

Case study

Alberici Constructors

Saint Louis, Missouri



Construction firm has the world's greenest building

Alberici Constructors, Inc. is a proud member of the U.S. Green Building Council, and is committed to leadership in building green across all markets of influence. The company uses the Council's Leadership in Energy and Environmental Design (LEED®) rating system to measure performance wherever possible. This commitment is exemplified in the construction of a new headquarters for its parent company, Alberici Corporation. The facility achieved a Platinum Certification, the highest LEED rating, and the greatest number of points awarded for any LEED certified building in the world to date.

Alberici Corporation is a strong, proud company dating back to 1918 when it began as a construction company. Today, Alberici comprises many different construction-related companies around the world. As a leader in green construction, Alberici Constructors employs LEED Accredited Professionals across all roles in the organization. They work with construction management teams to assure the success of LEED by coordinating the building design effort, managing the value engineering effort, overseeing specification development, coordinating submission efforts, and providing an understanding of the certification process.

For its new world headquarters, Alberici sought to convert a 50-year old manufacturing facility into an 112,000-square-foot Class-A office space. Corrigan Company, Alberici's mechanical design/build contractor, hired Johnson Controls to implement an array of products including its Metasys® building management system, and operating strategies to minimize the building's environmental impact.

Following completion of the new headquarters, Alberici formed Vertegy, a consulting firm that provides clients with procurement and construction strategies on green and sustainable building. Formation of the consulting firm was a motivating factor during construction, according to Thomas Taylor, vice president of Alberici Group and





general manager of Vertegy, and project director for the new headquarters. "The project would serve as an excellent learning experience and the building will serve as a living laboratory for Vertegy."

Aiming for platinum

"Achieving a Platinum Certification was our goal from the start, but it was also our intention to achieve more LEED credit points than anyone else had," says Taylor. In the end, 60 of a possible 69 credit points were accumulated in six categories including sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process.

Project highlights include deconstruction and recycling of an office building, which diverted 93 percent of the material from local landfills. The existing manufacturing facility was divided by removing a section of the middle, creating an outdoor courtyard. One side of the building was converted to a two-story, mezzanine-style office space with operable windows and a clerestory glazing system for optimal daylighting. The building's south side received a saw-tooth-shaped brick and glass addition allowing reorientation of the building to a true south exposure. Across the courtyard, the remaining building was converted to a multilevel, indoor parking structure.

Two retention ponds and the extensive use of native plantings eliminate storm water run off and the need for an irrigation system. Walking trails through a restored native wetlands area are

available to employees and visitors. A catchment system collects rainwater from the garage roof. Rainwater is stored in a cistern, treated, and used for sewage conveyance saving nearly 150,000 gallons of water annually.

The building's HVAC system uses a mix of YORK's FlexSys underfloor air distribution system and natural ventilation through the operable windows. A raised floor system throughout the building enables employees to individually control airflow and temperature through floor vents. Also, a 65-kilowatt wind turbine generates up to 20 percent of the building's total energy needs.

Controls, integration are key to building efficiency performance criteria

Performance criteria outlined by Alberici required that the new facility function at 60 percent higher efficiency over baseline. To meet the criteria, Johnson Controls worked closely with Corrigan Company to leverage the flexibility and integration capabilities of its Metasys system to optimize equipment control and building performance, which ultimately resulted in a perfect 10 credit points in the energy optimization category.

"The Metasys system integrates with numerous pieces of equipment and systems throughout the building, from traditional HVAC and mechanical equipment and lighting controls, to

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a full-blown weather station on the roof," says Grant Lanham, facilities manager for Alberici. "By monitoring outside weather conditions, the operable windows can be automatically opened or closed, and air handling equipment staged to optimize performance and minimize energy use."

By integrating the security system with Metasys, lighting and HVAC equipment can be controlled during off-hours based on the work area of an employee entering the building. Integrating the fire alarm system ensures air handling units will be shut down in the event of a fire. By monitoring CO₂ sensors throughout the building, air is exhausted or introduced accordingly, to maintain indoor air quality. Solar panels used in the domestic hot water preheat system are also monitored, and hot water heaters are switched on or off as needed. Monitoring and control points also include a standby generator, wind turbine and the rainwater catchment systems.

"Metasys allows us to monitor all the subsystems, track energy usage, and determine how much each system is really saving us. The data collection helps us appropriately adjust building schedules, enabling us to become even more energy efficient over time," says Lanham. "The higher the required performance of a building, the more integral building management systems are to a project," says Taylor. "Tying all of the systems and equipment together and making them function efficiently comes back to the innovation and integration capabilities of Johnson Controls."

For Taylor, support of the LEED movement doesn't end after certification. "It is very important to us to be able to hold ourselves accountable to what we've accomplished. This means continually measuring, verifying and enhancing the performance of our building," states Taylor. "The Metasys system also plays a major role in this process."



S. Richard Fedrizzi, President, CEO & Founding Chairman of the U.S. Green Building Council, presents the LEED Platinum award to Thomas Taylor, Vice President of Alberici Group and General Manager of Vertegy.



