



STATE OF WASHINGTON
STATE BUILDING CODE COUNCIL

Washington State Energy Code Development
Standard Energy Code Proposal Form

May 2018

Log No. Env014-2018 REV

Code being amended: Commercial Provisions Residential Provisions

Code Section # C402.1.1.2

Brief Description: *This proposal adds flexibility to this provision and promotes non-carbon based heating system solutions for semi-heated buildings and spaces. This aligns with the carbon-reduction goals of WA State Statute RCW 70.235.020.*

It clarifies the intent in the WSEC that the installed capacity of heat trace temperature maintenance systems used for freeze protection of pipes and equipment is not considered space conditioning capacity. It also adds a pointer to Section C202 where the qualifying parameters of a semi-heated building or space are defined.

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.)

C402.1.1.2 Semi-heated buildings and spaces. The building envelope of *semi-heated* buildings, or portions thereof, shall comply with the same requirements as that for conditioned spaces in Section C402, except as modified by this section. The total installed output capacity of mechanical space conditioning systems serving a *semi-heated* building or space shall comply with Section C202. Building envelope assemblies separating conditioned space from semi-heated space shall comply with the exterior envelope insulation requirements. Semi-heated spaces heated by mechanical systems that do not include electric resistance heating equipment are not required to comply with the opaque wall insulation provisions of Section C402.2.3 for walls that separate semi-heated spaces from the exterior or low energy spaces. Semi-heated spaces shall be calculated separately from other conditioned spaces for compliance purposes. Opaque walls in semi-heated spaces shall be calculated as fully code compliant opaque walls for both the target and proposed for the Target UA calculations for the component performance alternative in Section C402.1.5, and for the Standard Reference Design for Total Building Performance compliance per Section C407.

Exceptions:

1. Building or space may comply as *semi-heated* when served by one or more of the following system alternatives:
 - a. Electric infrared heating equipment for localized heating applications.
 - b. Heat pumps with cooling capacity permanently locked out by the manufacturer, as pre-approved by the jurisdiction.
1. The capacity of heat trace temperature maintenance systems complying with Section C404.7.2 that are provided for freeze protection of piping and equipment only, shall not be included in the total installed output capacity of mechanical space conditioning systems.



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Purpose of code change:

*The only purpose of the semi-heated space conditioning category is to allow spaces with minimal installed heating capacity (3.4 - 8 btu/h*s²) and no installed cooling capacity, to be exempt from the wall insulation requirements in the WSEC. The limitation that heating systems within a semi-heated space may not be electric resistance harkens back to the 2006 WSEC when thermal envelope requirements were based on heating system fuel type. The result is that the most common mechanical system types installed in semi-heated buildings and spaces are gas-fired unit heaters and gas-fired radiant heaters over work areas. Note that low energy spaces per C402.1.1.1, Item 1 are allowed to use any form of heating system fuel type.*

This proposal maintains the original intent of this provision, which is to offer a less stringent thermal envelope requirement for spaces not intended to be fully heated, while allowing more flexible heating equipment options with which to meet this provision. This proposal also aligns with the goals of WA State Statute RCW 70.235.020, which is to reduce dependence on carbon-based systems.

This proposal also clarifies the intent in the WSEC that the installed capacity of heat trace temperature maintenance systems used for freeze protection of piping and equipment is not considered space conditioning capacity.

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

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

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

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

Your name Lisa Rosenow Email address lisa.rosenow@nec.net

Your organization NW Energy Efficiency Council Phone number 206-624-0283

Other contact name [Click here to enter text.](#)

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 360-407-9278.

Economic Impact Data Sheet

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants and businesses.

The primary benefit of this proposal is it allows more flexibility for building owners to select potentially higher efficiency mechanical heating systems than are available in the marketplace for non-electric resistance (primarily fuel-fired) equipment. This includes the ability to use heat pumps as long as the cooling capacity of this equipment is permanently locked out.

Since this proposal only aims to allow more flexibility in equipment selection for semi-heated buildings and spaces, but does not mandate a particular performance metric or system type, then no additional costs are incurred beyond what is already required under this provision.

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](#))

Indeterminate (For residential projects, also provide [Click here to enter text.](#)/ dwelling unit)

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

NA

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

[Click here to enter text.](#)KWH/ square foot (or) 375 KBTU/ square foot

(For residential projects, also provide [Click here to enter text.](#)KWH/KBTU / dwelling unit)

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

NA

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 change the amount of time required to verify Code compliance of mechanical systems proposed for semi-heated buildings or spaces.

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