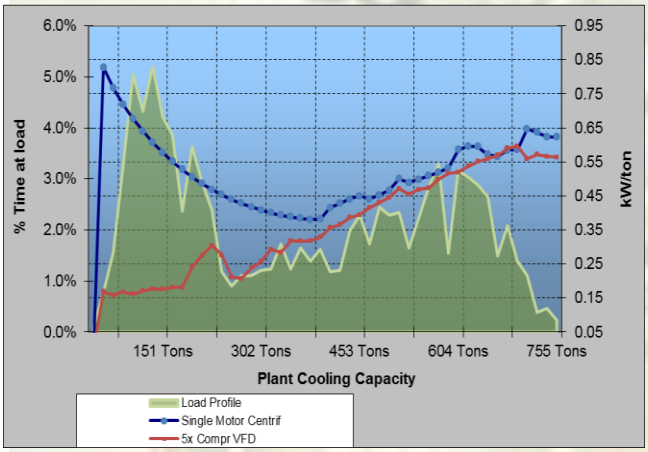
VSI solutions
Building Smart. Saving Energy.

Case Study: Leeward Community College

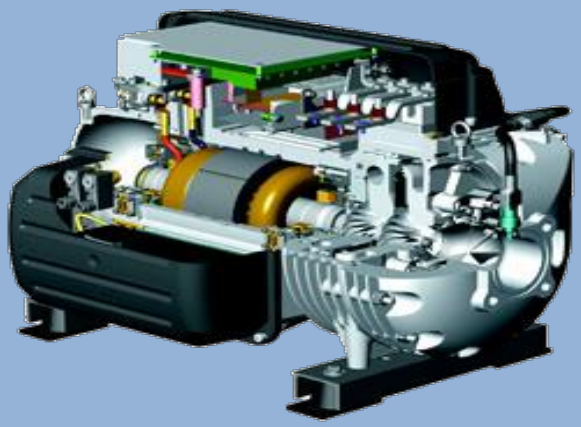


The college was looking to reduce their energy consumption, plus they had an expansion which required more pump head to service the new buildings.The old plant was 15 to 20 years old with constant primary flow and was relatively inefficient. The campus consists of 16 buildings totally 308,000 sq ft of conditioned space. The college chose to go with (1) Turbocor magnetic bearing multiple compressor chiller and (1) conventional single compressor chiller. At the heart of the system is the CPECS controller which operates the chillers, CHW pumps, CW pumps, and cooling tower fans, optimizing the entire chilled water plant at any point during the hotel's varying load conditions. The plant was commissioned in December 2012.

Original Equipment:
(1) 400 ton Carrier and (1) 250 ton York constant speed centrifugal chillers, and (1) 100 ton Carrier reciprocating chiller.

Retrofitted Equipment:
(1) Water cooled 400 ton Smardt chiller and (1) 400 ton York variable speed centrifugal chiller.
(2) Primary and (2) secondary chilled water pumps with integrated VFD's from Armstrong.
(2) Condenser water pumps with integrated VFD's from Armstrong.
(4) Low approach Evapco cooling towers.
Air handlers and fan coil units upgraded to 2-way valves.
(1) CPECS central plant optimization control.

- **Plant is running at annualized average of 0.53 kW/ton (original plant was running at over 1.2 kW/ton).**
- **Smardt chiller performance is 22.9% better than comparison chiller.**
- **Savings over Ashrae 90.1 2007 code compliant plant of over 80%**



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Other Benefits:

Smardt chillers were selected due to their extreme efficiency under lower loads. Their variable speed, frictionless, oil-less, Turbocor magnetic bearing compressors maintain their high efficiencies over their entire lifespan.

The CPECS controller is web based and can be monitored from any computer with internet connection.

The CPECS controller monitors the kW/ton of all of the equipment in the chilled water plant. If anything goes wrong with the performance of this equipment it will be immediately recognizable on the touch screen graphical interface.

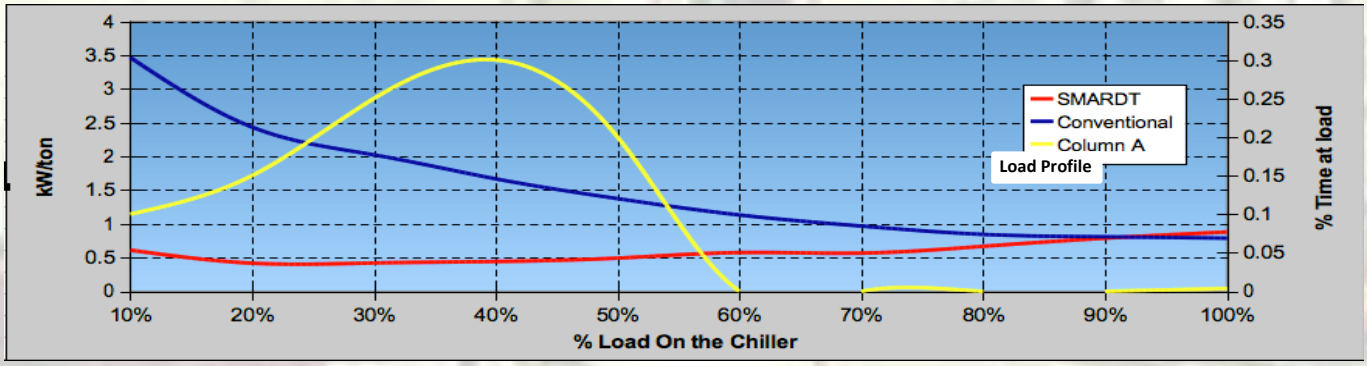
See how much energy we can save in your building!

Utilizing the latest technologies, we can reduce your chiller plant efficiency by as much as 40% or more with typical returns in the 3-4 year timeframe.

We specialize in:

- **Commercial Air Conditioning**
- **Domestic Booster Pumping Systems**
- **Hot water heat pump systems**
- **Variable Speed Drives**
- **Lighting**
- **Air Handlers**

Typical Performance Chart from Energy Analysis



To schedule your free energy analysis*, please contact Kimberly De Souza at **(808) 542-8279** or kim@vsihi.com