



PLURA

PLUVITEC [®]EVOLUTION

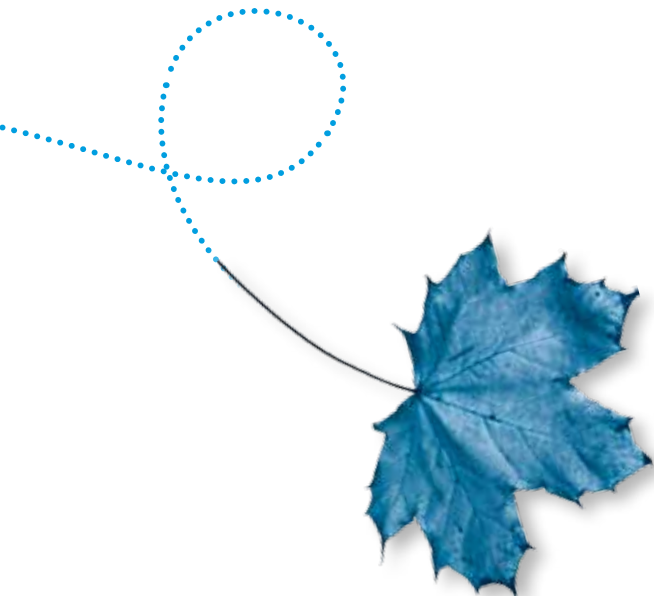
pluvitec[®]
TECNOLOGIE IMPERMEABILI MADE IN ITALY
WATERPROOFING TECHNOLOGIES MADE IN ITALY



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PLURA

PLUVITEC [®]EVOLUTION

THE NATURAL REVOLUTION

Insidious enemies such as water infiltration and humidity can hide in any construction. Water and humidity can cause significant damage to structures, making often costly waterproofing work necessary. Today this type of work must have a low environmental impact. PLURA PLUVITEC REVOLUTION products are the result of ever more advanced research and new production processes that reuse 100% of industrial waste.

Evolution is revolution.

Our innovations in the sector have radically revolutionized the waterproofing concept.





Infiltration

is our number one enemy

The most insidious infiltrate is precisely water, which creeps in everywhere, through the roof and other external surfaces. Water can cause structural damage as well as damage anything that is inside.

- 60% of civil litigations in the construction industry in Italy are related to water infiltration.
- Roofing and related infiltration costs amount to 30-40% of building maintenance costs.

Factors that determine a poor result are numerous

- Not all products are suitable for your roof, and even the best, if laid incorrectly or without the necessary skill, may compromise the quality of the desired final result.
- The most expensive solutions are not always the best: identifying the most suitable system for a specific problem means saving money.
- A correct technical solution, together with the use of appropriate and properly applied products, are key factors for successful waterproofing.





Pluvitec is a world leader in innovative waterproofing materials and systems. With its PLURA range of products, Pluvitec offers the right solution for any type of problem, using time-tested solutions.

For a number of years now, PLURA solutions have been synonymous with **reliability, safety** and **long-lasting** waterproofing.

Our constant dedication to research, together with the careful choice of raw materials, the production process control and our technical solutions combined with the actual application provide a durable and guaranteed waterproof roofing.

- The following elements guarantee the end result:
- The **design, control** and **testing** of the waterproofing systems by Pluvitec technicians.
 - **Application carried out** by Pluviteam certified companies.

PLURA systems also benefit from product and application **insurance policies** that warranty the investment over time.

The warranty can be further extended (subject to respecting the planned maintenance schedule).



The Values of a revolution

Plura is a true technical and technological revolution of the waterproofing concept. No more traditional systems using only one or more specific products, but innovative systems inspired by simple and quick application: reliability and safety are our trade mark.

Pluvitec waterproofs your future today.

Quality

Materials

obtained through investments in research and development

Application

carried out by certified staff (Pluviteam)

Custom Solutions

for each requirement

Sales Support

Pre and Post-Sales Support

Roofing is a resource

The roofing surface may be exploited thus becoming an "active" surface.

- Photovoltaic roofs
- Eco-friendly roofs
- Wind energy harvesting roofs
- Cool roofs
- Rainwater harvesting roofs
- Green roofs
- Parking decks

Safety

To work in full structural safety as well as that of operators and users.

- Applications with no and/or little flame
- Cold applications
- Fire resistant membranes
- Roofings designed for specific use



Durability

PLURA Pluvitec Revolution roofs last longer, hence cost less. Savings that truly mean respect for the environment.

Passion

We perform our work with attention to the quality of life of all our product users, constantly striving to improve techniques and procedures within the perspective of global improvement. We have become world leaders in our field due to our passionate approach focused on change.

Full warranty

Roofs waterproofed using Plura systems are guaranteed by:

- Excellent products, many of which are exclusive to Pluvitec
- Highly skilled staff (**PLUVITEAM**)
- Roofs covered by a post-construction insurance policy
- International certification

Versatility

Maximum versatility of the PLURA systems for all engineering requirements. Specific technical skills of our TECHNICAL AREA.

Sustainability

Products made with regenerated and fully recyclable raw materials. Low environmental impact systems. Clean energy production processes.

The elements of a winning idea

Our ideas owe their success to the perfectly integrated series of essential elements, which then provide a definitive solution.

ECO 100

The "ECO 100 Project" develops a new low environmental impact weatherproofing concept based on:

- choice of raw materials and creation of new products
- constant investment in the production plant
- application (energy savings)
- full reclamation of old roof covers (pollution reduction)

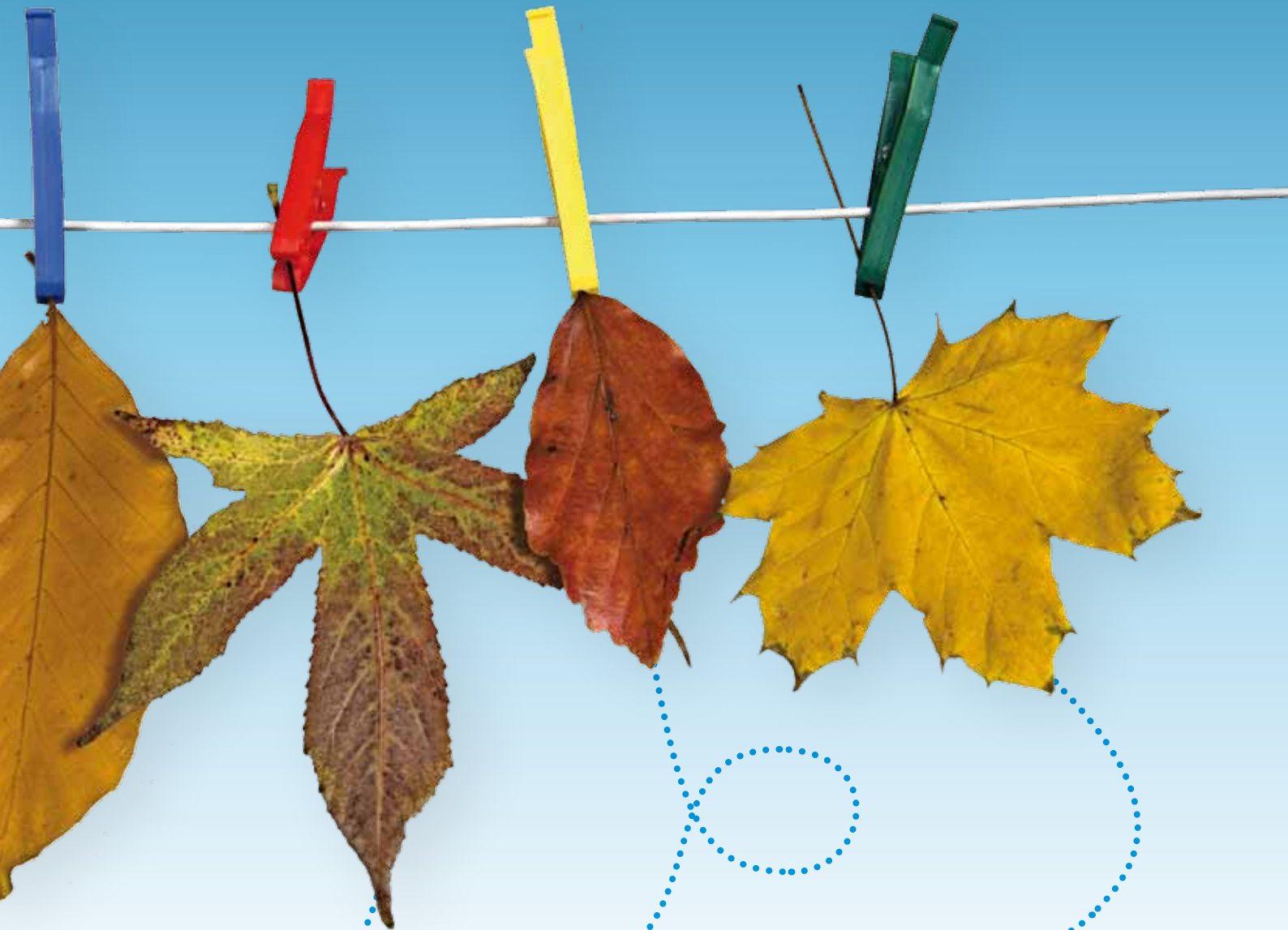
Products

An accurate and continuous product monitoring system and a series of checks for each single system component guarantee the highest quality standards at all times.

The production cycle is **ISO 9001** and **ISO 14001** certified.

Technical solution

The technical solution is undoubtedly the key factor in determining the success of durable waterproof roofing. Even the most insignificant details may be fundamental for the successful outcome of the work. **Pluvitec's Technical Department** is the ideal partner for engineering firms. The Technical Staff produces designs, technical specifications, technical drawings and working drawings for our clients and sector professionals, from waterproofing to thermal and acoustic insulation.



Systems

The **PLURA Pluvitec Revolution** division develops and produces innovative patented waterproofing systems for any type of roofing.

PLURA Pluvitec Revolution systems guarantee the best performance in terms of waterproofing durability, safety and functionality, with secure application even without the use of flames, pursuant to recent European regulations.

Pluviteam

Special skills are required to install special products.

Pluvitec has created **Pluviteam**, a group of qualified professionals capable of applying the innovative **PLURA Pluvitec Revolution** waterproofing systems.

Support

The post-sales support is a great added value for **PLURA Pluvitec Revolution** systems.

The **Technical Department** guarantees continuous monitoring of the roofing during the application stage, guaranteeing flawless application standards.



100% recyclable

Pluvitec has developed a new low environmental impact waterproofing concept with the "ECO 100 Project".

Sensitivity

ECO 100 embodies Pluvitec's corporate environmental sensitivity. It lays the foundations for a new concept of doing business, whose preferred criterion is a greater attention towards the environment through development and manufacture of ecological products that represent one of our great strengths.

Environmental resources

ECO 100 also stands for Pluvitec's commitment to invest in its business, more precisely in its production plants, with clean energy production projects, limiting the use of non-renewable energy sources.

Sustainability

ECO 100 is an eco-sustainable challenge, an incentive to reach important targets. Pluvitec uses recycled materials for the production of new membranes, which are in turn fully recyclable at the end of their life cycle. New PLURA system technologies guarantee longer average durability of the roofing, thus considerably reducing maintenance, resulting in financial savings and reduced environmental impact.

A guarantee for health

ECO 100 guarantees that the materials used are free from any harmful and environmentally toxic compounds, ensuring the safety of the manufacturer, installer as well as end user. Our products do not contain oxidised bitumen, halides, asbestos, etc..., proof of our commitment in line with an eco-sustainable corporate vision.

ECO 100:
renew the past,
preserving the future.

**RENEW THE PAST,
PRESERVING THE FUTURE.**

The roof is a great resource

Modern building methods have dramatically changed usable spaces.

- The increase of waterproofed surfaces has led to a decrease of rainfall drainage surfaces, resulting in risks of flooding, erosion and drought.
- Rain falling onto waterproof roofing ends up in sewage, thus reducing water flowing into the groundwater.
- Green areas progressively diminish and as a result regional microclimates are altered, with a consequent rise in temperatures.
- A significant amount of energy is left unused (sun, wind).

The **PLURA Pluvitec Revolution** low environmental impact waterproofing concept tangibly contributes to avoiding wastage of energy and money, typical of present-day modern economies.



Cool and photovoltaic roof

The cool roof is a useful addition in tackling heat islands, generated by the combined heat production of numerous individual buildings in one city.

Cool roofs are built using highly reflecting materials with a high emissivity.

This type of roofing is, therefore, 30 to 45 degrees cooler than traditional roofing, which can reach peak temperatures as high as 70/90 °C in summer. Furthermore, excellent refraction, which increases direct and stray light, as well as the low operating temperature, permit a considerable increase in the yield of photovoltaic panels.



Pluvitec cool roof (VOLTAIKA - ARTIKA - PLURA G200)

- The Pluvitec cool roof reflects and increases stray and direct light, increasing yield of photovoltaic panel.
- Excellent emissivity favours dissipation of heat stored during daylight.
- The temperature of a traditional black membrane is approximately 75-79 °C in summertime.

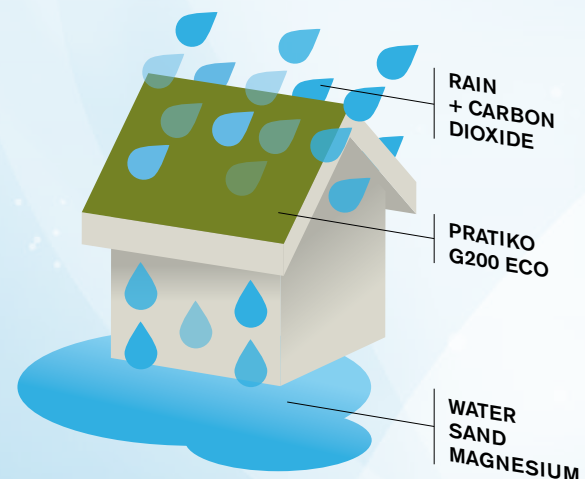


- The temperature of the white Pluvitec membranes is 45 °C for the same period.
- Soffit temperature diminishes by at least 5 °C, thus causing significant air-conditioning cost savings.
- The Pluvitec "cool roof" has the capacity of reflecting incident solar radiation thanks to a high emissivity value. This allows the roof to return most of the absorbed fraction of solar radiation to the atmosphere through thermal radiation, thus significantly reducing the "HEAT ISLAND EFFECT" (so-called microclimate caused by "heat islands" or urban areas).



ECO ROOF (neutralizes CO₂)

The increase of carbon dioxide in the atmosphere increases the greenhouse effect and thus adds to an increase of the average global temperature, to which ecosystems do not have the necessary time to adapt to.





The PRATIKO G200 ECO membrane is finished with an upper face with natural silicate granules, better known as OLIVINE. During rainfall carbon dioxide (CO₂, also known as carbonic anhydride or carbon oxide) comes into contact with the olivine-coated PRATIKO G200 ECO membrane, which reacts by releasing magnesium, bicarbonate and silicon dioxide, thereby neutralizing CO₂. These by-products are harmless for the environment and humans and are released from the roofing through drains.

- Represents a solution to the already well-known problem of "soil sealing".
- Improves the microclimate through evapotranspiration.
- Binds dust and pollutants.
- Improves work and living spaces, especially in case of usable or visible roof gardens.
- Represents an important design element for urban planners and landscapers.
- Increased safety with regards to resistance to wind uplift of the waterproofing system.
- Reduces noise pollution, due to its greater absorption capacity of oscillation and diffraction effect caused by plants.



Rainwater harvesting roofs PLURA PLUVITEC REVOLUTION

roofings can be designed and built to harvest rainwater, avoiding wastage.



The green roof

The green roof (or roof garden) is a type of roofing that uses earth and plants instead of slate, roof tiles or cement paving.

Green roof advantages

- Extends the duration of waterproofing thanks to UV protection, as well as protection against thermal shock, hail and incrustation.
- Withholds rainwater.
- Reduces white water disposal costs (laws granting tax reliefs are already in force in certain European countries).
- Facilitates drainage of rainwater reducing the danger of drainage duct and sewage network overflow to a minimum.
- Improves protection from extreme temperatures.
- Represents a "compensation surface" in the environmental impact evaluation of a new build.



The parking deck

New buildings have significantly reduced usable spaces, hence designing a parking deck on the roof provides an excellent solution to the problem.

PLURA Pluvitec Revolution systems allow various solutions:

- Parking deck without insulation, with asphalt concrete pavement.
- Parking deck with or without insulation, with concrete pavement.
- Parking deck with or without insulation, with self-blocking pavement.
- Parking deck with or without insulation, with special floating pavement in traffic resistant concrete.

A special range

The range of **PLURA Pluvitec Revolution** products has been designed to respond efficiently to all waterproofing needs for new roofings or renovations and repairs of roofings built using old technologies. A special product which, together with technical solutions and specific projects for each type, fully satisfies all requirements, both from a legal as well as a construction point of view.

PLURA[®]
il THERMOADESIVO

PLURA[®]

PLURA[®]
RIFACIMENTI

PratiKo[®]

PLURA THERMO AD represents the unique revolution in the waterproofing sector combined with insulation of continuous roofings.

PLURA THERMO AD is a prefabricated membrane with differentiated waterproofing masses, specifically designed for use in a vast range of systems.

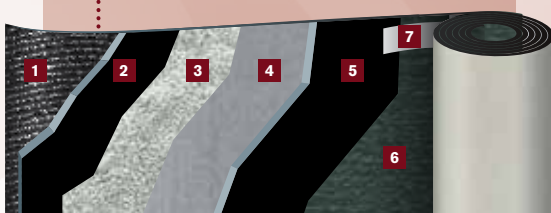
PLURA THERMO AD is an ECO 100 product, i.e. 100% recyclable. Made from recycled raw materials and does not contain hazardous substances such as oxidized bitumen, tar, halides, asbestos, etc.

PLURA THERMO AD can be used as:

VAPOUR BARRIER

PLURA THERMO AD vapour barrier 2.5 mm

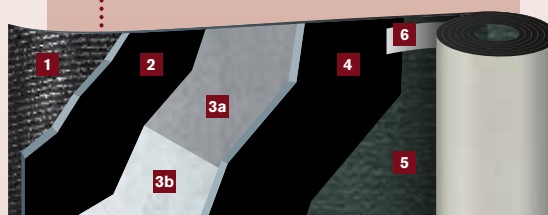
- 1 Silicon release film
- 2 Thermal activated mass
- 3 Aluminum sheet
- 4 Fiberglass reinforcement
- 5 Mass which promotes fast heat transmission
- 6 P.E. film
- 7 Selvege release film



First waterproof layer even on heat-sensitive insulation (e.g. polystyrene)

PLURA THERMO AD V o P 2.5 mm

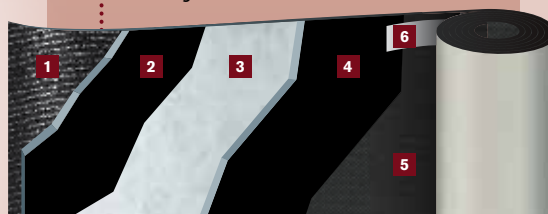
- 1 Silicon release film
- 2 Thermal activated mass
- 3a Woven non woven single strand composite polyester reinforcement
- 3b Fiberglass mat
- 4 Mass which promotes fast heat transmission
- 5 P.E. film
- 6 Selvege release film



Waterproofing of bituminous underslating on timber boards

PLURA THERMO AD underslating P 2.5 mm

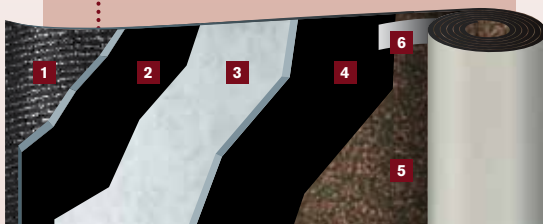
- 1 Silicon release film
- 2 Thermal activated mass
- 3 Woven non woven single strand composite polyester reinforcement
- 4 Mass which promotes fast heat transmission
- 5 Polypropylene mat
- 6 Selvege release film



Waterproofing of bituminous underslating on timber supports

PLURA THERMO AD underslating PA 4 kg/m²

- 1 Release film
- 2 Thermal activated mass
- 3 Woven non woven single strand composite polyester reinforcement
- 4 Mass which promotes fast heat transmission
- 5 Self-protected mineral surface
- 6 Selvege release film



Waterproofing of decks with a bituminous binder

PLURA THERMO AD viaducts P 4 o 5 mm

- 1 Release film
- 2 Thermal activated mass
- 3 Woven non woven single strand composite polyester reinforcement-VIADUCT
- 4 Mass which promotes fast heat transmission
- 5 Polypropylene mat
- 6 Selvege release film



Thermally adhesive membrane system (PLURA)

This type of indirect thermal activated waterproofing allows full adhesion to the support, e.g. through solar radiation for thermo-adhesive membranes applied as a sealant, or through thermal

activation during the application of the second layer exploiting the bituminous compound temperature in the viaduct version.

This technology allows application of fully adhesive bituminous layers, even on heat-sensitive materials, thus eliminating the application error variable and risk of fire.

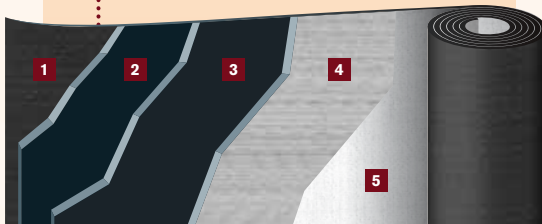
PLURA THERMO AD key advantages

- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- Can be used with any type of bituminous or polyolefin membranes. PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, once the silicon film is removed.
- Time saving during the application of the double layer, through simple elimination of polyethylene in the membranes using a hot air torch, without the need to soften the waterproofing mass (above 150 °C), which could weaken the heat-sensitive insulation.
- Temperatures over 80 °C are not exceeded when using PLURA THERMO AD products.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly following the micro-movements of the support.
- Progressive increase of adhesion, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.
- Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.
- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems. The thermal activation temperature is 50 °C.
- The PLURA THERMO AD membrane provides full adhesion between the support and the sealing element, guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift.
- See BDA 1-2-3 Report.

Waterproofing membrane with high reflectivity

VOLTAIKA

- 1 Polypropylene mat
- 2 Waterproofing mass ECB
- 3 Waterproofing mass with high adhesion
- 4 Fiberglass reinforcement
- 5 Voltaika finish



Thanks to innovative research and development, VOLTAIKA's upper face is finished with a special coating, with high reflectivity of thermal energy produced by solar radiation, and a good capacity of energy outflow (emissivity) into the external atmosphere through infrared thermal radiation. VOLTAIKA's specific structure and nature of the special coating ensure fire resistance classified Roof t 1,2 according to the ENV 1187 B legislation in force. Furthermore, the innovative coating allows rainwater harvesting, while maintaining its pH and chemical characteristics unaltered. The standard VOLTAIKA membrane is supplied with a propylene non-woven fabric applied on the inner face, especially suitable for applications that require use of cold-adhesives or systems applied on PLURA THERMO AD. To avoid soiling or damaging the membrane during application, the coating can be protected with a film which, once the application is complete, can be easily removed.

VOLTAIKA and Photovoltaic Systems

1. Thanks to the special coating and high reflectivity and emissivity, VOLTAIKA significantly reduces the temperature of the roofing surface, favouring a greater yield of the photovoltaic panels.
2. Its excellent reflectivity increases both direct and stray light, amplifies the power of the energy source and allows a better yield of the photovoltaic

systems with increases of up to 2-3%.

3. VOLTAIKA's metal surface ensures an exceptional adhesion of adhesive-mounted amorphous photovoltaic panels.
4. The metallic component of the innovative VOLTAIKA finish inside the sandwich acts as a barrier against oil/polymer migration towards the surface as a result of ageing.

VOLTAIKA advantages

A roof protected with VOLTAIKA considerably reduces the temperature.

The temperature of a black membrane laid on roofing has a temperature of approximately 80/85 °C during summertime. The temperature of VOLTAIKA for the same period is 40/45 °C.

- Soffit temperature diminishes by at least 5 °C, thus causing significant air-conditioning cost savings and improving well being in the buildings.
- Better yield of any roofing photovoltaic system (low temperature + high reflectivity= yield + 2-3% photovoltaic panels).
- Reduced roofing structure fatigue stress.
- Reduced material chemical-physical degradation (waterproofing, insulating, etc.).
- Guarantees excellent external fire resistance.
- Does not alter the pH and chemical characteristics of rainwater.
- The special combination with the PLURA technology guarantees extraordinary adhesion, corroborated by laboratory data.

VOLTAIKA Energy Saving Membrane (energy savings and sustainability)

- Reduced electricity consumption as well as of carbon dioxide release.
- Reduced release of pollutants caused by chemical-physical degradation of materials.
- Reduced surrounding urban ambient warming (Heat Island Effect).
- Reduced photochemical smog.

To satisfy the specific needs required for resurfacing, PLUVITEC has developed a product with specific features, called **PLURA® R**.

PLURA® membranes are manufactured in the PLUVITEC production plant and are the result of internal know-how and plant innovations over the recent years. PLURA® R is an ECO 100 product, 100% recyclable, manufactured using recycled raw materials and does not contain hazardous substances such as oxidized bitumen, tar, halides, asbestos, etc...

PLURA® R is a composite waterproofing membrane, prefabricated using different distilled bitumen-based waterproofing compounds. The upper face compound is composed of distilled bitumen and elasto-plastomeric polyolefin polymers while the lower face compound is composed of distilled bitumen and special polymers which provide particular characteristics of adhesion for all support types, especially those with mineral slate finish. A special waterproofing mass (product of our chemical laboratory research) provides full compatibility between the upper and lower face waterproofing compounds.

PLURA® R is reinforced with a non-woven composite polyester fabric reinforced with fibreglass, with very good mechanical characteristics and exceptional dimensional stability. PLURA® R is self-protected on the upper face with mineral ceramic grains which reduce heat absorption and improve the durability of the membrane, or with non-woven polypropylene fabric. PLURA® R has a 10 cm side selvedge and a 15 cm head selvedge to promote the adhesion between the various sheets.

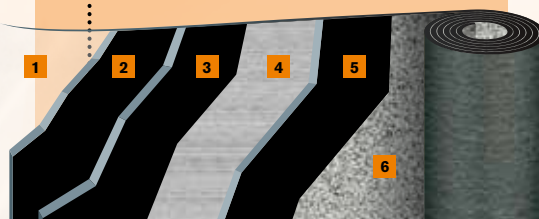
PLURA R advantages

- Faster application times, given the special lower face compound (saving approximately 50% of gas).
- Greater work site safety, as it is not necessary to use hot oxidized bitumen to absorb the old slate finish.
- Creates a secure and efficient waterproof layer, given the outstanding adhesion properties of the compound which, absorbing the slate into the lower face PLURA® R molten mass, creates one single layer together with the old roofing.

BP membrane resurfacing

PLURA R G200 5.5 kg/m²

- 1 P.E. film
- 2 Compound R
- 3 Waterproofing mass
- 4 Fiberglass reinforcement
- 5 Waterproofing mass
- 6 Self-protected mineral surface



PRATIKO® P+V membranes are manufactured using internal technical specifications. PRATIKO® P+V is a prefabricated polymer membrane, whose compound is composed of thermoplastic polyolefin stereospecific metallocene polymers with high molecular weight and distilled bitumen, with high ageing and transition phase resistance. These mutually-integrating characteristics highlight the exceptional flexibility, light-weight, adhesion, ageing and UV radiation ageing qualities of the polymeric membrane. PRATIKO® is an ECO 100 product, 100% recyclable, manufactured using recycled raw materials, and does not contain hazardous substances such as oxidized bitumen, tar, halides, asbestos, etc...

Specific characteristics

The special dual reinforced PRATIKO® membrane characteristics, i.e. reinforced with a non woven fabric and a surface-etched vitreous coating give the product excellent dimensional stability, mainly due to the characteristics of the vitreous coating.

Vitreous coating prevents non woven polyester fabric deformation during the production stage, hence there is no shrinkage after application, even in thick thermal insulation layers.

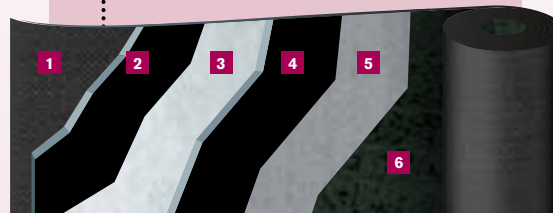
Greater surface hardness and thermal and mechanical protection, as well as resistance to atmospheric agents, particularly UV, make dual reinforced membranes unique for their longevity, durability and low maintenance performances.

Other advantages linked to the special product characteristics are greater resistance to foot traffic (or work site traffic), no compound cracking at extrados (with exposed layer), a greater compound thickness of the lower face.

All this makes the above mentioned membranes also applicable in single layer and without heavy or light protection. PRATIKO® P+V is a product specifically designed and intended for application with PLURA THERMO AD or with PRATIKO® ADESIVO cold adhesive glue, and guarantees excellent roofing waterproofing and durability.

PRATIKO P+V

- 1 Polypropylene mat
- 2 Waterproofing mass
- 3 Woven non woven single strand composite polyester reinforcement
- 4 Waterproofing mass
- 5 Fiberglass reinforcement
- 6 Talc finish



- Elevated mechanical performance, dimensional stability and outstanding puncture resistance.
- Excellent ageing resistance, thanks to the special reinforcement.
- Walkability.
- The NO FLAME version is external fire resistant, pursuant to EN 13501-5 standard.
- (ENV 1187) classification B ROOF (t1-t2-t3).

PRATIKO G200 MINERAL 4 mm on selvedge

- 1 Polypropylene mat
- 2 Waterproofing mass
- 3 Fiberglass reinforcement
- 4 Waterproofing mass
- 5 Self-protected mineral surface

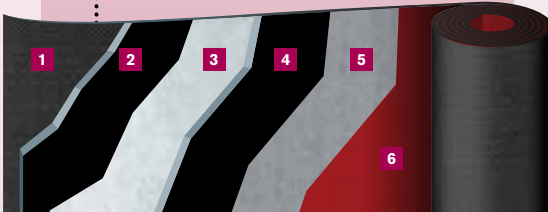


- Can be used, depending on the type of construction and project, either in single layer or multi-layer applications especially where high characteristics of dimensional stability are required.

- The special finishing in white slate, with good reflectivity extends the duration of the membrane and reduces the temperature, both on the external surface and inside the building, with good savings in terms of energy consumption.
- The use of VOLTAIHA coating on the slate surface is essential to improve reflectivity and temperature decrease.

PRATIKO P+V COLOTEC

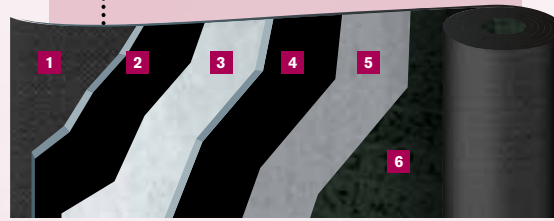
- 1 Polypropylene mat
- 2 Waterproofing mass
- 3 Woven non woven single strand composite polyester reinforcement
- 4 Waterproofing mass
- 5 Fiberglass reinforcement
- 6 COLORTEC® finish



- Faster application times, PRATIKO COLOTEC is already varnish-protected.
- Aesthetic improvement of the roofing.
- Reduction of the roofing delivery timeframe.
- Greater uniformity and consistency of the protective layer, given the high production Industry1 technology.

PRATIKO P+V VIADUCT & ANTI ROOT

- 1 Polypropylene mat
- 2 Waterproofing mass
- 3 Woven non woven single strand composite polyester reinforcement of heavy grammage
- 4 Waterproofing mass
- 5 Fiberglass reinforcement
- 6 Talc finish



Satisfies specific waterproofing requirements established for special constructions such as bridges, viaducts, parking decks and roof gardens. Heavy weight non woven polyester reinforcement provides traction and puncture resistance, while the vitreous coating reinforcement guarantees excellent dimensional stability. The anti-root version is also available on request for green applications (roof garden).

VIADUCT version:

- is resistant to salt present on roads. The adhesion coefficient to the substrate is equal or exceeding that of the road asphalt to be used;
- has a resistance sufficient to bear the load during road surface compacting;
- easy and faster application, reducing road and parking closure times to a minimum;
- the surface vitreous coating makes the membrane resistant to work site traffic and prevents stone material to sink into the compound (which would normally sink into the mass at 160 °C), contrary to the normal single reinforced membranes.

ANTI-ROOT version:

- The excellent and long lasting performances of ANTI-ROOT are given by the sum of the characteristics, the reinforcement and the waterproofing mass, opportunely added with a special chemical product (Preventol B2 Bayer) which confer a very high resistance to both root penetration as well as aggressive chemicals such as fertilizers, herbicides, etc.
- The "anti-root" resistance of the material does not in any way affect the plants.
- The anti-root additive is not washed out of the compound and resists the heat of the open flame torch during application, therefore the product performs its function in a permanent manner.

PRATIKO MINERAL

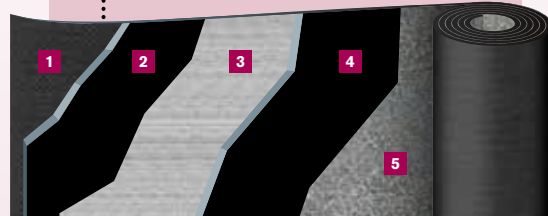
- 1 Polypropylene mat
- 2 Waterproofing mass
- 3 Woven non woven single strand composite polyester reinforcement + fiberglass mat
- 4 Waterproofing mass
- 5 Self-protected mineral surface



PRATIKO MINERAL is self-protected on the upper surface with slate chips which reduce heat absorption on the surface, improving membrane durability; it also has a 10 cm side selvedge and a 15 cm head selvedge to promote the adhesion between the various sheets. PRATIKO® P+V is a product specifically designed and intended for application with PLURA THERMO AD or with PRATIKO® ADESIVO cold adhesive glue, the product can also be applied using gas or hot air torch, guaranteeing excellent roof waterproofing and durability.

PRATIKO G200 ECO

- 1 Polypropylene mat
- 2 Waterproofing mass
- 3 Fiberglass reinforcement
- 4 Waterproofing mass
- 5 ECO self-protection



The PRATIKO G200 ECO membrane is finished with an upper face with natural silicate granules, better known as OLIVINE.

During rainfall carbon dioxide (CO_2 , also known as carbonic anhydride or carbon oxide) comes into contact with the olivine-coated PRATIKO G200 ECO membrane, which reacts by releasing magnesium, bicarbonate and silicon dioxide, thereby neutralizing CO_2 . These by-products are harmless for the environment and humans and are released from the roofing through drains.

The increase of carbon dioxide in the atmosphere increases the greenhouse effect and thus adds to an increase of the average global temperature, to which ecosystems do not have the necessary time to adapt. PRATIKO G200 ECO helps decrease the quantity of carbon dioxide in the atmosphere, providing an ecological solution for the environmental needs. In addition to helping carbon dioxide absorption, the ECO finish is also aesthetically pleasing, improving the external appearance of the roofing.

Technical solutions: the best support for your projects

The key factor in determining the success of durable waterproof roofing is undoubtedly the correct technical solution.

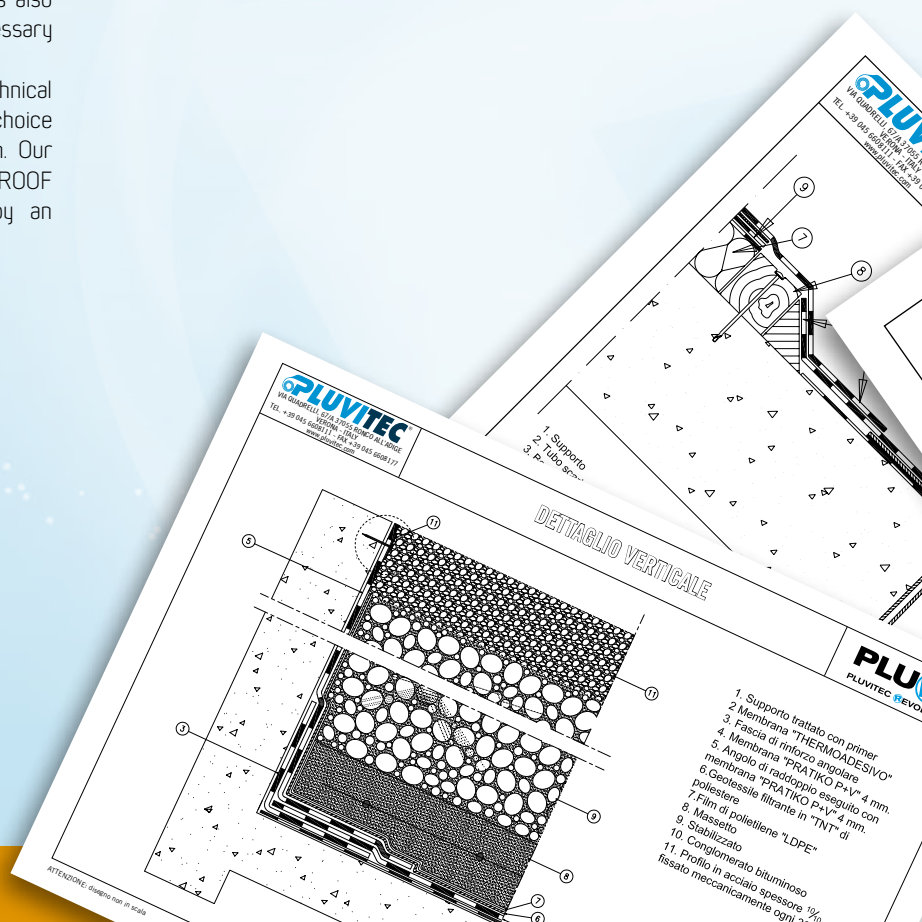
The wrong choice of thermo-insulating panel or application, wrong dewpoint or wind uplift calculation, may damage the roofing even if quality products are used.

Even the smallest, and apparently the most insignificant details may be fundamental for the successful outcome of the work. Pluvitec's Technical Department puts its experience at the disposal of certified roofing specialists, clients and engineering firms, always presenting tested technical solutions, in order to avoid any kind of error.

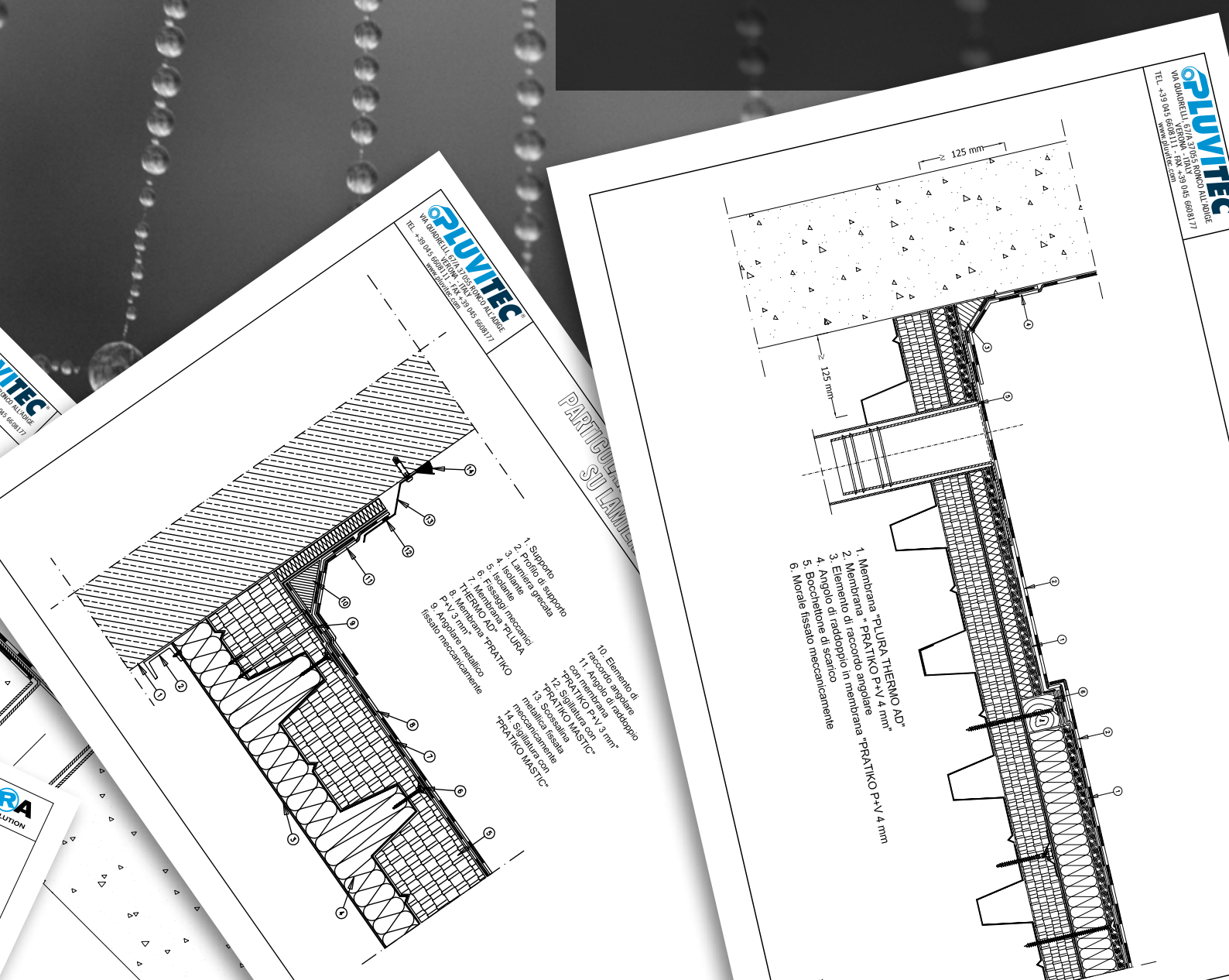
The use of engineering analysis programmes guarantees correct processing of technical specifications, to the finest detail, in full respect of legal requirements.

The **Technical Department** carries out inspections during the work of the Certified roofing specialists at the work site, and is also available for surveys and inspections necessary to draft technical specification reports.

PLUVITEC provides the end client a technical service as well as solution for the best choice of system, product as well as application. Our supervision guarantees a **WATERPROOF** and **LONG-LASTING** roofing, covered by an **INSURANCE POLICY**.

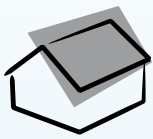


A good project must
be developed in detail



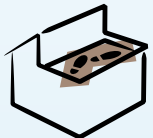
PLURA Systems

Roofing classification based on type of use



Non walkable roofs

This type of roofing is accessible only for roofing maintenance or that of any installations installed on it. The upper face has PRATIKO self-protecting layers.



Walkable roofs

Walkable roofs, such as attics, terraces, etc. are accessible to persons. The upper layer is composed of a screed coat and/or paving (ceramic, stoneware, etc.) or floating pavement in prefabricated cement squares.



Trafficable roofings

These roofings are accessible both for parked vehicles as well as those in transit. The upper face may be made using reinforced concrete screed and/or asphalt concrete, or cements with added mineral pastes, tiles, floating trafficable pavings.



Garden roofings

Also called green roofs, they are the ideal solution for terraces, garages, planters, etc. This type of roofing usually has an anti-root waterproofing upper face, drainage layer, cultivation soil or special water retention/drainage systems.

Roofing classification based on system type

Flat roofings are generally classified according to these types of waterproofing packages:

- Non insulated roof
- Insulated roof (insulation is under the waterproofing layer)
- Inverted roof (insulation placed above the waterproofing layer)
- Duo roof (insulated roof + inverted roof)



Non insulated roof

There is no insulation element in this type of solution. This solution is subject to considerable heat dispersion and generally used for parking decks or non-heated buildings. Non-insulated supports are exposed to greater thermal shock compared to insulated supports.



Insulated roof

Insulation is placed between the support and the waterproofing in this solution.

This is the most frequent solution among waterproofing packages.

Generally, a vapour barrier or shield is applied on the substrate, protecting the insulation from water vapour which migrates from the heated interior environment. Thus the roofing and the insulation are protected from thermal shock and the waterproofing layer is exposed to atmospheric agents, UV radiation and thermal shock. Where necessary, effects of these shocks can be reduced using heavy or light protection.

Floating heavy protection

- Gravel
- Floating pavements on supports
- Self-blocking with sieved sand

Stationary heavy protection

- Cement mortar cover
- Cultivated soil on drainage
- Paving with tiles on mortar, etc.

Lightweight protection

- Membrane self-protection with slate chips
- Surface coating with acrylic, aluminium or polyurethane paints, etc.

PRATIKO system membranes do not require protection, due to their special surface reinforcements. They guarantee excellent resistance against UV radiation and have outstanding durability, and for aesthetic and/or thermal purposes can be used in the COLORTEC version.

Vapour barrier

The role of the vapour barrier is to block water vapour: its presence prevents condensation underneath the waterproofing layer.

Air may contain high vapour levels at certain temperatures. The hotter the air, the more vapour it can contain.

Water vapour produced in the building migrates from the warm interior towards the cooler exterior. When vapour meets a cold area and reaches dewpoint it condenses into water.

This can cause damage such as stains, moulds, and a reduction of thermal resistance of the insulation. In fact, wet insulation loses all its properties, especially if water-sensitive.

The vapour barrier must always be placed underneath the insulation, on the insulated side, to block water vapour before it reaches the cold area and condenses.

Correct application of the vapour barrier is crucial, if the overlaps have not been made in a workmanlike manner or if perforations, holes or tears are present, these can cause quite a few inconveniences.

For practical purposes and under normal working conditions, a vapour barrier whose $\mu \times$ thickness (in m) is = 100 (equal to a vapour passage resistance of 100 m of air) is deemed suitable, where μ is the coefficient of resistance to the spread of water vapour of the vapour barrier layer material.

Application must always be performed following technical specifications and application standards. The need to apply a vapour barrier must be analysed on a case-by-case basis, using thermohygroscopic analysis.

Thermal insulation

The role of thermal insulation, for the entire roofing, is that of heat transfer reduction from the building interior to the exterior.

The choice of insulating material must take into account the low heat transfer of the material. Insulating materials can be identified by the heat transfer value λ (W/mK); the lower the value, the better the insulating power of the insulating material.

All materials are insulating, but a product is considered insulating if its coefficient λ does not exceed 0.07 W/mK. Thermal resistance characterizes the incidence of a layer (insulating or other) with respect to the heat flow, considering R (m² K/W).

$$R = \frac{d}{\lambda}$$

d = layer thickness

λ = heat transfer coefficient (W/mK)

The greater the thermal resistance, the better the thermal insulation provided by the insulating material.

Insulating materials

When choosing the roofing package insulation, you must take into account a series of performances in function of the result you wish to obtain: insulation quality, chosen roofing package elements, costs, mechanical performance, etc. Insulation thickness required to reach results in function of:

- Imposed thermal resistance R
- Heat transfer U imposed at the wall

For convenience, a series of values is provided by way of example (Tab. 01)

Tab. 01 - Heat transfer U

	Values λ (W/mK)
MW mineral wool	from 0,032 to 0,041
EPS expanded polystyrene	from 0,033 to 0,040
CG cellular glass	from 0,040 to 0,048
XPS extruded polystyrene	from 0,027 to 0,034
PUR polyurethane	from 0,024 to 0,029
PF phenolic foam	from 0,020 to 0,025
EPB expanded perlite	from 0,052 to 0,055

PLURA SYSTEMS

National legislation Thermal insulation

National Guidelines on Energy Performance Certification

Ministerial Decree of 26 June 2009 was published in the Official Gazette of the Italian Republic (O.G. No 158 of 10 July).

The Decree is in force as of 25 July 2009.

Presidential Decree 59/09 implementing Legislative Decree 192/05

Presidential Decree 59/09 entered into force on 25 June 2009, introducing the new framework of compulsory provisions that replace the "transitional" provisions set out in Annex I of Legislative Decree 311/06. Law 133/08

Transition of the Law on Energy Performance Certification

The summer financial measure on "urgent provisions on economic development, simplification, competitiveness, public finance stabilization and tax equalization" abrogates 4 items of Legislative Decree 192/05 on the compulsory requirement to attach the Energy Performance Certificate to the notarial documents in Article 35.

Legislative Decree 115/08 Implementation of European Directive 2006/32/EC.

Published on 3 July 2008, the Legislative Decree deals with different topics, such as:

- defining volumetric deductions for efficient buildings;
- role of energy performance certifiers, pending the publication of National Guidelines.

Legislative Decree 311/06 amending and integrating provisions to Legislative Decree 192/05

Legislative Decree "Amending and integrating provisions to Legislative Decree No 192 of 19/8/05, implementing Directive 2002/91/EC on energy performance in the construction sector", was published in the O.G. ordinary supplement 26/2007, and entered into force on 2 February 2007.

Legislative Decree 192/05

Implementation of European Directive 2002/91/EC. Legislative Decree No 192 of 16 August 2005 "Implementation of Directive 2002/91/EC on energy performance in the construction sector" signed by the Council of Ministers during the 29 July 2005 reunion together with the related notes, was republished in the O.G. on 15 October 2005.

Legislative Decree 192 is in force as of 08 October 2005.

The Kyoto Protocol

Kyoto Protocol Implementation Act.

Law 10/91

Provisions on rational use of energy, energy savings and development of renewable sources of energy.



INVERTED ROOF

In the "inverted roof" solution the insulating material is placed over the waterproofing.

The waterproof layer is placed on the support, with a double function - that of vapour barrier and waterproofing layer. In this case the substrate and the waterproofing layer are protected from thermal shock and UV radiation thanks to the insulation and ballast layer.

The latter blocks the insulation preventing wind uplift. The most widespread inverted roof insulation material is extruded polystyrene (XPS). Insulation must have specific features such as being water non-absorbent, be thermally resistant and freeze/melt cycle resistant as well as resistant to acid corrosion from rainfall.

When calculating heat loss, insulating material thickness must be increased by approximately 10% in view of presence of water around the panels. It is advisable to install a geotextile membrane between the waterproofing layer and the insulating panel, to favour water drainage and drainage runoff.

Furthermore, it is also advisable to install a separating geotextile membrane between the insulation and the ballast, to avoid buildup of lime and gravel underneath the panels. Pitches of 4% are necessary for inverted roofs, as any water ponding would increase heat loss. In inverted roof packages ballast must be calculated in function of wind uplift.

Gravel ballast:

- The material must be washed quarry gravel and not mill gravel, with a granulometry between 12 and 35 mm.
- Gravel ballast must be laid after insertion of adequate separator and/or filter layers.
- In independently laid packages, the minimum thickness and weight of the gravel layer must be calculated according to the following table (Tab. 02).

Tab. 02 - gravel layer thickness and minimum weight calculation

Panel thickness Expanded polystyrene Extruded XPS	Minimum thickness gravel necessary for ballast	Minimum theoretical weight in gravel or tiles
Up to 30 mm.	40 mm.	65 kg/m ²
From 40 to 50 mm.	50 mm.	75 kg/m ²
From 60 to 70 mm.	60 mm.	90 kg/m ²
Up to 80 mm.	70 mm.	105 kg/m ²
Up to 90 mm.	80 mm.	120 kg/m ²
Up to 100 mm.	85 mm.	128 kg/m ²



DUO ROOF

In the Duo Roof solution, insulation is placed both over and under the waterproofing, thus providing an efficient protection, capable of reducing both working temperatures and hence ageing as well as the resulting membrane stiffness.

The result is a reduction of thermal shocks to which the structure is subject to, with minor waterproof layer stresses.

This roofing type can be included among the best available flat roofings, and it encompasses the advantages of an insulated roof (thermohygro-metric control) and the inverted roof (protection of the waterproofing element from UV rays and thermal shock) - DUO is the PERFECT roof.

The most widespread DUO roof insulation is extruded polystyrene (XPS).

PLURA SYSTEMS

Application systems

Thermally adhesive PLURA membrane system



This application allows full adhesion to the support through an indirect thermal activation which can be obtained through solar radiation, when applying thermo-adhesive membranes as waterproofing elements, or by exploiting the temperature of the asphalt concrete in the viaduct version.

They can also be used exploiting direct thermal activation during application of the second layer. This technology allows application of fully adhesive bituminous layers, even on heat-sensitive materials, thus eliminating the application error variable and risk of fire. PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.

The greatest advantage is the reduction of application time of the double layer, the layers adhere using a hot air torch.

This determines immediate full adhesion of the PLURA THERMO AD membrane to the heat-sensitive insulation without waterproofing compound softening, and resulting loss of thickness.

Temperatures over 80 °C are not exceeded when using PLURA THERMO AD products. Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly following the micro-movements of the support.

Furthermore, adhesion progressively increases, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time. With a thermo-activating temperature of 50 °C PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element, guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA 1-2-3 Report.

Bituminous adhesive system PRATIKO ADESIVO



The use of bituminous adhesive application provides complete waterproof adhesion to the supporting surface, making tracing of accidental leakages easier and creating continuous roofing sections.

Furthermore, it is possible to eliminate the supporting surface's roughness by saturating the irregularities and creating an impermeable adhesive layer ready for PRATIKO membrane application.

The bituminous adhesive always remains plastic, and is therefore not subject to tensions and alterations due to movements of the building structure.

Thus, almost full elimination of open flames on the work site is obtained, eliminating the risk of fires and reducing thermal and noise pollution.

The PRATIKO membrane is not overheated during application and hence remains intact, eliminating thermal settling as a result of cooling down.

Metal fixing system



Application with mechanical fixing is divided into:

- direct mechanical fixing
- indirect mechanical fixing.

Direct mechanical fixing consists in fixing a layer of (generally single bituminous membranes) to the support (wooden roofing, heat-sensitive supports and insulation) by means of screws, plugs or nails, with the subsequent application of a fully adhesive waterproofing element.

Indirect mechanical fixing consists in applying a bituminous membrane to the support by means of screws or plugs at the side and head overlaps.

System overview

Systems	Type	Application system	Waterproofing element
Non walkable roofs	Non insulated	PLURA THERMO AD	PRATIKO
	Insulated Insulated roof	PLURA THERMO AD	PRATIKO COLORECT
Non walkable roofs COOL ROOF	Insulated Insulated roof	PLURA THERMO AD	VOLTAIRA
Non walkable roofs COOL ROOF	Insulated Insulated roof	PLURA THERMO AD	PRATIKO + VOLTAIRA
Non walkable roofs ECO ROOF	Insulated Insulated roof	PLURA THERMO AD	PRATIKO G200 ECO
Walkable roofs	Non-insulated Floating pavement	PRATIKO ADESIVO cold adhesive	PRATIKO
	Insulated Inverted roof	PRATIKO ADESIVO cold adhesive	PRATIKO
Walkable roofs DUO ROOF	Duo roof (insulated roof + inverted roof)	PLURA THERMO AD	PRATIKO
Trafficable Roofings	Non insulated	PRATIKO ADESIVO cold adhesive	PRATIKO VIADUCTS
	Insulated Inverted roof	PRATIKO ADESIVO cold adhesive	PRATIKO VIADUCTS
Roof gardens GREEN ROOF	Non insulated	PRATIKO ADESIVO cold adhesive	PRATIKO VIADUCTS ANTIROOTS
	Insulated Inverted roof	PRATIKO ADESIVO cold adhesive	PRATIKO VIADUCTS ANTIROOTS
RESURFACING	BP membrane resurfacing	PLURA R resurfacing	PLURA R G200
Bridges and viaducts	Viaduct deck	PLURA THERMO AD	PLURA THERMO AD VIADUCTS

ITEMS Legend



EC Compliance

All materials used in this system are compliant with the essential requirements provided in Community Directives applicable to the product, and therefore bear the CE logo. Harmonized European standards are those drawn up by CEN (European Committee for Standardization) which represents all national standardization bodies, following a mandate issued by the European Commission.



ISO 9001 CERTIFICATION

Pluvitec S.p.A. works in compliance with the UNI EN ISO 9001 standard, which defines standards applicable to production cycles: design, manufacture, installation and maintenance of systems.



ISO 14001 CERTIFICATION

Pluvitec S.p.A. is ISO 14001 certified and works in compliance with the UNI EN ISO 14001 standard which defines the identification and control of all production processes that may have an environmental impact on the company.



BDA 1

Test Report on determining resistance to dynamic wind forces on the waterproofing element and insulation.



BDA 2

Test Report on determining resistance to dynamic wind forces on the vapour barrier.



ECO 100

The membrane is 100% recyclable, manufactured using recycled raw materials; ECO 100 products do not contain hazardous substances such as oxidized bitumen, tar, halides, asbestos, etc.



A guaranteed system

A system covered by a post-construction insurance policy, both for the product and the application.



PLUVITEAM System

Application system compliant with PLUVITEAM application specifications.



Tested system

A system tested on building sites for over 10 years, and with more than 10 million applied meters.



FIRE RESISTANT

A fire resistant system.



FM APPROVED

Factory Mutual Approved System.



ENERGY SAVING

Energy savings and sustainability.

EC Conformity legend

EN 13707 Continuous Roofings

EN 13859-1 Underslating

EN 13970 Vapour barrier

EN 13969 Retaining walls

EN 14695 Bituminous membranes for viaducts

UNI 11235 Green roofs

Application system legend



Thermo-adhesive Plura system

This type of application allows full adhesion to the support through indirect thermal activated waterproofing, e.g. through solar radiation for thermo-adhesive membranes applied as waterproofing element, or through thermal activation during the application of the second layer exploiting the bituminous compound temperature in the viaduct version.

This technology allows application of fully adhesive bituminous layers, even on heat-sensitive materials, thus eliminating the application errors and risk of fire.



Bituminous adhesive system (Pratiko)

The use of bituminous adhesive application provides full adhesion of the membrane to the support, making tracing of accidental leakages easier and ensuring an exceptional wind uplift resistance. The waterproof membrane is installed on a bed of bituminous adhesive which always remains plastic, without tension or alterations caused by movements of the support. This application allows operation on 3 safety levels with regards to risk of fire:

Level 1 (85% less flame use): adhesive (continuous part) + flame (joints and head laps)

Level 2 (flame use): adhesive (continuous part) + flame (joints and head laps)

Level 3 (cold application): adhesive (continuous part) + special adhesives (joints and head laps)



Hot air system

In this case the waterproofing element is applied fully adhering to the support, using a hot air torch.



Metal fixing system

Application with mechanical fixing is divided into:

- direct mechanical fixing
- indirect mechanical fixing.

Direct mechanical fixing consists in fixing a layer of (generally single bituminous membranes) to the support (wooden roofing, heat-sensitive supports and insulation) by means of screws, plugs or nails, with the subsequent application of a fully adhesive waterproofing element.

Indirect mechanical fixing consists in applying a bituminous membrane to the support by means of screws or plugs at the side and head overlaps.

PLURA SYSTEMS

Certifications

PLURA THERMO AD

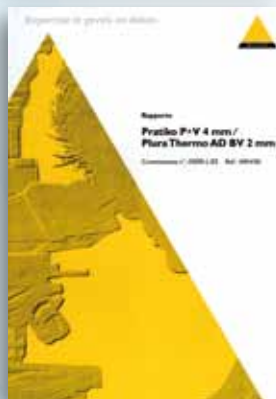
- BDA 1 n° 0256-L-02: determining resistance to dynamic wind forces / on insulation.
- BDA 2 n° 0309-L-03: determining resistance to dynamic wind forces / on concrete.
- BDA 3 n° 0025-L-07: determining resistance to dynamic wind forces / on wood.
- Factory Mutual: FM approved system.

PRATIKO

- Previously ITC TECHNICAL AGREEMENT n° 630/04 and BDA n° CTG-063.
- FIRE RESISTANT: INTRON certification.
- XENON TEST: SITEC certification.
- BDA 1 n° 0256-L-02: determining resistance to dynamic wind forces / on insulation.
- BDA 2 n° 0309-L-03: determining resistance to dynamic wind forces / on concrete.

PLURA and PRATIKO Systems

- BDA n° 02-B-0200: Report Practical Investigation - Investigation report on completed works.





PLURA SYSTEMS

Maintenance

Maintenance of a waterproof roofing is essential for preserving its main features over time:

- correct release of rainwater
- waterproof
- durability over time.

Maintenance is a planned and designed activity, as provided by the so-called Merloni Law (Law 109/94), which sets out the obligation to draw up a maintenance plan.

Under normal conditions we recommend:

n° 2 visits per year for a pitch not exceeding 5%,
n° 1 visit per year for a pitch exceeding 5%.

It is always recommended to entrust the inspection to Pluviteam specialists. Under warranty, the inspection must always be pre-emptively requested to Pluvitec specialists, accurately following policy clauses.



System	Non walkable roofs
Type	Non insulated
Application system	PLURA THERMO AD
Waterproofing element	PRATIKO



EN 13707



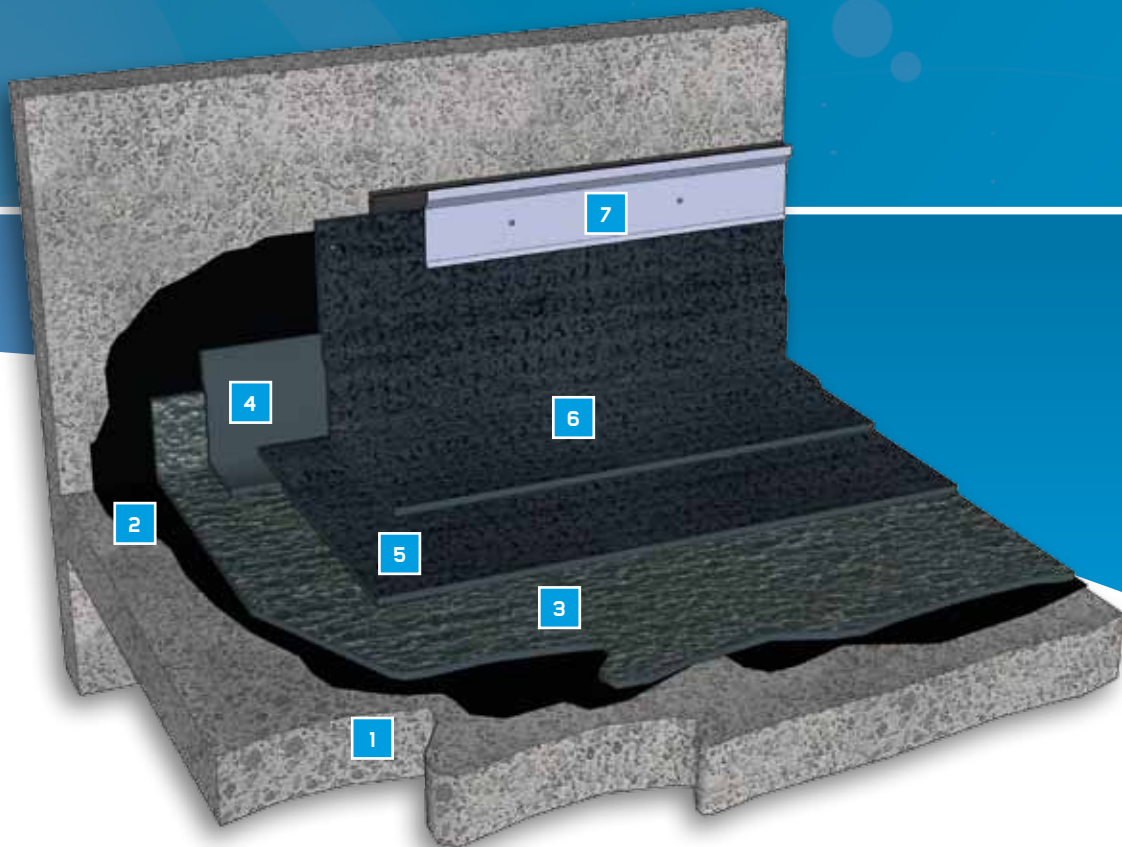
1	Support	Concrete - Wood - Metal support
2	Priming coat	PRIMERTEC AD (do not use on wood)
3	Adhesive, connecting and sectoring element	PLURA THERMO AD V 2,5 mm
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PRATIKO P+V
6	Double reinforced corner	PRATIKO P+V
7	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- A solid system.
- Continuous roofing sectoring system.
- A system guaranteed against wind uplift.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- An "on top" system with the waterproofing element on the upper face, thus enabling easy identification of imperfections and simple repairs.
- System resistant to external fire.
- Low maintenance system.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.



Application system advantages

SECURITY

- Eliminating the risk of fire during application.
- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly distributing and following the micro-movements of the support.
- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems.

REDUCED ENVIRONMENTAL IMPACT

- Energy savings of approximately 50% of gas.
- Decreased noise production.
- Reduced application times by approximately 50%.

FULL ADHESION

The PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element (or insulation), guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA Report.

RELIABILITY

Adhesion progressively increases over time, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.

System	Non walkable roofs
Type	Insulated - Insulated roof
Application system	PLURA THERMO AD
Waterproofing element	PRATIKO COLORTEC®



1	Support	Concrete - Wood - Metal support
2	Priming coat	PRIMERTEC AD (do not use on wood)
3	Vapour barrier	PLURA THERMO AD BV 2,5 mm
4	Thermoinsulating element	Insulating panel (EPS/PUR/PIR/RW)
5	Adhesive, connecting and sectoring element	PLURA THERMO AD V 2,5 mm
6	Reinforced corner	with membrane BPP 4 mm > 250 mm
7	Waterproofing element	PRATIKO P+V COLORTEC®
8	Double reinforced corner	PRATIKO P+V COLORTEC®
9	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

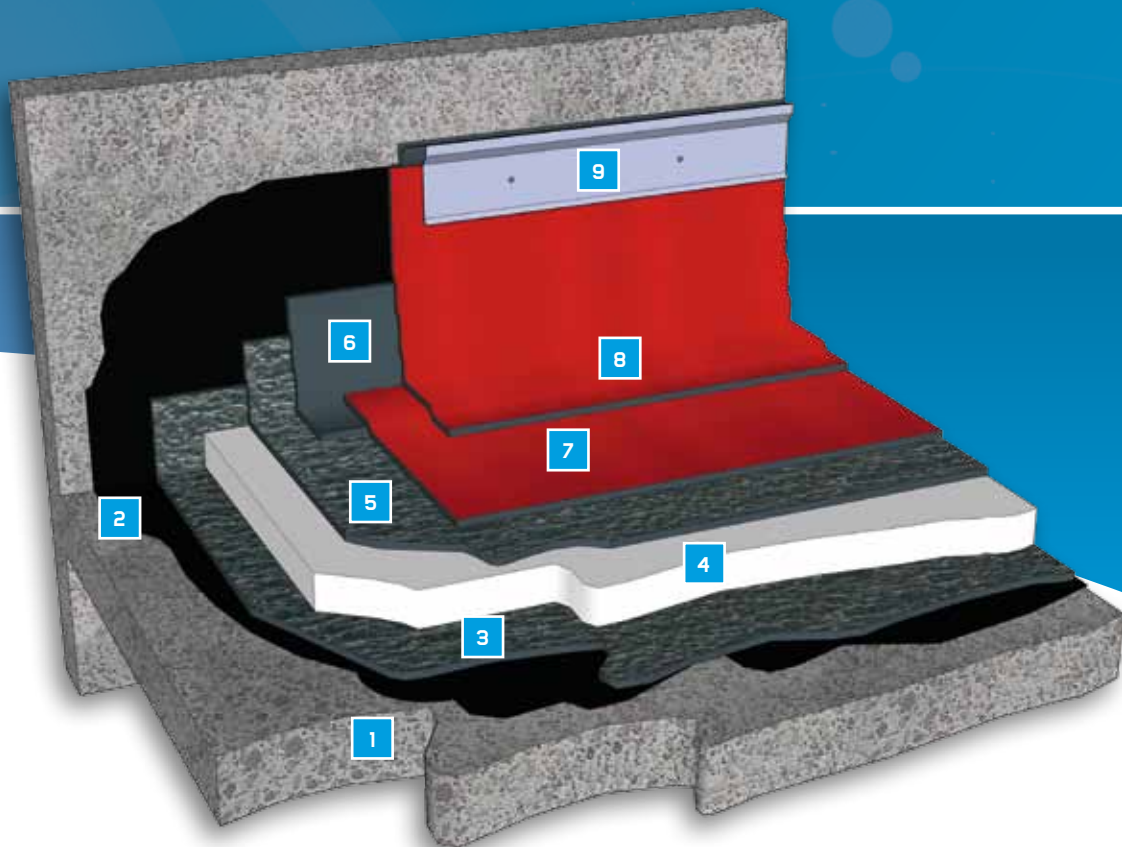
- The roofing support and insulation are protected from thermal shock.
- A solid system.
- Continuous roofing sectoring system.
- A system guaranteed against wind uplift.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- An "on top" system with the waterproofing element on the upper face, thus enabling easy identification of imperfections and simple repairs.
- System resistant to external fire.
- Low maintenance system.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.

COLORTEC pre-coating advantages:

- Faster application as, once applied, PRATIKO COLORTEC the layer is already varnish-protected.
- Aesthetic improvement of the roofing.
- Reduction of the roofing delivery timeframe.
- Greater uniformity and consistency of the protective layer, given the high production industrial technology.



Application system advantages

SECURITY

- Eliminating the risk of fire during application.
- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly distributing and following the micro-movements of the support.
- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems.

REDUCED ENVIRONMENTAL IMPACT

- Energy savings of approximately 50% of gas.
- Decreased noise production.
- Reduced application times by approximately 50%.

FULL ADHESION

The PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element (or insulation), guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA Report.

RELIABILITY

Adhesion progressively increases over time, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.

System Non walkable roofs - COOL ROOF

Type Insulated - Insulated roof

Application system PLURA THERMO AD

Waterproofing element VOLTAIKA



1	Support	Concrete - Wood - Metal support
2	Priming coat	PRIMERTEC AD (do not use on wood)
3	Vapour barrier	PLURA THERMO AD BV 2,5 mm
4	Thermoinsulating element	Insulating panel (EPS/PUR/PIR/RW)
5	Adhesive, connecting and sectoring element	PLURA THERMO AD V 2,5 mm
6	Reinforced corner	with membrane BPP 4 mm > 250 mm
7	Waterproofing element	VOLTAIKA
8	Double reinforced corner	VOLTAIKA
9	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRÁTIHO MASTIC

System advantages

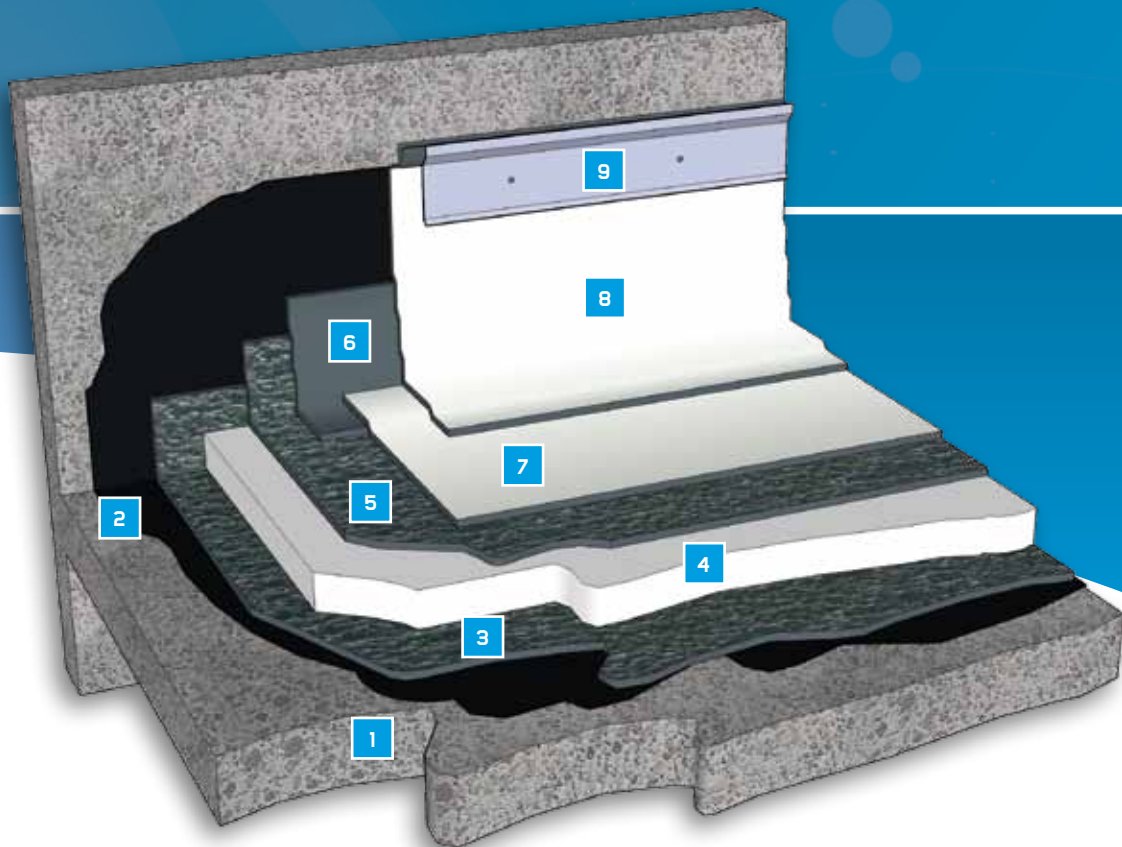
- The roofing support and insulation are protected from thermal shock.
- A solid system.
- Continuous roofing sectoring system.
- A system guaranteed against wind uplift.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- An "on top" system with the waterproofing element on the upper face, thus enabling easy identification of imperfections and simple repairs.
- System resistant to external fire.
- Low maintenance system.
- Soffit temperature diminishes by at least 5 °C, thus causing significant air-conditioning cost savings and improving well being in the buildings.
- Better yield of any roofing photovoltaic systems (low temperature + high reflectivity = yield + 2-3% photovoltaic panels).
- Reduced roofing structure fatigue stress.
- Reduced material chemical-physical degradation (waterproofing, insulating, etc.).
- Guarantees excellent external fire resistance.
- Does not alter the pH and chemical characteristics of rainwater.
- The special blend with the PLURA technology guarantees extraordinary adhesion, corroborated by laboratory data.

Waterproofing element advantages

A roof protected with VOLTAIKA considerably reduces the temperature. The temperature of a traditional black membrane is approximately 80 / 85 °C in summertime. The temperature of VOLTAIKA is 45 °C for the same period.

VOLTAIKA Energy Saving Membrane (energy savings and sustainability)

- Reduced electricity consumption as well as carbon dioxide release.
- Reduced release of pollutants caused by chemical-physical degradation of materials.
- Reduced surrounding urban ambient warming (Heat Island Effect).
- Reduced photochemical smog.



ECO 100 VOLTAIKA Membrane

- Manufactured using distilled bitumen and does not contain hazardous substances (tar, asbestos, halogenated compounds).
- Manufactured using recycled raw materials, 100% recyclable.
- Manufactured from top quality materials, guaranteeing reliability over time.
- Manufactured in compliance with current quality (ISO 9001) and environmental standards (ISO 14001).

- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems.

REDUCED ENVIRONMENTAL IMPACT

- Energy savings of approximately 50% of gas.
- Decreased noise production.
- Reduced application times by approximately 50%.

Application system advantages

SECURITY

- Eliminating the risk of fire during application.
- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly distributing and following the micro-movements of the support.

FULL ADHESION

The PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element (or insulation), guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA Report.

RELIABILITY

Adhesion progressively increases over time, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.

System Non walkable roofs - COOL ROOF

Type	Insulated - Insulated roof
Application system	PLURA THERMO AD
Waterproofing element	PRATIKO P+V - VOLTAIKA



1	Support	Concrete - Wood - Metal support
2	Priming coat	PRIMERTEC AD (do not use on wood)
3	Vapour barrier	PLURA THERMO AD BV 2,5 mm
4	Thermoinsulating element	Insulating panel (EPS/PUR/PIR/RW)
5	Adhesive, connecting and sectoring element	PLURA THERMO AD V 2,5 mm
6	Reinforced corner	with membrane BPP 4 mm > 250 mm
7	Waterproofing element	PRATIKO P+V
8	Coating di Finish	VOLTAIKA
9	Double reinforced corner	PRATIKO P+V
10	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

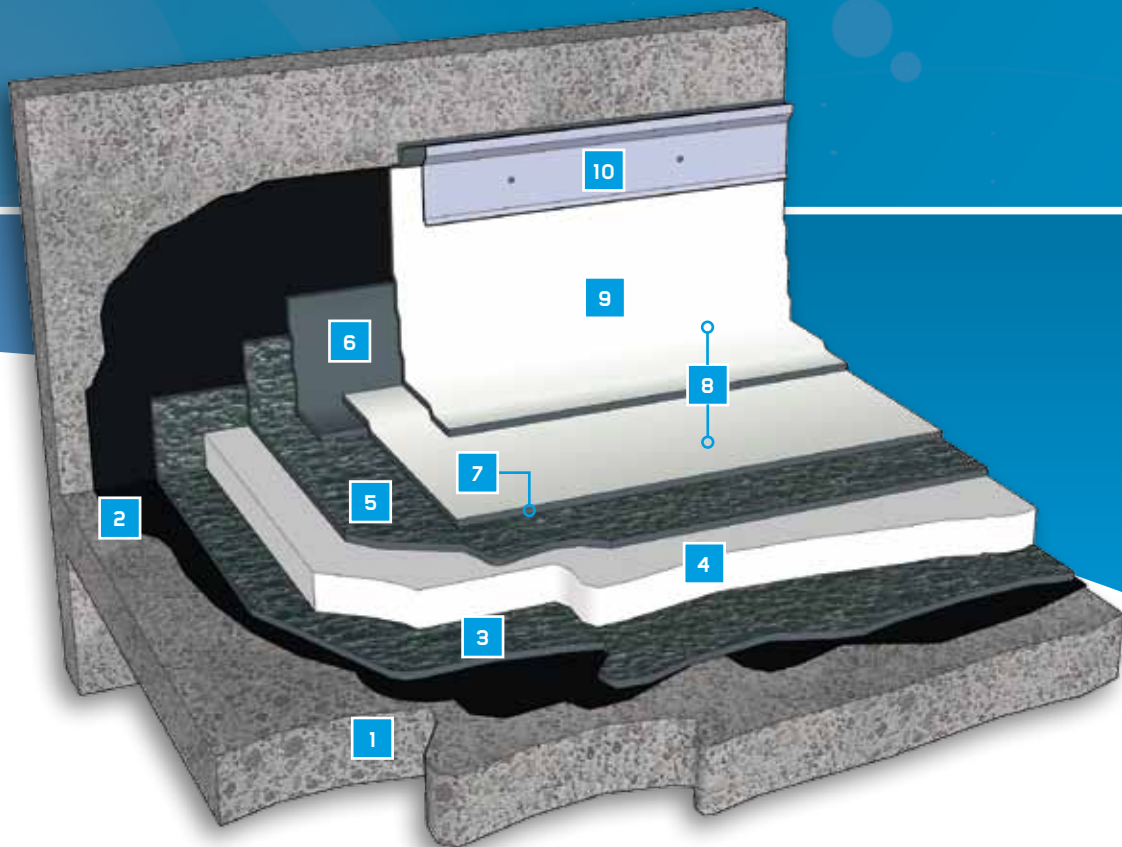
- The roofing support and insulation are protected from thermal shock.
- A solid system.
- Continuous roofing sectoring system.
- A system guaranteed against wind uplift.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- An "on top" system with the waterproofing element on the upper face, thus enabling easy identification of imperfections and simple repairs.
- System resistant to external fire.
- Low maintenance system.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.

Light emissivity and reflectivity

- PRATIKO with VOLTAIKA coating reflects and increases stray and direct light, increasing photovoltaic panel yield.
- The excellent emissivity of PRATIKO with VOLTAIKA coating favours the dissipation of accumulated heat during the night.
- The temperature of a black membrane can reach 75-79 °C during summer. The temperature of a black membrane coated with PRATIKO with VOLTAIKA coating is 45 °C during the same period.
- Soffit temperature diminishes by at least 5 °C, thus causing significant air-conditioning cost savings.



- PRATIHO with VOLTAIKA coating is a "COOL ROOF" and has an elevated capacity to reflect solar radiation and a high extrados emissivity value. The membrane allows the return into the atmosphere of the most part of the radiation, considerably reducing the heat island effect.

"The heat island effect is the phenomenon which determines a hotter microclimate within urban areas compared to the surrounding peripheral and rural areas."

Application system advantages

SECURITY

- Eliminating the risk of fire during application.
- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly distributing and following the micro-movements of the support.

- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems.

REDUCED ENVIRONMENTAL IMPACT

- Energy savings of approximately 50% of gas.
- Decreased noise production.
- Reduced application times by approximately 50%.

FULL ADHESION

The PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element (or insulation), guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA Report.

RELIABILITY

Adhesion progressively increases over time, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.

Sistema Non walkable roofs - ECO ROOF

Type Insulated - Insulated roof

Application system PLURA THERMO AD

Waterproofing element PRATIKO G 200 ECO



1	Support	Concrete - Wood - Metal support
2	Priming coat	PRIMERTEC AD (do not use on wood)
3	Vapour barrier	PLURA THERMO AD BV 2,5 mm
4	Thermoinsulating element	Insulating panel (EPS/PUR/PIR/RW)
5	Adhesive, connecting and sectoring element	PLURA THERMO AD V 2,5 mm
6	Reinforced corner	with membrane BPP 4 mm > 250 mm
7	Waterproofing element	PRATIKO G200 ECO
8	Double reinforced corner	PRATIKO G200 ECO
9	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIHO MASTIC

System advantages

- The roofing support and insulation are protected from thermal shock.
- A solid system.
- Continuous roofing sectoring system.
- A system guaranteed against wind uplift.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- An "on top" system with the waterproofing element on the upper face, thus enabling easy identification of imperfections and simple repairs.
- System resistant to external fire.
- Low maintenance system.

into contact with the olivine-coated PRATIHO G200 ECO membrane, which reacts releasing magnesium, bicarbonate and silicon dioxide, thus neutralizing CO₂. These by-products are harmless for the environment and humans and are released from the roofing through drains. The increase of carbon dioxide in the atmosphere increases the greenhouse effect and thus adds to the increase of the average global temperature, to which ecosystems do not have the necessary time to adapt. PRATIHO G200 ECO helps to decrease the quantity of carbon dioxide in the atmosphere, thus providing an ecological solution for the environmental needs. In addition to helping carbon dioxide absorption, the ECO finish is also aesthetically pleasing, improving the external appearance of the roofing.

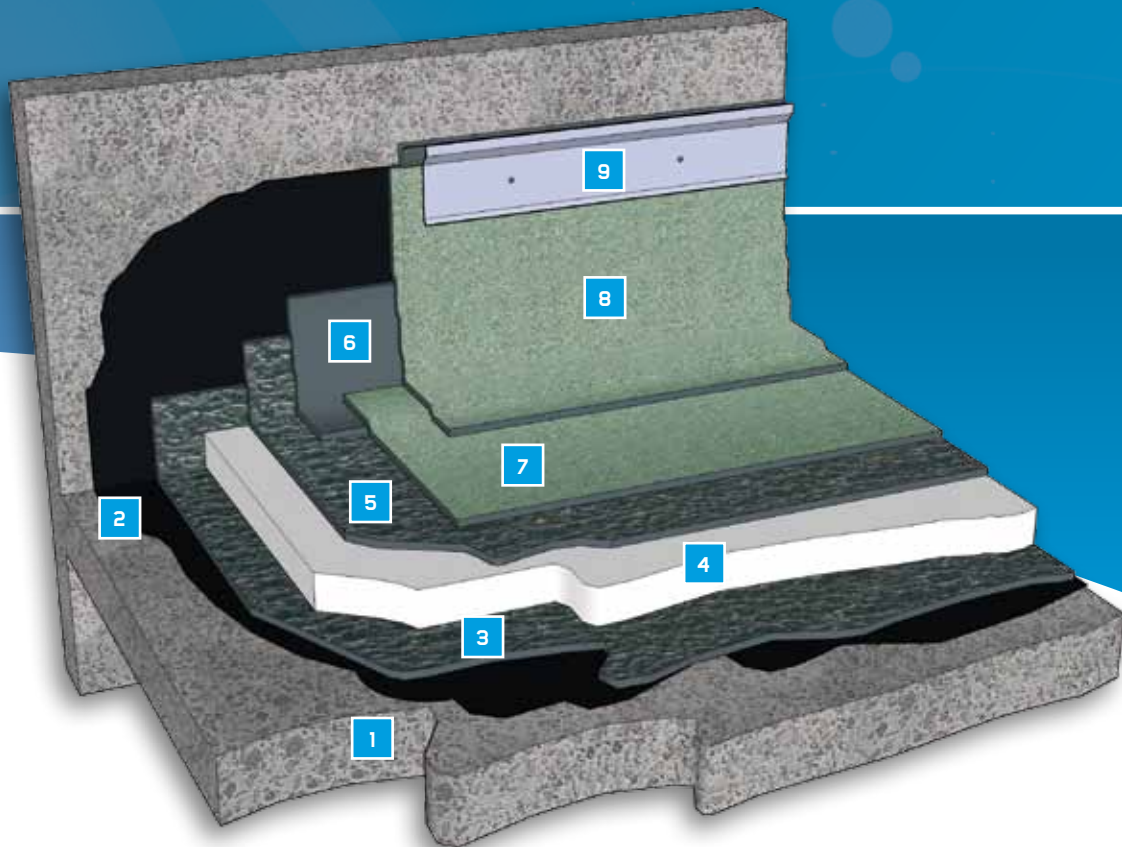
Waterproofing element advantages

ECO finish

The PRATIHO G200 ECO membrane is finished with an upper face with natural silicate granules, better known as OLIVINE. During rainfall carbon dioxide CO₂ (also known as carbonic anhydride or carbon oxide) comes

ECO 100 Membrane

With its "ECO 100 Project", Pluvitec has developed a new low environmental impact waterproofing concept. ECO 100 is an eco-sustainable challenge, an incentive to reach important targets. Pluvitec uses recycled or innovative materials for the production of new membranes, which are in turn fully recyclable at the end of their life cycle. Moreover, new PLURA system technologies guarantee extended average



roofing durability and a reduction of maintenance, with minor environmental impact.

ECO 100 embodies Pluvitec's corporate environmental sensitivity. It lays the foundations for a new concept of doing business, whose preferred criterion is a greater attention towards the environment. Pluvitec advocates a responsible growth through development and manufacture of cutting-edge ecological products.

Application system advantages

SECURITY

- Eliminating the risk of fire during application.
- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly distributing and following the micro-movements of the support.
- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems.

REDUCED ENVIRONMENTAL IMPACT

- Energy savings of approximately 50% of gas.
- Decreased noise production.
- Reduced application times by approximately 50%.

FULL ADHESION

The PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element (or insulation), guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA Report.

RELIABILITY

Adhesion progressively increases over time, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.

System	Walkable roofs
Type	Non-insulated - Floating pavement
Application system	PRATIKO ADESIVO cold adhesive
Waterproofing element	PRATIKO



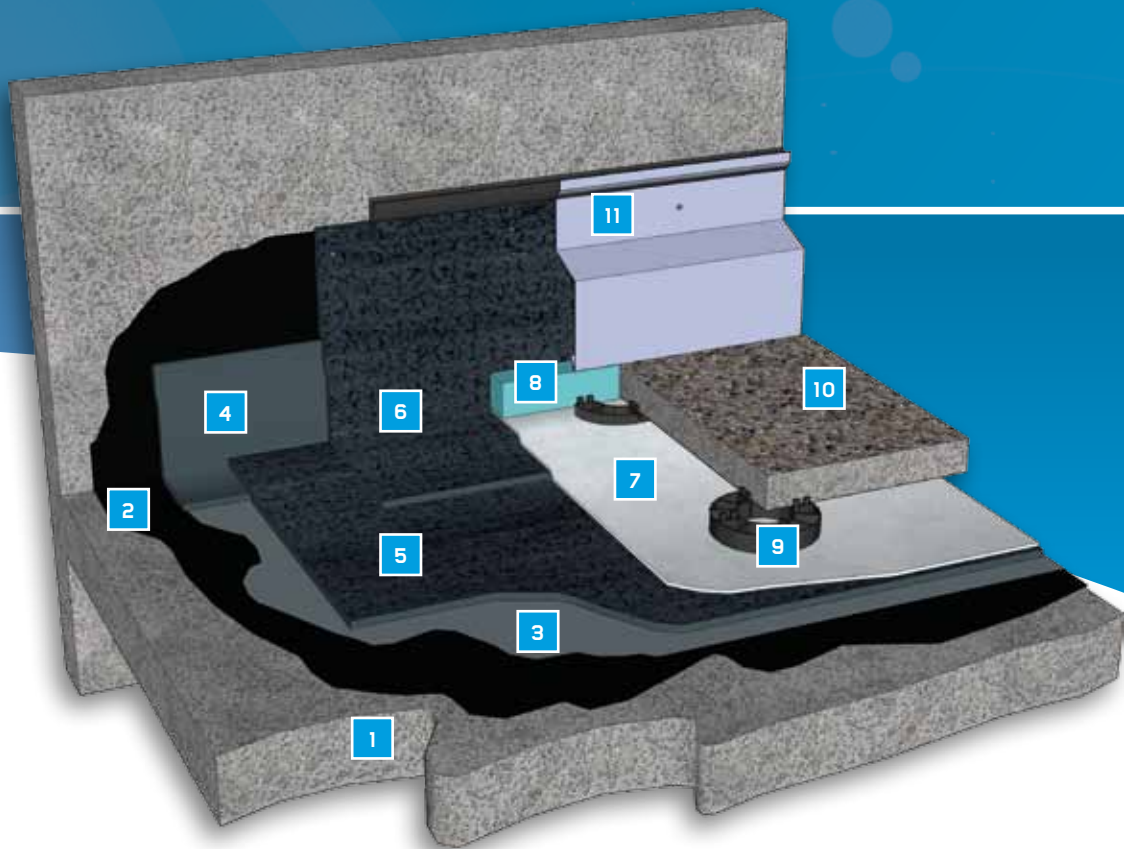
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Adhesive, connecting and sectoring element	PRATIKO ADESIVO
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PRATIKO P+V
6	Double reinforced corner	PRATIKO P+V
7	Draining element	Polyester geotextile
8	Perimeter protection element	XPS
9	Floating pavement support	Plastic levellers
10	Paving	Cement paving tiles
11	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- The waterproof membrane is protected with paving from thermal shock and UV rays.
- Continuous roofing sectoring system.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- Low maintenance system.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.



Application system advantages

- The use of bituminous adhesive application, provides complete waterproof adhesion to the supporting surface, making tracing of accidental leakages easier and allows a continuous sectoring.
- Furthermore, it is possible to eliminate the supporting surface's roughness by saturating the irregularities and creating an impermeable adhesive layer ready for the laying of the PRATIKO membrane.
- The bituminous adhesive always remains plastic and is therefore not subject to tensions and alterations caused by movements of the building structure.
- Thus, elimination of open flames on the work site is obtained, eliminating the risk of fires and reducing thermal and noise pollution.
- The PRATIKO membrane is not overheated during application and hence remains intact, eliminating thermal settling as a result of cooling down.

System Walkable roofs

Type	Insulated - Inverted roof
Application system	PRATIKO ADESIVO cold adhesive
Waterproofing element	PRATIKO



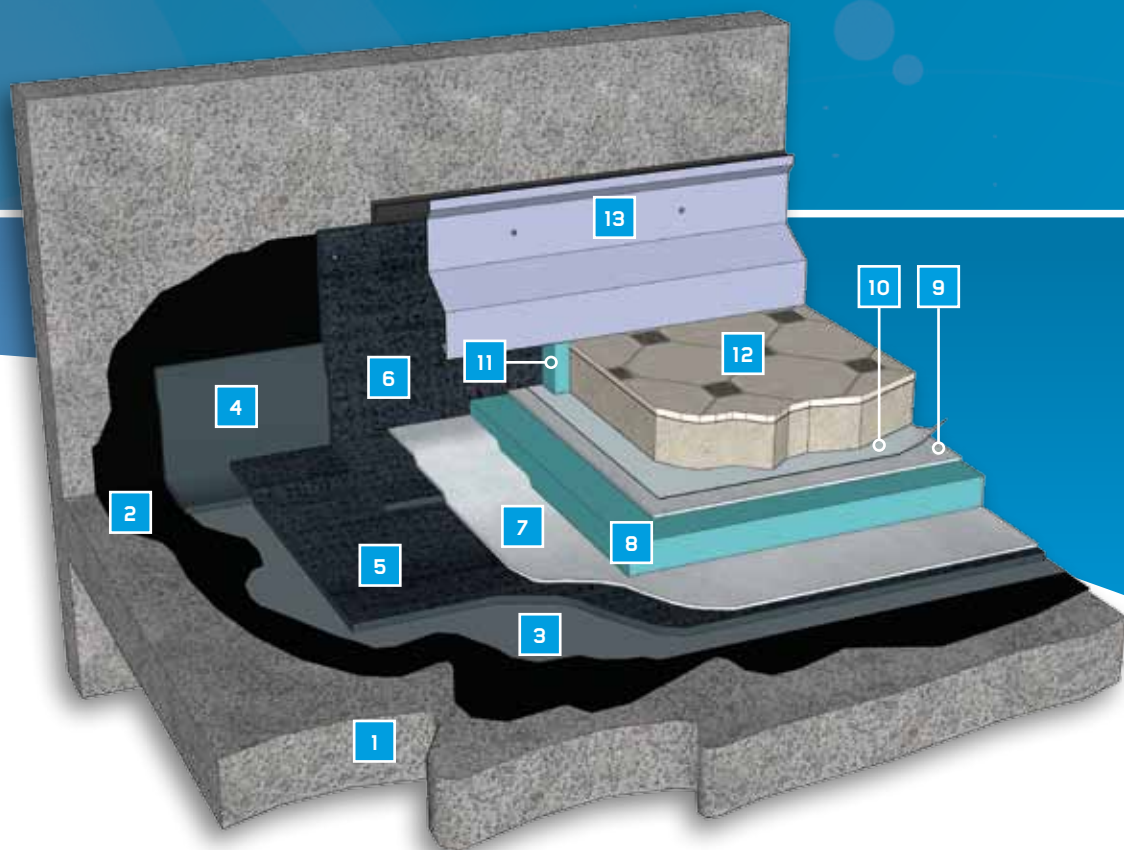
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Adhesive, connecting and sectoring element	PRATIKO ADESIVO
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PRATIKO P+V
6	Double reinforced corner	PRATIKO P+V
7	Draining element	Polyester geotextile
8	Thermoinsulating element	XPS
9	Anti-perforation element	Polyester geotextile
10	Release element	LDPE
11	Perimeter protection element	XPS
12	Paving	Cement screed paving + glued tiles
13	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- Insulation is laid over the waterproofing and the waterproof layer is laid on the support. The waterproof layer therefore has a double function - that of vapour barrier and waterproofing layer.
- The advantage of an inverted roof is the excellent level of protection against thermal or mechanical shock.
- Continuous roofing sectoring system.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- Low maintenance system.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.



Application system advantages

- The use of bituminous adhesive application, provides complete waterproof adhesion to the supporting surface, making tracing of accidental leakages easier and allows a continuous sectoring.
- Furthermore, it is possible to eliminate the supporting surface's roughness by saturating the irregularities and creating an impermeable adhesive layer ready for the laying of the PRATIKO membrane.
- The bituminous adhesive always remains plastic and is therefore not subject to tensions and alterations caused by movements of the building structure.
- Thus, elimination of open flames on the work site is obtained, eliminating the risk of fires and reducing thermal and noise pollution.
- The PRATIKO membrane is not overheated during application and hence remains intact, eliminating thermal settling as a result of cooling down.

System Walkable roofs - DUO ROOF

Type	Duo roof (insulated roof + inverted roof)
Application system	PLURA THERMO AD
Waterproofing element	PRATIKO



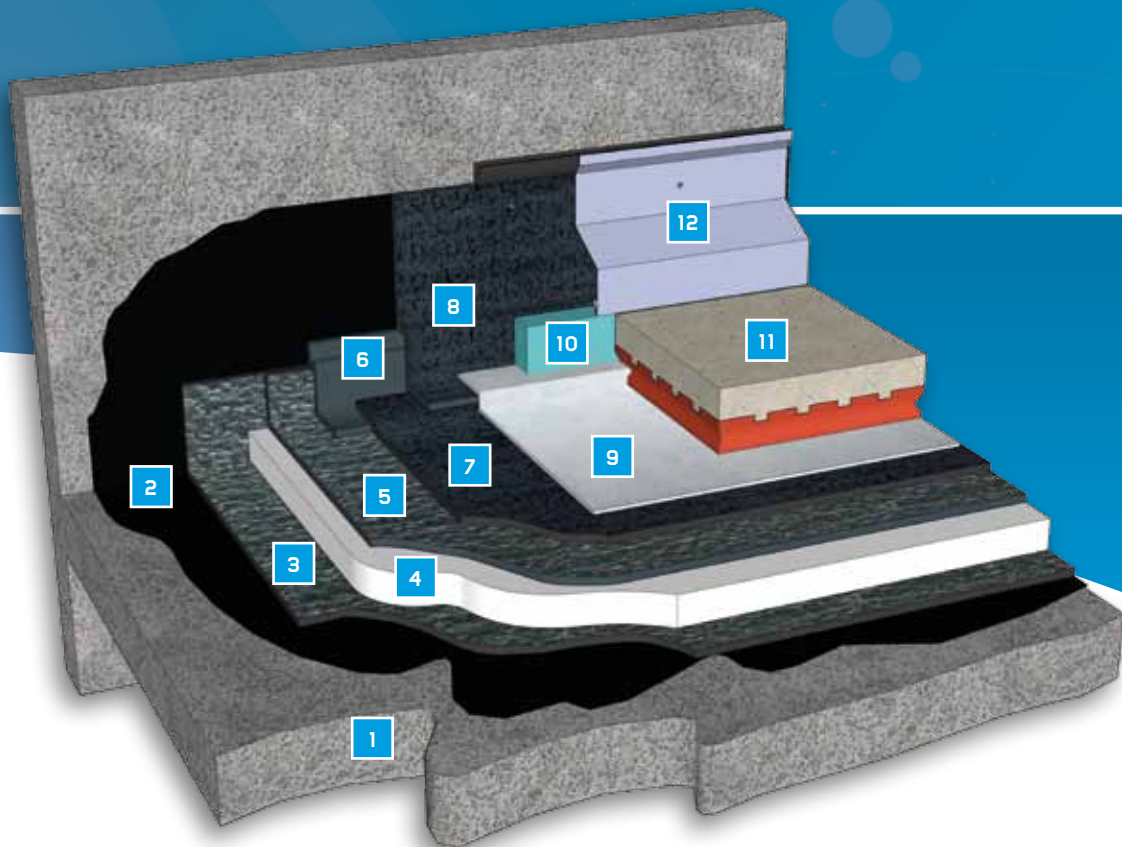
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Vapour barrier	PLURA THERMO AD BV 2,5 mm
4	Thermoinsulating element	Insulating panel (EPS/PUR/PIR/RW)
5	Adhesive, connecting and sectoring element	PLURA THERMO AD V 2,5 mm
6	Reinforced corner	with membrane BPP 4 mm > 250 mm
7	Waterproofing element	PRATIKO P+V
8	Double reinforced corner	PRATIKO P+V
9	Draining element	Polyester geotextile
10	Perimeter protection element	XPS
11	Paving	Pre-fabricated insulated pavement
12	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- The waterproof membrane, roofing support and insulation are protected from thermal shock.
- A solid system.
- Continuous roofing sectoring system.
- A system guaranteed against wind uplift.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Highly resistant to concrete ageing.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.



Application system advantages

SECURITY

- Eliminating the risk of fire during application.
- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly distributing and following the micro-movements of the support.
- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems.

REDUCED ENVIRONMENTAL IMPACT

- Energy savings of approximately 50% of gas.
- Decreased noise production.
- Reduced application times by approximately 50%.

FULL ADHESION

The PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element (or insulation), guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA Report.

RELIABILITY

Adhesion progressively increases over time, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.

System	Parking decks
Type	Non insulated
Application system	PRATIKO ADESIVO cold adhesive
Waterproofing element	PRATIKO VIADUCTS



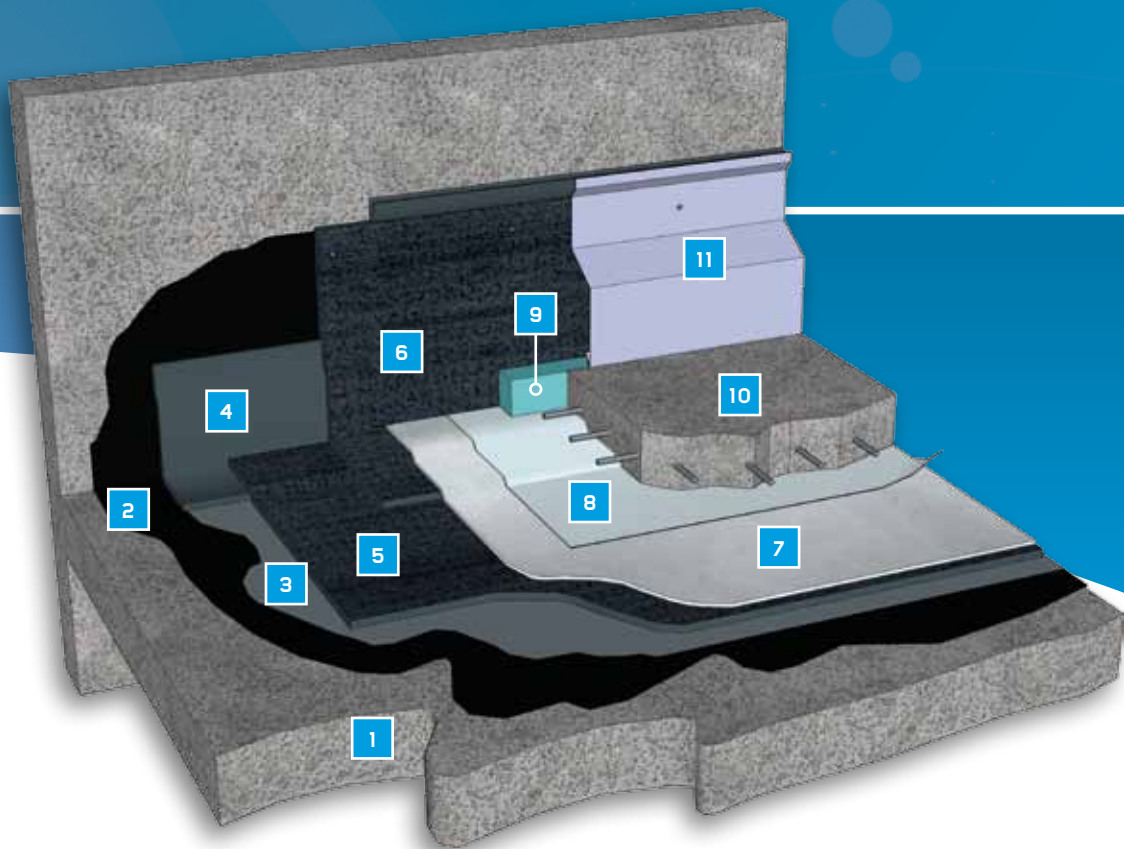
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Adhesive, connecting and sectoring element	PRATIKO ADESIVO
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PRATIKO P+V VIADUCT
6	Double reinforced corner	PRATIKO P+V VIADUCT
7	Draining element	Polyester geotextile
8	Release element	LDPE
9	Perimeter protection element	XPS
10	Paving	Reinforced concrete
11	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- The waterproof membrane, roofing support and insulation are protected from thermal shock.
- A solid system.
- Continuous roofing sectoring system.
- A system guaranteed against wind uplift.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Highly resistant to concrete ageing.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.
- The membrane is resistant to salt present on roads. The adhesion coefficient to the support is equal or exceeding that of the road asphalt concrete to be used.
- The membrane has a mechanical resistance sufficient to bear the load during road surface compacting.
- The membrane is easily applied, thus application times are reduced as well as reducing road and parking closure times to a minimum.



Application system advantages

- The use of bituminous adhesive application, provides complete waterproof adhesion to the supporting surface, making tracing of accidental leakages easier and allows a continuous sectoring.
- Furthermore, it is possible to eliminate the supporting surface's roughness by saturating the irregularities and creating an impermeable adhesive layer ready for the laying of the PRATIKO membrane.
- The bituminous adhesive always remains plastic and is therefore not subject to tensions and alterations caused by movements of the building structure.
- Thus, elimination of open flames on the work site is obtained, eliminating the risk of fires and reducing thermal and noise pollution.
- The PRATIKO membrane is not overheated during application and hence remains intact, eliminating thermal settling as a result of cooling down.

System	Parking decks
Type	Insulated inverted roof
Application system	PRATIKO ADESIVO cold adhesive
Waterproofing element	PRATIKO VIADUCTS



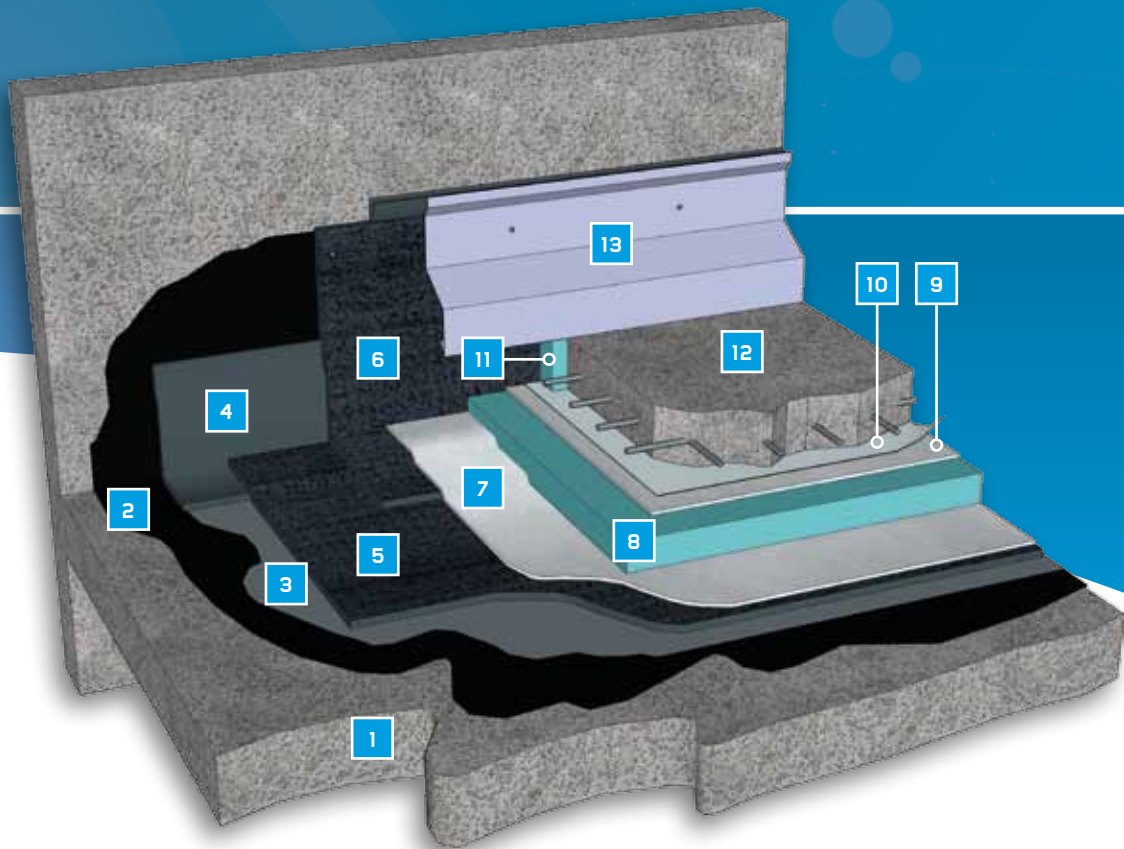
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Adhesive, connecting and sectoring element	PRATIKO ADESIVO
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PRATIKO P+V VIADUCT
6	Double reinforced corner	PRATIKO P+V VIADUCT
7	Draining element	Polyester geotextile
8	Thermoinsulating element	XPS
9	Anti-perforation element	Polyester geotextile
10	Release element	LDPE
11	Perimeter protection element	XPS
12	Paving	Reinforced concrete
13	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- Insulation is laid over the waterproofing and the waterproof layer is laid on the support. The waterproof layer therefore has a double function - that of vapour barrier and waterproofing layer.
- The advantage of an inverted roof is the excellent level of protection against thermal or mechanical shock.
- Continuous roofing sectoring system.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- Low maintenance system.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.
- The membrane is resistant to salt present on roads. The adhesion coefficient to the support is equal or exceeding that of the road asphalt concrete to be used.
- The membrane has a mechanical resistance sufficient to bear the load during road surface compacting.
- The membrane is easily applied, thus application times are reduced as well as reducing road and parking closure times to a minimum.



Application system advantages

- The use of bituminous adhesive application, provides complete waterproof adhesion to the supporting surface, making tracing of accidental leakages easier and allows a continuous sectoring.
- Furthermore, it is possible to eliminate the supporting surface's roughness by saturating the irregularities and creating an impermeable adhesive layer ready for the laying of the PRATIKO membrane.
- The bituminous adhesive always remains plastic and is therefore not subject to tensions and alterations caused by movements of the building structure.
- Thus, elimination of open flames on the work site is obtained, eliminating the risk of fires and reducing thermal and noise pollution.
- The PRATIKO membrane is not overheated during application and hence remains intact, eliminating thermal settling as a result of cooling down.

System	Roof gardens - GREEN ROOF
Type	Non insulated
Application system	PRATIKO ADESIVO cold adhesive
Waterproofing element	PRATIKO VIADUCTS ANTIROOTS



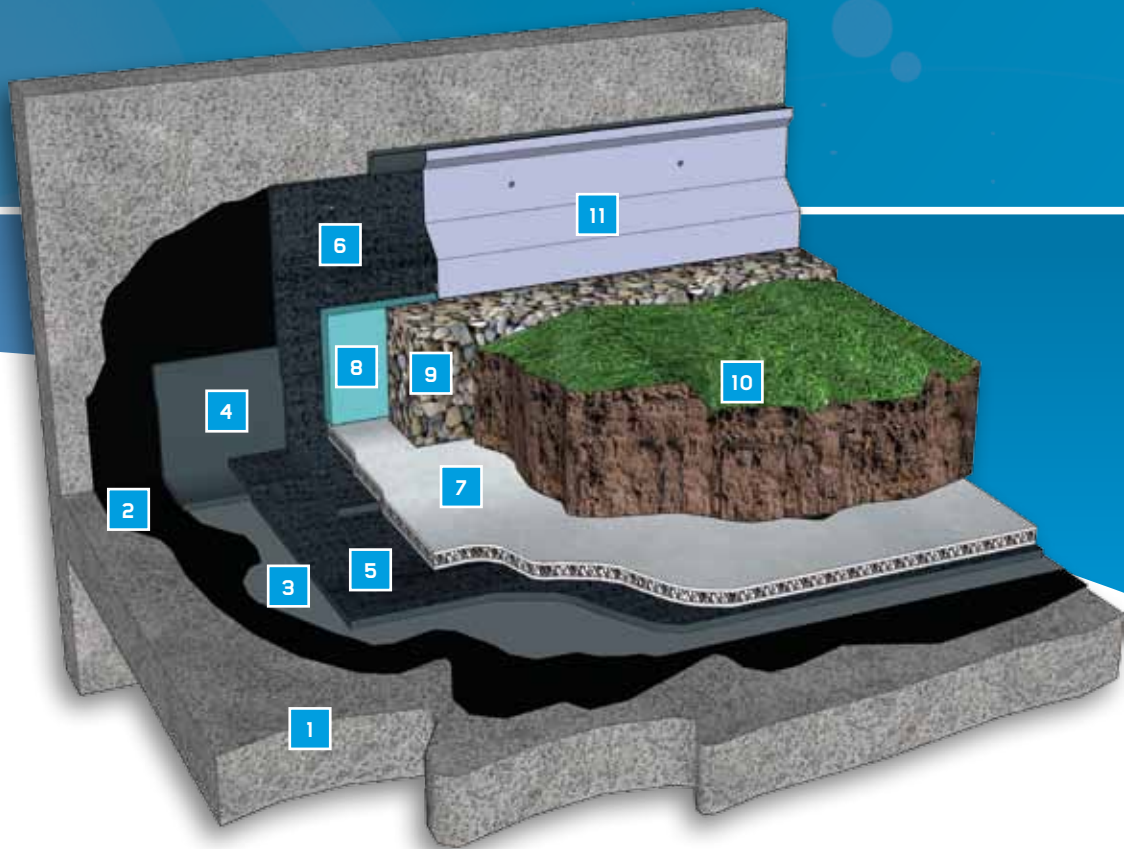
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Adhesive, connecting and sectoring element	PRATIKO ADESIVO
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PRATIKO P+V VIADUCT
6	Double reinforced corner	PRATIKO P+V VIADUCT
7	Filtrating anti-puncture element	Geo-composite drainage
8	Perimeter protection element	XPS
9	Release element	Round gravel
10	Roof gardens	Terrain + extensive vegetation
11	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- The waterproof membrane is protected with paving from thermal shock and UV rays.
- Continuous roofing sectoring system.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- Low maintenance system.
- The membrane is resistant to salt present on roads. The adhesion coefficient to the support is equal or exceeding that of the road asphalt concrete to be used.
- The membrane has a mechanical resistance sufficient to bear the load during road surface compacting.
- The membrane is easily applied, thus application times are reduced as well as reducing road and parking closure times to a minimum.
- The product's anti-root feature does not in any way affect the plants.
- The anti-root additive is not in anyway washed out of the compound and resists the heat of the open flame torch during application, therefore the product performs its function in a permanent manner.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.



Application system advantages

- The use of bituminous adhesive application, provides complete waterproof adhesion to the supporting surface, making tracing of accidental leakages easier and allows a continuous sectoring.
- Furthermore, it is possible to eliminate the supporting surface's roughness by saturating the irregularities and creating an impermeable adhesive layer ready for the laying of the PRATIKO membrane.
- The bituminous adhesive always remains plastic and is therefore not subject to tensions and alterations caused by movements of the building structure.
- Thus, elimination of open flames on the work site is obtained, eliminating the risk of fires and reducing thermal and noise pollution.
- The PRATIKO membrane is not overheated during application and hence remains intact, eliminating thermal settling as a result of cooling down.

System

Roof gardens - GREEN ROOF

Type

Insulated inverted roof

Application system

PRATIKO ADESIVO cold adhesive

Waterproofing element

PRATIKO VIADUCTS ANTIROOT



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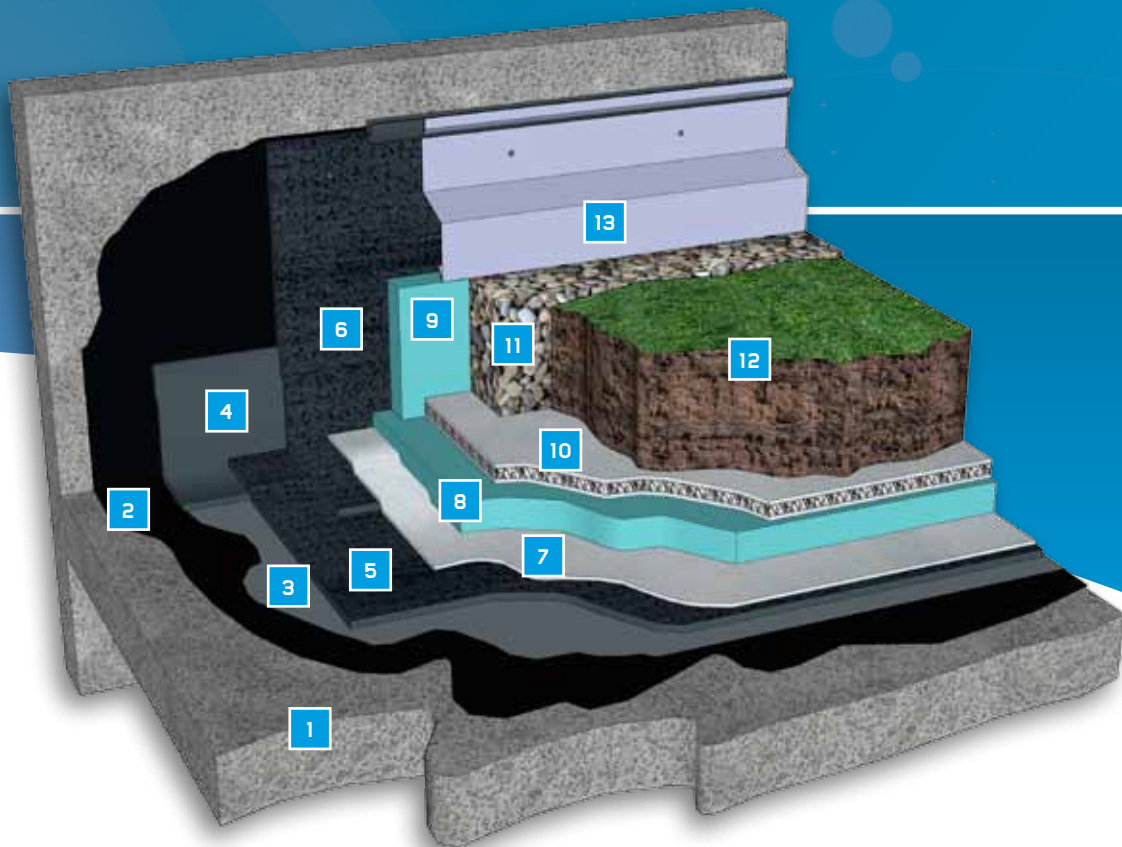
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Adhesive, connecting and sectoring element	PRATIKO ADESIVO
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PRATIKO P+V ANTI ROOT VIADUCT
6	Double reinforced corner	PRATIKO P+V ANTI ROOT VIADUCT
7	Draining element	Polyester geotextile
8	Thermoinsulating element	XPS
9	Perimeter protection element	XPS
10	Filtrating anti-puncture element	Geo-composite drainage
11	Release element	Round gravel
12	Roof gardens	Terrain + extensive vegetation
13	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- Insulation is laid over the waterproofing and the waterproof layer is laid on the support. The waterproof layer therefore has a double function - that of vapour barrier and waterproofing layer.
- The advantage of an inverted roof is the excellent level of protection against thermal or mechanical shock.
- Continuous roofing sectoring system.
- A safe system, eliminating the risk of fire.
- Low environmental impact system.
- Ageing resistant system.
- Low maintenance system.
- Excellent ageing resistance, thanks to the special reinforcement, even without additional protection.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.
- The membrane is resistant to salt present on roads. The adhesion coefficient to the support is equal or exceeding that of the road asphalt concrete to be used.
- The membrane has a mechanical resistance sufficient to bear the load during road surface compacting.
- The membrane is easily applied, thus application times are reduced as well as reducing road and parking closure times to a minimum.
- The product's anti-root feature does not in any way affect the plants.
- The anti-root additive is not in anyway washed out of the compound and resists the heat of the open flame torch during application, therefore the product performs its function in a permanent manner.

Waterproofing element advantages

- Tested waterproof membrane with exceptional mechanical and dimensional stability performances and a high puncture resistance.
- Improved walkability and external stress resistance thanks to the special membrane design.



Application system advantages

- The use of bituminous adhesive application, provides complete waterproof adhesion to the supporting surface, making tracing of accidental leakages easier and allows a continuous sectoring.
- Furthermore, it is possible to eliminate the supporting surface's roughness by saturating the irregularities and creating an impermeable adhesive layer ready for the laying of the PRATIKO membrane.
- The bituminous adhesive always remains plastic and is therefore not subject to tensions and alterations caused by movements of the building structure.
- Thus, elimination of open flames on the work site is obtained, eliminating the risk of fires and reducing thermal and noise pollution.
- The PRATIKO membrane is not overheated during application and hence remains intact, eliminating thermal settling as a result of cooling down.

System RESURFACING

Type	BP membrane resurfacing
Application system	PLURA R resurfacing
Waterproofing element	PLURA R G200



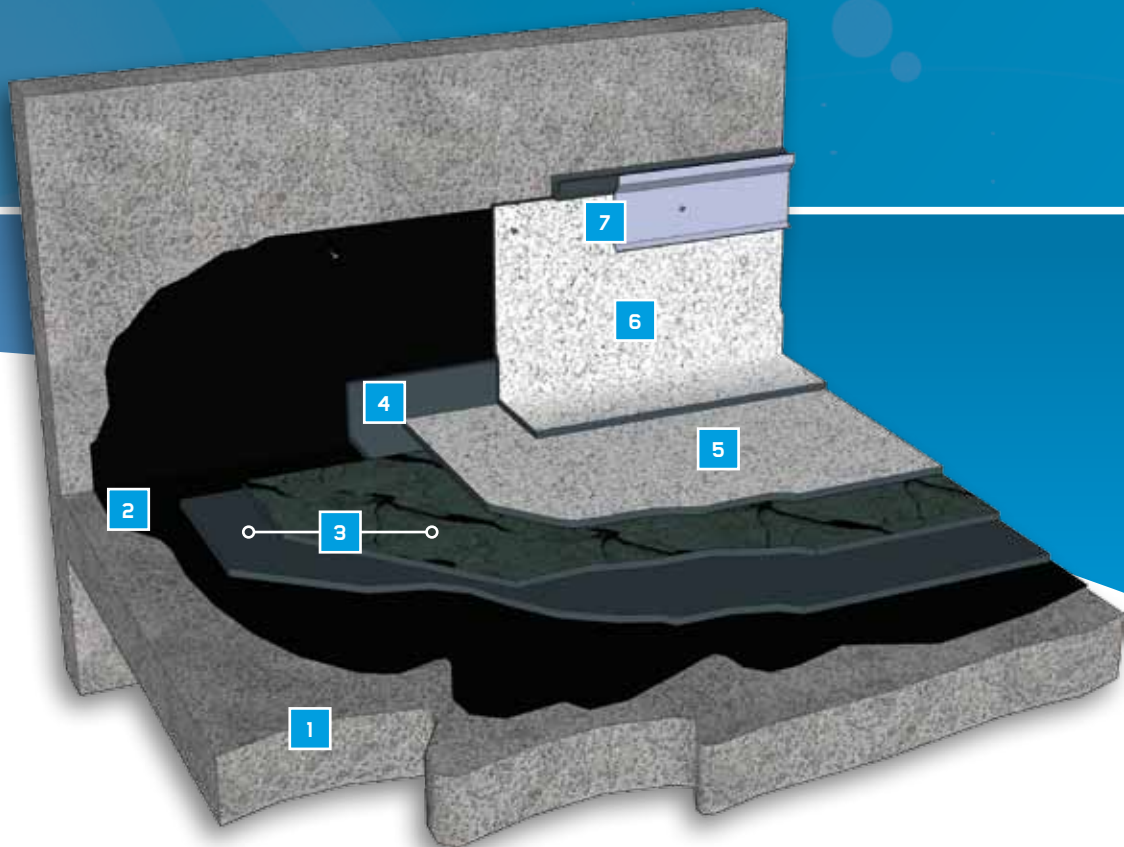
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Existing waterproofing system	Polymer bitumen membrane
4	Reinforced corner	with membrane BPP 4 mm > 250 mm
5	Waterproofing element	PLURA R G200
6	Double reinforced corner	PLURA R G200
7	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- A solid system.
- Continuous roofing sectoring system.
- Low environmental impact system.
- Ageing resistant system.

Waterproofing element advantages

- Faster application times, given the special lower face compound (saving approximately 50% of gas).
- Greater work site safety, as it is not necessary to use hot oxidized bitumen to absorb the old slate finish.
- Creates a secure and efficient waterproof layer, given the outstanding adhesion properties of the compound which, absorbing slate chips into the lower face PLURA R molten mass, creates one single layer together with the old roofing.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.
- Full dimensional stability thanks to reinforced fibre glass.
- The special finishing in white slate, with good reflectivity extends the duration of the membrane and reduces the temperature, both on the external surface and inside the building, with good savings in terms of energy consumption.
- The use of VOLTAIKA varnish on the slate surface is essential to improve reflectivity and temperature decrease.



Application system advantages

In this case the waterproofing element is applied fully adhering to the support, using a hot air or a propane gas torch. This type of application favours better puncture resistance and can be used on any pitch.

Furthermore, it does not require ballast and provides excellent wind uplift resistance.

Full adhesion makes identification of any waterproof layer losses easier, guaranteeing improved layer stability both for hot and cold contractions, given the outstanding adhesion properties of the compound which, absorbing slate chips into the lower face.

PLURA R molten mass, creates one single layer together with the old roofing.

System	Bridges and viaducts
Type	Viaduct deck
Application system	PLURA THERMO AD
Waterproofing element	PLURA THERMO AD VIADUCTS



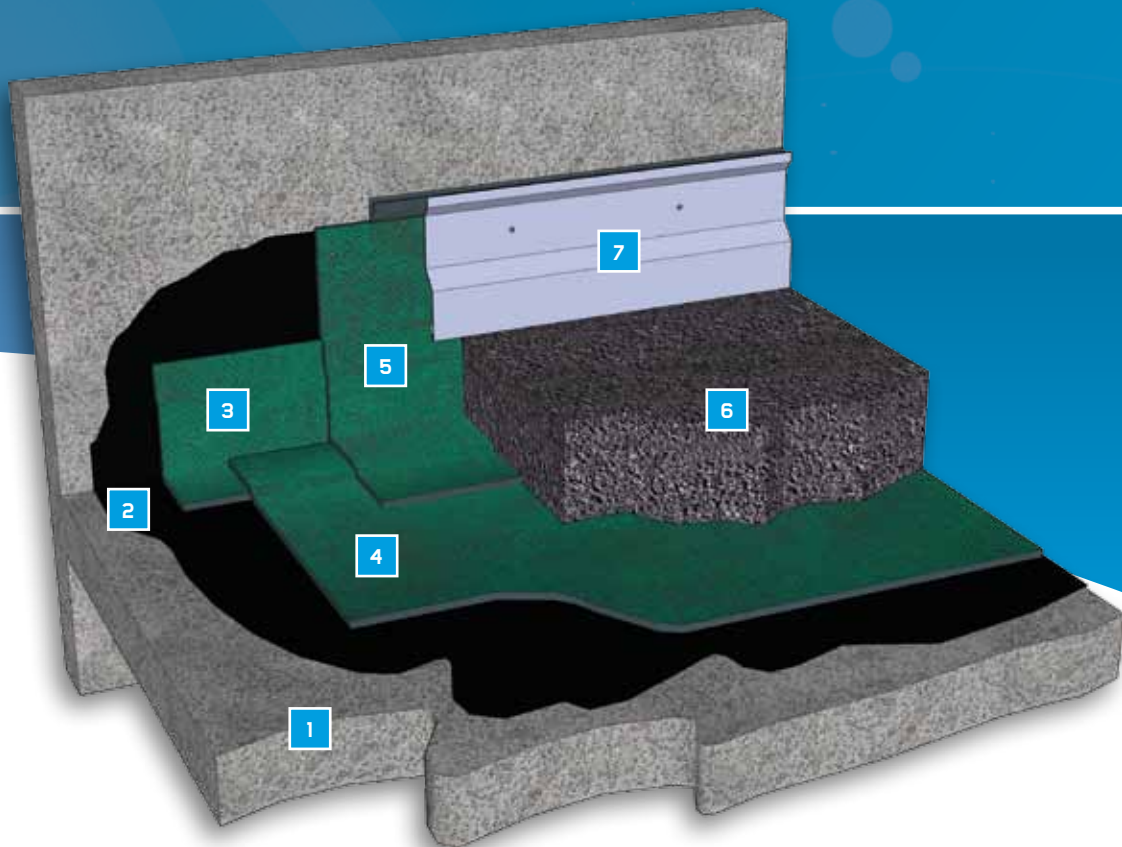
1	Support	Concrete
2	Priming coat	PRIMERTEC AD
3	Reinforced corner	PLURA THERMO AD VIADUCT
4	Waterproofing element	PLURA THERMO AD VIADUCT
5	Double reinforced corner	PLURA THERMO AD VIADUCT
6	Paving carrabile	Asphalt
7	Finishing element	Metal flashing expansion joint with mechanical fixings and seal with PRATIKO MASTIC

System advantages

- Easy application system, reducing road, bridge and parking closure times to a minimum.
- A solid system.
- Low environmental impact system.
- Continuous support sectoring system

Waterproofing element advantages

- PLURA THERMO AD VIADUCTS is resistant to salt present on roads. Adhesion to the underlying base is superior to that of road asphalt used.
- It has a sufficient resistance to sustain road rollers without any damage.
- It is easily applied thus reducing road closure times to a minimum.
- Guarantees full adhesion to the support, without discontinuities, blisters, etc.
- ECO 100 product - 100% recyclable, manufactured using recycled raw materials.



Application system advantages

SECURITY

- Eliminating the risk of fire during application.
- Can be used on heat-sensitive insulation boards (e.g. polystyrene).
- Can be used on wooden decks.
- PLURA THERMO AD adhesive properties allow instant waterproofing of the roof, when the silicon film is removed.
- Special PLURA THERMO AD compounds behave in a fully elastic manner, uniformly distributing and following the micro-movements of the support.
- No loss of mass due to fusion and hence, no loss of thickness in double-layer systems.

REDUCED ENVIRONMENTAL IMPACT

- Energy savings of approximately 50% of gas.
- Decreased noise production.
- Reduced application times by approximately 50%.

FULL ADHESION

The PLURA THERMO AD membrane provides full adhesion between the support and the waterproofing element (or insulation), guaranteeing traceability of any accidental infiltration and ensures an exceptional resistance to wind uplift. See BDA Report.

RELIABILITY

Adhesion progressively increases over time, as the special PLURA THERMO AD compound preserves and maintains its thermal adhesive properties.

Once the maximum level of adhesiveness has been reached (exceeding the intrinsic cohesion of the thermal insulating element) there is no decrease of the adhesive strength over time.



PLUVITEAM

SPECIALISTI DEL TETTO
ROOFING SPECIALIST

A team confident about the uniqueness of our products

PLUVITEAM is a network of specialized application companies for the PLURA Pluvitec Revolution waterproofing systems, with the highest professional preparation in the sector.

Why PLUVITEAM

Correct application is the main purpose for the creation of Pluviteam.

If applied incorrectly or without the necessary capabilities even the best materials can still compromise the desired end result.

Furthermore the new European directives, intended to regulate and standardize application standards, once implemented, will require specialized companies with a considerably higher level of application quality than the current levels.

The PLUVITEAM companies

The certified PLUVITEAM applicators are trained at the head office training centre located in Ronco all'Adige.

Under the guidance of expert instructors, Pluvitec offers the possibility to all applicators from the specialized companies to improve their knowledge of PLURA Pluvitec Revolution systems application. Each year the certified PLUVITEAM application companies benefit from a period of training at Pluvitec, where updates on new Plura and Pratiko products are provided and application guidelines for various roof components (vapour barrier, insulation panels, mechanical fixings, drawings, etc.).





Certificate

All companies that demonstrate their qualifications receive a PLUVITEAM applicator certificate and can benefit from a 10 year post-construction insurance, backed by a leading insurance company.

The insurance covers, without exception, material or application defects.

ISO 9001 Certification

The roof applications made by PLUVITEAM companies are designed, controlled and tested by the PLUVITEC technical department which consists of professional designers.

PLUVITEC technical service and quality, together with ISO 9001 certification guarantees one of the highest standards on the market.

QUALITY and EFFICIENCY are our motto.

A **PLUVITEAM** certified application company provides the end client a result, a product of PLUVITEC and TECHNICAL STAFF synergies, starting from the technical solution, through material, to application, guaranteeing a **WATERPROOF, LONG LASTING and INSURED** roofing.





Pluvitec Technical Support

Post-sales service: courtesy and reliability

Quality means control of the entire production line, starting from the technical solution all the way to the application. Pluvitec also offers work site technical support to its clients.

Thus, work carried out by a PLUVITEAM company is subject to Pluvitec Technical Department supervision and control, which issues a compliance document after each inspection.

If a work site is compliant with PLURA PLUVITEC REVOLUTION application standards, a full post-construction insurance policy will be issued to the owner of the building, both for the product and labour.

Design expertise, on-site assistance at the building site during application and application training are added values offered by Pluvitec which optimize the use of PLURA PLUVITEC REVOLUTION systems.

ISO 9001 certified **Pluvitec Technical Service** provides application advice and assistance on building sites, ensuring correct application standards for the clients.

The **Pluvitec Technical Department** is the ideal partner for engineering studios, helping them identify the most appropriate technical solutions for the different infrastructure types, from waterproofing to thermal and acoustic insulation. Our Technical Staff prepares projects, technical specifications and drawings for our Clients and sector professionals.

The **Pluvitec sales network**, in Italy and in more than 50 countries, guarantees a worldwide professional service.

Logistics is coordinated directly from the headquarters to ensure punctual deliveries globally.

SERVIZIO
TECNICO



PLUVITEC
We take care of you





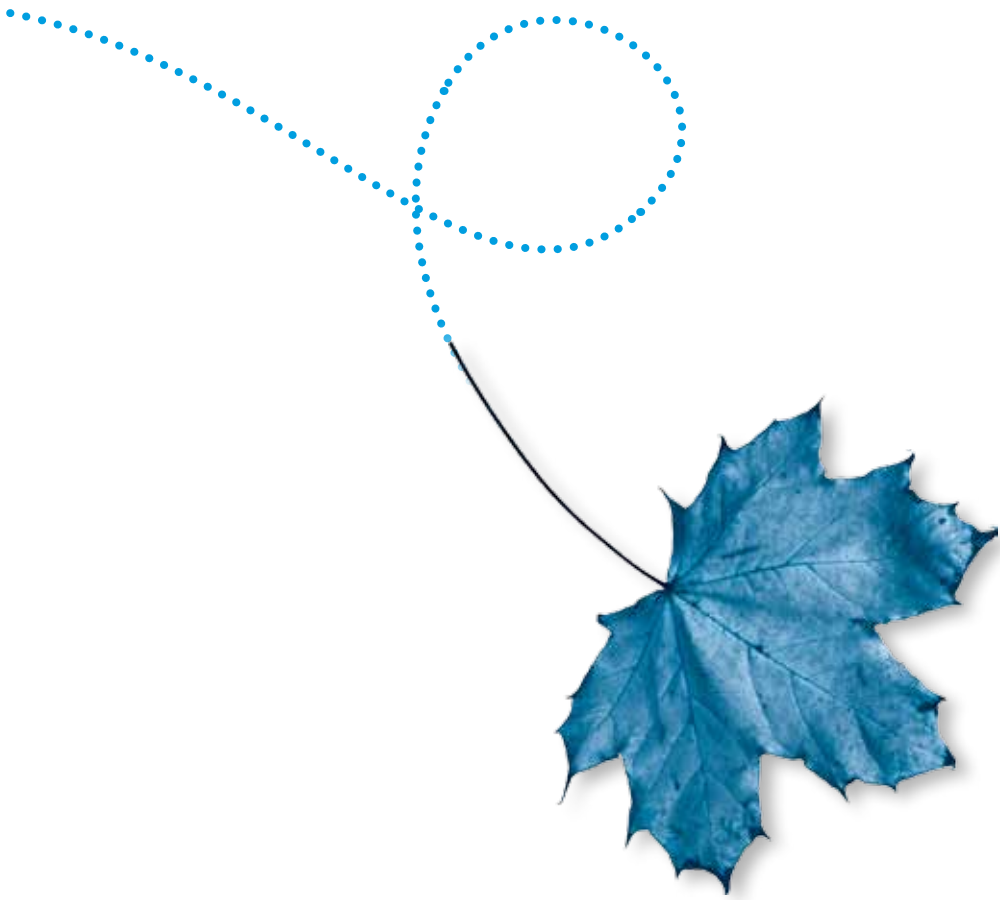
References

ACQUEDOTTO DI FERRARA	Historical building
A.I.A. spa	Industrial site
AEROPORTO CIAMPINO	LL.PP.
AEROPORTO ELMAS	LL.PP.
BARTOLINI CORRIERE ESPRESSO	Transport and logistics
BASILICA DI SAN VITALE - Ravenna	Historical building
BP SINGAPORE PTE ltd	Industry
BRIDGESTONE METALPHA ITALIA	Industry
BRITISH AMERICAN TOBACCO	Industry
BRITISH RED CROSS	LL.PP.
C&A	GDO
CARTIERE DEL CHIESE	Industry
CASTORAMA ITALIA spa	GDO
CESARE FIORUCCI spa	Industrial site
COMET spa	GDO
DAEWOO MOTOR	Industry
DIADORA	Industry
DIESEL INDUSTRIES	Fashion Company
DIRECTIA DE TELECOMUNICATII OLT.	Public Company
DISTILLERIE MARZADRO	Industrial site
DOLCE & GABBANA Industry spa	Fashion Company
DREHER	Industrial site
EMIRATES GENERAL PETROL	Industry
ERIDANIA spa	Industrial site



EUROSPIN	GDO
FERCAM	Transport and logistics
FILATURA DI GRIGNASCO spa	Textile industry
FORD MOTORS LIO HO CO.ltd	Industry
FORTE HOTEL	Hotels
GEBERIT PRODUZIONE spa	Industry
GRANDI MOLINI ITALIANI	Industrial site
GRUPPO PIAZZETTA spa	Industry
GUCCI	Fashion Company
HONDA ITALIA	Industry
HOTEL SIMIUS PLAYA	Hotels
INTERCOS COSMETICI	Industry
IPERCOOP	GDO
JOLLY HOTEL	Hotels
LAMATTA spa	Fashion Company
LIQUIGAS spa	Industry
LOACKER	Industrial site
MONDADORI	Industry
MORGAN ELECTRO CERAMICS	Industry
MULLER FISSAGGI	Industry
OBI	GDO
O-I MANUFACTURING ITALY spa	Industry
PABBAY BANK	Bank
PALAZZO DELL'ARTE - TRIENNALE - Milano	Historical building
PASTIFICIO RANA spa	Industrial site
POSTE CENTRALI COSTA RICA	Public Company
POSTE ITALIANE	Public Company
RIELLO spa	Industry
SAIMA AVANDERO spa	Transport and logistics
SOCCER CITY - Johannesburg	Stadium
TECNOCLIMA	Industry
THE RADISSON HOTEL	Hotels
THE ROYAL MAIL ltd	Public Company
UNICREDIT	Bank
UNILEVER UK	Industry
VELUX ITALIA	Industry
VERONA FORUM	Complex
VETRERIE RIUNITE spa	Industry





PLURA
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PLURA
PLUVITEC REEVOLUTION



PLUVITEC S.p.A. - Via Quadrelli 69 - 37055 - Ronco All'Adige - Verona - Italy
Tel. +39.045.6608111 - Export tel. +39.045.6608132 - Fax +39.045.6608177

www.pluvitec.com
info@pluvitec.com