

## SERVICE CALLS



**VFD Control Wiring Don't's** - Occasionally, VFD problems arise that are hard to explain. Though all VFD manufacturers recommend that control and power wiring be kept separate, every so often we find both types running alongside one another in conduit and cable trays. This can cause magnetic flux from the power wiring to induce voltage into the control wiring, creating odd anomalies within the drive's controls. It is also important to limit the wiring distance to within the manufacturer's recommended length.



**Steam Condensate Flooding-** Managing steam condensate is very important, particularly when it comes to trim humidifiers. When designing and installing condensate piping, it is important to determine whether there will be any pressure to lift the condensate or if it needs to drain by gravity. Condensate flooding and water damage is a common occurrence when proper pipe requirements are not met.

## PROCESS COOLING VARIES

Process cooling is a critical requirement for cooling, refrigeration, heat extraction, and maintaining temperature during manufacturing and other processes. Process cooling systems are used in a variety of industries including petrochemical, pharmaceutical, food and beverage, plastics, and healthcare. Various systems operate at a wide range of temperatures – high, medium, low, or ultra-low – depending on the desired result. One of the most widely used process cooling systems is the 5C/41F used for most process air handlers, isolators, down flow booths, walk-in boxes and process heat exchangers. These systems typically operate at plus or minus one degree of set point. Because they are used in many critical applications, they are usually commissioned and validated. Process cooling systems run year round. Depending on their criticality, they are often safeguarded by redundant chillers and pumps and emergency power. They usually have a 10% high-grade glycol mix as well as sophisticated instrumentation to monitor pressure, flow and temperature.

Lower temperature process cooling systems are used for a wide variety of applications such as lyophilization (freeze drying), liquid nitrogen freezers or heat exchangers, and MRI equipment, whose superconductor magnets must be cooled to -200c to -600c for maximum performance. For ultra-low temperature requirements, cryogenic chiller technology, which uses liquid nitrogen or helium for cooling, is often used. Other uses for low- and ultra-low temperature process cooling include freezing food, blood and cell storage, and underground power transmission. These systems require specialty chillers, piping, instruments and insulation because of the extreme cold and its effects on materials.

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Process cooling requires advanced know-how not only of the science behind the technology, but of the low discharge and suction parameters required to achieve low temperatures. MSC got its start in process cooling for vapor recovery systems in the petrochemical industry over thirty-five years ago, and our technicians are exceptionally well-versed and experienced in this area. For more information about process cooling, please call MSC at 973-884-5000.

# TECH TALK

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## REAL-WORLD ENERGY SAVINGS

Whether you're finding ways to save energy to meet company budget mandates or simply trying to get more bang for your energy buck, here are a few things you can implement for increased savings:

**Occupancy sensors** for lighting can be used anywhere – offices, corridors, laboratories, mechanical spaces, closets, etc. – and can be directly tied to HVAC, VAV boxes, and CV boxes to adjust airflow and save energy while in the unoccupied mode.

**Occupied/unoccupied times** can be controlled via electronic time clock to automatically adjust settings. Reexamine them on occasion to make sure the setting times are still optimal.

**Systems that run on 100% outside air**, such as runaround glycol and energy recovery wheels, have changed drastically over the years and have increased in efficiency.

**Assess the air change frequency** in labs and process spaces and lower the rates if possible. Your settings may exceed what is necessary.

**Install automatic lab hood sash closers** controlled by proximity sensors for significant energy savings.

**Verify economizers** are working properly. Make sure **coils are clean**, **ductwork doesn't leak**, and your **sequence of operation** is energy efficient.

Finally, **analyze equipment (chillers, motors, cooling towers, etc.) for energy efficiency**. Calculate your ROI to determine whether it might be worth replacing.



## MEET MSC's Victoria Tietz

MSC is pleased to announce **Victoria Tietz** has accepted the position of **Service Sales Representative**. With a keen focus on customer service, Victoria looks forward to introducing MSC's unique HVAC diagnostic philosophies to new clients. "In this economy I've found that most contractors are complacently replacing parts and using the word 'failed' as a diagnosis. I am reenergized to find a company that instead asks 'why the failure' and digs deeper to get to the root cause to prevent it from reoccurring."

After earning a degree in marketing management from Tobe-Coburn in Manhattan, Victoria held positions at Gallmann Company, a mechanical plumbing contractor, and Klac Construction, a general contractor. With her career path emerging, Victoria entered the facility services industry when she accepted a position with EMCOR NY/NJ as Marketing Director. Her desire to gain more knowledge of mechanical systems brought her to Monsen Engineering where she has flourished the last six years in the field as a Certified Maintenance Planner. Now in her new position, MSC's commitment to continual improvement aligns perfectly with Victoria's personal core values.

Victoria enjoys watching her daughter excel in sports and is an avid golfer. She is a member of organizations such as the Morristown Toastmasters Club where she interacts with a diverse group of professionals to foster learning and achieving goals. Please join MSC in welcoming Victoria to our team. **Contact Victoria at 973-929-6119.**





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## OPERATING ROOM CASE STUDY

As a service firm specializing in HVAC and controls diagnostics and repair, MSC is frequently called in by clients to troubleshoot and pinpoint the elusive causes of mechanical system problems. One such client was a New Jersey hospital plagued by serious issues with their operating room air handling system.

In the O.R., different procedures often have different environmental requirements. Some surgeries require much cooler temperatures than others, and surgical teams were complaining of slow space pull-down between procedures and poor overall temperature control. When hospital facilities personnel were unable to fix the issue, MSC was contacted to analyze the system, identify problems, and provide recommendations for improving performance in this critical area.

MSC observed system operation over the course of a day while recording performance readings and measurements from the air handler, condenser, evaporator, mixing valve, etc. The collected data, design intent, and existing equipment were then holistically compared and analyzed in depth. Based on the results of the analysis, technicians concluded that the O.R.'s air handler system was properly sized and configured to meet the client's requirements for the critical space, but a combination of control issues and system deficiencies were causing the system to perform poorly. The client was provided with a comprehensive Diagnostic Report detailing a list of recommendations on how to correct the various control issues. Once the recommendations were implemented by hospital personnel, the air handling system was brought up to optimal performance to the satisfaction of the client and their surgical teams. To see MSC's full Diagnostic Report detailing the analysis and conclusions, [download the PDF here](#).



## SPRING PM

**Spring is finally here and it's time to prepare for the upcoming cooling season.** Start by cleaning air handlers, coils, filters and ductwork, and verify that air flow and cooling is running properly. This is the swing season, when we run cooling during the day and heat at night, so make sure your economizer cycles are programmed correctly.

Other things you can do to make sure your systems are performing optimally:

- \* Check occupied/unoccupied modes
- \* Check sequence of operation
- \* Make repairs that have been lingering
- \* Check for duct leakage
- \* Air and water balancing
- \* Retro-commissioning



### DID YOU KNOW...

- MSC has received an A rating from ISNetworld. ISNetworld is a global resource for connecting corporations with safe, reliable contractors in capital-intensive industries.

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