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Agrement Certificate

20/S046

Product Sheet 1

KNAUF THROUGHWALL INSULATED BACKING WALL SYSTEM

KNAUF THROUGHWALL SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the Knauf Throughwall System, for constructing non-loadbearing infill panels for external walls in concrete or steel-framed structures, incorporating internal linings, light-gauge steel sections, insulation, external sheathing and external sheathing insulation, for use with a masonry leaf or rainscreen cladding system. The system is for use above the damp-proof course in domestic and non-domestic buildings.

(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

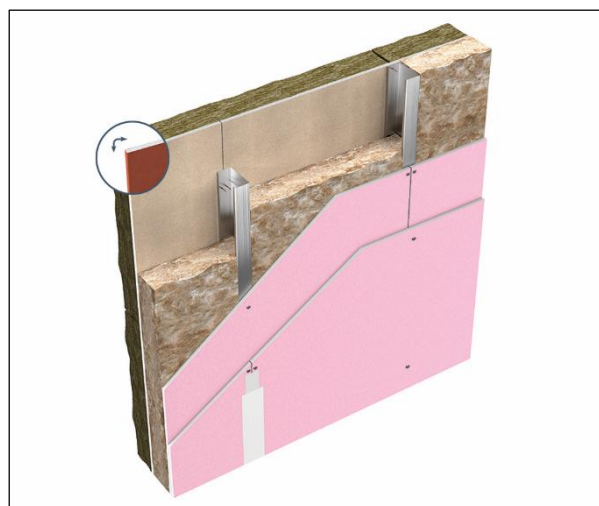
Structural performance — the system has adequate strength to resist the associated wind loads (see section 6).

Thermal performance — the system will contribute to the overall thermal performance of the building construction (see section 7).

Risk of condensation — the system will adequately limit the risk of surface and interstitial condensation (see section 8).

Behaviour in relation to fire — the system components either have an A1 or A2-s1, d0 reaction to fire classification to BS EN 13501-1 : 2018 or are accepted as 'exemption' from the national Building Regulation limitations. The system can provide up to 120 minutes fire resistance from inside to outside, and 120 minutes from outside to inside (see section 9).

Durability — the system will have a service life of in excess of 50 years, provided it is protected by a suitable cladding system or brick leaf (see section 15).



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

On behalf of the British Board of Agrément

Date of First issue: 5 October 2020

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 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.
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, the Knauf Throughwall System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



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

Requirement: A1 Comment:	Loading The system can contribute to satisfying this Requirement. See section 6 of this Certificate.
Requirement: B2(1) Comment:	Internal fire spread (linings) The system can satisfy this Requirement. See sections 9.1 and 9.2 of this Certificate.
Requirement: B3(1) Comment:	Internal fire spread (structure) The system can satisfy this Requirement. See section 9 of this Certificate.
Requirement: B3(4) Comment:	Internal fire spread (structure) The system is unrestricted by this Requirement. See section 9 of this Certificate.
Requirement: B4(1) Comment:	External fire spread The system can satisfy this Requirement. See section 9 of this Certificate.
Requirement: C2(c) Comment:	Resistance to moisture The system can adequately limit the risk of surface condensation and contribute to minimising the risk of interstitial condensation. See sections 8.1 and 8.2 of this Certificate.
Requirement: L1(a)(i) Comment:	Conservation of fuel and power The system can contribute to a construction satisfying this Requirement See sections 7.1 and 7.2 of this Certificate.
Regulation: 7(1) Comment:	Materials and workmanship The system is acceptable. See section 15 and the <i>Installation</i> part of this Certificate.
Regulation: 7(2) Comment:	Materials and workmanship The system is unrestricted by this Regulation. See sections 9.1 and 9.2 of this Certificate.
Regulation: 26 Regulation: 26A Regulation: 26A Regulation: 26B Comment:	CO2 emission rates for new buildings Fabric energy efficiency rates for new dwellings (applicable to England only) Primary energy consumption rates for new buildings (applicable to Wales only) Fabric performance values for new dwellings (applicable to Wales only) The system can contribute to satisfying these Regulations. See sections 7.1 and 7.2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)(2) Comment:	Durability, workmanship and fitness of materials The use of the system satisfies the requirements of this Regulation. See sections 14 and 15 and the <i>Installation</i> part of this Certificate.
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Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		Walls incorporating the system will resist wind loads when designed and constructed in accordance with section 6 of this Certificate, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard.
Standard:	2.4	Cavities
Comment:		The system 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 sections 9.1 and 9.2 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The system can satisfy the reaction to fire required by this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See sections 9.1 and 9.2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The system can satisfy this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 9 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system can adequately minimise the risk of surface and interstitial condensation for buildings up to humidity Class 4, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ of this Standard. See sections 8.1 and 8.2 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to enabling a building to satisfy these Standards, with reference to clauses 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.6 ⁽¹⁾ , 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 ⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽²⁾ . See sections 7.1 and 7.2 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The system can contribute to meeting 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 meeting higher levels 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⁾ [Aspect 1 ⁽²⁾] and 7.1.10 ⁽²⁾ [Aspect 1 ⁽²⁾]. See sections 7.1 and 7.2 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		Comments in relation to the system under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .

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



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

Regulation:	23(a)(i)(iii)	Fitness of materials and workmanship
Comment:	(b)(i)(ii)	The system is acceptable. See section 15 and the <i>Installation</i> part of this Certificate.
Regulation:	29	Condensation
Comment:		The system can contribute to minimising the risk of interstitial condensation. See section 8.2 of this Certificate.
Regulation:	30	Stability
Comment:		The system will have adequate strength and stiffness to satisfy this Regulation. See section 6 of this Certificate.

Regulation:	34(a)(b)	Internal fire spread – Linings
Comment:		The system can satisfy this Regulation. See sections 9.1 and 9.2 of this Certificate.
Regulation:	35(1)	Internal fire spread – Structure
Comment:		The system can satisfy this Regulation. See section 9 of this Certificate.
Regulation:	35(4)	Internal fire spread – Structure
Comment:		The system is unrestricted by this Regulation. See section 9 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The system can satisfy this Regulation. See section 9 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide Emissions Rate
Comment:		The system can contribute to enabling a wall to satisfy these Regulations. See sections 7.1 and 7.2 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* (3.2 and 3.3) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, the Knauf Throughwall System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 6 *Superstructure (excluding roofs)*, Chapter 6.10 *Light steel framed walls and floors*.

Technical Specification

1 Description

1.1 The Knauf Throughwall System is a light-gauge, steel-frame system, featuring insulation infill finished with a masonry leaf or rainscreen cladding system (see Figure 1). The system comprises (from outside to inside):

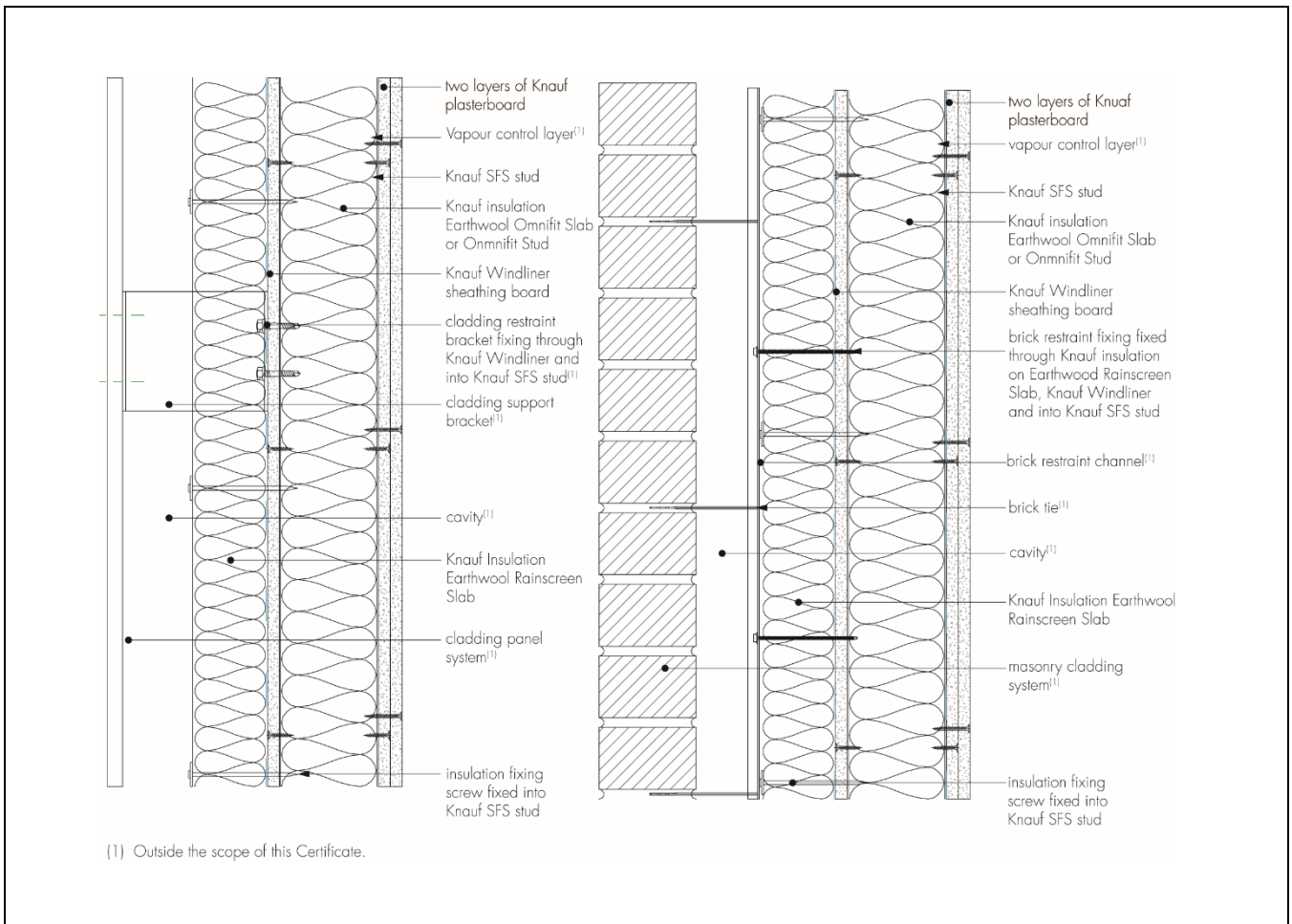
- Knauf Insulation Earthwool Rainscreen Slab — external sheathing insulation; lightweight, non-combustible rock mineral wool (MW) slabs (the subject of BBA Certificate 19/5609), available in thicknesses of 50 to 250 mm)
- Knauf Windliner Sheathing Board — Paper-faced gypsum boards for use as external sheathing board, 12.5 mm thick (as per BBA Certificate 17/5442)
- Knauf Windliner Tape — external sheathing board tape for sealing joints and exposed edges
- Knauf Windliner Fixings — external sheathing board fixings; low profile headed screws 25 and 38 mm in length
- Knauf Steel Frame Section [SFS] — steel frame section; 'C' section steel studs and 'U' section steel tracks. These components are manufactured from hot-dip galvanized steel grade S450 GD + Z275 to BS EN 10346 : 2015
- Knauf SFS Framing Screws — steel framing section fixings; Hex head framing screws for structural connections; single, coarse thread; Carbon steel AISI C1022 or low profile frame stitching screws fixing steel to steel (SFS to SFS); Twin, coarse thread; Carbon steel AISI C1022
- Knauf Insulation Earthwool OmniFit Slab or Earthwool OmniFit Stud — internal steel framing cavity insulation made of lightweight, non-combustible un-faced glass mineral wool (MW) in thicknesses of 50 to 150 mm for Earthwool OmniFit Slab, or 100 to 180 mm for Earthwool OmniFit Stud, in one or two layers to cover the same thickness of the panel equal to the depth of the studs

- Knauf internal lining plasterboards (tapered or square edges) — either 900 or 1200 mm wide and with a maximum height of 3000 mm (subject to plasterboard type). Available in two or three layers from the following range of Knauf plasterboard products:
 - Knauf Wallboard (12.5 and 15 mm)
 - Knauf Vapour Panel (12.5 and 15 mm)
 - Knauf Fire Panel (12.5 and 15 mm)
 - Knauf Fire Panel (also available in vapour check grade) (12.5 and 15 mm)
 - Knauf Moisture Panel (12.5 and 15 mm)
 - Knauf Soundshield Plus (12.5 and 15 mm)
 - Knauf Performance Plus (12.5 and 15 mm).

1.2 Ancillary items to be used with the system, but outside the scope of this Certificate, include:

- vapour control layer
- breather membrane (not required for Knauf Throughwall System) — If used with the system, Class B or better reaction- to-fire performance for systems used above 18m in height
- rainscreen or brick cladding system
- mechanical fixings — Drywall screw jackpoint, bulge or countersunk with undercutting ring headed screws; Carbon steel AISI C1022
- Knauf Jointing Materials — materials used to provide a taped seamless finish in readiness for decoration:
 - Knauf Joint Filler Premium
 - Knauf Fill & Finish Premium 30/60
 - Knauf Joint Cement Premium
 - Knauf Fill and Finish
 - Knauf Fill and Finish Light
 - Knauf Airless Finish Light
- Knauf Jointing Tapes:
 - Knauf Joint Tape — paper tape for reinforcing joints by hand or machine application. Used for vertical (including internal corners) and horizontal joints, and ceiling joints
 - Knauf Fibre Tape — scrim tape; multi-purpose self-adhesive tape for reinforcing joints and patch repairs to plasterboard for vertical, horizontal and ceiling joints
- Knauf Wallboard Primer — a surface treatment that equalises suction across joints prior to decoration, applied with a brush or roller
- Knauf Substrate Fixings — for fixing infill panels to the structure; the size and type of the fixing should comply with design details on case basis
- other Knauf metallic components such as Knauf Angle Cleats, Knauf Cill Plates, Knauf Z Bars, Knauf Parapet Posts, etc.
- Knauf Flat Fixing Plate — to back the outer layer plasterboard for fire resistance protection
- Knauf SFS Screws - Boards (Countersunk Head) — Screws with countersunk heads and a wing tip for fixing boards to a Knauf SFS Frame
- Cavity Barriers.

Figure 1 Section of the system (the cladding system is outside the scope of this Certificate)



2 Manufacture

2.1 Stud and track sections are manufactured from hot dipped, galvanized, cold formed steel grade S450 GD + Z275 in accordance with BS EN 10346 : 2015.

2.2 Rock Mineral Wool and Glass Mineral Wool insulation is manufactured in accordance with BS EN 13162 : 2012.

2.3 Gypsum plasterboards are manufactured to comply with the requirements of BS EN 520 : 2004.

2.4 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.

2.5 The management systems of the manufacturer, Knauf UK GmbH, have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FM 13970).

3 Delivery and site handling

3.1 All components and accessories forming the Knauf Throughwall System are delivered to site either in packs, boxes or on pallets/bearers with identification labels confirming conformity and intended use.

3.2 All components and accessories should be stored in designated clear and dry areas. In particular, components delivered on pallets/bearers must be stored in a dry and level area. Adequate area for handling and movement of materials is required.

3.3 All components and accessories should be handled either manually or mechanically with special care.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Knauf Throughwall System.

Design Considerations

4 Use

4.1 The Knauf Throughwall System is satisfactory for use as non-loadbearing infill panels for external walls (see Figure 1) in concrete or steel-framed structures for buildings up to humidity Class 4 in accordance with BS 5250 : 2011, for use with a masonry leaf or rainscreen cladding system (outside of the scope of this Certificate). The overall building design should take due account of stability and differential movement.

4.2 All structural design and detailing involving the use of the system must be carried out by an appropriately qualified and experienced individual in accordance with UK practice, conditions and the national Building Regulations.

4.3 Impacts will be resisted by the external cladding systems used, which are outside the scope of this Certificate. The Certificate holder can provide a full design service undertaken by both a design and structural engineering team.

5 Practicability of installation

The system is designed to be installed by competent installers experienced with drylining, exterior steel-framing systems and exterior insulation adequate to satisfy the Certificate holder's requirements.

6 Structural performance



6.1 The wall panels will have adequate strength and stiffness when used in accordance with the provisions of this Certificate.

6.2 The strength of all connection details which tie nonloadbearing infill panels to the steel or concrete structural frame elements (such as walls, floors, roofs and columns) must be evaluated and provide adequate stability for the overall building design. The specification and design for these items must be determined by the structural engineer responsible for the stability of the building. Guidance on the design of connection details may be obtained from the Certificate holder.

6.3 The wind loads that can be resisted by the infill walling system will depend upon the gauge of steel and the size, length and spacing of the steel studs. The specification and design for these items must be determined and checked by the suitably experienced and qualified individual responsible for the stability of the building.

6.4 The maximum system heights for indicative design wind loads for different constructions without any in-plane loads applied are calculated in accordance with BS EN 1993-1-1 : 2005 and its UK National Annex, and given in Table 1 of this Certificate.

Table 1 Maximum system height for indicative design wind loads

Design wind load ⁽¹⁾ (kN·m ⁻²)	0.5	0.7	0.9	1	1.2	1.4	1.6	1.8	2
Knauf SFS Stud ⁽²⁾ (web/flange/gauge) (mm)	Maximum system height ⁽³⁾ (m)								
70/50/1.2	2.90	2.60	2.40	2.30	2.15	2.05	1.95	1.90	1.80
70/70/1.2	3.20	2.85	2.65	2.55	2.40	2.25	2.15	2.05	2.00
70/70/2	3.80	3.40	3.15	3.00	2.85	2.70	2.55	2.45	2.40
90/50/1.2	3.55	3.15	2.80	2.75	2.55	2.45	2.35	2.25	2.15
90/60/1.2	3.70	3.30	3.05	2.95	2.75	2.60	2.50	2.35	2.25
90/70/1.2	3.90	3.45	3.15	3.05	2.85	2.70	2.60	2.45	2.35
90/70/1.5	4.20	3.75	3.45	3.30	3.10	2.95	2.80	2.70	2.60
90/70/1.8	4.45	4.00	3.65	3.50	3.30	3.15	3.00	2.90	2.75
90/70/2	4.65	4.10	3.80	3.65	3.45	3.25	3.10	3.00	2.90
100/50/1.2	3.85	3.45	3.15	2.85	2.70	2.55	2.45	2.35	2.25
100/60/1.2	4.05	3.60	3.30	3.15	3.00	2.75	2.60	2.50	2.40
100/70/1.2	4.20	3.75	3.40	3.30	3.10	2.90	2.75	2.60	2.50
100/70/1.5	4.55	4.05	3.70	3.60	3.35	3.20	3.05	2.90	2.80
100/70/1.8	4.85	4.30	3.95	3.80	3.60	3.40	3.25	3.10	3.00
100/70/2	5.00	4.45	4.10	3.95	3.70	3.50	3.35	3.25	3.10
120/50/1.2	4.40	3.95	3.60	3.50	3.25	3.10	2.95	2.55	2.45
120/60/1.2	4.60	4.10	3.75	3.65	3.40	3.25	3.10	2.70	2.60
120/70/1.2	4.80	4.25	3.90	3.80	3.55	3.35	3.20	3.05	2.70
120/70/1.5	5.00 ⁽⁴⁾	4.65	4.25	4.10	3.85	3.65	3.50	3.35	3.20
120/70/1.8	5.00 ⁽⁴⁾	4.95	4.55	4.35	4.10	3.90	3.70	3.55	3.45
120/70/2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.70	4.55	4.25	4.05	3.85	3.70	3.60
150/50/1.2	5.00 ⁽⁴⁾	4.55	4.15	4.00	3.75	3.55	3.35	3.20	3.05
150/60/1.2	5.00 ⁽⁴⁾	4.85	4.45	4.30	4.00	3.75	3.50	3.35	3.20
150/70/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.60	4.45	4.10	3.85	3.60	3.45	3.25
Knauf SFS Stud ⁽²⁾ (web/flange/gauge) (mm)									
150/70/1.5	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.85	4.55	4.30	4.10	3.95	3.80
150/70/1.8	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.85	4.60	4.40	4.25	4.10
150/70/2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.80	4.55	4.40	4.25
200/50/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.70	4.55	4.25	4.05	3.85	3.65	3.50
200/60/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.90	4.55	4.30	4.05	3.85	3.70
200/70/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.75	4.45	4.20	4.00	3.80
200/70/1.5	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.95	4.70	4.50
200/70/1.8	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾
200/70/2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾
250/50/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.95	4.65	4.45	4.20	4.05	3.90
250/60/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.75	4.50	4.30	4.15
250/70/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.95	4.70	4.45	4.25
250/70/1.5	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾
250/70/1.8	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾
250/70/2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾
300/50/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.75	4.55	4.35	4.25
300/60/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.90	4.70	4.50
300/70/1.2	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	5.00 ⁽⁴⁾	4.90	4.70

(1) The applied cladding system must be supported by the infill wall system. The required stiffness of the infill wall system will depend on the permanent and imposed actions of the cladding system to meet the required deflection limits. Certificate holder can design the required

resistance and the relevant dimensions of steel components and the spacing of the steel studs. Loads based on a serviceability limit of span/360. (Typically used for Brickwork construction). For other cladding elements refer to the Certificate Holder.

- (2) Studs at maximum 600 mm centres. SFS 'C' Studs have variances in 'lip' sizes. Calculations conducted with minimum lip sizes.
- (3) For heights greater than 3 m introduction of mid-span blocking and bracing is required.
- (4) The maximum system height has been restricted to 5 m due to practical considerations. Higher maximum system heights can be achieved if the design details from the Certificate holder are followed.

7 Thermal performance



7.1 Calculations of the thermal transmittance (U value) of walls should be carried out in accordance with BS EN ISO 6946 : 2017, BRE Digest 465 : 2002 and BRE Report BR 443 : 2006, using the declared thermal conductivity (λ_D) of 0.034 $\text{m}^2\cdot\text{K}\cdot\text{W}^{-1}$ for Knauf Insulation Earthwool Rainscreen Slab and 0.035 $\text{m}^2\cdot\text{K}\cdot\text{W}^{-1}$ for Knauf Insulation Earthwool OmniFit Slab.

7.2 The U-value of a complete wall will depend on the selected panel construction, as well as the external finishes. Example upper and lower limit U-values for the system are detailed in Table 2. Further information regarding U-values for other constructions can be sought from the Certificate holder.

Table 2 Example U-value

Panel description	Brick ^{[1][2]}	Rainscreen ^{[3][4]}
	U-value ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)	
210 mm Knauf Insulation Earthwool Rainscreen Slab, Knauf 300 mm SFS ^[5] and Knauf Insulation Earthwool OmniFit Slab	0.09	0.13
50 mm Knauf Insulation Earthwool Rainscreen Slab, 70 mm deep SFS ^[6] and Knauf Insulation Earthwool OmniFit Slab	0.38	0.45

- (1) U-value corrections: Wall ties: 7.41 stainless steel wall ties per m^2 (based on 225 mm vertical centres and 600 mm horizontal centres) with 23.76 mm^2 cross-sectional area. Air gaps correction level 0.
- (2) Wall construction (from outside to inside): 102.5 mm brickwork, 50 mm unventilated air layer ($R = 0.18 \text{ m}^2\text{K}\cdot\text{W}^{-1}$), Knauf Insulation Earthwool Rainscreen Slab (thickness as given in column 1 of Table 2), breather membrane, 12.5 mm Knauf Windliner Sheathing Board ($\lambda = 0.24 \text{ m}^2\text{K}\cdot\text{W}^{-1}$), steel-frame layer fully filled with Knauf Insulation Earthwool OmniFit Slab (layer depth given in column 1 of Table 2), vapour control layer, 2 x 12.5 mm Knauf plasterboard.
- (3) U-value corrections: Rainscreen brackets: Aluminium single brackets with point thermal transmittance, $\chi = 0.015 \text{ W}\cdot\text{K}^{-1}$ at a density of 2.78 m^2 (based on 600 mm vertical and horizontal centres). Air gaps correction level 0.
- (4) Wall construction (from outside to inside): Rainscreen panel, 50 mm ventilated cavity ($R_{se} = 0.13 \text{ m}^2\text{K}\cdot\text{W}^{-1}$), Knauf Insulation Earthwool Rainscreen Slab (thickness as given in column 1 of Table 1), breather membrane, 12.5 mm Knauf Windliner Sheathing Board ($\lambda = 0.24 \text{ m}^2\text{K}\cdot\text{W}^{-1}$), steel-frame layer fully filled with Knauf Insulation Earthwool OmniFit Slab (layer depth given in column 1 of Table 2), vapour control layer, 2 x 12.5 mm Knauf plasterboard.
- (5) Steel-frame dimensions: Studs: 1.2 mm gauge, 40 mm flanges at 600 mm centres; Top track: 1.8 mm gauge, 70 mm flanges at 2400 mm centres; Bottom track: 1.2 mm gauge, 40 mm flanges at 2400 mm centres.
- (6) Steel-frame dimensions: Studs: 2 mm gauge, 70 mm flanges at 300 mm centres; Top track: 1.8 mm gauge, 70 mm flanges at 2400 mm centres; Bottom track: 1.2 mm gauge, 40 mm flanges at 2400 mm centres.

7.3 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.

8 Risk of condensation



8.1 Provided the system is installed correctly and follows the recommendations in section 11, the risk of surface condensation under normal domestic use will be minimal.



8.2 Walls incorporating the system will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, Annexes D and G.

8.3 The risk of interstitial condensation is greatest when the building is drying out after construction. Guidance on preventing condensation is given in BRE Digest 369 : 2016 and BRE Report BR 262 : 2002.

9 Behaviour in relation to fire

Reaction to fire



9.1 The primary components of the system have the reaction to fire classifications given in Table 3.

9.2 The components of the system are classified as A1 or A2-s1, d0 in terms of reaction to fire classification to BS EN 13501-1 : 2018 or are accepted as 'exemption' from the national Building Regulation limitations and are not restricted in terms of building height or proximity to boundaries. The system can satisfy the reaction to fire requirements, provided the system is used in conjunction with suitable coatings or materials.

Table 3 Reaction to fire classifications fire resistance performance

Component	Classification	Standard
Gypsum Plasterboards:		
Knauf Fire Panel – Gypsum Plasterboard		BS EN 520 : 2004
Knauf Vapour Panel – Vapour Check Plasterboard		BS EN 14190 : 2014
Knauf Wallboard	A2-s1,d0	BS EN 13501-1 : 2018
Knauf Fire Panel		
Knauf Moisture Panel		
Knauf Soundshield Plus		
Knauf SFS Profiles 'C' Studs and 'U' Tracks (galvanized steel)	A1	BS EN 13501-1 : 2018
Knauf Insulation Earthwool OmniFit Slab or OmniFit Stud located within Knauf SFS framing cavity	A1	BS EN 13501-1 : 2018 (BRE Test Reports 251537 to 251542)
Knauf Windliner Sheathing Board	A2-s1,d0	BS EN 13501-1 : 2018
Knauf Insulation Earthwool Rainscreen Slab	A1	BS EN 13501-1 : 2018
Knauf SFS Framing Screws and Knauf Windliner Fixngs	A1	BS EN 13501-1 : 2018

Note: Knauf Windliner Tape is not classified, but as a 'seal' is exempt under Regulation 7(3) in England and Wales.

Resistance to fire



9.3 When tested in accordance with BS EN 1363-1 : 2012 and BS EN 1364-1 : 2015, the wall panels achieved the results given in Table 4.

Table 4 Fire resistance performance

Performance	Report Number	Construction
FR90	415650 Warrington Fire	<p>From the exposed face out:</p> <p>Two layers of 12.5 mm thick Knauf Fire Panel jointed with Knauf jointing materials (plasterboards staggered).</p> <p>Plasterboards fixed to SFS 'C' Studs and 'U' Tracks using Knauf Drywall Screws - Jackpoint Self Drilling (25 and 35 mm lengths respectively) fixed at 300 mm centres for both layers.</p> <p>Knauf SFS 'C' Studs 100 mm wide x 50 mm flange x 1.2 mm thick galvanized steel sections located within Knauf SFS 'U' Tracks at 600mm centres.</p> <p>Knauf SFS 'U' Tracks 104 mm wide x 40 mm flange x 1.2 mm thick galvanized steel sections used for head and base.</p> <p>Knauf Insulation Earthwool OmniFit Slab 100mm thick (1200 mm high x 600 mm wide) friction fitted within the SFS frame cavity.</p> <p>One layer of 12.5 mm thick Knauf Windliner fixed to Knauf SFS 'C' Studs and 'U' Tracks with Knauf Windliner Screws (25 mm lengths) fixed at 300 mm centres.</p> <p>Knauf Windliner joints sealed with 60 mm wide Knauf Windliner Tape.</p> <p>One layer 75 mm thick Knauf Insulation Earthwool Rainscreen Slab (1200 mm high x 600 mm wide) fixed to Knauf SFS through Knauf 12.5 mm Windliner with FixFast DF3-SS-HT-5.5 x 110 DrillFast Self-drilling 110mm long stainless steel fastener.</p>
FR120	424322 Warrington Fire	<p>Two layers of 15 mm thick Knauf Fire Panel jointed with Knauf jointing materials (plasterboards staggered).</p> <p>Plasterboards fixed to SFS 'C' Studs and 'U' Tracks using Knauf Drywall Screws - Jackpoint Self Drilling (25 and 35 mm lengths respectively) fixed at 300 mm centres for both layers.</p> <p>Knauf SFS 'C' Studs 90 mm wide x 50 mm flange x 1.2 mm thick galvanized steel sections located within Knauf SFS 'U' Tracks at 600mm centres.</p> <p>Knauf SFS 'U' Tracks 94 mm wide x 40 mm flange x 1.2 mm thick galvanized steel sections used for head and base.</p> <p>Knauf Insulation Earthwool OmniFit Slab 100mm thick (1200 mm high x 600 mm wide) friction fitted within the SFS frame cavity.</p> <p>One layer of 12.5 mm thick Knauf Windliner fixed to Knauf SFS 'C' Studs and 'U' Tracks with Knauf Windliner Screws (25 mm lengths) fixed at 300 mm centres.</p> <p>Knauf Windliner joints sealed with 60 mm wide Knauf Windliner Tape.</p> <p>One layer 150 mm thick Knauf Insulation Earthwool Rainscreen Slab (1200 mm high x 600 mm wide) fixed to Knauf SFS through Knauf 12.5 mm Windliner with FixFast DF3-SS-HT-5.5 x 180 DrillFast Self-drilling 180mm long stainless steel fastener.</p>
FR120	415570 Rev A Warrington Fire	<p>From the exposed face out:</p> <p>One layer 75 mm thick Knauf Insulation Earthwool Rainscreen Slab (1200 mm high x 600 mm wide) fixed to Knauf SFS through Knauf 12.5 mm Knauf Windliner with FixFast DF3-SS-HT-5.5 x 110 DrillFast self-drilling 110 mm long stainless steel fastener.</p> <p>One layer of 12.5 mm thick Knauf Windliner fixed to Knauf SFS 'C' Studs and 'U' Tracks with Knauf Windliner Screws (25 mm lengths) fixed at 300 mm centres.</p> <p>Knauf Windliner joints sealed with 60 mm wide Knauf Windliner Tape.</p> <p>Knauf SFS 'U' Tracks 104 mm wide x 40 mm flange x 1.2 mm thick galvanized steel sections used for head and base.</p> <p>Knauf SFS 'C' Studs 100 mm wide x 50 mm flange x 1.2 mm thick galvanized steel sections located within Knauf SFS 'U' Tracks at 600 mm centres.</p> <p>Two layers of 12.5 mm thick Knauf Fire Panel jointed with Knauf jointing materials (plasterboard staggered)</p> <p>Plasterboards fixed to SFS 'C' Studs and 'U' Tracks using Knauf Drywall Screws - Jackpoint Self Drilling (25 and 35 mm lengths respectively) fixed at 300 mm centres for both layers.</p>

9.4 The maximum vertical or horizontal distance between cavity barriers should comply with the requirements of the national Building Regulations.

9.5 Assessment of test results and design details shows that wall panels, with construction as stated in Table 4 and which require fire-resistance periods of 120 minutes⁽¹⁾ (from outside) for external walls and 120 minutes⁽¹⁾ (from inside) for external walls and (from either side) for separating walls, are suitable for use less than one metre from a relevant boundary.

(1) Technical Handbook (Domestic).

9.6 For constructions other than those described in Table 4, the resistance to fire must be established by testing or assessment by an appropriately accredited fire testing laboratory.

9.7 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for fire resistance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction, for example, the external cladding.

10 Proximity of flues and appliances

When installing the system in close proximity to certain flue pipes and/or heat producing appliances, the relevant provisions of the national Building Regulations must be satisfied.

11 Airtightness

The joints between the structural frame and infill walls and base and head joints will allow air leakage without additional sealing and the main contractor should make provision for this in the overall construction⁽¹⁾. Care should be taken to ensure that junctions with other elements and openings comply with the relevant guidance for airtightness as given in the documents supporting the national Building Regulations.

(1) For further information, the Certificate holder's advice should be sought.

12 Resistance to airborne sound

Results of tests conducted on a range of wall arrangements, in accordance with BS EN ISO 10140-2 : 2010 are given in Table 5.

Table 5 Airborne sound insulation (dB) — laboratory test results

Construction	Decibel rating (dB) R _w (C;C _{tr})
Three layers of 12.5 mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 100 x 1.2 mm Knauf SFS 'C' Studs (100 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 104 x 1.2 mm Knauf SFS 'U' Tracks (104 mm web, 40 mm flange and 1.2 mm gauge). 100 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs One layer of 12.5 mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape.	48(-1; -3)
Two layers of 12.5 mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 100 x 1.2 mm Knauf SFS 'C' Studs (100 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 104 x 1.2 mm Knauf SFS 'U' Tracks (104 mm web, 40 mm flange and 1.2 mm gauge). 100 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs. One layer of 12.5 mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape. 75 mm Knauf Insulation Earthwool Rainscreen Slab fixed through 12.5 mm Knauf Windliner and into Knauf SFS using Fixfast insulation fixings.	54(-2; -9)
Three layers of 12.5 mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 100 x 1.2 mm Knauf SFS 'C' Studs (100 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 104 x 1.2 mm Knauf SFS 'U' Tracks (104 mm web, 40 mm flange and 1.2 mm gauge). 100 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs. One layer of 12.5 mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape. 75 mm Knauf Insulation Earthwool Rainscreen Slab fixed through 12.5 mm Knauf Windliner and into Knauf SFS using Fixfast insulation fixings.	55(-2; -8)
Two layers of 12.5 mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 100 x 1.2 mm Knauf SFS 'C' Studs (100 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 104 x 1.2 mm Knauf SFS 'U' Tracks (104 mm web, 40 mm flange and 1.2 mm gauge). 100 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs. One layer of 12.5 mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape. 100 mm Knauf Insulation Earthwool Rainscreen Slab fixed through 12.5 mm Knauf Windliner and into Knauf SFS using Fixfast insulation fixings.	59(-5; -14)
Three layers of 12.5 mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 150 x 1.2 mm Knauf SFS 'C' Studs (150 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 154 x 1.2 mm Knauf SFS 'U' Tracks (154 mm web, 40 mm flange and 1.2 mm gauge). 150 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs. One layer of 12.5 mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape.	51(-3; -3)
Two layers of 12.5 mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 150 x 1.2 mm Knauf SFS 'C' Studs (150 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 154 x 1.2 mm Knauf SFS 'U' Tracks (154 mm web, 40 mm flange and 1.2 mm gauge). 150 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs. One layer of 12.5mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape. 75mm Knauf Insulation Earthwool Rainscreen Slab fixed through 12.5mm Knauf Windliner and into Knauf SFS using Fixfast insulation fixings.	58(-3; -9)
Three layers of 12.5 mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 150 x 1.2 mm Knauf SFS 'C' Studs (150 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 154 x 1.2 mm Knauf SFS 'U' Tracks (154 mm web, 40 mm flange and 1.2 mm gauge). 150 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs. One layer of 12.5 mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape. 75 mm Knauf Insulation Earthwool Rainscreen Slab fixed through 12.5 mm Knauf Windliner and into Knauf SFS using Fixfast insulation fixings.	58(-2; -8)
Two layers of 12.5mm Knauf Fire Panel fixed to receiver room side with joints taped and filled with Knauf jointing materials. 150 x 1.2 mm Knauf SFS 'C' Studs (150 mm web, 50 mm flange and 1.2 mm gauge) at 600 mm centres located within 154 x 1.2 mm Knauf SFS 'U' Tracks (154 mm web, 40 mm flange and 1.2 mm gauge). 150 mm Knauf Insulation Earthwool OmniFit Slab located in between Knauf SFS 'C' Studs. One layer of 12.5 mm Knauf Windliner fixed to source room side. Joints sealed using Knauf Windliner Tape. 150 mm Knauf Insulation Earthwool Rainscreen Slab fixed through 12.5 mm Knauf Windliner and into Knauf SFS using Fixfast insulation fixings.	61(-4; -11)

13 Weathertightness

13.1 The weather resistance of the wall is dependent upon the cladding and the correct positioning and sealing of all joints. The guidance given in BRE Report BR 262 : 2002, Section 3, should be followed with regard to rain penetration in that the designer selects a construction appropriate to the local conditions, paying due regard to the design detailing, workmanship and materials to be used.

13.2 It is essential that openings are appropriately sealed to ensure the weathertightness of the wall system. In addition, the external insulation is water-repellent and the Knauf Windliner board system is weather resistant.

13.3 The fixing of rainwater goods, satellite dishes, clothes lines, hanging baskets and similar items through the cladding system used with the infill walls is outside the scope of this Certificate.

13.4 The performance of windows and doors is outside the scope of this Certificate.

14 Maintenance and repair



14.1 Regular checks should be made to ensure that ingress of water does not occur. These should verify that architectural details for shedding water clear of the building are present and functioning, and that external plumbing fittings are in good condition. Maintenance schedules should include the replacement and resealing of joints, for example at window and door frames. The interval between inspections should be considered for each building taking into consideration such factors as the building location and height. Necessary repairs should be carried out immediately and the sealant at joints at window and door frames replaced whenever required.

14.2 Regular checks should be carried out on the walls and finishes to ensure that any damage is detected and repaired as soon as is possible.

15 Durability



Provided the system is protected by a suitable cladding or masonry leaf and maintained in accordance with this Certificate, the framework is assessed as capable of achieving a service life in excess of 50 years. Other elements can achieve a design life in excess of 50 years provided that the use, environment and degree of maintenance are in accordance with this Certificate.

Installation

16 General

16.1 Installation of the Knauf Throughwall System must comply with the Certificate holder's installation instructions and this Certificate. Full instructions and details are available from the Certificate holder. It is essential that the design and installation is strictly in accordance with good building practice, relevant Regulations/Standards and the requirements of this Certificate.

16.2 Installation should be carried out by competent installers experienced with drylining, exterior steel-framing systems and exterior insulation adequate to satisfy the Certificate holder's requirements.

17 Procedure

Setting out of Knauf SFS Studs

17.1 Installation tolerances should be agreed with the main contractor at the start of the project. The floor/head tracks and perimeter studs should be set out to give a framework which is accurately aligned with a true vertical plane and fixed securely at all perimeters at not more than 600 mm centres. Knauf SFS Substrate fixings with types and lengths at the required centres must be fixed in accordance with the design details.

17.2 Studs should be positioned at equal centres to suit specified linings and loadings, maintaining sequence across openings.

17.3 For masonry brick finish, additional Knauf SFS Studs should be installed a maximum of 150 mm away from SFS jamb Stud with additional studs provided as necessary to ensure support to all vertical edges of boards/abutments. The additional studs for vertical edges of board/abutments also applies to Rainscreen Cladding.

17.4 When installing deflection head, Knauf SFS Slotted 'U' track should be used in accordance with the design details.

17.5 Openings (taking into account opening tolerances) should be accurately formed to receive windows/doorsets using appropriate detailing (sleeved/boxed Knauf SFS studs/tracks as necessary) to achieve the strength grade requirements of the framing assembly.

Knauf SFS Stud Fixings

17.6 For connection between SFS light steel members where a 'flush' finish is required, Knauf SFS Screws steel (low profile head) should be used. For connection between light steel members where a 'flush' finish is not required, Knauf SFS Screws steel (hex head) should be used. Fixings used to connect SFS 'C' Studs and SFS 'U' Tracks are required to be fixed to each respective flange providing coverage on both sides of the frame.

Fixing Knauf 12.5 mm Windliner Sheathing Board to Knauf SFS studs

17.7 Windliner Sheathing Board should be fixed securely to all supports, in the vertical direction (long edges upwards) working from the centre of each plasterboard using Knauf Windliner Screws (25 mm) at the following maximum centres of 300 mm centres, reduced to 200 mm at external angles unless otherwise stated in the design details. Where required, Knauf Windliner Sheathing Board can be installed in horizontal application.

Application of Knauf Windliner Tape

17.8 Apply onto dust free surface and non-wet surface Knauf Windliner Tape to all vertical and horizontal joints and interfaces with perimeter structure/openings.

Knauf Insulation Earthwool OmniFit Slab or Earthwool OmniFit Stud (if required)

17.9 Knauf Insulation Earthwool OmniFit Slab or Stud is installed between Knauf SFS once the building is water tight. Where required, Knauf Insulation Earthwool OmniFit Slab or Stud can be cut on a flat surface using a sharp bladed knife, ensuring that the cut is vertical through the thickness of the Slab/Stud and 5 mm oversize in dimension, to create a closely butted joint to the next adjacent slab. Knauf Insulation Earthwool OmniFit Slabs or Studs are to be installed by friction fitting between the Knauf SFS 'C' Stud and tight to the back of the adjacent stud. The Knauf SFS 'C' section will restrain the Slab/Stud. Ensure that Knauf Insulation Earthwool OmniFit Slab or Stud covers the entire area to be insulated.

Knauf Insulation Earthwool Rainscreen Slab

17.10 Knauf Insulation Earthwool Rainscreen Slab is installed on the outside face of the Windliner Sheathing Board. All slabs should be tightly butted to each other, areas that cannot accept a full slab must use additional cut slab sections fixed in the centre of each slab at a maximum 600 mm intervals in the centre of each slab. The slab sections must be cut to be oversize by 5 mm, and compression fitted to ensure a tight fit. The method of installation varies depending on whether the external leaf is either rainscreen cladding or masonry construction.

17.11 Where the external leaf is rainscreen cladding, the slabs are generally installed in a portrait orientation and horizontal joints should be staggered by 100 to 150 mm. Each slab is secured with a minimum of two fixings with a stainless steel fixing at the centre. Full slabs must be used at corners and additional fixings must be used to ensure that the slab is fixed firmly to the structure.

17.12 Where the external leaf is masonry, the slabs are installed in a landscape orientation and vertical joints should be staggered by a minimum of 100 mm. If brick tie channels are being used, these support and retain the slabs into position. Where frame cramps are being used, these should be located in-line with Knauf SFS Studs and a suitable insulation retention washer used to support and retain the slabs.

17.13 All permanent fixings used to retain the insulation should be made into Knauf SFS Studs. Insulation fixings should be self-drilling and of a suitable length for the thickness of insulation slab used. Each fixing requires a compatible

70 mm diameter (minimum) pressure plate washer. Frame cramps should be fixed to Knauf SFS Studs with a self-drilling screw, positioned as required for masonry outer leaf stability and with a compatible insulation retention washer of 70 mm diameter (minimum).

17.14 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.

17.15 The slabs should be cut carefully to fit around service penetrations to ensure maximum thermal efficiency. Consideration should be made to ensure appropriate fire stopping measures are used around penetrations, as required by the documents supporting the national Building Regulations. Wherever possible Earthwool RainScreen Slab should be covered up with the cladding as work proceeds, on the basis of an advancing front.

Vapour control layer - designed and installed as per designers and certificate holders requirements.

17.16 Where required based on airtightness line and vapour check requirements, Vapour Control Layer (VCL) must be installed in accordance with designer's and certificate holder's recommendations.

Fixing Knauf plasterboard to Knauf SFS Studs

17.17 The plasterboards are fixed securely to all supports, working from the centre of each plasterboard using Knauf SFS Screws - Boards (Countersunk Head) Knauf Jackpoint Drywall Screws at maximum centres of 300 mm centres, reduced to 200 mm at external angles unless otherwise stated in the design details. Stagger the inner layer of plasterboard with the outer sheathing board by 600mm, ensuring a minimum of 10 mm penetration into the stud.

Note 1: Set heads in a depression do not break paper or gypsum core.

Note 2: For deflection head detailing and required appropriate products consult with Certificate holder.

17.18 Knauf jointing materials and required tape is installed as per the Certificate holder's recommendations and sealed prior to decoration.

Additional support for fixtures and fittings

17.19 Framing should be accurately positioned and securely fixed to the support fixtures, fittings and services. After fixing the plasterboards, the positions of framing for following trades should be marked.

Plasterboard horizontal joints

17.20 Where fire resistance of external lining is required, the horizontal joints in the outer layer plasterboard (to room face) must be backed with Knauf Fixing Plates. The Knauf Fixing Plate can be located between plasterboards or directly to face of SFS. Further details can be sought from the Certificate holder.

Additional supports for plasterboard edges and perimeters

17.21 Accurately positioned and securely fixed additional framing must be provided to give full support to board edged and lining perimeters, in accordance with the Certificate holder's installation instructions

Junctions

17.22 Interface details between internal partitioning and the Knauf Throughwall System must be designed to ensure consideration of abutment detailing, fire treatment, acoustic treatment, vapour control and thermal treatment if required. The Designer should be consulted with a view to providing recommended detailing, depending on sequence of trade operation and performance criteria.

18 Investigations

18.1 Tests were carried out on the Knauf Throughwall System and the results assessed to determine:

- sound insulation
- fire performance.

18.2 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.

18.3 A visit was made to a site to assess the installation process.

18.4 An assessment of the fitness of the system for the designated purposes has been made in the context of:

- wind load resistance
- thermal performance and condensation risk.

Bibliography

BRE Digest 369 : 2016 *Interstitial condensation and fabric degradation*

BRE Digest 465 : 2002 *U-values for light steel frame construction*

BRE Report BR 262 : 2002 *Thermal insulation : avoiding risks*

BRE Report BR 443 : 2006 *Conventions for U-value calculations*

BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

BS EN 520 : 2004 + A1 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*

BS EN 1363-1 : 2012 *Fire resistance tests. General requirements*

BS EN 1364-1 : 2015 *Fire resistance tests for non-loadbearing elements — Walls*

BS EN 1993-1-1 : 2005 + A1 : 2014 *Eurocode 3 : Design of steel structures — General rules and rules for buildings*

NA + A1 : 2014 to BS EN 1993-1-1 : 2005 + A1 : 14 *UK National Annex to Eurocode 3. Design of steel structures. General rules and rules for buildings*

BS EN 10346 : 2015 *Continuously hot-dip coated steel flat products — Technical delivery conditions*

BS EN 13162 : 2012 + A1 : 2015 *Thermal insulation products for buildings — Factory made mineral wool (MW) products — Specification*

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

BS EN 14190 : 2014 *Gypsum plasterboard products from reprocessing. Definitions, requirements and test methods G*

BS EN ISO 6946 : 2017 *Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods*

BS EN ISO 9001 : 2015 *Quality management systems. Requirements*

BS EN ISO 10140-2 : 2010 *Acoustics. Laboratory measurement of sound insulation of building elements. Measurement of airborne sound insulation*

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.