Agricultural Analytical Services Laboratory
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GREEN ROOF MEDIA
Sample Submission and Chain of Custody Form

	Send copy of analysis to:
Name: _____	Name: _____
Company: _____	Company: _____
Address: _____	Address: _____
City _____	City _____
State: _____ Zip: _____	State: _____ Zip: _____
Telephone: _____	Telephone: _____
Fax: _____	Fax: _____
Email: _____	Email: _____

Sample Information

Sample Identification *(To be printed on report* : _____ Date sampled: _____

Intended sample use: *(Check one)*

Intensive System: Sites with growing medium greater than 6 inch depth

☐ Intensive system

Extensive System: Sites with growing medium less than 6 inch depth

☐ Multi-course extensive system: System using two or more distinct types of media, one of which is optimized for drainage

☐ Multi-layer extensive system: Single medium system with a high-efficiency synthetic drainage layer instead of a separate drainage course

☐ Single-layer extensive system: Single medium system without a high-efficiency drainage layer

☐ Drainage course: Aggregate material used for drainage course in multi-course system

Other: Please describe: _____

Analysis Request

Green Roof Test Package*

☐ GR01A	$ 260.00
☐ GR01B	$ 235.00
☐ GR02	$ 210.00
☐ GR03	$ 180.00
☐ Saturated Paste pH, salts and nutrients	$ 40.00
☐ Saturated Paste tests plus pct solids and organic matter	$ 54.00

Optional or Individual Tests*

☐ Calcium carbonate equivalence (CCE)	$ 27.00
☐ Cation Exchange Capacity (CEC)	$ 50.00
☐ Mehlich 3 extractable nutrients	$ 25.00
☐ EPA 503 Contaminants	$ 175.00
☐ Saturated permeability (ASTM E2396)	$ 85.00
☐ Maximum Media Density (ASTM E2399)	$ 95.00
☐ Particle size distribution (0.002 – 12.5 mm)	$ 110.00

** See back for description of tests and sample size required.*

Total Cost: $ _____

Payment Method

☐ Payment enclosed. Make checks payable to: *Penn State University.*

☐ Please bill. *(Bill will be sent to address listed on top left, above. If different, please specify.)*

List project name on invoice:_____ *(If left blank, no project name will be listed on invoice.)*

☐ Charge my credit card: Name on Card: _____ *(Please print)*

Type: ☐ Visa ☐ MasterCard (*Check one)*

Number: _____ Expiration Date: ___ / ___ / ___

Chain of Custody

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Green Roof Media Test Packages		
Test	**Description**	**Cost**
GR01A	Samples are analyzed for particle size distribution (< 0.002 to > 12.5 mm) with graphical display of results relative to FLL limits, dry weight density, density at maximum water-holding capacity, total porosity; air-filled porosity at maximum water-holding capacity, water permeability factor (hydraulic conductivity), pH, total soluble salts, organic matter, phosphorus, potassium, calcium, magnesium, nitrate and ammonium. Methods followed are those specified in the FLL Guideline for the Planning, Execution and Upkeep of Green-Roof Sites[1] or equivalent ASTM methods (ASTM E2399) with the exception of total porosity which is determined using a measured, not estimated, particle density. This test package meets the FLL requirement for intensive and extensive multi-course and multi-layer systems	$260
GR01B	Test GR01B is the same as Test GR01A but provides results for pH, total soluble salts, phosphorus, potassium, calcium, magnesium, nitrate-nitrogen and ammonium-nitrogen using the saturated media test procedure instead of FLL test methods. Saturated media test results for boron, copper, iron, manganese, sodium, and zinc are also provided.	$235
GR02	Test GR02 is the same as Test GR01A but without the plant nutrients phosphorus, potassium, calcium, magnesium, nitrate and ammonium. This test package meets the FLL requirement for single layer extensive systems.	$210
GR03	Samples are analyzed for percentage of silt-sized (< 0.05 mm) particles; dry weight density, density at maximum water-holding capacity, total porosity, water permeability factor (hydraulic conductivity), pH, and total soluble salts. Methods followed are those specified in the FLL Guideline for the Planning, Execution and Upkeep of Green-Roof Sites[1] equivalent ASTM methods (ASTM E2399) with the exception of total porosity which is determined using a measured, not estimated, particle density. This test meets the FLL requirement for drainage courses for extensive multi-course systems.	$180
Sample size required for tests GR01A,GR01B, GR02 or GR03: approximately 5 gallons (20 liters)		
Saturated paste pH, salts, nutrients	Test for pH, nitrate-nitrogen, total soluble salts, phosphorus, potassium, calcium, magnesium, sodium, boron, copper, iron, manganese, and zinc using the saturated media extract method with DTPA. 1 quart sample size required. *$54.00 pkg also includes percent solids and organic matter.	$40

Individual and Optional Tests		
Test	**Description**	**Cost**
Calcium carbonate equivalence	Test for measuring a material's neutralizing value expressed as calcium carbonate equivalence, CCE (ASTM Method C-25).	$27
Mehlich 3 nutrients	Test for extractable phosphorus, potassium, calcium, and magnesium by the Mehlich 3 method.	$25
EPA 503 contaminants	Test for total sorbed arsenic, cadmium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc following EPA SW-846 methods (acid digestion by EPA Method 3051and analyte measurement by ICP or graphite furnace).	$130
Saturated Water Permeability-Drainage media	Test for measuring the water permeability of coarse granular materials used in the drainage layers of green roof systems (ASTM Method E2396). *4 gallon (16 liter) sample size required.*	$85
Maximum Media Density	This test determines the density, percent moisture and water permeability at maximum water-holding capacity (ASTM Method E2399). Results for total and air-filled porosity are also provided. *Three gallon (12 liter) sample size required.*	$95
Particle size distribution	Samples are analyzed for particle size distribution (< 0.002 to > 12.5 mm) with graphical display of results relative to FLL limits. *1/2 gallon (2 liter) sample size required*	$175

[1] Forschungsgesellschaft Landschaftsentwicklung Landschaftsbau e.V, Guideline for the Planning, Execution, and Upkeep of Green-Roof Sites, January, 2002 edition.

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