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Agrément Certificate
91/2671
Product Sheet 6

IKO ROOF WATERPROOFING SYSTEMS

GOLDSEAL HIGH PERFORMANCE T-O ROOF WATERPROOFING SYSTEMS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Goldseal High Performance T-O Roof Waterproofing Systems, for use on flat or pitched roofs with limited access as a partially- or fully-bonded roof waterproofing system comprising either two or three layers.

(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

Weathertightness — the systems will resist the passage of moisture into the building (see section 6).

Properties in relation to fire — the systems will enable a roof to be unrestricted under the Building Regulations (see section 7).

Resistance to wind uplift — the systems will resist the effects of any likely wind suction acting on the roof (see section 8).

Resistance to foot traffic — the systems will accept the limited foot traffic and loads associated with installation and maintenance (see section 9).

Durability — under normal service conditions the systems will provide a durable roof waterproofing with a service life in excess of 25 years (see section 11).

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'John Albon'.

Date of Third issue: 14 October 2016

John Albon — Head of Approvals

A handwritten signature in black ink, appearing to read 'Claire Curtis-Thomas'.

Claire Curtis-Thomas

Originally certificated on 13 December 2011

Construction Products

Chief Executive

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.

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Regulations

In the opinion of the BBA, Goldseal High Performance T-O Roof Waterproofing Systems, 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:	B4(2)	External fire spread
Comment:		On suitable substructures, the use of the membranes will be unrestricted under this Requirement. See sections 7.1 to 7.3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The membranes, including joints, will enable a roof to meet this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The membranes are acceptable. See section 11.1 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The use of the membranes satisfies the requirements of this Regulation. See sections 10.1 and 11.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		The membranes, when applied to a suitable substructure, are regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 7.1 and 7.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The use of the membranes, including joints, will enable a roof to meet the requirements of this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ . See section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The systems 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.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for the membranes under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12 ⁽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)(b)(i)	Fitness of materials and workmanship
Comment:		The membranes are acceptable. See section 11.1 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The membranes, including joints, will enable a roof to meet the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	36(b)	External fire spread
Comment:		On a suitable substructure, the use of the membranes will be unrestricted under the requirements of this Regulation. See sections 7.1 to 7.3 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 sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of Goldseal High Performance T-O Roof Waterproofing Systems, provided they are installed, used and maintained in accordance with this Certificate, in relation to NHBC Standards, Chapter 7.1 Flat roofs and balconies.

CE marking

The Certificate holder has taken the responsibility of CE marking the systems in accordance with harmonised European standard BS EN 13707 : 2013. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Goldseal High Performance T-O Roof Waterproofing Systems comprise:

- Goldseal T-O Slate — a bitumen-saturated polyester fibre base (nominal mass per unit area 270 g·m⁻²) coated on both sides with an SBS elastomeric coating with an upper surface finish of green slate and a thermofusible film on the lower surface, for use as a torch-on cap sheet
- IKO Systems Underlays — a bitumen-saturated polyester fibre base (150 g·m⁻²) coated on both sides with an SBS elastomeric coating, with a fine mineral upper surface, and either a thermofusible film (T-O) or a self-adhesive bitumen coating with a release film (S-A) on the lower surface, for use as a first or intermediate layer.

1.2 The nominal characteristics are given in Tables 1 and 2.

Table 1 Nominal characteristics

Characteristic (unit)	Goldseal T-O Slate	IKO Systems Underlay	
		T-O	SA
Roll width (m)	1 ⁽¹⁾	1	1
Roll length (m)	8	12	16
Mass per unit area (kg·m ⁻²)	4.58	3.18	2.06
Roll weight (kg)	36	38.2	36.1

(1) Including selvedge.

Table 2 Nominal group characteristics

Characteristic (unit)	Goldseal T-O Slate	IKO Systems Underlay
Watertightness* (1 m)	pass	pass
Tensile strength* (N·50 mm ⁻¹)		
longitudinal direction	≥ 700	≥ 300
transverse direction	≥ 600	≥ 300
Elongation (%)		
longitudinal direction	≥ 25	≥ 17
transverse direction	≥ 35	≥ 17
Resistance to tear*— nail (N)		
longitudinal direction	≥ 500	≥ 100
transverse direction	≥ 500	≥ 100
Static loading* (kg)	20	20
Low temperature flexibility* (°C)		
upper face	≤ -20	≤ -15
lower face	≤ -20	≤ -15

1.3 Ancillary products for use with the systems are:

- traditional membranes to BS 8747 : 2007, where required
- IKO bonding bitumen components — used for bonding between layers and to substrates
- Challenger 180 — a nailed preparation layer
- IKOpro Quick Dry Bitumen Primer — for use in preparation of substrates
- IKOpro SA Bitumen Primer — a cold-applied bituminous primer consisting of a blend of bitumens, solvents and additives for preparing substrates prior to application of S-A membranes
- IKO Systems Venting Layer — for use in partially-bonded applications.

1.4 Ancillary products for use with the systems, but outside the scope of the Certificate, are:

- IKO Systems T-O and IKO Systems S-A Vapour Control Layers — alternative vapour control layers
- IKOpro Systems Bonding Agent — a solvent-based primer consisting of synthetic rubbers and resins, used for preparing surfaces prior to the application of self-adhesive membranes
- IKOpro Sprayfast IBA (Insulation Bonding Adhesive) — a spray-applied PU adhesive for rapid bonding of insulation materials
- IKOpro PU Adhesive for insulation — a single-part, moisture-curing, polyurethane adhesive used for bonding insulation boards
- IKO Enertherm Insulation — a range of rigid insulation boards for use as part of a built-up warm roof or inverted roof construction.

2 Manufacture

2.1 The membranes are manufactured by saturating the bases with bitumen and a fire-enhanced SBS elastomeric coating containing the mineral filler. The surface is finished by an application of slate granules and/or sand.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of IKO PLC has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate Q 05233).

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls taped together, with the tapes bearing the Certificate holder's name and the BBA logo incorporating the number of this Certificate.

3.2 Rolls should be stored on end on a clean, level surface and not exposed to excessive heat.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the system components under the *CLP Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Goldseal High Performance T-O Roof Waterproofing Systems.

Design Considerations

4 General

4.1 Goldseal High Performance T-O Roof Waterproofing Systems are satisfactory for use as fully- or partially-bonded waterproofing systems, as part of a built-up specification and, where necessary, in conjunction with appropriate roofing membranes to BS 8747 : 2007 on flat and pitched roofs with limited access.

4.2 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the membrane must be provided.

4.3 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc.

4.4 Decks to which the membranes are to be applied must comply with the relevant requirements of either BS 6229 : 2003 or BS 8217 : 2005 and, where appropriate, *NHBC Standards 2014, Chapter 7.1 Flat roofs and balconies*.

4.5 Insulation materials to be used in conjunction with the membranes must be in accordance with the Certificate holder's instructions and be either:

- as described in the relevant clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with the scope of that Certificate.

5 Practicability of installation

The systems should only be installed by installers who have been trained and approved by the Certificate holder.


6 Weathertightness




6.1 The membranes, including joints, when completely sealed and consolidated will adequately resist the passage of moisture into the building and enable a roof to comply with the requirements of the national Building Regulations.

6.2 The membranes are impervious to water and will achieve a weathertight roof capable of accepting minor structural movement.

7 Properties in relation to fire

 7.1 Test results indicate that a system comprising an 18 mm thick plywood substrate with a layer of IKO Systems T-O Vapour Control Layer, 103 mm thick Supertherm Universal polyurethane insulation board, one layer of IKO Systems Underlay T-O and one layer of a Goldseal membrane using a 350 g·m⁻² reinforcement is classified under BS EN 13501-5 : 2005 as B_{ROOF}(t4).

(1) The membrane tested was manufactured to similar specifications as the Goldseal T-O Slate using the same coating mass but a heavier reinforcement. Therefore, it has been assessed that Goldseal T-O Slate will have the same fire performance as the 350 reinforced membrane.

 7.2 When used on flat roofs with one of the surface finishes defined in Part iii of Table A5 of Appendix A of The Building Regulations (England and Wales), or Technical Booklet E, Table 5.6, Part IV of The Building Regulations (Northern Ireland) (and listed below), the roof is deemed to be of designation B_{ROOF}(t4):

- bitumen-bedded stone chippings covering the whole surface to a depth of not less than 12.5 mm
- bitumen-bedded tiles of a non-combustible material
- sand and cement screed, or
- macadam.

 7.3 The designation of other specifications should be confirmed by:

England and Wales — test or assessment in accordance with Approved Document B, Appendix A, Clause 1

Scotland — test to conform to Mandatory Standard 2.8, Clause 2.8.1

Northern Ireland — test or assessment by a UKAS-accredited laboratory, or an independent consultant with appropriate experience.

7.4 Systems comprising Goldseal High Performance T-O products and insulations are Certificated by the Loss Prevention Certification Board (Certificate No 626a, Issue 4).


8 Resistance to wind uplift

The adhesion of bonded systems is sufficient to resist the effects of wind suction, thermal cycling or other minor structural movements likely to occur in service.

9 Resistance to foot traffic


The systems can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as for maintenance of lift equipment, additional protection to the membrane in accordance with the Certificate holder's instructions must be provided.

10 Maintenance

 10.1 Systems must be the subject of annual inspections and maintenance to ensure continued performance.

10.2 Where damage has occurred it must be repaired in accordance with section 15 and the Certificate holder's instructions.

11 Durability

 11.1 Accelerated weathering tests and evidence from existing installations confirm that satisfactory retention of physical properties is achieved. Under normal conditions, the systems will have a service life in excess of 25 years.

11.2 When using the mineral-finished membrane, it is possible that some localised loss of mineral surfacing may occur after some years in areas where complex detailing of the roof design is incorporated.

12 Reuse and recyclability

The products comprise bitumen and polyester which can be recycled.

Installation

13 General

13.1 Installation of Goldseal High Performance T-O Roof Waterproofing Systems must be carried out by installers trained and approved by the Certificate holder in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005, the Certificate holder's instructions and this Certificate.

13.2 Substrates to which the membranes are to be applied must be sound, dry, clean and free from sharp projections such as nail heads and concrete nibs. Substrates should be primed with IKOpro Quick Dry Bitumen Primer or IKOpro SA Bitumen Primer prior to installation, where required.

13.3 Installation should not be carried out during inclement weather (eg rain, fog or snow). When the temperature is below 5°C, suitable precautions against surface condensation must be taken.

13.4 At falls in excess of 5° (1:11), the normal precautions against slippage and the provision for mechanical fixings as required by BS 8217 : 2005 should be observed.

13.5 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure must meet the requirements of BS 8217 : 2005, and, to prevent damage to the roof covering, one of the appropriate surface finishes referred to in Clause 6.12 of this Code must be used.

13.6 When used for remedial work, existing waterproofing layers must be made sound and existing surface finishes (eg surface dressing) must be removed, and then primed.

13.7 Where applicable, details are to be worked in accordance with traditional methods.

13.8 The finished membrane requires no further surface protection.

14 Application

Partially bonded

14.1 A layer of either IKO Perforated Underlay or Type 3G felt to BS 8747 : 2007, Annex C, is loose-laid over the substrate in accordance with BS 8217 : 2005, Sections 8.15.2 and 8.15.3.

14.2 IKO Systems Underlay is fully bonded to the Type 3G felt or IKO Perforated Underlay in accordance with the Certificate holder's instructions.

14.3 Goldseal T-O Slate is fully bonded to the underlay by torch bonding by pressing the membrane down. Care must be taken not to overheat the coating. When torching the membranes, a bead of coating must exude from all lap joints. Side and end laps for the cap sheet are 75 mm.

14.4 The perimeter areas must be fully bonded in bitumen.

Fully bonded

14.5 An IKO Systems Underlay is fully bonded to the substrate in accordance with the Certificate holder's instructions.

14.6 Goldseal T-O Slate is fully bonded to the underlay by torch bonding by pressing the membrane down. Care must be taken not to overheat the coating. When torching the membranes, a bead of coating must exude from all lap joints. Side and end laps for the cap sheet are 75 mm.

15 Repair

In the event of damage, the membranes can be effectively repaired, after cleaning, with a patch of membrane torch welded over the damaged area.

Technical Investigations

16 Tests

An assessment was made of test data in relation to:

- water vapour transmission
- nail tear resistance
- dimensional stability
- low-temperature flexibility
- heat resistance
- dynamic indentation
- static indentation
- resistance to slippage
- fatigue cycling
- wind uplift
- peel strength from chipboard and concrete
- peel strength from chipboard after 28 days heat ageing at 70°C
- peel strength from concrete after water soak at 28 days immersion at 30°C.

17 Investigations

17.1 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.

17.2 Existing data on the Goldseal Pour and Roll membranes were assessed to determine durability.

17.3 The manufacturer's installation instructions were assessed.

17.4 An examination was made of existing data on the fire performance of the products. In addition indicative test data for the system when installed on Superrock Torch Insulation (mineral fibre) were assessed.

17.5 Visits to existing sites over 20 years old were carried out to assess system durability in service.

Bibliography

BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

BS 8747 : 2007 *Reinforced bitumen membranes (RBMs) for roofing — Guide to selection and specification*

BS EN 13501-5 : 2005 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests*

BS EN 13707 : 2013 *Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

18 Conditions

18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.