

# Minnesota Class A Office Building Demonstrates Bluetooth Mesh Benefits on a Big Scale

With 22 stories and nearly a half million square feet of commercial real estate space, this project demonstrates the flexibility and scalability of Bluetooth mesh networking and showcases the power of the collaboration such an open standard fosters. mwConnect, its technology partner Silvair, and lighting contractor EMC (Energy Management Collaborative) teamed for design and deployment of an LLLC (luminaire level lighting control) solution that will serve the owners and tenants alike for years to come.



## Creating Luminaire Level Lighting Control

The scale of the project was substantial: identify ways to optimize lighting throughout multiple tenant spaces, accelerate energy performance, and future-proof the entire facility for emerging control possibilities. EMC, bringing more than 15 years and millions of square feet of successful installation experience, decided that an LED lighting upgrade coupled with an intelligent luminaire level lighting control (LLLC) approach, would achieve the client's goals.

In order to provide the client and its tenants with the

maximum flexibility, the project team created 3,685 control-integrated fixtures, installing mwConnect's TruBlu low voltage passive infrared occupancy sensor controller in each fixture and connecting it via a 0-10V output with the LED driver. This enabled the new fixtures to directly replace existing fixtures without the need for any additional wiring, a significant savings in labor and materials costs. In addition, the same fixture-level control was added to 225 existing fixtures.

## Designing the Control Network

To achieve the level of simplicity and convenience desired by the client, the project team designed a flexible, zone-based network to deploy occupancy- and time-based control scenarios. In total, the network was organized into 43 separate areas to accommodate the number of tenants who also required access to the control network. Within these areas, 708 discrete zones were created. The network design was developed prior to the physical installation of the lighting, via the TruBlu web portal designed by mwConnect's technology partner Silvair, so that the project team could adjust zones and control scenarios. Once the physical installation began, EMC and the project team could make adjustments via the smartphone app, such as setting the high end trim to provide optimal light levels and extend lamp life.



## Optimized Performance Now, Flexibility for the Future

Because of the flexibility provided by both the pre-installation design and eliminating the necessity for any control wiring, installation and commissioning took place in parallel. Once the fixtures were installed, they were swiftly commissioned and started up. On average, commissioning took place in less than two minutes per fixture. The project team estimated that energy performance with the networked controls would generate as much as 75% beyond that anticipated from the lighting upgrade. What's more, with the LLLC design in place, the spaces are highly flexible for future re-configuration with changing business needs or even changing tenants.

In addition, the control network can incorporate expanded functionality, such as occupancy mapping or space utilization functions if and when needed.

## Project Highlights

- 22 floors of space housing multiple tenants
- 470,317 ft<sup>2</sup> of commercial office space
- 3,910 LED fixtures with embedded TruBlu low-voltage PIR occupancy sensor/control modules
- 43 control areas
- 708 control zones
- Occupancy, vacancy, time schedules and manual control scenarios



## Project Participants

**Energy Management Collaborative (EMC)**

**mwConnect**

**Silvair**

