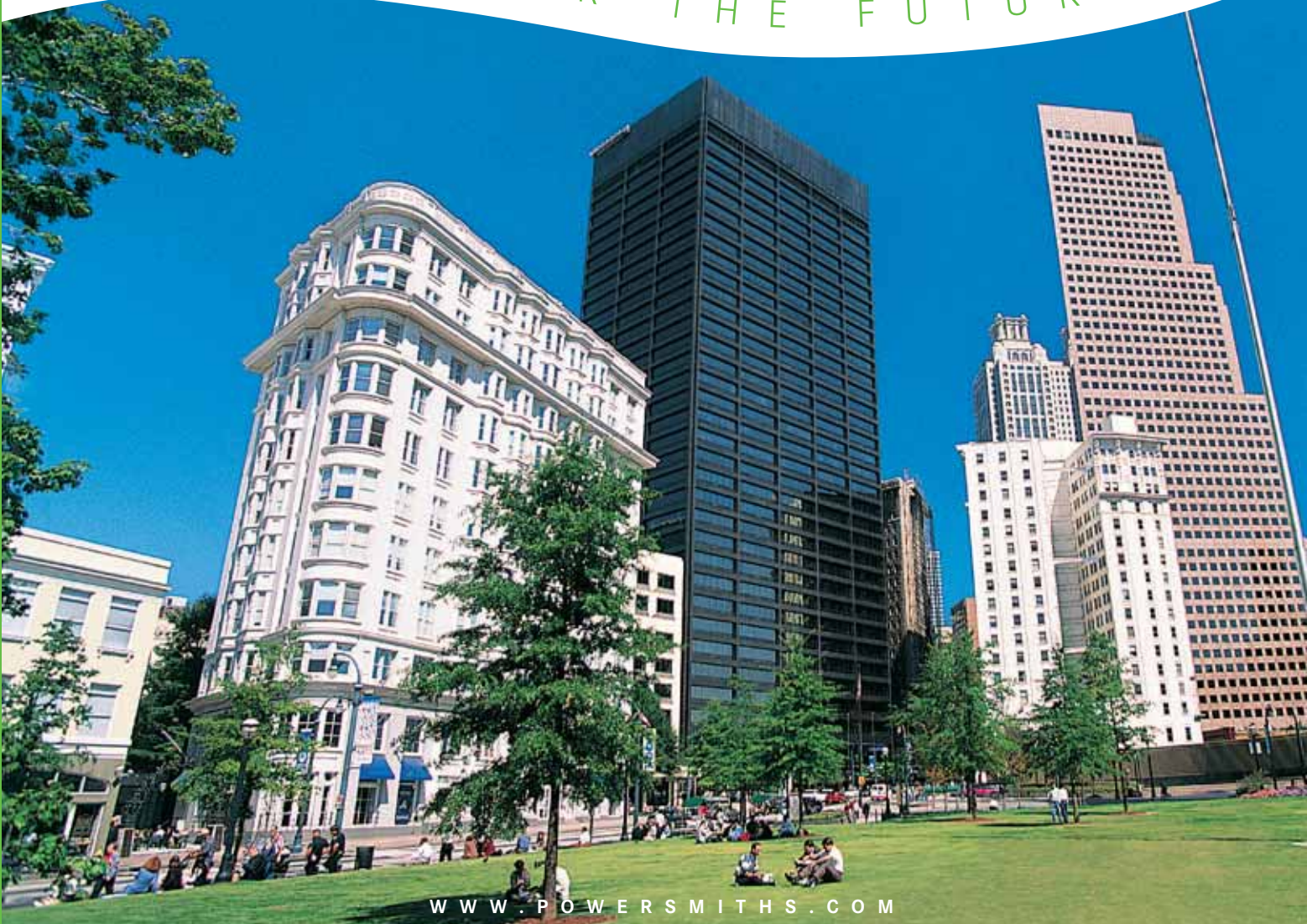


POWERSMITHS

LEED® Application Guide
for New Construction and Major Renovations

POWER FOR THE FUTURE



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LEED® Overview



Sustainable Sites



Water Efficiency



Energy & Atmosphere



Materials & Resources



Indoor Environmental Quality



Innovation in Design

Because buildings consume more than one third of the nation's energy and water resources, reducing their environmental footprint can play a significant role in reaching sustainability and climate goals. Leadership in Energy and Environmental Design (LEED) is a voluntary, building rating system that provides a framework and guidance on sustainable design, construction and maintenance practices for built structures.

Sponsored by the US Green Building Council and adopted by the Canadian Green Building Council, the LEED rating system emphasizes state-of-the-art strategies for sustainable development under six categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality and Innovative Design. By meeting specific targets and prerequisites, buildings can be certified to one of four levels - Certified, Silver, Gold or Platinum; depending on the extent to which the building incorporates environmental features and practices.

LEED Buildings Outperform

LEED buildings: cost less to operate, use less water and have lower environmental impact during their construction and their operational life. They also provide a healthier learning and working environment, delivering measurable performance improvements in the workplace and enhanced learning scores in schools.

Powersmiths and LEED

Powersmiths is committed to helping to build a sustainable future by supplying products and services that:

- Reduce electricity waste
- Support commissioning, verification and on-going energy management programs
- Help teach sustainability principles

Installing and implementing Powersmiths solutions in your building can help earn points in the following LEED certification categories:



This booklet delineates how Powersmiths products and services contribute to LEED buildings with specific reference to LEED categories and credit numbers.

Powersmiths is a member of the following organizations:

- USGBC (US Green Building Council)
- CaGBC (Canada Green Building Council)
- Energy Smart Schools
- EnergyStar®
- AASHE (Association for the Advancement of Sustainability in Higher Education)
- NJHEPS (New Jersey Higher Education Partnership for Sustainability)
- Rebuild America

Product Certifications include:

- ISO 14001 (Environmental Management)
- ISO 9001 (Quality Management)
- EnergyStar Partner
- Ecologo





Transformer Contributions

E-Saver-C3™ and T1000-C3™



Few people understand the role that transformers can play in conserving electricity. Nevertheless, the US Department of Energy estimates that 60 – 80 billion kilowatt hours of electricity are wasted annually by transformers in buildings throughout North America. This represents eight to nine days of total North American generating capacity. Clearly increasing transformer efficiency can have a significant impact.

Powersmiths E-Saver-C3™ and T1000-C3™ distribution transformers exceed NEMA TP1, EPACK 2005 and

C802.2, the legislated minimal-efficiency standards, reducing 60% or more of the waste allowed under legislated standards. Because they exceed standard efficiency, E-Saver-C3 and T1000-C3 transformers contribute to your energy reduction target and help raise your LEED energy performance score.

LEED Category: Energy and Atmosphere Credit 1

Optimize Energy Performance

- Provides higher than mandated efficiency to yield significant energy savings
- Savings calculations are made easy with the use of Powersmiths free Energy Saving and Payback Calculator

Easy Skid™



Powersmiths designed the Easy Skid™ to conserve wood, facilitate shipping and simplify the installation of electrical transformers. Manufactured with FSC wood to conserve forests.

LEED Category: Material and Resources Credit 2.1 & 2.2

Divert Waste from Landfill Sites

- Supports waste reduction – Packaging uses 70% less wood and biodegradable shrink wrap

SMART™ Integrated Meter



Fundamental building commissioning and on-going efficiency verification is a key to gaining LEED certification. But accessing consumption and efficiency

data from transformers can be difficult, risky and time consuming given recent arc flash legislation. Powersmiths has solved the safety and accuracy problems associated with acquiring energy measurements by integrating SMART meters into Powersmiths transformers.

SMART's external metering port provides access to transformer efficiency measurements and consumption data without opening the transformer. This greatly facilitates commissioning and on-going validation.

LEED Category: Energy and Atmosphere Prerequisite 1

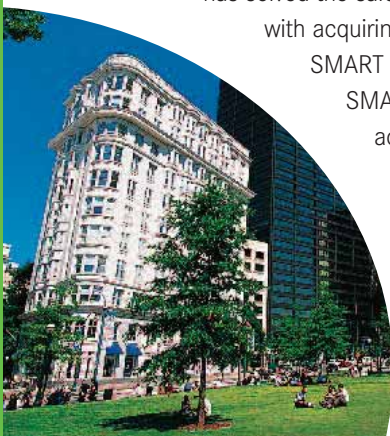
Fundamental Building Commissioning

- Validates transformer performance to ensure it meets specifications

LEED Category: Energy and Atmosphere Credit 5

Measurement and Validation

- Provides accountability of on-going energy consumption over time, tracking actual usage vs. benchmark model





Metering

Cyberhawk™ Metering Family



Cyberhawk energy meters provide a comprehensive data set for on-going measurement and verification of building resource systems. Cyberhawk meters measure and record electricity consumption and power quality and can also record data from any pulse-measured system including water and gas systems. An integrated Web server provides remote access to all data including events, data logs and waveforms, in support of on-going measurement and verification and education for sustainability initiatives.

LEED Category: Energy and Atmosphere Prerequisite 1

Fundamental Building Commissioning

- Validates energy system operation
- Measures performance to ensure specifications are met

LEED Category: Energy and Atmosphere Credit 5

Measurement and Validation

- Provides accountability of on-going energy consumption over time, tracking actual usage vs. benchmark model



Windows on the World™ (WOW™)

Education for Sustainability and Energy Management System



WOW accesses resource consumption data from a building's metered systems and

consolidates it onto one platform, where it can be used for energy management and sustainability education.

Decision support tools in WOW facilitate on-going accountability of installed systems, by enabling users to track the performance of multiple building systems against user defined benchmarks, all from one convenient platform.

WOW delivers sustainability education through colorful intuitive Web pages that can be customized to showcase and explain a building's high performance features. Displayed on kiosk style touch screen displays and over the Web, WOW invites building occupants and visitors to learn how a building achieved LEED certification and view the building's actual resource savings. WOW's interactive graphs and gauges translate energy savings into tangible environmental benefits allowing the building to become a teaching tool for sustainability.

LEED Category: Energy and Atmosphere Credit 5

Measurement and Validation

- Provides oversight of energy, water and other resource consumption on an on-going basis helping to ensure that systems continue to function as intended
- Compares actual performance vs. LEED benchmarks

LEED Category: Innovation in Design Credit 1 - 1.4

- Uses the building as a teaching tool (an explicit credit in LEED for Schools)
- Incorporates live data to describe and demonstrate high performance features
- Tracks actual performance across all categories against the LEED benchmark

LEED for Schools: Innovation in Design Credit 3 – The School as a Teaching Tool

- Displays meters that measure energy and other resource inputs and outputs
- Provides a wealth of real-time and historical resource consumption data that can be used to support curriculum in science, math, social studies, and geography.



EA Prerequisite 1 Fundamental Building Commissioning

SMART Integrated Meter

- Provides a continuous log of transformer's load profile
- Available with quick connects to Cyberhawk Portable Meter

Cyberhawk Portable Meter

- Captures energy, efficiency and power quality data to verify systems and individual equipment meet performance specifications

Cyberhawk MPC

- Installed at the building entrance, records whole building electrical usage and can be used to benchmark against system's design specifications
- Reads analog information such as temperature sensors and pulse measured inputs from water and gas meters
- Protects electrical infrastructure from damaging power events
- Characterizes and time-stamps power anomalies
- Provides detailed energy and power quality information

Cyberhawk 100

- Captures energy, efficiency and power quality data to verify systems and individual equipment meet performance specifications
- Continuously records analog information like temperature sensors, and pulse input from water and gas meters

Cyberhawk 300

- Measures up to three 3-phase points in a single meter
- Captures energy, efficiency and power quality data to verify systems and individual equipment meet performance specifications
- Continuously records analog information like temperature sensors, and pulse input from water and gas meters

EA Credit 5 Measurement and Verification

SMART Integrated Meter

Cyberhawk Portable Meter

Cyberhawk 100

Cyberhawk 300

Cyberhawk MPC

Windows on the World

- Consolidates data from all Web-accessible meters to provide comprehensive insight into the performance of all resource input systems
- Validates operation of all energy systems
- Measures actual performance against established performance benchmarks
- Alerts managers to performance problems

EA Credit 1 Optimize Energy Performance (2-10 points)

E-Saver C3 & T1000 C3 High Efficiency Transformers

- Exceed legislated efficiency standards to deliver measurable energy savings
- Energy savings can reduce building's total electricity use by 1 - 2%, contributing between 1/2 to 1 LEED credit
- Savings can be easily documented using Powersmiths Energy Savings and Payback Calculator™



ID Credit 1 Innovation in Design

Windows on the World

- Demonstrates how your building achieved LEED certification
- Allows the building to be used as a teaching tool
- Describes high performance features using live data
- Supports curriculum studies
- Correlates building features to LEED checklist and tracks actual performance against benchmarks
- Educates building occupants and visitors on sustainability
- Helps foster a culture of conservation



MR Credit 2 Construction Waste Management

Easy Skid

- Powersmiths ships transformers on Easy Skid which uses 70% wood than standard shipping pallets.
- Biodegradable shrink wrap is used

To find out more about how Powersmiths products and services can help you to meet your LEED certification goals, contact us at:
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1-800-747-9627



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