St. John’s: Improving Occupant Comfort
Commissioning for a better building
Lower Manhattan

Background

The Commissioning project at St. John’s University Law School had two goals, to fix comfort problems and identify opportunities for energy efficiency. Students, faculty, and alumni were unhappy with the temperature and airflow in the school’s two buildings, Finley and Belson Halls.

Commissioning Process:

Horizon Engineering Associates, the Commissioning provider, evaluated all building documents, including plans, operation schedules, and control schematics, allowing the development of a baseline for the building’s original design intent. The provider then developed a Commissioning plan and assessed the buildings’ systems, including heating, ventilation, air conditioning, and controls. A visual inspection of the air-handling units, variable air volume (VAV) boxes, automatic air regulating devices, return air fans and exhaust fans was completed. The mechanical and control operations of all unit heaters, hot water pumps and heat exchangers were also examined. Because the University had identified airflow as one of the major problems, the provider used several measures to identify problems in this area, including:

- Point-to-point verification tests of the fan control systems, comparing the building’s control system to actual field conditions.
- Performance tests and air traverse measurements for each fan to determine the capacity necessary for proper delivery.
- Performance tests of variable frequency drives.
- “Snapshot” airflow measurement of supply air diffusers, return-air registers and exhaust-air registers using flow hoods or an anemometer to compare the findings to the original design.

Findings:

The Commissioning process identified a number of findings including significant air-handling problems, the primary cause of the temperature and air flow problems. The air-handling problems included loose belts, filter system failures, slow fan speeds, clogged coils, inoperable water control valves, and broken or out-of-calibration control sensors. Other investigative phase findings included:

- Fan scheduling and outside air damper control issues
- Failing control system components in Finley Hall
- Disconnected variable air volume (VAV) boxes and supply ductwork resulting in leakage above acceptable limits
- Airflow problems in remodeled spaces due to lack of rebalancing

Incentives:

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