

# Kingspan Insulation Limited

Pembridge  
Leominster  
Herefordshire HR6 9LA

Tel: 01544 388 601

e-mail: [info@kingspaninsulation.co.uk](mailto:info@kingspaninsulation.co.uk)

website: [www.kingspaninsulation.co.uk](http://www.kingspaninsulation.co.uk)



**Agrément Certificate**

**16/5299**

Product Sheet 8 Issue 2

## KINGSPAN KOOLTHERM RANGE FOR FLOORS, WALLS AND PITCHED ROOFS

### KOOLTHERM K118 INSULATED DRY LINING SYSTEM

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Kooltherm K118 Insulated Dry Lining System, comprising a Kooltherm rigid phenolic board faced on one side with a perforated foil and on the other with an unperforated foil, which is bonded to plasterboard. The system is for use as an insulating dry lining to masonry (solid and cavity) walls and the underside of timber or steel rafters in pitched roofs with a pitch of less than 70°, in new and existing domestic buildings, with height restrictions.

(1) Hereinafter referred to as 'Certificate'.

#### 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†:

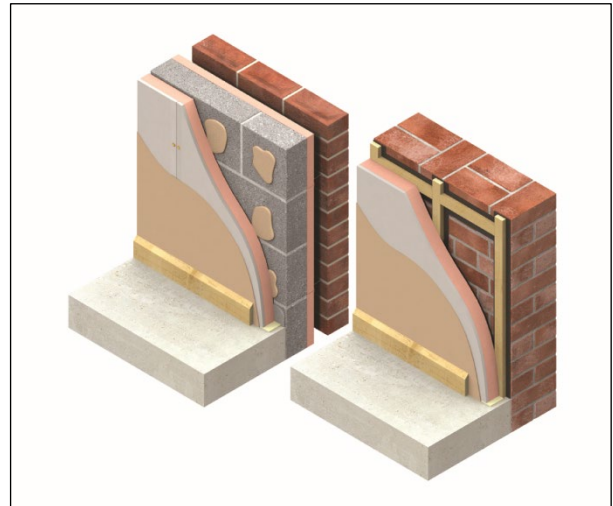
- regular assessment of production
- formal 3-yearly review

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 Second issue: 25 July 2024

Originally certified on 2 September 2016



#### 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

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.*

#### British Board of Agrément

1<sup>st</sup> Floor, Building 3, Hatters Lane  
Croxley Park, Watford  
Herts WD18 8YG

©2024

tel: 01923 665300  
[clientservices@bbacerts.co.uk](mailto:clientservices@bbacerts.co.uk)  
[www.bbacerts.co.uk](http://www.bbacerts.co.uk)

## 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 the Kooltherm K118 Insulated Dry Lining System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:



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

<b>Requirement:</b>	<b>B2(1)</b>	<b>Internal fire spread (linings)</b>
Comment:		The system is unrestricted by this Requirement. See section 2 of this Certificate.
<b>Requirement:</b>	<b>B3(4)</b>	<b>Internal fire spread (structure)</b>
Comment:		The system can contribute to satisfying this Requirement. See section 2 of this Certificate.
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The system is restricted by this Requirement. See section 2 of this Certificate.
<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
Comment:		The system can contribute to satisfying this Requirement. See section 3 of this Certificate.
<b>Requirement:</b>	<b>L1(a)(i)</b>	<b>Conservation of fuel and power</b>
Comment:		The system can contribute to satisfying this Requirement; however, compensating fabric/service measures may be required. See section 6 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		The system is restricted by this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>25B</b>	<b>Nearly zero-energy requirements for new buildings</b>
<b>Regulation:</b>	<b>26</b>	<b>CO<sub>2</sub> emission rates for new buildings</b>
<b>Regulation:</b>	<b>26A</b>	<b>Fabric energy efficiency rates (applicable to England only)</b>
<b>Regulation:</b>	<b>26A</b>	<b>Primary energy efficiency rates for new buildings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26B</b>	<b>Fabric performance values for new dwellings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26C</b>	<b>Target primary energy rates for new buildings (applicable to England only)</b>
<b>Regulation:</b>	<b>26C</b>	<b>Minimum energy efficiency rating (applicable to Wales only)</b>
Comment:		The system can contribute to satisfying these Regulations; however, compensating fabric/service measures may be required. See section 6 of this Certificate.



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

<b>Regulation:</b>	<b>8(1)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>8(3)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The system is restricted by this Regulation. See section 2 of this Certificate.

<b>Regulation:</b>	<b>9</b>	<b>Building standards – construction</b>
Standard:	2.4	Cavities
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 2.4.2 <sup>(1)</sup> and 2.4.4 <sup>(1)</sup> . See section 2 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The system is unrestricted by this Standard, with reference to clause 2.5.1 <sup>(1)</sup> . See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The system is restricted by this Standard, with reference to clause 2.6.5 <sup>(1)</sup> . See section 2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)</sup> , 3.15.3 <sup>(1)</sup> , 3.15.4 <sup>(1)</sup> , 3.15.5 <sup>(1)</sup> and 3.15.7 <sup>(1)</sup> . See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 6.1.1 <sup>(1)</sup> and 6.1.6 <sup>(1)</sup> ; however, compensating fabric/service measures may be required. See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 6.2.1 <sup>(1)</sup> , 6.2.3 <sup>(1)</sup> and 6.2.6 <sup>(1)</sup> to 6.2.12 <sup>(1)</sup> ; however, compensating fabric/service measures may be required. See section 6 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The system 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 system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 <sup>(1)</sup> and 7.1.6 <sup>(1)</sup> and 7.1.7 <sup>(1)</sup> . See section 6 of this Certificate.
<b>Regulation:</b>	<b>12</b>	<b>Building standards – conversion</b>
Comment:		All comments given for the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)</sup> and Schedule 6 <sup>(1)</sup> .

(1) Technical Handbook (Domestic).



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

<b>Regulation:</b>	<b>23(1)(a)(i)</b>	<b>Fitness of materials and workmanship</b>
Comment:	<b>(iii)(b)(i)(ii)</b>	The system is acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>23(2)</b>	<b>Fitness of materials and workmanship</b>
Comment:		The system is restricted by this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>29</b>	<b>Condensation</b>
Comment:		The system can contribute to satisfying this Regulation. See sections 3 and 9 of this Certificate.
<b>Regulation:</b>	<b>34</b>	<b>Internal fire spread – linings</b>
Comment:		The system is unrestricted by this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>35(1)</b>	<b>Internal fire spread – structure</b>
Comment:		The system is restricted by this Regulation. See section 2 of this Certificate.

<b>Regulation:</b>	<b>35(4)</b>	<b>Internal fire spread – structure</b>
Comment:		The system can contribute to satisfying this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
Comment:		The system is restricted by this Requirement in some cases. See section 2 of this Certificate.
<b>Regulation:</b>	<b>39(a)(i)</b>	<b>Conservation measures</b>
Comment:		The system can contribute to satisfying this Regulation; however, compensating fabric/service measures may be required. See section 6 of this Certificate.
<b>Regulation:</b>	<b>40(2)</b>	<b>Target carbon dioxide emission rate</b>
<b>Regulation:</b>	<b>43(1)(2)</b>	<b>Renovation of thermal elements</b>
<b>Regulation:</b>	<b>43B</b>	<b>Nearly zero-energy requirements for new buildings</b>
Comment:		The system can contribute to satisfying these Regulations; however, compensating fabric/service measures may be required. See section 6 of this Certificate.

## Additional Information

### NHBC Standards 2024

In the opinion of the BBA, the Kooltherm K118 Insulated Dry Lining 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*, Chapters 6.1 *External masonry walls* and 9.2 *Wall and ceiling finishes*.

## Fulfilment of Requirements

The BBA has judged the Kooltherm K118 Insulated Dry Lining System to be satisfactory for use as described in this Certificate. The system has been assessed for use as an insulating dry lining to masonry (solid and cavity) walls and the underside of timber or steel rafters in pitched roofs with a pitch of less than 70°, in new and existing domestic buildings with height restrictions.

## ASSESSMENT

### Product description and intended use

The Certificate holder provided the following description for the system under assessment. The Kooltherm K118 Insulated Dry Lining System consists of a phenolic foam insulation core with perforated and unperforated composite foil facings. The unperforated face is bonded to gypsum plasterboard.

The system has the nominal characteristics given in Table 1.

Characteristic (unit)	Value
Length (mm)	2400
Width (mm)	1200
Insulation thickness (mm)	25 to 80
Thickness of plasterboard (mm)	12.5
Weight of plasterboard (kg)	24
Edge profile	Tapered

## Ancillary Items

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

- gypsum-based drywall adhesive
- bonding agent
- acrylic sealant adhesive/sealant
- polyurethane (PU) foam adhesive/sealant
- metal wall liner system
- pre-treated timber battens and damp-proof course (DPC) strips
- fixings
- edge, stop, movement and corner beads.

## Application

The system is either mechanically fixed or adhesively bonded:

- directly onto a masonry wall (including clay and calcium silicate bricks, concrete blocks and natural and reconstituted stone blocks) by either mechanical or adhesive bonding
- onto timber battens or metal furrings fixed to the masonry wall (mechanically fixed only)
- to the underside of timber rafters or ceiling joists (mechanically fixed only).

## **Product assessment – key factors**

The system was assessed for the following key factors, and the outcome 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**

Data were assessed for the following characteristics.

#### **1.1 Resistance to impact**

1.1.1 The system was tested for resistance to soft-body and hard-body impact and the results are given in Table 2.

*Table 2 Impact resistance*

Product assessed	Assessment method	Requirement	Result
Kooltherm K118 Insulated Dry Lining System	MOAT 43 : 1987 Soft body impact resistance – 10J	No observable damage	Pass
Kooltherm K118 Insulated Dry Lining System	MOAT 43 : 1987 Hard body impact resistance – 10J	Indentation only	Pass

1.1.2 On the basis of data assessed, the system has adequate resistance to impact for use in domestic buildings and other areas where occupants have an incentive to exercise due care, and the installed system is not likely to encounter significant impact from eg wheeled trolleys or thrown/kicked objects.

### **2 Safety in case of fire**

Data were assessed for the following characteristics.

#### **2.1 Reaction to fire**

2.1.1 The system was tested and classified for reaction to fire and the result is given in Table 3.

**Table 3 Reaction to fire classification<sup>(1)(2)</sup>**

Product assessed	Assessment method	Requirement	Result <sup>(1)</sup>
Kooltherm K118 Insulated Dry Lining System	BS EN 13501-1 : 2007	Value achieved	Class B-s1, d0 <sup>(2)</sup>

(1) Warrington Fire Extended Application Report No. 370371, available from the Certificate holder on request.

(2) This classification applies to applications over any substrate with a density equal to or greater than  $870 \text{ kg}\cdot\text{m}^{-3}$ , a minimum thickness of 12.5 mm and a fire performance of A2 or better, except paper-faced plasterboard.

2.1.2 The Certificate holder has not declared a reaction to fire classification to BS EN 13501-1 : 2018 for the reverse side (facing the cavity) of the insulation component.

2.1.3 On the basis of data assessed, the system will be restricted in use under the documents supporting the national Building Regulations.

2.1.4 In England, the system must not be used on external walls of residential buildings with a storey at least 11 m above ground level or on other buildings with a floor at least 18 m above ground level.

2.1.5 In Wales and Northern Ireland, the system must not be used on external walls on buildings with a storey at least 18 m above ground level.

2.1.6 In Scotland, the system must not be used on external walls on buildings that have a storey at least 11 m above ground level or within 1 m of a relevant boundary.

2.1.7 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.

### 3 Hygiene, health and the environment

Data were assessed for the following characteristics.

#### 3.1 Water vapour permeability

The system was tested for water vapour resistance and resistivity and the results are given in Table 4.

**Table 4 Vapour resistance/resistivity results**

Product assessed	Assessment method	Requirement	Result
Inner unperforated foil / glass facing	BS EN 12086 : 2013	Value achieved	$79.0 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$
Outer perforated foil / glass facing	BS EN 12086 : 2013	Value achieved	$8.3 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$
Core phenolic foam	BS EN 12086 : 2013	Value achieved	$18.5 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$
Plasterboard	BS EN ISO 10456 : 2007	Value achieved	$50 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$

#### 3.2 Condensation

3.2.1 The BBA has assessed the system for the risk of interstitial condensation, and the following must be implemented:

3.2.2 To limit the risk of interstitial condensation, walls must be designed and constructed in accordance with BS 5250 : 2021.

3.2.3 Where calculations to BS 5250 : 2021 indicate a risk of persistent interstitial condensation, a site-specific dynamic analysis to BS EN 15026 : 2023 must be carried out.

3.2.4 All joints between the system must be sealed in accordance with the Certificate holder's instructions (see Annex A of this Certificate), to ensure that the system offers adequate resistance to water vapour transmission.

3.2.5 In England and Wales, walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point, and the junctions with other elements are designed in accordance with section 9.1.1.7 of this Certificate.

3.2.6 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the wall does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point, and openings and junctions with other elements comply with BS 5250 : 2021, BRE Report BR 262 : 2002 and section 9.1.1.7 of this Certificate.

### 3.3 Infestation

Use of the system does not in itself promote infestation. The creation of voids within the structure may provide habitation for insects or vermin in areas already infested. All voids must be sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

## 4 Safety and accessibility in use

### 4.1 Adhesion

The system was tested for Tensile strength perpendicular to faces and the result is given in Table 5.

<i>Table 5 Tensile strength perpendicular to faces</i>			
Product assessed	Assessment method	Requirement	Result
Kooltherm K118 Insulated Dry Lining System	BS EN 1607 : 1987	> 0.017 MPa	Pass

## 5 Protection against noise

Not applicable.

## 6 Energy economy and heat retention

Data were assessed for the following characteristics.

### 6.1 Thermal conductivity

The system components were tested for thermal conductivity and the results are given in Table 6.

<i>Table 6 Thermal conductivity</i>			
Product assessed	Assessment method	Requirement	Result
Kooltherm K118 (insulation)	BS EN 13166 : 2012	Declared value	$\lambda_D = 0.019 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
Plasterboard	BS EN ISO 10456 : 2007	Value achieved	$0.21 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$

### 6.2 Thermal performance

The aged emissivity of the printed perforated foil facing on the rear face of the system was tested and the result is given in Table 7.

<i>Table 7 Aged emissivity</i>			
Product assessed	Assessment method	Requirement	Result
Kooltherm K118 (rear facing)	BS EN 15976 : 2011	Declared value	0.13

### 6.3 Conservation of fuel and power

6.3.1 The U value of a completed wall or roof will depend on the insulation thickness, number and type of fixings and its structure. Example U values are given in Tables 8 and 9 of this Certificate.

**Table 8 Example U values for walls**

Target U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Kooltherm K118 Thickness of insulation <sup>(2)</sup> (mm) 215 mm solid brick <sup>(1)</sup> – wall lining	
	Adhesively fixed <sup>(3)</sup> (dots and dabs)	Mechanically fixed <sup>(4)</sup> (to timber battens)
0.13	— <sup>(5)</sup>	— <sup>(5)</sup>
0.15	— <sup>(5)</sup>	— <sup>(5)</sup>
0.17	— <sup>(5)</sup>	— <sup>(5)</sup>
0.18	— <sup>(5)</sup>	— <sup>(5)</sup>
0.21	80	80
0.28	60	50
0.30	50	50

(1) 215 mm solid brick walls ( $\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ).

(2) Thickness of the insulation (mm).

(3) Direct bonding with 15 mm plaster adhesive dabs (15 mm air cavity) with adhesive (20% coverage) ( $\lambda = 0.43 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), including six fully penetrating supplementary steel fixings per sheet ( $\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 2.08 fixings per m<sup>2</sup>, diameter = 4.8 mm.

(4) 25 mm deep timber battens 11.75% ( $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ) fixing correction of steel fixings ( $\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 15.6 fixings per m<sup>2</sup>, diameter = 3.5 mm.

(5) See section 6.3.3.

**Table 9 Example U values for linings to warm pitched roofs**

Target U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Kooltherm K118 Thickness of insulation <sup>(1)</sup> (mm)
	Linings to warm pitched roofs <sup>(2)(3)</sup>
0.09	— <sup>(4)</sup>
0.11	— <sup>(4)</sup>
0.12	— <sup>(4)</sup>
0.13	— <sup>(4)</sup>
0.15	80
0.16	65
0.18	50

(1) Thickness of the insulation (mm).

(2) Includes 100 mm insulation ( $\lambda = 0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ) cut tight between the 50 mm wide and 150 mm deep timber ( $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ) rafters at 600 mm centres (8.33% timber). Fully ventilated 50 mm air gap above the insulation and below the breathable membrane.

(3) Fixing correction of steel fixings ( $\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), 15.6 fixings per m<sup>2</sup>, diameter = 3.5 mm.

(4) See section 6.3.3.

6.3.2 The system can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention. Calculations of thermal transmittance (U value) for a specific construction must be carried out in accordance with BS EN ISO 6946 : 2017, BRE Report BR 443 : 2019 and BRE Digest 465 : 2002.

6.3.3 For improved energy or carbon savings, designers must consider appropriate compensating fabric/service measures.

## 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 system were assessed.



## 8.2 Service life

Under normal service conditions, the system 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, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.1.1 Since insulating dry linings are not intended to resist rain penetration or rising damp, walls to be insulated with the system must already be rain resistant and show no signs of water ingress or rising damp.

9.1.1.2 When insulating solid walls, particularly older exposed walls, designers must consider the extent to which the wall and components in the wall can tolerate the lower temperatures and prolonged drying time resulting from the application of the insulating dry lining. Care must also be taken to assess the risks of condensation forming on thermal bridges that cannot be effectively insulated.

9.1.1.3 All services which penetrate the system, eg light switches and power outlets, must be kept to a minimum to limit damage to vapour checks. All perimeters of the board, around service penetrations, openings, junctions and around the perimeter of suspended timber floors must be sealed with a suitable sealant. The Certificate holder can advise on suitable materials, but such advice and products are outside the scope of this Certificate.

9.1.1.4 It is essential that proper care and attention is given to maintaining the integrity/continuity of the air and vapour control layer (AVCL). The site must be surveyed, and provisions made for existing ventilation. There must be no gaps at the perimeter (such as floors or ceilings) or junctions (such as internal corners), or around openings or service penetrations. Existing gaps should be sealed before lining commences.

9.1.1.5 The detailed guidance given in the documents supporting the national Building Regulations for the provisions that are applicable when the systems are installed in close proximity to certain flue pipes and/or heat producing appliances must be followed.

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

9.1.1.7 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration and the detailed guidance given in the documents supporting the national Building Regulations must be followed.

9.1.1.8 With installations that form a void of 20 mm or more (ie timber batten or metal liner stud system and drywall adhesive dabs), services can be incorporated behind the system, making the chasing of the wall unnecessary. Where the services have a greater depth than the void, the wall must be chased, rather than the insulation. Suitable isolation methods, such as a conduit or capping, must be used to ensure cables do not come into contact with the insulation.

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

## **Masonry walls**

9.1.1.10 Walls 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 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

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

9.1.1.12 Any object fixed to the wall, other than lightweight items, eg framed pictures, must be fixed through the lining board into the wall behind, using proprietary fixings. The Certificate holder can advise on suitable materials, but such advice and products are outside the scope of this Certificate.

## **Pitched roofs**

9.1.1.13 Pitched roofs must be designed and constructed in accordance with BS 5534 : 2014 and incorporate normal precautions against moisture ingress.

9.1.1.14 In tiled or slated pitched roofs, the system is suitable for use beneath the rafters in conjunction with a BBA-approved breathable membrane and, when necessary, an AVCL.

9.1.1.15 New constructions subject to the national Building Regulations must be designed in accordance with the relevant recommendations of BS 5268-2 : 2002 and Eurocode 3.

## **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, the Certificate holder's instructions and the relevant sections of BS 8212 : 1995. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 A detailed survey of the property must be carried out before work starts.

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

9.2.5 The existing ventilation provision of the wall must be assessed and updated if necessary.

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

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

9.2.8 Before fixing the system, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out. Reference must be made to BS 6576 : 2005 for dry lining in conjunction with a chemical DPC application.

### 9.3 Workmanship

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

### 9.4 Maintenance and repair

Under conditions of normal use, maintenance is not required. However, if the system is damaged during use, it can be removed and replaced.

## **10 Manufacture**

10.1 The production processes for the system 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 The Certificate holder stated that the system is delivered to site in packaging bearing the system name, Certificate holder's name, batch number, and the BBA logo incorporating the number of this Certificate.

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

11.2.1 It is essential that the boards are raised off the ground and stored inside or under cover on a flat, dry, level surface in a well-ventilated area and protected from rain, snow and prolonged exposure to sunlight. Any boards that become wet or damaged must not be used.

11.2.2 Care must be exercised to avoid crushing the edges or corners.

11.2.3 The system must not be exposed to open flame or other ignition sources, or to solvents or other chemicals.

Supporting information in this Annex is relevant to the system 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.

### UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the system in accordance with designated Standard EN 13950 : 2014.

### Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by CIBSE Certification Limited Management Systems (Certificates 0001QMS-0 and 0001EMS-0 respectively).

### Additional information on installation

#### **General**

A.1 A qualified plumber is required to make alterations to heating systems. A qualified electrician must be used to make good the electrical wirings and services.

A.2 The building must be examined for the following:

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

A.3 Before starting to fit the system, the position of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All plaster coving, skirting board and laminate floor angle beads must be removed.

A.4 Existing wallpaper, skirting, picture rails, gloss paint and projecting window boards may need to be removed. The amount of preparation and removal of such items depends on the method of attachment. The wall surface should be dry and stable, and any friable materials removed if required. Existing finishes such as vinyl wallpaper, gloss paint etc can be scored or sanded as an alternative to complete removal.

A.5 The boards can be cut using a fine-toothed saw, or by cutting through the insulation and paper backing of the plasterboard, then snapping the system face down over a straight edge and cutting the paper facing of the plasterboard on the other side.

A.6 Cutting must be carried out in a ventilated space, outside or in an area with dust extraction. Appropriate Personal Protective Equipment (PPE) must be used.

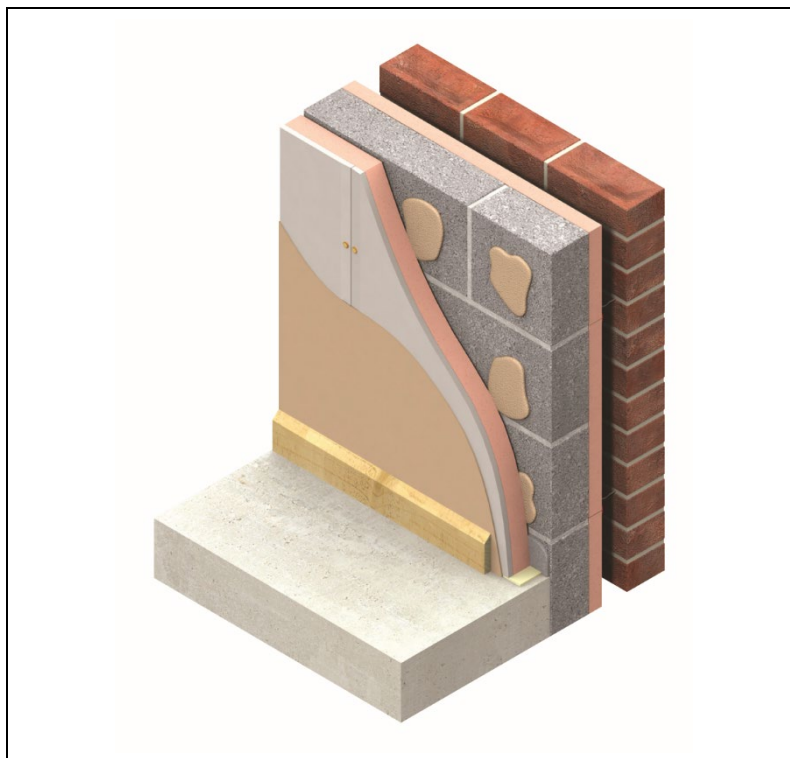
A.7 All penetrations through the system are sealed using flexible PU foam and/or a flexible sealant.

A.8 All joints must be sealed in accordance with the Certificate holder's instructions, either by application of a skim coat or by taping and filling tapered edge plasterboard. The Certificate holder can advise on suitable materials, but such advice and products are outside the scope of this Certificate.

## Procedure

A.9 An example of the system secured with dry wall adhesive dabs is given in Figure 1.

*Figure 1 Kooltherm K118 secured with drywall adhesive dabs*



A.10 Where a gypsum-based drywall adhesive is being used, the foil facer of the system must be primed with a bonding agent first. The Certificate holder can advise on suitable materials, but such advice and products are outside the scope of this Certificate.

A.11 A distance of 10 mm, plus the thickness of the Kooltherm K118, from the high point of the wall must be marked using a line drawn across the floor. It must then be plumbed for alignment before transferring the line to the ceiling, extending to the room corners. A mark must be made on the walls at 1200 mm centres to indicate the Kooltherm K118 positioning.

A.12 A continuous band of adhesive is applied around the wall perimeter, services and openings. The adhesive must be approximately 25 mm in from the edge, to avoid bridging the joint.

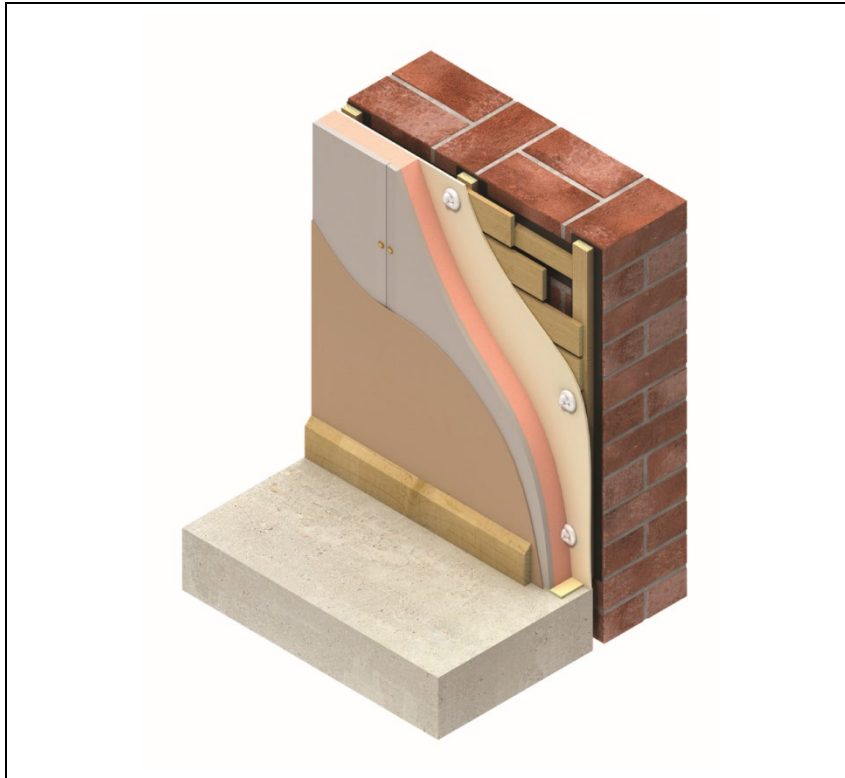
A.13 Adhesive dabs are applied in three rows, as appropriate, but with a 20% minimum coverage per board. Each dab should be 50 to 75 mm wide, approximately 250 mm long and positioned vertically at 300 mm centres and horizontally at 600 mm centres.

A.14 Kooltherm K118 is cut approximately 15 mm short of the floor to ceiling height. The boards are tapped into position and supported by packers until the adhesive is set.

A.15 Once the adhesive sets (generally 1.5 to 3 hours), a minimum of 6 appropriate fixings per sheet are installed, no less than 15 mm in from the edges. Fixings should be selected to provide a 25 mm minimum penetration into the masonry wall.

A.16 An example of the system secured with proprietary appropriate adhesive and fixings onto existing linings (plaster, lath and plaster or plasterboard on framework) is given in Figure 2.

Figure 2 Kooltherm K118 secured with acrylic sealant



A.17 A distance of 2 to 3 mm, plus the thickness the Kooltherm K118, from the high point of the wall must be marked using a line drawn across the floor. It must then be plumbed for alignment before transferring the line to the ceiling, extending to the room corners. A mark must be made on the walls at 1200 mm centres to indicate the board positioning.

A.18 Kooltherm K118 is cut approximately 15 mm short of the floor to ceiling height. Acrylic sealant adhesive or PU foam adhesive is applied to the substrate or back of the board. Acrylic adhesive should be applied in blobs approximately 25 mm in diameter and positioned at 300 mm centres horizontally and vertically. PU foam adhesive should be applied in beads approximately 20 to 25 mm wide. A continuous bead of the PU foam adhesive is also applied around the perimeter of the board, plus a further bead of PU foam adhesive is applied down the middle of each board. Guidance should be sought from the adhesive manufacturers for the adhesive pattern and quantity.

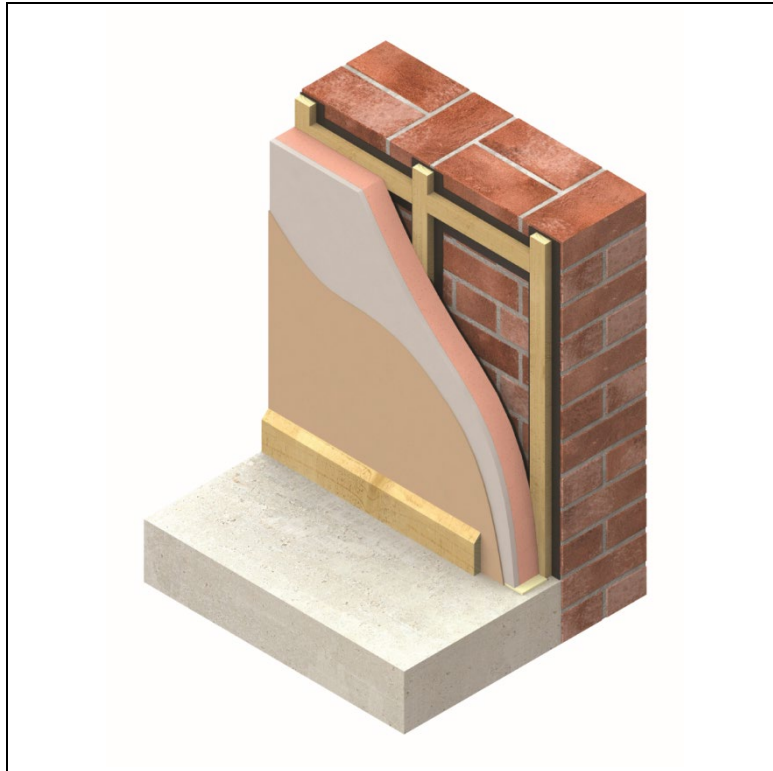
A.19 The adhesive should be applied approximately 25 mm in from the edge of the boards to avoid bridging the joint. Boards are tapped into position and supported until the adhesive is set. Once the adhesive is set, no less than 2 appropriate fixings per sheet must be installed, not less than 15 mm from each edge.

A.20 Appropriate fixings of sufficient length must be selected to give a minimum 25 mm penetration into the masonry (excluding the plaster) or timber framework (excluding plasterboard or lath and plaster) and to give a 10 mm penetration into metal furrings (excluding plasterboard).

A.21 Alternatively, the system may be mechanically fixed directly onto flat masonry substrates with appropriate fixings, with a minimum of 12 fixings per board.

A.22 An example of the system secured to pre-treated timber battens lined with DPC strips onto a dry, stable masonry construction is given in Figure 3.

Figure 3 Kooltherm K118 fixed to pre-treated timber battens



A.23 Timber battens are fixed around the perimeter of the wall, openings and services, then vertically at maximum 600 mm centres.

A.24 All timbers are screwed over the DPC, to the substrate using appropriate fixings. Fixings are made approximately 75 mm from the ends and positioned at not more than 600 mm centres.

A.25 Timber battens must provide a minimum 19 mm bearing to support the board edge. The board is cut approximately 5 mm short of the floor to ceiling height, then located centrally over the timber battens.

A.26 The system is fixed with drywall screws located at 300 mm centres, reducing to 200 mm centres for external corners. Alternatively, the system can be fixed with plasterboard nails located at 150 mm centres. The length of screw or nail used should be at least 25 mm greater than the thickness of the system (22.5 mm when using 25 mm deep battens).

A.27 An example of the system secured to a proprietary metal wall liner (brackets, tracks and lining channels stud system) onto any dry, stable masonry construction is given in Figure 4.

Figure 4 Kooltherm K118 fixed to metal wall liner



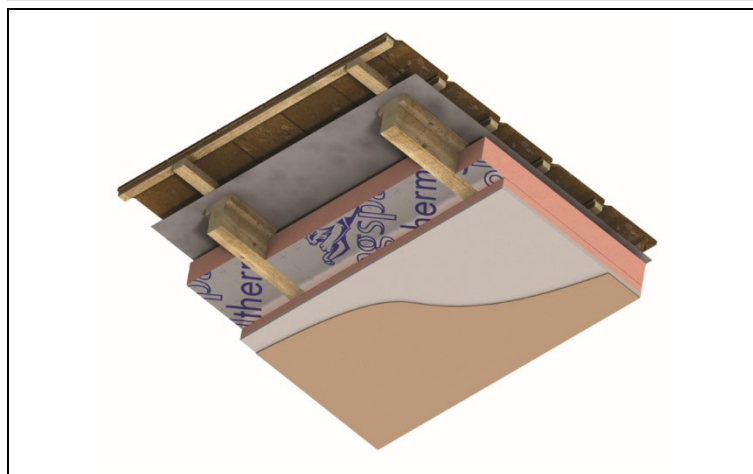
A.28 The maximum undulation (high point) of the substrate or service protrusion is identified, to enable the required cavity depth to be determined. Lines are marked to the floor and ceiling to indicate the position of the metal tracks, which are then fixed in place using appropriate fixings.

A.29 Brackets should be fixed using appropriate fixings.

A.30 The boards should be cut approximately 5 mm short of the floor to ceiling height, then the board is located centrally over the lining channels with the system fixed with self-tapping drywall screws at 300 mm centres, reduced to 200 mm centres at external corners. The length of screw used when fixing to metal should be at least 10 mm greater than the thickness of the system.

A.31 An example of the system fixed to timber rafters or ceiling joists is given in Figure 5.

Figure 5 Kooltherm K118 fixed to rafters or joists



A.32 The boards should be placed below the rafters with no air gap between the boards and any already existing insulation boards between the rafters or ceiling joists.



A.33 The framing should be set at a maximum of 600 mm centres and should be wide enough to provide at least a 19 mm bearing in order to support each board edge. Noggins or straps will be required at the perimeter.

A.34 When the joists/rafters are set at 600 mm centres, additional noggins or straps will be required perpendicular to the main framing in order to provide the necessary support for board edges.

A.35 The system should be cut to allow for a 5 mm height clearance, and fixed using plasterboard nails located at 150 mm centres for timber only or drywall screws located at 230 mm centres maximum for timber or metal framing. Penetration depths into the framework should be a minimum of 25 mm for timber or 10 mm for metal.

#### **Additional guidance**

A.36 Flexible PU foam and/or flexible sealant or equivalent must be applied around the perimeter of the system where the board abuts adjacent surfaces, window/door frames, ceilings and floors.

A.37 Window or door reveals should be insulated with a minimum thickness of 37.5 mm Kooltherm K118.

A.38 At external angles, the system should be extended past the corner and the insulation cut back.

A.39 Where required, additional bands of adhesive, horizontal fixing Ts, fixing straps, metal tracks/lining channels on timber noggins are placed to support unsupported board edges.

A.40 For medium to heavy weight wall-mounted fittings, appropriate fixings are used to fix through the system into the masonry or timber noggins, steel fixing straps or plywood patressing.

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### 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.