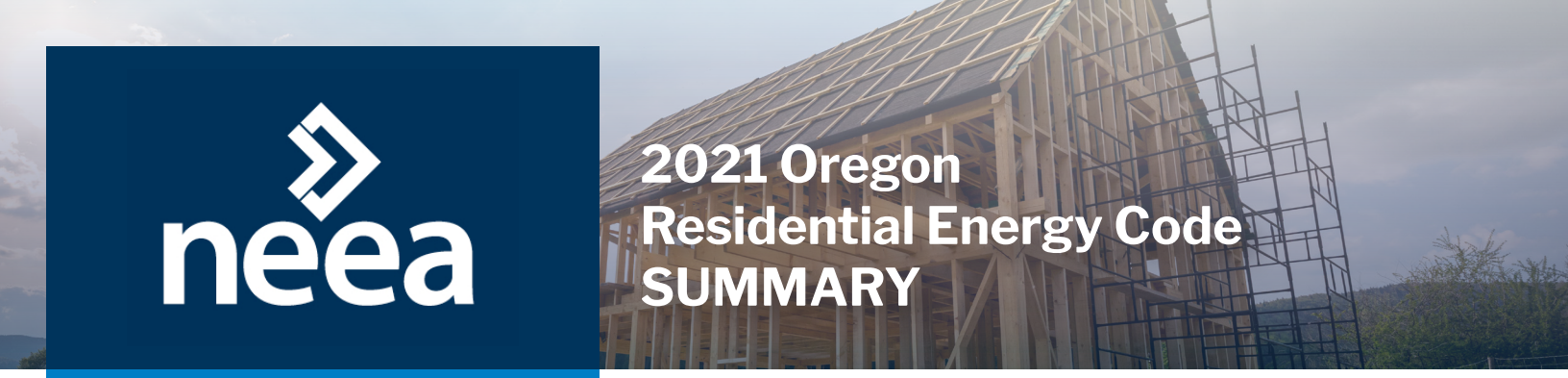


2021 Oregon Residential Energy Code SUMMARY

On April 1, 2021 the Oregon Division of Codes and Standards adopted the 2021 Oregon Residential Specialty Code (ORSC) that will become mandatory on October 1, 2021. This document provides an overview of the significant changes to the energy code. It also provides resource links to the new code and available training.*

This overview covers four main areas affected by the code update:

Envelope Changes

Ventilation Changes

Mechanical Changes

Additional Measures

**This information is intended as an overview and is not a comprehensive listing.*

For the complete code changes visit Oregon Codes & Standards:

https://www.oregon.gov/bcd/codes-stand/code-adoption/Pages/2020-orsc-adoption.aspx

See the following pages for more information and links to resources and trainings.

Envelope Changes

All windows will require U = 0.27 or lower.

Slab edge perimeter requires R-15 insulation at a minimum of 24" horizontal or vertical below grade.

Must air seal the building shell according to air barrier criteria (Table 1104.8)^ **OR** demonstrate air leakage of not more than 4.0 ACH50 with a blower door test.

Must air seal between the top plate and interior wall covering where the wall contacts with vented attics.

^*See page 3 for Air Barrier Criteria table*

Ventilation Changes

Balanced whole house ventilation systems are required. Local exhaust or supply fans are permitted to serve as part of such a system. A supply fan ducted to the return side of an air handler can serve as the supply ventilation for the balance of the system.

All exhaust fans are required to be ENERGY STAR® rated.

Timer, de-humidistat, or other automatic controls required on all exhaust fans including half-baths.

Recirculating kitchen hoods allowed if 20 cfm continuous exhaust somewhere in the home and a natural ventilation opening is provided.

Makeup air dampers must be gravity or electrically operated to open when the exhaust system operates.

Mechanical Changes

HVAC systems and ducts must be located in conditioned space. Alternatively, R-8 insulated ducts may be deeply buried under a minimum of R-19 insulation.

Tapes shall not be used to seal metal ducts. Mastic is required - exceptions allowed at equipment requiring future replacement.

Water supply lines must be insulated to R-3 for 8 ft. in and 8 ft. out of water heating systems.

New central furnaces must have electrically commutated motors.

Additional Measures

All conditioned spaces within residential buildings must comply with one additional measure. (see Table N1101.1(2) below)

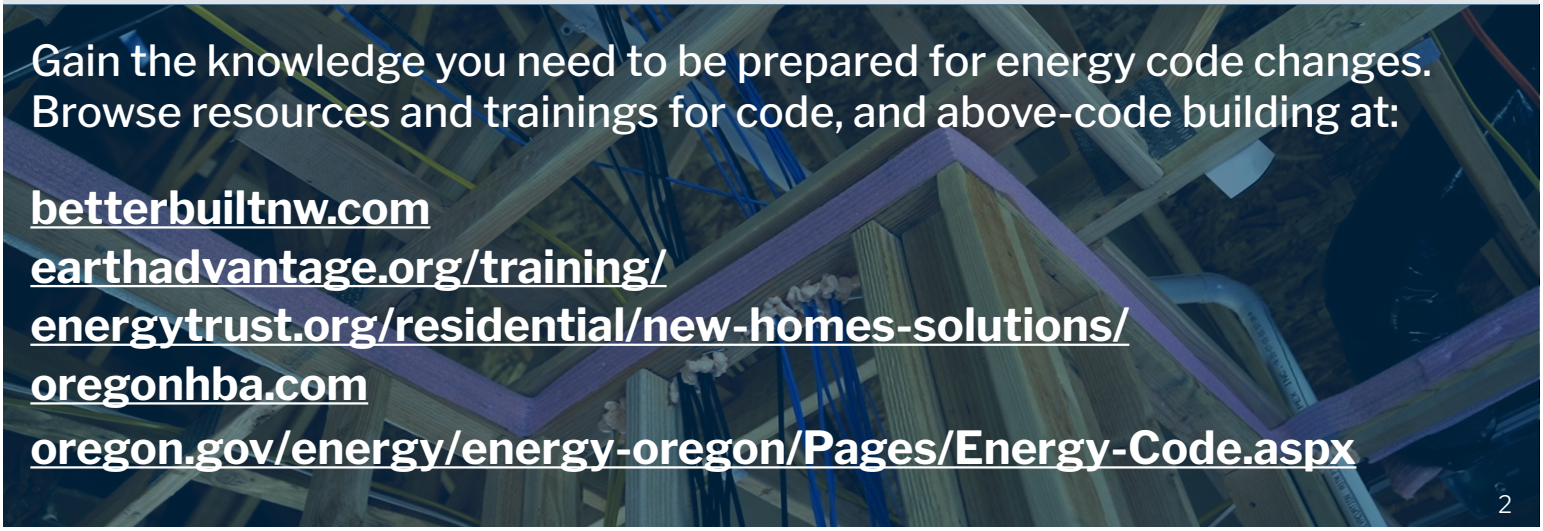
1	**High Efficiency HVAC System** a. Gas-fire furnace or boiler AFUE 94% or b. Air source heat pumpp HSPF 10.0/14.0 SEER cooling, or c. Ground source heat pump COP 3.5 or ENERGY STAR rated.
2	**High Efficiency Water Heating System** a. Natural gas/propane water heater with minimum UEF 0.90, or b. Electric heat pump water heater with minimum 2.0 COP, or c. Natural gas/propane tankless/instantaneous heater with minimum 0.80 UEF and drain water heat recovery unit installed on minimum of one shower/tub-shower.
3	**Wall Insulation Upgrade** a. Exterior walls - U-0.045/R-21 conventional framing with R-5 continuous insulation.
4	**Advanced Envelope** a. Windows--U-0.21 (Area weighted average), and Flat ceiling--U-0.017/R-60, and Framed floors--U-0.26/R-38 or slab edge insulation to F-0.48 or less (R-10 for 48"; R-15 for 36" or R-5 fully insulated slab).
5	**Ductless Heat Pump** *For dwelling units with all electric heat provide:* Ductless heat pump of minimum HSPF 10 in primary zone replaces zonal electric heat sources, and programmable thermostat for all heaters in bedrooms.
6	**High Efficiency Thermal Envelope UA** Proposed UA is 8% lower than the code UA.
7	**Glazing Area** Glazing area, measures as the total of the framed openings is less than 12 percent of the conditioned floor area.
8	**3 ACH Air Leakage Control & Efficient Ventilation** Achieve a maximum of 3.0 ACH50 whole house air leakage when third party tested and provide a whole house ventilation system including heat recovery with minimum sensible heat recovery efficiency of not less than 66 percent.

For SI: 1 square foot = 0.093 m^2, 1 watt per square foot = 10.8 W/m^2

a. Appliances located within the building thermal envelope shall have sealed combustion air installed. Combustion air shall be ducted directly from the outdoors.

b. The maximum vualted celing surface area shall not be greater than 50 percent of the total heated space floor area unless vaulted area has a U-factor no greater than U-0.026.

c. In accordance with Table N1104.1(1) the Proposed UA total of the Proposed Alternative Design shall be a minimum of 8% less than the Code UA total fof the Standard Base Case.



Shell Changes
Air barrier criteria (Table 1104.8)

COMPONENT	AIR BARRIER CRITERIA
General Requirements	A continuous air barrier shall be installed in alignment with the building thermal envelope. Breaks or joints in the air barrier shall be sealed.
Ceiling/Attic	The air barrier in any dropped ceiling or soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs, or knee wall doors to unconditioned attic spaces shall be gasketed and sealed.
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of interior walls shall be sealed between wall cavities and windows or door frames. All penetrations or utility services through the top and bottom plates. Knee walls shall be sealed.
Windows, Skylights, and Doors	The space between framing and skylights, and the jambs of windows and doors shall be sealed.
Rim/Band Joists	Rim/band joists shall be a part of the thermal envelope and have a continuous air barrier.
Floors (including cantilevered floors, and floors above garages)	The air barrier shall be installed at any exposed edge of insulation.
Crawl Space Walls	Exposed earth in unvented crawl spaces shall be covered with a Class 1 vapor retarder with overlapping joints.
Shafts, Penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.
Garage Separation	Air sealing shall be provided between the garage and conditioned spaces.
Recessed Lighting	Recessed light fixtures installed in the building thermal envelope shall be sealed to the finished surface.
Shower/Tub on Exterior Walls	The air barrier installed at exterior walls adjacent to showers and tubs shall separate the wall from the shower or tub.
Electrical/Phone Box on Exterior Walls	The air barrier shall be installed behind electrical and communication boxes. Alternatively, air sealed boxes shall be installed.
HVAC Register Boots	HVAC supply and return register boots that penetrate building thermal enveloope shall be sealed to the subfloor, wall covering or ceiling penetrated by the boot.