Blue Roof Calculation

Project Reference: SP87643-BC1/Rev2

Project Details

Location:	London	Outlet Type:	Harmer BR15
Drainage Area:	765 m^2	No. Of Outlets:	3 no.
Blue Roof Area:	754 m^2	Max. Upstand/VF Depth:	100 mm

Design Storm Inputs

Return Period:	100 years	Intensity Profile:	50% Summer
Duration:	6 hours	Climate Change Factor:	30%

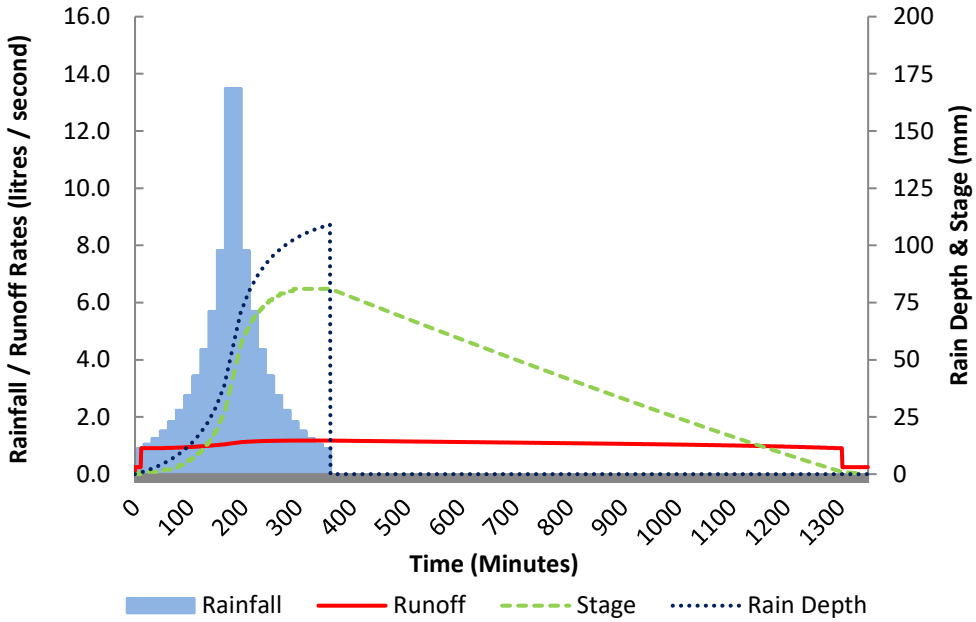
Design Storm Characteristics

Rainfall Depth:	109.04 mm	Peak Rainfall Intensity:	0.018 $l/s/m^2$
Peak Rainfall Rate:	13.49 l/s		

Blue Roof Response

Peak Runoff Rate:	1.18 l/s	Peak Runoff Reduction:	91.29%
Attenuation Time:	17 hours	Max. Stage:	81 mm
Detention Volume:	61 m3	Overflow Volume:	0 m3

Alumasc BluRoof Response



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Blue Roof Calculations – Terms & Conditions of Use

BASIS OF MODEL

1. The model derives a design storm profile based on the principles of a Depth-Duration-Frequency (DDF) Model. This utilises coefficients published in the Institute of Hydrology's Flood Estimation Handbook (FEH, 1999) to estimate the design rainfall profile for a given return period and duration at any UK location.
2. Runoff characteristics are based on a totally flat roof surface. Once storage reaches its maximum volume, overflow is deemed to occur instantaneously. In order to ensure that the roof's integrity is preserved, sufficient overflow capacity is a requirement. The sizing of this facility should be designed cognisant of the probability of overflow and of all resulting risks of detriment to the building.
3. Coefficients used to calculate design storm conditions have been taken from the FEH CD-ROM. As a 1 kilometre square grid has been selected to represent a given location, there may be some variations as a result of micro-geographical factors (e.g. land topology etc)
4. No provision has been included for the Time of Concentration (i.e. the time for rain that falls on the most distant part of the roof from the outlet to reach the outlet). This will vary with roof specification. The model assumes runoff commences immediately following rainfall.
5. As with all hydrological software, the model is reliant upon natural elements that are outside human control. Rainfall events are categorised by their probability of occurrence. However, the return period (say, for example, 1 in 100 years) would not preclude an event of this magnitude occurring immediately, nor in successive years. Alumasc cannot therefore accept responsibility for the design storm events being exceeded and any additional measures appropriate for the mitigation of the risk of damage must be considered by the designers.
6. Product performance data in respect of the outlets has been collected through research conducted on behalf of Alumasc Exterior Building Products Ltd. This research has encompassed the use of prototype inserts, with various outlet sizes. A curve-fitting exercise has been conducted to allow equations to be formed to model the stage-discharge response of each of the tested outlet sizes. Extrapolating these equations to suit outlet sizes that were not originally tested is only advised when appropriate cautionary measures are implemented in the analysis and interpretation of the results data.

WARRANTY

The Licensor gives no warranty as to the accuracy or completeness of the information inputted into the model for the purpose of any specific project. It is the sole responsibility of the client to validate that this information is correct prior to its incorporation into the project design. The designer is responsible for ensuring that the roof design is suitable to accommodate the maximum storage depth stipulated in the calculation including, but not limited to, structural suitability and water overflow details.

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