



Patent No. 2017100163



CERTIFIED PRODUCT

Rainhead design guide

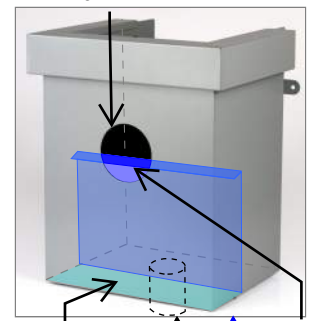
11 July 2019
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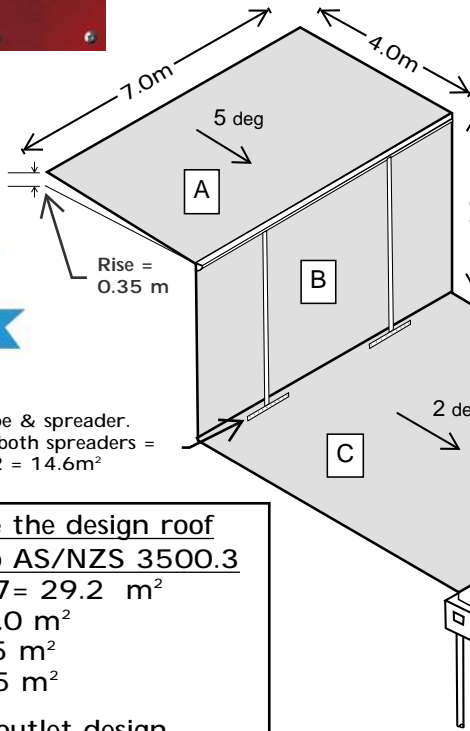
Location	100 I ₅ mm / h
Brisbane	306
Darwin	274
Sydney	262
Canberra	192
Melbourne	187
Adelaide	174
Perth	172
Hobart	120

Note
Refer to AS/NZS 3500.3-2018 for all other areas

Secondary overflow



Primary overflow chute D.P. Internal overflow weir



Downpipe & spreader.
Area to both spreaders = $29.2 / 2 = 14.6 \text{ m}^2$

Note
The vertical catchment component of roofs of the same area, and having equally opposing slopes, cancel each other

300 wide box gutter, 1:200 fall, minimum depth designed in accordance with AS/NZS 3500.3

Dam Buster Rainhead 300-1

Step 1 - Calculate the design roof catchment area to AS/NZS 3500.3

$$A^{(1)} = (4 + 0.35/2) \times 7 = 29.2 \text{ m}^2$$

$$B^{(1)} = (7 \times 4) / 2 = 14.0 \text{ m}^2$$

$$C = 7 \times 7.25 = 50.75 \text{ m}^2$$

$$D = 7 \times 7.25 = 50.75 \text{ m}^2$$

'CA' = Box gutter outlet design catchment area (m²)
= A + B + C + D = 144.7 m²

Step 2 - Calculate the flow rate, 'Q' (litres / sec)

Location - Melbourne => 100 year ARI = 187 mm / hour = '100I₅' (refer table above)

$$Q = (CA \times 100I_5) / 3600$$

$$= (144.7 \times 186) / 3600$$

$$= 7.51 \text{ litres / sec}$$

Step 3 - Select Dam Buster / DP combination

From design chart, adopt a 100 mm diam. DP.
Allowable flow rate = 7.60 litres / sec > 7.51 => OK

Notes

(1) In accordance with clause 3.4 of AS/NZS 3500.3, half the area of (exposed) vertical faces, including rises in the roof, shall be included in the catchment area calculation for the direction of driving rain considered.

(2) Clause 3.7.5.1 of AS/NZS 3500.3 requires the overflow capacity of the device shall not be less than the design flow.

ADOPT

Dam Buster 300-1 with 100 mm diameter DP
(Design flow capacity = 7.60 litres / sec)
Overflow capacity⁽²⁾ = 16.0 litres / sec

Dam Buster Rainhead Design Table

Downpipe size	Equivalent diameter	Dam Buster Rainhead size				
		200-1	300-1	400-1	500-1	600-1
100 x 50	80 mm	4.00				
80 diam.	80 mm	4.00		Not recommended		
90 diam.	90 mm	4.70	6.50			
100 x 75	98 mm	5.00	7.30	8.00		
100 diam.	100 mm	5.00	7.60	8.80	8.80	
100 x 100	113 mm		8.80	12.0	12.0	
125 diam.	125 mm		9.50	14.2	15.4	15.9
150 diam.	150 mm			16.0	16.0	16.0
Overflow Capacity of device (l/s)		> 16.0	< 16.0	> 16.0	> 16.0	> 16.0

Maximum permissible flow rates (litres / sec)

Note - The minimum gutter slope is 1 in 200



Dam Buster overflowing

Note

Values in black colour have been certified for compliance with AS/NZS 3500.3:2018 by Dr. R Keller, R. J. Keller & Associates (Consulting Hydraulic Engineers).
Values in blue colour have been determined by testing carried out by the AHSCA Research Foundation.