

SERVICE CALL

Proper humidity control is more important than you think...



In health care facilities, good indoor air quality is a necessity. During warm summer months, the large volume of outside air brought in through ventilation systems is saturated with moisture. Since many bacteria and viruses flourish in humid air, and moist surfaces provide ideal conditions for growth of fungus and mold, fresh air must be dehumidified before it enters the building.

When desired indoor temperatures are 72° to 75°, conventional cooling systems can sufficiently dehumidify air using cooling coils to collect condensed moisture. But because healthcare facilities often require much cooler temperatures (65° and lower) at strictly controlled humidity levels, the use of a desiccant dehumidifier becomes necessary. There are two types of desiccant systems – liquid, where an absorbent solution is sprayed through the incoming air stream, and solid, which draws moist air through a desiccant wheel containing a solid such as silica gel.

MSC is an industry expert on dehumidification, humidification, and controlling tight parameters. Call 973.884.5000 for information.

TREND LOGGING: Every System Tells a Story

Trend logging is a diagnostic tool in which building or system parameters are recorded at intervals over a specified period of time, usually several days to a week, to help identify the source of potential or existing efficiency problems. It is commonly performed on new systems during the commissioning phase when issues occur. Trend logging is an excellent tool that is inexpensive, effective, and surprisingly succinct in the story it tells.

Trend logging can be a highly useful tool when difficulties arise with buildings and systems that are seemingly inexplicable. Problems with temperature, humidity, leaks, energy costs, parameter swings, improper airflow, equipment shutting down – the list can go on and on. When the culprit can't be identified using other measures, trend logging can often pinpoint the source of the problem. In a hypothetical example, freeze stats might be tripping constantly on a 100% outdoor air system. All of the parameters related to the freeze stat must be recorded and charted over time: airflow, preheat valve position, downstream temperature, discharge air temperature, stratification issues, unexplained blips or swings in control. A study of the resulting data might zone in on the preheat valve control as the cause of the problem by allowing cold air to pass through.

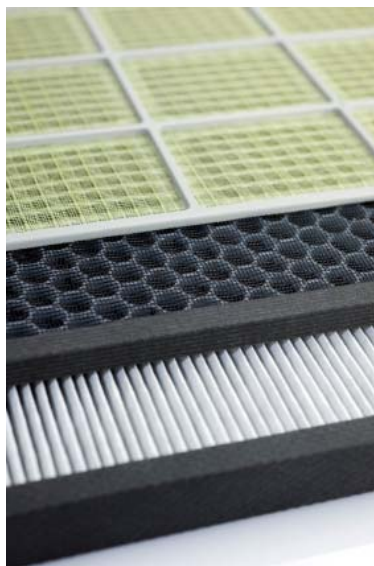
Trend logging can also be used to identify potential or existing efficiency issues, even when systems appear to be operating properly. When readings are charted over time, patterns appear, allowing us to zone in on problem areas. We frequently find that system components meant to save energy, such as economizer cycles, occupied/unoccupied settings, laboratory airflow and temperature settings, and humidification, are not functioning properly. Often, just a simple, inexpensive adjustment can significantly and immediately reduce energy consumption, saving energy dollars that were previously being wasted.

Through trend logging, all buildings and systems have a story to tell. You just need to listen closely to what they have to say and you will be rewarded for your efforts. Please call MSC at (973) 884-5000 for more information on trend logging or to arrange a consultation.

INDOOR MOLD AND PREVENTATIVE MAINTENANCE

Indoor mold is ubiquitous. Though it cannot be eliminated entirely, it can present a variety of health hazards to humans when present in large quantities. Building occupants may experience headaches, breathing difficulties, allergic reactions, fatigue, sinus problems, and aggravation of asthma symptoms. Some mold species such as black mold (*S. chartarum*) produce mycotoxins that can pose serious health risks such as neurological problems or even death.

According to the EPA, HVAC systems are one of four primary sources for indoor air pollution, specifically “microbiological growth in drip pans, ductwork, coils and humidifiers”. A faulty system is not only a source for mold, it provides a mode of transportation for spores to invade all areas of an indoor environment. Therefore, proper HVAC design, installation and maintenance are absolutely essential in preventing indoor mold propagation. An effective preventive maintenance plan aimed at mold growth should pay particular attention to coils and drain pans, humidification and dehumidification, outdoor air dampers, air filters, ducts, return-air plenum, cooling towers, and air intakes. Preventive measures should be implemented in-house on a regular basis, along with scheduled preventive maintenance by a qualified HVAC professional.



To find out more about indoor mold and HVAC preventive maintenance, call MSC at (973) 884-5000.

THE CURE

HVAC and the Hoover Dam

The world-renowned Hoover Dam, constructed from 1931 to 1936, is an amazing feat of engineering. Standing 746 ft. high, 1,244 ft long, and 660 ft wide at the base, it required the pouring of 3.25 million cubic yards of concrete. One of the main challenges engineers faced during construction was how to dissipate heat.



All concrete generates heat, and in mass placement the concrete can get extremely hot, affecting strength and durability. If the Hoover Dam was built in a continuous pour with no method of heat dissipation, it would have taken 125 years to cool to ambient temperatures, threatening structural integrity.

To solve the problem, concrete was poured in 5-ft high sections through which 1-inch steel tubing was coiled. When a section was poured, cool river water was circulated through the pipes. After this initial cooling, ice-cold water from an onsite ammonia refrigeration plant was pumped through the sections. Once the block had cooled sufficiently, the coils were cut off and pressure grouted. Today, Hoover Dam entombs more than 582 miles of steel tubing.