EUROPEAN TECHNICAL ASSESSMENT

ETA 06/0023
Version 01
Date of issue: 2018-06-21

UBAtc Assessment Operator:
Belgian Construction Certification Association
Rue d'Arlon 53 – BE-1040 Brussels
www.bcca.be - info@bcca.be

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:	RENOLIT ALKORPLAN® F
Product family to which the construction product belongs:	Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes
Manufacturer:	Renolit Belgium NV Industriepark De Bruwaan, 43 BE – 9700 Oudenaarde Belgium
Manufacturing plant(s):	Renolit Iberica SA Carretera del Montnegre s/n ES – 08470 Sant Celoni Spain
Website:	www.renolit.com
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	European Technical Approval Guidelines (ETAG): 006, used as European Assessment Document (EAD)
This version replaces:	ETA 06/0023 issued on 2011/04/11
This European Technical Assessment contains:	13 pages, including 3 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 Approval 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, as amended
- Commission Implementing Regulation (EU) No 1062/2013[2] of 30 October 2013 on the format of the European Technical Assessment for construction products
- European Technical Approval Guidelines (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.

12 Reproduction of this European Technical Assessment including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of UBAtc. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Assessment.

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 This European Technical Assessment was first issued on 21 June 2018 and replaces European Technical Approval, ETA 06/0023, issued on 11 April 2011. Compared with the European Technical Approval, the following changes were introduced:

- Removal of a production facility
- Additional membrane thicknesses (1,2 to 2,0 mm for all membranes
- Removal of colours of membranes
- Removal of some membranes (Alkorplan F f and Alkorplan F FR)
- Removal of some fasteners and updating of some of the information regarding ETAs for fasteners
- Modification of a number of assessment results
- Removal of technical drawings

[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

This ETA is being issued for the products specified on the cover page on the basis of agreed data/information, deposited with the UBAtc, which identifies the products that have been assessed. Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the UBAtc before the changes are introduced. The UBAtc will decide whether or not such changes affect the ETA.

1.2 Characteristics and components of the Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes

The Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes (aka MEFAWAME) RENOLIT ALKORPLAN® F consists of flexible roof waterproofing sheets made of PVC (plasticised polyvinyl chloride) and mechanical fasteners.

The PVC sheets are mechanically fastened in the structure with a slope of 1% at least.

1.2.1 Waterproofing layers
Membranes RENOLIT ALKORPLAN® F

The membranes RENOLIT ALKORPLAN® F are flexible roof waterproofing sheets made of PVC (plasticised polyvinyl chloride). They are reinforced with a non-woven polyester.

The RENOLIT ALKORPLAN® F sheets are manufactured by the holder of this European Technical Assessment.

They exist in 3 possible compositions:

- RENOLIT ALKORPLAN® F 35076;
- RENOLIT ALKORPLAN® F 35176;
- RENOLIT ALKORPLAN® F 35276.

The dimensions of the sheets are given in Table 1.

Table 1. Membranes RENOLIT ALKORPLAN®

Thickness -5/+10 % [mm]	Length (1) -0 % / +5 % [m]	Width (1) -0,5 % / +1 % [m]	Colours (2)
1,20	25,00	1,050	Standard Grey
	20,00	1,600	
	20,00	2,100	
1,50	20,00	1,050	
	15,00	1,600	
	15,00	2,100	
1,80	15,00	1,050	
	15,00	1,600	
	10,00	2,100	
2,00	15,00	1,050	
	15,00	1,600	
	10,00	2,100	

(1) other dimensions are available on request
(2) for other colours like green, red, blue, yellow, metallic, bright white, check availability

1.2.2 Mechanical Fasteners

The mechanical Fasteners are manufactured by other manufacturers and possibly sold separately. They consist of a screw combined with a washer, a nail or a rivet.

The choice of mechanical Fastener depends on the substrate on which it is screwed.

Table 2. Mechanical fastening

Manufacturer	Screw/nail/rivet	Washer/tube
Substrate – Profiled steel decks (standard)		
LR Etanco	EVF 2C 4,8	82x40 R DF
	EVDF 2C 4,8	82x40 R DF
	EVBDF 2C 4,8	82x40 R DF
	EVBDF 2C 4,8	82x40 R SC
	EHBDF 2C 4,8	82x40 R DF
	VMS 2C 4,8	82x40R R DF
	EGB 2C 4,8	Etancoplast T80x40
	Isodrill TH DF	82x40 R DF
	Isodrill TT	82x40 R DF
	Isodrill TT	Etancoplast T80x40
SFS Intec	IR2 4,8	IR 82x40
	IR2S 4,8	IR 82x40
	Isotak PS 48	Twin Peak Plus
Van Roij Fastener	Eurofast EDS BZT	DVP EF 8240 D
	Eurofast EDS B	TRP45
Substrate – Profiled steel decks (acoustic)		
LR Etanco	Fastovis 3036 TF 2C	82x40 R DF
	Fastovis 3036 TF DF 2C	82x40 R DF
	PER	82x40 R DF
SFS Intec	IFP2 6,7	IRP 82x40
	TPR 6,3	IRD 82x40
Substrate – Concrete		
LR Etanco	Betofast TH 3C	82x40 R
	Betofast TH DF 3C	82x40 R
	Betofast TT 2C	Etancoplast T80x40
	Nailfix CH	82x40 R SC
SFS Intec	TI 6,3	IRD 82x40
	TI 6,3	IF-C 82x40
	TI 6,3	IG-C 82x40
	DT 6,3	IRD 82x40
Substrate – Light concrete		
LR Etanco	Multifast TB Inox	82x40 R
Substrate – Wood		
LR Etanco	EVF 2C 4,8	82x40 R SC
	EVDF 2C 4,8	82x40 R DF
	EVDF 2C 4,8	82x40 R SC
	Multifast TF	82x40 R
SFS Intec	IG 6,0	IRD 82x40
	IWT 5,0	IRC/W 82x40

1.2.2.1 Screws, nails and rivets

Table 3. Screws, nails and rivets

Name	Description
Manufacturer – LR Etanco	
EVF 2C 4,8	Hardened carbon steel screw. Diameter 4,8 mm, 12 mm circular head. Supracoat correction protection. 15 EOTA cycles corrosion resistance.
EVDF 2C 4,8	Hardened carbon steel screw, double thread. Diameter 4,8 mm, 12 mm circular head. Supracoat protection. 15 EOTA cycles corrosion resistance.
EVBDF 2C 4,8	Hardened carbon steel screw, double thread. Diameter 4,8 mm, 12 mm circular head. Supracoat corrosion protection. 15 EOTA cycles corrosion resistance.
EHBDF 2C 4,8	Hardened carbon steel screw, double thread. Diameter 4,8 mm, 8 mm hexagon head. Supracoat corrosion protection. 15 EOTA cycles corrosion resistance.
VMS 2C 4,8	Hardened carbon steel screw, double thread. Diameter 4,8 mm, 8,5 mm circular head. Supracoat corrosion protection. 15 EOTA cycles corrosion resistance.
EGB 2C 4,8	Hardened carbon steel screw, double thread. Diameter 4,8 mm, 12 mm circular head. Supracoat corrosion protection. 15 EOTA cycles corrosion resistance.
Isodrill TH DF	A4 stainless steel screw, double thread. Diameter 4,8 mm, 8 mm hexagon head.
Isodrill TT	A4 stainless steel screw. Diameter 4,8 mm, 8,5 mm circular head.
Fastovis 3036 TF 2C	Hardened carbon steel screw. Diameter 6,5 mm, 11 mm countersunk head. Supracoat corrosion protection. 15 EOTA cycles corrosion resistance.
Fastovis 3036 TF DF 2C	Hardened carbon steel screw, double thread. Diameter 6,5 mm, 11 mm countersunk head. Supracoat corrosion protection. 15 EOTA cycles corrosion resistance.
PER	Aluminium rivet. Diameter 4,8 mm, 10 mm circular head.
Betofast TH 3C	Hardened carbon steel screw. Diameter 6,6 mm, 8 mm hexagon head. Supracoat corrosion protection. 30 EOTA cycles corrosion resistance.
Betofast TH DF 3C	Hardened carbon steel screw, double thread. Diameter 6,6 mm, 8 mm hexagon head. Supracoat corrosion protection. 30 EOTA cycles corrosion resistance.
Betofast TT 2C	Hardened carbon steel screw, double thread. Diameter 4,8 mm, 8,5 mm circular head. Supracoat corrosion protection. 15 EOTA cycles corrosion resistance.

Table 4. Screws, nails and rivets (next)

Name	Description
Manufacturer – LR Etanco (next)	
Nailfix CH0	Hardened carbon steel nail. Diameter 4,8 mm. Hot deep galvanised corrosion protection. 15 EOTA cycles corrosion resistance.
Multifast TB Inox	A2 stainless steel screw. Diameter 6 mm, 12 mm circular head.
Multifast TF	A2 stainless steel screw. Diameter 6 mm, 11 mm countersunk head.
Manufacturer – SFS Intec	
IR2 4,8	Hardened carbon screw, double thread. Diameter 4,8 mm, 8 mm hexagon head. Durocoat corrosion protection. 15 EOTA cycles corrosion resistance.
IR2S 4,8	Austenitic stainless steel A4 screw, double thread. Diameter 4,8 mm, 8 mm hexagon head.
IFP2 6,7	Hardened carbon screw, double thread. Diameter 6,7 mm, 11 mm flat head. Durocoat corrosion protection. 15 EOTA cycles corrosion resistance.
TPR 6,3	Aluminium rivet for body and carbon steel for the mandrel.
TI 6,3	Hardened carbon screw, double thread. Diameter 6,3 mm, 8 mm hexagon head. Durocoat corrosion protection. 15 EOTA cycles corrosion resistance.
DT 6,3	Hardened carbon steel nail. Diameter 6,3 mm.
IG 6,0	Hardened carbon screw. Diameter 6 mm, 8 mm diameter flat head. Durocoat corrosion protection. 15 EOTA cycles corrosion resistance.
IWT 5,0	Hardened carbon screw. Diameter 5 mm, 9,5 mm diameter flat head. Durocoat corrosion protection. 15 EOTA cycles corrosion resistance.
Isotak PS 48	Hardened carbon screw double thread. Diameter 4,8 mm, 9 mm diameter Torx-25 head. Durocoat corrosion protection. 15 EOTA cycles corrosion resistance.
Manufacturer – Van Roij Fastener	
Eurofast EDS BZT	Hardened carbon screw. Diameter 4,8 mm, 8 mm diameter hexagon head. Magni-Silver corrosion protection. 15 EOTA cycles corrosion resistance.
Eurofast EDS B	Hardened carbon screw double thread. Diameter 4,8 mm, 9 mm diameter Torx-25 head. Magni-Silver corrosion protection. 15 EOTA cycles corrosion resistance.

1.2.2.2 Washers / tubes

Table 5. Washers / tubes

Name	Description
Manufacturer – LR Etanco	
82x40 R DF	Steel plate 82x40 mm. Thickness 1,0 mm. Punched inside cone. Hole diameter 5,1 mm. AZ 150 corrosion protection.
82x40 R	Steel plate 82x40 mm. Thickness 1,0 mm. Punched inside cone. Hole diameter 6 mm. AZ 150 corrosion protection.
Etancoplast T80x40	Plastic plate 73x40 mm. Shafts.
82x40 R SC	Steel plate 82x40 mm. Thickness 1,0 mm. Punched inside cone. Hole diameter 6,4 mm. AZ 150 corrosion protection.
Manufacturer – SFS Intec	
IR 82x40	Steel plate 82x40 mm. Thickness 1,0 mm. AZ 150 corrosion protection.
IRD 82x40	Steel plate 82x40 mm. Thickness 1,0 mm. AZ 150 corrosion protection.
IF-C 82x40	Steel plate 82x40 mm. Thickness 1,0 mm. AZ 150 corrosion protection.
IG-C 82x40	Steel plate 82x40 mm. Thickness 1,0 mm. AZ 150 corrosion protection.
IRC/W 82x40	Steel plate 82x40 mm. Thickness 1,0 mm. AZ 150 corrosion protection.
Twin Peak Plus	Polyamide telescopic tube 78x44 mm, diameter of tube 13,1 mm.
Manufacturer – Van Roij fasteners	
DVP EF 8240 D	Steel plate 82x40 mm. Thickness 1,0 mm. AZ 150 corrosion protection
TRP45	Polyamide telescopic tube diameter 45 mm, diameter of tube 13,1 mm.

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

2.1 Intended uses

The Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes are used for the waterproofing of roofs against penetration of water into the internal structure of the building.

The following substrates are suitable for the Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes:

- Profiled steel decks;
- Concrete;
- Lightweight concrete;
- Wood.

The bearing element may be one of the aforementioned substrates or may be an insulation. In case of use of insulation as bearing element, this insulation shall meet the requirements of clause 2.2.2.1 the insulation is not part of the roofing kit.

The provisions made in this ETA are based on an assumed working life of the waterproofing system of 10 years.

The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be used as a means for selecting the appropriate products in relation to the expected economically reasonable working life of the works.

2.2 Assumptions

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 Technical Assessment Body before the changes are introduced.

2.2.2 Installation

The System of Mechanically Fastened Flexible Roof Waterproofing Membranes should be installed in line with manufacturer's installation guidelines and national provisions of good practice.

The design of the roof intended to be covered by the System of Mechanically Fastened Flexible Roof Waterproofing Membranes 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 layer;
- 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 Membranes may be used on flat and pitched roofs. The supported deck may exist of profiled steel deck, concrete, light 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 ≥ 60 kPa) and point load behaviour (PL(5)500 ≥ 500 N) (for mineral wool) taking into account the accessibility of the roof (as per national provisions).

2.2.2.2 Joints

The joints may be welded with hot air.

Figure 1 shows the standard overlap design for the longitudinal joints of the mechanical fastened membranes. The sheets should be positioned with a minimum overlap of 100 mm. The overlap may be melded with hot air by a manual of automatic welded devices over at least 20 mm (manual) or 30 mm (automatic).

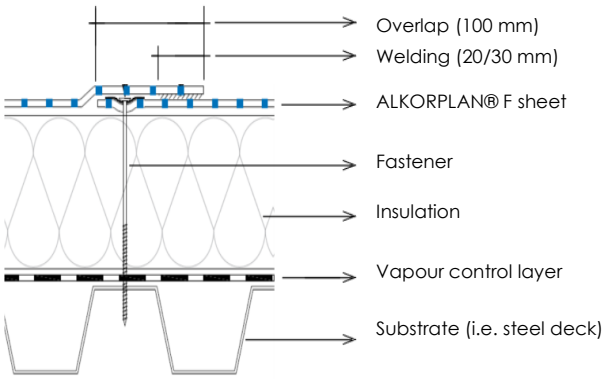

Figure 1 – Longitudinal overlap (in the case of fixing in edges)

Figure 2 shows the standard overlap design for the transverse direction or in the case of absence of fixing in edges of the mechanical fastened membranes. The sheets should be positioned with a minimum overlap of 50 mm. The overlap may be melded with hot air by a manual of automatic welded devices over at least 20 mm (manual) or 30 mm (automatic).

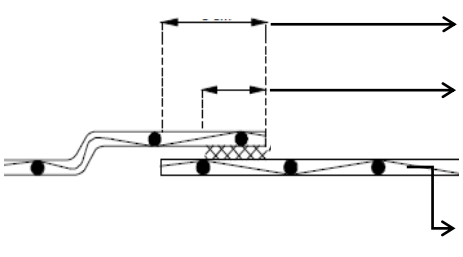

Figure 2 – transverse or longitudinal overlap (in the case of absence of fixing in edges)

2.3 Recommendations

2.3.1 Recommendations on packaging, transport and storage

The RENOLIT ALKORPLAN® F 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 protected 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 RENOLIT ALKORPLAN® F 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

The assessment of Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes for the intended use in relation to the requirements for safety in case of fire; safety in use; hygiene health and environment; energy economy and heat retention; in the sense of the Essential Requirements 2, 3, and 4, has been made in accordance with the "Guideline for European Technical Approval of Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes" (ETAG 006). Where the guideline allows for classifications and/or choice, the selection specified below has been made.

3.1 BWR1: Mechanical resistance and stability

This basic requirement for construction work is not relevant for RENOLIT ALKORPLAN® F according to ETAG 006.

3.2 BWR2: Safety in case of fire

3.2.1 System

3.2.1.1 External fire performance of roofs

The Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes have an external fire performance classification class F_{ROOF}(t1, t2, t3, t4) (no test performed) according to EN 13501-5.

For applications in those countries where national requirements exist, the user may contact Renolit Belgium B.V. to receive specific classification reports.

3.2.2 Component – membrane

3.2.3 Reaction to fire

Membranes have been assessed for the Flexible Roof Waterproofing Membranes regarding reaction to fire classification E according to EN 13501-1.

3.3 BWR3: Hygiene, Health and the Environment

3.3.1 System

3.3.1.1 Release of dangerous substances

The manufacturer provided a declaration of conformity to the Council Directive 76/769/EEC published in "Official Journal of the European Communities" of 27/07/1976 and its amendments.

3.3.2 Component – Membrane

The product has been successfully subjected to the following tests, which are relevant for Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes: ETAG 006, clauses 5.2.3.1, 5.2.3.2, 5.2.3.3, 5.2.3.4, 5.2.3.5, 5.2.3.6, 5.2.3.7 and 5.2.3.8.

3.4 BWR4: Safety in use

3.4.1 System

The system has been successfully subjected to the following test, which is relevant for Mechanically Fastened Flexible Roof Waterproofing Membranes: ETAG 006, clause 5.1.4.1.

3.4.2 Component – membrane

The product has been successfully subjected to the following test, which is relevant for Mechanically Fastened Flexible Roof Waterproofing Membranes: ETAG 006, clause 5.4.2.1.

3.4.3 Component – mechanical fastener

The product has been successfully subjected to the following tests, which are relevant for Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes: ETAG 006, Annex D:

- D.2.1.1;
- D.2.2.1 (fasteners on steel deck);
- D.2.3.1 (plastic fasteners).

3.5 BWR5: protection against noise

This basic requirement for construction work is not relevant for RENOLIT ALKORPLAN® F according to ETAG 006.

3.6 BWR6: Energy economy and heat retention

This basic requirement for construction work is not relevant for RENOLIT ALKORPLAN® F according to ETAG 006.

3.7 Working life, durability

3.7.1 Component – membrane

The product has been successfully subjected to the following tests, which are relevant for Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes: ETAG 006, clauses 5.2.7.1, 5.2.7.2, 5.2.7.3, 5.2.7.4 and 5.3.7.5.

3.7.2 Component – mechanical fastener

The product has been successfully subjected to the following tests, which are relevant for Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes: ETAG 006, Annex D, D.3.1.1 (metallic fasteners) and D.3.2.1 (plastic fasteners).

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 systems of assessment and verification of constancy of performance, specified in the Decision of the Commission 98/599/EC[3] of the European Commission, as amended by Commission Decision 2001/596/EC[4], are specified in the following Table.

Table 6. System(s) of assessment and verification of constancy of performance (AVCP)

Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes	For all roof waterproofing uses	-	2+

(1) See Regulation (EU) n° 305/2011, Annex V

[3] OJEU L 287, 1998-10-24
[4] OJEU L 209, 2001-08-02

5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

5.1 Tasks for the ETA-holder

5.1.1 Factory production control (FPC)

5.1.1.1 General

The manufacturer shall establish, document and maintain a FPC system to ensure that the products placed on the market conform to the stated performance characteristics. The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

The results of inspections, tests or assessments requiring action shall be recorded, as shall any action taken. The action to be taken when control values or criteria are not met shall be recorded.

5.1.1.2 Equipment

All weighing, measuring and testing equipment's shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

5.1.1.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their conformity.

5.1.1.4 Non-conforming products

In the event of any non-conformity of any product, that product shall be placed into quarantine and action taken to rectify the cause of the non-conformity. Products may not subsequently be dispatched until the problem has been solved.

5.1.1.5 Tests and frequencies

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 (ETA).

The manufacturing and quality control procedures are confidential and deposited with the Assessment Operator.

5.1.2 Declaration of Performance

When all the criteria of the Conformity Attestation satisfied, the manufacturer shall make a Declaration of Performance.

5.1.3 Assessment of the product performance

Assessment tests on the Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes have been conducted under the responsibility by the assessment body (UBAtc) in accordance with Chapter 5 of the ETAG 006. The assessment body (UBAtc) has assessed the results of these tests in accordance with Chapter 6 of this ETAG, as part of the ETA issuing procedure.

For characteristics under AVCP system 2+, Regulation (EU) N° 305/2011, Annex V, clause 1.6 applies.

5.2 Tasks of Notified bodies

5.2.1 Assessment of the factory production control system – initial inspection and continuous surveillance

Assessment of the factory production control system is the responsibility of the notified body.

An assessment shall be carried out of each production unit to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment shall be based on an initial inspection of the factory.

Subsequently continuous surveillance of factory production control is necessary to ensure continuing conformity with the ETA. It is recommended that surveillance inspections be conducted at least twice per year. However, if the results of the first inspection are satisfactory, the inspection interval may be reduced to once per year.

5.2.2 Certification of Factory Production Control

The notified body shall issue a certificate of conformity of factory production control.

6 Bibliography

ETAG 006 (2012) Guideline for European Technical Approval of Liquid Applied Roof Waterproofing Kits, Part 1: General

EN 13501-1 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

EN 13501-5 Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests

EN 12316-2 Flexible sheets for waterproofing - Determination of peel resistance of joints - Part 2: Plastic and rubber sheets for roof waterproofing

EN 12317-2 Flexible sheets for waterproofing - Determination of shear resistance of joints - Part 2: Plastic and rubber sheets for roof waterproofing

EN 12310-2 Flexible sheets for waterproofing - Determination of resistance to tearing - Part 2: Plastic and rubber sheets for roof waterproofing

EN 495-5 Flexible sheets for waterproofing - Determination of foldability at low temperature - Part 5: Plastic and rubber sheets for roof waterproofing

EN 1928 Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of watertightness

EN 1931 Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of water vapour transmission properties (+AC:2001)

EN 12311-2 Flexible sheets for waterproofing - Determination of tensile properties - Part 2: Plastic and rubber sheets for roof waterproofing

EN 1847 Flexible sheets for waterproofing - Plastics and rubber sheets for roof waterproofing - Methods for exposure to liquid chemicals, including water

EN 12730 Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of resistance to static loading

EN 12691 Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of resistance to impact

EN 1296 Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roofing - Method of artificial ageing by long term exposure to elevated temperature

EN 1297 Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water

EN 1107-2 Flexible sheets for waterproofing - Determination of dimensional stability - Part 2: Plastic and rubber sheets for roof waterproofing

EN 1849-2 Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 2: Plastic and rubber sheets

EN 13956 Flexible sheets for waterproofing - Plastic and rubber sheets for roof waterproofing - Definitions and characteristic

CEN/TS 1187 Test methods for external fire exposure to roofs

SS 92 35 15 Methods for determination of the coefficients of friction of various materials with respect to slipping

NOTE: The editions of reference documents given above are those, which have been adopted by the UBAtc for its specific use when establishing this ETA. When new editions become available, these supersede the editions mentioned only when confirmed by the UBAtc.

ANNEX 1 – RENOLIT ALKORPLAN® F system

The levels of performance presented in Table 7 apply.

Table 7. Level of Performance

External fire performance	CEN/TS 1187 + EN 13501-5	F_{ROOF}(t1, t2,t3, t4) (1)(2)
Status on dangerous substances	-	Conform
Wind uplift test - admissible (design) load $W_{admissible}$ [N/fastener]	ETAG 006, clause 5.1.4.1	
Reference fastener IR2S 4,8 (screw) + IR 82/40 (washer) (SFS Intec)		697 (3)
All other fasteners (see Annex)		(4)

(1) no test performed.

(2) For applications in those countries were national requirements exists, the user can take contact with Renolit Belgium N.V. to receive specific classification reports.

(3) axial load in full scale concept Roc= 1.080 N

(4) 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 basis of ETAG 006, the following applies:

- If Rnc ≥ Roc → $W_{admissible(nc)} = W_{admissible(oc)}$
- If Rnc ≤ Roc → $W_{adminssible(nc)} = W_{admissible(oc)} \times (R_{nc}/R_{oc})$

with:

$W_{admissible(oc)}$ = admissible load of the original combination
$W_{admissible(nc)}$ = admissible load of the new combination
R_{oc} = axial load of reference fastener
R_{nc} = axial load of new fastener

ANNEX 2 – RENOLIT ALKORPLAN® F membranes

The levels of performance presented in Table 8 apply.

Table 8. Level of Performance

Reaction to fire	EN 13501-1	Euroclass E
Status on dangerous substances	-	Conform
Peel resistance of joints [N/50 mm]	EN 12316-2	
Initial		≥ 150
After long term exposure to heat	(EN 1296)	Δ ≤ 20 %
After long term exposure to water		
Shear resistance of joints [N/50 mm]	EN 12317-2	
Initial		Break outside joint
After long term exposure to heat	(EN 1296)	Δ ≤ 20%
After long term exposure to water		
Resistance to tear (MD/XD) [N]	EN 12310-2	≥ 180 / ≥ 180
Resistance to cold folding [°C]	EN 495-5	
Initial		≤ -30 (35076) ≤ -25 (other)
After heat ageing [1]	(EN 1296)	Δ = 0°C
After UV ageing [1]	(TR010 EOTA)	Δ ≤ 15°C
Resistance under water pressure	EN 1928	Conform
Water vapour permeability	EN 1931	μ = 20.000 ± 30 %
Tensile properties (MD/XD)	EN 12311-2	
Maximum tensile strength [N/50 mm]		≥ 1.000 / ≥ 1.000
Elongation at maximum tensile strength [%]		≥ 15 / ≥ 15
Resistance to static loading [kg]	EN 12730	
On EPS 100		≥ 20
On concrete		≥ 20
Resistance to impact [mm]	EN 12691	
On aluminium		≥ 300
On EPS 150		≥ 300
Dimensional stability (MD/XD) [%]	EN 1107-2	≤ 0,3 / ≤ 0,3
Thickness [mm]	EN 1849-2	MDV -5%/+10%
Slipperiness	SS 92 35 15	NPD [2]

[1] Δ = difference between the results before and after ageing
[2] NPD = No Performance Determined

ANNEX 3 – Mechanical fastener

The levels of performance presented in Table 9 apply.

Table 9. Level of Performance

Profiled steel deck (standard)						
LR Etanco	EVF 2C 4,8	82x40 R DF	1.740	OK	OK	Not relevant
	EVDF 2C 4,8	82x40 R DF	1.740	OK	OK	Not relevant
	EVBDF 2C 4,8	82x40 R DF	1.400	OK	OK	Not relevant
	EVBDF 2C 4,8	82x40 R SC	1.420	OK	OK	Not relevant
	EHBDF 2C 4,8	82x40 R DF	1.350	OK	OK	Not relevant
	VMS 2C 4,8	82x40R R DF	1.660	OK	OK	Not relevant
	EGB 2C 4,8	Etancoplast T80x40	1.430	OK	OK	OK
	Isodrill TH DF	82x40 R DF	1.320	OK	OK	Not relevant
	Isodrill TT	82x40 R DF	1.340	OK	OK	Not relevant
	Isodrill TT	Etancoplast T80x40	1.320	OK	OK	OK
SFS Intec	IR2 4,8	IR 82x40	1.080	OK	OK	Not relevant
	IR2S 4,8	IR 82x40	1.080	OK	OK	Not relevant
	Isotak PS 48	Twin Peak Plus	1.330	OK	OK	OK
Van Roij Fastener	Eurofast EDS BZT	DVP EF 8240 D	1.230	OK	OK	Not relevant
	Eurofast EDS B	TRP45	1.260	OK	OK	OK
Profiled steel deck (acoustic)						
LR Etanco	Fastovis 3036 TF 2C	82x40 R DF	1.900	OK	OK	Not relevant
	Fastovis 3036 TF DF 2C	82x40 R DF	1.900	OK	OK	Not relevant
	PER	82x40 R DF	1.300	OK	Not relevant	Not relevant
SFS Intec	IFP2 6,7	IRP 82x40	800	OK	OK	Not relevant
	TPR 6,3	IRD 82x40	1.360	OK	OK	Not relevant
Substrate – concrete						
LR Etanco	Betofast TH 3C	82x40 R	6.860	OK	Not relevant	Not relevant
	Betofast TH DF 3C	82x40 R	6.860	OK	Not relevant	Not relevant
	Betofast TT 2C	Etancoplast T80x40	2.970	OK	Not relevant	OK
	Nailfix CH	82x40 R SC	3.020	OK	Not relevant	Not relevant
SFS Intec	TI 6,3	IRD 82x40	2.560	OK	Not relevant	Not relevant
	TI 6,3	IF-C 82x40	3.050	OK	Not relevant	Not relevant
	TI 6,3	IG-C 82x40	3.050	OK	Not relevant	Not relevant
	DT 6,3	IRD 82x40	3.680	OK	Not relevant	Not relevant
Substrate – Light concrete						
LR Etanco	Multifast TB Inox	82x40 R	1.540	OK	Not relevant	Not relevant
Substrate – Wood						
LR Etanco	EVF 2C 4,8	82x40 R SC	1.850	OK	Not relevant	Not relevant
	EVDF 2C 4,8	82x40 R DF	1.880	OK	Not relevant	Not relevant
	EVDF 2C 4,8	82x40 R SC	1.830	OK	Not relevant	Not relevant
	Multifast TF	82x40 R	1.990	OK	Not relevant	Not relevant
SFS Intec	IG 6,0	IRD 82x40	1.970	OK	Not relevant	Not relevant
	IWT 5,0	IRC/W 82x40	1.680	OK	Not relevant	Not relevant

(1) values are taken from following documents:
- ETA (European Technical Approval) 08-0239 (CSTB, 2013-05-21): fasteners LR Etanco (LR Etanco)
- ETA (European Technical Approval) 08-0262 (DIBt, 2013-04-25): SFS intec Flachdachbefestigungselemente (SFS intec AG)
- ETA (European Technical Assessment) 06-0007 (SGS, 2016-08-01): Eurofast® (Van Roij Fastener Europe B.V.)

(2) OK = less than 15% surface corrosion after the test according to ETAG 006, Annex D, clause D.3.1.1

(3) OK = decrease in the drop height is equal to or less than 20% after 28 days at 80°C ageing according to ETAG 006, Annex D, clause D.3.2.1

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, in Sint-Stevens-Woluwe, 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 asbl, 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).