

Colmery-O'Neil VA Chiller Plant



PROJECT SCOPE

- New blast proof chiller plant
- Decommission of 9 existing campus cooling systems
- Over 2,000 ft of underground chilled water piping
- 4-800 ton chiller/towers
- 8 Primary chilled condenser water pumps
- 3 Secondary chilled water pumps
- 1-800 back up generator
- 1 Nalco Chemical Treatment System



THE CHALLENGE

Since 1946, the Colmery-O'Neil VA Medical Center located in Topeka, Kansas has been serving our veterans. Inevitably, the campus was taking on higher energy and maintenance costs associated with their antiquated cooling systems. Initially, each building on campus produced their own cooling needs. The VA decided it was time to upgrade by constructing a new centralized chiller plant that would serve their entire campus cooling needs. This would allow the VA to maximize energy savings with new high efficient chillers, pumps, and cooling towers.

THE SOLUTION

Building Design - The new facility was designed to meet the government's physical security and resiliency design standards (PSRD) for blast protection. Kroeschell partnered with subcontractor Brinkmann Constructors to build the new facility. A new underground chilled water distribution loop servicing the campus was installed and existing campus infrastructure systems were extended to the new chiller plant. They included: Electrical, fire alarm, fire protection, camdex security, storm, steam/condensate, domestic water, and sanitary sewer. Systems were quickly and accurately installed as services continued uninterrupted.

Mechanical Design - A guiding principle for the new design was to eliminate all single points of failure of critical systems. Kroeschell determined the existing campus cooling loads and implemented a new primary-secondary-tertiary chilled water loop design. To maximize energy efficiency the central plant was equipped with variable frequency drives on the chillers/pumps/towers. Secondary pump speed is set based on 3 differential pressure sensors located in the campus chilled water loop. Each building fed by the plant has a mixing valve to reset chilled water supply temperatures based on outside air temperature and building use. The plant was designed to operate 24/7 365 days a year with a backup generator. The cooling towers were equipped with basin heaters, bypass valves and all outdoor piping was heat traced.

THE RESULTS

Throughout the duration of the project the VA was able to carry out their mission of serving our veterans uninterrupted with the campus and hospital never experiencing any outages. For systems that support people, equipment, or both ... our meticulous craftsmanship and attention to detail provide reliable long-term functionality at cost-saving efficiencies.

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