



126-2018
 Proponent Revision
 8/09/18

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 # C406.1, C406.1.1, proposed C406.1.2, C406.2, C406.3, C406.4, C406.5, C406.6, C406.7, C406.8, C406.9

Brief Description: *This proposal incorporates information from SBCC Official Interpretations 17-02 and 17-03 regarding additional efficiency package options. It addresses limitations in low energy spaces and equipment buildings, and sets a reasonable project size threshold for when two options are required in additions. It also clarifies this requirement for projects permitted under two phases as a shell and core and then a tenant space build out.*

This proposal also clarifies which options are required to be applied at the total building level and which ones may be applied at the tenant space level, based on SBCC official interpretation. It also clarifies that tenant spaces do not all have to comply with the same tenant space level option.

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.)

C406.1 Requirements. New buildings and building additions per Section C502 shall comply with no less than two of the following additional efficiency package options:

1. More efficient HVAC performance in accordance with Section C406.2.
2. Reduced lighting power in accordance with Section C406.3.
3. Enhanced lighting controls in accordance with Section C406.4.
4. On-site supply of renewable energy in accordance with Section C406.5.
5. Provision of a dedicated outdoor air system for certain HVAC equipment in accordance with Section C406.6.
6. High-efficiency service water heating in accordance with Section C406.7.
7. Enhanced envelope performance in accordance with Section C406.8.
8. Reduced air infiltration in accordance with Section C406.9.

Exception:

1. Low energy spaces per Section C402.1.1.1 and equipment buildings per C402.1.2 are required to comply with no less than one additional efficiency package option.
2. Building additions that have less than 1,000 sf of conditioned floor area are required to comply with no less than one additional efficiency package option.

C406.1.1 Tenant spaces. ~~Tenant spaces shall comply with Section C406.2, C406.3, C406.4, C406.6 or C406.7, where applicable. Where an entire building complies with Section C406.5, C406.8 or C406.9, tenant spaces within the building shall be deemed to comply with this section.~~ A first tenant build-out space shall comply with no less than two additional efficiency package options. In buildings with multiple tenant spaces, each tenant space may comply with whichever option is most suitable for the space. Additional efficiency package options per Sections C406.5, C406.8 and C406.9 shall be applied to the whole building and may not be applied to individual tenant spaces only.

Exceptions:

1. When a whole building complies with an additional efficiency package option under the initial shell and core permit, the approved option may be used to demonstrate compliance with this section.

2. Previously occupied tenant spaces in existing buildings that comply with this code in accordance with Section C501.

C406.2 More efficient HVAC equipment and fan performance. Buildings HVAC equipment serving the conditioned floor area of the whole building, building addition, or tenant space shall comply with Sections C406.2.1 through C406.2.3.

C406.2.1 HVAC system selection. No less than 90 percent of the total HVAC capacity ~~serving the building~~ shall be provided by equipment ~~types~~ that ~~is~~ are listed in Tables C403.2.3(1) through C403.2.3(9) or a combination thereof.

Commentary for C406.4 – Tenant space level option that may be applied to just a portion of a building. Other tenant spaces may comply with this option or different tenant space level options (mix and match).

C406.3 Reduced lighting power. ~~Buildings~~ Interior lighting within the whole building, building addition or tenant space shall comply with Sections C406.3.1 and, where applicable, C406.3.2.

Commentary for C406.4 – Tenant space level option that may be applied to just a portion of a building. Other tenant spaces may comply with this option or different tenant space level options (mix and match).

C406.4 Enhanced digital lighting controls. ~~Interior lighting shall be located, scheduled and operated in accordance with Section C405.2 and~~ No less than 90 percent of the total installed interior lighting power within the whole building, building addition or tenant space shall be configured with the following enhanced control functions comply with Section C406.4.1.

C406.4.1 Lighting controls function. Interior lighting shall be located, scheduled and operated in accordance with Section C405.2, and shall be configured with the following enhanced control functions:

1. Luminaires shall be configured for continuous dimming.
2. Each luminaire shall be individually addressed.... etc

Commentary for C406.4 – Tenant space level option that may be applied to just a portion of a building. Other tenant spaces may comply with this option or different tenant space level options (mix and match).

C406.5 On-site renewable energy. Buildings shall be provided with on-site renewable energy systems with a ~~total~~ system rating per square foot of ~~conditioned floor area of the building or not of no~~ not of no less than the values specified in Table C406.5 based on the total conditioned floor area of the whole building.

Commentary for C406.5 – Per original language in Section C406.1.2 Tenant spaces, this is intended to be a building level option. However, it may be incorporated into a whole building project, shell and core project, or even a tenant space build-out as long as the total system rating installed meets the minimum defined in Table C406.5.

C406.6 Dedicated outdoor air system (DOAS). ~~Not No~~ No less than 90% 90 percent of the ~~building total~~ building total conditioned floor area of the whole building, building addition or tenant space, excluding floor area of unoccupied spaces that do not require ventilation per the *International Mechanical Code*, shall be served by a DOAS installed in accordance with Section C403.3.5. This option is available ~~to both buildings~~ for building areas subject to and not subject to the prescriptive requirements of Section C403.3.5.

Commentary for C406.6 – Tenant space level option that may be applied to just a portion of a building. Other tenant spaces may comply with this option or different tenant space level options (mix and match).

C406.7 Reduced energy use in service water heating. Buildings with service hot water heating equipment that serves the whole building, building addition or tenant space shall comply with Sections C406.7.1 and C406.7.2.

C406.7.2 Load fraction. Not less than 60 percent of the annual ~~building~~ building service hot water heating energy use, or not less than 100 percent of the annual ~~building~~ building service hot water heating energy use in buildings with water-cooled systems subject to the requirements of Section ~~C403.5.4~~ C403.9.5, shall be provided by one or more of the following:

1. Service hot water system delivering heating requirements using heat pump technology with a minimum COP of 3.0.
2. Waste heat recovery from service hot water, heat recovery chillers, building equipment, process equipment, or other *approved* system.
3. On-site renewable energy water-heating systems.

Commentary for C406.7 – Tenant space level option that may be applied to just a portion of a building. Other tenant spaces may comply with this option or different tenant space level options (mix and match).

C406.8 Enhanced envelope performance. The ~~total UA~~ Proposed Total Envelope UA of the building thermal envelope of the whole building or building addition shall be 15 percent lower than the ~~maximum allowable UA for a building~~ Allowed Total Envelope UA for an area of identical configuration and fenestration area in accordance with Section C402.1.5 and Equation 4-2. ~~where UA equals the sum of the U-values of each distinct envelope assembly multiplied by the area in square feet of that assembly.~~

Commentary for C406.8 – Building level option. Per Section C502.1, an addition may demonstrate envelope compliance as a stand-alone area. In this proposal, this is interpreted to allow the component performance alternative to be applied to just the addition.

C406.9 Reduced air infiltration. Measured air infiltration of the total conditioned floor area of the whole building or fully isolated building addition shall comply with C406.9.1.

C406.9.1 Air leakage testing and verification. Air infiltration shall be verified by whole building pressurization testing conducted in accordance with ASTM E779 or ASTM E1827 by an independent third party. The measured air leakage rate of the *building envelope* shall not exceed 0.25 cfm/ft² (2.0 L/s•m²) under a pressure differential of 0.3 in. water (75 Pa), with the calculated surface area being the sum of the above and below grade building envelope. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the code official and the building owner.

Exception: Where the *conditioned floor area* of the building is not less than 250,000 ft² (25,000 m²), air leakage testing shall be permitted to be conducted on representative above grade sections of the building provided the conditioned floor area of tested areas is no less than 25 percent of the conditioned floor area of the building and are tested in accordance with this section.

Commentary for C406.9 – Building level option. The reason behind limiting this option to an entire building and not allowing it for shell and core is that if mechanical, electrical and/or plumbing systems are added as a part of the tenant space build out, the installation of these systems may introduce additional leakage that would render the original air infiltration test results invalid. It is proposed to allow this option for stand-alone building addition projects only when the addition is fully isolated from the rest of the building so that test results reflect the envelope air leakage of just the addition area.

Purpose of code change:

This proposal, as well as SBCC Official Interpretations 17-02 and 1703, are intended to clarify the intent of how additional efficiency package options are applied to various project scenarios. The implied intent is that some options are to be applied as whole building level options and some may be applied at the tenant space level. However, the language that describes this intent is not clear.

This proposal also addresses specific project issues that have been noted by jurisdictions and the design community.

For additions, no size threshold had been defined in the previous Code so it was unclear when this provision applies to additions. This proposal establishes a reasonable size threshold for additions that are required to comply with two options per this section that is in line with other similar requirements in this code.

For low energy and equipment buildings, this proposal recommends lowering the options requirement to one to account for the limited systems with which to apply the available options in a low energy space or equipment building.

For projects that are constructed under two phases as a shell and core and then a tenant space, per the current interpretation these projects appear to be penalized by having to comply with two options for the shell and core portion, and then one additional option for the tenant space build out. However, per SBCC interpretation, we believe this was not the intent. This proposal clarifies this detail so that projects constructed under two phases are governed the same as projects constructed under a single phase.

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

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

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

- | | | |
|--------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> Single family/duplex/townhome | <input checked="" type="checkbox"/> Multi-family 4 + stories | <input checked="" type="checkbox"/> Institutional |
| <input type="checkbox"/> Multi-family 1 – 3 stories | <input checked="" type="checkbox"/> Commercial / Retail | <input checked="" type="checkbox"/> Industrial |

Your name	Lisa Rosenow	Email address	lisa.rosenow@neec.net
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Your organization	NW Energy Efficiency Council	Phone number	206-624-0283
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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.

Since this proposal only aims to clarify the implied intent of existing Code language, as supported by SBCC official interpretations, no additional costs are incurred beyond what is already required. It also sets a reasonable threshold for when options are required for additions and lowers the number of options required for low energy spaces. This addresses the concern that in the case of a small addition or low energy building, there are fewer applicable options available.

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

Refer to SBCC Official Interpretations 17-02 and 17-03.

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 reduces the amount of time necessary for jurisdictions to interpret and enforce these provisions by incorporating various clarifications about the number of options required based on the project scope and how the options may be applied.

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