

SEATTLE / *green factor*

The Seattle Green Factor is a menu of landscaping strategies that is required for all new development in neighborhood business districts with more than four dwelling units, more than 4,000 square feet of commercial uses, or more than 20 new parking spaces. It is intended to increase the amount and quality of urban landscaping in dense urban areas while allowing increased flexibility for developers and designers to efficiently use their properties.

City of Seattle Ordinance 122311 requires the equivalent of 30% of a parcel in the commercial zones to be vegetated by using the Seattle Green Factor. The Green Factor encourages maximizing the “vegetation potential” of the rights-of-way through planting of layers of vegetation and larger trees in areas visible to the public. There are additional bonuses for rainwater harvesting and/or low water use plantings. Use of larger trees, tree preservation, green roofs, green walls and water features are encouraged by this requirement.



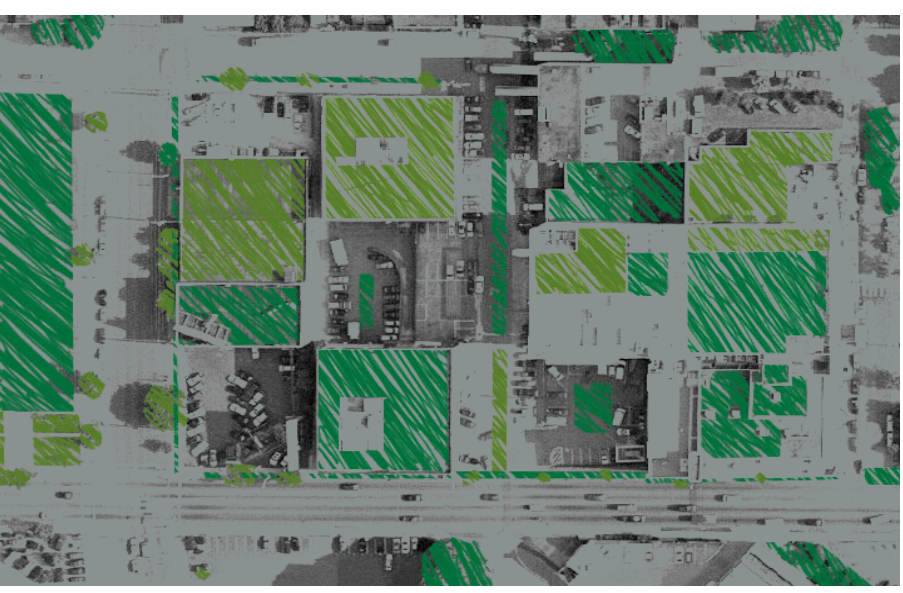
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Pre-Settlement
Conditions



Historical Urban
Development

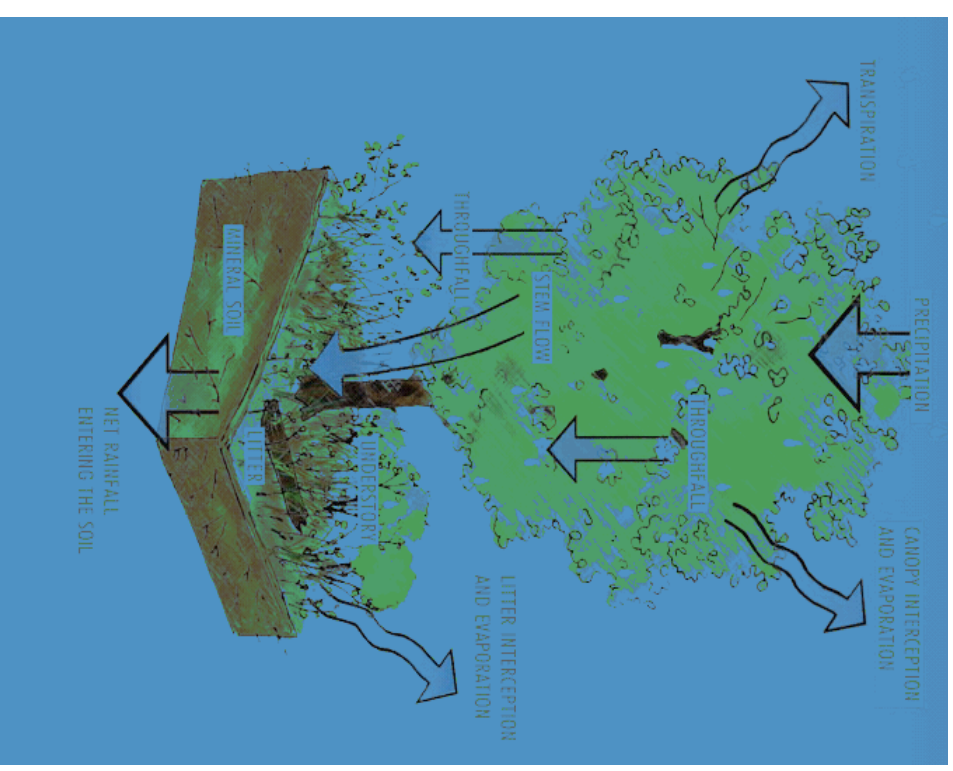


Urban Greening

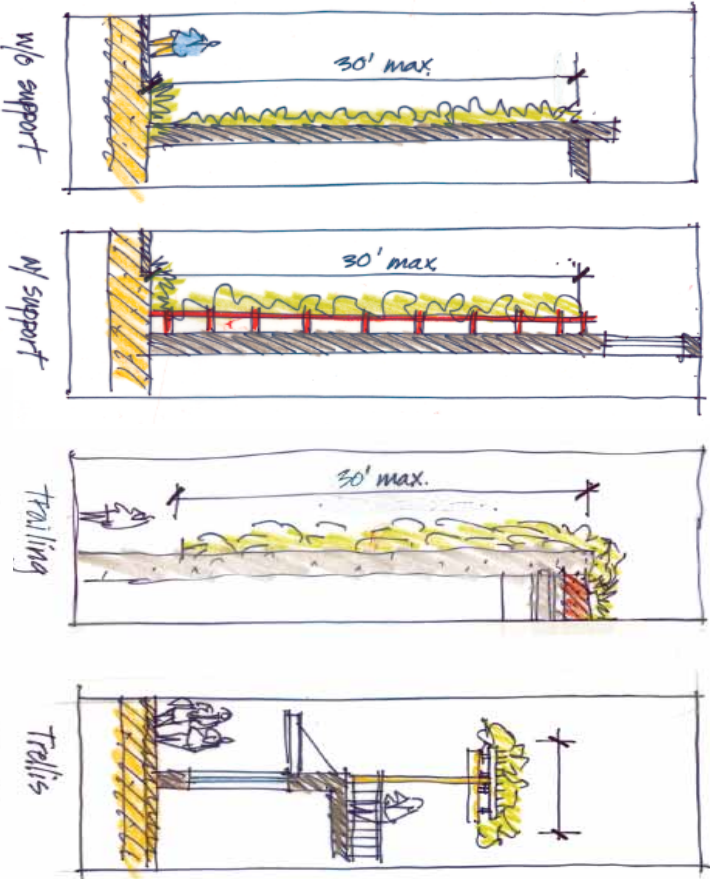
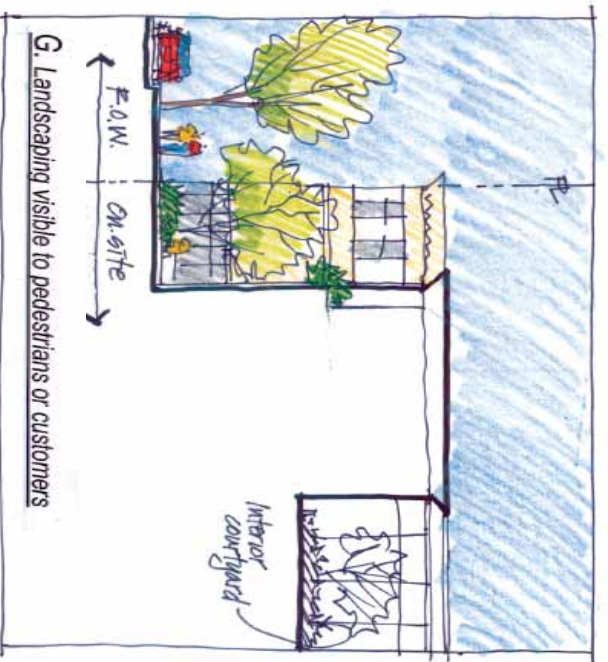
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Landscapes are not just an aesthetic amenity

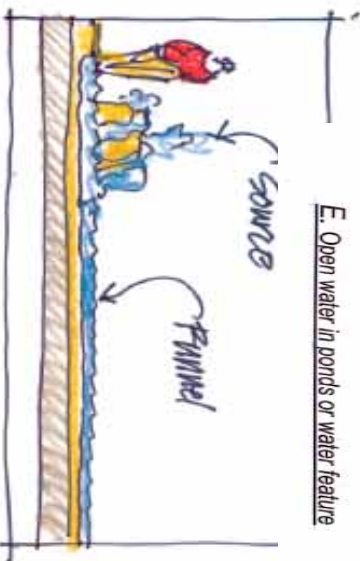
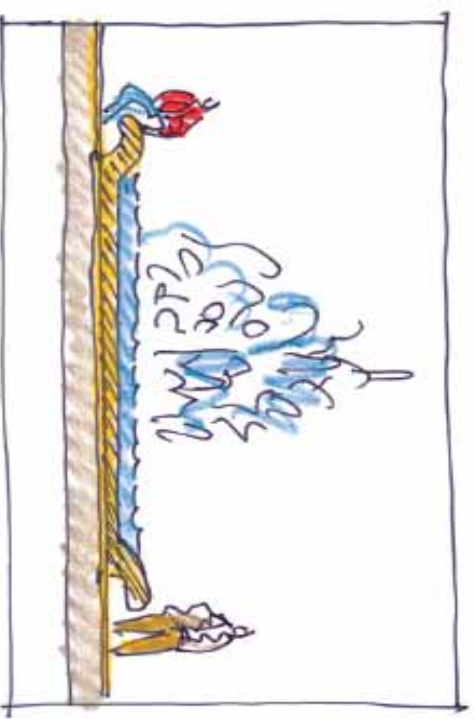
- Increase evapo-transpiration due to increase of surface area
- Absorb carbon, release oxygen
- Capture urban dust/ help clean air
- Muffle sound reflectivity
- Provide habitat for birds and bees
- Increase property values
- Cool buildings with shade
- Cool cities – urban heat island affect
- Insulate buildings
- Increase life of roof membrane (green roofs)
- Increase life of building cladding (green walls)



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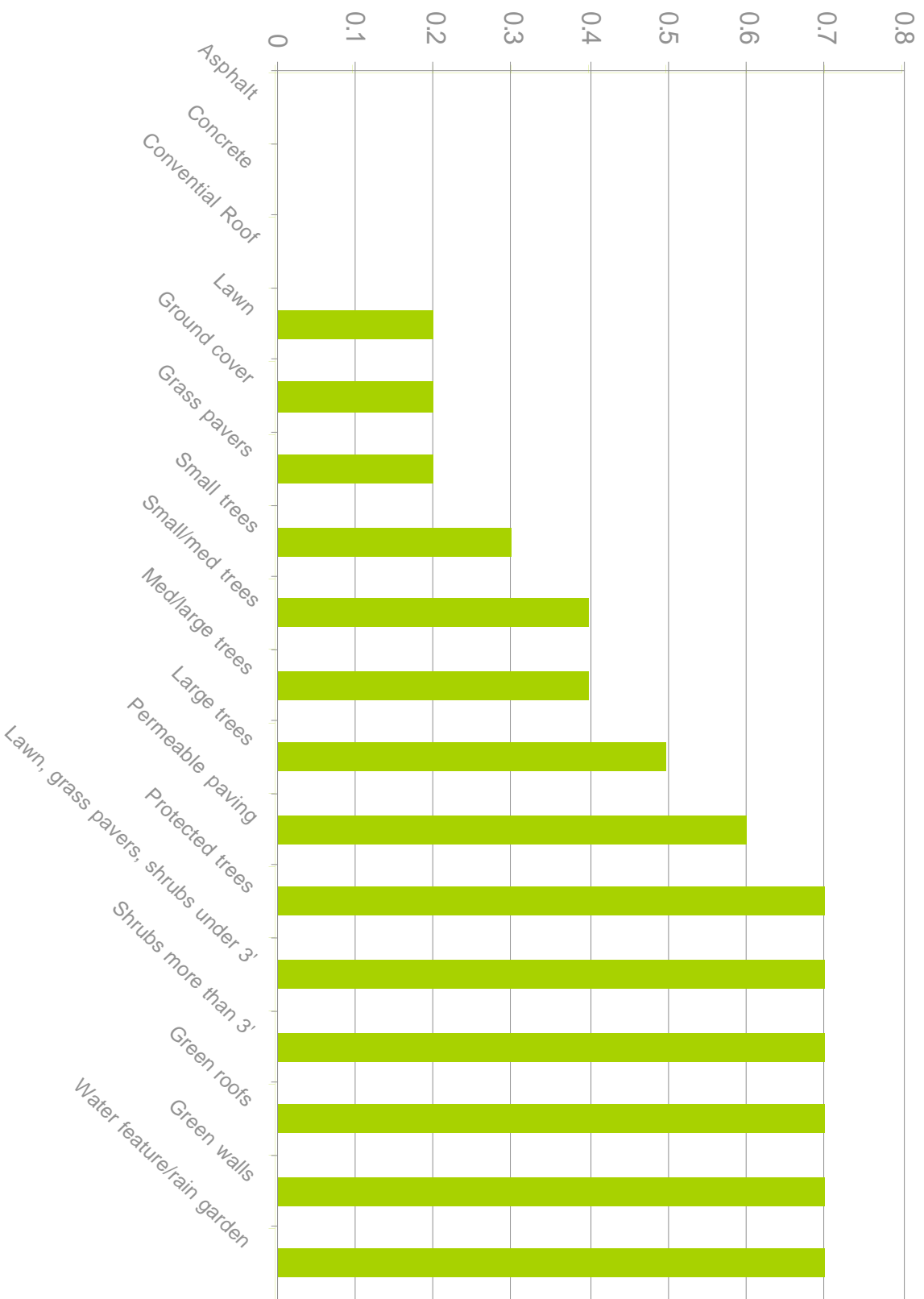


D. Vertical vegetated walls



E. Open water in ponds or water feature

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You need at least 0.300

		entersq ft		
Parcel size*		4,000	SCORE	-
Types of Area**		Square Feet	Factor	Total
A Vegetation planted with a soil depth of less than 24"				
1	Lawn or grass pavers or ground covers	entersq ft 0	0.2	-
2	Plants and shrubs 3' and higher at maturity	entersq ft 0	0.3	-
B Vegetation planted with a soil depth of more than 24"				
1	Lawn, grass pavers or other plants less than 3' tall at maturity	entersq ft 0	0.7	-
2	Shrubs taller than 3' at maturity - calculated at 16 sq ft per plant (typically planted no closer than 18" on center)	enters number of plants 0	0.3	-
3	Tree canopy for "small trees" in SDOT's Street Tree Planting Schedule or equivalent canopy spread of 15' - calculated at 50 sq ft per tree	enters number of plants 0	0.3	-
4	Tree canopy for "small/medium trees" in Street Tree Planting Schedule or equivalent canopy spread of 20' - calculated at 100 sq ft per tree	enters number of plants 0	0.4	-
5	Tree canopy for "medium/large trees" in Street Tree Planting Schedule or equivalent canopy spread of 25' - calculated at 150 sq ft per tree	enters number of plants 0	0.4	-
6	Tree canopy for "large trees" in Street Tree Planting Schedule or equivalent canopy spread of 30' - calculated at 200 sq ft per tree	enters number of plants 0	0.5	-
7	Tree canopy for preservation of "exceptional trees" or trees with trunk diameter exceeding 24" at four and one half feet above the ground. calculated at 250 sq ft per tree	enters number of plants 0	0.6	-
8	Permeable paving that drains only itself. It must be at grade and open to the public - calculated per square foot	entersq ft 0	0.6	-
C Green roots - 4" minimum soil depth		entersq ft 0	0.7	-
D Vegetated walls		entersq ft 0	0.7	-
E Water features (fountains) or rain gardens (where allowed by SPU)		entersq ft 0	0.7	-
		sub-total of sq ft =	0	
Bonuses				
F	Landscaping using drought tolerant plants, high efficiency drip irrigation, or where at least 50% of annual irrigation needs are met from non-potable sources	from Bonus Calculator 0	0.1	-
G	Landscaping visible to passers-by from adjacent public right of way or public open spaces	from Bonus Calculator 0	0.1	-
		green factorsq ft =		-
* You may not count public rights of way in parcel size calculation.				
** To calculate your green factor score, you may count the landscape elements that are in public rights of way if they are contiguous with the parcel.				



Parcel size* **enter sq ft** **SCORE** **You need at least a score of 84.0/30.0**

Types of Area** **Square Feet** **Factor** **Total**

Types of Area**	Square Feet	Factor	Total
A Vegetation planted with a soil depth of less than 24"			
1 Lawn or grass paves or ground covers	<input type="text" value="0"/> sq ft	0.2	-
2 Plants and shrubs ³ and higher maturity	<input type="text" value="0"/> sq ft	0.3	-
B Vegetation planted with a soil depth of more than 24"			
1 Lawn, grass paves or herb plants less than 3' tall at maturity	<input type="text" value="0"/> sq ft	0.7	-
2 Shrubs taller than 3' at maturity - calculated at 16 sq ft per plant (typically planted no denser than 18" on center)	<input type="text" value="0"/> sq ft	0.3	-
3 The canopy for "small trees" in SDO's Sheet Tree Planting Schedule or equivalent canopy spread of 15' - calculated at 50 sq ft per tree	<input type="text" value="0"/> sq ft	0.3	-
4 The canopy for "small to medium trees" in Sheet Tree Planting Schedule or equivalent canopy spread of 20' - calculated at 100 sq ft per tree	<input type="text" value="0"/> sq ft	0.4	-
5 The canopy for "medium to large trees" in Sheet Tree Planting Schedule or equivalent canopy spread of 25' - calculated at 150 sq ft per tree	<input type="text" value="0"/> sq ft	0.5	-
6 The canopy for "large trees" in Sheet Tree Planting Schedule or equivalent canopy spread of 30' - calculated at 200 sq ft per tree	<input type="text" value="0"/> sq ft	0.6	-
7 The canopy for preservation of "exceptional trees" or trees with trunk diameter exceeding 24" at breast one half feet above the ground - calculated at 250 sq ft per tree	<input type="text" value="0"/> sq ft	0.6	-
8 Permeable paving that drains runoff, limits debris grade and open to the public - calculated per square foot	<input type="text" value="0"/> sq ft	0.6	-
C Green roofs - 4" minimum soil depth	<input type="text" value="0"/> sq ft	0.7	-
D Vegetated walls	<input type="text" value="0"/> sq ft	0.7	-
E Water features (fountains) or rain gardens (where allowed by SPU)	<input type="text" value="0"/> sq ft	0.7	-
Bonuses	<input type="text" value="0"/> sq ft		
F Landscaping using drought tolerant plants, high efficiency drip irrigation, or where at least 50% of annual irrigation needs are met from non-potable sources	<input type="text" value="0"/> sq ft	0.1	-
G Landscaping visible to passers-by from adjacent public right-of-way or public open spaces	<input type="text" value="0"/> sq ft	0.1	-

* You may not count public rights of way in parcel size calculation.
 ** To calculate your green factor score, you may count the landscape elements feature in public rights of way if they are contiguous with the parcel.

This is your score. It is automatically calculated by the worksheet as you enter values.

Enter the square footage of your development parcel in this box. Do NOT count public rights of way when calculating your parcel size.

Applies to planting areas with less than 24" of soil that only have lawn, grass paves or ground covers. This box will usually be used for parking and storage planting areas with shallow soils due to underground structures.

Applies to any planting area where soil is less than 24" deep and plants are 3' or taller at maturity, and are NOT lawn, grass paves, or ground cover. Landscaping is encouraged if you may count ground covers as well as larger shrubs planted on these shallow soils.

Enter the square footage of landscape areas where the mature vegetation is less than 3' at maturity and where soil depth is at least 24" deep. This will typically be landscapes in touch with underlying native soils. Vegetation must cover entire area at maturity (no greater than 15 years). You may also count any landscape improvement you do in the public rights of way in calculating your Seattle Green Factor score.

Enter the number of plants that you will be installing that are 3' or taller at maturity. Plants 8' or greater are the maximum density allowed in this calculation. This is in addition to any credit you received for planting areas already calculated in B.1. For pedestrian safety and visibility, SDO's discourages shrubs that exceed three feet in public rights-of-way.

You receive additional credit beyond B.1 or B.2 for canopy coverage for any trees you plant. The larger the tree at maturity, the larger the score. The intent is to encourage more trees in the city and to maximize the vegetation potential of the site.

You can claim additional credit beyond B.1 or B.2 for canopy if you plant largeness or preserve larger trees already on site.

You can claim additional credit beyond B.1 or B.2 for canopy if you plant largeness or preserve larger trees already on site.

You can claim additional credit beyond B.1 or B.2 for canopy if you plant largeness or preserve larger trees already on site, or if exceptional trees in height or age are required to be retained by SDO's.

Enter square footage for dog pads permeable paving. Paving may only claim rain that fills upon it and cannot be designed to accept other drainage unless otherwise authorized by Seattle Public Utilities. Structures soils may be required.

Applies to green roofs with a minimum of 4" of soil. Green roofs are any flat roofs on top of a structure that is at least one floor above the adjacent building entrance.

For vertical vegetated walls, measure height and width of area expected to be covered by vegetation within the year. Requires signature of licensed landscape architect. Plants may be climbing or trailing on vertical surfaces with or without support. Maximum calculated vertical dimension must not exceed 30' measured within City Light's safety setbacks. See CAM 122 for details at <http://www.ci.seattle.wa.us/development/cam/122.pdf>

Enter the square footage of areas to be underwritten at least three months of the year - or square footage of rain garden.

This subtotal of sq ft cannot be exceeded in claim by credit for bonus scores below.

May be achieved either through choice of low water use or drought tolerant plants (list available from DPO), or by use of systems designed for rainwater retention and reuse where at least 50% of the annual irrigation needs are met from non-potable sources. Areas served by high efficiency drip irrigation may also count toward this score.

Courtesy that vegetation which is visible to passers-by in the public right-of-way or public open spaces within one block of the project.



Bonus Worksheet and Calculator SECTION "F" and SECTION "G"

SECTION "F"		SQ FT	TOTAL
F.1. <u>Rainwater Harvesting System</u>			
a.	Irrigated Area (SF) <i>will require...</i>	enter SF of landscaping <input style="border: 1px solid black; width: 80px;" type="text" value="900"/>	
			7,435 gal/yr
	<i>Roof and Tank sizing</i>		
b.	Roof area that will be harvested(SF)	<input style="border: 1px solid black; width: 80px;" type="text" value="1,000"/>	
c.	Storage Tank Capacity (Gallons) <i>will provide...</i>	<input style="border: 1px solid black; width: 80px;" type="text" value="1,000"/>	
			3,783 gal/yr
		<i>Must get at least 50% to get credit</i>	51%
d.	<i>Rainwater harvesting credit in SF (this number is automatically calculated if you get over 50%)</i>		<input style="border: 1px solid black; width: 80px;" type="text" value="900"/>
F.2. <u>Drought-Tolerant Plants(SF)</u>			<input style="border: 1px solid black; width: 80px;" type="text" value="500"/>
F.3. <u>High-Efficiency Drip Irrigation(SF)</u>			<input style="border: 1px solid black; width: 80px;" type="text" value="750"/>
F.4 <u>Total SF that counts towards Bonus - Section "F"</u>			<input style="border: 1px solid black; width: 80px;" type="text" value="2,150"/>
SECTION "G"			
G. <u>Lanscaping Visible to Passers-by from Adjacent Public Right-of-Way of Public Access</u>			<input style="border: 1px solid black; width: 80px;" type="text" value="7,500"/>

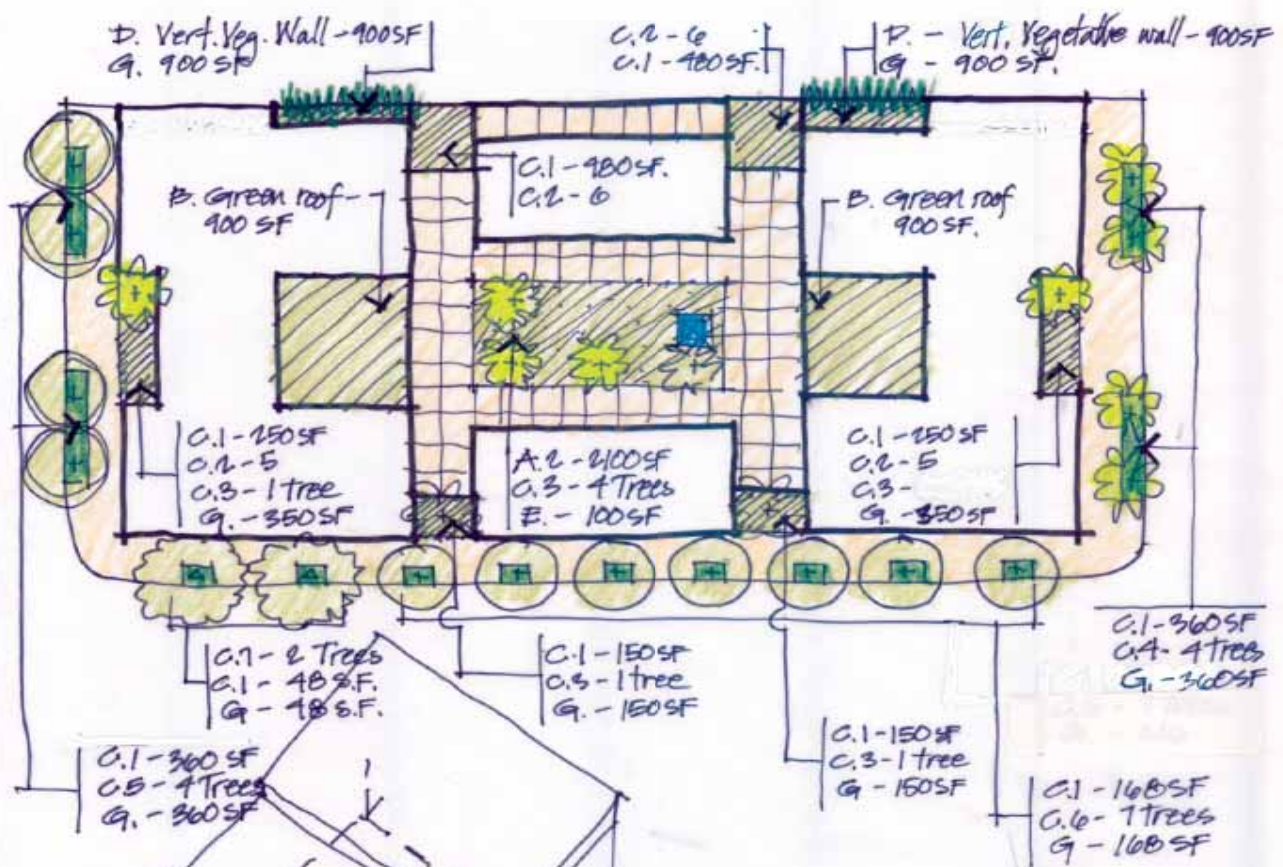
Notes:

1) You may enter any combination of Irrigated Area, Roof Collection Area, and Storage Capacity in the shaded blue cells of Section F.1. Your System Credit Area will be calculated automatically.

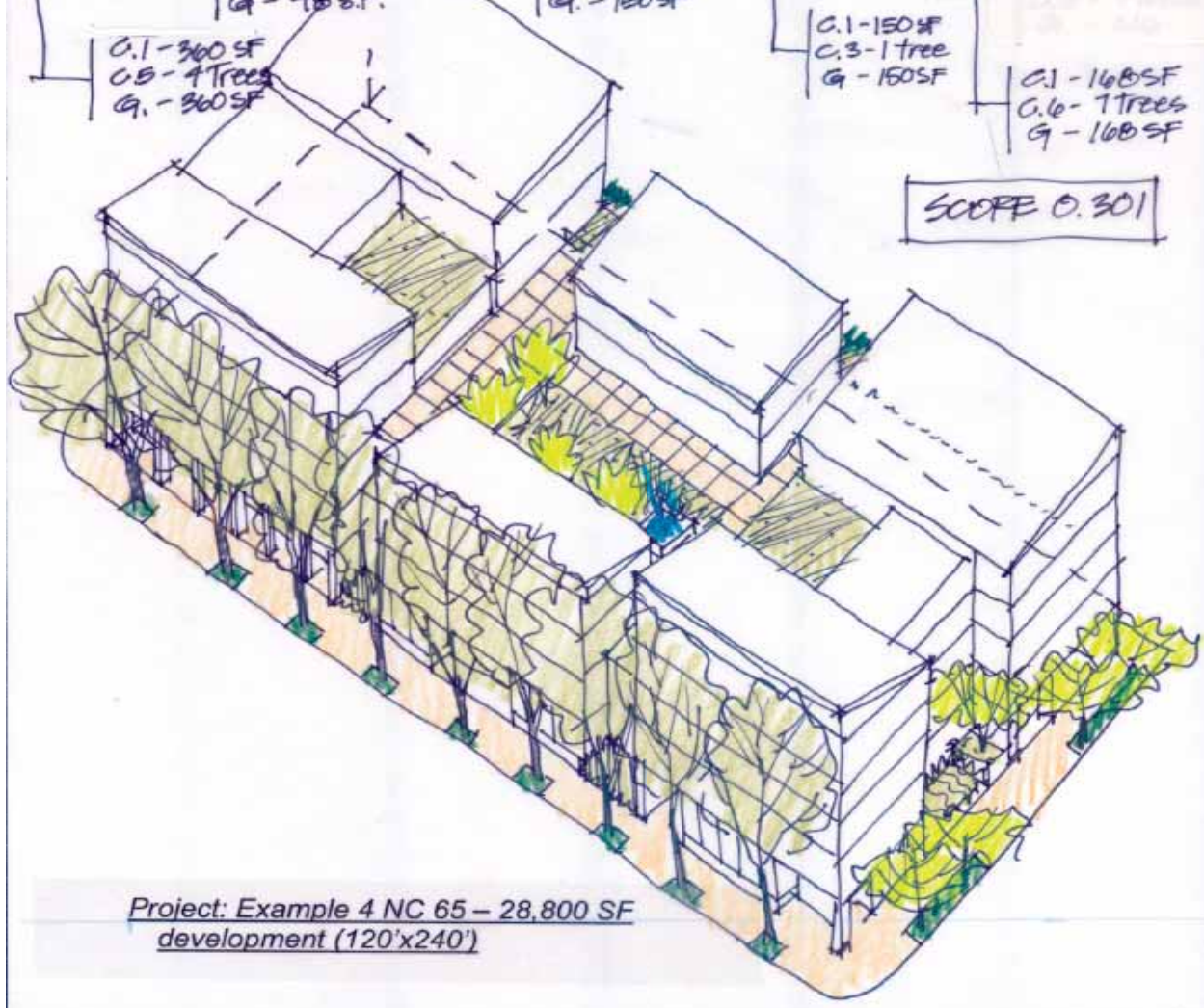
2) If you know your system parameters - Roof Collection Area and Storage Capacity - you can adjust the Irrigated Area until your score reaches 50%. That Irrigated Area is the quantity you can include in Bonus Section F of the "Seattle Green Factor" form.

3) If you know the maximum Irrigated Area for which you could potentially receive credit, you can adjust the Roof Collection Area and/or Storage Capacity to determine what combination is necessary to qualify for the credit on that maximum area.

4) Areas identified for Roof-Top Irrigation System, Drought-Tolerant Plant, High-Efficiency Drip Irrigation Credits must be separate areas of the parcel. Any area may only be counted once.



SCOPE 0.301



Project: Example 4 NC 65 - 28,800 SF development (120'x240')

Seattle Green Factor

- Maximizes vegetation potential of right-of-ways and visible vegetation
- Rewards layering of plant material
- Rewards tree preservation
- Rewards larger canopy cover street trees
- Rewards low water use
- Rewards landscapes visible to public in right-of-ways
- Provides flexibility for developer to meet the code