

Building Permit Application
City of Seaside
Building and Planning Department
1387 Avenue U * Seaside, OR 97138
Ph (503) 738-7100 * Fax (503) 738-8765
Email: cdadmin@cityofseaside.us

## DEPARTMENT USE ONLY

## REVIEW \#:

DATE RECEIVED:

This permit is issued under OAR 918-460-0030. Permits can expire if work is not started within $\mathbf{1 8 0}$ days of issuance or if work is suspended for $\mathbf{1 8 0}$ days. All contractors must obtain a City of Seaside Business License prior to performing work.

| TYPE OF WORK |  |
| :--- | :--- |
| $\square$ New Construction | $\square$ Demolition |
| $\square$ Addition/Remodel Alteration | $\square$ Other |
| CATEGORY OF CONSTRUCTION |  |
| $\square 1$ \& 2 Family Dwelling | $\square$ Commercial/Industrial |
| $\square$ Accessory Building | $\square$ Multi-family |
| JOB SITE INFORMATION AND LOCATION |  |
| Property Owner: |  |
| Job Site Address: |  |
| CONSTRUCTION INFORMATION |  |
| $\square$ Property Owner Construction | $\square$ Contractor Construction |
| Name/Business Name: |  |
| Address: |  |
| Email: |  |
| Phone Number: |  |
| CCB \#: |  |
| This installation is being made on a residential property |  |
| $\square$owned by me or a member of my immediate family. <br> (Property owner construction only) <br> Signature: |  |


| RESIDENTIAL USE |  |  |  |
| :--- | :--- | :---: | :---: |
| Total Valuation of Project: <br> $\$$ |  |  |  |
| Estimated Valuation of Remodel: <br> $\$$ |  |  |  |
| Number of bedrooms: |  |  |  |
| Number of bathrooms: | square feet |  |  |
| Existing dwelling area: | square feet |  |  |
| New dwelling area: | square feet |  |  |
| Garage/carport area: | square feet |  |  |
| Covered Porch area: |  |  |  |
| Deck area: |  |  |  |
| COMMERCIAL USE |  |  |  |
| Valuation of Project: |  |  |  |
| $\$$ | square feet |  |  |
| Existing building area: | square feet |  |  |
| New building area: |  |  |  |
| DESCRIPTION OF WORK |  |  |  |
|  |  |  |  |


| DEPARTMENT USE ONLY |  |  |  |
| :---: | :---: | :---: | :---: |
| Liv. SF | Gar. SF | Covered Porch SF | Deck SF |
|  |  |  |  |
| $\$ 148.33$ | $\$ 59.88$ | $\$ 44.91$ | $\$ 29.94$ |

NEW CODE REQUIREMENT FOR

## EXTERIOR WALL ENVELOPE

O To promote building durability, the exterior wall envelope shall be installed in a manner that water that enters the assembly can drain to the exterior. The envelope shall consist of an exterior veneer, a water-resistive barrier (wrb) as required in R703.2, a minimum $1 / 8 "(3 \mathrm{~mm})$ space between the wrb and the exterior veneer, and integrated flashings as required in R703.8. The required space shall be formed by the use of any non-corrodible furring strip, drainage mat or drainage board.

The envelope shall provide proper integration of flashings with the water-resistive barrier, the space provided and the exterior veneer. These components, in conjunction, shall provide a mean of draining water that enters the assembly to the exterior.

In lieu of providing the $1 / 8^{\prime \prime}$ space between your exterior veneer and the wrb, you may use one of the following exceptions.

O A space is not required where the exterior veneer is installed over a waterresistive barrier complying with section R 703.2 which is manufactured in a manner to enhance drainage and meets the $75 \%$ drainage efficiency requirement of ASTM E2273 or other recognized national standards.

- A space is not required where window sills are equipped with pan flashings which drain to the exterior surface of the veneer in a through wall fashion. All pan flashings shall be detailed within the construction documents and shall be of either a self-adhering membrane complying with AAMA711-07 or of an approved corrosion-resistant material or a combination thereof.
- A space is not required where the exterior veneer is manufactured in a manner to enhance drainage and meets the $75 \%$ drainage efficiency requirement of ASTM E2273 or other recognized national standards and is installed over a water-resistive barrier complying with section R703.2.
O A space is not required where the exterior veneer is matching an existing exterior finish as in additions, alterations or repair.


## If you choose item \#2, additional details of the pan flashing must be provided for review.



Building Department
MOISTURE-SENSITIVE WOOD FRAMING MOISTURE CONTENT Acknowledgement Form

I, , am the general contractor or the owner-builder at the following address:

Site Address: $\qquad$
City:

To conform to the 2021 Oregon Residential Specialty Code (ORSC), Section R318.2, I am notifying the building official that I am aware of the moisture content requirements of the ORSC Section R318.2 and have taken steps to meet this code requirement. (Section R318.2 is provided for reference.)

Section R318.2 Moisture content. Prior to issuance of the insulation/vapor barrier approval required by R109.1.5.2 of this code:
(A) All moisture-sensitive wood framing members used in construction shall have a moisture content of not more than 19 percent of the weight of dry wood framing members.
(B) The general contractor or the owner who was issued the structural permit shall notify the building official on a division approved form that the contractor or the owner who was issued the structural permit is aware of and has taken steps to meet the requirement in paragraph (A).

Signed: $\qquad$ Date: $\qquad$


## Plan Review Checklist

| REQUIRED INFORMATION FOR PLAN REVIEW |  |
| :---: | :--- |
| $\square$ | SITE PLAN (Show all property lines, structures and distances between) |
| $\square$ | FOUNDATION PLAN \& CROSS SECTIONS (Including rebar \& size) |
| $\square$ | WALL BRACING (Fully sheathed, prescriptive, or engineered) |
| $\square$ | CROSS SECTION (Include insulation values and structural members) |
| $\square$ | FLOOR \& ROOF FRAMING TYPE (May be included in the cross section) |
| $\square$ | ADDITIONAL ENERGY METHOD PROPOSED |
| $\square$ | FLOOR PLAN (Show all room types, including existing) |
| $\square$ | ELEVATIONS AT ALL SIDES OF THE STRUCTURE |
| $\square$ | EROSION CONTROL (If applicable) |
| $\square$ | GEO TECH REPORT (If applicable) |



## Residential Energy Efficiency Measures Selection Form

| DEPARTMENT USE ONLY |
| :--- |
| Permit no.: |
| Submittal Date: |
| Permit Issue Date: |

For the purpose of energy efficiency the Oregon Residential Specialty Code regulates exterior envelopes as well as the design, construction, and selection of heating, ventilation, air-conditioning systems, and insulation values. This form is intended to identify under which provision of the code your project will meet the requirements for energy conservation. Applicants are asked to complete this form by selecting which provision of the code their project meets and providing the required submittal information associated with that requirement either on this form or as part of the construction documents.

| APPLICANT INFORMATION |
| :--- |
| Name: |
| Address: |
| City/State/ZIP: |
| Phone: |
| Email: |

## 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.

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.

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 $\qquad$
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.
$\square$ Selected Table N1101.1(2) additional measure $\qquad$
$\square$ Selected Table N1101.3 additional measure $\qquad$

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.

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.

| $\begin{aligned} & \square \\ & \square \\ & \square \end{aligned}$ | 1a <br> 1b <br> 1c | HIGH-EFFICIENCY HVAC SYSTEM ${ }^{\text {a }}$ |
| :---: | :---: | :---: |
|  |  | a. Gas-fired furnace or boiler AFUE 94 percent, or <br> b. Air-source heat pump HSPF 10.0/14.0 SEER cooling, or <br> c. Ground-source heat pump COP 3.5 or Energy Star rated |
| $\begin{aligned} & \square \\ & \square \\ & \square \end{aligned}$ | 2a <br> 2b <br> 2c | HIGH-EFFICIENCY WATER HEATING SYSTEM |
|  |  | a. Natural gas/propane water heater with minimum UEF 0.90 , or <br> b. Electric heat pump water heater with minimum 2.0 COP , or <br> 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 |
| $\square$ | 3 | WALL INSULATION UPGRADE *(see page 5 of this form for commentary) |
|  |  | Exterior walls-U-0.045/R-21 conventional framing with R-5.0 continuous insulation |
| $\square$ | 4 | ADVANCED ENVELOPE |
|  |  | Windows-U-0.21 (Area weighted average), and <br> Flat ceiling ${ }^{\mathrm{b}}-\mathrm{U}-0.017 / \mathrm{R}-60$, and <br> 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) |
| $\square$ | 5 | DUCTLESS HEAT PUMP |
|  |  | For dwelling units with all-electric heat, provide: <br> Ductless heat pump of minimum HSPF 10 in primary zone replaces zonal electric heat sources, and programmable thermostat for all heaters in bedrooms |
| $\square$ | 6 | HIGH EFFICIENCY THERMAL ENVELOPE UA ${ }^{\text {c }}$ |
|  |  | Proposed UA is 8 percent lower than the code UA |
| $\square$ | 7 | GLAZING AREA |
|  |  | Glazing area, measured as the total of framed openings is less than 12 percent of conditioned floor area |
| $\square$ | 8 | 3 ACH AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION |
|  |  | Achieve a maximum of 3.0 ACH 50 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 $=0.093 \mathrm{~m}^{2}, 1$ watt per square foot $=10.8 \mathrm{~W} / \mathrm{m}^{2}$.
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 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.

## TABLE N1101.3 - SMALL-ADDITION ADDITIONAL MEASURES (SELECT ONE)

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
Insulate the existing floor, crawl space, or basement wall systems as specified in Table N1101.2 and install 100 percent of
3 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 no 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 92-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.
8 Replace existing electric forced air furnace with an air source heat pump with a minimum HSPF of 9.5.
Replace existing water heater with a water heater meeting:
9 Natural gas/propane water heater with minimum UEF 0.90, or
Electric heat pump water heater with minimum 2.0 COP.

## NOTICE

On April 1, 2021, the 2021 ORSC became effective, introducing new requirements and revisions to existing requirements for air sealing, insulation and installation of ducts, as well as new requirements for continuously-operating, balanced mechanical whole-house ventilation (WHV) and revised other requirements. A portion of the code sections outlining energy efficiency requirements and approved measures are included on page 5 of this document, and the code in its entirety can be viewed on the BCD website at www.bcd.oregon.gov

## Air Sealing Requirements (ORSC N1104.8)

All new construction shall now incorporate the former 2017 ORSC Table N1101.(2) Measure \#5, regarding 'air sealing and ducts'. Building thermal envelopes shall be constructed to limit air leakage by the use of 'Air Barriers' in accordance with section N1104.8.1 and 'Sealing Requirements' in accordance with N1104.8.2.

## Insulation of Ducts (ORSC N1105.2)

All new duct systems, or new portions of duct systems exposed to unconditioned spaces, and buried ductwork within insulation that meets the exception to Section N1105.3, shall be insulated to a minimum level of R-8. Duct systems, or new portions of duct systems, located entirely within the building thermal envelope may be insulated to a level less than R-8.

## Installation of Ducts (ORSC N1105.3 \& M1601.4.11)

All new duct systems, air handling equipment and appliances shall be located fully within the building thermal envelope. It may not always be practical, or technologically or economically feasible to construct all duct systems fully within the building thermal envelope, as such exceptions to this new requirement are offered. See the portion of code section copied below, and see additional BCD Technical Bulletin for additional commentary and diagrams.

## Whole House Ventilation (ORSC M1505.4)

All new HVAC systems are now required to be provided with a balanced mechanical whole-house ventilation (WHV) systems. WHV systems shall be designed in accordance with Sections M1505.4.1 through M1505.4.4. Balanced ventilation systems are a combination of exhaust and supply methods providing approximately equal (within a $10 \%$ margin) indoor exhaust and outdoor supply air flow. Outside air should be taken from a known fresh air location then filtered and tempered before delivery to the conditioned space. Balanced ventilation should not affect the pressure of the interior space relative to outdoors. WHV systems shall provide outdoor air at a continuous rate as determined in accordance with Table M1505.4.3(1) or equation 15-1.

## WHOLE HOUSE BALANCED VENTILATION SPECIFICATIONS

Describe method of balanced WHV and list associated equipment below:

WHV Intake/Supply - Make \& Model \# (specify local intake, furnace if serves as intake, central fan integrated supply, or other):

| WHV Control/Interlock Unit - Make \& Model \#: | $\square$ Intermittent Operation |
| :---: | :---: |
| WHV HRV/ERV, Dampers, Misc. - Make \& Model \#: |  |
| WHV System Mechanical Ventilation Rate (outdoor air): | FM |
| Min. Required Mechanical Ventilation Rate (outdoor air) Table M150 Equation 15-1: Ventilation rate in cubic feet per minute $=(0.01 x$ Total squar | 43(1) or Equation 15-1: $\qquad$ CFM <br> foot area of house) $+([7.5 \bar{x}$ (number of bedrooms +1$)]$ |
| Exception: Intermittent WHV Ventilation Rate Factor Table M1505.4.3(2): | $x \quad C F M=\quad C F M$ |
| APPLICANT SIGNAT | JRE |

I hereby certify I have read and examined this application and know the same to be true and correct. All provisions of laws and ordinances governing this type of work will be complied with whether specified herein or not.

## Blower Door Results Reporting

## 2021 Oregon Residential Specialty Code (ORSC) Compliance


#### Abstract

This form provides the necessary information to demonstrate compliance with the sealing requirements of Section N1104.8.2 or Additional Measure \#8 from Table N1101.1(2) in Chapter 11 of the Oregon Residential Specialty Code (ORSC). Where applicable, this form shall be provided to the local building official after testing and before the Certificate of Occupancy is issued.


## Jurisdiction:

| COMPANY INFORMATION |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Company name: |  |  | CCB/EEAST no.: |  |
| Address (Street or P.O. Box): |  |  | Phone: |  |
| City: |  |  | State: | Zip: |
| Technician's name: |  | Email: |  |  |
| PROJECT INFORMATION |  |  |  |  |
| Builder: |  | Community: |  | Lot: |
| Street address: |  |  |  |  |
| City: |  |  | State: OR | Zip: |
| One-family, two-family, or townhouse: |  |  | Number of stories: |  |
| Permit \#: | Conditioned floor area (SF): |  | Conditioned volume (CF): |  |

## Section N1104.8.2 - Sealing Required

If selecting an Additional Measures \#1-7 from Table N1101.1(2) enter the Blower Door Test Results below.
I hereby certify that the blower door test results are: $\qquad$ ACH50 and $\qquad$ CFM@50Pa and have been determined using standard industry protocol such as ANSI/RESNET/ICC 380.

## PASS - Less than or equal to 4.0 ACH50

$\square$ FAIL - Greater than 4.0 ACH50

Table N1101.1(2) - Additional Measure No. 8
If selecting an Additional Measures \#8 from Table N1101.1(2) enter the Blower Door Test Results below.
I hereby certify that the blower door test results are $\qquad$ ACH50 and $\qquad$ CFM@50Pa and have been determined using standard industry protocol such as ANSI/RESNET/ICC 380.
$\square$ PASS - Less than or equal to 3.0 ACH 50
$\square$ FAIL - Greater than 3.0 ACH50

## BLOWER DOOR CALCULATIONS

ACH50 $=($ CFM50 x 60) $/$ Conditioned Volume

## TECHNICIANS NAME \& SIGNATURE

## REFERENCED CODE SECTIONS

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

N1104.8.1 Air barriers. A continuous air barrier shall be installed and fully aligned with the building thermal envelope on every vertical portion of air-permeable insulation and on the warm side of horizontal, air-permeable insulation. Air-permeable insulation shall not be used as a sealing material.

Exception: Unvented attics, continuous insulation walls and similar conditions where an impermeable insulation layer forms an air barrier.

N1104.8.2 Sealing required. Exterior joints around window and door frames, between wall cavities and window or door frames, between walls and foundation, between walls and roof, between wall panels, at penetrations or utility services through walls, floors and roofs and all other openings in the exterior envelope shall be sealed in a manner approved by the building official.

Sealing for the purpose of creating a continuous air barrier shall be in accordance with the applicable requirements of Table N1104.8, or the dwelling shall be tested to demonstrate a blower door result not greater than 4.0 ACH 50 .

N1104.8.2.1 Top plate sealing. At all walls in contact with vented attics, the wall covering (gypsum board or other) shall be sealed to the top plate with caulk, sealant, gasket or other approved material.

N1105.3 Installation of Ducts. All new duct systems and air handling equipment and appliances shall be located fully within the building thermal envelope.

## Exception:

1. Ventilation intake ductwork and exhaust ductwork.
2. Up to $5 \%$ of the length of HVAC system ductwork 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 ceiling, and a minimum of R-19 insulation shall be installed above the duct between the duct and the unconditioned attic.
3.2. Insulation depth marker flags shall be installed on the ducts every 10 feet or as approved by the building official.

## COMMENTARY

*TABLE N1101.1(2) - ADDITIONAL MEASURES - \#3 WALL INSULATION UPGRADE; consists of minimum stud cavity insulation and a continuous layer of R-5 rigid exterior insulation boards such as; expanded polystyrene (EPS), extruded polystyrene (XPS), polyisocyanurate (PIC), or rigid mineral fiber (MF). Be advised cladding attachment shall be done in accordance with manufacturers installation instructions, and or in accordance with ORSC R703.9 Exterior Insulation and Finish Systems (EIFS) or other prescriptive code methods for 'installation over foam plastic sheathing'. Additionally, the provisions of R703.1.1 Exterior Wall Envelope shall be followed.

| TABLE N1104.8 <br> AIR BARRIER INSTALLATION AND AIR SEALING REQUIREMENTS |  |
| :---: | :---: |
| 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 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 <br> 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. |


| $\begin{gathered} \text { TABLE N1101.1(1) } \\ \text { PRESCRIPTIVE ENVELOPE REQUIREMENTS }{ }^{\text {a }} \end{gathered}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | STANDARD BASE CASE |  | LOG HOMES ONLY |  |
| BUILDING COMPONENT | Required Performance | Equiv. Value ${ }^{\text {b }}$ | Required Performance | Equiv. Value ${ }^{\text {b }}$ |
| Wall insulation-above grade | U-0.059 ${ }^{\text {c }}$ | R-21 Intermediate ${ }^{\text {c }}$ | Note d | Note d |
| Wall insulation-below grade ${ }^{\text {e }}$ | C-0.063 | R-15 c.i./R-21 | C-0.063 | R-15/R-21 |
| Flat ceilings ${ }^{\text {f }}$ | U-0.021 | R-49 | U-0.020 | R-49 A ${ }^{\text {h }}$ |
| Vaulted ceilings ${ }^{\text {g }}$ | U-0.033 | R-30 Rafter or <br> R-30A ${ }^{\text {g, h }}$ Scissor Truss | U-0.027 | $\mathrm{R}-38 \mathrm{~A}^{\mathrm{h}}$ |
| Underfloors | U-0.033 | R-30 | U-0.033 | R-30 |
| Slab-edge perimeter $\underline{\underline{m}}$ ( $^{\underline{-1}}$ | F-0.520 | R-15 | F-0.520 | R-15 |
| Heated slab interior ${ }^{\text {i }}$ | n/a | R-10 | n/a | R-10 |
| Windows ${ }^{\text {j }}$ | 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 ${ }^{\underline{\underline{k}}}$ | U-0.20 | U-0.20 | U-0.54 | U-0.54 |
| Exterior doors with $>2.5 \mathrm{ft}^{2}$ glazing ${ }^{\text {¹ }}$ | U-0.40 | U-0.40 | U-0.40 | U-0.40 |

For SI: 1 inch $=25.4 \mathrm{~mm}, 1$ square foot $=0.0929 \mathrm{~m}^{2}, 1$ degree $=0.0175 \mathrm{rad}, \mathrm{n} / \mathrm{a}=$ 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. $\quad R$-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 (N1104.5.2) with insulated headers.
d. The wall component shall be a minimum solid $\log$ or timber wall thickness of 3.5 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. When reduced, the cavity shall be filled (except for required ventilation spaces). R-49 insulation installed to minimum 6-inches 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 no 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.
j. Sliding glass doors shall comply with window performance requirements. Windows exempt from testing in accordance with Section NF1111.2, Item 3 shall comply with window performance requirements if constructed with thermal break aluminum or wood, or vinyl, or 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 N 1104.1 (1) to demonstrate equivalence to building thermal 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.

1. Glazing that is either double pane with low-e coating on one surface, or triple pane shall be deemed to comply with this requirement
m. Minimum 24-inch horizontal or vertical below-grade.

Special thanks to the Building Officials and staff of the cities of Seaside, Warrenton, Cannon Beach and Clatsop County for a consensus effort to produce this form. It is the intent of those involved to create a user's guide to assist building designers in navigating the complex code provisions of energy efficiency. Please contact your code official with specific concerns as you use this guide.


