

BOA

Building Operators Association of

Canada

Official Publication of the Building Operators Association (Calgary)

January 2021



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	3
Important Phone Numbers	3
Presidents Message	4
Test Your Operator IQ	6
Chief Power Engineers Education Conference	7
Achieving Operational Excellence	8
BOMA Building Operator Program	9
KenKen Puzzle	10
Fatigue, Extended Work Hours & Workplace Safety	14
Test Your Operator IQ Answers	14
December Meeting Minutes & January Guest Speakers	15
Advertising Rates	16
BOA Calgary Sponsors	16
Advertisers Directory	17

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

Executive & Committees

President	president@boacalgary.com
Les Anderson	C: 403 921 0648
Vice President	vice.president@boacalgary.com
Mark Arton	(c) 403-305-7029
Associate Vice President	associate.vice.president@boacalgary.com
Mike Gerald	403-861-9091
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
Shaun McLean	
Membership Committee	membership@boacalgary.com
VACANT	
Promotions Committee	promotions@boacalgary.com
VACANT	
Activities Committee	Mike Gerald (c) 403-861-9091
Mike Gerald	
Technical Concerns	technical@boacalgary.com
Kyle D' Agostino	
Webmaster	webmaster@boacalgary.com (c) 403-813-9999
Mike Thompson	



SPROUSE FIRE & SAFETY

Serving Commercial, Residential & Contractors Since 1963
Fire & Safety Equipment Specialists
Toll Free: 855.337.7776

1323 9 Avenue SE 14825 Yellowhead Trail 5329 72 Ave SE
 Calgary, AB Edmonton, AB Calgary, AB

www.SprouseFire.com info@SprouseFire.com
 100% Alberta Owned



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

President's Message



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

I was happy to read an article in the ASHRAE magazine that was forwarded to me by Kevin Delahunt. The Article was written by the President elect for the 2019/2020 year. With the permission of Darryl K Boyce, P.Eng. I have reprinted his presidential address in this month's magazine. His inaugural talk referenced a point of view that many Building Operators share. That today's buildings built are very sophisticated, not only mechanically, electrically and architecturally but as well in the design of operational programming strategies in the control of energy management. We are not keeping up with the speed of change and the potential of these buildings suffer, costing in investment dollars and loss of return on investments. These challenges include a lack of consistent definitions of what a Building Operator should know, professional qualifications, and standards, as well as gaps in training and education, and Operator practices. The average age of a Building Operator is 57 years old. The training and upgrade of the average Operator has not kept up with the design of facility operation. Addressing these challenges will enhance the value of Building Operators by preparing them to operate high performing buildings in the present and future, it will encourage younger people to enter the discipline as a career choice. The educational institutions will not support a career that is not fully defined.

That in addition to the above, the designers of these systems are failing in accounting for who will be the ongoing operators of the buildings and the systems therein. That the people who have experience with the day-to-day control of the systems and years of operational experience should have a part in the design. What is left, can be a large gap between intent and function.

One key challenge in this area is that educational content is lagging some technological advances in building systems strategies and control. Various educational and training programs for Building Operators exist, but they



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

remain fragmented and do not appear to be meeting the needs of industry. There is no recognized certification system for Building Operators and confusion exists amongst employers and operators about the appropriate qualifications and training required. Education and training of building operators is also hindered by an industry culture that does not encourage ongoing training. There needs to be a partnership between designers, industry, and educational institutions to develop a national training and certification strategy that is adaptable to the latest advances in building systems, technologies and provide benchmarks to ensure that the Building Operators are equipped with more consistent, comprehensive, and relevant skill sets.

We have let each other down. The designers for not understanding the users, the educators for not developing the curriculum and following the changes to the industry, the Operators for not staying up with the competencies required of them, and the regulators for not fully managing the syllabus and curriculum. We work in an industry that is technically advanced the changes are rapid. There needs to be better collaboration between the groups to make this work more effective. Most importantly we must recognize the gaps such as Darryl Boyce, P.Eng has pointed out, and then be willing to do the work to close them. We should have in all jurisdictions, a unified education system that is including, but not limited to governments, associations, industry, and educational institutions.

It will be a long road but as any journey, first you must get off the porch!

Take Care, Stay Safe , be kind to one another.

With kind regards,

Les Anderson PE, RPA

JOIN US!

For our Virtual BOA Monthly Meeting
on Tuesday January 12, 2021 at 5pm





BGE Indoor Air Quality Solutions

When clean air matters.

We deliver clean air to protect your people, places, processes, and products.



BGE Indoor Air Quality Solutions Ltd.

When clean air matters.

5711 – 103A Street NW • Edmonton, AB T6H 2J6

T: 780-436-6961 F: 780-437-1097 TF: 1-866-436-6961 • www.bgecleanair.com



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.dcsalesltd.com




Alberta Diesel Dialysis

Ensuring the Best fuel quality at the Most critical time



Mobile Fuel Polishing Services
 Permanent Automated Polishing Systems
 Western Canada Distributor for Refuel Systems
 403 813 9999
AlbertaDieselDialysis@gmail.com
www.AlbertaDieselDialysis.com



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 14

1. When a pump discharges into a vessel operating at 300 kPa, the 300 kPa is referred to as:
 - A. dynamic head
 - B. equivalent head
 - C. discharge head
 - D. friction head
 - E. total head
2. When a reciprocating pump discharges while its piston or plunger moves in only one direction, it is termed a:
 - A. positive displacement unit
 - B. single acting unit
 - C. dynamic unit
 - D. double acting unit
 - E. duplex unit
3. When a reciprocating pump discharges while its piston or plunger moves in one direction, it is termed a:
 - A. positive displacement unit
 - B. single acting unit
 - C. dynamic unit
 - D. double acting unit
 - E. duplex unit
4. When starting-up a rotary pump you must make sure that the:
 - A. discharge valve is closed
 - B. discharge valve is open
 - C. pump is filled with air
 - D. pump is at the correct temperature
 - E. pump suction valve is closed
5. The type of valve used to control the direction of flow is:
 - A. ball valve
 - B. gate valve
 - C. globe valve
 - D. needle valve
 - E. none of the above



The Alberta Chief Power Engineers Education Conference Committee is excited to announce our first Webinar. We are pleased to have Tom Leming, Lead Examiner and John Siggers, Examinations & Certification Manager, both from ABSA, giving an update.

January 26, 2021 @ 3:00 pm MST

To register email: admin@acpeec.ca and you will be sent an invite closer to the date

Agenda:

- What's new with ABSA since the last ACPEEC Conference
- Information Bulletins
- Assisting Power Engineer Training Programs during COVID
 - Adjustments to programs
 - Experience adjustments
- Examinations strict protocols
- Examination proctoring with remote monitoring by Examiners
- Update with SOPEEC/ACI
 - 2B2 examination converted to multiple-choice
- Online Examination Study

Meet the Presenters:

John Siggers: John joined ABSA, the pressure equipment safety authority early in 2011 as the training coordinator for External Training. Prior to joining ABSA, John was the Chief Boiler and Pressure Vessel Inspector for the British Columbia Safety Authority. He was responsible for designs, repairs, alterations, operations of pressure equipment in the province. In addition to this, John brings with him experience as the Chief Examiner/Inspector from the province of Nova Scotia. In Ontario (TSSA), he held the position as the assistant Chief Officer under the Operating Engineers Act and was responsible for code shops and the inspection (pressure boundary repairs and installation) of three nuclear stations as the in-house relief inspector. John brings us experience from the insurance industry as a boiler inspector with Commercial Union Assurance of Canada and he has experience in instructing power engineering and process operations from Keyano college. He holds a First Class Power Engineers Certification and National Board In-Service and New Construction Commissions with A & B endorsements.

Tom Leming: After a 6 year stint in the Oil and Gas industry Tom rejoined the Education & Certification department of ABSA, the pressure equipment safety authority, in 2012. Tom holds a First Class Power Engineer's certificate of competency and during his previous time with ABSA served as the Senior Examiner for Alberta and the SOPEEC Coordinator for Canada. Tom's power engineering background originated in Manitoba where he spent 15 years working in Pulp and Paper. Tom has presented for ABSA at National Board seminars both in Calgary and in Edmonton as well as representing ABSA on a national stage. He has successfully completed both his National Board Commission Examination as well as his National Board A Endorsement.

‘Designers are not always focused on operability during the design process. They need to transfer their great design into effective operations.’



**Darryl K. Boyce, P.Eng.,
2019-20 ASHRAE PRESIDENT**

Building for People and Performance:

Achieving

Operational Excellence

Fellow/Life Member ASHRAE, is ASHRAE’s President for the 2019– 20 term. Boyce has previously served on the board of directors as treasurer, vice president and director at large. He is the recipient of ASHRAE’s Distinguished Service Award, Exceptional Service Award and Regional Award of Merit. In addition to his time served on the Board of Directors, Boyce has served as chair and coordinating officer for the Finance Committee and chair of the Members Council, Appointments Roadmap Committee and President-Elect Advisory Committee. Boyce has held ASHRAE Society-level leadership roles on many standing committees, technical committees and presidential ad hoc committees. Equipped with his extensive ASHRAE experience, Boyce plans to focus on how to improve operational performance of buildings by understanding and reducing the challenges between design, construction and operations.

Growing up my father owned a logging company. In order for him to keep work, we regularly moved to new locations, including remote islands off the west coast of British Columbia, Canada. My childhood memories are of being around large equipment and the rugged individuals who operated and maintained that equipment.

After the logging business closed, we continued to move around, and I attended several schools. At 14, my father left our family. My mother, younger sister and I were left on welfare.

I was thrust into the role of “man of the house” and became the chief operating officer of our sub-standard housing. There was no money to hire a plumber or electrician, so I was in charge of repairing any plumbing or electrical problems in the house. I began to appreciate the importance of safe, healthy and effective building operations.

At 15, I went on a junior high-school trip to the local university. We toured the power plant. Again, this large equipment fascinated me. So, I asked, “Who is responsible for all of this equipment?” The tour guide replied, “mechanical engineers.” When we returned to class, we had to write a paper about future careers that interested us. I wrote about mechanical engineering.

It was then I caught the bug.

At 15, I went on a junior high-school trip to the local university. We toured the power plant. Again, this large equipment fascinated me. So, I asked, “Who is responsible for all of this equipment?” The tour guide replied, “mechanical engineers.” When we returned to class, we had to write a paper about future careers that interested us. I wrote about mechanical engineering.

It was then I caught the bug.

My first post-high school education was mechanical engineering technology, production orientation. But my first permanent job was as an HVAC mechanical systems designer at the University of Alberta. When I received my assignment to design a ventilation system, I went to the senior designers and asked for some help. They pointed to the ASHRAE Handbooks and said, “All you need to know is in those four volumes.” I was on my ASHRAE journey.

At 27, Francine and I were married. I quit my full-time job at the university and enrolled in the engineering program—mechanical engineering! During those four years, I continued to work part-time as a mechanical systems designer.

Looking back I can see the thread. My thread:

- A 14 year old maintaining sub-standard housing;
- A junior high schooler learning about mechanical engineering; and

BOMA

CALGARY

BOMA ONLINE BUILDING OPERATOR DEVELOPMENT PROGRAM - 150 HOURS

The BOMA Calgary Building Operator Training program is a comprehensive course that prepares students for the 5th Class ticket and provincial exam from the Alberta Boiler Safety Association (ABSA). More than just a 5th Class ticket, this course is specifically designed for commercial building operations and is instructed by veteran building operation experts. Taught over 150 hours (exceeding the industry standard), this program has a strong record of providing the industry with well educated and competent operators.

The next online 5th Class Course will begin on January 12, 2021 from 5pm to 8pm and takes place every Tuesday, Thursday until June 2021. The course fees includes the text material and the certificate. Registration is now open. Contact Jessica at info@boma.ca or 403.237.0559 for more information.



CUSTOM POWER GENERATION WESTERN CANADA'S POWER GENERATION PROFESSIONALS!

Western Canada's LARGEST **BLUE STAR** Power Systems Distributor

- 24/7 Parts and Service Support
- Emergency Generator Repair
- Planned Generator Maintenance Programs
- CSA282 Compliance Programs
- On Site Fuel Testing and Polishing

CALGARY - EDMONTON - VANCOUVER
24HR: 855-948-8810 / WWW.CW-PG.COM



BOA
Building Operators Association of
Canada

BOA Tradeshow
May 2021



CONSTANT
FIRE PROTECTION SYSTEMS LTD.

WADE WEATHERBEE
High Rise Division Manager

5442 56 Avenue SE Telephone: 403-532-3205
Calgary, Alberta Fax: 403-532-0185
T2C 4M6 Cellular: 403-703-7888
E-mail: waderw@telus.net

*Healthy Buildings
on a Sustainable Planet*



**Gasonic
Instruments**
A Member of the Gasonic Group

Bay 8, 823 - 41 Avenue N.E. Phone: (403) 276-2201
Calgary, Alberta T2E 6Y3 Website: www.gasonic.com



SURE
PRINT & COPY CENTRE AVENIDA

WE PRINT EVERYTHING!

SIGN'S
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

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 in the same or column

60 x			3 +		2 ÷
3 -	5 -	2 -	2 -		
			15 x		
10 +	11 +	7 +		20 x	
		1 -			5
		6	24 x		

BOA Canada Magazine printed & distributed by:

SURE PRINT & COPY

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.**

.....Continued from page 8

- A young technologist discovering the value of THIS society.

I was learning and becoming passionate about the idea that “making or building things” is just not enough. We must ensure operational performance for the people who live, work and interact in them. People must succeed within the buildings we create. It makes sense to pause and ask, “Why?” Why should we care about operational performance?

There are four reasons this message makes sense for us:

1. We own the buildings we design, build, commission or operate. “That’s MY building.” It’s part of each of us.
 2. It aligns with our ASHRAE mission of “advancing human well-being.”
- “I bet most of you think that the “HR” in ASHRAE stands for heating and refrigeration. It really stands for people, the human resource—the “HR” at the center of ASHRAE.
3. As a building owner-operator, I can assure you that the building operators need your help.
 4. It’s good for the planet by reducing the environmental impact of building operations.

So, now we know why operational performance is important. Now let’s take a look at the current state: Buildings are falling short on operating to the expectations of the building designers and operators.

- The Alice Turner Branch Library in Saskatoon, Saskatchewan, Canada, is using 58% more energy than the design intent;
- The Roblin Centre at Red River College in Winnipeg, Manitoba, Canada, is using 69% more energy than the design intent; and
- The Surrey District Education Centre in Surrey, British Columbia, Canada, is using 203% more energy than the design intent.

Here’s why: There are three key reasons.

First, our great designs are not always delivering great operations. Designers are not always focused on operability during the design process. Designers need to transfer their great design into effective operations. Great designs warrant great operability.

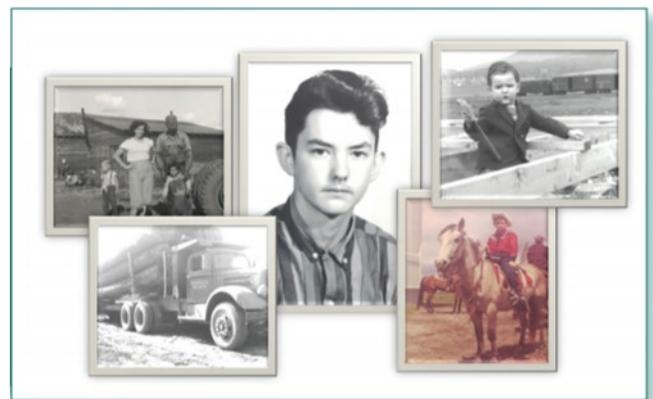
Second, buildings are more complex. Technology. We design technology to help improve operations, but it does not always end up that way. Technology is not evil. We can have unrealistic expectations and it can be misused. In 2010, we opened a state-of-the-art engineering building with Power over Ethernet (PoE) controls, as well as enhanced sub-metering of equipment, lighting and plug loads. But we found that the additional data/information was overwhelming our control techni-

cians.

Third, operators are lagging behind. Operators are being overwhelmed. Generally, they do not have the skills to operate today’s buildings and are not properly trained. At building turnover, operators are rarely properly oriented.

Several post-occupancy studies, “Do our green buildings perform as intended,” the UK-based “1996–2001 PROBE Project,” and “2006–2010 Low Carbon Buildings Performance,” identified the following key causes of performance slippage, resulting in energy consumption being much higher than modeled targets:

- Buildings were designed with systems that exceeded the capacity of the building managers to operate them. The study found a correlation between building performance and the quality of the management.
- Systems were complex and/or innovative, requiring several years to refine and understand.
- Insufficient commissioning. The study found a correlation between performance and level of commissioning. We are not the only organization that is concerned about the state of building operations. A 2017 IFMA Research study, “Raising the Bar: From Operational Excellence to Strategic Impact in FM,” concluded that:
 - Facilities management must adopt technology more quickly and far more deeply. It must move beyond technology to monitor space utilization and energy consumption. And we need to focus on using technology, data and analytics to enhance the workplace experience. “We believe that mastering the ‘digital age’ means applying new forms of technology both to enhance the management of facilities and to create new kinds of work experiences.” This may be the single most important challenge facing facilities management professionals today. So, let us talk about what we can do to ensure that people succeed in the buildings that we create:
 - Include the building operations team representative all the way through the design, not solely at the “end of design.”



‘My childhood memories are of being around large equipment and the rugged individuals who operated and maintained that equipment.’

The design should reflect the capabilities of the people operating the building. As a result, we will not be leaving operators wondering, “How do I make this work?”

- Establish an effective turnover and orientation training process.
- Understand what life is like after the building is handed over.
- Design buildings for the occupant operators who will occupy the space.
- Design decisions must be evaluated for their impact on indoor environmental quality (IEQ).
- Remember humans, the occupants, are the best sensors of comfort.

We must learn about the use of analytical/fault detection software to enhance the operation of building systems. A comprehensive study by the National Research Council in Canada determined that with today’s building automation systems we have a lot of data, we just need to use it effectively. ASHRAE needs to work with building owner-operator organizations to develop strategies that will prepare the operators to effectively operate the building through enhanced training, effective use of the building automation system and analytical and other operational tools. We need to consider adding the concept of a digital twin to improve the understanding of the building operations as a base model.

For example, in the United Kingdom, the Building Services Research and Information Association (BSRIA) operates a program called Soft Landings to “improve the operational performance of buildings and meet the client’s expectations.”

Let’s discuss what actions we can take to ensure people succeed in the buildings we create.

In the past year, ASHRAE formed a Multidisciplinary Task Group, Effective Building Operations.

MTG.EBO will coordinate the activities of multiple TC/TG/TRG and other stakeholders in the area of training and tools to support the operation of buildings to enhance the indoor environment and use energy.’ Responsibility will include suggestions for research as well as the development of technical programs and special publications on effective building operation to achieve quality indoor air quality while not wasting energy.

It has been my pleasure to serve on the Building Ad Hoc committee for the last 18 months. We plan to learn from the renovation and upgrades of a real-world building owner dealing with the balance between energy use and indoor environment.

That’s Our Building!

What does the building operator bring to the design discussion? The design, construction and transition to operations will be fully documented and will serve as a learning process for our members. The project is also being documented by the Building Own-

ers and Managers Association (BOMA) Research committee as a case study in repositioning of an existing building.

What can we as ASHRAE Members do? We can LEARN, get ENGAGED and ACT differently.

We should LEARN:

- Get a copy of the new guideline, “Designing for Effective Building Operations,” which will be available by June 2020.
- Review the Centre for the Built Environment to understand what people think about working in buildings.

We should ENGAGE:

- Engage with building operators at the Chapter and Society level to improve our understanding of their problems and develop educational and training programs to reduce the gap between design, construction and operations.
- Listen to what they are saying.
- Meet at least once this year to talk about operational challenges.
- Conduct follow-up discussions one or two years after buildings are turned over.

We met with representatives of APPA, the higher education facilities officers, to review a renewed agreement. They are committed to working with us in these areas.

ACT differently:

- Follow the principles outlined in the new guideline, “Designing for Effective Building Operations.”
- Add computer-assisted building operations enhancements into the design program.
- Transfer the design operational concepts to the operations team.
- Learn and apply well-building fundamental principles to the design.

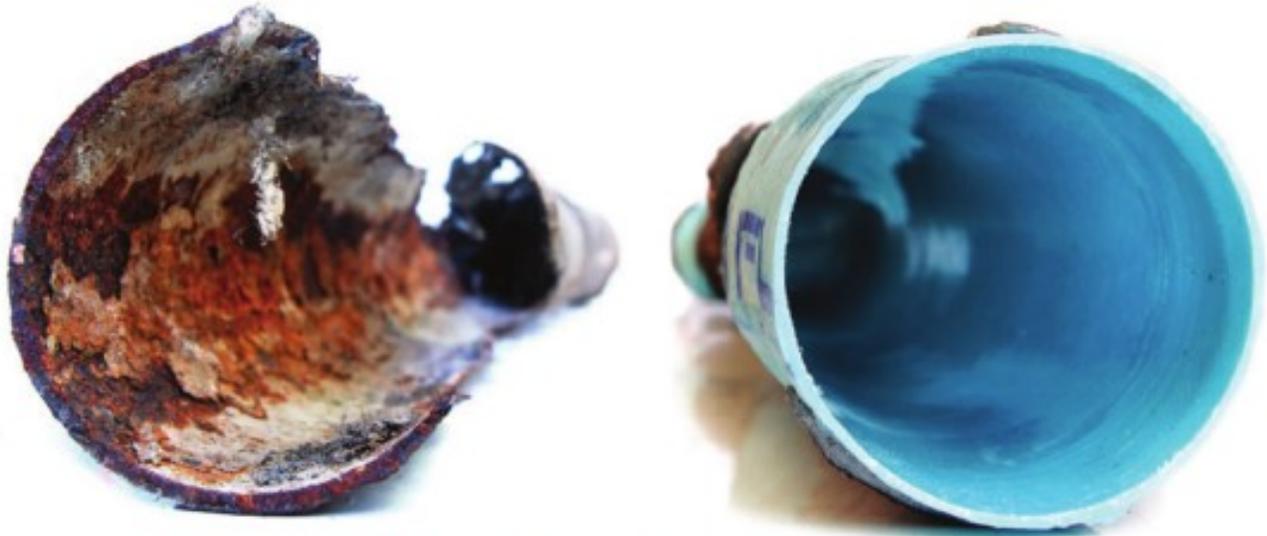
We launched a section on the presidential web page, ASHRAE.org/president, that provides resources to help us achieve operational excellence. At 14, I was thrust into the role of operating a sub-standard building, a position I was not prepared or qualified for.

We can do better. We will do better for those who operate our buildings. People must succeed within the buildings we create. Let’s ensure we take the steps to achieve effective operational performance and enhance the operator experience. It’s good for the building. It’s good for the people who live and work within those buildings. It further advances our mission and moves us closer to achieving our vision of providing a healthy and sustainable built environment for all.

Thank you.

Article reprinted with permission.

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

Fatigue, Extended Work Hours and Workplace Safety



THE HAZARDS:

What are the hazards of fatigue and extended work hours to workers? Fatigue is influenced by extended work hours, tough physical or mental activities, and loss of sleep. Fatigue affects people differently, but it can increase a worker's hazard exposure by:

- reducing mental and physical functioning.
- impairing judgement and concentration.
- lowering motivation
- slowing reaction time
- increasing risk-taking behaviour.

Besides the influence on fatigue, extended work hours can also increase the time a worker is exposed to hazards. Some chemical and noise hazards have limits (occupational exposure limits), and these require adjustment for shifts longer than 8 hours. Information about these limits, and how to calculate adjustments, is available in the Occupational Health and Safety Code Section 18, and the Code Explanation Guide.

Extended work hours can also impact the effectiveness of personal protective equipment (PPE). Choosing the right PPE for long work hours may require selecting something with more protection than usual (e.g., a full-face respirator instead of a half mask). Also, parts like respirator cartridges may need to be replaced more often, and workers may need more breaks from wearing PPE during long work hours.

THE EFFECTS:

What effects could workers experience from fatigue? If

small amounts of sleep loss add up over a long period of time, or if a worker misses a lot of sleep in a short period of time, a worker may experience sleep deprivation. Sleep deprivation can cause a worker to briefly fall asleep without meaning to do so, which distracts the worker's attention from the job they are doing.

THE CONTROLS:

How can workers be protected from fatigue?

- Be aware of how time of day affects fatigue Most major workplace incidents happen between 12 a.m. and 6 a.m. and between 1 p.m. and 3 p.m. Human bodies tend to be naturally tired during these times of day. When possible, schedule safety sensitive tasks to occur outside these times.
- Focus on short tasks when fatigued Fatigue may be temporarily overcome by performing brief tasks that last between two and five minutes.
- Maintain consistency in work schedule Keeping a work schedule consistent can make it easier to maintain a sleep schedule and avoid sleep loss.
- Be aware that shift schedules affect sleep loss Research has reported that night shift workers and workers whose shifts start before 6 a.m. sleep less than day shift workers. It is important for workers to be aware of this so they can catch-up on sleep loss and avoid the cumulative effects of fatigue.
- Encourage maintenance of healthy sleep patterns People generally require 7 to 9 hours of sleep per night.
- Encourage sleep quality Eliminate exposure to noise, light and uncomfortable temperature or sleep surfaces. Caffeine, alcohol, some prescription drugs, and sleeping illnesses, like sleep apnea, can also reduce sleep quality.



TEST YOUR OPERATOR IQ ANSWERS

Answers: 1) e 2) b 3) b 4) b 5) e

<h1>General Meeting Minutes</h1>			
Chaired by: Mark Arton	Minutes by: Monika Bhandari	Call to order: 5:01pm	Webinar: December 12, 2020

- **Introduction from Mark Arton**

- **Guest Speaker:**
Curt LaMontagne, C5Plus Ltd.
Topic of Presentation:
Cleaning the air: IAQ and the Covid-19 Pandemic

New Business:

- Visit the website; download the December Magazine
- Any outstanding membership dues can be paid online at the www.boacalgary.com website
- Visit the website for YouTube videos of last meetings
- Next virtual (zoom) meeting on January 12, 2021, 5PM
- Happy Holidays and a Prosperous New Year to All!



JOIN US ON TUESDAY JANUARY 12, 2021 AT 5PM FOR OUR VIRTUAL MONTHLY MEETING

Title: Building Cleaning Best Practices During the COVID-19 Pandemic & Beyond

Brief: The presentation will be a collaboration between Damir Ivancic of Cleanslate Sanitary Supplies and Gregg Shoemaker of Klee Northern with additional subject matter expertise provided by Adon Rigg with Rochester Midland Corp.

Klee Northern Cleaning Products and Equipment ‘Klee Northern offers a full line of highly effective, environmentally friendly cleaning products and equipment, to janitorial, transportation and property management companies throughout central Alberta.’

Cleanslate Sanitary Supplies Inc. is a supplier of janitorial products and sanitary solutions for Western Canada serving the building services, retail, hospitality, education, and healthcare sectors with a focus on environmental sustainability and health.

RMC offers sustainable facility management, food sanitation, industrial cleaning and water management programs. RMC's Restoration Program is gaining wide acceptance with Canadian restoration contractors and insurance professionals.

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



WestExcel Automation Ltd.

Commercial Building Automation Solutions Provider
Over 30 product lines including



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

Kenken Puzzle Answer

^{60x} 4	3	5	³⁺ 1	2	²⁺ 6
³⁻ 5	⁵⁻ 1	²⁻ 2	²⁻ 4	6	3
2	6	4	^{15x} 5	3	1
¹⁰⁺ 3	¹¹⁺ 2	⁷⁺ 1	6	^{20x} 5	4
6	4	¹⁻ 3	2	1	⁵ 5
1	5	⁶ 6	^{24x} 3	4	2

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

Sprouse First & Safety 403-265-3891

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!

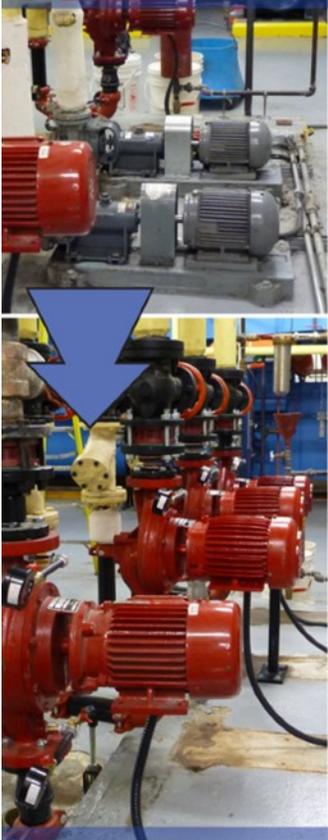
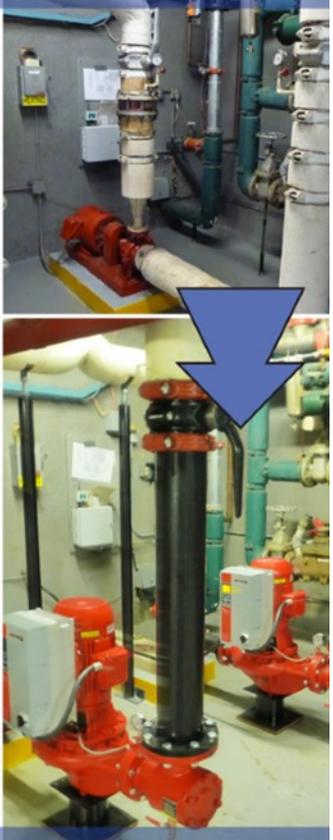
Next time you are looking for a product or a service provider, please consider connecting with one of our advertisers & members of the Building Operators Association of Calgary



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