

# Healthy Air Quality in Schools

Achieving healthy air quality in schools takes administrators, custodians, and teachers working together. Good ventilation and source control of pollutants means healthy indoor air quality.

## General Tips

- Teachers and staff need to know who to contact for indoor air quality concerns in the school.
- There should be a written school or district indoor environmental quality plan that includes indoor air quality and integrated pest management.
- Notify school or district indoor air quality contact or maintenance staff if you detect odors or dust from locations such as shops, copy rooms, science labs, laminators, locker rooms, graphic arts, custodial supply rooms, storage areas, combustion equipment, kitchens, or bus exhaust. Document your concerns.
- Immediately report any water leaks, water stains, damp materials, or unusual odors (such as musty or moldy smells) to maintenance staff.
- Maintenance staff should respond to water leaks and moisture problems within 24 hours.
- Relative humidity levels between 30 and 50 percent are better for health. Low relative humidity leads to dry eyes and respiratory irritation. High relative humidity allows dust mites to grow and promotes condensation.
- Dispose of food wastes promptly in covered containers.

## Ventilation

- Operate the ventilation system continually when the school is in use, including during custodial work. Supply at least 15 cubic feet per minute per person of fresh outside air whenever the school is in use. See [WSU Energy Program's Good Ventilation is Essential for a Healthy and Efficient Building \(PDF\)](http://www.energy.wsu.edu/Portals/0/Documents/Good_Ventilation_is_Essential.pdf). ([www.energy.wsu.edu/Portals/0/Documents/Good\\_Ventilation\\_is\\_Essential.pdf](http://www.energy.wsu.edu/Portals/0/Documents/Good_Ventilation_is_Essential.pdf)).
- Monitor carbon dioxide (CO<sub>2</sub>) levels with the goal of keeping levels below 800 ppm. If levels are frequently above 1000 ppm, considering increasing outdoor air ventilation. See [WSU Energy Program's Measuring Carbon Dioxide Inside Buildings \(PDF\)](http://www.energy.wsu.edu/Portals/0/Documents/Measuring_CO2_Inside_Buildings-Jan2013.pdf). ([www.energy.wsu.edu/Portals/0/Documents/Measuring\\_CO2\\_Inside\\_Buildings-Jan2013.pdf](http://www.energy.wsu.edu/Portals/0/Documents/Measuring_CO2_Inside_Buildings-Jan2013.pdf)).
- Maintain three feet of clearance around unit ventilators and don't put items on top of them to block airflow.
- Change ventilation filters regularly. Use the highest rated, deepest pleat filters the system can accommodate.
- Check to make sure that supply air diffusers, exhaust, and return grills are not blocked. They should be clean and dry.
- Don't turn off unit ventilators – ask maintenance staff to repair noisy units, control temperatures, and control drafts.
- Monitor windows – they should not show condensation except on the very coldest of days.
- Don't allow vehicle idling on school property.
- Maintenance staff should follow integrated pest management strategies. Don't use pesticides in the building.

## Control Asthma Triggers

### Reduce Animal Allergens, including Dust Mites

- Animals shouldn't be classroom residents and should only come to school for educational purposes.
- Use integrated pest management practices to prevent cockroach and rodent infestations.
- Store food in tightly sealed containers.
- Seal all cracks and crevices.
- Grate all foundation and roof ventilation.
- Use barriers to discourage birds roosting.
- Wash stuffed animals and blankets in hot water every two weeks, or remove them.

## Control Dust

- All outside doors should have large entry mat barriers (walk-off mats) outside and just inside the door. The mats should provide at least four to seven footfalls.
- Maintain cleanable surfaces and avoid clutter. Put loose items into plastic boxes with lids that can be wet-wiped.
- Damp-wipe surfaces weekly with a micro-fiber cloth.
- Don't hang items from the ceiling T-bars without special clips to prevent fraying fiberglass. Remove or clean items when dusty.
- Discourage clutter by removing as many unnecessary dust-collecting items as possible.
- Use pre-mixed and pre-wetted clay art supplies whenever possible to reduce dusts.
- Replace fabric upholstered furniture with furniture easily dusted.
- Remove area rugs that cannot be regularly cleaned and that trap dirt and moisture.

## Reduce Chemicals

- Don't use permanent, solvent-based or scented pens, markers, and board cleaners. Use water-based, unscented, crayon-based, or low-odor items.
- Don't use room deodorizing sprays, plug-ins, scented candle warmers, scented reeds, candles, incense, therapeutic oils, or potpourris.
- Don't use urinal cakes in bathrooms.
- Avoid spray adhesives, contact cement, and volatile paints. If spray adhesives are necessary, use hexane and toluene-free products. Wear solvent-resistant gloves. Spray in an area with local exhaust ventilation and away from children. See [King County's Selecting Safer Art Adhesives](http://www.kingcounty.gov/healthandenvironment/airquality/ArtAdhesives.aspx) ([www.hazwastehelp.org/publications/publications\\_detail.aspx?DocID=z%2f7o%2f2BLUUM%3d](http://www.hazwastehelp.org/publications/publications_detail.aspx?DocID=z%2f7o%2f2BLUUM%3d)).
- Don't bring chemicals, cleaners, or disinfectants from home. Use only those provided by the school or district.
- Never use air-cleaning devices that generate ozone. Ozone is a respiratory irritant.
- Discourage the use of perfumes, colognes, body sprays and other strongly scented personal care products.
- Hazardous chemicals in laboratories, chemical storages, shops, art rooms, and any other areas need to be properly stored and managed to prevent air contamination.

## Carpet Care

- Whenever possible, don't allow food or beverages in classrooms. If possible, vacuum daily (when children are not present). Use a vacuum with a HEPA (high efficiency particulate air) filter – or use HEPA vacuum bags. Having both is even better.
- Avoid use of area rugs. They can trap moisture and dirt under them. Clean carpets thoroughly with truck-mounted hot water and steam extraction once or twice per year.
  - Spot treat carpet as needed first.
  - Use the minimum amount necessary of low-odor and low-sudsing carpet shampoo.
  - All shampoo and cleaner needs to be thoroughly extracted until the water runs clean.
  - Carpet should dry thoroughly within 24 to 48 hours after cleaning.

## Resources

- [School Environmental Health and Safety, Department of Health](http://www.doh.wa.gov/schoolenvironment) ([www.doh.wa.gov/schoolenvironment](http://www.doh.wa.gov/schoolenvironment))
- [School Indoor Air Quality Best Management Practices Manual, 2003 \(PDF\)](http://www.doh.wa.gov/Documents/Pubs/333-044.pdf) ([www.doh.wa.gov/Documents/Pubs/333-044.pdf](http://www.doh.wa.gov/Documents/Pubs/333-044.pdf))
- [Integrated Pest Management for Schools, WSU](http://schoolipm.wsu.edu/) (<http://schoolipm.wsu.edu/>)
- [Creating Healthy Indoor Environments in Schools, EPA](http://www.epa.gov/iaq/schools/index.html) ([www.epa.gov/iaq/schools/index.html](http://www.epa.gov/iaq/schools/index.html))
- [Taking Asthma Care To School, Washington Asthma Initiative \(PDF\)](http://waasthma.org/wp-content/uploads/2014/05/AMES2014Final.pdf) (<http://waasthma.org/wp-content/uploads/2014/05/AMES2014Final.pdf>)
- [Art Hazards, King County Local Hazardous Waste Management Program](http://hazwastehelp.org/ChemToxPesticides/artchemicals.aspx) (<http://hazwastehelp.org/ChemToxPesticides/artchemicals.aspx>)