MINERAL HELASTOPOL FIRESTOP POLYESTER
MINERAL ELASTOCENE FIRESTOP POLYESTER
FIRESTOP POLYESTER

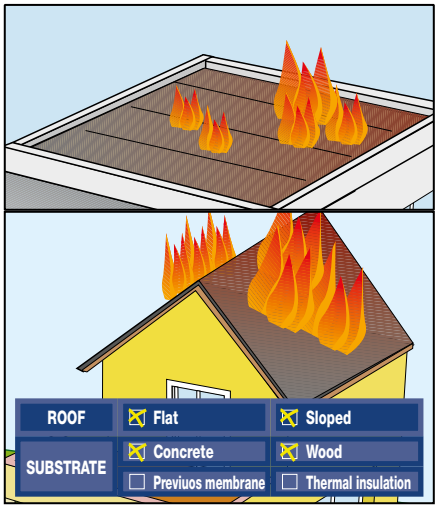
FIRE RESISTANT POLYMER-BITUMEN WATERPROOFING MEMBRANES, WITH HARMLESS FLAME RETARDING ADDITIVES AND SELF-PROTECTED WITH SLATE GRANULES

GRANTS *LEED* CREDITS

It has passed the fire-resistance tests pursuant to ENV 1187/2
Classified as compliant with EN13501-5: $B_{roof}(t2)$.

FIRESTOP

1 PROBLEM



HOW TO PROTECT EXPOSED WATERPROOF COVERING LAYERS FROM FIRE

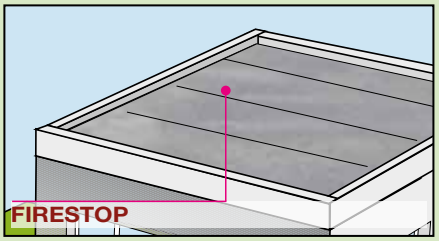
In many cases of fire, the roofing constitutes the building's weak point as it is put under stress by the load, the flames tend to rise upwards and the fire may be fuelled by the materials of the roof itself.
In Italy, the technology and legal regulations regarding protection against fire coming from the interior of a building are highly developed. It must not be forgotten however, that many serious fires often start on the roof as a result of sparks carried by the wind from a fire in a nearby building, or even from the torch used to install roofing membranes. A heavy protection consisting of a layer of gravel or of a cement hood provides sufficient fire protection. This also applies to pitched roofs, when they are finished with a membrane with metallic self-protection. Not all structures however are suitable to support heavy protection and on flat roofs and ribbed metal sheets, coats with metallic foil cannot be applied and they are not recommended for use on insulating panels which have a high thermal resistance. To assess the behaviour of the membranes in a fire, INDEX is the only company in Italy that has equipped itself with the Nord Test appliance, approved by Swedish Institute SP, Sveriges Provnings-och Forskningsinstitut, which is valid for all Scandinavian countries, including Denmark, where fire prevention regulations are particularly strict because of the high number of wooden roofs in the country.
The same test with no. UNI ENV 1187/2 has also been chosen by the European Committee for Standardization "CEN", which has been appointed by the EU to develop the fire resistance tests, and has been classified as **$B_{roof}(t2)$**, in compliance with EN 13501-5 on any roof pitch, on both combustible and incombustible surfaces.

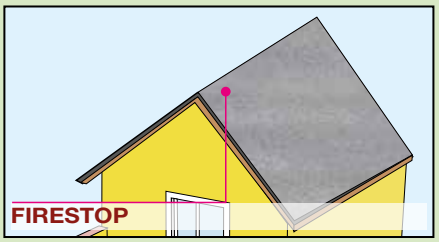
index
Construction Systems and Products

1st DIVISION
1st LINE

CATEGORY	CHARACTERISTICS			ENVIRONRMENTAL							METHOD OF USE		
SPECIAL FOR SPECIFIC USES	WATERPROOF AND FIRE RESISTANT	REACTION TO FIRE	FIRE RESISTANT	ECO GREEN	ASBESTOS FREE	TAR FREE	CHLORINE FREE	RECYCLABLE	NON DANGEROUS WASTE	EXHAUSTED OIL FREE	TORCH APPLICATION	HOT AIR APPLICATION	NAILING

2 SOLUTION





FIRESTOP are fire resistant membranes with harmless inorganic anti-flame additives distributed right through the membrane. The **FIRESTOP** membranes are the result of INDEX research activities and do not have the contraindications typical of membranes that are self-protected with metal foil. They can be applied without any protection on both flat and pitched roofs, even on insulating layers with high thermal resistance.

FIRESTOP are polymer bitumen waterproofing membranes that has been tested pursuant to the Scandinavian standard concerning reactions to external fire: **Nord Test Method-Resistance to fire spread according to SS 02 48 24 – NT FIRE 006 assimilated as European method UNI ENV 1187/2**. Furthermore, it has been classified as **B_{roof}(t2)** pursuant to standards **UNI EN 13501-5** on both combustible underlying surface and on incombustible underlying surface.

The fire resistant properties are long-lasting and controlled constantly at the factory. The three versions of **FIRESTOP** membranes differ in terms of the type of mix: **MINERAL HELASTOPOL FIRESTOP** is with elastomeric polymer-bitumen base, **MINERAL ELASTOCENE FIRESTOP** is with polyolefin elastomers and copolymers polymerised with metallocene catalyst, while **FIRESTOP POLYESTER** is with elastoplastomeric polymer-bitumen base. The reinforcement of the **FIRESTOP** membranes is rugged and flexible and consists of non-woven polyester fabric; the waterproof coating is resistant to sudden temperature changes and ageing. The upper face is selfprotected with hot-bonded and pressed slate granules, which represents further protection against fire; over this, there is another side overlap strip without any slate but protected with a torch-bondable Flamina strip to seal the joint. This film is also applied on the lower face of the membrane to enable fast and safe laying.

The **FIRESTOP** membranes protect the whole roofing against fire when used as the last layer on visible waterproof coverings, **even under photovoltaic systems**. They are ideal for covering roofs made of ribbed metal sheets and wood. Furthermore, their use is also recommended on systems where fire-sensitive insulating panels will be used and as an undertile membrane on wooden structures. The **FIRESTOP** membranes can be laid on both pitched and flat roofs. **It is the ideal solution under photovoltaic systems with FV panels having class 2 or equivalent fire reaction rating on roofs classified as B_{roof}(t2), according to the Memorandum related to fireproofing requirements of photovoltaic systems installed on roofs of buildings in which activities subject to fire prevention control are carried out, issued by the Fire Brigade Department of the Home Office on 7th February 2012 and following clarification note dated 4th May 2012.**

Another aspect referred to in the Guide of the Fire Brigade department concerns the risk of electric shock/electrocution to which Fire Fighters may be exposed while extinguishing a fire, for which it is important to point out that **FIRESTOP** is not electrically conductive, unlike other types of coverings on which the photovoltaic panels are bonded, and is consequently an excellent isolator.

Standard UNI EN 13501-5:2009 concerns the resistance class against external fires of roof waterproofing membranes expressed with the indication "B_{roof}" and, according to the test method UNI ENV 1187:2007 used, the standard states 4 different but equivalent methods and the classification is expressed with the indication: B_{roof}(t1), B_{roof}(t2), B_{roof}(t3) o B_{roof}(t4)

The 4 test methods stated by UNI ENV 1187:2007 are simply the transposition of the test methods already in force in:

- Germany, Spain and Benelux, DIN method, identified with the indication B_{roof}(t1); the only one that does not include the action of the wind.
- Scandinavian countries, Nord test method, identified with the indication B_{roof}(t2)
- France, DM compliant method, identified with the indication B_{roof}(t3)
- Great Britain, BS 476 method, identified with the indication B_{roof}(t4)

CE INTENDED USE OF "CE" MARKING SPECIFIED ACCORDING TO THE AISPEC-MBP GUIDLINES

EN 13707 - REINFORCED BITUMEN SHEETS FOR ROOF WATERPROOFING

• Upper layer in multi-layer systems without permanent heavy surface protection

- MINERAL HELASTOPOL FIRESTOP POL
- MINERAL ELASTOCENE FIRESTOP POL
- FIRESTOP POLYESTER

• Exposed single-layer

- MINERAL ELASTOCENE FIRESTOP POL

EN 13859-1 - UNDERLAY FOR DISCONTINOUS ROOFING

- FIRESTOP POLYESTER

The new memorandum dated 04/05/2012 eliminates the classification B_{roof}(t1) without the wind action. The numbering after B_{roof}(t 1,2,3,4) **does not indicate** a higher or lower degree of resistance to fire, but merely identifies the test method used out of the 4 methods stated by the standard; therefore, **the different methods are equivalent, but each has different rules with regard to the validity of the extension of the field of use**. Each method does indeed also state the field of application for which the classification is valid.

The B_{roof} classification alone is not sufficient, because the field of application for which the class is valid has to be verified. The field of application is indicated on the classification certificate, together with the class, and it describes the type of substrate and pitch of the roof on which the material can be laid. Each method envisages tests that can be carried out on various substrates and in various conditions that define the field of application of the material subject of the test. Therefore, a membrane may be classified as B_{roof} for a field of application limited to laying on incombustible substrates, while another material may be classified with the same B_{roof} but can also be laid on combus-

ADVANTAGES

- **The membrane is fire resistant and can be laid even on insulation products with high thermal resistance.**
- **It contains harmless anti-flame additives.**
- **It can be laid on any pitch and on both combustible and incombustible substrates.**

CERTIFICATION

warringtonfiregent for FIRESTOP POLYESTER

"Warrington fire research" It has passed the fire-resistance tests pursuant to ENV 1187/2 and is classified compliant with EN 13501-5: **B_{roof}(t2)**.

"Warrington fire research" It has passed the reaction to fire test according to EN-ISO 11925-2 and is classified according to EN13501-1: Euroclass E.

tible substrates, hence the reason why it is important to examine the certificate to check not only the class but also the field of application for which it is valid.

The $B_{roof}(t2)$ classification is the only one that envisages more articulated extension rules on the field of application of the membrane tested on different laying surfaces; the other classifications $B_{roof}(t1)$, $B_{roof}(t3)$ and $B_{roof}(t4)$ do not envisage the possibility to extend the certificate to systems other than those tested, if not very limited cases (even just a difference in the thickness of the insulation layer may invalidate the certificate!).

The FIRESTOP membranes are classified as $B_{roof}(t2)$, in compliance with UNI EN 13501-5:2009 and, having passed the UNI ENV 1187:2007 test on combustible foam polystyrene substrate, the classification allows a rather ample field of application of the membranes; they can indeed be applied on any roof pitch, on both combustible or incombustible substrates.

APPLICATION FIELDS

The **$B_{roof}(t2)$** classification obtained on foam polystyrene makes them suitable for use on flat and pitched roofs alike and on combustible and incombustible substrates, provided the density is ≥16 kg/m^3, so it is applicable: **on any type of thermal insulation with density of ≥16 kg/m^3; on wooden laying surfaces; on cement-based laying surfaces; on metal laying surfaces; on bituminous laying surfaces and so on.**

The field of application of the **FIRESTOP** membranes remains that of standard waterproofing membranes and the same has been created to provide fire resistance B_{roof} on waterproof coverings made up of polymer-bitumen membranes, therefore it must be laid on smooth surfaces and not directly on ribbed surfaces. It cannot be applied directly on sandwich panels whose upper face is made of ribbed metal or with reinforcement ribs, which would cause the membrane to break before time.

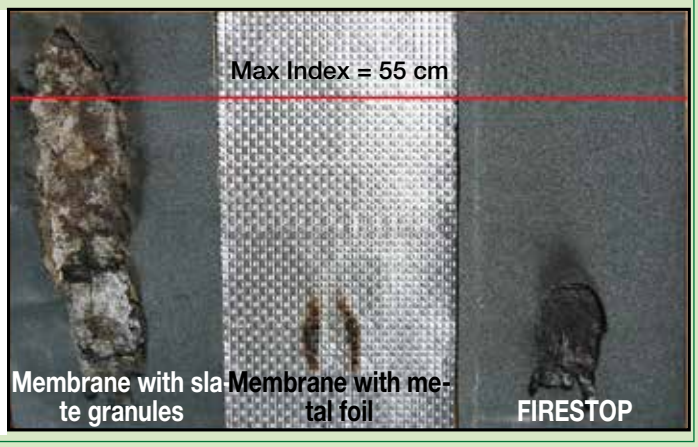
We also point out that a waterproof covering under a photovoltaic system must have a service life at least as long as the system itself; in the case of an old existent covering, it is recommendable always to lay a new double-layer covering according to the stratification method stated in our **"Technical specifications no. 14/BIS –$B_{roof}(t2)$ classified roofs with photovoltaic systems"**.

FIRE RESISTANCE TEST UNI ENV 1187:2007 METHOD 2 - [$B_{roof}(t2)$]

Equipment complying ENV 1187/2

Running test

Comparison of the results



CERTIFICATION

for MINERAL HELASTOPOL FIRESTOP and MINERAL ELASTOCENE FIRESTOP

"LAPI" It has passed the fire-resistance tests pursuant to ENV 1187/2 and is classified compliant with EN 13501-5: **$B_{roof}(t2)$**.

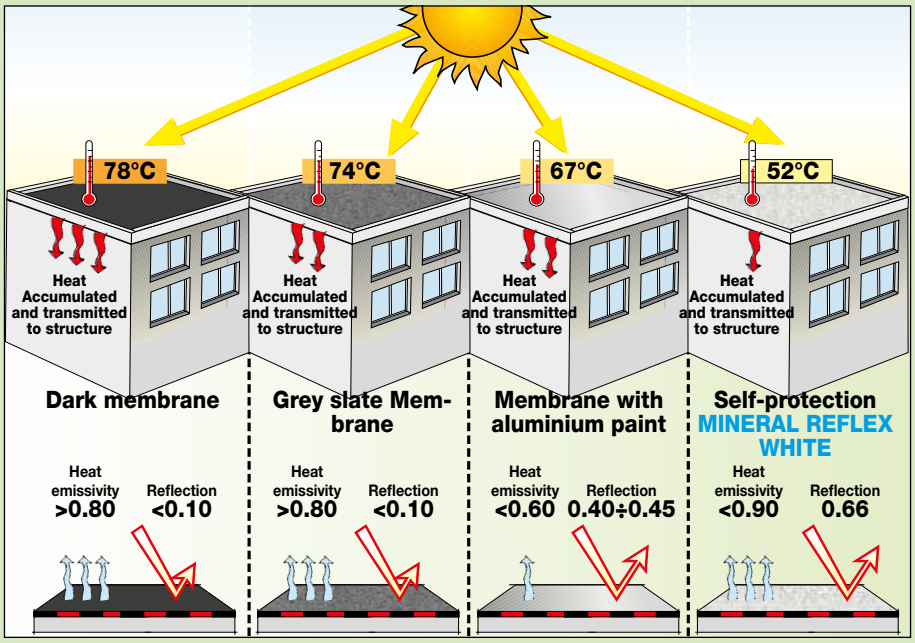
"LAPI" It has passed the reaction to fire test according to EN-ISO 11925-2 and it is classified according to EN13501-1: Euroclass E.

The MINERAL REFLEX WHITE treatment

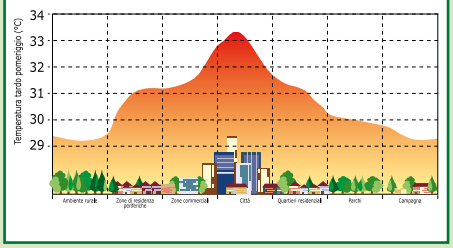
The **FIRESTOP**membranes are produced with the topside self-protected with grey slate granules but can also be requested with special white mineral finish consisting of **MINERAL WHITE REFLEX** ultra-reflecting ceramic granules with high saturation and brightness.
More than 90% of roofs are dark in colour and the roof surface reaches temperatures of around 80°C through solar radiation, which also negatively affects the photovoltaic panels installed on them, whose performance decreases as the temperature rises.
The technology to increase the roof's reflection of the sun's rays, called “Cool Roof”, is one of three strategies (cool roof, green roof and cool pavements) for reducing urban heat islands that were studied at length in the United States. Recent studies at the Lawrence Berkeley National Laboratory published in March 2014 showed, with a cost/benefit comparison, the superior effectiveness of the cool roof compared to the green roof in combating climate change. The cool roof is three times more reflective than the green roof and they estimated that if all the roofs in the world were white it could reduce the Earth's temperature by at least 1°C.

The increase in solar reflectance of the roof surface using specific surface treatments of the waterproof covering allows you **to reduce its temperature**, and consequently prolong the life of the waterproof covering, **improve the efficiency of the photovoltaic panels**, save energy from air conditioning in summer in the rooms below, and at the same time **increase the albedo**, since the incident radiation fraction is reflected from the roof surface and produces **the benefit of increased performance of the PV system also during dimmer daylight hours**. The choice of white for the mineral self-protection of the **FIRESTOP** membranes, that we recommend should be of the self-protected type with **MINERAL WHITE REFLEX** ultra-reflecting ceramic granules, is the first applicable strategy to increase the reflection of solar radiation; the figure shows the temperatures recorded in Northern Italy in July 2007 under differently-protected bituminous surfaces.

The self-protection of the **FIRESTOP**membrane with **MINERAL WHITE REFLEX** ultra-reflecting ceramic granules with high saturation and brightness prevents further surface



URBAND HEAT ISLANDS EFFECT



painting that also could affect its behaviour towards fire and also allows you to create a cool roof that fulfils the criteria of solar reflectance **above 0.65** as required for “cool roof” flat roofs **in Annex 1 of the Interministerial Legislative Decree of 26/06/2015 in force since 01/10/2015.**
The **MINERAL WHITE REFLEX** protection, with a Solar Reflectance Index **RSI = 80%**, certified by the EELab of the University of Modena and Reggio Emilia, meets the **CAM minimum environmental criteria for flat roofs in the Ministerial Decree of 24 December 2015 in force since 2 February 2016 in point 2.2.3 (SRI ≥ 78), those provided for by the**

Solar Reflextance Index

MINERAL REFLEX WHITE
SRI*=79÷81

** SRI according to wind speed: low wind=79%, medium wind=80% and high wind=81%.*

The increase in the reflectance and emissivity provided by the WHITE REFLEX paint applied to the waterproof covering

Surface	Reflection	Emissivity
Dark membrane	<10% (<0.1)	>80% (>0.8)
Painted aluminium membrane	40÷45% (0.40÷0.45)	<60% (<0.6)
Self-protected membrane MINERAL REFLEX WHITE	66% (0.66)	<90% (<0.90)

ITACA Protocol standard UNI/PdR 13.1:2015 CRITERION C.6.8. (SRI ≥75) and those of the **Protocol LEED GBC ITALY "To design, build and renovate institutional and commercial buildings" of 2009 updated on 9 February 2016** under the item **SS CREDIT 7.2 - HEAT ISLAND EFFECT (SRI ≥78).**

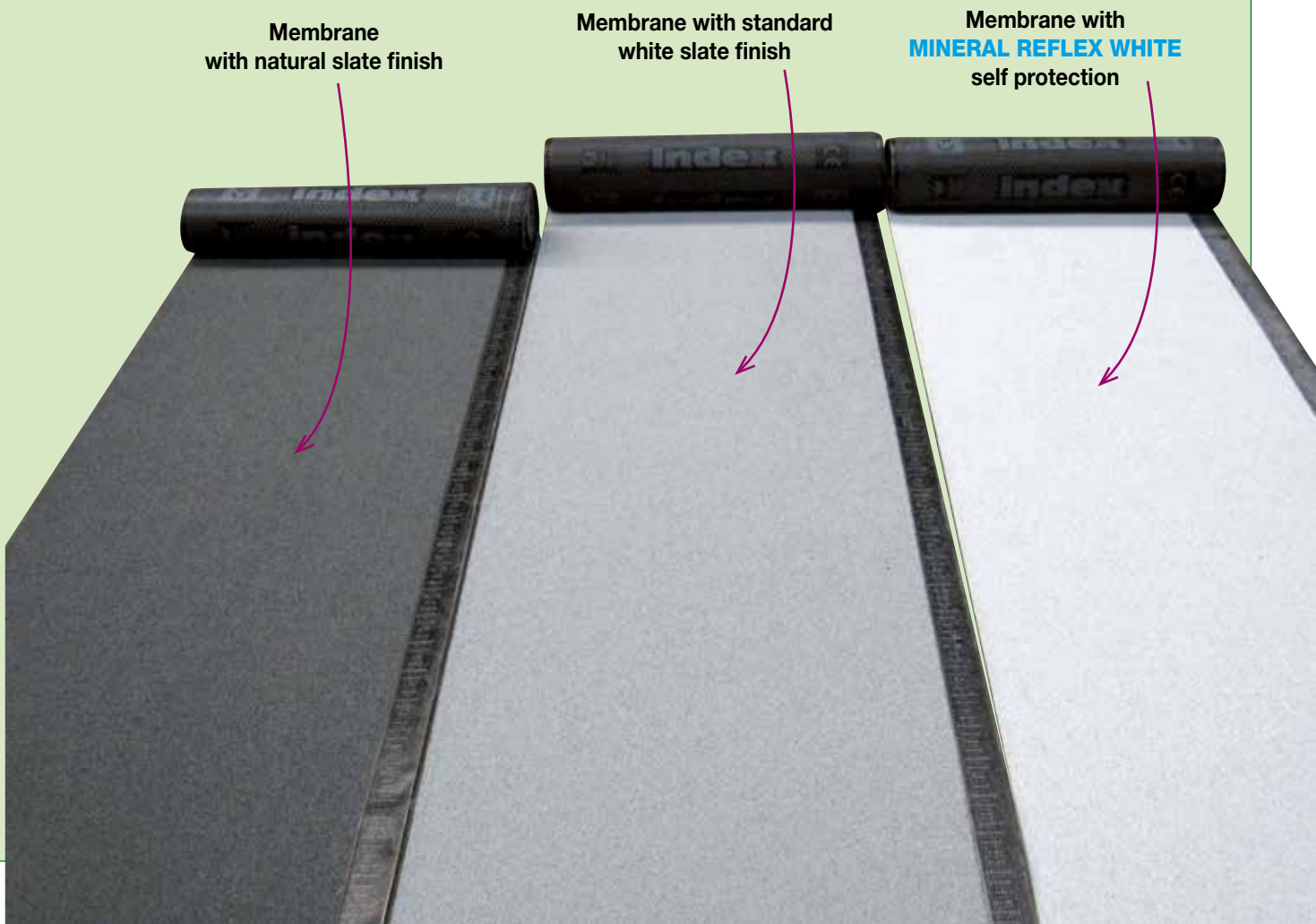
The advantages of MINERAL REFLEX WHITE self-protection

- **It increases the efficiency of photovoltaic panels.**
- **You avoid painting operations and it is more durable.**
- **It extends the life of the waterproof covering**
- **It improves comfort and you save on the costs of summer air conditioning.**
- **It reduces the temperature of urban heat islands and also power consumption and therefore emissions of CO_2.**

ASE THE PERFORMANCE OF PHOTOVOLTAIC SYSTEMS

REPLACING A ROOF SURFACE WITH MEMBRANE WITH MINERAL REFLEX WHITE SELF-PROTECTION

REFERENCES

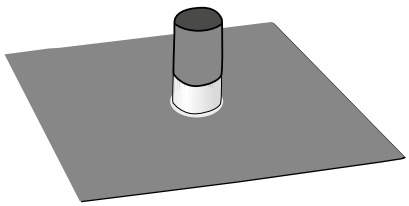


EXAMPLES OF STRATIGRAPHY OF EXTERNAL FIRE R

According to the Memorandum on the fireproof requirements of photovoltaic systems installed on the roofs of buildings in which activities subject to fire prevention control are carried out, issued by the Fire Brigade Department of the Home Office on the 7th February 2012 and following clarification note dated 4th May 2012:
In case 3/a of annex B - Specific assessment of the risk of spreading of the fire bearing in mind the resistance class to external fires of the roofs and roof coverings and the fire reaction class of the photovoltaic module.
The following type of coupling may be considered acceptable, generally speaking:
• photovoltaic systems with FV panels having class 2 or equivalent fire reaction rating on roofs classified as B_{roof}(t2)

A roof with a visible covering is the most common and widespread solution for industrial and commercial buildings, which are often very large too. Visible coverings are subject to greater stress because they are exposed directly to harsh weather conditions and, when they are laid under a photovoltaic system that has to last more than 20 years, it is important to choose long-lasting membranes.
The membranes recommended herein, of the PROTEADUO, HELASTA and FLEXTER FLEX TESTUDO series, all come with DVT Agrément of the ITC-CNR certification of their service life and relative constant periodic control. Even though their relevant EC marking is compliant, the suggested membranes can be laid in a single 4-mm layer; however, with greater safety in mind and in view of the fact that it is now very expensive to repair a roof under a photovoltaic system, it has become common practice to lay a double layer on new roofs. Another reason for laying in double layers is due to the higher resistance to external fires of the waterproof covering, requested by the Guide on the installation of photovoltaic systems issued by the Fire Brigade Department of the Home Office dated 7th February 2012 and subsequent clarification memorandum dated 4th May 2012 - case 3a. In such case, as upper layer of the new waterproof system, it is better to lay a membrane classified as B_{roof} according to UNI EN 13501-5:2009 based on the results of the exposure tests of the roofs to an external fire, pursuant to UNI ENV 1187:2007. The **FIRESTOP** membranes are classified B_{roof}(t2) in compliance with UNI EN 13501-5:2009 on both combustible and incombustible substrates. Also in the case of old coverings, especially if they are older than 10 years, it is better to apply a double layer and just apply a single layer of **FIRESTOP** only if the covering is not so old and still in a good state.

DETAILS of LAYING - example of vertical joins with metal uprights of photovoltaic systems

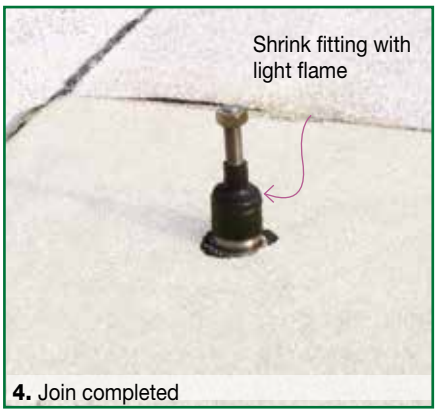


VERTICONNECT is a vertical join with adjustable sleeves for passing cables in waterproofing layers with polymer-bitumen membranes.
It is a secure, flexible, watertight solution for vertical joins, pipes, profiles, consoles and threaded rods, etc., which cross the horizontal plane of a flat roof waterproofed with bitumen-polymer membranes.

1. VERTICONNECT application

2. Application of a finishing patch on VERTICONNECT

3. VERTICONNECT fixed on the roof



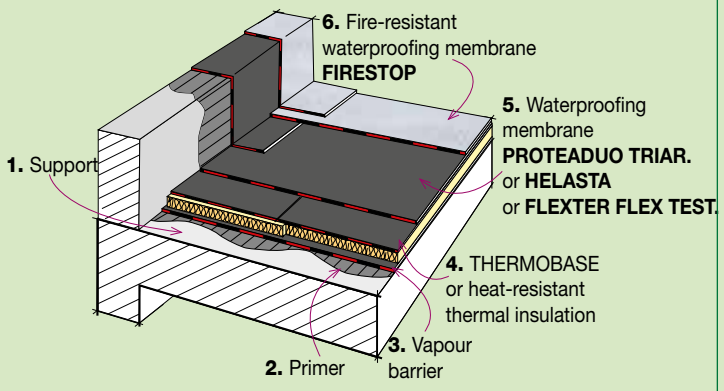
4. Join completed

ESISTANT ROOFING UNDER PHOTOVOLTAIC SYSTEMS

New roofs

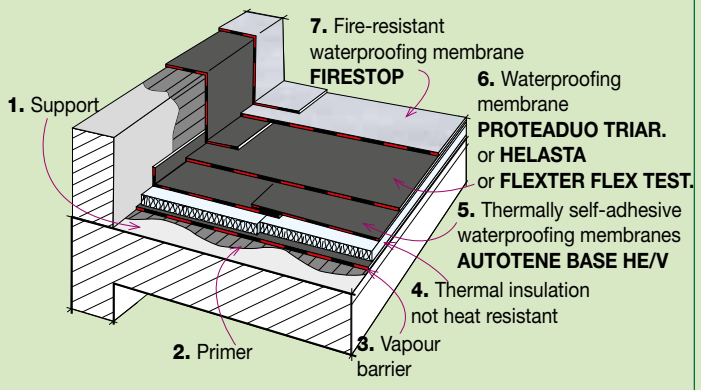
DOUBLE-LAYER WATERPROOF COVERING IN TOTAL ADHESION (TORCH-BOND) ON THERMAL INSULATION RESISTANT TO HEAT AND ON THERMOBASE

(valid for roof pitches ≤40%) for roof pitches between 40÷100%, bonding of the waterproof covering will be integrated with mechanical nail/screw and washer fixture (diameter 50-mm) arranged every 20-cm under the end overlaps of the last layer.



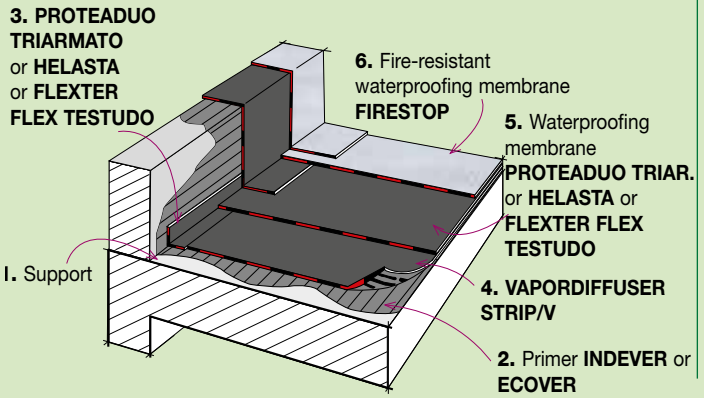
DOUBLE-LAYER WATERPROOF COVERING IN TOTAL ADHESION (TORCH-BOND) ON THERMAL INSULATION THAT IS NOT RESISTANT TO HEAT, PROTECTED BY SELF-HEAT-ADHESIVE MEMBRANE

(valid for roof pitches ≤15%) for roof pitches between 15÷40%, bonding of the waterproof covering will be integrated with mechanical nail/screw and washer fixture (diameter 50-mm) arranged every 20-cm under the end overlaps of the last layer.



DOUBLE-LAYER WATERPROOF COVERING IN TOTAL ADHESION (TORCH-BOND) ON SUBSTRATE HEAT-ADHESIVE MEMBRANE IN SEMIADHESION WITH STRIPS ON CEMENT-BASED SURFACES

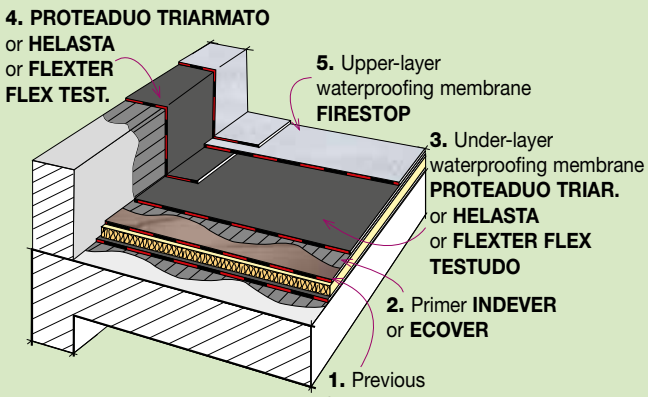
(valid for roof pitches ≤15%) for roof pitches between 15÷40%, bonding of the waterproof covering will be integrated with mechanical nail/screw and washer fixture (diameter 50-mm) arranged every 20-cm under the end overlaps of the last layer.



Refurbishment

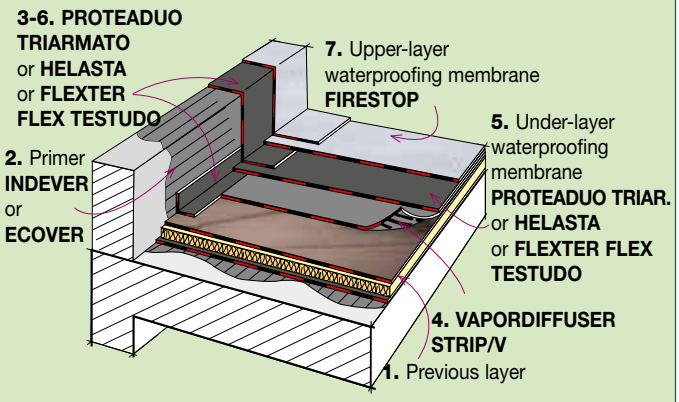
DOUBLE-LAYER IN TOTAL ADHESION (TORCH-BOND) FOR REFURBISHMENTS ON OLD DRY ROOFS

(valid for roof pitches ≤40%) for roof pitches between 40÷100%, bonding of the waterproof covering will be integrated with mechanical nail/screw and washer fixture (diameter 50-mm) arranged every 20-cm under the end overlaps of the last layer.



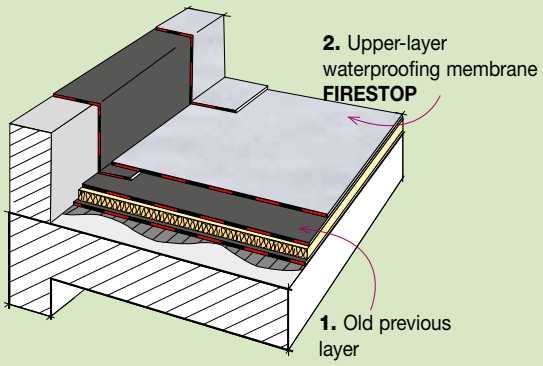
DOUBLE-LAYER IN TOTAL ADHESION (TORCH-BOND) FOR REFURBISHMENTS ON SUBSTRATE HEAT-ADHESIVE MEMBRANE IN SEMIADHESION BY STRIPS ON OLD DAMP ROOFS

(valid for roof pitches ≤15%) for roof pitches between 15÷40%, bonding of the waterproof covering will be integrated with mechanical nail/screw and washer fixture (diameter 50-mm) arranged every 20-cm under the end overlaps of the last layer.



SINGLE-LAYER IN TOTAL ADHESION (TORCH-BOND) FOR REFURBISHMENTS ON RECENT EXISTENT ROOFS

(valid for roof pitches ≤40%) for roof pitches between 40÷100%, bonding of the waterproof covering will be integrated with mechanical nail/screw and washer fixture (diameter 50-mm) arranged every 20-cm under the end overlaps of the last layer.



TECHNICAL CHARACTERISTICS

	Standard	T	MINERAL HELASTOPOL FIRESTOP POLYESTER	MINERAL ELASTOCENE FIRESTOP POLYESTER	FIRESTOP POLYESTER
Reinforcement			Non-woven composite polyester fabric stabilized with fibreglass	Non-woven composite polyester fabric stabilized with fibreglass	Non-woven composite polyester fabric stabilized with fibreglass
Weight	EN 1849-1	±15%	5.0 kg/m²	5.0 kg/m²	4.5 kg/m²
Roll size	EN 1848-1	–1%	1×10 m	1×10 m	1×10 m
Watertightness	EN 1928 – B	≥	60 kPa	60 kPa	60 kPa
Maximum tensile force L/T	EN 12311-1	–20%	650/400 N/50 mm	700/500 N/50 mm	700/400 N/50 mm
Elongation L/T	EN 12311-1	–15% V.A.	40/40%	40/45%	40/45%
Resistance to tearing (nail shank) L/T	EN 12310-1	-30%	150/180 N	160/200 N	150/150 N
Dimensional stability L/T	EN 1107-1	≤	–0.30/+0.10%	–0.30/+0.10%	–0.30/+0.10%
Flexibility to low temperature	EN 1109	≤	–15°C	–20°C	–10°C
Flow resist. at high temp. • after ageing	EN 1110 EN 1296-1110	≥ -10°C	100°C 100°C	100°C 100°C	120°C 120°C
Res. to water penetration • after ageing	EN 1928 EN 1296-1928		W1 –	W1 –	W1 –
Reaction to fire Euroclass	EN 13501-1		E	E	E
External fire performance	EN 13501-5		B_{roof} (t2) (¹)	B_{roof} (t2) (¹)	B_{roof} (t2) (¹)
Thermal specifications					
Thermal conductivity			0.2 W/mK	0.2 W/mK	0.2 W/mK
Heat capacity			6.00 KJ/K	6.00 KJ/K	5.40 KJ/K

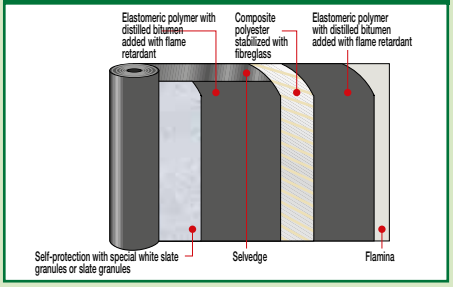
(¹) Classified on incombustible and combustible substrate with density > 16 kg/m³.
Compliant with EN 13707 in terms of the resistance factor to steam penetration for reinforced polymer-bitumen membranes, the value of μ = 20 000 may be considered, unless declared otherwise.

Slated membranes may change colour depending on the storage periods. The problem goes away within 2-3 months from laying and the colours return to their original colouring. It is a physiological aspect of this type of membrane and cannot be the basis for a complaint. The same is true regarding the maintenance of colour and the different colourings that can occur among the variously exposed areas of the covering based on the types of artificial colouring.

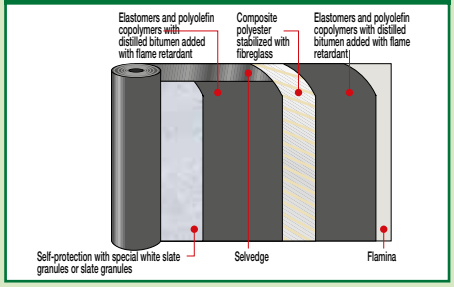
the numerous possible uses and the possible interference of conditions or elements beyond our control, we assume no responsibility regarding the results which are obtained. The purchasers, of their own accord and under their own responsibility, must establish the suitability of the product for the envisaged use.

COMPOSITION OF THE MEMBRANE

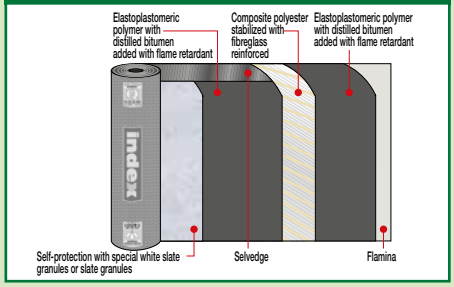
MINERAL HELASTOPOL FIRESTOP POLYESTER



MINERAL ELASTOCENE FIRESTOP POLYESTER



FIRESTOP POLYESTER



PRODUCT FINISHING

"FLAMINA" PE FOIL. Plastic protection film helping prevent coils from sticking to the roll. As it withdraws under the action of the flame right during its installation, it signals the best melting point in order to correctly glue the membrane to the brackets and rises. When not heated, it can be used as a sliding layer.

EMBOSSING FLAMINA. The embossing on the lower surfaces of the membranes finished with Flamina film makes it possible to lay the product precisely and quickly; forming a smooth surface when melted with the torch. It indicates the correct melting temperature and lets the film retract faster. The embossing also enables optimal vapour diffusion; in spot bonded and loose laid installation, in the points where it remains intact, preventing blisters and swelling.

SELF-PROTECTION WITH SLATE GRANULES. On the visible face of the membrane, a protective coating made up of slate granules of various colours is hot bonded. This mineral shield protects the membrane from ageing caused by UV rays.

MINERAL REFLEX WHITE SELF-PROTECTION. A special high saturation and luminosity white mineral self-protection is applied to the face of the membrane to remain visible, which protects it from ageing due to UV rays, with high solar reflectance and very high heat emissivity. * **Surface treatment suitable for application under photovoltaic systems.**

The figures shown are average indicative figures relevant to current production and may be changed or updated by INDEX at any time without previous warning. The advice and technical information provided, is what results from our best knowledge regarding the properties and the use of the product. Considering

• FOR ANY FURTHER INFORMATION OR ADVICE ON PARTICULAR APPLICATIONS, CONTACT OUR TECHNICAL OFFICE • IN ORDER TO CORRECTLY USE OUR PRODUCTS, REFER TO INDEX TECHNICAL SPECIFICATIONS •

index
Construction Systems and Products
Via G. Rossini, 22 - 37060 Castel D'Azzano (VR) - Italy - C.P.67
T. +39 045 8546201 - F. +39 045 518390

Internet: www.index-spa.com
Informazioni Tecniche Commerciali
tecom@indexspa.it
Amministrazione e Segreteria
index@indexspa.it
Index Export Dept.
index.export@indexspa.it

TOTAL QUALITY index UNI EN ISO 9001
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