



Rater News for Spring 2022

Welcome to the spring 2022 issue of **Rater News**, brought to you by the Washington State University Energy Program Home Energy Rater Program

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News from Jonathan Jones



Take-Aways from this Year's 2022 International Builders' (IBS) Show

I was able to spend significantly more quality time with manufacturers than during prior pre-COVID 19 gatherings, and I was able to have more informative in-depth conversations. One of the conversations that I had was with the Rheem folks. First, they were unaware of the off gassing caused by their units during operation. They took this issue seriously. They also indicated that they were aware of the bad capacitor on the motherboard of the 4th Gen HPWs

(Heat Pump Water Heaters). The company resolved this issue by replacing the motherboard. The 5th Gen HPWs do not have this issue. We recommended moving the ducting inlets and outlets to the top of the unit for easier installation; and, it was good to note that we were not the only ones who made this recommendation.

There were many solid, established technologies at the show with a couple of newer products (to us in the Northwest). One item of note was the [Italian PTHP](#) (Packaged Terminal Heat Pump). There was also a manufacturer of VTHP [Magic-pak](#) (Vertical Termination Heat Pump). This unit has the outdoor unit for heat pumps built into the handler. This is great in multi-family (MF) and affordable housing projects where land space is at a premium and the removal of the outdoor unit will increase longevity

and decrease vandalism. There were a number of product manufacturers present as vendors and many displayed CI (Continuous Insulation) products. As the new codes come into play in many states, CI will become a requirement – including for us in the Pacific Northwest. With CI comes air tightness.

Which brings me to my last item of note: [Fire Suppression Caps](#). You can – according to the 380 Standard – use testing caps during testing. I would encourage your builders/clients to look into these testing caps as a means to address the leakage from fire suppression during the air barrier testing. This could be a difference in a passing score. I have personally noted a small amount of leakage with homes with few fire sprinklers or sidewall fire suppression termination, to a large amount of leakage in all ceiling penetrations and on a large home with several fire sprinkler heads.



WSU Energy Program News

New Staff Member

The WSU Energy Program is excited to announce that Megan Kramer has joined our team, and she will be working directly on various aspects of our HERS Program Providership and ENERGY STAR ratings activities. With more than a decade of experience in both residential and commercial building energy efficiency programs, Megan will help the WSU Energy Program continue to expand the services offered to raters and builders alike.



ENERGY STAR /Indoor airPLUS Program Homes: Thank you and a reminder from Gary Kaufman

All of you who regularly rate homes for ENERGY STAR certifications have taken to heart the importance of aligning names in your software systems with how you and your ENERGY STAR Building Partners “live” in the ENERGY STAR systems. It is very much appreciated. Reminder, you can always search for your own partner rater name or builder partner name with an easy to use search via ENERGY STAR:

https://www.energystar.gov/partner_resources/partner_list/builders_rating_companies

And, if you are working with a new builder and you set the status drop-down to “All”, and their name does not show up, they can become a residential ENERGY STAR Builder Partner at no cost – and it is relatively simple:

https://www.energystar.gov/partner_resources/join_energy_star/new_home_construction

News from RESNET

RESNET Adopts MINHERS Addendum 58f, and Interim Addendum 64i

Addendum 58f, Pre-Drywall Inspection QA

Addendum 58f revises the MINHERS Chapter 9 to establish clear criteria for the status of Pre-drywall Field QA reviews in the total required Field QA reviews. It is the final version of Standard 58 that will

replace interim Addendum 58i July 1, 2022. For more information: https://www.resnet.us/wp-content/uploads/FS_Adndm58_Pre-drywall-QA_v2.pdf

Addendum 64i, Multi-Family Dwelling Unit Sampling

Addendum 64i adds a modification to standard ANSI/RESNET/ICC 301-2019 for the RESNET HERS, which allows use of the RESNET Guidelines for Multifamily Ratings inspection and test sampling criteria for determining Sampled Ratings for Dwelling Units in Multifamily buildings. The addendum also extends the current leakage test exception for Puerto Rico and the Virgin Islands until January 1, 2024. Addendum 64i is an interim addendum that takes effect immediately and will be replaced by a final version upon completion of the RESNET consensus standards development process. For more information: https://www.resnet.us/wp-content/uploads/InterimAddendum64i-MFSampling_webpost.pdf

U.S. Environmental Protection Agency Program News

Technical bulletin: Activating a Passive Radon System

This technical bulletin details how Indoor airPLUS Partners address radon systems. Radon is a naturally occurring radioactive gas that can cause cancer. By building radon-resistant new homes, builders and contractors provide a public health service — helping to reduce buyers' risk of lung cancer from exposure to radon in radon entry in indoor air. Using common materials and straightforward techniques, builders can construct new homes that are resistant to radon entry—EPA, Indoor airPlus, Feb. 2020:

https://www.epa.gov/sites/default/files/2020-06/documents/2020.02_tech_bulletin_activating_a_passive_radon_system.pdf



Technical Q&A's Answered

What are 2018 IECC Prescriptive Requirements for Buried Ducts?

Carolyn C. Roos, PhD, WSU Energy Program Engineer

“Buried ducts” refers to ducts entirely or partly buried in attic/ceiling insulation. While the concept is not new, the prescriptive requirements for 2018 IECC are new and, unfortunately, can be confusing.

The requirements for buried ducts in our climate zones are defined as follows:

Section R403.3.6 Ducts buried within ceiling insulation. *Where supply and return air ducts are partially or completely buried in ceiling insulation, such ducts shall comply with all of the following:*

- 1. The supply and return ducts shall have an insulation R-value not less than R-8.*
- 2. At all points along each duct, the sum of the ceiling insulation R-value against and above the top of the duct, and against and below the bottom of the duct, shall be not less than R-19, excluding the R-value of the duct insulation.*

Exception: *Sections of the supply duct that are less than 3 feet (914 mm) from the supply outlet shall not be required to comply with these requirements.*

The first requirement is clear: The duct must have a minimum of R-8 duct insulation all around it.

The second requirement requires paying close attention to the logic of the sentence. Note that it is the **sum** of the ceiling insulation **above and below** the duct that must be a minimum of R-19, in addition to the R-8 insulation. This results in three possible cases, which are illustrated in Figure 1 and summarized as:

Case 1: Partially buried ducts with R-19 below the duct. No ceiling insulation required above the duct.

Case 1, while allowed in meeting Option 4.1, is not preferred because of its greater heat loss.

Case 2: Buried ducts with ceiling insulation both on top and under the duct totaling R-19. The amount above and below may vary, as long as the sum is at least R-19.

Case 2, is preferred when ducts run perpendicular to ceiling trusses or joists.

Case 3: R-19 ceiling insulation above the duct with the bottom of the duct in contact with the ceiling sheetrock.

Case 3, with all of the insulation on top of the duct, is preferred for ducts that run parallel to ceiling trusses or joists.

For more information

A very good [webinar](#) and accompanying [slide deck](#) by Craig Drumheller are available from the National Association of Home Builders. Figure 1 was derived from materials presented in this slide deck.

This on-demand training from BetterBuiltNW covers both ducts inside and deeply buried ducts: [Building with Ducts in Conditioned Spaces](#).

See also Section R403.3.6 in [Chapter 4 of the 2018 IECC](#), which has a third requirement for supply ducts for Climate Zones 1A, 2A and 3A.

Figure 1. Three possible cases for buried ducts

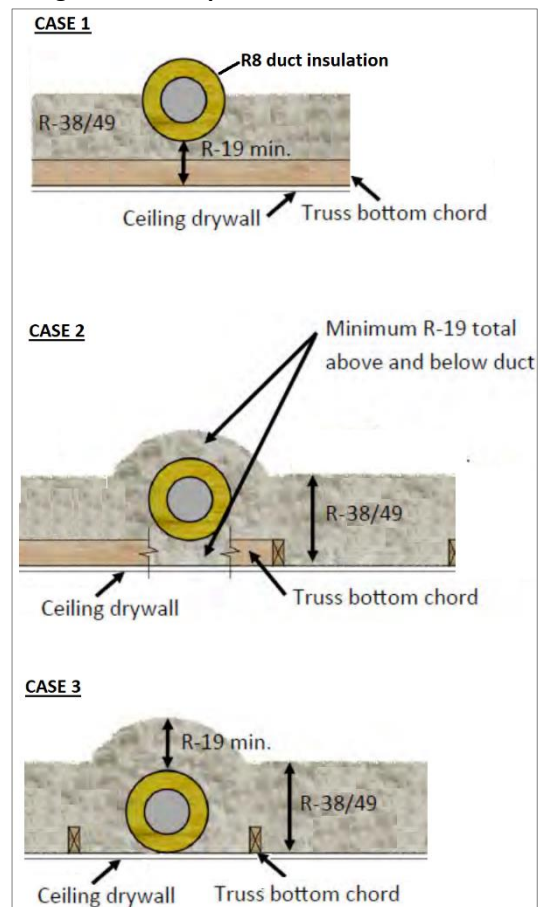


Figure 1 derived from: "Buried Ducts: Advantages, Challenges, and New Options in the 2018 IECC,"

https://www.energycodes.gov/sites/default/files/2019-09/Buried_Ducts_Webinar_Presentation_Slides.pdf

Craig Drumheller, National Association of Home Builders, 2017.

Codes News

Oregon Building Codes Division

Insulation and Installation of Ducts BCD Technical Bulletin Updated Feb. 2022

On April 1, 2021, the 2021 Oregon Residential Specialty Code (ORSC) became effective, introducing new requirements for the insulation and installation of ducts and revisions of existing provisions. Compliance with these new or revised sections became the mandatory prescriptive path for ORSC governed designs on Oct. 1, 2021. This technical bulletin highlights the intent of the new 2021 ORSC ductwork provisions for installing heating, ventilating and air-conditioning (HVAC) systems and provides compliance examples. For more information: <https://www.oregon.gov/bcd/codes-stand/Documents/res-techb-ducts.pdf>

Lawmakers Want More Control over Idaho's Energy Building Codes

A bill that passed the Idaho House of Representatives with 53 yes votes this week would give the legislature more control over the energy codes and would prohibit local jurisdictions from enacting their own — unless they have been in place before 2018—Rachel Cohen, *Boise State Public Radio*, Mar. 2, 2022: <https://www.boisestatepublicradio.org/news/2022-03-02/lawmakers-want-more-control-over-idahos-energy-building-codes>

Articles of Interest

Load Calculation Tools for Ductless Heat Pumps

The first step in choosing the right-sized heating, ventilation, and air conditioning (HVAC) system is knowing how much heating and cooling the home requires. Every home has a unique design that affects its heating and cooling needs. Oversized equipment can be inefficient, especially on mild days, which can lead to larger heating bills, and it is difficult for service technicians to diagnose oversized equipment once installed. BetterBuiltNW recommends all installers perform a load calculation before selecting a unit—*BetterBuiltNW*, Jan. 5, 2022: <https://betterbuiltinw.com/resources/load-calculation-tools-for-ductless-heat-pumps>

BUILT GREEN® STAR Levels: What Do They Mean?—2021 Versions

All Built Green homes are designed to reach beyond current Washington state building and energy codes—creating greener, healthier, and more equitable homes. However, not all Built Green homes are equal, and building standards and innovations change over time—Read more at Built Green, Jan. 28, 2022: <https://www.builtgreen.net/blog-detail/builtgreenblog/2022/01/28/built-green-star-levels-what-do-they-mean-2021-versions>

Advanced Walls: Continuous Exterior Insulation Factsheet

This document is designed to inform and provide resources to developers, architects, home builders, key trades, raters/verifiers, and inspectors about continuous insulation for exterior walls—*BetterBuiltNW*, Jan. 13, 2022: <https://betterbuiltinw.com/resources/bbnw-continuous-exterior-insulation-factsheet>

What if Houses Came with Manuals?

A guide to the “House As A System” approach to understanding comfort, IAQ, durability, and energy consumption issues caused by building air leakage and HVAC driven pressure imbalances in single-family homes—Sam Myers, *retrotec*, Jan. 26, 2022: <https://retrotec.com/blog/post/what-if-houses-came-with-manuals/>

Upcoming Events and Training Opportunities

Don't Miss the RESNET 2022 Virtual Conference, May 3-5, 2022

Registration is open for this year's virtual event. Join online May 3-5, 2022 from the comfort of wherever you get Wi-Fi to network, earn 18 RESNET approved Professional Development credits, and stay up-to-date with industry trends. For more information and to register:

<https://www.resnet.us/conference/conference-2022/>



WABO Annual Education Institute: Lynnwood Convention Center, March 21-24, 2022

Registration for the 2022 Annual Education Institute (AEI) is now open. The 2022 AEI is scheduled for March 21-24, 2022 at the Lynnwood Convention Center. Washington Association of Building Officials (WABO) members receive a discount as well as reduced rates for registering early. Registration fees remain rolled back to 2010 pricing. Register early since classes fill up fast. For more information and to register: <https://www.wabo.org/2022-aei-summary-page>

EBBA High Performance Home Summit: Scottsdale, AZ, September 20-22, 2022

Join Energy & Environmental Building Alliance (EBBA) September 20-22, 2022 in Scottsdale, AZ 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://summit.eeba.org/>

'On the Level' New Three-Part Webinar Series

Join Earth Advantage & BetterBuiltNW for this no-cost, three-part webinar series on envelope building science, installing exterior insulation, and ERV/HRV design best practices. Back by popular demand, they are launching another series of 'On the Level' live webinars with new topics to enhance your high performance building knowledge. This live webinar series was one of their most attended trainings last year and has been designed to provide tangible design principles and construction practices that can be integrated into your building process.

- **Using Building Science to Inform Envelope Design, Friday March 18, 12:00 PM – 1:00 PM**
- **Practical Solutions for Selecting & Installing Exterior Insulation, Friday, March 25 12:00 PM**
- **Design & Quality Control Best Practices for ERVs/HRVs, Friday, April 1, 12:00 PM – 1:00 PM**

For more information and to register: <https://www.earthadvantage.org/training/2400/727>

IREC Releases Training Courses for Residential Solar Plan Review and Permitting

The Interstate Renewable Energy Council (IREC) and a team of partners announced the launch of a free series of self-paced, interactive, online professional development courses on the plan review and permitting process for residential rooftop solar installations. The series covers the primary tasks to confirm the electrical, structural, and fire code compliance of PV systems prior to issuing a permit—Anne Fischer, *pV magazine*, Mar. 7, 2022: <https://pv-magazine-usa.com/2022/03/07/irec-releases-training-courses-for-residential-solar-plan-review-and-permitting/>

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

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