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# EPDM Membranes

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**1-14**    **Episeal EPDM Fibre Backed Roofing**

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# ARDEX WPM 2000EP

## Episeal EPDM Roofing E2/AS1 Acceptable Solution

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Perimeter fixings normally required for solid EPDM membranes are not required for Ardex Episeal due to the Fibre Backing which allows the membrane to relax after manufacture and prevents shrinkage normally encountered after installation of EPDM sheeting

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# ARDEX WPM 2000EP

## Episeal EPDM Roofing E2/AS1 Acceptable Solution

### SPECIFICATION

Ardex Episeal is a high performance synthetic rubber membrane based on the polymer Ethylene Propylene Diene-Monomer (EPDM) combined with a Polyester Fibre Mat backing.

Ardex Episeal has properties which resist ageing from heat, sunlight and ozone. It has excellent gas impermeability and toughness and remains flexible at low temperatures.

Ardex Episeal is marketed by Ardex as a warranted roofing product and fixed by approved Applicators.

### EPISEAL MATERIAL SPECIFICATIONS

Our requirements for long term warranty necessitate that Ardex Episeal meets these typical technical requirements:

#### Testings as per ASTM

Tensile Strength (D412 Die C)	1305 psi min
Ultimate Elongation (D412)	300% min
Tear Resistance (D624 Die C)	400 lbs/in min
Linear Dimensional Change (168 hrs @ 240°F) (D1204)	±2% max
Ozone Resistance (168 hrs/100PPHM/104°F/40°C 50% ext.) (D1149)	No cracks at 7x magnification
Water Absorption (168 hrs @ 70°C) (D471)	+2/-2% max
Heat Ageing (28 days @ 240°F)	
Tensile Strength (D573)	1205 psi min
Ultimate Elongation (D573)	200% min
Tear Resistance (D573)	125 lbs/in min

### SPECIAL FEATURES OF EPISEAL

- Cost effective - The fibre backing provides a protective underside barrier that allows application over a wide range of surfaces, including some existing membranes and bitumen.
- Extra strength, high puncture, tear and impact resistance.
- Retains flexibility and is not stressed in any way by the backing or inhibited to compensate for building movement.
- Ability to be laid over surfaces with moisture content. No delays with uncured slabs, water vapour can dissipate without causing stress to the membrane.
- Quick Application - The system is fully bonded using Ardex WA98 contact adhesive. Ardex Episeal can also be loose laid and ballasted.
- Ardex Episeal is unaffected by thermal shock and UV rays.

### EPISEAL IS PACKAGED

In rolls 3.050m wide and 15.250m long. (Tolerance 40mm on width and length). Each roll covers 46.5m<sup>2</sup> (Approx. 77kg per roll).

Gauges: Ardex Episeal	1.2mm nominal
Uncompressed Fibre	1.5mm

### ADHESIVES AND SOLVENTS

Specially formulated for all Ardex Episeal applications. Supplied in 20L pails (approx. 20kg).

### OVERLAY TAPE

Cured silicone backed joint tape. Supplied in 150mm x 30.4m rolls.

### DETAIL TAPE

Semi-cured silicone backed detail/finishing tape. Supplied in 150mm x 30.4m rolls.

### EPISEAL SEALANT

Polyurethane 600ml.

### EXTERNAL MOISTURE

New Zealand Building Code requirements recommend membrane clad roofs have a minimum pitch of 1.5°.

Australian Building Code Section F1.9(c) is met by Ardex Episeal as an acceptable damp-proof course.

### FIRE RATING

The Ardex Episeal roofing system must be considered combustible but may be used on buildings for all purpose groups, subject to the requirements of NZBIA Acceptable Solution C3/AS1 4.8 and 4.9.

When used for roofs in Purpose Groups SC and SD a non combustible substrate or timber 18mm thick is acceptable.

Australian Building Code allows use in all building types under Section C1.10 Page C-47 Part 7(e).

### PRODUCT WARRANTY

Ardex Episeal is covered by a fifteen year material warranty available from Ardex following installation by an approved Applicator. Ardex is not responsible for any costs arising out of installation and does not provide any warranty other than where a written Ardex material warranty has been issued.

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## **SUBSTRATE SPECIFICATION (Plywood)**

To conform with Acceptable Solution E2/AS1 plywood shall be:

A minimum of 17 mm complying with AS/NZS 2269, at least CD Structural Grade plywood with the sanded C face upwards, and H3.2 with Waterborne CCA treatment and kiln dried after treatment.

Substrates must be dry when Episeal is applied. The plywood and the timber substructure shall have a maximum moisture content of 20% when Episeal is adhered.

Plywood panels shall be laid with staggered joints (brick bond), the edge of sheets shall be supported with dwangs or framing, unless a structurally tested tongue-in-groove edge provides equivalent support. The maximum recommended span in E2/AS1 is 400mm in each direction. However specific design may allow 17.5mm plywood or greater to be laid on 400mm purlins with nogs or dwangs at 600mm or even 1200mm centres. Plywood shall be laid with the face grain at right angles to the supports. A 20mm triangular fillet shall be used at the base of any 90° upstand. External edges shall be chamfered with a minimum radius of 5mm.

Plywood shall be fixed with 10g x 50mm stainless steel countersunk head screws, eg Hylton Parker No 24639 or No 12923 for Steel Purlins, with 3mm gaps between all sheets, at 150mm centres on edges, and 200mm in the body of the sheets.

All joints in the plywood and junctions of plywood with other materials shall have 25mm polyethylene release tape applied before application of Episeal.

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

For roof or deck areas over 40m<sup>2</sup>, roof vents will be required.

**NOTE: The use of LOSP (Light Organic Solvent Preservative) treated plywood must NOT be used under Episeal in any circumstances or conditions.**

## **SUBSTRATE SPECIFICATION (Concrete)**

### **New concrete**

Must be cured for a minimum of 28 days and all curing compounds removed prior to application.

A reduction in cure time can be achieved by utilising the Ardex HydrEpoxy System (consult Ardex Technical Department for details).

### **Old concrete**

Must be clean from any contaminants prior to application.

For further substrate types please consult Ardex Technical Department.

Ardex Episeal gives the Designer or Specifier of Membrane Systems the opportunity to provide clients with a time proven waterproofing system that acts as permanent venting of the substrate, and most importantly can be applied to new substrates or over existing membrane systems, avoiding excessive cost and disruption to the client normally associated with such an exercise.

Ardex Episeal assists in ventilating substrates permanently by allowing moisture drawn from the substrate to dissipate through the fibre backing of the membrane to perimeter flashings, or to strategically positioned Vapour Release Vents.

Ardex Episeal with its fibre backing has high resistance to mechanical damage, puncture and tear. The fibre backing allows the membrane to take up minor undulations in the substrate, particularly useful when applied over existing membrane systems.

Ardex Episeal may be applied over various substrates such as built-up roof systems, malthoid, liquid membranes and earth formed dams. Substrate bonding is achieved with a variety of specially developed adhesives.

Ardex Episeal can be applied to XPS using suitable adhesives. Contact Ardex for details.

Ardex Episeal can be applied onto Polyurethane Foams, providing an instantly suitable substrate with insulation properties. Consult Ardex for details.

# ARDEX WPM 2000EP

## Episeal EPDM Roofing E2/AS1 Acceptable Solution

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### ARCHITECTURAL SPECIFICATIONS

#### 1. Introduction

Ardex Episeal is a roofing system designed primarily for the retrofit of existing bitumen, malthoid, concrete or tongue and groove sarking. The membrane incorporates a polyester fleece which is laminated to the underside of the sheet membrane. This fleece provides an excellent means of ventilation for the membrane as well as increasing the puncture resistance of the membrane.

#### 2. Scope

This rubber roofing specification consists of the provision and fixing of all the rubber roofing and flashings referred elsewhere in the manual.

#### 3. Contractors

The rubber roofing shall be fixed by roofing contractors specially skilled in this work and approved by the manufacturer or distributors of the material selected.

#### 4. Workmanship

The roofing contractors shall supply the main contractor when requested, written warranties covering the waterproofing properties of the rubber membrane and joining tapes etc., along with his own workmanship warranty covering the fixing of the membrane. It will include making good any defects which are covered by the said warranties.

Should the architect raise any queries on any aspect of this work, the roofing contractor shall attend a site inspection and if required, the manufacturer or his appointed agent may also be called to attend.

#### 5. Materials

Rubber membrane - For the purpose of this specification the approved single ply membrane system shall be:

Ardex Episeal fibre-backed

colour - Black

gauge - 1.2mm, 1.5mm

Lap tapes and other accessories as specified by the manufacturer for use with the selected membrane. Adhesives shall be as detailed in the accessories section of the manual.

#### 6. Acceptable Substrates

- Structural concrete
- Plywood
- Modified bitumen roofs
- Malthoid
- Tongue and grooved or butt joined sarking
- Polyurethane foams
- Nuralite
- Nuraply

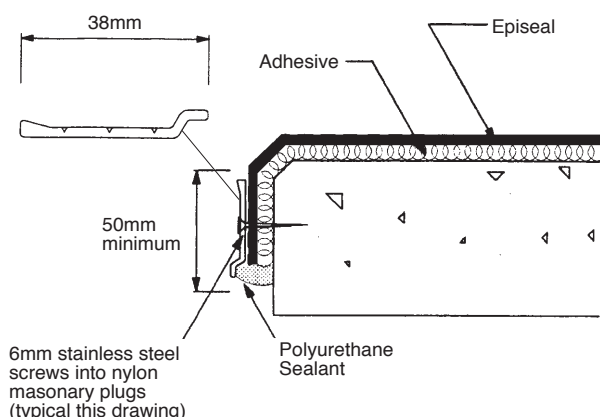
Before applying Ardex Episeal the substrate should be cleared of any sharp protrusions or penetrations that may risk the integrity of the rubber membrane in application.

#### 7. Membrane Application

1. Check that substrate is in a suitable condition as stated above. If in doubt contact your local Ardex representative.
2. Tape any large cracks or voids with suitable width self adhesive tape. Ensure the existing membrane is fixed securely to the substrate. Any large areas that have separated from the substrate should be either removed or nailed back into place.
3. Prime the substrate if required with the selected adhesive cut back 50% with its solvent.
4. Position the membrane and allow to relax where it is to be laid, allowing for the side laps to be in the correct position for adhesive application. See diagram page 40.
5. Fold back half the sheet that is to be applied.
6. Apply Ardex Episeal adhesive to the substrate surface and if a contact adhesive is used to the Ardex Episeal membrane as well.
7. Fold over and adhere working progressively towards the edge of the sheet. Wrinkles can be smoothed out with a soft bristle broom, but do not stretch the sheet.
8. Fold back other edge, adhering the other half of the sheet in the same manner as the first half.
9. Bonding the laps
  - 9.1 The top lap is positioned and the bottom sheet marked to indicate the edge of the top sheet.
  - 9.2 The top sheet is folded back.
  - 9.3 The Ardex Seam Primer is then applied to the Ardex Episeal in the area marked on the bottom sheet and 50mm in from the edge on the top sheet. The Ardex Seam Primer is applied to the mating surfaces using a synthetic scrubbing pad. Scrubbing pads should be replaced as they become dirty. Allow the primer to become 'touch dry'.
  - 9.4 Position and unroll the 50mm Ardex Seam Tape along the seam. The edge of the seam tape should be aligned to the mark on the bottom membrane sheet. The see-through film makes this very simple.
  - 9.5 Roll the length of the seam with backing film still in place.
  - 9.6 Remove the backing film from the Ardex Seam Tape by pulling at a 45° angle away from the seam. Keep the release paper low to the roof surface as it is removed.

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- 9.7 Fold into place the primed edge of the top sheet.
  - 9.8 Roll the completed seam.
  10. Place the roll of overlay tape on roof a metre ahead of the application start point. Position the roll so that the release paper unrolls from the top of the roll. The release paper will be on top. Peel the release paper up and back from the overlay tape. Unroll the overlay tape along the seam taking care not to stretch the overlay tape during its application. Take care to avoid wrinkles. Smooth the tape down into contact with the membranes.
  11. Roll the sheet membrane and the seams with a heavy roller to ensure a good uniform bond is achieved.
  12. End laps must be primed with seam primer and 150mm overlay tape. See diagram page 40.
  13. Detail work and roof penetrations can be flashed with 150mm wide detail tape.
  14. Seal all cross joints and T-joints in overlay tapes with Butynol sealant.
  15. Edge sealing must be carried out when laying is halted due to rain in time to prevent moisture getting under the fibre backing.

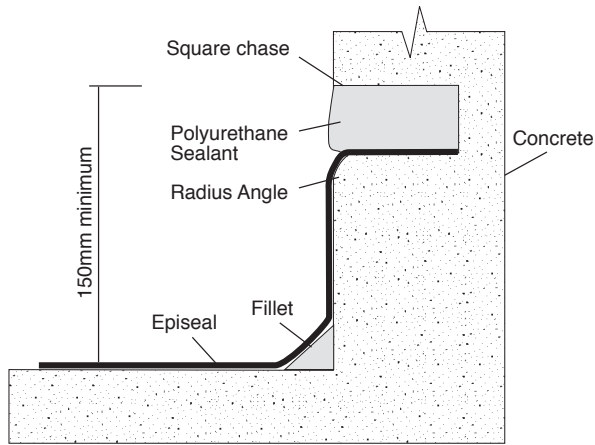
## ALUMINIUM PRESSURE SEAL DETAILS



# ARDEX WPM 2000EP

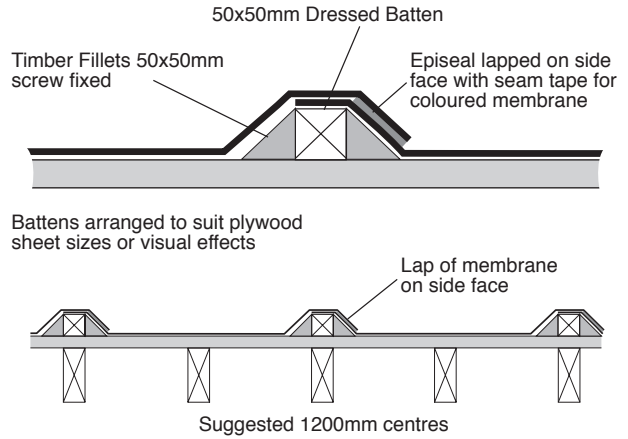
## Episeal EPDM Roofing E2/AS1 Acceptable Solution

### FLASHING INTO CONCRETE WALLS



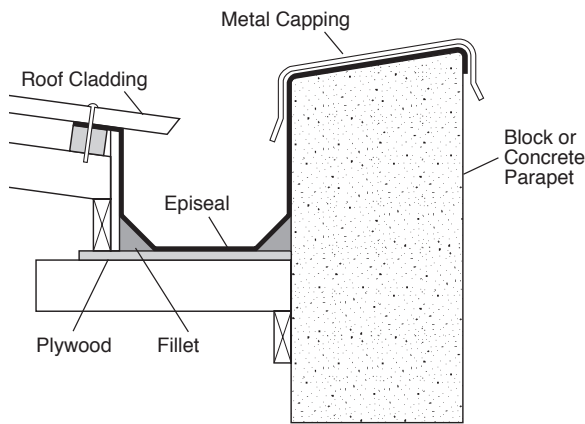
Episeal is glued into square chase and finished with Polyurethane Sealant.

### RECOMMENDED BATTEN PROFILE DETAIL

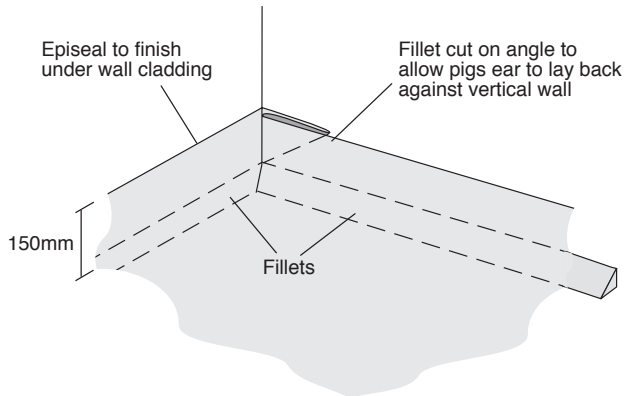


Example of a 1400mm sheet of Episeal dressed over battens at 1200mm centres

### BOXED GUTTER AND PARAPET DOWNTURN



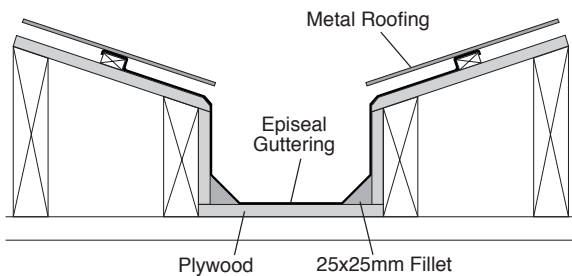
### INTERNAL CORNERS



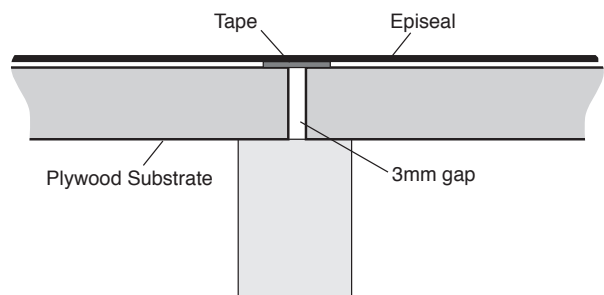
Without cutting Episeal simply fold a 'pig's ear' corner as shown. The angle fold should be behind the main sheet.

*NOTE: Fillets must be used on all internal corners.*

### INTERNAL GUTTER



### TAPING SUBSTRATE SHEETS

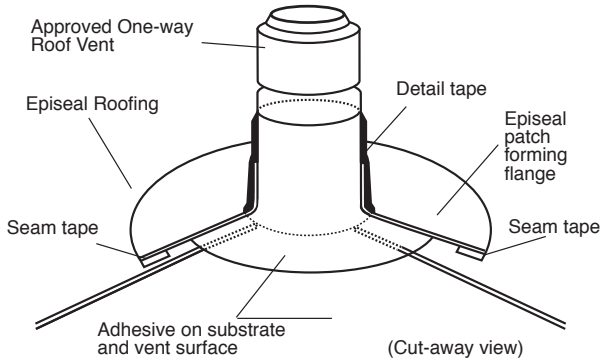


All joints between substrate sheets of Ply should be taped to prevent stressing of the Episeal in case of marked timber movement.

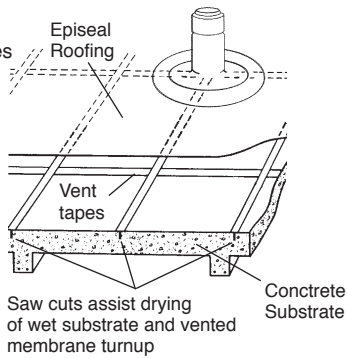


## ONE WAY SUBSTRATE VENTILATOR

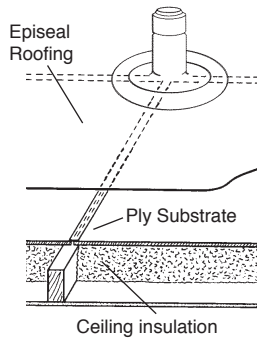
### PVC or Aluminium



Vent installed over intersection of vent tapes on concrete substrate



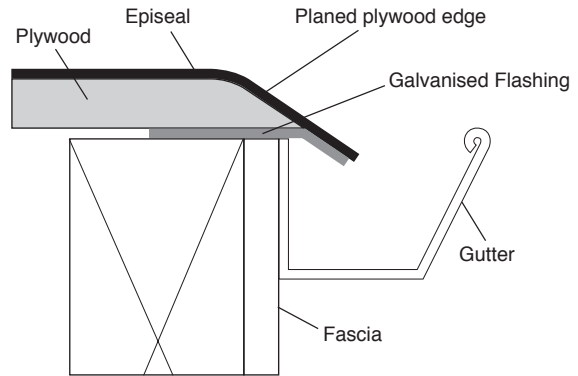
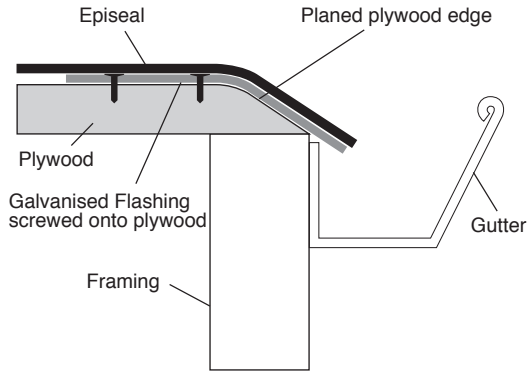
Vent installed over intersection of 3mm gap between Ply substrate sheets.



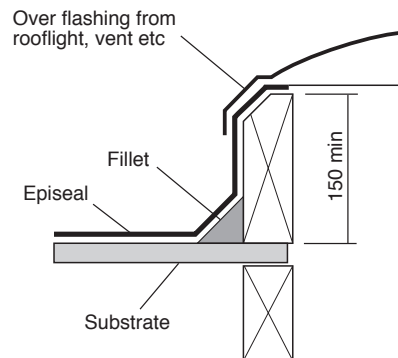
## LO RISE ROOF VENT



## TWO METHODS FOR FINISHING OVER A GUTTER



## ROOFING PENETRATION IN MEMBRANE

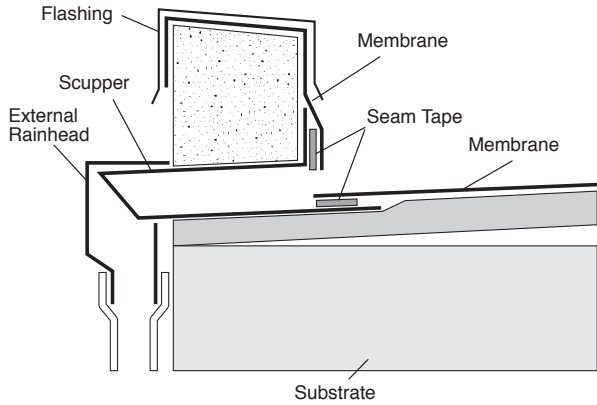


- NOTE: 1 For maximum penetration size of 1200x1200mm  
2 External corners to be formed as shown

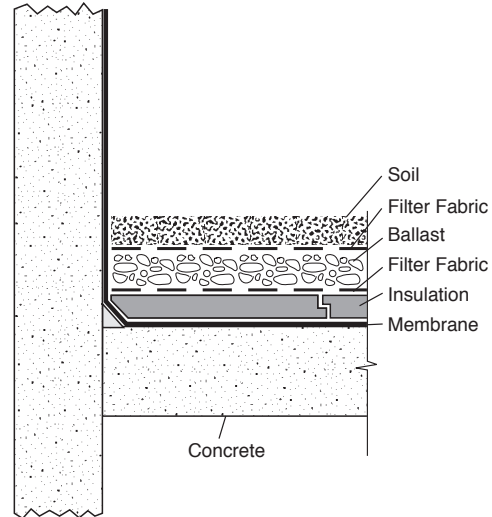
# ARDEX WPM 2000EP

## Episeal EPDM Roofing E2/AS1 Acceptable Solution

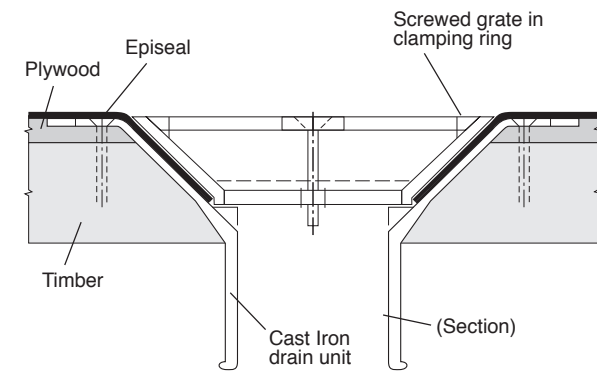
### SCUPPER OUTLET



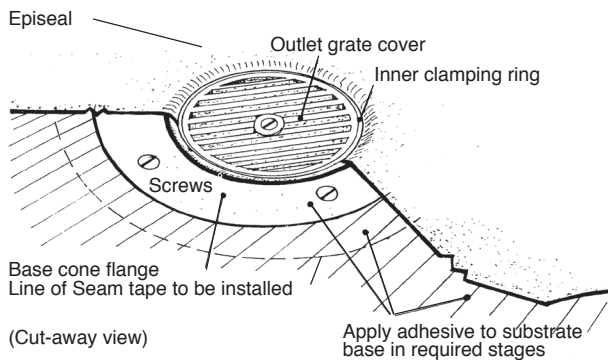
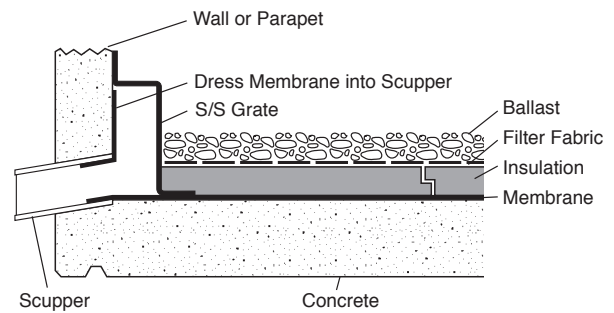
### TYPICAL BALLASTED/GARDEN ROOF DETAIL



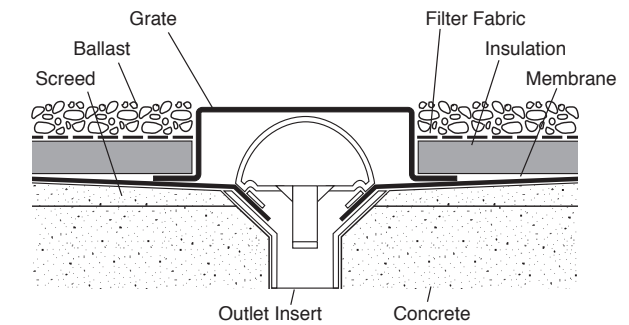
### INTERNAL ROOF DRAIN (NZBC E2/AS1 Approved)



### SCUPPER ROOF OUTLET

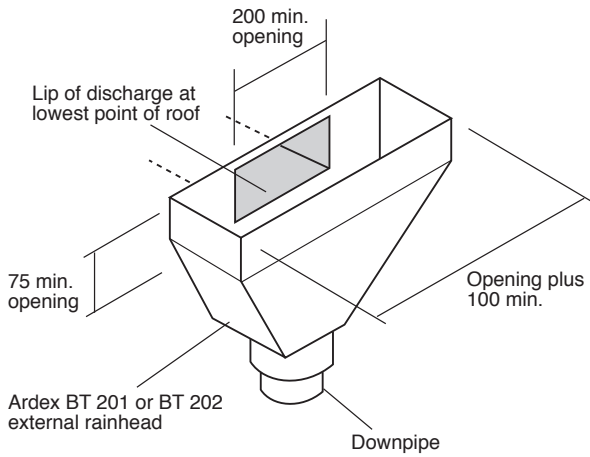


### SCUPPER ROOF OUTLET & GRAVEL RETAINER

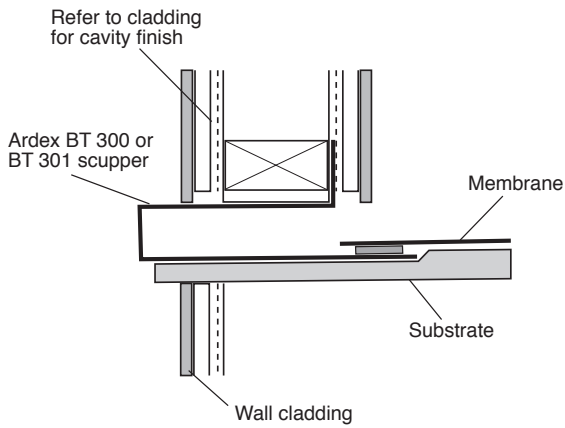


**RAINWATER HEAD AND SCUPPER OPENING IN MEMBRANE USING ARDEX BT 300 OR BT 301 SCUPPER**

**Deck outlet**

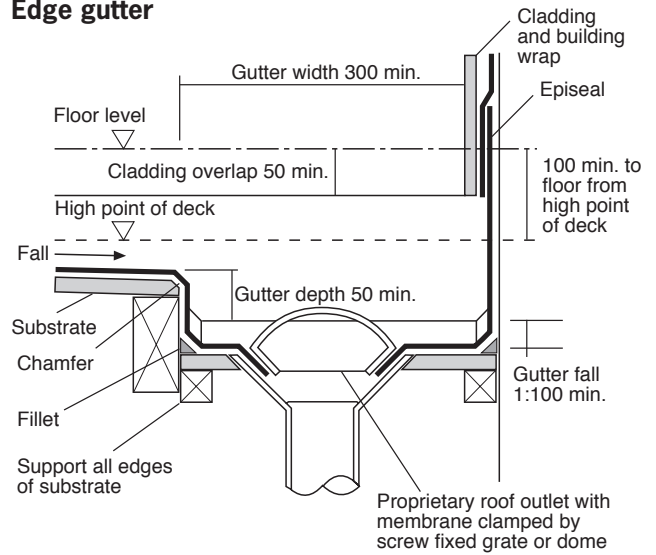


**Overflow**

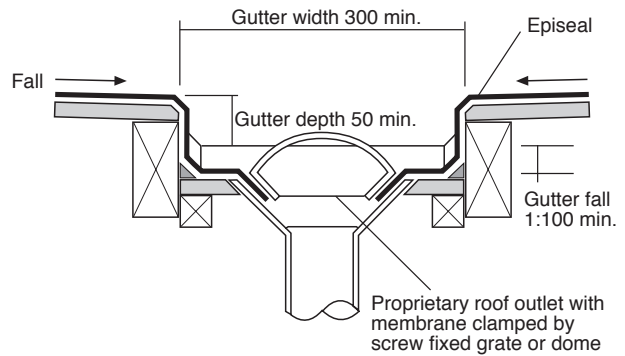


**GUTTERS AND OUTLETS IN MEMBRANE**

**Edge gutter**



**Central gutter**

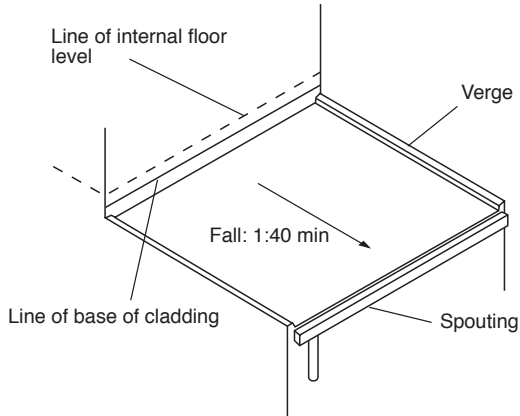


# ARDEX WPM 2000EP

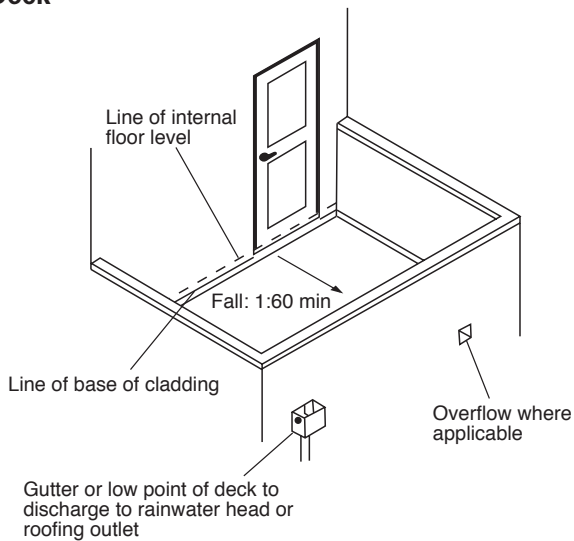
## Episeal EPDM Roofing E2/AS1 Acceptable Solution

### FALLS IN EPISEAL ROOFS AND DECKS

#### Roof

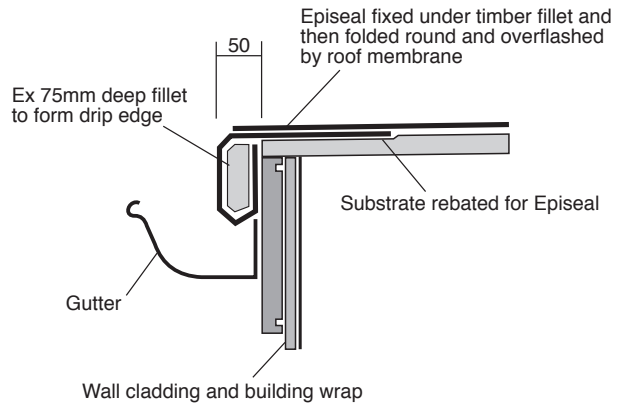


#### Deck

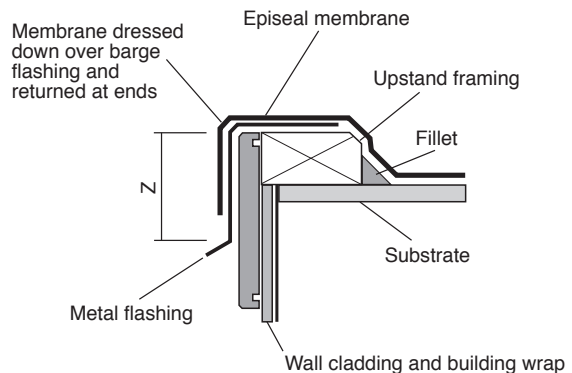
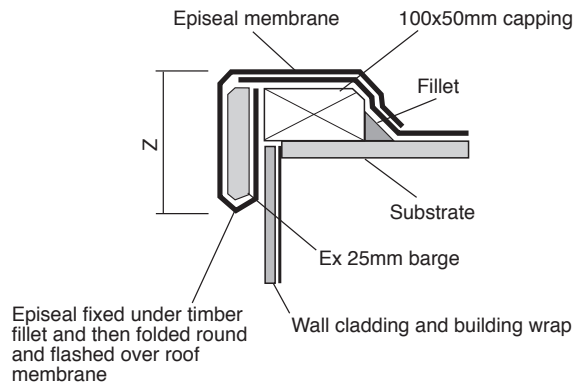


### EAVE AND VERGES IN EPISEAL

#### Eave



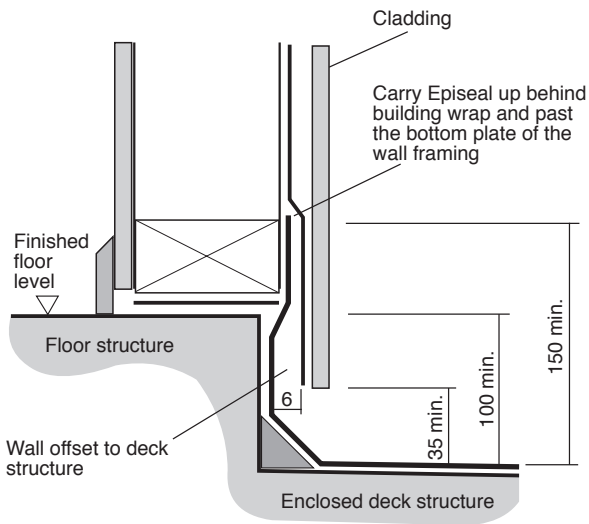
#### Verges



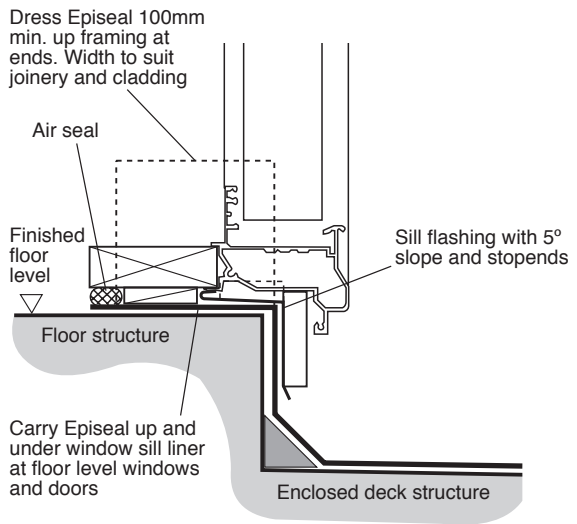
NOTE: Z = variable according to wind zone

## JUNCTIONS WITH WALLS FOR EPISEAL

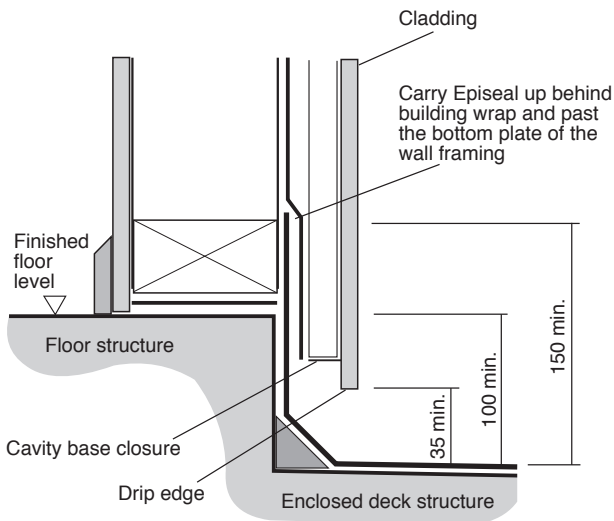
### Direct fix threshold at wall



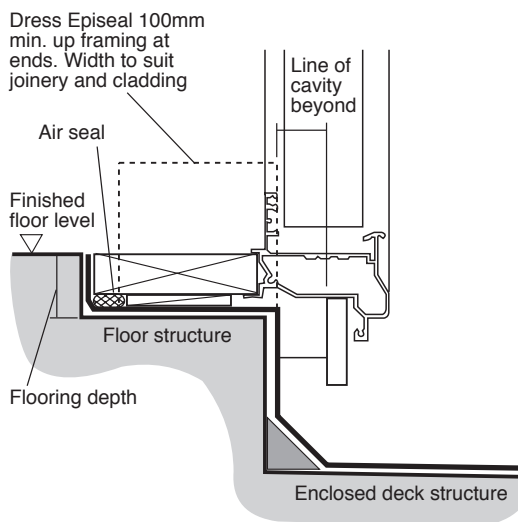
### Direct fix threshold at opening



### Cavity threshold at wall



### Alternative threshold at opening



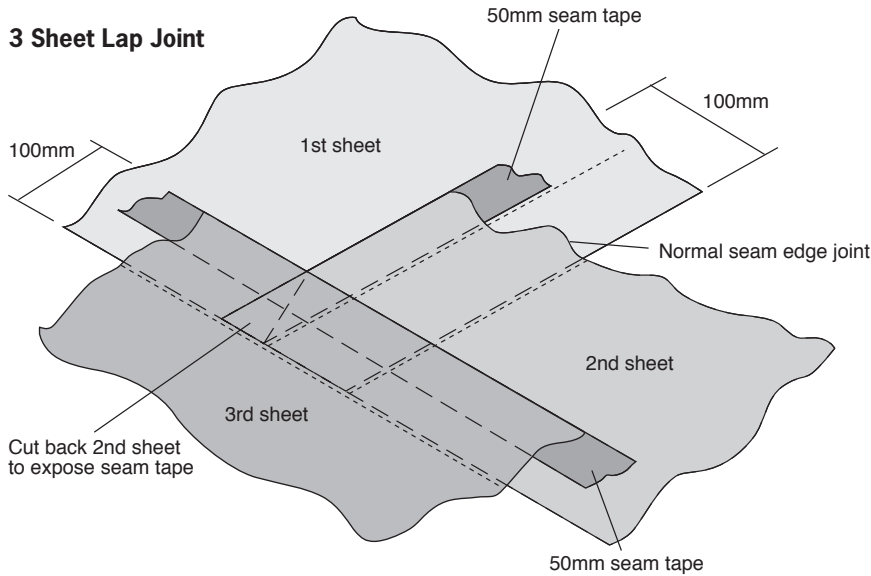
- NOTE: 1 Internal corners to be formed as shown on page 10
- 2 Dimensions are shown to Episeal. However, where there is an additional material applied over the Episeal all dimensions shall apply to the highest level of the wearing surface

# ARDEX WPM 2000EP

## Episeal EPDM Roofing E2/AS1 Acceptable Solution

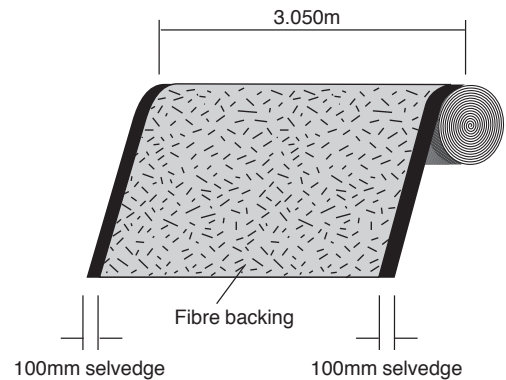
### LAP AND BUTT JOINTING

#### 3 Sheet Lap Joint

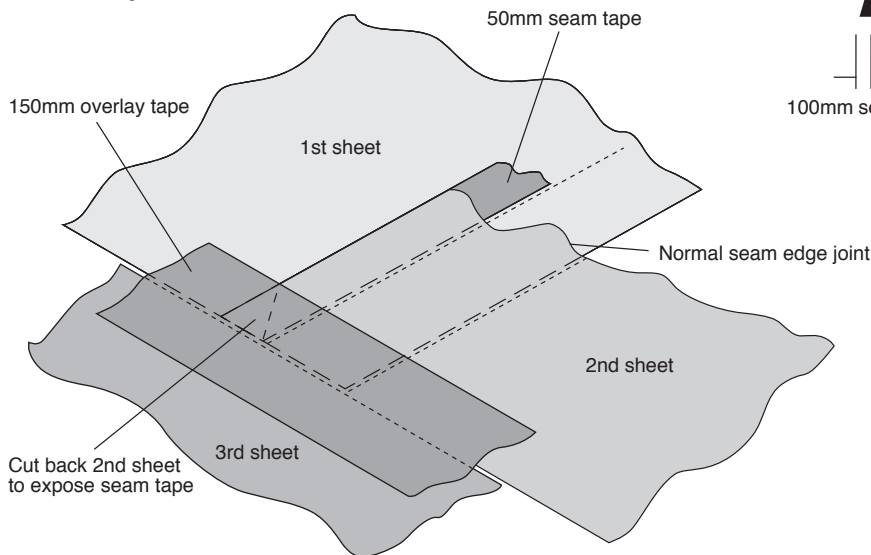


#### IMPORTANT NOTE

The new construction of Ardex Episeal sheet is 3.050m wide with a 100mm selvedge on both sides.



#### 3 Sheet Lap and Butt Joint



#### Edge Seam

