098
~~Proponent Revision 6/01/22~~
TAG Modification 6/2/22

STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Log No. 21-GP2-098

1. State Building Code to be Amended:

- ☐ International Building Code
- ☐ ICC ANSI A117.1 Accessibility Code
- ☐ International Existing Building Code
- ☐ International Residential Code
- ☐ International Fire Code
- ☐ Uniform Plumbing Code
- ☒ International Mechanical Code
- ☐ International Fuel Gas Code
- ☐ NFPA 54 National Fuel Gas Code
- ☐ NFPA 58 Liquefied Petroleum Gas Code
- ☐ Wildland Urban Interface Code

For the Washington State Energy Code, please see specialized energy code forms

Section(s): **605.1 / 605.4 / 605.5 (new)**
(e.g.: Section: R403.2)

Title: revised 6/1/22 **Particulate matter removal and outdoor smoke filtration**
(e.g: Footings for wood foundations)

2. Proponent Name (Specific local government, organization or individual):

Proponent: **Mike Fowler**
Title: **Sustainability Integration Leader, Mithun**
Date: **April 8, 2022 (revised 6/1/22)**

3. Designated Contact Person:

Name: **same**
Title:
Address:

Office Phone: ( )
Cell: ( )
E-Mail address: **mikef@mithun.com**

4. **Proposed Code Amendment**. Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code, additional pages may be attached.

   Clearly state if the proposal modifies an existing amendment or if a new amendment is needed. If the proposal modifies an **existing amendment**, show the modifications to the existing amendment by underlining all added language and striking through all deleted language. If a new amendment is needed, show the modifications to the **model code** by underlining all added language and striking through all deleted language.

   Code(s) IMC **Section(s)** 605.1 / 605.4 / 605.5 (new)

   Enforceable code language must be used.
   Amend section to read as follows:

6/1/22 Revision

605.1 General. ~~Heating and air-conditioning~~Air handlers and ventilation systems shall be provided with *approved* air filters in accordance with Section 605.4. Filters shall be installed such that all ~~return air,~~ **recirculated air~~,~~ and all** outdoor air ~~**supplied to occupiable space,** and makeup air~~ is filtered upstream from any heat exchanger or coil ~~**and upstream of all cooling coils or other devices with wetted surfaces through which air is supplied**~~. Filters shall be installed in an *approved* convenient location. Liquid adhesive coatings used on filters shall have a flash point not lower than 325°F (163°C).

Exception: Cooling coils that are designed, controlled and operated to provide sensible cooling only do not require filtration at the terminal device.

605.4 Particulate matter removal. Particulate matter filters or air cleaners **shall have** ~~having~~ a minimum efficiency reporting value (MERV) of not less than **the following:** ~~6 for ducted air handlers and not less than 4 for ductless mini-split systems shall be provided upstream of all cooling coils or other devices with wetted surfaces through which air is supplied to an occupiable space~~.

1. **MERV 13 for ducted air handlers and ventilation systems serving occupiable spaces in Group A, B, E, M, R, and I occupancies,**
2. **MERV 8 for ducted air handlers and ventilation systems serving occupiable spaces in Group F, H, S and U occupancies, and**
3. **MERV 4 for unducted air handlers and fan coil units.**

Exceptions:
1. Ducted air handlers and ventilation systems 500 cfm or less shall have a filter not less than MERV 8.
2. Exhaust or relief air upstream from a heat exchanger or coil shall have a filter not less than MERV 6.

~~**605.5 Outdoor air smoke filtration capability.**~~
~~Air handlers and energy recovery ventilators **that provide outdoor air to** serving occupiable spaces each with individual **supply airflow** capacity greater than 500 cfm shall provide fan capacity and a filter box capable of housing a filter with a minimum efficiency reporting value (MERV) of not less than 13.~~

5. **Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.** Specifically note any impacts or benefits to business, and specify construction types, industries and services that would be affected. Finally, please note any potential impact on enforcement such as special reporting requirements or additional inspections required.

Proposal is to adopt language currently in the 2018 Seattle Mechanical Code. This will protect occupant health by providing a filtration level needed to reduce fine particulates such as diesel emissions, vehicle exhaust, pesticide spray, dust, wood smoke, and wildfire smoke.

6/1/22 per TAG meeting input, modification has been made to 605.1 and 605.4 which aligns with California for recirculated and outdoor air filtration at MERV 13, though this proposal focuses that filtration level public, education, institutional, and residential occupancies.

See last page for ASHRAE Epidemic Task Force, Core Recommendation for Reducing Airborne Infectious Aerosol Exposure, October 19, 2021 to have MERV 13 or better levels of performance for air recirculated by HVAC system.

6. **Specify what criteria this proposal meets.** You may select more than one.
   - ☒ The amendment is needed to address a critical life/safety need.
   - ☐ The amendment clarifies the intent or application of the code.
   - ☐ The amendment is needed to address a specific state policy or statute.
   - ☐ The amendment is needed for consistency with state or federal regulations.
   - ☐ The amendment is needed to address a unique character of the state.
   - ☐ The amendment corrects errors and omissions.

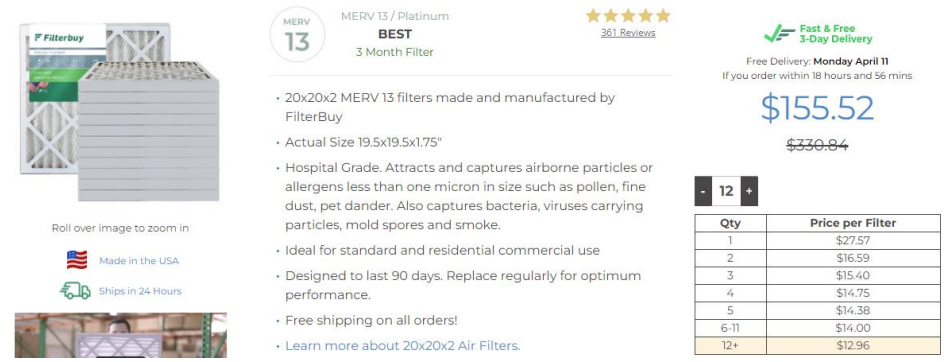
7. **Is there an economic impact:** ☐ Yes ☐ No

   If no, state reason: not applicable, proposal is focused on occupant health, life/safety need.

   If yes, provide economic impact, costs and benefits as noted below in items a – f.

   a. ***Life Cycle Cost.*** Use the OFM Life Cycle Cost **Analysis tool** to estimate the life cycle cost of the proposal using one or more typical examples. Reference these **Instructions;** use these **Inputs.** Webinars on the tool can be found **Here** and **Here**). If the tool is used, submit a copy of the excel file with your proposal submission. If preferred, you may submit an alternate life cycle cost analysis.

   b. ***Construction Cost.*** Provide your best estimate of the construction cost (or cost savings) of your code change proposal. Better filters cost a little more than less effective filters. For an example:



$5 more per filter (20x20x2), replaced every 3 months, $1.67 per month per filter.

$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

c. ***Code Enforcement.*** List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application: no increase

d. ***Small Business Impact.*** Describe economic impacts to small businesses: small increase in filter cost

e. ***Housing Affordability.*** Describe economic impacts on housing affordability: small increase in filter cost

f. ***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: more public health information available at Washington State Department of Ecology website: https://ecology.wa.gov/Air-Climate/Air-quality/Smoke-fire/Health-effects

See next page for ASHRAE Epidemic Task Force, Core Recommendation for Reducing Airborne Infectious Aerosol Exposure, October 19, 2021.

ASHRAE EPIDEMIC TASK FORCE

Core Recommendations for Reducing Airborne Infectious Aerosol Exposure

The following recommendations are the basis for the detailed guidance issued by ASHRAE Epidemic Task Force. They are based on the concept that within limits ventilation, filtration, and air cleaners can be deployed flexibly to achieve exposure reduction goals subject to constraints that may include comfort, energy use, and costs. This is done by setting targets for equivalent clean air supply rate and expressing the performance of filters, air cleaners, and other removal mechanisms in these terms.

1. *Public Health Guidance* – Follow all current regulatory and statutory requirements and recommendations, including vaccination, wearing of masks and other personal protective equipment, social distancing, administrative measures, circulation of occupants, hygiene, and sanitation.

2. *Ventilation, Filtration, Air Cleaning*
   - 2.1 Provide and maintain at least required minimum outdoor airflow rates for ventilation as specified by applicable codes and standards.
   - 2.2 Use combinations of filters and air cleaners that achieve MERV 13 or better levels of performance for air recirculated by HVAC systems.
   - 2.3 Only use air cleaners for which evidence of effectiveness and safety is clear.
   - 2.4 Select control options, including standalone filters and air cleaners, that provide desired exposure reduction while minimizing associated energy penalties.

3. *Air Distribution* - Where directional airflow is not specifically required, or not recommended as the result of a risk assessment, promote mixing of space air without causing strong air currents that increase direct transmission from person-to-person.

4. *HVAC System Operation*
   - 4.1 Maintain temperature and humidity design set points.
   - 4.2 Maintain equivalent clean air supply required for design occupancy whenever anyone is present in the space served by a system.
   - 4.3 When necessary to flush spaces between occupied periods, operate systems for a time required to achieve three air changes of equivalent clean air supply.
   - 4.4 Limit re-entry of contaminated air that may re-enter the building from energy recovery devices, outdoor air, and other sources to acceptable levels.

5. *System Commissioning – Verify that HVAC systems are functioning as designed.*

October 19, 2021