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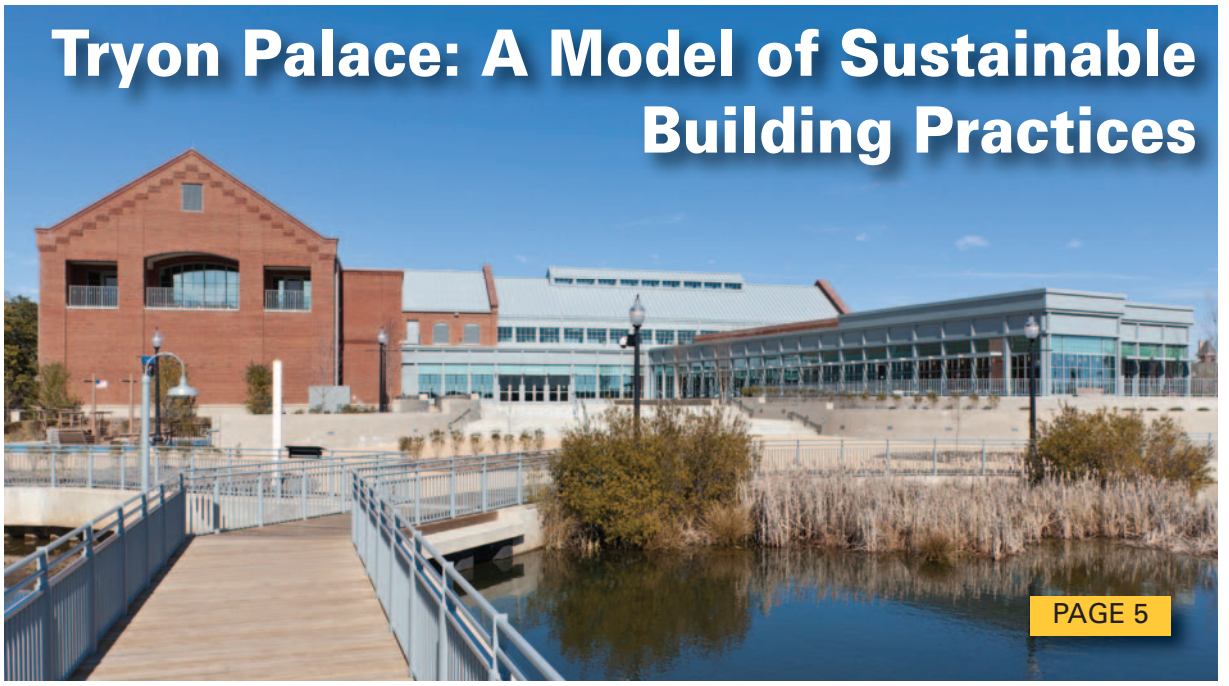

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NC construction industry responds to April storm aftermath

STAFF WRITER
– The North Carolina Construction News

Paul Rose was at home watching television April 16 when the reports starting coming in of tornadoes ripping through the state. Glued to the coverage, he saw evidence of massive 60-foot trees being tossed about, roofs of homes and businesses blown off and torrential rain and storms as they moved through Raleigh. Then he saw something else.

It was a building he leases on South Saunders Street in Raleigh to Shop & Share Thrift Store. And it had been damaged by the high winds and rain. Parts of the roof were still flapping in the breeze. "I went right down there to check it out," he says. "It was devastation-plus."

What he found not only was the damaged roof, which covers four interconnected structures, but problems caused by the torrential rains. "The water was coming down the walls and into the floors. It was everywhere." He would later discover that there was $250,000 worth of damage at the 15,000-square-foot structure that had once housed the family's furniture store.

It was just one of the hundreds of buildings — commercial and residential — damaged along the storm's path as it plowed through the Piedmont into Eastern North Carolina, touching down an estimated 62 times. For Rose, and for many other landlords or business owners, there was an easy decision to be made. "We wanted to get our tenants back in the building."

To do it, Rose turned to Greensboro-based Disaster One Inc., a Greensboro-based company which also has offices in Raleigh, Charlotte and Atlanta. The 34-year-old company specializes in restoration and emergency services for residential and commercial property owners, taking on damages caused by fire, flooding, mold and other problems. "I had a relationship with John (Gist, regional manager of the Raleigh office). He's done work in the past that I'm familiar with."

Rose wasn't the only person who turned to Disaster One.The company received 93 requests for services the first three days after the storm. "There was all kinds of damage," Gist says. "We had properties with entire roofing systems stripped and removed, buildings where pieces of the structure had been cut off. Once the exterior shell's been compromised, the rain comes in from the storms and does a lot of damage from the inside."

Marccus Rubenstein, sales manager for Sunbelt Rentals in Raleigh, says his company also dealt with the storm's aftermath. "We're the second-largest company in the U.S. as far as rental construction, restoration and remediation equipment," he says, noting that it also provides backup power sources for clients. "Within several hours of the tornado, we had several trucks on the road and worked all and worked all week around the clock delivering equipment all over to help storm victims, restoration and remediation

contractors, demolition contractors and general contractors that were called in to do emergency work."

Companies such as Disaster One not only deal with the physical damage, they help reassure building owners that recovery isn't that far off, according to President Ras Fenger. "Our tagline is 'Restoring Your Future,'" Fenger says. "We understand the emotions they go through. Once something catastrophic happens, all your plans go out the window."

For Rose, it meant a new roof and other repairs. Disaster One helped get all the water out of the building, installed new carpet padding and re-stretched the carpet to cover the floors. In addition, the building was without electricity for nearly six weeks, so Disaster One supplied a generator to assist the repairs.

Gist says the company ha about 80 employees, including project managers, administrative personnel and others. It assesses the needed repairs and lines up subcontractors. "We assist in any way, handling, cleaning and restoring contents and reinstalling them when the buildings are safe," he says.

The goal is to get companies back in business as soon as possible. In the case of Rose and Shop & Share, the repairs will take about two months. "On a straightforward situation, we're able to get the business back up and running in a remarkably short order," Gist says. "It's what we do. Our subcontractors are professional. We create a schedule and stay focused on it."

Rose is happy with the job Disaster One is doing on his property and said the consignment store hopes to reopen in mid-June. "They've been closed ever since the storm and haven't been able to do any business. We're trying to get them back in."

And while he's pleased with his first experience with Disaster One, he also hopes it is his last. "We hadn't done business with them because we didn't need them. Hopefully, we won't have to use them again."

Fenger understands. "People hope nothing happens again," he says. "We don't wish anything on anybody. But we're always there to help."

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ASA Carolinas ABC Carolinas

Raleigh's New Transit Operations Center Eligible for Platinum Certification

PHOTO BY WWW.AMERICANAERIALPHOTOS.COM

ARTHUR MURRAY
– The North Carolina Construction News

When the project is groundbreaking green construction, you don't often think of a bus garage/operations center. But the City of Raleigh Transit Operations Center, which officially opened in late May, is all that — one of the first integrated transit operations projects in the country to seek Leadership in Energy and Environmental Design platinum status from the U.S. Green Building Council. LEED Platinum is the highest level of certification.

The Transit Operations Center is housed in a 90,000-square-foot facility built on 23 acres on Poole Road just outside the Interstate 440 beltline. It was built to accommodate 125 buses—the City currently has 96—and can expand to handle 200. The nearly $29 million project, paid for in part by $11.6 million in federal stimulus funds, incorporates a number of sustainable building concepts, including bamboo flooring and cabinets, cisterns to catch and recycle rain to water the grounds, sensors to make the most of natural lighting and wool-blend carpets.

But what really sets it apart from other projects, according to the designers, contractors and subcontractors, is its unique heating and cooling system, using 150 geothermal wells with chilled beams and radiant flooring.

The other unusual thing about the project was the speed in which it was completed. Raleigh general contractor Brasfield & Gorrie won the bid for it in July 2009 and pushed it through to completion earlier this year. The fact that it received stimulus dollars provided much of the impetus for the quick work, says project manager David Finch.

That's because stimulus dollars could only be used for projects deemed shovel-ready. To move the operations center for that status meant the city had to petition the state to allow it to designate it as a "design-build" project, which meant that drawings would be only 65% complete before bids were sought. "It was the first time this happened, at least for the city of Raleigh," Finch says.

Gil Johnson, of Capital Project Consulting, Inc. who provided overall project management, says the city assembled an initial design team headed by Williard Ferm Architects PA, Maintenance Design Group, WSP Sells and construction lawyer Jim Schenck of Conner Gwyn Schenck PLLC to develop initial design, site planning, bridging documents, assist in the selection process and usher the project through to completion.

One of the most daunting tasks was getting the property, which had been purchased only three months earlier, rezoned for the center. "We were seeking a very generous zoning category because we didn't have a final plan together and needed flexibility," Johnson says. "That can make people uncomfortable because it allows all kinds of uses." In the end, the team worked with community liaison groups, explaining that the center would employ 200 and be an economic engine for that part of Raleigh."

Ola Ferm, one of the owners of Williard Ferm, agreed that the timing was a challenge. "We had three months to do a $24 million job. We'd normally have a year to do that." Once the design-build was completed, the city also hired Williard Ferm for a conventional construction-administration role. "We reviewed the last 35% of the design to make sure it conformed to the original bridging documents," he says.

The showpieces of the Transit Operations Center are its geothermal well system and its chilled-beam heating, ventilation and air conditioning system. Scott Triplett, president of Memphis, Tenn.-based Midsouth Geothermal, explained that the center's parking lots cover 150 300-foot-deep geothermal wells, which use water circulated through 1" polyethylene piping to heat and cool the operations building. "In lieu of using air to air conventional heating and cooling systems, it exchanges heat

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Raleigh's Transit Operations Center

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back and forth to the earth," Triplett explains. "You're taking heat out of the building in the summer and putting it in the ground. In winter, you're taking from the ground and putting it in the building."

Triplett, who has been installing geothermal wells for more than 14 years, says he encountered a challenge at the Raleigh site. "The geology made it difficult to drill," he says, noting that the loose wet sand for the first 60 feet tended to collapse, forcing the company to install steel casings to bolster the wells. Meanwhile the bottom 240 feet was granite. "We brought in some different technology and ended up getting a system down that worked smoothly," he says.

Working with the geothermal wells are the chilled beams, which Finch describes a sort of radiator made of coils in the ceiling. Chilled or heated water is pumped through chilled beams which in turn cools or heats the surrounding air in the room.

Ginger Scoggins, principal of Raleigh-based Engineered Designs, which designed the system, says her company has designed a lot of geothermal well systems but that this was the first time it incorporated the chilled beams. "This is the top of the line in energy efficiency," she says. Together, the systems save about 70% on heating and cooling costs, with about a six-year payback on the investment.

Brown Brothers Plumbing and Heating Co. in Durham also helped in the LEED effort, installing cisterns to capture rainwater for irrigation, waterless urinals, low-consumption toilets and other conservation-minded products. Rodney Whitaker, treasure and partner at Brown Brothers, called the project a fulfilling one on many levels. "It was rewarding just coming together as a team trying to get something near impossible to build built in the correct timeframe," he says. "You learn what you can handle as a company and part of the team."

JERRY BLOW ARCHITECTURAL PHOTOGRAPHY

Ferm says it all came together because designers, contractors and subcontractors worked together, which he says is the goal. "You have to make sure you don't lose track of what you're trying to accomplish on a project," he says. "In this case, it's a 50-plus year facility that's going to serve the transportation needs for the city of Raleigh. That guided all the decisions, including how material selections were made. This is not a shopping center that's going to last 15 years."

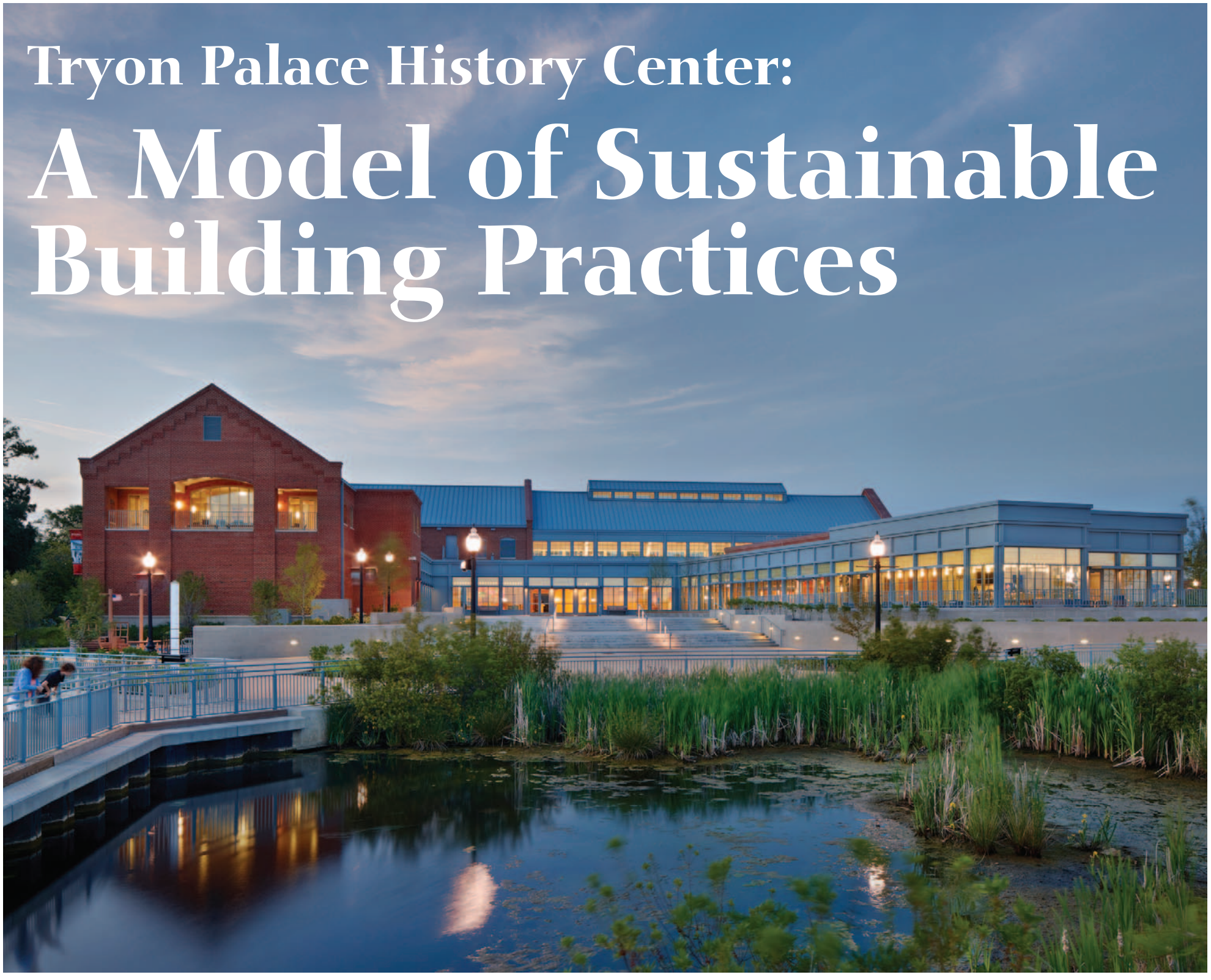
The City of Raleigh anticipates receiving LEED certification by the end of the year, Finch says, and he notes that it will be a huge accomplishment. "There is literally 18 to 20 acres of paving at the project and we're still able to reach LEED status. It just shows that when the design team and owner are willing to put in the work, it's possible to meet the highest standards in sustainable construction."

JERRY BLOW ARCHITECTURAL PHOTOGRAPHY

2011 CPN Star Award Winner

Tryon Palace History Center:

A Model of Sustainable Building Practices



BEA QUIRK
– The North Carolina Construction News

It was more than a decade in the making, but when the North Carolina History Center at Tryon Palace opened in New Bern in October 2010, everyone agreed hands down that it was well worth the wait. The Construction Professionals Network of North Carolina was among its admirers and presented the construction team with its 2011 Star Award for new construction over $20 million. The Star Awards seek to honor the most outstanding new construction project in the state and are selected on the merits, owner satisfaction and challenges faced.

"It was an extremely complicated project, so we were very comfortable with the timeline," observes Tryon Palace Director Kay Williams. "Our goal was to create a quality building that will be standing – and treasured – 100 years from now. And we wanted a 21st century design that did not overwhelm the landscape or the Palace, but rather complemented them."

The well-planned and meticulously executed 60,000-square-foot structure is an engineering marvel and an architectural masterpiece. It was designed by Raleigh-based BJAC in collaboration with Quinn Evans Architects, with offices in Washington, DC. Clancy & Theys Construction Company of Raleigh was the construction manager at-risk who oversaw the work of 34 subcontractors. As many as 175 workers were on-site at any given time.

The two-story North Carolina History Center reflects five distinct historical industrial architectural styles and draws on themes of the waterfront's earlier uses: a boat yard and warehouse. Brick masonry pavilions are linked with contemporary-style glass and metal-clad galleries. These varying looks are tied together through the consistent use of materials such as metal

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Tryon Palace History Center

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roofing, brick, precast and siding, all of which serve to blend historic and new elements harmoniously within the evolving context of downtown New Bern.

The Center is also on the transformational edge of changing how visitors experience museums. Says Jennifer Amster, BJAC's principal in-charge, "Going to a museum is no longer a passive experience – it's about engaging visitors in new ways. By juxtaposing virtual and hands-on experience-based learning, we accomplished something new: visitors experience history—it's actually a reinvention and redefinition of what defines a history museum."

Tryon Palace, a reconstructed, historically-accurate 1760s governor's mansion, was first opened to visitors in 1959. At 25,000 square feet, it is only about 40% the size of the new North Carolina History Center. BJAC was hired in 1999 to create a master plan for the six-acre site, which was completed in 2001. It was put on the shelf for another four years until design was reinitiated, and ground was broken in 2008. The timing of the museum's opening was particularly appropriate – New Bern celebrated its 300th anniversary in 2010.

Dreams for the Center actually date back to 1997 when the State of North Carolina purchased the old Barbour Boat Works site adjacent to the palace grounds so Tryon Palace could have a visitor center.

While their ambitions for the Center grew, Tryon Palace was faced with an environmental challenge. The shipyard was a federally-designated Super Fund site highly contaminated with asbestos, PCBs and other toxic chemicals. An abandoned gasification plant across the street also contributed to the polluted soil. It took more than five years to remediate the site.

The museum's campus sits on the riverfront, where the soil is soft. Nearby structures were beginning to sink. To prevent these issues, the building sits on 600 pilings, some as deep as 100 feet. "It's built to Florida hurricane standards," Williams says.

The Tryon Palace board was committed to sustainability and to minimizing the building's water and energy consumption. "We see ourselves as stewards of historic landscapes, and we also want to invest in the future," Williams explains. The Center will be the first LEED-certified museum in the North Carolina and the first LEED building in New Bern.

To accomplish this vision – and meet LEED Silver requirements – BJAC architects used out-of-the-box thinking. The master plan created wetlands on the site to treat storm water from 50 surrounding acres. This took years, not months, to make happen. Underneath the Center's courtyard is a 35,000-gallon cistern that catches runoff from the facility's roof; much of which is used to irrigate the grounds. This water reclamation system rests on the pilings and had to be built at the same time as the building's foundation.

"There were complex challenges all over the place," comments David Kay, Clancy & Theys' senior project manager.

Williams praises Clancy & Theys for its commitment to sustainable building practices. For example, she notes that company staffers made public presentations about the building's construction to educate residents about sustainability issues.

Williams' praise extends to all of construction team's work. "Clancy & Theys did an incredible job and went out of their way to be creative – it was a once-in-a-lifetime project."

As a partially-funded state project, budget considerations played a big part in every decision. "Money was always in the back of our minds," Kay says. "Working within the budget was a group effort – we were continually brainstorming and bouncing value-engineering ideas off each other."

That approach was indicative of the entire process, Amster observes. "Good clients make for great projects, and Tryon Palace had a strong vision of what they wanted the museum to be. The collaboration between the construction and design teams was unusually strong. We all worked very cohesively together."

In addition to Clancy & Theys building responsibilities, the company also oversaw coordination of the exhibit construction. This was a new experience for the company. The Center's building design – handled by William Drewer of Quinn Evans, who died unexpectedly in January 2010 — was driven by the exhibits, rather than fitting exhibits into a space that was already designed. Power and load requirements, lighting, cabling and data access were all integral parts of the planning, design and construction stages.

Collaboration extended beyond the design and construction teams working with the owner and started before the first line of the schematic was put to paper. Williams says the museum met with various stakeholders before design began, including residential neighbors, permitting officials and environmental activists. Nearby homeowners were communicated with regularly during construction, including door-to-door notifications when construction became noisy.

"Time spent effectively on the front end meant we didn't have to stop and solve problems in the middle of construction," Williams says. "And we kept communicating the vision at every step of the way"

CPN Affiliations: Clancy & Theys Construction Co., BJAC and David Allen Co.

2011 CPN Star Award Winner

Elevation Baptist Church Goes Modern

BEA QUIRK
– The North Carolina Construction News

The leadership of Elevation Baptist Church in Knightdale, NC had limited construction or architectural experience. But they wanted their sanctuary to be perfect in its glorification of God.

Charlotte-based general contractor Edifice, Inc.'s long standing experience and skills – along with a heartfelt dedication – was able to turn the congregation's ambitious dreams into reality, all within budget. The total cost was $14.3 million. CPN of North Carolina recognized the accomplishments with the 2011 Star Award for projects under $20 million.

Edifice's first project 33 years ago was a church. Some 15 years ago, it created a separate group, Cornerstone, to focus solely on the faith-based community.

"When churches build, they have a fervent spirit of excellence – they want to exemplify their commitment and relationship with God," observes Bryan Knupp, Edifice senior vice president who heads up Cornerstone. "Because of our experience, we can act as a guiding force for an entire project."

The Elevation Baptist Church project was neither small nor simple, so it required all of Edifice's expertise. The 63,644-square-foot, 3,000-seat sanctuary is pie-shaped and lacks any 90 degree corners and has a sloped metal roof. A retractable, revolving globe hangs from a floating cloud ceiling, and there is a state-of-the-art audio system and large projection screens. The exterior features an 85-foot cross atop a glass curtain wall. Most of the building's skin is made of 1'x 2' mason units of faux stone.

The sanctuary features a raised platform and a recessed orchestra pit (with a movable flooring system), as well as two conical-shaped floors with a level landing between them. To minimize columns in the sanctuary, roof trusses with a span of 160 feet span and each weighing about 42 tons were used. Two cranes were required to set the trusses: one to hold the trusses in place while the other set the adjoining joist. Special Kevlar rigging was required to complete this. In addition the balcony's unique design features large joist girders. There are just two columns in the seating area.

Precise planning on Edifice's part resulted in an accurate steel structure frame and a highly detailed ceiling with an optimal finish. A master schedule was complemented by a short-term three-week schedule, and the two were continually monitored and updated to ensure the project as completed on time. Construction took 16 months. The project also included roadwork, a private sanitary waste tank system and 30 acres of site development.

Scheduling was complicated. In their pursuit of excellence, church leaders made more than 130 change orders, including adding the globe after construction had begun on the ceiling. Yet the project came in under budget, thanks, in large part, to Edifice's value engineering efforts.

Anthony Foust, Elevation's business manager, praises Edifice for its integrity, excellence and quality workmanship. "The Edifice team was diligent and detailed in their work. They stayed within the budget and produced a high quality finish. Team members were excellent to work with and addressed all our concerns in a quick and professional manner. We are grateful we had them as our contractor."

Knupp and project architect Lynn Dufrene of Cary-based Fanning Howey Architects agree that the geometry of the building posed the biggest challenge.

Notes Knupp, "The design is based on a radial layout with circular curves, which adds complexity to a construction project. Construction is easer when it is linear with straight lines and symmetry.

"Our superintendent Al Barr loves complex projects, and he sunk his teeth into this one," Knupp adds. "He personally assured us that every anchor bolt was in the right place."

Notes Dufrene, "It's a very complicated building with a complex geometry. It has odd angles and shapes that pull your eyes to the front of the sanctuary. In spite of its size, it's intimate."

"The owners wanted to awe people when they walked in – it's actually more like a theater than a church," Dufrene adds. "I wish we had more projects like this. I don't think anyone but Edifice could have pulled it off."

The structure was actually built from the top down, with the balcony constructed before the floor slab on the ground floor was completed. Because the ground floor was sloped, a scaffolding system that covered the entire sanctuary was required to complete the ceiling. Because of the unusual configuration, careful attention was made to ensure the structure was watertight and leak-proof.

"We worked side-by-side with Edifice as a team, and they were very helpful in making sure the client got what they wanted," Defrene says. "The company showed diligence and dedication to finish work on time and within the budget, not to mention making it an enjoyable experience along the way."

Value engineering was an integral part of both the design and construction stages. Early on, Edifice bid out and negotiated design-build contracts for the fire prevention, mechanical and electrical systems, saving the church about $250,000. Another $75,000 was cut from the budget through a variety of changes Edifice suggested, such as using a more cost-effective acoustical system, revising the drywall ceilings and changing equipment for the septic system.

"We believe in being good stewards of the resources that are entrusted to us," Knupp says. "It allows a church to enhance its ministries."

The one-of-a-kind eight-foot diameter world globe that descends from the acoustical cloud ceiling – and spins on its axis — was another major construction challenge. Because it was a last minute addition, Edifice had to expedite the structural changes necessary to support the globe. This type of globe had never been built and installed before, so the company conducted extensive research to determine loads and rigging requirements. The ceiling cloud was also modified to enable the globe to completely disappear above the ceiling.

"This wasn't just a job for us – these kinds of projects rarely are," Knupp says. "Lives will be changed eternally by the ministry that takes place in this facility."

CPN Affiliations: Edifice, David Allen Company, HICAPS, ECS Carolinas and Smith Moore Leatherwood.

Project Manager's Toolbox – Startup

BY RICHARD LAW – GUEST COLUMNIST
– The North Carolina Construction News

The single most important thing to help ensure the successful execution of a new project is the organization of the information and records systems for the project. These systems provide all of the information that will be required by the project team to effectively do their jobs and these systems provide the framework for the actions that will govern the profitabilty of the project. They can be executed in a traditional format, predominantly utilizing paper documents (including hard copies of electronic documents like emails) and stored in file cabinets and plan racks or layout tables; or, they can be correlated using a computerized data management application. The basic organization and necessary information are similar in either instance.

Contract Documents

The first class of information that the project team will need is a complete collection of all of the contract documents, including one reference set of the contract drawings and specifications. This set of contract data should include copies of any agency/owner technical guidelines incorporated into the contract, any scope of work or schedule qualifications accepted by the owner/architect, and any negotiated agreements not reflected in the contract itself. It is only by knowing what is, and what is not, included in the contract that the project team can intelligently and efficiently determines what materials and methods to deliver, and how to deliver them.

Two additional sets of contract drawings and specifications also need to be provided at the very beginning; both will be for posting request for information answers, architect supplemental instructions, change directives, approved change requests, change orders, and all other official modifications to the work. One of these will be the ongoing record of all such modifications, and the other will be used as the record set, also known as the "red lined" set.

Another immediate need from the very start is a complete project team directory in a maintainable format. Project specific letterheads and logos (as necessary) also need to be created and made readily available for immediate use.

Project Filing System

The general organization of the project filing system needs to also be established at the very start of the project, before information has a chance to get randomly filed. This system doesn't necessarily need to conform to any particular pattern, but it must be simple, consistent, and easily mastered by all team members.

Records pertaining to each sub-contract or purchase order should be archived in a more structured fashion. The easiest way to do this is to use a four-clasp folder for each sub-contractor or supplier in order to group all applicable documents into four distinct catagories in one concise location. The four clasp folders should each, respectively, contain everything pertinent to the history and final form of the contract or purchase order, the complete record of the actual administration of the agreement, all of the field and operations records for the contract or purchase order, and copies of all correspondence regarding the agreement. The use of this type of folder system will put all of the financial, operations, and miscellaneous data for each sub-contract or purchase order in one easily referenced volume.

Submittals

One of the most important aspects of starting up a project is composing the submittal registry, a compilation of all of the items that will need to be submitted throughout the life of the project. While it is commonly assumed that submittals are product data, product data is, in reality, a fraction of the necessary submittals for a project.

Submittals can include samples, tradesman, supplier, and contractor qualifications and licenses, permit issuances and closures, construction schedules, coordination and erection/installation drawings, test reports, progress photos, owner training (materials and schedules), spare parts and attic stock, operation and maintenance manuals, guarantees/warrantees, and a myriad of other items. The list is extensive and can be daunting to keep track of, without submittal registry is that system, and the common tendency to "triage" the Contract Documents in order to "get by" with the minimum number of Submittals should be avoided. The best approach is really to submit every single item that the Contract Documents even remotely suggest as being desired. Each submittal Item should be uniquely referenced based upon the CSI Section and Sub-Section in which it is noted so that all items can be accounted for.

There is a common tendency to try to "triage" the contract documents in order to "get by" on the absolute minimum number of submittals. The reality is that the best approach is the exact opposite; submit every single item that the contract documents even remotely suggest as being desired. Every submittal provided to the owner/architect removes a potential conflict from the board and further stabilizes the project finances.

It's easy to see why everything involved in setting up a project in traditional fashion is a laborious, boring, and frustrating task. The effort can be accomplished a lot quicker and slicker using a computerized data management application, where documents can be linked with a couple of mouse clicks, instead of by making multiple copies and drudgingly filing them in several places. The project directory and the submittal registry can be created and maintained far more quickly and comprehensively by using such an application in lieu of multiple spreadsheets. Many other advantages also exist. However, none of them are a shortcut around a meticulous and well thought-out project setup.

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