

HVAC keeps Luke 'COOL'

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56th Fighter Wing Public Affairs

With the arrival of hot summer weather, air conditioners across Luke Air Force Base are working in overdrive. Members of the 56th Civil Engineer Squadron have been working to keep the heating, ventilation and air conditioning systems effective and efficient.

The shop services the HVAC systems for the entire base, with 24-hour emergency personnel on standby.

With the use of technology on an upward curve, the HVAC shop must keep up with the times. "Systems evolved with time and there is always something new around the corner," said Scott Ogborn, 56th Civil Engineer Squadron HVAC supervisor. "It's like playing a keeping-up-with-technology game."

In order to keep up with technology, HVAC has implemented easier to use, efficient programs. These programs have brought about a wide variety of energy saving opportunities and rewards.

Uses of the Energy Management Control System, variable frequency drives and a chilled water plant, along with the replacement of older equipment with higher efficiency equipment are among the many HVAC energy saving tactics.

The EMCS computers allow the operator to set operating schedules and view each piece of equipment or the whole facility, as well as assisting field mechanics to better troubleshoot a system.

"I think it's a great system," said Senior Airman Devin McCree, 56th CES HVAC mechanic. "We are able to see what is wrong with the system before we get there." The system also allows occupied and unoccupied temperature points to be set from the computer.

The variable frequency drives cause an electric motor to run at the optimum speed needed. If a cooling tower fan motor can run at 40 percent and maintain the desired water temperature then the EMCS and drives will have the motor maintain the speed rather than wasting energy by running at 100 percent.

The chilled water plant has four chillers, totaling 1,050 tons of cooling along with a 475,000 gallon storage tank that supplies cooling to 23 facilities, to include the dorm buildings and temporary lodging facilities. "The chillers are optimized to run during the off-peak hours so they can recharge the storage tank which in turn saves a substantial amount of energy," Ogborn said. "During the daytime, the buildings are supplied with cooling from the storage tank."

The chiller plant also has plate and frame heat exchangers that are used during cooler and less humid times of the year in order to produce cool water systems at a fraction of the cost of running the chillers. The plant also eliminates the 23 separate mechanical systems located at each facility.

Even with a 40 percent increase in work orders during the summer months, HVAC has continued to provide effective maintenance while implementing energy efficient technology.

"Anytime we were faced with replacing equipment we always strived to get the best equipment that we could," Ogborn said. "With the focus on green technology and energy savings over the past couple of years, we also considered the efficiency of the unit."



Dave VanFossan, 56th Civil Engineer Squadron controls operator, performs scheduled maintenance on one of four primary chilled water pumps July 12 at the central chilled water plant. The plant supplies chilled water for air conditioning units in 23 facilities, to include the dorms and temporary living facilities.

RIGHT: Dave VanFossan, 56th Civil Engineer Squadron controls operator, performs an operational check on a 325-ton chiller at the central chilled water plant at Luke Air Force Base. The chiller is one of four located at the plant.



John Smejkal, 56th Civil Engineer Squadron heating, ventilation and air conditioning technician, evacuates the refrigerant system July 12 after replacing a thermal expansion valve on a walk-in cooler at the Ray V. Hensman Dining Facility.

ABOVE RIGHT: Lather Powell, 56th Civil Engineer Squadron heating, ventilation and air conditioning work leader, and Airman 1st Class James Bickers, 56th CES HVAC apprentice, troubleshoot an electrical control circuit on a 30-ton portable AC unit being used as a temporary cooling system during the installation of a new unit in Bldg. 983.



Airman 1st Class Brittany Hurley, 56th Civil Engineer Squadron heating, ventilation and air conditioning apprentice, inspects a belt on an air handler for proper alignment and tension at the 21st Fighter Squadron July 12.

LEFT: Dave VanFossan, 56th Civil Engineer Squadron controls operator, troubleshoots from the Energy Management Control System at the central chilled water plant July 12. The system allows the operator to view components and status of an AC unit, to include current temperature, in any given room in buildings across Luke Air Force Base.

