CASE STUDY

Osceola School District, Kissimmee Florida USA

Facility Type: School

Circon System Integrator: Jack Joyner Heating & Air Conditioning

THE CLIENT

Celebration School and Gateway High School are two campuses in Osceola School District. These schools are the first in the district to be retrofitted for open control using a multi–vendor approach that included Circon HVAC controller products that communicate using the LonWorks network protocol. This integrated Building Automation System (BAS) project won Best Multi–Vendor Installation at LonWorld 2000, an open control system industry conference.

THE CHALLENGE

The existing BAS in both schools was originally installed using a closed and proprietary system, which limited future expansion and integration. In addition, on–going problems in maintaining this system caused high–levels of frustration among the maintenance staff. These two key issues drove the school district to seek a replacement system and its solution was to upgrade the schools to an open control network platform and to deploy industry leading open control products. The school district wanted a system that would provide seamless integration on a single network and allow for system expansion and multiple application integration. A key requirement for the control system was to enable separate classroom temperature regulation by teachers and to do so without the use of wall thermostats, which are highly susceptible to tampering by students. In addition, the maintenance staff wanted the system to be simple to operate and maintain.

"The most prohibitive problem we pinpointed in the existing BAS was that it was not open or interoperable. Consequently, the system could not be expanded to serve the requirements of a high–growth school district such as Osceola. New, improved products from multiple vendors were needed to control systems such as HVAC, security, lighting, refrigeration and power. We chose to use a Circon system in order to give the customer everything they wanted in a BAS." - **Rick Joyne**r, Vice President of Controls, Jack Joyner Heating and Air Conditioning

THE SOLUTION

The fully integrated, open protocol BAS solution provided by Jack Joyner Heating & Air Conditioning made it possible for Osceola School District to have a seamless and expandable network to control its major facility functions. By integrating some of the existing equipment and utilizing the existing Ethernet as a communication backbone, the school district realizes significant annual energy savings while maintaining and improving overall comfort. The savings will allow the district to replace legacy equipment with Circon open system controllers as well as to expand the system to incorporate other critical facility control applications and products from other, and in some cases competing, manufacturers.

The Circon integrated BAS allows for the selection of best of breed products that are monitored on a single control network. Individual classroom temperature is controlled and monitored through password protected web pages that are incorporated into the network. This allows teachers to control classroom temperature from their desktop for optimal comfort, flexibility and elimination of the likelihood of students tampering with the system. The school board has since established a committee to develop Circon and LonWorks networks as the standard for all schools in their district.

THE DETAILS

HIGHLIGHTS

- Delivered a full featured, open and interoperable Building Automation System
- Implemented individual classroom temperature control with central and web–based control options
- A single LonWorks® network
- Provided a cost effective networked solution
- A flexible and adaptable design

- Circon variable air volume, air handling unit and chiller plant control products
- Provided a control system platform that facilitates future expansion and integration
- Multi–vendor control products
- Web–based control network graphical user interface
- A high level of comfort and functionality

HVAC CONTROLS

→ Integrated existing controllers into the open system
→ Provided efficient energy usage
→ Delivered intelligent monitoring and control

Circon programmable HVAC controllers control the main Air Handling Units and the chiller plants. Circon Terminal Unit VAV controllers control terminal Variable Air Volume units that service each classroom. All HVAC controls are integrated onto a single, distributed network. Jack Joyner Heating and Air Conditioning was able to integrate some of the existing LonWorks compatible Honeywell controllers into the new open system.

SYSTEM MANAGEMENT

→ Built in password protected Web pages for monitoring and control
→ Provided unlimited user access through a Web browser
→ Utilized existing Ethernet backbone

The incorporation of Echelon® Corporation's i.LON® 1000 router/web–server enabled Circon and Honeywell® HVAC controllers to be represented as nodes on the Internet. The built–in Web server allows control information to be accessed easily via a Web browser. The password protection feature provides access to the information and status of each device on the LonWorks network for authorized users working from a Web browser anywhere. By programming the i.LON 1000 to utilize the existing Ethernet backbone, additional underground wiring expenses were avoided.

SYSTEM COMPONENTS

- 62 Circon Programmable HVAC Controllers
- 133 Honeywell Excel 10 VAV Controllers
- 35 ABB LonWorks–enabled Variable Frequency Drives
- Echelon LonPoints

- 152 Circon Terminal Unit VAV Controllers
- 31 Echelon i.LON Web servers
- Raytheon Fiber Optic Modems
- BAPI Sensors

If you would like further information on this case study, Efficient Building Automation Corporation (EBAC), or more on our products and services, please refer to the contact information below.

Telephone: 604.248.4404

Facsimile: 604.248.4405

Email: sales@circon.com

www.circon.com

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