

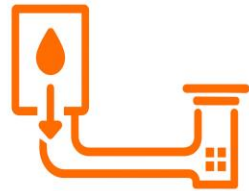
# AS/NZS 3500.3:2025 Plumbing and Drainage

## Part 3: Stormwater drainage

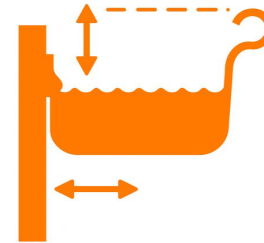
## Major changes since the 2021 edition



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



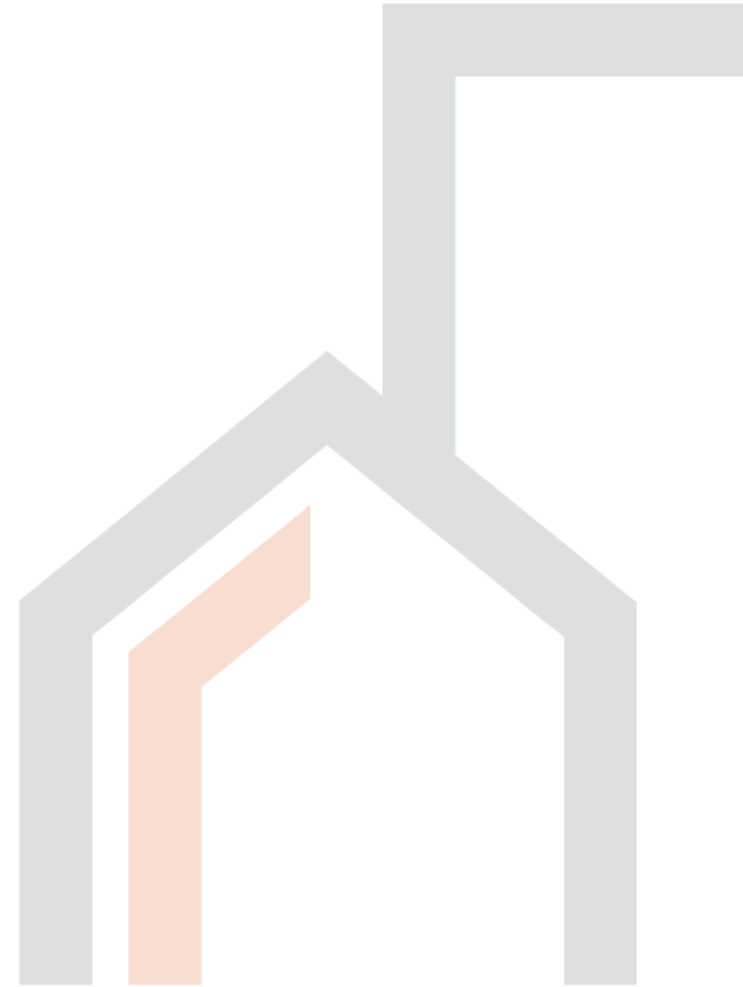
Editorial changes that make the standard easier to read

## 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.



## 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

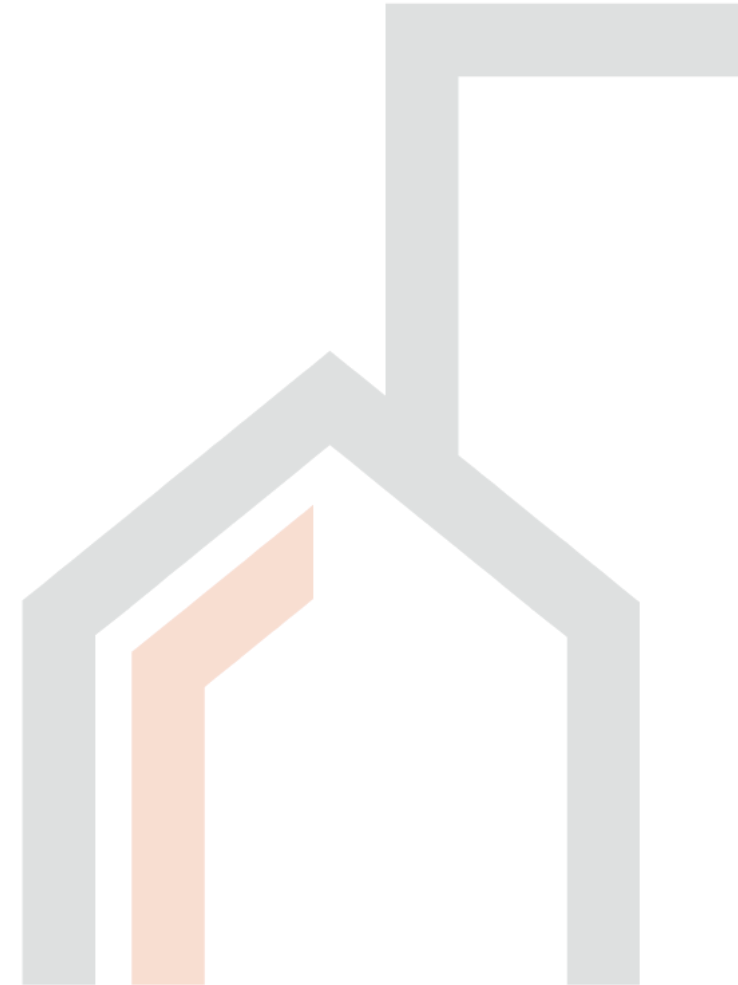
The selection of pipework and fittings shall be based on –

(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.



**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 <b>and eaves gutter overflow measures</b>	≥ 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.

## 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 –

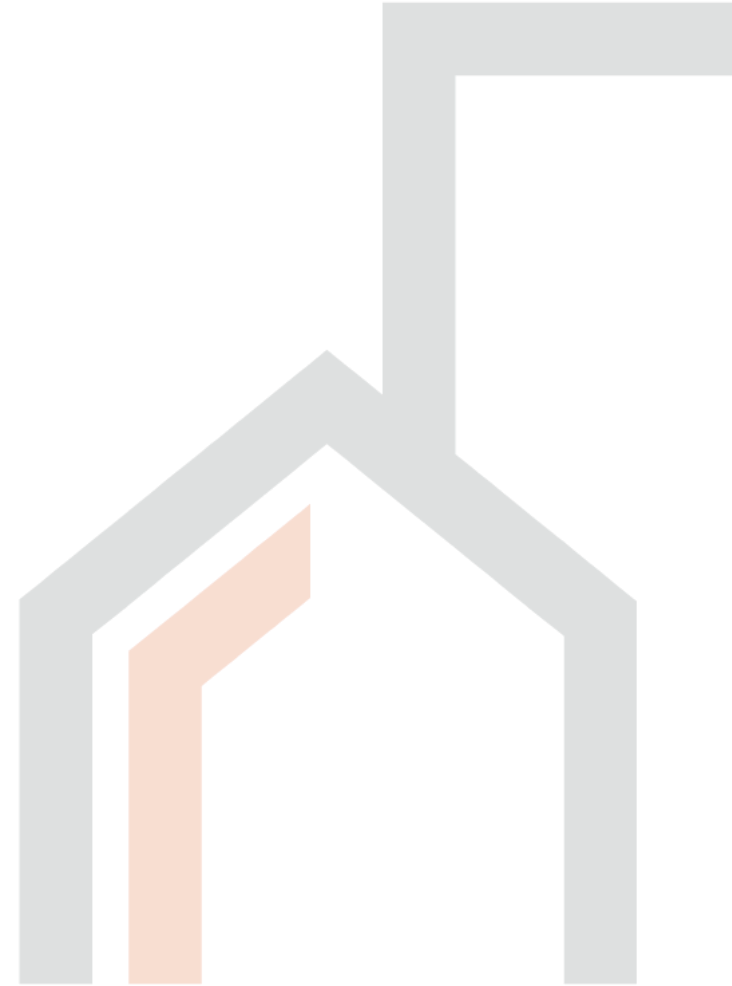
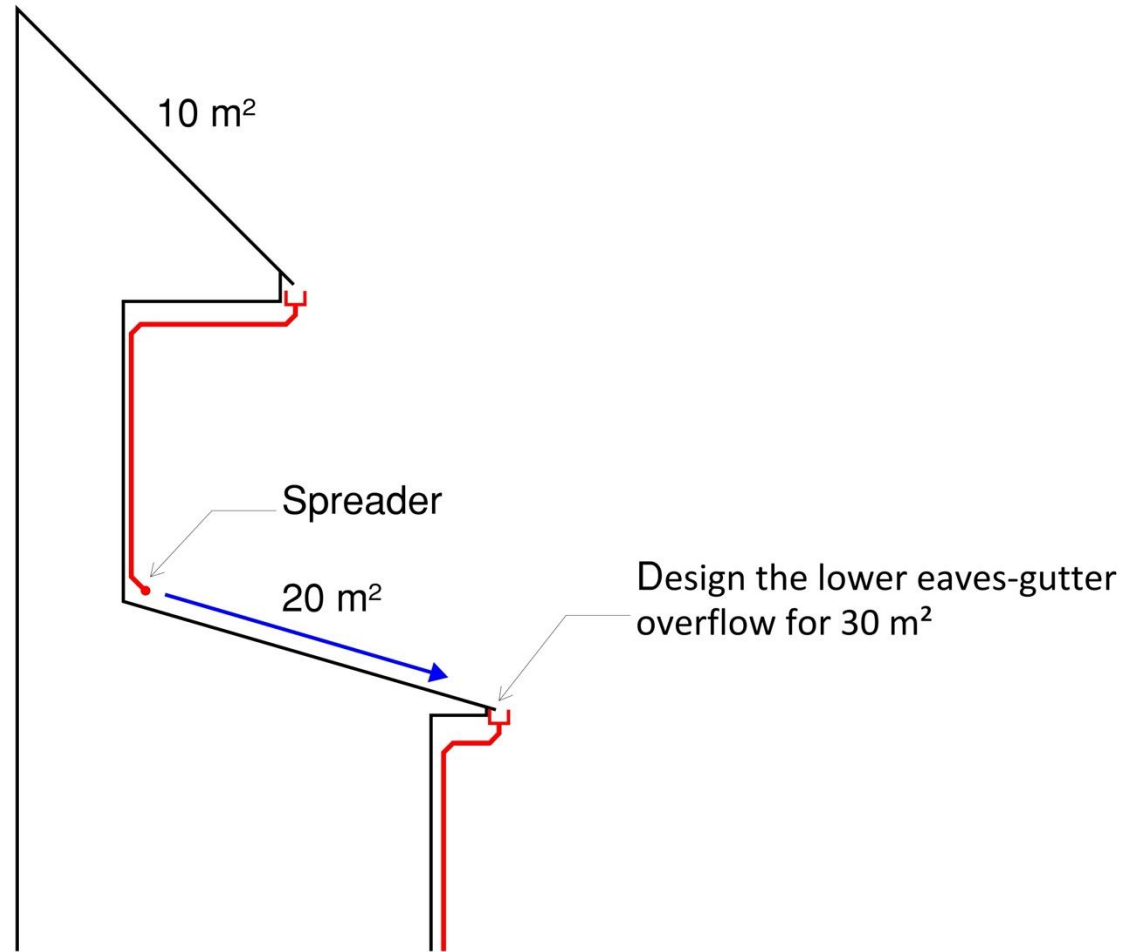
- (a) all downpipes assumed to be fully blocked; and
- (b) an annual exceedance probability (AEP) as specified in Table 3.3.4 Item (b).

The design of overflow measures shall be as specified in Appendix F.

## 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

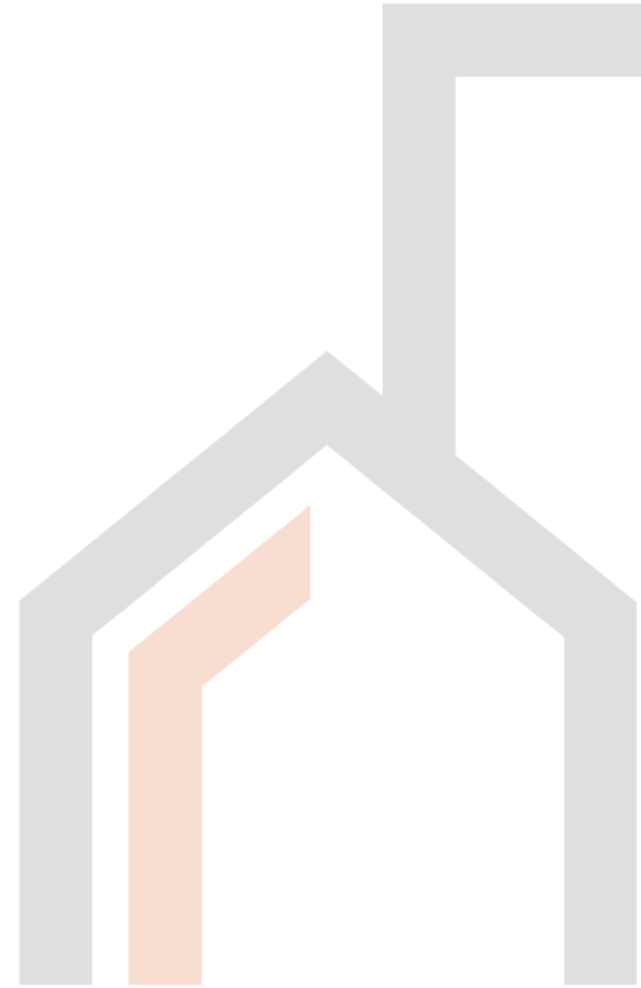
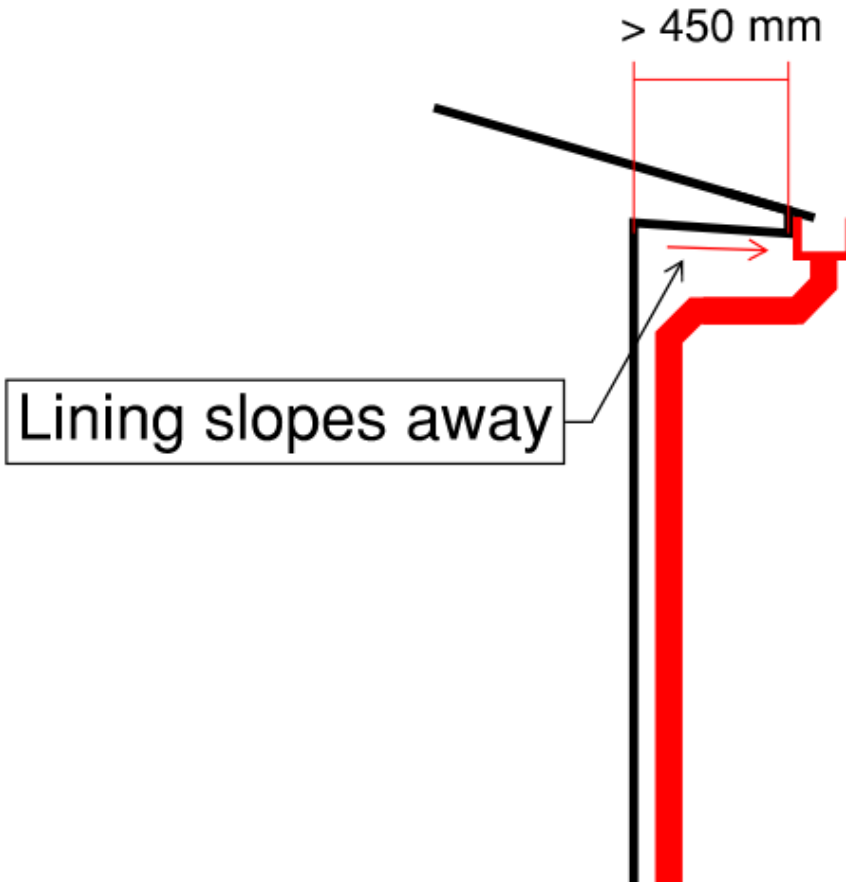
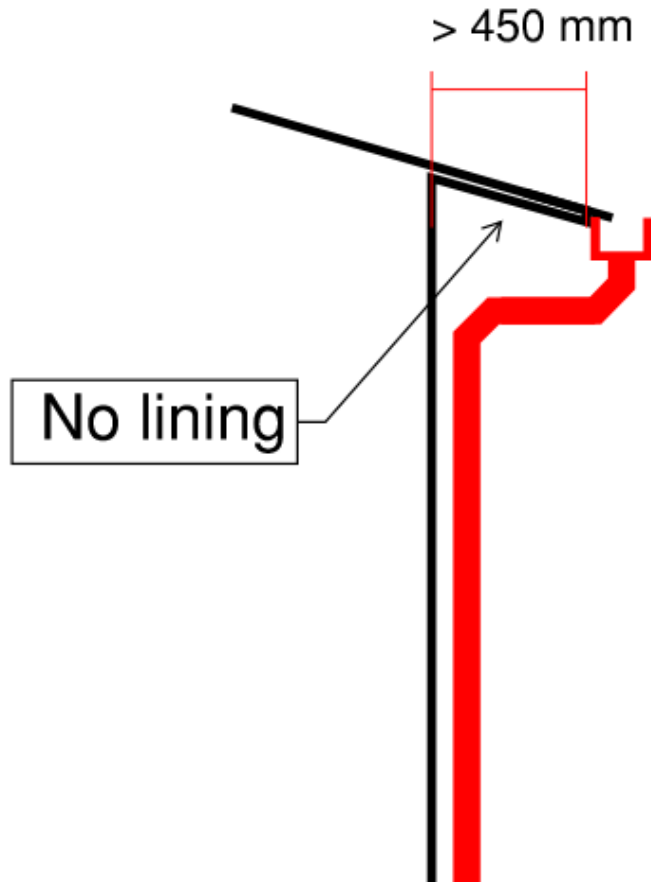
mm in width and –

(i) has no lining; or

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

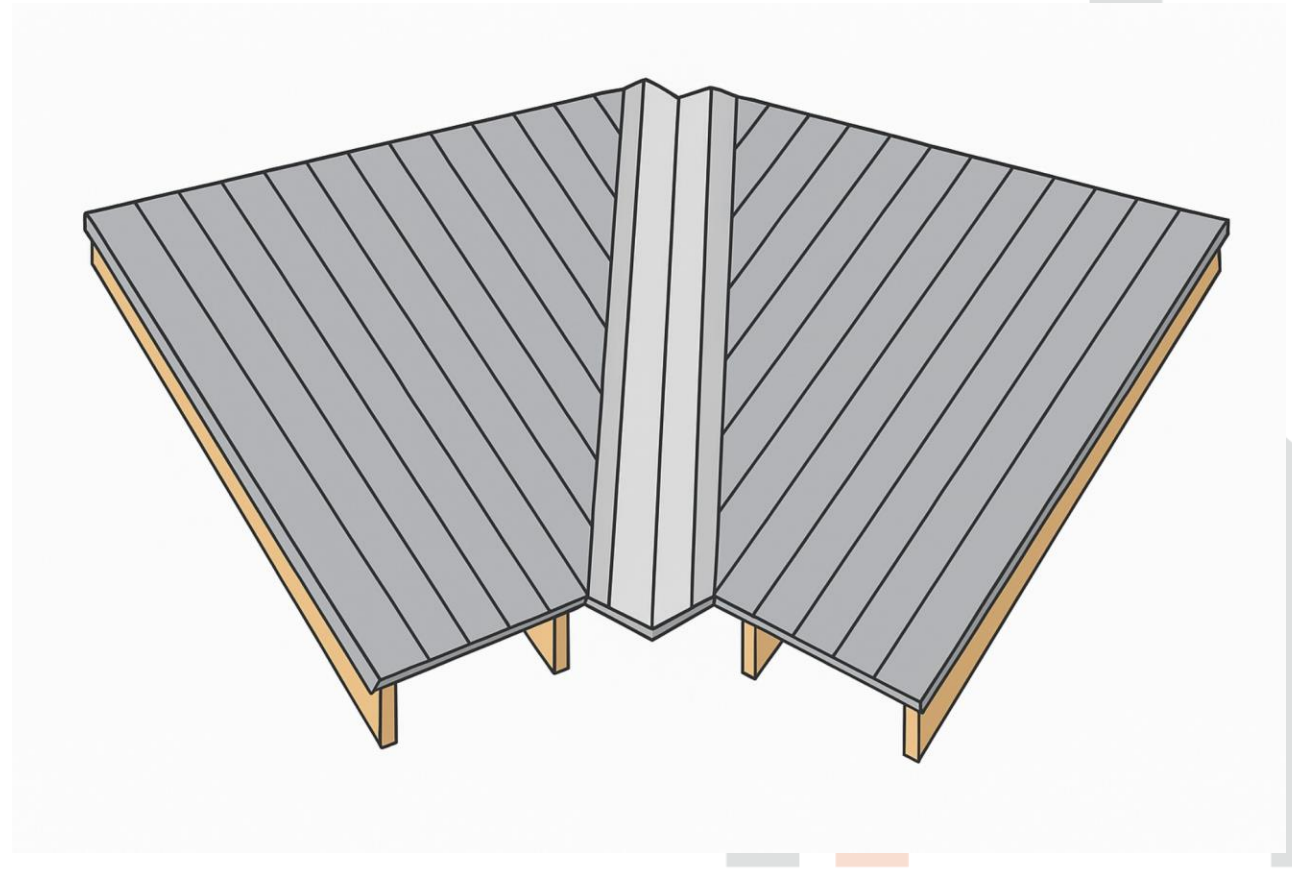


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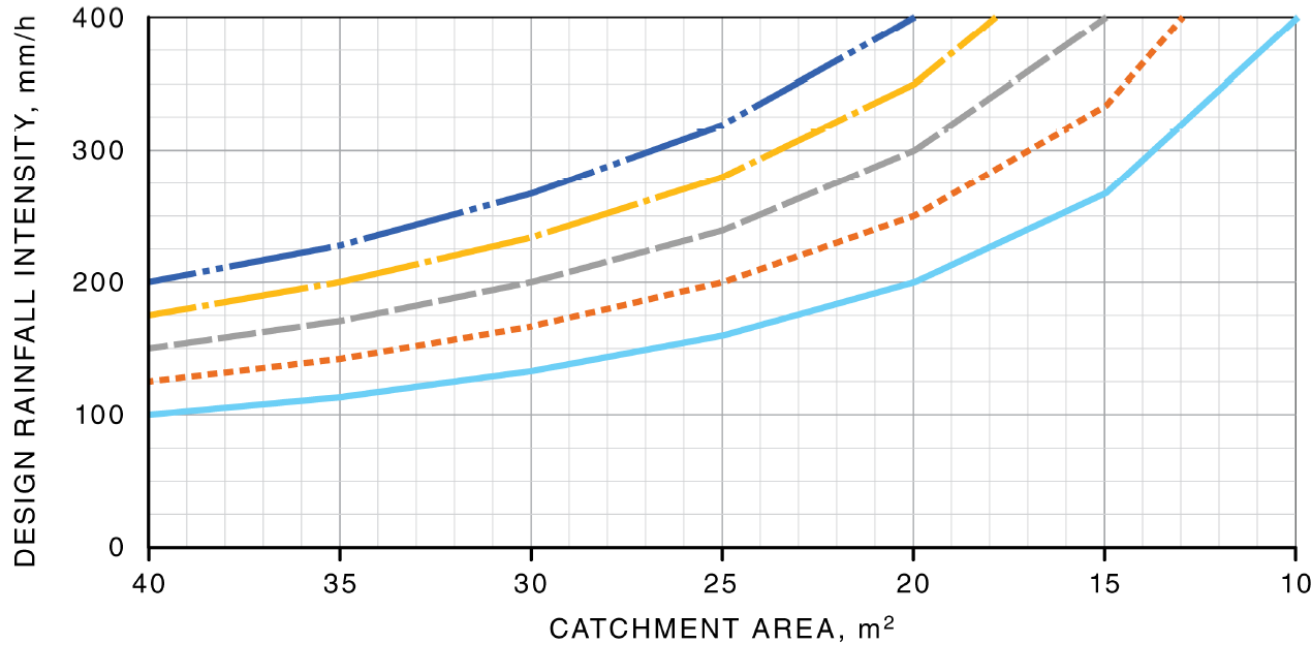
## 3.6 Valley gutters

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



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## 3.6 Valley gutters



Key

  $w_e = 215$

  $w_e = 254$

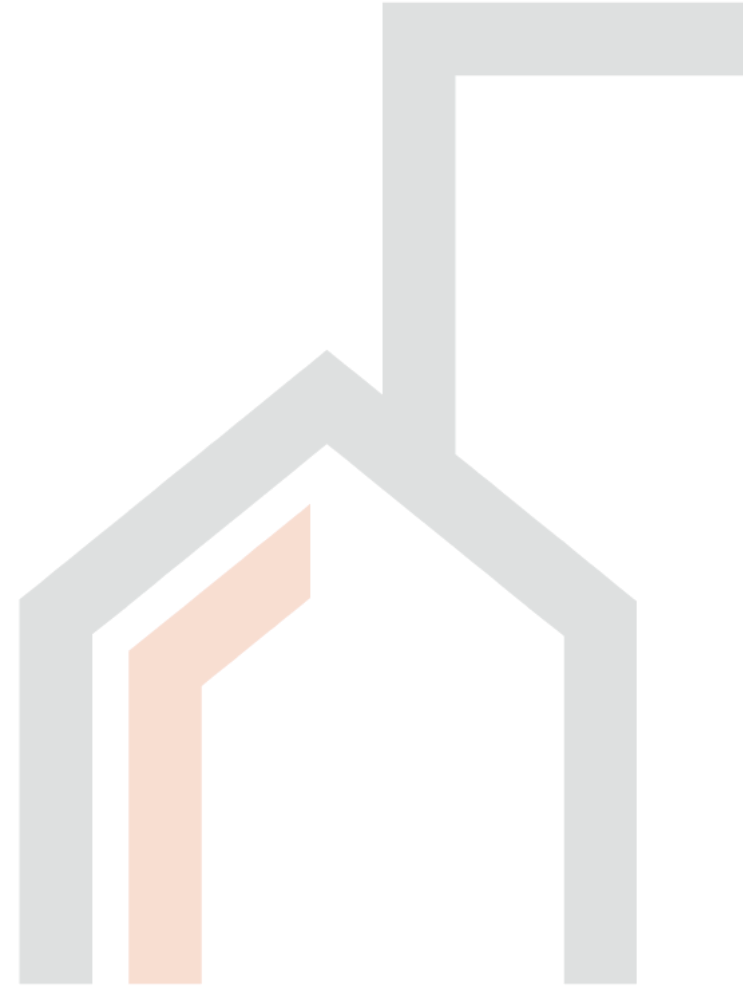
  $w_e = 292$

  $w_e = 234$

  $w_e = 273$

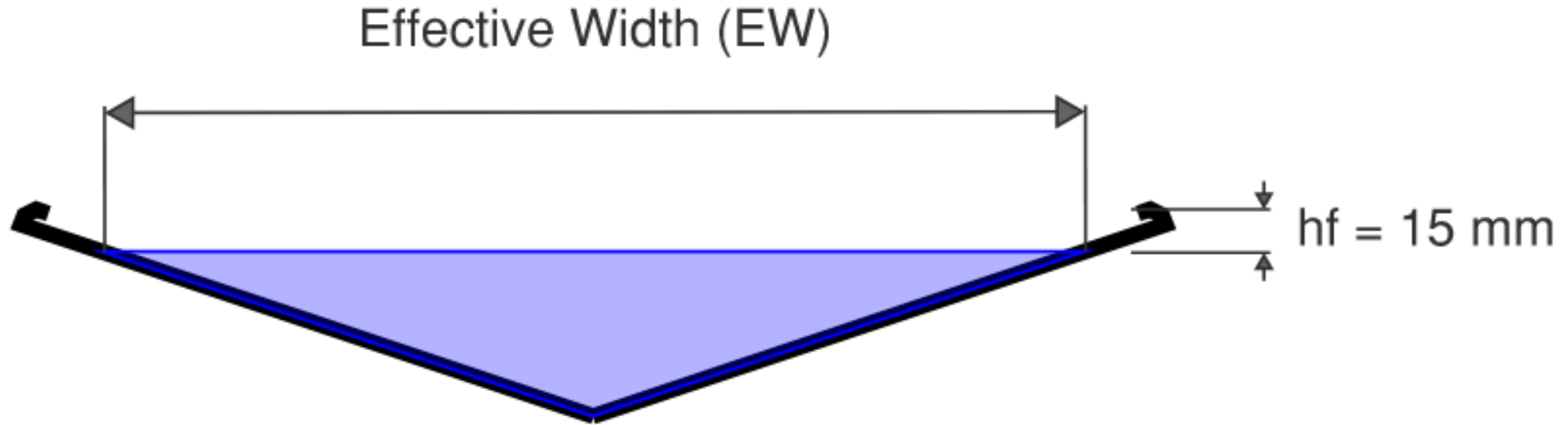
**Key**

$w_e$  = Effective width, in mm



# 2025 edition of AS/NZS 3500.3

## 3.6 Valley gutters



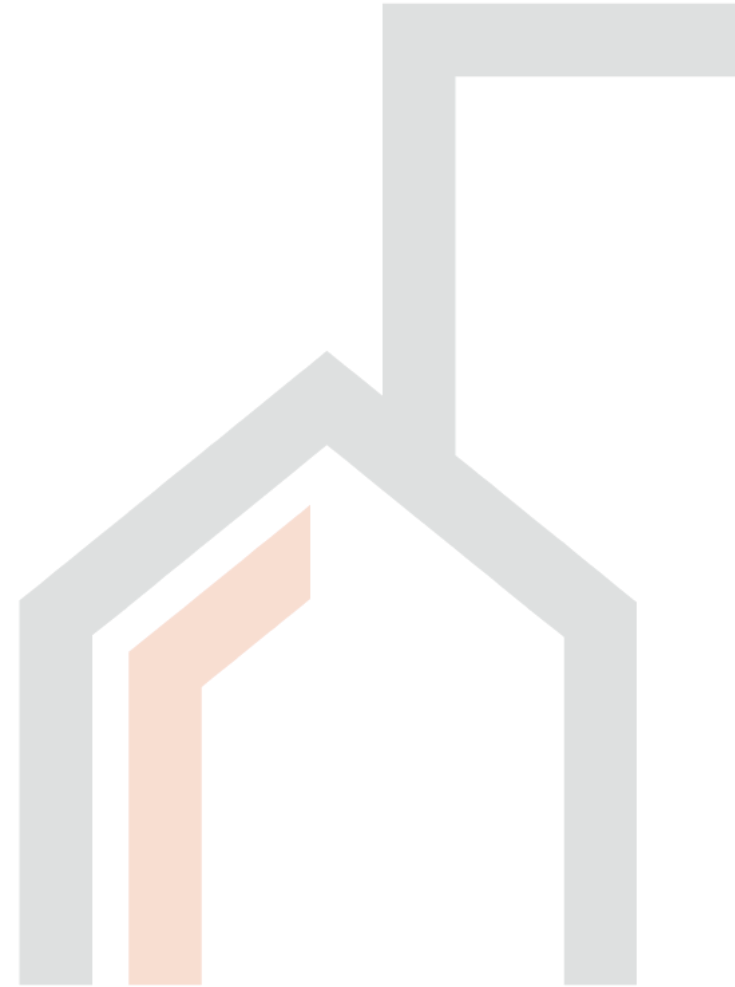
**Profile of a Valley gutter**

## 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 m<sup>2</sup>; 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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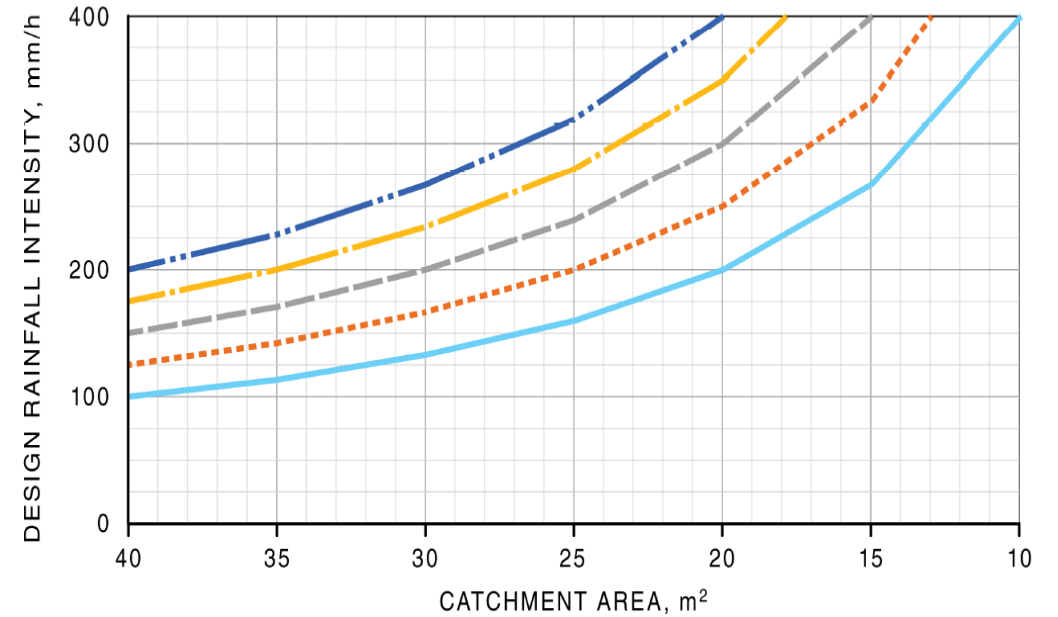
Major changes since the 2021 edition

**Table 3.6.2 — Valley gutters — Dimensions**

Design rainfall intensity		Minimum, mm		
mm/h		Sheet width	Effective depth ( $h_e$ )	Effective width ( $w_e$ )
	$\leq 200$	355	32	215
> 200	$\leq 250$	375	35	234
> 250	$\leq 300$	395	38	254
> 300	$\leq 350$	415	40	273
> 350	$\leq 400$	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<sup>2</sup>.  
 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<sup>2</sup>



Catchment that is  $\leq 40$  m<sup>2</sup>

## 5 Surface water drainage systems – Design

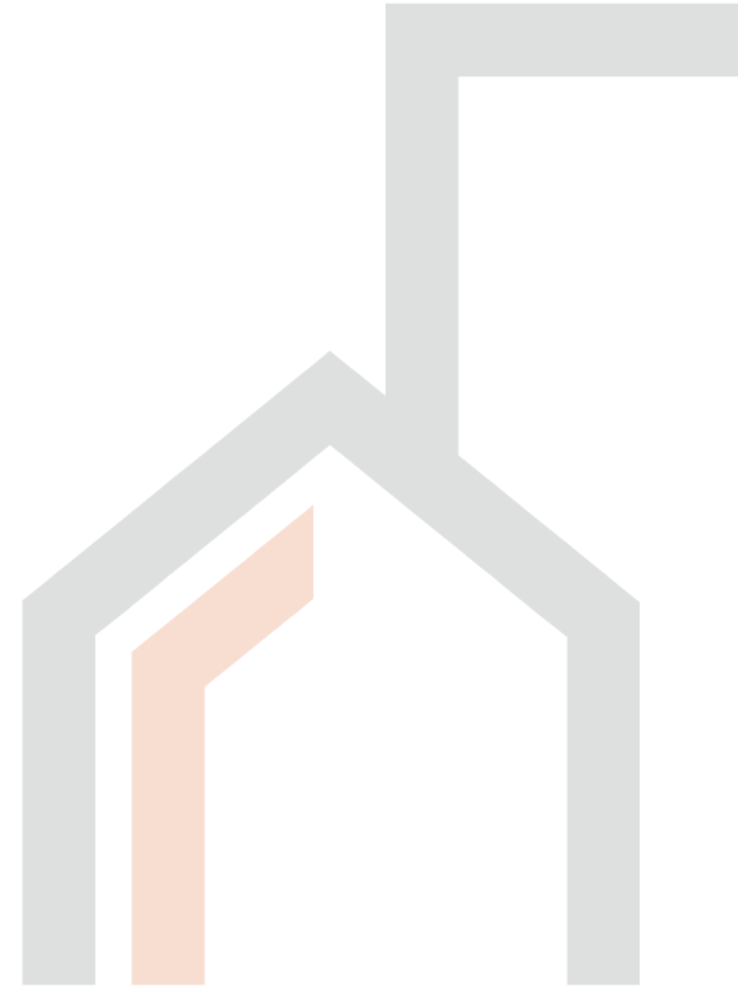
### 5.3 Layout

#### 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.



## 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 –

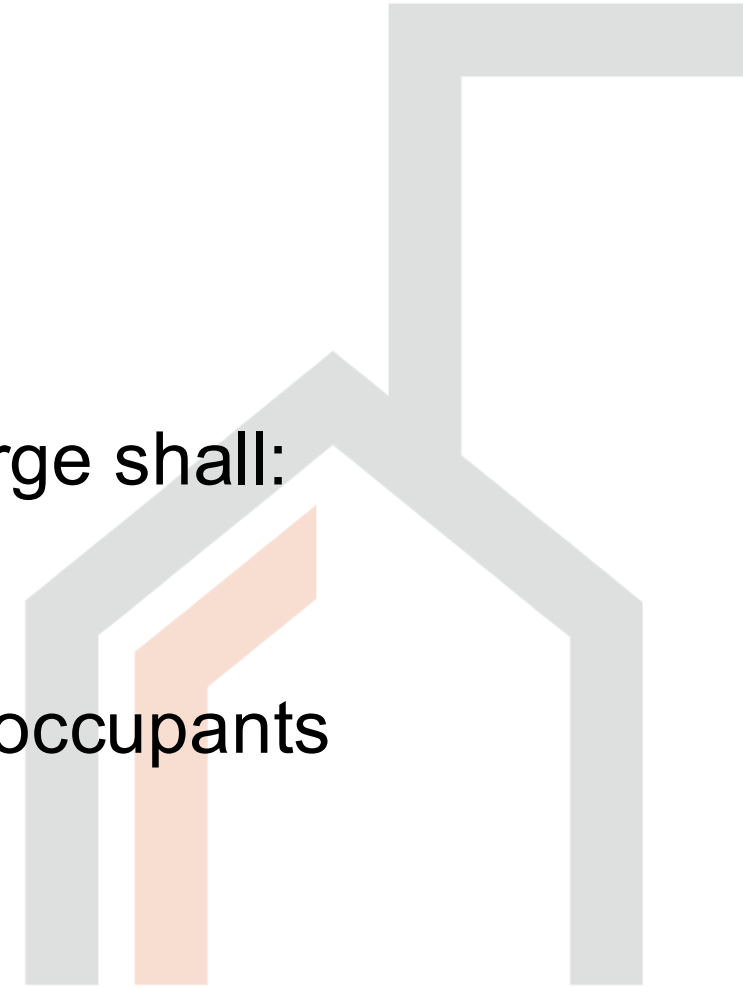
- a) the discharge to the stormwater system shall be via a **tundish** or **pit**; and
- b) the point of discharge from each drain line shall be located so that the release of steam or heated water does not cause a **nuisance**, is readily **discernible**, and causes no risk of **damage** to the building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

## Clause 5.3.8.2 Stormwater connection (New clause) –

### 5.3.8.2 Stormwater connection

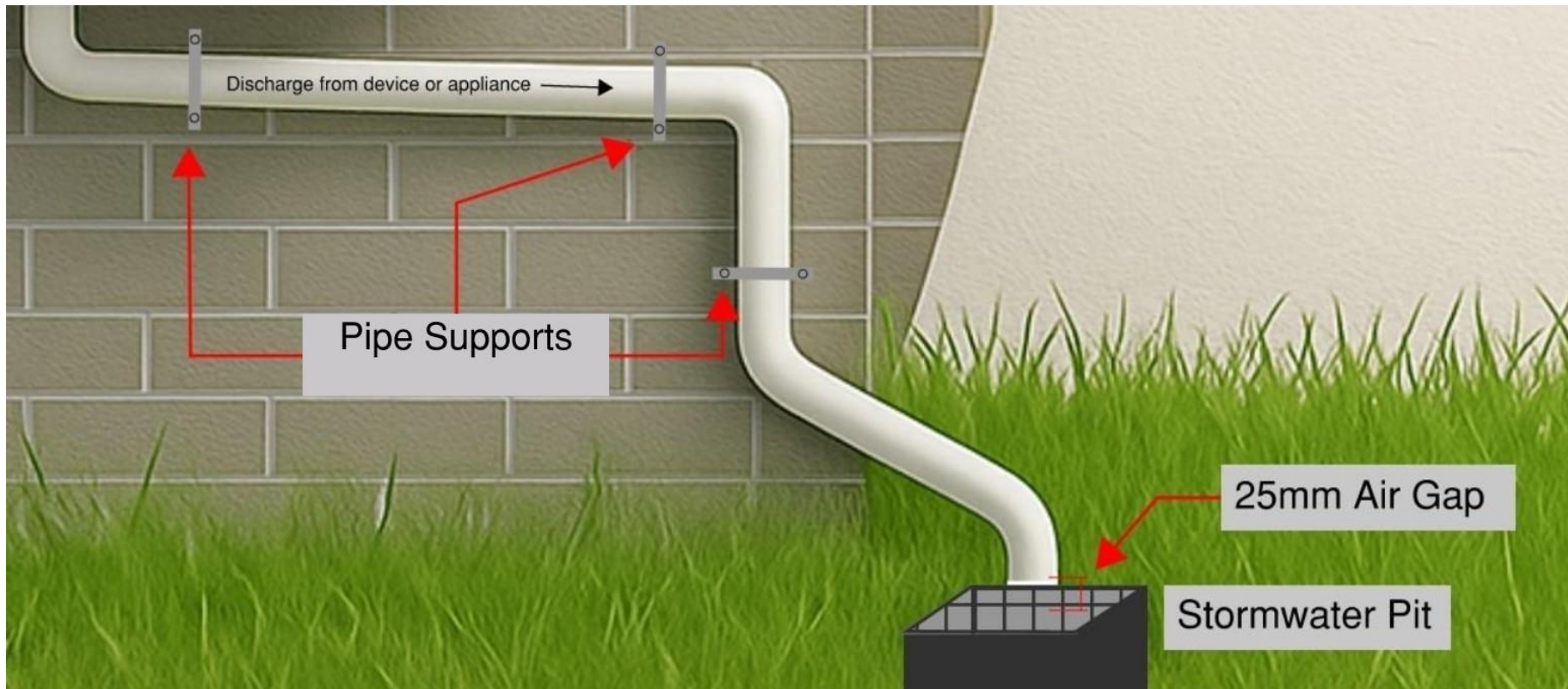
If a tundish or pit is installed, the point of discharge shall:

- (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**.



## Clause 5.3.8.2 Stormwater connection (New clause) –

### 5.3.8.2 Stormwater connection – Example



# 2025 edition of AS/NZS 3500.3

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

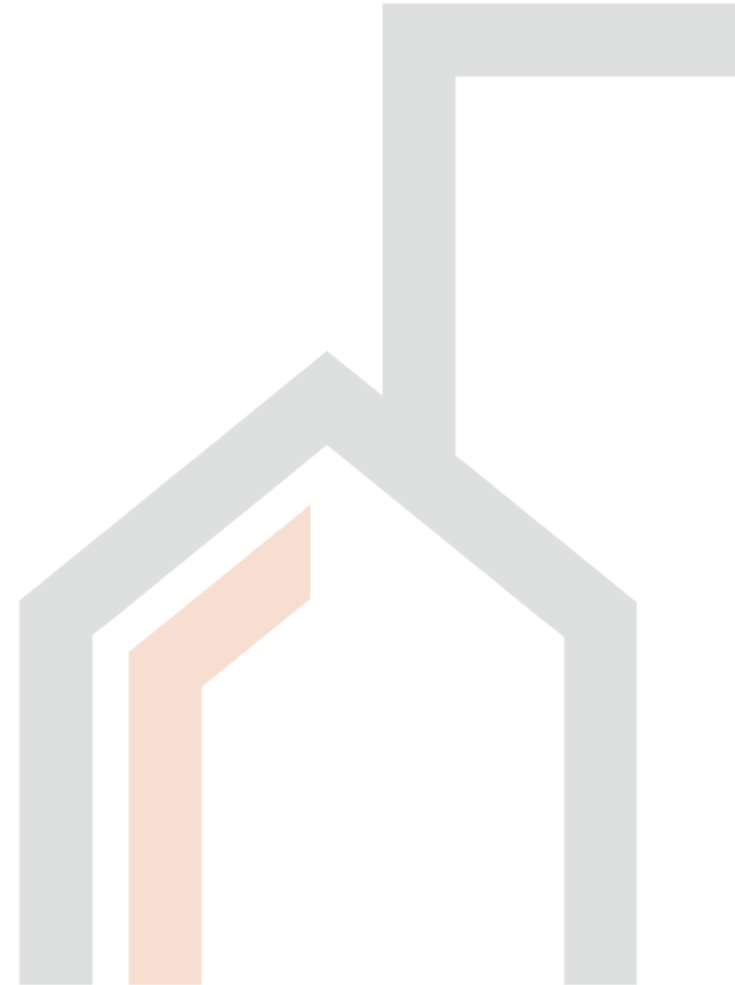
## 5.3.8.3 Stormwater system design

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.

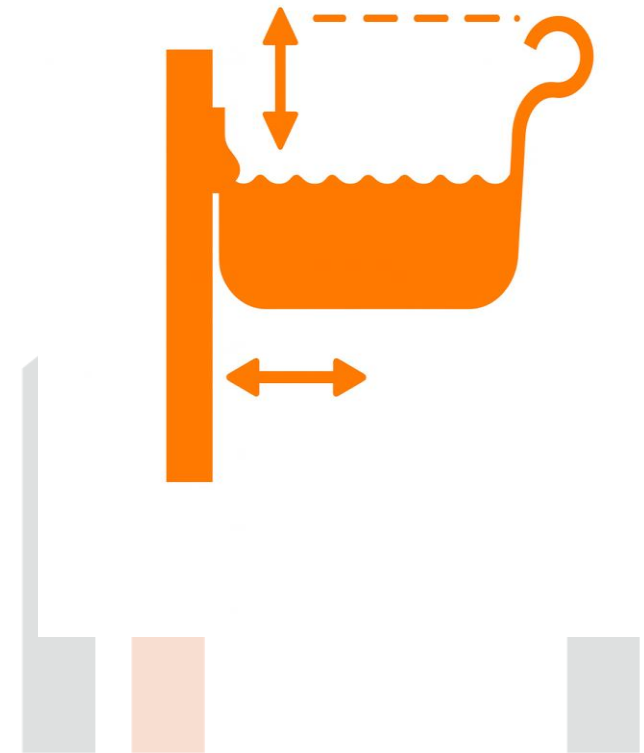


## Appendix F – Overflow design for eaves gutters

### F.1 Scope

This appendix sets out design procedures for eaves gutter overflow measures on roof catchments up to 400 m<sup>2</sup>.

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



## 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

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

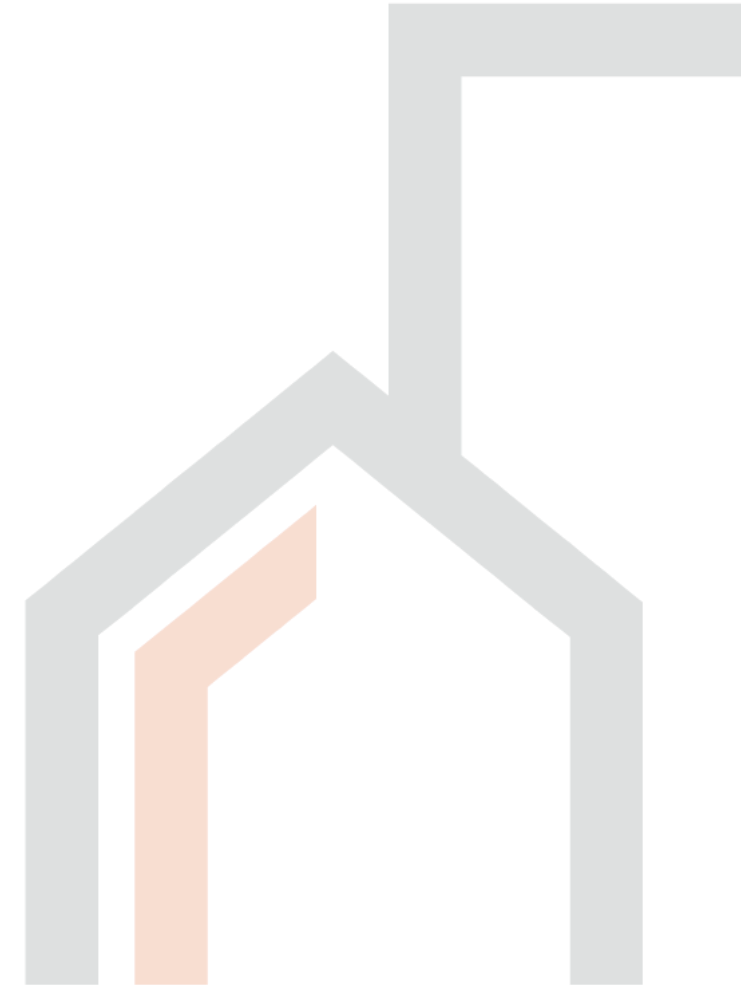
$$R = \frac{A}{P}$$

where

$Q^*$  = design overflow volume, in litres per second

$Ac$  = catchment area, in metres square

$R$  = design rainfall intensity, in millimetres per hour

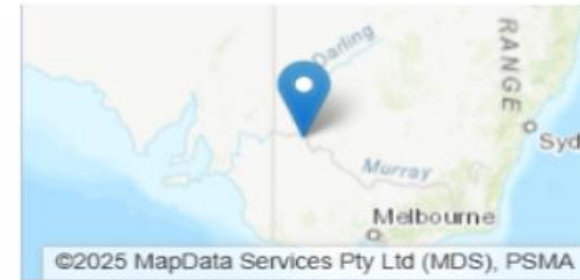


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Find the Rainfall Intensity form BOM website

## 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**



Duration	Annual Exceedance Probability (AEP)						
	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

# 2025 edition of AS/NZS 3500.3

## 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:



Duration	Annual Exceedance Probability (AEP)						
	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

Find the Rainfall Intensity form BOM website

**Find the Rainfall Intensity for Australia for your site**

119

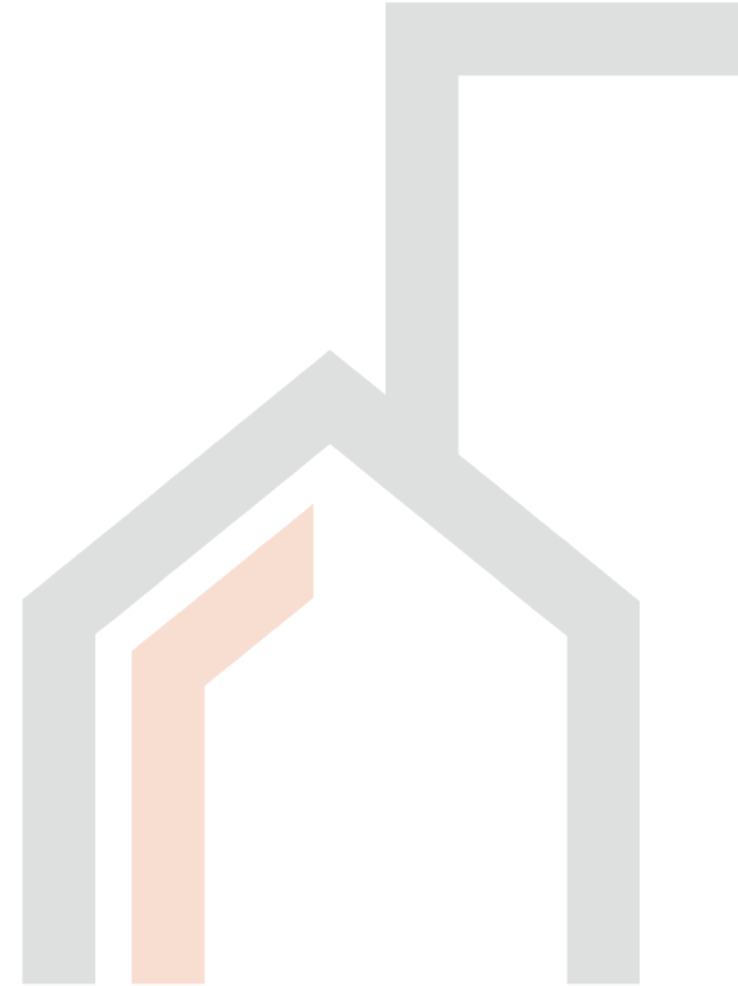
AS/NZS 3500.3:2025

Australian location	Latitude degrees	Longitude degrees	5 % AEP (20 years ARI) intensity mm/h	1 % AEP (100 years ARI) intensity mm/h
<b>VICTORIA</b>				
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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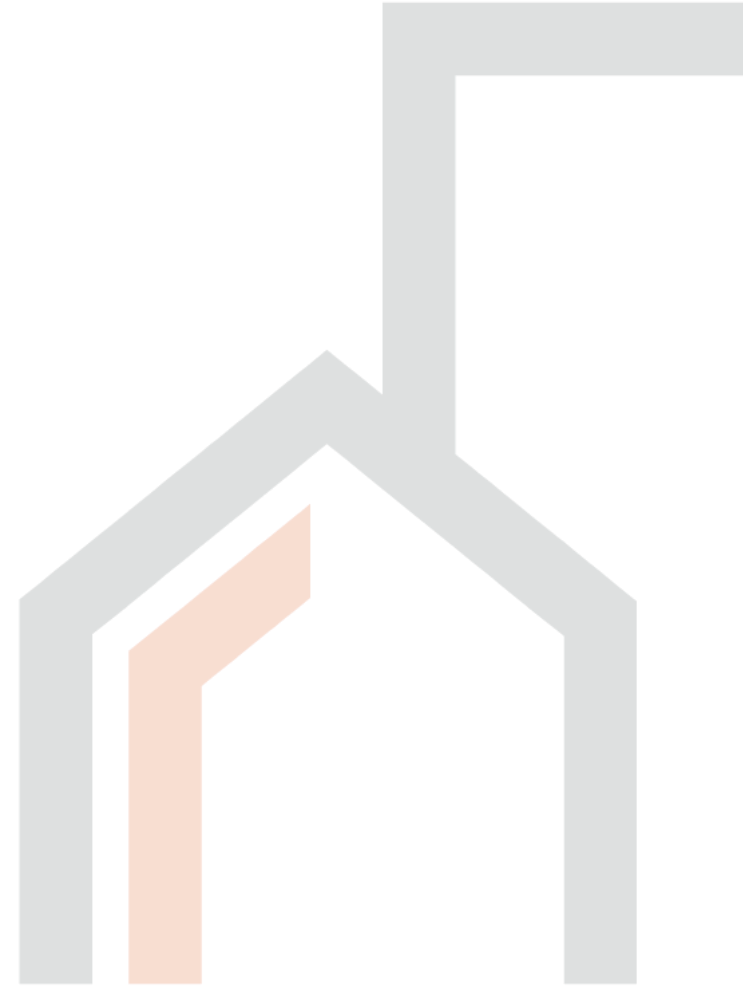
$$Q^* = \frac{Ac \times R}{3600}$$

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



## 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:

$$Q^* \leq Q$$

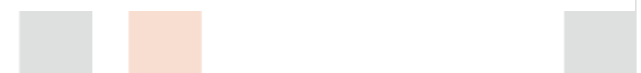
where

$Q^*$  = design overflow volume expressed in litres per second for the relevant catchment determined from [Clause E.2](#)

$Q$  = capacity of the overflow measures for the relevant catchment determined from [Clause E.4](#)



F.3



## F.4 Continuous overflow measures

### F.4.1 General

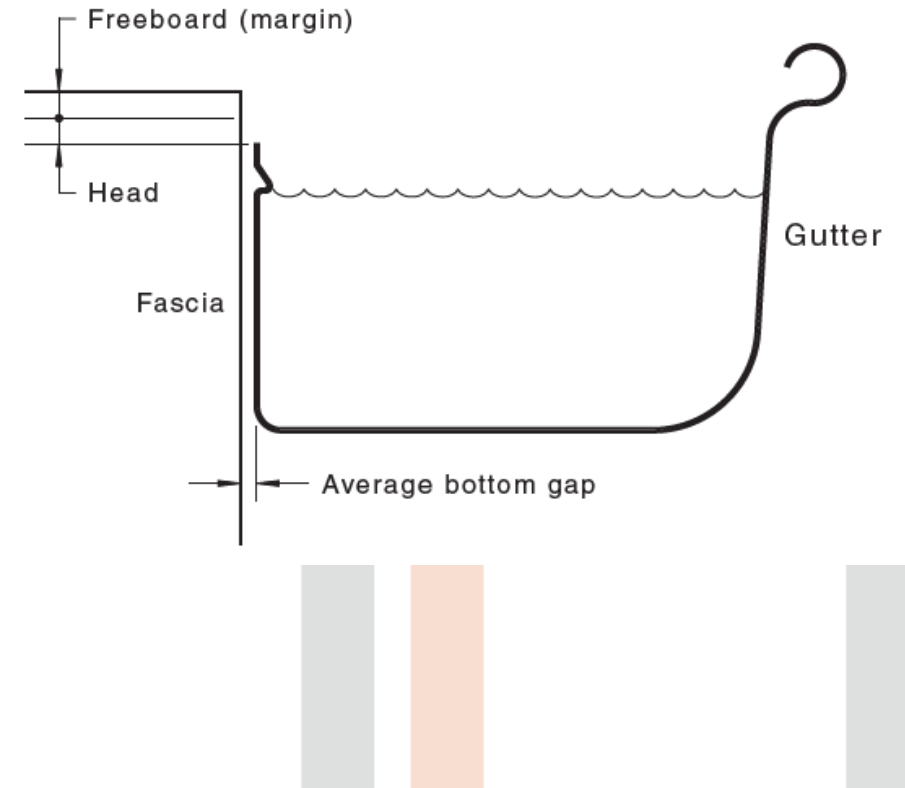
**Continuous** overflow measures for each catchment and eaves gutter element shall be designed as specified in clause F.2 and using one of the measures provided in clauses F.4.2 to F.4.5.

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.

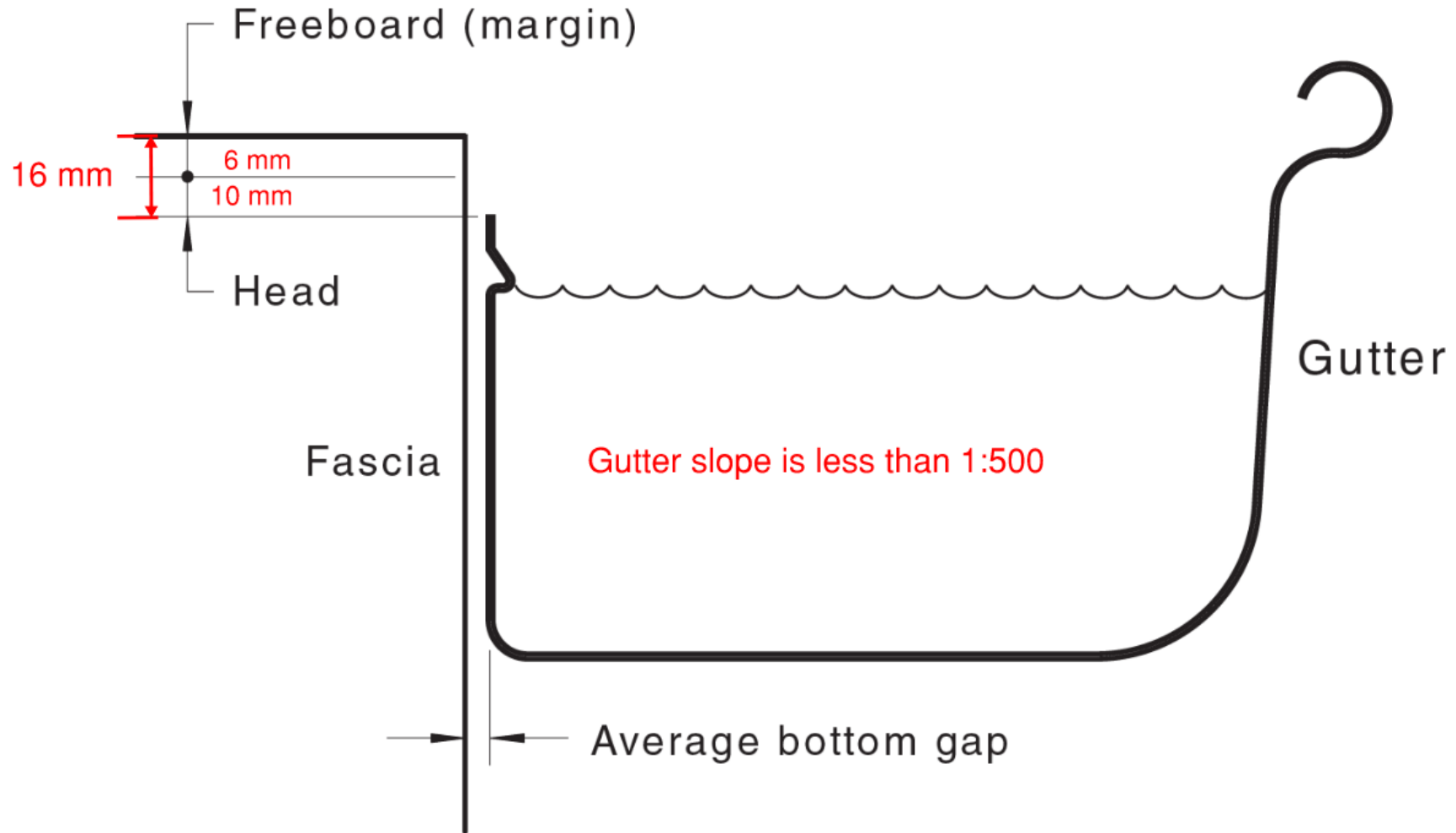
## F.4 Continuous overflow measures

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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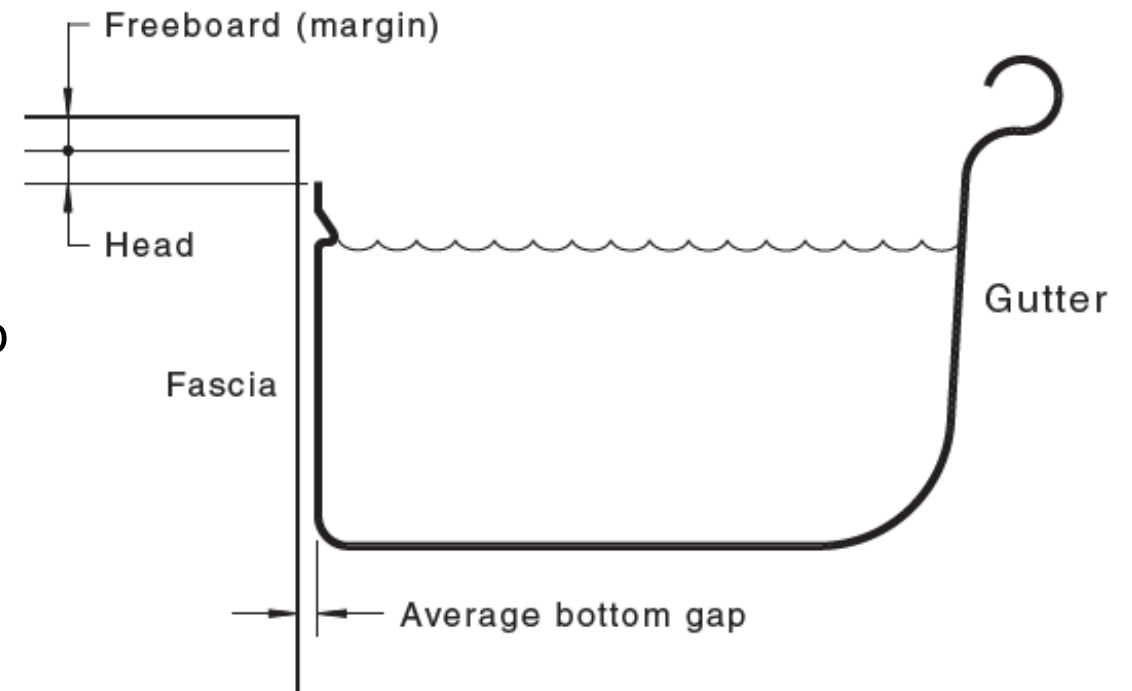


## F.4.2 Gutter back gap overflow (Updated Appendix F)

### 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 be 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.



# 2025 edition of AS/NZS 3500.3

Head of water  mm	Average bottom gap			
	1.5 mm	3.0 mm	4.5 mm	6.0 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

# 2025 edition of AS/NZS 3500.3

Major changes since the 2021 edition

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

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

where

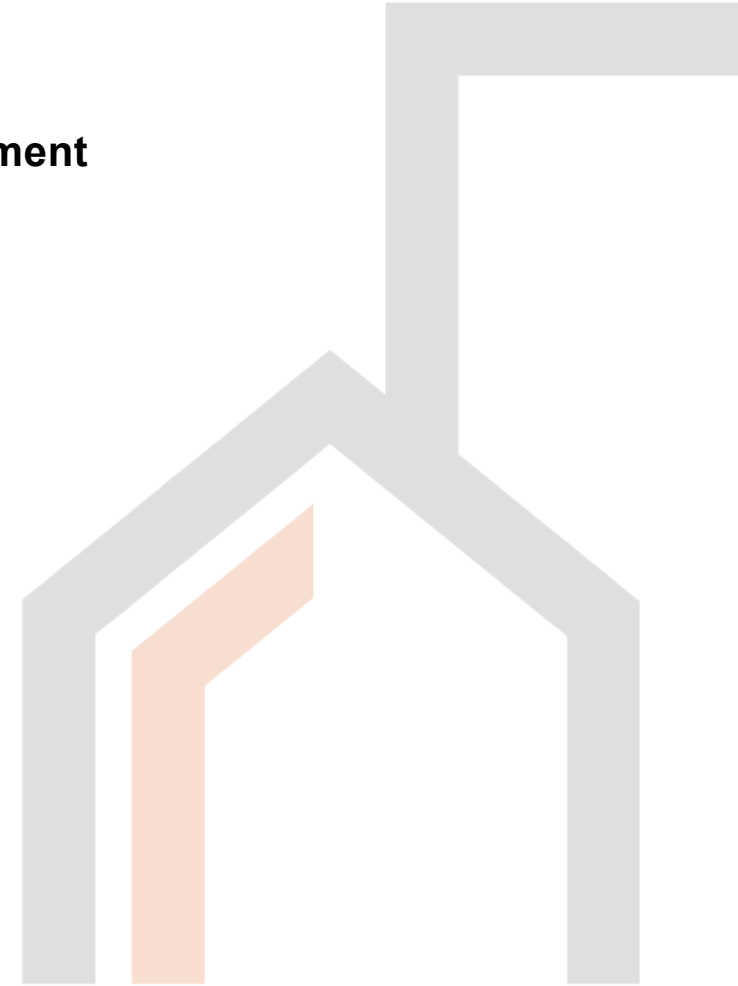
$Q$  = flow rate from the slots expressed in L/s/m

$C_d$  = discharge coefficient = 0.61

$A$  = area of the slots expressed in mm<sup>2</sup>/m

$g$  = gravitational constant = 9.81 m/s<sup>2</sup>

$h$  = effective head of water above slots expressed in mm

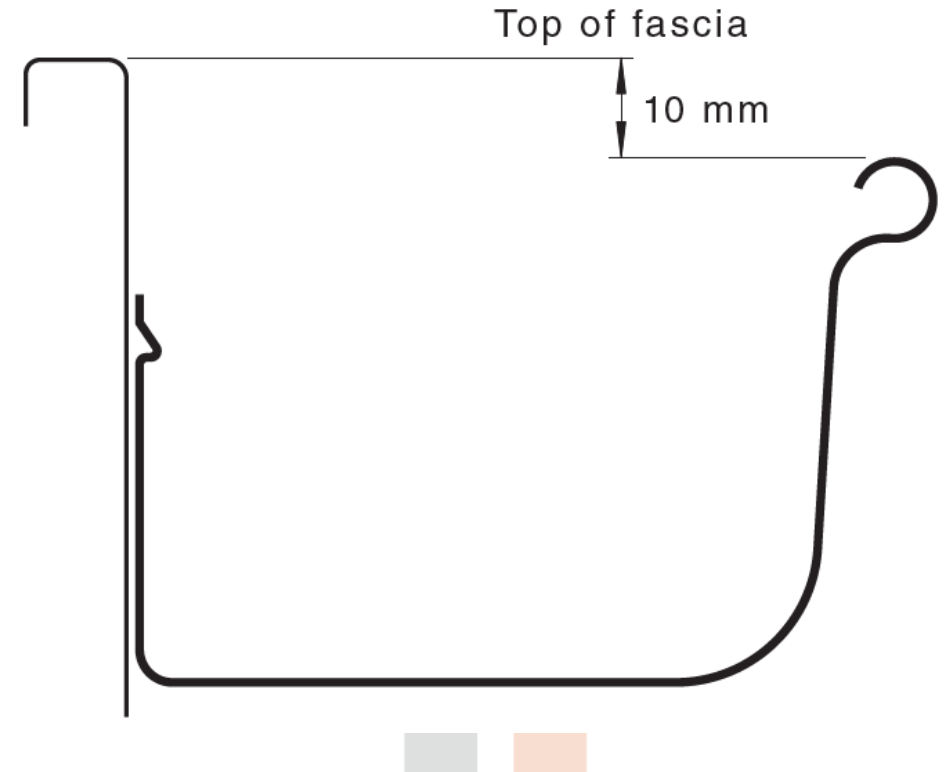


# 2025 edition of AS/NZS 3500.3

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.



# 2025 edition of AS/NZS 3500.3

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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