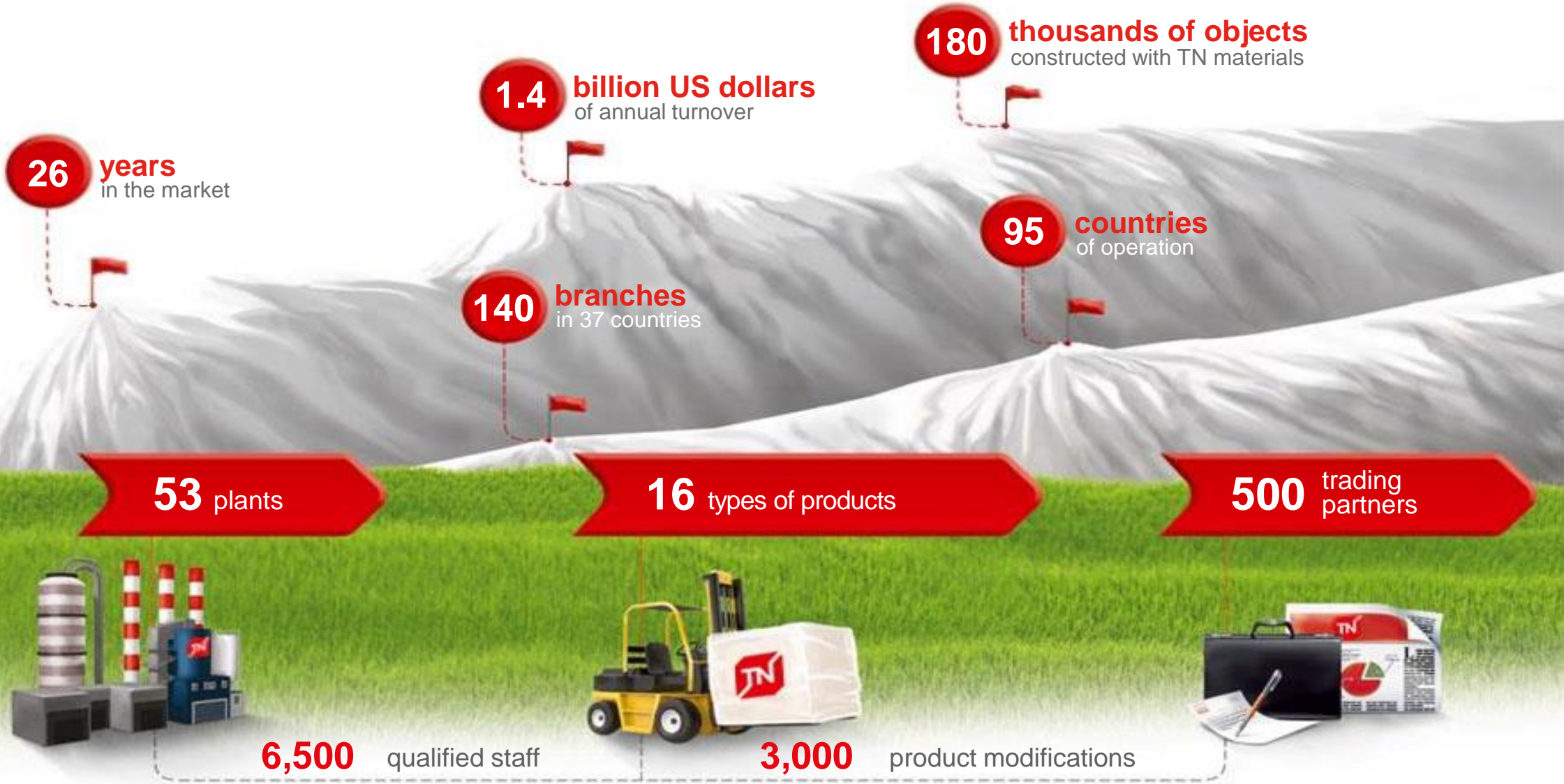


TECHNONICOL CORPORATION

CORPORATE PROFILE





140

Retail chain divisions



6

Research Centers



18

Training Centers



53

Plants

17 plants
Roll bitumen and polymer-bitumen materials

8 plants
Mastic compounds and primers

3 plants
Synthetic membranes

3 plants
Raw materials

7 plants
Stone wool

1 plant
Glass mineral wool

8 plants
XPS

1 plant
PIR

3 plants
Roofing shingles

1 plant
Composite roofing tiles

1 plant
Polyurethane foam

TECHNONICOL creates, produces and promotes such materials and systems that can minimize energy losses in the manufacturing industry and utility sector.



TECHNONICOL materials enable to cut down energy losses **THREE-FOLD**

We implement construction systems that can create an energy-efficient envelope in the building – a comprehensive structure protection from its foundation to its roof.

All developed and manufactured products meet sanitary and environmental standards and are safe for humans and environment.



1 more than **million euro per year** are invested in environmental protection

We invest in waste-free production, advanced equipment and environmental protection technologies.

POLYMER-BITUMEN MEMBRANES

17 Plants



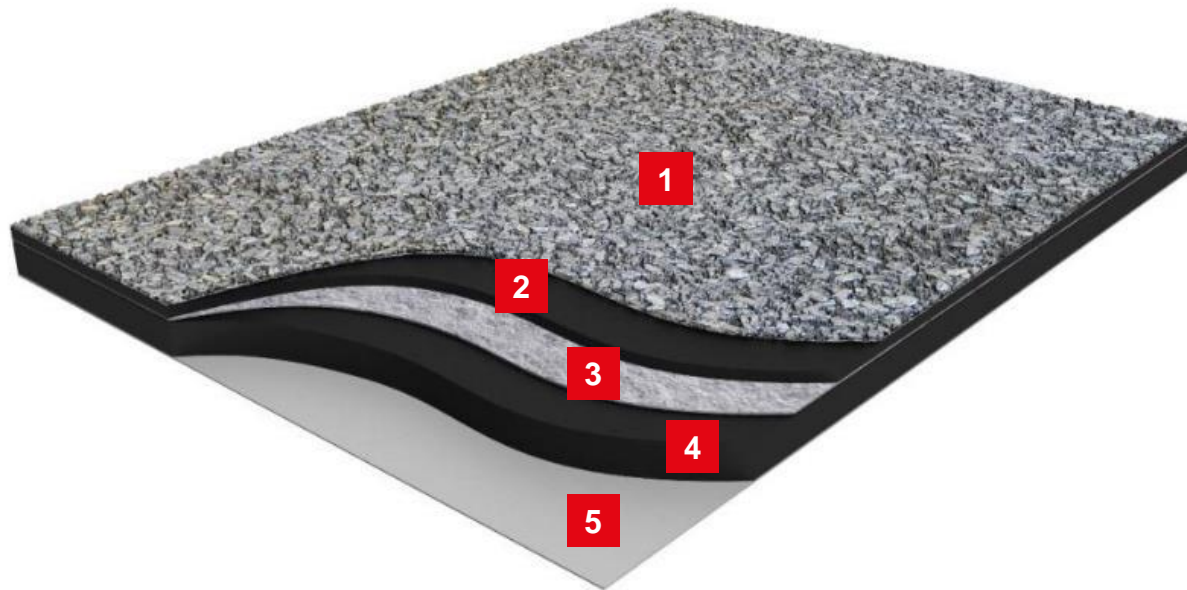
Quantity of
production lines

52

Total capacity

99,20,00,000 m²

Polymer-bitumen membrane structure:

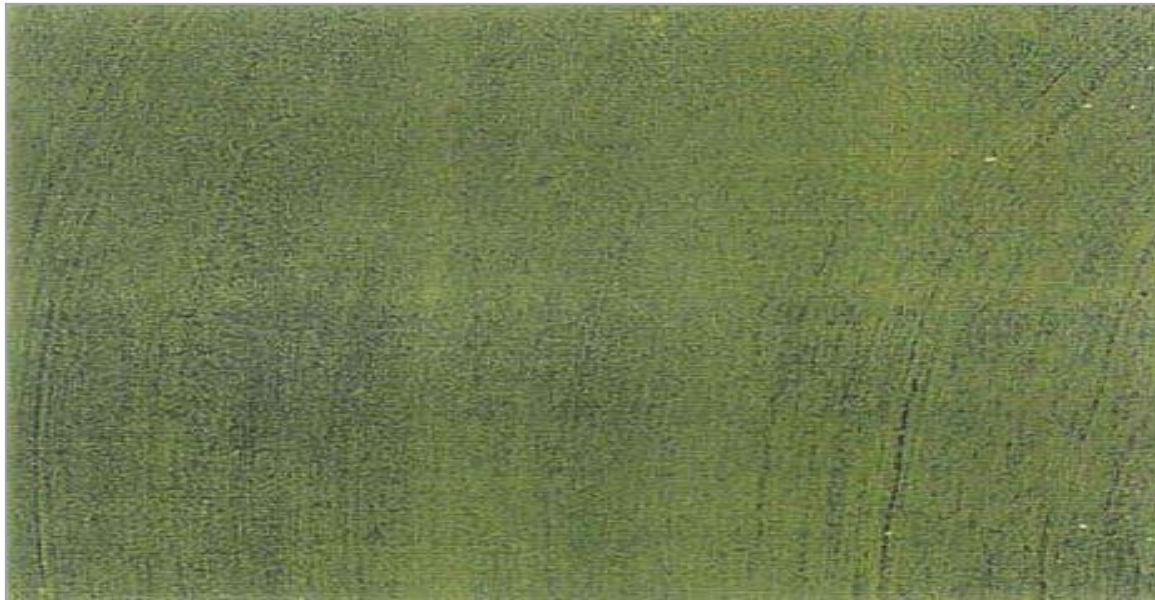


1. Top surface protection
2. Polymer-bitumen compound
3. Reinforcement (carrier)
4. Polymer-bitumen compound
5. Underside protection

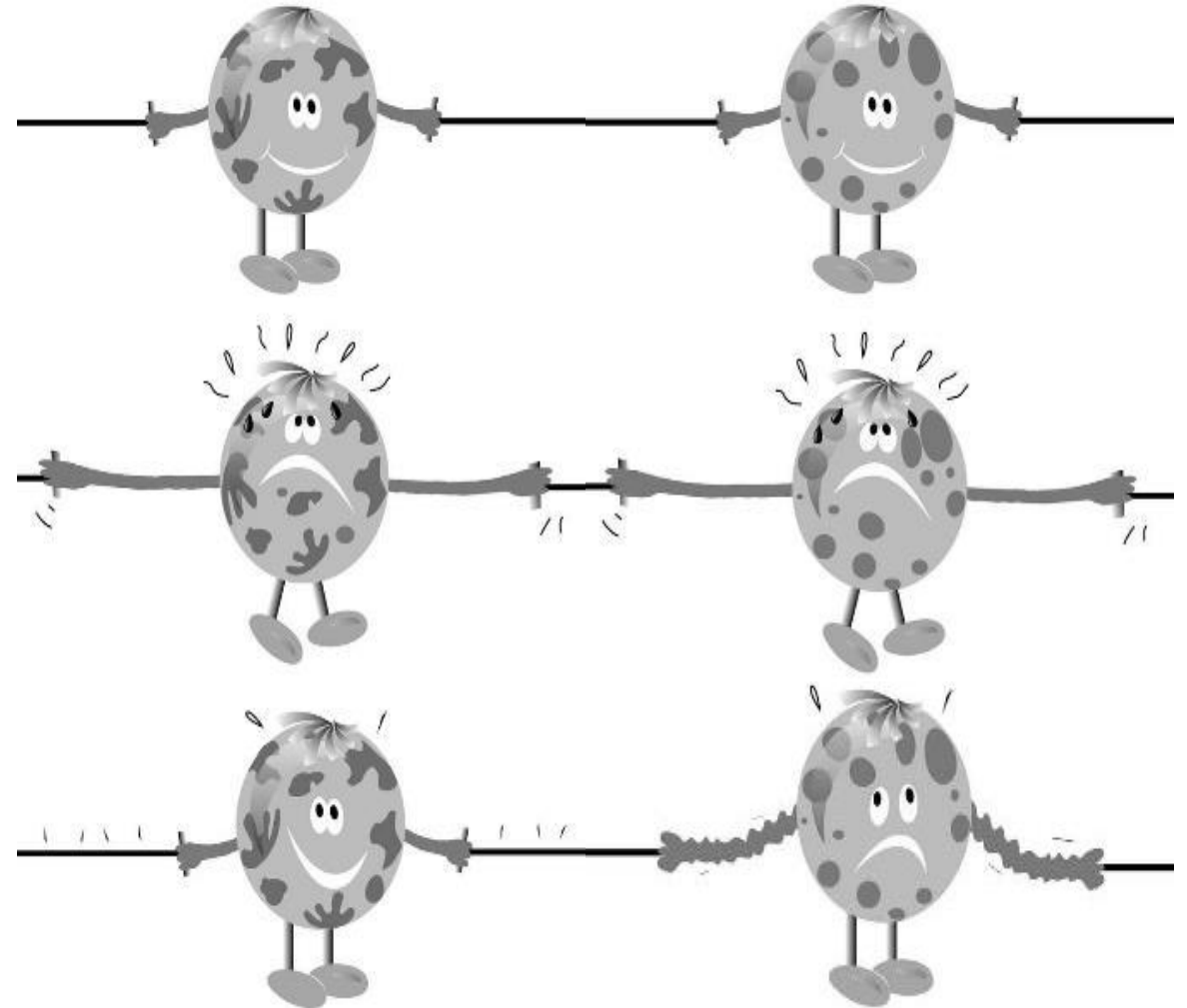
Polymer-bitumen binder provides the membrane with its waterproofing capability and may impart the following properties:

- Elasticity and plasticity
- Low temperature flexibility
- High temperature resistance to flow
- Resistance to aging

Dispersion of polymer molecules in TECHNOMICOL polymer-bitumen binder:



SBS AND APP POLYMER MOLECULES:





Roof, foundation



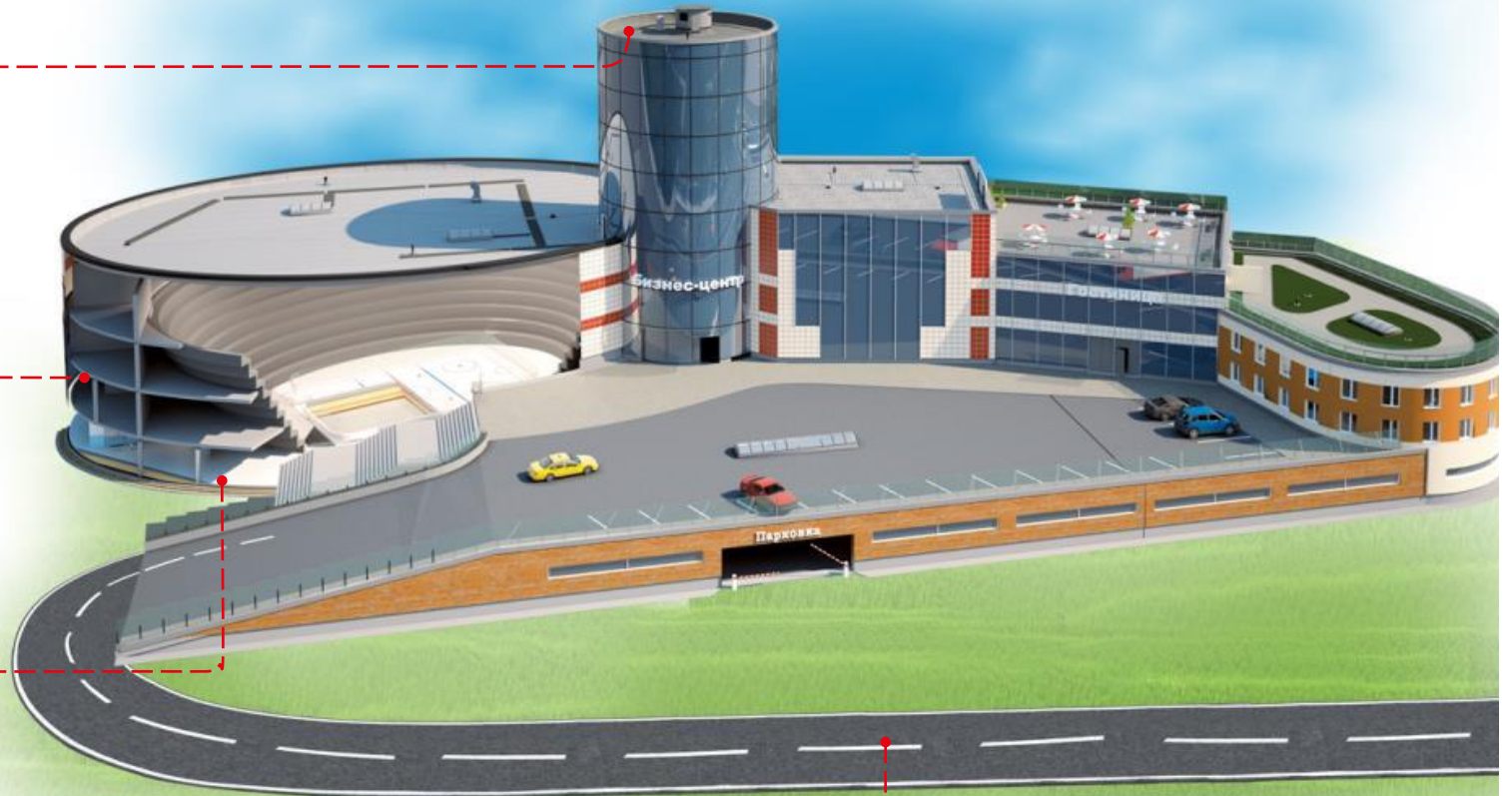
Acoustic insulation and waterproofing of floors



Gas-insulation and waterproofing of foundations

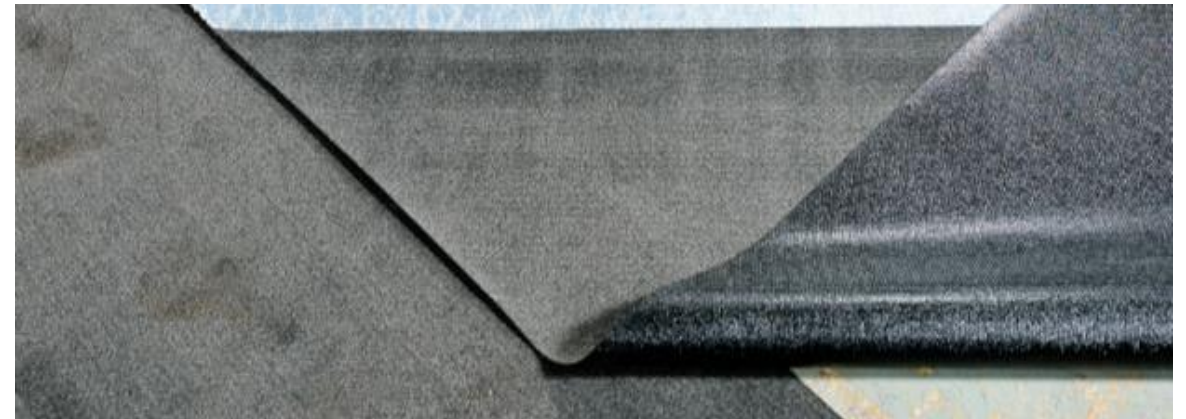
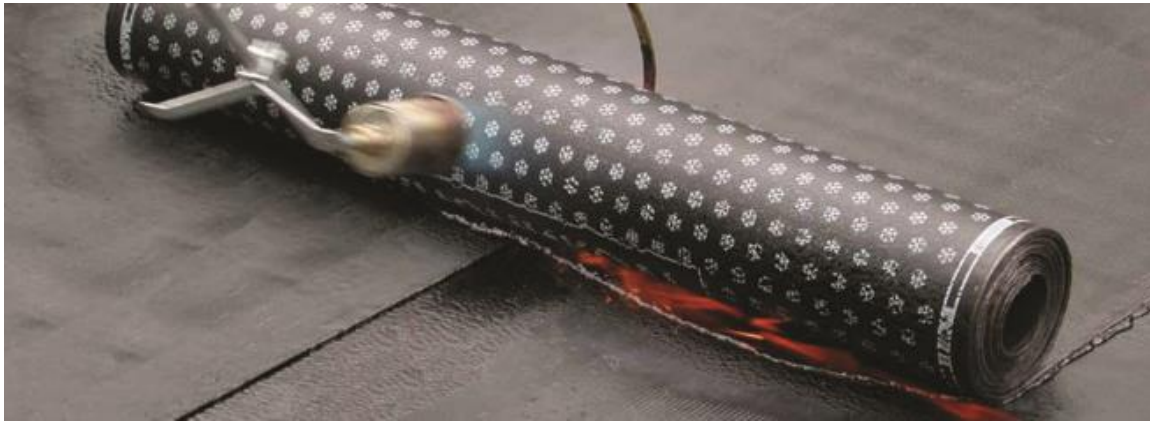


Waterproofing of transport construction

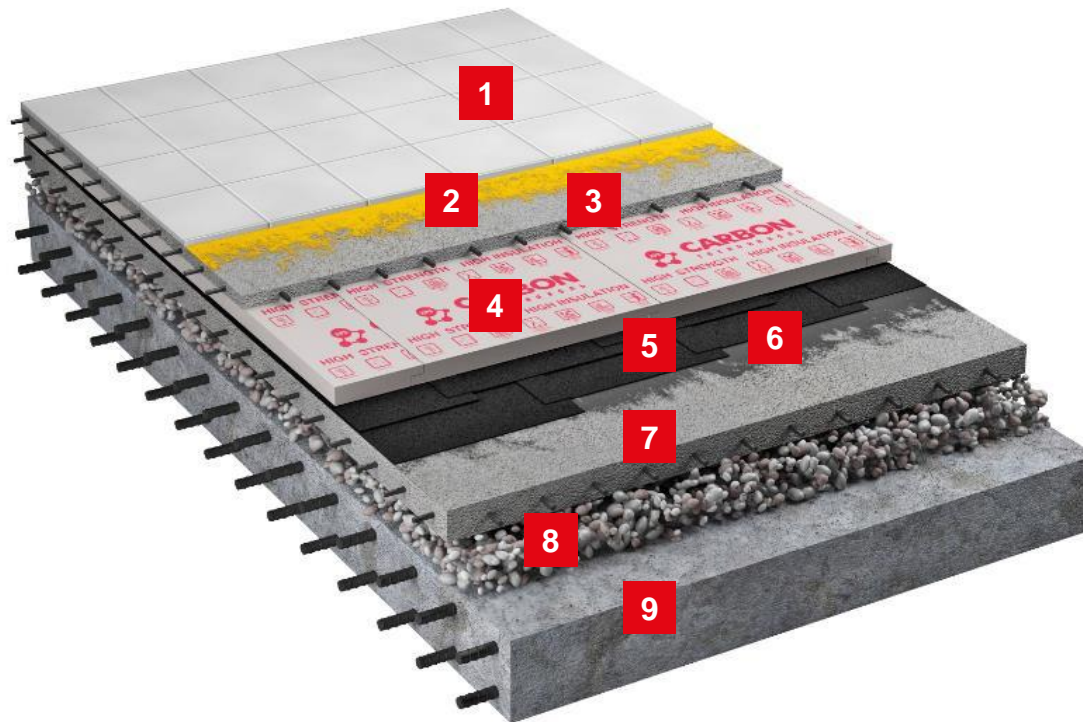


TECHNONICOL bitumen membranes can be installed using several methods:

- By torching – in 1 or 2 layers or mechanically fixed in 1 layer
- Glued with mastic or self-adhesive

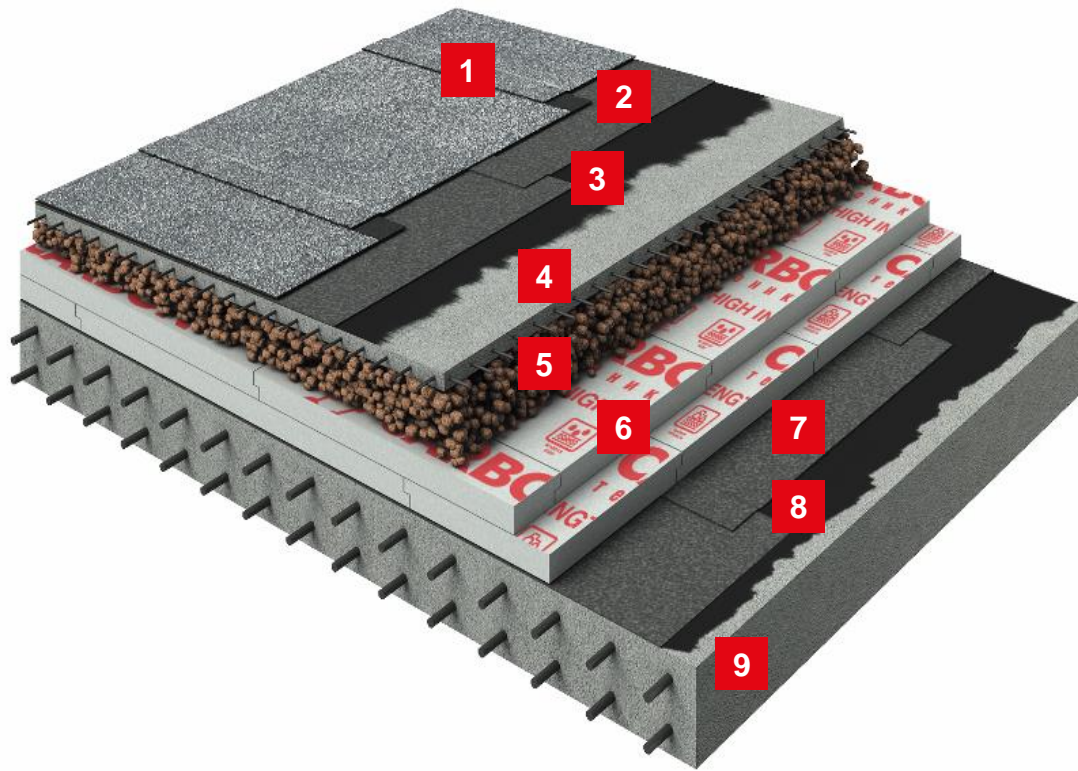


System solution for accessible flat roof / terrace:



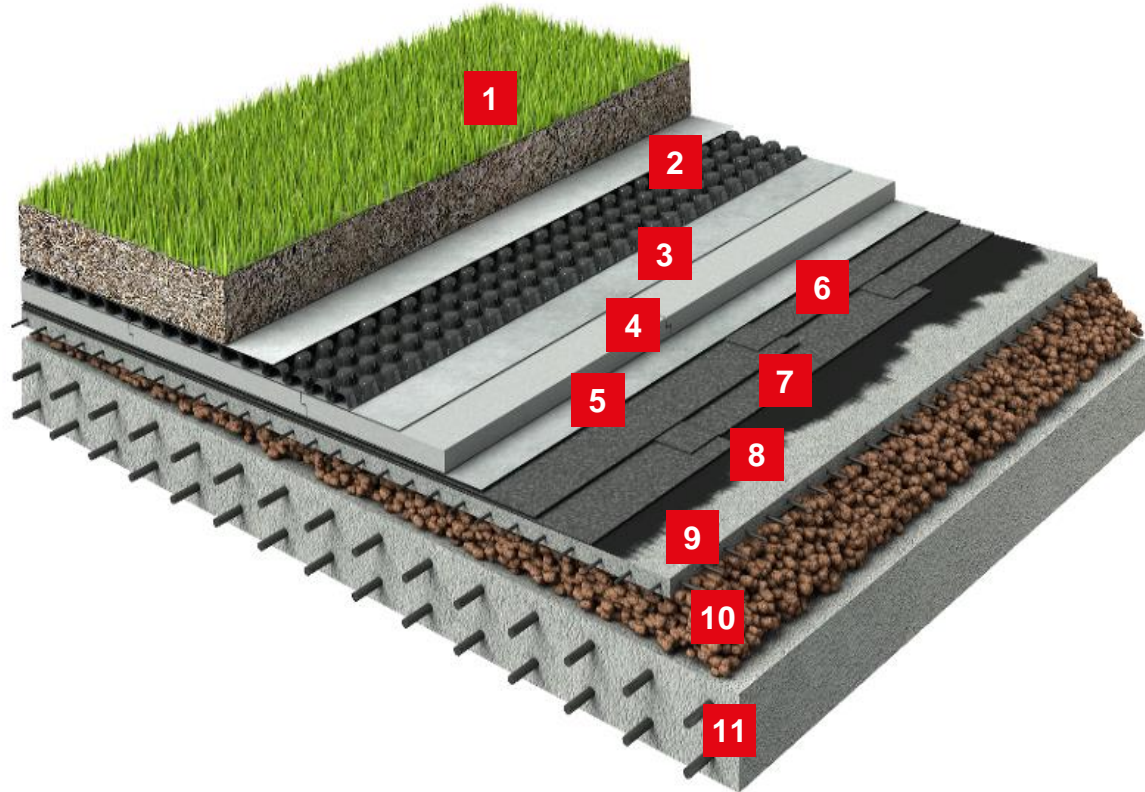
1. Tiles
2. Glue for tiles
3. Reinforced sand cement screed
4. XPS TECHNONICOL CARBON
5. Bitumen membrane ULTRAPLAST B – 2 layers
6. BITUMEN PRIME COATING (PRIMER TECHNONICOL No.01)
7. Reinforced sand cement screed
8. Sloping layer
9. Reinforced concrete base

System solution for exposed non-accessible flat roof:



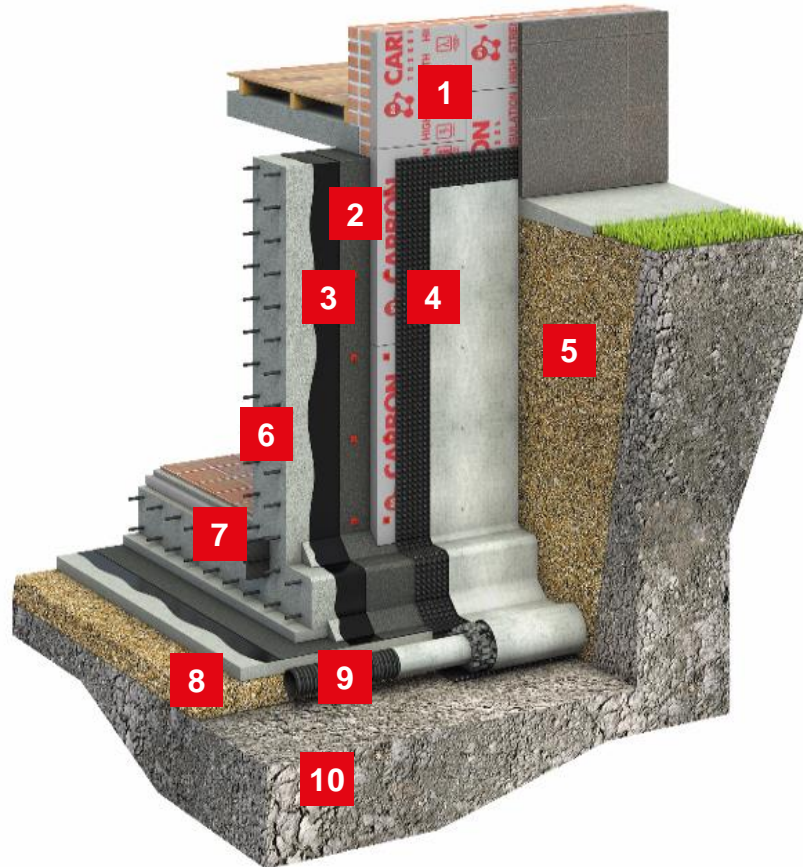
1. Cap sheet bitumen membrane
ULTRAPLAST B grey mineral
2. Underlay bitumen membrane
ULTRAPLAST B
3. BITUMEN PRIME COATING
(PRIMER TECHNONICOL No.01)
4. Reinforced sand cement screed
5. Slopping layer
6. XPS TECHNONICOL CARBON
7. Vapor barrier VAPORSTOP CA 500 /
ULTRAFLEX SA
8. BITUMEN PRIME COATING
(PRIMER TECHNONICOL No.01)
9. Reinforced concrete base

System solution for green roof:



1. Soil with plants
2. Drainage membrane with geotextile
PLANTER geo
3. Needle-punched geotextile
4. XPS TECHNONICOL CARBON
5. Needle-punched geotextile
6. Cap sheet bitumen membrane
ULTRAFLEX GREEN
7. Underlay bitumen membrane ULTRAFLEX A
8. BITUMEN PRIME COATING
(PRIMER TECHNONICOL No.01)
9. Reinforced sand cement screed
10. Sloping layer
11. Reinforced concrete base

System solution for foundation with drainage:



1. XPS TECHNONICOL CARBON
2. Bitumen membrane ULTRAFLEX BRIDGE
3. BITUMEN PRIME COATING
(PRIMER TECHNONICOL No.01)
4. Drainage membrane with geotextile
PLANTER geo
5. Backfill soil
6. Below-grade wall
7. Swelling bentonite cord
8. Gravel preparation
9. Drainage tube
10. Ground



| Properties | ULTRAPLAST A | ULTRAPLAST B | ULTRAFLEX A |
|---|------------------------------|-------------------|-------------------|
| Bitumen modification | APP | APP | SBS |
| Thickness, mm | 2.0±0.20, 3.0±0.20, 4.0±0.20 | | |
| Mass per unit area, kg/m ² | 2.8±0.28, 3.8±0.38, 5.1±0.48 | | |
| Softening point, °C | 150±5 | 150±5 | ≥110 |
| Flow resistance at elevated temperature, °C | ≥120 | ≥120 | ≥100 |
| Flexibility at low temperature, °C | ≤-6 | ≤-2 | ≤-10 |
| Tensile strength L / T, N/50 mm | 850±170 / 650±130 | 750±150 / 600±120 | 850±170 / 650±130 |
| Elongation L / T, % | 45±9 / 50±10 | 40±8 / 45±9 | 45±9 / 50±10 |



| Properties | EASYROOFING | ENVIRO WHITE / AIR / FOREST | ULTRAFLEX GREEN | ULTRAPLAST BRIDGE |
|---|-------------------|-----------------------------|-------------------|-------------------|
| Bitumen modification | APP | SBS | SBS | APP |
| Thickness, mm | 3.2±0.20 | 4.0±0.10 | 3.1±0.20 | 5.2±0.10 |
| Mass per unit area, kg/m ² | 4.5±0.20 | 5.0±0.25 | 4.0±0.25 | 5.8±0.25 |
| Softening point, °C | 150±5 | ≥110 | ≥110 | ≥150 |
| Flow resistance at elevated temperature, °C | ≥130 | ≥100 | ≥100 | ≥140 |
| Flexibility at low temperature, °C | ≤0 | ≤-25 | ≤-25 | ≤-25 |
| Tensile strength L / T, N/50 mm | 650±150 / 400±150 | 700±100 / 500±100 | 700±100 / 500±100 | ≥1000 / ≥900 |
| Elongation L / T, % | 35±20 / 35±20 | 50±25 / 50±25 | 50±25 / 50±25 | ≥40 / ≥40 |

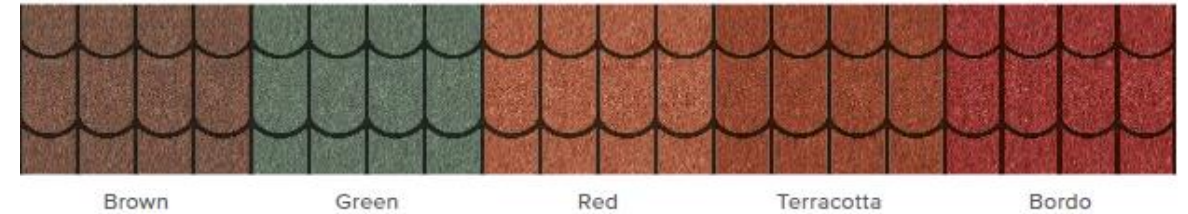
EASYROOFING

APP modified bitumen decorative roofing and waterproofing membrane EASYROOFING is designed for torch-on installation as the top layer in double-layer systems of pitched and flat roofs. Can also be used as a single-layer roof covering in roofing systems with a solid non-flammable base. The material is applicable at roof slopes of 1° to 60°.

Colored basalt granules do not fade under the influence of the sun and are not washed off by the rain providing nice aesthetic appearance and reliable protection of bitumen compound from ultraviolet for the full service life of at least 25 years.

EASYROOFING membrane with different patterns and colors will not only enrich the roof with an elegant finishing touch, but it will also protect the internal premises from leakages and reduce the noise of rain. The material withstands temperature fluctuations and high mechanical loads guaranteeing a long-term effective waterproofing.

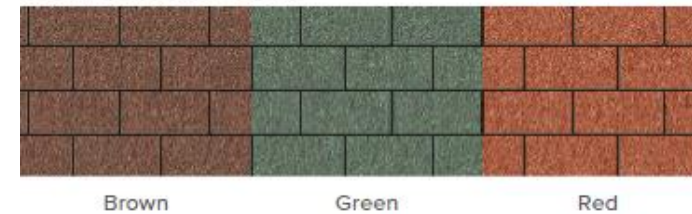
COLLECTION: TILES



COLLECTION: BEAVER TAIL



COLLECTION: BRICK



TECHNONICOL SOUNDSTOP SUPER

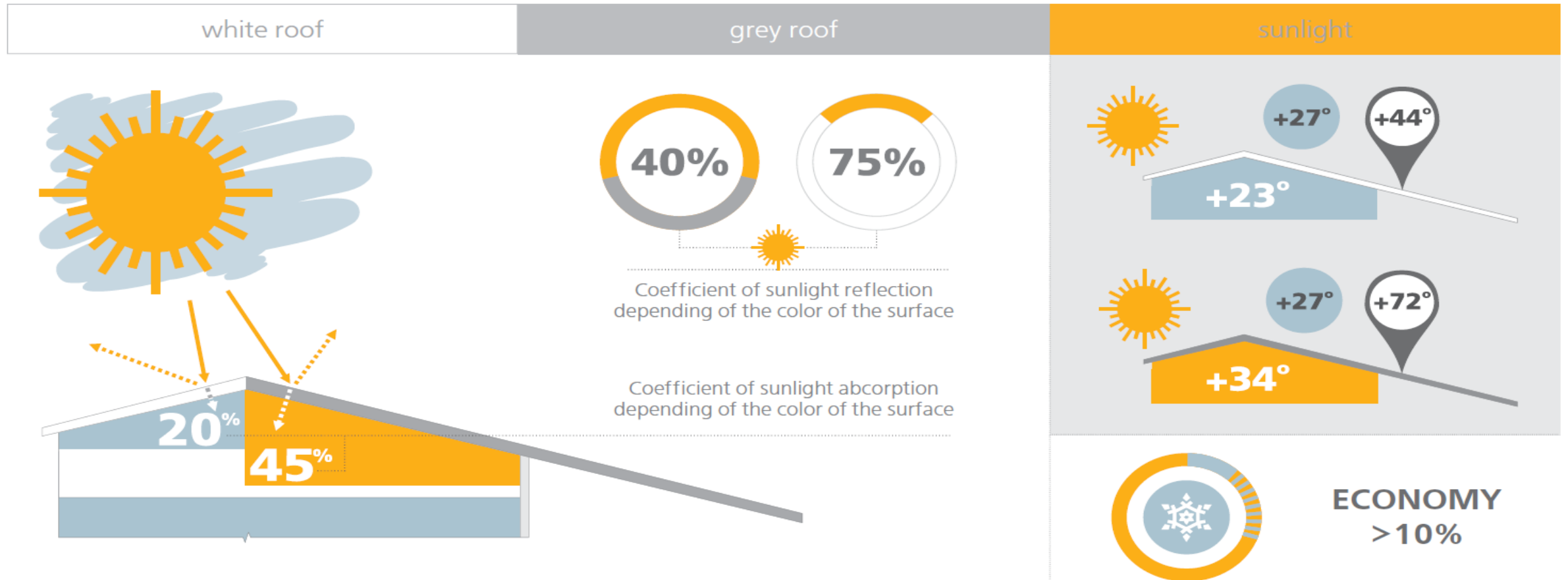
The membrane prevents the spread of an impact noise, which is transmitted through the floor slabs. The material is used indoors for the construction of soundproofing and waterproofing layer in systems of "floating" flooring, heated flooring, flooring with lags and interior partitions.

Special non-woven fabric on the bottom side of the membrane grants effective soundproofing properties to the material, while aluminized film on the top side helps to reduce the influence of electromagnetic fields.



TECHNONICOL ENVIRO WHITE

It is a waterproofing material that allows obtaining the effect of “cool roof” thanks to the white slate with high solar reflection used as the top protective layer. Using of the material allows reducing the costs of conditioning the premises under the roof (on sunny days) by up to 30%.



TECHNONICOL ENVIRO AIR

It is a waterproofing cap sheet membrane for air purification from harmful nitrogen oxides (e.g. NO_x). It has the following advantages:

- Actively influences the reduction of toxic NO_x gas in the air
- The coating protects the material against the penetration of UV radiation and destruction of bitumen compound
- Contributes to the destruction of organic contaminants on the surface (bird droppings, fungus spores, bacteria)



ULTRAFLEX GREEN

It has an additional mechanical protection on top, which makes it resistant to damage caused by roots of plants and ensure reliable waterproofing. Special chemical compound prevents roots penetration, but at the same time does not have a negative effect on plants or environment.

ULTRAFLEX GREEN can be used both for construction of green roofs and for foundation waterproofing with additional protection from roots of plants located nearby.

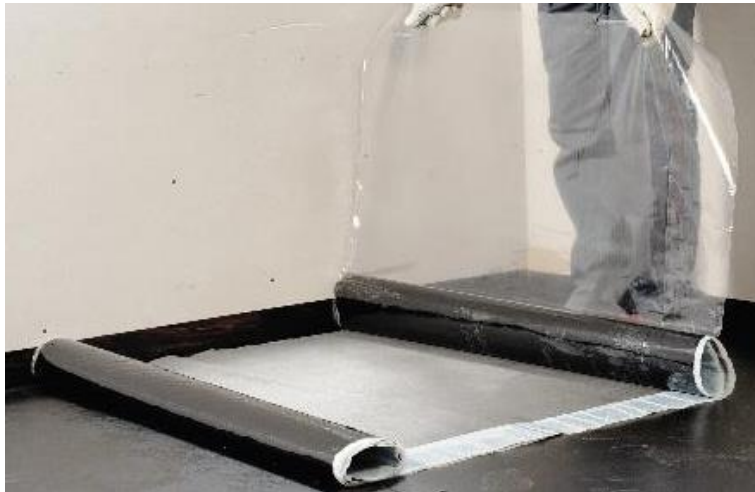


ULTRAPLAST BRIDGE

It is a waterproofing material produced by the two-sided placing of a special high-quality polymer-bitumen binder on an extra strong polyester base. It has the highest physical and mechanical properties and can withstand very high temperatures.

Designed for waterproofing of steel orthotropic plate and reinforced concrete slab of carriageway when asphalt concrete (up to +220 °C) is laid directly on the waterproofing layer. Can also be used as a single-layer waterproofing of the foundation.



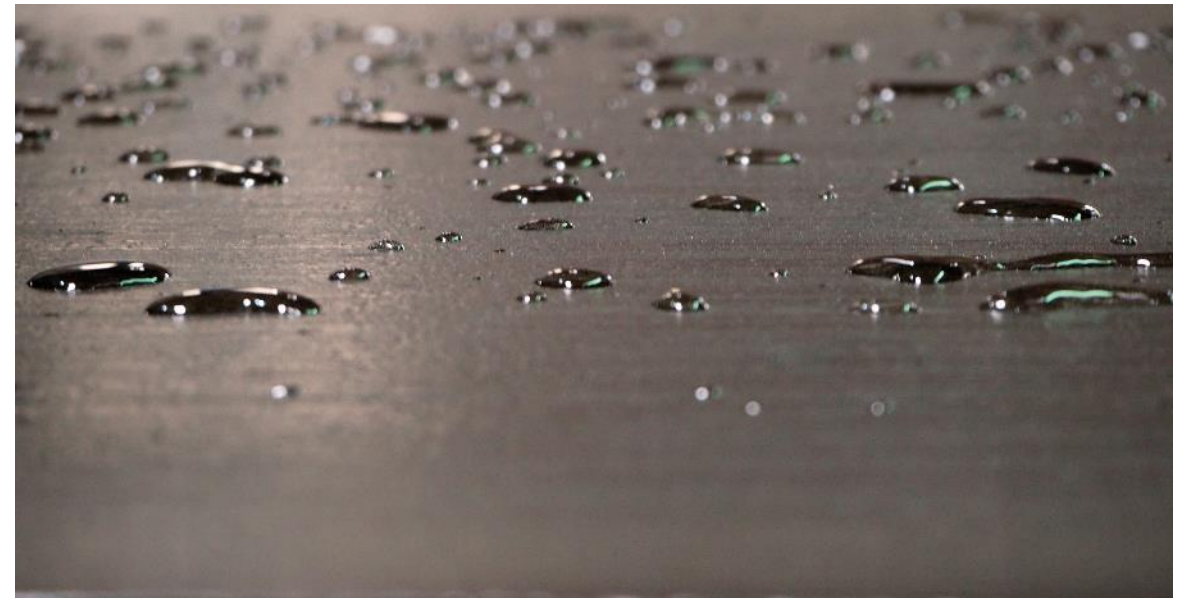
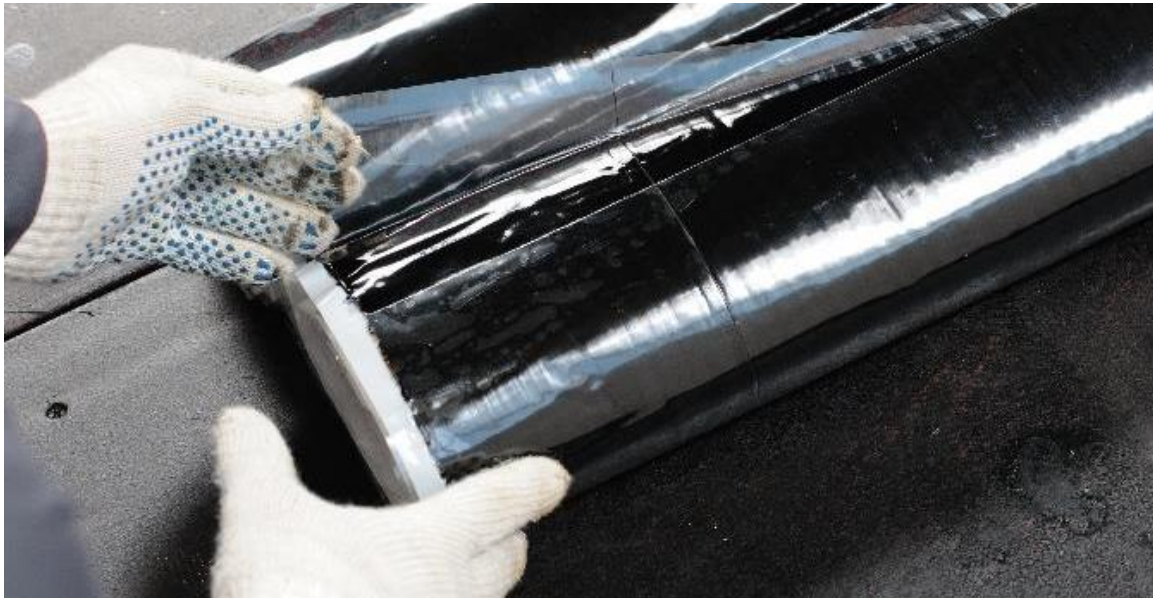


| Properties | ULTRAFLEX SA NB | ULTRAFLEX SA | VAPORSTOP CA 500 | NICOBAND |
|---|-----------------|-------------------|-------------------|----------|
| Bitumen modification | SBS | SBS | SBS | SBS |
| Thickness, mm | 1.5±0.10 | 1.5, 2.0 (±0.20) | - | 1.5±0.10 |
| Mass per unit area, kg/m ² | 1.5±0.25 | 1.8, 2.3 (±0.20) | 0.5±0.10 | - |
| Softening point, °C | ≥100 | ≥100 | ≥100 | - |
| Flow resistance at elevated temperature, °C | ≥85 | ≥90 | ≥90 | ≥85 |
| Flexibility at low temperature, °C | ≤-15 | ≤-20 | ≤-25 | ≤-25 |
| Tensile strength L / T, N/50 mm | - | 400±100 / 300±100 | 600±120 / 600±120 | - |
| Elongation L / T, % | ≥200 / ≥200 | 35±20 / 45±20 | ≥2.0 / ≥2.0 | - |

ULTRAFLEX SA NB

It is a self-adhesive carrier less bitumen membrane, which is designed for indoor waterproofing and waterproofing of foundations and engineering structures. Main features:

- Can be used on surfaces, where the standard torch-on application is forbidden (wood, XPS, etc.)
- Can be used for indoor waterproofing in a closed area
- High speed of application
- Safe and cheap application – the membrane is applied without the use of gas and flame
- No need for any additional equipment and skills



VAPORSTOP CA 500

It is a flexible reinforced bitumen membrane, which is used as a high performance vapor barrier in roof waterproofing systems. Main features:

- High tensile strength offers the possibility of walking over the material during its installation
- Reliable adhesion properties prevent the material from shifting and make it invulnerable to the wind load
- Can be used in combination with any thermal insulation and waterproofing materials
- High speed of application
- No need for any additional equipment and skills



NICOBAND

This self-adhesive sealant tape is a convenient way to seal various cracks and joints. Can also be used to insulate junctions and for roofing repairs. Main features:

- Protected from UV radiation by aluminum coating – can be used outdoor
- Easy to use – requires no special skills
- Durable – lifetime is 10 years
- Different colors – repairs or maintenance performed in the tone of the main surface
- Flawless adhesion to different surfaces – metal, slate, wood, plastic, plaster, concrete, glass, etc.





Latvia



Russia



India



Italy

ROOFING SHINGLES

3 Plants



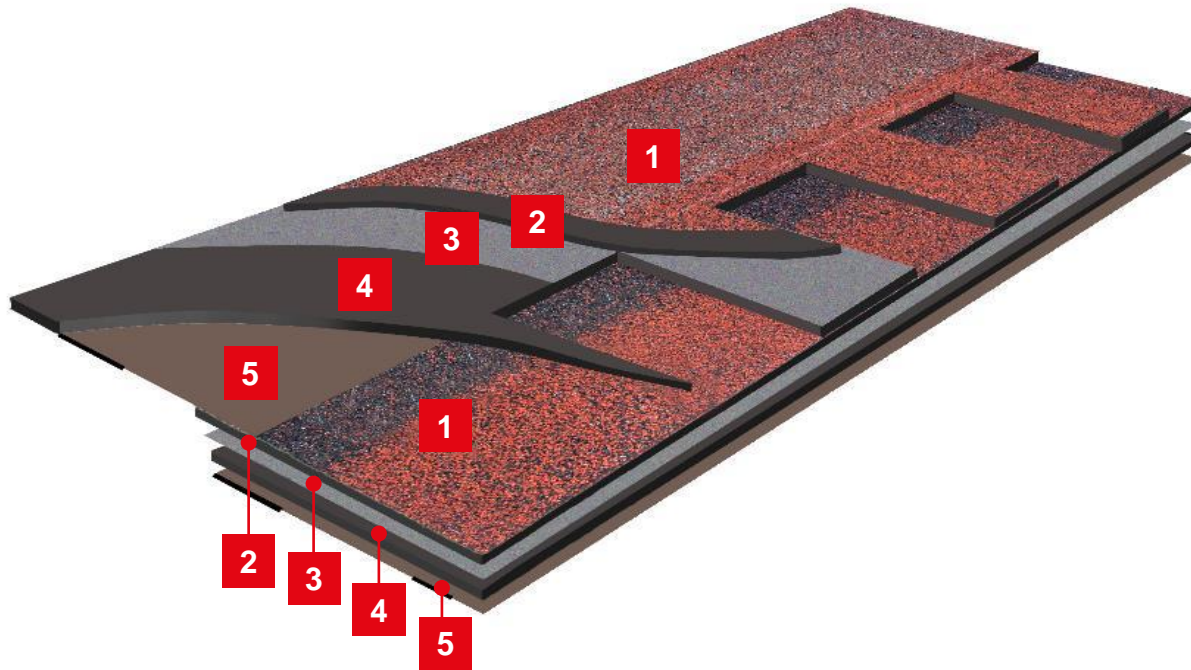
Quantity of
production lines

4

Total capacity

8,40,00,000 m²

Multilayer roofing shingles structure:



1. Basalt colored granules
2. Bitumen compound
3. Glass fiber reinforcement
4. Bitumen compound
5. Underside protection



Multilayer roofing shingles



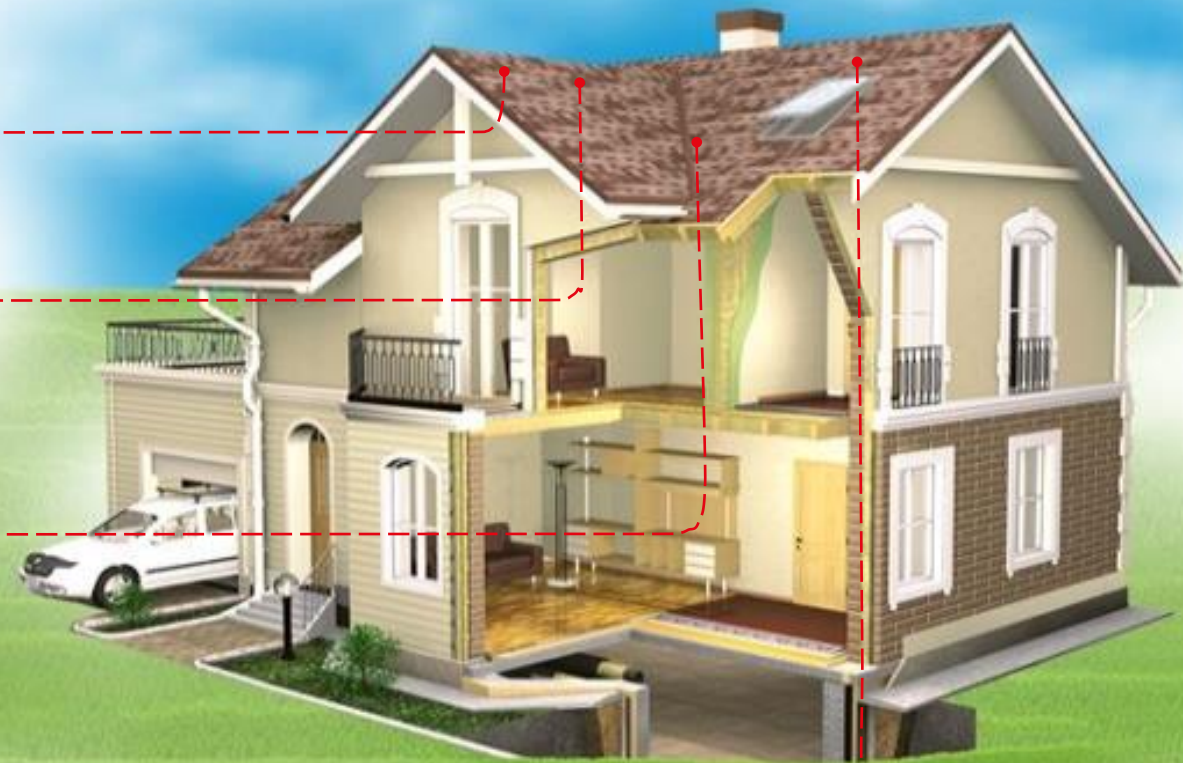
Roofing shingles



Composite tiles



Optional accessories
for pitched roofs

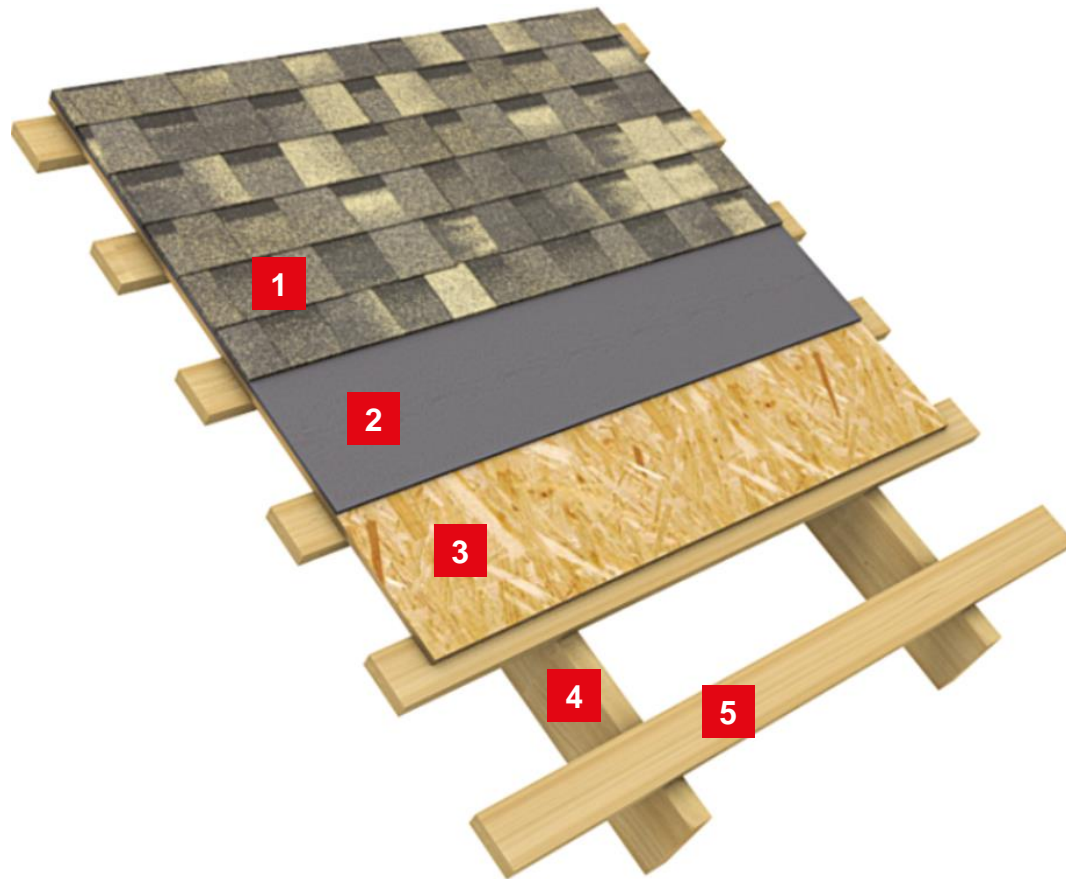


System with torching method:



1. TECHNONICOL SHINGLAS roofing shingles
2. Underlay bitumen membrane
ULTRAPLAST B
3. BITUMEN PRIME COATING
(PRIMER TECHNONICOL No.01)
4. Roof decking (non-flammable)

System with nailing method:



1. TECHNOMICOL SHINGLAS roofing shingles
2. Underlay bitumen membrane ULTRAFLEX SA (self-adhesive)
3. Wood decking
4. Rafter
5. Counter battens



| Properties | Multilayer roofing shingles | | | | Single-layer roofing shingles | | | |
|--|-----------------------------|----------|----------|----------|-------------------------------|----------|------------|-------------|
| | CONTINENT | WESTERN | JAZZ | COUNTRY | TROPIC APP | CLASSIC | | HIP & RIDGE |
| | | | | | | MODERN | TRIO SUPER | |
| Warranty, years | 60 | 55 | 50 | 50 | 50 | 30 | 30 | - |
| Bitumen modification | oxidized | oxidized | oxidized | oxidized | APP | oxidized | oxidized | SBS |
| Flow resistance, °C | 110 | 110 | 110 | 110 | 150 | 110 | 110 | 100 |
| Thickness per layer, mm | 3.2±0.2 | 3.0±0.2 | 3.0±0.2 | 2.7±0.2 | 2.8±0.2 | 3.0±0.2 | 3.1±0.2 | 3.4±0.2 |
| Bundle weight, kg | 38.1 | 26.4 | 27.0 | 32.5 | 25.5 | 32.1 | 33.0 | 25.0 |
| Coverage per bundle, m ² | 1.5 | 1.5 | 2.0 | 2.6 | 3.0 | 3.0 | 3.0 | 5.0 |
| Quantity on the pallet, m ² | 45.0 | 54.0 | 84.0 | 93.6 | 126.0 | 108.0 | 108.0 | 200 |

JAZZ COLLECTION

An exquisite color palette, an intricate play of hues and a dramatic 3D profile. A special pattern creates an appealing look of natural handmade tiles like slate or wooden shakes. These double-layer roofing shingles have an increased thickness and stand out for their enhanced endurance and wind resistance.



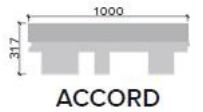
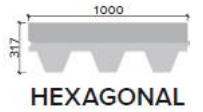
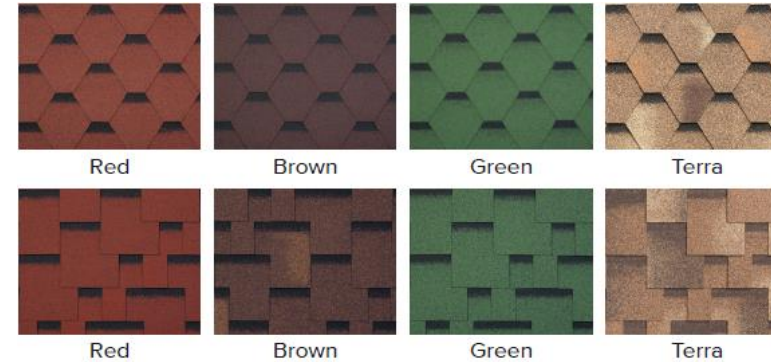
COUNTRY AR COLLECTION

This collection of double-layer roofing shingles comprises incredible color solutions that imitate diverse nature's shades and nuances. Vibrant color blends and expressive shadow lines create a wonderful dimensional visual image. Copper-containing color granules prevent algae grown on the roof for more than 10 years.



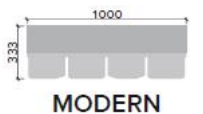
TROPIC APP COLLECTION

This collection was specially designed for Asian countries. These shingles are manufactured on a base of APP modified bitumen compound to provide quick and easy torch-on application. APP polymer and special additives give exceptional physical and mechanical properties to the product including the heat resistance of 150°C. Copper-containing color granules prevent algae grown on the roof for more than 10 years.



CLASSIC SERIES

The series covers a wide array of attractive colors and various cutting patterns to suit any taste. High-grade bitumen coating is used to produce these single-layer roofing shingles. The CLASSIC series offers an assured quality and comes with a manufacturer's warranty of 30 years.



TECHNONICOL HIP & RIDGE & STARTER SHINGLES

Hip & ridge & starter shingles produced with SBS modified bitumen are extremely flexible. These pre-cut shingles can be separated into three smaller pieces for further application on hips and ridges to add the perfect aesthetic finish to your roof. Maximum protection against wind, snow and rain is provided. Available in a wide range of colors to match any chosen roofing color solution.

Dimensions: 1 m x 0.25 m

Package: 12 lin. m (hips & ridge) and 20 lin. m (starter strip).





SYNTHETIC MEMBRANES

3 Plants



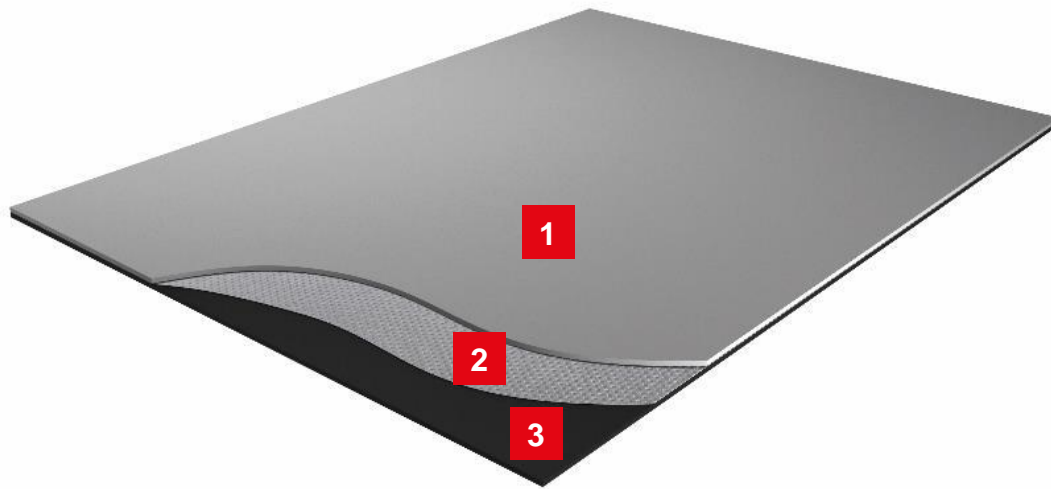
Quantity of
production lines

7

Total capacity

4,40,00,000 m²

PVC membrane structure:



1. Top PVC layer
2. Reinforcement (carrier)
3. Bottom PVC layer



Roof waterproofing



Swimming pool waterproofing



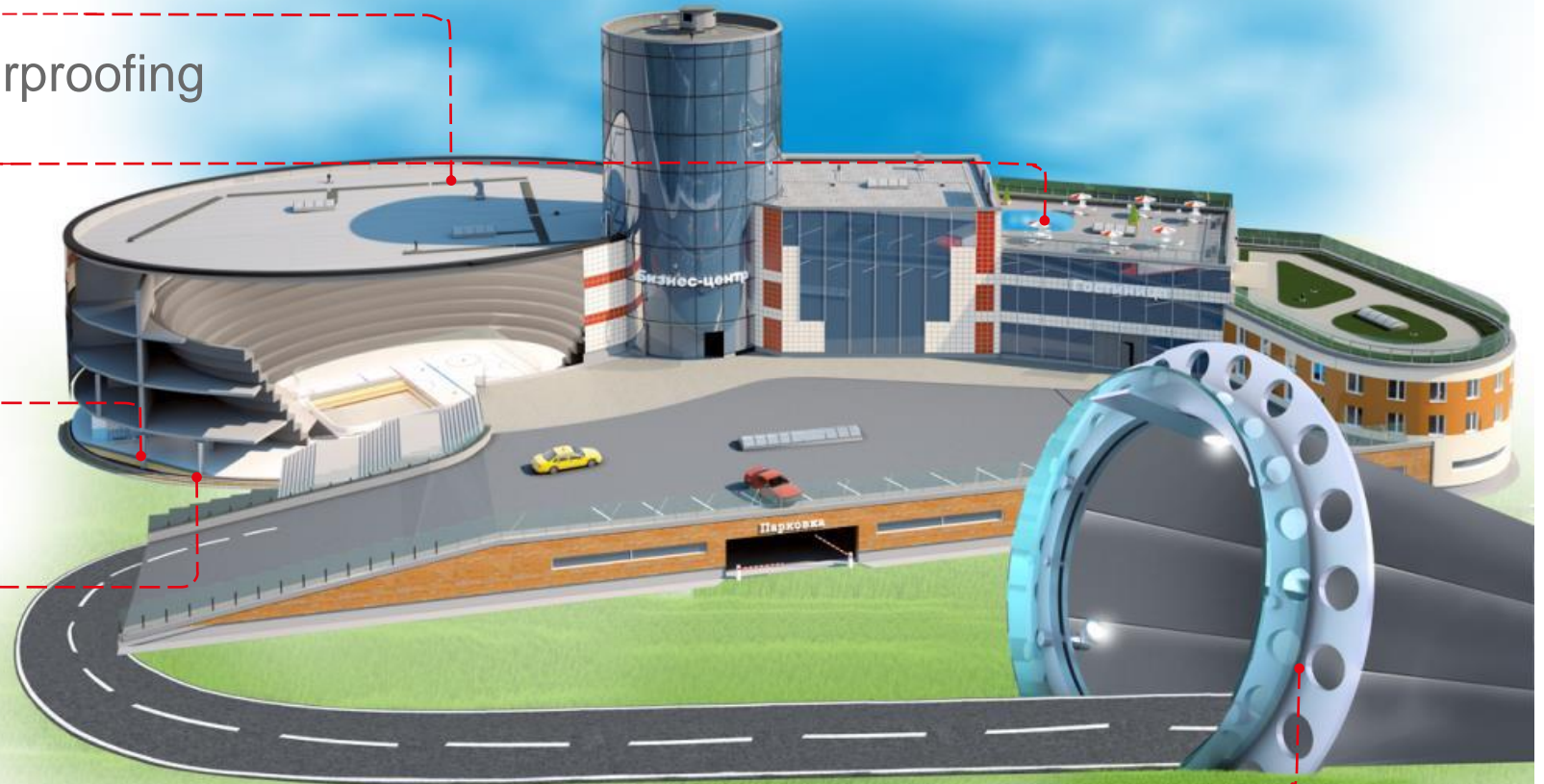
Foundation waterproofing



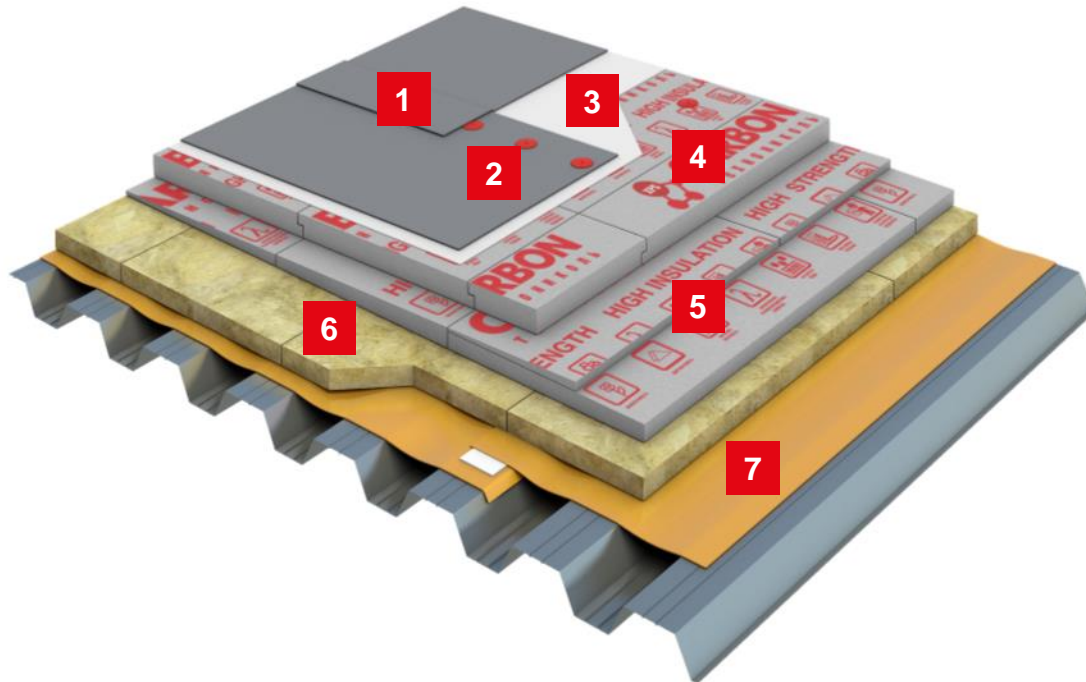
Drainage protection



Tunnels waterproofing

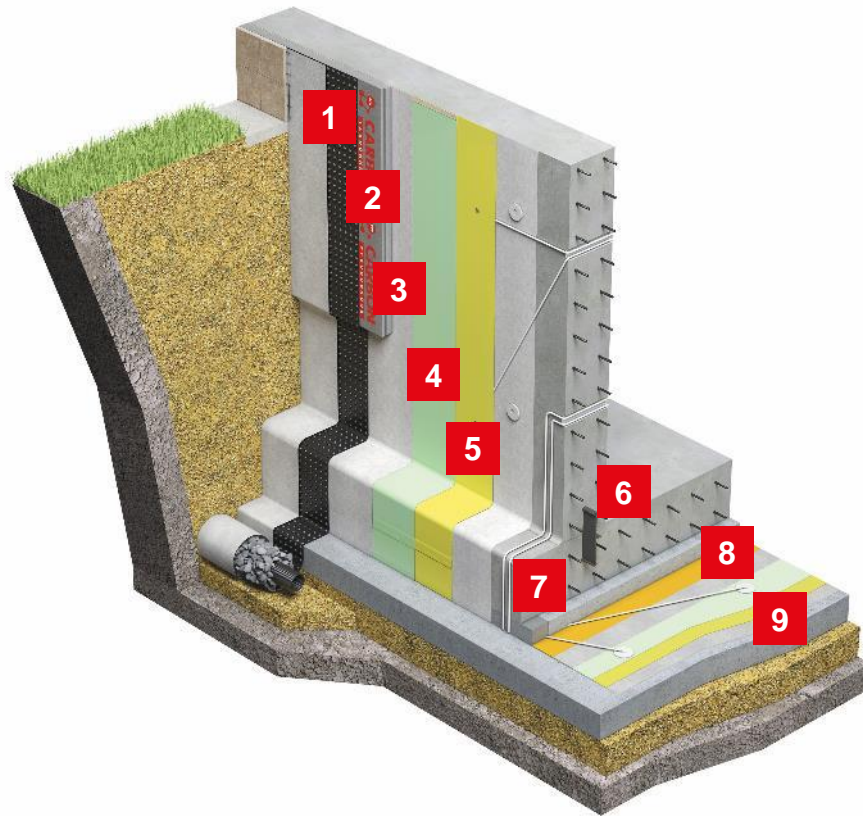


System solution for non-accessible flat roof:



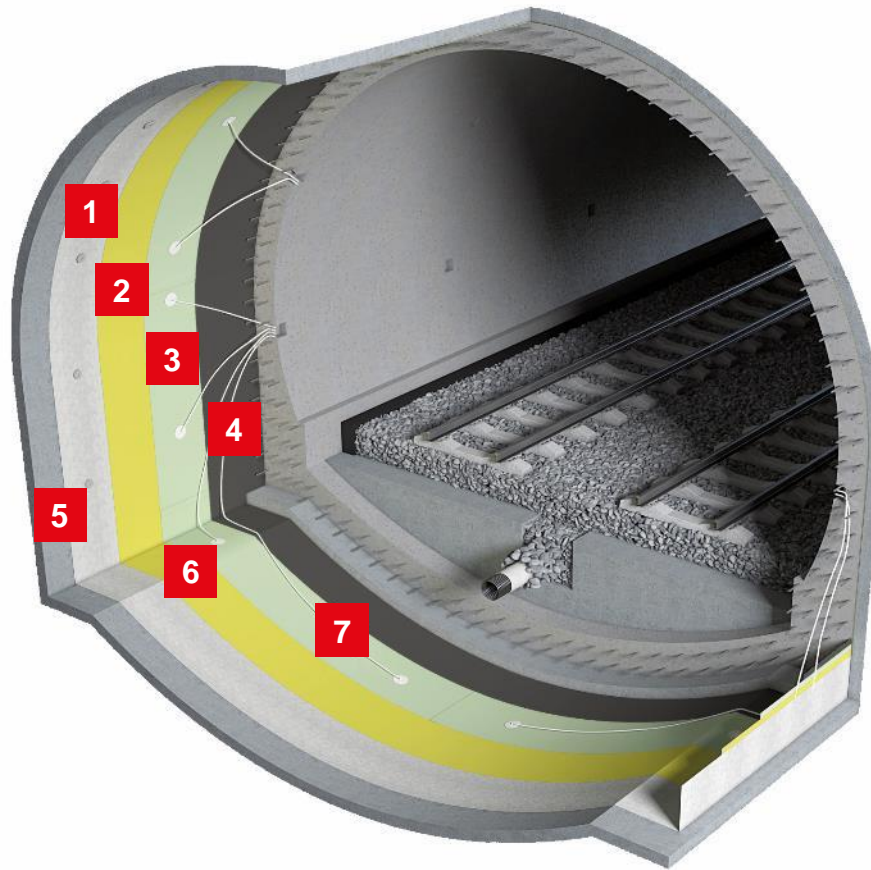
1. PVC membrane LOGICROOF V-RP
2. Telescopic fastener (anchor)
3. Separating layer
4. XPS TECHNONICOL CARBON
5. XPS TECHNONICOL CARBON SLOPE
6. Stone wool TECHNOROOOF N30
7. Vapor barrier VAPORSTOP CA 500

System solution for foundation with extra protection:



1. Drainage membrane with geotextile PLANTER geo
2. XPS TECHNOMICOL CARBON
3. Needle-punched geotextile
4. PVC membrane LOGICBASE V-ST
5. PVC membrane LOGICBASE V-SL
6. PVC waterstop
7. Injection tubes
8. PE film
9. Corner injection connector

System solution for tunnel with extra protection:



1. Needle-punched geotextile
2. PVC membrane LOGICBASE V-SL
3. PVC membrane LOGICBASE V-ST
4. PVC membrane LOGICBASE V-PT
5. PVC fixation rondel
6. Injection connector
7. Injection tubes

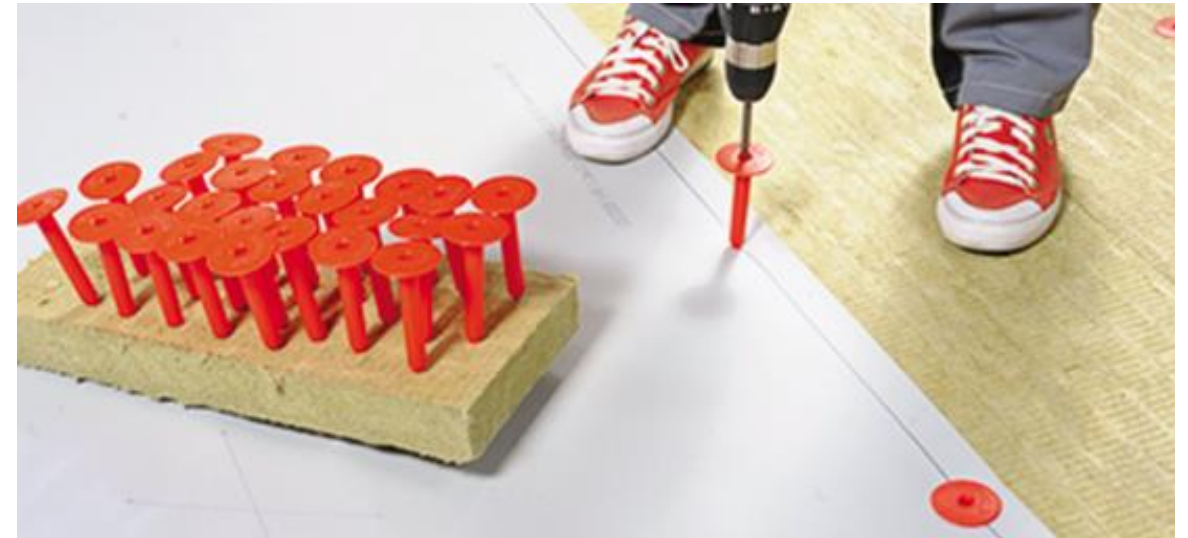


| Properties | LOGICROOF V-RP | LOGICROOF V-GR | LOGICBASE V-SL | LOGICBASE V-ST |
|---------------------------------------|-----------------------|---------------------|----------------|----------------|
| Thickness, mm | 1.2, 1.5, 1.8, 2.0 | 1.5, 2.0, 2.4 | 1.5, 2.0 | 1.6 |
| Length x width, m | 25, 20, 15, 15 x 2.10 | 20, 15, 15 x 2.05 | 20 x 2.05 | 20 x 2.05 |
| Mass per unit area, kg/m ² | 1.5, 1.8, 2.2, 2.7 | 1.8, 2.5, 3.2 | 2.0, 2.7 | 1.9 |
| Elongation, % | ≥18 | ≥200 | ≥350 | ≥300 |
| Tensile strength L / T | ≥1100 / ≥900 N/50 mm | ≥800 / ≥600 N/50 mm | ≥16 / ≥15 MPa | ≥14 / ≥11 MPa |
| Tear resistance, N | ≥150 | ≥150 | ≥150 | ≥150 |
| Peel resistance of joints, N/50 mm | ≥300 | ≥300 | ≥300 | ≥300 |
| Shear resistance of joints, N/50 mm | ≥700 | ≥700 | ≥700 | ≥700 |
| Foldability at low temperature, °C | ≤-30 | ≤-25 | ≤-30 | ≤-30 |

LOGICROOF V-RP

It is a polyester reinforced multi-layer PVC membrane, which is used for single-ply waterproofing of exposed flat roofs. It is fixed mechanically with hot air welding of overlaps.

Can be supplied in different colors: grey, white, red, green and blue. A variation with non-slippery textured surface of the top layer LOGICROOF V-RP (T) is available.



LOGICROOF V-GR

It is a glass fiber reinforced multi-layer PVC membrane, which is used for single-ply waterproofing of ballasted and inverted non-exposed flat roofs. It is loose laid, while overlaps are welded with the hot air.

Glass fiber reinforcement provides an increased resistance to punctures and mechanical impacts of sharp objects.



LOGICBASE V-SL

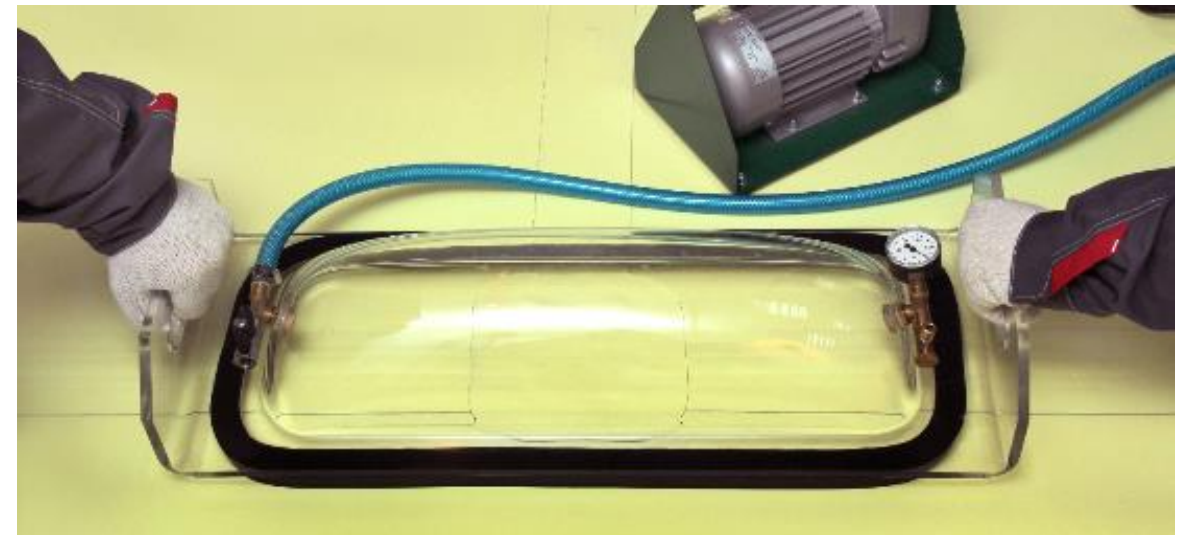
It is a non-reinforced PVC membrane, which is used for waterproofing of tunnels, foundations, underground structures. Sheets of the membrane are welded together with the hot air. On the walls and tunnel arches, the material is fixed mechanically with PVC rondels.

Yellow signal layer on the top surface of the material allows detecting waterproofing layer damage promptly and easily.



LOGICBASE V-ST

It is a non-reinforced PVC membrane, which is used for waterproofing of tunnels, foundations, underground structures as the second layer in double-layer PVC waterproofing systems with vacuum quality control. It is also used as a protective layer of the waterproofing PVC system. The material is welded with the hot air to the main waterproofing layer. Overlap seams are welded by hot air welding equipment.



PLANTER STANDARD

It is a profiled HDPE membrane, which is used for:

- Protection of waterproofing layer from mechanical damage
- Construction of preparation layer for foundation slabs
- Protection of foundation from capillary moisture
- Sanitation of damp walls



PLANTER GEO

It is a profiled HDPE membrane with geotextile, which is used for:

- Construction of vertical and horizontal drainage for foundations
- Construction of drainage, protective and separating layer for ballasted roofs and green roofs





PRIMERS AND MASTICS

8 Plants



Quantity of
production lines

8

Total capacity

2,00,000 tons



Prime coating



Waterproofing



Mounting of shingles or other materials



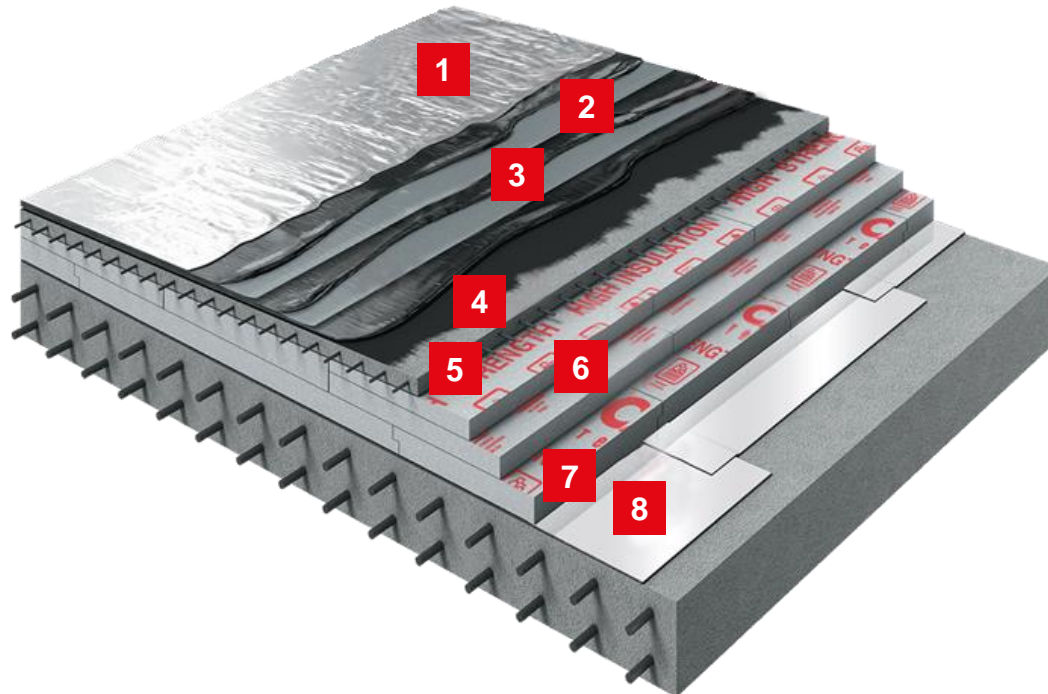
Construction and repair of roads and aerodromes



Inter panel seams sealing

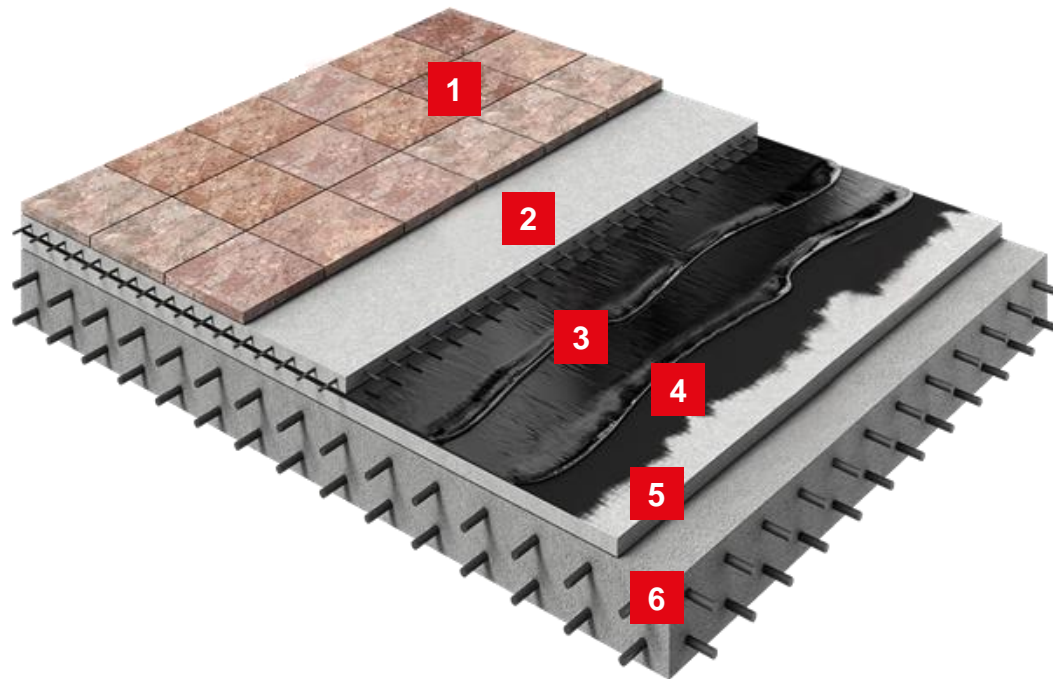


System solution for non-accessible flat roof with mastic:



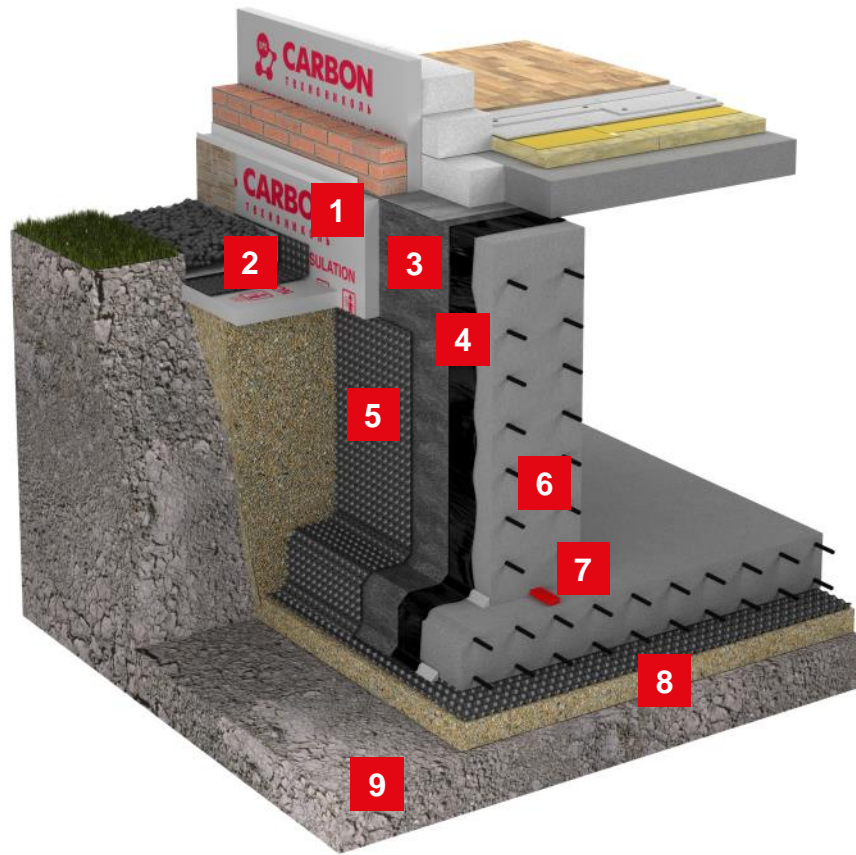
1. Reflective bitumen mastic
TECHNONICOL No.57
2. Glass fabric cloth 40 g/m²
3. Mastic TECHNONICOL No.21
4. BITUMEN PRIME COATING
(PRIMER TECHNONICOL No.01)
5. Reinforced sand cement screed
6. XPS TECHNONICOL CARBON SLOPE
7. XPS TECHNONICOL CARBON
8. Vapor barrier VAPORSTOP CA 500

System solution for waterproofing of floor decks and bathrooms:



1. Floor covering
2. Reinforced sand cement screed
3. Emulsion bitumen mastic
TECHNONICOL No.31
4. UNIVERSAL WATER BASED PRIMER
(PRIMER TECHNONICOL No.04)
5. Levelling strainer
6. Reinforced concrete floor deck

System solution for foundations in areas with low groundwater level:



1. XPS TECHNOICOL CARBON
2. Drainage membrane with geotextile PLANTER geo
3. Mastic TECHNOICOL No.21
4. BITUMEN PRIME COATING (PRIMER TECHNOICOL No.01)
5. Profiled HDPE membrane PLANTER standard
6. Below-grade wall
7. Swelling bentonite cord
8. Sand preparation
9. Ground

BITUMEN PRIME COATING

Ready to use BITUMEN PRIME COATING (PRIMER TECHNOMICOL No.01) is intended for preparation of the surface before installation of torched-on or self-adhesive waterproofing material. The primer presents a mix of high-quality bitumen and specially selected organic solvents. It has an enhanced covering capacity, penetrability and short drying time.



UNIVERSAL WATER BASED PRIMER

Ready to use UNIVERSAL WATER BASED PRIMER (PRIMER TECHNOMICOL No.04) is intended for preparation of the surface before installation of torched-on or self-adhesive waterproofing material. The primer is produced on the base of bitumen dispersion in water; it does not contain solvents. The primer has a neutral smell, so it is perfectly suited for indoor works.



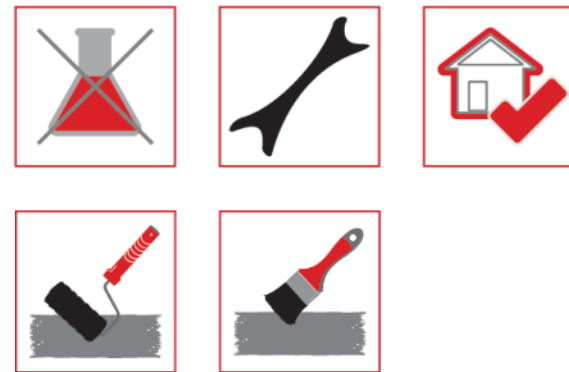
TECHNONICOL No.21

Ready to use roofing and waterproofing bitumen mastic TECHNOMICOL No.21 presents a mix of high-quality bitumen, special polymers, mineral fillers and organic solvents. After drying, it forms a high-strength waterproofing layer that considerably increases the service life of protected structures. The mastic can be used within a wide range of operating temperatures thanks to added polymers. Can be used for anticorrosion treatment of metal surfaces.



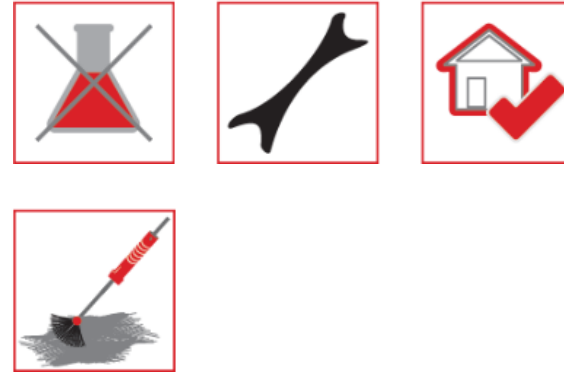
TECHNONICOL No.31

Ready to use waterproofing bitumen mastic TECHNOMICOL No.31 presents a mix of aqueous emulsion of bitumen, special polymers, additives and mineral fillers. It has an enhanced elasticity, heat endurance and water-resistant properties. The mastic has a neutral smell, so it is perfectly suited for indoor works.



TECHNONICOL No.33

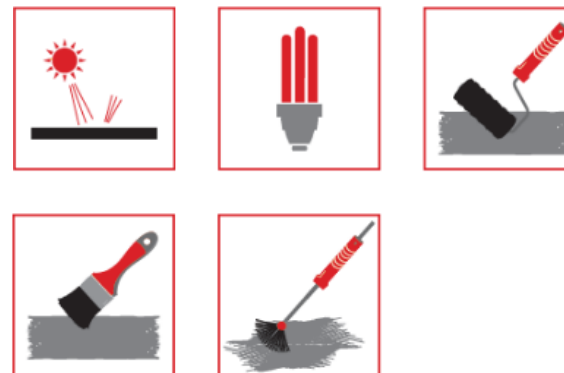
Waterproofing bitumen spray applied mastic TECHNOMICOL No.33 presents a mix of aqueous emulsion of bitumen, special polymers and latex additives. It has an outstanding elasticity, heat endurance and strength properties. The mastic has a neutral smell, so it is perfectly suited for indoor works. Spray application of the mastic can significantly reduce the time needed for installation of waterproofing layer.



TECHNONICOL No.57

Ready to use reflective bitumen mastic TECHNOMICOL No.57 presents a mix of high-quality bitumen, special polymers, aluminum pigment, additives and organic solvents. It is used for:

- Installation of the protective layer on new mastic roofs
- Recovery of the protective layer on old roofs
- Corrosion protection of roof coverings





PIR

1 Plant



Quantity of
production lines

1

Total capacity

3,00,00,000 m²



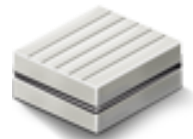
Thermal insulation of roofs



Thermal insulation of facades



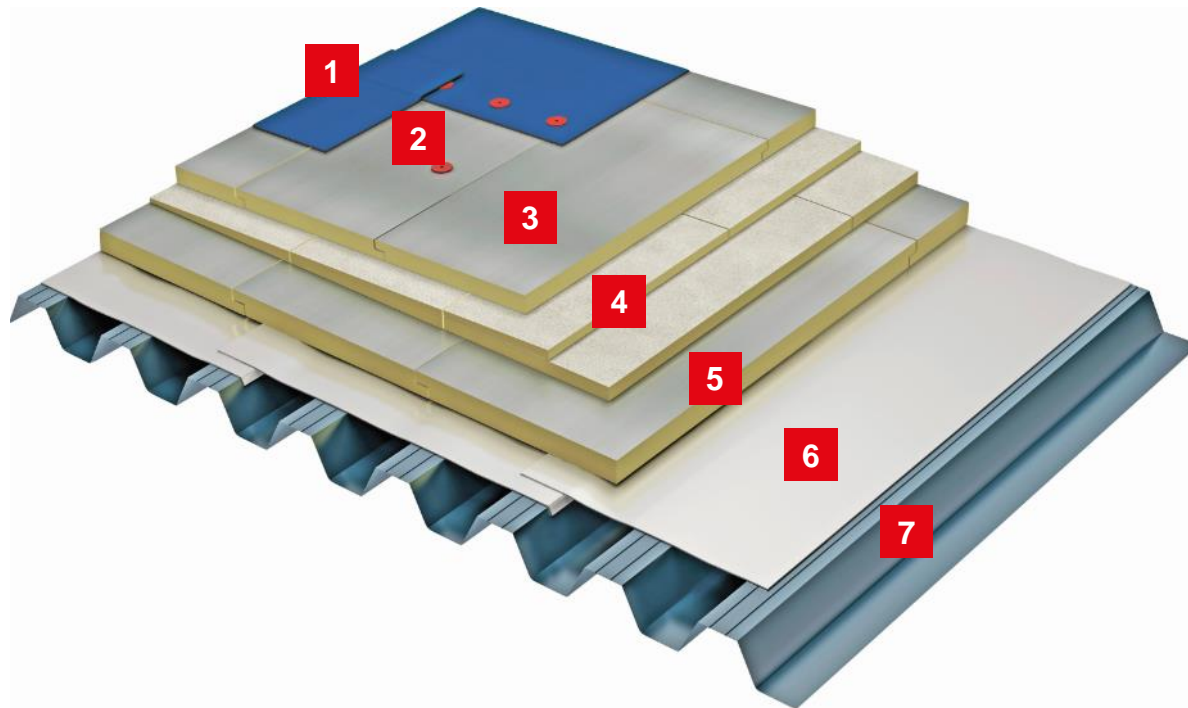
Thermal insulation of foundations, floors



Industrial production (sandwich panels)

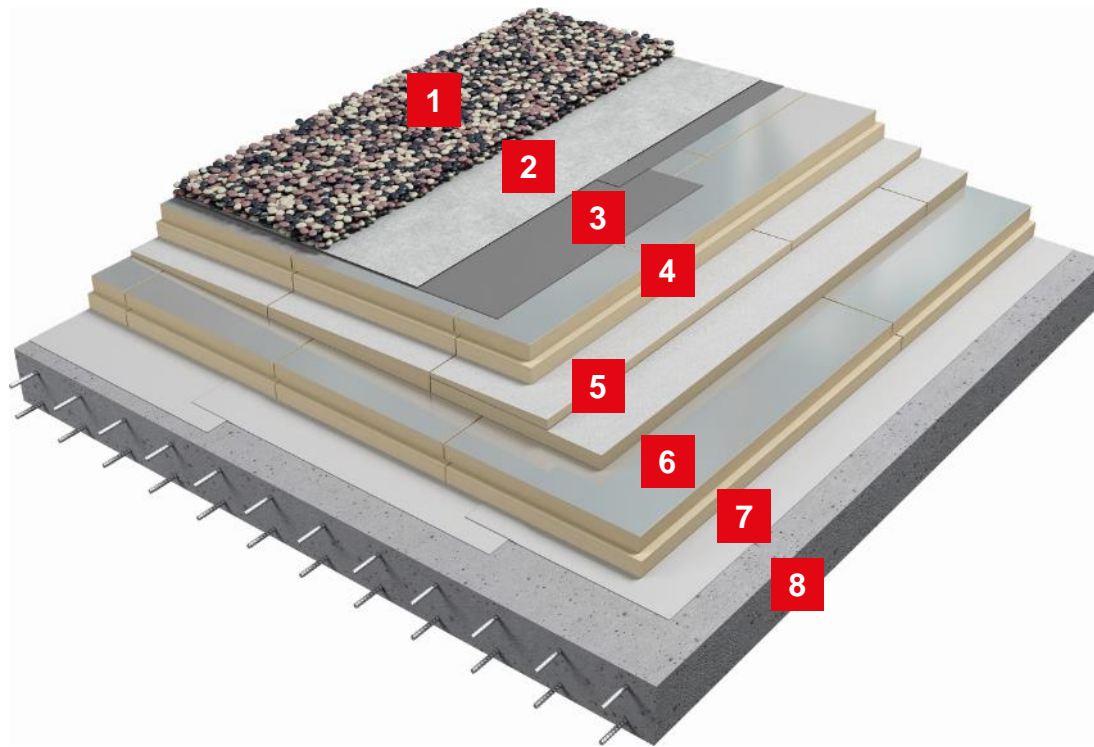


Mechanically fixed roofing system:



1. PVC membrane LOGICROOF V-RP
2. Telescopic fastener (anchor)
3. Thermal insulation board LOGICPIR
4. Thermal insulation board LOGICPIR Slope
5. Thermal insulation board LOGICPIR
6. Vapor barrier VAPORSTOP CA 500
7. Corrugated steel sheet

Ballasted roofing system:



1. Ballast
2. Geotextile 300 g/m²
3. PVC membrane LOGICROOF V-GR
4. Thermal insulation board LOGICPIR
5. Thermal insulation board LOGICPIR Slope
6. Thermal insulation board LOGICPIR
7. Vapor barrier VAPORSTOP CA 500
8. Reinforced concrete base



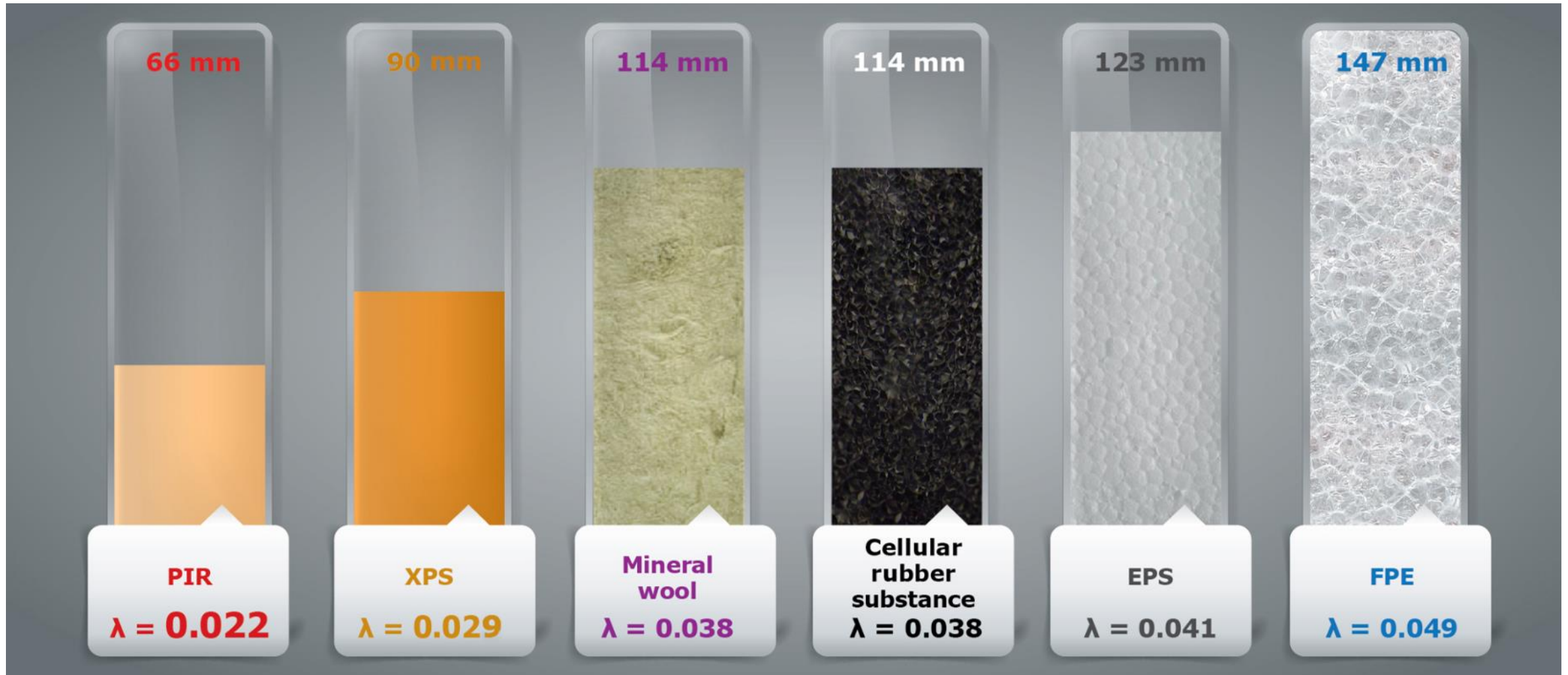
| Properties | LOGICPIR |
|---|-------------|
| Density, kg/m ³ | 35±5 |
| Length, mm | 1200, 2400 |
| Width, mm | 600, 1200 |
| Thickness (increments 10 mm), mm | 20-100 |
| Thermal resistance (depending on thickness), R _D , m ² *K/W | 0.95-4.76 |
| Thermal conductivity, λ _D , W/m*K | 0.022-0.023 |
| Long term water absorption by immersion, % | ≤1 |
| Reaction to fire – ignitability, Euroclass | E |
| Compressive stress at 10 % deformation, kPa | ≥120 |

LOGICPIR is an innovative thermal insulation board made of PIR (Polyisocyanurate), which is used in flat and pitched roofing systems, basements, floors and facades. Being very rigid and perfectly flat, LOGICPIR is an ideal substrate for roofing materials. The material is available with 2 types of the surface: aluminium foil or glass fibre mat. It has the following advantages:

- Record low thermal conductivity – 0.022 W/m*K
- Reliability and durability – throughout its 25-year service life, LOGICPIR retains its qualities
- Does not burn – when in contact with an open flame, polymer burns on the surface only
- Dynamic load resistance – compression strength of 120 kPa provides high resistance against deformation due to operation loads
- Low density – use of LOGICPIR reduces the overall weight of the construction
- Does not absorb water – the board structure consists of closed rigid cells, which do not allow water to come into the material



Thickness of different types of thermal insulation with the same R-value of 3.0 m²*K/W





Nicaragua



Russia



Malaysia



Latvia

EXTRUDED POLYSTYRENE

8 Plants



Quantity of
production lines

13

Total capacity

33,00,000 m³



Thermal insulation of roofs, facades



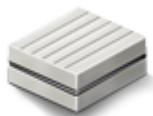
Thermal insulation of ice arenas, refrigerators



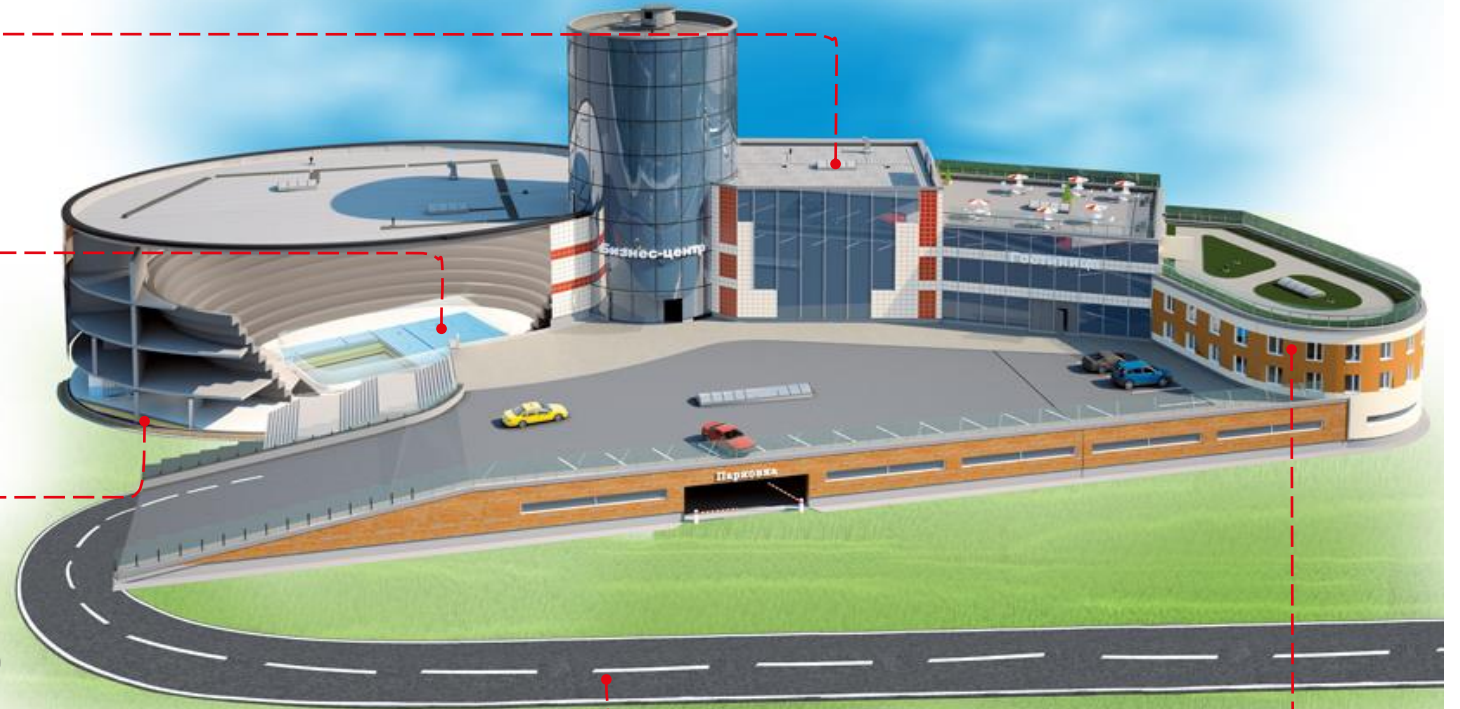
Thermal insulation of foundations, floors



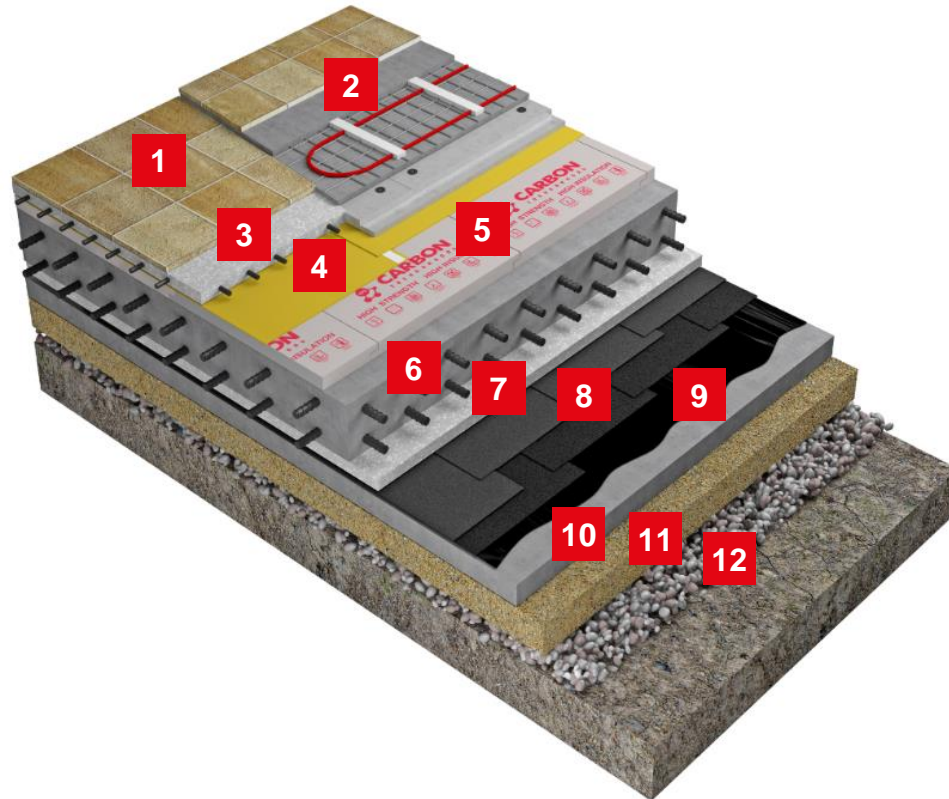
Transport construction (aerodromes, auto, railways)



Industrial production (sandwich panels)

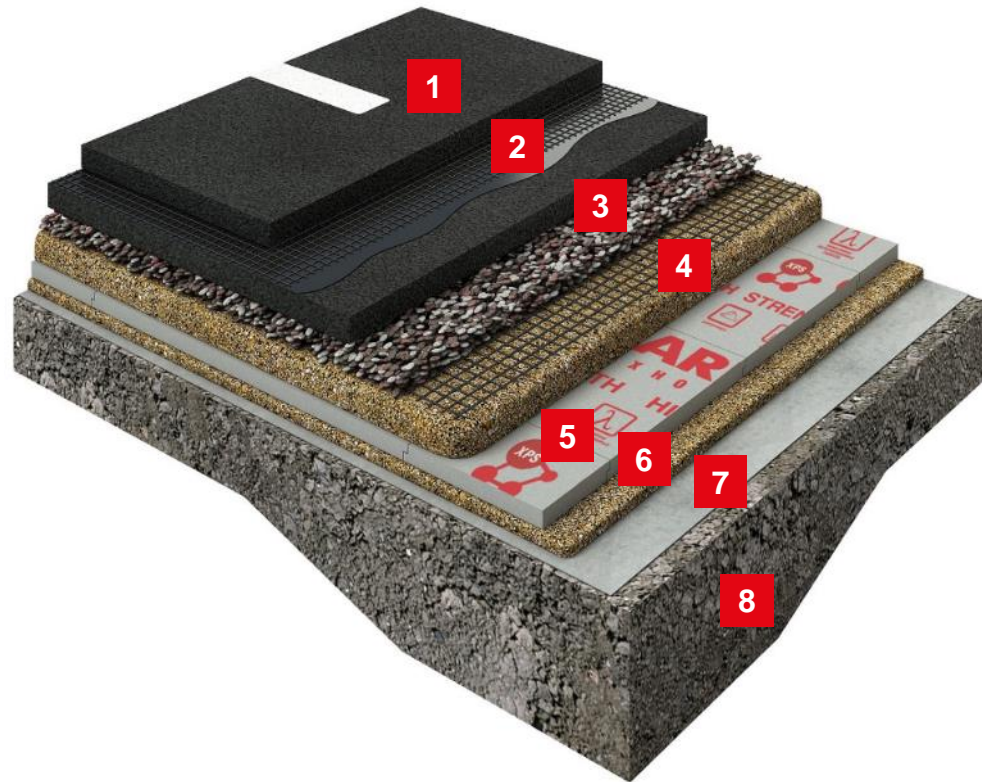


System solution “floor on the ground” with high pressure of groundwater:

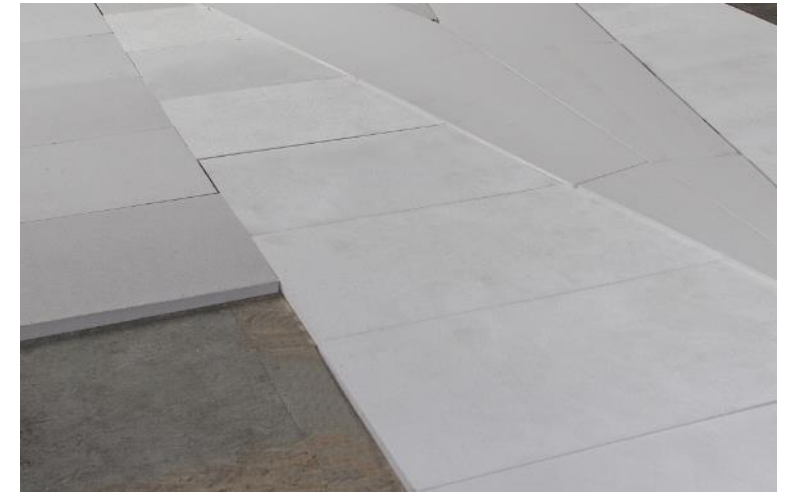
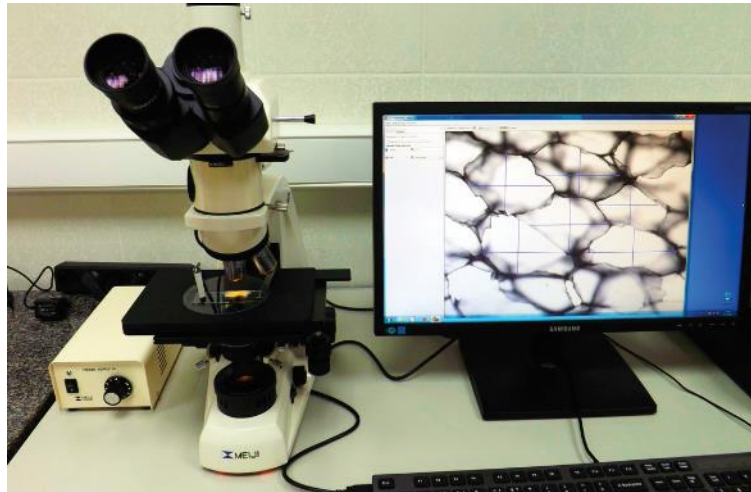


1. Ceramic tiles
2. Sand cement screed with heating elements
3. Reinforced sand cement screed
4. Polyethylene film
5. XPS TECHNONICOL CARBON
6. Reinforced concrete slab
7. Protective screed
8. Bitumen membrane ULTRAPLAST B – 2 layers
9. BITUMEN PRIME COATING (PRIMER TECHNONICOL No.01)
10. Concrete preparation
11. Sand preparation
12. Gravel preparation

System solution for highway:



1. Asphalt concrete
2. Bitumen road emulsion
3. Gravel
4. Sand
5. XPS TECHNOMICOL CARBON
6. Sand
7. Needle-punched geotextile
8. Soil



| Properties | TECHNONICOL CARBON PROF 300 | TECHNONICOL CARBON ECO |
|---|-----------------------------|------------------------|
| Density, kg/m ³ | 25-30 | 25-30 |
| Length, mm | 1180-4000 (±15) | 1180-4000 (±15) |
| Width, mm | 580-650 (±8) | 580-650 (±8) |
| Thickness (increments 10 mm), mm | 50-100 (±3) | 20-40 (±2) |
| Thermal resistance (depending on thickness), R _D , m ² *K/W | 1.471-2.941 | 0.558-1.176 |
| Thermal conductivity, λ _D , W/m*K | 0.028-0.034 | 0.034 |
| Long term water absorption by immersion, % | ≤0.2 | ≤0.2 |
| Reaction to fire – ignitability, Euroclass | F | F |
| Compressive stress at 10 % deformation, kPa | ≥300 | ≥200 |

Extruded polystyrene (XPS) is one of the most efficient thermal insulation materials, which is widely used for thermal insulation of foundations, roofs, floors, pipelines, roads and railways.

TECHNONICOL company specialists have developed a unique technology for producing extruded polystyrene slabs with nanoscale carbon particles. That allowed to significantly increase the thermal efficiency of the material and its' strength characteristics while decreasing the coefficient of water absorption to the minimum.



Minimal water absorption

XPS TECHNONICOL CARBON possesses almost zero water absorption coefficient: it does not absorb water during operation and does not swell and disintegrates.



Biostability and resistance to rodents

XPS TECHNONICOL is biological stable to molds - the main destructor of insulating materials. It is also is not a breeding ground for rodents.



Energy efficiency

According to the results of the trials, thermal conductivity coefficient of XPS TECHNONICOL is 0.029-0.034 W/m*K. Moreover, this value almost does not alter during operation.



Chemical resistance

Groundwater and precipitation may contain aggressive substances. XPS TECHNONICOL is chemically resistant and is not a subject to putrefaction.



Durability

The material does not lose its main properties with time, thus is highly durable. XPS TECHNONICOL has a durability of at least 40 years.



High strength

High strength enables using of XPS TECHNONICOL in loaded constructions: foundations, stylobate, load-bearing roofs, road construction. Compression strength at 10% linear deformation is not less than 200 kPa = 20 tons/m².



Indonesia



Estonia



Lithuania



Russia

STONE WOOL

7 Plants



Quantity of
production lines

14

Total capacity

93,00,000 m³



Thermal insulation of roofs



Thermal insulation of walls



Thermal insulation of floors



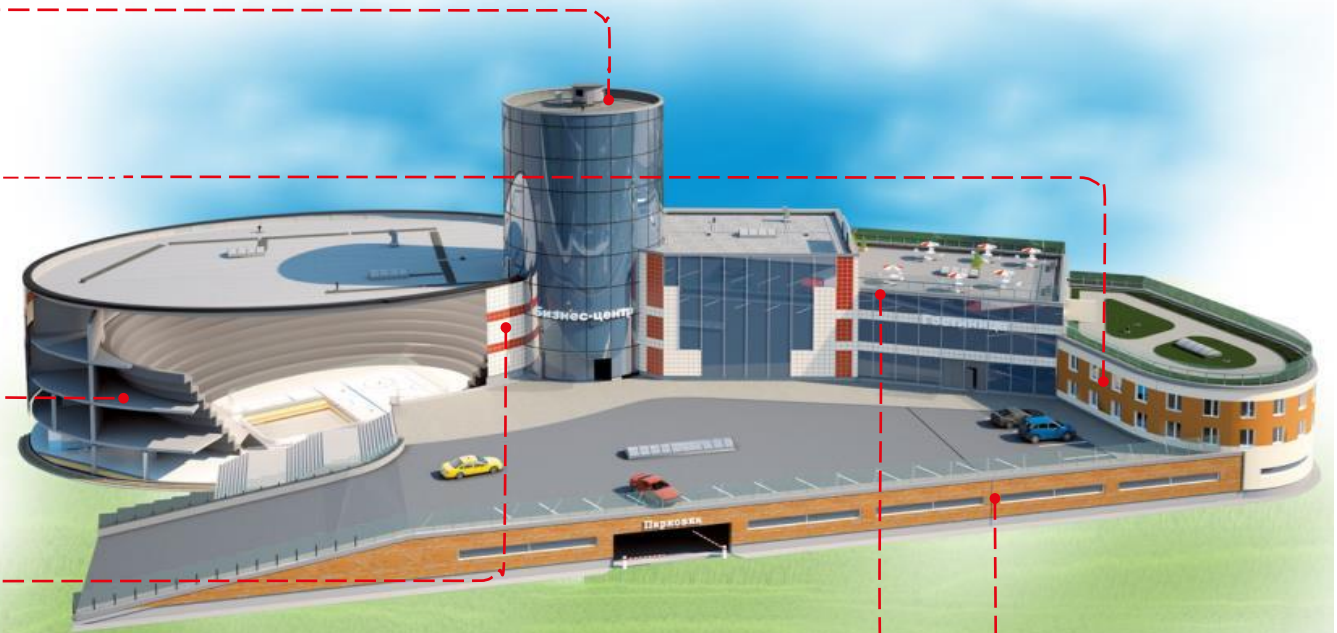
Thermal insulation of facades



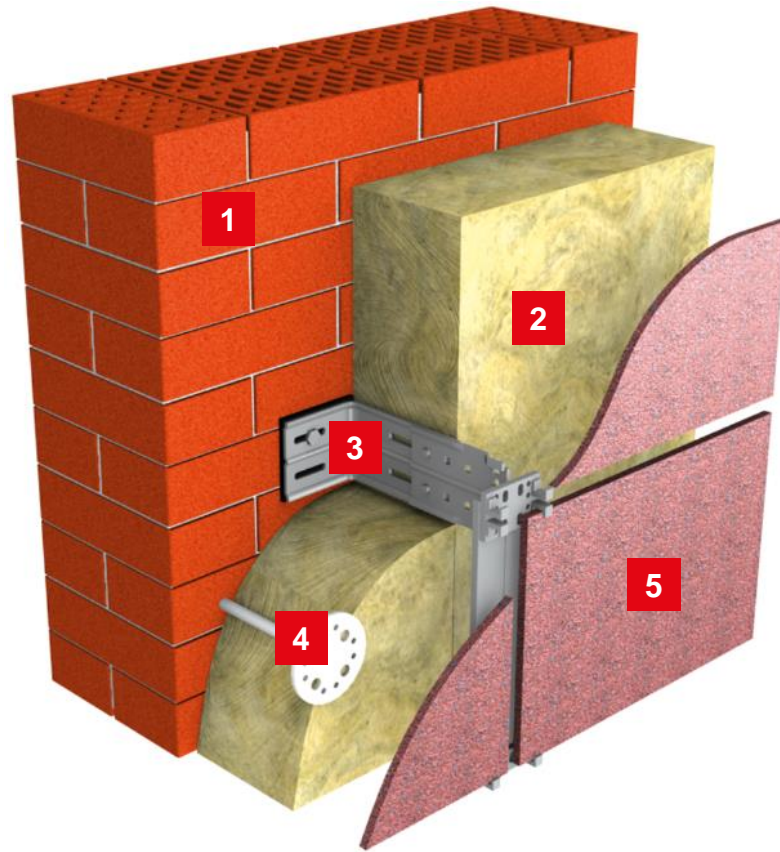
Fire protection



Technical insulation

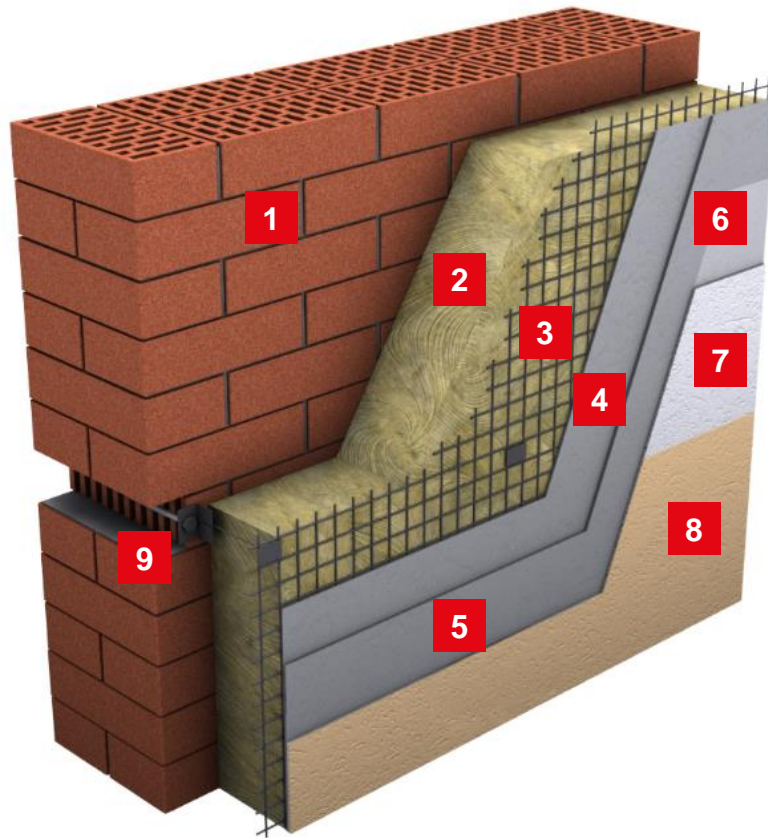


System solution for ventilated facade:



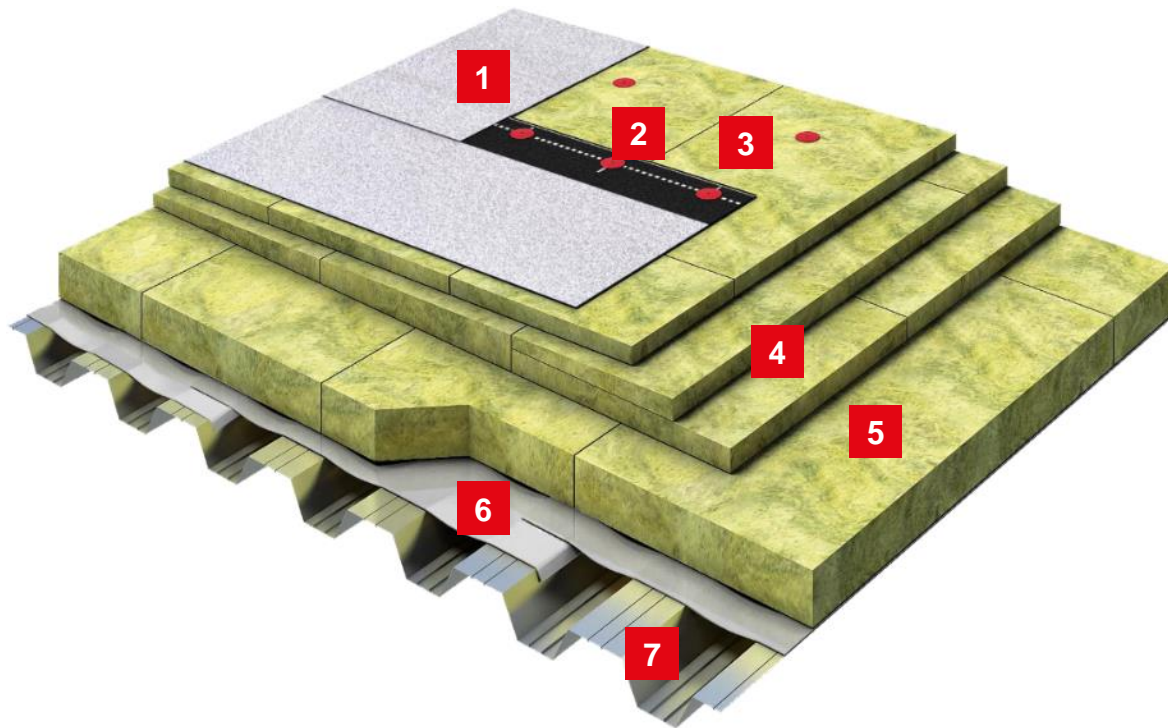
1. Bearing / self supporting wall
2. Stone wool TECHNOVENT STANDARD
3. Carrier subsystem
4. Dowel for stone wool with steel / plastic nail
5. Composite / porcelain / fiber cement

System solution for facade with plaster:



1. Bearing / self supporting wall
2. Stone wool TECHNOFACADE
3. Steel mesh
4. Primer layer
5. Leveling layer
6. Quartz primer
7. Decorative plaster
8. Paint (if required)
9. Steel anchor fastener

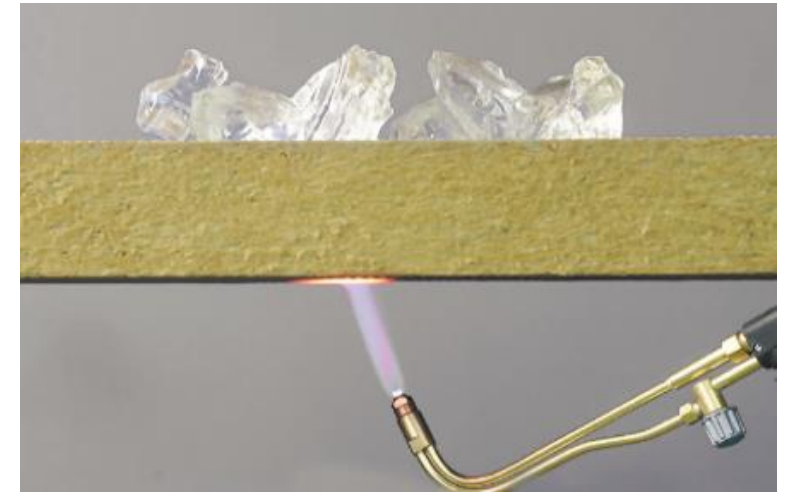
System solution for exposed non-accessible flat roof:



1. Cap sheet bitumen membrane
TECHNONICOL ENVIRO WHITE
2. Telescopic fastener (anchor)
3. Stone wool TECHNOROOF V60
4. Stone wool TECHNOROOF N30 SLOPE
5. Stone wool TECHNOROOF N30
6. Vapor barrier VAPORSTOP CA 500
7. Corrugated steel sheet



| Properties | TECHNOVENT STANDARD | TECHNOFACADE |
|---|---------------------|-----------------------------------|
| Density, kg/m ³ | 80±8 | 145±14 |
| Length, mm | 1000, 1200 | 1000, 1200 |
| Width, mm | 500, 600 | 500, 600 |
| Thickness (increments 10 mm), mm | 50-200 | 50-200 |
| Thermal resistance (depending on thickness), R _D , m ² *K/W | 1.40-5.70 | 1.30-5.45 |
| Thermal conductivity at 10 °C, λ _D , W/m*K | 0.035 | 50-90 mm: 0.038, 100-200 mm: 0.37 |
| Tensile strength, kPa | 5.0 | 15.0 |
| Point load, N | 100 | 400 |
| Compressive stress at 10% deformation, kPa | 10 | 40 |



| Properties | TECHNOROOF V60 | TECHNOROOF N30 |
|---|----------------|----------------|
| Density, kg/m ³ | 180±15 | 110±10 |
| Length, mm | 1200, 2400 | 1200, 2400 |
| Width, mm | 600, 1200 | 600, 1200 |
| Thickness (increments 10 mm), mm | 30-100 | 50-200 |
| Thermal resistance (depending on thickness), R _D , m ² *K/W | 0.75-2.60 | 1.35-5.45 |
| Thermal conductivity at 10 °C, λ _D , W/m*K | 0.038 | 0.036 |
| Tensile strength, kPa | 15.0 | 7.5 |
| Point load, N | 700 | 250 |
| Compressive stress at 10% deformation, kPa | 60 | 30 |

Long experience, modern equipment, continuous technology perfection and innovations made by the proprietary Research Center allow TECHNONICOL to manufacture stone wool products of stable premium quality. All our materials are produced from basalt rocks on advanced high tech equipment of leading European manufacturers.

TECHNONICOL basalt based non-flammable stone wool products present a mix of competitive price, uncompromising quality and numerous operational advantages to meet any needs of thermal insulation.



Fire safety

Gabbro-basalt rocks are the main raw material of stone wool products. Thanks to this, all TECHNONICOL stone wool products are non-flammable.



Water repellency

All TECHNONICOL stone wool is treated with water-repelling agents. Our stone wool is effectively protected against moisture.



Energy efficiency

TECHNONICOL stone wool is a highly effective thermal insulation material. High resistance to thermal transmission is achieved because of finest intertwined mineral wool fibers, which retain a large amount of air inside the material.



Vapor permeability

Vapor permeability of TECHNONICOL stone wool is high, materials do not retain the moisture coming from premises in the form of vapor created by human activities.



Chemical resistance

TECHNONICOL stone wool is notable for high chemical resistance to various substances: oils, solvents, paints, acidic and alkaline.



Powerful sound absorption

The fibrous structure of stone wool products secures excellent acoustic and sound-absorbing properties. TECHNONICOL stone wool has high sound-absorbing ratios in the broad range of frequencies, which decreases the level of airborne and impact noise.



RESEARCH AND TRAINING CENTERS





THANK YOU FOR ATTENTION!

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