

I-2066 and 2021 WSEC-Residential Code Conflicts and Solutions

Problem

With the passage of Initiative 2066 and inaction from the Washington State Building Code Council to bring the 2021 Washington State Energy Code (WSEC) into compliance with new state law, the burden will now fall on local jurisdictions. Failure to make changes that correct the discouragement of natural gas in the 2021 WSEC may place jurisdictions at risk of legal action.

Background

Three code compliance options exist in the code's body. However, two are functionally ineffective.

R405 Total Building Performance

- Code reference home requirements move with the proposed home. Moving the goalpost ensures this pathway won't be utilized.
- According to WSU Energy, this pathway is so underutilized that they don't offer code training to comply.

R407 Certified Passive House

- According to the [Phius Certified Project Database](#), only 58 homes are certified Passive House in Washington.

R406 Prescriptive Compliance

- Only workable option for compliance.

Requirements

Each housing unit built must meet a certain number of energy credits to comply with the energy code.

Based on unit size, the credits required are listed below:

- Small Housing Unit (1,499 or less sq. ft.) = 5 credits
- Medium Housing Unit (1,500 – 4,999 sq. ft.) = 8 credits
- Large Housing Unit (5,000+ sq. ft.) = 9 credits
- Additions (150 – 500 sq. ft.) = 2 credits

All credits required must be achieved through two tables:

1. Must choose one option in Table R406.2 – selection of system type based on fuel type and associated carbon emission factors using Table R406.3.
2. The remainder of credits must come from Table R406.3 – envelope, air leakage, ventilation, HVAC equipment options based on system type selected in R406.2, HVAC distribution, water heating, renewable electric energy, and/or appliance package).

It's important to pay attention to footnotes to ensure the credits you're selecting in each segment of the table in R406.3 can be claimed.

Sections violating state law, effective December 5

- R403.1.2 Heat pump supplementary heat
- R403.5 Service hot water systems – *points to C404, list below is not exhaustive of possible commercial code issues*
 - C404.2 Service water-heating equipment performance efficiency
 - C404.2.1 Service water heating system type
 - C404.2.1.1 Primary heat pump system sizing
 - C404.2.1.3 System design
 - C404.2.1.4 Supplemental water heating
 - C404.5 Water heater installation
 - Table C404.2 Minimum performance of water heating equipment
- R403.5.7 Supplementary heat for heat pump water heating systems
- R406.2 Carbon emission equalization
- Tabel R406.2 – Energy equalization credits
- Table R406.3 – Energy credits
 - Table R406.3.3.1 through R406.3.3.11
 - Table R406.3.5.1 through R406.3.5.8
 - Table R406.3.6.1
 - Table R406.3.7.1
- *All the following sections reference R403 which points to C404. Please see above for issues.*
 - R502.3.2 Heating and cooling systems
 - R502.3.3 Service hot water systems
 - R503.1.2 Heating and cooling systems
 - R503.1.3 Service hot water systems

Solutions

Local jurisdictions have discretionary authority and a responsibility to uphold state law as it evolves.

Jurisdictions possess the discretion to allow alternative means and methods per R102.1 and R103.1 without assuming liability per R112.

R102.1 General. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. The code official shall have the authority to approve an alternate material, design or method of construction upon the written application of the owner or the owner's authorized agent. The code official shall first find that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code for strength, effectiveness, fire resistance, durability, energy efficiency and safety. The code official shall respond in writing, stating the reasons why the alternative was approved or was not approved.

R103.1 General. Construction documents, technical reports, and other supporting data shall be submitted in one or more sets, or in a digital format where allowed by the code official, with each application for a permit. The construction documents and technical reports shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the code official is authorized to require necessary construction documents to be prepared by a registered design professional.

Exception: The code official is authorized to waive the requirements for construction documents or other supporting data if the code official determines they are not necessary to confirm compliance with this code.

An easier solution than approving alternatives on a case-by-case basis is authorizing compliance mechanisms using performance measures with tools/software approved by the building official.

Total Building Performance Alternative

The purpose of this document is to provide jurisdictional solutions for applying Section R405 from the 2021 Washington State Energy Code – Residential (WSEC-R). This document serves as guiding instructions to illustrate compliance. The basis for this program is the Alternative Materials, Design and Methods of Construction and Equipment provisions as outlined in WSEC-R Section R102.

By using *approved* software, the design of a home can demonstrate it meets or exceeds energy-use reduction targets. Using an Energy Rating Index (ERI) as referenced in the 2021 International Energy Conservation Code can satisfy – and even surpass – the requirements of the 2021 WSEC-R.

As recognized in the 2021 International Energy Conservation Code, the Energy Rating Index Compliance (ERI) Alternative provides an additional avenue for code compliance. Several jurisdictions in Washington have already utilized this methodology as an option for compliance.

ERI Score Needed:

- Climate Zone 4 → **54**
- Climate Zone 5 → **55**

ERI-based compliance shall be determined in accordance with RESNET/ICC 301.

If the Total Building Performance Alternative is being proposed without additional energy credits per WSEC-R Section R405, the following steps must be taken to illustrate compliance:

1. The applicant shall engage with an *approved* third-party consultant that is also certified through International Code Council (ICC) as Residential Energy Inspector/Plans Examiner.
2. The third-party consultant will utilize an *approved* software that can generate a report to demonstrate the home meets or exceeds the ERI value from the table below. This report is required to be submitted for permit plan review.
3. Once the report is accepted during the plan review process it will be issued with the approved building permit.
4. The third-party consultant will perform the following inspections and provide the following reports to the applicant. The applicant shall be responsible for providing

documentation to the Permit Center of the permitting agency and ensuring that it is made available on-site for reference by building inspection staff.

Air Seal Inspection

To be conducted after all penetrations in framing and building envelope have been sealed.

- Will provide written corrections and recommendations per field inspections; final inspection results will be posted on commissioning sticker on or reasonably near the building electrical panel. (move to after window and door Inspection – usually done with final inspection)

Insulation Inspection

To be conducted after air seal, before drywall/interior wall finishes.

- Will provide written corrections and recommendations per field inspections; final inspection results will be posted on commissioning sticker on or reasonably near the building electrical panel. (First of two field inspections)

Windows and Doors inspection

To be conducted after installation, prior to removal of U-Value identifiers.

- Will provide written corrections and recommendations per field inspections; final inspection results will be posted on commissioning sticker on electrical panel. (Usually done with insulation inspection)

Final Inspection(s) and Testing (Final field inspection)

- Inspect structure when permanent doors are installed, mechanical systems and equipment are fully functional, attic and crawlspace insulation is installed, and appliances installed.
- Perform blower door test, duct test, and mechanical system balance. Final inspections results will be posted on commissioning sticker on electrical panel. This test can be done by a separate contractor/consultant and would provide the results to third-party special inspector for inclusion in their final report.
- Home will then be modeled/certified, documentation shall be provided at time of building permit final inspection or prior to the issuance of a Certificate of Occupancy.





ACKNOWLEDGEMENT FORM 2021 WSEC-R Total Building Performance Alternative

The referenced project requires special plans examination and/or special inspection in accordance with the simulated design and Washington State Energy Code – Residential Provisions (WSEC-R). This document is not intended to address all aspects or regulatory requirements for a project and should serve as a starting point for your investigation.

For detailed information on a particular project, permit, or code requirement refer directly to the applicable file and/or code/regulatory documents, and the requirements of the WSEC-R Chapters 1-5 or contact the appropriate Department or staff.

Please acknowledge below and return to the Authority Having Jurisdiction. This form is required to be submitted at time of permit submittal.

If separate agencies/individuals are performing the Total Building Performance Alternative modeling and inspection services, separate forms will be required.

Date:	
Project Address:	
Project Name:	
Project Owner:	Phone:
SPE/SI/Utility/Etc.:	Phone:
Address:	
Contact Name:	Phone:



STATEMENT OF UNDERSTANDING 2021 WSEC-R Total Building Performance Alternative

We hereby acknowledge that we have been engaged with _____
for the purposes of conducting the Total Building Performance Alternative modeling
services and field inspection on the referenced project pursuant to the provisions of the
Washington State Energy Code - Residential, as it relates to the above stated project.

We are aware that as an energy code reviewer/inspection agent, duties and
responsibilities as set forth in this program shall be facilitated (check applicable):

- Prepare and submit plan documents.
- Third-Party inspection, observation, and approval of work.

All discrepancies shall be brought to the immediate attention of the designer/contractor for
correction. If uncorrected, the proper design authority and Building Official will be notified.
Any work identified as not being in conformance is required to be brought into conformance, as
is acceptable to the special inspector.

In addition, a final signed report is required to be submitted prior to the issuance of a Certificate
of Occupancy. This report must state that all required inspections of the work and the project
have been completed in conformance with the approved plans and specifications, and that the
applicable provisions of the Washington State Energy Code – Residential and all known
corrections have been made.

SIGNATURES

SPE/SI/Utility: _____ Date: _____

Certification No.: _____ Date: _____

Owner: _____ Date: _____

Architect: _____ Date: _____

Contractor: _____ Date: _____