

# CASE STUDY

BUILDING AUTOMATION CONTRACTORS

## The New York Hall of Science

*Exceeding Demands For Optimal Environmental Controls*

The New York Hall of Science is New York City's only museum dedicated to hands-on, interactive science and technology exhibitions and education. Currently approximately 275,000 people come to the Hall each year. Since reopening in 1986, the Hall has brought the excitement and understanding of science and technology to millions of children, families and teachers throughout New York City and its surrounding areas. The Hall continues to grow both in size and visitation. The end of 2004 marked the completion of an \$89 million, 55-000-square-foot upgrade and expansion of the facility, including new permanent exhibitions about the search for life on other planets, an expanded preschool center, and a new food service facility. "Built for the 1964 Worlds Fair, the original Harrison and

Abramovitz building is characterized by a cellular concrete frame structure infilled with dark cobalt-colored, cast-glass. Our design for the expansion of the Hall transforms the institution's identity and redefines the visitor experience by means of exhibit sequence and circulation. The new building is a long, low volume that extends north from and serves as a horizontal counterpoint to the undulating vertical form of the original building."\*

For its new expanded office and exhibition spaces, the Hall wanted to provide optimal comfort levels for dozens of employees and hundreds of daily visitors, as well as increased environmental efficiency. Hall of Science facility managers wanted a state-of-the-art network with controls that would enable the Hall to automate multiple functions from dis-

## Project Team

**Owner & Developer:** The New York Hall of Science, NY

**Architect:** Polshek Partnership, NY

**Construction Manager:** The Department of Design and Construction of the City of New York

**Mechanical, Electrical & Plumbing Engineer:** Flack & Kurtz Inc., NY



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## Key Benefits

- Full integration and automation
- Enhanced operations
- User convenience
- Flexibility for future expansions
- Optimal comfort levels
- Energy and operational savings

parate sources, including heating ventilation and air conditioning (HVAC) and security, to achieve maximum utility effectiveness; transitioning from an existing pneumatic control scheme to a modern day direct-digital-control (DDC) network. The system(s) would have to account for a multiplicity of existing as well as new equipment, including the mechanical and electrical systems supporting the HVAC plant; including the central boiler and chiller plant, 25 air-handling units (AHU), and 41 variable-air-volume (VAV) boxes.

To meet these challenges, Honeywell Authorized Controls Integrator, T.E.C. Systems Inc., working closely with the Mechanical, Electrical and Plumbing Engineering firm, Flack & Kurtz Inc., opted for an interoperable protocol-based solution using open networking technology and products from the LonMark International member. To provide optimal environmental conditions in the offices and exhibition spaces, the LonMark certified Excel 50, as well as the Excel 500 controllers, from Honeywell control the HVAC

system and interoperating via the E & C-Bus communications backbone. These controllers allow for the manual modification of temperature in a particular zone or for the selection of pre-defined settings for a more cost-effective control method. The integration of various components and systems into a compact graphical-user-interface was achieved via

two SymmetrE® Servers, part of Honeywell's EXCEL® 5000 line of control products. The software, based on the LonWorks® standard, provides the Building Management System (BMS) with all information relating to the value of different field devices and network variables through an Ethernet TCP/IP protocol connection. T.E.C. Systems was also successful in the integration of fire/smoke control to the base building fire alarm system for added security. While designing a state-of-the-art control system for the new wing of the facility was straightforward, system benefits will arise from the connection of the existing building systems on one integrated network. The result will be improve efficiency and reduced operating and utility costs over the long term. More so, the



Hall now has a system complementary to future growth at the best possible value. Additionally, the acquisition of this flexible adaptive BMS design that allows for multi-vendor equipment and support further facilitates the potential for the realization of significant energy savings, which will ultimately lead to increased visitor satisfaction. ■

### T.E.C. Systems Incorporated

54-08 Vernon Boulevard, Long Island City, NY 11101

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