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Official Publication of the Building Operators Association (Calgary)



November 2020



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## Important Phone Numbers

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Alberta Labour (Emergency)	403 297 2222
Buried Utility Locations	1 800 242 3447
City Of Calgary (All Departments)	311
Dangerous Goods Incidents	1 800 272 9600
Environmental Emergency	1 800 222 6514
Poison Centre	403 670 1414
Weather Information (24hr)	403 299 7878

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# President's Message



Building Operators Association  
Box 22116, Bankers Hall  
Calgary, AB T2P 4J5  
www.boacanada.ca

## I hope this message finds you and yours well and in good health

Well, I am sitting watching the snow fall and realize winter has come like a thief in the night. I hope it didn't catch you unaware too and that your buildings were ready. So much has changed in the world it is nice to see that winter follows autumn. we can rely on that.

I was speaking to BOMA Calgary and the 5th class course is going to continue. It will be a virtual class and follow the same format as the attended ones. The online class is scheduled to begin the middle of January and run 150 hours, broken into 3-hour segments on Tuesday and Thursday evenings. To register and get the details please call the BOMA office and speak to Jessica at 403-237-0559.

The monthly meetings will continue as webinars. Last month the topic was filtration and how it helps in the facilities working with other HVAC components in the reduction of the Covid virus in our workplaces. For the rest of the year our meeting guest speakers will focus on the awareness, control and management in reducing exposures. Please note to attend our meeting webinar you need to get our link to attend the meeting. That link can be accessed be going to our website at boacalgary.com. There will be a link to each meeting and it will come with a reminder of the meeting just prior

to the meeting.

This was always important in the flu season and doubly important now. This month the guest speaker is Joanne Ogilvie with Sanuvox. Her talk will be on UV HVAC applications during the SARS-Covid-19 Pandemic. Please join us on November 10 at 17:00 the link to access the webinar will be found on our website, boacalgary.com.

We have as well C5+ to speak at the December webinar meeting, Curt Lamontagne will speak of the cautions we need to acquire in the defense of the Covid virus. I will post his topic of discussion on our website boacalgary.com.

With kind regards,

Les Anderson PE, RPA

### JOIN US!

For our Virtual BOA Monthly Meeting on  
Tuesday November 10, 2020 at 5pm



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## TEST YOUR OPERATOR IQ!

Are you equally adept at troubleshooting problems in the boardroom and the boiler room? As the resident facility guru, there's a lot riding on whether or not you know the difference between sounds control and a sound investment.

Try our monthly Operator IQ challenge...answers on page 17



1. **Fiberglass ducts are used:**

- a) in high pressure systems
- b) to handle air with high moisture levels or oil and grease
- c) where its heavy weight is not a problem
- d) where high strength is required
- e) in some low pressure systems

2. **Functions of terminal air distribution devices are accomplished;**

- a) only by diffusion
- b) only by diffusion and aspiration
- c) by aspiration, entrainment, induction, and diffusion
- d) only by entrainment and diffusion
- e) only by entrainment and aspiration

3. **Materials used in sheet metal ducts are:**

- a) only copper
- b) only aluminum
- c) only stainless steel
- d) galvanized or black steel, aluminum, copper, and stainless steel
- e) only galvanized or black steel

4. **Medium and high pressure duct systems require less space than low pressure duct systems, but this feature is partly offset by:**

- a) higher operating cost and higher initial cost of air handling apparatus
- b) costly special control devices and costly noise suppressing devices
- c) higher first cost for special equipment required to reduce the air velocity before distribution to the air space
- d) more costly fabrication and installation of ductwork
- e) all of the above

5. **Modulating dampers in air handling systems are used:**

- a) as mixing boxes to proportion the amounts of two different air flows such as outdoor air and recirculated air
- b) to modulate the volume of conditioned air needed to meet load requirements
- c) as face dampers to modulate the volume of air that goes through a cooling or heating coil
- d) as bypass dampers to throttle the balance of the constant total air flow around a heating or cooling coil
- e) all of the above

6. **Parallel blade dampers:**

- a) are used only in small sizes with low velocity air
- b) are used when modulation of air flow is required
- c) have blades linked so adjacent blades rotate in opposite directions
- d) are often used on mixing boxes where two sets of dampers
- e) are mounted with blades direct



# Managing Radon in Alberta Buildings

By Curt LaMontagne,  
Principal Consultant, C5 PLUS LTD.

*Radon gas is a significant health concern in Canadian buildings, but can usually be easily managed.*

## Background

By now, you've probably heard about the concerns of radon gas in Canadian buildings. However, since awareness of the health risks of radon gas risks is a relatively new development, you may be finding it difficult to get a handle on what you're supposed to do about it.

Here are the basics:

- ◆ Radon kills people by causing lung cancer. As of 2015, Health Canada estimated 3,200 Canadian deaths per year as a result of radon gas exposure.
- ◆ It's a naturally occurring radioactive gas that's both colourless and odourless.
- ◆ It seeps into buildings from belowground, where it can build up to dangerous concentrations.
- ◆ Children are at higher risk than adults (mostly due to having longer for the cancers to manifest).
- ◆ The only way to know if there's elevated radon in a building is to test for it.

Health Canada has recently developed new guidelines for testing radon in commercial and governmental buildings.

## Radon Management Planning

Radon gas is a manageable risk – but the key word here is “manage”. Because awareness of the problem is so new, there's a tendency for those who are trying to be proactive to focus on just getting testing done at a low cost.

However, especially if there are multiple facilities or large buildings, a complete management program is critical – as opposed to simply conducting a bunch of tests.

Elements of a management include factors such as: project management; risk management; communication and reporting; data integrity and preservation; quality assurance; and resource prioritization. Also of concern if using third parties: issues such as potential conflicts of interest, prescriptive vs performance specifications, and data ownership.

## Creating the Plan

### Step 1: Build your team.

Your team should have, at the least, representation from building management, safety & risk management, staff, and consultants if you choose to use them. You may also want to include tenant representatives. Be sure to get executive level buy in.

Plan on having the team meet often at the beginning of the process, but less often (although at least annually) as the program matures over time.

### Step 2: Create a written communications plan

The communications plan is probably the single most overlooked component when managing radon, and its lack the most likely to create problems.

Designate an official spokesperson (and alternate). Ensure contact information is included on any communications and train your staff to respond to any public or media queries by referring them to that spokesperson. Remember that to the media saying “no comment” is a newsworthy comment; whereas “you need to ask with [designated spokesperson] about that, let me get you their contact information is not.

Double check that communications go out to all stakeholders in advance of an actions taken.

Take an “Open Information” approach. You have nothing to hide, so make sure any and all information is available to anyone who wants it. In fact, promote it as loudly as you can. If practical, put all information online.

### Step 3: Develop and Implement a Testing Strategy.

There are no current regulations in Alberta requiring you to test your buildings for radon (unless they contain daycare facilities). That means you can take a measured approach to getting testing done; you don't have to do all in the first year.

According to the Health Canada guidelines, tests need to run for at least 91 days - “ideally” during cooler months. If you're planning on using the radon results for BOMA BEST accreditation, you pretty much must do the testing between October and April.

Factors to consider in prioritizing testing might include: areas with the most likelihood of elevated radon levels; where younger children might be present; any areas with previously elevated test results; and of course, financial considerations such as geographic convenience. Decide if you want to do your own testing or hire an external testing firm. Either approach can work, but be sure the people actual doing the testing are accredited through the Canadian National Radon Proficiency Testing Program (C-NRPP)<sup>1</sup> as measurement professionals. In general, look for experience working with large scale testing in other large buildings – proven project management experience with this sort of project is a much more difficult skill than the mechanics of the actual radon testing.

You can roughly estimate budget costs by estimating how many occupied rooms you have below grade (or at grade if there are no below grade occupied rooms). At least one sample per occupied room is required by the guidelines, and current prices for surveys tend to run from about \$100 to \$200 per sample location, depending on the size of the survey.

If you do decide to hire an external testing firm, be wary of potential conflicts of interest: the US EPA warns “Be aware that a potential conflict of

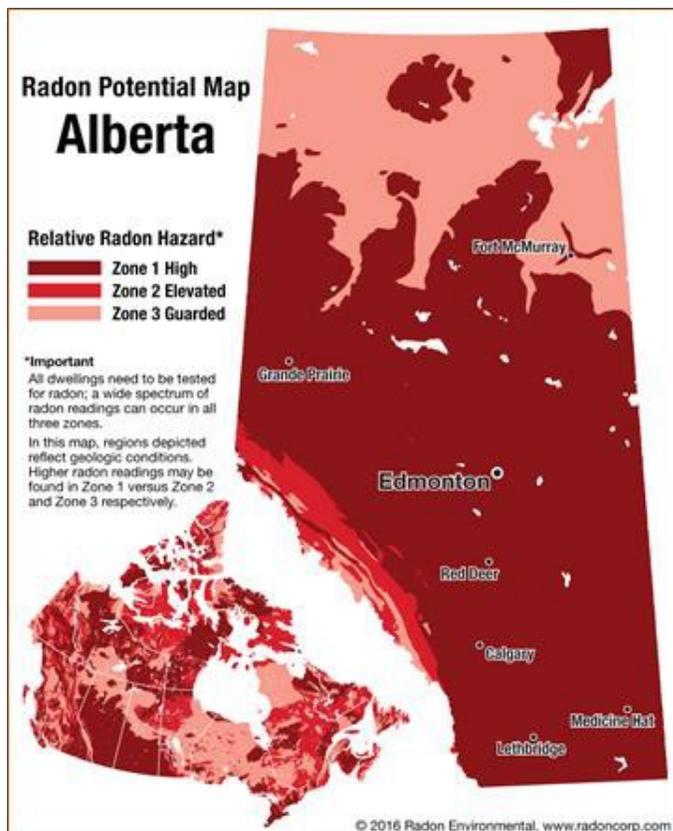
interest exists if the same person or firm performs the testing and installs the mitigation system.”<sup>2</sup> Many firms offering radon testing are counting on finding radon to acquire more profitable follow-on mitigation work. If you do choose to hire a mitigation contractor to do the testing, you may wish to advise them that any mitigation work will be done by a separate, unrelated contractor.

Make sure any reports are not only complete by the letter of the guidelines, but also follow best practices. Reports should be easily understandable, and include floorplans with sample locations, photographs, and specific recommendations. Ideally, they should be available online in an interactive format.<sup>3</sup>

Finally, ensure any results and data are 1) at least co-owned by your organization, and 2) will be kept available for several years.

<sup>2</sup><https://www.epa.gov/sites/production/files/2015-05/documents/hmbuygud.pdf>

<sup>3</sup>Depending on your location, this may not be practical, as not many radon measurement firms can offer this as of yet.



<sup>1</sup><https://www.c-nrpp.ca>

### Step 5: Develop a Mitigation Strategy

Depending on what's found in the surveys, you may need to mitigate the radon gas. Health Canada guidelines recommend mitigating within 2 years if results are found over 200 Bq/m<sup>3</sup>, and within 1 year if results are found over 600 Bq/m<sup>3</sup>. Be aware some organizations are mitigating where results approach 100 Bq/m<sup>3</sup> – that decision is up to you.

If you do find elevated levels, don't get stampeded into making immediate, expensive decisions. Radon mitigation is a relatively new field, and there's a lot of innovation going on within it. Be open to alternative proposals and technologies to reduce radon levels to acceptable levels.

Relatedly, be cautious regarding issuing prescriptive (telling the contractor exactly what to do) vs. performance based (telling the contractor what has to be achieved) RFPs. The latter will allow much more flexibility for innovative approaches, and may save a significant amount of money.

Remember too that radon mitigation contractors are highly incentivized to sell you mitigation systems - this is an area where having a knowledgeable radon consultant can be very useful.

**Step 6: Monitor and Review** Once all your facilities have been tested and, if necessary, mitigated, you're done, right? Not so fast – radon levels can be significantly affected if you modify your HVAC systems or conduct major renovations. You need to have a plan to monitor and re-test if either of these conditions occur. You may also want to conduct periodic re-testing just as a precautionary measure.

Make sure you have all the information easily available even when all the testing and mitigation has been completed. Recently, there were school districts in Ontario and Manitoba who had pretty bad publicity issues because they could not find or produce the testing documents from work done previously (i.e. – did not have a proper radon management program in place).

### Final Thoughts

No one likes the idea that there may be a dangerous radioactive gas in their buildings, but always remember this is very much a manageable problem.

Having a properly implemented program for radon gas is going to make life safer and simpler for everyone.

### Resources

*Canadian National Radon Proficiency Program (C-NRPP)* - <https://www.c-nrpp.ca>

*CARST – Canadian Association of Radon Scientists and Technologists* - <https://www.carst.ca/>

*Health Canada Guidelines for Radon in Public Buildings* - <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/guide-radon-measurements-public-buildings-schools-hospitals-care-facilities-detention-centres.html>

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**Location:** Virtual Classroom. Secure password required

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# Light Disinfection

Public Article from ASHRAE

Note: NM refers to the wavelength of light in nanometers

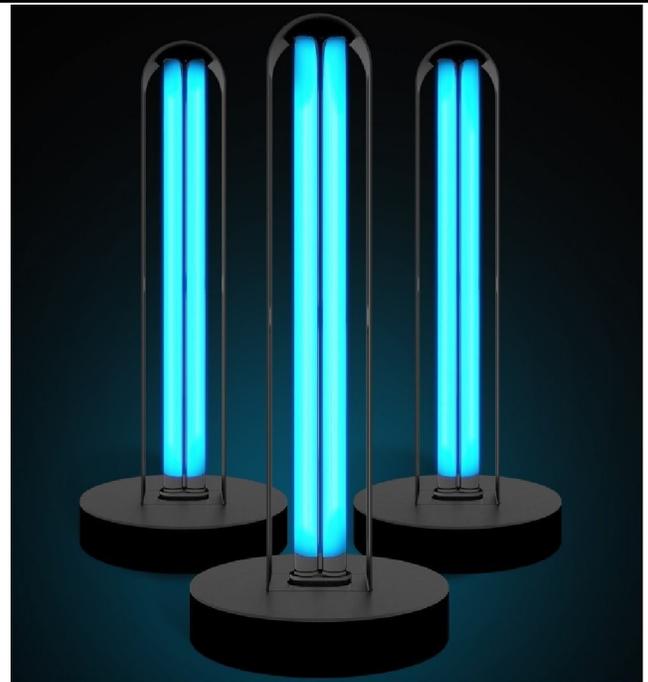
## Pulsed Xenon (Pulsed UV)

- High-powered UV lamps (generally containing xenon gas) used in rapid pulses of intense energy.
- Emits a broad band of visible and ultraviolet wavelengths, with a significant fraction in the UV-C band.
  - ◊ Uses significantly higher power outputs than usual UV-C techniques.
  - ◊ Inactivates viruses, bacteria and fungi using the same mechanisms as standard UV-C systems.
- Typically used for healthcare surface disinfection, but can be used in HVAC systems for air and surface disinfection.

For more information, see the [FAQ on Germicidal Ultraviolet \(GUV\)](#) published by the Illuminating Engineering Society (IES) Photobiology Committee.

## 405 nm Visible Light

- Sometimes referred to a “Near UV,” although not in the UV spectrum.
- Generally integrated into standard room lighting systems.
- Kills bacteria and fungi via different mechanism than UV-C.
  - ◊ Targets and excites naturally-occurring porphyrin molecules inside organisms, creating reactive oxygen species.
  - ◊ Reactive oxygen species kill by a mechanism similar to bleach.



- Effectiveness at killing viruses, including SARS-CoV-2, is not as well documented.
- Provides continuous disinfection of air and exposed surfaces in occupied spaces.
- In the [FAQs on Germicidal Ultraviolet \(GUV\)](#), the Illuminating Engineering Society (IES) Photobiology Committee notes that effectiveness is approximately 1000 times less than UV-C and the effective doses are not practical in an occupied environment.

## Far Ultraviolet

- Far UV spectrum is 205 to 230 nm.
- Some deactivation of bacteria and viruses at the 207 nm and 222 nm range.
- 222 nm said to effectively penetrate microorganisms 1µm in size and smaller.
- Unable to fully penetrate larger microorganisms.
- UV Dose required to inactivate microorganisms is significantly higher at these wavelengths than in the UV-C range.
- While safety concerns are reduced, can still cause damage to eyes and skin.

For more information, see the [FAQs on Germicidal Ultraviolet \(GUV\)](#) published by the Illuminating Engineering Society (IES) Photobiology Committee.



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# KenKen Puzzle

How to solve the KenKen puzzle:

(Answers on page 15)

- Fill in the numbers from 1 –6
- Do not repeat the number in any row or column
- The numbers in each heavily outlined set of squares, called cages, must combine (in any order) to produce the target number in the top corner using the mathematical operation indicated
- Cages with just one square should be filled in with the target number in the top corner
- A number can be repeated within a cage as long as it in the same or column

2 ÷		4	3 -	1 -	
8 +		5 -		20 ×	
3 +			3	3 -	10 ×
	600 ×				
1 -		6 +	5 -		3
	2			10 +	

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# COVID-19 Cost Relief

## Q&A

The widespread impact of COVID-19 and the resulting business disruption have caused unprecedented challenges for employers. Alberta employers have asked WCB for cost relief to reduce the direct financial impact of COVID-19 claims and extended periods of disability for other claims due to treatment delays.

In response to feedback from stakeholders, WCB-Alberta is implementing cost relief measures that will offer the most extensive COVID cost relief in the country and will relieve approximately \$10 million in claim costs from employers' experience.

### ***1. Why is WCB-Alberta considering cost relief for employers?***

Employers across the country have asked their respective workers' compensation boards for cost relief to reduce the financial impact of the pandemic. Specifically, Alberta employers have asked WCB for cost relief to reduce the direct financial impact of COVID-19 claims and the extended periods of disability for other claims due to treatment delays and/or the inability to offer modified work during the provincial shutdown (March 16 – June 12). WCB has determined five conditions related to COVID-19 meet the criteria for cost relief.

### ***2. What is cost relief?***

Cost relief is the practice of moving individual employer costs to the industry rate group level for claim costs related to pre-existing conditions or costs that are extraordinarily outside of an employer's control.

### ***3. Will worker benefits change?***

No. Workers will continue to receive all the benefits they are entitled to. Cost relief only ad-

justs the costs on the employer's experience record—it has no impact on the actual benefits that are paid to injured workers.

### ***4. Who will be impacted by these measures? What types of claims will have costs relieved?***

WCB will remove costs automatically through five applications of cost relief, including an administrative change that will positively affect employers' experience rating.

- 1. Cost relief for COVID-19 claims.*
- 2. Cost relief for claims where modified work was no longer available for no-time-loss claims due to the provincial shutdown.*
- 3. Cost relief for claims where the worker became fit for work during the shutdown and the employer could not offer modified work because of the shutdown (modified work must have been offered within two weeks of the provincial re-opening).*
- 4. Cost relief for delays in hospital admission and surgeries due to the pandemic.*
- 5. Recording claims as no-time-loss when modified work is no longer available. Although there are no actual costs to relieve, the status of the claim on the experience record will be changed, which can impact premiums.*

Many claims did not experience delays related to the pandemic and will not qualify for cost relief.

### ***5. Why aren't other treatment delays included (e.g., for physiotherapy and other similar treatments)?***

WCB's review found that there were not substantial delays with treatment. Providers pivoted quickly (in approximately three weeks) during the shutdown to switch from in-person

**5. Why aren't other treatment delays included (e.g., for physiotherapy and other similar treatments)?**

WCB's review found that there were not substantial delays with treatment. Providers pivoted quickly (in approximately three weeks) during the shutdown to switch from in-person to virtual assessments and treatment. Although any delay can be costly, these delays do not meet the conditions for cost relief.

**6. How does WCB-Alberta's approach compare to what other provinces are doing?**

Each province has its own approach to cost relief in their rate-setting models. Most Canadian jurisdictions that are offering cost relief have focused primarily on COVID-19 claims.

**7. Why isn't WCB consulting on these changes?**

Employers provided feedback early in the pandemic regarding the challenges they were see-

ing. A key part of that feedback was that they preferred WCB work within existing policy so that we could implement changes quickly. The COVID-related cost relief can be applied with only one non-substantive change to policy that expands state of emergency criteria.

**8. When will these costs be relieved?**

The work to relieve these costs from employers' experience records will begin in the third quarter of 2020. WCB is working on the necessary system changes to implement the cost relief automatically by the end of the year.

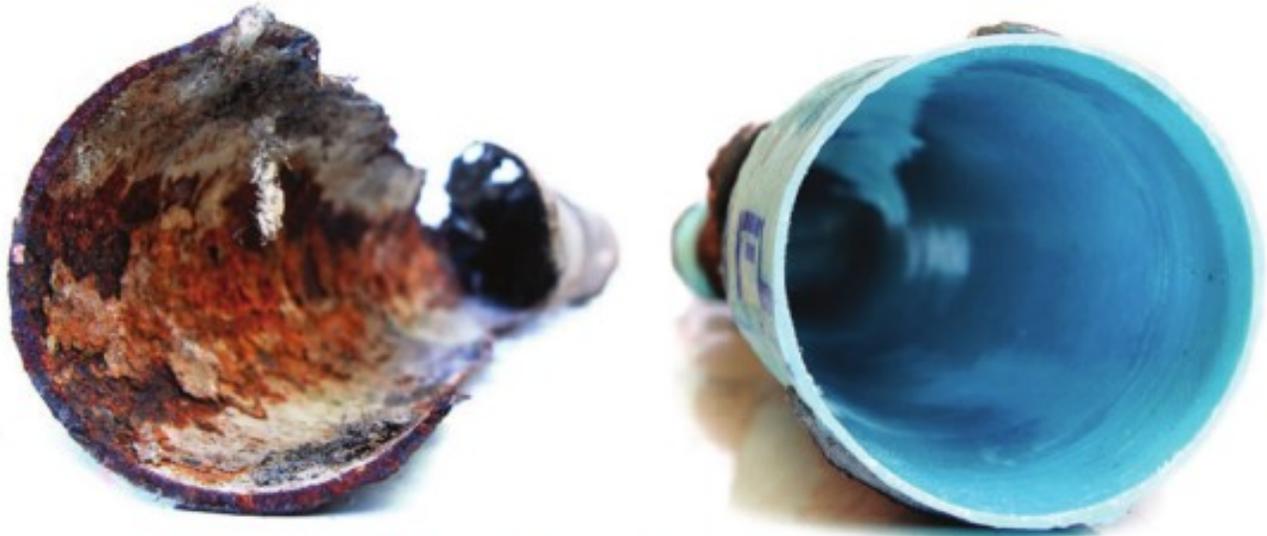
**9. When will premiums be impacted?**

The earliest the cost relief would impact experience rating is 2022; however, employers in the Partnerships in Injury Reduction program would be impacted in 2021. WCB is planning to have all the work completed in 2020 so that these employers will not be impacted.

September 2020



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# Understanding the cause of your worker's injury or illness: How WCB determines work relatedness

## Employer Fact Sheet



### The workers' compensation system

The workers' compensation system provides disability coverage and rehabilitation support for injuries or illnesses caused or made symptomatic (aggravated) by work. In most cases, causation is straight forward and WCB adjudicators are able to quickly confirm an injury's relationship to work. In some cases the relationship is not as clear.

Although your worker may experience pain at work, the work itself may not be the source of their condition; therefore, it is important for you and your worker to understand how WCB determines work-relatedness and workers' compensation coverage.

### Cause and effect: causation

Causation is defined as a situation in which one event leads to the occurrence of another event. For example, a crane swings out of control and hits scaffolding, causing a worker to fall and be injured. This is an example of causation.



### Why is causation important?

Evaluating causation is important in determining whether injuries or diseases are work related (arise out of and occur in the course of employment). Workers' compensation is fully funded by Alberta's employers and only is intended to cover the costs of occupational related injury and illness.

Some cases are more complex and WCB adjudicators seek help from experienced consultant physicians, who consider how the injury happened, any exposure to tasks or substances, published research to support work relatedness, along with any other relevant information that may help paint a complete picture of how an injury or illness may

be related to work. All of this information provides insight into the cause of an injury and helps WCB physicians in developing a medical opinion around whether the injury could have been caused by work.

The medical consultant does not need to complete a physical exam — they rely on the worker's physician for that information. They are there to draw the link between work and injury based on medical evidence.

### What information is currently used to determine causation?

For a fair and impartial assessment of causation, WCB physicians use the **AMA Guides to the Evaluation of Disease and Injury Causation** as their primary reference.

This resource is a comprehensive summary of existing causation research we have found and contains a standard approach to be considered by a physician when providing an opinion on whether an injury is work related or not.

### How is new medical information considered?

Medical research can change what we know about a condition or about the work factors that could lead to the development of a work-related injury or illness.

WCB has an approach to evaluating new research papers to determine if new research changes the existing referenced medical evidence and can discuss this approach with your worker's doctor. Using a standard approach, and having it open to their physician for questions or review, ensures transparency and clarity around the scientific evidence used when considering causation.

### More information

For more information on the new research papers evaluation process, please refer to the occupational injury causation fact sheet.

### Causation scenarios can vary from very straight forward to complex

#### Scenario 1(A)

Abby is a warehouse worker sorting heavy pipes on a shelf. One of the pipes falls and lands on her foot

breaking a bone in her foot. Abby's foot injury was caused by her work.

**Scenario 2(A)**

Albert has recently been diagnosed with mesothelioma, a cancer of the lining of the lung. He had worked for many years in the 1960s and 70s demolishing old buildings during which time he was exposed to asbestos. In those days they had little in the way of personal protective equipment.

A detailed review was done of Albert's asbestos exposure during his working life in Alberta. Scientific research shows a direct link between asbestos exposure and the development of Mesothelioma.

It was found that Albert's mesothelioma was more than likely caused by his work exposure to asbestos while demolishing buildings. Albert's mesothelioma is a work-related condition.

**Scenario 3(A)**

John is a long-haul trucker. While driving his rig he comes upon a motor vehicle collision. He provides first aid for a severely-injured passenger from one of the vehicles.

After he gets home, John becomes anxious, nervous about driving, and hyper vigilant at intersections. John is diagnosed and treated for an acute stress reaction.

John's stress reaction is a traumatic psychologi-

cal injury and has a direct relationship to the motor vehicle accident he witnessed while performing his regular work duties as a truck driver.

**Scenario (B)**

Abby was gardening in her yard. She dropped a large rock on her foot, breaking a bone in her foot. When she returned to work her employer was able to provide her with work in the office, sitting at a desk. Abby found that her foot was too painful to focus on work and went home. Abby missing time from work is caused by her broken foot and not due to her work.

**Scenario (B)**

Albert was diagnosed with thyroid cancer. He wonders if the cancer is related to his work doing building demolition which exposed him to asbestos. A detailed review of the scientific research does not show a relationship between asbestos exposure and an increased risk for thyroid cancer. Albert's thyroid cancer is not related to his work.

**Scenario (B)**

John is driving while on vacation and comes upon a motor vehicle collision and provides first aid to a severely-injured passenger.

After he gets home, John is diagnosed and treated for an acute stress reaction related to the motor vehicle collision.

Since John was not working at the time of the motor vehicle collision, his acute stress reaction was not caused by work.

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**Kenken Puzzle Answer** 

**TEST YOUR OPERATOR IQ ANSWERS:**

Answers: 1) E 2) C 3) D 4) E 5) E

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<h1>General Meeting Minutes</h1>			
Chaired by: Mark Arton	Minutes by: Monika Bhandari	Call to order: 5:03pm	Webinar: October 13, 2020

**New Business:**

- **Introduction from Mike Arton**

**Guest Speaker:**

**Mike Gerald – BGE, Indoor Quality**

**Topic of Presentation: HVAC Filtration during Covid-19**

**New Business:**

- October BOA Magazine has been mailed out
- BOA Meetings will be virtual and providing relevant Covid-19 safety during this time
- Tradeshow postponed until May 2021 due to Covid-19
- Invoices have been mailed out to Membership; can pay through paypal on [www.boacalgary.com](http://www.boacalgary.com) website
- Guest Speakers video will be posted on website and YouTube
- Next few meetings will take place on COVID-19 related issues affecting Buildings and Operations
- Next virtual (zoom) meeting on Nov 10, 2020 05:00 PM



## Sun Glare Tips

About 90% of the decisions we make behind the wheel, comes through our vision. Unobstructed vision is key to safe driving. When driving into the sun, you could run into problems with a dirty windshield, or a windshield with pits or cracks—which can behave like a prism, affecting vision, giving off a kaleidoscope effect.

**Tips to Help You Avoid Sun Glare:**

- Clean the inside of your windshield at least once a month. Many drivers clean the outside windshield on a regular basis but tend to neglect the inside
- Check your windshield for pitting and cracks
- To help others see you, drive with your headlights on, signal all your intentions, and make sure all lights are clean and visible
- Increase your following distance to at least 4 or 5 seconds
- Drive to conditions — remember the maximum posted speed is under ideal conditions
- Wear good quality sunglasses
- If the glare is really bad (which can be the case at sunrise or sunset) pull over someplace safe, and wait a couple of minutes for the sun to move
- Use your sun visor — it can help to block out the sun

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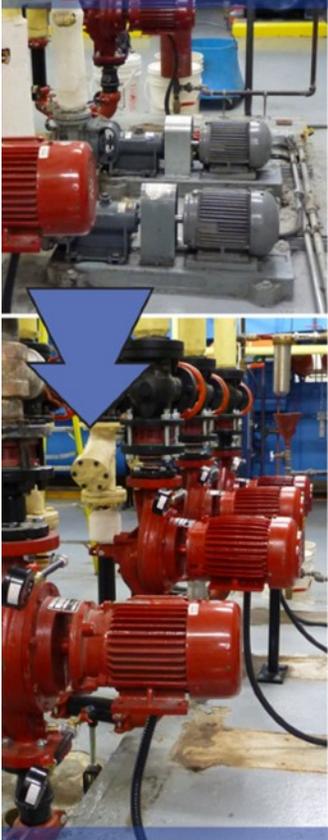
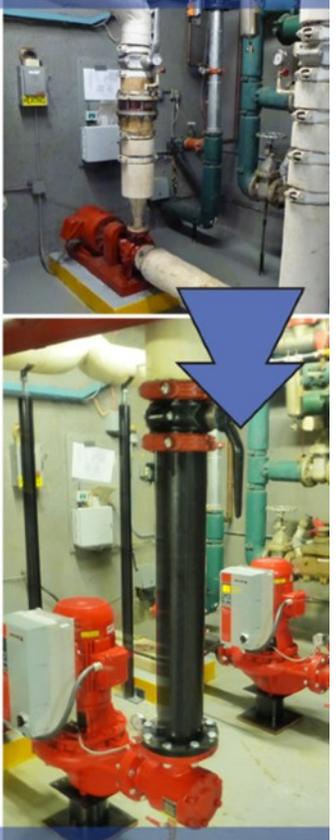
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