

Proper humidity and air purity are vital for healthy patients and positive outcomes

BUILD-IN-PLACE AIR HANDLERS

The winter of 2018-19 was the last heating and humidification season for the aging HVAC system in a 470-bed hospital in Buffalo, NY. Catholic Health contacted RL Kistler, their HVAC rep, for guidance. One of their many health care buildings, Mercy Hospital of Buffalo, presented a unique challenge. Two indoor, 1960s-era air handlers moving a combined 130,000 CFM of air needed to be replaced. The air handlers served operating suites, pharmacy processes, the sterile processing department, and patient areas. Interruptions in air purity, temperature, and relative humidity needed to be avoided as much as possible.

RL Kistler, Inc. sales engineer Jake Muller and an engineer from M/E Engineering, P.C. met at the hospital to consult on the project. The pair visited the mechanical room, where they encountered two major obstacles.

"One obstacle was the egress and access constraints into the mechanical space," recalls Muller. Approaches to the mechanical room are through openings too small for factory-built air handlers. "We decided that we would have to build the air handling units in place on a housekeeping pad. The second obstacle was a support column in the middle of the room, so we came up with an air handling unit design that wraps around the column."

TEMPORARY STEAM HUMIDIFICATION FOR THE TRANSITION

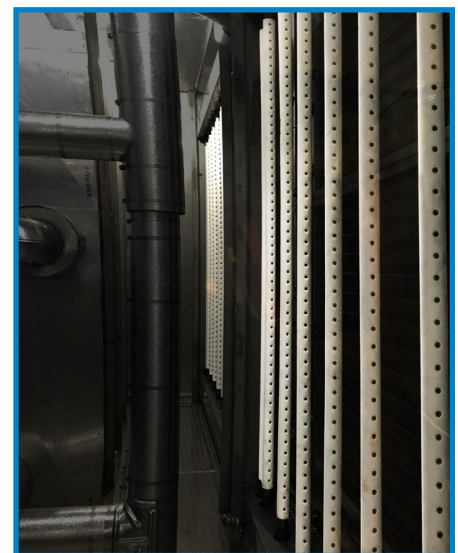
Muller and his counterpart from M/E Engineering designed an interim HVAC system for the months-long transition from old air handlers to new. In December of 2018, rental fans, filters, heating coils, and even ducts were configured outside at plaza level to move filtered, heated, humidified air to conditioned spaces throughout the building for the coldest part of the winter and into the summer. Since the old air handlers were dismantled and replaced one at a time, the temporary system needed only



Mercy Hospital of Buffalo



This door is one of the mechanical room egress/access points and the one used for components and site-built options, including DriSteem's 104- by 98-inch Ultra-sorb® LV steam dispersion panels.



The white that stands out is PVDF insulation on the Ultra-sorb LV high-efficiency tubes. These tubes waste up to 85 percent less energy and condensate, compared to bare metal tubes.



Structural column incorporated into air handler design



Two DriSteem STS steam-to-steam humidifiers, each capable of 1 600 pounds per hour of clean humidification steam

RESOURCES:

Find your local DriSteem representative:
<https://www.dristeem.com/find-a-rep>

Learn about the following equipment installed at Mercy Hospital of Buffalo:

STS® steam-to-steam humidifiers:
www.dristeem.com/products/steam-generation/steam-exchange-humidifiers

Ultra-sorb® steam dispersion panels:
<https://www.dristeem.com/products/steam-dispersion/non-pressurized-steam-dispersion>

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to replace one air handler at a time, meeting the call for heat and humidity with a 100,000 CFM air volume. For the more critical areas, temporary humidification steam was generated with a DriSteem Vapormist® electric steam humidifier.

CLEAN HUMIDIFICATION STEAM

Concerns about boiler chemicals in the air have come under scrutiny in the decades since the hospital's previous HVAC system was commissioned. Out of concern for patients and staff, the hospital asked for a system that boils clean water, rather than chemical-treated boiler water, into humidification steam. Muller recommended and M/E Engineering specified DriSteem's STS steam-to-steam humidifier, which uses pressurized boiler steam as the energy source to vaporize fresh fill water into evaporative humidification steam. The boiler steam and the chemicals it contains return to the boiler and never enter the humidified space.

SHORT STEAM ABSORPTION DISTANCES

The steam dispersion panels in the new air handlers are located after the hot water coils and only 24 inches upstream from the cooling coils. Such a short distance for steam to totally absorb into the airstream without impinging on the cooling coils would be risky with most steam dispersion panels. However, each of the two Ultra-sorb steam dispersion panels on this job has more than 1400 steam discharge points in a 120-square-foot cross section of air handler. The result? Total steam absorption in ten inches.

RIGHT PLACE, RIGHT TIME

The new air handlers at Mercy Hospital of Buffalo were commissioned early in the fourth quarter of 2019. Later that same quarter, news of a possible global pandemic was breaking in North America. Three months later, Catholic Health filled western New York's leadership need in the global Coronavirus pandemic by converting its St. Joseph Hospital to a COVID-19 treatment facility and only accepting patients with confirmed diagnoses. Other hospitals, including Mercy Hospital of Buffalo and others under the Catholic Health umbrella, increased staff to absorb redirected St. Joseph patients.

DriSteem is proud to have contributed to a major air quality upgrade at Mercy Hospital of Buffalo for the benefit of the hospital's patients and for countless staff members who are delivering the performance of a lifetime.