T.E.C. SYSTEMS INC.

CASE STUDY

BUILDING AUTOMATION CONTRACTORS

300 Madison Avenue

A Distinctive Building For A Distinctive Address

Located in Midtown Manhattan, 300 Madison Avenue, the city's newest architectural masterpiece, consists of more than 1.2 million square-feet of office, trading floor, and retail space. The facility is centrally located on the corners of Madison Avenue and 42nd and 41st Streets. At 35 above-grade stories, the tower includes 25 floors of office space atop an eight-story base that features ground-floor retail space and trading floors. The base sits above two basement levels which offer subway connections, retail, office, and backhouse components. Property development was done by Brookfield Properties Corporation. Prime tenants of the Skidmore, Owings & Merrill-designed tower include the Toronto, Ontario based Canadian Imperial Bank of Commerce (CIBC).

Anatomy of a Masterpiece

T.E.C. Systems was tasked with the design, and installation of a comprehensive, state-of-the-art facility management system to integrate two floors of mechanical equipment, and an accumulation of ancillary components strategically implanted facility-wide. Working with the MEP Engineer (Jaros Baum & Bolles), a solution was resolved to provide a Honeywell EXCEL® 5000 Building Management System, utilizing the Excel-500 family of controls for major equipment rooms and the Excel-10 family of LonWorks based Open-System & Interoperable Controllers for terminal unit controls.

Heating & Cooling

The heating and cooling plants features a network of chillers, boilers, Air Handling Units (AHU's), Constant Air Volume (CAV's) Units, Cooling Towers, Sand Filters, Fan Powered Boxes, and a host of complementary equipment from a variety of manufacturers.

Hot water is generated by shell and tube heat exchangers. A pressure reducing sta-

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Project Team

Owner & Developer: Brookfield Properties Corporation, NY

Architect: Skidmore, Owings & Merrill LLP, NY

MEP Engineer: Jaros Baum & Bolles, NY

Construction Manager: Turner Construction Corporation, NY

Key Benefits

The choice of the Honeywell building technology was made because it offered many benefits such as multi-vendor capabilities, openness and interoperability. Through the integration of components from Honeywell's line of EXCEL® 5000 products, T.E.C. Systems created an efficient building technology concept, providing superior control of the various mechanical systems in the facility and offering the highest level of comfort, reliability, and cost benefits. Honeywell's EXCEL® 5000 system has proven to be the necessary "get smarter" tool that reconciles the paradox of increasing demand for more productive buildings, and increased pressure to reduce costs.

tion produces low pressure steam. Hot water pumps circulate hot water through the heat exchangers and perimeter hot water risers. Hot water or low pressure steam also serves heating coils located in various heating and ventilating air handling units, unit heaters and entrance heaters. The air conditioning systems are all-air variable air volume type. The fan systems are capable of varying from 100% of design air flow down to 20% of design air flow, utilizing variable speed fan motor drives.

T.E.C. Systems utilized independent C-Bus communication risers to support the backbone of the entire system.
One C-Bus is dedicated to basic temperature controls communications requirements of the major HVAC equipment. Two additional C-Buses supports future tenant fan powered boxes, VAV boxes and package unit controllers. The balance, are dedicated smoke control communications buses, which provides the system with a greater speed of response to smoke control issues. On each of the floors requiring future terminal unit controls, both VAV and packaged terminal units are supported via a LonWorks interoperable communications bus that is integrated into the overall Honeywell communications system.

The Excel-500 family of stand-alone DDC controllers supports the mechanical equipment rooms. Each individual system was provided with its' own dedicated stand-alone controller, and enabled to communicate over a C-Bus providing information to the balance of the building as well as the operator terminals.

Where required, the Excel-10 family of stand-alone, LonWorks based controllers were provided to support the addition of future fan powered boxes, CAV boxes, VAV boxes and package units. The utilization of LonWorks enabled devices allows the building to be more flexible in their future choice of unitary controllers.

Smoke Control and Fan/Fire Shutdown

A dedicated C-Bus riser was designed to handle communications between the Smoke Control Panel located on the lobby level and the floor control panels. The floor panels include individual floor control panels for operation of the supply and return fire smoke isolation dampers from those panels. Additionally, T.E.C. Systems provided separate outputs from the DDC controllers to allow fan shutdown after receipt of the required input from the life safety central alarm panel located on the lobby level.

Bringing It All Together

The entire HVAC system is centrally monitored and controlled. This ensures that the comfort level in the premises is maintained at all times. The front-end is based on Honeywell's highly adaptable and scalable SymmetrE™ operator interface architecture. SymmetrE™ is an easy to use, graphics-oriented operator interface. It is designed to meet the sophisticated comfort, monitoring and control needs of large buildings and their owners. At 300 Madison Avenue the operator interface provides global control, serving as a communication link between the operator and the building management panels. T.E.C. Systems furnished the facility with two stationary color graphic operator terminals as well as a portable laptop to allow local capabilities at each control panel.

This system will create tremendous efficiencies for the building's managers and its tenants, an inherent factor in its selection as the "Best of 2003 Award of Merit-Office" recipient by the New York Construction News Magazine.

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