Revolutionizing Green Roof and Green Wall Performance:
The Living Architecture Performance Tool

April 23, 1-2pm EST
Professional Development Hours: 1.0 LA CES/HSW
LANDSCAPE ARCHITECTURE FOUNDATION

- 501(c)(3) nonprofit based in Washington, DC
- Founded in 1966 to preserve, improve and enhance the environment
- Increase our collective capacity to achieve sustainability:
  - Invested over $3 million in research
  - Awarded over $1.3 million in scholarships to over 550 students
  - Awarded $200,000 in leadership and innovation fellowships
Goal: Build capacity to achieve sustainability and transform the way landscape is considered in the design and development process.

Focuses on the measurable environmental, social, and economic impacts of landscapes:

- Case studies and other online resources
- Outreach and trainings
- Resources for educators
- Guide to evaluate performance

Use it to find precedents, show value, and make the case for sustainable landscape solutions.
LEARNING OBJECTIVES

• Explore the various benefits of green roofs and green walls

• Learn about the compliance path and structure of the Living Architecture Performance Tool

• Identify the potential uses of the living architecture performance tool for policy makers, building owners, designers, or product manufacturers

• Learn how to get involved in the pilot phase of the program
David Yocca, FASLA

Senior Landscape Architect/Ecological Planner, Conservation Design Forum

Board Chair, Green Infrastructure Foundation
Rohan Lilauwala, GRP
Program Manager,
Green Infrastructure Foundation
LIVING ARCHITECTURE PERFORMANCE TOOL

Introduction
The Green Infrastructure Foundation partners with communities to shape healthy, resilient, and sustainable places using living green infrastructure.

**Three main programs:**
- Green Infrastructure Charrettes
- Living Architecture Performance Tool
- Training and Workshops
WHY ENCOURAGE LIVING ARCHITECTURE?

- Costs are borne by the private sector but many benefits are public
- Cleaner air and water, avoided CSO events, reduced urban heat island
- Incentives and cost-sharing can increase public benefits
WHY DO WE NEED THE LAPT?

Living architecture is complex:

- Diversity of benefits, technologies, design, products, and maintenance regimes
- Variety of spatial scales of benefits, from building-level to citywide
- Differences in climate
COMPLEXITY LEADS TO BARRIERS

• Policy not tied to performance
• Inadequate maintenance
• Insufficient product testing
• A lack of performance benchmarks
• A lack of representation of living architecture in existing building rating systems – LEED, SITES
To ensure that all living architecture projects will achieve certain measurable and replicable performance benefits, so that they can be funded, designed, installed, and maintained with a much higher degree of confidence by the many stakeholders that use them
HOW? TWO BROAD APPROACHES

1. Obtain the support and engagement of policy makers
2. Reflect and align with LEED, SITES, and other rating systems
PROJECT GOALS

- Articulate the benefits of living architecture
- Help guide research, policy, and funding decisions
- Encourage continuous improvement
- Encourage testing of products and approaches
- Recognize and reward high quality products and services
LAPT PROJECT LEADERS

David Yocca, FASLA, AICP, LEED AP, LAPT Co-Chair
Senior Partner, Conservation Design Forum

Lois Vitt Sale, AIA, LEED Fellow, LAPT Co-Chair
Chief Sustainability Officer, Wight & Company

Steven W. Peck, GRP, Hon. ASLA,
Founder and President, Green Roofs for Healthy Cities

Rohan Lilauwala, GRP
Program Manager, Green Infrastructure Foundation
PROCESS & APPROACH

- Project has been under development for more than five years
- White Papers covering the science and policy in different areas – Energy, Biodiversity, Stormwater were produced.
- Rolled into an overall framework in 2017
- Version 1 be released in Spring 2018
- Design firms and policy makers will be invited to participate in the pilot phase of the program
VERSION 1.0

• Aligned with LEED and SITES, as well as existing policies
• Applies to green roofs and walls and combinations thereof
• 8 categories, 4 prerequisites, 30 credits
• 110 points possible
EACH PERFORMANCE AREA HAS
• Principle
• Objective

EACH CREDIT HAS
• Weight
• Intent
• Performance Levels
• Measurement Method
• Credits
• Strategies for Compliance
• Resources
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<td>5.5 Acoustics</td>
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<td>7.1 Operations and Maintenance</td>
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<td>7.2 Fertilizer and Pesticide Use</td>
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<td>8.2 Exemplary Performance</td>
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CERTIFICATION LEVELS

• Certified: 40+ credits
• Silver: 50+ credits
• Gold: 60+ credits
• Platinum: 80+ credits
PREREQUISITES

• Use an integrated design process
• Meet all local/state stormwater requirements
• Meet all local requirements regarding structural capacity, wind uplift, fire protection, and ensure leak-free waterproofing
• Plan for and maintain for at least five years
DETAILED CREDIT EXAMPLE

2.1 Stormwater Quantity and Quality Management

**Prerequisite:** Meet all local/state stormwater codes and regulations

**Performance Level:**
Minimum → Outstanding

Manage a 90th percentile event  Manage a 95th percentile event  Manage a 99th percentile event
DETAILED CREDIT EXAMPLE

2.1 Stormwater Quantity and Quality Management

Measurement Methods

Use approved local/state methods; if there are none:

• Runoff modeling for rain events (EPA SWMM with LID controls)
• Use a formula that determines target storage volume and ensures your assembly meets that volume
CREDIT EXAMPLE
7.1 Operations and Maintenance

Prerequisite: Create a plan for sustainable site maintenance for at least five years, incl. funding source, responsible party, plant health, irrigation, inspections, growing media, etc.

Additional Points: Submit an annual maintenance report for at least five years, incl. maintenance records, photos, lessons learned, challenges faced, plant performance, etc.
POTENTIAL USES BY DESIGNERS OR OWNERS

- Framework or guideline to ensure maximum benefit is obtained
- Branding, marketing, or increased visibility
- Ensure long-term performance and health of living architecture
- Clearly meet regulatory requirements
- Take advantage of LEED/SITES credits for living architecture
POTENTIAL USES BY POLICY MAKERS

• Regulatory framework or guideline to inform policy or incentives
• Outsource compliance if you do not have the expertise or capacity in house
• Ensure incentive or grant funding is spent more effectively
• New opportunities to incentivize green walls with greater certainty of performance benefits
POTENTIAL USES BY PRODUCT MANUFACTURERS

- Design products or systems to meet LAPT requirements
- E.g. a drainage layer made out of post-consumer recycled material (to obtain Credit 6.3: Sustainable Materials); or an assembly that has sufficient storage volume (to obtain Credit 2.1: Stormwater Management)
PARTICIPATION

• 25 projects will enter the pilot phase
• New or existing projects (retroactively)
• Be recognized as a sustainability leader
• Maximize potential performance benefits
• Cost - $1500/2500 (depending on size)
• Straightforward compliance path with LEED/SITES alignment
PARTICIPATION BENEFITS

- Access to compliance path
- Personalized consultation
- Participation in a workshop at Chicago City Hall on July 13, 2018
- Review of materials
- Recognition if certified
MORE INFORMATION

greeninfrastructurefoundation.org/lapt

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