



# Green Building Program

Presentation to the  
Development Oversight Commission  
November 5, 2007

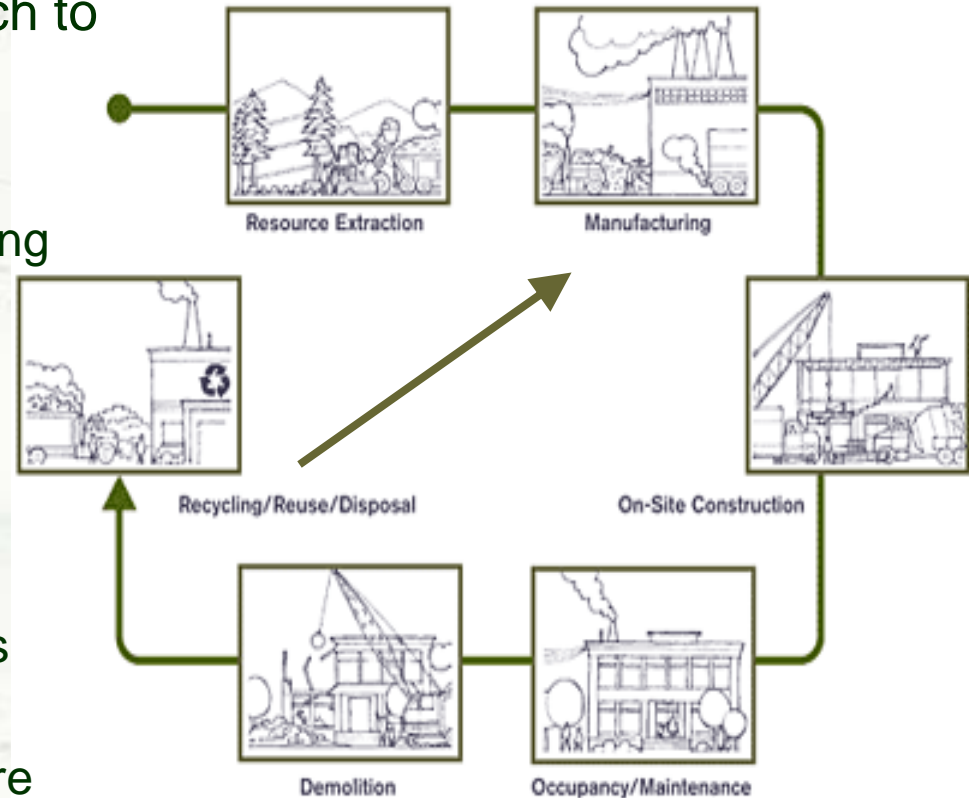


# What is Green Building?

A “Whole-Systems” approach to designing & constructing buildings that:

- Are integrated into the building site
- Consume less energy and water
- Are durable and easier to maintain
- Use resources and materials efficiently
- Are healthier, safer, and more comfortable

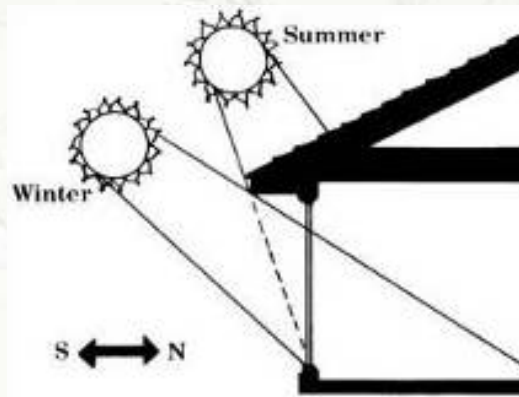
## LIFE CYCLE OF BUILDING PRODUCTS



Whole Building Design Guide,  
[www.wbdg.com](http://www.wbdg.com)



# Principles of Green Building



- Site Design
- Water Efficiency
- Energy & Atmosphere Efficiency
- Material & Resource Conservation
- Indoor Environmental Quality





# Designing a Green Building Program

- Research existing programs
- Identify building incentives & rebates
- Identify appropriate zoning or building ordinance changes
- Adopt green building guidelines & checklists
- Education & public outreach
- Return to City Council in December 2007





# Sample Rating Systems, Guidelines & Checklists



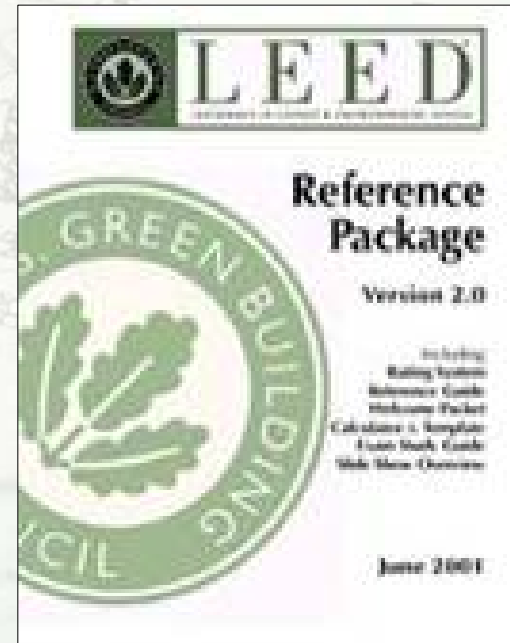


# U.S. Green Building Council, Leadership in Energy & Environmental Design (LEED)



## LEED-NC Version 2.1 Registered Project Checklist

Yes	?	No			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>1</b>	<b>Sustainable Sites</b>	<b>14 Points</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	<b>Site Selection</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	<b>Development Density</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	<b>Brownfield Redevelopment</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.1	<b>Alternative Transportation, Public Transportation Access</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.2	<b>Alternative Transportation, Bicycle Storage &amp; Changing Rooms</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.3	<b>Alternative Transportation, Alternative Fuel Vehicles</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.4	<b>Alternative Transportation, Parking Capacity and Carpooling</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.1	<b>Reduced Site Disturbance, Protect or Restore Open Space</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.2	<b>Reduced Site Disturbance, Development Footprint</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.1	<b>Stormwater Management, Rate and Quantity</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.2	<b>Stormwater Management, Treatment</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands, Non-Roof</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands, Roof</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 8	<b>Light Pollution Reduction</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<b>Water Efficiency</b>	<b>5 Points</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.1	<b>Water Efficient Landscaping, Reduce by 50%</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.2	<b>Water Efficient Landscaping, No Potable Use or No Irrigation</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	<b>Innovative Wastewater Technologies</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.1	<b>Water Use Reduction, 20% Reduction</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.2	<b>Water Use Reduction, 30% Reduction</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<b>Energy &amp; Atmosphere</b>	<b>17 Points</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	<b>Fundamental Building Systems Commissioning</b>	Required
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 2	<b>Minimum Energy Performance</b>	Required
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	<b>Optimize Energy Performance</b>	1 to 10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.1	<b>Renewable Energy, 5%</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.2	<b>Renewable Energy, 10%</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.3	<b>Renewable Energy, 20%</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	<b>Additional Commissioning</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	<b>Ozone Depletion</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	<b>Measurement &amp; Verification</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	<b>Green Power</b>	1



U.S. Green Building Council,  
[www.usgcb.org](http://www.usgcb.org)





# Leadership in Energy & Environmental Design (LEED)

Certification Level	Points Required
CERTIFIED	26-32
SILVER	33-38
GOLD	39-51
PLATINUM	52-69

## PROGRAM AREAS:

- New Construction
- Existing Building
- Commercial Interiors
- Core and Shell
- Home (Pilot Program)
- Neighborhood (Pilot Program)
- Retail (Pilot Program)
- Schools
- Lodging





# Build It Green, GreenPoint Rated

## Single Family GreenPoint Checklist

date: \_\_\_\_\_



The GreenPoint checklist tracks green features incorporated into the home. The recommended minimum requirements for a green home are: Earn a total of 50 points or more; obtain the following minimum points per category: Energy (11), Indoor Air Quality/Health (5), Resources (6), and Water (3); and meet the prerequisites A.3.a (50% construction waste diversion) and N.1 (incorporate Green Points checklist in blueprints).

The green building practices listed below are described in the New Home Construction Green Building Guidelines, available at [www.builditgreen.org](http://www.builditgreen.org)

--	--	--	--	--

ENTER PROJECT NAME		Community	Energy	IAQ/Health	Resources	Water
		Possible Points				
<b>A. SITE</b>						
1. Protect Native Soil and Minimize Disruption of Existing Plants & Trees						
<input type="checkbox"/>	a. Protect Native Topsoil from Erosion and Reuse after Construction	1				1
<input type="checkbox"/>	b. Limit and Delineate Construction Footprint for Maximum Protection					1
2. Deconstruct Instead of Demolishing Existing Buildings On Site						
<input type="checkbox"/>					3	
3. Recycle Job Site Construction Waste (Including Green Waste)						
<input type="checkbox"/>	a. Minimum 50% Waste Diversion by Weight (Recycling or Reuse) - Required			R		
<input type="checkbox"/>	b. Minimum 65% Diversion by Weight (Recycling or Reuse)			2		
<input type="checkbox"/>	c. Minimum 80% Diversion by Weight (Recycling or Reuse)			2		
4. Use Recycled Content Aggregate (Minimum 25%)						
<input type="checkbox"/>	a. Walkway and Driveway					1
<input type="checkbox"/>	b. Roadway Base					1
<b>B. LANDSCAPING</b>						
Possible Points						
1. Construct Resource-Efficient Landscapes						
<input type="checkbox"/>	a. No Invasive Species Listed by Cal-IPC Are Planted					1
<input type="checkbox"/>	b. No Plant Species Will Require Hedging				1	
<input type="checkbox"/>	c. 75% of Plants Are California Natives or Mediterranean Species					1
2. Use Fire-Safe Landscaping Techniques						
<input type="checkbox"/>		1				
3. Minimize Turf Areas in Landscape Installed by Builder						
<input type="checkbox"/>	a. All Turf Will Have a Water Requirement Less than or Equal to Tall Fescue					2
<input type="checkbox"/>	b. Turf Shall Not Be Installed on Slopes Exceeding 10% or in Areas Less than 5 Feet Wide					2
<input type="checkbox"/>	c. Turf is <33% of Landscaped Area					2
<input type="checkbox"/>	d. Turf is <10% of Landscaped Area					2
4. Plant Shade Trees						
<input type="checkbox"/>		1				1
5. Implement Hydrozoning: Group Plants by Water Needs						
<input type="checkbox"/>						1
6. Install High-Efficiency Irrigation Systems						
<input type="checkbox"/>	a. System Uses Only Low-Flow Drip, Bubblers, or Low-Flow Sprinklers					1
<input type="checkbox"/>	b. System Has Smart (Weather-Based) Controllers					2
7. Apply Two Inches of Compost in the Top 6 to 12 Inches of Soil						
<input type="checkbox"/>						2
8. Mulch All Planting Beds to the Greater of 2 Inches or Local Water Ordinance Requirement						
<input type="checkbox"/>						1
9. Use 50% Salvaged or Recycled-Content Materials for 50% of Non-Plant Landscape Elements						
<input type="checkbox"/>				1		
10. Reduce Light Pollution by Shielding Fixtures and/or Directing Light Downward						
<input type="checkbox"/>		1				
<b>C. FOUNDATION</b>						
Possible Points						
1. Incorporate Recycled Flyash in Concrete						
<input type="checkbox"/>	a. Minimum 20% Flyash				1	
<input type="checkbox"/>	b. Minimum 25% Flyash				1	
2. Use Frost-Protected Shallow Foundation in Cold Areas (C.E.C. Climate Zone 16)						
<input type="checkbox"/>					3	
3. Use Radon Resistant Construction (In At-Risk Locations Only)						
<input type="checkbox"/>				1		
<b>D. STRUCTURAL FRAME &amp; BUILDING ENVELOPE</b>						
Possible Points						
1. Apply Optimal Value Engineering						
<input type="checkbox"/>	a. 2x4 Studs at 24-inch On Center Framing					1
<input type="checkbox"/>	b. Door and Window Headers Sized for Load					1
<input type="checkbox"/>	c. Use Only Jack and Cripple Studs Required for Load					1



[www.BuildItGreen.org](http://www.BuildItGreen.org)  
[www.stopwaste.org](http://www.stopwaste.org)





# Sample Incentives

- Coordination of rebates through SMUD, PG&E, Energy Star, State Department
- Fee Suspensions of Solar PV & water heaters for existing residential
- Expedited processing
- Project consultation
- Resource center & library
- Workshops, lectures
- Increased signage
- Density bonuses
- Floor Area Ratios
- Water/sewer credits
- Reduce parking requirements
- Allowance of alternative materials
- Developer/Project recognition





# Education & Public Outreach

## Staff Trainings & Peer Networking

- LEED Accredited Staff
- Green Building Professionals
- Build It Green Public Agency Council

## Information & Resource Development

- Website
- Brochures
- Lectures/Workshops
- Events

## Stakeholder Meetings

- American Institute of Architects,
- Associated General Contractors,
- Building Industry Association,
- Sacramento Area Realtors,
- City Management Academy



## 2007 Green Building Program Milestones

