



CENTRAL PLANT ENERGY EFFICIENCY UPGRADES

PROJECT LOCATION: UF J. Wayne Reitz Union - Gainesville, Florida
EXPERIENCE OF: Mitchell Gulledge Engineering, Inc
ROLE IN PROJECT: Prime Professional – MEP Design

CONSTRUCTION COST
\$80,000

COMPLETION DATE
March 2018

PROJECT STAFFING
Project Manager:
Craig Gulledge, PE, CxA
Mechanical Lead:
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Electrical Lead:
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PROJECT OWNER
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CLIENT
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BUILDER
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PROJECT SUMMARY:

The University of Florida contracted with Trane Commercial Systems and Mitchell Gulledge Engineering to design piping with automated valving and a plate and frame heat exchanger for a chilled water economizer in the J. Wayne Reitz Union. Building operators discovered that the newly installed and commissioned chilled water system was not capable of turning down to meet the facility baseload of 30 ton of cooling. The new chiller plant included two 500T chillers and a 375T adaptive frequency drive chiller for a 765,000 sq ft university student union and hotel with project completion in December 2014. The limited chilled water plant turndown was only apparent during the North Central Florida winter season when the actual building load was determined. The CHW plant was experiencing excessive cycling due to the light load conditions. The application of a plate and frame heat exchanger for ‘free cooling’ using the condenser water loop was identified as a cost-effective solution in a southern climate and provided a significant cost reduction in utilities with free cooling.

Mitchell Gulledge Engineering's primary task for this installation was to redesign the piping system in a limited existing space to accommodate the new equipment. Careful surveying of the existing space and equipment, a detailed and thorough plan for the installation of the new heat exchanger, and a close working arrangement with both the owner and the installing contractor all contributed to the successful installation of this economizer.

The building operator and design team should fully understand the building cooling/heating profile early in the design process of a major central plant overhaul in order to apply the right equipment to the project. The application of a “free cooling” condenser water system heat exchanger should be a part of the system analysis and selection during design and implementation. The commissioning team should assist in clearly documenting and validating the system load profile and be conscientious the need for seasonal testing of the building automation system and central plant equipment.

