

FOCUS: **FACILITIES MANAGEMENT**

BY MARK PATTERSON

DESIGN

FROM **A FACILITIES MANAGEMENT** PERSPECTIVE

The viewpoint and involvement of facility managers must be considered for a hospital design to be deemed successful. The responsibility to maintain and service the facility exists for the life of the building — long after the designers are gone.

As Bill Walker, system director for design of Phoenix, Ariz.-based Banner Health puts it, “the facilities guy is the one who gets handed this building and is now responsible to maintain it. If he doesn’t know what went into the building, or he isn’t aware what was spec’d or how the system was set up, it would be very difficult for him. All of the architects and engineers are gone and this poor guy is sitting here with a building he’s not aware of.”

Using input from facilities managers, SmithGroup architects designed the entry at Page Hospital in Page, Ariz. to support separation of traffic.





Facility management input guided design decisions for the central utility plant for Kaiser Permanente's template hospital at Modesto, Calif.

Due to their unique perspective and responsibilities, facility managers should be included in design meetings from the very beginning of a project. Their upfront involvement can help create a building that is not only easier to maintain and operate, but one that is more efficient and cost-effective to design and build, too.

During project planning, a facility's manager can provide more detailed information than other users about certain design issues. For example, while administrators or clinical staff may know a particular material did not work in the hospital previously, the facility manager can describe exactly why, allowing the design team to address the specific issue rather than simply foregoing the material altogether.

Facility directors can also keep a critical eye on a building during construction. By viewing the building with future maintenance in mind, the facility director can spot potential maintenance issues in ways others cannot, says Kip Edwards, Banner Health system vice president for design and construction.

The benefits of facility management's input on design have recently been demonstrated in several projects between Banner Health, a nonprofit health system with 22 facilities in seven Western states, and the Phoenix office of SmithGroup, a national architecture, engineering, planning and interiors firm that specializes in healthcare design.

When Page Hospital, a Page, Ariz., health facility operated by Banner Health, decided to build a new emergency room, SmithGroup architects began meeting with Jeff Knight, the hospital's manager of plant operations. This front-end effort gave the SmithGroup team a much better understanding of the key issues driving the project.

Page Hospital has a number of features that needed to be considered in the emergency room design. It is located in a very remote area — Flagstaff, the nearest city of any size, is more than two hours away. This makes it especially important that the hospital's infrastructure systems are reliable and straightforward, so both parts and repair experts are easily obtainable in the rural location. Extreme temperature fluctuations are another challenge to infrastructure components in the high-elevation desert town. And the hospital's patient population swells in the summertime, due to the influx of tourists to nearby Lake Powell. Knight provided key information about these issues that ultimately led to SmithGroup's selection for the project; he continued to be an integral part of the design team throughout the project's duration.

Page Hospital CEO Sandy Haryasz calls the early inclusion of facility management personnel in design meetings "imperative," especially in renovation projects, due to these staffers' historical knowledge of a facility.

"They know the facility inside out," she says.

This knowledge can help engineers and the rest of the design team reach the best decisions for a project more quickly. Haryasz notes that for Page's recent emergency room project, Knight's presence in design meetings made the meetings run more efficiently, as team members did not have to spend time tracking down information he had at his fingertips, such as the hospital's boiler capacity. As a member of the design team, Knight was also able to make the case effectively to the hospital's capital board to fund a new boiler needed for the expansion project.

The Banner Health network has a facilities advisory group comprising all the facility directors in the system. Walker says this group is consulted on any project that involves mechanical, electrical or plumbing systems, including the product lines that hook into those systems. "Chillers, boilers, all the way down to faucets," he says. >>



At Page Hospital in Page, Ariz., facility and medical staff desired durable yet comfortable finishes that supported the Planetree approach.

INFORMATION TECHNOLOGY AND DESIGN

The previous model for healthcare design was to determine a facility's operational needs first, and then discuss infrastructure, utilities and maintenance issues. Given the complex nature of modern medical technology, a hospital's facilities infrastructure model must now be developed alongside its clinical delivery model.

"We no longer design hospitals; infrastructure designs hospitals for us," says Bill Walker, system director for design for Banner Health.

"You have to design around where you're going to put the infrastructure and where you're going to put the devices to support the patient."

Information technology is one

area of facility management that is having a major impact on hospital design. The move towards electronic medical records has raised issues such as how to incorporate wireless networking systems into the design of a building and how to provide monitors for staff, patient and visitor access while maintaining privacy issues.

Banner Health has been a vanguard of electronic medical record implementation. The health network began using electronic medical records five years ago at its Banner Estrella Medical Center in Phoenix. The paper-free concept was extended to Banner Gateway Medical Center in Gilbert, Ariz., and

the health system is in the process of building a new paper-free hospital, Banner Ironwood Medical Center, in Queen Creek, Ariz. Banner's electronic medical records involve the integration of 110 different software systems, according to Walker.

New design concepts are emerging to take advantage of this technology. For example, custom room environments could be created based on patient preferences. A patient could enter information upon registration that would adjust his or her room's lighting, color rendition and television channels. This is an exciting new idea, in which technology will directly influence the design, rather than the other way around.



By talking with facilities management groups, SmithGroup architects were able to make design decisions that would allow Page Hospital in Page, Ariz., to function most successfully.

Among other benefits, this ensures components are standardized, so a facility does not have to procure and store, for example, more than one type of faucet. Standardized systems and components also provide the health network with increased buying power, and allow facility managers job mobility within the network, helping the health system retain valuable employees while reducing training costs. If a facility manager relocates from one network hospital to another, "the learning curve and life-safety training is very short, because he's coming to the same equipment," Walker says.

SmithGroup and Banner Health are developing a scalable template hospital design for the network. The template is expected to reduce dramatically the time needed for the schematic design of new network hospitals and allow quick pricing evaluation during design and construction. By providing consistent quality and details in facilities across the network, the template design will also help advance the Banner Health brand. In designing the template, the network's facility managers have provided valuable insight into their functional expectations for future projects. Those involved in recent Banner construction projects, which are being used as a base for the template, have related lessons learned to help the design team move quickly to arrive at appropriate solutions.

The template is being tested in the construction of Banner Ironwood Medical Center, the newest member

of the Banner network. The Banner Ironwood project has been able to proceed quickly thanks to its template design. SmithGroup and general contractor McCarthy Construction were awarded the project in October 2007; the facility's official groundbreaking took place the first week of June 2008.

As the population of the hospital's Queen Creek, Ariz., community of nearly 100,000 people is expected to double by 2010, future expansion is a major issue for this project. Banner facility directors have been instrumental in helping to develop the design of the 86-bed hospital's flexible infrastructure systems, such as a medical gas distribution system with tie-ins that could eventually be expanded to support as many as 600 beds. In working with the facilities team, the designers were also able to devise a modular plan for the central plant, which can be moved farther away from the building in the future to make way for hospital growth. This modular approach is much more cost-effective than creating long distribution runs for the current building. Facility managers helped determine the distribution of utilities into and throughout the building, the location of tie-ins, and circulation routes for support functions that will support future designs.

Design involves more than the way something looks; it involves the way it functions. If it does not work, it is not a good design. In facility design, the form and aesthetics are an outgrowth of making sure the facility works well. That is the key responsibility of the design team, especially in healthcare. By talking with facility management groups, architects and engineers can better understand what will make the building function most successfully. This information has many benefits during the design and construction of a hospital, and long afterwards, as well. ■



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