GREEN ROOFS FOR STORMWATER MANAGEMENT

Washington D.C.

Washington D.C. Specific Stormwater Calculations and Details

Columbia Green Technologies provides AutoCAD details and stormwater calculations that are specifically designed with D.C. stormwater regulations in mind. Through our technical support we strive to make designing and implementing a green roof in the D.C. area as easy as possible. Washington D.C. specific details can be downloaded here (put the link here) Additional Stormwater Regulation Sheets for other areas of the country are available upon request.

Policies and Regulations in Washington D.C.

Green Area Ratio (GAR)

The Green Area Ratio is an environmental zoning regulation required by the District of Columbia. Any new construction requiring a certificate of occupancy and any additions that cost 100% or more of the assessed building value must meet GAR requirements, ranging from a required ratio of .2 to .4 green area depending on the site's zoning.

Calculating GAR

$$\frac{\text{area of all proposed landscape elements x element multiplier}}{\text{total area of site}} \geq \text{required GAR}$$

Multipliers Different landscape elements like plantings, permeable pavement, and vegetated roofs and walls, are given a multiplier based on their ability to retain stormwater.

Green Roof Depth	GAR Multiplier
2 - 8"	.6
8" +	.8

For more information about the GAR go to www.ddoe.dc.gov/gar

Columbia Green Technologies offers extensive tray based green roof systems with medium depths from 4.5" to 6" earning a .6 GAR multiplier, and intensive layered systems with medium depths over 8" earning .8, the highest possible GAR multiplier.

Stormwater Retention Volume (SWRv)

Major land disturbing activities, defined as new projects over 5000 square feet and additions over 5000 square feet that cost 50% or more of the pre-project value, must meet stormwater retention standards.

Retention Standards Require that projects retain either on-site or off-site, the first 1.2" of precipitation for new major land disturbing developments, and .8" for additions to existing projects.

Storage Volume for Green Roofs The output of the green roof stormwater volume equation can be compared to the required SWRv for the entire rooftop area to determine the portion of the required total captured.

$$Sv = \frac{SA \times [(d \times n^1) + (DL \times n^2)]}{12}$$

Sv = storage volume ft^3 SA = green roof area (ft^2), d = media depth (in.), n^1 = verified media max. water retention (use 0.15 in absence of verification data), DL = drainage layer depth, n^2 = verified drainage layer max. water retention

Our green roof systems can retain up to 70% of annual rainfall. The District of Columbia uses its own equations to calculate SWRv and retention volumes for green roofs, Columbia Green Technologies can provide D.C. specific SWRv calculations and AutoCad details upon request.

Local Green Roof Incentive Programs

The Anacostia Watershed Society offers a rebate program for green roofs built within the District of Columbia. Funding depends on the area in which the project is built and ranges from $7 to $10 per square foot. Any building with a green roof that exceeds the stormwater permitting requirements is eligible. www.anacostiaws.org/green-roofs

The D.C. Department of the Environment offers a Stormwater Retention Credit (SRC) trading program where SRC's may be bought and sold to meet requirements for retaining stormwater. www.ddoe.dc.gov/src

About Columbia Green Technologies

At Columbia Green Technologies we offer a variety of comprehensive green roof solutions; from extensive to intensive green roofs, available with both tray based and layered systems. Designers appreciate the flexibility our systems offer and the technical support that accompanies any project we undertake. Building owners love the single-source 'Roof to Green Roof' warranty options provided through our roofing partners.

COLUMBIA GREEN™ TECHNOLOGIES

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