A&J Consulting
Engineering Services, P.C.

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CLIENT

NEW JERSEY INSTITUTE OF TECHNOLOGY

LOCATION:

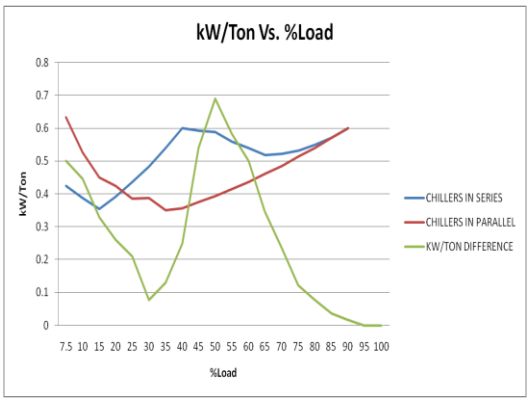
GITC Building
Newark, NJ

CONSTRUCTION VALUE:
$2 Million

DESIGN START:
2007

DESIGN COMPLETE:
2008

CONSTRUCTION COMPLETE:
2008



OPTIMIZATION OF CHILLER PLANT

800-TON CHILLER PLANT

PROJECT DESCRIPTION

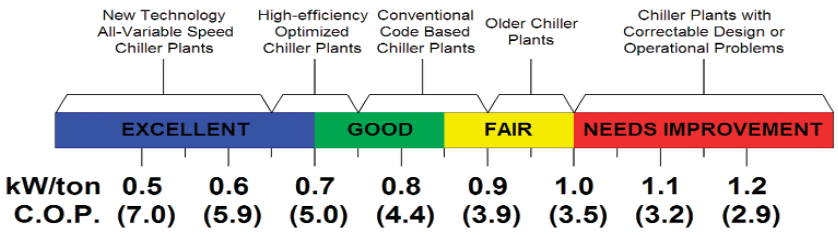
GITC (Guttenberg Information Technology Center) Building is a 180,000 Sq. Ft, 5 story building that houses classrooms, Offices and the Central Computer Data Center.

A&J Consulting was responsible for design of 800-Ton Chiller Plant consisting of (2) 400 Ton Centrifugal Chillers, (3) 800 GPM Chilled Water Pumps, (3) 1200 GPM Condenser Water Pumps and (2) 400 Tom Cooling Towers.

A&J Consulting was also retained to evaluate various Chiller optimization techniques by evaluating the existing system to identify areas for potential energy savings. Detailed analysis was performed and specific recommendations were made. The analysis aimed at optimizing plant efficiency by considering the system curve at different load conditions and attempts to stage the individual system components in parallel to minimize total system energy consumption.

Optimization Strategies such as sequencing of multiple chillers based on cooling demands, chilled water temperature reset, sequencing of multiple chilled water and condenser water pumps and condenser water temperature reset were used to achieve an average estimated system performance value of 0.765 kW/ton, i.e. a High-Efficiency Optimized Chiller Plant (as per the ASHRAE Journal).

The optimization of chillers will result in annual operating savings of $200,000.



Average annual chiller plant efficiency in kW/ton (COP).