

IKO Roof Waterproofing Systems

Système d'étanchéité pour toitures
Dachabdichtungen

NSAI Agrément (Irish Agrément Board) is designated by Government to carry out European Technical Assessments. NSAI Agrément Certificates establish proof that the certified products are 'proper materials' suitable for their intended use under Irish site conditions, and in accordance with TGD Part D of the second schedule of the Building Regulations 1997 to 2023.



PRODUCT DESCRIPTION:

This Certificate relates to the IKO range of Roof Waterproofing Systems, a range of polyester reinforced, APP and SBS modified bitumen membranes.

In the opinion of NSAI the IKO range of Roof Waterproofing Systems as described in this Certificate comply with the requirements of the Irish Building Regulations 1997 to 2023.

USE:

This Certificate covers the use of the IKO Roofing membranes as fully or partially bonded, or loose laid and ballasted, two layer waterproofing systems on flat roofs with limited access. The Systems are intended for use with substrates in accordance with BS 8217^[2] and for all normal roofing details such as parapets, outlets and roof lights.

MANUFACTURE AND MARKETING:

The product is manufactured by:

IKO n.v.
d'Herbouvillekaai 80,
2020 Antwerpen,
Belgium.
Tel: +32 (0) 3 248 30 00
Fax: +32 (0) 3 248 37 77
Web: be.iko.com

The product is distributed in Ireland by:

IKO Limited,
Unit 502, Northwest Business Park,
Ballycoolin, Dublin 15.
Tel: 01 8855090
Fax: 01 8855858
Email: waterproofing@iko.ie
Web: www.iko.ie

1.1 ASSESSMENT

In the opinion of NSAI Agrément, IKO Roof Waterproofing Systems, installed in Ireland by trained, licensed contractors in accordance with processing specifications issued by IKO Ltd. and used in the context of this Certificate, can meet the requirements of the Irish Building Regulations 1997 to 2023 as listed in section 1.2 of this Certificate.

Part L – Conservation of Fuel and Energy**L1 - Conservation of fuel and energy**

IKO Roof waterproofing membranes in conjunction with the full roof build-up can contribute to or meet the requirements of this regulation, when designed and installed in accordance with this certificate.

1.2 BUILDING REGULATIONS 1997 to 2019**REQUIREMENT:****Part A – Structure****A1 – Loading**

Tests indicate that a roof incorporating the IKO Roof Waterproofing Systems can meet the loading requirements, provided the installation complies with the conditions set out in Section 2.6 and Part 3 of this Certificate.

Part B – Fire Safety**B4 & B9 – External Fire Spread**

IKO Roof Waterproofing Systems can meet the requirements for resistance to fire penetration and the distance of spread of flame for roofs, as indicated in Part 4.1 of this Certificate.

Part C – Site Preparation and Resistance to Moisture**C4 – Resistance to Weather and Ground Moisture**

IKO Roof Waterproofing Systems can meet the weather resistant requirements when installed as indicated in Part 2.6 of this Certificate.

Part D – Materials and Workmanship**D1 – Materials and workmanship**

The IKO Roof Waterproofing Systems, used in accordance with this NSAI Agrément Certificate, can meet the requirements for workmanship.

D3 – Proper Materials

IKO roofing membranes, as certified in this NSAI Agrément Certificate, are manufactured from materials which are proper materials fit for their intended use. (See Part 4 of this Certificate).

2.1 PRODUCT DESCRIPTION

IKO roofing membranes are manufactured by coating a polyester reinforcement with APP or SBS modified bitumen to meet the requirements of I.S. EN 13707^[1]. Each roof system, which consists of base and cap sheets and a vapour barrier, is application specific. Factors which influence system selection include roof application and substrate.

This certificate covers the use of IKO roofing membranes as bonded or ballasted waterproofing layers on flat roofs with limited access.

2.2 PRODUCT RANGE

The range of IKO membranes, which include base sheets, cap sheets and vapour barriers along with their nominal characteristics are given in Tables 1 and 2.

Table 1: Nominal Characteristic – Underlays (Base sheets)/Cap Sheets

Product	Thickness (mm)	Roll length (m) **	Roll width (m)	Weight (kg/m ²)	Roll weight (kg)
Base Sheets					
IKO base Turbo T/F	3.2	10	1.0	4.3	43
IKO base Quadra T/F	3.0	7.5	1.0	4.3	36
IKO base Quadra T/SA , F/SA	2.5	10	1.0	3.5	35
IKO base 460P60 EU	2.2	12	1.0	2.3	28
IKO base V3 T/F	3.1	10	1.0	3.9	39
IKO base P3000 SBS T/F	2.3	10	1.0	3.0	30
IKO base V3 APP T/F FM	3.0	10	1.0	3.8	38
Cap sheets					
IKO carbon 250	4.8 (4.1)*	7.5	1.0	6.2	47
IKO carbon	4.7 (4.0)*	7.5	1.0	6.2	47
IKO powerflex Mono3 MB	3.9 (3.2)	6.0	1.0	4.7	28
IKO Powergum 470K24 sp bl.	4.5 (3.8)*	7.5	1.0	5.7	43
IKOnic Black 4 GRB/F	3.8 (3.1)*	10	1.0	4.8	48
IKO carrara	5.2 (4.5)*	5	1.0	6.2	31
IKO Roofgarden 4 APP T/F	4.0	7.5	1.0	4.9	36
IKO pantera	4.7 (4.0)*	7.5	1.0	5.9	44
IKO roofgarden pantera	4.7 (4.0)	7.5	1.0	5.9	44
IKO powerflex 4 GRC/F	4.7 (4.0)	7.5	1.0	6.0	45
IKO segura	5.0 (4.3)	6.0	1.0	5.3	32
* Thickness measured on selvedge. ** Other lengths available on request					

Table 2: Nominal Characteristic – Vapour Barriers

Vapour Barrier	Thickness (mm)	Roll length (m)	Roll width (m)	Weight (kg/m ²)	Roll weight (kg)
IKO shield ALU 3 T/F	3.0	10	1.0	4.1	41
IKO shield ALU 4 T/F	4.0	5	1.0	5.2	26
IKO shield PRO ALU/SA	1.6	20	1.08	1.7	34
IKO base stick T/SA	2.5	15	1.08	2.7	44
IKOnic base V2 T/F	2.0	10	1.0	2.3	23

2.3 ANCILLARY ITEMS

The membranes are used in conjunction with a range of ancillary items depending on the roof specification. Products which may be used with the system but are outside the scope of this certificate include:

- IKOpro Fast Dry Primer is designed to seal and prepare the substrate for the application of bitumen waterproofing products.
- IKOpro ECO primer: high quality bituminous primer emulsion designed to seal and prepare substrates for the application of bitumen waterproofing products.
- IKOpro Repair Compound – bitumen mastic for finishing joints of edge and wall profiles.
- IKO tanetech Detail - waterproofing coating for the waterproofing of roof details.
- IKO hybritech MS Detail: MS Detail is a solvent-free, colored, liquid, single component waterproofing coating.
- IKOpro PU Adhesive – cold applied polyurethane adhesive for bonding bituminous roofing membranes, vapour control layers and rigid insulation boards to a variety of substrates.
- IKOpro Stickall – dense elastomer modified bituminous sealing glue for redressing and sealing applications.
- IKOpro Activator - Ready-to-use adhesive, that is used as a primer in order to improve the adhesion of self-adhesive roof membranes
- Protectoboard is a semi-flexible board comprised of a mineral fortified asphalted core between two layers of high strength reinforced glass fleece carriers. For use as a separation layer in a roof assembly or a base over flammable surfaces i.e. heat sensitive foam insulation. This board can be mechanically fixed or hot bitumen bonded.

2.4 MANUFACTURE

2.4.1 GENERAL

During the manufacture of IKO underlays and cap sheet vapour barriers, various carriers (inlays) are coated with plastomer, elastomer and polymer modified bitumen and finished (upper and lower surfaces) as per section 2.4.2, 2.4.3 and 2.4.4 below.

2.4.2 IKO Underlays:

2.4.2.1 IKO base Turbo T/F or F/T is a waterproofing underlay membrane composed of polymer bitumen and polyester-glass composite inlay. The upper surface is finished with sand or a thermofusible film and the lower surface is also protected by sand or a thermofuseable film. The thermofusible film is always in combination with the turbo profile.

2.4.2.2 IKO base Quadra T/F, T/SA, F/SA are waterproofing underlay membranes composed of polymer bitumen and a polyester-glass composite inlay. The upper surface is finished with sand or a thermofusible film and the vapour pressure distributing lower surface is protected by a thermofusible film or a self-adhesive film.

2.4.2.3 IKO base 460P60 EU is a one side coated membrane composed of polymer bitumen and a polyester inlay. The upper surface is finished with a thermofusible film and the lower surface is an exposed polyester.

2.4.2.4 IKO base V3T/F is a waterproofing underlay membrane composed of polymer bitumen and a glass fleece inlay. Both the upper and lower surfaces are finished with sand or a thermofusible film.

2.4.2.5 IKO base P3000 SBS T/F is a waterproofing underlay membrane composed of elastomer (SBS) bitumen and a polyester inlay. The upper surface is finished with sand and the lower surface is protected by a thermofusible film or sand.

2.4.2.6 IKO base V3 APP T/F FM is a waterproofing underlay composed of plastomer (APP) bitumen and a glass fleece inlay. The upper surface is finished with sand and the lower surface is protected by a thermofusible film or sand.

2.4.3 IKO Cap sheets:

2.4.3.1 IKO carbon and 250 are waterproofing cap sheet membranes composed of plastomer (APP) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper surface

is finished with black granulate and the lower surface is protected by a thermofuseable film, always in combination with the Turbo buried profile. The top layer can be applied in a single or multi-layer system.

2.4.3.2 IKO powerflex Mono 3MB is a waterproofing cap sheet membrane composed of elastomer (SBS) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper surface is finished with dark slate and the lower surface is protected by a thermofusible film. The top layer can be applied in a single or multi-layer system.

2.4.3.3 IKO powergum 470K24 sp bl. is a waterproofing cap sheet membrane composed of plastomer (APP) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper surface is finished with dark sparkling black slate and the lower surface is protected by a thermofusible film. The top layer can be applied in a single or multi-layer system.

2.4.3.4 IKonic Black 4 GRB/F is a waterproofing cap sheet membrane composed of plastomer (APP) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper surface is finished with black granules and the lower surface is protected by a thermofusible film. The top layer can be applied in a multi-layer system.

2.4.3.5 IKO carrara is a waterproofing cap sheet membrane composed of elastomer (SBS) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper surface is finished with white reflective titanium oxide granules and the lower surface is protected by a thermofusible film. The top layer can be applied in a single or multi-layer system.

2.4.3.6 IKO roofgarden 4 APP T/F or AD/F is a waterproofing cap sheet membrane composing of plastomer (APP) bitumen with root resistant additives and a polyester-glass composite inlay. The upper side is finished with sand or dark slate and the lower surface is protected by a thermofusible film. This top layer can be applied in a multi-layer system for green roofs.

2.4.3.7 IKO pantera is a waterproofing cap sheet membrane composing of (SBS) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper side is finished with black granules and the lower surface is protected by a thermofusible film. This top layer can be applied in a single or multi-layer system.

2.4.3.8 IKO roofgarden pantera is a waterproofing cap sheet membrane composing of (SBS) bitumen with fire-retardant properties, root resistant additives and a polyester-glass composite inlay. The upper side is finished with black granules

and the lower surface is protected by a thermofusible film. This top layer can be applied in a multi-layer system for green roofs.

2.4.3.9 IKO powerflex 4 GRB/F is a waterproofing cap sheet membrane composed of elastomer (SBS) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper surface is finished with dark granules and the lower surface is protected by a thermofusible film. The top layer can be applied in a single or multi-layer system.

2.4.4.0 IKO segura is a waterproofing cap sheet membrane composed of elastomer (SBS) bitumen with fire-retardant properties and a polyester-glass composite inlay. The upper surface is finished with white reflective titanium oxide granules and the lower surface is protected by a release foil. The top layer can be applied in a single or multi-layer system.

2.4.4 IKO Vapour Barriers:

2.4.4.1 IKO shield ALU 3 T/F is a 3mm vapour barrier composed of polymer bitumen and an aluminium inlay. The upper surface is finished with sand and the lower surfaces is finished with a thermofusible film.

2.4.4.2 IKO shield ALU 4 T/F is a 4mm vapour barrier composed of polymer bitumen and an aluminium inlay. The upper surface is finished with sand and the lower surfaces is finished with a thermofusible film.

2.4.4.3 IKO shield PRO ALU/SA is a vapour barrier composed of elastomer (SBS) bitumen and a polyester-glass combination inlay. The upper surface is finished with ALU foil and a self-adhesive lower surface with a release foil.

2.4.4.4 IKO base stick T/SA is a vapour barrier/underlay membrane composed of polymer bitumen and a polyester-glass combination inlay. This sheet is finished with sand on the upper surface and a self-adhesive lower surface with a release foil.

2.4.4.5 IKonic base V2 T/F is a vapour barrier/underlay membrane composed of polymer bitumen and a glass fleece inlay. This sheet is finished with sand on the upper surface and a thermofusible foil on lower surface.

2.5 QUALITY CONTROL

Quality control carried out on the raw materials, production process and on the finished product includes checks on:

- dimensions
- straightness
- density

- tensile strength
- elongation at break
- cold flexibility
- shrinkage
- static loading
- resistance to impact

The quality management systems of IKO have been assessed and registered as meeting the requirements of I.S. EN ISO 9001^[3] and I.S. EN ISO 14001^[24].

2.6 DELIVERY, STORAGE AND MARKING

Each roll carries a label which identifies the product name, thickness, dimensions, batch number and a barcode. In addition, the carrier is printed at 30 cm intervals with a product code to aid traceability. The NSAI Agrément identification mark and Certificate number are fixed to each pack.

The rolls are stacked vertically on pallets and protected with a transparent shrinkage foil. Rolls should be stored under cover with no more than two pallets stacked on top of each other.

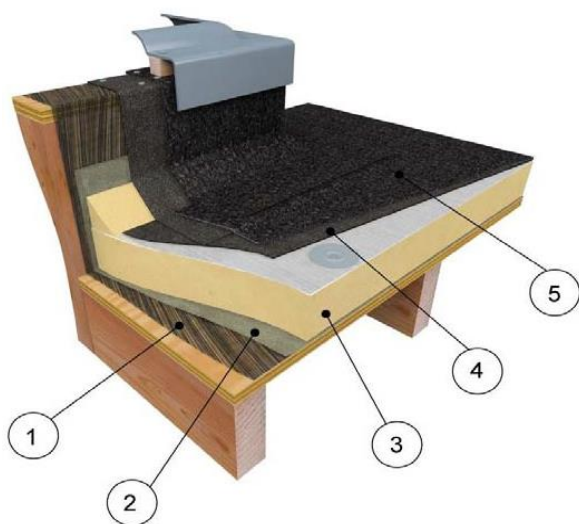
Solvents and sealants must be stored in a dry, sealed area reserved for flammable materials.

As required the Certificate holder carries out wind loading calculations in accordance with the requirements of I.S. EN 1991-1-4^[7]. Based on these calculations, the existing substrate and the clients specific requirements, an appropriate IKO roofing system is selected.

The certificate holder is not responsible for the design of the roof or the substrate on which the IKO system is to be applied. This is normally the responsibility of the clients Structural Engineer.

BS 8747^[4] should be used to determine the correct system specification for each project.

When refurbishing existing roofs, a thorough survey of the existing roof structure must be undertaken by an appropriately qualified professional to determine the adequacy of same. Where defects are identified, remedial measures must be undertaken prior to proceeding with the application of the appropriate IKO roof waterproofing system. Carrying out re-roofing refurbishment presents an ideal opportunity to address the thermal performance of the existing roof. The certificate holder can incorporate insulation of various thicknesses to achieve a range of u-values to meet the clients requirements. Reference should also be made to SR54^[23].



1. IKOpro SA primer
2. IKO base stick T/SA
3. Insulation boards, bonded on VCL with IKO pro PU adhesive, approx. 200g/m²
4. IKO base Quadra T/SA or F/SA
5. IKO Carbon (250) or IKO Carrara

Figure 2 - Rooflight detail

2.7 DESIGN AND INSTALLATION

2.7.1 GENERAL

All installation work must be carried out in accordance with the manufacturer's installation instructions by trained and licensed IKO roofing contractors, records of whom are kept on the Certificate holder's database.

Roof decks to which the covering is applied, must comply with BS 6229^[5].

Surfaces to be covered must be firmly fixed, clean, dry, smooth and free from frost, contaminants, voids and protrusions. All preliminary work

including the formation of upstands, kerbs, box gutters, expansion joints, etc. and fixing of battens, fillets, anchoring, etc. is complete and satisfactory.

Timber decking must be free from wane, pitch pockets, decay and insect attack. Moisture content of the timber decking must be less than 22% at time of covering.

All new roof constructions must incorporate a moisture barrier on the warm side of the insulation to prevent condensation saturating the insulation layer. Table 2 refers to the range of IKO vapour barriers available. The advice of the certificate holder should be sought if additional information is required in this regard.

No petroleum based solvents or other chemicals harmful to bitumen should be allowed to come into contact with the roof surface.

IKO Roof Waterproofing Systems may be laid in conditions normal to roofing work, but should not be laid in rain snow or heavy fog or at temperatures below 5°C. The application temperature for self-adhesive membranes is $\geq 10^{\circ}\text{C}$.

In case of application during colder periods, the material should be stored at least 12 hours before application in an ambient temperature of $\geq 10^{\circ}\text{C}$. IKO Roof Waterproofing Systems should never be laid on a wet substrate.

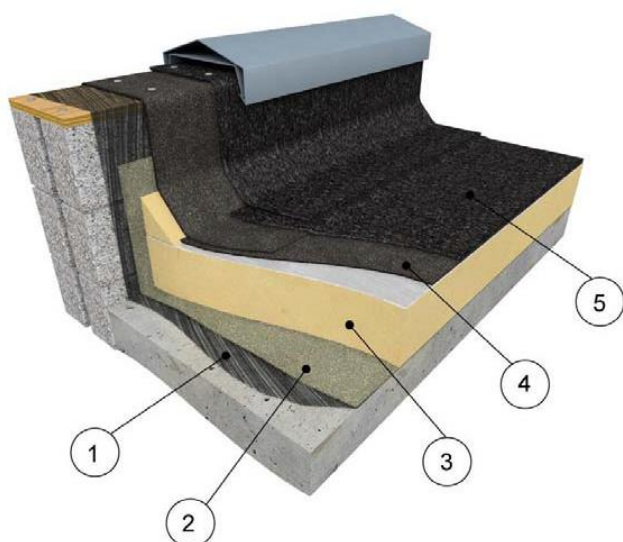


Figure 3 - Parapet detail

2.7.2. Installation procedure

Installation of the IKO Roof Waterproofing Systems is carried out using traditional methods of laying bituminous felts, to meet the requirements of BS 8000-4^[6], BS 8217^[2] and the certificate holders' instructions.

It is important that a suitable vapour control layer (VCL) is used beneath any insulation material to

reduce the risk of interstitial condensation occurring in the insulation/waterproofing system.

The vapour control layer should be laid with fully bonded 80 - 100 mm side and 120 - 150 mm end laps. At all edges, abutments and penetrations, the VCL should be either turned back at least 150 mm onto the insulation and sealed down, or turned up and sealed to the main roof covering for at least 50 mm, to encapsulate the insulation.

All penetrations through the vapour control layer should be sealed using bonding or taping methods as per the certificate holder's instructions.

Insulation materials should comply with the BS 8217^[2] or be the subject of a current NSAI Agrément Certificate. The compatibility of the insulation material and the IKO membranes should be checked with the Certificate holder.

Insulation boards should be laid with long edges fully supported, lightly butted together with staggered end joints with mechanical fixing as required to resist wind loading determined in accordance with the requirements of I.S. EN 1991-1-4^[7].

1. IKOpro SA primer
2. IKO base stick T/SA
3. Insulation boards, bonded on VCL with IKO pro PU adhesive, approx. 200g/m²
4. IKO base Quadra T/SA or F/SA
5. IKO Carbon (250) or IKO Carrara

IKO underlays and cap sheets should be laid using traditional methods of laying bituminous felts, in accordance with BS 8000-4^[6], BS 8217^[2] and the certificate holders instructions. Installation of the cap sheets should commence on the lowest part of the roof and the membrane unrolled up the slope with not less than 80 mm side and 150 mm end laps, ensuring water will drain over and not into the laps. The side laps should be staggered by one half-sheet width

in two layer coverings and one-third sheet width in three layer coverings.

Successive layers should be applied with minimum delay, ensuring that no moisture is trapped. Overlaps are bonded by applying the flame over the total width of the lap with immediate pressure being applied to the seam.

In all cases an uninterrupted extrusion of molten bitumen should be visible along the seam. Refer to Table 3 for typical build-ups depending on the substrate and insulation call-up.

Detailing at expansion joints, up-stands, roof edges and gutters should be performed in accordance with the requirements of BS 8217^[2] and the certificate holders' instructions.

For loose laid and ballasted applications, a separation layer should be installed between the membrane and final ballast coating. The advise of the certificate holder should be sought in this regard. Reference should be made to the requirements of BS 8217^[2] regarding the installation of surface protection.

For self-adhesive application the membranes should be unrolled to half its finished length. The removable silicon treated foil should be cut in cross direction and removed while unrolling the membrane. The same procedure should be repeated for the other end of the roll.

Refer to Table 3 and Figures 1 to 3 for typical build-up requirements.

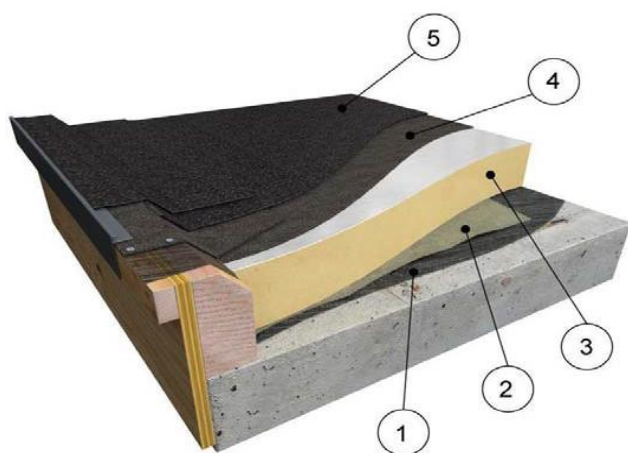


Fig 1 Watercheck and drip detail

2.7.3 GREEN ROOFS

The saturated weight of a green roof system must be considered at the initial design stage when considering any form of green roof system. IKO's Technical Services Team can provide indicative loading information for assessment purposes and specific system weights at final specification stage.

Where internal outlets are the only method of roof drainage, at least two specialist outlets per roof area should be installed with the required protection to prevent access by soil and debris.

On roofs surrounded by high parapets, the use of indicator overflows is advised, however they should not be considered as a replacement for proper roof drainage.

1. IKOpro SA primer
2. IKO base stick T/SA
3. Insulation boards, bonded on VCL with IKO pro PU adhesive, approx. 200g/m²
4. IKO base Quadra T/SA or F/SA
5. IKO Carbon (250) or IKO Carrara

3.0 GENERAL

3.1 Roof Waterproofing Systems, when installed are suitable for use on insulated decks, concrete, timber or metal decks as a fully or partially bonded, or loose laid and ballasted, double layer waterproofing system on flat roofs with limited access.

3.2 Limited access roofs are defined for the purpose of this Certificate as those roofs that are subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters, etc.

3.3 Where it is envisaged that traffic will be in excess of access loads only, special precautions should be taken to protect the waterproofing membrane by the use of a suitable walkway, as described in BS 8217^[2] clause 8.19.

3.4 The manufacturer can provide adhesive strength test data to the project specific designer for input parameters required for wind load calculations.

3.5 Insulation materials should comply with the BS 8217^[2] or be the subject of a current NSAI Agrément Certificate provided that nothing in the Certificate prevents the use of IKO Roof Waterproofing Systems with that product. The advice of the certificate holder should be sought as necessary.

Non-traditional insulation systems or other materials used in conjunction with this roofing system must only be used if approved by the Certificate holder.

3.6 Timber decking must be free from wax, pitch pockets, decay and insect attack. Moisture content of the timber decking must be less than 22% at time of covering.

3.7 IKO cap sheets are also suitable for use where appropriate, as an exposed cap-sheet or in detailed work.

3.8 Decks should be designed in accordance with the relevant clauses of BS 6229^[5] or other approved design guides.

3.9 Condensation risk should be assessed in accordance with BS 6229^[5] and BS 5250^[8] and only approved vapour control layers should be used. Refer also to Cl. 4.3 of this certificate.

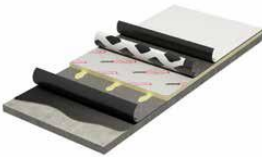
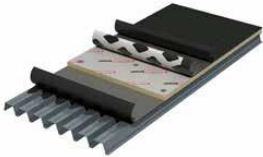
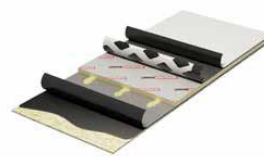
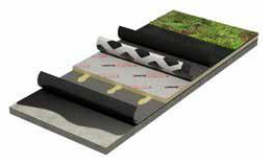
3.10 Although IKO Roof Waterproofing Systems are not affected by standing water, it is good practice to provide suitable falls to facilitate drainage. Where this is not possible additional drainage outlets should be employed.

3.11 Flat roofs are defined for the purpose of this Certificate as those roofs up to 10° to the horizontal. See section 4.1 of this certificate for fire test ratings of flat roof systems using IKO Roof Waterproofing Systems per BS 476: Part 3^[9]. The designation of other roof systems should be confirmed by test or assessment.

3.12 To minimize ponding, and in accordance with BS 6229^[5], it is recommended that flat roofs should have a Design Fall of 1:40 to achieve a minimum Finished fall of 1:80, unless a detailed analysis of the roof is available, including overall and local deflection and direction of falls.

3.13 The adhesion of the IKO Roof Waterproofing System membranes is sufficient to resist the effects elevated temperatures and thermal shock conditions likely to occur in practice.

Table 3: Typical Roof Build-ups ^{1/}

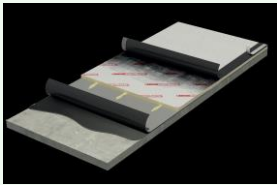
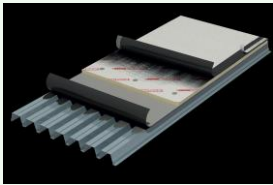
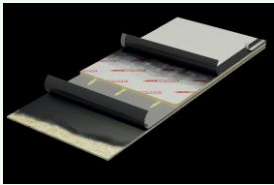
	- New Build - Concrete - Bonded System	-New build -Steel deck -Mechanically fixed insulation	-New build -Timber -Bonded System	- New Build - Concrete - Green Roof
Build-up				
Substrate	Concrete + IKO pro quickprimer or IKO pro ECO primer	Steel deck + IKO pro SA primer	Timber + IKO pro SA primer	Concrete + IKO pro quickprimer or IKO pro ECO primer
Cap Sheet Options	IKO carrara IKO carbon IKO powergum IKO powerflex IKOnic IKO pantera	IKO carrara IKO carbon IKO powergum IKO powerflex IKOnic IKO pantera	IKO carrara IKO carbon IKO powergum IKO powerflex IKOnic IKO pantera	IKO roofgarden IKO roofgarden Pantera
Fastening of Cap Sheet	Fully bonded by torching	Fully bonded by torching	Fully bonded by torching	Fully bonded by torching
Underlay options ^{2/}	IKO base quadra T/SA-F/SA. IKO base quadra T/F at temperature > 5°C	IKO base quadra T/SA-F/SA. IKO base quadra T/F at temperature > 5°C	IKO base quadra T/SA-F/SA. IKO base quadra T/F at temperature > 5°C	IKO base quadra T/SA-F/SA. IKO base quadra T/F at temperature > 5°C
Fastening of Underlay	Pull away release foil + press. Partially welded at temperature > 5°C.	Pull away release foil + press. Partially welded at temperature > 5°C	Pull away release foil + press. Partially welded at temperature > 5°C	Pull away release foil + press. Partially welded at temperature > 5°C
Insulation ^{2/}	PIR with ALU facing or PIR with bitumen facing in case temperature > 5°C	PIR with ALU facing or PIR with bitumen facing in case temperature > 5°C	PIR with ALU facing or PIR with bitumen facing in case temperature > 5°C	PIR with ALU facing or PIR with bitumen facing in case temperature > 5°C
Fastening	----- Bonded with IKO pro PU -----	----- Mechanically fixed -----	----- Bonded with IKO pro PU -----	----- Bonded with IKO pro PU -----
	If another type of insulation is used than contact the Certificate holder for details	If another type of insulation is used than contact the Certificate holder for details	If another type of insulation is used than contact the Certificate holder for details	If another type of insulation is used than contact the Certificate holder for details
Vapour Barrier	IKO shield ALU 3 T/F IKO shield ALU 4 T/F IKOnic base V2 T/F	IKO base stick T/SA	IKO shield pro ALU SA	IKO shield ALU 3 T/F IKO shield ALU 4 T/F
Fastening of Vapour Barrier	Fully bonded by torching	Pull away release foil + press.	Pull away release foil + press.	Fully bonded by torching

Notes:

^{1/}The illustrations in this table are to demonstrate typical roof build-ups only and are not design specifications. All installations must be subject to a project specific design. All installation work must be carried out by in accordance with the manufacturer's installation instructions by trained and licensed IKO roofing contractors, records of whom are kept on the Certificate holder's database. The advise of the certificate holder should be sought for all installations.

^{2/}During application of the roofing systems, when temperatures are < 5°C, IKO base quadra T/F underlays should be used in conjunction with a bitumen faced PIR insulation.

Table 3 bis: Typical Roof Build-ups (continued) ^{1/}

	- New Build - Concrete - Bonded System	-New build -Steel deck -Mechanically fixed insulation	-New build -Timber -Bonded System
Build-up			
Substrate	Concrete + IKO pro quickprimer or IKO pro ECO primer	Steel deck + IKO pro SA primer	Timber + IKO pro SA primer
Cap Sheet Options	IKO segura	IKO segura	IKO segura
Fastening of Cap Sheet	Fully bonded with Activator	Fully bonded with Activator	Fully bonded with Activator
Underlay options ^{2/}	IKO base stick T/SA	IKO base stick T/SA	IKO base stick T/SA
Fastening of Underlay	Fully bonded with Activator	Fully bonded with Activator	Fully bonded with Activator
Insulation ^{2/}			
Fastening	PIR with MG facing ----- Bonded with IKO pro PU -----	PIR with MG facing ----- -- Mechanically fixed -----	PIR with MG facing ----- Bonded with IKO pro PU -----
Vapour Barrier	IKO shield ALU 3 T/F IKO shield ALU 4 T/F IKOnic base V2 T/F	IKO base stick T/SA	IKO shield pro ALU SA
Fastening of Vapour Barrier	Fully bonded by torching	Pull away release foil + press.	Pull away release foil + press.

Notes:

^{1/} The illustrations in this table are to demonstrate typical roof build-ups only and are not design specifications. All installations must be subject to a project specific design. All installation work must be carried out by in accordance with the manufacturer's installation instructions by trained and licensed IKO roofing contractors, records of whom are kept on the Certificate holder's database. The advise of the certificate holder should be sought for all standard and non-standard installations.

2) Underlays are optional

4.1 BEHAVIOUR IN FIRE

Tests were conducted to EN 13501-5 using an accredited laboratory on a sample of substrates and roof build-ups, to determine the combustibility of the system when it incorporates various protection layers. Fire test reports assessed demonstrate that the system can achieve a $B_{\text{roof}}(t_4)$ rating depending on the substrate, roof build-up and protection layer. In all cases, fire test reports for specific design specifications must be requested from the Certificate Holder.

When using the IKO Roof Waterproofing Systems on flat roofs where additional protection is to be applied, reference should be made to TGD B, Appendix A, Table A5, and to Commission Decision 2000/553/EC for conditions and surface protections which fulfil the 'external fire performance' requirements of TGD B to the Irish Building Regulations.

4.2 THERMAL INSULATION

Calculations of the thermal transmittance (U-value) of specific roof build-ups should be carried out in accordance with IS EN ISO 6946^[22] using the thermal conductivity (λ) values of the products used as defined by the certificate holder. The U-value of a construction will depend on the materials used and the design.

For retrofit installations on existing dwellings, guidance should be sought from the certificate holder on achievable U-values as the actual U-value of installation will depend on the construction of the existing building elements. Further guidance on thermal performance can be found in SR 54^[23].

Penetrations through the insulation layer should be avoided as they will act as thermal bridges. When penetrations are unavoidable, such as supports to platforms or services, thermal modelling of the junction may be required to ensure internal surface temperatures remain high enough to avoid surface condensation. See Cl. 4.3.2 and Cl.4.4 of this certificate.

Guidance in this respect, and on limiting heat loss by air infiltration, shall be sought from the certificate holder and by reference to the DoEHLG publication *Limiting Thermal Bridging & Air Infiltration – Acceptable Construction Details*.

4.3 CONDENSATION RISK

The internal condensation risk of the roof should be assessed in accordance with BS 6229^[5] and BS 5250^[8]. An approved vapour barrier (AVCL) is

required on the warm side of the insulation in all instances.

4.3.1 INTERSTITIAL CONDENSATION

The risk of interstitial condensation in the roof build-up is dependent on a number of factors including roof design. Reference should be made to BS 6229^[5], and BS 5250^[8].

4.3.1.1 COLD ROOF DESIGN

To avoid the risk of interstitial condensation in cold flat roofs, an AVCL should be provided on the warm side of the insulation and there should be a cross-ventilated void, not less than 50mm deep, between the slab or deck and the insulation. Ventilation openings shall be provided to every roof void along two opposite sides of the roof.

4.3.1.2 WARM ROOF DESIGN

The risk of interstitial condensation in warm flat roofs is dependent on the nature of the supporting structure. As there is a risk of interstitial condensation forming between the thermal insulation and the waterproofing covering, an AVCL with a vapour resistance at least equal to that of the waterproofing covering should be installed immediately above the supporting structure, wrapped and sealed at the perimeter and at all penetrations through the roof covering.

For inverted flat roofs, it is essential that the thermal insulation used resists water absorption and is sufficiently loadbearing to support the protective covering or ballast where used.

4.3.1.3 BESPOKE ROOFS

When building elements do not follow the principles of BS 5250^[8], a robust hydrothermal assessment to either I.S. EN 15026^[25] or I.S. EN ISO 13788^[26] must be considered.

Care should be taken to provide adequate ventilation, particularly in rooms expected to experience high humidity, and to ensure the integrity of vapour control layers and linings against vapour ingress.

4.3.2 INTERNAL SURFACE CONDENSATION

For retrofit installation, when improving the thermal performance of the external envelope of an existing building, through to upgrading of roof insulation as part of a roof build-up, designers need to consider the impact of these improvements on other untouched elements of the building.

When bridged junctions meet the requirements of TGD Part L, Appendix D table D1, the coldest internal surface temperature will satisfy the

requirements of section D2, namely that the temperature factor (fRsi) shall be equal to or greater than 0.75. As a result best practice will have been adopted in order to limit the risk of internal surface condensation which can result in dampness and mould growth.

When site limiting factors give rise to substandard level of insulation at bridged junctions, guidance should be sought from the certificate holder as to acceptable minimum requirements (see clause 4.4 for further guidance).

When insulating buildings, the recommendations of BS 5250^[8] should be followed to minimise the risk of condensation within the building elements and structures.

Roofs will adequately limit the risk of surface condensation where the thermal transmittance (U-value) does not exceed 0.35 W/m² K for roofs at any point, and openings and junctions with other elements are designed in accordance with the DoEHLG publication Limiting Thermal Bridging & Air Infiltration – Acceptable Construction Details (ACD).

4.4 LIMITING THERMAL BRIDGING

The linear thermal transmittance ψ (Psi) describes the heat loss associated with junctions and around openings.

When all building junctions are shown to be equivalent or better than those detailed in the DoEHLG Acceptable Construction Details, then it is acceptable to use the linear thermal transmittance values outline in Table D1 of Appendix D of TGD to Part L of the Building Regulations 1997 to 2019.

When all bridged junctions within a building comply with the requirements of Table D1 of appendix D of TGD to Part L, the improved 'y' factor of 0.08 can be entered into the Dwelling Energy Assessment Procedure (DEAP) Building Energy Rating (BER) calculation.

Where either of the above options are shown to be valid, or when the required values cannot be achieved, all relevant details should be recorded for that project for use in future BER calculations.

Ψ -values for other junctions outside the scope of this certificate should be assessed in accordance with the BRE IP1/06^[27] and BRE Report BR 497^[28] in accordance with appendix D of TGD to Part L of the Building Regulations 1997 to 2023.

4.5 VENTILATION

Adequate room and roof ventilation must be provided in accordance with TGD Part F of the Building Regulations 1997 to 2019, for all installations. This will also limit to potential for Interstitial Condensation Internal Surface as detailed in Cl. 4.3 of this certificate.

In addition, a cross-ventilation shall be provided in cold flat roof designs as detailed in Cl. 4.3.1 of this certificate.

4.6 WEATHERTIGHTNESS

Assessment has shown that IKO waterproofing membranes and joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside of the building. IKO waterproofing systems are capable of accepting minor structural movements without damage and so meet the requirements of Part C of the Building Regulations 1997 to 2023.

4.7 RESISTANCE TO WIND UPLIFT

Test reports were assessed for fully bonded membranes. The test data available for the bond strengths applicable to approved substrates can be used for wind load calculations.

4.8 DURABILITY

In the opinion of the NSAI Agrément, when installed in accordance with this Certificate and adequately supported by the substrate, the system's life as a weatherproof covering will be at least 35 to 40 years with continuous inspection and maintenance.

Repairs carried out by IKO registered installers in accordance with the IKO installation manual should be effective in restoring weather tightness.

4.9 TOXICITY

The membranes are not toxic in normal service.

4.10 SUSTAINABILITY

The IKO waterproofing membranes are made from modified bitumen and polyester or glass carrier that can be recycled and can contribute to a circular economy.

4.11 RESISTANCE TO FOOT TRAFFIC

The system can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Where traffic in excess of this is envisaged, such as maintenance of lift equipment, a walkway must be provided (for example, using concrete slabs supported on bearing pads or manufacturer's walkway sheets). Reasonable care must be taken to avoid puncture of the membranes by sharp objects or concentrated loads.

4.12 MAINTENANCE

Installed IKO waterproofing systems must be the subject of annual inspections and maintenance to ensure continued performance as detailed in BS 8217^[2] clause 10. Maintenance should include checks and operations to ensure the following where applicable:

- Adequate ballast is in place and evenly distributed over the membrane
- Protection layers are in good condition

- Exposed membrane is free from the build-up of silt, and other debris and unwanted vegetation are cleared.

Drainage outlets and gutters should be regularly maintained. In the event of accidental damage, repair should be carried out by a licensed IKO contractor in accordance with the certificate holder's instructions. Where an intensive Green Roof has been applied, suitable access and working methods must be provided for the safe ongoing maintenance of the planted areas. In all such instances the advice of the certificate holder should be sought.

4.13 OTHER INVESTIGATIONS

- (i) Existing data on properties in relation to fire, and durability were assessed.
- (ii) The manufacturing process was examined including methods adopted for quality control and details were obtained of the quality and composition of the materials used.
- (iii) NSAI Agrément carried out site visits in both Belgium and Ireland to assess the history of use and practicability of installation of the product.

4.14 CE MARKING

The Certificate holder has taken responsibility of CE marking the underlay and cap sheet membranes in accordance with EN13707^[1] and of the underlays in accordance with Harmonised European Standard EN13970^{Error! Reference source not found.}.

The NSAI assessment was performed against the Certificate holders Declaration of Performance (DoP) listed below, which should be referenced for the essential characteristic values of individual products^[30].

5.1 National Standards Authority of Ireland ("NSAI") following consultation with NSAI Agrément has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from latest date of revision so long as:

- (a) the specification of the product is unchanged.
- (b) the Building Regulations and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
- (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
- (d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
- (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
- (f) the registration and/or surveillance fees due to NSAI Agrément are paid.

5.2 The NSAI Agrément mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate must not use the NSAI Agrément mark and certification number and must remove them from the products already marked.

5.3 In granting Certification, the NSAI makes no representation as to;

- (a) the absence or presence of patent rights subsisting in the product/process; or
- (b) the legal right of the Certificate holder to market, install or maintain the product/process; or
- (c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4 This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act 2005, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

5.7 Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

NSAI Agrément

This Certificate No. **08/0316** is accordingly granted by the NSAI to IKO Limited on behalf of NSAI Agrément.

Date of Issue: May 2008

Signed



Kevin D. Mullaney
Director of Certification, NSAI

Readers may check that the status of this Certificate has not changed by contacting NSAI Agrément, NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842. www.nsaie.ie

Revisions:

September 2016: References to Irish Building Regulations and standards updated. Product listing and specification updated to reflect rebranding of products and the addition of new products.

03rd June 2021: General revisions.

30th September 2024: General revisions.

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