

SEALCO FLAMESEAL® MEMBRANE ROOFING

1. GENERAL

This section relates to **Sealco Ltd** FlameSEAL® membrane roofing, bonded to:
- construction plywood, including all underlays and accessories
- concrete, including all underlays and accessories

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:
WMAI Waterproofing Membrane Association NZ Inc.

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
AS/NZS 2269.0	Plywood - Structural - Specifications
WMAI	Code of Practice for Torch-on Membrane Systems for Roofs and Decks

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
FlameSEAL® Product Manual (4th Edition November 2019)
Standard detailed drawings

Manufacturer/supplier contact details

Company:	Sealco Waterproofing Ltd
Web:	www.sealco.co.nz
Email:	admin@sealco.co.nz
Telephone:	03 366 9495 (head office) or 0508 (SEALCO)
Mobile	027-5445532

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a materials warranty in the suppliers standard form.
Warranty period: 20 years materials double layer system
From: Date of completion of the application

1.6 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against failure.
Warranty period: 5 years

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Requirements

1.7 QUALIFICATIONS

Roofing work to be carried out by Licensed Building Practitioners who are also licensed applicators approved by Sealco Waterproofing Ltd.

1.8 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Sealco Waterproofing Ltd system, or associated components and products.

- 1.9 PROJECT REGISTRATION
Contact Sealco Waterproofing Ltd to confirm that the project has been registered.
Web: www.sealco.co.nz/project-registration.html
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 Waterproofing 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 Waterproofing Ltd before proceeding with the installation.
- 1.12 TEST
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.
- 1.14 QUALITY ASSURANCE
Maintain quality necessary to assure that work is performed in accordance with this specification and the qualifying requirements of Sealco Waterproofing Ltd.

Ensure that Sealco Waterproofing Ltd's Quality Control sheets are completed fully and faithfully for each installation area.

2. PRODUCTS

Materials

- 2.1 DOUBLE LAYER WATERPROOFING MEMBRANE SYSTEM
Double layer waterproofing membrane system comprised of:
- FlameSEAL® BS, an SBS modified bitumen base sheet with glass fibre reinforcement.
- FlameSEAL® CS, an SBS or APP modified bitumen waterproofing membrane with 180 gsm composite polyester fibre reinforcement all marked with the manufacturer's mark and where required finished with a UV protection coating system.
- 2.2 DOUBLE LAYER PEEL & STICK WATERPROOFING MEMBRANE SYSTEM
Double layer waterproofing membrane system comprised of:
- FlameSEAL® BS, an SBS modified bitumen base sheet with glass fibre reinforcement and self adhesive backing.
- FlameSEAL® CS, an SBS modified bitumen waterproofing membrane with 180 gsm composite polyester fibre reinforcement and self adhesive backing & lap all marked with the manufacturer's mark.
- 2.3 DOUBLE LAYER VENTED SYSTEM
Double layer vented system comprised of:
- FlameSEAL® VBS, an APP modified bitumen base sheet, with a mass of 0.745 kg/m² and 119 holes/m².
- FlameSEAL® BS, an APP modified bitumen base sheet with glass fibre reinforcement.
- FlameSEAL® CS, an APP modified bitumen cap sheet with 180 gsm composite polyester fibre reinforcement all marked with the manufacturer's mark and where required finished with a UV protection coating system.

- 2.4 **DOUBLE LAYER MECHANICALLY FIXED SYSTEM**
Double layer mechanically fixed system comprised of:
- FlameSEAL® BS, an APP modified bitumen base sheet, with glass fibre reinforcement and mechanically fixed using 10G x 50mm stainless steel screws and Sealco insulation washers.
 - FlameSEAL® BS, an APP modified bitumen base sheet with glass fibre reinforcement fully torched to the mechanically fixed FlameSEAL® BS.
 - FlameSEAL® CS, an APP modified bitumen cap sheet with 180 gsm composite polyester fibre reinforcement all marked with the manufacturer's mark and where required finished with a UV protection coating system.

- 2.5 **FLAMESEAL PRIMER**
A quick drying bituminous primer compatible with the waterproofing membrane and formulated to prepare the substrate for optimum application of the membrane.

- 2.6 **BITUBOND® WB ADHESIVE**
Liquid applied bituminous adhesive all marked with the manufacturer's mark for areas of installation where a torch cannot be safely used and areas specified in Sealco Waterproofing Ltd specifications or when the membrane system is being installed using the cold-applied adhesive method.

Components

- 2.7 **EDGE TRIM**
Standard and purpose made metal trim to Sealco Waterproofing Ltd details and to suit the specific location.
- 2.8 **OUTLETS**
SEALCO drainRite roof drains, overflows and SEALCO drainRITE sumps as supplied and required by Sealco Waterproofing Ltd.
- 2.9 **ROOF VENTS**
SEALCO ventRite as supplied and required by Sealco Waterproofing Ltd.
- 2.10 **CLAMP GRATE DROPPER**
SEALCO drainRite clamp grate dropper as supplied and required by Sealco Waterproofing Ltd.
- 2.11 **SCUPPER**
SEALCO drainFlow scupper as supplied and required by Sealco Waterproofing Ltd.
- 2.12 **OVERFLOW DROPPER**
SEALCO drainRite overflow dropper as supplied and required by Sealco Waterproofing Ltd.
- 2.13 **PIPE BOOTS**
SEALCO flashRite moulded unreinforced pipe boots as supplied and required by Sealco Waterproofing Ltd. Designed to fit 20mm-150mm penetrations. Boots are welded to substrate and mechanically clamped and sealed around pipes.

Coatings

- 2.14 **CLEAR COATING**
Crystal Glaze, a clear coating which binds mineral chip and provides an anti-lichen and moss additive.
- 2.15 **POLYSEAL MEMBRANE COATING**
PolySEAL Polyurethane membrane coating to be applied by brush, roller or spray.

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.

3. EXECUTION

Conditions

- 3.1 GENERALLY
Work and materials to WMAI manual (3rd Edition November 2007), and to Sealco Waterproofing Ltd product requirements.
- 3.2 STORAGE
Take delivery of rolls undamaged and include for site handling facilities where required. Stack on end, off the ground on a level surface, out of sunlight and above 5°C and with accessories. Do not allow rolls to become crushed.
- 3.3 CONFIRM LAYOUT
If not detailed on the drawings, confirm the layout to suit site conditions, and Sealco Waterproofing Ltd specification.

Application - preparation

- 3.4 PRELIMINARY WORK
Ensure that preliminary work, including formation of falls, flashing rebates, 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. Ensure timber fillets fit neatly and that mitres are neatly formed. This work and the substrate to be smooth, clean and dry. Identify areas of potential movement and plan for movement joints.
- 3.5 ACCEPTANCE OF SUBSTRATE
Confirm that the substrate complies with the [NZBC E2/AS1](#) for the relevant substrates and Sealco Waterproofing Ltd documents, including fillets, sumps, outlets and projections, and ensure work 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 surface, including vacuum cleaning and acid etching/diamond grinding as necessary to leave smooth, clean, dry and free of debris. Make good any cracks with non shrink grout.
- 3.7 PLYWOOD SUBSTRATE
Lay plywood square-edged sheets with staggered joints (brick bond), and laid tight-butted, with all edges fully supported. Ensure sheets are rigid, with joints flush, no lumps or hollows, smooth, clean, dry (20% maximum moisture content) and free of debris. Plywood to be minimum 17.5mm, H3 CCA treated and conform to [AS/NZS 2269.0](#). Sheets to be fixed with glue and 10 gauge x 50mm stainless steel screws counter sunk, chamfered edges, coving fillets to all up-stands, internal corner fillets, installed to Sealco Waterproofing Ltd specification. Fix at 150mm centres on edges and 200mm in the body of the sheets. Do not use LOSP treated plywood.
- 3.8 TURN DOWNS
Where the membrane is to be turned down at an external corner, chamfer the corner to provide a minimum 5mm radius.

- 3.9 UPSTANDS
Install fillets minimum 20mm to all upstands and ensure tight and neat fit. Timber fillets H3.1 treated minimum.
- 3.10 FLASHINGS
Fit membrane flashings to all internal and external corners and upstands and to all penetrations to Sealco Waterproofing Ltd specifications. Neatly mould membrane up all upstands and around all roof penetrations with a tight cove.
- 3.11 SET-OUT
Neatly set out rolls starting at the lowest point of the roof and run perpendicular to the roof pitch. Lay out membrane and allow to relax for 30 minutes prior to laying. In cooler conditions allow additional time for the membrane to fully relax.

Application - laying

- 3.12 CONDITIONS
Do not lay membrane in wet or misty conditions or below 7°C. Check that the substrate is dry at time of laying. Concrete maximum moisture content 75% RH; plywood maximum moisture content 20%.
- 3.13 APPLICATION TORCH ON MEMBRANES - GENERALLY
Unless otherwise specified, install reinforced modified bitumen membrane system to FlameSEAL® Product Manual specification.
- 3.14 PRIMING
All surfaces to be primed strictly to Sealco Waterproofing Ltd recommendations, ensuring good even coverage. Primed roofs will need re-priming if left more than 3 days before membrane installation.
- 3.15 LAYING AND JOINTING
Lay membrane using torch applied bonding unless the location will not allow the application of heat. When cold applied under-surface adhesive may be used. Lay in order from sumps, through gutters, valleys, eaves, verges, main roof and upstands to cover flashings.
- 3.16 HEAT CONTROL
Control heat to ensure the membrane is fully installed to the substrate with all laps properly formed. Ensure full bonding between the FlameSEAL® base sheet and FlameSEAL® cap sheet. Do not over heat membrane.
- 3.17 FLAMESEAL® VENTED BASE SHEET
Lay out the rolls of FlameSEAL® VBS vented base sheet installed edge butted. Ensure rolls remain in place while the FlameSEAL® BS base sheet is torched over the vented base sheet.
- 3.18 FLAMESEAL® BASE SHEET INCL MECHANICALLY FIXED OR PEEL & STICK
Fully torch the rolls of FlameSEAL® BS directly to the primed substrate or vented base sheet as described in the FlameSEAL® Product Manual, allowing for 100mm side laps and 150mm end laps. Where the mechanical fixing option is used mechanically fix the FlameSEAL® BS base sheet according to the FlameSEAL® Product Manual taking particular note of the requirements when installing in very high wind zones. Standard mechanical fixing is to screw washers at 300mm centres with an aluminium mechanical fastening bar screwed around the perimeter of the roof. Fully torch a further layer of FlameSEAL® BS over the mechanically fixed layer before installing the FlameSEAL® CS cap sheet. FlameSEAL Peel & stick base sheet is to be laid out as above (without torching) and the backing peeled back once in position. Roll sheet entirely with a heavy roller and use a heat Leister or small torch on the laps if necessary.

- 3.19 **FLAMESEAL® CAP SHEET INCL PEEL & STICK CAP SHEET**
Set the FlameSEAL® CS sheets to ensure laps are off-set to the base sheet. Fully torch to base sheet to Sealco Waterproofing Ltd installation instructions, ensuring the cap sheet is fully bonded to the base sheet. All side laps 100mm wide and end laps 150mm wide. All laps fully welded and seamed off. FlameSEAL Peel & stick mineral chip cap sheet is to be laid out as above (without torching) and the backing peeled back once in position. Roll sheet entirely with a heavy roller and use a heat Leister or small torch on the laps if necessary.
- 3.20 **BOX GUTTERS**
Lay membrane in box gutters with the membrane neatly dressed into proprietary preformed sump and downpipe outlets. Fix membrane into downpipes and overflows.
- 3.21 **WELD JOINTS**
Weld joints using heat to Sealco Waterproofing Ltd requirements. For FlameSEAL® Granule, remove granules from the end-lap area to create bitumen to bitumen contact.
- 3.22 **PENETRATIONS**
Form, or mould by torching, with required upstands and downturns and all penetrations to Sealco Waterproofing Ltd details.
- 3.23 **INSTALL ROOF DRAINS, OVERFLOWS AND SUMPS**
Install SEALCO roof drains, overflows and sumps to Sealco Waterproofing Ltd installation details.
- 3.24 **INSTALL ROOF VENTS**
Install SEALCO ventRite for roof space/moisture venting to Sealco Waterproofing Ltd installation details.
- 3.25 **INSTALL CLAMP GRATE DROPPER**
Install SEALCO drainRite clamp grate dropper to Sealco Waterproofing Ltd installation details.
- 3.26 **INSTALL SCUPPER**
Install SEALCO drainRite scupper to Sealco Waterproofing Ltd installation details
- 3.27 **INSTALL OVERFLOW DROPPER**
Install SEALCO drainRite overflow dropper to Sealco Waterproofing Ltd installation details.
- 3.28 **INSTALL PIPE BOOT**
Install SEALCO flashRite pipe boot to Sealco Waterproofing Ltd installation details.
- 3.29 **MOVEMENT JOINTS**
Install required movement joints to Sealco Waterproofing Ltd details.

Installation - accessories

- 3.30 **INSTALL PAVER SUPPORTS - ADJUSTABLE WITH LEVELLING HEAD**
Install SEALCO ecoJack Adjustable Paver Supports with levelling head to Sealco Waterproofing Ltd installation details.

Finishing

- 3.31 **COATINGS - SAND FINISHED**
For sand finished FlameSEAL® apply the specified coating system within 5 days of completing laying.
- 3.32 **APPLY COATING**
Apply the selected system to Sealco Ltd requirements on all finished membranes, ensuring full film thickness and even coverage is achieved.

- 3.33 **FOOT TRAFFIC**
Heavy foot traffic is not allowed on the membrane after laying.
- 3.34 **ACCESS BOARDS**
Provide access boards for later operations and remove when no longer needed.
- 3.35 **ACCEPTANCE**
- Arrange for an inspection of the completed work.
 - Complete Sealco Ltd Quality Control sheets and provide to them for the issuing of the Materials Warranty.
 - Protect and maintain roofing until completion of the contract works.
- 3.36 **SUBSEQUENT WORK**
Make good any covering cut or deformed by later work. Making good to take the form of inserting a new whole or part infill sheet to maintain the appearance of the covering as originally laid.

Completion

- 3.37 **CLEAN UP**
Clean up as the work proceeds.
- 3.38 **ACCEPTANCE**
- Arrange for an inspection of the completed work.
 - Complete Sealco Ltd Quality Control sheets and provide to them for the issuing of the Materials Warranty.
 - Protect the membrane until completion of the contract works.
- 3.39 **LEAVE**
Leave work to the standard required by following procedures.
- 3.40 **REMOVE**
Remove debris, unused materials and elements from the site.

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 **WATERPROOFING MEMBRANE - DOUBLE LAYER**
- | | |
|---------------|---|
| Location: | ~ |
| Manufacturer: | Sealco Waterproofing Ltd |
| Type/brand: | FlameSEAL® |
| Base sheet: | 3mm FlameSEAL® BS (Thermo AD or Peel & Stick) |
| Base sheet: | 3mm FlameSEAL® BS |
| Cap sheet: | 4mm FlameSEAL® CS (or Peel & Stick) |
| Finish: | Mineral |
| Colour: | ~ |
- 4.2 **WATERPROOFING MEMBRANE - VENTED DOUBLE LAYER**
- | | |
|--------------------|--------------------------|
| Location: | ~ |
| Manufacturer: | Sealco Waterproofing Ltd |
| Type/brand: | FlameSEAL® |
| Vented base sheet: | FlameSEAL® |
| Base sheet: | 3mm FlameSEAL® BS |
| Cap sheet: | 4mm FlameSEAL® CS |
| Finish: | Mineral |
| Colour: | ~ |

4.3 WATERPROOFING MEMBRANE - MECHANICALLY FIXED
Location: ~
Manufacturer: Sealco Waterproofing Ltd
Type/brand: FlameSEAL®
First base sheet: FlameSEAL® BS plus nails / screws
Base sheet: 3mm FlameSEAL® BS
Cap sheet: 4mm FlameSEAL® CS
Finish: ~
Colour: ~

Coatings

4.4 PROTECTIVE COATING FOR MINERAL CHIP FINISHED MEMBRANES
Location: ~
Supplier: Sealco Waterproofing Ltd
Type/brand: Crystal Glaze or PolySEAL Polyurethane
Colour: ~

Accessories

4.5 PAVER SUPPORTS - ADJUSTABLE WITH LEVELLING HEAD
Location: ~
Supplier: Sealco Waterproofing Ltd
Brand: SEALCO ecoJack Adjustable Paver Supports
Type: ~
Size: ~