

CASE STUDY HOTELS



Ritz Carlton, Aruba



The luxurious Ritz Carlton Hotel chain opened a new property on the Caribbean island of Aruba. The six story building contains more than 300 guest rooms, world class restaurants, and a spa.

Aruba's typical temperature and humidity conditions are 91°F and 59% relative humidity. This hot, humid climate can be a challenge for supplying outside air to the hotel's corridors and other common spaces.

CHALLENGE

To prevent issues of mold, musty odors and deterioration of hotel furnishings, the hotel's outside air treatment system must prevent moisture from entering the building as it treats the corridors and other common spaces. Maintaining the integrity of the building and optimizing Indoor Air Quality (IAQ) requires that outside air be supplied at:

- Temperature: 72°F
- Relative Humidity: 50%
- Humidity ratio: 59 grains/lb

Maintaining these temperature and humidity conditions with a conventional vapor compression system requires that the air be overcooled to the saturation point so moisture condenses out of the air, and then reheated to a comfortable temperature. This process is very energy intensive,

resulting in high operating costs. The upfront cost is also high due to the amount of tonnage required to meet these conditions.

SOLUTION

As a more sustainable solution, the Ritz Carlton chose to install eight Advantix Systems DT-Large DOAS units to treat 30,000 CFM as well as 80 tons of conventional cooling (192 GPM of chilled water), handling 340 CFM/ton. This efficient solution replaced a 230 ton vapor compression system which would have handled 118 CFM/ton and required 552 GPM of chilled water. In summary, the Advantix solution saves 150 tons of cooling and 360 GPM of chilled water, a significant reduction in both water and energy use.

"With the Advantix solution, we don't have to overcool and then reheat the air to lower humidity. Eliminating this process allows us to save energy and also reduce our maintenance costs."

Carlos Pabón, Project Director

Caribe Hilton Hotel



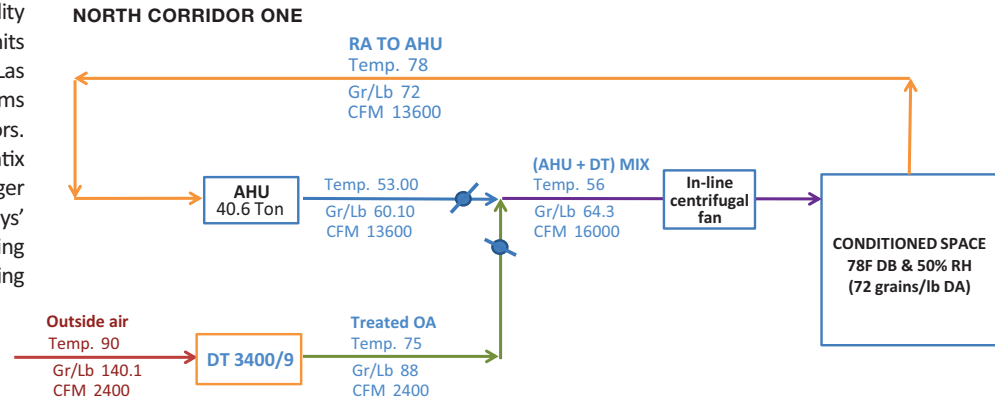
Hilton Hotel reduces 20 tons of conventional cooling and 7 tons of chilled water while improving Indoor Air Quality (IAQ).

CHALLENGE

To reduce humidity in the two ballrooms and corridors, the hotel used a conventional HVAC system, overcooling the air to dew point and then reheating the air to a comfortable level. This process consumed a lot of energy and was not always adequate for removing humidity in Puerto Rico's hot, humid climate.

SOLUTION

To overcome the humidity challenges, 4 DT Large units were installed in the Las Olas/Cristobal ballrooms and North/South corridors. Since installing the Advantix units, humidity has no longer been an issue. The hallway's dehumidification and cooling system has the following configuration:



"The Advantix Systems technology has allowed us to control humidity, reduce our A/C energy bill and improve Indoor Air Quality. We look forward to bringing more units to the hotel as soon as possible."

Marcelo Cormick, Director of Installation Hilton Caribe

Hard Rock Hotel Panama Megapolis

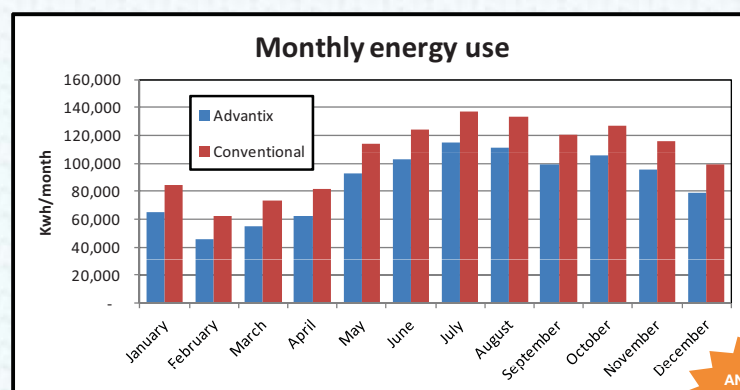


THE CHALLENGE

The Hard Rock Hotel Megapolis Panama's initial design required 230 tons of mechanical cooling to remove the heat and humidity generated in two restaurants, dance clubs, and lobby area. The design combined conventional cooling and desiccant wheel units to cool and dehumidify to required conditions. This energy-intensive process demands 285 KW of electrical capacity.

SOLUTION

For improved air quality and lower energy use, the Hard Rock Hotel modified the HVAC design to include Advantix liquid desiccant technology. The new design includes 4 DT-Large units in conjunction with 180 tons of conventional cooling. The Advantix equipment pretreats the latent load of the outside air and utilizes conventional equipment for the remaining sensible cooling. With the Advantix implementation, the hotel will reduce the required tonnage by over 20%, electricity consumption will drop to 235 KW, and annual energy savings will be over \$40,000.



ANNUAL SAVINGS
BASED ON ELECTRICITY
CONSUMPTION:
\$40,000