



# STATE OF THE INDUSTRY REPORT

## COMMERCIAL HVAC



**2023**

COOLING  
SEASON RECAP

# TABLE OF CONTENTS

---



- **BUSINESS BAROMETER**  
Environmental Conditions  
& HVAC Trends

- **IN THE FIELD**  
Service Calls, Maintenance Issues  
& Part Replacements

- **LOOKING AHEAD**  
Part Lead Times, Cost Increases  
& Planning



- **DIAGNOSTICS & SOLUTIONS**  
CASE STUDY: MSC Plans & Executes  
Complex Rooftop Unit Replacement  
Two Years in the Making



# ABOUT MECHANICAL SERVICE CORPORATION

Established in 1976, Mechanical Service Corporation (MSC) is one of the region's most trusted, technically proficient and sought-after diagnostic experts and service providers in HVAC, process cooling, and building automation systems. Utilizing the latest technologies, MSC's highly skilled team solves even the most complex HVAC problems for commercial and industrial systems providing long-term solutions rather than temporary costly fixes.

Addressing the root causes of problems, MSC ensures that HVAC equipment attains peak performance so its clients can focus on their business and achieve their goals.



**Our HVAC expertise** helps power  
millions of square feet of  
**mission-critical environments**  
across the tri-state area.

# OVERVIEW

As the preferred HVAC partner for many of the Mid Atlantic region's leading hospitals, healthcare facilities, pharmaceutical companies, and manufacturers, MSC designs, engineers, custom builds and services a myriad of complex HVAC systems for mission-critical environments.

Through our work on HVAC systems that power millions of square feet of mission-critical environments across the tri-state area, MSC is uniquely positioned to deliver insights on the regional HVAC industry.



With 2023 marking one of the hottest summers on record, MSC experts gathered and compiled information and insights from the field to provide facility managers with a snapshot of the industry in the Biannual State of the HVAC Industry Report.

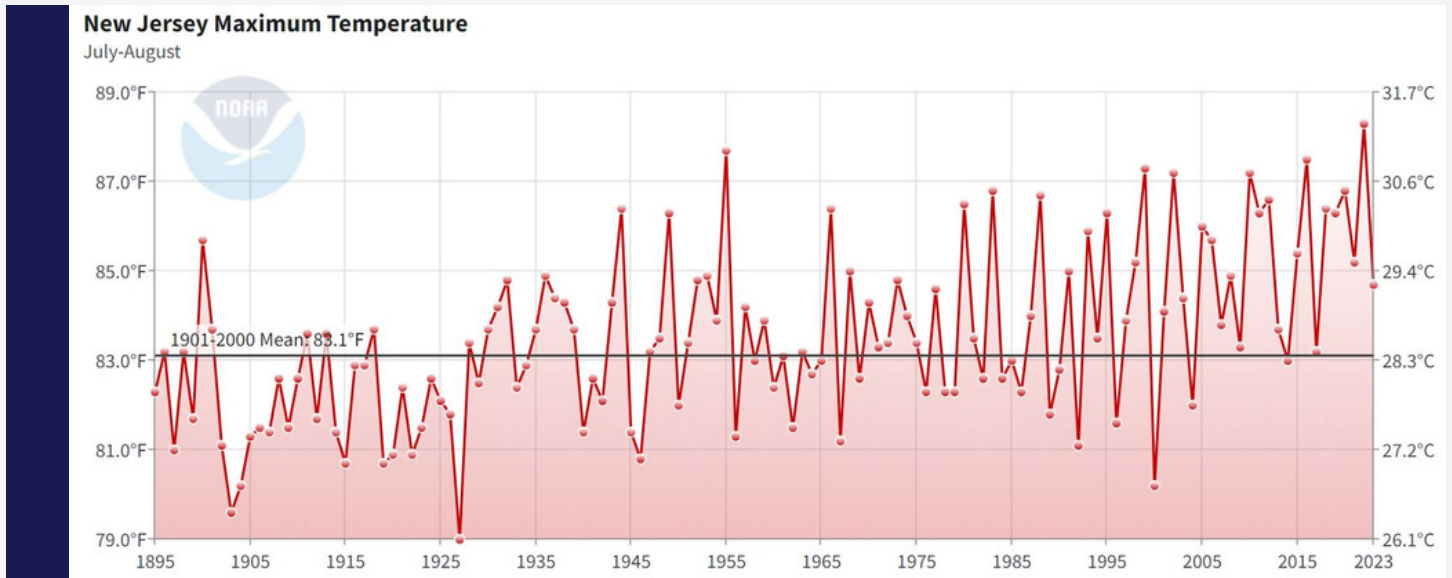
This report is designed to provide facility managers with industry insights on prevailing regional and national HVAC trends from the 2023 cooling season, as well as deliver valuable recommendations and predictions for the upcoming heating season.

The content herein is for informational purposes only and is not to be relied upon as a professional opinion whatsoever. There is no guarantee any of these views will come to pass.

# BUSINESS BAROMETER

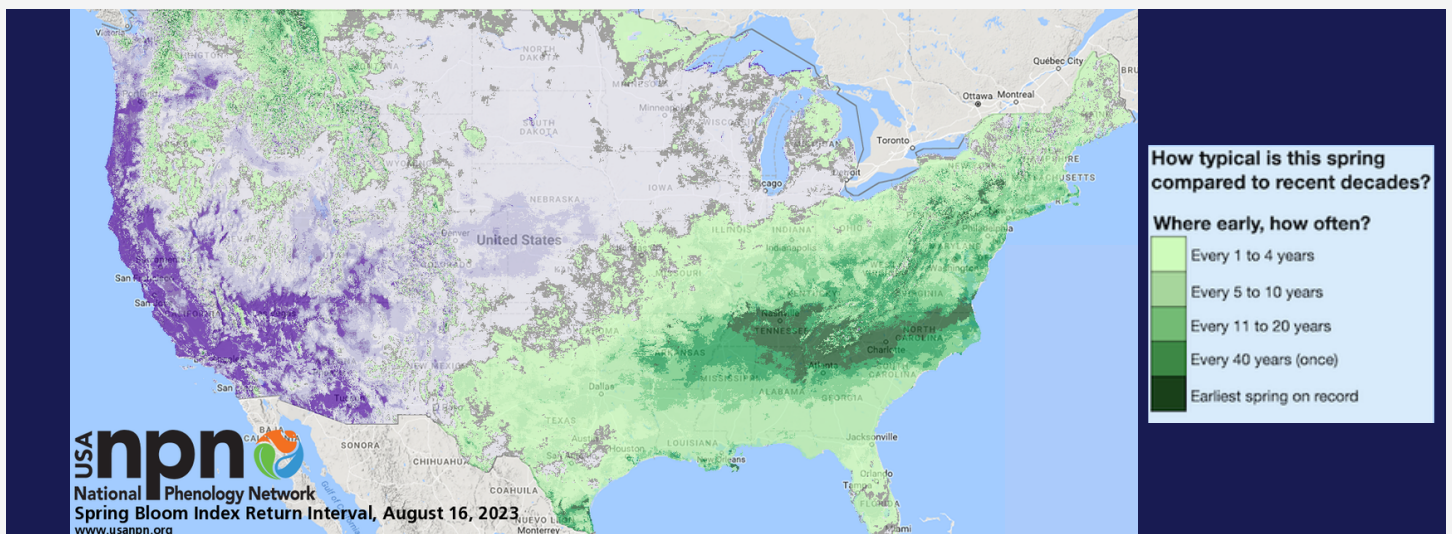
## Environmental Conditions

### AVERAGE MAXIMUM TEMPERATURE



- According to the National Oceanic & Atmospheric Administration, the top three hottest years since 1895 have been in the past seven years alone.

### SPRING BLOOM



- According to the National Phenology Network, the Mid-Atlantic and New York City areas saw a spring bloom that only occurs this early once every 40 years.
- Recent studies indicate pollen seasons have become longer by 20 days on average and more intense (20% increase in concentrations) from 1990 to 2018.

# BUSINESS BAROMETER

## HVAC Industry Trends

### TEMPORARY FIXES V. REPLACEMENTS

Many owners are delaying replacing aging, problematic and/or inefficient equipment largely in part to inflation and long part lead times.

Throughout the first half of the year, MSC has been tasked with applying temporary fixes to prolong the life of equipment despite the fact that in many instances, it will need to be replaced in the near future.

This sentiment indicates that many facility managers are taking a “wait and see” approach to equipment replacement which is certainly impacted by budgetary constraints, rising costs, and lengthened lead times. Although demand for replacements and retrofits have stagnated slightly, MSC service calls remained at, and in some cases above, normal levels indicating steady demand for services.

With many facility managers in MSC's service area opting to prolong their equipment's life for as long as possible, it is reasonable to expect an increase in demand for equipment replacement in coming years.



**90% of jobs completed during the time period reflected this trend with just 10% of projects comprising larger scale replacements.**



*"Due to **equipment shortages and longer lead times**, certain parts could take weeks or even months to come in, so we're recommending customers who may need a replacement within the next six months to a year to **buy new systems or equipment as early as possible** to prevent interruptions or system downtime."  
- STEVE MEIGH, CONTRACT SERVICE SPECIALIST, MECHANICAL SERVICE CORPORATION*



# BUSINESS BAROMETER

## HVAC Industry Trends

### CANADIAN WILDFIRES

In mid July, smoke from **Canadian wildfires** traveled down the coast, **significantly impacting the air quality in the northeastern U.S.** for several days, with effects lingering for weeks.

Due to the extreme smoke conditions MSC advised all clients to inspect all HVAC system filters once the current crisis abated.



Massive levels of PM2.5 fine particulates caused accelerated filter loading, resulting in a large decrease in expected lifespan.

In addition to advising facilities personnel to check filters and pre-filters to determine whether early replacement will be required, MSC techs also began checking clients' filters as part of all maintenance and service calls and recommending replacements when appropriate.

While techs observed that a handful of clients required early filter replacement, others who had installed bipolar ionization technology during the COVID-19 pandemic fared better and were less likely to require premature replacement.

# IN THE FIELD

## Service Calls

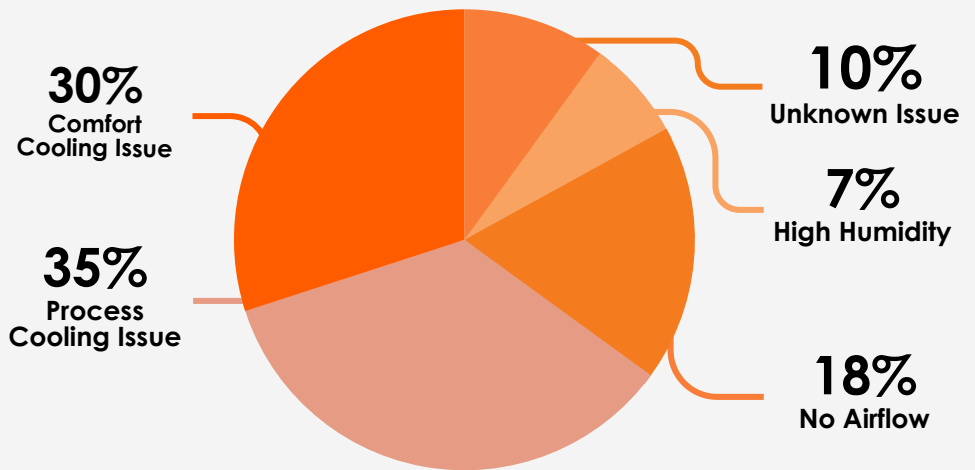


"This season, we focused on **smaller scale repairs** to help customers bridge the gap and find their best course of action amidst **price increases and extended lead times.**"

- JUSTIN BECKER, SALES LEAD, MECHANICAL SERVICE CORPORATION

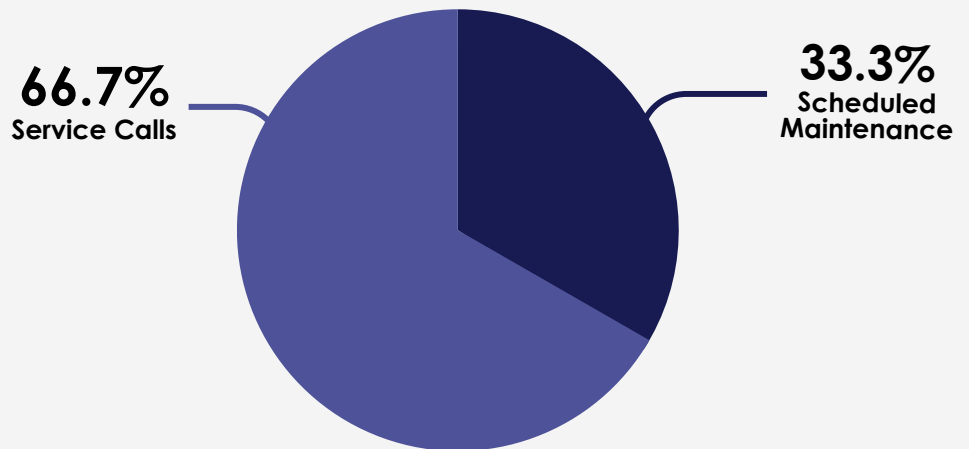
### REASONS FOR THE CALL

Overall, emergency service calls were on par with percentages of previous years with process cooling issues ranking as the top reason for the service call. These percentages are solely representative of customers' interpretations of the issue at hand.



### BREAKDOWN OF JOBS

MSC techs spent the majority of hours in the field going on scheduled maintenance calls with only a little over 30% of their time allocated to emergency service calls.

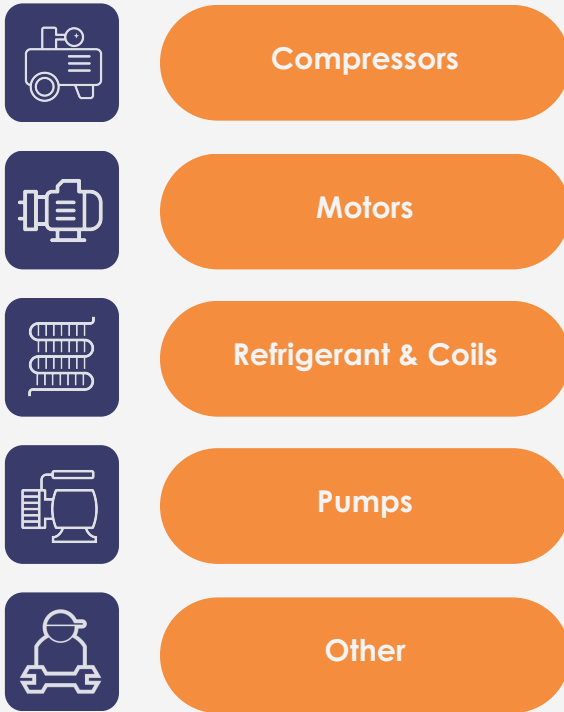




# IN THE FIELD

## Repairs & Replacements

### TOP 5 PARTS REPLACED



### TOP 5 MAINTENANCE ISSUES



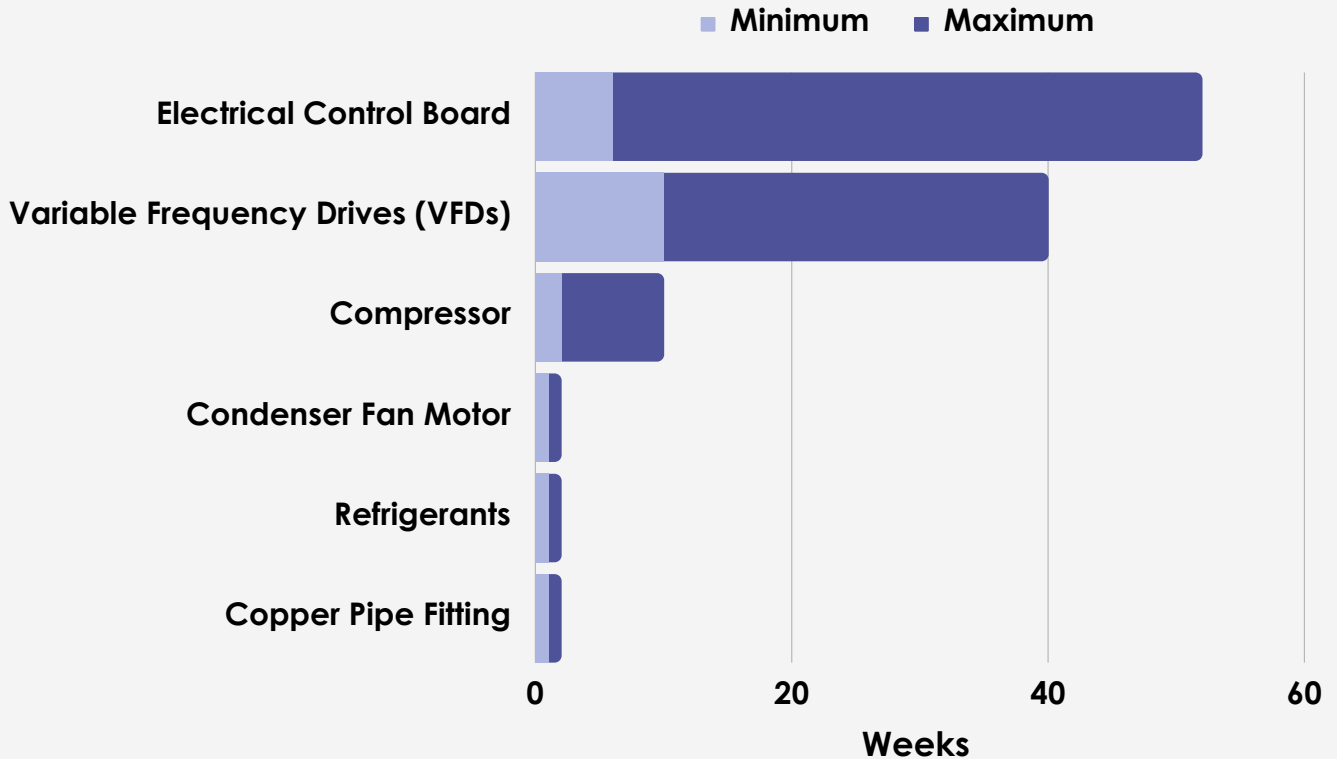
Similar to previous years, compressors ranked as the top replacement part.

The top maintenance issues observed by MSC technicians also correlate with data from previous years with condenser fans representing the top maintenance issue between January and June 2023.

During routine maintenance technicians also frequently observed plugged filters, dry-rotted belts, clogged pump strainers, and lack of cooling tower maintenance.

# LOOKING AHEAD

## Part Lead Times



While lead times have decreased significantly for some key HVAC components such as refrigerants, copper piping and condenser fan motors, supply chain issues are still causing major delays for electrical components such as control boards and VFDs which can still take several weeks, months, or even a year to come in depending on the part.

Although many parts are currently in stock, more complex or larger items such as certain size condenser fans for example, may take longer to ship. At minimum, MSC technicians are advising facility managers who anticipate needing replacement parts to place orders two weeks to four months in advance.

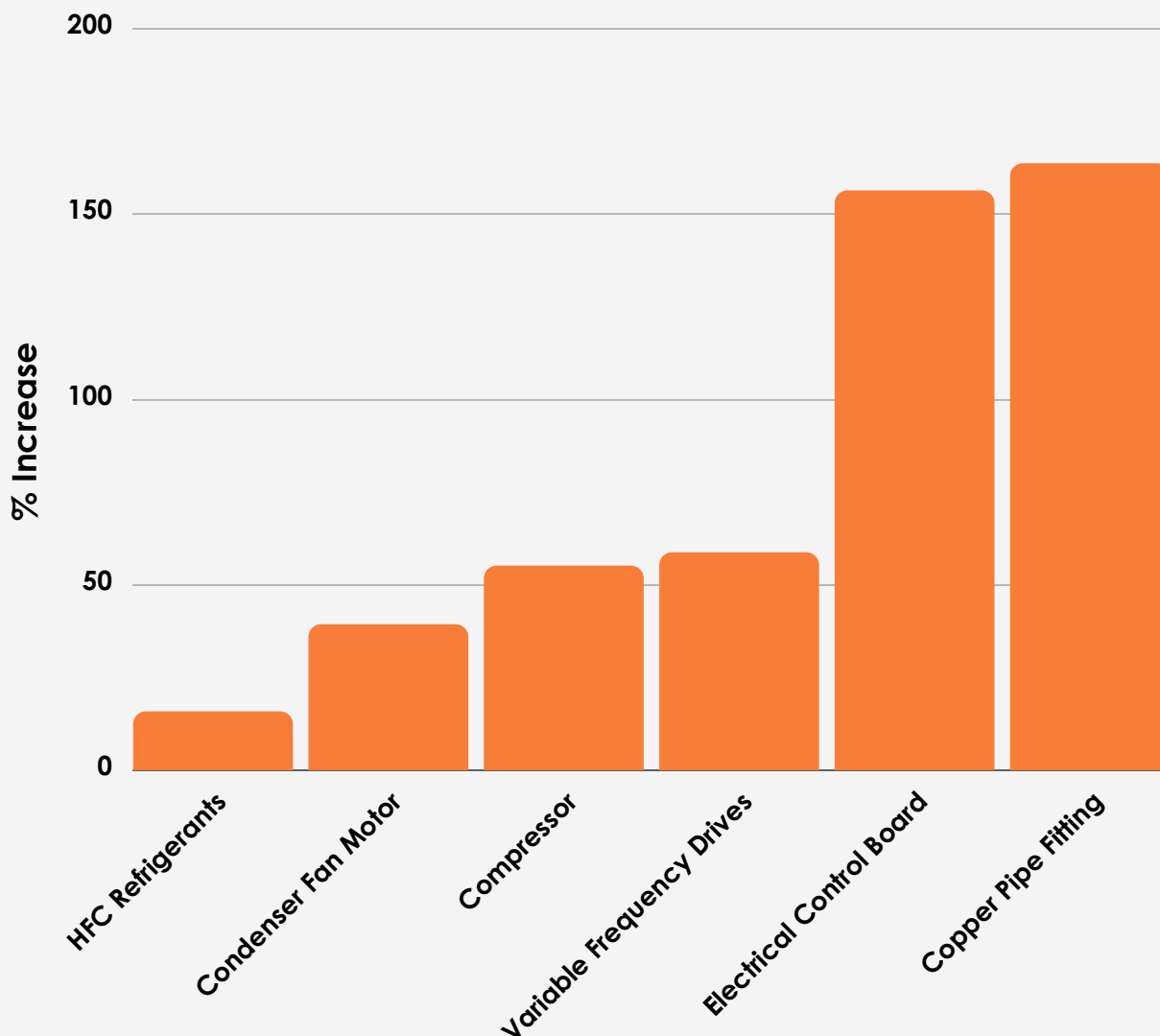
Due to extended lead times for several parts, MSC is currently advising customers to **evaluate parts replacement needs as much as two years in advance**, especially for parts with electrical components.

# LOOKING AHEAD

## Part Cost Increases

Since 2020, all industries have been experiencing significantly longer lead times due to global supply chain issues which has resulted in heightened demand and constricted supply.

Coupled with the widespread impacts of inflation over the past several months, costs for various HVAC components have skyrocketed dramatically, most notably among electrical components such as control boards and copper pipe fittings, which have each experienced an over threefold increase in cost.





# DIAGNOSTICS & SOLUTIONS

## Case Study: MSC Plans & Executes Complex Rooftop Unit Replacement Two Years in the Making

### SUMMARY

A 200,000-square-foot community center's HVAC system was nearing the end of its lifespan after serving the building for 20+ years. Two years ago, MSC was performing regular preventive maintenance at the facility and flagged signs of deterioration on the unit, notifying the facility manager to begin preparing to replace it. MSC then methodically mapped out the complex replacement to minimize downtime and maximize efficiency.

### BUILDING SPECS

Size: 200,000 square feet

System: 4 Units

Use: Community Center

Location: New Jersey



### PROBLEM

A community organization working with MSC for over two decades to keep its 200,000-square-foot community center in New Jersey running smoothly began experiencing symptoms of deterioration. MSC techs who performed regular preventive maintenance at the facility flagged signs such as loud noises and vibration along with normal wear and tear and more frequent repairs.

After prolonging the equipment's life to the fullest extent possible, we came to an agreement with the client to replace the system. The size and scope of the facility and its amenities such as a pool, spa, health club, classrooms, playing courts and more, added to the complexity of the system. Coupled with a robust membership and frequent classes and events, the client could not afford for extended system downtime that would negatively impact its members' experience.

Due to extended equipment lead times and the level of planning and research that needed to go into the project, our team began sourcing equipment options right away to ensure they could identify the right solution for the expansive, multi-purpose facility.

To maximize efficiency and equipment lifespan, our experts carefully evaluated the system as a whole to optimize its performance, with the goal of crafting a custom solution that would better serve the client's needs than a direct replacement would.

## **ACTION**

After extensive research and review of equipment options with the manufacturer, we ordered the necessary components and our control specialist began designing the plan. We ensured the two large air handlers for the system were delivered months in advance so we could work on configuring them to work properly and run well with the building.

Using the existing controls as a guide, our experts mapped out multiple system upgrades and modifications to improve efficiency. Next, we worked with the client to identify a three-day weekend to schedule the replacement to minimize as much interruption to the facility's operations as possible. We then scheduled the crane that was needed to remove the existing rooftop units and replace them with the new ones and then made sure all hands were on deck for the replacement.

The day before the crane arrived, our crews shut down and disconnected the existing units, and prepped the rooftop for the new ones. Then, two dedicated crews facilitated the crane picks with one group assigned to manage the existing unit removal and another handling the new unit installation. Over the course of the following two days, MSC techs were hard at work connecting, configuring, and testing the new equipment to bring the system online and ensure critical operations were up and running before members returned to the center on Monday morning.



## **RESULTS**

As a result of our extensive preparation, we were able to seamlessly orchestrate the large-scale removal and replacement of the facility's system, minimizing impacts on the community center member experience. Due to advance planning and offsite system design and configuration, we coordinated a successful transition to the new units as quickly as possible despite the size and complexity of the system.

Making multiple custom modifications based on our expertise and our techs' firsthand experience maintaining the equipment over its lifecycle, we were also able to reconfigure several components to ensure the system with operate more smoothly and efficiently while maximizing its lifespan.

# YOUR GO-TO MISSION CRITICAL HVAC EXPERTS



With nearly 50 years of experience specializing in mission-critical facilities, MSC's trained and certified HVAC specialists have the technical expertise required to properly evaluate, effectively diagnose, and fix the root cause of even the most complex HVAC issues.

Get in touch with our experts today to learn how we can help create customized solutions that keep your facility running smoothly during the rest of 2023 and beyond.

Call (973) 884-5000 or visit [mscnj.com](https://www.mscnj.com) to learn more.



**MECHANICAL SERVICE CORPORATION**  
41 S Jefferson Rd, Whippany, NJ 07981  
[service@mscnj.com](mailto:service@mscnj.com) | [sales@mscnj.com](mailto:sales@mscnj.com)  
[Facebook](#) | [LinkedIn](#) | [Instagram](#)