CONCRETE WORKS

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ConcreteWorks is a publication of the **Alabama Concrete Industries Association** and features articles and photographs pertaining to product applications, educational opportunities, as well as innovative construction techniques impacting the industry.

Please email **kward@alconcrete.org** with any comments regarding featured articles in *ConcreteWorks* or to suggest a story idea for a future edition.

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GREEN FROM THE GROUND UP

As you are approaching the Soccer/Track Complex at Auburn University, your attention will most likely be grabbed by the large building with a smooth curved roof. This impressive facility that provides over 20,000 square feet of space for the university's soccer and track teams and their coaches, including offices, lockers, a training room, a conference room and more, certainly stands out. The entire structure was designed and built following "green" building principals. However, one of the most important green and sustainable aspects of the project is right under your feet. The adjacent 31,000-square-foot parking lot, completed in September 2010, is made of pervious concrete.

According to Gary Greenshields, president of Infinity Architecture in Montgomery and project architect for this project, pervious concrete was the obvious choice and should help the university in its pursuit of Leadership in Energy & Environmental Design (LEED) Silver Certification for the project. "Pervious concrete's abilities to control storm water runoff as well as minimize the 'heat island' effect around the building were significant factors in its selection in this case," he said. "The university has a stated policy to achieve LEED Silver Certification on all of its new construction, so that drove the design and implementation here."

In 1993, a private, membership-based non-profit organization called the U.S. Green Building Council was formed to promote sustainable design, construction and building operations. In 1994, the

USGBC created LEED. Now, LEED is an internationally recognized green building certification system that, according to the USGBC "provides third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts." LEED simplifies "green" building by giving architects, contractors, building owners and operators a set of standards for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

The Soccer/Track Complex project marked Greenshields' inaugural experience with pervious concrete, but today, more and more businesses, corporations and other public institutions are looking to add LEED certifications to their projects, and as a result pervious concrete will no doubt become more and more common thanks to its eco-friendly properties.

While the installation and use of the material went quite smoothly, Greenshields did note one thing that contractors have to bear in mind when working with pervious concrete. "The only real challenge was in coordinating the construction activities," he said. "It was a very tight build site, with limited access, and once you pour the pervious paving, you can't have traffic on it for several weeks. That meant we had to plan the sequence very carefully in order to maintain construction access to stay on schedule, but also get the pervious poured and ensure it cured properly. We were able to do it; it just takes good planning."

Curtis Eatman, a civil engineer and principal at LBYD Civil and Structural Engineering in Birmingham, served as the project manager for the project and has worked with pervious concrete in the past. He echoed Greenshields' comments. "The installation of pervious concrete can be a little more challenging than that of regular concrete or asphalt," he said. "You just have to be more careful and make sure you've got good, experienced contractors working with you. You also have to make sure you are using the material in the proper context." The Soccer/Track Complex is a prime example of that "proper context" with its low-volume parking lot and service drive. "It will not see too much traffic or too much heavy traffic," Eatman said. "Pervious concrete doesn't work well under repeated heavy loads or substantial amounts of traffic."

Pervious concrete is a very effective way to "go green" on a project, as it provides a rather simple solution to the problem of pollution associated with storm water runoff. The porous system of highly permeable, interconnected voids captures the first flush of storm

> "In most situations, pervious concrete is a little more costly than competitor materials at the outset, but the benefits almost always outweigh this initial cost increase"

water, which often contains the highest percentage of pollutants, and drains quickly, naturally filtering the water.

It can also be cost-effective in the long run, as Eatman explained. "In most situations, pervious concrete is a little more costly than competitor materials at the outset, but the benefits almost always outweigh this initial cost increase," he said.

To hold up and operate at their maximum potential, pervious concrete lots must be cleaned (usually pressure washing and vacuuming) on a regular schedule to keep their surfaces and the voids free of debris. "Its longevity does depend on the loading and maintenance, and there is a little more maintenance required on a regular basis, but in the long run, pervious concrete lots should last longer than asphalt ones, and pervious is much more environmentally friendly than asphalt," Eatman said.

Other eco-friendly features include a lessening of the heat island effect, as pervious concrete is lighter in color and reflects more heat in comparison to asphalt. It is inherently a more natural product than asphalt, which is petroleum based. Using pervious concrete often results in a much more efficient use of land, as it eliminates the need for retention ponds and other storm water management devices, which could lead to savings in a project budget.

The parking lot at the Soccer/Track Complex has performed precisely as it should, pleasing Greenshields, Eatman and everyone else involved, not the least of which is the client, Auburn University. "The university seems to be very happy with the project, and the lot seems to be holding up well and functioning properly, allowing storm water to run through it, just as it was designed to do," Greenshields said.

He also pointed to one other pro when it came to the use of pervious concrete for this lot. "It has good aesthetics too," he said. "To me, it looks really nice around the building and very compatible with the rest of the design." ■ Jennifer Kornegay

DISTINCTIVE *by* DESIGN

For most women, the thought of taking their car to a mechanic's garage is about as appealing as getting a cavity filled. The tiny, often gasoline-fume-infused office with its one dirty chair (the faded red vinyl on the seat almost certainly ripped) and the decades-old muscle car magazines stacked on a rickety side table is the equivalent of kryptonite to the average female. However, a new full-service automotive repair facility in Montgomery has gone to great lengths to make the above scenario a cliché of the past, and the use of concrete is a key part of the company's strategy.

Based in Houston, Texas, Christian Brothers Automotive opened on Chantilly Parkway in the capital city in early 2011. The entire 4,921-square-foot building with nine automotive bays and approximately 1,000 square feet of office space is constructed of concrete masonry units (CMUs). The versatility of CMUs gave Christian Brothers the chance to design a building that has the exact look and feel that they were after without sacrificing sturdiness and stability. "I think it is about the prettiest mechanic shop going," said Curtis Cain, the

“Our preference is to always use concrete in our parking lots at our shops across the country”


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company's director of property and facility development. "We used half-inch high concrete masonry unit blocks that are colored all the way through for aesthetic purposes. When stacked, they look like over-sized kiln-dried bricks, but we've got the added benefit of concrete's strength and durability."

Other stylish touches include a true limestone block veneer around the bottom of the building with smaller CMU blocks behind it that run all the way to the foundation, and granite tile medallions used as accents pieces. "That is kind of a calling card for us," Cain said.

The end result is a facility that has a real residential feel. It is quite out of the ordinary for the industry, but it is a distinction that did not come about by accident. Creating a space and atmosphere that seems like anything but a mechanic shop is all by design and has expanded Christian Brothers' client base in a big way. "We end up with 60 percent women customers because they like our places and feel comfortable in them," Cain said. "Most women don't want to go into a greasy automotive shop, but because our buildings look more like a doctor's office on the outside and inside, they feel more at home."

The look of brick on the exterior – achieved thanks to the use of CMU — and the nicely appointed and fashionably decorated interiors put out a signal that attracts women, but the choice of concrete sends an additional message to everyone in the area. The company was founded in 1982 on the idea that "honesty and integrity should be the driving forces behind the business," and those principles have obviously served the company well. Today, it has grown to include over 80 locations in nine states. "A metal building would have been cheap," said Cain. "But it would have made us look like a fly-by-night operation. Masonry buildings look substantial, and they say, 'We are here to stay. We are a real business ready to invest in your community and serve your needs.' CMU gives us the look that conveys that image."

While Cain put great emphasis on the CMUs' ability to perform from a style standpoint, he also stressed the importance of its ease of use and minimal upkeep requirements. "CMUs are very easy for crews to work with," he said. "They are consistent in size, easy to stack, go up quickly, and when you backfill like we do, they become even stronger. You can also fill the CMU cells with insulation and insulate your building that way, so that's yet another part of their appeal. And the finished product will not need much maintenance at all."

Concrete's quintessential quality, its strength, was also attractive to Christian Brothers, and met the company's need for a material that would stand the test of time and could also withstand bumps

and scrapes. "For us, with cars in those bays, we had to have something truly strong," Cain said. "If you bump a sheetrock wall, it would sustain a lot of damage. Plus, we hang a lot of heavy tools on the walls in there. If we had put up a stick building with brick, it may have cost less than CMU in the beginning, but it would not have held up as well with what we're doing in that space."

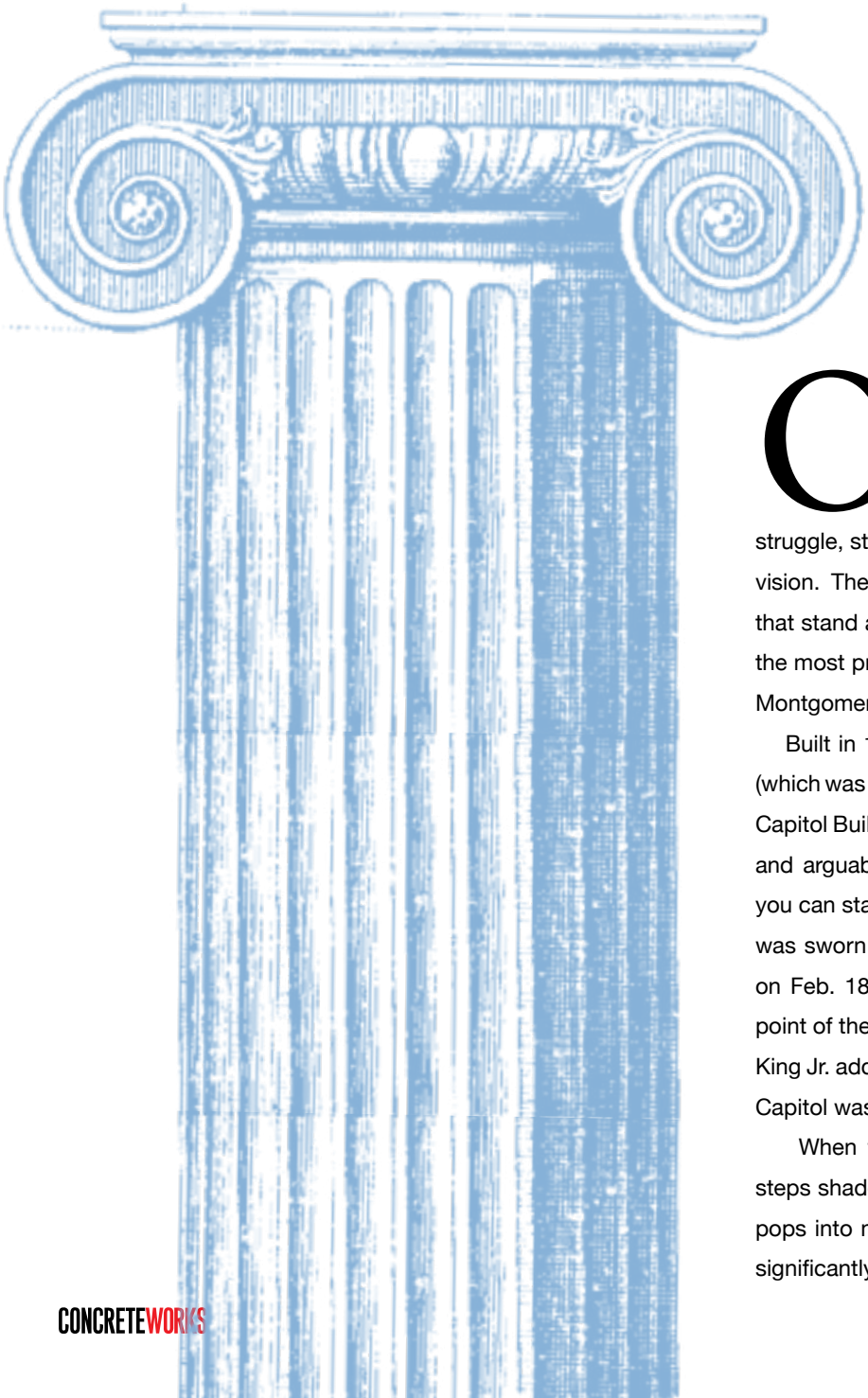
With heavy cars rolling in and out of the bays on a routine basis, the floors need to be pretty hardy too and easy to clean, and so again, concrete was the top pick. "Deciding to go with slab concrete floors was simple," Cain said.

The automotive shop's parking lot is also concrete. "Our preference is to always use concrete in our parking lots at our shops across the country," Cain said. "We continue to use it because it is so durable and withstands traffic so well. It is much easier to maintain, and it will stay looking better longer. It maintains its shape and integrity for a long period of time, and that's what we need since we expect to be in Montgomery a long time."

Cain pointed to a few other benefits as well. "Concrete parking lots are just better looking too," he said. "They stripe up nicer, have a fresher look, and go with our 'substantial' image. When you pour concrete it says, 'We are here, and we are not going anywhere.'"

With multiple shops all over the United States, Christian Brothers has had plenty of experience with concrete and its many attributes and uses. The fact that they continue to make it the material of choice each and every time they open a new location is a loud and weighty endorsement. And the company has no plans to slow down its expansion. "We anticipate building a total of 20 new projects in 2011 stretching across the Southeast, including more facilities in Alabama, some in Tennessee, as well as in Florida and Georgia," Cain said. ■ Jennifer Kornegay

Building a Strong Tradition



Our state has a rich history. From the foothills of the Appalachian Mountains in the north to the sugar-sand beaches on our coast, Alabama boasts a wealth of moments and memories made up of struggle, strife and revolution paired with courage, leadership and vision. The state also has countless monuments and buildings that stand as constant, tangible reminders of this heritage, one of the most prominent being our State Capitol building in downtown Montgomery.

Built in 1851, on top of the foundation of the very first capitol, (which was built in 1847 and burned down in 1849), Alabama's State Capitol Building is one of the oldest capitol buildings in the country and arguably one of the most beautiful too. On the front steps, you can stand on the star marking the spot where Jefferson Davis was sworn in as president of the Confederate States of America on Feb. 18, 1861. Those same steps served as the culmination point of the Selma to Montgomery March, where Dr. Martin Luther King Jr. addressed a crowd of near 30,000 on March 25, 1965. The Capitol was declared a National Historic Landmark in 1960.

When thinking of the Capitol, the front view of the marble steps shadowed by the majestic rotunda is the one that probably pops into most minds, yet the Greek-Revival building has grown significantly through the years, and its other sides are equally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stunning. The original east wing was added to the back in 1885; a south wing was added in 1906; and a matching north wing was added in 1912. Decades later, a full restoration and refurbishment of the entire building was called for and included a major addition to the east wing, which was completed in 1992 and added yet another lovely focal point to the exterior.

Designed by preservation architect Nicholas Holmes Jr. of Holmes and Holmes Architects in Mobile, this addition is in perfect keeping with the structure's historic style but takes full advantage of modern building techniques and technology as well as the strength, durability and flexibility of concrete.

When he envisioned the east wing addition, Holmes looked far beyond what the casual bystander would see when it was done. His thoughts were first on the foundation, and the use of concrete here was essential. "We used concrete quite a lot on the addition, but the most interesting use is hidden," he said, "we created a cast-pile wall that pushed up against the earth and was backed by Goat Hill. We did this using staggered auger-cast pilings. We also used auger-cast pilings underneath the addition."

According to Holmes, this deep foundation system, and its use of high-strength cement grout, was the natural choice on this project. "It is just the right material for the job. Staggering the pilings allowed us to nestle it up against the hillside, and thanks to the overlap and the use of concrete, it forms a continuous wall that is very strong," he said. "The flexibility of casting for the auger pilings was key." Steel whalers anchored with tenons secured in the hillside's soil were added to help the pilings further resist the thrust of the earth.

Concrete was used in several other applications too, and again, it was the material's strength that put it on at the top of the list. A tunnel that runs under the street, connecting the Capitol building with the State House, is completely constructed form concrete. "We used concrete in the foundation, the floor, the walls and the roof to withstand the pressure of the earth," Holmes said. "Concrete was a very logical choice here, thanks to its proven strength and durability."

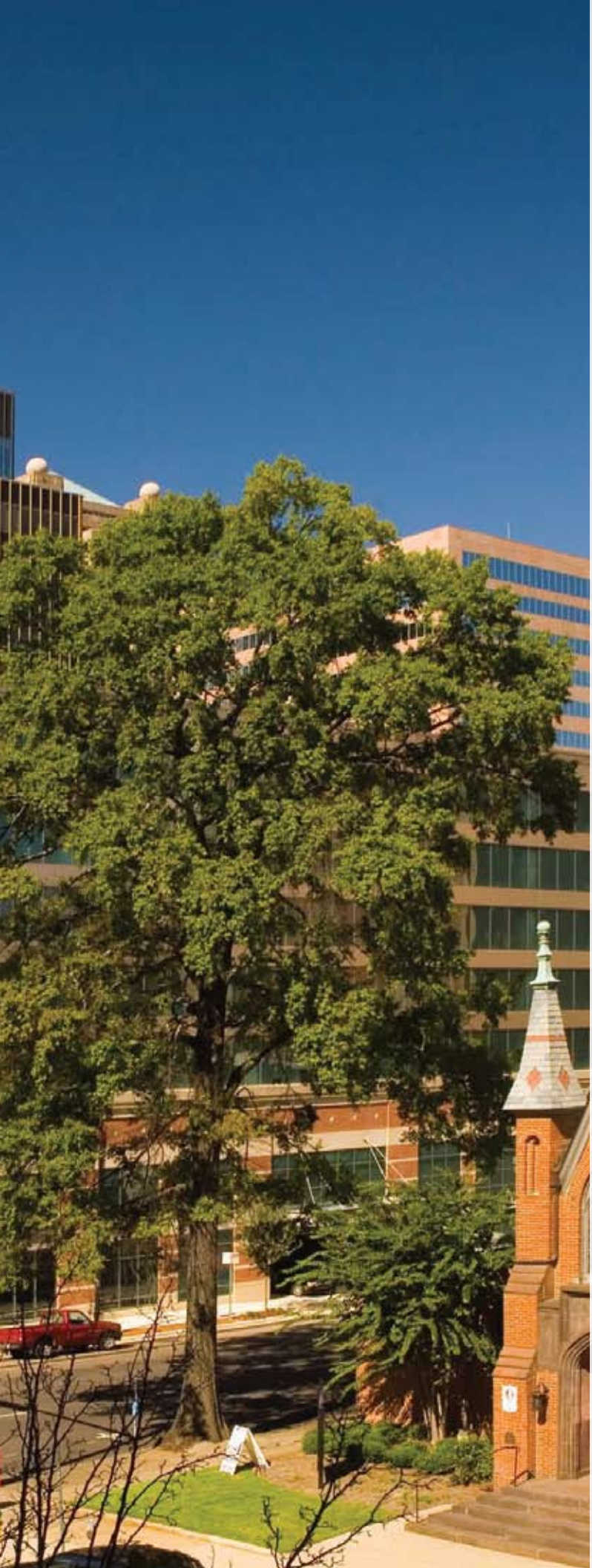
In addition to its strength and flexibility, concrete's fireproof properties also often factor into architects' and contractors' decisions to use it. Such was the case in this project, when concrete was chosen for the elevator shafts and the exit stairs from the upper floors. "The elevator shafts are all reinforced concrete," Holmes said. "And the stairs are all poured-in-place concrete."

Another part of the addition, a patio area, also utilized concrete. "We chose to create a nice outdoor space where people could walk around or have lunch," Holmes explained. "The roof over the patio area is all cast concrete."

So over the Capitol's next 160 years, as scores of people from all over Alabama and all over the world visit Montgomery and the State Capitol for a tangible take on our history, they'll walk on, under and around the masses of concrete that were used to ensure the east wing addition's lasting legacy. While it is doubtful that any will really notice the material that made the addition possible, the structure will still be there, standing strong nonetheless.

■ Jennifer Kornegay

Form & Function



Both the City of Birmingham and the area's private sector are working to re-invigorate the heart of the city and increase economic development in and around downtown. One key piece necessary to complete this puzzle is adequate, convenient parking. According The Birmingham Parking Authority's web site, this city agency manages 10 parking garages and two surface lots downtown, totaling approximately 8,000 spaces. One recent addition to Parking Deck No. 3 on North 20th Street took full advantage of concrete's strength and durability, as well as its flexibility, to create a space that provides more parking and is in keeping with the surrounding architecture. It's a classic example of form unifying with function.

Completed in 2009, the addition added 350,000 square feet and 700 new parking spaces to the deck, which now offers 1,339 spaces in all. The entire structure is concrete, and architect on the project, Alan Tichansky, AIA, an associate at Williams Blackstock Architects in Birmingham, explained why. "It was the natural choice on this type of project," he said. "The economy in using it, the maintenance-free aspect, the durability, the strength. These all combine to make concrete the right material for the job. One very important factor is that we can get longer spans with minimal structural depth using concrete, and that's always important for a parking deck."

Poured-in-place concrete is often used in parking decks and has been for years. Despite myriad changes in the building industry through the decades, there are several reasons it is still the material of choice today, including those outlined by Tichansky. One other reason he highlighted is its ability to keep the bottom line lower. "From a cost standpoint, it definitely has its advantages," he said. "We have used it in the past for these projects, and it has always been very successful, so we will continue to use it."

At its roots, the addition is a traditional parking deck. However, thanks to another one of concrete's many benefits — its versatility — this deck has a bit more style and polish than your average city garage. In truth, it doesn't look anything like a parking deck, at least from the outside, and that's exactly how Tichansky designed it. "We were adding to an existing parking deck and taking up an entire block, and we wanted to make sure the addition 'matched' the other nearby structures," he said. "To do this, we used precast concrete panels with thin-set brick. That allowed us to carry the character of the adjacent building and surrounding buildings through to the addition. In particular, there is a historic church across the street and another building that have that same

masonry look, so it was important aesthetically to achieve that on the deck addition."

The concrete panels were precast off site, with the thin-set brick forms placed in before pouring, giving the appearance of brick accents with the strength and durability of concrete. "Using the precast panels makes it really easy to get that look, and it is great to have the ability to do it all off site," Tichansky said. "It allows for great quality control. When they are done and you put them up, you have a completely finished facade. This method is also very cost-effective."

Many architects and designers like working with precast panels since the looks and styles they can create and effects they can achieve are almost boundless and often only limited by their own imaginations. The options for size, finish, color, shape and texture are all many and varied.

Tichansky did point out one factor to be aware of when working with precast concrete panels. "In most cases, the precast panels need to be detailed, and that means there is some upfront work on the part of the design professionals," he said. "The size has to be right, and design needs to be completely accurate, because once they are cast, up and in place, they are not easy to correct."

Glazed glass panels complete the look, mimicking windows in a facility that houses people, not cars. "During the day, the glass hides the cars, and at night, with the interior lights shining through, it looks like an office building, not a parking deck," Tichansky said.

Concrete's low maintenance, another pro consistently listed in its corner, was also noted by Tichansky. "Since the addition is a public building that is managed by a public entity [the Birmingham Parking Authority], the maintenance aspect is a very important concern. Choosing to do a concrete structure and using the pre-cast panels makes this building virtually maintenance free," he said. "The only real upkeep will be keeping the windows clean."

■ Jennifer Kornegay

> “Choosing to do a concrete structure and using the pre-cast panels makes this building virtually maintenance free”

On a Strong FOUNDATION

Donald C. Brown, FAIA

For many, greener living is as simple as remembering to put used water bottles in the recycling bin, turning off the lights in an empty room, or maybe even spending the extra lute it takes to buy a hybrid vehicle. For Don Brown, owner of Brown Chambless Architects in Montgomery, the term not only means minding his own personal carbon footprint, but doing his part to see that the building and construction community does so as well. Don has assumed the responsibility of promoting more sustainable building solutions by contributing to the development of greener building codes, serving as a leader for advocacy among his colleagues and educating architects, nationwide, on the topic. "If you engage yourself in something that has value and you interact with others who have influence in a large public process then good things will come of it," Don says of the countless hours, weeks and even years he has donated to the cause. Despite his experience, success and esteem, Don maintains humility with a sense of social responsibility saying, "You do things because they are the right thing to do, and you don't keep score."

Even though Don may not be keeping score, it seems that his philanthropic spirit has kept him winning. "In ways I could not predict, my contribution to the public's welfare has come back tenfold. Due to the leadership and community contributions from myself and my staff, the public is confident in our firm," Don says of his thriving architecture

Who Knew?

A little bit about Don

The Beatles or the The Rolling Stones?
Beatles. I watched them live on the Ed Sullivan show in '64. Have all their records

What's your all time favorite meal?
There are so many, I can't choose. I've lived in Germany for three years, France for two, and Japan for two. Very memorable meal was Beef Wellington at the Sanno Hotel in Tokyo in '75. I have been privileged to experience extraordinary presentations and offerings. My daughter is also a chef. I love good food, good company and great conversation, preferably at the same time.

What book are you reading now?
"Hot, Flat, and Crowded" by Tom Friedman.

Are you an Early Bird or a Night Owl?
My night owl now gets up early.

If you were a crayon, what color would you be?
I think red. My wife says blue because I don't cause conflict.

Are you a collector of anything?
Architecture and art books.

Tell ConcreteWorks something about yourself that you think others would be shocked to hear.
Was the first intercollegiate skateboard champion (was on the four man team from Williams College in MA that were, and then went on the TV show "I've got a Secret"). Also in Life magazine. My parents hoped I'd be studying French literature.

What country do you most want to go to?
Russia. As a senior Air Force commander I have deployed Air Force Reserve forces there, but never went.

firm that has been able to operate at full employment despite the current economic climate. Don has been careful to assemble his firm with talented professionals that share his inclination towards leadership in their career field and service to their community. Singing the praises of his staff, he says, "In my own office there is an amazing wealth of skills and ambitions. They are extraordinary. They are leaders among their peers and are involved in public dialogue. We have a very vibrant staff that engages in the public process." As you will see, the company motto, "Good teams, like good buildings, depend on a strong foundation," has not been merely a notion, left on a shelf to collect dust. Don's leadership in both his firm, and in the vast arena of his career field altogether, proves that it is a personal proverb.

Name something on your bucket list.
Cruise the Mediterranean and the Greek Isles. No clock.

What's the last movie you went to see?
The King's Speech.

What do you think the secret to a good life is?
Seeing the glass half full. It's all attitude.

Who is the person you respect the most, and why?
Difficult. I have profound affection for so many family members, lifelong friends and professional colleagues, as one should. I have much to learn from many. Both my grandfathers provided exemplary examples for my life. Through ingenuity, resourcefulness and hard work, they both created the center of gravity, sense of values, financial solidarity and commitment for one's obligations and a selflessness that have guided all our succeeding generations. And, they treated everyone well.

Considering his long resume of leading advocacy for greener building, it is no surprise that the American Institute of Architects (AIA), an organization whose platform is to see that issues effecting architects are addressed in congress, holds Don in high regard. The organization recently inducted him into its exclusive fellowship, a prestigious honor bestowed unto only a very small number of it's some 90,000 members. He has also been nominated as national vice president of the organization. Just this past year, the AIA co-sponsored the writing of the new national model energy code, an extensive work that encompasses attributes, goals and definitions from the wide array of energy codes that exist in the U.S. today, and Don has had a significant role in developing it. However, his involvement in this was not his first experience in writing an energy code. Don has also chaired in the writing of our state's energy code. Through the AIA, he has advocated greener policy by developing leadership programs, outreach activities and political engagement with elected officials in an effort to generate wide range support of the passing of laws that effect the organization's interests."If we don't promote positive change for our industry, then who will?," he asks. "When Obama came into office we worked with his staff very carefully to see that the issues we needed addressed became part of his policy portfolio." Noting that the organization has maintained the same influence regardless of which political party occupies the White House, he adds, "If you not at the table, you are on the menu."

This issue of sustainable living has not only been given attention in the political arena, it has been on the forefront of society's mind. The term is becoming more widely used, but what exactly does it mean? The dictionary defines sustainable living this way: to endure without giving way or yielding. Don likes to think of it in terms of the impact we are making. He says, "I like to interchange the word with, 'stewardship.' Our clients and communities are better off in the long run when we use longer-lasting materials." He believes that architects don't have to be disadvantaged by this effort and can continue to appease their clients' objectives and budget if they make wise design decisions. The air force veteran, who has lived in both Europe and Asia, has seen firsthand the contrast in the lack of value American culture places on sustainable living to the environmentally conservative perspective ingrained in the two previously mentioned cultures.

However, Americans are beginning to think in terms of more sustainable living, as our architects are starting to think in terms of designing with more sustainable materials. Of those materials, concrete is at the top of the list. It has a longer life span and requires fewer resources to replace, when that life span is over. Concrete is a building material that can be, both, comprised of recycled materials and be recycled in the future. Not only does concrete have structural

and aesthetic value, it is also a very sustainable material and the advantages of using concrete are not reserved for buildings alone. "As we [architects] begin to think with renewed insight, we are required to think about all the components that comprise a complete building project," Don explains. Beyond buildings, concrete can also be used for outdoor projects to achieve less environmental impact. One example is its ability to solve the parking lot water run-off issue using fewer resources. Today, there are concrete products that are made to absorb water, allowing it to seep into the soil and eliminating the need to build expensive sewer systems that contain the run-off. Not only does it have these benefits and qualities, concrete also has a valuable fireproof component and costs less to maintain.

Greener living will continue to become more important in the minds of Americans, as architects will continue to improve design for sustainability. Just as more sustainable materials are the foundation of greener design and building, an effective leader is the foundation of positive change; Don Brown has proven to be a strong foundation that we can depend on. ■ Ashley Riddle