



# ST. LUKE'S HEART CARE CENTER AND PATIENT TOWER

## PROJECT SNAPSHOT:

**Description:**  
HVAC work for a new cardiac center and patient tower

**Architect:**  
Kahler Slater Architects

**Engineer:**  
Ring & DuChateau

**Owner:**  
Aurora Health Care

**Completed:**  
March 2004

**General Contractor:**  
Boldt Construction



Photo Courtesy of Aurora St. Luke's Medical Center

*In 2004, St. Luke's Medical Center completed the addition of a 270-bed, \$182 million patient tower and cardiac center atop an existing six-story parking structure.*

## GRUNAU ASSISTS ST. LUKE'S MEDICAL CENTER WITH TOWERING ACHIEVEMENT

### PROJECT OVERVIEW

Grunau Company was asked to provide HVAC work for a new six-story, 430,000 square-foot cardiac center and patient tower at St. Luke's Medical Center, Milwaukee.

### SITUATION

Construction of the cardiac center and patient tower started at the top floor of an existing six-story parking structure. In addition, the work site was surrounded by a fully operational hospital. Therefore, major coordination between the trades was required due to the extremely tight site logistics. Grunau took the lead in the coordination process by developing the computer-aided design (CAD) drawings for the HVAC system and then overlaying the other trades' work to coordinate the most efficient field installation. During installation, Grunau's on-site field staff kept in constant communication with fabrication personnel to ensure supplies were delivered just-in-time to avoid storing materials on-site and to efficiently utilize the two tower cranes which were in high demand.

Grunau also minimized the materials' exposure to the elements. At the end of each work day, the ends of all duct work were protected. Also, variable air volume (VAV) boxes were covered until the building was enclosed. These additional levels of protection ensured a clean operating environment in the finished building.

*Wisconsin Builder magazine recognized the St. Luke's Heart Care Center and Patient Tower project as one of Wisconsin's 20 best projects of 2004.*



*Midwest Construction magazine named St. Luke's Heart Care Center and Patient Tower one of the Midwest's best projects in 2004, and the Health Care Project of the Year.*



*Grunau used two tower cranes to install four custom bi-level air handling units in the six-story addition at St. Luke's Medical Center.*



The patient tower's mechanical floor was built above the existing parking structure and directly below ICU patient rooms and operating rooms. To avoid vibrations from the mechanical equipment in the operating room, a stand-alone steel structure was constructed to hang the mechanical, electrical and plumbing utilities. Anything that had to be attached to the underside of the seventh floor was isolated with spring hangers.

Grunau also installed four custom air handling units for the six-story addition. Each unit consisted of four pieces that had to be hoisted onto the seventh level deck by a tower crane. Units for floors 9-12 were then lifted by a second crane to accommodate the reach restrictions of the first tower crane, and placed in the appropriate position. Each piece also had to be turned and lowered through the opening of the building's structural steel skeleton. After each piece was appropriately placed, they were assembled to create a finished unit. Grunau successfully completed the installation by coordinating the delivery of eight truckloads of unit parts with the hospital's schedule and arranging use of the tower cranes with the other trades.

In addition to the air handling units, the mechanical floor also contains exhaust fans, hot water pumps, expansion tanks, steam to hot water converters, and the steam pressure-reducing stations. Two 750-ton chillers also were installed in the penthouse level of the addition. Grunau Metals fabricated a remote sump pump for the chillers.

After a majority of the mechanical, electrical and control system work was completed, Grunau began balancing and commissioning the HVAC systems. Grunau used its own certified testing and service personnel to start up, test, adjust and balance the air handling units, exhaust fans, and more than 500 VAV boxes.

After the equipment was balanced and tested, the commissioning team conducted various sequences of operations for air handling unit shutdown, stair pressurization, smoke evacuation and special room procedures. These final efforts by the project team verified the quality and effectiveness of the system Grunau installed.



*Grunau installed two 750-ton chillers in the penthouse level of the addition.*



*After installation, Grunau personnel balanced and commissioned the HVAC systems, including the air handling units, exhaust fans and more than 500 VAV boxes.*

## RESULTS

Grunau successfully completed a complex job by planning ahead, coordinating its work crews and supply deliveries, and finding creative solutions to unique challenges. In doing so, Grunau was able to maximize its efficiency on a job with extremely tight site logistics. In addition, the Grunau team took into account the client's unique needs, and their commitment to the project continued even after the installation was complete. The project not only highlights Grunau's capabilities, but also demonstrates the company's customer focus and desire to exceed expectations.