



Case Study – St. Luke's Medical Center

EDUCATION / HEALTH CARE / LODGING / MANUFACTURING / OFFICE BUILDING / RETAIL / SPECIAL



2,100 Tons of Temporary Cooling Keeps Hospital Off Critical List

Timetable

DAY	EVENT
MON	Equipment arrives
TUES – THURS	Plumbing & Electrical set up
FRI	Equipment is pre-tested
SAT – SUN	Temporary system phased in/provides 36 hours of cooling
MON – WED	Temporary system is disassembled & removed from site

Project Objectives

While constructing an adjacent healthcare center, the 949-bed St. Luke's Episcopal Hospital in Houston TX, needed to maintain uninterrupted cooling for critical hospital functions and the comfort of its patients and staff during an excavation that would cut off the chilled water supply for 36 hours. The hospital needed 2,100 tons of temporary cooling and a seamless transition from the existing system to a temporary system and back again. Thorough, expert planning was required to minimize construction delays and overtime costs, and all equipment had to be pre-tested to ensure flawless operation.

Solution

Carrier's HVAC Portable Systems used advanced planning, extensive communications and detailed coordination to orchestrate a quick, flawless and completely successful temporary installation of ten 210-ton air-cooled chillers, plus all auxiliary equipment. HVAC Portable Systems conducted thorough pre-testing, including a dry run – and provided an on-site HVAC expert throughout the 36-hour period. The entire project was executed in less than 10 days, with problem-free operation and not a single complaint from the hospital's occupants.



Carrier's temporary system provided 36 hours of essential, uninterrupted cooling and was efficiently installed, operated and dismantled within just 10 days.



Case Study – St. Luke's Medical Center *continued*

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"When the whole job was completed, there was really only one way to measure whether or not we succeeded. We asked St. Luke's if there were any complaints from the patients and employees who were in the hospital that weekend. We learned there wasn't a single complaint. That's how I know we served our customer to the best of our ability."

David Swan,
regional technical support,
HVAC Portable Systems.

Project Synopsis

While building their new 250,000 sq. ft. research and surgery center, St. Luke's Episcopal Hospital made a dismaying discovery. The adjacent hospital's underground chilled water piping system lay directly in the path of construction. It had to be excavated and re-routed. This would take 36 hours, during which the chilled water system would need to be shut down and replaced with a temporary system. Meanwhile, there could be no interruption of air conditioning to the 949-bed acute care facility, where the continuity of critical functions and procedures, as well as patient comfort were essential. And the set-up and tear-down of the temporary system had to go quickly so construction could resume.

To find a solution, St. Luke's mechanical contractor turned to Carrier's HVAC Portable Systems. Prior experience with HVAC Portable's problem-solving abilities and technical expertise convinced St. Luke's that they had the ability to successfully accomplish this complex project. The HVAC Portable team did a comprehensive assessment of the hospital's needs, as well as construction activities, to come up with a plan to provide 2,100 tons of temporary cooling. "We knew that with a hospital as large as St. Luke's in a densely populated area, there would be no margin for error," said Taylor Norris, President, HVAC Portable Systems.

Planning began three months in advance of the shutdown, to ensure a seamless transition and the flawless execution the project demanded. A system was designed, consisting of ten 210-ton chillers, as well as pumps, water distribution manifolds, two 1250 kW diesel generators, electrical distribution panels, cable and 3,500 feet of water hose. While water-cooled chillers are typical for temporary systems, air-cooled models were selected due to the short timeframe for setting up and taking down the system.

Ten tractor trailers delivered the equipment. Neither they, nor the crane necessary for installation, caused any traffic disruptions – this was essential to the many hospitals located within a several block radius of the construction site. When the equipment was in place and all plumbing connections were made, HVAC Portable was ready to start the generators and pre-test the system. On schedule, the temporary system gradually took over the hospital's air conditioning and conducted a final, two-hour operational test. Then, the HVAC Portable Systems equipment maintained the system for the next 36 hours, with an expert on-site in case of any problems.

"We provide our patients with round-the-clock service," said Chuck Ayoub, manager of facilities engineering for St. Luke's. "One of our key objectives for this expansion program was to have no interruption in the service to, or comfort of, our patients, physicians and staff." HVAC Portable Systems achieved that objective, delivering problem-free temporary cooling – in less than 10 days from start to finish – with a transition so seamless that no one in the building even noticed.

Project Summary

Location: Houston, TX

Building Age: 46 years

Project Type: Temporary cooling

Building Type/Size: Steel and concrete framing, brick exterior/ 26-story, 1.1 million sq. ft. total

Building Usage: 949-bed acute-care hospital

Objectives: Provide 36 hours temporary cooling with no disruption to hospital occupants – coordinate all planning, installation and operational activities

Major Decision Drivers: Seamless transition; no interruption in HVAC service

Design Considerations: Minimal construction delay; 100% reliable operation

Total Cooling (tons): 2,100

HVAC Equipment: Ten 210-ton air-cooled chillers plus all auxiliary equipment

Unique Features: Air-cooled chillers enabled quick set-up and tear-down

Project Cost Range: Less than \$100,000

Installation Date: February, 1999

Supplier: HVAC Portable Systems, a Carrier Corporation company

For more information, contact your nearest Carrier Representative, call 1.800.CARRIER or visit our web site at www.carrier.com