





By Kirk Warden & Larry Chapman

Navigating Healthcare Design-Build

The ‘inside and out’ of Washington University Orthopedics and Barnes-Jewish Hospital Outpatient Orthopedic Center

The healthcare field continually produces cutting-edge technologies and procedures that save lives and improve people’s quality of life. However, medical facilities are some of the most complex and functional buildings, which can leave patients feeling overwhelmed and lost in their halls.

As many hospitals establish satellite offices for smaller outpatient procedures and therapies, designers and builders are being challenged to create these facilities with a welcoming and comforting environment with the end user in mind, while also meeting the functional requirements of decision makers and doctors. These

often conflicting challenges have helped advance the institutional design-build industry. Washington University Orthopedics and Barnes-Jewish Hospital Outpatient Orthopedic Center in Chesterfield, Mo., sought to create a one-stop outpatient care center that combined functionality, environment and aesthetics. Built because of predicted growth and demand for outpatient orthopedic services during the next decade, the new two-story, 60,000-square-foot facility serves as the department’s primary facility for sports medicine, hand surgery, shoulder surgery, foot and ankle surgery, and physical medicine and rehabilitation.

Comprehensive outpatient care is provided with physician offices, examination rooms, ambulatory surgery suites, diagnostic radiology, and rehabilitation and hand therapy services. Completed in July 2007, the outpatient facility provides minimally invasive surgical procedures that allow patients to be admitted and discharged on the same day. The state-of-the-art facility also features a full-service Orthopedic Surgery Center and all associated support facilities, an MRI suite, rehab facilities, exam rooms and doctors' offices.

The developer and design-builder, St. Louis based Clayco, Inc.; its joint venture partner, Legacy Building Group; the interior designer, ACI Boland; and the tenant executive teams went beyond the usual facility features and equipment to offer a truly full-service experience for its visitors. The teams took into consideration the location, exterior amenities, community input and interior navigational ability.

Tackling uncommon terrain

In analyzing the site, the land and location presented challenges that required new means and methods for innovation.

As a satellite facility, the building offered close proximity to its patients, many of whom have limited mobility. Built on a prominent bluff overlooking Interstate 64/U.S. Highway 40, the easily identified building acts as a billboard advertisement to its accessibility. To create this experience, the design-builder hid all parking and unsightly features out of view from traffic.

The project took more than five years of preplanning design and extensive zoning processes from the city of Chesterfield due to its close proximity to residential neighborhoods. In order to keep a good rapport with the surrounding communities, the developer dedicated 60 percent of the nine acres of land to green space as a buffer to the bordering residents. However, this in turn created a tight site for construction.

In addition, the land itself was challenging to work with due to the topography and large amount of rock; excavation and retaining walls were necessary for successful completion. The terrain rock and unlevel site also presented design challenges to create effective parking and walkways for patients with mobility issues.



The design-build team studied the bluff and positioned the building to maximize close-to-door parking and accommodate a functional footprint.

Routing exterior challenges

It often is the most difficult to conceal unattractive but necessary building utilities, such as generators or loading docks. Several of these challenges were presented in the orthopedic center, but the design team responded by developing a lower level for storage and mechanicals to hide these building elements.

The camouflaged department allowed deliveries to be received directly rather than in the main entrance where patients are present. The architects included a service elevator to deliver materials directly to each floor or department out of the circulation of the public. In addition, daylighting techniques allow the basement space to be functional, environmental and aesthetically pleasing to the building overview.

Because these challenges and any changes to the plans affected the success of the project, a proactive, front-end loaded planning effort was undertaken to protect the integrity of both the project and the natural landscape. Pre-construction designs included separate parking areas and entrances in the basement level for staff, which allows employees to park close to the building without taking

The benefits of third-party real estate

For those hospitals that are contemplating satellite facilities for outpatient services but aren't ready to take the financial plunge, third-party real estate services offer a unique business opportunity.

This new arena allows the real estate company to build a long-term and trustworthy relationship with the client and facilitate the solutions that meet the needs of the tenant, rather than concentrating on a short-lived transaction.

For instance, Clayco, Inc. acted as both developer and owner of the Washing-

ton University Orthopedics and Barnes-Jewish Hospital Outpatient Orthopedic Center. Designed around the criteria for the Washington University orthopedic surgical group and occupancy by BJC, the real estate plan allowed the tenant to develop a facility based on its requirements with the option to buy the facility upon completion.

Other options in third-party real estate deals give tenants that may not want to own the land the possibility to build while only investing in the operational costs

of the finished product.

This approach is a win-win relationship for both parties. Brokers are able to create a strategic partnership with companies, while tenants benefit from flexible full-service solutions to meet any situation.

As these stand-alone specialty medical buildings become a standard in the future, more and more hospitals will turn to third-party real estate providers to expand their capabilities and gain proximity to their customer base with limited investment.



Taking the LEED

Environmental awareness and sustainability were integral in the design and construction of the LEED v2.0 CS - Core and Shell registered orthopedic center. From selection of materials to be used on the project to the proper disposal of construction waste, all practical and economical sustainable measures were considered for the health of the building's employees and visitors.

To offer a healthier and cleaner environment for its users, base building energy systems were installed with the capability to meter individual tenants. Exterior upgrades include insulation value of exterior walls and roof as part of the overall building analysis, and lighting systems for directed illumination that limits skyglow, spill and glare to surrounding areas.

Taking its environmental responsibility into consideration, more than 50 percent of the total generated construction waste was diverted from area landfills, and more than 30 percent of the building materials were made from high-percentage recycled content.

those coveted spaces from patients who need them. In addition, careful consideration for the safety of the construction teams and the layout of equipment on the tightly-spaced bluff were applied.

During construction of the shell and core, the team simultaneously completed the interior fit-out work. By working in this parallel manner, the project was able to effectively implement change management techniques and successfully complete the project on a fast-track schedule.

Further front-end planning included a preplanning layout of interior spaces in consideration of how they would sit in relation to the exterior of the building. The teams also considered daylighting

issues for specific surgical departments. In the end, the front-end planning helped the project integrate seamlessly with the natural surroundings to create a convenient, eye-catching facility exterior.

Building an inviting interior

In constructing the interior of the facility, the same easy-to-use considerations were reflected. The goal was to create an internal environment that would assist patients in navigating the hospital without interrupting the flow of the patients' progress from prep- to post-procedure departments. By creating a facility that was easily navigated, the facility was able to better suit the patients' needs

and improve the experience during the process by providing an inviting atmosphere for healing.

Since the tenants were very engaged in how the building would feel for patients and visitors, they required creature comforts, such as a small cafeteria, coffee shop and common areas for an interactive and comforting environment. The design-build team also incorporated daylight as often as possible in these public areas to generate a welcoming and warm atmosphere.

Similarly, the design-builder and architects worked closely with the Washington University orthopedic group and BJC to meet the specific needs of the specialty doctors occupying the building. Built specifically for medical purposes from the ground up, the building allows flexibility for offices and surgical areas to be relocated or easily renovated in the future without disruptions to fire and safety codes.

As larger hospitals seek more off-site facilities, stand-alone specialty medical buildings will be built in regions closer to their customer base. As these satellite facilities become standard in the industry, architects and builders will uniquely intertwine functional spaces and cutting-edge technologies with easy-to-use features and welcoming environments.

As the construction industry overcomes the typical project setbacks in addition to the new challenges presented in these facilities, it is creating amazingly beautiful and functional spaces that can be emulated in a variety of other institutional domains. ■

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