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*Net area, 1 roll (field surface)

Legend:
SA = Self-Adhesive
GR = Granuled
P = Plastic
S = Sanded
Surface / Underface

P= Polyester
C= Composite
GM= Glass mat
HDPE= High Density Polyethylene
## CAP SHEET MEMBRANES

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<td>200 mm</td>
<td>7 x 1 m</td>
<td>4.7 mm</td>
</tr>
</tbody>
</table>

*Net area, 1 roll (field surface)

Legend:
- **P** = Polyester
- **C** = Composite
- **SA** = Self-Adhesive
- **GM** = Glass mat
- **GR** = Granulated
- **P** = Plastic
- **S** = Sanded
- **Surface / Underface**

HDPE = High Density Polyethylene
STORAGE & HANDLING
STORAGE and HANDLING

1 STORAGE and HANDLING

1.1 Basic rules

After the rolled materials are delivered, carefully store them in an upright position, with the selvedge side on top.

Rolls are shipped on shrink-wrapped pallets.

Rolls must be handled using a crane. Each pallet typically contains 25 to 30 rolls, depending on the product.

Store products on a flat, smooth surface. Avoid storing products directly on granulated surfaces.

If storing pallets on top of one other, insert a minimum 12 mm (1/2 in) plywood between pallets, preferably 19 mm (3/4 in).

Materials should be properly protected, sheltered from inclement weather and harmful substances and always stored away from flames and welding sparks.

Always store self-adhesive membranes away from the sun.

If the products are stored outside, cover them with an opaque protection cover after the packaging provided for delivery has been removed.

In cold weather, membranes can be stored outside, but all membranes must be conditioned before installation if their installation or storage temperature is below 10 °C (50 °F). (Refer to Section 4.2. Preconditioning of membranes.)

In cold weather, store sealants and solvent-based mastics at a warm enough temperature to ensure the required flexibility for application (> 10 °C [50 °F]). Unwrap these products at the same rate as they are applied on site.

Pails of adhesives and emulsion waterproofing mastics must never be exposed to temperatures below 0 °C (32 °F).

Metal flashing must be stored carefully, to prevent bending, warping, scratching and other damage.

Do not store materials within a confined space on roofs. Accumulation can compromise the integrity of structures by imposing greater loads than allowed.
SURFACE PREPARATION

2.1. Condition of surfaces

2.1.1. Basic rules

No work should be started until all surfaces are smooth, dry, and free of ice, snow or any other substance that may prevent the membrane from adhering properly.

Plumbing, carpentry and other work must be fully completed before installation of membranes.

Roofing systems must always have at least a 1% (1/8 in per feet) in slope.

There must be a gentle slope around the drain to prevent the membrane from wrinkling at this location when it is applied.

2.1.2. Concrete surfaces

The concrete must be fully cured before application of the membranes.

A minimum curing time of 10 to 14 days is generally required in the summer. More time may be required in other seasons.

Curing time also depends on the thickness and density of the concrete.

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

Surfaces must be dry, clean and free of loose particles, formwork, curing products, irregularities, slurry, etc.

Concrete slabs must always be covered with primer according to type of membrane installed.

Depending on the installation, structural surfaces to be covered by an elastomeric bitumen membrane must have a Concrete Surface Profile (CSP*) of:

Heat-welded membranes: 3 to 6
Membranes adhered with hot bitumen: 3 to 6
Self-adhesive membranes: 3 to 5
With adhesive membrane: 3 to 5

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

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

* As per International Concrete Repair Institute.
SURFACE PREPARATION

2.1.3. Steel Deck

The steel deck must be anchored to the building structure.

SOPREMA systems can only be applied to a steel deck if the ribbing is covered with gypsum boards, concrete boards or thermal insulation boards with the bridging capacity required for the spaces between the ribs.

2.1.4. Wood Deck

2.1.4.1. Planks

Membranes should not be installed directly over a plank / shiplap deck.

Wood decking is usually made of softwood, whose sap dissolves bitumen. This causes significant deterioration of the membrane and creates grooves of bitumen under the plank decking.

There could be severe consequences to installing membranes over softwood planks. Usually, the membranes and the decking itself must be completely rebuilt.

Furthermore, when this type of decking is made of old planks, the surfaces are irregular and the presence of used nails and screws carries a high risk of perforating the membrane.

To prevent problems related to this type of substrate, it is recommended to install recovery boards mechanically fastened to the planks before application of the membrane.

When using SOPRABOARD asphaltic boards, a non-bituminous separator sheet, such as Kraft paper, must be installed between the planks and the base boards.

2.1.4.2. Plywood panels

Although this type of wood carries little risk of resin or old mechanical attachments, membrane detachment or wrinkles may occasionally occur at the junctions of the boards when using a fully adhered system.

Wrinkles typically appear soon after installation of the membrane, particularly when humidity in the boards evaporates.

To prevent this from occurring, SOPREMA recommends that you install recovery boards mechanically fastened to the plywood panels before application of the membranes.

This measure is not required for plywood parapets or roofing upstands waterproofed with self-adhesive membranes. In addition, when using COLVENT base sheet membranes, recovery boards are not required.
SURFACE PREPARATION

2.1.4.3. Treated wood

Pressure-treated wood is not required for SOPREMA’s waterproofing systems. However, when used, the following recommendations apply:

Membranes that are self-adhesive, or adhered with hot bitumen or adhesive can be installed over pressure-treated wood.

When a self-adhesive membrane is installed over pressure-treated wood, the surface must be primed with ELASTOCOL STICK or ELASTOCOL STICK ZERO.

When a membrane is adhered with hot bitumen (oxidized or SEBS) or with adhesive (COLPLY), the surface must be primed with ELASTOCOL 500.

For safety reasons, heat-welded (thermosusible) membranes must not be installed directly over wood.

Surface-treated wood (preservation treatment applied with a paint brush or roller) is not an appropriate substrate, no matter what type of membrane is installed.

The treatment compromises adhesion of the waterproofing membrane to the wood. However, you may treat the surface of the cut ends of pressure-treated wood.

2.1.5. Welded membranes

Welding must never be performed directly over a wood substrate or other flammable substrate.

Non-combustible recovery boards, such as asphaltic boards or mineral fibre (rock wool) with a bituminous surface, as well as flame arrestor screens must always be used to prevent the flame from coming into direct contact with the wood substrate.

2.2. Cant strips

Cant strips are not required in SOPREMA systems, because the materials made of elastomeric bitumen with robust reinforcement are highly flexible (even at low temperatures), which helps them to easily conform to the shapes of various substrates.

2.3. Application of primer

Apply a coat of appropriate primer over surfaces that will receive heat welded or self-adhesive membranes.

Materials not requiring primer to adhere the membrane include SOPRA-ISO PLUS insulation with COLVENT 810 base sheet.

All sheet metal surfaces require primer with self-adhesive membrane applications with the exception of SOPRAVAP’R being the only membrane that can be applied without primer over a galvanized steel deck.
SURFACE PREPARATION

2.3.1. Tools required

Primer can be applied using the following tools:
- brushes;
- rollers;
- paint brushes (for small surfaces); and
- sprayers (for large surfaces).

Note: Never dilute the primer.

2.3.2. Drying time and coverage rate

Self-adhesive membranes must be installed **AS SOON AS POSSIBLE ONCE THE PRIMER HAS DRIED**, or within 2 to 3 hours after application of the primer.

Primed surfaces not covered immediately once the primer is dry may be contaminated (dust, loose particles, etc.) in a very short time.

When this happens, the surfaces must be re-primed before installing membranes

Note: Never use a torch to verify that the primer is dry. Use your bare hands, making sure that no moisture or film sticks to your skin.

Drying time varies depending on the humidity and temperature of the substrate.

<table>
<thead>
<tr>
<th>Drying Time</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELASTOCOL 500 : 1 to 12 hours</td>
<td>0.15 to 0.25 L/m² (0.375 to 0.625 US gal/100 ft²)</td>
</tr>
<tr>
<td>ELASTOCOL STICK H₂O : 30 minutes to 3 hours</td>
<td>0.1 to 0.3 L/m² (0.25 to 0.75 US gal/100 ft²)</td>
</tr>
<tr>
<td>ELASTOCOL STICK : 15 to 60 minutes</td>
<td>0.3 to 0.5 L/m² (0.75 to 1.25 US gal/100 ft²)</td>
</tr>
<tr>
<td>ELASTOCOL STICK ZERO : 30 to 90 minutes</td>
<td>0.1 to 0.25 L/m² (0.25 to 0.625 US gal/100 ft²)</td>
</tr>
</tbody>
</table>

Porous substrates:
- 0.2 to 0.4 L/m² (0.50 to 1.00 US gal/100 ft²)
- 0.1 to 0.25 L/m² (0.25 to 0.625 US gal/100 ft²)

Non-porous substrates:
- 0.1 to 0.25 L/m² (0.25 to 0.625 US gal/100 ft²)

Table 1
Drying time and Coverage

Note: Coverage varies with the porosity of the substrate and the type of surface.
ROOFING MATERIALS, RECOVERY & INSULATION
BOARDS & ACCESSORIES
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

3.1. Installation of recovery and insulation boards mechanically fastened or adhered with adhesive

To ensure the performance of roofing materials that are mechanically fastened, adhered with adhesive or ballasted, it is very important to use the appropriate number of mechanical fasteners, adhesive or ballast according to the roofing zone.

There are three roofing zones:
1. the field surface;
2. the roof perimeter; and
3. corners.

For most projects, the required number of mechanical fasteners and amount of adhesive varies from zone to zone.

For more details, consult the Wind Uplift Resistance Testing reports according to Canadian standard CSA A123.21-10 or publications according to FM 4470 (RoofNav Database) including recommendations for corners and perimeters listed in the PLPDS 1-29 from Factory Mutual.

3.2. Polyisocyanurate insulation board SOPRA-ISO

3.2.1. SOPRA-ISO
(Formerly known as COLGRIP B)

Description
SOPRA-ISO is a closed-cell polyisocyanurate foam insulation board laminated on both sides with fibre reinforced felt

SOPRA-ISO is intended to be mechanically fastened or adhered with hot bitumen or COLTACK or DUOTACK adhesives.

Application
Mechanically fastened with screws and stress plates for insulation.

Adhered with hot bitumen (the temperature of the bitumen must be 10°C (50°F) below the Equiviscous Temperature (EVT)).

Adhered with DUOTACK or COLTACK adhesives.

Limitations
1.2 m x 2.4 m (4 ft x 8 ft) boards must not be adhered with hot bitumen or adhesive.

DO NOT USE SOPRA-ISO AS A DIRECT SUBSTRATE FOR COLVENT MEMBRANE.

1. Equiviscous Temperature (EVT): The temperature at which bitumen reaches an ideal viscosity threshold of 125 cP (0.125 Pa.s), which guarantees the quantity of mop-applied inter-ply asphalt used in laminated roofing systems. (www.roofingcanada.com)
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

3.2.2. SOPRA-ISO PLUS
(Formally known as COLGRIP A)

Description
SOPRA-ISO PLUS is a closed-cell polyisocyanurate foam insulation board laminated on both sides to heavy coated glass filament facer.

SOPRA-ISO PLUS is intended to be mechanically fastened or adhered with hot bitumen or with COLTACK or DUOTACK adhesives.

Application
Mechanically fastened with screws and stress plates for insulation.

Adhered with hot bitumen (the temperature of the bitumen must be 10°C (50°F) below the Equiviscous Temperature (EVT)).

Adhered with DUOTACK or COLTACK adhesives.

Limitation
1.2 mm x 2.4 mm (4 ft x 8 ft) boards must not be adhered with hot bitumen or adhesive.

3.3. Mineral fibre (rock wool) insulation boards

Note: Although it is possible to install SOPRAROCK DD PLUS boards with hot bitumen or with adhesives, you must not adhere materials to mineral fibre (rock wool) not saturated with a layer of bitumen on top.

3.3.1. SOPRAROCK DD

Description
SOPRAROCK DD is a mineral fibre (rock wool) insulation board with a rigid upper surface. SOPRAROCK DD must be mechanically fastened only.

Application
Mechanically fastened with screws and stress plates for insulation.

1. Equiviscous Temperature (EVT): The temperature at which bitumen reaches an ideal viscosity threshold of 125 cP (0.125 Pa.s), which guarantees the quantity of mop-applied inter-ply asphalt used in laminated roofing systems. (www.roofingcanada.com)
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

3.3.2. SOPRAROCK DD PLUS

Description
SOPRAROCK DD PLUS is a mineral fibre (rock wool) insulation board with a rigid upper surface. The top surface is saturated with a coat of bitumen to allow for the application of SOPREMA membranes with the use of a torch, hot bitumen or COLPLY BRUSH GRADE adhesive.

Application
Mechanically fastened with screws and stress plates for insulation.

Adhered with hot bitumen.

Adhered with DUOTACK adhesive only.

Note: Self-adhesive membrane must not be installed on this type of board.

3.3.3. SOPRAROCK MD

Description
SOPRAROCK MD is a rigid mineral fibre (rock wool) support panel of homogeneous density. SOPRAROCK MD must be mechanically fastened only.

Application
Mechanically fastened with screws and stress plates for insulation.

3.3.4. SOPRAROCK MD PLUS

Description
SOPRAROCK MD PLUS is a rigid mineral fibre (rock wool) support panel with a homogenous density. The surface of SOPRAROCK MD PLUS is impregnated with a bitumen layer which is compatible with SOPREMA’s heat-welded, adhered with hot bitumen or with COLPLY adhesive membranes.

Application
Mechanically fastened with screws and stress plates for insulation or adhered with hot bitumen only.

Adhered with hot bitumen.

Adhered with DUOTACK adhesive only.

Note: Self-adhesive membrane must not be installed on this type of board.
3.4. SOPRABOARD recovery boards

Description
SOPRABOARD is a semi-rigid protection board composed of a mineral fortified asphaltic core between two asphalt-saturated fibreglass felts.

SOPRABOARD is designed to be used as a substrate material in flat or low-slope roofing. It can be installed over wood or rigid insulation or as a recovery sheet over an existing roof surface to be re-roofed.

SOPRABOARD is compatible with multi-ply modified bitumen roofing systems. SOPRABOARD underface is slightly less saturated of bitumen to maximize its adhesion to insulation boards when adhered with COLTACK or DUOTACK adhesives.

Modified bitumen roofing systems can be welded directly to the board surface, mechanically fastened or adhered with hot bitumen or cold adhesive. SOPRABOARD, using an appropriate primer, may also be used with self-adhesive membranes.

Application
Mechanically fastened with screws and stress plates for insulation.

Adhered with hot bitumen, at a minimum temperature of 220 °C (425 °F).

Adhered with DUOTACK or COLTACK adhesives.

Limitations
SOPRABOARD must be quickly covered after its installation and not left exposed.

ELASTOCOL STICK H₂O water-based primer must not be used on asphalt based materials such as SOPRABOARD.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

3.5. Application of adhesives

**Note:** Always apply the layer of adhesive at the rates indicated on the technical data sheets.

### 3.5.1. COLPLY

#### 3.5.1.1. COLPLY BRUSH GRADE

**Description**

COLPLY ADHESIVE BRUSH GRADE is a cold-applied, high-strength SBS modified bitumen adhesive. It provides excellent adhesion and elongation properties, and is used to adhere SBS modified bituminous membranes on horizontal surfaces only. On flashing and vertical surfaces, use COLPLY ADHESIVE TROWEL GRADE.

**Application**

COLPLY ADHESIVE BRUSH GRADE must be applied using a notched 5 mm (3/16 in) neoprene squeegee.

Apply over a substrate that is dry, clean and free of impurities.

Apply the adhesive layer at a rate of 0.6 to 0.8 L/m² (1.50 to 2.00 US gal/100 ft²).

**Limitations**

Must not be applied at temperatures below 5 °C (41 °F).

Brush Grade must not be used on surfaces with a slope greater than 3% (3/8 in per ft).

COLPLY adhesives contain solvents that can damage polystyrene insulation. Soprema does not recommend using a system of membranes adhered with COLPLY if the roofing system includes this type of insulation.

Porous substrates such as uncovered wood fibres must not be used as a base for membranes glued with COLPLY BRUSH GRADE. Use only wood fibre with a bitumen-impregnated surface.

**Drying time (initial set)**

COLPLY BRUSH GRADE: 24 to 48 hours.

**Tool required**

Notched 5 mm (3/16 in) squeegee.

#### 3.5.1.2. COLPLY TROWEL GRADE

**Description**

COLPLY ADHESIVE TROWEL GRADE is a cold-applied, high-strength SBS modified bitumen adhesive. It provides excellent adhesion and elongation properties, and is used to adhere SBS modified bituminous membranes on upstands and other vertical surfaces.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

Application
COLPLY ADHESIVE TROWEL GRADE must be applied using a notched 5 mm (3/16 in) trowel.

Apply over a substrate that is dry, clean and free of impurities.

Apply the adhesive layer at a rate of 0.6 to 0.8 L/m² (0.25 to 0.75 US gal/100 ft²).

Limitations
Must not be applied at temperatures below 5 °C (41 °F).

COLPLY adhesives contain solvents that can damage polystyrene insulation. Soprema does not recommend using a system of membranes adhered with COLPLY if the roofing system includes this type of insulation.

COLPLY TROWEL GRADE must only be used on upstands and overlaps details.

Must not be used to adhere materials other than membranes or SOPRAMAT boards. SOPRAMAT must be fully adhered.

Drying time (initial set)
COLPLY TROWEL GRADE: 24 to 48 hours

Tool required
Notched 5 mm (3/16 in) trowel

3.5.2. COLTACK

Description
COLTACK is a solvent-based polyurethane resin bituminous adhesive. It is intended to cold adhere polyisocyanurate insulation boards and recovery boards such as asphaltic, wood fibre, perlite, gypsum or asbestos-cement boards.

COLTACK can be used to adhere these boards to each other or to wood, concrete, sanded surfaces of bituminous vapour barriers and SOPRAVAP’R membranes.

Application
COLTACK must be applied in strips. Surfaces must be dry and free of oil, grease, dirt and debris. Using the specially designed applicator, apply COLTACK in 20 mm (3/4 in) wide strips, spaced 300 mm (12 in) apart on centre.

For most projects, the required amount of adhesive varies from zone to zone.

For more details, consult the Wind Uplift Resistance Testing reports according to Canadian standard CSA A123.21-10 or publications according to FM 4470 (RoofNav Database) including recommendations for corners and perimeters listed in the PLPDS 1-29 from Factory Mutual.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

Limitations
Do not use to adhere expanded or extruded polystyrene boards or mineral fibre (rock wool) boards.

Do not apply at temperatures below 5 °C (41 °F).

Drying time (initial set)
COLTACK : 2 hours

Minimum application temperature : 5 °C (41 °F).
Virtually no curing occurs below this temperature.

Tool required
COLTACK applicator.

3.5.3. DUOTACK & DUOTACK NEO

Descriptions
DUOTACK is a low-rise two-part polyurethane adhesive.

DUOTACK NEO is a low-rise free VOC, two-part, polyurethane adhesive. DUOTACK NEO is composed of renewable origin raw materials.

It can be used to adhere with one or several layers of insulation boards of polystyrene, of polyisocyanurate, of approved mineral fibre and for cover boards such as asphaltic, wood fibre, perlite, gypsum or cement boards.

It is also suitable for the attachment of these same boards together or on wood, concrete, sanded surface of bituminous vapour-barrier and SOPRAVAP'R membranes. DUOTACK & DUOTACK NEO can be used to adhere thermal barriers on steel decks.

DUOTACK & DUOTACK NEO are also compatible with Coal Tar Pitch. If it is impossible to remove all particles and obtain a clean surface, the adhesion of DUOTACK & DUOTACK NEO can be optimized by covering surfaces with ELASTOCOL STICK or ELASTOCOL STICK ZERO primers.

Limitations
Must be installed by beads only, not spot adhered.

CARTRIDGES
DUOTACK & DUOTACK NEO adhesives in cartridge can be applied or stored at any temperature.

CUBIC CONTAINERS
DUOTACK & DUOTACK NEO adhesives in cubic containers “CUBITAINER” can’t be stored at temperatures below 0 °C (32 °F).

The chemical formula of DUOTACK & DUOTACK NEO adhesives allows it to cure completely in just a few minutes, at any temperature.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

However, for ease of application and to prevent application equipment failure in winter conditions, always maintain a minimum adhesive temperature of 20 °C (68 °F) for 12 hours (cartridges) and 24 hours (cubic containers) prior to application. Non-compliance with these instructions can cause product degradation and equipment failure.

Application
Surfaces must be dry and free of oil, grease, dirt and debris.

CARTRIDGES: DUOTACK adhesive must be applied by using the battery-operated applicator in continuous strips of 13 to 19 mm (1/2 in to 3/4 in) wide at the time of application. Beads must be spaced 300 mm (12 in) apart on centre.

CUBIC CONTAINERS: They have to be dispensed through an approved low-pressure pump cart (CYCLONE GARLOCK cart) which equally mixes Part A and Part B of the adhesive (1:1 ratio by volume).

For most projects, the required amount of adhesive varies from zone to zone.

For more details, consult the Wind Uplift Resistance Testing reports according to Canadian standard CSA A123.21-10 or publications according to FM 4470 (RoofNav Database) including recommendations for corners and perimeters listed in the PLPDS 1-29 from Factory Mutual.

During installation, it is important to immediately place the boards over the applied adhesive. Try to avoid uneven surfaces, to ensure proper adhesion to the substrate.

When applying DUOTACK, use a Z pattern to facilitate and speed up the installation of boards. Use a Z pattern about 2.4 m to 3.6 m (8 ft to 12 ft) long.

If applying DUOTACK to adhere a composite panel whose underface is no more than 900 mm (36 in), use the following Z pattern:
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

Tool required
DUOTACK applicator (cartridge)
CYCLONE GARLOCK cart (cubic container)

Drying time
DUOTACK : 30 minutes

3.5.4. SOPRASTOP ADHESIVE

Description
SOPRASTOP ADHESIVE is used to adhere SOPRASTOP kraft paper vapour barriers on steel decks and to seal the end of lap joints.

This adhesive may also be used to adhere side and end laps of SOPRASTOP Kraft paper vapour barrier rolls and other materials such as gypsum boards to steel roof decks.

In all cases, the components installed above the vapour barrier (kraft paper) must be mechanically fastened.

The adhesive is made with fast-evaporating solvents, bitumen and SBS polymers, ensuring a rapid setting and improved adhesion strength.

Application
Apply SOPRASTOP ADHESIVE in beads or with a roller on clean, dry surfaces.

Tools can be cleaned with petroleum solvents (mineral spirits, Varsol, etc.)

To adhere SOPRASTOP Kraft paper to a steel roof deck, apply SOPRASTOP ADHESIVE directly to the deck. It can be applied in beads or with a roller.

Limitation
Must not be used to seal laps of materials other than Kraft paper vapour barrier.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

**Application temperature**: Available in **SUMMER GRADE** for application in temperatures above 0 °C (32 °F) and in **WINTER GRADE** for application in colder temperatures.

**Drying time (initial set)**

**SOPRASTOP ADHESIVE**: 30 minutes to 3 hours.

**Tools required**: 
- Cartridge extruder;
- ; and
- Wood strips.

3.6. Accessory sealant products

3.6.1. Sealants

3.6.1.1. **SOPRAMASTIC**

**Description**

**SOPRAMASTIC** is a black, solvent-based mastic containing SBS modified bitumen, fibres and mineral fillers.

It is an ideal complement for bituminous waterproofing membranes and is used as jointing mastic and caulking material. It is compatible with bituminous materials and ensures good waterproofing.

**SOPRAMASTIC** is a multi-purpose mastic formulated with a high level of polymer in order to resist flow at high temperatures. Furthermore, it is easy to manipulate at temperatures down to –10 °C (14 °F).

**Applications**

**SOPRAMASTIC** must be applied to clean, sound substrates.

The 310 ml cartridges are used with a standard cartridge extruder.

Provides excellent adhesion to most materials without primer.

Can be applied to damp surfaces for temporary, urgent waterproofing purposes only.

Tools can be cleaned with petroleum solvents such as mineral spirits, Varsol, xylene, etc.

**Limitations**

**SOPRAMASTIC** sealant should not be used as pitch pocket filler.

**SOPRAMASTIC** is not compatible with expanded or extruded polystyrenes.

**Tool required**

Standard cartridge extruder
3.6.1.2. SOPRAMASTIC ALU

Description
SOPRAMASTIC ALU is a solvent-based aluminum-coloured mastic containing SBS modified bitumen and fibres. It is an ideal complement for bituminous waterproofing membranes and is used as jointing mastic and caulking material. It is compatible with bituminous materials and ensures good waterproofing. SOPRAMASTIC ALU contains leafing aluminum pigmentation providing superior protection against ultraviolet light for the product's entire useful life. Its high level of polymer provides superior resistance to flow.

Application
SOPRAMASTIC ALU must be applied to clean, sound substrates.

The 310 ml cartridges are used with a standard cartridge extruder.

Provides excellent adhesion to most materials without primer.

Can be applied to damp surfaces for temporary, urgent waterproofing purposes only.

Tools can be cleaned with petroleum solvents such as mineral spirits, Varsol, xylene, etc.

Limitations
SOPRAMASTIC ALU sealant should not be used as pitch pocket filler.

SOPRAMASTIC ALU is not compatible with expanded or extruded polystyrenes.

Tool required
Standard cartridge extruder

3.6.2. Pitch pockets

3.6.2.1. PITCH POCKET FILLER

Description
PITCH POCKET FILLER is an aluminum-coloured, solvent-based mastic containing bitumen modified with SBS synthetic rubber and fibres. Specially formulated with a high level of polymer and special adhesion promoters, PITCH POCKET FILLER helps prevent common problems such as shrinking, cracking and debonding. Upon application, the leafing aluminum pigmentation migrates rapidly to the surface so that ultra violet protection is maintained for the entire life of the product. PITCH POCKET FILLER remains flexible at low temperatures and does not flow through cracks in the containment box.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

Application
Apply PITCH POCKET FILLER by trowel in a clean pitch box.

Metal surfaces must be cleaned with solvent and be free of grease and oil.

For pitch boxes more than 100 mm (4 in) in height, we do not recommend using more than 100 mm (4 in) of PITCH POCKET FILLER.

Use an appropriate filling material. Be sure to shape the surface to avoid collection of standing water.

Limitations
Do not apply at temperatures below 5 °C (41 °F).

Inside of pitch pockets must be primed with ELASTOCOL 500 before application of the PITCH POCKET FILLER SEALANT.

Tool required
Trowel

3.6.2.2. INTER CLIP SYSTEM

Description
INTER CLIP SYSTEM is a prefabricated pitch pockets system that helps to easily incorporate waterproof roofing details in places where leaks present technical challenges.

INTER CLIP SYSTEM is composed of three products:

INTER CLIP
Polyurethane prefabricated pitch pockets, in various sizes, with compounds that bond together.

IC DUOMASTIC
Multi-purpose, solventless mastic, polyurethane two-part adhesive, that cures rapidly after application.

IC SEALANT
Multi-purpose, solventless, one component elastomeric polyurethane sealant isocyanate free.

Recommended substrates
SBS modified Bitumen membrane, granuled;
SBS modified Bitumen membrane, surface sanded;
Organic felts or oxidized bitumen membranes such as SOPRAGLASS 40 and 100 (multiply roofing).

Surfaces preparation
All work surfaces should be clean, dry, and free of dirt, dust, debris, oils, loose granules, unadhered coatings, deteriorated membrane and other contaminants that would prevent a positive seal.

Galvanized metal penetrations and painted metal must be prepared using a grinding machine to bare metal.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

Surfaces preparation (continued)
PVC pipe must be sanded with sandpaper.

All metal surfaces must be cleaned with non-greasy solvent such as acetone or Methyl Ethyl Ketone (MEK)

Installation
Note 1: IC SEALANT and IC DUOMASTIC must be stored at temperature between 18 and 29 °C (65 and 85 °F) 24 hours before use.

Note 2: IC DUOMASTIC must be applied with a battery-operated applicator only.

1. Place INTER CLIP pitch pocket in desired location and mark the outside edge for reference. INTER CLIP pitch pocket should be placed to assure at least 25 mm (1 in) clearance from the inside of the INTER CLIP pitch pocket and penetration.

2. Seal base of penetration with IC SEALANT to prevent the potential of IC DUOMASTIC flowing through openings.

3. Apply IC SEALANT over the entire granulated surface of the membrane where the INTER CLIP pitch pocket will be placed, to avoid any water infiltration between the INTER CLIP pitch pocket and the membrane.

4. Position the INTER CLIP pitch pocket and apply a liberal bead of IC SEALANT pitch pocket at the outside perimeter of the INTER CLIP pitch pocket. Use the tip of a trowel to adhere sealant to the membrane.

5. Dispense an initial amount of IC DUOMASTIC (equivalent to half of the nozzle), outside of the INTER CLIP pitch pocket, to assure a homogeneous mixture of parts A and B.

6. Fill assembled INTER CLIP pitch pocket with IC DUOMASTIC until full.

Application temperature
The chemical formula allows it to cure completely in just a few minutes, at any temperature. For ease of application in winter conditions, maintain a minimum material temperature of 20 °C (70 °F) for 12 hours prior to application.

Tool required
Battery powered DUOTACK applicator only.
ROOFING MATERIALS, RECOVERY & INSULATION BOARDS and ACCESSORIES

3.6.3. Liquid membranes

3.6.3.1. ALSAN FLASHING

Description
ALSAN FLASHING is a waterproofing one-component polyurethane / bitumen resin. It is dedicated to roof flashings and details where it is difficult to apply waterproofing membranes.

ALSAN FLASHING is ready to use and is applied directly to BUR bituminous waterproofing by using ELASTOCOL 500 primer.

Application
ALSAN FLASHING is applied with a trowel, a brush or a roller in two (2) layers (minimum) or in three (3) layers when FLASHING REINFORCEMENT is required, on a clean, sound substrate.

Mix the product well before use.

Transitions, changes in plan and junctions between two supports, must be reinforced with FLASHING REINFORCEMENT.

ALSAN FLASHING is UV resistant. It can be left exposed without protection. For aesthetic purposes, the top coat can also be covered with roofing granules or for aluminium colour with SOPRALASTIC 124 ALU waterproofing coating. The third coat of ALSAN FLASHING can be substitute by white aliphatic two-components ALSAN FINISH polyurethane coating.

Limitations
Do not apply at temperatures below 5 °C (41 °F).

Do not use if rain or snow is predicted within 12 hours after the installation.

Drying time
Can be recoated after 2 hours
Dry after 12 hours (remains tacky to touch)

Tools required
Spatula, trowel, brush or roller
APPLICATION
OF MEMBRANES
APPLICATION of MEMBRANES

4.1. Basic rules

The following steps are essential for installing a quality system.

The laps indicated below are minimum thresholds. Unroll the rolls where they will be used.

Always start at the lowest point of the roof.

Unless otherwise indicated, side laps must be between 75 mm (3 in) and 100 mm (4 in).

End lap joints must be at least 150 mm (6 in).

At the end laps, angle-cut the corner of the zone being covered by the next roll.

To prevent overly thick membranes, stagger the end laps a minimum of 300 mm (12 in) relative to those of the base sheet. Cap sheet end laps must be staggered a minimum of 300 mm (12 in).

Same rule must be applied to upstand membranes overlapping field surface membranes.

The cap sheet must be installed according to the following diagram:

Conventional installation method

Figure 3

1. End lap joints
2. Side lap joints
3. Minimum distance between the center of the drain and end lap joint on cap sheet membranes overlapping the drain.
4. Minimum distance between end lap joint and cap sheet membranes overlap.
APPLICATION of MEMBRANES

4.2. Preconditioning of membranes

All types of membranes must be fully unrolled 15 minutes before installation, no matter the temperature.

For all base sheet membranes covered with thermo-fusible film, when the temperature is below 10 °C (50 °F), burn the plastic film on the upper face in a zigzag pattern (Figure 4) before application.

![Figure 4](image)

4.2.1. Installation of membranes in cold weather

**WINTER GRADE** self-adhesive membranes have been designed to provide high performance at low temperatures, down to -10 °C (14 °F). However, at temperatures below 10 °C (50 °F), **WINTER GRADE** self-adhesive membranes must be covered with a cap sheet membrane, heat-welded or adhered with SEBS hot bitumen.

Low-temperature **COLPHENE** self-adhesive cap sheet membranes can be used in temperatures ranging from 0 °C (32 °F) to 10 °C (50 °F) provided they are adhered to a non-self-adhesive base sheet (e.g., **SOPRABASE** base sheet board, **XPRESS BOARD HD**, base sheet adhered with hot bitumen, etc.).

For membranes that are heat-welded or adhered with hot bitumen, there is no minimum application temperature. However, in cold weather, additional measures must be taken to obtain the same results provided by installation of membranes in summer.

4.2.2. Membranes adhered with hot bitumen

The site must be organized so that the temperature of the bitumen is always at least 220 °C (425 °F) when it contacts the membrane.

At temperatures below 15 °C (60 °F), do not spread more than 1 m (3 ft) of bitumen in front of the roll in order to avoid premature cooling.

At temperatures below 0 °C (32 °F), when unrolling the membrane in the bitumen, reheat the underface of the base sheet by directing the flame towards the back of the roll using a back-and-forth motion.
APPLICATION of MEMBRANES

4.2.3. Heat-welded membranes

Use a cover, an electric heating belt or a water bath to maintain the required temperature for the propane tank.

Membranes must be welded with a continuous rectangular movement by first burning the thermo-fusible film above the roll, then the one at the base of the roll to maintain a continuous bead of bitumen with which to impregnate the membrane. Do not melt the bitumen by using a back-and-forth motion at the base of the roll only.

In cold weather, do not reroll membranes as tightly as in summer. The last two metres of the membrane will be easier to weld if it is rolled more loosely.

4.2.4. Sanded membranes

All top sanded base sheets must be protected against moisture if the cap sheet is not installed the same day as the base sheet. Before leaving the job site, one should put a coat of ELASTOCOL 500 over the sanded surface using a paint roller or a squeegee.

4.3. Slope

4.3.1. Membranes adhered with hot bitumen

For slopes greater than 3 % (3/8 in per foot), it is better to install membranes vertically (bottom to top).

Beyond 8 % (1/2 in per foot) slope, SOPREMA recommends the use of roofing systems other than those adhered with hot bitumen.

4.3.2. Self-adhesive membranes

Self-adhesive cap sheet membranes could be affected by poor ventilation when they are installed directly to a vented wood deck. Since it is impossible to predict temperatures at which membranes will be exposed in these conditions, it is recommended to mechanically fasten the membranes. This can be done using nails with 25 mm (1 in) washers or SOPRAFIX plates every 300 mm (12 in) at the end laps.

4.3.3. Granulated cap sheet membranes

To prevent degranulation, which may result in premature aging of the membrane, the roof slope must be at least 1 % (1/8 in per foot).

The roof must slope evenly and continuously towards the drains.
APPLICATION of MEMBRANES

4.4. Base sheet membranes

4.4.1. Base sheet membranes application to field surface

4.4.1.1. Inside slope

Unroll the membrane, making sure the edge (side lap joint) is aligned with the centre of the drain;

Reroll one end towards the centre;

Adhere this section of the membrane; and

Then proceed with the opposite half.

When making end laps, it is important to angle-cut the corner of the zone being covered.

If the job site does not allow you to install the base sheet on upstands immediately after the application of the base sheet to the field surface, then install it approximately 50 mm (2 in) higher on the upstands, or install a SOPRAGUARD TAPE fire-stop membrane prior to installing the base sheet. This will allow you to obtain a temporary sealed system before applying the base sheet to the upstands. Do not apply more than 50 mm (2 in) of hot bitumen to upstands.

Install a reinforcement membrane diagonally (45°) around drains, vents and pitch pockets. These details must first be primed and the reinforcement membranes must overlap them by at least 150 mm (6 in). Metal flashing at the edge of the roof must be covered with a reinforcement strip at least 150 mm (6 in) wide.

4.4.1.2. Outside slope

Begin with a 500 mm (20 in) wide strip. This will allow the installation of the first full length cap sheet roll and to stagger the joints between the base sheet and cap sheet membranes by half a roll.
APPLICATION of MEMBRANES

The base sheet on inside slope must be installed according to the following diagram:

Figure 6
1. Reinforcement membrane
2. End lap joints
3. Side lap joints
4. Minimum distance between the center of the drain and end lap joint on base sheet membranes overlapping the drain.
5. Minimum distance between end lap joint and base sheet membranes overlap.

4.4.2. Base sheet membranes with hot bitumen

Notes: Never use oxidized bitumen to adhere a granulated cap sheet membrane to a base sheet. We do not recommend using oxidized bitumen to install upstand membranes on parapets.

Type of bitumen is normally selected according to the slope.

Oxidized bitumen (Acnor A123.4-98)
Type II: 1% to 2% (1/8 to 1/4 in. per foot)
Type III: 2% to 25% (1/4 to 3 in. per foot)

SEBS SOPRASPHALTE M bitumen: no slope limit.

4.4.2.1. Temperature and application technique

Bitumen temperature and the application technique used are determining factors for successful adhesion. Other factors that may influence the quality of the installation include:

- ambient temperature;
- weather conditions;
- wind velocity;
- condition of the application surface;
- temperature of the kettle;
- speed of execution; and
- the team's experience and degree of cooperation.
APPLICATION of MEMBRANES

4.4.2.2. Heating the bitumen

Special care must be taken when using mops.

To avoid spontaneous fires, always squeeze out fibreglas mops and cover cotton mops to keep oxygen out. Remove them from the roof before leaving the worksite.

Bitumen must be heated to a sufficiently high temperature to obtain quality adhesion of the membrane to the substrate. The minimum temperature for hot bitumen to adhere when it contacts the base sheet membrane is 220 °C to 230 °C (425 °F to 450 °F).

For safety reasons, the temperature of bitumen in the kettle or tanker must never reach or exceed its flash point (approximately 290 °C [560 °F]). Consult the product label for more information.

The temperature of the bitumen in the kettle or tanker must be monitored. Be especially careful to avoid a decrease in temperature while transporting the bitumen between the kettle and the application point.

Application

The membrane must be immersed in a bed of hot bitumen at the rate of 1.0 to 1.5 kg/m² (20 to 25 lb/100 ft²).

At temperatures below 15 °C (60 °F), do not spread more than 1 m (3 ft) of bitumen in front of the roll in order to avoid premature cooling. At temperatures above 15 °C (60 °F), up to 3 m (9 ft) of bitumen ahead of the roll is acceptable.

At temperatures below 0 °C (32 °F), when unrolling the membrane in the bitumen, heat the underface of the base sheet by directing the flame towards the back of the roll using a back-and-forth motion. Do not point the flame directly at the hot bitumen (Figure 7).

Do not push the roll. Unroll it evenly and continuously in the hot bitumen.
APPLICATION of MEMBRANES

Maximum 1 m (3 ft) at temperatures < 15 °C (59 °F).
Maximum 3 m (9 ft) at temperatures > 15 °C (59 °F).

Using a bitumen spreader, mini mop or felt layer is not acceptable.

Apply a 25 mm to 50 mm (1 in to 2 in) strip of hot bitumen onto the end and side selvedge. The reminder of the laps must be sealed with a torch and trowel before the end of the workday.

4.4.3. Heat-welded base sheet membranes

See the section 4.5.2. on applying heat-welded cap sheet membranes.

4.4.4. Nailed base sheet membranes

This system is only recommended for use over a small-dimension wood deck (ventilated roof space (attic)² in most cases).

Application

Unroll the roll where it will be installed and attach it at one end. Pull firmly on the roll to stretch it flat.

Starting with the unattached end, nail the base sheet according to the diagram below.

Nails with 25 mm (1 in) steel washers.

Notes: A double-selvedge membrane must be used for this application. In some regions, a flame arrestor separation sheet may be recommended. SOPRABASE and SOPRABASE 180 FR boards can also be installed with round top nails. Refer to the anchoring diagram in this section. Never use an automatic nailer to attach a base sheet membrane or SOPRABASE board.

Figure 8

Notes: "Attic" or "roof space" means the space between the roof and the ceiling of the top storey or between a dwarf wall and a sloping roof. (National Building Code of Canada 2010, Volume I, Division A, Part 1).
APPLICATION of MEMBRANES

4.4.5. Mechanically fastened base sheet membranes & panels

To ensure the performance of roofing materials that are mechanically fastened, adhered with adhesive or ballasted, it is important to use the appropriate number of mechanical fasteners, adhesive or ballast according to the roofing zone.

There are three roofing zones:
1. the field surfaces;
2. the roof perimeters; and
3. the corners.

For most projects, the required number of mechanical fasteners and amount of adhesive varies from zone to zone.

For more details about the required number of adhesive or mechanical fasteners, consult the Wind Uplift Resistance Testing reports according to Canadian standard CSA A123.21-10 or publications according to FM 4470 (RoofNav Database) including recommendations for corners and perimeters listed in the PLPDS 1-29 from Factory Mutual.

4.4.6. SOPRAFIX SYSTEMS

Use only SOPRAFIX screws and stress plates to install these membranes over the insulation.

To prevent movement of the insulation boards after installation, fasten the boards with at least 2 fasteners per 1.2 m x 1.2 m (4 ft X 4 ft) board and 4 fasteners per 1.2 m x 2.4 m (4 ft X 8 ft) board. Use screws and stress plates specially designed for insulation.

Application
Attach the end of the membrane.

Pull firmly on the roll and fasten the membrane along the side joint, starting from the free end and moving towards the fastened end.

Mechanical fasteners must be installed in the centre of the membrane side selvedge.

Notes: On a steel deck, fasteners must be installed on the upper part of the ribs. Install membranes perpendicular to the ribs.

On insulated systems, use adequate pressure on the screws and stress plates while making sure not to cause a change in level in the membranes by screwing them in too deeply.

Seal the DUO SELVEDGE side joints with a torch and round-nosed trowel.

End joints can be sealed with SOPRALAP recovery membranes or a traditional weld. When using SOPRALAP, you do not need to stagger the end laps.
APPLICATION of MEMBRANES

4.4.7. Composite panels

4.4.7.1. SOPRASMART BOARD 180 & SOPRASMART BOARD 180 SANDED

Description
SOPRASMART BOARD 180 and SOPRASMART BOARD 180 SANDED are high performance high density support panels composed of SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on a semi-rigid asphaltic board (SOPRABOARD). The surface of SOPRASMART BOARD 180 is covered with a thermofusible plastic film and the surface of SOPRASMART BOARD 180 SANDED is sanded.

4.4.7.2. SOPRASMART ISO HD 180 & SOPRASMART ISO HD 180 SANDED

Description
SOPRASMART ISO HD 180 and SOPRASMART ISO HD 180 SANDED are high performance support panels composed of SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on a HD polyisocyanurate insulation board. The surface of SOPRASMART ISO HD 180 is covered with a thermofusible plastic film and the surface of SOPRASMART ISO HD 180 SANDED is sanded.

4.4.7.3. SOPRABASE FR and SOPRABASE FR SANDED

Description
SOPRABASE FR and SOPRABASE FR SANDED are support panels composed of SBS modified bitumen membrane with a glass mat reinforcement, factory-laminated on high-strength wood fiberboards impregnated with a fire retardant (lower than 25). The surface of SOPRABASE FR is covered with a thermofusible plastic film and the surface of SOPRABASE FR SANDED is sanded.

4.4.7.4. SOPRABASE FR 180 and SOPRABASE FR 180 SANDED

Description
SOPRABASE FR 180 and SOPRABASE FR 180 SANDED are support panels composed of SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on high-strength wood fiberboards impregnated with a fire retardant (lower than 25). The surface of SOPRABASE FR 180 is covered with a thermofusible plastic film and the surface of SOPRABASE FR 180 SANDED is sanded.

The first 60 % of DUO SELVEDGE is self-adhesive, which protects components under the base sheet when the remaining 40 % surface of the selvedge is heat-welded or sealed with a hot air gun and a round nosed trowel.

Composite panels can be mechanically fastened, adhered with hot bitumen or with COLTACK or DUOTACK adhesives.
APPLICATION of MEMBRANES

Application of composites panels
When using screws and stress plates, only use SOPRAFIX membrane fasteners.

The screws and stress plates must be as per SOP 23 details (see detail SOP 23 related).

Round top nails are only permitted on vented wood decks.

Seal the DUO SELVEDGE side joints with a torch and round-nosed trowel.

To ensure that the membrane is waterproof, the board’s end laps must be covered with a SOPRALAP cover strip.

It is not necessary to stagger end laps.

Note: On insulated systems, use adequate pressure on the screws and stress plates while making sure not to cause a change in level in the membranes by screwing them in too deeply.

4.4.7.5. XPRESS BOARD HD & XPRESS BOARD HD SANDED

Description
XPRESS BOARD HD and XPRESS BOARD HD SANDED are high performance panels composed of SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on a high density mineral fibre (rock wool) board. The surface of the XPRESS BOARD HD is covered with a thermofusible plastic film and the surface of the XPRESS BOARD HD SANDED is sanded.

XPRESS BOARD HD and XPRESS BOARD HD SANDED panels are used as an insulation overlay board or as a recovery board.

4.4.7.6. XPRESS VAP’R BOARD HD 5/8 SANDED

Description
XPRESS VAP’R BOARD HD 5/8 SANDED is a high performance panel composed of SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on a high density mineral fibre (rock wool) board. The surface is sanded.

XPRESS VAP’R BOARD HD 5/8 SANDED panel is used as thermal and vapor barrier.

Application
Mineral fibre (rock wool) boards are available in various thicknesses and can be mechanically fastened, adhered with hot bitumen or with DUOTACK adhesive.

When mineral fibre (rock wool) boards are mechanically fastened, use only SOPRAFIX membrane fasteners.
APPLICATION of MEMBRANES

Mechanical fasteners must be installed in the centre of the membrane side selvedge.

Seal the DUO SELVEDGE side joints with a torch and round-nosed trowel.

To ensure that the base sheet membrane is waterproof, the board’s end laps must be covered with a SOPRALAP cover strip.

It is not necessary to stagger end laps.

On insulated systems, use adequate pressure on the screws and stress plates while making sure not to cause a change in level in the membranes by screwing them in too deeply.

4.4.7.7. XPRESS ISO & XPRESS ISO SANDED

Description
XPRESS ISO and XPRESS ISO SANDED are base sheet panels composed of SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on a mineral fibre (rock wool) and a polyisocyanurate board. The surface of the XPRESS ISO is covered with a thermofusible plastic film and the surface of XPRESS ISO SANDED is sanded.

Application
XPRESS ISO and XPRESS ISO SANDED boards can be mechanically fastened or adhered with hot bitumen or COLTACK or DUOTACK adhesive.

When XPRESS ISO and XPRESS ISO SANDED boards are mechanically fastened, use only SOPRAFIX membrane fasteners. Follow the anchoring diagram specific to this system (see detail XP 04).

Seal the DUO SELVEDGE side joints with a torch and round-nosed trowel.

To ensure that the base sheet membrane is waterproof, the board’s end laps must be covered with a SOPRALAP cover strip. It is not necessary to stagger end laps.

Note: On insulated systems, use adequate pressure on the screws and stress plates while making sure not to cause a change in level in the membranes by screwing them in too deeply.

4.4.7.8. XPRESS EPS & XPRESS EPS SANDED

Description
XPRESS EPS and XPRESS EPS SANDED are base sheet panels composed of SBS modified bitumen membrane with a non-woven polyester reinforcement, factory-laminated on a mineral fibre (rock wool) and a polystyrene board. The surface of XPRESS EPS is covered with a thermofusible plastic film and the surface of XPRESS EPS SANDED is sanded.
APPLICATION of MEMBRANES

**XPRESS EPS** and **XPRESS EPS SANDED** boards can be mechanically fastened or adhered with **DUOTACK** adhesive.

When **XPRESS EPS** and **XPRESS EPS SANDED** boards are mechanically fastened, use only **SOPRAFIX** membrane fasteners. Follow the anchoring diagram specific to this system (see detail XP 04).

Seal the DUO SELVEDGE side joints with a torch and round-nosed trowel.

To ensure that the base sheet membrane is waterproof, the board’s end laps must be covered with a **SOPRALAP** cover strip. It is not necessary to stagger end laps.

**Note:** On insulated systems, use adequate pressure on the screws and stress plates while making sure not to cause a change in level in the membranes by screwing them in too deeply.

### 4.4.8. Self-adhesive base sheet membranes

**Note:** All base sheet membranes, for temperature below 15 °C (59 °F), you must unroll base sheet membranes 15 minutes before they are installed. For those with a thermofusible plastic film, burn the film in a zigzag pattern (Figure 4).

#### 4.4.8.1. COLVENT BASE 810 & COLVENT BASE 820

**Description**

**COLVENT BASE 810** is a high performance base sheet membrane composed of SBS modified bitumen and a glass mat reinforcement. The surface is covered with a thermofusible plastic film, the underside is covered with a release protection film.

**COLVENT BASE 820** is a high performance base sheet membrane composed of SBS modified bitumen and a glass mat reinforcement. The surface is sanded, the underside is covered with a release protection film.

**COLVENT BASE 810** and **COLVENT BASE 820** are partially bonded through their discontinuous adhesive strips on the underface.

When using **COLVENT BASE 810** membranes in an insulated roofing system, you must use recovery boards covered with primer (**ELASTOCOL STICK**), except when using **SOPRA-ISO PLUS** insulation boards, which does not need primer.

We recommend using recovery boards on wood roof decks, (see Section 3.1.4. Wood decks).
APPLICATION of MEMBRANES

When using COLVENT BASE 820 membranes, primer is always required on all substrates including SOPRA-ISO PLUS insulation boards.

When installing COLVENT BASE 810 in winter conditions, it is advisable to install the cap sheet membranes on the same day as the base sheets.

COLVENT BASE 820 must never be used in temperatures below 10 °C (50 °F).

Application
Unroll and position the roll on a surface already coated with primer.

Peel off a corner of the silicone paper to allow the membrane to adhere to the surface.

Then peel off the silicone paper at a 45° angle to avoid any wrinkles in the membrane.

While one worker peels off the silicone paper from the under face of the membrane, the other should pull on the free end to prevent creating any wrinkles in the membrane.

Apply pressure over the whole surface using a COLVENT membrane roller to ensure good contact.

With COLVENT BASE 810, we recommend that you seal side laps with a torch and trowel or a granule embedder.

Because of the specific properties of these membranes, we recommend that you align all the joints (do not stagger) to facilitate installing the reinforcement strip.

COLVENT BASE 810 and 820 end laps must be sealed with a SOPRALAP (810) or SOPRALAP STICK (820) reinforcement strip centred on the joint. Before installing SOPRALAP STICK, the base sheet sanded surface must be covered with primer for self-adhesive membranes.

For SOPRALAP STICK, the sanded surface must be primed with ELASTOCOL STICK.
APPLICATION of MEMBRANES

4.4.8.2. FULLY ADHERED SELF-ADHESIVE BASE SHEET MEMBRANES (SOPRAFLASH FLAM STICK or SOPRALENE FLAM STICK or SOPRAFLASH STICK or SOPRALENE STICK ADHESIVE)

Limitations
SOPRAFLASH STICK and SOPRALENE STICK ADHESIVE must never be used at temperatures below 10 °C (50 °F).

When membranes of this section are used as field surface base sheet, a cover board covered with primer is always required.

We recommend using recovery boards on wood roof decks, (see Section 3.1.4. Wood decks).

Application
Unroll and position the roll on a surface already coated with primer.

Peel off a corner of the silicone paper to allow the membrane to adhere to the surface.

Then peel off the silicone paper at a 45° angle to avoid any wrinkles in the membrane.

While one worker peels off the silicone paper from the under face of the membrane, the other should pull on the free end to prevent creating any wrinkles in the membrane

SOPRAFLASH FLAM STICK or SOPRALENE FLAM STICK laps must be sealed with propane torched or a SOPRALAP reinforcement strip centred on the joint.

SOPRAFLASH STICK or SOPRALENE STICK ADHESIVE laps must be primed and sealed using an electric hot-air torch and a membrane roller or a SOPRALAP STICK reinforcement strip centred on the joint.
APPLICATION of MEMBRANES

4.4.9. Base sheet adhered with adhesive

COLPLY BRUSH GRADE and TROWEL GRADE ADHESIVE

**Note:** For upstands membranes, although it is possible to use two plies of membrane adhered with adhesive, SOPREMA recommends using a self-adhesive base sheet and a self-adhesive cap sheet to facilitate the application of the membranes.

**Limitations**

COLPLY adhesive must only be used at temperatures above 5 °C (41 °F).

COLPLY BRUSH GRADE must not be used on surfaces with a slope greater than 3% (3/8 in per ft).

**Application**

Unroll and position the roll over the substrate.

Reroll and apply adhesive to the surface.

Lay the base sheet membrane over the adhesive layer at a rate of 0.6 to 0.8 L/m² (1.50 to 2.00 US gal/100 ft²).

Apply pressure over the whole surface using a high caliber membrane roller to ensure good contact.

Apply COLPLY TROWEL GRADE adhesive for the first 125 mm (5 in) of the end laps with a steel trowel with 5 mm (3/16 in) notches.

Complete the application by welding the last 25 mm (1 in) of the overlap to the existing surface, using an electric hot-air torch and a membrane roller.

Welding must also be done on all side laps. The use of an automatic hot-air welder will increase the speed and quality of the seal.
APPLICATION of MEMBRANES

4.4.10. Base sheet membranes application for upstands

4.4.10.1. Basic rules

**Note:** There is no minimum height required for a roof and wall junction or any other upstands. However, the membrane termination must be perfectly sealed with a metal flashing or a termination bar as indicated in the SOP 03 and 04 details.

Use 1 m (39 in) wide strips of membrane to cover the vertical face of the upstand. Calculate the length of membrane required to cover the upstand or parapet. The joints of the membrane covering the deck should be staggered so that the membranes covering the vertical face of the upstand do not coincide with those covering the deck.

Install a fire-stop membrane wherever flames can enter. Weld the membrane over the upstands using the method shown on the next page. The minimum overlap of the base sheet on the field surface must be 100 mm (4 in).

Never use a torch to apply membranes to combustible materials. The surface must be smooth, clean and uncontaminated (free of bitumen).

4.4.10.2. Heat-Welded membranes

**Figure 9**

1. Check the dimensions and adjust as required.
2. Torch corner.
3. Press into corner.
4. Torch upwards.
5. Torch overlap.
6. Torching completed.

Legend: ———— heat-welded area
APPLICATION of MEMBRANES

4.4.10.3. Self-adhesive membranes

1.

Never point the flame directly at the base of the upstands. Burn the plastic film of the section to be covered before installing the membrane to the field surface.

2.

Check the dimensions and adjust as required.

3.

Use the aluminium applicator, adhere the membrane from top to bottom, gradually peeling back the silicone release film during application.

4.

Use the aluminium applicator to obtain a perfect transition between the upstand and the field surface.

5.

Roll the entire surface of the membrane to ensure complete adhesion. Fasten the membrane to the outside face of the parapet using round top cap nails.

6.

Seal all membrane joints using a torch and a round nosed trowel, or other welder for sanded membranes, at the end of each workday.

Figure 10
APPLICATION of MEMBRANES

4.4.11. Gussets

4.4.11.1. Gussets (without cant strip)

Notes: Gussets are mandatory at every angle, on inside and outside corners on the transition of the field surface.

4.4.11.2. Gussets (with cant strip)

4.4.12. Pre-cut membranes

4.4.12.1. Outside corners

4.4.12.2. Inside corners
4.5.1. Cap sheet membranes on the field surface

Unroll the starter membrane, making sure to position the drain in the centre of the roll.

End lap joints must be at least 900 mm (36 in) from the drain. This prevents ending up with a lap joint in the middle of the drain and helps to automatically arrange the cap sheet's side laps correctly relative to those of the base sheet.

Align the membrane properly. Reroll the membrane halfway from each side, one side at a time.

If a starter membrane is not being used, create a lap side joint selvedge of 75 mm (3 in) or greater on the opposite side of the existing selvedge, according to the directions. Snap a chalk line and degranulate, embedding the granules adequately.

At the end laps, angle-cut the corner of the zone being covered by the next roll.

Once the first roll has been welded, degranulate (embed the granules) the 150 mm (6 in) lap zone to promote good contact.

Granule embedment is not required for the lap joints of cap sheet membranes glued with COLPLY ADHESIVE or SEBS hot bitumen.
APPLICATION of MEMBRANES

4.5.2. Heat-welded cap sheet membranes

Note: Adhesive tape must be removed from all membranes before they are installed. Otherwise, it may interfere with adhesion and cause blistering; adhesive tape also emits toxic fumes if exposed to a torch flame.

The torch welding technique is simple. However, to get good results, you must know how to use this tool and obey some basic rules.

4.5.2.1. 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.

Before starting to weld, you must be aware of several important factors.

Know the product you are welding: its thickness, reinforcement and type of underface (sanded or polypropylene).

Know the type of material to which you are welding this product: directly to concrete, to another membrane or to a weldable board.

Take into consideration the weather conditions. The speed of welding depends on temperature, humidity and wind. Gas consumption is also affected by these elements.

The speed of welding varies depending on the environment. It decreases in cold, humid weather and increases in hot, dry weather. The speed may even vary over the course of a day. To control for these differences, just do a few tests when you are ready to install the first roll, or whenever conditions change (e.g., heat the roll for a few centimetres, stop, backroll the roll, check the uniformity of the weld and adjust your pace based on the results).

The weld will be more effective if the movement of the torch, and hence its flame, is continuous and even, in a rectangular pattern (Figure 16).
APPLICATION of MEMBRANES

Consult the diagram on the preceding page to determine the appropriate distance. The torch head position shown is the one recommended for obtaining the best welding technique.

Figure 16

Never point the flame (torch head upside down) between the two layers as this may trap air and cause blisters or ridges in the upper layer.

Figure 17

For best results, make sure there is always a small amount of melted bitumen in front of the roll being laid down. When in doubt, reroll the roll; "hairs" of bitumen should appear across the length of the roll.

Figure 18

Always unroll membranes in a continuous fashion. Starting and stopping mid-roll may cause slight undulations in the surface.

Along the selvedge side, keep the flame pointed towards the inside of the roll to prevent burning the granulated surface.

During cap sheet installation, it is recommended to create a bleed out of 3 to 6 mm (1/8 to 1/4 in) to make sure of the perfect water tightness of the membranes. For esthetical reason, when there is excessive bleed out, you may covered it with bulk granules.
APPLICATION of MEMBRANES

4.5.2.2. Granule embedment

Why?
Granule embedment, or more precisely, preparing the cap sheet's selvedge strip (end lap) where it will lap the granulated part, is **MANDATORY**. This operation will guarantee good adhesion at these critical areas.

Embedding the granules will provide bitumen-to-bitumen adhesion. If this is not done, the adhesion may be inadequate, which could result in membrane detachment.

How?
To embed the granules, heat the granulated mineral surface with the torch to soften the bitumen. When the bitumen becomes shiny and the granules begin to sink slightly, stop heating and embed the granules in the bitumen with a trowel. A hot trowel will slide easily and prevent granules from sticking to it.

**Notes:** It is important to embed the granules by sliding the trowel over the surface and not to scrape off the granules and bitumen. Always keep your trowel clean.

In some cases, it is also possible to use a specifically designed granule embedder.

4.5.3. Self-adhesive cap sheet membranes

**Note:** Self-adhesive cap sheet membranes could be affected by poor ventilation when they are installed directly to a vented wood deck. Since it is impossible to predict temperatures at which membranes will be exposed in these conditions, it is recommended to mechanically fasten the membranes. This can be done using nails with 25 mm (1 in) washers or **SOPRAFIX** plates every 300 mm (12 in) at the end laps.

4.5.3.1. Inside slope with drain

**SOPRALENE STICK HR GR MUST BE USED.**

Unroll and position the roll.

Making sure not to shift the alignment of the roll, fold half of it along its length over the other half.

Remove the silicone release paper covering the folded back half to allow this part of the membrane to adhere to the base sheet.

Then fold the exposed half over the base sheet, first by the centre, then by the two extremities (butterfly technique). It is best to have at least two workers to perform this manoeuvre.

Now fold the unadhered half and continue with the same method.
APPLICATION of MEMBRANES

Apply **COLPLY TROWEL GRADE** adhesive for the first 125 mm (5 in) of the end laps with a steel trowel with 5 mm (3/16 in) notches.

Complete the application by welding the last 25 mm (1 in) of the overlap, using an electric hot-air torch and a membrane roller.

Welding must also be done on all side laps. The use of **SOPRAMATIC** automatic hot-air welder will increase the speed and quality of the seal.

Avoid the formation of wrinkles, voids or fishmouths.

Remove the release paper on the side lap selvedge and coat the selvedge with primer.

Repeat these steps to install the other membranes.

**4.5.3.2. Outside slope**

For outside slopes, it is possible to use **COLPHENE HR GR** or **SOPRALENE STICK HR GR** (DUO Selvedge) membranes.

When **SOPRALENE STICK HR GR** is used, the installation is done according to the instructions for indoor slopes.

When **COLPHENE HR GR** is used, the installation is done using the following methods:

When the slope is greater than 33% (4 in per foot), the membrane should be applied vertically (bottom to top).

Unroll and position the roll.

Make sure not to shift the alignment of the roll, fold half of it along its length over the other half.

Remove the silicone release paper covering the folded back half to allow this part of the membrane to adhere to the base sheet.

Then fold the exposed half over the base sheet, first by the centre, then by the two extremities (butterfly technique). It is best to have at least two workers to perform this manoeuvre.

Now fold the unadhered half and continue with the same method.

Apply **COLPLY TROWEL GRADE** adhesive of the end laps with a steel trowel with 5 mm (3/16 in) notches.

Avoid the formation of wrinkles, voids or fishmouths.

Repeat these steps to install the other membranes.
APPLICATION of MEMBRANES

4.5.4. Cap sheet membranes with adhesive

Lay the cap sheet membrane fully adhered on the base sheet coated with adhesive at a rate of 0.6 to 0.8 L/m² (1.50 to 2.0 US gal/100 ft²).

Apply COLPLY TROWEL GRADE adhesive for the first 125 mm (5 in) of the end laps with a steel trowel with 5 mm (3/16 in) notches.

Complete the application by welding the last 25 mm (1 in) of the overlap, using an electric hot-air welder and a membrane roller.

Welding must also be done on all side laps using an electric hot-air torch and a membrane roller. The use of an automatic hot-air welder will increase the speed and quality of the seal.

Avoid the formation of wrinkles, voids or fishmouths.

Roll using a membrane roller to maximize the adhesion and eliminate air pockets.

Never use a flame on the roof at any point during the work.

4.5.5. Cap sheet membranes with SEBS hot bitumen

Install the cap sheet in a full mopping of hot bitumen applied at the minimum rate of 1.0 to 1.5 kg/m² (20 to 25 lb/100 ft²).

Apply no more than 3 m (9 ft) of bitumen at a time in front of the roll in summer and 1 m (3 ft) in winter.

Ensure complete and uniform adhesion by applying pressure to the roll to form a wave of hot bitumen in front of the roll.

It is not necessary to degranulate the membrane at the end laps.

However, special care must be taken in sealing the end laps, using a membrane roller, propane torch (if there is no restriction on site) or hot air welder.

Notes: SEBS bitumen must never be heated in the kettle to a temperature above 260 °C (500 °F). Notes: Never use oxidized bitumen to adhere a cap sheet membrane to a base sheet. We do not recommend using oxidized bitumen to apply membranes over upstands or parapets.
APPLICATION of MEMBRANES

4.5.6. Mechanically fastened cap sheet membranes

Install a self-adhesive base sheet membrane, full width (1 m [3 ft]), in the roof perimeter area, as well as at the base of any location involving a change in angle: valleys, ridges, parapets, upstands, etc.

These reinforcement membranes should be installed directly to the substrate.

UNILAY membrane must be unrolled dry over the substrate and parallel to the roof slope. Carefully align the edge of the first selvedge with the edge of the roof. Allow the membrane to condition for at least 20 minutes before installation.

If the slope exceeds 60% (7 in per foot), cut the rolls in two.

Each selvedge should overlap the preceding one by 200 mm (8 in) on the side laps using the alignment provided, and at the end laps.

Reroll the membrane, sealing lap joints as you go, using the appropriate method (welding) to prevent any infiltration.

Install the mechanical fasteners centred in the lap joint as per the anchoring diagram.

Note: On a steel deck, fasteners must be installed on the upper part of the ribs. Install membranes perpendicular to the ribs.

On insulated systems, use adequate pressure on the screws and stress plates while making sure not to cause a change in level in the membranes by screwing them in too deeply.
APPLICATION of MEMBRANES

4.5.7. Cap sheet membranes covered with metal foil

(SOPRALAST membranes 50 tv aluminum)

To prevent delamination of the metal foil, membranes must be handled and installed at temperatures above 5 °C (41 °F).

The minimum slope for applying this type of membrane is 3% (3/8 in per ft).

Whatever the slope, a base sheet is always necessary; it reduces the amount of heat required to adhere the heat-welded cap sheet membrane, and excess heat causes delamination of the metal foil. Moreover, the base sheet must always be fully adhered and have a heavy-duty composite reinforcement, since SOPRALAST membranes have only glass mat reinforcement, which cannot withstand the physical stresses caused by large temperature fluctuations.

This task is performed by lightly heating the portion to strip with the torch flame, then removing the metal foil with long nose pliers. When mechanical fasteners are required at the end laps, keep about 100 mm (4 in) of the metal foil so as to anchor it evenly.

Mechanical fasteners are required in vertical laps when the slope exceeds 40% (20% if the base sheet is installed with hot asphalt) (Figure 19).

Avoid handling these membranes with your bare hands because the edges of the metal foil are sharp. Contact with bare skin can also oxidize the metal and cause unsightly stains.

Install membrane sections no more than 4 m (12 ft) in length.

All upstands and valleys must be handled with 1 m (3 ft) strips.

All lap joints must be executed on surfaces already stripped of their metal foil, over the full width of the lap, less one square of foil.

Figure 19
APPLICATION of MEMBRANES

Always apply membranes vertically, in the direction of the slope. This will greatly facilitate installation, ensure more even heat flow and help to prevent excessive heat, which can potentially cause delamination of the metal foil. Membranes must be unrolled from top to bottom, making sure that lap joints are executed in the direction of water flow (Figure 20).

![Figure 20](image)

After positioning the roll, avoid rerolling it too tightly (Figure 21), because this may make handling the roll too difficult during welding.

![Figure 21](image)
APPLICATION of MEMBRANES

Apply enough heat to properly bond all surfaces of the membranes, but avoid bleed-out; it requires too much heat for this type of membrane. A change in the colour of the metal foil indicates excessive heat, which can potentially cause delamination.

Use a 45 mm (1 ¾ in) torch head, with a 100 mm (4 in) neck, always controlling the torch flame to avoid excessive heat.

Never point the flame from the outside of the roll towards the edge of the membrane (Figure 22).

Figure 22

Weld one metre of membrane, then apply light pressure on the membrane using a slightly damp sponge; press on the edge of the sheet but avoid stroking the foil (apply pressure on the sponge without moving it across the surface of the membrane). To prevent overly thick bitumen at every stoppage, crush the bead of bitumen ahead of the roll by unrolling the roll ahead of the bead, then returning it to its initial position.

Never walk on membranes that were just installed or whose surfaces are excessively hot. This can create voids between the copper foil and the bitumen mass, which causes delamination of the metal foil.

Tools required

- 100 mm (4 in) torch neck;
- 45 mm (1.7 in) torch head (never use a larger torchhead);
- Clean gloves;
- Long nose pliers;
- Straight-blade knife;
- Hook-blade knife; and
- Bracket.
APPLICATION of MEMBRANES

4.5.8. Cap sheet membranes application for upstands

The use of a fibreglass-reinforced cap sheet membranes on upstands is prohibited.

There must be at least 150 mm (6 in) of cap sheet overlap on the field surface.

Use a chalk line to precisely mark the area to be degranulated.

4.5.8.1. Heat-welded

To promote good adhesion, you must previously degranulate (embed the granules) the cap sheet membranes over the field surface at the edge of upstands.

It is preferable to use a damp sponge to press on the membrane, to avoid unsightly darkening of the granules.

4.5.8.2. Self-adhesive

The base sheet of upstands must always be precoated with primer.

Peel off the silicone release paper at a 45° angle so as not to create any wrinkles in the membrane. Apply pressure as you go, using the aluminum applicator or the membrane roller to obtain good adhesion.

Apply COLPLY TROWEL GRADE adhesive for the first 125 mm (5 in) of the end laps with a steel trowel with 5 mm (3/16 in) notches.

Complete the application by applying the last 25 mm (1 in) of the overlap to the existing surface, using an electric hot-air torch and a membrane roller.

Remove the release paper on the side lap selvedge and coat the selvedge with primer.

Repeat these steps to install other upstand membranes.

Note: You must use the aluminum applicator and the membrane roller.

4.5.8.3. With adhesive

Coat the surfaces to be covered with COLPLY TROWEL GRADE adhesive to obtain good adhesion.

Apply COLPLY TROWEL GRADE adhesive for the first 125 mm (5 in) of the end laps with a steel trowel with 5 mm (3/16 in) notches.

Complete the application by applying the last 25 mm (1 in) of the overlap to the existing surface, using an electric hot-air welder and a membrane roller.

Note: You must use the aluminum applicator and the membrane roller.
APPLICATION of MEMBRANES

4.5.8.4. With SEBS hot bitumen

To apply membranes on upstands, use a Tarzan roller rather than a mop to spread the bitumen.

It is not necessary to degranulate the membrane at the end laps.

However, special care must be taken in sealing the end laps, using a membrane roller, propane torch (if there is no restriction on site) or hot-air gun.

Notes: Never use oxidized bitumen to adhere a cap sheet membrane to a base sheet. We do not recommend using oxidized bitumen to apply membranes to upstands and parapets.
SAFETY MEASURES

5 | Safety measures

5.1. Important preliminary directives

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, liquified propane gas, open flames and installation equipment.

Before commencing work on site, the following directives must be brought to the attention of employees.

Before using flammable liquids and mastics, consult the appropriate instructions for their use (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 without 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 roofing and wall systems before torching.

Ensure the site is clean and free of waste material.

Notify building occupants of any torching activities, as appropriate:

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

5.2. Storage and handling

Do not store propane tanks or containers of flammable products on the roof.

Verification of torching equipment

Always use appropriate, CSA-certified torching equipment in perfect working order. Never modify torching equipment. Use appropriate propane gas hoses. Never use hoses longer than 15 m (50 ft).

Before using torching equipment, check and securely fasten all fittings.

Do not light the torch if you smell any propane odour whatsoever. Never look for leaks with an open flame. Use soapy water.

Use a torch with an adjustable pilot light and a shut-off valve.
SAFETY MEASURES

5.3. Torching precautions

Follow the specifications, notices and documents, as well as the 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 any 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 of membranes.

Use the appropriate torch for the type of work to be done (neck, torch head, etc.).

Shield air-conditioning units and other entries or air vents on the roof with metal sheeting or similar material when using the torch around them.

Use a CSA-certified regulator with a measure range like the one that came with the torch.

Do not torch anywhere you cannot see, such as under air conditioning units or behind counter flashing. In these situations, use cold-applied material or a covering to protect these areas.

Do not torch on or near gas lines, electric wires, or pipes before making sure they can withstand an open flame.

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

Do not torch on enclosed surfaces such as underneath air conditioning units or behind counter flashing. In these situations, use a cold-applied material (such as a self-adhesive membrane or a cold-applied adhesive) or isolate critical areas with a fireproof barrier such as mineral fibre (rock wool) or an equivalent material.

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, close to containers containing flammable liquids or materials (keep open flame at least 3 m [10 ft] away), or directly on combustible substrates or insulation.
SAFETY MEASURES

When the substrate is very combustible or flammable, install a flame-stop like a mechanically fastened base sheet or board or a self-adhesive membrane, before torching.

Voids, holes, or gaps in or near substrates can also be protected as described above to prevent flame penetration. Also, make sure that there is no ventilation or negative pressure to attract or stir up the flame.

Special care must be taken to keep combustible insulation away from the flame. For example, before heat-welding the membrane, install a non-flammable board to separate polystyrene roof insulation from the modified bitumen membrane sheet and the torch. If wood fibre panels must be installed, use fire retardant-treated panels.

Avoid placing combustible materials near open flames. Do not direct the flame through open roof penetrations. Joints, angles, and corners must be sealed with a flame-stop material compatible with the membrane.

Keep in mind that the flame can travel over long distances, 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 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. Do not lay a lighted torch directly on the membrane.

At all times, and especially before leaving job site, check for smouldering or concealed fires. In case of fire, follow the appropriate safety procedures.

When shutting off the torch, first close the propane cylinder valve, let the remaining gas burn out of the hose, and then close the torch valve.
SAFETY MEASURES

5.4. Special precautions for liquid propane gas

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

Never attempt to defrost an L.P. gas tank (empty or full) with a flame. In cold weather, use specially designed heating blankets, available from SOPREMA.

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

After use, tightly close the L.P. gas tank valve, especially when the tank is empty. Empty tanks should not be stored on the roof.

L.P. gas is heavier than air. Check low areas for accumulation of gas.

Ensure good air exchange on job site. 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.

The number of extinguisher stored on the roof must be the same as the number of torches in service.

5.5. 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 should decrease between each reading.

The watchman must have an operational type 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, the interior of the building must be inspected with the owner’s representative before leaving the worksite.
SAFETY MEASURES

5.6. Fire precautions

Strict compliance with local fire codes must be maintained.

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

Always have one ABC fire extinguisher per torch on hand, filled and in perfect working order 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 during flammable material installation and near storage areas of these materials.

5.7. Liquid products containing flammable solvent

Smoking is forbidden while handling empty or full tanks during flammable material installation, and near storage areas.

Always have one minimum 13 lb (6 kg) ABC fire extinguisher in the flammable solvent based liquid products application area.

Never puncture tanks.

Open tank by slowly releasing the cover to prevent spurting due to overpressure.

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 tanks 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 tanks, 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 are no buckets nearby, there are no propane tanks in service or stored nearby and there is no gas channelling hooked up to an instrument in service is within a 10 m (33 ft) radius of the application area.
SAFETY MEASURES

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

5.8. First aid

Flush burns with cold water and seek immediate medical attention.

Should molten bitumen contact 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 contact clothing, flush with cold water.

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

6  DETAILS

6.1. Legend

1. Support
2. Vapour barrier
3. Insulation
4. Support panel for membrane
5. Base sheet on field surface
6. Cap sheet on field surface
7. Base sheet for upstands
8. Cap sheet for upstands
9. Reinforcement membrane
10. Primer or adhesive
11. Sopramastic + granules
12. Wood blocking
13. Round top cap nails
14. Metal flashing
15. Cant strip
16. Drain
17. Clamping ring
18. Flange
19. Vent pipe
20. Vent cap
21. SOPRAJOIN
22. Slip sheet
23. Mineral cushion
24. Optional fire stop where required (torched-on membranes only)
25. Screws and plates 50 mm (2 in)
26. Side lap
27. SOPRABASE panel
28. Lead plug
29. Gargoyle flashing
30. Nylon head fastener
31. ALSAN FLASHING
32. FLASHING REINFORCEMENT
33. Wood block
34. B.U.R. + gravel
35. DUOMASTIC
36. INTERCLIP
37. IC SEALANT
DETAILS

6.1.1. Metal fascia parapet termination (SOP 01)

6.1.2. Metal cap parapet termination (SOP 02)
6.1.3. Metal counterflashing termination (SOP 03)

6.1.4. Reglet counterflashing termination (SOP 04)
DETAILS

6.1.5. Membrane at wall flashing (SOP 06)

6.1.6. Mechanical curb flashing (SOP 08)
6.1.7. Roof area divider (upstands) (SOP 09)

6.1.8. Metal fascia edge termination (SOP 10)
6.1.9. Roof drain termination (SOP 12)

6.1.10. Roof drain termination (SOP 13)
6.1.11. Prefabricated vent sleeve flashing (SOP 14)

6.1.12. Scupper at deck metal sleeve (SOP 16)
6.1.13. Expansion joint (SOP 19)


* Self-adhesive
DETAILS

6.1.15. SOPRASMART BOARD 180
Fastening pattern (SOP 23-1)

**Note 1**: Space between each row of fasteners is 610 mm (24 in) (2 rows per board).

**Note 2**: Fastener density on each roof area (field surface, perimeter and corners) must be chosen as per the wind loads determined using the National Research Council of Canada (NRCC) online calculator (WIND RCI).

**Dynamic Uplift Resistance (DUR)**

<table>
<thead>
<tr>
<th>Fastening pattern</th>
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<th>Resistance</th>
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<tbody>
<tr>
<td>A</td>
<td>305 mm (12 in) O.C.</td>
<td>-5.2 KPA (-108 PSF)</td>
</tr>
<tr>
<td>B</td>
<td>457 mm (18 in) O.C.</td>
<td>-3.4 KPA (-70 PSF)</td>
</tr>
<tr>
<td>C</td>
<td>610 mm (24 in) O.C.</td>
<td>-2.4 KPA (-50 PSF)</td>
</tr>
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</table>

**Safety Factor**

As required by the standard, the published Dynamic Uplift Resistance (DUR) are reduced by a safety factor of 1.5.

These fastening patterns have been determined as per the CSA 123.21-10 standard. Those results are valid only if you use approved membranes, fasteners and other components for this system. For more information regarding the system components, consult the roof system assessment report of Wind Uplift Resistance published by an authorized laboratory.
SAFETY FACTOR
As required by the standard, the published Dynamic Uplift Resistance (DUR) are reduced by a safety factor of 1.5.

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6.1.17. SORPBASE FR 180
Fastening pattern (SOP 23-3)

**Note 1**: Space between each row of fasteners is 610 mm (24 in) (2 rows per board).

**Note 2**: Fastener density on each roof area (field surface, perimeter and corners) must be chosen as per the wind loads determined using the National Research Council of Canada (NRCC) online calculator (WIND RCI).

**DYNAMIC UPLIFT RESISTANCE (DUR)**

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**SAFETY FACTOR**

As required by the standard, the published Dynamic Uplift Resistance (DUR) are reduced by a safety factor of 1.5.

These fastening patterns have been determined as per the CSA 123.21-10 standard. Those results are valid only if you use approved membranes, fasteners and other components for this system. For more information regarding the system components, consult the roof system assessment report of Wind Uplift Resistance published by an authorized laboratory.
DETAILS

6.1.18. SOPRABASE FR
Fastening pattern (SOP 23-4)

**Note 1:** Space between each row of fasteners is 610 mm (24 in) (2 rows per board).

**Note 2:** Fastener density on each roof area (field surface, perimeter and corners) must be chosen as per the wind loads determined using the National Research Council of Canada (NRCC) online calculator (WIND RCI).

**DYNAMIC UPLIFT RESISTANCE (DUR)**

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**SAFETY FACTOR**

As required by the standard, the published Dynamic Uplift Resistance (DUR) are reduced by a safety factor of 1.5.

These fastening patterns have been determined as per the CSA 123.21-10 standard. Those results are valid only if you use approved membranes, fasteners and other components for this system. For more information regarding the system components, consult the roof system assessment report of Wind Uplift Resistance published by an authorized laboratory.
6.1.19. XPRESS BOARD HD (SOP 23-5-1)
Fastening pattern as per CSA A-123.21-10

See notes

Note 1: Screws and plates are installed within and in the CENTRE OF THE LAP ONLY.

Note 2: Fastener density on each roof area (field surface, perimeter and corners) must be chosen as per the wind loads determined using the National Research Council of Canada (NRCC) online calculator (WIND RCI).

DYNAMIC UPLIFT RESISTANCE (DUR)

<table>
<thead>
<tr>
<th>Fastening pattern:</th>
<th>Spacing</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>457 mm (18 in) O.C.</td>
<td>-1.9 KPA (-40 PSF)</td>
<td></td>
</tr>
</tbody>
</table>

SAFETY FACTOR
As required by the standard, the published Dynamic Uplift Resistance (DUR) are reduced by a safety factor of 1.5.

These fastening patterns have been determined as per the CSA 123.21-10 standard. Those results are valid only if you use approved membranes, fasteners and other components for this system. For more information regarding the system components, consult the roof system assessment report of Wind Uplift Resistance published by an authorized laboratory.
DETAILS

6.1.20. XPRESS BOARD HD (SOP 23-5-2)
Fastening pattern as per CSA A-123.21-10

Note 1: Screws and plates are installed within and in the FIELD OF THE BOARD ONLY AND COVERED WITH A SOPRALAP COVER STRIP.

Note 2: Fastener density on each roof area (field surface, perimeter and corners) must be chosen as per the wind loads determined using the National Research Council of Canada (NRCC) online calculator (WIND RCI).

DYNAMIC UPLIFT RESISTANCE (DUR)

<table>
<thead>
<tr>
<th>Fastening pattern</th>
<th>Spacing</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>150 mm (6 in) O.C.</td>
<td>-4.8 KPA (-100 PSF)</td>
</tr>
<tr>
<td>B</td>
<td>305 mm (12 in) O.C.</td>
<td>-3.2 KPA (-67 PSF)</td>
</tr>
</tbody>
</table>

SAFETY FACTOR
As required by the standard, the published Dynamic Uplift Resistance (DUR) are reduced by a safety factor of 1.5.

These fastening patterns have been determined as per the CSA 123.21-10 standard. Those results are valid only if you use approved membranes, fasteners and other components for this system. For more information regarding the system components, consult the roof system assessment report of Wind Uplift Resistance published by an authorized laboratory.
6.1.21. Alsan flashing (SOP 29)

- First layer
- Second layer

6.1.22. Flat expansion joint detail (SOP 34)

- Cap sheet membrane (6)
- Slip sheet (22)
- Cap sheet membrane (6)
- Soprajoint (21)
- Base sheet (5)
- Insulation (3)
- Vapour barrier (2)
- Support (1)
### 6.1.23. Junction (cold applied) modified bitumen system

**Existing BUR (SOP 32)**

#### Field surface

- **Note**: Scarify and apply ELASTOCOL 500 primer on B.U.R. surface in overlap area prior to installation of modified bitumen membranes.

#### Upstand

- **Note**: SOPRABOARD must be mechanically fastened before the installation of new base flashing membranes over existing.
6.1.24. Junction (heat-welded) modified bitumen system
Existing BUR (SOP 40)

Field surface

Note: Scarify and apply ELASTOCOL 500 primer on B.U.R. surface in overlap area prior to installation of modified bitumen membranes.

Note*: SOPRABOARD must be mechanically fastened before the installation of new base flashing membranes over existing.
DETAILS

6.1.25. Interclip System (SOP 52)

MINIMUM 25 mm

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