

LEGEND

- QUERCUS COCCINA SCARLET OAK (>2')(N)
- ACER RUBRUM 'FRANKSRED' RED SUNSET MAPLE (>2')(N)
- ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY MAPLE (>2')(N)
- CERCIS CANADENSIS EASTERN REDBUD (>2')(N)
- RHUS AROMATICA 'GRO-LOW' GRO-LOW FRAGRANT SUMAC (>2')(N)
- JUNIPERUS VIRGINIANA 'GREY OWL' GREY OWL JUNIPER (>2')(N)
- ITEA VIRGINICA 'HENRY'S GARNET' HENRY'S GARNET VIRGINIA SWEETSPICE (>2')(N)
- ILEX GLABRA 'COMPACTA' COMPACT INKBERRY HOLLY (>2')(N)
- CORNUS SERICEA 'KELSEY' KELSEY'S DWARF RED-OSIER DOGWOOD (>2')(N)
- RHODODENDRON 'ROBLEZA' PPAF AUTUMN BONFIRE ENCORE AZALEA (>2')
- LIRIOPE MUSCARI 'EMERALD GODDESS' EMERALD GODDESS LILY TURF (<2')
- IRIS VERSICOLOR BLUE FLAG IRIS (18" O.C. SPACING)(>2')(N)
- RUDBECKIA FULGIDA 'FULGIDA' BLACK EYED SUSAN (18" O.C. SPACING)(>2')(N)
- BAPTISTA AUSTRALIS FALSE INDIGO (18" OC SPACING)(>2')(N)
- LIRIOPE MUSCARI 'BIG BLUE' BIG BLUE LILY TURF (18" O.C. SPACING)(<2')
- GREEN ROOF SEDUM TILE MID-ATLANTIC SEDUM BLEND
- EXISTING TREE TO REMAIN
- LIMITS OF DISTURBANCE
- A2 - SOIL AREA >24"

**TECHNICAL INFORMATION SHEET**

**Mineral Wool Retention Layer**

**Description:**  
In most situations the high water holding capacity of our growing media and standard water retention layer should meet project green roof water retention goals. For projects needing to maximize storage, the Mineral Wool Retention Layer can be a good choice.

The Mineral Wool Retention Layer is a needled rockwool layer that forms a UV stable, three dimensional blanket matrix that increases the water retention ability of a green roof. The Mineral Wool Retention Layer has a 93% water retention capacity providing supplemental moisture for plants, and anchorage for plant roots. The Mineral Wool Retention Layer can be provided in 1.0 inch and 2.0 inch layer thicknesses. Installation is simple and straight forward, and the layer can be easily cut to shape.

**Water Storage Volume Calculations**

- Contact Columbia Green for assistance in determining the total green roof storage volume of any of our systems 503-327-8723 info@columbia-green.com

**Installation**

- Closely align adjacent layers but do not overlap material. Install perpendicular to slope. Always install over Drainage/ Filtration Layer to provide necessary air flow/drainage.

**Storage:**

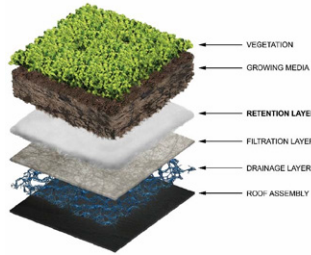
- Store components in a dry area.
- Store away from sources of ignition and extremely high temperatures.

**Precautions:**

- Avoid prolonged exposure to sunlight, heat, sparks and open flames.
- Wash exposed skin prior to eating, drinking or smoking and at the end of each shift.

**Technical Data at 1.0" Thickness:**

Physical Property	Value
Density	8.43 lbs/cu.ft.
Color	Off-White
Roll Width	3.28 ft/ 39.4"
Roll Length	16.4 ft/ 196.9"
Roll Coverage	53.8 ft <sup>2</sup>
Thickness	1.02 inch ( 26mm)
Dry Unit Weight - ASTM E2397	0.9 lbs/SF
Saturated Weight - ASTM E2397	5.3 lbs/SF
Storage Volume % ASTM E2397	93 % (wt weight retained water)



**TECHNICAL INFORMATION SHEET**

**Pregrown Sedum Mat**  
Product NUMBER: PL4600

**Description:**  
Pregrown sedum mats are a pre-vegetated option for instant coverage on green roofs. They are field-grown on a thin substrate, and are compatible with both the Planted-In-Place and Layered Green Roof systems. The mats can be trimmed to fit any shape, including curves and various angles.

**Benefits:**

- Quick and easy installation
- Immediate vegetative cover
- Minimal maintenance requirements once established
- The coconut fiber base assures effective rooting of the plants to the underlying growth media.

**Technical Data:**

- Vegetation- Minimum 85% coverage
- Coconut Fiber/ Soil base- Approximately 1/2 - 3/4" thick
- Measurements- 48" w x 75" l
- Max Weight- 4.5 - 5lbs/sf fully saturated

**Installation:**

Install sedum mats directly over a minimum 2" freshly wetted and leveled growing media. Maintain good overall contact with the media avoiding gaps between and beneath the mats. Water thoroughly after installation. Overhead irrigation is recommended twice weekly until the roots become well established, which usually takes 3-4 weeks. Plantings installed during very cool fall weather may only need the initial irrigation.

**Storage:**

- If temperatures exceed 75°F [20°C], it is best to unroll and install sedum mats within 2 hours of arrival.
- If necessary, rolled sedum mats may be stored in a cool location for a maximum of 24 hours. Do not leave plants in hot storage areas.

**Precautions:**

- Do not leave plants in hot closed storage areas.

**LEED Compliance:**

500 mile or less Component Source Location- We partner with growers throughout North America. Contact Columbia Green Technologies for project-specific source location.

**Standard Mix**

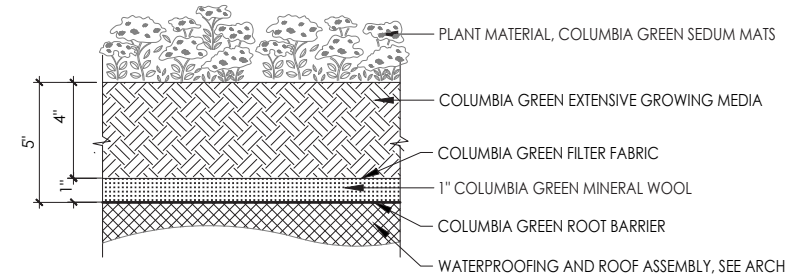
**TECHNICAL INFORMATION SHEET**

This mix provides flowers throughout the growing season. Winter interest and seasonal foliage color changes are also found in this mix. This is a good, general-purpose mix that provides year-round beauty. Each sedum mat includes 12-16 sedum varieties.



Sedum varieties used in the Standard Sedum Mat Mix:

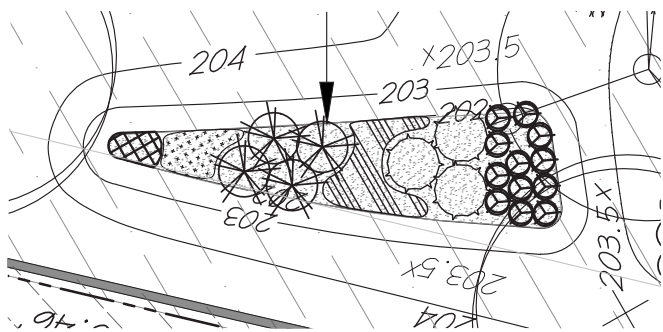
- Phedimus (aka Sedum) spurium 'Fuldaglut' (aka Blaze of Fulda, Fireglow)
- Phedimus (aka Sedum) spurium 'John Creech'
- Phedimus (aka Sedum) spurium 'Red Carpet'
- Phedimus (aka Sedum) kamtschaticum
- Phedimus (aka Sedum) kamtsch. 'Variegatum'
- Phedimus (aka Sedum) takesimensis 'Golden Carpet'
- Sedum acre 'Aureum'
- Sedum acre 'Gold Moss'
- Sedum album 'Coral Carpet'
- Sedum album 'Murale'
- Sedum Stefcio
- Sedum floriferum 'Weiherstephaner Gold'
- Sedum reflexum 'Blue Spruce'
- Sedum rupestre 'Angelina'
- Sedum sexangulare
- Sedum x Immergrunchen



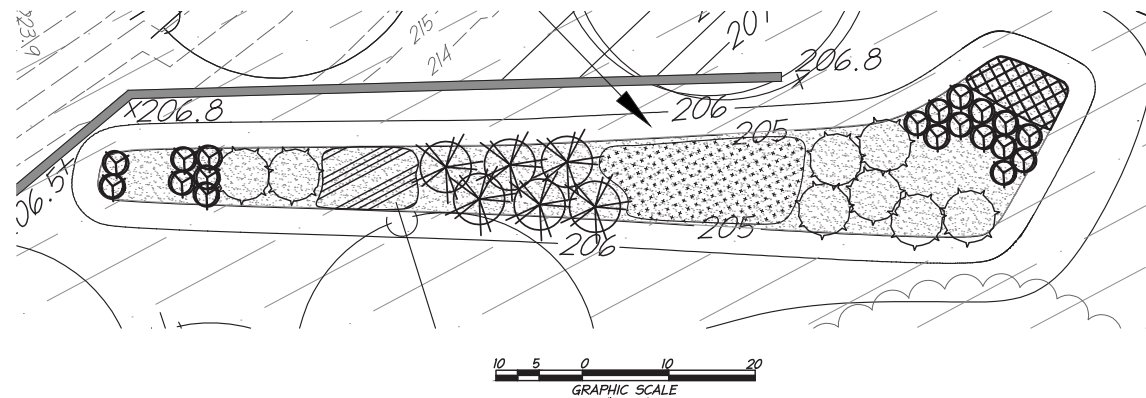
NOTE:  
1. SYSTEM IS DESIGNED FOR DC DOEE SIDE DRAINAGE-TYPE CDA (CDA AT SAME ELEVATION AS GREEN ROOF) PER THE 2019 STORMWATER GUIDEBOOK. USE COLUMBIA GREEN EXTENSIVE LAYERED SYSTEM WITH DRAINAGE LAYER IN OTHER CONDITIONS.

<b>COLUMBIA GREEN</b> TECHNOLOGIES	<b>LGR7.01</b>	<b>4" DEPTH MINERAL WOOL GREEN ROOF</b>
		MINERAL WOOL LAYERED   DETAIL SCALE: 3"=1'-0"

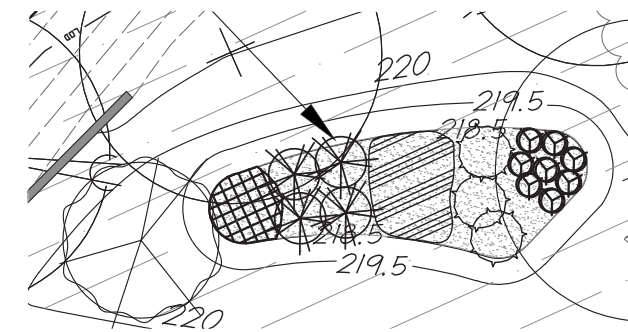
**BIORETENTION BASIN 1**



**BIORETENTION BASIN 2**



**BIORETENTION BASIN 3**



**Storage Volume**

per Washington D.C. DOEE Green Roof Stormwater Calculation

$$S_v = SA \times [(d \times n^1) + (DL \times n^2)] + 12$$

Columbia Green System: d= 4.00 inches growing media depth  
DL= 1 inch water retention/drainage mat  
n1= 0.533 maximum water holding capacity, (growing media)  
n2= 0.93 unit weight retained water, (Water retention/drainage mat)

volume req. by engineer

Green Roof	SA : Green Roof (BMP)	Volume Required by BMP, CF (if known)	Columbia Green Green Roof Storage Volume, CF
1	18,000	3,730	4,593.00
<b>Green Roof Total Area (s.f.):</b>	<b>18,000</b>		<b>SV: Total Storage Volume</b>

Cubic Feet: 4,593  
Cubic Feet/ft<sup>2</sup>: 0.26  
Gallons: 34,358  
Gallons/ft<sup>2</sup>: 1.9  
Inches: 3.1

**LEGEND**

- Stoiber+Associates**  
Architecture • Interiors

Green Area Ratio Scoresheet					
Address	23rd and Savannah Streets, SE	Square	Lot	Zone District	
		5894	2,3,&4	RA-1	
Other	Terrace Manor Redevelopment	Lot area (sf)	Minimum Score	Multiplier	GAR Score
		100,260	.4	SCORE:	0.625
<b>Landscape Elements</b>					
<b>A Landscaped areas (select one of the following for each area)</b>					
1	Landscaped areas with a soil depth < 24"	square feet 0	0.30		-
2	Landscaped areas with a soil depth ≥ 24"	square feet 58,190	0.60		34,914.0
3	Bioretention facilities	square feet 2,024	0.40		809.6
<b>B Plantings (credit for plants in landscaped areas from Section A)</b>					
1	Groundcovers, or other plants < 2' height	square feet 509	0.20	Native Bonus square feet	101.8
2	Plants ≥ 2' height at maturity - calculated at 9-sf per plant	# of plants 526	4734 0.30	# of plants 474	1,420.2
3	New trees with less than 40-foot canopy spread - calculated at 50 sq ft per tree	# of trees 24	1200 0.50	# of trees 24	600.0
4	New trees with 40-foot or greater canopy spread - calculated at 250 sq ft per tree	# of trees 9	2250 0.60	# of trees 9	1,350.0
5	Preservation of existing tree 6" to 12" DBH - calculated at 250 sq ft per tree	# of trees 7	1750 0.70	# of trees 5	1,225.0
6	Preservation of existing tree 12" to 18" DBH - calculated at 600 sq ft per tree	# of trees	0 0.70	# of trees	-
7	Preservation of existing trees 18" to 24" DBH - calculated at 1300 sq ft per tree	# of trees	0 0.70	# of trees	-
8	Preservation of existing trees 24" DBH or greater - calculated at 2000 sq ft per tree	# of trees 2	4000 0.80	# of trees 1	3,200.0
9	Vegetated wall, plantings on a vertical surface	square feet	0.60	square feet	-
<b>C Vegetated or "green" roofs</b>					
1	Over at least 2" and less than 8" of growth medium	square feet 18,412	0.60	square feet	11,047.2
2	Over at least 8" of growth medium	square feet	0.80	square feet	-
<b>D Permeable Paving***</b>					
1	Permeable paving over 6" to 24" of soil or gravel	square feet	0.40		-
2	Permeable paving over at least 24" of soil or gravel	square feet	0.50		-
<b>E Other</b>					
1	Enhanced tree growth systems***	square feet	0.40		-
2	Renewable energy generation	square feet 13,850	0.50		6,925.0
3	Approved water features	square feet	0.20		-
<b>F Bonuses</b>					
sub-total of sq ft = 106,919					
1	Native plant species	square feet 10,966	0.10		1,096.6
2	Landscaping in food cultivation	square feet	0.10		-
3	Harvested stormwater irrigation	square feet	0.10		-
Green Area Ratio numerator =					62,689
*** Permeable paving and structural soil together may not qualify for more than one third of the Green Area Ratio score.					
Total square footage of all permeable paving and enhanced tree growth.					

**STATEMENT BY CERTIFIED LANDSCAPE EXPERT:**

THIS IS TO CERTIFY THAT I HAVE EXAMINED ALL REQUIRED GAR PLAN SUBMITTALS PRIOR TO SUBMISSION. I FURTHER CERTIFY THAT ALL ASPECTS OF THE SUBMITTAL, INCLUDING LANDSCAPE ELEMENTS WITHIN THE LOT AND LISTED GAR SCORE, MEET THE SPECIFICATIONS REQUIRED UNDER CHAPTER 34 OF TITLE 11 OF THE DISTRICT OF COLUMBIA MUNICIPAL REGULATIONS

JASON RADICE, RLA, ASLA, LEED-AP

NAME AND TITLE

9900 MAIN STREET, SUITE 400

ADDRESS  
FAIRFAX, VA 22031

DATE 01/02/2019 PHONE NO. 703-273-6820

  
CERTIFIED LANDSCAPE EXPERT SIGNATURE

MD-DLLR

CERTIFYING ORGANIZATION

3440

CERTIFICATION NUMBER