

Contracted Scope

Project Description/Type of Construction

Central Carolina Technical College, in partnership with readySC (industry training division of the SC Technical College System) has developed their Advanced Manufacturing Technology Training Center in Sumter, South Carolina.

Formerly a Wal-Mart (1983), the 104,000 SF facility was transformed into a state-of-the-art industrial training center for applicants and employees of Continental Tire the Americas in association with ReadySC (a division of the SC Technical College System).

Construction included: demolition of the interior infrastructure and front facade, exterior components, as well as enhancements to the expansive parking lot. While the structural walls and core framing of the building remained, the front exterior was opened in several locations to eliminate the “big box” feel, add natural daylight, and create greater visibility into the facility.

Additionally, all new HVAC, electrical, plumbing, and data systems, a new roof system, and structural upgrades were made to comply with current state requirements.

Sustainability and flexibility is the core design focus, and CCTC has committed to obtaining a Double Green Globes Certification for sustainable design and operations.

- **Metal rain screen system and perforated metal “turbine” screens. Rain screens designed to divert water and the turbine screens are designed to create shade to the interior spaces as well as provide a unique focal point to the exterior of the building.**

The College will relocate and expand several programs to the new facility, including Basic and Advanced Mechatronics, Machine Tool/CNC, and Engineering Graphics Technology. In addition, the Center will provide training space for existing and future industries in Sumter County. The College estimates about 300 students engaging in these three programs each year from the four surrounding counties.

Size of Project

A renovation of 104,000 SF of an existing single-story building (formerly a Wal-Mart).

Length of Project

Start Date: July 15, 2014

Completion Date: August 3, 2015 (3 weeks early)

The total project duration was 13 months.

Self-Performed Labor

Rodgers acted as the CM on this project, and self-performed 1% of labor on the project.



Project Narrative

Why is this project special?

Due to the growth of the manufacturing businesses in the surrounding area, Central Carolina Technical College (CCTC) saw that there was a need for more highly-trained workforce. CCTC wanted to expand their industrial and engineering technology programs to meet this need, but a larger building was needed for this expansion.

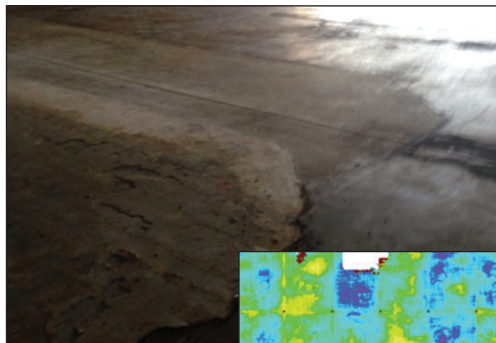
CCTC found an existing building, in close proximity to their Sumter Campus, to use as an adaptive reuse project for the community of Sumter. The building was 30 years old and required an extensive amount of work to bring it up to code. CCTC enlisted LS3P (architect) and Rodgers to help them complete this process.

Innovative Quality Control Programs

Because this was an older structure, the original plan was to demo the existing concrete slab floor (assuming it was in ill-repair) and replace it with a new one. Rodgers proposed using their

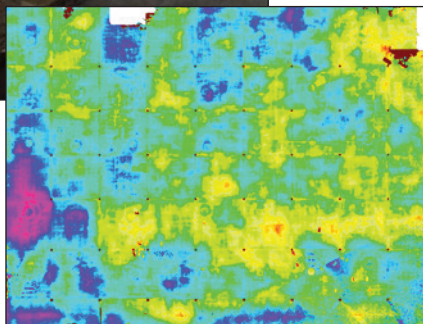
internal Building Information Modeling (BIM) department to laser scan the slab to determine the slab's quality. The results showed that the slab did not need to be removed and that only a topping slab was needed to even it up and repair the numerous damages to the surface. The scan also showed that the thickness of the topping slab needed to be 3.5" as well as calculated the amount of concrete that would be needed to pour the slab. Rodgers worked with Lithko Contracting (an ABC Member) on this process which provided \$70,000 of savings back to CCTC.

The seismic codes when the building was originally built were not as stringent as they are today and the entire exterior of the structure needed to be brought up to the current seismic codes. Rodgers worked with Lithko Contracting to determine the most efficient & economical way to make this happen. The work needed involved the installation of retrofit CMU vertical reinforcement in all of the existing exterior CMU walls along the perimeter of the building as well as around all doorways and window openings. The work included adding vertical reinforcing steel and pilasters and additional lateral angle



• Before - Existing concrete slab floor

• Laser scan of the existing concrete slab



• After - Existing slab with topping slab added

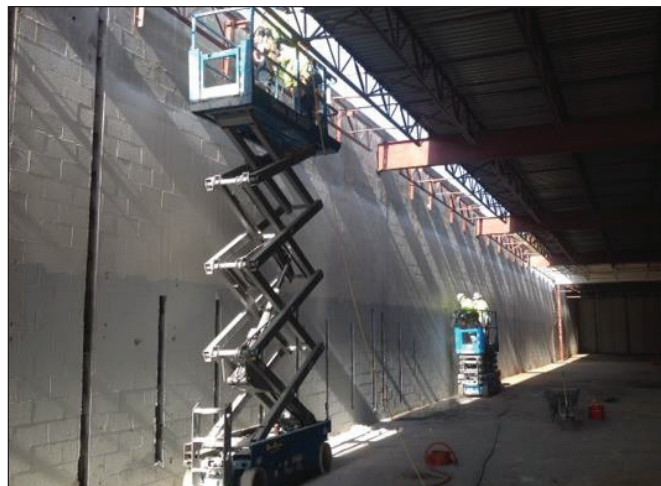
iron to fix the seismic issues and to also help shore decking and provide bracing for the new roof. Rodgers also fixed the existing bond beam, which was not originally placed in the correct elevations.

Rodgers' internal Building Information Modeling (BIM) department created a model of the project, which was shared with all subcontractors. This was done using 360 Glue, a cloud-based application by Autodesk that allows the architect, engineer, contractor and trades to access the BIM and collaborate quickly to resolve issues.

The subcontractors then modeled their trades and pushed it out to Autodesk 360 Glue. Rodgers managed the models and ran "clash detection" between trades. Finding these clashes enabled Rodgers to resolve design issues before construction began. Rodgers

- *"Rodgers was willing to work with us as we figured out the best way to do the pilasters in the block walls, this was an unorthodox method, but in the end it worked out for both of us."*

- Josh Beech, Operations Manager, Lithko Contracting



• Seismic retrofitting

informed the subs of design issues, and worked closely with them to resolve them prior to construction beginning.

The location of the building is in the heart of Sumter, SC amidst two busy intersections with high visibility of traffic. In efforts to revitalize this area, CCTC wanted the end result to be something the city of Sumter could be proud of by completely transforming the abandoned building and surrounding property. The execution and quality of this project was key to the return on the investment made by all parties as well as the growth of the local businesses and manufacturing facilities.

LS3P's exterior design took full advantage of the location by redesigning the exterior to completely remove the "big box" feel from the existing building. The focal point of the front facade was the custom "Turbine Screen." This screen is not only a decorative design element, but it is also a functional sun screen. The fabrication, construction and installation of the turbine screen was carefully monitored by Rodgers.

Innovative Scheduling Programs

Rodgers worked with The Milestone Group, (an ABC Member) to assist with the overall scheduling of the project. Milestone provided support and helped keep the project on schedule by keeping communication open and assisting in decisions regarding design change and construction.

The Rodgers project team also used a whiteboard scheduling method, which has proven to be a very effective tool for keeping all project partners engaged and aware of schedule concerns. Rodgers also produced weekly progress reports and held weekly subcontractor

meetings to look at activities to accelerate that week to stay on track.

Rodgers also was able to save time by using iPads in the field. This allowed the Rodgers team to review drawings with the subcontractors, engineers and the architect on the jobsite, saving time and potential costly mistakes. Rodgers also used iPads during the punchlist process.

Rodgers also utilized its electronic ShareFile server for all subcontractors, engineers and the architect to easily upload/download RFI's and submittals for quicker review. This was a process used throughout the preconstruction and construction process.

Due to careful planning and scheduling, Rodgers was able to complete the Continental Tire/ReadySC portion of the project on time, and then turned over the rest of the project 3-weeks ahead of the construction completion date allowing CCTC plenty of time to move into the spaces and to prepare for Fall classes to begin as programmed.

Value Analysis/Engineering Process

When Rodgers joined the team, CCTC and LS3P were very far along in the design, and the

- *"The College made a decision late in the design process to use the CM-R method of project delivery, so Rodgers wasn't involved during the initial design process. However, due to the escalation of construction prices around the time we were ready to bid, and the College's limited funding for this project, Rodgers began working diligently with the architects and the College to "value engineer" the project as soon as they were hired. As a result, we were able to move forward with the project without sacrificing quality and programs."*

- CCTC VP for Business Affairs - Terry L. Booth

budget for the entire project was already set. Unfortunately, when Rodgers began reviewing the design and bidding the work, it became apparent that the design did not fit the budget.

Rodgers assisted CCTC & LS3P in getting the construction and design to match their budget by doing extensive 5-month preconstruction value engineering effort. There were over a hundred different items/scopes of work that were value engineered, which resulted in a total of \$2,171,387 worth of savings on the project.

Below are some examples of the changes made. As you can see, the changes did not take away from CCTC's critical educational programs. It was important to maintain the courses of study and reduce other items from the design... **to maximize the budget and gain more return in their investment.**

- Value engineering resulted in a Design/Build venture with MSS Solutions (HVAC subcontractor). Rodgers and MSS worked together to cut \$630,000 from the HVAC portion of the project.
- Removing a portion of the rear of building (15,180 sf.) to better accommodate the Owner's space needs = \$270,000 savings.
- Shelling the NE & NW Quadrants and defer to Phase II = \$1,060,000 savings. **Phase II is currently under construction with Rodgers.**
- Allow the use of Aluminum feeders in lieu of copper = \$125,000 savings.
- Re-design of the roof = \$80,000 savings.
- Topping Slab in lieu of slab removal = \$70,000 savings.

Indicate any special obstacles you overcame in completing the project

Because the building was over 30 years old, it needed to be inspected for quality and safety,

not only the structural integrity of the building, but also the existing roof and roof structure, foundation, walls, HVAC, electrical, plumbing and data systems. All areas needed to be inspected and evaluated against the current codes.

The reviews revealed the interior infrastructure (with the exception of interior structural walls), HVAC, electrical, plumbing and data systems all needed to be repaired or replaced. A complete demolition of the interior was required. LS3P provided new designs and layout of the interior to meet the needs of CCTC.

The entire roof also needed to be replaced. Rodgers completely removed and replaced the old roof membrane, which had numerous leaks, and also replaced approximately 20,000 SF of rusted roof decking that was caused by many years of leaks and neglect.

Contract documents called for a new heavy duty drive to be cut into in the existing parking lot. When construction began, what looked like unsuitable soil was discovered. The unsuitable soil was removed and replaced. Upon this discovery, the team discussed the issue and realized that a heavy duty drive was actually not needed. LS3P changed the design of the drive to avoid further disturbance of the soil. This was an unexpected condition, but Rodgers dealt with the issue in a timely fashion with no impact to the schedule.

Moisture content was found in the concrete slab, due to humidity in Sumter and temperature around the time of placement. The solution was the addition of an epoxy coating to remediate the moisture. Finishing the floor was critical to the schedule as it needed to be completed before other phases could begin. Rodgers was

• *“As expected with any older building, there were several challenges as construction ensued. Rodgers communicated well with the College and the architects and other consultants and solved each problem that arose without affecting the final budget or schedule.... I would not hesitate to hire Rodgers Builders for another large project as construction manager or general contractor.”*

- CCTC VP for Business Affairs - Terry L. Booth

able to complete the floors so the next phase of work could begin without delay.

Unexpected conditions can always cause project delays but the team worked protectively to mitigate issues and deliver the project on time.

Difficulties or Extenuating Circumstances

As previously mentioned, Rodgers performed and extensive preconstruction effort to make the design fit the budget of the project. Rodgers immediately began the preconstruction process to try to reduce construction costs by working with the owner and designers to propose alternatives.

There were some contractual issues with the purchase of the building that CCTC needed to resolve with the EDA before construction could begin. A resolution was needed before moving forward with construction, as the agreement with the EDA was needed in order to receive the grant funds. Once an agreement was reached, Rodgers began construction immediately and was able to meet the original “critical” completion dates for both readySC and Continental Tire. The remainder of the spaces were completed 3-weeks early allowing CCTC plenty of time to move into the spaces and to prepare for Fall classes to begin as scheduled.

Quality of Finished Project



The new AMTTC project was an adaptive reuse project of a 30-year old abandoned “Big Box” building. It was very important that the end result not show any trace evidence of the old tenants... **The finished project is something the town of Sumter, SC could be proud of.**

The location of the building is in the heart of Sumter, SC and against two busy intersections with high visibility of traffic. LS3P’s exterior designs took full advantage of the location by

redesigning the front facade to completely remove the “big box” feel from the existing building.

LS3P’s design muse came from the industrial nature of the AMTTC project for which they created an inviting new front facade, the focal of the building, by adding a curved “continuous swoop” element that continues across the entire span of the front of the building. The design is an interpretation of rounded shapes that



mimic tires, as well as the motions of drill and milling machines that are used in the AMTTC's educational facility.

The design of the facade is not only decorative, but also functional as it is clad with a metal rain screen material and, because the building faces west, the turbine screen also provides shade to the hardscape plaza, library, front entrance and lobby.

These same design elements are repeated on the interior as well. LS3P created a unique “wayfinding” method by dividing the programs



• **Simulated work Environment (SWE) Lab for lean manufacturing training**



• **Turbine screens shading the new hardscape plaza and library**

up into four quadrants or “city centers” allowing for easy maneuvering throughout the facility. Each “city” has avenues and corridors that separate them as well as lead you throughout the building. The ceiling panels are also designed with unique patterns as to “subliminally” lead you through the spaces. The interior color palette also helps to further separate the different quadrants and study programs.

Within each city, classrooms and labs are adjacent making it convenient and flexible.



• **Main Entrance**

Labs are also denoted with green paint color on at least one wall in each lab. Each “city” has avenues and corridors that separate them as well as lead you throughout the building.

Because the property sits against two busy intersections with high visibility of traffic, LS3P paid special attention the landscaping. They selected an array of regional grasses, trees, flowers and shrubs and brought more greenery around the outside of the building and the main

entrance making it more inviting and welcoming. The use of foliage also adds a soft layer to the industrial design of the exterior. A tree lined boulevard was also added at the main entrance to guide you up to the facility.

For sustainability, the greenery selected requires less water, partly because of the weather of Sumter, but also as a water conservation effort. The irrigation system is a low-flow dripping system, which conserves water.





- Hallway showing vertical partitions in the lab spaces, which allows equipment to be moved



- Conference Room



- Front lobby and entrance to Continental Tire



- readySC testing room