Systems Check

4 Healthcare HVAC Trends to Watch

By Kenneth Golovko

Since the last great recession, healthcare systems have been changing how patients are being served, and subsequently how they operate their facilities to meet these changing needs of clients and healthcare providers. In many cases, healthcare systems are moving from massive, centralized hospital campuses that patients must seek out, to smaller "doc-in-a-box" facilities that can serve dispersed patients closer to their homes and places of work.

To respond to this shift, healthcare providers are finding solutions to help ensure success at procedural levels, while saving money and increasing redundancy and control in HVAC systems in these new, smaller facilities.

To meet these challenges and others, there are several trends to watch in the HVAC design of both new and existing facility renovations. But for now, the focus will be on four main trends:

1 **A SURGE OF FAN ARRAY TECHNOLOGY FOR GREATER REDUNDANCY.** When new systems are designed, or older systems are in need of replacement or major repair, many operators are looking toward fan array technology in place of one or two of the more traditional, larger fans. The use of these fan array solutions allows a building to remain fully functional even if one cell fails. Most importantly, this means the facility maintenance team can plan cell replacement outside of normal operating hours, or at least peak visitor hours, to ensure any disruption is minimal.

2 **TURNING AWAY FROM SPECIFIED VENDORS AND CLOSED CONTROLS.** Healthcare facility HVAC systems are more commonly being designed with a focus on resilience while avoiding manufacturer sole-source equipment requirements. While BACnet created the concept of the open control system many years ago, the application of BACnet and other open-source control systems in healthcare HVAC has finally begun to grow in more recent years. The ability to replace control components without fear of voiding a warranty or compromising a control system grows more important as facilities are finding their way to more remote locations where replacement parts may be harder to come by.

3 **MORE EXACTING CONTROLS.** With new knowledge about the transmission of pathogens, facility operators are increasingly called on for more data and more precise control of the medical building's systems. As control systems are designed from scratch or upgraded with growing technology solutions, healthcare operators are electing to utilize more robust solutions that go beyond simple HVAC control. These newer systems reach across historical discipline lines and integrate all building services, monitoring and control into concise dashboards

Furthermore, these dashboards now allow operators to also monitor and control all facilities from afar, deploying maintenance and repair crews as the hospital might need to triage facility-wide emergency situations that arise.

4 **EXPANDED DEVICE AND SYSTEMS MONITORING.** The monitoring itself is being expanded, as medical devices and elements that were thought of as passive or isolated systems in the past (e.g., med gas, OR lighting) are now gaining greater attention. The increasing level of systems monitoring and data gathering has implications beyond simply tracking if each OR is meeting its setpoint requirements.

Hospitals are going as far as tracking energy usage in certain rooms or departments and using more data to identify potential equipment failures and addressing those needs before they fail, almost like preventative healthcare for the building. Numerous healthcare providers can monitor their entire building stock from a single dashboard, with alerts and warnings designed to keep the systems working efficiently with fewer service technicians on site.

These are just a few of the evolutions taking place in the design and operation of HVAC systems in healthcare spaces today. Like with many technology-driven systems, as these items move toward becoming the latest baseline standards in new facilities, many older or existing facilities will proactively replace their systems to meet these new expectations in the years ahead, as well.

And the best news? This means a clear improvement on both patient safety and operational reliability.

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