STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development

Standard Energy Code Proposal Form

Jan 2022

Log No.24-RE-005 Vers. 2

Code being amended: ☐ Commercial Provisions ☒ Residential Provisions

Code Section # **Tables R406.2 & R406.3**

Brief Description:

Allows fossil fuel heating to be used in any situation that electric resistive heating is allowed and removes penalization levied upon supplemental and standby heating.

Proposed code change text: (Copy the existing text from the Integrated Draft, linked above, and then use underline for new text and ~~strikeout~~ for text to be deleted.)

R403.1.4 Standby Heating. Standby heating equipment provided in addition to the primary and/or supplemental heating system and controlled such that it will only be used when the primary heating equipment is not available, is permitted.

TABLE R406.2
ENERGY EQUALIZATION CREDITS

System Type	Description of Primary Heating Source	Credits	
		All Other	Group R-2[a]
1	For combustion heating equipment meeting minimum federal efficiency standards for the equipment listed in Table C403.3.2(5) or C403.3.2(6)	0	0
2[b]	For a~~n initial~~ heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(2) or C403.3.2(9) ~~and~~ that operates at all temperatures above 35°F (1.7°C) and changes over to supplemental heating below this temperature. The heat pump would not operate to provide space heating below this changeover temperature. Supplemental heating ~~provided by electric resistance or a combustion furnace~~ shall meet~~ing~~ minimum standards listed in Table C403.3.2(5) or C403.3.2(6).[b]	1.5	0
3	For heating system based on electric resistance only (either forced air or Zonal)	0.5	-0.5
4[b,c]	For heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(2) or C403.3.2(9) **or** Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590 Supplemental heating meeting minimum standards listed in Table C403.3.2(5) or C403.3.2(6) is permitted where: 1) The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor air temperature of 17°F (-8°C) or lower except when in defrost; 2) Controls prevent supplemental heater operation when the heating load can be met by the heat pump alone during both steady-state operation and setback recovery; and 3) The heat pump rated heating has a rated heating capacity at 47°F (8°C) no less than the supplemental heating capacity.	3.0	2.0
5[b]	For heating system based on electric resistance or combustion with: 1. Inverter-driven ductless mini-split heat pump system installed in the largest zone in the dwelling, **or** 2. With 2kW (6,824 BTU/hr) or less total installed heating capacity per dwelling Supplemental heating meeting minimum standards listed in Table C403.3.2(5) or C403.3.2(6) is permitted where: 1) The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor air temperature of 17°F (-8°C) or lower except when in defrost; 2) Controls prevent supplemental heater operation when the heating load can be met by the heat pump alone during both steady-state operation and setback recovery; and 3) The heat pump rated heating has a rated heating capacity at 47°F (8°C) no less than the supplemental heating capacity.	2.0	0

a. See Section R401.1 and residential building in Section R202 for Group R-2 scope.
b. ~~The gas back-up furnace will operate as fan-only when the heat pump is operating. The heat pump shall operate at all temperatures above 38°F (3.3°C) (or lower). Below that "changeover" temperature, the heat pump would not operate to provide space heating. The gas furnace provides heating below 38°F (3.3°C) (or lower)~~ Supplemental shall be prevented from operating above an outdoor temperature of 35°F (1.7°C) in accordance with R403.1.3.
c. Additional points for the HVAC system are included in Table R406.3.

TABLE R406.3
ENERGY CREDITS

OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2[b]
3. HIGH EFFICIENCY HVAC EQUIPMENT OPTIONS Only one option from Items 3.1 through 3.10 may be selected in this category. Item 3.11 may be taken with Items 3.1 or 3.2[c] only.			

unaltered credit options omitted

3.2[a]	For ~~secondary~~ supplemental heating system serving System Type 2 or 4 in Table R406.2: Energy Star rated (U.S. North) Gas or propane furnace with minimum AFUE of 95% **or** Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%. 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.	0.5	0.5
3.3[a,c,d]	Air-source, centrally ducted heat pump with minimum HSPF2 of 8.1 (HSPF of 9.5). In areas where the winter design temperature as specified in Appendix RC is 23°F or below, a cold climate heat pump found on the NEEP cc ASHP qualified product list shall be used. 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.	0.5	NA
3.4[a,d]	Closed-loop ground source heat pump; with a minimum COP of 3.3 **or** Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6. 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.	1.5	1.0
3.5[d]	Ductless mini-split heat pump system, zonal control: In homes where the primary space heating system is zonal electric heating or combustion, a ductless mini-split heat pump system with a minimum HSPF2 of 9 (HSPF of 10.0) shall be installed and provide heating to the largest zone of the housing unit. 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.	1.5	2.0
3.6[a]	Air-source, centrally ducted heat pump with minimum HSPF2 of 9.4 (HSPF of 11.0). A centrally ducted air source cold climate variable capacity heat pump (cc VCHP) found on the NEEP cc VCHP qualified product list with a minimum of 8.5 HSPF2 (10 HSPF) may be used to satisfy this requirement. In areas where the winter design temperature as specified in Appendix RC is 23°F or below, an air source centrally ducted heat pump shall be a cold climate variable capacity heat pump as listed on the NEEP qualified product list. 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.	1.0	N/A

3.7[a,d,e]	Ductless split system heat pumps with no primary electric resistance or combustion heating in the primary living areas. A ductless heat pump system with a minimum HSPF2 of 9 (HSPF of 10) shall be sized and installed to provide heat to entire dwelling unit at the design outdoor air temperature. **Exception:** In homes with total heating loads of 24,000 or less using multi-zone mini-split systems with nominal ratings of 24,000 or less, the minimum HSPF s to claim this credit shall be 8.19 HSPF2 (or 9 HSPF). To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type).	2.0	3.0
3.8[a,d]	Air-to-water heat pump with minimum COP of 3.2 at 47°F, rated in accordance with AHRI 550/590 by an accredited or certified testing lab. To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type).	1.0	NA
3.9	Gas-fired heat pump(s) meeting ANSI Z21.40.2 and Z21.40.4 or CSA, with a minimum UEF of 1.15. For R-2 Occupancy, gas-fired heat pump(s) meeting ANSI Z21.40.2 and Z21.40.4 or CSA, with a minimum UEF of 1.15, shall serve all units. 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.	1.5	1.5
3.10[f]	Combination water heating and space heating system shall include one of the following: Gas-fired heat pump water heater(s) meeting Tier 2 of the NEEA Advanced Water Heating Specification for Gas-Fueled Residential Storage Water Heaters Version 1.0. **or** For R-2 Occupancy, gas-fired heat pump water heater(s) meeting Tier 2 of the NEEA Advanced Water Heating Specification for Gas-Fueled Residential Storage Water Heaters Version 1.0., shall serve all units. **or** For R-2 Occupancy, gas-fired heat pump(s) meeting ANSI Z21.40.2 and Z21.40.4 or CSA, with a minimum UEF of 1.15, shall serve all units. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and, for solar water heating systems, the calculation of the minimum energy savings.	2.5	2.5

unaltered credit options omitted

a. An alternative heating source sized at a maximum of 0.5 Watts/ft^2 (~~equivalent~~1.7BTU/hr) of heated floor area or 500 Watts (1,706BTU/hr), whichever is bigger, may be installed in the dwelling unit.

b. See Section R401.1 and *residential building* in Section R202 for Group R-2 scope.

c. Option 3.11 can only be taken with Options 3.1 and 3.3. To qualify to claim Option 3.11 with 3.3, the system shall be a 1-2 speed heat pump system. Variable capacity heat pumps are ineligible from claiming this option.

d. This option may only be claimed if serving System Type 4 or 5 from Table R406.2.

e. Primary living areas include living, dining, kitchen, family rooms, and similar areas.

f. Option 3.10 may only be taken with Efficient Water Heating Option 5.1 or 5.2. Equipment sizing for space heating shall be calculated as provided in Section R403.7 with increased capacity to provide a minimum of 75 percent of peak hot water demand or shall be sized in accordance with *approved* manufacturer's specifications or guidance. Supplementary heat for water heating shall be in accordance with Section R403.5.7.

Purpose of code change:

Capacity does not equal use. Heating equipment that does not operate, regardless of capacity, consumes no energy. Supplemental heating by nature is not intended to operate except when the primary heating equipment is unable to meet the demand for heat. Thus, grouping the capacity of both supplemental and primary heating equipment, results in significant error in estimating energy use. EPCA [42 U.S.C. § 6297(f)(3)] mandates a *"(B) is on a one-for-one equivalent energy use or equivalent cost basis.*"

When considering source energy, natural gas heating produces significantly lower carbon emissions than electric resistive heating. There is absolutely no justifiable reason to prohibit the use of fossil fuel heating in situations where electric resistive heating is allowed.

This proposal is required for compliance with both federal [42 U.S.C. § 6297(f)(3) a.k.a. EPCA] and state [RCW 19.27A.020 (3) a.k.a. I2066] statutes.

Your amendment must meet one of the following criteria. Select at least one:

- ☐ Addresses a critical life/safety need.
- ☐ The amendment clarifies the intent or application of the code.
- ☒ Addresses a specific state policy or statute. (Note that energy conservation is a state policy)
- ☒ Consistency with state or federal regulations.
- ☐ Addresses a unique character of the state.
- ☒ Corrects errors and omissions.

Check the building types that would be impacted by your code change:

- ☒ Single family/duplex/townhome
- ☒ Multi-family 1 – 3 stories
- ☐ Multi-family 4 + stories
- ☐ Commercial / Retail
- ☐ Institutional
- ☐ Industrial

Your name	Gregory Johnson	Email address	gregory.johnson@avistacorp.com
Your organization	Avista	Phone number	509-495-4928
Other contact name	Click here to enter text.		

Economic Impact Data Sheet

Is there an economic impact: ☒ Yes ☐ No

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants, and businesses. If you answered "No" above, explain your reasoning.

This proposal does not add any additional requirements, but rather it merely provides additional options.

Provide your best estimate of the **construction cost** (or cost savings) of your code change proposal? (See OFM Life Cycle Cost **Analysis tool** and **Instructions;** use these **Inputs**. **Webinars on the tool can be found Here and Here**)

$significant savings/square foot (For residential projects, also provide **$significant savings/ dwelling unit**)

Show calculations here, and list sources for costs/savings, or attach backup data pages.

Not applicable as this proposal merely provides an additional option.

Provide your best estimate of the **annual energy savings** (or additional energy use) for your code change proposal?

0 KWH/ square foot (or) **0 KBTU/ square foot**

(For residential projects, also provide **0 KWH/KBTU / dwelling unit**)

Show calculations here, and list sources for energy savings estimates, or attach backup data pages.

From a source energy consumption perspective, this greatly reduces energy use. From a site energy consumption perspective, this slightly increase energy use. The stark difference depending upon the basis used depicts the inherent fallacy in certain methods used for accounting for energy use.

List any **code enforcement** time for additional plan review or inspections that your proposal will require, in hours per permit application:

This proposal does not make any changes to the plan review or inspection process.

Small Business Impact. Describe economic impacts to small businesses:

This proposal has no impact on small businesses as it merely provides additional options.

Housing Affordability. Describe economic impacts on housing affordability:

This proposal has no impact on housing affordability as it merely provides additional options.

Other. Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

This proposal reduces legal risk through addressing one of several clear violations to state and federal statutes.

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@des.wa.gov. For further information, call the State Building Code Council at 360-407-9255.

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.