162-2018
Proponent Revision
08/09/18

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 # C503.2, C505.1

Brief Description: *This proposal limits the scope of project types that can utilize the 110% above Code exception for retrofit projects demonstrating compliance via component performance or total building performance.*

Commentary - If proposal E-161 is approved, it is recommended to also apply this proposal to revised Sections C503.3.2 and C503.3.3 so this exception is consistently applied.

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.)

C503.2 Change in space conditioning. Any ~~non~~ unconditioned space that is altered to become *conditioned space* or *semi-heated* space shall be required to be brought into full compliance with this code. Any semi-heated space that is altered to become conditioned space shall be required to be brought into full compliance with this code.

Exceptions - Buildings or spaces that were permitted prior to the 2009 WSEC, or were originally permitted as unconditioned, may comply with this section as follows:

1. Where the component performance alternative in Section C402.1.5 is used ~~to comply with this section~~, the proposed UA is allowed to be up to 110 percent of the target UA.
2. Where the total building performance option in Section C407 is used ~~to comply with this section~~, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3.

C505.1 General. Spaces undergoing a change in occupancy shall be brought up to full compliance with this code in the following cases:

1. Any space that is converted from an F, S or U occupancy to an occupancy other than F, S or U.
2. Any space that is converted to a Group R dwelling unit or portion thereof, from another use or occupancy.
3. Any Group R dwelling unit or portion thereof permitted prior to July 1, 2002, that is converted to a commercial use or occupancy.

~~Where the use in a space changes from one use in Table C405.4.2 (1) or (2) to another use in Table C405.4.2 (1) or (2), the installed lighting wattage shall comply with Section C405.4.~~

Exceptions - Buildings or spaces that were permitted prior to the 2009 WSEC, or were originally permitted as unconditioned, may comply with this section as follows:

3. Where the component performance alternative in Section C402.1.5 is used ~~to comply with this section~~, the proposed UA is allowed to be up to 110 percent of the target UA.
4. Where the total building performance option in Section C407 is used ~~to comply with this section~~, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3.

Where the use in a space changes from one use in Table C405.4.2 (1) or (2) to another use in Table C405.4.2 (1) or (2), the installed lighting wattage shall comply with Section C405.4.

Purpose of code change:

The average U-factor delta between the 2009-2012 WSEC and 2015 WSEC is only 4%, so the current 110% above Code exception for change is space conditioning or change in occupancy projects is too generous for buildings permitted under the 2009 WSEC or later. The result is that newer buildings under-going a retrofit would be able to show compliance with the current Code using envelope assemblies that may be well below Code.

This proposed exception limitation does not apply to buildings originally permitted as low energy since in most cases a low energy building has little to no insulation, including in difficult to retrofit areas such as the slab edge.

This proposal does not change the stringency of these provisions. It only reduces the scope of the available exceptions.

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.

For a project where the building was permitted under the 2009 WSEC or later, compliance will have to be demonstrated without the benefit of the 110% extra allowance. However, this allowance is an exception and not a part of the requirements of these provisions.

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

WSEC Envelope U-Factor History table, attached.

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) 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:

Documentation scope and the time required to review Code compliance documentation will be change. The 110% allowance is a multiplier added to the completed component performance or total building performance calculations.

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

WSEC Envelope Requirements History

* Compared to 2015 WSEC for single rafter roof & non-swinging doors

	2018 WSEC U-Factor		2015 WSEC U-Factor		2012 WSEC U-Factor		Delta between 2015 & 2012		2009 WSEC U-Factor		Delta between 2015 & 2009*		2006 WSEC U-Factor	
Envelope Assembly Types	**All Other**	**Group R**	**All Other**	**Group R**	**All Other**	**Group R**	**All Other**	**Group R**	**All Other**	**Group R**	**All Other**	**Group R**	**Electric heat**	**All other**
Roofs														
Insulation entirely above deck	0.027	0.027	0.027	0.027	0.034	0.031	1.259	1.148	0.034	0.031	1.259	1.148	0.034	0.046
Metal building	0.031	0.031	0.031	0.031	0.031	0.031	1.000	1.000	0.031	0.031	1.000	1.000	0.034	0.046
Attic and other	0.021	0.021	0.021	0.021	0.021	0.021	1.000	1.000	0.021	0.021	1.000	1.000	0.031	0.036
Joist or single rafter	0.027	0.027	0.027	0.027					0.027	0.027	1.000	1.000	0.034	0.046
Walls														
Mass	0.104	0.078	0.104	0.078	0.104	0.078	1.000	1.000	0.150	0.090	1.442	1.154		
Mass tranfer deck slab edge	0.200	0.200	0.200	0.200										
Metal building	0.052	0.052	0.052	0.052	0.052	0.052	1.000	1.000	0.064	0.057	1.231	1.096	0.062	0.109
Steel-framed	0.055	0.055	0.055	0.055	0.055	0.055	1.000	1.000	0.064	0.057	1.164	1.036	0.062	0.109
Wood framed and other	0.054	0.054	0.054	0.054	0.054	0.054	1.000	1.000	0.057	0.057	1.056	1.056	0.062	0.062
Floors														
Mass	0.031	0.031	0.031	0.031	0.031	0.031	1.000	1.000	0.029	0.029	0.935	0.935	0.029	0.056
Steel-joist framing							1.000	1.000	0.029	0.029	1.000	1.000	0.029	0.056
Wood-hoist framing	0.029	0.029	0.029	0.029	0.029	0.029			0.029	0.029	1.000	1.000	0.029	0.056
Slab-on-grade F-factors														
Unheated slabs	0.54	0.54	0.54	0.54	0.54	0.54	1.000	1.000	0.54	0.54	1.000	1.000	0.54	0.54
Heated slabs	0.55	0.55	0.55	0.55	0.55	0.55	1.000	1.000	0.36	0.36	0.655	0.655	0.54	0.54
Vertical fenestraton														
Non-metal framing	0.30	0.30	0.30	0.30	0.30	0.30	1.000	1.000	0.32	0.32	1.067	1.067	0.40	0.55
Metal framing - fixed	0.38	0.38	0.38	0.38	0.38	0.38	1.000	1.000	0.40	0.40	1.053	1.053	0.40	0.55
Metal framing - operable	0.40	0.40	0.40	0.40	0.40	0.40	1.000	1.000	0.40	0.40	1.000	1.000	0.40	0.55
Metal framing - entrance door	0.60	0.60	0.60	0.60	0.60	0.60	1.000	1.000	0.60	0.60	1.000	1.000	0.40	0.55
Opaque Doors														
Swinging door	0.37	0.37	0.37	0.37	0.37	0.37	1.000	1.000	0.60	0.40	1.622	1.081	0.60	0.60
Non-swinging door (roll-up or sliding)	0.34	0.34	0.34	0.34	0.34	0.34	1.000	1.000	0.60	0.40	1.765	1.176	0.60	0.60
Garage door <14% glazing	0.31	0.31												
Skylights														
All types	0.50	0.50	0.50	0.50	0.50	0.50	1.000	1.000	0.50	0.50	1.000	1.000	0.60	0.70
Opaque doors and skylights weighted as 10% of total envelope calculation.					Primary Assemblies Total		15.259	15.148		Total	17.861	17.199		
					Doors & Skylights Total (*10%)		0.300	0.300			0.439	0.326		
					Average		1.03	1.02		Average	1.07	1.02		
					OVERALL AVERAGE		**1.02**			OVERALL AVERAGE	**1.04**			

	** Averaged All Other/Group R to compare to both Electric Heat and All Other Heat												** Averaged All Other/Group R to compare to > 3 stories & ≤ 3 stories		
	Delta between 2015 & 2006**		1991 WSEC U-Factor		Delta between 2015 & 1991**		1986 WSEC U-Factor		Delta between 2015 & 1986***		1980 & 1984 WSEC U-Factor		Delta between 2015 & 1980/1984***		
	Electric heat	All other	Electric heat	All other	Electric heat	All other	> 3 stories	≤ 3 stories	> 3 stories	≤ 3 stories	> 3 stories	≤ 3 stories	> 3 stories	≤ 3 stories	
	1.259	1.704													
	1.097	1.484	0.031	0.031	1.177	1.177	0.073	0.035	2.772	1.329	0.085	0.050	3.228	1.899	
	1.476	1.714													
	1.259	1.704	0.034	0.034	1.259	1.259									
															Assumes mass walls were not specifically governed until the 2009 WSEC.
	1.192	2.096													
	1.127	1.982	0.051	0.062	0.950	1.155	0.300	0.250	5.590	4.658	0.300	0.250	5.590	4.658	
	1.148	1.148													
	0.935	1.806													
	1.000	1.931	0.029	0.035	0.967	1.167	0.080	0.080	2.667	2.667	0.080	0.080	2.667	2.667	
	1.000	1.931													
	1.000	1.000	0.54	0.54	0.991	0.991	0.23	0.23			0.23	0.23			***Not included in delta calculation because 1980-1986 WSEC requirement for slab-on-grade floors is based on U-factor and not F-factor.***
	0.982	0.982					0.15	0.15			0.15	0.15			
	1.333	1.833													
	1.053	1.447	0.40	0.63	0.952	1.488	0.90	0.90	2.14	2.14	0.65	0.65	1.55	1.55	
	1.000	1.375													
	0.667	0.917													
	1.622	1.622	0.20	0.40	0.541	1.081									
	1.765	1.765													
	1.200	1.400													
Total	17.529	25.054		Total	6.297	7.237		Total	13.172	10.797		Total	13.032	10.771	
	0.459	0.479			0.054	0.108									
Average	1.11	1.58		Average	1.05	1.22		Average	**3.29**	**2.70**		Average	**3.26**	**2.69**	
OVERALL AVERAGE	**1.35**		OVERALL AVERAGE		**1.14**		OVERALL AVERAGE		**3.00**		OVERALL AVERAGE		**2.98**		