

Building to Meet the New MA State Stretch Code Changes (HERS 42/45): What Builders Need to Know – Session II



Announcements:

10% Discount on NEHERS Memberships Between 12/1/23 and 1/31/24

Member Category	Annual Dues ² <i>(Paid after January 31st)</i>	Early Bird Dues <i>(Must be paid by January 31st)</i>
Certified HERS Rater	\$120.00	\$108.00
Dual Rater & RESNET-Accredited Independent Trainer	\$240.00	\$216.00
Accredited Rating Provider	\$350.00 + \$66.50/Rater ¹ (capped at 50)	10.0% Discount off Annual Calculated Fee
Dual Accredited Rating & Training Provider	\$700.00 + \$66.50/Rater ¹ (capped at 50)	10.0% Discount off Annual Calculated Fee
ASSOCIATE – Student/Individual	\$60	\$54
ASSOCIATE – Sponsor	\$500	\$450
HERS Program	\$500 - \$5,000 (\$.90 per rating done in state suggested)	10.0% Discount off Annual Calculated Fee

(1) Rating Provider variable fee is calculated from Certified Rater count on Jan 1. Providers may opt to include independent raters associated with their providership in this count.
 (2) Members joining after July 1 pay 50% of Annual Dues. This discount does not apply to the ASSOCIATE- Sponsor or Program membership levels.
 (3) For additional information on the benefits and incentives for Sponsor Membership, contact Betsy Ames at info@nehers.org or call/text 978-633-3013.

<https://nehers.org/membership>



Announcements:

Please contact us at info@nehers.org if you'd like to join the NEHERS Alliance **Energy Codes Committee!**

We review the Residential Energy Code with respect to HERS Raters concerns and take actions where appropriate to attempt to improve the clarity and implementation of Residential Energy Code.

Next Meeting is January 9th at 1PM EST.
(Meets quarterly).



Announcements:

NEHERS
NORTHEAST HOME ENERGY RATING SYSTEM ALLIANCE

HERS RATER TRAINING

January 22 – February 2 and February 12 - 16, 2024
TRAINERS: Performance Systems Development **PSD** Moving Energy Efficiency Forward

SCHOLARSHIP DEADLINE: December 18th at 5 PM (EST)
Final Registration Deadline is January 8th

[REGISTER TODAY](https://nehers.org/hers-rater-trainings)

<https://nehers.org/hers-rater-trainings>

The graphic features a background of colorful, flowing waves in shades of pink, purple, and blue. The NEHERS logo is at the top center, followed by the title 'HERS RATER TRAINING' in large, bold letters. Below the title is the training schedule and trainer information. The scholarship and registration deadlines are highlighted in bold. A red 'REGISTER TODAY' link is centered below the deadlines. The URL is at the bottom of the graphic.

Audience Reminders:

- Participating in listen-only mode
- Submit a question by typing it into the Questions Pane at the right of your screen any time
- Download the Handout from the Handout Pane
- Please follow NEHERS on Facebook and LinkedIn
- Provide feedback through our electronic survey following the webinar.
- The recording of this webinar will be posted on our website by Friday. <https://nehers.org/webinars>



Speakers:



Nick Falkoff
Principal
Auburndale Builders
nick@auburndalebuilders.com



Andrew Popielarski
Senior Home Energy Rater
Home Energy Raters
andrew@energycodehelp.com



Bob Ryley
Director of Construction
Habitat for Humanity
of Cape Cod
bobryley@habitatcapecod.org



SERIES OVERVIEW

- ~~11/30~~ — ~~Session 1: Overview Home Performance Summary~~
- 12/7** **Session 2: Orientation, Windows and Doors, and PV**
- 12/14 Session 3: Mechanicals, Ventilation, Envelope and Appliances
- 12/21 Session 4: Review/Summary and Questions



SESSION TWO

Agenda:

- Site Orientation
- Windows & Doors
- Photovoltaics (PV)
- Questions



SITE ORIENTATION



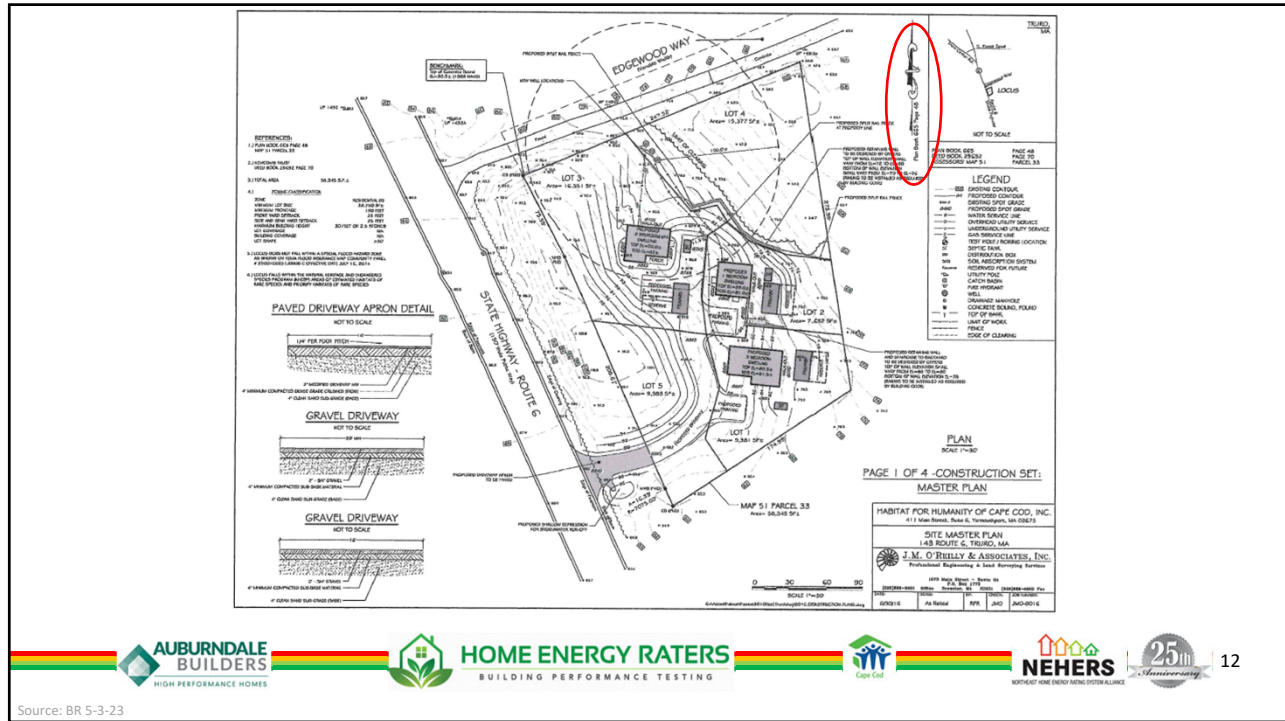
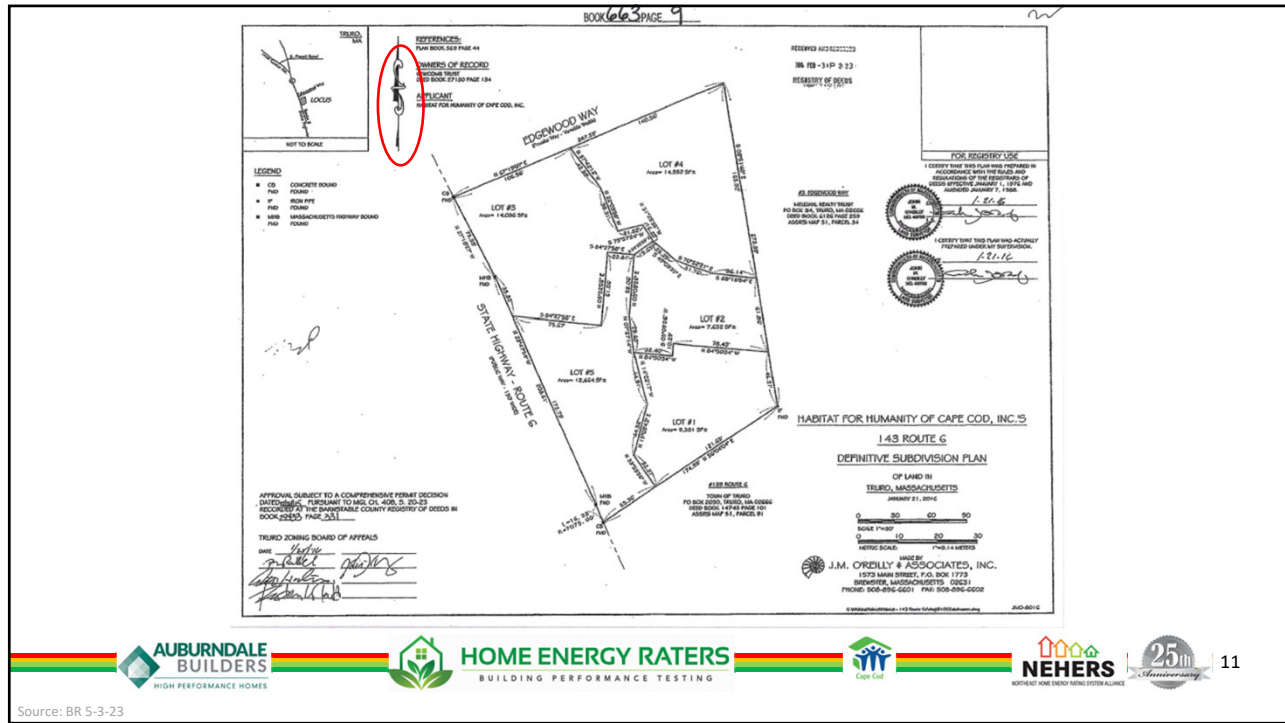
HABITAT FOR HUMANITY of CAPE COD BOARD OF DIRECTORS
April 2021 report on Strategic Plan. Core Goal Three:

MAXIMIZE IMPACTS OF BUILDING AFFORDABLE HOMES ON CAPE COD

- Model responsible environmental stewardship and sustainable practices in home construction
- Promote and build environmentally friendly, energy efficient homes
- Consult industry advisors to implement quality building ratings



Source: BR 5-3-23





1 BR Cape & 2 BR Ranch - Truro







Source: BR 5-3-23

**Home Energy Rating Certificate
 Final Report**

Rating Date: 2018-09-14
 Registry ID: 164924290
 Ekotrope ID: 9vg0epA2

HERS® Index Score:
-7
 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

Annual Savings
\$2,884
 *Relative to an average U.S. home

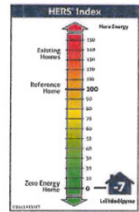
Home:
 147 Route 6, Truro, MA 02666
Builder:
 Habitat for Humanity Cape Cod

Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	6.3	\$341
Cooling	0.2	\$13
Hot Water	2.3	\$124
Lights/Appliances	11.4	\$615
Service Charges		\$0
Generation (e.g. Solar)	23.4	-\$1,092
Total:	20.2	\$0

This home meets or exceeds the criteria of the following:

- 2015 International Energy Conservation Code
- 2009 International Energy Conservation Code



Home Feature Summary:
 Home Type: Single family detached
 Conditioned Floor Area: 942 sq. ft.
 Number of Bedrooms: 2
 Primary Heating System: Air Source Heat Pump - Electric - 2.78 COP
 Primary Cooling System: Air Source Heat Pump - Electric - 17 SEER
 Primary Water Heating: Water Heater - Electric - 3.24 Energy Factor
 House Tightness: 360 CFM50 (2.88 ACH50)
 Ventilation: 40.0 CFM - 23.0 Wats
 Duct Leakage to Outside: 29 CFM25
 Above Grade Walls: R-23
 Ceiling: Attic, R-63
 Window Type: U-Value: 0.290, SHGC: 0.290
 Foundation Walls: N/A

Rating Completed by:
 Energy Rater: Andrew Popielarski
 RESNET ID: S363711
Rating Company: Home Energy Raters, LLC
 180 State RD Suite 2 Upper
 508-833-3100
Rating Provider: Energy Raters of Massachusetts
 2 Woodlawn Street Amesbury, MA 01913
 978-270-3911

Andrew Popielarski
 Andrew Popielarski, Certified Energy Rater
 Digitally signed: 9/19/18 at 10:54 AM

ekotrope® Ekotrope RATER - Version: 3.1 (2.2011)
 The Home Energy Rating Standard Disclosure for this house is available from the rating provider.
 This report does not constitute any warranty or guarantee.







Source: BR 5-3-23

Home Energy Rating Certificate Final Report

HERS® Index Score:
4
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

Annual Savings
\$2,566
*Relative to an average U.S. home

Home:
143 Route 6, Truro, MA 02666

Builder:
Habitat for Humanity Cape Cod

Rating Date: 2018-09-14
Registry ID: 725704387
Ekotrope ID: x25YEoM2

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	8.1	\$435
Cooling	0.4	\$20
Hot Water	1.7	\$89
Lights/Appliances	10.7	\$575
Service Charges		\$0
Generation (e.g. Solar)	19.2	-\$1,038
Total:	20.7	\$82

This home meets or exceeds the criteria of the following:
2015 International Energy Conservation Code
2009 International Energy Conservation Code

Rating Completed by:
Energy Rater: Andrew Popielarski
RESNET ID: 5363711

Rating Company: Home Energy Raters, LLC
180 State Rd Suite 2 Upper
508-833-3100

Rating Provider: Energy Raters of Massachusetts
2 Woodlawn Street Amesbury, MA 01913
978-270-3911

Andrew Popielarski
Andrew Popielarski, Certified Energy Rater
Digitally signed: 9/19/18 at 10:41 AM

Home Feature Summary:

- Home Type: Single family detached
- Conditioned Floor Area: 784 sq. ft.
- Number of Bedrooms: 1
- Primary Heating System: Air Source Heat Pump - Electric - 3.78 COP
- Primary Cooling System: Air Source Heat Pump - Electric - 17 SEER
- Primary Water Heating: Water Heater - Electric - 3.24 Energy Factor
- House Tightness: 323 CFM50 (1.63 ACH50)
- Ventilation: 35.0 CFM - 23.0 Watts
- Duct Leakage to Outside: 27 CFM25
- Above Grade Walls: 0.25
- Ceiling: Vaulted Roof, R-39
- Window Type: U-Value: 0.290, SHGC: 0.290
- Foundation Walls: N/A

ekotrope

The Home Energy Rating Standard Disclosure for this house is available from the rating provider. This report does not constitute any warranty or guarantee.

Ekotrope RATR - Version 2.2.4-2011

Source: BR 5-3-23

3 BR Ranch - Truro

Source: BR 5-3-23

Home Energy Rating Certificate Final Report

Rating Date: 2018-09-14
 Registry ID: 217045557
 Ekotrope ID: gdc3jgg2

HERS® Index Score:
-5
 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

Annual Savings
\$3,326
*Relative to an average U.S. home

Home:
141 Route 6, Truro, MA 02666

Builder:
Habitat for Humanity Cape Cod

This home meets or exceeds the criteria of the following:
 2015 International Energy Conservation Code
 2009 International Energy Conservation Code

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	7.4	\$401
Cooling	0.3	\$16
Hot Water	2.9	\$156
Lights/Appliances	13.1	\$705
Service Charges		\$0
Generation (e.g. Solar)	26.0	-\$1,278
Total:	23.7	\$0

Home Feature Summary:

- Home Type: Single family detached
- Conditioned Floor Area: 1,171 sq. ft.
- Number of Bedrooms: 3
- Primary Heating System: Air Source Heat Pump - Electric - 2.78 COP
- Primary Cooling System: Air Source Heat Pump - Electric - 17 SEER
- Primary Water Heating: Water Heater - Electric - 3.24 Energy Factor
- House Tightness: 466 CFM50 (2.91 ACH50)
- Ventilation: 40.0, 40.0 CFM - 23.0, 7.1 Watts
- Duct Leakage to Outside: 34 CFM25
- Above Grade Walls: R-23
- Ceiling: Attic, R-63
- Window Type: U-Value: 0.290, SHGC: 0.290
- Foundation Walls: N/A

Rating Completed by:
 Energy Rater: Andrew Popielarski
 RESNET ID: 5363711

Rating Company: Home Energy Raters, LLC
 180 State RD Suite 2 Upper
 508-853-3100

Rating Provider: Energy Raters of Massachusetts
 2 Woodlawn Street Amesbury, MA 01913
 978-270-3911

Andrew Popielarski
 Andrew Popielarski, Certified Energy Rater
 Digitally signed: 9/19/18 at 10:23 AM

ekotrope® Ekotrope RATER - Version: 3.1.0.2011

The Home Energy Rating Standard Disclosure for this house is available from the rating provider.
 This report does not constitute any warranty or guarantee.

AUBURNDALE BUILDERS
HIGH PERFORMANCE HOMES

HOME ENERGY RATERS
BUILDING PERFORMANCE TESTING

NEHERS
NORTHEAST HOME ENERGY RATING SYSTEM ALLIANCE

25th Anniversary

Source: BR 5-3-23

AUBURNDALE BUILDERS
HIGH PERFORMANCE HOMES

HOME ENERGY RATERS
BUILDING PERFORMANCE TESTING

NEHERS
NORTHEAST HOME ENERGY RATING SYSTEM ALLIANCE

25th Anniversary

Source: BR 5-3-23

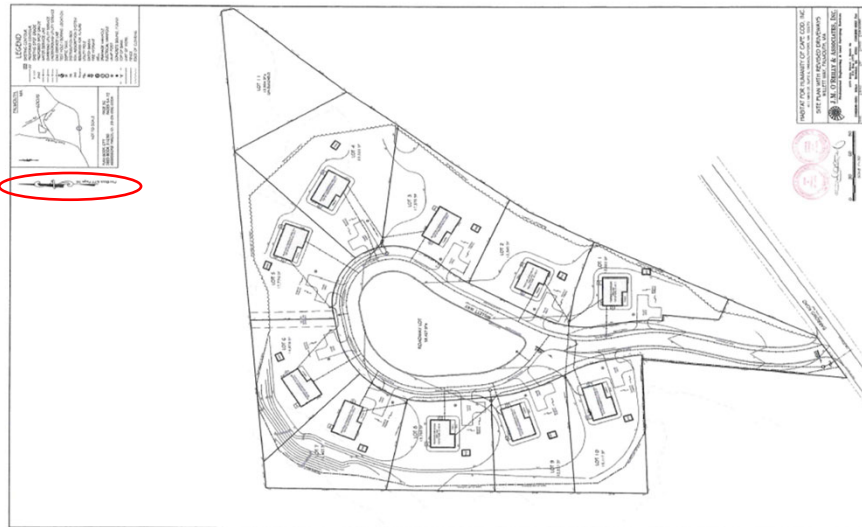


Illustrative Site Plan - Option C 12 Single Family Homes (3 BR)
Habitat for Humanity
Falmouth, MA

Note: Property line information is from Mass GIS available data. Property lines are approximate and shown for graphical purposes only.



Source: BR 5-3-23



Source: BR 5-3-23



Source: BR 5-3-23

Home Energy Rating Certificate
Final Report

Rating Date: 2023-03-30
Registry ID: 836958526
Ekotrope ID: b2JVY3I2

LOT 1

HERS® Index Score:
-2
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

Annual Savings
\$3,478
*Relative to an average U.S. home

Home:
1 Willett Way
East Falmouth, MA 02536
Builder:
Habitat for Humanity Cape Cod

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	5.9	\$365
Cooling	0.2	\$12
Hot Water	1.8	\$109
Lights/Appliances	10.7	\$662
Service Charges		\$0
Generation (e.g. Solar)	19.4	-\$1,149
Total:	18.6	\$0

This home meets or exceeds the criteria of the following:

- 2021 International Energy Conservation Code
- 2018 International Energy Conservation Code
- 2015 International Energy Conservation Code
- 2012 International Energy Conservation Code
- 2009 International Energy Conservation Code
- 2006 International Energy Conservation Code

Home Feature Summary:

- Home Type: Single family detached
- Model: N/A
- Community: N/A
- Conditioned Floor Area: 941 ft²
- Number of Bedrooms: 2
- Primary Heating System: Air Source Heat Pump - Electric - 11.6 HSPF
- Primary Cooling System: Air Source Heat Pump - Electric - 21 SEER
- Primary Water Heating: Residential Water Heater - Electric - 3.35 Energy Factor
- House Tightness: 100 CFM50 @ 75 ACH50
- Ventilation: 45 CFM - 23 Watts - HRV
- Duct Leakage to Outside: 34 CFM @ 25Pa (3.61 / 100 ft²)
- Above Grade Walls: R-25
- Ceiling: Attic, R-67
- Window Type: U Value: 0.19, SHGC: 0.21
- Foundation Wall: N/A
- Framed Floor: R-34

Rating Completed by:

Energy Rater: Paul Graney
RESNET ID: 2649950

Rating Company: Home Energy Raters
180 State Rd, Suite 2U Sagamore Beach MA 02562
508-833-3100

Rating Provider: Energy Raters of Massachusetts
2 Woodlawn Street Amesbury, MA 01913
978-270-3911

Paul Graney
Paul Graney, Certified Energy Rater
Digitally signed: 3/30/23 at 2:32 PM

ekotrope
Energy savings calculated without modifications to the energy model. (As Modeled)

Ekotrope RATER - Version:3.1.1.3129
The Energy Rating Disclosure for this home is available from the Approved Rating Provider.
This report does not constitute any warranty or guarantee.

22

Source: BR 5-3-23

Home Energy Rating Certificate

Final Report

Rating Date: 2023-03-30
Registry ID: 334258800
Ekotrope ID: Od4k1YYL

LOT 2

HERS® Index Score:

-4

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

Annual Savings

\$3,477

*Relative to an average U.S. home

Home:
7 Willett Way
East Falmouth, MA 02536

Builder:
Habitat for Humanity Cape Cod

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	6.0	\$372
Cooling	0.2	\$12
Hot Water	1.7	\$107
Lights/Appliances	10.7	\$662
Service Charges		\$0
Generation (e.g. Solar)	20.8	-\$1,154
Total:	18.7	\$0

This home meets or exceeds the criteria of the following:

2015 International Energy Conservation Code

Home Feature Summary:

- Home Type: Single family detached
- Model: N/A
- Community: N/A
- Conditioned Floor Area: 941 ft²
- Number of Bedrooms: 2
- Primary Heating System: Air Source Heat Pump - Electric - 11.6 HSPF
- Primary Cooling System: Air Source Heat Pump - Electric - 21 SEER
- Primary Water Heating: Residential Water Heater - Electric - 3.35 Energy Factor
- House Tightness: 105 CFM50 (0.83 ACH50)
- Ventilation: 40 CFM - 23 Watts - HRV
- Duct Leakage to Outside: 23 CFM @ 25Pa (2.44 / 100 ft²)
- Above Grade Walls: R-21
- Ceiling: Attic, R-67
- Window Type: U-Value: 0.19, SHGC: 0.22
- Foundation Walls: N/A
- Framed Floor: R-34

Rating Completed by:

Energy Rater: Paul Graney
RESNET ID: 2649950

Rating Company: Home Energy Raters
180 State Rd, Suite 2U Sagamore Beach MA 02562
508-833-3100

Rating Provider: Energy Raters of Massachusetts
2 Woodlawn Street Amesbury, MA 01913
978-270-3911

Paul Graney
Paul Graney, Certified Energy Rater
Digitally signed: 3/30/23 at 2:30 PM

Ekotrope RATER - Version: 3.1.1.3129
The Energy Rating Disclosure for this home is available from the Approved Rating Provider. This report does not constitute any warranty or guarantee.

AUBURNDALE BUILDERS
HIGH PERFORMANCE HOMES

HOME ENERGY RATERS
BUILDING PERFORMANCE TESTING

NEHERS
NORTH EAST HOME ENERGY RATING SYSTEM ALLIANCE

25
Anniversary

Source: BR 5-3-23

Home Energy Rating Certificate

Final Report

Rating Date: 2023-03-30
Registry ID: 314952932
Ekotrope ID: q2RpYSDd

LOT 3

HERS® Index Score:

-10

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

Annual Savings

\$3,580

*Relative to an average U.S. home

Home:
11 Willett Way
East Falmouth, MA 02536

Builder:
Habitat for Humanity Cape Cod

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	8.3	\$450
Cooling	0.3	\$15
Hot Water	2.2	\$119
Lights/Appliances	12.9	\$697
Service Charges		\$0
Generation (e.g. Solar)	29.5	-\$1,281
Total:	23.7	\$0

This home meets or exceeds the criteria of the following:

2021 International Energy Conservation Code
2018 International Energy Conservation Code
2015 International Energy Conservation Code
2009 International Energy Conservation Code
2006 International Energy Conservation Code

Home Feature Summary:

- Home Type: Single family detached
- Model: 3 bedroom ranch
- Community: N/A
- Conditioned Floor Area: 1,173 ft²
- Number of Bedrooms: 3
- Primary Heating System: Air Source Heat Pump - Electric - 11.6 HSPF
- Primary Cooling System: Air Source Heat Pump - Electric - 21 SEER
- Primary Water Heating: Residential Water Heater - Electric - 3.35 Energy Factor
- House Tightness: 207.3 CFM50 (1.31 ACH50)
- Ventilation: 35 CFM, 20 CFM - 23 Watts, 4.8 Watts - ERV/Exhaust Only
- Duct Leakage to Outside: 73 CFM @ 25Pa (6.22 / 100 ft²)
- Above Grade Walls: R-21
- Ceiling: Attic, R-56
- Window Type: U-Value: 0.19, SHGC: 0.22
- Foundation Walls: N/A
- Framed Floor: R-34

Rating Completed by:

Energy Rater: Chris Mazzola
RESNET ID: 8873503

Rating Company: Home Energy Raters
180 State Rd, Suite 2U Sagamore Beach MA 02562
508-833-3100

Rating Provider: Energy Raters of Massachusetts
2 Woodlawn Street Amesbury, MA 01913
978-270-3911

Chris Mazzola
Chris Mazzola, Certified Energy Rater
Digitally signed: 5/3/23 at 7:22 AM

Ekotrope RATER - Version: 3.1.0.3149
The Energy Rating Disclosure for this home is available from the Approved Rating Provider. This report does not constitute any warranty or guarantee.

AUBURNDALE BUILDERS
HIGH PERFORMANCE HOMES

HOME ENERGY RATERS
BUILDING PERFORMANCE TESTING

NEHERS
NORTH EAST HOME ENERGY RATING SYSTEM ALLIANCE

25
Anniversary

Source: BR 5-3-23

Home Energy Rating Certificate

Final Report

Rating Date: 2023-03-30
Registry ID: 270097623
Ekotrope ID: P2laZGRL

LOT 4

HERS® Index Score:
-14

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

Annual Savings
\$3,580

*Relative to an average U.S. home

Home:
19 Willett Way
East Falmouth, MA 02536

Builder:
Habitat for Humanity Cape Cod

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	8.0	\$434
Cooling	0.3	\$15
Hot Water	2.2	\$119
Lights/Appliances	12.9	\$697
Service Charges		\$0
Generation (e.g. Solar)	31.3	-\$1,265
Total:	23.4	\$0

This home meets or exceeds the criteria of the following:

- 2021 International Energy Conservation Code
- 2018 International Energy Conservation Code
- 2015 International Energy Conservation Code
- 2009 International Energy Conservation Code
- 2006 International Energy Conservation Code

Home Feature Summary:

- Home Type: Single family detached
- Model: 3 bedroom ranch
- Community: N/A
- Conditioned Floor Area: 1,173 ft²
- Number of Bedrooms: 3
- Primary Heating System: Air Source Heat Pump - Electric - 11.6 HSPF
- Primary Cooling System: Air Source Heat Pump - Electric - 21 SEER
- Primary Water Heating: Residential Water Heater - Electric - 3.35 Energy Factor
- House Tightness: 204 CFM50 (1.29 ACH50)
- Ventilation: 35 CFM, 20 CFM @ 23 Watts, 4.8 Watts - ERV/Exhaust Only
- Duct Leakage to Outside: 59 CFM @ 25Pa (5.03 / 100 ft²)
- Above Grade Walls: R-21
- Ceiling: Attic R-56
- Window Type: U-Value: 0.19, SHGC: 0.22
- Foundation Walls: N/A
- Framed Floor: R-34

Rating Completed by:

Energy Rater: Chris Mazzola
RESNET ID: 8873503

Rating Company: Home Energy Raters
180 State Rd, Suite 2U Sagamore Beach MA 02562
508-833-3100

Rating Provider: Energy Raters of Massachusetts
2 Woodlawn Street Amesbury, MA 01913
978-270-3911

Chris Mazzola, Certified Energy Rater
Digitally signed: 5/3/23 at 7:53 AM

The Energy Rating Disclosure for this home is available from the Approved Rating Provider. This report does not constitute any warranty or guarantee.

Ekotrope RATER - Version 3.1.0.3.149

Source: BR 5-3-23

Home Energy Rating Certificate

Final Report

Rating Date: 2023-03-30
Registry ID: 589986593
Ekotrope ID: b2JVYDI2

LOT 5

HERS® Index Score:
-12

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

Annual Savings
\$3,580

*Relative to an average U.S. home

Home:
27 Willett Way
East Falmouth, MA 02536

Builder:
Habitat for Humanity Cape Cod

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	8.5	\$458
Cooling	0.3	\$16
Hot Water	2.2	\$116
Lights/Appliances	13.7	\$741
Service Charges		\$0
Generation (e.g. Solar)	31.3	-\$1,332
Total:	24.7	\$0

This home meets or exceeds the criteria of the following:

- Massachusetts Stretch Code
- 2021 International Energy Conservation Code
- 2018 International Energy Conservation Code
- 2015 International Energy Conservation Code
- 2009 International Energy Conservation Code
- 2006 International Energy Conservation Code

Home Feature Summary:

- Home Type: Single family detached
- Model: 3 bedroom ranch
- Community: N/A
- Conditioned Floor Area: 1,173 ft²
- Number of Bedrooms: 3
- Primary Heating System: Air Source Heat Pump - Electric - 11.6 HSPF
- Primary Cooling System: Air Source Heat Pump - Electric - 21 SEER
- Primary Water Heating: Residential Water Heater - Electric - 3.35 Energy Factor
- House Tightness: 204.1 CFM50 (1.29 ACH50)
- Ventilation: 60 CFM @ 35 Watts - ERV
- Duct Leakage to Outside: 59 CFM @ 25Pa (5.03 / 100 ft²)
- Above Grade Walls: R-21
- Ceiling: Attic R-56
- Window Type: U-Value: 0.29, SHGC: 0.29
- Foundation Walls: N/A
- Framed Floor: R-34

Rating Completed by:

Energy Rater: Chris Mazzola
RESNET ID: 8873503

Rating Company: Home Energy Raters
180 State Rd, Suite 2U Sagamore Beach MA 02562
508-833-3100

Rating Provider: Energy Raters of Massachusetts
2 Woodlawn Street Amesbury, MA 01913
978-270-3911

Chris Mazzola, Certified Energy Rater
Digitally signed: 5/3/23 at 7:50 AM

The Energy Rating Disclosure for this home is available from the Approved Rating Provider. This report does not constitute any warranty or guarantee.

Ekotrope RATER - Version 3.1.0.3.149

Source: BR 5-3-23

Home Energy Rating Certificate

Final Report

Rating Date: 2019-03-14
 Registry ID: 887391755
 Ekotrope ID: yvPqYXVZ

LOT 6

HERS® Index Score:
-13

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

Annual Savings
\$3,579

*Relative to an average U.S. home

Home:
 30 Willett Way
 East Falmouth, MA 02536

Builder:
 Habitat for Humanity Cape Cod

Your Home's Estimated Energy Use:

	Use (MBtu)	Annual Cost
Heating	8.5	\$459
Cooling	0.3	\$15
Hot Water	2.3	\$124
Lights/Appliances	13.0	\$700
Service Charges		\$0
Generation (e.g. Solar)	31.3	-\$1,298
Total:	24.0	\$0

This home meets or exceeds the criteria of the following:

2015 International Energy Conservation Code

Home Feature Summary:

- Home Type: Single family detached
- Model: 3 bedroom ranch
- Community: N/A
- Conditioned Floor Area: 1,173 ft²
- Number of Bedrooms: 3
- Primary Heating System: Air Source Heat Pump - Electric - 11.6 HSPF
- Primary Cooling System: Air Source Heat Pump - Electric - 21 SEER
- Primary Water Heating: Residential Water Heater - Electric - 3.35 Energy Factor
- House Tightness: 212.1 CFM50 (1.34 ACH50)
- Ventilation: 35 CFM, 20 CFM + 23 Watts, 4.8 Watts - ERV/Exhaust Only
- Duct Leakage to Outside: 28 CFM @ 25Pa (2.39 / 100 ft²)
- Above Grade Walls: R-25
- Ceiling: Attic, R-56
- Window Type: U-Value: 0.29, SHGC: 0.29
- Foundation Wall: N/A
- Framed Floor: R-34

Rating Completed by:

Energy Rater: Chris Mazzola
 RESNET ID: 8873503

Rating Company: Home Energy Raters
 180 State Rd, Suite 2U Sagamore Beach MA 02562
 508-833-3100

Rating Provider: Energy Raters of Massachusetts
 2 Woodlawn Street Amesbury, MA 01913
 978-270-3911

Chris Mazzola
 Chris Mazzola, Certified Energy Rater
 Digitally signed: 5/3/23 at 7:58 AM

Ekotrope RATER - Version 3.1.0.3149
 The Energy Rating Disclosure for this home is available from the Approved Rating Provider.
 This report does not constitute any warranty or guarantee.

Source: BR 5-3-23

WINDOWS AND DOORS

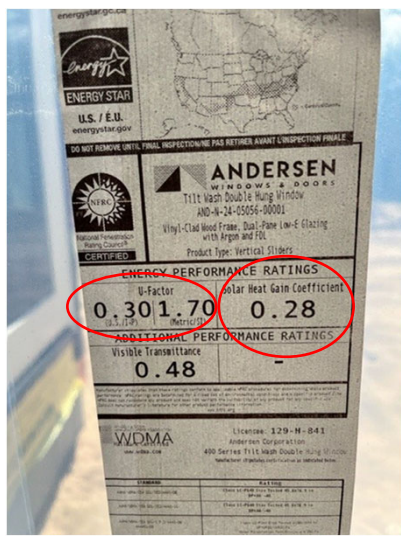
28

Window and Roof Orientation – Trade Offs



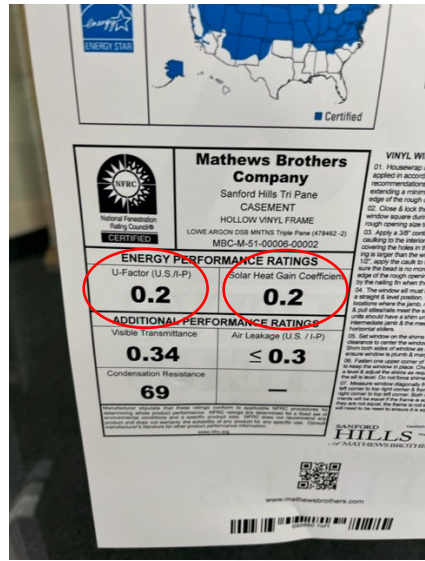
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Windows

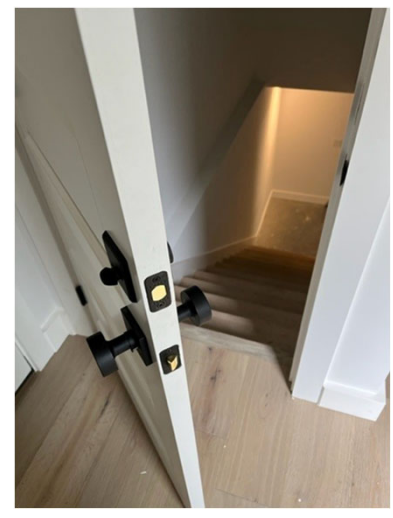
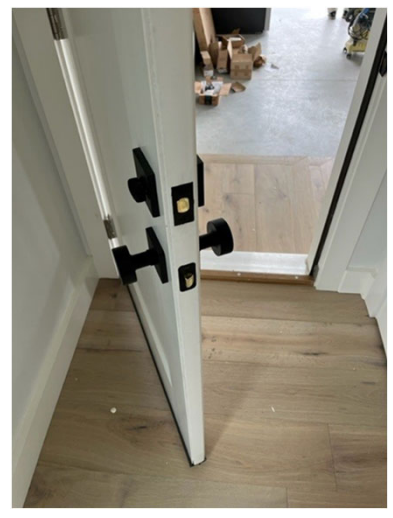


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Window and Roof Orientation – Trade Offs



Chris/Andrew Model 2 Demo Windows/Doors



Exception to Rule is Tons of Glass



- Design Stages:**
- 1) Concept- Layout
 - 2) Schematic Design (SD)
 - 3) Design Development (DD)
 - 4) Construction Drawings (CD)
- Construction Stages:**
- 5) Foundation and Frame
 - 6) Envelope: Insulation (Interior/Exterior)
 - 7) MEP
 - 8) Finishes Interior/Exterior



PV OPTIONS



Real Life Considerations








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Battery Back-Ups








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Propane Generator Back-Up



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Solar Panel Costs:

Cost Averages: \$3 to \$5 Per Watt

10,000 watts = \$30-\$50,000

Check out federal 24% tax credit.

MA State Incentives 6.5 c per Kilowatt Hour Generated

Andrew's Example: Solar System \$40,000

Federal Tax Credit: ~\$11,000

Monthly Payment to Finance without Incentives: \$175 per month

Average Monthly Generation: \$320 per month.

Monthly Payment with Incentives: \$69.00

Zero down, nothing out of pocket.



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Questions and Answers:



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Andrew Popielarski
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Please type your questions into the Questions Pane.



Thank You for Participating in Today's Webinar

Please take a moment to complete the brief survey.
Your feedback is very important to us.

Upcoming NEHERS Monthly Webinar Series:

December 13th - RESNET Conference Recap and Looking Ahead to 2024
with RESNET Staff

<https://nehers.org/webinars>

Upcoming Stretch HERS 42/45 Webinars:

December 14th: Session III - Mechanicals, Ventilation, Envelope and Appliances
December 21st: Session IV - Review/Summary, Recipes for Success, and Questions

<https://nehers.org/ma-stretch-hers-4245-series>

