

WELCOME

Fundamentals of LEED®

National Electrical Contractors Association
2009 Convention

Workshop Track PW-8

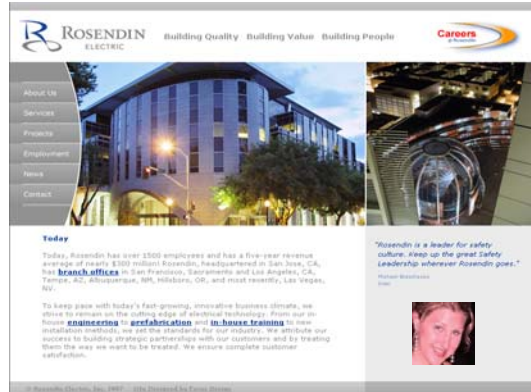
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TRANSFORMING THE BUILT ENVIRONMENT

Fundamentals of LEED

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Introductions

Ron Fong

- ↓ P.E. Civil Engineering California
- ↓ LEED A.P.
- ↓ Vice Chair Silicon Valley USGBC



USGBC
NORTHERN CALIFORNIA
Silicon Valley Branch
TRANSFORMING THE BUILT ENVIRONMENT

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Introductions

Introductions



- Name and What you do
- Where are you from?
- Who do you work for?
- Have you worked on a green project?
- What do you hope to learn today?



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Session Goals

An Better Understanding of

- ❑ What are Green Buildings
- ❑ What is LEED Certification
- ❑ What is LEED Accreditation
- ❑ The LEED rating system and 2009 updates
- ❑ Your role on a LEED project



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GLOBAL VALUES SHIFT

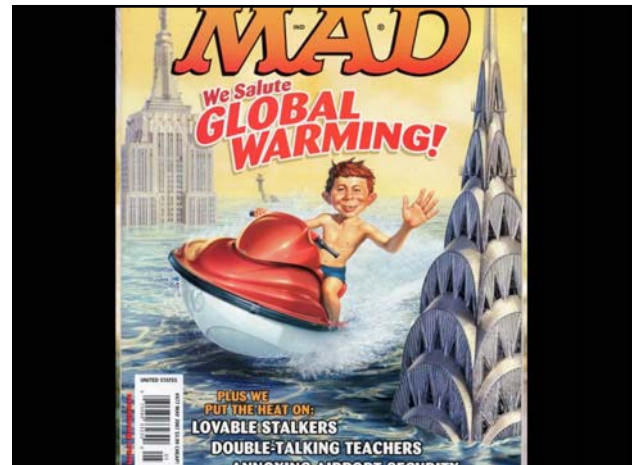
Values:

- Creative Thinking
- Beauty
- Reduced CO₂ emissions
- Empowerment
- Social Equity
- Indoor Air Quality
- Energy Efficiency
- Reduced Operational costs
- Market Driven Competitiveness
- Fiscal Sense
- Smart Business

Other Text:

- Red, White & Green
- The Oscars Go Green
- GO GREEN. GET RICH.
- SAVING THE PLANET HAS SUDDENLY BECOME GOOD BUSINESS.

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WORLDWIDE, BUILDINGS ACCOUNT FOR...

- 17% fresh water withdrawals
- 25% wood harvest
- 33% CO₂ emissions
- 40% material and energy use
- 45% in China

architecture 2030

Fossil fuel reduction for all new buildings increase to:

- 60% in 2010
- 70% in 2015
- 80% in 2020
- 90% in 2025
- Carbon-neutral by 2030

(no fossil fuel GHG emissions to regulate)

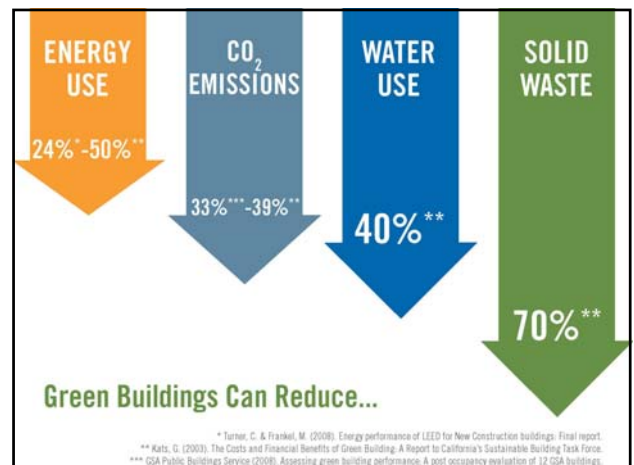
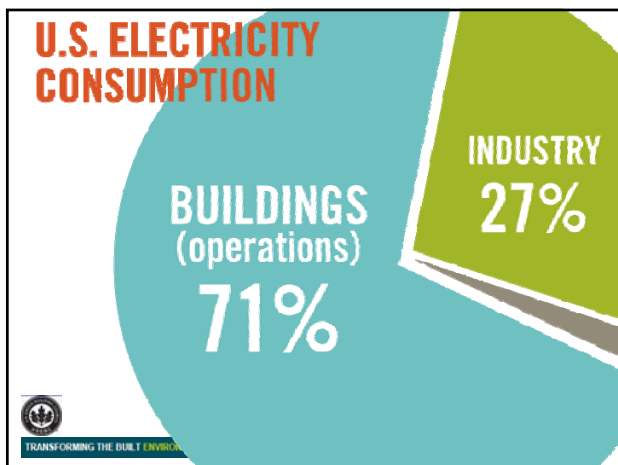
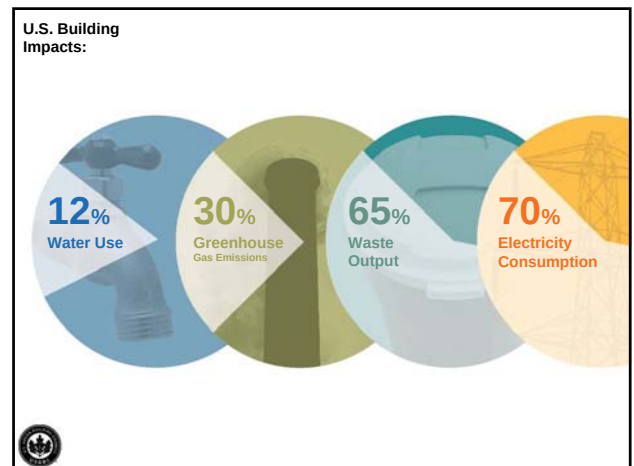
www.architecture2030.org

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U.S. CO₂ Emissions by Sector



What Is Green Building?

BETTER USE OF RESOURCES
HEALTHIER SPACES

Site Planning
Water Management
Energy
Material Use
Indoor Environmental Quality

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What is Green Building?

*Sustainable designed, high performance buildings are those that through their siting, orientation, design, construction and operation are highly energy efficient, have lower operating costs, are better for the environment in broad and specific terms, and promote whole health for their users and occupants with **measurable** results.*

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Perception Reality

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**Bronx Library Center
New York, NY**

90% of demolition debris recycled
20% energy cost savings
80% of wood is FSC certified

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**Boulder Associates, Inc. Office
Boulder, CO**

39% of materials and furniture have recycled content
43% less water use
55% of demolition/construction waste diverted from landfill

Photography courtesy of Ed LaCasse

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**Sidwell Friends Middle School
Washington, DC**

90% reduced municipal water use
60% less energy demand than a conventional school
80% native plant species planted on site

Photograph Courtesy of Peter Aaron/ESTO

© U.S. Green Building Council, 2008



Tepeyac Haven
Pasco, WA

15 units per acre

29% improvement of attic insulation heat resistance over state code energy

44 homes available for low-income families

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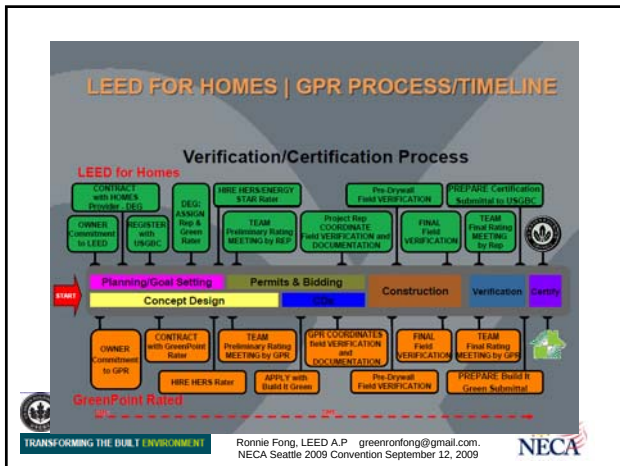
SAN FRANCISCO GBO REQUIREMENTS (MULTI-FAMILY RESIDENTIAL EXAMPLE)



- Effective Date: November 3, 2008
- Tied to date of initial permit submittal
- Requirements detailed in AB-093
- Amendment to SF Building Code
- Changes Architects Standard of Care

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LEED FOR HOMES | GPR PROCESS/TIMELINE



Verification/Certification Process

LEED for Homes

CONTRACT with HOMES Division - GPR
OWNER Committed to LEED
REGISTER with USGBC
HIRE RESIDENTIAL STAR Rater
TEAM Preliminary Rating MEETING by REP
Project Rep. COORDINATE Field VERIFICATION and DOCUMENTATION
FINAL Field VERIFICATION
TEAM Final Rating MEETING by REP
PREPARE Certification Submittal to USGBC

GreenPoint Rated

CONTRACT with GreenPoint Rated
OWNER Committed to GPR
HIRE GREEN Rater
TEAM Preliminary Rating MEETING by GPR
GPR COORDINATES TEAM VERIFICATION and DOCUMENTATION
FINAL Field VERIFICATION
TEAM Final Rating MEETING by GPR
PREPARE Build It Green Submittal

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Orchard Garden Hotel
San Francisco, CA

22% of building materials manufactured within 500 miles

77% of construction waste diverted from the landfill

100% of interior spaces designated tobacco-free

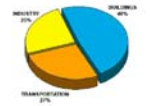
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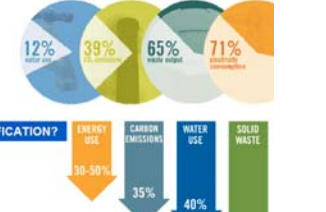
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Why Build Green Building?

PLANET



WHAT IS THE IMPACT OF CERTIFICATION?



Average Savings of Green Buildings

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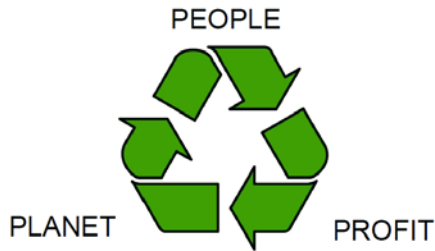
PERCEIVED ADVANTAGES OF BUILDING GREEN

- 8-9% decrease in operating costs
- 7.5% increase in building values
- 6.6% improvement in ROI
- 3.5% increase in occupancy
- 3% rent increase

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Why Build Green Building?

The Triple Bottom Line



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What is green building?
Design and construction practices that meet specified standards, resolving much of the negative impact of buildings on their occupants and on the environment.



Presidential Executive Order 13123 (1999)

- Federal government buildings must be environmentally designed.
- Federal LEED Policies

- Department of Agriculture
- Department of Agriculture Forest Service
- Department of Energy
- Department of Health and Human Services
- Department of Interior
- Department of State
- Environmental Protection Agency
- General Services Administration
- National Aeronautical and Space Administration
- Smithsonian
- US Air Force
- US Army
- US Navy

State's with similar Executive Orders:

- | | |
|---------------------|------------------|
| - Arizona | - New Jersey |
| - Arkansas | - New Mexico |
| - California | - New York |
| - Colorado | - Nevada |
| - Connecticut | - Oregon |
| - Florida | - Pennsylvania |
| - Hawaii | - Rhode Island |
| - Illinois | - South Carolina |
| - Maine | - Virginia |
| - Maryland | - Washington |
| - Massachusetts | - Wisconsin |
| - Michigan | |

California Policy:

- CA Executive Order S-20-04 (2004)
- State buildings to be LEED Silver
- CA Counties and Municipalities with similar policies

- Alameda County
- Berkeley
- Calabasas
- Dublin
- **Fremont**
- Irvine
- Livermore
- Long Beach
- Los Angeles
- Los Angeles County
- Oakland
- Pasadena
- Pleasanton
- Rohnert Park
- Sacramento
- San Diego
- San Francisco
- San Jose
- San Mateo County
- Santa Cruz
- Santa Monica

How do you know it's green?



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Green Building Rating Systems

All Define **High Performance** Building

Design & Construction

✓ Exceed 'Code Minimum Design'

✓ Owner Elective Participation **

✓ 3rd Party Rating or Self Certify with Documentation System

✓ Object Set of credits / requirements

✓ Climate Specific

✓ Environmental Assessment Tool

✓ Value Based Costing

First Steps towards truly sustainable Design, Construction and Operations



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YOU SGBC



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US Green Building Council

VISION

Buildings and communities will regenerate and sustain the health and vitality of all life within a generation.



MISSION

To transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life.



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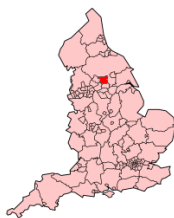


Leadership in Energy & Environmental Design

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US Green Building Council Rating System

LEED not LEEDS



LEEDS is a town in England



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US Green Building Council Rating System

- **LEED™ "Accredited"** – title given to an **INDIVIDUAL** who has passes the LEED accreditation exam.
- **LEED™ Registered** – title given to a **BUILDING** project that submits to USGBC seeking a certification.
- **LEED™ Certified**– title given when a **BUILDING** achieves a minimum of ~~26~~ **40 Points 2009**



REM



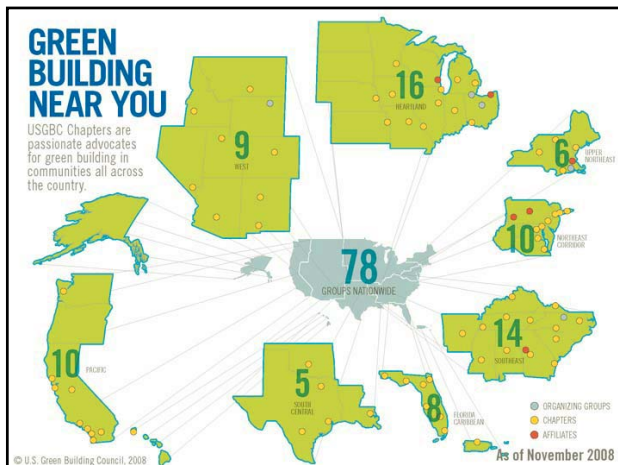
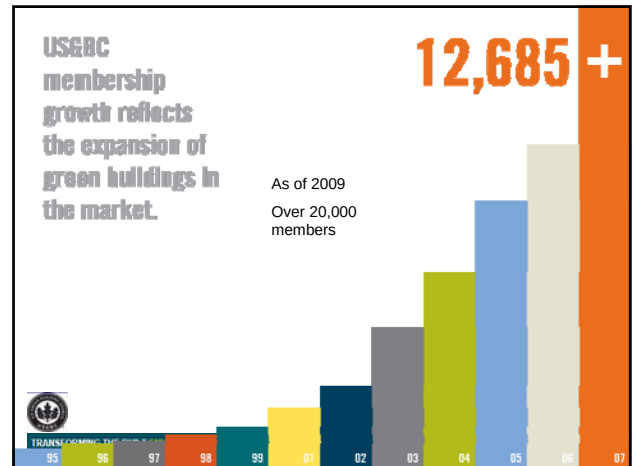
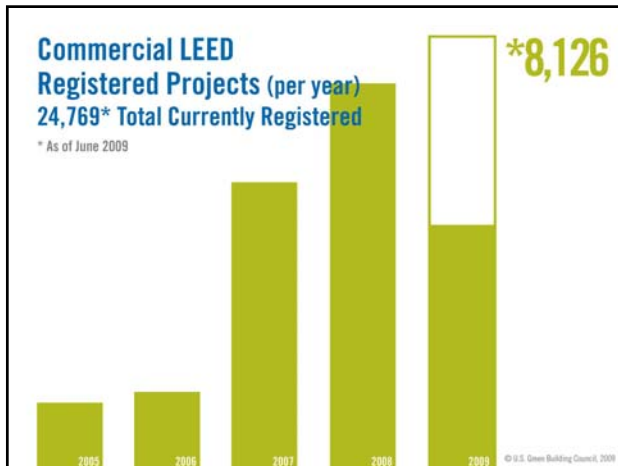
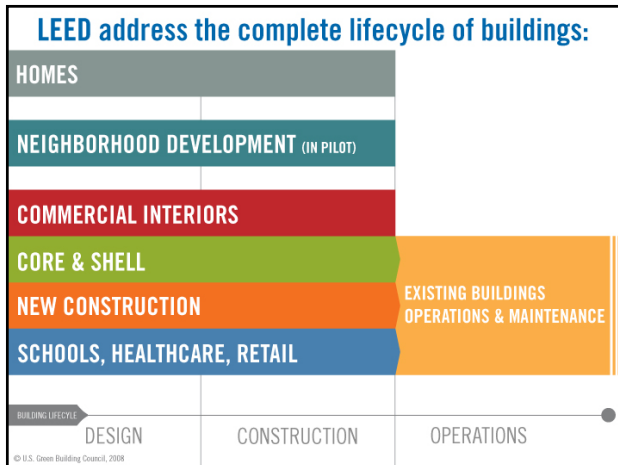
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What is the LEED System?

Scores are tallied for different aspects of efficiency and design in appropriate categories.

For instance, LEED assesses in detail:

1. Site Planning
2. Water Management
3. Energy Management
4. Material Use
5. Indoor Environmental Air Quality
6. Innovation & Design Process

A leading-edge system for certifying DESIGN, CONSTRUCTION, & OPERATIONS of the greenest buildings in the world

Green Facts
John M. Langston High School
Construction & Langston-Sheen Community Center
Arlington, Virginia

LEED NC rating out of 100

Category	Score
Silver	35
Sustainable Site	4
Water Efficiency	3
Energy & Atmosphere	4
Materials & Resources	6
Indoor Environmental Quality	11
Innovation & Design	3

Image credit: © 2008 U.S. Green Building Council, Inc.

Levels of LEED Ratings

Green Buildings worldwide are certified with a voluntary, consensus-based rating system. USGBC has four levels of LEED.



• Scorecard of green design + construction practices

• Third-party validation

• Performance-based, not prescriptive!



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Leadership in Energy and Environmental Design

A leading-edge system for certifying the greenest performing buildings in the world



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Points are awarded in the following categories - prerequisites must be met for certification (69 available points).

- Sustainable Sites (14 Points) (26)
- Water Efficiency (5 Points) (10)
- Energy & Atmosphere (17 Points) (35)
- Materials & Resources (13 Points) (14)
- Indoor Environmental Quality (15 Points) (15)
- Innovation & Design Process (5 Points) (6)

Regional Points 10

Category	Points Available	Points Earned
Sustainable Sites	14	14
Water Efficiency	5	5
Energy & Atmosphere	17	17
Materials & Resources	13	13
Indoor Environmental Quality	15	15
Innovation & Design Process	5	5
Total	69	69

Rating levels:

Certified 26-32 pts, Silver 33-38 pts, Gold 39-51 pts, Platinum 52-69 pts

LEED v3 - 110 possible pts v 69 pts v2.2

Certified 40-49 pts, Silver 50-59 pts, Gold 60-79 pts, Platinum 80-110 pts



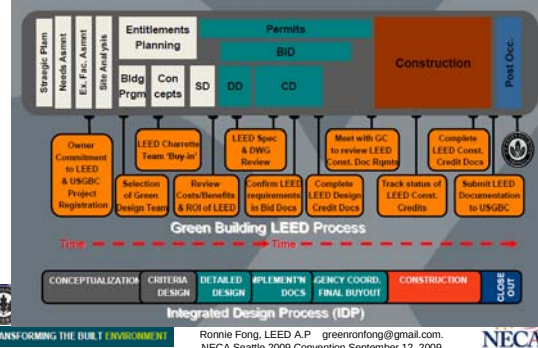
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LEED CS | NC | CI PROCESS/TIMELINE

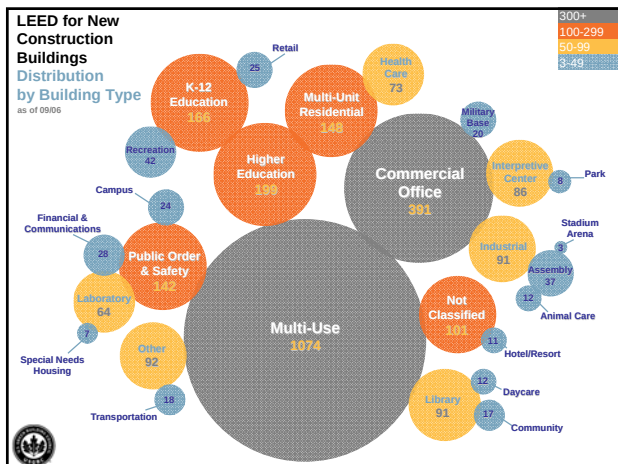
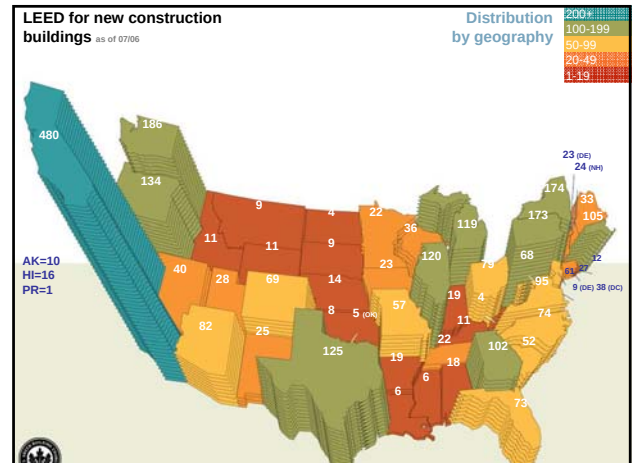


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LEED		Seattle Central Library, LEED® Project # 0007		LEED Version 2 Certification Level: SILVER		November 22, 2004	
34 Points Achieved		Possible Points: 60		Certified: 26 to 32 points		Silver: 33 to 35 points	
7 Sustainable Sites		Possible Points: 14		4 Materials & Resources		Possible Points: 13	
SS-1	Erosion & Sedimentation Control	1	MR-1	Storage & Collection of Recyclables	1	MR-1	Storage & Collection of Recyclables
SS-2	Site Selection	1	MR-2	Building Reuse, Minimum 10% of Existing Shell	1	MR-2	Building Reuse, Minimum 10% of Existing Shell
SS-3	Urban Redevelopment	1	MR-3	Building Reuse, Minimum 10% of Existing Shell	1	MR-3	Building Reuse, Minimum 10% of Existing Shell
SS-4	Alternative Transportation, Public Transportation Access	1	MR-4	Construction Waste Management, Over 75%	1	MR-4	Construction Waste Management, Over 75%
SS-5	Alternative Transportation, Bicycle Storage & Changing Rooms	1	MR-5	Resource Reuse, Specify 10%	1	MR-5	Resource Reuse, Specify 10%
SS-6	Alternative Transportation, Alternative Fuel Refueling Stations	1	MR-6	Recycled Content	1	MR-6	Recycled Content
SS-7	Reduced Site Disturbance, Paved or Pervious Open Space	1	MR-7	Recycled Content	1	MR-7	Recycled Content
SS-8	Stormwater Management, Treatment	1	MR-8	Local/Regional Materials, 20% Manufactured Locally	1	MR-8	Local/Regional Materials, 20% Manufactured Locally
SS-9	Stormwater Management, Rate and Quantity	1	MR-9	Local/Regional Materials, 20% Manufactured Locally	1	MR-9	Local/Regional Materials, 20% Manufactured Locally
SS-10	Stormwater Management, Treatment	1	MR-10	Rapidly Renewable Materials	1	MR-10	Rapidly Renewable Materials
SS-11	Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1	MR-11	Certified Wood	1	MR-11	Certified Wood
SS-12	Landscape & Exterior Design to Reduce Heat Islands, Roof	1	MR-12			MR-12	
SS-13	Light Pollution Reduction	1	MR-13			MR-13	
3 Water Efficiency		Possible Points: 8		9 Indoor Environmental Quality		Possible Points: 10	
WE-1	Water Efficient Landscaping, Reduce by 50%	1	IEQ-1	Minimum IAQ Performance	1	IEQ-1	Minimum IAQ Performance
WE-2	Water Efficient Landscaping, No Potable Use or No Irrigation	1	IEQ-2	Carbon Dioxide (CO ₂) Monitoring	1	IEQ-2	Carbon Dioxide (CO ₂) Monitoring
WE-3	Innovative Wastewater Technologies	1	IEQ-3	Increase Ventilation Effectiveness	1	IEQ-3	Increase Ventilation Effectiveness
WE-4	Water Use Reduction, 20% Reduction	1	IEQ-4	Construction IAQ Management Plan, Before Occupancy	1	IEQ-4	Construction IAQ Management Plan, Before Occupancy
WE-5	Water Use Reduction, 20% Reduction	1	IEQ-5	Low-Emitting Materials, Adhesives & Sealers	1	IEQ-5	Low-Emitting Materials, Adhesives & Sealers
3 Energy & Atmosphere		Possible Points: 17		4 Innovation & Design Process		Possible Points: 5	
E&A-1	Fundamental Building Systems Commissioning	1	IDP-1	Innovation in Design, Sustainability Education	1	IDP-1	Innovation in Design, Sustainability Education
E&A-2	Minimum Energy Performance	1	IDP-2	Innovation in Design, Exemplary Performance Office	1	IDP-2	Innovation in Design, Exemplary Performance Office
E&A-3	CFC Reduction in HVAC&R Equipment	1	IDP-3	Innovation in Design, Exemplary Performance Office	1	IDP-3	Innovation in Design, Exemplary Performance Office
E&A-4	Optimize Energy Performance, 20% New 10% Existing	2	IDP-4	Innovation in Design, Exemplary Performance Office	1	IDP-4	Innovation in Design, Exemplary Performance Office
E&A-5	Optimize Energy Performance, 20% New 10% Existing	2	IDP-5	Innovation in Design, Exemplary Performance Office	1	IDP-5	Innovation in Design, Exemplary Performance Office
E&A-6	Optimize Energy Performance, 20% New 10% Existing	2	IDP-6	Innovation in Design, Exemplary Performance Office	1	IDP-6	Innovation in Design, Exemplary Performance Office
E&A-7	Optimize Energy Performance, 20% New 10% Existing	2	IDP-7	Innovation in Design, Exemplary Performance Office	1	IDP-7	Innovation in Design, Exemplary Performance Office
E&A-8	Optimize Energy Performance, 20% New 10% Existing	2	IDP-8	Innovation in Design, Exemplary Performance Office	1	IDP-8	Innovation in Design, Exemplary Performance Office
E&A-9	Optimize Energy Performance, 20% New 10% Existing	2	IDP-9	Innovation in Design, Exemplary Performance Office	1	IDP-9	Innovation in Design, Exemplary Performance Office
E&A-10	Optimize Energy Performance, 20% New 10% Existing	2	IDP-10	Innovation in Design, Exemplary Performance Office	1	IDP-10	Innovation in Design, Exemplary Performance Office
E&A-11	Optimize Energy Performance, 20% New 10% Existing	2	IDP-11	Innovation in Design, Exemplary Performance Office	1	IDP-11	Innovation in Design, Exemplary Performance Office
E&A-12	Optimize Energy Performance, 20% New 10% Existing	2	IDP-12	Innovation in Design, Exemplary Performance Office	1	IDP-12	Innovation in Design, Exemplary Performance Office
E&A-13	Optimize Energy Performance, 20% New 10% Existing	2	IDP-13	Innovation in Design, Exemplary Performance Office	1	IDP-13	Innovation in Design, Exemplary Performance Office
E&A-14	Optimize Energy Performance, 20% New 10% Existing	2	IDP-14	Innovation in Design, Exemplary Performance Office	1	IDP-14	Innovation in Design, Exemplary Performance Office
E&A-15	Optimize Energy Performance, 20% New 10% Existing	2	IDP-15	Innovation in Design, Exemplary Performance Office	1	IDP-15	Innovation in Design, Exemplary Performance Office
E&A-16	Optimize Energy Performance, 20% New 10% Existing	2	IDP-16	Innovation in Design, Exemplary Performance Office	1	IDP-16	Innovation in Design, Exemplary Performance Office
E&A-17	Optimize Energy Performance, 20% New 10% Existing	2	IDP-17	Innovation in Design, Exemplary Performance Office	1	IDP-17	Innovation in Design, Exemplary Performance Office
E&A-18	Optimize Energy Performance, 20% New 10% Existing	2	IDP-18	Innovation in Design, Exemplary Performance Office	1	IDP-18	Innovation in Design, Exemplary Performance Office
E&A-19	Optimize Energy Performance, 20% New 10% Existing	2	IDP-19	Innovation in Design, Exemplary Performance Office	1	IDP-19	Innovation in Design, Exemplary Performance Office
E&A-20	Optimize Energy Performance, 20% New 10% Existing	2	IDP-20	Innovation in Design, Exemplary Performance Office	1	IDP-20	Innovation in Design, Exemplary Performance Office
E&A-21	Optimize Energy Performance, 20% New 10% Existing	2	IDP-21	Innovation in Design, Exemplary Performance Office	1	IDP-21	Innovation in Design, Exemplary Performance Office
E&A-22	Optimize Energy Performance, 20% New 10% Existing	2	IDP-22	Innovation in Design, Exemplary Performance Office	1	IDP-22	Innovation in Design, Exemplary Performance Office
E&A-23	Optimize Energy Performance, 20% New 10% Existing	2	IDP-23	Innovation in Design, Exemplary Performance Office	1	IDP-23	Innovation in Design, Exemplary Performance Office
E&A-24	Optimize Energy Performance, 20% New 10% Existing	2	IDP-24	Innovation in Design, Exemplary Performance Office	1	IDP-24	Innovation in Design, Exemplary Performance Office
E&A-25	Optimize Energy Performance, 20% New 10% Existing	2	IDP-25	Innovation in Design, Exemplary Performance Office	1	IDP-25	Innovation in Design, Exemplary Performance Office
E&A-26	Optimize Energy Performance, 20% New 10% Existing	2	IDP-26	Innovation in Design, Exemplary Performance Office	1	IDP-26	Innovation in Design, Exemplary Performance Office
E&A-27	Optimize Energy Performance, 20% New 10% Existing	2	IDP-27	Innovation in Design, Exemplary Performance Office	1	IDP-27	Innovation in Design, Exemplary Performance Office
E&A-28	Optimize Energy Performance, 20% New 10% Existing	2	IDP-28	Innovation in Design, Exemplary Performance Office	1	IDP-28	Innovation in Design, Exemplary Performance Office
E&A-29	Optimize Energy Performance, 20% New 10% Existing	2	IDP-29	Innovation in Design, Exemplary Performance Office	1	IDP-29	Innovation in Design, Exemplary Performance Office
E&A-30	Optimize Energy Performance, 20% New 10% Existing	2	IDP-30	Innovation in Design, Exemplary Performance Office	1	IDP-30	Innovation in Design, Exemplary Performance Office
E&A-31	Optimize Energy Performance, 20% New 10% Existing	2	IDP-31	Innovation in Design, Exemplary Performance Office	1	IDP-31	Innovation in Design, Exemplary Performance Office
E&A-32	Optimize Energy Performance, 20% New 10% Existing	2	IDP-32	Innovation in Design, Exemplary Performance Office	1	IDP-32	Innovation in Design, Exemplary Performance Office
E&A-33	Optimize Energy Performance, 20% New 10% Existing	2	IDP-33	Innovation in Design, Exemplary Performance Office	1	IDP-33	Innovation in Design, Exemplary Performance Office
E&A-34	Optimize Energy Performance, 20% New 10% Existing	2	IDP-34	Innovation in Design, Exemplary Performance Office	1	IDP-34	Innovation in Design, Exemplary Performance Office
E&A-35	Optimize Energy Performance, 20% New 10% Existing	2	IDP-35	Innovation in Design, Exemplary Performance Office	1	IDP-35	Innovation in Design, Exemplary Performance Office
E&A-36	Optimize Energy Performance, 20% New 10% Existing	2	IDP-36	Innovation in Design, Exemplary Performance Office	1	IDP-36	Innovation in Design, Exemplary Performance Office
E&A-37	Optimize Energy Performance, 20% New 10% Existing	2	IDP-37	Innovation in Design, Exemplary Performance Office	1	IDP-37	Innovation in Design, Exemplary Performance Office
E&A-38	Optimize Energy Performance, 20% New 10% Existing	2	IDP-38	Innovation in Design, Exemplary Performance Office	1	IDP-38	Innovation in Design, Exemplary Performance Office
E&A-39	Optimize Energy Performance, 20% New 10% Existing	2	IDP-39	Innovation in Design, Exemplary Performance Office	1	IDP-39	Innovation in Design, Exemplary Performance Office
E&A-40	Optimize Energy Performance, 20% New 10% Existing	2	IDP-40	Innovation in Design, Exemplary Performance Office	1	IDP-40	Innovation in Design, Exemplary Performance Office
E&A-41	Optimize Energy Performance, 20% New 10% Existing	2	IDP-41	Innovation in Design, Exemplary Performance Office	1	IDP-41	Innovation in Design, Exemplary Performance Office
E&A-42	Optimize Energy Performance, 20% New 10% Existing	2	IDP-42	Innovation in Design, Exemplary Performance Office	1	IDP-42	Innovation in Design, Exemplary Performance Office
E&A-43	Optimize Energy Performance, 20% New 10% Existing	2	IDP-43	Innovation in Design, Exemplary Performance Office	1	IDP-43	Innovation in Design, Exemplary Performance Office
E&A-44	Optimize Energy Performance, 20% New 10% Existing	2	IDP-44	Innovation in Design, Exemplary Performance Office	1	IDP-44	Innovation in Design, Exemplary Performance Office
E&A-45	Optimize Energy Performance, 20% New 10% Existing	2	IDP-45	Innovation in Design, Exemplary Performance Office	1	IDP-45	Innovation in Design, Exemplary Performance Office
E&A-46	Optimize Energy Performance, 20% New 10% Existing	2	IDP-46	Innovation in Design, Exemplary Performance Office	1	IDP-46	Innovation in Design, Exemplary Performance Office
E&A-47	Optimize Energy Performance, 20% New 10% Existing	2	IDP-47	Innovation in Design, Exemplary Performance Office	1	IDP-47	Innovation in Design, Exemplary Performance Office
E&A-48	Optimize Energy Performance, 20% New 10% Existing	2	IDP-48	Innovation in Design, Exemplary Performance Office	1	IDP-48	Innovation in Design, Exemplary Performance Office
E&A-49	Optimize Energy Performance, 20% New 10% Existing	2	IDP-49	Innovation in Design, Exemplary Performance Office	1	IDP-49	Innovation in Design, Exemplary Performance Office
E&A-50	Optimize Energy Performance, 20% New 10% Existing	2	IDP-50	Innovation in Design, Exemplary Performance Office	1	IDP-50	Innovation in Design, Exemplary Performance Office
E&A-51	Optimize Energy Performance, 20% New 10% Existing	2	IDP-51	Innovation in Design, Exemplary Performance Office	1	IDP-51	Innovation in Design, Exemplary Performance Office
E&A-52	Optimize Energy Performance, 20% New 10% Existing	2	IDP-52	Innovation in Design, Exemplary Performance Office	1	IDP-52	Innovation in Design, Exemplary Performance Office
E&A-53	Optimize Energy Performance, 20% New 10% Existing	2	IDP-53	Innovation in Design, Exemplary Performance Office	1	IDP-53	Innovation in Design, Exemplary Performance Office
E&A-54	Optimize Energy Performance, 20% New 10% Existing	2	IDP-54	Innovation in Design, Exemplary Performance Office	1	IDP-54	Innovation in Design, Exemplary Performance Office
E&A-55	Optimize Energy Performance, 20% New 10% Existing	2	IDP-55	Innovation in Design, Exemplary Performance Office	1	IDP-55	Innovation in Design, Exemplary Performance Office
E&A-56	Optimize Energy Performance, 20% New 10% Existing	2	IDP-56	Innovation in Design, Exemplary Performance Office	1	IDP-56	Innovation in Design, Exemplary Performance Office
E&A-57	Optimize Energy Performance, 20% New 10% Existing	2	IDP-57	Innovation in Design, Exemplary Performance Office	1	IDP-57	Innovation in Design, Exemplary Performance Office
E&A-58	Optimize Energy Performance, 20% New 10% Existing	2	IDP-58	Innovation in Design, Exemplary Performance Office	1	IDP-58	Innovation in Design, Exemplary Performance Office
E&A-59	Optimize Energy Performance, 20% New 10% Existing	2	IDP-59	Innovation in Design, Exemplary Performance Office	1	IDP-59	Innovation in Design, Exemplary Performance Office
E&A-60	Optimize Energy Performance, 20% New 10% Existing	2	IDP-60	Innovation in Design, Exemplary Performance Office	1	IDP-60	Innovation in Design, Exemplary Performance Office



LEED 2009
ADVANCEMENTS TO THE RATING SYSTEM

LEED ONLINE
FASTER, SMARTER & A BETTER USER EXPERIENCE

CERTIFICATION MODEL
GBCI & CERTIFICATION BODIES

= LEED V3

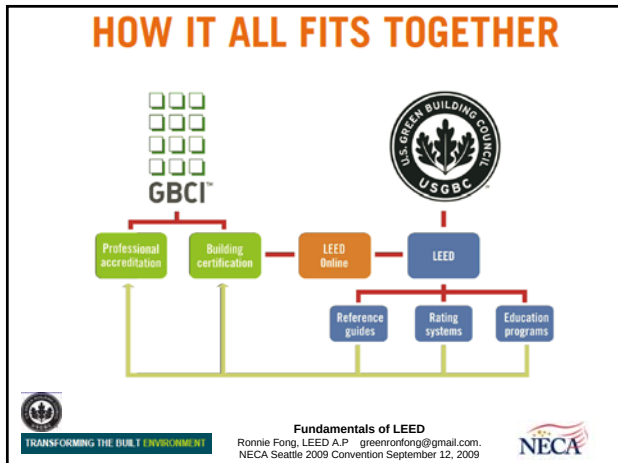
LEED CERTIFICATION AND PROFESSIONAL CREDENTIALS

Advancement of policy and LEED's technical and scientific development

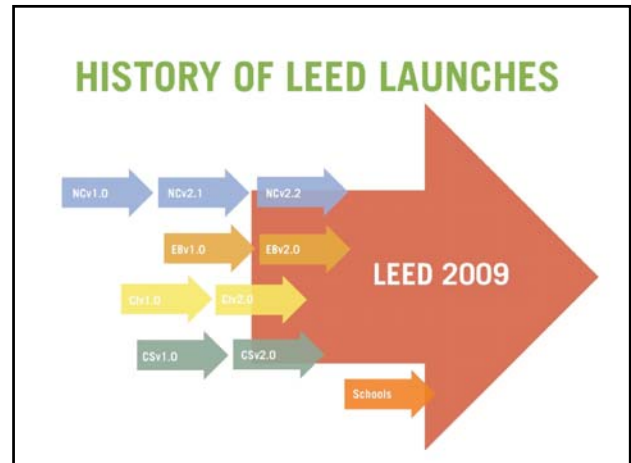
Third party verification following ISO standards, analysis, and auditing

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HOW IT ALL FITS TOGETHER



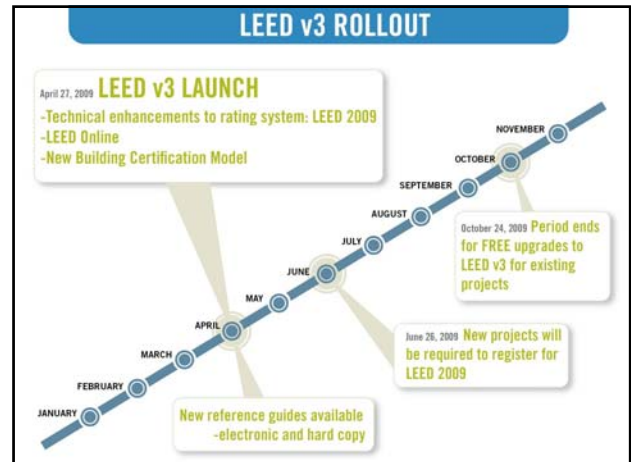
HISTORY OF LEED LAUNCHES



LEED 2009

HARMONIZATION WEIGHTINGS REGIONAL CREDITS

LEED v3 ROLLOUT



Rating System Improvements

- Predictable 2 year Development Cycle
- Bookshelf Approach
- Credit Alignment, Credit Weightings
- Regional Credits
- Life Cycle Analysis (anticipated in late 2009)
- Provide On-Going Performance Data



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LEED Online v3

- Responds to changes in 2009 rating system
- Streamlining
 - Autopopulating data
 - Clarifying template requirements
 - Engineer/ Architect sign off for selected credits
- More efficient reporting between project teams and certification bodies
- Designed to be scalable



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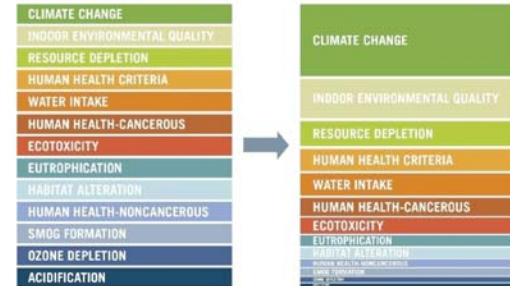


THE POINT VALUE FOR MOST CREDITS HAS CHANGED

THE CREDITS ARE INTACT

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IMPACT CATEGORIES



Credit Weightings

Points	NCv2.2	2009
SS	14	26
WE	5	10
EA	17	35
MR	13	14
EQ	15	15
Base Pts	64	100
Regional	0	4
ID	5	6
TOTAL	69	110



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Credit Weightings

LEED 2009			CI		
Certified	40	36%	Certified	21	37%
Silver	50	45%	Silver	27	47%
Gold	60	55%	Gold	32	56%
Platinum	80	73%	Platinum	42	74%
NCv2.2			CS		
Certified	26	38%	Certified	23	38%
Silver	33	48%	Silver	28	46%
Gold	39	57%	Gold	34	56%
Platinum	52	75%	Platinum	45	74%



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Regional Priority Credits

- 6 Available Credits/ 4 points
- Environmental zones established for regions
- For example California Regional Credits:
 - Water
 - Waste
 - Transit
- International Regional Credits are to be developed



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Minimum Program Requirements

- MUST COMPLY WITH APPLICABLE ENVIRONMENTAL LAWS
- MUST BE A COMPLETE, PERMANENT BUILDING OR SPACE
- MUST USE A REASONABLE SITE BOUNDARY
- MUST COMPLY WITH MINIMUM FLOOR AREA REQUIREMENTS
 - 1000 sf
- MUST COMPLY WITH MINIMUM OCCUPANCY RATES
- MUST COMMIT TO SHARING WHOLE-BUILDING ENERGY AND WATER USAGE DATA
 - 5 YEAR PERIOD
- MUST COMPLY WITH A MINIMUM BUILDING AREA TO SITE AREA RATIO
 - NO LESS THAN 2% OF GROSS LAND AREA



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LEED 2009 Bookshelf:

LEED 2009 divides all existing green building rating systems into three reference guides by design/operations programs



New Construction

- Schools
- Core and Shell

Commercial Interiors

Existing Buildings: Operation & Maintenance



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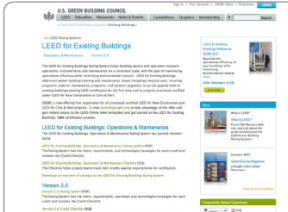
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Getting Started: Tools

- Rating systems
- Reference guide
- Project checklist
- Credit Interpretation Requests (CIRs)
- LEED Online
- Educational workshops
- Project case studies
- www.usgbc.org



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LEED NC 2.2				
LEED Category	Pre Requisite Credits	Possible Points		
W Water Efficiency (WE)	-	3	5	7%
I Innovation in Design (ID)	-	2	5	7%
M Materials & Resources (MR)	1	7	13	19%
S Sustainable Sites (SS)	1	8	14	20%
E Indoor Environmental Quality (EQ)	2	8	15	22%
E Energy & Atmosphere (EA)	3	6	17	25%
Total	7	34	69	100%

LEED NC 3.0				
LEED Category	Pre Requisite Credits	Possible Points		
R Regional Credits	-	-	4	4%
I Innovation in Design (ID)	-	3	6	5%
W Water Efficiency (WE)	1	3	10	9%
M Materials & Resources (MR)	1	7	14	13%
S Sustainable Sites (SS)	1	8	26	24%
E Indoor Environmental Quality (EQ)	3	8	15	14%
E Energy & Atmosphere (EA)	3	6	35	32%
Total	9	35	110	100%



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Key Points

- Sustainable Sites
- Site Selection
- Alternative Transportation
- Site Development
- Stormwater Management
- Heat Island Effects
- Light Pollution





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CREDIT	TITLE	NC	SCHOOLS	CS
SS Prerequisite 1	Construction Activity Pollution Prevention	Required	Required	Required
SS Prerequisite 2	Environmental Site Assessment	NA	Required	NA
SS Credit 1	Site Selection	1 point	1 point	1 point
SS Credit 2	Development Density and Community Connectivity	5 points	4 points	5 points
SS Credit 3	Brownfield Redevelopment	1 point	1 point	1 point
SS Credit 4.1	Alternative Transportation—Public Transportation Access	6 points	4 points	6 points
SS Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1 point	1 point	2 points
SS Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3 points	2 points	3 points
SS Credit 4.4	Alternative Transportation—Parking Capacity	2 points	2 points	2 points
SS Credit 5.1	Site Development—Protect or Restore Habitat	1 point	1 point	1 point
SS Credit 5.2	Site Development—Maximize Open Space	1 point	1 point	1 point
SS Credit 6.1	Stormwater Design—Quantity Control	1 point	1 point	1 point
SS Credit 6.2	Stormwater Design—Quality Control	1 point	1 point	1 point
SS Credit 7.1	Heat Island Effect—Nonroof	1 point	1 point	1 point
SS Credit 7.2	Heat Island Effect—Roof	1 point	1 point	1 point
SS Credit 8	Light Pollution Reduction	1 point	1 point	1 point
SS Credit 9	Tenant Design and Construction Guidelines	NA	NA	1 point
SS Credit 9	Site Master Plan	NA	1 point	NA
SS Credit 10	Joint Use of Facilities	NA	1 point	NA



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Credits Reference Handbook Format

Credit Intent

Credit Requirements

Discussion

1. Benefits and Issues to Consider
2. Related Credits
3. Summary of Referenced Standards
4. Implementation
5. Timeline and Team
6. Calculations
7. Documentation Guidance
8. Examples
9. Exemplary Performance
10. Regional Variations
11. Operations and Maintenance Considerations
12. Resources
13. Definitions





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Key Points

Water Efficiency

Landscaping
Wastewater Technologies
Water Use Reduction



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LEED Credits

CREDIT	TITLE	NC	SCHOOLS	CS
WE Prerequisite 1	Water Use Reduction	Required	Required	Required
WE Credit 1	Water Efficient Landscaping	2-4 points	2-4 points	2-4 points
WE Credit 2	Innovative Wastewater Technologies	2 points	2 points	2 points
WE Credit 3	Water Use Reduction	2-4 points	2-4 points	2-4 points
WE Credit 4	Process Water Use Reduction	NA	1 point	NA



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Key Points

Energy and Atmosphere

Optimize energy performance
Alternative Energy Sources
Commissioning
Refrigerant Management



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CREDIT	TITLE	NC	SCHOOLS	CS
EA Prerequisite 1	Fundamental Commissioning of Building Energy Systems	Required	Required	Required
EA Prerequisite 2	Minimum Energy Performance	Required	Required	Required
EA Prerequisite 3	Fundamental Refrigerant Management	Required	Required	Required
EA Credit 1	Optimize Energy Performance	1-19 points	1-19 points	3-21 points
EA Credit 2	On-site Renewable Energy	1-7 points	1-7 points	4 points
EA Credit 3	Enhanced Commissioning	2 points	2 points	2 points
EA Credit 4	Enhanced Refrigerant Management	2 points	1 point	2 points
EA Credit 5	Measurement and Verification	3 points	2 points	NA
EA Credit 5.1	Measurement and Verification—Base Building	NA	NA	3 points
EA Credit 5.2	Measurement and Verification—Tenant Submetering	NA	NA	3 points
EA Credit 6	Green Power	2 points	2 points	2 points



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Key Points

Materials and Resources

Building Re-use
Construction Waste Management
Materials Re-use
Recycled Content
Regional Materials
Rapidly Renewable Materials
Certified Wood



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MR OVERVIEW

CREDIT	TITLE	NC	SCHOOLS	CS
MR Prerequisite 1	Storage and Collection of Recyclables	Required	Required	Required
MR Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1-3 points	1-2 points	NA
MR Credit 1	Building Reuse—Maintain Existing Walls, Floors, and Roof	NA	NA	1-5 points
MR Credit 1.2	Building Reuse—Maintain Interior Nonstructural Elements	1 point	1 point	NA
MR Credit 2	Construction Waste Management	1-2 points	1-2 points	1-2 points
MR Credit 3	Materials Reuse	1-2 points	1-2 points	1 point
MR Credit 4	Recycled Content	1-2 points	1-2 points	1-2 points
MR Credit 5	Regional Materials	1-2 points	1-2 points	1-2 points
MR Credit 6	Rapidly Renewable Materials	1 point	1 point	NA
MR Credit 7	Certified Wood	1 point	1 point	NA
MR Credit 8	Certified Wood	NA	NA	1 point



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Key Points

Indoor Environmental Quality

Increased Ventilation
Construction IAQ
Low Emitting Materials
Controllability of Systems
Thermal Comfort
Daylight and Views



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SUMMARY

Ensuring excellent indoor environmental quality requires the joint efforts of the building owner, design team, construction, subcontractors, and suppliers. To provide optimal indoor environmental quality, automatic sensors and individual controls can be integrated with the building systems to adjust temperature, humidity, and ventilation. Sensors on mass-flow building (CFM) levels in ducts at the receiver to monitor indoor air quality can be used to adjust ventilation rates. The LEED Green Construction, Core & Shell, and Schools rating systems include daylighting and lighting quality, thermal comfort, acoustics, and indoor air quality. These areas all have the potential to enhance the indoor environment and systems for occupant space for building occupants.

IEQ OVERVIEW

CREDIT	TITLE	NC	SCHOOLS	CS
IEQ Prerequisite 1	Minimum Indoor Air Quality Performance	Required	Required	Required
IEQ Prerequisite 2	Environmental Tobacco Smoke (ETS) Control	Required	Required	Required
IEQ Prerequisite 3	Minimum Acoustical Performance	NA	Required	NA
IEQ Credit 1	Outdoor Air Delivery Monitoring	1 point	1 point	1 point
IEQ Credit 2	Increased Ventilation	1 point	1 point	1 point
IEQ Credit 3.1	Construction Indoor Air Quality Management Plan During Construction	1 point	1 point	NA
IEQ Credit 3.2	Construction Indoor Air Quality Management Plan During Construction	NA	NA	1 point
IEQ Credit 3.3	Construction Indoor Air Quality Management Plan Before Occupancy	1 point	1 point	NA
IEQ Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1 point	1 point*	1 point
IEQ Credit 4.2	Low-Emitting Materials—Paints and Coatings	1 point	1 point*	1 point
IEQ Credit 4.3	Low-Emitting Materials—Flooring Systems	1 point	1 point*	1 point
IEQ Credit 4.4	Low-Emitting Materials—Composite Wood and Agglomerate Products	1 point	1 point*	1 point
IEQ Credit 4.5	Low-Emitting Materials—Furniture and Furnishings	NA	1 point*	NA
IEQ Credit 4.6	Low-Emitting Materials—Gutting and Wall Systems	NA	1 point*	NA
IEQ Credit 5	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.1	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.2	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.3	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.4	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.5	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.6	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.7	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.8	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.9	Thermal Comfort—Design	1 point	1 point	1 point
IEQ Credit 5.10	Thermal Comfort—Design	1 point	1 point	1 point

Americans spend over 90% of their time indoors



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Innovation

Key Points

Exemplary performance
New ideas and technologies
LEED Accredited Professionals



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CREDIT	TITLE
ID Credit 1	Innovation In Design
ID Credit 2	LEED® Accredited Professional
ID Credit 3	The School as a Teaching Tool

INNOVATION IN DESIGN			
	NC	SCHOOLS	CS
Credit	ID Credit 1	ID Credit 1	ID Credit 1
Points	1-5 points	1-4 points	1-5 points

Intent

To provide design teams and projects the opportunity to achieve exceptional performance

CIR
Can be your friend

Intent
To provide design teams and project the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System.

Requirements

NC, SCHOOLS & CS

Credits can be achieved through any combination of the path below:
PATH 1. Innovation in Design (1-4 points for NC and CS, 1-4 points for Schools)
In the LEED scope for New Construction and Major Renovations, LEED scores for Green and Shell Development, or LEED scores for Green Building Systems.
One point is awarded for each innovation achieved. No more than 3 points (for NC and CS) and 4 points (for Schools) under ID1 may be earned through PATH 1—Innovation in Design.
Identify the following in writing:
• The intent of the proposed innovation credit.
• The proposed requirement for compliance.
• The proposed approach (strategy) used to meet the requirements.
PATH 2. Exemplary Performance (1-3 points)
Achieve exemplary performance in an existing LEED score for Schools, prerequisite or credit that achieves exemplary performance as specified in the LEED Reference Guide for Green Building Design & Construction, except Schools. An exemplary performance point may be earned for achieving double the credit requirements and/or achieving the same incremental percentage threshold of an existing credit. No more than 3 points under ID2 may be earned through PATH 2—Exemplary Performance.



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LEED for New Construction and Major Renovation 2009	LEED for New Construction and Major Renovation 2009
Project Scorecard	Project Scorecard
Prerequisite 1: Minimum Indoor Air Quality Performance Prerequisite 2: Environmental Tobacco Smoke (ETS) Control Prerequisite 3: Minimum Acoustical Performance Credit 1: Outdoor Air Delivery Monitoring Credit 2: Increased Ventilation Credit 3.1: Construction Indoor Air Quality Management Plan During Construction Credit 3.2: Construction Indoor Air Quality Management Plan During Construction Credit 3.3: Construction Indoor Air Quality Management Plan Before Occupancy Credit 4.1: Low-Emitting Materials—Adhesives and Sealants Credit 4.2: Low-Emitting Materials—Paints and Coatings Credit 4.3: Low-Emitting Materials—Flooring Systems Credit 4.4: Low-Emitting Materials—Composite Wood and Agglomerate Products Credit 4.5: Low-Emitting Materials—Furniture and Furnishings Credit 4.6: Low-Emitting Materials—Gutting and Wall Systems Credit 5: Thermal Comfort—Design Credit 5.1: Thermal Comfort—Design Credit 5.2: Thermal Comfort—Design Credit 5.3: Thermal Comfort—Design Credit 5.4: Thermal Comfort—Design Credit 5.5: Thermal Comfort—Design Credit 5.6: Thermal Comfort—Design Credit 5.7: Thermal Comfort—Design Credit 5.8: Thermal Comfort—Design Credit 5.9: Thermal Comfort—Design Credit 5.10: Thermal Comfort—Design	Prerequisite 1: Minimum Indoor Air Quality Performance Prerequisite 2: Environmental Tobacco Smoke (ETS) Control Prerequisite 3: Minimum Acoustical Performance Credit 1: Outdoor Air Delivery Monitoring Credit 2: Increased Ventilation Credit 3.1: Construction Indoor Air Quality Management Plan During Construction Credit 3.2: Construction Indoor Air Quality Management Plan During Construction Credit 3.3: Construction Indoor Air Quality Management Plan Before Occupancy Credit 4.1: Low-Emitting Materials—Adhesives and Sealants Credit 4.2: Low-Emitting Materials—Paints and Coatings Credit 4.3: Low-Emitting Materials—Flooring Systems Credit 4.4: Low-Emitting Materials—Composite Wood and Agglomerate Products Credit 4.5: Low-Emitting Materials—Furniture and Furnishings Credit 4.6: Low-Emitting Materials—Gutting and Wall Systems Credit 5: Thermal Comfort—Design Credit 5.1: Thermal Comfort—Design Credit 5.2: Thermal Comfort—Design Credit 5.3: Thermal Comfort—Design Credit 5.4: Thermal Comfort—Design Credit 5.5: Thermal Comfort—Design Credit 5.6: Thermal Comfort—Design Credit 5.7: Thermal Comfort—Design Credit 5.8: Thermal Comfort—Design Credit 5.9: Thermal Comfort—Design Credit 5.10: Thermal Comfort—Design

WHICH CREDITS DO ELECTRICAL CONTRACTORS NEED BE CONCERNED ABOUT?

Fundamentals of LEED
Ronnie Fong, LEED A.P. greenrnfong@gmail.com
NECA Seattle 2009 Convention September 12, 2009



Steps to LEED Certification

REGISTER YOUR PROJECT

TRACK PROGRESS & DOCUMENT ACHIEVEMENT

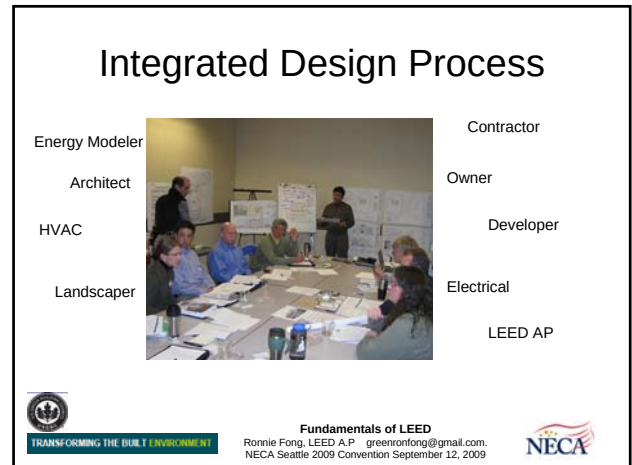
APPLY FOR CERTIFICATION



TRANSFORMING THE BUILT ENVIRONMENT

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Process Overview

Is LEED right for you? → Registration → Prepare Application → Submit Application → Application Review → Certification

LEED certification provides independent, third-party verification that a building project meets the highest green building and performance measures. Sustainable building strategies should be considered early in the development cycle. An integrated project team will include the major stakeholders of the project such as the developer/owner, architect, engineer, landscape architect, contractor, and asset and program management staff. Implementing an integrated, system-oriented approach to green project design, development and operations can yield synergies and improve the overall performance of a building. Initial LEED assessment will bring the project team together to evaluate and articulate the project's goals and the certification level sought. Project teams can utilize the resources listed below, such as the project checklists, to identify individual measures within the rating system that are definitely, or potentially, achievable.

Resources Available

- FAQs
- LEED Rating Systems
- LEED FAQs
- Registration and certification
 - Registration
 - Certification
- LEED Projects

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Process Overview

Is LEED right for you? → Registration → Prepare Application → Submit Application → Application Review → Certification

After determining the LEED is right for a project, the next step is to register the project. Registration serves as a declaration of intent to certify a building under the LEED rating system. Registration comes with a variety of tools and resources necessary to apply for LEED certification. Registered and certified projects are also listed in the online LEED project database.

Once the rating system has been determined and the appropriate registration fee has been paid, the project will be immediately accessible in **LEED Online**. From here the project team is assembled and the documentation process begins.

Register Now for LEED 2009

Resources Available

- Rating System Selector
- Registered project tools page
- Certification information and policies

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LEED Project Registration and Certification Fees

Please note that special rates apply to current USGBC member organizations. If you cannot locate your company's corporate ID, contact USGBC.

Registration Fees

Registration is a flat fee paid up front at the time of registration. The rates are as follows:

- USGBC Members: \$400
- Non-Members: \$600

If paying by check, please allow approximately 10 business days for processing.

GBCI offers free registration for LEED for Existing Buildings: Operations & Maintenance for projects certified under LEED for New Construction, LEED for Schools, and LEED for Core & Shell prior to January 1, 2010. Contact GBCI's project certification staff to take advantage of this offer and get started on the LEED for EB: O&M certification process.

Please note that all fees are subject to change. No refunds are available.

Process Overview Information and Policies

- Registration and Certification Fees
- Terms and Conditions for LEED Online
- Policy Manual
- Minimum Program Requirements
- LEED Programs Under Development
- LEED Rating Systems
- Certification Bodies

Register a Project
LEED Online

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NEW AT GBCI

- LEED PROJECT CERTIFICATION
GBCI now administers project certification
- LEED ONLINE v3
Faster, smarter, & a better user experience
- LEED PROFESSIONAL CREDENTIALS
GBCI introduces credentialing levels and specialties

Help write the new LEED Reference Manual
GBCI is currently recruiting volunteer Subject Matter Experts to help write and review the new LEED Reference Manual. Learn more at [greenbuilding.org](#).

Looking for your LEED Professional login?
All LEED Professional logins are now available for download through My Credentials. Log in now.

LEED AP ID+C and LEED AP BD+C
The LEED AP Interior Design + Construction and LEED AP Building Design + Construction exams will be available on September 15, 2009. Applications for these exams are now open.

LEED NC 2.0 Sunset Date
All registered LEED NC 2.0 projects must have submitted for certification, or registered (for threat) for a more recent version of LEED, by December 31, 2009. Learn more.

GBCI launches the Credentialing Maintenance Program
GBCI has launched the Credentialing Maintenance Program (CMP). LEED APs (and specialty credential holders) during their enrollment window. Learn more at [mycredentials.gbc.org](#).

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LEED ONLINE

Welcome to LEED Online

Log in here

Email Address:
 Password:
☐ Remember me

[Forgot Password?](#)

LEED Online is the primary resource with which project teams with registered projects can manage the LEED certification process. Using LEED Online you can:

- Submit documentation to USGBC for review
- Document compliance with LEED Credit Requirements
- Coordinate resources among project team members
- Manage public facing project details
- Submit technical inquiries regarding LEED Credits
- Track progress towards LEED Certification

If you do not have a USGBC / GBCI site user account click here to [Register a New Account](#)

Get Started

- How to register a project
- How to upgrade from v2
- LEED Online v2

What's New

- LEED Online v3
- New Certification Model
- LEED 2009

Coming Soon

- LEED Credit Forms
- System Improvements

Learn More

- Green Building Certification Institute
- U.S. Green Building Council

System Requirements

- Browser Requirements
- Adobe Requirements

Learn More About LEED Rating Systems

LEED for New Construction | LEED for Existing Buildings | LEED for Commercial Interiors | LEED for Core and Shell | LEED for Homes | LEED for Neighborhood Development

[Learn more >](#) [Learn more >](#) [Learn more >](#) [Learn more >](#) [Learn more >](#) [Learn more >](#)

LEED Online v3 demo

Watch the LEED Online v3 demo

Attention Safari and Firefox Users!
 LEED Online v3 currently does not support Safari and Firefox as browser platforms. We are working towards building the support for these environments and plan to roll it out in early September. Please continue to watch this space for updates. We apologize for the inconvenience.

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LEED ONLINE

Welcome to LEED-Online

The login below is designed to allow Project Administrators and Team Members access to the LEED-Online.

- If you are a Project Administrator, please login below to manage the entire Project Certification process.
- If you are a Project Team member, please be sure your Project Administrator has assigned you to your project, then login below to manage credits which are assigned to you.
- For information on the LEED certification process [click here](#).
- For sample LEED letter templates [click here](#).

LOGIN
 LEED-Online uses the same login as the GBCI Web site. If you experience problems logging in, you may contact us by phone at 1-800-795-1744 or email: help@leedonline.com

Email Address:
 Password:

DON'T HAVE AN ACCOUNT?
 Register a new account with USGBC.
 A GBCI Web Site username and password is required to access LEED-Online. Additionally, your Project Administrator must add you to a valid LEED Project.

LEARN MORE ABOUT LEED RATING SYSTEMS

LEED for New Construction | LEED for Existing Buildings | LEED for Commercial Interiors | LEED for Core and Shell | LEED for Homes | LEED for Neighborhood Development

[Learn more >](#) [Learn more >](#) [Learn more >](#) [Learn more >](#) [Learn more >](#) [Learn more >](#)

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PROJECT SELECTOR

You have 8 new Notifications

YOUR PROJECTS
 Click "Enter" below to be directed into LEED Online for the designated project. Note: Only projects you are tied to via the Project Access code will appear below.

Name	Project Administrator	City	State	Your Role	Current Status	Manage Access	Action
FREMONT FIRE STATION # 2 (NILES)	Elizabeth Dumey	FREMONT	CA	Project Team Member	Design Application	Remove	Enter
FREMONT FIRE STATION #6 (CENTERVILLE)	Elizabeth Dumey	FREMONT	CA	Project Team Member	Certification	Remove	Enter
Northgate Senior / Community Center	Ronnie Fong	Fremont	CA	Project Team Member	Registration	Remove	Enter
Northgate Senior / Community Center	Ronnie Fong	Fremont	CA	Project Team Member	Registration	Remove	Enter
USGBC-NCC Learning Tool	Ashleigh Talberth	San Francisco	CA	Project Team Member	Design Application	Remove	Enter

ADD PROJECT
 To add a new project to the project access list, enter the appropriate access code below and click "Add Project".

Access Code:

Please be patient while we process your request. This may take up to three minutes. DO NOT close your browser or hit the "back" button.

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Northgate Senior / Community Center	Ronnie Fong	Fremont	CA	Project Team Member	Registration	Remove	Enter
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USGBC-NCC Learning Tool	Ashleigh Talberth	San Francisco	CA	Project Team Member	Design Application	Remove	Enter

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Process Overview

Is LEED right for you? → Registration → **Prepare Application** → Submit Application → Application Review → Certification

Each LEED credit and prerequisite has a unique set of documentation requirements that must be completed as a part of the application process. While preparing the application, the project team selects the credits it has chosen to pursue and assigns the credits to the responsible team members. The project team should begin to collect information and perform calculations for all prerequisites and the credits it has chosen to pursue. When the necessary documentation has been assembled, the project team will upload the materials to LEED Online and start the application review process.

Before submitting the application, the project team is advised to double check each credit to ensure that project details have been entered accurately and consistently. This will help streamline the review process.

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WELCOME RONNIE
 FREMONT FIRE STATION # 2 (NILES) (LEED No. 2-2)

SCORECARD

DESIGN APPLICATION

MY ACTION ITEMS
 Displays the next steps for the project. Depending on your project role, the project status and number of points anticipated or awarded, different action items will appear.

POTENTIAL LEED RATING
 Displays LEED level which is based on number of points attempted.

You have 8 new Notifications

ATTEMPTED CREDIT SUMMARY
 Displays attempted points for the project by status.

Status	Design	Construction	Total
Not Attempted	23	12	35
Total Attempted:	23	12	35

CREDIT SCORECARD
 Displays all credits and points per LEED sections. Depending on project access, one can attach team members, view attempted credits or click credits to display templates.

Points Documented

Points Available: 6/9

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CREDIT SCORECARD
Displays all credits and points per LEED section. Depending on project access, one can attach team members, view attempted credits or click credits to further investigate.

Expand All Credit Categories

Legend: ✔ Marked Complete ✘ Not Marked Complete ? Needs Attention □ Credit Assigned to You

#	Points Documented	Prerequisite	Credit	Category	Responsible	Status	Points Available	Score
0	0	Prerequisite 1	Minimum LEED Performance	ME	Contractor	Attempted	10	0
15	15	Credit 1	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 2	Innovative Wastewater Technologies	ME	Owner	Attempted	1	15
15	15	Credit 3	Water Use Reduction	ME	Owner	Attempted	1	15
15	15	Credit 4	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 5	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 6	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 7	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 8	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 9	Water Efficient Landscaping	ME	Owner	Attempted	1	15

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15	15	Credit 3	Water Use Reduction	ME	Owner	Attempted	1	15
15	15	Credit 4	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 5	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 6	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 7	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 8	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 9	Water Efficient Landscaping	ME	Owner	Attempted	1	15

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15	15	Credit 5	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 6	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 7	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 8	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 9	Water Efficient Landscaping	ME	Owner	Attempted	1	15

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15	15	Credit 5	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 6	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 7	Water Efficient Landscaping	ME	Owner	Attempted	1	15
15	15	Credit 8	Water Efficient Landscaping	ME	Owner	Attempted	1	15
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Process Overview

```

graph LR
    A[Is LEED right for you?] --> B[Registration]
    B --> C[Prepare Application]
    C --> D[Submit Application]
    D --> E[Application Review]
    E --> F[Certification]
  
```

Only the LEED Project Administrator is eligible to submit an application for review. To initiate the review process, a complete application must be submitted via LEED Online. Requirements for a complete application vary according to the review path, but will always include payment of the appropriate certification review fee. Prior to certification, all project teams are required to submit completed documentation requirements for all prerequisites and at least the minimum number of credits required to achieve certification, as well as completed general project information forms. Applications must be received in accordance with GBCI's established [Rating System Submit Dates](#). All components of an application for certification are completed via LEED Online.

Review Path Options:

There are multiple application review paths. LEED Online automatically determines which review paths are available for a given application based on both the LEED Rating System under which the project is registered and the level of completeness of the application. Application requirements vary for each LEED Rating System and review path:

Select a rating system to learn more:

- LEED for New Construction
- LEED for Schools
- LEED for Core and Shell
- LEED for Commercial Interiors
- LEED for Existing Buildings: Operations & Maintenance

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WELCOME RONNIE
FREMONT FIRE STATION # 2 (NILES) (LEED NC 2.2)

LEED Rating System Credit Scorecard & Status Project Summary Team Matrix Documents CR Detail Help Project Index for Sign Out

ENERGY & ATMOSPHERE: OPTIMIZE ENERGY PERFORMANCE (CREDIT 1) **DESIGN APPLICATION**

Registration Design Application Design Review Design Approval Design Documentation Design Verification Design Approval Design Verification

Your Assigned Credits

- Sustainable Sites -----
 - C1: Site Selection
 - C2: Development Density & Community Connectivity
 - C3: Brownfield Redevelopment
 - C4.1: Alternative Transportation: Public Transportation
 - C4.2: Alternative Transportation: Parking Capacity
- Energy & Atmosphere -----
 - C5: Green Power
 - C6: Indoor Environmental Quality
 - P2: Environmental Tobacco Smoke (ETS) Control
 - C7.1: Thermal Comfort: Verification
 - Innovation & Design Process -----
 - C1.1: Innovation in Design

CREDIT TEMPLATE
Displays information on credit template status and documents uploaded. Only the team member associated with credit can upload information.

Template Status: Last Updated on 8/24/2009

Manage Template: **DOWNLOAD TEMPLATE** (P) **See Author Reader**

Note: LEED-Online requires Acrobat Reader or Professional 7.0.9 or newer. To allow any Template Download, pop-up blockers must be turned off for the LEED-Online web site. [Click here](#) for instructions on how to turn off pop-up blockers.

Required Documents:

Document Name	Uploaded Documents
Other Documentation (Document Name)	
NEPS standard.pdf	Uploaded on Monday, August 24, 2009
NEPS standard.pdf	Uploaded on Monday, August 24, 2009
NEPS 1.pdf	Uploaded on Monday, August 24, 2009
NEPS 2.pdf	Uploaded on Monday, August 24, 2009
NEPS 3.pdf	Uploaded on Monday, August 24, 2009

Note: LEED-Online accepts the following file types: PDF, JPG, JPEG, GIF, TIF, BMP, PNG, DWG, DWF, DSC, DOC, TXT, ZIP

Documentation Status: Complete

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LEED Rating System Credit Scorecard & Status Project Summary Team Matrix Documents CR Detail Help Project Index for Sign Out

ENERGY & ATMOSPHERE: MINIMUM ENERGY PERFORMANCE (PREREQUISITE 2) **DESIGN APPLICATION**

Registration Design Application Design Review Design Approval Design Documentation Design Verification Design Approval Design Verification

Your Assigned Credits

- Sustainable Sites -----
 - C1: Site Selection
 - C2: Development Density & Community Connectivity
 - C3: Brownfield Redevelopment
 - C4.1: Alternative Transportation: Public Transportation
 - C4.2: Alternative Transportation: Parking Capacity
- Energy & Atmosphere -----
 - C5: Green Power
 - C6: Indoor Environmental Quality
 - P2: Environmental Tobacco Smoke (ETS) Control
 - C7.1: Thermal Comfort: Verification
 - Innovation & Design Process -----
 - C1.1: Innovation in Design

CREDIT COMPLIANCE
The project meets the minimum energy efficiency requirements.

The project meets all the mandatory provisions (Sections 1.6, 5.4, 7.4, 8.4, 9.4, and 10.4) of ASHRAE/IESNA Standard 90.1-2003 (without amendments).

--AND--

Select the appropriate compliance path:

- E1--
The prescriptive requirements (Sections 6.5, 6.6, 7.5, and 9.5) of ASHRAE 90.1-2003 (without amendments)
- E2--
The performance requirements (Section 11.1) of ASHRAE/IESNA Standard 90.1-2003 (without amendments)
- E3--
The project has used a computer simulation model to document improved building energy performance under E3 Credit 1

NARRATIVE (Optional)
Please provide any additional comments or notes regarding special circumstances or considerations regarding the project's credit approach.

The project is seeking points for this credit using an alternate compliance approach. The compliance approach, including references to any applicable Credit Interpretation Rulings is fully documented in the narrative above.

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WELCOME RONNIE
FREMONT FIRE STATION # 2 (NILES) (LEED NC 2.2)

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Registration Design Application Design Review Design Approval Design Documentation Design Verification Design Approval Design Verification

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Process Overview

Is LEED right for you? → Registration → Prepare Application → Submit Application → Application Review → Certification

Upon receipt of a completed application for certification, a formal application review will be initiated. The application review process differs slightly for each LEED Rating System and review path. Select a rating system to learn more:

LEED for New Construction LEED for Schools LEED for Core and Shell LEED for Commercial Interiors LEED for Existing Buildings: Operations & Maintenance

Split EIR Review
Combined EIR Review
Appeal Review

Split Design & Construction Review

The Split Design & Construction Review path is available to projects registered for certification under any LEED Design & Construction Rating System. A Split Design & Construction Review occurs in up to four (4) phases:

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LEED Online

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- Non-Members: \$600

If paying by check, please allow approximately 10 business days for processing.

GBCI offers free registration for LEED for Existing Buildings: Operations & Maintenance for projects certified under LEED for New Construction, LEED for Schools, and LEED for Core & Shell prior to January 1, 2010. Contact GBCI's project certification staff to take advantage of this offer and get started on the LEED for EB: O&M certification process.

Please note that all fees are subject to change. No refunds are available.

Project Certification

Important Dates:

Event	Date
Search LEED-Online	8/27/09
Get the fee to register for pre-LEED 2009	10/26/09
Get the fee to upgrade to LEED 2009	11/23/09
Certification Fee Increase	11/1/10

Current Rates Effective Through December 31, 2009

LEED 2009: New Construction, Core and Shell, Schools, Data & Shell Full Certification	Low Rise (Less Than 100,000 Square Feet)	Mid Rise (100,000 - 500,000 Square Feet)	High Rise (More Than 500,000 Square Feet)	Amount of Registration Fee
Design Review				
USGBC Member	\$1,200	\$2,000	\$3,000	\$500
Non-Member	\$1,800	\$2,800	\$3,800	\$700
Expedited Fee*	(\$5,000 regardless of square footage)			
Combined Fee Review				
USGBC Member	\$800	\$1,400	\$2,000	\$700
Non-Member	\$1,200	\$2,200	\$2,800	\$900
Expedited Fee*	(\$5,000 regardless of square footage)			
Combined Design & Construction Review				
USGBC Member	\$1,200	\$2,000	\$3,000	\$500
Non-Member	\$1,800	\$2,800	\$3,800	\$700
Expedited Fee*	(\$5,000 regardless of square footage)			
LEED for Existing Buildings: Operations & Maintenance	Low Rise (Less Than 100,000 Square Feet)	Mid Rise (100,000 - 500,000 Square Feet)	High Rise (More Than 500,000 Square Feet)	Amount of Registration Fee
Design Review				
USGBC Member	\$1,200	\$2,000	\$3,000	\$500
Non-Member	\$1,800	\$2,800	\$3,800	\$700
Expedited Fee*	(\$5,000 regardless of square footage)			
Combined Fee Review				
USGBC Member	\$800	\$1,400	\$2,000	\$700
Non-Member	\$1,200	\$2,200	\$2,800	\$900
Expedited Fee*	(\$5,000 regardless of square footage)			

*Expedited Fee is available for projects registered for certification under LEED for Existing Buildings: Operations & Maintenance only. Special rates are available for multiple-building projects. Please contact GBCI to obtain a quote prior to submitting an application for certification.

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Project Certification Rates: Effective January 1, 2010

	Less than 50,000 Square Feet	50,000-500,000 Square Feet	More than 500,000 Square Feet	Approx. 10% of applicable
LEED 2009: New Construction, Commercial Interiors, Schools, Case & Shell full certification				
Design Review				
USGBC Members	\$2,000	\$8,000	\$20,000	\$500
Non-Members	\$2,700	\$8,000	\$20,000	\$500
Expedited Fee*	\$5,000 regardless of square footage			
Construction Review				
USGBC Members	\$200	\$8,000	\$20,000	\$500
Non-Members	\$270	\$8,000	\$20,000	\$500
Expedited Fee*	\$5,000 regardless of square footage			
Combined Design & Construction Review				
USGBC Members	\$2,200	\$8,000	\$20,000	\$500
Non-Members	\$2,900	\$8,000	\$20,000	\$500
Expedited Fee*	\$10,000 regardless of square footage			
LEED for Existing Buildings				
	Fixed Rate	Based on Square Footage	Fixed Rate	Per credit
Initial Certification Review				
USGBC Members	\$1,500	\$8,000	\$15,000	\$500
Non-Members	\$2,000	\$8,000	\$15,000	\$500
Expedited Fee*	\$10,000 regardless of square footage			
Recertification Review**				
USGBC Members	\$700	\$8,000	\$15,000	\$500
Non-Members	\$1,000	\$8,000	\$15,000	\$500
Expedited Fee*	\$10,000 regardless of square footage			
LEED for Core & Shell Certification				
USGBC Members	\$3,700			\$500
Non-Members	\$4,200			\$500
Expedited Fee*	\$15,000			\$500
(We use all Rating Systems)				\$200

*In addition to regular review fee. View more information on the Expedited Review.
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Home / LEED / Project Certification / Credit Interpretation Requests /

Project Certification

Credit Interpretation Requests (CIR) and Rulings

LEED prerequisites and credits are not always easily applied to all projects. If your project team encounters questions when applying certain credits, by the following:

- Search the Credit Interpretation Rulings below to see if your question has been answered previously.
- Submit a new CIR based on the CIR and ruling process guidelines for a cost of \$220.

FIND AN EXISTING CIR | SUBMIT A NEW CIR

LEED Rating System: **LEED NC v2.0 and v2.1**

Search Credit Interpretations

Rulings From: to

Credit Name Contains:

Question Contains:

Answer Contains:

-OR-

Browse Credit Interpretations

Step 1: Choose Category

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation & Design Process

Browse Credit Interpretations

Step 1: Choose Category

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation & Design Process
- Administrative inquiries

Step 2: Select a Credit

EAp10	Prereq 1	Fundamental Building Systems Commissioning
EAp20	Prereq 2	Minimum Energy Performance
EAp30	Prereq 3	CFC Reduction in HVAC/R Equipment
EAc11	Credit 1.1	Optimize Energy Performance, 20% New / 10% Existing
EAc12	Credit 1.2	Optimize Energy Performance, 30% New / 20% Existing
EAc13	Credit 1.3	Optimize Energy Performance, 40% New / 30% Existing
EAc14	Credit 1.4	Optimize Energy Performance, 50% New / 40% Existing
EAc15	Credit 1.5	Optimize Energy Performance, 60% New / 50% Existing
EAc21	Credit 2.1	Renewable Energy, 5%
EAc22	Credit 2.2	Renewable Energy, 10%
EAc23	Credit 2.3	Renewable Energy, 20%
EAc30	Credit 3	Additional Commissioning
EAc40	Credit 4	Ozone Depletion
EAc50	Credit 5	Measurement & Verification
EAc60	Credit 6	Green Power

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2-4-2004 -

Credit Interpretation Request

We have used the LEED® Energy Modeling Protocol, including a central plant model and applicable time-of-use utility rates, to determine the percent energy cost savings achieved by our proposed building with reference to the budget (reference) case. Our local energy standard is California Title 24-2001. We calculate 55% energy cost savings, which would appear to qualify for the maximum 10 EAI credits per Amendment #LEED 2.0-EAI-133.

Our proposed building and plant emphasizes design features that provide efficiency during periods of summer peak electricity demand (e.g. lighting systems, cooling systems). These periods have the highest electricity costs under the applicable time-of-use rate schedule. Our proposed plant includes chilled water thermal energy storage which shifts electricity used for cooling to off-peak periods with lower electricity costs. Thus, the time-dependent value of the electricity accounts for a significant portion of the energy cost difference between the budget (reference) and proposed cases. The corresponding calculation for source energy savings performed for the California 65-saving-by-Design utility incentive program indicates a 37% savings from California Title 24-2001 for the proposed building.

The time-dependent energy cost savings is a proxy for substantial environmental benefits which are captured off of the proposed building site. There is reduced need for expansion of power plant and electric transmission facilities. Use of environmentally undesirable power plants (including both old plants or peaking plants) is also avoided with further reduction in emissions and further reduction in use of energy resources. Transition to renewable resources may also be facilitated by minimizing peak power demand.

Please note that the DRAFT 2005 revision to California Title 24 (currently close to adoption by the State of California) includes the use of time-dependent electricity valuation as the basis for savings calculations. This implies that future Title 24-based calculations will inherently recognize the value of the energy cost based calculation for proposed buildings like ours.

The environmental benefits associated with the time-dependent energy cost savings for our proposed building appear to meet both the letter and the spirit of the credit intent. We would like to confirm that our use of the protocol and our high credit count will be considered valid if some of the savings are derived from the time-dependent energy cost savings.

3-4-2004 -

Ruling

The LEED Energy Modeling Protocol requires that both budget and design energy simulations use the same energy rate schedule (see LEED v2.1 Reference Guide, page 143). Both the proposed and budget buildings will need to use the same time-of-use rate. Applying this rate to the budget building systems will result in any off-peak usage being calculated at the off-peak rate.

A previous CIR (EAc1.1 6/27/01) indicates that ice storage may be eligible for an innovation credit. The same ruling could be applied to chilled water storage. The actual environmental benefits of thermal storage systems are dependent upon numerous factors. Any attempt to demonstrate the environmental benefits must be comprehensive and quantifiable.

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Process Overview

Is LEED right for you? → Registration → Prepare Application → Submit Application → Application Review → Certification

Certification is the final step in the LEED review process. Once the final application review is complete, the project team can either accept or appeal the final decision. LEED certified projects:

- Will receive a formal certificate of recognition
- Will receive information on how to order plaque and certificates, photo submissions, and marketing
- May be included (at the owner's discretion) in an online directory of registered and certified projects
- May be included (along with photos and other documentation) in the US Department of Energy High Performance Buildings Database

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RENNETT FIRE STATION #6 (CENTREVILLE) LEED NC v2.1

WELCOME RONNIE

LEED Admin Home Credit Sources & Status Project Summary Team Roster Documents CW Portal Help Project Tools for Sign On

SCORECARD

Registration: | Initial Application: | Review: | Final Review: | Preparation: | Submission: | Review: | Approval:

NEW ACTION ITEMS

Displays the next steps for the project. Depending on your project role, the project status and number of points anticipated or awarded, different action items will appear.

LEED RATING

Displays LEED level which is based on number of points awarded.

CUSTOMER SATISFACTION SURVEY

You have 8 new notifications

ATTEMPTED CREDIT SUMMARY

Displays attempted points for the project by status.

Status	Points	
	Design	Construction
Attempted	18	12
Total Attempted	30	30

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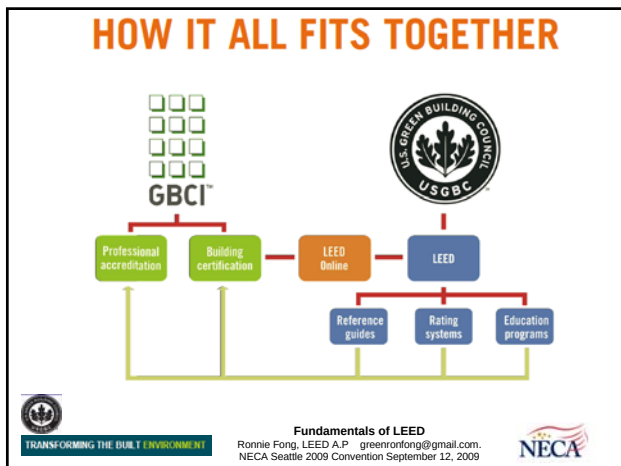
LEED CERTIFICATION AND PROFESSIONAL CREDENTIALS



Advancement of policy
and LEED's technical and
scientific development



Third party verification
following ISO standards,
analysis, and auditing



Certified or Accredited Professionals?



Accredited



Certified

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LEED Accreditation

Purpose of the LEED AP Exam?

- ✦ To ensure that a successful candidate has knowledge and skills necessary to participate in the design process, to support and encourage in integrated design, and to streamline the application and certification process
- ✦ To test understanding of green building practices and principles, and familiarity with LEED requirements, resources and processes

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LEED Accreditation

What are some of the capabilities demonstrated by passing the LEED AP Exam?

- Explain LEED credit intents, requirements, technologies, and strategies for a majority of LEED credits.
- Manage the integration of multiple design disciplines to achieve LEED certification.
- Describe the salient characteristics of most LEED Reference Standards.
- Identify credit synergies for integrated design to support LEED certification.
- Verify that credit documentation meets LEED requirements.
- Manage completion of the LEED Letter Templates.
- Identify the conditions under which the LEED prerequisites are met.
- Determine the number of Optimize Energy Performance points achieved by reviewing energy model results.
- Explain the life cycle cost benefits of a LEED project.

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LEED Accreditation



LEED AP Exam intended Audience?

- ‡ Architects
- ‡ Engineers
 - ‡ Electrical
 - ‡ Mechanical
 - ‡ Civil
- ‡ Interior Designers
- ‡ Facility Managers
- ‡ Green Building Consultants
- ‡ Product Manufacturer Reps
- ‡ Specifiers
- ‡ Educators
- ‡ Planners
- ‡ Building Officials / Inspectors

Commissioning
Authorities
Landscape Architects
Building Owners
Government Officials
Developers
Construction
Managers
Contractors
Electrical
Mechanical
Landscaping
Demolition
General
Etc.



TRANSFORMING THE BUILT ENVIRONMENT

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LEED Accreditation



Advantages of Accreditation?

- ‡ Marketable Instant Name Recognition
- ‡ Work / Job Opportunities
- ‡ Strengthen Qualifications in Proposals
- ‡ Standout from others in the green economy
- ‡ Know how to Save \$\$\$ and Environment
- ‡ Listed in the USGBC Online LEED AP Directory
- ‡ Earn an Innovation in Design Point
- ‡ Promote the USGBC's mission



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LEED Accreditation

People are Accredited,
Buildings are Certified



What are the Flavors?

- ‡ Green Associate
- ‡ LEED Accredited Professional with Speciality
- ‡ LEED Accredited Professional Fellow
- ‡ LEED Accredited Professional without Speciality



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Remember: www.gbci.org

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LEED Accreditation

—LEED Green Associate



For professionals who want to demonstrate green building expertise in non-technical fields of practice, GBCI has created the LEED Green Associate credential, which denotes basic knowledge of green design, construction, and operations.



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LEED Accreditation



‡ LEED Green Associate

‡ Eligibility

- ‡ Be involved in the industry by one of three paths (audited)
 - ‡ Demonstrate involvement in LEED project
 - ‡ Be employed in a sustainable Field of Work
 - ‡ Engaged in an education program in green building
- ‡ Agree to Disciplinary Policy and Credentialing Requirements



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Fundamentals of LEED

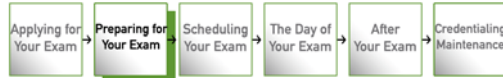
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LEED Accreditation

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Exam References • Exam Specifications • Sample Questions
Exam Format • Computer-Based Testing • Exam Timing
Exam Scoring • Exam Item Development

	USGBC national members and full-time students	All others
Application fee	\$50	
Exam fee (per exam appointment)	\$150	\$200
Biennial CRP renewal fee	\$50	

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Publication Pricing

Please note: USGBC does not authorize any refunds or exchanges on Reference Guide Publications.

Pricing for LEED Publications	Purchased with Instructor-led Workshop	Full-time employees of USGBC national member organization	Non-Member
LEED Reference Guide - Hard Copy	\$125 with purchase of full-day corresponding workshop	\$150	\$185
LEED Reference Guide - E-book	\$115 with purchase of full-day corresponding workshop	\$140	\$175
LEED for Homes Reference Guide (Hard Copy only)	\$75	\$100	\$125
Green Building and LEED Core Concepts, First Edition (E-book only)	Free with purchase of the Core Concepts and Strategies Workshop	\$35	\$35
Green Office Guide: Integrating LEED into Your Leasing Process (Hard Copy only)	N/A	\$40	\$55

Costs do not include shipping and handling costs.

Bulk Pricing:

Bulk order discounts are available to full-time employees of USGBC national member organizations. Please search

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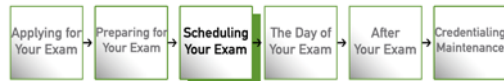


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Registering for an Exam • Exam Fees • Exam Scheduling
Confirm, Cancel, or Reschedule Exam Appointment
Failing to Appear for a Scheduled Exam
Inclement Weather and Other Emergencies

KEY POINT:

Your name on your government issued ID must match your name used to register.

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LEED Accreditation

LEED Green Associate

Exam:

- 2 hour 100 question computer based test
- core knowledge of LEED
- Instant Pass/Fail Result
- ProMetrics
- Nothing goes into the Exam Room
- Photo ID
- Single Piece of Paper and a Single #2 Pencil
- Double Negatives
- Tricky Questions
- A time check every 30 minutes
- Expect questions pertaining to:
 - Commissioning
 - Exemplary Performance
 - Energy
 - Heavy in one Category
 - Story Problems w/ Multiple Answers
 - ALWAYS choose the BEST answer not necessarily the RIGHT answer
 - Answer everything, no penalty for wrong answers
 - Statistically the right answer is "B" or was it "C"?
 - Math - No Calculators



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LEED Accreditation

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Exam:

1: What Carpet and Rug Institute (CRI) program sets standards for low-emitting carpets, adhesives, and pads?

- A. Green Seal
- B. Green Guard
- C. Green-e Certified
- D. Green Label Plus

This question aligns itself with:

- I. Synergistic Opportunities and LEED Application
- Process
- D. Standards that support LEED credit



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LEED Accreditation

LEED Green Associate

Exam:

5: A general contractor (GC) attempts a credit in Local or Regional Materials and discovers that the specified product has only a portion of the material manufactured within the required radius. What should the GC do?

- A. Not list the product
- B. Not use the product
- C. List the entire product
- D. List only the portion within the required radius
- D. List only the portion within the required radius
- This question aligns itself with: Acquisition, Installation, and Management of Project Materials
- B. Locally (regionally) harvested and manufactured materials



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LEED Accreditation

LEED AP BD+C Exam Questions:

1: A former landfill site is under consideration for a new low-cost housing development. For Sustainable Sites Credit, Brownfield Development, which remediation strategies are appropriate? (Choose three.)

- A. Solar detoxification
- B. Cap contaminants in place
- C. Treating contaminants on-site
- D. Hauling contaminated soil off-site
- E. Employing "Pump and Treat" method



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Fundamentals of LEED

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LEED Accreditation

LEED AP BD+C Exam Questions:

2. A building has 100 occupants. Calculate the baseline potable water usage for sewage conveyance for Water Efficiency, Innovative Wastewater Technologies.

- A. 96,400 gallons (364,913 liters)
- B. 100,000 gallons (378,541 liters)
- C. 109,200 gallons (413,366 liters)
- D. 140,300 gallons (531,093 liters)

Water Closets

Male	1 use / day x 1.6 gpf x 50 people =	80 gpd
Female	3 use / day x 1.6 gpf x 50 people =	240 gpd
Urinals		
Male	2 use / day x 1.0 gpf x 50 people =	100 gpd
Female	0 use / day x 1.0 gpf x 50 people =	0 gpd
Total		420 gpd
		x260 days/year
Total		109,200 gallons



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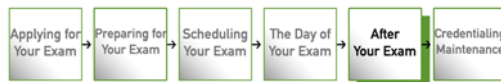
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Passing the Exam • Failing the Exam • Retaking the Exam
Certificates • Exam Content Appeals • Candidate Confidentiality

For more information see the After Your Exam FAQs, the LEED Green Associate FAQs, the LEED AP FAQs, and the glossary.



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LEED Green Associate

Credentialing Requirements

- ✦ 15 Hours of Continuing Education every 2 years, with 3 hours obtained from an approved program specific to the LEED rating system
- ✦ Self Report to GBCI starting Nov 1, 2009



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Fundamentals of LEED

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LEED Accreditation

LEED Green Associate Summary

- ✦ **Exam:**
 - ✦ 2 hour 100 question computer based test
 - ✦ core knowledge of LEED
 - ✦ Instant Pass/Fail Result
 - ✦ Three attempts in one year max
- ✦ **Eligibility**
 - ✦ Be involved in the industry by one of three paths (audited)
 - ✦ Demonstrate involvement in LEED project
 - ✦ Be employed in a sustainable Field of Work
 - ✦ Engaged in an education program in green building
 - ✦ Agree to Disciplinary Policy
- ✦ **Credentialing Requirements**
 - ✦ 15 Hours of Continuing Education every 2 years, with 3 hours obtained from an approved program specific to the LEED rating system



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Fundamentals of LEED

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LEED Accreditation

LEED Accredited Professional with Specialty



The LEED AP credential is for professionals with an advanced depth of knowledge in green building practices; it also will reflect the ability to specialize in a particular LEED Rating System. The LEED AP exam is divided into two parts. The first part is the LEED Green Associate exam, which demonstrates general knowledge of green building practices. The second part is a specialty exam based on one of the LEED Rating Systems.



TRANSFORMING THE DUMB ENVIRONMENT

Fundamentals of LEED

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LEED Accreditation

LEED Accredited Professional with Specialty

Eligibility

- Documented professional experience on a LEED project within the last 3 years
- Agree to Disciplinary Policy and Credentialing Requirements



TRANSFORMING THE BUILT ENVIRONMENT

Fundamentals of LEED

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NECA Seattle 2009 Convention September 12, 2009



LEED Accreditation

LEED Accredited Professional with Specialty

Exam:

- 4 hour computer based 2-part test (200 questions)
- Core Knowledge + specialized knowledge of LEED
- Instant Pass/Fail Result



Fees		USGBC national members	All others
Application fee			\$100
Exam fee (per exam appointment)	Combined exam (LEED Green Associate and specialty exam)	\$300	\$450
	Specialty exam only	\$150	\$250
Biennial CDP renewal fee			\$50



TRANSFORMING THE BUILT ENVIRONMENT

Fundamentals of LEED

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LEED Accreditation

LEED Accredited Professional with Specialty

Credentialing Requirements

- 30 Hours of Continuing Education every 2 years, with 6 hours obtained from an approved program specific to the LEED rating system
- 2 Specialties = 36 hrs, 3 = 42 hrs, 4 = 48 hrs, 5 = 54 hours with 6 hours of specific to the rating system
- Self Report to GBCI starting Nov 1, 2009



TRANSFORMING THE BUILT ENVIRONMENT

Fundamentals of LEED

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LEED Accreditation

LEED Accredited Professional Summary

Exam:

- 4 hour computer based test 200 question
- detailed knowledge of LEED
- Instant Pass/Fail Result
- Three attempts in one year max per section.

Eligibility

- Be involved in a LEED registered project within last three years
- Agree to Disciplinary Policy

Credentialing Requirements

- 30 Hours of Continuing Education every 2 years, with 6 hours obtained from an approved program specific to the LEED rating system. More hours for Multiple Specialties



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Fundamentals of LEED

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LEED Accreditation

LEED Accredited Professional Fellow



LEED Fellows would become part of an extraordinary class of leading professionals distinguished by their years of experience and contributions to the standards of practice and body of knowledge for achieving continuous improvement in the green building field. This credential is still under development.



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LEED Accreditation

Why change?

Meet John.

- Resume includes several LEED certified projects
- Active member of LEED project teams
- USGBC & Local Chapter Member
- LEED AP

Meet Joe.

- Took an exam
- LEED AP

Who do you want working on YOUR LEED Project?



TRANSFORMING THE BUILT ENVIRONMENT

Fundamentals of LEED

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LEED Accreditation

LEED Accredited Professional w/o Specialty



Legacy LEED APs are the professionals who passed the LEED AP Exam before June 30, 2009

There are over 130,000 of them worldwide as of June 30, 2009

Three Options

- Do Nothing and continue to be a LEED AP w/o specialty
- Enroll Before 2011, sign up for a specialty, agree to discipline & CMP requirements for the specialty
- Meet the new eligibility requirements, Retest and pass one of the new specialty exams



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LEED Accreditation

LEED Accredited Professional w/o Specialty

Surname begins with	Enrollment window start date
A	8/1/2009-8/4/2009
B	8/4/2009-8/11/2009
C	8/11/2009-8/17/2009
D	8/17/2009-8/22/2009
E	8/22/2009-8/23/2009
F	8/23/2009-8/26/2009
G	8/26/2009-9/30/2009
H	9/30/2009-9/6/2009
I	9/6/2009
J	9/6/2009-9/8/2009
K	9/8/2009-9/12/2009
L	9/12/2009-9/17/2009
M	9/17/2009-9/25/2009

Your enrollment window is available through [My Credentials](#) and also will be emailed to you in fall 2009. Enrollment windows are distributed throughout fall 2009 in alphabetical order by surname. See the chart below to determine when you will be eligible to enroll.



Surname begins with	Enrollment window start date
N	9/25/2009-9/27/2009
O	9/27/2009-9/28/2009
P	9/28/2009-10/2/2009
Q	10/2/2009-10/3/2009
R	10/3/2009-10/7/2009
S	10/7/2009-10/16/2009
T	10/16/2009-10/19/2009
U	10/19/2009-10/21/2009
V	10/21/2009-10/25/2009
W	10/25/2009-10/26/2009
X	10/26/2009-10/26/2009
Y	10/26/2009-10/26/2009
Z	10/26/2009-10/27/2009



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LEED Accreditation

Green Building Certification Institute

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GREEN BUILDING CERTIFICATION INSTITUTE

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Login

If you are already registered on the USGBC site, please use your USGBC login to sign in to the GBCI website.

Email Address:
Password:
[Sign In](#)

Don't have an account? [Register now](#). It's free and easy.

Forgot your password? [Click here](#) to reset your password.

Our secure server is used for this transaction. The data entered by you is encrypted.



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GREEN BUILDING CERTIFICATION INSTITUTE

LEED PROJECT CERTIFICATION
GBCI now administers project certification

LEED ONLINE v3
Faster, smarter, & a better user experience

LEED PROFESSIONAL CREDENTIALS
GBCI introduces credentialing levels and specialties

NEW AT GBCI

Help write the new LEED Reviewer exam
GBCI is currently recruiting volunteer Subject Matter Experts to help write and review items for the new LEED Reviewer exam. [Learn more about GBCI](#)

Looking for your LEED Professional logo?
All LEED Professional Logos are now available for download through My Credentials. [Log in now](#)

LEED AP ID+C and LEED AP BD+C
The LEED AP Interior Design + Construction and LEED AP Building Design + Construction exams will be available on September 15, 2009. Applications for these exams are now open.

LEED NC 2.0 Sunset Date
All registered LEED NC 2.0 projects must have submitted for certification, or upgraded (or freed) to a more recent version of GBCI by December 31, 2009. [Learn more](#)

GBCI launches the Credentialing Maintenance Program
GBCI has launched the Credentialing Maintenance Program (CMP). LEED APs (pending specialty) can now the LEED AP with specialty credential by meeting during their enrollment window. [Learn more](#) or [read the press release](#).

GBCI News
New Updates to LEED 2009
GBCI is offering a free upgrade to all projects registered under previous versions of GBCI. The offer will be available until 10/31/2009. [Learn more about upgrading to LEED 2009](#)



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CREDENTIALING MAINTENANCE PROGRAM

- CE hours can be earned through:
 - Professional development/continuing education courses
 - Live presentations
 - Self-study programs
 - College and university courses
 - Certificates, professional licenses, and credentials
 - Committee and volunteer work
 - Authorship
 - LEED project participation
- Education Reviewing Bodies



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DESIGNED FOR FLEXIBILITY

- CMP requirements are intended to allow for overlap with other credentials and licenses.
- Earn credit for work you are already doing



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IMPROVEMENTS TO LEED CREDENTIALING

RELEVANCE: Ensuring that LEED APs have the latest knowledge and understanding of green building practices.

DIFFERENTIATION: Recognizing knowledge and expertise beyond a basic understanding of green building practices.

SPECIALIZATION: Recognizing expertise in specific sub-sectors of the Industry.

The result: **STRENGTHENED QUALIFICATIONS**

LEED CMP Fullfilling Credentialing the GBCI way

Eight Ways

- 1) Professional development Continuing Education
- 2) Live presentations
- 3) Self-study programs
- 4) College and University Courses
- 5) Certificates, Professional Licenses and Credentials
- 6) Committee and Volunteer Work
- 7) Authorship
- 8) LEED Project Participation



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LEED CMP

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Section 1: Professional development Continuing Education

For professional development/continuing education courses (which includes courses offered by any institution or association which is not intended to lead to a degree, including but not limited to workshops, career training, workforce training, or personal enrichment, such as those offered by an college or university's extension school or an association):

- ✦ Professional development/continuing education courses must be ERB-approved and
- ✦ increase the competency of LEED Professionals;
- ✦ follow current green building practices and provide correct program content;
- ✦ be designed and instructed by persons qualified in the subject matter;
- ✦ provide documentation of successful course completion to the LEED Professional from the ERB-approved course; and
- ✦ are at least 50 minutes of instructional time in length



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LEED CORE CURRICULUM



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Section 2: Live presentations

- For live presentations, both approved by an ERB and not, as an attendee or as an instructor, discussion leader, speaker, or panelist.
- CE hours may be earned only once for attending or leading the same instructional program
- CE hours earned as an instructor, discussion leader, speaker, or panelist may not exceed 50% of the total CE hours required during any reporting period. Live presentations approved by an ERB can be found in the ERB's course catalog, located on their website. A list of ERBs and links to their websites is available at www.gbci.org.



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Section 3: Self-study programs

- For self-study, both approved by an ERB and not, which may be structured (audio, audio-visual, written, online, etc.) or a written or online examination:
- Total CE hours for self-study programs may not exceed 5 hours per 2-year reporting period.
- Self-study programs approved by an ERB can be found in the ERB's course catalog, located on their website. A list of ERBs and links to their websites is available at www.gbci.org.

Reading professional manuals, publications, and/or articles

- Any study, (research, reading, etc.) that is relevant to the practice of a LEED profession and includes any of the topics listed in Appendix A will be accepted for CE hours. LEED Professionals will need to supply GBCI with a record of the periodical read, exact pages, and linkage to accepted topics.



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Section 3: Self-study

GBCI CMP Guide

11

Appendix A: List of Topics Accepted for CE Hours

For credentialing maintenance, continuing education must be related to green building, green technology, or LEED.

LEED Green Associate

- | | |
|--|--|
| <p>I. Synergistic Opportunities and LEED Application Process</p> <ul style="list-style-type: none"> A. Project Requirements B. Costs C. Green Resources D. Standards that support LEED Credits E. Credit Interactions F. Credit Interpretation Rulings/Requests and precedents that lead to exemplary performance credits G. Components of LEED Online and Project Registration H. Components of LEED Score Card I. Components of Letter Templates J. Strategies to Achieve Credit K. Project Boundary, LEED Boundary, Property Boundary L. Prerequisites and/or Minimum Program Requirements for LEED Certification M. Preliminary Rating N. Multiple Certifications for Same Building O. Occupancy Requirements P. USGBC Policies Q. Requirements to Earn LEED AP Credit | <p>II. Project Site Factors</p> <ul style="list-style-type: none"> A. Community Connectivity 1. Transportation 2. Pedestrian Access B. Zoning Requirements C. Development 1. Heat Islands <p>III. Water Management</p> <ul style="list-style-type: none"> A. Types and Quality of Water B. Water Management <p>IV. Project Systems and Energy Impacts</p> <ul style="list-style-type: none"> A. Environmental Concerns B. Green Power <p>V. Acquisition, Installation, and Management of Project Materials</p> <ul style="list-style-type: none"> A. Recycled Materials B. Locally (regionally) Harvested and Manufactured Materials C. Construction Waste Management <p>VI. Stakeholder Involvement in Innovation</p> <ul style="list-style-type: none"> A. Integrated Project Team Criteria B. Disability Planning and Management C. Innovative and Regional Designs <p>VII. Project Surroundings and Public Outreach</p> <ul style="list-style-type: none"> A. Codes |
|--|--|

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Fulfilling Credentialing the GBCI way

Section 4: College and university courses

- For courses, both approved by an ERB and not, offered at accredited colleges or universities (including community colleges) which are included in the curriculum of a college or university degree program regardless of the student's enrollment status (for college and university continuing education courses or courses not part of the curriculum of a degree program, see Section 1: Professional development/continuing education courses):



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Section 5: Certificates, professional licenses, and credentials

- **Training Completion Award** given to an individual recognizing completion of a training program related to or supporting green building
- **Professional Licenses** Any national, state, or provincial licensing exam required to work in a field related to or supporting green building.
- **Professional Credentials** for knowledge of a field related to or supporting green building based on predetermined, standardized criteria



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Section 6: Committee and volunteer work

- For participation in USGBC or GBCI board of directors; committees; credential exam item writing or job task analysis; local USGBC Chapters; or other volunteer organizations that support the LEED system:
- Total CE hours for committee and volunteer work may not exceed 4 hours per 2-year reporting period.



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Section 7: Authorship

- For published articles and books that are related to topics listed in Appendix A and contribute to the competency of LEED Professionals
- The Work must be published during the 2-year reporting period
- Any publication will be automatically audited



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Section 8: LEED project participation

- For work related to the implementation of LEED credit requirements and documentation of performance on a project that is LEED-registered:
 - 1 CE hour per LEED Credit or prerequisite
 - 2 CE hours per project for being the Project Administrator
 - Yes; all LEED project participation earns LEED-specific hours.
 - CE hours are limited to 10 per 2-year reporting period.
- Documentation that a LEED Professional has worked on projects in specific credit areas would be verified through the LEED Online Process and/or a project manager and/or an employer or client's attestation.
- The project must be registered, although not necessarily completed or certified, in order for CE hours to be awarded.



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LEED CMP

Fulfilling Credentialing the GBCI way

- Retest for your Accreditation
- OR
- Finish Credentialing within the two year period and pay renewal fee
- Note you can lose your Accreditation



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Continuing Education & Credential Maintenance

300 Level
Implementation
Tier III: LEED AP
with Specialization

200 Level
Understanding
Tier II: LEED Green Associate

100 Level
Awareness



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Get Involved: As an Individual

- Learn (www.usgbc.org/education)
- Join a chapter (www.usgbc.org/chapters)
- Attend Greenbuild (www.greenbuildexpo.org)
- Become an advocate
- Become a LEED AP (www.gbci.org)
- Pursue LEED certification in your building projects (www.usgbc.org/leed)
- Purchase a LEED Reference Guide (www.usgbc.org/leed)

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Get Involved: As an Organization

- Join USGBC National (www.usgbc.org/membership)
- Pursue LEED certification in your building projects (www.usgbc.org/leed)
- Become an Education Provider (www.usgbc.org/epp)
- Encourage your employees to become LEED APs (www.gbci.org)

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Why Green Building

Adobe Case Study



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RETURN ON INVESTMENT

In the Process of Certifying:

Adobe spent \$1.4 million on energy and related projects, received \$389,000 in rebates and we have reduced operating costs by \$1.2 million per year (primarily through energy conservation).

This is an average simple payback of 9.5 months and a **return on investment (ROI) of 121%**.



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Sustainable Results

Along the way, Adobe:

- Effectively reduced electricity use 35%
- Effectively reduced natural gas use 41%
- Reduced domestic water use 22%
- Reduced landscape water use 76%
- Diverts up to 85% of its solid waste through composting and recycling
- Reduced CO2 emissions 17%; with Renewable Energy Credits 36.2%.



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Adobe Towers



- Adobe Towers is Adobe Systems Incorporated World Headquarters in San Jose, CA
- Three office towers connected at the first, second, sixth, fourteenth, and fifteenth floors
- 989,358 square feet of occupied space resting on 938,473 square feet of semi-enclosed garage
- Software development, marketing, sales, office support services



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Cost-Benefit Summary of Projects

Description	# Projects	Cost	Rebate	Savings	ROI
Load Management	26	\$445,248	\$205,437	\$729,185	304%
Lighting	19	\$300,701	\$ 44,918	\$155,616	61%
Equipment	6	\$298,439	\$122,575	\$107,976	61%
Monitor & Controls	1	\$ 39,472	\$ 11,000	\$ 12,001	42%
Water Management	3	\$145,732	\$ 5,396	\$ 31,287	22%
Waste Stream	1	\$ 0	\$ 0	\$137,380	immediate
Office Supplies	1	\$ 0	\$ 0	\$ 8,700	immediate
Sustainable Janitorial	0	\$ 0	\$ 0	n/a	
Indoor Air Quality	1	\$ 0	\$ 0	\$ 0	n/a
Alternative Trans	1	\$ 0	\$ 0	\$ 0	n/a
Compostable Paper	1	\$ 0	\$ 0	\$ 0	n/a
Purchase Alter Energy	1	\$ 16,000	\$ 0	\$ 0	n/a
LEED Consult(3 bldgs)	1	\$105,000	\$ 0	\$ 0	n/a
Register/Cert (3 bldg)	1	\$ 12,000	\$ 0	\$ 0	n/a
	64	\$1,362,592	\$389,326	\$1,182,145	121%



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Questions?

For Answers and More Information, go to

www.usgbc.org

www.gbci.org

Your Local USGBC Chapter

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