



HOUSTON CONDOMINIUM COMPLEX

Overview:

Built in 1981, this Houston-based condominium complex consists of three high-rise towers overlooking a local park. Each tower contains 22 floors, featuring 100 residences and penthouses. The complex also features a large fitness center, private meeting rooms and other common areas.

The HVAC equipment serving the common areas of the complex was original to the building and featured two, 450-ton chillers with onboard controls. The units were designed to work in tandem if necessary, but also independently to provide redundancy, should one of the units fail or require service. Rather than experience a forced outage and associated emergency repair costs, building management elected to update the system. One of the main project goals was to increase the efficiency of the system to improve energy savings. The second goal was to significantly improve system monitoring and control, albeit cost-effectively.

Toward the start of the update project, Daikin Applied's Service/Sales Representative, Steven Walker, reached out to the Houston condominium complex's facilities manager. The purpose of the call was to discuss potential service and maintenance programs and to check on the project to provide any needed assistance. During the discussion, Walker learned about the the facilities manager's interest in remote monitoring and control. The legacy system could not be accessed remotely—and chillers require some degree of monitoring. With more frequent alarms and other developments occurring with the legacy system, the facilities manager was having to return to the facilities at all hours—sometimes returning for routine issues that could have been diagnosed and solved remotely.

**LOCATION:**

A Houston-based
condominium complex

Houston, TX, USA

**AREA SERVED:**

250,000 square feet

**CHALLENGE:**

Replace aging HVAC
infrastructure and modernize
control and communication

**SOLUTION:**

Magnitude® Model WME
and WMC magnetic-bearing
centrifugal chillers and
SiteLine™ Building Controls
featuring real-time control,
performance data and analysis

DAIKIN REPLACES 40-YEAR-OLD HVAC SYSTEM WHILE SAVING BUILDING OWNERS \$40,000 IN CONTROL PROGRAMMING COSTS



Overview (cont.):

Walker also learned that the proposed control system offered by a competitor consisted of an “overlay” that required significant programming to interface with the chillers, pumps, and other equipment. While the proposed overlay could yield similar efficiencies and offered remote monitoring, the programming costs were exorbitant. Further, the programming time would delay the project.

Solution:

Working with a local Daikin Applied supplier and installer, a recommendation was made for a Daikin Magnitude® 450-ton magnetic-bearing WME chiller as the primary chiller solution. Magnetic bearing technology eliminates oil, mechanical seals, wear surfaces, and gears for longer machine life and increased reliability. Plus, with direct drive technology and integral variable-frequency drives, the Magnitude chiller can ramp up and down based on cooling demand rather than operate at a constant rate. As a result, the machine is up to 40 percent more efficient than a standard centrifugal chiller. Further, the Magnitude chiller operates quietly and reliably, which is ideal for a residential complex. A second chiller, a 380-ton Magnitude WMC, completes the solution. It offers sufficient redundancy but also helps with the turn-down ratio — lowering demand levels and delivering additional energy savings.

To facilitate and optimize chiller control, Walker recommended a state-of-the-art controls platform, Daikin SiteLine™ Building Controls. It is a pre-configured system that leverages remote communication technologies as well as the latest techniques for running the chillers and accessory equipment at the lowest energy consumption rate possible. More important to the Houston condominium complex’s facilities manager, it is now possible to monitor and control the system remotely. As a result, they save the condominium complex money while providing stable comfort for the residents. SiteLine Building Controls provides quick status system views, trend information, setpoints, etc. and the facilities manager can also respond to any alarms remotely, without the need to always be on site.

The SiteLine platform is pre-configured to work with the Magnitude chiller line and other Daikin HVAC solutions. It is approachable and easy to use for people without a background in controls. At start up, programming for SiteLine was a snap. All the fields were pre-populated and access to system control was virtually immediate. The real benefit to the facilities manager, however, was avoiding the weeks of programming costs associated with the control system offered by the competitor. SiteLine Building Controls helped make building management quick and efficient while optimizing the Houston condominium complex’s resources.

Outcome:

The total solution was completed during the winter months, when demand for cooling was at a minimum. The system is working extremely well, especially given the new equipment precludes the frequent maintenance required by the 40-year-old legacy system. Further, the facilities manager can access the system remotely to monitor, diagnose and resolve issues that could otherwise inconvenience residents with lapses in comfort. The Houston condominium complex’s management is extremely pleased with the solution, but also the turnkey project management offered by Daikin Services, which provides installation, testing, start-up and after-sales support.

