

4422WT SEALCO ECOTUFF® TPO WATERPROOFING MEMBRANE

1. GENERAL

This section relates to **Sealco Ltd EcoTUFF®** membrane roofing, bonded to:

- construction plywood, including all underlays and accessories
- concrete, including all underlays and accessories.
- Trapezoid steel roofs, incl polyiso insulation, all underlays and accessories.

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

TPO Thermoplastic Polyolefin (reinforced rubber sheet)

Documents

1.3 DOCUMENTS

Refer to the general section 1234 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

[NZBC E2/AS1](#) External moisture
[AS/NZS 2269.0](#) Plywood - Structural - Specifications

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

EcoTUFF® Product Manual

Standard detailed drawings

Manufacturer/supplier contact details

Company: Sealco Ltd

Web: www.sealco.co.nz

Email: info@sealco.co.nz

Telephone: 03 366 9495 (head office) or 0508 SEALCO

Mobile 027 544-5532

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty

20 years: for materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of completion of application.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - APPLICATOR

Installer's warranty for the system under normal environmental and use conditions against failure.

5 years: Execution warranty

- Provide this warranty on the installer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

- 1.7 QUALIFICATIONS
Roofing work to be carried out by Licensed Building Practitioners who are also licensed applicators approved by Sealco Ltd.
- 1.8 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Sealco Ltd system, or associated components and products.
- 1.9 PROJECT REGISTRATION
Contact Sealco Ltd to confirm that the project has been registered.
Web: www.sealco.co.nz/register
Telephone: 03-366 9495 or 0508 SEALCO
If the project has not been registered, telephone and provide all required details.

Performance

- 1.10 PRE-INSTALLATION MEETING
Convene a meeting between the applicator, contractor, all associated consultants and Sealco Ltd to ensure all parties know what is required for effective performance of the system.
- 1.11 SPECIAL DETAILS
Where a standard detail does not exist, or if a standard detail cannot be applied, an approved alternative must be obtained from Sealco Ltd before proceeding with the installation.
- 1.12 TEST
Where possible, flood test horizontal applications with a minimum 50mm depth of water for 24 hours. Make good any lack of water tightness when the surface is completely dry.
- 1.13 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets. All penetrations to comply with NZBC E2/AS1 and Sealco Waterproofing Ltd's recommendations.
- 1.14 QUALITY ASSURANCE
Maintain quality necessary to assure that work is performed in accordance with this specification and the qualifying requirements of Sealco Ltd. Ensure that Sealco Waterproofing Ltd's Quality Control sheets are completed fully and faithfully for each installation area.

2. PRODUCTS

Materials

- 2.1 ECOTUFF® TPO SHEET
Single ply TPO reinforced membrane bearing the manufacturer's mark. Refer to SELECTIONS for type and thickness.
- 2.2 PRIMER
50/50 mixture of solvent and EcoTUFF® adhesive.
- 2.3 ECOTUFF® SEALANT
SEALCO specially formulated TPO sealant for general purpose flashing.
- 2.4 ECOTUFF® TPO FLASHING
SEALCO unreinforced flashing for use in corners, heat welded to EcoTUFF® TPO. Unreinforced T joint covers used to seal T joint sections in EcoTUFF® TPO sheet.

- 2.5 ECOTUFF® ADHESIVE
SEALCO TPO contact adhesive system.
- 2.6 ECOTUFF® CUT EDGE SEALANT
SEALCO specially formulated TPO sealant for EcoTUFF® cut edge finishes.
- 2.7 TRAPEZOID STEEL TRAY ROOFING
ST7 or ST9 Steel trapezoid tray roofing. Used as substrate for insulated roof systems.
- 2.8 LEXSHIELD VAPOUR BARRIER
Peel & stick vapour barrier to eliminate any vapour rising up into the insulation and membrane.
- 2.9 WARMSEAL POLYISO INSULATION
Polyiso insulation for use on warm roof applications. Fibreglass faced for adhering membranes to the surface and available in a range of sizes and R-Values.

Components

- 2.10 EDGE TRIM
Aluminium drip edge trim 3m and 5m lengths Sealco Ltd details to suit the specific location.
- 2.11 ROOF VENT
SEALCO VentRITE TPO vent as supplied and required by Sealco Ltd. Vents to be installed every 50-70sqm of membrane area.
- 2.12 DROPPER
SEALCO DrainRITE TPO dropper as supplied and required by Sealco Ltd.
- 2.13 SCUPPER
SEALCO DrainRITE Scuppers in 65mm, 100mm and 200mm widths as supplied and required by Sealco Ltd.
- 2.14 OVERFLOW DROPPER
SEALCO DrainRITE TPO overflow dropper as supplied and required by Sealco Ltd.
- 2.15 PIPE BOOTS
SEALCO FlashRITE moulded unreinforced pipe boots as supplied and required by Sealco Ltd. Designed to fit 20mm-150mm penetrations. Boots are welded to substrate and mechanically clamped and sealed around pipes.

Accessories

- 2.16 PAVER SUPPORTS - ADJUSTABLE WITH LEVELLING HEAD
SEALCO EcoJACK Adjustable Paver Supports with levelling head, comprised of a base, height control ring, a threaded top and a 3mm high levelling disc. Extension ring provides adjustable height from 42mm to 451mm. Levelling head provides up to 5% slope justification. Refer to SELECTIONS for sizes.
- 2.17 WALKWAY ROLLS
900mm wide TPO weldable walkway rolls designed to clearly identify walkway areas to services or other areas of the roof. The walkway rolls also protect the membrane from foot traffic damage.
- 2.18 TPO COATED STEEL
TPO coated zinc plated steel in a sheet form for use as flashings, drip edges and other areas where a welded TPO finish is required.
- 2.19 TPO POURABLE SEALER
Liquid TPO used as a sealer around difficult penetrations. Pockets and other components also included in the pourable sealer system.

3. EXECUTION

Conditions

3.1 STORAGE

Take delivery of Sealco Ltd EcoTUFF® branded rolls, undamaged and allow for site handling facilities where required. Store membranes and accessory materials under conditions that ensure no deterioration of damage. Ensure all tapes and adhesives are within their expiry dates. Note: Some of the EcoTUFF® materials are Class 3 flammable goods.

3.2 CONFIRM LAYOUT

Confirm layout as detailed on drawings. If not detailed on the drawings, confirm the layout to suit site conditions, and Sealco Ltd specification.

3.3 WEATHER

Apply EcoTUFF® membrane system in dry atmospheric conditions and only when the air or substrate temperature is 6°C and above.

Application – Substrate preparation and installation

3.4 PRELIMINARY WORK

Ensure that preliminary work, including formation of falls, flashing rebates, grooves, ducts, provision of battens and fillets and fixing of vents and outlets to levels, is complete and properly constructed to enable the system to work as intended. No timber fillets are required. This work and the substrate to be smooth, clean and dry.

3.5 ACCEPTANCE OF SUBSTRATE

Confirm that the substrate complies with the [NZBC E2/AS1](#) for the relevant substrates and Sealco Ltd documents, including fillets, sumps, outlets and projections, and ensure work is of the required standard. Ensure the fall complies with E2/AS1 including correct fall to rainwater outlets to avoid ponding,

- Lay roofs to a minimum fall of 1:30 (2°) to [NZBC E2/AS1](#), 8.5.1 a.
- Lay decks to a minimum of 1:40 (1.5°) to [NZBC E2/AS1](#), 8.5.1 b.
- Lay gutters to a minimum fall of 1:100 (0.57°) to [NZBC E2/AS1](#), 8.5.1 c.

3.6 CONCRETE SUBSTRATE

Ensure concrete substrate has been allowed to cure for at least 28 days and has a moisture content of less than 75% RH before commencing application. Prepare the surface, including vacuum cleaning and acid etching as necessary to leave smooth, clean, dry and free of debris. Install grid tapes in 600mm x 600mm grid for venting that lead to one-way vents or other suitable approved venting outlet. No mortar fillets are required.

3.7 PLYWOOD SUBSTRATE

Plywood to be minimum 17.5mm thick square-edged sheets and complying to [AS/NZS 2269.0](#), minimum CD structural grade with the sanded C side upwards. Treated H3 with waterborne CCA treatment and kiln dried after treatment. Lay with staggered joints (brick bond) with all edges of the sheets fully supported. Chamfer all external edges with a minimum radius of 5mm. Fix with glue and 10 gauge x 50mm stainless steel countersunk head screws, with all sheets tight butted. DO NOT fit internal corner fillets. Fix at 150mm centres on edges and 200mm in the body of the sheets. Plywood and the timber substructure to have a maximum moisture content of 20% when the membrane is installed. Plywood must not be LOSP treated.

3.8 WARM ROOF INSULATION SUBSTRATE (INCL TRAPEZIOD STEEL)

Install trapezoid steel tray roof as per manufacturers specifications. Screw spacings as per steel tray pattern. Lay out insulation panels in brick bond pattern and fix with either adhesive or screw fixings. Screw fixing spacings are to be 300mm around exterior and 400mm through the centre of the board. Apply Sealco Peel & Stick vapour barrier over steel tray as required.

- 3.9 **VAPOUR BARRIER**
Lexshield Peel & Stick vapour barrier to be installed over the substrate and under the insulation. Vapour barriers eliminate moisture from the structure to rise up into the insulation.
- 3.10 **ACCOUSTIC UNDERLAY**
Metal rubber sheets to reduce noise impact from above. Installed on top of the substrate and under the insulation and can be used as a vapour barrier (as above).

Application - laying EcoTUFF® WarmSEAL System

- 3.11 **INSTALLING TRAPEZOID STEEL TRAY ROOFING OVER EXISTING ROOF STRUCTURE**
Lay out trapezoid sheet going across the existing joists. Ensure the flat tray of the trapezoid is facing upwards with the ribs facing downwards. Fix tray down through ribs into framing as per standard screw fixings. Use minimum of 12G x 50mm hex head roofing screws.
- 3.12 **INSTALLING LEXSHIELD VAPOUR BARRIER**
Lay out the vapour barrier, cut to size and allow to relax. Peel off the backing and using a large roller, roll the entire sheet. Lay the next sheet with 100mm overlap. When laying on trapezoid steel, ensure the vapour barrier is flat across the ridge and not sunk down into channels of the tray.
- 3.13 **INSTALLING WARMSEAL POLYISO INSULATION**
Lay out polyiso sheets in a brick-bond pattern. Mark screw/washer pattern with a chalk line at 4 rows at 300-400mm centres along the 1200mm wide sheet and are set 100mm in from the outside edge of the panel. Ensure the screws will be penetrating the flat upside of the trapezoid tray. Ensure the insulation washers are slightly countersunk into the insulation panel. Ensure a minimum of 20mm of screw penetrates the trapezoid tray steel. Where foam insulation adhesive is used on the steel tray or across the vapour barrier, ensure a minimum of 6 rows of foam are laid out across the 1.2m wide sheet and the panel is then placed into the wet foam and left to cure. Weight down the panel if necessary.
- 3.14 **GENERAL - PLYWOOD SUBSTRATE**
Tape plywood joints using a polyethylene bond-breaker 36mm tape. Run out the EcoTUFF® membrane and allow to relax for 20 minutes before laying. Do not stretch sheets or tapes when laying.
- 3.15 **GENERAL - CONCRETE SUBSTRATE**
Apply grid tapes to concrete substrate (for venting purpose) to Sealco Ltd installation requirements. Run out the EcoTUFF® membrane and allow to relax for 20 minutes before laying. Do not stretch sheets or tapes when laying.
- 3.16 **SET-OUT**
Neatly set out rolls starting at the lowest point of the roof and run perpendicular to the roof pitch. Allow for 40mm side laps and end laps. Pre-plan the work to keep the number of membrane laps to a minimum. EcoTUFF® rolls to be relaxed prior to installation.
- 3.17 **APPLY ADHESIVE**
Apply EcoTUFF® TPO adhesive to the substrate at a rate of 1.5m² per litre by brush or roller ensuring good even coverage. and Leave to tack dry before bonding the two surfaces together.
- 3.18 **BONDING LAPS**
Clean laps where required with weathered lap cleaner, form all laps at 40mm cover using the Leister heat welder carefully heat both mating surfaces at the back of the lap evenly at the same time whilst firmly rolling the on top of the sheet with the hand roller. Using the Leister heat welder make your final run by placing the nozzle between the sheets at the front lap area, heat both surfaces (to the point of melting the mating surfaces) and creating a bonded lap of 40mm. Firmly roll the lap with a lap roller immediately and test the lap joint on completion with a lap probe.

- 3.19 **MINOR MOVEMENT JOINTS**
Lay membrane across joint but leave unbonded underneath EcoTUFF® on both sides of the joint. Refer to Waterproofing Systems technical dept for a specially designed movement joint detail.
Unbonded width: ~mm
- 3.20 **INSPECT**
Inspect and test lap joints on completion with lap probe ensuring the lap is fully bonded
- 3.21 **PENETRATIONS**
Use a heat gun (Leister) to form and finish upstands, downturns, penetrations, sumps and vents to conform to the EcoTUFF® Product Manual and [NZBC E2/AS1](#). Use the gun to form and heat weld flashing patches to the exterior of the EcoTUFF membrane.
- 3.22 **PENETRATIONS AND JUNCTIONS**
Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof.
Required work includes the following:
- roofing installation neatly finished to all sides of openings and to all wall and parapet junctions.
- installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).
- 3.23 **INSTALL OVERFLOWS AND SUMPS**
Install SEALCO FlowRITE overflows and DrainRITE sumps to Sealco Ltd installation details.
- 3.24 **INSTALL ROOF VENTS**
Install SEALCO VentRITE TPO vent for roof space/moisture venting to Sealco Ltd installation details.
- 3.25 **INSTALL DROPPER**
Install SEALCO DrainRITE TPO dropper to Sealco Ltd installation details.
- 3.26 **INSTALL SCUPPER**
Install SEALCO DrainRITE TPO scupper to Sealco Ltd installation details.
- 3.27 **INSTALL OVERFLOW DROPPER**
Install SEALCO DrainRITE TPO overflow dropper to Sealco Ltd installation details.
- 3.28 **INSTALL PIPE BOOT**
Install SEALCO FlashRITE pipe boots to Sealco Ltd installation details.
- 3.29 **MOVEMENT JOINTS**
Install required movement joints to Sealco Ltd details.

Accessories

- 3.30 **PAVER SUPPORTS - ADJUSTABLE WITH LEVELLING HEAD**
Install SEALCO EcoJACK Adjustable Paver Supports with levelling head to Sealco Ltd installation details. Install 1.5mm thick EPDM rubber as impact isolation pads to prevent wear on the EcoTUFF® membrane system.

Finishing

- 3.31 **FOOT TRAFFIC**
Foot traffic is to be limited during and after laying. Providing access boards for later operations and remove when no longer needed. Protect and maintain roofing until completion of the contract works.

- 3.32 **ECOTUFF® TPO WALKWAY PADS**
Walkway pads and rolls for direct welded fix to EcoTUFF® for high trafficable areas.
- 3.33 **ACCEPTANCE**
Sign off acceptance of completed areas using the Sealco Ltd Quality Control sheets.
- 3.34 **SUBSEQUENT WORK**
Make good any damage by other trades by welding an EcoTUFF® patch to the installed membrane neatly to maintain the appearance of the covering as originally laid.

Completion

- 3.35 **ROUTINE CLEANING**
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused materials and elements from the site.
- 3.36 **DEFECTIVE OR DAMAGED WORK**
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

4. SELECTIONS

For further details on selections go to www.sealco.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

Materials

- 4.1 **ECOTUFF® TPO ROOFING MEMBRANE**
Location: Christchurch, Wellington, Auckland
Manufacturer: Sealco Ltd
Type/brand: EcoTUFF® TPO
Thickness: 1.1mm, 1.5mm, 2mm (2mm indent basis)
Colour: Grey (other colours on request)
- 4.2 **LEXSHIELD VAPOUR BARRIER**
Location: Christchurch, Wellington, Auckland
Manufacturer: Sealco Ltd
Type/brand: WarmSEAL®
Thickness: 0.5mm
Colour: Clear or Cloth Covered
- 4.3 **WARMSEAL POLYISO INSULATION**
Location: Christchurch, Wellington, Auckland
Manufacturer: Sealco Ltd
Type/brand: WarmSEAL®
Thickness: Various: 25mm – 200mm
Colour: White
- 4.2 **TRAPEZOID STEEL TRAY**
Location: Christchurch, Wellington, Auckland
Manufacturer: Steel & Tube Roofing
Thickness: .55 gauge minimum
Colour: Galvanised

Accessories

- 4.4 **ECOTUFF TPO WALKWAY ROLLS**
Location: Christchurch, Wellington, Auckland
Supplier: Sealco Ltd
Brand: EcoTUFF
Type: Non-slip
Size: 1m x 15m Rolls

4.5 DRAINRITE, VENTRITE, FLOWRITE ACCESSORIES
Location: Christchurch, Wellington, Auckland
Manufacturer: Sealco Ltd
Thickness: Various
Colour: Grey