ELARA ENGINEERING

Big Picture Thinking. Practical Approach. Sustainable Design.

Naperville Public Library Retro-Commissioning

Project Highlights and Results

- Retro-Commissioning project that identified necessary repairs and the opportunity to reuse existing major equipment and reconfigure building control system in lieu of costly replacement
- 11% normalized electrical energy savings and 29% natural gas energy savings which translates to more than $20,000 in avoided annual utility costs since retro-commissioning
- Substantial costs avoided through reuse of existing equipment and reconfigured existing controls system which extended useful service life of equipment

Project Background

Owner:	**Naperville Public Library Board of Trustees**
Location:	**Naperville, IL**
Team/Team Lead:	**Adam Sanders, Mark Rockwood**
Elara Role:	**Retro-Commissioning**
Type:	**Comfort and Energy Improvements**
Construction Cost:	**Less than $100,000**

Project Overview

Building Type:	**Library**
Building Attributes:	**2-Stories, performance pavilion, playground, restrooms, showers, and splash pad; 73,000 SF**
Initial Construction:	**2003, 2017 Renovation**
MEPFPIT Systems:	**VAV and FPB with reheat, variable speed AHUs, central air-cooled chillers, central boiler plant**

Innovation

- 73,000 SF Naperville Public Library had been experiencing consistent, building-wide comfort issues from a mechanical system that was operating incorrectly; prompting strong consideration from the Library's Board of Trustees to replace the building's major equipment and controls system.
- Although the mechanical system was designed to operate at unusually low chilled water temperatures, the building's central chiller plant was operating at an elevated temperature of 42°F causing terminal equipment to operate at full speed without improving space comfort.
- Elara's retro-commissioning effort resulted in the following:
  - Restoration of appropriate chilled water temperature after the mechanical piping system was tested for appropriate quantities of glycol and then adjusted.
  - Identification and repair of faulty controls.
  - Restoration of air handling units and fan powered boxes to their original intended design operation resulting in consistent, significantly improved comfort throughout the library.
  - Integration of additional energy saving measures into the corrected mechanical system.