



Asphalt vs. Concrete From the Contractors Standpoint

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While Jamie Aycock's positive attitude on life does allow him to ignore the challenges facing the construction community, he believes the lessons learned will make the industry and future projects better.

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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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Yachtworks DROPS ANCHOR

In Gulf Shores, AL

PHOTOS BY JEFF TESNEY PHOTOGRAPHY

Celebrating its 50th year in business, in January 2009 Saunders Yachtworks expanded its operations from Orange Beach, Ala., to Gulf Shores, Ala., with the opening of a new corporate headquarters. The new 15,000-square-foot headquarters building is the first of three phases for the 6-acre facility, located at Mile Marker 155.5 of the Intra-Coastal Waterway at the new NorthHarbor Yacht Center. The multi-use two-story building combines sales and administrative offices; marine engine and equipment shop; and a full service parts department and warehouse. The facility had to be ready for heavy traffic and a variety of vehicles and equipment displayed on the sales floor, and capable of handling heavy lifting and sometimes messy repairs in its shop. As company headquarters, the building also had to be attractive and welcoming. Concrete fulfilled each need.

“There are a lot more choices in concrete now...”

The office building portion of the new facility encompasses two stories, with 5,000 square feet per floor. It utilizes slab on grade foundation, and the second floor is constructed with concrete on a metal deck. The shop and warehouse areas are metal construction, but feature a band of concrete block along the bottom

for both aesthetics and for protection against the elements and to stand up to the heavy workload. For beauty and interest, split-face block and colored split-face block were used on the exterior walls. The building also incorporates a combination of deck bond and running bond in addition to the split face.

“Concrete offers a lot of versatility, while still allowing a project to be low-maintenance,” says Linda G. Snapp, AIA, Lead AP, Vice President, Clark Geer Latham & Associates Inc., which has provided multi-disciplined engineering, architectural and planning services



throughout the continental United States since 1974. “There are a lot more choices in concrete now – lots of types of split face block and colored blocks give us a chance to add accents and break it up. Split face on the bottom and colored above also helps with maintenance so you’re not constantly painting,” she says.

“The availability of the concrete pavers and blocks has increased dramatically in last 10 years in both colors and textures, becoming one of most commonly used architectural and engineering choices when you’re also trying to create an aesthetically pleasing environment,” agreed Thomas E. Latham, P.E., President of Clark Geer Latham & Associates.

The use of concrete block also helped the building to meet the area’s environmental standards, which dictate that a building must withstand wind loads in excess of 140 mph. This is for protection in the event of a tropical storm or hurricane. Additionally, concrete can hold up to the day-to-day environmental concerns of a coastal





location, where the building will constantly be exposed to salt water and high levels of moisture, which provide a particularly corrosive environment.

"We definitely had to have a very sturdy building and had to meet all the hurricane codes that were required," said John Fitzgerald, President of Saunders Yachtworks. "Concrete block turned out to be a very cost-effective and successful way to meet those codes. I can't even remember looking at other choices," he says.

Inside the building, the architects and interior designer chose stained concrete floors for the sales and main building reception and entrance areas. Colors complemented the other design details of the building, and additional interest was added by scoring the floors for texture.

"They tend to have a lot of traffic from people coming directly off

boats and into the offices and onto the sales floor, so the stained concrete holds up nicely to that, where shoes may be damp or people track in salt and sand," Snapp says.

The stained concrete floor is perhaps one of Fitzgerald's favorite features of his new headquarters building. "We really like the concrete floor," he says. "The scored concrete came out looking very sharp, and it's something people comment on when they come in. The stain color was worked out with an interior decorator, so it works very well with the other colors in the building. And, it was inexpensive to do that, as opposed to other flooring, which is definitely a plus."

A concrete floor also was utilized in the shop area. This was necessary to provide a floor that is strong enough to withstand the weight of heavy boats and lifts. The floor is treated with a non-

porous seal, to help prevent oil and other fluids from the engines from sinking in and corroding or damaging the floors. This adds to their longevity.

Future phases of development at this site will include a full service boatyard with capacity to dry dock 100+ foot vessels. This will complement Saunders' existing boatyard and facilities in Orange Beach, Ala., which can dry dock vessels up to 70 feet.

Clark Geer Latham is currently in the design phase for the dry

dock basin and dry dock boat repair yard. The repair yard will have about an acre and a half of reinforced concrete to support the boat lift – basically a lift that hauls a 115-120 foot boat onto a concrete pier with precast concrete piling. The boat then travels to the boat yard, where it is washed down then taken into a slip for repair. The load is equivalent to a 122,000-pound wheel load – or equal to 747 airplane, Latham says.

"The whole site is being developed to be a full-service boat yard," Fitzgerald explains. "The most impressive part to me, from my point of view, is when you can build the piers and support this 150-ton travel lift, and the columns that you're going to run that lift over for the next 50 years, that's really sturdy stuff. You have to count on it for a long time, and a lot of weight over that time and a lot of high-dollar traffic. We have concrete caps on our yard in Orange Beach and they've held up really well."

The basin also will have a reinforced concrete wharf, and there is a proposed cast-in-place channel to assist with drainage into the viaduct basin, with architectural stacked block walls and landscaping to enhance the appearance. "It's going to be pretty nice," Latham says. "While this is an industrial area, it's also the company headquarters, so we want it to be aesthetically pleasing and work together."

Additionally, Saunders Yachtworks eventually will have a building in the boat yard for a shop, observation area and storage area that will complement the headquarters office. Phase 2 will be constructed adjacent to the existing offices. Construction is expected to begin around the first of the year and will probably take 15 months to complete.

Saunders Yachtworks is proud of its tradition of performance and integrity. Founded by the Saunders family in 1959, the company first served the commercial vessel segment of the business, entering the yacht repair business 25 years ago. Today, it strives to be the Boatyard of the Future. ■ Wendi Lewis



SAFE From the Storm

At the end of the 2010 Legislative Session, the ACIA worked with Representative Earl Hilliard, Jr. for passage of

House Bill 459

The new law requires schools constructed after July 1, 2010 to have a safe room large enough to accommodate the entire student population. Due to concrete's inherent strength and safety, it should prove to be the logical choice on all future school construction project.



It was over in almost an instant. Crumbling walls and scattered debris occupied the space where only moments before a bustling high school had stood, full of students fighting off spring fever. In March 2007, a tornado destroyed Enterprise High School in Enterprise, Ala., killing eight students. But in late August 2010, when the kids showed up for the first day in their brand new school building, they knew that the tragedy was truly a thing of the past.

The over \$80 million high school building is enormous, and its size certainly grabs attention. But it is actually what you can't see that might make all the difference one day. The new structure contains two concrete "safe rooms" that will protect students and faculty from winds up to 200 mph in the event of another storm.

But the lessons learned at Enterprise are not for that community alone. They've taken hold across the state, and now, thanks to the dedication and hard work of Representative Earl Hilliard and

the Alabama Concrete Industries Association, every school built in Alabama after July 1, 2010, is required by state law to include at least one safe room large enough to accommodate the entire student population.

"This law requires not just that the spaces be there, but requires the use of a uniform code for these spaces"

Katherine Lynn, the executive director of the Alabama Building Commission, explained the importance of the new law. "In Alabama, we all know that severe storms can pop up suddenly," she said. "And when we look at the old way of protecting kids in schools—in the hallway with a book on their head—compared to the new way—the safe

rooms we know the old way was not the best way. We can now all feel much more confident in our ability to protect our children. Of course, the law only applies to new schools, but you have to start somewhere."

The law was a natural reaction to what happened in Enterprise, and while the push for the bill and several versions of it appeared

in the legislature almost immediately following the tornado, it took some time to hone the legislation into the current law. “This law requires not just that the spaces be there, but requires the use of a uniform code for these spaces,” Lynn said.

While our state may lag others around the country in some areas, when it comes to storm protection in schools, we’ve taken the lead. Although other cities and states are using it too, Alabama is the first state to adopt a code for safe rooms as a state law.

It’s a fact we can take great pride in, according to Corey Shultz with PBA Architects in Wichita, Kansas, a firm that specializes in designing safe rooms for schools across the America. Shultz traveled to Birmingham in July to share his wisdom on the matter and to help shore up support for the safe room bill. His trip paid off. “Alabama is the only one state that I’m aware of with a law like this,” he said. “I think it is great, and it is a really big deal. We’ve been trying to get it done in Kansas since 2000, but they don’t seem to get it. I think the experience in Enterprise is what made you move forward on it, so my hat is off to Alabama. It is the right thing to do.”

Shultz and his firm have been working hand-in-hand with FEMA to write guidelines for community shelters since an outbreak of massive and dangerous tornados in Oklahoma and Kansas in 1999. “Prior to that, there was very little as far as design help for shelters, so we got involved and were on the review committee to develop the FEMA 361 guidelines, which came out in 2000,” Shultz said. “I have also worked with the National Storm Shelter Association to write code standards for tornado and hurricane shelters; we put that document out late last year.”

PBA and Shultz have been behind over 50 shelters that meet the FEMA 361 standards and several others that meet the new NSSA standards. They are now considered the experts in the storm shelter field.

While the concept of storm shelters is not a new one, the way they’re currently being designed and constructed is revolutionary when compared to the practices of 20 years ago. “Safe rooms and shelters have changed a lot in recent years,” Shultz said. “The first shelter I did was in 1990, and at that time there was an old civil defense document floating around that just touched on what you

needed to be concerned about, but it never said, ‘This is how you design one.’”

At that time, storm shelters were mostly underground, in basements. Today, thanks to the pursuit of specific design instructions and unified codes, most are above ground. “We finally developed instructions for above ground structures,” Shultz said. “Since 2000, I have not done a shelter that is underground.”

Through Shultz’s and his firm’s extensive work for schools, they have developed a mindset that meets multiple needs, something that’s crucial when faced with education budgets. “Our attitude is that we are designing educational spaces that serve as shelters, not shelters that serve as educational spaces,” he said. “There is a big difference, and this has really changed how we look at shelters and how we approach them.”

“Our attitude is that we are designing educational spaces that serve as shelters, not shelters that serve as educational spaces”

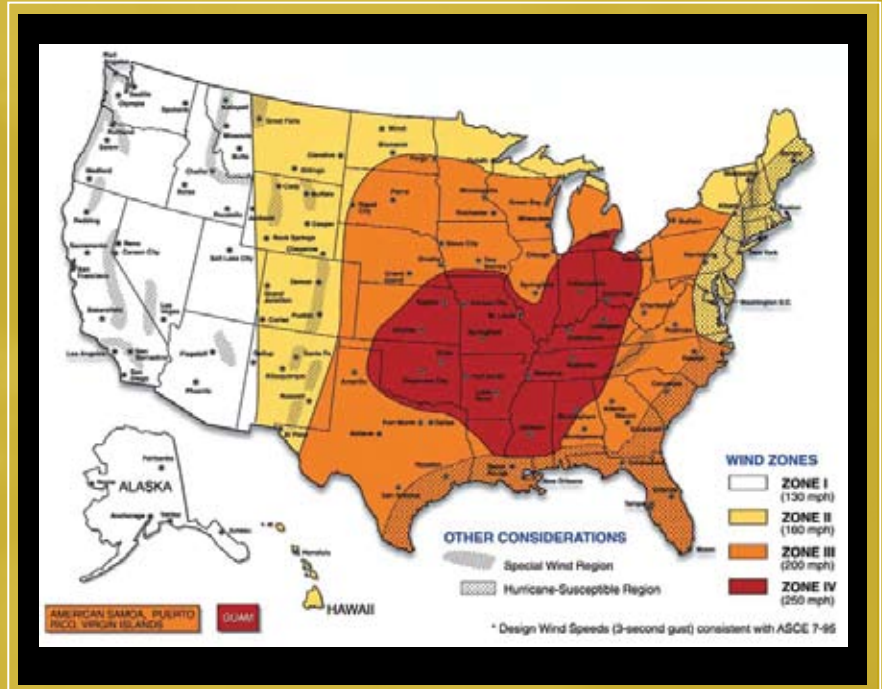
A situation in PBA’s hometown shaped some of Shultz’s design innovations. “In Wichita, they were only letting schools that were adding multi-purpose rooms have that room built as a shelter,” Shultz said. “That did not make sense to me, the idea that schools that were only adding a regular classroom would not get a shelter.”

So Shultz set out to find a way to make a normal classroom—with windows—into a shelter, and before he even knew if he could do it, he asked FEMA for funding. “They said, ‘Sure, but you can’t do it,’” he said. But he did do it, and by figuring out how to put windows in a shelter, Shultz took storm shelters in schools a giant leap forward. “Now this idea is being used all over country,” he said. “I’m pretty proud of that aspect, and shelters will continue to evolve as more products come out all the time.”

To decide just how strong each shelter needs to be, Shultz first looks at where it will be located. FEMA divides the country into four zones based on wind speeds. In parts of Alabama, shelters must be rated to withstand 250-mph winds. Enterprise is in a 200-mph zone. To test a 250-mph shelter, Shultz and his team shoot a 15-lb. 2x4 horizontally at 100 mph at the shelter. It’s a little less for those in 200-mph wind zones. “That is an incredible force; it’s pretty scary to watch the test,” Shultz said. “It’s really unbelievable what a regular 2x4 can do when it is moving that fast.”

It takes a material of superior strength to stand up to that, so it’s

Wind Zones in the United States



Map and Information provided by Federal Emergency Management Agency

Zone I (130 mph)

All of Washington, Oregon, California, Idaho, Utah and Arizona. Western parts of Montana, Wyoming, Colorado and New Mexico. Most of Alaska except the east and south coastlines.

Zone II (160 mph)

Eastern parts of Montana, Wyoming, Colorado and New Mexico. Most of North Dakota. Northern parts of Minnesota, Wisconsin and Michigan. Western parts of South Dakota, Nebraska and Texas. All New England States. Eastern parts of New York, Pennsylvania, Maryland and Virginia. Washington, DC.

Zone III (200 mph)

Areas of Minnesota, South Dakota, Nebraska, Colorado, Kansas, Oklahoma, Texas, Louisiana, Mississippi, Alabama, Georgia, Tennessee, Kentucky, Pennsylvania, New York, Michigan and Wisconsin. Most or all of Florida, Georgia, South Carolina, North Carolina, Virginia and West Virginia. All of American Samoa, Puerto Rico and Virgin Islands.

Zone IV (250 mph)

Mid-US including all of Iowa, Missouri, Arkansas, Illinois, Indiana and Ohio. Parts of adjoining states of Minnesota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Louisiana, Mississippi, Alabama, Georgia, Tennessee, Kentucky, Pennsylvania, Michigan and Wisconsin. Guam.

Special Wind Region

Isolated areas in the following states: Washington, Oregon, California, Idaho, Utah, Arizona, Montana, Wyoming, Colorado and New Mexico. The borders between Vermont and New Hampshire; between New York, Massachusetts and Connecticut; and between Tennessee and North Carolina.

Hurricane Susceptible Region

Southern US coastline from Gulf Coast of Texas eastward to include entire state of Florida. East Coastline from Maine to Florida, including all of Massachusetts, Connecticut, Rhode Island, Delaware, and Washington DC. All of Hawaii, Guam, American Samoa, Puerto Rico and Virgin Islands.

no wonder concrete plays an integral role in almost every shelter constructed anywhere. "Concrete is integral to any system/combo we use because it is very good at withstanding the debris and wind pressure loads we put on it. The foundation is a big part of it," Shultz said. "You have to use the debt load to hold it down so it doesn't lift out or roll over; we use concrete there, and we use concrete floors too."

And a variety of concrete products are used in other areas too. "For the walls, we've used several different things, from pre-cast concrete to ICF to cast-in-place concrete," he said. "On the roof, we are typically using either pre-cast with a reinforced concrete cap or

steel composite with concrete."

Reinforced and grout filled CMUs are also well suited to design safe rooms to protect the students.

While the "why" and "how" have been answered, as this new law is implemented other questions will almost certainly come up as architects and builders learn their way around these special spaces. "Because we can now make them fully functional rooms, it's not hard to incorporate a storm shelter or safe room into your building plan, but it does take planning," Shultz said. "And there are many nuances; something as simple as how the doors swings can have a major impact on effectiveness. There is no perfect way to do

them, but there are ways that are better than others.”

One factor to consider is proper placement. “We try not to bury it in a host building,” Shultz said. “It is better if the shelter room is on a wing or a pod connected to the host building.”

Ventilation can be an issue too. “You don’t want too many holes in the envelope so to speak, so you try to limit openings,” he said. For this reason, places like chemistry labs, where a certain amount of ventilation is a necessity, don’t make good safe rooms.

Finally, Shultz encourages safe room designers to watch out for size. “You want to keep your roof spans as small as possible, so building a full-size gym/safe room is usually not a good option,” he said. “Architects and design teams will have a lot to learn, but they can do it. They just have to pay attention to the details.”

Soon, everything from a basic classroom to music rooms or cafeterias in new Alabama schools will serve double duty as a safe room. According to Shultz, certain spaces do work better than others. “Most of our shelters in elementary schools have been kindergarten rooms because they are often bigger rooms anyway, and they would have already had bathrooms in them,” he said. “Music rooms work really well to since they are so wide open, and furniture is easily moved.”

And the music room gets an unintended perk. “Typically, the mass in the walls required by shelters works well to keep the music sounds from bothering other students,” he said.

Special education rooms that are shelters benefit from concrete’s sound-sealing effects too. “Teachers love it because when the windows are closed, there is no outside sound, so there are far fewer distractions for those kids.”

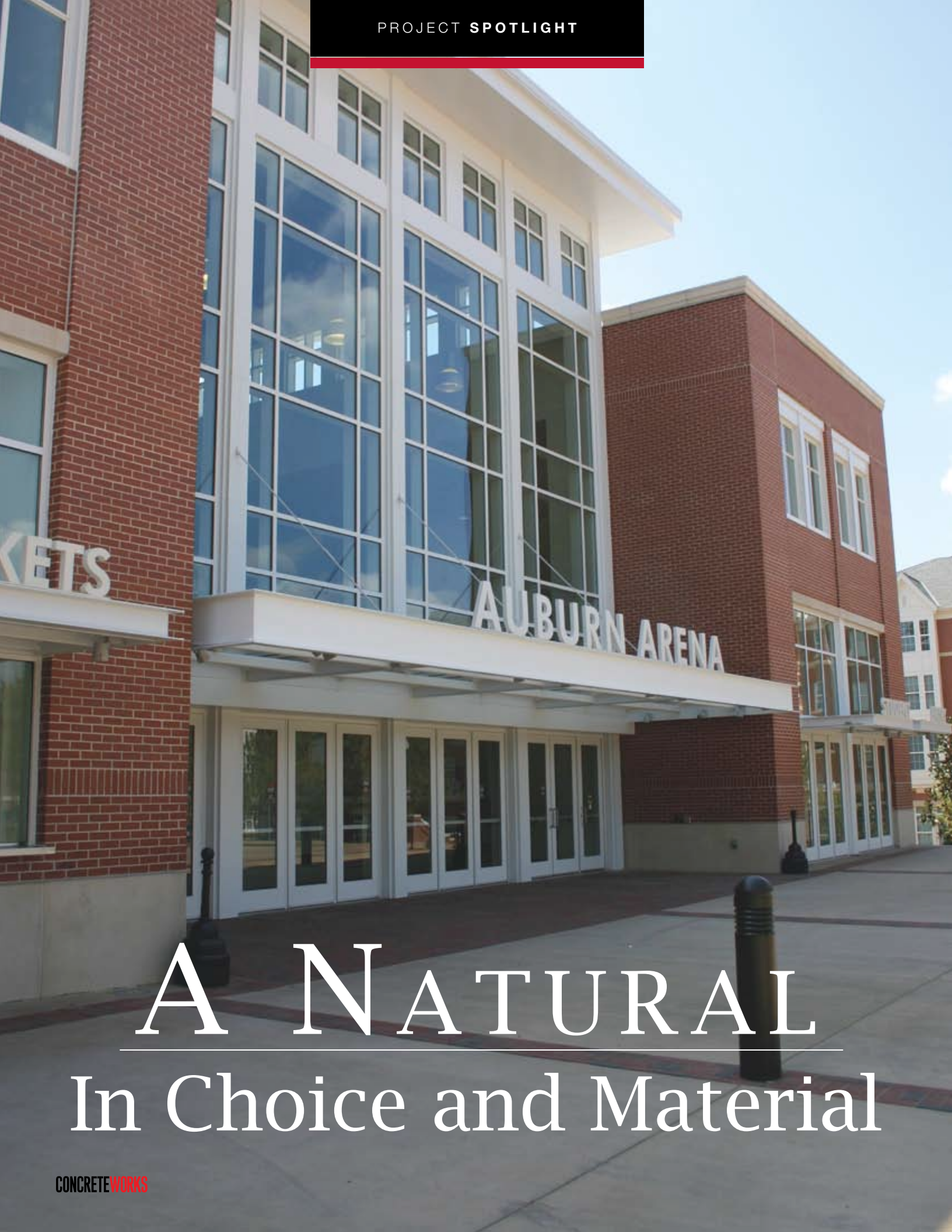
Shultz echoed Lynn’s sentiments on the importance of this law and the safe rooms it will create. “As I told the group in Birmingham, as parents there are two things we expect when we send kids to school: One, that they are going there to learn; but, two, at the end of the day, that they will return to us safely,” he said. “Too many of us take both of those for granted. By ensuring that more Alabama schools will have safe rooms, you have increased the security of your kids when they are away from you. It’s one way to gain some control over forces of nature that we don’t have control of.”

■ Jennifer Kornegay

“Concrete is integral to any system/
combo we use because it is very good at
withstanding the debris and wind pressure
loads we put on it.”







A NATURAL

In Choice and Material



When the 2010 basketball season begins, Auburn Tiger fans will be in for a real treat, thanks to the new basketball arena, which was just completed this June. But thanks to the foresight of Auburn's Athletics Department and its Facilities Division, along with the architects and contractors on the project, this state-of-the-art arena will thrill the AU faithful well before the first basketball sinks through the opposing team's hoop.

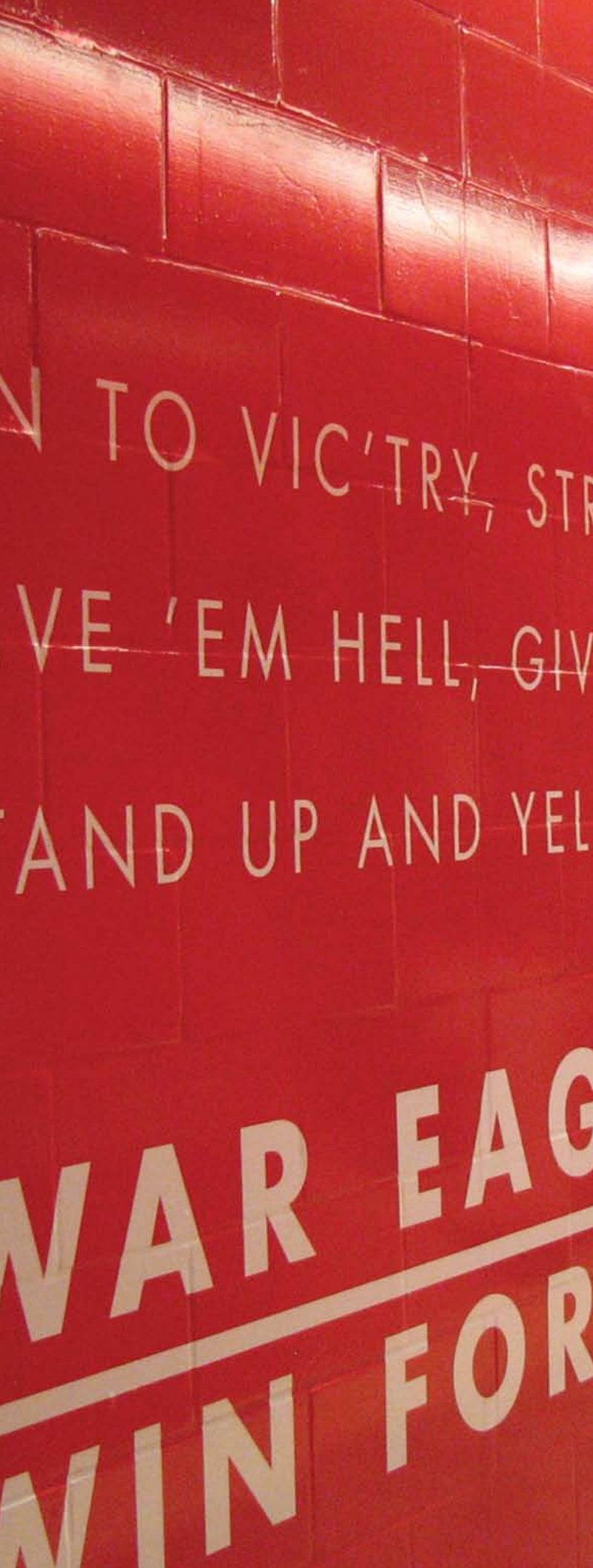
Replacing Beard-Eaves Memorial Coliseum as the home of Auburn basketball, the facility is so much more than a basketball stadium, as Joe Nehama, architect with 360 Architecture in Kansas City, Missouri, the firm that took the lead on this project, explained. "What makes this arena unique is that it really celebrates all sports at Auburn," he said. "For one thing, the 12 suites in the arena actually face and open towards the football stadium, so they can be used during football season for tailgating and then for other entertaining opportunities throughout the year. They also open to a lounge area inside the arena."

The \$92.5 million project includes over 29,000 square feet of student-athlete space with a two-court practice facility, coaches' offices, the Auburn University Athletic Ticket Office, an AU Team

Store, the relocated Lovelace Museum, two food courts and more. The seating configuration in the arena gives viewers better sight lines and gets fans a lot closer to the action on the court. The farthest seat will be only 43 feet in elevation from courtside, compared to 60 feet in elevation at the old stadium, and 60 percent of the seats are less than 27 feet in elevation from courtside. A high-definition video board completes the package. "The Lovelace Museum is really a 'hall of honor' that recognizes all of the university's athletic accomplishments," Nehama said. "It's really cool, and we put in a rolling gate so the museum space can be used separately from the rest of the arena."

That's important since Auburn plans to use the arena for all types of events all year long; it is also much more than a sports complex. It offers 12,000 square feet of banquet/entertainment space, allowing it to be easily used for anything from concerts to other community gatherings.

Brian Hale with Robins & Morton, the construction managers for the project, pointed to a few other aspects that make the new arena a big step up from the previous facility. "The new arena has a more open atmosphere, so spectators will not feel like they have left



the game when they go to the concession stand,” he said. “There are two practice courts that the old arena didn’t have as well as dedicated weight rooms, on-site food prep areas, the tailgate suites and places for after hours functions, just to name a few.”

While this multi-purpose facility has some innovative features setting it apart from other similar arenas, like the double-sided luxury suites, it is, at its core, a basketball stadium. That means long roof spans, and that means the project called for one material over all others: concrete. “The arena consists of a cast-in-place concrete structure with steel roof framing,” Hale said. “Spectator seating supporting consists of precast concrete resting on cast-in-place raker beams. There are also a lot of interior concrete block walls.”

Courtney Pittman is a principal at Davis Architecture in Birmingham, and her firm worked in tandem with 360 Architecture on the arena. She was Davis’ project manager and said that concrete was the natural choice. “It was a big, exciting project, but we’ve done this type of work before,” she said. “Because assembly-type spaces have to be constructed to very specific measurements,

**“It requires no resurfacing,
no real repairs...”**

concrete is the best option. Mere fractions of an inch matter here, and concrete is easy to pour precisely. It works better than steel in this application.”

The main structure of the arena has a structural concrete frame, and concrete offers some additional benefits. “Concrete is also better than steel at absorbing live load and for acoustical isolation,” Pittman said.

In addition, concrete allowed the designers to maintain the desired “look,” one that is in keeping with the rest of the campus structures. “We used architectural precast concrete on the building’s skin,” Pittman said. “That let us match the more historic buildings around it. You can do a lot with that material; it is very flexible.” “Concrete is such a natural material,” Nehama agreed. “It really fits in well with all elements.”

A large amount of sealed concrete was used for back-of-house applications, and thanks to the ease of maintenance, this choice is proving popular with those who’ll be using the facility daily. “You don’t have to do anything to the sealed concrete surfaces,” said Randy Byars, director of Athletic Construction and Planning at Auburn. “It requires no resurfacing, no real repairs. You just clean it.”

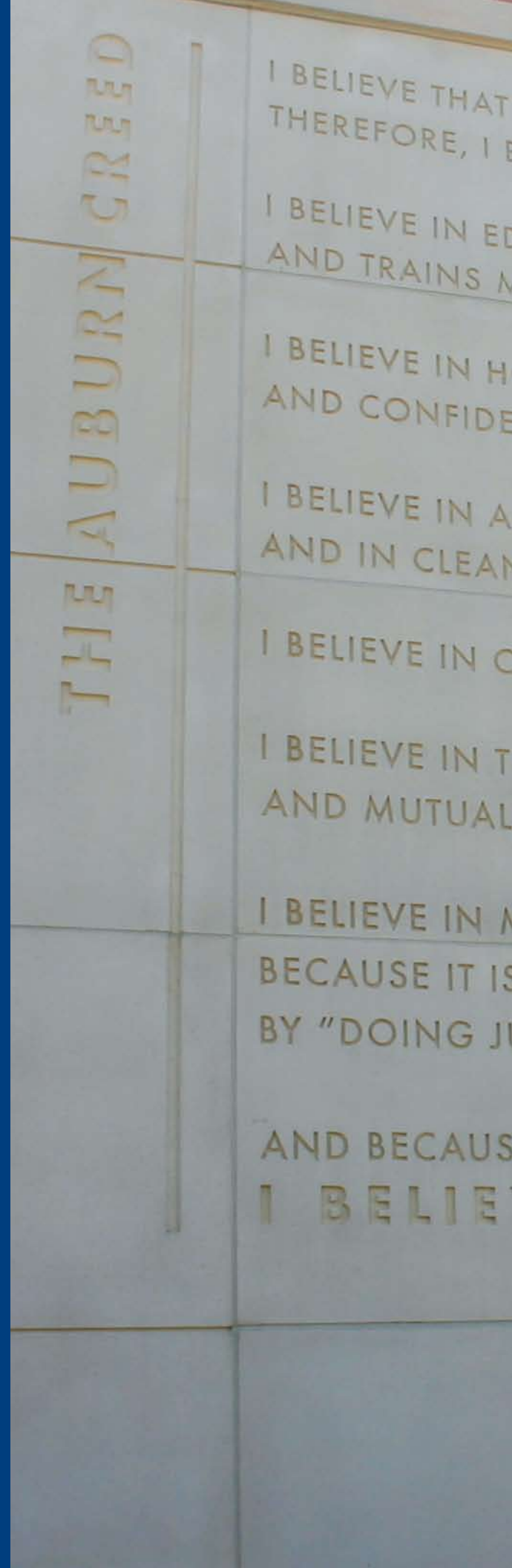


Concrete blocks used for walls around the concourse and in the office areas are also getting a thumb's up from Byars. "The ground-faced concrete block we used has really nice aesthetics," he said. "We like how it looks, but it is also really low maintenance. It requires no painting; again, you just clean it." All of the stadium seating is made of precast concrete, instead of aluminum, which is sometimes used.

Concrete's well known cost effectiveness played a part in its selection on this project too. "The low maintenance is great, and it allowed us to blend in with the surroundings," Nehama said. "But the cost-effectiveness is key."

Pittman agreed. "The sealed concrete we used was really inexpensive to install," she said. "And throughout this facility, for what they wanted to accomplish, concrete was definitely the best value for their money."

Even with so many pieces, and so many partners, getting the project to completion was a relatively smooth process. "We all worked together really well to form a great team," Pittman said. And everyone involved is happy with the outcome, according to Nehama. "We are pleased with the end result, and so is Auburn," he said. "The Director of Athletics, Jay Jacobs approached me personally and said we exceeded their high expectations. That's a great compliment for our team." ■ Jennifer Kornegay



THIS IS A PRACTICAL WORLD AND THAT I CAN COUNT ONLY ON WHAT I EARN.
BELIEVE IN WORK, HARD WORK.

EDUCATION, WHICH GIVES ME THE KNOWLEDGE TO WORK WISELY
MY MIND AND MY HANDS TO WORK SKILLFULLY.

HONESTY AND TRUTHFULNESS, WITHOUT WHICH I CANNOT WIN THE RESPECT
OF MY FELLOW MEN.

A SOUND MIND, IN A SOUND BODY AND A SPIRIT THAT IS NOT AFRAID,
IN SPORTS THAT DEVELOP THESE QUALITIES.

OBEEDIENCE TO LAW BECAUSE IT PROTECTS THE RIGHTS OF ALL.

THE HUMAN TOUCH, WHICH CULTIVATES SYMPATHY WITH MY FELLOW MEN
HELPLESSNESS AND BRINGS HAPPINESS FOR ALL.

MY COUNTRY, BECAUSE IT IS A LAND OF FREEDOM AND
IS MY OWN HOME, AND THAT I CAN BEST SERVE THAT COUNTRY
JUSTLY, LOVING MERCY, AND WALKING HUMBLY WITH MY GOD."

WE AUBURN MEN AND WOMEN BELIEVE IN THESE THINGS,
WE IN AUBURN AND LOVE IT.

— GEORGE PETRI



ASPHALT VS. CONCRETE

From A Contractor's Standpoint

Cost • Durability • Longevity • Versatility

When considering a job, a large part of any project isn't just the structure itself, but the surface that surrounds it. This is especially true for commercial construction. Pavement and parking areas comprise a large percentage of square footage on most commercial projects, with requirements for adequate parking spaces – whether in a traditional parking lot or a multiple-vehicle deck structure – for the number of workers, visitors or customers at a facility. Parking decks are generally always cast-in-place concrete structures, but often owners are faced with a choice when considering an expansive parking lot – concrete or asphalt?

Lee Ingram, owner of Ingram Construction, LLC, a Montgomery, Ala., based construction services firm, says there are a number of factors to consider when making this choice. Ingram Construction handles projects large and small, from fast-tracked industrial projects to multi-tenant retail centers, historical renovations and unusual small and specialty projects. Ingram founded the firm in 2007, after working with International Caddell Construction and then another local contractor after graduating from Auburn in 2007.

Collectively, the team at Ingram brings more than 95 years of construction experience.

"We handle commercial and industrial projects from medical office buildings to large manufacturing and industrial facilities, and everything in between," Ingram says. "Recently, we were in Cahaba, in the woods, pouring sidewalks that allow handicapped canoers access to and from the water. Then, we turn around and construct an 85,000-square-foot stamping facility for Korean manufacturer Saehausung in Andalusia. We pretty much do anything," he says with a chuckle.

Recently, Ingram Construction worked as a partner to build a new State Farm office building in East Montgomery, in cooperation with Landmark Construction, which features a concrete parking lot. When making the decision about materials, developers and project owners should take a broad view, Ingram says. Certainly, initial budget and timeline are important, but other crucial factors that should be weighed include the project location, daily activities, environment and even the ground it's built upon.



cost

Price is generally the first factor that a project owner takes into consideration on any job. It's important for a project to be affordable. Often, concrete may initially appear a bit more expensive than asphalt. This is largely due to the fact that the installation process for concrete is a bit more time- and labor-intensive than that of asphalt. But the hidden costs of asphalt maintenance will over time well outpace those of concrete, which is built to last.

"Concrete is more expensive up front, but asphalt is more expensive long term," Ingram says. This is because concrete requires more site work on the front end. Contractors adjust the subgrade, install a form and do a controlled pour to control the grade. They cut joints into large sections of concrete to allow for expansion and contraction with the elements and the soil. Often, concrete parking lots or other expansive concrete surfaces are poured in several sections. Asphalt, on the other hand, is laid when the material is very hot and laid down with a machine in $\frac{3}{4}$ -inch or more layer, then rolled and compressed in place, more or less in one continuous process.

But, Ingram says, "Asphalt has to be maintained and sealed every 3-5 years but you never have to do anything with concrete. It takes a little more time to lay concrete parking lots than asphalt, but the cost savings over the length of the project is much better with concrete than asphalt, and more than makes up the difference."

In recent years, the cost gap is actually narrowing even further. While concrete may take more time to install, it is made from abundant, readily available ingredients: water, rocks and cement, which also is made from natural materials. Alternatively, asphalt is made with petroleum products. With the rise in oil prices, asphalt is not as affordable as it was in years past, and today rarely costs much less than concrete. Combined with its high maintenance costs, asphalt isn't as affordable as it might seem.

durability

Asphalt is a flexible pavement. It has a thin surface layer that is built over a base of gravel or stone. In contrast, concrete is a rigid substance. Because of concrete's rigidity and stiffness, it tends to distribute the load over a relatively wide area of subgrade, making it extremely strong and durable. This is especially beneficial for high-traffic areas that bear heavy traffic, such as loading dock areas where there is a lot of tractor trailer traffic.

"Asphalt is easily damaged by medium and heavy duty trucks, and concrete is not," Ingram says. "A project owner should look at what kind of traffic they're going to be getting."

At the recently completed Saehausung manufacturing facility in Andalusia, for example, the client specifically requested concrete for its loading dock areas because it would stand up better to the constant traffic of heavy tractor trailers, Ingram said.



B E N E F I T S

Stable Pricing

Concrete is a locally manufactured product made with local materials. Asphalt's petroleum-based composition results in wide price swings as oil prices around the world rise. Furthermore, less asphalt is being produced by refiners due to advancements in refining techniques allowing them to produce more profitable fuels, thus lowering asphalt supply.

Low Maintenance

Normal maintenance costs of asphalt pavements— sealing, re-striping, resurfacing and loss of business during maintenance operations - greatly exceed those needed for concrete.

Ease of Construction

Concrete parking areas may include an integral curb and gutter, saving time and reducing subcontract labor.

Reduce Urban Heat Island Effect

Concrete parking areas stay much cooler than dark asphalt pavements during the day thus helping to alleviate the urban heat island effect.

Lower Energy Cost

Comparative research by the Portland Cement Association demonstrated that concrete parking areas require fewer lighting elements than other surfaces and can yield energy savings up to 60 percent.

"Concrete was chosen for the driveways for the tractor trailers to travel on specifically because of the durability it offers," he says.

The type of soil present on a job site also factors into the choice between concrete and asphalt for durability. Concrete holds up better in soil that has a high PI (plasticity index) – high plasticity in the soil. Soil with a high PI – like Alabama clay – has more tendencies to shrink or expand when moisture levels change. When you have a lot of movement in the soil, concrete holds up better, where asphalt tends to crumble. This was the case on the State Farm building.

"We chose concrete on that parking lot because of the unstable soil conditions. We knew that would cause a lot of damage on asphalt, so we decided to use concrete, which is a stronger, more durable product," Ingram said. "The choice to use concrete probably involved a little higher cost up front, as a developer, but we knew that would be earned back in lower maintenance costs," he said. "Concrete is going to be strong enough to deal with the soil on that site, so the owners aren't going to be worrying about patching and resurfacing. It ends up being a lot less expensive."

Concrete also can be reinforced, often with steel, if additional strength is needed. Asphalt cannot.

Longevity

Going hand-in-hand with durability is longevity. Because asphalt is manufactured from petroleum products, the sun breaks it down more readily than the concrete. As a result, there is a lot less maintenance on concrete than asphalt. It is a rare to see a concrete parking lot that needs any type of repair or "patching," while this is a common and regular occurrence with asphalt, Ingram says.

"I have even seen asphalt parking lots that are patched with concrete," he says.

In addition to fairly regular patching and spot maintenance, asphalt also requires total resurfacing periodically. This is an expense for the owner, as well as an inconvenience, as the job requires the entire surface to be scored, dug up and removed. This often means diverting parking and re-routing or blocking traffic access to the building.

Maintenance breaks down on average as follows:

Asphalt – maintenance required every 2-4 years; resurfacing every 8-14 years.

Concrete – minor maintenance in 12-16 years; no resurfacing for 30-50 years.

Over time, asphalt pavement can cost up to three times more than concrete. Choosing concrete equals lower ownership costs vs. asphalt for the long haul.

versatility

Another benefit of concrete over asphalt is its versatility. Unlike asphalt, concrete can be colored and stamped to create unique aesthetic effects. Patterns and colors can be used to complement a building or help blend into the environment. The wide variety of choices just isn't possible with asphalt. It can be painted, but that is only a surface change, and it won't last.

Ingram recently worked on a project to expand the Luverne United Methodist Church, which was originally constructed in the 1920s. The company matched existing styles and colors, and added concrete driveways. Materials were chosen to complement the existing structure, and to ensure it would last another century.

"That was definitely one of the most interesting projects I've ever worked on," Ingram said. "I had never matched anything that was 90 years old."

There also are a number of decorative concrete products that can be incorporated into a concrete parking lot or other surface, such as pavers, that add additional pattern, color and texture. These often have an additional environmental benefit in helping to divert rainwater.

Concrete already is better than asphalt at diverting water and creating efficient runoff, because it can be laid more smoothly and flatter than one can pour asphalt, helping to avoid creating areas where water can pond on the surface. Additionally, the harder and more durable parking surface of concrete helps to facilitate even runoff.

This efficiency is enhanced with the use of pervious pavers, which, in addition to adding visual interest, are specially constructed from a combination of aggregates and other materials that make them highly permeable. This reduces storm runoff by allowing some of the rainfall to be absorbed into the ground. This can be especially beneficial in areas that must meet strict drainage requirements due to environmental concerns, or where the site offers particular challenges for drainage and runoff.

Concrete pavement also is brighter, having natural reflective properties. This not only improves the appearance of concrete, it actually makes it more energy efficient. Businesses require less energy to illuminate a concrete parking lot, and the surface generates less heat, which reduces the energy requirements of the adjacent buildings, which can absorb heat from an asphalt surface. According to the American Concrete Pavement Association, up to 27 percent of light falling on a concrete surface will be reflected, compared to as little as 5 percent of light from dark-colored pavements.

"Concrete just looks better than asphalt," Ingram says.

■ Wendi Lewis



Architect Spotlight

Architect Spotlight is a new addition to ConcreteWorks, showcases an architect known to creatively utilize concrete in various projects.



When he was growing up in Minor, Alabama, Jamie Aycock wanted to be a carpenter. He harbored dreams of using his hands to cut, carve and piece together wood, transforming it into functional, beautiful things. Decades later Aycock is living that dream—but only as a hobby. As an architect and senior vice president of Giattina Aycock Architecture Studio in Birmingham, he spends most of his time using his hands to design and direct the transformation of blank spaces and all types of raw materials into structures of monumental size and scope. Today, Aycock's passion for his profession is equal to his childhood desire to be a carpenter. The first love actually fed into the other. "A lot of people in my family were in construction," he said. "I really wanted to be a carpenter." But his dad, a World War II veteran who worked as a barber, had another idea. "He said I had to go to college, and I said, 'Okay.' Architecture was the closest thing to carpentry that I could find to study, so that's what I chose."

So after graduating high school, Aycock pursued his architectural degree at Auburn University. He went to work for the company he now helps lead straight out of college. At the time, it was Crawford, Giattina and Mitchell. Thirty-eight years after he started there, the letterhead bears his name.

Now the challenges rising out of the current economic climate have made leadership and innovation more integral to a successful architecture firm than perhaps they ever have been before, something of which Aycock is acutely aware. "This downturn has been severe for everyone involved in design and construction," he said. "As a national average, the unemployment rate is running around 8 percent, but that includes everything. When you zoom in on our industry, close to 25 percent of architects and engineers are unemployed across the country, and 28 percent of construction workers are unemployed."

Aycock believes his industry will feel this hit well into next generation. "It will never be the way it was," he said. "Those picking up and moving forward have realized that and are making needed adjustments in their expectations."

It will take a lot more than an attitude adjustment to survive and thrive in the years ahead, yet Aycock sees the problems of today as opportunities for change that will make the industry stronger. "I think this time is a pivotal point in this industry," he said. "Architects and contractors are being forced to focus on those things that they do best, and they are sharpening those skills and then seeing what else is in their purviews that will make them even more flexible. This is good."

Jamie Aycock, FAIA

A Good Carpenter. A Distinguished Architect.



Architect Jamie Aycock, vice president
of Giattina Aycock Architecture Studio





In contrast to the gloomy picture painted by some in Aycock's shoes, he points to a slight silver lining that is starting to shine through, and while he's tempering his optimism with a little caution, he forecasts a sunnier future a little farther down the road. "I think design and construction is going to be different in the next 50 years. There will be new materials," he said, "but most of the changes will be in the process, the way architects, engineers and contractors work together. I see us working as team for the whole process.

The big buzzword for this concept is 'integrated practice delivery.' I believe the end result of projects done this way will be better because you'll have more like-minded people with varied strengths coming together at every step."

No matter how it changes or evolves to meet and exceed the demands of the next decades, the intrinsic aspects that Aycock loves about his job will stay the same. "I've always felt that architecture was a powerful tool; it is very large in its impact, and that impact is widespread," he said. "It covers multiple issues that are not all strictly design oriented, some are political, some are philosophical, some are environmental, some are historical. I like that variety. Then there is the inventive aspect of architecture that I like, taking a problem and trying to look as far into the future as you can for a client to help solve their problem."

It's no surprise then that GA Studio specializes in finding creative solutions for clients across a wide spectrum projects. "At my firm, we are generalists; we do an amazing variety of projects," he said. This means that there can be a learning curve--sometimes steep, sometimes not--on every project. And here again, Aycock truly enjoys thinking the project through, exploring and discovering new ways to get the job done.

His firm is currently finishing the new Children's Hospital in Birmingham, a client they have worked with for 25 years. GA Studio has also done zoos, parks and many office buildings. For quite some time, Aycock's focus has been mostly on governmental buildings and courthouses. He recently completed a renovation of the historic Jefferson Courthouse in Bessemer that will make it a viable, usable building for the next century. He also did a second courthouse project that was built from the ground up. "I'm very proud of the new courthouse in Bessemer that we just finished, the Jefferson County Bessemer Justice Center," he said. "It was a challenging building because of the heightened security needed in courthouse facilities. It has a concrete frame and is designed to be blast-resistant."

Aycock has turned to concrete often in his career and sang the material's praises, particularly touting its benefits for projects like the courthouse and others that require that serious security be incorporated into their design. "On this project, concrete offered some unique properties for design flexibility as well as protection," he said. "Concrete's mass and density provide the level of protection needed for blast resistance."

The Children's Hospital project, a 16-story building that is over 600,000 square feet, is also using concrete. "It is a concrete-frame building," Aycock said. "There really wasn't any choice here; concrete made so much sense for this project."

As much as Aycock likes using concrete, he also likes being done with it. “The end product is the thing that is the best about concrete,” he said. “It is so durable, so sound, and it is also fire resistant. If you’ve got a multi-story building, the quality of the building in the way it reacts to impact loads, noise from floor to floor, etc. is superior. When compared to steel, as long as the stands work for a concrete building, choosing it is just about a no-brainer.”

Economics and efficiency play into concrete’s appeal for Aycock as well. “It is fairly economical because you’re dealing with form work,



readily available reinforcing steel and then concrete products that are locally available,” he said. “Plus, you can get started faster on a concrete project than on a steel building, and concrete buildings don’t require

bracing of each column-to-beam connection.”

Looking forward, Aycock knows that things are going to be different, but sometimes different isn’t bad. “It is a bad recession, but we will come out of it and move on,” he said. “We’ll just move in a slightly different direction. Several years ago, people looked at a building as an investment that they could turn over in seven to 10 years. That won’t continue. I see more clients and owners wanting buildings to last longer. They now want to stay in them for the long-term. I think this shift is positive because owners will take more interest in buildings and look at them less as a commodity and more as a home for their business or organization. That will be good for our industry.”

Despite enjoying his family (wife Carla, and grown kids Rachel and Alan) and leisure activities, like artisanal bread making, hunting, shooting sporting clays and his beloved woodworking, Aycock still needs architecture in his life. “I have a house at Lake Martin, and I like to fool around there, and I have a few hobbies,” he said, “but I don’t see retirement coming for me any time soon; I don’t know what the heck I’d do!”

A positive outlook has permeated Aycock’s career thus far, and interestingly, his satisfaction with the path he is traveling seems to mirror the properties of concrete, holding stable and steady through the years. “I’m just extremely happy with what I’m doing,” he said.

■ Jennifer Kornegay

In Case You Were Wondering...

Architect Jamie Aycock, vice president of Giattina Aycock Architecture Studio, let ConcreteWorks pick his brain a bit. Here’s what we discovered about his view of the future and his interests outside of architecture.

What was your first job?

Cutting grass as a kid was my very first job. My second was sacking groceries when I was in high school.

If you could have dinner with anyone, dead or alive, who would it be?

Thomas Jefferson, because of his intellect. And because history hasn’t been able to really pin him down on very much, so I have several questions I’d like to ask him. The second person would be Andrew Jackson, but I’m not sure the three of us should eat together. There would be probably be a fight, and Jackson would start it.

What’s the biggest challenge facing your industry right now?

The economy has hit us all, but I think some changes will come out of it that will better the industry in the long run.

What’s the one food you couldn’t live without?

Bread. I actually make artisanal bread as a hobby.

What’s your favorite hobby?

Woodworking. If I was not an architect, that’s how I would spend a lot of my time.

What’s your favorite quote?

“...I took the path less traveled by, and that has made all the difference.” From “The Road Less Traveled” by Robert Frost

If your life had a theme song, what would it be?

“Spinning Wheel” by Chicago

If you could, what one thing would you change about yourself?

I’d become an extroverted introvert, rather than an introverted extrovert.