

BOA

Building Operators Association of

Canada

Official Publication of the Building Operators Association (Calgary)

May 2022



NEED POWER?

GENTECH FIELD SERVICES IS A TURNKEY POWER GENERATOR COMPANY SERVING CALGARY AND SURROUNDING AREAS. THE GENTECH FIELD SERVICES TEAM SPECIALIZES IN LIFE SAFETY EQUIPMENT FOR COMMERCIAL BUILDINGS AND ON CONSTRUCTION SITES. WE PROVIDE SCHEDULED AND EMERGENCY SERVICE FOR ALL COMMERCIAL DIESEL GENERATORS AND FIRE PUMPS. CONTACT US TODAY TO SCHEDULE A SERVICE OR FOR AN ESTIMATE ON A NEW OR USED GENERATOR.

OUR TURNKEY INSTALL SOLUTIONS INCLUDE:

RENTALS

PRODUCTS

ENGINEERING

SERVICE



GENTECH
FIELD SERVICES

Authorized dealer for &

240023 Frontier Crescent
Rocky View County T1X 0W5
587 349 3500
service@gentechfieldservices.com
www.gentechfieldservices.com



REGENCY CLEANING SERVICES

Janitorial Services
Window Cleaning
Pressure Washing
Specialty Services
Carpet & Upholstery
Move In / Out Cleaning
Floor Care & Maintenance
Post Construction Cleaning

PH: 403-520-7788 | FAX: 403-663-9911

info@regencycleaning.ca
www.regencycleaning.ca



BOULDER MECHANICAL

CONTRACTORS LTD

Complete Boiler Services
Air Handling Units
HVAC, Plumbing, Refrigeration
Electrical
Building Automation
Gas Detection Testing & Service
Preventative Maintenance & Emergency Service
Retrofit / Replacement
General Contracting

*Your partner in building
maintenance and service!*

Bay #6 6420 79th Ave SE Calgary, Alberta T3M 2B8
P: 403-230-5519 F: 403-230-5529 E-mail: j.harding@bouldermechanical.net

What's Inside?

Executive & Committees

Executive & Committees	3
Important Phone Numbers	3
Presidents Message	4
Test Your Operator IQ	6
Building Envelopes: Focus on Energy	7
Going with the Flow	10
KenKen Puzzle	12
HVAC System Commissioning	13
KenKen Puzzle & Test Your Operator IQ Answers	16
Stopping Fire When it Starts	17
Sealing the HVAC System	20
BOA Tradeshow	23
Changes to Temporary Worker Program	24
April Meeting Minutes & May Guest Speaker	26
Advertising Rates	27
BOA Calgary Sponsors	27
Advertisers Directory	28

President	president@boacalgary.com
Les Anderson	C: 403 921 0648
Vice President	chairman@boacalgary.com
Mark Arton	(c) 403-305-7029
Associate VP	associate.vice.president@boacalgary.com
Vacant	
Chairman	chairman@boacalgary.com
Mark Arton	(c) 403-305-7029
Treasurer	treasurer@boacalgary.com
Carrissa Speager	(c) 403-969-0329
Secretary	secretary@boacalgary.com
Monika Bhandari	(c) 403-470-4169
Education Committee	education@boacalgary.com
Vacant	
Membership Committee	membership@boacalgary.com
VACANT	
Promotions Committee	promotions@boacalgary.com
VACANT	
Activities Committee	403-874-0850
Samson Isowode	
Technical Concerns	chairman@boacalgary.com
Kyle D'Agostno	
Webmaster	webmaster@boacalgary.com
Les Anderson	

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



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

The Building Operators Association is pleased to announce that we will be having in person meeting again at the Danish Canadian Club in Calgary. The meetings will begin September 13th, 2022, at 5PM and runs for about 2 hours. Sandwiched are provided for anyone feeling a little pecky because it is at supertime. There is a cash bar at the restaurant on the main level. The food at the Danish Canadian club is awesome if you arrive early and feel like a full meal on the main level. The meeting itself is on the second level on the balcony . It will be great to see everyone again. We have yet to announce the guest Speaker for the September meeting.

The trade show is on again set for the afternoon of October the 18th 2022. It will be at the Danish Canadian club 7th street and 11th Ave SW Calgary. We already have 18 tables of the 34 paid for. If you want to purchase a booth please contact me as soon as possible, they are going fast. I can be reached at lesa@telus.net I will forward a floorplan for you to choose from.

Our guest speaker next meeting May 19th will be part two of water treatment with Tiffany Petrunia of Suez Water Technologies and Solutions. This time the focus is on open systems. Cooling towers and if time allows steam humidification in air systems. The meeting is open to all and if you want to share with your co-workers, please use the link provided in the magazine and register for the event, each registrant must have their own link. The last meeting with Tiffany can be found on our website along with all the meetings we had in the past. Sorry, there were a couple meetings missed because of technical difficulties. They can as well be found on our YouTube channel. Tiffany is a great presenter and as we are heading well into cooling season it is a timely topic presented by a knowledgeable person. Please register; you won't be disappointed!

Smiles))

With kind regards,

Les Anderson PE, RPA



JOIN US!
FOR OUR VIRTUAL BOA MONTHLY
MEETING ON TUESDAY MAY 10
2022 AT 5PM



Clean Air Matters

We spend about 90% of our time indoors, and it has never been more important to ensure we have clean, healthy indoor environments.

For over 50 years, BGE's approach has focused on people, as we strive to provide optimal air quality through proactive, integrative advisory services and quality products you can trust.

BGECleanAir.com

Edmonton Calgary Vancouver Fort McMurray Prince George Regina Saskatoon Winnipeg



DCS AGENCY LTD.

Manufacturer's Representatives for:

- Xylem / Bell & Gossett
- Watts Water Technologies / Watts Radiant
- Watts / Powers Mixing & Electronics
- Tekmar Control Systems
- American Standard Brands
- Clemmer Technologies
- Laars Boilers
- De Dietrich Boilers
- Gastite Flexible Gas Piping
- Sisco P/T Plugs
- WGI Western Gauge & Instrument
- Griswold Flow Control Valves
- Metraflex Pipe Connectors
- Rinnai

Alan Proctor Shawn Oakley Greg Smith
 #7, 6130 - 4 Street S.E., Calgary, AB. T2H 2B6
 Tel: (403) 253-6808 Fax: (403) 259-8331
www.dcsalesitd.com



**CANADA'S LARGEST
 BLUE STAR
 POWER SYSTEMS DISTRIBUTOR**

Western Canada's Premier Supplier of Stand-by, Prime & CHP systems

24/7 Parts and Service Support

Emergency Generator Repair

Planned Generator Maintenance Programs

On Site Fuel Testing & Polishing

100% CANADIAN OWNED AND OPERATED!



CALGARY - EDMONTON - VANCOUVER
 24HR: 855-948-8810 / CUSTOMPOWER.CA

SURE

PRINT & COPY CENTRE AVENIDA

**WE
 PRINT
 EVERYTHING!**

SIGNS
 RETRACTABLE
 BANNERS
 X-BANNERS
 SANDWICH
 BOARDS

**&
 MUCH
 MORE!**

DESIGN
 NCR FORMS
 MAGAZINES
 BUSINESS CARDS
 POSTCARDS
 CALENDARS
 LARGE FORMAT PRINT
 LARGE FORMAT SCANS
 BLUEPRINTS

501 - 12445 Lake Fraser Drive SE, Calgary, AB T2J 7A4
 Phone: 403.254.6922 Email: sure20@surecopy.com
www.sureprintavenida.ca

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 16

1. If the feed water is neutral, its pH value is:

- a. 0
- b. 5
- c. 7
- d. 9
- e. 13

2. In order to maintain good boiler water:

- a. use a good quality filter
- b. feed calcium sulfate
- c. feed magnesium sulfate
- d. use a feedwater treatment prescribed by a water consultant
- e. use an automated water softening system

3. Internal water treatment is:

- a. used with low pressure boilers only
- b. adding chemicals to the boiler water
- c. adding a coagulant to the settling tank
- d. measuring the pH of the feedwater
- e. adding chemicals to the steam in the boiler

4. One element which leads to caustic embrittlement in boiler tubes is:

- a. concentration of sodium hydroxide
- b. concentration of sodium chloride
- c. overheating of boiler parts
- d. concentration of sodium sulfite
- e. excessive boiler pressure

5. Phenolphthalein is:

- a. an indicator
- b. a reagent
- c. a buffer
- d. an acid softener
- e. neutralizing agent



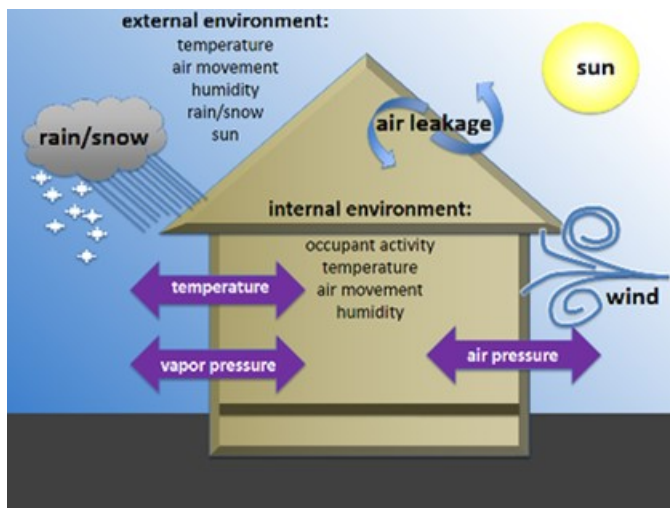
Building Envelopes: Focus on Energy

By Eric J. Seaverson, P.E.

It is Important to Identify Common Air-Leak Paths

New and existing buildings are notorious for leaks. Moisture within the building envelope can migrate to the interior of the system, damage components, and reduce insulating values. In terms of air leaks, openings in the building envelope result in direct energy loss. Implementing an inspection and maintenance program that incorporates infrared diagnostic tools to prevent and reduce leaks can provide significant savings for commercial and institutional facilities.

A range of issues, including air leaks, wet insulation, and thermal bridging, typically account for energy loss in building envelopes.

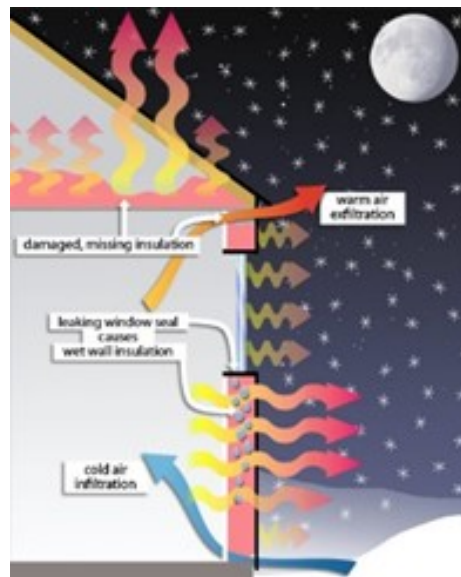


Using infrared technology can help technicians identify and prevent these three issues, as well as improve energy efficiency.

Air Leaks

To prevent un-tempered, exterior air from entering interior spaces, technicians typically balance mechanical systems to create a positive pressure, where more air is supplied to the interior rather than exhausted, pushing air out

through openings in the building envelope. Although this is a common practice in commercial and institutional buildings, openings in the envelope can allow significant amounts of air to exit the building,



drastically increasing heating and cooling loads. Common air-leak paths through the building envelope include around and through windows and doors; gaps

at transitions between walls and floor or roof levels; transitions in wall-system types; and structural penetrations through the wall system.

Wet Insulation Decreases a Building's R-Value, Thermal Efficiency

Moisture within building-envelope components, such as insulation, leads to premature deterioration of the material. It also decreases the R-value and thermal efficiency of the overall building. Moisture can reach building-envelope components in many ways, including condensation and direct water leaks through the building envelope.

Due to budget constraints and the out-of-sight, out-of-mind mentality many

organizations possess, roofs are one of the most commonly neglected envelope components. But roofs are important for thermal efficiency and preventing moisture from entering the building.

Moisture in insulation significantly decreases the roof's R-value. Condensation within the roof section or bulk water migrating below the membrane can be the cause of the moisture. Some roofs leak due to age and lack of maintenance, but improper or unreliable detailing typically leads to the majority of water migrating below the membrane.

Infrared Cameras Can Detect Thermal Bridging, Air Leaks, Wet Insulation

Although air movement transports cold air into a building and forces warm air out, thermal bridging through the wall system also can increase the load on the mechanical system. Thermal bridging consists of temperature gradients through components, such as cold, exterior air cooling a window frame, which then cools interior air.

The wall system also can contribute to heat losses and gains from thermal bridging. Many facilities use fiberglass batts in the wall cavity between steel studs to insulate the wall. But the insulation is inserted between the steel



studs, breaking the continuity of the insulation. Thermal bridging occurs because the steel studs extend from the exterior — cold

— side of the wall to the interior — warm — side of the wall.

Identifying Energy Loss

Infrared scanning technologies can help technicians identify energy loss in building

envelopes. Infrared scans can identify air leaks, wet insulation in a roof and some wall systems, and significant thermal bridging.

While using infrared diagnostic tools might look easy on the surface, scanning does not mean technicians are merely looking through a camera. Trained thermographers, infrared camera technicians and knowledgeable building envelope professionals must interpret the thermal images to determine the scans' findings. For example, reflections of apparent heat loss on a surface might provide a false-positive.

Infrared scanning is limited to specific types of systems and components, mostly barrier-type systems that do not include a cavity between the exterior shell and the back-up wall system, such as brick veneer. Air leaks can dissipate behind the face shell and veneer with a cavity system, so technicians might not be able to identify the leak with an infrared camera.

Secondary techniques for identifying air leaks include visual surveys, pressurization of the building, and the use of smoke pencils. In some instances, openings in the building envelope are very obvious. After locating large air-leak paths, technicians can use smoke pencils to identify smaller paths. Although infrared scanning and smoke pencils can identify leak areas, they cannot identify the cause of the leak. Technicians need to evaluate and investigate further to determine the cause.

For example, an infrared scan might indicate wet insulation, but it will not determine the reason the insulation is wet. Also, infrared scanning or smoke pencils can identify air leaks, but they do not indicate the breach in the air-barrier system. Making that determination might require destructive testing and exploratory openings to examine concealed components.

Building Envelope: A Maintenance Checklist

Before managers can develop a maintenance program for the building envelope, they must ensure the system is as functional as possible. Ensuring the building envelope is functional could require a year's worth of maintenance or an extensive capital investment. A capital project could include a roof replacement, sealing significant amounts of openings in the back-up wall construction, and replacing windows.

Once managers have established a functional and relatively efficient building envelope, they can develop a maintenance plan. A typical plan includes:

- visual surveys of deterioration and openings in roofs
- annual repairs of detected deterioration
- infrared surveys of roofs every five years
- visual survey of wall-system components annually
- sealants in wall systems and window perimeters
- window glazing gaskets
- cracks and openings in wall-system components
- interior survey of openings in wall systems above the ceiling
- infrared survey of wall components every five years.

Replacing Windows Improves Building Envelope Efficiency

While technicians can conduct a range of maintenance tasks to improve the performance of building envelopes, replacing windows is another strategy for improving the system's efficiency. Technology advances have significantly increased the R-value of windows, but the overall R-value remains low, compared to an average wall system.

Some recent advances include bar-type thermal breaks and warm-edge, insulated-glass units. Manufacturers have improved the performance of solid-plastic thermal breaks in frames by using two plastic bars separated by an air gap. The air gap is less conductive than the solid plastic. Although insulated-glass units generally are efficient, most of the thermal loss is due to the metal spacer. Manufacturers have helped reduce thermal bridging with composite and plastic spacers.

In some cases, such as single-pane window systems, the energy savings from replacing windows are obvious. But the energy savings and corresponding payback period of replacing existing windows with insulated-glass units are not as obvious. Technicians should perform a system analysis, including an assessment of air leaks, to make those determinations.

Eric J. Seaverson, P.E., is manager of the restoration division with StructureTec — www.structuretec.com — a building envelope consulting firm specializing in the restoration of building envelopes and roofs.

Article reprinted with permission



Going with the Flow

by Thomas Westerkamp

New technology to assess and address drain and pipe problems puts additional power in the hands of front-line technicians

Today's drain cleaning systems are a far cry from the rudimentary systems employed by maintenance departments in years past to keep plumbing systems operating and pipes flowing smoothly. These advanced systems feature improvements in materials, designs and technology that enable managers to put greater power in the hands of front-line plumbers and equipment technicians, which can enable them to diagnose plumbing system problems more quickly and accurately.



The options available to today's technicians for assessing pipeline problems generally fall into two categories — mechanical and chemical.

Equipment options

Mechanical cleaning includes everything from the old standby manual plungers and augers to today's faster and more powerful motor- or engine-driven power cleaners. Typical examples of mechanical cleaners found in a plumber's arsenal include:

- **Hand cleaners.** Two common types are closet augers and hand spinners. Closet augers with

flexible, 1/2-inch inner core cable can snake through traps, even in newer, low-flow closets. Workers also can use portable electric or battery-operated hand spinners on small drain blockages in sinks. They have a range of 50 feet and a vinyl-wrapped, flexible inner core cable housed in a plastic drum. They will not rust or dent and clean easily.

- **Sectional cable machines.** These units can be electric or gas driven and can clean lines up to 300 feet. They are available for application in 1-1/4 to 10-inch diameter pipe and in increments of 1-1/4 inches to 4 inches, 2 – 8 inches, 2 – 10 inches, etc. Speeds of 600-700 rpm enable them to remove buildup and cut roots that invade underground drains.

- **Drum-type cable machines.** These units have quick-disconnect drums and quick-connect couplers for faster setup and easier transport through narrow passages. They also are designed for problems with sink and floor drains, and they offer line diameters ranging from 1-1/4 inches to 10 inches, cable lengths of up to 250 feet, and in- and out-feed rates of more than 20 feet per minute.

- **Rodders.** For heavy-duty, large diameter pipe, rodders with an attached gas engine can handle up to 500 feet of line length with sectional rod and up to 24 inch-diameter pipe.

- **Water-jet machines.** Water jet machines are



driven by either electric or gas engines. Typical electric units handle more than 200 feet of 1-1/4 – 4 inch drain. Connected to a water source, they deliver high-velocity pulses of water forward and backward at 1,250 pounds of thrust to remove sludge buildup. Gas units remove soap, grease and sludge in 1-1/4 inch to 6 inch drain lines. A 5-1/2 hp drive delivers pressure at 2,100 psi, which is controlled by a foot valve. Both electric and gas units can be hand-carried or two-wheel-cart-mounted with hose.

Imaging technology

The gradual forms of pipe deterioration that maintenance and engineering technicians face include drainpipe wall buildup, erosion, corrosion, root invasion, cavities, sagging and cracks. Managers need to assess risks, understand equipment options, and sell a solution to management. These steps are best taken before a middle-of-the-night emergency occurs.

With up-to-date drain inspection equipment, smart managers can mitigate risks by viewing the condition of a drainage system at periodic intervals, documenting impending problems, and recording the findings using both audio and video of the actual interior condition of the lines to backup recommendations for corrective action.

The conventional method has been remotely controlled closed-circuit television (CCTV), a process by which a TV camera is inserted into the pipeline to make an analog recording. The camera is mounted on a track device that propels it through the pipeline and records distance, time and date. The device enables the operator to make audio comments of observations, as well as color videotapes, DVDs or still photos.

An alternative for smaller pipelines is a monitor on the surface connected to a Kevlar sleeved fiberglass cable that is inserted into the pipe for recording. Trenchless pipeline rehabilitation is a cost-effective alternative to open-trench repairs.

The disadvantage of CCTV is that it is subject to operator interpretation and varying quality of the TV pictures. Errors are most likely to occur in assessing early defects or deterioration that generally are not easily seen. As a result, inspectors might believe that complete relining is the best option, when in fact only spot repairs are needed, or that spot repairs are done when complete relining is needed.



Digital decisions

More recently, facilities have begun using digital imaging to assess pipeline condition. This technology is driven by the inconsistency of CCTV data. Benefits of digital imaging include more consistent and higher quality images, as well as the ability to do computer-assisted data analysis.

For example, a Java-based analysis now in use makes data less susceptible to operator error and enables users to scan and measure joint separation and accurately assess pipeline defects, including ovality of pipe and depth of cavities. Software allows user-defined coding of defects for automatic summary and analysis and user-defined reports. On-board sensors capture vertical and horizontal pipe deflection

since installation, possible indicators of stresses from shifting soil that can cause failure.

In its third generation, digital optical scanning technology Digital data can be reviewed on line, stored on CD or DVD, or seamlessly transferred to an asset management system for further evaluation and easy archiving. When reviewing data, the user can go to any point in the pipeline image instantly. When combined with the analytical software that is available today, digital data can help technicians more accurately assess the condition of the pipeline — the key to cost-effective and high-quality rehabilitation.

Chemical Considerations

Chemicals used for drain and pipe cleaning include biological agents and a variety of inorganic chemicals. These cleaners are application specific. For example, if the problem involves a drain that is plugged with fats, grease or oils, bio-augmentation drain cleaners provide a solution. Naturally occurring microorganisms feed on waste buildup and remove it from drains. Bio-augmentation is environmentally safe and non-corrosive.



On the other hand, if the problem involves a floor

drain used for photographic development or radiology waste, the buildup likely is a combination of calcium carbonate from the developer and iron deposits from steel wool silver recovery.

Solid buildup is very difficult to clean. The best solution is a cleaner specified for calcium carbonate and iron removal. This liquid material is easy to use, safe for use in iron and plastic pipe, and meets standards for non-corrosive cleaners.

Article reprinted with permission

KenKen Puzzle

How to solve the KenKen puzzle:

(Answers on page 16)

- 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 is in the same or column

24 x			15 +		3 ÷
5 -	10 +	4			
			3 ÷	120 x	5 +
12 +	12 x				
		10 x			2 -
	5 -		2 ÷		



John Rutherford

* Boiler Service * Consults * Parts * Upgrades *

Quality Combustion & Controls Ltd

834, 3545 - 32 Ave NE, Calgary AB T1Y 6M6

Ph (403) 936-0065 Fx (403) 936-0061

jrutherford@Qualityco.ca Qualityco.ca

HVAC system commissioning, spurred by technology advances, becomes easier and more beneficial to facilities

by James Piper

The commissioning of building HVAC systems has been gaining in acceptance among maintenance and engineering managers who realize that the benefits of commissioning far outweigh the associated costs. Those who have successfully completed a commissioning project have found that although it inevitably is a time-consuming and costly process, the results included a reduction in the number of change orders and claims required, fewer project delays, and faster completion of construction and renovation projects.

But the benefits did not stop with the final acceptance of a project. Compared to those that did not complete the commissioning process, fully commissioned HVAC system projects show significant reductions in energy and operating



costs, improvements in the building environment, and enhancements in system reliability and maintainability. Few processes have a higher rate of return on the initial investment than commissioning.

New tools

In spite of these advantages, many maintenance and engineering managers remain reluctant to commission their HVAC systems. For most in this group, it is simply the case that commissioning requires too much time and money to perform.

This situation is particularly true when dealing with larger projects because the commissioning costs and time requirements tend to increase exponentially with the complexity of the project. With shortages in both staffing and funding,

managers either have no choice or feel that it is more cost-effective to commit precious resources elsewhere.

Fortunately, managers have a number of new tools that can help reduce time and cost requirements by automating some portions of the process. Two of these include the widespread use of smart-control devices and significant advances in the capabilities of building automation systems (BAS).

The degree to which the process can be automated depends largely on the complexity and capabilities



of the system being installed. But all systems can benefit to some extent.

If managers use a BAS to simplify and automate the commissioning process, it is essential that the communications network be installed early in the construction process. That way, the system's data-collection capabilities can be put to use during commissioning.

Verifying installation

Although the commissioning process starts early in the design phase, most of its costs and labor requirements occur later as the project nears completion. One phase in which significant reductions can be achieved is in verifying the installation.

Installation verification focuses on the component level, and seeks to determine whether the devices are installed and operating properly. It requires that

all controllers, actuators and sensors be tested and operation confirmed, including power, wiring, settings, and travel and direction.

Traditionally, technicians have performed the tests manually using checklists. Each technician working with the system verification receives checklists, and they mark the checklists as they test and confirm each item. Perhaps the most significant drawback to the paper checklist is finding a method of storing the results so managers can retrieve them easily later.

Personal digital assistants (PDA) offer an alternative to paper checklists. Technicians can generate checklists of items to verify and download them to the PDA. After the technicians have performed their verification tests and entered the data into the PDA, they can transfer the results back to the computer for archiving, eliminating the need to maintain paper files or re-enter data into the computer.

Calibrating devices

Once technicians have confirmed that all system devices are properly installed, they must calibrate those devices so that sensor readings report actual conditions and actuator positioning produces the desired result. Calibration typically requires that technicians modify settings on the individual devices or configure software so that the reading from the sensor or device matches operations under some known reference condition.

Calibrations typically require the coordinated efforts of two people: a field-based technician and an operator at the central system. When calibrating a device, the central operator notes the reading and calls the field technician. The field technician then compares the value to some reference value, and reports the difference.

If the device is field calibrated, the technician then adjusts the setting on the device and rechecks it with the central operator. If the device is software calibrated, the central operator makes the adjustment and rechecks the value with the field technician. Often several iterations must be completed before the device is properly calibrated.

This back-and-forth process often can be simplified by using field devices or simply by using the system itself. Technicians using the proper microprocessor-based hand tools that plug into the HVAC system device can check device readings in the field directly, eliminating the need for a central operator. Similarly, the central operator can calibrate many software-calibrated devices by setting the system operation to known conditions.

System testing

One of the most time consuming and critical steps in the commissioning process is the performance testing of the completed system. The previous steps in the commissioning process help ensure that individual components are calibrated and operating properly, but the performance test verifies that all components, subsystems and systems work together properly. Typically, this process involved a team of individuals taking measurements and changing software parameters as required.

Today, system manufacturers offer handheld devices that technicians can plug directly into the device or system being tested. Using these devices, a technician can monitor a device's operation, override its control system, identify the necessary changes to its calibration and positioning, and upload the necessary changes to the device.

Technicians also can tap into the data-collection and analysis capabilities of a BAS to monitor and evaluate performance, particularly those tests best performed over a period of time. They can program and



automate system tests, monitor and evaluate system responses to changing conditions, and verify proper sequencing.

Spearheading the effort

The commissioning process involves most members

of the construction process: the owner, the prime contractor, several subcontractors, and the in-house engineer. It would seem natural that the owner would head the effort because the owner has the most to gain by completing the process properly. But if the owner is to take on this responsibility, it is critical that several conditions be met.

The owner must be willing to dedicate the resources necessary to see commissioning through to completion. Even if some of the steps are automated, commissioning still requires a significant amount of time and commitment on the part of the owner's staff.

The staff that the owner dedicates to the commissioning must be properly trained in the commissioning process. Expertise will be required in several areas. Learning on the job is not only inefficient but ineffective.

If these conditions can be met, then heading the commissioning effort in-house can be effective. This approach also helps to ensure consistency in commissioning across projects for those facilities having multiple HVAC construction and renovations projects.

But if the owner lacks the properly trained and experienced in-house personnel who can be dedicated for the entire commissioning process, a better option might be to bring in a third-party professional already experienced in HVAC system commissioning. Using an outside professional will bring in the level of expertise that is needed to successfully complete the commissioning.

If an outside professional is used, it is essential that all parties involved in the project understand that the commissioning authority works for the owner and has the authority to schedule and coordinate all commissioning activities, including:

- reviewing the plans and specifications
- conducting walk-through inspections
- reviewing all operations and maintenance manuals
- witnessing the testing of all system operations.



Managers cannot enter into the commissioning process lightly, but advances in both handheld test equipment and system software have made the process both faster and simpler. Some steps in the commissioning process still will have to be performed manually, but many can be automated. This can reduce both the time required to perform necessary steps and the cost of performing those steps. The net result is that HVAC system commissioning is more cost effective than ever before.

Keeping Small Problems Small

Even with close monitoring throughout the construction process, the completed system still will have some problems. While some of these problems — such as equipment that might not have been installed or components that were improperly wired — might be noticed readily, some problems can go unnoticed for years.

Problems that maintenance personnel and building occupants come to accept as limitations of the system in fact might be improperly installed or setup system devices or software. Without commissioning, most will remain unnoticed and uncorrected. Among the common problems often found by the commissioning process are these:

- incorrect calibration of sensors
- malfunctioning control hardware
- missing equipment and components
- permanently overridden controls
- incorrect sequences of operation
- heating and cooling systems that fight each other.

James Piper is a national consultant based in Bowie, Md. He has more than 25 years worth of experience in facilities maintenance and management issues.



Article reprinted with permission

Healthy Buildings
on a Sustainable Planet



Bay 8, 823 - 41 Avenue N.E.
Calgary, Alberta T2E 6Y3

Phone: (403) 276-2201
Website: www.gasonic.com



WADE WEATHERBEE
High Rise Division Manager

5442 56 Avenue SE
Calgary, Alberta
T2C 4M6

Telephone: 403-532-3205
Fax: 403-532-0185
Cellular: 403-703-7888

E-mail: waderw@telus.net



Commercial Building Automation Solutions Provider
Over 30 product lines including



Shawn Mclean, Calgary 403-404-3660 www.westexcel.ca

CONSULTING • DESIGN • INSPECTION • TESTING SERVICES

Anton J. Vlooswyk, P.Eng.

Cel: (403) 651-1514
Tel: (403) 287-0888
Fax: (403) 287-0880
Email: anton@beci.ca

102, 4029- 8th Street S.E.
Calgary, Alberta, T2G 3A5
www.beci.ca



**BUILDING
ENVELOPE
ENGINEERING
INC.**



Kenken Puzzle Answer

^{24x} 2	4	3	¹⁵⁺ 5	1	^{3÷} 6
⁵⁻ 1	¹⁰⁺ 5	⁴ 4	6	3	2
6	3	2	^{3÷} 1	^{120x} 5	⁵⁺ 4
¹²⁺ 5	^{12x} 2	6	3	4	1
4	1	^{10x} 5	2	6	²⁻ 3
3	⁵⁻ 6	1	^{2÷} 4	2	5



TEST YOUR OPERATOR IQ ANSWERS

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



BOA Canada Magazine printed & distributed
by:

SURE PRINT & COPY

Stopping Fire Where it Starts

by Thomas A. Westerkamp
From [Maintenance Solutions](#)

By preventing the spread of fire throughout a facility, firestop technology and products aim to minimize damage

Picture this. Your building has a transformer substation in a concrete room remote from operations. Computer operators on the night shift smell smoke and run to the area, only to find that the source is an electrical fire in the substation raceway penetration through the wall into the building.

The location is too remote and too hot for anyone to enter and use the portable CO2 extinguishers located nearby. By the time firefighters arrive, damage is extensive and spreading, an explosion has occurred that released toxic gases, and the firefighters have a difficult time extinguishing the blaze.

A nearby generator also was damaged, so the distribution system, lighting and computer network are without power for days while very costly repairs are made.

Firestops: A closer look



A very different outcome could have resulted if firestop systems had been in use. Firestops effectively fill the spaces around such

elements as conduit, cable ways and piping where they pass through fire-rated walls or floors. They provide an important adjunct to portable, manual extinguishers and fixed automatic sprinkler systems.

National statistics show that a fire breaks out in a structure every 60 seconds and that damages cost more than \$8 billion a year — certainly a

substantial risk management and cost-reduction opportunity that needs maintenance and engineering managers' thoughtful attention.

Firestop products detect heat or fire and automatically discharge or expand at specific locations they were designed to protect. They can be connected to a fixed fire-alarm system so that they trip an alarm and identify a location even while fighting the fire. In this latter respect, they work like the stationary building sprinkler system.



Code considerations

The current construction codes now require firestops for all wall and floor penetrations and joints. While older, existing construction is not included in the codes, many managers are retrofitting their facilities to reduce risk to life and property of fast-spreading fire and smoke and also to gain advantage of lower premiums.

Some standards are used for performance testing of firestop products. An important distinction is that testing authorities like Underwriters Laboratories (UL) test only complete systems.

An example of a complete system is the fire-rated wall or floor, an item or means passing through it, and the sealant or other means to prevent smoke or fire from passing through it.

Some key firestop system testing standards for through penetrations and membrane penetrations are: ASTM E 119; UL 263; NFPA 251; ASTM E 814; and UL 1479.

Standards for joint penetrations are: ASTM E 119; ASTM E 1966; ASTM 1399 for cycling; ASTM C 719 or UL 2079 for adhesion or cohesion; and NFPA 96

for grease ducts.

In new construction and remodeling, the design architects are responsible to the owners for recommendations that meet existing standards and codes, and the general contractor is responsible for installation according to the accepted standard.

These groups usually will employ a specialty firestop subcontractor to examine the specifications, develop appropriate product recommendations — including detailed designs — and coordinate with building owners and managers, architects, general contractors, fire marshals and building inspectors for that part of the work because it is so specialized.

There remain many system combinations that have not been tested and for which there are no existing standards. In such cases, specialty firestop contractors and laboratories can assist the owner by developing a suitable testing method and standard for approval by the regulatory organizations.

The Firestop Contractors International Association's Manual of Practice, Section 07840, contains an example of important code information and lists of approved products. Generally, firestop material must be the equal in fire rating to the fire-rated wall or floor that is penetrated. Submittals for listing includes product data and specifications, certification of the testing agency as to the testing results, evaluation reports and backup documentation.

Other parts of this section cover product storage and handling and execution. The execution practices include installation techniques, such as masking identification of the penetration seal, and cleaning.

Quality assurance requirements include the experience of the installer — five years — a manufacturers' representative present at the beginning of the installation for training and guidance, and verification of compatibility of the firestop material with the substrate to which it is applied and the penetrating items.

Section 01340 of the manual contains procedures for

submittal of products for testing. Firestops are meant for short-cycle applications and are not appropriate for furnace fire doors or other locations where high levels of heat are continuous.

New technology

Managers have access to more than 3,000 tested firestop products. No single firestop product will work in all cases. Some firestops work by intumescence, or the ability of the product to expand in the presence of heat. Some of these products sense heat as low as 115 degrees.

Polymerized tubing can be directed to four different points from one portable source of automatically released foam, dry powder for electric power distribution, or clear gas for computer systems and other sensitive electronics such as telephone switchgear.



Of particular interest are firestop product offerings for two key applications — through penetrations and in remote areas of facilities. Among the technology options for wall and floor penetrations are these:

- o **Fire putty sticks.** These products are designed for molding around cables, conduit and pipes. They maintain pliability and can be reused if some of the penetrating items are changed, removed or added to.
- o **Firestop caulk.** This product is applied with hand caulk gun. It will not sag and can stand some movement. Some grades have high intumescent characteristics that work well with insulated or plastic pipe and meet UL specs for four-hour rating.
- o **Firestop pillows.** These products are designed

for large openings, many without wire reinforcement required, around cables, cable trays, blank openings or several penetrating items. They meet UL tests for systems up to three hours.

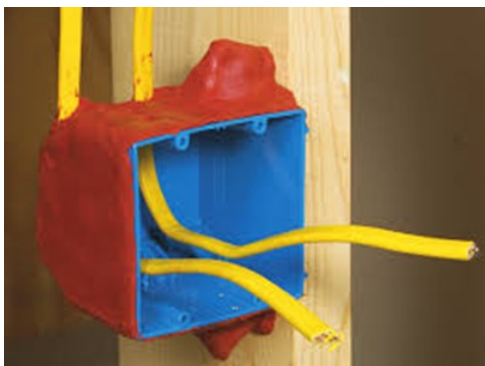
o **Fire putty pads and inner stops for electrical**



boxes. The pads surround electrical boxes and maintain the fire rating of walls for one to two-hour rating with 1&Mac218;8-inch thickness. The stops are mounted into the inside back wall of an electrical box and form a hard char when exposed to heat, lowering the temperature of the protected parts and openings. They also are sound absorbent.

o **Receptacle and switch firestops.** These gaskets are used with either plastic or metal, single or double wall-plug receptacle and light-switch cover plates. They expand and **seal** openings with a hard char in the presence of heat. They are UL classified to a one- to two-hour rating.

Among the options for firestop technology in remote areas of facilities are portable fire extinguisher firestops. These products are automatic extinguishing firestops similar to portable manual fire extinguishers for buildings or outside use. These automatic extinguishers have an attached hose that is permanently under pressure instead of the usual sealed hand valve and nozzle.



A hose — as many as four different hoses on one tank — is fastened into a fixed location from 12-40 feet away and aimed at a

possible fire source.

If a fire or 115-degree heat reaches the hose, it detects the source and automatically releases the extinguishing fluid at the same time. A connection to the building's stationary sprinkler system electrical circuit can simultaneously energize a light signal or audible alarm.

The product can supplement conventional water sprinkler systems. For example, where flooding from a building's sprinkler system would damage computer closets, the portable device charged with clear gas can be used. It will not affect the electronics because it is a dry gas and doesn't require any cleanup. A dry powder version can be installed in critical areas near a gas- or oil-fired boiler.

In addition to proper installation methods, there are code requirements regarding frequency of checking and recharging to ensure this system maintains its proper functional capability.

There are many applications for this automatic extinguishing firestop product. Among them are HVAC equipment rooms, air-compressor rooms, elevators, telephone exchanges, transmitters, towers, combustible storage areas, paint lockers, boiler rooms, off-road landscape and construction equipment, bank safes, safe deposits, ATM machines, and waste stores.

Finally, for building joint openings, managers might consider firestop spray, which is used for large openings between the inside of the exterior walls and the floors. These materials must meet the tests for fire resistance of building joint openings.

With rewards that include increased occupant safety, continued gainful use of building space and enhanced property values, firestop products give managers good reason to take a serious look at a building's original structure, as well as past and future upgrades, for proper firestop specifications. Such investigations and investments almost certainly will have a tremendous payback.

Article reprinted with permission

Sealing the HVAC system

by Thomas A Westerkamp

Insulation application help facilities close the door on heating and cooling system leaks.

Heating, ventilating and air conditioning systems demand costly energy 24 hours a day, 365 days a year for most commercial and institutional buildings. The task for engineering and maintenance managers is to hold the line on energy costs while continually increasing the functional capability



and reliability of these systems.

They are aware that any losses

are money, energy and repair time down the drain that could be better spent in more productive ways.

HVAC system insulation is a one-time investment that continues to generate savings year after year. Better to make the right investment once and reap the savings than to take shortcuts and pay additional, possibly unnecessary costs down the road.

Insulation and efficiency

Insulation allows boilers, piping and ducts to deliver heat or cooling to the intended space with minimal losses along the way. In addition to added occupant comfort, insulation can reduce noise levels, and installed properly according to the architect's specifications, insulation systems can last for many years. Periodic checks and minor repairs, scheduled as a part of a preventive maintenance program, can extend the insulation life substantially.

The passage of time may cause system deterioration as equipment and insulation age. Periodic re-

Looking for savings

For energy-saving insulation applications, technicians should start with boilers, unit heaters, package air conditioners and chillers, and work through the system, following all of the energy paths. The energy source itself should be insulated and jacketed with protection from mechanical damage, as should pressure piping and condensate return piping for a steam or hot water system.

Along the way, technicians should check for energy loss. Traps that leak or discharge into a drain can result in big energy losses. Hot or cold spots that are not where they should be can be detected with contact pyrometers or, in remote locations, with infrared imaging instruments.

Also, have technicians trace air flow from the supply fans through ducts to building spaces and, finally, to exhaust fans.

Ducts should be checked for missing or damaged insulation and leaking duct joints. Single- and double-application foam sealants are available in polyurethane and silicone varieties that eliminate duct joint leakage better than duct tape, which almost always leaks with time.



High-temperature tape and cement are required near the boiler for sealing furnace gas vents.

Managers should make sure that MSDS information about these materials is available to all users to ensure that technicians use proper care when applying them.

Sweating cold water piping or refrigerant lines also are signs of energy losses. Tape wrap or molded insulation is available to eliminate these problems.

Among the most important areas to pay special attention to are additions to the original HVAC system. If a valve or other fitting has been added, or if a new heating or air conditioning run has been added, technicians should be sure that all the insulation in these areas is in place.

Sealing the envelope

Once supply and exhaust systems are inspected and brought up to date, the next step is to check the building envelope. Building insulation is as important as HVAC system insulation. A tip-off of a big problem is when snow on a roof starts melting right after a heavy snow, even when the sun is not shining.

Heated warehouses and equipment garages should be insulated to conserve energy. Melting indicates heat is coming through the insulation. Usually, this is due to leaks in the weather seal that allow water to penetrate and soak the insulation.

Water is an excellent conductor. In dry cold, an infrared imaging detector can identify the heat signature of the roof areas.

If the deck is generally cold, check for leaks around equipment supports, air supply and exhaust ducts and other roof penetrations. Sealing leaks in these areas not only saves energy but extends the life of the weather seal, flashing, insulation and decking.

When specifying insulation materials, managers should make sure to specify the proper R-value for the application.

The higher the R-value, the better the insulation. R-value is a function of the insulation properties of the material and the thickness.

Some duct insulation materials are made for indoor use only and are not designed for exposure to ultraviolet light, even that which comes through atriums and windows. Managers should check local codes when selecting insulating materials because code compliance varies by location.



Impact of HVAC insulation

Facilities can make major strides by focusing simultaneously on energy use, occupant comfort, noise level and indoor air quality.

Energy use is the sum of the energy required to maintain the system balance plus the energy required to offset losses. Insulated systems have far fewer losses, so the energy demand for a facility is also far less.

The amount of energy lost is a function of the conductivity of the enclosure walls and the surface area exposed — that is, uninsulated. For example, duct walls are meant to direct airflow, not to provide insulation. They are very thin and conduct heat rapidly. When insulated, however, they pass more of the generated cooling or heating to the space intended and lose less along the way.

A closer look at windows An often unnoticed place for large energy losses is windows. Older window



construction did not have the same insulation properties as newer construction. Cracks due to aging caulk and seals add to this source of energy

loss.

Upgrading these areas with modern construction, the addition of good thermal barrier glass systems, and new caulking and sealing can lower energy demand substantially. This same benefit applies to roof insulation. Since heat rises, losses can be large if the insulation under the weather seal is deteriorated due to leaks in the weather seal. Once the insulation becomes water logged, much of its insulation value is lost.

Occupant comfort depends on the time it takes the system to respond to a call for heating or cooling. If there are many leaks or uninsulated sections of the system, the supply of heated or cooled air must meet two demands: demand caused by the temperature and demand caused by the losses.

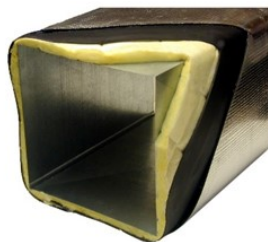
If losses are reduced through the use of better insulation, the demand is satisfied more quickly. Occupants do not notice the difference because it is present for only a short period of time, not long enough to be uncomfortable.

Insulation and noise

HVAC fans, blowers, pumps, power drives, steam and air flow contribute to higher noise levels in the nearby work spaces. To test for the noise level of the equipment, measure the noise level using a decibel meter, with the equipment running and then with the equipment shut down. The difference is the noise contributed by the equipment.

Noise is easily transmitted and even magnified by uninsulated ducts and piping. Technicians can measure the noise contribution from individual units by progressively operating each unit and measuring the increased noise level. Then it is possible to isolate the biggest offenders and concentrate on getting them properly insulated.

Noise levels should measure as low as 25-35 decibels on the A-scale for broadcast studios and schoolrooms, to as high as 40-55 in hospitals, private offices and restaurants. In some cases, 80 percent of the noise



problem relates to only to 20 percent of the equipment. The most cost-effective solution is to fix the noisiest 20 percent first. Balancing equipment to reduce vibration or air velocity, along with adding dampers, sound traps and insulation, may be required if the HVAC equipment does not meet the specifications.

In HVAC systems with a large number of leaks and other losses, the air volume demand may be greater than the supply fans were designed to provide. Sealing joints with foam insulation and adding sheet or roll insulation to uninsulated sections of the ductwork can reduce the air volume demand.

The result of such efforts often is better, more efficient circulation into the building spaces, greater system efficiency and lower energy costs.

Efficiency Checklist

Managers can adapt and implement the following checklist points into preventive maintenance programs to help maximize energy efficiency by checking the condition of distribution ducts and insulation:

- Is duct work insulated?
- Are duct work seams sealed?
- Is duct work leaking air?
- Are duct connections to outlets tight?
- Is duct work accessible to repair leaks?
- Does the system have manual balancing dampers at zones? If not, how many would be required for balancing?
- Do supply outlets have dampers? If not, how many are needed?
- Do return outlets have dampers? If not, how many are needed?
- What is the velocity and CFM at each outlet with the system on full call?

To answer this last question, traverse each zone, test, and list the results with the system on full call. Compare the results with the original building specifications or the last inspection results to determine needed adjustments.

Thomas A. Westerkamp is a contributing editor to Maintenance Solutions.

WE'RE BACK



BOA
Building Operators Association of
Canada

Trade Show 2022

Tuesday October 18, 2022

Danish Canadian Club

727 - 11th Ave SW

Doors Open at 2pm until 6pm

**30+ Exhibitors - New Technology - Latest Innovations -
Networking - Industry Personnel**

Door Prizes - Cash Bar - Finger Foods

Come & Join Us!

We hope to see you there!

Want to be an Exhibitor at the trade show? Reach out to president@boacalgary.com



Changes to the Temporary Worker Program to support Alberta's workforce needs

Good afternoon,

On behalf of the Ministry of Labour and Immigration, I am writing to inform you of recent changes that will support Alberta employers in hiring more international workers to support the growth of their businesses, as well as Alberta's economy.

Alberta's government is lifting restrictions on hiring new temporary foreign workers to help employers better meet their workforce needs.

As of May 1, Alberta will remove all occupations identified on the 'refusal to process' list, which had been created to prioritize jobs for unemployed Albertans due to the pandemic.

With this change, employers will be able to recruit temporary foreign workers to all occupations, including 81 that were previously on the list, through the Temporary Foreign Worker Program.

With Alberta's economy quickly growing and unemployment at pre-pandemic lows, allowing employers to recruit more temporary foreign workers will support sectors of Alberta's economy that are experiencing labour shortages and struggling to fill available positions with Canadian workers. This includes industries such as accommodation and food services, transportation and warehousing and construction.

This change also aligns with a [recent announcement by the Government of Canada](#) to relax the rules around accessing temporary foreign workers.

As Alberta's economy continues to improve, the government will monitor these changes and make adjustments to meet the province's workforce needs now and in the future.

For further information, you may visit www.alberta.ca/temporary-foreign-workers.aspx.

Sincerely,

Michele Evans
Assistant Deputy Minister, Workforce Strategies
Alberta Labour and Immigration
April 26, 2022

New pipes inside your old pipes.



**Cost Effective, Less Disruptive.
Simple as that.**

*Whether you're replacing a
drain stack in a skyscraper or
a piece of cracked cast under
the floor in a shopping centre,
we have it handled!*

- Vertical drain stacks behind walls
- Horizontal drains under floors
- HVAC and chiller pipes
- Pipes with multiple bends and offsets
- Pipes with branch connections
- 1 1/2 - 10 Inch diameter (custom sizes available)
- Inside any type of pipe (including cast iron, steel, asbestos concrete, PVC, ABS)
- 50+ year life expectancy

REVIVE
Pipe Restoration Inc.

Inside Building Specialists
403-903-4445
www.revivepipes.com

April 2022 Meeting Minutes



Chaired by: Mark Arton	Minutes by: Monika Bhandari	Call to order: 5:00pm	Webinar: April 10, 2022
---------------------------	--------------------------------	--------------------------	-------------------------

New Business:

- Digital magazine is now out for May 2022
- Tradeshow scheduled for October 18, 2022 at the Danish Canadian Club; more details to be provided on website once confirmed
- Join the BOA; details on www.boacalgary.com
- Past webinars available on the website and the building operators Calgary YouTube channel
- New guest speakers wanted for webinars; contact Les or Mark if interested

JOIN US: TUESDAY MAY 12, 2022 AT 5PM FOR OUR VIRTUAL MONTHLY MEETING

Presenter: Tiffany Petrunia from Suez Water Technologies & Solutions

Title: The Challenging Dynamics of Open System Water Treatment.

Summary

Summary: We will discuss basic cooling tower water treatment. This includes cycles of concentration, evaporation, & latent heat transfer. The importance of pre-season cleaning, & operational best practices. Control of biologics & risk management, including Legionella mitigation. Corrosion & reposition chemistry and monitoring in cooling towers. Time permitting, we will briefly discuss scale management for steam humidification boilers, which is another rather dynamic open systems.

Bio

Tiffany holds a Bachelor of Science Degree from the University of Calgary, and has extensive experience in many aspects of water treatment, including wastewater, cooling, low & high pressure boiler treatment, as well as water purification and pre-treatment.

[Click on this link to register for the BOA Monthly Meeting](#)



😄 Just for laughs!

LOL!

Knock, knock.
Who's there?
Nobel. Nobel who?
No bell, so I just
knocked.



What did the tomato say to the other tomato during a race?
Ketchup



Mountains aren't just funny... They're hill areas.



BOA CALGARY OPERATOR MAGAZINE ADVERTISING RATES:



1/8 page	\$200	Premium Locations:	
1/4 page	\$400	1/2 page inside/outside cover	\$850
1/2 page	\$775	1/2 page outside cover	\$900
Full page	\$1000		

Deadline for ads is the 10th of each month. For any questions, please email: advertising@boacalgary.com.



Thank you to our incredible sponsors! Your support of the Building Operators Association is invaluable!!

GOLD LEVEL SPONSORS













SILVER LEVEL SPONSORS













BRONZE LEVEL SPONSORS















Advertisers Directory

Automation 403-404-3660

WestExcel Automation Ltd.

Boiler Services

Black & McDonald 403-235-0331

Quality Combustion & Controls 403-936-0065

Cleaning / Janitorial Services

Regency Cleaning 403-520-7788

Drain Services

Revive Pipes 403-903-4445

Engineering Services

Building Envelope Engineering 403-287-0888

Filtration

BGE Air Quality Solutions Ltd. 403-243-5941

Alberta Diesel Dialysis 403-813-9999

Fire Protection Services

Constant Fire Protection 403-279-7973

HVAC & Electrical Services

Black & McDonald 403-235-0331

Boulder Mechanical Contractors Ltd. 403-230-5519

Indoor Air Quality Services

Gasonic Instrument Inc, 403-276-2201

Black & McDonald 403-235-0331

Lighting Services

Calgary Lighting Products 403-258-2988

Motor Services

James Electric Motor Services 403-252-5477

Supply Services

DC Sales Corporation 403-253-6808

**Alberta Certified Power Engineers
Online Directory**

**Check to see when your power
engineer certificate is due for
renewal!**

www.absa.ca/directories/alberta-certified-power-engineers-directory/



Support those that support

YOU!

Next time you are looking for a product or a service provider, please consider connecting with one of our advertisers & members of the Building Operators Association of Calgary



James Electric



Motor Services Ltd.

Professional Pump & Electric Motor Repair

35,000 Square Foot Service Center and Warehouse

In-House Machine Shop & Fabrication Departments

Fully Equipped Service Vans

Certified Hydronic Designer on Staff

Calgary's Largest Replacement Motor Inventory

Largest Stock of Pumps & Pump Parts in Western Canada

Custom Built Fans and Blowers to Meet Your Specifications

ISO & COR Certified

Consumer Choice Award 8 Years Running

All Service Technicians are Trained in Confined Space Entry

Fire Pump, Booster Pump and Sump Pit Annual Inspections Available

Energy Efficient Audits and Solutions

On Call 24 Hours, 7 Days a Week

Motors

A.O. Smith, Baldor, Century, Emerson, Franklin, Fasco, Lafert, Leeson, Marathon, WEG, Teco-Westinghouse, US Motors

Pumps

Armstrong, Albany, Barnes, Bell & Gossett, Burkes, Darling, Franklin, Goulds, Grundfos, Hydromatic, Liberty, Little Giant, Monarch, Paco, Taco, Tsurumi, Xylem

Fans & Blowers

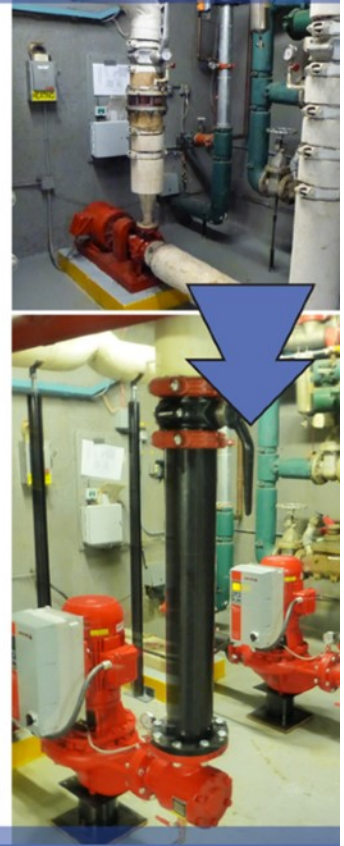
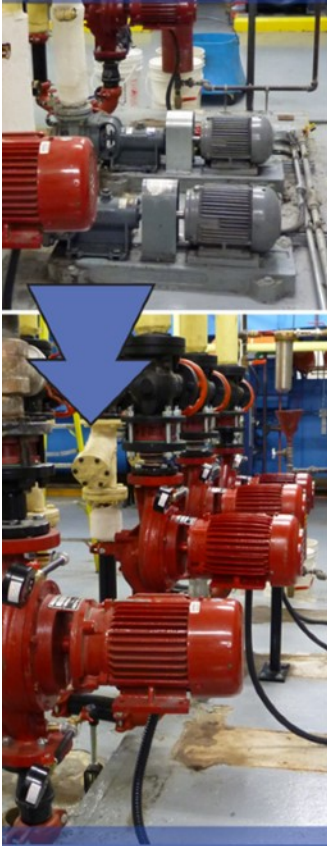
Airdex, AirKing, Broan, Dayton, Delhi, Fantech, Fasco, Greenheck, Lau, Nederman, Nutone, Schaefer, Tjernlund

Variable Frequency Drives & Motor Controls

ABB, Danfoss, Baldor/Reliance, WEG, Santerno, Teco-Westinghouse, Tornatech

Accessories

Gear Boxes, Pressure Tanks, Gauges, Bearings, Mechanical Seals, Flow Indicators, Filter Housings, Filters, Flanges, V-Belts, Float Switches, Pressure Switches, Pulleys, Sheaves, Relays, Contactors, Pressure Reducing Valves



Are your pumps leaking money?



Booster Audit

We have ability to monitor water usage and power consumption to provide the following:

- A comprehensive pre audit booster inspection
- An energy audit with an estimate of annual energy savings and potential payback.
- The "scope of work" for the installing contractor
- Start-up and commissioning on site
- Yearly maintenance inspections
- On site service 24/7/365

Grundfos BoosterpaQ

- Most efficient cascade control, application optimized software in the industry
- Single source responsibility: One manufacturer for pumps, motors, drives and control
- Plug & Play - Easy to install and commission
- Large, clear, user friendly & advanced controls interface
- Reduced floor space footprint
- Ethernet & BUS communications option
- Drinking water approvals: NSF61/372, Hygienic designed 316SS manifolds



4020 - 8 Avenue S.E, Calgary, Alberta, T2G 3A7 www.jameselectric.ca motors@jameselectric.ca



Calgary Lighting Products

Scholarship

5th Class Course

Calgary Lighting Products
in partnership with BOA

is offering a **50% Scholarship**
towards the 5th Class Course

For more details, please contact
president@boacalgary.com

CalgaryLightingProducts.com

Need Trained Building Operators? 

'Be A Part of the First Training of Its Kind'

5th Class Power Engineering 'Building Operator' Training Program



- ▶ Our first ever program graduated nineteen 5th Class Power Engineers Building Operators
- ▶ 90% secured employment with major companies in town!

**If you are a Building Owner/
Manager and would like to:**

- know more about this training or
- be a work experience host employer or
- have recruiting advantage after completion of training

At no cost to you!

Please contact:
Monika Bhandari
Phone: 403.514.8328
Email: mbhandari@ccisab.ca
1111-11 Ave SW 5th Floor
Calgary, Alberta T2R 0G5
www.ogtp.ca






Services

- Heating, Ventilation & Air Conditioning
- Sheet Metal
- Electrical
- Building Automation Systems
- Plumbing
- Refrigeration
- Voice & Data Communications
- Instrumentation
- High Voltage
- Process Piping
- Millwright & Rigging

Calgary Office
1071 26 St NE Calgary
403-235-0331

Capabilities

- Design/Build
- Renovation & Upgrade
- Fast-track Change-out
- Building Commissioning
- Infrared Thermography
- Facilities Management & Operation
- Planned Preventive Maintenance
- Sheet Metal Fabrication Pipe
- Complete Boiler Services
- 24-hour Emergency Service**

Facilities

- Commercial/Office
- Industrial
- Education & Institutional
- Healthcare
- Industrial
- Telecom & Data Centers
- Sports & Assembly
- Airport & Transit Stations
- Military Bases



Black & McDonald is a leader in quality service, committed to implementing innovative solutions throughout a facility's life cycle.

www.blackandmedonald.com