

## 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:  
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#### 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 the 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.



## 2.2 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 E1 Surface Water of the New Zealand Building Code.

Outlets shall be from the Aquaknight Industries range, sourced from Equus Industries, unless otherwise specified.

## 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 20 kg+, 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 50 mm. 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 20 kg+, 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 50 mm. 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 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:

**SOPRASEAL SEALANT** shall be used where required.

#### 4.8 Membrane Termination:

The membrane will be terminated with **FLAGON TPO TERMINATION BAR** and **SOPRASEAL SEALANT** 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 stabilise. 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 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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