

Mechanical Service Corporation Solves Winter Freeze Emergency for Food Production Facility

SUMMARY

Last winter, one of MSC's customers was nearly forced to shut down its 100,000-square-foot manufacturing facility due to frigid temperatures that also threatened to freeze water and sprinkler lines, **potentially costing the company tens of thousands of dollars in lost production, not including the cost to repair or replace damaged or failed equipment.**

Mechanical Service Corporation (MSC) quickly responded to the maintenance manager's emergency call which came in in the early morning hours to their 24/7 emergency response team. By 6 a.m., an expert MSC tech was onsite conducting a multi-step system evaluation, diagnosed the root cause of the problem, then got to work.

In just two days, MSC restored the system's functionality to 100% increasing interior temperatures from the low 50s to the temperature setpoint per design specifications so the food production facility could continue operating with minimal interruption.

BUILDING SPECS

Size: 100,000 Square Feet
System: 6 Make-up Air Units
Use: Manufacturing - Food Production Facility
Location: Pennsylvania



QUICK STATS



17°F Outside
50°F Inside



1 Technician
deployed to site



Within 1 hour
from emergency call, MSC tech
arrives on site



425 Gallons
to fill empty glycol/water tank

WINTER WEATHER CASE STUDY

PROBLEM

Less than 24 hours after signing a preventive maintenance contract with the new 100,000-square-foot food processing facility, MSC received an early-morning emergency call from the night shift maintenance manager. Temperatures had dipped into the teens for the first time that year and building temperatures had dropped precipitously. Indoor air pressure had become negative to such an extreme that large volumes of frigid air were being pulled into the building.

Concerned that the water and sprinkler lines could freeze without immediate action, the night shift maintenance manager called MSC's 24/7 emergency response line. Within 60 minutes an MSC expert technician was dispatched and onsite by 6 a.m. Outside, it was 17°F. Inside the facility, temperatures hovered around the low 50s and were even lower near the loading dock and exterior doors.

ACTION

Quickly assessing the situation, MSC's service tech determined that **all six make-up air units had tripped on freeze-stat. Process exhaust fans, however, had continued running as usual, pulling approximately 50,000 CFM of frigid air into the building while the units sat idle.** To stem the airflow, the technician stopped the exhaust fans and then attempted to restart the make-up air units, but the freeze-stats tripped again almost immediately.

Detecting a cold discharge temperature below setpoint, MSC theorized that the problem with the customer's system was a lack of hot water. However, the technician found that was not the case, as 140°F hot water was circulating and available to all of the unit heaters which were running and attempting to satisfy temperature.

Next, MSC evaluated the setup of the make-up air units, which were on an elevated steel platform five feet above the roof. After checking the air bleeders and low-point drains, the technician confirmed the system was air-bound and circulating poorly. A low-point drain had been left slightly open, allowing water to escape. As a result, the water/glycol reservoir tank was nearly empty.

MSC moved quickly to refill the system with water and food-grade glycol until all the air had been vented and circulation to the six make-up units was restored. This process took two days and approximately 425 gallons of a 20% glycol/water mix. The technicians also raised the circulating temperature of the hot water boiler loop to 160°F to provide more heat to the unit heaters and reheat the coils in the facility's offices.

RESULTS

Refilling the water/glycol reservoir, raising the circulating temperature and turning the exhaust off allowed the building to gain heat long enough for MSC technicians to make the needed repairs.

Once the facility's make-up air units were running without tripping on freeze-stat, MSC verified proper water circulation throughout the system. After a successful test, the technicians confirmed the water circulation was back to normal and the system was restored.

MSC's team of HVAC experts can create a custom preventive maintenance program for you.

To schedule an introductory call to learn more about your own personalized preventive maintenance program, [contact us](#) today.