Standard Specification for the application of EQUUS SOPREMA FLAGON TPO waterproofing membrane to plywood surfaces

Project:
Prepared for:
Specification: P3602
Date: April 2023

1.0 PREAMBLE:

This specification is for the application of the **EQUUS SOPREMA FLAGON TPO** roll-roofing membrane system, in a single layer configuration over plywood to create a watertight and aesthetically pleasing 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** waterproofing membrane system has been assessed for use on roofs, decks and gutters, installed on treated plywood or concrete substrate 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:

.1 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 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.

.2 Sheet layout:

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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.

.3 Sheet spacing:
Sheets shall be laid tight butt jointed, i.e. with sheets butted but not cramped up.

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

.4 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.

.5 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.

.6 Corners:
All leading edges of plywood shall be chamfered with a 5mm radius corner.

.7 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.

.8 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.
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3.0 MEMBRANE APPLICATION:

3.1 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.

3.2 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.

3.3 Membrane installation: FLAGON TPO EP/PR

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.

3.4 Membrane installation: FLAGON TPO EP/PV-F

Used over uneven surfaces or where fleece-backed is preferred.

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 uneven surfaces **FLAGON TPO EP/PV-F** is to be used. This membrane has a fleece-backed underside and will provide a smoother finish.*

3.5 Detailing:

Detailing is completed with **FLAGON TPO EP/S** unreinforced membrane welded to the **FLAGON TPO EP/PR** waterproofing membrane, **Cantac ROOF-TAC Spray,** and a double-sided tape to create one single impervious waterproofing system at all critical junctions.

This shall include 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 of the membrane depending on the detail type. All detailing shall be done in accordance with the manufacturer's technical literature current at the time of design, use, installation and/or maintenance.

3.6 Sealant:

TREMFLEX 834 shall be used where required.

3.7 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.

3.8 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.

3.9 Trafficability:

The **EQUUS SOPREMA FLAGON TPO** 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.

3.10 Photovoltaic Panel Supports (if required):

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

4.0 QUALITY ASSURANCE (QA):

The Equus Certified Applicator is responsible for onsite **QA.** The Equus project checklists outlining 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.** A Warranty will not be issued unless a copy of the documentation has been filed with Equus Industries Ltd. Third party QA documentation is acceptable provided it is equivalent to the Equus issued QA.

5.0 MAINTENANCE AND WARRANTY:

5.1 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

5.2 Warranty:

The **EQUUS SOPREMA FLAGON TPO** waterproofing membrane system described in this specification may be warranted for sheet integrity and to be waterproof for a period of up to twenty (20) years providing that:

(a) All work is carried out by a Certified Equus Applicator.

(b) The **EQUUS SOPREMA FLAGON TPO** system must be installed in accordance with the manufacturer's technical literature current 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 roof 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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