



OPTIMUM INSTALLATIONS

AVENTINE



REDUCE COSTS, EARN LEED®

In late 2007, Glenborough, LLC, owner of the 250,000 sq. ft. Aventine complex located in the heart of La Jolla, Calif., was on a mission to lower its operating costs and reduce its environmental footprint. Glenborough was also interested in submitting the Aventine, a landmark development designed by Michael Graves & Associates, for Leadership in Energy and Environmental Design (LEED®) certification.

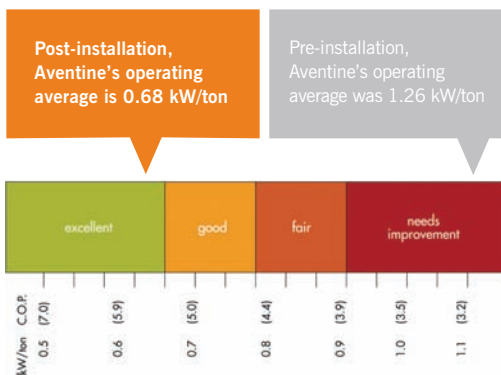
A feasibility study revealed that upgrading to an all-variable-speed chiller plant with OptimumHVAC™

optimization software, while keeping the existing two McQuay® centrifugal chillers, would result in the greatest energy savings with minimal capital investment. With a projected ROI of less than three years, the decision was made to convert the facility's centrifugal chiller plant to a primary-only, all-variable speed system, and retrofit the 2 x 300 ton chillers with oil-less VFD centrifugal compressors.

In just a few months the chiller plant retrofit and OptimumHVAC installation and tuning were completed, and by early 2008, the chiller plant system performance improved and the Aventine was saving energy.

OPTIMUMHVAC PERFORMANCE CHART

The OptimumHVAC kW/ton performance chart helps determine the operational efficiency of existing chiller plants.

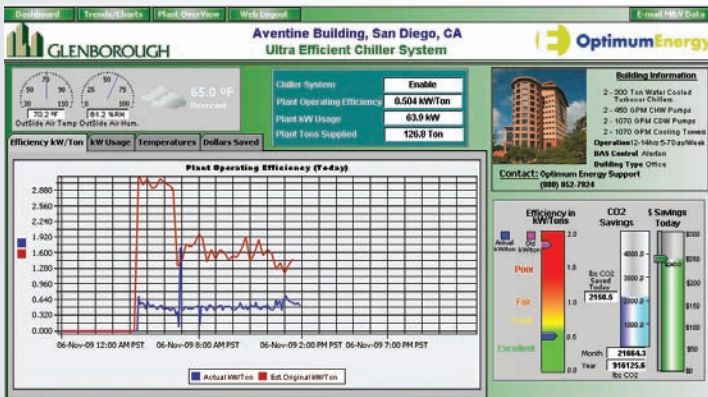


GOING FOR PLATINUM: 100 ENERGY STAR® RATING

In its bid for LEED certification, the Aventine was focused on increasing its ENERGY STAR® rating to earn the maximum number of points for LEED for Existing Buildings: Operations & Maintenance *Energy & Atmosphere (EA) Credit 1, Optimize Energy Efficiency Performance*. As a result of the HVAC plant retrofit and use of OptimumHVAC software, Aventine earned an ENERGY STAR rating of 100 in 2008, a 15 point increase from its rating of 85 in 2007. An ENERGY STAR rating of 100 qualifies the Aventine to receive all the available points for *EA Credit 1*.

“ACHIEVING AN ENERGY STAR RATING OF 100 IS UNPRECEDENTED FOR A 20-PLUS YEAR OLD BUILDING. INSTALLATION OF OptimumHVAC IS SAVING US MONEY AND BETTER POSITIONING THE AVENTINE IN ITS PURSUIT OF LEED PLATINUM CERTIFICATION.”

— CARLOS SANTAMARIA, DIRECTOR OF ENGINEERING FOR GLENBOROUGH



OptimumHVAC/Performance Assurance Monitoring shows real time energy efficiency usage levels, daily and monthly dollars saved, and CO₂ reduction levels and is accessible to both technical staff and Optimum Energy engineers.

The Aventine is registered for a previous version of LEED, so the maximum number of EA Credit 1 points is 15. In the latest version of LEED for Existing Buildings: Operations & Maintenance, it's possible to achieve up to 18 EA Credit 1 points.

In addition, information available via OptimumHVAC Performance Assurance about the facility's HVAC system performance can contribute to the Aventine's achievement of additional LEED points for investigation and analysis, implementation and ongoing commissioning, as well as emissions reduction reporting.

RESULTS WORTH REGISTERING

In the first year with OptimumHVAC, the Aventine:

- Saved 500,000 kWh of electricity
- Cut operating expenses by more than \$80,000
- Decreased carbon emissions by 600,000 lbs.
- Improved wire to water kW/ton 45%, down to 0.68 kW/ton from 1.26 kW/ton
- Received a utility rebate of \$105,000

Optimum Energy Motto:

Do Good. Do Well. And Prove It.

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In addition, energy savings resulting from the use of OptimumHVAC assisted the Aventine building in increasing its ENERGY STAR rating to 100.

ABOUT OPTIMUM ENERGY

Optimum Energy's reliable, Ultra High Performance HVAC optimization software applications are guaranteed to reduce energy consumption and operating costs with no impact on occupant comfort. OptimumHVAC is based on patented Hartman Technologies, and is designed to improve operating efficiencies in centrifugal chilled water plants and variable air volume air handler systems by 30 to 60 percent.

OptimumHVAC is delivered in a multi-protocol appliance that easily integrates with all Building Automation Systems and can be installed by any licensed mechanical or controls contractor. OptimumHVAC tracks building performance remotely and measures and verifies equipment performance and savings on both a real-time and historical basis via OptimumHVAC Performance Assurance.



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