

# Greenheck Project Profile

## Kalele Kai Condominium

- **Mechanical Designer and Energy Consultant:**

The Alexander Group  
Honolulu, Hawaii

- **Greenheck Representative:**

Norman S. Wright  
Mechanical Equipment  
Waipahu, Hawaii



*Kalele Kai six-story condominiums consist of three buildings and 219 units in beautiful Honolulu, Hawaii.*



## The Challenge

- **Reduce energy costs by upgrading rooftop ventilation system.**
- **Meet the minimum requirements for payback and energy savings outlined by the local electric company to qualify for rebates.**
- **Provide an easy-to-install system so that condo maintenance staff can provide all the labor.**

In June of 2008, Alex Dean, an energy consultant for the board of directors of the Kalele Kai Condominium in Honolulu, approached Norman S. Wright Mechanical hoping to upgrade their current rooftop fans to more energy efficient models. Due to the age of the existing centrifugal roof exhaust fans, they provided no adjustability and were consuming a lot of energy. Dean hoped to

find a more energy efficient solution that would help the condominiums qualify for rebates offered by the local electric company. In August of 2008, Greenheck provided three Model G test fans with Vari-Green motors and sent a team to install the fans for energy and air performance comparison. The remainder of the fans for the six-story condo were installed in early 2009.

# Greenheck's Solution

- **41 Centrifugal roof exhaust fans (Models G-101-VG and G-121-VG fans with ¼ hp Vari-Green motors, and Models G-131-VG with ½ hp Vari-Green motors)**

The main challenge of this project was providing fans that could meet the strict energy savings requirements of the local electric company for the Demand Side Energy rebate program. Greenheck's centrifugal roof exhaust fans (Model G with Vari-Green motors) provided the required energy savings. The low maintenance, direct drive Vari-Green motor, available only on Greenheck fans, can operate at 80% turndown of full speed compared to 30% turndown for industry standard PSC motors.

Its built-in speed controller allows the installed fans to be quickly and easily adjusted to the specific airflow requirements reducing cooling costs. The Vari-Green motor's energy efficiency ranges from 20-60% higher than its PSC counterpart providing

for additional savings in energy consumption. Each fan also came with a specially designed adaptor to fit the existing building curb so the condo's maintenance crew could easily install the new fans.



## The Results

- All 41 fans have been replaced on Building 3 of the Kalele Kai condominium facility. The fans were all shipped on time and easily installed by the condo facility maintenance crew.

The condominium board's consultant, Alex Dean, president of The Alexander Group, Inc., performed an energy study on the building and determined that the new Greenheck fans with Vari-Green motors have reduced the energy consumption of the

fans from 129,000 KWH per year to 39,000 KWH per year. At the Hawaii energy rate of \$0.19 per KWH, this results in a savings of \$17,100 per year. *(Subsequent monitoring by the local electric company has confirmed this.)*

On top of the energy savings enjoyed each year, the exhaust rates in each condo have been adjusted to the appropriate levels which reduced the amount of conditioned air being exhausted. The Greenheck

fans with Vari-Green motors resulted in savings from energy, reduced air conditioning, and as a bonus, run cooler and quieter, decreasing the noise in the condo and increasing the life of the motors. "The board of directors is extremely pleased," says Dean. They loved how easy the fans are to install and maintain and are planning to upgrade the ventilation systems on two other buildings in the near future."

