



# EQUUS SOPREMA FLAGON TPO-THERM WARM ROOF SYSTEM

Standard Building Consent Package



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**40** YEARS  
1982-2022

MAY 2024



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# EQUUS SOPREMA FLAGON TPO ROOFING

Single layer waterproofing membrane



equus



AUTHORISED DISTRIBUTOR

SOPREMA



EQUUS SOPREMA FLAGON TPO membrane is a synthetic waterproofing membrane with TPO modified polyolefin, glass fibre reinforcement and a non woven felt fleeced back, manufactured by a worldwide leader of waterproofing products, SOPREMA. The upper layer features a high resistance to weather and UV rays, and the under layer provides high puncture resistance. The TPO membrane doesn't require an open flame during application as the membrane is installed by an adhesive or by mechanical fastening, and the laps are welded using hot-air welding technology. EQUUS SOPREMA FLAGON TPO is used for waterproofing on cold roofs, warm roofs, ballast & roof garden designs, and balconies.

#### Complete system accessories include:

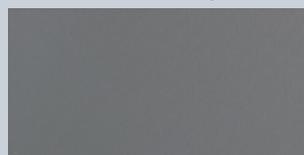
- FLAGON EP Non-reinforced 1.5mm TPO detailing membrane
- FLAGON TPO 90° external and internal corner
- Flagon vents and pipe collars
- Adhesives
- TPO cleaner
- TPO solvent
- FLAGON pre-coated TPO metal flashing

#### Key Benefits:

- Cost effective across all markets
- Aesthetically smooth looking finish
- Flameless hot-air welding technology
- High puncture resistance
- Proven UV resistance
- Non-toxic for potable water collection
- Excellent flexibility and weldability
- Thermal insulation systems available
- Green roof systems available

#### Available Colours:

Basalt Grey



Sand Grey



#### Technical Support:

- Project Specific specification and details
- Condensation risk analysis for warm roof concepts
- Wind uplift study for warm roof concepts
- On-site quality assurance
- Approved/licensed application nationwide
- Extended Warranties available

#### BRANZ Appraised:

- BRANZ Appraisal No. 1157
- BRANZ Appraisal No. 1169



BRANZ Appraised  
Appraisal No.1157 [2021]

EQUUS SOPREMA  
FLAGON TPO SYSTEMS



BRANZ Appraised  
Appraisal No.1169 [2021]

EQUUS SOPREMA  
WARM ROOF SYSTEMS

# EQUUS SOPREMA FLAGON TPO ROOFING

Single layer waterproofing membrane



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**SOPREMA**



## Equus Southern

Unit 6/100 Fitzgerald Ave  
Christchurch

Ph: 03 353 2434

southern@equus.nz

## Equus Central

45 Hutt Rd, Petone  
Wellington

Ph: 04 576 0333

central@equus.nz

## Equus Northern

211 Archers Rd, Wairau Valley,  
Glenfield, Auckland

Ph: 09 415 4314

northern@equus.nz

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**40**  
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# Specification

WATERTIGHT TECHNOLOGY

COATINGS &amp; SILICATE SYSTEMS

FLOORING TECHNOLOGY

## Standard Specification for the installation of the EQUUS SOPREMA FLAGON TPO-THERM Single Layer TPO Warm Roof System to plywood surfaces

Project:  
Prepared for:  
Specification:  
Date: February 2023  
Page 1 of 6

### 1.0 PREAMBLE:

This specification is for the installation of the **EQUUS SOPREMA FLAGON TPO-THERM** roofing membrane system, in a single layer configuration over rigid insulation board to create a warm roof system. The system provides a durable, fully insulated and waterproof roof with high solar reflectivity. As the insulation is continuous over the entire roof structure, thermal bridging is largely eliminated. The energy efficiency of the building is improved as a result thereby reducing heating and ventilation costs for the building owner.

The **EQUUS SOPREMA FLAGON TPO-THERM** single-layer TPO warm roof system consists of a self-adhesive vapour barrier, PIR or mineral wool insulation (adhered or mechanically fixed) to the vapour barrier with a flameless TPO membrane system installed over the insulation to provide a fully waterproof covering for the roofing system.

TPO (Thermo Plastic Poly-Olefin) roofing membrane is a modified polyolefin synthetic membrane obtained by co-extrusion which is dimensionally stabilised by a glass fibre. The upper grey layer has a high resistance to weather agents and UV rays. The membrane is manufactured in a plant certified by UNI EN ISO 9001 (Quality management system) and UNI EN ISO 14001 (environmental management system).

The **EQUUS SOPREMA FLAGON TPO-THERM** self-adhered warm roof system has been assessed for use on roofs, decks and gutters installed on metal deck or panel, treated plywood and concrete substrates on buildings within the following scope:

- Buildings where the supporting structure and associated elements are designed and constructed within the scope of New Zealand Building Code E2/AS1 clause 1.1.
- Specifically designed buildings constructed to comply with the New Zealand Building Code.

### 2.0 SURFACE PREPARATION:

#### 2.1 General - Responsibility:

Unless expressly agreed otherwise at time of contract pricing, all work in this section shall be the responsibility of the main contractor, whether carried out by their own staff, other sub-trades or the roofing membrane sub-contractor.

#### 2.2 Plywood:

- (a) Plywood grade and thickness – standard:  
Plywood shall be minimum 18mm C-D structural plywood complying with AS/NZS 2269, with the sanded C face upwards.  
Plywood shall be treated to a minimum grade of H3 CCA treated.

The information contained in this Specification is based on our experience and testing and represents the latest information available at the date of production. No responsibility is taken for uses to which this information may be put, but we advise that where application of products and processes is in complete conformity with this Specification an appropriate warranty may be available. We reserve the right to alter or update information parameters and formulations at any time without prior notice.

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## Specification

The moisture content prior to installation of the membrane system must not exceed 20%. LOSP treated plywood must not be used.

Closed-in construction spaces under membrane roofs and decks shall have adequate ventilation to prevent the accumulation of moisture under the membrane. There should be a minimum gap of 20 mm between the underside of the substrate and any insulation.

- (b) Sheet layout:  
All sheets shall be laid out so as to maximise the use of whole sheets. All sheet joints shall be laid over framing members, in a staggered brick-bond pattern, running across the fall of the roof in accordance with E2/AS1.
- (c) Sheet spacing:  
Sheets shall be laid tight butt jointed, i.e. with sheets butted but not cramped up, except where tongue and grooved joints are used in accordance with E2/AS1.

In areas where condensation is likely, prepare sheet edges and underside with **Chevaprime PBT**.

- (d) Sheet fixing:  
Plywood must be fixed in accordance with the Manufacturer's instructions taking into account wind loading, frame spacing and ply thickness.

Screw-fix using countersunk stainless-steel screws, gauge 10 and a length 3 times the thickness of the plywood in accordance with E2/AS1.

All sheets should be laid in a bead of construction adhesive along all framing members. Where two-layer plywood surfaces are installed, the first layer may be power-nailed, but the second layer must be screw-fixed with all joints offset from the first layer. All fastener heads shall be recessed below the level of the sheet face. Screws shall be fixed at 150mm centres on sheet perimeter and 200mm through the body of the sheet.

Substrate framing must support the plywood at a minimum 400mm centres each way. All sheet joints must be fully supported.

**The substrate preparation may change to meet "specific design" requirements or engineering requirements. Confirmation will be required prior to application.**

- (e) Falls:  
Seams should be constructed parallel with the fall, minimising ponding and flow restriction whenever possible.
- Roof, deck and gutter falls must be laid in accordance with E2/AS1 of the New Zealand Building Code.
- (f) Corners:  
All leading edges of plywood shall be chamfered with a 5mm radius corner.
- (g) Outlet types:  
Roof and deck outlets shall be installed as per clause 8.5.6 of E2 External Moisture of the New Zealand Building Code.

Outlets shall be sized in accordance with E1 Surface Water of the New Zealand Building Code.



# Specification

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EQ

- (h) Existing substrates and structures must be thoroughly inspected prior to specification to ensure that they will not compromise the performance of the membrane when applied.

## INSTALLATION:

**Note: A prestart meeting should be held onsite with the Main Contractor and the Equus Certified Applicator prior to commencement of warm roof installation.**

### 3.0 VAPOUR BARRIER:

#### 3.1 Primer: (For self-adhered membrane)

To the dried and prepared surface apply one (1) full coat of **EQUUS PEEL AND STICK** primer at a spreading rate of 6 to 8 m<sup>2</sup>/L depending on the porosity of the substrate. Allow to dry for minimum one (1) hour depending upon prevailing weather conditions.

#### 3.2 NOVA-SK: (Self- adhesive)

*Self-adhesive membrane for use as a vapour barrier when the PIR insulation is to be fully adhered by EASY FOAM.*

Decide the most suitable direction to follow. Unroll and discard packaging. Align the first roll and cut to length as required. Remove the siliconized film and press the membrane into place on the surface ensuring even rolling and no creasing or bubbling. The self-adhesive properties are automatically activated during installation. Use a weighted roller to ensure full coverage. Repeat in sequence with all rolls, maintaining minimum side laps of 80mm and end laps of 100mm. Offset end laps in adjacent runs. The lap automatically closes during application however it is recommended to have a hot air gun on hand during the process if additional heat is required (temperature dependent). Over upstands, the vapour barrier shall be taken up 50mm past the top of the insulation board. This ensures a suitable connection to create a complete waterproof envelope of the insulation.

#### 3.3 COLPHENE 3000: (Self- adhesive)

*Self-adhesive membrane for use as a vapour barrier when the insulation is to be mechanically fastened.*

Decide the most suitable direction to follow. Unroll and discard packaging. Align the first roll and cut to length as required. Remove the siliconized film and press the membrane into place on the surface. The self-adhesive properties are automatically activated during installation. Repeat in sequence with all rolls, maintaining minimum laps of 100mm. Offset end laps in adjacent runs. Over upstands, the vapour barrier shall be taken up 50mm past the top of the insulation board. This ensures a suitable connection to create a complete waterproof envelope of the insulation.

### 4.0 INSULATION:

#### 4.1 General:

On site cutting of boards is permitted and should be done using a fine-toothed saw or by scoring with a knife and snapping the board over a straight edge. Ensure accurate trimming to achieve a close tight butt finish. Any gaps between boards can be filled with **EASYFOAM**.

Refer to Equus project specific data for fixing patterns and full installation instructions.

#### 4.2 Mechanically fastened:

*Where the insulation is to be covered by roofboard.*

Install Equus PIR or mineral wool insulation in a brick bond pattern using full boards where possible. Use one fastener per board to tack in place. Insulation is fully fastened with the roof

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# Specification

WATERTIGHT TECHNOLOGY  
COATINGS & SILICATE SYSTEMS  
FLOORING TECHNOLOGY

board installation as per section 5.1.

*Note: In areas where mineral wool insulation is used, roofboard must also be installed.*

#### 4.3 Mechanically fastened:

*Where the TPO is adhered directly to the insulation.*

Install the specified **EQUUS SOPREMA** fixings through the PIR boards into the plywood substrate following the project specific **SOPREMA** wind uplift report fixing layout plan. Ensure the fixings are securely fastened but not overly tightened to crush the insulation boards. Apply silver tape to all sheet joints and over top of fixings.

#### 4.4 Fully adhered:

Install Equus PIR insulation in a brick pattern using full boards where possible. Boards shall be fixed in place using **EASYFOAM** adhesive applied in accordance with the fixing pattern in the project specific **SOPREMA** wind uplift report fixing layout plan. Multiple layers of board shall be glued with adhesive between each board. Apply silver tape to all sheet joints.

#### 5.0 ROOFBOARD: (where required)

- 5.1 Install **PERMABASE DEK** roofboard in a brick bond pattern over insulation, using full boards where possible. Boards shall be fixed in place using **EQUUS SOPREMA** fixings installed in accordance with the fixing pattern in the project specific **SOPREMA** wind uplift report. Apply silver tape over top of fixings.

#### 6.0 MEMBRANE APPLICATION:

##### 6.1 Membrane: FLAGON TPO EP/PR or FLAGON EP/PV-F

Decide the most suitable direction to follow. Align the roll and unroll into final position. Discard packaging. Fold back the required length of TPO to be glued exposing both the substrate and the back of the membrane. Secure temporarily to prevent wind uplift.

##### 6.2 Adhesive:

Apply one (1) coat of **EQUUS TPO ADHESIVE** by means of spraying. This is a bottle spray kit application. Apply adhesive to both substrate and underside of membrane.

##### 6.3 Membrane installation: FLAGON TPO EP/PR

*Where the TPO is adhered directly to the insulation.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and plywood substrate. Repeat in sequence with all rolls. Offset end laps in adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the next few hours.

##### 6.4 Membrane installation: FLAGON TPO EP/PV-F

*Where the TPO is adhered to roofboard.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and plywood substrate. Repeat in sequence with all rolls. Offset end laps in

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## Specification

adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the next few hours.

*Note: Where the TPO is adhered to roofboard FLAGON TPO EP/PV-F is to be used. This membrane has a fleece-backed underside and provides a smoother finish when the TPO is being installed over the rough roofboard.*

### 6.5 Detailing:

Detailing shall be carried out using **FLAGON TPO EP/S** unreinforced membrane welded to the **FLAGON TPO EP/PR** or **FLAGON TPO EP/PV-F** waterproofing membrane, **Cantac ROOF-TAC Spray**, and a double-sided tape to create one single impervious waterproofing system at all critical joints.

This includes all outlets, pipe penetrations, gutter stop ends, parapet upstands, machinery plinths and anything above or below the roof surface. This is carried out before, during or, in some cases, after laying the membrane, depending on the type of detail. All detailing shall be completed in accordance with the manufacturer's technical literature current at the time of design, use, installation and/or maintenance.

### 6.6 Sealant:

**TREMIFLEX 834** shall be used where required.

### 6.7 Membrane Termination:

The membrane will be terminated with **FLAGON TPO TERMINATION BAR** and **TREMIFLEX 834** on upstands and parapets as per the manufacturer's termination details.

### 6.8 Completion:

Upon completion of the system it shall be inspected and left for a short period (up to 2-3 weeks) to stabilize. At this time the entire installation shall be rechecked prior to any warranties being issued. Where possible, particularly on the deck areas, a pond-test (24 hours) should be carried out.

**Note:** Damage caused to the completed installation by other trades working over the membrane after the initial inspection shall be the responsibility of the Main Contractor, who shall arrange appropriate protection for the finished membrane system as required.

### 6.9 Trafficability:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system is suitable for light foot traffic after the installation of duckboards, roof walk systems or **EQUUS FIXPLUS** pedestals and pavers or **KRAITEC STEP** rubber tiles. Alternatively, **WALKWAY TPO** can be installed over the finished system to delineate regular pathways across the roof.

**PERMABASE DEK** roofboard shall be installed if additional compressive strength for the roof system is required in areas of high traffic, around plantrooms, air conditioning units and other such roof mounted equipment. This will resist crushing from machinery or plant that may be temporarily placed on the roofing system during maintenance.

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system shall be protected using a temporary protection board before objects are placed on the roof to prevent damage to the waterproofing membrane.

### 6.10 Photovoltaic Panel Supports (if required):

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Where photovoltaic panels are to be installed, **SOPRASOLAR FIX EVO TILT** for bitumen roofs are to be installed as per the installation sheet provided by Equus Industries.

## 7.0 SPECIFICATION NOTES:

### 7.1 Quality Assurance (QA):

The Equus Certified Applicator is responsible for onsite QA. The Equus project checklists detailing the required processes shall be completed and signed as each stage of installation is completed. Photographs of each stage shall be taken and submitted as part of the overall QA documentation. A Warranty will not be issued unless a copy has been filed with Equus Industries Ltd. Third party QA documentation is acceptable provided it is in accordance with the Equus issued project QA.

## 8.0 MAINTENANCE AND WARRANTY:

### 8.1 Maintenance:

As normal maintenance, Equus Industries Limited recommends that the finished roof areas are inspected every six months for cleaning, and annually, by an Equus Certified Applicator, to ensure weathertightness and durability.

Ensure all outlets are free of blockages and clear of unwanted debris and that all associated flashings and membrane cap flashings are sound. Check the general condition of the membrane and ensure it is free from surface moss, mould, or lichen.

Check all associated building elements that can impact on the durability of the membrane.

Higher risk areas such as sheet joints, substrate movement, edging, gutters, penetrations, corners, upstands, outlets, and overflows require a thorough inspection for weathertightness on an annual basis.

### 8.2 Warranty:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system described in this specification may be warranted to be waterproof for a period of up to twenty (20) years providing that:

- (a) All work is carried out by an Equus Certified Applicator.
- (b) The system is installed in accordance with the manufacturers' technical literature and the Warm Roof Application Manual at the time of design, use, installation and maintenance.
- (c) The warranty is issued in conjunction with the appropriate maintenance statement.

The warranty period shall be determined for any contract in consultation with the Manufacturer or their representative prior to application. The period of warranty is determined by, but not limited to, the situation of the installation (e.g., old, or new substrate, plain pool or open plant roof, etc.)

The warranty is provided to the client by the Equus Certified Applicator carrying out the work and is backed by the Manufacturer as to the fitness for the purpose of the materials supplied for the contract.

--oo0oo--

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# Specification

WATERTIGHT TECHNOLOGY

COATINGS &amp; SILICATE SYSTEMS

FLOORING TECHNOLOGY

## Standard Specification for the installation of the EQUUS SOPREMA FLAGON TPO-THERM Single Layer TPO Warm Roof System to metal surfaces

Project:  
Prepared for:  
Specification:  
Date: February 2023  
Page 1 of 6

### 1.0 PREAMBLE:

This specification is for the installation of the **EQUUS SOPREMA FLAGON TPO-THERM** roofing membrane system, in a single layer configuration over rigid insulation board to create a warm roof system. The system provides a durable, fully insulated and waterproof roof with high solar reflectivity. As the insulation is continuous over the entire roof structure, thermal bridging is largely eliminated. The energy efficiency of the building is improved as a result thereby reducing heating and ventilation costs for the building owner.

The **EQUUS SOPREMA FLAGON TPO-THERM** single-layer TPO warm roof system consists of a self-adhesive vapour barrier, PIR or mineral wool insulation (adhered or mechanically fixed) to the vapour barrier with a flameless TPO membrane system installed over the insulation to provide a fully waterproof covering for the roofing system.

TPO (Thermo Plastic Poly-Olefin) roofing membrane is a modified polyolefin synthetic membrane obtained by co-extrusion which is dimensionally stabilised by a glass fibre. The upper grey layer has a high resistance to weather agents and UV rays. The membrane is manufactured in a plant certified by UNI EN ISO 9001 (Quality management system) and UNI EN ISO 14001 (environmental management system).

The **EQUUS SOPREMA FLAGON TPO-THERM** self-adhered warm roof system has been assessed for use on roofs, decks and gutters installed on metal deck or panel, treated plywood and concrete substrates on buildings within the following scope:

- Buildings where the supporting structure and associated elements are designed and constructed within the scope of New Zealand Building Code E2/AS1 clause 1.1.
- Specifically designed buildings constructed to comply with the New Zealand Building Code.

### 2.0 SURFACE PREPARATION:

#### 2.1 General - Responsibility:

Unless expressly agreed otherwise at time of contract pricing, all work in this section shall be the responsibility of the main contractor, whether carried out by their own staff, other sub-trades or the roofing membrane sub-contractor.

#### 2.2 Metal tray substrate

The roof cladding shall be a minimum of 0.75-gauge Zinalume metal deck in a reverse run profile and must be installed in accordance with AS1562.1 – 1992 and HB39-1997

The metal decking will give a sound base for the material. The surface must be clean, dry, smooth, and free from oil, grease and other contamination.

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### 2.3 Roof drainage:

Good roofing practice requires falls to be provided beneath the warm roof system. The calculation of the roof drainage capacity will be based on statistical data for likely rainfall and roof water-flow characteristics. Outlets must be designed to prevent damage from deck overload, should blocking of the drains occur.

### 2.4 Metal deck (existing roof):

Where existing metal roofing drops into the gutter, the iron overlap is to be cut back to allow a plywood upstand to be installed to the height of the insulation which will allow for the membrane to continue into the gutter.

### INSTALLATION:

**Note: A prestart meeting should be held onsite with the Main Contractor and the Equus Certified Applicator prior to commencement of warm roof installation.**

### 3.0 VAPOUR BARRIER:

#### 3.1 Primer: (For details and upstands only)

To the dried and prepared surface apply one (1) full coat of **EQUUS PEEL AND STICK** primer at a spreading rate of 6 to 8 m<sup>2</sup>/L depending on the porosity of the substrate. Allow to dry for minimum one (1) hour depending upon prevailing weather conditions.

#### 3.2 NOVA-SK: (Self- adhesive)

*Self-adhesive membrane for use as a vapour barrier when the PIR insulation is to be fully adhered by EASY FOAM.*

Decide the most suitable direction to follow. Unroll and discard packaging. Align the first roll and cut to length as required. Remove the siliconized film and press the membrane into place on the surface ensuring even rolling and no creasing or bubbling. The self-adhesive properties are automatically activated during installation. Use a weighted roller to ensure full coverage. Repeat in sequence with all rolls, maintaining minimum side laps of 80mm laps and end laps of 100mm. Offset end laps in adjacent runs. The lap automatically closes during application however it is recommended to have a hot air gun on hand during the process if additional heat is required (temperature dependent). Over upstands, the vapour barrier shall be taken up 50mm past the top of the insulation board. This ensures a suitable connection to create a complete waterproof envelope of the insulation.

#### 3.3 COLPHENE 3000: (Self- adhesive)

*Self-adhesive membrane for use as a vapour barrier when the insulation is to be mechanically fastened.*

Decide the most suitable direction to follow. Unroll and discard packaging. Align the first roll and cut to length as required. Remove the siliconized film and press the membrane into place on the surface. The self-adhesive properties are automatically activated during installation. Repeat in sequence with all rolls, maintaining minimum laps of 100mm. Offset end laps in adjacent runs. Over upstands, the vapour barrier shall be taken up 50mm past the top of the insulation board. This ensures a suitable connection to create a complete waterproof envelope of the insulation.

### 4.0 INSULATION:

#### 4.1 General:

On site cutting of boards is permitted and should be done using a fine-toothed saw or by scoring with a knife and snapping the board over a straight edge. Ensure accurate trimming

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# Specification

WATERTIGHT TECHNOLOGY

COATINGS &amp; SILICATE SYSTEMS

FLOORING TECHNOLOGY

to achieve a close tight butt finish. Any gaps between boards can be filled with **EASYFOAM**.

Refer to Equus project specific data for fixing patterns and full installation instructions.

#### 4.2 Mechanically fastened:

*Where the insulation is to be covered by roofboard.*

Install Equus PIR or mineral wool insulation in a brick bond pattern using full boards where possible. Use one fastener per board to tack in place. Insulation is fully fastened with the roof board installation as per section 5.1.

*Note: In areas where mineral wool insulation is used, roofboard must also be installed.*

#### 4.3 Mechanically fastened:

*Where the TPO is adhered directly to the insulation.*

Install the specified **EQUUS SOPREMA** fixings through the PIR boards into the metal substrate following the project specific **SOPREMA** wind uplift report fixing layout plan. Ensure the fixings are securely fastened but not overly tightened to crush the insulation boards. Apply silver tape to all sheet joints and over top of fixings.

#### 4.4 Fully adhered:

Install Equus PIR insulation in a brick pattern using full boards where possible. Boards shall be fixed in place using **EASYFOAM** adhesive applied in accordance with the fixing pattern in the project specific **SOPREMA** wind uplift report fixing layout plan. Multiple layers of board shall be glued with adhesive between each board. Apply silver tape to all sheet joints.

### 5.0 ROOFBOARD: (where required)

- 5.1 Install **PERMABASE DEK** roofboard in a brick bond pattern over insulation, using full boards where possible. Boards shall be fixed in place using **EQUUS SOPREMA** fixings installed in accordance with the fixing pattern in the project specific **SOPREMA** wind uplift report. Apply silver tape over top of fixings.

### 6.0 MEMBRANE APPLICATION:

#### 6.1 Membrane: FLAGON TPO EP/PR or FLAGON EP/PV-F

Decide the most suitable direction to follow. Align the roll and unroll into final position. Discard packaging. Fold back the required length of TPO to be glued exposing both the substrate and the back of the membrane. Secure temporarily to prevent wind uplift.

#### 6.2 Adhesive:

Apply one (1) coat of **EQUUS TPO ADHESIVE** by means of spraying. This is a bottle spray kit application. Apply adhesive to both substrate and underside of membrane.

#### 6.3 Membrane installation: FLAGON TPO EP/PR

*Where the TPO is adhered directly to the insulation.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and metal substrate. Repeat in sequence with all rolls. Offset end laps in adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the

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## Specification

next few hours.

### 6.4 Membrane installation: FLAGON TPO EP/PV-F

*Where the TPO is adhered to roofboard.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and metal substrate. Repeat in sequence with all rolls. Offset end laps in adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the next few hours.

*Note: Where the TPO is adhered to roofboard FLAGON TPO EP/PV-F is to be used. This membrane has a fleece-backed underside and provides a smoother finish when the TPO is being installed over the rough roofboard.*

### 6.5 Detailing:

Detailing shall be carried out using **FLAGON TPO EP/S** unreinforced membrane welded to the **FLAGON TPO EP/PR** or **FLAGON TPO EP/PV-F** waterproofing membrane, **Cantac ROOF-TAC Spray**, and a double-sided tape to create one single impervious waterproofing system at all critical joints.

This includes all outlets, pipe penetrations, gutter stop ends, parapet upstands, machinery plinths and anything above or below the roof surface. This is carried out before, during or, in some cases, after laying the membrane, depending on the type of detail. All detailing shall be completed in accordance with the manufacturer's technical literature current at the time of design, use, installation and/or maintenance.

### 6.6 Sealant:

**TREMIFLEX 834** shall be used where required.

### 6.7 Membrane Termination:

The membrane will be terminated with **FLAGON TPO TERMINATION BAR** and **TREMIFLEX 834** on upstands and parapets as per the manufacturer's termination details.

### 6.8 Completion:

Upon completion of the system it shall be inspected and left for a short period (up to 2-3 weeks) to stabilize. At this time the entire installation shall be rechecked prior to any warranties being issued. Where possible, particularly on the deck areas, a pond-test (24 hours) should be carried out.

**Note:** Damage caused to the completed installation by other trades working over the membrane after the initial inspection shall be the responsibility of the Main Contractor, who shall arrange appropriate protection for the finished membrane system as required.

### 6.9 Trafficability:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system is suitable for light foot traffic after the installation of duckboards, roof walk systems or **EQUUS FIXPLUS** pedestals and pavers or **KRAITEC STEP** rubber tiles. Alternatively, **WALKWAY TPO** can be installed over the finished system to delineate regular pathways across the roof.

**PERMABASE DEK** roofboard shall be installed if additional compressive strength for the roof system is required in areas of high traffic, around plantrooms, air conditioning units and other such roof mounted equipment. This will resist crushing from machinery or plant that may be



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temporarily placed on the roofing system during maintenance.

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system shall be protected using a temporary protection board before objects are placed on the roof to prevent damage to the waterproofing membrane.

## 6.10 Photovoltaic Panel Supports (if required):

Where photovoltaic panels are to be installed, **SOPRASOLAR FIX EVO TILT** for bitumen roofs are to be installed as per the installation sheet provided by Equus Industries.

## 7.0 SPECIFICATION NOTES:

### 7.1 Quality Assurance (QA):

The Equus Certified Applicator is responsible for onsite QA. The Equus project checklists detailing the required processes shall be completed and signed as each stage of installation is completed. Photographs of each stage shall be taken and submitted as part of the overall QA documentation. A Warranty will not be issued unless a copy has been filed with Equus Industries Ltd. Third party QA documentation is acceptable provided it is in accordance with the Equus issued project QA.

## 8.0 MAINTENANCE AND WARRANTY:

### 8.1 Maintenance:

As normal maintenance, Equus Industries Limited recommends that the finished roof areas are inspected every six months for cleaning, and annually, by an Equus Certified Applicator, to ensure weathertightness and durability.

Ensure all outlets are free of blockages and clear of unwanted debris and that all associated flashings and membrane cap flashings are sound. Check the general condition of the membrane and ensure it is free from surface moss, mould, or lichen. Check all associated building elements that can impact on the durability of the membrane.

Higher risk areas such as sheet joints, substrate movement, edging, gutters, penetrations, corners, upstands, outlets, and overflows require a thorough inspection for weathertightness on an annual basis.

### 8.2 Warranty:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system described in this specification may be warranted to be waterproof for a period of up to twenty (20) years providing that:

- (a) All work is carried out by an Equus Certified Applicator.
- (b) The system is installed in accordance with the manufacturers' technical literature and the Warm Roof Application Manual at the time of design, use, installation and maintenance.
- (c) The warranty is issued in conjunction with the appropriate maintenance statement.

The warranty period shall be determined for any contract in consultation with the Manufacturer or their representative prior to application. The period of warranty is determined by, but not limited to, the situation of the installation (e.g., old, or new substrate, plain poof or open plant roof, etc.)

The warranty is provided to the client by the Equus Certified Applicator carrying out the work

The information contained in this Specification is based on our experience and testing and represents the latest information available at the date of production. No responsibility is taken for uses to which this information may be put, but we advise that where application of products and processes is in complete conformity with this Specification an appropriate warranty may be available. We reserve the right to alter or update information parameters and formulations at any time without prior notice. E: info@equus.nz



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## Specification

and is backed by the Manufacturer as to the fitness for the purpose of the materials supplied for the contract.

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WATERTIGHT TECHNOLOGY

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# Specification

WATERTIGHT TECHNOLOGY

COATINGS &amp; SILICATE SYSTEMS

FLOORING TECHNOLOGY

## Standard Specification for the installation of the EQUUS SOPREMA FLAGON TPO-THERM Single Layer TPO Warm Roof System to concrete surfaces

Project:  
Prepared for:  
Specification:  
Date: February 2023  
Page 1 of 6

### 1.0 PREAMBLE:

This specification is for the installation of the **EQUUS SOPREMA FLAGON TPO-THERM** roofing membrane system, in a single layer configuration over rigid insulation board to create a warm roof system. The system provides a durable, fully insulated and waterproof roof with high solar reflectivity. As the insulation is continuous over the entire roof structure, thermal bridging is largely eliminated. The energy efficiency of the building is improved as a result thereby reducing heating and ventilation costs for the building owner.

The **EQUUS SOPREMA FLAGON TPO-THERM** single-layer TPO warm roof system consists of a self-adhesive vapour barrier, PIR or mineral wool insulation (adhered or mechanically fixed) to the vapour barrier with a flameless TPO membrane system installed over the insulation to provide a fully waterproof covering for the roofing system.

TPO (Thermo Plastic Poly-Olefin) roofing membrane is a modified polyolefin synthetic membrane obtained by co-extrusion which is dimensionally stabilised by a glass fibre. The upper grey layer has a high resistance to weather agents and UV rays. The membrane is manufactured in a plant certified by UNI EN ISO 9001 (Quality management system) and UNI EN ISO 14001 (environmental management system).

The **EQUUS SOPREMA FLAGON TPO-THERM** self-adhered warm roof system has been assessed for use on roofs, decks and gutters installed on metal deck or panel, treated plywood and concrete substrates on buildings within the following scope:

- Buildings where the supporting structure and associated elements are designed and constructed within the scope of New Zealand Building Code E2/AS1 clause 1.1.
- Specifically designed buildings constructed to comply with the New Zealand Building Code.

### 2.0 SURFACE PREPARATION:

#### 2.1 General - Responsibility:

Unless expressly agreed otherwise at time of contract pricing, all work in this section shall be the responsibility of the main contractor, whether carried out by their own staff, other sub-trades or the roofing membrane sub-contractor.

#### 2.2 Concrete:

- (a) Concrete structures must be specifically engineered to meet the requirements of the New Zealand Building Code.

Concrete curing times are dependent on location, mix designs and climate conditions.

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Allow sufficient drying time after the concrete has been poured which is generally between 14 and 28 days. To verify concrete has sufficiently dried, a measurement can be taken using a hygrometer. A maximum relative humidity of 75% is required, measured at the time of vapour barrier application.

Concrete curing compounds are not recommended. Consult Equus Industries Ltd for advice if specified by others. Ensure that all traces of the compound are gone or removed before commencing installation.

- (b) Shall be finished to NZS3114:1987 U3, with a light trowel texture.
- (c) Shall have all ridges and protrusions stoned flush.
- (d) Depressions shall be flushed with Schomburg **ASOCRET BIS 5/40** and allowed to cure 48 hours before overcoating.
- (e) Roof, deck and gutter falls must be laid in accordance with the New Zealand Building Code.
- (f) Shall have leading edges chamfered to 5mm radius.
- (g) Shall be water-blasted to remove all detritus and allowed to dry.
- (h) Existing substrates and structures must be thoroughly inspected prior to specification to ensure that they will not compromise the performance of the warm roof system when installed.
- (i) **Outlets:**  
Roof and deck outlets shall be installed as per clause 8.5.6 of E2 External Moisture of the New Zealand Building Code.

Outlets shall be sized in accordance with section E1 Surface Water of the New Zealand Building Code.

### INSTALLATION:

**Note: A prestart meeting should be held onsite with the Main Contractor and the Equus Certified Applicator prior to commencement of warm roof installation.**

### 3.0 VAPOUR BARRIER:

#### 3.1 Primer: (For self-adhered membrane)

To the dried and prepared surface apply one (1) full coat of **EQUUS PEEL AND STICK** primer at a spreading rate of 6 to 8 m<sup>2</sup>/L depending on the porosity of the substrate. Allow to dry for minimum one (1) hour depending upon prevailing weather conditions.

#### 3.2 NOVA-SK: (Self-adhesive)

*Self-adhesive membrane for use as a vapour barrier when the PIR insulation is to be fully adhered by EASY FOAM.*

Decide the most suitable direction to follow. Unroll and discard packaging. Align the first roll and cut to length as required. Remove the siliconized film and press the membrane into place on the surface ensuring even rolling and no creasing or bubbling. The self-adhesive properties are automatically activated during installation. Use a weighted roller to ensure full coverage. Repeat in sequence with all rolls, maintaining minimum side laps of 80mm laps and end laps of 100mm. Offset end laps in adjacent runs. The lap automatically closes during application

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however it is recommended to have a hot air gun on hand during the process if additional heat is required (temperature dependent). Over upstands, the vapour barrier shall be taken up 50mm past the top of the insulation board. This ensures a suitable connection to create a complete waterproof envelope of the insulation.

### 3.3 COLPHENE 3000: (Self- adhesive)

*Self-adhesive membrane for use as a vapour barrier when the insulation is to be mechanically fastened.*

Decide the most suitable direction to follow. Unroll and discard packaging. Align the first roll and cut to length as required. Remove the siliconized film and press the membrane into place on the surface. The self-adhesive properties are automatically activated during installation. Repeat in sequence with all rolls, maintaining minimum laps of 100mm. Offset end laps in adjacent runs. Over upstands, the vapour barrier shall be taken up 50mm past the top of the insulation board. This ensures a suitable connection to create a complete waterproof envelope of the insulation.

## 4.0 INSULATION:

### 4.1 General:

On site cutting of boards is permitted and should be done using a fine-toothed saw or by scoring with a knife and snapping the board over a straight edge. Ensure accurate trimming to achieve a close tight butt finish. Any gaps between boards can be filled with **EASYFOAM**.

Refer to Equus project specific data for fixing patterns and full installation instructions.

### 4.2 Mechanically fastened:

*Where the insulation is to be covered by roofboard.*

Install Equus PIR or mineral wool insulation in a brick bond pattern using full boards where possible. Use one fastener per board to tack in place. Insulation is fully fastened with the roof board installation as per section 5.1.

*Note: In areas where mineral wool insulation is used, roofboard must also be installed.*

### 4.3 Mechanically fastened:

*Where the TPO is adhered directly to the insulation.*

Install the specified **EQUUS SOPREMA** fixings through the PIR boards into the concrete substrate following the project specific **SOPREMA** wind uplift report fixing layout plan. Ensure the fixings are securely fastened but not overly tightened to crush the insulation boards. Apply silver tape to all sheet joints and over top of fixings.

### 4.4 Fully adhered:

Install Equus PIR insulation in a brick pattern using full boards where possible. Boards shall be fixed in place using **EASYFOAM** adhesive applied in accordance with the fixing pattern in the project specific **SOPREMA** wind uplift report fixing layout plan. Multiple layers of board shall be glued with adhesive between each board. Apply silver tape to all sheet joints.

## 5.0 ROOFBOARD: (where required)

- 5.1 Install **PERMABASE DEK** roofboard in a brick bond pattern over insulation, using full boards where possible. Boards shall be fixed in place using **EQUUS SOPREMA** fixings installed in accordance with the fixing pattern in the project specific **SOPREMA** wind uplift report. Apply silver tape over top of fixings.

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WATERTIGHT TECHNOLOGY COATINGS & SILICATE SYSTEMS FLOORING TECHNOLOGY

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## 6.0 MEMBRANE APPLICATION:

### 6.1 Membrane: FLAGON TPO EP/PR or FLAGON EP/PV-F

Decide the most suitable direction to follow. Align the roll and unroll into final position. Discard packaging. Fold back the required length of TPO to be glued exposing both the substrate and the back of the membrane. Secure temporarily to prevent wind uplift.

### 6.2 Adhesive:

Apply one (1) coat of **EQUUS TPO ADHESIVE** by means of spraying. This is a bottle spray kit application. Apply adhesive to both substrate and underside of membrane.

### 6.3 Membrane installation: FLAGON TPO EP/PR

*Where the TPO is adhered directly to the insulation.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and concrete substrate. Repeat in sequence with all rolls. Offset end laps in adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the next few hours.

### 6.4 Membrane installation: FLAGON TPO EP/PV-F

*Where the TPO is adhered to roofboard.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and concrete substrate. Repeat in sequence with all rolls. Offset end laps in adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the next few hours.

*Note: Where the TPO is adhered to roofboard FLAGON TPO EP/PV-F is to be used. This membrane has a fleece-backed underside and provides a smoother finish when the TPO is being installed over the rough roofboard.*

### 6.5 Detailing:

Detailing shall be carried out using **FLAGON TPO EP/S** unreinforced membrane welded to the **FLAGON TPO EP/PR** or **FLAGON TPO EP/PV-F** waterproofing membrane, **Cantac ROOF-TAC Spray**, and a double-sided tape to create one single impervious waterproofing system at all critical joints.

This includes all outlets, pipe penetrations, gutter stop ends, parapet upstands, machinery plinths and anything above or below the roof surface. This is carried out before, during or, in some cases, after laying the membrane, depending on the type of detail. All detailing shall be completed in accordance with the manufacturer's technical literature current at the time of design, use, installation and/or maintenance.

### 6.6 Sealant:

**TREMFLEX 834** shall be used where required.

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### 6.7 Membrane Termination:

The membrane will be terminated with **FLAGON TPO TERMINATION BAR** and **TREMFLEX 834** on upstands and parapets as per the manufacturer's termination details.

### 6.8 Completion:

Upon completion of the system it shall be inspected and left for a short period (up to 2-3 weeks) to stabilize. At this time the entire installation shall be rechecked prior to any warranties being issued. Where possible, particularly on the deck areas, a pond-test (24 hours) should be carried out.

**Note:** Damage caused to the completed installation by other trades working over the membrane after the initial inspection shall be the responsibility of the Main Contractor, who shall arrange appropriate protection for the finished membrane system as required.

### 6.9 Trafficability:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system is suitable for light foot traffic after the installation of duckboards, roof walk systems or **EQUUS FIXPLUS** pedestals and pavers or **KRAITEC STEP** rubber tiles. Alternatively, **WALKWAY TPO** can be installed over the finished system to delineate regular pathways across the roof.

**PERMABASE DEK** roofboard shall be installed if additional compressive strength for the roof system is required in areas of high traffic, around plantrooms, air conditioning units and other such roof mounted equipment. This will resist crushing from machinery or plant that may be temporarily placed on the roofing system during maintenance.

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system shall be protected using a temporary protection board before objects are placed on the roof to prevent damage to the waterproofing membrane.

### 6.10 Photovoltaic Panel Supports (if required):

Where photovoltaic panels are to be installed, **SOPRASOLAR FIX EVO TILT** for bitumen roofs are to be installed as per the installation sheet provided by Equus Industries.

## 7.0 SPECIFICATION NOTES:

### 7.1 Quality Assurance (QA):

The Equus Certified Applicator is responsible for onsite QA. The Equus project checklists detailing the required processes shall be completed and signed as each stage of installation is completed. Photographs of each stage shall be taken and submitted as part of the overall QA documentation. A Warranty will not be issued unless a copy has been filed with Equus Industries Ltd. Third party QA documentation is acceptable provided it is in accordance with the Equus issued project QA.

## 8.0 MAINTENANCE AND WARRANTY:

### 8.1 Maintenance:

As normal maintenance, Equus Industries Limited recommends that the finished roof areas are inspected every six months for cleaning, and annually, by an Equus Certified Applicator, to ensure weathertightness and durability.

Ensure all outlets are free of blockages and clear of unwanted debris and that all associated flashings and membrane cap flashings are sound. Check the general condition of the membrane and ensure it is free from surface moss, mould, or lichen.

Check all associated building elements that can impact on the durability of the membrane.

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Higher risk areas such as sheet joints, substrate movement, edging, gutters, penetrations, corners, upstands, outlets, and overflows require a thorough inspection for weathertightness on an annual basis.

### 8.2 Warranty:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system described in this specification may be warranted to be waterproof for a period of up to twenty (20) years providing that:

- (a) All work is carried out by an Equus Certified Applicator.
- (b) The system is installed in accordance with the manufacturers' technical literature and the Warm Roof Application Manual at the time of design, use, installation and maintenance.
- (c) The warranty is issued in conjunction with the appropriate maintenance statement.

The warranty period shall be determined for any contract in consultation with the Manufacturer or their representative prior to application. The period of warranty is determined by, but not limited to, the situation of the installation (e.g., old, or new substrate, plain poof or open plant roof, etc.)

The warranty is provided to the client by the Equus Certified Applicator carrying out the work and is backed by the Manufacturer as to the fitness for the purpose of the materials supplied for the contract.

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WATERTIGHT TECHNOLOGY

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# Specification

WATERTIGHT TECHNOLOGY  
COATINGS & SILICATE SYSTEMS  
FLOORING TECHNOLOGY

## Specification for the application of EQUUS SOPREMA FLAGON TPO-THERM Single Layer TPO Warm Roof System to Kingspan KS1100 CS insulated roofing panel

### This system incorporates a PIR insulation system within the Kingspan Panel

Project:  
Prepared for:  
Specification:  
Date: February 2023  
Page 1 of 4

#### 1.0 PREAMBLE:

This specification is for the installation of the **EQUUS SOPREMA FLAGON TPO-THERM** roofing membrane system, in a single layer configuration over rigid insulation board to create a warm roof system. The system provides a durable, fully insulated and waterproof roof with high solar reflectivity. As the insulation is continuous over the entire roof structure, thermal bridging is largely eliminated. The energy efficiency of the building is improved as a result thereby reducing heating and ventilation costs for the building owner.

The **EQUUS SOPREMA FLAGON TPO-THERM** single-layer TPO warm roof system consists of a self-adhesive vapour barrier, PIR or mineral wool insulation (adhered or mechanically fixed) to the vapour barrier with a flameless TPO membrane system installed over the insulation to provide a fully waterproof covering for the roofing system.

TPO (Thermo Plastic Poly-Olefin) roofing membrane is a modified polyolefin synthetic membrane obtained by co-extrusion which is dimensionally stabilised by a glass fibre. The upper grey layer has a high resistance to weather agents and UV rays. The membrane is manufactured in a plant certified by UNI EN ISO 9001 (Quality management system) and UNI EN ISO 14001 (environmental management system).

With the Kingspan KS1100 CS insulated roof panel system being the substrate, the system is fast to install meaning efficiency on site due to having a watertight roof in less time.

The **EQUUS SOPREMA FLAGON TPO-THERM** self-adhered warm roof system has been assessed for use on roofs, decks and gutters installed on metal deck or panel, treated plywood and concrete substrates on buildings within the following scope:

- Buildings where the supporting structure and associated elements are designed and constructed within the scope of New Zealand Building Code E2/AS1 clause 1.1.
- Specifically designed buildings constructed to comply with the New Zealand Building Code.

#### 2.0 SURFACE PREPARATION:

##### 2.1 General Responsibility:

Unless expressly agreed otherwise at time of contract pricing, all work in this section shall be the responsibility of the main contractor, whether carried out by his own staff, other sub-trades or the roofing membrane sub-contractor.

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# Specification

WATERTIGHT TECHNOLOGY COATINGS & SILICATE SYSTEMS FLOORING TECHNOLOGY

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### 3.0 KINGSPAN KS1100 CS PANEL INSULATION INSTALLATION

Install **Kingspan KS1100 CS** panel as per Kingspan supplied specifications. Kingspan panel must be installed and signed off by an approved Kingspan installation company and Kingspan representative and inspected by Equus and membrane installer before waterproofing proceeds.

### 4.0 MEMBRANE APPLICATION:

#### 4.1 FLAGON TPO EP/PR Patches (if required)

If required apply **FLAGON TPO EP/PR** patches on all panel fixings with Flagon Adhesive. Apply **EQUUS TPO AHESDIVE** to both underside of TPO patch and panel. This is dependent on panel joins and fixings. To be reviewed by Equus Technical Department before commencement of membrane installation.

#### 4.2 Membrane: FLAGON TPO EP/PR or FLAGON EP/PV-F

Decide the most suitable direction to follow. Align the roll and unroll into final position. Discard packaging. Fold back the required length of TPO to be glued exposing both the substrate and the back of the membrane. Secure temporarily to prevent wind uplift.

#### 4.3 Adhesive:

Apply one (1) coat of **EQUUS TPO ADHESIVE** by means of spraying. This is a bottle spray kit application. Apply adhesive to both substrate and underside of membrane.

#### 4.4 Membrane installation: FLAGON TPO EP/PR

*Where the TPO is adhered directly to the insulation.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and metal substrate. Repeat in sequence with all rolls. Offset end laps in adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the next few hours.

#### 4.5 Membrane installation: FLAGON TPO EP/PV-F

*Where the TPO is adhered to roofboard.*

Once the adhesive has tacked off, carefully unfold the membrane into place, using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and metal substrate. Repeat in sequence with all rolls. Offset end laps in adjacent runs if possible.

Repeat in sequence with all rolls maintaining side and end laps of minimum 50mm. On completion, edge laps are welded closed using a suitable hot air welding machine such as Leister. Perform a test weld to confirm the correct machine heat setting for the prevailing weather conditions onsite. Weights are to be used on sheets while adhesive cures over the next few hours.

*Note: Where the TPO is adhered to roofboard FLAGON TPO EP/PV-F is to be used. This membrane has a fleece-backed underside and provides a smoother finish when the TPO is being installed over the rough roofboard.*

#### 4.6 Detailing:

Detailing shall be carried out using **FLAGON TPO EP/S** unreinforced membrane welded to

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EQ

## Specification

WATERTIGHT TECHNOLOGY COATINGS & SILICATE SYSTEMS FLOORING TECHNOLOGY

the **FLAGON TPO EP/PR** or **FLAGON TPO EP/PV-F** waterproofing membrane, **Cantac ROOF-TAC Spray**, and a double-sided tape to create one single impervious waterproofing system at all critical joins.

This includes all outlets, pipe penetrations, gutter stop ends, parapet upstands, machinery plinths and anything above or below the roof surface. This is carried out before, during or, in some cases, after laying the membrane, depending on the type of detail. All detailing shall be completed in accordance with the manufacturer's technical literature current at the time of design, use, installation and/or maintenance.

#### 4.7 Sealant:

**TREMFLEX 834** shall be used where required.

#### 4.8 Membrane Termination:

The membrane will be terminated with **FLAGON TPO TERMINATION BAR** and **TREMFLEX 834** on upstands and parapets as per the manufacturer's termination details.

#### 4.9 Completion:

Upon completion of the system it shall be inspected and left for a short period (up to 2-3 weeks) to stabilize. At this time the entire installation shall be rechecked prior to any warranties being issued. Where possible, particularly on the deck areas, a pond-test (24 hours) should be carried out.

**Note:** Damage caused to the completed installation by other trades working over the membrane after the initial inspection shall be the responsibility of the Main Contractor, who shall arrange appropriate protection for the finished membrane system as required.

#### 4.10 Trafficability:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system is suitable for light foot traffic after the installation of duckboards, roof walk systems or **EQUUS FIXPLUS** pedestals and pavers or **KRAITEC STEP** rubber tiles. Alternatively, **WALKWAY TPO** can be installed over the finished system to delineate regular pathways across the roof.

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system shall be protected using a temporary protection board before objects are placed on the roof to prevent damage to the waterproofing membrane.

#### 4.11 Photovoltaic Panel Supports (if required):

Where photovoltaic panels are to be installed, **SOPRASOLAR FIX EVO TILT** for bitumen roofs are to be installed as per the installation sheet provided by Equus Industries.

### 5.0 SPECIFICATION NOTES:

#### 5.1 Quality Assurance (QA):

The Equus Certified Applicator is responsible for onsite QA. The Equus project checklists detailing the required processes shall be completed and signed as each stage of installation is completed. Photographs of each stage shall be taken and submitted as part of the overall QA documentation. A Warranty will not be issued unless a copy has been filed with Equus Industries Ltd. Third party QA documentation is acceptable provided it is in accordance with the Equus issued project QA.

### 6.0 MAINTENANCE AND WARRANTY:

#### 6.1 Maintenance:

As normal maintenance, Equus Industries Limited recommends that the finished roof areas

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The information contained in this Specification is based on our experience and testing and represents the latest information available at the date of production. No responsibility is taken for uses to which this information may be put, but we advise that where application of products and processes is in complete conformity with this Specification an appropriate warranty may be available. We reserve the right to alter or update information parameters and formulations at any time without prior notice.  
E: info@equus.nz



Page 4 of 4  
EQ

## Specification

WATERTIGHT TECHNOLOGY COATINGS & SILICATE SYSTEMS FLOORING TECHNOLOGY

are inspected every six months for cleaning, and annually, by an Equus Certified Applicator, to ensure weathertightness and durability.

Ensure all outlets are free of blockages and clear of unwanted debris and that all associated flashings and membrane cap flashings are sound. Check the general condition of the membrane and ensure it is free from surface moss, mould, or lichen.  
Check all associated building elements that can impact on the durability of the membrane.

Higher risk areas such as sheet joints, substrate movement, edging, gutters, penetrations, corners, upstands, outlets, and overflows require a thorough inspection for weathertightness on an annual basis.

### 6.2 Warranty:

The **EQUUS SOPREMA FLAGON TPO-THERM** warm roof system described in this specification may be warranted to be waterproof for a period of up to twenty (20) years providing that:

- .1 All work is carried out by an Equus Certified Applicator.
- .2 The system is installed in accordance with the manufacturers' technical literature and the Warm Roof Application Manual at the time of design, use, installation and maintenance.
- .3 The warranty is issued in conjunction with the appropriate maintenance statement.

The warranty period shall be determined for any contract in consultation with the Manufacturer or their representative prior to application. The period of warranty is determined by, but not limited to, the situation of the installation (e.g., old, or new substrate, plain poof or open plant roof, etc.)

The warranty is provided to the client by the Equus Certified Applicator carrying out the work and is backed by the Manufacturer as to the fitness for the purpose of the materials supplied for the contract.

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# EQUUS SOPREMA FLAGON TPO-THERM

Single layer waterproofing membrane warm roof system applied to plywood surfaces

Specification No: \_\_\_\_\_

Date Prepared: December 2022

Project & Address:

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Certified Applicator:

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Building Contractor:

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Building Owner/Property Manager:

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## 1. Statement of Intent

- (a) This checklist is to be completed by both the Equus Applicator and the Building Contractor, as a step by step record of compliance with both the Equus Specification provided for the contract, and the requirements of the Manufacturers for Warranty.
- (b) A copy of this checklist must be forwarded to the nearest Regional Office of Equus Industries Ltd. A Warranty will not be issued by Equus Industries Ltd. without a copy of this Checklist being filed.
- (a) A copy of this checklist should form part of the Contract Documentation filed with the Property Manager on job completion.

## 2. Areas Treated

The areas to which the Warm Roof is applied are detailed below, with reference to plans (where appropriate).

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## 3. Sign Off

We confirm that all applicable processes listed in Section 4 have been correctly completed and that sign-off on each stage has been made by a person with the authority to do so.

For: \_\_\_\_\_ (Signature)  
(Building Contractor)

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (Name)

For: \_\_\_\_\_ (Signature)  
(Equus Applicator)

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (Name)



**4. Checklist And Method Statement**

\* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor	Notes
1.*	Plywood surface installed correctly, with all corner fillets installed.				
2.*	Ensure outlets are sufficiently sized for anticipated run-off.				
3.*	Falls to be incorporated as per plans: <input type="checkbox"/> Specified falls: or standard minimum falls: <input type="checkbox"/> Gutters 1:100 <input type="checkbox"/> Roof 1:40 <input type="checkbox"/> Deck 1:60				
4.	Plywood surface satisfactory for installation of membrane by Equus Certified Applicator.				
5.	Apply one full coat of <b>EQUUS PEEL AND STICK PRIMER</b> by brush/roller at a spreading rate of 6-8 m <sup>2</sup> /L. Allow to dry for minimum 1 hour.				
6.	_____ (Nominate vapour barrier) Install self-adhered vapour barrier.				
7.	Install PIR insulation board in a brick pattern with: <input type="checkbox"/> Mechanically fasten through the center of each board. <input type="checkbox"/> Mechanically fasten as per the SOPREMA engineered fixing plan. Apply silver tape to sheet joints and over top of fixings. <input type="checkbox"/> Adhere using <b>EASY FOAM</b> adhesive. Apply silver tape to sheet joints.				
8.	Install mineral wool insulation in a brick pattern. Using one fastener per board to tack in place.				
9.	Install roofboard where required. Apply silver tape over top of fixings.				
10.	_____ (Nominate FLAGON TPO membrane) Decide most suitable direction for <b>FLAGON TPO MEMBRANE</b> , align and unroll. Fold back required length of TPO exposing substrate and back of membrane.				
11.	Apply one (1) coat of <b>EQUUS TPO ADHESIVE</b> by means of spraying. Apply adhesive to both substrate and underside of membrane.				

Equus Industries Ltd  
 PO Box 601  
 Blenheim  
 Phone: 03 578 0214  
 Email: admin@equus.nz  
 www.equus.nz



**4. Checklist And Method Statement**

\* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor	Notes
12.	Once the adhesive has tacked off, carefully unfold <b>FLAGON TPO MEMBRANE</b> into place. Using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and substrate. Repeat in sequence with all rolls maintaining laps of minimum 50mm. Offset end laps in adjacent runs if possible. Edge laps are welded closed using a suitable hot air welding machine.				
13.	Detailing shall occur using <b>FLAGON EP/S</b> welded to all outlets, pipe penetrations, gutter stops ends, parapet upstands, machinery plinths and anything above or below roof surface.				
14.	Membrane terminated with <b>FLAGON TPO TERMINATION BAR</b> and <b>TREMFLEX 834</b>				
15.*	System to be inspected on completion.				
16.	Re-inspection of work after 2– 3 weeks.				

Equus Industries Ltd  
PO Box 601  
Blenheim  
Phone: 03 578 0214  
Email: admin@equus.nz  
www.equus.nz



# EQUUS SOPREMA FLAGON TPO-THERM

Single layer waterproofing membrane warm roof system applied to metal tray surfaces

Specification No: \_\_\_\_\_

Date Prepared: December 2022

Project & Address: \_\_\_\_\_  
\_\_\_\_\_

Certified Applicator: \_\_\_\_\_

Building Contractor: \_\_\_\_\_

Building Owner/Property Manager: \_\_\_\_\_

## 1. Statement of Intent

- (a) This checklist is to be completed by both the Equus Applicator and the Building Contractor, as a step by step record of compliance with both the Equus Specification provided for the contract, and the requirements of the Manufacturers for Warranty.
- (b) A copy of this checklist must be forwarded to the nearest Regional Office of Equus Industries Ltd. A Warranty will not be issued by Equus Industries Ltd. without a copy of this Checklist being filed.
- (a) A copy of this checklist should form part of the Contract Documentation filed with the Property Manager on job completion.

## 2. Areas Treated

The areas to which the Warm Roof is applied are detailed below, with reference to plans (where appropriate).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 3. Sign Off

We confirm that all applicable processes listed in Section 4 have been correctly completed and that sign-off on each stage has been made by a person with the authority to do so.

For: \_\_\_\_\_ (Signature)  
(Building Contractor)

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (Name)

For: \_\_\_\_\_ (Signature)  
(Equus Applicator)

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (Name)



**4. Checklist And Method Statement**

\* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor	Notes
1.*	Metal deck installed in accordance with Manufacturer's recommendation.				
2.*	Outlets are sufficiently sized for anticipated run-off.				
3.*	Metal roof edges overhanging into gutters are cut back and timber upstand installed at the height of insulation board.				
4.	Metal surface satisfactory for installation of membrane by Equus Certified Applicator.				
5.	<i>For details and upstands.</i> Apply one full coat of <b>EQUUS PEEL AND STICK PRIMER</b> by brush/roller at a spreading rate of 6-8 m <sup>2</sup> /L. Allow to dry for minimum 1 hour.				
6.	_____ (Nominate vapour barrier) Install self-adhered vapour barrier.				
7.	Install PIR insulation board in a brick pattern with: <input type="checkbox"/> Mechanically fasten through the center of each board. <input type="checkbox"/> Mechanically fasten as per the SOPREMA engineered fixing plan. Apply silver tape to sheet joints and over top of fixings. <input type="checkbox"/> Adhere using <b>EASY FOAM</b> adhesive. Apply silver tape to sheet joints.				
8.	Install mineral wool insulation in a brick pattern. Using one fastener per board to tack in place.				
9.	Install roofboard where required. Apply silver tape over top of fixings.				
10.	_____ (Nominate FLAGON TPO membrane) Decide most suitable direction for <b>FLAGON TPO MEMBRANE</b> , align and unroll. Fold back required length of TPO exposing substrate and back of membrane.				
11.	Apply one (1) coat of <b>EQUUS TPO ADHESIVE</b> by means of spraying. Apply adhesive to both substrate and underside of membrane.				
12.	Once the adhesive has tacked off, carefully unfold <b>FLAGON TPO MEMBRANE</b> into place. Using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and substrate. Repeat in sequence with all rolls maintaining laps of minimum 50mm. Offset end laps in adjacent runs if possible. Edge laps are welded closed using a suitable hot air welding machine.				

Equus Industries Ltd  
PO Box 601  
Blenheim  
Phone: 03 578 0214  
Email: admin@equus.nz  
www.equus.nz



**4. Checklist And Method Statement**

\* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor	Notes
13.	Detailing shall occur using <b>FLAGON EP/S</b> welded to all outlets, pipe penetrations, gutter stops ends, parapet upstands, machinery plinths and anything above or below roof surface.				
14.	Membrane terminated with <b>FLAGON TPO TERMINATION BAR</b> and <b>TREMFLEX 834</b>				
15.*	System to be inspected on completion.				
16.	Re-inspection of work after 2- 3 weeks.				

Equus Industries Ltd  
PO Box 601  
Blenheim  
Phone: 03 578 0214  
Email: [admin@equus.nz](mailto:admin@equus.nz)  
[www.equus.nz](http://www.equus.nz)



# EQUUS SOPREMA FLAGON TPO-THERM

Single layer waterproofing membrane warm roof system applied to concrete surfaces

Specification No: \_\_\_\_\_

Date Prepared: December 2022

Project & Address:

\_\_\_\_\_  
\_\_\_\_\_

Certified Applicator:

\_\_\_\_\_

Building Contractor:

\_\_\_\_\_

Building Owner/Property Manager:

\_\_\_\_\_

## 1. Statement of Intent

- (a) This checklist is to be completed by both the Equus Applicator and the Building Contractor, as a step by step record of compliance with both the Equus Specification provided for the contract, and the requirements of the Manufacturers for Warranty.
- (b) A copy of this checklist must be forwarded to the nearest Regional Office of Equus Industries Ltd. A Warranty will not be issued by Equus Industries Ltd. without a copy of this Checklist being filed.
- (a) A copy of this checklist should form part of the Contract Documentation filed with the Property Manager on job completion.

## 2. Areas Treated

The areas to which the Warm Roof is applied are detailed below, with reference to plans (where appropriate).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 3. Sign Off

We confirm that all applicable processes listed in Section 4 have been correctly completed and that sign-off on each stage has been made by a person with the authority to do so.

For: \_\_\_\_\_ (Signature)  
(Building Contractor)

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (Name)

For: \_\_\_\_\_ (Signature)  
(Equus Applicator)

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (Name)



#### 4. Checklist And Method Statement

\* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor	Notes
1.*	Concrete correctly formed to falls as per plans and cured at least 28 days prior to membrane application.				
2.*	Concrete to have all ridges and protrusions stoned flush.				
3.*	Shall be finished to NZS3114:1987 U3, with light trowel texture or suitably diamond ground.				
4.*	Depressions flushed with <b>Schomburg ASO-CRET BIS 5/40</b> or and allowed to cure 48 hours before overcoating.				
5.*	Ensure outlets are sufficiently sized for anticipated run-off.				
6.*	Falls to be incorporated as per plans: <input type="checkbox"/> Specified falls: or standard minimum falls: <input type="checkbox"/> Gutters 1:100 <input type="checkbox"/> Roof 1:40 <input type="checkbox"/> Deck 1:60				
7.	Concrete surface satisfactory for installation of membrane by Equus Certified Applicator.				
8.	Apply one full coat of <b>EQUUS PEEL AND STICK PRIMER</b> by brush/roller at a spreading rate of 6-8 m <sup>2</sup> /L. Allow to dry for minimum 1 hour.				
9.	(Nominate vapour barrier) Install self-adhered vapour barrier.				
10.	Install PIR insulation board in a brick pattern with: <input type="checkbox"/> Mechanically fasten through the center of each board. <input type="checkbox"/> Mechanically fasten as per the SOPREMA engineered fixing plan. Apply silver tape to sheet joints and over top of fixings. <input type="checkbox"/> Adhere using <b>EASY FOAM</b> adhesive. Apply silver tape to sheet joints.				
11.	Install mineral wool insulation in a brick pattern. Using one fastener per board to tack in place.				
12.	Install roofboard where required. Apply silver tape over top of fixings.				
13.	(Nominate FLAGON TPO membrane) Decide most suitable direction for <b>FLAGON TPO MEMBRANE</b> , align and unroll. Fold back required length of TPO exposing substrate and back of membrane.				

Equus Industries Ltd  
 PO Box 601  
 Blenheim  
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**4. Checklist And Method Statement**

\* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor	Notes
14.	Apply one (1) coat of <b>EQUUS TPO ADHESIVE</b> by means of spraying. Apply adhesive to both substrate and underside of membrane.				
15.	Once the adhesive has tacked off, carefully unfold <b>FLAGON TPO MEMBRANE</b> into place. Using a heavy weight roller 20kg+, evenly roll membrane to ensure full contact adhesion between the membrane and substrate. Repeat in sequence with all rolls maintaining laps of minimum 50mm. Offset end laps in adjacent runs if possible. Edge laps are welded closed using a suitable hot air welding machine.				
16.	Detailing shall occur using <b>FLAGON EP/S</b> welded to all outlets, pipe penetrations, gutter stops ends, parapet upstands, machinery plinths and anything above or below roof surface.				
17.	Membrane terminated with <b>FLAGON TPO TERMINATION BAR</b> and <b>TREMFLEX 834</b>				
18.*	System to be inspected on completion.				
19.	Re-inspection of work after 2- 3 weeks.				

Equus Industries Ltd  
PO Box 601  
Blenheim  
Phone: 03 578 0214  
Email: admin@equus.nz  
www.equus.nz



# Equus SOPREMA Flagon TPO

Single layer Fleece backed membrane system - Kingspan KS1100 CS Panel (Flat/Flat)

Specification No:

Date: August 2021

Project & Address:

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Equus Applicator:

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Building Contractor:

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Territorial Authority:

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## 1. Statement of Intent

- (a) This checklist is to be completed by both the Equus Applicator and the Building Contractor, as a step by step record of compliance with both the Equus Specification provided for the contract, and the requirements of the Building Consent applicable to the contract.
- (b) A copy of this checklist must be forwarded to the nearest Regional Office of Equus Industries Ltd with any request for a Warranty and/or Manufacturers Producer Statement. A Warranty will not be issued by Equus Industries Ltd. without a copy of this Checklist being filed.
- (c) A copy of this checklist should form part of the Contract Documentation filed with the Territorial Authority on job completion, for issuance of Code Compliance Certification.

## 2. Areas Treated

The areas to which Membrane is applied are detailed below, with reference to plans (where appropriate).

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## 3. Sign Off

We confirm that all applicable processes listed in Section 4 have been correctly completed and that sign-off on each stage has been made by a person with the authority to do so.

For: (Building Contractor)

(Signature)

---

---

Date:     /     /

(Name)

---

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For: (Equus Applicator)

(Signature)

---

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Date:     /     /

(Name)

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#### 4. Checklist And Method Statement

No.	Process	Completed On	Building Contractor	Equus Contractor
1.	Kingspan KS1100 CS installed and inspected by Kingspan Approved installer and Kingspan Technical representative.			
2.	Panel substrate inspected and approved by Equus Soprema Flagon TPO installer and Equus Technical Department before commencement of TPO installation.			
3.	Falls as per architects design.			
4.	Clean all areas to be waterproofed. No detritus will be accepted before commencement of TPO membrane. Sweep, Blow, Vac. Ensure area and other trades can leave area clean for installation.			
5.	Ensure that outlets are sufficiently sized for anticipated run-off.			
	If deemed necessary install 1.0mm <b>Flagon TPO EP/PR by SOPREMA</b> patches to sheet joins and fixings.			
6.	Apply <b>Flexocol A 89 by SOPREMA</b> to panel by roller and squeegee in a tight fashion at approx. 150-200gsm per m2 to the panel.			
7.	Once the adhesive to turn to a milky consistency and lay the <b>Flagon TPO EP/PV-F by SOPREMA</b> onto the panel. Repeat is sequence for all rolls.			
8.	Using a specialised heat vulcanizer (hot air gun) weld laps together with a minimum 45mm lap.			
10.	Detailing shall occur on all outlets, pipe penetrations, gutter stops ends, parapet upstands, machinery plinths by using <b>Flagon TPO EP/PR or Flagon TPO accessories</b> .			
11.	System to be inspected on completion.			
12.	Re-inspection of work after 2- 3 weeks once stabilised.			

Equus Industries Ltd  
PO Box 601  
Blenheim  
Phone: 03 578 0214  
Email: admin@equus.nz  
www.equus.nz



**BRANZ Appraised**  
Appraisal No. 1169 [2021]

**EQUUS SOPREMA  
WARM ROOF SYSTEM**

**Appraisal No. 1169 [2021]**  
Amended 02 November 2022



### BRANZ Appraisals

Technical Assessments of products for building and construction.



### Equus Industries Ltd

PO Box 601  
Blenheim 7240  
Tel: 03 578 0214  
Web: [www.equus.nz](http://www.equus.nz)



### BRANZ

1222 Moonshine Rd,  
RD1, Porirua 5381  
Private Bag 50 908  
Porirua 5240,  
New Zealand  
Tel: 04 237 1170  
[branz.co.nz](http://branz.co.nz)



## Product

- 1.1 Equus Soproma Warm Roof System is an insulating roofing system for limited access flat roofs and decks with concrete, timber or steel structural decks. It consists of a thermal insulation layer and a roof finish of modified bitumen waterproofing membrane or single-ply TPO waterproofing membrane.

## Scope

- 2.1 Equus Soproma Warm Roof System has been appraised for use as an insulating roof or deck on buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and maximum floor plan areas; and,
  - on limited access flat roofs with concrete, timber or steel substrates and incorporation of the Equus Soproma Warm Roof System subject to specific structural design; and,
  - with roofs and decks constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
  - with roofs and decks constructed to suitable falls [refer to Paragraphs 15.3 and 15.4]; and,
  - with no integral roof gardens and no direct discharge from downpipes; and,
  - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 Equus Soproma Warm Roof System has also been appraised for durability and thermal performance as an insulated roofing system on buildings that are the subject of specific design with no building height restriction. Building designers are responsible for the building design and for the incorporation of Equus Soproma Warm Roof System into their design in accordance with the declared properties and instructions of Equus Industries Ltd.
- 2.3 Equus Soproma Warm Roof System must be installed by Equus Industries Ltd approved and trained installers.



**BRANZ Appraisal**  
Appraisal No. 1169 [2021]  
21 December 2021

EQUUS SOPREMA WARM ROOF  
SYSTEM

## Building Regulations

### New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Equus Soprema Warm Roof System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

**Clause B2 DURABILITY:** Performance B2.3.1 [b] 15 years. Equus Soprema Warm Roof System meets this requirement. See Paragraphs 10.1 and 10.2.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.1 and E2.3.2. Equus Soprema Warm Roof System meets these requirements. See Paragraphs 15.1-15.9.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Equus Soprema Warm Roof System meets this requirement.

**Clause H1 ENERGY EFFICIENCY:** Performance H1.3.1 [a]. Equus Soprema Warm Roof System contributes to meeting this requirement. See Paragraph 14.1.

## Technical Specification

4.1 Equus Soprema Warm Roof System is an insulating roofing system for flat roofs and decks. The thermal layer is a polyisocyanurate board or mineral wool insulation board available in a number of thicknesses to suit design requirements. The insulation board is mechanically or adhesive fixed on limited access flat roofs and concrete, timber and steel structural decks. The roof finish is a modified bitumen waterproofing membrane or single-ply TPO membrane, which is adhered to the insulation or roof cover board as per the manufacturer's installation guidelines.

4.2 Materials supplied by Equus Industries Ltd are as follows:

- Equus Soprema Duo High Tech Waterproofing Membrane System
- Equus Soprema Flagon TPO Waterproofing Membranes
- Equus Novaglass Waterproofing Membranes
- Equus Soprema Deboflex 2.5 mm T/F C175
- Thermal Insulation: Soprema SOPRA-ISO/Recticel Eurothane Silver/Soprarock Mineral Wool
- Equus Guardian Fastener Range - fixings as below:
  - Wood - BSRF 4.8 s/s
  - Metal - BS 6.1
  - Concrete - CS 6.1
  - Tubes R75 and ASTL
  - Plates SP-70 and SP- 8240
- Equus Soprema Easyfoam PU Adhesive - used to adhere SOPRA-ISO and Eurothane Silver to vapour barrier.

## Handling and Storage

5.1 Handling and storage of all materials, whether on-site or off-site, is under the control of the Equus Industries Ltd approved and trained installers. Dry storage must be provided for all products and the rolls of membrane must be stored in an upright position.

## Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Equus Soprema Warm Roof System Details D1-D19.

6.2 All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

**BRANZ Appraised**  
Appraisal No.1169 [2021]**BRANZ Appraisal**  
Appraisal No. 1169 [2021]  
21 December 2021EQUUS SOPREMA WARM ROOF  
SYSTEM

## Design Information

### General

- 7.1 The Equus Soprema Warm Roof System is a roof and deck system which provides thermal insulation and waterproofing. It is for use on limited access flat roofs subject only to light foot traffic for maintenance purposes. The insulation board is mechanically fixed or adhered with PU adhesive to concrete, timber or metal structural decks which are subject to specific structural design. The insulation board is available in several thicknesses to suit various thermal insulation designs.
- 7.2 The system can be used on new or existing roofs subject to the suitability of the structural deck of existing roofs.
- 7.3 The waterproofing membranes are fully-bonded, partially-bonded, adhesive or mechanically fastened Soprema waterproofing systems with a valid BRANZ Appraisal which are two-layer modified bitumen sheet or single-ply TPO with heat welded joints.
- 7.4 A vapour control membrane must be used in Climate Zone 3 (as defined in NZBC Verification Method H1/VM1 and NZBC Acceptable Solution H1/AS1). The vapour control membrane is self-adhesive and applied over the structural deck before the installation of the insulation board.
- 7.5 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to the BRANZ Good Practice Guide: Membrane Roofing.

### Structure

- 8.1 In all cases, the fastening requirements are specified by Equus Industries Ltd to resist wind forces as determined by AS/NZS 1170. This calculation is specific to each project.
- 8.2 For buildings subject to specific design, the structural designer must confirm that the fixing has adequate holding into the structural decking.

### Substrates

#### Plywood

- 9.1 Plywood must be treated to H3 [CCA treated]. LOSP treated plywood must not be used. Plywood must be a minimum of 17 mm to comply with AS/NZS 2269, at least CD Grade Structural with the sanded C face upwards.

#### Concrete

- 9.2 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.

#### Steel

- 9.3 The steel substrate must be G550 aluminium-zinc AZ150 to AS1397.

#### Existing Construction

- 9.4 A thorough inspection of the substrate must be made to ensure it is in fit condition.
- 9.5 Repairs must be undertaken, where applicable, to ensure the substrate is sound. Plywood and steel substrates must be checked for screw fixings, and if necessary refixed as for new plywood and steel.

### Durability

#### Serviceable Life

- 10.1 The Equus Soprema Warm Roof System is expected to have a serviceable life of at least 15 years, provided it is designed, used, installed and maintained in accordance with this Appraisal and the Technical Literature.

#### Chemical Resistance

- 10.2 Industrial air pollutants and windborne salt deposits should not significantly affect the durability of the membrane. However, the long term properties of the material may be affected by contact with petroleum-based products such as oils, greases and solvents.



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### Maintenance

- 11.1 The membrane roof system, must be regularly [at least annually] checked for damage, rubbish and debris or coating breakdown. Damage, such as small punctures and tears must be repaired and coatings reapplied as recommended by Equus Industries Ltd.
- 11.2 Special care must be taken when inspecting the membrane roof system to ensure the continuing prevention of moisture ingress, and repairs must be undertaken where required.
- 11.3 Drainage outlets must be maintained to operate effectively.

### Prevention of Fire Occurring

- 12.1 Separation or protection must be provided to the Equus Soprema Warm Roof System from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

### Fire Affecting Areas Beyond the Fire Source

#### Control of Internal Fire and Smoke Spread

- 13.1 The Equus Soprema Warm Roof System includes Soprema SOPRA-ISO or Recticel Eurothane Silver [combustible insulants] and therefore requires a suitable interior surface finish for the completed system to achieve the required Group Number as specified in C/AS2 Table 4.3. The combustible insulant shall comply with the flame propagation criteria as specified in AS1366 Parts 1-4 for the material being used.
- 13.2 The Soprema SOPRA-ISO or Recticel Eurothane Silver used in the Equus Soprema Warm Roof System has been tested and complies with the flame propagation criteria of AS 1366 as required by NZBC Acceptable Solution C/AS1 Section 4.3 and C/AS2 Paragraph 4.17.2.
- 13.3 Where the system is installed over metal roofing this will not meet the interior surface finish requirements alone and will need to be protected by an interior surface finish meeting the requirements of C/AS2 Table 4.3.

### Energy Efficiency

- 14.1 Thermal resistance [R-Value] of building elements may be verified by using NZS 4214. The R-Values for the insulation are given in Table1.

**Table 1: R-Values**

Thickness	R-Value
SOPRA-ISO/Eurothane Silver 40 mm	1.7
SOPRA-ISO/Eurothane Silver 60 mm	2.5
SOPRA-ISO/Eurothane Silver 80 mm	3.35
SOPRA-ISO/Eurothane Silver 100 mm	4.2
SOPRA-ISO/Eurothane Silver 120 mm	5.05
SOPRA-ISO/Eurothane Silver 140 mm	5.9
SOPRA-ISO/Eurothane Silver 160 mm	6.75
SopraRock 60 mm	1.64
SopraRock 80 mm	2.17
SopraRock 100 mm	2.75
SopraRock 120 mm	3.34
SopraRock 140 mm	3.89



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### External Moisture

- 15.1 Roofs must be designed and constructed to shed precipitated moisture. They must also take account of snowfalls in snow prone areas. A means of meeting code compliance with NZBC Clause E2.3.1 is given in the Technical Literature which aligns with details in NZBC Acceptable Solution E2/AS1.
- 15.2 When installed in accordance with this Appraisal and the Technical Literature, Equus Soprema Warm Roof System will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membranes are impervious to water and will give a weathertight roof.
- 15.3 Roof falls must be built into the substrate or formed using tapered insulation board.
- 15.4 The minimum fall to roofs is 1 in 30 for plywood and steel, 1 in 60 for concrete and 1 in 100 for gutters. The minimum fall for decks is 1 in 40 *[Note: Where possible, BRANZ recommends a fall of 1 in 60 in gutters]*.
- 15.5 Allowance for deflection and settlement of the substrate must be made in the design of the roof to ensure falls are maintained and no ponding of water can occur.
- 15.6 Equus Soprema Warm Roof System is impermeable; therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with NZBC Clause E2.3.6.
- 15.7 Drainage flanges must be used for any outlet and must be fitted with a grate or cage to reduce potential sources of blockages. An overflow must be provided where the roof does not drain to an external gutter or spouting.
- 15.8 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by the blockage of roof drainage.
- 15.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

### Condensation Control

- 16.1 In Climate Zone 3, as defined in NZBC Verification Method H1/VM1 and NZBC Acceptable Solution H1/AS1-Definitions, a vapour control membrane must be installed over the substrate prior to installing the insulation.

### Water Supplies

- 17.1 Water is not contaminated by Equus Duo High Tech Waterproofing Membrane System or Equus Novaglass Waterproofing Membranes.
- 17.2 The first 25 mm of rainfall from a newly installed roof must be discarded before water collection starts. This is to remove residues which may have developed in the process involved in the production of the Equus Soprema Warm Roof System.
- 17.3 Though it will not contaminate water, it must be noted that all water collected off roof surfaces made from any material is considered to be non-potable due to possible contamination from other sources. Water collection in this way can only be considered potable if it has been passed through a suitable sterilization system and tested. Sterilization systems such as this have not been assessed and are outside the scope of this Appraisal.
- 17.4 Equus Soprema Flagon TPO Waterproofing Membranes have not been assessed for roofs used for the collection of potable water.

## Installation Information

### Installation Skill Level Requirement

- 18.1 Installation must always be carried out in accordance with Equus Soprema Warm Roof System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.



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- 18.2 Installation and finishing of components and accessories supplied by Equus Industries Ltd and its approved and trained installers must be completed by approved and trained installers, approved by Equus Industries Ltd.
- 18.3 Installation of the accessories supplied by the building contractor must be carried out in accordance with Equus Soprema Warm Roof System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.

### Preparation of Substrates

- 19.1 Substrates must be dry, clean and stable before installation commences.
- 19.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 585.
- 19.3 The moisture content of the plywood and timber substructure must be a maximum of 20% and the plywood sheets must be dry at time of membrane application.

### System Installation

- 20.1 The Equus Soprema Warm Roof System must be installed in accordance with the Technical Literature.
- 20.2 Where a vapour layer is required, it is installed onto the substrate followed by the insulation. The insulation is set out in a brick bond fashion and is adhered with PU adhesive or screwed down using the screws and washers as defined in the Technical Specification.
- 20.3 The membranes are then installed as per the Technical Literature.

### Inspections

- 21.1 Critical areas of inspection for waterproofing systems are:
- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
  - Moisture content of the substrate prior to the application of the system.
  - Acceptance of the substrate by the system installer prior to application of the system.
  - Installation of the system to the Technical Literature.

### Health and Safety

- 22.1 Safe use and handling procedures for Equus Soprema Warm Roof System are provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheets for each membrane.

### Basis of Appraisal

The following is a summary of the technical investigations carried out:

#### Tests

- 23.1 The following is a summary of the testing and test reports on Equus Soprema Warm Roof System:
- The manufacture of the membranes has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. The manufacturer of Soprema DuO Roof and Deck Membrane Systems has been assessed and registered as meeting the requirements of ISO 9001 and ISO 14001.
  - Testing has been carried out on the membranes for elongation, tensile strength, seam strength, breaking strength, low temperature, resistance to aging, water absorption, resistance to ultraviolet (UV) and peel adhesion to plywood and concrete.
  - Dimensions, density, thermal conductivity, compressive strength, tensile strength, fire behaviour (Class E), water absorption, specific heat capacity, water vapour diffusion resistance and linear expansion coefficient.
- 23.2 The above test methods and results have been reviewed by BRANZ and found to be satisfactory.



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### Other Investigations

- 24.1 A durability opinion has been provided by BRANZ technical experts.
- 24.2 Installation of the insulation and membranes has been assessed by BRANZ for practicability of installation and found to be satisfactory.
- 24.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

### Quality

- 25.1 The manufacture of the components of the system has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 25.2 The quality of the supply of products to the New Zealand market is the responsibility of Equus Industries Ltd.
- 25.3 Quality on-site is the responsibility of the Equus Industries Ltd approved and trained installers.
- 25.4 Designers are responsible for the building design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of Equus Industries Ltd and this Appraisal.
- 25.5 Building owners are responsible for the maintenance of the membrane system in accordance with the instructions of Equus Industries Ltd and this Appraisal.

### Sources of Information

- AS 1366:1992 Rigid cellular plastics sheets for thermal insulation.
- AS/NZS 1170:2002 Structural design actions - General principles.
- AS/NZS 2269:2012 Plywood - structural.
- BRANZ Bulletin No. 585 Measuring Moisture in Timber and Concrete.
- BRANZ Good Practice Guide: Membrane Roofing [second edition], October 2015.
- NZS 3101:2006 The design of concrete structures.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4214:2006 Methods of Determining the Total Thermal Resistance of Parts of Buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

### Amendments

#### Amendment No. 1, dated 02 November 2022

This Appraisal has been amended to update the product name from Soprorema Efyos Blue A to Soprorema SOFRA-ISQ.



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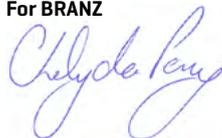
In the opinion of BRANZ, **Equus Soprema Warm Roof System** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Equus Industries Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

### Conditions of Appraisal

1. This Appraisal:
  - a) relates only to the product as described herein;
  - b) must be read, considered and used in full together with the Technical Literature;
  - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
  - d) is copyright of BRANZ.
2. **Equus Industries Ltd:**
  - a) continues to have the product reviewed by BRANZ;
  - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
  - c) abides by the BRANZ Appraisals Services Terms and Conditions;
  - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
  - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
  - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
  - c) any guarantee or warranty offered by **Equus Industries Ltd**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Equus Industries Ltd** or any third party.

For BRANZ



**Chelydra Percy**  
Chief Executive

Date of Issue:  
21 December 2021



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FLAGON TPO  
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### BRANZ Appraisals

Technical Assessments of products for building and construction.



#### Equus Industries Ltd

PO Box 601  
Blenheim  
Tel: 03 578 0214  
Web: [www.equus.co.nz](http://www.equus.co.nz)

#### Manufactured by:



#### SOPREMA SRL

Via Industriale dell'Isola 3  
24040 Chignolo d'Isola (Bg)  
Italy  
Tel [NZ]: +64 21 800 407



#### BRANZ

1222 Moonshine Rd,  
RD1, Porirua 5381  
Private Bag 50 908  
Porirua 5240,  
New Zealand  
Tel: 04 237 1170  
[branz.co.nz](http://branz.co.nz)



## Product

- 1.1 Soprema Flag Flagon TPO Waterproofing Systems are thermoplastic polyolefin (TPO) roof and deck membranes. They can be fully glue-bonded or mechanically fastened, and left as an exposed membrane or be finished using ballast.

## Scope

- 2.1 Soprema Flag Flagon TPO Waterproofing Systems have been appraised as roof and deck waterproofing membranes on buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with respect to building height and maximum floor plan areas; and,
  - with building structures designed and constructed to meet the requirements of the NZBC; and,
  - with roof supporting structures of timber framing with substrates of plywood sheet; and,
  - with substrates of suspended concrete slabs; and,
  - with minimum falls for roofs of 1:30 and decks of 1:40; and,
  - with deck size limited to 40m<sup>2</sup>, and,
  - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 Soprema Flag Flagon TPO Waterproofing Systems have also been appraised for use as roof and deck waterproofing membranes on specifically designed buildings within the following scope:
- with building structures designed and constructed to comply with the NZBC; and,
  - with roof supporting structures of timber framing with substrates of plywood sheet; and,
  - with substrates of suspended concrete slab; and,
  - subjected to maximum wind pressures; and,
  - with the weathertightness design of all junctions being the subject of specific design by the designer. *[Note: The design of these junctions has not been appraised by BRANZ and is outside the scope of this Appraisal].*
- 2.3 Roofs waterproofed with Soprema Flag Flagon TPO Waterproofing Systems must be designed and constructed in accordance with the following limitations:
- nominally flat and pitched roofs and decks constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
  - with no steps within the deck level, no integral roof gardens and no downpipes directly discharging to decks; and,
  - constructed to suitable falls; and,
  - with the deck membrane continually protected from physical damage by a pedestal protection system.



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- 2.4 The design and construction of the substrate and movement and control joints is specific to each building, and therefore is the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.5 The membranes must be installed by Equus Industries Ltd approved applicators.

## Building Regulations

### New Zealand Building Code [NZBC]

- 3.1 In the opinion of BRANZ, Soprema Flag Flagon TPO Waterproofing Systems, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

**Clause B2 DURABILITY:** Performance B2.3.1 [b] 15 years and B2.3.2. Soprema Flag Flagon TPO Waterproofing Systems meet these requirements. See Paragraph 10.1.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.1 and E2.3.2. Soprema Flag Flagon TPO Waterproofing Systems meet these requirements. See Paragraphs 13.1-13.8.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Soprema Flag Flagon TPO Waterproofing Systems meet this requirement.

## Technical Specification

- 4.1 Materials supplied by Equus Industries Ltd are as follows:
- **Flagon EP/PR** – a TPO modified polyolefin membrane used as an exposed membrane mechanically fastened. It is supplied in rolls 1.2, 1.5, 1.8 or 2 mm thick, either 1.05 m or 2.1 m wide and 20 or 25 m long.
  - **Flagon EP/PR-F** – a TPO modified polyolefin membrane used as an exposed membrane mechanically fastened or a mixture of mechanical and glued. It is supplied in rolls 1.2, 1.5, 1.8 or 2 mm thick, 2.1 m wide and 20 or 25 m long.
  - **Flagon EP/PV** – a TPO modified polyolefin membrane used as a ballasted membrane mechanically fastened. It is supplied in rolls 1.2, 1.5, 1.8 or 2 mm thick, 2.1 m wide and 20 or 25m long.
  - **Flagon EP/PV-F** – a TPO modified polyolefin membrane used as a ballasted membrane and fully adhered. It is supplied in rolls 1.2, 1.5, 1.8 or 2 mm thick, 2.1 m wide and 20 or 25m long.
  - **Flagon EP/S** – a TPO modified polyolefin used for detailing work. It is supplied in rolls 1.5 mm thick, 1.05 m wide and 20 m long.
  - **Flagcol TF1** – a toluene-free, sprayable contact adhesive for adhering Flagon EP/PR-F and EP/PV-F. It is supplied in 5, 10 and 20 L tins and is coloured blue.
  - **Flexocol A89 Adhesive** – a polyurethane, moisture-curing adhesive for adhering Flagon EP/PR-F and EP/PV-F. It is supplied 12 kg tins.
  - **Equus Fixplus pedestals** – an adjustable pedestal protection system.
  - **Flagon TS** – a PVC-P membrane with geotextile backing used as protection layer on top of Flagon TPO waterproofing membranes.
- 4.2 Compatible accessories used with all the systems are:
- Flagon internal/external TPO corners.
  - Flagon TPO pipe collars.
  - Flagon TPO Vapour Aerator.
  - Flagbar and Flagofil.
  - Flagmetal accessories.
  - Flagon TPO Walkways.



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## Handling and Storage

- 5.1 Handling and storage of all materials whether on-site or off-site is under the control of the Equus Industries Ltd approved applicator. Dry storage must be provided for all products and the rolls of membrane must be lying down on pallets and protected.

## Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Soprema Flag Flagon TPO Waterproofing Systems. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

### General

- 7.1 Soprema Flag Flagon TPO Waterproofing Systems are for use on roofs, decks, gutters and parapets where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.
- 7.2 Soprema Flag Flagon TPO Waterproofing Systems can be adversely affected by contact with bituminous substances. Equus Industries Ltd should be contacted for advice in this situation.
- 7.3 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to the BRANZ publication Good Practice Guide: Membrane Roofing.
- 7.4 Where regular foot traffic on the roof is envisaged i.e. maintenance of lift equipment, a walkway should be installed to ensure the membrane is protected. The Soprema Flag Flagon TPO Waterproofing Systems is designed for limited, irregular pedestrian access only.
- 7.5 Soprema Flag Flagon TPO Waterproofing Systems, when used on decks, require a pedestal protection system. Equus Industries Ltd should be contacted for the best system to meet design requirements.

### Structure

- 8.1 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and that all sheet edges are fully supported.
- 8.2 Soprema Flag Flagon TPO Waterproofing Systems, fully bonded, are suitable for use in areas subject to maximum wind pressure of 6 kPa Ultimate Limit State [ULS], subject to the limitations of the substrate.

### Substrates

#### Plywood

- 9.1 Plywood must be treated to H3 [CCA treated]. LOSP treated plywood must not be used. In all cases framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and that all sheet edges are fully supported.

#### Concrete

- 9.2 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.



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## Durability

### Serviceable Life

- 10.1 Soprema Flag Flagon TPO Waterproofing Systems, when subjected to normal conditions of environment and with proper maintenance, can expect to have a serviceable life of at least 15 years.

### Maintenance

- 11.1 Maintenance requirements of the membranes are provided by Equus Industries Ltd .
- 11.2 In the event of damage to the membrane, it must be repaired by removing the damaged portion and applying a patch as for new work. This should be carried out by an Equus Industries Ltd approved applicator.
- 11.3 Drainage outlets must be maintained to operate effectively.

### Prevention of Fire Occurring

- 12.1 Soprema Flag Flagon TPO Waterproofing Systems must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of NZBC Acceptable Solutions C/AS1 and C/AS2, Paragraph 7.5.9 for the protection of combustible materials.

### External Moisture

- 13.1 Roofs and decks must be designed and constructed to shed precipitated moisture. They must also take account of snowfalls in snow prone areas. A means of meeting code compliance with NZBC Clause E2.3.1 is given by the Technical Literature.
- 13.2 When installed in accordance with this Appraisal and the Technical Literature, Soprema Flag Flagon TPO Waterproofing Systems will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membranes are impervious to water and will give a weathertight roof or deck.
- 13.3 The minimum fall is 1 in 30 for plywood roofs, 1 in 60 for concrete roofs, and 1 in 100 for gutters. The minimum falls for decks is 1 in 40. All falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane. *[Note: Where possible BRANZ recommend a fall of 1:60 for gutters].*
- 13.4 Soprema Flag Flagon TPO Waterproofing Systems are impermeable; therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with NZBC Clause E2.3.6.
- 13.5 Roof and deck falls must be built into the substrate.
- 13.6 Drainage flanges must be used for any outlet and must be fitted with a grate or cage to reduce potential sources of blockages. An overflow must be provided where the roof does not drain to an external gutter or spouting.
- 13.7 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by blockage of roof drainage.
- 13.8 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

## Installation Information

### Installation Skill Level Requirement

- 14.1 Installation of the membranes must be completed by Equus Industries Ltd approved applicators.
- 14.2 Installation of substrates must be completed by, or under the supervision of, Licensed Building Practitioners with the relevant License Class, in accordance with instructions given within the Equus Industries Ltd Technical Literature and this Appraisal.



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### Preparation of Substrates

- 15.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be smooth and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents. All surface defects must be filled to achieve an even and uniform surface.
- 15.2 Concrete substrates can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 585. The relative humidity of the concrete must be 75% or less before membrane application.
- 15.3 The moisture content of a timber substructure must be a maximum of 20% and plywood sheet must be dry at time of membrane application. This will generally require plywood sheets to be covered until just before the membranes are laid, to prevent rain wetting.

### Membrane Installation

- 16.1 The installation of these membrane systems is very complex and limited to approved applicators only. The Equus Industries Ltd Technical Literature should be referred to in all instances for the correct procedures.

### Inspections

- 17.1 Critical areas of inspection for waterproofing systems are:
  - Construction of substrates, including crack control and installation of bond breakers and movement control joints.
  - Moisture content of the substrate prior to the application of the membrane.
  - Acceptance of the substrate by the membrane installer prior to application of the membrane.
  - Installation of the membrane to the Technical Literature instructions.

### Health and Safety

- 18.1 Safe use and handling procedures for the membrane systems is provided in the Technical Literature. The product must be used in conjunction with the relevant Materials Safety Data Sheet.

### Basis of Appraisal

The following is a summary of the technical investigations carried out:

#### Tests

- 19.1 Testing has been carried out on the membranes for elongation, tensile strength, seam strength, breaking strength, low temperature, resistance to aging, water absorption, resistance to ultraviolet (UV) and peel adhesion to plywood and concrete.
- 19.2 Test methods and results have been reviewed by BRANZ and found to be satisfactory.

#### Other Investigations

- 20.1 A durability opinion has been given of the Soprema Flag Flagon TPO Waterproofing Systems by BRANZ technical experts.
- 20.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.
- 20.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

#### Quality

- 21.1 The manufacture of the Soprema Flag Flagon TPO Waterproofing Systems has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 21.2 The quality of supply of the product to the market is the responsibility of Equus Industries Ltd .
- 21.3 Quality on site is the responsibility of the Equus Industries Ltd approved applicators.
- 21.4 Designers are responsible for the substrate design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of the substrate manufacturer, Equus Industries Ltd and this Appraisal.



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## Sources of Information

- AS/NZS 1170: 2002 Structural Design action – general principles.
- AS/NZS 2269: 2012 Plywood – Structural.
- BRANZ Good Practice Guide – Membrane Roofing, October 2015.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3604: 2011 Timber Framed Buildings.
- Ministry of Business, Innovation and Employment Record of amendments – Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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Appraisal No. 1157 [2021]

**BRANZ Appraisal**  
Appraisal No. 1157 [2021]  
11 May 2021

SOPREMA FLAG FLAGON TPO  
WATERPROOFING SYSTEMS



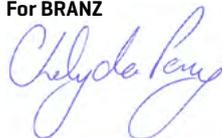
In the opinion of BRANZ, **Soprema Flag Flagon TPO Waterproofing Systems** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Equus Industries Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

### Conditions of Appraisal

1. This Appraisal:
  - a) relates only to the product as described herein;
  - b) must be read, considered and used in full together with the Technical Literature;
  - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
  - d) is copyright of BRANZ.
2. **Equus Industries Ltd:**
  - a) continues to have the product reviewed by BRANZ;
  - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
  - c) abides by the BRANZ Appraisals Services Terms and Conditions;
  - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
  - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
  - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
  - c) any guarantee or warranty offered by **Equus Industries Ltd**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Equus Industries Ltd** or any third party.

For BRANZ



**Chelydra Percy**  
Chief Executive

Date of Issue:  
11 May 2021



FLAGON TPO membrane into gutter by fully adhered, flameless installation



The FLAGON TPO 90 degrees external corners are in place for extra reinforcing and stability



40mm welded TPO lap clamped tight into the outlet



The FLAGON TPO membrane provides a smooth and aesthetical finish for internal gutters



FLAGON TPO is also suitable for waterproofing of decks

**Equus Industries Ltd**

Email: [info@equus.nz](mailto:info@equus.nz)

Website: [www.equus.nz](http://www.equus.nz)

**Project Name:** Private Residence

**Location:** Waihi

**Project Type:** Internal Gutters and Deck

**Project Size:** 112 sqm

**System:** EQUUS SOPREMA FLAGON TPO Membrane System

**Certified Applicator:** Total Waterproofing

**Main Contractor:** Modern Bay Builders

**Architect:** Mark Davidson

**Completion Date:** 2023

# FLAGON TPO-THERM WARM ROOF SYSTEM

## Single layer TPO waterproofing with vapour barrier and thermal insulation

**March 2024**

**PURPOSE AND SCOPE OF USE:**

The EQUUS SOPREMA FLAGON TPO-THERM warm roof system is a light-weight, thermally insulated roofing system consisting of the FLAGON TPO single layer membrane applied over a thermal insulation board and vapour barrier. A warm roof system guarantees a continuous and efficient thermal resistance (R-Value) as per the New Zealand Building Code's H1 requirements. This system is designed for use on exposed flat roofs and decks.

FLAGON TPO provides a UV resistant, puncture resistant membrane, that is installed with adhesive and hot air meaning a totally flameless installation for the residential and commercial industries. Suitable for use over plywood, concrete, insulated panel or other approved substrates. Suitable for roofs, decks, balconies, gutters and other waterproofing applications on new builds or renovations.

FLAGON TPO is available in a naked or fleece-backed option, depending on project requirements. The naked TPO is a more economical option, but the fleece-backed TPO is more aesthetically forgiving over imperfect substrates.

FLAGON TPO can be overlaid with Fixplus or other approved pedestals, pavers and decking, Kraitec Step walkway tiles, and Soprasolar or other approved solar panel supports.

**PRODUCTS:**

The system encompasses a selection of the products below. Refer to standard specifications P3601 and P3602 for full specification details. Technical datasheets and specifications can be found on <https://equus.nz>

FLAGON EP/PR	FLAGON EP/PV-F
FLAGON EP	Cantac Roof-Tac Adhesive
FLEXOCOL A89 Adhesive	FLAGON Termination Bar and other premanufactured accessories
FLAGMETAL and accessories	NOVA-SK or approved vapour barrier
COLTACK EVOLUTION 750 or approved PU Foam	Mechanical Fixings
Eurothane Silver PIR Board	SOPRA-ISO PIR Board
SOPRAROCK Mineral Wool Insulation	Permabase Dek

**SPECIFICATIONS:**

TPO-THERM on plywood substrate
TPO-THERM on concrete substrate
TPO-THERM on metal substrate
TPO-THERM on insulated panel substrate
Masterspec 4422EF EQUUS SOPREMA FLAGON TPO Roof & Deck Membrane

**COLOUR:**

Standard membrane colour of Basalt Grey, or available in sand grey with a higher solar reflectance.

**CONDITIONS OF USE:**

In areas of regular foot traffic or higher than for normal maintenance traffic, the membrane must be overlaid with Fixplus pedestals and pavers or decking, Kraitec Step walkway tiles or other approved protection.

The product must be installed by a Certified Equus Applicator. Verification of their status can be confirmed by a current applicator certificate or by contacting Equus Industries. Any installation must be done in accordance with the latest specifications and technical documentation, or with written approval by Equus Industries Ltd.

# FLAGON TPO-THERM WARM ROOF SYSTEM

Single layer TPO waterproofing with vapour barrier and thermal insulation

March 2024

## BUILDING CODE COMPLIANCE:

**B2 Durability** - B2.3.1 (b), FLAGON TPO-THERM has a durability of at least 15 years when installed with the correct specification, installation and maintenance. See BRANZ Appraisal 1157, BRANZ Appraisal 1169.

**E2 External moisture** - E2.3.1, E2.3.2, E2.3.7 Test data, together with in-service history in New Zealand and internationally, of the correctly installed FLAGON TPO-THERM Warm Roof over correctly designed and constructed substrates, show that the membrane successfully resists the ingress of moisture. See BRANZ Appraisal 1157, BRANZ Appraisal 1169.

**E3 Internal moisture** - E.3.3.1 FLAGON TPO-THERM Warm Roofs provide the habitable buildings with adequate thermal resistance and R-Values that are equal to or above those specified in E3/AS1. See BRANZ Appraisal 1169.

**F2 Hazardous building materials** - F2.3.1 Well known experience with the type of materials used together with in-service history, show that FLAGON TPO-THERM complies with this performance requirement. Refer to SDS at [www.equus.nz](http://www.equus.nz)

**H1 Energy efficiency** - H1.3.1 (a) FLAGON TPO-THERM Warm Roofs provide the building with adequate thermal resistance and R-Values that are equal to or above those specified in H1/AS1 and H1/AS2. See BRANZ Appraisal 1169.

## SUPPORTING DOCUMENTATION:

The following additional documentation supports the above statements:

Title (type)	Version	URL
BRANZ Appraisal No. 1157	11 May 2021	<a href="https://www.equus.nz/content/reports/branz-appraisal-flagon-tpo-1157.pdf">https://www.equus.nz/content/reports/branz-appraisal-flagon-tpo-1157.pdf</a>
BRANZ Appraisal No. 1169	02 Nov 2022	<a href="https://www.equus.nz/content/reports/branz-appraisal-warmroof-1169.pdf">https://www.equus.nz/content/reports/branz-appraisal-warmroof-1169.pdf</a>
Technical Datasheets for products listed on page 1 of this document		Technical datasheets can be found on <a href="https://equus.nz">https://equus.nz</a> .

## WARNINGS AND BANS:

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
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## MANUFACTURER CONTACT DETAILS:

Manufacture location	New Zealand
Legal and trading name of manufacturer	Equus Industries Ltd.
Manufacturer address for service	4 Sheffield Street, Blenheim 7274
Manufacturer website	<a href="http://www.equus.nz">www.equus.nz</a>
Manufacturer email	<a href="mailto:info@equus.nz">info@equus.nz</a>
Manufacturer phone number	03 578 0214
Manufacturer NZBN	9429032000306

Equus Industries Ltd. 4 Sheffield St, Blenheim 7274 | Phone: 03 578 0214 | Email: [info@equus.nz](mailto:info@equus.nz) | Web: [www.equus.nz](http://www.equus.nz)

The information in this product data sheet is based on our experience and testing. It represents the latest information available at the time of printing, but no guarantee of its accuracy is made or implied, nor responsibility taken for use to which this information may be put. We reserve the right to alter or up-date information parameters and formulations at any time without notice.

# FLAGON EP/PR

## TPO modified polyolefin synthetic membrane

March 2024

### DESCRIPTION:

Synthetic membrane manufactured in TPO modified polyolefin, double colour sand-grey/black, obtained by co extrusion, reinforced by a polyester mesh. The upper sand grey layer is featured by a very high resistance to weather and UV rays, while the underlying black layer is punching resistant. Manufactured in a plant certified by UNI EN ISO 9001 (quality management system) and UNI EN ISO 14001 (environmental management system). Laying performed by applicators approved by Flag S.p.A. Finishing and accessories composed by elements produced and approved by Flag S.p.A.



### FEATURES:

- Waterproof and UV resistance.
- Resistant to wind stress.
- Mechanical resistance and resistance to punching.
- Adaptability to structural movements
- Flexibility at low temperatures

### PACKAGING:

Thickness	1.20 mm		1.50 mm		1.80 mm		2.00 mm	
Width	1.05 m	2.10 m	1.05 m	2.10 m	1.05 m	2.10 m	1.05 m	2.10 m
Number of rolls on each pallet	46	23	46	23	36	18	36	18
Length	25 m		20 m		20 m		20 m	
Colour (surface / underside)	SAND GREY/BLACK							

### TECHNICAL DATA:

Properties	EP/PR 1.20	EP/PR 1.50*	EP/PR 1.80	EP/PR 2.00	Test Method
Thickness (mm)	1.20	1.50	1.80	2.00	EN 1849-2
Weight (kg/m <sup>2</sup> )	1.15	1.40	1.68	1.85	EN 1849-2
Tensile strength (N/5cm)	≥ 1100	≥ 1100	≥ 1100	≥ 1100	EN 12311-2
Elongation at break (%)	≥ 15	≥ 15	≥ 15	≥ 15	EN 12311-2
Tear resistance (N)	≥ 300	≥ 300	≥ 300	≥ 300	EN 12310-2
Resistance to impact (mm)	≥ 450	≥ 800	≥ 900	≥ 1250	EN 12691
Cold bending (°C)	≤ -40	≤ -40	≤ -40	≤ -40	EN 495-5
Hydrostatic pressure resistance (6 hours at 0.5 Mpa)	Waterproof	Waterproof	Waterproof	Waterproof	EN 1928 met. B
Dimensional stability (%)	≤ -0.15	≤ -0.15	≤ -0.15	≤ -0.15	EN 1107-2
Resistance to artificial weathering (UV)	No surface cracking	No surface cracking	No surface cracking	No surface cracking	EN 1297
Resistance to root penetration	No penetration	No penetration	No penetration	No penetration	13948
Resistance to static punching (kg)	≥ 20	≥ 20	≥ 20	≥ 20	EN 12730
Fire resistance	E	E	E	E	EN ISO 11925-2 EN 13501-1

\*1.50 mm thickness as standard stock. Other sizes available on request.

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# FLAGON EP/PR

## TPO modified polyolefin synthetic membrane

March 2024

### SCOPE OF USE:

FLAGON EP/PR is used as a single ply membrane in the FLAGON TPO Roof & Deck, and TPO-THERM Warm Roof waterproofing systems. The products is adhered with an Equus approved glue over plywood, concrete or other approved substrates. Suitable for roofs, decks, balconies, gutters and other waterproofing applications on new builds or renovations. Suitable for residential and commercial construction.

FLAGON EP/PR can be overlaid with Fixplus or other approved pedestals, pavers and decking, Kraitec Step walkway tiles, and SOPRASOLAR or other approved solar panel supports.

Uses not outlined in this TDS must have written approval by Equus Industries Ltd.

### CONDITIONS OF USE:

In areas of regular foot traffic, higher than for normal maintenance traffic, the membrane must be overlaid with pedestals and pavers or decking, Kraitec Step walkway tiles or other approved protection.

The product must be installed by a Certified Equus Applicator. Verification of their status can be confirmed by a current applicator certificate or by contacting Equus Industries. Any installation must be done in accordance with the latest specifications and technical documentation, or with written approval by Equus Industries Ltd.

### BUILDING CODE COMPLIANCE:

**B2 Durability** - B2.3.1 (b), Flagon EP/PR has a durability of at least 15 years when installed with the correct specification, installation and maintenance. See BRANZ Appraisal 1157.

**E2 External moisture** - E2.3.1, E2.3.2, E2.3.7 Test data, together with in-service history in New Zealand and internationally, of the correctly installed Flagon EP/PR membrane over correctly designed and constructed substrates, show that the membrane successfully resists the ingress of moisture. See BRANZ Appraisal 1157.

**F2 Hazardous building materials** - F2.3.1 Well known experience with the type of materials used together with in-service history, show that Flagon EP/PR complies with this performance requirement. Refer to SDS at [www.equus.nz](http://www.equus.nz).

### SUPPORTING DOCUMENTATION:

Title (type)	Version	URL
BRANZ Appraisal No. 1157	11 May 2021	<a href="https://www.equus.nz/content/reports/branz-appraisal-flagon-tpo-1157.pdf">https://www.equus.nz/content/reports/branz-appraisal-flagon-tpo-1157.pdf</a>

### CE MARKING:

Unique identification code of the product type: WPASIT0028

FLAGON EP/PR membranes are produced by the company FLAG Spa factory (SOPREMA group) in Chignolo d'Isola (Italy) and are CE marked no. 1085-CPR-011 in accordance with EN 13956:2012.

### HEALTH AND SAFETY:

For more information, please refer to the relevant safety data sheet.

### WARNINGS AND BANS:

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
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# FLAGON EP/PR

## TPO modified polyolefin synthetic membrane

March 2024

### MANUFACTURERS CONTACT DETAILS:

Manufacture location	Italy
Legal and trading name of manufacturer	Soprema New Zealand Limited
Manufacturer address for service	Level 3, Candida Building 4, 61 Constellation Drive, Mairangi Bay, Auckland 0630, New Zealand
Manufacturer website	<a href="http://www.soprema.com.au">www.soprema.com.au</a>
Manufacturer email	<a href="mailto:info@soprema.com.au">info@soprema.com.au</a>
Manufacturer phone number	+61 3 9221 6230
Manufacturer NZBN	9429050312962

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# FLAGON EP/PV-F

## Fleece-backed TPO modified polyolefin synthetic membrane

March 2024

### DESCRIPTION:

TPO modified polyolefin synthetic membrane obtained by co-extrusion, dimensionally stabilised by a glass fibre and coupled on the back sheet with a non woven felt. The upper sand grey layer has a high resistance to weather agents and UV rays. Manufactured in a plant certified by UNI EN ISO 9001 (quality management system) and UNI EN ISO 14001 (environmental management system). Laying performed by applicators approved by SOPREMA srl. Finishing and accessories composed by elements produced and approved by SOPREMA srl.



### FEATURES:

- Waterproof and UV resistance.
- Dimensional stability.
- Mechanical resistance and resistance to punching.
- Excellent flexibility at low temperatures

### AREAS OF USE:

Total adherence on horizontal surfaces for:

- Gluing on insulating panels.
- Gluing on concrete roofs.
- Gluing on existing waterproofing covering.

### PACKAGING:

Thickness	1.20 mm	1.50 mm	1.80 mm	2.00 mm	
Width	2.10 m	2.10 m	2.10 m	2.10 m	
Number of rolls on each pallet	12	12	12	12	
Length	25 m	20 m	20 m	20 m	

### TECHNICAL DATA:

Properties	EP/PV-F 1.20	EP/PV-F 1.50*	EP/PV-F 1.80	EP/PV-F 2.00*	Test Method
Thickness (mm)	1.20	1.50	1.80	2.00	EN 1849-2
Weight (kg/m <sup>2</sup> )	1.35	1.70	2.00	2.15	EN 1849-2
Tensile strength (N/5cm)	≥ 550	≥ 650	≥ 800	≥ 850	EN 12311-2
Elongation at break (%)	≥ 350	≥ 350	≥ 350	≥ 350	EN 12311-2
Tear resistance (N)	≥ 200	≥ 250	≥ 300	≥ 340	EN 12310-2
Resistance to impact (mm)	≥ 450	≥ 800	≥ 900	≥ 1250	EN 12691
Cold bending (°C)	≤ -40	≤ -40	≤ -40	≤ -40	EN 495-5
Hydrostatic pressure resistance (6 hours at 0.5 Mpa)	Waterproof	Waterproof	Waterproof	Waterproof	EN 1928 met. B
Dimensional stability (%)	≤ -0.1	≤ -0.1	≤ -0.1	≤ -0.1	EN 1107-2
Resistance to artificial weathering (UV)	No surface cracking	No surface cracking	No surface cracking	No surface cracking	EN 1297
Resistance to static punching (kg)	≥ 20	≥ 20	≥ 20	≥ 20	EN 12730
Fire resistance	E	E	E	E	EN ISO 11925-2 EN 13501

\*1.50 mm and 2.00 mm thickness as standard stock. Other sizes available on request.

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# FLAGON EP/PV-F

## Fleece-backed TPO modified polyolefin synthetic membrane

March 2024

### SCOPE OF USE:

FLAGON EP/PV-F is used as a single ply membrane in the FLAGON TPO Roof & Deck, and TPO-THERM Warm Roof waterproofing systems. The fleece-back membrane can be more aesthetically forgiving of imperfections in the substrate especially during renovations. The products is adhered with an Equus approved glue over plywood, concrete or other approved substrates. Suitable for roofs, decks, balconies, gutters and other waterproofing applications on new builds or renovations. Where a building is being re-roofed, the fleece back provides a barrier between old and new membrane, not present in a naked TPO. Suitable for residential and commercial construction.

FLAGON EP/PV-F can be overlaid with Fixplus or other approved pedestals, pavers and decking, Kraitec Step walkway tiles, and SOPRASOLAR or other approved solar panel supports.

Uses not outlined in this TDS must have written approval by Equus Industries Ltd.

### CONDITIONS OF USE:

In areas of regular foot traffic, higher than for normal maintenance traffic, the membrane must be overlaid with pedestals and pavers or decking, Kraitec Step walkway tiles or other approved protection.

The product must be installed by a Certified Equus Applicator. Verification of their status can be confirmed by a current applicator certificate or by contacting Equus Industries. Any installation must be done in accordance with the latest specifications and technical documentation, or with written approval by Equus Industries Ltd.

### BUILDING CODE COMPLIANCE:

**B2 Durability** - B2.3.1 (b), Flagon EP/PV-F has a durability of at least 15 years when installed with the correct specification, installation and maintenance. See BRANZ Appraisal 1157

**E2 External moisture** - E2.3.1, E2.3.2, E2.3.7 Test data, together with in-service history in New Zealand and internationally, of the correctly installed Flagon EP/PV-F membrane over correctly designed and constructed substrates, show that the membrane successfully resists the ingress of moisture. See BRANZ Appraisal 1157

**F2 Hazardous building materials** - F2.3.1 Well known experience with the type of materials used together with in-service history, show that Flagon EP/PV-F complies with this performance requirement. Refer to SDS at [www.equus.nz](http://www.equus.nz)

### SUPPORTING DOCUMENTATION:

Title (type)	Version	URL
BRANZ Appraisal No. 1157	11 May 2021	<a href="https://www.equus.nz/content/reports/branz-appraisal-flagon-tpo-1157.pdf">https://www.equus.nz/content/reports/branz-appraisal-flagon-tpo-1157.pdf</a>

### CE MARKING:

Unique identification code of the product type: WPASIT0031

FLAGON EP/PV-F membranes are produced by the company SOPREMA srl in Chignolo d'Isola (Italy) and are CE marked no. 1085-CPR-011 in accordance with EN 13956:2012 and no. 1085-CPR-0037 in accordance with EN 13967:2012.

### HEALTH AND SAFETY:

For more information, please refer to the relevant safety data sheet.

### WARNINGS AND BANS:

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
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# FLAGON EP/PV-F

Fleece-backed TPO modified polyolefin synthetic membrane

March 2024

## MANUFACTURERS CONTACT DETAILS:

Manufacture location	Italy
Legal and trading name of manufacturer	Soprema New Zealand Limited
Manufacturer address for service	Level 3, Candida Building 4, 61 Constellation Drive, Mairangi Bay, Auckland 0630, New Zealand
Manufacturer website	<a href="http://www.soprema.com.au">www.soprema.com.au</a>
Manufacturer email	<a href="mailto:info@soprema.com.au">info@soprema.com.au</a>
Manufacturer phone number	+61 3 9221 6230
Manufacturer NZBN	9429050312962

Equus Industries Ltd. 4 Sheffield St, Blenheim 7274 | Phone: 03 578 0214 | Email: [info@equus.nz](mailto:info@equus.nz) | Web: [www.equus.nz](http://www.equus.nz)

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# FLEXOCOL A89

## Adhesive for fleece-backed TPO membranes

March 2024

### DESCRIPTION:

Mono-component adhesive formulated with polyurethane, liquid with medium-low viscosity, moisture-curing, with controlled expansion.

### AREAS OF USE:

The adhesive FLEXOCOL A89 is used for bonding of membranes FLAGON TPO or FLAGON PVC coupled to geotextile on horizontal surfaces.

### PACKAGING:

12 kg can.

### APPLICATION:

- The supports must be clean and without inconsistent elements on the surface.
- The adhesive FLEXOCOL A89 can be spread and levelled using a brush, squeegee or roller.
- The adhesive must be applied on the whole support surface creating a thin and uniform layer.
- On dry supports, it is important to proceed by wetting using sprayed water.
- After 5-15 minutes from the application (according to the related environmental and support humidity), when the glue starts its reaction of foaming becoming white, it is possible to proceed by laying the membrane.
- First curing is after 2-4 hours while maximum adhesion level is normally obtained within 24-48 hours.
- Do not dilute the adhesive FLEXOCOL A89 with solvent or diluent.
- The laying tools can be cleaned with solvents or methyl ethyl ketone. Do not use any solvents containing alcoholic groups.

### CONSUMPTION:

Minimum consumption is of about 300 to 400 g/m<sup>2</sup> on smooth and not very porous surfaces and can also be increased on porous and rough surfaces. The quantities are always purely indicative and should be evaluated considering the situation that may be encountered on the job-site.

### TECHNICAL DATA:

Properties	FLEXOCOL A89
Specific weight at 20 (g/cm <sup>3</sup> )	1.12 ± 5%
Water solubility:	Insoluble
Consistency	Viscose liquid
Minimal ambient application temperature (°C)	+ 5

### STORAGE:

Shelf life	The shelf life is at least 10 months from production date printed on the packaging, provided that the same is stored in a dry place and in the original sealed and undamaged container.
Storage conditions	Store in a dry place at temperatures between +10°C and +30°C.



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# FLEXOCOL A89

## Adhesive for fleece-backed TPO membranes

March 2024

### STATEMENT OF RESPONSIBILITY:

The technical information and application advice given in this publication is based on the present state of our best knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation. The owner, their representative or the contractor is responsible for checking the suitability of products for their intended use.

Note: Field service where provided, does not constitute supervisory responsibility. Suggestions made by SOPREMA Australia Pty Ltd either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not SOPREMA Australia Pty Ltd are responsible for carrying out procedures appropriate to a specific application.

### WARNINGS AND BANS:

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
--	----

### MANUFACTURERS CONTACT DETAILS:

Manufacture location	Italy
Legal and trading name of manufacturer	Soprema New Zealand Limited
Manufacturer address for service	Level 3, Candida Building 4, 61 Constellation Drive, Mairangi Bay, Auckland 0630, New Zealand
Manufacturer website	www.soprema.com.au
Manufacturer email	info@soprema.com.au
Manufacturer phone number	+61 3 9221 6230
Manufacturer NZBN	9429050312962

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# CANTAC ROOF-TAC

## Rubber based contact adhesive for TPO membranes

March 2024

### DESCRIPTION:

CANTAC Roof-Tac is a natural rubber based, plasticiser resistant contact adhesive formulated bonding TPO and EPDM roofing membranes to substrates.

Roof-Tac features very fast flash-off, with extra long open time. High heat stability (128°C) and superior long-term bond strength.

Roof-Tac is an excellent choice for permanent bonding of TPO, EPDM and most other roofing membranes to a variety of substrates and is also suitable for a wide variety of applications involving laminating of plastic materials.

### USES:

- Bonds TPO, EPDM and other roofing membranes to most common roofing materials.
- Bonds polyester wall and floor coverings.
- Bonds most vinyl and rubbers.

### FEATURES

- Plasticiser resistant
- Waterproof
- Extra long open time
- No ozone depleting substances
- Very low odour
- High coverage
- High heat resistant
- High solids
- High strength



### THE CANISTER ADVANTAGE:

- CANTAC's self contained, environmentally friendly, portable canister system was designed for ease of use.
- The canister, equipped with a reusable gun and hose, eliminated the need for air assisted adhesive application systems.
- No power or compressor is required!
- This approach significantly reduces set up and clean up time. The canister system is almost maintenance free. No solvent is needed to flush out guns and messy pressure pots.
- The spray pattern is consistent, delivering perfect results every time which eliminates human error caused by inconsistent spray patterns. Its portability enables you to apply adhesive in your facility or on site.
- Once you have emptied the eco friendly canister, simply attach your gun and hose to a new one. The empty canister is made from recyclable steel and can be easily recycled making it more environmentally friendly than traditional plastic containers.

### TECHNICAL DATA:

Chemical Description	Solvent Based Contact Adhesive
Odour	Minimal solvent odour
Appearance	Blue
Solids content	38-42%
Viscosity	Sprayable grade
Coverage	17 kg canister: 272 m <sup>2</sup> single sided (Guide only: Coverage depends on absorbency of substrate and coating weight. Generally the heavier the coating weight the stronger the bond.)
Minimum open time	1-2 minutes
Maximum open time	24 hours

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# CANTAC ROOF-TAC

## Rubber based contact adhesive for TPO membranes

March 2024

### TECHNICAL DATA (Continued):

Chemical Description	Solvent Based Contact Adhesive
Heat resistance	-40 to +120°C
Cleaner	Citrus cleaner or Acetone
Flash point	Non applicable
Specific density	0.70 kg per litre +/- 5%
Size	17 kg recyclable canister

### DIRECTIONS FOR USE:

1. For best results all surfaces to be bonded must be clean, dry and free from dirt, dust, oil, loose paint, wax and grease. The temperature of the adhesive and the surfaces being bonded should ideally be between 15°C -27°C.
2. Attach the larger end of the hose to the spray gun and tighten securely, attach the smaller end of the hose to the canister valve securely.
3. Slowly open the canister valve and inspect the connections for any leaks. Tighten if needed. Fully open the valve.
4. Unscrew the trigger stop nut on the gun and spray a test pattern. Adjust nut to vary adhesive output.

### ADHESIVE APPLICATION:

Hold the applicator 150-250 mm away from the surface and apply an even coat of adhesive to 100% of the surface area of both surfaces, achieving approximately 80-100% coverage. Allow to dry until tacky (1-2 mins).

*Note: Test for tackiness by gently touching the adhesive with your knuckle. If the adhesive transfers to your skin it is too wet. If the adhesive is tacky and does not transfer to your skin, it is ready to bond. If the adhesive is dry or has very little tack, it is too dry and another coat of adhesive should be applied. Porous substrates may require additional coats. High strength of critical bonds may require two coats per surface.*

Apply even pressure over the entire surface to ensure intimate contact. Pressure may be applied by mechanical presses, nip rollers or hand rollers. Insufficient pressure will result in poor bonds.

### CLEAN UP:

Clean tip after use with CANTAC Citrus Cleaner. Excess adhesive and overspray may be removed with CANTAC Citrus Cleaner, Acetone, or most Industrial Solvents.

### EQUIPMENT SHUT DOWN/STORAGE:

Screw the trigger stop adjustment nut all the way to the trigger lock position.

DO NOT disconnect the hose until the canister is completely empty and ready to attach to another canister.

The canister system can be stored for up to 2 months without being used. If the canister is going to be left for longer than 2 months it is recommended to turn off the canister, bleed the pressure from the gun and hose. Remove the gun and hose and attach to a canister of Gun & Hose Cleaner and flush out the line for approximately 3 minutes. The gun and hose can then be removed and stored.

Alternatively remove the tip and soak in solvent, spray a small amount of adhesive through the gun and hose every 1-2 months to ensure there is no thickened adhesive in the hose.

### TROUBLE SHOOTING: Cold Weather Problems

#### Effects of cold weather and canisters

The adhesive in the canister will thicken as temperatures get colder. The propellants may condense and reduce the effective amount of available pressure in the canister. This will adversely affect the spray pattern and consequently, the performance of the adhesive.

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# CANTAC ROOF-TAC

## Rubber based contact adhesive for TPO membranes

March 2024

### TROUBLE SHOOTING (Continued):

#### How to eliminate cold weather problems

Store the canisters in a controlled environment with temperatures between 15°C and 27°C. Keep canisters off cold concrete floors and away from outside walls. Allow additional time for solvents and propellants to flash off when temperatures are below 15°C. If the canisters are too cold for use, they can be brought up to room temperature by submerging them up to the valve in warm water or by attaching a heater belt. Once the canisters equilibrate to at least 15°C, the products will perform as normal.

#### Applicator - Hose Block Check List

##### If the system sprays poorly, or not at all:

The sequence below runs through to a complete clog in the canister valve. If at any time during the sequence the problem is resolved, stop, clean the needed parts, put the system back together, and you are finished.

1. Make sure the canister is not empty.
2. Make sure the canister valve is open.
3. Close the spray gun trigger stop adjusting nut and clean the nozzle tip. (Does it spray now?)
4. Take off the nozzle tip and try spraying (Does it spray now?). Clean the nozzle
5. Shut off the canister valve. Carefully and slowly, loosen the spray gun/hose connection and look for adhesive to squirt out. If adhesive starts to leak out, allow it to slowly continue to do so until it stops. (This will be messy but you need to bleed off the pressurised adhesive to clean the spray gun). The spray gun has a clog at the valve, stem or inlet area and needs to be cleaned.
6. If nothing leaks out after fully loosening the spray gun, carefully remove the spray gun, realising that the hose may be clogged but could be full of adhesive and pressure depending on where the clog is. (Secure the open end of the hose into a bucket in case the clog releases and the system flushes).
7. Carefully and slowly loosen the hose connection at the canister valve. Look for adhesive to squirt out. If adhesive starts to leak out, allow it to slowly continue to do so until it stops. (This will be messy but you will need to bleed off the pressurised adhesive in the hose.) Clean or replace the hose.
8. With everything now isolated from the canister, place a bucket in front of the canister valve and slowly open to see if any adhesive comes out. If it does, put the cleaned system parts back together. If it does not, there is something wrong with the canister valve and it should be returned.
9. Be sure to wear appropriate PPE, especially eye protection when connecting/disconnecting gun or hose.

#### Solvents that can be used for cleaning the nozzle, spray gun:

CANTAC Citrus Cleaner, Acetone, Toulene, or most Industrial Solvents.

#### For cleaning the hose:

Attach gun and hose to a canister of CANTEC Gun & Hose Cleaner and flush out for approximately 3 minutes.

#### HEALTH AND SAFETY:

Refer to the Safety Data Sheet for health and safety information before using product.

#### HANDLING AND STORAGE:

Product should be stored between 5°C and 25°C on a wooden pallet and kept from freezing. Keep out of direct sunlight and away from sources of heat. If the product has been left for prolonged periods between uses, agitating is recommended.

#### DISPOSAL:

Canister disposal: Use extreme caution. Empty canister completely. Puncture the friable disc on the canister using a non-spark producing tool. Dispose of the scrap metal in accordance with local regulations.

#### SHELF LIFE:

Best used within 24 months from date of manufacture when stored under the above conditions in the original unopened containers.

#### LIMITATIONS:

Roof-Tac is not suitable for Polystyrene.

#### TESTING:

Always test the suitability of the product for your application before use.

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# NOVA-SK

## Self-adhesive waterproofing membrane

January 2024

### DESCRIPTION:

NOVA-SK is a self-adhesive bitumen waterproofing membrane, industrially manufactured by impregnation of the reinforcement with the waterproofing compound based on distilled bitumen modified with thermoplastic elastomeric polymers of the latest generation, which gives the compound superior technical characteristics and adhesive characteristic.

The composite reinforcement, made of non woven spunbond polyester in combination with fibreglass, conveys high mechanical characteristics, excellent dimensional stability and elastic performance. Shaping of sheets, straightness, dimensional and surface uniformity are accomplished by hot calendaring of the mass at hot melt fluid state.

The upper surface is coated with thermofusible polyolefin film or non woven polypropylene and selvedge protected by anti-adhesive removable file for easy welding overlap. The lower surface is protected with an anti-adhesive removable film.



### PACKAGING:

Properties	Testing Method	NOVA-SK
Roll length	EN 1848-1:1999	10 m
Roll width	EN 1848-1:1999	1 m

### TECHNICAL DATA:

Properties	Norm	Value	Unit	Tolerance
Thickness	EN1849-1:1999	3	(mm)	± 0.2
Straightness	EN1848-1:1999	Passed	-	20 mm/10 m
Flexibility at low temperature (pliability)	EN1109:2013	-25	(°C)	≤
Heat flow resistance	EN1110:2010	90	(°C)	≥
Watertightness	EN1928-B:2000	200	(kPa)	≥
Watertightness	EN1928-B:2000	Passed	(kPa)	≥ 60 kPa/2h
Water vapour transmission properties	EN1931:2000	65.000	(μ)	-
Watertightness	EN1928-A W1:2000	Passed	(kPa)	≥ 2 kPa/2h
Properties	Norm	Value M.d.C.d.	Unit	Tolerance
Tensile properties: maximum tensile strength	EN12311-1:1999	500/450	(N/50mm)	-29%
Tensile properties: elongation at break	EN12311-1:1999	40/40	(%)	-15
Resistance to tearing (nail shank)	EN12310-1:1999	100/100	(N)	-30%
Dimensional stability	EN1107-1:1999	±0.3/±0.3	(%)	≤
Shear resistance of joints	EN12317-1:1999	500/450	(N/50mm)	-20%
Resistance to static puncture	EN12730-A:2015	NPD		
Resistance to impact	EN12691-A:2006	NPD		
External fire performance (note 1)	EN1187:2012/ EN13501-5:2005 +A1:2009	Froof	Class	-

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# NOVA-SK

## Self-adhesive waterproofing membrane

January 2024

### TECHNICAL DATA continued:

Properties	Norm	Value M.d.C.d.	Unit	Tolerance
Reaction to fire	EN11925-2:2010/ EN13501-1:2007 +A1:2009	E	Class	-
Root resistance	EN13948:2007	NPD		
Visual defects	EN1850-1:2001	Passed	-	-
Durability: Flexibility at low temperature after artificial ageing	EN1296:2000/ EN1109:2013	-25	(°C)	+15
Durability: Flow resistance at elevated temperature after artificial ageing	EN1296:2000/ EN1110:2010	NPD		
Durability: Watertightness after artificial ageing	EN1296:2000/ EN1928-B:2000	Passed	(kPa)	≥ 60
Durability: Watertightness against chemicals	EN1296:2000/ EN1847:2009	NPD		
Artificial ageing by long term exposure to the combination of UV radiation and elevated temperature and heat: Tensile strength	EN1296:2000/ EN12311-1:1999	NPD		
Artificial ageing by long term exposure to the combination of UV radiation and elevated temperature and heat: Elongation	EN1296:2000/ EN12311-1:1999	NPD		
Artificial ageing by long term exposure to the combination of UV radiation and elevated temperature and heat: Watertightness	EN1296:2000/ EN1298-A:2000	W1	Class	-
Durability: Resistance to water vapour after artificial ageing	EN1296:2000/ EN1931:2000	Passed	(μ)	± 50 % v.i.
Durability: Chemical resistance	EN1847:2009/ EN1931:2000	Passed	(μ)	± 50 % v.i.

### SCOPE OF USE:

NOVA-SK is a high performance membrane best suited for areas where open flame installation is not advisable. It is used as a self-adhesive base sheet in the Soprema NOVA-SK Roof & Deck Membrane System and the NOVATHERM Warm Roof System. The product is glued via a self-adhesive 'peel and stick' application and can be used over plywood, cross-laminated timber (CLT), and roof cover board substrates. Along with the NOVA-SK MINERAL or other approved cap sheet the membrane forms a two-layer waterproof membrane designed for roofs, decks, balconies, terraces and podiums. This membrane can also be used as a self-adhered vapour barrier in an Equus Warm Roof system.

It is suitable for new builds and refurbishments, residential and commercial construction. The excellent mechanical characteristics and high level thermo-dynamic stability make it suitable for any climate conditions, location or wind zone in New Zealand.

Suitable for other waterproofing applications with written approval by Equus Industries Ltd.

### APPLICATION PROCEDURE:

The high self-adhesive properties of the waterproofing compound allow the application without flame, simply removing the lower anti-adhesive removable film. In particular situations, it could be applied with hot air generator.

The application of the membrane must be carried out in good weather conditions, when the temperature is over 10°C, and after the substrate has been adequately cleaned and prepared.

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# NOVA-SK

## Self-adhesive waterproofing membrane

January 2024

### CONDITIONS OF USE:

Written approval is required for this membrane to be used on a substrate or in a waterproofing system not outlined in the standard Equus specifications. The membrane shall always be over laid with a bitumen membrane cap sheet, as out lined in an Equus standard specification.

The product must be installed by a Certified Equus Applicator. Verification of their status can be confirmed by a current applicator certificate or by contacting Equus Industries Ltd. Any installation must be done in accordance with the latest specifications and technical documentation, or with written approval by Equus Industries Ltd.

### BUILDING CODE COMPLIANCE:

**B2 Durability** - B2.3.1 (b), NOVA-SK has a durability of at least 15 years, when installed with the correct specification, installation and maintenance. See CodeMark CMNZ70151, BRANZ Appraisal 520.

**E2 External moisture** - E2.3.1, E2.3.2, E2.3.7 Test data, together with in-service history in New Zealand and internationally, of the correctly installed NOVA-SK membrane over correctly designed and constructed substrates, show that the membrane successfully resists the ingress of moisture. See CodeMark CMNZ70151, BRANZ Appraisal 520.

**F2 Hazardous building materials** - F2.3.1 Well known experience with the type of materials used together with in-service history, show that NOVA-SK complies with this performance requirement. Refer to SDS at [www.equus.nz](http://www.equus.nz)

### NORMS AND CERTIFICATIONS:

EN13707; EN13969 -1381 - 1381-CPR-415; EN13970 - 1211 - Tb51261/06e; EN13970 - 1211 - Ta51262/06e; EN13859-1 - 1211 - 51 -14-0018

### SUPPORTING DOCUMENTATION:

The following additional documentation supports the compliance statements:

Title (type)	Version	URL
CodeMark Certificate CMNZ70151	30 June 2023	<a href="https://equus.nz/content/reports/codemark-soprema-waterproofing-membranes.pdf">https://equus.nz/content/reports/codemark-soprema-waterproofing-membranes.pdf</a>
BRANZ Appraisal No. 520	8 June 2023	<a href="https://equus.nz/content/reports/branz-appraisal-nova-sk-520.pdf">https://equus.nz/content/reports/branz-appraisal-nova-sk-520.pdf</a>

### STORAGE:

The product is packed as standing rolls on wooden pallets wrapped with thermoshrinking protective hoods. Rolls must be stored in an upright position, without stacking the pallets to avoid deformations which can compromise the correct application of the membrane. The product must be stored indoors, protected from heat and frost.

### WARNINGS AND BANS:

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
--	----

### MANUFACTURERS CONTACT DETAILS:

Manufacture location	Italy
Legal and trading name of manufacturer	Soprema New Zealand Limited
Manufacturer address for service	Level 3, Candida Building 4, 61 Constellation Drive, Mairangi Bay, Auckland 0630, New Zealand
Manufacturer website	<a href="http://www.soprema.com.au">www.soprema.com.au</a>
Manufacturer email	<a href="mailto:info@soprema.com.au">info@soprema.com.au</a>
Manufacturer phone number	+61 3 9221 6230
Manufacturer NZBN	9429050312962

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# COLPHENE 3000

## Self-adhesive waterproofing membrane

February 2024

### DESCRIPTION:

COLPHENE 3000 is a self-adhesive waterproofing membrane composed of SBS modified bitumen and a tri-laminated woven polyethylene facer. The underface is covered with silicone release film.

COLPHENE 3000 is designed for foundation walls and other below grade vertical surfaces, as well as a vapour barrier for warm and green roof systems.

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



### PACKAGING:

Specifications	COLPHENE 300
Thickness	1.5 mm
Dimensions	1 x 18.7 m
Weight	1.5 kg/m <sup>2</sup>
Selvage width	75 mm
Surface	Tri-laminated woven polyethylene
Underface	Silicone release film
Qty/Pallet	30

### TECHNICAL DATA:

Properties	Standards	COLPHENE 3000
Tensile strength, MD/XD	ASTM D5147	11.3/15.4 kN/m
Tensile strength, MD/XD	ASTM D412	11.2/13.1 MPa
Ultimate elongation, MD/XD	ASTM D412	88/55 %
Ultimate elongation, MD/XD	ASTM D5147	40/25 %
Elongation of rubberised asphalt	ASTM D5147	> 1000 %
Flexibility at cold temperature	ASTM D5147	-35°C
Dynamic puncture	ASTM E154	747 N
Static puncture	ASTM D5602	400 N
Tear resistance, MD/XD	ASTM D5601	375/400 N
Lap adhesion	ASTM D1876	2000 N/m
Water absorption	ASTM D5147	0.1 % max
Peel resistance	ASTM D903	3500 N/m
Water vapour permeability	ASTM E96 (Procedure B)	< 2.5 ng/Pa·s·m <sup>2</sup> ( < 0.04 perm) <small>All values are nominal</small>
Crack cycling at -32°C, 100 cycles	ASTM C836	Unaffected
Resistance to hydrostatic head	ASTM D5385	Minimum 114 m
Adhesion to strength to concrete -not primed -combined with primer	ASTM D1000	560 N/m 1650 N/m

(All values are nominal)



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# COLPHENE 3000

## Self-adhesive waterproofing membrane

February 2024

**SCOPE OF USE:**

COLPHENE 3000 is used as waterproofing membrane for foundation walls and other below ground vertical surfaces (up to 3 m deep) with low risk of hydrostatic water pressure against concrete and masonry substrates. The membrane can be overlaid with an Equus approved drainage mat for protection.

COLPHENE 3000 can also be used as a vapour barrier in an Equus Soprema Warm Roof system where specified by the Condensation Risk Analysis (CRA). It is suitable for new builds and refurbishments, residential and commercial construction, in any location in New Zealand.

Suitable for other waterproofing applications with written approval by Equus Industries Ltd.

**SURFACE PREPARATION:**

The use of Equus Peel and Stick Primer for self-adhesive membranes is required before the installation of COLPHENE 3000 membrane.

The substrate should be clean, sound, dry and free of loose materials, grease and any contaminants, which may compromise the performance of the product.

**INSTALLATION:**

SELF-ADHESIVE COLPHENE 3000 membrane must be adhered to substrate by peeling off the silicone release film. Side lap joints must be a minimum of 75 mm and end lap joints must be a minimum of 150 mm. Once installed, pressure must be applied over the whole surface using a membrane roller to ensure good contact with the substrate. The upper most edge of the membrane shall be mechanically fastened using termination bars and sealed with a compatible SOPREMA sealant. Contact Equus for suitable sealant.

**Application temperatures:** Winter grade: -10 to 10°C, Summer grade: 10 to 50°C

**UV exposure:** up to 60 days

**RESTRICTION:**

Concrete must be cured a minimum of fourteen (14) days and an adhesion test is recommended before membrane application. For complete information on product installation, please consult your Equus Consultant.

**CONDITION OF USE:**

COLPHENE 3000 shall not be used on surfaces over 3 m below ground or in areas with high hydrostatic water pressure, in this case COLPHENE BSW waterproofing shall be used.

Written approval is required for this membrane to be used on a substrate or in a waterproofing system not outlined in the standard Equus specifications.

The product must be installed by a Certified Equus Applicator. Verification of their status can be confirmed by a current applicator certificate or by contacting Equus Industries Ltd. Any installation must be done in accordance with the latest specifications and technical documentation, or with written approval by Equus Industries Ltd.

**BUILDING CODE COMPLIANCE:**

**B2 Durability** - B2.3.1 (a,b), COLPHENE 3000 has a durability of at least 50 years where used underground and at least 15 years where used above ground, when installed with the correct specification, installation and maintenance. BRANZ Appraisal 1037.

**E2 External moisture** - E2.3.2, E2.3.3, E2.3.7 Test data, together with in-service history in New Zealand and internationally, of the correctly installed COLPHENE 3000 membrane over correctly designed and constructed substrates, show that the membrane successfully resists the ingress of moisture. See BRANZ Appraisal 1037.

**F2 Hazardous building materials** - F2.3.1 Well known experience with the type of materials used together with in-service history, show that COLPHENE 3000 complies with this performance requirement. Refer to SDS at [www.equus.nz](http://www.equus.nz)

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# COLPHENE 3000

## Self-adhesive waterproofing membrane

February 2024

### SUPPORTING DOCUMENTATION:

Title (type)	Version	URL
BRANZ Appraisal No. 1037	22 April 2022	<a href="https://www.equus.nz/content/reports/branz-appraisal-colphene-1037.pdf">https://www.equus.nz/content/reports/branz-appraisal-colphene-1037.pdf</a>

### STORAGE AND HANDLING:

Rolls must be stored upright, with the selvedge side on top. If the product is stored outdoors, cover them with an opaque protective cover after removal of the delivery packaging.

### HEALTH AND SAFETY:

The product does not contain any substance which is likely to be detrimental to your health or the environment and complies with generally admitted Health and Safety Requirements. For more information, please refer to the relevant Safety Data Sheet.

### WARNINGS AND BANS:

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
--	----

### MANUFACTURERS CONTACT DETAILS:

Manufacture location	Canada
Legal and trading name of manufacturer	Soprema New Zealand Limited
Manufacturer address for service	Level 3, Candida Building 4, 61 Constellation Drive, Mairangi Bay, Auckland 0630, New Zealand
Manufacturer website	<a href="http://www.soprema.com.au">www.soprema.com.au</a>
Manufacturer email	<a href="mailto:info@soprema.com.au">info@soprema.com.au</a>
Manufacturer phone number	+61 3 9221 6230
Manufacturer NZBN	9429050312962

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# EUROTHANE SILVER

## Insulation board

January 2024

**DESCRIPTION:**

Eurothane Silver is an insulation board with a core of rigid polyisocyanurate foam, faced on both sides with a gastight multi-layered complex.

**PACKAGING:**

Dimensions	Eurothane Silver
Width	1200 mm
Length	600 mm, 1000 mm and 2500 mm
Thickness	30 mm - 60 mm in stock 70-100 mm on request

**PRODUCTIVE R-VALUE:**

Size (mm)	R-Value
50	2.25
60	2.70
81	3.65
90	4.05
100	4.50
120	5.45

**TECHNICAL DATA:**

Technical Characteristics	Eurothane Silver
Thermal conductivity	$\lambda_D$ -value according to EN 12667: 0,022 W/mK
Core volume weight	$\pm 30 \text{ kg/m}^3$
Mechanical performance - Compressive strength with 10% deformation: - Performance under the influence of an equally distributed load: - Transformation under the influence of a load:	CS(10/Y)150 according to EN 826: $\geq 150 \text{ kPa}$ (1.5 kg/cm <sup>2</sup> ) UEAtc class C DLT(2)5 according to EN 1605: 40 kPa, at 70°C during 168 hours: $\leq 5\%$
Vapour diffusion resistance number $\mu$ of the PIRfoam	50-100
Facing	Gastight multi-layered complex
Tensile strength perpendicular to surface	TR80 according to EN 1607 $\geq 80 \text{ kPa}$
Long-term water absorption WL(T)2 according to EN 12087	$< 2\%$
Fire behaviour	- A1 according to RD 19/12/1997 - Euroclass B s2 d0 (end use steel deck) - Euroclass F according to EN 13501-1 - Class 1 according to BS 476 Part 7
Dimensional stability DS(TH)8 according to EN 1604 - Humidity test 48 hours: - Change in length: - Change in width: - Change in thickness:	70°C, 90% RH $\leq 2\%$ $\leq 2\%$ $\leq 6\%$

Equus Industries Ltd. 4 Sheffield St, Blenheim 7274 | Phone: 03 578 0214 | Email: [info@equus.nz](mailto:info@equus.nz) | Web: [www.equus.nz](http://www.equus.nz)

The information in this product data sheet is based on our experience and testing. It represents the latest information available at the time of printing, but no guarantee of its accuracy is made or implied, nor responsibility taken for use to which this information may be put. We reserve the right to alter or up-date information parameters and formulations at any time without notice.

# EUROTHANE SILVER

## Insulation board

January 2024

### CERTIFICATES AND STANDARDS:

EN 13165

The production of these boards is certified according to ISO 90001:2000

### SCOPE OF USE:

Eurothane Silver is used in Equus SOPREMA Warm Roof and Deck systems, installed over a vapour barrier and underneath a waterproofing membrane system. Eurothane Silver boards are either mechanically fastened, or adhered with an approved PU Foam to the roofing substrate and can be overlaid with a roof cover board. Eurothane Silver is available in flat or tapered boards for design flexibility.

It is suitable for new builds and refurbishments, residential and commercial construction, in any location or wind zone in New Zealand (determined by project specific wind uplift calculations).

Suitable for other applications with written approval by Equus Industries Ltd.

### CONDITIONS OF USE:

Eurothane Silver must be covered by a specified waterproofing membrane system. Written approval is required for this product to be in a system not outlined in the standard Equus specifications.

The product must be installed by a Certified Equus Applicator. Verification of their status can be confirmed by a current applicator certificate or by contacting Equus Industries Ltd. Any installation must be done in accordance with the latest specifications and technical documentation, or with written approval by Equus Industries Ltd.

### BUILDING CODE COMPLIANCE:

**B2 Durability** - B2.3.1 (b), Eurothane Silver has a durability of at least 15 years when installed with the correct specification, installation and maintenance. BRANZ Appraisal No. 1169.

**E3 Internal moisture** - E3.3.1 Eurothane Silver provides habitable buildings with adequate thermal resistance and R-values that are equal to or above those specified in E3/AS1. See BRANZ Appraisal No. 1169.

**F2 Hazardous building materials** - F2.3.1 Well known experience with the type of materials used together with in-service history, show that Eurothane Silver complies with this performance requirement. Refer to SDS at [www.equus.nz](http://www.equus.nz)

**H1 Energy Efficiency** - H1.3.1 (a) Eurothane Silver provides the building with adequate thermal resistance and R-values that are equal to or above those specified in H1/AS1 and H1/AS2. See BRANZ Appraisal No. 1169.

### SUPPORTING DOCUMENTATION:

Title (type)	Version	URL
BRANZ Appraisal No. 1169	02 November 2022	<a href="https://www.equus.nz/content/reports/branz-appraisal-warmroof-1169.pdf">https://www.equus.nz/content/reports/branz-appraisal-warmroof-1169.pdf</a>

### STORAGE:

Do not throw, use shockproof transport. Must be stored in dry conditions and protected from direct weathering.

### WARNINGS AND BANS:

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
--	----

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# EUROTHANE SILVER

## Insulation board

January 2024

### MANUFACTURERS CONTACT DETAILS:

Manufacture location	
Legal and trading name of manufacturer	
Manufacturer address for service	
Manufacturer website	
Manufacturer email	
Manufacturer phone number	
Manufacturer NZBN	

Title (type)	Version	URL
BRANZ Appraisal No. 1169	02 November 2022	<a href="https://www.equus.nz/content/reports/branz-appraisal-warmroof-1169.pdf">https://www.equus.nz/content/reports/branz-appraisal-warmroof-1169.pdf</a>

Is the building product/building product line subject to warning or ban under section 26 of the Building Act 2004?	No
--	----

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# DUO 'EASY FOAM'



## Description:

**Duo 'Easy Foam'** is a rapid curing, gun grade polyurethane adhesive, specially developed to bond various types of insulation materials on flat roofs.

With **'Easy Foam'** it is convenient to bond different types of insulation (PUR, PIR, Rockwool, XPS and EPS) to various types of surfaces:

- Bitumen vapour barrier
- Existing bituminous waterproofing membranes
- Concrete

## Surface Preparation:

The substrate shall be free from dust and grease. It shall be dry and solid. If required, moistening the substrate will speed up the curing time.

## Application:

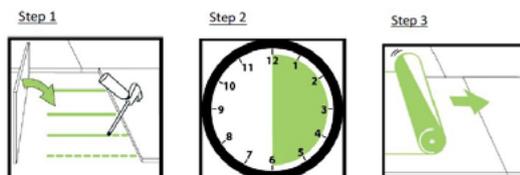
- Shake the tin thoroughly for at least 15 seconds.
- Screw the tin onto the 'Duo Easy Gun' and apply at least 3 vertical beads of foam onto the surface.
- Apply at least 4 beads of foam in corners and at roof edges (see installation guidelines). Can also be applied in serpentine pattern ( max 25cm between curbs).
- Press the insulation panels softly onto the beads.
- Ready to be treated after 30 minutes. Full strength after 3 hours.
- Application temperature for the tin: +10°C to +30°C.
- Always keep the tin upright for the most efficient application.

## Technical Data:

Characteristics	Values
Fire class	B1DIN 4102
Base	Polyurethane pre-polymer
Curing	Moisture curing
Type	Glue
Tack free	After +/- 10 minutes
Initial strength	After +/- 30 minutes
Full strength	After +/- 3 hours
Consumption	+/- 10 to 11m <sup>2</sup> of adhesive per tin
Thermal conductivity	40 m W/M.K
Compression resistance	30kPa (at 10% deformation)
Tensile strength	100 kPa
Elongation at break	15%
Shear	80kPa
Application temperature	Surrounding: 0°C to +35°C Tin: +10°C to +30°C
Temperature resistance	Prolonged: -40°C until +90°C Brief: -40°C until +130°C
Shelf life	9 months (store cool, dry and upright)

## Precautions:

- Always read the safety precautions mentioned on the tin before use.
- Use only in well-ventilated areas.
- No smoking. Protect eyes and wear suitable protective clothing and gloves.
- Protect surrounding surfaces from splashes.
- Superfluous foam can be removed with 'Duo Easy Cleaner'.
- Cured foam has to be removed mechanically.
- Safety precautions: See material safety data sheet.



Equus Industries Ltd  
PO Box 601  
Blenheim  
Phone: 03 578 0214  
Email: [admin@equus.nz](mailto:admin@equus.nz)  
Website: [www.equus.nz](http://www.equus.nz)  
March 2022

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To see or download full size details click here

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Roof Bulk Up Detail
NUMBER :	STWRP-D0a
SCALE :	1:2
DRAWN BY :	NKT
DATE :	30-Jan-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 Cladding underlay by others
- 8 Cladding by others

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Plywood upstand with Cladding detail
NUMBER :	STWRP-D1a
SCALE :	1:2
DRAWN BY :	NKT
DATE :	30-Jan-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 Cladding underlay by others
- 8 Cladding by others

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Concrete upstand with Cladding detail
NUMBER :	STWRP-D1b
SCALE :	1:2
DRAWN BY :	NKT
DATE :	30-Jan-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 EQUUS FLAGON Pressure termination bar
- 8 EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Transition from field to the roof detail - option 1
NUMBER :	STWRP-D2a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	30-Jan-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 EQUUS FLAGON Pressure termination bar
- 8 EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Transition from field to the roof detail - option 2
NUMBER :	STWRP-D2b
SCALE :	NTS
DRAWN BY :	NKT
DATE :	30-Jan-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 Cap Flashing by others
- 8 Termination Bar (required only if not using parapet cap flashing)

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Parapet with cap flashing
NUMBER :	STWRP-D4a
SCALE :	1:2
DRAWN BY :	NKT
DATE :	02-Feb-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 Aluminium minimum 2mm, or stainless steel angle 50 x 50 mm minimum
- 8 Pressure Seal bar fixed to metal drip-edge
- 9 Rain water system by others

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Drip edge to spouting
NUMBER :	STWRP-D5a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	02-Feb-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 40 mm welded lap
- 8 EQUUS FLAGON TPO as separate piece
- 9 EQUUS FLAGON Mastic
- 10 Stainless steel clamp
- 11 EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Roof Penetration
NUMBER :	STWRP-D7a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	02-Feb-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 Skylight Joney

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Skylight Detail
NUMBER :	STWRP-D8a
SCALE :	1:4
DRAWN BY :	NKT
DATE :	02-Feb-2023
REVISED :	

**EQUUS** AUTHORIZED DISTRIBUTOR **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 Plywood
- 6 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 7 EQUUS FLAGON TPO single ply waterproofing membrane
- 8 EQUUS FLAGON TPO single ply waterproofing membrane
- 9 EQUUS FLAGON TPO single ply waterproofing membrane

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Gutter Outlet Detail
NUMBER :	STWRP-D9a
SCALE :	1 : 3
DRAWN BY :	NKT
DATE :	02-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Plywood Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 Cap Flashing by others
- 8 Termination Bar (required only if not using parapet cap flashing)
- 9 Cladding by others

PROJECT :	Single ply warm roof system on plywood Standard Detail - TPO
TITLE :	Scupper termination Detail
NUMBER :	STWRP-D10a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	02-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Metal Deck
- 2 EQUUS Colphene 3000 Vapour Barrier
- 3 EQUUS PIR thermal insulation
- 4 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 5 EQUUS FLAGON TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane

PROJECT :	Single ply warm roof system on metal Standard Detail - TPO
TITLE :	Roof Built Up Detail
NUMBER :	STWRM-D0a
SCALE :	1:2
DRAWN BY :	NKT
DATE :	08-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Metal Deck
- 2 EQUUS Colphene 3000 Vapour Barrier
- 3 EQUUS PIR thermal insulation
- 4 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 5 EQUUS FLAGON TPO single ply waterproofing membrane
- 6 Cladding by others
- 7 Cladding by others

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Upstand with Cladding detail
NUMBER :	STWRM-D1a
SCALE :	1:2
DRAWN BY :	NKT
DATE :	08-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Metal Deck
- 2 EQUUS Colphene 3000 Vapour Barrier
- 3 EQUUS PIR thermal insulation
- 4 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 5 EQUUS FLAGON TPO single ply waterproofing membrane
- 6 Metal Flashing by others
- 7 EQUUS FLAGON Pressure termination bar
- 8 EQUUS FLAGON TPO Compatible Sealant
- 9 Compatible Epoxy

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Upstand with termination onto a chase
NUMBER :	STWRM-D3a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	08-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Metal Deck
- 2 EQUUS Colphene 3000 Vapour Barrier
- 3 EQUUS PIR thermal insulation
- 4 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 5 EQUUS FLAGON TPO single ply waterproofing membrane
- 6 Metal Flashing by others
- 7 EQUUS FLAGON Pressure termination bar
- 8 EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on metal standard detail - TPO
TITLE :	Upstand termination with flashing and pressure bar
NUMBER :	STWRM-D3b
SCALE :	NTS
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Metal Deck
- 2 EQUUS Sopradere Quick or Aquadere bitumen primer
- 3 EQUUS Colphene 3000 Vapour Barrier
- 4 EQUUS PIR thermal insulation
- 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 6 EQUUS FLAGON TPO single ply waterproofing membrane
- 7 EQUUS FLAGON TPO single ply waterproofing membrane
- 8 EQUUS FLAGON Pressure termination bar
- 9 EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on metal standard detail - TPO
TITLE :	Upstand with pressure termination bar detail
NUMBER :	STWRM-D3c
SCALE :	NTS
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Metal Deck
- 2 EQUUS Colphene 3000 Vapour Barrier
- 3 EQUUS PIR thermal insulation
- 4 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 5 EQUUS FLAGON TPO single ply waterproofing membrane
- 6 Cap Flashing by others
- 7 Termination Bar (required only if not using parapet cap flashing)

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Parapet with cap flashing
NUMBER :	STWRM-D4a
SCALE :	1:2
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**equus** **SOPREMA**

- 1 Metal Deck
- 2 EQUUS Colphene 3000 Vapour Barrier
- 3 EQUUS PIR thermal insulation
- 4 EQUUS Approved adhesive for TPO single ply waterproofing membrane
- 5 EQUUS FLAGON TPO single ply waterproofing membrane
- 6 Aluminium drip edge flashing by others
- 7 Rain water system by others

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Drip edge to spouting
NUMBER :	STWRM-D5a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**equus** **SOPREMA**

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- ① Metal Deck
- ② EQUUS Colphene 3000 Vapour Barrier
- ③ EQUUS PIR thermal insulation
- ④ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑤ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑥ 40 mm welded top
- ⑦ EQUUS FLAGON TPO as separate piece
- ⑧ EQUUS FLAGON Mastic
- ⑨ Stainless steel clamp
- ⑩ EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Roof Penetration
NUMBER :	STWRM-D7a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Metal Deck
- ② EQUUS Colphene 3000 Vapour Barrier
- ③ EQUUS PIR thermal insulation
- ④ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑤ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑥ Skylight Joinery

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Skylight Detail
NUMBER :	STWRM-D8a
SCALE :	1 : 4
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Metal Deck
- ② EQUUS Colphene 3000 Vapour Barrier
- ③ EQUUS PIR thermal insulation
- ④ Plywood
- ⑤ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑥ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑦ EQUUS FLAGON Mastic

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Gutter Outlet Detail
NUMBER :	STWRM-D9a
SCALE :	1 : 3
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Metal Deck
- ② EQUUS Colphene 3000 Vapour Barrier
- ③ EQUUS PIR thermal insulation
- ④ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑤ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑥ Cap Flashing by others
- ⑦ Termination Bar (required only if not using parapet cap flashing)
- ⑧ Cladding by others

PROJECT :	Single ply warm roof system on metal standard Detail - TPO
TITLE :	Upstand termination Detail
NUMBER :	STWRM-D10a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	10-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Concrete Deck
- ② EQUUS Sopradere Quick or Aquadere bitumen primer
- ③ EQUUS Colphene 3000 Vapour Barrier
- ④ EQUUS PIR thermal insulation
- ⑤ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑥ EQUUS FLAGON TPO single ply waterproofing membrane

PROJECT :	Single ply warm roof system on Concrete Standard Detail - TPO
TITLE :	Roof Built Up Detail
NUMBER :	STWRC-D0a
SCALE :	1 : 2
DRAWN BY :	NKT
DATE :	30-Jan-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Concrete Deck
- ② EQUUS Sopradere Quick or Aquadere bitumen primer
- ③ EQUUS Colphene 3000 Vapour Barrier
- ④ EQUUS PIR thermal insulation
- ⑤ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑥ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑦ Cladding by others

PROJECT :	Single ply warm roof system on Concrete Standard Detail - TPO
TITLE :	Upstand with Cladding detail
NUMBER :	STWRC-D1a
SCALE :	1 : 2
DRAWN BY :	NKT
DATE :	06-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Concrete Deck
- ② EQUUS Sopradere Quick or Aquadere bitumen primer
- ③ EQUUS Colphene 3000 Vapour Barrier
- ④ EQUUS PIR thermal insulation
- ⑤ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑥ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑦ Metal Flashing by others
- ⑧ EQUUS FLAGON Pressure termination bar
- ⑨ EQUUS FLAGON TPO Compatible Sealant
- ⑩ Compatible Epoxy

PROJECT :	Single ply warm roof system on Concrete Standard Detail - TPO
TITLE :	Upstand with termination onto a chase
NUMBER :	STWRC-D3a
SCALE :	NTS
DRAWN BY :	NKT
DATE :	06-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Concrete Deck
- ② EQUUS Sopradere Quick or Aquadere bitumen primer
- ③ EQUUS Colphene 3000 Vapour Barrier
- ④ EQUUS PIR thermal insulation
- ⑤ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑥ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑦ Metal Flashing by others
- ⑧ EQUUS FLAGON Pressure termination bar
- ⑨ EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on Concrete Standard Detail - TPO
TITLE :	Upstand termination with flashing and pressure bar
NUMBER :	STWRC-D3b
SCALE :	NTS
DRAWN BY :	NKT
DATE :	06-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

- ① Concrete Deck
- ② EQUUS Sopradere Quick or Aquadere bitumen primer
- ③ EQUUS Colphene 3000 Vapour Barrier
- ④ EQUUS PIR thermal insulation
- ⑤ EQUUS Approved adhesive for TPO single ply waterproofing membrane
- ⑥ EQUUS FLAGON TPO single ply waterproofing membrane
- ⑦ EQUUS FLAGON Pressure termination bar
- ⑧ EQUUS FLAGON TPO Compatible Sealant

PROJECT :	Single ply warm roof system on Concrete Standard Detail - TPO
TITLE :	Upstand with pressure termination bar detail
NUMBER :	STWRC-D3c
SCALE :	NTS
DRAWN BY :	NKT
DATE :	06-Feb-2023
REVISED :	

**EQUUS** **SOPREMA**

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1 Concrete Deck  
 2 EQUUS Sopradere Quick or Aquadere bitumen primer  
 3 EQUUS Colphene 3000 Vapour Barrier  
 4 EQUUS PIR thermal insulation  
 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane  
 6 EQUUS FLAGON TPO single ply waterproofing membrane  
 7 Cap Flashing by others  
 8 Termination Bar (required only if not using parapet cap flashing)

PROJECT: Single ply warm roof system on concrete standard Detail - TPO  
 TITLE: Parapet with cap flashing  
 NUMBER: STWRC-D4a SCALE: 1:2  
 DRAWN BY: NKT DATE: 06-Feb-2023 REVISED:  
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1 Concrete Deck  
 2 EQUUS Sopradere Quick or Aquadere bitumen primer  
 3 EQUUS Colphene 3000 Vapour Barrier  
 4 EQUUS PIR thermal insulation  
 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane  
 6 EQUUS FLAGON TPO single ply waterproofing membrane  
 7 Aluminium drip edge flashing by others  
 8 Rain water system by others

PROJECT: Single ply warm roof system on concrete Standard Detail - TPO  
 TITLE: Drip edge to spouting  
 NUMBER: STWRC-D5a SCALE: NTS  
 DRAWN BY: NKT DATE: 07-Feb-2023 REVISED:  
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1 Concrete Deck  
 2 EQUUS Sopradere Quick or Aquadere bitumen primer  
 3 EQUUS Colphene 3000 Vapour Barrier  
 4 EQUUS PIR thermal insulation  
 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane  
 6 EQUUS FLAGON TPO single ply waterproofing membrane  
 7 40 mm welded lap  
 8 EQUUS FLAGON TPO as separate piece  
 9 EQUUS FLAGON Mastic  
 10 Stainless steel clamp  
 11 EQUUS FLAGON TPO Compatible Sealant

PROJECT: Single ply warm roof system on concrete standard Detail - TPO  
 TITLE: Roof Penetration  
 NUMBER: STWRC-D7a SCALE: NTS  
 DRAWN BY: NKT DATE: 07-Feb-2023 REVISED:  
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1 Concrete Deck  
 2 EQUUS Sopradere Quick or Aquadere bitumen primer  
 3 EQUUS Colphene 3000 Vapour Barrier  
 4 EQUUS PIR thermal insulation  
 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane  
 6 EQUUS FLAGON TPO single ply waterproofing membrane  
 7 Skylight Joinery

PROJECT: Single ply warm roof system on concrete standard Detail - TPO  
 TITLE: Skylight Detail  
 NUMBER: STWRC-D8a SCALE: 1:4  
 DRAWN BY: NKT DATE: 07-Feb-2023 REVISED:  
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1 Concrete Deck  
 2 EQUUS Sopradere Quick or Aquadere bitumen primer  
 3 EQUUS Colphene 3000 Vapour Barrier  
 4 EQUUS PIR thermal insulation  
 5 Plywood  
 6 EQUUS Approved adhesive for TPO single ply waterproofing membrane  
 7 EQUUS FLAGON TPO single ply waterproofing membrane  
 8 EQUUS FLAGON Mastic

PROJECT: Single ply warm roof system on concrete standard Detail - TPO  
 TITLE: Gutter Outlet Detail  
 NUMBER: STWRC-D9a SCALE: 1:3  
 DRAWN BY: NKT DATE: 07-Feb-2023 REVISED:  
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1 Concrete Deck  
 2 EQUUS Sopradere Quick or Aquadere bitumen primer  
 3 EQUUS Colphene 3000 Vapour Barrier  
 4 EQUUS PIR thermal insulation  
 5 EQUUS Approved adhesive for TPO single ply waterproofing membrane  
 6 EQUUS FLAGON TPO single ply waterproofing membrane  
 7 Cap Flashing by others  
 8 Termination Bar (required only if not using parapet cap flashing)  
 9 Cladding by others

PROJECT: Single ply warm roof system on concrete standard Detail - TPO  
 TITLE: Scupper termination Detail  
 NUMBER: STWRC-D10a SCALE: NTS  
 DRAWN BY: NKT DATE: 07-Feb-2023 REVISED:  
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# WHO ARE WE?

Equus Industries provides technical waterproofing solutions for Architects, Engineers, Property Managers, and Contractors in the building industry. One system does not fit all.

Equus can provide complete solutions, systems, specifications, technical support and warranties.

Equus is the Authorised Distributor for SOPREMA in New Zealand. SOPREMA was founded in 1908 in France and has over 100 factories worldwide producing waterproofing materials and thermal insulation.



## Equus Southern

Unit 6/100 Fitzgerald Ave,  
Christchurch

PO Box 19 846  
Christchurch

**Ph:** 03 353 2434

southern@equus.nz

## Equus Central

45 Hutt Rd, Petone,  
Wellington

PO Box 38 636  
Wellington Mail Centre

**Ph:** 04 576 0333

central@equus.nz

## Equus Northern

211 Archers Rd, Wairau Valley,  
Glenfield, Auckland

PO Box 101 423  
North Shore Mail Centre

**Ph:** 09 415 4314

northern@equus.nz