



INDOOR, OUTDOOR & FOREST FIRE AIR QUALITY GUIDE

SUMMER 2020



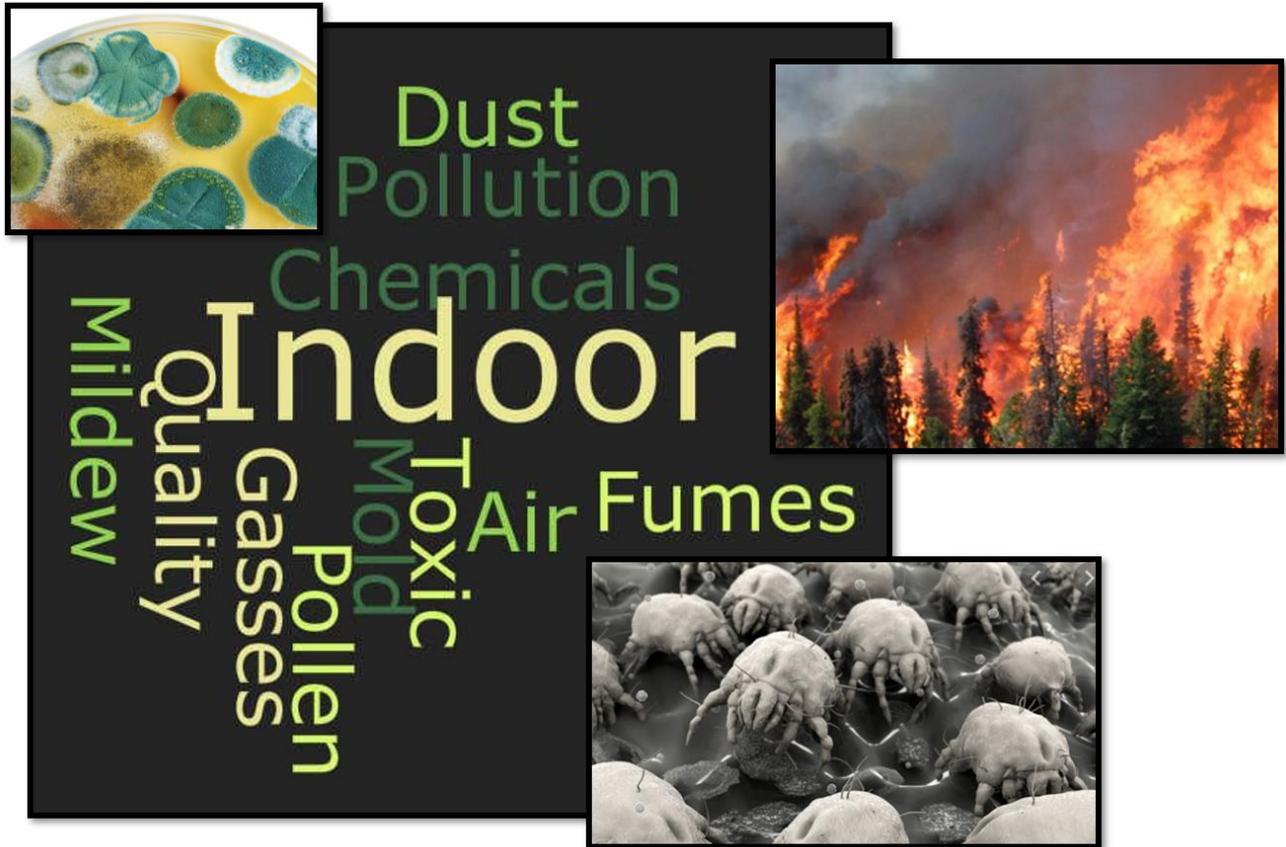
Preface:

Health Canada and the UBC Faculty of Medicine’s School of Population and Public Health state that nearly 1,600 BC residents die each year from pollution related illnesses.¹ Exposure to air quality issues such as pathogens, toxins, airborne carcinogens, smog, ozone, mould, forest fire smoke, or other hazardous airborne contaminants can have significant effects on workers. In many cases, poor air quality can be fatal, such as with exposure to asbestos. While indoor air quality is often a concern for workers, with regular forest fires and wildfires (uncontrolled fires that affect large areas of land), there are now increased risks for both indoor and outdoor workers. Effects of exposure can be: direct and indirect; short or long term; cumulative; additive; and can aggravate pre-existing health conditions.

This Guide addresses some frequently asked questions about occupational health and safety (“OHS”) / Prevention and WCB claims / Compensation issues, including filing WCB claims for air quality issues. There are often both indoor and outdoor air quality exposures with differing OHS Regulations and Compensation (“Claims”) Policies for each; workers may be exposed to both. This Guide includes numerous resources, templates, infographics and statistics.

¹ University of British Columbia. Faculty of Medicine. School of Population and Public Health. March 30, 2020.

Tom McKenna, CUPE National Health and Safety Representative



**Poor air quality affects many BC workers
both directly and indirectly.**

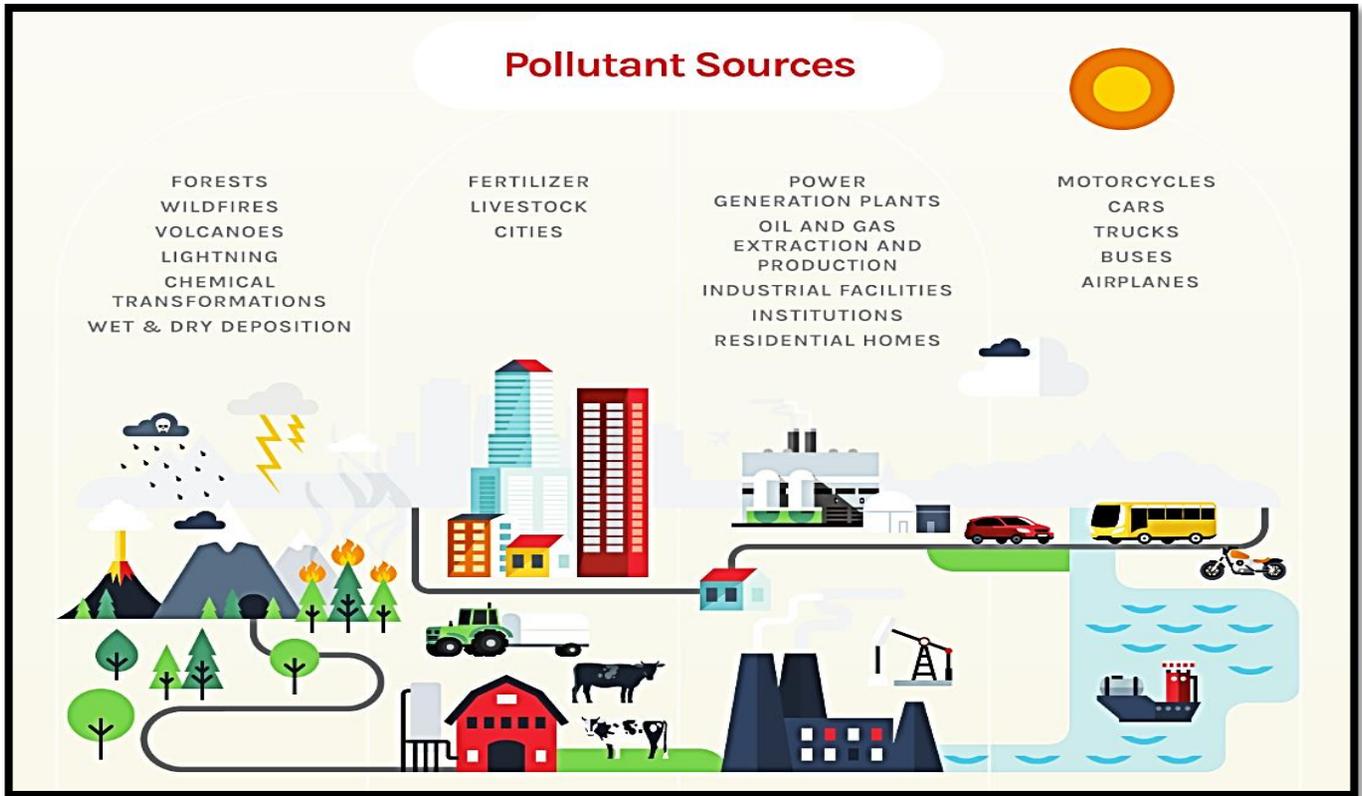
The BC Centre for Disease Control (BCCDC) has recommended the implementation of measures to decrease excess air pollution in populated airsheds across the province.

“There is strong evidence that exposure to air pollution increases susceptibility to respiratory viral infections by decreasing immune function.”

(BCCDC April 15, 2020)

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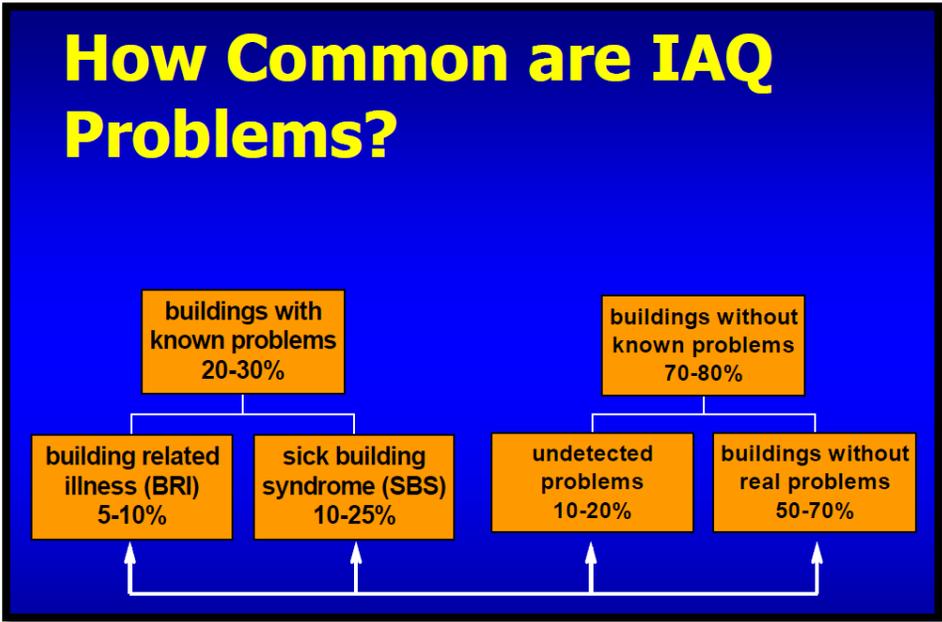
A. Overview of Indoor and Outdoor Air Quality Issues:

I. Overview:

According to data from the Association of Workers' Compensation Boards of Canada (“AWCBC”), occupational diseases caused 64% of deaths versus 36% from traumatic fatalities in 2017. Most occupations are affected. As an example, hazards at construction sites include lead dust and fumes; silica dust; solvent vapours; paints; strippers; isocyanate vapours; and carbon monoxide. As per the Canadian Council of Ministers of the Environment (and the infographic above) there are numerous causes of poor air quality. Poor Natural and human caused phenomena such as forest fires severely impact both indoor and outdoor air quality. This is being exacerbated by climate change – see the numerous 2020 resources on the impact of climate change on workers in BC on the CUPE BC OHS Committee website. The Occupational Health Clinics for Ontario Workers “Doing Something About Indoor Air Quality” (Oudyk, 2014)², stated that air quality concerns, especially indoor air quality, are common.

² <http://www.ohcow.on.ca/edit/files/25thanniversary/Doing%20something%20about%20IAQ%20presentation%20Oct-31-2014.pdf>

Health problems can range from minor irritation to Legionnaire’s Disease, autoimmune diseases, Chronic Obstructive Pulmonary Disease, Aspergillus, Mesothelioma, and other forms of cancer such as Mesothelioma caused by asbestos. As per the March 26, 2020 BC Ministry of Environment and Climate Change Strategy Media Release “Deterioration in air quality may lead to more COVID-19 infections overall.” Dr. Michael Metha, Thompson Rivers University stated that the mortality rate during the Severe Acute Respiratory Syndrome (“SARS”) pandemic doubled due to higher air pollution. The numerous effects of poor quality arise from dozens of indoor air quality and outdoor air quality problems.



Up to 30% of buildings having detected problems and up to 20% with undetected problems. The true extent of the problem of air quality exposure will never be known as workers, especially workers in precarious employment, often do not report occupational health and safety issues nor do they file workers compensation claims. Under-reporting generally is over 40% per a number of studies.³ Complicating this are the different types of legislation, Regulations, Guidelines and Policies that apply to indoor versus outdoor air quality issues. This Guide addresses indoor and outdoor air quality separately.

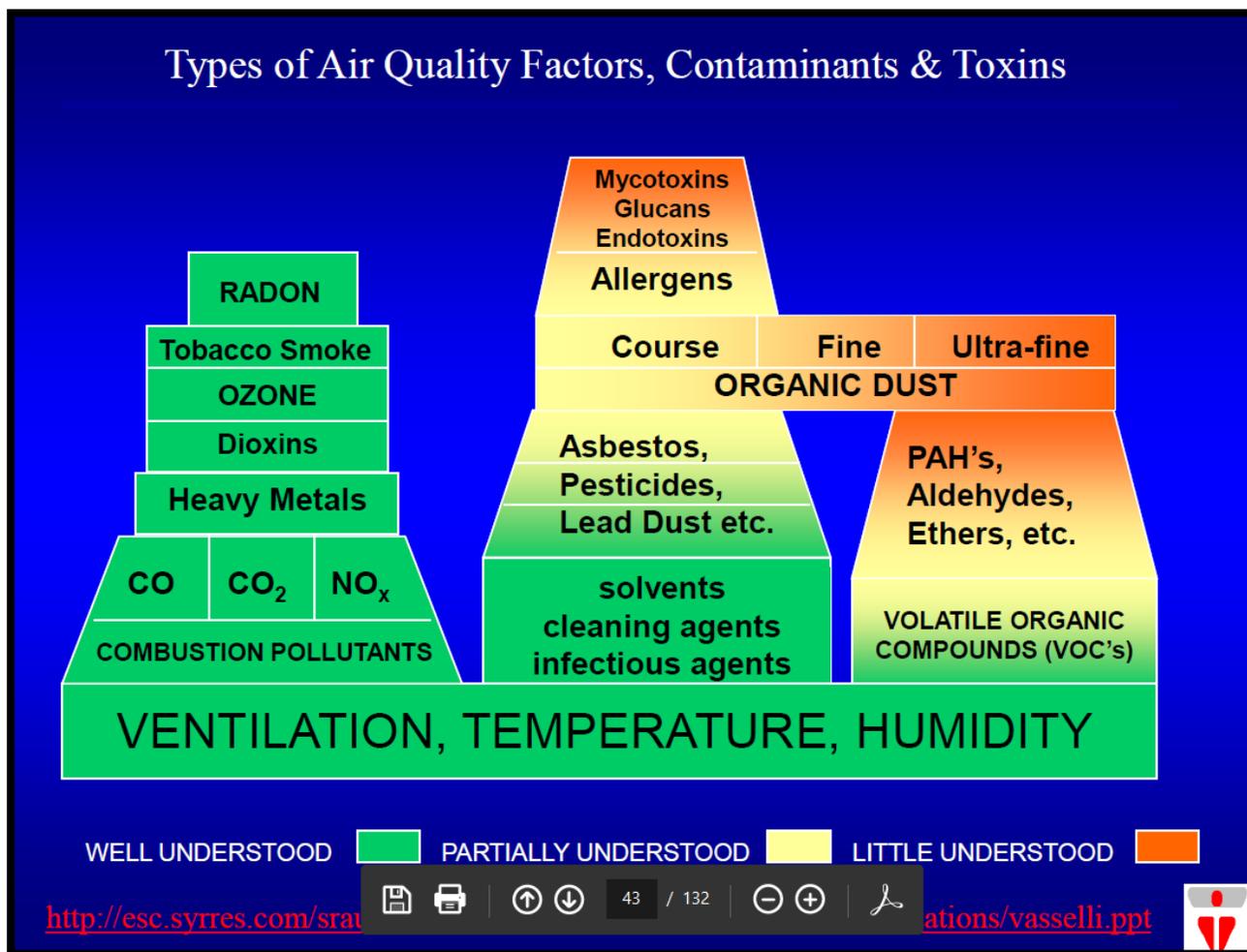
³ The consequences of underreporting workers’ compensation claims. Thompson A. (2007). <http://www.cmaj.ca/content/176/3/343>; Work-Related Fatality and Injury Rates: A Comparison of Canadian Provinces and Territories. Tucker S. (2017). https://www.uregina.ca/business/faculty-staff/faculty/file_download/2017%20Report%20on%20Workplace%20Fatalities%20and%20Injuries.pdf; Work-Related Fatality and Injury Rates: A Comparison of Canadian Provinces and Territories. Tucker S. (2018). https://www.uregina.ca/business/faculty-staff/faculty/file_download/2018-Report-on-Workplace-Fatalities-and-Injuries.pdf

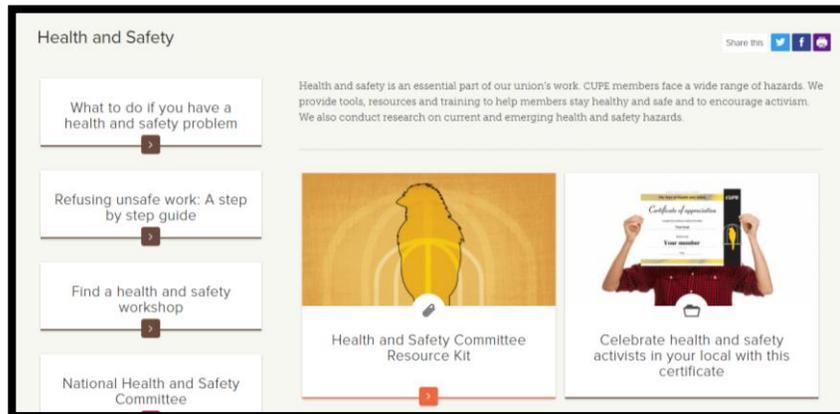
According to the OSHAcademy, air contaminants are commonly classified as either particulate or gas and vapor contaminants.

The most common particulate contaminants include:

- Dusts
- Fumes
- Mists
- Aerosols
- Fibers

Many aspects of the air quality that are not understood as per Occupational Health Clinics for Ontario Workers “Doing Something About Indoor Air Quality” (Oudyk, 2014).





I.I. Types of Contaminants and Definitions:

As per the CUPE National Health and Safety:

“Physical indoor air quality hazards include:

- Improper temperature and humidity levels.
- No HVAC maintenance workers or maintenance program in place due to cutbacks.
- Lack of worker-controlled HVAC systems.
- Workplace overcrowding due to cutbacks.
- Placement of workspace partitions, furniture and equipment preventing proper ventilation.
- Renovations that alter workplace layout without adjustments to HVAC system capacity.
- HVAC systems that begin to operate after workers have arrived or shut down before the end of the workday.
- Outdoor air intakes close to loading bays and busy streets.
- Windows that don't open.
- Excessive noise and poor lighting.

Chemical indoor air quality hazards include:

- Asbestos for example, in ceiling tiles, pipe and duct insulation, old wallboard and plaster.
- Volatile organic compounds (VOCs) formaldehyde, organochlorines, phenols emitted from furniture, building materials, carpets and plastics.
- Carbon dioxide exhaled from building occupants.
- Carbon monoxide from gas burners and furnaces inside workplaces; vehicle exhaust and tobacco smoke outside workplaces.
- Pesticides in plant sprays and insect and rodent control products.
- Solvents such as benzene and toluene in cleaning products, copier toners and paints.
- Hazardous dusts, fibres and odours from building materials and occupants.
- Ozone from photocopiers, electric motors and electrostatic air cleaners.
- Radon from naturally occurring radioactivity in minerals and soil around workplace foundations.

Biological indoor air quality hazards include:

- Toxic moulds that grow on wood, drywall, upholstery, ceiling tiles, carpet and other building materials
- Bacterial diseases like Legionnaire's disease, Pontiac fever and Humidifier fever that originate in poorly maintained HVAC systems.
- Dust mites that can cause allergic reactions.
- Pollens and biological aerosols that don't get filtered out of indoor air due to poor HVAC maintenance.

Air contaminants can be categorized generally according to the type of contaminant e.g. biological or chemical and the form they take e.g. gas or fume.

These include:

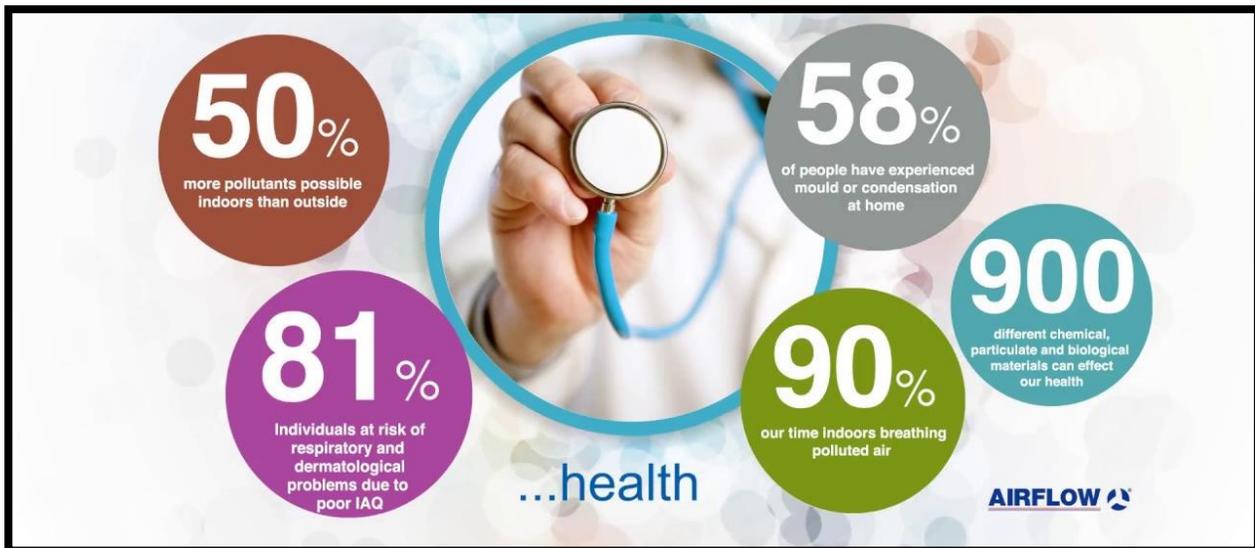
- Biological contaminants include bacteria, mould, dust mites, etc.
- Gases are formless fluids that expand to occupy the space or enclosure in which they are confined. Examples are welding gases such as acetylene, nitrogen, helium, and argon. It also includes carbon monoxide generated from the operation of internal combustion engines or by its use as a reducing gas in a heat treating operation.
- Fumes are formed when material from a volatilized solid condenses in cool air.
- Liquids change into vapors and mix with the surrounding atmosphere through evaporation.
- Mists are finely divided liquid suspended in the atmosphere. They are generated by liquids condensing from a vapor back to a liquid or by breaking up a liquid into a dispersed state such as by splashing, foaming or atomizing. Aerosols are also a form of a mist characterized by highly respirable, minute liquid particles.
- Vapors are the gaseous form of substances that are normally in a solid or liquid state at room temperature and pressure Vapors are formed by evaporation from a liquid or solid.
- Dusts are solid particles (solid organic or inorganic materials) created by crushing, grinding, drilling, abrading or blasting.
- Fibers are solid particles whose length is several times greater than their diameter.

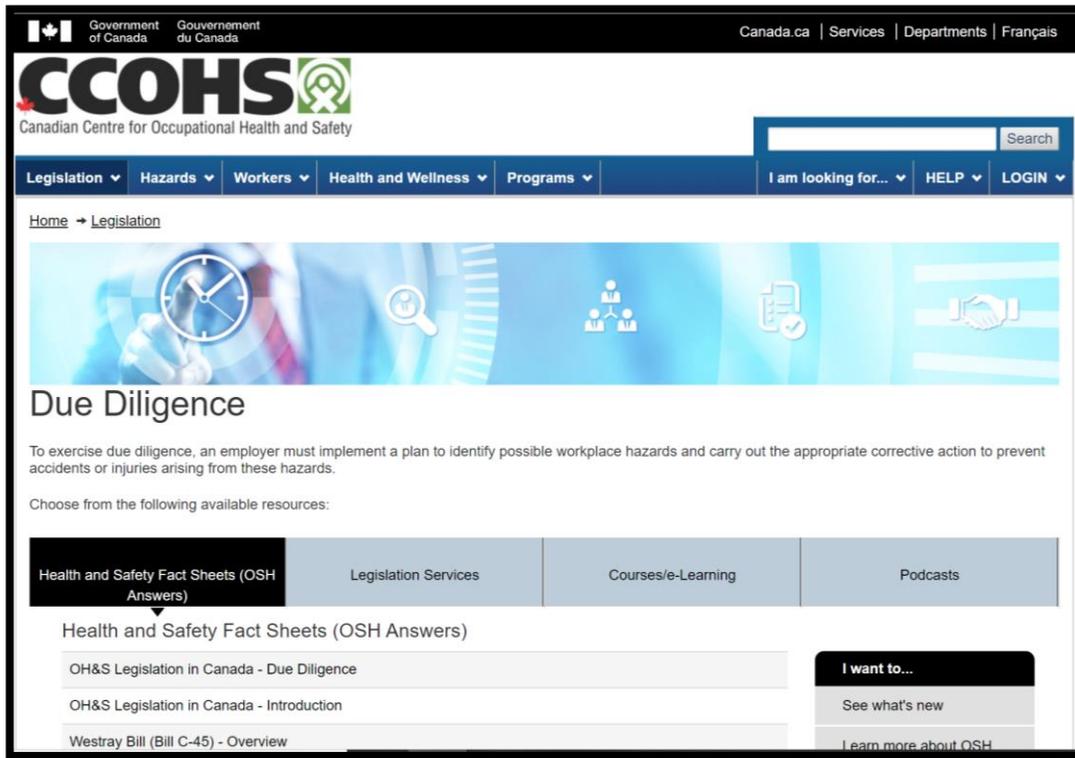
Common types of mould found in buildings include:

- Stachybotrys chartarum
- Aspergillus sp.
- Penicillium sp.
- Fusarium sp.
- Trichoderma sp.
- Memmoniella sp.
- Cladosporum sp.
- Alternaria sp.

In modern buildings, moisture may be present as the result of:

- Flooding
- Leaks in the roof / basement or plumbing
- Sealed buildings that do not allow excess moisture to escape
- Sources of humidity such as cooking facilities, showers, bathtubs, etc





I.II. Legislation Overview:

As per the Canadian Centre for Occupational Health and Safety (“CCOHS”) many Canadian jurisdictions do not have specific legislation that deals with indoor air quality issues nor is there legislation or regulations that specifically address forest fires. In the absence of such legislation, the "general duty clause" applies. An Employer must provide a safe and healthy workplace, including ensuring good air quality. There are both provincial and Federal legislation and Regulations.

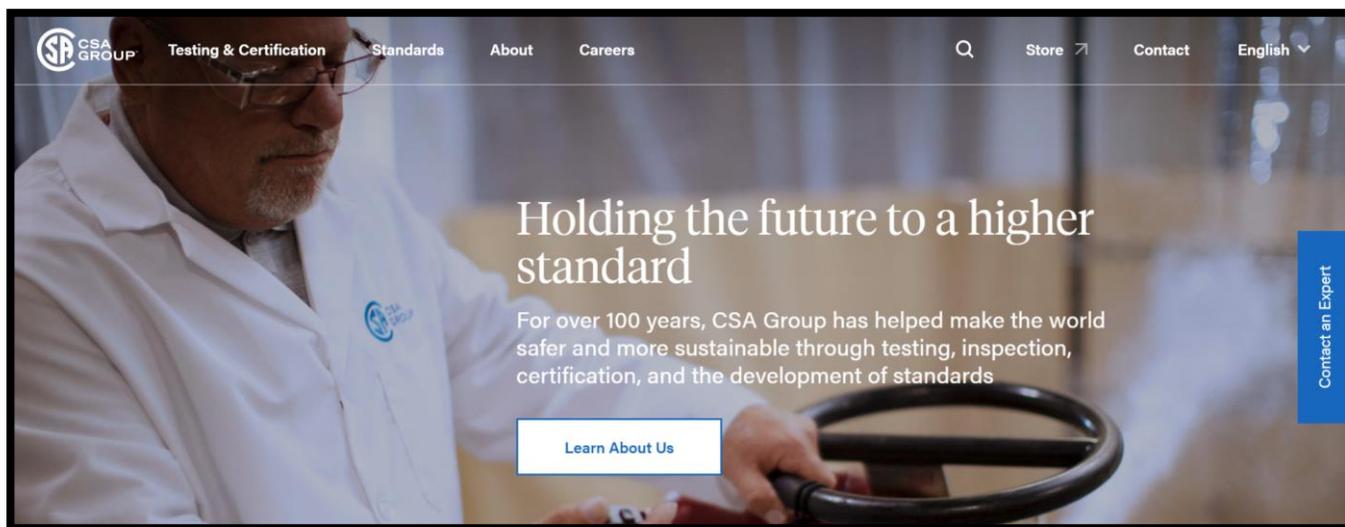
When assessing occupational exposure limits for various chemicals e.g., Threshold Limit Values (“TLVs”) recommended by the American Conference of Governmental Industrial Hygienists (“ACGIH”) are intended as a guide to prevent illness or certain effects in industrial situations as opposed to office/indoor settings.

Occupational exposure limits use dose-response data which show the health effects of repeated exposure to one specific chemical. In the office/indoor setting this type of data is not available for long-term, low-level exposures to a combination of contaminants, which include more than just chemicals e.g. mould, pollen, etc.

Employers may also have to abide by any applicable building codes which generally refer to the American Society of Heating, Refrigerating, and Air Conditioning Engineers (“ASHRAE”) Standard 62.1-2010 - Ventilation for Acceptable Indoor Air Quality (or previous versions), or other acceptable standards.

Please note that most IAQ standards and guidelines are established to ensure the comfort of workers versus actual health and safety. Therefore, the standards and guidelines are often lower than OHS Regulation levels that are set to protect workers from possible health based hazards.

See the Canadian Standards Group website for resources as well.



“Air pollution exposure doubled the risk of death in those who had the SARS-CoV-1 virus.”⁴

⁴ University of British Columbia. Faculty of Medicine. School of Population and Public Health. March 30, 2020.



II. Affected Workers:

Many different workers are affected. Inside workers may be exposed to photocopier toner or mould. Outside workers may be exposed to smoke or pesticides. Examples of workers affected include:

- Municipal workers e.g. streets, recycling, refuse collection, horticulture, Bylaw Officers, lifeguards, etc.
- Workers with pre-existing conditions e.g. allergies, hypertension, heart disease, asthma or other respiratory conditions such as COPD, for example.
- Workers who may be exposed to poor air quality during pandemics or epidemics.

The definition and application of who is affected should be as broad as possible. Indoor workers in a school may be seriously affected by the ventilation system drawing in air from the outside when a forest fire is several kilometers away. Paramedics may be affected by continuously being exposed to poor air quality both within the vehicle and while attending to the public.

What is meant by due diligence?

Due diligence is the level of judgement, care, prudence, determination, and activity that a person would reasonably be expected to do under particular circumstances.

Applied to occupational health and safety, due diligence means that employers shall take all reasonable precautions, under the particular circumstances, to prevent injuries or incidents in the workplace. This duty also applies to situations that are not addressed elsewhere in the occupational health and safety legislation. Reasonable precautions are also referred to as reasonable care. It refers to the care, caution, or action a reasonable person is expected to take under similar circumstances.

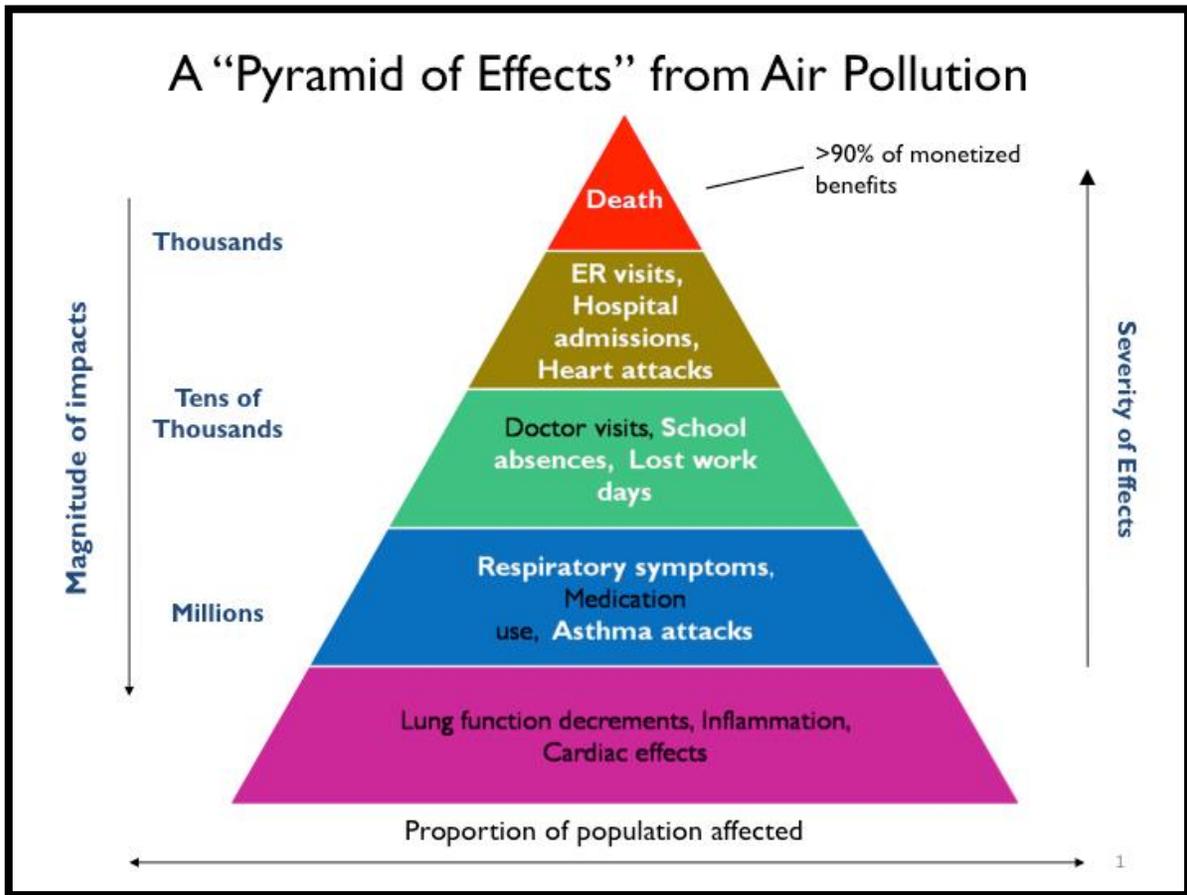
Another term used is employers must do what is "reasonably practicable". Reasonably practicable has been described by the Labour Program (Canada) as taking precautions that are not only possible, but that are also suitable or rational, given the particular situation. Determining what should be done is usually done on a case by case basis.

To exercise due diligence, an employer must implement a plan to identify possible workplace hazards and carry out the appropriate corrective action to prevent incidents or injuries arising from these hazards.

III. Questions from Workers Regarding OHS, Protection, Employer Obligations:

Questions and concerns from both indoor and outdoor workers may include:

- Do workers have to work outside if there is poor air quality? What if they disagree?
- Is there a Right to Refuse?
- Can workers request reassignment to a different job? When?
- Can workers file a WCB claim if a pre-existing condition was aggravated? How?
- Does the Employer have to accommodate if they have a WCB claim due to an air quality issue or if they have a disability?
- What kind of protections, such as Personal Protective Equipment, do Employers have to provide?
- Do Employers have to conduct risk assessments?
- Do Employers have to have Exposure Control Plans?
- What is the role of the Joint Health and Safety Committee ("JHSC")?
- What Occupational Health and Safety Regulations apply?



IV. Common Initial Symptoms Following Short Term Exposure – Indoor and Outdoor Air Quality (for those without pre-existing conditions):

Workers may initially have minor symptoms when exposed to poor air quality. These can worsen quickly or become life threatening. Every air quality issue should be taken seriously. Here are some examples of common initial symptoms (also see I.III. below):

- irritated eyes
- coughing
- throat irritation
- headaches
- difficulty breathing or shortness of breath
- bronchitis
- asthma like symptoms

How reduced air quality affects health depends on factors such as: duration of exposure, concentration of contaminants, age, current health state, pre-existing conditions, multiple contaminants, the type of contaminants. The following graphic shows the most common indoor contaminants. Note that while the graphic refers to “allergens” many contaminants may cause severe injuries or death e.g. asbestos. The graphic refers to a typical home but there are many contaminants that can also occur in the workplace.



B. Addressing **Indoor** and **Outdoor** Air Quality Concerns:

I. **Indoor** Air Quality:

I.I. Is indoor air quality a health and safety concern?

Indoor air quality has become an important health and safety concern. As per the Centers for Disease Control and Prevention and as per the National Institute for Occupational Health and Safety (“NIOSH”), there are numerous contaminants found in many workplace items, most of which workers are not aware of. Outdoor air quality may affect the indoor air quality.

I.II. What are common causes of indoor air quality problems?

Examples of contaminants include:

- ❖ Caulks, sealants, and coatings
- ❖ Adhesives
- ❖ Paints, varnishes and/or stains
- ❖ Wall coverings
- ❖ Cleaning agents
- ❖ Fuels and combustion products
- ❖ Carpeting
- ❖ Vinyl flooring
- ❖ Fabric materials & furnishings e.g. gases, vapours, odours, off-gas emissions from furniture, carpets, and paints
- ❖ Air fresheners and other scented products



❖ Personal products of employees like perfume, shampoos, etc.

❖ Carbon dioxide (CO₂)

❖ Tobacco smoke

❖ Perfume

❖ Dust

❖ Fiberglass

❖ Asbestos

❖ Formaldehyde

❖ Solvents

❖ Pesticides

❖ Disinfectants

❖ Glues

❖ Dust mites from carpets, fabric, and foam chair cushions

❖ Microbial contaminants

❖ Fungi

❖ Moulds

❖ Bacteria

❖ Ozone -- from photocopiers, electric motors, electrostatic air cleaners



Volatile organic compounds (“VOCs”) are common chemical contaminants found in office and home. VOCs are organic (containing carbon) chemicals that can easily evaporate into the air.

Many products found in the office environment may have the potential to release VOCs. VOCs, carbon monoxide and ozone have certain minimum acceptable thresholds which vary by province. As per the Occupational Health Clinics for Ontario Workers “Doing Something About Indoor Air Quality” (Oudyk, 2014):

Contaminants (VOC's):

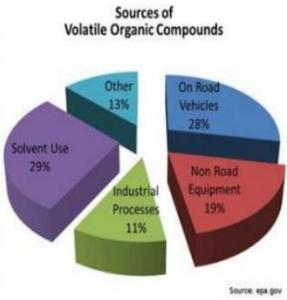
Volatile Organic Compounds (VOC's)

- VOC's can aggravate allergy/asthma and upper respiratory infections
- exposure standards
 - IAQ (Möhlave & EPA)
 - no problem <math><0.2 \text{ mg/m}^3</math>
 - possible problem $0.2\text{-}3.0 \text{ mg/m}^3$
 - probable problem $3.0\text{-}25 \text{ mg/m}^3$
 - problem $>25 \text{ mg/m}^3$
 - TLV's $250\text{-}1000 \text{ mg/m}^3$



Volatile organic compounds

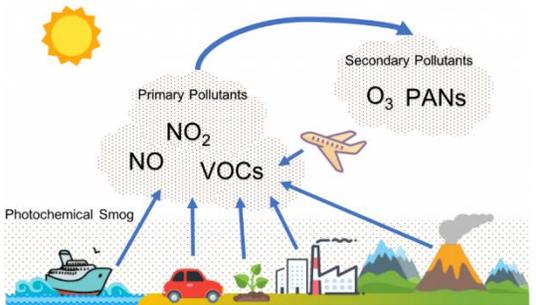
- VOCs are a well-known outdoor air pollutant.
- They are categorized as either methane (CH) or non-methane (NMVOCs)
- Methane is an extremely efficient greenhouse gas which contributes to enhanced global warming.
- The aromatic NMVOCs benzene, toluene and xylene are suspected carcinogens and may lead to leukemia with prolonged exposure.



Source: epa.gov

What Is Photochemical Smog?

Photochemical smog occurs in sunny, dry areas and forms from the use of all fossil fuels, including gasoline, burning trees, and processing organic waste.



Contaminants (carbon monoxide):

– usually an indicator of vehicle exhaust infiltration or other combustion source

- standards (surrogate & exposure)
 - TWAEV: 25 ppm (8-hour ave)
 - STEL: 100 ppm (15 min)
 - environmental: 9 ppm (24-hour ave)
 - Health Canada >5 ppm (spot: infiltration)
 - IAQ practice: >2 ppm (spot: infiltration)

Contaminants (ozone):

Sources: photocopiers, laser printers, fax machines

Health effects: ozone is very reactive (1/2 life of 15 minutes); ages lung tissue, aggravates breathing problems, can cause asthma; heightens allergic response

Measurement: very difficult to measure but easy to detect by odour (fresh air smell; if detected probably over exposure guideline of 0.05-0.1 ppm)

Control: equipment often has a charcoal filter to absorb ozone (often not changed frequently enough – if odour, change filter); local exhaust directly to machine may be necessary for high volume usage particularly in small room



“There is no recognized threshold of health effects for outdoor PM_{2.5} regardless of where exposure occurs (i.e., indoors or outdoors), and there is evidence that adverse health effects occur at current levels of exposure.”

(Health Canada 2012 <http://www.hc-sc.gc.ca/ewh-semt/pubs/air/particul-eng.php>)

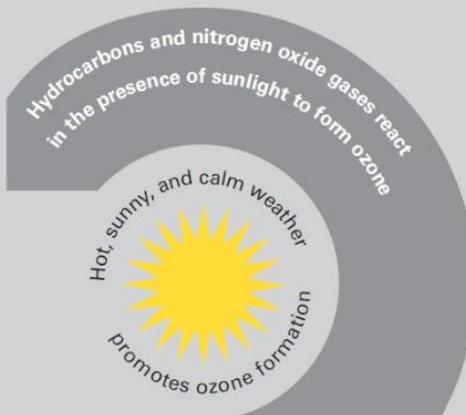
- exposure standards

- IAQ (LEED, EPA, OHCOW, Health Canada)
 - background* <math><0.010\text{ mg/m}^3</math>
 - possible problem $0.01\text{-}0.02\text{ mg/m}^3$
 - probable problem $0.02\text{-}0.05\text{ mg/m}^3$
 - problem $>0.05\text{ mg/m}^3$
- TWAEV, TLV 3 mg/m^3
- Xerox 0.4 mg/m^3 (avoid alveolar accumulation)

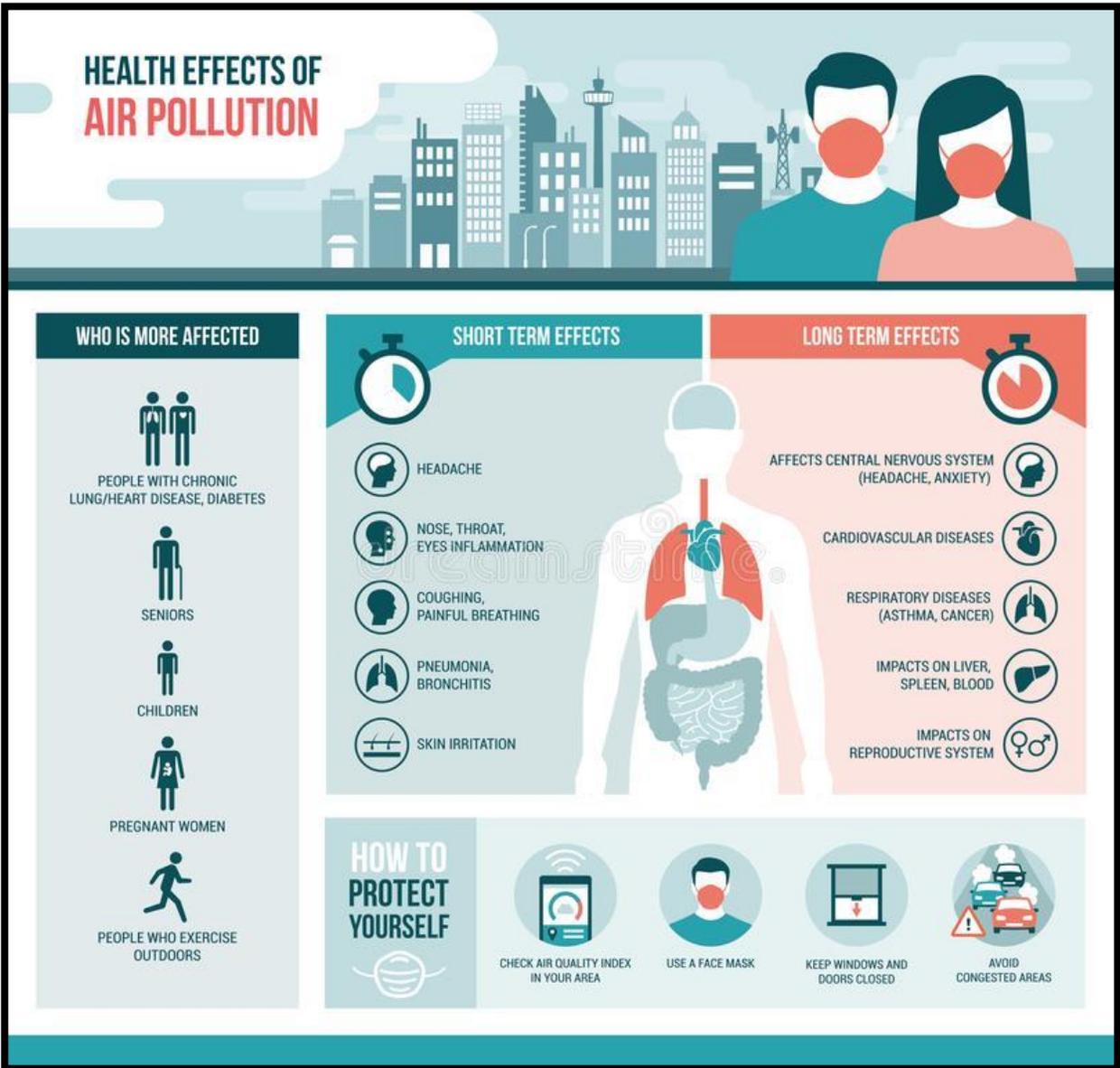


How ozone is created

Ozone is formed in the atmosphere through chemical reactions between pollutants emitted from vehicles, factories and other industrial sources, fossil fuels combustion, consumer products, evaporation of paints, and many other sources.



Ozone has a very characteristic pungent odor. You can sometimes detect it after lightning strikes or during electrical discharges. Individual humans vary in their ability to smell ozone. Some can smell it at levels as low as 0.05 ppm.



I.III. What symptoms are often linked to poor indoor air quality:

There are many symptoms of poor air quality. The following symptoms (which are different than medical conditions caused by contaminants) include:

- Dryness and irritation of the eyes, nose, throat, and skin
- Headache

- Fatigue
- Shortness of breath
- Hypersensitivity and allergies
- Sinus congestion
- Coughing and sneezing
- Dizziness
- Nausea



Workers may notice their symptoms after several hours at work and feel better after they have left the building or when they have been away from the building for a weekend or a vacation.

Occupants of buildings with poor indoor air quality report a wide range of health problems which are often referred to as:

- Sick Building Syndrome (“SBS”)
- Tight Building Syndrome (“TBS”)
- Building-Related Illness (“BRI”)
- Multiple Chemical Sensitivities (“MCS”).

A certain percentage of workers may react to a number of chemicals, each of which may occur at very low concentrations. See the following graphic and the Appendices for sample Health Symptom Surveys on the next several pages from the CCOHS and other organizations. Also see Appendix A.

Health Survey - Confidential	
Name:	Department/Position:
Survey Date:	Interviewer (if applicable):
Work Location / Building Area	
Background Information:	
How long have you been working for your employer? _____ Yrs.	
Where do you spend most of your time at work?	
Have there been any changes in the office recently? E.g.: new location, renovation, cleaning	
Symptoms & Patterns:	
Check all the symptoms or discomfort you are experiencing:	
<input type="checkbox"/> Headache <input type="checkbox"/> Nausea <input type="checkbox"/> Dizziness <input type="checkbox"/> Tiredness / fatigue <input type="checkbox"/> Irritation of eyes, nose, throat <input type="checkbox"/> Breathing Problems <input type="checkbox"/> Coughing <input type="checkbox"/> Sneezing <input type="checkbox"/> Wheezing <input type="checkbox"/> Shortness of Breath	<input type="checkbox"/> Blurred Vision <input type="checkbox"/> Sinus Congestion <input type="checkbox"/> Difficulty in concentrating <input type="checkbox"/> Pain and discomfort of: <input type="checkbox"/> Back <input type="checkbox"/> Neck <input type="checkbox"/> Hands <input type="checkbox"/> Wrist <input type="checkbox"/> Shoulders <input type="checkbox"/> Other _____
Do you have any other health conditions that may make symptoms worse? E.g.: allergies, immune system disorders, or chronic cardiovascular or respiratory disease	
Have you seen a doctor for these symptoms? <input type="checkbox"/> Yes <input type="checkbox"/> No (Do you wish to provide general details?)	

How often are surveys conducted?

Timing:

When do you notice these symptoms and how often do they occur?

On average, when you notice the symptoms, how long have you been at work?

Less than 1 hour 2-4 hours > 4 hours 1 day After __ days

Has there been any change to the symptoms or patterns? Yes No

If yes, please explain:

When do the symptoms go away?

Overnight After a week away Rarely/Never

Can you provide more information?

Has the pain or discomfort caused you to take time off work? Yes No

Are you aware of other people with similar symptoms or concerns? Yes No

If yes, can you provide more details?

Suspected or Potential Causes:

Check any of the following that are true:

- | | |
|---|---|
| <input type="checkbox"/> Are there any unusual odours? | <input type="checkbox"/> Is the work area too warm? |
| <input type="checkbox"/> Does the air seem stuffy? | <input type="checkbox"/> Is the work area too cool? |
| <input type="checkbox"/> Is the air dry? | <input type="checkbox"/> Does the temperature vary from room to room? |
| <input type="checkbox"/> Is it dusty? | <input type="checkbox"/> Are there drafts where you work? |
| <input type="checkbox"/> Do you get shocks from static electricity? | |

Always remember to apply the Hierarchy of Controls to workplace hazards as per the following infographic.

HAZARD CONTROL

Workplace procedures adopted to minimize injury, reduce adverse health effects and control damage to plant or equipment.

Hierarchy of Controls

Apply the highest level of control that corresponds with the risk level
Lower value controls may be used in the interim until long-term controls are implemented

Controls are usually placed
(most effective to least effective)

Safe

Unsafe

A legal limit or guideline should never be viewed as a firm line between "safe" and "unsafe".
Always keep exposures or the risk of a hazard as low as possible.

Elimination
Remove the hazard from the workplace
– Elimination is the preferred way to control a hazard and should be used whenever possible

Substitution
Substitute hazardous materials or machines with less hazardous ones
– Use a soap and water washing system to clean metal parts instead of trichloroethylene, a cancer hazard
– Substitute a product that is in dry powder form with the pellet form to reduce airborne dust and the inhalation hazard

Engineering Controls
Designs or modifications to plants, equipment, systems and processes that reduce the source of exposure
– Automate hazardous processes
– Use mechanical lifting devices or transportation instead of manual methods
– Enclose and isolate the hazard from workers
– Implement a local exhaust ventilation system

Administrative Controls
Controls that alter the way the work is done
– Schedule maintenance and other high exposure operations to when few workers are present
– Implement job rotation and work rest schedules that limit the time a worker is exposed to a substance or process
– Establish safe work practices such as standard operating procedures, emergency response training, and good housekeeping and personal hygiene practices

Personal Protective Equipment
Equipment worn to reduce exposures such as chemical contact or noise
– Should be the last level of protection used when all other methods are not possible

In many cases, a combination of control measures might need to be used to control a risk.

Steps in a hazard control program

1. Identify the hazard
2. Assess the risk (consider severity and likelihood of outcome)
3. Choose the best control for the hazard
4. Implement the chosen control
5. Evaluate the effectiveness of the control

Monitor and Review using

- Physical workplace inspections
- Testing
- Exposure assessments
- Injury and illness tracking
- Medical assessments
- Accident/incident investigations reports
- Employee feedback and input

What the law says: Some hazards and their control measures will be specifically outlined in legislation. In all cases, the employer must take all reasonable precautions to prevent injuries or accidents in the workplace.



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Indoor Air Quality: A Guide for Building Owners, Managers, and Occupants

The information in this guide will help you maintain good indoor air quality in your building, prevent air quality problems, and correct problems that may arise. It will also help you understand the indoor air quality requirements in the Occupational Health and Safety Regulation.

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I.IV. What do the WCB Act, OHS Regulations, Guidelines and Policy say about indoor air quality and hazardous substances exposure? The following are examples (not an exhaustive list and subject to change or amendment):

There are many sources of information on Employer obligations to address air quality issues.

<https://www.worksafebc.com/en/resources/health-safety/books-guides/indoor-air-quality-a-guide-for-building-owners-managers-and-occupants>

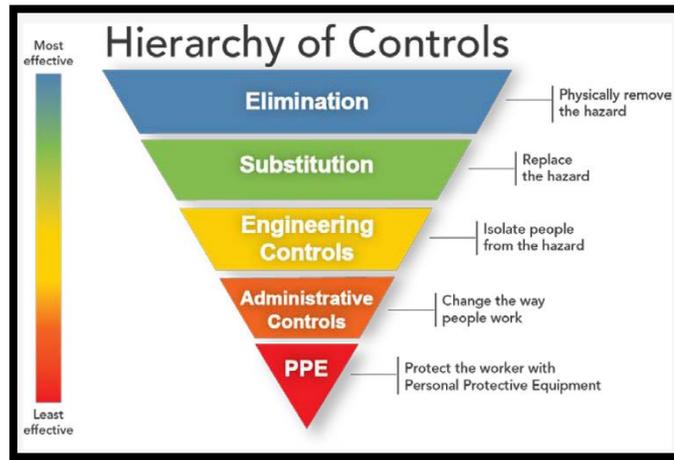
As part of the 4 Rights, Employers must take steps to improve worker safety. As per the CCOHS, the general requirements for safety in the workplace related to air quality include:

- complete a risk and hazard assessment to identify what respiratory agents (and other hazards) are present in the workplace
- the goal is to eliminate the hazard and if not possible to move control of hazards up the hierarchy of controls to minimize exposure

- Employers and supervisors should encourage workers to communicate any concerns they may have about occupational disease e.g. the Right to Know
- Employers should implement proper controls and work practices to prevent respiratory hazards and to limit exposure to below legislated or regulatory limits
- Employers should provide information, instruction and supervision to workers
- Employers should train workers on respiratory hazards specific to their workplace
- Provide training on the correct use and fit testing of any necessary personal protective equipment, including respirators as well as properly maintain personal protective equipment

As per the CCOHS, the specific actions Employers should consider taking for respiratory hazards include the following:

1. Create a Hazard Control Program that consists of all steps necessary to protect workers from exposure to a substance or system, the training and the procedures required to monitor worker exposure and their health to hazards such as chemicals, materials or substance, or other types of hazards such as noise and vibration.
2. A written workplace Hazard Control Program should outline which methods are being used to control the exposure and how these controls will be monitored for effectiveness. After elimination and substitution, well designed and maintained engineering controls are the preferred methods of controlling worker exposure to hazardous contaminants in the air. Administrative controls may be used in addition to engineering controls as they may limit workers' exposures by scheduling reduced work times in contaminant areas or by implementing other such work rules. Administrative controls are not generally preferred because they do not remove the hazard, can be



3. A respiratory protection program includes the following components:

- hazard identification
- program evaluation

- hazard control

- exposure assessment

- respirator selection

- respirator fit-testing

- training program

- inspection and record keeping

- cleaning and sanitizing respirators (see Appendix K as well)

- repairing and maintaining respirators (see Appendix K as well)

- proper storage of respirators (see Appendix K as well)

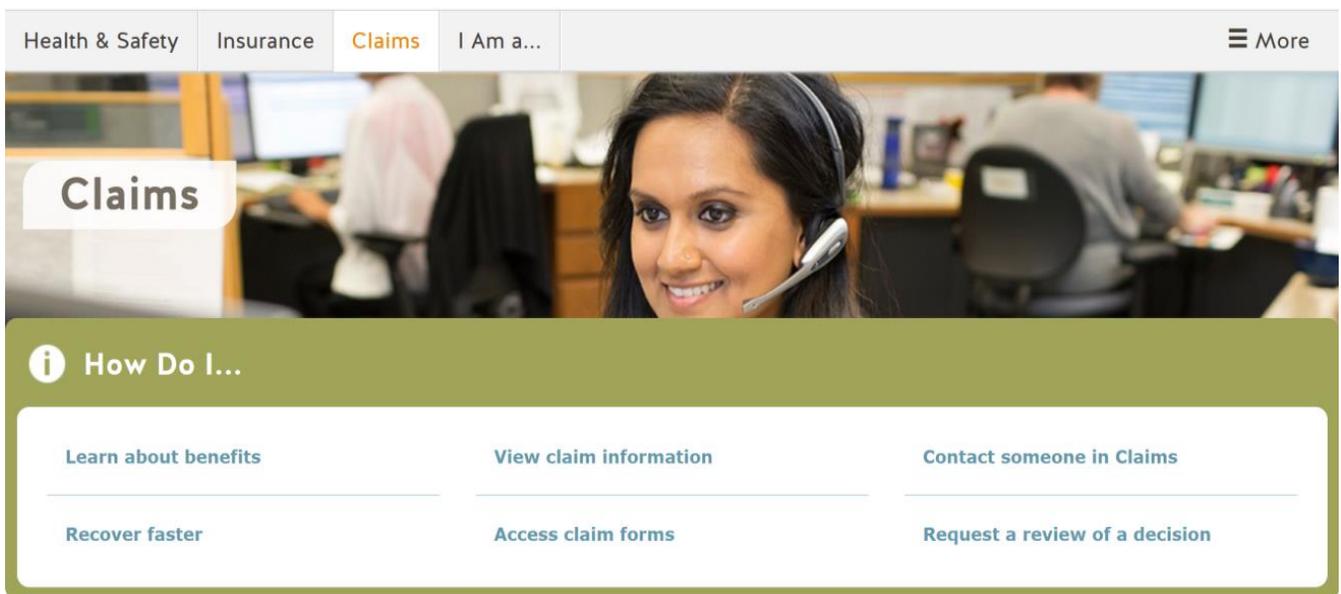
- health surveillance

- policies and procedures

(Circle One)

Likelihood of OCCURRENCE or EXPOSURE for a selected unit of time or activity	Severity of Injury or Illness Consequence				Notes
	Negligible	Marginal	Critical	Catastrophic	
Frequent →	Medium	Serious	High	High	
Probable →	Medium	Serious	High	High	
Occasional →	Low	Medium	Serious	High	
Remote →	Low	Medium	Medium	Serious	
Improbable →	Low	Medium	Medium	Medium	

Source: MILSTD 882



I.IV.I. WCB Compensation Rehabilitation Services & Claims Manual Policy Items (“RSCM”):

The following are sample WCB Claims Policy items that may be relevant to a WCB claim:

- #12.00 Personal Injury
- #25.10 Legislative Requirements
- #26.10 Suffers from an Occupational Disease
- #26.20 Establishing Work Causation
- #26.21 of RSCM II, Schedule B Presumption
- #29.00 Respiratory Diseases
- #29.10 Acute Respiratory Reactions to Substances with Irritating Properties
- #29.20 Asthma
- #29.30 Bronchitis and Emphysema

- #29.40 Pneumoconiosis and Other Specified Diseases of the Lungs
- #29.50 Presumption Where Death Results from Ailment or Impairment of the Lungs or Health
- #29.20 Dust – Red Cedar
- #29.41 Inhalation of Silica Dust
- #29.45 Pulmonary Pneumonconioiosis
- #29.46 Asbestosis
- #30.20 Asbestos Exposure
- Appendix 2 Occupational Diseases Listed in Schedule B

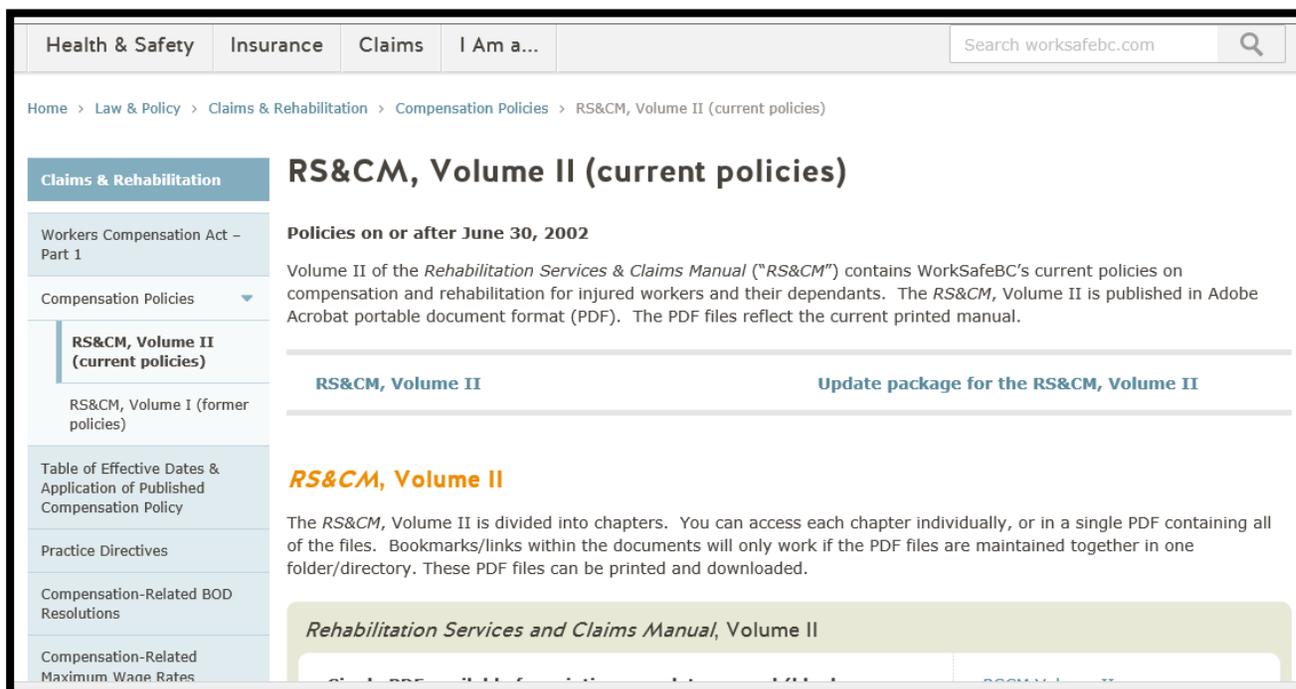
Many Policy items are diagnosis specific. Knowing all the applicable diagnoses is required in order to see which Policies may apply. This is especially important for the Schedule of various diagnoses that fall under a different set of adjudication procedures. Sample Appendix 2 – Schedule B (**note: there are numerous Policy Consultations and revisions occurring each year**):

Start rscm_il_appx2-pdf-en.p... x

Bookmarks

- APPENDIX 1
- APPENDIX 2 - OCCUPATIONAL DISEASE
- APPENDIX 4
- TABLE OF CONTENTS
- REFERENCE INDEX

6.	Asthma	Where there is exposure to: (1) western red cedar dust; or (2) isocyanate vapours or gases; or (3) the dusts, fumes or vapours of other chemicals or organic material known to cause asthma.
7.	Extrinsic allergic alveolitis (including farmers' lung and mushroom workers' lung)	Where there is repeated exposure to respirable organic dusts.
8.	Acute upper respiratory inflammation, acute pharyngitis, acute laryngitis, acute tracheitis, acute bronchitis, acute pneumonitis, or acute pulmonary edema (excluding any allergic reaction, reaction to environmental tobacco smoke, or effect of an infection)	Where there is exposure to a high concentration of fumes, vapours, gases, mists, or dust of substances that have irritating or inflammatory properties, and the respiratory symptoms occur within 48 hours of the exposure, or within 72 hours where there is exposure to nitrogen dioxide or phosgene.
9.	Metal fume fever	Where there is exposure to the fume of zinc or other metals.
10.	Fluorosis	Where there is exposure to high concentrations of fluorine or fluorine compounds in gaseous or particulate form.
11.	Neurosensory hearing loss	Where there is prolonged exposure to excessive noise levels.



Here is a key RSCM II (Policy) Excerpt for WCB claims related to air quality:

#29.10 Acute Respiratory Reactions to Substances with Irritating or Inflammatory Properties

“Schedule B lists “Acute upper respiratory inflammation, acute pharyngitis, acute laryngitis, acute tracheitis, acute bronchitis, acute pneumonitis, or acute pulmonary edema (excluding any allergic reaction, reaction to environmental tobacco smoke, or effect of an infection)” as an occupational disease. The process or industry listed opposite to it is “Where there is exposure to a high concentration of fumes, vapours, gases, mists, or dust of substances that have irritating or inflammatory properties, and the respiratory symptoms occur within 48 hours of the exposure, or within 72 hours where there is exposure to nitrogen dioxide or phosgene”.

There are many agents used in industry and commerce in the province which have irritating or inflammatory properties, and which in sufficient concentrations can produce respiratory symptoms if inhaled. Symptoms associated with the inhalation of such substances can vary from mild transient symptoms (such as a mild burning sensation affecting the eyes, nose and throat) to significant symptoms throughout the respiratory tract (such as dyspnea and respiratory distress).

Significant exposure to some substances may result in persistent respiratory symptoms.

Onset of symptoms can occur within a few minutes or several hours of the exposure, depending on the substance. For the presumption in section 6(3) of the *Act* to apply, the symptoms must appear within 48 hours of the exposure, unless the exposure is to nitrogen dioxide or phosgene, in which case the onset of symptoms must occur within 72 hours.

A claim for compensation made by a worker who has developed persistent or chronic respiratory symptoms considered to be due to exposure to a substance with irritating or inflammatory properties, must be considered on its own individual merits without the benefit of a presumption in favour of work causation (unless the claim meets the requirements of one of the other items of Schedule B). This includes claims for chronic bronchitis, emphysema, chronic obstructive pulmonary disease, obliterative bronchiolitis, reactive airways dysfunction syndrome (RADS), chronic rhinitis, and conditions considered to be due to exposure to tobacco smoke.

The same is true of a claim made by a worker with acute respiratory symptoms where the requirements of section 6(3) of the *Act* are not met (see policy item #26.23). Where a worker who develops an acute reaction to a substance with irritating or inflammatory properties subsequently develops a persistent or chronic respiratory condition, a decision will be made based on the merits and justice of that claim on whether the chronic condition is a compensable consequence of the acute reaction.

A claim made by a worker who has inhaled a vapour or gas which was at a temperature high enough to cause thermal injury (such as inhaling steam) will be treated as a claim for a personal injury and will be adjudicated in accordance with the policies set out in Chapter 3.

Use of the words “high concentration” in Schedule B is a recognition that the amount of the particular substance in the air must be significant for the presumption to apply. The manner in which an exposed individual will react will depend on the properties of the substance inhaled (e.g., acidity/alkalinity, chemical reactivity, water solubility, asphyxiating potential) and the amount inhaled. Individual judgment must be exercised in each case to determine whether there was a “high concentration” of the particular substance having regard to the medical and scientific evidence available, including evidence as to the irritating and/or inflammatory properties of that substance.”

WCAT Workers' Compensation Appeal Tribunal

Site Search Language...

Advanced

STARTING

Whether you are a worker, a dependant of a deceased worker, an employer, or a representative, start an appeal here.

Home | **Starting an Appeal** | Responding to an Appeal | Preparing an Appeal | Status of an Appeal | After an Appeal | Research Library | About Us

Worker | Employer | Appeal Process Map | Filing Documents

Home >> Starting an Appeal >> Worker

Text Size

WORKER

As a worker, or a dependant of a deceased worker, you can appeal most Review Division decisions to us at WCAT.

Here are some typical examples of decisions you can appeal:

- Whether you were injured on the job
- Whether you suffer from an occupational disease caused by your job
- How long you should receive short-term disability benefits
- How WorkSafeBC calculated your average earnings or wage rate
- Most permanent disability awards

FAQs

- Do I need to have all my information and evidence before starting an appeal?
- Can I telephone WCAT to start my appeal?
- Who can participate in my appeal?
- What happens after I send you my appeal form or letter?
- Can I email or fax my appeal form or letter to WCAT?
- What if I appeal too late?
- Do I need someone to...

I.IV.II. Sample Workers' Compensation Appeal Tribunal Decisions (always see the most recent decisions):

There are numerous decisions from the second level of appeal – the BC Workers' Compensation Appeal Tribunal ("WCAT"). These can be found at http://www.wcat.bc.ca/search/advanced_decision_search.aspx#results

The WCAT is the second formal level of appeal after the internal (WorkSafeBC) Review Division. The WCAT is not part of WorkSafeBC – that is why the decisions from the WCAT are included as opposed to the Review Division or other internal appeal processes such as the 75 day Reconsideration (WorkSafeBC). There are also WCAT Reconsiderations of WCAT decisions and judicial reviews which are not addressed in this Guide.

Sample list of WCAT decisions:

Displaying Results: 1 - 8 (Use the arrows to view more search results)

Decision #	Date	Excerpt	Category
A1900912	2019-07-16	The issue to be decided in the appeal is whether the worker suffered a compensable aggravation of her preexisting asthma. Size: 30.28k  A1900912	compensation
A1900776	2019-10-21	Whether the worker sustained an aggravation of her COPD on or around July 9, 2018 due to either a work-related personal injury or a work-related occupational disease. Size: 44.19k  A1900776	compensation
A1900421	2020-02-26	The issue in this appeal relates to the worker's entitlement to temporary disability wage loss benefits beyond the ten days identified by the review officer, pursuant to the Act and applicable Board policy. Size: 28.68k  A1900421	compensation
A1900359	2019-08-14	The issue is whether the worker is entitled to additional compensation benefits under his 1990 claim. Size: 19.64k  A1900359	compensation
A1802993	2019-05-13	Were the worker's sinusitis, vertigo, and/or allergic rhinitis due to, or were aggravated by, the nature of the worker's employment because he works near a dock where allergens, including soybean dust, exist? Size: 26.62k  A1802993	compensation
A1802106	2019-07-03	Did the worker develop an occupational disease due to the nature of his employment in June 2017? Size: 28.25k  A1802106	compensation

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Health & Safety Insurance Claims I Am a... More

Home > Law & Policy > Workers Compensation Law

Workers Compensation Law

Legislation and regulation

Workers compensation law in British Columbia is set by the *Workers Compensation Act* (Act) and its related regulations.

WorkSafeBC administers the Act for the Ministry of Labour. The Act addresses matters such as:

- The rights and responsibilities of employers and workers with respect to occupational health and safety,
- Setting and enforcing occupational health and safety regulations and standards,
- Inspecting workplaces, issuing orders, and imposing penalties,
- Assisting injured or disabled workers and their dependants , and
- Assessing employers and collecting funds to operate WorkSafeBC.

I.IV.III. *Workers Compensation Act* (Claims) (the Regulations change very frequently):

There are two primary Sections to apply to air WCB quality claims (in addition to potentially other applicable Sections of the Act). Section 6 sets out that claims for certain occupational diseases may be the subject of a presumption in favour of causation under section 6(3) of the Act. Where such a presumption does not apply, the claim will still need to be adjudicated under section 6(1). Asthma is a condition to which the section 6(3) presumption may apply.

Section 6(3) of the Act states that if a worker contracts an occupational disease in the first column of Schedule B of the RSCM Policies (which must be read in conjunction with the Act), and was employed in a process or industry in the second column of the same row at or immediately before the date of disablement, the disease is presumed to be due to the nature of that employment unless the contrary is proven.

See <https://www.worksafebc.com/en/law-policy/workers-compensation-law>

Note: the BC Workers Compensation Act is currently being reviewed. Changes may occur. The following excerpts are for illustration purposes only.

Division 2 — Compensation

Compensation for personal injury

- 5 (1) Where, in an industry within the scope of this Part, personal injury or death arising out of and in the course of the employment is caused to a worker, compensation as provided by this Part must be paid by the Board out of the accident fund.
- (2) Where an injury disables a worker from earning full wages at the work at which the worker was employed, compensation is payable under this Part from the first working day following the day of the injury; but a health care benefit only is payable under this Part in respect of the day of the injury.
- (3) Where the injury is attributable solely to the serious and wilful misconduct of the worker, compensation is not payable unless the injury results in death or serious or permanent disablement.
- (4) In cases where the injury is caused by accident, where the accident arose out of the employment, unless the contrary is shown, it must be presumed that it occurred in the course of the employment; and where the accident occurred in the course of the employment, unless the contrary is shown, it must be presumed that it arose out of the employment.
- (5) Where the personal injury or disease is superimposed on an already existing disability, compensation must be allowed only for the proportion of the disability following the personal injury or disease that may reasonably be attributed to the personal injury or disease. The measure of the disability attributable to the personal injury or disease must, unless it is otherwise shown, be the amount of the difference between the worker's disability before and disability after the occurrence of the personal injury or disease.

Occupational disease

6 “(1) Where

(a) a worker suffers from an occupational disease and is thereby disabled from earning full wages at the work at which the worker was employed, or the death of a worker is caused by an occupational disease; and

(b) the disease is due to the nature of any employment in which the worker was employed, whether under one or more employments,

compensation is payable under this Part as if the disease were a personal injury arising out of and in the course of that employment. A health care benefit may be paid although the worker is not disabled from earning full wages at the work at which he or she was employed.

(2) The date of disablement must be treated as the occurrence of the injury.

(3) If the worker at or immediately before the date of the disablement was employed in a process or industry mentioned in the second column of Schedule B, and the disease contracted is the disease in the first column of the schedule set opposite to the description of the process, the disease is deemed to have been due to the nature of that employment unless the contrary is proved.

(4) [Repealed 2002-56-3.]

(4.1) The Board may, by regulation,

(a) add to or delete from Schedule B a disease that, in the opinion of the Board, is an occupational disease,

(b) add to or delete from Schedule B a process or an industry, and

(c) set terms, conditions and limitations for the purposes of paragraphs (a) and (b).

(4.2) Despite subsection (4.1), the Board may designate or recognize a disease as being a disease that is peculiar to or characteristic of a particular process, trade or occupation on the terms and conditions and with the limitations set by the Board.”

“(7) **"Silicosis"** means a fibrotic condition of the lungs caused by the inhalation of silica dust...”

“(10) When a worker has sustained pulmonary injury by a disabling form of pneumoconiosis as a result of exposure to dust conditions that are deemed by the Board to have contributed to the development of the disease in employment in the Province in an industry in which that disease is an occupational disease under this Part, the worker or the worker's dependants is or are entitled to compensation only if the worker was free from pneumoconiosis and tuberculosis before being first exposed to those dust conditions in the Province, and if the worker's residence and exposure to the dust conditions have been of the duration required to entitle a worker to compensation for silicosis under subsection (8), and the cost of compensation may be apportioned in the manner provided by subsection (9).

(11) Where a deceased worker was, at the date of his or her death, under the age of 70 years and suffering from an occupational disease of a type that impairs the capacity of function of the lungs, and where the death was caused by some ailment or impairment of the lungs or heart of non-traumatic origin, it must be conclusively presumed that the death resulted from the occupational disease.”

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This Act is current to March 25, 2020

See the [Tables of Legislative Changes](#) for this Act's legislative history, including any changes not in force.

WORKERS COMPENSATION ACT
[RSBC 1996] CHAPTER 492

[Note: the dollar amounts shown in sections 3, 17, 18, 22, 29, 33 (5), 35, 73, 75, 77, 196, 196.1, 217 and 225 may not reflect the current consumer price index adjustments referred to in section 25.2, and the maximum wage rate shown in section 33 (10) may not be current. Current information may be found on the Workers' Compensation Board website at www.worksafebc.com/en/law-policy/claims-rehabilitation/claims-related-consumer-price-index or may be obtained by calling your WorkSafeBC regional office.]

Contents

- 1 Definitions
- Part 1 – Compensation to Workers and Dependents**
- Division 1 – Scope of this Part**
 - 2 Application
 - 3 Extending application
 - 4 Fishing industry
- Division 2 – Compensation**
 - 5 Compensation for personal injury
 - 5.1 Mental disorder
 - 6 Occupational disease

Claims - WorkSafeBC

More info: Health & safety, Industry safety (Agriculture, Construction, Forestry, Health care, Manufacturing, Retail, Transportation); **Claims**. Revised Workers ...

View claim information

Health care providers can check the status of a client's claim ...

How workers report

How workers report a workplace injury or disease. If you have a ...

Report a workplace injury

Report a workplace injury or disease. When someone suffers ...

Manage a claim

Create an online account to view information about your claim or ...

Contact someone in Claims

More info: Health & safety, Industry safety (Agriculture, Construction ...

Determining eligibility

Determining eligibility. Once we receive reports from an injured ...

[More results from worksafebc.com »](#)

Report a workplace injury or disease

How workers report

How employers report ▶

How health care providers report

Reporting serious incidents and fatalities

Critical incident response

Claims in special circumstances ▶

How workers report a workplace injury or disease

If you have a work-related injury or disease, we want to help you as soon as possible. Be sure to seek medical attention and report your injury to your employer. If you miss work or seek medical attention, be sure to contact us. We'll need some information from you to start your claim for services and benefits.

How to report an injury

Teleclaim
(recommended if you've missed work)

1-888-WORKERS (1.888.967.5377)
See the [information you'll need to make your report](#).

With an account

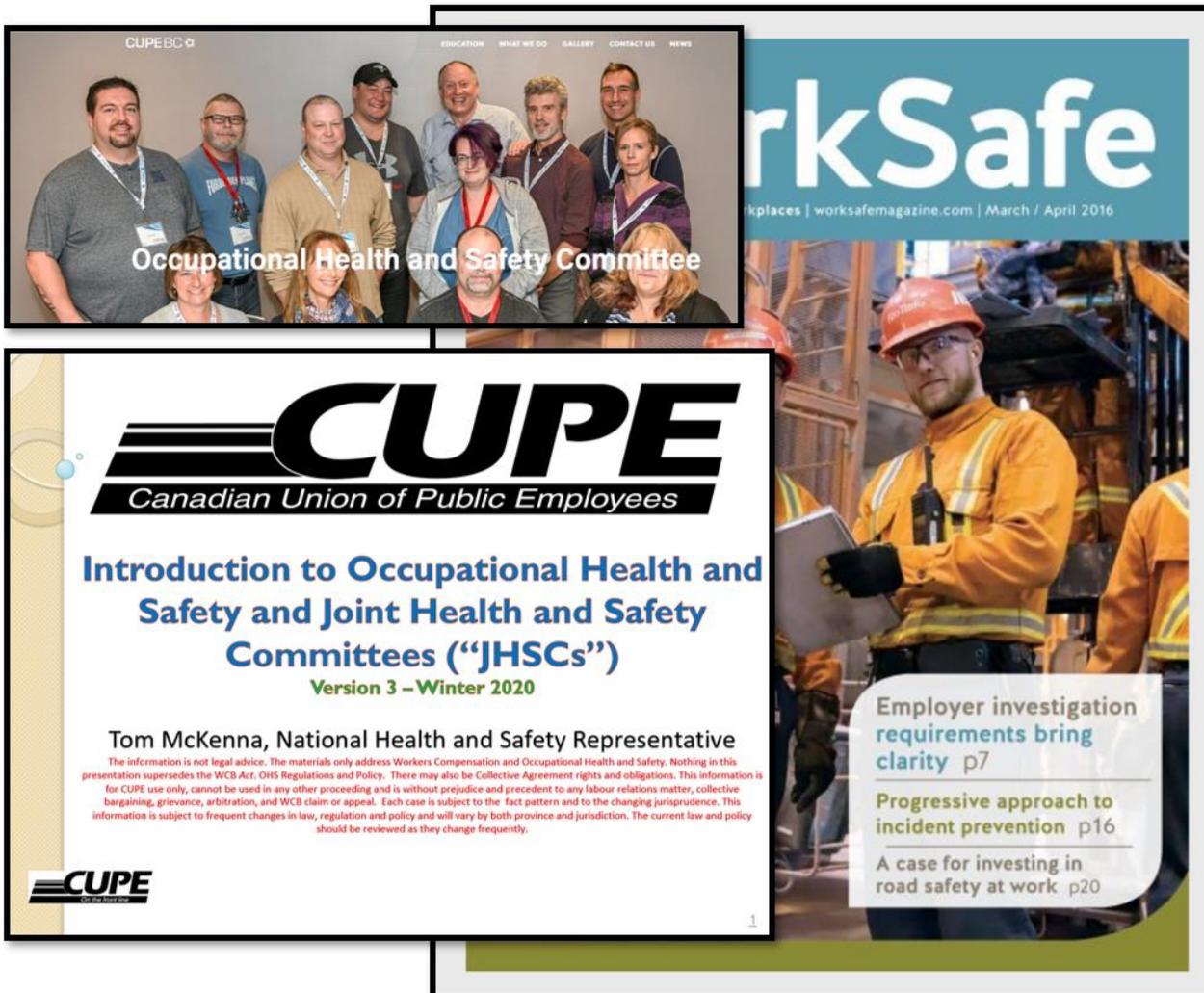
[Log on or create an account ▶](#)

Without an account

[Report without creating an account](#)

Form (fax or mail)

Use Application for Compensation and Report of Injury or Occupational Disease (Form 6)



I.IV.IV.OHS Regulations:

There are many different OHS Regulations and Guidelines that interpret the OHS Regulations. Sample OHS Regulations include the following:

See <https://www.worksafebc.com/en/health-safety/hazards-exposures/mould>

Note: there are frequent annual Policy, Regulation and Guidelines Consultations each year. The OHS Regulations may change.

- Right to Refuse Part 3.12
- General Conditions Part 4
- Emergency Preparedness and Response Part 4
- Indoor Air Quality Parts 4.70 to 4.80 (sample below per the OHS Regulations)
- Environmental Tobacco Smoke and E-Cigarette Vapour Part 4.80.1 to 4.83
- Chemical Agents and Biological Agents Part 5
- Containers and Storage Part 5
- Flammable and Combustible Substances Part 5
- Controlling Exposure Part 5
- Substance Specific Requirements Part 6

Note: for the following Exposure Control Plans there are many different substances. The following are examples only.

- Exposure Control Plan Part 6.3 – Asbestos
- Exposure Control Plan Part 6.34 – Biological Agents
- Exposure Control Plan Part 6.43 – Cytotoxic Drugs
- Risk Assessment Part 6.59.1
- Exposure Control Plan Part 6.60 – Lead
- Risk Assessment Part 6.112
- Exposure Control Plan Part 6.112.1 – Crystalline Silica and Rock Dust

- Risk Assessment – Part 6.118
- Exposure Control Plan Part 6.119 – Toxic Process Gases
- Table of Exposure Limits, Part 5.48
- Personal Protective Equipment Part 8
- WHMIS
- Guidelines Part 4 - Indoor air quality
- G4.79 Moulds and indoor air quality

INDOOR AIR QUALITY

- 4.70 Application
- 4.71 Submitting plans
- 4.72 Design and operation
- 4.73 Building modifications
- 4.74 Distribution
- 4.75 Balancing
- 4.76 Ventilation openings
- 4.77 Discharged air
- 4.78 Preventive maintenance
- 4.79 Investigation
- 4.80 Temperature and humidity

ENVIRONMENTAL TOBACCO SMOKE AND E-CIGARETTE VAPOUR

- 4.80.1 Definitions
- 4.81 Controlling exposure
- 4.82 Exceptions
- 4.83 Public entertainment facilities [Repealed]



Excerpts from 4.70 to 4.80:

“Indoor Air Quality

4.70 Application

Sections 4.71 to 4.80 apply to indoor or enclosed areas when occupied by workers,
Except

- (a) a controlled atmosphere enclosure,
- (b) a confined space, and
- (c) when clearly impracticable, such as during some construction or renovation projects.

4.71 Submitting plans

An employer or the employer's agent must submit to the Board drawings and specifications for an existing or proposed ventilation system when requested by the Board.

4.72 Design and operation

- (1) An employer must ensure that a ventilation system for the supply and distribution of air and removal of indoor air contaminants is designed, constructed and operated in accordance with
 - (a) established engineering principles, and
 - (b) *ASHRAE Standard 62-1989, Ventilation for Acceptable Indoor Air Quality.*
- (2) An adequate supply of outdoor air must be provided to the workplace in accordance with Table 2 of *ASHRAE Standard 62-1989.*

(3) For a building ventilation system installed prior to 1989, an adequate supply of outdoor air must be provided in accordance with the ASHRAE standard in place at the time the ventilation system was designed.

[Amended by B.C. Reg. 312/2003 effective October 29, 2003.]

* See also section [4.4](#) of the OHS Regulation.

Note: If workers occupying a building exhibit signs or report symptoms of illness the circumstances must be investigated as required by [Part 5 \(Chemical Agents and Biological Agents\)](#). If such signs or symptoms are attributed to an inadequate supply of outdoor air, the Board will, under subsection (3), consider a standard other than the ASHRAE standard in place at the time the ventilation system was designed where necessary to address the circumstances.

4.73 Building modifications

The owner of a building must permit an employer to install a ventilation system when required by this Part, provided that all such work is subject to the approval of the owner, acting reasonably.

4.74 Distribution

Outdoor air must be effectively distributed throughout the workplace.

4.75 Balancing

The ventilation system must be balanced to

- (a) ensure that each space within the building receives an adequate allotment of outdoor air, and
- (b) accommodate the actual or the normally anticipated occupancy of each space.

4.76 Ventilation openings

- (1) A ventilation system must not be obstructed by material or equipment placed in front of the ventilation air intakes or discharge points.
- (2) Outdoor air intakes must be located so that outdoor air entering the ventilation system does not contain any contaminant in a concentration greater than normal outdoor ambient air in that locality.

4.77 Discharged air

A ventilation system that discharges air from the work area must be designed to minimize the likelihood of exposing any worker at a workplace, including an adjacent workplace

- (a) to an air contaminant in a concentration which exceeds either 10% of its applicable exposure limit in [Part 5 \(Chemical Agents and Biological Agents\)](#), or an acceptable ambient air quality standard established by an authority having jurisdiction over environmental air standards, whichever is greater, and
- (b) where practicable, to an objectionable odour.

4.78 Preventive maintenance

- (1) To maintain acceptable air quality, the employer, or if the employer is not responsible for maintenance of the ventilation system, the owner of the ventilation system must establish an effective preventive maintenance program for the ventilation system.
- (2) Preventive maintenance must include
 - (a) regular inspections
 - (i) of all critical components of the ventilation system, such as

dampers, fans, belts, baffles, ductwork, diffusers and control systems, and

(ii) for conditions which would promote the growth of micro-organisms, such as water leaks or stagnant water pools,

(b) correction of any deficiencies found during the inspections carried out under paragraph (a),

(c) repair or replacement of malfunctioning and consumable components, such as filters and belts, and the cleaning of air distribution systems, ducts and dampers when necessary to correct an indoor air quality deficiency,

(d) adequate treatment of open water systems associated with ventilation equipment such as cooling towers and humidifiers, to control biological growth, and

(e) maintenance of combustion sources, such as furnaces, space heaters and water heaters to assure proper burning and exhausting of waste gases so that recirculation of gases to the workplace will not occur.

4.79 Investigation

(1) The employer must ensure that the indoor air quality is investigated when

(a) complaints are reported,

(b) occupancy in the space changes substantially, or

(c) renovations involving significant changes to the ventilation system occur.

(2) An air quality investigation must include

(a) assessment of the ventilation rate, unless the indoor carbon dioxide

level is less than 650 ppm above ambient outdoor levels,

(b) inspection of the ventilation system as required in section 4.78(2),

(c) sampling for airborne contaminants suspected to be present in concentrations associated with the reported complaints, and

(d) a record of the complaint, the findings of the investigation, and any actions taken.

Note: In subsection (2)(a) carbon dioxide is considered a marker indicator of sufficient outdoor air, not as a toxic air contaminant for which the exposure limit established by [section 5.48](#) would apply. Normally, ambient levels are approximately 350 ppm, but may be higher in locations such as urban areas or during weather conditions such as inversions. Ambient levels may be assumed to be 350 ppm unless sampling establishes otherwise.”

There are also requirements for Exposure Control Plans. As per the British Columbia Municipal Safety Association:

“Employers are required under Section 5.54 of the Occupational Health and Safety Regulation (OHSR) to develop an exposure control plan (ECP) when workers are or may be exposed to airborne silica dust in excess of 50% of the exposure limit.

To assist occupational health and safety professionals with this task, WorkSafeBC has posted the following sample documents (in editable Microsoft Word format), which can be used to help create an employer’s ECP. Note that these sample documents are not sufficient to constitute an ECP; a WorkSafeBC occupational hygiene officer would have to make a determination as to whether or not a completed ECP meets the requirements of the OHSR.

Developing a Silica Exposure Control Plan WSBC developing a silica ECP.doc

The following Exposure Control Plans are from WorkSafeBC’s website.

Exposure Control Plans for:

- Carbon Monoxide ECP - Carbon Monoxide
- Cutting concrete WSBC - ECPCuttingConcrete.doc
- Chipping Concrete ECPChippingConcrete.doc
- Cutting Fibre Cement Board ECP fibre cement board.doc
- Cutting, Grinding and Polishing stone containing silica (quartz) ECP cutting, grinding, polishing quartz.doc

Work-Related Asthma

Two types:

Occupational asthma

Asthma caused by something in the workplace



Enzymes
(in detergents or laboratories) and moulds



Proteins from animals, plants, foods, insects, fish and shellfish



Wheat or other flour and enzyme exposures



Western red cedar dust



Isocyanates in spray paints, some glues, foamy materials, polyurethane foam

15% Internationally, up to 15% of adult onset asthma may be related to the workplace.

Work-exacerbated asthma

Something in the workplace aggravates existing asthma



Perfumes



Dusts
(construction, grains)



Ozone
(some swimming pools, bottling plants, photocopiers)



Ammonia
(farming environments such as barns)



Fumes, vapours, smoke and gases
(metalworking fluids, paint fumes, cleaning chemicals)



Environment
(cold, heat and humidity)

What employers can do...

- Read and be aware of safety data sheet information about respiratory health effects.
- Replace substances with less harmful ones.
- Minimize exposure (ventilation, enclosures).
- Develop administrative controls (such as changing the job or tasks).
- Educate workers on proper handling, avoiding spills and good housekeeping practices.
- Provide personal protective equipment. This should be the last option.

If there is one worker with asthma symptoms, it may warrant a closer look at the air quality of the workplace and its ventilation controls.

Asthma is a respiratory disease

It creates a narrowing of the air passages that makes it difficult to breathe.

Symptoms

Tightness of the chest Difficulty breathing Wheezing Coughing

Symptoms are usually worse on work days and improve when away from the workplace.

Industries affected

- Cleaning and janitorial services
- Bakeries
- Healthcare
- Manufacturing
- Construction
- Agriculture
- Automobile spray painting
- Insulation and polyurethane work
- Fisheries and fish processing
- Forestry

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Canadian Centre for Occupational Health and Safety

Government of Canada / Gouvernement du Canada

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Home > Jobs and the workplace > Workplace standards

Federal labour standards

Part III of the *Canada Labour Code* talks about federal labour standards. These set out the employment conditions for hours of work, payment of wages, leaves, vacation, holidays, and more. These standards apply to employees working in federally regulated businesses.

Services and information

- Federally regulated businesses**
List of businesses and industries that must follow federal labour standards.
- Hours of work**
Standard, maximum and overtime hours of work, and the trucking industry's hours of work.
- Vacation and general holidays**
Annual vacation, general holidays and the vacation and general holiday pay calculators.
- Leaves**
List of paid and unpaid leaves employees may be entitled to.
- Filing a complaint**
Complaints for unpaid wages or other amounts; unjust dismissal; genetic testing and more.
- Wages, pay and deductions**
Outline of wages, pay, deductions and wage recovery.
- Termination of employment**
Steps to follow when terminating an employment, including layoffs and group terminations.
- Sexual harassment**
The protections all employees have the right to expect in their workplace.

Most requested

- [Wage Earner Protection Program](#)
- [Minimum wage database](#)

I.IV.V. Federal - Part II of the Canada Labour Code:

<https://www.canada.ca/en/employment-social-development/services/health-safety/reports/summary.html>

The preventive measures of the Code consist of the minimization and elimination of hazards and the provision of personal safety equipment, clothing, devices or materials, with the goal of ensuring the health and safety of workers.

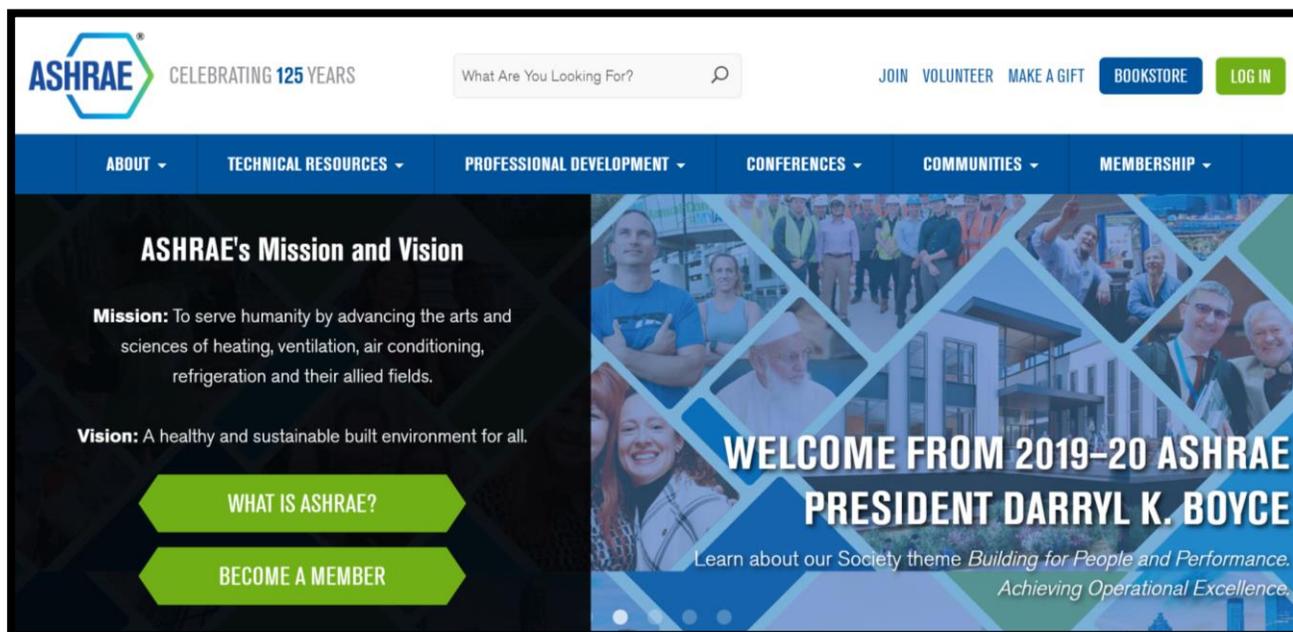
Part II covers:

- Duties of Employers and employees
- Duties and responsibilities of safety committees

- Duties and responsibilities of managers
- Analysis of potential job hazards
- Preventing violence
- Who is covered under the Code

Workers and areas covered by the Federal Code include:

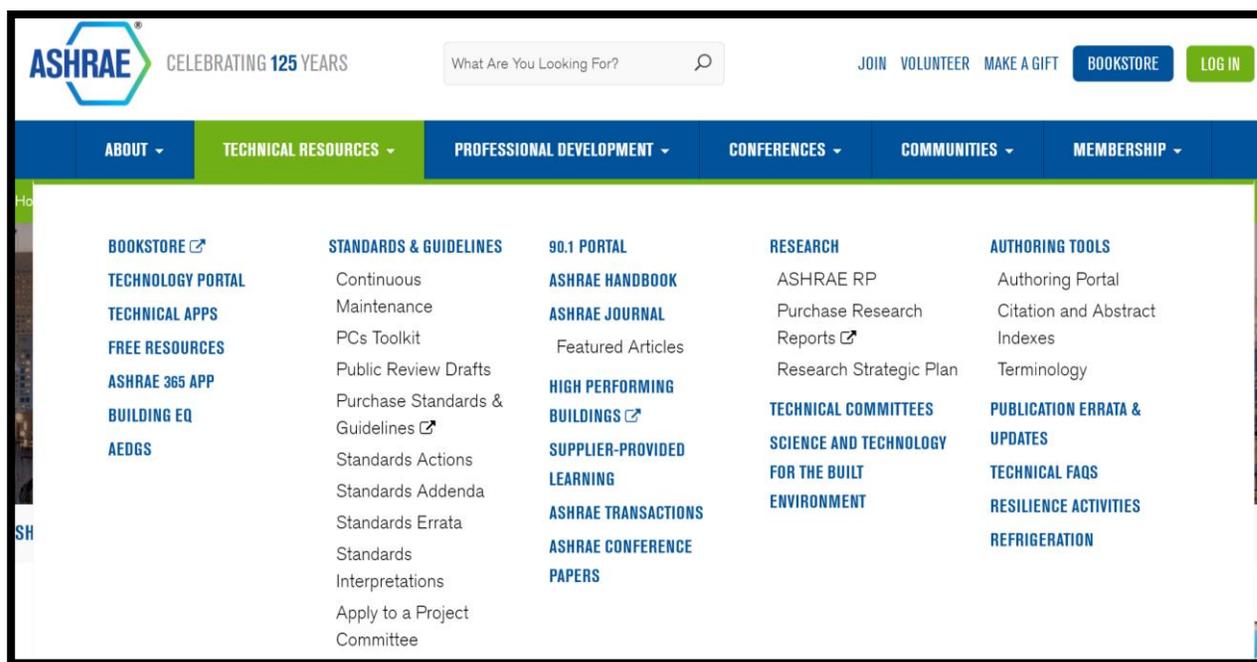
- Banks
- Marine shipping, ferry and port services
- Air transportation, including airports, aerodromes and airlines
- Railway and road transportation that involve crossing provincial or international borders
- Canals, pipelines, tunnels and bridges
- Telephone, telegraph and cable systems
- Radio and television broadcasting
- Grain elevators, feed and seed mills
- Uranium mining and processing
- Many First Nation activities
- Most federal crown corporations
- Private businesses necessary to the implementation of a federal act



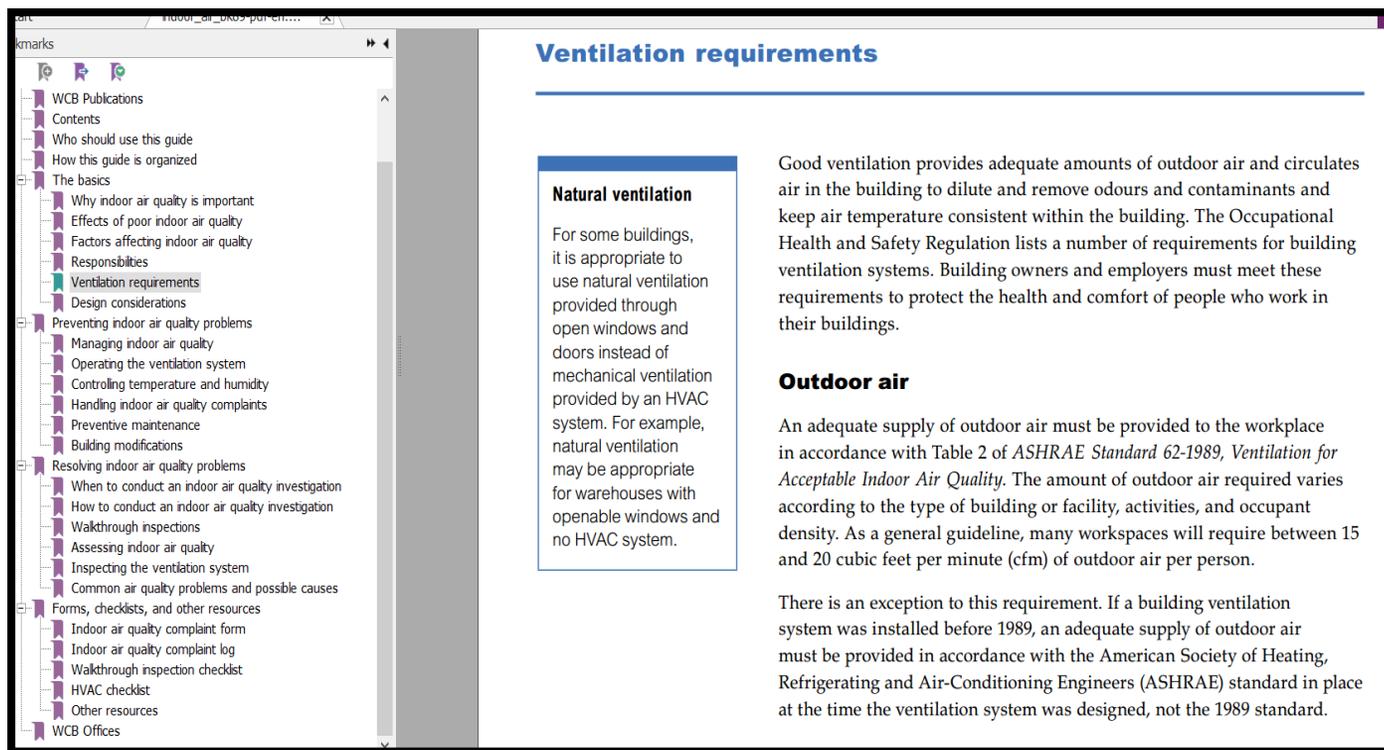
I.VI.VI. ASHRAE Standard 62-1989, CSA Group Standards, and CCOHS Information:

ASHRAE has a number of resources that may assist workers.

See <https://www.ashrae.org/>



It is very important to ensure that any non-WorkSafeBC resources comply with provincial legislation (for non-Federally regulated workers such as airlines). WorkSafeBC has numerous resources as per the following screenshot:



Additional supplementary resources can be obtained from the Canadian Centre for Occupational Safety as per the following infographic:

See <https://www.ccohs.ca/topics/legislation/duediligence/>

Conducting an IAQ investigation

- Treat IAQ concerns seriously and promptly.
- Collect health complaint data using a questionnaire specific for your workplace. You may need assistance from an expert.
- Look for patterns.
- Meet affected people to clarify your findings.
- Check the heating, ventilating and air-conditioning (HVAC) system with the building operator/engineer.

Sources

- Building occupants**
- Building materials**
- Carpets, fabric, foam chair cushions**
- Off-gas emissions furniture, carpets, paints, workplace cleaners, solvents, pesticides, disinfectants and glues**
- Damp areas, stagnant water and condensate pans**
- Photocopiers, electric motors, electrostatic air cleaners**

Indoor air contaminants

- Carbon dioxide, tobacco smoke, perfume, body odours**
- Dust, fibreglass, asbestos, gases**
- Dust mites**
- Gases, vapours, odours, volatile organic compounds (VOCs)**
- Microbial contaminants, fungi, moulds, bacteria**
- Ozone**

Indoor Air Quality

Take a preventative approach to IAQ

- Provide an adequate volume of outdoor air
- Ensure that air is properly distributed
- Prevent outdoor pollutants from entering the building
- Provide separate ventilation for special-use areas
- Promote the use of unscented products
- Choose building materials, paints and furniture with low emissions
- Discourage mould growth
- Follow standards and best practices for your building's ventilation, thermal comfort, and pollutant control

Symptoms

People generally notice their symptoms after several hours at work and feel better after they have been away from the building.

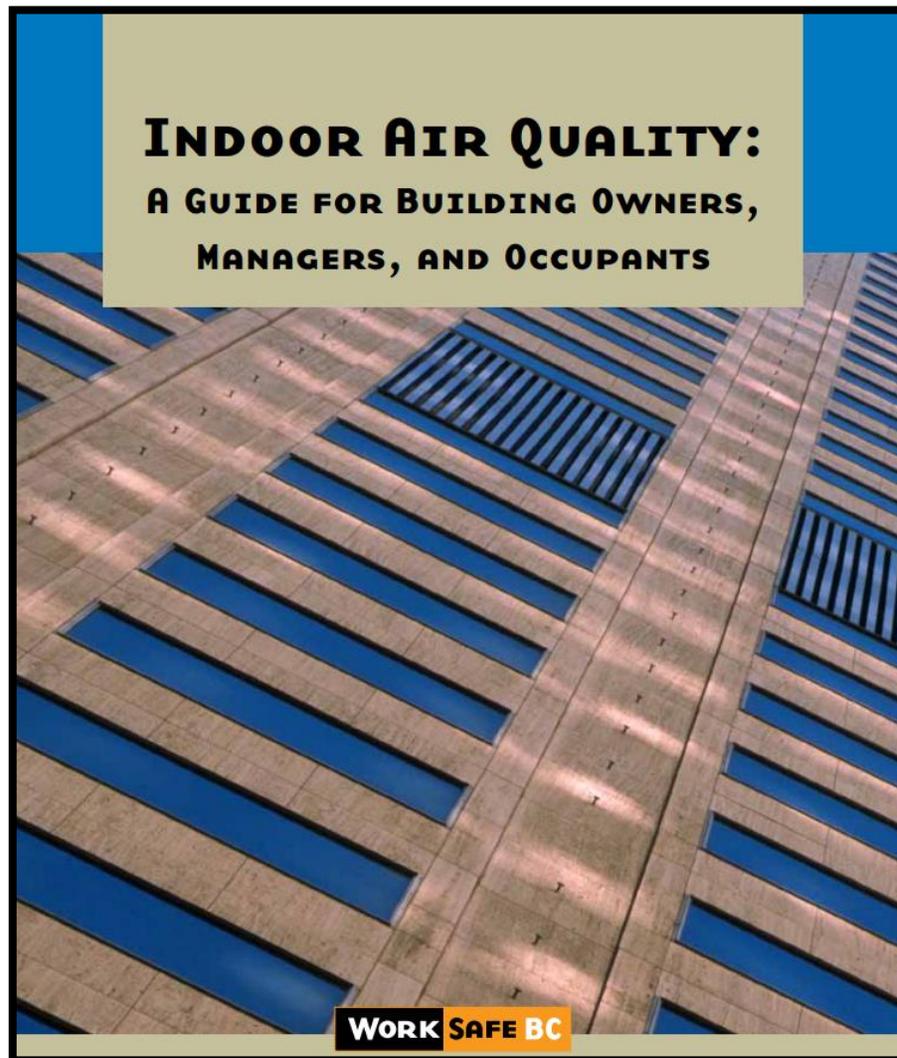
IAQ issues

Common Causes

- Lack of outdoor air for HVAC system
- Poorly designed or maintained HVAC system
- Pollutants from the outdoor air
- Emissions from inside sources
- Poor temperature and humidity control

What the law says: All jurisdictions include the 'general duty clause' which requires employers to provide a healthy and safe workplace. This includes the provision of healthy indoor air. In addition, IAQ is implied in most building codes as design and operation criteria.

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**I.V. How to investigate both indoor and outdoor air quality problems.
Also see Appendices D, E and F:**

Here are some basic initial steps to address air quality issues (both indoor and outdoor):

- Is there an Exposure Control Plan as required by the WCB OHS Regulations?
- Investigate the ventilation system to make sure it is operating properly (e.g., the right mix of fresh air, proper distribution, filtration systems are working, etc.).
- Look for possible causes (e.g., source of a chemical, renovations, mould, etc).

- Contact the JHSC and request that an investigation occur. Is this a formal investigation as per Form 52E40, Section 4.79 etc or an information investigation?

See <https://www.worksafebc.com/en/resources/health-safety/forms/incident-investigation-report-form-52e40?lang=en> and <https://www.worksafebc.com/en/resources/health-safety/books-guides/indoor-air-quality-a-guide-for-building-owners-managers-and-occupants> Indoor Air Quality: A Guide for Building Owners, Managers, and Occupants.

- Conduct a survey of worker symptoms (see sample surveys in the Appendices as well as the CCOHS graphic above and included as a graphic).
- Conduct a survey to look for sources and causes (see sample surveys in the Appendices as well as the CCOHS graphic above and included as a graphic).
- If there are overlapping WCB Claims/Compensation and OHS/Prevention issues, see the CUPE (BC Region) OHS & WCB Claims Process Overview in the Appendices and graphic below.
- Consider help and/or air testing by a qualified professional.

OHS Regulation & Guidelines

OHS Regulations

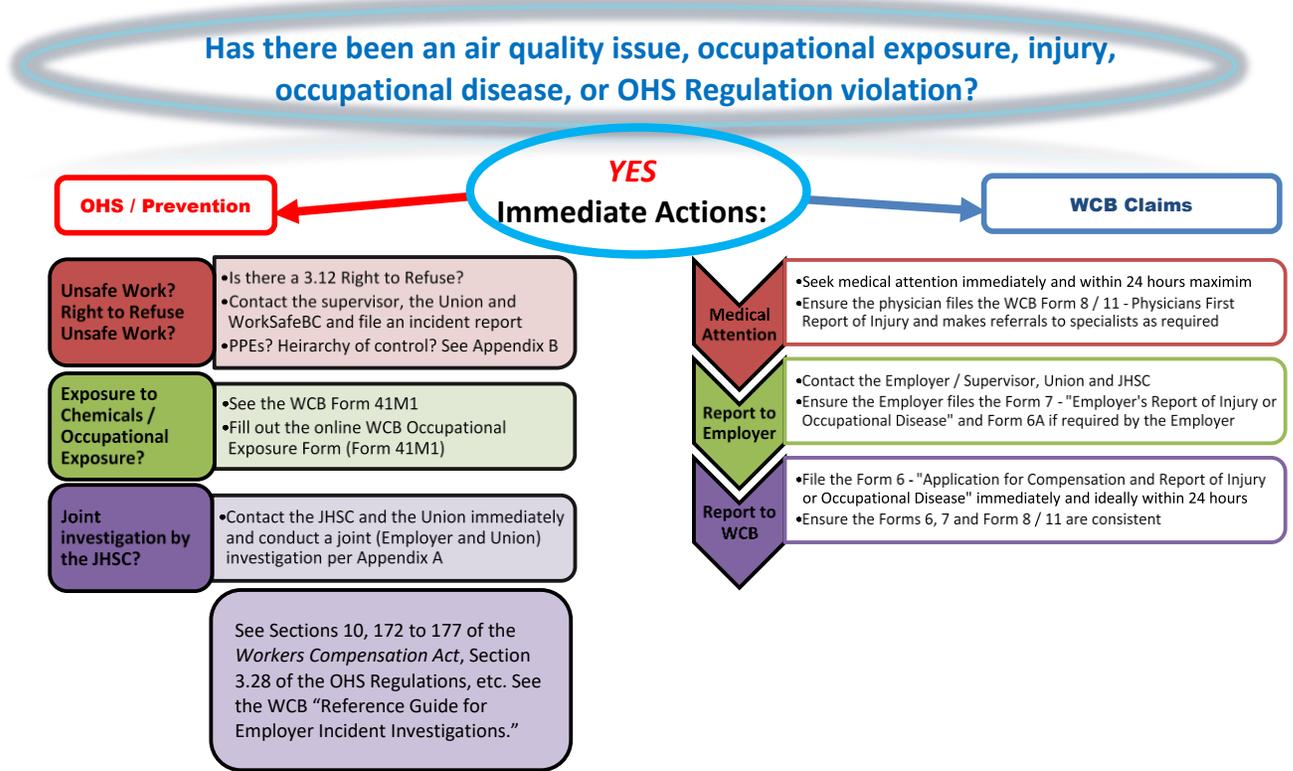
- Part 4 General Conditions - Indoor Air Quality
- Part 5 Chemical Agents and Biological Agents - Ventilation
- Part 5 Chemical Agents and Biological Agents

OHS Guidelines

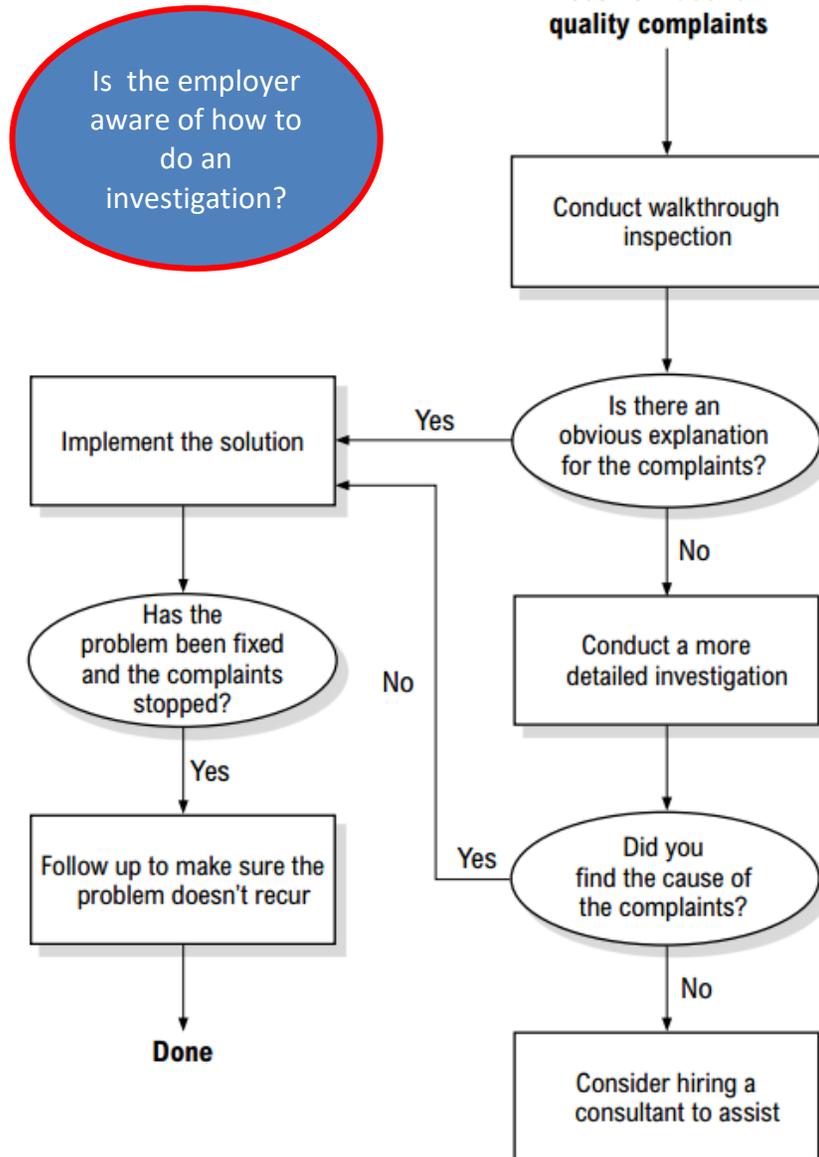
- Guidelines Part 4 General Conditions - Indoor Air Quality
- Guidelines Part 5 Chemical Agents and Biological Agents - Ventilation
- Guidelines Part 5 Chemical Agents and Biological Agents

AIR QUALITY OHS & WCB CLAIMS PROCESS OVERVIEW CHART

This Flow Chart is an overview of the basic steps for addressing **OHS Prevention** issues and for filing a **WorkSafeBC (WCB)** claim where there are air quality issues. Always refer to the most current online WCB Policy, Regulations, Practice Directives, Forms and *Workers Compensation* at the WorkSafeBC website. **Please refer to the main CUPE Guide "Air Quality Addressing Indoor and Outdoor Air Quality Occupational Health & Safety Issues and Filing WorkSafeBC Claims".**



The investigation process



It is important to ensure that the persons needed for an investigation are included. For example:

- The Union
- The JHSC
- The Employer
- The building owner if applicable
- The property manager if applicable
- Are there contractors or other Employers in the workplace?
- Are there other Unions in the workplace?
- The WCB Prevention Officer e.g. in cases such as Right to Refuse, etc.

Why? The process of addressing issues such as mould can be very complex as per the following sample Table.

See next page.

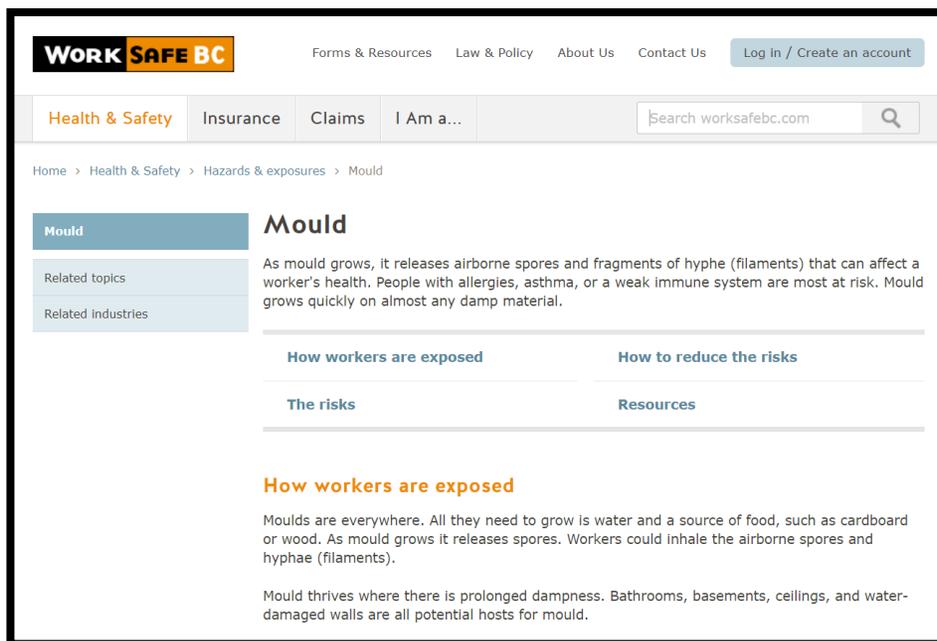
Sample Guide for Removing Visible Mould Growth in the Indoor Environment – Table 1

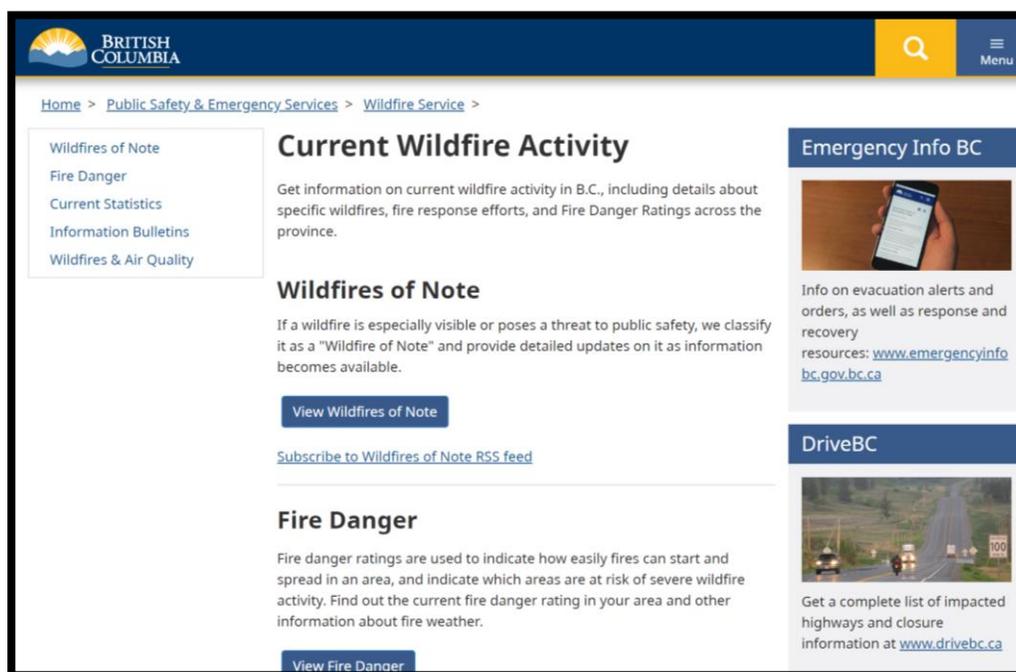
Extent of Visible and Hidden Mould Growth (surface area)	Minimum Recommended PPE ¹	Control Measures to Prevent Dust or Spore Dispersion ²
<p>Small Total surface area affected is less than 1 square metre (10 square feet)</p>	<p>N95 respirator or half facepiece respirator with HEPA filters, gloves, and goggles.</p>	<p>Isolation of the work area; wet wiping or misting of surfaces with water containing a surfactant (wetting agent); and the use of drop sheets to prevent dispersion of dust and spores. Material is removed with minimum of dust and spore dispersal and placed in a plastic bag and sealed.</p>
<p>Medium Total surface area affected is between 1 square metre and 10 square metres (10 square feet to 100 square feet)</p>	<p>N95 respirator or half facepiece respirator with HEPA filters, gloves, disposable coveralls, and goggles.</p>	<p>Limited containment: use polyethylene sheeting ceiling to floor around the affected area with a slit entry and covering flap. Maintain area under negative pressure with HEPA filtered negative air unit. Block supply and return air vents within the containment area.</p>
<p>Large Total surface area is greater than 10 square metres (100 square feet) or the potential for increased occupant or remediator exposure during remediation is estimated to be significant.</p>	<p>Full facepiece or powered air purifying respirator (PAPR) with HEPA filters, gloves, disposable coveralls (covering head and boots), and goggles.</p>	<p>Full containment: use of critical barriers. Maintain area under negative pressure with HEPA filtered fan unit exhausted outside the building. Block supply and return air vents within the containment area. Provide facilities and procedures for decontamination and personal hygiene.</p>

¹ Higher levels of respiratory protection should be considered for situations where the "Extent of Visible and Hidden Mould Growth" is categorized as "Small" or "Medium."

For example, full face piece powered air-purifying respirators (PAPRs) with High Efficiency Particulate Arrestor (HEPA) filter cartridges will afford protection to the eyes not available with half-facepiece respirators. As well, in situations where large numbers of spores are released and the area is not well ventilated, a higher level of respiratory protection should be selected and used. For outdoor remediation projects where mould infestation has not breached the inner vapour barrier, the guidelines in Table 1 apply without the requirement for containment when there is good natural ventilation to the outdoors. Note that for situations where the "Extent of Visible and Hidden Mould Growth" is categorized as "Large", openings and intakes into a building should be effectively sealed to prevent mould contamination from remediation activities entering the building. By using the "Extent of Visible and Hidden Mould Growth" criterion, the appropriate Personal Protective Equipment (PPE) for outdoor remediation work can still be determined.

²A health and safety professional with training and experience in conducting mould investigations and developing safe work procedures should be consulted where the "Extent of Visible and Hidden Mould Growth" is classified as "Medium" or "Large." Remediation of mould contamination should be conducted by trained remediation personnel.





II. Outdoor Air Quality:

Air quality is affected by the types and amount of pollutants released into the air, weather conditions like wind speed, precipitation (rain and snow), forest fires, topography, humidity and temperature. The Forest Fire Season in BC usually occurs from late April, early May to the end of September. This may fluctuate from year to year, and it is changing due to climate change.

Mike Flannigan of the University of Alberta stated that “The warmer it is the longer the fire season” and “The warmer it is the more lightning you see”. He stated that for every degree in warming, the number of lightning strikes goes up by about 12% with lightning causing more than 50% of forest fires in Canada. The number and severity of forest fires across Canada is increasing.⁵ This affects both indoor and outdoor workers over multiple health domains. As per the Climate Atlas of Canada:⁶

“the Canadian Forest Service analyzed the findings of almost 50 international studies on climate change and fire risk.

⁵ Wang, X., Parisien, M.A., Taylor, S.W., Candau, J.N., Stralberg, D., Marshall, G. A., Little, J.M., & Flannigan, M.D. (2017). Projected changes in daily fire spread across Canada over the next century. *Environmental Research Letters*, 12(2), 025005. Retrieved February 18, 2020 from <https://doi.org/10.1088/1748-9326/aa5835>

⁶ The Climate Atlas of Canada. Retrieved February 18, 2020 from <https://climateatlas.ca/forest-fires-and-climate-change>

They found that our future looks ‘smoky’ because climate change will worsen the three major factors that influence wildfire: having dry fuel to burn, frequent lightning strikes that start fires, and dry, windy weather that fans the flames. Another recent study by Flannigan and several other scientists predicts that western Canada will see a 50% increase in the number of dry, windy days that let fires start and spread, whereas eastern Canada will see an even more dramatic 200% to 300% increase in this kind of “fire weather.” Other studies predict that fires could burn twice as much average area per year in Canada by the end of the century as has burned in the recent past.”

And as per Climate Atlas of Canada (continued):

“Climate change can also promote forest fires in less direct ways. In BC and Alberta, warming temperatures are enabling the dramatic spread of the mountain pine beetle, which has affected more than 180,000 square kilometres of forest (an area larger than all of Greece). These beetles kill their host trees, and have created vast swaths of standing deadwood which are now huge reservoirs of wildfire fuel. The pine beetle is only one of many damaging forest pests that are likely to spread thanks to warmer winters caused by climate change.”⁷

As per Wang et al. (2017):⁸

“Our results suggest that climate change over the next century may have significant impacts on fire spread days in almost all parts of Canada's forested landmass; the number of fire spread days could experience a 2-to-3-fold increase under a high CO₂ forcing scenario in eastern Canada, and a more than 50% increase in western Canada, where the fire potential is already high.

Our results also indicate an increase in the frequency of seasons with a large number of spread days (more extreme extremes); further exploration of the influence of extreme events constitutes a future research question of great interest.”

⁷ The Climate Atlas of Canada. Retrieved February 18, 2020 from <https://climateatlas.ca/forest-fires-and-climate-change>

⁸ Wang, X., Parisien, M.A., Taylor, S.W., Candau, J.N., Stralberg, D., Marshall, G. A., Little, J.M., & Flannigan, M.D. (2017). Projected changes in daily fire spread across Canada over the next century. *Environmental Research Letters*, 12(2), 025005. Retrieved February 18, 2020 from <https://doi.org/10.1088/1748-9326/aa5835>

Forest fires are becoming a much greater air quality concern in BC. A state of emergency was declared in both 2017 and 2018 when there were two record setting years for forest fires.

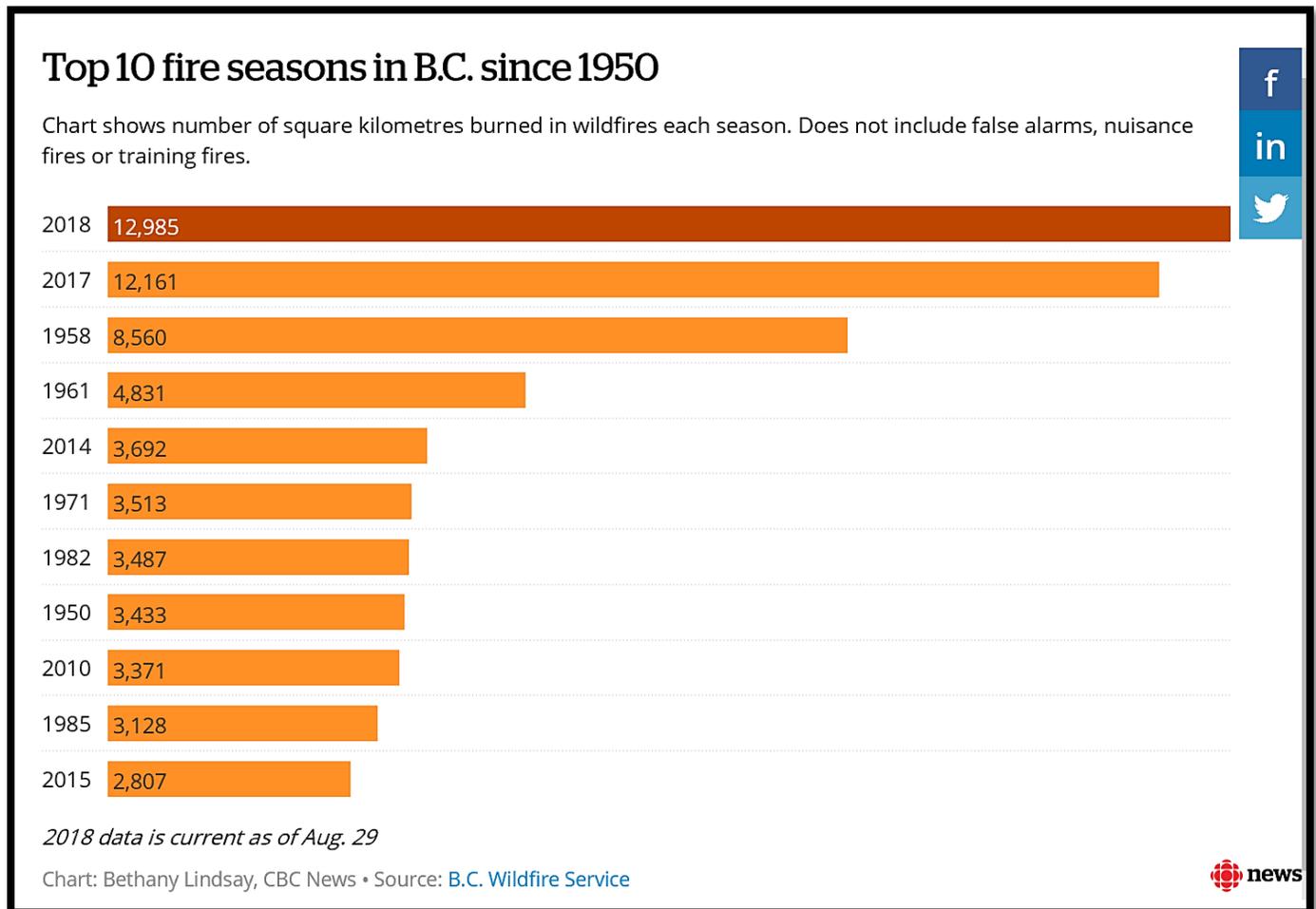
Mia Rabson, Global News January 07, 2020 stated that “Climate change driving up the risk of wildfires in Canada: fore experts, in 2017, 1.22 million hectares were burned in BC. In 2018, 1.35 million hectares were burned.

This is significant for persons with pre-existing conditions and during pandemics. As per Dr. Michael Metha, professor at Thompson Rivers University, in communities with higher air pollution, the mortality rate doubled for diseases such as SARS.

The BC Ministry of Environment and Climate Change Strategy stated on March 26, 2020 that “Deterioration in air quality may lead to more COVID-19 infections overall”.

Station	Maximum AQHI Forecast*			
	Current	Today	Tonight	Tomorrow
Castlegar Aug. 22, 2018, 09:00am PDT	VERY HIGH 10+	VERY HIGH 10+	VERY HIGH 10+	HIGH 8
Comox Valley Aug. 22, 2018, 09:00am PDT	HIGH 10	VERY HIGH 10+	VERY HIGH 10+	MODERATE 5
Duncan Aug. 22, 2018, 09:00am PDT	HIGH 7	VERY HIGH 10+	VERY HIGH 10+	MODERATE 5
Fort St. John Aug. 22, 2018, 09:00am PDT	VERY HIGH 10+	VERY HIGH 10+	VERY HIGH 10+	VERY HIGH 10+
Fraser Valley (Central) Aug. 22, 2018, 08:00am PDT	HIGH 9	VERY HIGH 10+	VERY HIGH 10+	HIGH 7
Fraser Valley (Eastern) Aug. 22, 2018, 08:00am PDT	VERY HIGH 10+	VERY HIGH 10+	HIGH 10	HIGH 8
Kamloops Aug. 22, 2018, 09:00am PDT	MODERATE 4	MODERATE 6	HIGH 9	VERY HIGH 10+
Metro Vancouver (North East) Aug. 22, 2018, 08:00am PDT	HIGH 8	VERY HIGH 10+	HIGH 10	MODERATE 5
Metro Vancouver (North West) Aug. 22, 2018, 08:00am PDT	MODERATE 5	VERY HIGH 10+	HIGH 10	MODERATE 5
Metro Vancouver (South East) Aug. 22, 2018, 08:00am PDT	HIGH 10	VERY HIGH 10+	HIGH 10	MODERATE 5
Metro Vancouver (South West) Aug. 22, 2018, 08:00am PDT	VERY HIGH 10+	VERY HIGH 10+	HIGH 10	MODERATE 5
Nanaimo / Parksville Aug. 22, 2018, 09:00am PDT	VERY HIGH 10+	VERY HIGH 10+	VERY HIGH 10+	HIGH 7
Okanagan (Central) Aug. 22, 2018, 09:00am PDT	MODERATE 5	VERY HIGH 10+	VERY HIGH 10+	HIGH 7
Okanagan (North) Aug. 22, 2018, 09:00am PDT	MODERATE 6	VERY HIGH 10+	VERY HIGH 10+	HIGH 7

As per CBC News (2018):⁹



The health impacts – physical and mental – over the short term and long term – are also increasing. The statistics from Canada and the US are similar. As per the US Centers for Disease Control and Prevention forest fires have multiple effects on health:¹⁰

“Smoke exposure increases respiratory and cardiovascular hospitalizations; emergency department visits; medication dispensations for asthma, bronchitis, chest pain, chronic obstructive pulmonary disease (commonly known by its acronym, COPD), and respiratory infections; and medical visits for lung illnesses.”

⁹ Lindsay, B. (2018, August 29). 2018 now the worst fire season on record as B.C. extends state of emergency. *CBC News*. Retrieved February 18, 2020 from <https://www.cbc.ca/news/canada/british-columbia/state-emergency-bc-wildfires-1.4803546>

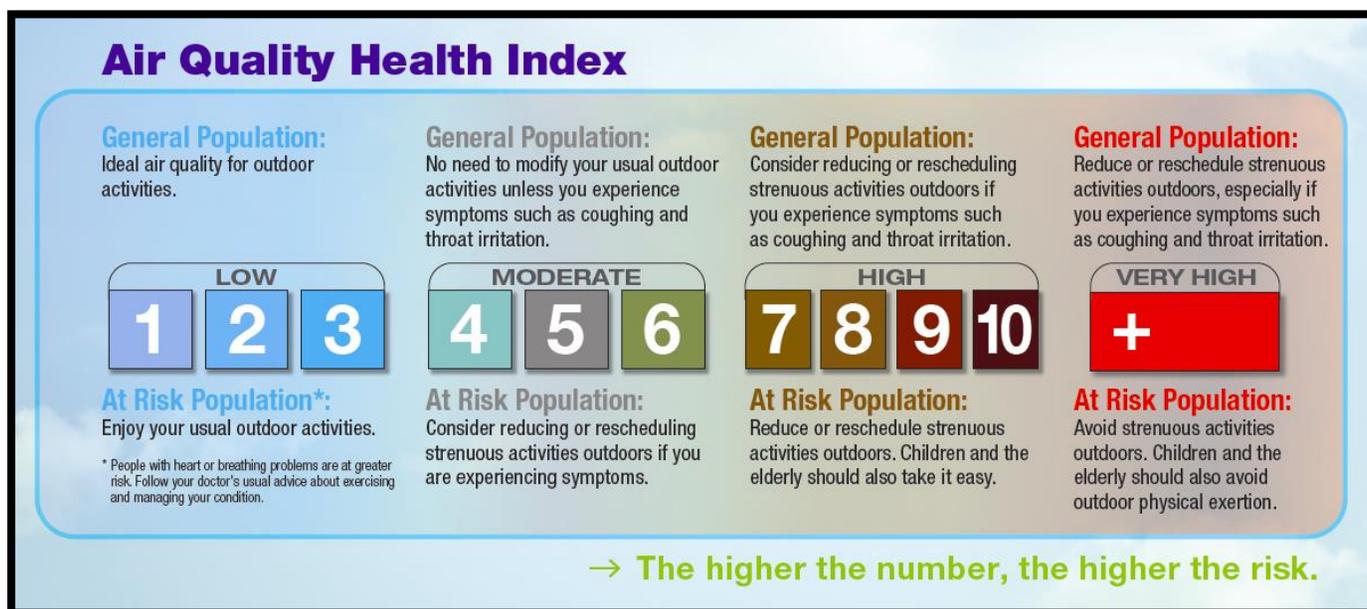
¹⁰ Centers for Disease Control and Prevention. Wildfires. Retrieved February 18, 2020 from <https://www.cdc.gov/climateandhealth/effects/wildfires.htm>

And, as per Yao (2019)(continued):

“The findings show that ambulance calls for heart and lung conditions increased within one hour of exposure to smoke, while calls for diabetic conditions increased after 254 hours.”

This is in addition to mental health impacts as per CBC News, the University of Alberta and the Kamloops Canadian Mental Health Association (“CMHA”).¹¹ The traditional view was that workers would only be exposed to hazardous levels of smoke after extended durations e.g. days or weeks. This is incorrect. Hazardous exposures can occur after a few hours. Where workers are chronically exposed to forest fire smoke, even for short durations, there may be significant health impacts. CUPE members in multiple Sectors and occupations may be affected – not just firefighters, Paramedics, municipal workers, etc.

Many different indexes have been created for poor air quality. Information on the Forest Fire (“Wildfire”) Season can be found on the Government of British Columbia site – Public Safety & Emergency Services – Wildfire Service at <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/wildfire-situation> For example, here are three sample advisories from health boards and the provincial government as well as a general alert:



¹¹ Henning, C. (2018, August 21). How smokey skies from wildfires are affecting British Columbians’ mental health. *CBC News*. Retrieved February 21, 2020 from <https://www.cbc.ca/news/canada/british-columbia/forest-fires-smoke-mental-health-1.4792195>

Health Risk	Air Quality Health Index	Health Messages	
		At Risk Population*	General Population
Low Risk	1-3	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
Moderate Risk	4-6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High Risk	7-10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High Risk	Above 10	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.



MEDIA RELEASE

For Immediate Release - Attention Editor

SMOKY SKIES BULLETIN AMENDED TO INCLUDE EAST VANCOUVER ISLAND, INLAND VANCOUVER ISLAND, WEST VANCOUVER ISLAND, NORTH VANCOUVER ISLAND, SOUTHERN GULF ISLANDS, GREATER VICTORIA

(August 4, 2017 - Nanaimo) The Ministry of Environment and Climate Change Strategy, in collaboration with Island Health, has amended the area covered by the Smoky Skies Bulletin that was last updated on August 1, 2017 due to changing smoke conditions.

Areas now covered by this Bulletin include: East Vancouver Island, Inland Vancouver Island, West Vancouver Island, North Vancouver Island, Southern Gulf Islands, and Greater Victoria. Outflow winds from the interior of BC continue to carry smoke from active wildfires in the area towards the coast. Smoke concentrations will vary widely as winds, fire behaviour and temperatures change.

Exposure to increased smoke concentrations is particularly a concern for infants, the elderly and those who have underlying medical conditions such as heart or lung disease. Those at risk should avoid strenuous activities and prolonged exposure to smoke. Individuals, who experience any of the following symptoms, should contact their health care provider: difficulty in breathing, chest pain or discomfort, and sudden onset of cough or irritation of airways.

Should symptoms develop (such as an irritated throat or cough) individuals may wish to consider limiting their activity and exposure. Residents can stay informed of air quality and the air quality health index for their area by visiting <http://www2.gov.bc.ca/gov/content/environment/air-land-water/air>

Tips to reduce your personal health risk:

- People with heart or lung conditions may be more sensitive to the effects of smoke and should watch for any change in symptoms that may be due to smoke exposure. If any symptoms are noted, affected individuals should take steps to reduce their exposure to smoke and if necessary see their physician. People with symptoms



II.I. What are **outdoor** air contaminants:

Examples of common outdoor air contaminants include:

- Carbon dioxide (CO₂)
- Tobacco smoke
- Smog
- Ozone
- Smoke from forest fires
- Dust
- Pollen
- Mould
- Road dust
- Construction
- Agricultural products e.g. pesticides
- Asbestos
- Silica
- Lead
- Asphalt
- Petrochemical products

Effects of Common Air Pollutants

RESPIRATORY EFFECTS



Symptoms:

- Cough
- Phlegm
- Chest tightness
- Whooping
- Shortness of breath

Increased sickness and premature death from:

- Asthma
- Bronchitis (acute or chronic)
- Emphysema
- Pneumonia

Development of new disease

- Chronic bronchitis
- Premature aging of the lungs

CARDIOVASCULAR EFFECTS



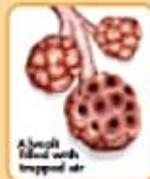
Symptoms:

- Chest tightness
- Chest pain (angina)
- Palpitations
- Shortness of breath
- Unusual fatigue

Increased sickness and premature death from:

- Coronary artery disease
- Abnormal heart rhythms
- Compensated heart failure

How Pollutants Cause Symptoms



Airways filled with trapped air

Effects on Lung Function

- Narrowing of airways (bronchoconstriction)
- Decreased air flow

Airway Inflammation

- Influx of white blood cells
- Abnormal mucus production
- Fluid accumulation and swelling (edema)
- Death and shedding of cells that line airways



Airway lining is swollen

Increased Susceptibility to Respiratory Infection



Normal



Lung with respiratory infection

How Pollutants May Cause Symptoms

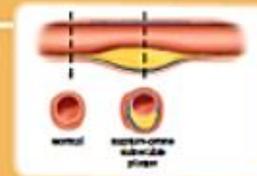


Effects on Cardiovascular Function

- Low aggregation of red blood cells
- Abnormal heart rhythms
- Altered autonomic nervous system control of the heart

Vascular Inflammation

- Increased risk of blood clot formation
- Narrowing of vessels (vasoconstriction)
- Increased risk of atherosclerosis, plaque rupture



normal

artery-one narrowed by plaque

ASQ Reduce your risk by using the Air Quality Index (AQI) to plan outdoor activities – www.airnow.gov

AQI Levels of Health Concern	AQI Values	What Action Should People Take?
Good	0-50	Enjoy Activities
Moderate	51-100	People unusually sensitive to air pollution: Plan strenuous outdoor activities when air quality is better
Unhealthy for Sensitive Groups	101-150	Sensitive Groups: Cut back or reschedule strenuous outdoor activities People with heart or lung disease including asthma, children, and older people People with lung disease including chronic bronchitis and emphysema People with asthma and children with asthma People with heart disease and people with asthma
Unhealthy	151-200	Everyone: Cut back or reschedule strenuous outdoor activities Sensitive groups: Avoid strenuous outdoor activities
Very Unhealthy	201-300	Everyone: Significantly cut back on outdoor physical activities Sensitive groups: Avoid all outdoor physical activities





Particle Pollution and Your Patients' Health

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Particulate Pollution
Course Home

Learn About the Course

What is Particle Pollution?

Particle Pollution Exposure

Cardiovascular Effects

Respiratory Effects

Particle Exposure & the Air

Patient Exposure and the Air Quality Index

On this page:

- [Should I recommend that my patients reduce their exposure to particle pollution?](#)
- [What is the Air Quality Index \(AQI\)?](#)
- [Where can I find daily air quality reports?](#)
- [What can I advise my patients to do when air quality is unhealthy?](#)

Air Quality Index	Who Needs to be Concerned?	What Should I Do?
Good 0-50	It's a great day to be active outside.	
Moderate 51-100	Some people who may be unusually sensitive to particle pollution.	Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier. Everyone else: It's a good day to be active outside.
Unhealthy for Sensitive Groups 101-150	Sensitive groups include people with heart or lung disease, older adults, children and teenagers.	Sensitive groups: Reduce prolonged or heavy exertion. It's OK to be active outside, but take more breaks and do less intense activities. Watch for symptoms such as coughing or shortness of breath. People with asthma should follow their asthma action plans and keep quick relief medicine handy. If you have heart disease: Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider.
Unhealthy 151 to 200	Everyone	Sensitive groups: Avoid prolonged or heavy exertion. Move activities indoors or reschedule to a time when the air quality is better. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during all outdoor activities.
Very Unhealthy 201-300	Everyone	Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better.
Hazardous 301-500	Everyone	Everyone: Avoid all physical activity outdoors. Sensitive groups: Remain indoors and keep activity levels low. Follow tips for keeping particle levels low indoors.



II.II. What do the Act, OHS Regulations, Guidelines and Policy say about [outside](#) air quality and hazardous substances exposure. The following are examples (not an exhaustive list and subject to change or amendment):

The OHS Regulations do not DIRECTLY address outside air, only inside air quality. Many of the law and policy items in Section I (I.IV) above apply to outdoor air quality. Also see Appendix H – WorkSafeBC Forest Fire Advisory.

- Definitions Part 1.1 of the OHS Regulations
- General Conditions Part 4
- Reporting Unsafe Condition Part 3.10

- Right to Refuse Part 3.12
- Chemical Agents and Biological Agents Part 5
- Exposure Control Plans
- Risk Assessments
- Personal Protective Equipment Part 8

As stated in Section I.IV above, many of the components of a health and safety program for Indoor air quality issues also apply to outdoor air quality exposure:

A respiratory protection program includes the following components:

- hazard identification
- hazard control
- exposure assessment
- respirator selection
- respirator fit-testing
- training program
- inspection and record keeping
- cleaning and sanitizing respirators (see Appendix K as well)
- repairing and maintaining respirators (see Appendix K as well)
- proper storage of respirators (see Appendix K as well)
- health surveillance
- policies and procedures
- program evaluation

Report a workplace injury or disease

- How workers report
- How employers report ▶
- How health care providers report
- Reporting serious incidents and fatalities
- Critical incident response
- Claims in special circumstances ▶

Report a workplace injury or disease

When someone suffers a work-related injury or disease, we're here to help. We understand it can be a stressful time, and we offer support through each step of the claims process, from the initial report of the injury through to the worker's recovery and return to usual work duties.

If you are a

Worker	Call Teleclaim @ 1-888-WORKERS (1.888.967.5377)
Employer	Submit an employer's report
Health care provider	Submit a physician's report or a provider-specific report

What to report

Please contact us as soon as possible if a worker:

- Is taken from or leaves the jobsite for treatment at a medical facility
- Misses time from work after the day of the injury
- Loses consciousness
- Is diagnosed with a work-related disease
- Develops symptoms of a mental health disorder related to work or the work environment
- Suffers broken eyeglasses, dentures, hearing aid or artificial limb due to a work-related incident

Employers must also immediately [report serious incidents and fatalities](#) to us by calling the [Prevention Information Line](#). This is in addition to reporting an injury related to a claim.

The claims process

When there's been a work-related injury or illness, workers can help speed their recovery by staying at work and doing modified duties where possible. Medical literature shows that staying at work is one of the most important factors for overall health.

We have a basic process for most claims. These are the steps for workers:

C. Filing a WCB Claim (See the previous section on key RSCM Policies and sample WCAT decisions):

What should I do if I have been injured at work - General information which applies to all types of claims:

The *Workers Compensation Act* states that the WCB must be notified in the case of a worker's death or a serious injury.

There are other considerations that may trigger a claim. These include the following (non-exhaustively):

- A first aid attendant recommends a worker seek medical treatment
- The injury requires medical treatment
- The worker receives medical treatment for the injury
- The worker is unable to return to work beyond the day of the injury
- The injury or accident results, or is claimed to result, in the breakage of an artificial member, eyeglasses, dentures or a hearing aid
- The employee or WCB has requested that an Employer's report be sent

The WCB also requires immediate notification of:

- A major failure or collapse of a structure, equipment, construction support system or excavation
- A major release of a hazardous material
- Other serious mishap, such as multiple employees requiring first aid treatment

Report all serious incidents to the WCB Prevention emergency line:

- Lower Mainland: 604 276-3301
- Toll-free: 1 888 621-7233

Report fatalities/serious injuries immediately to:

- The police / RCMP – whichever is applicable
- The Employer and the supervisor

- The Union (Local) President
- The JHSC
- WCB’s Prevention Emergency Line:
 - Lower Mainland: 604 276-3301
 - Toll-free: 1 888 621-7233

Important Points to Remember:

- **Advise** the Employer immediately – verbally and in writing, that an injury or condition occurred, even if it occurred over a period of time.
- **Fill** out the Incident / Accident Report (or log) the same day. Include witness reports, even if it was an injury that occurred over time.
- **Seek** medical attention the same day. See the physician within 24 hours, even if it is a Clinic or Hospital (as required due to the injury). The physician should file a Form 8 / 11. Ensure a copy of the Form 6, Incident / Accident Report, Job Description and any other materials describing what happened to the physician for review PRIOR to the physician filling of and filing of the Form 8 / 11. Read the CUPE Form 8 / 11 Guide.
- **Give** a copy of the Job Description, Incident / Accident Report and WCB Form e.g. Form 6, to the physician.
- **Know** the WCB claim process and rights – visit the WCB website and be aware of the “Teleclaim” process for new WCB claims.

See <https://www.worksafebc.com/en/contact-us/departments-and-services/claims>

- **Have** all the forms, reports, chronology of accident details, etc during discussions with WCB.
- **Review** and correct any Teleclaim comments made in the WCB claim file.

- **Keep** an updated diary of the WCB claim, even after the return to work or the injury appears to have resolved in part or totally.
- **Make** sure the Employer's report of injury (Form 7) is filled out correctly, obtain a copy and that the JHSC is involved at all stages of the claim process, including the return to work process.

What are the specific steps that workers need to follow for a WCB claim:

Step 1

Obtain medical care immediately if required. Where the exposures occurred gradually or over a long period of time, report the exposure to the physician. The WCB primarily looks at the duration of exposure and the concentration when adjudicating air quality exposure claims. Even, where an injury or exposure occurred gradually or over a long period of time, report the exposure to the physician.

Step 2

Even if First Aid or immediate medical attention is not required, report the condition, illness, or any exposure (even if no symptoms are present) to the Employer immediately.

- You should report all exposures, accidents or incidents to the Employer immediately.
- Please give a detailed explanation to supervisors and the Union representative (e.g. Shop Steward or OH&S Committee member), as soon as possible. All information must be consistent. Keep a diary of all details, calls, meetings, events, etc.

Step 3

Report the Injury to the WCB, in writing and via Teleclaim, and the physician within 24 hours.

The link to the WCB Form 6 (as opposed to the internal Employer Form 6A which does NOT initiate a claim) is as follows:

http://www.worksafebc.com/claims/report_injury/default.asp

Or,

1 888 WORKERS (1 888 967-5377), or #5377 for Telus, Rogers, and Bell mobility customers.

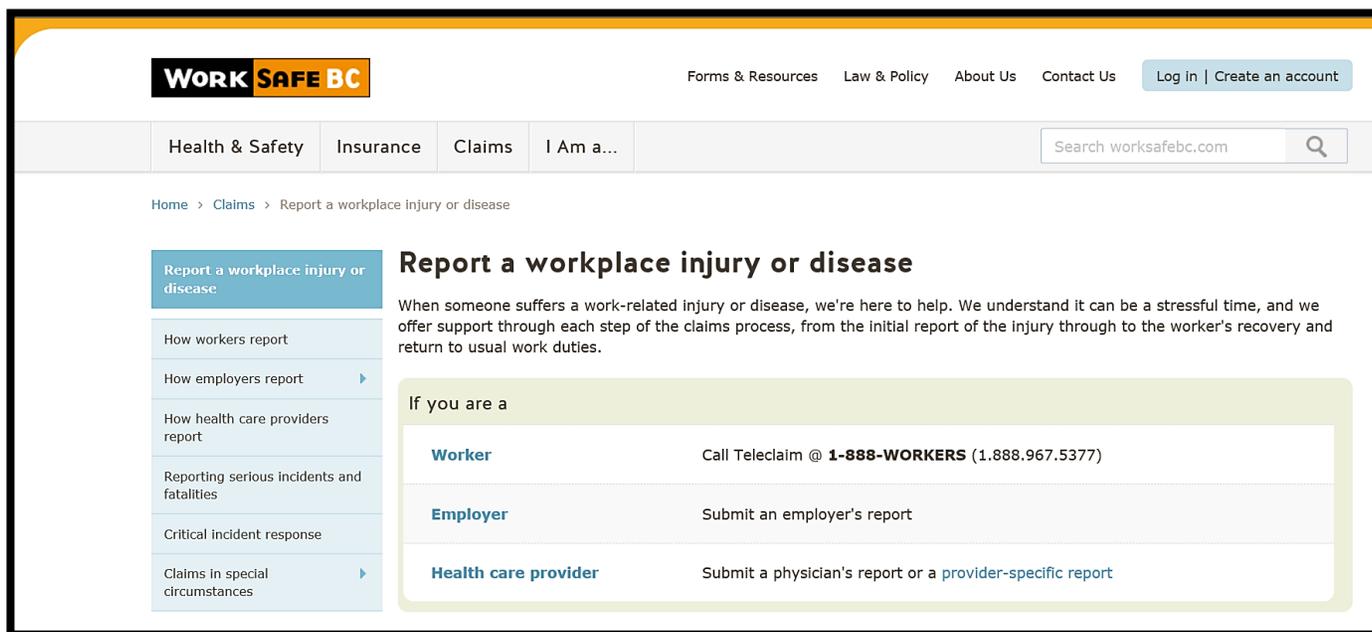


Table 1: Sources, Health and Welfare Effects for Criteria Pollutants				
Pollutant	Description	Sources	Health Effects	Welfare Effects
Carbon Monoxide (CO)	Colorless, odorless gas	Motor vehicle exhaust, indoor sources include kerosene or wood burning stoves.	Headaches, reduced mental alertness, heart attack, cardiovascular diseases, impaired fetal development, death.	Contribute to the formation of smog.
Sulfur Dioxide (SO ₂)	Colorless gas that dissolves in water vapor to form acid, and interact with other gases and particles in the air.	Coal-fired power plants, petroleum refineries, manufacture of sulfuric acid and smelting of ores containing sulfur.	Eye irritation, wheezing, chest tightness, shortness of breath, lung damage.	Contribute to the formation of acid rain, visibility impairment, plant and water damage, aesthetic damage.
Nitrogen Dioxide (NO ₂)	Reddish brown, highly reactive gas.	Motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels.	Susceptibility to respiratory infections, irritation of the lung and respiratory symptoms (e.g., cough, chest pain, difficulty breathing).	Contribute to the formation of smog, acid rain, water quality deterioration, global warming, and visibility impairment.
Ozone (O ₃)	Gaseous pollutant when it is formed in the troposphere.	Vehicle exhaust and certain other fumes. Formed from other air pollutants in the presence of sunlight.	Eye and throat irritation, coughing, respiratory tract problems, asthma, lung damage.	Plant and ecosystem damage.
Lead (Pb)	Metallic element	Metal refineries, lead smelters, battery manufacturers, iron and steel producers.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ.	Affects animals and plants, affects aquatic ecosystems.
Particulate Matter (PM)	Very small particles of soot, dust, or other matter, including tiny droplets of liquids.	Diesel engines, power plants, industries, windblown dust, wood stoves.	Eye irritation, asthma, bronchitis, lung damage, cancer, heavy metal poisoning, cardiovascular effects.	Visibility impairment, atmospheric deposition, aesthetic damage.

Can the Union assist me with the completion of the WCB Forms e.g. Form 6:

If workers need assistance, contact the Local or contact the CUPE BC Regional Office via the Local President and National Representative.

Not all CUPE Locals provide WCB assistance. WCB assistance is not required under the BC Labour Relations Code.

Workers may also call the BC Workers' Advisers Office, as per the contact information located later in this Guide.

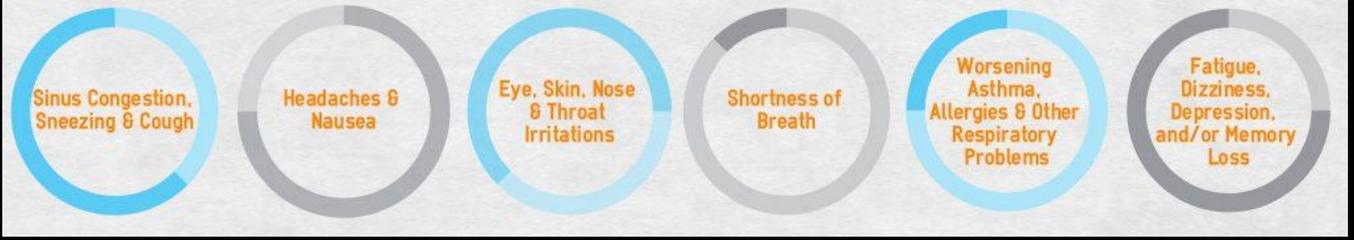
The most important WCB document is the Form 6 - accuracy and consistency are critical. Include details of the following in this Form, the Employer's Form 7 and the Form 8 / 11:

- When did the injury or exposure occur?
- What was the duration of symptoms? Note there may be multiple body areas or initial symptoms that mask other symptoms due to severity at the time.
- What was the duration of the event, accident or incident?
- What were the symptoms that were initially experienced? What about later?
- What medications were being used for self-treatment?
- What equipment was used prior to, during and after the injury?
- Was anything broken, missing or out of the ordinary?
- Were there changes in staffing or staff shortages?
- Did anything unusual, unaccustomed, or out of the ordinary occur?
- Were there changes to the job or jobs if there were multiple employments?
- Where there changes in the way work was done or work procedures?
- Are there any similar claims/injuries other people experienced for filed?
- OHS issues that directly relate to the claim, but NOT labour relations issues?
- Were there witnesses to the incident / accident?

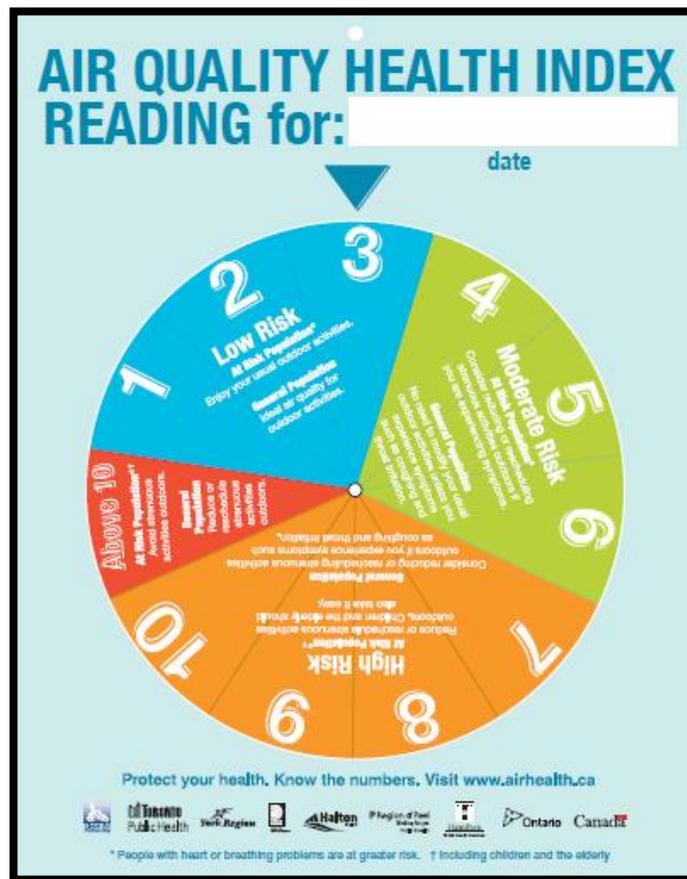
HEALTH SYMPTOMS OF INDOOR AIR POLLUTION

Indoor air pollution may be the source of a wide variety of health related issues for building occupants. These issues can range from minor allergy symptoms to more serious, even life-threatening illnesses.

Are you feeling ill within your home or workplace and can't find the source of your symptoms?



Remember – always keep a copy of the Form 6 for the physician to review and for the Teleclaim call.



Points to remember when dealing with either the Employer or the WCB on a Claim:

- It is the worker's right to file a WCB claim. Claims suppression and discriminatory action is prohibited by WorkSafeBC Policy and the OHS Regulations
- Advise the Employer of any injury or the possible onset of a work-related disease/condition. If workers feel they are able to continue working, then they still should keep detailed records of the incident, document the names of any witnesses and any conversations, if the worker was working in pain or other symptoms, performing limited duties, had people helping, or if the worker left work early
- Even if the worker is told by the Employer that they will be provided light duty work, a WCB claim should still be filed and the relevant Incident / Accident Reports filed. WCB claims are often denied because of either late reporting to the Employer or the WCB or not seeing a physician the same day
- The WCB requires that the injury or condition occur "out of and in the course of employment" – these are key tests
- The work activity need not be the only cause or the primary cause
- There is no requirement in law or Policy that work be the only causative factor or the most significant causative factor
- A pre-existing condition might be aggravated by the work duties and still be acceptable

How to report an injury

Teleclaim (recommended if you've missed work)	1-888-WORKERS (1.888.967.5377) See the information you'll need to make your report.
With an account	Log on or create an account ▶
Without an account	Report without creating an account
Form (fax or mail)	Use Application for Compensation and Report of Injury or Occupational Disease (Form 6)

Examples of what the WCB might allow if the WCB claim is accepted, in addition to wage loss and treatment:

- Specialized medical testing, Functional Capacity Evaluations, and diagnostic testing such as MRIs
- Wheelchairs, canes, special shoes, hearing aids, dentures, artificial limbs, etc
- Most prescription drugs
- Modification of the workplace
- Return to work programs
- Vocational rehabilitation
- Travel costs for treatment

	MAJOR SOURCES	HEALTH EFFECTS
SO₂	Industry	Respiratory and cardiovascular illness
NO_x	Vehicles; industry	Respiratory and cardiovascular illness
PM	Vehicles; industry	Particles penetrate deep into lungs and can enter bloodstream
CO	Vehicles	Headaches and fatigue, especially in people with weak cardiovascular health
Lead	Vehicles (burning leaded gasoline)	Accumulates in bloodstream over time; damages nervous system
Ozone	Formed from reaction of NO _x and VOCs	Respiratory illness
VOCs	Vehicles; industrial processes	Eye and skin irritation; nausea; headaches; carcinogenic

What does the WCB look for when investigating a claim?

- Same day reporting to the WCB, the Employer, the physician and same day filing of the First Aid / Accident / Incident Reports
- Concentration and duration of exposure – this is very important for air quality exposure claims
- Consistency of information reported to and by the physician, the worker, the Employer and the Accident / Incident reports. The WCB will check for consistency of all information during telephone calls such as during Teleclaim
- Words such as “maybe,” “probably,” “might have,” “could have,” etc should not be used by physicians on the claimant on any Form, letter or report
- Continuity of medical treatment (first aid, medication, self-directed treatment)
- Continuity of complaints or symptoms determines the duration of WCB compensation in many cases
- Evidence of non-work causation should be avoided. Was it work related and to what degree?
- Was there evidence of something unusual, out of the ordinary or unaccustomed?
- Employers who protest or object to the claim
- Witnesses
- Gaps in the continuity of symptoms
- Late onset of symptoms

What to tell the health care professional/physician:

- The physician cannot act as an advocate – they must remain neutral and ideally rely upon as much objective medical evidence as possible
- Please give the CUPE Form 8/11 Guide and the Medical Evidence Guide to the physician for review
- The physician can rely upon subjective complaints but should normally base their opinions on objective medical evidence and Chart Notes / Clinical Notes
- The physician should read the Job Description, copy of the Accident / Incident Report, Form 6, and injury details to ensure they are consistent in reporting to the WCB in the Form 8 / 11 (Physician’s Report)
- Report all symptoms, in all parts of the body, and the duration and ensure these are reflected in the Form 6 (Worker report) and Form 7 (Employer report) as well
- Provide copies of all relevant documents, on an ongoing basis, to the physicians

Do I need to get witnesses?

Ask witnesses to the accident/incident to write down what they saw. They should include the time and date on their statement, and they should also sign it. In many situations, the onus is on the injured worker to prove that the injury “arose out of and in the course of the employment.”

Advise the Employer, the attending physician and other practitioners, as well as witnesses about the symptoms, pain, etc, but not the diagnoses – privacy is important.

What can I do while I’m off work waiting for my claim to be approved? What if no sick leave is available?

- consider applying for EI / UI sick benefits
- consider applying for LTD
- check the Collective Agreement for other benefits

- apply for CPP benefits
- cooperate with the Employer in Duty to Accommodate investigations and processes
- visit the health care professional on a regular basis

Do I need to report anything else to the WCB after the Form 6 and Teleclaim are completed?

Report any changes in income, secondary employment, overtime, per diems, return to work status, changes in medical conditions or changes in contact information, etc to the WCB immediately.

What if I don't co-operate or my Employer does not co-operate?

The WCB Regulations set out a duty to cooperate for both workers and the Employer. Otherwise a claim may be terminated or rejected if this does not occur.

What else can I do?

- Keep a diary of all communications, correspondence, appointments, and actions have regarding the claim i.e. telephone conversation with the Employer, WCB or the Union.
- When speaking to the WCB representatives remain calm. The WCB documents all telephone calls you have with them on a continuous basis for the duration of the claim.
- Keep a copy of all correspondence regarding the injury, including prescriptions, health care professionals' notes, forms and letters. A copy should also be given to the Union representative. If you have verbal contact with the WCB, make detailed notes of what both parties said.
- Cooperate in health care treatment.
- Cooperate in safe return to work.
- Complete and return all WCB forms promptly.
- Copy the Union on all documents as required.

- ☑ Copy the physician or other practitioner e.g. chiropractor, on all correspondence from the WCB.
- ☑ Appeal any WCB decisions within the time required. If the claim is denied, appeal it immediately.

What if the Employer is objecting to (“protesting”) the claim? The Employer has a consultant fighting my claim.

Employers may or may not have Human Resources personnel who assist Employers in the filing of claims, review claims, and, in certain cases, protesting claims. Employers are legally allowed to protest a WCB claim, or, in certain limited cases ask the WCB for a review or a re-opening of the claim. An Employer may contract these services to a consultant.

The mandate of these consultants varies widely. Some assist Employers in WCB claims, while others assist Employers and employees with Return to Work Programs, Job Demands Analysis, Functional Capacity Evaluations, obtaining diagnostics such as MRIs, reducing administration costs, claims costs recovery, claims management, scrutinizing claims that go beyond 10 weeks duration, training, or even Occupational Health and Safety program review.

The primary emphasis of the WCB, and many Employers, is to return injured workers to work as soon as possible.

If the Employer is protesting a claim, participating in a WCB appeal, has asked for Cost Relief from the WCB, has asked for a claim to be re-opened, or is utilizing a consultant, contact the Union immediately. Do not sign any Releases or Forms from the Employer or a consultant until you have spoken with the Union. Any Releases, Forms or documents given to you by the Employer or a consultant should be forwarded to the Union for review immediately. Some Employers or consultants attempt to get permission to speak with physicians; this should not be given.

Occasionally, consultants, as well as the WCB, conduct (or contract to be conducted) video surveillance in order to gather evidence that confirms the presence or lack of disability. These videos and attendant reports often become the basis for protesting claims and appeals.



For more information go to the WCB Field Investigations Department at:

<https://www.worksafebc.com/en/contact-us/departments-and-services/field-investigations>

WORKSAFEBC PRACTICE DIRECTIVE # C12-7

TOPIC: Surveillance and Other Evidence

ISSUE DATE: May 2, 2007, Amended March 16, 2011



What if the WCB claim or appeal is denied?

There are strict time limits for appeals, so immediate action is usually required.

Here are some (not an exhaustive list and not legal advice) actions that may need to occur:

1. Workers – including Unionized workers - have the option of obtaining free, expert assistance from the BC Workers' Advisors Office. The BC Workers Advisors Office email and contact information are:

<http://www.labour.gov.bc.ca/wab/>

Vancouver/Lower Mainland
500 - 8100 Granville Avenue
Richmond, BC V6Y 3T6
Tel: 604 713-0360
Fax: 604 713-0311
Toll Free: 1 800 663-4261

2. Workers may also hire their own lawyer at their own cost. Fees range widely. CUPE (BC Region) does not have WCB lawyers - any assistance is volunteer ONLY.
3. Any lay volunteer CUPE assistance, advocacy or representation (each are a different term), might only occur after the standard Releases are signed and returned to the Union, as well as copies to the CUPE BC Regional Office.

Copies of all Forms and Releases are available from the CUPE BC Regional Office.

4. CUPE members should obtain documents which will assist with the process.

These include:

- a. Form 6 Guide – used at the WCB Claim Filing Stage
- b. Form 8/11 Guide - used at the WCB Claim Filing Stage
- c. "How to File a WorkSafeBC Claim and Return to Work Safely" – used at the

WCB Claim Filing Stage, Appeal Stage, Return to Work Stage

- d. WCAT Medical Evidence Guide for the physician – used at the WCB Claim Filing Stage, Appeal Stage
- e. "Permanent Functional Impairment Pension/Disability Award Decision Review Checklist" – used at the WCB Pensions Stage, Long Term Claims, Appeal Stage

These and other documents are available on the CUPE BC OHS Committee website. See https://www.cupe.bc.ca/occupational_health_and_safety_committee
Note that the names of these may change as they are updated.

- 5. Make sure all time lines, due dates, appeal due dates, are adhered to.
- 6. Mark any of these dates into the calendar and into a diary or log.
- 7. File the appeal paperwork as soon as possible. Should the Union review documents?
- 8. Ask the WCB for Disclosure of the WCB file.
Note: Forms change frequently so check to ensure this is the most current version.
<http://www.worksafebc.com/forms/>
Form 25M13
- 9. Copy the Disclosure and any other documents as required for Advocates and others.
- 10. NEVER assume the Union or the person assisting has a document being referred to. The WCB or the appeal tribunals often do not copy other persons on correspondence.
- 11. Provide a copy of the WCB decision being appealed or have concerns about to the physician(s) for review in case they are needed for support as NON-ADVOCATES in the appeal process, including comprehensive written opinions.
- 12. Provide a copy of the Job Description and Job Duties to the physicians.

13. Provide a copy of the WCB decision and any other correspondence from the WCB attached to that decision to the Union's attention as soon as possible.
14. Review the WCB claim file "portal" frequently using the Personal Access Number and ID/PIN to be aware of any developments or decisions on the claim.
15. Not all WCB decisions are in writing, some are verbal. Both may need to be appealed.
16. Advise the Union Occupational Health and Safety Committee or Worker Representative or Union Executive/Shop Steward as to what has transpired.
17. Keep a detailed record of all actions, calls, receipts, treatment, etc.

What about a Return To Work ("RTW") Program?

There are many different types of Return To Work Programs (RTW). Some are through the WCB, others are through the Employer or are part of the Duty to Accommodate process. Insurance companies may also have an RTW, where a person returning from Long Term Disability may need assistance. Each is unique. This Guide will only address the WCB RTW and Vocational Rehabilitation process. **Make sure the OHS issues giving rise to the claim are addressed prior to returning to work. Involve the JHSC.**

As per the WCB:

"Return to Work Support Services are designed for the injured worker who does not require a structured treatment program but would benefit from a supported return to work.

Return to Work Support Services may be performed by a physiotherapist, an occupational therapist, or a kinesiologist experienced in the performance of return to work services and job-site visits. The goal of RTW SS is to return injured workers to their pre-injury duties at the work place. Return to Work Support Services provides many supports, such as:

- Job site visit (JSV)
- Graduated Return to Work (GRTW) Planning

- Graduated Return to Work (GRTW) Monitoring
- Job Demands Analysis (JDA)

Description of services:

Job Site Visit: The JSV may include any of the following:

- Brief review of work tasks;
- Confirmation of the worker's critical job demands;
- Exploration of simple job modifications and return to work options;
- Consultation with relevant stakeholders to establish an appropriate return to work plan; or
- Ongoing support of the graduated return to work plan, including job coaching.

Graduated Return to Work Plan:

The GRTW Plan is developed with the participation of the injured worker, the Employer, the attending physician, the WorkSafeBC officer and other relevant stakeholders. It will contain specific hours, duties and a defined end date.

A Graduated Return to Work Monitoring service ensures that a Graduated Return to Work Plan is fully implemented with appropriate support provided as needed. Graduated Return to Work Monitoring provides a minimum of weekly communication with all of the relevant stakeholders and revision of the Graduated Return to Work Plan if warranted.

A Job Demand Analysis is a detailed quantitative and qualitative assessment of the physical demands, environmental and psychosocial stressors associated with a particular job. The JDA will provide quantification of work-place demands including frequency of activities, weights, heights and distances.

Admission criteria:

The program is designed for workers who do not require a structured treatment program but require supported return to work. It is possible that the worker could be receiving physiotherapy or hand therapy in conjunction with Return to Work Services.

The program is not appropriate for workers participating in a WorkSafeBC-sponsored rehabilitation program (excluding the Hand Therapy Program).

Length of service:

GRTW plans are generally four to six weeks in duration.

Workers are referred for Return to Work Support Services by a WorkSafeBC officer, usually following recommendations received from various health care providers.”

See:

<https://www.worksafebc.com/en/health-care-providers/rehabilitation/return-work-support>

Lastly, a successful return-to-work program requires options available at the workplace that enable an injured worker to safely return to work in a timely manner.

- May involve transitional duties or a gradual return-to-work progression
- Are guided by timelines established with a physician, taking the worker's capabilities and medical restrictions into account
- Have an established start and end

Return-to-work tasks:

- Are temporary
- Are meaningful and productive
- Are designed to help return an injured worker to regular full-time duties in a safe and productive manner

- Allow the injured worker to return to the job site for partial days, gradually working up to full-time hours
- Offer graduated hours of transitional or regular duties
- Can combine offsite treatment with transitional or regular duties

WorkSafeBC nurse advisors are available to monitor the progress of the worker and make recommendations to the case manager or entitlement officer regarding the transition to full-time hours, ensuring an effective transition.

See:

http://www.worksafebc.com/claims/rehab_and_rtw/rtw_workers/what_is_a_return-to-work_program/default.asp

If you have a WCB claim that was accepted for Vocational Rehabilitation benefits, see the following WCB site excerpt:

Vocational rehabilitation helps disabled workers get back to work after a compensable injury or the onset of an occupational disease. Services include:

- Vocational assessment and planning
- Counselling
- Work assessment
- Work site job modification
- Job readiness and placement assistance
- Skill development
- Employability assessments

In some cases, the WCB may offer assistance to the surviving dependent spouse of a worker who has died as a result of a compensable injury or occupational disease. The goal of vocational rehabilitation is to help clients return to work in a timely and safe manner.

Quality rehabilitation involves individual vocational assessment, planning, and support that makes the best use of rehabilitation resources and maximizes worker-Employer outcomes.

This is only a small sample of what services are provided. However, whether it is the WCB or the Employer, limitations, restrictions, pain and other considerations must be taken into account. The RTW process is detailed; it may take months or more.

Contact the CUPE BC Regional Office, via the Union, for further information.

Benefits & services

Determining eligibility

Health care benefits

Wage-loss benefits ▶

Vocational rehabilitation ▶

Permanent disability benefits

Services for seriously injured workers

Services for families coping with a work-related death

Services for families coping with a work-related death

Our staff can help those who lose a family member to a work-related accident or occupational disease. We can also help when a family member is dying from a work-related injury or illness. We may be able to offer you counselling, funeral benefits, and pension benefits.

Benefits for families

Who might contact you

Applying for benefits

Benefits for families

We may be able to pay benefits if a worker's death is a result of a workplace accident, occupational disease, or related to a claim we have accepted.

In those cases, the following benefits may be provided:

- Monthly pension benefit for the surviving spouse, based on the worker's earnings. This benefit continues for the spouse's lifetime
- Monthly benefit for a dependent child up to the age of 19. Benefits may continue to age 25 if the child regularly attends post-secondary school
- Funeral benefits
- Grief and vocational counselling for the surviving spouse
- Grief counselling for the dependent children

If a family member is dying of a work-related disease, we may be able to provide medical equipment, home care, and separation and loss counselling.

Applying for benefits

To apply for benefits, please contact our [claims team](#) and ask to speak with our sensitive claims coordinator. He or she will explain the process and answer all your questions.

You will need to provide the following information about your family member:

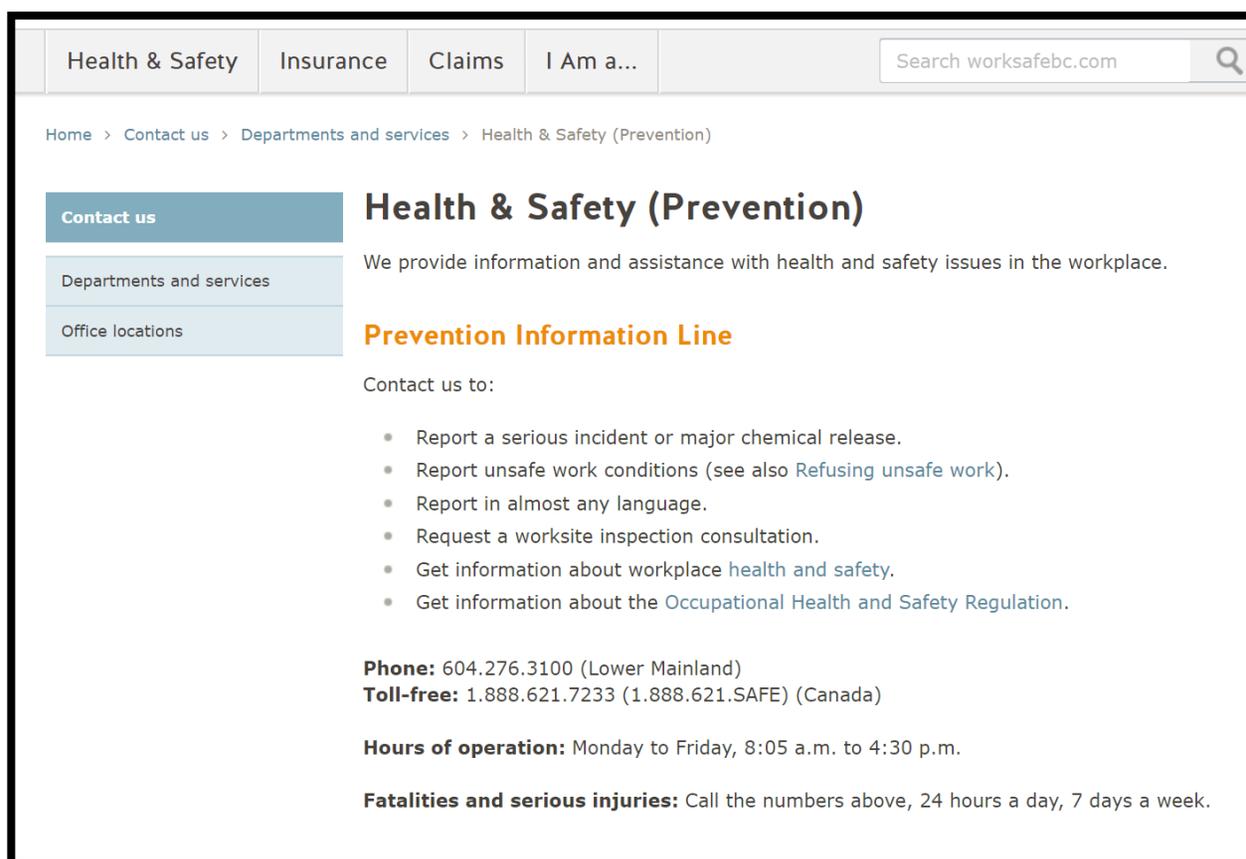
- Full name
- Date of birth
- Date of death
- Social Insurance Number (if available)
- Employer's name

D. Important Contact Information (BC Region):

WorkSafeBC (Prevention):

Email: <http://www.worksafebc.com/>

Telephone: 1-888-WORKERS
604-276-3100
1-888-621-7233



The screenshot shows the WorkSafeBC website interface. At the top, there are navigation tabs for 'Health & Safety', 'Insurance', 'Claims', and 'I Am a...'. A search bar on the right contains the text 'Search worksafebc.com'. Below the navigation, a breadcrumb trail reads 'Home > Contact us > Departments and services > Health & Safety (Prevention)'. On the left side, there is a vertical menu with three items: 'Contact us' (highlighted in a dark blue box), 'Departments and services', and 'Office locations'. The main content area features the heading 'Health & Safety (Prevention)' in a large, bold font. Below this heading, a paragraph states: 'We provide information and assistance with health and safety issues in the workplace.' This is followed by a sub-heading 'Prevention Information Line' in orange. Underneath, the text 'Contact us to:' is followed by a bulleted list of five items: 'Report a serious incident or major chemical release.', 'Report unsafe work conditions (see also Refusing unsafe work).', 'Report in almost any language.', 'Request a worksite inspection consultation.', and 'Get information about workplace health and safety.' The final bullet point is 'Get information about the Occupational Health and Safety Regulation.' Below the list, contact details are provided: 'Phone: 604.276.3100 (Lower Mainland)' and 'Toll-free: 1.888.621.7233 (1.888.621.SAFE) (Canada)'. The 'Hours of operation' are listed as 'Monday to Friday, 8:05 a.m. to 4:30 p.m.'. Finally, the text states: 'Fatalities and serious injuries: Call the numbers above, 24 hours a day, 7 days a week.'

WorkSafeBC (Claims):

Report a workplace injury or disease

How workers report

How employers report ▶

How health care providers report

Reporting serious incidents and fatalities

Critical incident response

Claims in special circumstances ▶

Report a workplace injury or disease

When someone suffers a work-related injury or disease, we're here to help. We understand it can be a stressful time, and we offer support through each step of the claims process, from the initial report of the injury through to the worker's recovery and return to usual work duties.

If you are a

Worker	Call Teleclaim @ 1-888-WORKERS (1.888.967.5377)
Employer	Submit an employer's report
Health care provider	Submit a physician's report or a provider-specific report

The claims process

- 1

File a claim

Once we receive a report of a work-related injury or illness, we gather information from the worker, the employer, and the health care provider. We can usually provide a decision on whether a claim is accepted within an average of 10 days. We may need more time for some claims.
- 2

Receive benefits and services for accepted claims

Once a claim is accepted, we let the worker know about the benefits and services they will receive. The services help a worker recover and safely resume usual job duties.

If a worker is unable to work or participate in modified work duties, we'll get wage-loss payment to them as quickly as possible.
- 3

Manage the claim

Our online tools make it easy for a worker to [manage a claim](#). Information about benefits and services, and correspondence about the claim, can be collected in one place with an online account.
- 4

Recover and resume usual work duties

We share with workers the goal of getting them back to their pre-injury duties at work. All of our assistance supports the strong medical connection between [recovery and work](#).

It's important for a worker to follow up with their health care practitioner, and with us, if their condition doesn't resolve or they are concerned they may miss time from work.

BC Workers' Advisers Office:

<http://www.labour.gov.bc.ca/wab/> or <https://www2.gov.bc.ca/gov/content/employment-business/employment-standards-advice/personal-injury-and-workplace-safety>

604-713-0360 or 1-800-663-4261

The screenshot shows the website for the Workers' Advisers Office (WAO) in British Columbia. The header includes the British Columbia logo and a search bar. The breadcrumb trail is: Home > Employment, Business & Economic Development > Employment Standards & Workplace Safety >. The left sidebar contains links: Start a New Inquiry, WAO Worker Portal, Factsheets, Workers' Compensation Advocacy Training, Glossary, Frequently Asked Questions, and Contacts. The main content area is titled 'Workers' Advisers Office' and describes its role in providing free advice and assistance. It lists four scenarios for when to contact them: 1. Disagreement with a WorkSafeBC decision on a compensation claim. 2. WorkSafeBC refusal or failure to provide a decision on entitlement under the Workers Compensation Act. 3. Health and safety issues in the workplace. 4. WorkSafeBC declining a claim for Discriminatory Action. Below this is a section 'Contact WorkSafeBC If:' with six numbered points: 1. Making a claim for injury or occupational disease. 2. Complaining about employer's response to health and safety concerns. 3. Questions about claim status. 4. Questions about why a decision was made by WorkSafeBC. 5. Requesting a decision on a claim. 6. General 'what if?' questions about workers compensation law and policies. A note at the bottom provides the phone number 1 888 967-5377. The right sidebar has an 'About Us' section with a video player titled 'WAO Overview' and a 'Need Help?' section with a large blue button that says 'Start a New Inquiry'. A text block below the button explains that the WAO provides independent advice, assistance, representation, training, and mentoring to workers and their dependants.

CUPE BC Regional Office:

BC Regional Office
6222 Willingdon Ave
Burnaby, BC V5H 0G3

Telephone: 604-291-1940
Fax: 604-291-1194

E. Appendices:

Appendix A – CCOHS Sample Health Survey

Health Survey - Confidential	
Name:	Department/Position:
Survey Date:	Interviewer (if applicable):
Work Location / Building Area	
Background Information:	
How long have you been working for your employer? _____ Yrs.	
Where do you spend most of your time at work?	
Have there been any changes in the office recently? E.g.: new location, renovation, cleaning	
Symptoms & Patterns:	
Check all the symptoms or discomfort you are experiencing:	
<input type="checkbox"/> Headache <input type="checkbox"/> Nausea <input type="checkbox"/> Dizziness <input type="checkbox"/> Tiredness / fatigue <input type="checkbox"/> Irritation of eyes, nose, throat <input type="checkbox"/> Breathing Problems <input type="checkbox"/> Coughing <input type="checkbox"/> Sneezing <input type="checkbox"/> Wheezing <input type="checkbox"/> Shortness of Breath	<input type="checkbox"/> Blurred Vision <input type="checkbox"/> Sinus Congestion <input type="checkbox"/> Difficulty in concentrating <input type="checkbox"/> Pain and discomfort of: <input type="checkbox"/> Back <input type="checkbox"/> Neck <input type="checkbox"/> Hands <input type="checkbox"/> Wrist <input type="checkbox"/> Shoulders <input type="checkbox"/> Other _____
Do you have any other health conditions that may make symptoms worse? E.g.: allergies, immune system disorders, or chronic cardiovascular or respiratory disease	
Have you seen a doctor for these symptoms? <input type="checkbox"/> Yes <input type="checkbox"/> No (Do you wish to provide general details?)	

Timing:

When do you notice these symptoms and how often do they occur?

On average, when you notice the symptoms, how long have you been at work?

Less than 1 hour 2-4 hours > 4 hours 1 day After __ days

Has there been any change to the symptoms or patterns? Yes No

If yes, please explain:

When do the symptoms go away?

Overnight After a week away Rarely/Never

Can you provide more information?

Has the pain or discomfort caused you to take time off work? Yes No

Are you aware of other people with similar symptoms or concerns? Yes No

If yes, can you provide more details?

Suspected or Potential Causes:

Check any of the following that are true:

Are there any unusual odours?

Does the air seem stuffy?

Is the air dry?

Is it dusty?

Do you get shocks from static electricity?

Is the work area too warm?

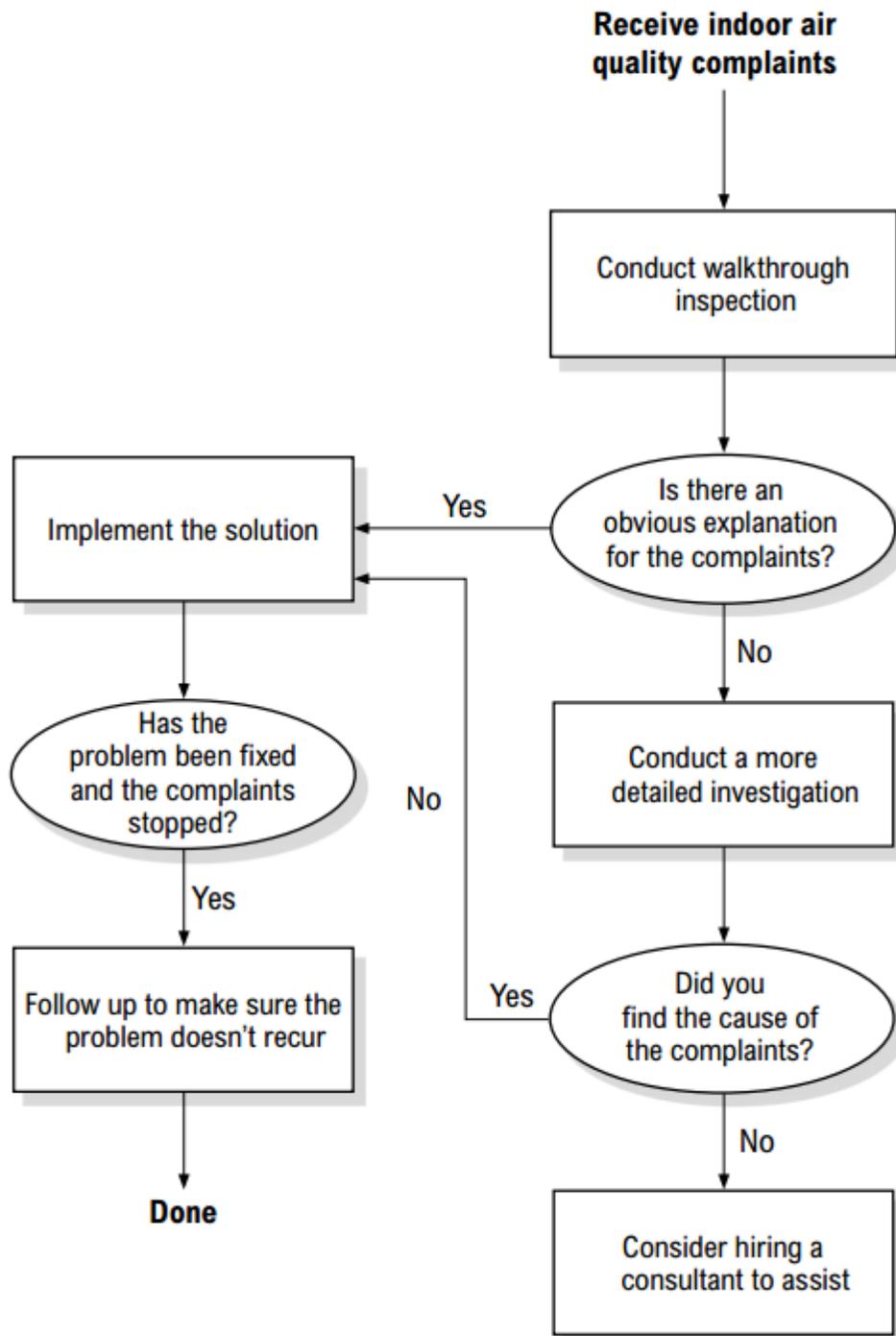
Is the work area too cool?

Does the temperature vary from room to room?

Are there drafts where you work?

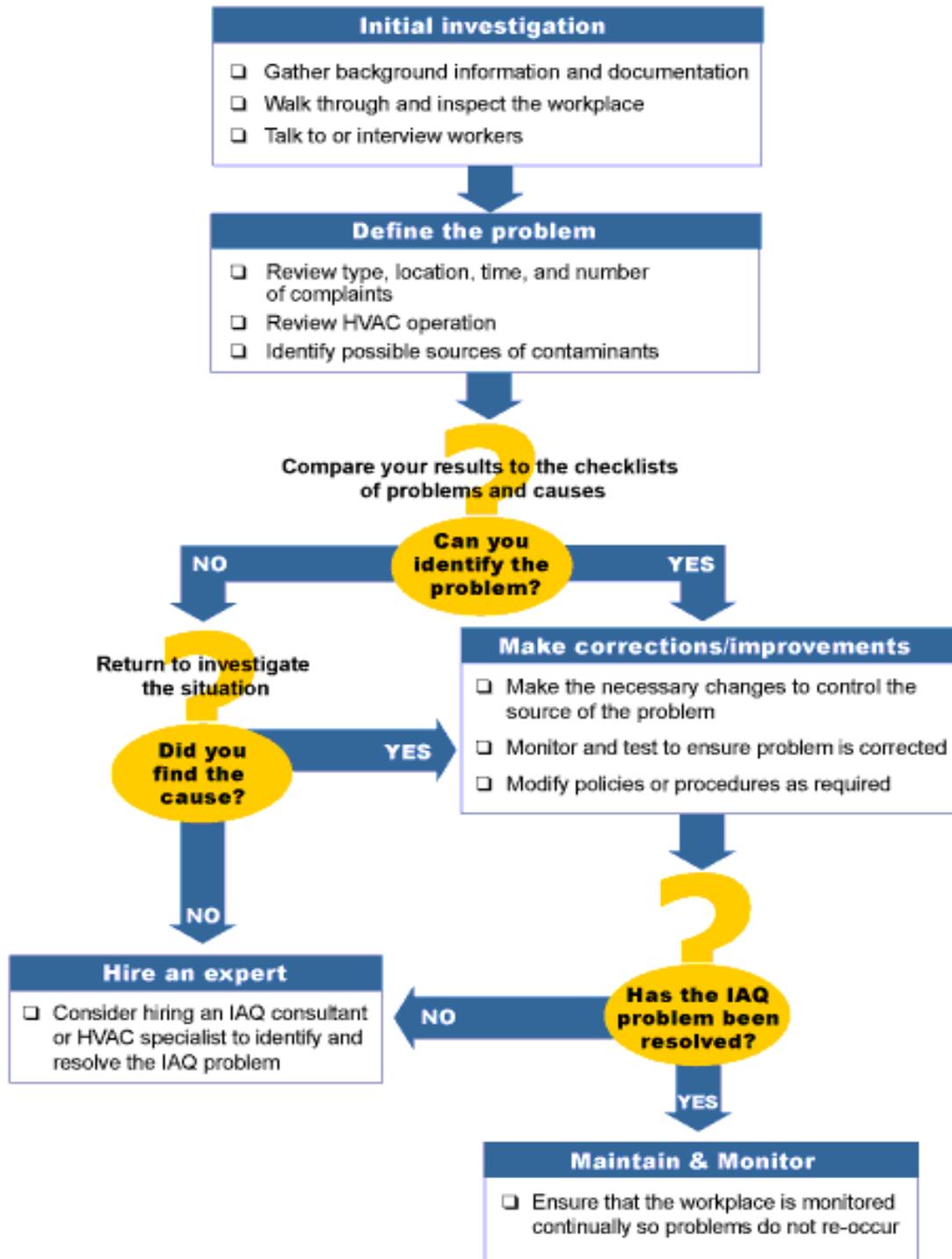
Appendix B – WorkSafeBC Indoor Air Quality Guide - The Investigation Process

The investigation process



Appendix C - CCOHS Assessment & Resolution Flow Chart

Assessment & Resolution Flow Chart



Appendix D – Air Quality Complaint Form from WorkSafeBC

The image shows a PDF viewer window with a table of contents on the left and a complaint form on the right. The table of contents includes sections like 'The basics', 'Preventing indoor air quality problems', 'Resolving indoor air quality problems', and 'Forms, checklists, and other resources'. The 'Indoor air quality complaint form' is highlighted in blue. The form itself has a title, instructions, a return address line, a telephone line, a department/location line, a description field, and an 'Office use only' section with fields for complaint number, received by, and date received.

Indoor air quality complaint form

Fill out this form to make a complaint related to indoor air quality. Indoor air quality complaints include concerns about temperature, ventilation, and air pollutants.

Return the completed form to _____
or call _____ to make your complaint by phone.

We try to respond to indoor air quality complaints as quickly as we can.

Date _____
Name _____ Title _____
Telephone _____
Department and location in building _____
Describe the nature of the complaint and any potential causes. _____

Office use only
Complaint # _____ Received by _____ Date received _____

Indoor Air Quality
- 32 -

Indoor air quality complaint form

Fill out this form to make a complaint related to indoor air quality. Indoor air quality complaints include concerns about temperature, ventilation, and air pollutants.

Return the completed form to _____

or call _____ to make your complaint by phone.

We try to respond to indoor air quality complaints as quickly as we can.

Date _____
Name _____ Title _____
Telephone _____
Department and location in building _____
Describe the nature of the complaint and any potential causes. _____

Office use only
Complaint # _____ Received by _____ Date received _____

Appendix E – Air Quality Log

The screenshot shows a web application interface. On the left is a 'bookmarks' sidebar with a tree view of topics. The 'Indoor air quality complaint log' item is highlighted in blue. On the right is the main content area, which displays the title 'Indoor air quality complaint log' above a table with seven columns: Complaint #, Date received, Date investigated, Location of problem, Description of problem, Action taken and outcome, and Initials. The table is currently empty. At the bottom right of the content area, it says 'Indoor Air Quality - 33 -'.

Complaint #	Date received	Date investigated	Location of problem	Description of problem	Action taken and outcome	Initials

Indoor air quality complaint log

Complaint #	Date received	Date investigated	Location of problem	Description of problem	Action taken and outcome	Initials

Indoor Air Quality

- 33 -

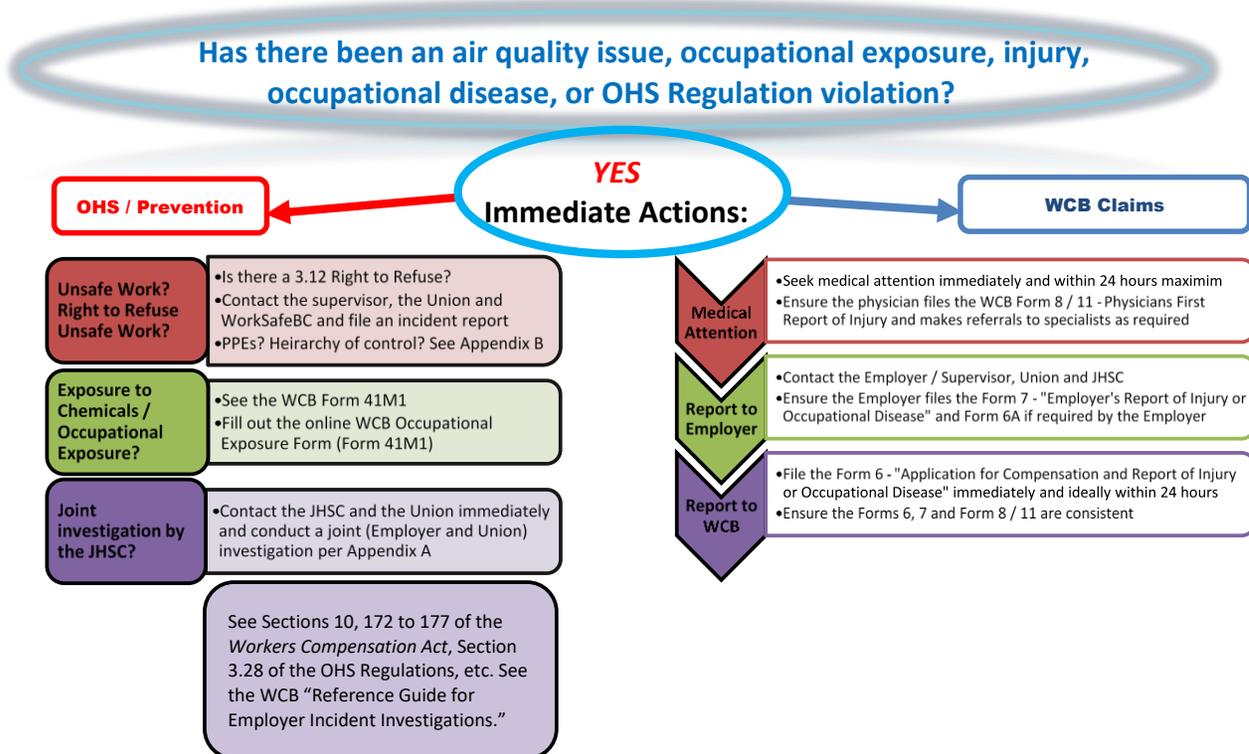
Appendix F – CCOHS Air Quality Sample Checklist

Inspection Checklist	
Inspector(s)	
Location/Department: _____ Date: _____	
✓ Satisfactory X Unsatisfactory, requires attention	
<p>GENERAL OBSERVATIONS</p> <p>Walls, Ceilings and Floors</p> <ul style="list-style-type: none"> <input type="checkbox"/> Walls, ceilings and windows free of mould <input type="checkbox"/> Indoor plants free of mould and odour <input type="checkbox"/> Flat surfaces dust free <input type="checkbox"/> Thermostats in enclosed offices <input type="checkbox"/> Cleanliness of shower facilities and washrooms <p>Open-Concept Offices - cubicles</p> <ul style="list-style-type: none"> <input type="checkbox"/> Screen heights (max. 1.5 metres) <input type="checkbox"/> Screens do not touch floor <p>Diffusers</p> <ul style="list-style-type: none"> <input type="checkbox"/> Diffusers are unobstructed <input type="checkbox"/> Diffuser condition (mould, dust, dirt) <p>Air Exhaust Louvers</p> <ul style="list-style-type: none"> <input type="checkbox"/> Louvers are unobstructed <input type="checkbox"/> Louver condition clean (mould, dirt, dust) <p>Pollutant Sources (~3 metres from work areas)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Photocopiers <input type="checkbox"/> Chemical storage/handling area <input type="checkbox"/> Smoking room <input type="checkbox"/> Paper storage and handling areas <input type="checkbox"/> Number of building occupants <p>CARBON MONOXIDE (CO) SOURCES</p> <p>Air does not enter building from:</p> <ul style="list-style-type: none"> <input type="checkbox"/> parking garage <input type="checkbox"/> loading dock <input type="checkbox"/> other (describe) <p>Condition/location of indoor CO sources:</p> <ul style="list-style-type: none"> <input type="checkbox"/> gas stoves, heating and other appliances <input type="checkbox"/> gas fired heating system <input type="checkbox"/> free standing gas heaters <input type="checkbox"/> other (describe) 	<p>VOLATILE ORGANIC COMPOUNDS</p> <p>Cleanliness/condition/location of:</p> <ul style="list-style-type: none"> <input type="checkbox"/> chemical laboratories <input type="checkbox"/> chemical storage areas <input type="checkbox"/> new plywood, particle board shelving <p>CIGARETTE SMOKE</p> <ul style="list-style-type: none"> <input type="checkbox"/> Smoking policy in place/enforced <p>VENTILATION SYSTEM (HVAC)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adequate outdoor air intake <input type="checkbox"/> Air intake clear of pollution sources <input type="checkbox"/> Cleanliness of ducts and plenum <input type="checkbox"/> Ventilation shut-down (nightly/weekends) <input type="checkbox"/> Air filter condition <p>HUMIDIFIERS</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pans and wetting media are free of slime <input type="checkbox"/> Ducts free of mould <input type="checkbox"/> Fans free of hard water deposits <input type="checkbox"/> Volatile chemicals used for humidifiers <p>AIR CONDITIONING SYSTEM</p> <ul style="list-style-type: none"> <input type="checkbox"/> Condensate trays free of slime <input type="checkbox"/> Cooling coils free of slime <input type="checkbox"/> Absence of mouldy odours <p>GENERAL MAINTENANCE, DESIGN</p> <ul style="list-style-type: none"> <input type="checkbox"/> Windows can be opened <input type="checkbox"/> Alterations to ventilation system <input type="checkbox"/> Number of occupants in area <input type="checkbox"/> Usage/condition of carpeting <input type="checkbox"/> Work areas repainted <input type="checkbox"/> Presence of odours

Appendix G – CUPE (BC Region) OHS & WCB Claims Process Overview
 (Repeated here for information purposes)

AIR QUALITY OHS & WCB CLAIMS PROCESS OVERVIEW CHART

This Flow Chart is an overview of the basic steps for addressing **OHS Prevention** issues and for filing a **WorkSafeBC (WCB)** claim where there are air quality issues. Always refer to the most current online WCB Policy, Regulations, Practice Directives, Forms and *Workers Compensation* at the WorkSafeBC website. **Please refer to the main CUPE Guide “Air Quality Addressing Indoor and Outdoor Air Quality Occupational Health & Safety Issues and Filing WorkSafeBC Claims”.**



Appendix H - WorkSafeBC (page 2 of July 2017 Forest Fire Bulletin)

Workers should also consider the potential for heat stress or heat exhaustion, as well take precautions against the hazards of driving in low-visibility environments (e.g., drive with lights on, do circle checks).

What should I do to protect my workers who need to work in close proximity to the smoke?

There may be situations that require workers such as health care professionals, first responders, and other essential service workers to be in closer proximity to moderate levels of smoke.

One strategy to help protect these workers is to create a "clean air refuge" with a portable HEPA filtration unit. Keeping windows and doors closed within the refuge area will reduce the ambient smoke.

In some circumstances, personal protective equipment such as respiratory protection may be necessary when workers are exposed to moderate to high levels of smoke.

Should workers use respirators as protection against smoke exposure?

Respirators may be required depending on the level of the smoke and the work activity performed by workers. The most common type of respirator used to protect against wildfire smoke exposure is the N95 particulate-filtering facepiece respirator. For workers who require more advanced protection against fine particulates and irritant gases and vapours, elastomeric respirators (both half-face and full-face types) fitted with a combination of organic vapour cartridge/P100 filter are more appropriate.

Note that masks are not substitutes for respirators. A mask refers to something like a surgical mask that is loose fitting and does not form a tight seal with the face. These masks are not designed to filter the fine particulates or gases and vapours in smoke.

If workers use respirators for protection against wildfire smoke, they must be fit tested and must meet the standards (e.g., NIOSH-approved) for the type of work and hazards faced. Workers must also be instructed in the respirator's use and limitations. Information about respiratory protection is available at worksafebc.com.

What should I do if workers report symptoms consistent with smoke exposure?

If your workers report symptoms of smoke exposure, treat the exposure in the same manner as other workplace injuries and illnesses and respond accordingly. Workers with severe symptoms should seek medical attention immediately.

You are also required to report and investigate certain incidents. See [Report a workplace injury or disease](#) and [Conducting an employer investigation](#) on worksafebc.com for more information.

Are there any regulatory requirements that apply to wildfire smoke?

The Occupational Health and Safety Regulation does not provide specific requirements for wildfire smoke. However, you must treat this hazard in a similar manner as other general workplace hazards. The *Workers Compensation Act* and Regulation specify the requirements for employers to ensure the health and safety of workers in all work.

Sections of the Regulation that may also apply to wildfire smoke exposure include the following:

- Part 4, Emergency preparedness and response
- Part 4, Indoor air quality
- Part 5, Containers and storage
- Part 5, Flammable and combustible substances
- Part 5, Controlling exposure
- Part 8, Personal protective equipment
- Part 26, Forestry operation fire fighting

Appendix I – Mould Exposure Materials from WorkSafeBC (Remember to check for the most up to date materials).

The screenshot shows the WorkSafeBC website interface. At the top, there is a navigation bar with the WorkSafeBC logo, links for 'Forms & Resources', 'Law & Policy', 'About Us', and 'Contact Us', and a 'Log in | Create an account' button. Below this is a secondary navigation bar with 'Health & Safety', 'Insurance', 'Claims', and 'I Am a...' tabs, along with a search bar containing 'Search worksafebc.com'. The breadcrumb trail reads 'Home > Health & Safety > Hazards & exposures > Mould'. The main content area features a 'Mould' section header, a descriptive paragraph about mould growth and health risks, and a grid of four sub-sections: 'How workers are exposed', 'How to reduce the risks', 'The risks', and 'Resources'. A sidebar on the left contains links for 'Mould', 'Related law & policy', 'Related topics', and 'Related industries'.

Mould

As mould grows, it releases airborne spores and fragments of hyphae (filaments) that can affect a worker's health. People with allergies, asthma, or a weak immune system are most at risk. Mould grows quickly on almost any damp material.

- How workers are exposed
- The risks
- How to reduce the risks
- Resources

How workers are exposed

Moulds are everywhere. All they need to grow is water and a source of food, such as cardboard or wood. As mould grows it releases spores. Workers could inhale the airborne spores and hyphae (filaments).

Mould thrives where there is prolonged dampness. Bathrooms, basements, ceilings, and water-damaged walls are all potential hosts for mould.

The risks

For most people, exposure to mould doesn't cause any significant health effects. However, if a worker has a weakened immune system, the health effects can be severe. Mould can cause allergic reactions, asthma, pneumonitis, infections of the upper airway, sinusitis, or other lung infections.

How to reduce the risks

Prevention is the key to avoiding mould exposure. Always make sure that water leaks on the job site are fixed and standing water is mopped up.

If a worker complains about indoor air quality, the Employer must investigate. If significant mould contamination is found, appropriate measures must be taken to remove it. A trained abatement team is usually needed to safely remove the mould. Once the site is cleaned, locate the source of the water to prevent mould from growing again.

The best way to reduce the risk of exposure to mould is to eliminate the source of exposure and control water leakage and moisture. When choosing controls, start by asking the questions in the following steps, which are listed in order of effectiveness.

Elimination or substitution

Eliminating the hazard by substituting a safer process or material, where possible, is the most effective control. A question to consider:

- Can you use building materials that are resistant to mould growth in areas where water leaks may occur (e.g., in kitchens and bathrooms)?

Engineering controls

Making physical modifications to facilities, equipment, and processes can reduce exposure. Some questions to consider:

- Can mouldy materials be encapsulated or enclosed in the short term?
- How can mould removal work areas be enclosed and the air filtered to prevent the escape of spores and hyphae?

How will worker exposure to moulds be monitored?

Administrative controls

These involve changing work practices and work policies. Providing awareness tools and training also count as administrative controls. All can limit the risk of exposure to mould. Some questions to consider:

- Have you developed a written exposure control plan for mould?
- How can signs be posted to give unprotected workers effective warning when mould is being removed?
- Where can written safe work procedures be posted?
- How will you train workers regarding the hazards of mould exposure and how to protect themselves?

Personal protective equipment

This is the least effective control. It must always be used in addition to at least one other control. Some questions to consider:

- Do workers have the proper respirators, eye wear, and protective clothing for use during mould cleanup?
- Have respirators been checked and fit tested to make sure they will work properly?

The screenshot shows the CCOHS website interface. At the top, there is a navigation bar with 'Government of Canada' and 'Canada.ca | Services | Departments | Français'. Below this is the CCOHS logo and a search bar. The main content area is titled 'OSH Answers Fact Sheets' and includes a search bar with the text 'Search all fact sheets:'. Below the search bar, there is a section titled 'Indoor Air Quality - Moulds and Fungi' with a 'CLOSE ALL' link. The section contains two sub-sections: 'Why does mould grow in homes or buildings?' and 'What are some types of mould?'. The first sub-section explains that moulds and fungi are found in nature and are necessary for the breakdown of leaves, wood and other plant debris. It also lists factors that promote mould growth, such as moisture, flooding, leaks, and sealed buildings. The second sub-section lists common types of mould found in buildings, including *Stachybotrys chartarum*, *Aspergillus* sp., *Penicillium* sp., *Fusarium* sp., *Trichoderma* sp., *Memnoniella* sp., *Cladosporium* sp., and *Alternaria* sp.

Appendix J - HealthLinkBC materials for exposure to forest fires:

<https://www.healthlinkbc.ca/health-feature/wildfires>

Wildfires and Your Health

Every year in British Columbia there are hundreds or thousands of wildfires (also called forest fires). Wildfires can affect your health and safety in many ways: the smoke from wildfires can affect the quality of the air, a power outage may spoil your food, or you may have to evacuate if a wildfire is close to your home. Preparing in advance for wildfires can help you keep your family safe.

The BC Wildfire Service posts information on Current Wildfire Activity. You can find information on fires that pose a significant safety risk, air quality, fire danger ratings and more.

Learn what you can do to before an emergency or disaster such as a wildfire, and how to stay safe and healthy during and after a wildfire in your area.

Before a Wildfire

Emergency Preparedness

During wildfire season roads may be closed, you may be cut off from certain supplies and services, or your community may be evacuated. Learn how to prepare for an emergency and stay safe in case there is an evacuation alert or order.

- Build an Emergency Kit
- Government of Canada – Get Prepared
- Preparing for an Emergency: A Focus on Water and Food

Emergency Planning if you have specific health conditions:

- BC Children’s Hospital: Diabetes Emergency Survival Pack
- BC Government: Preparedness for People with Disabilities
- BC Renal Agency: Emergency Preparedness

Information Channels

Stay up-to-date on what's happening in your community:

- [Emergency Info BC](#) - B.C.'s official channel for emergency alerts
- **Twitter**
 - [BC Wildfire Service](#)
 - [DriveBC](#)
 - [Emergency Info BC](#)
 - [PreparedBC](#)
- **Facebook**
 - [BC Wildfire Service](#)

Useful Numbers

Report a wildfire: [1 800 663-5555](tel:18006635555) or *5555 on a cell phone

Fire information line: [1 888 336-7378](tel:18883367378)

Burn registration line: [1 888 797-1717](tel:18887971717)

Evacuee registration (Red Cross): [1 800 863-6582](tel:18008636582)

For information about protecting your community from wildfire, visit FireSmart Canada, Protecting Your Community from Wildfire.

During a Wildfire

Wildfires

Find information about wildfires in B.C., including where they are and what to do if you are evacuated, below:

- Active Wildfires Interactive Map
- Information for Residents and Evacuees Affected by Wildfire

Some health authorities in B.C. provide local information on wildfires:

- First Nations Health Authority – Wildfire Information
- Island Health – Wildfires
- Interior Health – Wildfire Events

Evacuation Information



Want More Information?

HealthLink BC, your provincial health line, is as close as your phone or the web any time of the day or night, every day of the year.

Call **8-1-1** toll-free in B.C., or for the deaf and hard of hearing, call **7-1-1** [or for Video Relay Service, call 604-215-5101](#)

[↗](#)

All evacuees are asked to register with the Canadian Red Cross, even if you don't need aid. To register, visit the Canadian Red Cross or call 1 800 863-6582.

If there is a wildfire in or near your community, you may be evacuated to a safer area. Wildfires can impact evacuation routes. Visit DriveBC for the latest updates on driving conditions in your community.

Seniors may need special support in the event of an evacuation. Learn what you can do to be prepared.

- Caring for Seniors in Residential Care in an Emergency (HealthLinkBC File #103c)
- Community Evacuation Information for Seniors (HealthLinkBC File #103a)

Health Care for Evacuees

For non-emergency health information or advice, call 8-1-1 to speak with a health services navigator. The navigator will help you find the information you are looking for or connect you with a registered nurse, registered dietitian, qualified exercise professional or a pharmacist.

Prescription Medications

During a state of emergency, pharmacists can provide a drug without a prescription to ensure the health and safety of the public. For more information visit the [College of Pharmacists of British Columbia – Providing Continuity of Care for Patients during a State of Emergency](#).

Walk-in Clinics

To find a walk-in clinic in your area, search the FIND Services and Resources Directory or call 8-1-1 to speak with a health services navigator any time of the day, every day of the year.

Air Quality

If there is an air quality advisory in your area, and you find it is hard to breath or you are wheezing, seek medical attention right away.

Poor air quality can be harmful to your health, especially for children, older adults, and those with heart and lung conditions. For more information about air quality, including current air quality advisories, click on the links below.

- BC Air Quality
 - Air Quality Advisories
- Government of Canada – Air Quality
- Particulate Matter and Outdoor Air Pollution (HealthLinkBC File #65e)
- Wildfire Smoke and Your Health

For air quality information from your health authority, click on the links below.

- Fraser Health - Air Quality
- Interior Health - Air Quality
- Island Health – Air Quality
- Air Quality – reducing your exposure in smoky conditions
- Vancouver Coastal Health – Air Quality

Staying Cool Indoors during an Air Quality Advisory

When there is an air quality advisory in your area, officials may recommend that you keep your windows closed with the air conditioner on (if you have one). Or, they may tell you to keep your windows closed with the air conditioner off. When your windows are closed and the air conditioner is off (or you don't have one), you will need to take special care to stay cool. Make sure to stay up to date on the specific recommendations for your area. Visit BC Air Quality - Advisories for current information. For more information on how to stay cool indoors, see our Beat the Heat Health Feature.

Dealing with Stress and Trauma

Disasters, such as wildfires, can impact your emotional health as much as your physical health. Learn what you can do to recognize signs of stress or trauma in yourself and your family.

- Kelty Mental Health – Stress Management Resources for Children, Youth and Families
- Recognizing and Resolving Trauma in Children During Disasters
- Signs of Stress
- Stress Management
- Stress in Children and Teenagers
- Stress Management: Helping Your Child with Stress
- Talk in Tough Times: Support for those affected by the 2017 BC wildfires

After a Wildfire

Returning Home

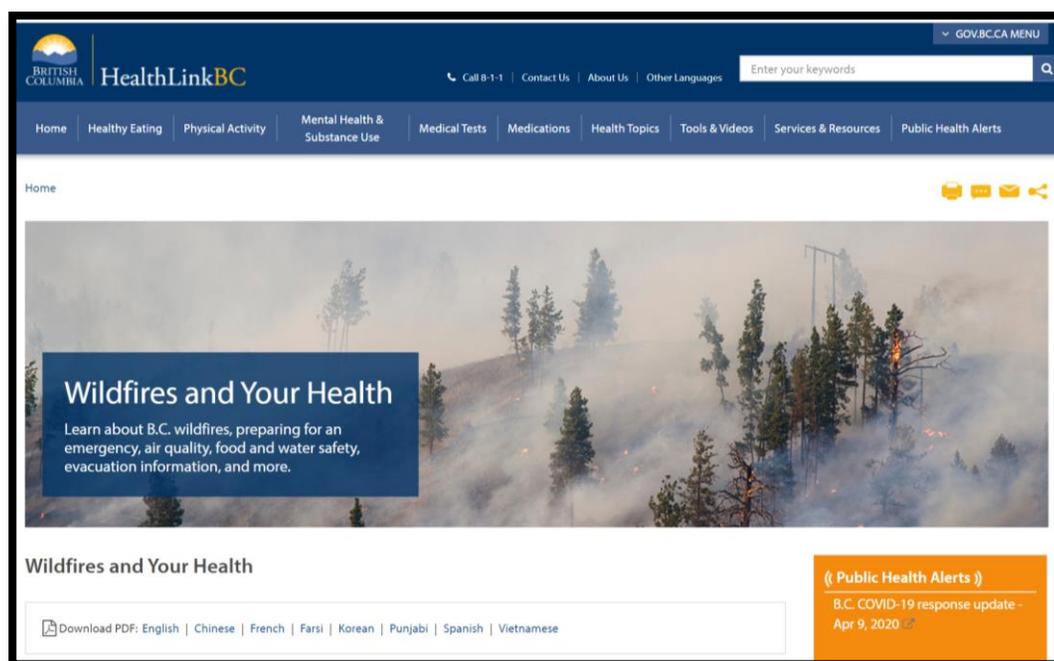
When your local or First Nations government has declared it is safe for you to return home, there are steps you can take to make the transition easier and safer.

- [Returning Home After a Wildfire](#)

Food Safety and Water Quality

If there is a wildfire in your area, the power might go out in your community. Fire retardants may be used in or near your community to reduce the size and lessen the impact of the fires. Find out how to protect water supplies and food affected by fire retardants or power outages.

- [Disinfecting Drinking Water \(HealthLinkBC File #49b\)](#)
- [Fire Retardants: Recommended Precautions for Water and Food](#)
- [Power Outages at Food Facilities](#)
- [Water and Food Quality: Information for Evacuees Returning after a Fire](#)
- [Wildfire: Its Effects on Drinking Water Quality \(HealthLinkBC File #49f\)](#)



Appendix K - CCOHS – PPE – Respirators:

The two main types are air-purifying respirators (APRs) and supplied-air respirators (SARs).

Air-purifying respirators can remove contaminants in the air that you breathe by filtering out particulates (e.g., dusts, metal fumes, mists, etc.). Other APRs purify air by adsorbing gases or vapours on a sorbent (adsorbing material) in a cartridge or canister. They are tight-fitting and are available in several forms:

- mouth bit respirator (fits in the mouth and comes with a nose clip to hold nostrils closed - for escape purposes only)
- quarter-mask (covering the nose and mouth)
- half-face mask (covering the face from the nose to below the chin)
- full facepiece (covering the face from above the eyes to below the chin)

Respirators with a full facepiece also protect the eyes from exposure to irritating chemicals.

Supplied-air respirators (SARs) supply clean air from a compressed air tank or through an air line. This air is not from the work room area. The air supplied in tanks or from compressors must meet certain standards for purity and moisture content (e.g., CSA Standard Z180.1-13): Compressed Breathing Air and Systems).

Supplied-air respirators may have either tight-fitting or loose-fitting respiratory inlets. Respirators with tight-fitting respiratory inlets have half or full facepieces. Types with loose-fitting respiratory inlets can be hoods or helmets that cover the head and neck, or loose-fitting facepieces with rubber or fabric side shields. These are supplied with air through airlines.

Examples of these classes of respirators include:

Air-purifying respirators (APRs):

- particulate respirators (also called dust, fume, and mist respirators or masks)
- chemical cartridge respirators that can have a combination of chemical cartridges, along with a dust pre-filter. This combination provides protection against different kinds of contaminants in the air
- gas masks (contain more adsorbent than cartridge-type respirators and can provide a higher level of protection than chemical cartridge respirators)
- powered air-purifying respirators (PAPRs)

Supplied-air respirators (SARs):

- self-contained breathing apparatus (SCBA)
- airline supplied-air respirators
- protective suits that totally encapsulate the wearer's body and incorporate a life-support system

There are some combinations of airline respirators and SCBAs that allow workers to work for extended periods in oxygen-deficient areas or where there are airborne toxic contaminants. The auxiliary or backup SCBA source allows the worker to escape with an emergency source of air if the airline source fails.

There are also combination air-purifying and atmosphere supplying respirators. These devices will offer worker protection if the supplied-air system fails when the appropriate air-purifier units are selected. These cannot be used in oxygen-deficient areas or where the air concentration of a contaminant exceeds the IDLH level (i.e., immediately dangerous to life or health).

Since filters capture particles, caution must be exercised to always check that these filters are not clogged as it makes it harder for air to pass through.

Cartridges can also become "full" or saturated. It will stop working and "breakthrough" will occur – this term means that the gases or vapours will leak through the cartridge. Both cartridges and filters must be replaced on a regular basis by using the manufacturer's recommendations (usually determined by using warning properties or end-of-service indicators).

There are different classes of particulate filters, depending on the particulate material. They are also classified based on levels of oil resistance and filter efficiency. Oil can break down certain types of filters which means it is important to know the materials you are working with at all times and always select the right cartridge for your respirator.

The main categories are:

- N series (Not resistant to oil) - May be used in any atmosphere where there is no oil particulate.
- R series (Resistant to oil) - May be used in any atmosphere where there is no oil particulate, or up to one shift where there is oil particulate present. "One shift" means eight hours of continuous or intermittent use.
- P series (Oil-Proof) - May be used in any atmosphere, including those with oil particulates, for more than one shift. If the filter is used in atmospheres with oil particulates, contact the manufacturer to find out the service life of the filter.

This is in addition to other safety equipment e.g. for mould – safety goggles, gloves, etc



Appendix L – Mould – WorkSafeBC Materials:

<h3>Mould</h3> <p>As mould grows, it releases airborne spores and fragments of hyphae (filaments) that can affect a worker's health. People with allergies, asthma, or a weak immune system are most at risk. Mould grows quickly on almost any damp material.</p>	
How workers are exposed	How to reduce the risks
The risks	Resources

How workers are exposed

Moulds are everywhere. All they need to grow is water and a source of food, such as cardboard or wood. As mould grows it releases spores. Workers could inhale the airborne spores and hyphae (filaments).

Mould thrives where there is prolonged dampness. Bathrooms, basements, ceilings, and water-damaged walls are all potential hosts for mould.

The risks

For most people, exposure to mould doesn't cause any significant health effects. However, if a worker has a weakened immune system, the health effects can be severe. Mould can cause allergic reactions, asthma, pneumonitis, infections of the upper airway, sinusitis, or other lung infections.

How to reduce the risks

Prevention is the key to avoiding mould exposure. Always make sure that water leaks on the job site are fixed and standing water is mopped up.

If a worker complains about indoor air quality, the employer must investigate. If significant mould contamination is found, appropriate measures must be taken to remove it. A trained abatement team is usually needed to safely remove the mould. Once the site is cleaned, locate the source of the water to prevent mould from growing again.

The best way to reduce the risk of exposure to mould is to eliminate the source of exposure and control water leakage and moisture. When choosing controls, start by asking the questions in the following steps, which are listed in order of effectiveness.

1	Elimination or substitution Eliminating the hazard by substituting a safer process or material, where possible, is the most effective control. A question to consider: <ul style="list-style-type: none">• Can you use building materials that are resistant to mould growth in areas where water leaks may occur (e.g., in kitchens and bathrooms)?
2	Engineering controls Making physical modifications to facilities, equipment, and processes can reduce exposure. Some questions to consider: <ul style="list-style-type: none">• Can mouldy materials be encapsulated or enclosed in the short term?• How can mould removal work areas be enclosed and the air filtered to prevent the escape of spores and hyphae?• How will worker exposure to moulds be monitored?
3	Administrative controls These involve changing work practices and work policies. Providing awareness tools and training also count as administrative controls. All can limit the risk of exposure to mould. Some questions to consider: <ul style="list-style-type: none">• Have you developed a written exposure control plan for mould?• How can signs be posted to give unprotected workers effective warning when mould is being removed?• Where can written safe work procedures be posted?• How will you train workers regarding the hazards of mould exposure and how to protect themselves?
4	Personal protective equipment This is the least effective control. It must always be used in addition to at least one other control. Some questions to consider: <ul style="list-style-type: none">• Do workers have the proper respirators, eye wear, and protective clothing for use during mould cleanup?• Have respirators been checked and fit tested to make sure they will work properly?

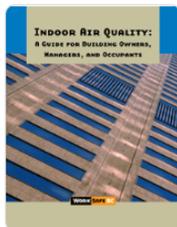
Resources



Assessing Exposures to Compost Workers from Airborne Biohazards

The purpose of this research was to measure compost workers' exposures to selected biohazards. The study examined different composting technologies, under different environmental conditions, with an...

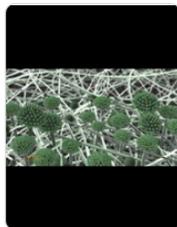
Competition Year: Jan 1, 2006 |  PDF | Research |  Download | [Preview](#)



Indoor Air Quality: A Guide for Building Owners, Managers, and Occupants

The information in this guide will help you maintain good indoor air quality in your building, prevent air quality problems, and correct problems that may arise. It will also help you understand the indoor...

Publication Date: Mar 2005 |  PDF | Guide |  Download | [Preview](#)



Mould Exposure

This video shows how mould can grow quickly on damp materials such as cardboard, paper, wood and drywall. As mould grows, it releases spores into the air. Exposure to mould spores can affect your health,...

Publication Date: Jul 2010 |  MPEG | Video

[More related resources](#)

F. Links and Resources (Check links frequently):

ANSI/ASHRAE [2016]. Ventilation for acceptable indoor air quality. American National Standards Institute/ASHRAE standard 62.1-2016. Atlanta, GA: American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.

<https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards>

British Columbia – Current Air Quality Index Map

<http://www.env.gov.bc.ca/epd/bcairquality/readings/find-stations-map.html>

British Columbia Municipal Safety Association – Exposure Control Plans

<https://www.bcmsa.ca/resources/exposure-control-plans/>

Canada Labour Code

<https://www.canada.ca/en/employment-social-development/services/health-safety/reports/summary.html>

CCOHS Indoor Air Quality – General

https://www.ccohs.ca/oshanswers/chemicals/iaq_intro.html

CDC/NIOSH - Asbestos

<https://www.cdc.gov/niosh/topics/asbestos/>

CDC/NIOSH - Guidance for Filtration and Air-cleaning Systems to Protect Building Environments from Airborne Chemical, Biological, or Radiological Attacks

<https://www.cdc.gov/niosh/docs/2003-136/>

Centers for Disease Control and Prevention

<https://www.cdc.gov/niosh/topics/indoorenv/default.html>

Centers for Disease Control and Prevention – Indoor Environmental Quality – Chemicals and Odours

<https://www.cdc.gov/niosh/topics/indoorenv/chemicalsodors.html>

CSA Standards

<https://www.csagroup.org/?s=Air+Quality>

<https://www.csagroup.org/industry/construction-building-products/hvacr/>

Canadian Union of Public Employees (“CUPE”) Indoor Air Quality (IAQ) Fact Sheet

<https://cupe.ca/orders/indoor-air-quality-iaq-fact-sheet>

CUPE Historic win for onboard air quality

<https://westjet.cupe.ca/2017/11/09/cupes-historic-win-onboard-air-quality/>

CUPE Onboard Air Quality: A Critical Issue for All

<https://cupe.ca/board-air-quality-critical-issue-all>

CUPE Ventilation

<https://cupe.ca/ventilation>

ELI - Topics in School Environmental Health

<https://www.eli.org/buildings/topics-school-environmental-health-overview-state-laws>

Environment Canada

https://weather.gc.ca/airquality/pages/provincial_summary/bc_e.html

Environmental Protection Agency (EPA) - Indoor Air Quality

<https://www.epa.gov/indoor-air-quality-iaq>

Environmental Protection Agency (“EPA”) - Indoor Air Quality Building Education and Assessment Model (I-BEAM) Text Modules: Heating, Ventilation, and Air-conditioning (HVAC)

<https://www.epa.gov/indoor-air-quality-iaq>

EPA - Indoor Air Quality and Climate Readiness

<https://www.epa.gov/indoor-air-quality-iaq>

EPA - Indoor Air Quality Publications and Resources

<https://www.epa.gov/indoor-air-quality-iaq>

EPA – Outdoor Air Quality

<https://www.epa.gov/report-environment/outdoor-air-quality>

EPA - Mold Remediation in Schools and
Commercial Buildings

http://www.epa.gov/mold/mold_remediation.html

Evaluation of Indoor Environmental Quality Concerns in an Elementary School

<https://www.cdc.gov/niosh/hhe/reports/pdfs/2017-0030-3277.pdf>

Evaluation of Indoor Air Quality and Health Concerns in a Public University

<https://www.cdc.gov/niosh/hhe/reports/pdfs/2015-0118-3249.pdf>

Government of Canada – British Columbia – Air Quality Index

https://weather.gc.ca/airquality/pages/provincial_summary/bc_e.html

Health Authorities

<https://www.healthlinkbc.ca/public-health-alerts>

HealthLinkBC – Combustion By-products

<https://www.healthlinkbc.ca/healthlinkbc-files/combustion-products>

HealthLinkBC and Health Region Information at

<https://www.healthlinkbc.ca/health-feature/wildfires-and-air-quality>

HealthLinkBC – Wildfires

<https://www.healthlinkbc.ca/health-feature/wildfires>

HealthLinkBC – Particulate Matter and Outdoor Air Pollution

<https://www.healthlinkbc.ca/healthlinkbc-files/outdoor-air-pollution>

Healthy Indoor Environment Workshop Report

<https://www.ncbi.nlm.nih.gov/books/NBK44638/>

Lawrence Berkley National Laboratory - Indoor Air Quality Scientific Findings Resource
Bank

<https://eta.lbl.gov/ied/sfrb/overview.html>

Occupational Health Clinics for Ontario Workers

<http://www.ohcow.on.ca/edit/files/25thanniversary/Doing%20something%20about%20AQ%20presentation%20Oct-31-2014.pdf>

Occupational Safety and Health Administration - Indoor Air Quality

<https://www.osha.gov/SLTC/indoorairquality/index.html>

OSHAcademy

<https://www.oshatrain.org/courses/mods/750m2.html>

Province of BC

<http://www.env.gov.bc.ca/epd/bcairquality/readings/find-stations-map.html>

<https://www2.gov.bc.ca/gov/content/environment/air-land-water/air/air-quality/air-advisories>

The Lung Association

<https://www.lung.ca/lung-health/air-quality/outdoor-air-quality>

Vancouver Coastal Health

<http://www.vch.ca/public-health/environmental-health-inspections/healthy-built-environment/air-quality/outdoor-air-quality>

World Health Organization - Indoor Air Quality

<http://www.searo.who.int/thailand/factsheets/fs0002/en/>

http://www.euro.who.int/data/assets/pdf_file/0009/128169/e94535.pdf

WorkSafeBC

<https://www.worksafebc.com/en>

WorkSafeBC OHS Regulations

<https://www.worksafebc.com/en/law-policy/workers-compensation-law/workers-compensation-act-regulations>

WorkSafeBC Rehabilitation & Services Claims Manual

<https://www.worksafebc.com/en/law-policy/claims-rehabilitation/compensation-policies/rehab-claims-volumeii>

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Reps_T-McKenna_WCB_Air-Quality_Addressing-Indoor-Air-Quality-OHS-Issues-and-Filing-WorkSafe-Claims_Summer_2020-April 15 2020