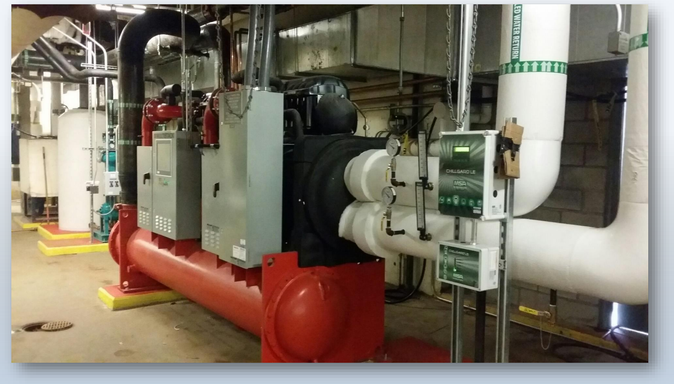
Northeastern

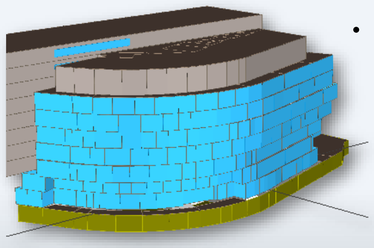
Chiller Replacement Project at the Multi-Disciplinary Behrakis Health Sciences Center

Building Chilled Water Plant Upgrade



- Replaced two oversized single-pass absorption chillers
- Two high-efficiency centrifugal chillers were correctly sized for building cooling load
- Optimized pumping and chiller staging sequences

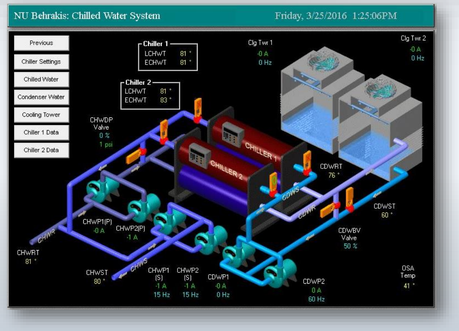
Energy Analysis Software



- eQuest simulation software was used in order calculate the annual energy savings

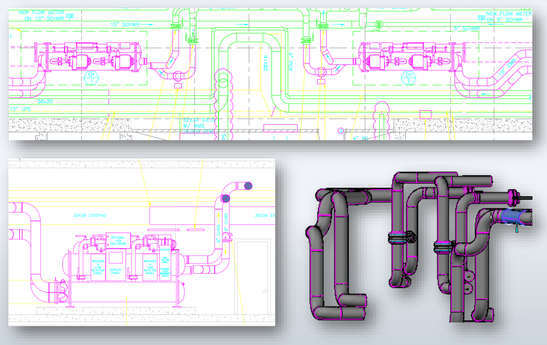
- Trane Trace was used to right-size the proposed chillers

Optimize Energy Efficiency



- Incorporated optimized control strategies including:
  - Variable primary pumping and condenser water pumping
  - Optimized sequencing of chillers
  - Automatically monitor plant efficiency with BAS
  - Condenser water temperature reset sequence
  - Chilled water reset sequence

Comprehensive Design & CA Services



- Provided a full design package including construction documents and specifications
- Modeled in three-dimensions in order to prove design fits within space constraints

Behrakis Health Sciences Center

Behrakis Chiller Installation Project Goals

- ✓ Demolish existing inefficient absorption chillers
- ✓ Run economics analysis to make better decisions
- ✓ Right size new high-efficiency centrifugal chillers
- ✓ Optimize primary and secondary chilled water pumping
- ✓ Design and install a new leak detection system
- ✓ Install new condenser water loop filtration system
- ✓ Optimize control sequences

Behrakis Chiller Installation Highlights

- ★ $2,000,000 total project costs with a total of $18,000 in change orders (none due to design errors or omissions)
- ★ Net energy costs for the building cut by $205,000, with $65,000 of that from energy efficient design above and beyond code
- ★ Plant performance is now automatically calculated and tracked by the BAS to prove savings
- ★ Converted existing constant volume PCHW loop to variable volume
- ★ Retrofitted existing pumps with seal kits, and harmonic filters to allow them modulate to lower speeds
- ★ Reduced chilled water plant footprint within mechanical room

B2Q provided full design and construction administration services for the new chilled water plant located in the Behrakis Health Sciences building located at Northeastern University.

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