

How GreenGrid® Contributes to LEED® Certification

The wide variety of benefits associated with green roofs is captured to varying degrees in the U.S. Green Building Council's LEED rating system. While every green roof project is different, and the extent to which a green roof on any building can help earn credits varies, this guide offers basic direction in maximizing your GreenGrid® roof design to help achieve LEED certification.

Credits are organized by their role category—prominent, supporting, or ancillary.



The LEED® green building certification program is the nationally accepted benchmark for the design, construction, and operation of green buildings.



U.S. EPA Region 8 Headquarters - Denver, CO

This project is registered under the LEED® green building certification

Credits Where GreenGrid® Plays a Prominent Role

Sustainable Site

Protect or Restore Habitat (Potential: 2 Points)

- Previously SS Credit 5.1 – Site Development – Protect or Restore Habitat
- “Using native or adapted vegetation, restore 25% (including the building footprint) of all portions of the site identified as previously disturbed. Vegetated roof surfaces may be included if the plants are native or adapted and provide habitat.”
- “Use only plant species that are appropriate for the project’s EPA Level III ecoregion and that are suitable for site conditions, climate, and design intent. Both native and adapted vegetation may qualify.”

Open Space (Potential: 1 Point)

- Previously SS Credit 5.2 – Site Development – Maximize Open Space
- “Extensive or intensive vegetated roofs that are physically accessible can be used toward the minimum 25% vegetation requirement, and qualifying roof-based physically accessible paving areas can be used toward credit compliance.”

Rainwater Management (Potential: 1-3 Points)

- Previously SS Credit 6.1 – Storm Water Design – Quantity Control and SS Credit 6.2 – Storm Water Design – Quality Control
- “In a manner best replicating natural site hydrology processes, retain (i.e. infiltrate, evapotranspire, or collect and reuse) on site the runoff from the developed site for, at minimum, the 80th percentile of regional or local rainfall events using low-impact development (LID) /green infrastructure (GI) practices. GI and LID strategies can be either structural or non-structural.
- Examples of acceptable techniques include the following:
 - planting rain gardens with native or adapted plant material (e.g. trees shrubs);
 - installing a vegetated roof;
 - using permeable paving, consisting of porous above-ground materials (e.g., open pavers, engineered products), a base layer designed to drain water away from the building, and (often) a 6-inch-deep (150 millimeters) subbase; and
 - installing permanent infiltration or collection features (e.g., vegetated swale, rain garden, rainwater cistern) that can retain 100% of the runoff from at minimum, the 80th percentile of regional or local rainfall events.

Based on USGBC LEED for
New Construction Version 3 (2009)



Heat Island Reduction (Potential: 1-2 Points)

- Previously SS Credit 7.2 – Heat Island Effect – Roof
- “Install a vegetated roof using native or adapted plant species.”

Outdoor Water Use Reduction (Potential: 1-2 Points)

- Previously WE Credit 1 – Water Efficient Landscaping
- Prerequisite: Outdoor Water Use Reduction
 - Option 1: No irrigation required: “Show that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period.”
 - Option 2: Reduced irrigation: “Reduce the project’s landscape water requirement by at least 30% from the calculated baseline for the site’s peak watering month. Reductions must be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.”
- Credit: Outdoor Water Use Reduction
 - Option 1: No irrigation required: “Show that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period.”
 - Option 2: Reduced irrigation: “Reduce the project’s landscape water requirement (LWR) by at least 50% from the calculated baseline for the site’s peak watering month. Reductions must first be achieved through plant species selection and irrigation system efficiency as calculated in the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.”

Optimize Energy Performance (Potential: Up to 18 Points)

- Previously EA Credit 1- Optimize Energy Performance
- Option 1: Energy Performance Compliance
 - “Demonstrate a Performance Cost Index (PCI)1 below the Performance Cost Index Target (PCIt) calculated in accordance with Section 4.2.1.1 of ANSI/ASHRAE/IESNA Standard 90.1-2016, Appendix G, Table 4.2.1.1.”
- Option 2: Prescriptive Compliance
 - “Implement and document compliance with the applicable recommendations and standards in Chapter 4, Design Strategies and Recommendations by Climate Zone, for the appropriate ASHRAE 50% Advanced Energy Design Guide and climate zone.”
- Option 3: Systems Optimizations
 - “Demonstrate an improvement beyond ASHRAE/ASHRAE/IESNA Standard 90.1–2016, with errata, for the following systems: Interior and Exterior Lighting; Daylight controls; Building envelope; HVAC and service water heating equipment efficiency; and Equipment and appliances.”

Building Product Disclosure and Optimization – Sourcing of Raw Materials (Potential: 1-2 Points)

- Previously MR Credits 3-5 – Material Reuse, Recycled Content, and Regional Material
- Materials Reuse: “Reuse includes salvaged, refurbished, or reused products. Products meeting materials reuse criteria are valued at 200% of their cost for the purposes of credit achievement calculation.”
- Recycled Content: “Products meeting recycled content criteria are valued at 100% of their cost for the purposes of credit achievement calculation.”
- “For credit achievement calculation, products sourced (extracted, manufactured and purchased) within 100 miles (160 km) of the project site are valued at twice their base contributing cost, up to a maximum of 200% of cost or 2 products.”

Summary

Overall, the GreenGrid® Green Roof system can provide significant contribution towards the LEED certification of a building. Careful, strategic design, and coordination with other building systems will enhance the overall benefits realized for the building, as well as the return on investment for the owner. Contact a GreenGrid expert for more information or help with how to best implement a vegetated roof for maximum value and enjoyment.

For More Information

Local contacts are available on our Web site
www.GreenGridRoofs.com
or contact our headquarters office at
888-404-4743