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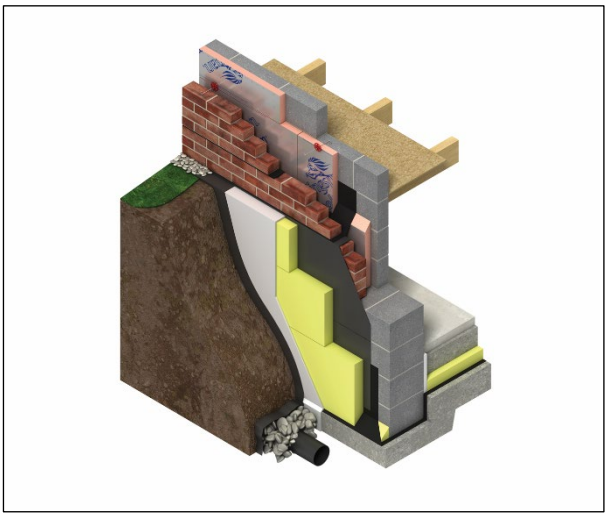
Agrément Certificate
22/6048
Product Sheet 3 Issue 2

KINGSPAN GREENGUARD GG300 XPS INSULATION

KINGSPAN GREENGUARD GG300 XPS INSULATION FOR BASEMENTS

This Agrément Certificate Product Sheet(1) relates to Kingspan GreenGuard GG300 XPS Insulation for Basements, an extruded polystyrene board for use as insulation in basement external walls and ground-bearing concrete basement floors, in new and existing domestic or similar buildings.

(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

KEY FACTORS ASSESSED

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

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

On behalf of the British Board of Agrément

Date of Second issue: 29 April 2025
Originally certified on 29 March 2022

Hardy Giesler
Chief Executive Officer

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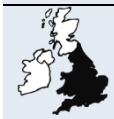
SUMMARY OF ASSESSMENT AND COMPLIANCE

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

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Kingspan GreenGuard GG300 XPS Insulation for Basements, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:



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

Requirement:	**A1**	**Loading**
Comment:		The product can contribute to satisfying this Requirement. See section 1 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to England only)**
Regulation:	**26C**	**Energy efficiency rating (applicable to Wales only)**
Comment:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards – construction**
Standard:	1.1(b)	Structure
Comment:		The product can contribute to satisfying this Standard, with reference to clause 1.1.2(1). See section 1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1(1), 3.15.4(1) and 3.15.5(1). See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The product can contribute to satisfying this Standard, with reference to clause 6.1.1(1). See section 6 of this Certificate.

Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying this Standard, with reference to clauses, or parts of, 6.2.1(1), 6.2.3(1), 6.2.6(1), 6.2.7(1), 6.2.8(1), 6.2.9(1), 6.2.10(1) and 6.2.12(1). See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting at least a bronze level of sustainability as defined in this Standard. In addition, the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4(1), 7.1.6(1) and 7.1.7(1). See section 6 of this Certificate.
Regulation:	**12**	**Building standards – conversion**
Comment:		All comments given for the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1(1) and Schedule 6(1).

(1) Technical Handbook (Domestic).

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

Regulation:	**23(1)(a)(i) (iii)(b)(i)(ii)**	**Fitness of materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The product can contribute to satisfying this Regulation. See section 1 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The product can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43B**	**Nearly zero-energy requirements for new buildings**
Comment:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, Kingspan GreenGuard GG300 XPS Insulation for Basements, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 5.4 *Waterproofing of basements and other below ground structures*.

Fulfilment of Requirements

The BBA has judged Kingspan GreenGuard GG300 XPS Insulation for Basements to be satisfactory for use as described in this Certificate. The product has been assessed for use as insulation in basement external walls and ground-bearing concrete basement floors, in new and existing domestic or similar buildings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. Kingspan GreenGuard GG300 XPS Insulation for Basements consists of rigid, extruded polystyrene (XPS) boards. The boards have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Work size – length x width (mm)	2500 x 600 or 1250 x 600
Overall size – (rebated) length and width (mm)	2515 x 615 or 1265 x 615
Thickness	30, 40, 50, 60, 70, 80, 100, 120, 140, 150, 180
Edge Detail	Straight, or rebated on all 4 sides (15 mm x half board thickness)
Colour	Light green

Ancillary Items

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

- damp-proof membrane (DPM) / tanking waterproofing system
- air and vapour control layer (AVCL)
- drainage membrane (protection of basement wall insulation)
- geotextile membrane (protection of basement wall insulation)
- external drainage or drained cavity system (basement walls and floor slab).

For basement floors, the overlay to the product should be :

- an AVCL where necessary (see section 3 of this Certificate) and:
- a cement-based floor screed of minimum 65 mm thickness, laid in accordance with the relevant clauses of BS 8204-1 : 2003 and/or BS 8204-2 : 2003, and BS 8000-9 : 2003, or
- a concrete slab in accordance with BS EN 1992-1-1 : 2004.

Applications

The product is intended for use in the following configurations:

- external to the DPM in basement external walls
- above or below the DPM in basement floors.

Product assessment – key factors

The product was assessed for the following key factors, and the outcome of the assessment 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 Floor loading

1.1.1 The product was tested for compressive strength and the results are given in Table 2.

Table 2 Compressive stress at 10% deformation

Product assessed	Assessment method	Requirement	Result
Kingspan GreenGuard GG300 XPS Insulation for Basements	BS EN 13164 : 2012	Declared value	CS(10/Y)300

1.1.2 On the basis of data assessed, the product is suitable for the occupancies defined in this Certificate when covered with a suitable floor overlay, and is capable of resisting a uniformly distributed load of 1.5 $kN \cdot m^{-2}$ or a concentrated load of 2 kN for category A1 and A2 (domestic) situations as defined in the UK National Annex to BS EN 1991-1-1 : 2002, Table NA2. Further assessment by a suitably experienced and competent individual is necessary in the case of duty walkways and floors subject to physical activities.

1.1.3 The performance of a specific floor construction will depend on the insulation properties and type of floor overlay used (including thickness and strength). When the product is used under a concrete slab, resistance to concentrated and distributed loads is a function of the slab specification. Further guidance on the suitability of floor coverings can be found in BS EN 13810-1 : 2002 and BS 8204-1 : 2003, and from the flooring manufacturer, although the latter is outside the scope of this Certificate.

2 Safety in case of fire

Data were assessed for the following characteristic.

2.1 Reaction to fire

2.1.1 The product was tested for reaction to fire and the classification is given in Table 3.

Table 3 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result[(1)]
Kingspan GreenGuard GG300 XPS Insulation for Basements	BS EN 13501-1 : 2018	Declared value	F

(1) Test report no H.E-027e/20 (24 Feb 2020), issued by FIW Munchen, available from the Certificate holder on request.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Water vapour permeability

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

Table 4 Water vapour resistivity

Product assessed	Assessment method	Requirement	Result
Kingspan GreenGuard GG300 XPS Insulation for Basements	BS EN 12086 : 1997	Value achieved	400 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$

3.2 Resistance to moisture

3.2.1 The product was tested for long term water absorption by diffusion, and additional water absorption after freeze thaw testing, and the results are given in Table 5.

Table 5 Long term water absorption by diffusion and freeze thaw

Product assessed	Assessment method	Requirement	Result
Kingspan GreenGuard GG300 XPS Insulation for Basements	BS EN 12088 : 2013	Long term water absorption by diffusion (% by volume)	1.83
	BS EN 12091 : 2013	Additional water absorption after freeze thaw (% by volume)	0.74

3.2.2 The water absorption results in Table 5 are used to determine the design thermal conductivity value (λ_U) for the XPS insulation as given in Table 6.

3.3 Condensation

3.3.1 The BBA has assessed the product for the risk of condensation, and the following factors must be implemented.

3.3.1.1 When the product is used above the DPM in a basement floor slab, an AVCL is installed on the warm side of the insulation to inhibit the risk of interstitial condensation, unless a risk assessment shows this is not necessary.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

6.1.1 The product was tested for thermal conductivity and the results are given in Table 6.

Table 6 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
Kingspan GreenGuard GG300 XPS Insulation for Basements	BS EN 13164 : 2012	Declared value (λ_D)	0.033 $W \cdot m^{-1} \cdot K^{-1}$
		Design value (moisture corrected) (λ_U)(1)	0.035 $W \cdot m^{-1} \cdot K^{-1}$

(1) Where a construction is used with the insulation applied to basement external walls or below the DPM/tanking membrane (where it is subject to ground moisture), a moisture correction factor must be applied to the declared thermal conductivity value (λ_D), and a design thermal conductivity (λ_U) of 0.035 $W \cdot m^{-1} \cdot K^{-1}$ used in accordance with BS EN ISO 10456 : 2007.

6.2 Thermal Performance

6.2.1 The U value of a completed wall or floor will depend on the insulation type and thickness, its location (external or internal to the DPM), and, where relevant, the perimeter/area ratio, the ground conductivity, and the floor type. Example U values are given in Tables 7 and 8.

Table 7 Examples U values – basement wall construction(1)

Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness (mm)(2)
0.13	180 + 30
0.15	180
0.17	140
0.18	140
0.21	120
0.26	80
0.28	70
0.30	60

(1) The U value calculations are based on the following wall construction, internal to external: 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$); 15 mm plaster dabs cavity (R = 0.17 $m^2 \cdot K \cdot W^{-1}$), bridged with adhesive (20%, λ = 0.43 $W \cdot m^{-1} \cdot K^{-1}$); 300 mm concrete wall (λ = 1.7 $W \cdot m^{-1} \cdot K^{-1}$); 2 mm tanking membrane (λ = 0.23 $W \cdot m^{-1} \cdot K^{-1}$); Kingspan GreenGuard GG300 XPS Insulation for Basements (λ_u = 0.035 $W \cdot m^{-1} \cdot K^{-1}$); drainage membrane (no thermal performance); geotextile membrane (no thermal performance); ground (sand) (λ = 2.0 $W \cdot m^{-1} \cdot K^{-1}$). P/A ratio = 0.5. Average basement depth = 2.5 m.
Basement floor insulation = 200 mm Kingspan GreenGuard GG300 XPS Insulation for Basements, above DPM (λ_D = 0.033 $W \cdot m^{-1} \cdot K^{-1}$)

(2) Thinnest available insulation thickness, or thickness combination, to achieve the required U value.

Table 8 Example U values – basement floor construction

Floor type	Target U value ($W \cdot m^{-2} \cdot K^{-1}$)	P/A ratio 0.2	0.4	0.6	0.8	1.0
		Insulation thickness (mm)(1)				
Ground-bearing concrete floor(2)(3) *Insulation above DPM (λ_D = 0.033 $W \cdot m^{-1} \cdot K^{-1}$)*	0.11	180	180 + 30	180 + 50	180 + 50	180 + 60
	0.12	150	180 + 30	180 + 30	180 + 30	180 + 30
	0.13	140	180	180 + 30	180 + 30	180 + 30
	0.15	120	140	150	180	180
	0.18	70	120	120	140	140
	0.22	40	70	100	100	100
	0.25	30	60	70	80	80
Ground-bearing concrete floor(3)(4) *Insulation below DPM (λ_U = 0.035 $W \cdot m^{-1} \cdot K^{-1}$)*	0.11	180 + 30	180 + 50	180 + 60	180 + 70	180 + 70
	0.12	180	180 + 30	180 + 40	180 + 40	180 + 50
	0.13	140	180	180 + 30	180 + 30	180 + 30
	0.15	120	150	180	180	180
	0.18	80	120	140	140	140
	0.22	50	80	100	100	100
	0.25	30	60	70	80	80

(1) Thinnest available insulation thickness, or thickness combination, to achieve the required U value. Thickest board as bottom layer when double/triple layer used.

(2) Ground-bearing concrete basement floor construction, internal to external: 65 mm screed (λ = 1.15 $W \cdot m^{-1} \cdot K^{-1}$); 200 mm medium density concrete (λ = 1.35 $W \cdot m^{-1} \cdot K^{-1}$); separating layer; GreenGuard 300 XPS Insulation for Basements; DPM; concrete base, sand blinding and hardcore (no thermal performance).

(3) Average basement depth = 2.5 m. Ground (sand or gravel) conductivity = 2.0 $W \cdot m^{-1} \cdot K^{-1}$.

(4) Ground-bearing concrete basement floor construction, internal to external: 65 mm screed (λ = 1.15 $W \cdot m^{-1} \cdot K^{-1}$); 200 mm medium density concrete (λ = 1.35 $W \cdot m^{-1} \cdot K^{-1}$); DPM; GreenGuard 300 XPS Insulation for Basements; concrete base, sand blinding and hardcore (no thermal performance).

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

7 Sustainable use of natural resources

Not applicable.

8 Durability

8.1 Specific test data were assessed as given in Table 9.

Table 9 Durability

Product assessed	Assessment method	Requirement	Result
Kingspan GreenGuard GG300 XPS Insulation for Basements	Dimensional stability to BS EN 1604 : 2013 (70°C and 90% RH for 48 hours)	Length, width and reduction in thickness ≤ 5% change	Pass

8.2 Service life

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

PROCESS ASSESSMENT

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

9 Design, installation, workmanship and maintenance

9.1 Design

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

9.1.2 Structural basement retaining walls, foundations, and ground-bearing basement floor slabs must be designed by a suitably competent and experienced individual. External basement walls and concrete ground-bearing basement floors incorporating the insulation must include a suitable continuous waterproofing/tanking membrane system, with drainage as required to suit the site conditions, and constructed in accordance with the relevant clauses of CP 102 : 1973, BS 8102 : 2009, BS 8215 : 1991 and, if relevant, the *NHBC Standards,* Chapter 5.4 *Waterproofing of basements and other below ground structures*. The product should not be used where shrinkable soils are likely to impart lateral forces onto the wall without the added protection of a suitably compressible medium designed for this purpose and specified by a suitably competent and experienced individual.

9.1.3 Ground-bearing basement floors must only be used where the depth of compacted fill is less than 600 mm and defined as non-shrinkable. Shrinkable fills are defined as material containing more than 35% fine particles (silt and clay) with a plasticity index of 10% or greater (shrinkable fills are susceptible to clay heave). Structural load-bearing basement slabs must be specifically designed for such cases by a suitably qualified and experienced individual.

9.1.4 The product must not be used under trench fill foundations for walls. The use of the product directly under structural raft slabs must be subject to specific design by a suitably qualified and experienced individual.

9.1.5 Where a concrete screed or slab finish is laid directly over the product, a polyethylene separating layer/AVCL must be installed between the insulation and the concrete to prevent chemical attack and seepage between the boards (see section A.6). Any gaps between insulation boards or around service openings visible prior to installing the concrete, must be filled with expanding foam or strips of insulation.

9.1.6 Under normal service conditions, dampness from the ground will not pass through to the internal faces of the external basement walls and basement floor, provided the basement walls and floor are protected by a continuous DPM/tanking waterproofing membrane system detailed in accordance with the requirements and provisions of the national Building Regulations.

9.1.7 Walls must not be built on the insulation.

9.1.8 Calculations of thermal transmittance (U value) must be carried out in accordance with BS EN ISO 13370 : 2017 and BRE Report BR 443 : 2019.

9.1.9 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 that can be found in the documents supporting the national Building Regulations must be followed.

Interstitial condensation

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

9.1.11 When the product is used above the DPM in a basement floor slab, an AVCL is installed on the warm side of the insulation to limit the risk of interstitial condensation, unless a risk assessment shows this is not necessary.

Surface condensation

9.1.12 In England and Wales, walls and floors will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.7 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with section 9.1.9 of this Certificate.

9.1.13 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the wall or floor does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2021.

9.1.14 Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6 of this Certificate.

9.2 Installation

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

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

9.2.3 Kingspan GreenGuard GG300 XPS Insulation for Basements may be installed as a single layer, or multi-layer (double or triple layers) to suit the requirements. When using multiple layers, the insulation board joints must be staggered/offset. The Certificate holder must be contacted for further advice on multi-layering.

9.2.4 For the purpose of insulating external basement walls, the product is installed against the outside face of the basement wall waterproofing membrane. The product must be protected against the external subsoil, using a drainage membrane, in conjunction with a geotextile membrane and drainage system, as required to suit the design and site conditions. The Certificate holder can advise whether a separation membrane is required between the product and the waterproof membrane, and provide further information on use of the product with drainage and geotextile membranes.

Incorporation of services

9.2.5 De-rating of electrical cables must be considered where the insulation restricts air cooling of cables; the product must not be used in direct contact with electrical heating cables or hot water pipes. Where underfloor heating systems are to be used, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

9.2.6 Where possible, electrical conduits, gas and water pipes or other services must be contained within ducts or channels within the concrete slab of ground bearing floors. Where this is not possible, the services may be accommodated within the insulation, provided they are securely fixed to the concrete slab. Electrical cables that are likely to come into contact with the insulation must be protected by a suitable conduit or PVC-U trunking. With hot pipes, the insulation must be cut back to maintain an air space.

9.2.7 Where water pipes are installed below the insulation, they must be pre-lagged with close-fitting pipe insulation.

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 product must be carried out by a competent general builder, or a contractor experienced with this type of product.

9.4 Maintenance and repair

Where installed accordance with this Certificate, the product has suitable durability, and maintenance is not required.

10 Manufacture

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

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

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

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

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

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

†10.2 The BBA has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in polythene shrink-wrapped packs incorporating a label with the Certificate holder's trade name, product description and characteristics, and the BBA logo incorporating the number of this Certificate.

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

11.2.1 The product must be stored flat, off the ground on a clean, level surface, and under cover or protected with opaque polythene, to protect it from high winds and prolonged exposure to sunlight. Where possible, packs should be stored inside. If outside, the boards must be raised above ground level.

11.2.2 Care must be exercised to avoid crushing the edges or corners. If damaged, the product must be discarded.

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

†ANNEX A – SUPPLEMENTARY INFORMATION

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

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product in accordance with Designated Standard EN 13164 : 2012.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13164 : 2012.

Management Systems Certification for production

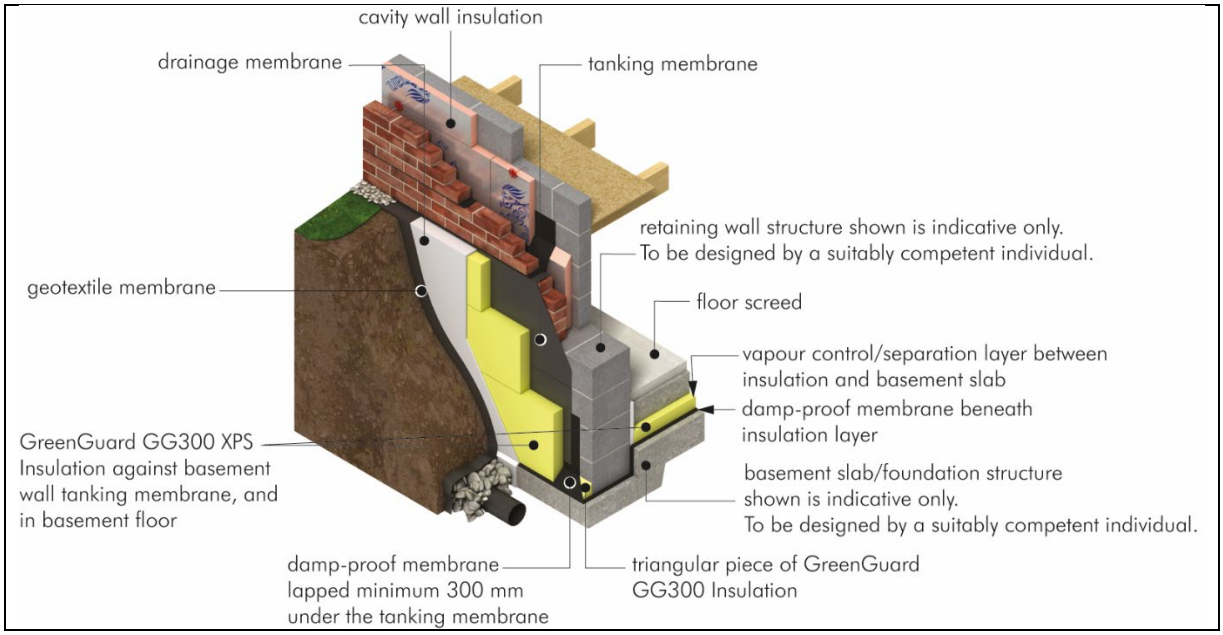
The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by CIBSE Certification Ltd (Certificates 0001QMS-1 and 0001EMS-1 respectively).

Additional information on installation

A.1 Kingspan GreenGuard GG300 XPS Insulation for Basements is laid in a brick bond pattern; it is essential that all joints between the boards are tight and that no gaps exist. The boards can be cut easily using a fine-toothed saw, sharp knife or a hot wire cutter. Where multi-layers are used the board joints should be staggered/offset (see section 9.2.3).

A.2 A typical method of installation is shown in Figure 1. Reference should also be made to BRE Report BR 262 : 2002, and to section 9 of this Certificate for information relating to the structural design of basement walls, foundations and floor slabs, required to suit the specific design and site conditions.

Figure 1 Kingspan GreenGuard GG300 XPS Insulation for Basements – Basement walls and floor slab



A.3 Kingspan GreenGuard GG300 XPS Insulation is applied as external wall insulation against the basement wall waterproofing/tanking membrane, and is to be protected against the subsoil using a drainage membrane and geotextile membrane, used in conjunction with an external drainage system as required. Further information on this can be obtained from the Certificate holder (see section 9 of this Certificate).

A.4 Where the insulation is used over ground-bearing concrete floor slabs, a suitable continuous waterproofing/tanking system in accordance with CP 102 : 1973 should be laid to resist moisture from the ground. If a liquid-type DPM is applied to the slabs, it should be of type compatible with the insulation product and allowed to dry out fully before the insulation is laid. The Certificate holder can advise on suitable materials for this purpose, but such advice is outside the scope of this Certificate.

A.5 Where a screed or concrete slab is laid over the insulation, vertical upstands of insulation should be provided and be of sufficient depth to fully separate the screed or slab from the wall.

A.6 In ground-bearing concrete basement floors, the concrete floor slab over which the product is to be laid should be left for as long as possible to maximise drying out and dissipation of constructional moisture, in accordance with BS 8203 : 2017, section 3.1.2.

A.7 The concrete floor surface should be smooth, level, and flat to within 5 mm when measured with a two metre straight-edge. Irregularities greater than this must be removed. Minor irregularities (up to 10 mm deep) may be levelled with mortar or thin screed.

A.8 An AVCL is installed on the warm side of the insulation to inhibit the risk of interstitial condensation if necessary (see section 3.3.1.1). Where a concrete screed or slab finish is to be laid over the product, a polyethylene separating layer/AVCL must be installed in between the insulation and the concrete to prevent seepage between the boards.

A.9 To limit the risk of condensation and other sources of dampness, the product and overlays should only be laid after the construction is made substantially weathertight, eg after glazing. During construction, the product and overlay must also be protected from damage by traffic and moisture sources such as water spillage and plaster droppings.

Procedure

Basement walls

A.10 The boards are cut to size (using a sharp knife or fine-toothed saw), as necessary, and laid with closely butted, staggered cross-joints, ensuring that all spaces are completely filled.

A.11 Kingspan GreenGuard GG300 XPS Insulation is laid against the vertical waterproofing /tanking membrane to the basement external walls, and is then covered using a drainage membrane and an outer geotextile membrane to protect it against the wet subsoil. Further guidance may be obtained from the Certificate holder.

Basement floors

A.12 The boards are cut to size (using a sharp knife or fine-toothed saw), as necessary, and laid with closely butted, staggered cross-joints, ensuring that all spaces are completely filled.

A.13 The laying pattern should ensure that all cut edges are at the perimeter of the floor or some other feature, eg mat wells, thresholds or access ducts. Spreader boards should be used to protect the product.

Cement-based screed overlay

A.14 Perimeter edge pieces are cut and placed around the edges and taped at joints. A polythene AVCL, at least 0.125 mm thick (500 gauge), is laid over the insulation. The AVCL should have 150 mm overlaps, taped at the joints and turned up 100 mm at the walls. A properly compacted screed of a minimum 65 mm thickness is then laid over. The relevant clauses of BS 8204-1 : 2003 should be followed.

Concrete slab overlay

A.15 Perimeter edge pieces are cut and placed around the edges and taped at joints. A polythene AVCL, at least 0.125 mm thick (500 gauge), is laid over the insulation. The AVCL should have 150 mm overlaps, taped at the joints and turned up 100 mm at the walls. The concrete slab is laid to the required thickness in accordance with BS 8000-9 : 2003 and BS 8204-1 : 2003.

Bibliography

BR 262 : 2002 *Thermal insulation: avoiding risks*

BR 443 : 2019 *Conventions for U-value calculations*

BS 5250 : 2021 *Management of moisture in buildings – Code of practice*

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BS 8102 : 2009 *Code of practice for protection of below ground structures against water from the ground*

BS 8203 : 2017 *Code of Practice for Installation of resilient floor coverings*

BS 8204-1 : 2003 + A1 : 2009 *Screeds, bases and in situ floorings — Concrete bases and cementitious levelling screeds to receive floorings — Code of practice*
BS 8204-2 : 2003 + A2 : 2011 *Screeds, bases and in situ floorings — Concrete wearing surfaces — Code of practice*

BS 8215 : 1991 *Code of Practice for Design and Installation of Damp-Proof Courses in Masonry Construction*

BS EN 1604 : 2013 *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*

BS EN 1991-1-1 : 2002 Eurocode 1 *Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
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BS EN 12088 : 2013 *Thermal insulating products for building applications — Determination of long term water absorption by diffusion*

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BS EN 13164 : 2012 + A1 : 2015 *Thermal insulation products for buildings — Factory made extruded polystyrene (XPS) 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 13810-1 : 2002 *Wood-based panels — Floating floors — Performance specifications and requirements*

BS EN ISO 13370 : 2017 *Thermal performance of buildings. Heat transfer via the ground. Calculation methods*

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

BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

CP 102 : 1973 *Code of practice for protection of buildings against water from the ground*

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
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- is copyright of the BBA
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales
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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:

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- any loss or damage, including personal injury, howsoever caused by the product, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to UKCA marking and CE marking.

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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