



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

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TO: Washington State Building Code Council Members and All Interested Parties

FROM: Energy Code – Commercial – Technical Advisory Group

SUBJECT: **2024 Washington State Energy Code, Commercial TAG Report**

The TAG has completed their review of the Integrated Draft for the 2024 Washington State Energy Code, Commercial provisions (WSEC-C). The Integrated Draft was developed by reviewing the changes in the 2024 International Energy Conservation Code (IECC), determining which changes are equivalent or more stringent than the current WSEC-C, and how they fit with existing state amendment language. The resulting draft is attached. The TAG also formed a number of working groups to review language and bring back reports to the TAG. Some of the working groups did not finish their reviews and will be developing code change proposals to bring forward instead.

Working Groups established:

- Definition of “Approved Source.” The TAG discussed the working group’s findings but voted to include the IECC language as written.
- Correlate definitions of “Group R” and Residential building. The working group will be submitting a code change proposal.
- Refining the credit modification equations in C401.3. This was not considered part of the integrated draft work and will be submitted as a code change proposal.
- Comparing WSEC Appendix A and ASHRAE 90.1 Appendix A. The IECC references ASHRAE’s appendix in a number of instances and it was felt there is a need to update the WSEC appendix. The working group concluded that this topic needed further study and a code change proposal will be forthcoming. The TAG voted to retain the WSEC reference to WSEC Appendix A for the integrated draft.
- Review humidification requirements in Section C403.3.2.7 and C403.4.13. The working group recommended changes to C403.4.13 but those changes were not accepted by the full TAG and the integrated draft contains the new IECC text.

Several of the state requirements from the 2021 WSEC-C were incorporated into the 2024 IECC. The IECC adopted a new section for TSPR that can be used as a compliance option under C403. The TAG unanimously voted to retain the current WSEC requirements for TSPR based on testimony from PNNL that there are serious flaws in the IECC language. Another example is the requirement for renewable energy generation for new buildings. The IECC requirements were integrated with the current WSEC requirements, including reducing the threshold from 10,000 square feet to 5,000 square feet. The IECC also incorporated more specific requirements for thermal bridging than that currently in the WSEC. The IECC also added requirements for dimming control similar to the existing WSEC language. In that case,

the IECC language was added and the existing WSEC language removed. The IECC also incorporated requirements for energy metering. Some of this new language on meters and acquisition systems was incorporated into the existing WSEC language while the majority was rejected in favor of the existing WSEC language.

Some specific changes made include:

- New Intent section revised based on Washington state policy and existing amendments
- Removed the new Section creating a code compliance agency (C103). Felt this should be left to the jurisdictions
- Modified new C106.3 Valuation of work for consistency with IBC language
- The IECC updated their air leakage requirements to more closely match those in the WSEC. The new IECC language and format was integrated into the WSEC as appropriate. The more stringent leakage rate in the WSEC was retained, as was the WSEC language for testing dwelling units.
- The IECC adopted a new section for TSPR that can be used as a compliance option under C403. The TAG unanimously voted to retain the current WSEC requirements for TSPR based on testimony from PNNL that there are serious flaws in the IECC language.
- The new IECC language for parking garage ventilation was not adopted. The WSEC language was retained with the addition of a specification that separate ventilation systems and controls be provided for each parking garage section.
- The new IECC language for dwelling unit ventilation was not included; the TAG opted to retain the existing WSEC language.
- The new IECC requirements for intermittent exhaust control were modified to correlate with the state IMC requirements for whole house exhaust systems.
- The IECC modified the requirements for pipe insulation and provided a second table for minimum R-values. The TAG voted to retain the current 2021 language and not adopt the second table. The two tables were not consistent and it was felt the R-values were not appropriate for the application.
- The IECC added requirements for roof deicing controls. The TAG modified the language to remove one of the specified control requirements that didn't make sense. The controls in question were required to shut off the system between sunset and sunrise, which is typically when you would want the deicing active.
- A new IECC section on demand responsive lighting controls was retained, although the IECC language is in support of an energy credit that is not present in the WSEC language.
- The indoor lighting power allowances from ASHRAE 90.1-2022 were adopted into the integrated draft. These values differ somewhat from the IECC values and some are less stringent than the current WSEC values.
- The exterior lighting power allowances from the 2021 WSEC were retained for the most part. Some adjustments in walkways from the 2024 IECC were integrated.
- The new language for C503.4.1, New building mechanical systems, was modified to include an exception from C408.1 limiting the application of commissioning.
- The IECC added new exceptions to the requirements for service water heating equipment alterations in existing buildings to not require commissioning. The TAG voted to not adopt the new language and retain the WSEC language in C505.3 as currently adopted.
- The IECC added language for lighting and controls in existing buildings. The TAG recommended to not incorporate most of this new language and retain the existing WSEC language. The one exception is to add a wattage limitation in addition to the percentage of lighting change in Section C503.7.2.

Additionally, the TAG reviewed the changes to identify those changes deemed significant or that represented a positive or negative cost impact. One significant change from the IECC, the creation of a new climate zone in western Washington, was rejected by the TAG based on statutory language from RCW 19.27A. Other changes are highlighted below.

Significant Changes incorporated from the 2024 International Energy Conservation Code	
Table C402.1.2 / C402.1.3	The U-factors for mass walls and unheated slabs were reduced. Similarly, the R-value for mass walls was increased. A number of additional configurations were added to Table C402.1.3
Section C402.1.4	The WSEC equations for UA comparison were replaced with the IECC component performance equations.
Table C402.1.4	A new table was added to compensate for thermal bridging
Section C402.5.1.1	A new section is added to require documentation of the air barrier design
Section C402.6	A new section was introduced to address thermal bridging
Section C403.4.1.7	A number of exceptions were added to the requirement for operable openings interlocking with the HVAC system.
Section C403.4.13	A new section was added for humidification and dehumidification controls. This section was controversial in that it requires all humidistatic controls to not use fossil fuels or electricity when producing humidity above 30 percent, thus eliminating most steam humidification systems. An existing requirement in Section C403.3.2.7 does require that all humidification on economizer systems be adiabatic.
Section C403.3.2	The HVAC efficiency tables were updated to the most recent federal requirements
Section C403.5.3.4	This section went from a generic “shall be capable of relieving excess air” to specific methods for relief of excess outdoor air—either through return or relief fans or a barometric or motorized damper relief path with a pressure drop of less than 0.10 in. w.c.
Section C403.6.1	VAV systems are allowed to use the ASHRAE 62.1 simplified procedure ventilation rates.
Section C403.7.1.1	An exception is added to demand control ventilation for engineered system designs that decreases the concentration of contaminants equitable to using the required ventilation rate but at a reduced design rate.
Section C403.7.9	The IECC added a new section for occupied standby controls in several occupancy types.
Section C403.8.4	The ventilation fan efficacy table added the required testing procedure for all fan types. New exceptions were added for radon mitigation fans and fans not covered under the referenced standards.
Section C403.8.6	The IECC added new requirements for large-diameter ceiling fan efficacy.
Section C403.13	The IECC added new requirements for clean water pumps.
Section C404.6	The IECC revised the requirements for service water heating pipe insulation and included a new version of the table found in Section C403.10.3 with slightly different values.

Section C405.2.12	The IECC added new requirements for dwelling and sleeping unit lighting controls and switched receptacle controls.
Section C405.9	The IECC added new requirements for electrical equipment in data centers and computer rooms.
Section C411.1	The IECC added requirements for renewable energy in C405. These requirements were integrated into the WSEC language in C411. The WSEC threshold of 10,000 square feet was changed to the IECC threshold of 5,000 square feet and the wattage per square foot was increased from 0.5 to 0.75 W/ft ² .
Section C503.3.1	This section was changed from roof replacement to roof, ceiling, and attic alterations. The IECC language was modified slightly to remove the ambiguous language “approved design that minimizes deviation.” This same change was made to the other envelope alteration sections.
Section C503.4.2	The IECC added a new requirement for replacement or addition of roof-mounted equipment.
Section C503.9	The IECC added a requirement that alterations with substantial improvements (as found in the new definition) are required to earn the same number of credits as a new building.

Attachment: [2024 WSEC Integrated Draft](#)