

GREEN ROOFS FOR STORMWATER MANAGEMENT *New York City*

New York City Specific Stormwater Calculations and Details

Columbia Green Technologies provides AutoCAD details and stormwater calculations that are specifically designed with New York City's stormwater regulations in mind. Through our technical support we strive to make designing and implementing a green roof in New York City as easy as possible. NYC specific details can be downloaded from <http://columbia-green.com/resources/regional-stormwater-information/> along with Stormwater Regulation Sheets for other areas of the country.

Policies and Regulations in NYC

Stormwater Performance Standard

The City of New York recently altered the stormwater code to make more stringent the Stormwater Performance Standard, the rate at which developments may discharge stormwater. The new law states that the Stormwater Release Rate will be the greater of either .25 cfs (cubic feet per second) or 10% of the old allowable flow Rate. If the allowable flow is less than 0.25 cfs, then the release rate may be no more than the allowable flow.

If the developed flow rate is greater than the required release rate, the surplus flow must be captured and stored. This standard applies to all new buildings and alterations applying for sewer availability certifications and connections to combined sewer systems.

<http://www.nyc.gov/html/dep/html/stormwater/index.shtml>

These new requirements could push new developments to drastically alter their existing stormwater infrastructure in order to meet the revised standards. Columbia Green can help; we offer green roof solutions that can retain up to 70% of annual rainfall.

Developed Site Flow

The developed site flow determines how much stormwater will be discharged from a site. If the developed site flow is larger than the stormwater release rate the remainder must be captured and stored. The developed site flow is calculated using the Rational Method and is calculated as below.

$$Q_{DEV} = C_w A_s / 7,320$$

Q_{DEV} = the developed flow, cfs

C_w = the weighted C-value runoff coefficient

A_s = total site area, ft²

7,320 = 43,560 ft²/ac divided by the rainfall intensity of 5.95 in/hr for the event with a 5 year return period and a 6 minute time of concentration

Surface Type

C-Value

Conventional Roof

.95

Green roof (4" min. depth)

.7

Grassed areas

.2

NYC Stormwater Calculator

http://www.nyc.gov/html/dep/html/stormwater/stormwater_management_construction.shtml

Columbia Green vegetated roofing products are available with media depths over 4" that qualify for a C-value of .7 under the NYC code. Our layered products contain a retention layer that can help to lower developed site flow even further.

Local Green Roof Incentive Programs

The Green Infrastructure Grant Program offers funds for private property owners in combined sewer areas of New York City. Six million dollars are available for the design and construction of the green infrastructure systems that manage 1" of stormwater runoff from the impervious area of the site.

For more information go to http://www.nyc.gov/html/dob/html/sustainability/green_roofs.shtml

The Green Roof Tax Abatement Program offered through the NYC Department of Buildings provides a \$5.23 rebate per sq. ft. of green roof, up to \$200,000 per project.

For more information go to http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_grant_program.shtml

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.



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Note: This summary has been prepared and compiled by Columbia Green Technologies for informational purposes only. The information contained herein is accurate to the best of our knowledge as of Spring/Summer 2014. Please consult the regulatory agency and/or a licensed engineer before using this information for the purposes of facility design or permitting.