

CHAPTER 3 [RE]

GENERAL REQUIREMENTS

SECTION R301  
CLIMATE ZONES

**R301.1 General.** Climate zones from Table R301.1 shall be used in determining the applicable requirements from Chapter 4.



**TABLE R301.1  
CLIMATE ZONES, MOISTURE REGIMES,  
AND WARM-HUMID DESIGNATIONS  
BY STATE AND COUNTY**

Key: A - Moist, B - Dry, C - Marine. Absence of moisture designation indicates moisture regime is irrelevant.	
<b>WASHINGTON</b>	
5B Adams	4C Lewis
5B Asotin	5B Lincoln
5B Benton	4C Mason
5B Chelan	<u>5B Okanogan</u>
4C Clallam	4C Pacific
4C Clark	<u>5B Pend Oreille</u>
5B Columbia	4C Pierce
4C Cowlitz	4C San Juan
5B Douglas	4C Skagit
<u>5B Ferry</u>	5B Skamania
5B Franklin	4C Snohomish
5B Garfield	5B Spokane
5B Grant	<u>5B Stevens</u>
4C Grays Harbor	4C Thurston
4C Island	4C Wahkiakum
4C Jefferson	5B Walla Walla
4C King	4C Whatcom
4C Kitsap	5B Whitman
5B Kittitas	5B Yakima
5B Klickitat	

SECTION R302  
DESIGN CONDITIONS

**R302.1 Interior design conditions.** The interior design temperatures used for heating and cooling load calculations shall be a maximum of 72°F (22°C) for heating and minimum of 75°F (24°C) for cooling.

**R302.2 Exterior design conditions.** The heating or cooling outdoor design temperatures shall be selected from Appendix C.

SECTION R303  
MATERIALS, SYSTEMS AND EQUIPMENT

**R303.1 Identification.** Materials, systems and equipment shall be identified in a manner that will allow a determination of compliance with the applicable provisions of this code.

**R303.1.1 Building thermal envelope insulation.** An *R*-value identification mark shall be applied by the manufacturer to each piece of *building thermal envelope* insulation 12 inches (305 mm) or greater in width. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and *R*-value of insulation installed in each element of the *building thermal envelope*. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled *R*-value, installed density, coverage area and number of bags installed shall be *listed* on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the areas covered and *R*-value of installed thickness shall be *listed* on the certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

**R303.1.1.1 Blown or sprayed roof/ceiling insulation.** The thickness of blown-in or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be written in inches (mm) on markers that are installed at least one for every 300 square feet (28 m<sup>2</sup>) throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers a minimum of 1 inch (25 mm) in height.

Each marker shall face the attic access opening. Spray polyurethane foam thickness and installed *R*-value shall be *listed* on certification provided by the insulation installer.

**R303.1.2 Insulation mark installation.** Insulating materials shall be installed such that the manufacturer's *R*-value mark is readily observable upon inspection.

**R303.1.3 Fenestration product rating.** *U*-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled *U*-factor shall be assigned a default *U*-factor from Table R303.1.3(1), R303.1.3(2) or R303.1.3(4). The solar heat gain coefficient (SHGC) and visible transmittance (VT) of glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled SHGC or VT shall be assigned a default SHGC or VT from Table R303.1.3(3).

**Exception:** Units without NFRC ratings produced by a *small business* may be assigned default *U*-factors from Table R303.1.3(5) for vertical fenestration.

**R303.1.4 Insulation product rating.** The thermal resistance (*R*-value) of insulation shall be determined in accordance with the U.S. Federal Trade Commission *R*-value rule (C.F.R. Title 16, Part 460) in units of  $h \times ft^2 \times ^\circ F/Btu$  at a mean temperature of 75°F (24°C).

**R303.2 Installation.** All materials, systems and equipment shall be installed in accordance with the manufacturer's installation instructions and the *International Building Code* or *International Residential Code*, as applicable.

**R303.2.1 Protection of exposed foundation insulation.** Insulation applied to the exterior of basement walls, crawlspace walls and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend a minimum of 6 inches (153 mm) below grade.

**R303.3 Maintenance information.** Maintenance instructions shall be furnished for equipment and systems that require preventive maintenance. Required regular maintenance actions shall be clearly stated and incorporated on a *readily accessible* label. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.

**TABLE R303.1.3(1)  
DEFAULT GLAZED FENESTRATION U-FACTOR**

FRAME TYPE	SINGLE PANE	DOUBLE PANE	SKYLIGHT
Metal	1.20	0.80	See Table R303.1.3(4)
Metal with Thermal Break <sup>1</sup>	1.10	0.65	
Nonmetal or Metal Clad	0.95	0.55	
Glazed Block	0.60		

<sup>1</sup> Metal Thermal Break = A metal thermal break framed window shall incorporate the following minimum design characteristics:

- a) The thermal conductivity of the thermal break material shall be not more than 3.6 Btu-in/h/ft<sup>2</sup>/°F;
- b) The thermal break material must produce a gap in the frame material of not less than 0.210 inches; and
- c) All metal framing members of the products exposed to interior and exterior air shall incorporate a thermal break meeting the criteria in a) and b) above.

CHAPTER 4 [RE]  
**RESIDENTIAL ENERGY EFFICIENCY**

**SECTION R401  
GENERAL**

**R401.1 Scope.** This chapter applies to residential buildings.

**R401.2 Compliance.** Projects shall comply with sections identified as "mandatory" and with either sections identified as "prescriptive" or the performance approach in Section R405. In addition, one- and two-family dwellings and townhouses, as defined in Section 101.2 of the *International Residential Code*, shall comply with Section R406.

**R401.3 Certificate (Mandatory).** A permanent certificate shall be completed and posted on or within three feet of the electrical distribution panel by the builder or registered design professional. The certificate shall be completed by the builder or registered design professional and shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. The certificate shall list the predominant *R*-values of insulation installed in or on ceiling/roof, walls, foundation (slab, *below-grade wall*, and/or floor) and ducts outside conditioned spaces; *U*-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration, and the results from any required duct system and building envelope air leakage testing done on the building. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the types and efficiencies of heating, cooling and service water heating equipment. Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be listed for gas-fired unvented room heaters, electric furnaces or electric baseboard heaters.

**SECTION R402  
BUILDING THERMAL ENVELOPE**

**R402.1 General (Prescriptive).** The *building thermal envelope* shall meet the requirements of Sections R402.1.1 through R402.1.4.

**R402.1.1 Insulation and fenestration criteria.**

The *building thermal envelope* shall meet the requirements of Table R402.1.1 based on the climate zone specified in Chapter 3.

**R402.1.2 *R*-value computation.** Insulation material used in layers, such as framing cavity insulation and insulating sheathing, shall be summed to compute the component *R*-value. The manufacturer's settled *R*-value shall be used for blown insulation. Computed *R*-values shall not include an *R*-value for other building materials or air films.

**R402.1.3 *U*-factor alternative.** An assembly with a *U*-factor equal to or less than that specified in Table R402.1.3 shall be permitted as an alternative to the *R*-value in Table R402.1.1.

**R402.1.4 Total UA alternative.** If the total *building thermal envelope* UA (sum of *U*-factor times assembly area) is less than or equal to the total UA resulting from using the *U*-factors in Table R402.1.3 (multiplied by the same assembly area as in the proposed building), the building shall be considered in compliance with Table R402.1.1. The *U*-factors for typical construction assemblies are included in Appendix A in chapter 51-11C WAC. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Appendix A, values shall be calculated in accordance with the ASHRAE *Handbook of Fundamentals* using the framing factors listed in Appendix A where applicable and shall include the thermal bridging effects of framing materials. The SHGC requirements shall be met in addition to UA compliance. When using REScheck, the *U*-factors calculated by the software based on component *R*-value descriptions are acceptable. For the base building UA calculation, the maximum glazing area is 15% of the floor area.

**TABLE R402.1.1  
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT<sup>a</sup>**

CLIMATE ZONE	5 AND MARINE 4	6
FENESTRATION U-FACTOR <sup>b</sup>	0.30	0.30
SKYLIGHT <sup>b</sup> U-FACTOR	0.50	0.50
GLAZED FENESTRATION SHGC <sup>b, e</sup>	NR	NR
CEILING R-VALUE <sup>k</sup>	49	49
WOOD FRAME WALL <sup>g, m, n</sup> R-VALUE	21 int	21+5ci
MASS WALL R-VALUE <sup>i</sup>	21/21 <sup>h</sup>	21+5 <sup>h</sup>
FLOOR R-VALUE	30 <sup>g</sup>	30 <sup>g</sup>
BELOW-GRADE <sup>c, m</sup> WALL R-VALUE	10/15/21 int + TB	10/15/21 int + TB
SLAB <sup>d</sup> R-VALUE & DEPTH	10, 2 ft	10, 4 ft

For SI: 1 foot .= 304.8 mm, ci .= continuous insulation, int .= intermediate framing.

<sup>a</sup> *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the compressed *R*-value of the insulation from Appendix Table A101.4 shall not be less than the *R*-value specified in the table.

<sup>b</sup> The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

<sup>c</sup> "10/15/21.+TB" means R-10 continuous insulation on the exterior of the wall, or R-15 on the continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21.+TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall. "TB" means thermal break between floor slab and basement wall.

<sup>d</sup> R-10 continuous insulation is required under heated slab on grade floors. See R402.2.9.1.

<sup>e</sup> There are no SHGC requirements in the Marine Zone.

<sup>f</sup> Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.

<sup>g</sup> Reserved.

<sup>h</sup> First value is cavity insulation, second is continuous insulation or insulated siding, so "13.+5" means R-13 cavity insulation plus R-5 continuous insulation or insulated siding. If structural sheathing covers 40 percent or less of the exterior, continuous insulation *R*-value shall be permitted to be reduced by no more than R-3 in the locations where structural sheathing is used to maintain a consistent total sheathing thickness.

<sup>i</sup> The second *R*-value applies when more than half the insulation is on the interior of the mass wall.

<sup>k</sup> For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38.

<sup>m</sup> Int. (intermediate framing) denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation.

<sup>n</sup> Log and solid timber walls with a minimum average thickness of 3.5 inches are exempt from this insulation requirement.

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## SECTION R403 SYSTEMS

**R403.1 Controls (Mandatory).** At least one thermostat shall be provided for each separate heating and cooling system.

**R403.1.1 Programmable thermostat.** Where the primary heating system is a forced-air furnace, at least one thermostat per dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day. The thermostat shall allow for, at a minimum, a 5-2 programmable schedule (weekdays/weekends) and be capable of providing at least two programmable setback periods per day. This thermostat shall include the capability to set back or temporarily operate the system to maintain *zone* temperatures down to 55°F (13°C) or up to 85°F (29°C). The thermostat shall initially be programmed with a heating temperature set point no higher than 70°F (21°C) and a cooling temperature set point no lower than 78°F (26°C). The thermostat and/or control system shall have an adjustable deadband of not less than 10°F.

### Exceptions:

1. Systems controlled by an occupant sensor that is capable of shutting the system off when no occupant is sensed for a period of up to 30 minutes.
2. Systems controlled solely by a manually operated timer capable of operating the system for no more than two hours.

**R403.1.2 Heat pump supplementary heat (Mandatory).** Unitary air cooled heat pumps shall include controls that minimize supplemental heat usage during start-up, set-up, and defrost conditions. These controls shall anticipate need for heat and use compression heating as the first stage of heat. Controls shall indicate when supplemental heating is being used through visual means (e.g., LED indicators). Heat pumps equipped with supplementary heaters shall be installed with controls that prevent supplemental heater operation above 40°F. At final inspection the auxiliary heat lock out control shall be set to 35°F or less.

**R403.2 Ducts.** Ducts and air handlers shall be in accordance with Sections R403.2.1 through R403.2.3.

**R403.2.1 Insulation (Prescriptive).** Ducts shall be insulated to a minimum of R-8.

**Exception:** Ducts or portions thereof located completely inside the *building thermal envelope*. Ducts located in crawl spaces do not qualify for this exception.

**R403.2.2 Sealing (Mandatory).** Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with either the *International Mechanical Code* or *International Residential Code*, as applicable.

### Exceptions:

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.

Ducts shall be leak tested in accordance with WSU RS-33, using the maximum duct leakage rates specified. Duct tightness shall be verified by either of the following:

1. Postconstruction test: Total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. Leakage to outdoors shall be less than or equal to 4 cfm (133.3 L/min) per 100 square feet of conditioned floor area.
2. Rough-in test: Total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. All registers shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 3 cfm (85 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area.

**Exception:** The total leakage test is not required for ducts and air handlers located entirely within the building thermal envelope. Ducts located in crawl spaces do not qualify for this exception.

**R403.2.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.

**R403.2.3 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums. Installation of ducts in exterior walls, floors or ceilings shall not displace required envelope insulation.

**R403.3 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-6.

**R403.3.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance, and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

**R403.4 Service hot water systems.** Energy conservation measures for service hot water systems shall be in accordance with Sections R403.4.1 through R403.4.3.

**R403.4.1 Circulating hot water systems (Mandatory).** Circulating hot water systems shall be provided with an automatic or *readily accessible* manual switch that can turn off the hot water circulating pump when the system is not in use.

**R403.4.2 Hot water pipe insulation (Prescriptive).** Insulation for hot water pipe shall have a minimum thermal resistance (*R*-value) of R-4.

**R403.4.3 Electric water heater insulation.** All electric water heaters in unheated spaces or on concrete floors shall be placed on an incompressible, insulated surface with a minimum thermal resistance of R-10.

**R403.5 Mechanical ventilation (Mandatory).** The building shall be provided with ventilation that meets the requirements of the *International Residential Code* or *International Mechanical Code*, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

**R403.5.1 Whole-house mechanical ventilation system fan efficacy.** Mechanical ventilation system fans shall meet the efficacy requirements of Table R403.5.1.

**Exception:** Where mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.

**TABLE R403.5.1  
MECHANICAL VENTILATION SYSTEM FAN EFFICACY**

FAN LOCATION	AIR FLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY (CFM/WATT)	AIR FLOW RATE MAXIMUM (CFM)
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	< 90
Bathroom, utility room	90	2.8 cfm/watt	Any

1. Small Dwelling Unit: .....0.5 points  
Dwelling units less than 1500 square feet in conditioned floor area with less than 300 square feet of fenestration area. Additions to existing building that are less than 750 square feet of heated floor area.
2. Medium Dwelling Unit: ..... 1.5 points  
All dwelling units that are not included in #1 or #3.

3. Large Dwelling Unit: ..... 2.5 points  
Dwelling units exceeding 5000 square feet of conditioned floor area.

The drawings included with the building permit application shall identify which options have been selected and the point value of each option, regardless of whether separate mechanical, plumbing, electrical, or other permits are utilized for the project.

**TABLE 406.2  
ENERGY CREDITS (DEBITS)**

OPTION	DESCRIPTION	CREDIT(S)
1a	<b>EFFICIENT BUILDING ENVELOPE 1a:</b> Prescriptive compliance is based on Table R402.1.1 with the following modifications: Fenestration U . = 0.28 Floor R-38 Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab <b>or</b> Compliance based on Section R402.1.4: Reduce the Total UA by 5%.	0.5
1b	<b>EFFICIENT BUILDING ENVELOPE 1b:</b> Prescriptive compliance is based on Table R402.1.1 with the following modifications: Fenestration U . = 0.25 Wall R-21 plus R-4 Floor R-38 Basement wall R-21 int plus R-5 ci Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab <b>or</b> Compliance based on Section R402.1.4: Reduce the Total UA by 15%.	1.0
1c	<b>EFFICIENT BUILDING ENVELOPE 1c:</b> Prescriptive compliance is based on Table R402.1.1 with the following modifications: Fenestration U . = 0.22 Ceiling and single-rafter or joist-vaulted R-49 advanced Wood frame wall R-21 int plus R-12 ci Floor R-38 Basement wall R-21 int plus R-12 ci Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab <b>or</b> Compliance based on Section R402.1.4: Reduce the Total UA by 30%.	2.0
2a	<b>AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2a:</b> Compliance based on R402.4.1.2: Reduce the tested air leakage to 4.0 air changes per hour maximum <b>and</b> All whole house ventilation requirements as determined by Section M1507.3 of the <i>International Residential Code</i> shall be met with a high efficiency fan (maximum 0.35 watts/cfm), not interlocked with the furnace fan. Ventilation systems using a furnace including an ECM motor are allowed, provided that they are controlled to operate at low speed in ventilation only mode. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the required ventilation system.	0.5

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2b	<p><b>AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2b:</b> Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 2.0 air changes per hour maximum</p> <p><b>and</b> All whole house ventilation requirements as determined by Section M1507.3 of the <i>International Residential Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.70. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</p>	1.0
2c	<p><b>AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2c:</b> Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 1.5 air changes per hour maximum</p> <p><b>and</b> All whole house ventilation requirements as determined by Section M1507.3 of the <i>International Residential Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.85. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</p>	1.5
3a	<p><b>HIGH EFFICIENCY HVAC EQUIPMENT 3a:</b> Gas, propane or oil-fired furnace with minimum AFUE of 95%</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	0.5
3b	<p><b>HIGH EFFICIENCY HVAC EQUIPMENT 3b:</b> Air-source heat pump with minimum HSPF of 8.5</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	1.0
3c	<p><b>HIGH EFFICIENCY HVAC EQUIPMENT 3c:</b> Closed-loop ground source heat pump; with a minimum COP of 3.3</p> <p><b>or</b> Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	2.0
3d	<p><b>HIGH EFFICIENCY HVAC EQUIPMENT 3d:</b> <b>DUCTLESS SPLIT SYSTEM HEAT PUMPS, ZONAL CONTROL:</b> In homes where the primary space heating system is zonal electric heating, a ductless heat pump system shall be installed and provide heating to at least one zone of the housing unit.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	1.0
4	<p><b>HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM:<sup>a</sup></b> All heating and cooling system components installed inside the conditioned space. All combustion equipment shall be direct vent or sealed combustion. Locating system components in conditioned crawl spaces is not permitted under this option. Electric resistance heat is not permitted under this option. Direct combustion heating equipment with AFUE less than 80% is not permitted under this option. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and shall show the location of the heating and cooling equipment and all the ductwork.</p>	1.0