HVAC/R • PROCESS COOLING • BUILDING AUTOMATION

TECHTALK

QUARTERLY NEWSLETTER
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Stopping the Cycle of Fan Array Failures: An MSC Case Study

A previous client called upon Mechanical Service Corporation to solve a perplexing and increasingly costly HVAC problem that had persisted despite multiple attempts at resolution. The case involved repeated fan failures in a fan array serving a 160-ton rooftop split system over a short period of time, with no apparent cause. MSC had provided refrigerant piping design assistance two years prior when the system was installed, and now, the client was facing an entirely different challenge.

Upon our service technician's arrival, the client disclosed that four out of the nine supply fans in the two-year-old fan array had been replaced, and a fifth fan had recently failed. This was particularly noteworthy as these fans would typically operate for many years without failure.

An examination of the system revealed an excessive amount of accumulated water in the variable frequency drive (VFD) control cabinet serving the fan array. Our technician identified this water as condensation resulting from cold, pressurized air from the system infiltrating the control cabinet through an unsealed 2-inch conduit nipple and mixing with the warm air circulating through the cabinet. The problem was exacerbated at night when the unit shut off, allowing warm, moist outside air to infiltrate the unit and condense on the cooler interior surfaces.

MSC resolved the condensation issue by sealing the conduit opening. However, while problematic, it was not the root cause of the fan failures, so we moved on to examine a short circuit fault code in the VFD. When the technician performed a Megger test, however, no short circuit issues were found. Further investigation revealed that all of the VFDs had been programmed incorrectly, with KW and HP settings swapped and other critical parameters set improperly. This finding suggested that the

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previous fan failures might have stemmed from the same programming issue rather than hardware faults.

After consulting with the drive manufacturer, our technician reprogrammed all the drives with the correct settings. We also implemented an advanced drive function that induces a DC voltage to the motor while it's off to keep it warm and prevent dew-point condensation.

The client appreciated the resolution of the ongoing issue. The new HVAC system had already incurred significant repair costs from the multiple fan replacements, and had MSC not identified the VFD programming errors, these issues could have persisted indefinitely. This project underscores that expert knowledge and experience is essential for effective troubleshooting in complex HVAC systems, as initial symptoms may not always point to the root cause of a seemingly obvious problem.

MSC President Andrew Heilmann Named to ACHR News' 10th Annual "Top Forty Under 40" List for the HVACR Industry

MSC President Andrew Heilmann has been named to ACHR News' 10th Annual "Top Forty Under 40" list for the HVACR industry.

This accolade, now in its tenth consecutive year, shines a spotlight on the rising stars shaping the future of HVACR. As the industry faces a generational shift with many seasoned professionals approaching retirement, ACHR News has taken the initiative to showcase younger talents making substantial contributions across HVACR manufacturing, distribution, and contracting sectors.

Andy's inclusion in this elite group not only highlights his individual achievements but also underscores MSC's commitment to fostering leadership and innovation in the HVAC field.

Read ACHR News' full profile showcasing Andy's forward-thinking leadership and vision for MSC at https://www.achrnews.com/articles/155084-2024-top-40-under-40-andy-heilmann

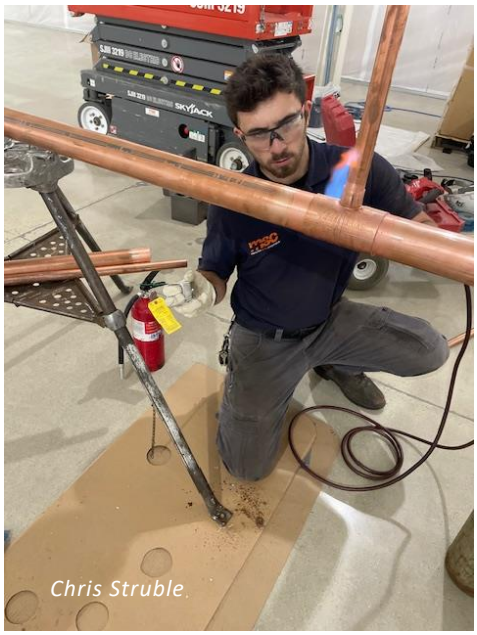
SUMMER SEASON WRAP-UP: A Salute to Our Exceptional MSC Team

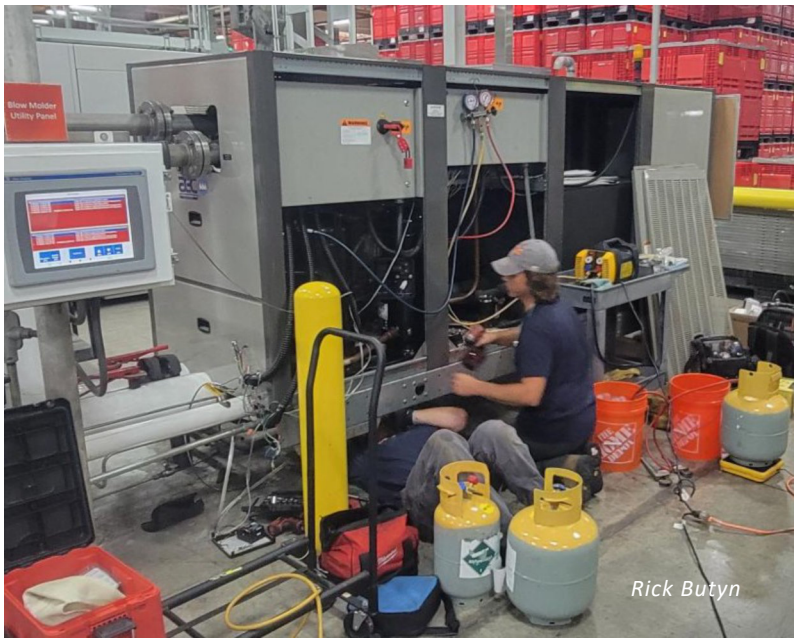
With Labor Day now behind us, we take a moment to look back on the intense summer cooling season we've just weathered together. As always, our entire team rose to every challenge with flying colors.

Throughout the sweltering summer months, our service department worked tirelessly in a range of environments to ensure our clients' HVAC and process cooling systems performed at their maximum. From routine maintenance to complex emergency repairs, our service technicians delivered when it mattered most.

Kudos to the sales and engineering teams for their exceptional efforts and diligence in always providing the best solutions for our clients' diverse needs. Behind the scenes, our office and support staff kept operations running like a well-oiled machine, allowing our field teams to focus on what they do best.

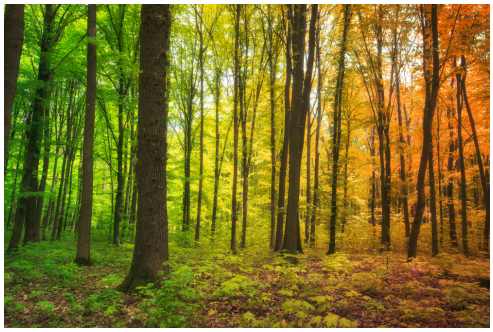
These photos represent only a small sample of the hundreds of service calls, special projects, and maintenance inspections we completed this summer. Each image tells a story of professionalism, expertise, and dedication – qualities that define our entire team. Thanks to all for another successful cooling season!





Gear Up for Heating Season with Key Fall Maintenance Tasks

As crisp autumn air begins to replace summer's warmth, it's time to shift focus to preparing your facility for the upcoming heating season. Here's a practical guide to help ensure your HVAC systems perform properly throughout the winter months.



Optimize Your Economizer: Start by fine-tuning your economizer settings and functionality. These systems can significantly reduce energy costs by leveraging cooler outside air for free cooling. Ensure they're calibrated correctly to maximize efficiency during the transitional fall weather.

Comprehensive Fall Maintenance: Your fall preventive maintenance should be thorough, going beyond the basics of changing filters and belts. MSC recommends:

- Heat Exchanger Inspection: Check for cracks or corrosion to ensure optimal heat transfer and prevent potential safety hazards such as carbon monoxide and flue gases entering the air stream.
- Heat Pump System Check: Verify both heating and cooling modes are functioning correctly for those unpredictable fall temperature swings.
- Hydronic System Operational Inspection: Ensure even heat distribution throughout your building for consistent efficiency and comfort. Confirm proper pump and valve operation to ensure system readiness for when cold weather arrives.
- Heating Control Tests: confirm all thermostats, sensors, and control systems are accurately reading and responding to temperature changes.

Consider Retro-Commissioning: Fall and winter are the ideal time to conduct retro-commissioning to resolve original construction flaws or issues that emerged over time. This process can reduce energy costs, minimize unexpected downtime and repairs, and extend the lifespan of your equipment.

MSC OPEN HOUSE

October 11-12, 2024

msc mechanicalservicecorporation

HVAC Service Technician Careers

Are you an experienced journeyman with a background in commercial, light commercial, or industrial HVAC? Or perhaps you're an experienced apprentice looking to advance your career? New Jersey's premier service specialist in advanced HVAC, process cooling, and building automation is looking for talented individuals like you to join our team! Learn more at www.mscnj.com.

- Competitive Wages
- Paid Time Off
- Annuity and Pension
- 100% Family Health Coverage
- Dental & Vision Insurance
- Chiropractic Care
- Life Insurance
- Accidental Death
- Temporary Disability

NOT A UNION MEMBER BUT INTERESTED IN JOINING?

Union business agents will be available to to discuss the membership process and answer any questions you may have.

WHEN

FRIDAY
October 11, 2024
3:30 - 5:30 pm

SATURDAY
October 12, 2024
9:00 - 11:00 am

WHERE

41 South Jefferson Road
Whippany, New Jersey