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PRECAST INC.®

A Publication of the National Precast Concrete Association | MAY/JUNE 2015

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+

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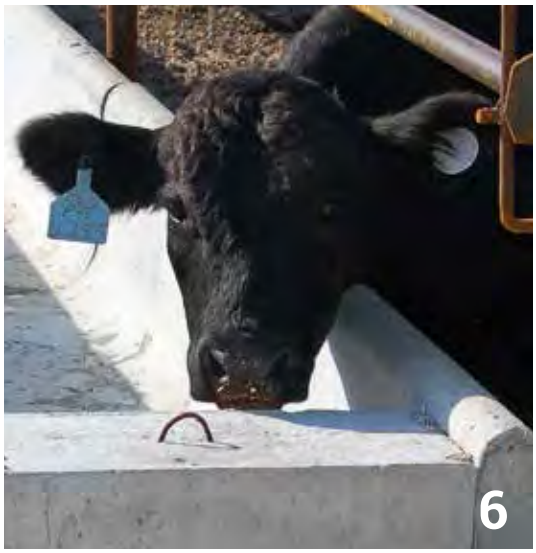

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NPCA is a trade association representing the manufacturers of plant-produced concrete products and the suppliers to the industry around the world.

28 Leesburg Concrete Company

Battle Tested

A willingness to **embrace change** helped pull the company through the recession and into an **entirely new line** of business.

Protect your hands and fingers from injuries.
page 24

3,300
people attended The Precast Show 2015 in Orlando. Check out the highlights!
page 42

On the Cover:
A pre-sandblasted architectural precast concrete panel for the Mayport Naval Station project at Leesburg Concrete Company's production facility.

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Precast PIONEERS

Jim Barbour, NPCA President, 1969


NPCA file photo

Above: *Jim Barbour accepting the Yoakum Award in 1974 from Doug Hoskin.*


Photo courtesy of Barbour family

At right: *Jim and Daneen Barbour (from left), with daughter Amy Burnett, her husband Scott Burnett, and Fred and Dee Heitman during the 1993 BIBM Congress in Washington, D.C.*

EDITOR'S NOTE:

NPCA will celebrate **50 years** at its Annual Convention in Minnesota this October.

This *year-long series* **honors past chairmen** who helped establish the association as a **leading voice** for the precast concrete industry.

1.) What was the precast industry like when you got started?

The industry was a group of small precasters engaged in the production and sale of small-to-medium-sized products primarily in the area of septic tanks, steps, yard ornaments and drainage structures. The framework for NPCA came from a meeting in Dayton, Ohio, at the Dura Crete plant which was owned by the Yoakum family. It was determined that this industry, which had plants with gross sales under a half million dollars annually, had no unified voice in the future of precast concrete. Through the efforts of Bob Yoakum, Bill Coons, Tait Given, Doug Hoskin and many others, the framework for NPCA was born to give voice to our industry.

2.) Why did you get involved with NPCA and decide to become chairman?

Getting involved in those early days was a natural transition from the old Unit Step Manufacturers Association where we were members. NPCA gave us a forum where we could discuss ideas, common problems, product opportunities and most importantly get to know other fine people who were doing the same things we were doing. As for becoming chairman, it was a decision made by others in the group – I merely accepted the challenge when I got a call from Hal Thurmond requesting that I follow him in the Chair. It was a very humbling experience, and at 33 I had the energy to help move the organization forward.

3.) What was the best thing you accomplished as chairman?

The focus had to be on membership growth. Bob Walton had just joined the organization as the association manager, and with his help we launched a meet and greet program that we took to several cities to get acquainted with the local producers instead of having them do the travelling. We were supported by two engineers from PCA in order to give meaningful presentations at each of these sites. The net result of this effort was to double the membership during the year.

4.) What's your favorite NPCA memory?

There are too many to count. Having my entire family


Photo courtesy of Vernon Wehrung

Jim Barbour in 2013

intimately involved in NPCA is certainly memorable –receiving the Yoakum Award, chairing the BIBM congress in 1993 and involvement in nearly all aspects of the development of this great organization. The study tours we took were informative and fun.

5.) How has precast as a product changed over the years?

I think the product lines have become far better accepted and innovation has been a key factor. Concrete allows for the creative expressions and the imagination to satisfy the needs of the construction community. Producers are far more sophisticated in the production of products through automation and improved materials than when NPCA was organized.

6.) How did the friendships formed via NPCA impact your business and life?

The friendships are wonderful and lifelong. If you had a problem, there was always someone to call and discuss solutions because they had probably already been there. Honestly, most ideas used in our company have come through discussions with other members. There are some I consider my closest friends even though we are physically miles apart. There have been births and deaths and illnesses. The NPCA members are always there with a kind word, support and prayers. The organization and industry are blessed to have so many caring members.

7.) When you first got involved with NPCA, did you envision it becoming what it is today?

I started envisioning what NPCA could really become when the Planning Council was organized, because we could not look at the current year but were tasked with the vision for the long term. Many things we have done have been as a result of discussions in these meetings. It was a wonderful concept and really helped to set goals, many of which have been achieved.

8.) How does it feel to have three members of your family be recipients of the Yoakum Award?

It is an honor to have my family recognized for the contributions they have made to NPCA. It is particularly gratifying that my late wife, Daneen, was recognized for her enormous contributions as NPCA was going through its developmental years. **PI**

Dan Barbour (left) joined both parents as Yoakum Award recipients when he was presented the award by then-chairman Kirby O'Malley in 2010. NPCA honored Jim Barbour in in 1974 and Daneen Barbour in 1994.

Milking the Farm Business

Photo courtesy of SI Precast Concrete Products

Agricultural products continue to help precast manufacturers extend and diversify their offerings.

By Shari Held

Feed and water troughs are part of a wide variety of precast concrete agricultural product offerings.

The scope of agricultural projects available for precasters is larger than most may imagine. Today, the agricultural market encompasses everything from standalone feed bunks for family farm operations to highly complex environmental projects for regulatory agencies such as the Natural Resources Conservation Service.

No matter the niche, it's a growing market. Mike Deihl, owner of Deihl Vault & Precast in Orangeville, Pa., said the demand in the agriculture industry is being driven by the environmental aspect. "Everybody is more environmentally conscious right now," Deihl said. "We're in the Chesapeake Bay Watershed, and everyone is concerned about keeping the bay clean."

Greg Barrett, sales manager for SI Precast Concrete Products based in Overland Park, Kan., notes the uptick in demand for precast as the cost for steel and plastic rises. "Precast is becoming more and more accepted as the value becomes better," he said. "We've doubled our sales in agricultural products in the last six or seven years since steel prices went up. It's a huge market, and we haven't even scratched the surface of it."

NOT YOUR TYPICAL CUSTOMER

Farmers tend to do business with people they know, so forging relationships is especially important. A good reputation is golden.

"You have to understand the industry, because it's way different," said Andy Wieser, president of Wieser Concrete Products based in Maiden Rock, Wis. "You have to be able to talk the talk to gain credibility."

Wieser Concrete has been selling to the agricultural industry for 48 years and it makes up a "big chunk" of the company's business, according to Wieser. He credits the

"Precast is becoming more and more accepted as the value becomes better. We've **doubled** our sales in **agricultural products** in the last six or seven years since steel prices went up."

– Greg Barrett, *SI Precast Concrete Products*

company's success to attending nearly 40 agricultural shows each year.

A good reputation isn't the only key, though. According to Trenton Glace, operations manager for Maryland Concrete in Freeland, Md., agricultural customers want products in stock or with a quick turnaround as well.

"It's not that they're impatient, it's just that they don't go through the planning process that a contractor or an engineer would," he said. "Their planning process is in their head. Everything we build for contractors is based off standard details or specifications. We never find that in the agricultural industry."

Often, precasters can produce to their own designs. There's more flexibility and give-and-take on projects – even when dealing with regulatory agencies. "It's just a different type of professional atmosphere," Deihl said. "Everybody is somewhat open-minded. It's not like a DOT project where everything is black and white on paper and that's the way it's got to be done."

Farmers' livelihoods, and thus their level of spending on precast products, are also highly dependent on the whims of Mother Nature and commodity pricing. However, because this market doesn't necessarily follow the national economy, agricultural products can potentially provide a nice buffer when the national economy slows down.

"This market is driven by how the farmers are doing, not by how the whole economy is doing," Wieser said. "The price of milk and the price of grain has a big impact on how our agricultural sales go."

The industry is more seasonal than most as well. "Fall through early spring is when we see a big demand for feed bunks and most of the agricultural products we sell," Barrett said. "That's typically when the ranchers sell cattle and have money in their pockets to spend on beefing up their infrastructure. It's also when they're not in the fields planting and harvesting."

All of these variables make for a challenging industry to serve. "When I arrive at a job, there are always new variables" said Mark Pfenning, sales manager for Camp Precast Concrete Products in Milton, Vt. "It's very hard to stay on budget with farm jobs. The biggest problem with the agricultural market is funding. If they have the money, projects will move forward. If funds aren't available, it's a dead market."

THERE'S A PRECAST PRODUCT FOR THAT

The following examples showcase the variety of projects precasters work on in the industry.

Slatted-Floor Under-Barn Manure Storage System – ***Peine Farms, Cannon Falls, Minn. (Wieser Concrete Products)***

Using a pre-engineered precast system for the walls meant no additional structural designing was necessary, allowing this 200-foot by 240-foot manure storage system to be built quickly and economically. Wieser installed its system in the fall, the farmer erected a barn over it during the winter, and the barn was ready to house 1,570 steers by the spring.

The project also had some unique aspects. The two drive-through feeding lanes had to withstand a 70,000-pound load for feed trucks, and the feed bunk, which is included in the manure storage system, had to be able to hold the weight of the barn above it.

Photos courtesy of Wieser Concrete Products

Slatted-Floor Under-Barn Manure Storage System

"We had to do a bit of extra engineering to withstand that extra weight," Wieser said, noting that slatted-floor manure storage systems are beginning to incorporate dual drive-through feeding lanes as the norm.

Air Handler Tunnel – ***Ma & Pa Farms, Pylesville, Md. (Maryland Concrete)***

Ma & Pa Farms, a grain broker, had a problem: The corrugated metal pipe used to channel air into its grain silos was degrading. When it came time to build a new silo, the owners came to Maryland Concrete to ask about a cast-in-

Photo courtesy of Maryland Concrete

Air Handler Tunnel

Manure Tranfer System

place solution. Glace recommended precast. "They were very excited, because precast wouldn't rust, and it also gave them instant installation options," Glace said.

Maryland Concrete manufactured 12 sections to create 40 feet of horizontal run with a 90 degree bend, followed by 20 feet of vertical stacked sections.

"We used standard molds," Glace said. "It was very easy to do. And we kept the weight of each section under 5,000 pounds so the farmer could move them around easily."

Glace hasn't heard of similar projects, at least not in his area. "We're pretty excited, hoping it catches on and we can do more projects like it," he said.

Manure Transfer System – *Gorrell Dairy, East Smithfield, Pa. (Deihl Vault & Precast)*

Gorrell Dairy uses sand as a bedding material for its 700 head of cattle, but the sand was filling the manure storage facility, leaving no room for the manure. The solution was to create a sand separation area that would trap the sand while allowing the manure to be transported to a storage lagoon. "They can recoup the sand and reuse it, and that saves the farmer overhead cost," Deihl said.

The challenge was to not disrupt the dairy operation. Using precast meant minimal downtime as well as allowing workers to proceed at a steady pace.

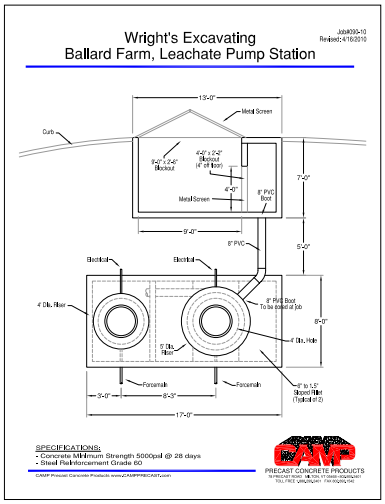
Within two weeks, Deihl had produced eight precast "scrape-in" hoppers, each 24 inches wide and 12 feet or 13 feet in length with rubber gaskets for pipe connections on each end. The depth varied from 1 foot 10 inches to 3 feet 2

inches to accommodate the slope needed to transfer the manure by gravity.

Deihl was pulled into this totally custom project – the kind he loves – by the NRCS technicians assigned to it. Getting in on the ground floor, he was able to suggest lining the precast hoppers with high-density polyethylene for easier manure transfer. Deihl's piece of the project also involved drop manhole structures, junction manholes and a pump station, and he's since received an order to build water troughs for the dairy.

Leachate Pump Station – *Ballard Farm, Georgia, Vt. (Camp Precast Concrete Products)*

Leachate, the liquid runoff from silage stacks, can be 200 times stronger than raw domestic sewage and has a pH of between 4 and 4.5. Nothing can live in it. In 2010, the NRCS ordered Ballard Farm to contain its leachate, so the owners contacted Camp Precast on a word-of-mouth recommendation from another customer. The goal was to collect leachate and, during peak storm events, dispose of the diluted leachate in a subsurface collection system.



Graphic courtesy of Camp Precast Concrete Products

Camp Precast's Leachate Pump Station Building Specs

Precast was perfect for the job, because it could be manufactured and installed faster and less expensively than other options. Camp Precast designed a 6-foot by 12-foot, one-compartment leachate collection box with a metal screen that connects to a two-chamber, 7-foot by 16-foot, high-flow/low-flow utility structure via an 8-inch pipe. Both chambers had pumps. The low-flow chamber of highly concentrated leachate was pumped to the manure pit. The high-flow chamber that overshot the low-flow compartment was pumped to a subsurface drainage system.

The challenge with the project was that it was pumping slightly downhill. "We had to play with various force main sizes and end flow rates to put some restriction on the pumps so they wouldn't overload the pump motors," Pfenning said. It took Camp Precast four months to accomplish the task, and it was more involved than many of the company's other projects.

> "The challenge for me is to make sure we **meet or exceed** everybody's requirements – the farmer, the site contractor and the regulatory agency."
>
> – Mark Pfenning,
> *Camp Precast Concrete Products*

But Pfenning likes a challenge. "The challenge for me is to make sure we meet or exceed everybody's requirements – the farmer, the site contractor and the regulatory agency," he said.

HOW TO BREAK INTO THE BUSINESS

One suggestion for precast companies looking to enter the agricultural market is to select an entry point that meshes with your existing skills and circumstances. Wieser suggests starting with feed bunks, because they're easy to make and relatively inexpensive.

For more sophisticated projects such as leachate pump stations, you may want to heed Pfenning's advice: "You need to be familiar with pumps, controls and electrical considerations, and have a very diversified product line," he said. "We use every tool in our toolbox to get these jobs done." **PI**

Shari Held is an Indianapolis-based freelance writer who has covered the construction industry for more than 10 years.

The PRECAST CURVE

When precasters introduce **new product lines**, there's always a **learning curve** – more frequently with selling than with manufacturing.

By Deborah Huso

C.R. Barger & Sons added Stone Strong Systems to its product line.

Three years ago, McCann Concrete Products in Dorsey, Ill., decided it was time to introduce a new product line. Though the company has been in business for more than four decades, mainly in the department of transportation market, it was struggling with increasing cutbacks from customers in Illinois, Missouri, southern Indiana and Iowa.

"We decided we needed another product outside of highways," said Mark Melvin, vice president of McCann.

The company's products historically centered on highways, sound walls, barriers and box culverts. But its new product line with Easi-Set Worldwide placed the company in the prefabricated building market, which includes storage, wastewater treatment plants, electrical facilities and more. Most recently, the company constructed a 30-foot by 40-foot building in St. Louis to house a water utility.

Melvin said the production side of things went fairly smoothly, given that the company didn't need to buy equipment or hire new employees, but things were a lot trickier learning to sell the new product.

McCann's marketing challenge is not unique. When it comes to introducing new product lines, adding capacity, equipment and expertise is often secondary

to the challenge of seeking markets and customers.

MARKETING MATRIX

Glen Bowen, president of Piedmont Precast in Atlanta, Ga., faced similar challenges in marketing Gravix, Earth Wall Products' DOT precast wall system, after adding it to his product mix. While retaining walls have always been a specialty of Piedmont Precast, Gravix offered an opportunity for the company to provide product to the DOT market.

Fortunately, Bowen said his company had an overlap in its customer base because it had specifiers who already worked for DOT customers. That allowed Piedmont to grab about 30 to 40% of its new Gravix contracts fairly easily, but the rest was more difficult.

Piedmont also had to cope with the challenge of a very slow market cycle for government work. "DOT work doesn't happen overnight," Bowen explained. "Sometimes it can take up to five years. This is not for the faint of heart. If it were easy, everybody would be doing it."

That's not to say Bowen would advise against starting a new product line for the DOT sector. "From a top-end standpoint, we see a lot of growth," he noted. "The bottom-line growth is going to take more time."

Eric Barger, vice president of C.R. Barger & Sons in Lenoir City, Tenn., saw an opportunity for growth by adding Stone Strong Systems' precast blocks. While the company already had experience in retaining walls, the Stone Strong system allowed for taller walls. "We have a lot of hills and valleys in this area, so we saw a need for this product," Barger said.

Like the others, Barger saw quoting, selling and marketing as the biggest struggles when adding a new product. In fact, he hired a new full-time employee to handle quoting, preliminary design and production management for Stone Strong projects.

"We initially quoted jobs based on square footage," Barger said. "Then we saw the pitfalls of doing that."

What they found was that they often had to do work above and beyond wall installation, such as soil stabilization work behind the walls.

"We had some guidance from Stone Strong, but the form manufacturer can't give you total guidance," Barger said. "We also ignored some of the guidance, because we thought it wouldn't apply to us," he admitted, noting that he didn't fully anticipate the learning curve of quoting and marketing a new product until he was in the thick of things.

Barger marketed Stone Strong through radio ads but mainly by offering continuing education opportunities for architects and engineers. The company hosted events to teach industry professionals about the new product, and, in turn, the engineers and architects received education credits for increasing their knowledge base.

Like Barger, Melvin said he also had challenges with marketing and bidding on jobs. "The struggle came when we had to get people to buy our product," Melvin said. "It was a huge learning curve, and it took me a year and a half to learn what I was doing."

Melvin said he's grateful for the marketing Easi-Set does for its products, which are well known around the country. In addition to receiving leads from Easi-Set's website, Melvin worked hard to come up with lists of potential clients. "We contacted engineering firms that we knew did wastewater treatment plants, and contacted schools and did trade shows with parks and recreation departments," he said.

In its first year, McCann manufactured six buildings. He expects 15 Easi-Set projects this year.

Melvin advises other precasters looking to add new product lines to select a product for which the manufacturer provides a lot of support. "Going with a company like Easi-Set made the process easier, which was important because we're a relatively small business with only 30 to 40 people in our plant," he said. "If we'd had to do it all ourselves, we probably wouldn't have launched a new product."

Now McCann is looking at marketing its new prefabricated building line to railroads. The company has experience in highway work, so it's logical to push out into railroads for both retaining walls and utility buildings. Melvin recently attended a trade show for the American Railway Engineering and Maintenance-of-Way Association.

THE INFRASTRUCTURE ARM

Bidding and marketing may present the biggest challenges when introducing new product lines, but they're not the only hurdles to overcome. Sometimes new products also mean new equipment and employees. Even though Barger & Sons had already done smaller-scale retaining walls,

"The struggle came when we had to get people to buy our product. It was a **huge learning curve**, and it took me a year and a half to learn what I was doing."

– Mark Melvin, *McCann Concrete Products*

Photo courtesy of McCann Concrete Products

McCann Concrete Products, historically a transportation products manufacturer, ventured into the prefabricated building market with Easi-Set Worldwide .

Photo courtesy of Piedmont Precast

Piedmont Precast had already offered retaining walls, but Gravix, a DOT wall system by Earth Wall Products, allowed the precaster to manufacture products for the government.

the company still had to purchase new forms, decorative liners to put architectural finishes on the concrete and the Stone Strong forms themselves.

Barger said the company did not have to hire new production employees. However, it took about three months to get everything set up and running to actually start manufacturing product. His employees also faced a learning curve on block formation.

"Retaining wall blocks look simple, but you have to take really good care of your forms and keep blocks at the recommended sizes," Barger said. "It makes it harder on the customer if you don't manufacture blocks in tolerance, because they have to use shims to place them, at best, and, at worst, they might reject the product."

Piedmont Precast also faced a fair amount of new infrastructure in its introduction of Gravix. "We had to purchase new equipment, hire new employees and get a lot of outside consultation," Bowen said.

Bowen developed a new business plan for marketing the product to DOTs and hired four new employees. Piedmont also purchased Gravix forms, face molds and new casting tables, though the company did not need to invest in large-scale infrastructure like bridge cranes, which it already had for existing work.

"The biggest difference was moving from a civil engineering mindset to a structural engineering mindset," Bowen said. "We basically went from retaining earth to retaining traffic load."

Bowen also found the product's three-dimensional castings on three different axes to be very complex. "It was a new era for us," he said.

Bowen advises other precasters to carefully weigh benefits and costs before introducing a new product line. "Have a good business plan in place and decide if you want to grow your market," he said. "Have very good control over your financial forecasting and be prepared to stay with it over multiple market cycles."

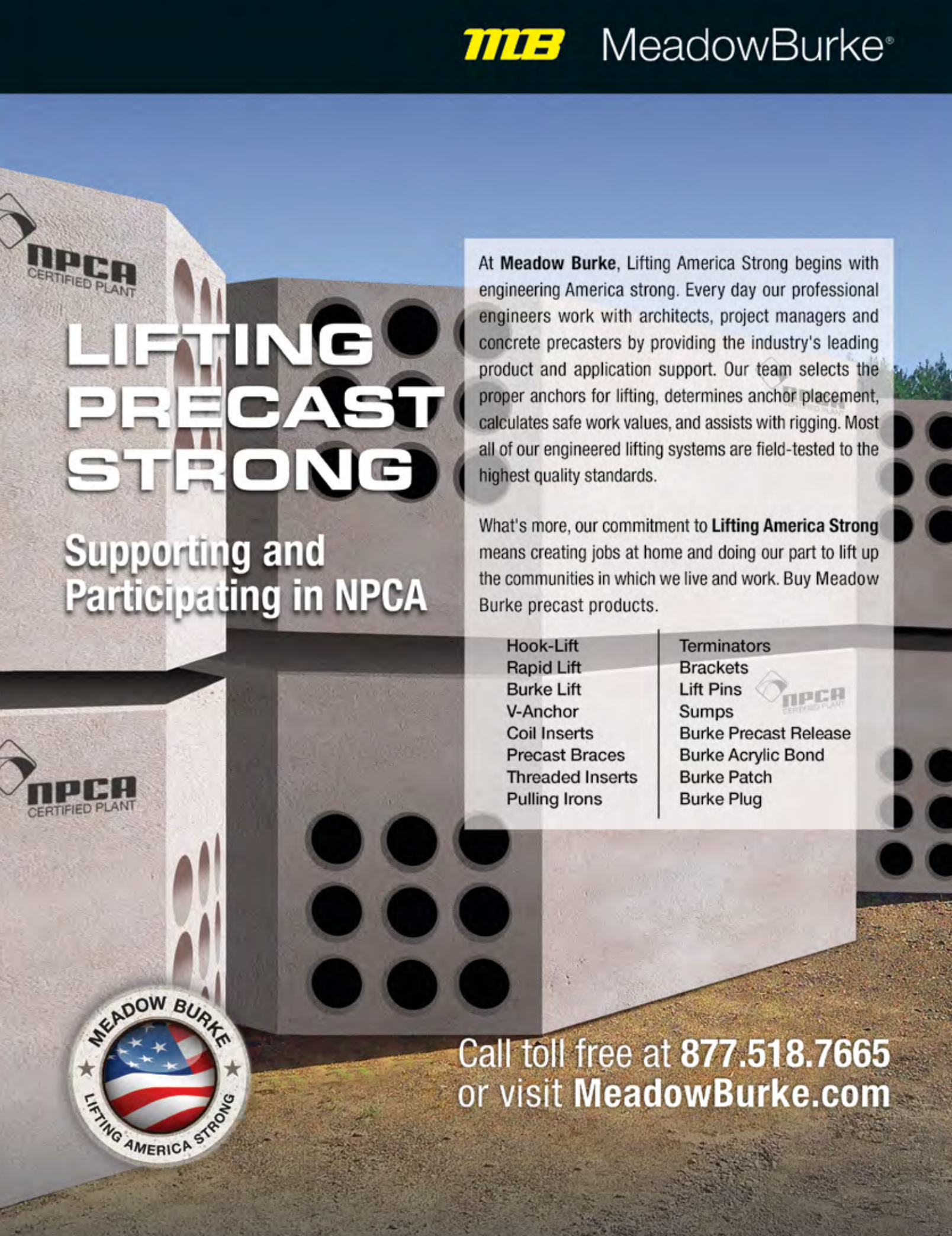
Despite the challenges, however, Barger said introducing a new product has been worth it. Currently, the company is working on the Foothills Parkway project in Tennessee. "We've got walls with this project that are 48 feet tall," he said. "We're basically holding mountains back."

Barger said the new Stone Strong product line has definitely provided a boost to his company's bottom line, and that with proper planning, new product lines are a smart decision. "Know how to quote and sell your product before you get started," he said. **PI**

Deborah Huso is a freelance writer specializing in construction, real estate, finance and agriculture.

Photo courtesy of C.R. Barger & Sons

C.R. Barger & Sons saw the need for its new Stone Strong retaining wall offering because of numerous hills and valleys in the area.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Concrete admixtures can be controlled through automated systems to ensure precision.

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MATERIAL MATTERS:
Water-Reducing Admixtures

By Debbie Sniderman

EDITOR'S NOTE:
This is the first article in a four-part series on materials that enhance the performance of concrete. This segment covers water reducers, which improve the performance of concrete in its hardened state. Future segments will cover curing compounds, fly ash and accelerators.

Water reducers are low-viscosity liquids that reduce the water content in cement. ASTM classifies some as either Type A water reducers, which provide low-range water reduction, or Type F high-range water reducers, which remove 20 to 40% of water from a mix. Today, 95% of precasters use third-generation high-range water reducers, or superplasticizers, which are Type F.

There is also an entire category of mid-range water reducers that isn't classified or specified by ASTM. Doug Wittler, president of Premiere Concrete Admixtures based in Pioneer, Ohio, explains: "Developed in the 1990s originally to improve the finishability of concrete, they didn't offer superior water reduction and were considered to be a product that added body or cream and made it easy to finish and work with," he said. "The mid-range category (was) confusing until approximately 10 years ago, when third-generation water reducers arrived on the market."

First- and second-generation superplasticizers are melamine and naphthalene based, and provide excellent strength and water reduction. They are still used by precast operations that don't use self-consolidating concrete, and, according to Wittler, they offer more wiggle room with control.

Third-generation superplasticizers are made from polycarboxylate materials, which provide higher water reduction and can be sensitive to cement characteristics.

"They also allow SCC to be made after understanding the mix design, the raw material components and how they perform in

concert with other additives, which can be chosen to do different things," Wittler said.

HOW THEY WORK

Water reducers work by coating the cement and acting as a dispersant. They spread out cement particles in the mix so more particles become hydrated and more surface area is available for early hydration. The more cement particles hydrated by contact with the mixing water, the greater the compressive strength of the concrete. Water reducers provide more complete and efficient hydration of the cementitious materials in the concrete matrix.

WHY THEY ARE IMPORTANT

Kenneth Kruse, admixture systems industry director at BASF, said that using HRWRs helps reduce the overall CO_2 footprint for a given project, because it allows less cement to be used.

"Ten years ago, the industry didn't use HRWRs to reduce cement," Kruse explained. "But now, they allow cement to be taken out. Precasters can use more secondary materials that are sensitive to sustainability and the environmental impact to society and still have the material performance."

Admixture companies are always producing new water-reducing products. Kruse says the product lifecycle for water reducers is three years due to precasters' need to produce more economically, faster, and with smaller batch and test times and higher quality standards than ever.

"The components of concrete – cement, aggregate, sand and water – are dug out of the ground and haven't changed much over time," Kruse said. "The market requirements have. Normally you serve those by changing the chemistry of the additives, and water reducers are one chemical component of a high-performance mix design that supplements performance enhancements by other materials."

DURABILITY AND MORE

HRWRs are one component of durability. In any given mix, there will be several admixture ingredients added to achieve the performance needed at the plastic and hardened state of concrete. There are many reasons why water reducers and superplasticizers are used: They:

- increase the density and strength of concrete quickly without delaying the setting time.
- allow a longer window of workability and fast form turnover.
- allow precasters to use less cement, optimize their material costs and use other secondary materials such as fly ash.
- increase the service life and durability of the product with decreased permeability.

Currently, more than 35% of all concrete precasters pour cannot be made without high-range water-reducing admixtures, which enhance the plastic state of the concrete. The highly fluid material with high flow, high spread and little need for vibration comes out smooth because of the water-reducing agents.

NPCA File Photo

By nature, water-reducing admixtuers are colorless, clear liquids, but some manufacturers add color for marketing reasons, or so the product can be distinguished from clear water. Tinting also makes it easier to visually check the level of product remaining in a tank.

Another use for water reducers is set control. Instead of using accelerator additives, HRWRs can speed up or slow down the set of concrete when additional or faster time is needed.

ADVANCING PRECASTERS' PLANT WORK

Precasters want increased strength for two reasons. The first is for durability – early high strength means products can be manufactured faster. By being able to strip the form faster, producers can make more components in a shorter time and increase efficiency. Second is for higher stripping strengths – to consistently produce high-quality finishes.

Another reason it's important to add water reducers is to be able to produce and perfect a better SCC process, which, according to Kruse, encompasses more than 35% of all concrete poured by surveyed precasters.

Water reducers enable the concrete to flow smoothly with high spread and little or no vibration. Without mechanical manipulation, plants can save labor and eliminate hazards such as the potential for electrical shock or hearing loss from extended exposure to loud noises.

"There's an enormous amount of positives for using an SCC process that reach all facets of a business: personnel, safety, labor savings, strength, quality of product and turnover time," Wittler said. "You can strip the bench quicker, release and turn product faster, and create a nice-looking finished product. Because the mix becomes so fluid, without vibration it's possible to get sharper details and an aesthetically pleasing product." **PI**

Debbie Sniderman is an engineer and CEO of VI Ventures LLC, an engineering consulting company.

RESOURCES:

Premiere Concrete Admixtures, premiereadmix.com

Master Builders Solutions by BASF, master-builders-solutions.basf.us

ASTM C494 / C494M – 13 Standard Specification for Chemical Admixtures for Concrete, astm.org/Standards/C494.htm

Water-Reducing and Set-Controlling Admixtures, precast.org/2013/04/water-reducing-and-set-controlling-admixtures

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5 Options for Dip Tank Maintenance

Maintaining the optimum reactive level of form release agents in pipe production dip tanks ensures performance and quality.

By Bob Waterloo

Dip tanks are used frequently in the pipe manufacturing industry as an efficient means of coating parts with form release agent.

Dip tanks play a critical role in the dry-cast pipe production process for many manufacturers. The reactive properties of the fatty acids in the form release agent enable the pipe to smoothly release from the pallet/header. Here's the problem. The cement/concrete residue left behind when headers are dipped begins to negate the reactive properties of the fatty acids.

Left unchecked, the form release agent eventually begins to lose its effectiveness, pipes will not pull easily from the headers and quality could suffer. The solution: a regular program of monitoring and maintenance that keeps the form release at the optimum reactive release level and reduces replacement and disposal costs.

BENEFITS OF A DIP TANK

Reactive form release agents are the accepted standard in today's precast and pipe-forming operations. Fatty acids, which are found in an infinite number of blends, are the most commonly used reactive material. Fatty acids have the unique ability to react with the free lime on the surface of the concrete, which results in a nonviolent chemical reaction. This neutralization (or saponification) forms a metallic soap, allowing the product to easily release.

There are a number of benefits to using a dip tank to apply form release during pipe-forming operations, including complete coverage, proper release and reduced chance of operator error. However, a common occurrence when using this method of manufacturing is increasing difficulty with "pulls" or "tip-outs" during stripping over a period of production time. This is generally the result of decreased reactive material in the dip tank as contaminants enter the system and negate some of the reactive material.

MAINTAINING THE DIP TANK

Two areas must be addressed in the preventive maintenance program for this type of equipment:

1. **Regular maintenance to remove sludge that accumulates in the bottom of the dip tank**
2. **Regular maintenance of the release agent's reactive levels for effective release**

The sludge generated in the dip tank includes contaminants from previously dipped headers/joint rings. These contaminants negate the reactive portion of the form release. As the reactive portion of the release agent gradually decreases, the possibility of concrete sticking to the headers increases, causing a more difficult release. The rate

Form release in the dip tank will eventually become contaminated, requiring some level of maintenance.

of decrease is gradual and depends on a number of factors, including rate of production and amount of contaminants allowed to enter the dip tank.

REMOVING CONTAMINANTS

Rather than disposing of the entire tank of form release, transfer it to a holding tank and shovel out the sludge. Because the sludge typically contains petroleum hydrocarbons, disposal should be in compliance with local regulations. Then transfer the recovered form release agent back into the dip tank and top it off with fresh release agent.

Remember that by adding fresh release agent to the recovered material, rather than using all new release agent, reactive levels will be reduced and release problems will occur sooner unless the reactive portion is tested and brought back to a normal level. The discoloration of the recovered material from the dip tank is not relevant to the release characteristics, or levels of reactive material.

MAINTAINING REACTIVE RELEASE LEVELS

Maintaining the correct level of reactive agent in the form release is quite simple. Test the recovered material and bring the reactive portion back to optimum levels.

Test a sample from the dip tank (less than one ounce is sufficient) for the reactive level through either titration or infrared analysis. Your release agent supplier should be able to tell you the optimum level of reactive material required, and may be able to run the analysis for you. Once you determine the level of fatty acids, a number of simple calculations determine the amount of pure reactive agent to be added to the dip tank to bring it back to the optimum reactive level.

After adding the recommended amount of reactive material to the dip tank, use an air lance for mixing for a minimum of two minutes, making sure to cover the entire area of the dip tank. Then top off the dip tank with fresh release agent and air lance again for good distribution.

Depending on the amount of contaminants and reduced reactive material, the timeframe between tests will vary. One way to determine the frequency between tests is to establish a baseline. Begin with tests every 30 days, which should be recorded, until a history can be compiled to determine the needed frequency. Normal frequency of adding more reactive ingredients is typically five gallons for every six weeks of normal production.

In many cases, production workers can see the reduced effectiveness of release agents. It's important to train them to notify management to add additional reactive material to the dip tank. As usual, science is best, but practical application and analysis are also important.

TOTAL REPLACEMENT OF FORM RELEASE

While removing sludge and maintaining dip tanks by adding new release as needed make sense from an environmental and cost perspective, on occasion you may feel it necessary to clean the entire dip tank to remove all residual sludge and refill the cleaned dip tank with fresh release agent.

COST-EFFECTIVENESS

Dip tank maintenance comes down to five options. Option 1 is the least cost-effective, while Option 5 is the most cost-effective.

Option 1: Drain the dip tank, dispose of the sludge and old release material, then refill only with fresh form release agent.

Option 2: Remove the form release from the dip tank, dispose of the sludge, refill the dip tank with fresh form release, then use the recovered form release to replenish the dip tank as necessary.

Option 3: Remove the form release from the dip tank, dispose of the sludge, refill the tank with recovered form release, then top off with fresh form release.

Option 4: Remove the form release from dip tank, dispose of the sludge, test the recovered form release, add reactive ingredient to bring it back to an optimum level, then top off with fresh form release.

Option 5: If there is not enough sludge to remove but the release is not as good as it should be, test for the reactive level of the release agent in the tank, then add reactive material to return it to an optimum level.

In the long run, a little care and attention to the reactive content level in the dip tank will help to reduce labor costs and maintain or improve casting appearance. **PI**

Bob Waterloo is technical sales manager, Concrete Release Agents, Hill and Griffith Co., based in Indianapolis.

The author has summed up the entire problem and solution of dip tank maintenance in poetic fashion.

To read the poem, please visit precast.org/diptank

WHAT KEEPS PRECASTERS Up at Night?

Changing regulations, more governmental oversight, rising costs and a shrinking labor pool are pushing precasters to **find new ways to effectively manage key challenges** in 2015.

By Bridget McCrea

The national economy is rebounding, the construction market is active, and projects that were mothballed during the recession are coming back to life. To respond to this brisk business pace, precast manufacturers are bidding on new work, hiring additional staff members and scaling up their operations to accommodate new projects. But in an environment where skilled workers aren't easy to come by, and where regulatory/compliance requirements are becoming increasingly cumbersome, precasters face some key challenges.

So what really are the biggest stress factors that precasters are dealing with right now, and how can they effectively tackle these issues in today's competitive business environment?

STRONG ECONOMY = NEW CHALLENGES

Precasters aren't the only ones grappling with a host of new and ongoing challenges. On a positive note, a survey conducted by the National Association of Manufacturers found that U.S. manufacturers finished strong in 2014. More than 91% are optimistic about their company's outlook for 2015, and a majority are forecasting both increased sales and higher employment.

But despite a stronger economic outlook, 72.7% of those taking the survey said the United States is on the wrong track. When asked which policy actions they would like to see pursued by the Obama administration and the new Congress, 82.8% cited reducing the regulatory burden.

Respondents were also asked about their current primary business challenges. A majority (77.1%) cited rising health insurance costs as their top challenge. In the manufacturing sector, businesses see benefit costs rising an average of 6.3% over the next 12 months, with health insurance premiums anticipated to increase 9.5% on average in 2015. More than 83% of manufacturers taking the survey said their health insurance premiums rose by 5% or more, with 50.9% indicating that their costs rose by 10% or more.

Another pressing issue for manufacturers is the business climate. According to the Industry Week survey, businesses would like policymakers to enact comprehensive tax reform and address rising regulatory burdens. In addition, workforce development challenges remain top-of-mind for many manufacturers, with 56.7% listing attracting and retaining workers as a primary challenge.

National Precast Concrete Association members interviewed for this article echoed these survey results and singled out regulatory burdens, finding skilled workers, climbing health care costs and more stringent compliance requirements as the top four challenges that are currently creating sleepless nights for managers and owners.

At Norwalk Concrete Industries of Norwalk, Ohio, John Lendrum, president, said recruiting, training and retaining high-quality employees are ongoing challenges.

"Precasters are competing for a shrinking labor force," said Lendrum, who credits the recovering economy and lower unemployment rates for creating the challenge. "At the same time, our products are becoming more complex and detailed. As a result, we need more hands-on skill in the production plant."

The problem, said Lendrum, is that most of the construction industry is fighting over the same shrinking pool of skilled laborers. This issue is universal across most of the job market. Between November 2014 and January 2015, for example, U.S. businesses added more than 1 million people to their payrolls – the most impressive three-month stretch in 17 years, according to the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey.

Also hampering precasters' chances of finding skilled workers is the fact that younger workers who are interested in such positions are getting harder to find. "They used to be abundant, but they're just not out there anymore," Lendrum said. "As a result, we have to work really hard to attract the younger set with higher wages, faster-paced job advancements and more training which, in turn, equates to higher expenses for the precaster. It's a real challenge."

To work through this challenge, Lendrum said Norwalk Concrete has aligned itself with technical high schools and community colleges in the area. "We're trying to make an early effort of attracting younger workers and bringing them into the fold," he said.

To do that, Norwalk Concrete Industries offers internships to students interested in the precast manufacturing field. Concurrently, the company is reaching out to older workers – namely those who already have some experience in the field and who are now embarking on a second career and/or looking for part-time work. Through that effort, the company has been able to fill positions in less labor-intensive areas of its operations such as quality control.

Brent Dezember, president of StructureCast in Bakersfield, Calif., is also hard-pressed to find good help to fill his company's ranks. The issue first surfaced in 2014 – the year the company doubled its workforce to accommodate new demand being generated by the economic recovery. He said StructureCast recently started an intensive, in-house training program to help employees step up their individual skill levels. To make that training more enticing for employees, the company added a merit system that tracks and rewards progress.

"In some cases, it's a challenge just getting skilled workers to show up (for work)," Dezember said. "So we're stepping up our internal efforts to make sure the folks we hire have solid training and incentives to be here."

ADDRESSING REGULATORY BURDENS

Labor woes aren't the only thing keeping precasters' stress levels high right now. Operating in an increasingly stringent regulatory environment and having to comply with a litany of new requirements are also challenges.

In the online article "2015 Regulatory Challenges Burdening Manufacturers," Manufacturing Industry Advisor highlights some of the key regulatory issues that

manufacturers are facing, including tax reform, trade policy, skilled workforce policies and increased administrative activism. "Now more than ever, U.S. manufacturers are faced with regulatory challenges that burden their businesses and impact U.S. competitiveness in the global markets," it said.

Here's Manufacturing Industry Advisor's take on each issue:

- **Tax Reform.** The last Congress started the important spadework on federal tax reform, but this work has not yet borne fruit. Manufacturers should stay engaged in and attuned to these issues as they progress, especially those with global footprints and attendant tax issues.
- **Trade policy.** Interest and momentum continue to build around the pending trade talks with Asia and Europe. Manufacturers should anticipate and try to weigh in on the development of these agreements and policies as legislative and industry association figures work through the process.
- **Talent/immigration/skilled trades.** Increasingly, federal, state and local governments are looking at ways to help employers fill the skills gap in the manufacturing sector. This is a big and long-term issue, exacerbated by demographics, with no quick or easy solutions.
- **Increased administrative activism and resultant litigation.** The NLRB (union election rules and other areas), the EPA (Clean Air Act/greenhouse gas issues and Clean Water Act/navigable waters issues), the SEC (conflict minerals reporting) and OSHA (enhanced reporting) are all impacting manufacturers who do business with federal contracting agencies. Expect this regulatory activism to continue in 2015.

Lendrum sees increased government regulation as a key challenge for precasters, and points to expenses like rising health insurance costs as a growing burden for companies like Norwalk Concrete.

"It's basically a never-ending battle to see where the next unfunded mandate, license fee or other financial hit will come from," said Lendrum, whose company has taken measures to combat the challenges on several fronts.

When it comes to health care insurance coverage, for example, he said his company is doing more preventive care with its employees and getting them more involved with their health care choices.

STATE BY STATE

In some cases, precasters are grappling with state-specific regulatory burdens. In California, for example, Dezember said workers' compensation is becoming a bigger issue for companies like StructureCast, which must comply with the state's workers' compensation experience rating system.

This merit rating system is intended to provide employers a direct financial incentive to reduce work-related accidents. An experience modification, for example, is expressed as a percentage and compares the loss or claims history of one company to all other companies in the same industry that are similar in size. Generally, an experience modification of less than 100% reflects better-than-

average experience, while an experience modification of more than 100% reflects worse-than-average experience.

"We're running into a lot of owners and builders who are putting limits on the type of experience modifications you need to be able to work on their sites," Dezember said. "We install everything we make, so it's definitely an issue for us."

To manage this challenge, Dezember said StructureCast recently upped its safety program to include daily huddles, monthly barbecue events, lessons in first aid, and ongoing discussions about the importance of safety in the plant, on the road and at the job site.

"We spend four to five times more time on safety now than we did five years ago," Dezember said. "It's not a bad thing, of course, but now that an experience modification above 100% excludes you from a lot of work, it's a necessity to stay in business."

Compounding this challenge is an increasingly demanding customer and a payment process that's becoming harder and harder to manage. Pre-recession, for example, Dezember said StructureCast's invoices were typically paid in the 45 to 55 day range, on average. During the recession, that time frame rose to 75 to 80 days and has yet to return to normal.

"It's not dropping back yet," Dezember said. "In some cases, large contractors pay within two weeks, because they want workers to show up and get the work done. But on the other side of the coin, the amount of working capital we need now versus five years ago has doubled."

To manage these challenges efficiently, Dezember said StructureCast has adopted a lean manufacturing mentality that allows it to continue performing quality work and on a consistent basis.

"We're running just about as lean as you can get right now," Dezember said. "We're not adding to our management ranks, so everyone just has a bigger workload to deal with."

NOSE TO THE GRINDSTONE

When Armen Alajian, president at ARTO Brick and California Pavers in Gardena, Calif., looks around the current business climate, he sees a mix of opportunity and challenges. And while business has certainly picked up since the Great Recession, he says some of the newer issues are equally as onerous as having little or no business in the pipeline.

> "It's basically a never-ending battle to see where the next unfunded mandate, license fee or other financial hit will come from."
>
> – John Lendrum, *Norwalk Concrete Industries*

To manage the ebbs and flows, Alajian said precasters should focus on their core competencies and try to avoid overloading key team members with too many tasks or projects. "Don't give your team too much to do, and help your people understand that fires will come up," Alajian said. "Just have them direct their energy to a handful of tasks that can be managed effectively instead of trying to hit everything at once. Then move on to the next issue and address it."

For precasters that need effective solutions right now, Chris Cameron, director of business process solutions at Philadelphia-based supply chain operating network provider Elemica, said recognizing that the labor market problems are here to stay is a good starting point. "It's just something that manufacturers are going to have to embrace and learn how to deal with effectively as the economy continues to improve," said Cameron, who advises precasters to explore technology applications as a way to work smarter, better and faster in spite of the rising challenges.

"While the manufacturing industry isn't readily known for being on the cutting edge of technology, there are definitely some applications out there that can help companies more effectively deal with challenges while continuing to grow and succeed," Cameron said. **PI**

Bridget McCrea is a freelance writer who covers manufacturing, industry and technology. She is a winner of the Florida Magazine Association's Gold Award for best trade-technical feature statewide.

Hand & Finger SAFETY

OSHA – and common sense – help us to **guard against injuries.**

By Evan Gurley

In day-to-day activities, we tend to take our hands for granted, but where would we be without them? Their 27 bones and numerous ligaments, muscles, tendons, nerves and blood vessels, plus skin and nails provide the strength and dexterity that enable us to perform routine tasks with precise movements on and off the job. In the precast industry, hand injuries generally result from physical or chemical hazards that result in burns, bruises, abrasions, cuts, punctures, fractures, amputations and chemical exposures.

Though hand injuries are not typically fatal, they are second in number only to back strains and sprains, according to the U.S. Bureau of Labor Statistics. This means that injuries to the fingers and hands make up roughly 20% of all workplace injuries.

WHAT OSHA SAYS ABOUT HAND & FINGER SAFETY

OSHA has made it clear that hand and finger safety is an important topic for employers to address, as hand injuries are prevalent in the workplace and very much preventable. In fact, OSHA specifically addresses hand safety:

- **OSHA 1910.138(a).** Employers shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.
- **OSHA 1910.138(b).** Employers shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.

In addition to current standards addressing hand safety, OSHA has announced recent changes to its reporting and recordkeeping requirements. The rule,

29 CFR 1904, effective as of Jan. 1, 2015, revised two key elements, one directly related to recording and reporting hand/finger-related injuries. Under the revised rule, employers are now required to notify OSHA of work-related in-patient hospitalizations, amputations and eye loss within 24 hours of the event.

Previously, OSHA's regulations required an employer to report in-patient hospitalizations of three or more employees, and reporting single hospitalizations was not required. Of particular importance, fingertip amputations, regardless of bone loss, must now also be reported to OSHA within 24 hours of the incident.

Speaking on the benefits of the new OSHA requirements, Dr. David Michaels, OSHA's assistant secretary of labor, said, "OSHA will now receive crucial reports of fatalities and severe work-related injuries and illness that will significantly enhance the agency's ability to target our resources to save lives and prevent further injury and illness. This new data will enable the agency to identify the workplaces where workers are at the greatest risk and target our compliance assistance and enforcement resources accordingly.

"Hospitalizations and amputations are sentinel events," Michaels added, "indicating that serious hazards are likely to be present at a workplace, and that an intervention is warranted to protect the other workers at the establishment."

This should pique precasters' interest, because it signals that OSHA will be looking more closely at these types of injuries. If the new reporting and recordkeeping requirements are not followed, fines will follow.

Don Graham, director of safety with Jensen Precast, puts a finer point on it. "If you call OSHA after you determine the condition of the employee and it is not within the time frame OSHA has outlined (8 hours for fatalities and 24 hours for all work-related in-patient hospitalizations, amputations and loss of an eye), this could result in a fine of up to $5,000," he said.

TYPES OF HAND HAZARDS

The first step in understanding the potential risk of hand and finger injuries is to understand the hazards present in the workplace. Once the types of hand injuries have been identified and evaluated, it is then possible to apply control measures to prevent injuries.

Workers' hands are susceptible to many kinds of hazards, including:

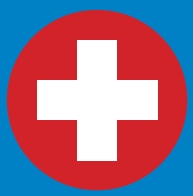
- **Mechanical:** These are situations where hands and fingers can get caught, pinched, crushed or severed in tools, equipment, machines, structures and vehicles, chains, rollers, gears or other moving parts.
- **Contact:** These hazards cause hands and fingers to get cut on sharp edges of tools, materials, packaging, containers or even debris from a manufacturing process. These hazards also include electrical current, chemicals, and extreme hot and cold temperatures.
- **Personal:** These hazards include wearing jewelry, loose clothing, or using improper or defective personal protective equipment.

HAND INJURIES ARE PREVENTABLE

Two important and related elements in any plant safety program are hazard identification and risk assessment. Precasters should be putting a greater focus on hazards that carry a higher probability of occurrence and the potential for more severe outcomes. When looking for high risk exposures, it may be easy to overlook some of the more common injuries. Hand injuries sometimes fall into this category.

The best way to prevent an injury at the plant is to make sure it never has a chance of happening in the first place by performing a hazard assessment of the work area (see the sidebar "Prevention Tips"). This program should clearly identify pinch points, hot spots, rotating equipment and automated machinery. Likewise, the assessment should include engineering controls – guarding, safety switches, etc. – that can also prevent incidents.

OSHA requires a written certification that a hazard assessment has been performed. However, there is no requirement that the hazard assessment itself be in writing. Most professionals would suggest, however, that written documentation of the actual assessment would be a best practice. It will help the plant identify dangers that cause hand injuries and help determine what steps can be taken to eliminate, control or protect against them.



Prevention Tips

For mechanical hazards:

- ✓ **Work at a smart pace.** The frequency of hand injuries is proportional to how quickly you work.
- ✓ **Stay alert!** Always watch what your hands are doing.
- ✓ **Use a push stick** to feed a circular saw or other power tools.
- ✓ **Know how to handle tools** and equipment in use.
- ✓ **Don't take shortcuts.**
- ✓ **Control panels** should be designed, installed and guarded to **reduce the risk of accidents.**
- ✓ **Wear gloves** when using items like knives and box cutters and always **cut away from your body.**
- ✓ **Use tools that are the right size** and type for the job being performed.
- ✓ **Don't work with oily or greasy hands.**

For contact hazards:

- ✓ **Use gloves** appropriate for the job and temperature.
- ✓ **Keep the insides of gloves clean.** Contaminants inside gloves can cause blisters and burns.
- ✓ **Let hot surfaces cool** before working on them.
- ✓ **Keep containers correctly labeled** and understand the manufacturer's handling instructions.
- ✓ **Wash hands well** with soap and warm water or use special cleansers, especially after direct contact with a chemical substance.

For personal hazards:

- ✓ **Wearing rings at work is considered unsafe.** If the ring is forced off or breaks, it may pull the flesh from the finger or amputate it.

"In the past, we have had safety meetings using hot dogs with pencils to demonstrate pinch points, smashed fingers and hands, and cuts and bruises."

– Scott McIntosh, *Wilbert Precast*

HAND INJURIES ARE COSTLY

BLS and National Safety Council statistics indicate that:

- Approximately 110,000 lost-time hand injuries are reported annually
- Hand injuries send more than 1 million workers to the emergency room each year

The following are cost approximations associated with hand injuries:

- Average hand injury claim exceeds $6,000
- Each lost time workers' compensation claim is roughly $7,500
- Direct cost of laceration: $10,000
- Stitches: $2,000 plus indirect costs
- Butterfly: $300
- Severed Tendon: > $70,000
- Average reported hand injury results in six days away from work
- More than 50% of all fingertip amputations result in 18 or more days away from work

TAKING GLOVES SERIOUSLY

Wearing the proper gloves has been proven to reduce the relative risk of injury by 60%. This is still the most effective way of reducing most hand injuries.

BLS and National Safety Council statistics indicate that:

- 70% of workers who experienced hand injuries were not wearing gloves
- The remaining 30% of injured workers did wear gloves, but experienced injuries because the gloves were inadequate, damaged or the wrong type for the hazard

Many types of gloves are available to protect against a wide variety of hazards. The nature of the hazard and the operation involved should dictate the selection of gloves, although the variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. It is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace.

Some of the factors that may influence the selection of protective gloves for a workplace are:

- Type of chemicals handled
- Nature of contact
- Duration of contact
- Area requiring protection
- Grip requirements
- Thermal protection
- Size and comfort
- Abrasion/resistance requirements

In general, gloves fall into four groups:

- Leather, canvas or metal mesh
- Fabric and coated fabric
- Chemical- and liquid-resistant
- Insulating rubber

OSHA outlines the various types of gloves available depending on the nature of the hazard and the operation involved. You can find this information at osha.gov/Publications/osha3151.html.

PRECASTERS' INSIGHTS

"At Jensen Precast, our employees perform numerous tasks while working with concrete, polymers and various types of metal," Graham said. "The one item all these varied tasks have in common is the PPE hazard assessment. We use a job hazard analysis to identify hazards for every job, then we apply engineering controls to eliminate the hazard."

If the hazard for the hand cannot be eliminated, then a PPE assessment is done to determine the correct hand protection, usually a glove of some type.

Graham added that the gloves must be the correct size for each person using them, and each person must receive documented training on gloves. "The training must cover limitations of the glove, care and use, and how to properly dispose of them," he said.

"In the past, we have had safety meetings using hot dogs with pencils to demonstrate pinch points, smashed fingers and hands, and cuts and bruises," said Scott McIntosh with Wilbert Precast in Spokane, Wash. "This simple demonstration in front of the crew shows what can happen to fingers when proper hand and finger care isn't taken."

"We do not have a specific hand safety program in place, but we do read current literature on the subject to employees, give examples of applications in the plant, review guidelines and ask if there are any questions," said Dave Garcia, Contractors Precast Corp. in Davidsonville, Md. "This is done once a month at our safety toolbox talk. If someone is spotted doing something that is potentially dangerous or improper for hand safety, it is addressed immediately, then brought up again on Friday while handing out paychecks. Payday is a great time for the plant manager and his team to discuss issues from the week and give safety reminders and tips!"

Evan Gurley is a technical services engineer with NPCA.

SEPTEMBER 4TH, 9:09 A.M.

A SIMPLE SHIFT IN THINKING ON THE ROAD TO SUCCESS

IN AN INSTANT, EARL NICHOLS LEARNS THE VALUE OF INDUSTRY-LEADING RISK CONTROL

Forty perfect stacks of Jersey barriers stood ready for morning delivery when the new forklift operator lost control of the wheel. Lucky for Earl Nichols of Purdie Concrete, CNA's UL-certified Risk Control engineers had just shown him a new technique to make his stacks more stable and his operation more efficient. So instead of calling his independent agent to file a claim, Earl called his client to confirm delivery and arranged three more shipments for the week ahead. Solid work, Earl!

When it comes to risk control solutions that help NPCA members remain productive and profitable … **we can show you more.®**

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To learn more about our broad portfolio of insurance products and services for precasters, visit www.cna.com/manufacturing.

Battle Tested

Leesburg Concrete Company's willingness to **embrace change** helped pull the company through the recession and into an **entirely new line** of business.

Story and photos by Mason Nichols

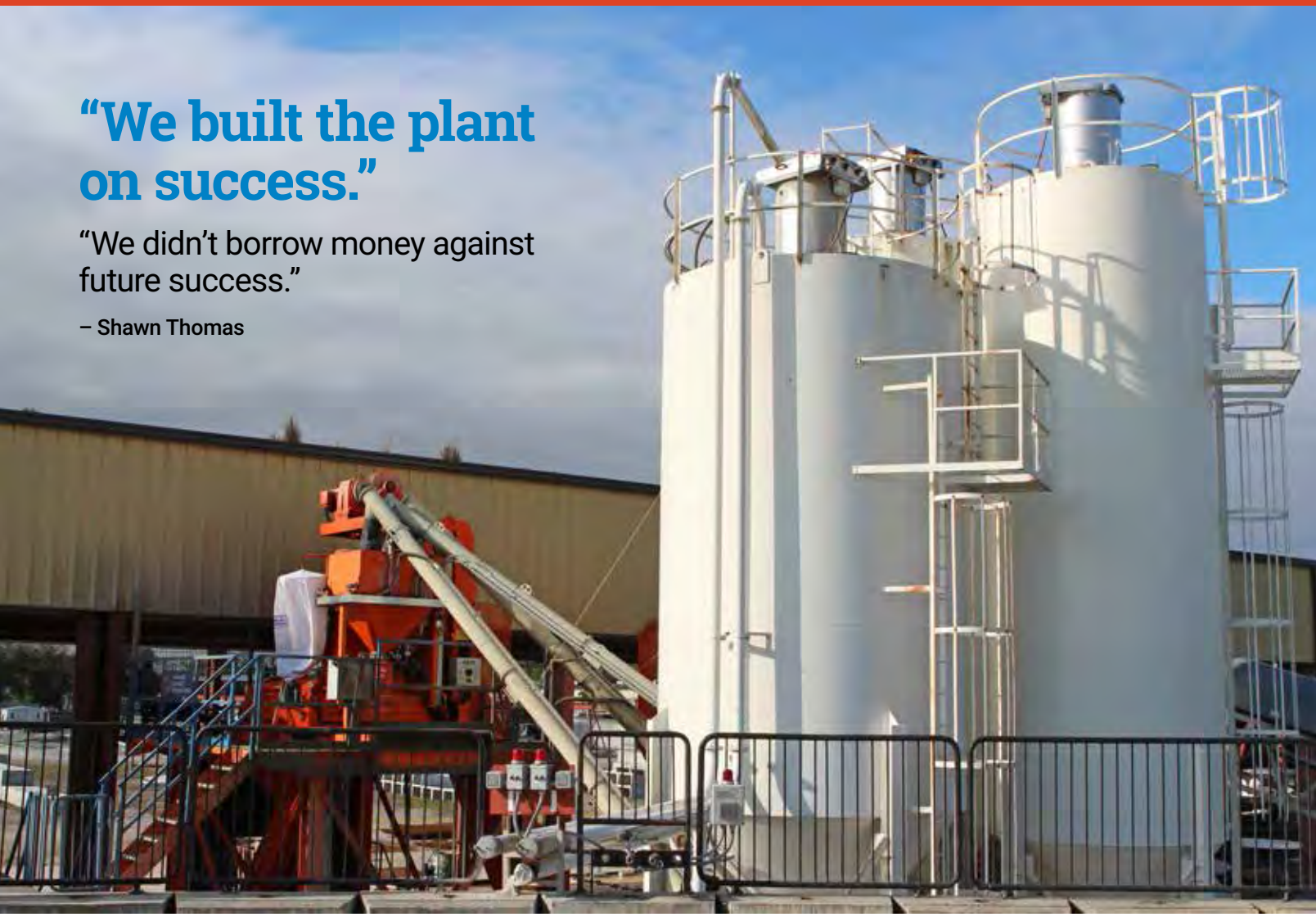
From back left: Co-owners Shawn Thomas, Lannie Thomas and Kirk Rouse

Kneeling from left: Gary Logan, QC manager; Josh Logan, batch plant operator; Lee Vandevander, production manager

"We built the plant on success."

"We didn't borrow money against future success."

– Shawn Thomas



Change can be extraordinarily difficult. As humans, we tend to get comfortable with the status quo, accepting routine and the comfort that comes with knowing what to expect. Our love for stability extends into the world of business, where reliance on the practices that have previously led to success often dictate our strategic planning.

But what happens when the bottom falls out? How do we react when things fail to go as planned?

In the late '90s, author and management consultant Spencer Johnson published a best-selling business book titled "Who Moved My Cheese?" The book is a parable that describes how two mice and two people react differently when confronted by unexpected change.

Johnson's book teaches that while it may be easy to rely on the same resources for success, change will inevitably occur. At the risk of being left behind, we must be ready to embrace this change in pursuit of new ventures.

Kirk Rouse and Shawn Thomas, co-vice presidents of Leesburg Concrete Company in Leesburg, Fla., took this message to heart when their mom, Sue, purchased Johnson's book for them in 2007. Today, after powering through a difficult recession that significantly impacted the entire precast concrete industry, the company continues to thrive. A significant portion of the company's success can be attributed to a willingness to envision change as an opportunity for diversification rather than a barrier to success.

A FAMILY THING

Leesburg Concrete's state-of-the-art batch plant helps the company manufacture nearly any product imaginable.

Rouse and Thomas have a unique relationship. In addition to being business partners, the two became stepbrothers in high school when Rouse's mother, Sue, married Thomas's father, Lannie. When Rouse and Thomas graduated in 1983, their parents purchased Leesburg Concrete, a 2.5-acre precast concrete plant, which at the time primarily manufactured split-face block.

Lannie and Sue grew the business by expanding into product lines that continue to play an important role at Leesburg Concrete today. First, they partnered with Unit Step to begin manufacturing precast concrete steps. Then, when Congress enacted the Americans with Disabilities Act in 1990, they created a wheelchair ramp product line. They again worked with Unit Step to fabricate the forms

that needed to meet strict code requirements. This product line was especially lucrative for Leesburg Concrete because portable classrooms were popular and required wheelchair access.

Steps and ramps served Leesburg Concrete well for many years, but in 2000, the family came together to discuss the future of the business. Rouse and Thomas signed on to see what they could do to help the company grow even further. Thanks to their efforts, the company grew its customer base. For the first time, Leesburg Concrete began selling steps and ramps outside of Florida. Demand was so high that production sometimes ran 24 hours a day so the company could manufacture enough concrete to satisfy orders. Things were getting so hectic that the family decided more space was needed in order to keep up with the frantic pace. As a result, Leesburg Concrete bought additional acreage and built a new plant.

"We bought the additional property really to satisfy the need to make [ramps and steps]," Rouse said. "Our main focus was being able to continue keeping up with demand. But then, the bottom fell out."

In the parlance of Johnson's business book, someone had moved their cheese.

Batch Plant Operator Josh Logan pours fresh concrete into a form.

SECRET WEAPON

The same product lines that had been so crucial to Leesburg Concrete's growth were now struggling mightily. According to Thomas, the company lost between 60 and 70% of its market thanks to a mass exodus out of Florida. Earlier projections for wheelchair ramp needs at schools were completely reversed, eradicating a large portion of the company's business.

To make matters worse, the owners had decided to expand operations by purchasing a new batch plant to meet the exponential growth of their main product lines. They signed the contract for the new equipment just before the recession took hold of the economy. Thankfully, the family was prepared.

"Our folks had lived conservatively and saved their money," Rouse said. "When they had those good years, they didn't go and blow it. When we built this plant, we were able to do it and stay out of debt."

Thomas echoed Rouse. "We built the plant on success," he said. "We didn't borrow money against future success."

Remaining debt-free was essential to pulling through the recession. As Thomas explained, while the company took the necessary steps to minimize damage brought on by reduced business, it was Lannie and Sue's financial resourcefulness that ultimately kept Leesburg Concrete on track.

"If we were carrying any debt, we would have been gone a long time ago," Thomas said. "And I think that was a deciding factor of whether we were going to stay in business or not."

MIXING IT UP

With the recession taking a stranglehold of the precast concrete industry and having a detrimental effect on Leesburg Concrete's product lines, the company was faced with a major dilemma. Even with no debt to contend with, major questions still remained. How would the company survive until the economy improved? What products could Leesburg Concrete produce that would differentiate them from the competition? Change was needed for survival, and it was needed quickly.

Leesburg Concrete manufactured more than 100 architectural exterior and structural precast panels for Mayport Naval Station in Jacksonville, Fla.

Besides being frugal, Lannie and Sue are also known for being research-oriented. As such, the decision to purchase a new batch plant came only after significant exploration into all of the possible options. Leesburg Concrete, which has been a National Precast Concrete Association member since 2004, used The Precast Show as one of its primary research tools.

"For years, we'd go to the trade show and talk to all of the batch plant manufacturers," Thomas said. "We knew them all by name and spoke with all of them."

After much deliberation, Leesburg Concrete chose to work with Advanced Concrete Technologies. According to Thomas, a major factor in the decision was ACT's hands-on work with Leesburg Concrete throughout the entire process.

"They came in and I took four of my guys, and together we built the whole plant out of the box," Thomas said. "We bolted it all up and then brought in the guys to hook up all of the electronics. ACT then spent a couple of days showing us how to run the mixer."

Adding the new batch plant was the perfect opportunity for Leesburg Concrete to reconsider its business strategy. As Rouse said, having the system in place meant the company could begin manufacturing "pretty much anything."

NEW DIRECTION

Armed with more than 30 acres of production space and a new, more versatile batch plant, Leesburg Concrete was now positioned to attack the recession head-on. The only question was how.

For Rouse and Thomas, reorienting the business strategy wasn't just about making it through the recession, it was about developing a sustainable plan that could take the company to new heights once the economy recovered.

Central Florida is home to many large-scale precast concrete manufacturers that produce large quantities of standard utility products, including culvert and pipe. The result is stiff competition and thin margins. Realizing this, Rouse and Thomas chose to focus the company's efforts on custom work instead.

"When we lost the market, we came up with a strategy," Thomas said. "We didn't just scramble. We sat down and looked into other products to build on. We planned."

That planning opened up the possibility for Leesburg Concrete to manufacture a variety of specialty products at a much higher profit margin. And while the company still produces stairs and ramps, this new direction defines the company today.

Thanks to this new direction, Leesburg Concrete now touts an expansive product line. In addition to ramps and steps, the company manufactures precast concrete floor-to-floor stairs, boardwalks, Easi-Set & Easi-Span buildings, SlenderWall, custom architectural panels, architectural bridge sections and other custom products.

Photo courtesy of Leesburg Concrete Company

Additionally, Leesburg Concrete's metal fabrication division produces custom railing, gates and stairs. The company recently completed production and installation of over a mile of high-end Florida Department of Transportation architectural pedestrian railing for SunRail, central Florida's light train rail system.

MADE TO ORDER

In the years since the recession, Leesburg Concrete has worked on custom jobs for projects in a wide variety of locations. The company has shipped custom products to California, Texas, Maine, Canada and the Bahamas.

"Generally, you have a circle of around 100 miles for your customer base," Rouse said. "But because these projects have a different flavor, look or feel, we have been able to expand beyond that circle."

Last year, Rouse and Thomas secured work on two large-scale precast concrete cladding jobs, one for Tyndall Air Force Base east of Panama City and one for Mayport Naval Station in Jacksonville. The job at Tyndall Air Force Base was won proactively by combing through search engine results. Thanks to the high quality of the finished work, Rouse and Thomas were able to establish key relationships, leading to the second large project at Mayport Naval Station.

The work at Mayport Naval Station required a high level of attention to detail. Leesburg Concrete manufactured more than 100 architectural exterior and structural precast panels, each weighing approximately 45,000 pounds. Project owners specified 30-foot tall panels with three different integral colors and four different finishes, a difficult task for any precaster. Thomas admits that it was the most complex project Leesburg Concrete has tackled to date.

"It's a matter of resourcefulness," Thomas said. "It's about what you can pull together and make happen. You can get the work, but can you do the work?

"Projects like these push you on every aspect of the job."

Ultimately, Leesburg Concrete decided to cast monolithic panels rather than pouring the panels in separate pieces. Although the work tested the company's capabilities, the project owners are happy with the result. This led to even more business for Leesburg Concrete – a large, three-section Easi-Set terminal building to be placed on site at the naval base.

COMPLEMENTARY EXCELLENCE

Custom work is powering Leesburg Concrete's expansion. However, the complementary skillsets of Rouse and Thomas enable the company to thrive. The stepbrothers benefit greatly from what each individually brings to the business.

"Shawn and I have a unique partnership," Rouse said. "I'm able to work on the business and revenue creation side, and then when we get custom projects, Shawn takes that on and figures

Senior Carpenter Mike Lavertu places chairs under reinforcing.

With more than 30 acres of production space, employees at Leesburg Concrete have plenty of room to work.

"There are no guarantees. Life changes. Things come up. The rules change."

"You've got to adapt."

– Kirk Rouse

out how to get it made. It would be really difficult for one person to do all of that, so we complement each other well."

Although Rouse and Thomas each bring something unique to the company, both agree that it is a commitment to satisfying the customer – no matter what challenges may arise – that sets the company apart.

"Every construction project has challenges," Rouse said. "You can draw it all up on paper, but at some point, you will encounter a challenge. But no matter what happens, we work through it and solve the problem."

Thomas agreed with Rouse, noting that manufacturing a great product and working closely with a customer through the entire course of a project are key to success.

Both of these philosophies worked well for Leesburg Concrete in the work they performed with Disney World. Leesburg Concrete got its foot in the door following a steps project in a multi-unit housing community. Pleased with the company's work, Disney contracted Leesburg Concrete to replace a series of octagonal park benches originally manufactured and placed inside of Disney World in 1971. While creating a bench isn't anything out of the ordinary, the level of detail Disney required certainly was.

"We had to match – and I don't use that word lightly – substantially match all of the benches we were replacing in Tomorrowland."

Since that time Leesburg Concrete has produced several products for Disney, including Easi-Set buildings and custom stairs.

Welding and Fabrication Specialist Randy Fender has over 30 years of welding experience.

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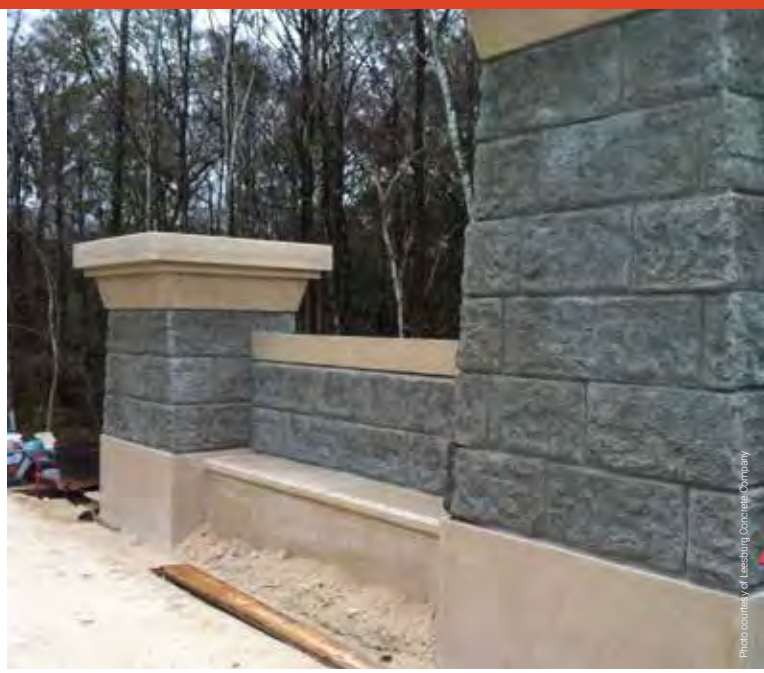

Photo courtesy of Leesburg Concrete Company

The pedestrian and bicycle bridge spanning the Withlacoochee River showcases Leesburg Concrete's ability to produce ornate, highly-detailed precast.

"I think we still have a lot of work left to do."

"I want Leesburg Concrete Company to be known as the **premier architectural precast producer** down here from a quality standpoint."

– Kirk Rouse

A PREMIER PRECASTER

Running a business can be tumultuous. Subtle changes in the marketplace may snowball into larger, more complex issues. For companies that fail to adapt, this can spell disaster. But for companies with a willingness to find new cheese, a difficult situation can be transformed into an opportunity for growth.

"There are no guarantees," Rouse said. "Life changes. Things come up. The rules change. You've got to adapt."

No matter how much Rouse and Thomas acclimate to the world around them, the company will continue its commitment to hard work and a desire to never be satisfied with "just good enough."

"I think we still have a lot of work left to do," Rouse said. "I want Leesburg Concrete Company to be known as the premier architectural precast producer down here from a quality standpoint."

On the strength of a close-knit family and an ultra-resilient mindset, Leesburg Concrete is poised to do just that. **PI**

Mason Nichols is the managing editor of Precast Solutions magazine and is NPCA's external communication and marketing manager.

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Codes and Standards
Heading for Greener Pastures

By Claude Goguen, P.E., LEED AP

Do you remember your parents chiding you for leaving lights on in the house or leaving doors open? As an adult, you may find yourself in that role now. You may attribute your diligence to your concern over energy use and its impact on the global environment. However, chances are you're just trying to save a few bucks on your utility bill.

The same motive is driving the rise of green building construction. Better, smarter, greener buildings save money. Longer lasting, durable, resilient infrastructure saves money. And oh, by the way, it's also good for the planet. You could say it's "green" on two fronts.

At one time, green construction development was limited to those altruistic individuals who cared about the impact of their projects. Today, developers find themselves designing greener structures not necessarily because they want to, but because they have to. The age of green building codes has arrived.

WHAT'S OUT THERE?

There are many options for encouraging greener building and development. Various organizations have created model codes or rating systems to help others develop green building programs or revise building ordinances. Some of the more popular options are:

International Green Construction Code. The IgCC is the first model code to include sustainability measures for the

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CODE OR STANDARD	TYPE	MANDATORY/ VOLUNTARY	BUILDING TYPES	PROJECT TYPE
IgCC	Model Code	Mandatory	Commercial, Industrial, Residential (>3 stories)	New construction, additions and alterations
ASHRAE 189.1	Model Code	Mandatory	Commercial, Industrial, Residential (>3 stories)	New construction and additions
ICC 700	Rating/Certification Program	Voluntary	Residential	New construction, additions and alterations
LEED	Rating/Certification Program	Voluntary	Commercial, Industrial, Residential (>3 stories)	New construction, additions and existing buildings
Green Globes	Rating/Certification Program	Voluntary	Commercial, Industrial, Residential	New construction, additions, alterations, existing buildings
Envision	Rating/Certification Program	Voluntary	Infrastructure	New construction, additions and alterations

Table 1 – Comparison of organizational codes and standards

entire construction project and its surrounding site. Generally, it applies to the design and construction of all types of buildings except single- and two-family residential structures, multifamily structures with three or fewer stories and temporary structures. For more information, visit iccsafe.org.

ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings. The American Society of Heating, Refrigerating and Air Conditioning Engineers developed this model code with the American National Standards Institute, United States Green Building Council and Illuminating Engineering Society. It contains minimum requirements for increasing the environmental and health performance of buildings' sites and structures. Generally, it applies to the design and construction of all types of buildings except single-family homes, multifamily homes with three or fewer stories, and modular and mobile homes. Find more information at ashrae.org.

International Code Council 700 – National Green Building Standard (ICC 700). ICC 700 is a rating and certification system that aims to encourage increased environmental and health performance in residences and residential portions of buildings. Its criteria apply to the design and construction of homes and subdivisions. It provides independent, third-party verification that a home, apartment building or land development is designed and built to achieve high performance in six key areas: site design, resource efficiency, water efficiency, energy efficiency, indoor environmental quality, and building operation and maintenance. Visit homeinnovation.com for more information.

USGBC Leadership in Energy and Environmental Design. Probably the most popular green building rating system, LEED aims to increase the environmental and health performance of buildings' sites and structures and of neighborhoods. The current version is LEED v4. An examination of key changes in LEED v4 that may affect precast manufacturers can be found in the Precast Inc. article available at precast.org/leed-v4-2. More information on LEED can be found at usgbc.org/leed.

Green Globes. Green Globes is a web-based program that provides guidance for green building development and certification that includes an on-site assessment by a third party. The program encourages improved environmental and health performance for all types of buildings except residential structures. The Green Building Initiative administers Green Globes in the United States. A more thorough description of Green Globes and how it compares with LEED can be found in a previous Precast Inc. article, available online at precast.org/leed-game. For more information about Green Globes, visit greenglobes.com.

Envision. Aimed at infrastructure projects, this program is a joint collaboration between the Zofnass Program for Sustainable Infrastructure at the Harvard University Graduate School of Design and the Institute for Sustainable Infrastructure. The American Society of Civil Engineers founded ISI in 2010 in partnership with the American Council of Engineering Companies and the American Public Works Association. Envision measures the sustainability of an infrastructure project from design through construction and maintenance. Visit sustainableinfrastructure.org for more information.

As more codes and standards are established, there may be some confusion in the building industry. With that in mind, some organizations are seeking to align their guidelines in the unified goal of encouraging high-performance, sustainable construction. There is work ongoing to combine IgCC, ASHRAE 189.1 and the LEED programs. This would be a welcome initiative by code officials, architects, engineers and contractors.

WHAT DOES THIS MEAN FOR YOU?

First and foremost, this could mean an increase in market share. Becoming knowledgeable on these programs and how they apply to your product lines opens up markets where projects require or provide incentives for adherence to a green code or standard.

Many prognosticators agree that more mandatory building codes are on the way. The advent of green building codes and standards is a direct result of the significant impacts of green building rating systems like LEED and Green Globes. These systems have demonstrated that sustainable buildings and infrastructure really can decrease operating costs, increase value and reduce overall environmental impacts. All you have to do is a little research. Just don't forget to turn off the light when you're done.

If you would like help understanding these codes and standards, or have any questions related to precast sustainability, please contact Claude Goguen, NPCA's director of Sustainability and Technical Education at (317) 571-9500 or cgoguen@precast.org. **PI**

Claude Goguen, P.E., LEED AP, is NPCA's director of Sustainability and Technical Education.

NPCA file photo

FULL SPEED AHEAD AT THE PRECAST SHOW 2015 IN ORLANDO

The Precast Show: Wrap Up

NPCA Staff Report

NPCA file photo

Attendance at The Precast Show 2015 in Orlando topped 3,300.

If business on the trade show floor is any indication, the precast concrete industry in North America continues to grow and diversify. The Precast Show 2015 at the Orange County Convention Center, held March 5-7 in Orlando, Fla., attracted serious buyers who were looking to purchase equipment to meet growing demand for precast products.

"We saw more movement at this Precast Show than any since 2007," said Ty Gable, NPCA president. "Last year, many companies were checking out equipment and supplies and making plans for major purchases. This year, they were actually buying."

More than 3,300 precast industry manufacturers and suppliers filled a trade show floor that buzzed with optimism with construction forecasts for 2015 and 2016 projecting solid growth in the 8 to 10% range. It's the most optimistic mood since 2007, when the precast industry peaked. Then along came the Great Recession. Over the next few years, sales plunged by up to 40% in many companies.

Gillespie Precast 'Pocket Pull' Prevails in Pinnacle Competition

A modified locking pliers combined with a coiled rod and crossbar pulling system earned Gillespie Precast the 2015 Pinnacle Award in the annual competition held in conjunction with The Precast Show. Sponsored by Spillman Co., the Pinnacle Award competition showcases innovative ideas, inventions and marketing tactics that NPCA members share in a presentation format. The attendees vote for their favorite projects. This year, Gillespie's "Pocket Pull" earned the most votes. Representatives from NPCA and Spillman Co. presented the award to Gillespie employees at a luncheon April 8 at company's Brickyard Road plant in Chestertown, Md.

The Pocket Pull tool, invented by a Gillespie Precast employee group headed by Kevin Nelson, costs about $28 to make but it saves Gillespie thousands of dollars in supplies and hundreds of hours of labor.

The tool makes it easy to strip an irregularly shaped plastic former that is cast into a section of box culvert. Each section can have as many as eight formers cast in it. The former provides a "pocket" when stripped that allows a large bolt to be inserted with adjoining sections of precast. The bolts make a mechanical attachment.

Before inventing the Pocket Pull, Gillespie's workers had to chip and pry the cast-in former out of the precast box culvert – a difficult operation that took time and often damaged the former.

PLANT TOUR: Gary Logan, Leesburg Concrete Co. QC manager, talks with a group during The Precast Show plant tour.

CUP AWARD: Bob May, left, of CUP sponsor Tricon Precast Ltd., presents the first place Creative Use of Precast underground division award to Phillip Simpson, precast operations manager at Sherman-Dixie Concrete Industries Inc. For complete CUP Awards descriptions, visit precast.org/awards.

SUSTAINABILITY AWARD: Howard Wingert, left, of Sustainability Awards sponsor Concrete Sealants Inc., presents the Sustainability Plant award to Fawn Bradfield and Jeff Bradfield of Anchor Concrete Products Ltd. The Sustainability Awards will be featured in the Fall issue of *Precast Solutions* magazine.

"Some companies went out of business and most other precast manufacturers held off making any major equipment purchases," Gable said. "They have been squeezing extra years out of their equipment and making continual repairs rather than following a routine replacement schedule. Now that business is improving, there is some pent-up demand for new equipment, upgrades and new technology."

The trade show featured 268 exhibitors in more than 57,000 net square feet of exhibit space on a trade show floor that spanned more than 120,000 square feet. That's an increase of about 14% over 2014. The National Precast Concrete Association produced the trade show in partnership with the American Concrete Pipe Association.

"We are the largest precast-specific trade show in North America," Gable said. "We tend to have serious buyers on the trade show floor. They are either company owners or decision influencers, and so we're delivering quality leads to our exhibitors. We often hear from exhibitors that they get good solid leads from The Precast Show that will keep them busy for weeks after the show."

In addition to the trade show, both NPCA and ACPA held extensive training, committee meetings and special events during the week.

The Precast Show 2016 will be held March 3-5 at the Gaylord Opryland Resort and Convention Center. The Precast/Prestressed Concrete Institute will join NPCA as a partner in 2016. **PI**

For summaries of the Creative Use of Precast Award winners, see the Spring 2015 issue of *Precast Solutions* or visit precast.org/awards.

People & Products

People & Products is a **forum** where NPCA members and nonprofit organizations can **share information** on new products, personnel promotions, acquisitions or service announcements **concerning the precast concrete industry**. Items are printed on a space-available basis.

For possible inclusion, send your press releases and photos to sgeer@precast.org.

REDI-ROCK RECEIVES AWARD, ANNOUNCES GLOBAL ACCOUNTS MANAGER

RediRock International, a Charlevoix, Mich.-based licensor of retaining wall blocks, was honored recently at the 11th annual Michigan Celebrates Small Business event in downtown Lansing. The Michigan 50 Companies to Watch Award, sponsored by Michigan Celebrates Small Business, honors growth-oriented businesses based on market expansion, job creation, technological innovation and community impact. Companies represent a wide variety of industries. To be considered, they must be privately held Michigan-based companies, have between six and 99 employees and generate between $750,000 to $50 million in annual revenue.

Redi-Rock also has welcomed Andrew Nickodemus to its sales team. As the global accounts manager, he is responsible for the company's international business expansion. He will also be servicing customers in Utah, Alaska, Hawaii, Washington, Idaho, Montana, New Mexico, and Western Canada. Nickodemus has a degree in Criminal Justice from San Diego State University, spent three years in the 82nd Army Airborne Division as a Light Infantry Paratrooper, and recently came from a 20-year career in Commercial Insurance.


Andrew Nickodemus

Visit redi-rock.com for more information.

OWELL PRECAST BECOMES OLYMPUS PRECAST

Following nearly a quarter century of success and measured growth, the owners and management of Owell Precast have chosen Olympus Precast as the new name of their precast concrete manufacturing facility in Bluffdale, Utah.

Inspired by the immovable Mount Olympus, the name reflects Olympus Precast's bold commitment to quality, safety and integrity. The new corporate identity signifies a renewed assurance of quality and service with its precast concrete products.

Olympus Precast is now uniquely positioned to meet the specialized needs of the design and construction communities, the company said. For additional information, call Roger Arnell at (385) 233-7685.

HYSTER EXECUTIVE RECOGNIZED FOR SUPPLY CHAIN LEADERSHIP

Hyster Co., a lift truck designer and manufacturer based in Greenville, S.C., has announced that Brett Schemerhorn, president of the company's Big Trucks, Americas division, has been named to the 2015 list of Pros to Know by Supply & Demand Chain Executive. These awards recognize supply chain executives, and manufacturing and non-manufacturing enterprises, that are leading initiatives to help prepare their companies' supply chains for the challenges of today's business climate.

Schemerhorn has nearly 20 years of experience in the materials handling industry. He joined Hyster as an inventory analyst in 1995, and has worked his way through a series of increasingly significant positions. As president of Big Trucks, Americas, he leads the team, which is focused on meeting the specialized materials handling needs of customers in various industries.

For more information about Hyster, visit hyster.com. **PI**

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Nashville, Tenn.

March 2-4, 2017
THE PRECAST SHOW 2017
Cleveland Convention Center and Hilton Cleveland Downtown
Cleveland, Ohio

February 22-24, 2018
THE PRECAST SHOW 2018
Colorado Convention Center and Hyatt Regency Denver
Denver, Colo.

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HAMILTON FORM CREATES FUNCTION

21 **CASE STUDY**

ARCHED SOFFIT FOR CURVED BRIDGE BEAM

"The curved beams for this project were critical. Hamilton Form delivered a soffit for the beams that made the casting simple – we supplied the drawings, they did the rest. I'd count on them for any project when the dimensional accuracy and quality of the product are essential."

Dennis Fink, General Manager, Plant Operations
Northeast Prestressed Products, LLC

The Project:

The original Frederick Avenue Bridge in Baltimore was a two-span concrete arch design built in 1930. In keeping with the historical character of the area, the replacement bridge is a two-span prestressed concrete structure designed to imitate the original bridge.

The Challenge:

Northeast Prestressed Products, LLC in Cressona Pennsylvania is supplying the precast elements for the project, including 12 arched sections assembled to create 2 arches on each side of bridge replicating the look of the original double arches.

The Solution:

To cast the beams, Hamilton Form fabricated a soffit that is 44' long and curves to a 52'6" radius. To form the radius, the understructure material was cut with a high-definition plasma cutter to hold tight dimensional tolerances.

The Results:

Just like the quality of the precast product is dependent on the form it's cast in, the quality of a curved soffit depends on the understructure. The accuracy of the understructure allowed the skin to be easily welded in place. The resulting product is stunning.

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