

Controlled Flow Roof Drain

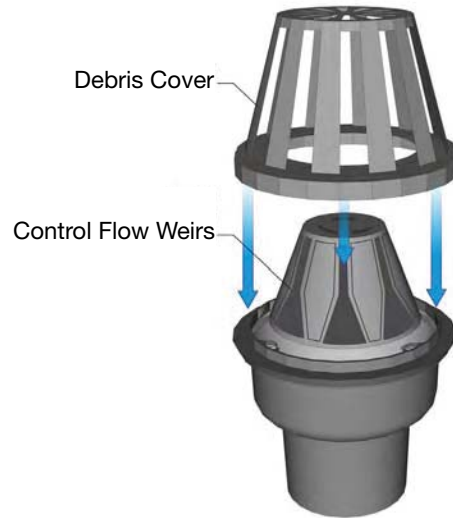


Figure 2-6:
Weirs with predetermined flow rates at various ponding depths control the release rate from a controlled flow roof drain.

tion of the specified non-standard drain following the Technical Report 1 (TR1) inspection.

As described above, the release rate from each controlled flow drain, Q_i , is first calculated in cubic feet per second. To determine the appropriate depth of flow, this release rate is converted to gallons per minute and divided by the release rate per inch of depth, Q_n , as specified by the controlled flow drain manufacturer. This flow depth must be less than or equal to the maximum ponding depth, d_{max} , as determined based on the structural analysis and the Construction Codes.

$$d_R = \frac{449Q_i}{Q_n} \leq d_{max}$$

Where:

- d_R = the roof drain depth of flow, in
- Q_n = the release rate per inch of ponding, as per manufacturer specifications, gpm/in
- Q_i = the release rate from each drain, cfs (calculated above)
- d_{max} = the maximum ponding depth, per the Construction Codes, in

Once controlled flow drains have been selected, the release rate from the roof drain specifications should be checked to verify that the design release rate from the blue roof is achieved. The licensed professional is responsible for checking to make sure that the controlled flow roof drain manufacturer provides the proper number of weirs for each roof drain, so that the total flow from all roof drains is equal to or less than the release rate from the rooftop system, Q_{ROOF} .

Controlled flow roof drains should be tamper-proof to prevent unauthorized modifications, which would change the release rate and alter system performance. To ensure drains are tamper-proof and flow is not increased beyond the calculated design, the manufacturer should provide controlled flows with the weirs welded in place.

Calculate the Available Storage Volume

The slope of the roof and controlled flow drain locations can significantly impact the available storage area on the rooftop (**Figure 2-7**). On