

Project Overview

This large tertiary care hospital with over 500 beds has been serving the residents of Pennsylvania for over 150 years. The present building was erected in 1972. The replacement of the building's cooling towers were part of a multi-year master plan that included building and parking structure additions and expansion of the central plant.

The cooling tower replacement was accomplished in two phases. Phase one, to replace four Marley cooling towers in service since the 1980's, was completed in spring 2020, ahead of peak summer heat load. Phase two, completed in spring 2021, replaced five newer galvanized steel towers from another manufacturer that were noisy and showed early signs of corrosion and deterioration. Future central plant expansion phases will include chiller replacement.

Project Challenges

This urban campus is surrounded by high density residential. Issues included:

- Meeting stringent low sound requirements as part of being a “good neighbor”
- Utilizing the existing cooling tower footprint while expanding the cooling capacity for the growing medical campus
- Timing phase 1 and phase 2 cooling tower decommissioning and installations around peak demand seasons while providing adequate cooling capacity to support operations
- Maintaining safe street access to the emergency department while utilizing the same street for tower deliveries, rigging and installation and navigating around existing structures



The installation required the cooling towers to be transported by truck under a multi-story parking garage.



Nine cooling towers were replaced during two phases scheduled a year apart.

Solution

- The consulting engineers identified quiet operation, reliability and redundancy as the most important project requirements. Marley NC Cooling Towers were specified based on the product's ability to meet stringent low sound levels and previous experience with brand quality and performance.
- The logistics partner procured the cooling towers well ahead of the construction schedule. The mechanical contractor staged the towers in a nearby rigger's yard. This allowed product delivery to the site precisely when required and greatly reduced road closures that would impact access to the emergency department.
- The installation process required that the cooling towers be transported by truck under a multi-story parking garage before cranes hoisted the towers to the installation site. Structural engineers calculated crane lifts and weight distribution.
- Advance planning and coordination allowed the mechanical contractor to place all phase 1 towers (four cells/eight modules) in position within two days; similarly, phase 2 towers (five cells/ten modules) were placed within three days' time.

SPX Cooling Technologies Products and Services Provided

Marley NC® 8414 Cooling Towers

- Four cells in Phase 1; five cells in Phase 2
- Approximately 11,000 tons of cooling tower capacity
- Ultra Quiet Fans and Air Inlet Sound Attenuators to operate at sound levels below code requirements

Independent third party documentation of sound data tested per CTI ATC-128 test code by third-party CTI-licensed test agents and certified acoustic engineers.

Engineering and product selection support by Marley New York sales office

On-site support before and during installation by local Marley sales representative

Project Team

Consulting Engineer:

BR+A, New York, NY

Barton Associates, Inc., York, PA

<https://www.brplusa.com/>

General Contractor: Turner Construction

<http://www.turnerconstruction.com/>

Logistics/Procurement: SourceBlue LLC

<https://sourceblue.com/>

Mechanical Contractor: Wayne Crouse, Inc.

<http://www.waynecrouse.com/>

Cooling Tower Technical Support:

SPX Cooling Technologies, Inc., New York Sales Office

<http://marleycoolingny.com/>

P. F. Sherman, Sales Representative

<http://www.pfsherman.com/products.shtml>



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