

# LEED® CERTIFICATION OVERVIEW

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## What is your position in the Industry?

1. Pharmaceutical Engineer
2. Facilities Manager/Owner
3. Quality Control
4. Industry Partner
5. I'm here for the drinks



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## What does “LEED” stand for?

1. Leaders for Excellent Economical Diversification
2. Leaders for Excellence in Environmental Design



Leadership in Energy and Environmental Design

4. Lets Eat Every Dessert



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## Your Current knowledge of LEED Certification

1. Beginner (I’ve just heard about LEED)
2. Intermediate (I’ve been involved in a LEED project)
3. Expert (I should be doing this presentation)
4. I just realized I’m at the wrong event



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## What do you want to learn today?



1. General Information for LEED certifying a project
2. How will Obama's economic stimulus package impact me?
3. How to land a plane safely into the Hudson River



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## Today's Agenda

- ▣ General LEED Overview
- ▣ The Certification Process
  - a) Early Steps
  - b) Execution
  - c) Tools
  - d) Innovation and Design Credits
  - e) Challenges



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## Good News in dire financial times!

- ▣ 75% of commercial real estate executives say the credit crunch will not discourage them from building green
- ▣ 83% of them say they would be extremely or very likely to seek LEED certification for buildings planned in the next 3 years
- ▣ 80%+ commercial building owners have allocated funds to green initiatives this year

Source: USGBC news release January 13, 2009



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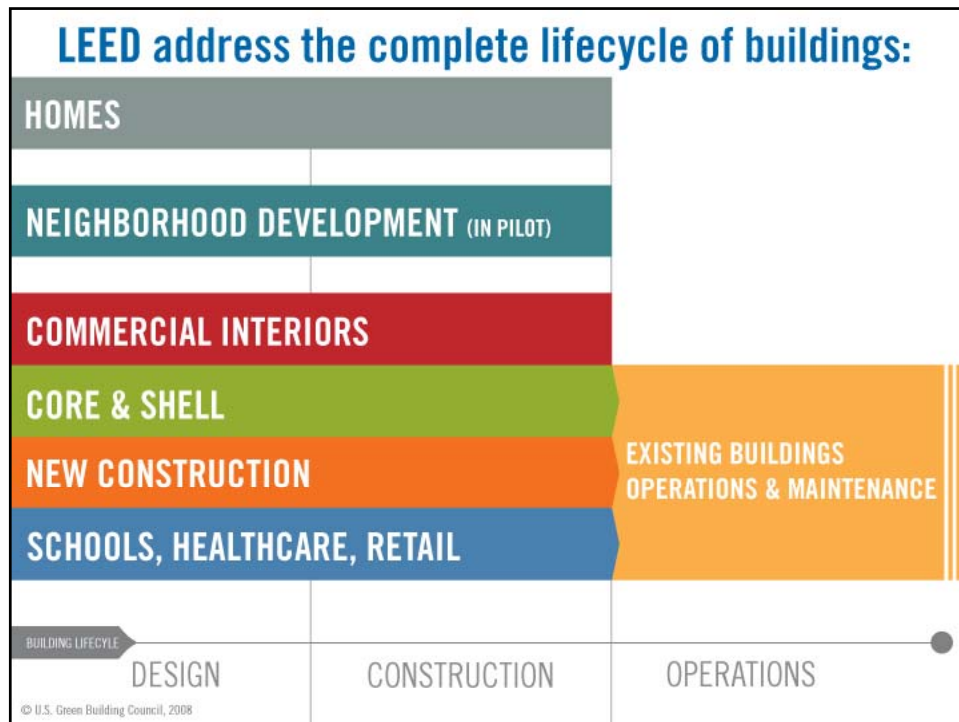
**U.S. GREEN BUILDING COUNCIL**  
**LEED**  
**USGBC**

**Leadership  
in Energy and  
Environmental  
Design**

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

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**LEED® Facts**  
Building size 12,000 square ft  
Type of building  
LEED for Core & Shell Development  
Certification awarded July 27, 2008  
**Platinum**  
Sustainable Sites 13/15  
Water Efficiency 5/5  
Energy & Atmosphere 13/15  
Materials & Resources 6/9  
Indoor Environmental Quality 10/13  
Innovation & Design 3/5  
\*Out of a possible 62 points



## LEED Rating Systems

- ▣ Commercial Interiors (Tenant Improvements)
- ▣ Core and Shell (Core and Shell construction)
- ▣ New Construction (New construction and major renovation of commercial and institutional)
- ▣ Existing Building: Operations and Maintenance (Measures operations, improvements and maintenance)
- ▣ School, Healthcare, Retail (Specific to design and construction of each building type)
- ▣ Homes (Residential)
- ▣ Neighborhood Redevelopment (Smart growth, urbanism)



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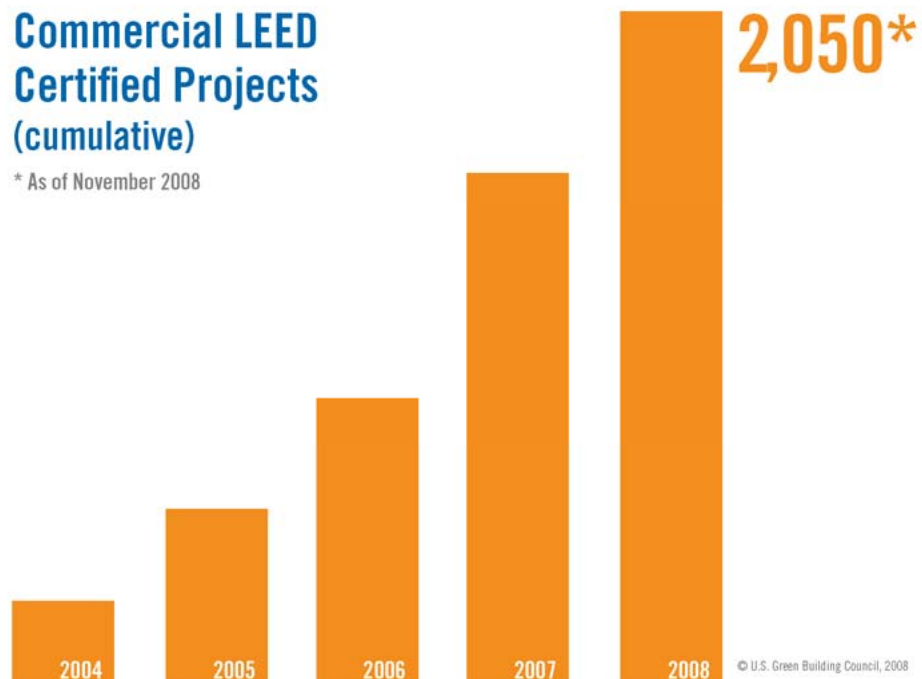
## USGBC has four levels of LEED:



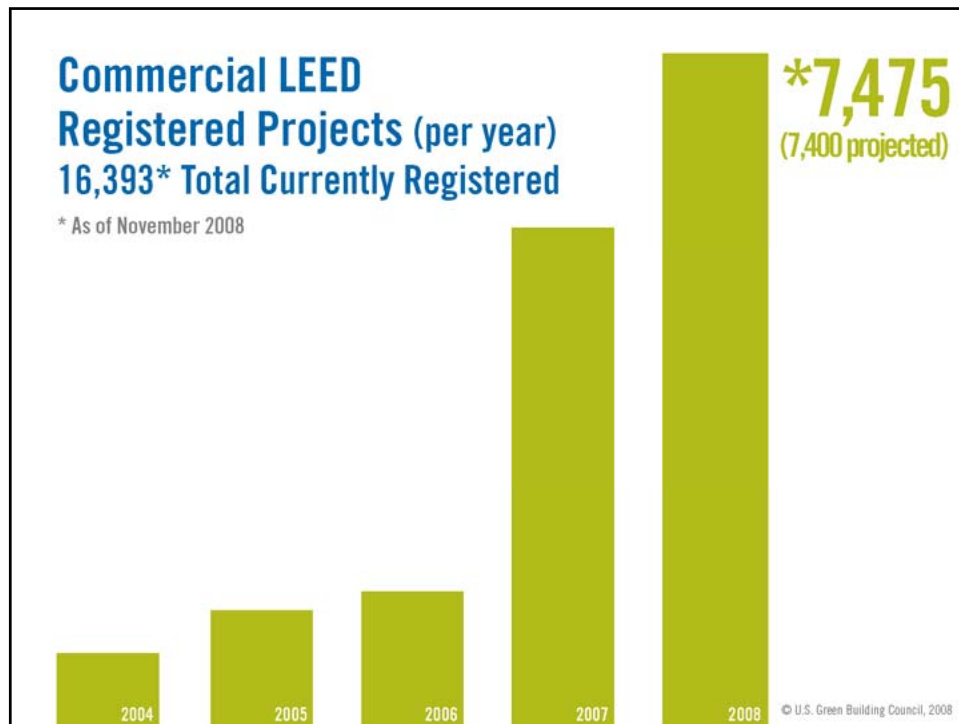
© U.S. Green Building Council, 2008

## Commercial LEED Certified Projects (cumulative)

\* As of November 2008



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## The Certification Process

- Early Steps
- Execution
- Tools
- Innovation and Design Credits
- Challenges



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## Early Steps...

- ▣ Decision to build or renovate / site characteristics/boundary
- ▣ Identify LEED rating system
- ▣ Create Project Team and assign responsibilities
- ▣ Define Scope: What level of LEED is feasible?



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## Early Steps...

- ▣ Strategies; Integrated Design; Analysis; Charettes
- ▣ Schedule and Budget
- ▣ Know Prerequisites of LEED (i.e., Fundamental commissioning, Minimum energy performance, CFC reduction in HVAC, Storage and collection of recyclables, Minimum IAQ performance, ETS control)



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## Execution

- ▣ Registration
- ▣ Resources
- ▣ Credit Submittals
- ▣ Review Process



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## Registration

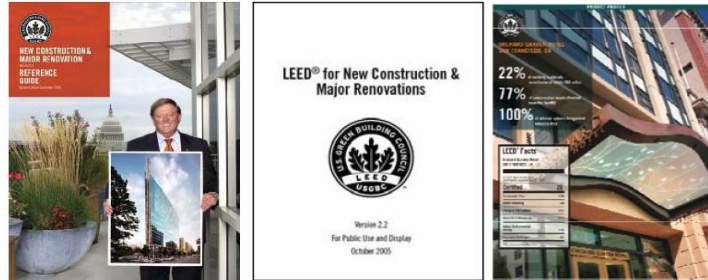


- ▣ Who should do it? Project Administrator
- ▣ When to do it? Early because registration date determines requirement
- ▣ Why it's important? Signifies intent to certify
- ▣ What it involves:
  - Registration fee: Flat
  - Review Fees: Based on project size
  - Detailed fee info: [www.usgbc.org/leed](http://www.usgbc.org/leed)
  - Add'l fee considerations: Appeal, CIR's, etc.



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## LEED Resources



Reference Guides

Rating Systems

Case Studies



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## LEED Resources

Web site: [www.usgbc.org](http://www.usgbc.org)

LEED-Online

CIRs

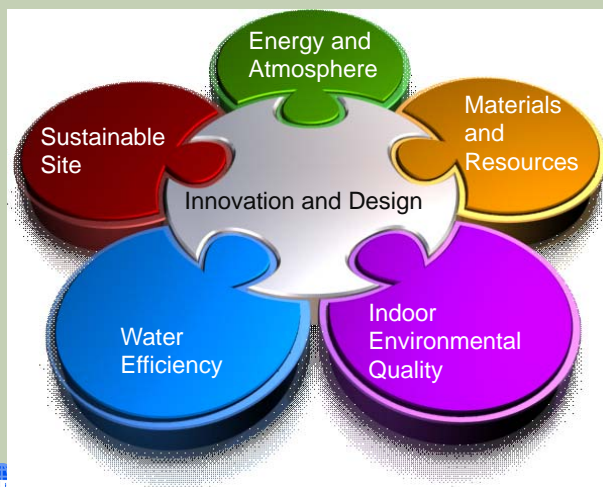
## Credit Interpretation Rulings (CIR's)

- ▣ Questions regarding how to achieve specific LEED credit
- ▣ Answered on project-by-project basis – ruling is clear, concise and precedent-setting
- ▣ Organized by LEED credit and date



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## Environmental Categories



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## Credit Submittals (LEED CI)

- ▣ Sustainable Sites (Site Selection, Alternative transport)
- ▣ Water Efficiency (Water use reduction)
- ▣ Energy and Atmosphere (Optimize energy performance)
- ▣ Materials and Resources (Recycled content, resource reuse, regional material)
- ▣ Indoor Environmental Quality (Low emitting material, daylighting, increased ventilation)
- ▣ Innovation and Design Process



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## Documentation for Submittals

- ▣ Understand what documentation is needed for each credit (Div1 materials, photos, contractor materials, etc.)
- ▣ Understand how one credit may relate to another (LEED online 2009 v3 will assist with this)
- ▣ Understand how general documentation (floor plans, site plans, narratives, etc.) relate to credits



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## Review Process 2 Options

### Two-Phase Review Process

- Design application and review
- Construction application and review
- Pro: Early feedback

### Single-Phase Review Process

- Application and review
- Pro: Less time



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## Tools

- ▣ LEED On-line
- ▣ LEED templates



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# LEED-Online: Getting started

## Assign LEED-online roles:

- Project administrator (Registers the project, views/uploads/modifies documentation, submits application)
- Project team members (views/uploads/modifies assigned credits)



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LEED for Commercial Interiors v2.0  
Registered Project Checklist

Project Name: \_\_\_\_\_  
Project Address: \_\_\_\_\_


Yes	?	No		Project Totals (Pre-Certification Estimates)	57 Points
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Certified 21-26 points	Silver 27-31 points
				Gold 32-41 points	Platinum 42-57 points

Yes	?	No		Sustainable Sites	7 Points
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Credit 1 Site Selection	1 to 3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Select a LEED Certified Building	3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		-OR- Locate the tenant space in a building with the following characteristics:	1 to 3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1A Brownfield Redevelopment	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1B Stormwater Management, Rate and Quantity	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1C Stormwater Management, Treatment	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1D Heat Island Reduction, Non-Roof	1/2 to 1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1E Heat Island Reduction, Roof	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1F Light Pollution Reduction	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1G Water Efficient Irrigation, Reduce by 50%	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1H Water Efficient Irrigation, No Potable Use or No Irrigation	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1I Innovative Wastewater Technologies	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1J Water Use Reduction, 20% Reduction	1/2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1K On-site Renewable Energy	1/2 to 1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Option 1L Other Quantifiable Environmental Performance	1/2 to 3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Credit 2 Development Density and Community Connectivity	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Credit 3.1 Alternative Transportation, Public Transportation	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Credit 3.2 Alternative Transportation, Bicycle Storage & Changing Rooms	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		Credit 3.3 Alternative Transportation, Parking Availability	1

 **LEED for Commercial Interiors v2.0**  
Registered Project Checklist

Yes	?	No			
			<b>Water Efficiency</b>		<b>2 Points</b>
			Credit 1.1	Water use Reduction, 20% Reduction	1
			Credit 1.2	Water use Reduction, 30% Reduction	1
			<b>Energy &amp; Atmosphere</b>		<b>12 Points</b>
Yes			Prereq 1	Fundamental Commissioning	Required
Yes			Prereq 2	Minimum Energy Performance	Required
Yes			Prereq 3	CFC Reduction in HVAC&R Equipment	Required
<small>*NOTE for EAC1: All LEED for Commercial Interiors projects registered after June 28th, 2007 are required to achieve at least two (2) points under EAC1. Projects may earn two (2) points from achieving any combination of the 4 sub-credits under EAC1.</small>					
			Credit 1.1	Optimize Energy Performance, Lighting Power	1 to 3
				Option A: Reduce lighting power density to 15% below the standard	1
				Option B: Reduce lighting power density to 25% below the standard	2
				Option C: Reduce lighting power density to 35% below the standard	3
			Credit 1.2	Optimize Energy Performance, Lighting Controls	1
			Credit 1.3	Optimize Energy Performance, HVAC	1 to 2
				Option A: Equipment Efficiency and Zoning & Controls	1 to 2
				Option B: Reduce Design Energy Cost	1 to 2
			Credit 1.4	Optimize Energy Performance, Equipment & Appliances	1 to 2
				Option A: 70% of ENERGY STAR eligible equipment ENERGY STAR rated	1
				Option B: 90% of ENERGY STAR eligible equipment ENERGY STAR rated	2
			Credit 2	Enhanced Commissioning	1
			Credit 3	Energy Use, Measurement & Payment Accountability	1 to 2
				Case A: Projects with area less than 75% of total building area	1 to 2
				Case B: Projects with area 75% or more of total building area	2
			Credit 4	Green Power	1

 **LEED for Commercial Interiors v2.0**  
Registered Project Checklist

Yes	?	No			
			<b>Materials &amp; Resources</b>		<b>14 Points</b>
Yes			Prereq 1	Storage and Collection of Recyclables	Required
			Credit 1.1	Tenant Space, Long Term Commitment	1
			Credit 1.2	Building Reuse, Maintain 40% of Interior Non-Structural Components	1
			Credit 1.3	Building Reuse, Maintain 60% of Interior Non-Structural Components	1
			Credit 2.1	Construction Waste Management, Divert 50% From Landfill	1
			Credit 2.2	Construction Waste Management, Divert 75% From Landfill	1
			Credit 3.1	Resource Reuse, 5%	1
			Credit 3.2	Resource Reuse, 10%	1
			Credit 3.3	Resource Reuse, 30% Furniture and Furnishings	1
			Credit 4.1	Recycled Content, 10% (post-consumer + 1/2 pre-consumer)	1
			Credit 4.2	Recycled Content, 20% (post-consumer + 1/2 pre-consumer)	1
			Credit 5.1	Regional Materials, 20% Manufactured Regionally	1
			Credit 5.2	Regional Materials, 10% Extracted and Manufactured Regionally	1
			Credit 6	Rapidly Renewable Materials	1
			Credit 7	Certified Wood	1

Material Name	Manufacturer	Material Cost* (\$)	Post-Consumer Recycled Content (%)	Pre-Consumer Recycled Content (%)	Recycled Content Information Source
Asphalt Paving	Ben's Asphalt	\$104,116.00	8.00	4.00	Manufacturer Letter
Reinforcing Bar	Cal State Rebar / Tarmac	\$150,863.00	10.00	90.00	Manufacturer Letter
Structural Steel	Schuff Steel	\$936,633.00	25.00	0.00	Default Value
Steel Door Framing	Camco	\$172,500.00	25.00	0.00	Default Value
Steel Decking	Armstrong Johnson Co	\$154,207.00	25.00	0.00	Default Value
Steel Sails	Washington Iron	\$328,136.00	25.00	0.00	Default Value
Barbwire Tite "Tens Traffic"	Terra Green	\$23,500.00	0.00	35.00	Manufacturer Product Data / SGS Certification
Remoldable Polyethylene Fiber Glass Reinforcement	Johns Manville	\$533,000.00	20.00	1.00	Manufacturer Product Data / SGS Certification
Basin Pails - "Yale"	SPOM	\$18,208.00	0.00	40.00	Manufacturer Product Data
Carpent "Cruisette"	Makulak	\$128,850.00	0.00	85.00	Manufacturer product Data / SGS Certification
Particle Board - "Day Board"	Resoluxing	\$425,000.00	0.00	100.00	Manufacturer Product Data / SGS Certification
Suspended Ceiling Grid "DriNet"	UPIC	\$270,000.00	0.00	2.00	Manufacturer Product Data
Suspended Ceiling Tile - "Onyx 219 Climate Plus"	USG	\$119,200.00	0.00	81.00	Manufacturer Product Data
Countertops - Solid Surface "Formica"	Ariston / A Top	\$36,300.00	0.00	40.00	Manufacturer Product Data / Supplier Letter





# LEED Templates

## Recycled Content Calculations

Total value (\$) of post-consumer content

Total value (\$) of pre-consumer content

Total combined recycled content value (\$) post-consumer + 1/2 pre-consumer

Combined Recycled Content Value as a percentage of Total Materials Cost\*\*  %

\*\*To qualify for the credit the percentage of recycled content (post-consumer + 1/2 pre-consumer) must be at least 10% of the total materials cost

Project Name: Green Building Demo

Credits: IRR Credit 4.1.4.2: Recycled Content: 10%/20% (post-consumer + 1/2 pre-consumer) Points Documented: 1

READY TO SAVE THIS TEMPLATE TO LEED-ONLINE? Please enter your first name, last name and today's date below, followed by your LEED-Online Username and Password associated with the Project listed above to confirm submission of this template.

LEED Faculty      
First Name Last Name Date Username (Email Address) Password

Letter Template Version A1 - 1/26/2007

Powered by  
Adobe LiveCycle®

LEED-NC 2.2 Submittal Template | Last Modified: March, 2006



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# LEED Templates

## Uploading into LEED-Online

MATERIALS & RESOURCES: RECYCLED CONTENT (CREDIT 4)

DESIGN APPLICATION

The claim of credit has been marked as complete.

YOUR ASSIGNED CREDITS		CLAIM OF CREDIT STATUS	
<p>Materials &amp; Resources</p> <p>20 Recycled Content</p>		<p>Display status information and team member assigned to credit. A project administrator can also unassign a credit in this section.</p> <p>Attempted on: 10/21/2007</p> <p>Attempted Point Status: Credit 4.1 Recycled Content, 10% (post-consumer + 1/2 pre-consumer) Attempted</p> <p>Credit 4.1 Recycled Content, 20% (post-consumer + 1/2 pre-consumer)</p> <p>Is Classification Needed for this Credit? No</p> <p>Assigned Team Role: Materials Coordinator</p>	
<p>CREDIT TEMPLATE</p> <p>Displays information on credit template status and documents uploaded. Only the team member associated with credit can upload information.</p>		<p>Template Status: Last Modified on 10/20/2007</p> <p>Download Template (D)</p> <p>Required Documents: <input type="button" value="Upload Documents"/> <input type="button" value="Download Documents"/></p> <p>Document Name: <input type="text"/> <input type="button" value="Browse"/> <input type="button" value="Upload"/> <input type="button" value="Cancel"/></p> <p>Documentation Status: <input type="button" value="Complete"/> <input type="button" value="Incomplete"/></p>	



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## Recap Tools and Resources

### Getting Started: Tools

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



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## Innovations Points

- ▣ Innovation performance not covered by LEED
- ▣ Team must create intent, requirements, etc.
- ▣ Exceptional performance above existing LEED requirements
- ▣ Rule of Thumb: double credit requirements/next incremental percentage
- ▣ Only 4 Innovation points available (plus LEED-AP)



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## Innovation and Design Credit

### Water Efficiency 1-2 pts

Water Use Reduction: 20% - 1 point, 30% - 2 points

#### Intent:

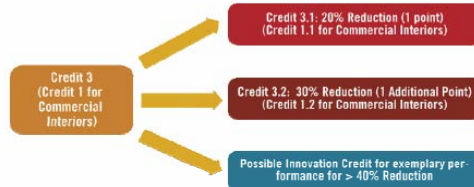
Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.



## Innovation and Design Credit

### Water Efficiency 1-2 pts

Water Use Reduction: 20% - 1 point, 30% - 2 points



## LEED online 2009 v3 enhancements

- ▣ Point scale change – credits remain intact
- ▣ Eliminates some narrative
- ▣ Licensed professional exemptions
- ▣ Streamlining – automated cross pollination to avoid inconsistencies (i.e., gross square footage and FTE's auto populated)



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## Challenges and Tips

- ▣ It can be difficult to obtain information for submittals
- ▣ Starting early is a good thing
- ▣ Realize the time involved in documentation
- ▣ Reinforce LEED requirements throughout design and construction
- ▣ Utilize an integrated partnership approach
- ▣ Commitment from the top



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# Thank you!

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