CASE STUDY

3 Hutton Centre Drive Central Plant Retrofit, SANTA ANA, CA

COMMERCIAL

OFFICE BUILDINGS/REAL ESTATE

OPERATING COMPANY:
EMCOR Services
Mesa Energy Systems

CLIENT:
CB Richard Ellis

MECHANICAL CONTRACTOR:
EMCOR Services
Mesa Energy Systems

PROJECT DURATION:
July 2008 thru February 2009

CONTRACT AMOUNT:
$1.1 million

VALUE DELIVERED

Improved facility comfort and productivity; more reliable building systems; expert project oversight; efficient removal of old equipment; non-disruptive operation; provision of more modern and advanced facilities automation; greater energy efficiency; better system control. Installation of the new, energy efficient systems garnered a $83,438 rebate from Southern California Edison (SCE).

OBJECTIVES

To upgrade its central plant to meet new and improved standards.

SOLUTIONS

This client chose EMCOR Services Mesa Energy Systems because of its extensive experience in performing air conditioning retrofits and its ability to deliver the project on a turnkey basis, ensuring consistently high levels of quality, precision, and professionalism. The project focused on the client's central plant, which Mesa upgraded to a new, more reliable, and energy efficient plant.

EMCOR's work began with the development of complete mechanical, electrical, and structural engineering drawings, which were reviewed by the owner and the city to ensure the customer's goals and code compliance requirements were met. The company created a construction schedule, including equipment lead-times and system downtime.

TECHNICAL SOLUTIONS
Relationships
Quality Service
VALUE ENGINEERING
Experience
Project Schedule & Coordination
EXPERTISE

- ☐ New Construction
- ☑ Retrofit
- ☐ Electrical Construction
- ☐ Mechanical Construction
- ☐ Facilities Services
- ☐ Consulting Services

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SOLUTIONS continued

But while EMCOR's goal was to build up, it started by tearing down, since the existing equipment had to be decommissioned and removed. This equipment included centrifugal and reciprocating chillers, chilled and condenser water pumps, and a tenant loop cooling tower. The company removed a wall section of the penthouse, so it could rig old and new equipment in and out of the chiller room. The wall was replaced with steel double access doors. Mesa Energy installed structural and seismic supports and modified the existing concrete pads to accommodate the new chillers.

At the height of the project, Mesa Energy also managed the crane services, which the company conveniently scheduled overnight on a Friday and into Saturday morning, when both local traffic and tenant occupancy were minimal. The services included removal of the equipment listed above and setting of the new equipment on the roof for rigging into place.

EMCOR then installed two new 285-ton chillers, two new 20-horsepower chilled water pumps, and two new 20-horsepower condenser water pumps, and a tenant loop cooling tower, all with VFDs and two-contactor bypass assemblies. The airside built-up vane axial fans were retrofitted with two 150-horsepower and two 50-horsepower VFDs on the supply and return fan motors, respectively. The chiller room received a new ASHRAE 15 monitoring and ventilation system.

The water side of the system was optimized with Optimum Loop Technology as part of a primary variable flow system that enables significant client energy and cost savings. The company put in all required piping, fittings, pumps, valves, and pipe insulation. The new central plant is operating on an annualized average at .5kW per ton as opposed to the old central plant that operated at an average of 1.1 kW per ton. This is due to the Optimum Loop Control Strategy combined with the improved efficiency of the new equipment. This efficient performance is maintained because the Optimum Loop Control System provides ongoing monitoring and commissioning and alerts the operator when parameters are manually changed or if there are mechanical issues in any of the components. Mesa Energy also brought the central plant in compliance with mechanical code through installation of a refrigerant leak detection and management system.

To power the new central plant in accordance with the national electrical code, the company modified the existing motor control center (MCC) as necessary with new power circuits, breakers, and service disconnects.

In addition, the company upgraded the direct digital controls, and made other adjustments and tie-ins to meet the needs of the new equipment.

Finally, Mesa Energy managed the startup and commissioning process, including delivery of all submittals, start-up reports, warranties, and operation manuals, as well as customer operational and maintenance training.

The result was complete end-to-end delivery of a mechanical/electrical/controls solution designed to provide the client with energy-efficient, high-performance operation and long-lasting value.

BACKGROUND

Three Hutton Centre is a "class A" office tower. Featuring outstanding views of the central lake, it is conveniently located adjacent to numerous retail, restaurant, and hotel amenities, including South Coast Plaza and the Orange County/John Wayne Airport.

EMCOR® Services
Mesa Energy Systems