



LSU HEALTH SCIENCE CENTER

Project Program

The project team sequenced the project by first starting with the interior renovations on the CSRB and Medical Education Building (MEB), and construction of the new generator building. The generator building is a 2-story building made of slab on grade structural steel with poured concrete decks. The team needed the generator building to be complete early to house the new critical MEP equipment that powers the entire campus. Also, during the renovation portion, the team executed the new animal transportation bridge that ties into two existing areas connecting the CSRB and MEB. The steel framed connector bridge sits on two concrete bridge piers and connects MEB to CSRB.

The method of construction for the CSRB building addition was poured in place concrete deck and walls, with CMU walls, and a glass curtainwall system. Due to unforeseen environmental issues, the team started with the CSRB and MEB renovations, new central plant, and connector bridge. Upon mitigation of the contaminated soils, the new building addition started.

Additional scope added to the contract through the duration of construction included flood-proofing on the MEB and installing bridge toppers on the existing pedestrian bridges.

Innovative Programs for Quality Control

Fourth Floor Vivarium

The LSU Health Science Center's School of Public Health operates from the CSRB and MEB buildings, the nature of their studies requires the housing and well-being of various animals for medical procedures and research. The vivarium, which is an enclosed area designed to provide a stable environment for animals and plants for observation or scientific research, was a major component of this project and is housed on the 4th floor. Within the vivarium consists of a tunnel wash and sterilizer used for the cleaning and sterilizing equipment, animal cages, and small hand tools. To ensure longevity in the

Location

New Orleans, Louisiana

Services Provided

General Construction

Project Size

143,571 sf

Project Completed

May 2023

Awards

2022, ABC Bayou Chapter,
Award of Merit

vivarium's drainage system, an Epoxy Brush Coating was applied to the pipes which fills pinholes and cracks to eliminate corrosion of animal care products over time.

Within the vivarium is a large cage rack hydro-washer and sterilizer used for thorough, efficient cleaning of cages, racks, debris pans, and miscellaneous items used in the care of laboratory animals. This piece of equipment was inset in a large 1' deep structural pit to accumulate all the water from the cages. Due to the large amount of water from this scope item, extra waterproofing materials were installed between floors 3 and 4.

Finish Application

Due to the nature of use of this building, the need for clean rooms with seamless floors and walls is imperative. Wall and floor coatings in the MEB/CSRB must be slip-resistant, puncture-resistant, and stain resistant.

To meet the needs of this building, a rigorous, multi-step application was used for the epoxy coating on the CMU walls and flooring system through the entire CSRB addition. New Orleans Metal Works was the subcontractor applying the coatings, and Woodward's team performed quality inspections for this healthcare standard in clean rooms.

Testing Protocols and Commissioning Process

The complex nature of this project required both a rigorous testing and commissioning process. The construction team facilitated the testing program to major components of the

project, most notably the exterior glass curtain wall system. To ensure the exterior system was met its hurricane/wind rating it was tested by CCL (Construction Consulting Laboratory). This Texas-based company performed the curtain wall system testing and ensured its quality performance.

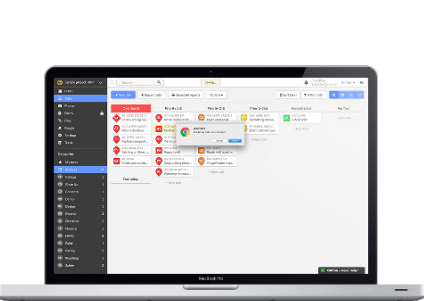
Woodward coordinated with Thompson Building Energy Solutions to perform pre-function testing, functional testing, and final verification of commissioned equipment which included new central plant and 13 new air handling units, medical air/vacuum, medical exhaust hoods, fire pumps, switch gears and 5 remote generators.

As deficiencies during testing were found, Woodward captured them in Procore to be added to the mechanical punch list for the mechanical contractor. As those items were resolved, Woodward would submit documentation and verified with Thompson.

A 1' deep structural pit was inset to accumulate the run off from the vivarium's hydro-washer.



An Epoxy Brush Coating was applied in the pipes of the Vivarium's Cage Washing system to increase waterproofing, strength, and durability.



FIELDWIRE

PROCORE

The commissioning process utilized two key technologies, Procore and Fieldwire, to keep track of testing, reporting, deficiencies, and final verification of major components of the project.



The exterior glass curtain wall system's performance was mocked-up and tested for wind and water penetration in Texas.



The Lean approach of Last Planner system was utilized on this project by the contractor, and subcontractors to commit to delivery dates and hold each other accountable for delays.

Innovative Programs for Schedule

We utilized our standard scheduling strategies for this project which include critical path scheduling, including design and procurement activities in addition to construction activities, and tracking critical owner activities and campus needs.

In addition to our standard scheduling initiatives, we used a scheduling consultant given the large phased effort of this project. Peritia Partners conducting monthly updates through 2019-2021, but elevated to weekly reporting in 2022 to finish the project. They including time for any delays and tie them to the critical path to ensure we were tracking the right activities properly. The team regularly met virtually, but they made several trips to the site to visit in person and walk the job to better understand our work activities.

Woodward uses Lean schedule practices and the Last Planner® System for schedule management. These tools include the “Master Schedule”, phased “Pull Scheduling”, and “Look Ahead Scheduling”. This collaborative approach includes all individuals that are directly responsible for supervising the work. Pull scheduling participants include subcontractors, vendors and Woodward’s field supervision.

This scheduling process includes trade foremen who commit to completion dates and identify the prerequisites needed to complete their work efficiently.

Innovative Programs for Productivity

Where possible, the team used every opportunity for 24hr hour working shifts to maximize productivity on this project. The field leaders organized double shifts during all shutdowns so that construction could progress while other resources were being utilized to execute/manage the shutdown efforts.

Installing the curtain wall system was a notable activity in which we utilized 24hour shifts. At night the crew would work to install the insulation and the day crew were installing stone and hanging glass.

Special Obstacles

Major MEP Shutdowns

The project required over 20 shutdowns of the major MEP system serving the entire operating campus of this institution. To prepare for the shutdowns, the team executed a multi-step communication and coordination plan three weeks in advance to the shutdown. The team worked with LSUHSC's facility manager, design professionals, and the end-users the shutdown would affect.

This was a particularly sensitive process, as the shutdown would not just affect the daily operation of faculty, staff, students, but also the various species of animals housed on campus. To prepare for the shutdowns, Woodward coordinated carefully planned Methods of Procedure (MOPs) on each piece of equipment which detailed shutdown activities and durations. The MOP also detailed which subs were responsible for that piece of equipment, who specifically would be working on shutting down the existing system and completing the tie-in procedure for the new system. The shutdowns ran anywhere from 10 minutes to 14 hours. Woodward field leaders were responsible for giving accurate durations to the LSUHSC and associated staff on how long each shutdown would last.

Fire Protection Systems

Related to the critical MEP work was the fire protection system improvements and relocation from the ground level to the 2nd floor. The scope included removal, replacement, and relocation of 2 existing fire pumps, all sprinkler heads and piping. Because of the safety concerns of being without sprinkler/fire protection during these activities, Woodward field leadership worked closely with LSUHSC facilities to inform them of the down time for extra precautions. We also worked with the fire protection subcontractor to minimize each down period to no longer than 4 hours per switch.

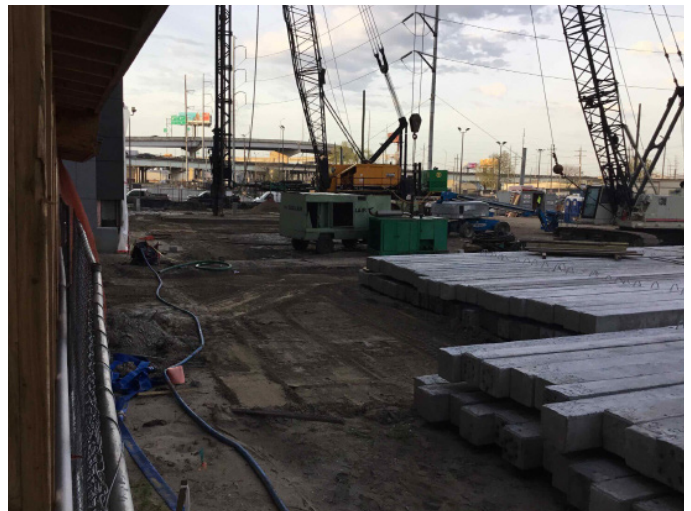
Difficulties and Extenuating Circumstances

Contaminated Soil

The most notable extenuating circumstance on this project was the unforeseen environmental conditions in the location of the new building addition. The contaminated soil was not known or uncovered until after the project was awarded and the renovation work was underway, approximately November 2019. The team immediately had to work with the designers and facility team to put a soil mitigation plan in place to mend the soil. This major impact to the schedule resulted in the inability to start pile driving on the building addition costing approximately 120 days of progress on this major scope of work. To overcome the lost time of environmental impacts, Woodward field leadership deployed 24-hour shifts on critical components of the curtain wall system to get the building dried in quickly and progress interior construction.

COVID-19 Impacts

This \$90 million project commenced in April 2019, approximately 11 months prior to the covid-19 pandemic affecting our area. Upon being released to start the addition in March 2020, the covid-19 restrictions were put in place limiting our ability to manage subcontractor performance. The pile driving company alone reported labor shortages so severe they were not able to start this crucial activity for 2 weeks in which we were already 3 months after the initial delays of covid that the material shortages on major components were recognized. The team experienced shortages on major mechanical items, roofing materials, and exterior envelope components.



After the delay of contaminated soil, the team faced Covid-19 restrictions in March 2020 which impacted the progress of the CSRB building, starting with the pile driving activities.



The site of the new central plant was flooded in July 2019, one of the many weather events that impacted the site.

Weather Impacts

This project was impacted by a total of 218 weather-delayed days. Some of the weather events resulted in major flooding in and around the project, one event in particular resulted in 13 cars being flooded. In addition to the weather days impacting the scheduled activities, they also took unforeseen resources away from the job to remove water from the flooded sites so activities could continue.

Function and Aesthetic Quality of the Design

Providing more than simply access to ferries, the new terminal complex includes passenger services, a streetcar rail spur, floating dock/transition structure with additional retail and capacity to receive (2) high-speed 149-person ferry vessels. The aesthetic builds on transparency and accessibility, blending glazing, perforated metal panels and a polycarbonate canopy to create an identifiable urban element along the riverfront. Additionally, light and shadow, both with daylight playing off the building materials and at night, with interior illumination, contributes to the building's aesthetic as the newest urban element along this revitalized area at the foot of Canal Street.

The transparent design, incorporating a mix of clear and colored glass, appears to float on the plaza and is anchored by stair and elevator towers wrapped in perforated metal. Ground-level panels, where security was a factor, feature smaller, less dense perforations; upper level is more open and perforations all views of interior core from a distance. Additionally, its small footprint allows pedestrian flow along the river and providing easy connection—both visual and on foot—between the reopened Audubon Aquarium, Vue Orleans and the Four Seasons, as well as neighboring Spanish Plaza. All these new and restored attractions and amenities at the foot of Canal Street, including the new Ferry Terminal, are designed to ease and enhance the experience of residents and visitors, alike.



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