

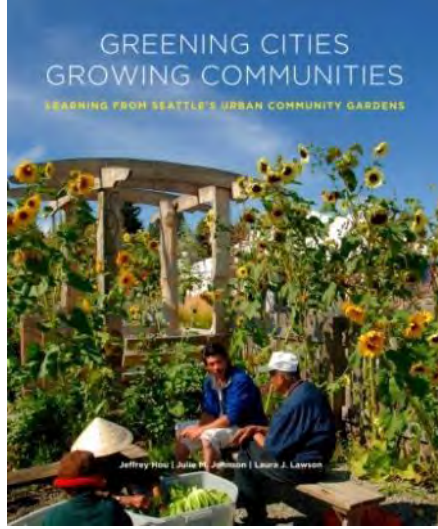


LANDSCAPE PERFORMANCE

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



LANDSCAPE PERFORMANCE SERIES

LANDSCAPE PERFORMANCE SERIES

presented by the
Landscape Architecture Foundation



Case Study Briefs

Database of over 100 exemplary projects with quantified landscape benefits



Fast Fact Library

Nearly 200 facts on the benefits of landscape derived from published research



Benefits Toolkit

Dozens of online calculators and tools to estimate landscape performance



Collections

Themed LPS highlights curated by LAF and leading thinkers

- 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

www.LandscapePerformance.org

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

ABOUT



GREEN
INFRASTRUCTURE
FOUNDATION

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



LAPT PROJECT MISSION STATEMENT

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



An aerial night view of a city skyline. In the foreground, a large, ornate building with a green roof is illuminated. The background shows other skyscrapers with lit windows against a dark blue sky.

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



A photograph of a modern building with a curved concrete walkway and lush greenery in the background. The building has a dark, metallic facade and a prominent concrete pillar. The walkway is made of large, light-colored concrete slabs. The background is filled with dense green trees and bushes, suggesting a park-like or campus setting. The sky is a clear, light blue.

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

A photograph of a modern building with a green roof. A person in a blue shirt is standing on a concrete staircase on the left side of the image. The building has a white facade and a glass railing. The background shows a hilly landscape under a cloudy sky.

EACH PERFORMANCE AREA HAS

- Principle
- Objective
- Credits

EACH CREDIT HAS

- Weight
- Intent
- Performance Levels
- Measurement Method
- Strategies for Compliance
- Resources

1. Process	5
1.1 Integrated Design Process	Prerequisite
1.2 Stakeholder and Community Engagement	3
1.3 Living Systems Expertise	2
2. Water Management	25
2.1 Stormwater Management	Prerequisite + 16
2.3 Irrigation	5
2.4 Water Balance	4
3. Energy Conservation	14
3.1 Envelope Thermal Moderation	5
3.2 Urban Heat Island Reduction	4
3.3 Renewable Energy	2
3.4 HVAC Integration	3
4. Habitat and Biodiversity	11
4.1 Plants	4
4.2 Growing Media Depth and Composition	2
4.3 Habitat Elements	2
4.4 Biomass	3

5. Health and Well-Being	21
5.1 Biophilic Design – Visibility	2
5.2 Biophilic Design – Accessibility	4
5.3 Food Production	10
5.4 Air Quality Improvements	3
5.5 Acoustics	2
6. Materials and Construction	14
6.1 Structural Soundness	Prerequisite
6.2 Environmentally Sensitive Materials	3
6.3 Sustainable Materials	3
6.4 Construction Waste Management	2
6.5 Equity-Focused Sourcing and Hiring	3
6.6 Bird-Friendly Glass	3
7. Post-Construction	10
7.1 Operations and Maintenance	Prerequisite + 2
7.2 Fertilizer and Pesticide Use	2
7.3 Monitoring	3
7.4 Education	3
8. Innovation	10
8.1 New Approaches or Strategies	
8.2 Exemplary Performance	10



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



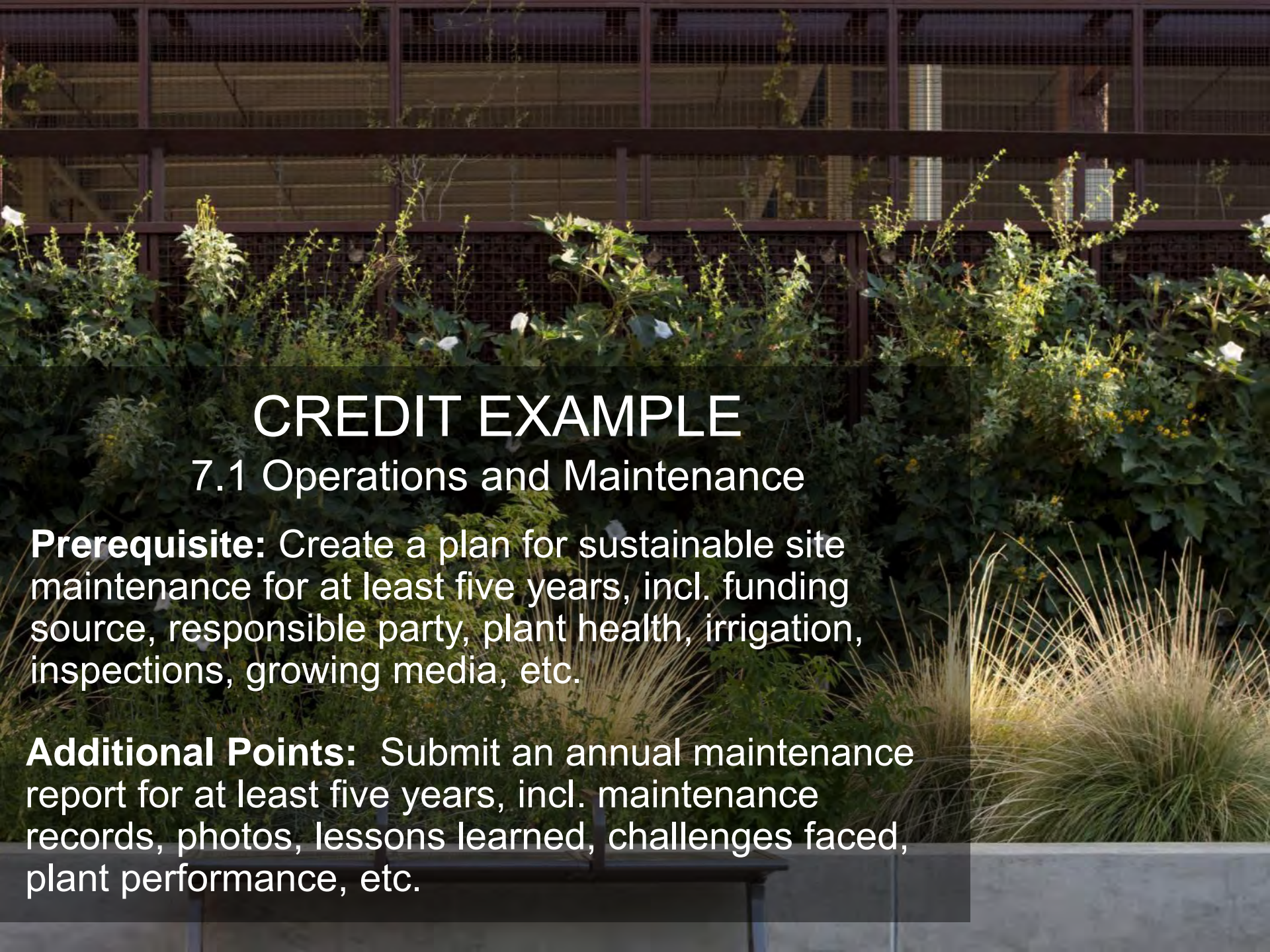
DETAILED CREDIT EXAMPLE

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

An aerial photograph of a modern multi-story building complex. The building features a central courtyard with greenery, including trees and flowering plants. The building has a mix of glass facades and balconies. A green roof is visible on one of the upper levels. The overall scene is bright and clear, suggesting a sunny day.

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

An aerial photograph of a vibrant, modern playground. The central feature is a large, circular path painted in bright blue and yellow, with white circular accents. A group of people, including children and adults, are walking along the path. The playground is surrounded by lush green plants and a concrete border. In the background, a building with a glass facade and a staircase is visible.

MORE INFORMATION

greeninfrastructurefoundation.org/lapt

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