

## CASE STUDY

BUILDING AUTOMATION CONTRACTORS

## If You Build It, They Will Come!

## 360 Madison Ave Minimizes Utility Costs &amp; Attracts Tenants

The newly built \$65 million office tower, located at 360 Madison Avenue in midtown Manhattan, is a splendid accomplishment in architecture, offering a modern space that is attractive and convenient. Developed and owned by the Madison 45 Co., it has a space inventory comprised of two structures amalgamated into a superb edifice totaling over 355,000 square-feet. The 26-story office building utilizes built-out decorative features to accent its vertical and horizontal mullions. With numerous set-backs that incorporate a balance of aluminum and glass parapets, the design stands out as a fresh new façade in an area of non-descript buildings.

**Designs On Optimal Performance**

To complement the building's bold visual gestalt, moreover, for bottom-line savings, T.E.C. Systems Incorporated was retained to supplement the mechanical systems with high-technology, high-efficiency control parameters to maximize performance and utility savings. Jaros, Baum & Bolles, the Mechanical, Electrical & Plumbing Engineer on the project, had developed a full implementation plan, indicated services required, time frames, and estimated expenses. These evaluations led to the installation of an integrated Honeywell based Building Management System (BMS) to automate the flow and accountability of the work processed by the multiple mechanical operating groups within the facility.

**System Architecture**

The mechanical system features an array of typical floor package air conditioning

(AC) units (Manufactured by McQuay International), exhaust fans, condenser water system, chilled water system, perimeter hot water system, emergency generator fuel oil system, and variable air volume terminal units. The condenser water system consists of a two-cell cooling tower with fans that are furnished with variable frequency drives (VFD) as well as variable speed water pumps. The perimeter hot water system includes two steam-to-hot-water converters and vari-



able speed water pumps equipped with VFDs. The fuel oil system contains a fuel oil tank and a duplex fuel oil transfer.

**Controls Optimization**

The diversity of the mechanical installations necessitated a (BMS) capable of communicating across a multiplicity of proprietary networks. The system would have to account for equipment and envi-

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## Project Team

**Owner & Developer:** Madison 45 Co., NYC

**Architect:** Richard Cook & Associates, Architects, NYC

**General Contractor:** McGovern Pavarini Construction Co., NYC

**Mechanical, Electrical & Plumbing Engineer:** Jaros Baum & Bolles, NYC

**Structural Engineer:** Rosenwasser Grossman Consulting Engineers, NYC

## Key Benefits

Many of the same measures that will maximize 360 Madison's energy performance will also make it a more comfortable place to work. Tenants will benefit from the use of day lighting and non-toxic chemicals, plus better temperature control, ventilation, and indoor air quality. With the high cost of labor, payback on these energy features is shortened even further when savings from reduced absenteeism are combined with energy cost savings.

ronmental monitoring, scheduling and logging, and provide a consistent and positive customer experience. Because of its scalability and adaptive infrastructure, Honeywell's EXCEL 5000® building automation platform emerged as the system of choice. The EXCEL 5000® system is the cornerstone of Honeywell's comprehensive HVAC solutions, which features technology for every element of mechanical system control. It provides a powerful platform for the open integration of a variety of products across a selection of vendors through a single graphical interface.

To manage the functionality of all the components, T.E.C. Systems engineered a direct digital control (DDC) system with pneumatic actuation to interconnect each device to the BMS. To that end, the company provided direct digital control of 30 water-cooled, stand-alone AC units. The company also had the distinct responsibility for installing and commissioning McQuay's Open Protocol Master (OPM) interface panels to work in conjunction with McQuay's Microtech controllers. Programmers and developers from the company coordinated extensively with both Honeywell and McQuay personnel, to work through the needed technical configurations in order to bring the controllers on-line. These components were then made accessible through the BMS via Honeywell's Open Link for McQuay: a communications vehicle that facilitates the interconnectivity of McQuay controllers to the Honeywell platform. Inasmuch, the OPM is an interface module that allows other proprietary networks to communicate with McQuay equipment. The system's Open Links are on a SERIAL network using RS485 communication to convert Microtech data from the OPMs to Honeywell's C-Bus communication language. This conversion lets the system recognize and access the Microtech sub-

systems, allowing facility operators to easily monitor, schedule and access the AC units.

The BMS is monitored from a central location through Honeywell's Excel Building Supervisor (XBS) graphical user interface (GUI). The XBS is a state of the art building automation front-end, with 32 Bit graphic capabilities and modern software programming support, and capable of interfacing with other building systems and provides even more options to supplement the facility's future energy needs. All operator work is done through the GUI, which provides a uniform look and feel to the entire system and will greatly improve productivity of the building operators and man-



agers. This integration allows for real-time information logging, audit trails, data aggregation across all devices, and enables trend reporting and analysis.

### Conclusion

Today, the facility is enjoying an occupancy rate of more than 90 percent, with many of its tenants acknowledging their initial attraction to the building as being its advanced technological and mechanical infrastructure, superior amenities, and the convenient midtown location.

### T.E.C. Systems Incorporated

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**Honeywell**