

Building Analytics Success Story

The Franklin



TISHMAN SPEYER

Tishman Speyer was seeking fresh insight into how its two-building downtown Chicago office property – The Franklin – consumed energy. How much opportunity was there to further optimize heating and cooling performance through energy analytics and reduce energy costs? Through a multi-year process beginning in 2015 and supported by ComEd’s Monitoring-Based Commissioning (MBCx) incentive program, The Franklin integrated fault detection and diagnostics (FDD) software that helped drive down energy costs by 9%.

The Franklin’s MBCx provider implemented an on-line dashboard that provides full FDD transparency to on-site staff. The FDD system identifies sub-optimal system operation and prioritizes efforts to improve occupant comfort and reduce energy use. The Franklin also utilizes ComEd’s Business Energy Analyzer interval meter data to perform load analysis and to help establish load shape baselines.



Wireless sensors and communication bridges were installed to acquire important performance data that wasn’t visible through the BAS.

- Jerry Burin, Sieben Energy Associates

What is MBCx?

Monitoring-based commissioning (MBCx) is an ongoing commissioning process that focuses on analyzing large amounts of data on a continuous basis to improve and maintain building energy performance and comfort.

The combination of FDD and energy analysis tools enables The Franklin’s property management team to flag issues, support root cause diagnosis, and verify and maintain performance. However, the software alone cannot optimize performance. The collaboration between the site operations staff and their MBCx service provider has helped ensure that identified issues are resolved and maintained. The support of ComEd’s MBCx program has been key to that process.

Quick Facts

Location: Chicago, Illinois

Property Manager: Tishman Speyer

Building type: Multi-tenant Office

Gross floor area: 2,480,000 square feet

Total buildings: 2

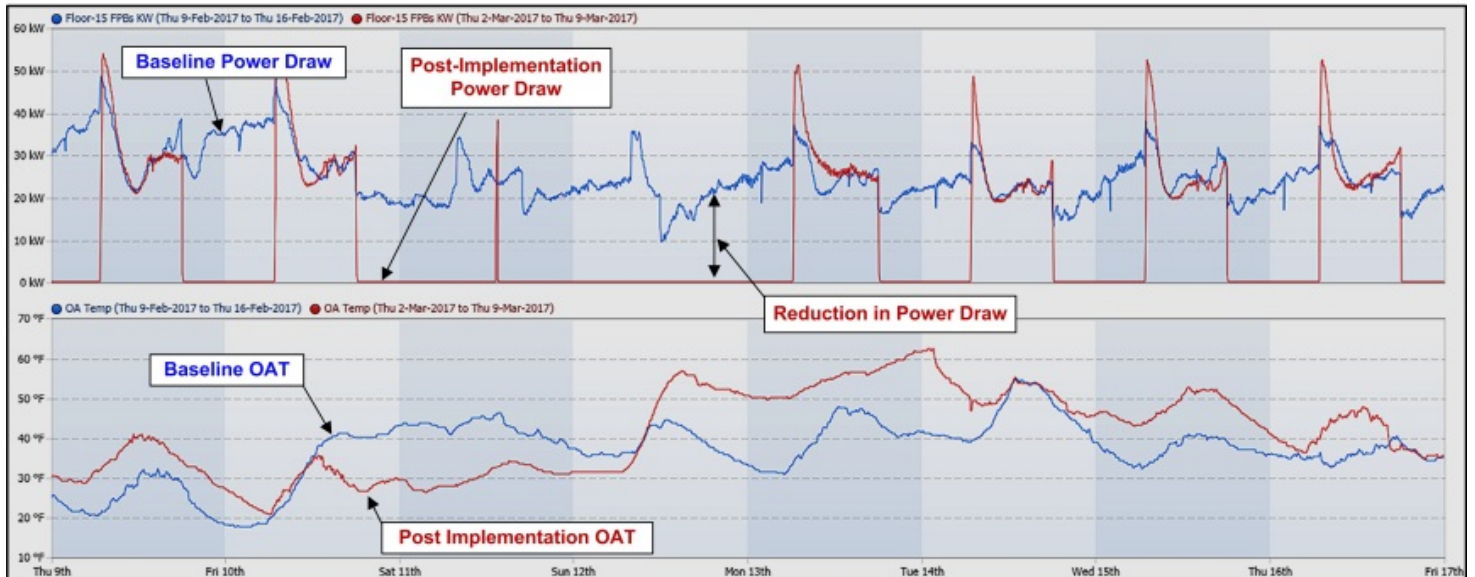
Energy Savings since installation of EMIS: 9% whole building energy savings

MBCx Service provider: Sieben Energy Associates

EMIS Tools: SkySpark by SkyFoundry and Business Energy Analyzer by ComEd

Smart Energy Analytics Campaign: Recognition for Energy Performance in a Single Site

The Franklin was recognized by Lawrence Berkeley National Laboratory and the U.S. Dept. of Energy in May 2018 for their exemplary work to save energy through the use of energy management and information systems (EMIS).



Fan-powered VAV box performance monitoring through The Franklin's FDD platform

Analytics Identifies Energy Waste

Major opportunities were identified through the FDD software, implemented, and are currently being tracked using the FDD software to maintain performance. HVAC system improvements include:

- Fan-powered VAV box setback and schedules
- Outside air dampers closed during unoccupied hours
- Modify setpoint of plenum heaters
- Discharge air temperature reset
- Modify setpoint of plenum heaters
- Delay start time of air handlers
- Reduce pressure setpoint of secondary pumps
- Lockout electric heat of VAV boxes during summer

Monitoring Additions Lead to Savings

One example measure at The Franklin illustrates how the addition of monitoring points can help achieve and maintain significant savings. Analysis of building electric meters and power panels serving individual floors

showed there was high load during unoccupied hours, with load profiles suggesting it was related to space heating. Upon deeper investigation the project team discovered that the many of the property's fan-powered box night set-back controls had failed, resulting in unnecessary power draw during unoccupied hours. This type of fault is common yet often 'invisible' because such power draw isn't monitored by the BAS. The fault was corrected after installing 282 wireless current transducers to verify unnecessary power draw. These new monitoring points have enabled building staff to monitor performance and flag any future performance issues. This measure alone achieved verified savings of over 2 million kWh per year.

Partnering for Success

The Tishman Speyer project team and Sieben Energy Associates engineers held monthly energy team meetings to review FDD faults and discuss trends that reveal energy reduction opportunities. Following the resolution of performance issues, the FDD software is revisited to verify that faults have been corrected and expected energy savings are being realized.

The Smart Energy Analytics Campaign is a public-private sector partnership program focused on commercially available Energy Management and Information Systems (EMIS) and monitoring-based commissioning practices. The campaign couples technical assistance with qualitative and quantitative data collection to inform research, development, and field study priorities. Partnering participants are encouraged to share their progress and may receive national recognition for implementations that demonstrate exemplary practices.