

Fibre cement rainwater systems

Design details

Introduction

Marley Eternit manufacture a comprehensive range of fibre cement rainwater goods to complement their range of fibre cement profiled sheeting.

This and the following pages provide sufficient information for the design and specification of a complete rainwater system.

General guidance

Marley Eternit recommend that designers refer to BS EN 12056: Part 3: 2000 for design recommendations for drainage of surface water from roofs.

However, the following method provides a general guide suitable for 75mm/h rainfall.

Fig. 1 provides a simple guide to determining the required sizes of gutter and rainwater pipes from the length of roof eaves line drained by each outlet and the length of its upslope (including both slopes of a roof valley).

To use the nomogram, place a straight edge at the appropriate points on Scales A and C and read off the required gutter and rainwater pipe sizes at the intersection point on Scale B.

Note: Always select gutter and pipe sizes above the intersection point, never below it.

Example:

To find the required sizes of valley gutter and rainwater pipes for two roof slopes each with a 10m upslope and each 36m long, draining into a common valley.

Total upslope length = $2 \times 10\text{m} = 20\text{m}$ (Scale C).

Assume each rainwater pipe drains 12m of gutter (Scale A).

Drawing the appropriate line on the nomogram gives an intersection point on Scale B, which indicates that a 406 x 127 x 254mm valley gutter and 150mm diameter rainwater pipes are required.

As the valley is 36m long, three 150mm diameter rainwater pipes are required. (i.e. $36 \div 12$).

Key	
Box = box gutter	BW = boundary wall gutter
HR = half round gutter	VG = valley gutter

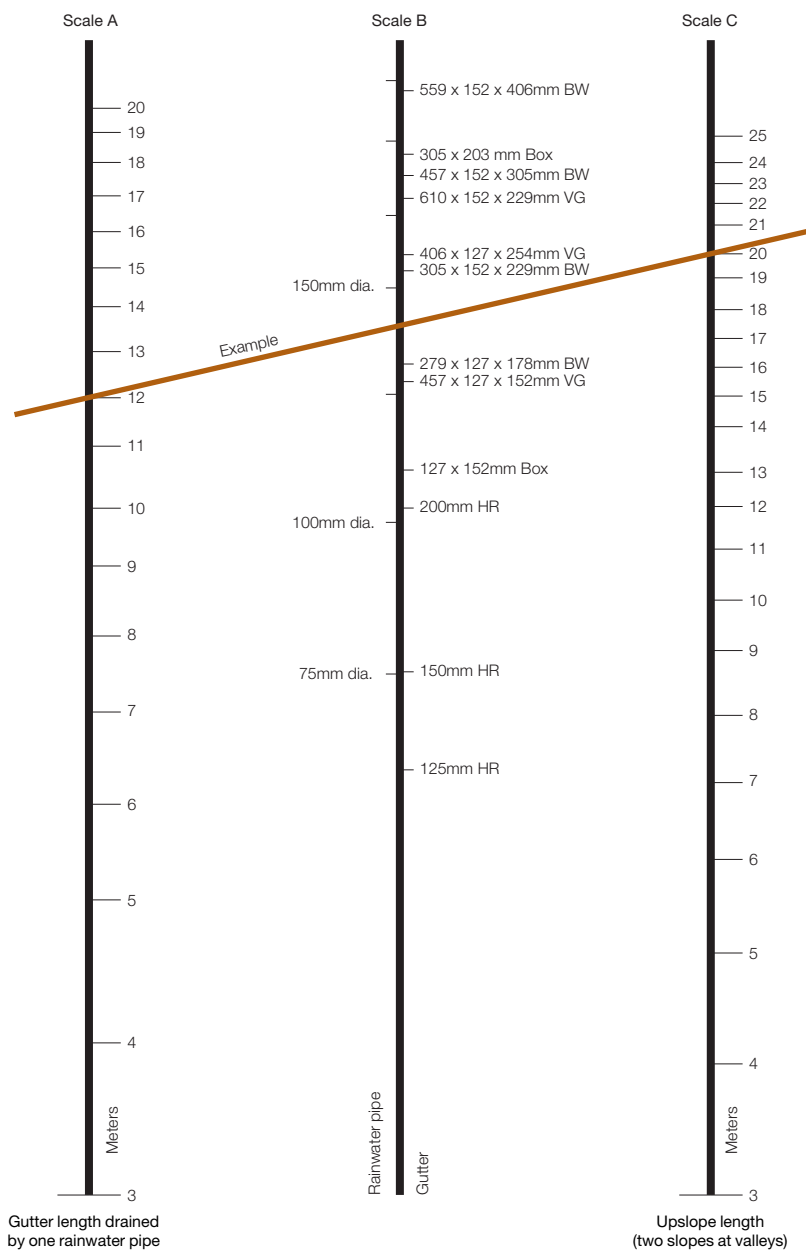
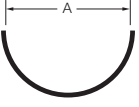
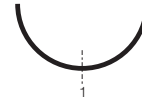


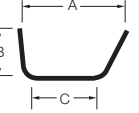
Fig.1 Gutter size/roof length nomogram

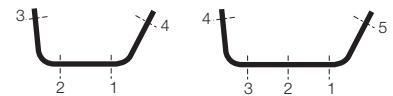
Half round gutters

Dimensions (mm)	Thickness (mm)	butyl joint pads	Pad No.	Gutter bolts, nuts and ring washers	8x21mm O/D metal and holeseal washers	Fixing sequence
 A		Size (mm)		Bolt size	No. per joint	No. per joint
125	9	240 x 70 x 9.5	1	60 x 8	1	2
150	9	290 x 70 x 9.5	2	60 x 8	1	2
200	9	360 x 70 x 9.5	3	60 x 8	1	2

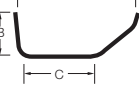


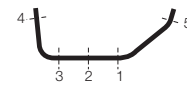
Boundary wall gutters (Pattern 1)

Dimensions (mm)	Thickness (mm)	butyl joint pads	Pad No.	Gutter bolts, nuts and ring washers	8x21mm O/D metal and holeseal washers	Fixing sequence
 A B C		Size (mm)		Bolt size	No. per joint	No. per joint
279 127 178	9	480 x 75 x 9.5	5	60 x 8	4	8
305 152 127	9	610 x 75 x 9.5	7	60 x 8	4	8
305 152 229	12	610 x 75 x 9.5	7	60 x 8	5	10
457 152 305	12	700 x 75 x 9.5	8	60 x 8	5	10

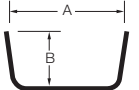


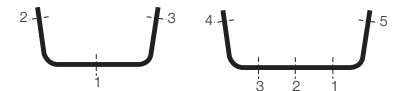
Boundary wall gutters (Pattern 2)

Dimensions (mm)	Thickness (mm)	butyl joint pads	Pad No.	Gutter bolts, nuts and ring washers	8x21mm O/D metal and holeseal washers	Fixing sequence
 A B C		Size (mm)		Bolt size	No. per joint	No. per joint
406 152 229	12	700 x 75 x 9.5	8	60 x 8	5	10
559 152 406	12	810 x 75 x 9.5	10	60 x 8	5	10

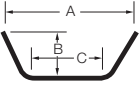


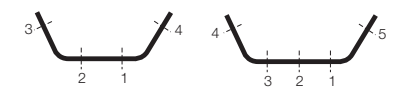
Box gutters

Dimensions (mm)	Thickness (mm)	butyl joint pads	Pad No.	Gutter bolts, nuts and ring washers	8x21mm O/D metal and holeseal washers	Fixing sequence
 A B		Size (mm)		Bolt size	No. per joint	No. per joint
127 114	9	480 x 75 x 9.5	5	60 x 8	3	6
127 152	9	480 x 75 x 9.5	5	60 x 8	3	6
305 203	12	740 x 75 x 9.5	9	60 x 8	5	10
381 127	12	700 x 75 x 9.5	8	60 x 8	5	10



Valley gutters (Pattern 1)

Dimensions (mm)	Thickness (mm)	butyl joint pads	Pad No.	Gutter bolts, nuts and ring washers	8x21mm O/D metal and holeseal washers	Fixing sequence
 A B C		Size (mm)		Bolt size	No. per joint	No. per joint
406 127 254	12	610 x 75 x 9.5	7	60 x 8	5	10
457 127 152	12	610 x 75 x 9.5	7	60 x 8	4	8
610 152 229	12	740 x 75 x 9.5	7	60 x 8	4	8



Notes

Gutter outlets are designed for use with Marley Eternit Rainwater Pipes. If used with other materials, suitable connecting pieces are required at the head of rainwater stacks.

Outlets are positioned in the centre of the gutter sole.

All sizes of boundary wall, box and valley gutters are internal dimensions. Upright gutters sides have a 5° taper to simplify fixing joint pads; gutter straps should be tapered accordingly.

Drawings detailing full size sections of all gutter are available on request. Boundary wall gutters are available with left-hand sockets only. The handling of these gutters is taken facing the splay side.

The joint pads may need to be trimmed to size. When the total length of Marley Eternit Industrial gutter exceeds 40m, a movement joint should be provided. This comprises two stop ends back-to-back and 25mm apart, with the gap covered by a lead flashing.

General instructions

1. The order of assembly of bolts and washers is important.
2. Do not tighten bolts singly.
3. Bolts must be tightened down in the proper sequence, as shown in the table alongside.

4. Do not overtighten – sufficient pressure is needed only for an even 25% (approx.) compression of the pad.

5. Do not enter side bolts until sole bolts are tightened.

6. If adjustment is needed after fixing, side bolts must be removed before attending to sole bolts, otherwise damage or leakage may result.

Fixing accessories per hole

- 1 No. M 8 x 60mm gutter bolt and nut
- 2 No. hole seal washers
- 2 No. 8 x 21mm metal washers
- 1 No. ring washer.

Fibre cement rainwater systems

Gutters, brackets, clips & plates

Gutter brackets

Fascia brackets for half round gutters are available as illustrated in Fig.1.

Purlin hanger brackets should be fabricated by customers as necessary to suit site requirements.

It is recommended that gutter brackets be fixed at each joint of the gutter, and at not more than 900mm centres.

Pipe clips

Pipe clips are required under each socket for all rainwater pipes and fittings, with additional pipe clips at the foot of stacks, where rainwater shoes are not used.

Pipe clips are manufactured from galvanised metal. The standard pipe clip, known as Type Z, is illustrated in Fig.2.

Front and back plates

These are for securing Type Z rainwater pipe clips to vertical sheeting. (Figs. 3-5).

Note

For insulated double profiled sheeting longer bolts are required.

For securing plates to Marley Eternit Profile 6 and Marley Eternit panel sheets use:

4 No 100mm x 8mm bolts and nuts 8 No 21mm x 8mm round metal washers.

Half round gutter fascia brackets

	Gutter diameter (mm)		
Type C	125	150	200

Rainwater pipe clips

	Internal pipe diameter (mm)		
Type Z	125	150	200

Front and back plates A and B

Thickness	9mm
Hole diameter	9mm

Fig. 1 - Type C

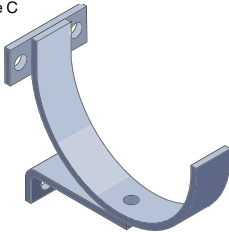


Fig. 2 - Type Z

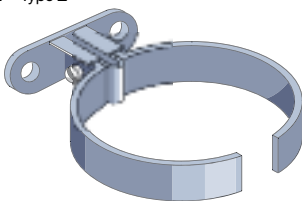


Fig.3 - Front and back plates

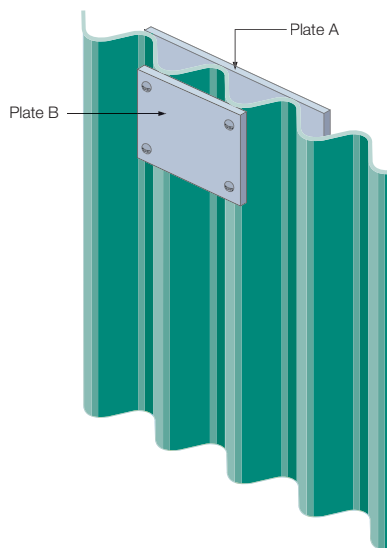


Fig.4 - Plate A

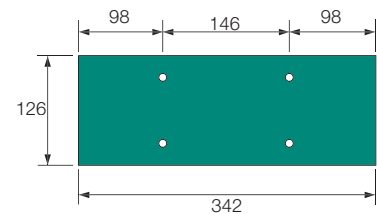


Fig.5 - Plate B

