Instructors: Jason LaFleur
jlafleur@alliancees.org
Brett Little
brett.little@alliancees.org

Implementing LEED for Homes On Your Project

Pt 1

Tepeyac
Photographer: Zeck Butler Architects

alliance
for environmental sustainability

- Founded 2000
- Midwest LEED for Homes Provider
- 501(c)3 non-profit; mission:

To be a catalyst for market transformation of the built environment through education, third-party verification, and partnership.

alliance
for environmental sustainability

LEED™
FOR HOMES

- US LEED for Homes “LEED”er provider
- 25 + Green Rater Partners in the Midwest
- LEED facilitators in Ohio, Indiana & Chicago

- Nearly 9,000 Registered Units

- *Over 4,200 Certified Homes & Multi Family Units!*

LEED for Homes aligns with AES’s Mission of holistic green building and remodeling

"USGBC" is a Registered Provider with the American Institute of Architects Continuing Education Systems. Credit earned on completion of this program will be reported to CES records for AIA members. Certifications of Completion for non-AIA members are available upon request.

This program is registered with AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product. Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

EDUCATION PARTNER

NARI GREEN
Remodeling homes, conserving the planet

LEED AP HOMES

GBCI CMP

CONTINUING EDUCATION AIA

Platinum +

3 YEAR SPONSORS

ECO ACHIEVERS
Building Wisdom

Who Am I?

- Jason La Fleur
  - LEED AP Homes
  - LEED for Homes Green Rater
  - LEED AP BD&C
  - IECC Code Reviewer
  - Energy Rater
  - Passive House Rater
  - GreenStar Professional
- Eco Achievers
- USGBC IL greenbuilthometour.org

Who Are You?

- Name
- Company
- Background
- AIA, GBCI or other membership?
- Describe the project you are working

Learning Objectives

For the LEED for Homes rating system:

- ✓ Identify the types of projects which are eligible.
- ✓ Recognize the roles and responsibilities of key stakeholders in the LEED certification process.
- ✓ Recognize goals, intents, and requirements of prerequisites and key credits, and strategies to meet them.
- ✓ Plan for key considerations and requirements for the LEED certification process.
- ✓ Understand how to navigate and utilize materials and resource section

Agenda

Part 1

Introduction

LEED for Homes Overview

Materials & Resources

Part 2

Location & Linkages

Sustainable Sites

Water Efficiency

Part *3*

Energy & Atmosphere

Indoor Environmental Quality

Part *4*

Innovation and Design (ID)
Awareness & Education (AE)
LEED for Homes Version 4 Introduction
LEED Checklist Navigation
LEED registration and Submittal Process How to
* Can't make all the dates or if you miss one? Don't worry! It will be recorded and provided for free.

Participant Materials

Workbook

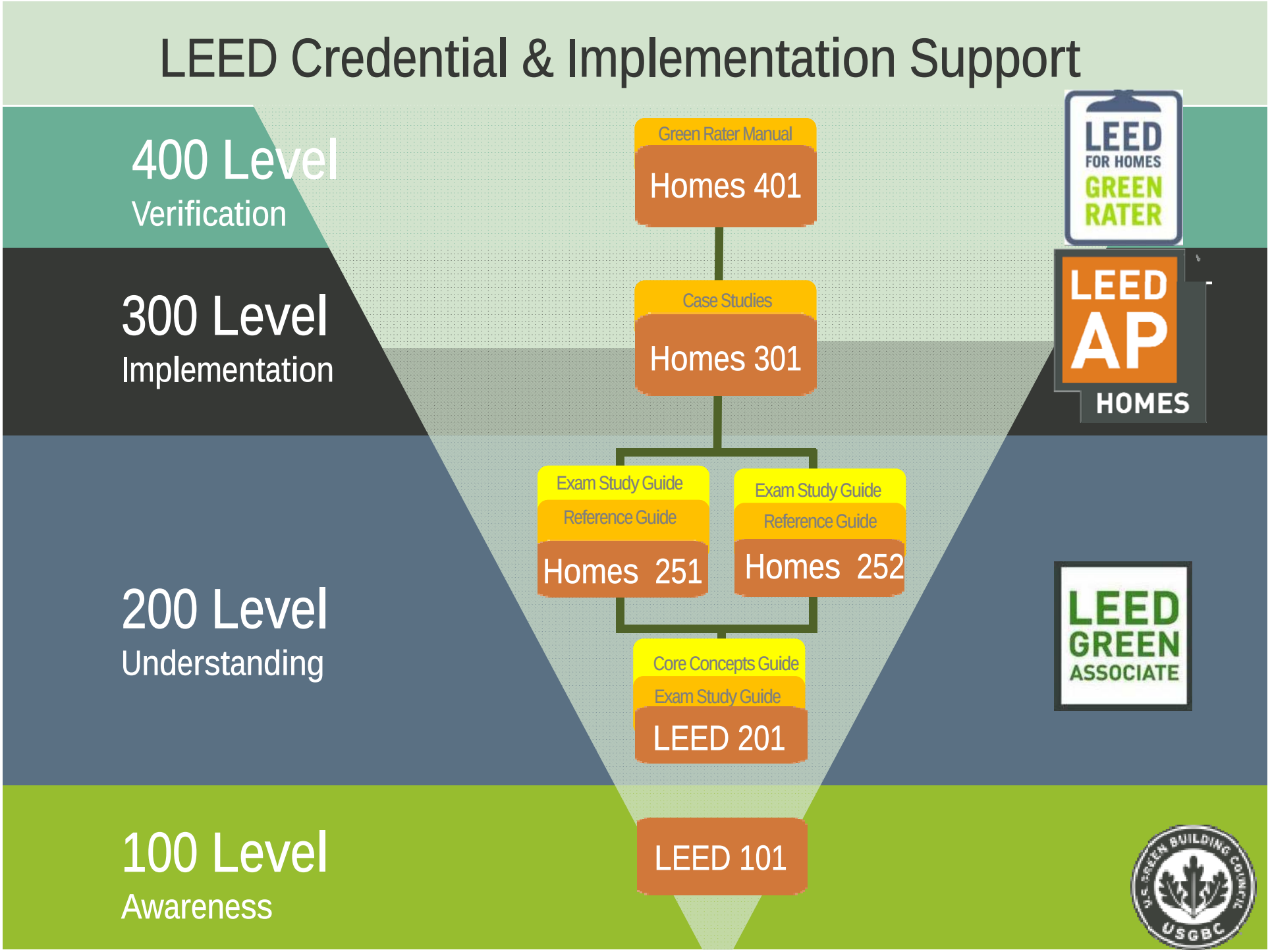
- Agenda
- Activity and Case Study Materials
- Appendices:
  - LEED for Homes Checklist
  - Eligibility Guidelines
  - Prerequisite and Credit Intents
  - Sample LEED AP Homes Exam Questions

Presentation Materials

LEED for Homes Rating System (electronic file)

LEED for Homes Workbook (XLS file)

LEED Credential & Implementation Support



LEED Credentials and Certificates

LEED Addresses…

GREEN BUILDING DESIGN & CONSTRUCTION	LEED FOR NEW CONSTRUCTION
	LEED FOR CORE & SHELL
	LEED FOR SCHOOLS
	LEED FOR HEALTHCARE
	LEED FOR RETAIL
GREEN INTERIOR DESIGN & CONSTRUCTION	LEED FOR COMMERCIAL INTERIORS
	LEED FOR RETAIL INTERIORS
GREEN BUILDING OPERATIONS & MAINTENANCE	LEED FOR EXISTING BUILDINGS: OPERATIONS AND MAINTENANCE
GREEN HOMES DESIGN & CONSTRUCTION	LEED FOR HOMES
GREEN NEIGHBORHOOD DEVELOPMENT	LEED FOR NEIGHBORHOOD DEVELOPMENT


LEED
FOR HOMES
PROJECT UNDER CONSTRUCTION

World's First LEED Platinum / NAHB Emerald Remodel

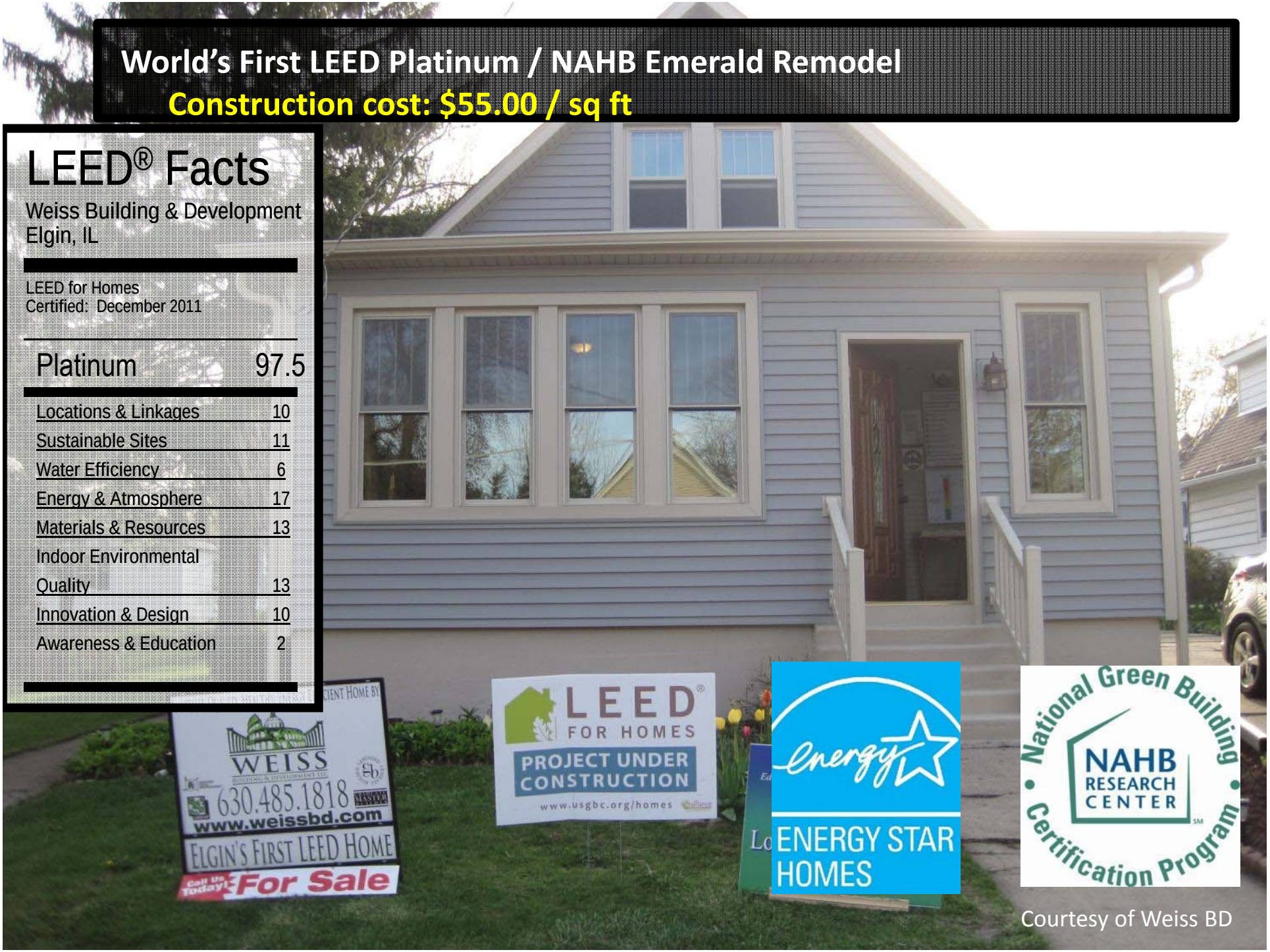
Construction cost: $55.00 / sq ft

LEED® Facts

Weiss Building & Development
Elgin, IL

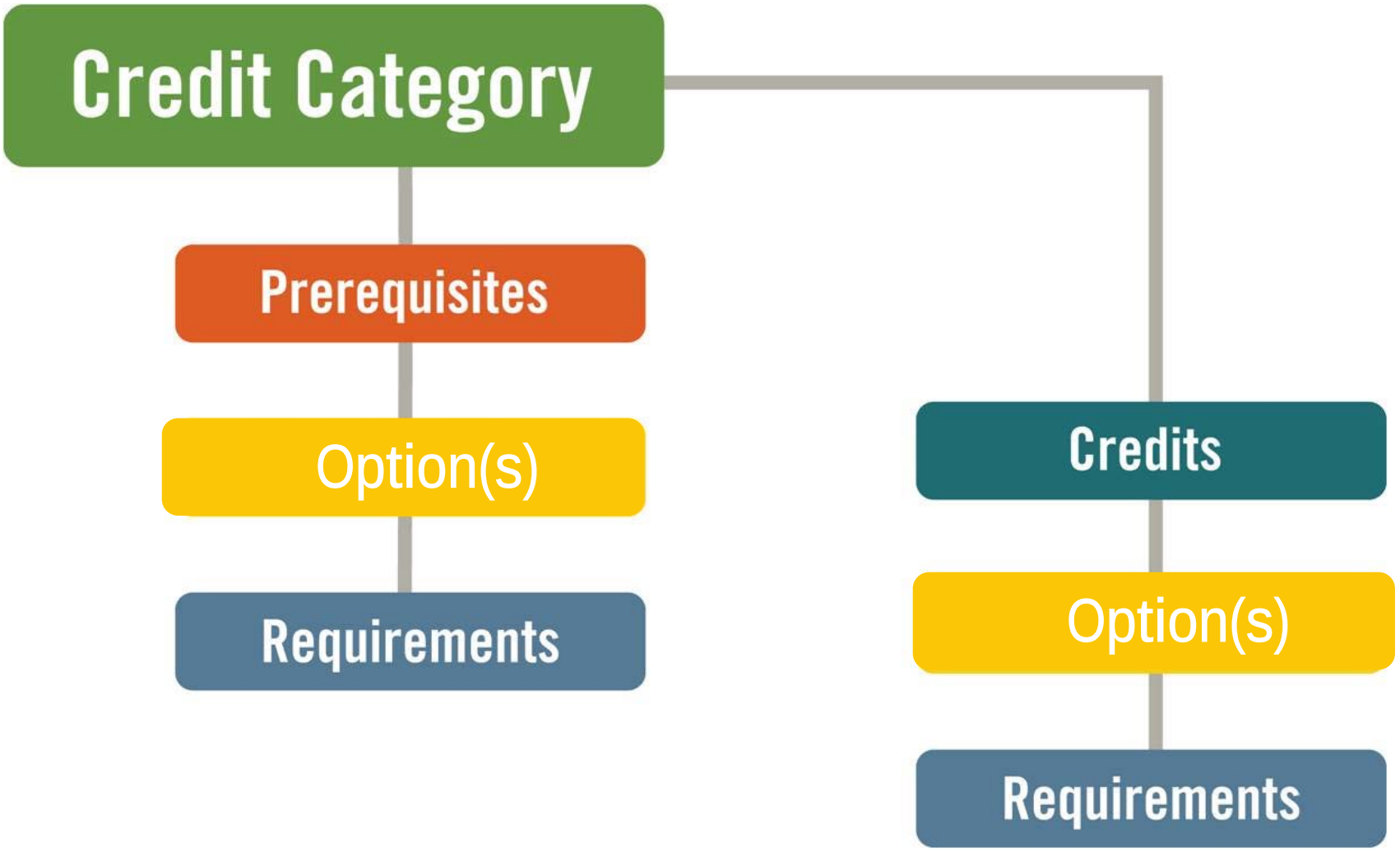
LEED for Homes
Certified: December 2011

Platinum	97.5
Locations & Linkages	10
Sustainable Sites	11
Water Efficiency	6
Energy & Atmosphere	17
Materials & Resources	13
Indoor Environmental Quality	13
Innovation & Design	10
Awareness & Education	2



Courtesy of Weiss BD

LEED Rating System Structure



LEED for Homes Certification Levels

45-59

60-74

75-89

90+

Points


Photographer: Brett Dillon

LEED for Homes Overview

Understanding the LEED for Homes Rating System

We Hit a Milestone in 2013!

150,000 units CERTIFIED !!

Counting Commercial

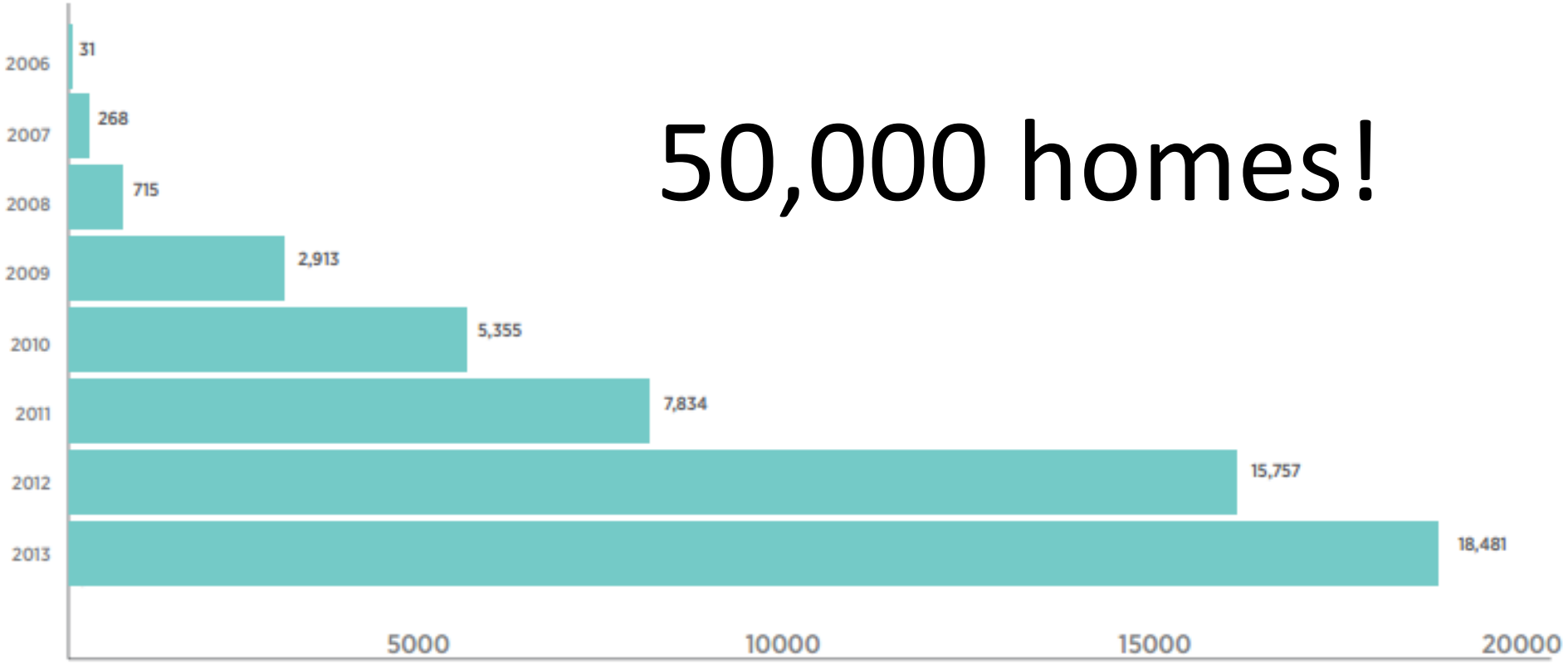
74% multifamily

44% affordable housing

65% happened in just the past two years

indicating serious momentum

LEED for Homes Certified Units

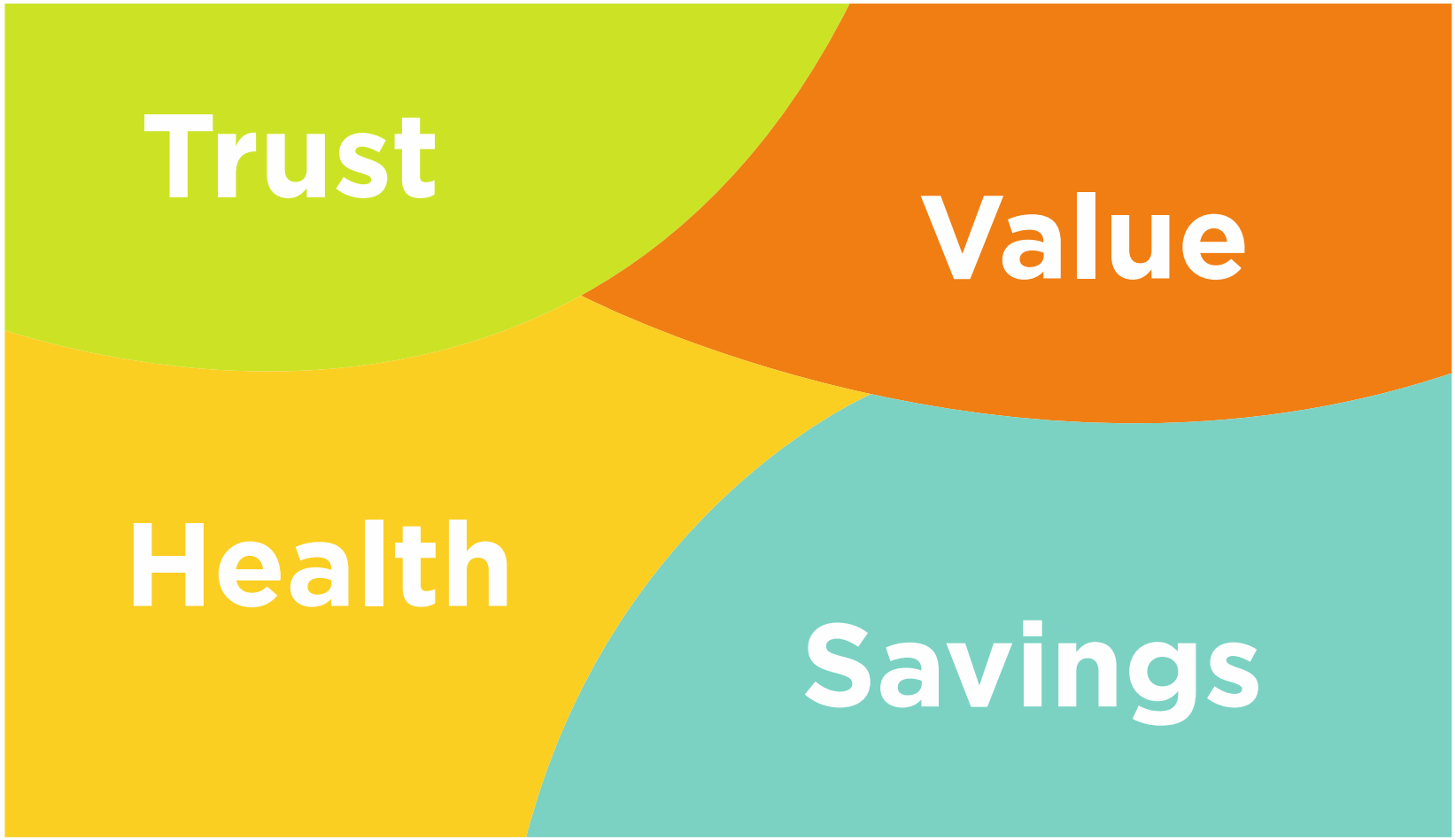


50,000 homes!

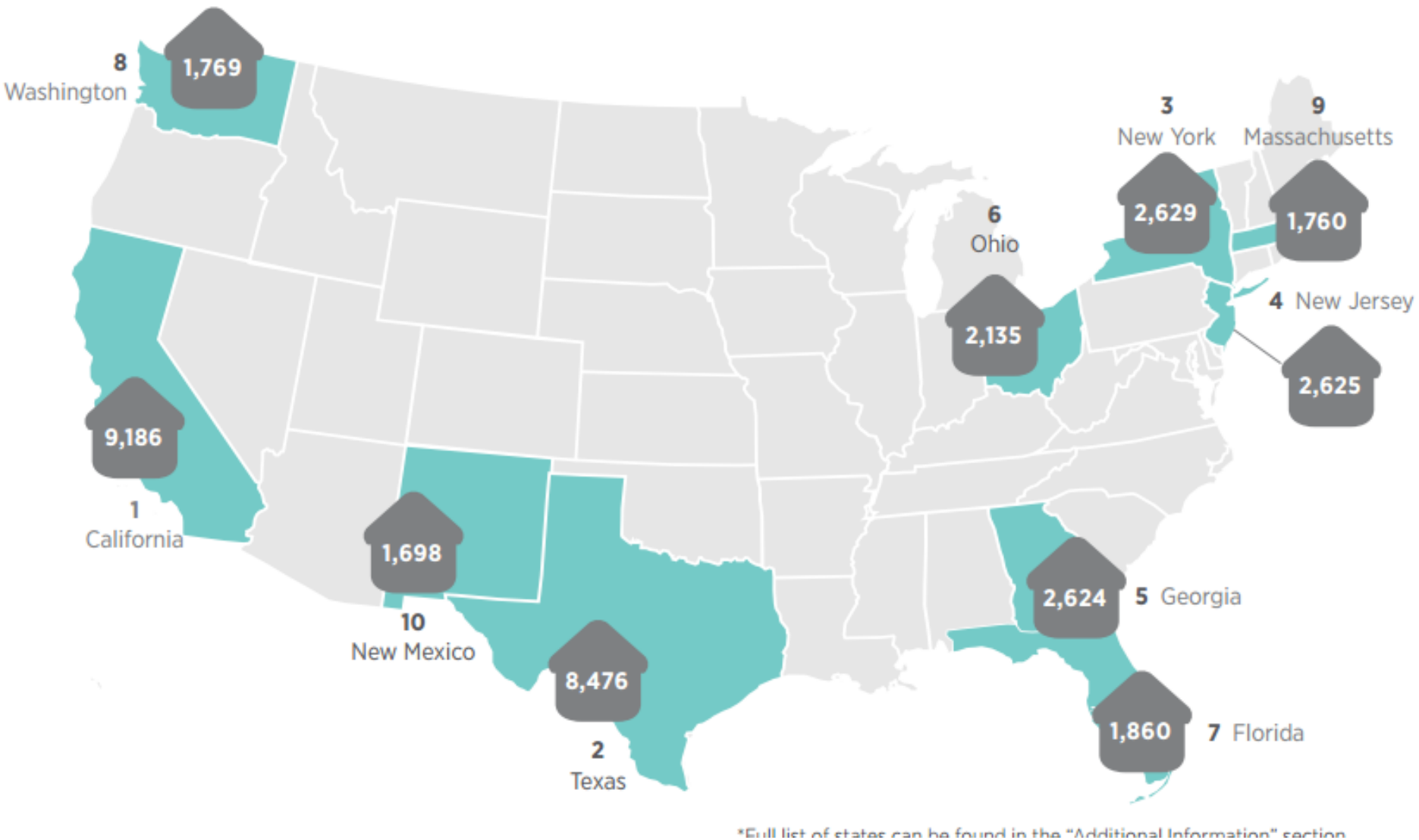
* Annual certified units, not cumulative

LEED for Homes Registrations

Why do LEED for Homes?

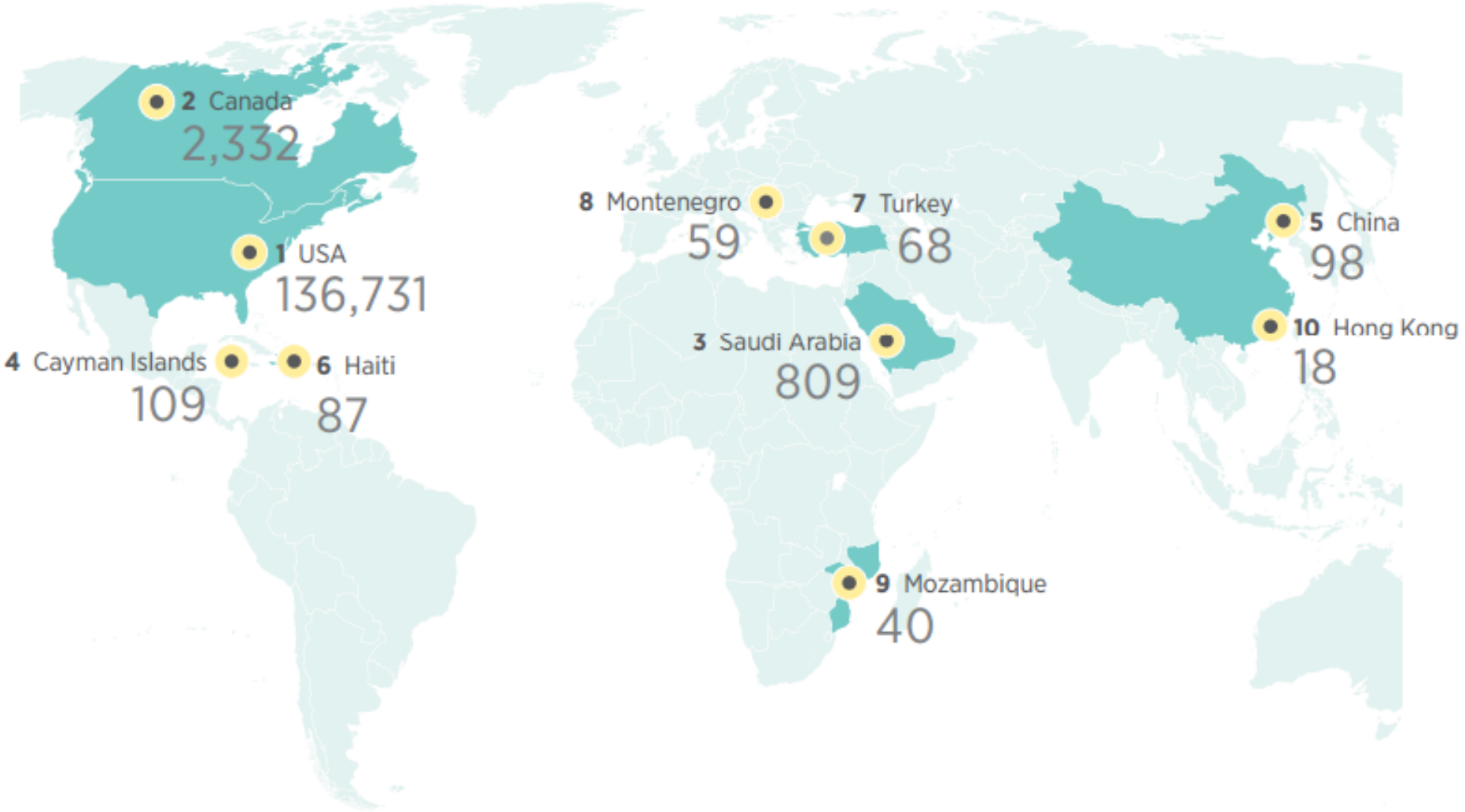


Top 10 U.S. States with LEED for Homes Certified Units

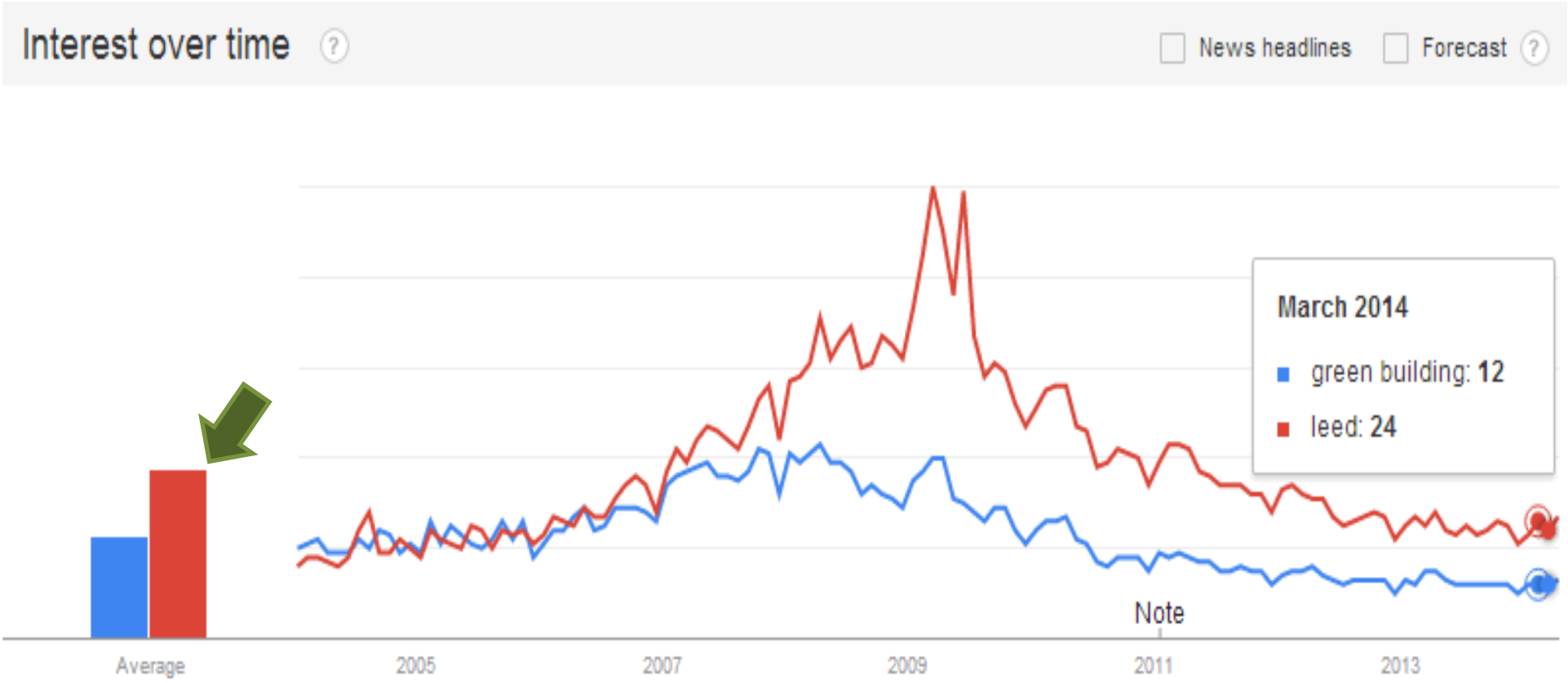


*Full list of states can be found in the "Additional Information" section

Top 10 Countries with LEED for Homes Units (Certified + Registered)



LEED is the Language of "Green" – It's Sexy



Green Homes and Defaults

www.ccc.unc.edu

Home Energy Efficiency and Mortgage Risks

Research study using CoreLogic loan performance data

71,000 ENERGY STAR- and non-ENERGY STAR-rated single-family home mortgages was carefully constructed, accounting for loan, household, and neighborhood.

JULY 2012

The Value of Green Labels
in the California Housing Market

An Economic Analysis of the Impact of Green Labeling on the Sales Price of a Home

9% Premium!

Nils Kok MAASTRICHT UNIVERSITY, NETHERLANDS
UNIVERSITY OF CALIFORNIA, BERKELEY, CA

Matthew E. Kahn UNIVERSITY OF CALIFORNIA, LOS ANGELES, CA

According to Green Home Owners, Top 3 Benefits of a Green Home are:

Green Building is all about the Triple Bottom Line:
People, Planet, Profit

Source: SmartMarket Report, McGraw Hill Construction, 2008

LEED Homes are Healthy Homes

"One of our tenants has severe asthma. We offered to move them into our LEED certified project. Once they moved into the LEED building the asthma symptoms were significantly reduced."

— Harold J. Mast Director, Genesis Non-Profit Housing Corporation

VALUE OF 3RD PARTY CERTIFICATION

INDEPENDENT
VERIFICATION OF ACHIEVEMENTS
QUALITY ASSURANCE
AUDITABLE RESULTS

Case 1: Prairie Apartments

Milwaukee, WI **LEED for Homes Gold**

•18,900 square foot, three-story, 24 apartment unit building for supportive housing.

•Mix of studio and 1 bedroom apartments

•ADA accessible units

•Reused foundation and perimeter walls

• 34% Energy savings based on HERS

•75% Construction waste diverted

Very high-efficiency plumbing fixtures

Case 1: Prairie Apartments

Milwaukee, WI **LEED for Homes Gold**

- Individual kit and bath
- ENERGY STAR appliances
- ENERGY STAR bath fan to provide continuous ventilation
- ENERGY STAR lighting CFLs

Case 2: Commons at Buckingham

Columbus, OH **LEED for Homes Platinum**

•Four story, 100-unit housing for formerly homeless persons.

•60,791 SF total on a 0.6 acre site

•25% of units reserved for 60% of AMI

•ADA accessible units

•Common areas feature community room, computer resource room, meeting room, and enhanced security.

• Energy saving fixtures and appliances

• Exceeds ASHRAE 90.1 by 20%

•88% Construction waste diverted

Green Begins with “Blue”

Energy Efficiency

- Envelope
- Distribution
- Equipment
- Lighting
- Appliances

RESNET. HERS INDEX

REPS ENERGY SCORE

ENERGY STAR HOMES

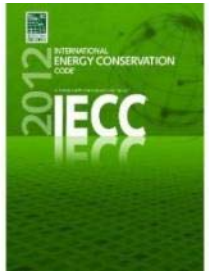
Green Begins with “Blue”

Energy Efficiency

- Envelope
- Distribution
- Equipment
- Lighting
- Appliances

Indoor Environment

- Bulk Moisture
- Radon
- Pest Control
- HVAC
- Combust. Safety
- Materials
- Commissioning



RESNET HERS INDEX

REPS ENERGY SCORE

ENERGY STAR HOMES

ZERO ENERGY READY HOME
U.S. DEPARTMENT OF ENERGY

PHIUS
Passive House Institute US

Green Begins with "Blue"

Energy Efficiency

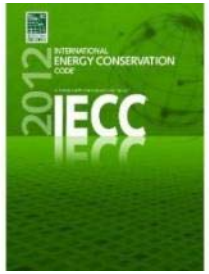
- Envelope
- Distribution
- Equipment
- Lighting
- Appliances

Indoor Environment

- Bulk Moisture
- Radon
- Pest Control
- HVAC
- Combust. Safety
- Materials
- Commissioning

Resource Efficiency

- Site Planning
- Location
- Water
- Materials
- Waste Mgt.
- Renewables



RESNET HERS INDEX

REPS ENERGY SCORE

ENERGY STAR HOMES

ZERO ENERGY READY HOME
U.S. DEPARTMENT OF ENERGY

PHIUS
Passive House Institute US

Home Innovation
NGBS GREEN CERTIFIED

greenstar

LEED FOR HOMES

Towards Positive

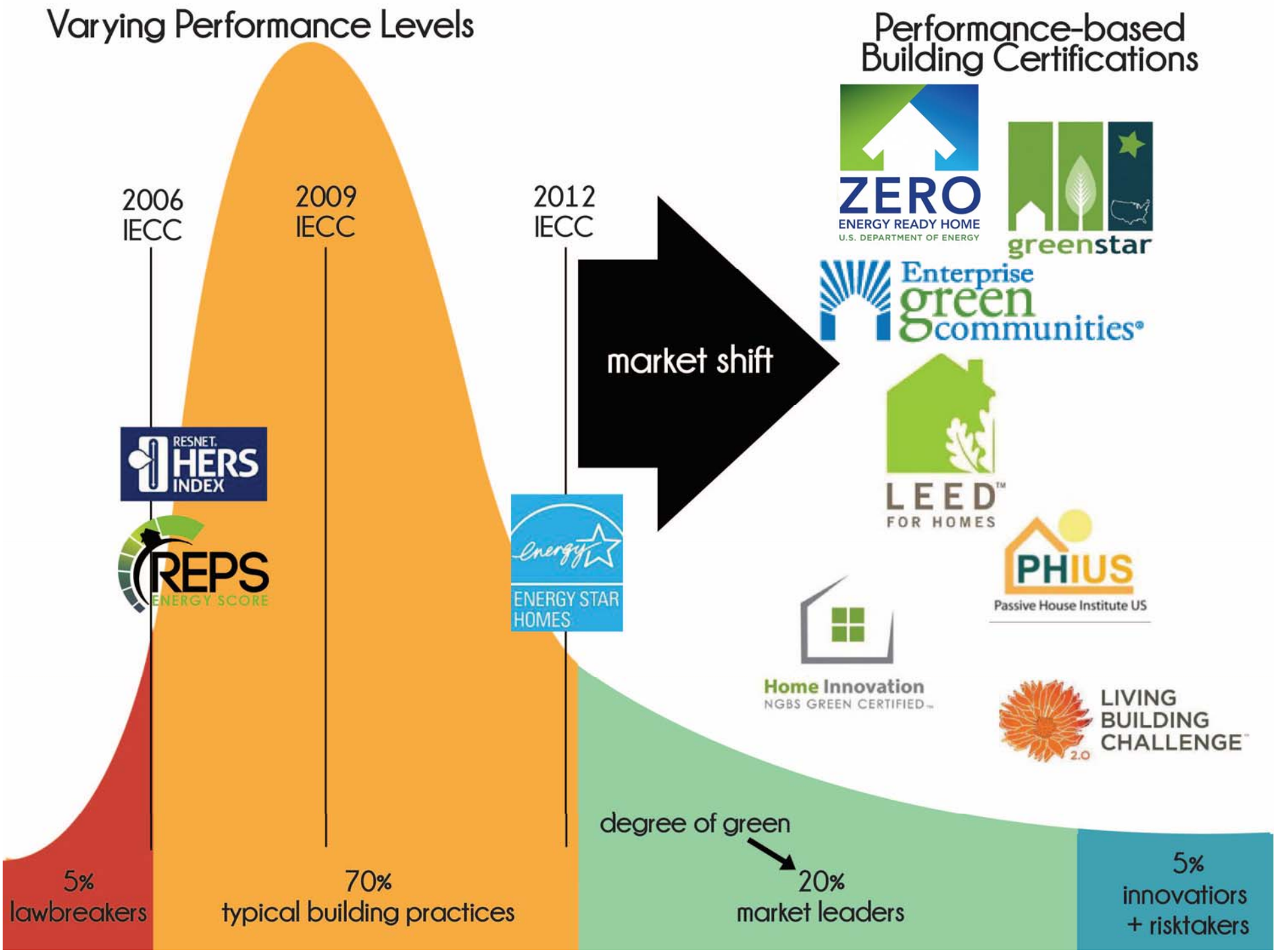
Restorative

- Zero Energy
- Captured Rainwater
- Blackwater remediation
- Redlist free materials
- Air quality testing
- Accessibility
- Aesthetics
- Mental Health
- Sustainable Business

Resource Efficiency

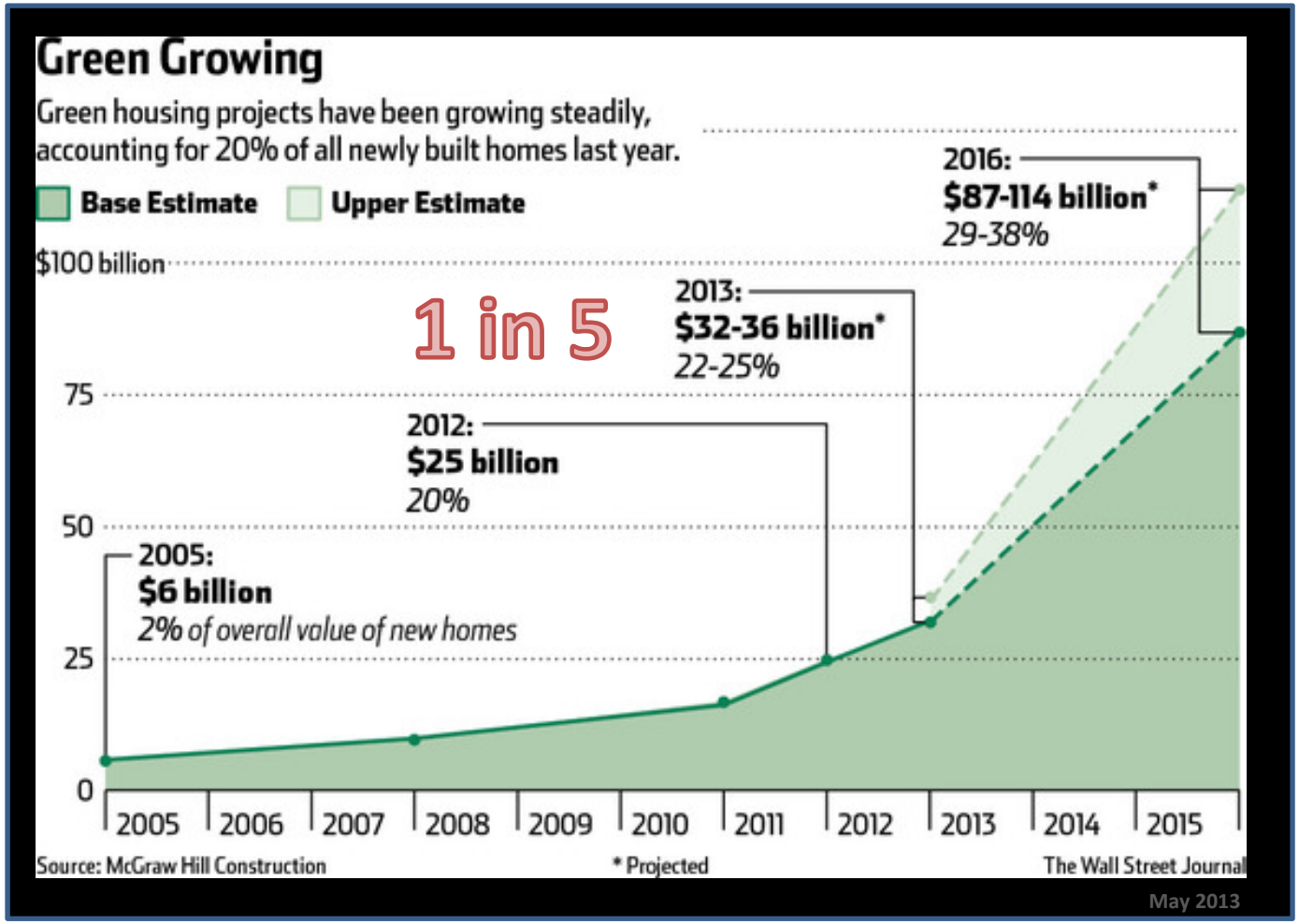
Indoor Environment

Energy Efficiency


Varying Performance Levels
Performance-based Building Certifications
2006 IECC
2009 IECC
2012 IECC
market shift
RESNET. HERS INDEX
REPS ENERGY SCORE
ENERGY STAR HOMES
ZERO ENERGY READY HOME U.S. DEPARTMENT OF ENERGY
greenstar
Enterprise green communities
LEED FOR HOMES
PHIUS Passive House Institute US
Home Innovation NGBS GREEN CERTIFIED
LIVING BUILDING CHALLENGE 2.0
degree of green
5% lawbreakers
70% typical building practices
20% market leaders
5% innovators + risktakers

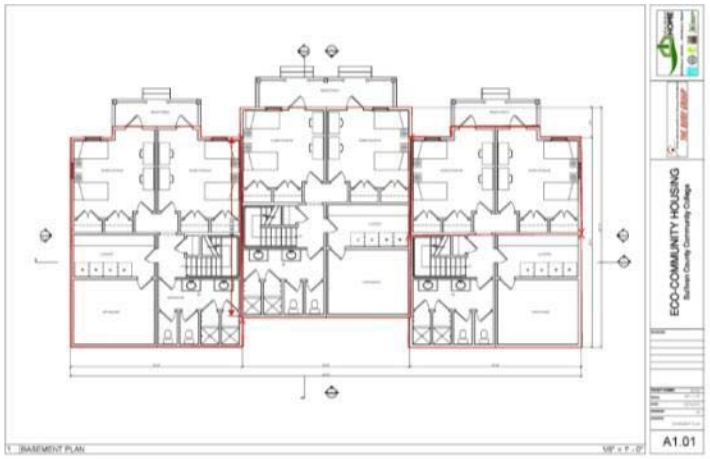

Enterprise green communities
REPS ENERGY SCORE
LIVING BUILDING CHALLENGE 2.0
LEED FOR HOMES
Home Innovation NGBS GREEN CERTIFIED
PHIUS Passive House Institute US
2012 IECC
WATERSENSE CERTIFIED
ZERO ENERGY READY HOME U.S. DEPARTMENT OF ENERGY
RESNET HERS INDEX
ENERGY STAR HOMES
greenstar
EPA Indoor airPLUS QUALIFIED HOME
HOME ENERGY SCORE
RESTORATIVE/ REGENERATIVE PRACTICES
PURSUING SUSTAINABILITY
HIGH PERFORMANCE GREEN HOMES
BETTER BUILDING PRACTICES
TYPICAL CODE HOMES

1 in 5


Green Growing
Green housing projects have been growing steadily, accounting for 20% of all newly built homes last year.
Base Estimate
Upper Estimate
$100 billion
75
50
25
0
1 in 5
2005:
$6 billion
2% of overall value of new homes
2012:
$25 billion
20%
2013:
$32-36 billion*
22-25%
2016:
$87-114 billion*
29-38%
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Source: McGraw Hill Construction
* Projected
The Wall Street Journal
May 2013

LEED for Homes Eligibility

- Any residential project that is three stories or less including:
  - Detached single-family
  - Attached single-family
  - Low-rise multi-family



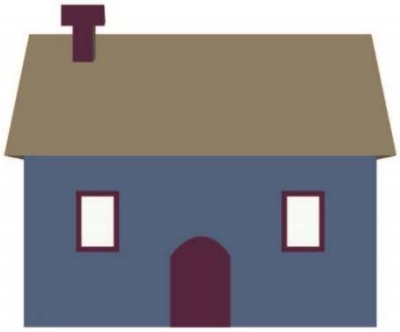
EcoGreen Townhouses

Any number of dwelling units is acceptable in LEED for Homes. For group home situations, 10 or more bedrooms follows multifamily while 9 or fewer is treated as single family.

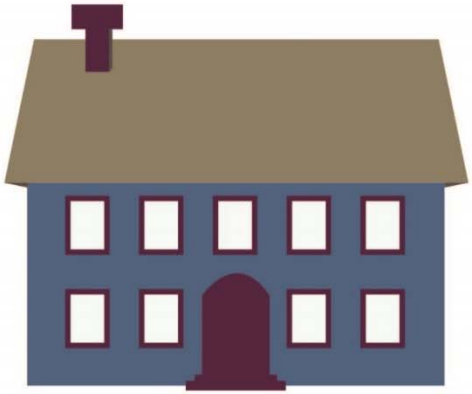
Universal Requirements for Participation

- Must be defined as a “dwelling unit,” per LEED for Homes
  - Must have a cooking area and a bathroom
- Must have LEED for Homes Provider involvement
- Must have one LEED for Homes Certification per individual building

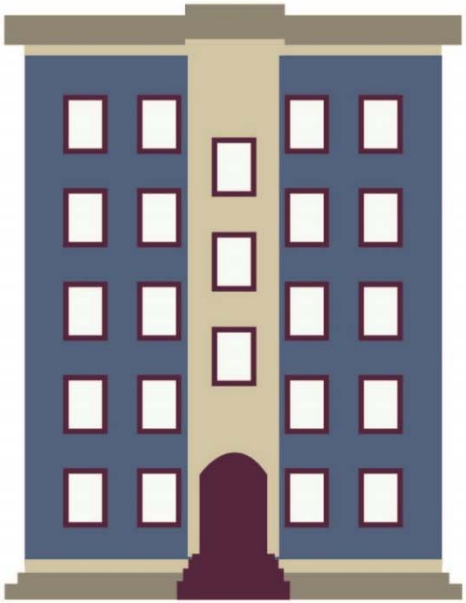
Program Scope & Applicable Building Types



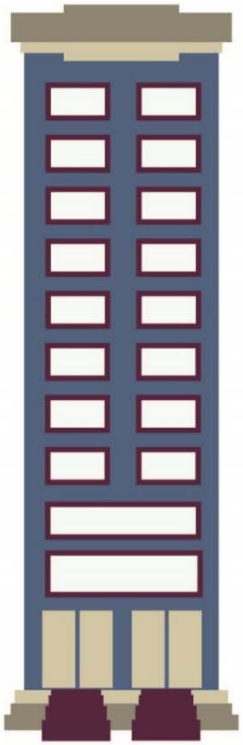
Single-Family Homes



Low-Rise Multifamily



Mid-Rise Multifamily



Mixed Use & Highrise

Single-Family Production

Gut Rehab

Additions, Remodels & Weatherization Projects

Low Rise Multifamily Buildings (up to 3 Stories*)

- **Home Size Adjustment**: Based on weighted average size of units
- **Energy Modeling**: Option of worst case unit, or whole building
- **Whole building is certified** (not individual units)
- All units must have same LEED measures

* Some 4-5 story buildings may qualify if in-unit HVAC and plumbing used.

All information in this workshop applies to both single family and multifamily projects.

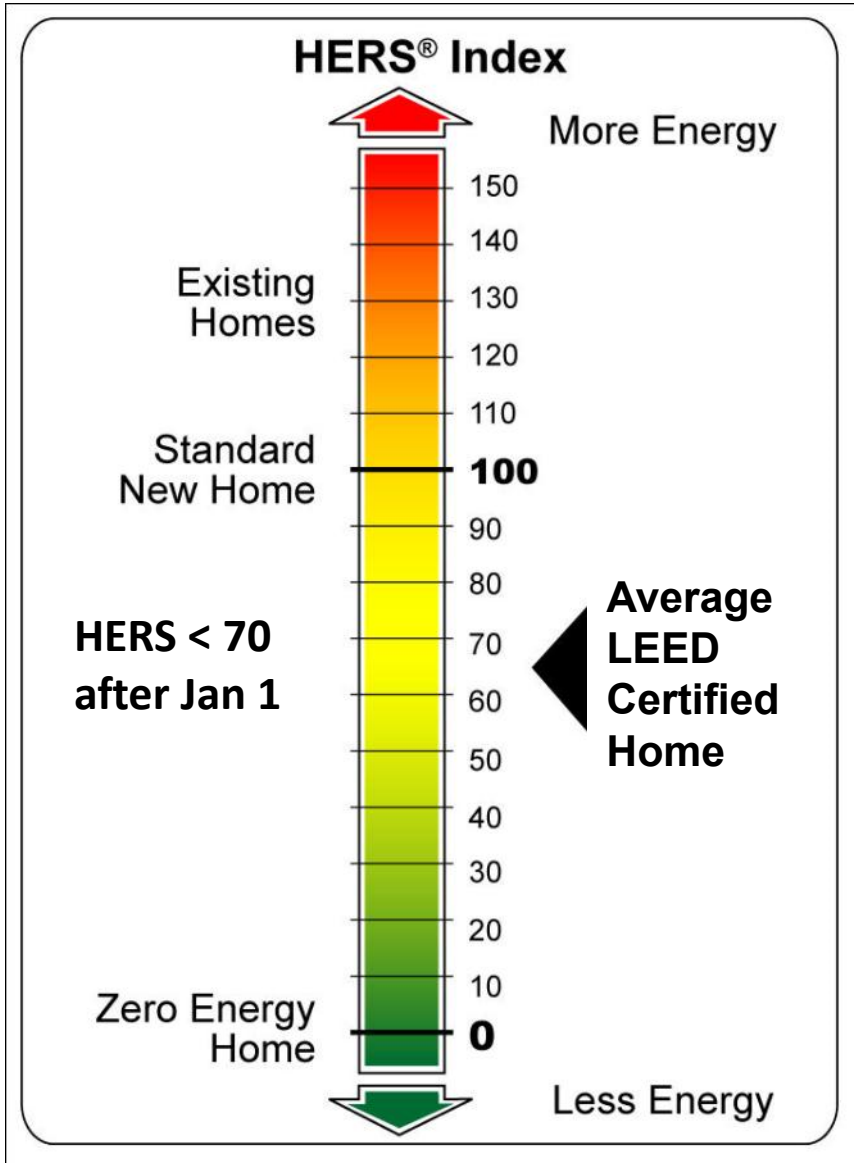
What is A HERS Rating?

1. Energy Design Review
2. Thermal Bypass Inspection
3. Final Inspection
4. Final Performance Testing
5. Final HERS Rating

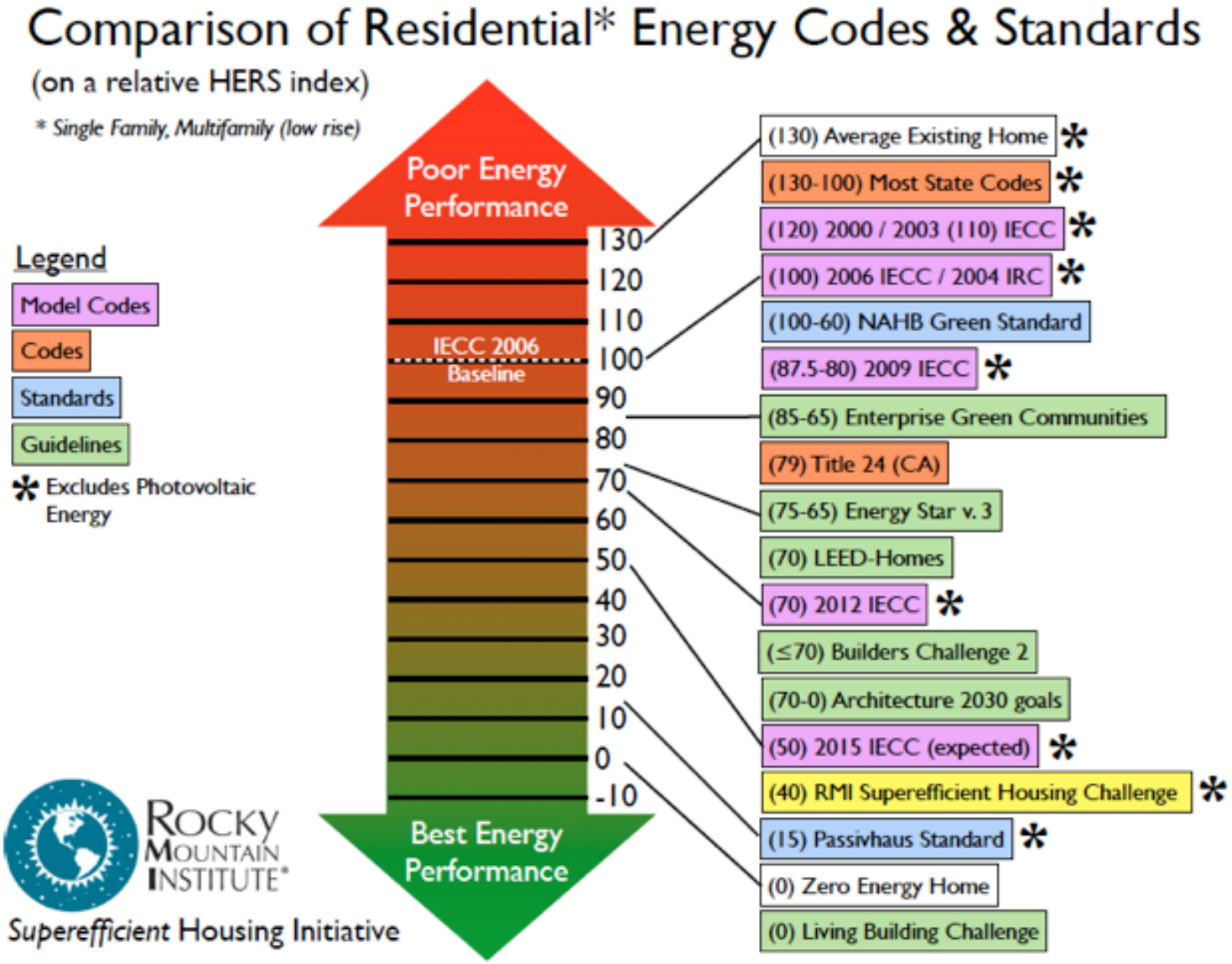
Home Energy Rating System (HERS)

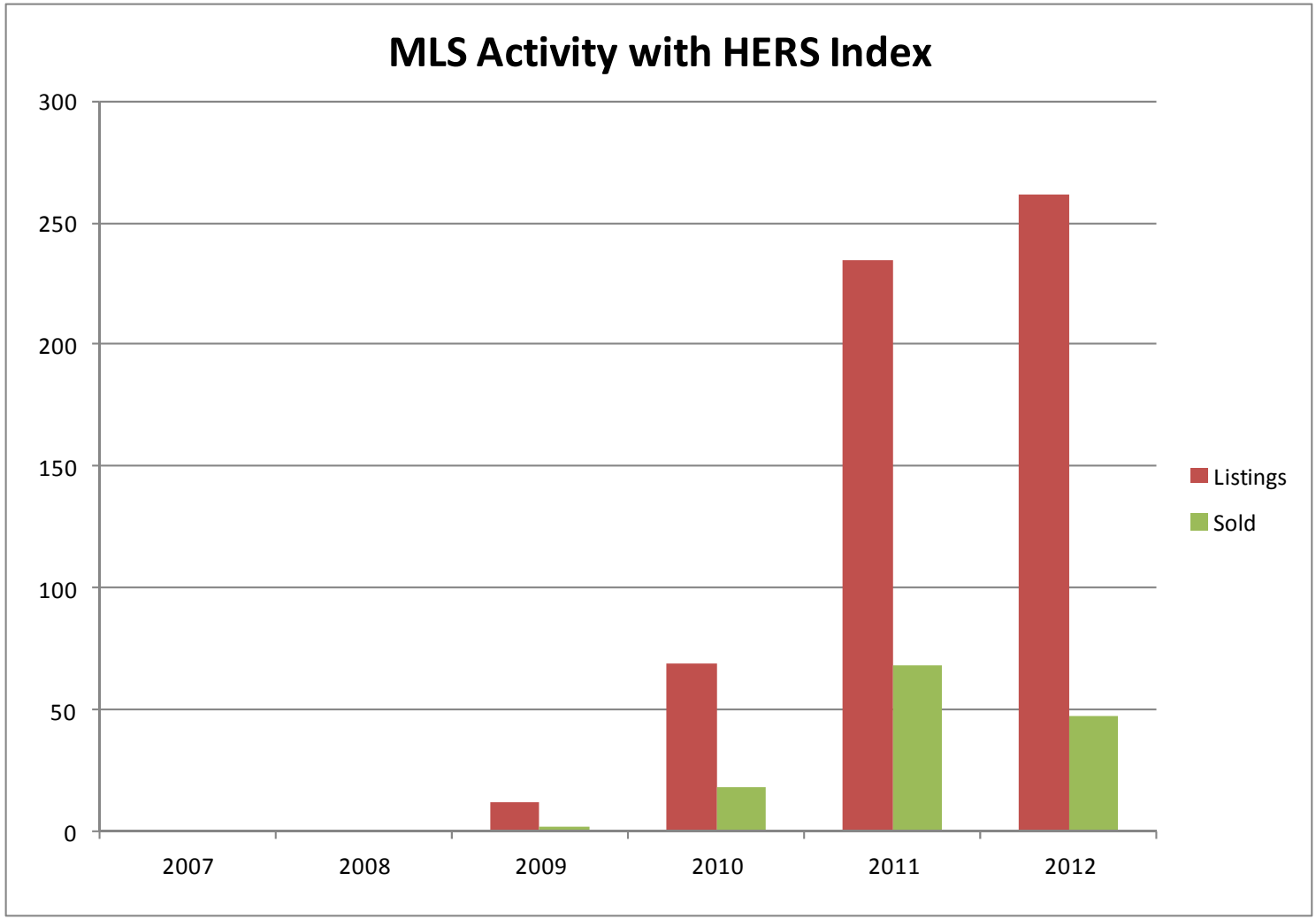
Rated Home Features:

- Heating and Cooling
- Water Heating
- Lighting
- Appliances
- Building Envelope



HERS: A Common Measuring Stick





Midwest Real Estate Data (MRED)

Home Energy Rating Certificate

1430 Jackson Ave.
River Forrest, IL 60305

5 Stars Plus
Confirmed
HERS Index: 27

Registry ID	**951357955**
Rating Number	**12202012**
Certified Energy Rater	Andy Scott
Rating Date	1-28-2013
Rating Ordered For	Lema Residence

Estimated Annual Energy Cost

Use	MMBtu	Cost	Percent
Heating	5.2	$115	11%
Cooling	2.9	$64	6%
Hot Water	6.0	$132	13%
Lights/Appliances	33.7	$741	70%
Photovoltaics	-0.0	$-0	-0%
Service Charges		$0	0%
Total	**47.9**	**$1052**	**100%**

Criteria

This home meets or exceeds the minimum criteria for the following:

General Information

Conditioned Area	4763 sq. ft.	House Type	Single-family detached
Conditioned Volume	46023 cubic ft.	Foundation	Conditioned basement
Bedrooms	5		

Mechanical Systems Features

Heating:	Air-source heat pump, Electric, 10.0 HSPF.
Cooling:	Air-source heat pump, Electric, 26.0 SEER.
Water Heating:	Conventional, Electric, 0.93 EF, 50.0 Gal.
Duct Leakage to Outside	NA
Ventilation System	Balanced: ERV, 145 cfm, 69.0 watts.
Programmable Thermostat	Heat=No; Cool=No

Building Shell Features

Ceiling Flat	R-96.0	Slab	R-33.0 Edge, R-34.8 Under
Sealed Attic	N/A	Exposed Floor	None
Vaulted Ceiling	N/A	Window Type	Zola
Above Grade Walls	R-48.8	Infiltration Rate	Htg: 214 Clg: 214 CFM50
Foundation Walls	R-48.0	Method	Blower door test

Lights and Appliance Features

Percent Interior Lighting	80.00	Range/Oven Fuel	Electric
Percent Garage Lighting	80.00	Clothes Dryer Fuel	Electric
Refrigerator (kWh/yr)	460.00	Clothes Dryer EF	3.01
Dishwasher Energy Factor	0.00	Ceiling Fan (cfm/Watt)	0.00

TITLE
Company
Address
City, State, Zip
Phone #
Fax #

The Home Energy Rating Standard Disclosure for this home is available from the rating provider.
REM/Rate - Residential Energy Analysis and Rating Software v14.2
This information does not constitute any warranty of energy cost or savings.

Mid-Rise Multifamily Buildings
(4 to 12+ Stories)

- Same considerations as Low Rise Multifamily
- Major differences include:
  - SS 7: Alternative Transportation
  - EA 1: Performance measured relative to ASHRAE 90.1-2007
  - EQ 11: Environmental Tobacco Smoke
  - EQ 12: Compartmentalization of Units
  - Will be required for LEED v4 projects

See “Multifamily Mid-Rise Guidance” for more information.

Case 2: 222 Hennepin

Minneapolis, MN **LEED for Homes Silver**

- 340,500+ square foot, six-story, 284 apartment unit building with first floor grocer tenant.
- Reused existing parking garage at core of structure with new roof use (pool)
- 18% Predicted energy savings compared to ASHRAE 90.1

222 Hennepin: Lessons Learned

Minneapolis, MN **LEED for Homes Silver**

- EQ performance testing reveals defects
- Conditioning demand of parking garage could be challenging for ASHRAE 90.1
- Local exhaust for kit/bath already planned for good IAQ

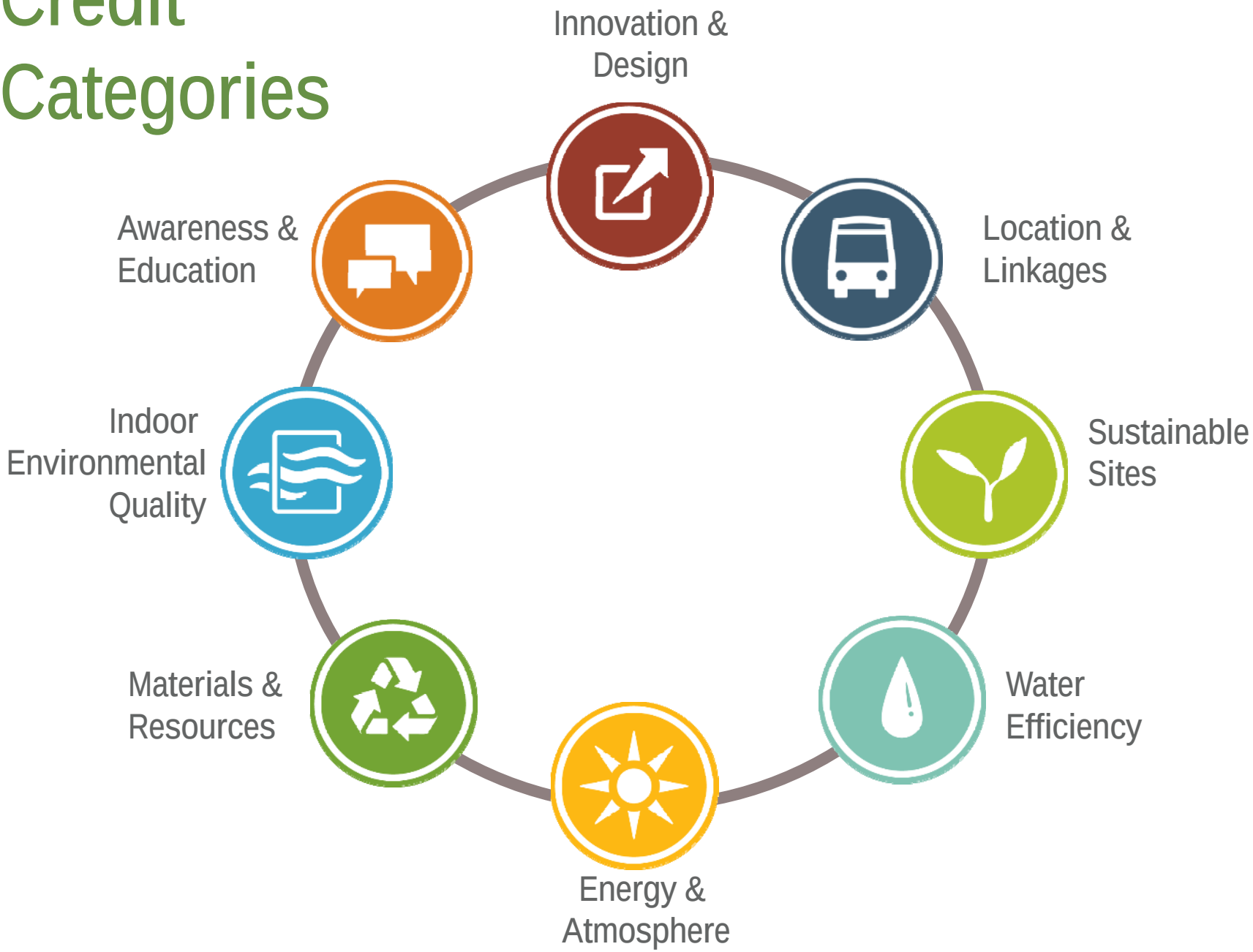
The Rating System: Simple & Streamlined

8 Categories

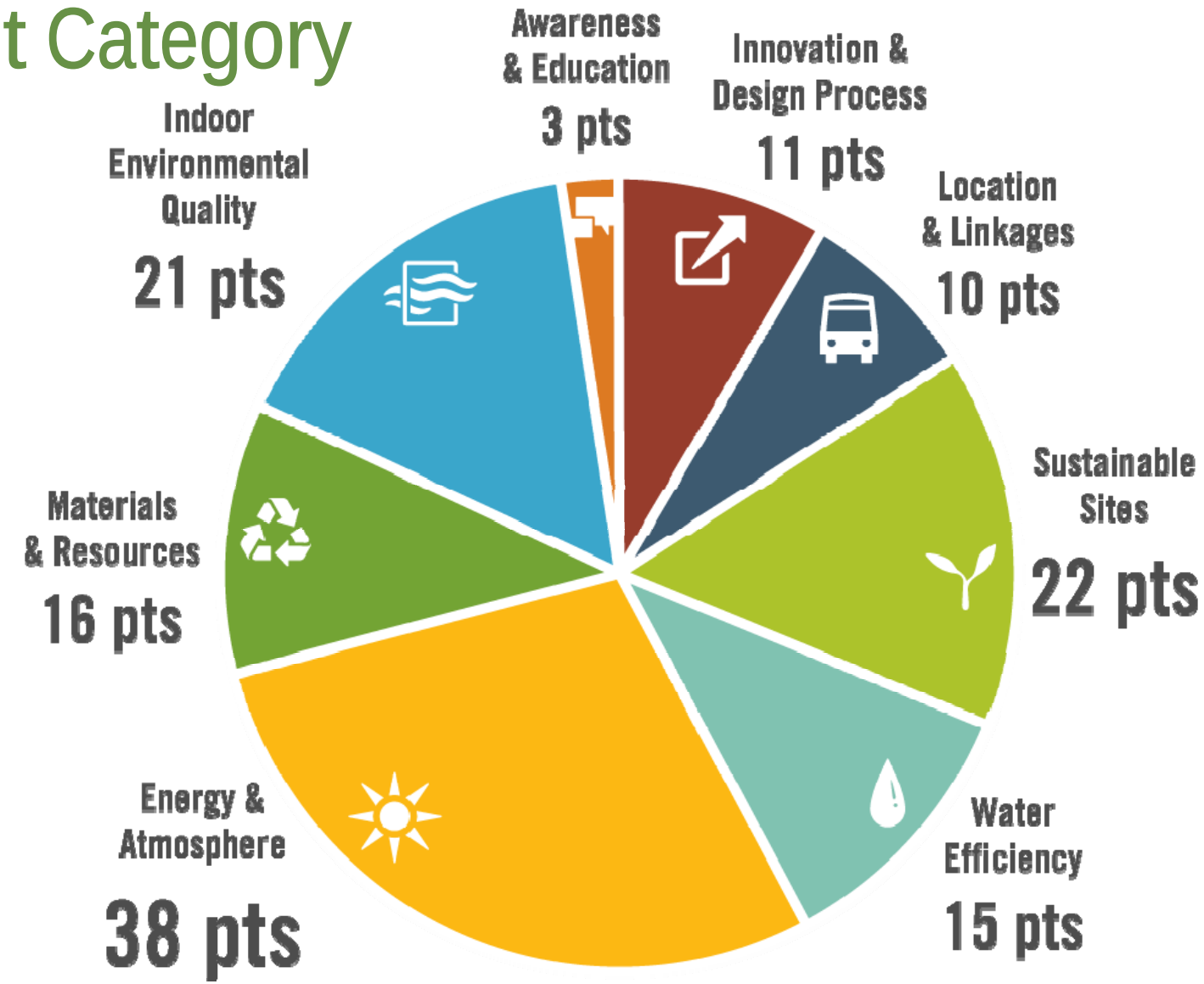
18 Prerequisites

136 Points Available

Credit Categories



Point Distribution by Credit Category



Minimum Points Required

Sustainable Sites	5 points
Water Efficiency	3 points
Materials & Resources	2 points
Indoor Environmental Quality	6 points

Home Size Adjustment Chart

Maximum home size (ft2) by number of bedrooms					Adjustment to award thresholds*
≤ 1 Bedroom	2 Bedrooms	3 Bedrooms	4 Bedrooms	5 Bedrooms	
800	1250	1690	2320	2540	-3
830	1300	1760	2400	2640	-2
860	1350	1830	2500	2740	-1
900	1400	1900	2600	2850	0 ("neutral")
940	1450	1970	2700	2960	+1
970	1510	2050	2810	3080	+2
1010	1570	2130	2920	3200	+3

- Home size is a useful proxy for material and energy
- More bedrooms / Sq./Ft..≈ less material and energy per person
- Average size based on NAHB Research Center data
- Tools provided for the calculation for both single family and multifamily

LEED for Homes Delivery

Project Team

- Design & Construction Team
- LEED AP Homes (optional)

Verification Team

- Provider
- Green Rater

USGBC

LEED for Homes Delivery Team:
USGBC Roles

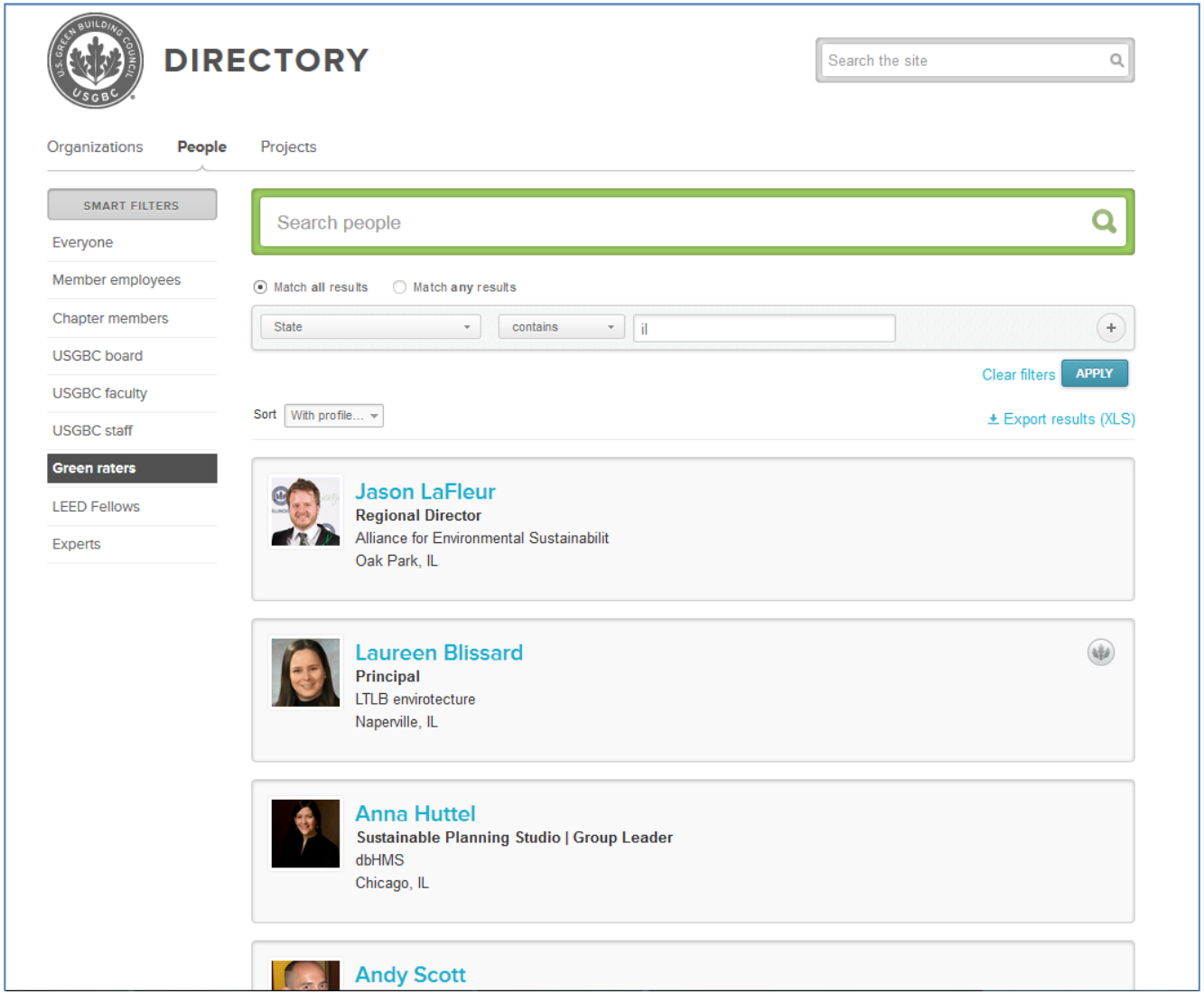
- Maintain LEED for Homes standards
- Inform and educate project teams
- Select and train Providers
- Certify the home
- Provide marketing materials

LEED for Homes Delivery Team:
Green Rater Roles

- Provide field verification services
- Review all supplemental verification documents (e.g. product specs, calculations, etc.)
- Should participate in preliminary rating
- Verify that project submittal package is complete and turns it into Provider
- A qualified energy rater is needed for energy-related performance testing

Finding a Green Rater

Go to www.usgbc.org/people/green-raters



LEED for Homes Delivery Team:
Provider Roles

- Deliver the program on behalf of USGBC
- Conduct preliminary rating with project team
- Provide technical support around rating system
- Coordinate and provide quality management services over a network of Green Raters
- Submit final certification documents to USGBC

LEED for Homes Delivery Team:
Design & Construction Team Roles

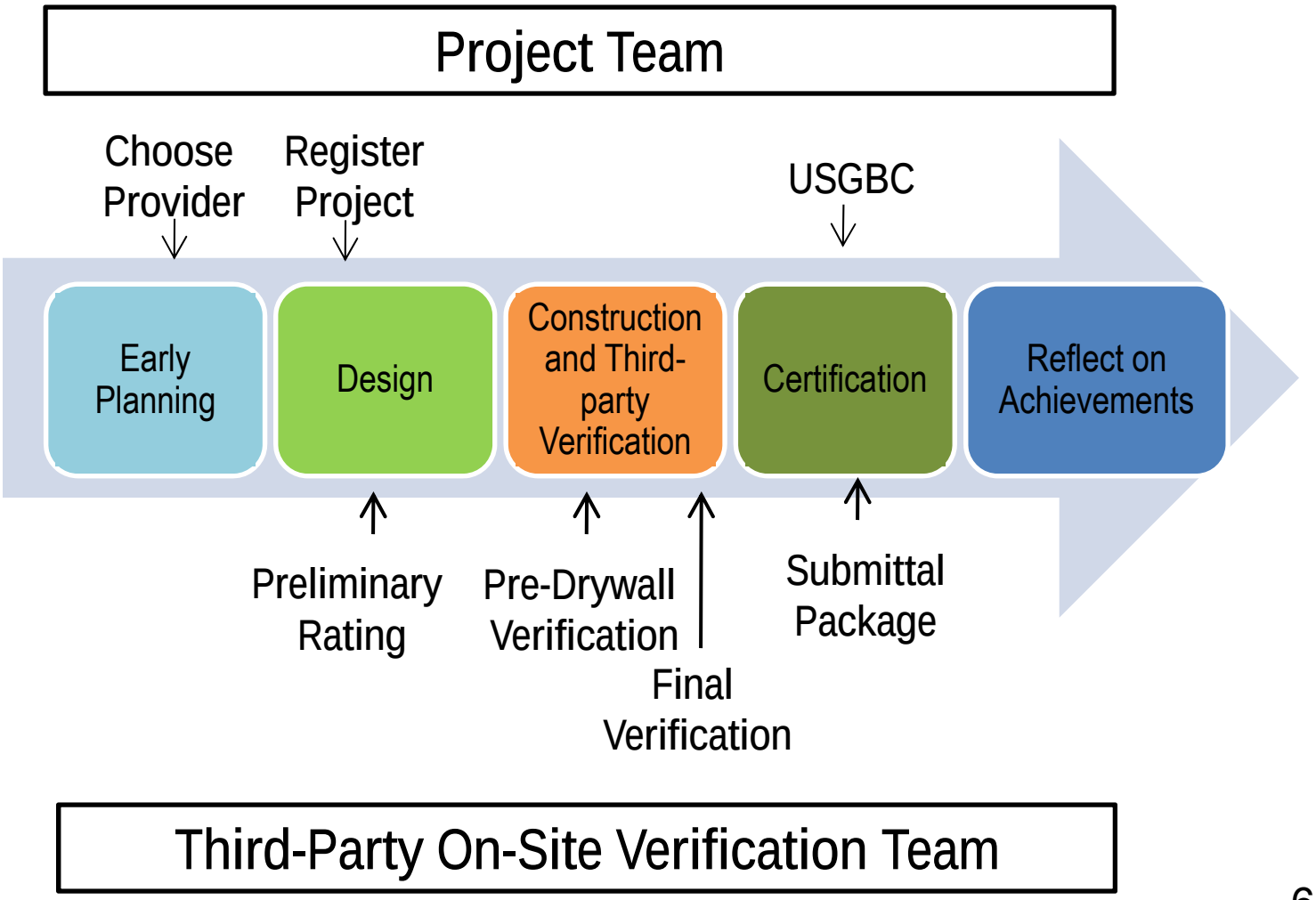
- Plan, design and build home

LEED for Homes Delivery Team:
LEED AP Homes (Optional) Roles

As a member of the project team:

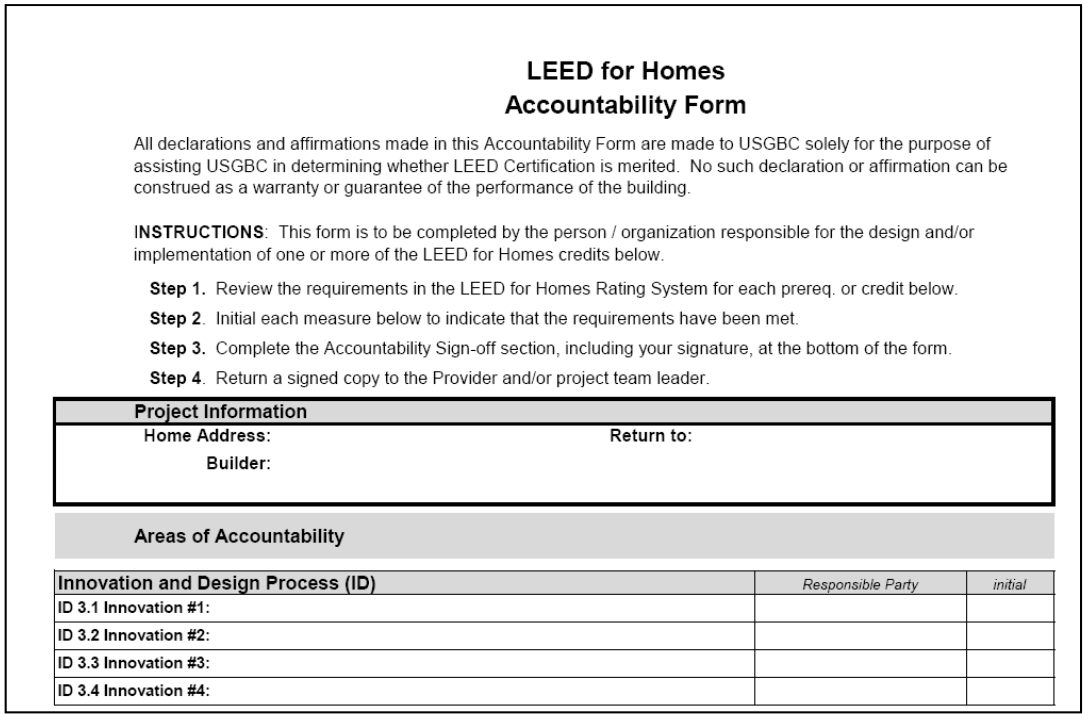
- Provide expertise on implementation of LEED for Homes rating system
- Support project team in identifying and accomplishing appropriate green design and construction strategies

Project Phases



Documentation

- Performance Test Results
- On-site Field Verification
- Supporting Verification
- Accountability Forms
- Durability Management Plan



LEED for Homes
Accountability Form

All declarations and affirmations made in this Accountability Form are made to USGBC solely for the purpose of assisting USGBC in determining whether LEED Certification is merited. No such declaration or affirmation can be construed as a warranty or guarantee of the performance of the building.

INSTRUCTIONS: This form is to be completed by the person / organization responsible for the design and/or implementation of one or more of the LEED for Homes credits below.

Step 1. Review the requirements in the LEED for Homes Rating System for each prereq. or credit below.
Step 2. Initial each measure below to indicate that the requirements have been met.
Step 3. Complete the Accountability Sign-off section, including your signature, at the bottom of the form.
Step 4. Return a signed copy to the Provider and/or project team leader.

Project Information

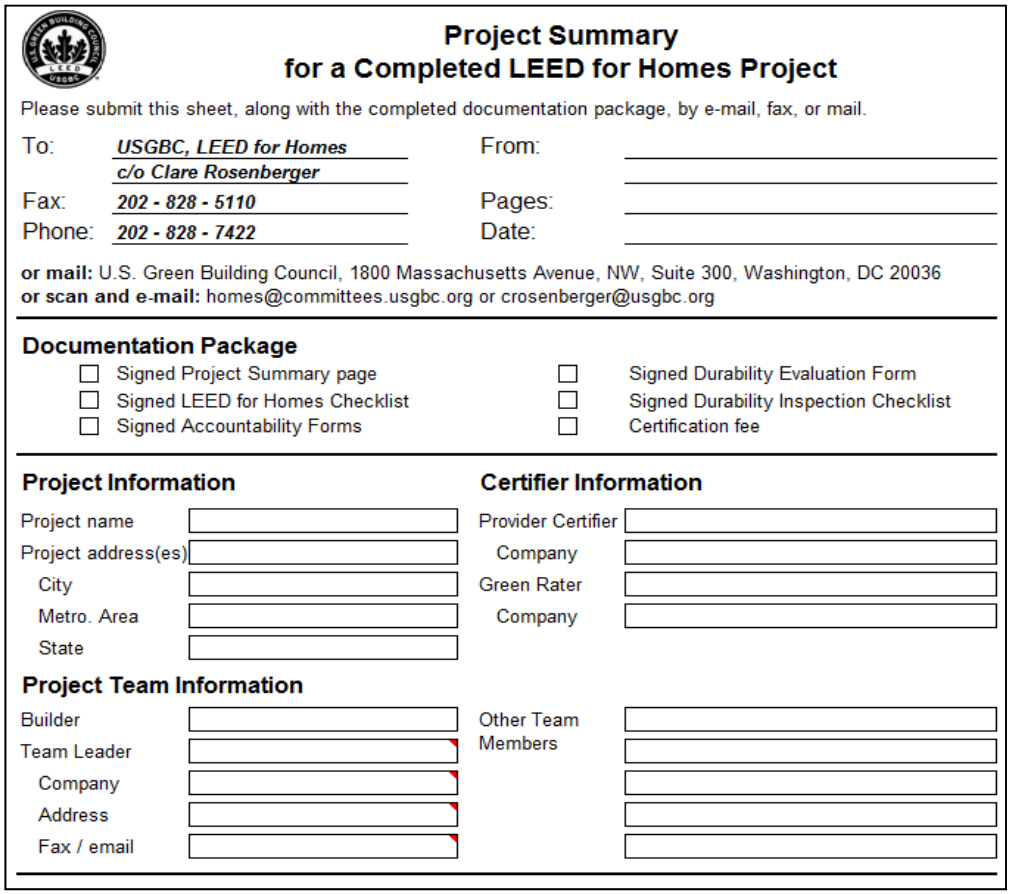
Home Address: **Return to:**
Builder:

Areas of Accountability

Innovation and Design Process (ID)	*Responsible Party*	*initial*
ID 3.1 Innovation #1:		
ID 3.2 Innovation #2:		
ID 3.3 Innovation #3:		
ID 3.4 Innovation #4:		

Submittal Requirements for Certification

- Project Checklist
- Accountability Forms
- Durability Risk Evaluation Form
- Durability Inspection Checklist Template



Project Summary
for a Completed LEED for Homes Project

Please submit this sheet, along with the completed documentation package, by e-mail, fax, or mail.

To: *USGBC, LEED for Homes*
c/o Clare Rosenberger
Fax: *202 - 828 - 5110*
Phone: *202 - 828 - 7422*

From:
Pages:
Date:

or mail: U.S. Green Building Council, 1800 Massachusetts Avenue, NW, Suite 300, Washington, DC 20036
or scan and e-mail: homes@committees.usgbc.org or crosenberger@usgbc.org

Documentation Package

- ☐ Signed Project Summary page
- ☐ Signed LEED for Homes Checklist
- ☐ Signed Accountability Forms
- ☐ Signed Durability Evaluation Form
- ☐ Signed Durability Inspection Checklist
- ☐ Certification fee

Project Information

Project name
Project address(es)
City
Metro. Area
State

Certifier Information

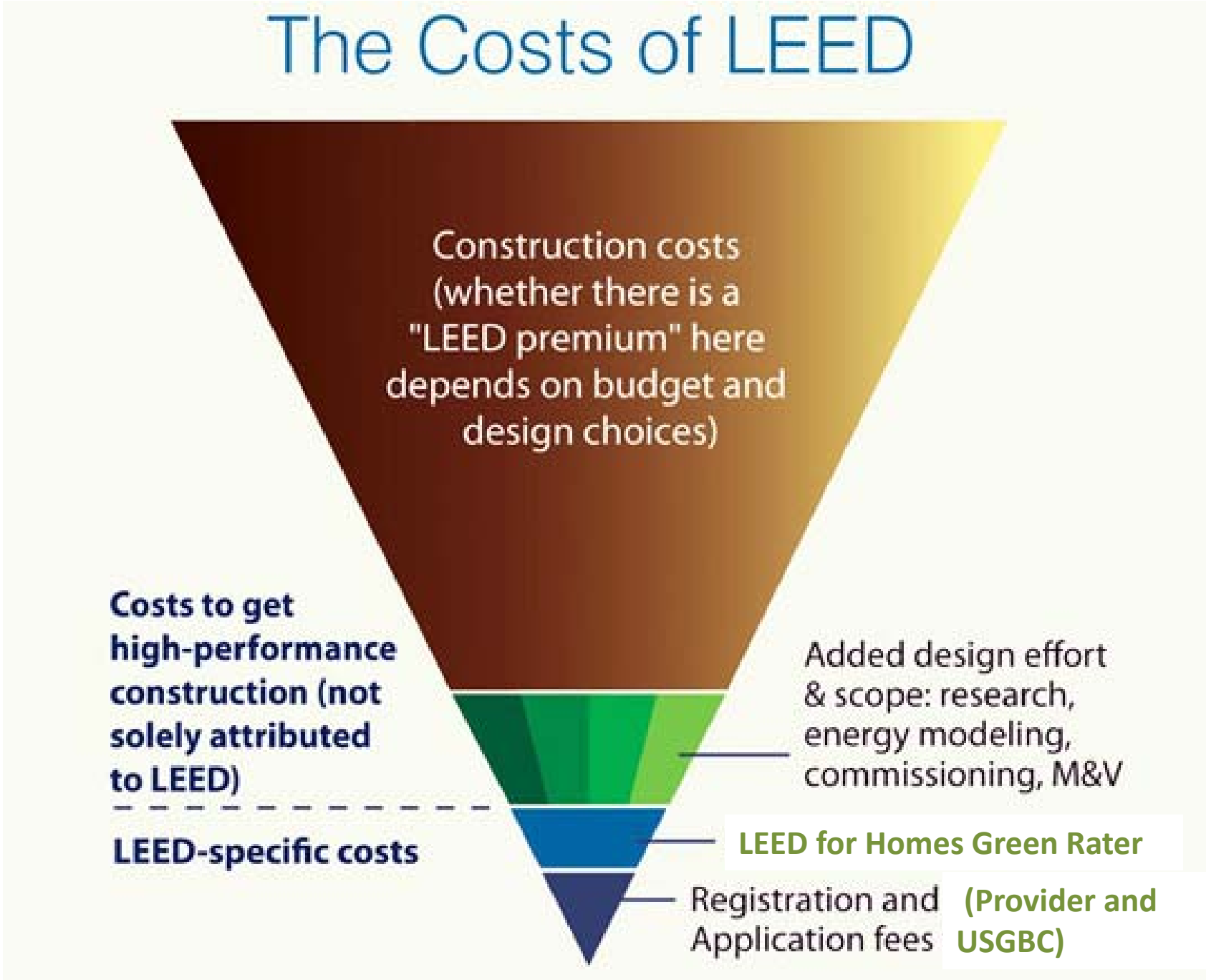
Provider Certifier
Company
Green Rater
Company

Project Team Information

Builder
Team Leader
Company
Address
Fax / email

Other Team Members

The Costs of LEED



Who Does What?

- Advise the project team on strategies to earn LEED credits
- Conduct onsite performance tests
- Submit certification documentation to USGBC

Photographer: Brett Dillon

Materials & Resources

Understanding the LEED for Homes Rating System

FRAMING EFFICIENCY

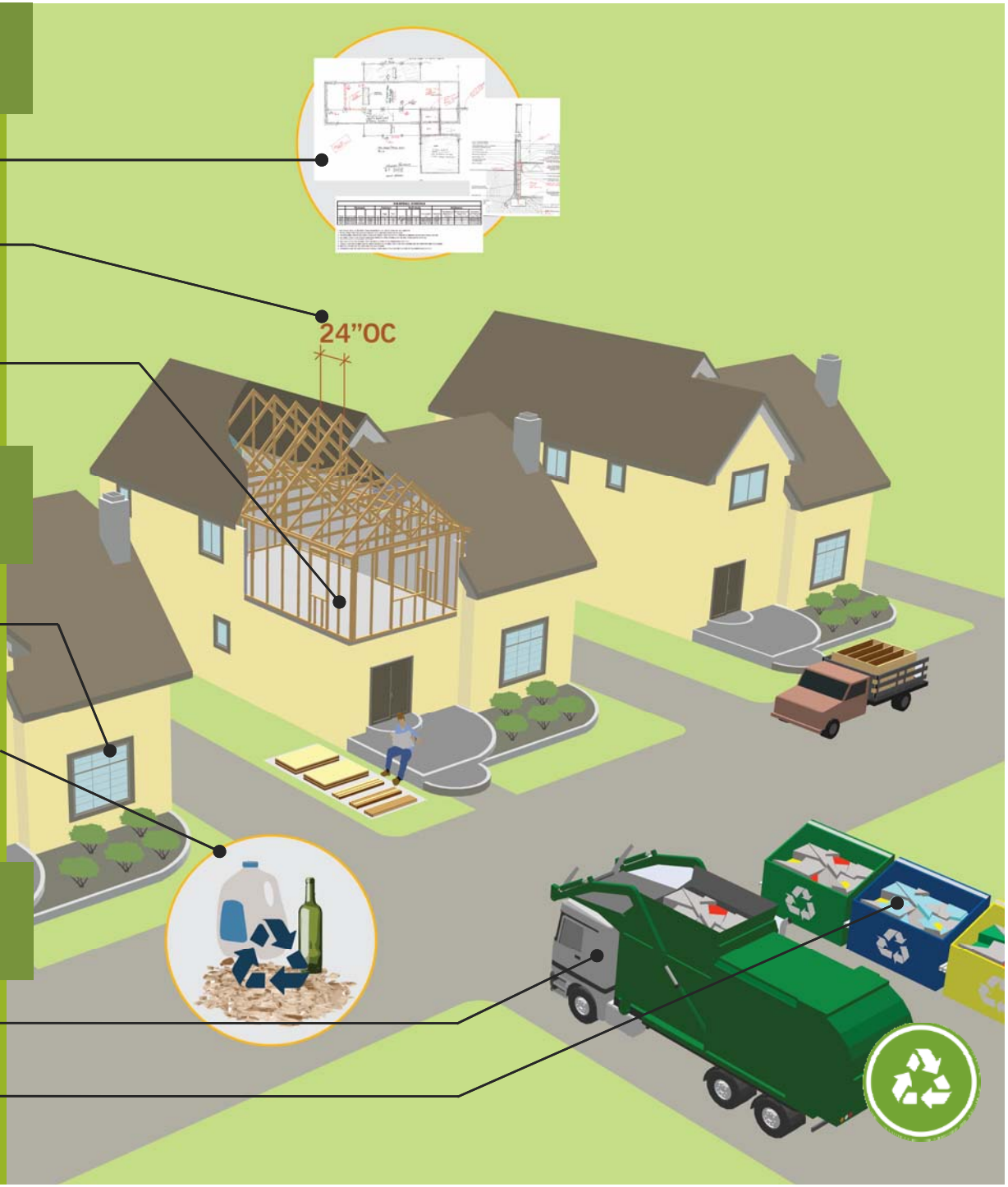
- Create detailed framing plans
- Use efficient framing techniques
- Reduce framing waste

ENVIRONMENTALLY PREFERABLE PRODUCTS

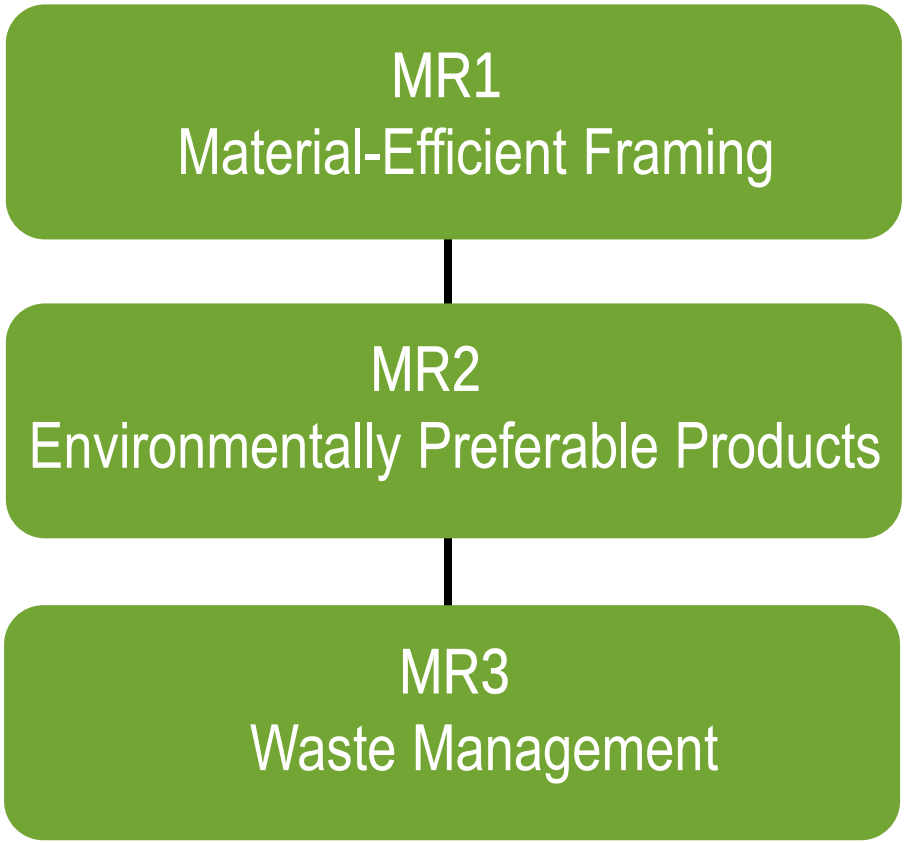
- Specify FSC-certified tropical woods
- Select recycled, low-emissions and local materials

WASTE MANAGEMENT

- Reduce construction waste
- Divert waste from landfills & incinerators



Materials & Resources



A minimum of 2 points must be achieved in the MR category.

Materials & Resources (MR) Credits

CREDIT	TITLE	POINTS
MR Prerequisite 1.1	Material-Efficient Framing – Framing Order Waste Factor Limit	Required
MR Credit 1.2	Material-Efficient Framing – Detailed Framing Documents	1
MR Credit 1.3	Material-Efficient Framing – Detailed Cut List and Lumber Order	1
MR Credit 1.4	Material-Efficient Framing – Framing Efficiencies	½ -3
MR Credit 1.5	Material-Efficient Framing – Off-Site Fabrication	4
MR Prerequisite 2.1	Environmentally Preferable Products – FSC-Certified Tropical Wood	Required
MR Credit 2.2	Environmentally Preferable Products – Environmentally Preferable Materials	½ - 8
MR Prerequisite 3.1	Waste Management – Construction Waste Management Planning	Required
MR Credit 3.2	Waste Management – Construction Waste Reduction	½ - 3

MR Prerequisite1.1

Framing Order Waste Factor Limit

Photographer: Brett Dillon

Framing Efficiency

Optimize the use of framing materials.

Required

MR Prerequisite 1.1

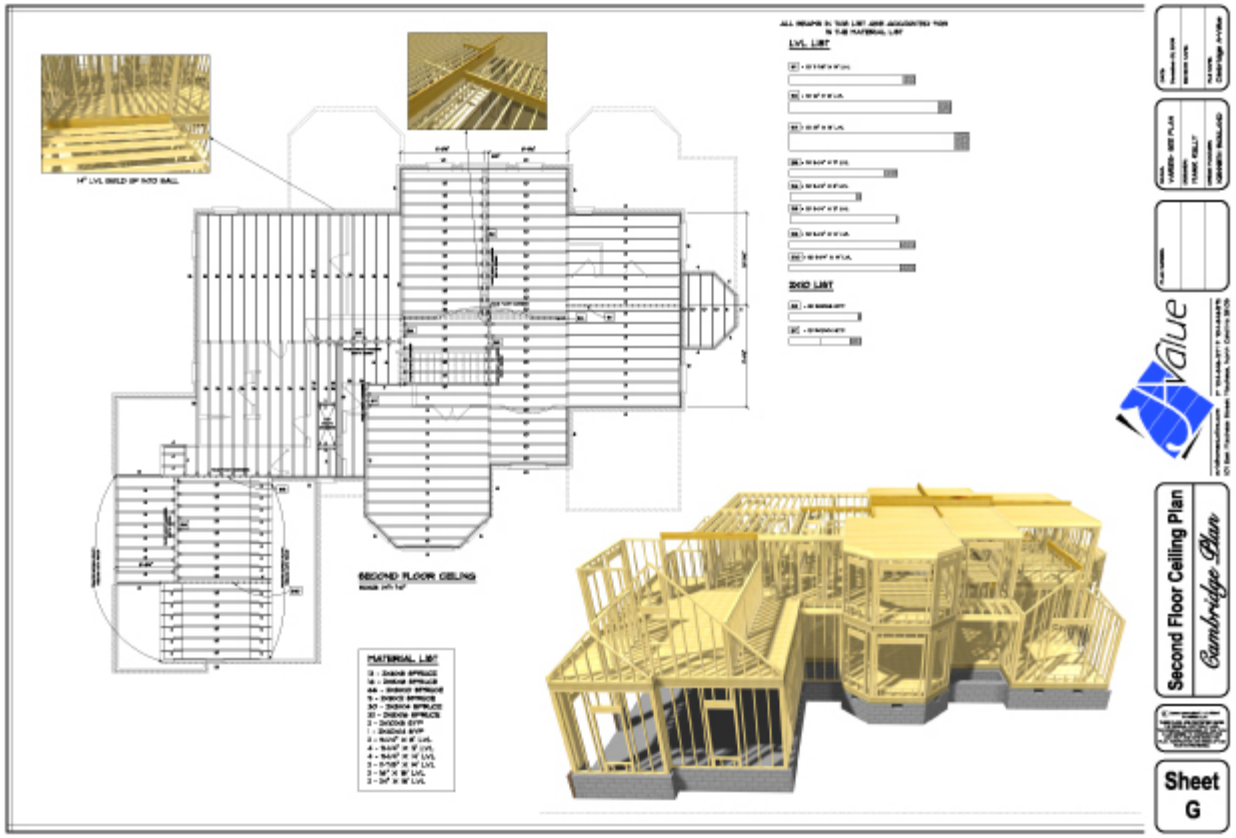
Framing Order Waste Factor Limit

Limit overall estimated waste factor to 10% or less.

Waste Factor = % of framing material ordered in excess of estimated material needed for construction.

MR Credit 1.2

Detailed Framing Documents



MR 1.2 & 1.3 automatically awarded for gut rehabs reusing 90% of building.

Create detailed framing plans or scopes of work and accompanying arch. details for use on the job site. Indicate specific locations, spacing and sizes of all framing in walls, roof, floors, and ceiling.

1 Point

MR Credit 1.3

Detailed Cut List and Lumber Order

Framing Efficiency

Optimize the use of framing materials.

1 Point

MR Credit 1.3

Detailed Cut List and Lumber Order

Prior to construction, create a detailed cut list and lumber order that corresponds directly to the framing plans and/or scopes of work.

The requirements in MR 1.2 must be met to earn this credit.

1Point

MR Credit 1.4
Framing Efficiencies

Framing Efficiency

Optimize the use of framing materials. ½ - 3 Points

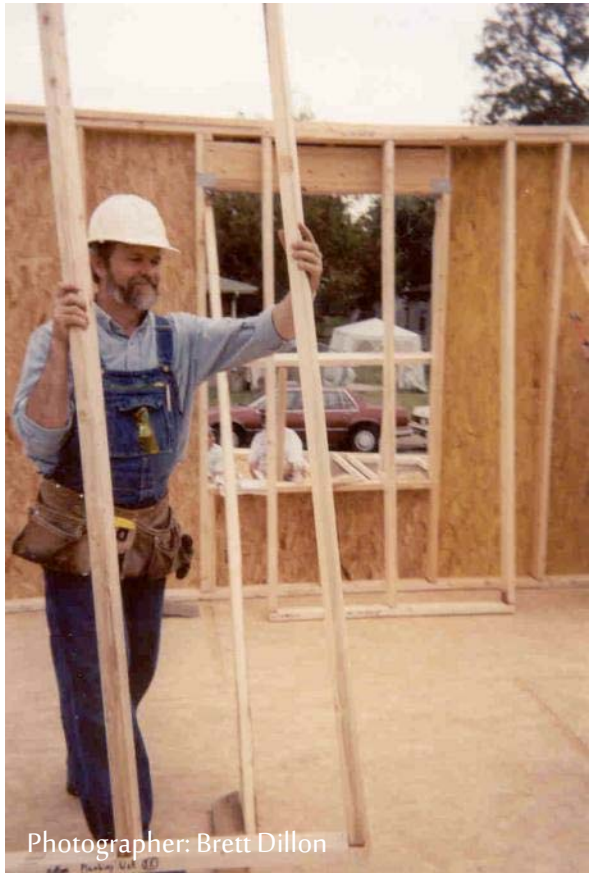
Examples: MR 1.4 Framing Efficiencies

Open-Web Floor Trusses (1 point)

Examples: MR 1.4 Framing Efficiencies

Structural Insulated Panels (1 point)

Examples: MR 1.4 Framing Efficiencies



Stud Spacing > 16”o.c.

Size Headers for Actual Load

Examples: MR 1.4 Framing Efficiencies

Ladder Blocking

Drywall Clips

MR Credit 1.4
Framing Efficiencies

Implement measures from this table.

Exemplary Performance: Projects that implement measures worth more than 3 points can take credit under ID 3.

Efficient Framing Measures

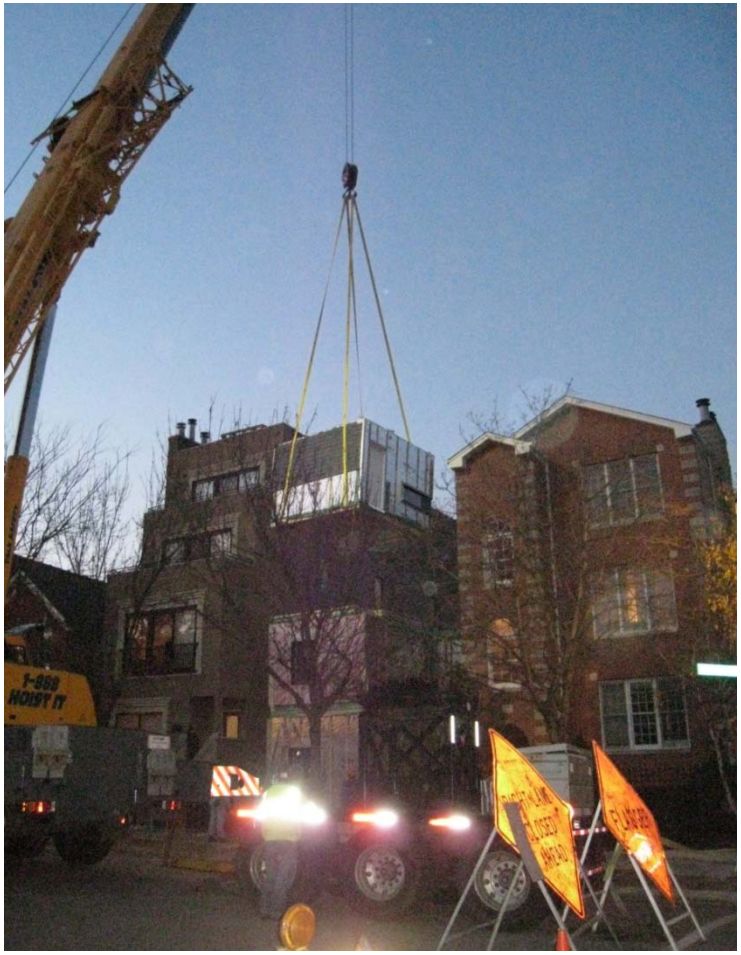
Table 23

Measure	points
Precut framing packages	1.0
Open-web floor trusses	1.0
Structural insulated panel (SIP) walls	1.0
SIP roof	1.0
SIP floors	1.0
Stud spacing greater than 16" o.c.	1.0
Ceiling joist spacing greater than 16" o.c.	0.5
Floor joist spacing greater than 16" o.c.	0.5
Roof rafter spacing greater than 16" o.c.	0.5
Implement any two of the following: • Size headers for actual loads • Use ladder blocking or drywall clips • Use 2-stud corners	0.5

½ - 3 Points

MR Credit 1.5

Framing Efficiencies



Off-site Fabrication.

4 Points

MR Prerequisite 2.1

FSC-Certified Tropical Wood

Environmentally Preferable Products

Increase demand for environmentally preferable products and products or building components extracted, processed, and manufactured within the region.

Required

MR Prerequisite 2.1
FSC-Certified Tropical Wood

Meet these two requirements.

Provide wood product suppliers with a notice that:

- States that builder prefers to purchase products containing tropical wood only if FSC-certified
- Requests the country of manufacture of each product supplied
- Requests list of FSC-certified tropical wood products the vendor can supply

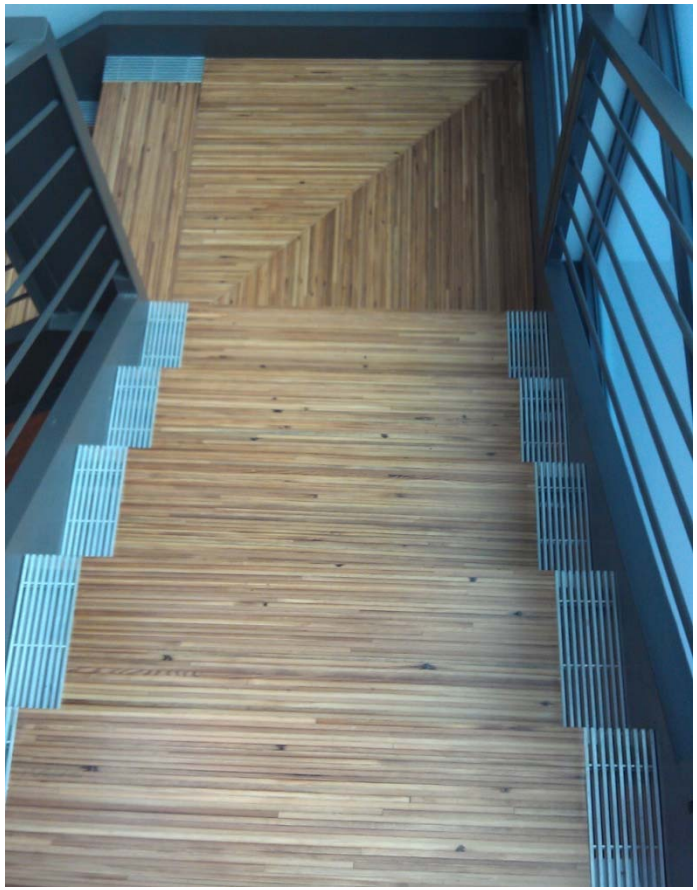
If tropical wood is intentionally used, use only FSC-certified tropical wood products

Reused or reclaimed materials are exempt.

MR Credit 2.2

Environmentally Preferable Products

Photographer: Kevin Stack



Photographer: Jason La Fleur

Environmentally Preferable Products

Increase demand for environmentally preferable products and products or building components extracted, processed, and manufactured within the region.

½ - 8 Points

MR Credit 2.2
Environmentally Preferable Products

Incorporate products that meet one or more of these criteria.

Environmentally Preferable Products (1/2 point each):
Use products that meet requirements in Table 24
- Recycled-content products must contain 25% postconsumer content or 50% postindustrial (preconsumer) content.

Low Emissions (1/2 point each):
Use products that meet requirements in Table 24

Local Production (1/2 point each):
Use products that were extracted, processed, and manufactured within 500 miles of the home

Each product can earn points in each criterion.

½ - 8 Points

Denim for 96% of insulation

Bamboo for 92% of flooring

FSC plywood for all roof and walls.

Green seal certified paints.

Local recycled aggregate for all bsmt walls, patio, and driveway.

How many points would this earn in MR 2.2?

LEES CARPETS GIVE YOU A LEED

As part of our commitment to environmental sustainability, Lees is a corporate member of the U.S. Green Building Council (USGBC). The LEED Green Building Rating System, developed by the USGBC, is the definitive standard for environmentally sustainable buildings.

INSTALLING LEES CARPETS CONTRIBUTES TO THESE LEED GREEN BUILDING RATING CREDITS:

	LEED - NC FOR NEW CONSTRUCTION	LEED - CI FOR COMMERCIAL INTERIORS	LEED - EB FOR EXISTING BUILDINGS
MATERIALS CREDIT 4: RECYCLED CONTENT • Lees Unibond RE™ carpets contain 20% post-consumer recycled content based on total product weight • WetSet RE adhesive, used to install Unibond® and Unibond RE™ carpets, contains 20% recycled content (2% post consumer, 18% post industrial) based on total product weight • Lees Integrated Cushion Thermobond™ with Recycled Content contains a minimum 35% post-industrial recycled content based on total product weight • Lees NeoFloor Tile RE products contain 50% post-industrial recycled content based on total product weight • Under this credit, Lees Carpets help contribute up to 2 points	✓	✓	Not Applicable (covered in Materials Credit 2 below)
MATERIALS CREDIT 5: LOCAL/REGIONAL MATERIALS • Installations within a 500-mile radius of Glasgow, Virginia can contribute to this credit. Examples of these major metropolitan areas include: New York, NY; Philadelphia, PA; Charlotte, NC; Baltimore/Washington D.C. Pittsburgh, PA; Cincinnati, OH; Cleveland, OH; Atlanta, GA	✓	✓	Not Applicable (covered in Materials Credit 2 below)
MATERIALS CREDIT 6: RAPIDLY RENEWABLE MATERIALS • Lees Unibond® and Unibond RE™ carpets contain a rapidly renewable bio-based resin • Under this credit, Lees can contribute up to 1 point	✓	✓	Not Applicable (covered in Materials Credit 2 below)

Only this counts for LEED-H!

MRc4 Recycled Content

1-2 POINTS

MR Prerequisite 3.1

Construction Waste Management Planning

Waste Management

Create a plan!

Reduce waste generation to a level below the industry norm. Required

MR Prerequisite 3.1

Construction Waste Management Planning

Document local options for waste diversion

- Look at both recycling and reuse
- Address entire project waste stream, including cardboard packaging and household recyclables

Document the diversion rate

- Separate the rate for land clearing or demolition rate from new construction, if applicable

Measure waste by either weight or volume. Documenting weight is usually more reliable.

MR Credit 3.2

Construction Waste Reduction

Photographer: Kevin Stack

Mulched lumber

Reduce waste generation to a level below the industry norm. ½ - 3 Points

MR Credit 3.2
Construction Waste Reduction

Reduce construction waste

- Generate 2.5 pounds (or 0.016 cubic yards) or less of net waste (not including reclamation or recycling) per SF of conditioned floor area

Increase waste diversion

- Divert 25% or more of total materials taken off construction site from landfills and incinerators. Calculate by weight or volume.

½ - 3 Points

MR Credit 3.2

Construction Waste Reduction

Use Table 27 to calculate points.

Amount to landfills and incinerators				
Reduced construction waste		Increased waste diversion		
Pounds / ft²	Cubic yards / 1,000 ft²	Percentage waste	Percentage diverted	Points
4.0	25.5	100%	0%	0.0
3.5	22.3	88%	13%	0.0
3.0	19.1	75%	25%	0.5
2.5	15.9	63%	38%	1.0
2.0	12.8	50%	50%	1.5
1.5	9.6	38%	63%	2.0
1.0	6.4	25%	75%	2.5
0.5	3.2	13%	88%	3.0

Exemplary Performance:
If no waste created or 100% of waste diverted , a project can earn an additional ½ point under ID 3.

½ - 3 Points

Additional Credits

Points

Framing Efficiency	MR 1.2: Detailed Framing Documents	1
	MR 1.5: Off-Site Fabrication	4

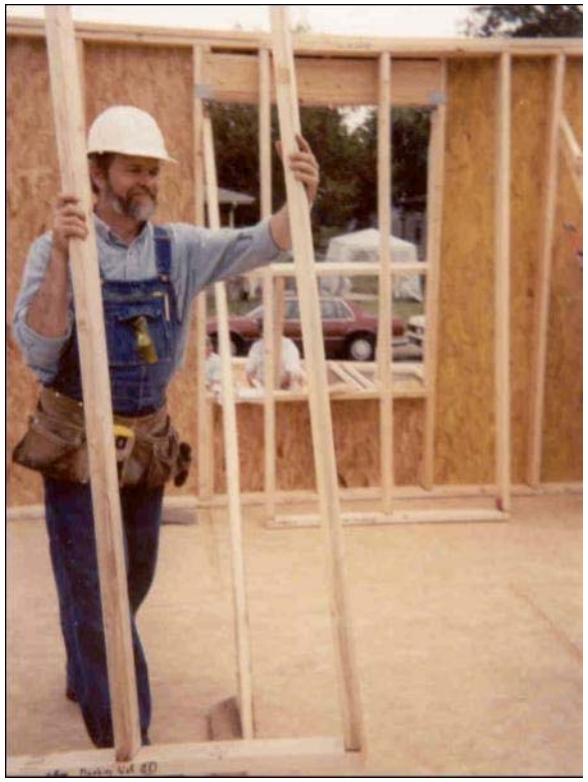
Think About It: Synergies

Consider MR credits 1.1-1.5: Material-Efficient Framing.

- What other MR credit does material-efficient framing help a project obtain?
- What credits in other categories could be affected?

Think About It: Synergies

MRc3.2: Construction Waste Reduction



EA 1: Optimize Energy Performance

EA 3: Air Infiltration

Project Example

Photo © Ramona d'Viola - ilumus photography

Project Example: Materials & Resources

Reclaimed Douglas Fir salvaged from local burnt building

FSC Certified Floors- MR 2.1

Project Example: Materials & Resources

Reuse/Recycling of Waste Materials – MR 3.2

Reuse of Framing & Foundation – MR 2.2

LET'S REVIEW

What attributes do qualifying environmentally preferable materials have?

A. Recycled or reclaimed content.
B. High emissions of volatile organic compounds (VOCs).
C. The product was manufactured 100 miles from where it was extracted.
D. Rainforest Alliance-certified wood.

What questions do you have about the Materials & Resources category?

Instructors: Jason LaFleur
jlafleur@alliancees.org
Brett Little
brett.little@alliancees.org

Implementing LEED for Homes On Your Project

Week 1 Homework:

Fill out “Summary” tab and “MR” section.

Tepeyac
Photographer: Zeck Butler Architects

Agenda

Part 2

Location & Linkages

Sustainable Sites

Water Efficiency

Part *3*

Energy & Atmosphere

Indoor Environmental Quality

Part *4*

Innovation and Design (ID)
Awareness & Education (AE)
LEED for Homes Version 4 Introduction
LEED Checklist Navigation
LEED registration and Submittal Process How to

* Can't make all the dates or if you miss one? Don't worry! It will be recorded and provided for free.

Get Involved

WWW.ALLIANCEES.ORG/GET-INVOLVED/

- Becoming a member
- Become a sponsor
- Volunteer / Intern
- Watch free recorded webinars on demand
- Submit Professional Articles & Blogs

alliancees.org/continuing-education-webinars/

Platinum +

3 YEAR SPONSORS