



Building Green and Healthy Homes



Greening America's Communities

Trisha Miller
Enterprise Community Partners
September 16, 2008

Enterprise Community Partners - Who We Are

25 Years Old

More than \$8 billion in equity, loans and grants invested since 1982

More than 212,000 affordable homes created

Investing \$1 billion in equity, loans and grants annually



What is Green Communities?

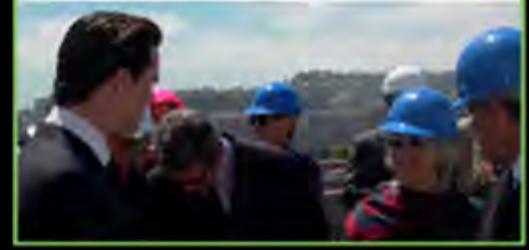
\$555 mm to
create 8,500
environmen-
tally sustainable
homes



Transform how
we locate,
design, and
build affordable
housing



Build bridge
between
environmentalists
and community
developers





HOUSING

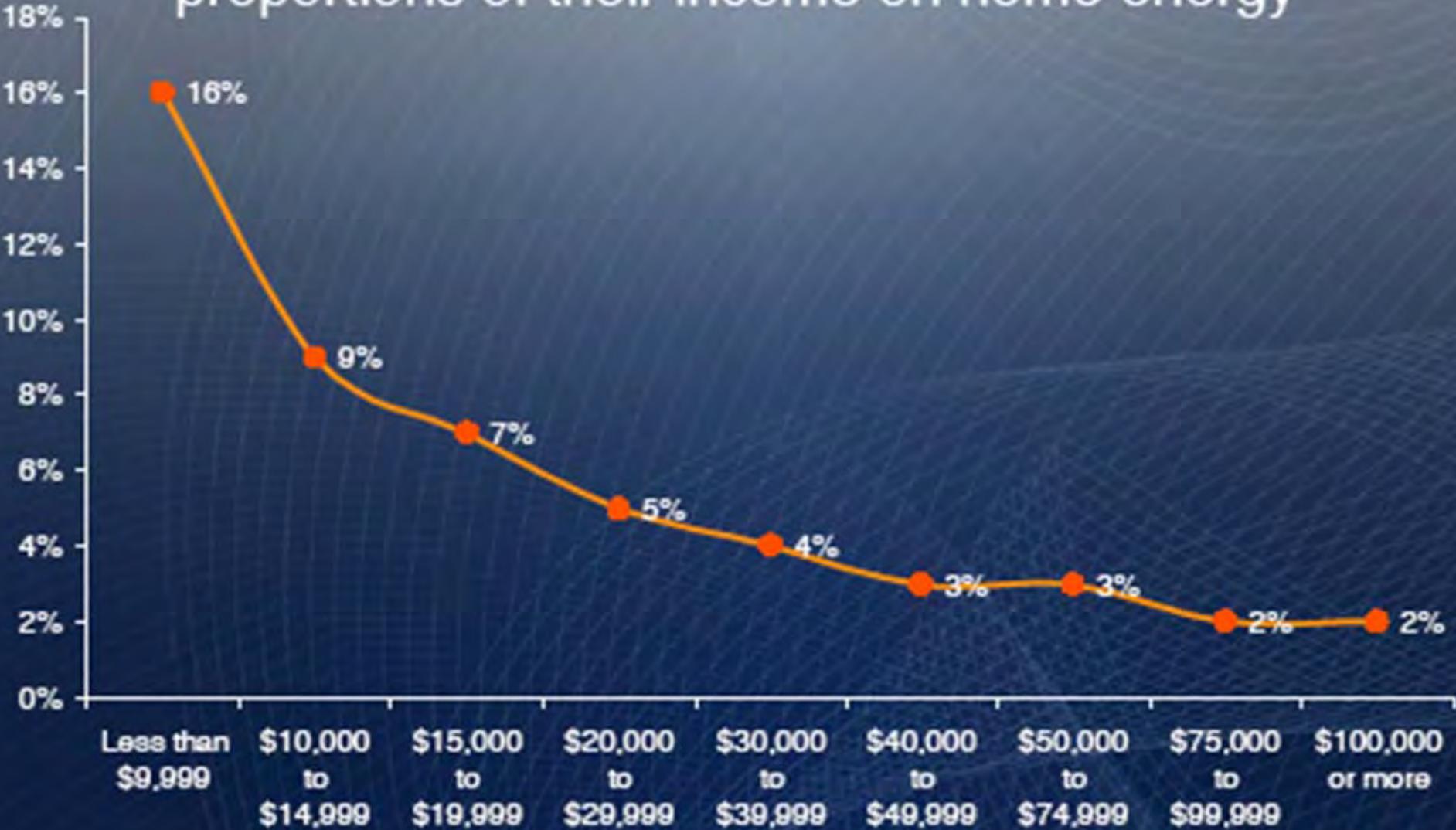
TRANSPORTATION

HEALTH

ENERGY

ENVIROMENT

The lowest income groups pay the highest proportions of their income on home energy



Source: The Brookings Institution

Household income

25 Million Existing Residential Units are Home to Families Earning Less Than \$25,000

30% of all Housing



Green Communities National Partners



American Institute of Architects

American Planning Association

Bank of America

Blue Moon Fund

BP America

Citigroup Foundation

Fannie Mae

Freddie Mac

Global Green USA

The Home Depot Foundation

J.P. Morgan Chase

The Kendeda Fund

The Kresge Foundation

Merrill Lynch CDC

M&T Bank

**Natl Assoc State Energy
Officials**

Natl Center Healthy Hsng

**Natural Resources Defense
Council**

Southface

Surdna Foundation

Tides Foundation

US Dept HUD

US Green Building Council

Washington Mutual

William J. Clinton Foundation



**Integrated
Design**



**Water
Conservation**



**Materials
Beneficial to the
Environment**



**Energy
Efficiency**



**Location and
Neighborhood
Fabric**



Health



**Operations and
Maintenance**





Resources

- Grants for planning, design, construction and post-construction operations and maintenance
- Low-interest loans for acquisitions and predevelopment
- Expert training
- Local and national technical assistance

Current Funding Opportunities

Charrette and Post-Construction Grants

Up to \$5,000 per project for early design/planning and post-construction training
Applications are accepted on a rolling basis

Predevelopment and Acquisition Loans

Green Planning and Construction Grants

Up to \$1,000 per low-income unit for planning and/or construction

Maximum grant amount is \$50,000

Applications are due September 18, 2008



Green Communities Results to Date



- **Established the Green Communities Criteria.**
- **\$570 million invested.**
- **13,000 sustainable homes underway in 300 developments in 30 states.**
- **3,500 professionals trained through in-person and on-line events.**
- **20 state and local housing policies made more sustainable.**
- **Emerging research showing affordable can be green cost effectively.**
- **Emerging research showing significant energy and water savings, health benefits and carbon emissions reductions.**

- Healthier homes
- Lower burden on the poor
- Increased income from energy and water savings
- Improved access to jobs, transportation and community facilities

Randolph Place Apartments - Virginia



2506 Central Park Boulevard at Stapleton - Denver





ACCESSIBLE
PARKING


 **Spring Terrace**
Affordable
Efficiency
Community
www.foundcom.org

Spring Terrace - Austin

Mercy Housing Lakefront - Chicago





**Galen Terrace,
Washington, DC
NHT/Enterprise**

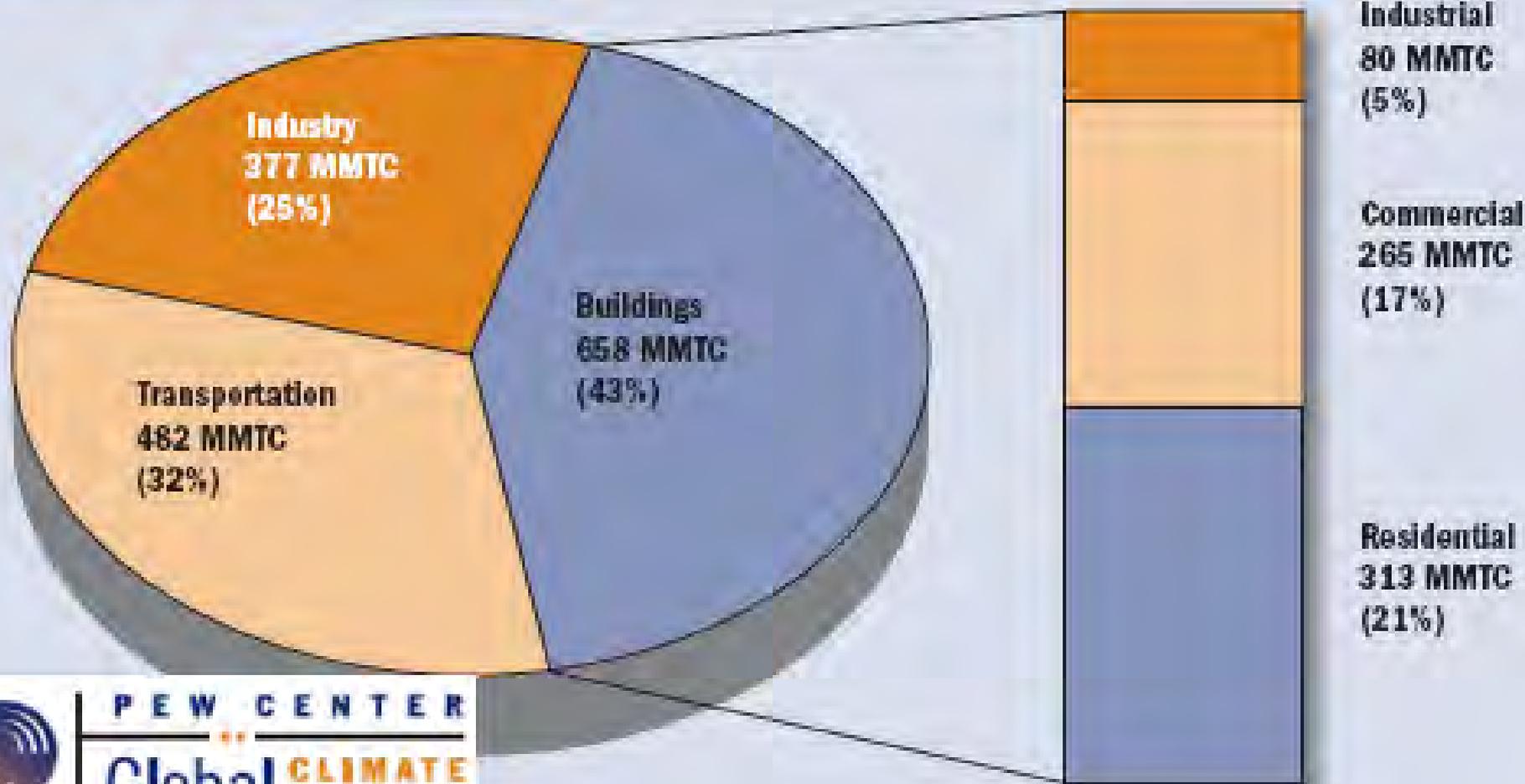


green
communities®

Offset Fund

Carbon Dioxide Emissions

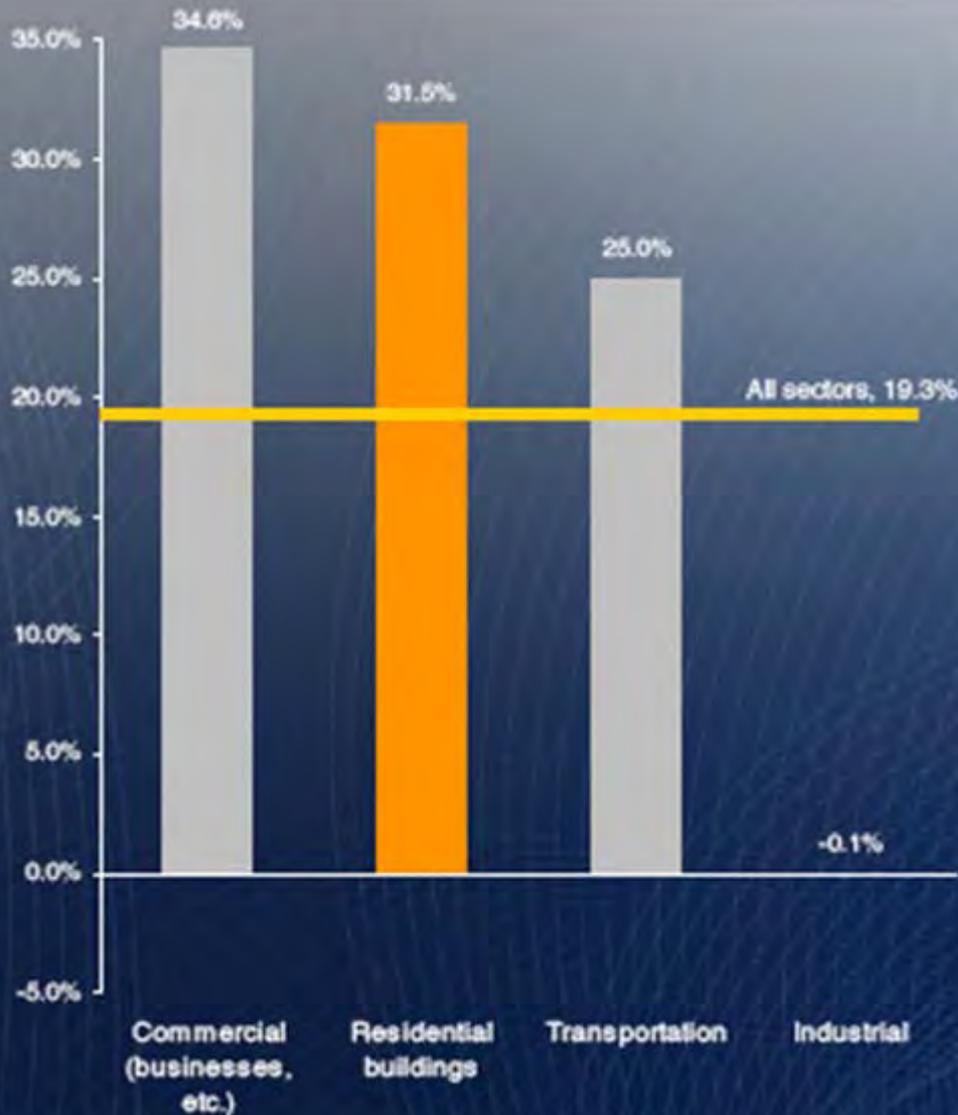
from Fossil Fuel Combustion



U.S. CO2 Emissions from Fossil Fuel Combustion



Residential Emissions Increasing

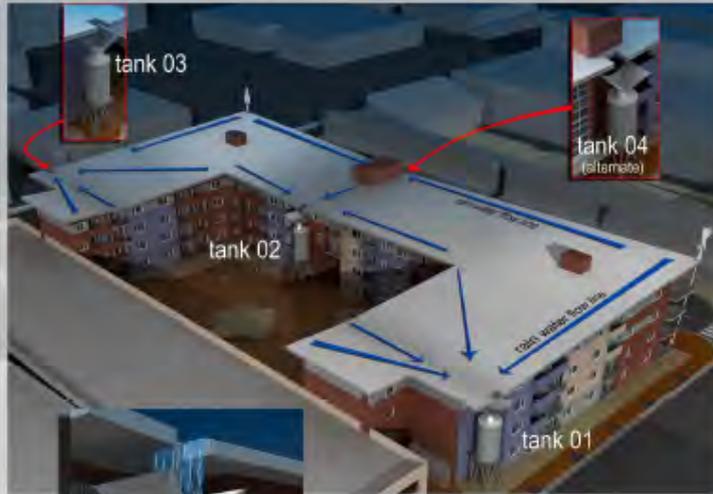


CO₂ emissions from residential buildings increased much faster than all sectors except commercial operations between 1990 and 2005 and surpassed the overall average increase by over 10 percentage points

Measurement of CO₂ Emissions Reductions in Qualified Project:



Fund Purchases CO₂ Emissions Reductions From Qualified Project:



Rain Water Collection and Storage System

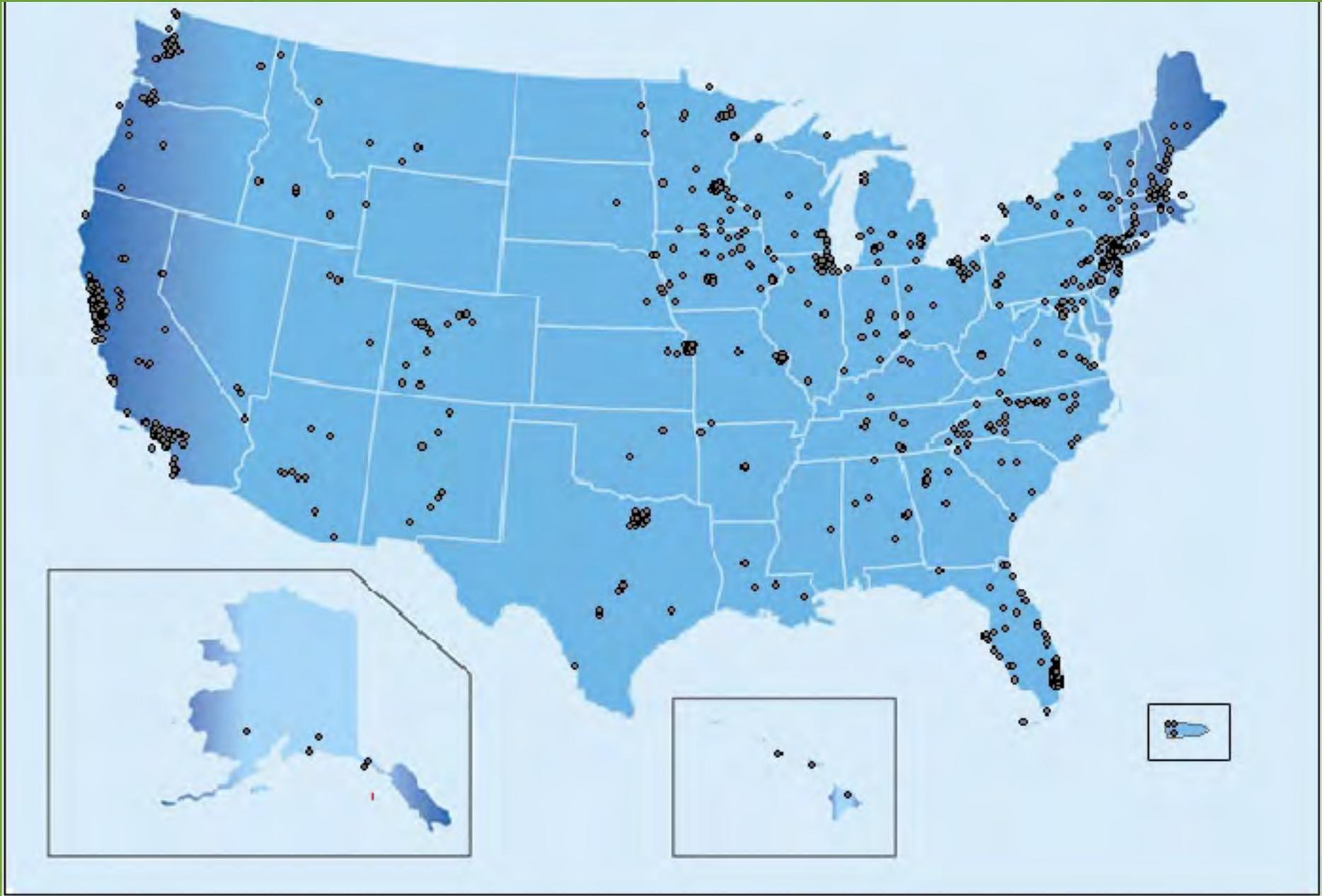


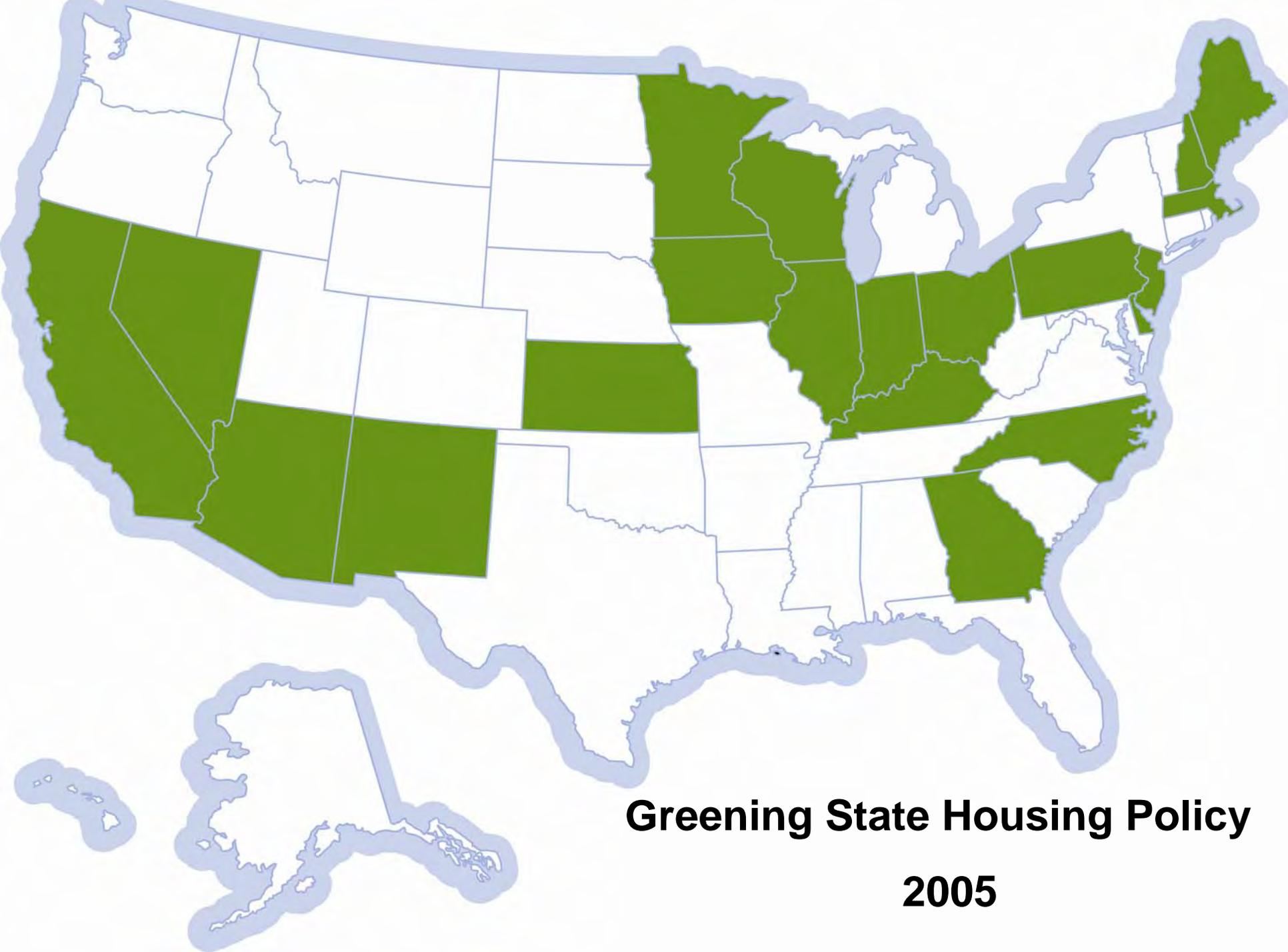
Wind Turbine Electric Power Generators



Integrated Sustainable Design Features:

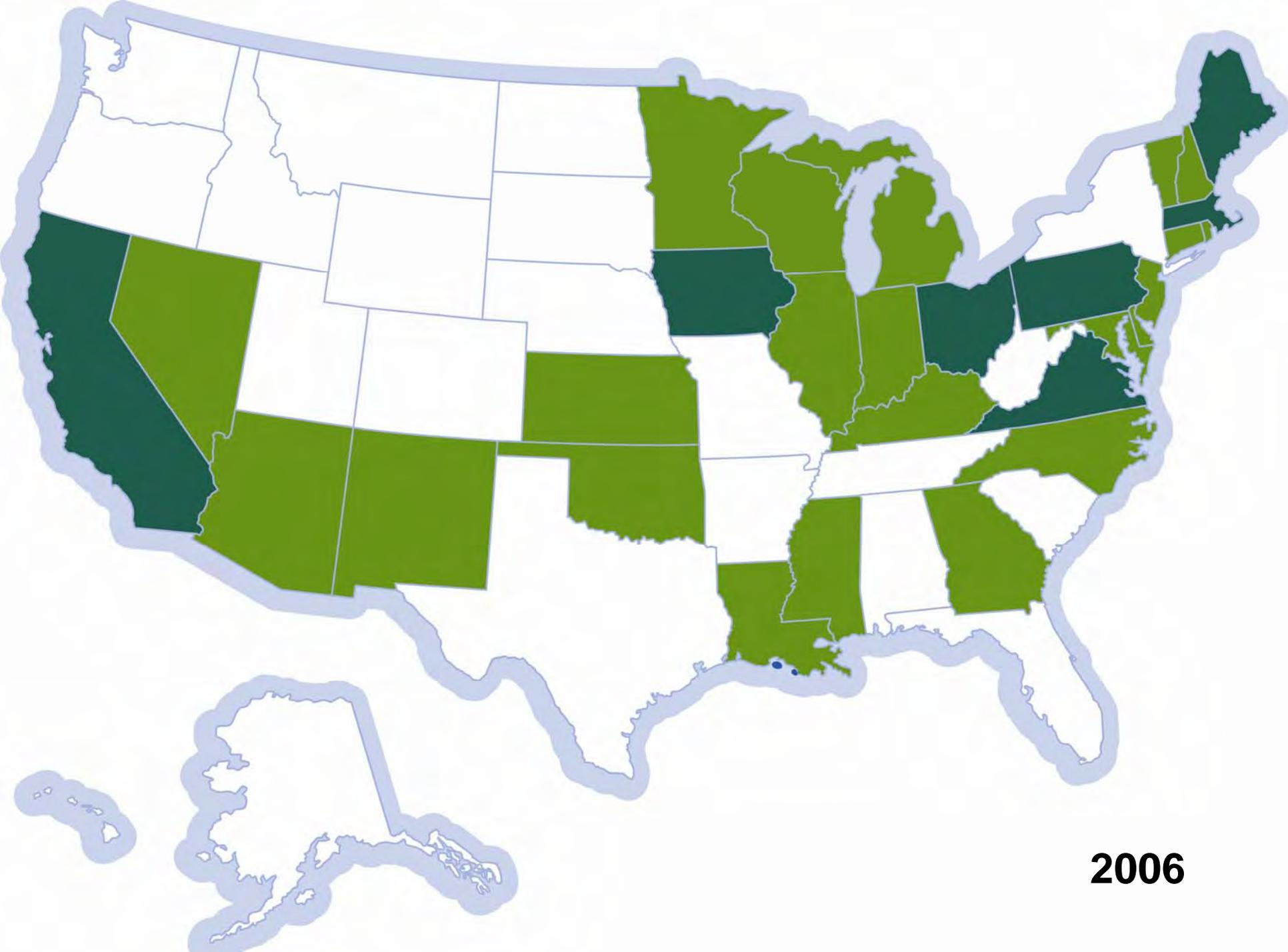
- LEED Gold level of certification
- Compliance with Green Communities Criteria
- Site location in downtown Albuquerque's Transportation District
- Proximity to the public transit and easy access to other important community amenities
- Proximity to existing infrastructure will minimize impact of suburban development
- Site remediation will be completed for the former Greyhound Bus Terminal
- Water-efficient landscaping and irrigation systems
- Rainwater harvesting and storage into above ground cisterns for landscape irrigation
- High-efficiency indoor plumbing fixtures for water conservation
- Wind turbines generating on site electric power, Wind to power, Power to Inspire
- EPA Energy Star labeled windows, appliances, and interior lighting
- EPA Energy Star Indoor Air Package
- Carbon monoxide sensors by combustion equipment
- Carpet complies with LEED requirements for VOC limit on glue and Recycled content
- Paint complies with LEED criteria
- Ecocycle 40% recycled tile
- FSC Certified wood permian
- Panelize wood framing off site
- R30 insulation in roof in lieu of R22 per code
- R23 Cellulose in exterior walls in lieu of R19
- Reflective TPO roof in lieu of non-reflective built up roofing material



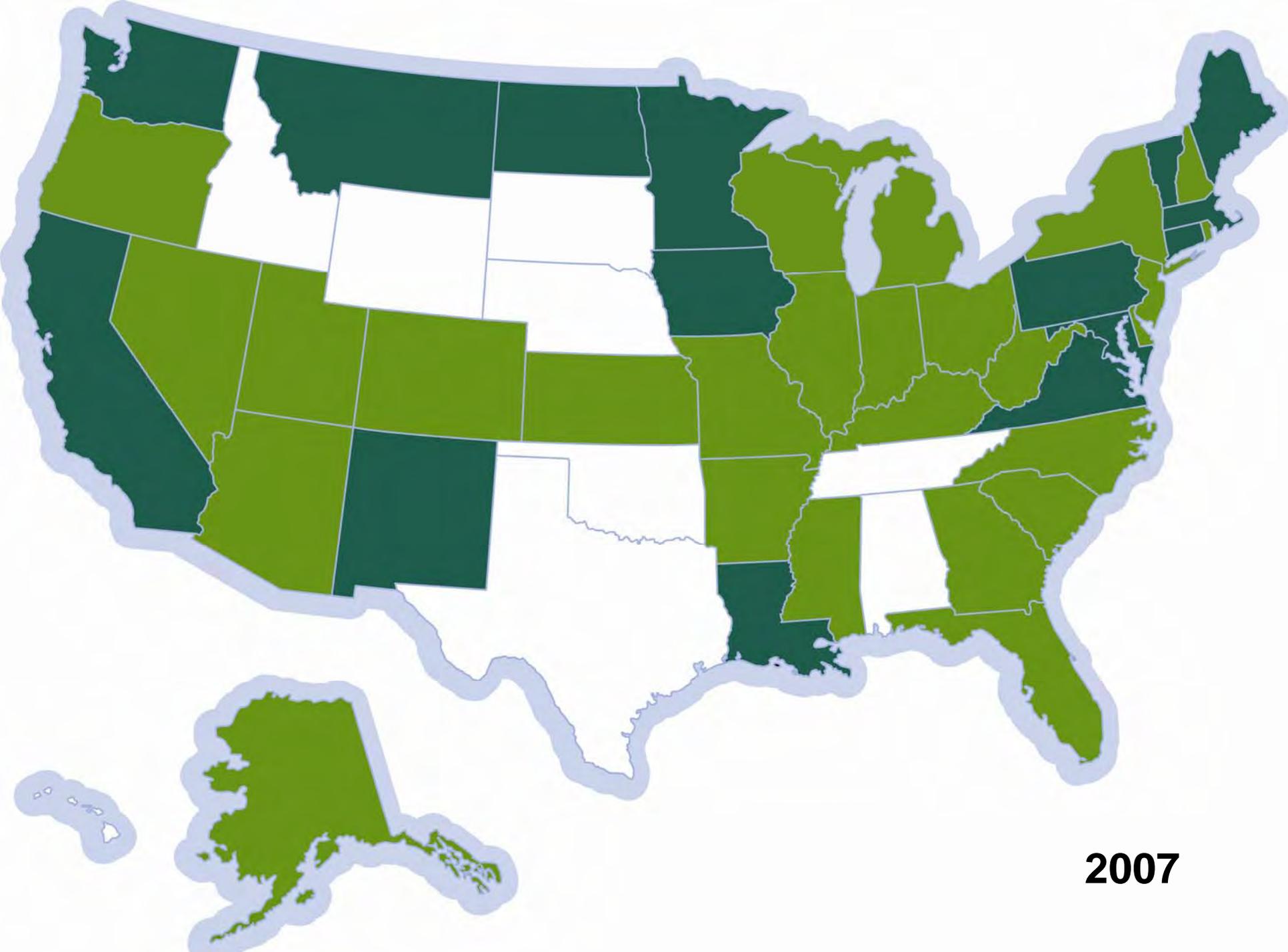


Greening State Housing Policy

2005



2006



2007

www.greencommunitiesonline.org



Integrating the Process

Green Development Plan

Trolley Square

Photo: Mostue & Associates

Criteria One: Integrated Design Process

Integrated design is the foundation of building green. It involves exploring the possibilities of green for the project as early as possible and with the full spectrum of development stakeholders. An integrated approach offers the greatest opportunities for enhancing building performance and increasing the health, economic and environmental benefits. In building Trolley Square, sustainability was at the forefront of the development team's early planning. They considered all aspects

- 1 Integrated Design Process
- 2 Location & Neighborhood Fabric
- 3 Site Improvements
- 4 Water Conservation
- 5 Energy Efficiency
- 6 Materials Beneficial to the Environment
- 7 Healthy Living Environment
- 8 Operations & Maintenance



For more information:

Green Communities

Enterprise Community Partners

410.715.7433

greencommunities@enterprisecommunity.org

www.greencommunitiesonline.org

LEED for Homes

September 16, 2008

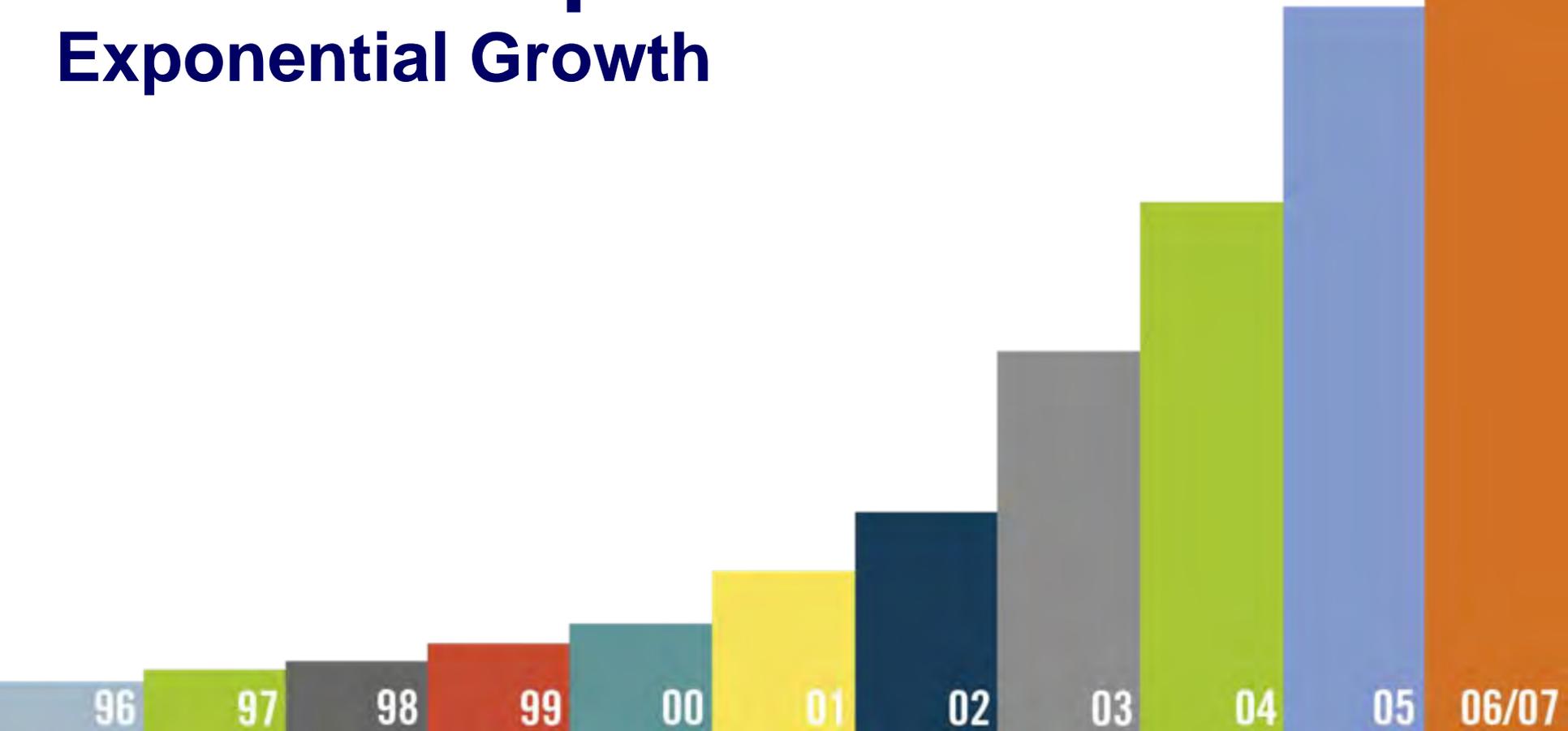


Jay Hall, Ph.D.



USGBC Membership Exponential Growth

13,500
Organizations



LEED Rating Systems

Consensus-Based Standards



Program Status

39 Certification Providers

13,097 Registered Homes

1,000 Certified Homes

226 Certified

409 Silver

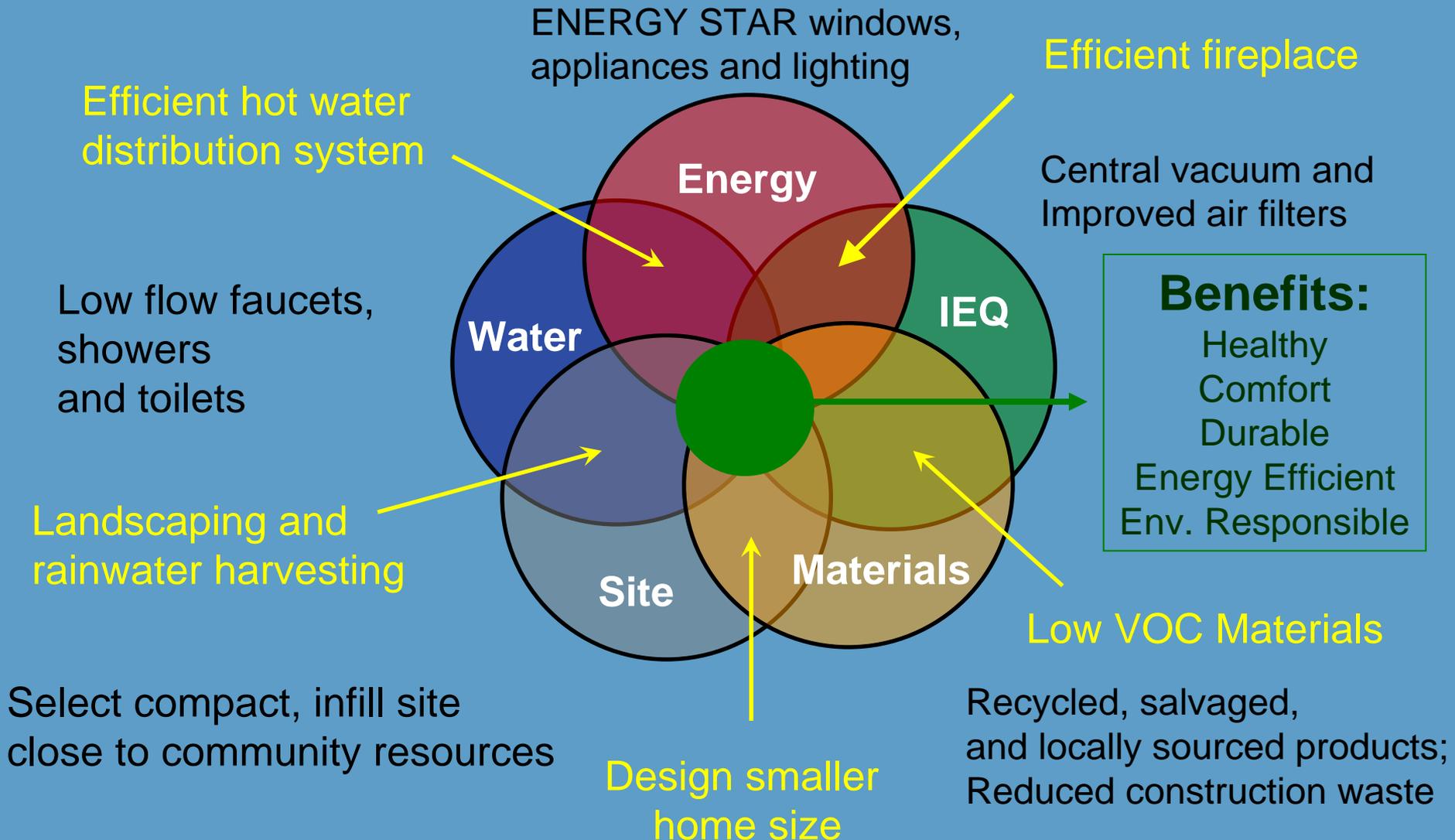
218 Gold

144 Platinum



What is Green Home?

Example Green Products *and* Green Practices



Rating System

www.usgbc.org/leed/homes



Project Checklist
LEED for Homes

Builder Name: _____
Home Address (Street/City/State): _____

Input Values: No of Bedrooms: Floor Area (SF): Minimum No. of Points Required: Certified: Silver: Gold: Platinum:

Detailed information on the measures below are provided in the companion document "LEED for Homes Rating System" Max Points Available

Y/Pa No NA	Innovation and Design Process (ID)	(Minimum of 0 ID Points Required)	Max Points Available
	1.1 Integrated Project Planning	Preliminary Rating	Prerequisite
	1.2	Integrated Project Team	Required
	1.3	Design Charrette	Required
			4
			2
			1
			3
			5
			9

Simple

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

Y/Pa No NA	Sustainable Sites (SS)	(Minimum of 5 SS Points Required)	OR	21
	1.1 Site Stewardship	Erosion Controls (During Construction)	Prerequisite	1
	1.2	Minimize Disturbed Area of Site	Prerequisite	6
				1
	2.1 Landscaping	No Invasive Plants	Prerequisite	1
	2.2	Basic Landscaping Design		2
	2.3	Limit Turf		3
	2.4	Drought Tolerant Plants	Required	2
				1
	3 Shading of Hardscapes	Locate and Plant Trees to Shade Hardscapes		1
	4.1 Surface Water Management	Design Permeable Site		4
	4.2	Design and Install Permanent Erosion Controls		2
	5 Non-Toxic Pest Control	Select Insect and Pest Control Alternatives from List		2
	6.1 Compact Development	Average Housing Density ≥ 7 Units / Acre	LL1	2
	6.1	Average Housing Density ≥ 10 Units / Acre	LL1	3
	6.3	Average Housing Density ≥ 20 Units / Acre	LL1	4
				108
	0 Sub-Total			
Y/Pa No NA	Water Efficiency (WE)	(Minimum of 3 WE Points Required)	OR	15
	1.1 Water Reuse	Rainwater Harvesting System		4
	1.2	Grey Water Re-Use System		1
	2.1 Irrigation System	Select High Efficiency Measures from List		3
	2.2	Third Party Verification		1
	2.3	OR Install Landscape Designed by Licensed or Certified Professional	WE 2.2	4
	3.1 Indoor Water Use	High Efficiency Fixtures (Toilets, Showers, and Faucets)		3
	3.2	OR Very High Efficiency Fixtures (Toilets, Showers, and Faucets)	WE 3.1	6
	0 Sub-Total			

Points of LEED for _____

Provider's Name: _____ Company: _____
Signature: _____ Date: _____



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**

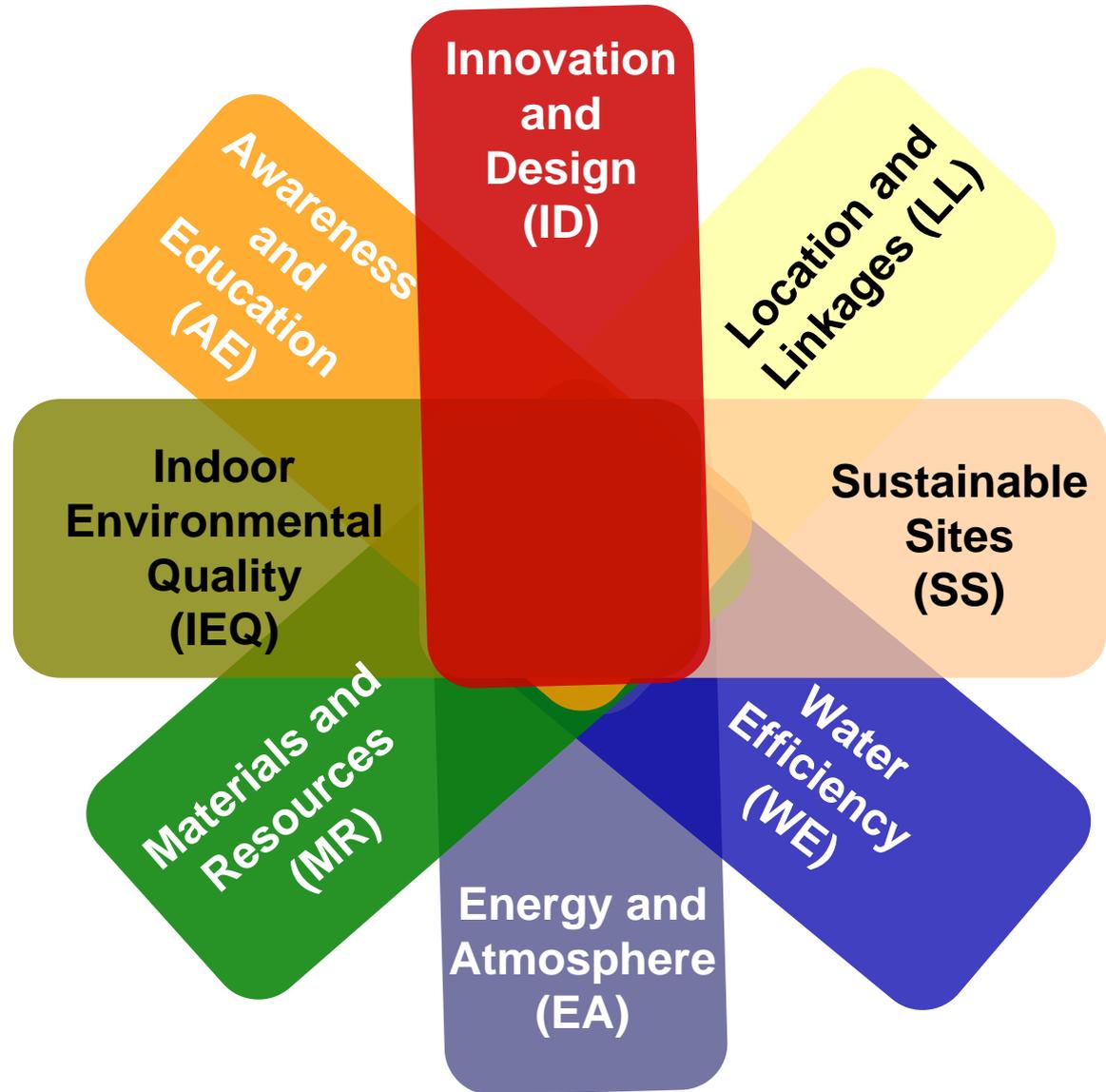
4 Levels of LEED Certification

Varying Performance Levels



Credit Categories

***Resources
To Use
Wisely***



What's Different about the LEED for Homes Rating System?

Regional Applicability

Climate Zones

Radon Risk Zones

Termite Risk Areas

ET Zones



ENVIRONMENTS FOR Living

Durability

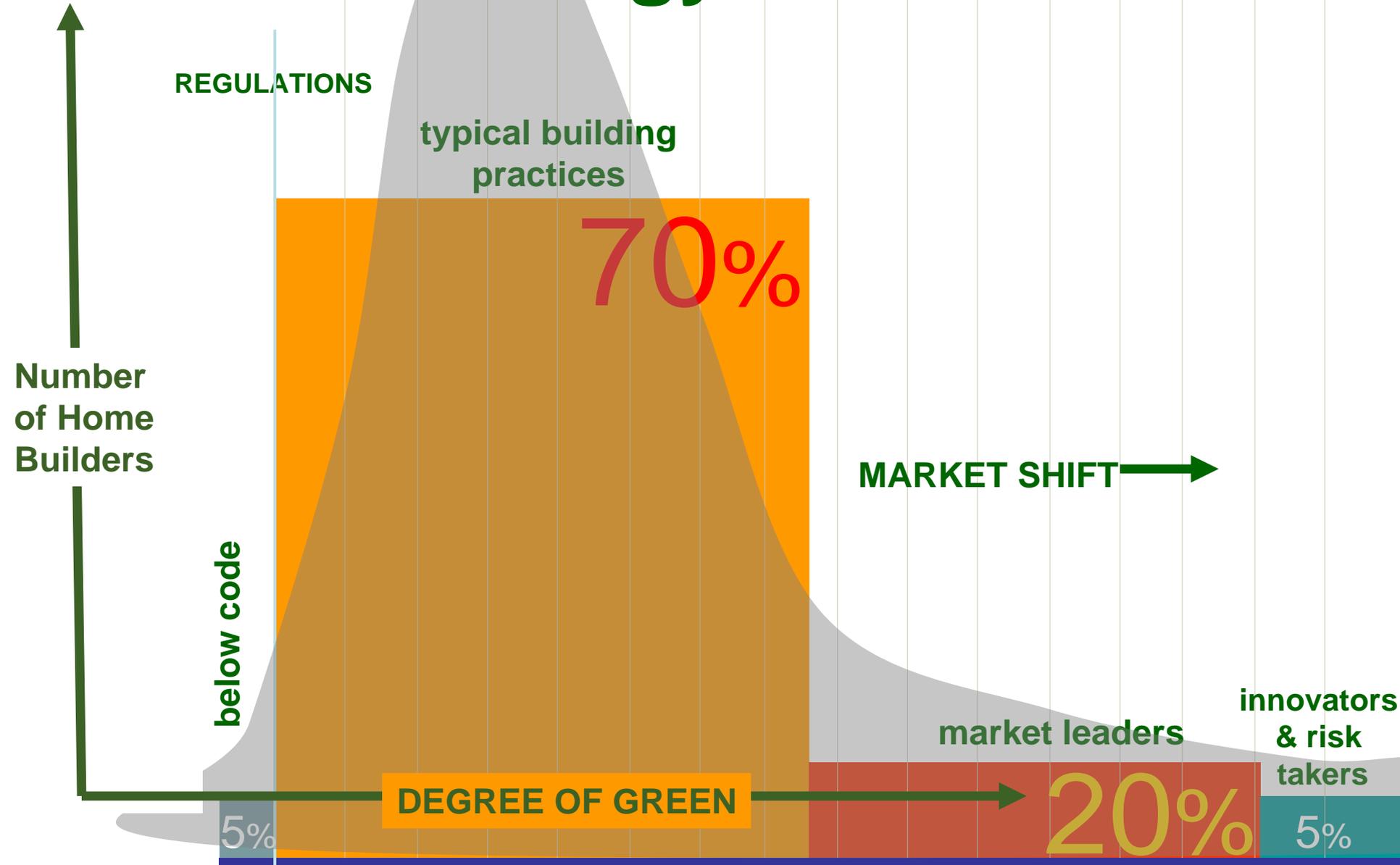
Home Size

Location and Linkages (LEED ND)

Landscaping and Irrigation

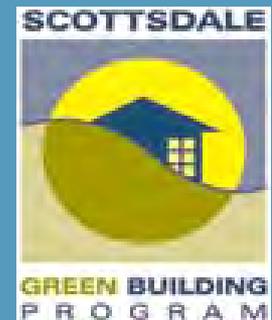
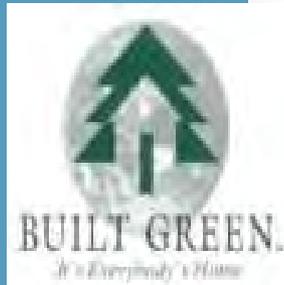


Market Strategy



LEED for Homes Alliances

Local and Regional Programs



LEED for Homes Initiative for Affordable Housing

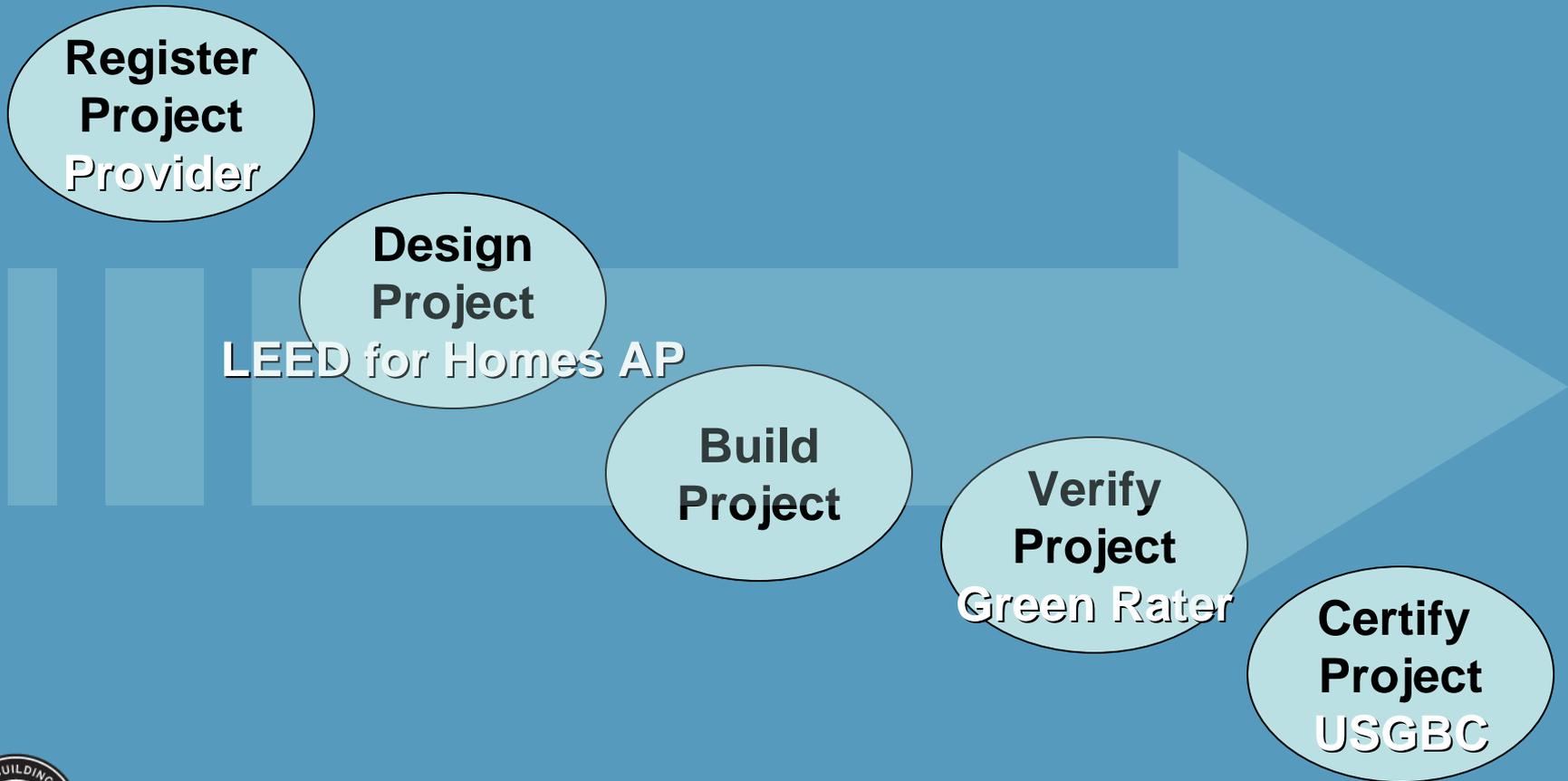
Purpose: to recognize and reward the intrinsic resource efficiencies of affordable housing

- Awareness and Education
- Tools
- Technical Support

New!
Alignment with



Project Timeline



LEED for Homes Providers and Green Raters

www.usgbc.org/leed/homes



Education

100 Level

Awareness for public (on-line)

200 Level

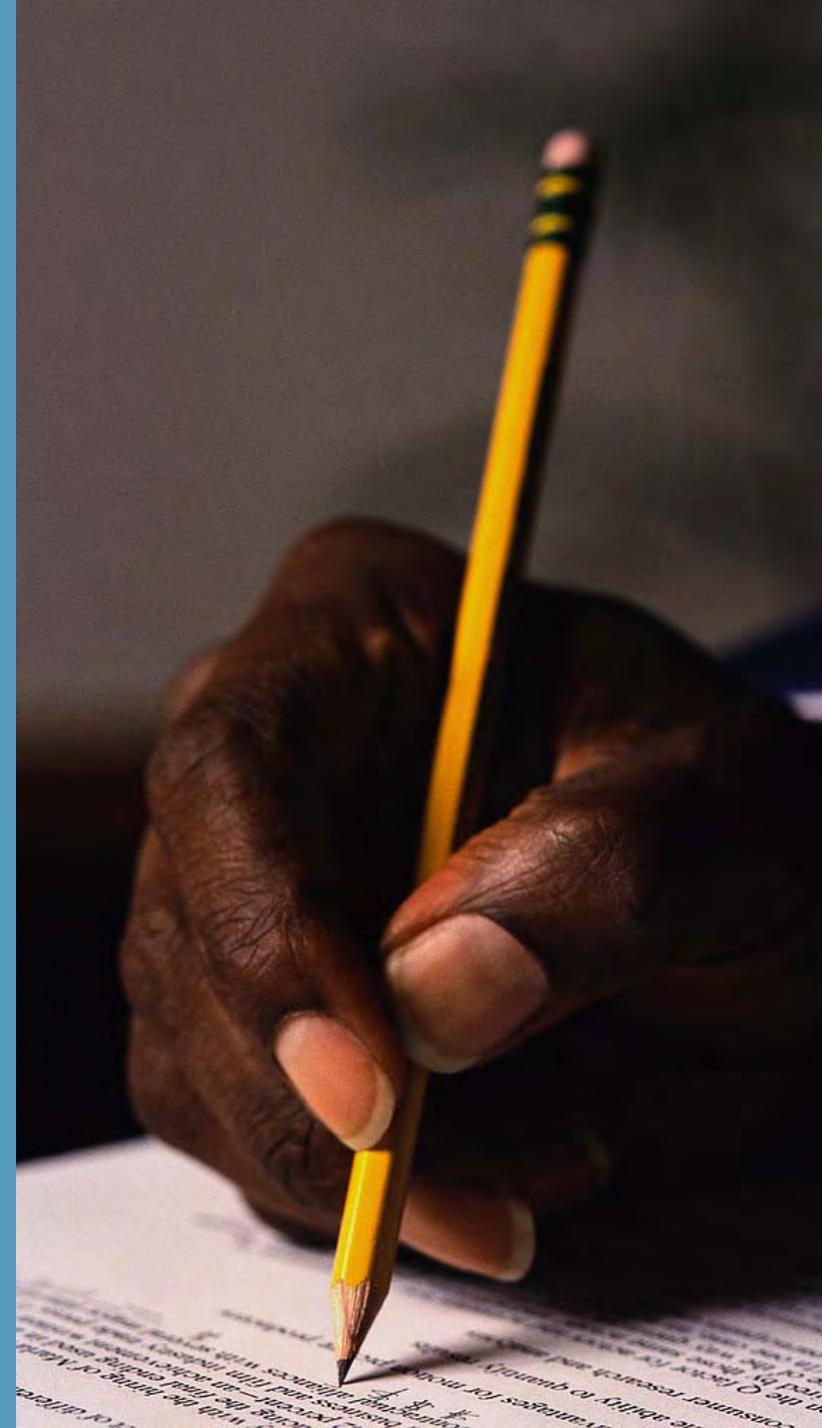
Understanding for key stakeholders

300 Level

Implementation for Project Teams
and Green Raters

400 Level

Advanced Topics





THE GREEN HOME GUIDE

WHAT MAKES A GREEN HOME?

CLIMATE AND ENVIRONMENT

GREEN HOME STANDARDS

LOCAL RESOURCES

HOMEGROW/RENOVATION GREEN GUIDE

LIVING GREEN

NEWS & EVENTS

SEARCH

Green Builder

Green Home

Green Retailer

BOOKSTORE

NEWS

USGBC Introductory PowerPoint Presentation

This high-quality presentation is a great introduction to the benefits of LEED and green building. Download it today to educate yourself, your colleagues, and your clients about the hows and whys of green. By joining USGBC, (2 MB file download.) [Read More...](#)

Green Building by the Numbers

Check out the latest stats on USGBC, LEED, and the green building industry. This high-quality presentation is a great introduction to the benefits of LEED. [Read More...](#)

How You Can Get Involved

By joining USGBC, you'll gain access to wealth of resources to help you leverage the rapidly growing green building industry. This high-quality presentation is a great introduction to the benefits of LEED and green building. Download it today to educate yourself, your colleagues. [Read More...](#)

BASICS


NeoCon
 World's Trade Fair 2007

CHICAGO
JUNE 11-13, 2007


FACTS

DID YOU KNOW?

All Facts on Low-VOC Paints



This high-quality presentation is a great introduction to the benefits of LEED and green building. [Read More...](#)

SPOTLIGHT

The Johnson House. This high-quality presentation is a great introduction to the benefits of LEED and green building. [Read More...](#)



FAQ

Calculate your personal carbon footprint and learn how to reduce it. This high-quality presentation is a great introduction to the benefits of LEED. [Read More...](#)



Cost of Green Homes

Types of Costs

- Learning Costs
- Verification Costs
- Project Certification Fees
- Brick and Mortar Costs

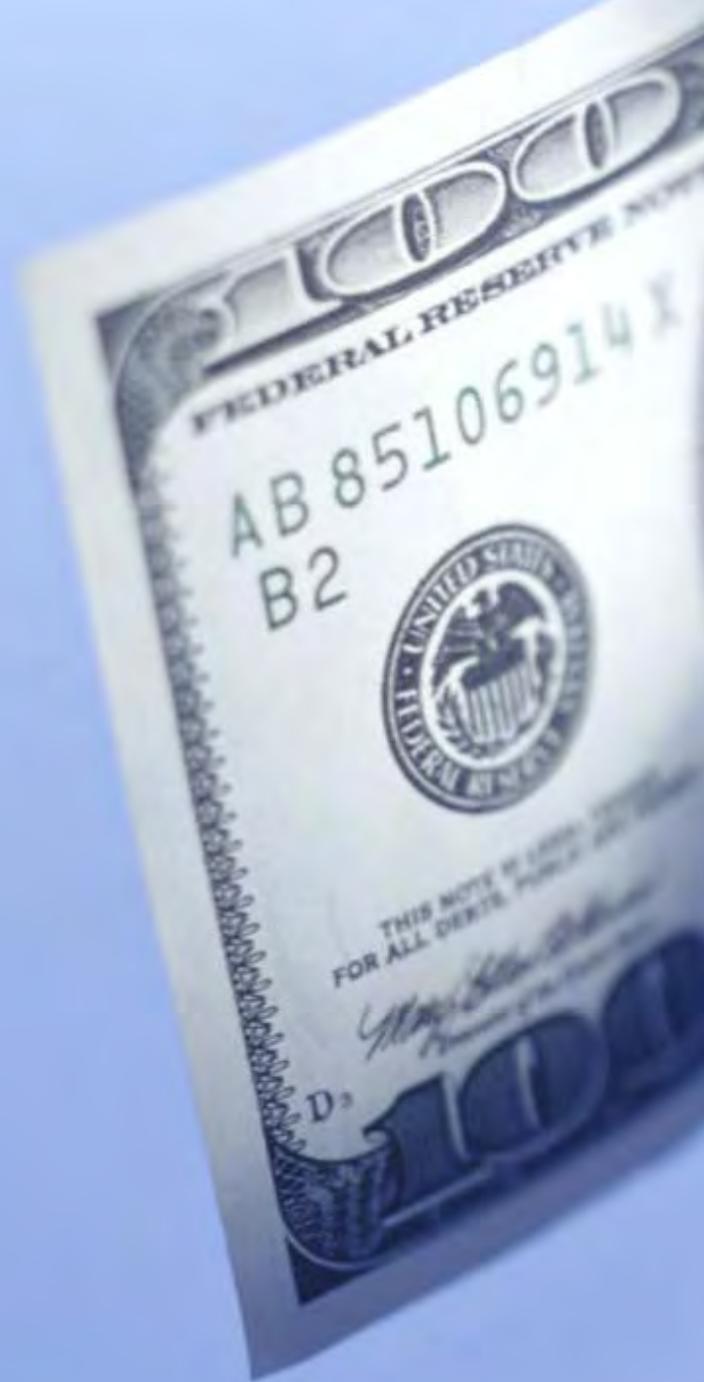
1-5% Increase in First Cost

Savings

- Energy Use Costs
- Water Use Costs
- Material Efficiencies
- Reduced Maintenance Costs

Net Overall Cost

- Break-Even - Depends on Project



Recent Projects

*Rental housing for
low income farm
workers*



PROJECT PROFILE

**TEPEYAC HAVEN
PASCO, WASHINGTON**

15 units per acre

29% Improvement of attic insulation
Heat resistance over 2000 code

44 Homes available for low-income
families

LEED® Facts	
LEED for Homes	68*
LEED for Homes Certified October 8, 2007	
Green Building Sites	15/15
Water Efficiency	9/10
Energy & Atmosphere	16/20
Materials & Resources	6/14
Indoor Environmental Quality	10/10
Transportation & Design	4/5
Smart Markets & Innovation	0/2
Leadership in Operations	0/10

*Out of a possible 100 points

Oregon
LEED Gold



New Orleans
@ LEED Platinum



Jimmy and Roslyn Carter
Project
Los Angeles
33 Homes @ LEED Gold

Average Benefits

(from Completed Projects)

Type of Benefit	Certified	Silver	Gold	Platinum
Energy Savings	30%	40%	50%	60%
Water Savings	20%	30%	40%	50%
Waste Diverted from Landfills	40%	50%	60%	70%

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

Locations & Linkages	8
Sustainable Sites	10
Water Efficiency	6
Energy & Atmosphere	19
Materials & Resources	6
Indoor Environmental Quality	2
Innovation & Design	0
Awareness & Education	0

LEED for Homes Contacts

Nate Kredich
Vice President Residential Markets
nkredich@usgbc.org

Courtney Baker, Provider Manager
202 587-7187
cbaker@usgbc.org

Batya Metalitz, Technical Development
202 742-3774
bmetalitz@usgbc.org

Jay Hall, Technical Support
Building Knowledge, Inc.
410 263-3162
Jayh@jayhall.com







**NAHB NATIONAL
GREEN BUILDING
PROGRAM™**

**National Healthy Homes Conference
September 16, 2008**



- ▶ **2006 2% of homes built green**
- ▶ **2008 6-10 %**
- ▶ **by 2010, expected to double to 12-20%**

Source: McGraw-Hill Construction, 2008

115,000+ Certified Homes





**NAHB NATIONAL
GREEN BUILDING
PROGRAM™**



Guiding Principles

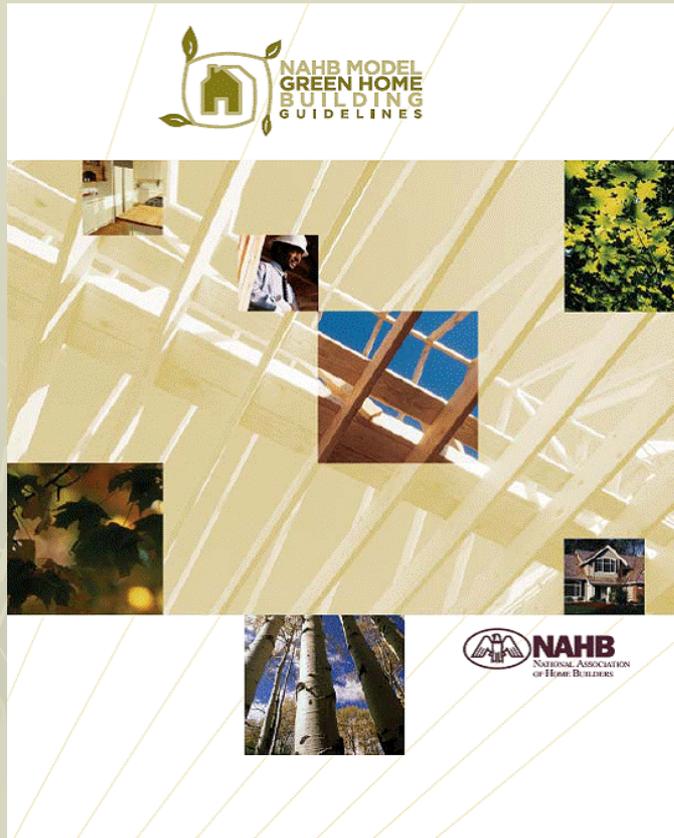
- ▶ Allow **any builder, anywhere** to design, build, verify and certify green homes
- ▶ Offer a **voluntary, cost-effective, flexible** solution
- ▶ Move tools and resources **online**



What is NAHB Green?

- ▶ **Verification and certification** program for green homes.
- ▶ An innovative online **scoring tool**
- ▶ Network of **existing HBA programs**
- ▶ National **Verifier Training and Accreditation Program**
- ▶ **Certified Green Professional Designation**
- ▶ Green Building **Education**
- ▶ **Advocacy** on Green Building Issues

Model Green Homebuilding Guidelines



- ▶ Seven guiding principles/criteria to guide builders on how to construct a green home
- ▶ Flexible, allow for regionally appropriate, cost-effective choices

What do the Guidelines address?

Points Required for the Three Different Levels of Green Building

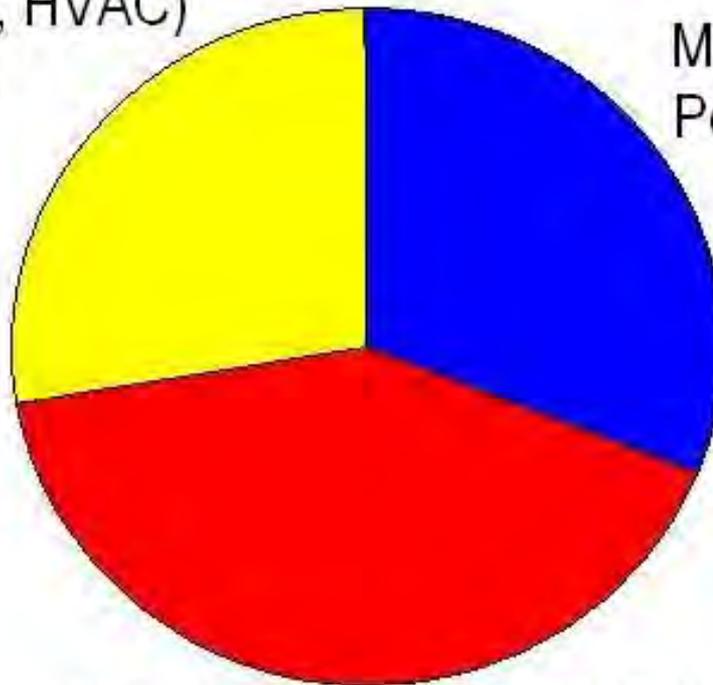
	Bronze	Silver	Gold
Lot Design, Preparation, and Development	8	10	12
Resource Efficiency	44	60	77
Energy Efficiency	37	62	100
Water Efficiency	6	13	19
Indoor Environmental Quality	32	54	72
Operation, Maintenance, and Homeowner Education	7	7	9
Global Impact	3	5	6
Additional points from sections of your choice	100	100	100

Indoor Environmental Quality in the Guidelines

Manage Moisture
(vapor, rainwater,
plumbing, HVAC)

28%

Minimize Potential
Pollutant Sources
31%



Manage Potential Pollutants
Generated in Home
41%

Indoor Environmental Quality in the Guidelines

▶ **Minimize Potential Sources**

- Vented Systems
- Low Formaldehyde/Low VOC materials

▶ **Manage Potential Generation**

- Balanced exhaust/supply system
- MERV 9 Filters
- Whole house humidification
- Radon mitigation

▶ **Manage Moisture**

- Moisture resistant backers
- Underslab vapor retardation
- Insulate cold pipes/ducts in unconditioned areas
- Low moisture wood



NATIONAL GREEN BUILDING STANDARD™

- ▶ Awaiting ANSI Approval
- ▶ Same 3 IEQ focus areas
 - Controlling pollutants, moisture & their sources
- ▶ More mandatory items
- ▶ More attention given to fireplaces

More Information

NAHB National Green Building Program

www.nahbgreen.org

Download the Guidelines at:

www.nahb.com/gbg

Follow the ANSI process at:

www.nahbrc.org/gbstandard

THANK YOU!

Kevin Morrow, CGP

Program Manager, Green Building Standards

Phone: 202-266-8375

Email: kmorrow@nahb.com



BUILDING A FRAMEWORK FOR HEALTHY HOUSING

2008 National Healthy Homes Conference

NeighborWorks[®] America

**Building Capacity for
Community Development Industry**

NeighborWorks® America

- Chartered by Congress in 1978 to promote reinvestment in our nation's older communities
- Have over 230 affiliate organizations
- Mission is to create opportunities for people to live in affordable homes, improve their lives and strengthen their communities
- Deliver on mission by providing training, technical assistance, and grants



NeighborWorks Green Agenda



think green. act green.

NeighborWorks America's Healthy, Sustainable Communities Agenda

- Create healthy, sustainable communities for low- and moderate income families by:
 - Embedding sustainable practices in operations
 - Delivering training to aid industry in progression of sustainable housing
 - Support our network with tools to deliver greener homes and communities



Sustainable Practices Evaluated

- Green Office Audit for corporation
 - Address recycling in offices
 - Need to reduce travel
- Similar audits for network affiliates
 - National in scope
 - Manual for addressing office operations
 - Best practice class to be developed



NeighborWorks Training Offerings in Green, Healthy Housing

- How to build and manage affordable, green housing
 - For sale
 - Rental
- How to create healthy homes
- How to deal with environmental issues



Advancing Green Activities of NeighborWorks Network

- Educating homebuyers to be green
- Building Green
 - New Construction
 - Rehabbing - resale, owner occupied
- Retrofitting rental properties
- Greening communities



NeighborWorks Network in Action

- **New Construction**
 - Over 60 projects in pipeline with 2,800 units and \$500MM in total development costs
- **Owner Occupied Rehab**
 - Over 25 organizations working to add green premiums to modest rehab efforts
- **Single Family Rehab**
 - Over 25 organizations focusing on incorporating green into substantial rehab
- **Multifamily Property Energy Management**
 - Over 25 organizations participating in training on energy management and better indoor environments



Community Housing Works Poway, CA

- 56 units rental housing
- Affordable: 30% to 60% AMI
- ULI Award of Excellence
- Infill site
- PV supplies 90% of unit and common areas demand
- Green Elements: energy efficiency, water conservation, recycled material, indoor air quality, public art



Community Housing Partners Blacksburg, VA

- 14 duplex housing units
- Affordable at 80% and below AMI
- Home Depot Foundation Award and HUD Gold Award for Excellence
- Infill sites
- Environmental materials, energy efficient, water conservation, healthy home features



Rural Opportunities Inc

Rochester, NY

- Owner-occupied for residents earning less than 80% of AMI
- 84 units in 2008
- \$2,000 green premium
- Rehab specs meet Green Communities standards
- Focus on energy efficiency, water conservation, moisture control, indoor air quality



Why Is NeighborWorks Pursuing?

- We must adopt. We cannot continue to create 30 year problems.
- Low and moderate income families deserve same healthy benefits.
- Makes sound financial sense (although also a challenge).

