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Water, Water Everywhere

BY BRENT DEZEMMER | *Chairman, National Precast Concrete Association*

The nation's underground water infrastructure is exploding – literally – from old technology that needs to be replaced with today's high quality, long-lasting, heavy-duty precast concrete and reinforced concrete pipe systems.

If you live west of the Mississippi River, it's a good bet that water is an issue from time to time in your community. Out here in Central California, water use is a daily debate among agricultural interests, city dwellers and business owners. In drought-ravaged states like California, and in other thirsty places such as Arizona, Nevada and Texas, the optimal use of every drop of water is becoming a bigger political issue with every election cycle, especially at the local level. In this environment, nobody likes to see water wasted.

But water problems are everywhere these days, not just in regions of the country where water is naturally scarce. The nation's underground water infrastructure is exploding – literally – from old technology that needs to be replaced with today's high quality, long-lasting, heavy-duty precast concrete and reinforced concrete pipe systems. Here are just a few examples from recent news reports. These examples are easy to find because they're popping up every day in hundreds of news reports from throughout North America. Just Google "water main break" and see what I mean. We're talking about hundreds of breaks every day, translating into two trillion-plus gallons of lost potable water annually and the electricity it took to purify it.

In Boston, a water main burst near one of the city's reservoirs and sent a plume of water 80 feet into the air, creating an instant water fountain in the middle of a city street. Bay City, Michigan, called a water emergency while crews looked for a broken water main. Ten million gallons of water quickly dispersed while crews scoured the region looking for the break. A water main burst near the UCLA campus under Sunset Blvd. What was described as a "massive torrent" of 20 million gallons of water flooded campus areas, sports fields, a parking garage and the basketball arena, Pauley Pavilion, which had just undergone a \$136 million renovation two years ago. It is estimated that it will take the city of Los Angeles \$10 billion to \$15 billion to get its water infrastructure in decent shape.

It's happening everywhere – especially in large, aging cities where the water infrastructure was developed a century ago and has been patched on a piecemeal basis ever since. Many of our largest cities are in this same sinking boat.

It is particularly frustrating to see precious water resources going to waste because we haven't yet found a way to deal with our failing infrastructure on a scale anywhere near the size of the problem. I have a lot of empathy for community leaders who are pulled in many directions and are asked to solve many unrelated, often intractable problems with severely limited resources. But water is the basis for life as we know it, and it is becoming ever more precious. We need to take care of it.

Solutions won't likely come from Washington. Water is a local, state and regional issue anyway and needs to be dealt with on a local basis. That's where you come in. Precasters can play an integral role in the solutions to water issues. By working on a local basis with the municipalities that are trying to update ancient water systems and meet EPA consent decrees by separating combined sewer-stormwater systems, precasters can help create ways to store stormwater until it can be treated, so that raw sewage doesn't continue to pollute local waterways every time it rains hard.

If your company is one of the many precasters that makes water infrastructure products, you are one of the local experts. You can get involved in the discussion, if not for the benefit of your business, then for your community. As the proprietor of a manufacturing business, you use a lot of water, you need a lot of water and you may also manufacture water infrastructure elements that could be part of the solution. Make the connection. Perhaps you can provide that creative idea that solves a local water issue, saves taxpayers millions of dollars, preserves a precious resource and puts more precast in the ground. ■



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Pro-Cast Products Inc.

Turning product variety into opportunity.

Story and photo by Sara Geer

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TOM SISSION (LEFT) AND TERRY GROSSWILER OF NORWALK CONCRETE INDUSTRIES GUIDE A SOUND WALL FOR INSTALLATION ALONG U.S. 31 IN INDIANAPOLIS, INDIANA.

APRIL 2014

OSHA Raises Lift Crew Requirements

BY EVAN GURLEY

While there has been a lot of talk recently about the U.S. Occupational Safety and Health Administration extending the compliance date for its mobile crane operator certification requirement until Nov. 10, 2017, precasters may have lost sight of Cranes and Derricks in Construction standard requirements affecting crane operators, riggers and signalpersons.

OSHA allowed for a four-year implementation period (which turned out to be seven years with the new deadline) for mobile crane operators to be certified under the new rule published in August 2010. However, the requirements for signalpersons and riggers to be qualified took effect on Nov. 8, 2010 – just 90 days after the new rule (29 CFR 1926, Subpart CC) was made final. The short compliance period, combined with the lack of

awareness and urgency, has resulted in precasters receiving numerous citations during random OSHA inspections.

The top OSHA citations under the Cranes and Derricks in Construction standard are:

1. 1926.1428(a) – Signal person not qualified
2. 1926.1425(c)(3) – Materials not rigged by a qualified rigger
3. 1926.1428(a)(3) – No documentation for the signal person
4. 1926.1412(f)(1) – No annual inspections performed by a qualified person
5. 1926.1408(a)(2) – No determination for working radius closer than 20 ft to a power line
6. 1926.1417(c)(1) – Operators manual, load charts, hazard warnings, etc... not in the cab at all times
7. 1926.1412(d)(1) – A determination for safety was not

made by competent person after a deficiency was noted during a visual inspection

8. 1926.1412(e)(3)(i) – Monthly crane inspection results, missing or signed documentation not maintained
9. 1926.1412(f)(2) – Inspections not performed annually by a qualified person or as specified
10. 1926.1411(f)(2)(xvii) – Missing labels supplied by the manufacturer

1. Signal person not qualified. Since the OSHA ruling went into effect, the most common citation has been that the signal person(s) are not qualified.

What's the difference between certified and qualified? The OSHA rule uses the word certification to describe a process whereby someone passes both written and practical tests administered by an accredited certification body. The term qualification means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project. To obtain this qualification, a qualified evaluator must test the person. The qualified evaluator is defined as someone who has demonstrated they are competent in accurately assessing whether individuals meet the qualification requirements in this subpart for a signalperson (1926.1401).

OSHA now requires that a signal person be qualified for each of these scenarios (OSHA 29 CFR 1926.1428(c)):

- The point of operation is not in full view of the operator (1926.1419(a))
- The operator's view is obstructed in the direction the equipment is traveling
- Either the operator or the person handling the load determined that a signal person is needed for site-specific safety concerns

2. Materials not rigged by a qualified rigger. Similar to signal persons, riggers have to be qualified, not certified, when rigging a load that will be handled by employees in the fall zone, when rigging in connection with assembly/disassembly work. Rigging a load is an important job in any crane operation because improper rigging may result in damage to the product/machinery and personnel injury.

WHAT YOU NEED TO KNOW:

Qualified Riggers

When is a qualified rigger required?

Qualified riggers must be used during hoisting activities for assembly and disassembly work (1926.1404(r)(1)). In addition, qualified riggers are required whenever workers are within the fall zone and hooking, unhooking, or guiding a load, or doing the initial connection of a load to a component or structure (1926.1425(c)).

Who can be a qualified rigger?

A qualified rigger is a person who:

- Possesses a recognized degree, certificate, or professional standing
- Has extensive knowledge, training and experience
- Can successfully demonstrate the ability to solve problems related to rigging loads

The person designated as the qualified rigger must have the ability to properly rig the load for a particular job. This does not mean the rigger must be qualified to do every type of rigging job.

Do qualified riggers have to be trained or certified by an accredited organization or assessed by a third party?

No. Employers may choose to use a third party entity to assess the qualifications of the rigger candidate, but they are not required to do so.

Does a certified operator also meet the requirements of a qualified rigger?

A certified operator does not necessarily meet the requirements of a qualified rigger. Determining whether a person is a qualified rigger is based on the nature of the load, lift and equipment used to hoist that load plus that person's knowledge and experience. A certified/qualified operator may meet the requirements of a qualified rigger, depending on the operator's knowledge and experience with rigging.

Everyone wins when safety comes first

While plants may get temporary relief for certifying their mobile crane operators from OSHA, requirements for qualified riggers and signalpersons are in full effect. Not only is it an OSHA requirement, it is also in place to ensure a safe working environment for plant employees. A safe work environment goes hand in hand with manufacturing efficiency and increased at a precast concrete plant. Workplace safety reduces lost time due to injury and illness, insurance costs go down, employee morale goes up, as well as, productivity, competitiveness and profit. Safety doesn't cost money, it saves money.

3. No documentation for the signal person. This requirement outlined in the OSHA standard 29 CFR 1926.1428(a)(3) states that an employer must have the documentation available at the job site/plant regarding whom the signal person is employed by and the documentation must specify the type of signaling that they were qualified for (e.g. radio signals, hand signals, etc.).

4. No annual inspections performed by a qualified person. OSHA 9 CFR 1926.1412(f)(1) states an annual inspection must be performed by a qualified person and disassembly is required, as necessary, to complete this inspection. The equipment must be inspected for the following (29 CFR 1926.1412(f)(2)(i) – (xxi):



NPCA file photo

- Equipment structure
- Structural members
- Bolts, rivets and other fasteners
- Welds for cracks
- Safety devices

5. No determination for working radius closer than 20 ft to a power line. Before beginning equipment operations including assembly/disassembly, the employer must identify the work zone. According to the National Institute of Occupational Health and Safety, an average of 15 crane operators/nearby construction workers are electrocuted every year from crane contact with an active power line.

6. Operator manual, load, hazard warnings, etc... not in the cab at all times. OSHA 29 CFR 1926.1417(c)(1) states procedures applicable to the operation of the equipment, including rated capacities or load charts, recommended operating speeds, special hazard warnings, instructions, and operator's manual must be readily available in the cab at all times for use by the operator.

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CST fully endorses the national certification program offered by the National Commission for Certification of Crane Operators (NCCCO) and will prepare candidates for the CCO certification examinations.

7. A determination for safety was not made by competent person after a deficiency was noted during a visual inspection. OSHA 29 CFR 1926.1412(d)(2) states if any deficiency is identified during an inspection, an immediate determination must be made by the competent person as to whether the deficiency is a safety hazard. If it is assessed that the deficiency identifies as a safety hazard, the equipment must be taken out of service until corrected.

8. Monthly crane inspection results, missing or signed documentation not maintained. Monthly crane inspections are required to be performed by a trained and qualified inspector to ensure proper and safe working conditions.

9. Inspections not performed annually by qualified person or as specified. OSHA 29 CFR 1926.1412(f)(2) states the equipment must be inspected by a qualified person every 12 months.

10. Missing labels supplied by the manufacturer. OSHA 29 CFR 1926.1412(f)(2)(xvii) states warning labels and decals are required to be supplied with the equipment by the manufacturer. Labels must be replaced if missing or unreadable. ■

Evan Gurley is a technical engineer with NPCA.

WHAT YOU NEED TO KNOW:

Qualified Signal Person

Who is a qualified signal person?

Precasters may encounter all the situations noted in the citations above but the two critical issues that affect the majority of precasters when looking at the Crane and Derricks in Construction standard are not having a qualified signal person and/or rigger. The most frequent citation is not having a qualified signal person(s).

What does a signal person need to know?

The signal person is considered qualified if he or she:

- Knows and understands the type of signals used at the worksite
- Is competent in using these signals
- Understands the operations and limitations of the equipment, including the crane dynamics involved in swinging, raising, lowering and stopping loads in boom deflection from hoisting loads.
- Knows and understands the relevant signal person qualification

requirements specified in subpart CC 1926.1419-1926.1422; 1926.1428

- Passes an oral or written test and practical test

How does a signal person become qualified?

1. An employer's qualified evaluator assesses the individual, determines the individual meets the qualification requirements, and provides documentation of the determination.
2. The signal person has documentation from a third party qualified evaluator showing that he or she meets the qualification requirements.

Documentation of qualification

Employers must make the documentation of the signal person's qualifications available at the worksite, either in paper form or electronically. The documentation must specify each type of signaling for which the signal person is qualified under the requirements of the standard.





A New Plant: Lessons Learned

BY SARA GEER AND SUE MCCRAVEN

The path from concept to completion for expanding or building a precast plant is filled with countless decisions both big and small. Each choice – from the overall budget allotted for the project to the design of the building – can affect the future of a business.

Ranking the importance of those decisions to fit every situation would be futile as the priorities are different at every plant. But shared here are lessons learned and surprises discovered from owners and operators who have already expanded their business – a process precasters may face now or in the future.

Decision to expand

Stephanie Loud, owner and operator of Mountain West Precast in Brigham, Utah, recently built a new plant. Shawn Thomas and Kirk Rouse, brothers and partners of Leesburg Concrete Co. in Leesburg, Florida, also recently expanded their business. Both precasters said the need for an on-site batch plant led them to grow their operations.

“People in our business do a lot of batching,” Loud said. “Rather than using ready mix truck delivery as we had in the past, we wanted to be able to batch our own concrete in-house. But I was new to the whole process.”

Loud said she felt this move was an important step in Mountain West Precast’s business progression since the company was already adding its own admixtures into trucks

and working with SCC. She wanted to take more control of quality.

“We have 11 acres and with the new 75 ft by 150 ft plant – plus other buildings – we’ll be able to put together the whole package,” Loud said.

For Leesburg, adding a batch plant allowed the company to expand into other product lines since it had outgrown plant capacity. Shawn’s father, Lannie Thomas, started the plant 30 years ago and it was his decision to expand and keep the business alive.

“The leading decision to expand was based on our 25-year history at the time – the step, ramps and rails that we were producing,” Thomas said. “We outgrew that capacity and for about five years searched extensively on what type of batch plant we would use.”

Lessons learned

Both Loud and Thomas gave similar advice when looking back at their decisions to expand or build new production facilities: closely monitor expenses and pay with cash.

Loud said that despite not having prior experience assessing construction bids, she discovered some holes in the overlap between the electrical and batch plant contractor. The bid for the complete plant installation did not include the electrical. She said it was just inexperience on their part for not understanding the scope of work for each contractor.

ABOVE:
STEPHANIE
LOUD,
MOUNTAIN
WEST
PRECAST

Photo provided by Mountain West Precast

“Since we did take a risk, we are able to produce new products and reach out to people that we met and worked with through NPCA.”

– Shawn Thomas, Leesburg Concrete Co.

“Because we found items that were not covered in the bid, we went back to the bank,” Loud said. “This was a significant increase in cost.”

Thomas and Rouse found out that the best way to expand is paying with cash. When the agreement to build an expansion was signed in December 2006, they certainly did not see the crash of the economy that was headed their way. The decision to carry minimum debt in the business was the main reason Leesburg was able to expand.

“Going out and borrowing the money is the hardest hurdle to overcome without a guaranteed return on money,” said Thomas. “It’s a very large risk.”

Rouse said the irony of the situation was that the expansion actually allowed the business to grow and diversify at the perfect time. “Had we not built the plant and been sitting in the old plant when the market dived, we would not have had the option to grow our business,” Rouse said.



Photo provided by Leesburg Concrete Co.

LEESBURG CONCRETE CO. PLANT

One more piece of advice Loud gave for building a new plant is precasters should not be alarmed when the completion date of a project is changed or extended.

“It’s going to take longer than you think,” she said. “We started construction in 2013 and thought the construction would be completed by now but it’s running nine months longer than



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Photo provided by Mountain West Precast

“People in our business do a lot of batching. Rather than using ready mix truck delivery as we had in the past, we wanted to be able to batch our own concrete in-house.” – *Stephanie Loud, Mountain West Precast*

expected. It should be up and running by late July or early August.”

Surprises discovered

Along with lessons learned, each owner and operator also discovered some

surprises during building – both good and bad.

Loud said even though the engineering and soil test holes were completed before construction, she still discovered an unexpected vein of peat moss underneath the selected location for the new building. Her advice is to “watch out for geotechnical engineering issues.” Fixing the problem required taking out all the peat moss to a depth of 20 ft and replacing it with clean fill in some areas and concrete in other areas in order to support the footings.

However, a pleasant surprise Loud came across was

working with the city officials of Brigham, Utah, to acquire the permits for the construction site. The Brigham City’s Economic Development Department was cooperative and professional.

“I had worked with a different city previously and found we just couldn’t make them happy.” Loud said. “So, I am very grateful we had such a pleasant and helpful relationship – in fact, two of the people there worked with precasters before and were familiar with our issues.”

Thomas said the staff’s can-do attitude was the pleasant surprise he saw once Leesburg’s expansion was completed. Without the batch plant, the company would not have had the opportunity to seek other sources of income with new products such as floor-to-floor stairs, precast modular buildings, architectural panels and precast boardwalks.

“Without this batch plant I would not have made those other three product lines that are now making up better than a good portion of our business,” Thomas said.

End result

Yet despite the good and bad experiences shared with building

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THINGS TO CONSIDER BEFORE STARTING CONSTRUCTION

For Hanson Pipe & Precast, which operates more than 40 facilities throughout the U.S. and Canada, a specialized team handles the process of building and expanding new plants internally. Mike Haddy, special project tech for the South Central Area at Hanson Pipe & Precast in Houston, said he has helped to build 20 new plants during his career.

"Each plant has been different depending on size, capacity and type of machinery installed," he said. "Depends on what the market is in the area and what you're actually going to install."

He shared four suggestions for precasters to know before diving head first into construction.

- 1. Seek help:** Gather everyone involved who will be running the plant and seek their input involving the expansion along with the general contractor. Key details may be missed by not including all personnel.
- 2. Visit and question:** Visit other plants in the area, if possible, to note how a plant is set up. Haddy said he'll often ask the owner or manager the question, "What would you do differently?" to gather comparison information.
- 3. Understand plant capacity:** Analyze the future to gain a good understanding of the product market for easier expansion. If you know the plant's capacity may exceed in two to three years, make sure to add an extra 75 to 100 ft of concrete slab for the building to expand later.
- 4. Check resumes:** Double check the resume of the general manager hired to build the expansion. Make sure they understand what is expected with the construction to avoid mistakes down the road.



Photo provided by Leesburg Concrete Co.

LEESBURG CONCRETE CO. PLANT

or expanding a plant, Loud, Thomas and Rouse all expressed their happiness having gone through the process. Thomas said the expansion helped his company to develop into an NPCA certified plant and expand its professional network.

"Since we did take a risk, we are able to produce new products and reach out to people that we met and worked with

through NPCA," Thomas said. "Networking is vital for anybody in this industry."

Loud said she does not want to discourage anyone from considering expanding or building a new plant. Now that her plant is complete, she is happy with the results.

"If I had all the pieces to the puzzle up front, I would have called the project nearly perfect," Loud said. "But even

with the stumbling blocks, I am glad I made the move to take more control of my operations." ■

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

Sue McCraven, NPCA technical consultant and Precast Inc. technical editor, is a civil and environmental engineer.

HAMILTON FORM CREATES FUNCTION

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CASE STUDY

ARCHED SOFFIT FOR CURVED BRIDGE BEAM

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

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



The Project:

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

The Challenge:

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

The Solution:

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

The Results:

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



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PCPS Manual: Update

PCPS Committee close to releasing cornerstone document.

BY EVAN GURLEY

According to the American Road and Transportation Builders Association, there are more than 4.1 million miles of roads in the United States. The Federal Highway Administration tracks the state of repair on 996,480 miles of major highways that are eligible for federal aid and in 2011, it found that 187,365 miles, or 18.8% are in poor or mediocre condition and need repair.

The need for rapid repair and replacement of concrete pavement is evident in every large metropolitan area in the U.S., Canada and around the world. Many aging pavements are showing alarming deterioration at the same time traffic is increasing to all-time highs. In many locations, pavement must be repaired alongside traffic since it cannot be diverted for a significant length of time. Real estate for building new roadways is scarce and the availability of viable detours is often non-existent. As a result, agencies are forced to rehabilitate roadways

with rapid-repair materials that can be installed without affecting traffic. Making matters worse, money for repair and replacement is limited, so agencies are choosing cheap repair material, even if it won't last for more than a few years.

A more sustainable approach is to select durable materials that last decades, even if the initial cost is higher. Precast concrete pavement systems (PCPS) offer durable and reliable alternatives to traditional rapid-repair techniques for concrete pavements.

In recent years, many government agencies started investigating strategies for pavement rehabilitation and reconstruction that is faster and produces longer-lasting pavement. A promising alternative strategy is the effective use of modular pavement technologies – principally PCPS.

The National Precast Concrete Association PCPS committee sees the use of Jointed Precast Concrete Pavement (JPCP) as an emerging market for NPCA members, but it must be



LIGHTWEIGHT JPRCP IS USED TO REPLACE TWO ARCH BRIDGES ON I-95 IN NEW ROCHELLE, NEW YORK. RESTORATION EFFORTS HAPPENED DURING A FIVE-HOUR NIGHT CLOSURE.



Photo courtesy by Roman Stone Construction Co.

developed. At this point, there is little information available about JPrCP for owners and designers who are contemplating using this technology.

To address this lack of information, the PCPS Committee proposed developing a JPrCP Manual to provide guidance on the topics of design, fabrication and installation. It would also provide clear, unbiased, scientific information to the specifying community. The goal is that the manual will educate designers, specifiers and NPCA

A SINGLE LANE REPLACEMENT PANEL IS POSITIONED INTO ITS FINAL LOCATION.

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producer members, as well as encourage innovation in concrete restoration using JPrCP.

The PCPS Committee is developing the manual with an outside consultant, Dr. Mark Snyder, who is an expert on precast concrete pavement/highway design. The manual will be released in August 2015 and will be available for download on precast.org.

The need for viable and durable methods of rapid repair and replacement of heavily traveled concrete pavement is imperative. JPrCP has emerged as a new and viable method for achieving PCPS that is versatile, efficient and durable. The PCPS Committee believes the manual will become a cornerstone document that will ensure further development by the precast industry and wider adoption by the agencies responsible for our roadways. ■

Evan Gurley is a technical engineer with NPCA.



Photo courtesy by Roman Stone Construction Co.

A FULL-DEPTH JPrCP SLAB IS INSTALLED DURING A SINGLE LANE CLOSURE.

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Is the Customer ALWAYS Right?

How to handle customer complaints effectively and efficiently.

BY BRIDGET McCREA

Trying to keep customers happy can seem like a never-ending task in today's business environment where expectations are high, job schedules are tight, and negative reviews spread like wildfire both online and offline. A complaint can happen at any time and – no matter how big or small it is – it must be addressed quickly and effectively to avoid any long-term repercussions.

"Precasters should have a process in place for dealing with all levels of complaints," said Sam Lines, a sales engineer at Concrete Sealants Inc., in Tipp City, Ohio. Manufacturers should also strive for a universal, replicable process when doing work, said Lines, to avoid unexpected twists and turns that can

quickly morph into customer complaints. "Every process should be like dropping a marble down a board with a maze on it," Lines explains, "and then having that marble land in the same spot on the bottom of the board every time, without fail."

One way precasters can ensure a predictable outcome is by developing documented processes for all work that is performed. That way, when an employee or manager needs guidance on how to complete a specific task or portion of the project, it's right there in front of him or her – and in writing. "If you don't have a documented process in place," said Lines, "you can't possibly predict what's going to happen and/or manage any customer complaints that may surface."

Stepping up to the plate

At Bartow Precast in Cartersville, Georgia, Operations Manager Josh Gaines said the company approaches customer issues on a case-by-case basis. "We don't have a written policy," said Gaines, "but when any complaint comes in we take care of it immediately." The precaster's standard procedure is to remain flexible throughout the job process and to continually interact with the customer to get feedback and address any issues as they surface. When a problem does crop up, Bartow Precast works with any contractors involved to try to fix the issue and handles any re-work as needed.

"We do whatever the customer needs us to do," said Gaines. The process doesn't end there. Once the problem has been handled, the situation is discussed in-house to make sure it doesn't happen again. Those discussions typically take place at weekly company meetings where all managers gather to talk about job progress and related issues. "We talk about what happened, document the complaints and how they were handled, and then keep track of them over time," said Gaines, "with the goal of preventing future problems."

As part of its ongoing commitment to customer service, the precaster also treats every client equally – no matter how big or small that customer and/or job may be. So, when a complaint is filed and managed, for example, Bartow Precast puts an "extra set of eyes" on the job in question to make sure it doesn't happen again. "We definitely don't want to have the same customer complaining repeatedly," he explained.

The hardest part of handling customer complaints, according to Gaines, is managing the internal communications that go along with such issues. In some cases, for example, he said complaints could be avoided altogether if the precaster improved its own approach to internal communications. For example, in some cases a simple explanation, such as the truck was late to the jobsite due to a flat tire or mechanical problems) is enough to make customers happy instead of trying to make excuses.

"We work on this continually and have yet to determine the 'perfect' approach," said Gaines. "It's something that we're always continuing to try to get better at."

Keys to success

Knowing that every customer has a unique set of wants, needs and expectations, the team at Hanson Pipe & Precast's West Region tackles client complaints individually and as swiftly as possible. In fact, John Dutschmann, technical resource manager for the Lorena, Texas-based operation, said developing a formal process around customer complaints is nearly impossible due to the fact that no two issues are the same.

When those situations cross Dutschmann's desk, one of the first stances he takes involves an age-old adage: the customer is always right. "I'm not necessarily a believer in 'the customer's always right,'" he pointed out. "However, the customer is always right until you can prove him or her wrong." To get to the bottom of the situation, Dutschmann

lets the customer do the talking. He asks them to explain the situation and listens for any indication that the problem may have originated on their end versus Hanson's. "In some cases they simply may have installed the product incorrectly," said Dutschmann. "Once that's been determined, the problem pretty much works itself out."

In some instances, the product itself is the culprit. When those types of complaints surface, Dutschmann starts posing the following questions to his own internal team: Did the item get built incorrectly? Were you working off the wrong set of plans? And if so, then who was responsible for the errors?

"Sometimes we wind up building from a set of plans that should have never been in our hands, other than for the bid's sake," said Dutschmann.

Once the problem has been rectified, Hanson uses the experience to further hone its customer service approach. "Even if it costs us some money to resolve the issue, we know

7 TIPS FOR DEALING WITH UNHAPPY CUSTOMERS

As you develop your own customer complaint management approach, consider these tips recommended by The Better Business Bureau:

- 1. When you receive your customer's complaint, put yourself in his or her shoes and try to see the problem as though it were your own.**
- 2. Disregard outrageous claims or expressions of frustration and stick to the central issue(s).**
- 3. Acknowledge your customer's distress and apologize for it, even if it's not your fault.**
- 4. Respond quickly and as briefly as you can.**
- 5. Offer a settlement, a compromise, a goodwill gesture, or some options.** Don't just dig in your heels, claiming that truth is on your side and that the other party deserves no consideration.
- 6. Do:**
 - Listen
 - Show empathy
 - Remain calm and respectful
 - Acknowledge the anger
 - Apologize without accepting blame
 - Agree with the person who is angry
- 7. Don't:**
 - Debate the facts
 - Ask why questions
 - Jump to hasty conclusions



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the value of future business and want to make sure we retain and cultivate that pipeline,” said Dutschmann, who urges other precasters to investigate the facts before reacting, and to always involve the contractor in the mitigation process. “Listen to the contractor and the customer,” he said, “and then come up with a workable way to handle the situation at hand and prevent it from occurring again.”

Warding off future problems

Because customer complaints are often unpredictable and have the uncanny knack for surfacing at the most inopportune times, having some type of process in place for dealing with them is just smart business. Add in the fact that more people use platforms like the Internet to spread negative comments about companies and/or products, and the need for a solid customer complaint mitigation process becomes even more critical.

“The power and impact of a dissatisfied customer can be significant,” Lines pointed out. “On the other hand, a problem handled very well can actually lead to improved customer satisfaction and a client who will tell more people about how well the issue was handled. That, in turn, will lead to

improved sales.”

One way precasters can handle customer complaints is through a process known as Root Cause Analysis. On the customer-facing side of the equation, RCA involves listening to the customer complaint, allowing him or her to vent offering a solution, and then orchestrating that solution. “Then you thank the customer for bringing the issue to your attention,” says Lines, “in a way that lets the client know that you’ve listened to him or her and that the concern is important and legitimate.” See the sidebar for a detailed explanation of RCA.

The RCA process goes a step further by helping companies thoroughly investigate the cause of the problem, eradicate that source and then ensure that such issues don’t repeat themselves in the future. “Once you’ve taken care of the complaint, you also have to handle the problem internally. That’s where RCA comes into play,” said Lines. “Oftentimes, we’re quick to put a Band-Aid on to stem the bleeding, but we never really look at exactly why we’re bleeding in the first place. When you drill down deep enough, you can find out the real problem and mitigate it.”

Once that cause is identified, precasters should formulate a plan

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WHAT IS ROOT CAUSE ANALYSIS?

Root cause analysis (RCA) is a process designed for use in investigating and categorizing the root causes of events with safety, health, environmental, quality, reliability and production impacts. Simply stated, RCA is a tool designed to help identify not only what and how an event occurred, but also why it happened. Only when investigators are able to determine why an event or failure occurred will they be able to specify workable corrective measures that prevent future events of the type observed. In *Root Cause Analysis for Beginners*, the authors outline the following steps taken during the RCA process as:

- 1. Data collection.** The first step in the analysis is to gather data. Without complete information and an understanding of the event, the causal factors and root causes associated with the event cannot be identified. The majority of time spent analyzing an event is used in gathering data.
- 2. Causal factor charting.** Causal factor charting provides a structure for investigators to organize and analyze the information gathered during the investigation and identify gaps and deficiencies in knowledge as the investigation progresses. The causal factor chart is simply a sequence diagram with logic tests that describes the events leading up to an occurrence, plus the conditions surrounding these events.
- 3. Root cause identification.** After all the causal factors have been identified, the investigators begin root cause identification. This step involves the use of a decision diagram called the Root Cause Map to identify the underlying reason or reasons for each causal factor. The map structures the reasoning process of the investigators by helping them answer questions about why particular causal factors exist or occurred. The identification of root causes helps the investigator determine the reasons the event occurred so the problems surrounding the occurrence can be addressed.
- 4. Recommendation generation and implementation.** The next step is the generation of recommendations. Following identification of the root causes for a particular causal factor, achievable recommendations for preventing its recurrence are then generated.

The root cause analyst is often not responsible for the implementation of recommendations generated by the analysis. However, if the recommendations are not implemented, the effort expended in performing the analysis is wasted. In addition, the events that triggered the analysis should be expected to recur. Organizations need to ensure that recommendations are tracked to completion.

of action, be it formal, informal, or somewhere in between the two. Concrete Sealants, for example, uses a documentation process that includes both short-term actions, that solve immediate problems, and more in-depth actions such as going back to the plant to drill down into why the problem happened in the first place. At a later date, the company uses an audit process to figure out if the solution worked and/or if anything should be done differently in the future.

"The bottom line is that just solving the problems on a case-by-case basis

doesn't necessarily fix the underlying cause of the issues," Lines points out. "It's not corrective action, and that's where a lot of companies miss the boat. By using procedures like RCA and by carefully documenting processes, precasters can not only keep their customers satisfied but they can also ward off future issues of the same nature." ■

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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TURNING PRODUCT VARIETY INTO OPPORTUNITY

STORY AND PHOTOS BY SARA GEER

TURNING PRO-CAST PRODUCTS INTO A ONE-STOP SHOP FOR PRECAST PRODUCTS IN SOUTHERN CALIFORNIA HAS BEEN ONE OF THE KEYS TO THE COMPANY'S SUCCESS IN AN INCREASINGLY COMPETITIVE PRECAST MARKET.

The competitive advantage of a diverse product line, initiated by Warren Taylor, president of Pro-Cast Products, keeps the company ahead of its competitors who may spend time and resources focusing on producing one or two specialty items. The company, located 60 miles east of Los Angeles in Highland, California, not only produces a wide variety of drainage products, but also manufactures wall panels, barriers and paving slabs.

"I think the more you have to offer, the more one-stop shopping you have with customers," said Taylor. "Offer more items, then they don't need to shop anywhere else."

Taylor said cultivating a competitive spirit has always been in his blood, even before coming to the company in 1997. He got involved in the precast industry at an early age while working for his father's company Rampart General, which was known for making unique, custom precast masonry fireplaces. There, he moved up within the company working in sales and later added new product lines, including sound walls, with his father.

ALL THE RIGHT ELEMENTS

Prior to Taylor's arriving, Pro-Cast Products had all the needed elements for success lined up – a great location, access to concrete on-site and a great starting product: septic tanks.

The company started in 1987 after purchasing MC Nottingham, a septic tank company. The workers from MC Nottingham, known still as the septic tank crew, then ventured over to Pro-Cast Products to start a new precast company with the owner of Robertson's Ready Mix, a ready mix operation located next door.

"We're located in the sand and gravel pits, so the aggregate

that we use to make the ready mix is mined on-site," Taylor said. "We have a leg up on our ready mix because the aggregate doesn't need to be trucked to another site."

Combining the years of precast expertise with the temperate California weather, an old trailer and a 5-acre start-up manufacturing facility, Pro-Cast Products was on its way to "holding its own," Taylor said. Today, the old trailer and five acres have grown into a 28-acre manufacturing facility equipped with golf carts for each supervisor on staff.



FROM LEFT TO RIGHT: WARREN TAYLOR, PRESIDENT; LOYD MCGHEE, PARTNER; CLARA NELSON, GENERAL MANAGER; AND JIM FULLMER, PARTNER.





KING OF K-RAIL

Taylor said manufacturing DOT precast traffic barriers is how Pro-Cast Products started getting the attention of area general engineering contractors. With the capacity to make 1,400 ft of k-rail, also known in the east as Jersey barrier, a day, it's no secret the company is known as the "king of k-rail."

"There have been plenty of times where we're in full production six to seven months out of the year in order to meet the contractor's schedule," Taylor said. "We can produce over a mile a week."

The company stocks about 50,000 ft of new k-rail in inventory at any given time – adding one more advantage against competitors. In June, the company purchased more than 100,000 ft of used k-rail back from contractors that will be refurbished and sold again. The k-rail came from a 10-mile stretch of the 405 Freeway in Los Angeles that was closed for a weekend in 2011, a gridlock nightmare locals called "carmageddon."

"On that project, we sold about 25 miles of k-rail and the job is just closing now," Taylor said. "We didn't want the contractor selling it to all our other customers, so we bought it."

Following the success of k-rail, ideas to develop other product lines started churning for Taylor, including sound walls and L-Walls. Today, the company uses SoundSorb, a proprietary product by Concrete Solutions Inc., based in Austin, Texas, on its well-developed sound wall line. Taylor said SoundSorb absorbs 90% of the sound energy that hits the wall. "It's a great product," he said.

And L-Walls, an instant retaining wall system, have proven to be a safe time-saving product by allowing

PRO-CAST RECENTLY ADDED A 300-FT CASTING BED FOR PAVING SLABS TO RAMP UP PRODUCTION.

workers on a project to repair the sides of a freshwater channel without shutting the water off. The panels went into the water right next to each other with an expandable watertight seal, and allowed workers behind the barrier to complete the concrete repair work. "They were very happy with it," he said.

Taylor said he continues to diversify product lines every year by adding different sizes, shapes and types of products to keep his customers coming back for business. It also helps the company survive and thrive year after year.

"We never know what products are going to carry us through the next year," said Taylor. "Maybe we'll have a soundwall that's really big or a box culvert and sometimes we get them all at once, which is good too. It has been hectic the last couple of years."

PRO-CAST PRODUCTS HAS THE CAPACITY TO MANUFACTURE 1,400 FT OF K-RAIL A DAY.

STAYING ON TOP

Taylor believes that "keeping his eyes" open when looking at construction products out to bid improves his company's chances to stay on top of customer needs. He regularly reviews



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green sheets, plans or specs that come through his office each day. The strategy encourages finding solutions to better answer customer demands. Pro-Cast Products deals mainly with a customer base that is 70% general engineering contractors and 30% general contractors or residential.

"I've been in construction and building most of my life and I keep my eyes open to just see what's out there," Taylor said. "To me its not that tough of a leap to figure out what I'm going to need and how much we're willing to spend on it."

Often, the company will repurpose a previous product or project to fulfill a new customer request. For an example, when a customer contacted him interested in a small order of 40 ft of concrete barrier to be used as a retaining wall – a product not in stock – he had to think about what similar item he could offer. That's when he realized he had some L-Walls from another project that could work.

"You know, that will work for us,' he told me," Taylor said. "'You help him out on this one and maybe he calls me on the next one."

Taylor said having the company certified by NPCA has also given it the opportunity to manufacture more products at a quicker rate. "We take quality control seriously," Taylor said. "Being certified by NPCA and self-inspecting is a nice feature and also less mistakes saves money. You only have to make the product once since you have a QC department checking and double checking. There is that benefit."

PAVING THE FUTURE

Volume is an important criteria Taylor favors when considering if a product is suitable for precast. For this reason, he feels the immense volume of paving panels demanded by Caltrans in the next few years has the potential to take the company to another level of success.



PRO-CAST PRODUCTS MANUFACTURES BOTH SINGLE AND DOUBLE LANE PRECAST PAVING PANELS.

Caltrans recently bought into the idea of using precast pavement for repairing damaged highways since it's less expensive and more convenient for the public.

"In all my years in precast, through my dad's company and a couple other companies, I've never seen anything with so much sheer volume potential as paving," Taylor said.

The company, after receiving approval by Caltrans to be a prestressed manufacturer, has even purchased a second stressing deck to meet the high demands. The extra 300 ft of prestressing line is a good selling point for bidding on upcoming work.

"What I believe is that the paving market isn't going to be so much about price, but capacity," Taylor said. "They (Caltrans) are



going to say, 'Who can get me 40-50 panels a day.' And we're going to say, 'We can!'"

However, precast paving is also a tough project since it's still in the infancy stages of development and experts keep changing their minds on how to best produce the product.

"It's frustrating because you get to a point where

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PRO-CAST BEGAN ITS BUSINESS IN 1987 MANUFACTURING DRAINAGE PRODUCTS INCLUDING SEPTIC TANKS, MANHOLES AND SEEPAGE TANKS (PICTURED RIGHT).

you think you know what you are building in the future," said Taylor. "Then it changes a week later. There are still more changes to come, but that's part of the pioneering process."

He believes the company has a leg up in the paving continuum due to pretensioning panels and offering the capacity other precast companies could not. Being ahead of the curve when it comes to figuring out how to make a product easier, faster and better is a common trend at Pro-Cast Products – a trend Taylor sees sticking around for many years to come.

"I like every advantage I can get," Taylor said. "I'm a



creative thinker and I'm, like most precasters, always trying to figure out how to do it better and faster." ■

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



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Concrete Bleeding

Causes, problems and remedies

BY CLAUDE GOGUEN, P.E., LEED AP

Talk to people who are not in the precast industry about bleeding concrete, and it may evoke visions from a horror movie. But we're not talking about types A, B or O-negative in this case. We're referring to bleed water.

Bleeding in fresh concrete refers to the process where free water in the mix is pushed upward to the surface due to the settlement of heavier solid particles such as cement and water. Some bleeding is normal but excessive bleeding can be problematic. The way you work that bleed water can affect the durability of your products.

The biggest factor in bleed water rates is the water-to-cement ratio. A higher ratio can lead to excessive bleeding. The cement type and fine aggregates can play a role in determining the bleed rate. The fewer fines you have in your mix, the more bleeding will occur. Factors also include concrete height and pressure. The relationship between bleed water and concrete heights starts off as linear, but eventually becomes nonlinear at increased heights.

There are also different types of bleeding:

- **Normal bleeding** refers to a uniform seepage of water over the entire surface of the structure.

- **Channel bleeding** refers to water rising through particular paths.

Not all bleed water will reach the surface of the concrete. Some bleed water may rise and remain trapped under aggregates and reinforcing. This results in the weakening of the bond between the paste and those elements.

The goal is not to necessarily eliminate bleed water, but rather to manage it to ensure the concrete's quality. By allowing free water to migrate to a surface and evaporate, the water/cement ratio of the structure decreases, thus decreasing capillary porosity and increasing its density and durability. It can also be useful to aid in finishing operations and reduce plastic shrinkage cracking.

In addition, it is important not to begin finishing operations before most of the bleed water has evaporated. Working the water back into the mix will raise the water/cement ratio in the top surface. That can also result in an increase in permeability. If this surface is exposed to traffic or aggressive environments, this may cause premature delaminating, blistering and cracking.

The use of supplementary cementitious materials can

decrease bleeding rates especially when using finer blends. Fly ash can be effective in reducing bleed rates. Silica fume has the largest effect on reducing bleeding.

Micro fibers used in concrete have also been shown to slow down bleed rates as they control the speed of migration of water to the surface while inhibiting the settling of solid particles.

Ways to reduce bleeding in concrete include:

- Reduce water content. Use lower slump mix
- Use finer cements
- Increase amount of fines in the sand
- Use supplementary cementitious materials
- Use air entraining admixtures

Generally, water reducers will decrease bleeding but they may actually end up increasing this rate based on their chemical composition. Air entraining admixtures can also reduce bleeding by increasing cohesion in the fresh concrete and slowing segregation.

If you have any questions on this topic or any other technical topic, please contact one of the Technical Department staff at NPCA at (800) 366-7731. ■

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

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How Green is Green?

Measuring sustainability with Life Cycle Assessments.

BY CLAUDE GOGUEN, P.E., LEED AP

Oddly enough, one day, you will be bidding on a project and the bid documents will contain a request for an Environmental Product Declaration. At that point, you will frantically type EPD into Google as you begin to scramble to assemble the information or you will breathe a sigh of relief as you include your product's EPD with your bid. NPCA and industry partners PCI, CPCI and ACPA are partnering to develop the first North American precast concrete Product Category Rule. The public comment period has just ended and the third party review is about to begin. What does this mean to you? The PCR being finalized will guide you in creating that EPD. However, you will need one more three-letter acronym, a Life Cycle Assessment or LCA.

Sustainability, at its core, is a simple concept. In the context of precast

concrete manufacturing, it means producing high-quality, durable products in a safe and environmentally conscious manner while employing efficient use of raw materials, energy and water. In the context of a building or infrastructure project, the two meanings are similar. It's about minimizing or even eliminating the environmental impact of the end product, whether it is a four-story multi-family unit or a two-compartment precast concrete septic tank. But how do we define this impact?

Imagine you're a designer and you have two choices of wood doors for your building. One is made of pine from Michigan while the other is made of Burmese Redwood from the forests of Southeast Asia. Your immediate assumption may be that the pine doors would have less of an impact due to the proximity of the raw materials. Surely,

the energy and emissions associated with shipping the materials from the other side of the world would make the redwood a poor choice in terms of sustainability. However, what if the redwood doors have an expected life of 30 years with practically no maintenance, while the pine doors will last 15 years with periodic maintenance? On top of that, the redwood doors can be recycled while the pine doors are landfill bound. Now the obvious choice is not so obvious. Instead of looking at one aspect of the product, you must look at all aspects involved including raw material extraction, manufacturing, transportation, durability and final disposal. A true measure of a product's environmental impact must consider its entire life cycle. This is the essence of a LCA.

LCA is defined as a technique used to assess the environmental aspects



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and potential impacts associated with a product. An LCA can help you:

- Compile an inventory of relevant energy and material inputs and environmental releases
- Evaluate the potential environmental impacts associated with identified inputs and releases
- Interpret the results to help decision-makers make a more informed decision.

Therefore, let's assume you want to conduct an LCA on a particular line of precast concrete products. First, you use the PCR as a guideline since it sets the system boundaries on how the LCA should be performed. The evaluation of the product will be conducted from its cradle, which is the stage where raw materials are extracted or produced. It continues all the way through the manufacturing process, shipping, installation, use and finally to its grave, where final disposal of the product takes place. That's why you will often hear the term cradle to grave. There is also the term cradle to cradle, which is used when the product can be recycled into a new product.

The LCA process begins with a Life Cycle Inventory. This is the process of quantifying energy and raw material requirements, atmospheric emissions, waterborne emissions, solid wastes and other releases for the entire life cycle of your product. The different phases include:

- 1. Raw materials acquisition.** The life cycle of a product begins with the removal of raw materials and energy sources from the earth. In the case of precast, extraction of limestone for cement and processing of steel for rebar would also be considered. In addition, transportation of these materials from the point of acquisition to the point of processing is also included in this stage.
- 2. Manufacturing.** Raw materials are transformed into a product and then that product is then delivered to the consumer. In the case of precast, this stage includes the forming, reinforcing, batching, consolidation and curing

processes. The energy used to heat, cool and light the plant buildings would also be considered. As the product is moved to the yard and then eventually onto a truck for delivery, the fuel consumed and the resulting emissions for all these operations are included.

- 3. Use/Maintenance.** This stage involves the consumer's actual use and maintenance of the product. This includes energy and emissions during installation. The use phase for precast concrete products is generally not considered since they do not consume energy while in use and do not generate environmental waste. Maintenance is very minimal depending on the type of product so at times this may also be minimal or null.
- 4. Recycle or waste management.** When the product is no longer needed to fulfill its purpose, it will need to be disposed or recycled. Any energy, waste or emissions during these operations are considered.

You may choose to have an LCA done specifically for your products. This would not only enable you to proceed in creating a product-specific EPD, but it would also reveal the nature and scale of environmental impacts specific to your product and operations. Armed with this knowledge, you can then make adjustments to address areas that significantly contribute to those impacts. NPCA and other industry partners had a general industry LCA conducted on underground products with a final report issued in 2010. This report can be viewed online at precast.org. For more information on LCA, go to the EPA website which contains a thorough examination of the process.

If you have any questions about this or any other sustainability related topic, please contact Claude Goguen, Director of Sustainability and Technical Education at cgoguen@precast.org or (800) 366-7731. ■

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

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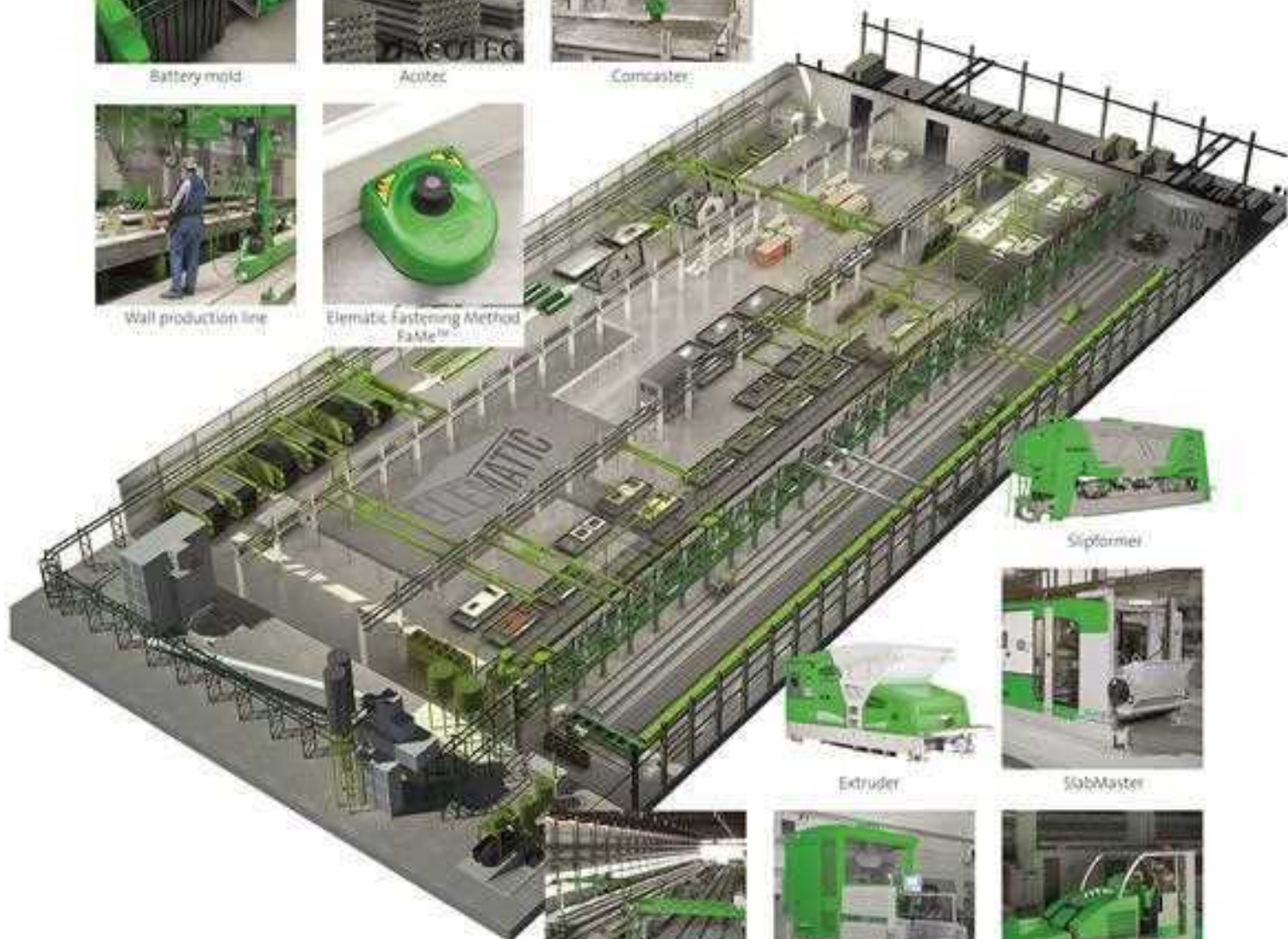
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NPCA welcomes Andi Pierce

Andi Pierce joined NPCA in June as the Finance Department assistant. She will provide administrative and bookkeeping support for the Finance and Administrative Department.



ANDI PIERCE

Pierce earned her Bachelor of Science in Natural Resources and Environmental Science from Purdue University and her Master of Public Affairs in Nonprofit Management

from Indiana University. Prior to joining NPCA, she worked as an administrative assistant at a third-party pension administrative firm. She also has a background in grants administration having worked for the State of Indiana and several local nonprofits managing water quality related grant programs.

She can be reached at apierce@precast.org or (800) 366-7731.

Precast Industry Growth Topped 5% in 2013 According to NPCA Benchmarking Report

Tracking closely with the overall growth in the construction industry, the precast concrete sector grew by 5.2% in 2013. Total sales were \$16.2 billion, according to the NPCA Benchmarking Report, an annual report commissioned by the association from an independent survey company. The survey, conducted in the spring of 2014, tracks sales data from the previous fiscal year.

The growth in the precast sector slightly outpaced the 4.8% growth estimated by the U.S. Census Bureau for the value of construction in 2013. Precast manufacturers consumed 11 million tons of cement in 2013, up from 10 million tons the previous year. The manufacturers produced about 33 million cubic yards of concrete, the same as the previous year.

In the sub-categories tracked by the Benchmarking Report, three products showed significant increases over 2012. Utility buildings grew by 50% to \$526 million in sales and 2.8% of the total market. Utility vaults, which are the largest single category, reported \$2.7 billion in sales, growing about 5% and encompassing 14.4% of the overall market. Septic tanks and grease interceptors registered a combined 8% increase, totaling \$924 million in sales.

The problems funding highway work and infrastructure throughout the country are also reflected in this year's Benchmarking Report. Box culverts and 3-sided structures retreated 13% in sales to \$688 million, while manhole sales dipped about 5% to \$1.4 billion.

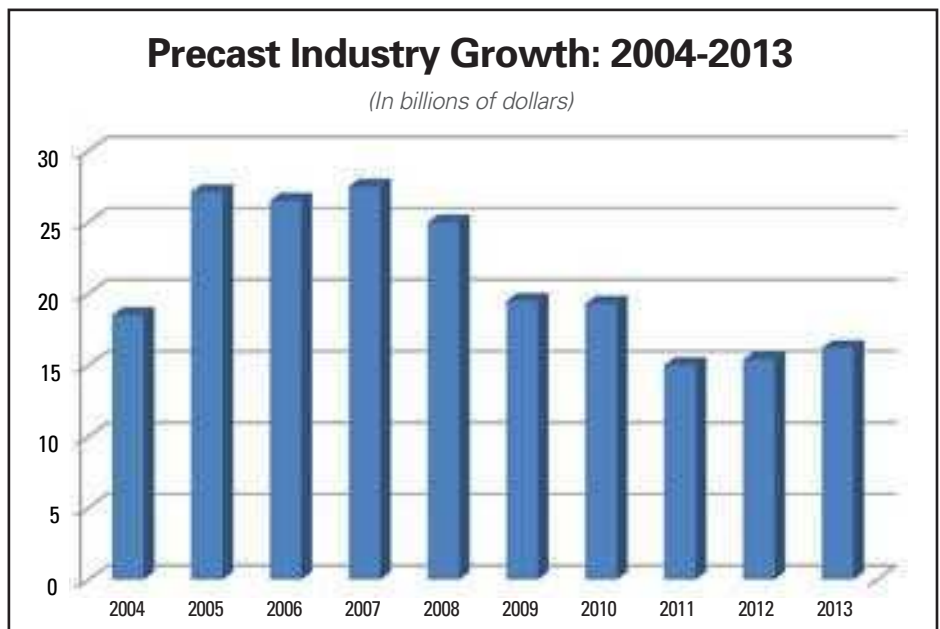
"Highway work has been unstable," said NPCA President Ty Gable.

"However, this is a very diverse industry, and the wide range of products has helped us achieve some moderate growth. That upward trend should continue through 2014, and we're seeing positive signs for 2015 as well. The extension of highway funding through May 2015 helps, but what we really need is a long-term bill that would provide some stability to the system."

Three emerging categories in the precast industry are the product lines


of architectural wall panels, concrete pavers and precast concrete pavement systems. Architectural wall panels grew by 8% to \$752 million in sales and a 4.1% share of the precast market. Concrete pavers, which were previously listed in the "other" category, have grown to become a \$37 million segment of the overall market. The growing acceptance of PCPS by DOTs across the country has created a new market for precasters, who manufactured \$37 million worth of the rapid repair road systems last year.

The Benchmarking Report extrapolates data from the annual Precast Industry Benchmarking Survey, which is issued every year to precast concrete plants in North America. This year's survey included 62 precast concrete companies representing 211 plants. Other sections of the report include a compilation and analysis of plant sales, operations data, compensation tracked by position and benefits. The 145-page Benchmarking Report includes detailed financial and sales mix information, compensation rates by position for salaried and hourly employees and detailed employee benefits information. A PDF of the report is available in the NPCA Bookstore for \$250 for NPCA members and \$300 for nonmembers. For more information, visit precast.org. ■



UPCOMING 2014 NPCA WEBINARS

NPCA provides webinars on an ongoing basis to provide producers with vital education for all facets of running a precast concrete plant. Below are the webinars scheduled for the remainder of 2014. All webinars start at noon Eastern time.

 **For course descriptions and registration for any of the webinars, please visit precast.org/2014webinars**

2014 NPCA WEBINAR SCHEDULE

DATE	TOPIC	INSTRUCTOR	PRICE
Sept. 3, 10, 17, 24*	<i>PQS II Technical**</i>	Claude Goguen	\$495 Per Person
Oct. 7, 8, 9*	<i>PQS II QA/QC</i>	Claude Goguen	\$495 Per Person
Nov. 5, 2014	<i>Health Care Reform: How Will Your Business Be Affected in 2014 and Beyond?</i>	Jamie Hasty	\$79 Per Location
Nov. 19, 2014	<i>Cold Temperature Concreting</i>	Claude Goguen	\$79 Per Location
Dec. 3, 2014	<i>PQS II Safety (Precast Specific Module)</i>	Gus Gonzalez	\$150 Per Person

* Attendance at all sessions is required for PQS II webinars. ** Due to the advanced math concepts covered in PQS II Technical, students are required to take and pass NPCA's PQS II Technical Math Prep course as a prerequisite for this course. The math prep course will be offered as a free three-hour webinar on Wednesday, Aug. 27, 2014, from 1 p.m. to 4 p.m. Eastern time. If you would like to try to test out of the math prep course, please contact Kathy Ritsmon at kritsmon@precast.org.

THINK YOU KNOW YOUR STUFF?

Take the challenge and answer the following question. Send your response to cgoguen@precast.org and if yours is the correct answer chosen, you will get one free admission to one of our 60 minute webinars being presented in 2014. We will accept one answer per person. **Good luck!**

CHALLENGE QUESTION:

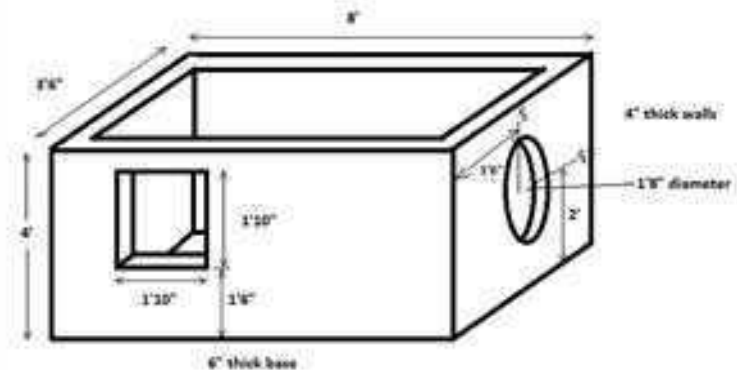
In a precast plant, forms with working/walking platforms must have guardrails if they are over:


- a) 3 feet high
- b) 4 feet high
- c) 6 feet high
- d) 8 feet high

For answers to this and other precast plant safety related topics, join us for the PQS II Safety webinar on Dec. 3rd. For details, go to precast.org/2014webinars/.

Challenge Question and Answer from the July/Aug issue:

Question: Calculate the location of the center of gravity of the structure shown below:



 **Answer:** Find the answer to this challenge question by visiting our website at precast.org/challengequestion.

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Eric wins a complimentary webinar registration for any of the remaining five – 60 minute webinars scheduled for 2014.

THIS IS THE KIND OF STUFF STUDENTS LEARN ABOUT ON NPCA EDUCATION WEBINARS!



NPCA Education: A Solid Foundation for Precast

What began as a small course held in suburban Chicago has evolved into the most comprehensive training program in the precast concrete industry.

BY MASON NICHOLS

Editor's Note: This is the first part in a two-part series. Part 1 focuses on the history of educational programming at NPCA. In the November-December issue, Part 2 will cover current training programs, the NPCA Foundation and how the association seeks to continue advancing the precast industry in the future.

For Mel Marshall, president of Mel C. Marshall Industrial Consultants Inc., education programming at the National Precast Concrete Association has always provided ample satisfaction.

"It's a selfish feeling," Marshall said. "People say, 'Great, we appreciate you doing this.' I say, 'I'm doing it because I love it. I absolutely love it.'"

Thankfully, the students love it too. Marshall is one of many

industry experts who serve as the core team to design and shape the overall approach of NPCA's education programming, which has gained interest, excitement and participation over the past two decades.

Back to basics

Since its inception in 1965, NPCA has been committed to providing members with many invaluable resources. But in the

early '90s, NPCA leadership recognized more needed to be done to ensure precast concrete products are manufactured to the highest standards.

Ty Gable, president of NPCA, noted that at that time the association offered educational courses that were limited in both quantity and scope.

"We would have some panel discussions on things, but only a few, and the emphasis is on a few," he said. "Most of this training was for owners, centering on topics such as how to run your business."

Due to the focus on upper-level management, technical training on production processes was severely limited. The only option available for those interested in learning such techniques was The Fundamentals of Concrete, a program led by the Portland Cement Association.

Though PCA's training opportunity was comprehensive, it contained no mention of precast concrete. As a result, Gable approached PCA to determine if the materials used in The Fundamentals of Concrete could be repurposed for a new, precast-specific course offering. After obtaining PCA's approval and leveraging the aid of NPCA staff and industry suppliers, The Fundamentals of Precast Concrete course was created.

A key ingredient

With a precast-specific training program in place, NPCA was poised to begin contributing to the development of production-level employees throughout the industry. However, something was still missing.

Mark Thompson, vice president of Jefferson Concrete Corp., recalled education being a crucial part of the conversation at the Industry Outlook Conference in Seattle he attended in the late '90s. Specifically, he highlighted the apparent disconnect between training and a commitment to quality.

"For maybe the first time, we as an industry were willing to sit back and say, 'You know, maybe the biggest competition we have in our businesses today is poor quality,'" Thompson

said. "Coming out of that meeting is when plant certification really gained momentum."

Other NPCA members shared this sentiment, as the association ramped up its plant certification


MARK THOMPSON (LEFT), PICTURED WITH 2012-2014 NPCAF PRESIDENT BARRY FLECK, SAID FOCUSING ON QUALITY WAS A TURNING POINT FOR NPCA EDUCATIONAL PROGRAMMING.




NPCA PRESIDENT,
TY GABLE




NPCA file photo



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PQS I PROUD

The generation of new ideas. The vast amount of knowledge gained. The experience of working with an instructor renowned in the field. These are just a few of the takeaways for students completing a Production & Quality School course. But for one student, an even more visible takeaway stood apart from the rest.

Marshall recalls this one student calling him about three months after completing PQS I.

"I picked up the phone and he said, 'I'm wondering if I can get another T-shirt.' I replied, 'Yeah, I'm sure that can be arranged. What happened?' He said, 'Well, I had an accident.'"

As Marshall explained, the student was in a car accident, serious enough that rescue crews had to use the Jaws of Life to extract him from the vehicle. In the process, his prized PQS I shirt – presented to him after completing the course – was destroyed.

"He was so proud of that T-shirt," Marshall said. "He just wanted to know if NPCA would give him another one."

To this day, Marshall continues to wear his own PQS I shirt (see page 40) during his training sessions, to show he's just as proud of its meaning as his concerned student.

program, rewriting the quality control manual to strengthen requirements. In order to match the training curriculum with the revised standards, The Fundamentals of Precast Concrete course was also updated. Subject matter updates included a stronger emphasis on quality, resulting in a name change to The Fundamentals of Quality Precast Concrete.

For the first several years, Marshall taught the course at a small hotel approximately 30 miles northwest of Chicago. While the class was very successful, association leaders envisioned an education program even more wide-ranging – a program that would ideally change perceptions on pursuing a career in the precast concrete industry.

Precast University and Master Precasters

Even with an evolving education program, many still considered working in the precast industry equivalent to hitting a dead end. To help eliminate this belief, Gable and other NPCA leaders convened at a 1998 summit in Indianapolis.

"The group talked about how we needed a career path on the plant floor to help us attract people to come to work in and stay in the industry," Gable said. "At that meeting, the concept of Precast University with a comprehensive training program for plant personnel was born."

Plans were also outlined for a Master Precaster designation, which would be awarded to any student who completed all the course offerings within the Precast University curriculum.

"The vision there was these people would be a master at the craft of making precast concrete and would be leaders in the plant who would help and teach others," Gable said.

The newly envisioned program already had a strong foundation in The Fundamentals of Quality Precast Concrete course. However, many questions remained. What would the Precast University training consist of? What, exactly, would it take to earn a "Master Precaster" designation? Marshall pushed for a name change, which happened to fall directly in line with the goal of enabling plant-level personnel to consistently and efficiently produce high-quality precast concrete products.

"I kept saying, 'No, this is really a production school,'" he said. "We should call it Production Quality School."

Thus, the course underwent one last name change, becoming Production & Quality School Level I (PQS I). Additionally, because the initial vision for Precast University included beginner, intermediate and leadership levels, more courses were crafted in the years that followed.

Today, 33 production professionals in the industry have earned their Master Precaster designation after successfully completing all the requirements in the Precast University curriculum.

"It took 15 years to develop the whole program," Gable said. "We went from training a few owners at The Precast Show in years past to training hundreds of plant personnel and owners."

Building a knowledgeable, sustainable workforce

In the nearly two decades since NPCA educational programming began ramping up, a significant number of workers in the precast concrete



NPCA file photo

CARL BUCHMAN DISPLAYS A JAR OF SUBMERGED AGGREGATE WHILE LEADING A PQS II CLASS.

industry have benefited from the many high-quality instructors. Carl Buchman, former executive director of the Precast Concrete Association of New York, taught NPCA courses for many years. He noted that educational programming is essential for advancing within the industry.

"Technical education classes enable workers to intelligently read industry publications related to their jobs and allow them to stay current with technology," Buchman said. "To me, the precast concrete industry is not just a bunch of people in a factory pouring concrete. It's very technical, and it has to be to create the best product and provide the best service."

Marshall agrees.

"Raising the bar is an old cliché," he said. "I hate using it. But we've elevated the production level in our industry massively since we started with PQS I. These schools have really been just huge in giving these people an understanding of what to do, how to do it and why they are doing what they're doing."

Luckily for the industry, Marshall plans to continue offering his knowledge for the foreseeable future.

"I'm going to be 77 this year, and I'm still doing this because I just love it," he said. "The guys always ask me when I'm doing the schools, 'When are you going to quit?' and I say, 'When my ashes are floating in the ocean.'"

"I'm going to be 77 this year, and I'm still doing this because I just love it."

– Mel Marshall

ROI

Training employees to better understand the technical components of their work makes plenty of sense, but what does the industry get back? For Gable, the return on investment is manifold.

"The success of this industry depends on having efficient, competent, quality, consistent and safe production every day in the plant," he said. "Now, when you do that, you get a better product, you get it made more efficiently and you get people that think and question your processes and figure out how to do things better, faster and with higher quality."

With any luck, the process also trains skilled employees who will become the instructors of tomorrow, leading the precast concrete industry into an ever-stronger, ever-brighter future. ■

Mason Nichols is NPCA's external communication and marketing manager.

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Courtesy of Wieser Concrete Products Inc.

WisDOT Looks to Twin-Cell Box Culverts as Safeguards from Flooding

After nearly five decades spent battling rising water levels in the southwest, Wisconsin Department of Transportation opted to turn to precast concrete to replace an existing 3-cell culvert and steel pipe arch flood control system that was installed near Milwaukee in 1964.

The need for a stormwater system along the Honey Creek watershed arose from the fact that present storm drains installed had proven inadequate, noted an April 1964 newspaper article. Years later

that remains true, as WisDOT replaced the system to minimize the many challenges it poses for the state.

The replacement 4-cell design diverts water under I-94 and through the Wisconsin State Fair Grounds from Honey Creek and bordering residential areas. WisDOT contractors chose to use precast concrete, rather than an original cast-in-place design, due to the tight project deadline and harsh winter weather.

"The project had tight time constraints

and interim completion dates to complete the work prior to the Wisconsin State Fair at the beginning of August," said Mike Burns, P.E., project manager for WisDOT. "There was a very limited duration to shut down interchange ramps and local roads, which presented a challenge to complete the designed cast-in-place box. The contractor chose to use precast sections to complete the project and reopen roadways within the given time constraints."

Wieser Concrete's Plant in Portage,

“We poured 504 twin-cell sections for the project and about six pieces per day. The speed of the production and installation of the precast was something the state needed for this job, especially with the project starting in the middle of winter.”

– Mark Wieser, Wieser Concrete Products



Photos courtesy of Wieser Concrete Products Inc.

Wisconsin, manufactured the twin-cell box culverts. Vice President Mark Wieser said in order to speed production, six pallets and two sets of forms were used, allowing pouring to happen three times a day. To meet the project deadline, pouring began in January and the production process concluded in June. In addition, Wieser installed a new hot water system, utilizing a large insulated precast tank to heat the aggregates and batch plant water during the coldest winter on record. This system helped meet design strengths prior to moving the box culverts from the plant.

The pieces weigh 60,000 lbs, have two interior open areas with 12 ft of span and 10 ft of rise each, and were poured using a self-consolidating concrete mix design that exceeded the 6,000 psi requirements.

“We poured 504 twin-cell sections for the project and about six pieces per

day,” said Wieser. “The speed of the production and installation of the precast was something the state needed for this job, especially with the project starting in the middle of winter.”

The culverts were transported on flatbed trailers to the job site. Special permits had to be obtained from the city to allow the company to travel on the main interstates, which played a big role in the success of the project, he said. WisDOT started installation in February and set about 25-30 sections per day. The length of the 4-cell culvert project runs 1,250 ft long and was installed smoothly and on-time.

Wieser is currently using the twin-cell box culvert forms made by Wieser Form Fabrication for two other projects. The forms are adjustable and can form any box culvert size starting as small as 4 ft by 5 ft. ■

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Kimberly Corwin promoted to CEO of A.H. Harris & Sons



KIMBERLY CORWIN

Kimberly Corwin has been promoted to CEO of A.H. Harris & Sons.

Corwin has more than 25 years in the concrete construction industry. She

began her career in Iowa at Composite Technologies Corp. She joined Hughes Supply in Florida in 2002 to help with the growth of two locations, participating in

the set up and implementation of the first ever combined facilities location.

As vice president of sales and marketing from 2009 to 2011, Corwin implemented many new customer focused initiatives, vender development programs and an internal education forum.

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Quite simply, Cresset products release forms easily for a unique, eco-friendly, aesthetic advantage.

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lost, stolen or damaged parts – critical in terms of fast emergency access and protection against tampering and vandalism.

Approved for use in 41 states and nine countries as an alternative to standard barrier designs, J-J Hooks are sold through nearly 40 licensed precast concrete manufacturers through a licensing agreement with Easi-Set Worldwide, a subsidiary of the Smith-Midland Corp.

Not limited to highway use, the product can also be found at high-profile venues like the Super Bowl, the World Trade Center redevelopment site, presidential inaugurations, political conventions and high-level multinational conferences.

For more information about J-J Hooks, visit www.jjhooks.com.



TOM SCHMIDT



GARY ERICSON



BRIAN CHRISTIE



RYAN SUSZEK

Tom Schmidt retires from Besser Company

Tom Schmidt, director of Pipe and Precast, has retired from Besser Co.

Schmidt's career began in the Finance Department in April 1992. Schmidt was promoted to Director of the entire pipe and precast business, with locations in Sioux City and Boone, in 2010. His commitment to team building, along with

his professionalism and positive outlook, will be missed by the Besser team.

The company announced Ryan Suszek as the new director of Pipe and Precast, Brian Christie is the new operations manager for Precast, and Gary Ericson is serving a dual role as operations manager and director of sales for pipe.

For more information visit www.besser.com.




SMITH MIDLAND J-J HOOKS

Superior Concrete Products launches new website

Superior Concrete Products, a Euless, Texas-based company has launched a new website. The new website offers visitors a clean look with improved functionality and in-depth details, photography of recent projects, case studies that demonstrate applications for precast concrete and more.

Architects, engineers, developers, general contractors and other prospective

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customers can view the wide variety of uses for precast concrete with the multiple color options and other customizable features available. Additionally, customer service representatives respond to customers via the site's live chat function.

For more information, visit www.concretefence.com.

MMFX Steel Corporation of America hires new regional sales manager



STEVE SPRAGALE

MMFX Steel Corp. of America has appointed Steve Spragale as the new regional sales manager for the Northwest region.

Spragale is responsible for the growth, use and marketing of MMFX products throughout

the Northeastern U.S. market. He has over 30 years of progressive sales experience with mills, fabrication and service centers.

For more information, visit www.mmfx.com.

Meadow Burke appoints Doug Crawford as VP of Operations and Development

Meadow Burke announced that Doug Crawford has joined the organization as vice president of Operations and Development.

In the new position, Doug will be tasked with improving performance between manufacturing and sales functions to achieve long-term performance and growth.

Crawford joined Oldcastle, a parent company of Meadow Burke, in 2008 as VP of Development and has led the development function for Oldcastle Building Products since 2011. Doug played a vital role in helping launch the



DOUG CRAWFORD

Commercial Performance System within the Masonry and Hardscapes group, the company says.

Since joining Oldcastle, Doug has been instrumental in Oldcastle Building

Products division's growth strategy working on a variety of acquisitions and other development projects.

For more information, visit www.meadowburke.com.

Ceratech Releases Environmental Calculator to Support Green Building Practices

Ceratech, a producer of durable, high performance and low carbon footprint cement for concrete, released a sustainability calculator and video, which quantify the environment benefits of



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using green concrete.

The company produced the sustainability calculator to better enable architects and engineers to quantify the sustainability and life cycle attributes of concrete produced using non-portland cement. The environmental advantages are significant, specifically in terms of eliminating CO₂, preserving virgin resources and conserving critical water resources. CeraTech concretes require less than 50% of the water consumed by traditional Portland concretes.

The environmental benefits calculator may be accessed at www.ceratechinc.com/sustainability.

Concrete Sealants Inc. appoints new sales representative

Jeff Allen has joined Concrete Sealants Inc. in the field sales division.

With more than 28 years in the precast concrete and concrete pipe industries, Allen offers a wealth of experience to clients. Allen joins Concrete Sealants



JEFF ALLEN

as a field sales representative to continue ConSeal's success in providing an extensive product, service and solution suite.

Visit www.conseal.com for more information.

Laticrete expands product lines with HP Spartacote

Laticrete International Inc., a manufacturer of construction solutions for the building industry, announced the acquisition of HP Spartacote. The acquisition will provide access to new products and technologies while expanding the company's presence in restoration, decorative flooring and coatings.

Headquartered in Golden, Colorado, HP Spartacote produces a premium line of

resinous floor coatings. The acquisition was completed in July while integration of manufacturing, sales and service functions will occur over the next 12 months.

Under the new ownership of Laticrete, the HP Spartacote brand and product portfolio will influence the many resources and opportunities available.

Visit www.laticrete.com for more information. ■

SALEPERSON WANTED

Goulston Technologies is looking to hire a concrete admixture salesperson. Person must have a Bachelor's degree from a four-year college or university and 3 to 5 years related experience selling admixtures. The position will focus on developing and growing sales in the precast/prestressed market segment in NC and TN.

Interested persons please send resume and cover letter to humanresources@goulston.com



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Meeting	Location	Date
NPCA 49th Annual Convention	Le Centre Sheraton Montreal – <i>Montreal, Quebec</i>	Oct. 22-25, 2014
The Precast Show 2015	Orange County Convention Center – <i>Orlando, Florida</i>	March 5-7, 2015
The Precast Show 2016	Gaylord Opryland Hotel – <i>Nashville, Tennessee</i>	March 3-5, 2016
The Precast Show 2017	<i>To be determined</i>	<i>To be determined</i>
The Precast Show 2018	Hyatt Regency Denver – <i>Denver, Colorado</i>	Feb. 22-24, 2018

For the most up-to-date information about NPCA events, visit precast.org.

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GENERAL MANAGER (NC)

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CHIEF ENGINEER (VA)

The qualified candidate must be a PE with engineering degree in Civil or Structural Engineering; 2 years experience as chief engineer or 5 years experience with 2 years as Assistant Chief Engineer for precast concrete.

PROJECTS MANAGER (VA)

To manage and administer multiple precast building projects simultaneously from post-sale through project close-out in a team environment. A BS in Construction Management, Engineering, Architectural or equivalent plus 4 years relevant experience in Construction Project Management or Coordination is desired.

To apply submit resume and application with salary requirements to:

Smith-Midland Corporation
P.O. Box 300, Midland, VA 22728
540-439-3266

Email: careers@smithmidland.com

Applications available at: www.smithmidland.com/careers

Please include Job Title on the subject line.

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