



INSTALLATION MANUAL FOR GREENTANK SYSTEM



Greentank System

Pre-applied waterproofing solution for foundations and tanking

Installation Manual

Ed. 31st Jan 2022



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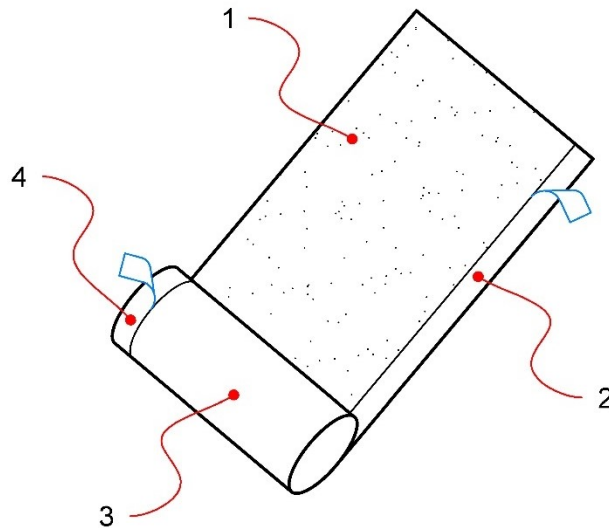
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1. Products

- **Greentank FB**

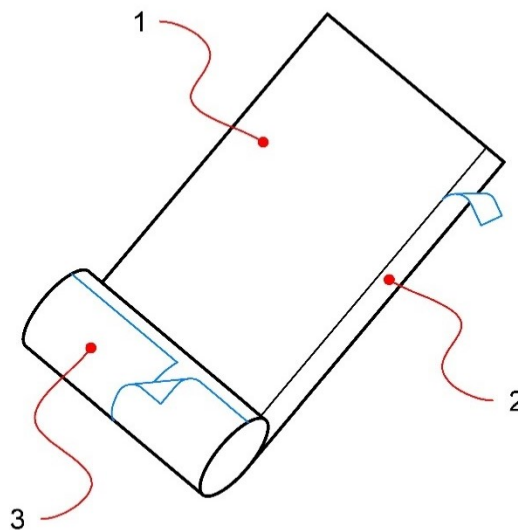
Pre-applied geo-composite waterproofing membrane for horizontal application and vertical blinded side walls (BSW). The upper face of the membrane is covered with a special fleece which offer a perfect mechanical grip to the concrete when penetrating into the fibres and stop water migration. It is provided with side self-adhesive laps and the lower face is finished with polypropylene textured film. This product can be used on most construction substrates, such as masonry, concrete, compacted sand and wood.



1. Special fleece; 2. Self-adhesive laps; 3. Polypropylene textured film; 4. Self-adhesive laps;

- **Greentank SA**

Self-adhesive membrane for vertical walls. The upper face of the membrane is finished with polypropylene textured film which promotes adhesion to glue used to bond insulation as thermal and mechanical protection. The membrane is provided with side self-adhesive lap and the lower face is covered with silicon release film.

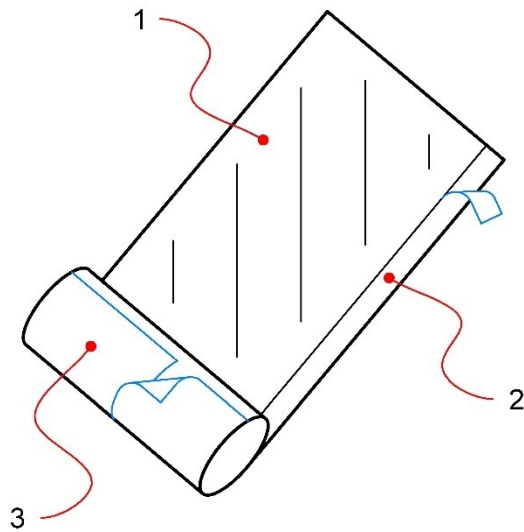


1. Polypropylene textured film; 2. Self-adhesive laps; 3. Self-adhesive face with silicon release film;



- **Greentank SA HDPE**

Self-adhesive membrane for vertical walls. The upper face of the membrane is finished with high density polypropylene (HDPE) film to offer a mechanical protection from backfill. The membrane is provided with side self-adhesive lap and the lower face is covered with silicon release film.



1. HDPE protective film; 2. Self-adhesive laps; 3. Self-adhesive face with silicon release film;



2. Accessories

- **General Mastic SD**
Quick-curing bituminous adhesive sealant for complete all the details and membrane's lap.
- **General Primer SA**
Fast-drying bituminous primer to help the adhesion of membranes to the substrates.
- **General Corner**
Bitumen based fillet tape in triangle form to shape interior and exterior edges at horizontal and vertical structure parts.
- **General Hydrostop SW**
Polymeric hydrophilic rubber water-stop joint suggested for precast concrete structures.
- **General Hydrostop Bentonite**
Bentonite hydrophilic water-stop joint suggested for freshly mixed reinforced concrete cast-in-place.
- **General Injectors**
Pressurized injection system for sealing concrete joints, to be used only with freshly mixed cast-on-site reinforced concrete.
- **General Washer FB**
Geo-composite layer to stop water migration to combined with appropriate mechanical fasteners.
- **General Protection GEO**
Composite membrane in high density polyethylene (HDPE) with studs, coupled with polypropylene geotextile, with a drainage function and mechanical protection of the waterproof membranes in foundation.

3. Safety in the building site

In the building site it is necessary that the applicators have the knowledge and awareness of any compulsory measures by Law, of prevention and protection listed in their own safety plans and of the role which these business plans have towards the Operational Plan of Safety and Coordination, issued by the authorised technician on behalf of the client.



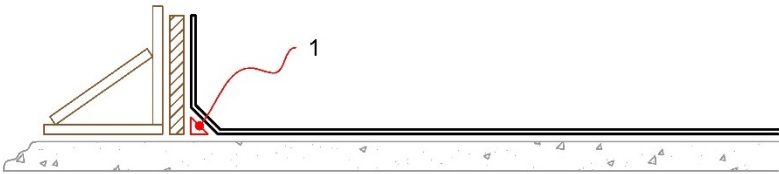
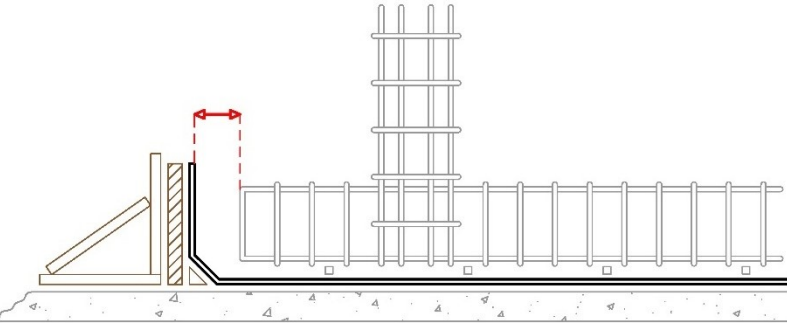
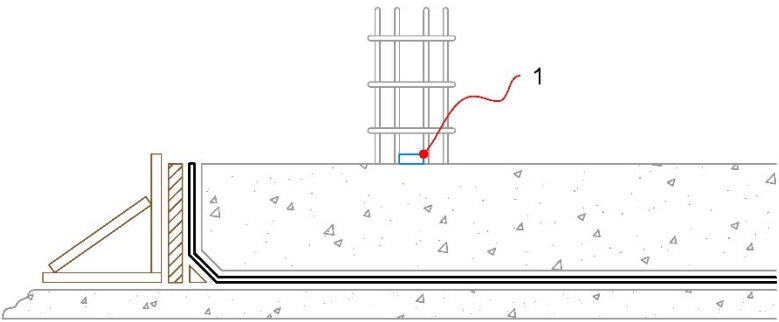
4. Installation method on the horizontal (under base-slab)

Surface preparation (lean concrete)

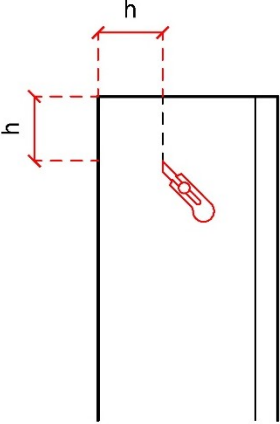
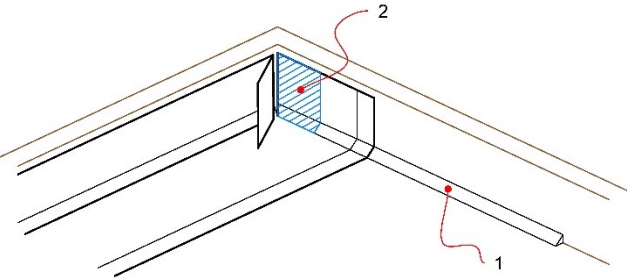
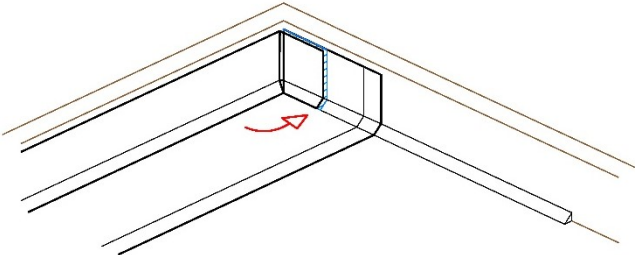
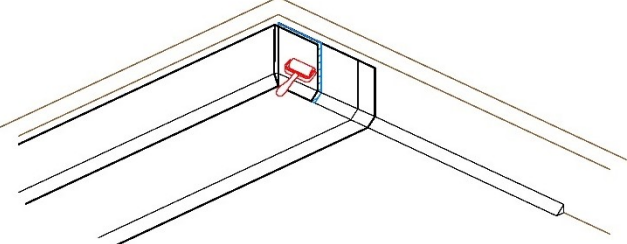
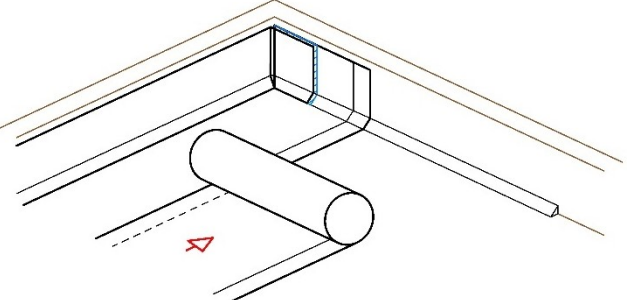
Make sure that concrete curing is complete before installing membrane. It must be compact, clean, dry, free of all debris and dust, as smooth and flat as possible, with no roughness or sharp edges.

Do not install materials in rainy or snowy weather unless protected from the weather.

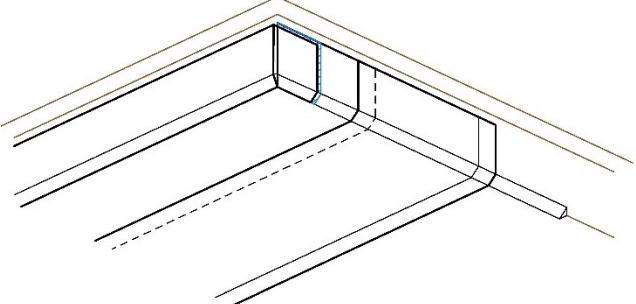
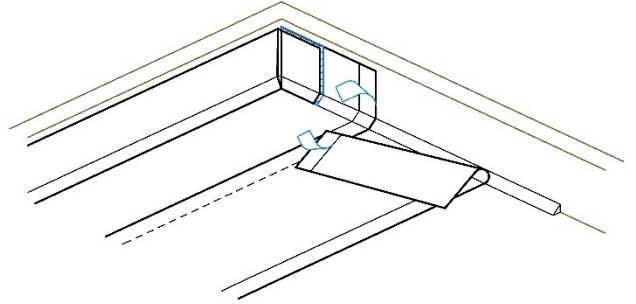
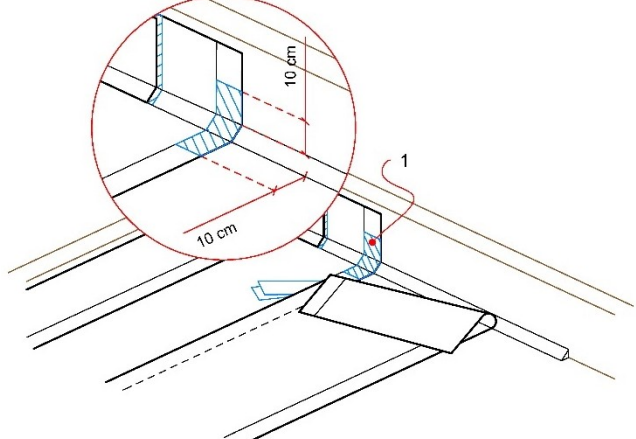
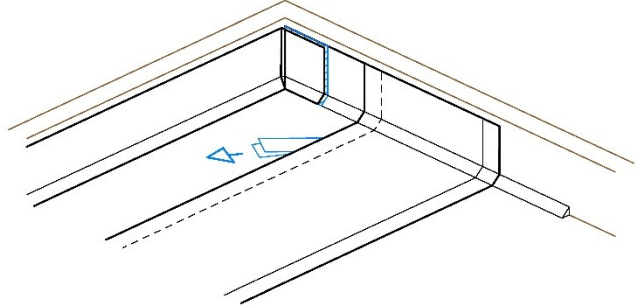
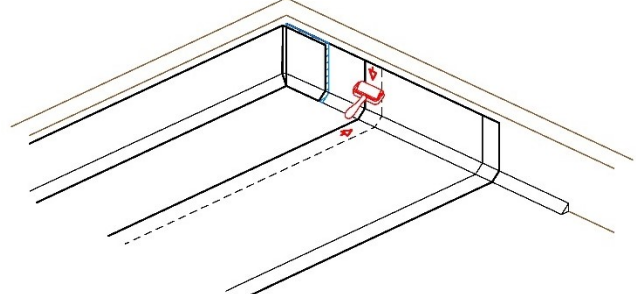
Membrane installation on the perimeter formworks for the base slab

	<p>Install Greentank FB loose laid with the fleece uppermost and goes up on the perimeter formworks. The top end must be mechanically attached using staple or nail to prevent the membrane from falling. DO NOT USE SCREWS; to avoid possible damages to the membrane when removing the formwork. It is recommended to use General Corner (1) along the perimeter in order not to bend at 90° the membrane from the horizontal to the vertical.</p>
	<p>The reinforcing bars raise on special spacer blocks mounted above the waterproofing. It is recommended, along the perimeters, to keep a suitable space between reinforcing bar and the membrane to avoid damages to the waterproofing.</p>
	<p>When the casting cured, the formworks can be disassembled with particular attention not to damage the membrane. With cast-in-place vertical walls, install General Hydrostop Bentonite (1) in the construction joints between horizontal and vertical, fixing it with nail or polyurethane adhesives. In case of pre-cast concrete structure it is suggested General Hydrostop SW.</p>



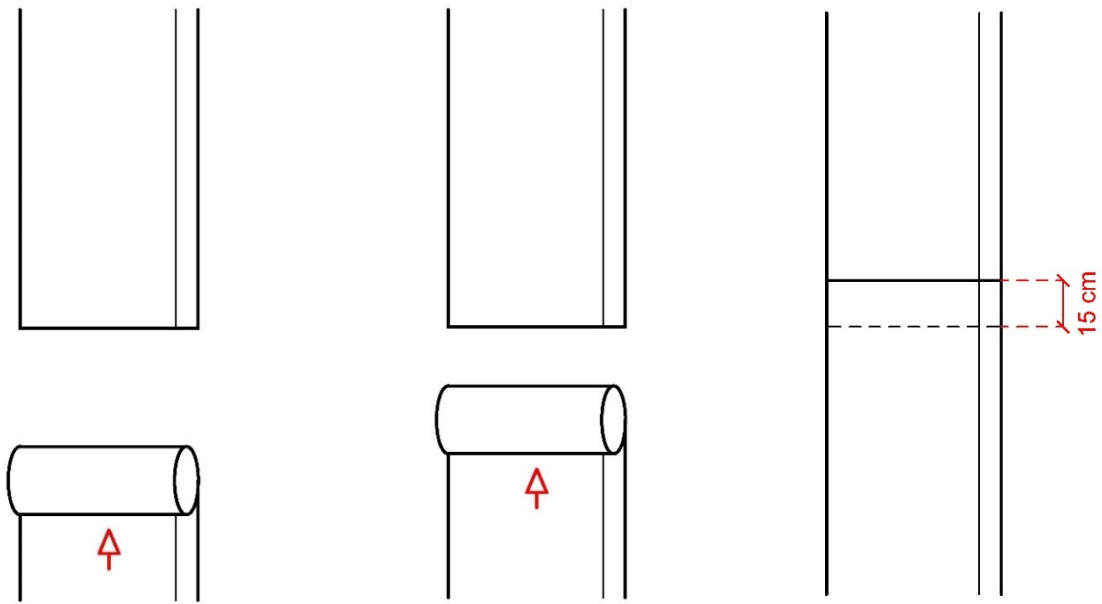
	<p>Cut the membrane by the same size of the perimeter formwork height.</p>
	<p>After laying General Corner (1) along the perimeter, install the first sheet of Greentank FB loose laid with the fleece uppermost along the perimeter and cover the formworks as shown in the picture. The top end must be mechanically attached using staple or nail to prevent the membrane from falling.</p> <p>DO NOT USE SCREWS to avoid possible damages to the membrane when removing the formwork. To make the internal corner, apply General Mastic SD (2) all over the surface indicated.</p>
	<p>Crease and fold the membrane to ensure a close fit to the substrate profile and avoid hollows.</p>
	<p>Roll firmly the overlap.</p>
	<p>Laydown the side membrane taking in consideration the longitudinal overlap.</p>



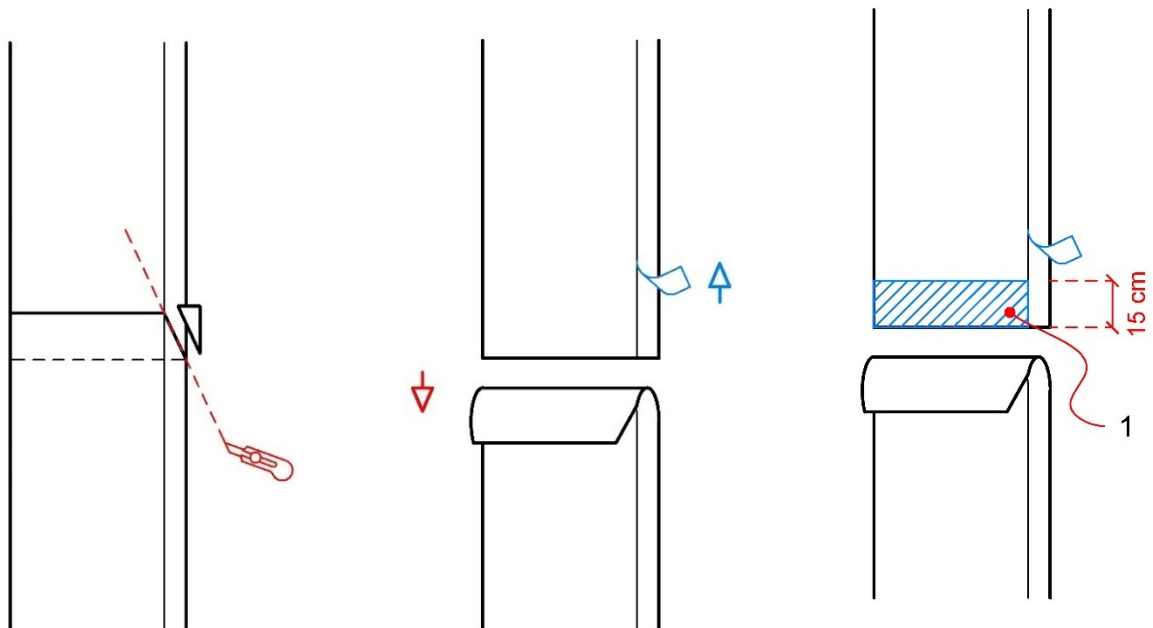
	<p>Goes up on the perimeter formworks with the head of the membrane in order to check the alignment of the overlap.</p>
	<p>Take back the head of the membrane and remove the first part of both protective side lap release film.</p>
	<p>Apply General Mastic SD (1) on the sidelap for at least 10 cm from the corner on the horizontal and on the vertical as shown in the picture.</p>
	<p>Goes up again on the perimeter formworks with the head of the membrane removing completely both side lap release films.</p> <p>The top end must be mechanically attached using staple or nail to prevent the membrane from falling.</p> <p>DO NOT USE SCREWS to avoid possible damages to the membrane when removing the formwork.</p>
	<p>Roll firmly all along the longitudinal overlap on both vertical and horizontal area.</p>



Head laps and T cross



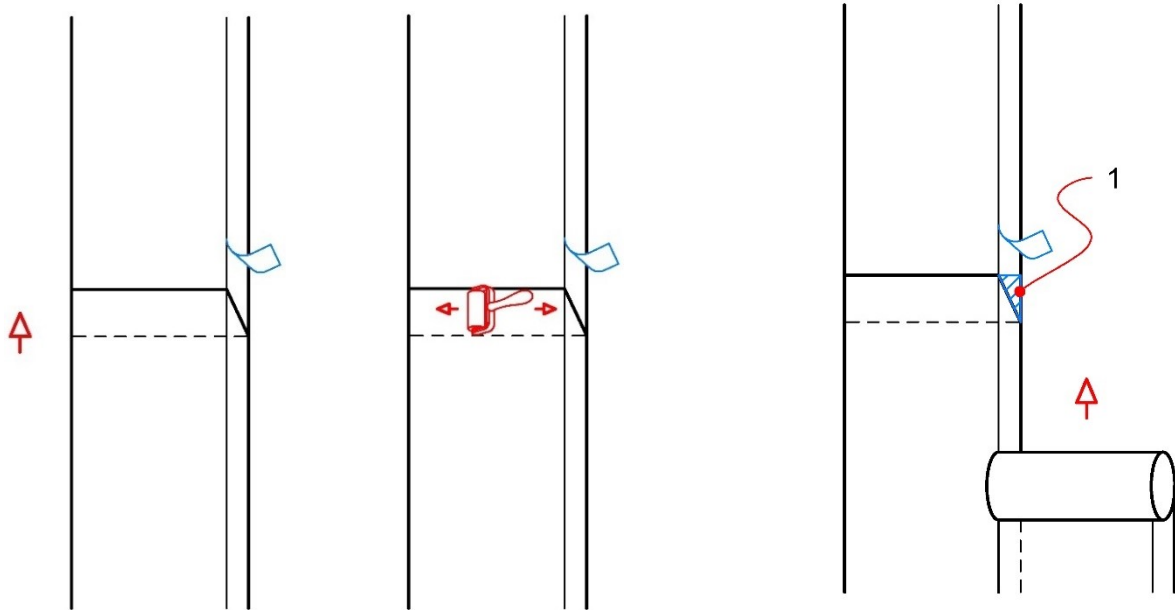
Head laps must be of at least 15cm.



1. General Mastic SD

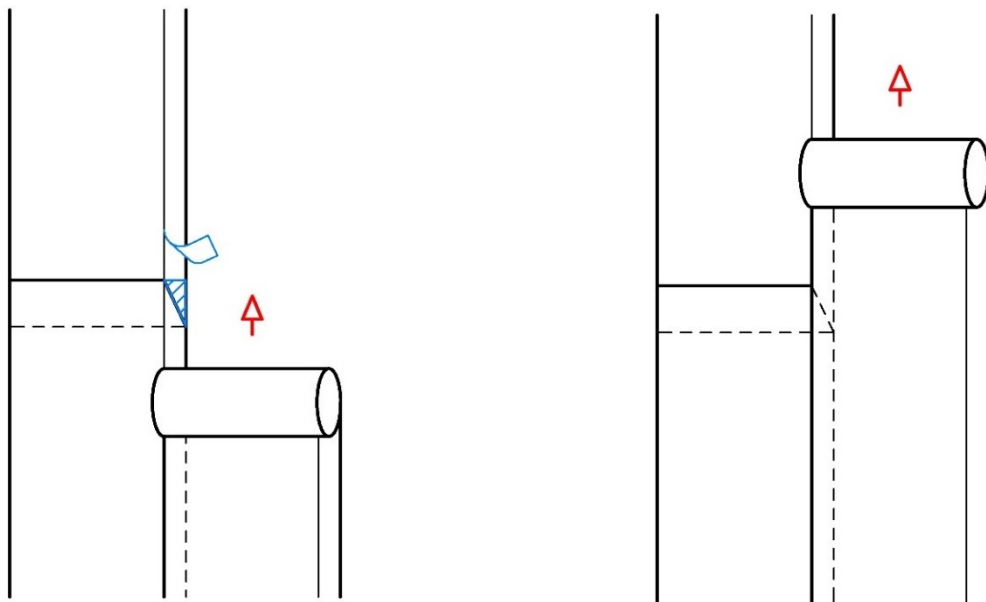
On the next membrane cut the angle at 45° and remove it. Roll it back, remove the first part of protective side lap release film on the previous membrane, apply **General Mastic SD** on the end of the membrane for at least 15cm from the edge except the sidelap.





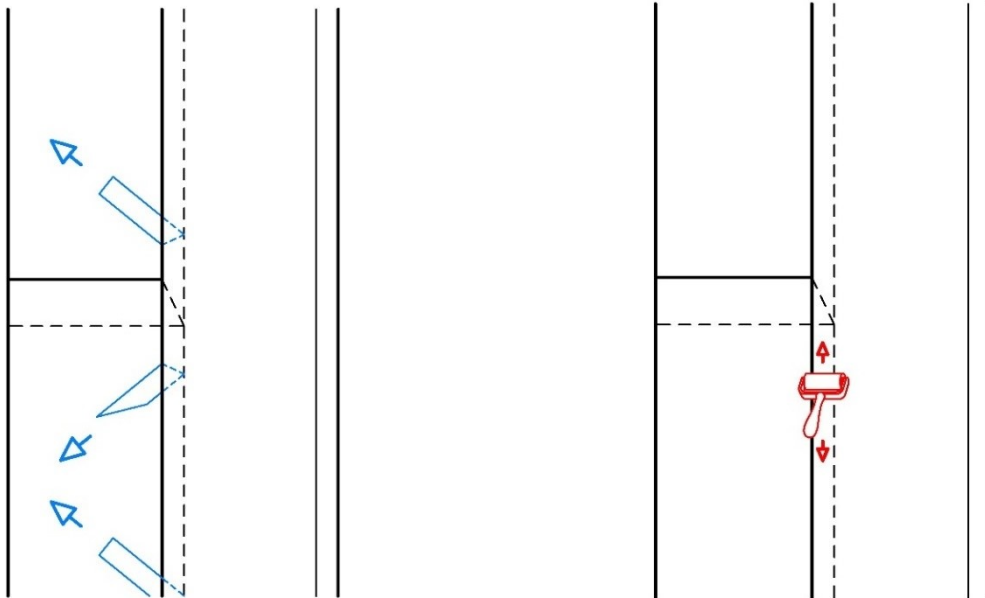
1. General Mastic SD

Laydown the head of the membrane and roll firmly the headlap. Apply **General Mastic SD** on the T cross area. Prepare the next sheet.

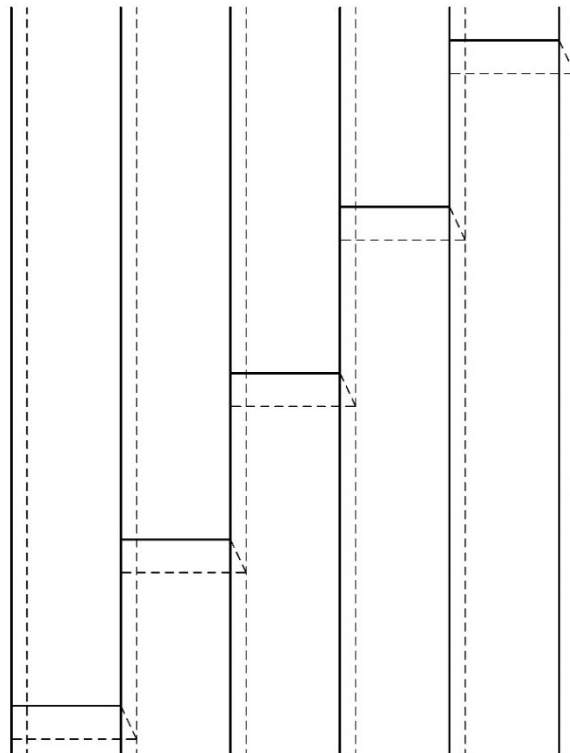


Laydown the side membrane taking in consideration the longitudinal overlap.





Remove both protective side lap release films (upper film from the first and bottom film from the second membrane) and roll firmly all along the longitudinal overlap.



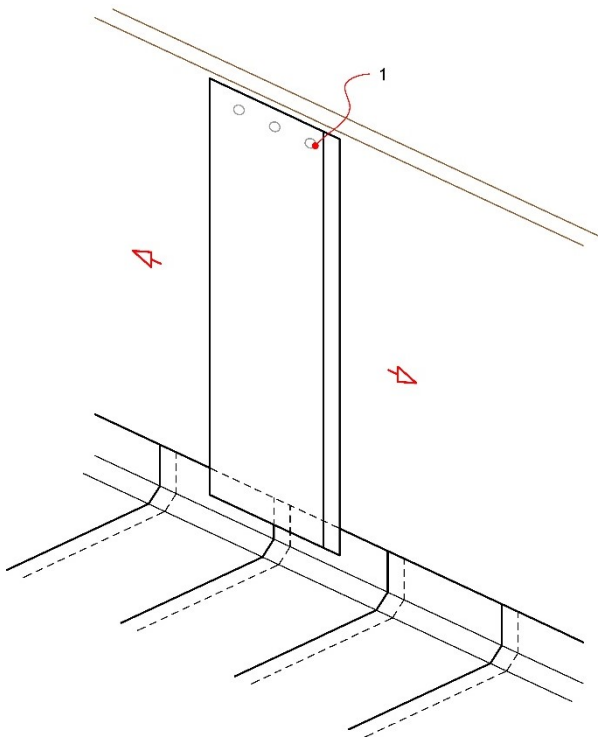
Carry on the laydown of next membranes with longitudinal stagger.



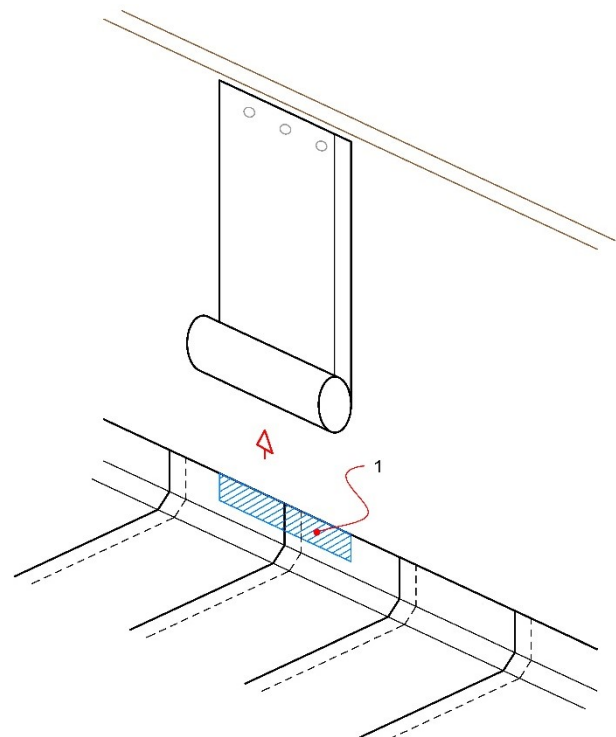
5. Pre-applied system for blind side applications

This type of waterproofing is used when property lines and other site conditions make it impossible to do open trenching around the foundation's perimeter. The waterproofing system involves installing waterproofing membranes against a retaining wall or against an existing wall on an adjacent building before concrete is poured for the new foundation. On tanking systems with limited or non-accessible space to waterproof the vertical walls it can be installed our pre-applied **Greentank FB** membrane.

The bottom head laps will be bonded with **General Mastic SD** to the head laps of the sheet coming up from the horizontal. The vertical surface must be as smooth and flat as possible, with no roughness or sharp edges.



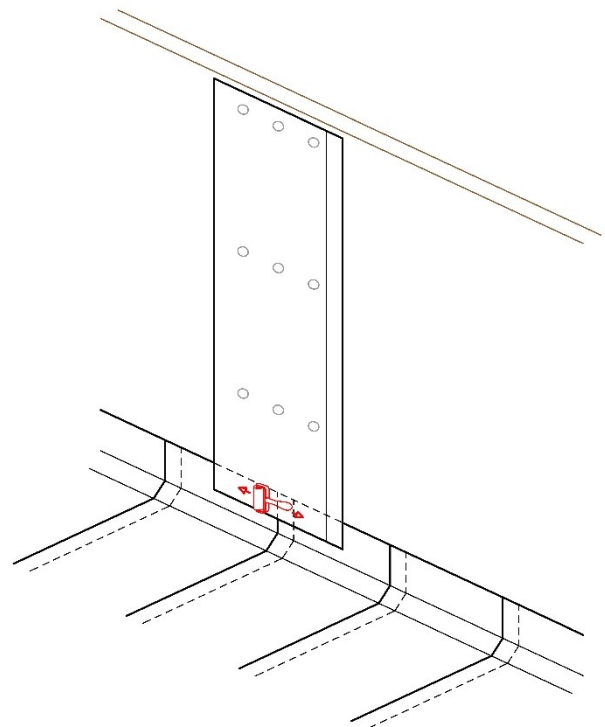
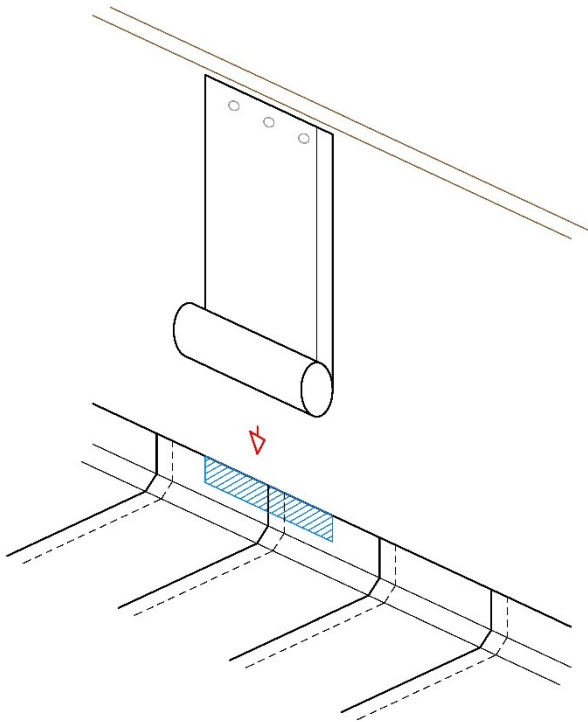
1. Mechanical fasteners



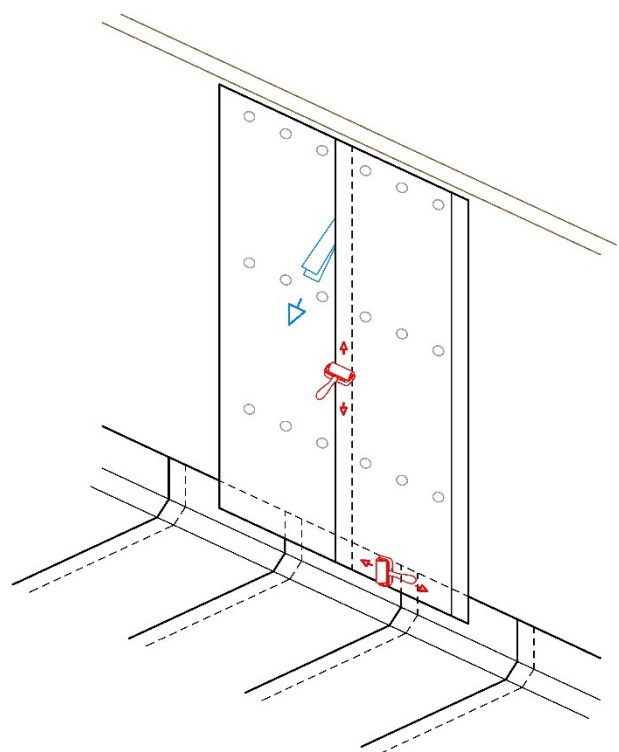
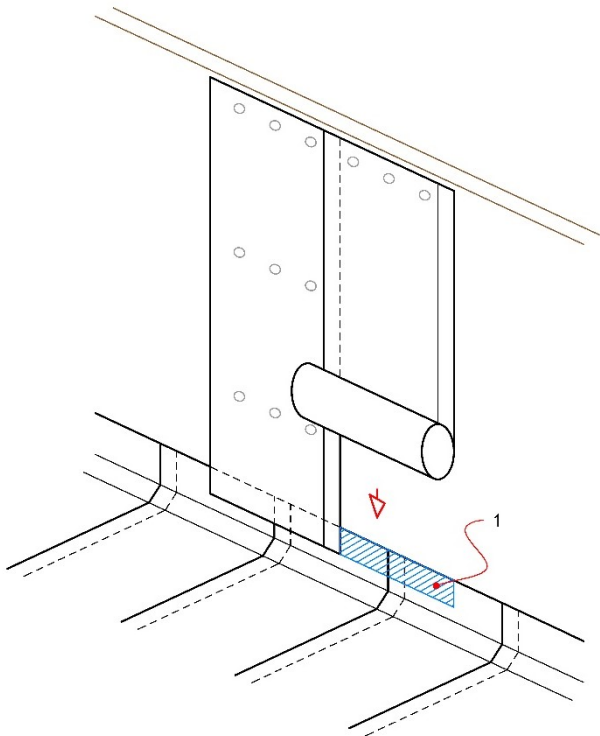
1. **General Mastic SD**

Install the waterproofing membrane loose laid on the blinding slab staggered from the membrane coming up from the horizontal. The top end must be mechanically attached using appropriate mechanical fastener and **General Washer FB**. Lift up the lower end of the membrane and apply **General Mastic SD** in the contact area to glue the lap.





Once the vertical membrane is in position, roll firmly the bottom overlap. Mechanically fix the membrane in the central area using appropriate mechanical fastener and **General Washer FB** to prevent the concrete casting from dragging the sheet downwards.



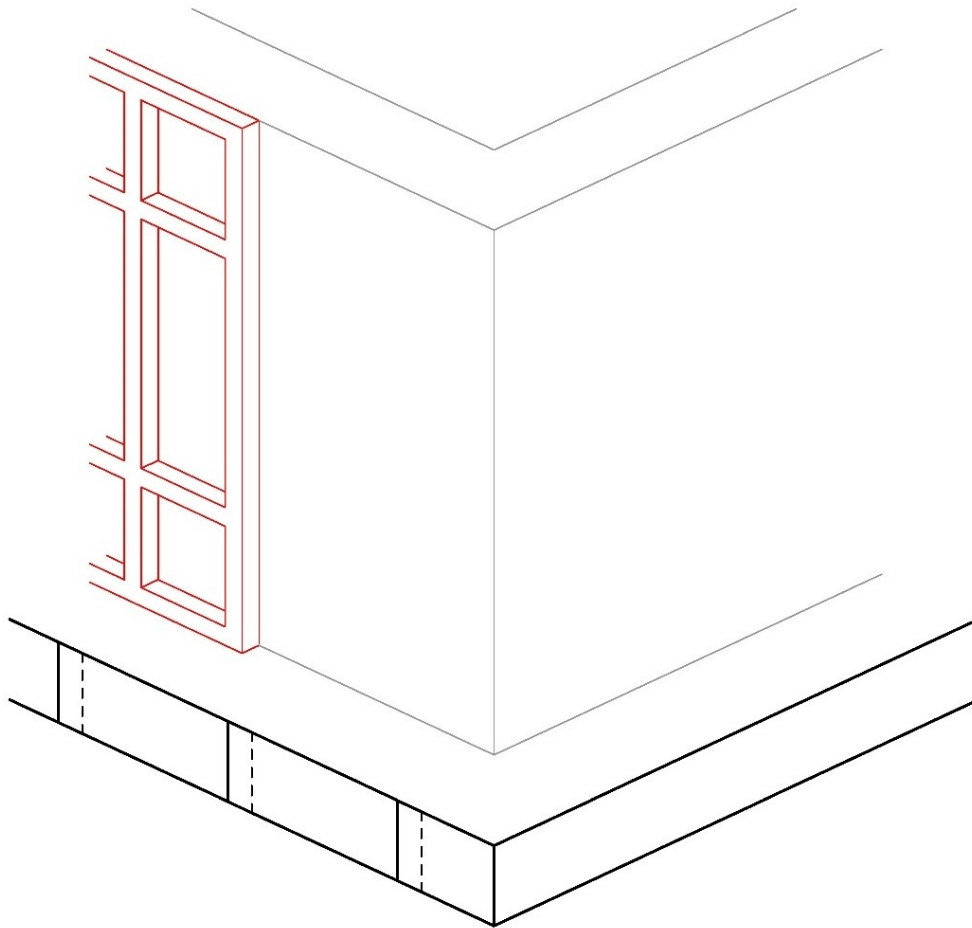
1. General Mastic SD

Install the side membrane taking in consideration the longitudinal overlap and following the same procedure as before. Remove both protective side lap release films (upper film from the first and bottom film from the second membrane) and roll firmly all along the longitudinal and end overlap. Longitudinal overlaps must measure 8÷10 cm, while transversal overlaps must be 12÷15 cm.



6. Waterproofing of conventional foundations on casted and pre-casted walls (post applied)

This type of waterproofing is used when foundation walls can be accessed to install the waterproofing products directly on the outside of the building. On either casted and pre-casted walls, the vertical surfaces must be as smooth and flat as possible, with no roughness or sharp edges.

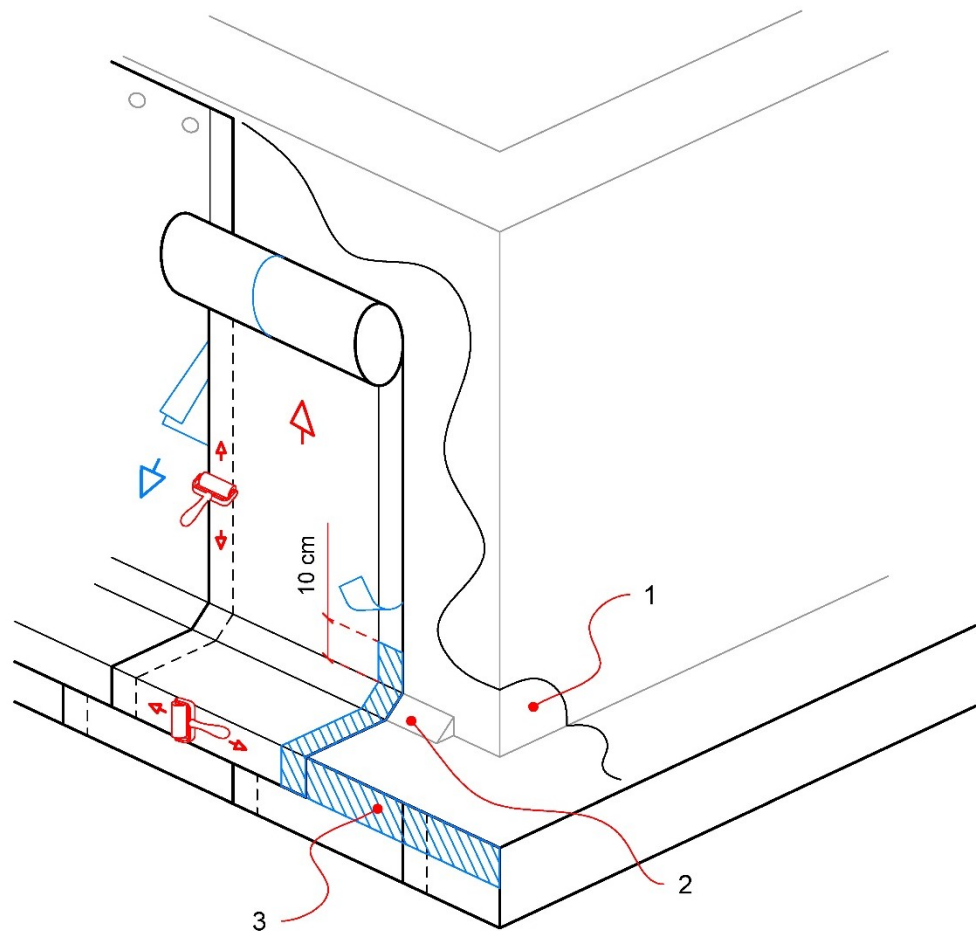


There are different post-applied systems to waterproof a vertical wall:

- A. Flame free application with self-adhesive membrane **Greentank SA** (mechanical protection such as **General Protection GEO** must be considered).
- B. Flame free application with self-protected and self-adhesive membrane **Greentank SA HDPE**



A. Flame free application with self-adhesive membrane Greentank SA

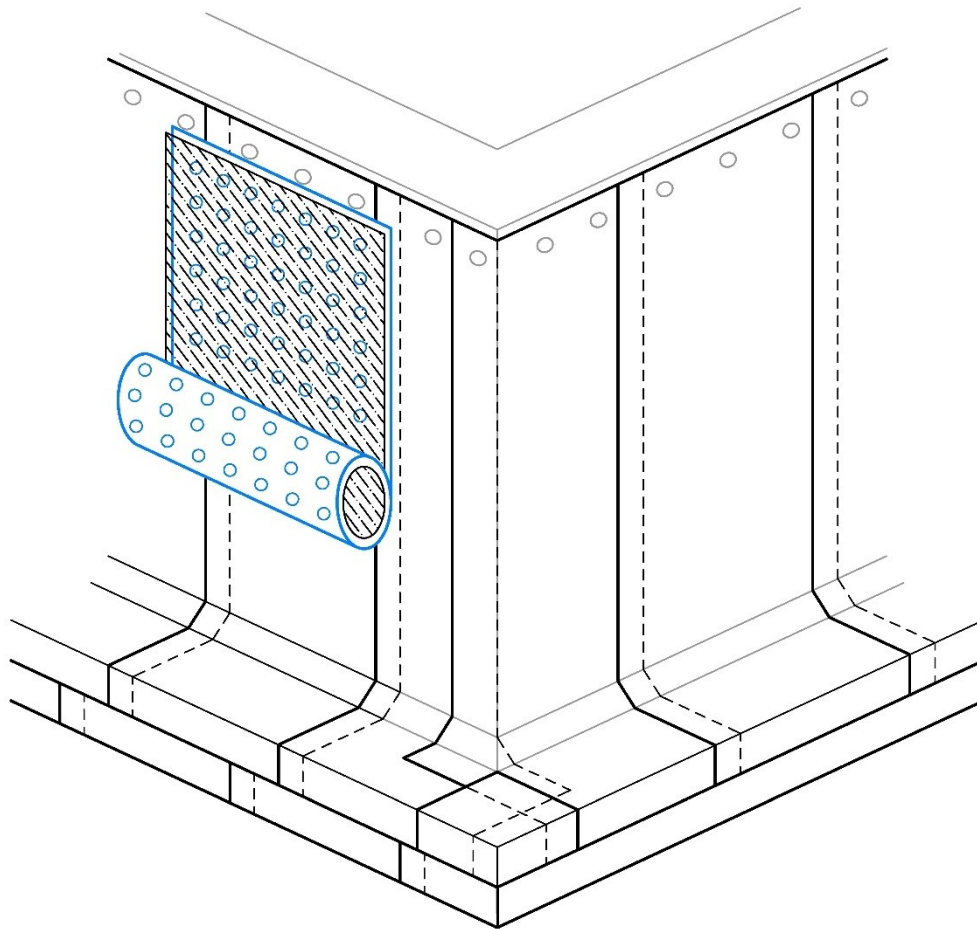


1. General Primer SA; 2. General Corner; 3. General Mastic SD

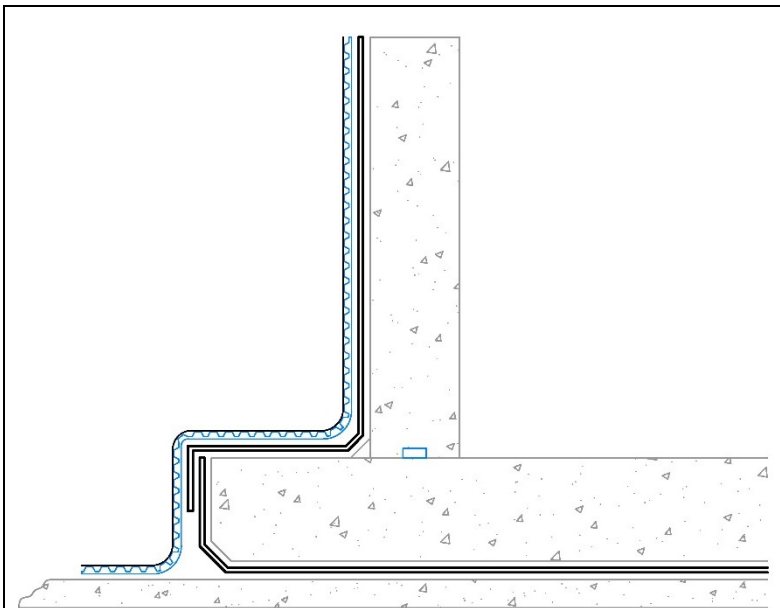
- Install **General Corner** right in the external angle between the horizontal and vertical wall all along the perimeter;
- Prime the footing and the vertical surface which must be as smooth and flat as possible, with no roughness or sharp edges with **General Primer SA** bituminous solvent base primer;
- After the primer is completely dry, install **Greentank SA** on the vertical wall staggered from the membrane coming up from the horizontal. Peel of the top of the silicon release back film, mechanically fix the head of the membrane using appropriate fastener and washers at least 40cm above ground level. Slowly remove the silicon release back film while making sure the membrane is fully adhered to the wall and it is aligned. Lift up the lower end of the membrane and apply **General Mastic SD** in the contact area to glue the lap.
- Once the membrane has been installed, use a roller to apply pressure to the entire membrane to ensure complete adhesion;
- Install the side membrane taking in consideration the longitudinal overlap and following the same procedure as before. Partially remove the protective lap release film on the bottom of the first membrane and apply **General Mastic SD** on side laps for at least 10cm from the corner on the footing and on the vertical as shown in the picture;
- Longitudinal overlaps must measure 8÷10 cm, while transversal overlaps must be 12÷15 cm.



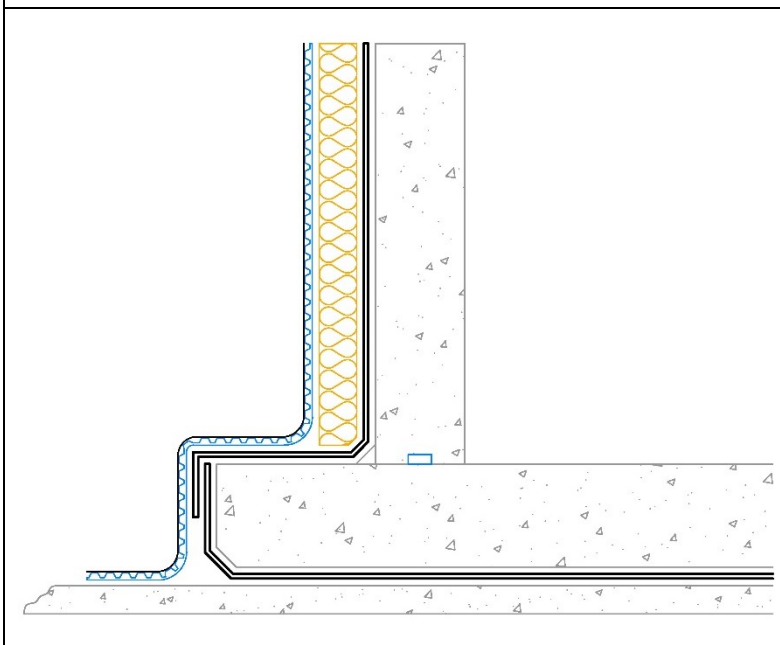
- Slowly remove the protective side lap release films from one membrane and the silicon release back film from the other while making sure the membrane is fully adhered to the wall and it is aligned. Lift up the lower end of the membrane and apply **General Mastic SD** in the contact area to glue the lap;
- Once the membrane has been installed, use a roller to apply pressure to the entire membrane to ensure complete adhesion.



The system will be completed with the installation of **General Protection GEO** high density extruded polyethylene (HDPE) protective membrane with studs to help drainage and mechanical protection from backfill.



Mechanically fix the upper end of **General Protection GEO** using appropriate fastener and washers at least 15cm above ground level and laid the HDPE membrane with the membrane with the geotextile facing outside. A longitudinal overlap of at least 10 cm must be considered.



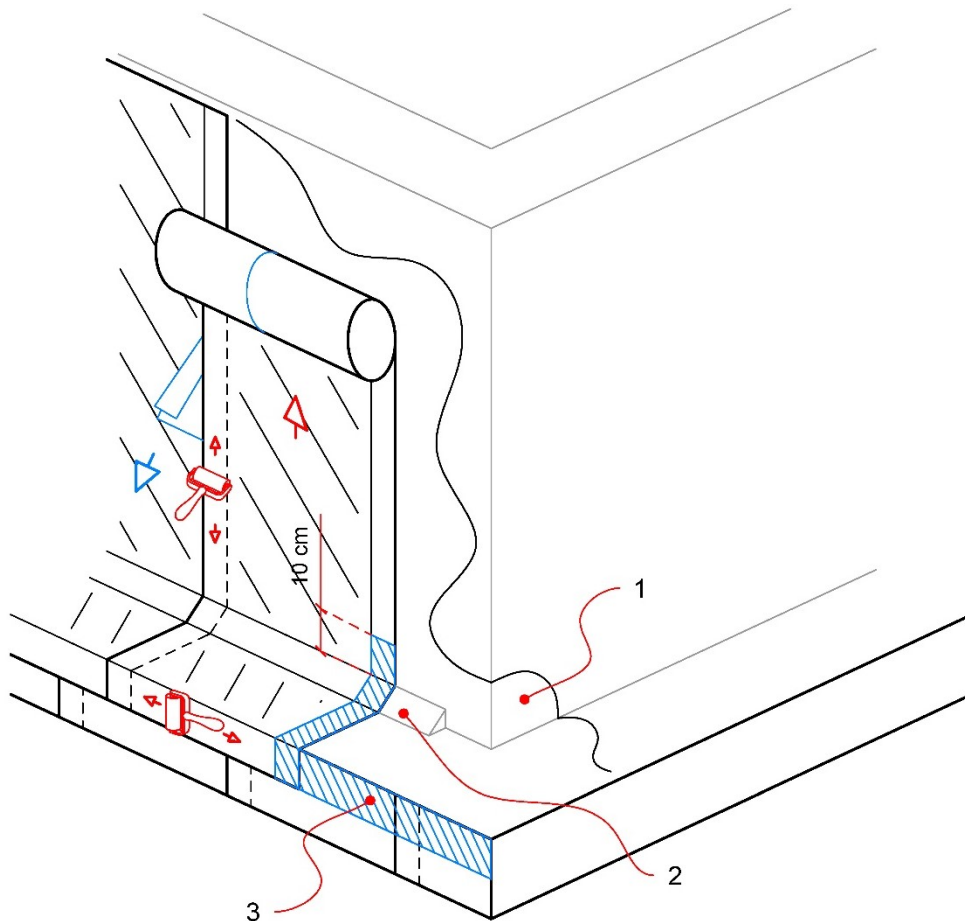
If a thermal insulation should be considered, install the panels vertically or horizontally on the foundation walls so as to minimize the number of the joints.

Place the panels by offsetting vertical joints and join the panels to each other perfectly to ensure continuous thermal insulation.

Glue with **General Mastic SD** the insulation boards directly onto **Greentank SA** membrane before the installation of **General Protection GEO** membrane.

B. Flame free application with self-protected and self-adhesive membrane Greentank SA HDPE

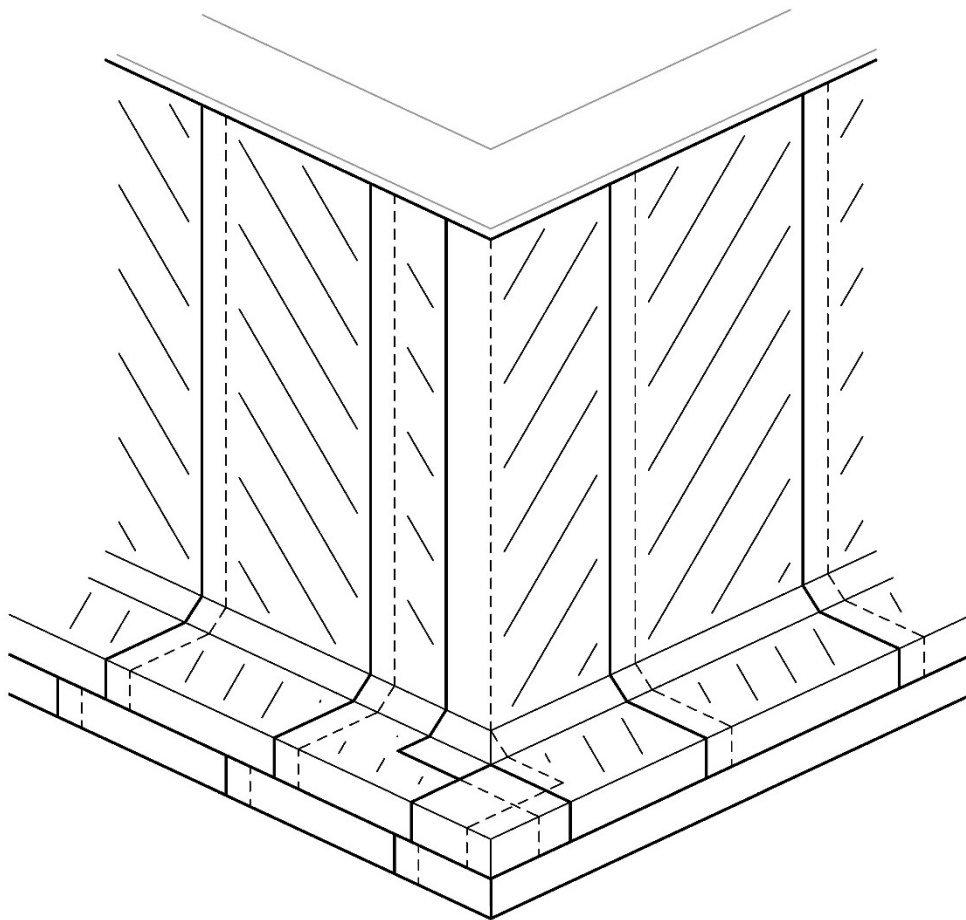
The HDPE upper film finishing can avoid the use of further protection of the waterproofing membrane from backfill.



1. General Primer SA; 2. General Corner; 3. General Mastic SD

- Install **General Corner** right in the external angle between the horizontal and vertical wall all along the perimeter;
- Prime the footing and the vertical surface which must be as smooth and flat as possible, with no roughness or sharp edges with **General Primer SA** bituminous solvent base primer;
- After the primer is completely dry, install **Greentank SA HDPE** on the vertical wall staggered from the membrane coming up from the horizontal. Peel of the top of the silicon release back film, mechanically fix the head of the membrane using appropriate fastener and washers at least 40cm above ground level. Slowly remove the silicon release back film while making sure the membrane is fully adhered to the wall and it is aligned. Lift up the lower end of the membrane and apply **General Mastic SD** in the contact area to glue the lap.
- Once the membrane has been installed, use a roller to apply pressure to the entire membrane to ensure complete adhesion.

- Install the side membrane taking in consideration the longitudinal overlap and following the same procedure as before. Partially remove the protective lap release film on the bottom of the first membrane and apply **General Mastic SD** on side laps for at least 10cm from the corner on the footing and on the vertical as shown in the picture;
- Longitudinal overlaps must measure 8÷10 cm, while transversal overlaps must be 12÷15 cm.
- Slowly remove the protective side lap release films from one membrane and the silicon release back film from the other while making sure the membrane is fully adhered to the wall and it is aligned. Lift up the lower end of the membrane and apply **General Mastic SD** in the contact area to glue the lap.
- Once the membrane has been installed, use a roller to apply pressure to the entire membrane to ensure complete adhesion.



Once the vertical walls have been fully waterproofed with **Greentank SA HDPE**, the foundation is ready for the backfill.



7. Storage and handling

Warehousing

The rolls must be stored in shaded and adequately ventilated environments. It is advisable to protect the membranes from extremely low temperatures. In unfavourable weather conditions, it is useful to stabilise the material for 24 hours in an environment of at least +5°C prior to installation.

Storage

The material must be stored under cover. The rolls must be placed vertically on pallets or on flat surfaces raised above the ground. Avoid double stacking of the pallets.

Handling on site

The pallets must be moved with intact packaging to ensure greater stability.

8. Warnings and Instructions

- Installation must be done with favourable weather conditions. Do not install materials in rainy or snowy weather unless protected from the weather.
- Wet membrane can be slippery; do not install materials when wet or alternatively be careful.
- Make sure that concrete curing is complete before installing membrane.
- The bearing surface must be compact, clean, dry, free of all debris and dust, as smooth and flat as possible, with no roughness or sharp edges.
- Greentank products line is specifically designed to waterproof underground structures and is not designed for exposed applications therefore do not expose the materials to the UV rays for a period exceeding 15 days.

