



HEALTH AND SAFETY **FACT SHEET**

Ventilation

What are the problems?

Poor workplace ventilation is a hazard that affects the health of CUPE members. Cost-cutting measures and employer inaction hamper the fight for properly ventilated workplaces.

CUPE members work in different settings, which means members experience general and local ventilation systems. General ventilation supplies and removes air in large workplaces, such as hospitals, schools and office buildings. These systems are commonly known as heating, ventilating and air conditioning (HVAC) systems. An HVAC system draws in fresh outside air and mixes it with indoor air. This air mixture is heated or cooled and then filtered before it is circulated throughout a workplace.

HVAC systems can have significant problems:

- Only a limited amount of fresh outdoor air actually gets into the workplace. Most HVAC systems only allow for 20 per cent outdoor air mixed with 80 per cent re-circulated indoor air in sealed buildings.
- HVAC systems are limited in controlling contaminants because they don't remove them. Instead, contaminants are mostly spread throughout the workplace for long periods of time.

- Worker exposures are difficult to control near the contaminant source with HVAC systems because there is no direct ventilation of the contaminant.
- The amount of air required to remove a contaminant may be so large that no HVAC system could handle the volume of air exchange.
- Many HVAC systems have fixed settings that don't allow workers to control ventilation rates.

Local ventilation controls and removes contaminants at the source. Cross-draft tables, vacuum purge systems and fume hoods are examples of local ventilation. Local ventilation systems are usually set up with a hood that captures contaminants. A fan or a blower draws the contaminant through the ductwork to the air cleaner. Air cleaners include filters, precipitators, cyclones, scrubbers and electrostatic chargers. The contaminant is filtered and the exhaust air is expelled outside.

Local ventilation systems can also have problems:

- Local ventilation requires careful design and installation.
- Frequent and effective testing and maintenance are required for local ventilation.

- The system removes the contaminated air but sometimes not enough intake air is supplied, resulting in a negative airflow. This negative airflow can cause contaminated air to re-enter the workplace through the exhaust ducts.
- Workers are generally not allowed to control local ventilation rates.

What are the causes?

Poor ventilation often results from cutbacks, overcrowding of workplaces and employer control and misuse of ventilation systems. Staffing cutbacks mean CUPE members suffer due to a lack of ventilation maintenance workers. The lack of workspace compounded by resource cutbacks causes overcrowding of workplaces. The shortage of workspace means there are more workers in less space, and members are not getting adequate amounts of fresh air. Employer control can result in ventilation systems that are misused and set to run at substandard levels.

Specific causes of poor ventilation include:

- No maintenance workers or maintenance program in place.
- Pre-set HVAC systems mean CUPE members can't control their work environment.
- Overcrowding of workspaces.
- Placement of workspace partitions, furniture and equipment that impair air movement.
- Air supply and return vents placed too close together resulting in poor distribution of fresh air.
- HVAC systems that begin to operate after workers have arrived or shut down before the end of the workday.

- Lack of local exhaust systems for workers who need them. For example, members who work in print shops or photocopy rooms sometimes go without necessary local ventilation.
- Local ventilation hoods too far from contaminant source.
- Local ventilation hoods too small to capture the contaminant properly.
- Cross drafts and negative indoor air pressure reduce the effectiveness of local ventilation hoods.

What are the hazards?

Poor ventilation affects the physical and psychological health of CUPE members. Poor ventilation allows for the accumulation and mixture of hazardous contaminants. The resulting physical effects on workers are harmful. Psychological effects like stress arise when members know they are constantly exposed to ventilation hazards.

Major outcomes and hazards of poor ventilation include:

- Elevated levels of carbon dioxide and low levels of oxygen due to low ventilation rate.
- Build up of chemical and biological contaminants that cause poor indoor air quality.
- Legionnaire's disease, Pontiac fever and Humidifier fever caused by contaminated standing water in poorly maintained HVAC systems.
- Extremes in temperature causing fatigue, discomfort and distraction.
- Low humidity causing dry throat, dry skin and static electricity build-up. High humidity contributing to bacterial and mould growth.

- Excessive and irritating workplace odours causing worker discomfort.
- Accumulation of dust and dirt caused by poor HVAC maintenance.
- Sick Building Syndrome (SBS): irritation of eyes, nose and throat, headaches, fatigue, and a susceptibility to colds and flu. Symptoms are less severe away from the workplace.
- Multiple Chemical Sensitivity (MCS): A debilitating illness triggered by exposure to one chemical or a combination of chemicals. MCS sufferers experience skin rashes, irregular breathing, central nervous system problems, and eye, nose and throat irritations.

Identify the problem

A first step is recognizing that poor ventilation is a health and safety hazard in your workplace. If the negative health outcomes mentioned above affect CUPE members, poor ventilation is likely a significant contributor. Surveys and mapping techniques are excellent tools to identify ventilation hazards in your workplace. A ventilation survey can be done in co-operation with the employer, in which case the union approves the survey and is involved in collecting and assessing the information generated by the survey. The union should conduct its own ventilation survey if the employer resists the idea or denies that poor ventilation is a problem. Body mapping, hazard mapping and your world mapping techniques can be used, in addition to surveys, to identify ventilation hazards. Workplace inspections by CUPE members are an important tool in uncovering and identifying ventilation hazards. Inspections should be carried out on a regular basis to identify new ventilation hazards.

Actions

Ventilation hazards largely centre on issues of control, cutbacks and employer neglect. Taking action on poor ventilation involves members exercising control at work.

The following actions can help combat poor ventilation:

- Refuse unsafe, poorly ventilated working conditions.
- Report ventilation hazards.
- Conduct workplace inspections of ventilation systems. Look for blocked vents, excessive dust on air vents, intake air supply vents close to loading docks or busy streets, standing water within the HVAC system, recent renovations without appropriate changes to the HVAC system and intake and exhaust vents that are too close together.
- Learn about the type of system and its capacity for ventilation.
- Put poor ventilation issues on the health and safety committee agenda.
- Demand employers take action on testing and fixing inadequate ventilation systems.

Strategies for change

The strategies outlined below complement the actions listed above. Poor ventilation can be eliminated by the following:

- Keep ventilation on the health and safety committee agenda. Ventilation is not a hazard that is dealt with once. It is a hazard that must be investigated regularly.
- Monitor and test ventilation systems to ensure proper airflow rates.
- Demand regularly scheduled maintenance and cleaning procedures on ventilation systems.

- Give workers control of ventilation systems by allowing workers to adjust the flow rate and amount of outdoor air that is distributed into the workplace.
- Put poor ventilation, and other indoor air quality issues, on the bargaining table.
- Sponsor CUPE education around the issue of poor ventilation and its effects.
- Create a ventilation policy for CUPE workplaces starting with a statement acknowledging that poor ventilation is a health and safety hazard. The health and safety committee in your workplace should be instrumental in tabling and pushing for the adoption of a policy that prevents poor ventilation.
- Collective job action around the issue of poor ventilation.

Employers have the responsibility to provide a healthy and safe workplace. This responsibility is known as the general duty clause. Proper ventilation is a key component of a healthy workplace. Membership participation is vital in order to fight for properly ventilated workplaces. Through education and activism, poor ventilation can be eliminated from CUPE workplaces.

This fact sheet provides some information to address poor ventilation. More detailed information is presented in the CUPE Health and Safety Guidelines *Breathing Easy: Ventilation in the Workplace* and the CUPE *Indoor Air Quality Fact Sheet*.

For more information contact:
National Health and Safety Branch
CUPE
21 Florence Street
OTTAWA, Ontario
K2P 0W6
Tel. (613) 237-1590
Fax (613) 233-3438
Email: health_safety@cupe.ca
www.cupe.ca