E2AS1, Single Ply Membrane

This is a summary of E2/AS1 pertaining to requirements for membrane application and should be read in conjunction with the full document available from the Department of Building and Housing. The Rubber Roofing Co does not accept any liability or consequences arising from the use of this summary. Comments in Italics are in addition to tho se shown in E2/AS1.

8.0 ROOF CLADDINGS

8.1 GENERAL

8.1.2 LIMITATIONS

This Acceptable Solution is limited to roof *Cladding systems* listed in Paragraph 3.2.

8.1.6 GUTTERS

Downpipes discharging to a lower roof shall be fitted with a spreader with the discharge limited to a section of roofing with no side laps.

A maximum catchment area of 25 m2 shall be permitted to discharge via a spreader on to a lower roof area.

Comments by The Rubber Roofing Co

Roofing materials covered by E2 AS1 are:

Masonry Tiles

Pressed metal Tiles

Profiled Metal

Membrane roofing (Butyl & EPDM rubber membranes only installed over Plywood substrate)

8.1.6.1 INTERNAL VALLEY AND HIDDEN GUTTERS

e) Receive no direct discharge from down-pipes or spreaders, and

8.1.6.3 INTERNAL GUTTERS

Internal gutters shall be *constructed* as shown for the applicable roof *cladding,* and shall:

a) Be dimensioned to provide the greater of a

1) calculated size as per E1/AS1

Or 2) minimum depth of 70 mm and minimum width of 300 mm.

Refer E1/AS1 Figure 16

8.5 MEMBRANE ROOFS & DECKS

8.5.1 LIMITATIONS

a) Roofs with a minimum fall of **2° (1:30),**

b) Decks with:
- i) a minimum fall of **1.5° (1:40),**
- iii) no steps in level within *deck* area except into gutters,
- iv) no integral roof gardens, and
- *v)* no downpipe direct discharge to *deck*,

c) Internal gutters with a minimum fall of **1:100,** with no seams in the gutters closer than 1 m to an outlet.

Comments by The Rubber Roofing Co

Maximum span between supports of 400 required for 17mm Ply- Refer Ply Manufacturers span tables for alternative solutions (spans) using thicker plywood or purpose made plywood flooring products.
IMPORTANT
Auckland Super City may require 2° (1 in 30), on a deck. Please check prior to installation

8.5.3 PLYWOOD SUBSTRATES

Plywood shall be:

A minimum of 17 mm complying with AS/NZS 2269

At least CD Grade Structural plywood with the sanded face upwards, and H3.2 with treatment type compatible with membrane and adhesives used, and kiln dried after treatment.

Maximum span between supports of 400 required for 17mm Ply- Refer Ply Manufacturers

a) LOSP Treatment is not compatible with Butyl or EPDM membranes. This includes the plywood. substrate and any timber framed up stand or wall Junction e.g. bottom plates

8.5.4 BUTYL & EPDM

Butyl rubber and *EPDM* rubber used for *membrane* roofing or *decks* shall:

a) Be a minimum thickness of:

- i) 1.0 mm for roofing, or 1.5 mm for decks,

8.5.5 INSTALLATION

8.5.5.1 PLYWOOD

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

Comments by The Rubber Roofing Co
Excess moisture will result in adhesion problems and "bubbling"

Plywood substrates shall be fixed according to the following requirements:

(a) Panels shall be laid with staggered joints (brick bond).

(a) Strengthens substrate by offsetting weak points.

(b) The edge of sheets shall be supported with *dwangs* or *framing,* unless a structurally tested tongue-in-groove edge provides equivalent support.

(b) e.g. CCA 17mm Eco ply Ply floor H3.2

(c) The maximum span shall be 400 mm.

(c) Refer ply manufacturers span tables for alternative solutions (Spans) using thicker plywood or purpose made plywood flooring products.

(d) Plywood shall be laid with the face grain at right angles to the supports,

(d) This is very important. Plywood strength is severely reduced if installed with face grain parallel to supports. Do not accept substrate if plywood us installed incorrectly.

(e) A 20 to 30 mm triangular fillet shall be used at the base of any 90° up-stand.

(e) Avoids tenting (membrane pulling away from the corner).

(f) External edges shall be chamfered with a minimum radius of 5 mm, and:

(f) Sharp corners wear through membranes

(g) Plywood shall be fixed:

i) with 10 g x 50 mm stainless steel countersunk head screws,

(i) Stainless Steel required to resist CCA treatment used in most treated plywood substrates. NOTE: Nailing of any type is unacceptable!!

ii) with 3 mm gaps between all sheets,

(ii) Allows for expansion / contraction of ply

iii) at 150 mm centers on edges, and

iv) 200 mm in the body of the sheets.

8.5.5.2 BUTYL & EPDM

Seam tapes shall be used on all joints of:

(a) Roofs and *decks*

(b) Gutters or where water could pond.

(c) Penetrations through the *membrane* where butyl or *EPDM flashing* is required.

(d) EPDM membrane, and

(e) Butyl *membranes* that contain *EPDM.*

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

This tape acts as a bond breaker allowing the membrane to handle differential movement between plywood sheets.

8.5.6 ROOF AND DECK DRAINAGE

Roofs and *decks* shall be *constructed* so that:

(a) The highest point of the roof or *deck* is a minimum of 100 mm below an adjoining floor.

(b) *Membrane* up stands extend to a minimum level of 50 mm above the floor level at all walls or *parapets*

(c) Water discharges either
- i) directly into roof outlets with a minimum diameter of 75 mm
- ii) via scupper openings

(d) Where the discharge is through a *parapet* or *enclosed balustrade,* the *scupper* opening shall have a minimum clear opening of 200 mm wide and 75 mm high

(d) Rubco 200x75 Scupper available from Rubco

(e) When an internal outlet is used, allowance for additional run-off shall be provided by:
- i) an overflow in addition to the outlet

or
- ii) an extra outlet, with both outlets sized to take the full required capacity

When an overflow is provided the overflow shall have a cross-sectional area no less than cross-sectional area of the calculated discharge down-pipe.

Refer E2/AS1 5.5.1