

GREEN ROOFS FOR STORMWATER MANAGEMENT *Seattle*

Seattle Specific Stormwater Calculations and Details

Columbia Green Technologies provides AutoCAD details and stormwater calculations that are specifically designed with Seattle's stormwater regulations in mind. Through our technical support we strive to make designing and implementing a green roof in the Seattle area as easy as possible. Seattle 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 Seattle

Green Factor

The Green Factor is a score-based code that seeks improve the quantity and quality of urban landscaping through zoning based requirements. Developers pick from a list of approved elements when designing a site's landscaping. Each element has a multiplier factor from .1 to .8, a higher multiplier means a particular element fulfills more of the Green Factor requirement. The sum of the combined elements must fulfill the Green Factor Score requirement. Depending on the site's land-use zoning the score requirements range from .3 to .6. The Green Factor Score is calculated as below.

Calculating Green Factor Score

$$\frac{\text{area of all proposed landscape elements} \times \text{element multiplier}}{\text{total area of site}} \geq \text{required Green Factor Score}$$

For more information go to <http://www.seattle.gov/dpd/cityplanning/completeprojectslist/greenfactor/whatwhy/>

Columbia Green Technologies offers extensive layered based green roof systems with medium depths from 2" to 4" earning a .6 factor multiplier, and tray based systems with medium depths over 4" earning .7, the second highest possible multiplier factor.

Local Green Roof Incentive Programs

The city of Seattle offers developers a Floor Area Ratio bonus of 3 ft² for every square foot of green roof built.

For more information click [here](#).

Stormwater Minimum Requirements

The minimum required stormwater measures depend on the type of development, the drainage basin, the downstream sewer capacity, and other factors. In addition to controlling the rate of flow, developments are required to treat pollution generated by the site's pervious and impervious surfaces. Flow Control requirements follow either a pre-sized, or modeling approach.

Pre-Sized Used for developments with 10,000 sq. ft. or less of new or replaced impervious area. Developers must mitigate 70% of runoff from impervious area using green infrastructure or 100% using traditional means. Flow Credits are used to measure how much impervious area is mitigated by a BMP. Credits are percentages assigned by the city to individual BMPs and correspond to code requirements, like Peak Storm Flow Standards. A 100 percent credit means that the flow control goal is achieved for and no further measures are required for the area managed by the BMP.

$$\text{Impervious Area Mitigated} = [\text{Flow Control Credit (\%)/100}] \times [\text{BMP area}]$$

Modeling Approach For larger developments and those that meet special criteria site specific calculations must be made using an approved continuous-rainfall model.

For more information go to <http://www.seattle.gov/dpd/codesrules/codes/stormwater/default.htm>

The city of Seattle states "all projects shall use green stormwater infrastructure the maximum extent feasible to meet the minimum requirements." Columbia Green can help to take advantage of this pro-green environment with green roof solutions that help fulfill Pre-Development Pasture and Peak Storm Flow standards.

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.



www.columbia-green.com
503-327-8723
info@columbia-green.com

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.