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2009 VISTA AWARD


STORZ


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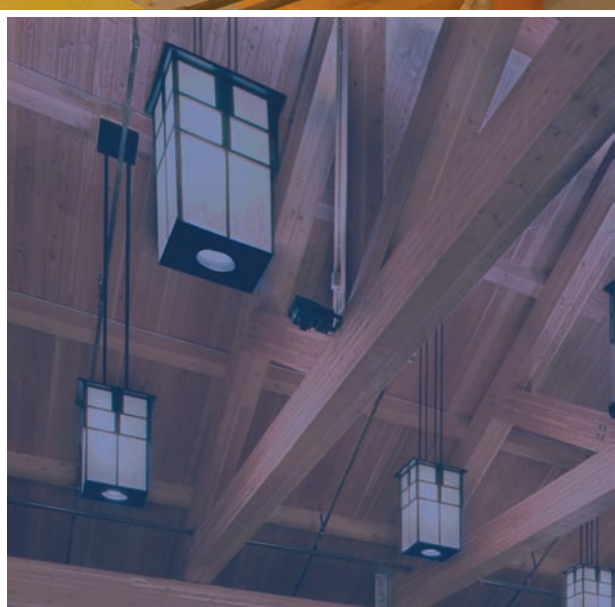


Since 1993, the American Society for Healthcare Engineering (ASHE) of the American Hospital Association (AHA) and the American Institute of Architects Academy of Architecture for Health (AIA/AAH) have nationally recognized design and construction initiatives through the Vista awards. The team approach to design and construction enables health care facilities to implement projects on time and on budget, create greater efficiency, flexibility and productivity and serve the community more effectively. Teams honored by the Vista program demonstrate a unity of purpose throughout their projects, from preplanning to implementation. This type of dedication helps hospitals meet their strategic and master plans, and ultimately results in better patient care. The Vista award sponsoring organizations, along with co-sponsor Health Facilities Management magazine, have selected Sacred Heart Hospital at RiverBend, Springfield, Ore.; SSM Cardinal Glennon Children's Medical Center, St. Louis, Mo.; and Fairbanks Memorial Hospital/Denali Center, Fairbanks, Alaska, a Vista winner for the second year in a row, as this year's winning entries for new construction, renovation and infrastructure projects, respectively. Through the use of innovative project management techniques and excellence in architecture and engineering, these projects represent the best in health care construction and design.


Sacred Heart Medical Center
PeaceHealth

2009 VISTA RECIPIENT

New Construction

Presented to an organization that has constructed a new facility essentially from the ground up. The new facility may be connected to an existing facility, but the building must have its own identity and be a new space.

Sacred Heart Medical Center at RiverBend, PeaceHealth, Springfield, Oregon

In the design of Sacred Heart Medical Center at RiverBend, PeaceHealth medical system wanted the best of both worlds—a first-class hospitality environment that supports clinical excellence. The project's design and construction team's goal was no less than to transform care at the hospital, by creating a facility that would improve quality and safety and promote healing, with a design in harmony with the beauty of its environment, says Jill Hoggard Green, RN, chief operating officer, PeaceHealth Oregon Region (PHOR).

The team worked with architecture firms WATG, which has designed resorts around the world, and Anshen + Allen, experts in health care design, to meet this goal. The firms balanced their strengths throughout the project. For example, when WATG proposed placing ornamental sconces along the hallways of patient units to distinguish patient rooms and lend the corridors a greater sense of warmth, Anshen + Allen realized the suggested design would interfere with IV poles and railings during patient transport. Rather than dismiss the idea, the team selected a less intricate design that allowed sufficient clearance. In another instance of ornament that does not compromise patient safety, an easily cleanable decorative wood frame was installed around the mirror in each patient bathroom, instead of a standard, institutional-looking stainless steel frame.

Ron Mitchell, AIA, served as WATG's executive design director on the project. He says that overall, few sacrifices had to be made in the design of the hospital's public and non-clinical areas, as materials today are advanced enough to meet the needs of a hospital setting. He notes synthetic wood technology is "so strong you almost can't tell the difference" between synthetics the real thing. In deference to patients with limited mobility or vision, designers chose more subdued patterns and less plush carpeting for public areas.

Over 175 interdisciplinary teams, which included physicians, staff, patients and their families, examined processes in the existing hospital to determine how the new environment could facilitate improved care practices. The main question, says Green, was, "What will enhance quality and healing?"

One idea that arose from these discussions was to arrange the new hospital's operating rooms in pods of four around a central supply area, for increased efficiency. Each OR is equipped for minimally invasive surgery and has high definition video capability and sufficient bandwidth to transmit high-definition images, to help the hospital in its goal of becoming a paperless facility.

To increase efficiency in the emergency department, computer stations were placed between every two rooms; these allow staff to input patient information into a decentralized registration system. To maximize acoustical privacy and patient comfort, the rooms are private and hard-shelled.

Rooms on the patient units are also private. They include such features as in-room computers to speed charting, mechanical lifts to assist patients as they get in and out of bed and staff-accessible medication drawers to reduce medication errors.

Hospital staff plan to study the impact these measures have on patient care and share their findings through the Pebble Project, a research initiative by the Center for Health Design, Concord, Calif.

The design of the hospital's patient rooms benefitted from a construction delay caused by a months-long land-use dispute over the new facility's proposed site. During this time, the project team went far beyond the standard mock up rooms; they built fully-functional intensive care and medical-surgical room prototypes at an existing PHOR hospital. The opportunity to test the design with actual patients was "unique in my experience," says Adam Kerner, AIA, ACHA, principal, Anshen + Allen. "It was wonderful," adds Lola Fritz, PHOR director of operational facilities planning. Based on input received from users of the prototype rooms, the team made over 200 revisions to the room designs, from changing the location of electrical outlets and staff hand washing sinks to making every patient bathroom ADA-accessible.

The team also used the construction delay to interview local subcontractors to assess their capabilities, then revise standard working schedules to accommodate smaller numbers of workers over longer periods of time. This enabled local subcontractors to comprise 42 percent of the construction labor pool, exceeding the project's Governing Board's goal of 28 percent, even given the relatively small number of subcontractors available in the area.

The land-use dispute was resolved by reducing the proposed height of the building from nine to eight stories. Using their ongoing collaborative relationships with hospital staff, the team was able to revise the design quickly, moving some services back to the existing hospital and others to a nearby manufacturing site purchased for this purpose. The hospital's laboratory, main pharmacy and other essential services located on the auxiliary site are linked to the hospital by a pneumatic tube system.

Material costs rose by approximately ten percent during the delay. "It was the heyday of building for the Olympics. Steel and sheet rock escalation was off the map," says Mitchell. With appropriate substitutions, such as redesigning the hospital to have a concrete, rather than steel, structure, the team was able to complete the project on time and on budget.

Other materials used in the building reflect the hospital's connection to nature. Large windows provide natural light and views of the wooded site. The site was preserved as much as possible during construction; the trees that were cleared were milled and used to create the atrium ceiling. "The building has a warmth, a Northwest sensibility that's timeless and consistent with the environment," says Hoggard Green.

It's a warmth the community has responded to in turn. Patient volumes were up 21 percent in the first six weeks of operation, far and away above the projected increase of five to eight percent.

Project Information

Number of square feet: 1.2 million
Number of beds: 338 licensed
Project budget: $547 million
Actual cost: $547 million
Start date: July 5, 2005
Completion date: August 10, 2008

Team Members

Jill Hoggard Green, RN, executive lead, chief operating officer PeaceHealth Oregon Region, Eugene, Oregon

Ron Mitchell, AIA, architect – hospitality focus, executive design director, WATG, Seattle, Washington (now with Think, Seattle, Washington)

Adam Kerner, AIA, ACHA, principal, Anshen + Allen, Seattle, Washington

Todd Tierney, AIA, principal, Anshen + Allen, Boston, Massachusetts

Lola Fritz, RN, patient and family council lead, director of operational facilities planning, PeaceHealth Oregon Region, Eugene, Oregon

Tom Mormino, principal-in-charge, vice president, Turner Construction Company, Seattle, Washington


Dana Brown NICU
Reception / Waiting


1823


BERCHTOLD
OPERON 8 810

2009 VISTA RECIPIENT

Renovation

Presented to an organization that has altered the existing conditions or added new space to existing structures. The original building envelope remains essentially intact.

SSM Cardinal Glennon Children's Medical Center NICU and Surgery Addition, St. Louis, Missouri

SSM Cardinal Glennon Children's Medical Center's recent renovation project transformed the facility's neonatal intensive care (NICU) and surgery departments. Undertaken using a lean construction philosophy, the project also transformed the hospital's approach to design and construction.

The medical center is a level three trauma center and the teaching affiliate of the St. Louis University School of Medicine. In 2002, the organization developed a master facility plan that determined the NICU and surgery areas, which were located in the hospital's original 1953 building, needed to be updated to support modern care models and technology. As projected patient volumes also called for the expansion of both departments, the hospital decided the best solution was to build an addition to provide the NICU and surgery departments with the space and infrastructure they needed, as well as an open structural grid that would support flexible use of that space.

The addition houses ten new operating rooms that have modular compartments of surgical lights, laminar flow ventilation, and anesthesia and equipment booms for video, power, data and medical gas distribution. The operating rooms were built identically, to be used by any specialty. The hospital's former, 44-bed open ward NICU has been replaced with 60 private patient rooms. These, too, have a flexible design, with power, data, and medical gas outlets installed the same way in each room to allow infants at any acuity level to be cared for in any room.

The hospital worked with its architecture firm, Christner Inc., construction manager, Alberici Constructors Inc., and engineering firm, McGrath Inc., on an earlier phase of the master plan. The team had a good working relationship that seemed to support moving forward with the NICU/surgery renovation using innovative project management techniques that emphasize collaborative effort. They turned to the Lean Construction Institute (LCI) , Ketchum, Idaho, for ideas and inspiration. LCI is a non-profit research corporation that seeks to extend lean manufacturing techniques into design, engineering and construction, stressing maximum customer value and minimal waste.

The Cardinal Glennon project team adapted LCI's Integrated Project Delivery Agreement and created a core group, comprised of representatives from the hospital, Christner, Alberici and McGrath, to jointly manage the renovation. This approach is especially well-suited to hospital construction, according to Don Wojtkowski, PE, FASHE, executive director of design and construction for SSM Health Care, the St. Louis-based system that operates the hospital. "[It] brings the enhanced spirit of collaboration required to deal with highly complex and dynamic projects like health care," he says.

Key contractors on the job (who completed roughly fifty percent of the work) were designated Lean Partners. The Lean Partners worked at cost, plus a fixed fee, for the opportunity to share in an incentive pool that was funded through savings achieved by eliminating wasteful construction practices. This partnership up-ended the adversarial relationship that can be created by standard fixed price contracts, which require contractors to build in contingencies against risk. Under this traditional system, contractors who spend the least of these reserve funds benefit financially; those who cooperate with others for the good of the project may reduce their profitability. The lean partnership changed the equation, encouraging the partners to focus instead on optimizing overall savings.

As a result, says Tim Gunn, project director for Alberici, there was "great positive energy on the project. We were all rallied around the same cause."

The project also required hospital staff to work together to coordinate the organizational realignment made necessary by the transition from a ward-style NICU to private rooms. One of the project goals was to move away from the ward layout without increasing the hospital's staffing ratio. Through benchmarking against peer hospitals and creating simulations that figured in patients' average length of stay and the number of staffing hours per patient day, the team determined the optimum design to maintain staffing. Following the move, productivity levels remained constant, says Karen Rewerts, vice president of planning and decision support services for the hospital. She credits the universal room design as a large factor in the hospital's ability to provide staff for private rooms without having to disrupt patients and families by moving them from room to room as the patient census changes.

A survey conducted before the move revealed that 55 percent of the NICU staff were concerned the new layout would isolate them from their coworkers. Care was taken throughout the design to keep nursing teams connected in the new environment, through electronic communication devices and the use of windows and glass doors that provide visual connections between caregivers. Since the new unit opened, the number of staffers concerned about isolation has dropped to 34 percent. Job satisfaction has increased from 86 to 93 percent and 94 percent of staffers express satisfaction with the care they are providing patients, up from 89 percent in the previous NICU.

Other major concerns in the NICU design were noise and light levels, as neonates are very sensitive to these issues. In fact, controlling acoustics was one of the main reasons the hospital wanted to move to a private room NICU. Finishes that dampen noise, yet still meet infection control standards, were installed to limit the amount of noise that can transfer from one room to another. Special attention was paid in the patient room mock-ups to keep room lighting minimal and out of the patient's line of sight. As a result, the percentage of staff who consider noise an issue on the unit has lowered from 92 percent to nine percent, and the number of those concerned about lighting has gone down from 68 percent to 11 percent.

All the team members say teamwork was responsible for the success of the project. "Everybody participated equally. Everybody was at the table, and everybody was listened to," Rewerts says. Shared accountability, openness, willingness to work together and a lack of egos among team members were critical factors, according to John Thomas Van Landingham, project manager from Christner. "No one was seeking to be pre-eminent. We wanted to do the right thing for the hospital," he says.

Project Information

Number of square feet: 138,000 (4 floors: 2 occupied, 2 shelled)

Number of beds: 60 beds, 10 operating rooms

Project budget: $42 million

Actual cost: $41.6 million

Start date: July 2005

Completion date: August 2007

Team Members

Martin Hague, former director of facilities, SSM Cardinal Glennon Children's Medical Center, Ascension Health, St. Louis, Missouri

Elmer Frederich, interim director of facilities, SSM Cardinal Glennon Children's Medical Center, St. Louis, Missouri

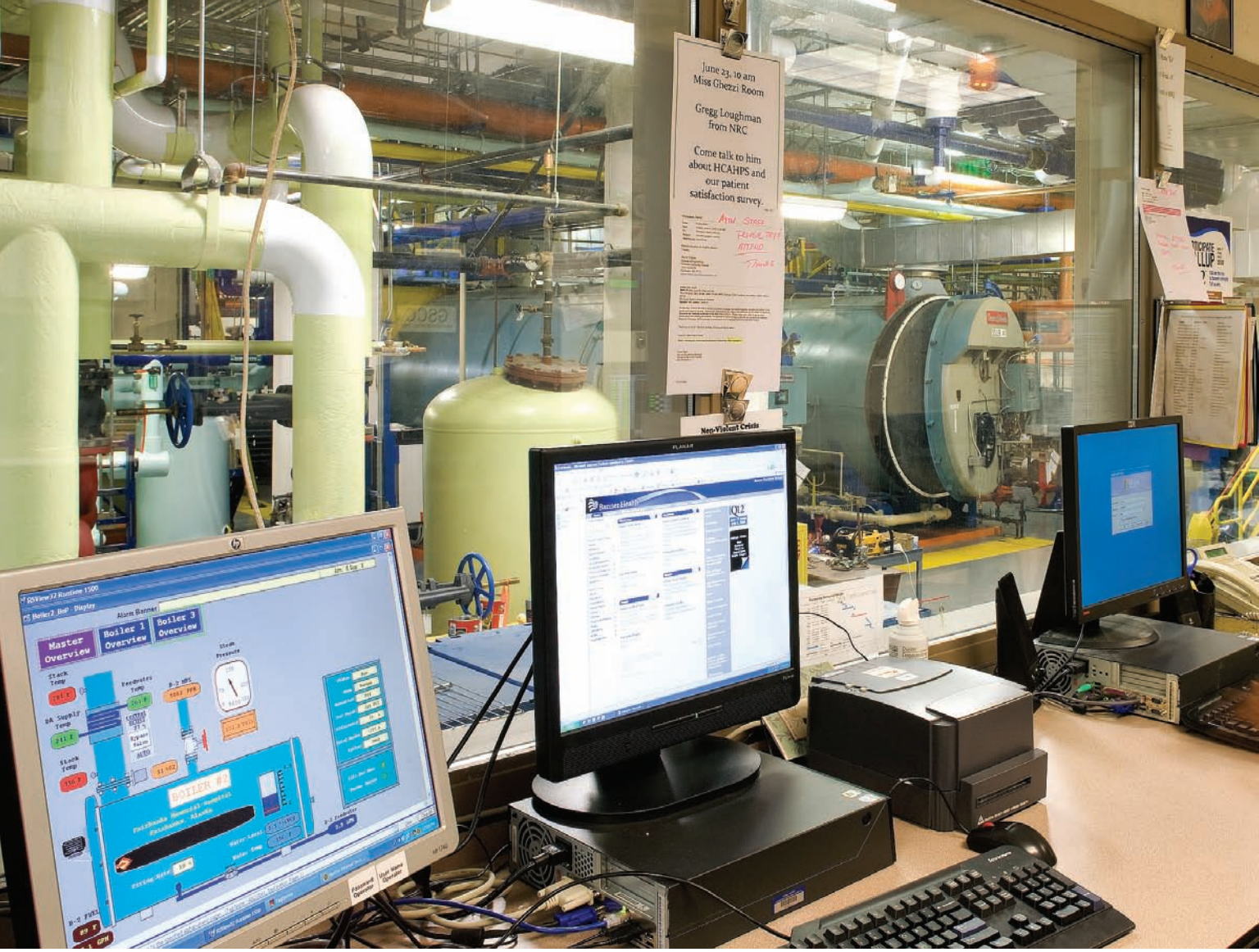
John Thomas Van Landingham, project manager, associate principal, Christner, St. Louis, Missouri

Tim Gunn, project director, Alberici Constructors, St. Louis, Missouri

David Bonsall, project manager, principal, McGrath Incorporated, St. Louis, Missouri

Brian Crawford, project director, Alberici Constructors, St. Louis, Missouri


STORZ


June 23, 10 am
Miss Ghezzi Room
Gregg Loughman
from NRC
Come talk to him
about HCAHPS and
our patient
satisfaction survey.
Master Overview
Boiler 1 Overview
Boiler 3 Overview
BOILER #2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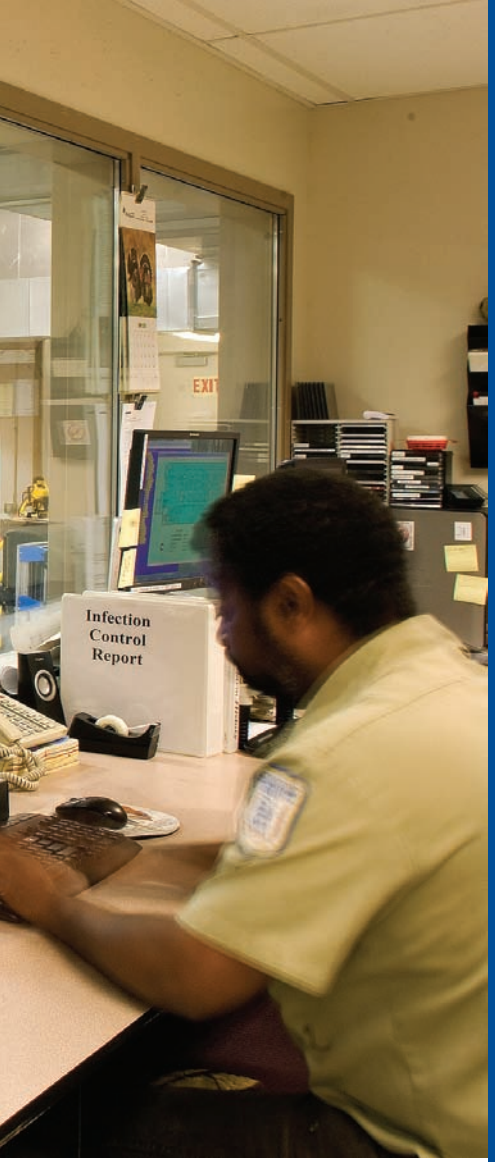
OPEN



2009 VISTA RECIPIENT

Infrastructure

Presented to an organization that has modified or replaced major portions of the utility generations, distribution or control systems involving significant project planning.

Fairbanks Memorial Hospital Boiler, Laundry, Waste Management; Fairbanks Memorial Hospital/Denali Center, Fairbanks, Alaska

As the only non-military acute care facility in the Alaskan interior, with the next closest civilian hospital 365 miles away, Fairbanks Memorial Hospital/Denali Center, Fairbanks, Alaska, must be prepared to withstand any emergency. To increase the reliability and efficiency of its infrastructure, the hospital recently upgraded its boiler, laundry and waste management systems.

During the project, the hospital installed two 1.5 megawatt diesel-fueled standby generators, which are controlled by touch screen digital switchgear. The system is configured to operate in parallel with the local electric utility, allowing the hospital to import and export power and peak shave at high load demands. The hospital's former system remains in place as additional backup for emergency events. The hospital also now has 12 automatic transfer switches, with the infrastructure and spare breakers needed for 24. An extension was built onto the hospital's boiler room to house the generators and switchgear, which are fully integrated with one of the existing standby generators, for a total of four megawatts standby power.

The laundry and waste handling areas of the hospital were also significantly improved during the project, with the design and construction of new work spaces and installation of automated equipment. The project improved work flow, worker satisfaction and patient and staff safety, while integrating the new structure and equipment seamlessly into the existing building. Despite unforeseen demolition expenses and a premium for value-added, custom computer software and controls, the project was completed on time and within the contingency budget.

Fairbanks Memorial is a locally-owned facility operated by Banner Health System, Phoenix, Ariz. This is the second project in as many years to earn a Vista award at the hospital. Working relationships that have developed over years between the hospital, its long-time architecture firm, and local contractors and subcontractors are at the heart of Fairbanks Memorial's continued success with design and construction, say Jon T. Lundquist, associate administrator of plant operations, support and facilities at the hospital, and Martha Hanlon, president, Martha Hanlon Architects Inc., Fairbanks. On this project, "there was no getting to know you stage," says Hanlon; trust and respect were already established among the key players.

Team members' familiarity with the existing facility was particularly helpful to the infrastructure upgrade. Electrical engineer Mike Goulding, project manager, PDC Inc. Engineers, Fairbanks, led an update of the hospital's electrical system in 1995. His understanding of the existing system was crucial to designing a new system to meet the hospital's current and future needs. On the design front, Hanlon has completed several projects at the hospital. "She knows the architecture that's here, and makes the new architecture work with the old architecture. That's very important to us," says Lundquist.

Throughout the recent project, communication was encouraged between core team members by weekly project management meetings with representatives from the hospital plant and operations, architect, general contractor, consulting electrical engineer and subcontractors. As necessary, subcontractors, operators, consultants and vendors joined the weekly meetings to plan and coordinate schedules.

Scheduling became particularly important when the construction of an emergency department expansion at the hospital was pushed forward, causing concerns the new ED would be completed before the necessary systems were in place to power it. Through careful planning and communication, the team avoided this situation, which they had termed the "big black box scenario." They also worked together to overcome scheduling challenges posed by the region's extreme weather, as certain demolition and exterior construction activities, such as burying fuel tanks, could take place only as outdoor temperatures allowed.

Planning and communication were essential to the successful completion of the project's phased construction, utility upgrades and switching. "Being a hospital, you can't just shut everything down and move it. You have to do it in pieces," says Dave Thompson, engineering supervisor at the hospital.

Bringing the generators online involved daily commissioning at times. New procedures were posted, staff were trained, drills were conducted and the procedures were executed—until they were replaced in the next phase of the upgrade, which started the process over again. "There was a lot of maneuvering and a lot of planning involved as to how we were going to do this without disrupting the hospital," Thompson says.

Focus groups comprised of engineering, laundry and environmental services staff helped the project team understand safety and efficiency concerns in each area, and develop designs to meet those needs. The new equipment installed in the hospital's laundry improves worker safety by reducing the chance of repetitive use and lifting injuries. It also improves patient safety, reducing contamination risk by requiring each piece of laundry to be touched by hand fewer times. A quick-break alcove with air curtains and reverse air flow was built between the dirty and clean laundry areas to give workers a convenient place to use the restroom or get a drink of water. This is an especially nice feature for workers because beverages are not allowed in the laundry processing area, for sanitation and safety reasons.

With the new equipment, each laundry load's hot, sterile clean rinse water is recaptured for use as the next load's first dirty rinse water. The system is so efficient the local water utility had to install low-flow meters to measure water usage at the facility after the project was completed.

Condensate tanks recapture boiler steam, which is treated and pumped through coils of captured exhaust stack heat to be brought back up to 300 degrees, the temperature required by the boiler. The hospital estimates that oil savings gained through this steam recovery system will pay for the system in 12 years—just over half the boiler's expected useful life.

In the waste management area, automated waste handling equipment and designated processing areas for confidential waste, hazardous materials and biohazards have reduced the hospital's waste management costs by 18 percent.

Along with the installation of state-of-the-art equipment, Lundquist says a major goal of the project was to create well-designed work spaces. "It's not pleasant in a boiler room, or a laundry, necessarily, but let's make it as pleasant as possible," he says. Windows provide light to the boiler, environmental services and laundry areas, and light panels seven feet off the ground give the hospital's 22-foot-high utility corridor a human scale. Thompson describes the environment as a dream come true. "The crew takes ownership of it and everybody's proud of it," he says. "You could eat off the floor of our boiler room."

Project Information

Number of square feet: 38,000

Project budget: $47.9 million

Actual cost: $48.3 million

Start date: April 14, 2004

Completion date: November 29, 2007

Team Members

Jon T. Lundquist; design team, construction oversight; associate administrator, plant operations; Fairbanks Memorial Hospital/Banner Health; Fairbanks, Alaska

Sonny Lindner, general contractor, president, Johnson River Enterprises, Fairbanks, Alaska

Jim Little, project coordinator, Greater Fairbanks Community Hospital Foundation, Fairbanks, Alaska

Mike Goulding, project manager, electrical engineer, PDC Inc. Engineers, Fairbanks, Alaska

Martha Hanlon, architect, president, Martha Hanlon Architects Inc., Fairbanks, Alaska

Dave Thompson, operational coordinator, engineering supervisor, Fairbanks Memorial Hospital/Banner Health, Fairbanks, Alaska


BOILER #3


SOILED

For additional information about the Vista Award, or to apply for next years award, please contact ASHE at 312.422.3800, or info@ashe.org

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