

RESIDENTIAL ENERGY FORM



NORTHWEST CODE
PROFESSIONALS

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RESIDENTIAL INFORMATION

Date:

Building permit number:

Owner's name:

Job address:

City:

State:

ZIP:

INSTRUCTIONS

Select the type of construction. If the project is an addition, select the applicable addition type and enter the selected measures accordingly; print and sign your name. Submit this form with your permit application or your project will be placed on hold until the required information is provided. (Code Reference: **2023** Oregon Residential Specialty Code)

New construction. All conditioned spaces within residential buildings shall comply with Table N1101.1(1) and one additional measure from Table N1101.1(2).

Additions. Additions to existing buildings or structures may be made without making the entire building or structure comply if the new additions comply with the requirements of this chapter. [See ORSC Section N1101.3]

Large additions. Additions that are equal to or more than 600 square feet in area are required to select one measure from Table N1101.1(2).

Enter the selected Table N1101.1(2) additional measure _____

Small additions. Additions that are less than 600 square feet in area are required to select **one** measure from Table N1101.1(2) **or** select **one** measure from Table N1101.3.

Selected Table N1101.1(2) additional measure _____

or Selected Table N1101.3.2 additional measure _____

Exception: Additions that are less than 225 square feet in area are not required to comply with Table N1101.1(2) or Table N1101.3.2

For reference Tables N1101.1(2) and N1101.3.2 are included in this form below.

Note: Depending on the additional measure you have selected, there may be sub-options that you will have to specify. Check the appropriate box, if provided.

Applicant's printed name: _____ Applicant's signature: _____

**TABLE N1101.1(2)
ADDITIONAL MEASURES**

MEASURE NUMBER	MEASURE DESCRIPTION
1	HIGH-EFFICIENCY HVAC SYSTEM^a a. Gas-fired furnace or boiler AFUE 94 percent, or b. Air source heat pump HSPF 10.0/14.0 SEER cooling or 8.5 HSPF2 / 15.0 SEER2, 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 0.90 UEF, or b. Electric heat pump water heater with minimum 3.45 UEF, or c. Natural gas/propane tankless/instantaneous heater with minimum 0.80 UEF and drain water heat recovery unit installed on a minimum of one shower/tub-shower
3	WALL INSULATION UPGRADE Exterior walls—U-0.045/R-21 conventional framing with R-5.0 continuous insulation
4	ADVANCED ENVELOPE Windows—U-0.21 (Area-weighted average), and Flat ceiling ^b —U-0.017/R-60, and Framed floors—U-0.026/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 (Dwelling units with all-electric heat) a. Provide ductless heat pump of minimum HSPF 10.0 or HSPF2 9.0 in primary zone replaces zonal electric heat sources, and b. Provide programmable thermostat for all heaters in bedrooms
6	HIGH-EFFICIENCY THERMAL ENVELOPE UA^c Proposed UA is 8 percent lower than the code UA
7	2.75 ACH AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION Achieve a maximum of 2.75 ACH50 whole-house air leakage when third-party tested and provide a whole-house ventilation system, including heat recovery with a minimum sensible heat recovery efficiency of not less than 66 percent and total fan efficacy of 1.6 CFM/Watt (combined input for supply and exhaust).

For SI: 1 square foot = 0.093 m², 1 watt per square foot = 10.8 W/m².

- 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 vaulted ceiling surface area shall not be greater than 50 percent of the total heated space floor area unless vaulted area has a U-factor not 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 8 percent less than the Code UA total of the Standard Base Case.

**TABLE N1101.3
SMALL ADDITION ADDITIONAL MEASURES (select one)**

MEASURE NUMBER	MEASURE DESCRIPTION
1	Increase the ceiling insulation of the existing portion of the home as specified in Table N1101.2.
2	Replace all existing single-pane wood or aluminum windows to the U-factor as specified in Table N1101.2.
3	Insulate the existing floor, crawl space or basement wall systems as specified in Table N1101.2 and install 100 percent of permanently installed lighting fixtures as CFL, LED or linear fluorescent, or a minimum efficacy of 40 lumens per watt as specified in Section N1107.2.
4	Test the entire dwelling with a blower door and exhibit not more than 4.5 air changes per hour @ 50 Pascals.
5	Seal and performance test the duct system.
6	Replace existing 80-percent AFUE or less gas furnace with a 94-percent AFUE or greater system.
7	Replace existing electric radiant space heaters with a ductless mini split system with a minimum HSPF of 10.0 or HSPF2 of 9.0.
8	Replace existing electric forced-air furnace with an air source heat pump with a minimum HSPF of 9.5 or HSPF2 of 8.1.
9	Replace existing water heater with one of the following: a. Natural gas/propane water heater with minimum UEF 0.90, or b. Electric heat pump water heater with minimum 3.45 UEF.

Reference tables out of the ORSC for convenience:

**TABLE N1101.1(1)
PRESCRIPTIVE ENVELOPE REQUIREMENTS^a**

BUILDING COMPONENT	STANDARD BASE CASE		LOG HOMES ONLY	
	Required Performance	Equivalent Value ^b	Required Performance	Equivalent Value ^b
Wall insulation—above grade	U-0.059 ^c	R-21 Intermediate ^c	Note d	Note d
Wall insulation—below grade ^e	C-0.063	R-15 c.i. / R-21	C-0.063	R-15/R-21
Flat ceilings ^f	U-0.021	R-49	U-0.020	R-49A ^h
Vaulted ceilings ^g	U-0.033	R-30 Rafter or R-30A ^{g, h} Scissor Truss	U-0.027	R-38A ^h
Underfloors	U-0.033	R-30	U-0.033	R-30
Slab-edge perimeter ^l	F-0.520	R-15	F-0.520	R-15
Heated slab interior ⁱ	N/A	R-10	N/A	R-10
Windows ^j	U-0.27	U-0.27	U-0.27	U-0.27
Skylights	U-0.50	U-0.50	U-0.50	U-0.50
Exterior doors ^k	U-0.20	U-0.20	U-0.54	U-0.54

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m², 1 degree = 0.0175 rad,
N/A = Not Applicable.

- a. As allowed in Section N1104.1, thermal performance of a component may be adjusted, provided that overall heat loss does not exceed the total resulting from conformance to the required *U*-factor standards. Calculations to document equivalent heat loss shall be performed using the procedure and approved *U*-factors contained in Table N1104.1(1).
- b. *R*-values used in this table are nominal for the insulation only in standard wood-framed construction and not for the entire assembly.
- c. Wall insulation requirements apply to all exterior wood-framed, concrete or masonry walls that are above grade. This includes cripple walls and rim joist areas. Nominal compliance with R-21 insulation and Intermediate Framing (Section N1104.5.2) with insulated headers.
- d. The wall component shall be a minimum solid log or timber wall thickness of 3½ inches.
- e. Below-grade wood, concrete or masonry walls include all walls that are below grade and do not include those portions of such wall that extend more than 24 inches above grade. R-21 for insulation in framed cavity; R-15 continuous insulation.
- f. Insulation levels for ceilings that have limited attic/rafter depth such as dormers, bay windows or similar architectural features totaling not more than 150 square feet in area may be reduced to not less than R-21. Where reduced, the cavity shall be filled (except for required ventilation spaces). R-49 insulation installed to minimum 6-inch depth at top plate at exterior of structure to achieve *U*-factor.
- g. Vaulted ceiling surface area exceeding 50 percent of the total heated space floor area shall have a *U*-factor not greater than U-0.026 (equivalent to R-38 rafter or scissor truss with R-38 advanced framing).
- h. A = Advanced frame construction. See Section N1104.6.
- i. Heated slab interior applies to concrete slab floors (both on and below grade) that incorporate a radiant heating system within the slab. Insulation shall be installed underneath the entire slab in addition to perimeter insulation.
- j. Glass doors shall comply with window performance requirements. Windows exempt from testing in accordance with Section N1104.4 shall comply with window performance requirements if constructed with aluminum with thermal break, wood, vinyl, reinforced vinyl aluminum-clad wood, or insulated fiberglass frames, and double-pane glazing with low-emissivity coatings of 0.10 or less. Buildings designed to incorporate passive solar elements may include glazing with a *U*-factor greater than 0.35 by using Table N1104.1(1) to demonstrate equivalence to building envelope requirements.
- k. A maximum of 28 square feet of exterior door area per dwelling unit can have a *U*-factor of 0.54 or less.
- l. Minimum 24-inch horizontal or vertical below grade. The minimum total distance of 24 inches may be a combination of the horizontal and vertical planes. If a horizontal plane is used on the exterior of the slab, it must be a minimum of 12 inches below finished grade.

**TABLE N1101.2
EXISTING BUILDING COMPONENT REQUIREMENTS**

BUILDING COMPONENTS	REQUIRED PERFORMANCE	EQUIVALENT VALUE
Wall insulation	U-0.083	R-15
Flat ceiling	U-0.025	R-49
Vaulted ceiling > 10 inches nominal rafter depth	U-0.040	R-25
Vaulted ceiling ≤ 10 inches nominal rafter depth	U-0.047	R-21
Underfloor > 10 inches nominal joist depth	U-0.028	R-30
Underfloor ≤ 10 inches nominal joist depth	U-0.039	R-25
Slab-edge perimeter	N/A	N/A
Windows and glazed doors	U-0.30	U-0.30
Skylights	U-0.50	U-0.50
Exterior doors	U-0.20	R-5

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m².
N/A = Not Applicable.

Note: To the greatest in extent practical, in some instances.