

# CASE STUDY

Amazon.com, Whitestown Indiana USA

Facility Type: Warehouse and office space

Circon System Integrator: Davis Industries, Inc.



## THE CLIENT

Amazon.com, a Fortune 500 company based in Seattle, Washington, is the global leader in e-commerce. Amazon.com's unparalleled growth has created the need for the establishment of multiple distribution centers throughout The United States, and one of those centers was designated to be located in Whitestown, Indiana (northwest of Indianapolis).

## THE CHALLENGE

Amazon.com's commitment to providing work places that are healthy and environmentally responsible led them to seek the Leadership in Energy and Environmental Design (LEED) Gold building certification. LEED is an internationally recognized sustainable building certification system, providing third party verification that a building or community was designed and built using strategies intended to improve performance in metrics such as energy savings, water efficiency, CO<sub>2</sub> emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts. Amazon.com's minimum requirements were to create an environment that is healthy and allows their employees to thrive and be productive, and to construct a facility that is environmentally responsible, sustainable and energy efficient.

## THE SOLUTION

The fully integrated, open protocol BAS solution provided by Davis Industries contributed towards Amazon.com achieving their desired goals through the implementation of a seamless and expandable network to monitor and control its major facility functions. By implementing an energy management interface, strict ventilation control sequences, and motion/daylight sensing for the lighting systems, Amazon.com now realizes significant annual energy savings while maintaining and improving overall comfort.

The Circon integrated BAS allows Davis Industries to select best of breed products that are monitored on a single control network. For this project, Davis Industries implemented Circon controllers for HVAC control, Douglas and Hubbell controllers for office lighting, a hybrid warehouse lighting system developed by Davis Industries themselves, and the Niagara AX powered JACE Web Servers for front-end monitoring and control.

## THE DETAILS

### HIGHLIGHTS

- Delivered a full featured, open and interoperable Automation System
- Implemented latest VAV sequencing strategies for optimized ventilation control
- A single LonWorks® network
- Provided a cost effective networked solution
- A flexible and adaptable design
- Circon variable air volume, air handling unit 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 & LIGHTING CONTROLS

- Outdoor air cfm is monitored at each individual HVAC unit for control strategy
- Individual zones utilize occupancy sensors for both lighting and HVAC control strategies
- Daylight harvesting further reduces lighting loads
- Provided efficient energy usage across both facilities
- Delivered intelligent monitoring and control

For the office spaces, Circon programmable HVAC controllers control the main Air Handling Units, and Circon Terminal Unit VAV controllers, along with Hubbell motion control sensors control the terminal Variable Air Volume units. In the warehouse, Circon HVAC controllers control the make-up air units with automatic ventilation relief provided through space CO<sub>2</sub> and humidity sensors. All warehouse lighting is controlled by a hybrid DDC control system developed by Davis Industries where in lieu of the traditional motion sensor on each fixture, a series of networked motion sensors are installed that allow for changes to the system to be made from the graphical user interface. All HVAC and lighting controls are integrated onto a single, distributed network.

### SYSTEM MANAGEMENT

- Web-based graphical user interface for monitoring and control
- Implemented electrical and gas monitoring for measurement and verification purposes

The Niagara AX JACE Web server allows control information to be accessed easily via a Web browser. The user access with 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.

### SYSTEM COMPONENTS

- Circon Programmable HVAC Controllers
- Honeywell WebsAX Graphical User Interface
- Hubbell LX-Series Lighting Control Products
- Circon Terminal Unit VAV Controllers
- Douglas Daylight Harvesting System
- Davis Industries High-Bay Network Motion Sensor System

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](mailto:sales@circon.com)**

**[www.circon.com](http://www.circon.com)**



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