



STATE OF WASHINGTON
STATE BUILDING CODE COUNCIL

May 2018
Log No. _____

1. State Building Code to be Amended:

- | | |
|---------------------------------------------------------------|-------------------------------------------------------------------|
| <input type="checkbox"/> International Building Code | <input checked="" type="checkbox"/> International Mechanical Code |
| <input type="checkbox"/> ICC ANSI A117.1 Accessibility Code | <input type="checkbox"/> International Fuel Gas Code |
| <input type="checkbox"/> International Existing Building Code | <input type="checkbox"/> NFPA 54 National Fuel Gas Code |
| <input type="checkbox"/> International Residential Code | <input type="checkbox"/> NFPA 58 Liquefied Petroleum Gas Code |
| <input type="checkbox"/> International Fire Code | <input type="checkbox"/> Wildland Urban Interface Code |
| <input type="checkbox"/> Uniform Plumbing Code | |

For the Washington State Energy Code, please see specialized [energy code forms](#)

Section(s): **new section 605.5**
(e.g.: Section: R403.2)

Title: **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**

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) 605.5 (new)

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

Option A

605.1 General. Heating and air-conditioning systems shall be provided with approved air filters. Filters shall be installed such that all return air, outdoor air and makeup air is filtered upstream from any heat exchanger or coil. 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 be provided upstream of all cooling coils or other devices with wetted surfaces through which air is supplied to an occupiable space 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 ductless air handlers 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 serving Group A, B, E, M, and I occupancies,
2. MERV 8 for ducted air handlers serving other than Group A, B, E, M and I occupancies, and
3. MERV 4 for unducted air handlers.

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.

Option B

605.1 General. Heating and air-conditioning systems shall be provided with approved air filters. 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. 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 be provided upstream of all cooling coils or other devices with wetted surfaces through which air is supplied to an occupiable space having a minimum efficiency reporting value (MERV) of not less than ~~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.~~ the following

1. MERV 13 for ducted air handlers serving Group A, B, E, M and I occupancies.
2. MERV 8 for ducted air handlers serving other than Group A, B, E, M and I occupancies.
3. MERV 4 for unducted air handlers.

605.6 Recirculated air filtration. Air handlers with individual capacity greater than 500 cfm that supply 100 percent recirculated air, with no outdoor air, to an occupied space shall provide a filter with a minimum efficiency reporting value (MERV) of not less than 13.

Exceptions:

1. Fan forced air heaters.
2. Radiant beams or other no-wetted coils.
3. Recirculating paddle fans.
4. Transfer fans which remove heat from electric rooms or similar non-occupied spaces.
5. Garage ventilation transfer fans.
6. Unducted recirculating fan coils provided with the highest filter MERV rating available as a standard factory option may have a filter with a MERV rating of less than 13. MERV rating shall not be less than that required by Section 605.4.

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.

~~Exception: Air handlers that process 100 percent recirculated air with no outdoor air are not required to comply with this section.~~

- 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. 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.
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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:**

20x20x2 MERV 8 Pleated Air Filter



MERV 8 / Silver
STANDARD
3 Month Filter

361 Reviews

- 20x20x2 MERV 8 filters made and manufactured by FilterBuy
- Actual Size 19.5x19.5x1.75"
- Traps and blocks over 90% of pollen, dust mites, mold, larger dust particles, and more.
- Ideal for standard and residential commercial use
- Designed to last 90 days. Replace regularly for optimum performance.
- Free shipping on all orders!
- Learn more about 20x20x2 Air Filters.

Other MERV Ratings Available

Fast & Free 3-Day Delivery

Free Delivery: **Monday April 11**
If you order within 18 hours and 57 mins

\$95.64

~~\$239.28~~

12

Qty	Price per Filter
1	\$19.94
2	\$12.00
3	\$10.26
4	\$9.66
5	\$9.31
6-11	\$8.96
12+	\$7.97

20x20x2 MERV 13 Pleated Air Filter



MERV 13 / Platinum
BEST
3 Month Filter

361 Reviews

- 20x20x2 MERV 13 filters made and manufactured by FilterBuy
- Actual Size 19.5x19.5x1.75"
- Hospital Grade. Attracts and captures airborne particles or allergens less than one micron in size such as pollen, fine dust, pet dander. Also captures bacteria, viruses carrying particles, mold spores and smoke.
- Ideal for standard and residential commercial use
- Designed to last 90 days. Replace regularly for optimum performance.
- Free shipping on all orders!
- Learn more about 20x20x2 Air Filters.

Fast & Free 3-Day Delivery

Free Delivery: **Monday April 11**
If you order within 18 hours and 56 mins

\$155.52

~~\$330.84~~

12

Qty	Price per Filter
1	\$27.57
2	\$16.59
3	\$15.40
4	\$14.75
5	\$14.38
6-11	\$14.00
12+	\$12.96

\$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>**

Please send your completed proposal to: sbcc@des.wa.gov

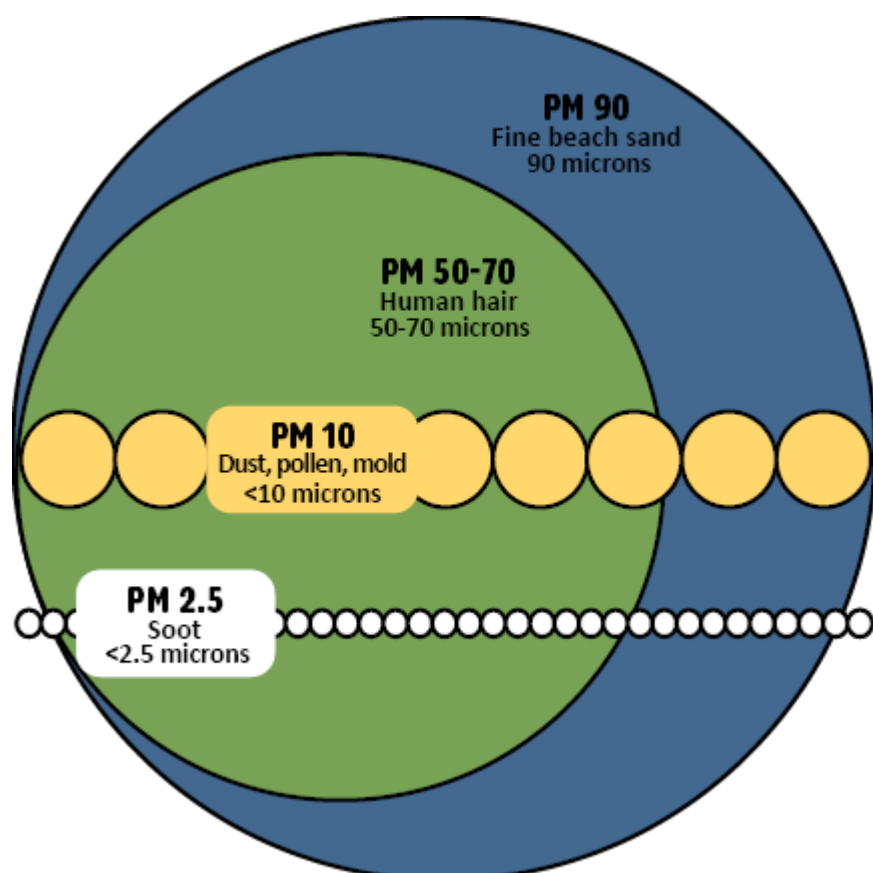
All questions must be answered to be considered complete. Incomplete proposals will not be accepted.

Smoke health effects & burning alternatives

Smoke from wildfires, wood stoves, and outdoor burning causes poor air quality that can hurt your health. Think about a different type of home heating and yard waste disposal.

I want to...

- Check current air quality conditions
- Get current info about wildfire smoke in my area



Small particles (PM₁₀ and PM_{2.5}) found in smoke are smaller than a grain of sand or a human hair.

Smoke is harmful to your health

Smoke is made up of gases and [particles](#) (also called particulate matter or PM) that can be dangerous if they're inhaled into your lungs. When a [temperature inversion](#) occurs, this smoke can be trapped close to the ground.

Smoke can irritate your eyes, nose, and throat. It can make you wheeze, cough, and cause shortness of breath and headache. It can make existing heart and lung conditions worse. Read more about [how wood smoke harms your health](#).

Who is at most risk

Smoke may make symptoms worse for people who have pre-existing health conditions and those who are sensitive to air pollution. People most likely to have health problems from breathing smoke include:

People with lung diseases such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema.

People with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, colds, or flu.

People with existing heart or circulatory problems, such as irregular heart beat, congestive heart failure, coronary artery disease, and angina.

People who have had a heart attack or stroke.

Infants and children under 18 because their lungs and airways are still developing. They breathe more air per pound of body weight than adults.

Adults over age 65 because they are more likely to have unrecognized heart or lung disease.

Pregnant women because both the mother and baby are at increased risk of health effects.

People who smoke because they are more likely to already have lower lung function and lung diseases.

People with diabetes because they are more likely to have undiagnosed cardiovascular disease.

People with, or recovering from, COVID-19 because they are more likely to have lower lung and heart function.

Symptoms

Smoke from wildfires can cause problems even if you are healthy, such as:

Watery, stinging, or dry eyes.

Persistent cough, phlegm, wheezing, scratchy throat, or irritated sinuses.

Headaches.

Shortness of breath, asthma attack, or lung irritation.

Irregular heartbeat, chest pain, or fatigue.

Heart attacks.

Some respiratory symptoms — including cough, sore throat, and difficulty breathing — are common to both wildfire smoke exposure and COVID-19.

People with pre-existing conditions or sensitive groups may have worsened symptoms.

Contact your health care provider if you have heart or lung problems when you're around smoke. Call 911 if symptoms are serious.

How to protect yourself

If you are indoors:

Keep indoor air as clean as possible.

[Make a low-cost clean air fan.](#) This simple fan-filter combination can reduce tiny, harmful particles in polluted air. Change the filter when it gets dirty.

Keep windows and doors closed. Blow a fan directly on you to keep cool. Fans cool people, not rooms.

[Check current air quality](#) regularly. Air quality conditions can change quickly. Open your windows for fresh air when air quality gets better.

Use a high efficiency particulate air (HEPA) filter in your furnace to reduce indoor air pollution. Change the filter when it gets dirty.

Set your air conditioner on recirculate so dirty air doesn't come inside.

Air purifying machines may help remove smoke particles indoors, but they don't remove gases and odors.

Don't add more air pollution: Avoid smoking, using a wood stove or fireplace, burning candles or incense, or vacuuming.

Reduce physical activity inside when air quality outside is at or above the "unhealthy" category.

Leave the area affected by wildfire smoke, if you can't keep the indoor air clean.

If you are outdoors:

[Check current air quality](#) regularly. Air quality conditions can change quickly.

The best respiratory protection is to wear an N95 or N100 mask. However, these are in short supply because of COVID-19 and they need to be saved for medical workers. A paper mask, dust mask, or cloth mask will help a little bit, but won't filter out fine particles or hazardous gases in smoke.

Wear goggles to protect your eyes from ash and fine dust.

Avoid strenuous outdoor activity.

Delay mowing the lawn and refueling your vehicle until the air is clear.

Drink plenty of water.

If you are in a sensitive group, reconsider any outdoor activities.

Keep car windows rolled up, with the air conditioner set to recirculate to avoid bringing in dirty air.

Leave the area affected by wildfire smoke, if you can.

How to protect pets and farm animals

High levels of smoke may irritate your animal's eyes and respiratory tract. Reduce their exposure to smoke:

Reduce the time spent in smoky areas.

Give them plenty of water.

Limit activities that will increase their breathing.

Reduce their exposure to dust or other air pollutants.

If your animal is coughing or having difficulty breathing, contact your veterinarian.

Resources for schools and employers

The decision to cancel or close a school or business is made by each school district or business, usually with advice from the local health department. Adults in sensitive groups and children are more likely to have health problems from breathing smoke.

[Track the air quality.](#) □

For recommendations about recess, P.E., and sports during smoky conditions, refer to Washington Department of Health's information:

[Air Pollution and School Activities Guide](#) □[Summary Guidance: School Closure, Children's Outdoor Activities Cancellation](#) □

Follow guidance about [Improving Ventilation and Indoor Air Quality during Wildfire Smoke Events](#) □ (for schools and commercial buildings).



You can make a low-cost, yet effective, air cleaner.

[Español \(Spanish\)](#) □ | [한국어 \(Korean\)](#) □ | [Tiếng Việt \(Vietnamese\)](#) □

Make a clean air fan

Learn how to make a low-cost clean air fan. This simple fan-filter combination can reduce the amount of the tiny, harmful particles you breathe from wildfire smoke, wood smoke, dust, vehicle exhaust, and pesticide spray. Use it in a small room, with the windows and doors closed.



using **MERV-13 filters**

Burning alternatives

When air pollution from wood smoke is unhealthy, Ecology or [local clean air agencies](#) issue [air quality burn bans](#).

People who burn wood for heat have more respiratory problems. To protect your health, consider switching to natural gas or electric for home heating. If that's not an option, make sure you are using a [Washington-certified wood burning device](#).

Helpful tips

Alternatives to burning yard waste

Grasscycle — Leave grass clippings on your lawn to add nutrients back into the soil for a healthy, attractive lawn.

Compost — Most yard waste (leaves, grass, prunings) can be decomposed in a bin or a pile to make compost. Use red wiggler worms to make a rich worm compost to use in your garden or yard.

Chip — Chipping branches and prunings can provide your garden with free mulch.

Curbside pickup — Many areas offer curbside collection of yard waste and food waste. Check with your local government or waste management company.

Community or neighborhood cleanup days — Community cleanups are events where your city or town allows free disposal of items, including yard waste. Look for the next cleanup day in your area.

Landfills — Many landfills offer reduced fees for yard waste.

What else you can do

Follow [burn ban](#) restrictions.

Know how to [operate your wood stove more efficiently](#). □

Replace an uncertified [wood stove](#) with a cleaner source of heat.

Focus on [cleaner wood burning](#) □.

Follow the rules for [outdoor and residential burning](#).

[Report](#) illegal burning and air quality issues.

Contacts

County	Phone	Email
Chelan, Douglas, Kittitas, Klickitat, and Okanogan counties	509-575-2490	agburnteamcro@ecy.wa.gov
Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Stevens, Walla Walla, and Whitman counties	509-329-3400	agburnteamero@ecy.wa.gov
San Juan County	360-407-6822	sean.lundblad@ecy.wa.gov
Benton, Spokane, Yakima, and all other Western Washington counties	Contact your local clean air agency	Contact your local clean air agency

Related links

[Particle pollution](#)

[How wood smoke harms your health](#) □

[Washington Department of Health – Smoke from fires](#) □

[Current air quality conditions](#) □

[Regional haze](#)