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 # _____C403.3_____

Brief Description:

Provide similar language to ASHRAE 90.1 to require minimum temperature difference for hydronic coils to increase pump efficiency and primary equipment efficiency.

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

New sub-section to C403.3 Equipment Selection:

C403.3.7 Hydronic Coil Selection. Hydronic coils shall comply with sections C403.3.7.1 and C403.3.7.2.

C403.3.7.1 Chilled-Water Coil Selection. Chilled-water cooling coils shall be selected to provide a 15°F or higher temperature difference between leaving and entering water temperatures and a minimum of 57°F leaving water temperature at design conditions.

Exceptions:

1. Chilled-water cooling coils that have an airside pressure drop exceeding 0.70 in. H2O when rated at 500 fpm face velocity and dry conditions (no condensation).
2. Individual fan-cooling units with a design supply airflow rate ≤ 5000 cfm.
3. Constant-air-volume systems.
4. Coils selected at the maximum temperature difference allowed by the chiller.
5. Passive coils (no mechanically supplied airflow).
6. Coils with design entering chilled-water temperature ≥ 50°F.
7. Coils with design entering air dry-bulb temperature ≤ 65°F

C403.3.7.2 Hot-Water Coil Selection. Hot-water heating coils shall be selected to provide a maximum ~~1510~~20°F ~~or higher~~ temperature difference between leaving and entering water temperatures and a maximum of ~~115~~118°F ~~leaving~~ entering water temperature at design conditions.

Exceptions:

1. Hot-water heating systems which utilize heat-pumps as the primary source.
~~1.~~2. Individual fan ~~cooling~~ units with a design supply airflow rate ≤ ~~5000~~ 1000 cfm.
~~2. Constant-air-volume systems.~~
~~3. Coils selected at the maximum temperature difference allowed by the primary heating equipment.~~
~~4.~~3. Passive coils (no mechanically supplied airflow).
4. Coils with design leaving air ~~dry-bulb~~ temperature ≥ ~~90~~95°F.
5. New or replacement equipment connected to an existing hot-water heating system.

Purpose of code change:

Increase pump efficiency and primary equipment efficiency. Hot water coil selection language is drafted to be similar to the ASHRAE 90.1-2019 section 6.5.4.7 language. ASHRAE 90.1 does not contain heating coil requirements. Heating coil requirements with a coil leaving water temperatures exceeding 115°F have less potential for high-efficiency natural gas boiler operation as well as heat pump operation.

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 4 + stories   ☒ Institutional

☐ Multi-family 1 – 3 stories   ☒ Commercial / Retail   ☒ Industrial

Your name	Robby Oylear		Email address	robbyoylear@gmail.com
Your organization	Click here to enter text.		Phone number	206-829-7329
Other contact name	Click here to enter text.			

Economic Impact Data Sheet

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

Increased operating efficiency for pumping and heating/cooling generation due to decreased flowrates and increased efficiency of primary equipment.

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**)

$Click here to enter text./square foot (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

Larger/deeper air-stream coils will add cost, however pumps and piping can be smaller/lower cost. Experience on other projects has shown a neutral cost impact.

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) Click here to enter text.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

Unable to quantify across the breadth of projects. Pumping energy savings + increased potential for heat recovery / natural gas condensing operation should offset increased energy use on air system for higher airside pressure drop coils.

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

No additional enforcement time is anticipated, beyond checking an additional box.

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