LEED for Homes

May 7, 08’

Richard Zimmerman
Sonoran LEED for Homes
www.USGBC.org/LEED/Homes
Overview

1. Intro to USGBC and LEED
2. LEED for Homes Rating System
3. Delivery System
4. Cost of LEED Homes
5. Recent Projects
Intro to USGBC and LEED
LEED Rating Systems
Consensus-Based Standards
LEED for Homes Timeline

- Start of program development: 2000
- Pilot Launched: August 2005
- First home certified: March 2006
- USGBC approval processes: Summer 2007
- National Roll-Out: November 2007
Program Status

30 Certification Providers

490 Registered Builders

12,000 Registered Homes

600 Certified Homes
Rating System
Detailed information on the measures below are provided in the companion document "LEED for Homes Rating System"

<table>
<thead>
<tr>
<th>Topic</th>
<th>Available</th>
<th>Max Points</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location and Link</td>
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<td>Sub-Total</td>
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<tr>
<td>LEED-ND Rating</td>
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<td></td>
<td></td>
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<tr>
<td>Site Selection</td>
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<td></td>
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<tr>
<td>Preferred Location</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Infrastructure</td>
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<tr>
<td>Community Design</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Site within 1/2 Mile of Existing Water and Sewer</td>
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<tr>
<td>Access to Open Space</td>
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</tr>
<tr>
<td>Sustainable Sites</td>
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<td>Sub-Total</td>
<td></td>
</tr>
<tr>
<td>Site arrangement</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Landscaping</td>
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<td></td>
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<tr>
<td>Interior Water</td>
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<td></td>
<td></td>
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<tr>
<td>Water Re-use System</td>
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<tr>
<td>Grey Water Re-use System</td>
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<td></td>
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<tr>
<td>Landscape Design</td>
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<td></td>
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</tr>
<tr>
<td>Shading of Hardscapes</td>
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<tr>
<td>Locate and Plant Trees to Shade Hardscapes</td>
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<tr>
<td>Surface Water Management</td>
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</tr>
<tr>
<td>Design and Install Permanent Erosion Controls</td>
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<tr>
<td>Compact Development</td>
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<td>Sub-Total</td>
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<tr>
<td>Average Housing Density ≤ 15 Units / Acre</td>
<td>LL1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Average Housing Density ≤ 20 Units / Acre</td>
<td>LL1</td>
<td>4</td>
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<tr>
<td>Water Efficiency (WE)</td>
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<td>Sub-Total</td>
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<tr>
<td>Waste Water Management</td>
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<tr>
<td>Manure Harvesting System</td>
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<tr>
<td>Grey Water Re-use System</td>
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<tr>
<td>Water Re-use System</td>
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<td></td>
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<tr>
<td>Water Re-use System</td>
<td></td>
<td></td>
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<tr>
<td>Irrigation System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third Party Verification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Install Landscape Designed by Licensed or Certified Professional</td>
<td>WE 2.2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>High Efficiency Fixtures (Bathtub, Showers, and Faucets)</td>
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<td></td>
</tr>
<tr>
<td>Very High Efficiency Fixtures (Bathtub, Showers, and Faucets)</td>
<td>WE 3.1</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Simple

- 2 pages
- 136 points
- Entry level = 45 pts.

Certified: Platinum

For Homes

www.usgbc.org/leed/homes
Applicable Building Types

- Single Family
- Multi-Family
- Gut Rehab

Market Rate & Affordable
Up to 3 Stories and Mid Rise
Strip to Studs on One Side
What is a Green Home?

Integrated Design Goals:
- Healthy
- Comfortable
- Durable
- Energy Efficient
- Environmentally Responsible
4 Levels of LEED Certification

Varying Performance Levels
Credit Categories

Resources
To Use
Wisely

- Innovation and Design (ID)
- Location and Linkages (LL)
- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and Resources (MR)
- Indoor Environmental Quality (IEQ)
- Awareness and Education (AE)
Mandatory Measures

- ENERGY STAR Labeled Home
- Health and Safety Measures
  - Combustion Venting
  - Controlled Ventilation
- Durability Plan
- Waste Management Plan
- Site Protections
- Owner’s Manual
Designing LEED Homes

Integrated Project Planning
- Project Goals
- Project Team
- Integrated Design Process
- Design Charrette
- Solar Orientation

Durability
- Planning
- Quality Assurance Procedures
- Inspections
LEED Homes & Integrated Design

DHW (showers, appliances)
Moist air flow in walls
Ice damming

Built tight, ventilate right
CO safety
Supply air distribution

Advanced framing

Low emission materials

Exterior rainfall management
Pest, termite control
Construction waste

Landscaping
Rainwater harvesting

Energy

Water

IEQ

Materials

Site
LEED for Homes Alliances
Local and Regional Programs
Roadmap

ENVIRONMENTS FOR Living
Delivery System
### Step 1: Application/Orientation
- Provider Certification Orientation
- LEED for Homes Certification/Process Matrix
- LEED for Homes Rating Manual/Online Checklists
- Durability & Accountability Forms
- Digital Documentation Binder
- Home Energy Rating System (HERS) Modeling Template
- USGBC-Online Registration Fees & Registration Form

### Step 2: Design & Plan Review
- LEED Project Checklist Review
- Pre-Construction Documents & Design Drawings
- Certification Prerequisites and Credit Verification
- Home Energy Rating System (HERS) Modeling
- Provider Design & Plan Review Fee (2 hrs.)

### Step 3: Preliminary Rating
- Submit Completed Expanded Checklist
- Sonoran LEED for Homes LLC Agreement
- HERS (Framing/Duct Leakage/Insulation/Thermal Bypass Checklist)

### Step 4: Documentation & Verification
- HERS (Envelope Leakage)
- Digital/Print Documentation Binder
- Green Rater /Digital Photo Verification

### Step 5: Certification
- HERS Index/Energy Star Certification
- Finalize Expanded Checklist/Durability/Accountability Forms
- USGBC-Project Certification Audit

### Step 6: USGBC Certificate
- Balance Due
Cost of LEED for Homes

- Learning Curve Costs
- Design and Construction Costs
- Certification Costs
Learning Curve Costs

Types of Consulting Support

• Design Assistance Variable
• Consulting Variable
• Training Variable

Depends on:

• Prior Experience in Green Home Building
• Experience with LEED for Homes
• Complexity of Project
Verification Costs

Provider Fees

Ask Your Local Provider

- Design Review: 4-8 hours
- Verification: 8-16 hours
- With Sampling: 2-4 hours
## Certification Costs - USGBC Fees

*(Subsidies Available for Affordable Homes)*

<table>
<thead>
<tr>
<th>Type of Project</th>
<th>Registration</th>
<th>Certification</th>
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<tbody>
<tr>
<td>Single Family</td>
<td>$150</td>
<td>$250</td>
</tr>
<tr>
<td>Member</td>
<td>$250</td>
<td>$350</td>
</tr>
<tr>
<td>Non-Member</td>
<td>$250</td>
<td>$350</td>
</tr>
<tr>
<td>Multifamily</td>
<td>$450</td>
<td>$0.035 / SF</td>
</tr>
<tr>
<td>Member</td>
<td>$600</td>
<td>$0.045 / SF</td>
</tr>
<tr>
<td>Non-Member</td>
<td>$600</td>
<td>$0.045 / SF</td>
</tr>
</tbody>
</table>

Volume Pilot

Member: $10,000 (e.g., 100 homes/yr: $100/home, 200 homes/yr: $50/home)

Non-Member: $10,000 (e.g., 100 homes/yr: $100/home, 200 homes/yr: $50/home)
Recent Projects

Green Home

Georgia
@ LEED Gold

Los Angeles
33 Homes @ LEED Gold

New Orleans
@ LEED Platinum
How to Get Started
(5 Things That You Can Do Today)

1. Establish clear goals
2. Learn more about green home building
3. Find a LEED for Homes Provider
4. Develop a network of colleagues / project team
5. Perform a preliminary rating
List of Providers

www.usgbc.org/leed/homes
Summary
LEED Homes:
• Are healthy, comfortable, durable...
• Use an integrated design process
• Offer market differentiation
• Are affordable

LEED® Facts
Mosier Townhomes
Mosier, OR
LEED for Homes Pilot Program
Certified on: April 24, 2007
Silver 51
<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
<td>Locations &amp; Linkages</td>
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<tr>
<td>Sustainable Sites</td>
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<tr>
<td>Water Efficiency</td>
<td>6</td>
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<tr>
<td>Energy &amp; Atmosphere</td>
<td>19</td>
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<td>Materials &amp; Resources</td>
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<td>Indoor Environmental Quality</td>
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<tr>
<td>Innovation &amp; Design</td>
<td>0</td>
</tr>
<tr>
<td>Awareness &amp; Education</td>
<td>0</td>
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</tbody>
</table>
LEED for Homes Contacts

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www.USGBC.org/LEED/HOMES
www.regreenprogram.org
www.greenbuild365.org