

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



## Announcements:

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

Member Category	Annual Dues <sup>2</sup> <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 <sup>1</sup> (capped at 50)	10.0% Discount off Annual Calculated Fee
Dual Accredited Rating & Training Provider	\$700.00 + \$66.50/Rater <sup>1</sup> (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](mailto:info@nehers.org) or call/text 978-633-3013.

<https://nehers.org/membership>



## Announcements:

Please contact us at [info@nehers.org](mailto: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 9<sup>th</sup> 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 EXTENDED: January 2<sup>nd</sup> at 5 PM (EST)**  
**Final Registration Deadline is January 8<sup>th</sup>**

[REGISTER TODAY](#)

<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, followed by the title 'HERS RATER TRAINING' in large, bold letters. Below the title, the dates and trainer information are listed. The scholarship and registration deadlines are highlighted in bold. A 'REGISTER TODAY' link is provided in red text. 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 THREE Agenda:

- **Mechanicals**
- **Ventilation**
- **Envelope**
- **Appliances**



# MECHANICALS



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## Heating and Cooling

Air Source  
Heat Pump  
Exterior



Air Source  
Heat Pump  
Interior



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Source: BR 5-3-23

# All-Electric Mechanicals



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# Matching the System to the Home - All-Electric Mechanicals (ASHP)



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# Ground Source Heat Pumps

Ground Source Heat Pump Heating Mode

1 Circulation  
2 Heat absorption  
3 Heat exchange and use  
4 Recirculation

geocool

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# Gas Heating

ENERGYGUIDE

Federal law prohibits removal of this label before consumer purchase.

Goodman Manufacturing Company, LP  
Model GM9S96804CNA

Energy Rating (AFUE)\*  
**96.1**

For energy cost info, visit [productinfo.energy.gov](http://productinfo.energy.gov)

98.0  
Max Effluent

Range of Similar Models

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# Gas Water Heater On Demand (Tankless)

Gas Hot Water Tank



Gas Tankless On Demand Water Heater



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Switch from Traditional Electric or Gas HW Tank to ASHP = Up to 10 Point or More Swing in the HERS Score.



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# VENTILATION



## ERV for Balanced Ventilation



Ductless (In-Wall) ERV



2 CFM Flow Rate



kWH Usage  
1



Ducted ERV



Sensible Heat Recovery 3



# In-Wall ERV (Interior)



**VENTS-US** **TwinFresh Expert**  
**RA1-50-2** ENERGY RECOVERY VENTILATORS

**PRODUCT SPECIFICATIONS**    **TECHNICAL DATA**

**KEY FEATURES:**

- Unique Single Room Energy Recovery Ventilator
- One TwinFresh Expert unit in ventilation mode can serve rooms up to 800 sq. ft.\*
- Communication between several ventilators for coordinated operation.
- High-tech ceramic energy recuperator with max. heat recovery efficiency up to 93%.
- Built-in Humidity sensor, Timer and Weekly Scheduler
- Automatic air shutoff.
- Antibacterial treatment of ERV core and filters.
- MERV 8 Filter (optionally MERV 14 Filter).
- Easy installation and maintenance.

**DESCRIPTION**  
 TwinFresh Expert RA1-50-2 designed to ensure filtration and supply of fresh air into the room as well as exhaust of stale air with energy regeneration. No freezing and condensation during operation.  
 Efficient supply and exhaust single-room ventilation air flow up to 30 CFM.

**MOTOR**  
 30 inch with outstanding low energy demand from 3.81 W. The fan is powered by safe voltage 12 V. The motor has integrated overheating protection and ball bearings for long service life.

**PERFORMANCE**

Supply	1	2	3
Voltage (V AC) at [V]	1-100-240		
Power consumption [W]	3.81	4.75	5.25
Current consumption [A]	0.032	0.039	0.038
Air flow in ventilation mode [CFM]	9	18	30
Air flow in regeneration mode [CFM]	4	9	15
SPM	800	1000	1900
Sound pressure level @ 1 m [dBA]	0.6	1.0	1.2
Sound pressure level @ 3 m [dBA]	0.3	0.5	0.6
Outdoor sound pressure attenuation [dB]	2.3		
Temperature air temperature [°C]	Supply air up to 40°C		
Regeneration efficiency [%]	max. 93		
Regeneration type	Ceramic		
Filter	MERV 8 (optionally MERV 14)		
Ingress protection	IP24		

**MODEL**    **QUANTITY**    **COMMENTS**    **PROJECT**  
 location:  
 architect:  
 engineer:  
 contractor:  
 installed by:

TEL: 888-860-8823    sales@vents-us.com  
 810-248-8803    vents-us.com  
 Fax: 510-204-1037    1101 Kameron Road  
 Concord, Ohio 44014

MEY    HERS    MVI



# In-Wall ERV (exterior)



## In-Wall ERV (Interior)



## ERV for Balanced Ventilation



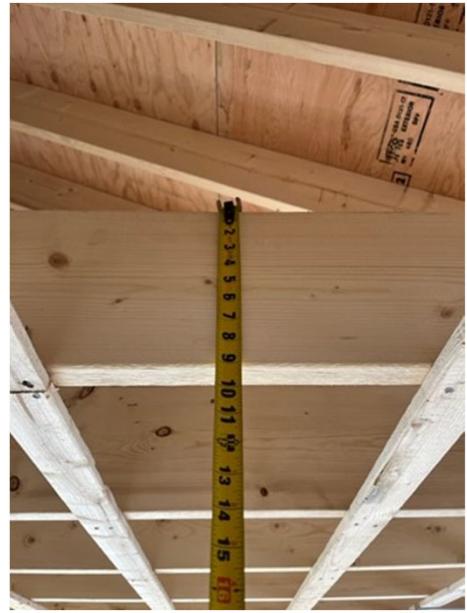
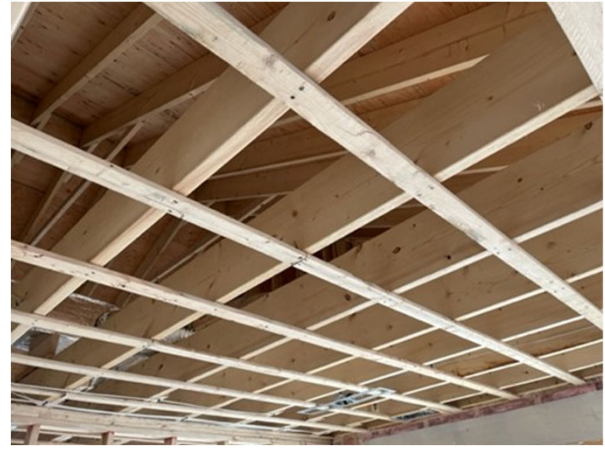
# Electric Fireplace/ Backup Heat Source



# ENVELOPE



# Roof Framing:



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# Ceilings:



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Andrew Email 1 5-25-23

## Roof Framing:



## Framed Walls to Unconditioned Spaces:



## Framed Walls to Ambient:



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## Framed Floors to Unconditioned Spaces:



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## Rim and Band Joist Insulation:



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## Insulated Slabs and Foundation Walls:



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# Unconditioned Basements:



A tool builders and architects can use to check their assemblies for potential moisture issues <https://bsa.ornl.gov/>



# AIR LEAKAGE REQUIREMENTS



## Air Leakage Infiltration Testing:



## Air Leakage Infiltration Testing:



## APPLIANCES



# Appliances:



# Appliances:



# Appliances:



# Questions and Answers:



**Nick Falkoff**  
Principal  
Auburndale Builders  
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**Andrew Popielarski**  
Senior Home Energy Rater  
Home Energy Raters  
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**Bob Ryley**  
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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 Stretch HERS 42/45 Webinars:

**December 21st: Session IV** - Review/Summary, Recipes for Success, and Questions

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

