



A Facility Manager's Guide to HVAC Maintenance



HVAC maintenance may not be a topic that inspires much passion, but ignoring it can cost you. HVAC issues in a commercial space can be costly, as an uncomfortable building will quickly drive tenants out. Even a day of thermal discomfort can cause reputational damage that is difficult to erase. Tenants may decide to relocate when their lease ends, especially if the downtime was significant.

Yet despite the massive debt burden of deferred maintenance, many building owners find themselves spending so much on monthly, quarterly, and annual checks that it can be difficult to find space in the budget for repairing maintenance issues as they arise.

Fortunately, there is an alternative. Keeping your HVAC system operating at peak efficiency with automated proactive maintenance helps empower property teams to work smarter and more collaboratively.

Building analytics ensure critical operational activities are automated and the completion of key tasks are accelerated by leveraging digital workflows across the entire supply chain.

Later in this guide, we cover the different ways your existing data can help you:

- Identify the root cause before bringing contractors to site
- Triage issues, streamline work orders, and close the loop with validation
- Maximise your contract value

Before we explore each of these topics, here are some useful tips for carrying out HVAC maintenance checks at your complex building or property.



Actionable Tips for Facility Managers

Trigger the Frost Stat

One of the easiest steps to take to verify many components on an AHU (Air Handling Unit) is to **trigger the frost stat during normal operation**. This will verify the operation of all the following equipment on an AHU.

- Supply & Return fan operation. Fans should disable on a frost activation.
- DPS (differential pressure switches) or CTS (current transformer switches) should change status when the fans disable.
- Damper Motors and feedbacks are operational. Damper sections should close.
- HWV (hot water valve) is operational. Open 50%-100% on frost stat activation to protect the AHU coils from bursting.
- CWV (chilled water valve) is operational. Should drive closed. Some sites may have a minimum open requirement for CWVs.
- Test the alarm handling of the local BMS and verify the relevant technicians are alerted via email, text, or via the graphical schematics on the BMS.

Zero Pressure Sensors

Differential pressure sensors should be regularly zeroed or calibrated as they drift over time leading to unnecessary energy wastage with fan speed being increased to meet the target set point or decreased fan speed leading to control issues downstream.

Replace Tubing to Avoid Faults

Outdoor AHUs with differential pressure switches/sensors should have tubing replaced at least every 2 years depending on the harshness of the environment. Perished tubing is one of the leading faults of failed AHU control and the cheapest to resolve.

Inspect AHU Damper Lubrication

Regular visual inspection of the lubrication in the AHU damper sections is critical to a fully functioning AHU. Seized damper units can lead to excessive heating or cooling loads and be an arduous task to repair depending on the size of the damper section, location of the AHU, and downtime to repair.

Check Valve Actuator Linkages

Valve Actuator Linkages, a simple valve actuator linkage being loose can lead to a build-up of sediment within the valve over time that will inevitably lead to a seized valve.

Identify the root cause before bringing contractors on-site

Building analytics technology can identify the root cause of maintenance issues as—or even before—they occur. Instead of manual checks done at scheduled intervals, automatically checks your systems and components every 15 minutes to ensure optimal performance.

The end result? Less investigation time (and cost), and significantly faster issue resolution. Rather than extending tenant discomfort for hours or days while the root cause of an HVAC issue is identified, building analytics enables you to send contractors where they're needed to repair issues right away.

Diagnostic efficiency does more than boost your bottom line. If site restrictions and increased health and safety measures are making it harder for contractors to carry out work, you don't have time to waste on diagnostics. Building analytics enables contractors to skip directly to the resolution step and spend their time where it's needed most.



Triage issues, streamline work orders, and close the loop with validation

Once you've identified HVAC issues, you need to prioritise them—and that requires data. Building analytics tools can quantify each issue's impact in categories like cost, operational efficiency, or thermal comfort.

With the cost/benefit analysis in hand, facility managers can make quick, well-informed decisions on which work orders to raise and which to deprioritise. As a result, contractors spend time on-site only when HVAC maintenance work is required, saving contracted time for when it's genuinely needed.

The best building analytics platforms also close the loop by validating and confirming whether an issue has been adequately resolved. You'll be notified of any continuing issues by the platform, not by tenant complaints.



Maximise your contract value

With speedy issue identification and complete visibility into contractor activities, it's easy to renegotiate contracts to dedicate more hours to repair activities or even reduce overall spend.

Building analytics can automate dozens of tasks. Here are just a few examples of formerly manual tasks that can be automated for chilled water plant maintenance:

- Check performance of control loop against set points
- Operate and confirm correct machine sequence
- Test changeover sequences including pump/chiller fault
- Verify lead/lag changeover
- Check for valve close-off and free running operations of valves
- Confirm all chiller parameters in auto mode operation
- Tune strategies required for correct operations

Once your long routine checklists are handled by an automated system, you'll dramatically reduce your preventative maintenance activity.

CIM recently helped one of our major REIT clients shift toward data-driven maintenance, reducing their planned maintenance time by up to 70% across their portfolio.

Within that dramatic time savings is a massive boost to contract value. Instead of performing routine checks, contractors can put their allotted time to use where it will have the most impact: repairing identified issues, not reporting them.

For example, if your current contract includes 1,000 hours of labour, but automation now saves you 300-400 hours, you can "spend" those newfound hours on issue resolution.

Effectively, you will receive more value from your contractor for the same money.

By introducing data-driven, predictive maintenance contracts with BMS contractors across your portfolio, or restructuring contracted agreements around this approach, your buildings will benefit from fewer site visits, reduced charge outs, and annual cost savings.



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