

INDUSTRY Q&A: HVAC SYSTEMS

Maintaining your property's essential equipment

BY MATT BRADFORD

Summer months can strain property equipment; and when it comes to the health of one's heating, ventilation, and air conditioning (HVAC) systems, going without is not an option. For tips on protecting HVAC systems and dealing with inevitable maintenance, we reached out to Dustin Hubert (GAL Power Systems) and Linda Duttman (Ambient Mechanical Ltd.) for their industry advice.

HOW IMPORTANT IS PREVENTATIVE MAINTENANCE, AND WHAT CAN BUILDING OWNERS / MANAGERS DO TO GET STARTED?

LD: HVAC preventative maintenance is extremely important. As many know, in the role of a building manager or property manager, stress becomes a way of life. You can minimize that stress by having a good, solid preventative maintenance program that ensures your equipment life is prolonged and that owner and tenant comfort is not compromised.

Also, there is less equipment downtime with a maintenance program in place. This in turn maintains that owner and tenant comfort. Building managers and property managers should also ensure that they hire a reputable contractor with good references.

The first step, however, is making sure the Board of Directors in a condominium, or an owner in a commercial building,

understand the importance of an effective preventative maintenance program.

DH: Preventative maintenance (PM) is imperative to the life expectancy of your equipment. Building owners and managers can get started by reviewing and making notes of the their assets, documenting their asset locations, condition, how long the equipment has been in operation, and their life expectancy. Then, you can begin to develop a plan for your maintenance, which should include who will take care of the PM for each piece of machinery and how often this routine PM should occur.

The key to this is assigning specific tasks for each piece of equipment to team members so that everyone is clear about what needs to be done and there are no proverbial "dropped balls". Contact your preferred mechanical contractor to do an assessment and make recommendations for repair or maintenance.

What it boils down to, is turning your preventative maintenance management into a proactive, rather than a reactive, system. This will save you a lot of grief, time, and money.

WHAT HVAC SYSTEMS ARE MOST AT RISK DURING THE WARM MONTHS, AND WHAT CAN BE DONE TO BETTER PROTECT THEM?

LD: Obviously, the cooling and heating equipment (e.g., chiller, cooling tower,

heat pumps, and boilers during winter months) in a building needs to again have a good solid maintenance program in place. Also important is to have staff (e.g., superintendents and building operators) do a daily mechanical room inspection in order to log temperatures and other factors to ensure there is nothing going on in the mechanical room that might jeopardize owner comfort. When daily site inspections are done, if there are any issues, you can quickly contact your mechanical contractor in order to ensure as little downtime as possible on your HVAC equipment.

DH: Cooling towers, A/C coils, remote condensing coils, and fan motors are most at risk. Following the specific manufacture's maintenance program is the best route to ensure reliability by creating checklists for each piece of equipment. As your team follows the checklist, they are less likely to miss any vital issues or steps in the maintenance process. Ensuring, for example, that cooling towers are free of dirt and leaves that can clog air and water passages will keep the equipment running smoothly; and making sure there are no solids in the cooling tower water due to biological growth, which can be promoted by a warm, moist environment, ensures



Linda Duttmann,
Senior Account
Manager, Ambient
Mechanical Ltd.



Dustin Hubert,
Rental Manager,
Toronto, with GAL
Power Systems

that spray nozzles stay clear. All of this affects the efficiency and performance of the equipment.

WHAT ARE THE TELLTALE SIGNS THAT AN HVAC SYSTEM IS IN NEED OF SERVICING OR ABOUT TO BREAK DOWN?

LD: During the daily site mechanical room inspections, using your senses is always a good first step. That means sight, sound, smell, and touch. If you hear any usual

noises, find water on the floor, or smell anything like gas for instance, this could be a telltale sign that something is not right. And if you feel strongly that there could be an issue, call your contractor.

In a condominium, for example, if you are receiving calls from more than one owner with complaints about no cooling, or no DHW, this is a telltale sign that there are issues with the system and not just one suite.

DH: Poor performance and abnormal sounds and smells are telltale signs. This can include complaints about hot and cold spots as well as humidity and air quality problems. Humidity that is too high or too low can also cause additional damage to wood moldings and furniture while fostering illness-causing bacteria and mold.

Issues with AC and heating systems can also lead to water leaks. Torn or misaligned ducts, for example, can greatly decrease the efficiency of a building's climate control system. Most equipment will give off some sign prior to failure, so it is important that your team learns to spots the signs. The key is that if someone finds a problem area, to nip it in the bud before it gets too big. Routine inspections of equipment must always include listening and touching equipment as well for unusual sounds or vibrations.

WHAT HVAC TECHNOLOGIES / BREAKTHROUGHS CAN WE EXPECT IN THE COMING YEARS?

LD: Energy efficiency continues to be at the forefront of the HVAC industry. Excellent incentives are still available through the utility companies, and will hopefully continue to drive the replacement of inefficient HVAC equipment.

Once on the horizon, smart building technology has now arrived in a big way. When we think of a smart building, we think of integrating all of a buildings' systems. Systems can include HVAC, building automation (BAS), and life safety, among others. All of these systems are brought together to ensure optimal energy efficiency, and owner comfort along with sustainability. New and innovative technologies will continue to be developed, making HVAC systems run better, more efficiently, and – most importantly – cleaner for our environment.

DH: There are many new technologies emerging in the marketplace, including high-efficiency heat pumps and furnaces, variable speed motors, thermal imaging tools used to detect problems in equipment, and modern testing tools for energy efficiency. With remote monitoring through apps on your tablet or phone, your PC may turn into your new heating/cooling system. 3D printing for filters is also a new technology being developed.



PAVING BEYOND EXPECTATIONS

Build a Stronger Surface with Toronto's Most Reliable Paving Team

Pave-1 Construction proudly provides dedicated asphalt, concrete and infrastructure services for businesses and organizations throughout Ontario.

- Asphalt Paving
- Site Servicing
- Catch Basins, Storm Sewers & Watermains
- Asphalt Grinding & Milling
- Road Paving & Maintenance
- Excavation and Environmental Clean Up
- Concrete
- Landscape Construction

24 HOUR EMERGENCY

Call: (416) 993-2116
Email: info@pave-1.com
www.pave-1.com



WHAT HVAC MALFUNCTIONS OR BREAKDOWNS CAN GO UNNOTICED, AND HOW CAN PROPERTY OWNERS / MANAGERS KEEP BETTER TRACK OF THESE?

LD: Once again, if you ensure that your staff is doing their daily checks of all mechanical rooms and keeping a log, you are well on your way to hopefully determining a small problem before it becomes a much bigger problem. As an example, water on a mechanical room floor can be a sign of a problem, or not. If your staff is doing their regular daily inspections, a major problem may be avoided. Bottom line? Know your building, and don't be adverse to going up an inspecting the mechanical room yourself in order to become familiar with the usual sights and sounds of your equipment. Above all, use your mechanical contractor. A good contractor will have no problem giving you the "101" on how your specific equipment is operating and helping you understand how to detect any problems.

DH: One common issue that goes unnoticed is poor operating practices with equipment and the issues that this can

NEW AND INNOVATIVE TECHNOLOGIES WILL CONTINUE TO BE DEVELOPED, MAKING HVAC SYSTEMS RUN BETTER, MORE EFFICIENTLY, AND – MOST IMPORTANTLY – CLEANER FOR OUR ENVIRONMENT.

bring. Typically, this is caused by someone trying to get a piece of equipment to do something that it was not designed to do or not understanding a particular action and their consequence. Sometimes, these poor operating practices become the norm (almost a standard operating procedure) and then eventually, a problem occurs. For example, let's say that more cooling water is needed in a facility and the action is taken to increase the rate of chilled water flow through the chiller. The thought is that more cooling water will be available with a higher flow rate, but what really happens though is the chiller's operating efficiency is reduced

with this increase in flow rate beyond the manufacturer's recommendation. At the same time, the erosion rate in the chiller's tubes can be affected resulting in early tube failure and a shortened chiller life. Chiller efficiency can also be affected by cooling towers as chiller efficiency decreases by an average of 2% for each degree Fahrenheit increase in condenser-water supply coming from the tower. In this case, equipment not being properly utilized, can affect the performance and life cycle of other equipment. Ensuring that personnel are properly trained in both operating procedures and maintenance in this area is key. ■

Improve your indoor air quality with Canada's duct cleaning professionals...

POWER VAC
PROFESSIONAL
DUCT CLEANING

Call for Your Fresh
Air Delivery!
416-245-5120

tdonohue@powervac-toronto.com
www.powervac.ca

Why More Facilities Managers Choose Power Vac™

- ✓ Serving Canada Coast to Coast Since 1966
- ✓ NADCA Certified Air Systems Cleaning Specialists on Staff
- ✓ NADCA Certified Ventilation Systems Mould Remediators
- ✓ Certified Asbestos Abatement Staff
- ✓ Health & Safety Certifications
- ✓ Professional Indoor Air Quality Testing & Reporting
- ✓ IAC Certified Indoor Environmental Consultant (CIEC) on Staff
- ✓ Exclusive Coil Cleaning Process for ongoing Energy Savings
- ✓ Committed to Continuous Improvement to Levels of Service
- ✓ Professional Commercial – Residential & Industrial Technicians

