

CASE STUDY

Healthcare Facility
Retro-Commissioning

Hospital Service Call Evolves into Partial Retro-Commissioning Project

BACKGROUND

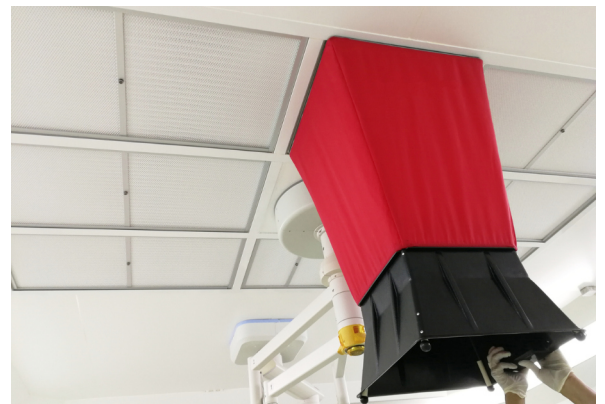
In this case study, we examine the challenges faced by a large New Jersey healthcare facility. Numerous complaints about temperature inconsistencies, airflow problems, and humidity fluctuations in an area that had recently undergone extensive renovation prompted the facility to seek assistance from Mechanical Service Corporation (MSC). Prolonged spans of excessive temperatures were occurring in some spaces, while other areas were experiencing erratic temperature fluctuations. Airflow and humidity sensors were drifting and maintenance staff found themselves unable to properly control the environmental conditions.

PROBLEM IDENTIFICATION

Upon our arrival, we observed abnormally high temperatures in various areas of the facility. After ruling out several possible culprits, we strategically placed data loggers throughout the building to record HVAC system data over a 3-day period. Data analysis and additional diagnostic testing revealed wide temperature swings, reduced airflow of as much as 18%, dehumidification sequence errors, uncalibrated sensors, and overloaded HEPA air filters. These results, combined with the absence of certain documentation, also confirmed suspicions that several crucial commissioning processes had never been completed.

BUILDING SPECS

Size: 135,000 sq. ft.
Systems: HVAC and Building Automation
Area: Patient Support, Loading Dock, Storage
Location: Northern New Jersey



SOLUTIONS IMPLEMENTED

After careful analysis of the collected data, we presented our findings to the client and prescribed partial retro-commissioning to rectify the issues and optimize the performance and efficiency of the hospital's HVAC system. The following steps were taken:

Air Balance and Filter Replacement

A complete air balance was performed, and all HEPA filters and final filters were replaced to ensure efficient filtration and airflow within the system.

Reheat Valve Inspection and Adjustment

All reheat valves were inspected and checked for proper function. Automation adjustments were made as necessary.

BAS Programming

Issues found during re-verification of Sequences of Operation were rectified with building automation programming changes.

Sensor Calibration and Replacement

Temperature and humidity instruments were re-calibrated to ensure accuracy. RH sensors were replaced with high-quality dew point sensors to improve humidity control.

Documentation and Standard Operating Procedures

Retro-commissioning documents were prepared and updated. Assistance was provided in compiling a comprehensive SOP specifying all critical maintenance tasks.

OUTCOME

Following the implementation of these measures, the healthcare facility's HVAC system was significantly improved. Temperature inconsistencies, airflow problems, and humidity fluctuations were resolved, creating a comfortable environment for occupants and maximizing the HVAC system's performance, efficiency, and longevity. As a result of the successful resolution of these issues, MSC has been contracted to perform facility maintenance on an annual basis.