



## Appleton Medical Center Bed Tower Addition & Infrastructure Expansion Appleton, WI

In 2007, planning started for the re-design of nursing and patient rooms at Appleton Medical Center to include construction of an eight-story, 112 Bed Tower Addition, providing services such as general surgery/recovery, postpartum & nursery, oncology, in-patient rehabilitation, airborne infection isolation suites, protective environment rooms, and a patient registration area. The remodeled areas of the project include collaborative care patient rooms, LDR suites, C-Section suites, and general recovery.

Tweet/Garot performed the HVAC design for all build-out areas and provided design/assist for the infrastructure portion of the Bedtower project with Henneman Engineering. Being involved in the initial planning phases of the project, proved to be instrumental in the reduction of the design schedule, and provided the initiation of construction activities 3 to 5 months earlier than in traditional design/bid construction projects. In addition, we utilized building information modeling for all functions of the project.

### **Owner:**

ThedaCare Health Systems

### **Architect/Engineer:**

Architect: HGA

Engineering:

*Infrastructure:*

Henneman Engineering, Inc.

*Facility Build-Out:*

Tweet/Garot Mechanical, Inc.

### **Approx. Contract:**

\$7,300,000

### **Project Duration:**

30 Months

### **Contact Information:**

ThedaCare Health Systems

Albert Park (920)831-5051

## Project Challenges

We were challenged early in the project with reducing our budget (5%) with dramatic increases in scope. The footprint of the building changed from a rectangular to a triangular shape and gained a 15% increase in square footage. We were able to reduce our initial budget utilizing various system changes, including modifications to the life safety systems and hot water zoning, and the elimination of a number of fire and smoke dampers due to code interpretations/discussions with state and local authorities.

With the footprint of the Bed Tower built within a one-acre area to eliminate additional ground water code requirements, the limited storage and lay-down areas added additional challenges. Intensive scheduling was maintained to provide an organized flow of general deliveries as well as all HVAC utilities deliveries, providing all required infectious control requirements. This scheduling was not maintained on a daily basis, but on an hourly basis. Intensive initial (pull) scheduling (design & construction) was performed along with weekly scheduling meetings, weekly design meetings, weekly core team meetings and daily foremen's meetings.

## Project Components

Completed in earlier phases, was the installation of an additional 500 hp boiler, 750 ton chiller, cooling tower, and associated piping modifications. Also completed was a piping infrastructure modification phase which included roughly 1700 feet of chilled water and high pressure steam/condensate piping ranging in sizes from 1" to 16" in diameter, installed within a confined crawl space located in the basement.

Within the Bed Tower and remodeled areas, roughly 15,000 feet of piping and 240,000 lbs. of ductwork were installed. Two 80,000 cfm air handling units were installed for the Bed Tower project and an existing rooftop unit (installed in 2006) was utilized for the remodeled spaces. Tweet/Garot also designed and installed:

- 325 variable air volume boxes
- 3000 grilles & diffusers
- 3000 feet of radiation
- 14 radiant ceiling panels
- 16 cabinet/unit heaters
- 2 air curtains
- 2 fan coil units
- 12 exhaust fans
- 2 stairwell pressurization systems
- 1 elevator shaft pressurization system
- 2 airborne isolation infection systems
- 1 independent positively pressurized protective environment system

Tweet/Garot provided the pre-functional and final functional testing of all related HVAC systems along with all life safety systems for final acceptance testing. Utilizing this process has dramatically reduced the amount of warranty call-backs.

