

Don't Hobble Your Building's Health

A history of deferred maintenance could take the wind out of improved ventilation strategies

Our ventilation systems are under stress. Facility managers are also under stress, as well as the budgets available to manage reliability and safety in their buildings. Due to recommendations to increase both ventilation and filtration in response to COVID-19, many buildings have HVAC systems working harder.

That raises two important concerns. First, where systems have survived deferred maintenance up until now, that existing strain plus new stress could push systems to fail much faster. Second, maintenance strategies should compensate for new operating parameters, to ensure assets remain reliable and efficient. Facility managers will want to address any deferred maintenance issues, like those listed below, before they force untimely repairs or asset replacements, stressing budgets even further.

Less Pathogens? More Pressure?

Advice from the U.S. Centers for Disease Control and Prevention (CDC)¹ and ASHRAE² (formerly known as the American Society of Heating, Refrigerating and Air-Conditioning Engineers) has included improved ventilation and increased filtration. Both have also noted that each strategy requires a thorough look at how it impacts a facility. Introducing more outside air can dilute pathogens indoors but can also introduce more pollutants from outside. Adding stronger filters can remove particulates from the air, but also asks systems to work harder to maintain airflow.

While many facility managers are looking to improve indoor air quality and reduce airborne particles such as dust and pollen, volatile organic compounds, and other contaminants, the simple truth is that if ventilation systems are stressed to the point of failure, a strategy to improve air quality could end up making it worse.

If increasing outdoor air introduces more humidity, and the system is unable to compensate, humidity could increase risk of mold. If improved filtration catches more particles and viruses, but aren't changed properly, impeded airflow could lead to pathogen buildup.

What to Watch For: Common Deferred Maintenance Issues

Holding off on maintenance until a breakdown is a huge risk. Before complete failure, a system probably fails in multiple other ways first. For instance, without maintenance, wearing or failing parts can restrict airflow and increase coil static pressure, which in turn reduce efficiency and stress other parts throughout the system, increasing operating costs and wearing out capital assets faster.

¹ <https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html>

² https://www.ashrae.org/file%20library/technical%20resources/ashrae%20journal/2020journaldocuments/72-74_ieq_schoen.pdf

Any damage or gaps that allow fouled air to build up contaminants on internal components or evaporator coils can seriously impact efficiency and stop the system from keeping humidity or temperature within comfortable – and healthy – parameters.

Moisture and buildup on internal components are important to watch out for. Bacteria and mold can thrive inside uncared-for equipment, spreading microbes or spores into the air. That risks increased allergens and pollutant counts indoors, and the health impacts that can follow. Increased headaches or congestion can chip away at productivity. Increased asthma issues and colds can add more sick days.

As fans, motors, and moving parts wear, it can cost more and more energy to move the same amount of air through the building, increasing costs and hampering sustainability efforts.

When It's Almost Too Late

As a system approaches failure, reduced airflow is joined with many other negative outcomes. As equipment overheats, electrical components may sustain damage, leading to the possibility of electrical incident, short circuit, or fire. A coolant leak is a significant health and safety issue. Both hazards are avoidable, but could cause significant downtime, repair costs, additional damages, and pose risk of injury to employees, occupants, or customers.

Ready to Move Forward

Facility managers can have their HVAC system assessed to identify any deferred maintenance issues before they impact ventilation improvement strategies. To maintain healthy air quality cost-effectively, it's important to understand the conditions and capabilities of current equipment. Experienced facility service providers can help you develop strategies for protecting indoor air quality that don't overstress your system or your facility spend.