18 An AVCL must be behind the internal plasterboard lining, which should be a minimum thickness of 0.125 mm (500 gauge) polyethylene, or plasterboard backed with a vapour control membrane.

*Surface condensation*

9.1.19 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 to in section 9.1.13 of this Certificate.

9.1.20 For buildings in Scotland, wall constructions will be acceptable 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 9.1.13 of this Certificate.

*Buildings up to and including 25 metres in height*

9.1.21 The residual cavity width to be maintained during construction is 50 mm. This may reduce to 25 mm in isolated areas due to individual construction features [a minimum of 50 mm residual cavity width is required by the NHBC(1)]. This may be achieved by designing 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 10 must also be observed.

(1) The NHBC requirement for a residual cavity width is increased to 75 mm in areas of very severe exposure where the outer leaf is fair-faced masonry.

*Table 10 Maximum allowable exposure index E*(1)

| Construction | Maximum allowable exposure index *E* (1) |
|---|---|
| All external masonry walls protected by: rendering (to BS EN 13914-1 : 2016), tile hanging, 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.

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

9.1.23 An external render coat or other suitable finish must 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.

*Buildings over 25 metres in height*

9.1.24 The width of the residual clear cavity to be achieved must be in excess of 50 mm, and the following requirements apply in addition to those stated in 9.1.21 to 9.1.23:

- 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.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance are provided in Annex A of this Certificate.

9.2.3 Existing constructions must be in a good state of repair, with no evidence of rain penetration or damp. Defects must be made good prior to installation.

9.2.4 Any mould or fungal growth found to be present must be treated.

9.2.5 For timber-frame constructions, installation must not be carried out until the moisture content of the frame is less than 20%.

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

9.2.7 The product may be applied with either face in contact with the substrate. Slabs must be in continuous and direct contact with the substrate.

9.2.8 Slabs must be close butted at all vertical and horizontal joints. The horizontal joints of the insulation must be staggered, in accordance with good practice.

9.2.9 Fixings must have a minimum head diameter of 70 mm. A typical fixing pattern has three fixings per square metre, with one metal fixing incorporating a metal head at the centre of every full or part slab (see section 9.1.7 of this Certificate).

9.2.10 Extra fixings are required around openings and at corners.

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

- installation is carried out to the highest level on each wall, or the top edge of the insulation is protected by a cavity tray
- cavity trays are used with appropriate stop ends and weepholes at lintel level
- cavity battens and/or boards are used during construction to prevent bridging by mortar droppings
- wall ties are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the leading leaf and any debris removed from the cavity
- mortar droppings are cleaned from the exposed edges of installed boards
- insulation boards are properly installed and either butt jointed, or interlocked using the tongue and groove or rebated edges
- the DPC at ground level does not project into the cavity as it can form a trap for mortar bridging
- raked or recessed mortar joints are avoided in very severe exposure areas.

9.3 Workmanship

Practicability of installation was assessed, on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the product must be carried out by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

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

## 10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review 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.

## 11 Delivery and site handling

11.1 Slabs are delivered to site compression-wrapped in polythene. Each pack carries a label bearing the Certificate holder's name, product description and the BBA logo incorporating the number of this Certificate.

11.2 Delivery and site handing must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 The product 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.

11.2.2 Dust masks, gloves and long-sleeved clothing must be worn when cutting and handling the slabs.

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

## ANNEX A – SUPPLEMENTARY INFORMATION †

Supporting information in this Annex is relevant to the product but has not formed part of the material assessed for the 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.

### CE marking

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

### Management Systems Certification for production

The management system of Knauf Insulation Ltd has been assessed and registered as meeting the requirements of ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 and ISO 50001 : 2018 by TÜV Nord (Certificates 44100190742, 44104190742, 44126190742 and 44764190742 respectively).

### Additional information on installation

**General**

A.1 The product can be cut using a fine-serrated saw or sharp knife, but care must be taken to prevent damage, particularly to edges.

A.2 The slabs are fixed against the external face of the sheathing board in conjunction with the masonry outer leaf.

**Procedure**

A.3 The product may be installed with either face in continuous and direct contact with the building substrate (see Figures 1 to 3).

*Figure 1 Lightweight steel-frame application*

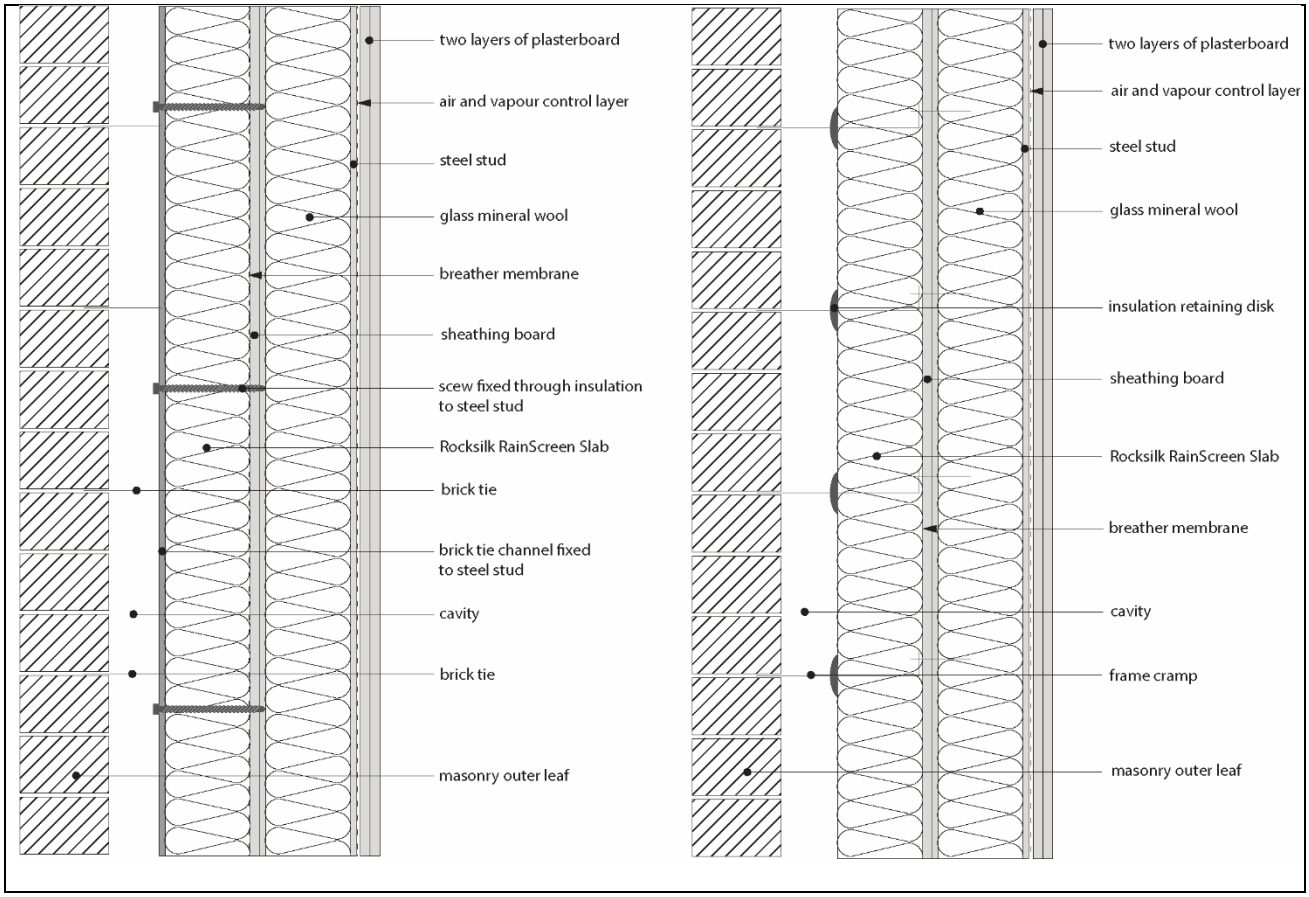



*Figure 2 Timber-frame application*

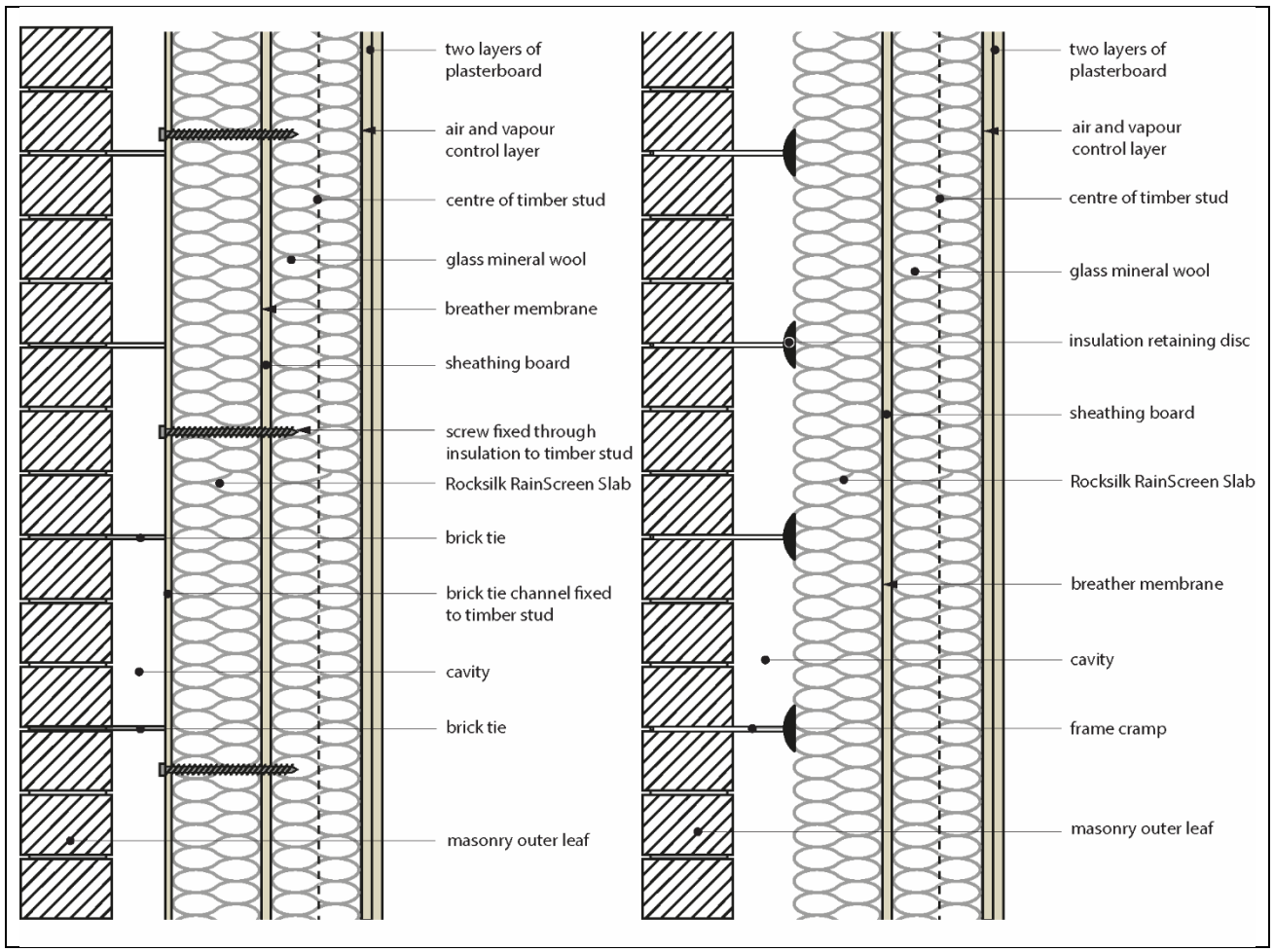
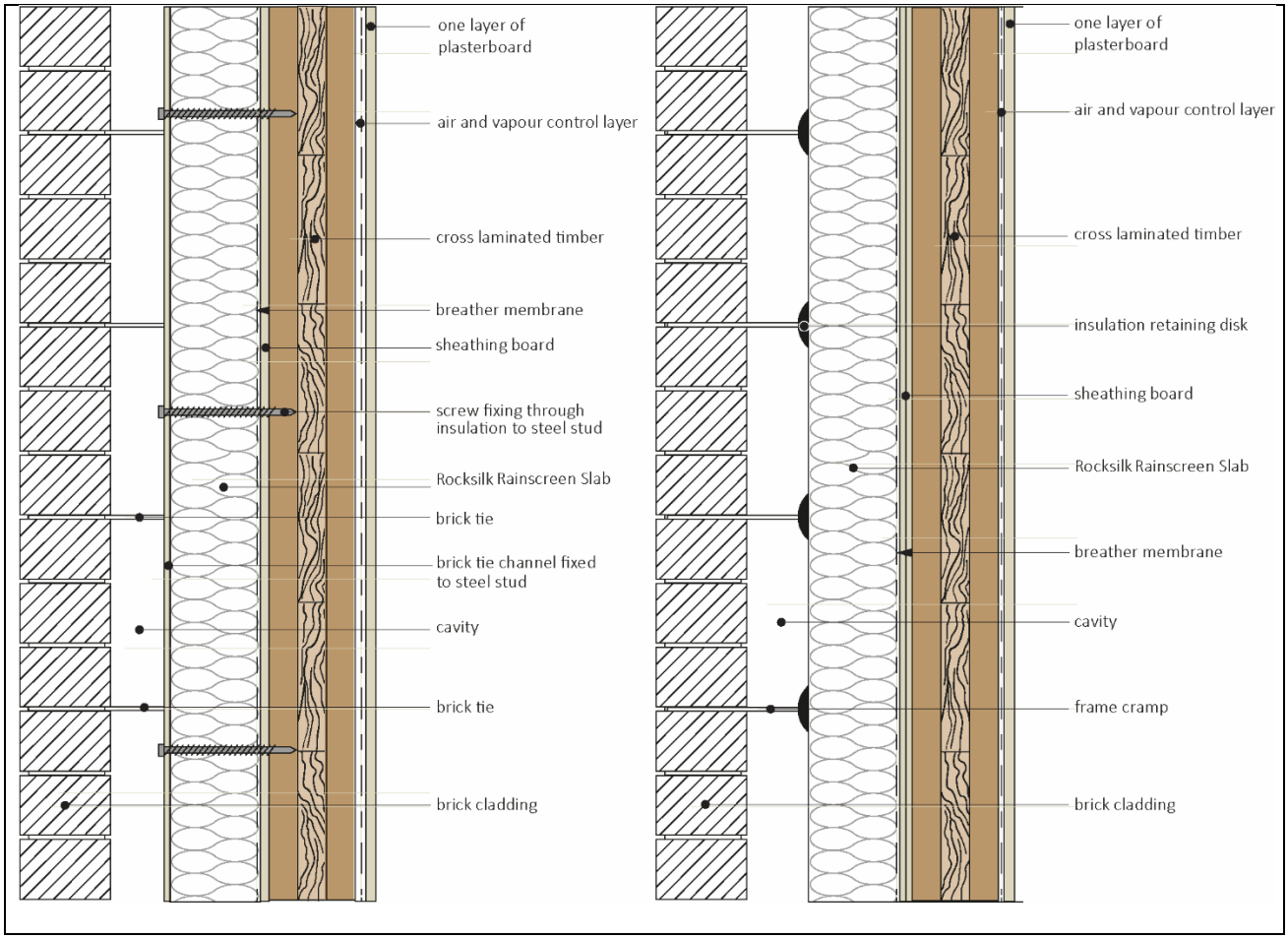


*Figure 3 Cross laminated timber application*




A.4 The slabs are installed such that joints are staggered by 100 to 150 mm.

A.5 Full slabs must be used in corners. Additional fixings must be used to ensure slab is fixed firmly to the structure.

A.6 Areas that cannot accept a full slab must use a slab section, which is fixed at 600 mm intervals in the centre.

A.7 The slab sections must be cut to be oversized by 5 mm, and compression fitted to ensure a tight fit.

A.8 The lower edge of the first run of slabs may be positioned below DPC level to provide some edge insulation for the floor. When using brick tie channels, polypropylene fixings are used along stud lines to retain slabs against the sheathing board prior to installing rails.

A.9 The slabs must be cut to fit tightly around window details and additional fixings used at the slab edges. Additional fixings and brick tie channels must be fixed into the detail border studs or secondary studs.

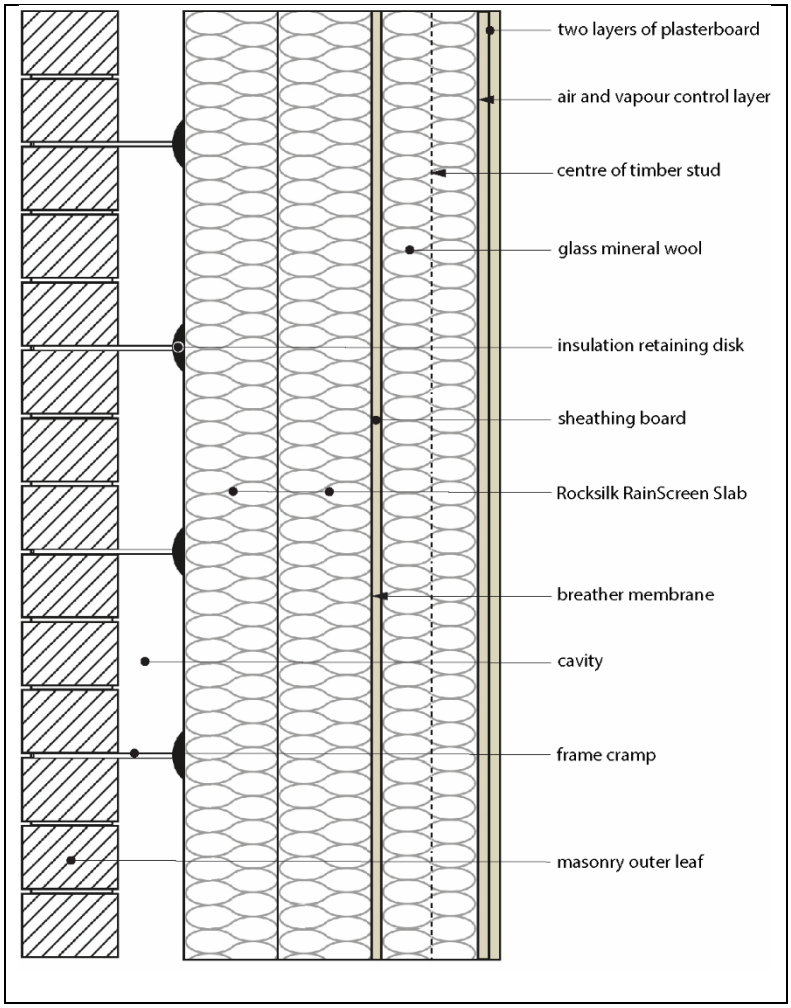
A.10 The slabs should be cut carefully to fit around service penetrations. A tight fit ensures maximum thermal efficiency. Consideration should be made to ensure appropriate fire stopping measures are used around penetrations, especially plastic.

**Double layering**

*Retaining discs*

A.11 The wall ties must be fixed into the studs at a maximum of 455 mm horizontal centres. The first layer of insulation must be installed in portrait orientation with the edges of the slabs on the steel or timber studs. These slabs must be fixed through the centre into the sheathing board and a stainless steel washer used. The second layer of slabs must also be installed in portrait orientation with the slabs fixed in position using the wall ties and retaining discs. An example construction is given in Figure 4.

*Figure 4 Double layer*




*Brick tie channels*

A.12 The first layer of the insulation must be installed in landscape orientation with the edges of the slabs staggered (minimum of 100 mm) from the stud lines. The first two rows of these slabs must be fixed to the sheathing board and a stainless steel washer used. The second layer of insulation must also be installed in landscape orientation, staggered (minimum of 100 mm) from the first layer and from the stud lines. The first two rows also require fixing back to the sheathing board using a stainless steel washer. The brick tie channels can then be installed fixed back to the studs, ensuring that each full slab is secured by a minimum of two channels. Additional layers of insulation may be installed, continuing in a landscape orientation slotted behind the brick tie channels. If the total thickness of insulation is ≥ 180 mm, then the fixings must use compression sleeves.

A.13 Slabs must be cut slightly (maximum 5 mm) oversize and can be compression-fitted into place, ensuring a tight fit between slabs and wall brackets where these occur.

A.14 The Certificate holder's guidance should be sought on detailed installation methods for specific projects; however, such advice is outside the scope of this Certificate.

**Mortar droppings**

A.15 After each section of the leading leaf is built, excess mortar must be removed from the cavity face and mortar droppings cleaned from exposed edges of the installed slab, before installation of the next run of slabs. Use of a cavity board or a cavity batten will protect the installed slab edges and help to keep the cavity clean as the following leaf is built.

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## Conditions of Certificate

### Conditions

1 This Certificate:

- relates only to the product 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.

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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.

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