160-2018
Proponent Revision
080918

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

Code Section # NEW C501.4.2

Brief Description: *This proposal addresses common challenges with regards to compliance documentation for mechanical system retrofits that are not clearly defined in the WSEC. The WSEC requires load calculations to justify replacement equipment sizing, however often this information is not available. This proposal allows envelope information based on the code edition at the time of permit to be used in the load calculations.*

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.)

C501.4 Compliance. *Alterations*, *repairs*, *additions* and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for *alterations*, *repairs*, *additions* and changes of occupancy or relocation, respectively, in this code and in the *International Building Code*, *International Existing Building Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *Uniform Plumbing Code*, and NFPA 70.

C501.4.2 Calculation of mechanical heating and cooling loads for retrofits. For the installation of new or replacement mechanical equipment that serves existing building areas, design loads associated with heating, cooling and ventilation of the existing building areas served shall be determined in accordance with Section C403.1.1.

R-values and U-factors used to determine existing thermal envelope performance for the purpose of calculating design loads shall be per as-built record documents.

Exceptions:

1. If accurate as-built record documents are not available, R-values and U-factors used to determine existing building thermal envelope performance may be per the edition of the Washington State Energy Code that was in effect at the time the building was permitted.
2. R-values and U-factors for the existing envelope assemblies as approved by the *code official*.

Purpose of code change:

Section C503 is silent with regards to load calculations for mechanical system retrofits. Most jurisdictions refer to Section C403 and require load calculations to support system sizing of new or replacement mechanical equipment in an existing building. A common complaint is that historical record documentation is often difficult to acquire, particularly for a small mechanical retrofit project. Thus, load calculations performed and submitted as justification for equipment selection is often subjective at best. This proposal clarifies that envelope information based on the WSEC in effect at the time the building was originally permitted is an acceptable source of envelope information for mechanical load calculations.

All elements of this proposal represent an interpretation of the intent of the current Code language. It does not recommend an increase in stringency. It does propose reasonable allowances that are intended to encourage more accurate code compliance documentation. The purpose is to reduce the burden on jurisdictions by providing them with better information with which to make their permitting decisions for retrofits.

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	Lisa Rosenow	Email address	lisa.rosenow@neec.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.

When existing mechanical equipment reaches the end of its useful life, a common approach to this retrofit situation is to replace the equipment like-for-like with new equipment of the same capacity. However, this does not take into consideration changes in building loads that may have occurred since the existing equipment was originally installed. It also does not account for equipment that was selected based on rule of thumb values, prior to the requirement for load calculations in the WSEC.

This proposal clarifies the implied intent that Section C403.1.1 Calculation of heating and cooling loads applies to all mechanical system projects, for new construction and retrofits. Equipment sized per the actual building loads ensures that the building owner only has to pay for the capacity that they need. In addition, properly sized equipment will operate within its optimal range more hours per year, reducing wear and tear of the equipment and providing energy cost savings to the owner.

Since this proposal only aims to clarify the implied intent of existing Code language, no additional costs are incurred beyond what is already required.

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:

By making it clear that this requirement applies to retrofits, this proposal potentially reduces time and costs associated with jurisdictions requesting load calculation information when not provided by the mechanical designer or contractor with their permit applications.

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