



Net Zero Homes

Gene Myers, New Town Builders

**NEW
TOWN** BUILDERSTM

Who is New Town Builders?

- Denver based
 - Mixed use
 - Mixed income
 - Age diverse
 - Environmentally responsible homes and neighborhoods



What does “environmentally responsible” mean to us?

- Various programs
 - LEED
 - ICC 700
 - Environments for Living
 - Enterprise Green
 - Energy Star
- To us, being energy efficient is most important
- We have selected Energy Star as our “yardstick”

What does Energy Star bring to the table?

- Has the greatest brand recognition for our buyers
- Requires third party raters in design and construction
- Therefore it is credible
- Uses Home Energy Rating System (HERS score)



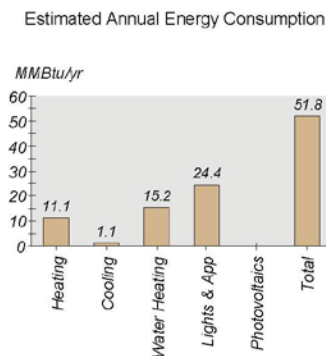
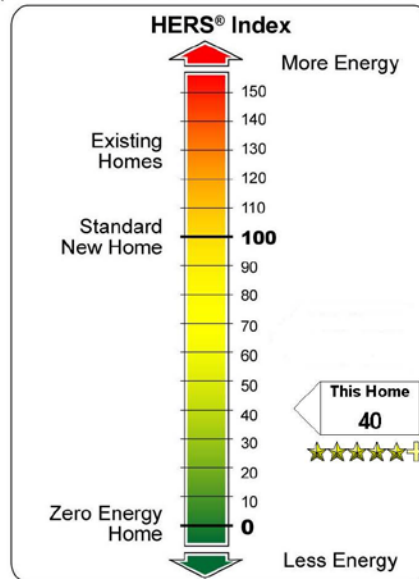
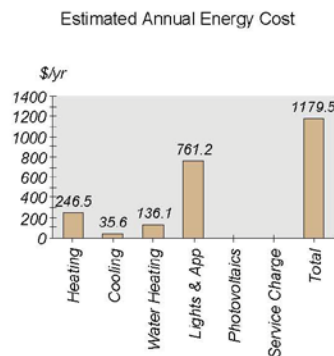
What is a HERS score?

- MPG sticker for homes except lower is better
- Compares our homes to resale and new competitors
- Government approved
- Recognized by mortgage companies
- Converts energy performance to dollars
- Every new home has a HERS score

The HERS Certificates

HOME PERFORMANCE ENERGY RATING CERTIFICATE

Projected Rating: Based on Plans - Field Confirmation Required. **energyLogic**
analysis. insight. answers.



Name: Case #9
Address: 630 FB Attached Garage
Denver, CO 80238
House Type: Single-family detached
Cond. Area: 3333 sq. ft.
Rating No.: Simulated Performance Analysis
Issue Date: January 09, 2013
Certification: Verified

Annual Estimates*:
Electric(kWh): 9420
Natural gas(Therms): 196
CO2 emissions(Tons): 10
Annual Savings**: \$1773

* Based on standard operating condition.
** Based on a HERS 130 Index Home

Home Energy Rating Provider

EnergyLogic
PO Box N

Certified Rater: Robby Schwarz
Rater ID: 9124083
Registry ID:
Rating Date: 1/7/2013

Signature: _____



REMRate - Residential Energy Analysis and Rating Software v14.0

This information does not constitute any warranty of energy cost or savings. © 1995-2012 Architectural Energy Corporation, Boulder, Colorado.
The Home Energy Rating Standard Disclosure for this home is available from the rating provider.

The HERS Certificates



Home Energy Rating Certificate

Case #9

630 FB Attached Garage

Denver, CO 80238



5 Stars Plus
Based On Plans

**Projected Rating: Based
on Plans - Field
Confirmation Required.**

Uniform Energy Rating System

1 Star	1 Star Plus	2 Stars	2 Stars Plus	3 Stars	3 Stars Plus	4 Stars	4 Stars Plus	5 Stars	5 Stars Plus
500-401	400-301	300-251	250-201	200-151	150-101	100-91	90-86	85-71	70 or Less

Energy Efficient

HERS Index: 40

General Information

Conditioned Area:	3333 sq. ft.	House Type:	Single-family detached
Conditioned Volume:	33333 cubic ft.	Foundation:	Conditioned basement
Bedrooms:	3		

Mechanical Systems Features

Water Heating:	Instant water heater, Natural gas, 0.94 EF, 0.0 Gal.
Dual-fuel heat pump:	Electric/Natural gas, 12.7 HSPF, 19.8 SEER, 95.0 AFUE.

Duct Leakage to Outside:	0.00 CFM.
Ventilation System:	Exhaust Only: 63 cfm, 15.0 watts.
Programmable Thermostat:	Heating: Yes Cooling: Yes

Building Shell Features

Ceiling Flat:	R-50	Slab:	R-0.0 Edge, R-0.0 Under
Sealed Attic:	NA	Exposed Floor:	NA
Vaulted Ceiling:	NA	Window Type:	Low E .24 /24
Above Grade Walls:	R-35, R-20	Infiltration Rate:	Htg: 3.00 Clg: 3.00 ACH50
Foundation Walls:	R-19.0	Method:	Blower door test

Lights and Appliance Features

Percent Interior Lighting:	100.00	Range/Oven Fuel:	Electric
Percent Garage Lighting:	100.00	Clothes Dryer Fuel:	Electric
Refrigerator (kWh/yr):	691.00	Clothes Dryer EF:	3.01
Dishwasher Energy Factor:	0.46	Ceiling Fan (cfm/Watt):	0.00

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

REM/Rate - Residential Energy Analysis and Rating Software v14.0

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© 1985-2012 Architectural Energy Corporation, Boulder, Colorado.

Registry ID:

Rating Number: Simulated Performance Analysis

Certified Energy Rater: Robby Schwarz

Rating Date: 1/7/2013

Rating Ordered For: New Town Homeowner

Estimated Annual Energy Cost

Based On Plans

Use	MMBtu	Cost	Percent
Heating	11.1	\$246	21%
Cooling	1.1	\$36	3%
Hot Water	15.2	\$136	12%
Lights/Appliances	24.4	\$761	65%
Photovoltaics	-0.0	\$-0	-0%
Service Charges		\$0	0%
Total	51.8	\$1179	100%

**This home meets or exceeds the minimum
criteria for all of the following:**

EPA ENERGY STAR Version 3 Home
2006 International Energy Conservation Code
2009 International Energy Conservation Code
2012 International Energy Conservation Code

Home Energy Rating Provider

EnergyLogic

PO Box N

Berthoud CO, 80513

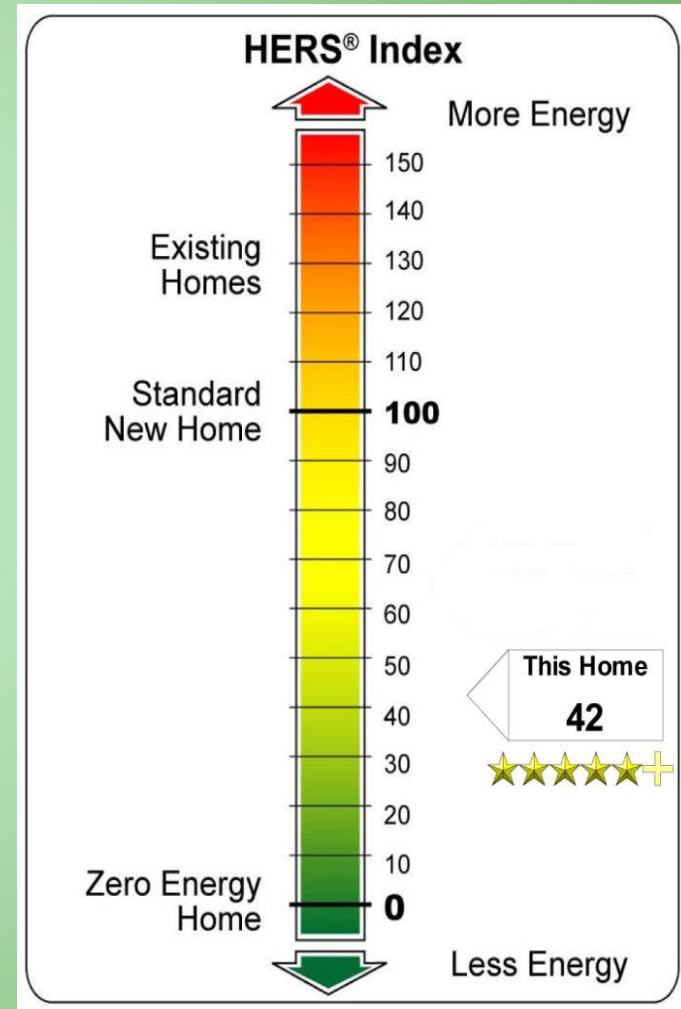
Phone: 1-800-315-0459

www.nrglogic.com

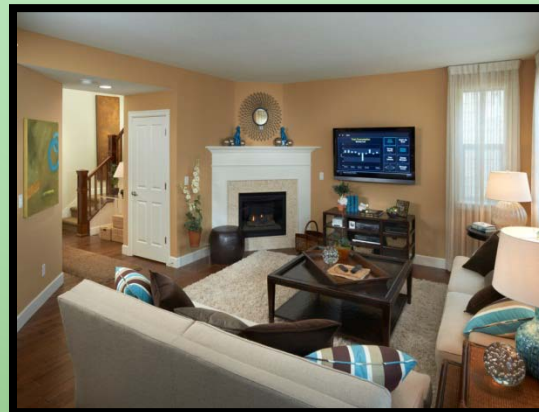
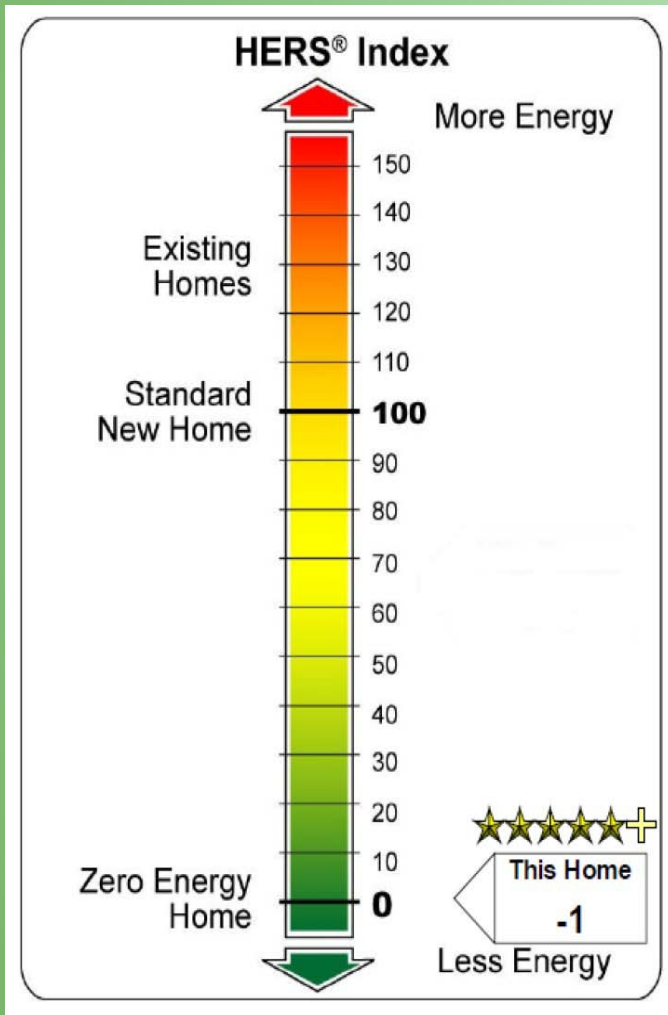


Certified Energy Rater

Our Standard Homes



Our Zero Energy Homes



How do we DO it?

- Conserve
 - Better envelope



How do we DO it?

- Generate



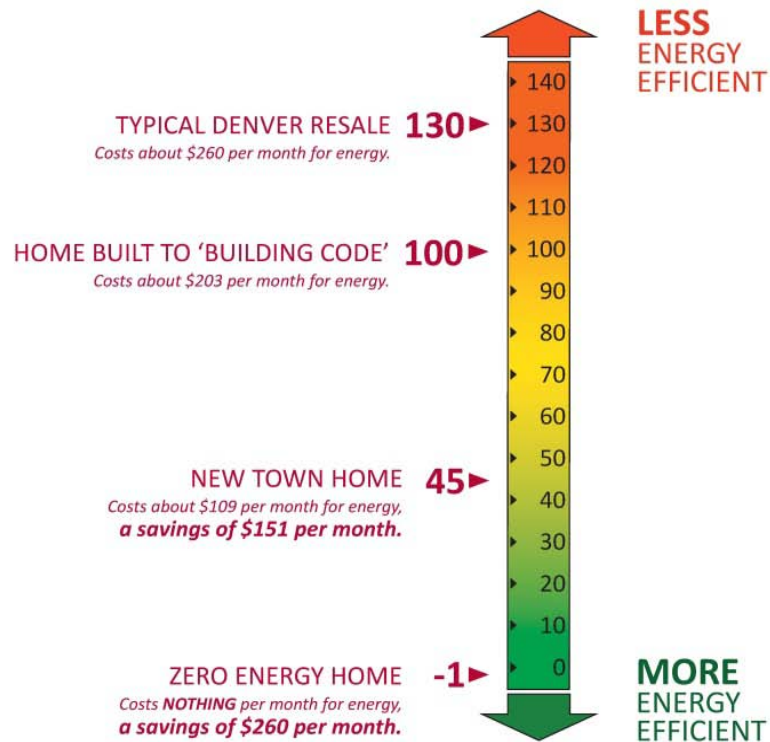
How do we SELL it?



SHOW ME THE HERS® SCORE.

HERS stands for **Home Energy Rating System**.

- * Like the MPG sticker on a car, it is a U.S. government approved index.
- * Lower is better.
- * All new homes have a HERS score.



Don't buy a home unless you know
THE HERS® SCORE.

YOUR ZERO ENERGY OPTION IS FREE! (Your Energy Savings Pays for it!)

GOING 'ZERO' MAKES ECONOMIC SENSE.

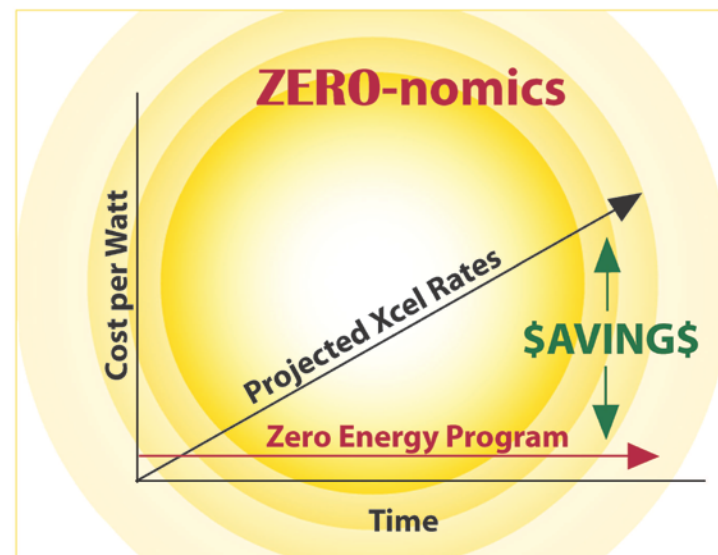
WE ARE NEW TOWN BUILDERS.®

The Economics of Going ZERO

	New Town Home Zero Energy	New Town Home HERS 41
Purchase Price	\$400,000	\$400,000
+ Zero Energy Option	+32,500	n/a
- 10% Down	- 43,250	- 40,000
	-----	-----
Total Amount Financed (30 Year, 4%, Fixed)	\$389,250	\$360,000
Principal & Interest	1858.34	1718.70
Estimated Net Energy based on HERS	0.00	109.00
	-----	-----
Principal & Interest + Energy/Month	\$1,858.34	\$1,827.70
		▼ (\$30.64)

So, what's the benefit for you?

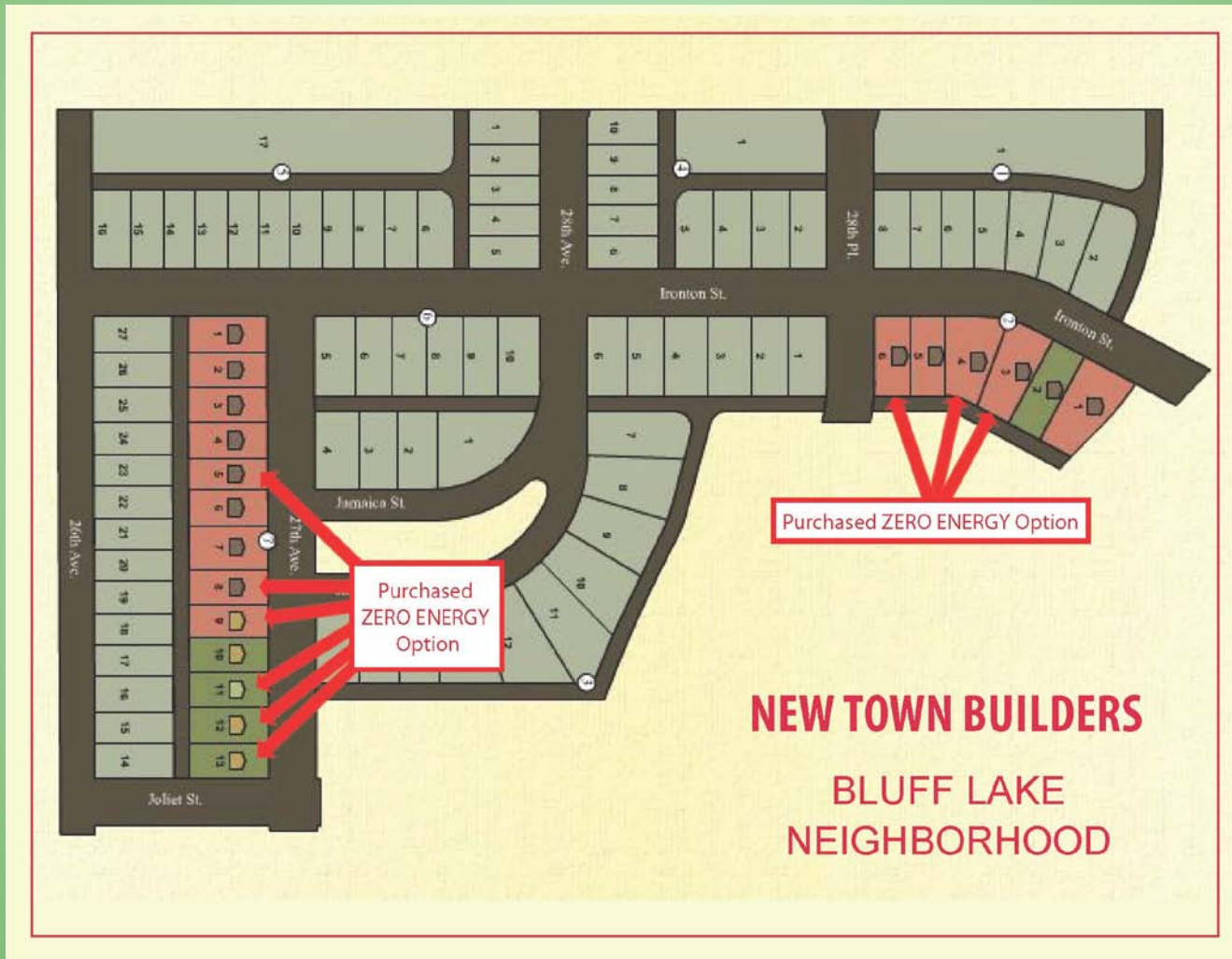
- Isolates You from Future Energy Cost Increases
- ZE Option Included in Mortgage can be Deducted from Taxes
- Guaranteed Heating & Cooling Usage
- Positive Cash Flow from Day One
- * Without Zero Energy, P&I + E will Increase Every Year



- * Xcel Rates Increase Year-over-Year
- * Zero Energy Cost Remains Stable
- * Savings Increase Year-over-Year!

Zero Energy homes are based on a third party HERS rating system and energy use estimation. Zero Energy homes are defined as homes that achieve a HERS index of 10 index points or lower. The energy used in a home can vary greatly depending on the behavior of its occupants. Solar customers and Zero Energy home owners are not completely exempt from fees charged to all electricity customers, even when you produce more electricity than you use. Please see the Zero Energy Option Disclosure and Acknowledgement. Price, interest rates, features, specifications, availability and other terms and conditions are subject to change without notice. REVISED 11/20/12

How has it worked?



Threats and Opportunities to Continue

- Low interest rates
- Xcel rebates (not available in all areas)
- Federal tax credits
- Solar panel prices

What's Next?

Our next series of homes will be our best-built yet.

- Focus is on a better building envelope
 - Not AS dependent on Solar
 - Thicker Walls
 - Better windows
 - Houses more air-tight
 - Balanced HVAC

New Tools



NREL's BEopt program helps us quickly analyze construction alternatives and price them.

New Tools

WUFI

- Oak Ridge National Lab
- Dynamic model
- \Helps us track moisture movement through walls

New Tools

PASSIVE HOUSE

- 1970's American superinsulation concept
- Static model
- Now a massive spreadsheet developed by European physicists

New Partnerships

OWENS CORNING

- Use of their products as a system
- We get
 - Building Science expertise through their R&D department
 - Consumer marketing expertise

What I would do if I were Mayor

- Energy upgrades of existing housing stock are the best way to impact carbon footprint of cities.
- We need a market driven incentive.
- The market is not transparent, thus it doesn't work.
- If consumers knew the energy performance of their purchase options, upgrades could be financed at time of purchase.

What I would do if I were Mayor

THUS

- What is needed a an energy score at time of resale.
- Now possible to include this in MLS
- Sellers could upgrade to make homes more competitive.
- Or Buyers could elect to do an upgrade at the time a new loan is originated—the only time the funds are easily available for such an upgrade.

Conclusion

It's not just about being Zero Energy



It's about being Zero Energy and affordable