River City Construction Completes Fulton State Hospital Replacement Project

NEW PSYCHIATRIC FACILITY WAS DESIGNED AND BUILT TO PROVIDE MORE SECURE, THERAPEUTIC ENVIRONMENT

The administration building, part of the Nixon Forensic Center at Fulton State Hospital, sits atop the location of three previous administration buildings and preserves the traditional entrance to the complex.

In this issue . . .

5 Kansas City Chapter, AGC 2019-2020 Board of Directors
7 CLC Members Prove They’ve Got the Chops
10-11 New KC AGC President Builds Career on Servant Leadership
13-15 The Builders’ Association Honors Safety Excellence
18-19 KC Golf Tourney Boosts Builders’ Scholarship Fund
28-29 Welcome New Members!

BACKGROUND

Located in the county seat of Callaway County, Fulton State Hospital dates back to 1847, when the Missouri General Assembly voted to establish a state psychiatric facility. When it opened in 1851 several blocks east of downtown Fulton, the hospital became the first state psychiatric facility west of the Mississippi River.

When the hospital was established it originally had over 500 acres; the current hospital has 95 acres. It is certified by the Centers for Medicare and Medicaid Services (CMS), and has been accredited by The Joint Commission (TJC) since 1984.

Fulton State Hospital treats patients with serious mental illness who are committed by Missouri courts for evaluation and treatment related to a crime, or who have seriously assaulted patients or staff in Missouri’s other state psychiatric hospitals. It is Missouri’s only high security psychiatric facility. (High security patients were formerly classified as maximum or intermediate security patients.) All other Missouri state psychiatric hospitals serve only minimum security clients.

Over the years, the facility had become outdated, leading to high maintenance costs and dangerous conditions for its workers. During the previous ten years, according to a study published in 2013, the Missouri Department of Mental Health and the Office of Administration’s Division of Facilities Management, Design & Construction had deferred $73 million in capital maintenance costs in anticipation of a new hospital complex.¹

¹ “Fulton State Hospital Rebuild Project,” MO.gov
² “Rebuilding Fulton State Hospital,” MO.gov, December 9, 2013

Maximum security clients have been housed at the 200-bed Biggs Forensic Center, a red brick building. The original four-story Biggs building, a WPA project, was built in 1937, during the Great Depression. (A gym was added in back and an office area was added in front in 1966. Four new wards were added in back as part of a one-story addition in 1988.) Intermediate security clients have been housed at the Guhlemann West building. Both buildings are located on the campus’ east side.

Line-of-sight supervision of patients at Biggs was made difficult by its “poor design,” noted the study. The hallways were long, with sharp corners, and the drop ceiling was low. Exposed pipes in the ceiling and along the walls posed strangulation hazards for its residents.

Due to the “dangerous behaviors” of patients at both Biggs and Guhlemann West, employee overtime costs were $3.7 million annually and worker compensation costs were $4 million annually. The worker compensation costs were “far and away the highest at any state facility,” noted the study. As a result, recruitment of professional staff had become increasingly difficult, posing a threat to hospital accreditation and certification.

FINANCING

In late 2013, Jay Nixon, who was Missouri Governor at the time, released plans to fund construction of a new, well-designed psychiatric complex that would address these issues. In 2014, the General Assembly backed Governor Nixon’s plan for replacing the facility. The state budget for 2015 included a bond issue designed to generate about $200 million of the projected $211 million cost.

In May 2018, the Missouri Senate approved the final $1.2 million to complete construction of (continued on next page)
the new Fulton State Hospital and to pay for the demolition of Biggs. The front administration building and patient living facility project was competitively bid in March 2016. River City Construction, L.L.C., one of three companies that submitted bids, received its notice of award as low bidder in April 2016, winning the largest single project in its history. (River City was established in 1984.) The $141 million contract encompassed demolition of the existing facility and construction of the replacement facility.

PROJECT TEAM
River City’s key supervisory personnel for Fulton State Hospital included Warren Moody, Senior Project Manager; Chris Hart, Project Manager; Nick Heinz, Project Manager; Jordan Holtgrave, Project Manager; Shane Verslues, Lead Superintendent; Dennis Berhorst, Field Superintendent; Jesse Steck, Field Superintendent; Brian Kekec, Quality Control Manager; and Dylan Riley, Safety Manager. The Architect of Record was WSP USA (formerly Parsons Brinckerhoff). Gregg Christian, AIA, Senior Architect and Project Manager, was the Construction Administrator. EYP Architecture & Engineering provided design services for WSP. Eric Kern, AIA, Principal, was EYP’s Senior Project Director for Fulton State Hospital.

Marty Martin-Forman was Chief Operating Officer of Fulton State Hospital and head of the Hospital’s executive committee during the design phase. Following her retirement from the Hospital in 2016, she became the Missouri Department of Mental Health’s liaison for River City Construction and WSP. Bud Smith, Chief Financial Officer, Fulton State Hospital, was a liaison as well.

GOALS
Marty shared the hospital executive committee’s goals for the new facility. “We knew natural light was therapeutic. We knew we needed adequate space for treatment. We did not want a central dining hall because it was important to maximize the safety of the patients and the time we could spend with them. It takes 1-1/2 hours to feed everyone in Biggs because we have to file them through one large central dining hall, which makes it a dangerous place. In the new facility, each half of each living unit has its own dining hall. Patients can eat with others in their living area in 30 minutes, and they can have a little bit of choice when they eat because it’s where they live, which is how we eat,” she emphasized.

“We wanted more space for clients and less space for support services,” she continued. “This was accomplished with a central, staff-only hallway in each new living unit. We also wanted the facility to be designed and built with the right materials so it would have a very long life span.” Warren Moody, who grew up in Fulton and is a 1991 graduate of Fulton High School, stated, “The old facility was in disrepair and unsafe for the staff and residents. It has been replaced with a safer and more secure facility with modern amenities, and it is fronted by a beautiful new administration building. We’ve gotten great feedback on this project from the hospital staff and the community.”

The project came under the Missouri prevailing wage law, which establishes a minimum wage rate for public works projects. River City Construction is a union contractor, as were the majority of its subcontractors on the project. River City maintains a field force of 200-400 skilled craftsmen represented by more than 75 local unions throughout its market area. “It is a tribute to all the trades who worked on this project not only to have stayed on schedule, but to have completed the job safely,” said Warren.

“River City’s top priority is safety,” he continued. “A formal safety orientation and OSHA training is mandatory at all job sites.” On the Fulton State Hospital project River City and its subcontractors exceeded 1 million man hours without a major lost-time incident.

River City’s workforce on the project was represented by 10.28% minority workers and 5.13% women workers based on over 960,236 work hours (as of April 23, 2019) and a peak of 324 workers per day. Additionally, River City achieved 3.09% SDVE (Service Disabled Veteran Enterprise) worker representation on the project, based on the same workforce count.

River City Construction self-performed a variety of the work at Fulton State Hospital. This included placement of reinforced concrete grade beams, rough carpentry, and architectural specialties such as bath accessories, bumper rails (for wall protection), fire extinguisher cabinets, projection screens, security turnstiles and gates, and numerous other items.

“The ability to self-perform work gives us an advantage on bid day and offers project owners the most competitive and cost-efficient proposals,” commented Warren.

PHASE I: ECC SERVICES
River City’s first contract encompassed demolition of the old Central Boiler Plant and construction of a new $25 million, 65,000 square (continued on next page)
Fulton State Hospital

(continued from page 2)

foot Energy Control Center and Services Building (ECC Services). Construction began in early May 2015. The groundbreaking ceremony was held later the same month, on May 27, 2015. ECC Services is a pre-engineered metal building on a concrete foundation and slab. It houses the hospital’s command center/control room, power plant for the heating and chilled water supply loop, commercial kitchen for patients, warehouse space, and maintenance department. It is located on the east side of the new facility and west of Biggs.

Phase I was completed in May 2016.

**Sustainability**

Fulton State Hospital was designed and constructed with sustainability in mind, according to Gregg Christian.

“While this project was not intended to become a LEED-certified building, that did not stop us from using the best sustainable practices available,” he said.

The new facility uses 156 solar thermal arrays (stop the ECC) connected to an 11,000-gallon solar storage tank for pre-heating all domestic hot water, as well as hot water for the building heating system. The facility also features an electrical backup system.

The entire facility can be run off two 2000kW/2500kVA paralleling generators capable of producing a total of 4000kW. “The facility cannot be offline and these generators ensure that it never will be,” said Gregg.

The new facility also has a white TPO roof (except for the living units).

**Phase II: Boiler Plant**

During the summer of 2015, River City began the second phase of work with the abatement and demolition of the hospital’s old boiler facility and construction of the new Guhlman and Farnese Boiler Plant. The new plant is a pre-engineered metal building on a concrete foundation and slab, and is on the southeast side of the campus.

River City installed new steam boilers and completed associated mechanical and electrical work to tie these systems into an existing utility tunnel. They also installed pavement and restored an existing lawn.

Phase II was completed in July 2016 at a cost of approximately $2.1 million.

**Phase III: Nixon Forensic Center**

In April 2016, River City broke ground on the new 423,000 square foot hospital building, which has been named for Charles E. (Jay) Nixon Forensic Center after the former Missouri Governor. Nixon Forensic Center consists of the front administration building and the patient facility in back.

River City played a substantial role in the demolition of the existing administration building, a one-story red brick building with basement. It was in the same location as the new administration building, which is “the fourth administration building to stand on this spot in the history of the hospital,” said Marty Martin-Forman.

During the demolition phase of the existing administration building, River City uncovered numerous cisterns and arched brick tunnels that had been used and later abandoned by the hospital. River City either removed them or filled them in with concrete or compacted structural fill.

The front administration building is a three-story structural steel building with masonry walls and ultra-high performance concrete panels. It faces west toward the new circle drive at the entrance to the hospital campus, and houses executive offices on the first floor, human resources and accounting on the second floor, and medical records and quality management on the third floor.

The two-story entrance lobby is enclosed in glass. The red cedar ceiling deck extends to the outside overhang, making the reception area feel even more spacious. White terrazzo flooring is used extensively in the new administrative area.

A center hallway leads from the administration building past the patient facility all the way to ECC Services on the east.

A 250-seat auditorium is located on the southwest corner and will be used not only for hospital functions and events, but for hosting events involving the Fulton community. A closed-circuit TV in the auditorium will allow for presentations to be heard by hospital clients.

A small telecourt facility is also located in the administration building (on the south) for the adjudication of guardianships and emergency involuntary commitments.

Most patients come into the hospital through the court system, said Marty. Patient admissions is located on the north side of the administration building and has a sally port. The police or sheriff’s car will pull in through either of two garage doors and the garage door will shut before any door to the facility opens. The patient is thus secure in the admissions area before they enter the hospital.

Staff and visitors entering the secure area from the administration area are subject to metal detection and x-ray screening of packages and handbags.

WSP USA issued its certificate of substantial completion for the Fulton State Hospital project on March 6, 2019. The ribbon-cutting ceremony was held on Tuesday, May 21, 2019.

**(continued on next page)**
Fulton State Hospital  
(continued from page 3)

LIVING UNITS

Behind the administration building, extending to the east, are six living units (three on the north and three on the south) with 50 beds each, for a total of 300 beds. In comparison, Biggs Forensic Center had 189 beds and Gahlenman West had 91 beds. Patients will move from Biggs and Gahlenman into the new facility during the summer of 2019.

The six living unit structures have standing seam roofing and resemble large stars or asterisks from above. The living units are connected to a main corridor but not to each other.

Each of the six living units has two sides. Each side is the mirror image of the other and has three living wings with patient bedrooms (a total of 25 per side), one office wing, and a dining area.

One of each of the three living wings also serves as a hardened storm shelter, with grouted CMU walls and a concrete lid, for a total of 12 storm shelters in the six living units. (In the Hope Center, a small gymnasium is also hardened for shelter. The ECC Service’s command center/control room, where administrative staff will assemble during a disaster, is hardened as well. The command center/control room contains a satellite phone, computers and other technology.)

“We treated the six living units as one building,” said Warren. “We treated the first living unit essentially as a mockup, which was the largest I’ve done in my career. Once we figured out how everything went together, the other five living units went much smoother.”

The new patient facility features wider hallways, higher ceilings, and more natural light than Biggs. It is also built on one level to eliminate unsafe stairways. (The primary living units at Biggs were located in the center portion, which has four stories.)

“Every living area has an outdoor space, which makes this facility unique,” said Marty. “This is also an improvement from where we once were, because clients only got to go outside when they were escorted, and they had to be escorted in groups.”

The south side of the site required a substantial amount of earthwork fill. “Some places required 12-13 feet of fill to level out the site for the living units,” commented Warren.

The exterior skin of the living units features accent areas made up of ground face concrete masonry units. The walls were created with a stacked bond (units stacked one on top of the other) instead of a running bond (the block is laid so that the ends tie at the midpoint of the block below it).

HOPE CENTER

Hope Center, a multi-purpose treatment gathering area, is located behind the front administration building. Hope Center has 1-1/2 gyms, music rooms, a canteen, and a gallery space.

Just north of Hope Center is a Rec Courtyard with gazebos, basketball courts, a volleyball court, and walking trails. On the south side of Hope Center is a Mindfulness Garden, a quiet place for contemplation with a Native American circle and other features.

“One of the more challenging aspects of the job was to build out the four fully-enclosed outdoor courtyards while not only leaving openings for construction access in and out, but also constructing a building around them,” said Warren.

PROGRAM COMMUNITIES

Four Program Communities are located midway between the administration building on the west and ECC Services on the east. “The Program Communities make Fulton State Hospital different than any other high security hospital in the nation right now,” said Marty.

“At Fulton State Hospital, patients are treated per their mental health diagnosis. Based on your diagnosis, you will go into a particular program. These four areas are where patients can go for group therapy, art classes, leisure classes, computer training, and exercise. Program Communities are areas where treatment occurs.”

East of Hope Center is a medical infirmary and farther east is Brandt Vocational Enterprises, a federally-recognized sheltered workshop. A small outcropping on the south side of the vocational area is a greenhouse.

WORKER PEAK

River City Construction reached a worker peak of 228 tradesmen during the summer of 2018, but on October 11, 2017, they peaked out at 324 tradesmen in a single day. At the latter time, crews were working on interior rough-ins and finishes, painting, casework, drywall, ceilings, HVAC, plumbing, electrical, technology, security, site concrete work, glazing, exterior finishes, and roof detailing.

River City’s subcontractors populated a single BIM model, which was designed by WSP and their consultants. The files were then provided to River City for coordination of their HVAC, MEP/FP (fire protection) systems, and building enclosure work.

Clash detection was used to find and resolve conflicts. A revised model was then issued to the subcontractors to install their work from. River City required its subcontractors to work off of the revised model.

“One of the things we are proud of is getting the numerous different architectural features of this building to come together,” said Warren. “For example, the living units have ground face concrete masonry units that tie into the standing seam wall panels that tie into the standing seam roof panels.”

More than one million CMU blocks were used on the project. “Fulton State Hospital was the largest masonry project I’ve ever been involved in, especially with the CMU blocks,” said Warren.

Installation of the ultra-high performance concrete panels (UHPC), which create a checkerboard pattern on the exterior of the administration building, required careful coordination between River City and the trades, he added. “Along with the paneling were little overflow roof scuppers, cameras, and different kinds of speakers. They all had to be installed perfectly.”

MINIMIZING LIGATURE RISKS

The facility was updated to eliminate ligature risks so patients cannot harm themselves. Beds, door handles, hinges, shower curtains and other items are potential safety hazards.

“As in any mental health facility, suicide is a major concern and something you never want to occur,” said Marty. “The holes in the floor drains in the bathrooms had to be small enough so that a sheet cannot be threaded up through two of them and tied. The sprinkler heads have to be anti-ligature so that you can’t loop anything around them,” she noted.

The ceilings in the Hope Center are 17 feet high and have flush-mounted anti-ligature downlights. The chairs and tables are comfortable and visually appealing yet too heavy to be thrown. Some of the lounge chairs are molded pieces of plastic with no opportunity for rope or cord attachment. Ligature-resistant TV enclosures protect the patients and hardware from harm.

“To build a state-of-the-art high security psychiatric facility like ours requires a steep learning curve,” stated Marty. “There are countless details and unforeseen challenges, but River City accomplished the task. Very soon in the construction process they were able to identify issues and ask, ‘Hey, is this going to be a problem?’

“I could tell that Warren and his team took personal satisfaction in executing the design vision and making sure everyone would be happy with the end result. I still marvel at the transformation and express my gratitude to everyone who made it possible.”

© EYP Architecture & Engineering