



## Rater News Fall 2022

Welcome to the Fall 2022 issue of **Rater News**  
Brought to you by the Washington State University Energy Program

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### **News from Jonathan Jones**



Welcome to the fall issue of *Rater News*. Some of the topics this issue includes are: changes to the 45L Tax Credit as stated in the Inflation Reduction Act (IRA) of 2022 passed August 16, 2022; upcoming changes for ENERGY STAR new Residential and Multifamily homes; and changes to the Seasonal Energy Efficiency Ratio (SEER) and the Heating Seasonal Performance Factor (HSPF) ratings to go into effect January 1, 2023. We have added a new column, *Rater Reminders* by Megan Kramer to keep you informed on the changing and developing rating requirements. We also want you to know that the Washington State University (WSU) Energy Program, a RESNET® certified provider, will be offering HERS training this October. And check *Upcoming Events* for relevant training opportunities and conferences, some of which include professional development credits. As your RESNET Provider, we are here to help. If you have questions or comments, please contact us at [NWrater@energy.wsu.edu](mailto:NWrater@energy.wsu.edu)

### **What is up with the 45L Tax Credit?**

In December 2021, the 45L credit that promoted the construction of energy efficient residential buildings since 2005 ended. The Inflation Reduction Act (IRA) of 2022, H.R. 5376, extended the 45L credit for homes sold or leased during 2022 with little modification. The big changes to the 45L come in 2023. From January 1, 2023 through December 31, 2032, the base level tax credit will be specifically tied to ENERGY STAR certification for single-family and multifamily homes:

- \$2,500 per home if the home meets ENERGY STAR single Family New Homes requirements
- \$500 available for ENERGY STAR certified multifamily units meeting the ENERGY STAR Multifamily New Construction National Program requirements. A larger tax credit is available for multifamily projects that meet the prevailing wage requirements.
- \$5,000 per home if home meets the U.S. Department of Energy (DOE) Zero Energy Ready Home Program requirements

All homes permitted on or after January 1, 2023 will be required to meet the National Version 3.1 ENERGY STAR Version 3.1 program requirements. There is no change for homes built in locations where 3.1 or a regional program requirement is already in effect. For more information on ENERGY STAR Residential New Construction Program Requirements and Implementation Timeline, see [Energy Star Residential new Construction Program Requirements](#).

RESNET has provided in-depth information on the new 45L provisions. For further information please read RESNET's article: [45L Tax Credit for Energy Efficient Homes Extended and Improved](#). If you have questions, please contact [info@resent.us](mailto:info@resent.us). RESNET will refer these questions to U.S. DOE in developing its guidance.

### Prepare Now for 2023 Energy Efficiency Standards on the Horizon

New minimum energy efficiency standards for U.S. DOE begin on January 1, 2023. HVAC manufacturers will be required to produce central air-conditioning and air-source heat pump systems that meet new minimum 2023 energy efficiency standards. These new standards are called HSPF2.

What is HSPF2? It is the new testing standard and reporting metric for HVAC equipment used by AHRI.

For Example: Ducted Heat Pumps HSPF 8.0 will change to HSPF2 of 8.8  
Packaged Units HSPF 8.0 will remain the same.

This is the federal minimum standard as of January 1, 2023

- HSPF2 = 7.5 for ducted split systems.
- HSPF2 = 6.7 for packaged units



Until we have an official conversion calculator, we have found two resources for information on what efficiencies to use when modeling systems starting in 2023.

1. Daikin Industries, Ltd. (2022). *What you Need to Know: 2023 Regulations*. [https://backend.daikincomfort.com/docs/default-source/product-documents/residential/brochures/pm-reg2023.pdf?sfvrsn=bbec2126\\_4](https://backend.daikincomfort.com/docs/default-source/product-documents/residential/brochures/pm-reg2023.pdf?sfvrsn=bbec2126_4)

U.S. DOE is recommending a crosswalk until an official conversion calculator is adopted. RESNET is looking at it similarly. So far, it looks like what is illustrated below and provided by Daikin's Brochure on page 3.

SEER	Ducted SEER2	Ductless SEER2
14.0	13.4	14.0
14.5	13.8	14.5
15.0	14.3	15.0
15.5	14.8	15.5
16.0	15.2	16.0
17.0	16.2	17.0
17.5	16.7	17.5
18.0	17.2	18.0
19.0	18.1	19.0
20.0	19.0	20.0

EER	Ducted EER2	Ductless EER2
10.2	9.8	10.2
11.0	10.5	11.0
11.5	11.0	11.5
11.7	11.2	11.7
12.0	11.5	12.0
12.2	11.5	12.2
12.5	12.0	12.5
13.0	12.5	13.0

HSPF	Ducted Split HSPF2	Ducted Package HSPF2	Ductless HSPF2
8.0	6.8	6.7	7.7
8.2	7.0	6.9	7.9
8.8	7.5	7.4	8.4
9.0	7.7	7.6	8.6
9.5	8.1	8.0	9.1
10.0	8.5	8.4	9.5
11.0	9.4	9.2	10.4

NOTE: The cross references for efficiency in the above tables should be noted as approximate.

2. The SEER2 Guide website, by Johnstone supply, also does a good job of explaining the changes: <https://seer2.com/region-north.html>

#### ***For further information on this subject:***

#### **Prepare Now for 2023 Energy Efficiency Standards**

Big changes are coming to the HVAC industry, as of January 1, 2023, the U.S. DOE minimum energy efficiency requirements go into effect for all newly manufactured residential and commercial air conditioners and heat pumps—Joanna R. Turpin, *ACHR News*, May 23, 2022:

<https://www.achrnews.com/articles/146585-prepare-now-for-2023-energy-efficiency-standards>

#### **Free RESNET Webinar: New U.S. Energy Efficiency Standards and Refrigerants for Residential AC and Heat Pumps: Sept. 27, 2022 11:00 a.m. PT**

The U.S. DOE has implemented new standards on how the efficiency of HVAC systems is calculated. The new system is referred to as SEER2, EER2 and HSPF2 and will go into effect in parts of the U.S. on January 1, 2023. Check out RESNET for more information on this subject and to register for this webinar: <https://www.resnet.us/articles/webinar-doe-standards-and-refrigerants-for-residential-ac-and-heat-pumps/>

### **Program News**

#### **Upcoming HERS Training to be Held in October**

The WSU Energy Program, a RESNET® certified provider, is offering a Home Energy Rater Training (HERS) class for prospective home energy raters, October 17-28 M-F 9:00 a.m.- 12:00 noon PT. HERS is a nationally-recognized rating certification program



and it is a prerequisite for the U.S. Environmental Protection Agency (EPA) ENERGY STAR®, Indoor airPLUS®, and other certification programs.

The training will include:

- Virtual class split into multiple mandatory session blocks, hosted by the WSU Energy Program.
- A computer with REM/Rate® (PC only) or Ekotrope is required (free trial subscriptions are available for this).

For more information and to register: [Home Energy Rater Training](#)

For course content questions, contact our instructor, Jonathan Jones at:

[NWRater@energy.wsu.edu](mailto:NWRater@energy.wsu.edu).

## **U.S. Environmental Protection Agency (EPA) ENERGY STAR Training**

### **2022 ENERGY STAR Partner Meeting Webinar Series: October 4-20**

The 2022 ENERGY STAR Residential New Construction Partner Meeting will be held as a focused webinar series October 4-20, 2022. The ENERGY STAR Residential New Construction Partner Meeting traditionally brings together our partner builders, developers, energy rating companies, and utility sponsors, as well as other key stakeholders, to get all the latest updates about the program and what to expect in the future. This webinar will get partners ready to successfully transition to the Version 3.1 and Version 1.1 program requirements, including identifying key efficiency measures used to hit the v3.1/v1.1 ENERGY STAR ERI Targets, how to run a v3.1/ v1.1 compliance report for any home, and reviewing the implementation timelines for the mandatory use of v3.1 and v1.1 in all states. For more information and to register: [https://www.energystar.gov/2022\\_es\\_residential\\_mtg](https://www.energystar.gov/2022_es_residential_mtg)

### **Rater Reminders** *by Megan Kramer*



For HERS Raters it can be hard to keep up with ever evolving requirements, so we wanted to remind you of a few things. Moving forward we will no longer allow older versions of REM/Rate to be used as they tend to cause challenges with registering files. We also need to ensure we are meeting RESNET requirements when performing quality assurance and must ensure the proper documentation is provided. Please read the details below and; as always; let us know if you have questions: [NWRater@energy.wsu.edu](mailto:NWRater@energy.wsu.edu).

#### REM/Rate Version

- Current version 16.3.2 for all HERS Indexes, ENERGY STAR, Zero Energy Ready and Indoor airPLUS rated homes.
- Current version 16.0.6 for all Utility Incentives

Please note in version 16.2.3 of REM/Rate there is a dropdown menu to choose the version of the 301 standard to use and the date of the standard. Please be sure to select the “std 301-2019 (Effective Jan 1, 2022)”

## Field Testing Requirements

- The use of a multipoint test is highly encouraged. If a single-point test is used, the CFM50 reading must be adjusted using a correction factor as outlined in section 4.5 of the [ANSI/RESNET/ICC 380-2019 Standard](#).
- A multipoint airtightness test can be found in section 4.4.2 of the [ANSI/RESNET/ICC 380-2019 Standard](#). This can also be accomplished by using one of several software tools and apps that are readily available.
- In addition, using digital testing with an app will record several required pieces of information. If you do not use the app you need to record and submit the following:
  - Picture of altitude
  - Picture of outdoor temp and indoor temp
  - Excel spread sheet of the single point correction factor
  - Model number and serial number of the blower door unit
  - Use corrected CFM and apply the single point correction factor

As a providership, we ask that all tests are digital to avoid errors in manual calculation methods. You can use a laptop, a tablet, or a phone.

## **Technical Questions Answered**

**I have two heating systems in my home. What fuel normalization and energy credits do I select under the 2018 WSEC-R?**

*The residential provisions of the 2018 Washington State Energy Code (WSEC-R) requires each dwelling unit to achieve a number of additional credits, per [WSEC Section R406](#). There are two types of credits:*

- **Fuel normalization credits** depend on heating system type, and
- **Energy Credits** are achieved by selecting energy efficiency options from several categories.

*The total number of credits required depends on the floor area. It is not uncommon for homes to have more than one heating system type. A question that is frequently asked is which system is used to determine the additional credits required?*

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When there is more than one type of heating system installed in a home, the fuel normalization credits and energy credits are based on the *primary heating system*. The primary heating system is the one serving the larger heating load, which is often the system providing heat to the greater conditioned floor area.

Here are some examples that illustrate selection of System Type from Table 406.2 “Fuel Normalization Credits” and Option 3 from Table 406.3 “Energy Credits.” [See screenshots of these tables below](#). You can also find these tables in Section R406 of the [WSEC-R](#), as well as in the PDF worksheet [here](#).

- A home has a natural gas furnace serving the entire home, plus a heat pump that is sized for air conditioning. The heat pump provides some supplementary heat but is not sized to serve the entire heating load. In this case, the natural gas furnace is the primary heating system.
  - Select System Type 1 for zero fuel normalization credits (combustion system meeting minimum federal standards).
  - This home may also achieve 1.0 energy credits under Option 3.1 if its AFUE exceeds 95 percent.
- A home has a central heat pump system serving most of the home. A space over the garage will be heated using a ductless minisplit heat pump that has a smaller capacity than the central system. In this case, the primary heating system is the central heat pump.
  - Select System Type 2 (heat pump) for 1.0 fuel normalization credits.
  - This home may also achieve either Option 3.2 or Option 3.5 energy credit, depending on the HSPF of the **central heat pump**.
- A 2,500 square foot home has a ductless heat pump system with electric resistance wall heaters in the bathrooms and utility room. There are two possibilities depending on how much electric resistance heat is installed:
  - The total amount of electric resistance heat to be installed is 1,200 watts, resulting in 0.48 watts per square foot. This is below the 0.5 watts per square foot specified in footnote a of Table 406.3 (shown below). Therefore, this qualifies as System Type 2 (heat pump) and earns 1.0 fuel normalization credit. It also achieves 2.0 energy credits for Option 3.6, for a total of 3 credits.
  - On the other hand, if 1,500 watts of electric resistance heat is installed in the smaller zones, the 0.5 watt per square foot budget in footnote a would be exceeded. This would qualify as System Type 4 for 0.5 fuel normalization credits. It would also achieve 1.5 energy credits for Option 3.4, for a total of 2 credits.

## RESNET NEWS

### RESNET Releases 2022 Statistical Abstract “Trends in HERS® Rated Homes”

RESNET has released its statistical abstract of homes that were HERS rated in 2021 in the Trends in HERS Rated Homes – A Statistical Abstract 2022. The report first looks at broad national-level trends, state-level trends, and trends of HERS ratings in cities, including the top 25 cities for single-family and multifamily ratings. RESNET, June 28, 2022: <https://www.resnet.us/articles/resnet-releases-2022-statistical-abstract-trends-in-hers-rated-homes/>

### ICC Promotes IECC/HERS Compliance Specialist Benefit to Code Officials

The International Code Council (ICC) recently sent a communication to code officials nationwide, to promote the benefits of working with an ICC IECC/HERS Compliance Specialist. The piece details how ICC worked closely with RESNET to develop a new credential, the IECC/HERS Compliance Specialist, that requires HERS Raters and RFIs (Rating Field Inspectors) to obtain their ICC Residential Energy Inspector/Plans Examiner Certification to verify their energy code compliance competency—RESNET, July 1, 2022: <https://www.resnet.us/articles/icc-promotes-iecc-hers-compliance-specialist-benefit-to-code-officials/>



## Codes

### Clean Energy Homes for Washington: Council Proposes Code Improvements

On Wednesday, June 29, [Washington's State Building Code Council](#) moved to bring its code for new residential buildings up to parity with the commercial buildings code. Today, the State Building Code Council sent a set of proposals forward to public comment that include requirements for heat pumps for space and water heating, as well as ventilation improvements for new homes with gas stoves. These proposed codes would cover new single-family homes, townhomes, and low-rise multifamily buildings (three floors and shorter) and be the first statewide action requiring heat pumps in new residential construction—*Climate Solutions*, June 9, 2022: <https://www.climatesolutions.org/article/2022-06/clean-energy-homes-washington-council-proposes-code-improvements>

## Consumer Education

### EEBA Launches Free Online Database of Sustainable Building Products for Your Home

The Energy & Environmental Building Alliance (EEBA) and ecomedes have compiled a trove of eco-friendly building products for your home: the EEBA & ecomedes sustainable building products database. This free online tool is designed to help you find the green materials you need in a snap. Users can select products by sustainability attributes, labels, and certifications; casting a wide net or narrowing it to just a few choices that meet specific needs. [Check it out here](#).

## Newsbriefs

### Home Energy Score Partner Recognized for Energy Efficiency Innovation

Across the country, 27 Home Energy Score Partners and a network of 460 Home Energy Score Assessors are promoting home energy labeling and providing low cost home energy information to homeowners, buyers, and renters through the U.S. DOE's Home Energy Score™ program—Better Buildings Beat Team, Better Buildings, U.S. DOE, July 26, 2022: <https://betterbuildingssolutioncenter.energy.gov/beat-blog/home-energy-score-partners-recognized-energy-efficiency-innovation>

### Columbia Basin Student Homebuilder Program Gives Students a Strong Foundation

High school students in the Hermiston area are stepping out of the classroom and onto the jobsite as energy-efficient homebuilders. The Columbia Basin Student Homebuilder Program gives students the opportunity to work with local tradespeople through each step of constructing a new home. An exciting part of the program is that students are building homes designed to save energy.



Each home earns an Energy Trust of Oregon EPS® rating. This rating measures the energy efficiency of the home and highlights the energy-saving features that make it stand out—Energy Trust of Oregon, *Insider*, July 5, 2022: <https://insider.energytrust.org/columbia-basin-student-homebuilder-program-gives-students-a-strong-foundation/?the-program=eps-new-construction>

## **Upcoming Events & Training Opportunities**

### **EBBA's High Performance Home Summit (In Person and Virtual), September 20-22, 2022, Scottsdale, AZ**

Join Energy & Environmental Building Alliance for a High Performance Home Summit focused on providing the tools and networking that builders, raters, analysts, and architects need to take high performance, healthy, resilient homes to new heights. For more information and to register: <https://summit2022.eeba.org/registration>



### **Train the Trainer for HVAC Instructors: September 19-22, Minneapolis, MN**

This course will give instructors hands-on time with TEC equipment, as well as access to training materials that can be used for training your students. Space is limited, so we encourage you to submit the form below right away if you are interested. Please note that we will contact you for a copy of your training agenda or syllabus to verify your eligibility upon submission of the form below. For more information and to register: <https://energyconservatory.com/59141-2/>

### **Fourth Annual Multifamily Housing Symposium (Virtual): Thursday September 22, 2022 1:00-4:00 p.m.**

Join the Northwest EcoBuilding Guild for a speaker series on the decarbonization, affordability, and indoor health of multifamily housing in our region. A panel of speakers will be presenting on the following topics: Policies surrounding multifamily housing in our region. [Click here for more information and to register](#)

### **'ON THE LEVEL' WEBINAR SERIES: October 7, 14 and 21 12:00 noon–1:00 p.m.**

Join Earth Advantage and BetterBuiltNW for this three-part live webinar series on envelope building science, installing exterior insulation, and ERV/HRV design best practices.



- Using Building science to inform Envelope Design: Oct. 7
- Practical Solutions for Selecting and Installing Exterior Insulation: Oct. 14
- Design & Quality Control Best Practices for ERVs/HRVs: Oct. 21

For more information and to register: <https://www.earthadvantage.org/training/2400/756>

### **Northwest Ecobuilding Guild's "Northwest Green Building Slam": Virtual or at Town Hall, Seattle, October 29**

This year's hybrid event features the crowd-favorite Slam-style inspiration with 10 speakers for 10 minutes each with live streaming. For more information: <https://northwestgreen.org/>

### **Greenbuild International Conference + Expo: November 1-3, 2022: San Francisco, CA**



Greenbuild International Conference + Expo is the largest annual event for green building professionals worldwide to learn and source cutting-edge solutions to improve resilience, sustainability and quality of life in our buildings, cities and communities. For more information and to register: <https://greenbuild.informaconnect.com/2022/>



### WSU Energy Program Trainings

All WSU Energy Program Training opportunities are available on the WSU Energy Program Events & Trainings website: <https://www.energy.wsu.edu/EventsTrainings.aspx>



### Screenshots from Technical Q&A's Answered

Table 1. Fuel Normalization Table R406.2 from 2018 WSEC-R

System Type	Description of Primary Heating Source	Credits	
		All Other	Group R-2
1	Combustion heating equipment meeting minimum federal efficiency standards for the equipment listed in Table C403.3.2(4) or C403.3.2(5)	0	0
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) <b>or</b> Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590	1.0	1.0
3	For heating system based on electric resistance only (either forced air or Zonal)	-1.0	-1.0
4	For heating system based on electric resistance with a ductless mini-split heat pump system in accordance with Section R403.7.1 including the exception	0.5	N/A
5	All other heating systems	-1	-0.5

Table 2. Option 3 section of Table R406.3 from 2018 WSEC-R

TABLE 406.3 (continued) ENERGY CREDITS			
OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2
<b>3. HIGH EFFICIENCY HVAC EQUIPMENT OPTIONS</b>			
Only one option from Items 3.1 through 3.6 may be selected in this category.			
3.1 <sup>a</sup>	Energy Star rated (U.S. North) Gas or propane furnace with minimum AFUE of 95%  or Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%.  To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0	1.0
3.2 <sup>a</sup>	Air-source centrally ducted heat pump with minimum HSPF of 9.5.  To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0	N/A
3.3 <sup>a</sup>	Closed-loop ground source heat pump; with a minimum COP of 3.3  or Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6.  To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.5	1.0
3.4	Ductless mini-split heat pump system, zonal control: In homes where the primary space heating system is zonal electric heating, a ductless mini-split heat pump system with a minimum HSPF of 10.0 shall be installed and provide heating to the largest zone of the housing unit.  To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.5	2.0
3.5 <sup>a</sup>	Air-source, centrally ducted heat pump with minimum HSPF of 11.0.  To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.5	N/A
3.6 <sup>a</sup>	Ductless split system heat pumps with no electric resistance heating in the primary living areas. A ductless heat pump system with a minimum HSPF of 10 shall be sized and installed to provide heat to entire dwelling unit at the design outdoor air temperature.  To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type).	2.0	3.0

Footnote a

a. An alternative heating source sized at a maximum of 0.5 Watts/ft <sup>2</sup> (equivalent) of heated floor area or 500 Watts, whichever is bigger, may be installed in the dwelling unit.
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Your WSU Energy Program Provider Team  
Jonathan Jones, Gary Kaufman, Megan Kramer, Anne Whitney  
can all be reached via email at: [NWrater@energy.wsu.edu](mailto:NWrater@energy.wsu.edu)  
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We welcome rater's questions, comments or ideas for articles. Please send to: [NWrater@energy.wsu.edu](mailto:NWrater@energy.wsu.edu)

