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Official Publication of the Building Operators Association (Calgary)



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# PRESIDENTS MESSAGE

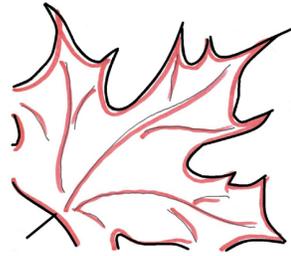


**I hope this message find you and yours well and in good health**

With the extreme measures in place across the country and even though the buildings have been put under a minimum occupancy because of the Covid-19, the Owners and Managers must be made aware that the continued maintenance of the systems must be done as scheduled. I understand that these days with the vacancies and minimal occupancy that operations monies are tight and that it would seem easier to defer the cost of maintaining some systems. The maintenance and repair of critical systems, including HVAC units, refrigeration equipment and plumbing systems, is more important now than ever. The regular schedule of filter changes, the purging of the buildings indoor air with outdoor air will continue to keep the indoor air renewed. It may be in the best interests to increase the operating hours and scheduled maintenance in some instances.

The COVID-19 pandemic continues to impact businesses, property managers and owners, all are juggling financial resources and commitments to their own customers and employees, but one decision that should not be tough, is whether to continue to maintain a building's infrastructure systems. They may not be fully aware of why now, is not the time to pause their maintenance programs. Holding off on repairs and maintenance does not make any sense when safety should be everyone's main concern at a time like this. Deferring maintenance of systems could impact warranties and insurance claims as well.

Is your building open for business as usual, reduced hours, or closed altogether? Many property owners and managers look to their Building Operators and service providers to offer them advice about the equipment they need, and the service that equipment requires. It makes sense to advise them with a logical approach that reflects the need for safety of the occupants in the building. Where maintenance programs do exist and are being followed, it may still be beneficial to modify changes to a building's level of occupancy that may impact the schedule of its maintenance needs. To simply abandon or defer a maintenance program may increase the need for additional repairs or replacements down the road. From the supply chain side, distributors and manufacturers, keeping regular checks on inventory, lead times and



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technical support capabilities navigate through one of the most challenging times our industry has seen. While we may be maintaining social distancing. We will work together under this new normal that is developing.

The Building Operators Association has set back monthly meetings and our Trade show until it is safe to continue. Please take care of yourself and your loved ones by maintaining social distancing and remembering that we are all in this together, together we will get through this. I hope to see you all soon, in person.

Sincerely  
Les Anderson.

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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.

If you're ready for 21st century challenges, then you are ready for our monthly Operator IQ challenge...answers on page 17.

1. **A disease caused by mineral dust that converts healthy lung tissue into fibrous or scar tissue is known as:**
  - a) cystitis
  - b) neurosis
  - c) laryngitis
  - d) nephritis
  - e) silicosis
2. **A personal protective device which can readily cause infection is the:**
  - a) steel toed shoe
  - b) ear plug
  - c) steel reinforced glove
  - d) welding goggle
  - e) ear muff
3. **A personal safety item still made out of asbestos is the:**
  - a) apron
  - b) steel toed shoe
  - c) shin protector
  - d) elbow protector
  - e) glove
4. **A piece of safety equipment responsible for protecting against harmful chemical fumes:**
  - a) are the safety goggles
  - b) are the nose plugs
  - c) is the face shields
  - d) is the gas masks
  - e) are the filter type respirators
5. **After completing the isolation of equipment:**
  - a) you must enter the completed isolations in the log book
  - b) you can start work immediately
  - c) you require no further checks
  - d) you must have a co-worker verify your isolation
  - e) the Safety Committee must ok prior to work commencement

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# Design Registration Numbers: CRNs, ALDs and ALTs

In Alberta, the Safety Codes Act and Pressure Equipment Safety Regulation lay out the basic legal requirements for design registration of pressure equipment, establishing rules for submission of design drawings and supporting documents in order for an Alberta registration number to be issued. While the Alberta legislation refers to the issued number simply as a 'registration number', it refers further to CSA B51, which provides for a harmonized numbering system for design registrations across Canada, introducing the term Canadian Registration Number, or 'CRN'.

There are some cases that a registration number needs to be issued for use in Alberta which does not fit within CSA B51's definition of a CRN. These numbers are called ALDs, for Alberta Limited Design, and given 'ALD' as a prefix. ALDs are issued with the intent of keeping the registration number outside the scope of CSA B51's definition of a CRN, although it should be noted that CSA B51 requirements still generally apply to the registered equipment—only the registration number itself is outside of its scope. Some of the cases in which ALDs may be required include:

- Equipment constructed to ASME Section VIII-2, which requires that it suit a User's Design Specification that is specific to the end user, location of installation, and intended application
- Limit to use by a single end user, because the end user's acceptance of an unusual design method was required
- Limit to use by a single end user, because an unusual maintenance or monitoring commitment was required
- Special design or construction considerations need to be drawn to the Authorized Inspector's attention at the time of installation, repair, or alteration
- The design relies on a variance or other concept that is specific to Alberta law which other provinces may not recognize.

The 2019 edition of CSA B51 introduced a new type of design registration number, known as an 'alternative' or 'ALT' CRN. When a design uses "allowable alternatives to prescriptive rules" from the ASME code that are not otherwise required to be recorded on the Manufacturer's Data Report (MDR), paragraph 4.3.5 of CSA B51 requires that the CRN be prefixed with 'ALT', and paragraph 4.6.6 requires that the affected components then be noted on the MDR. The criteria for issuing an 'ALT' CRN can therefore be broken down as follows:

- 1.The design uses allowable alternatives to prescriptive rules, and
- 2.The specific components on which those rules are used are not otherwise required to be indicated on the MDR.

CSA B51's new alternative CRN provides for a type of registration number that is in some ways similar to an 'ALD', but with a more specific intended application, and which will be recognized by other Canadian jurisdictions. Typical examples of cases where an 'ALT' CRN may be required include the use of code appendices, which sometimes provide alternatives to basic code rules, and the use of code cases. An interesting example can be considered for the use of ASME Section VIII-1, Appendix 46. If there is no available design approach prescribed by the code, then Appendix 46 can be used as permitted by U-2(g), allowing the designer to refer to ASME Section VIII-2 for design rules. In this case, it is not being used as an alternative to a prescriptive code rule, and the design doesn't meet the CSA B51 criteria for issuing an 'ALT' CRN. Conversely, subparagraph UG-16(a) also allows use of this appendix in lieu of existing prescriptive design rules. In this case, since it is being used as an alternative to prescriptive rules, and since

*Continued on page 9.....*



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# KENKEN PUZZLE

How to solve the Kenken puzzle: (answer on pg. 21)

- Fill in the numbers from 1 -6 (in this case 6, because the kid is 6x6).
- Do not repeat 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 is not in the same row or column.

12x			5-	12x	2-
5	6x	2÷			
3+			5	24x	
	11+	1-		3	3-
3-		5-	6x		
	4			10x	

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Appendix 46 does not itself require its use to be recorded on the MDR, it meets the CSA B51 criteria for requiring an 'ALT' CRN. CSA B51 then also requires the use of the appendix to be recorded on the MDR, with an indication of which pressure components are affected.

Code cases often provide alternatives to prescriptive code rules as well, and so often meet the first criteria given by CSA B51 for requiring an 'ALT' CRN. The second condition needs to be considered more carefully: although code cases generally require that their use be indicated on the MDR, they don't always require that the MDR indicate which components are affected. The deciding factor in whether an 'ALT' CRN will be required will often then be whether the code case

requires the MDR to clearly indicate which parts are affected by its use. An example that can be considered is Code Case 2260, which permits an alternative design formula to be used to determine the required thickness of an ellipsoidal head on a Section VIII-1 vessel. The code case requires its use to be indicated on the MDR, but does not require that the MDR indicate which heads are affected; CSA B51 would therefore require that an 'ALT' CRN be issued, and that the affected components be identified on the MDR.

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<https://www.absa.ca/media/2183/v25-iss1-2020-march-the-pressure-news.pdf>

## ABSA Information Bulletin No. IB20-006

March 16, 2020

### ABSA COVID-19 Measures

Reprinted with permission from ABSA - the pressure equipment safety authority

In response to the coronavirus pandemic, ABSA has taken reasonable measures to protect its staff and support the health of our community by implementing social distancing practices to help reduce the spread of the virus.

Effective March 16, 2020, ABSA offices are closed to the public, guests and visitors, and will remain closed until the imminent threat to public health is reduced.

During this period ABSA staff will be providing limited services. Any work that can be done from home is being done from home. A small number of staff will be working at our offices to perform critical tasks that cannot be done elsewhere. We will continue to receive mail and courier

deliveries at our offices. Payment for goods and services received by ABSA will not be interrupted. It is not business as usual, but we are committed to providing the best services we can under the circumstances.

- All examinations, welder tests and seminars are cancelled until at least May 15, 2020.
- We are asking all clients to submit designs electronically via email or, once an account is set up, through the new CRNOnline web portal. We will continue to accept hard copy submissions, but processing these will take longer than the current norm.

- We will respond to reports of unsafe conditions and accidents.
- We will continue to provide shop inspection services, and repair and alteration inspection services at shop and field sites. Inspectors will be conducting a COVID-19 Job Safety Analysis (JSA) prior to visiting the facility. Please be prepared to discuss the actions your company has taken to protect your staff and our inspectors.
- In-service inspections and quality system audits are hereby suspended. Extensions will be issued to Quality Management System (QMS) certificates that are due to expire.
- We will continue to accept requests for in-service inspections and quality systems audits on a case-by-case basis and will determine our response on the outcome of a health and safety risk assessment.
- No in-person meetings will be held at ABSA offices until further notice. Previously scheduled in-person meetings are now cancelled, but may be rescheduled to Skype format.
- ABSA staff can be contacted by email or by telephone in the usual manner.

ABSA management is monitoring the situation and reviewing our contingencies on a daily basis.

Stay safe and stay healthy,

Mike Poehlmann, General Manager

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# 6 Facility Strategies to Prevent Coronavirus Spread

*As facilities slowly begin to reopen, consider these important infection control tips to prevent the spread of the virus.*

While it is too early to fully measure the global impact of the coronavirus, it is safe to assume that how facilities conduct day-to-day business will change. There will be a new norm. People will view the person coughing next to them in the elevator differently. The sniffing and sneezing cubicle neighbor — is it allergies or the flu? While facility departments cannot prevent sick people from coming into their buildings, they can implement measures that mitigate risk and bring peace of mind so that workers and patrons can breathe more easily.

These measures make sense even if the COVID-19 pandemic was a once a century event. The Centers for Disease Control and Prevention (CDC) estimates that, since 2010, from 9 million to 45 million people in the United States have contracted the flu each year, with death tolls estimated to be as high as 61,000. Depending upon the severity of the flu season, the economic impact to the United States could exceed \$87 billion with 65 percent of those costs the result of lost productivity and revenue — that's just shy of half a percent of the U.S. gross domestic product; to translate, the flu would wipe out Amazon's 2019 fourth quarter revenue. Given those numbers, the common flu alone provides significant fiscal justification to improve and invest in facility management practices and operations in six areas.

## 1. Cleaning practices

Knowing that pathogens can remain viable on surfaces for days, a practical first line of defense is comprehensive cleaning practices employed at the facility. CDC recommends routine cleaning of frequently touched surfaces, such as tables, doorknobs, light switches, and faucets with

Environmental Protection Agency (EPA)-registered disinfectants that are appropriate for the surface; facility managers may want to potentially increase cleaning frequency during the flu season, which runs from October through May. Common spaces, such as restrooms, breakrooms, conference rooms, etc., should take high priority.

Building occupants should be encouraged to clean their personal workspace with approved disinfectants, as provided by facility or environmental, health, and safety departments.

Note that cleaners merely remove dirt and grime, but do not necessarily kill bacteria or viruses; EPA provides a list of registered disinfecting products, contact time, and targeted pathogen.

## 2. Education and awareness

The COVID-19 pandemic has drastically increased awareness of the need for handwashing, covering coughs, and isolating oneself when symptoms are present. Educational signage should be displayed, with occasional email reminders, to keep this awareness at the forefront of everyone's mind — especially during the flu season.

Facilities can take extra steps by expanding the location of sanitation stations, providing appropriate masks, and ensuring occupants have access to approved disinfectant wipes.

Building systems and operations present many opportunities to reduce the risk of infection. Bacteria, mold spores, and viruses, such as COVID-19, can remain airborne for hours. Thus, beyond surface cleaning, facilities should explore these other options for reducing the level of infection-causing agents in the air.

*Continued on page 12.....*

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### 3. Positive building pressure

The first step in delivering healthy indoor air quality is to properly balance the building so that it maintains positive pressure versus outside. This will mitigate moisture and air infiltration and prevent related contaminants from entering via uncontrolled pathways.

To achieve that goal, it's important to ensure that the facility is airtight. Buildings should be properly commissioned and balanced by qualified providers after any construction that affects the exterior or changes the air or water (HVAC) distribution. Additionally, it is recommended that recommissioning occur every three to five years with some TAB (test/adjust/balance) measurements sampled. This step will ensure the facility and its systems continue to efficiently operate as designed.

Building pressure should be monitored and trended via the building automation system to confirm it remains within limits.

### 4. Relative humidity

While it is difficult to directly control, maintaining satisfactory relative humidity levels can play a key role in pulling dust, pollen, and mold spores out of occupied space. Lower humidity levels allow harmful molecules to stay airborne and to easily transfer from space to space.

Relative humidity of 40 to 60 percent has been shown to help inactivate the flu virus, and it improves the human body's defense system against infection. It also helps to improve the rate at which viruses settle out of the air.

Ideally, humidification systems (e.g., steam injection) could be installed in air handler units, especially in drier climates; however, this can be cost prohibitive. Without adding humidification to the supply streams, relative humidity might be controlled by managing the mix of outside air and return air; of course, minimum outside air requirements must be maintained, as well as satisfactory filtration. This approach draws a

facility closer to monitoring and controlling enthalpy versus dry bulb temperature, which does require more programming of the building automation system.

### 5. Outside air

Multiple studies have shown the positive impact of increased outside air on occupant health and productivity. For example, a study funded by United Technologies found that doubling ventilation rates doubled cognitive function test scores and resulted in fewer sick days.

(Perform an engineering analysis to determine if a facility's air distribution system can accommodate the increased head loss from upgraded filtration levels.)

EPA states: "Control of pollutants at the source is the most effective strategy for maintaining clean indoor air. Control or mitigation of all sources, however, is not always possible or practical. Ventilation, either natural or mechanical, is the second most effective approach to providing acceptable indoor air."

ASHRAE 62 establishes minimum air turnover rates; going beyond that minimum will significantly reduce harmful particles and improve overall building health.

### 6. Filtration and UVC

Improving air filtration is crucial to scrubbing and providing healthy indoor air. Media filters, which are predominant, can satisfy most filtering needs; however, they do have limitations. MERV (minimum efficiency rating value) ratings as defined by ASHRAE provide varying degrees of filtration. For example, a filter with a MERV rating of 13 is highly efficient and can remove some bacteria and viruses. MERV 15 filters, which are normally deployed in hospital inpatient care spaces, can filter all bacteria. However, to filter all viruses, you would have to employ HEPA (High Efficiency Particulate Air) filters, which have MERV ratings of 17 to 20.

*Continued on page 13.....*

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It is important to note that the higher the MERV rating, the higher the pressure drop across the filter bank. Thus, an engineering analysis would need to be performed to determine if a facility's air distribution system can accommodate the increased head loss and to identify what changes are needed to upgrade filtration levels. The analysis must be an end-to-end evaluation from the air handler to the point of use (e.g., diffuser), accounting for all losses. Additionally, as the MERV rating goes up, so do the respective costs. Thus, filters with lower ratings should be installed as pre-filters — introducing more head loss. All that said, improving indoor air quality is not as simple as installing “better” filters.

As an alternative to media filters with high MERV ratings, UV-C air cleaners use ultraviolet C light to “degrade organic material and inactivate microorganisms,” according to an ASHRAE position document. ASHRAE also notes that UV-C or UVGI (ultraviolet germicidal irradiation), as it

is sometimes called, is not a filter; thus, a media filter must be used in conjunction with UV-C. There are several variables at play in determining where to install such UV systems; facility managers should consult a qualified specialist and reference ASHRAE Standard 185 for more specifics.

The key with any filtration system is proper design, installation (including TAB), monitoring, and maintenance, replacing components as their effectiveness and efficiency wane.

*John Rimer ([john@fm360consulting.com](mailto:john@fm360consulting.com)), CFM, is president of [FM360, LLC](#). In more than 20 years of facility management experience, he has implemented and managed facility programs for companies such as Intel, Microsoft, JP Morgan Chase, and Charles Schwab.*

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## Power Engineering Survey Results Update

In August of 2018, ABSA began to conduct a survey of power engineers registered in Alberta. The power engineers who were surveyed were asked to provide information regarding their employment status. The results of the survey have provided an overview of current employment trends in Alberta and have provided a clearer picture of what the demand is for power engineers in the province.

To date, 54% of all registered Alberta power engineers have completed the survey. Of those surveyed, 43.7% are employed in Alberta and are employed in positions that require, by the regulation, certification in Alberta. 16.3% of those surveyed, who are employed in Alberta, are employed in positions for which their employer requires a power engineering certificate that is not required by the regulation. 39.9% of the

power engineers who have taken the survey are not employed in Alberta or are employed in a position not specifically related to power engineering.

The results of the survey have helped address concerns from industry regarding a possible shortage of certified power engineers in Alberta. The results of the survey will also continue to assist with the further development of the power engineering certification program.

Reprinted with permission from ABSA. Article from March 2020 ABSA Pressure News.

<https://www.absa.ca/media/2183/v25-iss1-2020-march-the-pressure-news.pdf>

# Safe at Work: Creating Healthy Workplaces During Coronavirus Pandemic

*Darrell X. Rounds discusses management, HVAC and cleaning strategies designed to create emotional safety for workers*

These are unprecedented times. The world has stopped spinning. Governments have issued stay-at-home orders for their citizens. Businesses either have slowed to a halt or dismantled altogether. Many people's lives have been affected, and many people have died. All of us await the day when things will return to normal, but will they ever?

Most of what we're experiencing now – an increased vigilance in social distancing and personal hygiene, more robust controls on workspace configuration and workspace cleaning, leveraging the ability to telecommute and work from home, etc. – have become the new normal.

How do these events affect facilities – specifically, engineering and maintenance managers and their staffs? Consider the role these departments play in facilities and communities, from ensuring the proper operation and maintenance of facility assets and equipment to ensuring a clean and healthy work environment. Given the depth and breadth of their roles and responsibilities, you could summarize it this way: They play a key role in providing an emotionally safe environment in which to operate.

The impact of the coronavirus pandemic has shed light on managers' ability to provide this kind of environment. To achieve this goal, let's take a closer look at proven strategies managers can use to create and foster an emotionally safe environment in their facilities, as well as specific

tactics to ensure they can sustain emotional safety within those environments.

## **Spotlight: Emotional safety**

Why focus on emotional safety? Why not discuss physical safety and well-being?

Simply put, the strategies to create a healthy and physically safe workspace yield emotional safety in that space. Before we go further, let's define that term. Emotional safety is "feeling like you can let your guard down and be yourself," according to Dr. Dan Harris of Quantum Workplace. In the context of COVID-19, how many people can truly say they can let their guard down and be themselves at their workplaces?

Handshakes and hugs have become fist and elbow bumps. Eyebrows raise when someone coughs nearby. Even with the many uncertainties that still might come, managers must gain and maintain control of this situation in their workplaces by putting measures in place to put their tenants' minds at ease during the pandemic and its aftermath.

Many people are working remotely from home these days, but in some organizations, essential workers still must come to the workplace to do their jobs. These workers need to feel safe especially working in these environments, despite the challenges of the times.

*Continued on page 15.....*

...continued from page 14

Communication in this case is essential, and highly visible signage placed in conspicuous locations alerts all those entering the workplace about the current situation and necessary precautions they should adhere to while in the building. At a minimum, signage should address these issues:

**Conduct.** Those entering the workplace should conduct themselves with respect to exposure to the coronavirus and COVID-19. If they are symptomatic or have been in close contact with individuals who have confirmed cases, they should not enter the workspace. They should self-quarantine for 14 days and follow up with their healthcare provider in line with provisions from the [Centers for Disease Control and Prevention \(CDC\)](https://www.cdc.gov/disease-prevention/).

**Hygiene.** Those who enter the workplace must practice proper hygiene by covering their mouths when they cough or sneeze, washing their hands often, using hand sanitizer, wiping their workstations often and not touching their faces.

**Social distancing.** Those entering the workplace must practice social distancing by maintaining a distance of at least 6 feet from others. If they cannot do this for some reason, they must use a face mask.

Not only does signage alert those entering the workplace about precautions they need to take. It also reinforces the fact that the property owner and those managing the property take the health and welfare of those entering the workplace to heart, and it should make them more comfortable emotionally.

In the event of a confirmed COVID-19 case on an occupied floor, managers need a robust plan for communication with occupants regarding the case, as well as effective methods to sanitize and decontaminate the affected area.

One way to effectively communicate news on COVID-19 issues within the workplace and respective workspaces is by regular updates via

an emergency response team. This team consists of representatives from tenant groups who distribute pertinent information to their respective groups.

Another way to communicate issues is through property-wide memos that provide pertinent information about operational changes and general issues to tenants and occupants, whether they work from home or on site. This is most efficiently done via email.

Read more at: <https://www.facilitiesnet.com/maintenanceoperations/article/HVAC-Considerations-for-Healthy-Offices-During-Coronavirus-Pandemic--18917?source=next>

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**Dear Maintenance Men:**

**How often should I service the building's water heater? I have a 100-gallon water heater.**

**Bill**

Dear Bill:

Each city or county has differing levels of hard water. The harder your water, the more often you will need to service your water heater. Your city or water provider should be able to tell you the hardness in your area or check at your local hardware store or home centre for a hard water kit. The kit will allow you to test your own water.

Most 100-gallon water heaters have an access port for cleaning out the calcium deposits. The tank should be cleaned out at minimum ever 12 months. If you have very hard water, clean it out every six to nine months. Also check the anode rod inside the tank. If you cannot see or locate the rod from the access port, you need a new one. The anode rod should hang to within a few inches of the bottom. If the rod is visible but badly corroded, replace it. The anode rod is a sacrificial zinc rod designed to draw corrosion away from the tank itself. A replacement anode rod can be found at a plumbing supply store. The anode rod can be checked by removing it from the top of the tank and then determining its condition. Typically the average anode rod should last five years. While you are servicing the tank, check the burner assemblies for debris and the gas orifice for spider webs or dust bunnies.

If your tank does not have an access port, regardless of heater size, flush out the tank every six months, if you have hard water, flush it every three months. The easiest way to flush the tank is to attach a garden hose onto the drain valve at the bottom of the tank. (Be careful to avoid scalding anybody or landscape at the hose end.) Using water pressure, open the drain valve full blast and allow at least two or three gallons of water to rush out of the tank. If this is done regularly, it should keep the calcium down to a minimum.



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 BOA CALGARY  
 GENERAL MEETING

MAY AND JUNE GENERAL  
 MEETINGS HAVE BEEN  
 CANCELLED.

### GENERAL MEETING ATTENDANCE

General Meetings cancelled until Fall 2020.

### Kenken Puzzle Answer

<sup>12x</sup> 4	1	3	<sup>5-</sup> 6	<sup>12x</sup> 2	<sup>2-</sup> 5
<sup>5</sup> 5	<sup>6x</sup> 2	<sup>2+</sup> 4	1	6	3
<sup>3+</sup> 1	3	2	<sup>5</sup> 5	<sup>24x</sup> 4	6
2	<sup>11+</sup> 6	<sup>1-</sup> 5	4	<sup>3</sup> 3	<sup>3-</sup> 1
<sup>3-</sup> 3	5	<sup>5-</sup> 6	<sup>6x</sup> 2	1	4
6	<sup>4</sup> 4	1	3	<sup>10x</sup> 5	2

### TEST YOUR OPERATOR IQ ANSWERS:

1) e    2) b    3) e    4) d    5) a

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[www.absa.ca/apecs/powerengineersearch.aspx](http://www.absa.ca/apecs/powerengineersearch.aspx)

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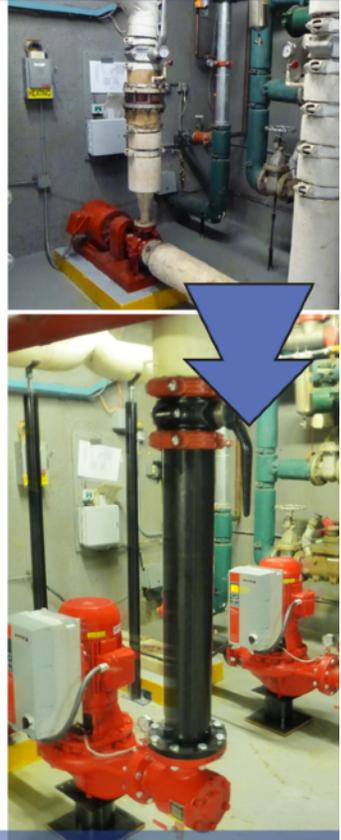
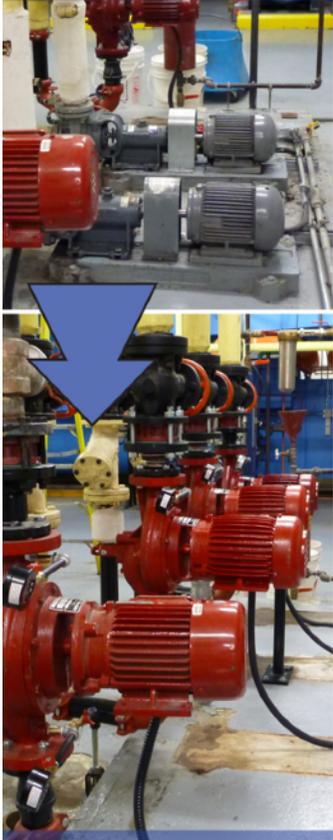
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