

# Greenheck Project Profile

## Amran Cement Factory

Amran, Yemen

- **Mechanical Engineer and Contractor:**

Industrial Construction and Engineering Co.  
Cairo, Egypt

- **Greenheck Representative:**

Al-Rashed Trading Centre  
Sana'a, Yemen



### The Challenge

- **Provide nearly 1,000,000 cfm of reliable circulated cooling air to prevent generators in a massive generator room from shutting down.**

- **Install an energy-efficient ventilation system that minimizes sound levels.**

Due to increased demand for cement, the Government of Yemen decided to triple the annual production volume of the

Amran Cement Factory located 48 km north of Yemen's capital city of Sana'a. The expanded plant was completed in December of 2005 and now has an annual production capacity of 1.5 million metric tons.

When looking for reliable ventilation equipment to meet specifications for air circulation in the building's new generator facility, project managers wanted a product that would maximize airflow efficiency,

while minimizing sound. Four generators (each creating 2.8 megawatts of power for a total of 11.2 megawatts) operate 12-16 hours per day and require a large amount of ventilation required to keep them cool. Sound levels from the generators are already high, so it was critical that the ventilation system operate as quietly as possible to maintain a safe working environment for employees.

### The Solution

- **Eight Greenheck Industrial Vane Axial Fans Model VABS-72**

Eight massive Greenheck Vane Axial Fans (Model VABS) with diameters of 72 inches were selected to produce and

direct up to one million cfm of crucial airflow to maintain optimum operating temperatures in the plant's generator room. The fans include standard air straightening vanes that create laminar flow in the air stream,

requiring less power to operate than similar fans without airflow alignment. The Greenheck vane axial products also include precisely manufactured fan casings with exact roundness to ensure uniform blade tip

# Greenheck's Solution

clearance and maximum performance. Heavy gauge steel fabricated with continuously welded seams ensure a rigid body to withstand the heavy duty industrial application. To fully protect interior components from industrial dust and sand abrasion that typically occurs in the desert climate, all models feature a baked polyester urethane powder coating applied over a phosphatized surface and prime coat.

Greenheck's patented Sound Trap housing, a standard feature on these units, effectively lowers radiant sound power in each of the eight octave bands. A perforated steel inner liner directs sound waves into sound absorbing material between the inner liner and solid steel outer shell converting acoustical energy to heat. The Sound Trap housing is much more

effective and more compact than conventional bolt-on acoustic silencers which add considerable length to the unit and take up precious floor space. Bolt-on silencers also tend to reduce air-performance by adding static pressure to the system. No additional pressure drop was experienced using the Greenheck Sound Trap housing.



*Above - Greenheck's Sound Trap housing effectively lowers radiant sound power in each of the eight octave bands.*

*Left - Eight Greenheck vane axial fans, Model VABS were provided. Each has a 72-inch diameter and together produces up to one million cfm of airflow.*

## The Results

- Mr. Hani Rashed, project estimator from the Al-Rashed Trading Centre, said standard features such as air straightening vanes and the built-in Sound Trap housing made Greenheck an ideal choice for this application.

"These fans also were chosen because Greenheck is a well known company," said Mr. Rashed. "In addition, the owner preferred to deal with a local representative for after sale service."

Engineer Adel (senior electrical engineer, Industrial Construction and Energy Co.) is pleased as well. "The fans used are very powerful," he said, "while operating in acceptable sound levels".

