

# RAVA PROOF

by



## bituminous waterproofing membrane catalog

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System Details

# Products



-10 °C / - 20 °C SBS



-10 °C / - 15 °C APP



-5 °C APP



0 °C APP



Self Adhesive

about us



**Ravago** is a multi-national group of companies present at 57 countries through its 230 member companies and **5400** employees, offering 54 years of its industrial and commercial experience to the customers world wide at its ultra modern waterproofing membrane production premise, using the latest technology.

Ravago with its fully equipped generic laboratory, managed by an highly experienced chemist team, aiming continuous improvement at its production premise. This independent laboratory is internationally accredited laboratory with the ability of providing 3rd party test reports.

Starting with raw material admission to final product delivery, Ravago has shown its deep dedication in achieving complete quality assurance at all processes of its production.

In addition to the quality assurance promise, Ravago also utilizes 6 Sigma management system in developing the most appropriate solutions to the various needs of different markets and developing specific purpose new generation products addressing the special market demands.

Its cost effective and quality sensitive approach; strategic location close to international ports and raw material suppliers; strength in managing the quality assurance and R&D activities at its generic laboratories and its valuable human resource allow Ravago welcoming new business partners in the region to enjoy the excellence in its products and services.



## SBS ELASTOMERIC MEMBRANE SERIES



-10 °C / -20 °C SBS

- Excellent aging properties, extensive thermal operating range , versatile and reliable at any latitude, fast and easy to apply even on structures with complex shapes.Very high flexibility.
- Reinforced with strengthened glassfiber ensuring excellent dimensional stability especially at high temperatures or with high performance glassfiber reinforced polyester felt, enhancing strength of the membrane and eliminating ruptures of the membrane during application, ensuring excellent mechanical properties and dimensional stability especially at high temperatures

DIAMOND Series By Weight	G 2KG G 3KG	G 3,5 KG MINERAL G 4KG MINERAL	Tolerance	P 3KG P 4KG	P 4KG MINERAL P 4,5KG MINERAL	Tolerance
Reinforcement	Glassfiber			Glassfiber Reinforced Polyester		
Upper Surface Coating	PE	Slate Chippings		PE	Slate Chippings	
Unit Weight (kg/m2)	2/3	3,5/4	± 10%	3/4	4/4,5	± 10%
Cold Bending °C	-10		±2	-10		±2
Flow Resistance °C	100		±10	100		±10
Elongation % (md/cmd)	4/4		±2	15/40		± 15
Tensile Strength (N/50mm) (mc/cmd)	350/200		± 20%	650/400		± 20%

DIAMOND Series By Thickness	P 4MM	+ P 4MM	EXTRA + P 4MM	Tolerance	P 4MM MINERAL	+P 4MM MINERAL	EXTRA +P 4MM MINERAL	Tolerance
Reinforcement	Glassfiber Reinforced Polyester				Glassfiber Reinforced Polyester			
Upper Surface Coating	PE				Slate Chippings			
Thickness (mm)	4			±0,2	4			+0,3
Cold Bending °C	-10	-20		±2	- 10	-20		±2
Flow Resistance °C	100			±10	100			±10
Elongation % (md/cmd)	15/40	45/50		±15	15/40	45/50		± 15
Tensile Strength (N/50mm) (mc/cmd)	650/400	900/650	900/720	± 20%	650/400	900/650	900/720	± 20%

## APP PLASTOMERIC MEMBRANE SERIES



- 10 °C / - 15 °C APP

APP modified high performance plastomeric multi-purpose torch-on waterproofing membranes modified with select polypropylene and copolymers, guaranteeing years of use in all climate types. Reinforced with strengthened glassfiber ensuring excellent dimension stability or with high performance glass reinforced polyester felt, enhancing strength of the membrane and eliminate ruptures of the membrane during application, ensuring excell mechanical properties and dimensional stability at all temperatures.

EMERALD Series By Weight	G 2KG G 3KG	G 3,5 KG MINERAL G 4KG MINERAL	Tolerance	P 3KG P 4KG	P 4KG MINERAL P 4,5KG MINERAL	Tolerance
Reinforcement	Glassfiber			Glassfiber Reinforced Polyester		
Upper Surface Coating	PE	Slate Chippings		PE	Slate Chippings	
Unit Weight (kg/m2)	2/3	3,5/4	± 10%	3/4	4/4,5	± 10%
Cold Bending °C	-10		±2	-10		±2
Flow Resistance °C	130		±10	130		±10
Elongation % (md/cmd)	4/4		±2	15/40		± 15
Tensile Strength (N/50mm) (mc/cmd)	350/200		± 20%	650/400		± 20%

EMERALD Series By Thickness	P 4MM	+ P 4MM	Tolerance	P 4MM MINERAL	+ P 4MM MINERAL	Tolerance	VIADUCT Series By Thickness	P 4MM P 5MM	Tolerance
Reinforcement	Glassfiber Reinforced Polyester			Glassfiber Reinforced Polyester			Reinforcement	Polyester	
Upper Surface Coating	PE			Slate Chippings			Upper Surface Coating	PE	min
Thickness (mm)	4		±0,2	4		+0,3	Thickness (mm)	4/5	±0,2
Cold Bending °C	-10	-15	±2	-10	-15	±2	Cold Bending °C	-10	min
Flow Resistance °C	130	120	±10	130	120	±10	Flow Resistance °C	120	min
Elongation % (md/cmd)	45/50		±15	45/50		± 15	Elongation % (md/cmd)	40/40	min
Tensile Strength (N/50mm) (mc/cmd)	900/650		± 20%	900/650		± 20%	Tensile Strength (N/50mm) (mc/cmd)	1000/800	min

APP

PLASTOMERIC MEMBRANE SERIES



APP modified high performance plastomeric multi-purpose torch-on waterproofing membranes modified with select polypropylene and copolymers, guaranteeing years of use in all climate types. Reinforced with strengthened glassfiber ensuring excellent dimension stability or with high performance glass reinforced polyester felt, enhancing strength of the membrane and eliminate ruptures of the membrane during application, ensuring excell mechanical properties and dimensional stability at all temperatures.

RUBY Series By Weight	G 2KG G 3KG	G 3,5 KG MINERAL G 4KG MINERAL	Tolerance	P 3KG P 4KG	Tolerance	P 4KG MINERAL P 4,5KG MINERAL	Tolerance
Reinforcement	Glassfiber			Glassfiber Reinforced Polyester		Double Glassfiber Reinforced Polyester	
Upper Surface Coating	PE	Slate Chippings		PE		Slate Chippings	
Unit Weight (kg/m2)	2/3	3,5/4	± 10%	3/4	± 10%	4/4,5	± 10%
Cold Bending °C	-5		±2	-5	±2	-5C	±2
Flow Resistance °C	130		±10	130	±10	130	±10
Elongation % (md/cmd)	3/3		±1	15/30	± 15	4/4	± 2
Tensile Strength (N/50mm) (mc/cmd)	300/200		± 20%	400/300	± 20%	400/250	± 20%

RUBY Series By Thickness	G 2MM G 3MM	Tolerance	P 3MM P 4MM	Tolerance	P 3MM MINERAL P 4MM MINERAL	Tolerance
Reinforcement	Glassfiber		Glassfiber Reinforced Polyester		Double Glassfiber Reinforced Polyester	
Upper Surface Coating	PE		PE		Slate Chippings	
Thickness (mm)	2/3	±0,2	3/4	±0,2	3/4	+0,3
Cold Bending °C	-5		±2	-5	±2	±2
Flow Resistance °C	130		±10	130	±10	±10
Elongation % (md/cmd)	3/3		±1	15/30	±15	± 2
Tensile Strength (N/50mm) (mc/cmd)	300/200		± 20%	400/300	± 20%	400/250 ± 20%

APP

PLASTOMERIC MEMBRANE SERIES



APP modified high performance plastomeric multi-purpose torch-on waterproofing membranes modified with select polypropylene and copolymers. Reinforced with strengthened glassfiber ensuring excellent dimension stability or with high performance glass reinforced polyester felt, enhancing strength of the membrane and eliminate ruptures of the membrane during application, ensuring excell mechanical properties and dimensional stability at all temperatures.

SAPPHIRE Series By Weight	G 2KG G 3KG	G 3,5KG MINERAL G 4KG MINERAL	Tolerance	P 3KG P 4KG	Tolerance	P 4 KG MINERAL P 4,5 KG MINERAL	Tolerance
Reinforcement	Glassfiber			Glassfiber Reinforced Polyester		Double Glassfiber Reinforced Polyester	
Upper Surface Coating	PE	Slate Chippings		PE		Slate Chippings	
Unit Weight (kg/m2)	2/3	3,5/4	± 10%	3/4	± 10%	4/4,5	± 10%
Cold Bending °C	0		±2	0	±2	0	±2
Flow Resistance °C	130		±10	130	±10	130	±10
Elongation % (md/cmd)	3/3		±1	15/30	± 15	4/4	±2
Tensile Strength (N/50mm) (mc/cmd)	300/200		± 20%	400/300	± 20%	400/250	± 20%

SAPPHIRE Series By Thickness	G 2MM G 3MM	Tolerance	P 3MM P 4MM	Tolerance	P 3MM MINERAL P 4MM MINERAL	Tolerance
Reinforcement	Glassfiber		Glassfiber Reinforced Polyester		Double Glassfiber Reinforced Polyester	
Upper Surface Coating	PE		PE		Slate Chippings	
Thickness (mm)	2/3	±0,2	3/4	±0,2	3/4	+0,3
Cold Bending °C	0		±2	0	±2	±2
Flow Resistance °C	130		±10	130	±10	±10
Elongation % (md/cmd)	3/3		±1	15/30	±15	±2
Tensile Strength (N/50mm) (mc/cmd)	300/200		± 20%	400/300	± 20%	400/250 ± 20%



SBS

## SELF ADHESIVE MEMBRANE SERIES



Self adhesive membrane series consisting of rubberized bitumen with adhesive additives, glassfiber/polyester carrier, removable PP film at bottom and high density polyethylene film at top.

**Features and Benefits**

- Eliminated the need for torching or mopping
- Ensured quick, clean and easy lapping of rolls
- No open flame on your roof
- Clean and neat application
- Safe application
- 100% UV protected

RAVASTICKY Series By Weight	G 2 KG G 3 KG	Tolerance
Reinforcement	Glassfiber	
Upper Surface Coating	PE	
Unit Weight (kg/m2)	2/3	± 10%
Cold Bending °C	-10	±2
Flow Resistance °C	90	±10
Elongation % (md/cmd)	4/4	±2
Tensile Strength (N/50mm) (mc/cmd)	350/200	± 20%

RAVASTICKY Series By Thickness	G 3MM	Tolerance	P 3MM	Tolerance
Reinforcement	Glassfiber		Polyester	
Upper Surface Coating	PE		PE	
Thickness (mm)	3	±0,2	3	±0,2
Cold Bending °C	-10	±2	-10	±2
Flow Resistance °C	90	±10	90	±10
Elongation % (md/cmd)	4/4	± 2	30/30	± 15
Tensile Strength (N/50mm) (mc/cmd)	350/200	± 20%	650/450	± 20%

Self Adhesive Series

**Typical Application Areas**

Applied cold on surfaces which are to be protected against water penetration:

Roofs- protection of cement roofs, protection of wooden roofs, even with high sloping; protection of ventilated metal roofs. Concrete-Ideal for waterproofing concrete, masonry and wood surfaces where in-service temperatures will not exceed 54° C. Use with bitumen Primers.

**Application****Surface Preparation and Priming**

A fundamental requirement of any bituminous membrane system is that it must provide protection from all weather conditions likely to be experienced during its design life. All individual layers in a bituminous membrane system must be watertight, and together the whole system must be waterproof.

Application area should be removed from stains and be smooth. For this purpose, Bitumen Primer needs to be applied on surface before application. Cover primed surfaces with self-adhered roofing membranes the same day.

**Application of Membrane**

1. Starting at the roof drains and vertical to the roof slope, apply the self-adhesive membrane without adhering in parallel lines. Unroll onto the below surface for alignment. Do not immediately remove the release sheet.

2. Overlap the membrane next to another along the side lap and the ends. Side overlap creates longitudinal overlap between two sheets. End overlap creates a join between shorter sides of the sheets To overlap at side laps, just remove the PP bant (7.5 cm) and apply to the adjacent membrane practically. Ensure full adherence.

3. Release the PP film and adhere this part of the self-adhesive membrane to the surface. Release PP film on the remaining part at a 45° angle to avoid wrinkles in the self-adhesive membrane sheet.

4. Overlap adjacent self-adhesive membrane by 7,5 cm. Overlap end laps by 15 cm. Finish with weighted roller to ensure a continuous adherence to the surface.



## Application of Membrane

### General

A fundamental requirement of any torch-on membrane system must be watertight, and together the whole system must be water-proof.

### Preparation

Application area should be removed from stains and be smooth.

For this purpose, Bitumen Primer needs to be applied on ground before application.

### Installation Procedure

By application of the heat, usually a portable gas torch, to the underside of the membrane sheet as it is rolled out. This softens the bitumen, which then bonds to the substrate or the membrane layer beneath.

#### 1. Arrangement of the sheets

The sheets must be arranged overlapping each other starting from the water outlet or roof valleys

#### 2. Side and head overlaps of the membranes

Side overlap creates longitudinal overlap between two sheets. The sheets must be carefully bonded until a bead of compound wide about 1 cm is squeezed out along the join overlaps. Side overlap width must not be less than 10 cm.

Head overlap creates a join between shorter sides of the sheets. They must be treated very carefully.

The membrane shall be heated enough until a bead of material 1 cm wide is squeezed out. Head overlapped sections wide should not be less than 15 cm.

Where semi-bonded bitumen sheets are laid, membranes must be bonded completely on the head overlaps surface at least 1 m on the both sides.

#### 3. Fully-bonded application

Both the membrane and base substrate must be heated with emphasis on the membrane.

The membrane sheet already laid must be also treated with a direct flame on the overlapped surfaces.

#### 4. Double layer systems

If second layer is required it must be arranged across the overlaps of the first layer and heat-bonded onto the whole surface and overlaps. The bonding areas at side overlap are free from mineral granules, but for head overlap between top and lower parts of membranes, with mineral granules the underlying membrane needs to be heated in order to draw the bitumen compound to the surface.

This is done by long time heating and will give perfect bonding of the two edges. The bitumen compound of the top membrane sheet must be also heated, but always moderately.



## Storage

Flashings must be stored in such a way to prevent any creasing, twisting, scratches and other damages of the roof. The materials will be protected adequately and stored permanently away from flames or welding sparks, protected from bad weather and any harmful substances. Keep all membranes upright.

1. Rolls should always be stored and transported at upright position.
2. Membrane pallets should not be stored on top of each other and similarly, heavy loads should never be placed on membrane pallets.
3. Bituminous membranes should be stored at closed areas where room temperature is above

+5° C. They should never be stored outside as pallets are exposed to direct sun shine and should always be kept away from heat sources.

4. Membrane rolls should not be laid outside if there is no cover on them. High temperature may lead to longitudinal shrinkage and latitudinal expandage at membranes with polyester carrier. For bituminous membranes, recommended shelf-life is 12 months. Later than this date, membrane performance is diminishing.

### Packaging:

Pallets are covered by UV Resistant White Shrinks

## Safety Precaution

RavaProof membranes must be applied by qualified applicators who have received an adequate training, for the prevention and the protection (in particular for the use of the extinguishers) against accidents caused by the combustible or flammable materials, of liquefied propane gas, open flame and their material of installation.

Check the construction and the composition of the systems of roof and the walls before applying. Ensure the cleanliness of the places.

Use only proper torching equipment in perfect working order certified by local standard organizations. Use only proper hoses suited for propane gas of less than 15m.

Verify and tighten all the connections before the use of the equipment. Do not light the torch if a propane odour is present. Never seek a leak with a flame. Use soapy water. Use a torch whose gas output is adjustable with a stopping device. Follow the specifications, notices and documentations of the manufacturer and site authorities.

The wearing of gloves, long sleeves, long trousers, safety boots, helmet and safety glasses is recommended. Do not wear synthetic fabrics.

Remove clothing contaminated with solvents. Avoid skin contact. Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times. Whilst using, do not eat, drink or smoke. In the event of any localised changes in appearance or texture of the skin being noticed, medical advice should be sought without delay.

Contact with hot product will cause burns. Ensure good ventilation and avoid, as far as reasonably practicable, the inhalation and contact with vapours, mists or fumes which may be generated during use. If such vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

Avoid contact with eyes.

Highly toxic hydrogen sulphide gas may be emitted from hot product and accumulate in enclosed spaces or tanks. Extreme care must therefore be taken during venting of closed spaces which have, at any time contained hot product. Under no circumstances should entry be made in to small enclosures without taking full precautions.



### Hints For The Best Performance

#### 1. Membrane rolls should not be left open for a long time.

Longitudinal draughts or expanding in transverse direction may be seen on bituminous membranes in high temperatures. It should be noted that the polyester mat reinforced membrane subject to heat effect, may draught up to 7 cm longitudinally.

#### 2. The heat will increase while storing bituminous membrane rolls under dark cloths in a hot environment, thus, dark cloths should not be used for covering.

The product may reach +70 °C easily in shrink packaging. Dark cloths may cause over-multiplying of this temperature. In this case, undesirable situations indicated in the 3rd Article may occur. The product should be ventilated by opening holes on the shrink packaging or rolls could be stored separately on a smooth surface within a closed environment (if possible) in the summer days, when the temperature is high.

#### 3. Bituminous membrane products can be used compatible with construction materials should be kept away from any kind of solvent compounds, petroleum solvents, bleaching and corrosive chemical substances.

Physical and chemical contact of bituminous membranes with chemical substances may cause deterioration.

#### 4. Required surface preparation process should be completed before bituminous membrane application.

Surfaces will be applied bituminous membranes should be clean and smooth, preferably glazed with wooden float, free from contaminants, such as dirt, oil, grease, etc. which may damage waterproof feature. Primer or bitumex primer should be applied to the reinforced concrete surfaces according to TS 113, and waterproofing membrane must be applied according to the bonding method after waited until required drying period.

#### 5. Membrane applications should be performed by authorized and certified membrane masters. In order to prevent possible accidents and insulation problems, it is very important to be performed the application by qualified personnel, who has required technical knowledge and occupational training in this regard.

Insulation problems may occur due to wrong applications and lack of technical knowledge of unqualified personnel. Furthermore, if you use unqualified personnel, you may face with accidents during work with flammable materials and equipments using some inflammable and combustible materials, such as liquid propane gas.

#### 6. In the applications will be made in low temperatures, products should be stored at least 24 hours at + 5 °C temperatures before application. Bituminous membranes should not be left open after open its package, and should be applied within a short time (as soon as possible).

Some problems may occur for inner layers of the roll subject to low temperatures, for example the roll may not be opened easily due to low outdoor temperature. In order to provide a healthy and easy application, the process should not be applied at temperatures below + 5 °C.

#### 7. It is recommended to use lower temperature ranges during the day for applications to be made in regions with a warm climate.

Application performance may decrease due to applications will be held under high temperatures, especially with rising temperatures occurred due to torch effect; and visual defects and dimensional changes may occur in especially polyester reinforced membranes.

#### 8. Product pallets should be stored on a smooth surface during transportation and storing.

Products, not stored on a smooth surface may change its shape due to point charge impact.

#### 9. Bituminous membranes should be applied as soon as possible without waiting in stocks.

Recommended shelf life for membrane products is 12 months. Using of membranes waited more than 12 months at the shelf is not recommended due to performance decreases and ageing. (Some problems, such as indurations, stiffening, cracking during opening, change in dimensions, etc. due to performance decrease of membranes may be seen).

#### 10. Sufficient amount of torch flame should be applied.

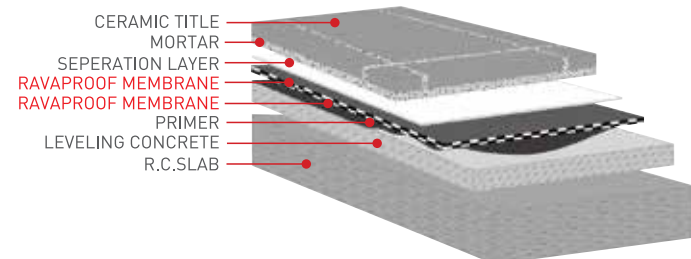
With sufficient torch flame, required adhesion strength could be obtained for bituminous membranes without need an additional solvents and adhesives. If torch flame will be applied more than required, the carrier may damaged and traction, undulation, and even perforation on the membrane can be seen as a result of this application.

#### 11. Bituminous membrane products can be used compatible with construction materials should be kept away from any kind of solvent compounds, petroleum solvents, bleaching and corrosive chemical substances.

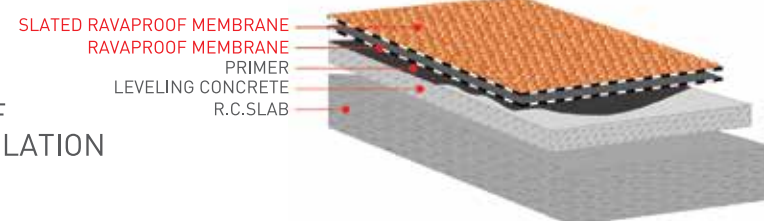
Physical and chemical contact of bituminous membranes with chemical substances may cause deterioration.



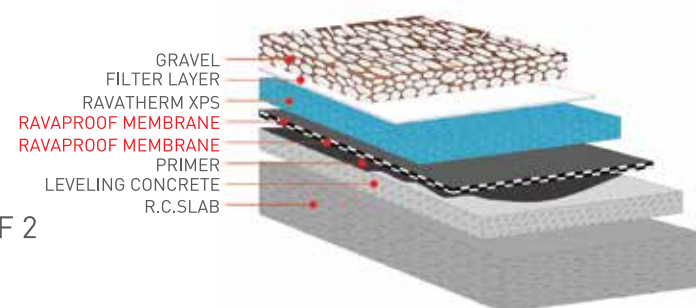
TRAFFICABLE FLAT ROOF WITHOUT THERMAL INSULATION



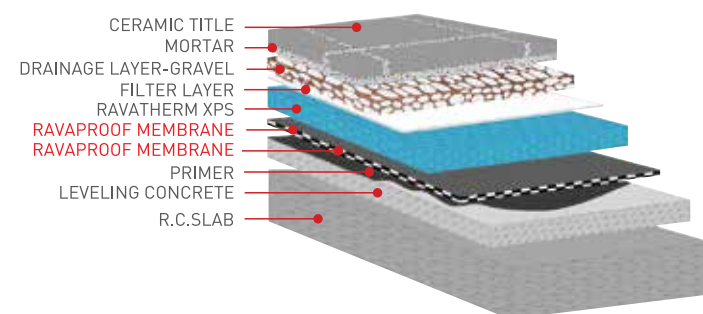
NON TRAFFICABLE FLAT ROOF WITHOUT THERMAL INSULATION (SLATE FINISH MEMBRANE)



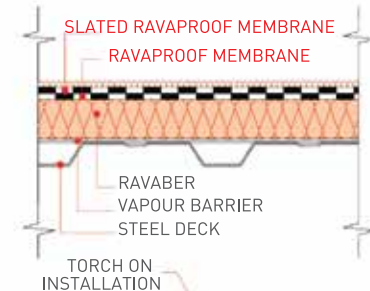
NON TRAFFICABLE INVERTED FLAT ROOF WITH THERMAL INSULATION (BALLASTED)



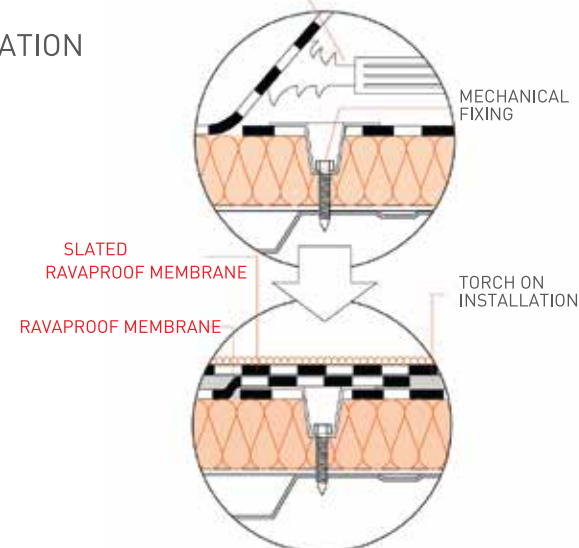
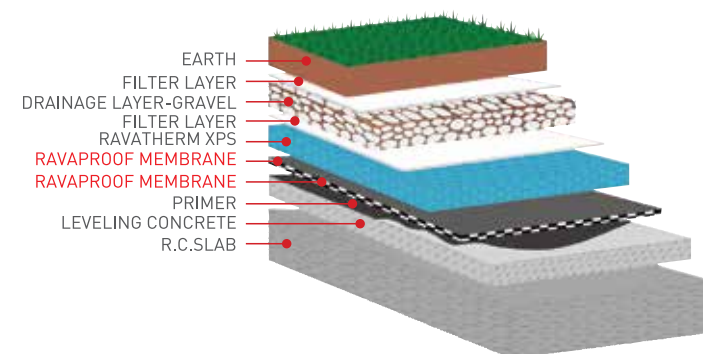
TRAFFICABLE INVERTED ROOF 2



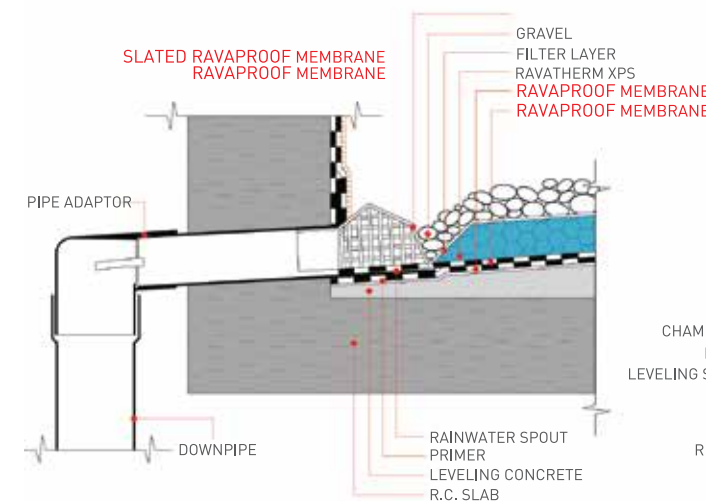
STEEL DECK FLAT ROOF WITH THERMAL INSULATION 1



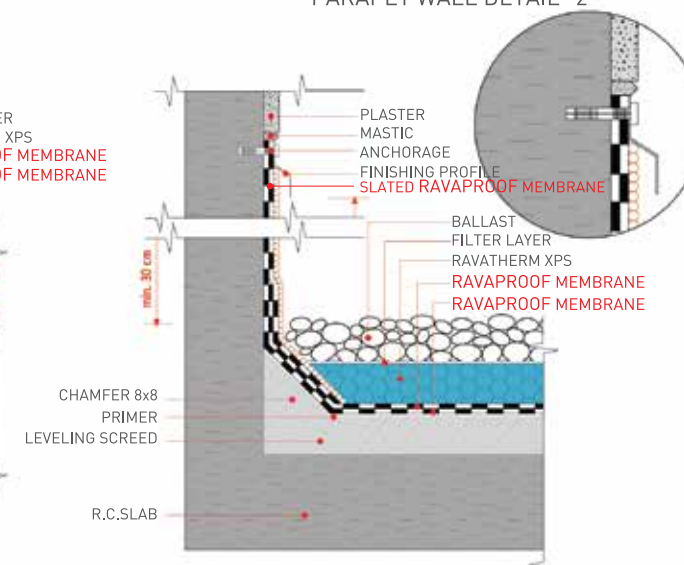
GARDEN ROOF WITH THERMAL INSULATION



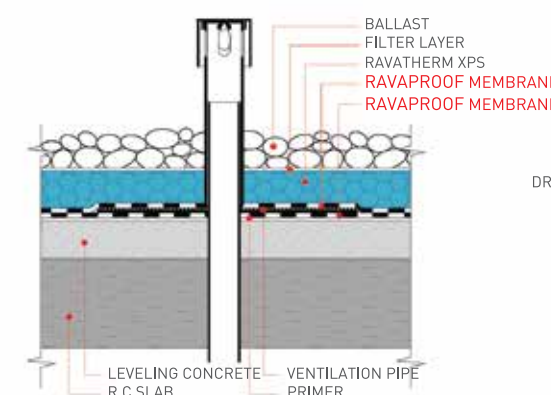
NON-TRAFFICABLE FLAT ROOF WITH THERMAL INSULATION PARAPET WALL RAINWATER SPOUT DETAIL



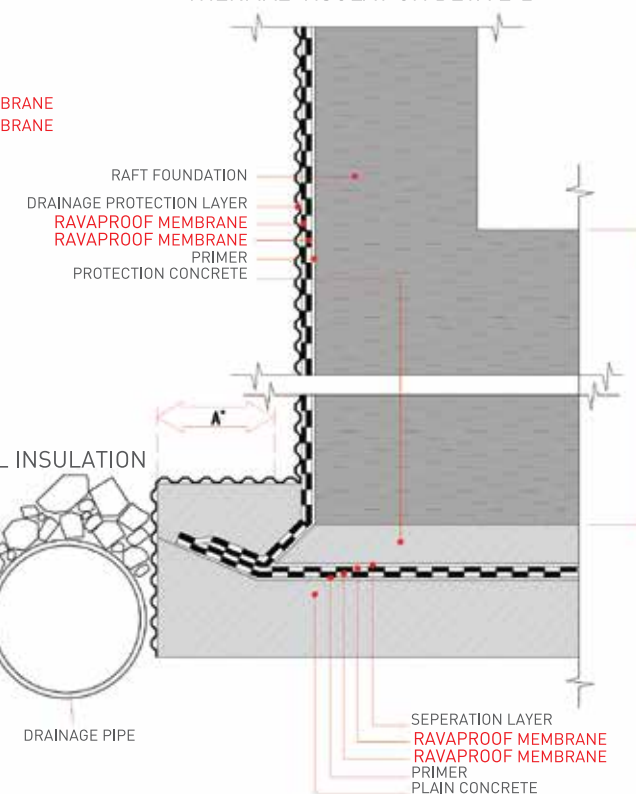
NON-TRAFFICABLE FLAT ROOF WITH THERMAL INSULATION PARAPET WALL DETAIL -2



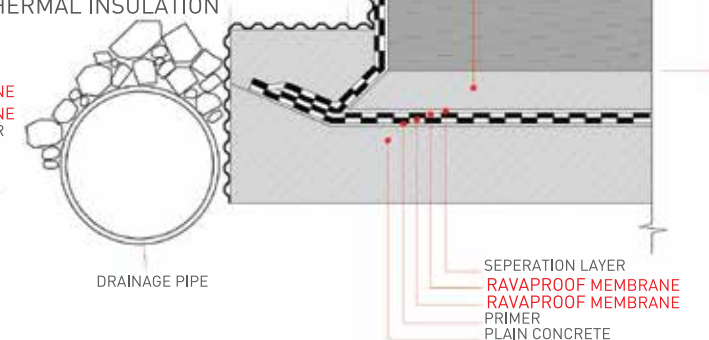
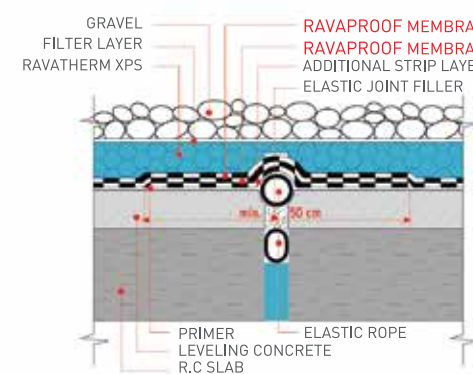
NON-TRAFFICABLE FLAT ROOF WITH THERMAL INSULATION VANTILATION PIPE DETAIL



EXTERNAL TANKING WATERPROOFING WITHOUT THERMAL INSULATION DETAIL-2



NON-TRAFFICABLE FLAT ROOF WITH THERMAL INSULATION EXPANSION JONT DETAIL







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