

PLUS! Manhole Coring // Lockout/Tagout // The Precast Show Wrap-Up

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A Publication of the National Precast Concrete Association | MAY/JUNE 2016

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Precast Inc. (ISSN 1940-9184 print, ISSN 1940-9192 online) is published bimonthly by NPCA.

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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.*

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## ACHIEVING A

# Competitive Advantage



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Learn how to **simplify & revise contractor language**

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**On the Cover:**

*Olympian Precast manufactured 8,000 square feet of exterior brick-faced precast wall panels for the University Village retail parking garage in Seattle, Wash.*

*Photo courtesy of Olympian Precast and Perspective Image.*



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# Questions from the Field

**Questions from the Field** is a selection of questions the **NPCA Technical Services Department** receives from calls, emails and comments on blogs or magazine articles on precast.org. *If you have a technical question that needs an answer, contact us by calling (800) 366-7731 or visit [precast.org/technical-services](http://precast.org/technical-services).*

Clinton writes:

Do you have a chart showing wall thickness for reinforced concrete pipe by size and class?



**NPCA Technical Services Department answers:**

ASTM C76, the manufacturing and purchasing standard for reinforced concrete pipe, provides a variety of tables illustrating RCP characteristics based on class and wall thickness.

**Examples of RCP wall thickness rules to consider:**

- “A” Wall – the wall thickness in inches is the diameter in inches converted to diameter in feet. For example, a 48-inch diameter pipe is 4 feet. “A” wall thickness is 4 inches.
- “B” wall – the wall thickness is an “A” wall plus 1 inch. For example, a 60-inch diameter pipe is 5 feet. “A” wall thickness is 5 inches meaning the “B” wall thickness is 6 inches.
- “C” Wall – the wall thickness is an “A” wall plus 1.75 inches. For example, a 96-inch diameter pipe is 8 feet. “A” wall thickness is 8 inches meaning the “C” wall thickness is 9.75 inches.

**Other points to consider:**

- Manufacturers provide options for the wall thickness of the pipe to be furnished, while designers require the strength (pipe class and D-load).
- The D-load strength of a pipe or corresponding pipe class (III, IV, V) can be obtained by any of the wall thicknesses furnished. For example, a 60-inch class IV “B” wall is not necessarily weaker than a 60-inch class IV “C” wall. Both meet the required class IV strength. However, the thinner “B” wall will require more steel reinforcement than the “C” wall.
- For projects using rubber connectors for pipe and manhole junctions, the precast pipe manufacturer needs to clarify what pipe wall is being proposed, so the appropriate rubber boot is used.
- “A” wall pipe forms, if owned, are only used for large-diameter pipe or manholes, such

as 96 inches and above. “B” wall forms are the most common wall thickness used for RCP. Many companies do have the equipment to produce “C” wall, but will analyze the costs involved. It’s always good to verify what is available within your project region.

Another great reference chart is available in the American Concrete Pipe Association’s Concrete Pipe Design Manual, Chapter 5, “Supplemental Data.”

Mohammad writes:

For concrete cylinders and cubes, should a seven-day break be taken from the date the sample was made or the next day? For example, if I make a sample on the 10th, do I break on the 16th or 17th?

**NPCA Technical Services Department answers:**

Testing is done after seven 24-hour periods from the date you cast the cylinder or cube. Therefore, in your example, testing needs to be completed on the 17th since the test specimen was fabricated on the 10th. ASTM C39 and C39M, Section 7.3, “Procedure,” provide allowable tolerances to the time to conduct the test. For seven days, the standard states +/- 6 hours or 3.6%.

It should be noted if your sample is made from concrete cores cut from cast concrete, all the required date information of the sample is stated within ASTM C42 and C42M, Section 7.10, “Cores for Compressive Strength.” However, for a 14-day old core, it is implied testing is completed from when the concrete was cast and not from the date the sample was taken.

Guillermo writes:

I would like to know if committees addressed design method questions for special considerations such as high live-load conditions (railroad or airport), deep-bury reducer cones,

and load and resistance factor design analysis. I need to design a 48-inch manhole and cone for an airport aircraft.

**NPCA Technical Services Department answers:**

The straightforward answer is no product committee has specifically reviewed those design issues. However, for special loading conditions on flattops, the governing code may include portions of ACI 318, “Building Code Requirements for Structural Concrete” and/or ASTM C478, “Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.” ASTM C478 does make reference to ACI design codes for flattops and base sections. For department of transportation work, they defer to the AASHTO Bridge Design Manual that uses LRFD methods.

Your question regarding manhole reducer cone analysis is being considered within subcommittee ASTM C13.06 on Manholes and Specials. It first came to NPCA when a member needed to design a reducer cone for a railroad project. The NPCA Manhole Product Committee consulted Gary K. Munkelt & Associates for design and engineering advice. Munkelt said the reducer cone behaves as an arch section depending on the angle or cut. He analyzes the cones as compression sections. More information on the topic is available in the Precast Inc. 2014 March-April article, “Speaking in Cone.”

This may be adequate for shallow cone reducers which are not shallow or short with respect to diameter reduction. These cones develop an extreme slope angle in excess of 45 degrees (as measured off vertical). There are few instances reported, but not confirmed, of cracking within deep bury reducer cones, so it is suggested to treat them like a flat slab analysis.

Regarding your specific question on designing a 48-inch manhole with aircraft loading, the cone is shallow and has a standard size. It would be logical to analyze it as a compression section. However, if it is on a vertical wall, the compressive strength of the manhole section and wall thickness will be adequate. For the angled cone section, the resultant force on the arch shape will also be adequate. **PI**

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# Strength in Numbers

## JEFFERSON CONCRETE CORP.

Jefferson Concrete Corp.'s Mark Thompson has built a small army of leaders through the **Master Precaster** program.

By Mason Nichols

**Jefferson Concrete Corp. in Watertown, N.Y., currently has 6 Master Precasters.**

*The 7th recently retired, and the 8th and 9th will graduate at The Precast Show 2017 in Cleveland.*



For more information on NPCA's Master Precaster program, visit [precast.org/precastuniversity](http://precast.org/precastuniversity)

**H**aving a Master Precaster on staff provides tremendous value for an owner or manager.

Thanks to the knowledge gained from courses that cover everything from the fundamentals of precast production to quality control, a Master Precaster stands poised to tackle any issue in the plant.

But why stop with just one Master Precaster on staff, when a company can draw from the knowledge and skills of many?

That's exactly why Mark Thompson, vice president of Jefferson Concrete Corp. in Watertown, N.Y., currently has six Master Precasters. A seventh recently retired, and his eighth and ninth will graduate at The Precast Show 2017 in Cleveland.

Thompson has always recognized the importance of National Precast Concrete Association's educational programming.

"I find that the notion of education is a bit contagious in our operation," he said.

Rick Durdon and Tim Campbell – both integral to operations at Jefferson – are two Master Precasters who possess the technical expertise and leadership skills Thompson has come to rely on from graduates of the program.

### RICK DURDON

From the moment he entered the workforce, Rick Durdon, lead man in Jefferson's quality control department, has had a passion for construction. Some of his previous jobs included erecting steel buildings and pouring concrete for basement walls. Though he had never worked with precast before, Durdon was excited to learn of an opening at Jefferson in 1997.

After securing the position, Durdon performed a wide variety of tasks. He manufactured several different types of precast products, cut rebar and ran the plant's mixer system. Eventually, Thompson asked him to work in the quality control department.

This led to a conversation about Durdon continuing to refine his skills through involvement in NPCA education. He happily accepted, attending his first class several years before NPCA rolled out the Master Precaster program. The class, "The Fundamentals of Precast Concrete," introduced him to many important concepts.

"I liked the course because it showed you where to place the rebar, spacing and chairs," he said. "It helped you learn the differences between right and wrong, which I think is something that everyone should know."

Durdon recalls the effectiveness of instructor Mel Marshall's demonstration

during the class, which made use of a foam cushion to explain the placement of rebar and how the material performs under stress.

"That's something that I will remember for a long time," he said.

Over the years, Durdon has used the information he's gained from the Master Precaster program and applied it to his work at Jefferson. The classes have also made him a more confident employee and have allowed him to pass on what he has learned to others in the plant.

Today, Durdon remains committed to learning to ensure he is ready for whatever project comes next. More than anything else, he is thankful for the opportunity Thompson provided.

"If you take care of Mark, he takes care of you," he said. "Having him invest in me makes me feel great – like I'm a big part of the company."

### TIM CAMPBELL

Since 1993, Tim Campbell, lead man in the manhole department, has worked with plenty of concrete. But prior, his only experience had been mixing it in a wheelbarrow while working on a small calf farm.

During the more than two decades that have passed, Campbell has seen his fair share of precast concrete products and projects. Along the way, he's gained plenty of knowledge, culminating in his graduation from the Master Precaster program in 2014. And



Rick Durdon

it all started with a simple conversation.

"One day, Mark called me into the office and asked me about my plans for what I wanted to do at Jefferson," Campbell said. "I told him that I wanted to learn more and that I wanted to grow."

He also informed Thompson that it was his intention to eventually work in the office. Recognizing Campbell's ambition, Thompson signed him up for NPCA educational programming. Campbell was thrilled, and as he began taking courses, he grew fond of the way the material was presented.

"In the classes, they would teach you different methods and techniques as well as the reasons why we make certain decisions," he said. "It's one thing to be in the plant and working and know how to do something. But it's also important to know why."

Though Campbell learned much from all of the courses in the Master Precaster

program, he said he benefitted significantly from Production & Quality School III – Leadership. Thanks to Greg Chase's expert instruction, Campbell explained



Tim Campbell

he has been able to work more efficiently and effectively with his fellow employees.

Additionally, through taking the courses, Campbell said he has become a more confident and passionate worker.

"The Master Precaster program helped me evolve into someone that wasn't just doing a job," he said. "I was pouring passion into what I was doing, and the more I learned, the more I felt I had importance to Jefferson Concrete."

Campbell continues to do his part by passing the knowledge he's gained along to fellow workers at Jefferson. As he continues to strive for advancement, he remains appreciative of everything Thompson has done to set him up for success.

"I'm there to support Mark and Mark

supports me," he said. "We will keep going no matter what it takes."

### TRUE VALUE

By investing in the future of his staff, Thompson is fostering a culture of advancement at Jefferson.

"The program creates leaders within our building with the right knowledge and the right skill set," he said. "If you create the right type of leaders who can do what Rick and Tim do, leaders become teachers. And teachers are what I want."

Thompson will continue to rely on his Master Precasters to push Jefferson forward, with the hopes that their leadership will keep education in the plant as contagious tomorrow as it is today. **PI**

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

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Core drilling is beneficial for manhole sections that require unique hole placements.

# Manhole Coring and Connections

Choose a **hole-forming process** that is right for your **precast concrete operation**.

By John W. Dutschmann

#### Editor's Note:

*This article is intended to be a reference guide for entry-level production employees.*

**C**onstructing holes in precast concrete manhole sections for pipe connections can be achieved by several methods. Each requires careful consideration before making the investment in training and equipment. Whether you are building a new plant and trying to decide which production method to use or you have an existing plant and want to determine if your current method is

the most efficient, it's important to make an informed decision on which practice works best for your business.

#### **PIPE-TO-MANHOLE CONNECTIONS**

Pipe-to-manhole connections can be broken into two categories: resilient connectors (flexible mechanical, compression or cast-in boot connections) and grout-in or non-booted connections.



Flexible mechanical connectors use expansion rings or tension bands to compress and seal the resilient rubber material. A compression seal, on the other hand, uses pressure between the outside pipe diameter and manhole opening to confine and seal the connector. A cast-in boot connector is embedded into the manhole wall during forming and casting operations and can have a compression or mechanical seal. Lastly, a grout-in connection is achieved by filling the annulus between the pipe and manhole opening with a cementitious grout.

Prior to placing a connector, a hole must be constructed in the manhole section. The following are descriptions of the manufacturing process a precaster can choose for the specific connections described.

### SCORED HOLES

For dry-cast manhole operations, holes may be scored or cut using high-pressure water or air, or by hand-chiseling the stiff, uncured concrete immediately after form stripping and before initial set. After curing either at the plant or job site, the steel reinforcement is cut and the remaining concrete blank in the center of the hole is removed. These are non-precision holes and should be limited to storm structures with grouted pipe connections and soil-tight requirements. When watertight penetrations or structure vacuum testing are required on a dry-cast product, the use of a resilient connector is required.

### CORED HOLES

A cored hole is created by cutting a precision opening in a hardened concrete manhole using diamond-tipped core bits. The diameter of cored openings can be as large as 48 inches. Perhaps the biggest benefit of coring holes is the reduction in production lead times of manhole sections having unique hole placements. The ability to core holes in blank stock bases and riser sections to achieve one- or two-day turnaround times can also be an advantage.

Initial setup of a coring machine and core bits can be expensive. Aggregate type and hardness may be a factor in the life expectancy of your core bits and consideration should be given to the type of aggregates used in your geographic area. Once a precaster has acquired all the bit sizes needed, they can be used for any wall thickness and for both round and flat wall products. For mechanical or compression seals to work properly, tight cored hole tolerances are critical. To maintain uniform roundness of the large core bits and the corresponding holes they create, it is imperative for the precaster to implement specific care and maintenance procedures to ensure proper handling and storage for long-term use. An important decision to consider before spending the capital on coring equipment is whether it is critical to turn product around in one day. Due diligence by the designer, contractor and precaster can eliminate the need for short lead times. However, there will always be situations in which coring holes can be an advantage.

Following coring operations – if required – the precaster places the resilient mechanical or compression connector in accordance with the manufacturer’s recommendations to provide a leak-resistant seal. Lastly, a coring operation should implement a sustainability plan to handle the blank concrete cores and wastewater. To determine the actual quantity of concrete used within a cylindrical opening, refer to the Precast Inc. July-August 2012 article, “Precast Math Tools: Calculate Manhole Blockout Volumes.”<sup>1</sup>

### FORMED HOLES

A formed hole is created by placing a specific piece of hardware into the manhole form prior to casting to create the required opening. Hole formers are available in various materials, such as steel or fiberglass. They are also available in all shapes to accommodate

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With all hole-forming processes, a regular inspection and maintenance plan is recommended to monitor the equipment use and material storage.

arched, elliptical and box connections, as well as parallel formers to provide for offset connections in circular lift station applications.

The initial cost for forming holes is typically less than coring equipment and core bits. However, hole formers are required for each manhole diameter and hole size. Proper placement and securing of the hole formers is critical to ensure they do not move or float during concrete placement. A post-pour inspection is also needed after form removal to ensure all cast openings are still in their proper design position.

Mechanical resilient connectors require the use of a precision-molded, low-draft tapered hole former while a two-piece mandrel is used to hold the cast-in connector in place during concrete placement. Mechanical connector placement is critical and requires proper production and quality control attention. When using a low-draft tapered hole, placement of the connector in the opening is sensitive and can impact the sealing capability of the expansion band with too little or too much pressure. Most manufacturers offer an optional, ratchet-style expansion band that allows unlimited adjustments when installed to a specified torque value.

Forming holes during the casting operation eliminates the residual waste of coring. In addition, if a cast-in resilient connector is employed, the secondary operation and QC procedures of installing the mechanical-style connector within the hole are eliminated. All hole formers should be inspected on a regular basis and replaced or repaired as necessary. The NPCA Quality Control Manual, Section 6.2.4, "Dimensional Checks," is a good reference to use for all equipment checks. Attempting to use a hole former beyond

its useful life could lead to unnecessary repairs and/or the product not meeting specifications.

### CONSIDERATIONS AND SUGGESTED PRACTICES

When manufacturers have the capability of both coring and forming, they might consider forming the hole for the outlet pipe in all base sections. They can stock the blank bases with holes formed for the more common pipe sizes. If a larger connection opening is needed, they can simply core a larger hole. This will add to the life of the core bits.

### GENERAL PRODUCTION AND HANDLING CONSIDERATIONS

Remember when handling manhole products, daily wear and tear on equipment, labor hours involved and the potential for product damage need to be considered. With forming, the base or riser section is ready for shipment and may only require one pick. With coring,

movement to and from production, storage, coring, and possible pouring and forming of the base invert may require three or four picks. Plant and yard size and layout should be considered as well.

Some manufacturers may wait to core the holes and invert the base until the contractor is ready. When managed properly, this can reduce boneyard inventory and avoid confrontation about unused product.

Also consider that some specifying agencies or special load conditions require additional steel be placed around the hole. If coring is used, this eliminates precasters' ability to stock blank bases or risers. When using hoop steel in risers or cones, design requirements under ASTM C478, "Standard Specific for Circular Precast Reinforced Concrete Manhole Sections," Section 14.5, must be followed and a second inventory with wire fabric cage or other acceptable reinforcement is needed.

### EACH DECISION IS UNIQUE

The decision on how to create openings in precast manholes is unique for each plant and requires consideration of the variables, specific equipment and attention to detail to ensure a quality product. Whichever process is chosen, QC procedures should always dictate that holes are the right size, free of burrs or defects, and in the correct location. **PI**

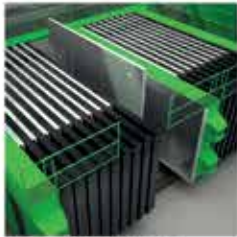
*John Dutschmann is the technical services manager at Forterra Pipe & Precast in Lorena, Texas, and is the NPCA Manhole Product Committee chairman.*

### REFERENCES:

1. [precast.org/manhole-blockout-volumes](http://precast.org/manhole-blockout-volumes)



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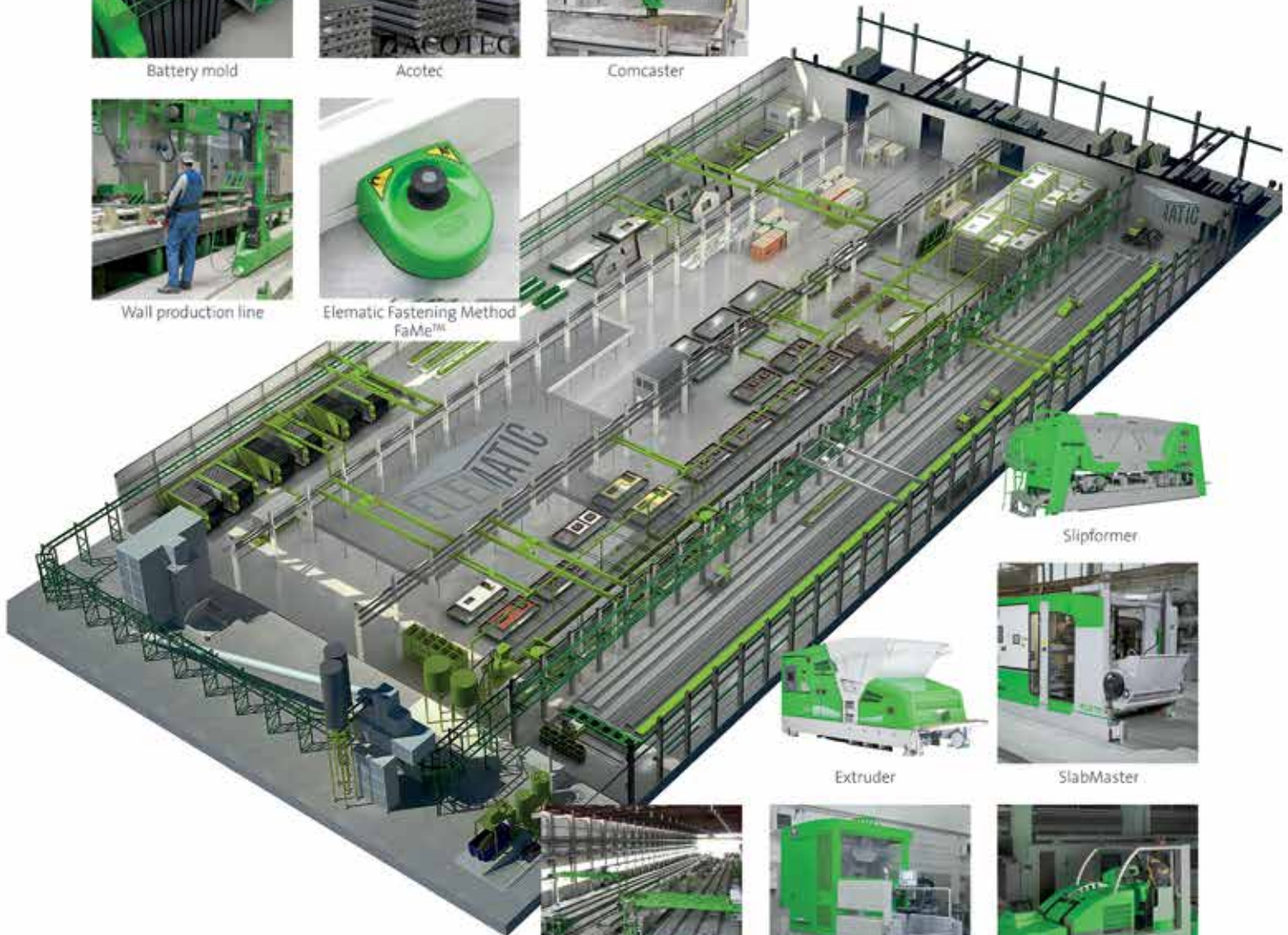
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*Northeast Precast,  
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# BUILDING THE FUTURE OF PRECAST

Building a **new plant** requires plenty of work, but it's also **satisfying and exciting** to shape a space to accomplish your company's goals.

By Shari Held

**C**onstructing a new plant is a huge venture, and the financial expenditure is only one aspect to consider. There's also researching, investigating your options and designing your plant for current and future production. In addition, you'll need to plan a seamless transition from old to new. Four precasters who recently took the plunge provided some insight about their experience building a new plant.

## **MAKING THE DECISION**

Timing is everything, but there's no magic formula to tell you when the time is right to build.

"I don't know if you ever know," said Clay Prewitt, general manager of H2 Pre-Cast in East Wenatchee, Wash. "But in 2007 we didn't have much of a choice. It was either stay there and pile everything 30 feet in the air or move."

H2 Pre-Cast built a 50,000-square-foot, fully enclosed, H-shaped facility. Quality control and reinforcement production occupy the center, flanked by dry cast and wet cast areas. The extra space meant the company could produce larger-diameter



manholes and bigger electrical vaults for its existing product lines. In 2016, the company is adding 15,000 square feet of production space to accommodate increased demand.

Jamie Hodges, president of Seminole Masonry in Sanford, Fla., wanted to add new product lines to the company's portfolio. Unfortunately, the old plant didn't have the necessary capacity or storage space.

Prior to deciding to build a new plant in Sanford, Hodges investigated buying a 35-year-old plant. He looked at everything from available parking space to what it would take to retrofit it to their needs.

"We realized we were going to have a ton of money in something with a bunch of Band-Aids on it," Hodges said. "It was better for us to find the right land at the right location and build our own place, so we could be efficient and use every square foot to the maximum."

For John Ruga, owner of Millville, N.J.-based Northeast Precast, the timing of his decision to build was more of a gut feeling. Northeast Precast has a diverse product line which includes residential, commercial and department of transportation products. In 2005-2006, the company expanded its residential capacity. In 2016, the company is building a 50,000-square-foot plant to handle its DOT and commercial specialty product lines.

"Each time it's a bit of a roll of the dice," Ruga said. "But as long as nothing crazy happens with the economy, we feel our market share is going to increase. We'll need the extra production space."

Increased demand plus a desire to offer more finishes and types to its precast wall panel line prompted Andy Stubbe, president of Harley, Ontario-based Stubbe's Precast, to build his third plant. The 200,000-square-foot, fully automated carousel plant is scheduled for completion in July 2016.

### ADDING NEW DESIGNS AND FEATURES

Stubbe focused on achieving better quality, improved product-handling efficiencies and fostering long-term employees.

"Our average employee age is around 24 years," Stubbe said. "I want to make it easier on them so it's something they can do when they're 45 or 50 years old."

In a carousel plant, the product comes to the workers, like the setup in an automotive plant.

"This carousel plant is a different animal,"

## "The goal with any expansion should always be to become more efficient in your overall operations."

– John Ruga, *Northeast Precast*

Stubbe said. "You get the equipment and design the plant around that. It takes a lot more planning – two years to plan and one year to build. But I think automated plants are going to gain traction as things evolve."

Northeast Precast broke ground on its new plant in January 2016. Its higher ceilings will accommodate heavier cranes for moving large DOT products. It will feature a vacuum lifter to pick up large panels and a tilt table for rotating them. Currently, the company manufactures large products at another yard. The new facility will allow it to consolidate all production in one location.

"The goal with any expansion should always be to become more efficient in your overall operations," Ruga said. "This expansion was driven by the increase in demand for our products and services. Over the years we've gotten into bigger custom precast products."

H2 Pre-Cast purchased another 13 acres for its 2015-2016 expansion. This will enable the company to move its finished concrete inventory from the existing property to the new, adjacent property. Separating inventory from the manufacturing area will improve efficiencies.

"Step two is to add a 10,500-square-foot manufacturing building, a 15,000-square-foot outside pouring deck and another batch plant," Prewitt said. "The outside pouring deck will allow us to pour the bulk of our large-diameter manholes, large vaults and

three-sided culverts out there. It will make the handling and loading of them much easier."

In Florida, Hodges purchased 18 acres to build his new plant and reserved five acres for future expansion. Seminole Masonry's new plant features an 8,500-square-foot office building, a 15,000-square-foot warehouse for masonry product lines, a 25,000-square-foot precast manufacturing building and an 18,000-square-foot covered casting bed structure. Seminole Masonry built the plant in stages, with the last building completed in November 2015.

The covered casting bed allows the company to cast every day, regardless of the weather. The manufacturing building features a 20-foot-wide, 350-foot-long pit. It houses the battery forms used to produce Aftac wall systems.

"Concrete trucks pull up inside the building and discharge their concrete right into the forms, which are six feet below the pavement," Hodges said. "That's so awesome compared to the way we used to do it."

### TRANSITIONING FROM OLD TO NEW

According to Hodges, transitioning from an old plant to a new plant must be done very methodically. Seminole Masonry worked out of the old plant while the new plant was under construction. Once ready, production was moved to the new site.

H2 Pre-Cast's facility was also built in



Photo provided by H2 Pre-Cast

stages for an easier transition. The wet cast area was built first and the new mixer was then installed.

“As soon as that plant was able to be up-and-running, we started moving all our forms and transitioning from the old plant to the new plant,” Prewitt said. “Within a week or so we were able to start pouring.”

Before the move, H2 Pre-Cast’s old dry cast area ran full throttle, building up inventory in anticipation of the two-month process to get the new dry cast area producing.

Northeast Precast’s new building was built to house its off-site outdoor operations, consolidating all production at one location. For Stubbe’s Precast, no equipment needed to be moved, but staffing required long-term planning for a smooth transition.

“We purchased engineering and management software and hired and trained personnel well in advance of the new startup,” Stubbe said.

Employees will gradually transition to the new plant to begin training with equipment manufacturers.

#### PARTING ADVICE

Stubbe’s advice is to “plan, plan, plan.” He also recommends hiring a consultant if you feel you’re out of your comfort zone, and dealing with trusted subcontractors.

“There will always be a few surprises,” Stubbe said. “But if everyone works together, it will go smoothly.”

Ruga knows all about surprises. The Thursday before work began, his contractor



**“We purchased engineering and management software and hired and trained personnel well in advance of the new startup.”**

—Andy Stubbe, *Stubbe's Precast*

informed him it would take six weeks to get the building erected. That didn’t work for Ruga. Fortunately, Northeast Precast has a full-scale fabrication shop and was able to erect the structural steel starting on Monday – just three days later.

“You have to be somewhat flexible,” Ruga said.

Ultimately, building a new plant is a leap of faith.

“Sometimes you don’t have all the answers about where the work is going to come from,” Ruga said. “But once you’ve started, you have to move ahead. You can’t look back.”

Hodges recommends asking plenty of questions during the planning process and focusing on future product lines so you can design for the long term. Spending money now can position you to capitalize on future business.

“My whole model is that it takes money to make money,” said Hodges, who expects his new plant to be paid off in 7-to-9 years.

Since opening the new plant, Seminole Masonry has added several product lines. The company also developed a patent-pending precast elevator core. None of these could have been produced in the old plant.

Lastly, Prewitt’s advice summarizes the attitude that ultimately directed each precaster’s decision to build a new plant.

“Follow your gut,” Prewitt said. “You can crunch numbers all day long, and you can manipulate those numbers in a million different ways. But if you feel it’s the right thing to do, then, more than likely, it is.” **PI**

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





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# LOCKOUT/TAGOUT in the Workplace

By Evan Gurley

**T**he fifth most cited Occupational Safety and Health Administration violation in 2015 – one which is consistently part of OSHA's top 10 cited violations for the past 5 years – is lockout/tagout being overlooked. If this sounds like déjà vu, it's because we've reported it before. It bears repeating, though, because forgetting to lockout and tagout can cause more than citations, fines and injuries – it can cost a worker's life. Strict enforcement of LOTO rules should always be maintained.

LOTO is a safety procedure critical for the service and maintenance of machinery or electrical systems in cases where employees could be injured by the unexpected startup of the equipment. It applies to all energy sources, including mechanical, hydraulic, pneumatic, chemical, thermal and gravity.

An effective LOTO program protects workers by ensuring that machines and circuits are properly shut off and not turned on again until the work is completed.

Historically, 3/4 of LOTO violations are related to three sections of the standard. At the top of the list is Section (c)(4), which requires procedures be “developed, documented and utilized” for controlling potentially hazardous energy.

The biggest challenge for precasters seems to be identifying all the potential energy sources. Before OSHA issued the standard, many precasters may have thought turning off the electricity was enough to protect workers during servicing. However, there's usually more than one energy source on equipment.

“OSHA requires written procedures for each piece of



Forgetting to lockout and tagout can cause more than citations, fines and injuries –  
**it can cost a worker's life.**



equipment you use and operate at your plant,” said Tom Engelman, president of Bethlehem Precast in Bethlehem, Pa. “Many employers may not realize that. And when you have the amount of equipment that typical precasters do, documenting detailed procedures for each piece of equipment can be time consuming. It’s not difficult, just time consuming.”

The second most violated part of the standard is Section (c)(1), which states an energy control program must consist of written procedures, training and periodic audits. Precasters can receive citations if they have no program at all or have major deficiencies. Violations might include complete lack of written control procedures or failure to audit the program.

“Constant refreshing and review of LOTO procedures and hazards is vital,” said Dan Wagner, president of Milan Vault in Milan, Mich. “Repetition is key.”

The third most violated part of the standard is Section (c)(7), which outlines training and communication elements. OSHA requires not only that employers teach workers about LOTO procedures and hazards, but also that employees have the knowledge and skills necessary to comply. The training stage is where LOTO programs can break down. A company may have a solid training program where the necessary safety information is relayed from the in-plant safety inspector to the floor supervisor, but it may stop there as the supervisor may already be overloaded with production-related tasks.

Other times, precasters may train employees effectively but forget to keep records. Documentation of training performed is required and it may even be beneficial to issue a certification for that particular training exercise.

On top of these requirements, some precasters may train their authorized workers, but not all employees at their plant. Or they may provide the appropriate classroom training, but not monitor and audit the employees to ensure procedures are correctly implemented and enforced. OSHA requires employers to check and document that workers are following the correct procedures at least once per year. And while these annual audits may be adequate for documentation purposes, employers should perform regular spot checks.

## EMPLOYEE CLASSIFICATIONS AND REQUIREMENTS

### Authorized employees must understand:

- Hazardous energy sources.
- The type and magnitude of the hazardous energy sources in the workplace.
- Energy-control procedures, including the

methods and means to isolate and control those energy sources.

### Affected employees must recognize:

- When the energy-control procedure is being used.
- The purpose of the procedure.
- The importance of not tampering with lockout or tagout devices and not starting or using equipment that has been locked or tagged out.

### Other employees must receive training:

- Regarding the energy-control procedure and the prohibition against removing a LOTO device and attempting to restart, reenergize or operate the machinery.
- Regarding the limitations of tags if tagout devices are used.

## HAZARDOUS ENERGY

According to OSHA, energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal or others in machines and equipment can be hazardous to workers. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death.

The National Institute for Occupational Safety and Health investigated 185 fatalities over nearly 25 years that related to installation, maintenance, service or repair tasks on or near machines, equipment, processes or systems.

Failure to completely de-energize, block and/or dissipate the energy source was a factor in 77% of the incidents and failure to lockout and tagout energy-control devices and isolation points after de-energization was a factor in 17%. Failure to control hazardous energy accounts for roughly 10% of serious accidents in many industries. Workers injured in non-fatal accidents from exposure to hazardous energy lose an average of 24 workdays for recuperation.

## CONTROLLING HAZARDOUS ENERGY SOURCES

The OSHA standard for The Control of Hazardous Energy (Lockout/Tagout), Title 29 Code of Federal Regulations, Part 1910.147, addresses the practices and procedures necessary to disable machinery and/or equipment, thereby preventing the release of hazardous energy while employees perform servicing and maintenance activities.

In addition, 29 CFR 1910.333 sets forth requirements to protect employees working on electrical circuits and equipment. This

## HOW WELL DO YOU AND YOUR EMPLOYEES KNOW LOTO PROCEDURES?

The key for employees comprehending OSHA LOTO requirements is to constantly refresh and review policies and procedures. See how well you and your employees know LOTO by taking the true and false quiz below.

**If equipment is powered by a cord or plug, locking and tagging is not necessary.**

*True - Provided the employee working on the equipment is the only one with access to the plug, LOTO is not required.*

**There are no specific requirements for LOTO documentation, so use your best judgment on what it should entail.**

*False - At a minimum, documents should include a statement on when to use LOTO including the steps for shutting down, isolating, blocking and securing equipment, rules for placing and removing locks and tags, and instructions on how to test if it's safe to begin work.*

**If energy-isolating equipment is capable of being locked out, then the lockout system must be used.**

*True - If it isn't capable of being locked out, a tagout system should be used instead.*

**If a group of employees will be working on a machine that's being locked and tagged out, there must be one authorized employee who takes the lead.**

*True - An authorized employee must coordinate the employees or groups working on the machine and determine the exposure status of individuals. He or she must also attach and remove the lock and tag.*

section requires workers to use safe work practices including LOTO procedures. These provisions apply when employees are exposed to electrical hazards while working on, near, or with conductors or systems that use electric energy.

The LOTO standard establishes the employer’s responsibility to protect workers from hazardous energy. OSHA states employers are also required to train each worker to ensure they know, understand and follow the applicable provisions of the hazardous energy control procedures. Training must cover at least three areas: aspects of the employer’s energy control program, elements of the energy control procedure relevant to the employee’s duties or assignment, and the various requirements of the OSHA standards related to LOTO. The standard also states:

- All employees who work in an area where energy control procedure(s) are used need to be instructed in the purpose and use of the energy control procedure(s), especially when it is unsafe to restart or reenergize locked or tagged out machines or other equipment.
- All employees who are authorized to lockout machines or equipment and perform the service and maintenance operations need to be trained in recognition of applicable hazardous energy sources in the workplace, the type and magnitude of energy found in the workplace, and the means and methods of isolating and/or controlling the energy.
- All employees must be retrained to maintain proficiency or introduce new or changed control methods.

**WHAT EMPLOYERS MUST DO TO PROTECT EMPLOYEES**

OSHA standard 1910.147 establishes requirements that employers must follow when employees are exposed to hazardous energy while servicing and maintaining equipment and machinery. Some of the most critical requirements from this standard include:

- Developing, implementing and enforcing an energy control program and procedures.
- Using lockout devices for equipment that can be locked out. Tagout devices may be used in lieu of lockout devices only if the tagout

program provides employee protection equivalent to that provided through a lockout program.

- Ensuring new or overhauled equipment is capable of being locked out.
- Developing, implementing and enforcing an effective tagout program if machines or equipment are not capable of being locked out.
- Using only LOTO devices authorized for the particular equipment or machinery and ensuring they are durable, standardized and substantial.
- Ensuring the LOTO devices identify the individual users.
- Establishing a policy that permits only the employee who applied a LOTO device to remove it.
- Inspecting energy-control procedures at least annually.
- Providing effective training as mandated for all employees covered by the standard.

**LOTO ADVICE**

Engelman and Wagner offer additional insight for precasters when addressing in-plant LOTO procedures. Wagner said Milan Vault contacted a local energy provider for additional training. He also suggests precasters train every employee on why LOTO is important to follow for each piece of equipment.

“Repetition and constant refreshing is key when it comes to LOTO training,” Wagner said.

Engelman concurred, adding identifying and understanding all of the potential energy sources is crucial.

“We teach our employees the difference between stored and powered energy sources,” he said. “Stored energy is less obvious and requires additional training and refreshing.”

Having energy-control procedures is just the first step in ensuring your company is compliant with OSHA’s regulations regarding LOTO enforcement – constantly ensuring your energy-control procedures are being followed is the next logical step. Making sure they are understood and enforced is crucial for the safety of every employee. ❏

*Evan Gurley is a technical services engineer with NPCA.*

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Completed rows in a sub array showing precast concrete foundations, solar panels and electrical routing equipment.

# From Trash to Solar Treasure Trove

Custom **precast concrete solar tracker pads** solve a utility company's problem at the site of a retired landfill.

By Kirk Stelsel

Innovation is a product of need. When the U.S. government needed a computer network, innovators created the foundation for the internet. Miracle medicines are created to cure diseases. Cars, electricity, the smart phone ... behind every great innovation is an individual or company working to solve a perceived need.

Need also drives innovation in the precast concrete industry. Collaborations between precasters and customers to solve unique problems have resulted in incredible custom solutions. Dalmaray Concrete Products in Janesville, Wis., solved one such problem for a local utility company.

## THE UNIQUE PROBLEM

Aaron Ausen, vice president of Dalmaray, said the company fielded a call about custom precast footings for a solar field more than a year ago, but the project was canceled due to funding. Months later, he found himself reading about a similar solar field project in Beloit, Wis., in the local newspaper.

Thanks to a good working relationship with the local utility company, Ausen connected with its engineering team to find out more. Not only had the team not considered precast – the project also faced an issue not yet resolved.

The Rock River Solar Project is being built on top of a retired landfill with a liner buried 2 feet below grade. As a result, the typical solution of driving I-beams into the ground was not possible.



In addition, the project called for a winter installation. It's no secret that winters in Wisconsin are cold, so minimizing time spent on site and ensuring quality curing were important. Dalmaray's custom precast solution minimized concerns and offered benefits no other alternative could provide.

"Precast was the only option at this time of year," said Mark Miller, senior manager-estimating and pre-construction services for civil contractor Michels Corp. "Having the ballast blocks cast in a temperature-controlled environment and shipped to the site enabled the work to be completed in the winter."

### THE CUSTOM SOLUTION

The precast concrete tracker pads required three months of custom engineering. Dalmaray's team worked with Gary K. Munkelt & Associates to take every aspect of the project into consideration. Together, they engineered the precast, connection plates and bolt system for mounting the I-beams and solar panels to the pads.

The pads must withstand the loading scenarios and transfer the shear and overturning forces from the solar panel down while still allowing for adjustment for plumb. Designing the load transfer plate and anchor bolts to carry that load and still allow for adjustment is one of the challenges they were able to overcome.

"This is what excites me most about this project," Ausen said. "To think we have designed this solution ... now I'm watching it come to life in front of me."

Dalmaray manufactured custom forms in its shop using a local steel supplier and local fabricators as needed. The pads are 13 feet long and vary in width. The thickness is 8 inches on the ends and 11 inches in the middle. Each pad has four bolts that secure a 1-inch plate with the mounting I-beam welded to it. In total, there will be 1,659 individual precast footings spanning seven solar arrays.

"There were actually 16 different types of tracker pads that varied in width and rebar configuration," Ausen said. "The variance came in the height of the support post and location on the array. This was really challenging, trying to figure out which piece went where."


Dalmaray and Michels were able to get everyone speaking one language through color coding. All layouts were color coded and Dalmaray coded the precast pieces with respective colorings. This made it easy for employees of both companies to identify where pieces should be placed.

### SPEED AND SCALE

A sub-contractor also asked Dalmaray to precast transformer pads, pipe mounts and


Precast concrete foundations ready for I-beam and solar panel installation. Tolerances had to be within one degree of plumb.






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equipment pads. This made Dalmaray a one-stop shop for the majority of concrete items on site. Dalmaray cast 865 yards of concrete for the tracker pads and another 32 yards for the additional items. Despite it being the company's largest project, all pieces were cast in seven weeks.

The project originally called for a 3,000-psi, 28-day-strength mix. Because precasting and shipping had a one-day window, Dalmaray produced a 6,500-psi mix that reached 3,000 psi in 22 hours. The company went through a week and half of batch qualification with the design team. According to Ausen, the site visit was an opportunity to highlight the advantages of precast. He said a lot of the attendees were amazed by what precasting is and what it can do for them.

"I was surprised by the level of value-added engineering provided by the precaster," said Kim Halverson, project manager with Alliant Energy, the project owner. "The Michels/Dalmaray design went beyond structural and installation considerations and will provide decades of operations and management benefits."

After two weeks of setting product, it was decided installation had to speed up. As a result, Dalmaray's trucks began installing one trench while the contractor would set pads with an excavator. To start,

Dalmaray was hauling 16-20 per day. Two weeks into the project, the company was hauling 80-100 per day.

"It's really exciting because the scale is so huge, but also that we were able to be on the ground floor of designing the mega project," Ausen said. "To see the whole life cycle of a project this size is impressive and rewarding. We are extremely excited for this project and we really think that this is precast providing a solution when people said 'We don't know what to do.'"

"The precast fabrication and installation have gone better than expected," added Miller.

#### LIMITLESS MARKET

While Dalmaray sees the possibility for this product line to catch on should other solar field projects emerge, the greatest potential for the company is making its name as a custom solution provider.

"I find that custom precast has played and will continue to play a huge role in the success of our company and other companies if they are willing to accept the challenges that go with it," Ausen said. "I talk to specifiers and engineers all the time and I can't count how many times I've heard, 'I didn't know you can do that,' or, 'That could be precast?' It's a wonderful question to be asked.

"Thinking outside the box and solving insolvable issues is what precasting is all about." **PI**

*Kirk Stelsel is NPCA's director of communication and marketing.*



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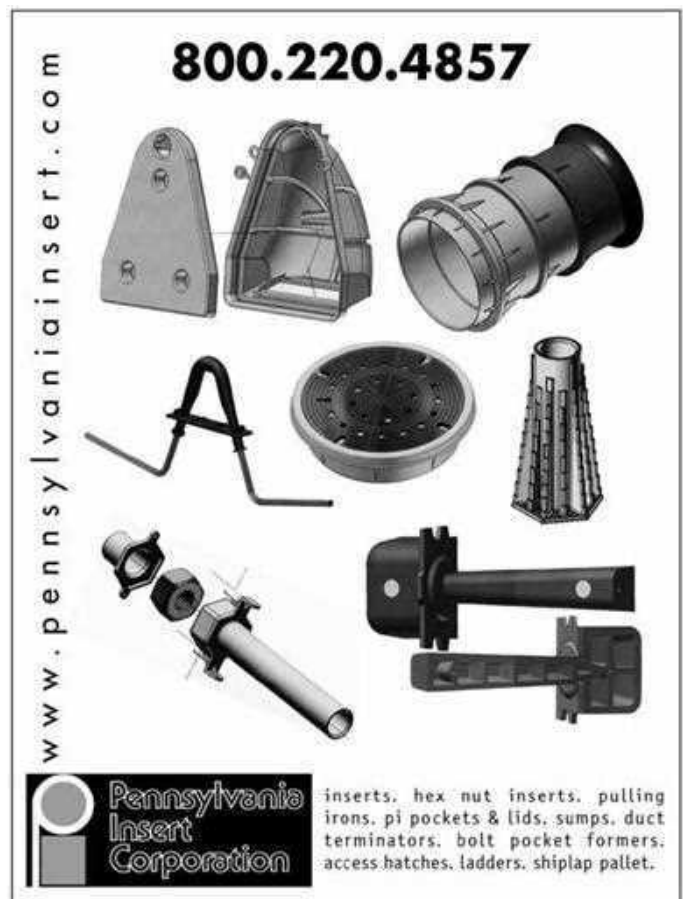
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By Sara Geer





**H**aving multiple trade association certifications is common for manufacturers in the precast concrete industry. However, it's rare to find a producer certified by both the National Precast Concrete Association and the Architectural Precast Association – only two companies share both certifications. This is just one of many achievements that has helped NPCA producer and certified member Olympian Precast in Redmond, Wash., break away from the architectural precast pack.

#### **FOURTH GENERATION INDUSTRY, SECOND GENERATION FAMILY OWNER**

Olympian Precast is a family-operated company manufacturing and selling architectural precast concrete products. Owner Clarke Jewell said the company began in the midst of a stressful time for his family.

In the 1920s, Jewell's maternal great-grandfather, Leo Swartz, started a cast stone company called Pacific Stone Co. and later changed the name to Olympian Stone Co. He hired his son-in-law, Ralph Robinson (Jewell's maternal grandfather) to work with him. In 1965, the company expanded and moved to Redmond. There they purchased land and equipment from Greystone Prestress and built a new facility. In the 1970s, Jewell's father, Kevin, who previously worked at General Electric in Chicago, also joined the family business. In 1980, the the company built a second facility in San Diego to meet demands. However, in 1986, due to some unfortunate circumstances, Olympian Stone went under.

"I only remember it causing a lot of strife in the family and it definitely was a stressful time for my dad," Jewell said. "I do, however, clearly remember my mom asking, 'What are we going to do now?'"

In 1987, his parents answered that question by buying the Olympian Stone's assets from the bank and establishing Olympian Precast. Kevin was the technical arm of the company, while Jewell's mother, Judy, managed human resources, finances, and government regulations and relationships. Jewell said his parents kept Olympian in the company's name for family historical reasons. Even portions of the company's logo – such as the gothic columns and roof – are borrowed from Olympian Stone to keep family traditions alive.

"But there is definitely a delineated point, one company ended and another began," Jewell said. "That's why it's difficult for me to say I'm the fourth generation. It's more accurate for me to say I'm fourth generation industry, second generation family owner."

He went to college to design cars, but realized the

Olympian Precast's largest wall panel job in the past decade was for The Olivian, a high-rise building in Seattle, Wash.



(Above) The original precast concrete building and cast stone spiral staircase built by Clarke Jewell's maternal grandfather, Ralph Robinson, continue to hold value and family traditions for the staff and leadership at Olympian Precast.

(Right) Other than wall panels, Olympian Precast manufactures stair treads, pavers and architectural trim.



## **"NPCA** has helped us to be prepared for all (DOT) requirements."

– Clarke Jewell, owner

possibility of working overseas did not interest him. After graduation, he worked in the steel fabrication business for a few years. While Jewell was searching for a new challenge, his father suggested he work for the family business.

"We hired a consultant to help the company and I understand if this move was a good fit," Jewell said. "Eventually, I did come on board in 1999, but as anyone who has worked with family would understand, we had our challenges."

In 2003, a succession plan was set into motion to transition ownership, but it took many years before it actually occurred in 2014. Jewell said it's still new for him to be the owner, but he sees the company headed in a positive direction.

"The Seattle and Portland (Ore.) markets are good," Jewell said. "I also have a great staff. They all have their individual strengths and work well together."

Jewell stays focused on choosing the right projects, not just on growth for the sake of growth. The company currently employs 39, including his father, who provides help where needed and is a great mentor for him and the staff.

### **NPCA CERTIFICATION SURVIVAL KIT**

While business is great today, Olympian faced trying times during The Great Recession, which marked one of the lowest points in the company's history. In 2009, the architectural precast concrete market completely dried up, making it difficult for the company to find work.

"Architectural precast is more of a premium product and you don't tend to find it on lower budget buildings," Jewell said. "And during the downturn, there weren't many class-A, high-rise apartments, commercial office buildings or institutional buildings with architectural precast facades."

The company survived on stair tread, window sill and wall cap projects, but needed to seek larger-size alternative work, which at the time meant going after department of transportation projects. Obtaining NPCA certification not only helped Olympian secure DOT work, but also made the company more competitive in bidding custom projects during the downturn. Today, certification advantages are still at play as DOT projects in the area are now shifting to architectural work.

"Working with DOTs, I've noticed they have very specific ways in which they want things done and NPCA has helped us to be prepared for all requirements," Jewell said.

### **WALLS AND WALLS OF WALL PANELS**

Olympian provides a diverse line of architectural precast products including stair tread, architectural trim, structural stairs and glass fiber reinforced concrete, but its primary product line is architectural precast concrete wall panels.

The company's largest wall panel job in the past decade was for a high-rise apartment building in Seattle called The Olivian. It was a negotiated project, meaning the company had bid preference with developer and



The Olivian features 66,000 square feet of exterior architectural precast concrete wall panels.

contractor The Hanover Co.

Olympian helped architect Carrier Johnson with design and connection input and manufactured about 66,000 square feet of exterior precast wall panels. For a job this size, production cast about 300-500 square feet each day and approximately 1,200 panels in all. The self-consolidating concrete mix design included a locally available aggregate rock and sand with a white and gray cement blend and integral pigment.

“It was a fun project to work on,” Jewell said. “The developer’s team consisted of people who we were already familiar with in the industry. They were easy to work with.”

Another large project, The University Village retail parking garage, was completed in March 2014 and showcases the company’s brick-faced precast. The project scope included approximately 750 total pieces consisting of architectural precast wall panels, sixth floor parapet and cornice, interior stair treads and 8,000 square feet of exterior brick-faced wall panels. The brick included a three-color blend. The architectural precast included two different browns and a dark gray with an acid etch finish. The beige/white-colored precast had a light sandblast finish.

“We complete a handful of parking garages with architectural precast panels a year,” Jewell said. “With land at a premium in Seattle, we have been seeing more parking garages added where only surface parking might have been in the past.”

The company has also recently worked in Seattle on several commercial business building projects. Seattle has recently been a hotbed of building activity due to expansions from technology companies like Amazon, Google and Facebook. Olympian is working with contractor BN Builders on one commercial building project, 400 Dexter, scheduled for completion in January 2017. The company negotiated work to start production early on 400 Dexter and to help develop the project drawings. Approximately 400 wall



Photocourtesy of Olympian Precast



# Marketing vs. Selling

## Architectural Precast

An important business strategy for Olympian has always been marketing precast concrete solutions. Kevin Jewell, vice president, often says that if they are not willing to help a design team think precast, then nothing is available for them or their competitors to bid on. A marketing – or preliminary – meeting is where Olympian can talk about how to build the project with precast, including color choices, building connections, wall panel sizes, insulation to meet energy codes, joints, finishes or waterproofing methods. He said while structural precasters may focus on strength specifications, they are secondary for Olympian. The company helps achieve the aesthetic goals of the architect while meeting the performance specification of the project.

“Our focus is to sell finish to the design team, because actually many of our mixes may not meet ASTM C33 (Standard Specification for Concrete Aggregate),” Jewell said. “For example, we might have a finish that has a very high aggregate-to-sand mix and is mostly rock. While a broad aggregate distribution makes the best concrete, it doesn’t necessarily make the best-looking concrete.”

But while Olympian may go through the effort to help designers consider precast in a project, chances are they still have to bid for the project. Jewell said this is why he looks at marketing and selling as two distinct processes.

“We market to the designers to make it easy for them to design in precast because they could make this building in brick, metal, etc.,” Jewell said. “Sometimes we feel like we’re spending more time than our competitors, but if someone doesn’t help the designers, we may not have anything to bid on.”



panels will be manufactured for the building, which will be located near the South Lake Union neighborhood. The precast will have two mix designs, including a yellow crushed marble with white cement and a locally available aggregate with gray cement. Both colors will receive an acid-etch finish.

### SCC USE

Jewell said another key achievement and difference between Olympian and other architectural precasters is its use of SCC. Ninety-five percent of the company’s products are manufactured using SCC, with the exception being structural stair projects. The company’s production team discovered that if the mix is poured against a board before the mold, splash rings are eliminated from the finished product. The simple fix slows down the pouring process, giving a cleaner, higher quality look. He said while this efficiency has worked for them, other architectural precasters have found it challenging to use SCC due to aggregate segregation.

### EARLY ADOPTERS OF SUSTAINABILITY

A best practice Jewell credits to NPCA is how the company manages its washout operations. Long before many plants in the region were required to have an environmental plan, Olympian captured all washout and acid-etch finishing water in a catch basin, which is then pumped into a treatment tank. The water is treated to a neutral pH before being released into the sanitary sewer. Because the plant sits on top of the Redmond aquifer, it’s a priority to keep the area’s main water source clean from chemicals. All work is done under a permit from the Washington State Department of Ecology.

“The City of Redmond has more stringent environmental requirements than the department of ecology, so we have been working with the city to maintain drinking





water standards,” Jewell said. “From a producer standpoint, we look at reducing waste of any sort as a good thing.”

Seattle and Portland are considered sustainability-conscious cities. Most projects Olympian works on are LEED certified, meaning all materials manufactured and shipped are within a 500-mile radius. Jewell said this is easy for them to achieve because all of the company’s aggregate, cement and reinforcement is shipped to them from pacific northwest-based plants.

### QUALITY OF EXCELLENCE

One of the company’s biggest achievements was earning a 100% on its NPCA audit in 2015. Jewell said the news was a shock at first because architectural precasters do things a bit differently, but he sees the award as proof of the quality work the production crew and staff continue to achieve daily.

“High quality is what we try to maintain every day and we start by building it directly into the form,” Jewell said.

He said since NPCA’s focus on certification is different from APA’s, it has raised the company’s awareness and quality standards and given Olympian a competitive advantage. NPCA’s involvement has been nothing but positive for the company, and the plan is to remain long-time members. **PI**

*Sara Geer is NPCA’s internal communication and web manager, and is managing editor of Precast Inc.*



(Above Left) A roller system is used for turning and moving product to minimize damage to the architectural finish.

(Above) The architectural wall panels manufactured for the Eastlake project in Seattle’s South Union neighborhood, have a sandblast finish.

(Left) Production staff uses a process they call rodding to help eliminate bug holes along the edges of forms post-pour.

**“High quality** is what we try to **maintain every day and we start by building it directly into the form.”**

– Clarke Jewell, owner



# NPCA Members **Swap Employees** and Share Best Practices

**Precasters are working together** to develop their workforces, adopt best practices and learn new techniques.

By Bridget McCrea

(From left to right) Daniel Quezada, Jorge Rodriguez, Doug Freeman, Jarrett Bodi, Sergio Arvizu and Richard Alvarado. Gainey's employees Freeman and Bodi visited Western Precast Concrete to exchange information and learn new tricks of the trade.

**A**s a younger precast manufacturing firm, Cemcast Pipe & Precast in Hartford, S.D., draws on decades of experience not only internally, but externally through other NPCA members. Unafraid to reach out and ask for help, the company has been able to implement new ideas, learn best practices and better understand precast manufacturing techniques simply by asking fellow manufacturers for their input and advice.

Founded in 1993 as a concrete contracting entity, Cemcast opened its precast manufacturing plant in May 2015.

"I started researching the idea back in 2012," said Carl Carlson, president of Cemcast.

Throughout the entire due diligence process, Carlson called around asking for plant visits. At those visits, he would talk to other precasters about how their operations worked, what challenges they had overcome and other relevant issues.

"We relied heavily on other companies to learn how to do the work that we're now doing," said Carlson, who at one point needed detailed information on how to make

precast box culverts. He Googled the term "box culvert," and clicked on one of the top results. That action led him to C.R. Barger & Sons' website, where he watched a number of videos on how to make box culverts. After going through the mechanics of the job on his own, Carlson reached out to Barger & Sons for specific information on lifting device installation and how to flip the culverts.

"Some of our questions were pretty basic, but being able to run them by someone who has years of experience in the industry – and who has been there and done that – saved us an immense amount of time and struggle," said Carlson.

## **THE "ULTIMATE" PLANT TOUR**

Eric Barger, president of the Lenoir City, Tenn.-based precast manufacturer, said he was happy to help Cemcast work out the kinks and address the issues associated with box culvert production.

"I gave them a lot of answers; the best I could from down here in Tennessee," Barger said. "They came away from it a lot more confident about building out their box culvert line."



This wasn't Barger's first experience with the concept of idea-sharing or even employee-swapping among NPCA members. He said that over the years, C.R. Barger & Sons has participated in a number of collaborative relationships with other precasters. Some of the interactions have taken place via phone or digital communications, while others involved single- and multi-day visits to other companies and vice versa.

About five years ago, Barger said he reached out to Greg and Lisa Roache of Gainey's Concrete Products in Holden, La., to see if they'd be open to a plant visit to share production and safety best practices. He spent two days on site at Gainey's Concrete, where he was able to observe the firm's operational processes and safety procedures. And because the visit was intended as a two-way street, Barger interjected comments in areas where improvement was possible.

"I came up with some ideas on things they could be doing differently and also posed some questions on why they took certain approaches to specific applications and tasks," he said.

At the end of his visit, Barger documented his observations and thoughts via a three-page-long written summary. From the experience, he said he was able to come up with a few new safety-related policies that were later put into effect at C.R. Barger & Sons.

"Gainey's is very big on safety and being there on site with them helped me take safety even more seriously than we already were and better understand its value in the workplace," said Barger. "We've also put more emphasis on using root cause analysis to quickly and effectively identify the origin of a problem."

Barger later reciprocated the experience by inviting two of Gainey's employees – who were vacationing in Tennessee – to spend a few hours at the C.R. Barger & Sons plant.

"When you get the right mix of companies, people and processes involved, the rewards are pretty significant," he said.

## LEARNING FROM ONE ANOTHER

Gainey's Concrete is no stranger to the idea of employee-swapping and collaborative peer learning experiences. In addition to its experiences working with C.R. Barger & Sons, the company has also worked with Arrow Concrete Products of Granby, Conn.

"We sent two of our employees there to learn how to get our Titan software program (a precast industry-specific administrative and management software) up and running quickly," said Lisa Roache, vice president. "After a two-day visit, they came back and handled the process for us without much problem at all."

Greg Roache, Gainey's president, said he sent three employees to spend a few days at Modern Precast in Ottsville, Pa., to learn about the firm's accounting systems, observe its operations and gain a better understanding of its scheduling processes. Going a step further,

Gainey's Concrete sent maintenance and quality control employees to work at Western Precast Concrete in El Paso, Texas. There, the trio got a firsthand peek at some of the processes this fellow NPCA member was using – an experience that Greg Roache sees as being similar to on-the-job training.

"It helped us jump-start and improve upon our own maintenance and quality control processes," he said. "There's really no school that you can send someone to for this level of hands-on learning."

Leo Feuerstein, operations manager at Western Precast, concurred and said the idea of collaborating with other precasters initially surfaced at an NPCA convention, where Greg and Lisa Roache brought up the idea of getting a few plants together and doing an employee exchange. For Feuerstein, the notion seemed similar to hosting a foreign exchange student, where someone comes to visit and learns how things are done in another geographical location.

"It is a very good experience to take a fresh look at a job you do each day and then see how another company approaches the same position," Feuerstein said.

At Western Precast, Feuerstein worked with his brother, David Feuerstein, the company's general manager, and the Roaches to decide when the exchange would take place and which managers would participate.

"I was told that these managers took back new skills in maintenance and quality control that they felt were important and could improve their processes," Feuerstein said.

From the Gainey's employees, Feuerstein said his staff learned a few tips and tricks that were helpful and applicable. This win-win scenario helped both precasters make gains while also cultivating an air of collaboration and cooperation among companies that in many cases would be seen as competitors.



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"Every operation has something to **teach** another operation and getting a **fresh perspective** can be really beneficial."

– Carl Carlson  
Cemcast Pipe &  
Precast

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Loretta Bodi of Gainey's Concrete gives a plant tour to John Franklin of Western Precast Concrete.



David Feuerstein and John Franklin of Western Precast Concrete listen to Greg and Lisa Roache of Gainey's Concrete explain coating application processes.

### TAKING TOURS TO THE NEXT LEVEL

For years, NPCA has been promoting the use of plant tours as a way for its members to share best practices, brainstorm, collaborate and see one another's plants and facilities firsthand. Whether they need safety advice, help using a new piece of software or assistance with new product line development, individual precasters have taken the plant tour concept to new levels by arranging their own employee exchanges and on-site visits that range in length from just a few hours to several days. These scaled down versions of formal job exchange programs are helping companies learn best practices and receive training in a very focused and deliberate manner.

"As NPCA members, it's pretty natural for us to go to shows and attend plant tours," Greg Roache said. "We've been able to take that concept to a new level and get an honest, bird's-eye view of what other companies are doing."

Roache said the arrangements tend to work best when the two participating firms pick just one or two subjects to focus on during the visit. By determining the key subject(s) of interest in advance, you can make better use of your time while on site. Then, the host company can figure out ways to show everything within that realm, answer questions, address suggestions and hone in on the subjects of the highest interest.

### ADVICE FROM THE PROS

When looking for other precasters to work with, Feuerstein said finding companies that you can trust – and that aren't in your immediate geographical region – is

extremely important.

"Gainey's is in Louisiana and we are in Texas, so it made sense to work together," Feuerstein said. "However, it's understandable that if the visits take place in plants that are too close to each other, challenges in relation to competition and employee relations may arise."

Barger agreed and said the best approach is to look well outside of your geographical region for precasters to work with in this manner.

"We all have room to grow in this area," Barger said. "The bottom line is that the closer you are in proximity to the company you'd like to work with, the less likely the chances that it will happen. However, once you get past a six- to eight-hour radius of your plant, the more open precasters will be to the idea."

As a direct beneficiary of C.R. Barger & Sons' out-of-state collaboration efforts, Carlson advised all precasters to look to one another for help with both startup and ongoing business support.

"I've found that the industry as a whole is very helpful and very willing to do what it can to teach others about best practices and other key points," Carlson said. "Every operation has something to teach another operation and getting a fresh perspective can be really beneficial for participants on both sides of the table." **PI**

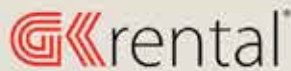
*Bridget McCrea is a freelance writer who covers manufacturing, industry and technology. She is a winner of the Florida Magazine Association's Gold Award for best trade-technical feature statewide.*





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# Contractor Language

# THE THIN RED LINE

A sharp manager can avoid pitfalls by making simple revisions to POs and other documents.

By Bob Whitmore

When Greg Stratis sits down with a purchase order, he has a pen in hand. But it's not to simply sign off on the PO. He's looking for unusually long payment terms, "pay when paid" language or obtuse legal language that he doesn't understand. That's when the red pen comes out.

Stratis, plant manager at Shea Concrete Products in Amesbury, Mass., carefully reads all POs, subcontracts and waiver of lien documents. He changes terms and crosses out language that could negatively impact the company. And most of the time, his customers don't object.

"Contractors have a tendency to change the terms from your original quote, so I'm not afraid to make comments and redline items," Stratis said.

The first thing he looks at is the terms of payment. Shea's terms are 30 days. If a contractor submits a PO with a 60-day payment period, Stratis will change it to 30.

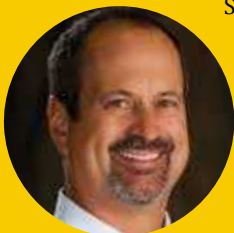
"I might have a conversation with the customer to find out why they want 60 days," Stratis said. "I just tell them we can't do business like that. I might extend the terms to 45 days if I'm willing to risk a little bit longer, but other times I'll just cross it out and change the terms back to 30 days."

"I try to make sense of the entire PO. If there's some legal language that I don't understand, I'll just cross out the paragraph."

If the customer asks about the deletion, Stratis simply tells them he can't sign a document that contains something he doesn't understand. If they balk at removing the legalese, Stratis will tell them he's willing to have an attorney look at the PO if the customer pays the legal fees.

"Usually that quiets them down," Stratis said, adding that most of the time his customers don't give him much feedback on his changes.

According to Chris Grant, a Washington, D.C.-based attorney with more than three decades of construction industry contracting experience, changing the language of POs and other legal documents is something that some precasters avoid because



Greg Stratis





they don't want to offend the contractor or project owner. Grant serves as general counsel to National Precast Concrete Association.

"People assume that it will damage their relationship with their customer if they modify the customer's standard form, but



Chris Grant

my experience is that this is not the case at all," Grant said. "If you go about it in a polite and methodical way and you can explain the basis of the revisions you want to make, it doesn't damage your relationship and you can get some revisions that substantially reduce your risk and make the forms more reasonable.

"I don't mean to say that you will get all the revisions you request. Maybe you'll get only two of 10, but those two could be the difference between profit and loss."

Even if your customer objects, you can learn something from marking up the documents, Grant said.

"If your customer responds, 'Hell no, you can't modify anything,' I think that tells you something about your customer that you need to know," Grant said.

That occurrence is likely to be rare, he added.

"In my experience, you may actually enhance your relationship because your customer sees that you are reading the documents, that you know what you're talking about and that you appreciate the importance of the documents," he said.

Grant said he is frequently asked to make revisions on contracts that range from simple, one-page POs to complex contracts. In most cases, a precaster with a pen and a little bit of time can make revisions that can both protect the company and the bottom line. Here are four situations that Grant encounters regularly when reviewing construction documents.

2. Time is of the essence for this Agreement and Vendor warrants that all of Vendor's Work will be performed and supplied so as to not delay or impede the progress of Buyer's work at any site or location where such work is to be performed (the "Project"). **SR2**

SR2: Notwithstanding other language, Vendor's planning and pricing are premised upon its commencement of work, in accordance with the project schedule nearest in date to the signing of this purchase order, and uninterrupted performance to completion in accordance with the sequence shown by that project schedule. Changes to these premises shall be treated as a change order, providing for compensation for time-related costs actually incurred.

## SCHEDULE CHANGES

Customers include language that allows them to manipulate the schedule at their whim. The language states the contractor can change the schedule at any time without compensating the precaster.

"That's very common language," Grant said. "No damages for delay. No compensation for adjustments to the schedule.

"One of the standard revisions I make is that a change in the schedule is no different than a change in scope. That's a change with a capital C – and you are entitled to compensation for a change in time as well as scope. You have to be able to show that it has cost you money – that it has damaged you – but if you're damaged you are entitled to recover those costs."

## INDEMNIFICATION CLAUSES

An indemnification clause is language in a contract that directs one party to bear the monetary costs for losses incurred by a second party.

"I almost always have to revise the indemnification clause," Grant said. "These clauses used to be quite limited but have become broader and broader over time. I now frequently see an indemnification clause that says a precaster has to indemnify the customer for costs or expenses arising from a precaster's performance – language as vague as that.

"And of course that is completely unfair because it doesn't include any requirement that the precaster has done anything wrong. In my view, indemnification should be limited to either a breach of contract or some kind of negligence on the part of the precaster. If the precaster has performed as required, there's no reason to indemnify the customer for unanticipated costs that the customer has incurred."

**SR5** This indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Subcontractor's Worker's Compensation, Disability Benefit Acts or other employee benefit acts. The Subcontractor shall provide in the policy of comprehensive general public liability insurance required by this Subcontract a contractual indemnity endorsement which insures Subcontractor's liability under the provisions of this paragraph.

SR5: Notwithstanding other language, the provisions of this section and any indemnification by Subcontractor shall be limited to Subcontractor's fault and to the coverage of insurance provided under the Subcontract.

## CONDITION PRECEDENT LANGUAGE

Known in simple terms as "pay when paid" language, the condition precedent language states the contractor has no obligation to pay the precaster unless and until the contractor receives payment from its customer (usually the project owner). This is the language Stratis routinely redlines on POs received

**"I try to make sense of the entire PO. If there's some legal language that I don't understand, I'll just cross out the paragraph."**

– Greg Stratis, *Shea Concrete*

# FREE WEB EVENT!



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**DATE:** June 21, 2016

**TIME:** Noon to 1:30 p.m. (Eastern)

**PRESENTER:** Chris Grant, attorney at law, general counsel, National Precast Concrete Association

**COST:** Free

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Led by Chris Grant, a Washington, D.C.-based attorney with more than three decades of experience in construction contracts, this webinar will provide common-sense tips and advice on how to make sure the documents you sign are fair and balanced.

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22. Notwithstanding any other provision of this Agreement, Vendor acknowledges and agrees that, with respect to any equipment or materials which Vendor is to furnish and/or install in the Project, it is expressly agreed that Buyer's liability to Vendor shall be solely limited to such amounts or relief which Buyer is able to obtain from the entity to whom Vendor furnishes such material or equipment. This limitation shall operate as a condition precedent as to Buyer's liability and shall include, but not be limited to, any claims for increased costs on account of late delivery, defective, or inadequate plans or specifications or any other event which increases Vendor's costs to complete its obligation. The venue for any litigation shall be the court of general jurisdiction where the Buyer's main office is located, subject only to the limitations set forth in Article 4. **SRG** **PROJECT**

by Shea Concrete and one of the common revisions Grant makes. Eliminating that language doesn't mean that the precaster gets paid on time without exception.

"If the precaster has done something wrong and that's why the owner hasn't paid, I don't have any problem with that," Grant said. "That's business. But if the owner's failure to pay has to do with another subcontractor or the general contractor's own fault or the owner has run out of money, the precaster ought to be paid."

## LIEN WAIVERS

A lien waiver is a document that the precaster would routinely sign stating payment has been received for the work described in the PO (or other document) and that the precaster waives any other claim for nonpayment with respect to that work.

5. Subcontractor hereby certifies that **partial** ~~neither final acceptance of the work by the Owner or Contractor nor~~ payment for the Work by the Owner or Contractor, shall **not** release Subcontractor from obligations that arise from its negligence or the supplying of faulty materials or workmanship for the period(s) set forth in the Contract Documents.

"That's all it should say," Grant said. "Some lien waiver documents will have three or four paragraphs of additional language. I've seen language that says, 'I waive my lien and any other claim for nonpayment through a given date.'

"You don't really want to do that. There could be unapproved change orders that occurred or retainage earned prior to that date. If the other guy wants to get tough later on, he can say, 'Sorry, you've waived those unapproved change orders. You're not going to get paid for those because you signed the release.'"

But what if the original quote clearly describes payment terms and timelines and other details? Doesn't that cover you? Not necessarily. Stratis said payment terms and other conditions are clearly stated on the quotes Shea Concrete submits when bidding a job. Some precasters might assume the specs on the quote will be followed. What often happens, though, is the contractor will attach the original quote.

Stratis said, "and they'll put a phrase on the PO that the information in the PO overrides anything in the quote."

What's the strategy in that case? "I just cross it off," Stratis said. ■

*Bob Whitmore is NPCA's vice president of communication and public affairs.*

*Chris Grant ([lawgrant@mindspring.com](mailto:lawgrant@mindspring.com)) practices law in Washington, D.C. He has more than 30 years of experience in the legal and contractual issues arising in the construction industry. He serves as general counsel to NPCA and has written and lectured extensively on topics related to construction and governmental contracts law.*

**"People assume that it will damage their relationship with their customer if they modify the customer's standard form, but my experience is that this is not the case at all."**

— Chris Grant, attorney



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# Strengthen Your Supply Chain Sustainability

**YOU VALUE SUSTAINABILITY, BUT DO YOUR SUPPLIERS?**



By Claude Goguen, PE., LEED AP

**P**erhaps you've heard the saying, "You're only as strong as your weakest link." In a process that involves many people and steps, a weak point can lead to failure. Imagine a robust precast concrete quality control program that ignores the curing process or a precast plant safety program that does not include fall protection. In order for your plant's sustainability program to be successful, you must examine all the links, including those that are very significant and often ignored: the supply chain.

## IDENTIFY THE WEAK LINK

As a precast concrete producer, you have many suppliers. Over the history of your company, you have chosen these suppliers based on many factors, including cost, quality and availability. In previous years, sustainability most likely did not influence your decision. Today, we live in a world where projects are awarded and building materials are selected on the basis of sustainability. Perhaps you chose to adopt sustainable practices in your plant to save money, enhance employee morale and safety, and be a good environmental steward. However, the company supplying you with a

## To get the **most** out of your sustainability program, you must **include** your **upstream partners**.



**These online guides can help you achieve your sustainability goals.**

**The Global Environmental Management Initiative, “Forging New Links – Enhancing Supply Chain Value through Environmental Excellence”**  
[precast.org/forging-new-links](http://precast.org/forging-new-links)

**United Nations Global Compact, “Supply Chain Sustainability – A Practical Guide for Continuous Improvement”**  
[precast.org/supply-chain-sustainability](http://precast.org/supply-chain-sustainability)

substantial amount of materials does not incorporate sustainability in its operations. It generates large amounts of waste and consumes excess energy with no plan or process in place to reduce its impact. There’s your weak link.

You can try to ignore those suppliers and sweep them under the rug, but their impact undeniably affects your impact. On the other hand, you may have a supplier who has a great company sustainability plan and those efforts benefit your bottom line. By having an awareness of environmental, social and economic performance throughout your supply chains, you can encourage improvement, conserve resources, optimize processes, foster product innovations, save costs, increase productivity and promote corporate values. Supply chain sustainability is growing. Here are a few tips for those of you that want to get started down the upstream path.

### **MAP YOUR SUPPLY CHAIN**

Start by identifying all your suppliers. Then, prioritize where to focus your efforts by listing the larger impacts from each supplier.

### **Communicate with your suppliers**

Let your suppliers know about your sustainability focus and expectations. Some suppliers will have their own robust sustainability program and will readily work with you. Others may not be at that point and this will entice them to conduct their own

assessment to seek ways to be more efficient. It’s a win-win for everyone.

For example, you get your Portland cement from XYZ Cement Co. We know cement manufacturing requires a lot of heat and energy. The cement industry is working to reduce its environmental footprint by setting improvement goals. Ask your suppliers what they are currently doing to reduce energy use. Ask them about products they offer that contain less embodied energy and would lower your product’s impact. Examine the possibility of using supplementary cementitious materials, thus lowering the use of Portland cement.

You should also list sustainable attributes from each supplier. Find out how much recycled steel is used in your rebar. Research how safe your chemicals are for use by employees. Perhaps the research discovers your aggregate supplier is doing some things to reduce waste and energy use. All these attributes become your attributes. List them in your sustainability marketing materials and on your company’s website and consider creating a dedicated webpage.

As mentioned previously in the cement example, suppliers may also have suggestions for products or equipment that lead to significant sustainable improvement. This could be an admixture that enhances durability or equipment that can treat process water for reuse. NPCA Associate Members have many products that can bolster your sustainability program. The annual NPCA



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Sustainability Awards gives recognition to a few of those products.

### Monitor your suppliers' progress

Now that you have a plan in place, it's important to keep communicating with those suppliers on a regular basis. If they've set goals, how are they progressing? Ask them to provide periodic updates on current initiatives and hold regular meetings or conference calls to gauge progress.

### Celebrate achievements

The relationship you have with your suppliers should be a partnership. You are combining efforts to deliver the best product to your customer. When sustainability goals are achieved or benchmarks are reached, celebrate that with your suppliers to let them know you value their efforts. Communicating with suppliers in a constructive way is critical for future engagement and provides encouragement for improvement.

**Communicating with suppliers in a constructive way is critical for future engagement and provides encouragement for improvement.**

### Sustainability is a team effort

It's easy to focus solely on your plant's processes when seeking to be more efficient and sustainable. To get the most out of your sustainability program, you must include your upstream partners. Leverage your buying power to influence those that might be slow to react. By collaborating with suppliers, you can encourage innovation and maintain communication in the hope that you can make significant headway toward achievement.

For any additional questions or comments, please contact Claude Goguen, director of sustainability and technical education, at [cgoguen@precast.org](mailto:cgoguen@precast.org) or at 317-571-9500. ■

*Claude Goguen, PE., LEED AP, is NPCA's director of sustainability and technical education.*

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# OPTIMISM ABOUND AT THE PRECAST SHOW 2016

**The Precast Show 2016 in Nashville drew 4,000 attendees – the largest in a decade – and featured 292 exhibitors.**

**A**s the construction industry continues to strengthen in North America, so does the precast concrete sector. The growing optimism of plant owners and suppliers reverberated through the trade show floor at The Precast Show 2016 in Nashville, Tenn. The annual trade show, held March 3-5, at Gaylord Opryland Convention Center, drew the largest crowd in a decade with 4,000 attendees as precast manufacturers looked to update equipment and train employees.

“Based on initial feedback, this was the second straight show where precasters came ready to make major purchases,” said Ty Gable, president of the National Precast Concrete Association. “After the deep recession followed by a few years of slow growth, there is pent up demand for equipment. The work is back and precasters are optimistic right now. They’re looking to replace old equipment and learn about new products.”

The trade show featured 292 exhibitors in more than 63,800 net square feet of exhibit space ranging from heavy equipment manufacturers to concrete admixtures and accessories. The National Precast Concrete Association produced the trade show in partnership with the Precast/Prestressed Concrete Institute. The Canadian Precast/Prestressed Concrete Institute and Cast Stone Institute also held training and meetings in conjunction with the trade show.

“As the largest precast-specific trade show in North America, we’re attracting serious buyers on the trade show floor,” Gable said. “Owners and decision makers use this show as a way to meet suppliers face-to-face to find new product lines and discover new technology.”

The Precast Show 2017 will be held March 2-5 at the FirstMerit Convention Center in Cleveland. ■

 [For for more photos and highlights from the Precast Show, visit theprecastshow.org.](http://theprecastshow.org)





# Safety Awards



## 2015 SAFETY AWARDS WINNERS

### Category I: 0-60,000 hours

#### PLATINUM AWARD

Carr Precast Concrete Inc. – *Dunn, NC*  
 Concrete Concepts Inc. – *McKees Rocks, PA*  
 Dalmaray Concrete Products Inc. – *Janesville, WI*  
 E.C. Babbert Inc. – *Lancaster, OH*  
 Forterra Building Products – *Dayton, OH*  
 Forterra Building Products – *La Place, LA*  
 Husted Concrete Products Inc. – *New York Mills, NY*  
 Jensen Precast – *Orland, CA*  
 Jensen Water Resources – *Sparks, NV*  
 Oldcastle Precast – *AuburnMB – Auburn, WA*  
 Oldcastle Precast – *Concord – Concord, NC*  
 Oldcastle Precast – *FrederickMB – Fredericksburg, VA*  
 Oldcastle Precast – *HoustonDC – Houston, TX*  
 Oldcastle Precast – *Medley – Medley, FL*  
 Oldcastle Precast – *Ogden Wall – Ogden, UT*  
 Oldcastle Precast – *PortlandPC – Portland, OR*  
 Sherman-Dixie Concrete Ind. – *Lenoir City, TN*  
 Sherman-Dixie Concrete Ind. – *Louisville, KY*  
 TRENWA Inc. – *Florence, IN*  
 Wellington Hamrick Precast, Inc. – *Boiling Springs, NC*  
 Wieser Precast Inc. – *Williamsburg, IA*  
 Wieser Concrete Products Inc. – *Roxana, IL*

#### GOLD AWARD

Oldcastle Precast – *Morgan Hill – Morgan Hill, CA*

#### SILVER AWARD

Wieser Concrete Products Inc. – *Portage, WI*

#### BRONZE AWARD

Forterra Pipe & Precast – *Columbus – Columbus, OH*

#### MOST IMPROVED AWARD

Husted Concrete Products Inc. – *New York Mills, NY*

### Category II: 60,001-120,000 hours

#### PLATINUM AWARD

Forterra Pipe & Precast – *Houston Box – Houston, TX*  
 Jensen Precast Phoenix – *Phoenix, AZ*

JJ's Concrete Construction LLC. – *Montgomery, IN*  
 Oldcastle Precast – *LittletonGrp – Auburn, WA*  
 Oldcastle Precast – *MaderaMF – Madera, CA*  
 Oldcastle Precast – *Newnan – Newnan, GA*  
 Oldcastle Precast – *Orlando – Orlando, FL*  
 Oldcastle Precast – *San Antonio – San Antonio, TX*  
 Oldcastle Precast – *Modular – Telford, PA*

#### GOLD AWARD

Wieser Concrete Products Inc. – *Maiden Rock, WI*

#### SILVER AWARD

Concrete Pipe & Precast – *Salem Precast – Salem, VA*

#### BRONZE AWARD

Oldcastle Precast – *Stone Mountain – Stone Mountain, GA*

#### MOST IMPROVED AWARD

Oldcastle Precast – *Madera – Madera, CA*

### Category III: 120,001+ hours

#### PLATINUM AWARD

Armtec | Mitchell – *Mitchell, ON*  
 CP&P – *Martinsburg Precast – Martinsburg, WV*  
 Harper Precast Inc. – *Salt Lake City, UT*  
 Oldcastle Precast – *AcctWest – Auburn, WA*  
 Oldcastle Precast – *Brookshire – Brookshire, TX*  
 Oldcastle Precast – *Chandler – Chandler, AZ*  
 Oldcastle Precast – *Ogden 12th – Ogden, UT*  
 Oldcastle Precast – *OrlandoEG – Orlando, FL*

#### GOLD AWARD

Forterra Pipe & Precast – *Grand Prairie Pipe/Box – Grand Prairie, TX*

#### SILVER AWARD

Oldcastle Precast – *Fontana – Fontana, CA*

#### BRONZE AWARD

Oldcastle Precast – *Pleasanton – Pleasanton, CA*

#### MOST IMPROVED AWARD

Oldcastle Precast – *Brookshire – Brookshire, TX*

## Quality Award of Excellence in PLANT CERTIFICATION

Blalock Ready Mix, *Sevierville, Tenn.*  
 Brayman Precast LLC, *Saxonburg, Pa.*  
 C.R. Barger & Sons Inc., *Lenoir City, Tenn.*  
 Colorado Precast Concrete Inc., *Loveland, Colo.*  
 County Materials Corp., *Salem, Ill.*  
 Encore Precast LLC, *Seven Mile, Ohio*  
 Gillespie Precast LLC (Brickyard Road), *Chestertown, Md.*  
 Gillespie Precast LLC (Dixon Drive), *Chestertown, Md.*

Kistner Concrete Products Inc., *Lockport, N.Y.*  
 Lindsay Precast Inc., *Canal Fulton, Ohio*  
 Mack Vault of Toledo, *Bowling Green, Ohio*  
 MSE Precast Ltd., *Beach, B.C.*  
 Olympian Precast Inc., *Redmond, Wash.*  
 S & M Precast Inc., *Henryville, Ind.*  
 Sherman-Dixie Concrete Industries Inc., *Lenoir City, Tenn.*  
 Speed Fab-Crete, *Kennedale, Texas*

# TOP 25 CERTIFIED PLANTS

Bethlehem Precast Inc., *Bethlehem, Pa.*  
 Blalock Ready Mix, *Sevierville, Tenn.*  
 Brayman Precast LLC, *Saxonburg, Pa.*  
 C.R. Barger & Sons Inc., *Lenoir City, Tenn.*  
 Capital Precast Inc., *San Marcos, Texas*  
 Colorado Precast Concrete Inc., *Loveland, Colo.*  
 County Materials Corp., *Salem, Ill.*  
 County Materials Corp., *Charleston, Ill.*  
 Encore Precast LLC, *Seven Mile, Ohio*  
 Gillespie Precast LLC (Brickyard Road), *Chestertown, Md.*  
 Gillespie Precast LLC (Dixon Drive), *Chestertown, Md.*  
 Kistner Concrete Products Inc., *Lockport, N.Y.*  
 Lindsay Precast Inc., *Canal Fulton, Ohio*  
 Lindsay Precast Inc. – *Firebaugh Division, Colorado Springs, Colo.*  
 Mack Vault of Toledo, *Bowling Green, Ohio*  
 MSE Precast Ltd., *Qualicum Beach, B.C.*  
 Oldcastle Precast Inc., *Nampa, Idaho*  
 Oldcastle Precast Inc., *Idaho Falls, Idaho*  
 Olympian Precast Inc., *Redmond, Wash.*  
 Palette Stone Corp., *Saratoga Springs, N.Y.*  
 S & M Precast Inc., *Henryville, Ind.*  
 S.D. Ireland Concrete Construction Corp., *Williston, Vt.*  
 Sherman-Dixie Concrete Industries Inc., *Lenoir City, Tenn.*  
 Sherman-Dixie Concrete Industries Inc., *Hermitage, Tenn.*  
 Speed Fab-Crete, *Kennedale, Texas*  
 Western Precast Concrete Inc., *El Paso, Texas*

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# PLANT CERTIFICATION ANNIVERSARIES

## 25 YEARS

Barbour Concrete Co.,  
Independence, Mo.  
Tindall Corporation, Spartanburg,  
S.C.

## 20 YEARS

Atlantic Precast Concrete Inc.,  
Tullytown, Pa.  
Crest Precast Inc., LaCrescent,  
Minn.  
Kistner Concrete Products Inc.,  
Lockport, N.Y.  
Wieser Concrete Products Inc.,  
Portage, Wis.

## 15 YEARS

Binghamton Precast & Supply  
Corp., Binghamton, N.Y.  
Colorado Precast Concrete Inc.,  
Loveland, Colo.  
Eagle Concrete Products Co.,  
Somerset, Pa.  
Jensen Precast, Fontana, Calif.  
Mack Vault of Toledo, Bowling  
Green, Ohio  
Mack Industries Inc., Valley City,  
Ohio  
Oldcastle Precast Inc., Idaho Falls,  
Idaho

## 10 YEARS

American Concrete Industries Inc.,  
Ft. Pierce, Fla.  
Armtex-Mitchell, Mitchell, Ont.  
Boughton's Precast Inc., Pueblo,  
Colo.  
C.R. Barger & Sons Inc., Lenoir City,  
Tenn.  
Century Group Inc., Sulphur, La.  
Concrete Pipe & Precast LLC,  
Summerville, S.C.  
Concrete Safety Systems LLC,  
Bethell, Pa.  
CONTECH Engineered Solutions,  
Huber Heights, Ohio  
County Materials Corp., Maxwell,  
Ind.  
Huffcutt Concrete Inc., Chippewa  
Falls, Wis.  
Husted Concrete Products Inc.,  
New York Mills, N.Y.  
Monarch Precast Concrete Corp.,  
Allentown, Pa.  
Oldcastle Precast Inc.,  
Fredericksburg, Va.  
Oldcastle Precast Inc., Telford, Pa.  
PRETECH Corp., Kansas City, Kan.  
SEMA Precast Inc., Brighton, Colo.  
Scituate Concrete Products Corp.,  
Marshfield, Mass.

Standard Traffic Controls Inc.,  
Spokane Valley, Wash.  
Sunnycrest Precast, Auburn, N.Y.  
Universal Precast, Theodore, Ala.

## 5 YEARS

C & M Precast Concrete Co.,  
Kerrville, Texas  
Concrete Pipe & Precast LLC,  
Ashland, Va.  
Doherty Welding LLC, Pilot Rock,  
Ore.  
Forterra Pipe & Precast,  
Sacramento, Calif.  
Fred Weber Reinforced Concrete  
Products Inc., St. Louis, Mo.  
Fred Weber Reinforced Concrete  
Products Inc., Fulton, Mo.  
Glacier Precast Concrete Inc.,  
Kalispell, Mont.  
Industrial Precast Inc., Fort Smith,  
Ark.  
J & R Concrete Products Inc.,  
Perris, Calif.  
Jones & Sons Inc., Washington,  
Ind.  
Jones & Sons Inc., Vincennes, Ind.  
Leesburg Concrete Co. Inc.,  
Leesburg, Fla.  
Mack Concrete Industries,  
Astatula, Fla.  
Magnum Manufacturing Corp.,  
Pleasant Grove, Utah  
Materials Inc., Bernalillo, N.M.  
N.C. Pipe Precast Products,  
Needville, Texas  
Oldcastle Precast Inc., Pleasanton,  
Calif.  
Oldcastle Precast Inc., Newnan,  
Ga.  
Olympian Precast Inc., Redmond,  
Wash.  
Sannipoli Corp., Menifee, Calif.  
SI Precast, San Antonio, Texas  
Southern Concrete Products Inc.,  
Jackson, Tenn.  
Specialty Precast Co. Inc.,  
Prospect, Pa.  
Speed Fab-Crete, Kennedale, Texas  
Standard Precast Inc., Jacksonville,  
Fla.  
Wieser Concrete Products Inc.,  
Roxana, Ill.  
Woodard's Concrete Products Inc.,  
Bullville, N.Y.





# Sustainability Awards



## ASSOCIATE PRODUCT

**solidian**, Albstadt, Germany

Entry: Reinforcing Grid

The solidian Grid is a non-metallic concrete reinforcement that does not corrode and offers a variety of advantages to precasters related to its light weight and easier handling capabilities.

## ASSOCIATE PLANT

**Laurel Steel**, Burlington, Ont.

Entry: Road to Sustainability

The sustainability culture at Laurel Steel goes back to 1992. Recent efforts include installing energy-efficient lighting, converting lift trucks to compressed natural gas and planting trees for each new employee who retires.

## Honorable Mentions

**G & K Services**, Minneapolis, Minn.

Entry: Environmental Stewardship

**Helix Micro-Rebar**, Grand Rapids, Mich.

Entry: Reducing Environmental Impact

**BASF Corp.**, Beachwood, Ohio

Entry: Green Sense Concrete

**Concrete Batch Solutions**, Bladensburg, Md.

Entry: Turbomatic and Curematic Thermal Energy Units

**Kalmar USA Inc.**, Ottawa, Kan.

Entry: Making Every Move Count: The Kalmar ECG50-90 Electric Forklift

## PRODUCER PROJECT

**StructureCast**, Bakersfield, Calif.

Entry: Airport Water Detention System

StructureCast designed and manufactured a StormTrap stormwater detention system that helped achieve LEED certification for the West Aircraft Maintenance facility at Los Angeles International Airport.

## PRODUCER PLANT

**Shea Concrete Products**

Entry: Water and Wastewater Management

The employees at the Shea Concrete plant in Nottingham, N.H., designed a triple-filtering system for process water that uses inexpensive, readily available materials, is easy to maintain, takes up little space and contains process water in one location.

## Honorable Mentions

**Arto Brick**, Gardena, Calif.

Entry: Upcycling Beats Recycling

**Lindsay Precast**, Colorado Springs, Colo.

Entry: Clear Springs Ranch Fish Passageway



**PRODUCER PLANT WINNER:**  
Shea Concrete Products' triple filtering system for process water



# CUP Awards

## ABOVE-GROUND CATEGORY

### First Place

**Superior Concrete Products**, Euless, Texas

Entry: Rustic Ranchette and Shed

Superior Concrete created a prototype Texas ranch from two existing buildings, using mostly over-runs and products with minor defects that would otherwise have ended up in the boneyard. The result is a dynamic ranchette and horse corral that showcases many of the major advantages of precast concrete.

### Second Place

**Utility Concrete Products**, Morris, Ill.

Entry: Counterfort Retaining Wall System

Utility Concrete earned its award for creating a new retaining wall system. Extensively researched and tested by a structural engineering professor and his team of graduate students, the Counterfort Retaining Wall System had its debut on the Interstate 90 corridor in Illinois last summer, with 160,000 square feet of retaining wall at heights up to 32 feet.

## ABOVE-GROUND CUP WINNER:

Superior Concrete Products' rustic ranchette and horse corral



CUP Awards continued →



# THANK YOU TITAN II

A big Nashville thank you to Titan II Precast Management System for sponsoring the Honky Tonk Hoedown at the Wildhorse Saloon. Thanks for helping to make the precast-prestressed industry networking event a big success!



[titaniisoftware.com](http://titaniisoftware.com)



See you next year at The Precast Show 2017, March 2-4 in Cleveland!



### Third Place

**StructureCast**, Bakersfield, Calif.

Entry: **Black's Beach Custom Restroom**

StructureCast produced a custom restroom facility that blends into the bluff along the iconic Black's Beach in La Jolla, Calif. The project had to meet stringent environmental requirements and required a light footprint. The creative design incorporates solar panels to supply power for electric door locks and LED lighting.

### Honorable Mentions

**Universal Precast Concrete Inc.**, Redding, Calif.

Entry: **Bootleg Canyon Animals**

**StructureCast**, Bakersfield, Calif.

Entry: **Armenian Genocide Memorial Monument**

**Colorado Precast Concrete Inc.**, Loveland, Colo.

Entry: **The White House Restroom Facility**

### UNDERGROUND CATEGORY

#### First Place

**Lindsay Precast Concrete**, Canal Fulton, Ohio

Entry: **Holden Arboretum Deer Deterrent**

Lindsay Precast designed, fabricated and cast a vault for the Holden Arboretum in Kirtland, Ohio. The vault serves as an animal containment system to keep deer from roaming into the facility and foraging on the arboretum's extensive collection of rare and woody plants.

#### Second Place

**Kistner Concrete Products Inc.**, Lockport, N.Y.

Entry: **Buffalo School of Medicine Stormwater Detention**

The Kistner Concrete team manufactured 19 vertical post-tensioned culvert tank sections to fit into a 20-foot excavation with only four inches of clearance for the Jacobs School of Medicine at the University of Buffalo.

#### Third Place

**Gainey's Concrete Products Inc.**, Holden, La.

Entry: **Mississippi River Breasting Dolphin**

The team at Gainey's Concrete worked through a variety of design changes and fabrication challenges to custom-cast a marine docking structure known as a breasting dolphin for a Mississippi River port. P1



#### UNDERGROUND CUP WINNER:

**Lindsay Precast Concrete's Holden Arboretum deer deterrent**

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# 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](mailto:sgeer@precast.org).*



### OLDCASTLE PRECAST ACQUIRES COLORADO PRECAST

Oldcastle Precast announced it acquired the assets of Colorado Precast in Loveland, Colo.

This acquisition will strengthen Oldcastle's position in the Colorado, Wyoming and Montana markets. Colorado Precast offers a diverse line of precast concrete products that are consistent with Oldcastle's strategy to be competitive providers of infrastructure solutions.



### SIKA ACQUIRES L.M. SCOFIELD CO.

Sika announced the acquisition of concrete color additive and decorative concrete products producer L.M. Scofield Co. of Los Angeles, Calif. Scofield and its complete line of products, from integral concrete color to topically applied stains, are well regarded within the decorative concrete community for exceptional quality and customer service.

L.M. Scofield Co. provides a unique opportunity that aligns with Sika's North American strategy for market penetration by building its customer base and expanding sales to existing customers with added product offerings. Sika can now produce and supply a complete line of products, including



L.M. Scofield Co.'s decorative colored concrete

high-performance polycarboxylate water reducers, waterproofing admixtures and color additives.

### ELEMATIC REVEALS NEW MIXER AT BAUMA 2016

Elematic introduced its new crushing mixer to their Acotec non-load bearing precast partition wall production line at bauma 2016.

The continuous-crushing mixer, developed by Finnish technology and equipment provider Megatrex, offers a solution for raw material procurement challenges. Lightweight aggregate up to grade 30 can be used in Acotec panel production.

Elematic also developed ATREX®, a new technology system that focuses on enhancing the efficiency of hollow core slab production. It optimizes the use of production lines and work schedules, and monitors the work progress. The main objective of the manufacturing execution system is smooth, continuous precast floor production.



Elematic's new ATREX® continuous-crushing mixer

### GREG SISSON PROMOTED TO DIRECTOR OF MANUFACTURING OPERATIONS

Taylor Machine Works promoted Greg Sisson to director of Taylor Machine manufacturing operations and senior staff member in Louisville, Miss. Greg was a general foreman from 1988 until 1996. In 1996, he was promoted to works manager and in 2015, promoted to division II manager.



Greg Sisson



### SKAKO HIRES NEW CFO

NPCA Associate Member SKAKO hired Jakob Have as its new chief financial officer. Have previously worked at William Demant Holding Group. His job responsibilities include focusing on finances, communication, human resources and information technology.

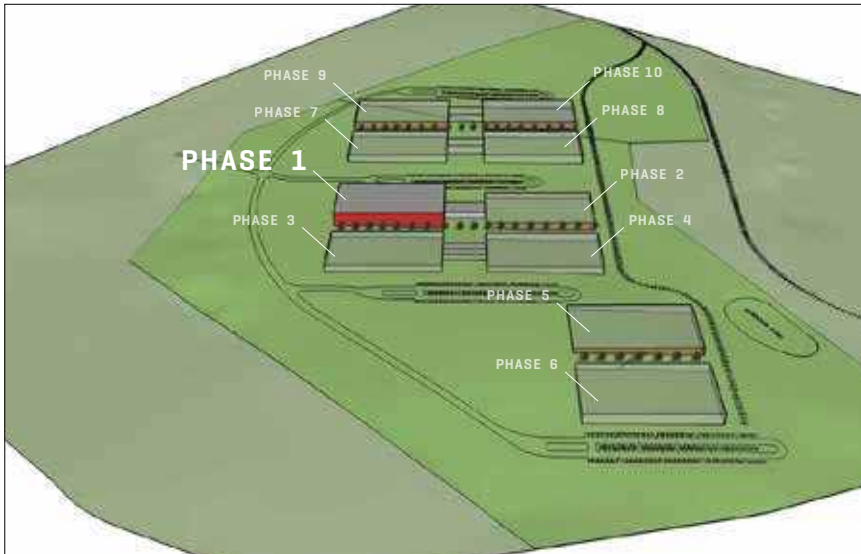


Jakob Have



### EDENCRETE TO ESTABLISH U.S. HEADQUARTERS IN GEORGIA

EdenCrete Industries will establish its global manufacturing headquarters operation in Augusta, Ga. ECI is a wholly owned subsidiary of Australian-based Eden Energy Limited. With this expansion, ECI will increase manufacturing of its proprietary product, EdenCrete™, and establish 251 new jobs in the area.



EdenCrete's conceptual development for 10 manufacturing buildings – beginning with phase 1.

EdenCrete™ is ECI's carbon-strengthened concrete additive which improves performance characteristics. The product is suitable for use in concrete road and bridge construction and maintenance.



### COLUMBIA MACHINE ACQUIRES TECHMATIK S.A.

NPCA Associate Member Columbia Machine announced the acquisition of Techmatik S.A. Techmatik designs and manufactures molds, production machines, handling equipment, cubing solutions, curing solutions, and batching and mixing solutions for the production of paving stones, hardscapes and other dry-cast concrete products. The addition of Techmatik will strengthen Columbia's world wide customer support service and manufacturing capabilities. ■

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# CALENDAR OF Events



**Sept. 28 - Oct. 1, 2016**  
**NPCA 51ST ANNUAL CONVENTION**  
Renaissance Austin Hotel  
Austin, Texas



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



**October 4-7, 2017**  
**NPCA 52ND ANNUAL CONVENTION**  
Omni Providence Hotel  
Providence, R.I.



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



For the most up-to-date information about NPCA events, visit [precast.org/meetings](http://precast.org/meetings)

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6

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*Brian Malaer  
Plant Manager  
Valley Prestress Products, Inc.*



#### The Challenge:

State Highway 161 in Dallas County will provide a vital link from DFW airport to the stadium and entertainment district in Arlington, Texas. Valley Prestress supplied bridge girders, beams and 3.1 million-square-feet of deck slabs for the project.

#### The Solution:

Hamilton Form provided formwork, including five 400-foot self-stressing deck slab forms. To improve efficiencies, Hamilton Form also designed three multi-purpose utility machines to clean the casting surface, oil forms, pull strand and roll tarp covers for use in deck slab production.

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