GUIDANCE FOR USE OF PORTABLE AIR FILTRATION SYSTEMS IN HEALTH CARE FACILITIES

Technical Guidance 18-01
November 16, 2018

Overview…

- **Wildfire Smoke:** Particulate matter is the principal pollutant of concern from wildfire smoke often experienced by the public. Small particles 10 micrometers in size can be inhaled deep into the lungs that can affect the lungs and heart.
- **How it enters your facility:** Outdoor air pollutants, including smoke, enter and leave buildings in three primary ways:
    - Mechanical ventilation systems, which actively draw in outdoor air through intake vents and distribute it throughout the building.
    - Natural ventilation (opening of doors or windows).
    - Infiltration through small cracks and gaps in the building's shell.
- **Portable air cleaners**: move air through a filtration system and supplement the work of the HVAC system by removing fine particulates.
    - They use HEPA filters with activated charcoal which will absorb gases in the smoke.
    - They typically have two filters that need to be replaced: one pre-filter and the HEPA filter. The pre-filter has a short lifespan while the HEPA filter lasts much longer before needing replacement.

Portable Air Cleaner Location...

- Locate the air cleaner on the floor and for best performance, the air outlet slot should not be blocked for at least 3 feet in all directions.
- Ensure the unit is not creating an obstruction that would interfere with the proper delivery of healthcare and emergency egress.
- Place the unit closest to the source of smoke infiltration into the building to maximize air mixing for better scrubbing effectiveness. Examples include: Near building entrances/vestibules, windows, or other areas where outside air enters the building.
- It is highly recommended that an emergency power outlet be made available for the unit and that the unit be plugged directly into the outlet (no extension cords).

For best performance…

- Operate your air cleaner 24 hours a day because indoor air can be quickly contaminated by activity in a room and infiltration of outside air.
- While all the air in a room will not be processed by the air cleaner, the more air circulated through the filter, the more filtered air returned to the room. Portable air cleaners will be much more effective in rooms where all doors and windows are closed.

Check and replace HEPA filter…

- As needed or per manufacturer's recommendation. When heavy particulate matter is in the air, the filter requires more frequent replacement. Most units have an automatic filter monitor.

Important to note…

- Unit should be set to its highest fan setting to provide for the maximum filtration and air changes per hour.
- **DO NOT USE** ozone generators, personal air purifiers, or electrostatic precipitators and ionizers that produce ozone. Ozone is a respiratory irritant that can aggravate asthma and other lung diseases.

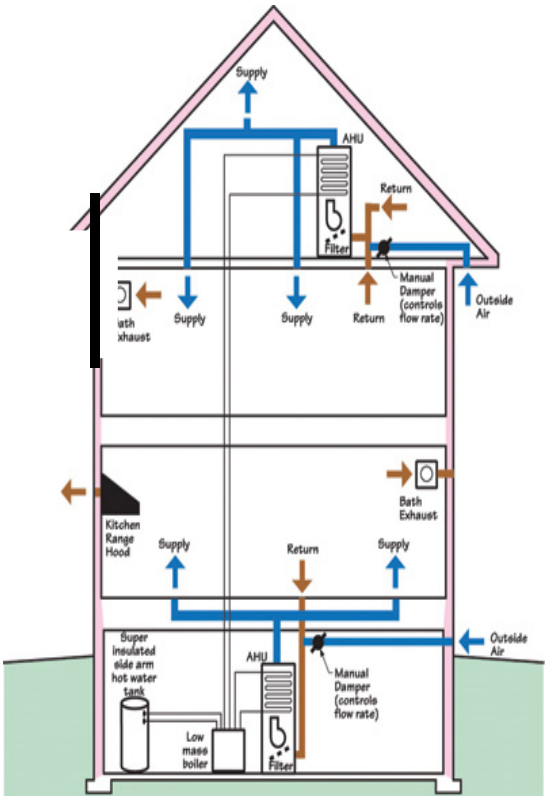
SETTING UP BUILDING HVAC SYSTEM TO MINIMIZE SMOKE INFILTRATION

Building HVAC settings…

- It is imperative that the building's air conditioning system be set to intake no outside air (or the least amount possible) to prevent smoke infiltration.
    - If the HVAC system has a recirculation setting, place the system on this setting or you may have to manually close the damper.
- Indoor CO2 levels may begin to rise. If possible, monitor CO2 levels and ensure they do not rise above 5,000 parts per million (ppm).
    - If CO2 reaches this level, the building will be uncomfortable. At about 4,000ppm, open the outside air intakes to bring in outside air, preferably filtered.

Important to note…

- Ensure opening and closing of entrances is kept to a minimum.
- Upgrading the filter efficiency on your HVAC units and changing filters frequently greatly improves air quality if you cannot recirculate the air.
- Take advantage of periods of improved air quality (such as during rain or shifts in wind) to use natural ventilation to flush-out the building.
- Reduce all sources of indoor air pollutants (aerosols, fragrances, gas, propane, etc).



Typical Outside Air Intake Building Diagram

Typical HVAC Unit with Outside Air Intake