



# Performance Code: A Raters Perspective

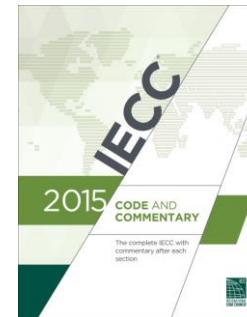
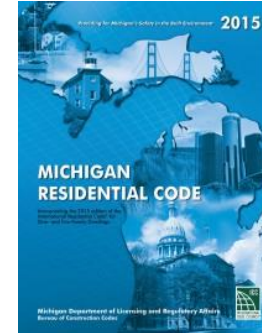


**Presented By:  
Matt Gingrich  
Energy Diagnostics, Inc.**



# Earlier This Year

- Michigan
  - 2009 → Amended 2012 IRC
  - ERI option added
  - Massive training campaign
- Illinois
  - 2012 → Amended 2015 IECC
  - ERI option added
    - Municipality's approval required



# Which Path is Right for Me??



## Prescriptive

- R-Value or U-Factor Table
- Prescriptive items
- Mandatory items

## Total UA

- REScheck
- Prescriptive items
- Mandatory items

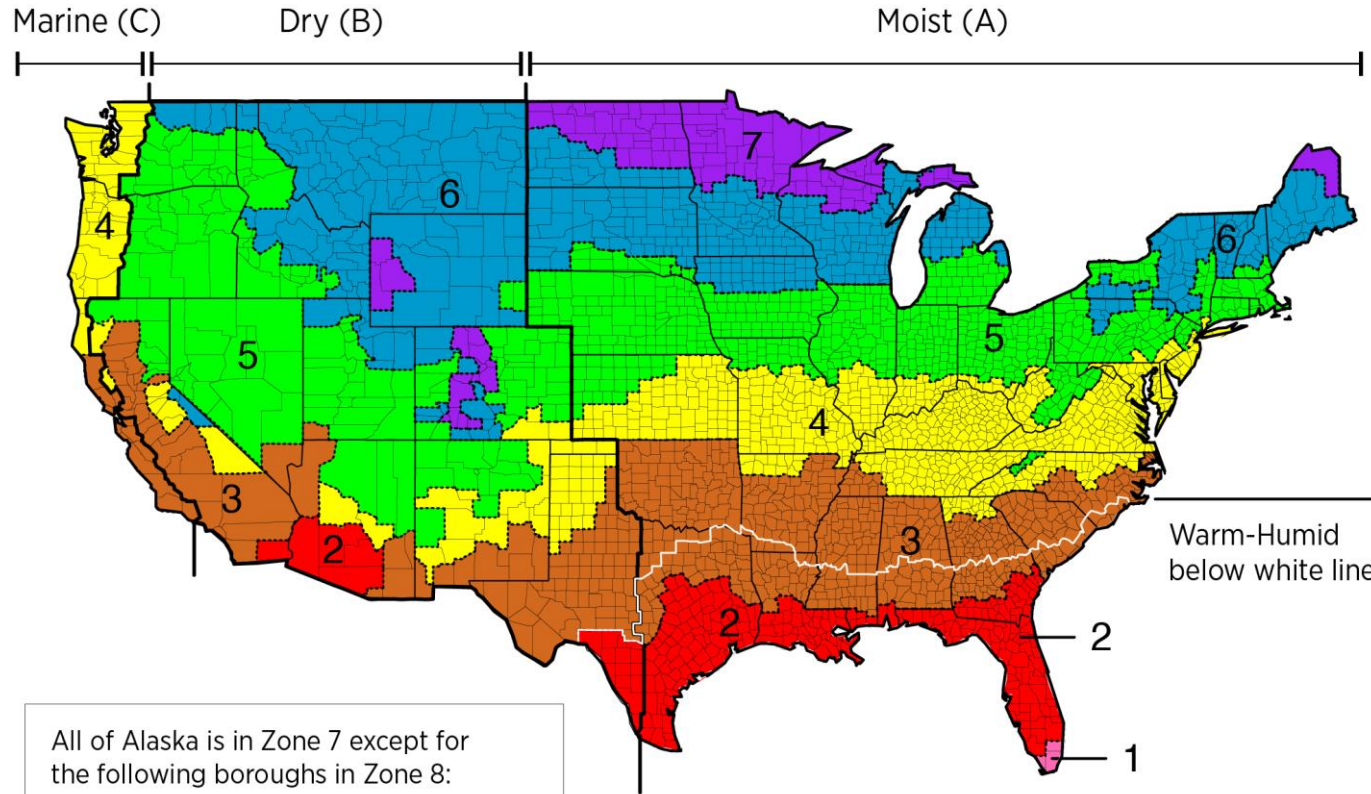
## Performance

- Simulation Software
- Mandatory items

## ERI

- Simulation Software
- R-Value Table
- HERS 55
- Mandatory items
- Hot Water Piping Insulation

# Climate Zones & ERI Targets



All of Alaska is in Zone 7 except for the following boroughs in Zone 8:

Bethel, Northwest Arctic, Dellingham, Southeast Fairbanks, Fairbanks N. Star, Wade Hampton, Nome, Yukon-Koyukuk, North Slope

Zone 1 includes Hawaii, Guam, Puerto Rico, and the Virgin Islands

- Zone 1 - 52
- Zone 2 - 52
- Zone 3 - 51
- Zone 4 - 54
- Zone 5 - 55**
- Zone 6 - 54**
- Zone 7 - 53
- Zone 8 - 53

# Performance Path VS. ERI

## Performance

- Maximum insulation spec tradeoff
- Maximum potential cost savings
- Prescriptive measures not required
- Most efficient for least cost
- Home gets a rating, could lead to utility rebates, or tax credits for the builder
- Home costs less to operate than the reference home.

## ERI

- Insulation tradeoffs, but must meet 2009 insulation levels
- Prescriptive hot water piping insulation is required
- Must meet ERI target
- Home gets a rating, could lead to utility rebates, or tax credits for the builder



# Illinois 2015 Performance Compliance

**Property** \_\_\_\_\_

MANHATTAN, IL 60442

9 UNIT B LEIGHLINBRIDGE (16033)  
9 UNIT B LEIGHLINBRIDGE (16033)

**Organization**

Energy Diagnostics Provider  
XXXXXXXXXX

**Builder** \_\_\_\_\_

**HERS Rating Information**

03/30/2016  
Rater ID (RTIN): XXXXXXXX  
HERS Status: Projected

Design	Annual Energy Cost	Illinois 2015 Performance	As Designed
Heating		\$885	\$676
Cooling		\$172	\$154
Water Heating		\$181	\$181
<b>SubTotal - Used to determine compliance</b>		<b>\$1,238</b>	<b>\$1,010</b>
Lights & Appliances		\$842	\$820
Onsite generation		\$0	\$0
<b>Total</b>		<b>\$2,079</b>	<b>\$1,830</b>

<b>405.3</b> Performance-based compliance	<b>402.4.1.2</b> Air Leakage Testing	<b>402.5</b> Area-weighted average fenestration U-Factor
✓	✓	✓
<b>403.3.3</b> Duct Testing	<b>404</b> Lighting Equipment Efficiency	<b>Mandatory Checklist</b>
✓	✓	✓

**Design exceeds requirements for Illinois 2015 Performance compliance by 18.4%.**

Name: XXXXXXXXXX  
Organization: Energy Diagnostics Provider

Signature: \_\_\_\_\_  
Date: Sep 23, 2016



# 2015 IECC R-406 Projected Energy Rating Index Report

### Property

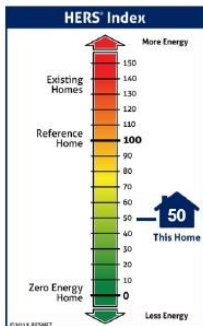
Builder: XXXXXXXXXXXX  
Address: XXXXXXXXXXXX MANHATTAN, IL

### Organization

Company: Energy Diagnostics Provider  
Phone: XXXXXXXXXXXX

### Energy Rating Index Information

Projected Rating: XXXXX  
Rating No: XXXXX  
Rater ID (RTIN): XXXXX  
Date Rated: 03/30/2016



Estimated Annual Energy Consumption*		
	Rated Home Calculated Energy Use (MBtu)	Rated Home Cost (\$/yr)
Heating	50.3	\$348
Cooling	2.9	\$93
Water Heating	16.4	\$80
Lights & Appliances	28.6	\$751
Photovoltaics	0.0	\$0
<b>Total</b>	<b>98.2</b>	<b>\$1,534</b>

\*Based on standard operating conditions

ERI with PV: 50

ERI without PV: 50

Annual Estimates	
Electric (kWh): 8,522.4	CO2 Emissions (Tons): 9.0
Natural Gas (Therms): 691.3	Energy Savings (\$)**: \$143

\*\*Based on the 2015 IECC Energy Rating Index Reference design home

Maximum Energy Rating Index: 55 | This Home's Energy Rating Index: 50 | **PASS**

This home MEETS the Energy Rating Index Score requirement of Section 406 of the 2015 International Energy Conservation Code based on climate zone . In addition to the Energy Rating Index other mandatory measures must be met. (See Mandatory Requirements on second page.)

Name: **Jeffrey D. Doherty** | Signature: \_\_\_\_\_ | Date: Sep 28, 2016

Organization: Energy Diagnostics Provider

**Rating Provider Data and Seal**

Company: Energy Diagnostics Provider  
Address: 405 Archer Way Valparaiso, IN 46383  
Phone #: 800-390-8091  
Fax #: 219-464-0035

To determine if a provider is properly accredited go to: [www.resnet.us/professional/programs/search\\_directory](http://www.resnet.us/professional/programs/search_directory)

(Confirmed and tested)

Climate Zone 5 Mandatory Requirements		
Provision Number	Topic	Compliance Decision
2009 IECC Table 402.1.1 or 402.1.3	Building thermal envelope minimum insulation levels and maximum fenestration U-factor and SHGC	<b>FAIL</b>
R401.3	Post a permanent certificate listing the level of efficiencies installed in the house	Certificate required for CO
R402.4	Envelope air leakage maximum leakage rate	(Climate Zone 5 ACH50) PASS
R402.4.1 / Table R402.4.1.1	Comply with air sealing and insulation requirements in Table R402.4.1.1	Checklist required for CO
R402.4.4	Rooms containing fuel-burning appliances	PASS*
R402.5	Maximum fenestration U-factor and SHGC	(U-Factor) PASS  (SHGC) PASS
R403.1.2	Heat pump controls	PASS*
R405.2	Ducts outside of conditioned space to be insulated to a minimum of R-6.	PASS*
R403.3.2	Duct sealing on all ducts	PASS*
R403.3.3	Duct testing for ducts in unconditioned space	PASS
R403.3.5	Building cavities not used as ducts.	PASS*
R403.5.1	Heated water circulation and temperature maintenance systems comply	PASS*
R403.5.3	Hot water pipe insulated to R-3	PASS*
R403.6	Mechanical ventilation meeting the requirements of the IRC or IMC. Outdoor air and exhaust dampers installed	PASS*
R403.7	ACCA Manual J and S conducted for all heating and cooling systems.	ACCA forms required for permit
R403.8	Systems serving multiple dwelling units to meet the mechanical requirements of the IECC commercial	PASS*
R403.9	Snow melt and ice system controls installed where applicable	PASS*
R403.10	Pools and permanent spa energy consumption meet requirements for heaters, time clocks and covers	PASS*
R403.11	Portable spas meet the requirements of APSP-14.	PASS*
R404.1	High efficacy lights installed in 75 % of permanently installed fixtures.	PASS

\* Rater has verified that all systems are in compliance with IECC rules.



# Home Energy Rating Certificate

## Projected Report

Rating Date:  
Registry ID: Unregistered  
Rating Number:

### HERS® Index Score:

# 50

Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To learn more, visit [www.hersindex.com](http://www.hersindex.com)

### Annual Savings

# \$1,493

\*Relative to an average U.S. home

### Home:

16033 LACY COURT, MANHATTAN, IL

### Builder:

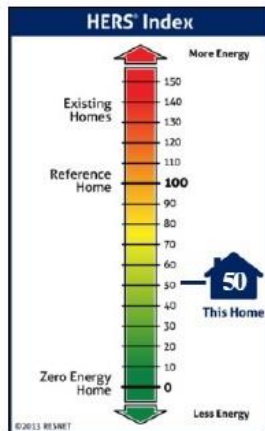
CACHEY BUILDERS

### Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	50.3	\$348
Cooling	2.9	\$93
Hot Water	16.4	\$80
Lights/Appliances	28.6	\$751
Generation (e.g. Solar)	0.0	-\$0
<b>Total:</b>	<b>98.2</b>	<b>\$1,534</b>

### This home meets or exceeds the criteria of the following:

2006 International Energy Conservation Code  
2009 International Energy Conservation Code  
2012 International Energy Conservation Code  
2015 International Energy Conservation Code



### Home Feature Summary:

Home Type: Duplex, single unit  
 Conditioned Floor Area: 3,717 sq. ft.  
 Number of Bedrooms: 3  
 Primary Heating System: Furnace • Natural Gas • 92 AFUE  
 Primary Cooling System: Air Conditioner • Electric • 13 SEER  
 Primary Water Heating: Water Heater • Natural Gas • 0.65 Energy Factor  
 House Tightness: 1182 CFM50  
 Duct Leakage to Outside: 24 CFM25  
 Above Grade Walls: R-18  
 Ceiling: R-30  
 Window Type: U-Value: 0.340, SHGC: 0.270  
 Foundation Walls: R-11

### Rating Completed by:

Energy Rater: ~~XXXXXXXX~~  
RESNET ID: ~~1XXXXXXXX~~

Rating Company: Energy Diagnostics Provider  
405 Archer Way Valparaiso, IN 46383  
800-390-8091

Rating Provider: Energy Diagnostics Provider  
405 Archer Way Valparaiso, IN 46383  
800-390-8091



~~XXXXXXXX~~, Certified Energy Rater

ekotrope™

Ekotrope HERS Rating Tool - Version: 1.9.0.1493  
The Home Energy Rating Standard Disclosure for this house is available from the rating provider.

## Conclusion:

- HERS Raters are a crucial part of the energy code process.
- Training code officials on the new and upcoming codes levels the playing field.
- The ERI and Performance Path offer great alternatives to the Prescriptive Code.
- The Performance Path offers the greatest flexibility and value for the builders in our area.





# Performance Code: A Raters Perspective



# Thank you!

**Matt Gingrich  
Energy Diagnostics, Inc.**

**800-390-8091**

**[mattg@energydiagnostics.net](mailto:mattg@energydiagnostics.net)**