

Project Profile

The Dormitory Authority of the State of New York— A Showcase for *Infinity* “Smart Building” Integration



“A ‘smart’ or ‘intelligent’ building readily adapts to changes—occupancy, weather, equipment failure, etc.—while continuing to ‘run’ efficiently, safely, and most importantly, invisibly to the people within. The Infinity system allows me the flexibility to modify operational parameters and characteristics to ensure that this building stays comfortable, safe, and secure for our occupants, without physically changing wiring, controls, etc. It also takes human reasoning to make a building ‘intelligent’—you can’t make analytical decisions with relays and switches. Infinity’s Plain English® programming allows me to translate my analytical thinking into powerful decision making. For example, I could not accomplish some of the extensive comparisons that must be made to limit this building’s electrical demand using only switches, relays, and wire. If you think about it, what sets humans apart from other living things is their ability to reason. This same ability to reason is also what sets a building controlled by Infinity apart from the rest of the buildings in this world.”

—Robert McRae
Direct Digital Control Technician at DASNY

The Dormitory Authority of the State of New York (DASNY) provides financing and construction services to public and private universities, not-for-profit healthcare facilities, and other institutions that serve the public good. This organization was created in 1944 by then Governor Thomas Dewey for the purpose of financing and constructing dormitories at 11 State Teachers’ Colleges. Now 50 years later, the DASNY has grown to become the largest government building construction agency and the largest public-authority issuer of tax-exempt bonds in the US. DASNY has three office locations: Delmar, NY; Penn Plaza in New York City; and their new 180,000 square-foot corporate headquarters building in downtown Albany.

Infinity Selected

Andover Representative *Eastern Heating & Cooling*, Albany, New York, installed a small integrated *Infinity* system at the DASNY’s Delmar site in 1995 to control several small roof top units and boilers, and to provide access control on the perimeter doors. *Eastern* then installed a similar system at DASNY’s Penn Plaza site a year later. When the building control system came up for bid for DASNY’s new 6-story headquarters in Albany, *Eastern Heating & Cooling* and Andover Controls *Infinity* were once again selected.

“*Infinity*’s flexibility,” states Robert McRae, Direct Digital Controls Technician at DASNY, “is what won the bid. There isn’t another system out there that allows us to control as many applications. We can make *Infinity*’s software do *anything* . . . just change a few words in the Andover Controls *Plain English*® code and you have the problem solved. You’re limited only by your imagination!” Barry Jones, Building Manager at the Albany site, agrees: “The system previous to Andover was extremely ‘canned’ and we were discouraged from making any programming changes. *Infinity* is so easy to program—if we want to make a scheduling change, it’s not a problem, and getting around in the system is likewise easy to do.”

The Albany headquarters building is a showcase of system integration. *Infinity* is controlling and monitoring HVAC, access, interior and exterior lighting (including street lamps), smoke control, and CCTV for all three sites over an Ethernet TCP/IP network, with a T1 line to Penn Plaza and a modem connection to Delmar. “We are quite proud of the system that we and *Eastern Heating & Cooling* have put together here,” states McRae. “Not only are we saving energy and benefiting economically with *Infinity*, we use this building to show our own customers what a ‘smart building’ is and what they should shoot for.”

Third-Party Drivers Expand Integration Capabilities

Third-party communication interfaces, commonly known as drivers, play an important role in the integrated control scenario in the Albany headquarters. These drivers allow *Infinity*’s network controllers to directly communicate to several third-party systems in

the building, including two Carrier 23XL screw chillers, a Liebert DC-LAN computer room system, an Automation Displays fireman's smoke control panel, and an ADT (Edwards) fire alarm system. The advantages of these drivers to DASNY's facilities staff are numerous—they provide *Infinity* workstation operators a single user interface; fewer training issues and lower training costs; and reduce overall hardware requirements, including the number of workstations needed on the operator's desktop.

The Carrier 23XL *Plain English* driver provides DASNY's operating staff with dynamic information on 70 different points and parameters for each chiller, including compressor motor amps, % load, condenser and evaporator flow proofs, refrigerant temperatures and pressures, oil temperature, and all chiller setpoints. All information is logged for trending purposes and analyzed in the event of an equipment malfunction.

The Liebert DC-LAN *Plain English* driver provides information on the three Liebert air-handling units that serve the computer room, printer room, and telephone room. Information includes space temperatures and humidity levels, unit operating modes (cooling, humidity, heating, etc.), alarm setpoints, and alarm conditions. Again, this information is logged and used for trending, alarming, and troubleshooting purposes.

A third *Plain English* driver, the Automation Displays (Fireman's Smoke Control Station) driver, not only "reads" data from a device, but also "writes" or updates values in the *Infinity* system. The driver reads the switch positions on the FSCS panel and update corresponding points in the *Infinity* CX 9200 network controller. This allows the firemen to override the automatic smoke control operation, if necessary, (i.e., force fans on or off, release smoke hatches, stop/start stairwell pressurization fans, etc.) The driver also reads points from the CX 9200, such as fault conditions, fan proofs, damper positions, etc., and updates corresponding status LEDs on the FSCS panel, which verify for the firemen that the changes they made were actually executed.

A fourth driver, an Andover *Xdriver* to their ADT (Edwards) fire alarm system, is by far the most comprehensive driver used by DASNY. It allows SX 8000 workstation operators to receive up to 9 "conditions", for example, "Normal", "Alert", "Alarm", etc., on nearly 400 fire system devices (smoke detectors, pull stations, power supplies, strobes, fire phones, speakers, etc.). The information is used system-wide to accomplish automatic smoke control, as well as alarming, at the workstations.

After Hours Alarms

Access to 40 exterior, stairwell, and elevator lobby doors in the headquarters building is controlled by *Infinity* ACX 780 access controllers. Currently employees use mag stripe cards, but a changeover to proximity is planned soon. After hours, dual technology motion sensors (microwave and passive infrared) are used throughout the building for intrusion detection. When the last employee swipes out of the building and the occupancy count in the CX 9200 network controller changes to "0", an alarm horn pulses three times as a warning that *Infinity*'s intrusion detection system is about to arm. If there are employees still in the building, they have 10 minutes to swipe their card through a nearby reader to acknowledge their presence to the system; otherwise their movements will set off an alarm.

Any critical alarms occurring after hours, for example, fire alarms, temperature alarms in the computer room, and UPS malfunctions, are automatically sent to key facilities personnel via *Infinity*'s built-in auto dialer/paging feature. Fire and burglar alarms are also automatically sent to a monitoring service.



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PROJECT AT A GLANCE:

Project Type:
 Integrated
 (HVAC, Security, Lighting)

Project Name:
 The Dormitory Authority
 of the State of New York
 (DASNY)

Location:
 Albany, New York

Market Segment:
 Office

Number Of Buildings:
 3 total: Albany, NYC, and Delmar, NY

Total Area:
 180,000 sq ft (16,722m²) (Albany)

Infinity Equipment Installed:
 3 - CX 9200 network controllers
 2 - SX 8000 workstations
 2 - CMX 240s
 16 - SCX 920s
 8 - ACX 780s
 6 - CX 892
 3 - LCX 810
 2 - LCX 800
 2 - TCX 870s
 123 - TCX 866s
 17 - TCX 853s
 4 - TCX 851
 1 - DCX 250
 Approx. 40 *Infinity* Expansion
 Modules

Network:
 TCP/IP Ethernet LAN; T1 line to
 NYC Penn Plaza; modem
 connection to Delmar

Applications:
 Temperature, ventilation, and
 humidity control
 Access control
 Intrusion detection
 CCTV
 Interior and exterior lighting
 control
 Automatic smoke control (UUKL)
 Video badging

Third-party Equipment and/or Drivers:
 Carrier 23XL chiller
 Liebert DC-LAN
 Automation Displays (FSCS)
 ADT (Edwards) fire alarm system
 EPISUITE™ badging package

Number of Controlled Doors:
 47

Number of Cardholders:
 750+

Total System Points:
 2,882 controlled points (I/O);
 5,919 software points

Andover Controls Representative:
 Eastern Heating & Cooling