



## CASE STUDY

### 19000 MacArthur Boulevard, IRVINE, CA



#### COMMERCIAL

#### OFFICE BUILDINGS/REAL ESTATE

**OPERATING COMPANY:**

EMCOR Services  
Mesa Energy Systems

**CLIENT:**

LBA Realty

**MECHANICAL CONTRACTOR:**

EMCOR Services  
Mesa Energy Systems

**PROJECT DURATION:**

February 2006 – May 2006

**CONTRACT AMOUNT:**

\$325,000.00

**TECHNICAL SOLUTIONS**

Relationships

Quality Service

VALUE ENGINEERING

Experience

Project Schedule & Coordination

EXPERTISE

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

### VALUE DELIVERED

Increased air conditioning capacity; greater reliability; significant energy savings over reciprocating water-cooled compressor technologies; reduced noise and vibration; flexibility to operate at capacity levels ranging from 20 to 500 tons; elimination of virtually all efficiency-robbing oil contamination, as well as the maintenance and other issues associated with oil heaters, pumps, separators, filters and disposal; more efficient energy system monitoring and control; improved property marketability; an early return on owner's investment.

### OBJECTIVES

To upgrade the air conditioning system in a nine-story, 154,530-square-foot office building.

### SOLUTIONS

Tired of dealing with the high maintenance and other costs associated with an inefficient and unreliable air conditioning system, the client turned to Mesa for help. After performing some intermediate measures and significantly reducing maintenance costs, Mesa's engineers felt further improvements could be made by replacing the existing compressors with leading-edge Turbocor high-efficiency, oil-free units. The client accepted the proposal and authorized Mesa to install the new equipment.

Drawing on its extensive Turbocor experience, Mesa soon had the new units up and running. To further optimize operations, the company rebuilt the existing vane axial fans and installed variable speed drives with high-efficiency supply fan motors. In addition, the firm upgraded the control system to meet the new equipment's requirements, enabling the building engineer to monitor and adjust operations directly from his office.



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## SOLUTIONS continued

During the installation, Mesa worked on one of the building's three circuits at a time. The company began by installing, testing and running the third circuit until it was operating without problems. The firm then moved on to the next circuit and went through the same process before doing the last one. This approach was possible because, rather than performing the work over a weekend, the company did it during the cooler months, when the building's air conditioning systems weren't at full capacity. As a result, the client had two circuits running at all times, enabling a much smoother transition with no downtime.

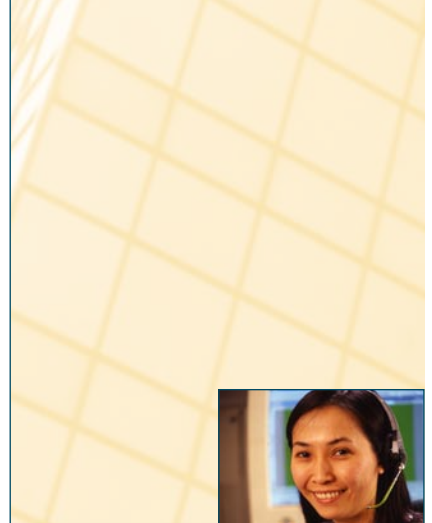
It quickly became apparent that the Turbocor compressors offered a range of significant benefits. While the new devices boosted previous overall system performance to a full 500 tons of capacity, they also provided the flexibility to operate at loads as low as 20 tons, thanks to the integrated variable speed drive. This ability to operate at lower tonnages is especially valuable after hours. For example, at times when the previous compressor's capacity would have necessitated operating a minimum of three floors, Turbocor's low-load capability enables it to run as few as one of those floors if that is all that requires air conditioning.

In addition, these compressors weigh 80 percent less than traditional compressors and require only half the space. At an operating sound level of 70 dBA at five feet, the devices are so quiet that, given typical equipment background noise, tenants literally can't hear them running. Furthermore, the gearless design, along with rotor shafts and impellers that float on a magnetic cushion, virtually eliminates future maintenance. And on start up, this equipment draws less than two amperes, far less than the 500 to 600 amps pulled by conventional compressors with across-the-line starters.

After a rebate of approximately \$66,000 from Southern California Edison, which the system earned for its outstanding energy efficiency, the client recouped the project's cost in a little less than 2.5 years. At the same time, the customer reduced energy consumption by more than 478,000 kWh, which resulted in annual energy consumption savings of nearly \$96,000. And while reducing its costs, the customer also got a much more reliable system, a more environmentally-friendly and sustainable solution, and happier tenants.

## BACKGROUND

LBA Realty is a full service real estate investment and management company. CM Stratplan is the building owner, and relies on LBA as its property manager. With its corporate office in Irvine and regional offices in Los Angeles, San Diego, San Francisco, Denver, Phoenix and Seattle, LBA has established itself as one of the leading real estate investment companies in Western United States.



*Mesa Energy Systems is a licensed full-service HVAC, building automation, and retrofit contractor with a reputation for combining high-quality consulting services with efficient, cost-effective customized energy solutions.*