STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development

Standard Energy Code Proposal Form

Jan 2022

Log No. 24-GP1-223
Proponent Revision Rec'd 3/26/25

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

Code Section # Table C402.1.2 and Table C402.1.3

Brief Description: As the Energy code currently stands, refrigerant piping shafts that require ventilation per mechanical code chapter 11 create a "donut hole" penetration usually through multiple floors of a project. These shaft walls are prescriptively required to be fully code compliant opaque exterior walls, and this creates a large penalty in the thermal envelope compliance component performance (UA) calculation and/or requires significant depth of assemblies, reducing usable floor area. Multifamily projects utilizing VRF systems will typically require several of these shafts to meet compliance. These ventilated refrigerant piping shaft walls should be excluded from the thermal envelope compliance calculation to remove the penalty associated with maintaining life safety on projects, provided that these shaft walls have a least a 4" cavity filled with insulation.

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 C402.1.2
OPAQUE THERMAL ENVELOPE ASSEMBLY MAXIMUM REQUIREMENTS, U-FACTOR METHOD

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	U-0.027	U-0.027
Metal buildings	U-0.031	U-0.031
Attic and other	U-0.021	U-0.021
Joist or single rafter	U-0.027	U-0.027
Walls, Above Grade[k]		
Mass[g]	U-0.090[d]	U-0.078
Mass transfer deck slab[j]	U-0.20	U-0.20
Metal building	U-0.050	U-0.050
Steel framed	U-0.055	U-0.055
Wood framed and other	U-0.051	U-0.051
Ventilated	N.R	N.R

refrigerant piping shaft wall [L]		
Walls, Below Grade		
Below-grade wall[b,g]	Same as above grade	Same as above grade
Floors		
Mass[e]	U-0.031	U-0.031
Joist/framing	U-0.029	U-0.029
Slab-on-Grade Floors		
Unheated slabs	F-0.52	F-0.51
Heated slabs[c]	F-0.55	F-0.55
Opaque Doors		
Nonswinging door	U-0.31	U-0.31
Swinging door	U-0.37	U-0.37
Garage door <14% glazing	U-0.31	U-0.31
Garage door ≥14% glazing and <50% glazing[i]	U-0.34	U-0.34

L. Shaft walls of ventilated refrigerant piping shafts which require ventilation per Washington State Mechanical Code Chapter 11 are not required to be fully code compliant exterior opaque walls, and can be excluded from the prescriptive envelope compliance requirements provided that these shaft walls have a least a 4" cavity filled with insulation.

AND

TABLE C402.1.3
OPAQUE BUILDING THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD

	CLIMATE ZONE 5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	R-38ci	R-38ci
Metal buildings[b]	R-25 + R-22 LS	R-25 + R-22 LS
Attic and other	R-49	R-49
Joist or single rafter	U-0.027	U-0.027
Walls, Above Grade		
Mass[j]	R-11.4[c] ci	R-13.3ci
Mass transfer deck slab edge[g]	See Table C402.1.2	See Table C402.1.2
Metal building	R-13 + R-14ci	R-13 + R-14ci
Steel framed[h,i]	R-0 + R-15.2ci or R-13 + R-10ci or R-20 + R-9ci	R-0 + R-15.2ci or R-13 + R10ci or R-20 + R-9ci
Wood framed and other[h,i]	R-0 + R-16ci std or R-13 + R-7.5ci std or R-20+R-3.8ci std or	R-0 + R-16ci std or R-13 + R-7.5ci std or R-20+R-3.8ci std or

	R-27 std	R-27 std
Ventilated refrigerant piping shaft wall [m]	N.R	N.R
Walls, Below Grade		
Below-grade wall[d,j]	Same as above grade	Same as above grade
Floors		
Mass[f]	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

m. Shaft walls of ventilated refrigerant piping shafts which require ventilation per Washington State Mechanical Code Chapter 11 are not required to be fully code compliant exterior opaque walls, and can be excluded from the component minimum requirements of section C402.1.3 provided that these shaft walls have a least a 4" cavity filled with insulation.

Purpose of code change:

The purpose of this code change is to remove the penalty associated with maintaining life safety on projects that have refrigerant piping shafts which require ventilation per mechanical code chapter 11. These walls should not be treated as exterior walls, as this creates a large penalty in the thermal envelope compliance calculation and/or forces the project to lose usable floor area by requiring significant depth of these refrigerant shaft assemblies. These shaft walls should be excluded from the thermal envelope, provided that these shaft walls have a least a 4" cavity filled with insulation.

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

☒ Addresses a critical life/safety need.

☐ The amendment clarifies the intent or application of the code.

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

☐ Consistency with state or federal regulations.

☐ Addresses a unique character of the state.

☐ Corrects errors and omissions.

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

☐ Single family/duplex/townhome

☒ Multi-family 1 – 3 stories

☒ Multi-family 4 + stories

☒ Commercial / Retail

☐ Institutional

☐ Industrial

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Your organization IMEG

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Economic Impact Data Sheet

Is there an economic impact: ☒ Yes ☐ No

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants, and businesses. If you answered "No" above, explain your reasoning.

This proposed code change would reduce the cost of projects with ventilated refrigerant piping shafts, by avoiding the installation of additional insulation to offset the penalty in the envelope compliance calculation.

Provide your best estimate of the **construction cost** (or cost savings) of your code change proposal? (See OFM Life Cycle Cost **Analysis tool** and **Instructions;** use these **Inputs**. **Webinars on the tool can be found Here and Here**)

$Click here to enter text./square foot (For residential projects, also provide $Click here to enter text./ dwelling unit)

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

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:

No change in code enforcement/review time.

Small Business Impact. Describe economic impacts to small businesses:

NA

Housing Affordability. Describe economic impacts on housing affordability:

Housing affordability is increased by reducing a significant item impacting insulation cost and space allocation.

Other. Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

The energy code encourages the use of heat pumps and VRF for space conditioning, but the combination of ventilation requirements for A2L refrigerants and the requirements of insulating those walls to the full prescriptive targets introduce significant cost and space allocation issues on projects intending to use VRF and high-efficiency heat-pumps.

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@des.wa.gov. For further information, call the State Building Code Council at 360-407-9255.

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