Building and Plumbing Commission

Practitioner Education Series

AS/NZS 3500.3:2025 Plumbing and Drainage

Part 3: Stormwater drainage

Victoria State Government

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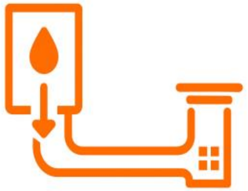
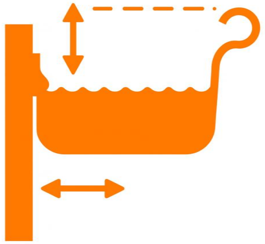
Major changes since the 2021 edition

Clause 3.6 has been updated to raise the valley-gutter catchment limit.



New requirements for the connection of miscellaneous devices and appliances to stormwater drainage systems



Appendix F is mandatory eaves gutter overflow

Editorial changes that make the standard easier to read

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2 Materials

2.2 Selection and use

Clause 2.2.1 General – (Update to clause)

Note 3 has been added to Section 2.2.1. It requires plumbers to consider the quality and quantity of stormwater discharge. This is to ensure it does not negatively impact council infrastructure or on-site systems.

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Clause 2.2.2
Materials for devices and appliances connected to stormwater drainage (new clause) – The below is a new requirement.

Clause 2.2.2 Materials for devices and appliances connected to stormwater drainage
The selection of pipework and fittings shall be based on –

(a) anticipated discharge temperature; and
NOTE 1 Temperature limitations of different pipework materials should be considered in relation to continuous and intermitted discharges for continued stability of the pipework and fittings.

(b) quality of discharge.
NOTE 2 Consideration should be given to the quality of the discharge as it may impact the pipework used in the stormwater system.

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Table 3.3.4 — Annual exceedance probability

Effect of overtopping	AEP %	
	Australia	New Zealand
(a) Eaves gutters, external	≥ 5	≥ 10
(b) Box gutters and valley gutters and eaves gutter overflow measures	≥ 1	≥ 2

NOTE 1 For Australia, this table should be used in conjunction with the NCC which includes requirements to prevent rain and stormwater from roof drainage from entering certain buildings.

NOTE 2 1 % AEP is equivalent to 100 years ARI; 2 % AEP is equivalent to 50 years ARI; 5 % AEP is equivalent to 20 years ARI; and 10 % AEP is equivalent to 10 years ARI.

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3.5 Eaves gutter systems
Clause 3.5.3 Design procedure – overflow measures (New clause)

The design inflow volume Q* (L/s) for overflow design shall be calculated based on –
(a) all downpipes assumed to be fully blocked; and
(b) an annual exceedance probability (AEP) as specified in Table 3.3.4 Item (b).
The design of overflow measures shall be as specified in Appendix F.

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Clause 3.5.3 Design procedure – overflow measures (New clause)

The relevant catchment area for overflow design shall be determined as specified in Clause 3.4. The total catchment area shall include both upper and lower catchments if overflow from the upper catchment increases the volume of water to be handled by the lower catchment overflow measures.

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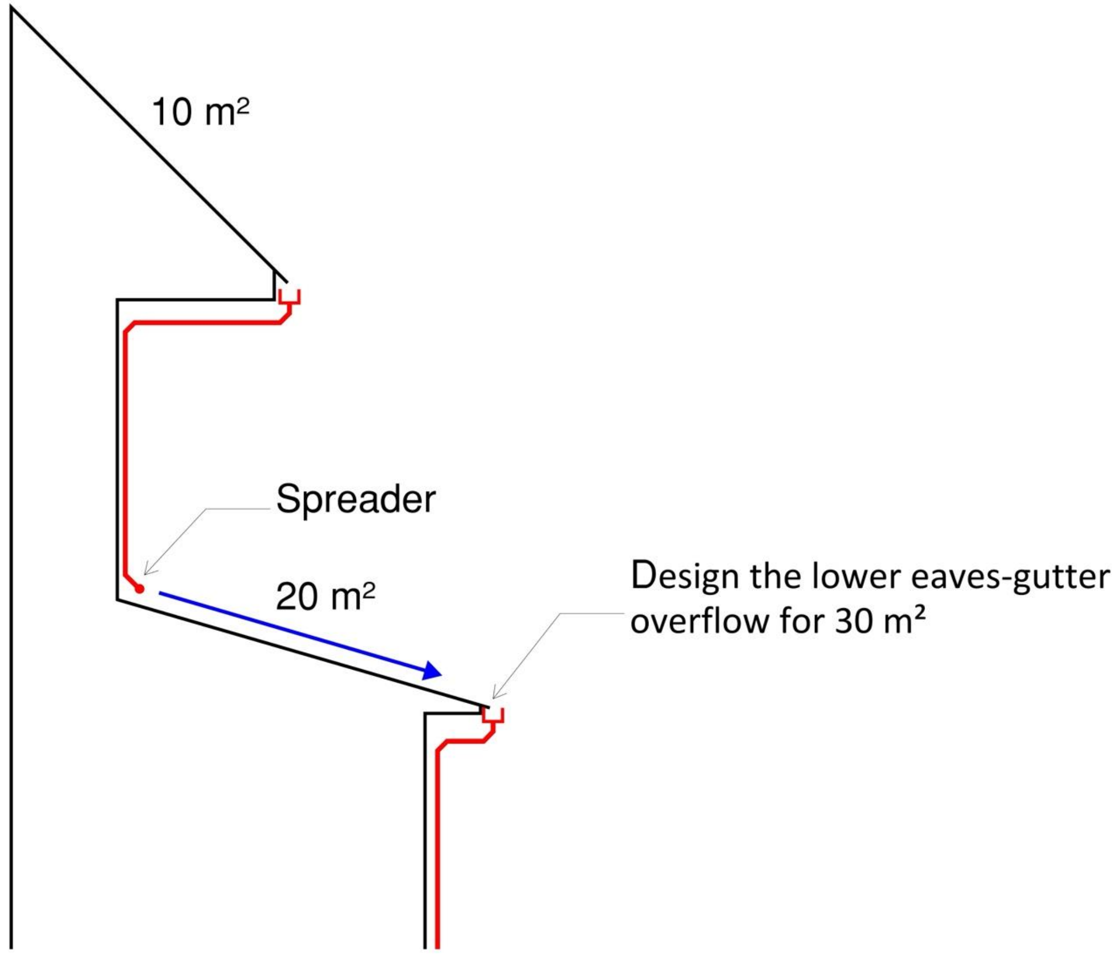

Clause 3.5.3 Design procedure – overflow measures (New clause)

Overflow measures are not required if eaves gutters are fixed to a veranda or an eave that is greater than 450 mm in width and –

(i) has no lining; or

(ii) is a raked veranda or a raked eave with a lining sloping away from the building.

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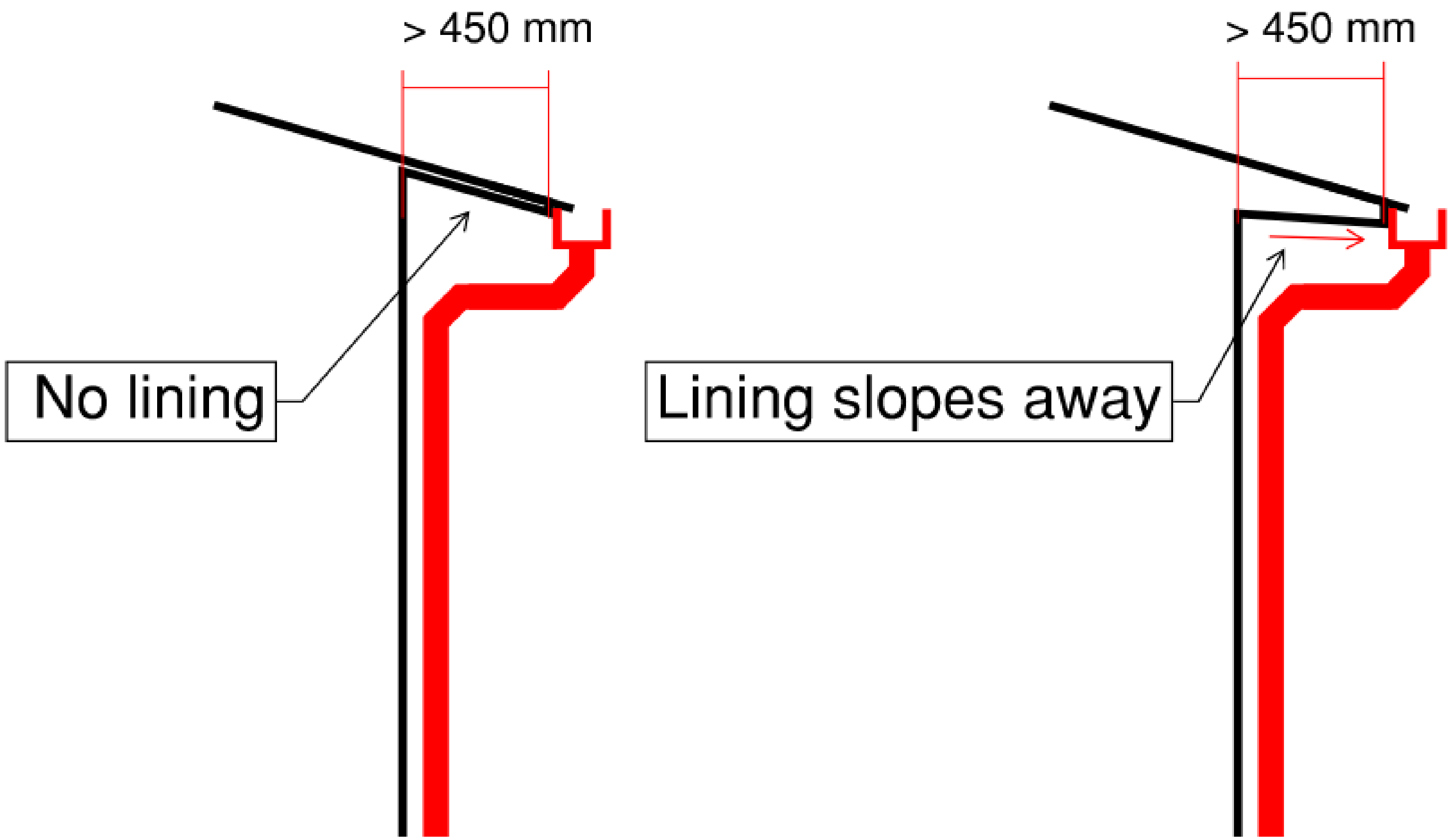

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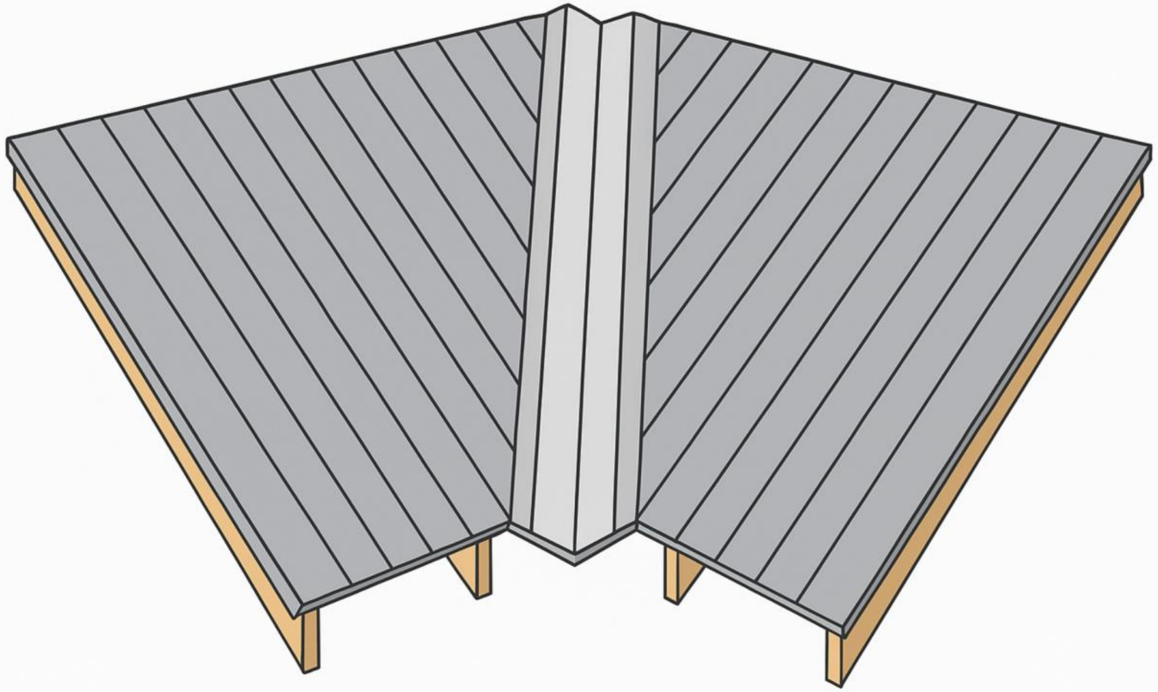
3.6 Valley gutters

Clause 3.6 has been updated to raise the valley-gutter catchment limit.



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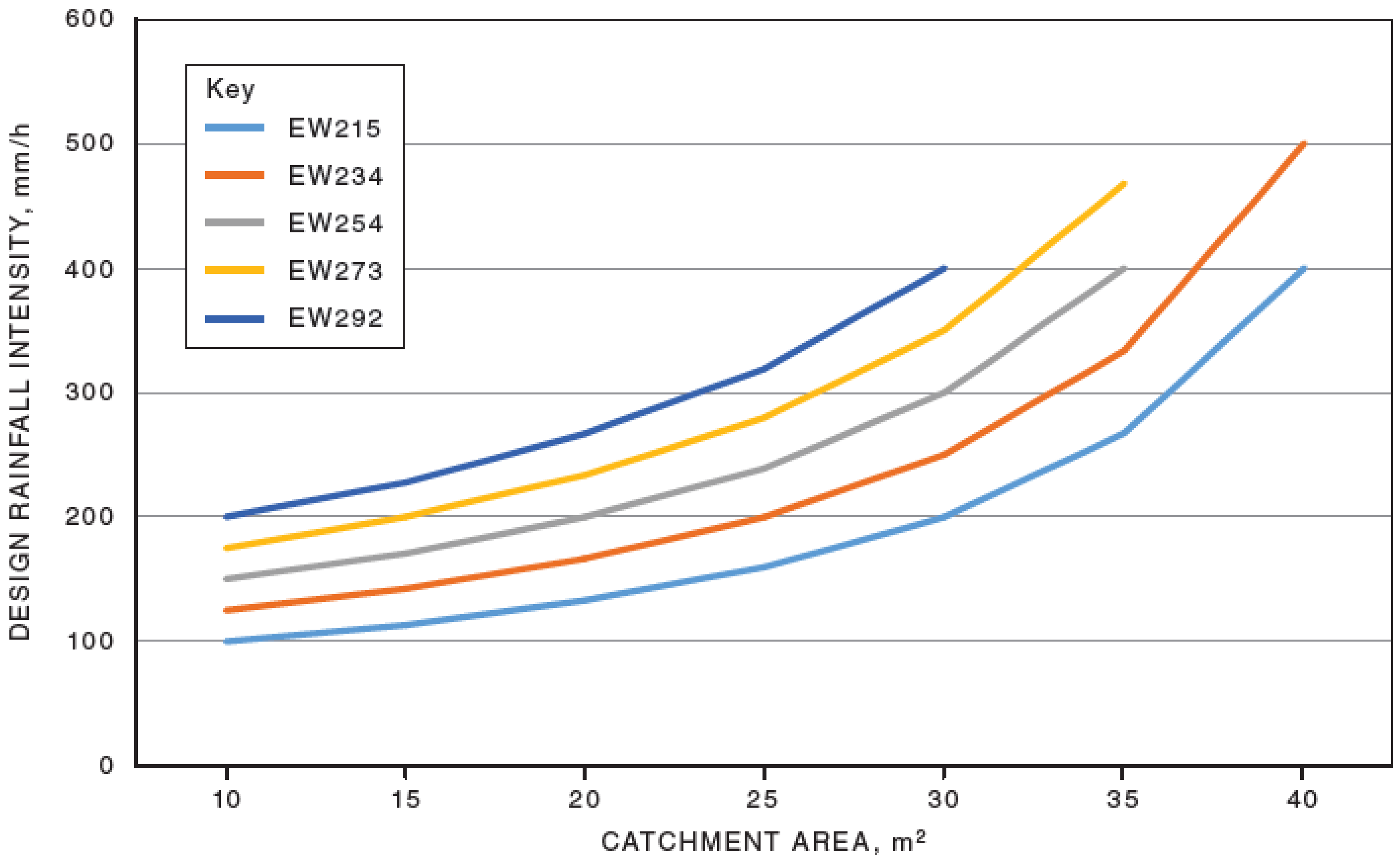
3.6 Valley gutters



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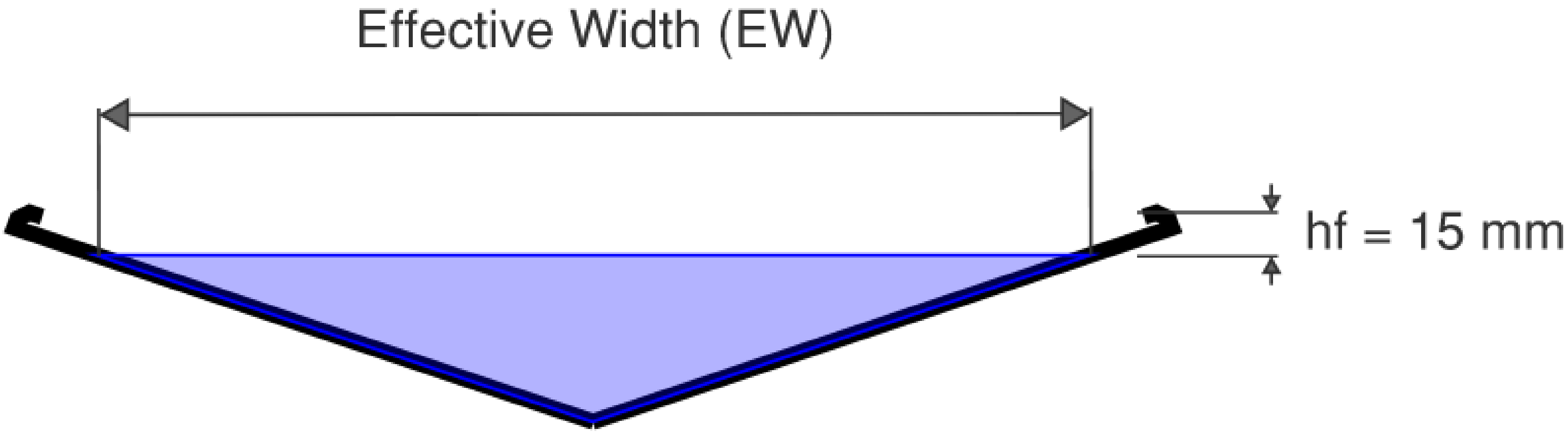
3.6 Valley gutters



Profile of a Valley gutter

3.6 Valley gutters

The effective width of the valley gutter must be calculated using:

A. Table 3.6.2 for catchments not more than 20 m²; or
B. Figure 3.6.2 for all other catchments.

An explanatory note has been added indicating that Computational Fluid Dynamics (CFD) may also be used to calculate the effective width of a valley gutter (see clause F.4.5).

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Major changes since the 2021 edition

Table 3.6.2 — Valley gutters — Dimensions

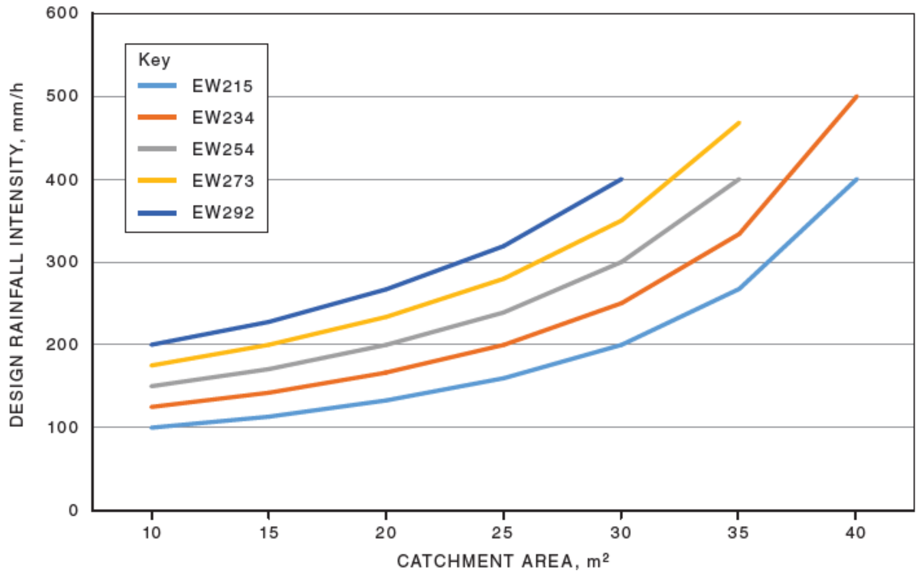
Design rainfall intensity mm/h		Minimum, mm		
		Sheet width	Effective depth (h_e)	Effective width (w_e)
	≤ 200	355	32	215
> 200	≤ 250	375	35	234
> 250	≤ 300	395	38	254
> 300	≤ 350	415	40	273
> 350	≤ 400	435	43	292

NOTE 1 This table is derived from Martin and Tilley and is based on a 23° roof angle.

NOTE 2 Maximum catchment area 20 m^2.

NOTE 3 Freeboard (h_f), 15 mm.

NOTE 4 The sheet width from which the valley is formed has been calculated based on h_f = 15 mm and an allowance for side rolls or bends of 25 mm.



Catchments not more than 20 m^2

Catchment that is ≤ 40 m^2

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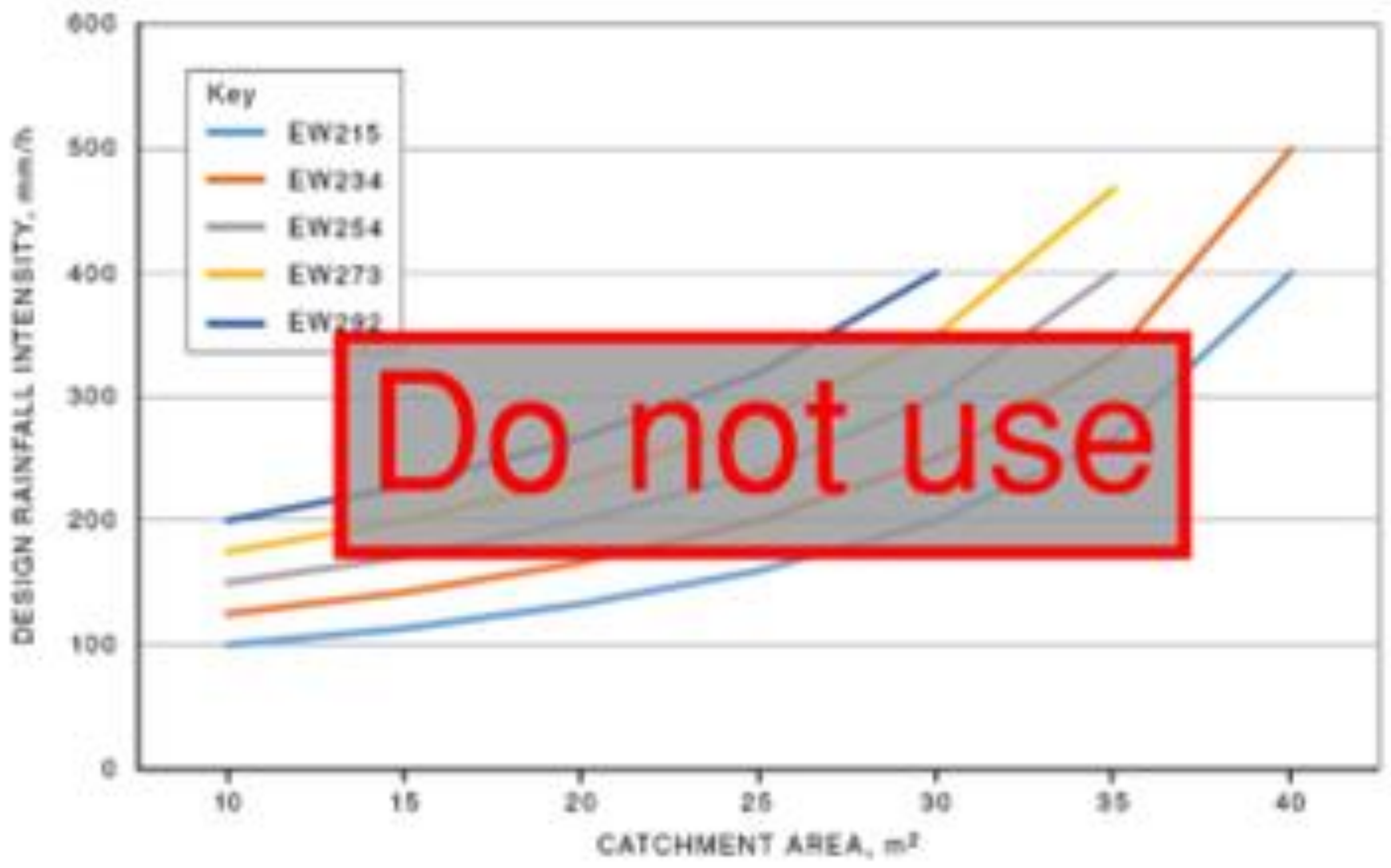
3.6 Valley gutters



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5 Surface water drainage systems – Design
5.3 Layout
5.3.8 Discharges to a stormwater drainage system
Clause 5.3.8.1 General (New clause) – The below is a new requirement.

5.3.8.1 General

This section specifies stormwater drainage system requirements for miscellaneous devices and appliances that produce discharge water as part of their function.

5 Surface water drainage systems – Design

5.3.8.1 General

NOTE 1 The quality, quantity and temperature of the discharge water from miscellaneous devices and appliances should be considered as it may impact the stormwater drainage system, the network utility operator infrastructure, or an on-site wastewater management system.

NOTE 2 Discharge water may require approval, pre-treatment or both as determined by the relevant authority.

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Clause 5.3.8.2 Stormwater connection (New clause) –

5.3.8.2 Stormwater connection

If a device or appliance discharges to a stormwater drainage system –

a) the discharge to the stormwater system shall be via a tundish or pit; and
b) the point of discharge from each drain line shall be located so that the release of steam or heated water does not cause a nuisance, is readily discernible, and causes no risk of damage to the building or injury to people.

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Clause 5.3.8.2 Stormwater connection (New clause) –

5.3.8.2 Stormwater connection

If a tundish or pit is installed, the point of discharge shall:
(i) be in an accessible location;
(ii) be securely fixed to prevent movement;
(iii) allow any discharge to be visible to building occupants
(iv) maintain a minimum 25 mm air gap.

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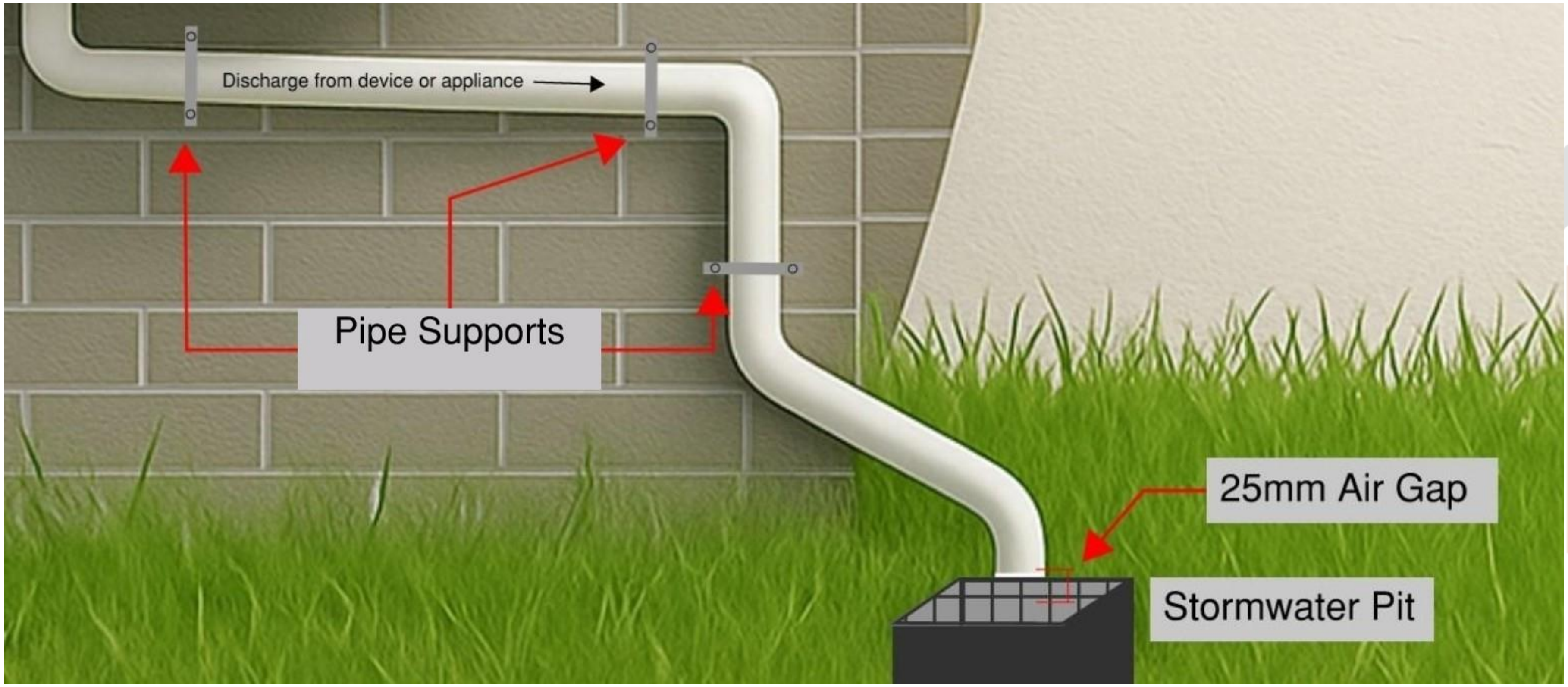
Clause 5.3.8.2 Stormwater connection (New clause) –

5.3.8.2 Stormwater connection – Example



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Clause 5.3.8.3 Stormwater system design (New clause).
The below is a new requirement.

5.3.8.3 Stormwater system design

The stormwater system shall be sized to allow for the maximum discharge.

NOTE 1 Refer to the manufacturer's specifications for information relating to anticipated discharge volumes.

NOTE 2 See clause 2.2.2 for information relating to materials.

NOTE 3 Consideration should be given to the quality of the discharge and approval requirements of relevant local authorities.

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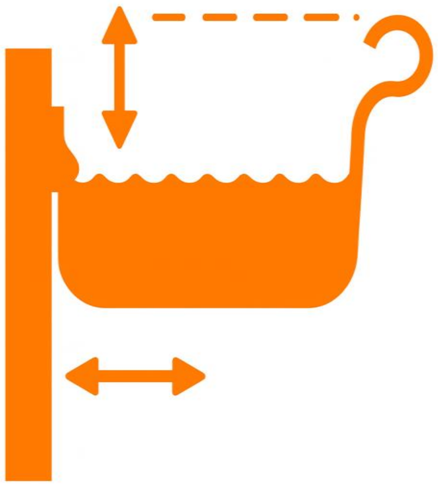
Appendix F – Overflow design for eaves gutters

F.1 Scope

This appendix sets out design procedures for eaves gutter overflow measures on roof catchments up to 400 m².

NOTE Four hundred square metres is a suitable value for residential and small commercial buildings.



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F.2 Overflow volume

The design overflow volume (Q*) required to be dispersed by overflow measures shall be calculated for each catchment using the design procedure in clause 3.5.3c

$$Q^* = Ac \times \frac{R}{3\,600}$$

$$R = \frac{A}{P}$$

where

Q^*	=	design overflow volume, in litres per second
Ac	=	catchment area, in metres square
R	=	design rainfall intensity, in millimetres per hour

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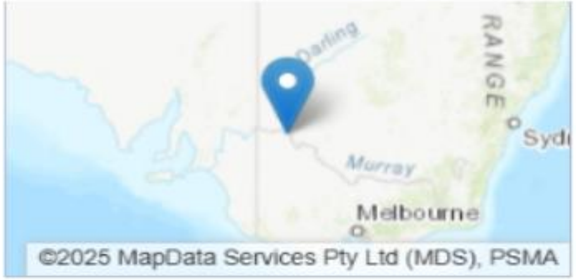
Find the Rainfall Intensity form BOM website

Location

Label: Not provided

Latitude: 34.2068 [Nearest grid cell: 34.2125 (S)]

Longitude: 142.1367 [Nearest grid cell: 142.1375 (E)]



IFD Design Rainfall Depth (mm)

Issued: 19 October 2025

Rainfall depth for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).

FAQ for New ARR probability terminology

Table | Chart

Unit: mm

X

	Annual Exceedance Probability (AEP)						
Duration	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	1.18	1.42	2.25	2.88	3.58	4.61	5.49
2 min	1.96	2.36	3.77	4.88	6.10	7.93	9.52
3 min	2.68	3.23	5.15	6.64	8.28	10.7	12.9
4 min	3.32	3.99	6.35	8.18	10.2	13.1	15.7
5 min	3.89	4.67	7.40	9.52	11.8	15.2	18.2
10 min	5.91	7.10	11.2	14.4	17.8	22.9	27.3

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Find the Rainfall Intensity form BOM website

IFD Design Rainfall Intensity (mm/h)

Issued: 19 October 2025

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).

FAQ for New ARR probability terminology

Table | Chart

Unit: mm/h

	Annual Exceedance Probability (AEP)						
Duration	**63.2%**	**50%#**	**20%***	**10%**	**5%**	**2%**	**1%**
1 min	70.8	85.1	135	173	215	276	329
2 min	58.7	70.8	113	147	183	238	285
3 min	53.7	64.6	103	133	166	215	257
4 min	49.9	59.9	95.2	123	153	197	236
5 min	46.6	56.0	88.8	114	142	183	218
10 min	35.5	42.6	67.3	86.4	107	138	164

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Find the Rainfall Intensity for Australia for your site

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Australian location	Latitude degrees	Longitude degrees	5 % AEP (20 years ARI) intensity mm/h	1 % AEP (100 years ARI) intensity mm/h
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Warrandyte	37.74	145.21	126	172
Meredith	37.84	144.09	117	167
Mildura	34.19	142.14	142	219
Morwell	38.24	146.41	123	172

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$$Q^* = \frac{Ac \times R}{3600}$$

$$Q^* = \frac{200 \times 219}{3600} = 12.17\ \mathrm{L/s}$$

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F.2 Overflow volume

NOTE 2 Debris build up in gutters and the presence of snow, hail or ice at the time of peak overflow volume may reduce the effectiveness of all overflow measures and is not considered in the design.

F.3 Overflow design

Eaves gutter overflow measures for each catchment shall be designed to accommodate the design overflow volume as follows:

$$Q^* \leq Q \quad \text{F.3}$$

where

Q^* = design overflow volume expressed in litres per second for the relevant catchment determined from Clause F.2

Q = capacity of the overflow measures for the relevant catchment determined from Clause F.4

F.4 Continuous overflow measures

F.4.1 General

Continuous overflow measures for each catchment and eaves gutter element shall be designed as specified in clause F.2 and using one of the measures provided in clauses F.4.2 to F.4.5.

For capacity *Q* for continuous overflow measures for a catchment, the value derived from clauses F.4.2 to F.4.4 shall be multiplied by the length of eaves gutter serving the catchment.

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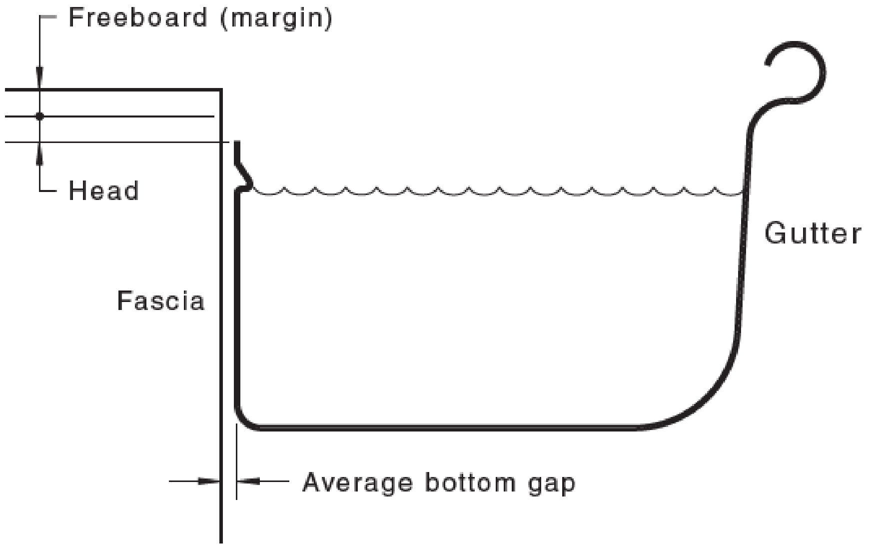
F.4 Continuous overflow measures

The installation of continuous overflow devices shall provide a minimum margin above the maximum head on which the device relies of —

(a) 3 mm for eaves gutters with a slope greater than 1:500; or

(b) 6 mm for eaves gutters with a slope less than 1:500.



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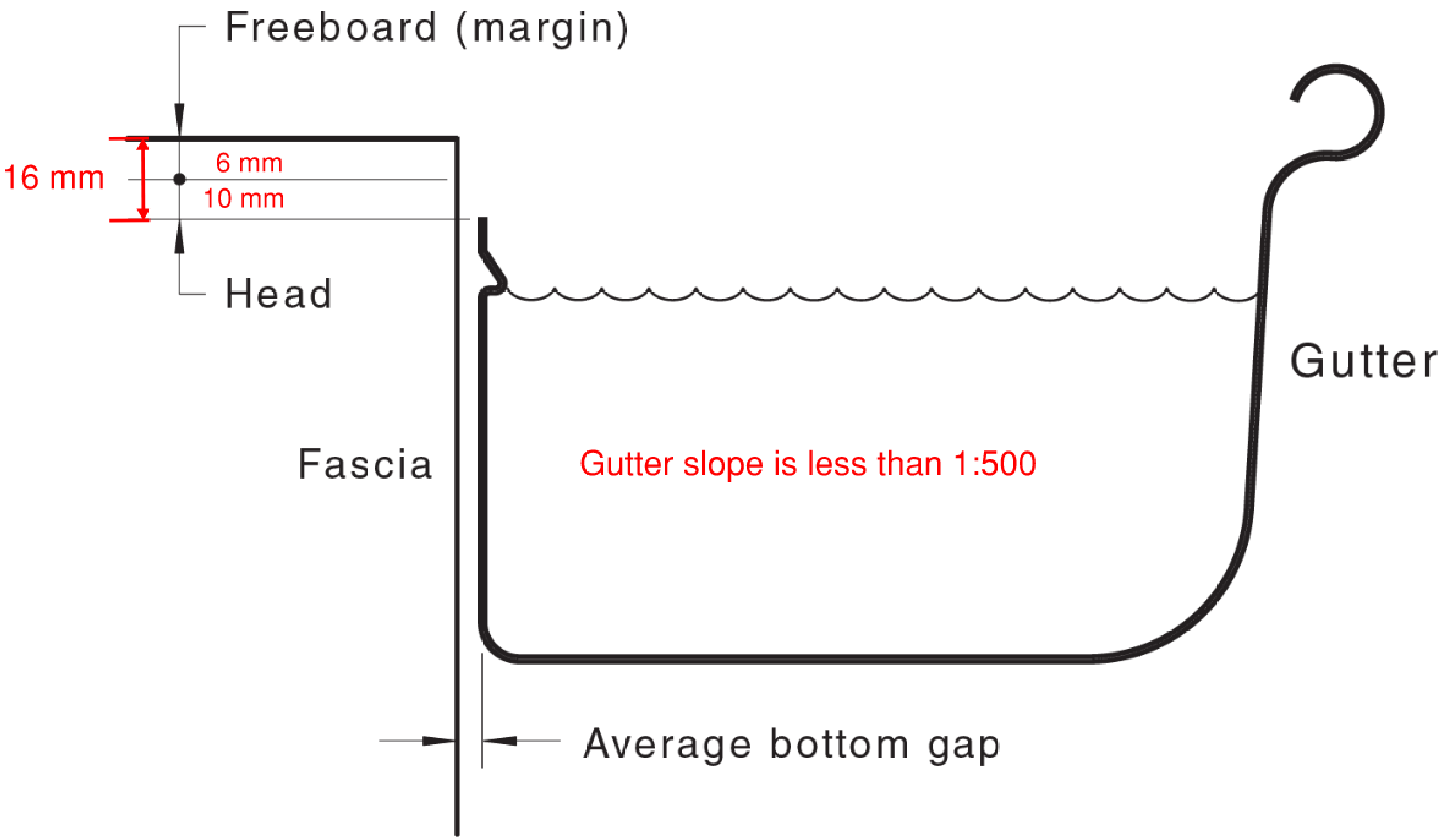

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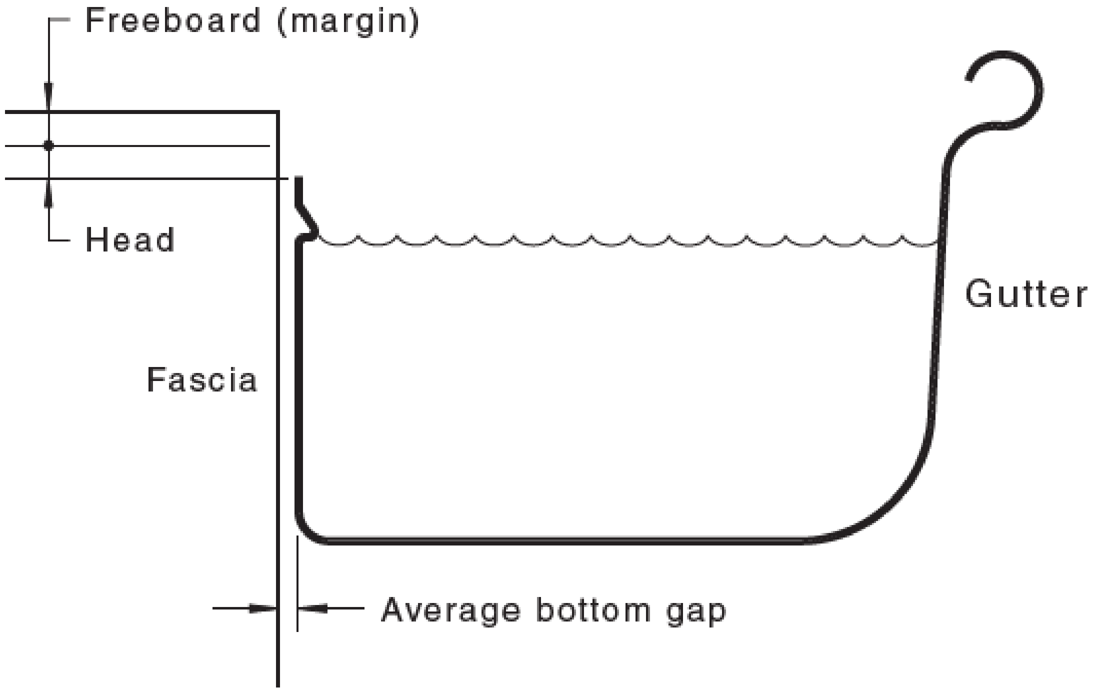
F.4.2 Gutter back gap overflow (Updated Appendix F)

F.4.2 Gutter back gap overflow

For capacity *Q* for back gap overflow for a catchment, the value derived from Table F.1 shall b multiplied by the length of eaves gutter (including back gap) overflow serving the catchment.

NOTE Figure F.1 illustrates the relationship between average bottom gap and head of water.



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Head of water	Average bottom gap			
	1.5 mm	3.0 mm	4.5 mm	6.0 mm
mm	L/s/m	L/s/m	L/s/m	L/s/m
4	0.6	0.8	0.8	0.8
6	1.0	1.2	1.3	1.3
8	1.4	1.6	1.7	1.8
10	1.8	2.0	2.1	2.2
12	2.0	2.4	2.5	2.6

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Major changes since the 2021 edition

F.4.3 Slotted gutters (Updated Appendix F) – The below is a mandatory requirement

$$Q = 0.000032 C_d A \sqrt{2gh}$$

where

Q	=	flow rate from the slots expressed in L/s/m
C_d	=	discharge coefficient = 0.61
A	=	area of the slots expressed in mm^2/m
g	=	gravitational constant = 9.81 m/s^2
h	=	effective head of water above slots expressed in mm

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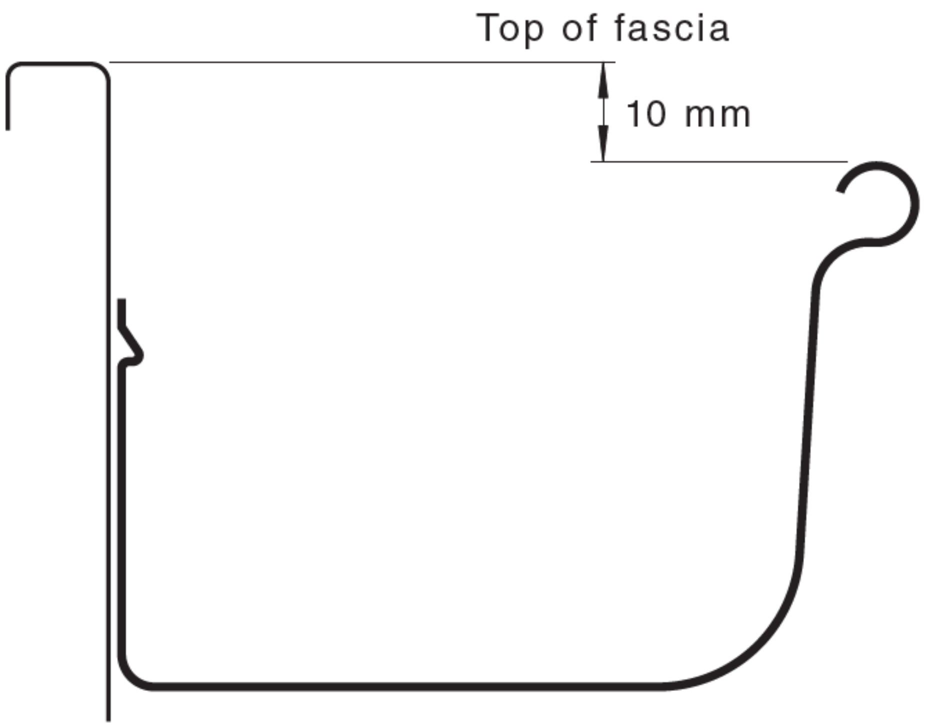
Major changes since the 2021 edition

F.4.4 Front bead overflow (Updated Appendix F) – The below is a mandatory requirement.

If the front bead of the eaves gutter is positioned a minimum of 10 mm below the fascia, the overflow capacity Q shall be taken as 1.5 L/s/m, see Figure F.2.



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Major changes since the 2021 edition

F.4.5 Design by computational methods

NOTE Computational Fluid Dynamics (CFD) is a field of engineering and applied mathematics that deals with the numerical simulation of fluid flow and heat transfer. It uses mathematical models and numerical methods to analyse and solve problems related to the behaviour of fluids, such as liquids and gases, in motion.

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