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This submittal form is to be completed as part of your application with the Linn County Planning and Building Department. *Download this form before completing fillable fields* and submit with your application.

## 2021 RESIDENTIAL CODE ENERGY, LIGHTING EFFICACY, MOISTURE CONTENT, AND WHOLE-HOUSE VENTILATION CHECKLIST

Owner: \_\_\_\_\_ Applicant: \_\_\_\_\_  
Acct: \_\_\_\_\_ Address: \_\_\_\_\_

**Instructions:** Select the type of construction. If the project is an addition, select the applicable addition type and enter the selected measures accordingly.

<input type="checkbox"/> <b>New Construction.</b> All conditioned spaces within residential buildings shall comply with Table N1101.1(1) and one additional measure from Table N1101.1(2).
<input type="checkbox"/> <b>Additions.</b> 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]. <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Large Additions.</b> 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: _____</li> <li><input type="checkbox"/> <b>Small Additions.</b> Additions that are less than 600 square feet in area are required to select one measure from Table N1101.3.             <ul style="list-style-type: none"> <li><input type="checkbox"/> Selected Table N1101.1(2) additional measure _____</li> <li><input type="checkbox"/> Selected Table N1101.3 additional measure _____</li> </ul> </li> <li><input type="checkbox"/> <b>Exception:</b> Additions that are less than 225 square feet in area are not required to comply with Table N1101.1(2) or Table N1101.3.</li> </ul>
<p><i>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.</i></p>

Per Table N1101.1(1) **All new windows** unless specified elsewhere will be a minimum **U-0.27**.  
Table N1101.1(2), Section N1101.3, Table 1104.8, Section N1104.8, and Section N1105.3 are included on the following pages (**Please check all applicable boxes**).

<b>TABLE N1101.1(2) – ADDITIONAL MEASURES</b>		
1	<input type="checkbox"/>	<b>High efficiency HVAC system<sup>a</sup></b> <input type="checkbox"/> Gas-fired furnace or boiler AFUE 94 percent, or <input type="checkbox"/> Air-source heat pump HSPF 10.0/14.0 SEER cooling, or <input type="checkbox"/> Ground-source heat pump COP 3.5 or Energy Star rated
2	<input type="checkbox"/>	<b>High-Efficiency Water Heating System</b> <input type="checkbox"/> Natural gas/propane water heater with minimum UEF 0.90, or <input type="checkbox"/> Electric heat pump water heater with minimum 2.0 COP, or <input type="checkbox"/> 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	<input type="checkbox"/>	<b>Wall Insulation Upgrade</b> Exterior walls – U-0.045/R-21 conventional framing with R-5.0 continuous insulation
4	<input type="checkbox"/>	<b>Advanced Envelope</b> <ul style="list-style-type: none"> <li>• Windows – U-0.21 (Area weighted average), and</li> <li>• Flat ceiling<sup>b</sup> – U-0.017/R-60, and</li> <li>• Framed floors – <input type="checkbox"/> U-0.026/R-38 or <input type="checkbox"/> slab edge insulation to F-0.48 or less (R-10 for 48"; R-15 for 36" or R-5 fully insulated slab)</li> </ul>
5	<input type="checkbox"/>	<b>Ductless Heat Pump</b> For dwelling units with all-electric heat, provide: <ul style="list-style-type: none"> <li>• Ductless heat pump of minimum HSPF 10 in primary zone replaces zonal electric heat sources, and</li> <li>• Programmable thermostat for all heaters in bedrooms</li> </ul>
6	<input type="checkbox"/>	<b>High efficiency thermal envelope UA<sup>c</sup></b> Purposed UA is 8 percent lower than the code UA
7	<input type="checkbox"/>	<b>Glazing Area</b> Glazing area, measured as the total of framed openings is less than 12 percent of conditioned floor area
8	<input type="checkbox"/>	<b>3 ACH Air Leakage Control and Efficient Ventilation</b> 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 a minimum sensible heat recovery efficiency of not less than 66 percent.

For SI: 1 square foot=0.093m<sup>2</sup>, 1 watt per square foot=10.8 W/m<sup>2</sup>.

**Notes** (*superscripts*)

- 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 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 percent less than the Code UA total of the Standard Base Case.

<b>TABLE N1101.3 SMALL ADDITION ADDITIONAL MEASURES (Select One)</b>		
1	<input type="checkbox"/>	Increase the ceiling insulation of the existing portion of the home as specified in Table N1101.2
2	<input type="checkbox"/>	Replace all existing single-pane wood or aluminum windows to the <i>U</i> -factor as specified in N1101.2
3	<input type="checkbox"/>	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	<input type="checkbox"/>	Test the entire dwelling with a blower door and exhibit no more than 4.5 air changes per hour at 50 Pascals
5	<input type="checkbox"/>	Seal and performance test the duct system
6	<input type="checkbox"/>	Replace existing 80-percent AFUE or less gas furnace with a 92-percent AFUE or greater system
7	<input type="checkbox"/>	Replace existing electric radiant space heaters with a ductless mini split system with a minimum HSPF of 10.0
8	<input type="checkbox"/>	Replace existing electric forced air furnace with an air source heat pump with a minimum HSPF of 9.5
9	<input type="checkbox"/>	Replace existing water heater with a water heater meeting: Natural gas/propane water heater with minimum UEF 0.90, or Electrical heat pump water heater with minimum 2.0 COP.

**N1104.8 Air Leakage.** The building thermal envelope shall be constructed to limit air leakage in accordance with this section.

<b>TABLE N1104.8 AIR BARRIER INSTALLATION AND AIR SEALING REQUIREMENTS</b>	
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.
	Between wall cavities and windows or door frames.
	The junction of the top plate and the top of walls shall be sealed in accordance with Section N1104.8.2.1.
	All penetrations or utility services through the top and bottom plates shall be sealed.
	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 I

	vapor retarder with overlapping joints taped.
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 envelope shall be sealed to the subfloor, wall covering or ceiling penetrated by the boot.

## INSTALLATION OF DUCTS

**Section N1105.3:** All new duct systems and air handling equipment and appliances shall be located fully within the building thermal envelope.

**Exceptions:**

1. Ventilation intake ductwork and exhaust ductwork.
2. Up to 5 percent of the length of an HVAC system shall be permitted to be located outside of the thermal envelope.
3. Ducts deeply buried in insulation in accordance with all of the following:
  - 3.1. Insulation shall be installed to fill gaps and voids between the duct and the ceiling, and a minimum of R-19 insulation shall be installed above the duct between the duct and unconditioned attic.
  - 3.2. Insulation depth marker flags shall be installed on the ducts every 10 feet (3048 mm) or as approved by the building official.

**To comply with this requirement** (*Please select all applicable boxes*):

- No heating or cooling ducts are being installed.
- Ducts in unconditioned attic will have additional R-19 above and comply with requirements for deeply buried ducts.
- Ducts in unconditioned underfloor space will have additional R-19 insulation installed below duct/wrapped. (See Oregon Building Codes Division technical bulletin for accepted methods).
- Under-floor space will be conditioned, unvented, and meet the requirements of R408.3.2.2.2:  
 Equation: Conditioned Air Supply (1CFM/50 sqft of underfloor = Required C.F.M.)  
 \_\_\_\_\_ underfloor sqft / 50 = \_\_\_\_\_ Required C.F.M.

# MECHANICAL WHOLE-HOUSE VENTILATION SYSTEM (WHV)

Choose Continuous OR Intermittent installation method for (WHV) from below per M1505.4.3:

Continuous (WHV) Ventilation System

**TABLE M1505.4.3(1)  
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS**

DWELLING UNIT FLOOR AREA (sq ft)	NUMBER OF BEDROOMS				
	0-1	2-3	4-5	6-7	>7
	<b>Airflow in CFM</b>				
< 1,500	30	45	60	75	90
1,501-3,000	45	60	75	90	105
3,001-4,500	60	75	90	105	120
4,501-6,000	75	90	105	120	135
6,001-7,500	90	105	120	135	150
>7,500	105	120	135	150	165

For SI: square foot = 0.0929m<sup>2</sup>, 1 cubic foot per minute = 0.0004719 m<sup>3</sup>/s.

Choose and fill in line item 1 or 2:

1. Table M1505.4.3(1): \_\_\_\_\_ sqft, \_\_\_\_\_ Number of Bedrooms, \_\_\_\_\_ Airflow in CFM

2. Equation:  $(0.01 \times \text{total square foot area of house}) + [7.5 \times (\text{number of bedrooms} + 1)] = \text{_____ CFM}$   
 $0.01 \times \text{sqft} = \text{_____ A} + (7.5 \times \# \text{ of bedrooms} + 1) = \text{_____ B}, \quad \text{A} + \text{B} = \text{_____ Required CFM}$

Intermittent (WHV) Ventilation System M1505.4.3 Exception

**TABLE M1505.4.3(2)  
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS<sup>a, b</sup>**

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor <sup>a</sup>	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.

b. Extrapolation beyond the table is prohibited.

Intermittent Equation: Table M1505.4.3(1) CFM \_\_\_\_\_ x Table M1505.4.3(2) Factor \_\_\_\_\_ = \_\_\_\_\_ CFM

(The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25 percent of each 4-hour segment and the ventilation rate prescribed in table M1505.4.3(1) is multiplied by the factor determined in accordance with table M1505.4.3(2)).

## HIGH EFFICACY LIGHTING

**Section N1107.2.** All permanently installed lighting fixtures shall contain high-efficiency lamps. Screw-in compact fluorescent and LED lamps comply with this requirement.

Exception: Two permanently installed lighting fixtures are not required to have high-efficiency lamps. *To conform to the 2021 Oregon Residential Specialty Code (ORSC), Section N1107. By signing below, I am notifying the Building Official that I am aware of the high-efficacy lamps requirement of ORSC Section N1107.2 and have taken steps to meet this code requirement.*

## MOISTURE CONTENT

**Section R318.2 Moisture Content.** Prior to the installation of interior finishes, the building official shall be notified in writing by the general contractor that all moisture-sensitive wood framing members used in construction have a moisture content of not more than 19 percent of the weight of dry wood framing members. *To conform to the 2021 Oregon Residential Specialty Code (ORSC), Section R318.2. By signing below, I am notifying the Building Official that I am aware of the moisture content requirement of ORSC Section R318.2 and have taken steps to meet this code requirement [Section R318.2 is provided for reference].*

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Printed Name

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Signature

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Date

By signing, the Contractor, Owner or Authorized Representatives are notifying the Building Official that the items listed within this document are installed to all applicable code requirements.