INFORMATION SHEET

BUILDING SERVICES

Ref: BCA 18-06
Current at: February 2018

OVERFLOW FROM EAVES GUTTERS

This information sheet provides a summary of the options for compliance with the overflow provision for gutters included in the 2016 edition of BCA Volume Two.

Overview of the BCA requirements

The BCA provides Deemed-to-Satisfy Solutions for collecting and disposing of stormwater to meet the surface water Performance Requirement P2.2.1.

The 2016 version of the BCA included overflow provisions in Part 3.5.2 of Volume Two, and has provided a number of options for how rainfall from a one in 100 year event can be prevented from entering into a building.

Overflow volumes are based on the rainfall intensities expected in the location of the home and the area of catchment, and assumes that all of the downpipes are blocked.

Overflow measures are not required to be provided where eaves gutters are fixed to a veranda or eave greater than 450 mm wide, where they are not lined or are raked with a lining sloping away from the building. It is assumed in these cases that water will not be able to flow back into the building.

'Continuous' and 'Dedicated' overflow measures

The Deemed-to-Satisfy Solutions in Part 3.5.2, provide both continuous and dedicated measures for allowing for overflow.

Continuous measures allow water to escape from the gutter along its length and dedicated measures allow flow of a certain volume away from the building in discrete locations.

Different measures can be used in combination to provide for the total overflow volume required for a roof area. It is also possible to use options not provided in the BCA provided their suitability is supported in a Performance Solution.

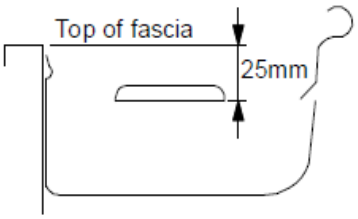
*The Deemed-to-Satisfy options for **continuous** overflow provision include:*

Front face slotted gutter

Excess water is designed to flow out of the holes in the face of the gutter.

Achieves an overflow capacity of 0.5 L/s/m with:

- A minimum slot opening area of 1200 mm^2 per meter of gutter; and
- The lower edge of the slots installed a minimum of 25 mm below the top of the fascia.

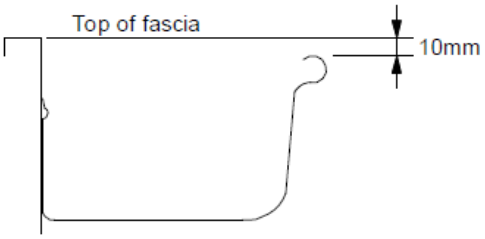


Controlled front bead height

Excess water is designed to flow over the front lip of the gutter.

Overflow capacity of 1.5 L/s/m with:

- The front bead of the gutter installed a minimum of 10 mm below the top of the fascia.

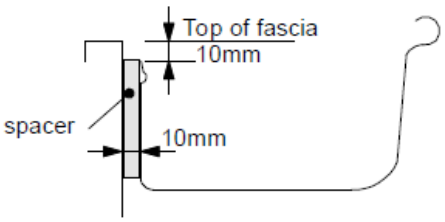


Controlled back gap

Excess water is designed to flow over the back of the gutter, outside of the fascia.

Overflow capacity of 1.5 L/s/m with:

- A permanent 10 mm minimum spacer installed between the gutter back and the fascia; and
- One spacer per bracket, with the spacer not more than 50 mm wide; and
- The back of the gutter installed a minimum of 10 mm below the top of the fascia.



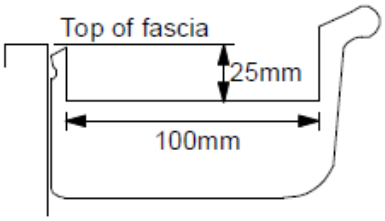
*The Deemed-to-Satisfy options for **dedicated** overflow measures include:*

End stop weir

Excess water is designed to flow out of the opening in the end of the gutter. The opening is located to prevent overflow under typical rainfall conditions.

Overflow capacity of 0.5 L/s with:

- A minimum clear width of 100 mm; and
- The weir edge installed a minimum 25 mm below the top of the fascia.
- Not suitable where the end stop abuts a wall.

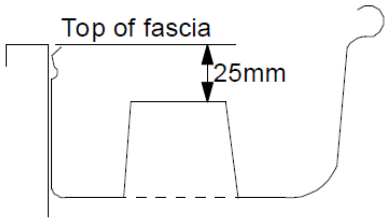


Inverted nozzle –

Excess water is designed to flow through the holes in the bottom of the gutter. The 'pop' is raised to prevent overflow under typical rain conditions.

Overflow capacity of 1.2 L/s with:

- A minimum nozzle slot size of 100 mm x 50 mm positioned lengthways in the gutter; and
- The top of the nozzle installed a minimum of 25 mm below the top of the fascia; and
- Installed within 500mm of a gutter high point

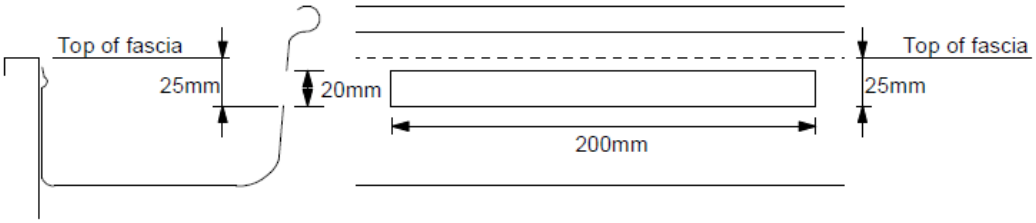


Front face weir –

Excess water is designed to flow out of the large hole in the face of the gutter.

Overflow capacity of 1.0 L/s with:

- A minimum clear width of 200 mm; and
- A minimum clear height of 20 mm; and
- The weir edge installed a minimum of 25 mm below the top of the fascia.

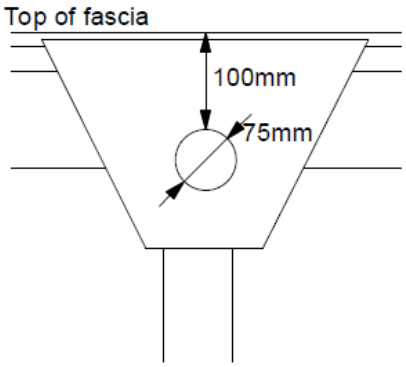


Rainhead –

Excess water is designed to flow out of the hole in the face of the rainhead.

Overflow capacity of 3.5 L/s with:

- A 75 mm diameter hole in the outward face of the rainhead; and
- The centerline of the hole positioned 100 mm below the top of the fascia



Example Overflow Calculation

Site location: Joondalup, Western Australia

Roof catchment area: 120 m^2 (12 x10 m roof plane)

Eave gutter length:10 m

Rainfall intensity for a one in 100 year 5 minute duration event, from BCA 2016 Table 3.5.2.1 for Joondalup: 180mm/h

For continuous overflow measures – per metre of gutter, there is 12m of roof catchment area: 180mm/h x 12m = 2160mm/h/m => **0.6L/s/m** (divide by 3600 to convert units or refer to Table 3.5.2.3a)

For dedicated overflow measures – catchment is 120 m^2: 180mm/hr x 120m = 21,600mm/h => **6.0L/s** (divide by 3600 to convert units or refer to Table 3.5.2.3b)

Possible solutions:

Suitable Continuous measures:

Controlled front bead height – 1.5L/s/m capacity > 0.6L/s/m required, therefore is suitable

Controlled back gap - 1.5L/s/m capacity > 0.6L/s/m required, therefore is suitable

Suitable Dedicated measures:

Rainhead – 3.5L/s capacity < 6.0L/s required, however two rainheads (3.5L/s x 2 = 7L/s) would be suitable

Combined measures:

Using Continuous measure - Front face slotted gutter with 0.5L/s/m capacity < 0.6L/s/m required, leaving 0.1L/s/m to be allowed for by other measures.

Dedicated measures can be used for remaining required capacity:

Inverted nozzle – 1.2L/s capacity

At 0.1L/s/m, max 12m of gutter can be covered by this solution. As length in this case is 10m, this combination will be suitable.

Front face weir – 1.0L/s capacity

At 0.1L/s/m, max 10m of gutter can be covered by this solution. As length in this case is 10m, this combination will be suitable.

End stop weir – 0.5L/s capacity

At 0.1L/s/m, max 5m of gutter can be covered by this solution. As length in this case is 10m, two end stop weirs would be required. Probability of successful installation should be considered.

Note: Care should be taken to ensure that the overflow volume on lower levels considers any overflow that may fall from upper levels onto the lower roof.

Note: The ABCB provides a calculator for determining overflow volumes and the suitable combinations of overflow measures required, this may be used as part of documentary evidence for the project subject to acceptance by the approval authority. The excel document can be downloaded from:

http://www.abcb.gov.au/Resources/Tools-Calculators/GDO-Calculator

For further clarification and information on the BCA, HIA members can contact HIA's Building Services team on 1300 650 620 or by email at hia_technical@hia.com.au

*The Figures produced by HIA in this information sheet are based on those included in BCA 2016.