Energy Program
WASHINGTON STATE UNIVERSITY

Rater News

Rater News Winter 2023

Welcome to the Winter 2023 issue of ***Rater News***
Brought to you by the Washington State University Energy Program

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In this issue:

News from Jonathan Jones

Happy Holidays! My Best to You and Yours for a Joyful and Happy Holiday Season

As you well know, our WSU Energy Program's RESNET Providership is changing at the start of the New Year. Our Quality Assurance Provider activities end December 31, 2023. File and Field Quality Assurance activities will most likely carry forward into the first quarter of 2024, and should be completed by the 2nd quarter. We have received numerous inquiries about recommendations for suitable providers. While I do strive to assist whenever possible, it is important to clarify that, in this instance, WSU Energy Program staff cannot make recommendations. We encourage you to utilize the link provided by RESNET to search for services in your area to find a provider that aligns with your unique business needs: https://www.resnet.us/providers/accredited-providers/accredited-rating-providers/

Our WSU Energy Program's Training Provider credentials have been renewed as we review and "modernize" our training program(s). Look to our Events &Trainings webpage for upcoming RESNET, ENERGY STAR, and other applicable trainings & events. This is the last issue of *Rater News* but watch for our new newsletter, *Pacific Northwest Residential Construction News,* soon to arrive in your emails with a greater focus on Pacific Northwest residential building codes, WSU Energy Program trainings, Q&As, and other relevant information.

It has been an amazing journey and experience getting to know each of you. For some, our time together has been brief, while for others it has spanned many years. I am eager to see all of you in our upcoming education and certification classes. Please keep an eye on our website as we unveil new training sessions covering such topics as building science, RESNET certifications (HERS, HERS H20® , RESNET HERS® Modeler Certification), EPA ENERGY STAR Single and Multifamily Homes, Indoor airPLUS, WaterSense and & DOE Zero Energy Ready Homes.

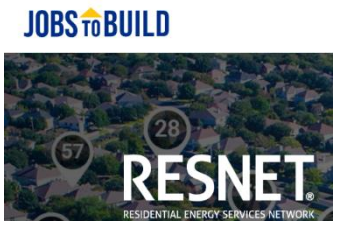
For myself and the entire WSU Rater Team, we have enjoyed being your Quality Assurance Provider and look forward to working with you in our new capacity. Best Wishes for a Happy Holidy Season. Please let us know if you do not want to automatically receive our upcoming new publication.

RESNET News

2024 RESNET Mission, Goals and Initiatives

Check out the 2024 RESNET® *Mission, Goals, and Priorities* adopted by the RESNET Board of Directors August 18, 2023 and recently posted on the RESNET Blog, October 19, 2023: https://www.resnet.us/articles/resnet-releases-2024-mission-goals-and-initiatives/

List HERS® Job Postings for Free on RESNET® JobstoBuild



If you are posting HERS® positions on social media, then you may also want to look at creating a free account and post those job openings at https://jobstobuild.com/page/RESNET. JobsToBuild is the residential construction jobs platform bringing employment and career opportunities to job seekers, and talented job candidates to employers across building trades.

RESNET® Releases New Infographic on RESNET Assets

RESNET adopted its organization's key strengths as defined via its assets on September 19, 2023. In November RESNET released its new infographic listing these assets. Click here to view.

BSR/RESNET/ICC 301-2022 Addendum C-202x, Interim Updates

Proposed standard BSR/RESNET/ICC 301-2022 Addendum C-202x amends the 2022 edition of Standard 301 to provide clarifications and interim updates. The proposed revisions address the following major subjects and others: clarifications to improve the consistency of rating software calculations; definitions and acronyms for terms used in the Standard; new federal HVAC appliance SEER2 and HSPF2 ratings and ceiling fan ratings; the treatment of shared water heater losses for multi-family dwelling units; balanced mechanical ventilation; duct leakage where all ducts are within conditioned space; carbon dioxide index calculations; onsite battery storage; multiple end-use loads; interior shading; reporting of the edition of standard ANSI/RESNET/ICC 301 that rating

calculations are compliant with, and; interpretations issued for ANSI/RESNET/ICC 301-2022… To review the draft addendum click on Draft PDS-01, RESNET/ICC 301-2022 Addendum C-202x, Interim Updates. Click here for more information, to review the draft and to submit comments.

Newsbriefs and Announcements

Builders for Climate Action

Builders for Climate Action, "a grassroots organization born to actively transform our building practices to become climate positive as quickly and intelligently as possible" has created the BEAM Estimator Tool. The BEAM (Building Emissions Accounting for Materials) estimatr helps designers and builders understand the climate impacts of their material choices. Builders need only input their building's dimensions, and BEAM will display the carbon footprint of all the material options in a simple and comparative format. For more information on Builders for Climate Action and the Beam Estimator click here.

U.S. Department of Energy Recognized Home Energy Auditor Qualified Certification Programs for the Energy Efficient Home Improvement Credit (Section 25C)

A home energy audit can provide a roadmap to saving money on energy bills and improving the comfort of a home. Home energy auditor certification programs and professional accreditations provide the baseline education, training, and professional upskilling to implement investments authorized under the Infrastructure Investment and Jobs Act (commonly referred to as the Bipartisan Infrastructure Law) and Inflation Reduction Act. The certification programs reviewed by DOE and serve as a list of qualified Certification Programs that taxpayers can use to claim the Energy Efficient Home Improvement Credit (Section25C) can be found here: https://www.energy.gov/eere/buildings/us-department-energy-recognized-home-energy-auditor-qualified-certification-programs

Ekotrope and RESNET Unveil New Builder Data Solutions that Optimize ESG Reporting and Energy Efficiency Rebate Capture for Builders

Ekotrope has partnered with RESNET to create a new suite of builder data solutions… These solutions allow builders to access the Home Energy Efficiency Rating System (HERS) data submitted to RESNET's registry. This data allows builders to track rebates and incentive capture, measure against corporate sustainability goals, automate key marketing functions, and easily report on ESG metrics—Newswire, [Press Release], Oct. 31, 2023: https://www.pressrelease.com/news/ekotrope-and-resnet-unveil-new-builder-data-solutions-that-optimize-22160366

ENERGY STAR Window Ratings Explained (2023)

Roughly 30% of a home's total energy use is wasted due to heat lost through inefficient windows. To help consumers find the most energy-efficient windows, the U.S. Environmental Protection Agency issues an ENERGY STAR rating on products that meet high efficiency standards. The guide below helps explain this rating and what homeowners can expect from ENERGY STAR windows—

Architectural Digest, Nov. 19, 2023: https://www.architecturaldigest.com/reviews/windows/energy-star-window-ratings

Could Tougher Building Codes Fix Climate Change?
States that adopt updated building codes also could see big savings in energy bills. The Energy Department says one step by states would help the United States reduce future carbon emissions by nearly 2 billion metric tons and cut $180 billion from the country's collective energy bill over 30 years. What's required is for states to force new buildings to meet stronger energy standards that reduce consumption—Thomas Frank & E&E News, *Scientific American*, Nov. 27, 2023: https://www.scientificamerican.com/article/could-tougher-building-codes-fix-climate-change/?ref=upstract.com

Washington State Issues Draft Middle Housing Guidance and Model Codes
The Washington State Department of Commerce has released draft guidance and model codes to implement the state's new middle housing law. The new law will apply to most cities with a population of at least 25,000 residents (and some smaller cities), requiring them to broadly legalize middle housing throughout residential zones. Cities in King, Pierce, Snohomish, and Kitsap Counties will need to be fully compliant with the law by July 2025—Stephen Fester, *The Urbanist*, Nov. 29, 2023: https://www.theurbanist.org/2023/11/29/state-issues-draft-middle-housing-guidance-and-model-codes/

Getting the Job Done: Models for Heat Pump Workforce Development
In the coming years, states will need to expand their skilled workforce in order to meet the increasing demand for heat pumps and other electrification measures, especially as new federal funds become available… To help state decision-makers determine which approaches could work best for them, the Regulatory Assistance Project (RAP) hosted a webinar on Nov. 7, showcasing three different training models for heat pump installers developed by states, academic institutions, and industry. RAP led a roundtable discussion with the panelists, discussing their organizational approaches to workforce training and development, exploring some of the typical challenges they face, and the role of regulators and policymakers—Raphael Breit, Andrew Valainis, Regulatory Assistance Project, Nov. 30, 2023: https://www.raponline.org/blog/getting-the-job-done-insights-on-developing-the-heat-pump-workforce/

Home Performance with ENERGY STAR® to Sunset on December 31, 2024
After 20 successful years of delivering energy improvements to homes across the country, the U.S. Department of Energy will sunset the Home Performance with ENERGY STAR (HPwES) program effective December 31, 2024. This decision was primarily driven by the funding enabled by the Inflation Reduction Act, which is intended to achieve many of the same objectives as the HPwES program—*Insider*, Energy Trust of Oregon, Dec. 8, 2023: https://insider.energytrust.org/home-performance-with-energy-star-to-sunset-on-december-31-2024/?the-program=news

How to Maximize Incentives and Value for Energy-Efficient New Homes
It's no secret that consumer awareness of building performance and indoor air quality has increased significantly in recent years, and many homebuilders across the country have answered

the call… One way of assessing energy efficiency in homes is the Home Energy Rating System (HERS). There has been a 126% increase in the number of HERS-rated homes since 2013, when the Residential Energy Services Network (RESNET) began tracking them as part of its National Buildings Registry—Ryan Meres, *The Builder's Daily Policy*, Dec. 10, 2023: https://www.thebuildersdaily.com/maximizing-incentives-and-value-for-energy-efficient-new-homes/

Northwest Energy Codes

Getting Ready for the Upcoming Building Energy Codes in Oregon and Washington
2023 building energy code updates in Washington and Oregon set the requirements for high-performance construction in 2024 and beyond. Codes are updated to increase health and safety, and improve efficiency, building resiliency, and homeowner comfort, among other reasons.. While adapting to a new code can be daunting, a clear understanding of what is changing can make the transition easier—BetterBuiltNW, Oct. 31, 2023: https://betterbuiltnw.com/assets/uploads/resources/NEEA_TRC_OR-WA-Code-Changes_Case-Study_2023-10-27.pdf

For future reference:

- Idaho Energy Code
- Oregon Energy Code
- Oregon Code Support
- Washington Energy Code
- Washington Residential Energy Code Support

Washington Codes

WA State Building Code Council Votes to Protect Energy Codes and Ensure they are Among the Most Climate & Health Friendly in the Nation
The Washington State Building Code Council (SBCC) voted to adopt amendments to statewide energy codes for new residential and commercial buildings. The codes will go into effect March 15, 2024—Shift Zero, [Press Release], Nov. 28, 2023: Click here to read more.

New Washington State Rules Promoting Heat Pumps Face Pushback
Washington's newly approved building codes no longer mandate electric heat pumps in most new commercial and residential buildings, as was once proposed… Yet they still face pushback from the building industry, which says the rules discriminate against natural gas appliances and threaten to increase the cost of new housing—Melissa Santos, *Axios Seattle*, Dec. 4, 2023: https://www.axios.com/local/seattle/2023/12/04/heat-pumps-building-codes-washington-state

Helpful Resources

Green Buildings Career Map

The Green Buildings Career Map is a highly interactive tool that explores an industry exploding with job opportunities across four major sectors of the green buildings and energy efficiency industry, charting possible progression between those occupations, and identifying the sorts of credentials necessary to do them well. This map includes Home Energy Raters referred to here as Energy Efficiency Technicians (Residential). This engaging map is designed for a broad audience including educators, career-advisors, job seekers, employers, policymakers, and workforce professionals. It demonstrates the breadth of the green buildings and energy efficiency industry, some of its critical occupations, and the multitude of advancement routes (over 300!) between jobs and sectors. Check it out here.

Washington State Department of Commerce Small Businesses Services

Besides focusing on key sectors, business development and export assistance, the Department of Commerce offers a range of small business services designed to meet the diverse needs of Washington's companies, from education and training to business loans, export assistance and crisis planning. Click here to read more on Commerce's programs and resources for developing small businesses in Washington State.

Guidance for Accessory Dwelling Units in Washington State

This publication offers guidance for Washington local governments in implementing HB 1337 (laws of 2023) and encourages the creation of new accessory dwelling units (ADUs)—Washington State Department of Commerce, Growth Management Services, Sept. 2023: https://www.ezview.wa.gov/Portals/_1976/Documents/adu-examples/Commerce%20Final%20ADU%20Guidance%202023.pdf

Training Opportunities

WSU Energy Program Trainings

Watch for upcoming training announcements arriving in your emails and keep your eye on our training page for news of upcoming events.

BetterBuiltNW On-Demand Courses

BetterBuiltNW offers online trainings across a wide spectrum of building science topic areas and energy performance levels -- available anytime and at your own pace. For more information access the BetterBuiltNW Online training portal here.

Earth Advantage

Earth Advantage offers on-demand online, professional accreditation, and live scheduled trainings to support the building and real estate industries and to advance high performance construction practices. Click here for more information.

Energy Trust of Oregon
The Energy Trust of Oregon offers trainings, events and news for Trade and Program Allies for Residential SW Washington and Oregon. Click on: Insider: Exclusive News for Trade and Program Allies. Note the Residential tab which lists links for information on residential programs offered. Also note on the same opening page, the tab Resources under which Training opportunities are located.

ENERGY STAR Residential New Construction webinars

- ENERGY STAR and Indoor airPlus Certification Process – Jan. 19, 2024

Click here for more information and to register.

Sustainable Homes Professional (SHP) Online Training
Sustainable Homes Professional (SHP) is an in-depth, interactive, and field-tested online training program for industry professionals who are looking to take their residential projects and building craft to the next level of quality. Previously an 84-hour in-person training, the SHP training program was redesigned into a condensed, self-paced online format. Click here for more information.

Conferences and Events

NAHB International Builders' Show 2024, February 27-29, Las Vegas
The NAHB International Builders' Show® (IBS) connects, educates and improves the residential construction industry. Discover thousands of new products, explore the latest industry trends, and stay up to date with the industry at the annual NAHB International Builder's Show. Take advantage of early registration by January 5. For more information and to register see: https://www.buildersshow.com/september-deals?utm_id=ibs24_attendee_conversion&utm_source=higher_logic&utm_medium=email&utm_term=non-member&utm_content=em24061-2701&utm_campaign=ibs24_attendee_conversion

2024 National Home Performance Conference & Trade Show April 8 - 11, Minneapolis, MN
The 2024 National Home Performance Conference & Trade Show will be held in Minneapolis, MN in April of 2024. Each year, this event brings together contractors, weatherization professionals, trainers, program administrators, energy auditors, and others working in residential energy efficiency for the latest developments and education in the industry. Sign up today for four days of educational sessions, CEU opportunities and networking and trade show you will not want to miss. Early conference registration available until March 7, 2024. Click here for more information and to register.

2024 National Energy Codes Pre-conference and Conference, May 6-8: Sacramento, CA
Annual event feauturing engaging set of topics, educational sessios, and networking opportunities for energy code users and

participants of all types. Stay tuned here for registration, lodging, topic postings and more.

Technical Q&As Answered

2018-2021 Washington State Energy Code-Residential FAQs: Slabs & Below-Grade Walls: Prescriptive Path

How are prescriptive requirements used in WSEC-R?

Both the 2018 and 2021 versions of the WSEC-R define standard prescriptive building assemblies that meet baseline energy code requirements (refer to Table R402.1.1 of 2018 WSEC-R and Table R402.1.3 of 2021 WSEC-R.) These typical constructions were defined for convenience in meeting code requirements. That is, if you follow the prescriptive assembly you do not necessarily need to worry about determining the F-factor of your slab or the U-factors of the other building components. Your submittals are simpler and require less review.

What are prescriptive slab insulation requirements for an *unheated* on-grade slab?

In 2018 WSEC-R, the prescriptive requirement for insulating an unheated above-grade slab is given as:

Slab[d,f] R-Value & Depth	10, 2 ft

This means a minimum of R-10 insulation is required around the slab perimeter, per Section R402.2.9. It may be placed on either the outside or the inside of the foundation wall. It must extend downward from the top of the slab a minimum of 2 feet or to the top of the footing, whichever is less, or downward to at least the bottom of the slab and then horizontally to the interior or exterior for a total distance of 2 feet.

In 2021 WSEC-R, this requirement has been increased from 2 feet to 4 feet with all else being unchanged:

Slab[d,f] *R*-Value and Depth	10, 4 ft.

There are a number of ways to install this perimeter insulation following this description, depending on the details of your slab and the options you choose, as illustrated in Figure 1. Referring to Figure 1, here are a number of other tips and observations to keep in mind:

- In cases (a) and (e), a practical consideration is protecting the top edge of the insulation at the edge of the slab on the interior, as well as attaching flooring materials at the edge. WSEC-R allows a maximum 2”x2” pressure-treated nailer to be installed at the finished floor elevation for attachment interior finish materials. (Other strategies for protecting the top edge of the insulation are discussed in the full version of this FAQ available on our website.)

- In cases (b), (c) and (d), some of the insulation installed vertically on the exterior of the foundation is likely to be exposed above-grade. It is important that this exposed

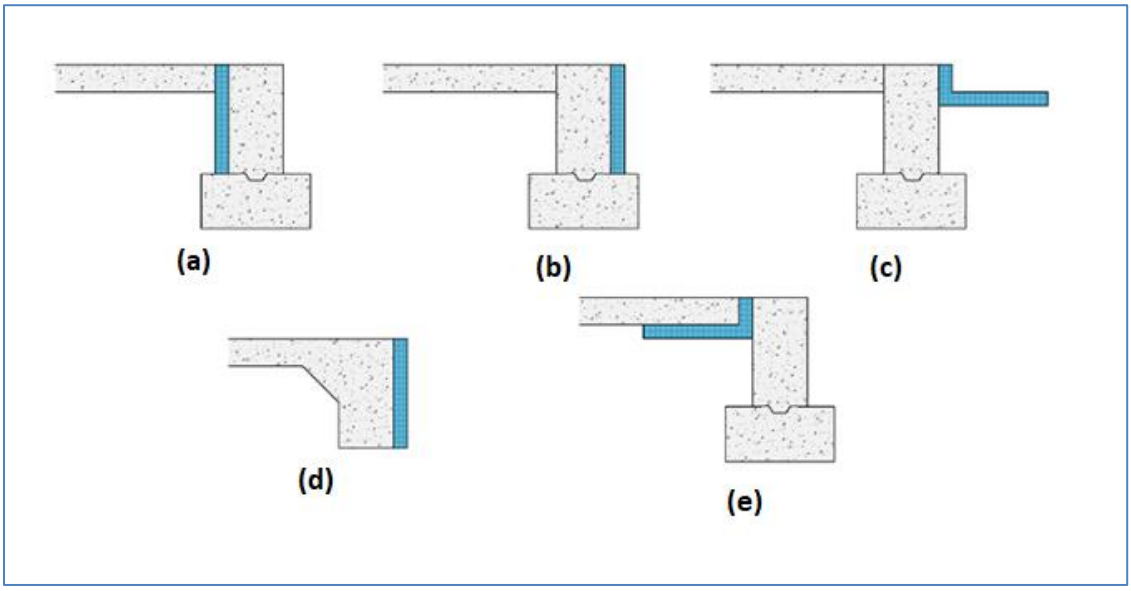
insulation is properly protected with metal flashing, a parge coat or other exterior rated trowel-on architectural coating, or other durable material rated for exterior exposure. Also the top of the insulation must be flashed with Z-flashing that extends up under the water-resistant barrier (WRB) under the siding material and down over the insulation's protective material. Best practice is to tape the top edge of the Z-flashing with a peel and stick flashing tape.

- In case (c), the horizontal insulation extends out from the building. Notice this section of insulation must be deep enough that its top surface is at or below the bottom elevation of the slab. Also, the insulation extending out must be protected by either pavement or at least 10 inches of soil, per Section R402.2.9.

- Case (e) has insulation beneath the slab. Note insulation underneath the slab allowable in WSEC-R for residential buildings, but not in ASHRAE Standard 90.1, which is applicable to commercial buildings.

- The increased length requirement in 2021 WSEC-R only impacts cases (c) and (e) with horizontal sections of insulation because 2021 WSEC-R retains the verbiage allow the insulation to extend only to the top of the footing.

Figure 1. Schematics of acceptable locations for perimeter insulation of unheated on-grade slabs under WSEC-R per Section R402.2.9. (Not all details are shown in these schematics)



Adapted from Overbey to conform with 2018 WSEC-R[1]

[1] Figure 1 is adapted from "Clarifying Slab-on-Grade Insulation in ASHRAE Standard 90.1" by Daniel Overbey, Building Enclosure, https://www.buildingenclosureonline.com/blogs/14-the-be-blog/post/88188-clarifying-slab-on-grade-insulation-in-ashrae-standard-901.

What are prescriptive requirements for a *heated* on-grade slab?

Footnote d modifies the prescriptive requirement for on-grade slabs if the slab is heated, such as with radiant hot water coils or electric resistance heat mats:

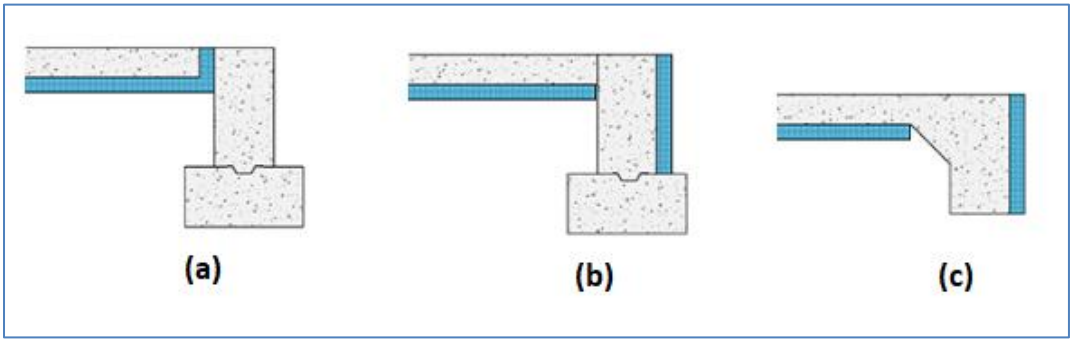
> d. R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.

Heated on-grade slabs must be fully insulated under the entire slab with R-10 insulation minimum, in addition to insulating the perimeter, as shown in Figure 2. Referring to Figure 2, here are a number of other tips and observations to keep in mind:

- In case (a), a practical consideration is protecting the top edge of the insulation at the edge of the slab on the interior, as well as attaching flooring materials at the edge. (Other strategies for protecting the top edge of the insulation are discussed in the full version of this FAQ available on our website.)

- In cases (b) and (c) in Figure 2, some of the insulation installed vertically on the exterior of the foundation is likely exposed above-grade. The top and exposed sides of this insulation must be protected in the same manner as similar cases for an unheated slab above.

Figure 2. Schematics of acceptable locations for perimeter insulation of heated on-grade slabs under WSEC-R per Section R402.2.9. (Not all details are shown in these schematics)



- Other strategies for protecting the top edge of the insulation are discussed in a following question and are illustrated in Figures xx to xx.

- In cases (b) and (c) in Figure 2, some of the insulation installed vertically on the exterior of the foundation is likely exposed above-grade. The top and exposed sides of this insulation must be protected in the same manner as similar cases for an unheated slab above.

To read the full ***2018-2021 Washington State Energy Code-Residential FAQs: Slabs & Below-Grade Walls: Prescriptive Path FAQ*** and view additional WSU Energy Code FAQs: Click here.

Your WSU Energy Program Provider Team
Jonathan Jones, Gary Kaufman, and Anne Whitney
can all be reached via email at: NWrater@energy.wsu.edu
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