2015 WSEC_Commercial Envelope Proposals

Number	Submitter	Section	Subject	Form (Short/Long)	Editorial / Policy / Technical	TAG Date / Action	Committee Date / Action
15-E029	Tom Kositzky	C402.1.1	Mass Wall U-value	L	T		
15-E030	Lisa Rosenow	C402.1.1.1	Semi-heated spaces	S	E/T		
15-E031	Lisa Rosenow	C402.1.1/C402.1.4	Greenhouses	S	T		
15-E032	Patrick Hayes	C402.1.2	Joist roof U-value	L (NO$/BTU)	E/T		
15-E033	Patrick Hayes	C402.1.2	Transfer deck slab edge	L (NO$/BTU)	T		
15-E034	Patrick Hayes	C402.1.2	Grow facilities - Equip Bldgs	L (NO$/BTU)	T		
15-E035	Tom Young	C402.1.3	CI with metal penetrations	L	T		
15-E036	Duane Lewellen	C402.1.3	Mass Wall U-value	L	T		
15-E037	Mike Kennedy	C402.1.3	Below Grade U-values	S	E/T		
15-E038	Mike Kennedy	C402.1.5	Component performance	S	E/T		
15-E039	Ben Ferguson	C402.2	Metal bldg insulation	L	T		
15-E040	Eric Vander Mey	C402.2.12	Fan Efficacy - Residential	L (NO$/BTU)	T		
15-E041	Duane Jonlin	C402.2.5	Perimeter insulation	S	E		
15-E042	Lisa Rosenow	C402.4.1.1	Existing fenestration	S	E/T		
15-E043	Duane Jonlin	C402.4.1.3	Vertical fenestration	S	E/T		
15-E044	Lisa Rosenow	C402.4.2	Min. Skylight area	L	T		
15-E045	Patrick Hayes	C402.4.7	Vestibules - Group R	L (NO$/BTU)	T		
15-E046	Duane Jonlin	C402.5.1.1	Air barrier construction	S	E		
15-E047	Duane Jonlin	C402.5.1.2	Air barrier testing	S	E/T		
15-E048	Duane Jonlin	C402.5.7	Vestibules	S	T		
15-E049	Andrew Whitmyre	C402.5.7	Vestibules - Sep entry door	S	E/T		
15-E050	Andrew Whitmyre	C402.5.7	Vestibules - Access entrance	S	E/T		
15-E051	Andrew Whitmyre	C402.5.7	Vestibules - Stair door	S	E/T		
15-E052	Andrew Whitmyre	C402.5.7	Vestibules - core shell	S	E/T		
15-E053	Eric Vander Mey	C402.5.7	Vestibules - Other doors	S	E/T		
15-E054	Robby Oylear	C402.5.7	Vestibules - air curtain	L (NO$/BTU)	T		

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # Tables C402.1.1 and C402.1.2

Brief Description: Delete footnote g from Table C402.1.1, and footnote e from Table C402.1.2. These existing footnotes exempt CMU walls in 15 building types from the mass wall U-values, if the empty (non-reinforced) cores are filled with perlite. Bring mass walls values in Table C402.1.1 and C402.1.2 into alignment with the IECC.

Proposed code change text: (See footnote for each table.)

TABLE C402.1.1
OPAQUE THERMAL ENVELOPE REQUIREMENTS[a, f]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Walls, Above Grade		
Mass	R-~~9.5~~ci~~((g))~~ R-11.4ci	R-13.3ci
Metal building	R-13 + R-13ci	R-13 + R-13ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci
Wood framed and other	R-21 int	R-21 int

For SI: 1 inch = 25.4 mm. ci = Continuous insulation. NR = No requirement.
LS = Liner system--A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

a. Assembly descriptions can be found in Chapter 2 and Appendix A.

b. Where using *R*-value compliance method, a thermal spacer block shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.2.

***

~~g. **Exception:** Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:~~
~~1. At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and~~
~~The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall R-value from Table C402.1.1 or U-factor from Table C402.1.2~~

.

TABLE C402.1.2
OPAQUE THERMAL ENVELOPE ASSEMBLY REQUIREMENTS[a,b]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Walls, Above Grade		
Mass	((~~U-0.104~~[e])) U-0.090	((~~U-0.078~~)) U-0.080
Metal building	U-0.052	U-0.052
Steel framed	U-0.055	U-0.055
Wood framed and other	U-0.054	U-0.054

a. Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from Appendix A is required unless otherwise allowed by Section C402.1.2.

b. Opaque assembly U-factors based on designs tested in accordance with ASTM C1363 shall be permitted. The R-value of continuous insulation shall be permitted to be added or subtracted from the original test design.

c. Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.

d. Heated slab *F*-factors shall be determined specifically for heated slabs. Unheated slab factors shall not be used.((~~Evidence of compliance with the F-factors indicated in the table for heated slabs shall be demonstrated by the application of the unheated slab F-factors and R-values derived from ASHRAE 90.1 Appendix A.~~))

~~e. **Exception:** Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:~~

~~1 At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and~~

~~2 The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall U-factor from Table C402.1.2.~~

Purpose of code change:

Comply with state law, correct errors in code, and eliminate unfair advantage for one industry.

Comply with State Law

In RCW 19.27.020, Purposes – Objectives – Standards, item (4) states as an objective the elimination of regulations and requirements which could, "…provide unwarranted preferential treatment to types or classes of materials or products or methods of construction." The existing exemption for Concrete Masonry Unit (CMU) walls provides an unfair competitive advantage for one industry. All "mass walls" *other than* CMU walls, including precast panels, brick walls, tilt-up panels and cast-in-place concrete, must comply with the U-value standards in Tables C402.3 and Table C402.4. Metal and wood stud walls must already comply with *substantially* more stringent U-value requirements. The Washington State code places those industries at an even greater competitive disadvantage.

Correct Errors in Code

For mass walls in the 2015 IECC, the maximum allowable U-value in Washington State climate zones is **0.090** and the minimum allowable R-value is **R11.4ci**. The Washington State Integrated Draft currently allows a U-value of **0.104** and a corresponding R-value of **R9.5ci**. These are the only building envelope values in the Washington State code that are worse than the IECC, and the error should be corrected.

Eliminate unfair advantage held by one industry

The existing Washington State code language exempts most CMU walls from compliance with R-value and U-value requirements. Whereas the 2015 IECC maximum allowable U-value for mass walls is **0.090**, the actual U-value of typical 8-inch CMU walls with perlite or vermiculite in their open cores ranges from **0.210 to 0.580**, depending on the reinforcing pattern, with the most common configuration having a value of **U-0.350**. That is 4 times the allowable heat loss for other mass walls, and over 6 times the allowable heat loss for frame walls. The IECC (and ASHRAE 90.1) do allow mass walls to have a considerably higher U-value than other wall types – 63% higher – to account for their thermal mass properties, and that 63% is sufficient. {Note: the wall insulation is not required in unconditioned or semi-heated buildings. Where it is required, it can be provided either on the inside of the CMU (in stud framing cavities or as vinyl-faced insulation) or on the exterior of the CMU (as continuous "Dryvit" type insulation or in combination with brick veneer).}

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

- ☐ Addresses a critical life/safety need.
- ☒ 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	Tom Kositzky	Email address	tom.kositzky@apawood.org
Your organization	Coalition for Fair Energy Codes	Phone number	253-565-6600
Other contact name	Click here to enter text.		

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants and businesses.
Providing insulation for CMU walls to be equivalent to other mass walls (such as brick, precast or tilt-up) will cost more than simply pouring perlite or vermiculite into the empty CMU cores.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?
(The costs shown below are per square foot of wall area, not floor area, because the floor/wall ratio varies with different building types and wall heights. Note also that these costs already include contractor's markup.)

$3.02/square foot for insulated, finished wood frame interior of the CMU.

$0.75/square foot for vinyl-faced insulation w/mounting clips interior of the CMU.

See cost calculations on the next page.

(Cost data is taken from the report: Kennedy, Mike. 2012. *Analysis of Next Generation Nonresidential Energy Codes in the Northwest*. Produced for Bonneville Power Administration (BPA), Portland, OR.)

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal:

Varies: 16.4 – 26.4 KBTU/ square foot of wall surface

Electric Savings over Case 1 (kWh/ft^2 of wall)

walltype2	Pasco	Seattle	Spokane
1, cmu - no ins	0.000	0.000	0.000
2, cmu - corefill	0.207	0.078	0.190
3, cmu - MidWgt corefill	**0.354**	**0.078**	**0.362**
4, 2012 code cmu - ext ins	0.682	0.000	0.630
5, 2012 code cmu - int ins	0.578	-0.026	0.526
7, 2012 code wd frm	**0.604**	**-0.060**	**0.544**
8, 2012 code mtl frm	0.595	-0.060	0.535
Net Savings (7 – 3)	**0.250**	**(-0.138)**	**0.182**
Convert to kBtu	**0.853**	**(-0.470)**	**0.621**

Gas Savings over Case 1 (kBtu/ft^2 of wall)

walltype2	Pasco	Seattle	Spokane
1, cmu - no ins	0.0	0.0	0.0
2, cmu - corefill	6.7	7.0	10.9
3, cmu - MidWgt corefill	**15.0**	**15.9**	**25.0**
4, 2012 code cmu - ext ins	29.2	30.4	49.0
5, 2012 code cmu - int ins	28.9	30.5	48.6
7, 2012 code wd frm	**30.2**	**31.8**	**50.8**
8, 2012 code mtl frm	29.6	31.3	49.7
Net Savings (7 – 3)	**15.2**	**15.9**	**25.8**
Total: Gas + Electric	**16.1**	**15.4**	**26.4**

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

2012 Costs (from 2012 BPA study by Kennedy)	Additional cost / SF	Construction cost inflation (2011 – 2014)	Additional 2015 Cost
Finished CMU to finished wood frame R13	$2.80	1.077	$3.02
Finished CMU to fully faced batt with metal clips	$0.70	1.077	$0.75

Finished CMU to finished wood frame R13

Scope: Calculate the difference in cost between the old energy code specification, CoreFill insulation, and the new energy code specification, R11.4ci, for wall insulation.

Notes: Assumes existing cost assembly allows for finished CMU wall.

Assumed R13.3 with Wood Framing. The assumed 2X4 wood stud framing would abut and attach to the CMU wall. Wood framing would support the new R13.3 batt insulation.

Assumed 5/8" GWB taped & finished, level 4 installed on framing with (1) primer coat and (2) finish coats of paint.

Shown Work:

Delete Existing Corefill- - $ 0.85 per SF

Delete Existing Prime/Paint- - $ 1.30 per SF

Add For 2X4 Framing- +$ 1.35 per SF

Add For R13.3 Batt- +$ 0.60 per SF

Add For GWB T&F- +$ 2.05 per SF

Add For Prime/Paint- +$ 0.95 per SF

TOTAL $ 2.80

Cost Impact: ADD $2.80per square foot of Wall area (material/installation).

Finished CMU to fully faced batt with metal clips

Scope: Calculate the difference in cost between the old energy code specification, CoreFill insulation, and the new energy code specification, R11.4, for wall insulation.

Notes: Assumes existing cost assembly allows for finished CMU wall.

Assumed R11.4 fully faced batt with metal clip system. The metal clip system is installed by anchoring multiple specialty metal clips into the CMU wall; the clips then have a washer like surface that supports the batt insulation.

Assumes insulation is faced and no finishes are required.

Shown Work:

Delete Existing Corefill- - $ 0.85 per SF

Delete Existing Prime/Paint- - $ 1.30 per SF

Add R11.4 Faced Insulation- +$ 1.75 per SF

Add For Clip System- +$ 1.10 per SF

TOTAL $ 0.70

Cost Impact: ADD $0.70 per square foot of Wall area (material/installation).

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

None

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

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.1.1.1 Semi-heated spaces and Chapter 2 Definition**

Brief Description:

Language regarding semi-heated spaces is confusing and is inconsistent with other provisions. The following recommendations are intended to clarify this provision.

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.)

SEMI-HEATED SPACE. An enclosed space within a building, including adjacent connected spaces separated by an uninsulated component (e.g., basements, utility rooms, garages, corridors), which:

1. Is heated but not cooled, and has a maximum installed heating system output capacity of ~~3.4 Btu/(h-ft^2) but not greater than~~ 8 Btu/(h-ft^2) or less;
2. Is not a ~~cold storage space or frozen storage space.~~ walk-in or warehouse cooler or freezer space.

C402.1.1.1 Semi-heated buildings and spaces. ~~All spaces shall comply with the requirements in Section C402 unless they meet the definition for semi-heated spaces. For semi-heated spaces~~ The building envelope of semi-heated buildings, or portions thereof, shall comply with the same requirements as that for conditioned spaces in Section C402. Building envelope assemblies separating conditioned space from *semi-heated space* shall comply with exterior envelope insulation requirements.~~; However, for~~ *Semi-heated spaces* heated by mechanical systems ~~other than~~ that do not include electric resistance heating equipment~~,~~ are not required to comply with the opaque wall insulation provisions of Section C402.2.3 ~~is not required for those~~ for walls that separate semi-heated spaces from the exterior~~,~~ or low energy spaces. ~~provided that the space meets all the requirements of semi-heated space. Semi-heated spaces shall be calculated separately from other conditioned spaces for compliance purposes. Building envelope assemblies separating conditioned space from *semi-heated space* shall comply with exterior envelope insulation requirements.~~ *Semi-heated spaces* shall be calculated separately from other conditioned spaces for compliance purposes. ~~When choosing the uninsulated wall option, the wall shall not be included in Component Performance Building Envelope Option calculation.~~ Opaque walls in *semi-heated spaces* that do not comply with Section C402.2.3 shall be calculated as fully code compliant opaque walls for the Target UA calculations for Component Performance compliance per Section C402.1.5, and for the Standard Reference Design for Total Building Performance compliance per Section C407.

Purpose of code change:

Language clarification.

Your name	**LISA ROSENOW**	Email address	**lisa@putnamprice.com**
Your organization	**NW ENERGY EFFICIENCY COUNCIL**	Phone number	(206) 624-0283
Other contact name	**STAN PRICE**		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E031

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.1.1 Low energy buildings, New Section C402.1.4 Greenhouses, Chapter 2 definitions**

Brief Description:

Improve definition of greenhouse spaces and associated requirements.

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.)

GREENHOUSE. A permanent structure or a thermally isolated area of a building that maintains a specialized sunlit environment exclusively used for, and essential to, the cultivation, protection or maintenance of plants.

C402.1.1 Low energy buildings.The following buildings, or portions thereof, separated from the remainder of the building by *building thermal envelope* assemblies complying with this code shall be exempt from all thermal envelope provisions of this code:

1. Those that are heated and/or cooled with a peak design rate of energy usage less than 3.4 Btu/h ft^2 (10.7 W/m^2) or 1.0 watt/ft^2 (10.7 W/m^2) of floor area for space conditioning purposes.
2. Those that do not contain *conditioned space*.
3. ~~Greenhouses isolated from any conditioned space and not intended for occupancy.~~
4. Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

C402.1.4 Greenhouses. The following buildings, or portions thereof, shall be exempt from all thermal envelope provisions of this code provided there is no mechanical cooling serving the space, the total installed lighting power density including plant growth task lighting does not exceed 5 watts/sf and at least 50% of lighting fixtures are automatically controlled per Section C405.2.5.

1. *Greenhouses* isolated from any conditioned space and not intended for occupancy.
2. *Greenhouses* that are intended for occupancy and provided with ventilation per C403.2.6.

Purpose of code change:

Proposal addresses spaces that are not well-defined in the 2015 WSEC.

Your name	**LISA ROSENOW**	Email address	**lisa@putnamprice.com**
Your organization	**NW ENERGY EFFICIENCY COUNCIL**	Phone number	(206) 624-0283
Other contact name	**STAN PRICE**		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E032

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: Commercial Provisions X Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # Table C402.1.2

Brief Description:

Change roof categories, and U-Factor requirements.

Proposed code change text:

TABLE C402.1.4
OPAQUE THERMAL ENVELOPE ASSEMBLY MAXIMUM REQUIREMENTS, U-FACTOR METHOD[a,b]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Roofs		
Insulation entirely above deck	U-0.~~034~~ .027	U-0.~~031~~ .027
Metal buildings	U-0.031	U-0.031
Attic ~~and other~~	U-0.021	U-0.021
Joist Roof	U-.027	U-.027

Purpose of code change: Joist Roofs are built Typically with 11 7/8" TJI Joist, R49 batt does not fit in these Joist, when you are trying to build a sloped vaulted roof, adding Rigid on top of the sheathing with exposed eves is not an option.

When you are building a flat joist roof, that is vented, adding rigid to the top is also not an option.

Historically the code in Washington state has always had line item for these types of Roofs, which are very common types of construction in the PNW.

In exchange for the role back in assembly u-Factor, I lower the U-Facto on Insulation entirely above the deck to keep the code equal or better.

Table C402.2 Equivalent R Factors will need to be adjusted to show R38 in the four locations.

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

☐ Addresses a critical life/safety need.

X Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)

X Consistency with state or federal regulations.

X Addresses a unique character of the state.

X Corrects errors and omissions.

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

X Single family/duplex/townhome

X Multi-family 1 – 3 stories

X Multi-family 4 + stories

X Commercial / Retail

X Institutional

X Industrial

Your name	Patrick C. Hayes	Email address	patrickchayes1@msn.com
Your organization	Energy Consultant	Phone number	206.819.7684

Other contact name Click here to enter text.

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$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

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

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

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

15-E033

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: X Commercial Provisions X Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # Table C402.1.2

Brief Description: Add a Line item for Concrete Transfer Decks, with a separate u-Factor. Add A definition of a Concrete Transfer Deck

Proposed code change text:

Walls, Above Grade		
Mass	U-0.104[e]	U-0.078
Metal building	U-0.052	U-0.052
Steel framed	U-0.055	U-0.055
Wood framed and other	U-0.054	U-0.054
Mass Transfer Deck slab Edge	U-.34	U-.34

Definition: Transfer Deck, Structural Concrete load bearing Deck, that Transfers the Below Grade Structure to the above grade structure.

This proposal has two parts. 1. By lowering the U-Factor, it gives some relief to the exposed concrete slab edge at the transfer deck, which in many conditions cannot be insulated. 2. By adding the specific line item for concrete transfer decks, insulating the transfer deck should now be enforced by the municipalities that don't enforce it due to lack of understanding of the code, and the complexity of the code. For example, I watched over 750 apartment units in Snohomish county be constructed under the 2009 WSEC, all had Transfer Decks, none were insulated.

Table C402.2 would need the equivalent R Values added, I suggest R5.

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

Addresses a critical life/safety need.

X Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)

X Consistency with state or federal regulations. X Corrects errors and omissions.

X Addresses a unique character of the state.

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

Single family/duplex/townhome	X Multi-family 4 + stories	Institutional
X Multi-family 1 – 3 stories	Commercial / Retail	Industrial

Your name	Patrick C. Hayes	Email address	patrickchayes1@msn.com
Your organization	Energy Consultant	Phone number	206.819.7684

Other contact name Click here to enter text.

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$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

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

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

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

15-E034

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: X Commercial Provisions X Residential Provisions

(A MS Word version of the code is linked to the name)

Code Section # C402.1.2

Brief Description: Adding Language, for licensed marijuana growing facilities.

Proposed code change text:

C402.1.2 Equipment buildings. Buildings that comply with all of the following shall be exempt from the *building thermal envelope* provisions of this code:

1. Are separate buildings with floor area no more than 500 square feet (50 m^2).
2. Are intended to house electronic equipment with installed equipment power totaling at least 7 watts per square foot and not intended for human occupancy.
3. Have heating system capacity is no greater than 5 kW (17,000 Btu/hr) and heating thermostat setpoint is restricted to no more than 50°F (10°C).
4. Have an average wall and roof U-factor less than 0.200 in climate zones 1-5 and less than 0.120 in climate zones 6 through 8.
5. Comply with the roof solar reflectance and thermal emittance provisions for Climate Zone 1.
6. Licensed Marijuana Growing Facility Licensed under Washington State RCW xxxxxxxx., shall provide a minimum overall Average U-Factor for Roof , Walls, and Floors of . U-.08. Glazing shall have a minimum U-Factor of U-.50. If the Growing facility is no longer used as a licensed grow facility, any new use of the building shall be Change of Use, and will be required to be brought up to the Current Standard of the WSEC Energy Code.

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

Addresses a critical life/safety need. X Addresses a specific state policy or statute.

(Note that energy conservation is a state policy)	X Addresses a unique character of the state.
Consistency with state or federal regulations.	X 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	X Commercial / Retail	X Industrial

Your name	Patrick C. Hayes	Email address	patrickchayes1@msn.com
Your organization	Energy Consultant	Phone number	206.819.7684

Other contact name Click here to enter text.

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$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

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

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

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

15-E035

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

(A MS Word version of the code is linked to the name)

Code Section # Table C402.1.3, footnote f

Brief Description: Prescriptive compliance options for assemblies with isolated metal penetrations.

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.)

Assemblies with continuous insulation (see definition)	**Alternate option for assemblies with metal penetrations, greater than 0.04% but less than ~~0.08%~~ 0.10%**	**Alternate option for assemblies with metal penetrations, greater than or equal to 0.10% but less than 0.12%**
R-9.5ci	R-11.9ci	R-13. ci
R-11.4ci	R-14.3ci	R-15.7ci
R-13.3ci	R-16.6ci	R-18.3ci
R-15.2ci	R-19.0ci	R-21ci
R-30ci	R-38ci	R-42ci
R-38ci	R-48ci	R-53ci
R-13 .+ R-7.5ci	R-13 .+ R-9.4ci	R-13 + R-10.3ci
R-13 .+ R-10ci	R-13 .+ R-12.5ci	R-13 + R-13.8ci
R-13 .+ R-12.5ci	R-13 .+ R-15.6ci	R-13 + R-17.2ci
R-13 .+ R-13ci	R-13 .+ R-16.3ci	R-13 + R-17.9ci
R-19 .+ R-8.5ci	R-19 .+ R-10.6ci	R-19 + R-11.7ci
R-19 .+ R-14ci	R-19 .+ R-17.5ci	R-19 + R-19.2ci
R-19 .+ R-16ci	R-19 .+ R-20ci	R-19 + R-22ci
R-20 .+ R-3.8ci	R-20 .+ R-4.8ci	R-20 + R-5.3ci
R-21 .+ R-5ci	R-21 .+ R-6.3ci	R-21 + R-6.9ci

This alternate nominal R-value compliance option is allowed for projects complying with all of the following:

1. The ratio of the cross-sectional area, as measured in the plane of the surface, of metal penetrations of otherwise continuous insulation to the opaque surface area of the assembly is greater than 0.0004 (0.04%), but less than ~~0.0008 (0.08%)~~ 0.0012 (0.12%).
2. The metal penetrations of otherwise continuous insulation are isolated or discontinuous (e.g., brick ties or other discontinuous metal attachments, offset brackets supporting shelf angles that allow insulation to go between the shelf angle and the primary portions of the wall structure). No continuous metal elements (e.g., metal studs, z-girts, z-channels, shelf angles) penetrate the otherwise continuous portion of the insulation.
3. Building permit drawings shall contain details showing the locations and dimensions of all the metal penetrations (e.g., brick ties or other discontinuous metal attachments, offset brackets, etc.) of otherwise continuous insulation. In addition, calculations shall be provided showing the ratio of the cross-sectional area of metal penetrations of otherwise continuous insulation to the overall opaque wall area. When stainless steel is used the cross-sectional area of metal penetrations is divided by three prior to calculating the ratio.

For other cases where the proposed assembly is not continuous insulation, see Section C402.1.2 for determination of U-factors for assemblies that include metal ~~other than screws and nails~~ components.

Purpose of code change: This code requirement is not found in other state and national energy codes. Although there is some technical basis for this provision, it needs to be improved if it is to remain in the code. The proposed changes make this requirement more practical while not ignoring this issue as other energy codes do.

This code change proposal broadens the use of the prescriptive path compliance option. Many common, efficient building anchors/attachments will exceed the 0.08 percent limit prohibiting use of the current Table and requiring costly, complex analysis to be performed.

It is difficult to accurately calculate the thermal bridging effects of metal anchors and attachments. Thermal modeling has demonstrated that metal penetration area through continuous insulation is not the single most important thermal bridging factor. This code change offers a workable modification to the code provision at this time. As more data regarding isolated metal penetrations becomes available it can be revisited. The minor change proposed to the area ratio will have a negligible impact upon building energy use.

The addition of the stainless steel provision makes this code provision more technically sound. Stainless steel has a thermal conductance of approximately one-third that of carbon steel.

All isolated metal penetrations should comply with this code requirement.

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

☐ Addresses a critical life/safety need.

☐ 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 *Thomas C. Young*

Email address *tcyoung@nwcma.org*

Your organization *NW Concrete Masonry Association*

Phone number *425.697.5298*

Other contact name

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

It will allow the prescriptive path R-value table to be utilized for a larger number of project designs. Costly, complicated calculation methods will be avoided.

Increased ease of use by owners, designers, contractors, and building department staff. Also better implementation.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$0/square foot (For residential projects, also provide $ / dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

Construction cost neutral

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

0 KWH/ square foot (or) KBTU/ square foot

(For residential projects, also provide KWH/KBTU / dwelling unit)

Show calculations here, and list sources for energy savings estimates, or attach backup data pages

Energy neutral. A thermal performance study for a masonry anchor manufacturer by Morrison Hershfield varied the tie area penetrating the insulation by 0.04% and the effective U-factor only changed from 0.067 to 0.063 with R-12.6ci.

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

This proposal will reduce the amount of plan review time required by expanding application of the simple prescriptive path.

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

15-E036

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: **X** ☒ Commercial Provisions ☐ Residential Provisions

(A MS Word version of the code is linked to the name)

Code Section # _CC402.2,C402.1.3, C402.1.4_____

Brief Description:

Change above grade mass wall Prescriptive U and R factors to be consistent with the requirements of other wall types

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.)

TABLE C402.1.3
OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD[a, f]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Roofs		
Insulation entirely above deck	R-30ci	R-38ci
Metal buildings [c, b]	R-25 + R-11 LS	R-25 + R-11 LS
Attic and other	R-49	R-49
Walls, Above Grade		
Mass	~~R-9.5ci[g]~~ Exterior: R-16 c.i. Interior: R-13 + R-6 ci wood stud, or R-13 + R-10 ci metal stud	~~R-13.3ci~~ Exterior: R-16 c.i. Interior: R-13 + R-6 ci wood stud, or R-13 + R-10 ci metal stud
Metal building	R-13 + R-13ci	R-13 + R-13ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci

Wood framed and other	R-21 int	R-21 int
Walls, Below Grade		
Below-grade wall[d]	~~Same as above grade~~ Exterior: R-10 ci Interior: R-19 wood stud, or R-13 + R-6 ci metal stud	~~Same as above grade~~ Exterior: R-10 ci Interior: R-19 wood stud, or R-13 + R-6 ci metal stud
Floors		
Mass[c]	R-30ci	R-30ci
Joist/framing	R-30[e]	R-30[e]
Slab-on-Grade Floors		
Unheated slabs	R-10 for 24" below	R-10 for 24" below
Heated slabs[d]	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab
Opaque Doors		
Non-swinging	R-4.75	R-4.75

For SI: 1 inch = 25.4 mm. ci = Continuous insulation. NR = No requirement.
LS = Liner system--A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

a. Assembly descriptions can be found in Chapter 2 and Appendix A.

b. Where using *R*-value compliance method, a R-3.5 thermal spacer block shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.2.

c. "Mass floors" shall include floors weighing not less than:

1. 35 psf (170 kg/m2) of floor surface area; or
2. 25 psf (120 kg/m2) of floor surface area where the material weight is not more than 120 pounds per cubic foot (pcf) (1900 kg/m3).

d. Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.

e. Steel floor joist systems shall be insulated to R-38 .+ R-10ci.

f. For roof, wall or floor assemblies where the proposed assembly would not be continuous insulation, an alternate nominal *R*-value compliance option for assemblies with isolated metal penetrations of otherwise continuous insulation is:

TABLE C402.1.4
OPAQUE THERMAL ENVELOPE ASSEMBLY MAXIMUM REQUIREMENTS, U-FACTOR METHOD[a,b]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Roofs		
Insulation entirely above deck	U-0.034	U-0.031
Metal buildings	U-0.031	U-0.031

Attic and other	U-0.021	U-0.021
Walls, Above Grade		
Mass	~~U-0.104~~[e] U- 0.057	~~U-0.078~~ U-0.057
Metal building	U-0.052	U-0.052
Steel framed	U-0.055	U-0.055
Wood framed and other	U-0.054	U-0.054
Walls, Below Grade		
Below-grade wall[c]	Same as above grade	Same as above grade
Floors		
Mass[f]	U-0.031	U-0.031
Joist/framing	U-0.029	U-0.029
Slab-on-Grade Floors		
Unheated slabs	F-0.54	F-0.54
Heated slabs[d]	F-0.55((d))	F-0.55((d))
Opaque Doors		
Swinging	U-0.37	U-0.37

a. Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from Appendix A is required unless otherwise allowed by Section C402.1.2.

b. Opaque assembly U-factors based on designs tested in accordance with ASTM C1363 shall be permitted. The R-value of continuous insulation shall be permitted to be added or subtracted from the original test design.

c. Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.

d. Heated slab *F*-factors shall be determined specifically for heated slabs. Unheated slab factors shall not be used.((

e. ~~**Exception:** Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:~~

~~1 At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation.~~

~~2 The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall U-factor from Table C402.1.4.~~

f. "Mass floors" shall include floors weighing not less than:

1 35 psf (170 kg/m2) of floor surface area; or

2 25 psf (120 kg/m2) of floor surface area where the material weight is not more than 120 pounds per cubic foot (pcf) (1900 kg/m3).

Purpose of code change:

This proposed change will provide consistency with the code requirements for other types of wall construction and not provide Mass Walls with an advantage for code compliance, especially with projects using the Component performance alternative per Section C402.1.5. These proposed U and R factor requirements are consistent with the 2012 Seattle Energy Code where they have been in place for 2+ years with no adverse effects on construction activity.

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

☐ Addresses a critical life/safety need.

☐ Consistency with state or federal regulations.

X☐ Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)

☐ 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

X☐ Multi-family 4 + stories

X☐ Commercial / Retail

X☐ Institutional

X☐ Industrial

Your name	Duane Lewellen	Email address	lewellenllc@gmail.com
Your organization	Lewellen Associates, LLC	Phone number	206-915-8281
Other contact name	Click here to enter text.		

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

This code change proposal will require mass wall construction to meet the same thermal performance requirements as other types of wall construction, namely wood and steel framed walls. The cost of constructing mass walls to meet this requirement will increase. Building Owners, tenants, and businesses however will enjoy lower energy costs over the life of the building.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$1/square foot (For residential projects, also provide $$500/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

The current energy code already requires that mass walls be insulated and the incremental cost and savings will come from increasing the insulation values above current standards. This is consistent with State policy. The primary cost of this proposal will be borne by institutional, manufacturing, and warehouse/storage facilities where mass wall construction is common and compliance will no longer be allowed for insulating the CMU cores per exception 'g'.

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) **0.0032 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

The savings calculation assumes a typical warehouse facility with mass wall construction representing 40% of the heat loss of the facility and a reduction of the mass wall heat loss of 40% as proposed.

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

None. The code officials are already inspecting for wall insulation.

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

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # Table C402.1.3 and Table C402.1.4 Below Grade wall heat loss values

Brief Description: The integrated draft requires below grade walls to be insulated the same as above grade walls (R 9.5 ci or a u-value of U-0.104 in zone 4c assuming mass wall). This u-value equivalent is based upon the above grade wall u-value equivalents and is not from the Appendix A below grade wall table. The below grade wall default u-values in Appendix A are unique to the WSEC in that they include the effect of the ground so that u-values are far below similar above grade constructions. The default u-values for framed below-grade walls assume wood stud walls. The u-values are therefore considerably lower u-value than above grade walls such that any insulation case (e.g R11 with metal studs) would exceed the required value and allow tradeoffs. For deep walls this is fine but for shallow walls this combination of soil-less requirements and default values that include soil is a weakenss. Another issue is other codes including the IECC, use C-factors. The Integrated Draft language references to C-factors, especially in the component performance calculation equation, are confusing and in some cases wrong given that the prescriptive tables do not have C-factors.

There are 4 solutions:

- Stay with the current language and remove references to C-factor including Equation C in the component performance calculation.
- Change the below grade u-value requirements in Table C402.1.4 to values taken from the below grade table in A104 (something like U0.064), and remove references to C-factor.
- Add footnotes so that the proposed building below grade values are calculated excluding the ground, or
- Change Table C402.1.4 to be C-factors as in the IECC 2015. A drawback of this later approach is that only 90.1 Appendix A has C-factors and the table does not list values for R9.5 and R13.3 ci insulation. The WSEC could include 90.1-2016 **TABLE A4.2.1 Assembly C-Factors for Below-Grade Walls**

Proposed here is this later approach. Using C-factors provides for consistency of approach with the IECC so that Washington only changes do not have to be made to the component performance calculations. The nominal R and equivalent U-values are taken the IECC rather than the Integrated Draft mass wall value. Alternatively, the Integrated Draft mass wall value could also be used.

TABLE A4.2.1 Assembly C-Factors for Below-GradeWalls

A second issue is the footnote on below-grade wall that is in tables C402.1.3 and C402.1.4. Table C402.1.4 foot note “c” states “Where heating slabs are below grade, below-grade walls shall comply with the F-factor requirements for heated slabs”. This is particularly confusing as applying an F-factor to a below grade wall makes no sense. In table C402.1.3 foot

note “d” states “Where heating slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs”. In older codes the below-grade wall requirements were considerably lower than the R10 ci insulation required for heated slabs so this foot note increased the required insulation. In the current code the below grade insulation requires are R9.5 and R13.3 ci in zones 4 and 5 respectively. Since R10 is barely a change from the current below grade requirements the easiest solution here is simply to remove the footnote from both tables.

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.)

TABLE C402.1.3
OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD[a, f]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Walls, Below Grade		
Below-grade wall[d]	~~Same as above grade~~R7.5	~~Same as above grade~~R7.5

d. Reserved.~~Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.~~

TABLE C402.1.4
OPAQUE THERMAL ENVELOPE ASSEMBLY MAXIMUM REQUIREMENTS, U-FACTOR METHOD[a,b]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Walls, Below Grade		
Below-grade wall[c]	~~Same as above grade~~C-0.119	~~Same as above grade~~C-0.119

c. C-factors do not include earth or air films. WSEC Appendix A does not contain appropriate values. ASHRAE above grade wall U-factors with interior and exterior air film coefficients removed or 90.1 Appendix A C-factors may be used as default values. ~~Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.~~

SECTION A103
ABOVE GRADE WALLS

A103.1 General. Tables A103.1(1), A103.1(2) and A103.1(3) list heat loss coefficients for the opaque portion of above-grade wood stud frame walls, metal stud frame walls and concrete masonry walls (Btu/h × ft^2 × °F) respectively. They are derived from procedures listed in the ASHRAE Fundamentals Handbook. For intermediate floor slabs which penetrate the insulated wall, use the concrete wall U-factors in Table A103.1(2). U-values in theses table must be adjusted to remove the interior and exterior air film before they can be used in place of C-factors for below grade walls.

SECTION A104
BELOW-GRADE WALLS AND SLABS

A104.1 General. Table A104.1 lists heat loss coefficients for residential below-grade walls and and slab floors.
Coefficients for residential below-grade walls are given as U-factors (Btu/h ft^2 °F of wall area). Coefficients for residential below-grade slabs are listed as F-factors (Btu/h ft °F per lineal foot of slab perimeter).
Residential b~~B~~elow-grade wall U-factors are only valid when used with the accompanying below-grade slab F-factor, and vice versa.

Commercial and Group R below grade walls requiring C-factors can use above grade U-values from Section A103 which have been adjusted to remove the interior and exterior air films, or C-factors from 90.1 Appendix A. Commercial and Group R below grade slabs shall use on-grade F-factors from Section A106.

Purpose of code change:

Clarify treatment of below grade walls.

Your name	Mike Kennedy	Email address	mikekennedy@energysims.com
Your organization	NEEA / Mike D Kennedy Inc	Phone number	360-301-0098
Other contact name	Click here to enter text.		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: www.sbcc.ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.1.5 and Table C402.1.4 Non-swinging door value

Brief Description: Restore ability to utilize component performance equations with high performance glazing option. Correct table references which are incorrect in IECC, clarify equations (a tiny bit), and establish a non-swinging door U-value so doors can be properly handled in the equation.

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.)

C402.1.5 Component performance alternative. Building envelope values and fenestration areas determined in accordance with Equation 4-2 shall be permitted in lieu of compliance with the U-factors and~~,~~ F-factors ~~and C-factors~~ in Tables ~~C402.1.3 and~~ C402.1.4 and C402.4 and the maximum allowable fenestration areas in Section C402.4.1.

A + B ~~+ C +~~ D + E ≤ Zero **(Equation 4-2)**

Where:

A = Sum of the (UA Dif) values for each distinct assembly type of the building thermal envelope, other than slabs on grade and below-grade walls:
UA Dif = UA Proposed – UA Table
UA Proposed = Proposed U-value x Area
UA Table = (U-factor from ~~Table C402.1.3 or~~ Table C402.1.4 or C402.4 or Section C402.4.1.3) x Area

B = Sum of the (FL Dif) values for each distinct slab on grade perimeter condition of the building thermal envelope:
FL Dif = FL Proposed – FL Table
FL Proposed = Proposed F-value x Perimeter length
FL Table = (F-factor specified in Table C402.1.4) x Perimeter length

~~C = Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal envelope:~~
~~CA Dif = CA Proposed – CA Table~~
~~CA Proposed = Proposed C-value x Area~~
~~CA Table = (Maximum allowable C-factor specified in Table C402.1.4) x Area~~

The maximum allowed prescriptive vertical fenestration area as a percent of the gross above grade wall area ratio is either:

a) 30%,

b) 40% if the building complies with Section C402.4.1.1, or

Comment [mdk1]: C-factors not referenced in integrated draft. If C-factors added to Table C402.1.4 then leave this reference in and do not delete item "C' from Equation 4-2.

Comment [mdk2]: if not deleted change "value" to "factor"

c) 40% if the u-values used in calculating A for vertical fenestration are taken from Section C402.4.1.3 rather than Table C402.4.

Where the proposed vertical ~~glazing~~ fenestration area is less than or equal to the maximum allowed prescriptive vertical ~~glazing~~ fenestration area ~~allowed by Section C402.4.1~~, the value of D (Excess Vertical Glazing Value) shall be zero. Otherwise:

D = (DA x UV~~G~~) – (DA x UWall), but not less than zero.

DA = (Proposed Vertical Fenestration~~Glazing~~ Area) – (Maximum Allowed Prescriptive Vertical Fenestration~~Glazing~~ Area allowed ~~by Section C402.4.1~~)

UA Wall = Sum of the (UA Proposed) values for each opaque assembly of the exterior wall

UAW = Sum of the (UA Proposed) values for each above-grade wall assembly

UWall = UAW / sum of wall area (excludes vertical fenestration area) ~~Area-weighted average U-value of all above-grade wall assemblies~~

UAV = Sum of the (UA Proposed) values for each vertical ~~glazing~~ fenestration assembly

UV = UAV / total vertical ~~glazing~~ fenestration area

Where the proposed skylight area is less than or equal to the skylight area allowed by Section C402.4.1, the value of E (Excess Skylight Value) shall be zero. Otherwise:

E = (EA x~~X~~ US) – (EA x URoof), but not less than zero.

EA = (Proposed Skylight Area) – (Allowable Skylight Area from Section C402.4.1)

UAR = Sum of the (UA Proposed) values for each roof assembly

URoof = UAR / sum of roof area (excludes skylight area) ~~Area-weighted average U-value of all roof assemblies~~

UAS = Sum of the (UA Proposed) values for each skylight assembly

US = UAS / total skylight area

TABLE C402.1.4
OPAQUE THERMAL ENVELOPE ASSEMBLY MAXIMUM REQUIREMENTS, U-FACTOR METHOD[a,b]

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	Group R
Opaque Doors		
Swinging	U-0.37	U-0.37
Non-Swinging	U-0.34	U-0.34

Comment [mdk3]: Change is non-substantive – UWall and UV are calculated the same way but the description differed which has potential to be confusing. Changed Uwall and Uroof calculation to follow the form of UV and US. Alternate would be to change UV and US to "area-weighted average U-value of all xxx assemblies"

Comment [mdk4]: Non-swinging doors are present in the R-value table with a R 4.75 requirement but are not in the U-value table. How to treat this doors in component performance is unclear, a U-value requirement is therefor proposed. Proposed value is Seattle Code which has same nominal R-value requirement of R-4.75

Purpose of code change:

Correct table references and restore ability to use high performance glazing values with component performance path.

Your name Mike Kennedy

Your organization NEEA / Mike D Kennedy Inc

Other contact name Click here to enter text.

Email address mikekennedy@energysims.com

Phone number 360-301-0098

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: www.sbcc.ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E039

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

Code Section # Table C402.2 "Opaque Thermal Envelope Requirements" referenced in C402.1.1 "Insulation and fenestration criteria".

Brief Description: Revise the prescriptive requirements for metal building walls in Table C402.2 "Opaque Thermal Envelope Requirements" to accommodate common wall insulation options for metal buildings. R13 (4") batt insulation doesn't work well with metal building framing which is normally 8", 8.5", or 10" deep. Therefore the insulation is insufficient to fill the cavity and the insulation sags from lack of support. Using on the outside of the framing results in compressed insulation which, per ASHRAE 90.1-2013, has a U-Value of U=0.162 or a installed R-Value of R-6.17 (1/0.162) and makes it difficult to install continuous insulation layer over the top and seal well enough to pass air barrier testing. Switching to an all rigid solution solves this issue while supporting the air barrier requirements in C402.5.1.2.

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.)

Walls, Above Grade		
Mass	R-9.5ci[g]	R-13.3ci
Metal building	~~R-13 +~~ R-19ci ~~R-13ci~~	R-13 + R-13ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci
Wood framed and other	R-21 int	R-21 int

Purpose of code change: The flexible faced R13 batt insulation is not a suitable air barrier for most applications. Increasing the rigid portion from R-13 to R-19 allows a single layer code compliant installation that also is much easier to seal in preparation for air barrier testing. In addition sub-trade penetrations are easier to seal with rigid than with the flexible faced membrane supplied with metal building laminated fiberglass insulation (MBI). This change would harmonize the 2015 WSEC with ASHRAE 90.1 2013 which calls for R19 ci in Climate Zone 5 (and Climate Zone 4 Marine). Further all climate zones in ASHRAE 90.1 2013 reference Continuous Insulation solely to meet the prescriptive Metal Building wall insulation requirements. It is a simpler and more cost effective insulation system which passes air barrier requirements easier than the double layer.

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

☐ Addresses a critical life/safety need.

☒ 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.

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

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	Ben Ferguson	Email address	ben.f@pacificinsulationproducts.com
Your organization	Pacific Insulation Products	Phone number	206-496-2567
Other contact name	Click here to enter text.		

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

The proposed change benefits the owner and installer by calling out an insulation system that is more affordable, as well as easier to install, than the prescriptive path. Also provides access to the girt cavity for sub trades to run plumbing, conduit, wiring, cables, etc., without impacting the integrity of the vapor barrier. For the majority of metal building projects, which are over 50% of low rise construction nationally, this is important since they are used for many industrial/manufacturing/warehouse/storage applications.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$.50 to .80 cost savings/square foot (For residential projects, also provide $NOT APPLICABLE/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages.

The additional thickness of continuous insulation is offset by eliminating the fiberglass layer. There be labor savings as the installer only has to make two passes over the building envelope, instead of four or five, to install the wall insulation.

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

If the prescriptive insulation is installed correctly, and sealed for air barrier testing, it should be equal to the proposed change.

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

This will save plan review time by clarifying the location and installation of the metal building wall insulation. Currently there are many ways that the prescriptive R13 + R13 Ci is drawn on architectural plans resulting in confusion which takes time to sort out.

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

15-E040

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.2.12

Brief Description:

Add residential fan efficacy requirements from the Residential 2015 WSEC Integrated Draft (R403.6) to the Commercial code.

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.)

C403.2.12 Air system design and control. Each HVAC system having a total fan system motor nameplate horsepower (hp) exceeding 5 horsepower (hp) (3.7 kW) shall comply with the provisions of Sections C403.2.12.1 through C403.2.12.3.

Fractional hp requirements in Section C403.2.12.4 shall apply to all fan motors.

C403.2.12.1 Allowable fan motor horsepower. Each HVAC system at fan system design conditions shall not exceed the allowable *fan system motor nameplate hp* (Option 1) or *fan system bhp* (Option 2) as shown in Table C403.2.12.1(1). This includes supply fans, exhaust fans, return/relief fans, and fan-powered terminal units associated with systems providing heating or cooling capability. Single *zone* variable air volume systems shall comply with the constant volume fan power limitation.

Exceptions:

1. Hospital, vivarium and laboratory systems that utilize flow control devices on exhaust or return to maintain space pressure relationships necessary for occupant health and safety or environmental control shall be permitted to use variable volume fan power limitation.
2. Individual exhaust fans with motor nameplate horsepower of 1 hp or less are exempt from allowable fan motor horsepower requirement.

C403.2.12.2 Motor nameplate horsepower. For each fan, the selected fan motor shall be no larger than the first available motor size greater than the brake horsepower (bhp). The fan brake horsepower (bhp) shall be indicated on the design documents to allow for compliance verification by the *code official*.

Exceptions:

1. For fans less than 6 bhp (4413 W), where the first available motor larger than the brake horsepower has a nameplate rating within 50 percent of the bhp, selection of the next larger nameplate motor size is allowed.
2. For fans 6 bhp (4413 W) and larger, where the first available motor larger than the bhp has a nameplate rating within 30 percent of the bhp, selection of the next larger nameplate motor size is allowed.

3. For fans used only in *approved* life safety applications such as smoke evacuation.

C403.2.12.3 Fan efficiency. Fans shall have a fan efficiency grade (FEG) of not less than 67 when determined in accordance with AMCA 205 by an *approved*, independent testing laboratory and labeled by the manufacturer. The total efficiency of the fan at the design point of operation shall be within 15 percentage points of the maximum total efficiency of the fan.

Exception: The following fans are not required to have a fan efficiency grade:

1. Fans of 5 hp (3.7 kW) or less as follows:
   1.1. Single fan with a motor nameplate horsepower of 5 hp (3.7 kW) or less, unless Exception 1.2 applies.
   1.2. Multiple fans in series or parallel that have a combined motor nameplate horsepower of 5 hp (3.7 kW) or less and are operated as the functional equivalent of a single fan.
2. Fans that are part of equipment covered under Section C403.2.3.
3. Fans included in an equipment package certified by an *approved agency* for air or energy performance.
4. Powered wall/roof ventilators.
5. Fans outside the scope of AMCA 205.
6. Fans that are intended to operate only during emergency conditions.

C403.2.12.4 Fractional hp fan motors. Motors for fans that are 1/12 hp or greater and less than 1 hp shall be electronically commutated motors or shall have a minimum motor efficiency of 70 percent when rated in accordance with DOE 10 C.F.R. 431. These motors shall also have the means to adjust motor speed for either balancing or remote control. Belt-driven fans may use sheave adjustments for airflow balancing in lieu of a varying motor speed.

Exceptions:

1. Motors in the airstream within fan-coils and terminal units that operate only when providing heating to the space served.
2. Motors installed in space conditioning equipment certified under Section C403.2.3.

C403.2.12.4 Group R Occupancy exhaust fan efficency. The Group R occupancies of the building shall be provided with ventilation that meets the requirements *International Mechanical Code*, as applicable, or with other approved means of ventilation. Mechanical ventilation system fans with 400 CFM or less in capacity shall meet the efficacy requirements of Table C403.2.12.1(3).

Exception: Where mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor where required by C403.2.12.4.

TABLE C403.2.12.1(3)
MECHANICAL VENTILATION SYSTEM FAN EFFICACY

FAN LOCATION	AIR FLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY (CFM/WATT)	AIR FLOW RATE MAXIMUM (CFM)
Exhaust Fan: Bathroom, utility room, wholehouse	10	1.4 cfm/watt	< 90
Exhaust Fan: Bathroom, utility room, wholehouse	90	2.8 cfm/watt	Any

Purpose of code change:

Regulate residential fan efficacy and have same requirements in multi-family residential 4 stories and more as 3 stories and less.

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

- ☐ Addresses a critical life/safety need.
- ☒ 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	Eric Vander Mey, PE	Email address	ericv@rushingco.com
Your organization	Rushing Company	Phone number	206-285-7114
Other contact name	Click here to enter text.		

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

Adds regulations for Group R occupancy ventilation fans that are similar to Residential Energy Code.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$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

Minimal cost impact as this is already required for projects covered under Residential Energy Code so the products are readily available.

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

Minimal energy savings as most projects are utilizing these fans.

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

Code officials would need to check efficiency ratings of these exhaust fans.

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

15-E041

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.2.5 Slab on grade perimeter insulation**

Brief Description: Clarifies that continuous under-slab insulation is required for heated slabs. (This is shown in the R-value table, but not in this charging paragraph.)

Proposed code change text:

C402.2.5 Slab on grade perimeter insulation. Where the slab on grade is in contact with the ground, the minimum thermal resistance (*R*-value) of the insulation around the perimeter of unheated or heated slab-on-grade floors designed in accordance with the *R*-value method of Section C402.1.3 shall be as specified in Table C402.1.3. The insulation shall be placed on the outside of the foundation or on the inside of the foundation wall. The insulation shall extend downward from the top of the slab for a minimum distance as shown in the table or to the top of the footing, whichever is less, or downward to at least the bottom of the slab and then horizontally to the interior or exterior for the total distance shown in the table. Insulation extending away from the building shall be protected by pavement or by a minimum of 10 inches (254 mm) of soil. Insulation complying with Table C402.1.3 shall be provided under the entire area of heated slabs on grade.

Exception: Where the slab-on-grade floor is greater than 24 inches (61 mm) below the finished exterior grade, perimeter insulation is not required.

Purpose of code change:

Clarification to resolve a common applicant misunderstanding.

Your name	Duane Jonlin	Email address	Duane.jonlin@seattle.gov
Your organization	City of Seattle DPD	Phone number	206-228-8195
Other contact name	(none)		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E042

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.4.1.1, C502.2.1, C502.2.2, C503.3.2, C503.3.3**

Brief Description:

Language regarding component performance with target area adjusted has been omitted in various locations. Proposal adds this compliance back into provisions where it was allowed under the 2012 WSEC.

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.)

C402.4.1.1 Increased vertical fenestration area with daylight responsive controls. In Climate Zones 1 through 6, a maximum of 40 percent of the gross above-grade wall area shall be permitted to be vertical fenestration for the purpose of prescriptive compliance with Section C402.1.4 or for the component performance alternative in Section C402.1.5, provided all of the following requirements are met:

1. No less than 50 percent of the conditioned floor area is within a daylight zone.
2. Automatic daylighting controls are installed in daylight zones.
3. Visible transmittance (VT) of vertical fenestration is greater than or equal to 1.1 times solar heat gain coefficient (SHGC).

Exception: Fenestration that is outside the scope of NFRC 200 is not required to comply with Item 4.

C502.2 Prescriptive compliance. *Additions* shall comply with Sections C502.2.1 through C502.2.6.2.

C502.2.1 Vertical Fenestration. New *vertical fenestration* area that results in a total building fenestration area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. *Additions* with *vertical fenestration* that results in a total building fenestration area greater than C402.4.1 ~~shall~~ may demonstrate compliance by complying with Section C402.4.1.1 or C402.4.1.3 for the *addition* only. *Additions* that result in a total building *vertical* ~~*glass*~~ *fenestration* area exceeding that specified in Sections C402.4.1 and that do not comply with Sections C402.4.1.1 or C402.4.1.3, or exceeds that specified in Section C402.4.1.1 and C402.4.1.3 shall comply with the component performance option with target area adjustment in Section C402.1.5 or the total building performance option in Section C407.

C502.2.2 Skylight area. New *skylight* area that results in a total building ~~fenestration~~ skylight area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. ~~*Additions* with *skylight* area that result in a total building skylight area greater than C402.4 shall comply with Section C402.4.1.2 for the *addition* only.~~ *Additions* that result in a total building skylight area exceeding that specified in Section C402.4.1 ~~.2~~ shall comply with the component performance option with target area adjustment in Section C402.1.5 or the total building performance option in Section C407.

C503.3 Building envelope. New building envelope assemblies that are part of the alteration shall comply with Sections C402.1 through C402.5 as applicable.

C503.3.2 Vertical Fenestration. The addition of *vertical fenestration* that results in a total building fenestration area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. The addition of *vertical fenestration* that results in a total building fenestration area greater than C402.4.1 ~~shall~~ may demonstrate compliance by complying with Section ~~C405.2.2.3.2~~ C405.2.3 daylight responsive controls for lighting in the space adjacent to the new fenestration only. *Alterations* that result in a total building *vertical* ~~glass~~ *fenestration* area exceeding that specified in Section C402.4.1.1 or C402.4.1.3, or exceeds that specified in Section C402.4.1.1 and C402.4.1.3 shall comply with the component performance option with target area adjustment in Section C402.1.5 or the total building performance option in Section C407.

C503.3.3 Skylight area. The addition of *skylight* area that results in a total building skylight area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. ~~The addition of *skylight* area that results in a total building skylight area greater than C402.4.1 shall comply with Section C402.4.1.2 for the space adjacent to the new skylights.~~ *Alterations* that result in a total building skylight area exceeding that specified in Section C402.4.1~~.2~~ shall comply with the component performance option with target area adjustment in Section C402.1.5 or the total building performance option in Section C407.

Purpose of code change:

Code language corrections.

Your name	**LISA ROSENOW**	Email address	**lisa@putnamprice.com**
Your organization	**NW ENERGY EFFICIENCY COUNCIL**	Phone number	(206) 624-0283
Other contact name	**STAN PRICE**		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E043

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.4.1.3 Increased vertical *fenestration* area with high-performance *fenestration***

Brief Description: Clarifies that the required U-values of high-performance fenestration can be used as part of the "base case" for UA tradeoff calculations.

Proposed code change text:

C402.4.1.3 Increased vertical *fenestration* area with high-performance *fenestration*. The vertical *fenestration* area (not including opaque doors and opaque spandrel panels) is permitted to exceed 30% but shall not exceed 40% of the gross above grade wall area, for the purpose of prescriptive compliance with Section C402.1.4 ~~or for the component performance alternative in Section C402.1.5~~, provided that each of the following conditions are met:

1. The vertical *fenestration* shall have the following U-factors:
   a. Non-metal framing (all) = 0.28
   b. Metal framing (fixed) = 0.34
   c. Metal framing (operable) = 0.36
   d. Metal framing (entrance doors) = 0.60
2. The SHGC of the vertical fenestration shall be less than or equal to 0.35, adjusted for projection factor in compliance with C402.4.3.

An area-weighted average shall be permitted to satisfy the U-factor requirements for each fenestration product category listed in Item 1 of this section. Individual fenestration products from different fenestration product categories shall not be combined in calculating the area-weighted average U-factor.

The compliance path described in this section is not permitted to be used for the Total Building Performance compliance path in Section C407. The compliance path described in this section is permitted to be used for the component performance alternative in Section C402.1.5, provided that the requirements of Section C402.1.5 are met.

Purpose of code change:

Clarification to make the 2015 energy code more clearly reflect 2013 and 2014 SBCC interpretations. Specifically for Interpretation 14-13. In addition, an option to use an area-weighted average U-value for the high-performance fenestration is added.

Your name Duane Jonlin Your organization City of Seattle DPD

March 2, 2015

Other contact name (none) Phone number 206-228-8195

Email address Duane.jonlin@seattle.gov

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E044

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.4.2 Minimum skylight fenestration area.**

Brief Description:

Improve clarity regarding how the skylight daylight zone requirement in this provision is defined. Adopt 2015 IECC language that requires all applicable spaces greater than 2,500 sf to comply with this provision. Further limit projects that are eligible for Exception 2 by including both general area and specific application lighting power for the 0.5 watts per sf exception. Terms with definitions are shown in *italics*.

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.)

C402.4.2 Minimum skylight fenestration area. ~~For single story buildings only,~~ In an enclosed space greater than 2500 square feet (232 m^2) in floor area, directly under a roof with not less than 75 percent of the ceiling area with a ceiling height greater than 15 feet (4572 mm), and used as an office, lobby, atrium, concourse, corridor, gymnasium/exercise center, convention center, automotive service, manufacturing, nonrefrigerated warehouse, retail store, distribution/sorting area, transportation, or workshop, ~~the total daylight zone under skylights shall be~~ skylights are required to provide a total toplight *daylight zone* area not less than half the floor area and shall provide on of the following:

1. A minimum skylight area to toplight *daylight zone* ~~under skylights~~ area of not less than 3 percent where all skylights have a VT of at least 0.40 as determined in accordance with Section C303.1.3.
2. A minimum skylight effective aperture of at least 1 percent determined in accordance with Equation 4-4.

$$\text{Skylight Effective Aperture} = \frac{(0.85 \times \text{Skylight Area} \times \text{Skylight VT} \times \text{WF})}{\text{Daylight zone under skylight}}$$

(Equation 4-4)

where:

Skylight area	=	Total fenestration area of skylights.
Skylight VT	=	Area weighted average visible transmittance of skylights.
WF	=	Area weighted average well factor, where well factor is 0.9 if light well depth is less than 2 feet (610 mm), or 0.7 if light well depth is 2 feet (610 mm) or greater.
Light well depth	=	Measure vertically from the underside of the lowest point of the skylight glazing to the ceiling plane under the skylight.

Exception: Skylights above daylight zones of enclosed spaces are not required in:

1. Reserved.
2. Spaces where the combined total ~~designed~~ *general lighting* and specific application lighting power ~~densities are~~ density is less than 0.5 W/ft^2 (5.4 W/m^2).

3. Areas where it is documented that existing structures or natural objects block direct beam sunlight on at least half of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.
4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.
5. Spaces where the total floor area minus the ~~area of daylight zones adjacent to vertical fenestration~~ sidelight daylight zone area is less than 2,500 square feet (232 m2), and ~~where~~ the lighting in the *daylight zone* is controlled ~~according to~~ in accordance with Section ~~C405.2.5~~ C405.2.3.1.

Purpose of code change:

Increase scope of projects required to comply with this provision and improve clarity of provision language.

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

☐ Addresses a critical life/safety need.

☒ 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@putnamprice.com**
Your organization	**NW ENERGY EFFICIENCY COUNCIL**	Phone number	(206) 624-0283
Other contact name	**STAN PRICE**		

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

Proposals increase the scope of buildings required to comply with this provisions. For those buildings impacted by this proposal, costs associated with this expansion of scope include skylights and daylighting controls. The benefit is to improve the annual lighting energy efficiency of these buildings by utilizing daylight to illuminate these spaces.

Proposal #1: Require for all building heights versus single story only buildings – The 2015 WSEC Integrated Draft edits the 2015 IECC model code by adopting a less stringent threshold for this provision.
Proposal #2: Require that both general area lighting power and specific application lighting power be included in the total installed lighting power considered for eligibility of Exception 2.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$2.00-$2.50 per square foot of floor area (For residential projects, also provide **$NA**/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

Skylights average installed cost is $25-$45 per sf of skylight assembly area.
At 5% roof area, the overall cost is $1.25-$2.25 per sf of floor area.
Daylighting controls cost is $0.50-$1.00 per sf of floor area.
Total installed cost of skylights and daylighting controls - $2.00-$2.50 per square foot of floor area
Information source: Energy Center of Wisconsin

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

2 kWh per square foot annual energy savings

(For residential projects, also provide **NA** KWH/KBTU / dwelling unit)

Show calculations here, and list sources for energy savings estimates, or attach backup data pages

Daylight of sufficient quality is available 6-8 hours per day, depending on time of day and year (Source: IDL). In the PNW, approximately 30% of building electricity use is for lighting.

Averaging the 2015 WSEC lighting power allowances of all space types required to comply with this provision, the estimated installed lighting wattage is 0.92 watts/sf. For a 2,500 sf space, this is approximately 2,300 watts of connected lighting load.

Based on an average 70 hour per week operating schedule, this equates to 8,000-8,500 kWh that the lights will consume per year. If the number of hours of operation can be reduced by a conservative 6 hours per day (42 hours per week), then the annual energy savings is: (42/70)*(8,000-8,500) = 4,800-5,100 kWh per year, or 1.9-2 kWh per sf per year.

Using an average 8 cents per kWh rate, this equates to $384-$408 per year in energy cost savings. Based on the estimated total cost of skylights and daylighting controls, the average payback is 10 years.

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

Add approximately 30 minutes of review time to confirm the required sf of skylight area is provided as well as compliant daylighting controls.

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

15-E045

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: X Commercial Provisions X Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.4.7 Vestbules.

Brief Description: Add an Exception for Group R occupancies.

Proposed code change text: Exception #9. Group R occupancies, Lobbies, and all podium Entrances.

Vestibules are not needed at Group R occupancies in the lobby areas, as they are low Human traffic areas, that is restricted to the buildings tenants and associates only, not the **General Public**. There is also a safety complaint from **Tenants about feeling trapped, and the fact that they could be trapped in the vestibule by an assailant**, while the tenant is unlocking the inside door. **The amount of energy Saved or Lost by this proposal is unmeasurable.**

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

X Addresses a critical life/safety need.

X Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)

X Consistency with state or federal regulations.

X Addresses a unique character of the state.

X Corrects errors and omissions.

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

Single family/duplex/townhome	X Multi-family 4 + stories	Institutional
X Multi-family 1 – 3 stories	Commercial / Retail	Industrial

Your name	Patrick C. Hayes	Email address	patrickchayes1@msn.com
Your organization	Energy Consultant	Phone number	206.819.7684
Other contact name	Click here to enter text.		

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$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

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

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

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

15-E046

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.5.1.1 Air barrier construction.**

Brief Description: Fixes a typographical error (see Item #2). Requires depiction of the air barrier testing pressure boundary and a calculation of the pressure boundary area on the construction documents (See item #5).

Proposed code change text:

C402.5.1.1 Air barrier construction. The *continuous air barrier* shall be constructed to comply with the following:

1. The air barrier shall be continuous for all assemblies that are the thermal envelope of the building and across the joints and assemblies.
2. Air barrier joints and seams shall be sealed, including sealing transitions in ~~places~~ planes and changes in materials. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.
3. Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Joints and seals associated with penetrations shall be sealed in the same manner or taped or covered with moisture vapor-permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed and shall be securely installed around the penetration so as not to dislodge, loosen or otherwise impair the penetrations' ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation. Sealing of concealed fire sprinklers, where required, shall be in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.
4. Recessed lighting fixtures shall comply with Section C402.5.8. Where similar objects are installed which penetrate the air barrier, provisions shall be made to maintain the integrity of the air barrier.
5. Construction documents shall contain a diagram showing the building's pressure boundary in plan(s) and section(s) and a calculation of the area of the pressure boundary to be considered in the test.

Purpose of code change:

Requires depiction of the air barrier testing pressure boundary and a calculation of the pressure boundary area on the construction documents. This calculation already has to be done at some point in order to run the test, so this way the building inspector can easily check the work. It also provides a useful reference for the design and construction teams.

Your name	Duane Jonlin	Email address	Duane.jonlin@seattle.gov
Your organization	City of Seattle DPD	Phone number	206-228-8195
Other contact name	(none)		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E047

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.5.1.2 Building test.**

Brief Description: Clarifies industry-standard test procedure details for air barrier testing.

Proposed code change text:

C402.5.1.2 Building test. The completed building shall be tested and the air leakage rate of the *building envelope* shall not exceed 0.40 cfm/ft^2 at a pressure differential of 0.3 inches water gauge (2.0 L/s × m^2 at 75 Pa) at the upper 95 percent confidence interval in accordance with ASTM E 779 or an equivalent method approved by the code official. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the building owner and the Code Official. If the tested rate exceeds that defined here, a visual inspection of the air barrier shall be conducted and any leaks noted shall be sealed to the extent practicable. An additional report identifying the corrective actions taken to seal air leaks shall be submitted to the building owner and the Code Official and any further requirement to meet the leakage air rate will be waived. The following modifications shall be made to ASTM E 779:

1. Tests shall be accomplished using either (1) both pressurization and depressurization or (2) pressurization alone, but not depressurization alone. If both pressurization and depressurization are not tested, the air leakage shall be plotted against the corrected P for pressurization in accordance with Section 9.4.
2. The test pressure range shall be from 25 Pa to 80 Pa per Section 8.10, but the upper limit shall not be less than 50 Pa, and the difference between the upper and lower limit shall not be less than 25 Pa.
3. If the pressure exponent *n* is less than 0.45 or greater than 0.85 per Section 9.6.4, the test shall be rerun with additional readings over a longer time interval.

C402.5.1.2.1 Building test for mixed-use buildings. Where a building is three or fewer stories above grade plane and contains both commercial and residential uses, the air barrier of the R-2 and R-3 occupancy areas of the building is permitted to be separately tested according to Section R402.X. Alternatively, it is permissible to test the air barrier of the entire building according to Section C402.5.1.2, provided that the tested air leakage rate does not exceed the rate specified in Section C402.5.1.2.

Purpose of code change:
March 2, 2015

The first paragraph and the modifications to ASTM E 779 clarify industry-standard testing procedure details. The new subsection C402.5.1.2.1 is a clarification to make the 2015 energy code more clearly reflect 2013 and 2014 SBCC interpretations, specifically for Interpretation 14-16.

Your name	Duane Jonlin	Email address	Duane.jonlin@seattle.gov
Your organization	City of Seattle DPD	Phone number	206-228-8195
Other contact name	(none)		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E048

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # **C402.5.7 Vestibules**

Brief Description: This clarifies that exit-only doors in buildings that have separate entry-only and exit-only doors also require vestibules, that the main entrance to a secure building that is only used by employees does require a vestibule and that doors into semi-heated spaces do not require vestibules.

Proposed code change text:

C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors. For the purposes of this section, "building entrances" shall include exit-only doors in buildings where separate doors for entering and exiting are provided.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

Exceptions: Vestibules are not required for the following:

1. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for ~~employee~~ building service use.
2. Doors opening directly from a *sleeping unit* or dwelling unit.
3. Doors that ~~open directly from~~ serve a space less than 3,000 square feet (298 m^2) in area and ~~are separate from the building entrance~~ that do not constitute one of the primary entrance paths to the remainder of the building.
4. Revolving doors.
5. Doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.
6. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in

area.

7. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.
8. Entrances to semi-heated spaces.

Purpose of code change:

Clarification to make the 2015 energy code more clearly reflect 2013 and 2014 SBCC interpretations. Specifically for Interpretations 14-05 and 14-23. In addition, clarification that the entrances to semi-heated spaces do not require vestibules.

Your name	Duane Jonlin	Email address	Duane.jonlin@seattle.gov
Your organization	City of Seattle DPD	Phone number	206-228-8195
Other contact name	(none)		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E049

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.5.7

Brief Description:

Alteration of Exceptions for Vestibules addressing interior entry doors between <3000 square feet and building entry lobby. The addition of an interior entry door can vaguely be interpreted as increasing the space above the 3000 square feet threshold. The space itself acts as the vestibule and thus does not require its own vestibule.

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.)

C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

Exceptions: Vestibules are not required for the following:

1. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for employee use.
2. Doors opening directly from a *sleeping unit* or dwelling unit.
3. Doors that open directly from a space less than 3,000 square feet (298 m^2) in area and are separate from the building entrance. Entry doors in walls separating the space from the building entrance are allowed without the addition of a vestibule at the space's exterior entry.
4. Revolving doors.
5. Doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.
6. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in

area.

7. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.

Purpose of code change:

The purpose of this code modification is to clarify a common situation that has been unclearly defined by this code section.

Your name	Andrew Whitmyre	Email address	andyw@rushingco.com
Your organization	Rushing Company	Phone number	(206) 462-7668
Other contact name	Click here to enter text.		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E050

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.5.7

Brief Description:

Alteration of Exceptions for Vestibules addressing revolving doors and their adjacent handicapped doors. I propose these handicapped doors are not required to have vestibules as they have little use, and will greatly impact the aesthetics and construction of the lobby so as to render the revolving door obsolete at no fault of their perfectly acceptable technology.

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.)

C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

Exceptions: Vestibules are not required for the following:

1. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for employee use.
2. Doors opening directly from a *sleeping unit* or dwelling unit.
3. Doors that open directly from a space less than 3,000 square feet (298 m^2) in area and are separate from the building entrance.
4. Revolving doors and accompanying adjacent accessible entry doors.
5. Doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.
6. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in

area.

7. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.

Purpose of code change:

The purpose of this code modification is to clarify a common situation that has been unclearly defined by this code section.

Your name	Andrew Whitmyre	Email address	andyw@rushingco.com
Your organization	Rushing Company	Phone number	(206) 462-7668
Other contact name	Click here to enter text.		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E051

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.5.7

Brief Description:

Alteration of Exceptions for Vestibules addressing stairwells between garages and the rest of the building. The stairwell is of such little use to and from the remaining building that the difficulty, practicality, and life-safety issues outweigh the needs of adding a vestibule. The following change will clarify this.

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.)

C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

Exceptions: Vestibules are not required for the following:

1. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for employee use.
2. Doors opening directly from a *sleeping unit* or dwelling unit.
3. Doors that open directly from a space less than 3,000 square feet (298 m^2) in area and are separate from the building entrance.
4. Revolving doors.
5. Doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.
6. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in area.

7. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.
8. Interior exit stairway doors that open directly to outdoors or that open directly to an enclosed parking garage.

Purpose of code change:

The purpose of this code modification is to clarify that stairwells do not require vestibules.

Your name	Andrew Whitmyre	Email address	andyw@rushingco.com
Your organization	Rushing Company	Phone number	(206) 462-7668
Other contact name	Click here to enter text.		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.5.7

Brief Description:

Alteration of Exceptions for Vestibules addressing Shell & Core spaces greater than 3000 square feet while unoccupied. Tenant improvement greater than 3000 square feet shall be responsible for construction of a vestibule at build-out, because final TI space sizes will be unknown. Imposing a vestibule on a space less than 3000 square feet could be cumbersome and unfair for this business.

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.)

C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

Exceptions: Vestibules are not required for the following:

1. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for employee use.
2. Doors opening directly from a *sleeping unit* or dwelling unit.
3. Doors that open directly from a space less than 3,000 square feet (298 m^2) in area and are separate from the building entrance.
4. Revolving doors.
5. Doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.
6. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in

area.

7. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.
8. Core shell space greater than 3000 square feet (298 m^2) exempt until tenant build-out.

Purpose of code change:

The purpose of this code modification is to correct a situation where a space less than 3000 square feet could still be required to have a vestibule, and thus placing this business at a competitive disadvantage with other businesses of similar size.

Your name	Andrew Whitmyre	Email address	andyw@rushingco.com
Your organization	Rushing Company	Phone number	(206) 462-7668
Other contact name	Click here to enter text.		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E053

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Energy Code Proposal Short Form

For editorial **Coordination, Clarifications & Corrections** only,
without substantive energy or cost impacts

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.5.7

Brief Description:

Include exception from 90.1-2013 that clearly indicates that doors not intended to be used as building entrances do not require vestibules.

5.4.3.4 Vestibules. Building entrances that separate conditioned space from the exterior shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. Interior and exterior doors shall have a minimum distance between them of not less than 7 ft when in the closed position. The floor area of each vestibule shall not exceed the greater of 50 ft^2 or 2% of the gross conditioned floor area for that level of the building. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. The interior and exterior envelope of unconditioned vestibules shall comply with the requirements for a semiheated space.

Exceptions:

1. Building entrances with revolving doors
2. Doors not intended to be used as a building entrance

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.)

C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

Exceptions: Vestibules are not required for the following:

1. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment

rooms, or intended solely for employee use.

2. Doors opening directly from a *sleeping unit* or dwelling unit.
3. Doors that open directly from a space less than 3,000 square feet (298 m^2) in area and are separate from the building entrance.
4. Revolving doors.
5. Doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.
6. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in area.
7. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.
8. Doors not intended to be used as building entrances.

Purpose of code change:

The purpose of this code modification is to clarify that stairwells do not require vestibules.

Your name	Eric Vander Mey	Email address	ericv@rushingco.com
Your organization	Rushing Company	Phone number	(206) 285-7114
Other contact name	Click here to enter text.		

Instructions: For use with Coordination, Clarifications & Corrections **ONLY**. Send this form as an email attachment, along with any other documentation available, to: sbcc@ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280.

Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.

15-E054

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

2015 Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions
(A MS Word version of the code is linked to the name)

Code Section # C402.5.7

Brief Description: Restrict air curtains as a replacement for vestibules to buildings less than 20 stories in height.

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.)

C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

Exceptions: Vestibules are not required for the following:

5. In buildings less than 20 stories above grade, d~~D~~oors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.

Purpose of code change:

The Code change to the 2015 IECC did not present any data for high-rise buildings. There is a concern among mechanical engineers that air curtains do not create a pressure break between the indoors and outdoors to combat stack effect.

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

☐ Addresses a critical life/safety need.

☐ Consistency with state or federal regulations.

☒ Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)

☐ 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	Click here to enter text.	Email address	Click here to enter text.
Your organization	Click here to enter text.	Phone number	Click here to enter text.

Other contact name
Robby Oylear, roylear@mazzetti.com, CDi+Mazzetti,
206-354-3289

Instructions: Send this form as an email attachment, along with any other documentation available, to: www.sbcc.ga.wa.gov. For further information, call the State Building Code Council at 360-407-9280. **Deadline for all 2015 code change proposals is March 1, 2015 at 11:59 PM.**

Economic Impact Data Sheet

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

Requires additional floor space at building entrances in tall buildings. No change from the 2012 base Code for high-rise buildings.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal?

$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

Click here to enter text.

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

Click here to enter text.

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

None.