

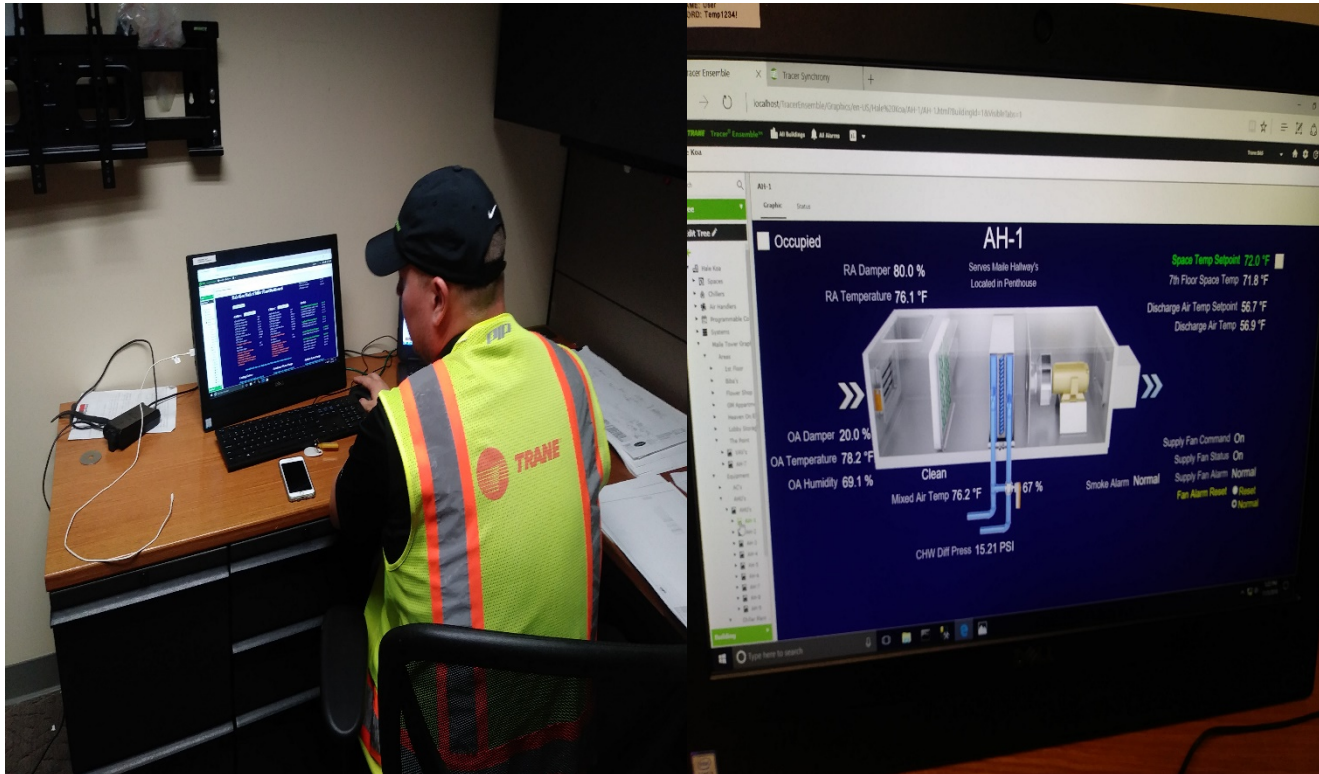


2018/2019 Hawaii Green Business Program

Hale Koa Hotel

2018 Hawaii Green Business Awardee

Building Automated System/Utility Monitoring Control System



BacNet Open Protocol/Non Proprietary Energy Management System (EMS) provides energy efficiency through monitoring/controlling:

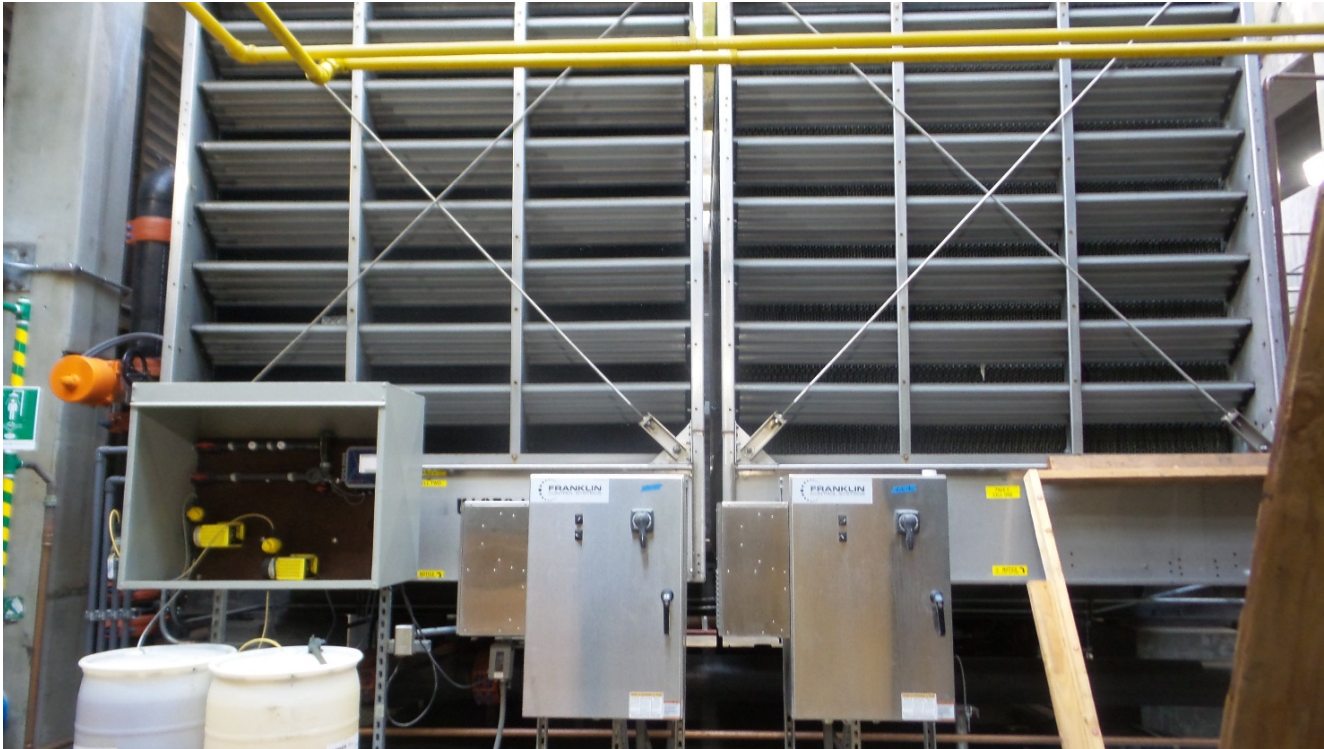
- Lighting
- Air Handling Units
- Fan Coil Units
- Cooling Towers
- Steam Plant
- Hot Water System
- Fire Pump
- Chillers
- Sub Metering



Hale Koa Hotel

2018 Hawaii Green Business Awardee

Cooling Towers Installation



- Renovation of the Maile Tower included the cooling tower replacement with (2) BAC Cooling Towers that comply with the energy efficiency requirements established by ASHRAE, Standard 90.1-2013
- The cooling towers are connected to the new Building EMS for monitoring electric energy use, make up water and efficiency through the new VFD's.

Hale Koa Hotel

2018 Hawaii Green Business Awardee

Maile Tower Chillers

CH-1 and 2: Carrier 400 Ton Water Cooled Rotary Screw Liquid Chiller with Unit Mounted Variable Frequency Drive (VFD)



- Carrier Model 23XRV4242NRVR451 with unit mounted liquid refrigerant cooled.
- Unique Chiller to Hawaii that allows incoming condenser water upwards of 100 degrees.
- Uses environmentally preferred HFC-134a refrigerant
- The HKH earned an approximate \$45/ton Hawaii Energy Incentive rebate for each of the 2 new chillers installed



Hale Koa Hotel

2018 Hawaii Green Business Awardee

New Air Handler Units Maile Tower

- New Guest room fan coil units
- New Rooftop Air Handling Units
- Replaced approximately 5000 vertical LF of CW pipe insulation.
- Replaced approximately 600 horizontal LF of CW pipe insulation



Hale Koa Hotel

2018 Hawaii Green Business Awardee

INNCOM E7-Series DDC Programmable Thermostats



- The ongoing installation of INNCOM E7-Series Smart Digital Thermostats in the 396 units at the Maile Tower Renovation Project provides the HKH with energy conservation capability of up to 35% based on occupancy using programmable, direct digital control (DDC) technology
- Integrated with Ving RFID Door Locks and Opera PMS System



Hale Koa Hotel

2018 Hawaii Green Business Awardee

New Boilers and Heat Pumps Maile Tower



- New Ultra High Efficiency Boilers
- New Energy Saving Heat Pump
- New Hot Water Tanks, Tanks and Pipe
- Insulation
- New Condenser and Chilled Water Pumps
- New VFD's.

Hale Koa Hotel

2018 Hawaii Green Business Awardee

Loading Dock High Bay LED Lighting



- Installation of (19) CREE multi-level white acrylic drop bottom lens LED light fixtures in loading dock area to replace existing sodium vapor bulbs
- Estimated yearly energy savings of \$5900
- Estimated total energy savings of \$88,500 over the 15-year life of bulbs
- HKH will receive a Hawaii Energy Incentive Rebate for this project



Hale Koa Hotel

2018 Hawaii Green Business Awardee

Motion Sensor LED Lighting at Ilima Tower Mechanical Room



- Installation of multi level motion sensor LED light fixtures in various Ilima Tower Mechanical Rooms to replace existing fluorescent

Hale Koa Hotel

2018 Hawaii Green Business Awardee

Motion Sensor LED Lighting Ilima Tower Stairwell



- Installation of motion sensor LED light fixtures in Ilima Tower Stairwells.
- Fixtures utilize wireless sensor grouping to light landings as traffic moves



Hale Koa Hotel

2018 Hawaii Green Business Awardee

New Televisions LED/Energy Star Rated



- LG 55" 55UV670H Televisions with max 1.4amp draw and additional energy saving features.
- Previous Televisions were 40" with double the amp draw



Hale Koa Hotel

2018 Hawaii Green Business Awardee

Low Flow Plumbing Fixtures at Maile Tower Renovation



- Kohler WELLWORTH Water Closet (WC) w/dual flush high efficiency tank 1.6/1.1 gallon flush
- Low flow 1.1 gallon flush provides potential to save 4000 gallons per WC per year, providing a potential of 1,584,000 gallons annual water savings in the Maile Tower
- Kohler AWAKEN Showerhead and Faucet 2.0 GPM
- Low flow 2.0 GPM flow rate uses up to 20 % less water than standard 2.5 GPM fixture

Hale Koa Hotel

2018 Hawaii Green Business Awardee

WaterSense Labeled Pre-Rinse Spray Valve in Kitchens



- Installed WaterSense labeled Pre-Rinse Spray Valves provided by the Board of Water Supply in the kitchens.
- Each Pre-Rinse Spray Valve can potentially reduce water usage of up to 7000 gallons per year
- Dish Washer Sprayer Nozzles.

Hale Koa Hotel

2018 Hawaii Green Business Awardee

Roof Upgrades



- Maile Tower Roof Reflective Coating
- New Ilima Tower Roof and sub roofs.
Insulation Value of R-20 meeting IEEC and ASHRAE 90.1
- 40K sq. ft. of upper roofs.
- 64K sq. ft. of lower roofs.



Hale Koa Hotel

2018 Hawaii Green Business Awardee

Barefoot Bar

- Constructed Barefoot Bar with locally sourced materials
- Utilized energy efficient appliances.



Hale Koa Hotel

2018 Hawaii Green Business Awardee

Window Tinting

- Tinting of all Maile Tower vertical windows and elevator shaft glass. Total Solar Energy Rejection of 82%, reducing glare, UV exposure and unwanted heat



Hale Koa Hotel

2018 Hawaii Green Business Awardee

LED Lighting in Maile Corridors



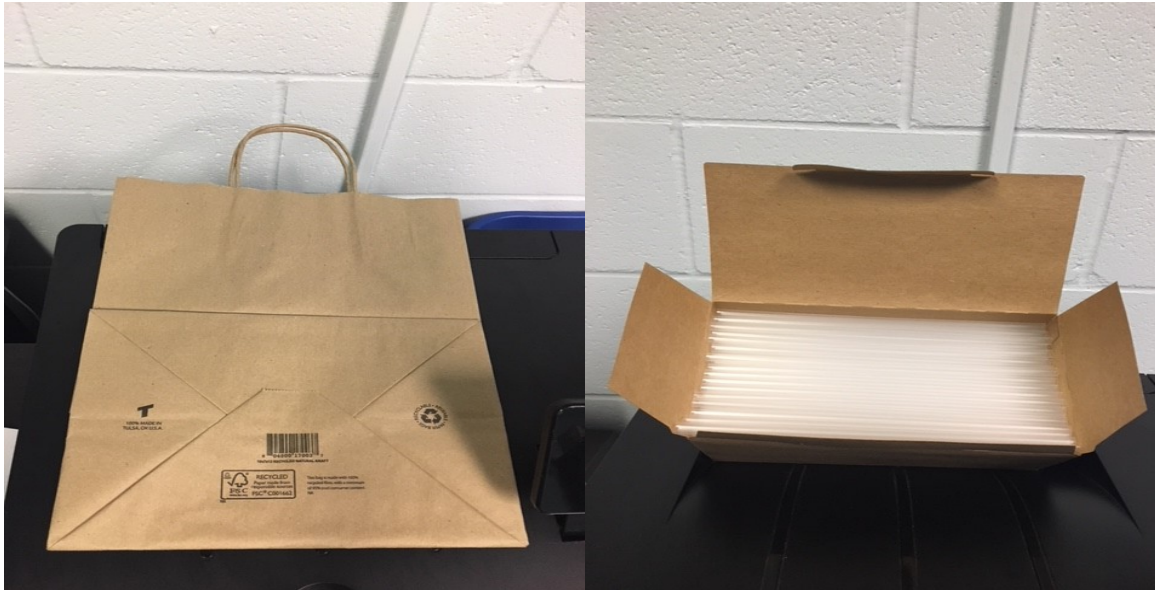
- Installation of new LED Lighting fixtures in all Maile Tower Corridors to replace CFL.
- Occupancy Sensors in Guest Rooms



Hale Koa Hotel

2018 Hawaii Green Business Awardee

Ongoing Food and Beverage Initiatives



- Recyclable straws and to go bags.
- Transitioning to “Straws at request only”
- Transitioning to Bottle Filler Water Fountains. Two more planned at the pool and Barefoot Bar to eliminate plastic cups.



Hale Koa Hotel

2018 Hawaii Green Business Awardee

Upcoming Projects

- Ilima Tower Guest Room Refresh
- Ilima Tower HW Heater Replacements
- New HVAC/Refrigeration Equipment for Biba's, Koko's and Warriors F&B Outlets.
- Ilima Tower Guest Room Thermostats (E7)
- Elevator Modernization

Active Projects

- Aquatics Complex
- Ilima Tower Boiler Room
- Various AHU's
- Building Envelope Sealing
- Switchgear and electrical corrections
- Ilima Tower Chiller and CW Piping Reinsulating
- 109 new High Mast LED Lights



Hale Koa Hotel 2018 Hawaii Green Business Awardee

END BRIEF