



DEPARTMENT OF COMMUNITY DEVELOPMENT

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2021 Washington State Energy Code (WSEC) Residential

Beginning March 15th of 2024

Scope of Residential Provisions

The definition of *Residential Building* has been modified, which changes scope of code. Now Group R-2 (apartment) buildings with dwelling units accessed from interior corridors (regardless of height) are now subject to commercial provisions of the energy code. *R202.18-R & R401.1*

The following listed changes apply to *Residential Buildings*, including single family homes, duplexes, townhouses, and Group R-2 (apartment) buildings three stories or less in height with units accessed from the building exterior.

General

- Sections in Chapter 1 are reordered (and renumbered) for consistency with other I-Codes.
- Allowance for insulation certificate to demonstrate R-value when insulating materials are installed without observable markings. *R303.1.2*
- Certificate requirements numbered for clarity and solar array information and code edition and compliance path requirements added. *R401.3*

Building Envelope and Air Leakage

- The U-factor is established as the primary insulation metric, with R-value as an alternative. The tables were reordered to reflect this, with U-factor table first. *Tables R402.1.2 and R402.1.3*
- The ceiling U-factor has decreased to 0.024 (from 0.026). *Table R402.1.2*
- The ceiling R-value has increased to R-60 (from R-49). *Table R402.1.3*
- The wood frame wall R-value has been modified to require continuous insulation in addition to cavity insulation. The two prescriptive compliance options are 1) R-20 cavity plus R-5 continuous, or 2) R-13 cavity plus R-10 continuous. *Table R402.1.3*
- Air leakage rate reduced to:
 - 4.0 air changes per hour (ACH) maximum (from 5.0 ACH) for IRC buildings. *R402.4.1.3.1*
 - 0.25 cfm per square foot of the dwelling unit area maximum for R-2 units. *R402.4.1.3.2*
- New requirement for outlet boxes to be listed for maximum air leakage when installed in building thermal envelope. *R402.4.6*

HVAC and Water Heating

- The three possible duct locations (outside conditioned space, in conditioned space and buried) are clarified and the insulation requirements for each are modified. *R403.3*
- Protection of piping insulation from “equipment maintenance” language clarified. *R403.4.1*

2021 WSEC Residential Significant Changes, continued

- Water heaters must be installed in conditioned space, except for highly efficiency water heaters. *R403.5.5*
- Water heaters must be heat pump type, with some exceptions and requirements for supplemental water heating systems. *R403.5.7*
- New section requiring that the mechanical ventilation be tested and verified to meet the minimum flow rate requirements. *R403.6.2*
- New section requires that space heating be provided by a heat pump—either gas or electric— as a method to reduce greenhouse gas emissions and save energy. There are exceptions for dwellings with small heating loads and allowances for supplementary heating. *R403.13*

Lighting

- Exterior lighting must meet the power allowances in the commercial provisions. *R404.1.1*
- Interior lighting must now be controlled by dimmers, occupant sensor controls, or built-in fixture controls. Exterior lighting over 30 watts must be provided with automatic controls to turn off during daylight hours. *R404.2 & R404.3*

Additional Energy Efficiency Credits

- Fuel normalization table credits adjusted. Supplementary heating now considered in heating system type. *Table R406.2*
- Required number of additional energy efficiency credits reduced in most cases. Most additions increased to require 2.0 credits (from 1.5), however, the code now exempts additions less than 150 square feet from obtaining credits. *R406.3*
- Table R406.3 extensively revised. Each 0.5 credit is equivalent to a 600 kWh energy savings. Some options were eliminated since they are now a part of the base code requirements.

Existing Buildings

- Small additions (less than 150 ft²) are exempted from the requirement to obtain additional energy efficiency credits in Section R406. *R502.1.1*
- When additions over 150 square feet adjoin existing attic spaces, the existing attic space needs to be insulated to current R402 requirements and insulation values. *R502.3.1.1*
- New exception added to state that replacement heating equipment is not required to comply with the heat pump requirement as long as it does not exceed the heating capacity of the equipment being replaced. *R503.1.2 Exception 3*
- An exception was added to state that replacement water heating equipment is not required to comply with the heat pump requirement as long as it does not exceed the heating capacity of the equipment being replaced. *R503.1.3 Exception 2*
- An exception was added to state that replacement water heating equipment is not required to be moved to within the conditioned space. *R503.1.3 Exception 1*
- The threshold for lighting to comply with Section R404.1 was decreased from 50% replacement to 10% replacement. *R503.1.4 Exception*