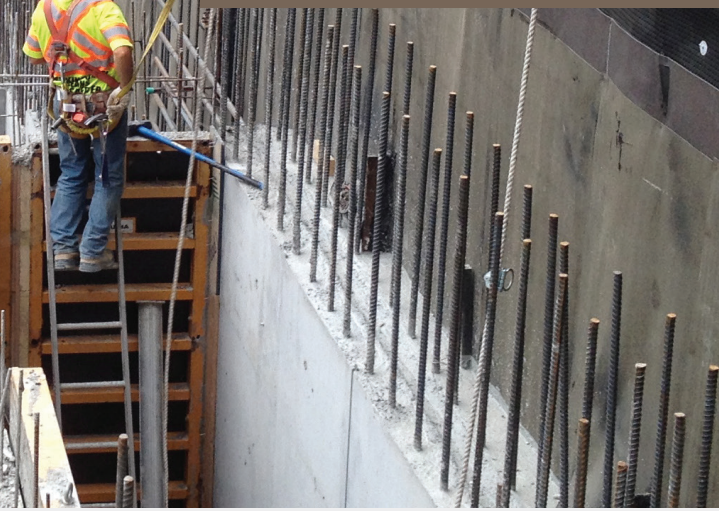
FOUNDATION WATERPROOFING MEMBRANE - INSTALLATION GUIDE

2020 EDITION



SOPREMA

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INTRODUCTION

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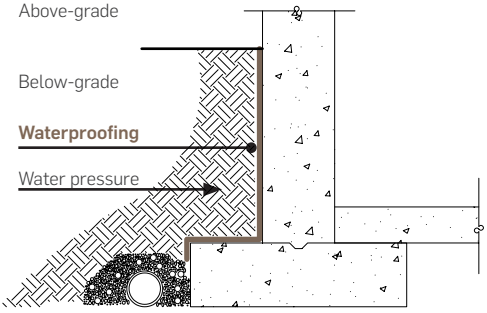
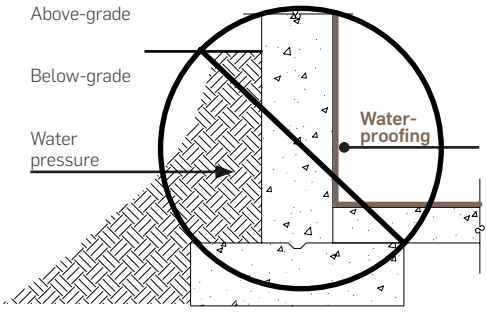
An essential component of a building's architecture, a foundation ensures building loads are supported and distributed. It is therefore critical to protect them from water infiltration to avoid cracking and other damage that would have subsequent repercussions for the walls and roof.

Groundwater exerts hydrostatic pressure on foundations and, due to gravity or capillarity, an unprotected foundation can allow water to penetrate the concrete. Waterproofing must therefore be applied to the outside rather than the inside face of the foundation to keep water from carving a path into the concrete which will lead to high humidity in the building, and the appearance of mould.



Positive side waterproofing



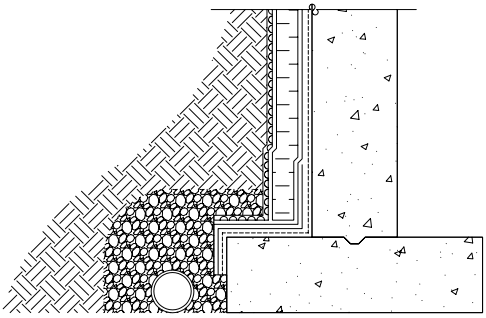
Negative side waterproofing

The various applications in which a waterproofing system can be installed appear on the following pages.

1.1. TYPES OF FOUNDATIONS

1.1.1. Waterproofing of conventional foundations

This type of waterproofing is used when waterproofing products are installed directly on foundation walls. The process is used in most residential, commercial, industrial and institutional construction. Foundation waterproofing membrane is always installed on the outside of the building to create positive waterproofing, which means that the hydrostatic pressure created by the water pushes the membrane against the structure. In this type of construction, the foundation walls can be accessed to install the membrane after the concrete is poured.



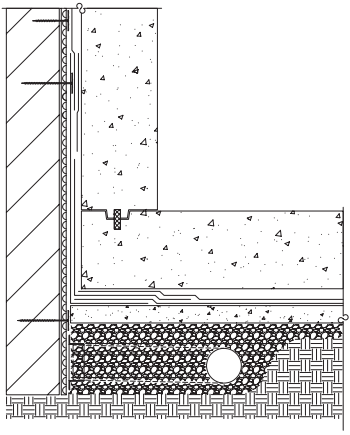
SOPREMA solutions

SOPREMA products that can be used for this type of foundation: COLPHENE 3000, COLPHENE TORCH'N STICK, COLPHENE FLAM 180, COLPHENE LM 300, COLPHENE LM BARR, COLPHENE H, SOPRADRAIN 10-G, 15-G or 18-G, SOPRADRAIN HF and SOPRA-XPS 30.

1.1.2. Waterproofing of blindside walls (pre-applied system)

When the project lies within a high-density agglomeration, we need to factor in the space available for excavation, which is usually limited. Retaining walls (BSW) are often used in this type of situation. BSW stands for blindside waterproofing, since waterproofing is done on the exterior before the concrete is poured. 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. This type of excavation can generally be found in urban areas and in underground parking lots.

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. This system then protects the infrastructure from potential infiltration between the concrete walls of the buildings involved. As the concrete cures, the surface of the Colphene BSW system membranes bonds to the foundation, ensuring complete adhesion that eliminates the risk that water will move laterally between the waterproofing membrane and foundation wall.

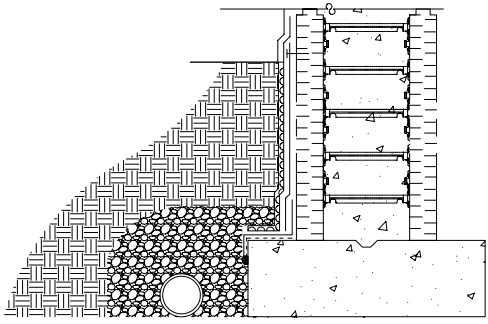


SOPREMA solutions

SOPREMA products that can be used for this type of foundation: COLPHENE BSW V, COLPHENE BSW H, COLPHENE BSW PROTECT'R, COLPHENE FLAM 180, COLPHENE SP LAP, COLPHENE STICK LAP, ALSAN FLASHING, SOPRADRAIN 10-G, 15-G or 18-G and SOPRADRAIN HF.

1.1.3. Waterproofing of insulated concrete forms

Insulated concrete forms (ICF) are becoming more widespread as a foundation type. The insulated form keeps the concrete in the best conditions for curing. Because it envelops the structure, it also provides excellent ongoing insulation. The concrete must be reinforced with vertical and horizontal steel reinforcement bars that strengthen the foundation.



SOPREMA solutions

SOPREMA products that can be used for this type of foundation: COLPHENE ICF, SOPRADRAIN 10-G, 15-G or 18-G and SOPRADRAIN HF.

STORAGE AND HANDLING

STORAGE AND HANDLING

2.1. BASIC RULES

All SOPREMA products must be stored in a dry, ventilated area. They must be protected from the weather and all harmful substances, and always stored away from open flames and welding sparks. Only materials that will be used that day should be taken out of the shelter.

Products stored outside must be covered by an opaque tarp after the covers provided on delivery have been removed.

2.1.1. Membranes

Materials delivered in rolls must be carefully stored upright, with the selvage side upward.

Rolls are shipped on pallets with a plastic cover.

Do not stack pallets unless plywood spacers of at least 12 mm (1/2 in.) are inserted between the pallets (preferably 19 mm [3/4 in.]) .

Always store self-adhesive membranes out of the sun.

Membranes may be stored outside during the winter. However, all membranes must be conditioned before installation if the installation or storage temperature is below 10 °C (50 °F).

2.1.2. Liquids

Store liquid containers in a cool, dry place away from any flame.

Store in a ventilated location, sheltered from heat and sun. Protect from freezing.

2.1.3. Mastics

During the winter, store solvent-based mastics at a temperature that is warm enough to ensure the malleability required for application (> 10 °C [50 °F]). Take the products out as they are used on site.

2.1.4. Torch and propane gas tank

Welding equipment check

Only use C.S.A. certified equipment that is in perfect condition. Never modify torch-related equipment. Only use hoses suited for propane that are less than 15 m (50 ft.) long.

Check and tighten all hook-ups before using the equipment.

Ensure tank is secured to a dolly or a roller.

Do not light the torch if you smell propane. Never look for leaks using the torch. Use soapy water.

Use a torch equipped with a shut-off device and adjustable gas flow that has been installed according to the manufacturer's guidelines.

SURFACE PREPARATION

SURFACE PREPARATION

3.1. CONDITION OF SURFACES

3.1.1. Basic rules - Waterproofing of conventional foundations

Do not start any of the work until all surfaces are clean, dry, free of all debris and dust, and after all products pertaining to formwork and curing have been removed, along with any laitance or irregularity which may hamper membrane bonding, in accordance with the manufacturer's instructions and recommendations.

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

All cracks need solid support. Any seams and cracks measuring less than 6 mm (1/4 in) in width should be filled with SOPRAMASTIC (for heat-welded and self-adhesive membranes) or SOPRASEAL LM 200 T (for liquid membranes). Cracks exceeding 6 mm (1/4 in) in width should be filled with SOPRAMASTIC or SOPRASEAL LM 200 T, followed by a primer and a 150 mm (6 in) strip of self-adhesive or heat-welded membrane.

Make sure that concrete curing is complete before installing membranes. For installing membrane in sheets, a minimum curing period of 10 to 14 days is generally required during the summer. The curing period may be longer in other seasons. A minimum curing period of 48 to 72 hours is required for the installation of liquid membranes. Curing time also varies with concrete thickness and density.

After the deck's water-curing period or after removing the form, allow at least 24 hours for the concrete substrate to dry.

Note: Consult the contractor who poured the concrete for more details about concrete curing on a specific project.

Any curing agents must be compatible with the sealing/ waterproofing products.

Raised areas along concrete formwork and pouring joints must not exceed 5 mm (3/16 in).

Any holes over 5 mm (3/16 in) must be filled with bitumen or fast-setting concrete, depending on the condition of the surface.

An adhesion test is recommended before installing the membrane.

3.2. PRIMER COAT APPLICATION

When necessary, apply a primer coat over the entire surface to be covered, as per the recommended coverage rate.

Let dry the required time, depending on the product, weather conditions and temperature of the substrate.

Self-adhesive membranes must be installed as soon as possible once the primer has dried, or within 2 hours after application of the primer.

Primed surfaces that are not immediately covered once the primer is dry may become contaminated (dust, loose particles, etc.) in a very short time. When this happens, the surfaces must be re-primed before installing membranes.

Primers can be applied using the following tools:

- rollers
- spray gun (SOPRASEAL STICK PRIMER only)
- paint brushes (for small surfaces)

Note: Never dilute the primer.

Never use a torch to check if the substrate is dry. Use a bare hand to check that there is no trace of humidity or sticky film that adheres to the skin.

Drying time is dependent on the substrate's dampness, temperature and relative humidity.

3.3. PRIMERS

PRODUCTS	DESCRIPTION	DRYING TIME	COVERAGE*
SOPRASEAL STICK PRIMER	Solvent-based primer to prepare surfaces before the installation of self-adhesive membranes.	15 to 60 minutes with roll 5 to 10 minutes with spray equipment	Roll: Porous substrates: 0.3 - 0.5 L/m² (0.75 - 1.25 US gal/100 sq.ft) Non-porous substrates: 0.1 - 0.25 L/m² (0.25 - 0.625 US gal/100 sq.ft) Spray applied: Porous substrates: 0.13 - 0.21 L/m² (0.375 - 0.525 US gal/100 sq.ft) Non-porous substrates: 0.07 - 0.1 L/m² (0.175 - 0.25 US gal/100 sq.ft)
ELASTOCOL STICK H_2O	Water-based primer to prepare surfaces before installing self-adhesive membranes. Never used below -4°C (25°F)	1 to 3 hours	0.1 - 0.3 L/m² (0.25 - 0.75 US gal/100 sq.ft)
ELASTOCOL STICK ZERO	Solvent-based primer to prepare the surfaces before installing self-adhesive membranes, LEED® compliant (IEQ credit 4.1)	30 to 90 minutes	Porous substrates: 0.2 - 0.4 L/m² (0.50 - 1.00 US gal/100 sq.ft) Non-porous substrates: 0.1 - 0.25 L/m² (0.25 - 0.625 US gal/100 sq.ft)
ELASTOCOL 350	Water-based primer designed to improve the bonding power of heat-weldable membranes.	1 to 12 hours	0.15 - 0.25 L/m² (0.375 – 0.625 US gal/100 sq.ft.)
ELASTOCOL 500	Solvent-based primer to prepare surfaces before the installation of heat-welded membranes.	1 to 12 hours	0.15 - 0.25 L/m² (0.375 – 0.625 US gal/100 sq.ft.)

*Note: Coverage varies depending on substrate porosity and surface type. It is essential that the pails be thoroughly mixed prior to installation.
Drying time can vary depending on the temperature and the relative humidity.

FOUNDATION WATERPROOFING MEMBRANES

FOUNDATION WATERPROOFING MEMBRANES

WATERPROOFING OF CONVENTIONAL FOUNDATIONS						
	THICKNESS	DIMENSIONS	REINFORCEMENT	NET AREA*	APPLICATION TEMPERATURE	COVERAGE PER PAIL **
SELF-ADHESIVE MEMBRANE						
COLPHENE 3000	1.5 mm (60 mils)	1 x 18.7 m (3.3 x 61 ft)	T	17.3 m² (186 ft²)	Summer: 10°C to 50°C (50 to 122 °F) Winter: -10°C to 10°C (14 à 50 °F)	-
HEAT-WELDED MEMBRANES						
COLPHENE TORCH'N STICK	2.7 mm (106 mils)	12 x 1 m (39 x 3.3 ft)	P	11.1 m² (119.5 ft²)	Above -35°C (-31 °F)	-
COLPHENE FLAM 180	3 mm (120 mils)	10 x 1 m (33 x 3.3 ft) 12 x 1 m (39 x 3.3 ft)	P	9.25 m² (100 ft²) 11.1 m² (119.5 ft²)	Above -35°C (-31 °F)	-
LIQUID MEMBRANES						
COLPHENE LM 300	Wet: 2 mm (80 mils) Dry: 1 mm (40 mils)	-	-	-	Above 5°C (41 °F)	10 m² (100 ft²)
COLPHENE LM BARR	Vertical: 1.52 mm (60 mils) Vertical and horizontal: 3.2 mm (120 mils)	-	- PO	-	Above 2°C (35 °F)	60 mils: 12,5 m² (135 ft²) 120 mils: 6.3 m² (67,5 ft²)

*Net area, 1 roll field surface (Duo Selvedge not included)
**Coverage per 19L
Legend:
C = Composite P = Non-woven polyester T= Tri-laminated woven polyethylene
PO= POLYFLEECE

WATERPROOFING OF BLINDSIDE WALLS					
	THICKNESS	DIMENSIONS	REINFORCEMENT	NET AREA*	APPLICATION TEMPERATURE
SELF-ADHESIVE MEMBRANES					
COLPHENE BSW V	3 mm (120 mils)	1 x 10 m (3.3 x 33 ft)	C	9 m^2 (96.9 ft^2)	Above -10°C (14 °F)
COLPHENE PROTECT'R	2 mm (80 mils)	1 x 15 m (3.3 x 49 ft)	C	15 m^2 (161.5 ft^2)	Above -10°C (14 °F)
COLPHENE STICK LAP	3 mm (120 mils)	0.33 x 10 m (1 x 33 ft)	C	3.3 m^2 (35.5 ft^2)	Above -10°C (14 °F)
HEAT-WELDED MEMBRANES					
COLPHENE BSW H	3.5 mm (140 mils)	10 x 1 m (33 x 3.3 ft)	P	9 m^2 (96.9 ft^2)	Above -35°C (-31 °F)
COLPHENE SP LAP	3 mm (120 mils)	10 x 0.33 m (33 x 1 ft)	P	3.3 m^2 (35.5 ft^2)	Above -35°C(-31 °F)

WATERPROOFING OF INSULATED CONCRETE FORMS					
	THICKNESS	DIMENSIONS	REINFORCEMENT	NET AREA*	APPLICATION TEMPERATURE
SELF-ADHESIVE MEMBRANE					
COLPHENE ICF	1 mm (40 mils)	0.91 x 22.9 m (3.3 x 33 ft)	T	19.1 m^2 (205.5 ft^2)	Summer: 10°C to 50°C (50 to 122 °F) Winter: -10°C to 10°C (14 to 50 °F)

*Net area, 1 roll field surface (Duo Selvedge not included)
Legend:
C = Composite P = Non-woven polyester T= Tri-laminated woven polyethylene
PO= POLYFLEECE

4.1. WATERPROOFING OF CONVENTIONAL FOUNDATIONS

4.1.1. SELF-ADHESIVE MEMBRANE

4.1.1.1. COLPHENE 3000

Description

COLPHENE 3000 is a self-adhesive SBS modified bitumen membrane with a trilaminated woven polyethylene facer. The self-adhesive underface is covered by silicon release film.

COLPHENE 3000 membrane is designed to waterproof foundation walls and other vertical buried surfaces.

COLPHENE 3000 membrane is available in summer and winter versions.

Recommended substrates

This product can be used on most construction surfaces, such as masonry, concrete and wood.

Limitations

Concrete must cure for at least fourteen (14) days. We recommend performing an adhesion test before installing the membrane.

COLPHENE 3000 must not be used at temperatures below -10 °C (14 °F).

Accessory products

SOPRASEAL STICK PRIMER, **ELASTOCOL STICK H_2O** and **ELASTOCOL STICK ZERO** are used to prepare the surfaces before installing the self-adhesive membrane.

SOPRAMASTIC is the ideal complement to bitumen-based waterproofing membranes for pointing and caulking.

4.1.2. HEAT-WELDED MEMBRANES

No heat-welding operation is to be done directly on a combustible substrate.

4.1.2.1. COLPHENE TORCH'N STICK

Description

The **COLPHENE TORCH'N STICK** waterproofing membrane is composed of SBS modified bitumen and non-woven polyester reinforcement. Both sides of the membrane are covered with thermofusible plastic film. When the plastic film on the top surface is melted with a torch, it yields an adhesive surface to which a 3 mm (⅛ in) thick **SOPRABOARD** protective panel, **SOPRADRAIN 10-G** drainage board or **SOPRA-XPS 30** insulation panel can be bonded directly.

Recommended substrates

COLPHENE TORCH'N STICK is designed to be used as a waterproofing membrane on foundation walls and other buried vertical concrete surfaces.

Limitations

Concrete must cure for at least fourteen (14) days. We recommend performing an adhesion test before membrane installation.

COLPHENE TORCH'N STICK must not be used at temperatures below -35 °C (31 °F).

Accessory products

ELASTOCOL 350 and **ELASTOCOL 350** primers promote the bonding of heat weldable waterproofing membranes on most surfaces.

SOPRAMASTIC is the ideal complement to bitumen-based waterproofing membranes for pointing and caulking.

4.1.2.2. COLPHENE FLAM 180

Description

COLPHENE FLAM 180 is a waterproofing membrane composed of SBS modified bitumen and non-woven polyester reinforcement. The facer and underface are covered with thermofusible plastic film.

COLPHENE FLAM 180 is used as a waterproofing membrane for plaza-decks, foundations and other buried horizontal and vertical surfaces.

Recommended substrates

The product can be installed on a concrete substrate.

Limitations

Concrete must cure for at least fourteen (14) days. We recommend performing an adhesion test before installing membrane.

COLPHENE FLAM 180 must not be used at temperatures below - 35 °C (-31 °F).

Accessory products

ELASTOCOL 350 and **ELASTOCOL 350** primers promote surface bonding of heat weldable waterproofing membranes.

SOPRAMASTIC is the ideal complement to bitumen-based waterproofing membranes for pointing and caulking.

4.1.3. LIQUID APPLIED MEMBRANES

4.1.3.1. COLPHENE LM 300

Description

COLPHENE LM 300 is a liquid waterproofing membrane with a single component made from water and synthetic rubbers.

COLPHENE LM 300 is easy to apply and, after curing, forms a strong, highly flexible and joint-free membrane that combines the features of a sealant and elastomer waterproofer.

COLPHENE LM 300 is highly adhesive and can be applied to most supports, including wood, insulated concrete forms, cured or fresh concrete, and recently installed concrete blocks. The membrane is salt resistant.

Limitations

COLPHENE LM 300 requires no regulatory markings for transport. Keep out of reach of children. Toxic if inhaled, ingested or absorbed through skin contact. No sewer disposal.

COLPHENE LM 300 must not be used at temperatures below 5 °C (41 °F). Do not use if there is a risk of rain or freezing within 24 hours of installation.

Accessory products

SOPRASEAL STICK PRIMER is a solvent-based primer used on metal or concrete surfaces to enhance the bonding of self-adhesive membranes.

SOPRASEAL STICK 1100 T in cut rolls to repair substrate joints larger than 6 mm (1/4 in.).

SOPRADRAIN 10-G is a high-density drainage board with factory-laminated geotextile. It is used on vertical surfaces after the **COLPHENE LM 300** membrane is installed.

SOPRASEAL LM 200 T liquid membrane is used to caulk joints and cracks.

4.1.3.2. COLPHENE LM BARR / LM BARR SPRAY

Description

COLPHENE LM BARR is a single component, liquid applied, 98% solids content, STPE moisture curing elastomeric waterproofing membrane. **COLPHENE LM BARR** is also available in a sprayable version under the name of **COLPHENE LM BARR SPRAY,** which contains 95% solids.

COLPHENE LM BARR's technology forms a continuous, tough elastic seal to the substrate that withstands extreme cold and high temperatures without cracking or softening.

COLPHENE LM BARR is ideal as a positive waterproofing solution for sealing foundations, but, can also be used on plaza-decks.
COLPHENE LM BARR adheres very well on most substrates such as concrete, wood, steel, aluminum, stone, masonry, etc.

Limitations

Do not apply **COLPHENE LM BARR** at temperatures below 2 °C (35 °F).

In above grade applications, **COLPHENE LM BARR** must never be exposed to the UV rays more than 2 consecutive weeks. If such a delay is anticipated, protect the surface with a UV barrier.

Accessory products

On vertical applications, **COLPHENE LM BARR** is used with **POLYFLEECE** to reinforce transition joints, interior and exterior corners, or excessive damage. On horizontal applications, **POLYFLEECE** is used on the complete surface.

COLPHENE BARR FLASHING is ideal to repair and level all surface defects and grout lines, seal joints, fasteners and penetrations or to reinforce interior and exterior corners.

4.2. WATERPROOFING OF BLINDSIDE WALLS (PRE-APPLIED SYSTEM)

4.2.1. SELF-ADHESIVE MEMBRANES

4.2.1.1. COLPHENE BSW V

Description

COLPHENE BSW V is a high-performance waterproofing membrane composed of SBS modified bitumen and composite reinforcement. The facer is sanded and the underface is covered with a silicone release film.

COLPHENE BSW V is designed for waterproofing vertical blind side walls.

Limitations

COLPHENE BSW V must not be used at temperatures below -10 °C (-14 °F). For application at temperatures below 10 °C, coat the drainage board with primer before installing the vertical self-adhesive waterproofing membrane.

Accessory products

SOPRASEAL STICK PRIMER is used to prepare the drainage board at temperatures between -10 °C and 10 °C before installing the self-adhesive membrane.

ALSAN FLASHING is a liquid polyurethane and bitumen-based waterproofing membrane used in conjunction with **ARMATURE FLASHING** reinforcement to seal around openings.

SOPRADRAIN 10-G, **15-G** or **18-G** is a high-density drainage board with factory-laminated geotextile. It is used on retaining walls before **COLPHENE BSW V** membrane is installed.

4.2.1.2. COLPHENE BSW PROTECT'R

Description

COLPHENE BSW PROTECT'R is an SBS modified bitumen protective membrane with composite reinforcement. The facer is sanded and the underface is covered with a protective release film.

COLPHENE BSW PROTECT'R is used as a protective layer over **COLPHENE BSW H** membrane before reinforcing steel bars are installed and concrete is poured.

Limitations

COLPHENE BSW PROTECT'R must not be used at temperatures below -10 °C (-14 °F).

4.2.1.3. COLPHENE STICK LAP

Description

COLPHENE STICK LAP is a waterproofing membrane composed of SBS modified bitumen and composite reinforcement. The facer is sanded and the underface is covered with a silicone release film. **COLPHENE STICK LAP** is used as a cover strip in waterproofing systems for foundations and buried surfaces.

Limitations

COLPHENE STICK LAP must not be used at temperatures below -10 °C (-14 °F).

Accessory products

SOPRASEAL STICK PRIMER is used to prepare the surfaces before installing self-adhesive membranes.

4.2.2. HEAT-WELDED MEMBRANES

4.2.2.1. COLPHENE BSW H

Description

COLPHENE BSW H is a high-performance waterproofing membrane composed of SBS modified bitumen and non-woven polyester reinforcement. The facer is sanded and the underface is covered with thermofusible plastic film.

COLPHENE BSW H is designed for horizontal waterproofing applications under concrete slabs.

Limitations

COLPHENE BSW H must not be used at temperatures below -35 °C (-31 °F).

Accessory products

ALSAN FLASHING is a liquid polyurethane- and bitumen-based waterproofing membrane used in conjunction with **ARMATURE FLASHING** reinforcement to seal around openings.

COLPHENE BSW PROTECT'R is a fully reinforced protective membrane specifically designed for horizontal applications in the Colphene BSW system.

4.2.2.2. COLPHENE SP LAP

Description

COLPHENE SP LAP is a waterproofing membrane composed of SBS modified bitumen and non-woven polyester reinforcement. The facer is sanded and the underface is covered with thermofusible plastic film.

COLPHENE SP LAP is used as a cover strip in waterproofing systems for foundations and buried surfaces.

Limitations

COLPHENE SP LAP must not be used at temperatures below -35 °C (-31 °F).

4.3. WATERPROOFING OF INSULATED CONCRETE FORMS

4.3.1. SELF-ADHESIVE MEMBRANE

4.3.1.1. COLPHENE ICF

Description

COLPHENE ICF is a self-adhesive SBS modified bitumen membrane with a trilaminated woven polyethylene facer. The self-adhesive underface is covered by silicon release film.

COLPHENE ICF membrane is designed to protect against humidity and waterproof insulated concrete form foundations.

COLPHENE ICF membrane is available in summer and winter versions.

Recommended substrates

COLPHENE ICF membrane is applied directly to the polystyrene surface of ICF foundations. Generally, **COLPHENE ICF** can be installed without primer.

Limitations

COLPHENE ICF is only designed for use on buried surfaces. It must not be used above ground level.

COLPHENE ICF must not be used at temperatures below -10 °C (-14 °F).

Accessory products

ELASTOCOL STICK H_2O is a polymer emulsion based primer designed to improve the bonding power of self-adhesive waterproofing membranes on insulated formwork.

SOPRAGRIP F membrane can be used as a cover strip on the upper ends of **COLPHENE ICF** membranes.

OTHER FOUNDATION PRODUCTS

5.1. DRAINAGE BOARDS

5.1.1. SOPRADRAIN 10-G

Description

SOPRADRAIN 10-G is a high-density drainage board composed of a polypropylene core on which a geotextile is factory laminated. The board is installed on waterproofing membranes in commercial vertical and horizontal drainage applications.

Low structural load: **SOPRADRAIN 10-G** weighs less than 1 kg/m² compared with 145 kg/m² for a 10 cm thick layer of gravel drainage.

Thin: **SOPRADRAIN 10-G** is only 1 cm thick, compared with 10 cm for gravel drainage, enabling better door clearance and less height for flashings and doors.

Chemical resistance: **SOPRADRAIN 10-G** is made of polypropylene, which does not break down and provides excellent resistance to most chemical agents.

Limitations

When **SOPRADRAIN 10-G** is installed in pre-applied systems, the filter must always be installed on the blind side retaining wall. In conventional applications, the filter must be installed on the backfill side and the **SOPRADRAIN 10-G** must descend onto the footing.

5.1.2. SOPRADRAIN 15-G

Description

SOPRADRAIN 15-G is a high-strength drainage panel consisting of a polypropylene core with a factory-laminated geotextile for installation over waterproofing membranes in most vertical and horizontal commercial drainage applications.

Reduced structural loading: **SOPRADRAIN 15-G** weighs 1 kg/m² compared to 145 kg/m² for a 10 cm drainage layer of gravel.

Chemical resistance: **SOPRADRAIN 15-G** is made with polypropylene. It will not deteriorate and is extremely resistant to chemical attack.

Limitations

When **SOPRADRAIN 15-G** is installed in pre-applied systems, the filter must always be installed on the blind side retaining wall. In conventional applications, the filter must be installed on the backfill side and the **SOPRADRAIN 15-G** must descend onto the footing.

5.1.3. SOPRADRAIN 18-G

Description

SOPRADRAIN 18-G is a high-strength drainage panel

consisting of a polypropylene core with a woven heavy-duty

polypropylene filter fabric that offers optimum performance under concrete and soil in high loading areas such as plaza decks and parking structures.

Reduced structural loading: **SOPRADRAIN 18-G** weighs 1 kg/m^2 compared to 145 kg/m^2 for a 10 cm drainage layer of gravel.

Highest strength core and filter fabric: **SOPRADRAIN 18-G** has the highest compressive strength of all our drainage boards, and also the strongest filter fabric to resist deformation during placement of heavy overburden or concrete.

Limitations

When **SOPRADRAIN 18-G** is installed in pre-applied systems, the filter must always be installed on the blind side retaining wall. In conventional applications, the filter must be installed on the backfill side and the **SOPRADRAIN 18-G** must descend onto the footing.

5.1.4. SOPRADRAIN HF

Description

SOPRADRAIN HF is a combination of a low and high profile core into one product design made of a high-strength drainage panel consisting of a polystyrene core on which geotextile is factory laminated. It settles vertically at the bottom of the foundation in addition to the standard **SOPRADRAIN** panel to allow drainage of high water flow. It can be installed in both conventional and preapplied systems that require high drainage of water.

SOPRADRAIN HF is a high-strength drainage panel measuring 0,61 m (2 ft), witch needs to be used with **SOPRADRAIN 10-G** and **15-G** for the completion of the foundation drainage system.

Limitations

When **SOPRADRAIN HF** is installed in pre-applied systems, the filter must always be installed on the blind side retaining wall. In conventional applications, the filter must be installed on the backfill side.

Accessory products

SOPRADRAIN HF is used with two accessories, the **SOPRADRAIN T-OUTLET** and the **SOPRADRAIN END-OUTLET**. These two accessories allow an easy and direct connection to the stormwater drain.

5.2. INSULATION BOARDS

5.2.1. SOPRA-XPS 30

Description

SOPRA-XPS 30 is a rigid thermal insulation boards made of extruded polystyrene with shiplap or squared edges on its four sides. It is composed of closed cell foam.

It is mainly used as thermal insulation for SOPREMA foundation wall systems and under concrete slabs where the applied loads do not exceed 30 psi.

5.2.2. SOPRA-XPS 40, 60 & 100

Description

SOPRA-XPS 40, 60 & 100 are rigid thermal insulation boards made of high-density extruded polystyrene with squared edges on its four sides. They are composed of closed cell foam.

SOPRA-XPS 40, 60 & 100 are designed for applications requiring high-density insulation on which heavy loads will be applied. They are mainly used for SOPREMA foundation systems under slabs, protected-membrane roofing systems (inverted), parking decks, and plaza decks.

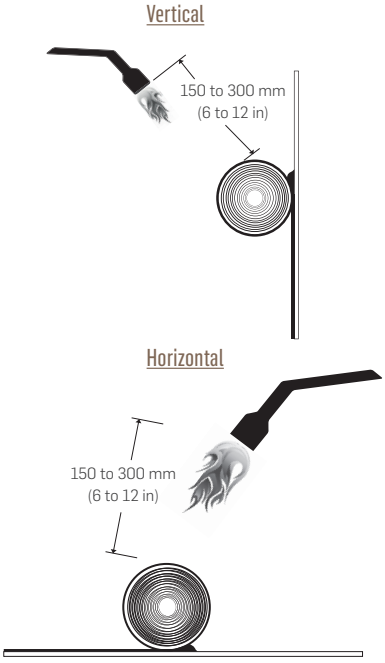
INSTALLATION METHODS FOR FOUNDATION WATERPROOFING MEMBRANES

INSTALLATION METHODS FOR FOUNDATION WATERPROOFING MEMBRANES

6.1. TORCHING TECHNIQUE

6.1.1. Flame distance

Maintain the appropriate distance between the end of the torch head and the roll. This distance varies from approx. 150 mm to 300 mm (6 in to 12 in), depending on surrounding conditions. The appropriate distance must be maintained to obtain maximum heat and proper diffusion of the flame. The hottest part of the flame is located at the tip of the blue portion.

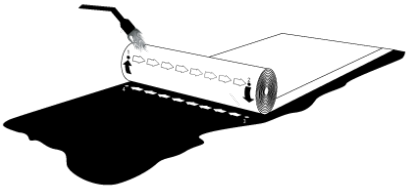


6.1.2. Torching vertically and horizontally

Before starting to weld, you must know the product you are welding and know the type of material to which you are welding this product.

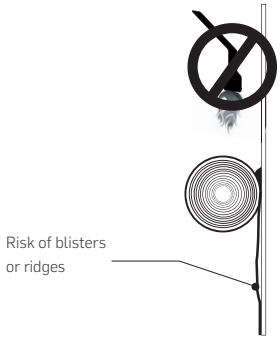
The installation of the membrane can be applied vertically or horizontally. When vertically applied, start from the bottom of the foundation and work your way up. When horizontally applied, start at one end of the surface and work your way in the opposite direction from there.

The flame should be directed at the top surface of the roll in order to heat it just enough to soften the bitumen to obtain a small bead of melted bitumen in front of the membrane as it is unrolled onto the substrate. The weld will be more effective if the movement of the torch, and hence its flame, is continuous and even, in a rectangular pattern.

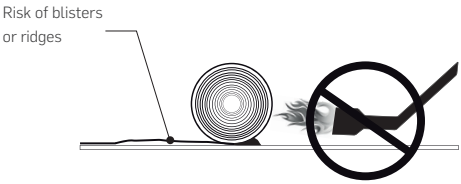


Never direct the flame between the roll and the substrate. This could trap air under the membrane and cause blisters or ridges.

Vertical



Horizontal



6.2. WATERPROOFING OF CONVENTIONAL FOUNDATIONS

6.2.1. COLPHENE 3000

1. Prime the substrate using SOPRASEAL STICK, ELASTOCOL STICK ZERO or ELASTOCOL STICK H_2O primer. The substrate must be smooth and clean.

2. After the primer is completely dry, begin installation of the 305 mm (12 in.) wide membrane centered on the corner of all interior and exterior foundation angles. This strip must be applied directly on the surface, with no gaps between the surface and the membrane. Outside corners should be double lapped.

3. Install the 305 mm (12 in.) membrane on the footings, making sure that 150 mm (6 in.) is installed on the foundation wall and 150 mm (6 in.) is installed on the footing.

4. Peel off the top of the silicone release film and stick the membrane on, making sure it is carefully aligned. Slowly remove the silicon release film while making sure the membrane is fully adhered. Longitudinal overlaps must measure at least 75 mm (3 in.), while transversal overlaps must be at least 150 mm (6 in.).

5. Once the membrane has been installed, use a roller to apply pressure to the entire membrane to ensure complete adhesion.

6. Tears and holes must be repaired using the appropriate membrane. The patch must be at least 100 mm (4 in.) larger than the affected surface. The edges of the patch will be sealed with waterproofing mastic.

7. The top end must be mechanically attached using metal edging and sealed with SOPRAMASTIC. Use SOPRAMASTIC to seal details and critical areas.

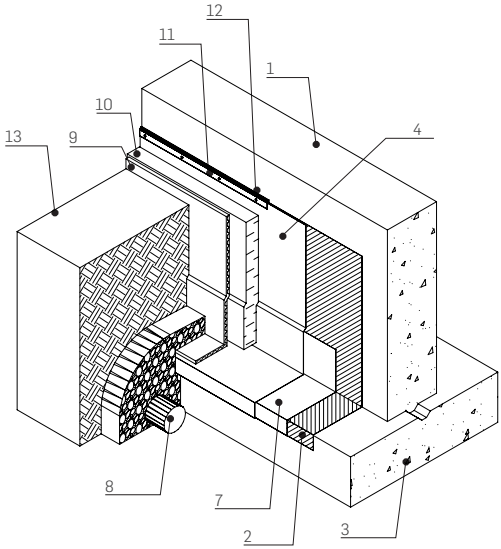
8. Install the SOPRA-XPS* insulation panel or SOPRADRAIN drainage board directly on the membrane with adhesive or fasteners while avoiding the perforation of the membrane.

9. Any waterproofing membrane that can be seen after filling must be protected from UV rays and mechanical damage.

* Refer to installation method.

DETAILS

6.2.1. COLPHENE 3000



*See the legend of details at the end of this section, on page 60.

6.2.2. COLPHENE TORCH'N STICK

1. Prime the entire surface of the substrate with **ELASTOCOL 350** or **ELASTOCOL 500** primer. The substrate must be smooth and clean.

2. After the primer is completely dry, begin installation of the 305 mm (12 in.) wide membrane centered on the corner of all interior and exterior foundation angles using a propane torch. This strip must be applied directly on the surface, with no gaps between the surface and membrane. Outside corners should be double lapped.

3. Install the 305 mm (12 in.) membrane on the footings, making sure that 150 mm (6 in.) is installed on the foundation wall and 150 mm (6 in.) is installed on the footing.

4. Continue to heat weld the **COLPHENE TORCH'N STICK** membrane on the entire foundation wall, making sure it is aligned with the previous roll. Longitudinal overlaps must measure at least 75 mm (3 in.), while transversal overlaps must be at least 100 mm (4 in.).

5. Seal the top end and all overlaps using a trowel and torch.

6. Tears and holes must be repaired using the same membrane. The strip must be 100 mm (4 in.) wider than the perforated or torn surface and welded into place with a propane torch.

7. The top end must be mechanically attached using metal edging and sealed with **SOPRAMASTIC**. Use **SOPRAMASTIC** to seal details and critical areas.

8. Use the torch to melt the film and warm the membrane to reveal the adhesive surface.

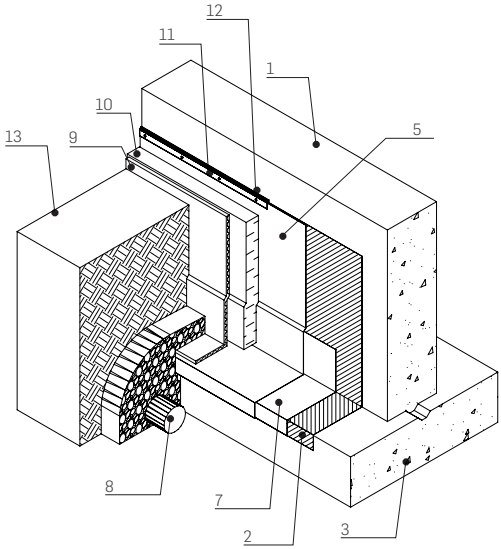
9. Stick the **SOPRA-XPS*** insulation panel, the **SOPRADRAIN** drainage board or the **SOPRABOARD** directly on the membrane.

10. Any waterproofing membrane that can be seen after filling must be protected from UV rays and mechanical damage.

* Refer to installation method.

DETAILS

6.2.2. COLPHENE TORCH'N STICK



*See the legend of details at the end of this section, on page 60.

6.2.3. COLPHENE FLAM 180

1. Prime the entire surface of the substrate with **ELASTOCOL 350** or **ELASTOCOL 500** primer. The substrate must be smooth and clean.

2. After the primer is completely dry, begin installation of the 305 mm (12 in.) wide membrane centered on the corner of all interior and exterior foundation angles using a propane torch. This strip must be applied directly on the surface, with no gaps between the surface and membrane. Outside corners should be double lapped.

3. Install the 305 mm (12 in.) membrane on the footings, making sure that 150 mm (6 in.) is installed on the foundation wall and 150 mm (6 in.) is installed on the footing.

4. Continue to heat weld the **COLPHENE FLAM 180** membrane onto the entire foundation wall, ensuring it is aligned with the previous roll. Longitudinal overlaps must measure at least 75 mm (3 in.), while transversal overlaps must be at least 100 mm (4 in.).

5. Seal the top end and all overlaps using a trowel and torch.

6. Tears and holes must be repaired using the same membrane. The strip must be 100 mm (4 in.) wider than the perforated or torn surface, and welded into place with a propane torch.

7. The top end must be mechanically attached using metal edging and sealed with **SOPRAMASTIC**. Use **SOPRAMASTIC** to seal details and critical areas.

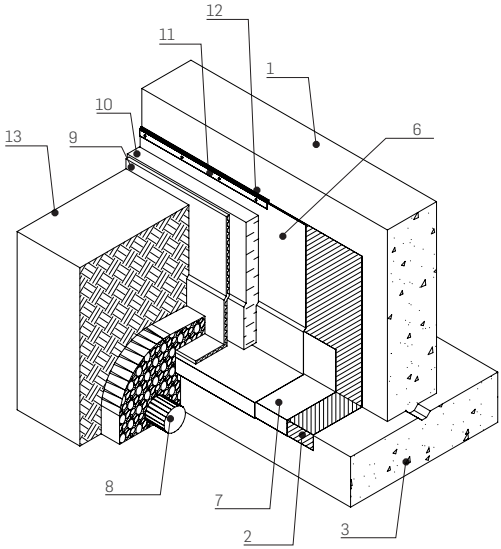
8. After backfilling, we recommend covering the waterproofing membrane with a **SOPRADRAIN** drainage board, mechanically fastened above the top edge of the membrane, or a **SOPRA-XPS*** insulation panel directly on the membrane with adhesive or fasteners while avoiding the perforation of the membrane. Backfilling should be done immediately after the panels are installed.

9. Any waterproofing membrane that can be seen after filling must be protected from UV rays and mechanical damage.

* Refer to installation method.

DETAILS

6.2.3. COLPHENE FLAM 180



*See the legend of details at the end of this section, on page 60.

6.2.4. COLPHENE LM 300

1. Prepare the surface so that it is smooth and clean. Debris and other harmful elements like water and grease could compromise bonding.

2. Caulk joints and cracks smaller than 6 mm (1/4 in.) wide with SOPRASEAL LM 200 T liquid membrane. For cracks larger than 6 mm (1/4 in.) wide, add a 150 mm (6 in.) wide strip of COLPHENE 3000 on the joints and cracks previously primed with SOPRASEAL STICK PRIMER.

3. Spray* on COLPHENE LM 300 in three 90° passes to obtain a minimum wet film thickness of 2 mm (80 mils). Keep installing continuously on angles and around obstacles.

4. Check thickness with a wet film gauge.

5. The product changes colour as it dries, going from pink to red. Minimum drying time of 24 to 48 hours is required before installing the protective panel and backfilling.

6. A SOPRADRAIN protective board mechanically fastened above the top edge of the membrane or a SOPRA-XPS** insulation board must be installed on the membrane with adhesive to protect it during backfilling.

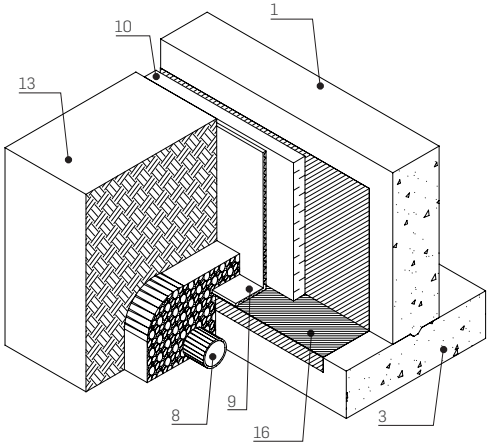
7. Any waterproofing membrane that can be seen after filling must be protected from UV rays and mechanical damage.

*Spray applied equipment: The use of a 543 spray tip with spraying equipment that produces up to 3000 psi pressure is recommended. Recommended starting pressure: 1100 psi.

** Refer to installation method.

DETAILS

6.2.4. COLPHENE LM 300



*See the legend of details at the end of this section, on page 60.

6.2.5. COLPHENE LM BARR

1. Remove all dirt, oil, loose paint, water, frost, and any other contaminants that could interfere with bonding.

2. Repair and level all surface defects, grout lines, seal fasteners and penetrations with **COLPHENE BARR FLASHING**.

3. To reinforce transition joints, interior and exterior corners, or excessive damage, two solutions apply. The use of **COLPHENE BARR FLASHING** and the use of **POLYFLEECE** reinforcement.

3.1. When **COLPHENE BARR FLASHING** is used as reinforcement, only apply a minimum wet film thickness of 2.3 mm (90 mils) of **COLPHENE BARR FLASHING** on the surfaces that needs to be reinforced. Once all surfaces are reinforced, proceed with the overall application of **COLPHENE LM BARR**membrane.

3.2. When **POLYFLEECE** is used as reinforcement, pre-apply a thickness of 1.2 mm (45 mils) of **COLPHENE BARR FLASHING** on the surface and install the **POLYFLEECE** into the product while it is still wet. Proceed with the application of 1.2 mm (45 mils)
wet film thickness of **COLPHENE LM BARR** while making sure the **POLYFLEECE** previously installed is adequately saturated.

4. For the application of **COLPHENE LM BARR** membrane on foundation walls, apply two coats vertically with a brush, roller, or squeegee, with a minimum wet film thickness of 0.8 mm (30 mils) each for a total thickness of 1.6 mm (60 mils). The second coat can be applied as soon as the first coat has skinned. For better results, do not exceed 72 hours between coat applications. The amount of **COLPHENE LM BARR** will vary with substrate roughness and porosity.

5. Check thickness with a wet film gauge.

6. A drying time of minimum 3 hours is required before the installation of the protection panel and backfilling. Drying time applies for 0.8 mm (30 mils) applications when temperature is at 21 °C (70 °F) with a 50% relative humidity. **Drying time is longer at lower temperatures and/or with lower relative humidity.**

7. A **SOPRADRAIN** protective board mechanically fastened above the top edge of the membrane or a **SOPRA-XPS*** insulation board must be installed on the membrane with adhesive to protect it during backfilling.

8. Any waterproofing membrane that can be seen after filling must be protected from UV rays and mechanical damage.

* Refer to installation method.

6.2.6. COLPHENE LM BARR SPRAY

1. Remove all dirt, oil, loose paint, water, frost, and any other contaminants that could interfere with bonding.

2. Repair and level all surface defects, grout lines, seal fasteners, and penetrations with **COLPHENE BARR FLASHING**.

3. To reinforce transition joints, interior and exterior corners, or excessive damage, two solutions apply. The use of **COLPHENE BARR FLASHING** and the use of **POLYFLEECE.**

3.1. When **COLPHENE BARR FLASHING** is used as reinforcement, only apply a minimum wet film thickness of 2.3 mm (90 mils) of **COLPHENE BARR FLASHING** on the surfaces that needs to be reinforced. Once all surfaces are reinforced, proceed with the overall application of **COLPHENE LM BARR** membrane.

3.2. When **POLYFLEECE** is used as reinforcement, pre-apply a thickness of 1.2 mm (45 mils) of **COLPHENE BARR FLASHING** on the surface and install the **POLYFLEECE** into the product while it is still wet. Proceed with the application of 1.2 mm (45 mils)
thickness of **COLPHENE LM BARR** while making sure the **POLYFLEECE** previously installed is adequately saturated.

4. On vertical substrates, prepare the surface by spraying a thin layer of **COLPHENE LM BARRSPRAY**. Proceed by spraying two passes, wet on wet, with a minimum wet film thickness of 0.8 mm (30 mils) each for a total of 1.6 mm (60 mils) thickness of **COLPHENE LM BARRSPRAY**. Make sure to alternate the 90° spray* angle between each pass.

When spraying, ensure full coverage of the substrate and overlap spray patterns to ensure uniform coverage, free from pinholes. The amount of **COLPHENE LM BARR** will vary with substrate roughness and porosity.

5. Check thickness with a wet film gauge.

6. A drying time of minimum 3 hours is required before the installation of the protection panel and backfilling. Drying time applies for 0.8 mm (30 mils) applications when temperature is at 21 °C (70 °F) with a 50% relative humidity. **Drying time is longer at lower temperatures and/or with lower relative humidity.**

7. A **SOPRADRAIN** protective board mechanically fastened above the top edge of the membrane or a **SOPRA-XPS**** insulation board must be installed on the membrane with adhesive to protect it during backfilling.

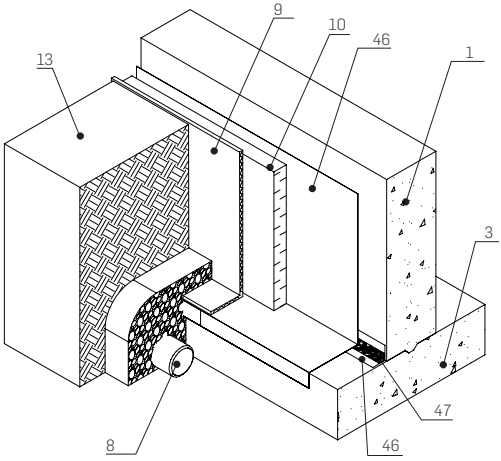
8. Any waterproofing membrane that can be seen after filling must be protected from UV rays and mechanical damage.

*Spray applied equipment: The use of a nº #041 spray tip with spraying equipment that produces up to 4 000 psi pressure is recommended with direct immersion.
Recommended starting pressure: minimum 3 000 psi.

** Refer to installation method.

DETAILS

COLPHENE LM BARR / COLPHENE LM BARRSPRAY



*See the legend of details at the end of this section, on page 60.

6.3. WATERPROOFING OF CONVENTIONAL FOUNDATIONS BELOW WATER TABLE LEVEL

6.3.1. COLPHENE BSW H

1. Install the waterproofing membrane loose laid on the blinding slab or prepared, compacted soil.

2. Stagger overlaps to avoid overly thick layers. End joints must be staggered by at least 300 mm (12 in.).

3. For longitudinal overlaps, there must be at least 100 mm (4 in.) between membrane strips; for transversal overlaps, there must be at least 150 mm (6 in.) between each membrane strip.

4. Seal all longitudinal overlaps with Duo Selvedge using a propane torch. Seal all transversal overlaps by heat welding using a propane torch.

5. Reinforce all angle changes, interior and exterior corners, and cold joints using a 330 mm (13 in.) strip of **COLPHENE SP LAP** or **COLPHENE BSW H** waterproofing membrane, heat welded, or prime the installed waterproofing membrane and install a piece of self-adhesive **COLPHENE STICK LAP** or **COLPHENE BSW V** self-adhesive membrane, centred on the angle or joint. All edges must be sealed using the propane torch.

6. Rips and holes in the membrane must be patched with heat welded **COLPHENE BSW H** waterproofing membrane using a torch or with a piece of **COLPHENE BSW V** over a primed surface. The patch must be at least 150 mm (6 in.) larger than the affected surface. All membrane ends will be heat welded to seal them.

6.3.2. COLPHENE PROTECT'R

1. Install the protective membrane in continuous lengthwise strips on top of the horizontal waterproofing membrane, or install it vertically by removing the silicone release film. Each strip should be overlapped by at least 25 mm (1 in.) to facilitate installation.

2. Apply uniform pressure over the entire protective membrane using a roller.

3. Rips and holes in the membrane must be patched with heat welded **COLPHENE BSW H** waterproofing membrane using a torch. The patch must be at least 150 mm (6 in.) larger than the affected surface. All membrane ends will be heat welded to seal them.

6.3.3. COLPHENE FLAM 180

1. Prime the entire surface of the substrate with **ELASTOCOL 350** or **ELASTOCOL 500** primer. The substrate must be smooth and clean.

2. Once the primer is completely dry, start the installation of the heatwelded **COLPHENE FLAM 180** membrane onto the entire foundation wall, ensuring it is aligned with the previous roll. Longitudinal overlaps must measure at least 75 mm (3 in.), while transversal overlaps must be at least 100 mm (4 in.).

3. Ensure a minimum overlap of 150 mm (6 in.) between the **COLPHENE FLAM 180** membrane and the **COLPHENE BSW H** membrane.

4. Seal the top end and all overlaps using a trowel and torch.

5. Tears and holes must be repaired using the same membrane. The strip must be 100 mm (4 in.) wider than the perforated or torn surface and welded into place with a propane torch.

6.3.4. COLPHENE TORCH'N STICK

1. Install **COLPHENE TORCH'N STICK** membrane on the entire foundation wall, making sure it is aligned with the previous roll. Longitudinal overlaps must measure at least 75 mm (3 in.), while transversal overlaps must be at least 100 mm (4 in.).

2. Ensure all joints are staggered a minimum of 300 mm (12 in.) between the **COLPHENE TORCH'N STICK** membrane and **COLPHENE BSW H** membrane.

3. Seal the top end and all overlaps using a trowel and torch.

4. Tears and holes must be repaired using the same membrane. The strip must be 100 mm (4 in.) wider than the perforated or torn surface, and welded into place with a propane torch.

5. The top end must be mechanically attached using metal edging and sealed with **SOPRAMASTIC**. Use **SOPRAMASTIC** to seal details and critical areas.

6. Use the torch to melt the film and warm the membrane to reveal the adhesive surface.

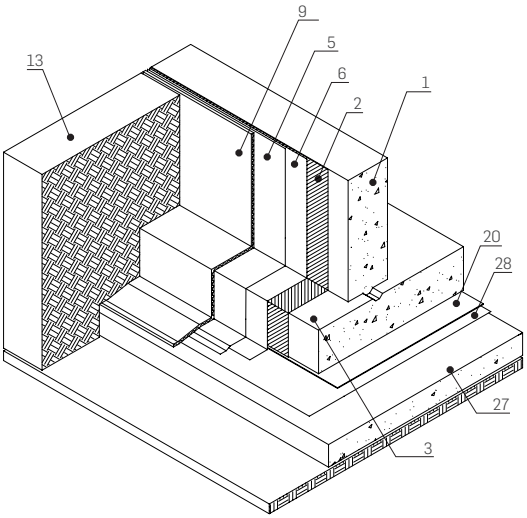
7. Stick the **SOPRA-XPS 30*** insulation panel, the **SOPRADRAIN 10-G** drainage board or the **SOPRABOARD** directly on the membrane. (Note: Always install **SOPRADRAIN 10-G** filter fabric towards backfill and on to footing.)

8. Any waterproofing membrane that can be seen after backfilling must be protected from UV rays and mechanical damage.

* Refer to installation method.

DETAILS

6.3. WATERPROOFING ON CLASSIC FOUNDATION WALL BELOW WATER TABLE LEVEL



*See the legend of details at the end of this section, on page 60.

6.4. WATERPROOFING OF BLINDSIDE WALLS

6.4.1. SOPRADRAIN 10-G, 15-G or 18-G

1. Install the drainage board on the vertical retaining wall with the geotextile oriented toward the retaining wall. Use minimum 25 mm (1 in.) diameter anchors and plates. (Refer to installation method.)

6.4.2. COLPHENE BSW V

1. For application at temperatures below 10 °C, coat the drainage board with **SOPRASEAL STICK PRIMER** before installing the vertical self-adhesive waterproofing membrane.

2. Install the **COLPHENE BSW V** waterproofing membrane vertically by removing the silicon release film. Mechanically attach the top of the membrane to the substrate using 50 mm (2 in.) diameter round plates and appropriate anchors every 330 mm (13 in.) from centre to centre.

3. Longitudinal overlaps must measure at least 100 mm (4 in.) between each membrane strip. The first 50 mm (2 in.) will be self-adhesive and the last 50 mm (2 in.) must be heat welded with a propane torch and a round trowel.

4. Using a roller, press the entire surface of the membrane to ensure complete bonding on the drainage board and prevent any movement while concrete is poured.

5. Horizontal joints must be aligned and overlapped by at least 150 mm (6 in.) to cover all screws and plates.

6. Install a 330 mm (13 in.) **COLPHENE SP LAP** or **COLPHENE BSW H** membrane reinforcement strip, heat welded with a torch, or a piece of self-adhesive **COLPHENE STICK LAP** or **COLPHENE BSW V** on a surface that has been primed; center the strip on all horizontal joints. All membrane edges will be heat welded to seal them.

7. Every angle change, interior and exterior corners must be reinforced by installing a 330 mm (13 in.) strip of heat welded **COLPHENE SP LAP** or **COLPHENE BSW H** waterproofing membrane, or prime the installed waterproofing membrane and install a piece of **COLPHENE STICK LAP** or **COLPHENE BSW V** self-adhesive membrane, centred on the angle or joint. All edges must be sealed using the propane torch.

8. Rips and holes in the membrane must be patched with heat welded **COLPHENE BSW H** waterproofing membrane using a torch, or a piece of **COLPHENE BSW V** self-adhesive membrane on the primed surface. The patch must be at least 150 mm (6 in.) larger than the affected surface. All membrane edges will be heat welded to seal them.

6.4.3. COLPHENE BSW H

1. Install the waterproofing membrane loose laid on the blinding slab or prepared, compacted soil.

2. Stagger overlaps to avoid overly thick layers. End joints must be staggered by at least 300 mm (12 in.).

3. For longitudinal overlaps, there must be at least 100 mm (4 in.) between membrane strips; for transversal overlaps, there must be at least 150 mm (6 in.) between each membrane strip.

4. Seal all longitudinal overlaps with Duo Selvedge using a propane torch. Seal all transversal overlaps by heat welding

5. Reinforce all angle changes, interior and exterior corners, and cold joints using a 330 mm (13 in.) strip of heat welded **COLPHENE SP LAP** or **COLPHENE BSW H** waterproofing membrane, or prime the installed waterproofing membrane and install a piece of self-adhesive **COLPHENE STICK LAP** or **COLPHENE BSW V** self-adhesive membrane, centred on the angle or joint. All edges must be sealed using the propane torch.

6. Rips and holes in the membrane must be patched with heat welded **COLPHENE BSW H** waterproofing membrane using a torch, or a piece of **COLPHENE BSW V** self-adhesive membrane on the primed surface. The patch must be at least 150 mm (6 in.) larger than the affected surface. All membrane edges will be heat welded to seal them.

6.4.4. COLPHENE PROTECT'R

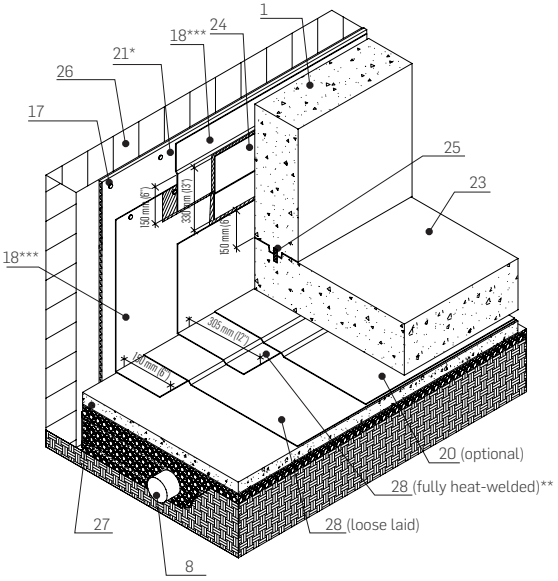
1. Install the protective membrane in continuous lengthwise strips on top of the horizontal waterproofing membrane, or install it vertically by removing the silicone release film. Each strip should be overlapped by at least 25 mm (1 in.) to facilitate installation.

2. Apply uniform pressure over the entire protective membrane using a roller.

3. Rips and holes in the membrane must be patched with heat welded **COLPHENE BSW H** waterproofing membrane using a torch, or a piece of **COLPHENE BSW V** self-adhesive membrane on the primed surface. The patch must be at least 150 mm (6 in.) larger than the affected surface. All membrane ends will be heat welded to seal them.

DETAILS

6.4. BLINDSIDE WATERPROOFING ABOVE HIGH WATER TABLE MARK LEVEL

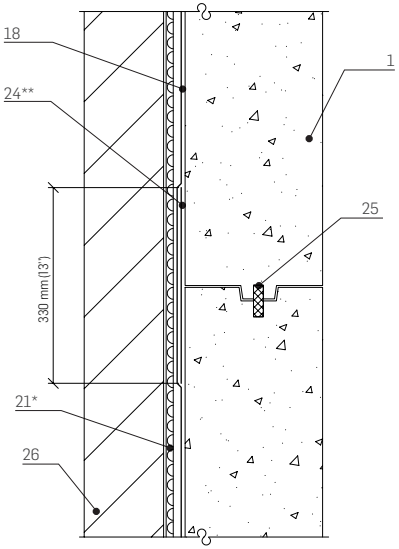


Notes:
*Always install **SOPRADRAIN 10-G**, **15-G** or **18-G** filter fabric towards the soil retention system. **SOPRADRAIN HF** needs to be used with **SOPRADRAIN 10-G** and **15-G**.
COLPHENE BSW V and **COLPHENE STICK LAP** reinforcement installed over a primed surface when all edges are sealed is an acceptable alternative to **COLPHENE BSW H** and **COLPHENE SP LAP** reinforcement.
***Primer is recommended over drainage board for application below 10 °C (50 °F).

*See the legend of details at the end of this section, on page 60.

DETAILS

6.4. BLINDSIDE WATERPROOFING ABOVE HIGH WATER TABLE MARK LEVEL - COLD JOINT DETAIL

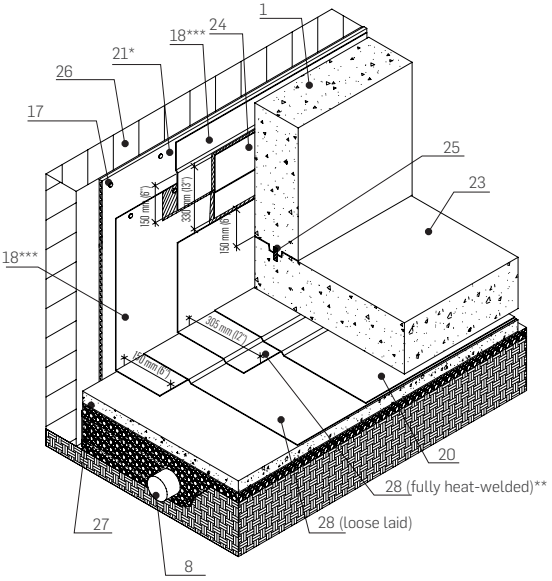


Notes:
*Always install **SOPRADRAIN 10-G**, **15-G** or **18-G** filter fabric towards the soil retention system. **SOPRADRAIN HF** needs to be used with **SOPRADRAIN 10-G** and **15-G**.
COLPHENE BSW V and **COLPHENE STICK LAP** reinforcement installed over a primed surface when all edges are sealed is an acceptable alternative to **COLPHENE BSW H** and **COLPHENE SP LAP** reinforcement.
***Primer is recommended over drainage board for application below 10°C (50 °F).

*See the legend of details at the end of this section, on page 60.

DETAILS

6.4. BLINDSIDE WATERPROOFING BELOW HIGH WATER TABLE MARK LEVEL

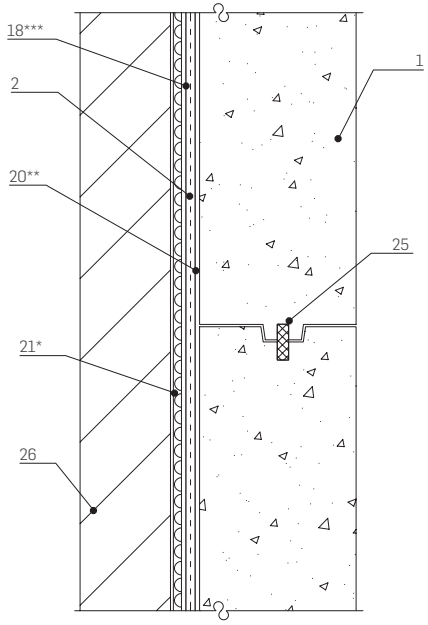


Notes:
*Always install **SOPRADRAIN 10-G**, **15-G** or **18-G** filter fabric towards the soil retention system. **SOPRADRAIN HF** needs to be used with **SOPRADRAIN 10-G** and **15-G**.
COLPHENE BSW V and **COLPHENE STICK LAP** reinforcement installed over a primed surface when all edges are sealed is an acceptable alternative to **COLPHENE BSW H** and **COLPHENE SP LAP** reinforcement.
***Primer is recommended over drainage board for application below 10°C (50 °F).

*See the legend of details at the end of this section, on page 60.

DETAILS

6.4. BLINDSIDE WATERPROOFING BELOW HIGH WATER TABLE MARK LEVEL - HIGH HYDROSTATIC HEAD - COLD JOINT

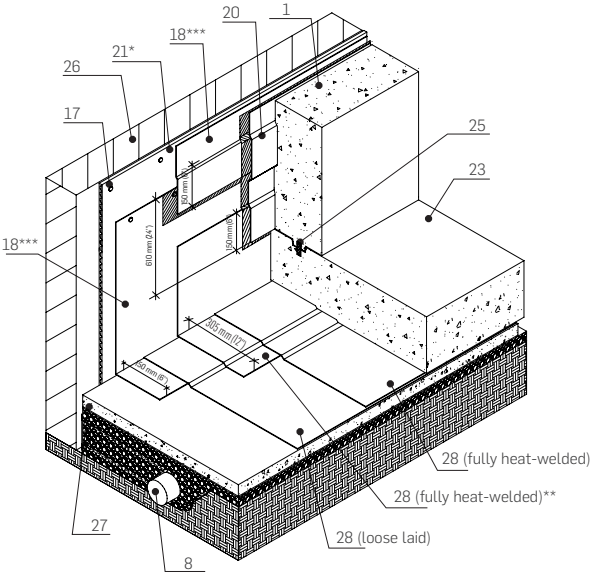


Notes:
*Always install **SOPRADRAIN 10-G**, **15-G** or **18-G** filter fabric towards the soil retention system. **SOPRADRAIN HF** needs to be used with **SOPRADRAIN 10-G** and **15-G**.
Primer + **COLPHENE BSW PROTECT'R are required over **COLPHENE BSW V** for application under high water table level mark - high hydrostatic head.
***Primer is recommended over drainage board for application below 10°C (50 °F).

*See the legend of details at the end of this section, on page 60.

DETAILS

6.4. BLINDSIDE WATERPROOFING BELOW HIGH WATER TABLE MARK LEVEL - HIGH HYDROSTATIC HEAD

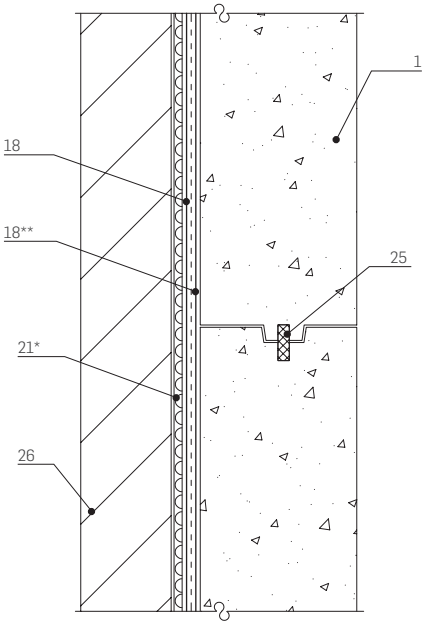


Notes:
*Always install **SOPRADRAIN 10-G**, **15-G** or **18-G** filter fabric towards the soil retention system. **SOPRADRAIN HF** needs to be used with **SOPRADRAIN 10-G** and **15-G**.
COLPHENE BSW V and **COLPHENE STICK LAP** reinforcement installed over a primed surface when all edges are sealed is an acceptable alternative to **COLPHENE BSW H** and **COLPHENE SP LAP** reinforcement.
***Primer is recommended over drainage board for application below 10°C (50 °F).

*See the legend of details at the end of this section, on page 60.

DETAILS

6.4. BLINDSIDE WATERPROOFING BELOW HIGH WATER TABLE MARK LEVEL - HIGH HYDROSTATIC HEAD - COLD JOINT



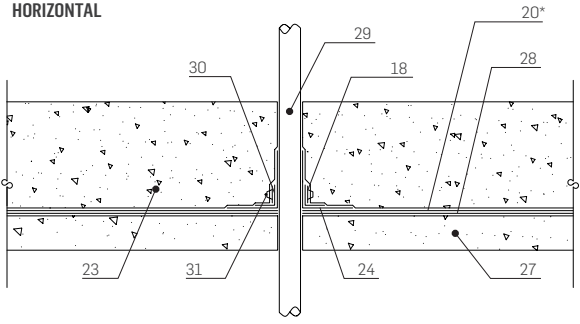
Notes:
*Always install **SOPRADRAIN 10-G**, **15-G** or **18-G** filter fabric towards the soil retention system. **SOPRADRAIN HF** needs to be used with **SOPRADRAIN 10-G** and **15-G**.
Primer + **COLPHENE BSW PROTECT'R are required over **COLPHENE BSW V** for application under high water table level mark - high hydrostatic head.
*** Primer is recommended over drainage board for application below 10°C (50 °F).

*See the legend of details at the end of this section, on page 60.

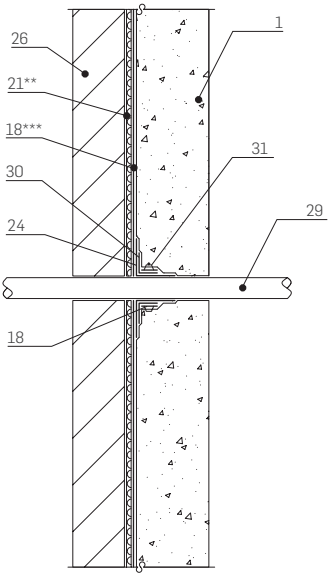
DETAILS

6.4. PENETRATION DETAILS

HORIZONTAL



VERTICAL

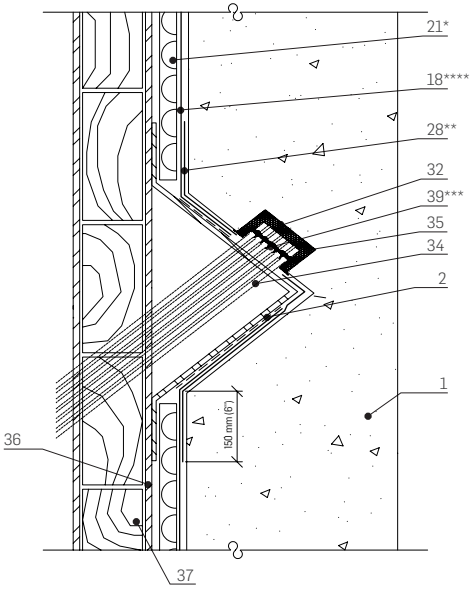


Notes:
*COLPHENE BSW PROTECT'R is required for application under high water table level mark. COLPHENE BSW H (fully heat-welded) is required for below high water table mark level - high hydrostatic head application.
** Always install SOPRADRAIN 10-G, 15-G or 18-G filter fabric towards the soil retention system. SOPRADRAIN HF needs to be used with SOPRADRAIN 10-G and 15-G. Primer is recommended over drainage board for application below 10°C (50 °F).
***Primer + COLPHENE BSW PROTECT'R are required over COLPHENE BSW V for application under high water table level mark - high hydrostatic head.

*See the legend of details at the end of this section, on page 60.

DETAILS

6.4. BLINDSIDE WATERPROOFING AT TIE-BACK (BUNDLE)

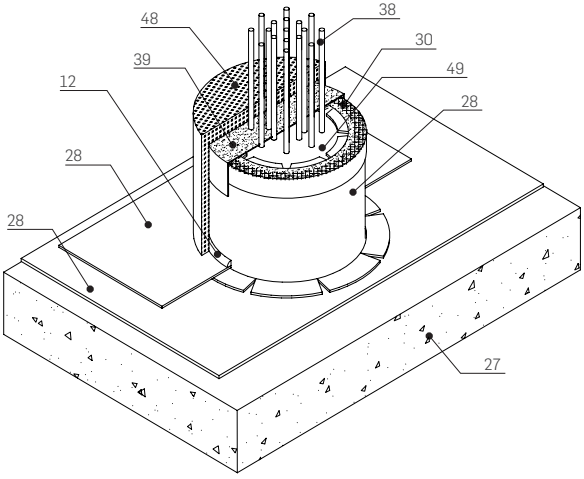


Notes:
* Always install **SOPRADRAIN 10-G**, **15-G** or **18-G** filter fabric towards the soil retention system. **SOPRADRAIN HF** needs to be used with **SOPRADRAIN 10-G** and **15-G**.
Primer is recommended over drainage board for application below 10°C (50 °F).
** **COLPHENE BSW V** reinforcement installed over primed surface and all edges sealed is an acceptable alternative to **COLPHENE BSW H** reinforcement.
*** **SOPRAMASTIC** is an acceptable alternative for application below 5°C (41 °F) only.
**** Primer + **COLPHENE BSW PROTECT'R** are required over **COLPHENE BSW V** for application under high water table level mark - high hydrostatic head.

*See the legend of details at the end of this section, on page 60.

DETAILS

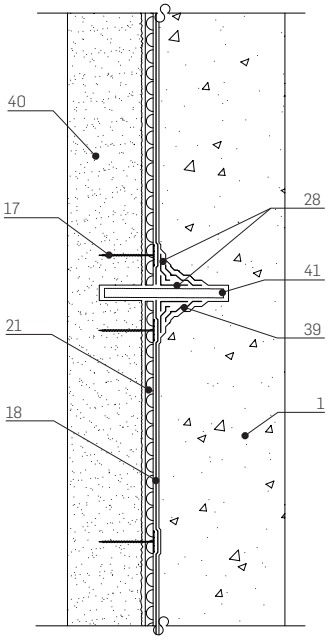
6.4. BLINDSIDE WATERPROOFING - PILE CAP



*See the legend of details at the end of this section, on page 60.

DETAILS

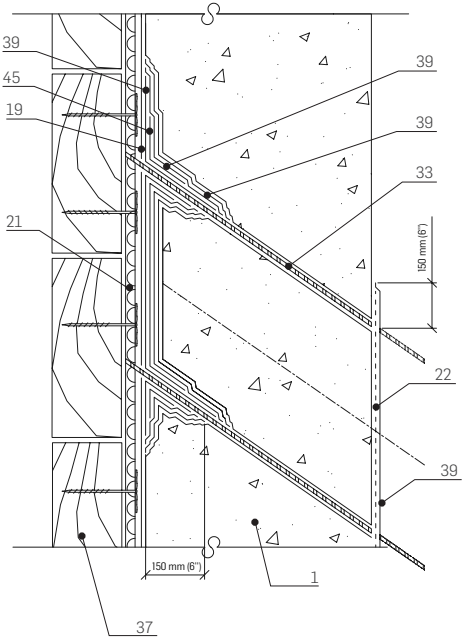
6.4. BLINDSIDE WATERPROOFING- ANCHORS



*See the legend of details at the end of this section, on page 60.

DETAILS

6.4. BLINDSIDE WATERPROOFING - AT RAKERS



*See the legend of details at the end of this section, on page 60.

6.5. WATERPROOFING OF INSULATED CONCRETE FORMS

6.5.1. COLPHENE ICF

1. Cover all small projections (pipes, etc.) with detail membrane and seal the ends with mastic.

2. All interior and exterior angles and the footing must first be covered with a 300 mm (12 in) wide strip of detail membrane centered on the corner. This strip must be applied directly on the surface, with no gaps between the surface and the membrane. Outside corners should be double lapped. On a clean, dry surface, COLPHENE ICF membrane does not usually require primer. Use water-based ELASTOCOL STICK H_2O where primer is required; solvent-based primers could damage the polystyrene and must not be used.

3. Install the membrane by gradually removing the silicon paper while pressing on the membrane to promote bonding.

4. Continue to install the COLPHENE ICF membrane on the entire foundation wall, making sure it is aligned with the previous roll. Longitudinal overlaps must measure at least 75 mm (3 in.), while transversal overlaps must be at least 150 mm (6 in.).

5. Apply uniform pressure over the entire protective membrane using a roller.

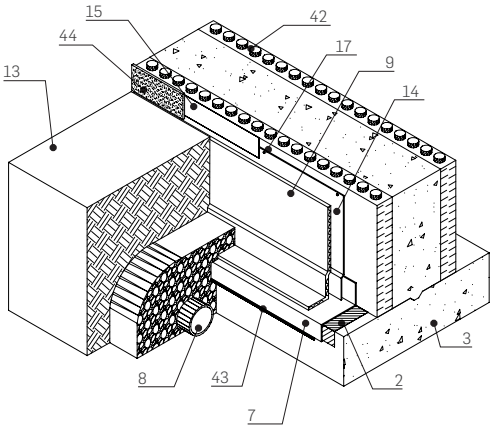
6. Tears and holes must be repaired using the appropriate membrane. The patch must be at least 100 mm (4 in.) larger than the affected surface. The edges of the patch will be sealed with waterproofing mastic.

7. Seal the top end of the membrane using SOPRAGRIP F membrane or a sealant such as SOPRASEAL LM 200 T. It is recommended to mechanically fasten the top termination of the membrane to the insulating formwork.

8. Any waterproofing membrane that can be seen after filling must be protected from UV rays and mechanical damage.

DETAILS

6.5. COLPHENE ICF



*See the legend of details at the end of this section, on page 60.

DETAILS

Legend of details:
1. Structural concrete wall
2. Primer
3. Footing
4. COLPHENE 3000 membrane
5. COLPHENE TORCH'N STICK membrane
6. COLPHENE FLAM 180 membrane
7. Reinforcement membrane
8. Drain
9. SOPRADRAIN 10-G
10. SOPRA-XPS insulation
11. Termination bar
12. Sealant
13. Backfill
14. COLPHENE ICF membrane
15. SOPRAGRIP F membrane
16. COLPHENE LM 300 membrane
17. Fasteners
18. COLPHENE BSW V membrane with primer
19. COLPHENE BSW V membrane
20. COLPHENE PROTECT'R membrane
21. SOPRADRAIN 10-G, 15-G or 18-G
22. ALSAN TRAFIK EP 110
23. Structural concrete
24. COLPHENE SP LAP membrane with primer
25. Waterstop (as required by design profesionnal)
26. Soil retention system
27. Work slab
28. COLPHENE BSW H membrane
29. Pipe penetration
30. ALSAN FLASHING + reinforcement
31. Hose clamp
32. Tie-back cap
33. Raker
34. Tie-back
35. Urethane foam
36. Soldier pile
37. Wood lagging
38. Rebar
39. ALSAN FLASHING
40. Shotcrete
41. Anchor
42. ICF foundation wall
43. SOPRASEAL LM 200 T
44. Parging
45. FLASHING REINFORCEMENT
46. COLPHENE LM BARR
47. POLYFLEECE or COLPHENE BARR FLASHING
48. High compressive strength grout (vertical: 20 mm to 30 mm, horizontal: 40 mm to 60 mm)
49. Reprofiling mortar

INSTALLATION METHOD FOR INSULATION BOARDS

INSTALLATION METHOD FOR INSULATION BOARDS

7.1. SOPRA-XPS 30, 40, 60 & 100

7.1.1. Perimeter of foundations

1. Install the panels vertically or horizontally on the foundation wall so as to minimize the number of joints. The printed side of the insulation boards must be installed directly on the substrate.

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

3. Cut and adjust the insulating panels around pipes, electrical and mechanical elements, openings and any other penetrations.

4. Stop the insulation at least 75 mm (3 in.) around devices that emit heat.

5. When another layer of insulation is required, it must be installed with staggered vertical and horizontal joints.

6. Secure the panels:

6.1 Secure the panels with SOPRASEAL SEALANT or SOPRASEAL LM 200 T adhesive when they are installed on a liquid applied membrane or a self-adhesive sheet membrane. On the insulating panels, apply 75 mm (3 in.) adhesive spots every 300 mm (12 in.). Apply adhesive fully around penetrations and openings.

6.2 Mechanically attach when insulation boards are installed on self-adhesive membrane. Use anchors specifically designed to attach insulation on walls without perforating the waterproofing membrane. Adhere the fasteners on the self-adhesive membrane with pieces of self-adhesive membrane to glue the anchor base. Secure the panels every 300 mm (12 in.) on centre.

6.3 When insulating panels are installed over a waterproofing membrane whose surface is adhesive, adhere the insulation panels on it.

7.1.2. Below slab

1. Install the insulation panels flat on the level and compacted backfill or on the concrete substrate. Begin the installation on the wall peripheries. Place the panels so as to minimize the number of joints. The printed side of insulation boards must be installed directly on the substrate.

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

3. Cut and adjust the insulating panels around pipes, electrical and mechanical elements, openings and any other penetrations.

4. When another layer of insulation is required, it must be installed with all joints staggered.

5. If necessary, use SOPRASEAL LM 200 T adhesive to hold the insulation boards together during backfilling or during the implementation of the top layer.

6. Prevent vehicles and heavy equipment from driving on the insulation to avoid damage.

INSTALLATION METHOD FOR DRAINAGE BOARDS

INSTALLATION METHOD FOR DRAINAGE BOARDS

8.1. SOPRADRAIN 10-G, 15-G AND 18-G

8.1.1. Blindside walls

1. Install the drainage panel with the geotextile facing the retaining wall.

2. The drainage panel must be supported and follow the irregularities of the substrate.

3. The drainage panel can cover cracks and holes from 25 to 50 mm (1 to 2 in) in width and depth. Cracks or holes in the substrate exceeding these measurements should be repaired with mortar, shotcrete or plywood (mechanically fastened to the substrate) prior to installing the drainage panel.

4. Fasten the panel using mechanical anchors adapted to the substrate and washers with a minimum diameter of 25 mm (1 in). Install an anchor at a minimum of every 600 mm (24 in) at the top end with a ratio of one anchor per square metre (10 ft^2) on the panel.

Note: The number of anchors required may increase depending on site and substrate conditions.

5. Use additional anchors as needed around the edges of the solid substrate supporting the panel.

8.1.2. SOPRADRAIN HF

1. Install the **SOPRADRAIN HF** strip at the perimeter of the foundation footing. The thicker section must be facing down.

2. Install the **SOPRADRAIN** panel on the full wall at the top of the **SOPRADRAIN HF** strip, while overlapping the geotextile.

8.1.3. SOPRADRAIN T-OUTLET

1. Make a 3-inch-wide by 4-inch-high cut at the bottom of the drainage panel (the shape should be an upside-down "V").

2. Insert the **SOPRADRAIN T-OUTLET** into the notch.

3. Use a self-adhesive membrane, such as **SOPRASEAL STICK FLASHPRO**, and seal the perimeter of the **SOPRADRAIN T-OUTLET** onto the drainage panel.

SAFETY MEASURES

SAFETY MEASURES

9.1. IMPORTANT PRELIMINARY INSTRUCTIONS

SOPREMA products must be applied by qualified workers who have received appropriate safety training (such as proper use of fire extinguishers) to deal with accidents caused by use of combustible or flammable materials, liquefied propane gas, open flames and installation equipment.

Before commencing work on site, it is imperative that all employees be made aware of the following guidelines.

Before using flammable liquids and mastics, consult the appropriate use instructions (labels, technical data sheets, material safety data sheets, etc.).

Before using products that may be dangerous to your health, including products containing volatile solvents, consult the appropriate Material Safety Data Sheets. Only use these products in well-ventilated areas and only use primers that do not contain volatile solvents in areas with poor or no ventilation.

Shut off fans and blowers near the torching area.

Identify the construction and composition of the wall systems before torching.

Ensure the site is clean and free of waste material.

Notify building occupants of any torching activities, as appropriate, including the following persons:

- Person in charge of security
- Person in charge of the department
- Person in charge of maintenance

Air/vapour barrier membranes should not be installed when it is raining, snowing or very humid.

At the end of each day, the contractor must meticulously inspect the membrane and ensure it is correctly installed.

9.2. TORCHING SPECIAL PRECAUTIONS

Follow the specifications, notices, documents, and guidelines of Provincial/Federal Workers Safety Standards.

Wear proper clothing: gloves, long sleeve shirts, trousers, security footwear, eye protection and a helmet. Do not wear clothing made from synthetic fabric. Remove all clothing that comes into contact with solvents.

The torch dedicated to the torching of waterproofing membranes can produce temperatures above 1,100°C (2,000°F). Avoid contact with materials sensitive to these temperatures, such as lead and plastic.

Do not work in an enclosed area where gas can accumulate.

Follow manufacturer's recommendations for torching-welding of membranes.

Never torch a membrane to a readily flammable surface such as wood or any other surface for which this installation technique is not approved.

Never use a torch on substrates that have been recently covered by a solvent-based product (wait until the product is dry), near combustible materials, near full or partly filled containers containing flammable materials (keep open flame at least 3 m [10 ft.] away), or directly on substrates considered combustible.

Avoid placing combustible materials near open flames.

Do not direct the flame through open penetrations.

Keep in mind that the flame can travel over long distances (several meters), through and beyond small openings. Take proper preventive safety measures.

Attach the torch to the fuel tank using a pressure regulator calibrated to the manufacturer's design pressure. The regulator should be equipped with a CSA-certified rupture check valve.

Shut off the torch when not in use. Never leave a lighted torch unattended.

When the torch is not in use, always place it on its support, with the head pointing upwards. Make sure that it will stay in this position.

At all times, and especially before leaving the job site, check for smouldering or concealed fires. In case of fire, follow the appropriate safety procedures. The site manager must make sure that workers remain on site for at least one hour after any welding activity.

To shut off the torch, close the valve on the propane tank first, then let the gas remaining in the hose burn off before closing the valve on the torch itself.

9.3. SPECIAL PRECAUTIONS FOR PROPANE GAS TANKS

Secure and fasten propane gas tanks in an upright position at least 3 m (10 ft.) from open flames and in an easily accessible location to permit rapid shutoff.

Never attempt to defrost a gas tank with a flame. In cold weather, use specially designed heating blankets, available from SOPREMA.

Handle gas tanks with care. Avoid shocks and protect their valves.

After each use, tightly close the gas tank valve, even if the tank is empty.

Propane is heavier than air. Check low areas for gas accumulation.

Ensure good air exchange on job sites. Never work in unventilated enclosed areas.

Do not store tanks in sunlight for long periods or at temperatures exceeding 40°C (120°F). Use only in well-ventilated areas.

Never puncture, throw away, or incinerate empty tanks.

Maintain strict compliance with local fire codes.

Smoking is forbidden while flammable material is being installed, and near storage areas.

9.4. SPECIAL PRECAUTIONS FOR PRIMER APPLICATION

Avoid all eye and skin contact; primers are toxic if inhaled.

Use a respiratory protection device approved by the National Institute of Occupational Safety and Health.

Wear chemical-resistant gloves (natural rubber, polyvinyl alcohol reinforced, neoprene, nitrite), safety goggles and clean protective garments that cover the arms and legs, to keep exposure to a minimum.

Contain spills using an absorbent product (e.g., vermiculite, clay or sand).

Use non-sparking tools to sweep or collect spills into containers. Cover without sealing hermetically and store in a well-ventilated waste storage area.

Carefully rinse the spill area with water. Do not dispose of undiluted products in sewers.

Highly flammable. Keep out of sun and away from flames.

Never use ignition sources or smoke during application/use of products.

After application, wait until the solvent has evaporated before using the torch.

Keep enclosed spaces well-ventilated. Use forced ventilation if necessary.

9.5. MONITORING AFTER THE COMPLETION OF WELDING WORK

At the end of each workday, make sure there are no smouldering fires. A watchman must remain at the worksite for at least one hour after the completion of welding work. (The monitoring period may be longer in certain places. Requirements should be verified with local authorities.)

The watchman must have an infrared thermometer to take readings in high-risk areas. The readings must be taken every fifteen to twenty minutes. The temperature on the membrane surface should decrease between each reading.

The watchman must have an operational ABC fire extinguisher in his or her possession.

A telephone must be close by with the number of the local fire department. If a fire is suspected, the fire department must be called and the building evacuated.

At the end of the monitoring period, inspect the interior of the building with the owner's representative before leaving the worksite.

9.6. FIRE PRECAUTIONS

Strict compliance with local fire codes must be maintained.

Verify whether the owner has put in place an emergency measures program; if so, take it into account.

Always have an ABC fire extinguisher on hand, filled and in perfect working order during all installation operations on the construction site. There must be one easily accessible extinguisher near each torch. If possible, hook up a water hose on the roof.

When laying down the torch, make sure that the area is free of flammable or combustible materials.

Smoking is forbidden while flammable materials are being installed and close to where such materials are stored.

9.7. PRIMER AND LIQUID PRODUCTS

Smoking is forbidden near storage areas, while handling empty or full packaging, and during the installation of products.

Always have one minimum 13 lb (6 kg) multi-purpose dry chemical extinguisher in the liquid products application area.

Never puncture containers.

The type of application must be chosen and the substrate must be prepared so that no accumulation of the product is possible in any area.

Full and empty containers must be protected from sudden heat increases, especially in the summer. They must be stored at least 10 m (30 ft.) from any flame or ignition point.

Before using a torch on the job site, it is IMPERATIVE to retrieve all containers, full or empty, and put them in the storage area as described above.

The application of liquid products containing flammable solvent must be undertaken only after having verified the following: there are no flames nearby, there is no heating device nearby, there are no propane tanks in service or stored nearby and there is no gas channelling hooked up to an instrument in service within a 10 m (33 ft.) radius of the application area.

After application, the product must be given enough time to dry before starting any work that involves torching. Never use a torch to accelerate the drying process.

9.8. FIRST AID MEASURES

Flush burns with cold water and seek immediate medical attention.

Should molten bitumen come into contact with eyes or skin, flush with cold water and seek immediate medical attention. Do not attempt to remove molten bitumen from skin or clean with a solvent. Should molten bitumen come into contact with clothing, flush with cold water.

FEEL FREE TO CONTACT SOPREMA IF YOU REQUIRE ANY ADDITIONAL INFORMATION.

INNOVATION SINCE 1908

SOPREMA has developed around the idea that the quality, durability and reliability of materials must match builders' ambitions and expectations. For more than 100 years, SOPREMA has been using its expertise to develop a variety of high-end products that meet or exceed all the requirements of the construction field.

ROOFS WALLS FOUNDATIONS PARKING DECKS BRIDGES ADDITIONAL EXPERTISE


WATERPROOFING


INSULATION


VEGETATIVE SOLUTIONS


SOUNDPROOFING


ACCESSORY PRODUCTS

SOPREMA is an international manufacturer specializing in the production of waterproofing and insulation products, as well as vegetative and soundproofing solutions, for the building and civil engineering sectors.

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