What is wildfire smoke and why is it a health concern?

Wildfire smoke is a mixture of air pollutants, including carbon monoxide, nitrogen oxides, Volatile Organic Compounds (VOCs) and fine Particulate Matter (PM). PM of less than 2.5 micrometer diameter (PM$_{2.5}$) may harm developing lungs. Infants and young children are particularly susceptible to various short-term respiratory problems from smoky days, especially asthmatic children. Children’s risk of infections such as ear infections may also increase with wildfire smoke exposure.

What facility design factors help provide clean air for children?

**Outdoor space:**
- Plant green—Bushes and trees onsite may help clean the air.

**Indoor space:**
- Upgrade existing centralized Heat, Ventilation, Air Conditioning (HVAC) to one with changeable filters.
- Seal building air leaks and filter air at in-ducts.
- Use a HEPA air filter or an air filter with the highest ‘MERV’ value rating possible during wildfire events.

What operational strategies and technologies can I use to provide clean air for children?

- Adjust the existing centralized HVAC system and air filters to keep smoke out (e.g. close fresh air intake, turn on indoor-air recirculate mode to ensure flow).
- Or, buy portable air cleaners with HEPA air filters.
- Use energy efficient active cooling (e.g. heat pump that acts as an air conditioner (AC)) or portable AC units in addition to portable air cleaners to create cool spaces with clean air for hot days.
- Consider visiting a nearby clean air refuge (e.g. mall).
- Reduce outdoor physical activities and stay indoors when smoke is heavy to reduce exposure.
- Spray off outdoor play areas and/or clean equipment with soap and water after heavy smoke periods.

**How to choose and use portable air cleaners**

When buying a portable air cleaner, check the product label to ensure the following specifications are met:
- HEPA air filters—ensures you remove PM.
- Room size—must meet the requirements of the facility indoor space.
- Good quality—certified by AHAM (Association of Home Appliance Manufacturers).
- Should not produce ozone.
- Activated carbon air filters (recommended) – can reduce other pollutants such as benzene.

Here are some portable air cleaner user tips:
- Set up a maintenance plan to replace air filters regularly (as directed by manufacturer).
- They work best when the windows/doors are closed, so heat may become an issue on hot days. If windows will be closed, ensure that indoor temperatures are maintained at a comfortable level to prevent heat-related illnesses.

*DID YOU KNOW...?*

The worst air quality episodes that most people in BC will ever experience are from wildfires.

*Refer to EXTREME HEAT fact sheet in this series.*

**For additional information and fact sheets:**
- Register for air quality real-time alerts in [Metro Vancouver and Lower Fraser Valley](https://gis.metrovancouver.org/maps/air/), or elsewhere in BC.
- Refer to Metro Vancouver’s air quality map: [https://gis.metrovancouver.org/maps/air/](https://gis.metrovancouver.org/maps/air/)
- Visit Vancouver Coastal Health – [Wildfire smoke](https://www2.gov.bc.ca/health/services/public-health/childcare/about-bc/health-effects-of-wildfire-smoke.pdf)
- Visit BC Centre for Disease Control (BCCDC) – [Wildfire smoke](https://www.bccdc.ca/wildfire), [Health effects of wildfire smoke](https://www.bccdc.ca/wildfire), [Portable air cleaners for wildfire smoke](https://www.bccdc.ca/wildfire)