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BOA
Building Operators Association of Canada

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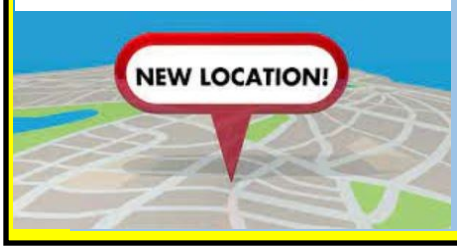
November 2025



Thorncliffe Greenview

Community Association

5600 Centre Street N at 5pm

What's Inside?

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Important Phone Numbers

Emergency	911
Alberta Boiler Safety 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

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

Our new meeting space is at: **Thorncliffe Greenview Community Association 5600 Centre Street North**

The meeting dates and times will remain the same: second Tuesday of each month from 5-7pm. There is plenty of parking available and the meeting rooms are spacious and bright. There is a restaurant at the centre, and the rooms are licenced to serve liquor.

We had a great meeting with BOMA Calgary last month. We met with Lloyd Suchet, Executive Director, Calgary and a BOMA representative CJ Curtis, GM Ops Excellence at Quadreal Properties. BOMA and BOA are currently building an even closer relationship.

Our first steps are to offer to management companies, a corporate membership that will allow property management staff access to the association.

BOMA Calgary will put out a notification to their members via the electronic newsletter of BOA meeting times and dates along with who will be the guest speaker and the topic presented. Hopefully this will encourage operators to attend the educational sessions.

BOMA will poll their members as to topics that would be of interest to speak on and allowing that BOA can source out a subject matter expert to speak at the in-person meeting.

We talked of rotating the meetings to different member facilities that would give a variety of interesting places to attend and perhaps include a brief tour of that building.

I am in favor of anything that will be of benefit to our association. It is fitting that both BOA and BOMA are not -for-profit; I have thought of our kinship as, BOMA Management and BOA, the boots on the ground.

Building Operator Curriculum Update

BOA has reached out to other jurisdictions that have been affected by the dissolving of Pan Global Publications. It has affected the jurisdictions from BC through to Manitoba as well all the northern territories. It seems the owners of the material, SAIT, NAIT and BCIT are playing their cards very close to their chest and not making any commitments other than they will release the material to the public early 2026 and did not make any comments as to updating the archaic Building Operator material or the dates that they will be releasing. There are still options out there as to the best fit….? I feel that Building Operators have been placed on the back burner. We can't wait too long; we cannot begin classes until this is resolved. BOMA and BOA as a group have reached out to municipal affairs our as we fall under their jurisdiction. I will keep you notified if we hear anything more of concern.

With the new meeting place at **Thorncliffe Greenview Community Association** will allow us to resume our Biannual trade show. There has been a five-year hiatus since our last one and it will be great to resume again in the new year. I will start looking for vendors to display the latest in technology or processes to the Operators.

It has been a challenge this past year for the association. The magazine remains successful, but we just need to get **you** out to attend the guest speaker monthly meetings. The guest speakers are knowledgeable and the Q&A sessions after, is an opportunity to have a light shined on a question you have by an expert in their field.

If you have a topic, you would like to know more on and or know of a subject matter expert that supports the Building Operators and would be willing to present at an association meeting, drop Mark Arton a line to chairman@boacalgary.com.

Invoices will be sent out shortly to members. Please process them as the funds are necessary to continue support meetings and to produce the magazine.

Warm regards,
Les Anderson,

BOA Calgary President

BOA
Building Operators Association of Canada

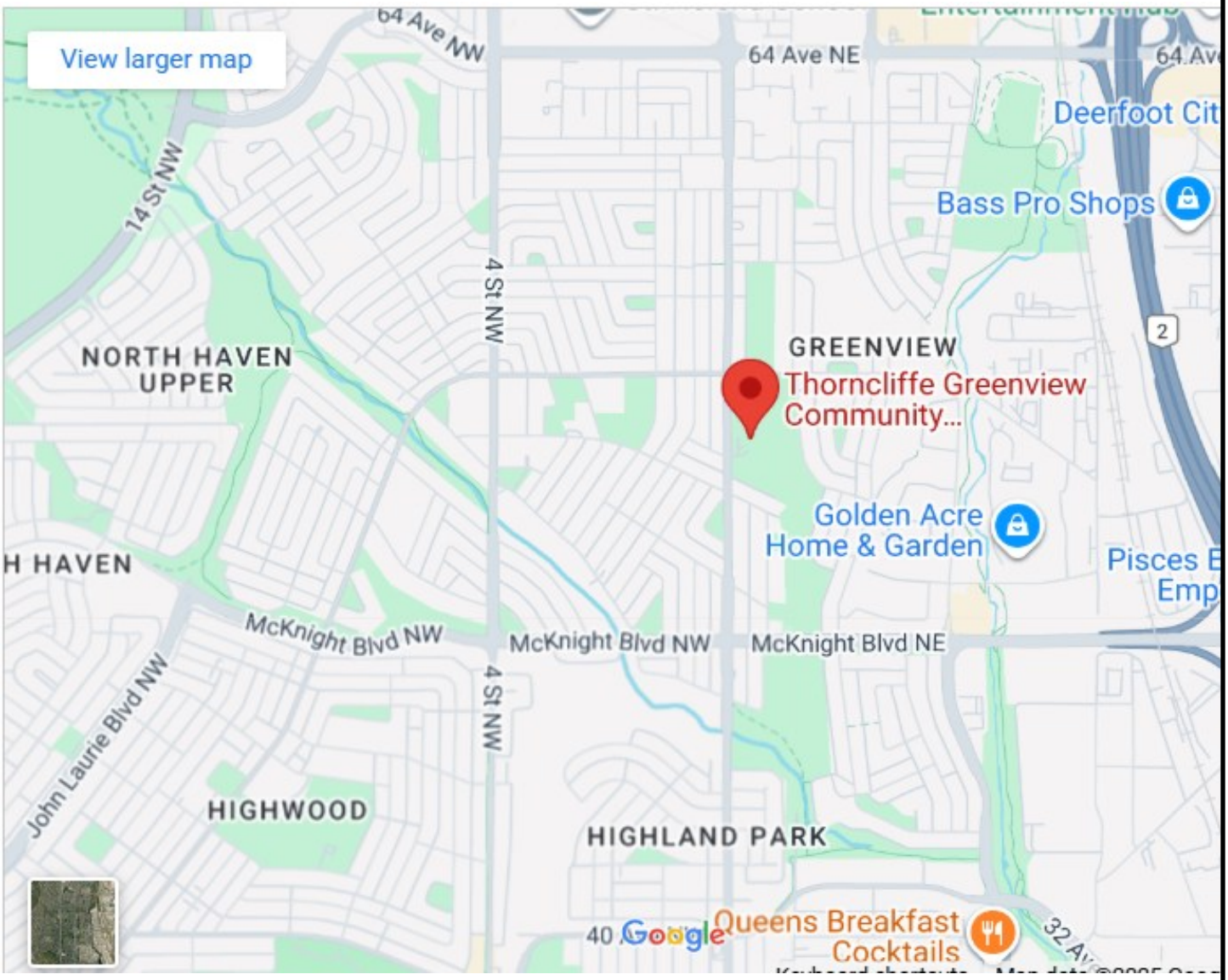
Join us at our Monthly Meeting on Tuesday

November 12th, 2025

at our new location:

Thorncliffe Greenview Community

5600 Centre St N, Calgary, AB T2K 0T3



Meeting starts at 5pm to 7pm
Free Parking

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 34*

1. The maximum pressure for a low pressure steam boiler is:
   a. 103 kPa
   b. 160 kPa
   c. 250 kPa
   d. 690 kPa
   e. 1100 kPa

2. In order to keep salt concentrations within safe limits the packaged tubular steam boiler utilizes a/an:
   a. manual blowdown
   b. de-salinator
   c. water softener after the condensate receiver
   d. mixing chamber before the heating coil
   e. liquid flow control device

3. The bent tube boiler design allows the tubes to be attached radially on the outside of the:
   a. furnace
   b. superheater
   c. economizer
   d. shell or drum
   e. air preheater

4. The use of bent tube boiler designs allows the furnace wall to be lined with tubes, thereby exposing more of the heating surface to:
   a. convection heat
   b. conducted heat
   c. radiant heat
   d. residual heat
   e. latent heat

5. The type of heat absorbed in any boiler by waterwalls is:
   a. convection
   b. latent
   c. radiant
   d. conduction
   e. superheated

Before They Go: How to Preserve Critical Knowledge from Retiring Technicians

Juan Carlos LaGuardia Merchán

In the dynamic world of facilities management, where technical precision meets operational continuity, one of the most overlooked threats is *knowledge loss*. Every time a veteran technician walks into retirement without a structured knowledge transfer plan, we lose decades of hands-on experience, instinctual troubleshooting skills, and the kind of site-specific insights that no manual can replicate.

If you're managing buildings, data centres, or specialised laboratories, the cost of this loss is not just emotional, it's operational and financial.

In this article, I'll share practical, field-tested strategies that facilities managers can implement to capture, structure and transfer critical knowledge before veteran technicians retire. These are not generic HR solutions, they're actionable steps grounded in real-world facility operations. The aim is clear: ensure your building runs as well in the future as it does today.

Why Knowledge Transfer Matters More Than Ever

Veteran technicians hold more than job descriptions, they hold histories. They know why that valve was replaced with a different model in 2008, which AHU tends to overheat in July, and the subtle rattle that signals a future bearing failure.

This knowledge is accumulated through years of experience, failure, and instinct. If lost,

your facility becomes vulnerable to inefficiency, unnecessary repairs, safety incidents and extended downtimes.

Here's how you can preserve that operational gold:

1. Establish a Knowledge Capture Programme

Designate knowledge capture as a project with clear goals, timelines, and team roles. Treat it with the same level of seriousness as a CAPEX upgrade or compliance audit. Assign a coordinator (ideally a facilities supervisor or senior engineer) to lead this initiative.

2. Use Structured Interview Techniques

Don't assume a veteran technician will know what's critical to pass on. Use structured interviews to dig deep into equipment-specific knowledge, decision-making processes, maintenance hacks, and emergency response procedures.

3. Create Video Walkthroughs

Video is a powerful tool. Record your veterans explaining maintenance routines, emergency repairs, and specific asset care during actual site walkthroughs. Host these in an internal video library accessible to your team.

4. Develop Facility-Specific SOPs

Encourage senior technicians to co-author Standard Operating Procedures tailored to your building's peculiarities. Include visual references and real-time operational context.

5. Mentorship Programmes

Pair each veteran with one or two junior technicians in a six-month mentorship programme. Let them work side-by-side on real tasks. Provide time for reflection and discussion after complex interventions.

6. Reverse Shadowing

Rather than only letting juniors follow seniors, do the reverse. Ask senior technicians to observe juniors during routine tasks and offer

coaching. It reinforces the senior's knowledge and boosts confidence in the newcomer.

7. Document Historical Fault Logs

Ask your veteran technicians to share a "Top 10 Troubles List": recurring faults, odd equipment behaviour, or quirky building traits. Include context, likely causes, and how to address them.

8. Build a Digital Knowledge Base

Use a cloud-based knowledge repository with search functionality. Organise it by asset class, failure mode, resolution steps, and responsible personnel.

9. Incentivise Knowledge Sharing

Recognise and reward technicians who contribute to the knowledge base. Tie it into their performance review or retirement package. Let them know their legacy matters.

10. Host Retirement Knowledge Events
As part of your farewell programme, host a "Knowledge Transfer Day" for retiring technicians where they share their most important lessons with the entire team.

11. Record 'If I Were You' Testimonies
Ask each veteran technician to record a 10 minute "If I were you…" session: what they'd do if they were just starting in the building again. These human insights are powerful learning tools.

12. Map Informal Knowledge Networks
Identify who goes to whom for help on specific systems. These informal knowledge hubs should be formalised before they disappear.

13. Use Asset History Logs as Learning Tools
Many veterans track changes in notebooks or memory. Extract that data. Digitise asset histories with notes on why key decisions were made.

14. Create Technical War Stories Booklets
Capture case studies of critical incidents, how they were resolved, and what was learned. Let the veterans tell their stories in their own words.

15. Schedule Skills Transfer Workshops
Monthly or bi-weekly workshops led by senior techs on specific systems: BMS, UPS, chillers, fire systems, etc.

16. Encourage Peer-to-Peer Training Videos
Have veterans create informal training videos using a phone. Authenticity matters more than studio quality.

17. Use Scenario-Based Drills
Recreate past emergencies with current staff. Let veterans comment and guide these drills to simulate learning through experience.

18. Gamify the Learning
Run quizzes, competitions, or 'Facility Jeopardy' with prizes based on legacy knowledge. Make it engaging.

19. Create Legacy Projects
Allow senior technicians to complete a final project that benefits the entire department, like redesigning a PM checklist or optimising a

maintenance route.

20. Implement a "What Not to Do" List
Mistakes teach as much as successes. Ask retiring staff to list avoidable errors they've seen or made themselves.

21. Involve HR and Training Departments
Don't let this be solely an engineering initiative. HR can help structure the documentation and manage the mentorship framework.

22. Capture Tacit Knowledge
Not everything can be written. Capture instincts, like how a motor "should sound"—through experience-based simulation or side-by-side work.

23. Preserve Maintenance Rituals
Sometimes, even the way tools are organised or checks are carried out reflects deep-seated logic. Don't dismiss these routines; document and question them.

24. Make Knowledge Transfer a KPI
Embed it in your departmental KPIs. Tie it into your retention, succession and onboarding strategy.

25. Create a Culture of Continuous Sharing
Knowledge transfer shouldn't be a last-minute activity. Make it part of everyday conversations, team briefings, and toolbox talks.

The Cost of Doing Nothing
If we fail to implement strategies like these, we won't just be short one technician, we'll be short decades of problem-solving capacity. We'll be resetting the clock with every retirement, forcing new staff to relearn what was already known. And in mission-critical environments, that's a risk we simply cannot afford.

It's time to stop talking about succession and start doing something about it.

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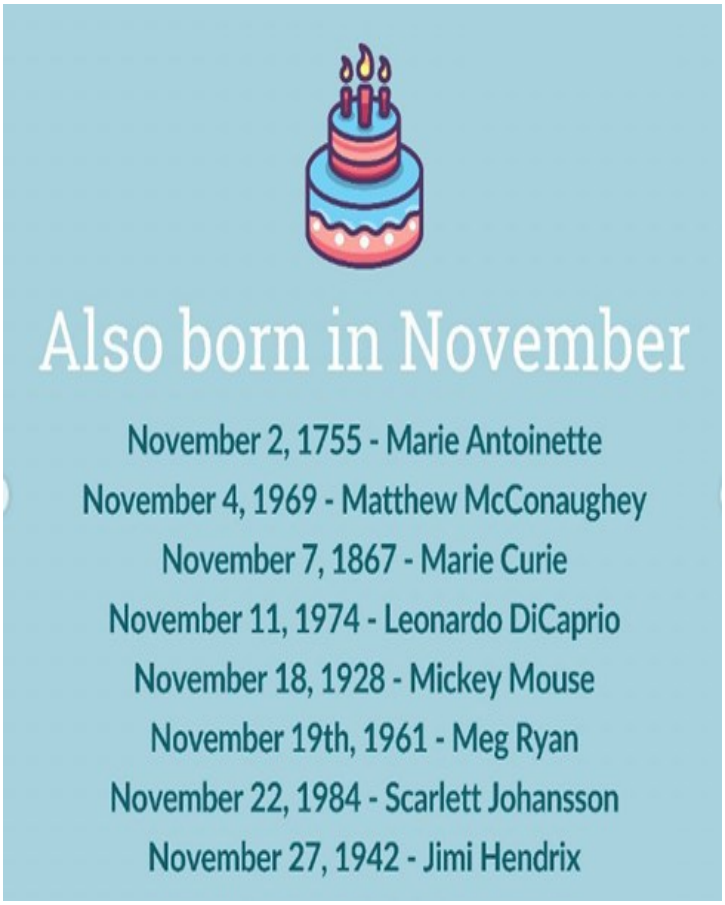

Vandalism: Preventing the Writing on the Wall

Managers take advantage of advances in products and technology to keep facilities from being damaged and defaced

Whether the facilities they oversee are in large cities or small towns, maintenance managers with most organizations must deal with vandalism. Facilities open to the public, such as schools and municipal buildings, are among the most common targets. Keeping one step ahead of vandals often becomes a daily challenge.

“Whenever vandals figure out a way to beat our system, our staff sits down and tries to figure out a way to change it,” says Stanley LaFave, facility maintenance supervisor for the City of Sioux City, Iowa. In most cases, success in this cat-and-mouse game involves combination of persistence and common sense.

Restrooms as targets

While vandalism can occur nearly anywhere in a facility, restrooms in particular provide an array of opportunities to cause destruction. They feature doors to kick, partitions and fixtures to hang from, walls to cover with graffiti, drains to clog, and soap and paper dispensers to knock off walls. The challenge for managers then becomes specifying restroom equipment with vandalism prevention in mind.

LaFave says his organization has taken several steps to prevent vandalism in restrooms, including replacing ceramic sinks and toilets with stainless-steel units in areas where broken fixtures are an ongoing problem.

“Stainless-steel fixtures are a costly investment up front, but they pay for themselves in the long run,” he says. Managers should track how often their workers replace existing fixtures. Then they can compare the labor and equipment costs associated with repairs with the cost of installing stainless-steel fixtures.

Touch-free fixtures also can help reduce

vandalism. They use fewer moving parts for users to break. And because the fixtures provide water only when in use, they can deter vandals trying to plug sinks. Besides increasing water waste, overflowing sinks can damage floors, especially if a restroom is located on a building's upper floors.

"We use a lot of hands-off fixtures in restrooms

now for a couple reasons, including vandalism," says Bob Casagrande, director of plant operations and facility maintenance at Southern Methodist University (SMU) in Dallas, adding that the fixtures also improve hygiene sanitation. Vandalism considerations also are playing a larger role in the specification of soap and paper dispensers.

"We have a variety of soap-dispensing units," says Dawn Miller, plant operations manager with Minneapolis Public Schools. While disposable soap dispensers might be a better investment for facilities with more vandalism, foam dispensers have worked in some of the district's schools.

"They're economical, they work well, and we haven't had much trouble with them," she says. Managers also can choose from a wide variety of paper dispensers.

"In the last few weeks, I've seen four different styles of paper-towel dispensers," Miller says. "Some of the new, heavier plastic ones work okay, but they're not meant to last a lifetime." Most dispensers, whatever their type, break down from use or vandalism within two years of installation, she says, so she looks for options that would be the most cost-effective with a two-year life cycle.

Flush-mounted paper-towel units also offer vandalism benefits. SMU has installed these types of units at his campus, and Casagrande says vandals haven't been able to as easily damage such units.

Eyes on the problem

Since Minneapolis Public Schools installed security cameras, the maintenance staff has had to replace fewer restroom fixtures, Miller says.

The reduction "has a lot to do with the cameras in the hallways," she says. The cameras are positioned so security personnel can watch individuals enter and exit restrooms. The mere presence of cameras can minimize acts of destruction.

"Students know they are on camera, and they know they are being watched at all times," Miller says.

Adds LaFave, "It seems that once people notice that they are being watched, it deters the acts of vandalism." His organization also has installed cameras in high-vandalism areas.

Miller says the school district is installing web-based cameras on the interior and exterior of several of its buildings.

"We started using cameras on a minimal basis, and it seemed to help," she says. "Now, we're finding that it is really a good tool to use to help lessen occurrences of vandalism. It has been one of our most successful measures.

The process for installing the cameras is slow and expensive, but many managers say they can be worth the costs and effort if organizations choose to place them in areas

where people can see the cameras and the cameras can see them.

“I think the cameras have been heaven sent,” she says. “It has really cut back our maintenance on vandalism-related jobs.” In other cases, however, installing and implementing a camera security system is cost prohibitive.

“It seems now that the vandalism has shifted from where the cameras can see to where we don’t have coverage,” LaFave says. “It is just too costly to monitor everything.”

Adds Miller, “The cameras are a major investment, but (the investment) doesn’t just address a vandalism issue, it addresses an overall safety issue, and it has helped students and staff feel safer.”

Personal safety, not vandalism, prompted SMU to install cameras around its campus, but the cameras also have been useful during cases of vandalism and theft.

“Most of the cameras are not directly monitored, but if we have a car broken into we can go back and look at the video,” Casagrande says. “That has been very helpful.” He doesn’t recommend that managers install fake camera systems to deter vandalism.

Managers at SMU “talked about putting in fake cameras, but they give people a false sense of security because the people think that someone is actually watching them,” he says. “Individuals might feel more secure, but if a crime happened, there would be no tape.”

Early intervention

Repairing areas damaged by vandals as quickly as possible helps to prevent future destruction.

“The best advice is when you see vandalism or graffiti you need to address it immediately,” LaFave says. “It deters others from participating in such acts.”

Adds Miller, “We consider vandalism as an urgent emergency.” His staff repairs all vandalism within 48 hours.

“Within one business day, we remove all graffiti,” she says. “And if a window is broken, our glazers are on weekend response to fix it instead of putting a big board on it.”

Monitoring patterns of vandalism also can help managers anticipate future events.

For example, “The last week of school is usually a big week for vandalism,” Miller says. Increasing public visibility at facility sites is another step managers can take.

“We added lighting and trimmed the trees and shrubbery in the areas commonly tagged by vandals, so people driving by could see the area better,” Miller says. “We also recently have been able to remove some portable classrooms, which lessens hiding spaces for such activities.”

Managers should check their exterior lighting fixtures to make sure the bulbs and timers are working properly, she says.

Barriers, such as post-and-chain fences and parking-lot gate arms, also can useful to discourage or restrict access to areas.

“About 60-70 percent of our parking lots now

have gate arms because we found that they helps to mitigate theft and vandalism," Casagrande says. "Folks are more likely to go onto a lot that is not gated to break into cars."

Plants that feature thorns also can discourage individuals from getting too close to buildings.

"We use non-intrusive plants, like hollies and roses, that poke you if you get to close to them," Casagrande says.

Vandalism is a never-ending battle, but a sound strategy can help managers minimize the destruction and costs.

Says Miller, "I think being proactive, walking around your site, trying to determine what your vandalism areas are and continually assessing your strategy can help reduce your vandalism costs."

Solution Strategies

Once managers have identified areas in their facilities that are likely targets for vandals, the next step is finding solutions to prevent and minimize damage. Here are products managers have found successful in preventing vandalism:

Thermostat sensor plates. Many organizations have a problem with vandals breaking thermostats off the walls. As a solution, Stanley LaFave, facility maintenance supervisor with the City of Sioux City, Iowa, says his department has installed sensor plates.

"With the sensor plates, there is nothing to destroy," LaFave says. The sensors are computer-programmed, and LaFave can control them from his office. The sensor plates have been more successful in stopping vandalism occurrences than thermostat guards.

"The guards for the thermostats really don't help or assist because vandals will just beat them off the wall," LaFave says. Also, guards don't really prevent people from changing the thermostat's set temperature. "They'll use paper clips or letter openers to turn the thermostats up or down," he says.

Graffiti-removal products. Managers can choose from a variety of products designed to minimize graffiti damage. Bob Casagrande, director of plant operations and facility maintenance at Southern Methodist University (SMU) in Dallas, says his organization paints a clear, peel-off coating on the exterior of some of its buildings.

"So if they're painting graffiti, they're actually painting on the coating that you can peel off," he says.

Elevator fixtures. Because vandalism often occurs in areas that offer privacy, many organizations find damage in their facility's elevators.

"In addition to vandal-resistant controls, we put surfaces in elevators that are difficult to scratch, such as stainless-steel panels," Casagrande says. Managers also might have a problem with individuals stealing light bulbs from elevators. LaFave says he is looking for a light-bulb guard for his facility's elevators.

"I'm trying to find something that is pleasing to the eye," he says, adding that finding products that preserve a facility's inviting, comfortable atmosphere while still protecting assets is an ongoing balancing act that requires persistence and patience.

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MOVEMBER
TO REMEMBER
IT'S NOVEMBER
or should we say...
MOVEMBER
testicular cancer
prostate cancer
men's mental health
are you growing out your mustache this month?
what is
MOVEMBER?
Movember is a global movement and leading charity dedicated towards men's health. This includes mental health, prostate, and testicular cancer
Each year, during the month of Movember, men around the world grow a mustache to raise awareness and funds for men's health issues
MOVEMBER
why is
MOVEMBER
important?
1 in 8 Canadian men will be diagnosed with prostate cancer during their lifetime
Testicular cancer is the most commonly diagnosed cancer among Canadian men
In Canada, the male suicide rate is alarmingly high, with 3 out 4 suicides being men
where do the
DONATIONS
go?
The funds gathered go towards raising awareness for men's health issues and investing in mental health, testicular cancer, and prostate cancer
In 2023, 80.8% of funds collected went towards men's mental health projects that help men live happier, healthier, and longer lives
how can I get
INVOLVED?
Grow a mustache to raise awareness for Movember
Donate to Movember
Host your own fundraiser!
Participate in the Move for Mental Health! Run or walk 60km to remember the 60 men lost to suicide every hour
RESOURCES
https://ca.movember.com/about/foundation
MOVEMBER.COM
SIGN UP OR DONATE

Why Should We Spend on Maintenance? A Question I've Heard Too Many Times

Juan Carlos LaGuardia Merchán

I'll never forget the meeting that changed my career. The CEO of a large pharmaceutical firm looked across the table at me and said, **"Tell me, Juan, why should I spend this much on maintenance if nothing's broken?"**

It wasn't the first time I'd heard this, and it certainly wouldn't be the last. But what struck me was not the question itself, but the honest frustration behind it. He didn't see broken pipes or flickering lights. He saw a line in the budget he couldn't defend to his shareholders.

And that, right there, is the core of the challenge: **we see risk, they see expense**.

The Unseen Cost of "Everything Working Fine"

Imagine a dam. As long as it holds, the town downstream sleeps peacefully. But that dam is under pressure, weathering cracks, stress, and time. Maintenance is the act of inspecting, reinforcing and preparing so that the dam doesn't break when the storm hits.

Facilities are no different.

What most directors don't see is what we prevent. Downtime, data loss, regulatory fines, or even reputational damage from a power outage in a data centre or HVAC failure in a biotech lab are avoided because of strategic maintenance.

But here's the catch: **how do you justify what didn't happen?**

Step One: Speak Their Language

Too often, facility professionals present maintenance plans using technical jargon and risk matrices. But the board doesn't care about the pressure rating of a pump. They care about:

- Business continuity
- Compliance
- Energy savings
- Insurance premiums
- Brand reputation

If your maintenance proposal doesn't connect to **their KPIs**, it will never be seen as essential.

Instead of "upgrading AHU filters to HEPA H14," say: "We're ensuring that production meets ISO cleanroom standards, avoiding the risk of £2.5M in lost batches due to contamination."

Step Two: Show, Don't Tell

In a recent hospital project, I faced resistance when proposing a predictive maintenance system for the air handling units. The upfront cost felt steep. So, I showed them a case study: another hospital that suffered a 48-hour shutdown in its surgical wing due to an unnoticed fault in their AHU system. The downtime cost over £400K and damaged public trust.

Then I ran a simulation: the predictive system we were proposing could have detected the issue 12 days in advance, triggering a simple maintenance intervention costing £600.
It's hard to argue with that kind of clarity.

Step Three: Build Alliances, Not Silos

One of the biggest mistakes we make as technical professionals is assuming that logic alone will win the argument.

What changed my entire approach was understanding that **relationships are more powerful than spreadsheets**. I began investing time in informal conversations with finance teams, compliance officers, and even marketing leads.

In one company, I helped the CFO realise that a 15% drop in insurance premiums was possible if we implemented a smarter fire safety inspection protocol. We structured the maintenance spend as a cost-neutral investment, and suddenly, I had an ally in the boardroom.

Real-World Techniques That Work

Here are some tested strategies I use as a consultant to justify maintenance investments:

- **Use Lifecycle Costing:** Present not just the immediate cost, but the total ownership cost of inaction. E.g., a £10K replacement now vs. £60K reactive failure later.
- **Link to Business Risk:** Tie technical failures to financial, legal, and reputational risks. Directors respond to impact, not probability.
- **Introduce a "Maintenance-to-Sales" Ratio:** Frame maintenance investment as a percentage of sales revenue. It helps anchor

expectations and benchmark across industries.

- **Create Visual Dashboards:** Use colour-coded KPIs showing compliance status, asset condition, and risk areas. Directors are visual thinkers.
- **Document Prevented Failures:** Maintain a "savings log" of near-misses and prevented breakdowns. It makes the invisible visible.

When They Still Say No

Sometimes, even the most rational proposals are turned down. When this happens, I always advise this:

Document the decision, the associated risks, and revisit it regularly.

In one data centre I advised, a proposal to replace an ageing UPS system was declined. We maintained the existing system as best we could, and 10 months later, during a regional blackout, the UPS failed. The outage cost over £1.2 M.

Because we had documented the risk, the leadership didn't blame the facilities team. Instead, they fast-tracked the investment post-incident and made me part of their capex review board.

Maintenance Is a Trust Business

Justifying investment in maintenance isn't about selling fear. It's about **building trust**. Directors want to know that their facility teams understand the business, not just the building. They want to feel confident that the money they invest will preserve productivity, protect people, and prevent losses.

In that sense, we are not just engineers or managers, we are **guardians of resilience**.

From Cost to Culture

When maintenance becomes part of the organisational culture, not just a line in the budget, everything changes.

I've worked with companies where maintenance was seen as a strategic function, and others where it was treated like a necessary evil. The difference wasn't the size of the company or the industry, it was the leadership's **understanding of value versus cost**. That understanding starts with us.

Are you struggling to make the case for maintenance in your organisation? Let's discuss your real challenges, from budget pushbacks to cross-departmental frictions. I can help you translate technical reality into business value.

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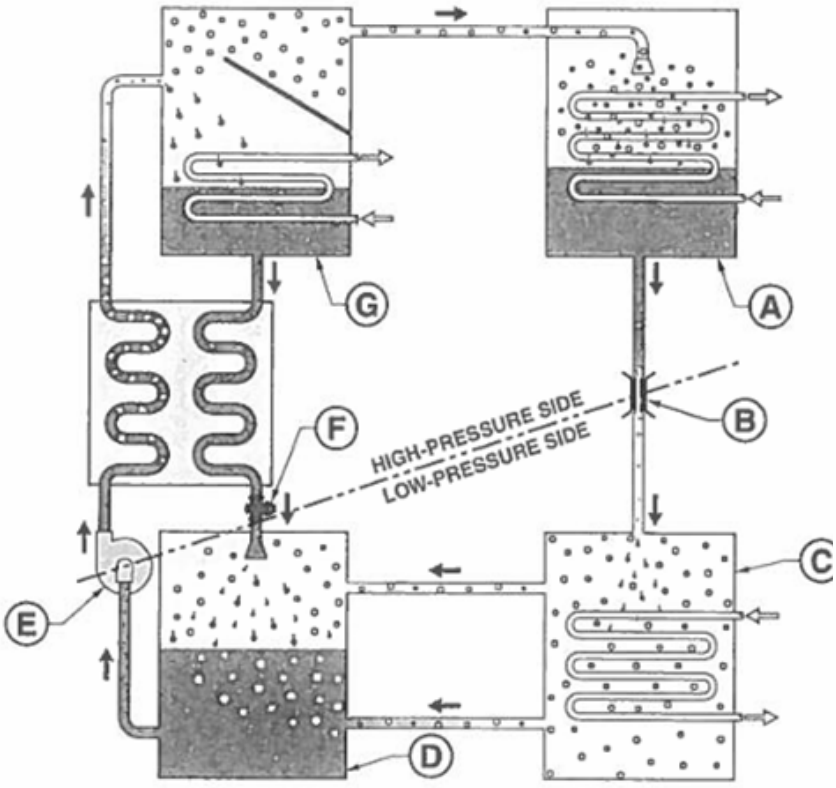
Ammonia-Water Absorption Refrigeration System

Answers on page 34



1. Generator
2. Expansion valve
3. Evaporator
4. Regulating valve
5. Absorber
6. Condenser
7. Pump

Window Replacement: 7 Mistakes to Avoid

The right choice can minimize costs and improve comfort. But making the wrong choice is all too easy

Replacing building windows requires a major commitment by building owners and facility executives. Not only are replacement windows a significant investment, but their typical life expectancy of 35 to 50 years means that building owners, facility executives and occupants will have to live with whatever window — good or bad — was selected. A good selection reduces energy and maintenance costs while keeping the building's occupants comfortable and secure. A bad selection, while it might reduce energy use somewhat, will not be as energy efficient as other options. Maintenance costs may stay the same, or they may even increase. And building occupants may find that the new windows interfere with their operations, resulting in increased complaints.

Selecting the most suitable replacement window for a particular application requires that facility executives first understand the needs of their facility and evaluate all window options before selecting the one that best matches the needs of the facility. But all too often, that doesn't happen. Instead, the facility executive makes one of the following mistakes:

1. Consider first costs only

Although the cost to install replacement windows is a factor, it is far more important to consider life-cycle costs. In addition to first costs, life-cycle costs include energy, maintenance, painting, cleaning and all other costs associated with owning and operating the windows. Over the life of the windows, these costs will greatly exceed their initial cost To determine the most cost-effective replacement windows, all costs must be evaluated for various window

options suitable for the application. It is seldom that the window with the best life-cycle cost is also the one with the lowest first cost.

2. Replacing in kind

One of the most serious mistakes that can be made when replacing windows is to simply replace the existing windows with ones of the same type and style. Replacing in kind makes the replacement process easy. No consideration has to be given to various window options. Aesthetics is not an issue as there will be no change in the appearance of the windows or the facility.

Replacing in kind, however, fails to take advantage of any of the features available in new window designs. The opportunity to reduce energy and maintenance costs and improve occupant comfort will be missed. Even worse, the problems that led to the need to replace the windows may still exist.

3. Ignoring maintenance

Maintenance costs, such as painting, cleaning and routine repairs, represent a major portion of the total cost of owning windows. Over the life of the window, these costs exceed the original installed cost of the window, typically by a factor of two or more. Failing to take them into consideration can result in an installation that is unnecessarily expensive to maintain. Maintenance costs will vary with the type of materials used to construct the windows. Wood windows will require painting on a regular interval, typically every five to seven years. Steel windows also will require painting on a regular interval, typically every five to 10 years. All painting costs can be eliminated through the use of aluminum, vinyl or clad wood windows.

Cleaning costs are often overlooked. Conventional window designs require the use of ladders or scaffolding to access the exterior surfaces for cleaning. However, some window designs allow cleaners to gain access to the outside surfaces from the interior of the building, reducing the time and expense of window cleaning.

In addition to painting and cleaning, windows will require both preventive and corrective maintenance to keep them in good operating condition and watertight. Typical maintenance activities include replacing the caulking between the window frame and the building wall, adjusting or replacing window operators, replacing broken glass and repairing or replacing damaged gaskets. How difficult each of those maintenance tasks is and how often they will have to be performed will depend on the construction of the window.

4. Ignoring intangibles

Although energy conservation and reduced maintenance costs can be quantified when considering window replacements, intangible factors also must be considered. While these factors are more difficult to identify and quantify in terms of dollars saved, they are equally important in selecting a replacement window.

One intangible factor is the impact that the new windows will have on the comfort of the building occupants. Improperly matching windows to the needs of the occupants and the tasks being performed in spaces next to windows can cause hot spots, drafts, glare and poor visibility. By considering the tasks that are being performed, facility executives can select glazing to meet the requirements of those tasks and the building occupants.

Another intangible factor that must be considered is the effect windows will have on the appearance of the building. Different window designs in general, and different window glazings in particular, will have a great impact on appearance. A poor match between the window selected and the style of the building will produce unwanted changes in the appearance of the building.

5. Failing to consider glazing options

There have been great advances in window technology, primarily in the materials used in the glazings. Facility executives can select from glazings that are clear, tinted, reflective, heat absorbing, low-emissivity or designed to allow visible light to pass while blocking infrared and ultraviolet light. The type selected will, to a great extent, determine the energy efficiency of the replacement project, the appearance of the building and the comfort level for building occupants in the exterior spaces of the building. Failing to consider different glazing options will result in a less-than-optimum installation.

6. Failing to consider security

Windows play key roles in building security. They provide a physical barrier between the building interior and the outside, limiting access to the building. They allow building occupants to see what is going on outside the building. They allow security personnel outside the building to see what is going on inside the building.

How effectively the replacement window performs these roles depends on the characteristics of the particular window selected. Operable vs. fixed sashes, hardware installed, the tint and reflectivity of the glazing — all are characteristics that will influence how

windows will affect building security. The characteristics of the glazing material used in the windows also will affect building security in another way. Some glazings resist shattering, making it more difficult for someone to break into the building through the windows. Other glazings are designed to resist explosions or impacts, preventing the window glass from becoming flying shrapnel.

7. Poor scheduling

The installation of replacement windows is a disruptive process. Building occupants must clear furniture and equipment away from windows. Removing the old window can create dust and dirt within the building that will interfere with operations and the use of the space during construction. If lead-based paint has been used on the windows, additional precautions will have to be taken. And removing the old windows will open that portion of the facility to the outside elements.

To minimize the impact of the window replacement project, building occupants must be consulted to determine the best time for the work to take place. Simply notifying them of the replacement project is not sufficient: They must be able to participate in the scheduling of the work

The window replacement project also must be scheduled around weather conditions. The contract should limit installation to times when weather conditions are within the guidelines set by the window manufacturer. For example, if caulking is installed when the temperature is too cold, it will not properly adhere to surfaces.

Facility executives need to recognize that there is no universal best replacement window. What works well in one building may not work at all in another. But by starting with an understanding of facility needs, facility executives can avoid most of the mistakes commonly made in window replacement projects. The result is an installation that reduces building energy use, reduces maintenance costs and provides a more comfortable and secure working environment for the building occupants.

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Winter Doesn’t Break Buildings. Missed Maintenance Does.

Vlad Bakic

I’ve seen it, fixed it, and sworn I won’t repeat it.

With winter around the corner how are you preparing your portfolio.

Here’s my blunt take. Winter fails to destroy any structures. Missed maintenance does.

I manage mixed-use assets with office, retail, cinema, and a busy grocery. Different schedules. Different risks. Same cold. The three main requirements that tenants expect from their heating systems include proper heat delivery and clean air circulation and operation at a peaceful level. They don’t want stories. I have witnessed frozen mains and stuck shut dampers and a generator which succeeded quiet tests but failed when operating under load. That wasn’t bad luck. That was a checklist we hadn’t hardened. We solved that problem and we will continue to solve it.

Standards already tell us the floor. ASHRAE 180 sets fundamental inspection and maintenance standards which help maintain consistent comfort levels and operational efficiency and indoor air quality. The floor provides the foundation for your work to build up the ceiling through systematic and research-backed techniques.

Begin with a question instead of using a wrench

What will break first—people, radios, or doors? I always ask that out loud with my team. We list risks by site: lobby doors that slam, dock curtains that leak, that north stair that never warms, the cinema AHU that hates weekends. Then we assign owners and time boxes.

No mystery work. No heroics. Just structured, human-first operations. Winter is a stress test you can schedule. If your BAS doesn't show warm-up, setback, freeze, and unoccupied modes behaving, you don't have control, you have hope.

Hope isn't a sequence.

ASHRAE Guideline 36 gives you those modes, plus fault detection. Use it, name it, and train to it. When your building automation system can't tell the story, the hallway will and tenants won't be quiet about it.

Heat Plant: Build Reliability Where Heat Is Made

If your pump sounds like gravel, your tenants will sound louder. Warmth starts in the plant, not

No Leaks

Walk boilers, pumps, and heat exchangers with discipline. Test glycol where used, mark fill points clearly, and confirm expansion tanks actually work under pressure.

Stable Delta-T

Trend delta-T in your BAS and flag drift immediately. Wandering temperatures mean a hunt is coming—catch it early before it cascades into failure.

Clean Combustion

ASHRAE 180 sets the backbone for inspection cadence. Our logs make it real. Document readings, tune burners, and keep efficiency numbers visible.

at the thermostat. Everything downstream depends on what happens in this room, so get it right before the cold hits hard.

Airside: airflow beats good intentions, every day

Clogged filters, iced economizers, stuck dampers, and schedules that still think it's summer, these are the silent killers of winter comfort. The maintenance crew performs filter replacements before the start of winter season. We need to document the frame pressure drop measurement for future reference and perform another check in two weeks. The procedure includes coil cleaning and drain pan verification and damper travel and seal testing. The study shows that rising filter pressure drop and coil fouling development result in lower airflow while increasing energy consumption. Airflow should be treated like money because you need to eliminate all leaks.

The operational power source of HVAC systems depends on airflow.

- Filters First - Confirm dates, MERV, and fit. Clogged media drives up energy use and shortens compressor life.
- Coils & Drains - Clean, prime traps, and make sure no standing water is waiting to freeze.
- Economizers - In cool, dry weather they save a lot if they're working. Verify enable points and damper movement.
- Schedules - Load holidays, reduce after-hours, and set reasonable deadbands.

The Humidification Balance

Dry offices spark like a wool sweater. A modest RH bump reduces static and complaints, but push too high and perimeter glass sweats. That's not "comfort" that's repair work later.

ASHRAE notes humidification limits depend on the building envelope. Many programs cap indoor RH under 65% to limit microbial growth. Keep winter RH in a safe range to balance comfort and condensation risk.

Envelope: seal the bucket before you pour more heat

We walk every exterior door and vestibule. Adjust closers. Add sweeps. Seal all roof entry points and verify that flashing is properly installed. The Department of Energy identifies air sealing as a quick winter solution which delivers both improved comfort and lower utility bills and complete draft elimination. The method delivers excellent results at a low cost but lacks excitement in its process.

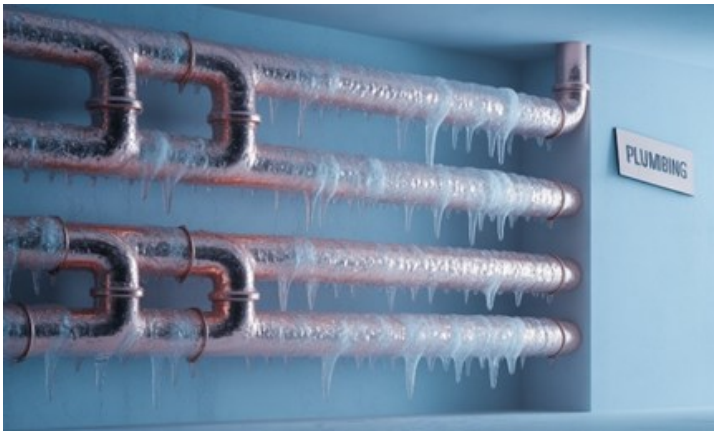
If you manage a tall-building, stack effect is the winter villain you can't see. Cold air drops your lower floors into negative pressure and pushes your upper floors positive. You'll feel it in lobby doors that won't behave and elevators that "breathe" when the wind shifts. Pressurizing the ground floor and minding vestibule behavior can tame it. It's not magic it's physics you can manage with the right setpoints and some strategic outdoor air.

The amount of heat you maintain in your property determines how much energy you need to buy from the grid.

Pumps, Hydronics & Freeze Protection

Water wants to freeze. Don't let it. Dead heat trace, cold stairwells, uninsulated runs, and valves that don't actually close, these are the culprits behind most frozen pipe emergencies.

- Heat Tracing -Test power packs, verify controllers, and tag circuits. Add heaters in known cold zones on pipe and sprinkler runs exposed to freezing.
- Insulation -Look for missing jackets, wet insulation, or gaps on exterior walls and dock areas.
- Valves & Strainers -Exercise and clean. Note any seized isolation points before you need them in an emergency.
- Glycol Loops -Measure freeze point and log results. Don't trust last year's readings.



- Remote Spaces -Loading docks, mechanical penthouses, stair towers—use data loggers or BAS points to catch cold spots before the call comes in.

Cooling Towers & Chillers: Ice Is Not a Design Feature

Operating wet towers below freezing without controls, poor lay-up, or basin heaters not working—these failures turn equipment into expensive ice sculptures.

If Towers Run in Winter

- Maintain minimum flows
- Use basin heaters
- Consider fan cycling
- Watch for ice on air-inlet louvers

EVAPCO details ice formation risk and control strategies worth reviewing.

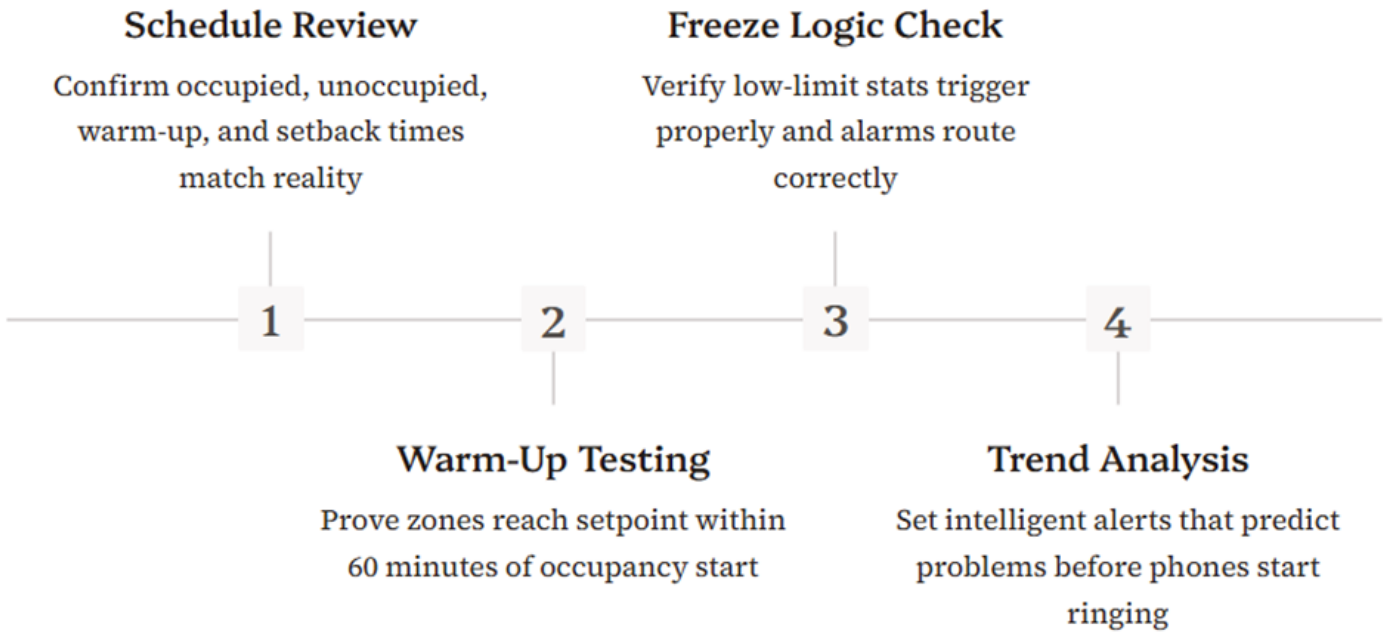
If Towers Are Seasonal

- Complete proper lay-up
- Apply biocide treatment
- Drain and dry, or wet lay-up with treatment control
- Ensure spring start isn't a microbial mess

Water treatment and CTI-style guidance stress correct lay-up procedures.

Life-Safety and Power: "Ready" Means Proven Under Load

Fire pumps need to perform required churn tests while maintaining room temperature within specified ranges and recording all test results. NFPA 25 serves as the fundamental standard for inspection and testing and maintenance work because it requires immediate action on all identified issues. NFPA Generators need to run at less than full capacity for at least 30 minutes each month while staff members track the results. NFPA 110 stands as a mandatory standard which determines whether your facility will have functioning lights or face an extended period of



darkness. A unit that fails to maintain load needs a load-bank test to determine the source of the problem for fixing.

BAS Sequences: Sequencing Beats Spending—Every Single Winter

We check the schedule for tightness and confirm the morning warm-up and monitor the freeze protection status. For larger sites, we map AHUs and terminals to Guideline 36 modes so every operator speaks the same language. We establish alerts for specific trends which demonstrate a high probability of customer complaints.

The hallway will tell the story if your BAS fails to do so.

Roofs, Drains & Entrances

Keep water moving, keep doors calm. Leaves in drains, snowmelt refreezing, and stack effect yanking doors open or shut, winter turns these minor issues into major headaches.

Roof Drains & Scuppers - Clear debris so meltwater flows. Roofing bodies warn ponding beyond 48 hours can damage assemblies and raise leak risk.

Snow Plans - Choose safe removal methods. Don't turn maintenance into a rescue.

Five Non-Negotiables I Never Skip

1. The team needs to perform joint inspections of boilers and pumps and heat exchangers to identify any signs of leakage and operational issues. Trend delta-T for proof.
2. Seal all door and window openings and roof penetration points to prevent heat from escaping and cold air from entering.
3. The team needs to test fire pumps and generators and backup systems at their correct operating frequencies and resolve all detected issues during the same day.

4. The system requires filter replacement and coil cleaning to maintain airflow and capacity during periods of high demand.
5. Review the BAS schedules and setpoints to ensure proper winter operation by checking the warm-up and freeze protection protocols.

The term non-negotiable holds absolute meaning during January.

Quick Wins You Can Do This Week

Change the dirtiest filters

Log pressure drop on the frame for tracking—write it with permanent marker so it's visible during the next check

Walk exterior doors

Fix the three worst gaps today, vestibules tomorrow—small moves now beat big invoices later

Run the generator under load

Write down every reading and compare to baseline—if load drops or temps rise, schedule deeper diagnostics

Screenshot your BAS warm-up trend

Set an alert for failure to meet setpoint—let the

system tell you before tenants do

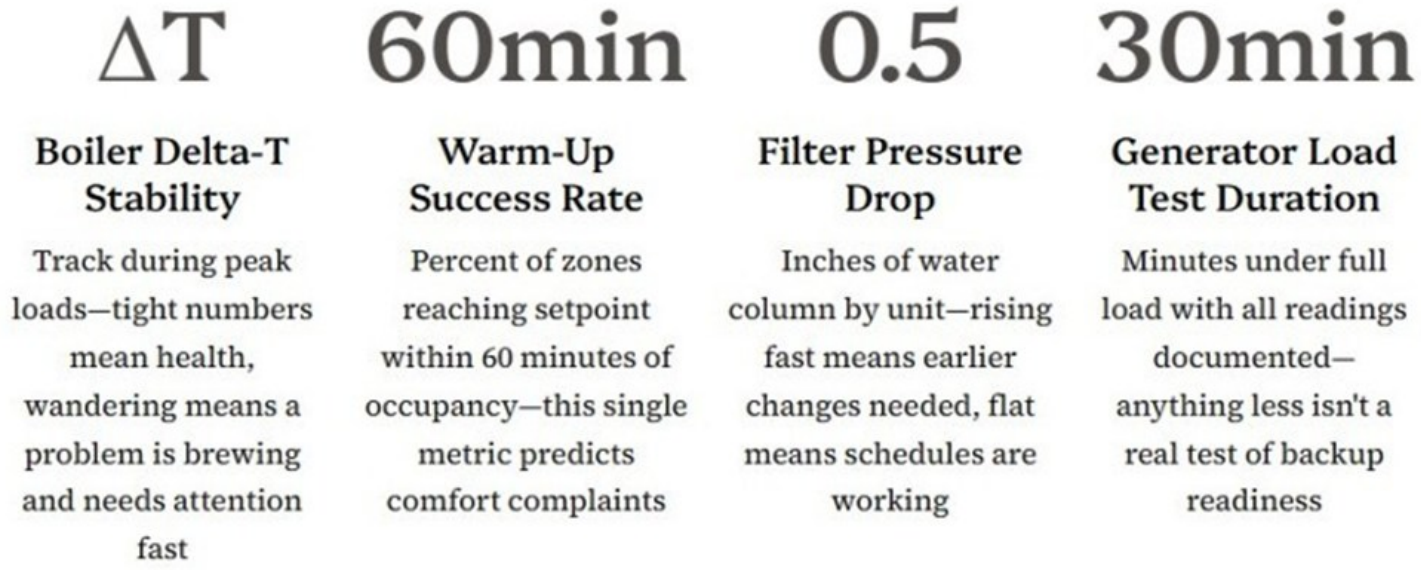
Test heat-trace and freeze alarms

Label breakers and route alarms to a responsible human who answers their phone at 2 AM. Small moves now beat big invoices later.

Make It Measurable or It Never Happened

These aren't vanity metrics. They're predictive

while fixing drafts tenants actually feel. Your BAS proves one through trend data, your doors prove the other through tenant satisfaction



indicators that tell you where failure will strike before it happens. Graph them monthly. Share them with leadership. Use them to justify time and budget before the emergency call comes in.

If you can't graph it, you can't brag it.

The Quiet Energy Math That Pays for Your Time

Two moves consistently pay in winter: setbacks that work and air sealing that's thorough. Classic measured studies found heating savings around 14–25% from night setback when done right—but only when your BAS actually executes the sequence.

Air sealing frequently delivers fast payback scores that stop dropping.

Comfort wins hearts; savings wins budgets.

Present both numbers to leadership and watch how fast winter PM budgets get approved. Energy dollars fund reliability work.

I'll say it again: **Winter doesn't break buildings—missed maintenance does.** Your tenants pay the interest on delay.

What's the one winter PM task you never skip—people, systems, or doors? What's saved your portfolio when the cold hit hard?

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KenKen Puzzle

How to solve the Kenken puzzle:

(Answers on page 34)

- 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

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

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It teaches to the 5th Class Power Engineering standard, allowing you to take the ABSA exam when the course is complete.

Click Here to Register

The 5th Class power Engineering Course will begin on Thursday February 23, 2023 and will take place every Tuesday and Thursday evenings from 5-8pm
The course will be held online only using Zoom.
The fee for enrollment will cover the cost of the 150 hour course, textbooks, and BOMA certificate upon completion
please note this does not include the ABSA exam
The total cost including GST is $2,199.75
Questions? Email Lloyd Suchet at lloyd.suchet@boma.ca for more details.

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Kenken Puzzle Answer

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

TEST YOUR OPERATOR IQ ANSWERS

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

AMMONIA-WATER ABSORPTION REFRGERATION SYSTEM ANSWERS:

Answers: 1)G 2)B 3)C 4)F 5)D 6)A 7)E

JOIN US:

WEDNESDAY NOVEMBER 12, 2025 AT 5PM FOR OUR MONTHLY MEETING

Title: HVAC Preventive Maintenance Programs

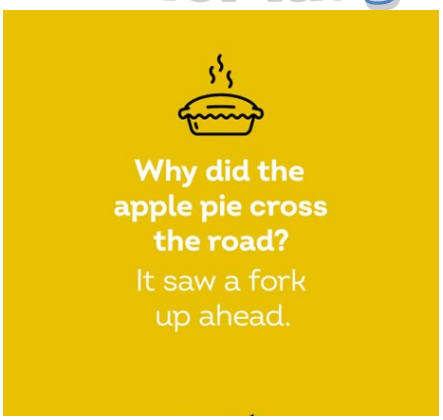
Presenter: Simon Wojnowski
Business Development & Outside Sales
Coral Canada Wide Ltd

Thorncliffe Greenview Community Association & Recreation Centre Boardroom
5600 Centre St N, Calgary, AB T2K 0T3

Bio:

- 15+ years in the industry
- 5+ years in management & sales
- Refrigeration & Electrical Red Seal holder
- Journeyperson Certificates

Just for laughs!



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