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## Case Study – Pioneer Plaza

EDUCATION / HEALTH CARE / LODGING / MANUFACTURING / OFFICE BUILDING / RETAIL / SPECIAL



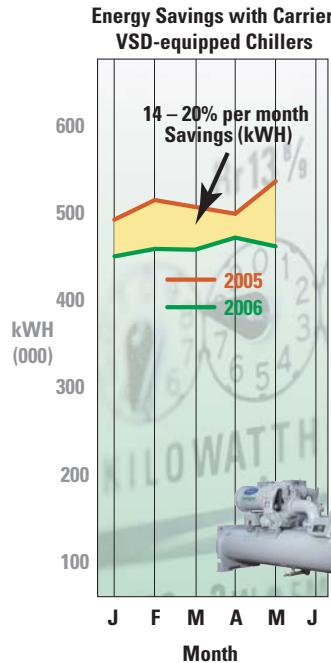
## Carrier 19XRV Evergreen<sup>®</sup> Water-Cooled Chillers Exceed Expectations

### Project Objectives

Pioneer Plaza, LLC, the owner of Pioneer Plaza in Honolulu, Hawaii, is dedicated to providing their tenants, such as the elite Plaza Club, a comfortable environment. With the Plaza's original chillers becoming unreliable and with ever-increasing energy rates, it was time to replace the aging chillers, especially since Hawaiian Electric Company (HECO), the local utility company, provides energy rebates for high efficiency equipment. The owners turned to Power and Systems Inspection Group and its vice president, Leslie Taniyama, for an energy efficient and environmentally sound design.

### Solution

Two 350-ton Carrier 19XRV Evergreen<sup>®</sup> centrifugal chillers with variable speed drives and CarrierOne<sup>™</sup>/BACnet<sup>®</sup> interfaces were selected to replace two existing 300-ton centrifugal chillers. The 19XRV's efficiency, reliability, size, weight, low sound levels, R-134a refrigerant and the expertise of the Carrier engineering, sales, and service staff were all factors in selecting Carrier.



*The combination of two Carrier 19XRV chillers equipped with variable speed drives and the CarrierOne<sup>™</sup>/BACnet<sup>®</sup> interface have resulted in energy savings of 14 to 20 percent per month for the Pioneer Plaza's owners.*



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AIRSIDE / APPLIED / CONTROLS / SERVICE / SPECIAL SOLUTION / TOTAL SYSTEM / UNITARY

## Case Study – Pioneer Plaza continued

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*"The chillers are not only meeting our expectations, they are exceeding them."*

Brandon Metter  
Facilities Engineer  
Pioneer Plaza, LLC

*"The new chillers are working beyond expectations. We are seeing significant energy savings."*

Raynard Marquina  
Property Manager  
Pioneer Plaza, LLC

### Project Synopsis

Energy efficiency and the environment have always been very important to Pioneer Plaza, LLC, owners of Pioneer Plaza, a multi-use complex located in Honolulu's Financial District and home to the famous Plaza Club. Efficiency is so important to Pioneer Plaza, LLC that they turned to the Power and Systems Inspection Group to conduct an energy feasibility study.

"We studied everything from lighting to heating, to ventilation and air conditioning," said Leslie Taniyama, vice president, Power and Systems Inspection Group. "The study recognized the inefficiency of the original chiller plant and we recommended that the existing chillers be replaced within the next five years," added Taniyama.

Power and Systems Inspection Group went on to design a solution. "Efficiency was paramount," stated Brandon Metter, facilities engineer, Pioneer Plaza, LLC. However, the owners had other objectives, too. They wanted a multiple chiller plant with redundant pumps that used the existing electrical supply. Limitations on size and weight would also be considered. The original chillers could be distinctly heard in the Plaza Club so the owners wanted a substantial reduction in plant sound levels. "As our objectives were listed, we knew we wanted to look at centrifugal chillers with variable frequency drives with the best life cycle cost," added Metter.

Visits to Carrier's chiller plant in Charlotte, North Carolina, and to a competitor's facility were planned in order to take a closer look at centrifugal chillers. During each visit, Metter and Taniyama toured the manufacturing facilities and met with engineers. "We were impressed with Carrier's facility, their engineers, and their 19XRV Evergreen® chillers and we have always been impressed with Carrier sales and service in Hawaii. We knew leaving Charlotte that the Carrier chillers were best for this job," stated Metter.

Since start-up, "The chillers are not only meeting our expectations, they are exceeding them," concluded Metter. "With the CarrierOne™ interface to our EMCS, we have flexible control, which has led to energy savings of over 14% in the first five months of operation, while in one month the savings was over 20%," added Taniyama. Raynard Marquina, property manager for Pioneer Plaza, LLC agrees, "The new chillers are working beyond expectations. We used to have to run both of the original chillers to handle the loads in the cooler months, but with the new chillers, we only had one running from December through April. We are seeing significant energy savings."

### Project Summary

**Location:** Honolulu, Hawaii

**Project Type:**  
Retrofit / Replacement

**Building Age:** 1977

**Project Total Cost:** \$2.1 Million

**Project Designer:** Power  
and Systems Inspection Group

**Total Cooling:** 700 Tons

**Building Type/Size:**  
Commercial office and mixed-use multi-story building / 260,000 square feet

**Building Usage:** Office space, food court, services, retail, and 2-floor penthouse members only club and restaurant

**HVAC Equipment:**  
Two 19XRV Evergreen Centrifugal Chillers

**Objective:** Energy efficient and environmentally sound replacement of the central plant equipment and cooling towers

**Major Design Drivers:**  
Energy efficiency, reliability, environmentally sound refrigerant and equipment redundancy

**Installation Date:**  
December 2005

**Design Considerations:**  
Building electrical bus distribution and physical size and weight limitations in existing chiller plant location along with budgetary limits

For more information, contact your nearest Carrier Representative, call 1.800.CARRIER or visit our web site at [www.commercial.carrier.com](http://www.commercial.carrier.com)