SkyFoundry

Sieben Energy Associates: Monitoring-Based Commissioning for HVAC Optimization in an Iconic Chicago Building

Case Study
June 2016

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Project Overview

Citigroup Center Chicago
Client: Transwestern

Citigroup Center Chicago is a mid-1980's vintage, 43-story, 1.86 million square foot, multi-tenant office building in Chicago's West Loop office market.

Although operating sufficiently to meet occupants' day-to-day comfort requirements and achieving both Energy Star recognition and LEED EB certification, the building engineering staff had never undertaken a detailed study of HVAC optimization opportunities.

The engineering staff lacked visibility into the HVAC system performance data that had the potential to provide empirical support for operating changes that could yielded significant energy savings while maintaining the present occupant comfort conditions.

SkySpark▫ was implemented as part of an HVAC Optimization program across the facility. This Case Study provides an overview of the project and results.

Our thanks to Transwestern, the end user client, and Sieben Energy Associates, our SkyFoundry SkySpark® partner that implemented the project.

Solution: Implement Monitoring-Based Commissioning Service in Conjunction with Local Electric Utility

The building management company for the facility, Transwestern, engaged Sieben Energy Associates (SEA) to provide monitoring-based commissioning services in conjunction with the local electric utility's incentive program which helped underwrite front-end integration costs and offered an outcome-based incentive for energy savings generated over an eighteen-month timeframe.

The Approach

SEA instituted a data acquisition protocol whereby HVAC system performance represented by five-minute interval data of all monitored BAS points was acquired and analyzed employing SkyFoundry SkySpark® Analytics Software.

SkyFoundry SkySpark® Analytics Software highlighted operating anomalies and presented evidence-based HVAC performance trends as empirical support for SEA to develop their proposed operating changes.

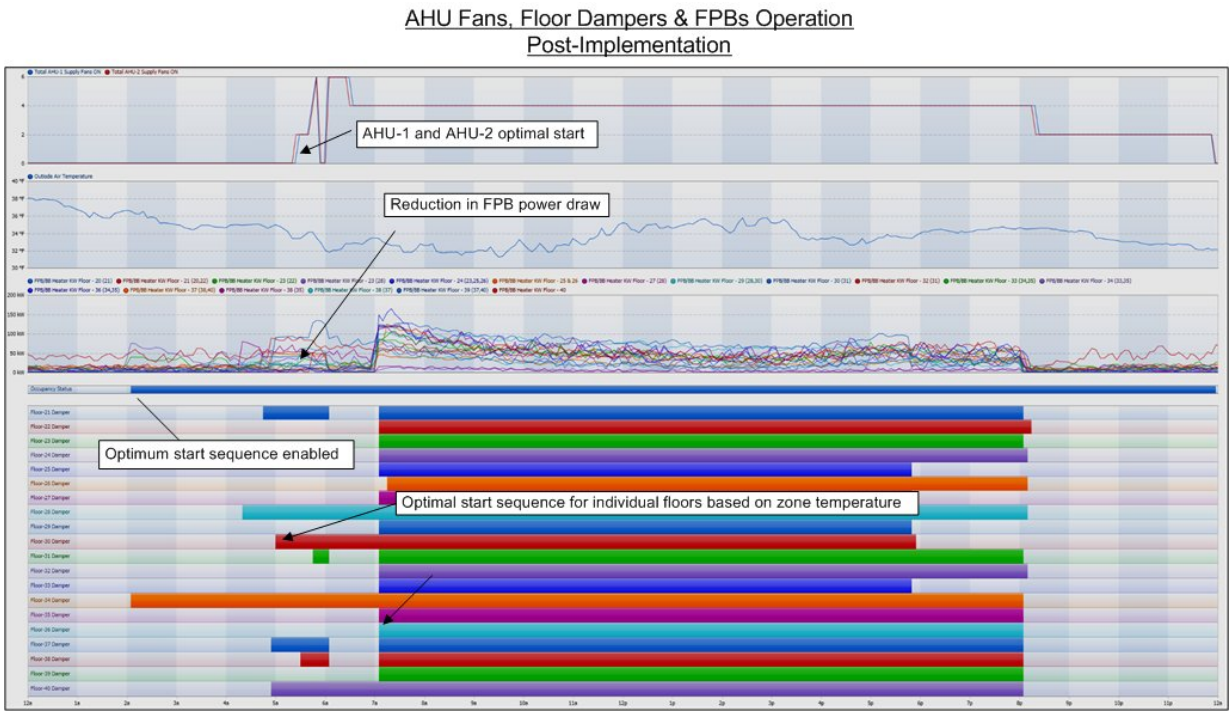
The project was undertaken with a strong collaborative effort by the building's engineering staff which had access to all analytical output via a web-based dashboard. Recommended changes were driven by results of SEA's analysis of the SkySpark® output.

The Result

Over a two-year period ending in December 2015, seven energy reduction measures were implemented, totaling almost 2 million kWh, equaling a projected annual energy cost savings of $112,000.

In addition, in conjunction with the analysis of discrete energy saving opportunities, HVAC system performance monitoring identified dozens of operating anomalies over the course of the engagement that were corrected by site engineering personnel before they led to extended periods of wasteful energy performance.

Using the Energy Star Portfolio Manager as a benchmarking tool, the building's steadily increasing Energy Star rating and steadily declining EUI tangibly demonstrated the impact of employing SEA's monitoring-based commissioning platform as a powerful tool for achieving energy reduction goals.



SkySpark screen shows operation of AHU fans, floor dampers, and FPB operation after implementation of a staged optimum-start control sequence

Summary

SkySpark® helped identify system retuning strategies by analyzing years' worth of data quickly and finding operational anomalies and recurring issues. SkySpark® can utilize data from existing BAS to find issues and opportunities for savings and calculate savings without requiring the implementation of additional hardware and software temporary data logging. Applying SkySpark for ongoing, monitoring-based commissioning insures that savings will be maintained.

Additional Information

This case study was compiled by Sieben Energy Associates with assistance from SkyFoundry. If you have any questions or would like additional case studies, please use the contact information below.

www.siebenenergy.com

Sieben Energy Associates

SkySpark® – Analytics for a World of Smart Device Data

The past decade has seen dramatic advances in automation systems and smart devices. From IP connected systems using a variety of standard protocols, to support for web services and xml data schemas, it is now possible to get the data produced by the wide range of devices found in today's buildings and equipment systems.

Access to this data opens up new opportunities for the creation of value-added services to help businesses reduce energy consumption and cost and to identify opportunities to enhance operations through improved control, and replacement or repair of capital equipment. Access to the data is just the first step in that journey, however. The new challenge is how to manage and derive value from the exploding amount of data available from these smart and connected devices. SkyFoundry SkySpark directly addresses this challenge.

*The new frontier is to efficiently manage and analyze data to **find what matters™**.*

About SkyFoundry

SkyFoundry's mission is to provide software solutions for the "Internet of Things". Areas of focus include:

- Building automation and facility management
- Energy management, utility data analytics
- Remote device and equipment monitoring
- Asset management

SkyFoundry's software helps customers derive value from their investments in smart systems. Learn more and request a demonstration at www.skyfoundry.com.

SkyFoundry

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