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M.Bhandari

Important Phone Numbers

Emergency	911
Alberta Boiler Association	403 291 7070
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

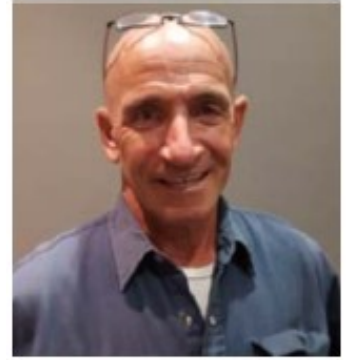
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President's Message



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

The winter has passed, and it is time to look at preparing the envelope of the buildings for the spring and summer. After the winter's thaw, a flat roof can retain excessive ponding water due to snow loads. Ponding water for short durations is unavoidable and considered acceptable but ponding water more than 48 hours can be detrimental to the roof assembly; anything impeding the flow of water to your roof's drain system could lead to irreversible damage. Water infiltration from poor old damaged flashing needs immediate attention or sub roof damages can be costly. Call up your local roofing company and have them come to do an inspection of areas that are questionable. The company can also assist in preparing a budget.

While the evenings are still cool it is also a good idea to perform a thermoscan of the roof as well the outside of the envelope of the building. The scan will highlight anomalies that are not easily seen with our eyes. The losses of energy from these areas can be costly to the operating budget. Thermoscans don't need to be done annually but regular inspections should be scheduled. Catching problems early and repairs or remediation of issues is effective property management. I have seen great inspection lists put out by

insurance companies. Please contact your rep and I am sure they can provide one. Another good source is your favored envelope engineers. Contractors and service providers are experts in their field of endeavour; they are also a great source of information as they regularly see problems and can comment on your building.

Energy is costly and we need to be effective in its use. Losses from a faulty envelope is sometimes blatant but sometimes it is sneaky; slowly draining from the operating budget.

The Building Operators Association is now holding in-person meetings again at the Danish Canadian Club. We hold them every second Tuesday of the month from September to June, (summer break during July & August). I believe we bring value to our industry. But we are struggling and need your assistance. We are for the most part a volunteer association. Please support us by paying your membership as well advertising in the Magazine. Thank you and blessings for the rest of your day.

Kind regards,

Smiles))

With kind regards,

Les Anderson PE, RPA



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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 23

1. Carbon dioxide causes return line corrosion and may be:

- a. eliminated by adding magnesium to the water
- b. absorbed by sodium sulphite
- c. the result of bicarbonate decomposition
- d. neutralized in the boiler with sodium hydroxide
- e. neutralized with filming amines

2. Chemicals are fed to a water tube boiler:

- a. with a small centrifugal pump
- b. into the top drum only
- c. with a positive displacement pump
- d. into the bottom drum only
- e. prior to operating the blow off valves

3. Coagulants added to water:

- a. make the water soft
- b. will remove fine particles more readily
- c. remove the dissolved solids
- d. causes the fine particles to float to the surface
- e. remove chemicals not used up

4. Corrosion products in feedwater can cause:

- a. slag deposits in superheaters
- b. decreased steam pressure
- c. increased steam pressure
- d. increase in boiler efficiency
- e. tube failure

5. Excess sulfite residuals are necessary to prevent:

- a. pitting
- b. hardness
- c. carry over
- d. acidity
- e. sludging



Planning PM Frequencies

Noria Corporation www.noria.com



The PM frequency is one of the most subtle areas for the planner to manage. If a particular piece of equipment fails only once every two years, the appropriate frequency for cleaning or inspection may still be once every month. This is because PM frequencies must be set by age of installation, likely failure modes, and criticality to plant process instead of previous failure rate.

Once the plant installs the equipment, that equipment must work through an early period during which it has a higher-than-normal chance of failure. Newly installed equipment should be inspected more often than older equipment for signs of failure. After the proving period, PM frequencies might be lessened. Certain equipment also has certain favored failure modes. A valve may exhibit a sticking symptom several weeks before failure to operate. A flange may drip months before leaking bad enough to cause a problem. The sound of cavitation may indicate a future pump problem.

The PM frequency should take into account the time between the appearance of a particular symptom and the time the equipment may be restored to proper operating time without experiencing a failure. In addition, certain failures may not interrupt plant operation because of being in nonessential services or having installed spare equipment the operators can utilize. If these failures do not cause more extensive repair operations than would be necessary to prevent failures, the plant may exercise a strategy of minimal PM effort or attention to set frequencies. On one hand, the planner wants to set PM frequencies to minimize failures and generate corrective work orders. On the other hand, the planner does not want to set excessively short PM frequencies that would overtax personnel resources. The planner must balance these plant needs.

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Keeping Motors Running

Mohammad Qayoumi



Proper specification and post-installation maintenance combine to help managers control facilities' energy use.

From the early days of electricity as a viable form of energy, electric motors have consisted of a significant portion of the electrical load. Today, electric motors exist in almost every institutional and commercial facility.

And with the ever-growing pressure to cut energy use to lower costs, maintenance and engineering managers must examine the role of motors in overall facility energy efficiency. Simply installing

energy-efficient motors is not enough because an energy-efficient motor can cost 25-30 percent more than a regular motor. Managers will only be able to achieve real, long-term savings by specifying the right motor for the application and devoting resources to motor testing and maintenance.

A closer look

Electric motors fall into two main groups based on input power. They can be powered by direct current (DC) or alternating current (AC).

DC motors usually are used for controls and other specialized applications. Most motors are powered either by three-phase or single-phase AC, which can be either synchronous and induction.

Synchronous motors run at a constant speed that is identical to the incoming power frequency. They are more complicated and more expensive to build and so tend to be used only in specialized applications where one exact speed is critical.

By contrast, induction motors are more common and tend to be the workhorses in facilities. These motors run more slowly than synchronous motors. In other words, the speed at full-load conditions is slightly lower than at no load. Since these motors are relatively inexpensive to build, they are the predominant type in most general applications.

The role of energy

Electric motors consume a significant portion of the world's energy today. It is estimated that 30-40 percent of all fossil fuel burned globally is used in generating electricity. Moreover, electric motors use about 60 percent of the electricity in the United States. That is why improving motor efficiency can have a significant impact in reducing electrical consumption.

Since the overwhelming majority of motors are



three-phase motors ranging from 1-200 horsepower (hp), the latest energy policy targets improving the efficiency of motors in this range. Recognizing the importance of motor efficiency, the 1992 Energy Policy Act (EPACT) required motor manufacturers of general-purpose motors to comply with minimum requirements.



EPACT spelled out minimum efficiency levels for three-phase motors of 1-200 hp used for general-purpose applications. The reason for this is the energy cost to operate these motors in the U.S. is estimated at \$30 billion per year, which implies that if the efficiency of these motors is increased by one percent, it results in \$300 million saving annually.

The key for efficiency improvement is reducing motor losses. Motors basically have four different types of losses — copper, core, stray and mechanical.

Copper losses result from the resistive losses of the motor's stator and rotors windings. Using larger-size wires for the stator and rotor winding can reduce these losses.

Core losses arise from magnetizing energy needed for the stack of motor laminations. Therefore, using better alloys for the core can lower these losses.

Stray losses are due to magnetic energy that is not contained in the core and, as a result, does not produce any useful energy. Managers can reduce these and windage losses through better design and optimizing of the air gaps, as well as through the shape of the rotor.

Finally, mechanical losses are due to friction and air

resistance losses due to the coolant fan or rotor itself.



Another important aspect about these losses are the fact that core and mechanical losses are constant, regardless of load, while copper and stray losses vary with motor load. Since the first two losses are constant, motor efficiency is the highest at its full load conditions.

In order to improve the efficiency of motors, manufacturers can accomplish this by using a larger gauge wire for the stator and rotor windings, seeking better magnetic alloys for core, improving the design to reduce air gaps and mechanical friction.

Operational efficiency

It should be evident that motor design and manufacturing has a significant role in its efficiency. By the same token, it is also important that maintenance and engineering managers pay close attention to the following operational factors:

Size. Managers need to select the properly a size motor for the load it will serve. In many applications in institutional and commercial facilities, managers have installed motors that are much larger than needed. An oversized motor not only means a higher installation cost. It also means that the motor will be running at a lower efficiency than at full load. Moreover, it will lower the system's power factor, which increases system line losses.

Class. When choosing new equipment, managers need to specify the appropriate motor class. Motors are divided in four classifications, — A, B, C and D. The A class has the lowest starting torque but the highest running efficiency. These characteristics are reversed

for D-class motors. The characteristics of the other two classes run between A and D. So, if the starting torque is not a constraint, managers can specify an A-class motor for obtaining the highest operating efficiency. If an A-class motor does not give adequate torque, move to B or C, and finally to class D for applications that require only intermittent loads.

Line voltage. A motor's line voltage can play an important role in its efficiency. If the voltage is lower in order to meet the mechanical load, the motor will draw too much higher current, resulting in higher motor losses and a higher winding temperature. These conditions will shorten the useful life of the motor.



Maintenance. Devoting resources to motor testing and maintenance includes equipping front-line technicians with the tools and technology to troubleshoot potentially large motor problems. These tools commonly include digital voltmeters, digital multimeters, time domain reflectometer, tone generators and wiremap testers. Managers also must ensure that technicians have the training to use these tools efficiently in order to diagnose small problems before they become major headaches.

Even if managers select a high-efficiency motor that is properly sized for the load, it can have high losses, due to voltage unbalances in the electric supply. Voltage unbalance is the difference between the highest line-to-line voltage and the lowest line-to-line voltage divided by the average of the three voltages.

Even a small voltage unbalance impacts the motor efficiency significantly. The underlying reason for this phenomenon is the high level of current unbalance caused by even a small voltage unbalance. For instance, the current unbalance can

be six to ten times higher and the temperature rise can be twice the square of the voltage unbalance. Also, even a few percentages points of voltage unbalance causes torques pulsation, increased vibration, and temperature elevation that leads to overheating.

For example, if the system voltage unbalance is 3 percent, then the current unbalance can be as high as 30 percent, and the temperature rise can be $2 \times (3 \times 3)$, or 18 percent. Such a temperature rise will shorten the life of a motor by 75 percent. Moreover, the motor's efficiency can drop by roughly 1.5 percent.

To examine these higher operating costs, assume that the motor in question is 150 hp and operates 7,500 hours annually and that the cost of electricity is 5 cents per kilowatt-hour. The additional cost per year resulting from these higher losses will be $150 \times 0.746 \times 7,500 \times .015 \times 0.05$, or about \$630 — in other words, more than one-third of the cost of the motor.

Another factor than can lower motor efficiency is harmonics in the power system. Some odd harmonics are positive, while others are negative. Negative harmonics do not generate torque opposite to the main motor torque. This not only lowers the net motor torque but will result in increased motor temperature, which lowers its useful life.

Energy-efficient motors by definition have smaller losses, including less heat generation. These motors run at lower temperatures, which results in a longer useful life for the motor. Finally, the primary factors that determine the useful life of electric motors are the speed and torque. If a motor is running fast, it will experience a higher level of wear and tear that naturally shortens its life.

Similarly, when the torque requirement is increased, the motor current increases proportionately, results in higher current density and the erosion of motor brushes and commutators. The cumulative effect of these factors lowers the useful life of the motor.

Mohammad Qayoumi is the author of The Metering Guide for Managers published by the Association of Higher Education Facilities Executives (APPA). Article reprinted with permission

Lawn Mower Maintenance

www.yardener.com

First Try To Prevent Lawn Mower Problems

A good mulching lawn mower is going to cost from \$400 to \$600. That is an expenditure that we feel deserves some ongoing maintenance follow up. You don't have to go nuts with this maintenance stuff, but here are what we feel are fairly important issues to consider.



October or November

All small gas engines **MUST** be drained each fall after the mowing season or you are unlikely to be able to start your engine in the spring; **UNLESS** you use a gas stabilizer product which everyone should now use in all gasoline engines. The best technique is to run your mower dry after that last mowing job. If you have to drain the tank, put the old gas into your car's gas tank; it will not hurt the car and that is good environmental approach to dealing with waste gas.

December or January

All the spring tasks described below can be done by you or by a lawn mower repair shop. If you plan to take your mower to the shop, do it in these two months when there is less pressure on the time available in the shop. In the spring you might have to wait three or four weeks to get this spring maintenance work done.

February or March

Oil Change - The companies making lawn mower engines recommend changing the oil in your engine every spring. It is not a difficult job. If you let it go to every two years, the engine will be fine, but don't wait any longer to change your engine's oil.

Air Filter - Air filters are relatively inexpensive and easy to replace. Keep a spare handy and replace the filter according to the manufacturer's instructions. Usually you should replace the filter every two years.

Spark Plugs - Spark plugs wear out. They often need replacing due to using stale fuel in your mower. Blocked air filters and oil filters can affect the performance of the spark plug. It is wise to replace the spark plug as a matter of course every season.

Mower Blade - We recommend that you replace the lawn mower blade every year or at the very least every two to three years; every year is better.

During The Mowing Season

Add Fresh Gas - When you give your mower its spring supply of gas, do not forget to add gas stabilizer to the tank or to the container holding the gas.

Cleaning Underside of Mower - If you have recently mowed wet grass, and as a matter of routine you never clean the underside of your mower, you can get an accumulation of old grass clippings adhered to the under surface of the mower. Sometimes that accumulation can get serious enough to impeded the movement of the blade when you are trying to start the engine. It is wise to keep the under carriage of the lawn mower relatively free of accumulated debris throughout the season. A paint scraper is a good tool for this job.

Avoid Gasoline Problems

Gas Left In Machine Over Winter or Gas is Just Bad. Modern gas, designed for cars and not for small gas engines, does not store very well, compared to gasoline sold 20 years ago. In fact, gas should really be used up within 30 days of purchase, making that 5 gallon gas can your Dad used obsolete in most home situations today. After modern gas has been stored for more than 30 days, oxygenated fuel (gasohol and other blends) become stale and lose the volatility needed to start a small engine. So buy your gas in either a one, but no more than a two gallon storage can.

All small gas engines MUST be drained each fall after the mowing season or you are unlikely to be able to start your engine in the spring; UNLESS you use a gas stabilizer product which everyone should now use in all gasoline engines. The best technique is to run your mower dry after that last mowing job. If you have to drain the tank, put the old gas into your car's gas tank; it will not hurt the car and that is good environmental approach to dealing with waste gas.

If you have bad gas in your tank, preventing the engine from starting, you must drain the gas from the tank (put it into your car's tank), and be sure to push that little primer button a few times to get any bad gas out of the system that you can. Then refill the tank with fresh gas and try again. It may take a few pulls to get the new gas throughout the system, but if all other parts of the engine are in good condition, you should be able to start the engine.

Carburetor Is Gummed Up

If you left gas in the engine all winter, the chances are good that the carburetor has become clogged with gummy stuff resulting from the evaporation of

that old gas. Unless you are skilled and experienced in repairing small gasoline engines, this is a job for the professional. Take your mower to your local mower repair shop to fix this problem.

Air Filter Needs Replacing

Most lawn mower engines have a single paper filter element. The filter provides engine protection, but when clogged, it prevents the engine from breathing. Air filters are relatively inexpensive and easy to replace. Keep a spare handy and replace the filter according to the manufacturer's instructions. Usually, you should replace the filter every two years.

Spark Plug Needs Replacing

The engine needs a spark from the spark plug to



start; no spark, no start. Spark plugs wear out. They often need replacing due to using stale fuel in your mower. Blocked air filters and oil filters can affect the performance of the spark plug. It is wise to replace the spark plug as a matter of course every season. On most mowers, it is not a difficult job. You just need the right tool to grab on to the plug to twist it out of its socket. Not all spark plugs are alike so check the owner's manual for the plug specs for your mower.

Underside Filled With Grass Clippings

If you have recently mowed wet grass, and as a matter of routine you never clean the underside of your mower, you can get an accumulation of old grass clippings adhered to the under surface of the mower. Sometimes that accumulation can get



serious enough to impede the movement of the blade when you are trying to start the engine. It is wise to keep the under carriage of the lawn mower relatively free of accumulated debris throughout the season. A paint scraper is a good tool for this job. You can buy a Mowermate® Cleaning Tool from QVC which is pictured here.



Mower Blade Gets Dull

Healthy Grass Needs Sharp Mower Blade

If after you have mowed your lawn, the mowed lawn does not look wonderful – grass is cut unevenly and maybe there are clumps of grass sitting on top of the turf. If the grass is wet, that is normal; you should avoid cutting grass when it is wet – it is tough on the engine and it never looks terrific. If the grass is relatively dry and you have problems, then it is likely that you have a dull mower blade.

For most gardeners we recommend that you replace the lawn mower blade every year or at the very least every two years. It turns out that the mulching mower blades of today have functions for both sides of the blade – one side lifts the grass, while the other side cuts it. The "Lift" side of the blade wears out just like the cutting edge. The blade's cutting side can be sharp, while the lift side is worn, thus affecting the quality of cut.

From: <http://www.yardener.com>

Article *reprinted with permission*

KenKen Puzzle

How to solve the KenKen puzzle:

(Answers on page 23)

- 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		6	3			5		1
8				5			7	2
		4	7	1		3		
3				4	6		2	9
7	6			3	8			
		9				8		3
		7		6		9	3	5
	5		4	9				7
	3	1	2	7		6		



Lubrication UFOs

Jim Fitch

Have you heard any intriguing lubrication UFOs stories lately? Maybe you've seen or experienced one yourself. You know what I mean ... those incredible claims about lubricants and lubrication, that over time, evolved into urban legends. Some of these stories have surfaced from a single misinterpreted fact and spread from there. Many have been scientifically discredited but still linger in the lubrication community.



"Sometimes we see things working well in the short-term but have negative long-term side effects."

Some of these legends are ancient, dating back a hundred years. For example, in the early days of the petroleum industry, there were different beliefs about the potential value and uses of crude oil. In one case, around 1857, Pittsburgh druggist Samuel M. Kier began bottling petroleum oil from a brine well. Believing it had medicinal power, he sold it to his customers to be taken internally. People died young in those days.

Even as recently as the 1950s, there were reports of people routinely putting particles of cork and wood pulp in automobile engines because they believed it improved lubrication and reduced noise. Early automobiles used about a quart of oil for every five gallons of fuel.

Perhaps you've heard claims that oil lasts forever. No, it is not a fine wine that gets better over

time. In the environment of a machine, it oxidizes forming acids and sludge, and in some machines, it burns like fuel. Have you heard of microdieseling? If oil could last forever, additives like antioxidants could be spared.

Other lubrication legends are more difficult to recognize. Even among pundits and technocrats, certain stories propagate and are often hard to distinguish from scientific fact. On occasions, we are



all guilty of jumping to conclusions based on anecdotal evidence. Have you heard the parable of the six blind men? The men were led to an elephant and asked to describe it. The first man touched the elephant's trunk and concluded elephants were like snakes. The second touched the leg and said it was big and strong like a tree. The third touched the torso and concluded elephants were like a wall. The fourth held its ear and said it moved like a fan. The fifth touched the elephant's tusk and compared it to a spear. The last blind man believed the elephant was rope after touching its tail. Each description is correct about that portion of the elephant, however the whole elephant is none of these things. The same is true with lubricant myths and legends, you need the whole picture to make an accurate assessment.

While the lubrication field is rich in folklore, some of these legends are harmful to the progress of lubrication and best practices. These include false claims that lead users down the wrong road to suboptimum or even destructive maintenance

practices. Following are examples of lubrication UFOs. Perhaps you've heard them too.

- Sludgy, dirty oil can be cleaned to like-new by adding water, agitating and then draining off the water with the sludge and dirt.
- Motor oils make superior hydraulic fluids.
- Water absorbed by grease in-service is normal and improves lubrication.
- Sludge in the bottom of a sump is harmless unless disturbed.
- Lubricants are clean if you can't see sediment or feel grit.
- The best way to control water contamination in industrial equipment is to keep oil hot.
- Gear oils can't be filtered below 10 microns.
- Grease is better than oil at controlling wear in rolling-element bearings.
- Oil analysis is a waste of time for lubricants in small compartments.
- Particle counting is unnecessary for crankcase lubricants.
- The efficiency of oil filters always gets better over time in typical service.
- Different brand turbine oils can be mixed safely, without loss of performance.

In my view, while the above statements are generally fictional, there may be isolated cases or exceptions in which they may be found true. Sometimes we see things working well in the short-term but have negative long-term side effects. Many of these effects can result in serious harm to the machine and production losses. When in



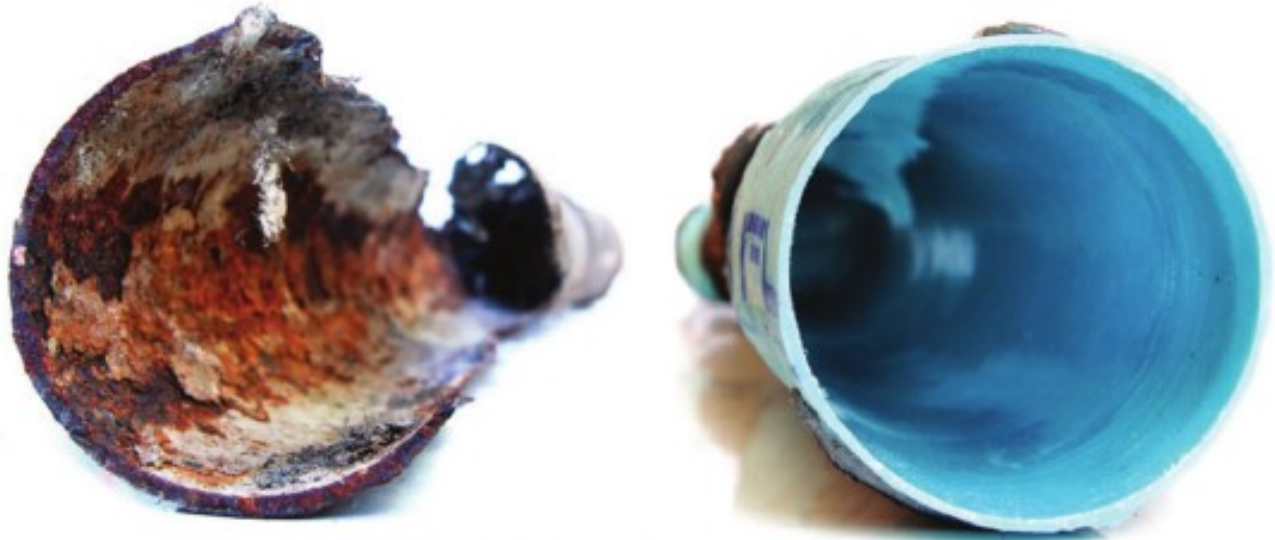
doubt, proceed cautiously, maybe with small trials on noncritical machinery. It also never hurts to get a second or even a third opinion

Innovation and change are critical to progress. However, be alert to what sounds too good to be true. Many of us have fallen victim to the silver-tongued salesman who offers a magical tonic for our machine or engine with the promise it will stop wear and friction. Why shouldn't we hope that a solution for wear and friction has at last been found? Is it any different from our fascination with UFOs? If you're like me, you secretly hope that they really exist.

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TODAY'S POWER TOOLS offer more power, adaptability, and dependability than ever before, and as the maintenance function in commercial and institutional facilities becomes more challenging, that's a welcome evolution.

But along with enhanced tool performance comes the responsibility to address power-tool safety issues.

Maintenance management professionals and technicians responsible for specifying and using power tools have a responsibility to check out a tool's safety features, then ensure that manufacturer safety precautions and common sense are followed at all times.

The following information offers general safety guidelines for power tools, as well as guidelines for specific tools. They are not meant to be, nor should they be, considered an absolute or complete presentation of safety measures and procedures that relate to use of power tools covered. Individual manufacturers' tool owner/operator manuals, shipped with tools and accessories, are recommended as a final source for proper procedures for specific tool use.



General safety recommendations

- Know the power tool. Operators must read and understand the owner's manual. That means know tool applications and limitations. Labels affixed or included in the shipping container must be read and understood.
- Ground all tools unless double insulated. Where a tool is equipped with a three-prong plug, it must be plugged into a three-hole electric receptacle known to be grounded. If an adapter is used to accommodate a two-hole receptacle, attach the adapter with a screw to a known ground.
- Avoid dangerous environments. Do not use power tools in a damp, wet and/or explosive atmosphere — fumes, dust or flammable materials.
- Be aware of all power lines and electrical circuits, water pipes, and other mechanical hazards in your work area, particularly those below the work surface, hidden from the operator's view, that may be contacted.

Wear proper apparel. Do not wear loose clothing, dangling objects or jewelry. Long hair must be restrained. Gloves should not be worn when operating certain power tools. Check appropriate tool manuals.

Accessories and attachments

There's a variety of accessories available for use on or with power tools. Caution must be exercised when selecting and using any accessory with any power tool. Choosing the wrong accessory or using an accessory incorrectly can result in serious injury. Don't use an accessory or attachment unless:

- The power tool manufacturer recommends its use on the product.
- The accessory limitations and specifications — such as speed, size, mounting and guarding requirements, etc. — match the limitations and

specifications of the power tool as shown in the owner/operator's manual; and,

The use of accessory does not require the removal of or defeating of any guards, barriers or other safety-related devices on the power tool, unless they are replaced by other appropriate guards or protective devices.

Also, unplug tools before installing, adjusting, and changing any accessory or attachment of any kind.



Portable circular saws

Among professionals, the circular saw is probably the most commonly used power saw and perhaps the most commonly abused. Familiarity should not breed carelessness. The following are specific safety musts when using any portable circular saws.

- Always wear safety goggles or safety glasses with side shields complying with the current national standard and a full-face shield when needed. Use a dust mask in dusty work conditions. Wear hearing protection during extended periods of operation.
- Don't wear loose clothing, jewelry or dangling objects, including long hair, that may catch in rotating parts or accessories.
- Don't use a circular saw that is too heavy for you to easily control.
- Be sure the switch actuates properly. It should turn the tool on and return to the off position after release.
- Use sharp blades. Dull blades cause binding, stalling and possible kickback. They also waste power and reduce motor and switch life.

- Use the correct blade for the application. Check this carefully. Does it have the proper size and shape arbor hole? Is the speed marked on the blade at least as high as the no-load RPM on the saw's nameplate?
- Is the blade guard working? Check for proper operation before each cut. Check often to ensure that guards return to their normal position quickly. If a guard seems slow to return or hangs up, repair or adjust it immediately. Never defeat the guard to expose the blade by, for example, tying it back or removing it.
- Before starting a circular saw, be sure the power cord and extension cord are out of the blade path and are long enough to freely complete the cut. Keep aware of the cord location. A sudden jerk or pulling on the cord can cause loss of control of the saw and a serious accident.
- For maximum control, hold the saw firmly with both hands after securing the workpiece. Clamp work pieces. Check frequently to be sure clamps remain secure.
- Avoid cutting small pieces that can't be properly secured and material on which the saw shoe can't properly rest.
- When start the saw, allow the blade to reach full speed before contacting the workpiece. When making a partial cut, or if power is interrupted, release the trigger immediately and don't remove the saw until the blade has come to a complete stop.



Portable drills

Available in a variety of types and capacities, portable power drills are undoubtedly the most

used power tools. Because of their handiness and application to a wide range of jobs. Drills often receive heavy use. For this reason, you'll need to check with care your drill's capacity limitations and accessory recommendations. For example:

- Check carefully for loose power cord connections and frays or damage to the cord. Replace damaged tool and extension cords immediately.
- Be sure the chuck is tightly secured to the spindle. This is especially important on reversible type
- Tighten the bit securely as prescribed by the owner/operator's manual. The chuck key must be removed from the chuck before starting the drill. A flying key can be an injury-inflicting missile.
- Check auxiliary handles if part of the tool. Be sure they are securely installed. Always use the auxiliary drill handle when provided. It gives you more control of the drill, especially if stalled conditions occur. Grasp the drill firmly by insulated surfaces.
- Always hold or brace the tool securely. Brace against stationary objects for maximum control. If drilling in a clockwise — forward — direction, brace the drill to prevent a counter clockwise reaction. Don't force a drill. Apply enough pressure to keep the drill bit cutting smoothly. If the drill slows down, relieve the pressure. Forcing the drill can cause the motor to overheat, damage the bit and reduce operator control.



Sanders

Sanding is often a prolonged operation, so to make sure that the working environment is correct. Consider these safety points:

- Stationary sanders may incorporate belt and disc sanding features. Portable sanders are normally single-

feature sanders - disc, pad or belt. Use caution and be alert to avoid injuries that result from contacting the sanding medium or other moving parts.

- Always wear safety goggles or safety glasses with side shields complying with the current national standard and a full-face shield when needed. Use a dust mask in dusty work areas. Sanding dust may affect your breathing and overcome you if you are not protected against it, particularly when working with many of the exotic hardwoods.

Adequate ventilation of your work area is very important when using any type of sander. The use of exhaust type systems or bag collection is also recommended. Dust can explode if the concentration becomes too great.

Miter box saws and chop saws

- Because of the saw's downward cutting motion, stay alert to keeping hands and fingers away from the blade's path.
- Be sure all guards are in place and working. If a guard seems slow to return to its normal position, adjust or repair it immediately.
- Use only recommended size and RPM rated blades.

When installing or changing a blade, be sure the blade and related washers and fasteners are correctly positioned and secured on the saw arbor.

Cordless Power Tools

Cordless tools get their power from batteries. They demand the same respect that corded tools receive. These electrical power source and cord recommendations do not apply to cordless tools themselves but do apply to their chargers. If a cordless tool is connected to its recharge unit, both pieces of equipment must conform strictly with electrical recommendations in the manufacturer's instruction manual.

- Perform charging in a dry location, away from combustible materials.
- If the battery of the tool no longer charges properly with its specified recharge unit, return the

tool and the charger to your distributor service center as listed in the Yellow Pages or your tool's instruction manual.

- Do not operate cordless tools in or near flammable liquids or in gaseous or explosive atmospheres. Motors in these tools normally spark and the sparks may ignite fumes.
- Always recharge a cordless tool and its battery with its own specified charging unit. Never attempt to recharge a cordless tool in a recharging unit not specifically recommended for that tool or battery pack by the manufacturer.
- Be aware that a cordless tool can always be in an operating condition because it does not have to be plugged into an electrical outlet. Unless batteries are removed, the tool can function any time the switch is on.

Do not expose the battery cartridge to moisture, host or temperature extremes over 100 degrees C or under -20 degrees C.

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great
summer!
See you in
September!**



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please note this does not include the ABSA exam

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Occupational Health and Safety Act

Ms. Ina M. Hildebrand



The following presentation was made by Ina M. Hildebrand, OHT, to the monthly meeting of the Building Operations Association (Calgary).

Some Regulations of the Occupational Health and Safety Act that building operators should be aware of are:

- Noise Regulation
- First Aid Regulation
- Ventilation Regulation



Noise Regulation

The Noise Regulation explains the responsibilities of employers and employees who are exposed to above acceptable levels of noise. It give occupational exposure limits. It specifies what type of hearing protection devices to use at specific levels of noise.

First Aid Regulation This Regulation states, among other things, that the employer shall provide and maintain first aid services, equipment and supplies for his employees in accordance with this regulation. The employees also have several responsibilities,

such as reporting an injury to his/her supervisor as soon as practicable following the injury.

The regulation gives schedules regarding the inventory of first aid kits.



Ventilation Regulation

This Regulation applies where it it reasonably possible on a work site that a health or safety hazard to a worker could result from the production or dissemination of an airborne contaminant or from oxygen deficiency in the air. An employer shall provide a ventilation system that under the conditions that normally prevail at the work site, is adequate to protect workers from possible hazards.

It was noted by the speaker that further information regarding the above regulations can be found on the web.



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The 'call for abstracts' is live for the National Conference on Building and Facility Operations' June 2023 building conference. building owners and operators are being targeted as well as consultants who are involved in making buildings more energy efficient. A list of anticipated topics to have presented at the conference is included and speakers are being sought.

Please click on the link for further information:

<https://ncbfo.ca/western/events/ncbfo-2023/>

Kenken Puzzle Answer

2	7	6	3	8	4	5	9	1
8	1	3	6	5	9	4	7	2
5	9	4	7	1	2	3	8	6
3	8	5	1	4	6	7	2	9
7	6	2	9	3	8	1	5	4
1	4	9	5	2	7	8	6	3
4	2	7	8	6	1	9	3	5
6	5	8	4	9	3	2	1	7
9	3	1	2	7	5	6	4	8

TEST YOUR OPERATOR IQ ANSWERS

Answers: 1) c 2) c 3) b 4) be 5) a



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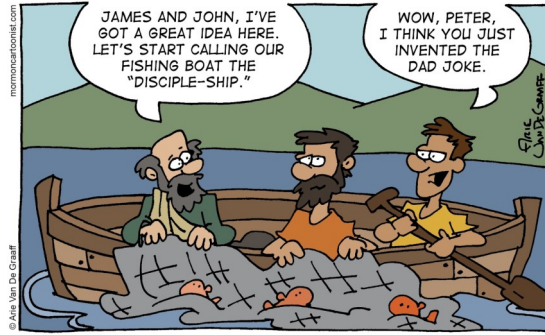
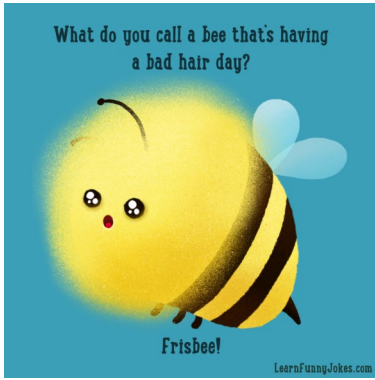
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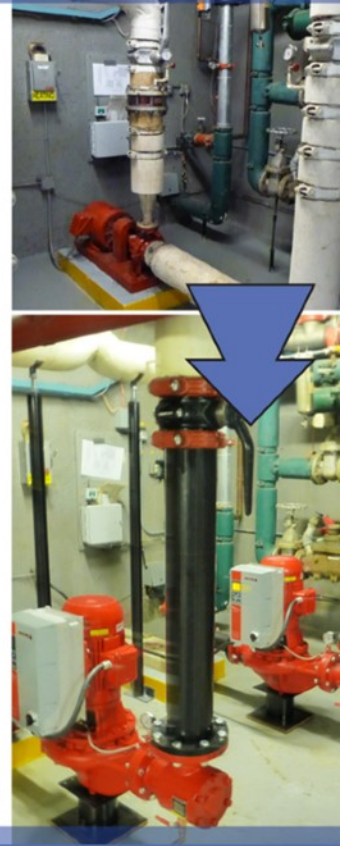
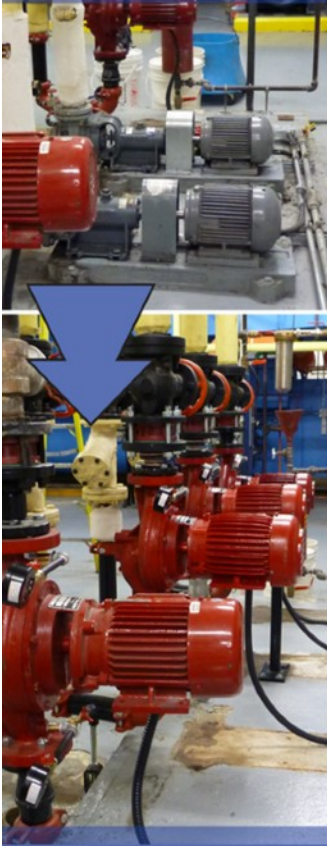
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Please visit the [Building Operators Association of Canada YouTube Channel](#) to watch the Speakers and Presentations from the **Tradeshow 2022 & Previous Guest Speakers.**



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