RESNET
RESIDENTIAL ENERGY SERVICES NETWORK

2016 Conference
Scottsdale, AZ
Feb 29 - Mar 2

Appraisal Boot Camp

February 29, 2016

ECO ACHIEVERS
Building Wisdom

PAHROO
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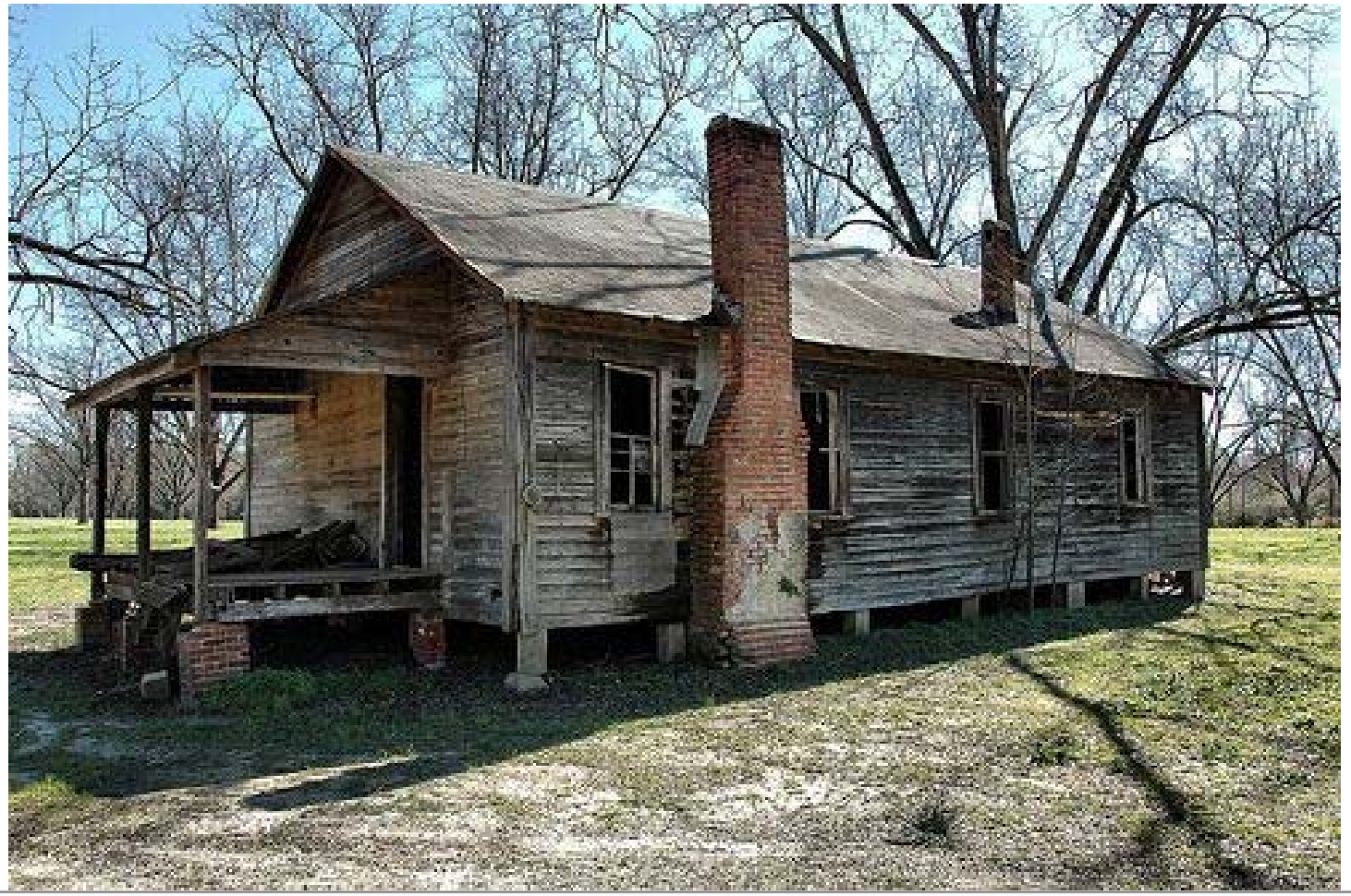
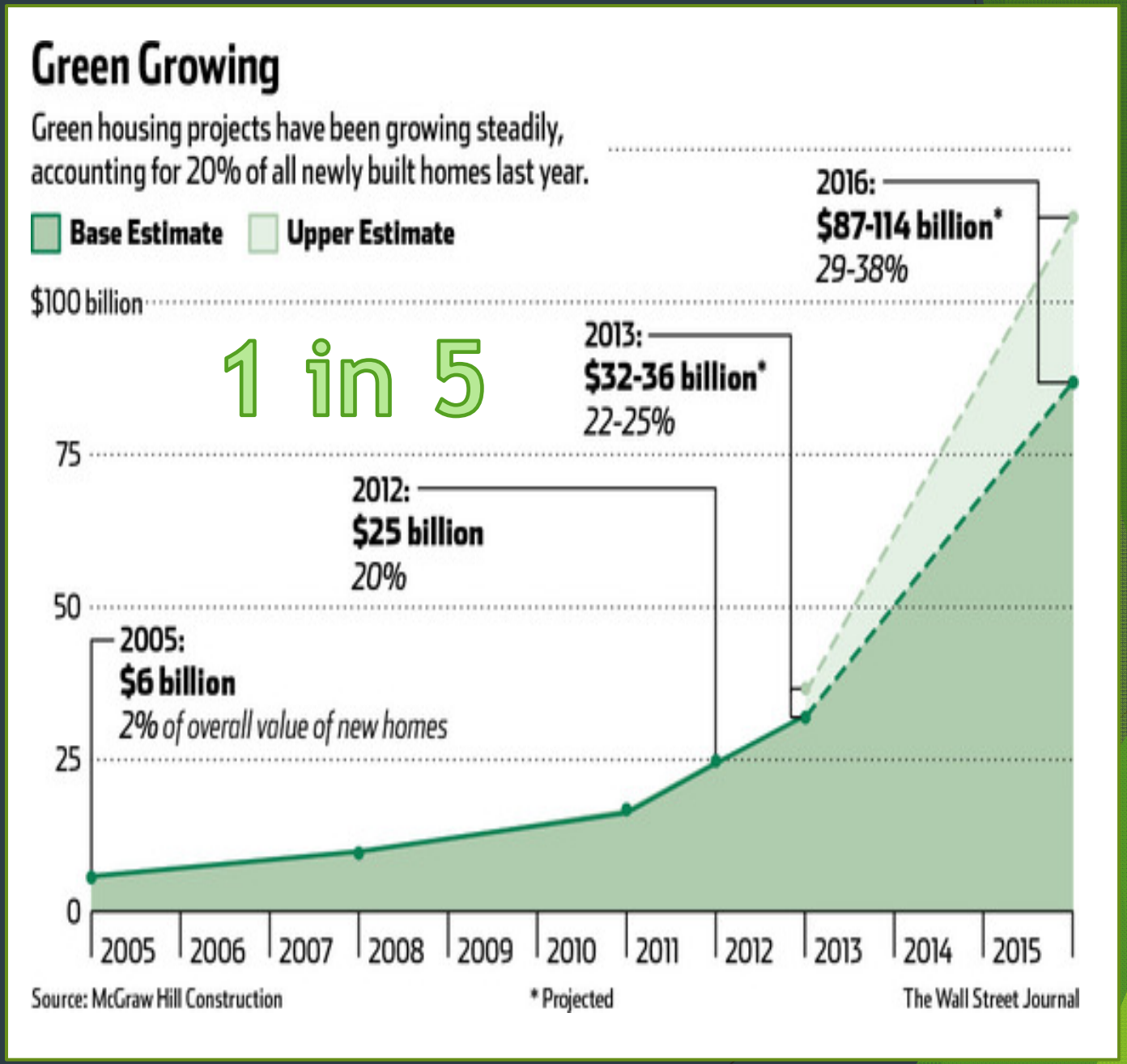
So, Is This A Green Home?



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

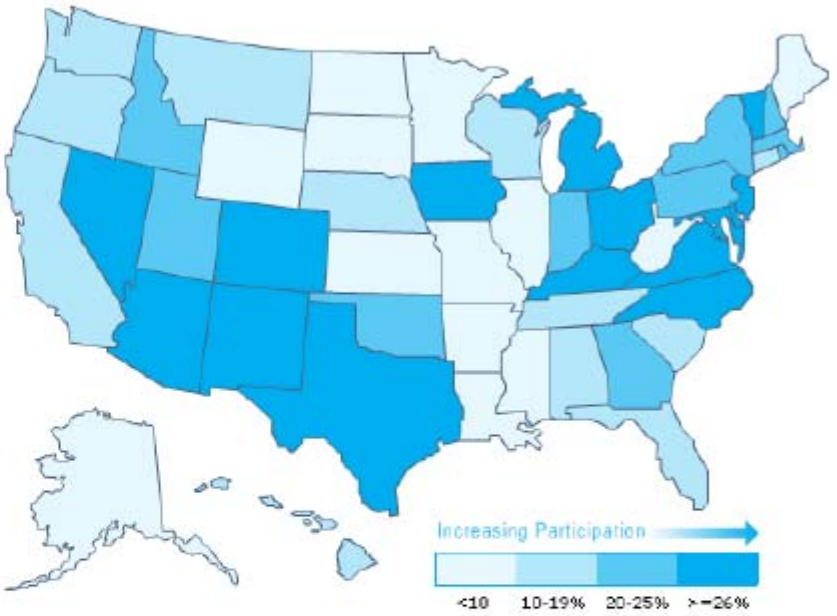
190,000

HERS Rated Homes in 2015

As of Jan 21, 2016

Background

- Energy is a significant and growing cost of homeownership (~15%)
- Accelerating market adoption of energy-efficient homes, but less accessible for low- to moderate-income homeowners
- Mortgage lending can play an important role in promoting or inhibiting investments in energy efficiency



ENERGY STAR Certified New Homes Market Indices for States

Source: U.S. Environmental Protection Agency

According to Green Home Owners,

Top 3 Benefits of a Green Home are:

Only one of these directly impacts market value

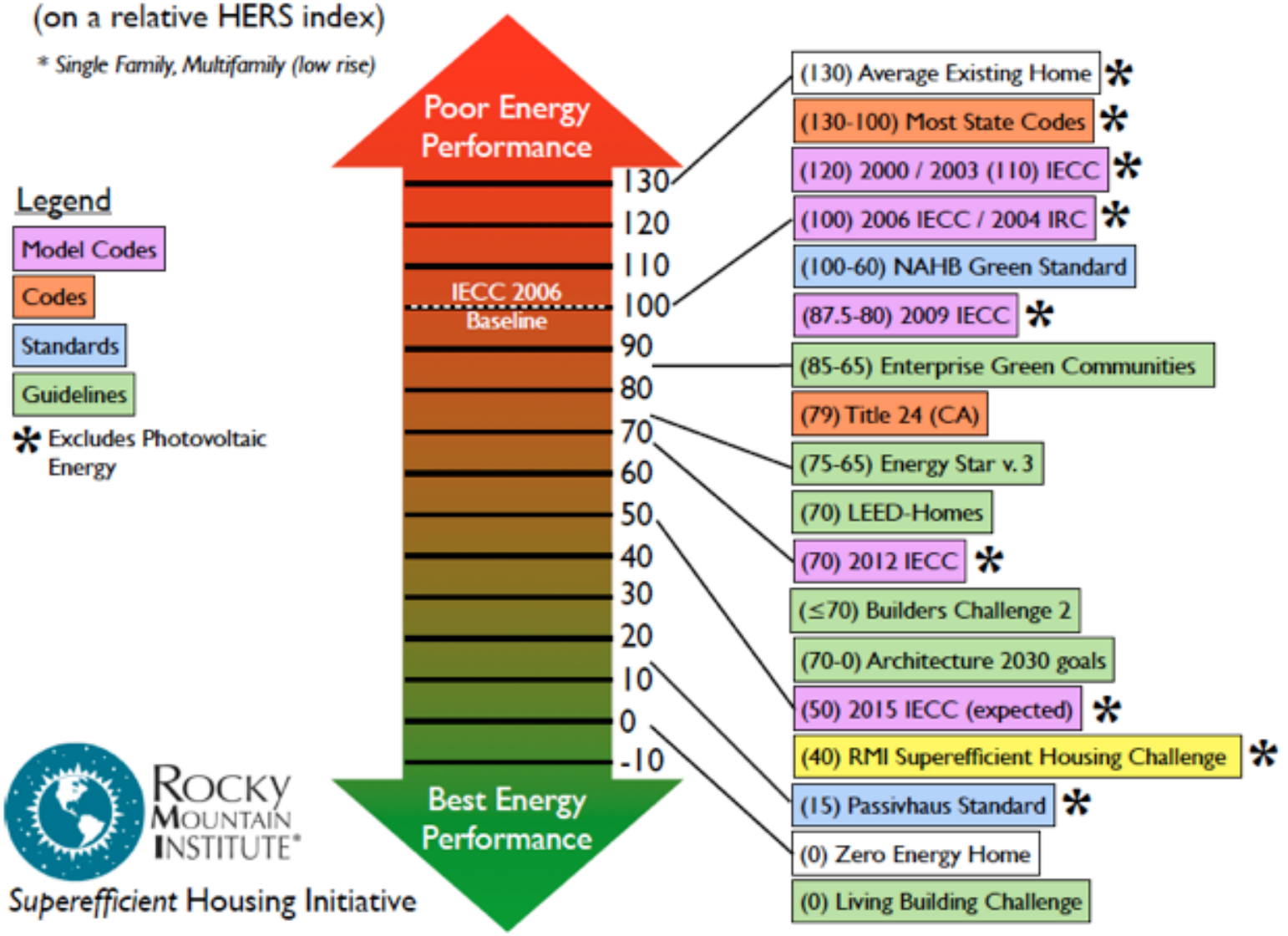
Source: SmartMarket Report, McGraw Hill Construction, 2008

The Continuum from Green to Sustainable

Comparison of Residential* Energy Codes & Standards

(on a relative HERS index)

* *Single Family, Multifamily (low rise)*



Legend

- Model Codes
- Codes
- Standards
- Guidelines

* Excludes Photovoltaic Energy

ROCKY MOUNTAIN INSTITUTE®

Superefficient Housing Initiative

Show Me The Money

- What will the market pay for?

JULY 2012

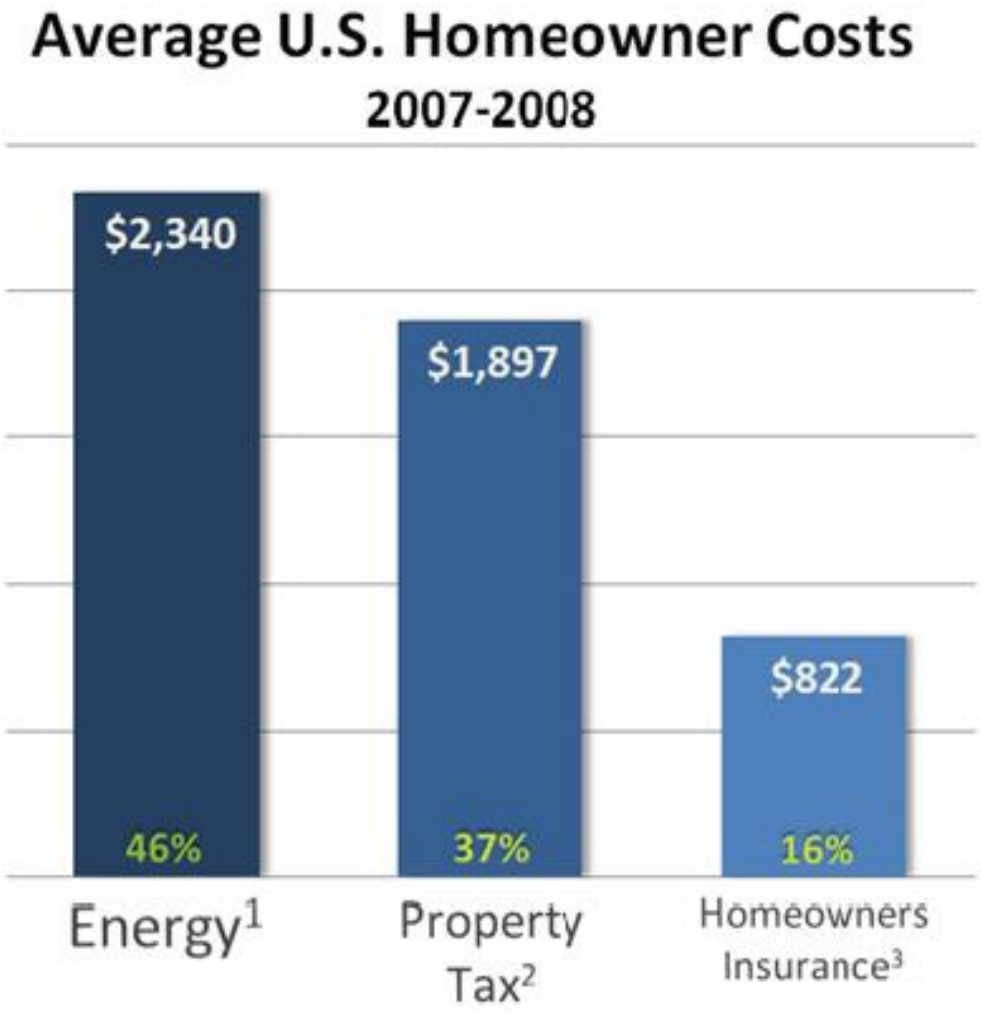
The Value of Green Labels
in the California Housing Market

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

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

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

9% Premium



Institute for Market Transformation www.imt.org

WHAT IS GREEN WORTH?

Unveiling High-Performance Home Premiums In Washington, D.C.

Sandra Adomatis, SRA, LEED Green Associate

Adomatis Appraisal Services

September 2015

IMT INSTITUTE FOR MARKET TRANSFORMATION | DC | DEPARTMENT OF ENERGY & ENVIRONMENT | Adomatis Appraisal Service

32 homes

Ages 107 – 4 year old

2%-5% sales price premium

September 2015

43 homes with Solar PV

Across 6 states

$3.78 per watt premium

https://emp.lbl.gov/

gory

d

bility

Chicago Homes that Disclose Energy Costs Spend Less Time on Real Estate Market

April 22, 2014 10:08 am

A preliminary analysis shows that Chicago single family real estate listings that disclosed energy costs spent less time on the market and had a higher closing rate.

In July 2013, the City of Chicago became the first municipality in the country to disclose residential energy costs (gas and electric) when a home was listed for sale via a multiple listing service (MLS). The achievement was the result of a unique partnership between **Midwest Real Estate Data (MRED)**, the MLS serving Chicago; City of Chicago Office of the Mayor; and Elevate Energy. When a home is listed for sale in Chicago, Realtors can access an energy cost disclosure report for a property in near real-time, which they in turn are required to provide to home purchasers pursuant to **City of Chicago ordinance**.

UNLOCKING BUILDING ENERGY SAVINGS

FIVE-FOLD INCREASE IN 2015 CHICAGO ENERGY BENCHMARKING PARTICIPATION REVEALS POTENTIAL SAVINGS OF $184 MILLION

Energy Use Information and Transparency Make Chicago More Livable, Competitive *and* Sustainable

Seizing the Opportunity

to strengthen Chicago's economy and environment

Chicago buildings spend **$3 BILLION** per year on energy

Building energy use drives 71% **OF CITYWIDE GREENHOUSE GAS (GHG) EMISSIONS**

Energy accounts for up to 30% **OF BUILDING OPERATING COSTS**

Annual Savings Potential

from raising building sector performance

13-24% ENERGY SAVINGS

$100MM–184MM COST SAVINGS

795,000–1.4MM TONS OF AVOIDED GHG EMISSIONS (equivalent to removing 167,000–306,000 cars from the road)

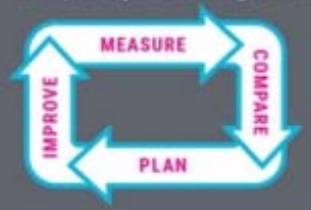
All 77 Chicago Neighborhoods

have buildings that reported energy use

properties reported in 2015, spanning 614MM square feet

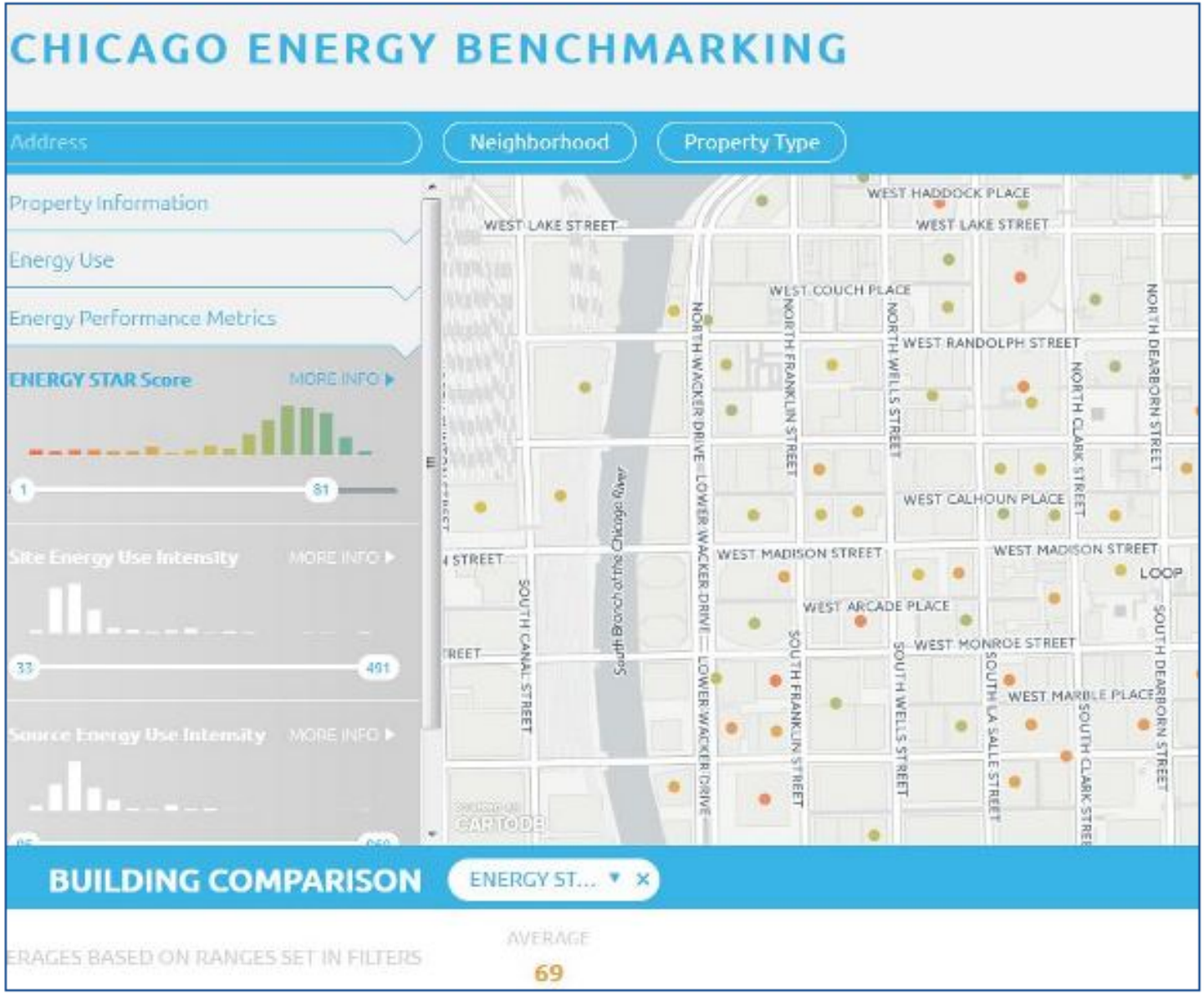
Take Action Now

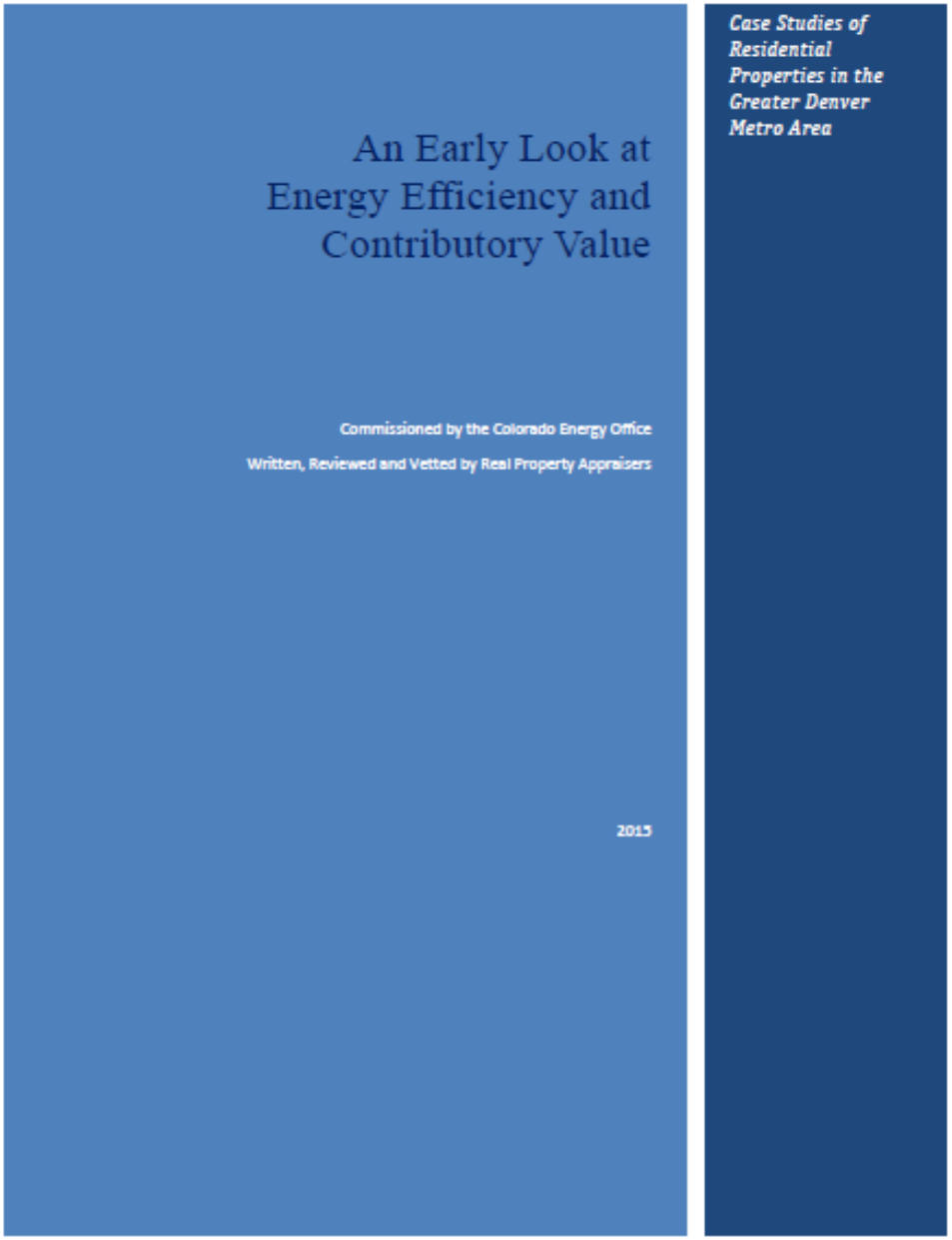
to improve your building's energy performance



- Learn more: www.CityofChicago.org/EnergyBenchmarking
- Compare 2015 building performance: www.CityofChicago.org/2015EnergyData
- Make a plan to reduce energy costs: 1.usa.gov/1NS3QqN

Next Reporting Deadline: **June 1, 2016**


CHICAGO ENERGY BENCHMARKING
Address
Neighborhood
Property Type
Property Information
Energy Use
Energy Performance Metrics
ENERGY STAR Score
MORE INFO
1
81
Site Energy Use Intensity
MORE INFO
33
491
Source Energy Use Intensity
MORE INFO
WEST HADDOCK PLACE
WEST LAKE STREET
WEST LAKE STREET
WEST COUCH PLACE
NORTH WACKER DRIVE
NORTH FRANKLIN STREET
NORTH WELLS STREET
WEST RANDOLPH STREET
NORTH CLARK STREET
NORTH DEARBORN STREET
WEST CALHOUN PLACE
WEST MADISON STREET
WEST MADISON STREET
LOOP
WEST ARCADE PLACE
WEST MONROE STREET
WEST MARBLE PLACE
SOUTH CANAL STREET
South Branch of the Chicago River
LOWER WACKER DRIVE
SOUTH FRANKLIN STREET
SOUTH WELLS STREET
SOUTH LA SALLE STREET
SOUTH CLARK STREET
SOUTH DEARBORN STREET
BUILDING COMPARISON
ENERGY ST...
AVERAGE
69



Biggest Challenge:

Finding the Data!

What is the Appraiser looking for?

- Information
- Data

Raters play a critical role!

VALUE OF 3RD PARTY CERTIFICATION

INDEPENDENT
VERIFICATION OF ACHIEVEMENTS
QUALITY ASSURANCE
AUDITABLE RESULTS

Reduced liability for brokers & appraisers!

PHIUS Certified

0.40 ach@50

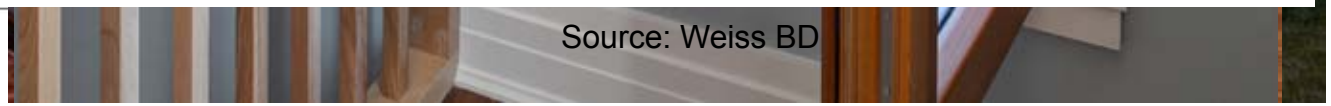
4.31 kBTU/ft²yr

HERS 27

Energy Demands with Reference to the Treated Floor Area

Treated Floor Area: 3598 ft²

	Applied:	Monthly Method	PH Certificate:	Fulfilled?
Specific Space Heat Demand:	4.31	kBTU/(ft²yr)	4.75 kBTU/(ft²yr)	Yes
Pressurization Test Result:	0.40	ACH_{50}	0.6 ACH_{50}	Yes
Specific Primary Energy Demand (DHW, Heating, Cooling, Auxiliary and Household Electricity):	34.6	kBTU/(ft²yr)	38.0 kBTU/(ft²yr)	Yes
Specific Primary Energy Demand (DHW, Heating and Auxiliary Electricity):	20.3	kBTU/(ft²yr)		
Specific Primary Energy Demand Energy Conservation by Solar Electricity:		kBTU/(ft²yr)		
Heating Load:	3.69	BTU/(ft²hr)		
Frequency of Overheating:		%	over 77.0 °F	
Specific Useful Cooling Energy Demand:	0.96	kBTU/(ft²yr)	4.75 kBTU/(ft²yr)	Yes
Cooling Load:	2.91	BTU/(ft²hr)		



Source: Weiss BD

Home Energy Rating Certificate

1430 Jackson Ave.
River Forrest, IL 60305

5 Stars Plus
Confirmed
HERS Index: 27

Registry ID	**951357955**
Rating Number	
Certified Energy Rater	
Rating Date	
Rating Ordered For	

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.

Source: Weiss BD

Quality Data is Critical!

- Appraisers / lenders rely on data
- Green Addendum (Appraisal Institute)
- Supporting Documentation

HERS Ratings

(Home Energy Rating System)

IR Camera + Blower Door

Home Energy Rating System (HERS)

Performance Testing:

- Heating and cooling
- Water heating
- Lighting
- Appliances
- Building envelope

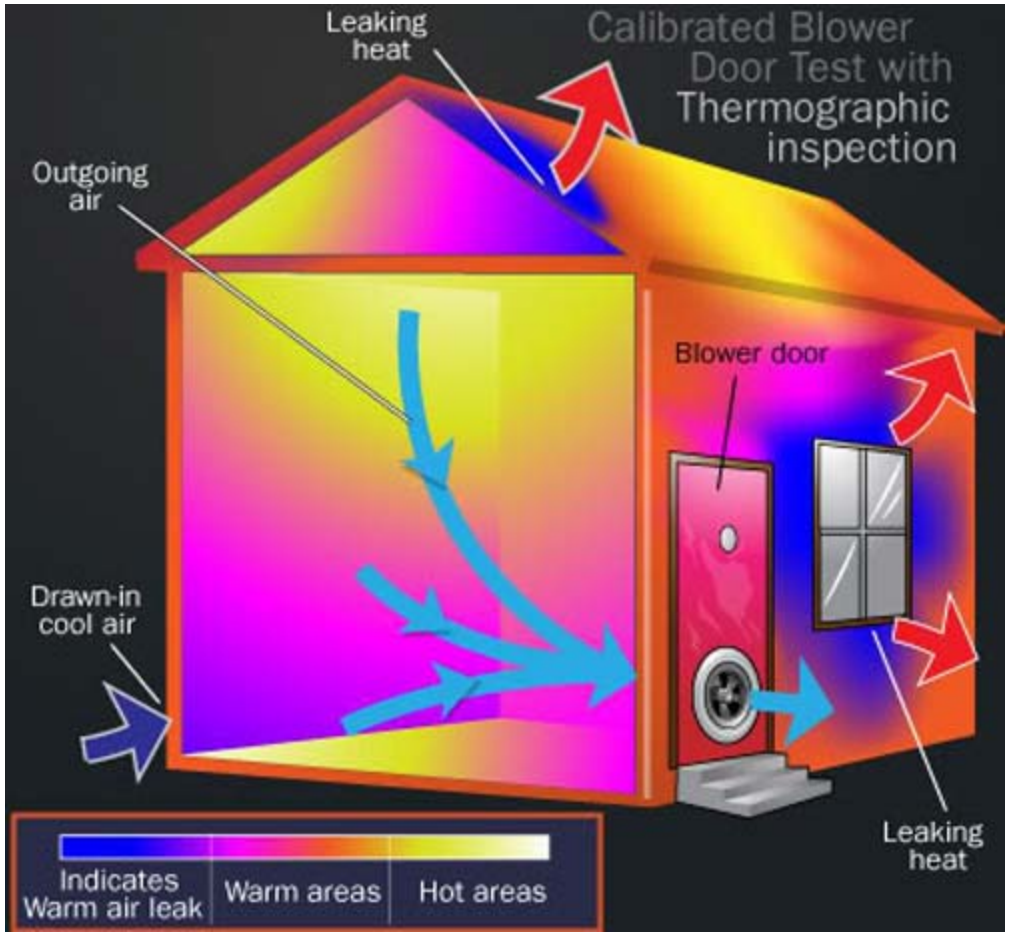
RESNET HERS INDEX

HERSindex.com

How does the Appraiser see what cannot be seen?

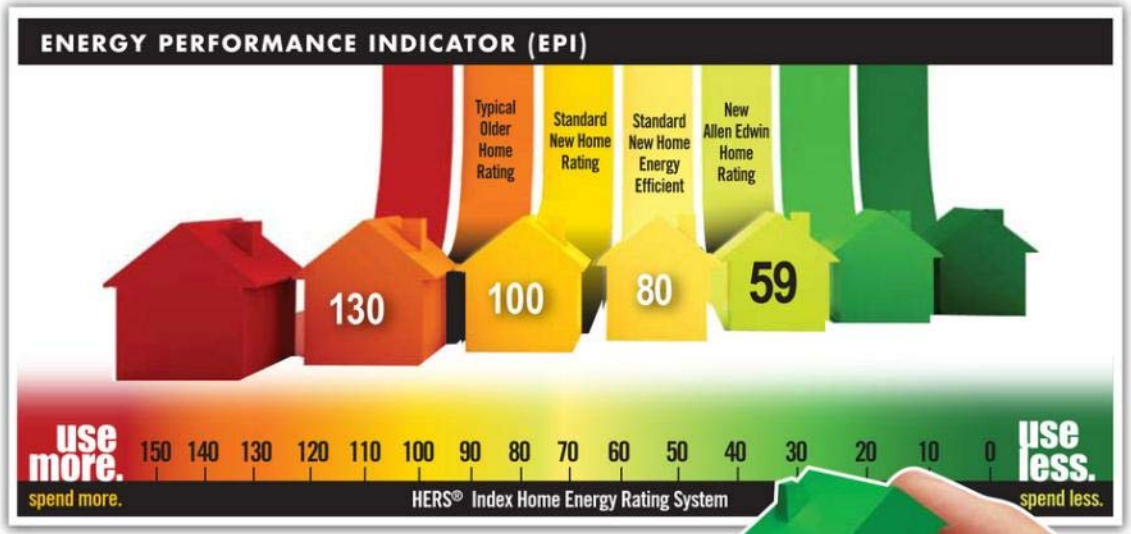
- Mind reader?
- 6th sense?
- Verification of Data

IR Image with Blower Door



RESNET® HERS INDEX

HERSindex.com



*The EPA recently announced new standards for ENERGY STAR Qualified Homes. The increased standards, known as version 3.0, are effective with certificates of occupancy received on or after January 1, 2012. The new standards require the home to measure 41% more energy efficient than the previous standards. Allen Edwin Homes is committed to building ENERGY STAR Qualified Homes - because helping the environment, helps us all.

ANNUAL ENERGY COST COMPARISON

MODEL	ALLEN EDWIN Energy Star Home	NEW CONSTRUCTION Energy Efficient	NEW CONSTRUCTION TO CODE	1972 OR OLDER HOME
ELEMENTS 2100	59 HERS = $2111	80 HERS = $2811	100 HERS = $3477	130 HERS = $4476

ESTIMATED MONTHLY SAVINGS* $197

Wisconsin Existing Homes Incentives

focus on energy
Partnering with Wisconsin utilities

Reward Level	Household Income	Incentive	Eligible Improvements
Level 1	> 80% state median income	33% of costs, up to $1,250	AIR SEALING, attic insulation, wall insulation, foundation insulation
Level 2	< 80% state median income	75% of costs, up to $2,000	AIR SEALING, attic insulation, wall insulation, foundation insulation

Wisconsin New Home Incentives

focus on energy
Partnering with Wisconsin utilities

Home's Efficiency Level	Performance	Incentive
1	10 - 19.9% more efficient than code	$150
2	20 - 29.9% more efficient than code	$600
3	30 - 39.9% more efficient than code	$850
4	40 - 100% more efficient than code	$1,100

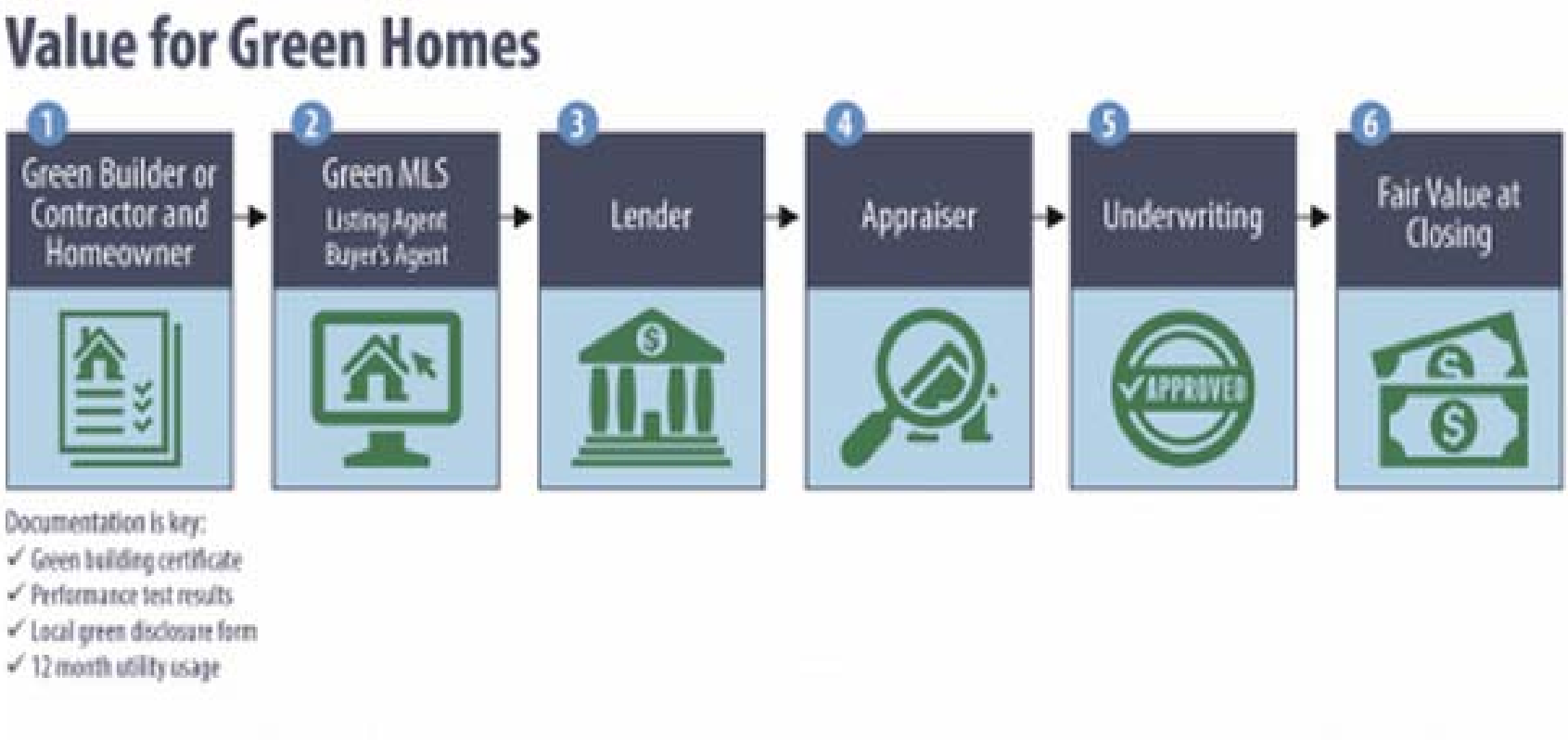
Where else does the Appraiser get market data from?

- Magical powers?
- Industry participants
- MLS

Industry Participants

- Realtors / Brokers
- Builders
- Home Owners
- Contractors
- Raters
- Lenders / AMCs
- Appraisers

Green The MLS



Source: Elevate Energy

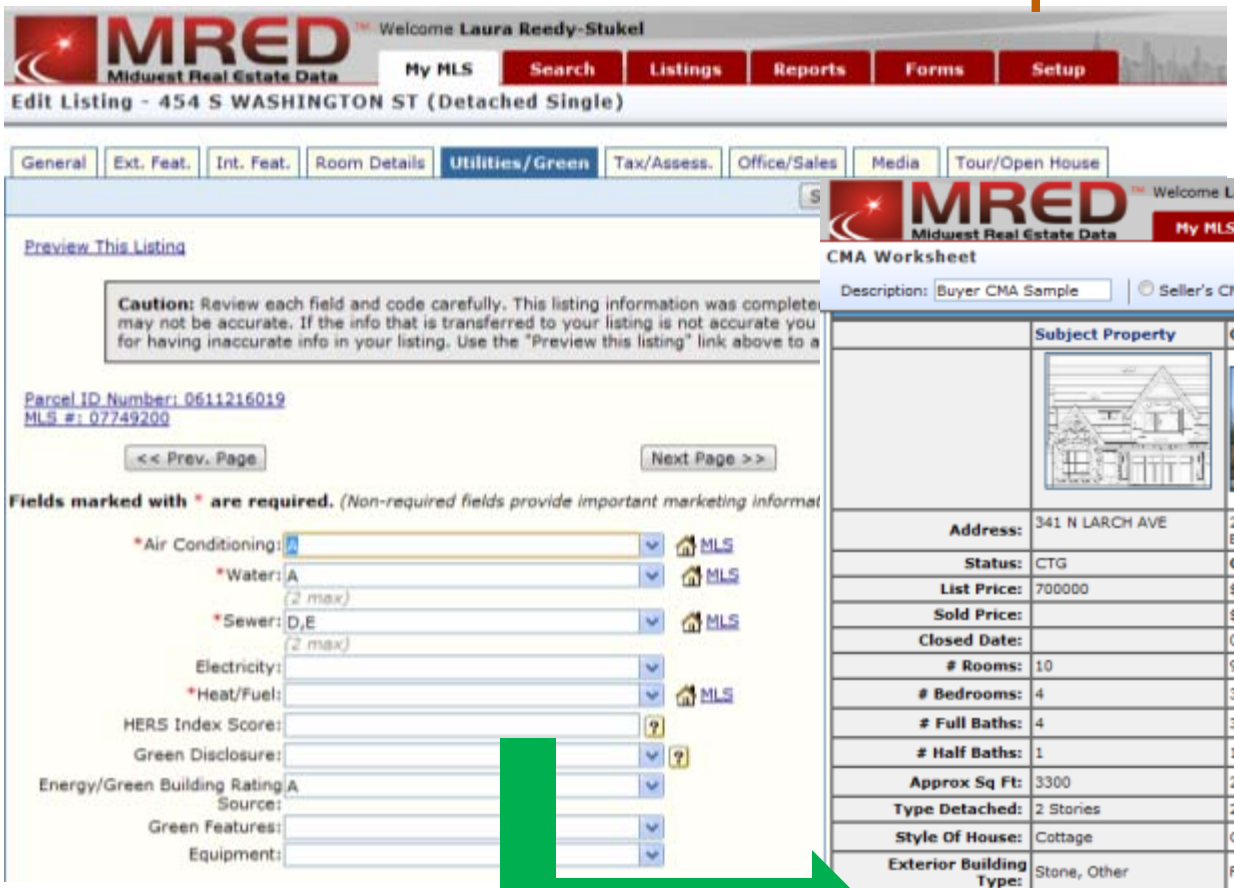
“The” Green MLS

Approximately 700 MLS across USA

You will only find four specific fields for green information in ConnectMLS. These fields are located in the Utilities/Green tab of ConnectMLS.

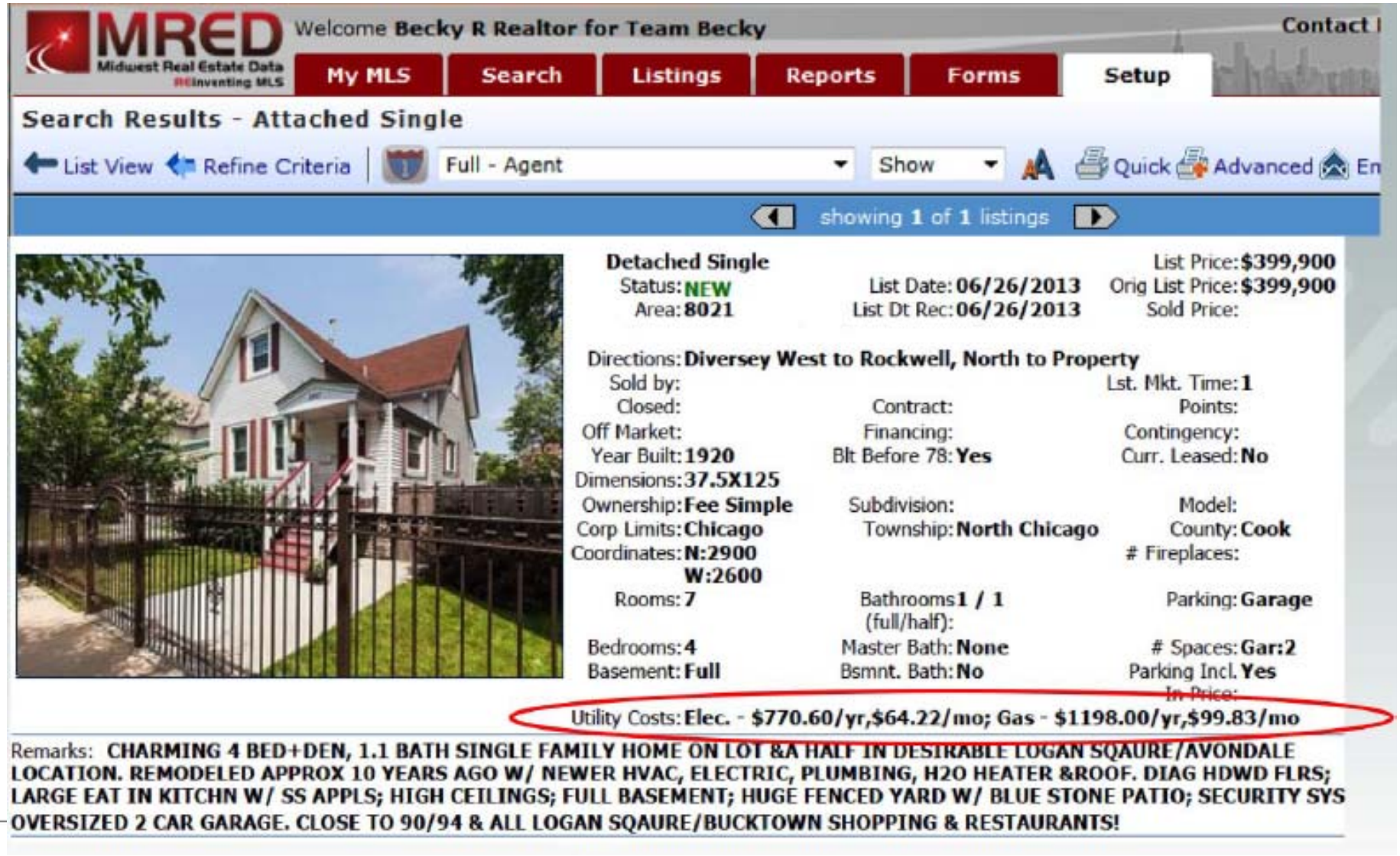
- HERS Index Score
- Green Supporting Documents
- Attached Disclosures
- Energy/Green Building Rating
- Green Features

MLS Future: Empower Choices



	Subject Property	Comp #1 Adjustment	Comp #2 Adjustment	Comp #3 Adjustment
Address:	341 N LARCH AVE	271 SOUTH ST Elmhurst, Illinois 60126	476 S KENILWORTH AVE Elmhurst, Illinois 60126	487 MITCHELL AVE Elmhurst, Illinois 60126
Status:	CTG	CLSD	CLSD	CLSD
List Price:	700000	$650, 000	$639, 900	$724, 900
Sold Price:		$605, 000	$610, 000	$645, 000
Closed Date:		02/04/2011	10/21/2010	09/30/2010
# Rooms:	10	9	10	12
# Bedrooms:	4	3 $	4 $	4 $
# Full Baths:	4	3 $	2 $	3 $
# Half Baths:	1	1 $	1 $	1 $
Approx Sq Ft:	3300	2003 (2003)	2165 (2165)	3128 (3128)
Type Detached:	2 Stories	2 Stories	2 Stories	2 Stories
Style Of House:	Cottage	Colonial $	Colonial $	Colonial $
Exterior Building Type:	Stone, Other	Frame $	Brick, Cedar $	Brick $
Approx Year Built:	2011	1927 $	1940 $	2003 $
Attic:	Full	Full, Unfinished $	Pull Down Stair $	$
Basement Description:	Finished	Finished	Partially Finished	Finished
Air Conditioning:	Central Air	3+ (Window/Wall Unit) $	Central Air $	Central Air $
Heat/Fuel:	Gas, Forced Air	Gas, Hot Water/Steam $	Gas, Forced Air $	Gas, Forced Air $
Total Adjustments:		$0	$0	$0
Adjusted Price:		$605000	$610000	$645000

MLS Future: Information is Power



Green Home Reporting

Go to Green Addendum

ENERGY EFFICIENT ITEMS

The following items are considered within the appraised value of the subject property:

Insulation	☐ Fiberglass Blown-In ☐ Foam Insulation ☐ Cellulose ☐ Fiberglass Batt Insulation ☐ Other (Describe): ☐ Basement Insulation (Describe): ☐ HERS Insulation Installed Rating: ☐ 1 ☐ 2 ☐ 3 (See Glossary)	R-Value: ☐ Walls ☐ Ceiling ☐ Floor
Envelope	Envelope Tightness: Unit: ☐ CFM25 ☐ CFM50 ☐ ACH50 ☐ ACHnatural ☐ Envelope Tightness based on Blower Door Test	
Water Efficiency	☐ Reclaimed Water System (Explain): ☐ Greywater reuse system ☐ WaterSense® fixtures	☐ Cistern - Size: Gallons ☐ Rain Barrels Provide Irrigation
		Location of cistern:

Windows	☐ ENERGY STAR®	☐ Low E	☐ High Impact	☐ Storm	☐ Double Pane ☐ Triple Pane	☐ Tinted	☐ Solar Shades
Day Lighting	☐ Skylights - #:	☐ Solar Tubes - #:	☐ Other (Explain):				☐ ENERGY STAR Light Fixtures

Appliances	ENERGY STAR® Appliances: ☐ Dishwasher ☐ Refrigerator ☐ Other:	Water Heater: ☐ Solar ☐ Heat Pump ☐ Tankless ☐ Coil Size: Gal.	Appliance Energy Source: ☐ Propane ☐ Electric ☐ Natural Gas ☐ Other (Describe):
HVAC (Describe In Comments Area)	☐ High Efficiency HVAC SEER: Efficiency Rating: % AFUE* %	☐ Heat Pump Efficiency Rating: COP: HSPF	☐ Thermostat/Controllers
			☐ Passive Solar (Defined in Glossary)

What does the Appraiser do with all that information?

Defining Market Value

The most probable price that the specified property interest should sell for in a competitive market after a reasonable exposure time, as of a specified date, in cash, or in terms equivalent to cash, under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, for self-interest, and assuming that neither is under duress.

Appraisal Institute, *Dictionary of Real Estate Appraisal*, 5th ed.

(with emphasis added)

Defining Market Value

The traditional definition of market value only considers those forms of benefits/productivity that are:

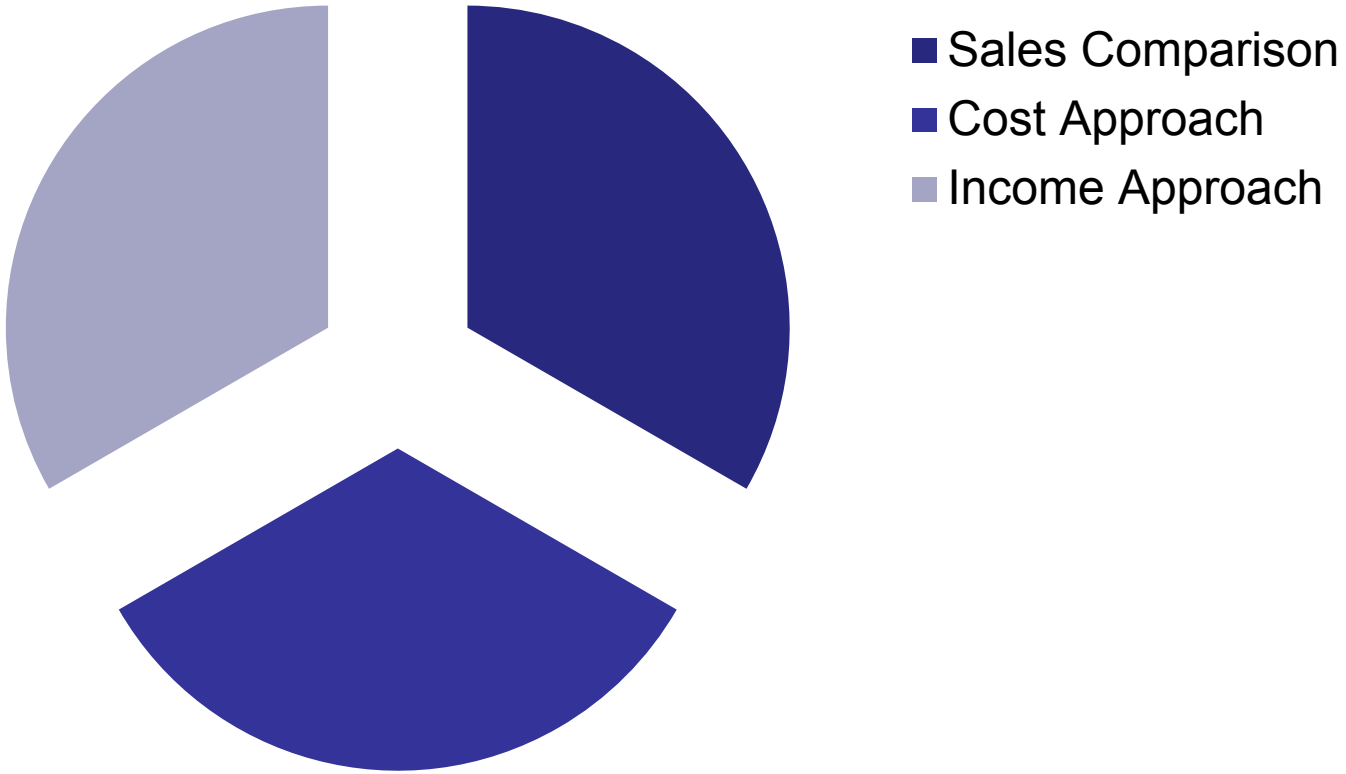
Realized by the Community	**Monetary**	Indirect
Realized by the Owner or User	Non-Monetary	**Direct**

Appraisers definition of market value incorporates those benefits that are ***monetary***, ***direct*** and ***exclusive*** (realized by owner or tenant).

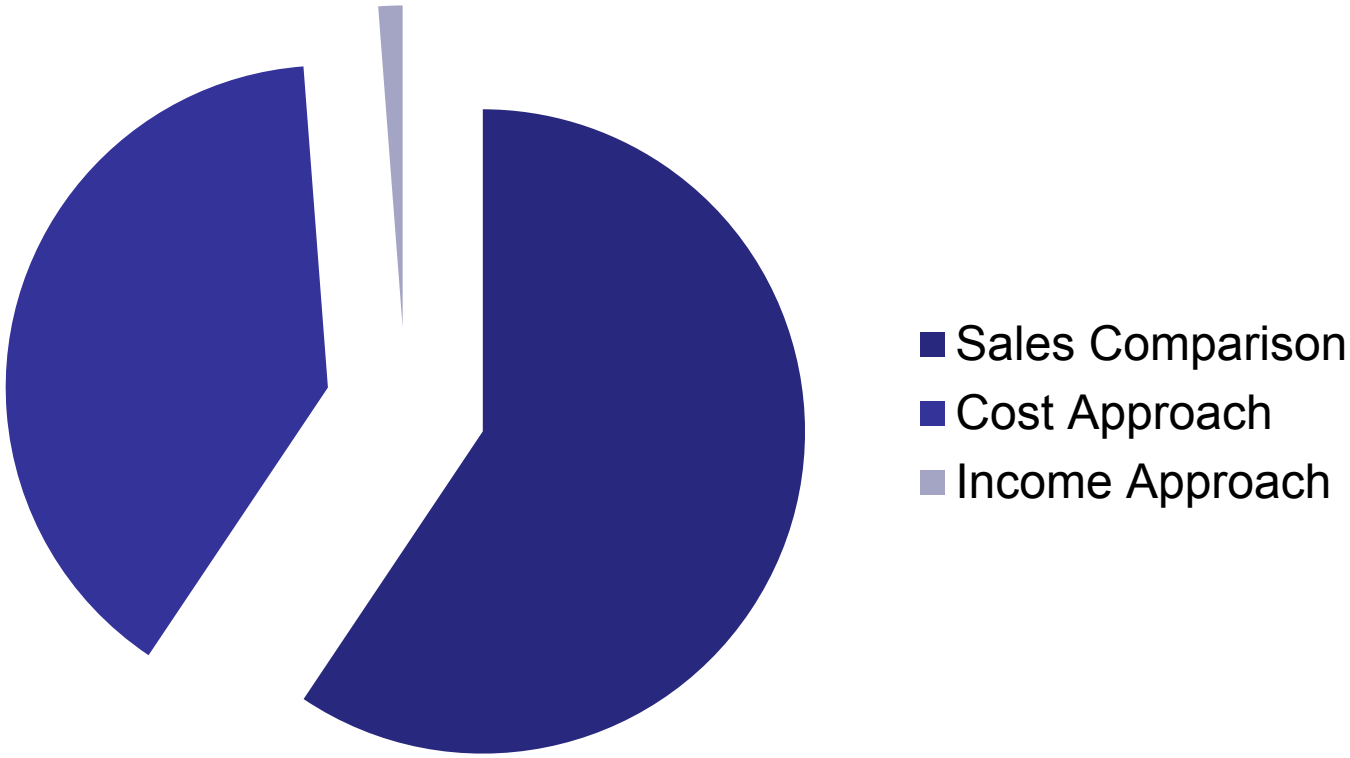
How does the Appraiser determine value?

- Tarot Cards?
- Black Magic?
- Recognized Methodologies

The 3 Approaches to Value



Residential Frequency of Use



SO… Good Data is Critical!

Source: FNC Inc, 2010

Sales Comparison Approach

Sales Comparison Approach

Sales Comparison Approach

Sales Comparison Approach

- Required by Fannie Mae
- Recent sales (comps) used as basis for a subject property's value.
- Specific attributes (location, improvements, etc) can be extracted from market data to make adjustments
- MLS listings key to help appraisers identify relevant data

Cost Approach

Cost Approach

Cost =/= Value

War Stories & Redemption Stories

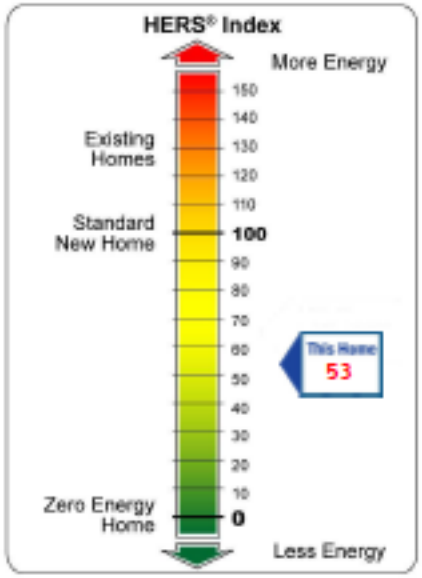
Cost Approach

Land
+ Construction Cost (inc. profit)
- Depreciation
- Obsolescence (external or internal)

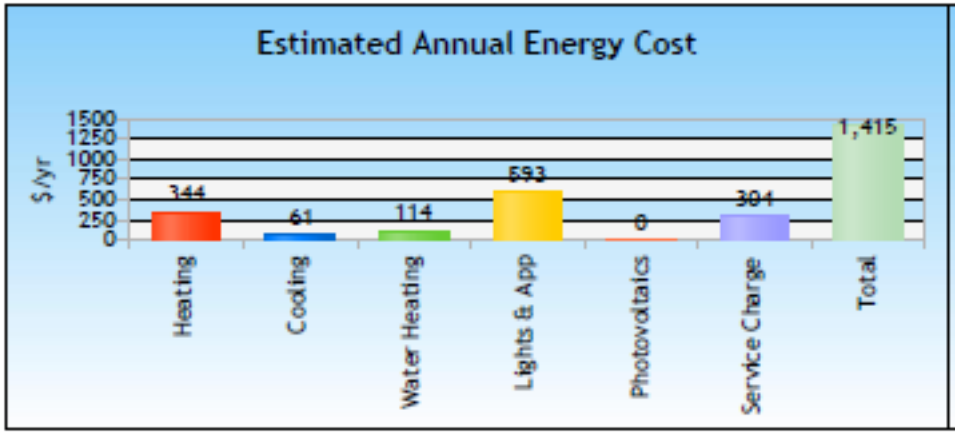
= **Value (by cost approach)**

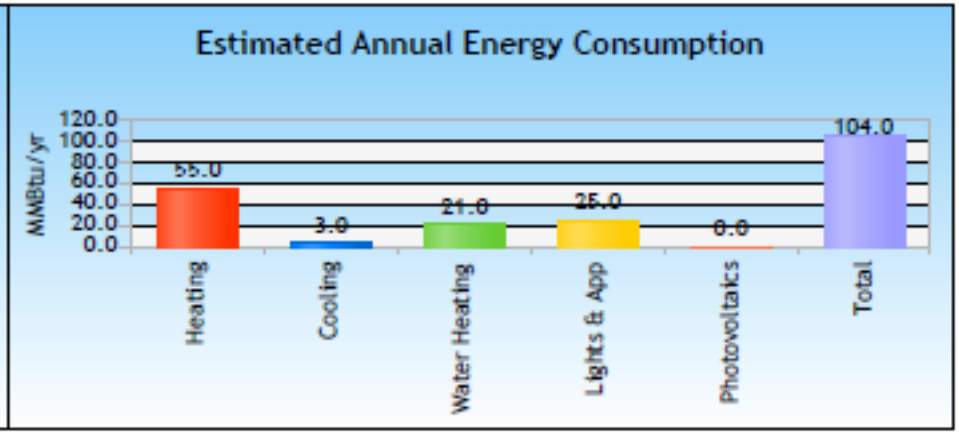
Income Approach

HERS PERFORMANCE



ENERGY RATING CERTIFICATE





Address	3848 N Nottingham Ave
	Chicago, IL 60634
House Type	Single-family detached
Cond. Area	2737 sq. ft.
Rating No.	
Issue Date	February 29, 2016
Certification	Verified

Annual Estimates*
- Electric(kWh): 7395
- Natural gas(MCF): 80
- C02 emissions(Tons): 9

Annual Savings**: $1232

$1,232

TITLE	
Company	
Address	
Certified Rater	Lindsey Elton
Rater ID	6184697
Registry ID	043772939
Rating Date	8/17/15

* Based on standard operating conditions

** Based on a HERS 130 Index Home

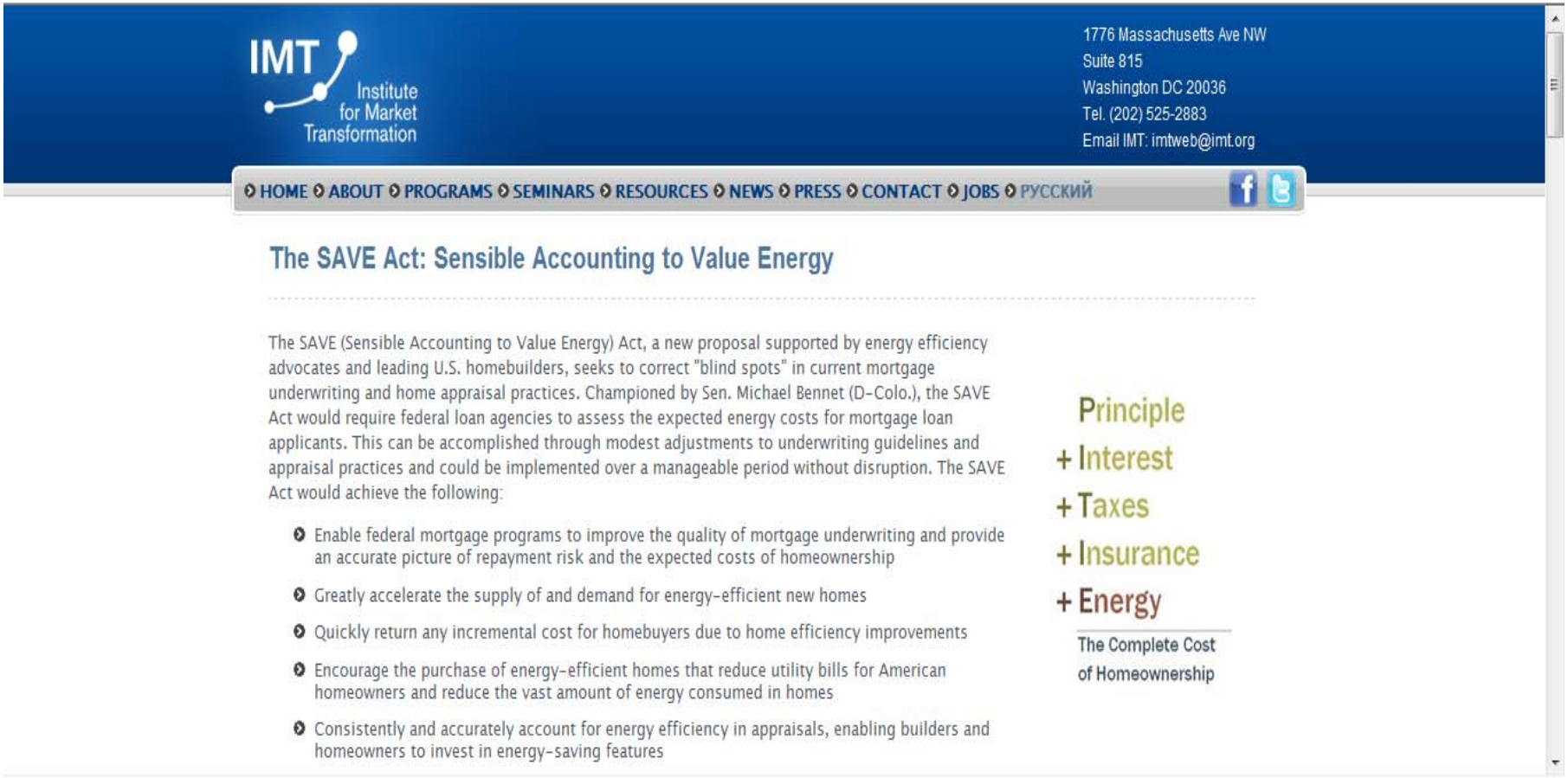
REM/Rate - Residential Energy Analysis and Rating Software v14.6.1

The Home Energy Rating Standard Disclosure for this home is available from the rating provider.

Income Approach

- Typically used for rented buildings
  - Gross Rent Multiplier (GRM)
  - Present Value

Value = Income x Rate of return



http://www.imt.org/save-act

SAVE Act – Introduced to US Senate Jun 13, 2013

Sen. Bennet (D-CO) and Sen. Isakson (R-GA)

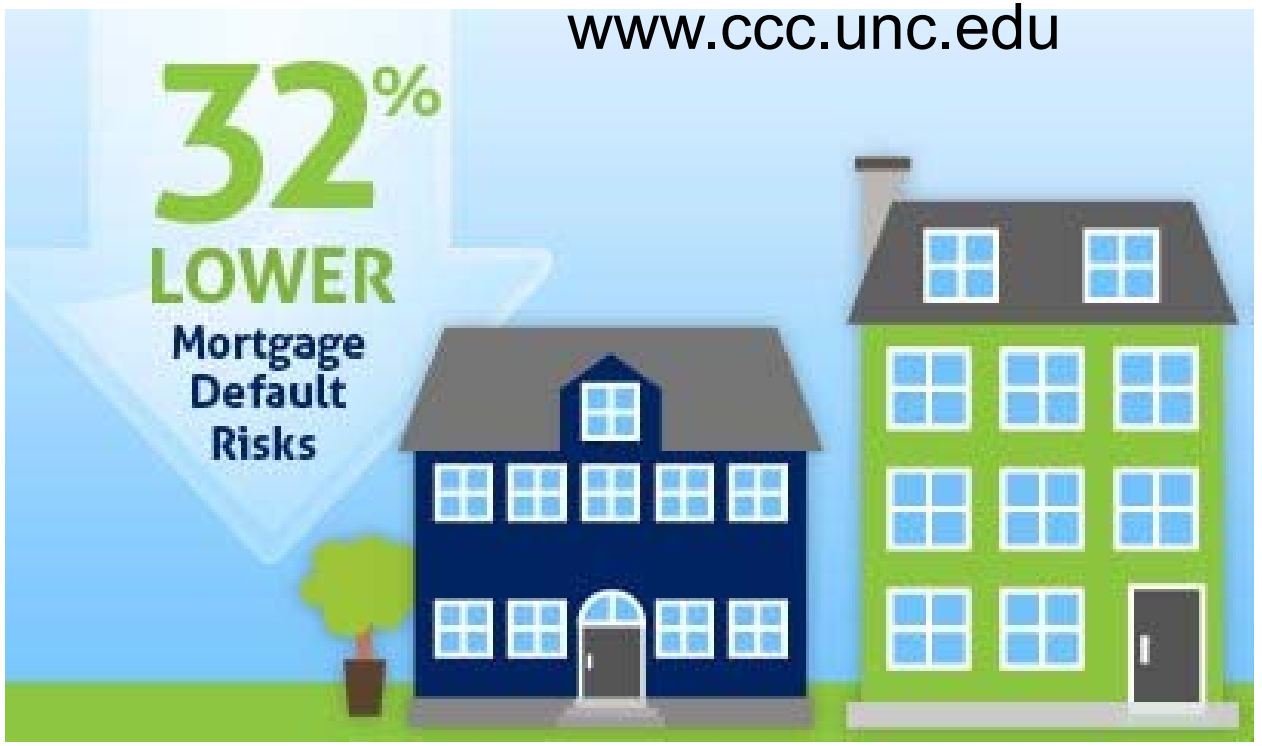
How Will the SAVE Act Affect the Sale of an Existing House?

- If a house is not energy efficient, it may not be affordable to some buyers.
- It could result in a “typical” home taking longer to sell than a house that is energy efficient.
- It could result in a “standard” house selling for less than a house that is more energy efficient.

Key Concept: Total Cost of Ownership

Green Homes and Defaults

www.ccc.unc.edu



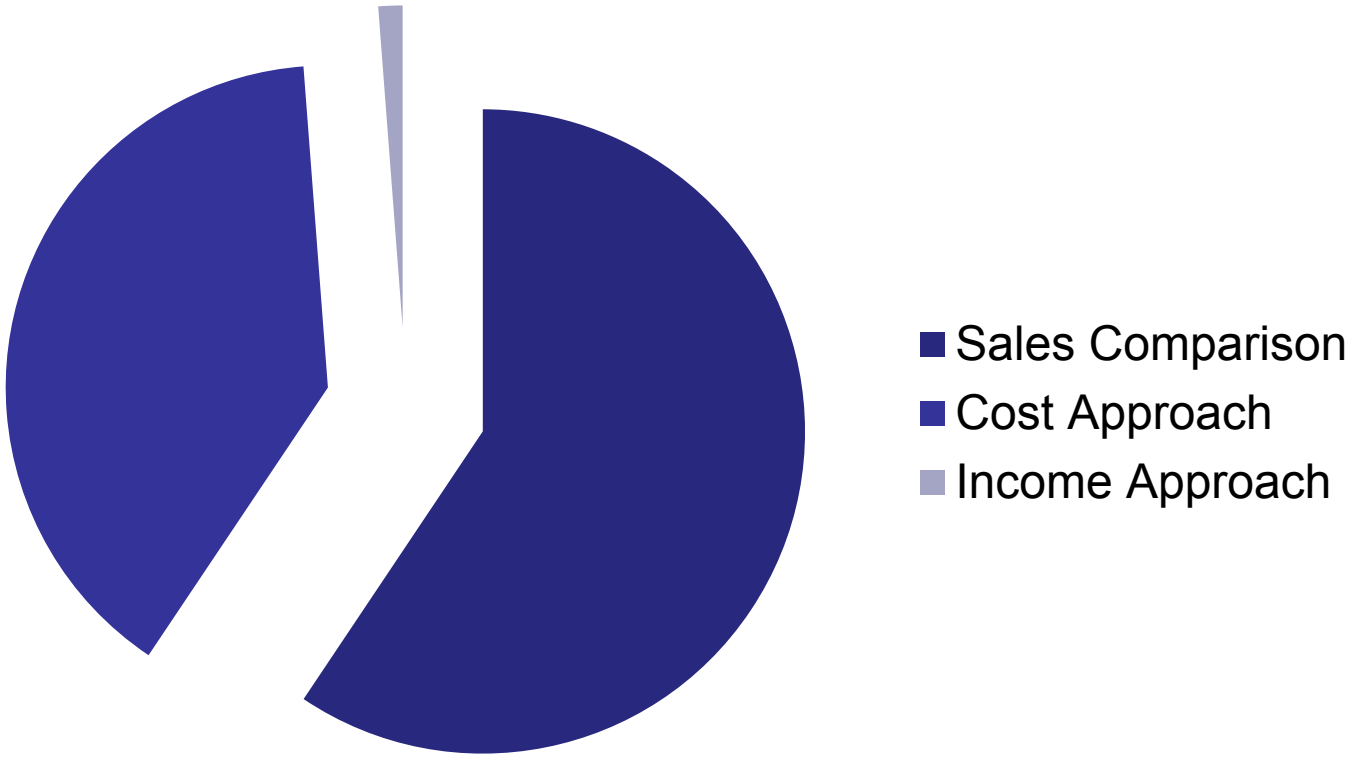
Home Energy Efficiency and Mortgage Risks

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.

What does this mean for mortgage lending?

- Lenders could include the slightly higher upfront costs in the mortgage, if the monthly savings more than offset those costs.
- Debt-to-income ratios could be adjusted to reflect the lower-than-average monthly operating costs.
- Energy efficiency renovation options could be included in mortgages for existing homes and refinances.

Applying the Approaches



Source: FNC Inc, 2010

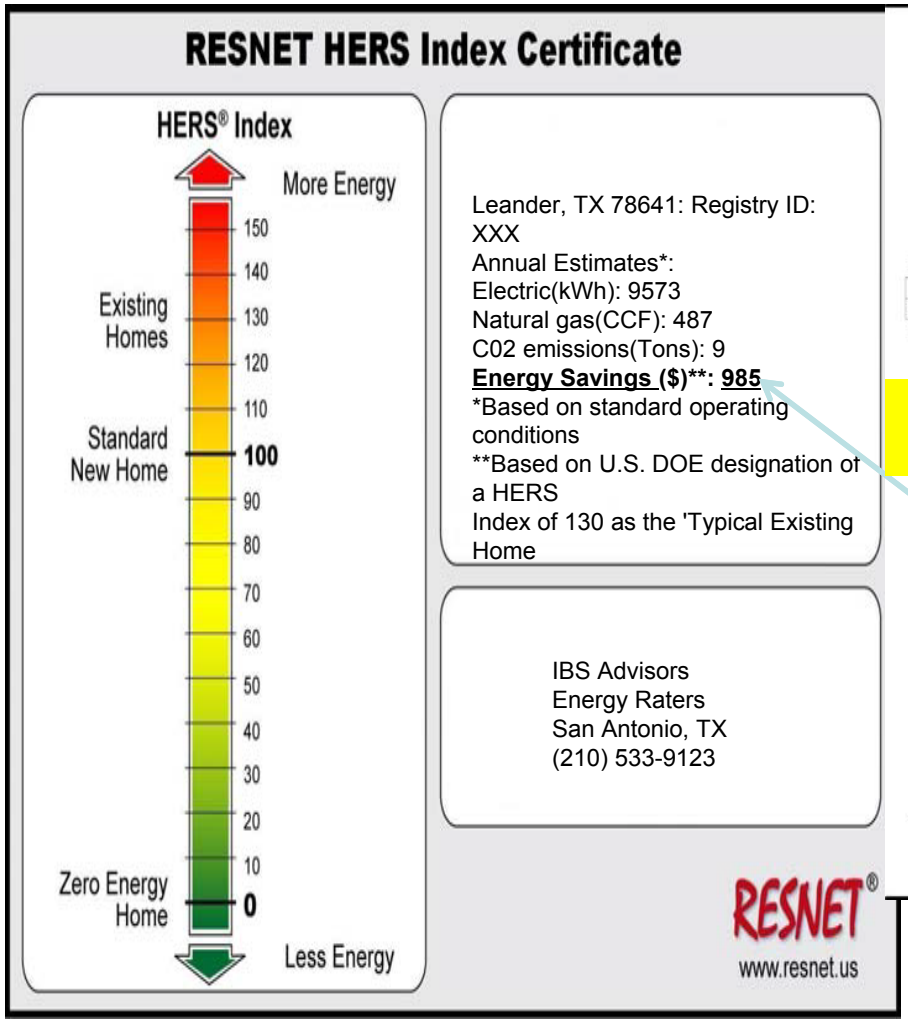
War Stories & Redemption Stories

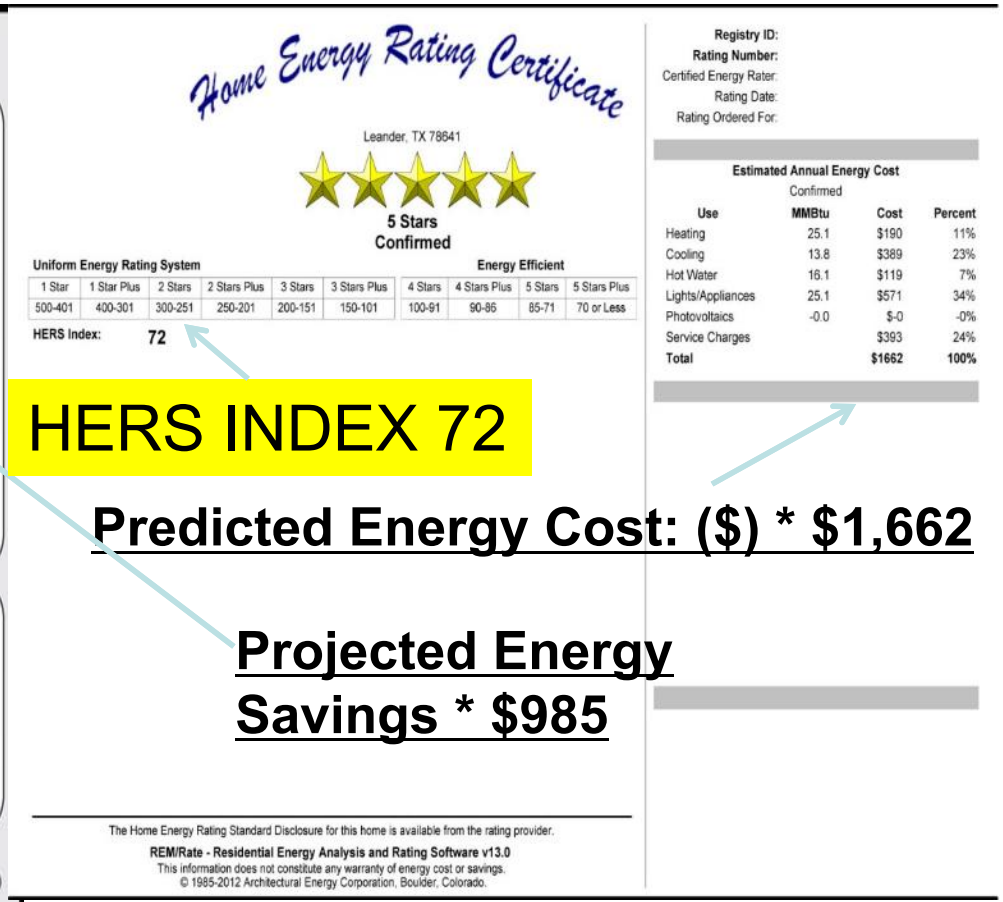
The Appraiser's Green Toolkit

The Appraiser's Green Toolkit

- Direct Capitalization (aka Direct Cap)
- 10% return on $1,000 annually = $10,000

HERS Certificates & Label Data





HERS INDEX 72

Predicted Energy Cost: ($) * $1,662

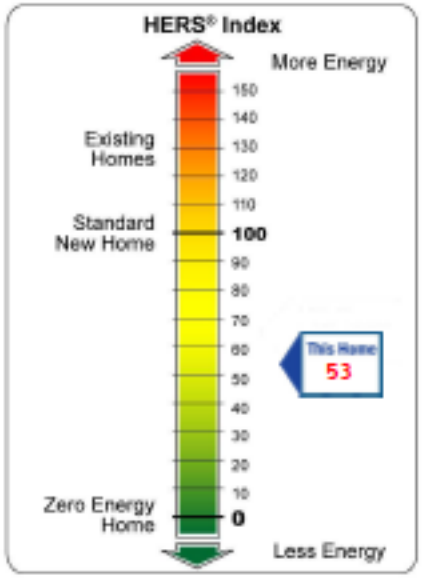
Projected Energy Savings * $985

= $2,647 Baseline Utility Costs

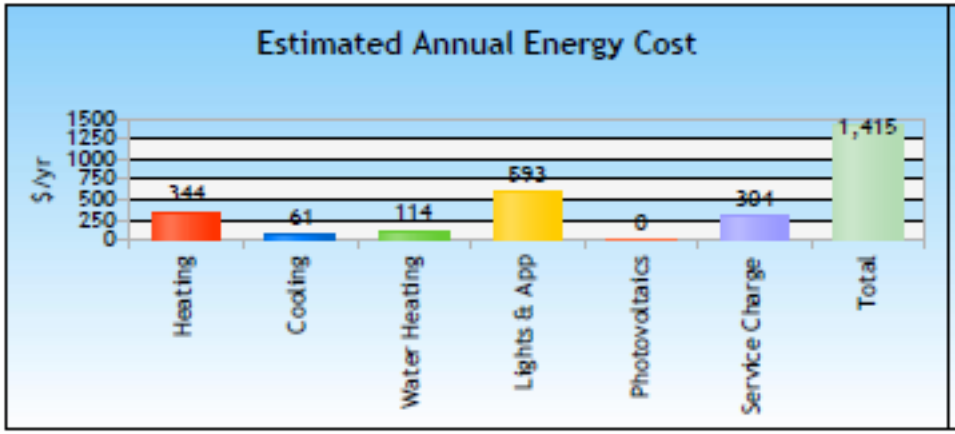
HERS 53

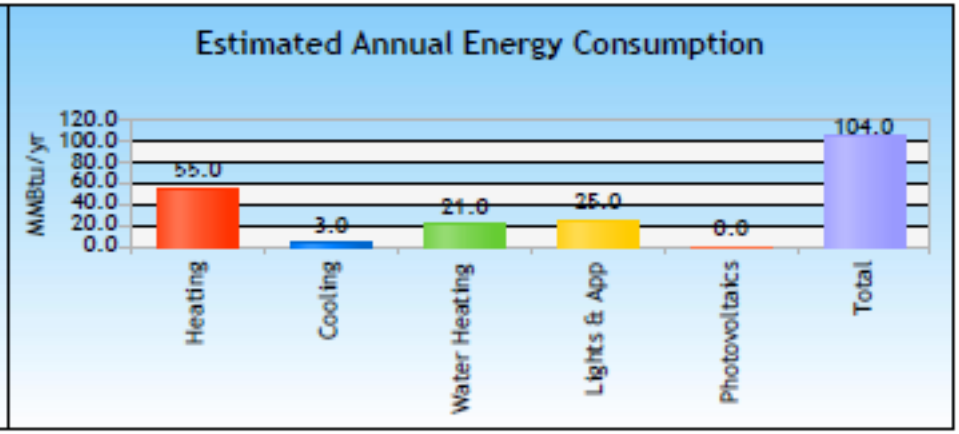
1.2 ach50 at rough!
215 cfm50 at final
0.71 ach50 final
0.03 Cfm50 / shell

HERS PERFORMANCE



ENERGY RATING CERTIFICATE





Address	3848 N Nottingham Ave
	Chicago, IL 60634
House Type	Single-family detached
Cond. Area	2737 sq. ft.
Rating No.	
Issue Date	February 29, 2016
Certification	Verified

Annual Estimates*
Electric(kWh): 7395
Natural gas(MCF): 80
C02 emissions(Tons): 9
Annual Savings**: $1232

$1,232

TITLE	
Company	
Address	
Certified Rater	Lindsey Elton
Rater ID	6184697
Registry ID	043772939
Rating Date	8/17/15

* Based on standard operating conditions

** Based on a HERS 130 Index Home

REM/Rate - Residential Energy Analysis and Rating Software v14.6.1

The Home Energy Rating Standard Disclosure for this home is available from the rating provider.

The Appraiser's Green Toolkit

- **Net Present Value (NPV)** HERS = 53
  - REM Rate reference home: $2,620
  - REM Rate rated home: $1,388 ($1232 savings)

Term	Rate	Savings	Present Value
30 yr	4%	$1232	**$21,505**

- Used to support energy efficient adjustment of 4%

The Appraiser's Green Toolkit

- What Rate should be used?
  - Based on equipment life expectancy because…
  - Based on term of mortgage because…
  - Based on expected occupancy because…
  - Based on weighted average of 30yr mortgage because…

The Appraiser's Green Toolkit

- **Gross Rent Multiplier (GRM)**
  - Sales Price: $480,000
  - Possible rent (limited rent comps): $3,000 / mo.
  - $480,000 / $3000 = 160 GRM
  - $1232 savings / 12 months = $102.67 mo. savings

Rent	GRM	Savings	Value Indication
$3,000	160	$102.67	**$16,427**

This tool requires strong rental market data.
Not used by buyers, but can be secondary support.

The Appraiser's Green Toolkit

	3848 Nottingham	3876 Ottawa
Sales Price	$480,000	$473,000
Year Built	2015	2015
$ sq ft / living area	$263	$237
Bed / Bath	4 / 3.1	3 / 3.1
Land value		

AI Reports®

Form 820.04*

Client File #:		Appraisal File #:	

Residential Green and Energy Efficient Addendum

Client:			
Subject Property:			
City:		State:	Zip:

Additional resources to aid in the valuation of green properties and the completion of this form can be found at
http://www.appraisalinstitute.org/education/green_energy_addendum.aspx

The appraiser hereby certifies that the information provided within this addendum:

- has been considered in the appraiser's development of the appraisal of the subject property only for the client and intended user(s) identified in the appraisal report and only for the intended use stated in the report.
- is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended user(s) in the report.
- is the result of the appraiser's routine inspection of and inquiries about the subject property's green and energy efficient features. Extraordinary assumption: Data provided herein is assumed to be accurate and if found to be in error could alter the appraiser's opinions or conclusions.
- is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments.

Green Building: The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort.[1] High Performance building and green building are often used interchangeably.

Six Elements of Green Building: A green building has attributes that fall into the six elements of green building known as (1) site, (2) water, (3) energy, (4) materials, (5) indoor air quality, and (6) maintenance and operation. A Green Building will be energy efficient but an energy efficient building is not synonymous with Green Building.

ENERGY EFFICIENT ITEMS

The following items are considered within the appraised value of the subject property:

Insulation

- [ ] Fiberglass Blown-In
- [x] Foam Insulation
- [x] Cellulose
- [ ] Fiberglass Batt Insulation
- [ ] Other (Describe):
- [x] Basement Insulation (Describe): R5 continuous exterior; R5 interior
- [ ] HERS Insulation Installed Rating: ◯ 1 ◯ 2 ◯ 3 (See Glossary)

R-Value: R19

- (•) Walls
- ◯ Ceiling
- ◯ Floor

Envelope

Envelope Tightness: 8.2 Unit: ◯ CFM25 ◯ CFM50 (•) ACH50 ◯ ACHnatural

- [x] Envelope Tightness based on Blower Door Test

Water Efficiency

- [ ] Reclaimed Water System (Explain):
- [ ] Greywater reuse system
- [x] Cistern - Size: 165 Gallons
- [ ] WaterSense® fixtures
- [x] Rain Barrels Provide Irrigation

Location of cistern: One rain barrel NW, two rain barrels SE

Windows

- [ ] ENERGY STAR®
- [x] Low E
- [ ] High Impact
- [ ] Storm
- [x] Double Pane
- [ ] Triple Pane
- [ ] Tinted
- [ ] Solar Shades

Day Lighting

- [ ] Skylights - #:
- [x] Solar Tubes - #: 3
- [ ] Other (Explain):
- [x] ENERGY STAR Light Fixtures

Appliances

ENERGY STAR® Appliances:

- [x] Dishwasher
- [x] Refrigerator
- [ ] Other:

Water Heater:

- [ ] Solar
- [ ] Heat Pump
- [x] Tankless
- [ ] Coil

Size: Gal.

Appliance Energy Source:

- ◯ Propane
- ◯ Electric
- (•) Natural Gas
- ◯ Other (Describe):

Tankless natural gas water heater (6 years old)

HVAC (Describe in Comments Area)

- [x] High Efficiency HVAC

SEER: 13
Efficiency Rating: %
AFUE* 92 %
*Annual Fuel-Utilization Efficiency

- [ ] Heat Pump Efficiency Rating:

COP:
HSPF:
SEER:
EER:

- [x] Thermostat/Controllers
- [ ] Passive Solar (Defined in Glossary)
- [x] Programmable Thermostat
- [ ] Radiant Floor Heat
- [ ] Geothermal

The Appraiser's Green Toolkit

Paired Sales Analysis

	1573 Thomas	1721 Acorn
Sale Date	03/2015	02/2015
Sale Price	435,000	420,000
Location	Urban	Urban
Condition	Good	Good
Living Area	2,400	2,350
Basement	Yes, Finished	Yes, Finished
Garage	2 Car Detached	2 Car Detached
Energy Efficiency (Green)	HERS Index 60	HERS Index 80
Difference attributable to Energy Efficiency	15,000	

Energy Sense Finance

Sandia National Laboratories

PV Value® Photovo

Choose Property Type (•) Residential ( ) Commercial

Single-family
Duplex/Villa
Townhouse
Condo

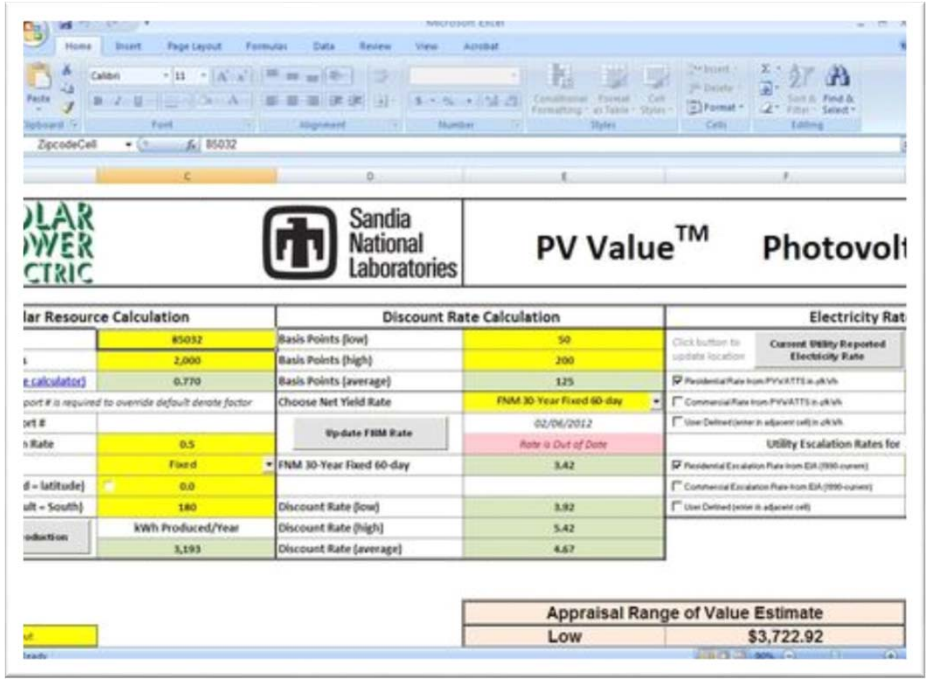
Solar Resource Calculation		Discount Rate Calculation		Electricity Ra
Zip Code	85705	Basis Points (low)	50	Click to Update Utility Specific Electricity Rate
System Size in Watts	6,000	Basis Points (high)	200	
Derate Factor	0.770	Basis Points (average)	125	Residential Rate ¢/kWh
Commissioning report # is required to override default derate factor		Choose Net Yield Rate		
Commissioning Report #		FNM30-Year Fixed 60-day FNM15-Year Fixed 60-day Custom	12/17/2013	[ ] User Defined (check box) ¢/kWh
Module Degradation Rate	0.5		*Rate is Out of Date*	Utility Escalation Rates for
Array Type	Fixed		3.09	Residential Escalation Rate - EIA
Array Tilt (unchecked = latitude)	[ ] 0.0			
Array Azimuth (default = South)	180	Discount Rate (low)	3.59	[ ] User Defined (check box)
Click to Calculate PV Production	kWh Produced/Year	Discount Rate (average)	4.34	
	10,284	Discount Rate (high)	5.09	

User Input
User Input Override
Calculated Value

Appraisal Range of Value Estimate		
Low	$	12,910.88
Average	$	13,953.03
High	$	15,120.39

The Appraiser's Green Toolkit

- PV Value
  - Present Value for PV
  - Positive adj to value
- GRM tool
  - Take monthly EE savings
  - Does EE rent for more?
- Direct cap approach
  - Converting property income into value



Source: Weiss Building & Development

World's First LEED Platinum / NGBS Emerald Remodel

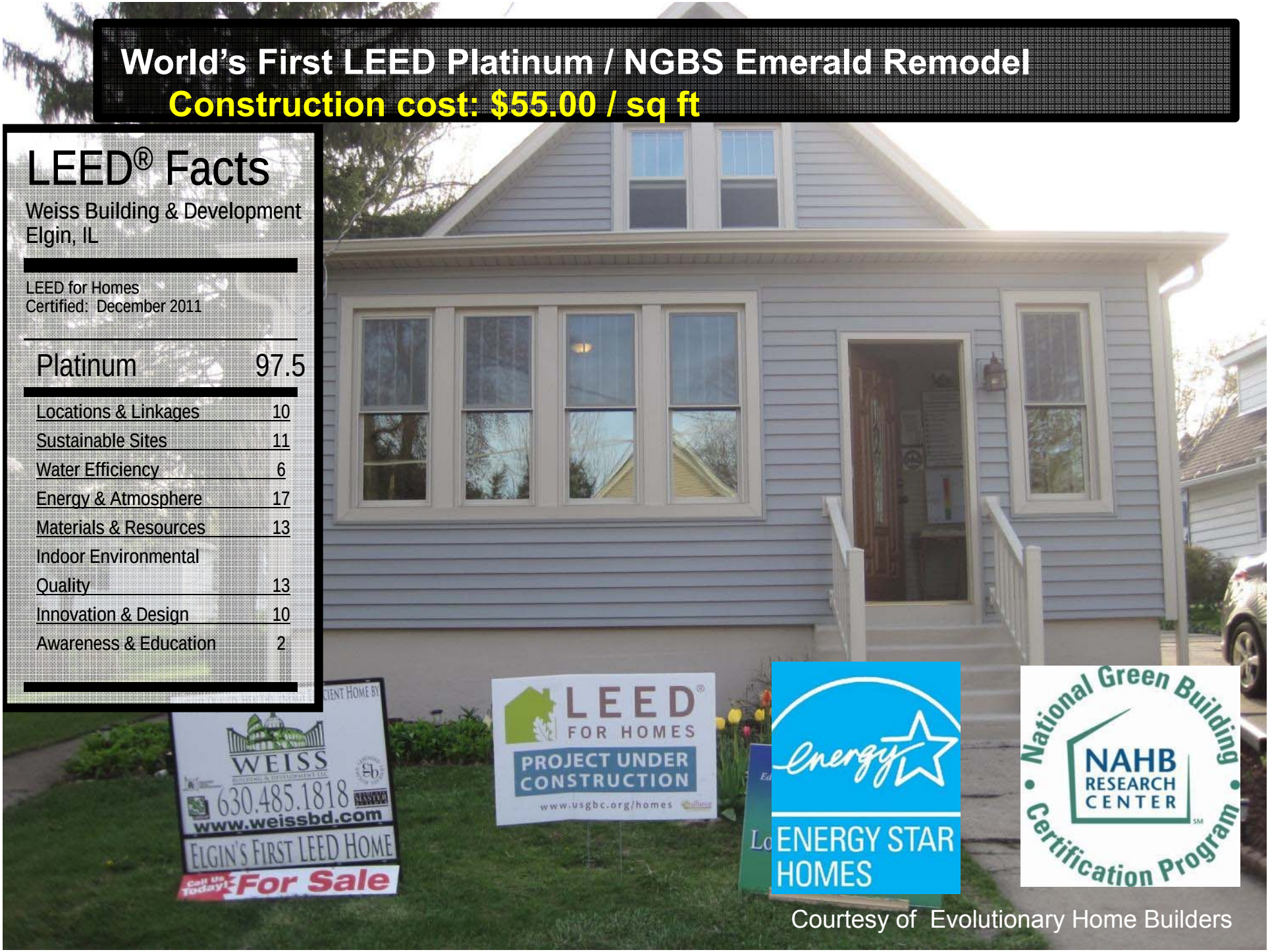
Construction cost: $55.00 / sq ft

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 Evolutionary Home Builders

Green Features

The following items are considered within the appraised value of the subject property:

Certification	Year Certified:	Certifying Organization: ☐ Home Innovation Research Labs (ICC-700) ☐ USGBC (LEED) ☐ Other:	☐ Verification Reviewed on site	☐ Certification attached to this report
Rating	Score:	☐ LEED Certified: ☐ LEED Silver ☐ LEED Gold ☐ LEED Platinum		
		☐ ICC-700 *National Green Building Standard* Certified: ☐ Bronze ☐ Silver ☐ Gold ☐ Emerald		
		Green Certifying Organization URL (website)		
Additions	Explain any additions or changes made to the structure since it was certified:			
	Do changes require recertification to verify rating is still applicable? ☐ Yes ☐ No			
Comments Attach the rating worksheet that provides the ratings for each element to provide a better understanding of the features. The worksheet will assist in comparing the subject to sales rated by different organizations.	If a property is built green but not formally certified, it still deserves proper description and analysis to value the features. The market analysis is of the structure's physical, economic, and locational attributes and not an analysis of its label alone.			

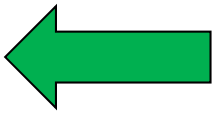
Energy Rating	☐ ENERGY STAR ®Home - Version: ☐ Other (Describe): Home Energy Score (HES) (Score range 1-10): ☐ Certification Attached		
Indoor Air Quality	☐ Indoor Air PLUS Package	☐ Energy Recovery Ventilator Unit or Whole Building Ventilation System	☐ Non Toxic Pest Control
HERS Information	Rating:	Monthly Energy Savings on Rating: $	Date Rated:
Utility Costs	Average Annual Utility Cost: $ per month based on:		# of Occupants:
Energy Audit	☐ Infrared Photograph Attached Has an energy audit/rating been performed on the subject property? ☐ Yes ☐ No ☐ Unknown If yes, comment on work completed as result of audit.		
Comments (Include source for information provided in this section) Attach documents or reference them in your workfile The energy element is the most measurable element of green or high performance housing.	Information was provided by:		

Solar Panels

The following items are considered within the appraised value of the subject property:

Description	Array #1 ☐ Leased ☐ Owned	Array #2 ☐ Leased ☐ Owned	Description	Solar Thermal Water Heating System
kW (size)			**If Active System - type**	☐Direct ☐ Indirect
Manufacturer of Panels			**If Passive System - type**	☐ Integral collector ☐ Thermosyphon
Warranty on Panels			**Storage Tank Size**	# Gallons:
Age of Panels			**Collector Type**	☐ Flat-Plat Collector ☐ Integral Collector ☐ Evacuated-Tube Solar
Energy Production kWh per Array				
Source for Energy Production Estimate			**Back-Up System**	☐ Conventional Water Htr ☐ Tankless On Demand ☐ Tankless Heat Pump
Location (Roof, Ground, Etc.)			**Age of System**	
Tilt/Slope for Array			**Warranty Term**	
Azimuth per Array			**Manufacturer**	
Age of Inverter(s)			**Solar Energy Factor (SEF)** (Rating range 1 to 11 - higher number is more efficient)	
Manufacturer				

Warranty Term			
Name of Utility Company:		Cost per kWh charged by Company: $ /kWh	
Comments (Discuss incentives available for new panels, condition of current panels, and any maintenance issues. If leased, provide the lease terms.) A free online tool and manual for valuing the energy production of the Solar PV System is available at www.pvvalue.com Download the PV Value™ Manual for explanation of the solar terms on this form and inputs used in the PV Value Tool.	Discuss source of information and define other renewable energy sources, such as wind, hydropower, biomass power, etc.		



Location - Site			
The following items are considered within the appraised value of the subject property:			
Walk Score	Score:	Source: (Example: http://www.walkscore.com)	
Public Transportation	☐ Bus – Distance: Blocks	☐ Train – Distance: Blocks	☐ Subway – Distance: Blocks
Site	Orientation - front faces: ☐ East/West ☐ North/South	Landscaping: ☐ Water Efficient ☐ Natural	
Comments			

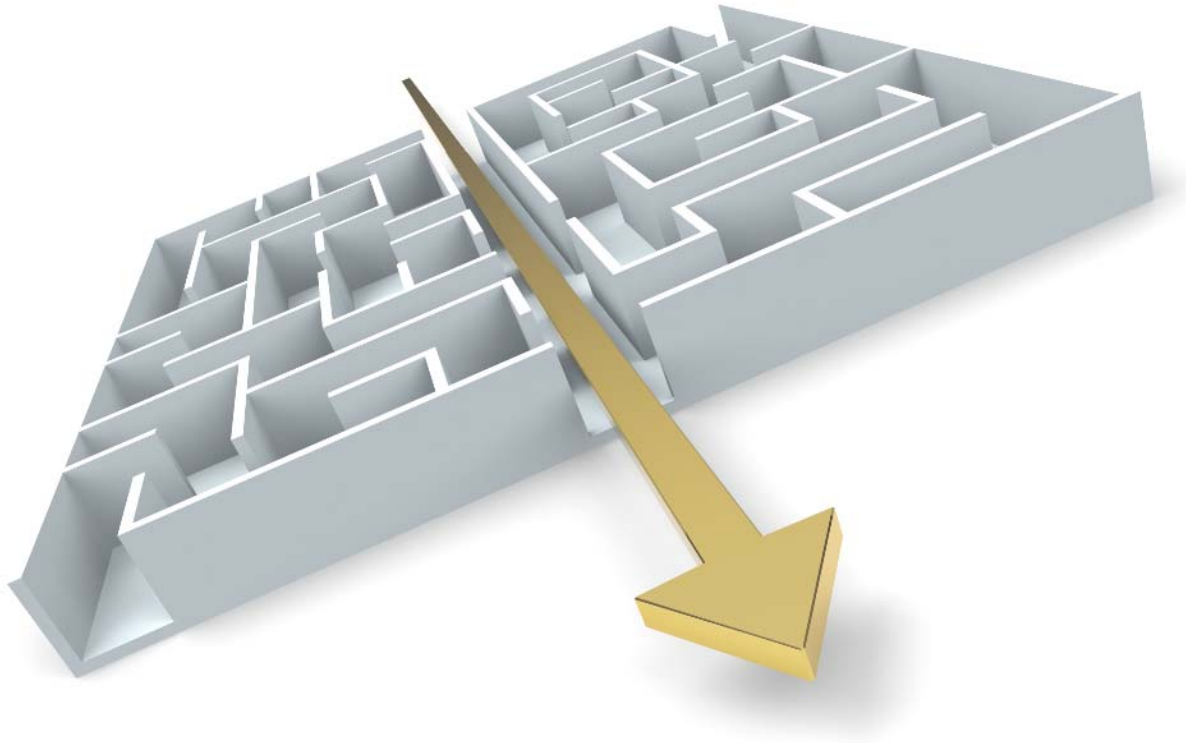
Incentives – Amount of Incentive and Terms	
The following items are considered within the appraised value of the subject property:	
Federal	
State	
Local	
Source (For example www.dsireusa.org)	
Comments Incentives offset cost and should be reported in the cost approach section of the report. Incentives are typically not a sales comparison approach concession since they do not transfer with the property.	

The objective of this Addendum is to standardize the communication of the high performing features of residential properties. Identifying the features not found on the 1004 form provides a basis for comparable selection and analysis of the features. Builders, contractors, homeowners, and third party verifiers are encouraged to complete this Addendum and present to appraisers, agents, lenders, and homeowners.

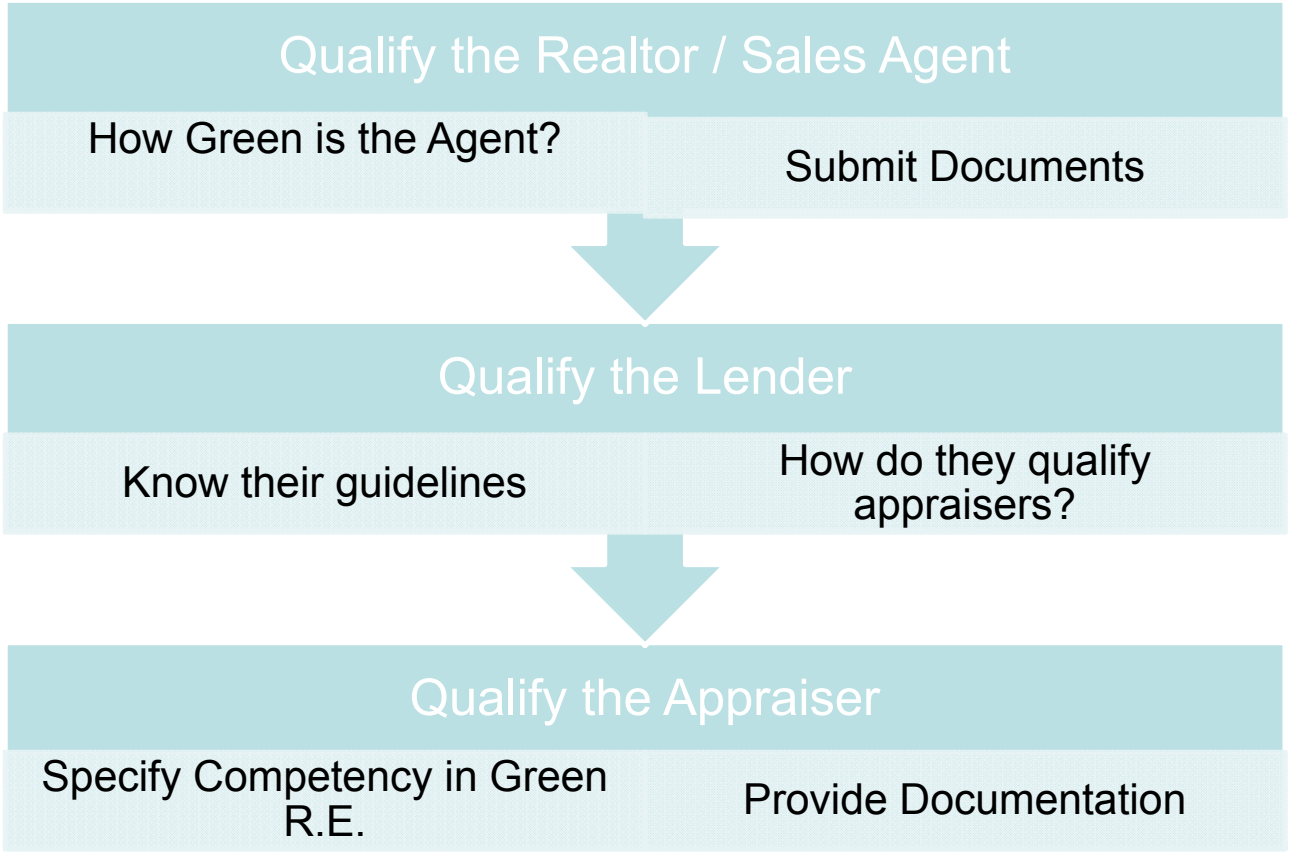
Completed by:_____ Title:_____ Date:_____

What is Reconciliation of value indicators and why do Appraisers do it?

- It feels good?
- Too much free time?
- Test of Reasonableness



Know Your Team



Qualify the Realtor / Sales Agent

Qualify the Lender

- Find a GREEN lender that sees value in financing energy performance features.
- How many EE or high-performance loans have they made?
- **Go Local!** Large banks tend to be rigid and unwieldy.
  - Flexibility
  - higher loan-to-value ratios
  - help temper appraisal issues.
- The appraiser works for the bank / lender, not you.

Appraised Value & Energy Efficiency: Getting it Right

While location, design, and price are a home buyer's main considerations, surveys show that buyers rank energy efficiency as one of the most desirable features, and importantly - one they're willing to pay more for.[1] However, energy efficiency can be overlooked in the appraisal process for a variety of reasons, including a lack of access to quality data, underwriting impediments, and appraiser qualifications. Many appraisers may not be aware of the unique features of an energy-efficient home. However, there are many specially-trained appraisers who are qualified to assess the value of these features that are often hidden behind the drywall. One way to know that a home is built energy efficiently is to know which energy code it was built to.

According to the U.S. Department of Energy, homes built to the 2012 or 2015 International Energy Conservation Code (IECC) are 15-16% more efficient than those built to the 2009 IECC or earlier. They will have fewer drafts, be more comfortable to live in, and have lower monthly energy bills.

Fannie Mae, Freddie Mac and FHA guidelines require appraisers to consider the energy efficient features of the home, and if the market supports an adjustment in the appraised value, one must be made, but an average appraiser won't take this into account if they aren't aware of it.

A ready-made solution exists.

Fannie Mae, Freddie Mac and FHA guidelines require lenders to choose competent appraisers who have the requisite knowledge required to perform a professional quality appraisal for the specific geographic location and particular property type.[2][3][4]

Appraisers who are specially trained on energy-efficient / high-performing homes will analyze market trends

Getting Maximum Value

- Complete the AI's *Residential Green and Energy Efficient Addendum* & attach a copy of:
  - any state or local energy code compliance certificate
  - the full Home Energy Rating Report (including the Home Energy Rating Certificate)
  - a graphic display of Home Energy Rating Index
  - Green rating worksheets / certificates
  - Sales of similar properties that are arms-length transfers
- Include the Green Addendum with loan application

AI Reports®

Form 820.04*

Client File #:		Appraisal File #:	

Residential Green and Energy Efficient Addendum

Client:			
Subject Property:			
City:		State:	Zip:

Additional resources to aid in the valuation of green properties and the completion of this form can be found at
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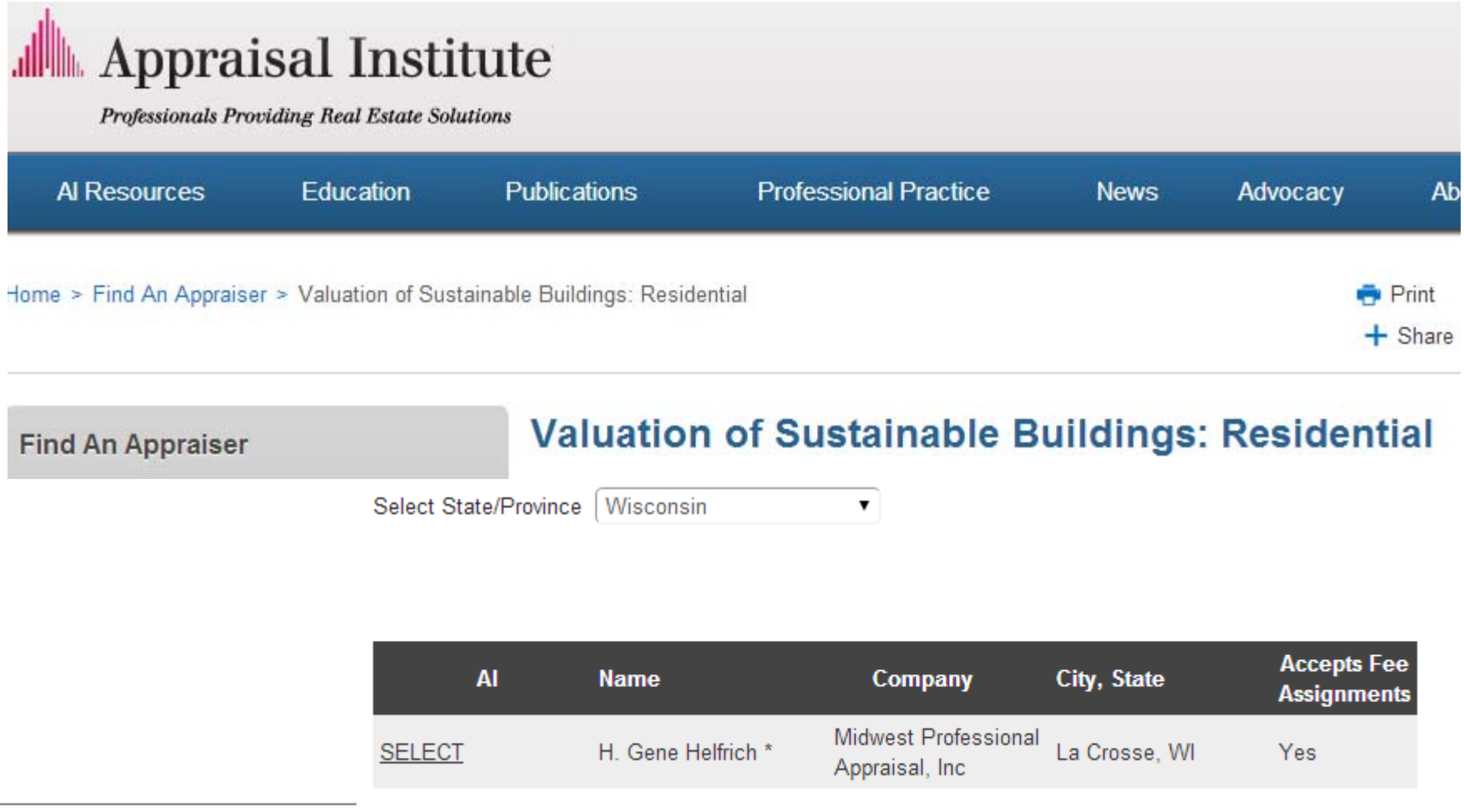
Qualify the Appraiser

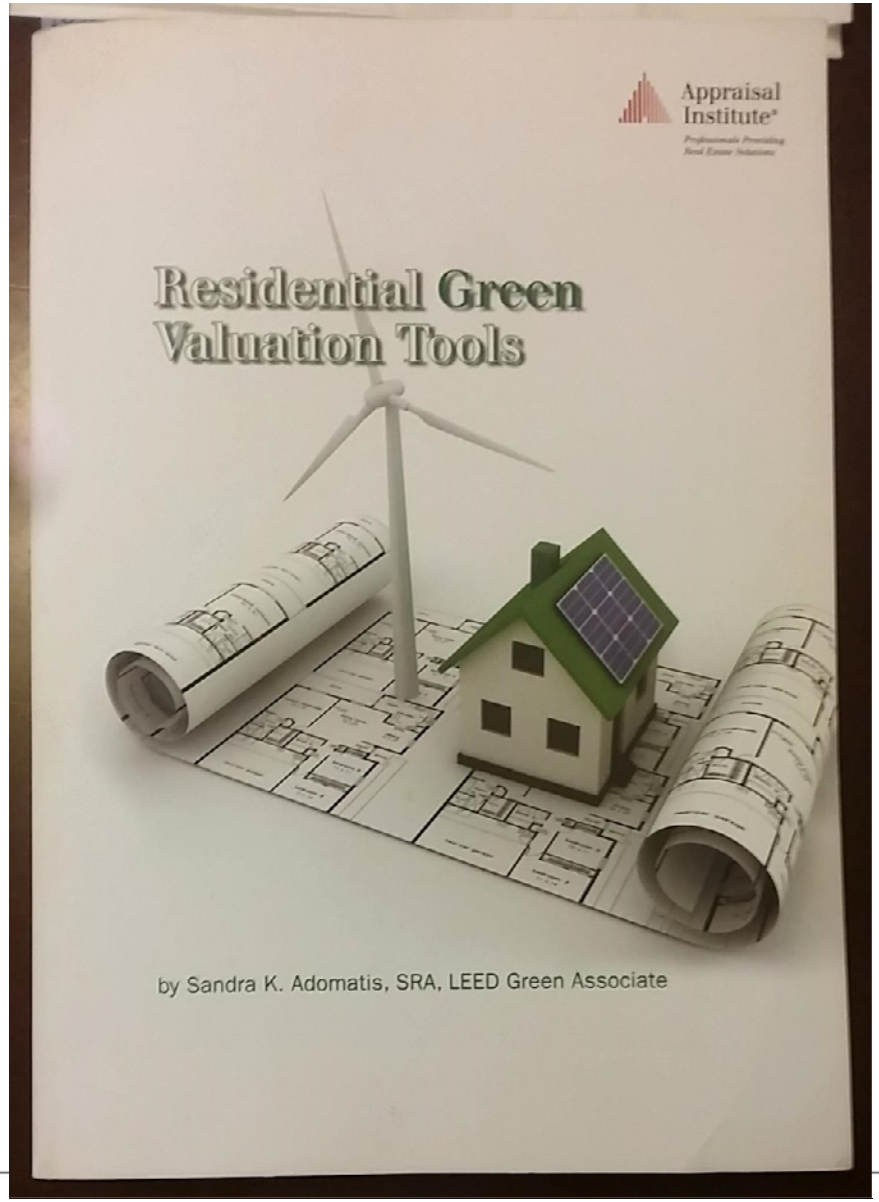


Qualify the Appraiser

Appraisal Institute

Professionals Providing Real Estate Solutions

	AI	Name	Company	City, State	Accepts Fee Assignments
SELECT	Designated Member	Michael Hobbs, SRA	Pahroo Appraisal & Consultancy	Chicago, IL	Yes
SELECT	Designated Member	Michael J. Maglocci, MAI *	Joseph J. Blake & Assoc., Inc.	Chicago, IL	Yes
SELECT	Designated Member	William H. McGinn, SRA *	Guaranteed Appraisal Management co	Louisville, CO	Yes
SELECT	Designated Member	Loren F. Schiro, SRA *	Lenders Choice, Inc.	Naperville, IL	Yes
SELECT	Candidate for Designation	Vincent V. Lance *	For What Its Worth Real Estate Appraisal	Chicago, IL	Yes
SELECT	Candidate for Designation	Joseph M. Sanner *	BQS Realty	Chicago, IL	Yes
SELECT	Candidate for Designation	Mark R. VanWagenen *		Elgin, IL	Yes
SELECT	Practicing Affiliate	Shiela Kaye Dietz *	@properties	Chicago, IL	No
SELECT		Robert K. Fischer *	Loyalty Marketing Partners	Glencoe, IL	No
SELECT		Melissa A. Mollan *	Koyak Appraisal Service	Peru, IL	No
SELECT		Debra Sampson *		Warrenville, IL	No


Appraisal Institute
Residential Green Valuation Tools
by Sandra K. Adomatis, SRA, LEED Green Associate

Stakeholders Action Plans:

1. Which methodologies for Appraising Value
2. What Data to Collect & Retain
3. What is the Value Proposition
4. Who can influence value and needs education?

Green Real Estate Tool Kit

- ✓ Green Financing Options
- ✓ Green Insurance Options
- ✓ Green Homes Sell for More $ and Faster
- ✓ Green Appraisal Methodologies
- ✓ “Greening the MLS”
- ✓ Green Network

View toolkit: www.EcoAchievers.com/toolkit

Green is Good!

THANK YOU FOR ATTENDING APPRAISAL BOOTCAMP!

Jason LaFleur, AI Instructor, LEED AP, Energy Rater
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Michael Hobbs, SRA, LEED GA, Certified Appraiser, President,
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Appraisal@PahRoo.com (773) 388-0003