

LARGE BUILDING AUTOMATION



How Automation Solutions are Solving one of the Biggest Risks for Buildings

By Nadine Evans

Nadine Evans notes that water damage is a threat to buildings that can be solved through automation.

A hot water relief valve leak in a commercial building ran through an entire weekend before it was detected on Monday morning, causing \$600,000 of damage to nine floors. A window open in a vacated tenant space caused a pipe to freeze inside the exterior wall, and due to the heat shut off in the unoccupied space, the pipe burst, causing more than \$100,000 in damage on four separate floors. During a high-rise renovation, an abandoned leaking water line slowly, built pressure in the pipe until the water column rose to four levels before breaking through the plaster. The result was \$500,000 in damages.

Any operator knows that water is the largest risk to a building. While water damage claims vary in buildings, they are impactful and costly due to the sheer volume of water at play. In fact, a single burst riser pipe can leak as much as **630 litres of water per minute**.

Water damage can happen in any part of a building's life-cycle – construction, renovation, or regular operation, and the added unpredictability of tenant errors increases the risk significantly. In fact, roughly 50 percent of all property claims are water damage related, accounting for billions of dollars in claims annually.

When a building experiences even a minor water damage incident, there is often substantial disruptions and costs. There is the obvious degradation of infrastructure, potential environmental issues, and the significant expense associated with bringing the affected areas back to pre-loss condition. While these costs can be partially covered by insurance, following a major claim, buildings

may find themselves at risk of escalating premiums or even losing their coverage entirely.

To make matters worse, when a major water issue hits, it is the lives of the inhabitants that are the most vulnerable and affected. Property is destroyed, and lives are uprooted, often displacing families for months at a time. In commercial settings, this results in significant and potentially catastrophic business interruptions.



Why are buildings at a higher risk than homes of water damage?

Buildings use a lot of water. Multi-family buildings are designed to provide an extremely convenient living space for residents, ensuring that hot water is always available for dozens to hundreds of homes on demand. To account for this, large volumes of water is constantly circulating through vertical pipes leading to and from a large central water source. This constant flow of water is potentially corrosive for traditional copper piping, creating pinhole

leaks. As a result, older buildings have a dramatically increased risk of pinhole leaks.

According to a 2015 white paper published by Zurich Insurance, there are a number of key factors that contribute to the likelihood of a building experiencing a water damage issue:

- Buildings that are 20+ years old
- A high rise, multi-family building
- New construction materials used
- Exposure to seasonal extremes/natural disasters
- Deferred maintenance of structure and systems

How Automation Helps

The concept of IoT and connected technology has enabled problem solving tools for property managers and building owners like never before. Intelligent buildings help reduce energy and maintenance costs, monitor performance and device failures, and alert building maintenance to mitigate any potential issues.

The growth of the building automation industry is expected as building owners and property managers are motivated to seek operational efficiencies that result in cost savings. Given that buildings are among the largest consumers of energy, accounting for 40 percent of the country's total national consumption, enacting even small operational efficiencies can result in significant savings for a building, immediately improving bottom lines. In addition, sustainability has become a major focus for commercial and multi-family buildings, particularly with newer regulations being introduced to encourage reduction of carbon emissions. Sustainability is not only a means of minimizing a building's environmental footprint, but a viable way to reduce the costs associated with heating, cooling, and lighting.

Water Damage Mitigation through Automation

Water management is an often-overlooked need in a building owner's risk management profile. Water management technology that monitors water usage in a building delivers real-time data to management, providing actionable insights on both a macro and micro level into consumption. Property managers can now monitor and understand utility consumption as it occurs, gaining insights from tenant habits to create a better overall customer experience. This data can also provide the ability to act on insights with preventative maintenance, further



providing management with the tools to develop and maintain operational efficiencies. Most importantly, however, is the ability to action alerts the moment they are received, so that water issues are avoided.

Automated water management systems protect structures from leaks and floods by isolating the building's open and closed loop plumbing systems. These systems often include sensors that detect the presence of leaks and communicate to shutoffs at the water main that can reduce the impact of water damage by responding within seconds. This technology can be integrated in-suite, as well as on the building's main feed, boilers and risers. Systems that include remote and automatic shutoff at the water main ensure that buildings are equipped with the hardware and data to mitigate interior water risk.

While the biggest advantage to water monitoring is risk management/damage mitigation, intelligent water monitoring systems can also provide similar benefits to energy or HVAC monitoring systems in empowering building owners the insights needed to better manage their water use, resulting in significant utility savings.

Ultimately, intelligent water monitoring will be a big part of the next wave of building automation systems, providing operators comprehensive risk management control. ●

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