Faith Technologies / Schneider Electric
One Menasha Center Case Study

With the rising costs of energy today and in the foreseeable future, building owners and manufacturing plants across all markets are struggling to identify ways to reduce energy costs. At the end of the day, you can't change what you can't measure. While there are many disparate systems that allow visualization into energy consumption as well as building automation, the combination of both has been unseen and unavailable as a single software and hardware implementation. How and when a building is occupied can have a direct impact on how a building is heated, cooled, and how automated lighting control can be deployed. Likewise, understanding how boilers, rooftop units, elevators, and different occupants/tenants use energy has a big impact. So, how do you combine an Energy Management System (EMS) with a Building Automation System (BAS) to provide a "single pane of glass" view into energy conservation? How do you provide real-time, integrated visualization and reporting to the key decision makers so they can understand how to reduce energy consumption?

Faith Technologies, with the help of technology provided by our partners at Schneider Electric, has made the "single pane of glass" a reality at the One Menasha Center building located in Menasha, Wisconsin. This new eight-story building has multiple tenants including a bank and dental office on the first floor, and Faith Technologies staff on the second through eighth floors.

During the design phase, the building owner, under the advisement of Faith Technologies, elected to place an electrical meter at the main electrical connection coming into the building and individual electric meters on each of the additional seven floors, the two roof-top units, boilers, and elevators. Utilizing Schneider Electric's Power Monitoring Expert (PME) software, we were able to bring in data from each electric meter to enable the owners and tenants to understand tenant usage of energy. The owner now has the ability to adjust rent accordingly, since sub-billing is not allowed by the utility and local laws. This also allowed the owner and tenants to understand where and when energy was being utilized so they could take a closer look at where to curtail and conserve energy usage.

Faith Technologies was also contracted to provide the Building Automation System, which included the boilers, rooftop units, unique space heater requirements for the bank, and the 136 variable air volume valves that control air flow to the individual floors. Faith utilized Schneider Electric's Automation Server® and Structureware® software stack to control the building's heating and cooling processes.

Both software solutions noted have their own programming language, reporting, and visualization tools. As independent systems, the owner has the capability to view the energy usage and control the building, but must do so separately. Faith worked with both software packages and devices to develop the customized communication protocol combined with web services to integrate both software packages into a single human machine interface (HMI) aka, Graphical User Interface (GUI). The ability to quickly view building status and energy usage in real-time enables decisions that can be quickly implemented to positively affect energy usage. In addition to integrating the EMS with the BAS, Faith also integrated advanced lighting control and occupancy sensors into the BMS and EMS, allowing energy curtailment to individual floors based on occupancy as well as daylight harvesting. Smoke Control / Variable airflow valves (VAVs) and lights will be adjusted to the occupancy of the floors.

Implementing the technologies referenced above, offered by Schneider Electric and implemented by Faith Technologies, has provided much more comfortable and efficient working conditions for the tenants of One Menasha Center. Controlling the VAVs on each floor, combined with advanced lighting controls, allows the owner to request different lighting configurations and office area temperatures based on the needs and requests of the tenants.

One Menasha Center was initially occupied in April of 2016, so Faith Technologies and the other two tenants have been through all four seasons in northeast Wisconsin. Making adjustments to the BAS based on the energy management data has allowed an approximate energy savings of 9% in Spring and Fall, 20% reduction in the Summer, and 17% reduction in Winter. The financial savings for the owner is approximately $25K to $30K annually, based on a $100K investment.

"Working on multiple floors throughout One Menasha Center, it's incredible to see how each floor can be controlled separately and contribute to a healthy, pleasant working environment."

"As a Journeyman Electrician on the install team, combining the individual meter wiring and building automation communication cabling in the same runs saved significant time on a tight schedule and reduced the overall cost of the electrical installation, further demonstrating the value that Faith Technologies, with the help from our Schneider Electric partners brings to our partnering customers."