



San Diego Natural History Museum



Preserving History. Conserving Resources.

The San Diego Natural History Museum exhibits everything from precious gems to dinosaurs to presentations on the human genome. The facility averages more than 800 daily visitors and has office space for its 80 employees. As a non-profit entity and host to a variety of exhibits that require precise climate control, the museum must make the most of every investment in its heating, ventilation and cooling (HVAC) and building operation systems.

Despite their best efforts to manage the building's strict environmental control needs, building engineer Rusty Gehm said, **“Some days we had to go up on the roof and manually adjust valves to keep the building environment at the appropriate conditions.”**

THE GOALS

- Integrate systems on a common platform
- Efficient precision control in key exhibit areas
- Maximize energy savings
- Improved monitoring, diagnosis and configuration
- Better energy management data

HONEYWELL PRODUCTS INSTALLED

- WEBs-AX building automation software
- WEBs-AX integration controllers
- Spyder® field controllers
- Zio® LCD wall modules
- Honeywell Niagara^{AX} Framework®

THE RESULTS

- Using WEBs-AX enabled the museum to integrate and leverage existing systems
- Energy savings, improved building management, and reduced maintenance costs
- Museum was awarded LEED for Existing Buildings: Operations & Maintenance (LEED-EB: O&M) Certification, established by the U.S. Green Building Council

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Modern Solutions for Historic Results

To regain control and improve system efficiency, the museum's building mechanical engineering provider, Engineered Mechanical Services, brought in Honeywell Authorized Controls Integrator R&R Controls. R&R did a walk through with Controlco, their Honeywell Authorized Systems Distributor, to review the project. R&R then analyzed the museum's current systems and goals, used the latest Honeywell technologies for a cost-effective solution. The museum's goals included not only improving building control, but also achieving the overall energy efficiency needed to gain LEED status.

First Step: Integration

The museum was burdened with various types of control systems that didn't work together, and the controls often didn't work at all. R&R retrofitted all controls with Honeywell controls. Because the Honeywell WEBS-Ax™ system allows seamless integration of multiple protocols including BACnet, Lon, MSTP, IP, Lon and FT10, R&R was able to preserve other HVAC components to reduce costs. The museum regained control of its building systems while also gaining the efficiency of complete integration. Another form of integration also played a key role, as the team utilized Honeywell's demand response control technology to integrate the

museum into California's smart grid. This technology is beneficial for both the building owners and the utility. It dials back energy usage in selected areas of the facility during peak times, allowing building owners to avoid paying peak rates and allowing the utility company to better manage demand.

Combining Precision Control With Energy Savings

The building has essentially five climates," said Gehm. Many of the museum's collections require tight, specific environmental conditions. Others, such as offices and classrooms, provide opportunities for more flexible control. With Honeywell WEBS-Ax controls, the museum can efficiently maintain the precise requirements for exhibits while maximizing energy savings in other areas.

In fact, the improvements in the building's performance helped the museum achieve its goal of LEED certification. It's believed to be the oldest museum in the country and the first in California to achieve LEED recognition. As Tom Reichert of Engineered Mechanical Services notes, "Without the work R&R did in designing and installing an integrated HVAC system based on Honeywell's WEBS-Ax system, we would not have gotten the LEED certification."

Smart Savings on the Smart Grid

The San Diego Natural History Museum is tied to California's expanding smart grid for demand response control. California's smart grid measures usage of building types and dials back energy usage as needed for the grid. WEBS-Ax helps by controlling what parts of the building are affected by demand response. Non-critical areas are impacted while the integrity of the climate-controlled exhibit areas remains unaffected.

"We feel that LEED certification is just the beginning," said Chief Financial Officer and Chief Operating Officer George Brooks-Gonyer. "We're striving for a net zero building." The next phase of planned upgrades includes the addition of Honeywell CO₂ sensors to provide demand control ventilation, allowing for more precise building control as museum occupancy levels change from hour to hour.





Using Web Access to Gain Exhibits

With Honeywell WEBS-AX, Web access to building management systems is most often used for status updates, setting adjustments, trending and reporting. But when the San Diego Natural History Museum had the opportunity to host the Dead Sea Scrolls, Webs-AX was part of the museum's pitch.

"Displaying the Dead Sea Scrolls has very specific temperature and humidity requirements," said Gehm. "Using WEBS-AX, we were able to give the representatives managing the exhibit access to our building management system so that they could verify the precision control available in our facility. They dialed in, performed the verification, and we were able to host the exhibit."

About ACI and ASD

Honeywell Authorized Controls Integrators (ACI) are the highest level of Honeywell contractors, with a minimum of two trained and certified employees on staff to support the complete Honeywell portfolio of commercial building products and services. Honeywell Authorized Systems Distributors (ASD) are trained and knowledgeable on the full range of Honeywell solutions and often work in tandem with ACI contractors to provide commercial building owners with the full depth and breadth of qualified support.

Find out more

For more information, please contact your Honeywell sales representative, call us at **1-800-466-3993** or visit us online at **customer.honeywell.com**.

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