

MEP Design – Health Care Samaritan Hospital Chiller Replacement Troy, New York

Program

NYSDA FlexTech Feasibility Study and follow-up services directly with the customer

Scope of Services

- FlexTech Feasibility Study
- Infrastructure & Physical Needs Assessment
- Design Services
- Construction Administration Services
- Incentive assistance

Level of Involvement

Prime Contractor

Facility Size

243,000 sq. ft

Facility Type

Acute Care Hospital

Project Results

- Replace chiller plant
- Install summer boiler
- Upgrade lighting
- Upgrade building management system

Project Costs

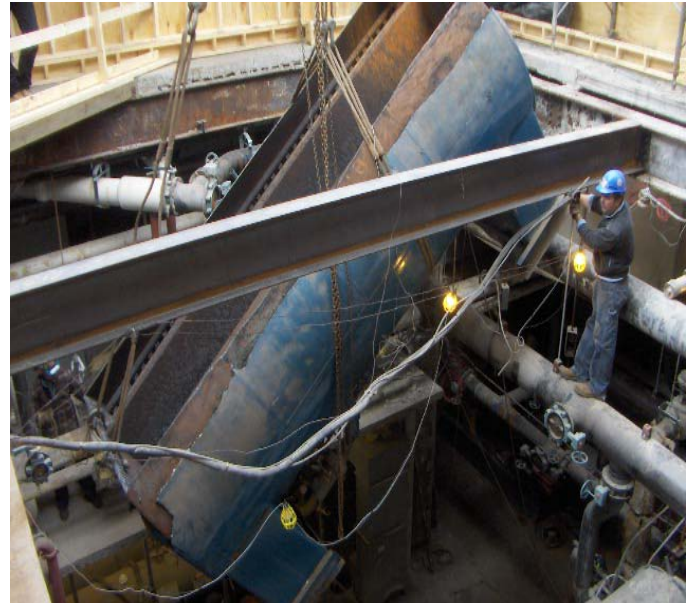
Electric Demand: 398 kW

Electric Consumption: 810,969 kWh

Thermal: 765,750 Therms

Energy Cost Savings: \$484,498

In general, many of the systems were found to be dated and past their expected useful life. We developed a list of projects and ranked them in order of priority; High, Medium and Low including estimated construction costs. Since then, we have been assisting the facility implement a \$20 million renovation program by providing MEP design services. Typical of the type of the design projects that we have done for the hospital is the chiller plant project that replaced two Carrier 455 ton single stage steam absorption chillers that were installed in 1972. There was also a Carrier 500 ton electric centrifugal chiller that was left in place.



Existing Absorber Being Removed through the Roof

Evidence of corrosion was noted at the base of both absorbers and the operators reported that both units had crystallization problems resulting in annual costs of \$28,000 for maintenance and repairs. This situation is generally due to a lack of temperature rejection on the condenser side of an absorption chiller which was apparent when we reviewed the daily chilled water plant logs. We performed detailed life cycle cost analysis that evaluated the following alternatives including high efficiency electric, water cooled centrifugal, HP steam absorbers, hybrid plant comprised on HP steam absorber and one centrifugal chiller and LP steam absorbers.

Based on the economics, the hospital selected two new high efficiency electric chillers with variable speed drives. The challenge of the project was to phase the work so that the existing chiller could supply their 24/7 cooling needs and complete the work before the cooling season. One of the existing cooling towers was rehabbed and configured to handle the full cooling load during the cooling season so two towers were not required to operate. We arranged a pre-purchase of the chiller to expedite delivery while negotiating with the installation contractors. In addition, since the chiller plant was being modified from steam fired absorbers to electric centrifugals, a new service and switchgear had to be designed and installed prior to the chiller installation.