Industry: Building Controls - HVAC

Customer: The Pentagon (Johnson Controls)

The Pentagon is the headquarters of the Department of Defense for the United States of America. It houses more than 23,000 employees, both military and civilian, all contributing to the planning and execution of the defense of the US.

ICONICS Software Deployed

Johnson Controls Metasys Workstation Software (OEM)

Project Summary

Johnson Controls is providing the building control systems for the new renovation project of the Pentagon in Washington DC.

Key Features

With over 6.5 million square feet under its roof, the Pentagon is the world's largest lowrise office building. It has three times the floor space of the Empire State Building in New York. The National Capitol would fit into any one of its five wedged-shaped sections.

The Pentagon Building

Included in the building controls are systems for:

- HVAC (Heating, Ventilation, Air Conditioning)

- Fire

- Security

- Lighting

- Telephone

- Water Systems

Air Handling Unit

Coming up with a design to monitor all of these systems was no easy task. What was desired was a main screen from which any one of the systems, on any one of the floors, in any one of the five sections, in any one of the five rings could be accessed.

Aerial Overview w/Menus

***Building Operations
Command Center (BOCC)***

Condenser Water

Solution

A clever use of cascading pop-up menus (with sub-menus for each of the systems) placed over the aerial photograph of the building. An example of this screen is shown to the left.

Drilling into a given system at a specific part of the building brings up a rich 3D representation of that system, complete with animated graphics showing the status of all of the important information. Three such examples screens have been included in this article.

The amount of information being monitored is staggering. Take, for example, the lighting systems. There are over 85,000 light fixtures used in the Pentagon, with over 1000 light bulbs replaced every day. Wow!

A team monitors these systems around the clock in the Pentagon's Building Operations Command Center (BOCC). In addition to the individual workstations for each operator, there are also five 90-inch displays providing wall-to-wall monitoring. Should an event take place, an operator can direct any display of any floor plan for any of the systems to one of these monitors.

"The Department of Defense is very technology minded," says Ed Decker – Project Manager for the Johnson Controls Pentagon Branch Office. "They requested the graphics be 'brought up a level' for this project. Armed with the power of our M-Graphics software, Johnson Controls is delivering a system meeting and exceeding these demands. Our customer is very pleased."

Started in 1997, the scope of this project is so large that the renovation of the building controls systems will span more than a decade, with anticipated completion being in 2010. "The challenge for our Johnson Controls team was in designing a system for providing continuity and backward compatibility over the course of the 14 years," says Ed. "The graphics and alarming we are providing and the evolution of the system is meeting this tough demand."

Conclusion

The Pentagon Project is quite impressive. There probably isn't a more massive, more important, more sophisticated building control system on the planet! Having access to thousands of systems from thousands of screens on a moment's notice is a critical requirement, one that the Johnson Controls team is proud to have met.