UBAtc
Union belge pour l'Agrément technique de la construction

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European Technical Assessment

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UBAtc Assessment Operator:
Belgian Construction Certification Association
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Technical Assessment Body issuing the European Technical Assessment: UBAtc.

UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment)

Trade name of the construction product:	Armourplan SM 120 / SM 150 Mep-Flex SM 12 / SM 15
Product family to which the construction product belongs:	System of mechanically fastened flexible roof waterproofing membranes
Manufacturer:	IKO Europe NV D'Herbouvillekaai, 80 B-2020 Antwerpen
Manufacturing plant(s):	IKO PLC - Coney Green Road - Clay Cross Chesterfield, United Kingdom
Website:	www.iko.eu
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	Guideline for European technical Assessment (ETAG), used as European Assessment Document (EAD): 006
This version replaces:	ETA 13/0475 issued on 2013/06/27
This European Technical Assessment contains:	13 pages including 4 annexes which form an integral part of the document.

European Organisation for Technical Assessment

Legal bases and general conditions

1 This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Assessment in construction), in accordance with:

- Regulation (EU) No 305/2011[1] of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- Commission Implementing Regulation (EU) No 1062/2013[2] of 30 October 2013 on the format of the European Technical Assessment for construction products
- Guideline for European technical Assessment (ETAG), used as European Assessment Document (EAD): ETAG 006.

2 Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.

3 The responsibility for the conformity of the performances of the products with this European Technical Assessment and the suitability of the products for the intended use remains with the holder of the European Technical Assessment.

4 Depending on the applicable Assessment and verification of constancy of performance (AVCP) system, (a) notified body(ies) may carry out third-party tasks in the process of assessment and verification of constancy of performance under this Regulation once the European Technical Assessment has been issued.

5 This European Technical Assessment allows the manufacturer of the construction product covered by this ETA to draw up a declaration of performance for the construction product.

6 CE marking should be affixed to all construction products for which the manufacturer has drawn up a declaration of performance.

7 This European Technical Assessment is not to be transferred to other manufacturers, agents of manufacturers, or manufacturing plants other than those indicated on page 1 of this European Technical Assessment.

8 The European Technical Assessment holder confirms to guarantee that the product(-s) to which this assessment relates, is/are produced and marketed in accordance with and comply with all applicable legal and regulatory provisions, including, without limitation, national and European legislation on the safety of products and services. The ETA-holder shall notify the UBAtc immediately in writing of any circumstance affecting the aforementioned guarantee. This assessment is issued under the condition that the aforementioned guarantee by the ETA-holder will be continuously observed.

9 According to Article 11(6) of Regulation (EU) No 305/2011, when making a construction product available on the market, the manufacturer shall ensure that the product is accompanied by instructions and safety information in a language determined by the Member State concerned which can be easily understood by users. These instructions and safety information should fully correspond with the technical information about the product and its intended use which the manufacturer has submitted to the responsible Technical Assessment Body for the issuing of the European Technical Assessment.

10 Pursuant to Article 11(3) of Regulation (EU) No 305/2011, manufacturers shall adequately take into account changes in the product-type and in the applicable harmonised technical specifications. Therefore, when the contents of the issued European Technical Assessment do not any longer correspond to the product-type, the manufacturer should refrain from using this European Technical Assessment as the basis for their declaration of performance.

11 All rights of exploitation in any form and by any means of this European Technical Assessment is reserved for UBAtc and the ETA-holder, subject to the provisions of the applicable UBAtc regulations.

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13 Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.

14 A European Technical Approval was issued by UBAtc on 27 June 2013. Compared with this European Technical Approval, the current European Technical Assessment comprises no changes.

[1] OJEU, L 88 of 2011/04/04
[2] OJEU, L 289 of 2013/10/31

Technical Provisions

1 Technical description of the product

1.1 General

The system of mechanically fastened flexible roof waterproofing membranes, subject of this ETA and called roofing kit in the text, consists of the PVC membrane ARMOURPLAN SM (MEP-FLEX SM).

The single ply membranes are mechanically fastened to the structure.

1.2 Membrane

The membrane ARMOURPLAN SM (MEP-FLEX SM) is a reinforced PVC membrane with a polyester fabric of about 93 g/m², manufactured by calendering. The membrane contains polyvinylchloride, plasticisers, stabilisers, pigments and mineral fillers.

ARMOURPLAN SM (MEP-FLEX SM) is manufactured at IKO PLC - Coney Green Road - Clay Cross, UK – Chesterfield.

The characteristics of the ARMOURPLAN SM (MEP-FLEX SM) membrane are given in table 1

Table 1 : Characteristics of the ARMOURPLAN SM (MEP-FLEX SM) membrane

Characteristics		ARMOURPLAN SM 120 (MEP-FLEX SM 12)	ARMOURPLAN SM 150 (MEP-FLEX SM 15)
Thickness (mm) -5%; +10%		1.20	1,50
Mass per unit area (kg/m²) (-5%, +10%)		1.50	2,00
Length (m) (-0%, +5%)		20.00	
Width (m) (-0.5%, +1%)		1.06/1.50/2.12	
Colour	upper side	light grey	
	under side	dark grey/black	

Other dimensions or colours may be delivered on request.

The properties of the membrane are specified in Annex 1.

1.3 Mechanical fasteners

Mechanical fasteners for use in profiled steel deck which fall in the scope of the investigation done for this Technical Assessment are:

Manufacturer: Van Roij Fasteners Europe B.V.		
Fastener	**Washer**	
EDS-S	**Metal washer**	DVP-DFB-8240D/H
		DVP-EFB-8240D/H
		DVP-DFB-8040D
		DVP-EFB-8040D
		DVP-EF-5010N/D
		DVP-K-4040H
		DVP-EF-7007N/D/H
		DVP-EF-7010 N/D
		DVP-EF-8040H/XH
		DVP-EF-8040N/D
		DVP-DFB-51N
	Plastic washer	TRPS-45-100

Manufacturer:SFS INTEC	
Fastener	**Metal washer**
IR2 4.8xL	IR 82x40
IR2S 4.8xL	IR 82x40

Manufacturer: LR ETANCO	
Fastener	**Metal washer**
EVF2C 4.8xL	82x40 R SC
	82x40 R DF
EVDF2C 4.8xL	82x40 R DF
	82x40 R SC
VMS2C 4.8xL	82x40 R DF

Screws:

- EDS-S: Roofing screw, bugle head, with EF-headmark / PH-2 recess, hardenend S-Point / Coating: Magni-Silver /15-cycles of the Kesternich test acc./ DIN 50018 S2,0L
- IR2 4.8xL: hardened carbon steel screw, double thread/ diameter of 4.8 mm with a 9.5 mm hexagonal head/ durocoat corrosion protection/ resistance at 15 Kesternich cycles/EN ISO 6988
- IR2S 4.8xL: austenitic stainless steel A4 screw, double thread/ diameter of 4.8 mm with a 8 mm hexagonal head/ A4 stainless steel/ resistance at 15 Kesternich cycles/EN ISO 6988
- EVF2C 4.8xL: hardened carbon steel screw / Diameter of 4.8 mm with a 12 mm circular head / Supracoat corrosion protection/ resistance at 15 Kesternich cycles / EN ISO 6988
- EVDF2C 4.8xL: hardened carbon steel screw, double thread / Diameter of 4.8 mm with a 12 mm circular head / Supracoat corrosion protection/ resistance at 15 Kesternich cycles/EN ISO 6988

- VMS2C 4.8xL : hardened carbon steel screw. Diameter of 4,8 mm, length L and with a 8.5 mm circular head Supracoat corrosion protection/ resistance at 15 Kesternich cycles/EN ISO 6988

Plates:

- DVP-DFB-8240D/H: Steel decking plates 82 X 40 mm and a hole of 7.0 mm, with EF-headmark /Coating: Aluzinc /15-cycles of the Kesternich test acc/ DIN 50018 S2,0L
- DVP-EFB-8240D/H: Steel decking plates 82 X 40 mm and a hole of 4.85 mm, with EF-headmark /Coating: Aluzinc /15-cycles of the Kesternich test acc/ DIN 50018 S2,0L
- DVP-EFB-8040D: Steel decking plates 80 X 40 mm and a hole of 4.85 mm, with EF-headmark /Coating: Aluzinc /15-cycles of the Kesternich test acc/ DIN 50018 S2,0L
- DVP-DFB-8040D: Steel decking plates 80 X 40 mm and a hole of 7.0 mm, with EF-headmark /Coating: Aluzinc /15-cycles of the Kesternich test acc/ DIN 50018 S2,0L
- DVP-EF-5010N/D: Steel decking plates with a diameter of 50 mm and a hole of 6.3 mm, with EF-headmark / Coating: Aluzinc /15-cycles of the Kesternich test acc / DIN 50018 S2,0L
- DVP-K-4040H: Steel decking plates 40 X 40 mm and a hole of 5.0 mm, with EF-headmark /Coating: Aluzinc /15-cycles of the Kesternich test acc/ DIN 50018 S2,0L
- DVP-EF-7007N/D/H: Steel decking plates with a diameter of 70 mm and a hole of 6.0 mm, with EF-headmark /Coating: Aluzinc / 15-cycles of the Kesternich test acc./ DIN 50018 S2,0L
- DVP-EF-7010 N/D: Steel decking plates with a diameter of 70 mm and a hole of 7.0 mm, with EF-headmark /Coating: Aluzinc / 15-cycles of the Kesternich test acc./ DIN 50018 S2,0L
- DVP-EF-8040H/XH: Steel decking plates 82 X 40 mm and a hole of 7.0 mm, with EF-headmark / Coating: Aluzinc /15-cycles of the Kesternich test acc / DIN 50018 S2,0L
- DVP-EF-8040N/D: Steel decking plates 80 X 40 mm and a hole of 6.5 mm, with EF-headmark / Coating: Aluzinc /15-cycles of the Kesternich test acc / DIN 50018 S2,0L
- TRPS-45-100: Decking plates, with EUROFAST-headmark/ Pressure distribution plate: Polyamide PA6
- DVP-DFB-51N: Steel decking plates with a diameter of 51 mm and a hole of 6.8 mm/ aluzinc.15 cycles Kesternich acc. DIN 50018 S2,OL
- IR 82x40: steel plate with aluzinc protection, wih punched inside cone, a hole diameter of 4.9 mm
- 82x40 R SC: reinforced steel plate 82 x 40 mm, with punched inside cone, a hole diameter of 6.4 mm, with Aluzinc AZ 150 protection
- 82x40 R DF: reinforced steel plate 82 x 40 mm, with punched inside cone, a hole diameter of 5.1 mm, with Aluzinc AZ 150 protection

The properties of the different fasteners which can compose the roofing kit are presented in Annex 2.

1.4 Ancillary products

Ancillary products referred to in this ETA, as a part of installation provisions or in the framework of determining performances (e.g. fire resistance), are not covered by this ETA and may not be CE-marked on the basis of it.

Prefabricated parts

Prefabricated parts for the detailing of inner and outer corners. These prefabricated parts are made of homogenous PVC with the same composition as ARMOURPLAN SM (MEP-FLEX SM).

Polyester fleeces of 120 and 300 g/m²

Polyester fleeces are used as a separation layer for mechanical and chemical protection (eg between membrane and EPS insulation boards).

Glass fleece of 100 g/m²

Glass fleece is used as a separation layer, for chemical protection.

Armourplate

Galvanised steel plate of 0,6 mm thick on which a sheet of homogeneous, unreinforced Armourplan SM (Mep-Flex SM) is laminated.

IKOfix flatbar

Galvanised steel batten bar, thickness of the steel 1 mm with a deepening for the head of the fastener. Used for linear base tie-in attachment at the perimeter of the roof.

2 Specification of the intended use(s) in accordance with the applicable EAD

2.1 Intended uses

The system of mechanically fastened flexible roof waterproofing membrane may be used on flat and sloped roofs. The supporting deck may exist of profiled steel deck.

When insulation is the direct substrate, it shall be in accordance with the requirements of clause 2.2.2.1 of this ETA. The insulation is not part of the roofing kit.

The verifications which are based on this ETA give reason for the assumption of an intended working life of the roof waterproofing of 10 years.

The indications given on the working life cannot be interpreted as a guarantee given by the ETA-holder or the Technical assessment body, but are regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

2.2 Assumptions under which the fitness of the product(s) for the intended use was favourably assessed

2.2.1 Manufacturing directives

The ETA is issued for the kit on the basis of the product composition deposited with the Assessment body. Changes to the components of the kit or in the production process of the components, which could result in the production process and/or the properties of the product deposited being incorrect should be notified to the Assessment body before the changes are introduced.

2.2.2 Installation

The system of mechanically roof waterproofing membranes should be installed in line with the manufacturer's installation guidelines and national provisions of good practice.

The design of the roof intended to be covered by the mechanically fastened roof waterproofing system should take account of the following factors :

- Dead and imposed loads
- Design wind pressure
- Structural strength, stiffness and deflection limits
- Attachment of the roof deck to the structural framing
- Provision of insulation
- Assessment of condensation risk and provision of vapour control layers
- Sound insulation
- Fire precautions
- Roof attachments, fixtures and penetrations
- Falls and drainage
- Means of access for inspection and maintenance

2.2.2.1 Supporting structure

The system of mechanically fastened flexible roof waterproofing membrane may be used on flat and sloped roofs. The supporting deck may exist of profiled steel deck, concrete, light weight concrete or wood, which may be the direct substrate of the roofing kit.

The supporting deck needs to be structurally sound and in conformity with national provisions.

When insulation is the direct substrate, it shall be verified that the material has sufficient compressive strength (10% compression ≥ 50 kPa) and point load behaviour (PL(5)600 ≥ 600 N) taking into account the accessibility of the roof (as per national provisions).

2.2.2.2 Joints

The joints may be welded by hot air.

Figure 1 shows the standard overlap design for the longitudinal joints of the mechanically fastened membranes. The sheets shall be positioned with a minimum overlap of 100 mm. The overlap may be welded with hot air by manual or automatic welded tools over at least 30 mm.

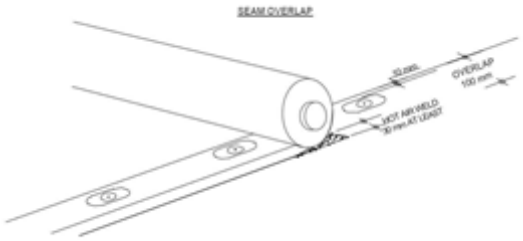


Figure 1: Standard overlap

2.3 Recommendations

2.3.1 Recommendations on packaging, transport and storage

The ARMOUYRPLAN SM (MEP-FLEX SM) membranes should be stored horizontally on a clean, smooth and dry substrate, without sharp protrusions and protected against direct sunlight.

The membranes should be kept away from any source of heat, sparks, flame, etc.

The fasteners should be stored in dry, ventilated premises and protect against direct sunlight.

2.3.2 Recommendations on use, maintenance and repair

It is the responsibility of the manufacturer to ensure that proper information for the use of the Armourplan SM (Mep-Flex SM) membranes and specified fasteners are available at each delivery, including general guidance on the basis of this ETA.

This European Technical Assessment is based on the assumption that a normal maintenance of the system is performed. Repairs in the roofing system should be executed with similar materials as used during the installation. The repairs should be done with care and according to the guidelines of the manufacturer.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR1)

This basic requirement for construction works is not relevant for ARMOURPLAN SM (MEP-FLEX SM) according to ETAG 006.

3.2 Safety in case of Fire (BWR2)

3.2.1 Reaction to fire

The ARMOURPLAN SM (MEP-FLEX SM) membrane is classified ''F'' according to EN 13501-1.

3.2.2 External fire performance

ARMOURPLAN SM (MEP-FLEX SM) has been tested according to TS 1187 part 1, TS 1187 part 2 and TS 1187 part 3, and has been classified according to EN 13501-5 as follows:

The system ARMOURPLAN SM (MEP-FLEX SM) is classified Class B_{ROOF}(t1) for the following end use conditions:
- Range of slopes: roof pitch up to 20°
- Range of decks
  Any profiled and non perforated steel deck
  Any non-combustible continuous deck with a minimum thickness of 10 mm
- Range of insulations:
  EPS 20 of 100 mm with fire retarder + glass fleece of 120 g/m²
  PIR of 60 mm with a bituminous glass fleece

The system ARMOURPLAN SM (MEP-FLEX SM) is classified Class B_{ROOF}(t2) for the following end use conditions:
- Range of slopes: all pitches
- Range of decks
  Any non-combustible continuous substrates with a density greater than 112,5 kg/m³

The system ARMOURPLAN SM (MEP-FLEX SM) is classified Class B_{ROOF}(t3) for the following end use conditions:
- Range of slopes: roof pitch up to 10°
- Range of decks
  Any profiled and non perforated steel deck
  Any non-combustible continuous deck with a minimum thickness of 10 mm
- Range of insulation: Mineral wool of 80 mm (160 kg/m³) without fire retardant

3.3 Hygiene, Health and the environment (BWR3)

3.3.1 Release of dangerous substances

The system of mechanically fastened flexible roof waterproofing membranes complies with all relevant European and national provisions applicable for the uses for which it is brought to the market.

In addition to this ETA clause relating to dangerous substances, there may be other requirements applicable to the products falling within this scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Product Directive, these requirements need also to be complied with, when and where they apply.

3.3.2 Peel resistance of joints

In accordance with EN 12316-2, the joints have a MLV for peel resistance of ≥ 150 N/50 mm.

3.3.3 Shear resistance of joints

In accordance with EN 12317-2, the joints have a MLV for shear resistance of ≥ 800 N/50 mm.

3.3.4 Tear resistance

In accordance with EN 12310-2, the membranes have a MLV for tear resistance of ≥ 200 N

3.3.5 Cold bending

In accordance with EN 495-5, the MLV for cold bending temperature of the membranes is ≤ -30°C

3.3.6 Resistance to water pressure

The membranes are watertight when tested in accordance with EN 1928

3.3.7 Vapour permeability

Regarding the water vapour permeability of the membranes, reference shall made to tabulated values

3.3.8 Tensile properties

In accordance with EN 12311-2, the membranes have a MDV for tensile strength of ≥ 1000 N/50mm (L/T) and a MDV for elongation at maximum force of 15% (L/T)

3.3.9 Static and impact loading

The membranes have a MLV for static load in accordance with EN 12730 of 20 kg and a MLV for resistance to impact load in accordance with EN 12691:2006 method A of ≥ 450 and in accordance with EN 12691:2006 method B of ≥ 1100 mm.

3.3.10 Dimensional stability

In accordance with EN 1107-2, the membranes have a MLV for dimensional stability of |dimensional stability| ≤ 0,5%

3.4 Safety in Use (BWR4)

3.4.1 Wind uplift

The systems of mechanically fastened flexible roof waterproofing membrane ARMOURPLAN SM (MEP-FLEX SM) has obtained the following admissible design loads for wind uplift in accordance with ETAG 006:

Profiled metal deck (minimum thickness 0.75 mm)	
Fastener+plate	**Design wind load**
EDS-S	
+ DVP-EFB/DFB-8240D/H	546 N/fastener
+ DVP-EFB/DFB-8040D	553 N/fastener
+ DVP-EF-5010N/D	584 N/fastener
+ DVP-K-4040H	588 N/fastener
+ DVP-EF-7007N/D/H	588 N/fastener
+ DVP-EF-7010 N/D	588 N/fastener
+ DVP-EF-8040N/H/XH	607 N/fastener
+ DVP-EF-8040D	607 N/fastener
+ DVP-DFB-51N	625 N/fastener
+ TRPS-45-100	600 N/fastener
IR2 4.8xL + IR 82x40	561 N/fastener
IR2S 4.8xL + IR 82x40	561 N/fastener
EVF2C 4.8xL	
+ 82x40 R SC	625 N/fastener
+ 82x40 R DF	625 N/fastener
EVDF2C 4.8xL	
+ 82x40 R SC	625 N/fastener
+ 82x40 R DF	625 N/fastener
VMS2C 4.8xL + 82x40 R DF	625

Other fasteners, for which a European Technical Assessment has been issued, may be used in accordance with the conditions specified in Annex 3.

3.4.2 Slipperiness

No performance assessed

3.5 Protection against noise (BWR5)

No performance assessed. This basic requirement for construction works is not relevant for ARMOURPLAN SM (MEP-FLEX SM) according to ETAG 006.

3.6 Energy economy and heat retention (BWR6)

This basic requirement for construction works is not relevant for ARMOURPLAN SM (MEP-FLEX SM) according to ETAG 006.

3.7 Aspects of durability, serviceability and identification

3.7.1 Membrane ARMOURPLAN SM (MEP-FLEX SM)

3.7.1.1 Peel resistance of joints after long term exposure to heat and water

In accordance with EN 1296 and EN 12316-2, the joints of the membrane are resistant to heat ageing ($\Delta \leq 20$ %).

3.7.1.2 Shear resistance of joints after long term exposure to heat and water

In accordance with EN 1296 and EN 12317-2, the joints of the membrane are resistant to heat ageing ($\Delta \leq 20$ %).

3.7.1.3 Resistance to cold bending after long term exposure to heat

In accordance with EN 1296 and EN 495-5, the membrane is resistant to heat ageing ($\Delta \leq 5$°C).

3.7.1.4 Resistance to cold bending after long term exposure to UV

In accordance with EN 1297 and EN 495-5, the membrane is resistant to UV ageing ($\Delta \leq 5$°C).

3.7.2 Fastener

3.7.2.1 Resistance to corrosion of metallic fasteners

The metallic fasteners and plates offer a corrosion resistance of 15 cycles according to EN ISO 6988 and the interpretation of ETAG 006.

3.7.2.2 Axial loading test

See ETA 06/0007 and ETA 09/0102.

3.7.2.3 Testing of unwinding of fastener

See ETA 06/0007 and ETA 09/0102

3.7.2.4 Mechanical resistance after heat ageing of plastic fasteners

Not relevant.

3.7.3 System

3.7.3.1 Basic durability assessment

Product performances confirm a working live of 10 years.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with Regulation (EU) N° 305/2011, Article 65, Directive 89/106/EEC is repealed, but references to the repealed Directive shall be construed as references to the Regulation.

The system of assessment and verification of constancy of performance, specified in Commission Decision 98/143/EC, is laid down in table 2.

Table 2: System of assessment and verification of constancy of performance applicable to ARMOURPLAN SM (MEP-FLEX SM)

Product(s)	Intended use(s)	Level(s) or class(es)	Assessment and verification of constancy of performance system(s)*
Systems/kits of mechanically Fastened flexible roof Waterproofing membranes including the system of fastening, jointing and edging, sometimes with thermal insulation, limited to continuous watertight systems based on flexible sheets	For roof waterproofing	Any	2+

* See Annex V to Regulation (EU) N° 305/2011

5 Technical details necessary for the implementation of the AVCP system, as foreseen in ETAG 006

5.1 Tasks for the ETA-holder

5.1.1 Factory production control (FPC)

The manufacturers of waterproofing membranes and the manufacturers of fasteners have different factory production control (FPC) systems.

The manufacturers of waterproofing membranes have a factory production control system in their plant and exercise permanent internal control of production according to the prescribed test plan. This FPC is in accordance with EN 13956. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. This production control system ensures that the product is in conformity with the European Technical Assessment.

The manufacturers of fasteners have a factory production control system in their plant and exercise permanent internal control of production according to the prescribed test plan[3]. This FPC is in accordance with to the ETAG 006. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. This production control system ensures that the product is in conformity with the European Technical Assessment.

The manufacturers of waterproofing membranes and the manufacturers of fasteners shall use raw materials or components that comply with the indications of the MTD.

The results of the factory production control shall be recorded and evaluated. The records shall include at least the following information:

- Name of the product and of the raw materials,
- type of inspection or control,
- date of manufacture of the product, batch number if needed, and date of inspection or control of the product or of the initial materials,
- result of inspections or controls and, as far as applicable, comparison with the requirements,
- signature of the person responsible for the factory production control.

The records shall be kept for at least five years. On request they shall be presented to the Technical assessment body.

Details concerning extent, type and frequency of the tests or inspections to be performed within the scope of the factory production control shall correspond to the prescribed test plan which is part of the MTD to this ETA.

ETA-holders which have an FPC system that complies with EN ISO 9001 and that addresses the requirements of this ETA are recognised as satisfying the FPC requirements.

[3] The test plan is deposited with UBAtc and contains the required information on the factory production control and on the type testing. As far as this is relevant to the tasks of the approved body involved in the procedure of attestation of conformity the test plan will be handed over to the approved body.

If supplied materials/components are not manufactured and tested by the supplier in accordance with agreed methods, or where the ETA-holder purchases materials/components on the open market, then where appropriate, they shall be subject to suitable documented checks/tests by the ETA-holder before acceptance.

5.1.2 Testing of samples taken at the factory

5.1.2.1 General

After changing the production process or starting the production in another manufacturing plant the type-testing shall be repeated.At least the following minimum information shall be recorded:

- date and time of manufacture
- type of product produced (boards)
- material specification (dimensions and thickness)
- all results of the verifications performed within the agreed upon control plan

5.1.2.2 Testing as part of Factory Production Control

The type testing refers to the product properties stated in the test plan[3] to this European technical assessment.

If the verifications underlying this ETA have been furnished on samples from the current production, these will replace the type testing.

5.2 Initial Type Testing

The assessment tests will have been conducted by the UBAtc or under its responsibility (which may include a proportion conducted by an independent laboratory or by the ETA-applicant, witnessed by the UBAtc). The UBAtc will have assessed the results of these tests in accordance with chapter 3 of this ETA, as part of the ETA issuing procedure.

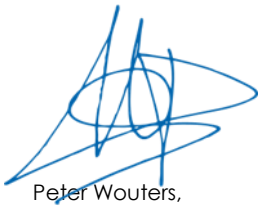
6 Other marking and/or information

Each packaging of the roof waterproofing membrane shall at least be marked with product name and a traceability code. The components shall be marked as belonging to the kit ARMOURPLAN SM (MEP-FLEX SM).

UBAtc asbl is a non-profit organization according to Belgian law. It is a Technical Assessment Body notified by the Belgian notifying authority, the Federal Public Services Economy, SMEs, Self-Employed and Energy, on 17 July 2013 in the framework of Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC and is member of the European Organisation for Technical Assessment, EOTA (www.eota.eu).

This European Technical Assessment has been issued by UBAtc asbl on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,



Peter Wouters,
director

On behalf of the Assessment Operator, BCCA, responsible for the technical content of the ETA,

Benny De Blaere,
director general

The most recent version of this European Technical Assessment may be consulted on the UBAtc website (www.ubatc.be).

Property		Reference	MDV / MLV
Peel resistance of joints (L / T) (N/50mm)	Without heat ageing	EN 12316-2	≥ 150 / 150
	After heat ageing EN 1296[1]		Δ ≤ 20%
Shear resistance of joints (L / T) (N/50mm)	Before heat ageing	EN 12317-2	≥ 800 / 800
	After heat ageing EN 1296[1]		Δ ≤ 20%
Resistance to tear (N)		EN 12310-2	≥ 200 / 200
Resistance to cold bending	Without ageing :	EN 495-5	≤ -30°C
	After heat ageing EN 1296[1]		Δ ≤ 5°C
	After UV ageing prEN 1297-1 (1994-01) [1]		Δ ≤ 5°C
Resistance to water pressure		EN 1928	CONFORM
Water vapour permeability		EN 1931	μ = 20 000
Tensile properties	Maximal strength (L/T) (N/50mm)	EN 12311-2	≥ 1000 / 1000
	Maximal elongation (L/T) (%)	EN 12311-2	≥ 15 / 15
Resistance to static loading		EN 12730	≥ 20 kg
Resistance to impact		EN 12691(2006) Method A	≥ 450 mm
		EN 12691(2006) Method B	≥ 1100 mm
Dimensional stability (%)		EN 1107-2	| dimensional stability | ≤ 0,5%
Fire reaction		EN 13501-1	Euroclass F

[1]Δ = difference between the result after and before ageing

ROOFING KIT "ARMOURPLAN SM (MEP-FLEX SM)"

System of mechanically fastened flexible roof waterproofing membranes

Characteristics of ARMOURPLAN SM (MEP-FLEX SM)

Annex 1

of European Technical Assessment **ETA 13/0475**

Name of the fastener	Axial load (N) Mean value ETAG 006(2006)	Resistance to corrosion	Resistance to unwinding
Profiled metal decking substrate (standard), minimum thickness 0.75 mm			
EDS-S			
+ DVP-EFB/DFB-8240D/H	1410	OK	OK
+ DVP-EFB:DFB-8040D	1430	OK	OK
+ DVP-EF-5010N/D	1510	OK	OK
+ DVP-K-4040H	1520	OK	OK
+ DVP-EF-7007N/D/H	1520	OK	OK
+ DVP-EF-7010 N/D	1520	OK	OK
+ DVP-EF-8040N/H/XH	1570	OK	OK
+ DVP-EF-8040D	1570	OK	OK
+ DVP-DFB-51N	1614	OK	OK
+TRPS-45-100	1375	Not relevant	OK
IR2 4.8xL + IR 82x40	1450	OK	OK
IR2S 4.8xL + IR 82x40	1450	OK	OK
EVF2C 4.8xL			
+ 82x40R SC	2000	OK	OK
+ 82x40R DF	2000	OK	OK
EVDF2C 4.8xL			
+ 82x40 R DF	2000	OK	OK
+ 82x40 R SC	2000	OK	OK
VMS2C 4.8xL+ 82x40R DF	2000	OK	OK

ROOFING KIT "ARMOURPLAN SM (MEP-FLEX SM)"

System of mechanically fastened flexible roof waterproofing membranes

Characteristics of fastener

Annex 2

of European Technical Assessment **ETA 13/0475**

Membrane	Fastener	$W_{admissible}$(*)	Axial loading in full scale concept (R_{oc})
"ARMOURPLAN SM (MEP-FLEX SM)"	Eurofast TRPS-45100 fasteners on profiled steel deck (Minimum thickness 0.75 mm)	600 N/fastener	900 N
	IKOfix-EDS-S fasteners on profiled steel deck (Minimum thickness 0.75 mm)	600 N/fastener	900 N
	EDS-S fastener with DVP-DFB-51 N plate	625 N/fastener	1000 N

(*) Declared value for certification, maximum general design value for the membrane without any additional full scale test.

In order to determine the $W_{admissible}$ of other fasteners (R_{nc}), with an ETA issued on the basis of ETAG 006, the following applies:

- If $R_{nc} \geq R_{oc} \rightarrow W_{admissible(nc)} = W_{admissible(oc)}$
- If $R_{nc} \leq R_{oc} \rightarrow W_{admissible(nc)} = W_{admissible(oc)} * (R_{nc}/R_{oc})$

ROOFING KIT "ARMOURPLAN SM (MEP-FLEX SM)" *System of mechanically fastened flexible roof waterproofing membranes*	**Annex 3** of European Technical Assessment **ETA 13/0475**
Characteristics of kits : wind resistance performance	

Membrane	ENV 1187-1	ENV 1187-2	ENV 1187-3
"ARMOURPLAN SM (MEP-FLEX SM)"	B_{ROOF}(t1)	B_{ROOF}(t2)	B_{ROOF}(t3)

The application field for the several membranes is described in 3.2.2.

ROOFING KIT "ARMOURPLAN SM (MEP-FLEX SM)" *System of mechanically fastened flexible roof waterproofing membranes*	**Annex 4** of European Technical Assessment **ETA 13/0475**
Characteristics of kits : external fire performance	