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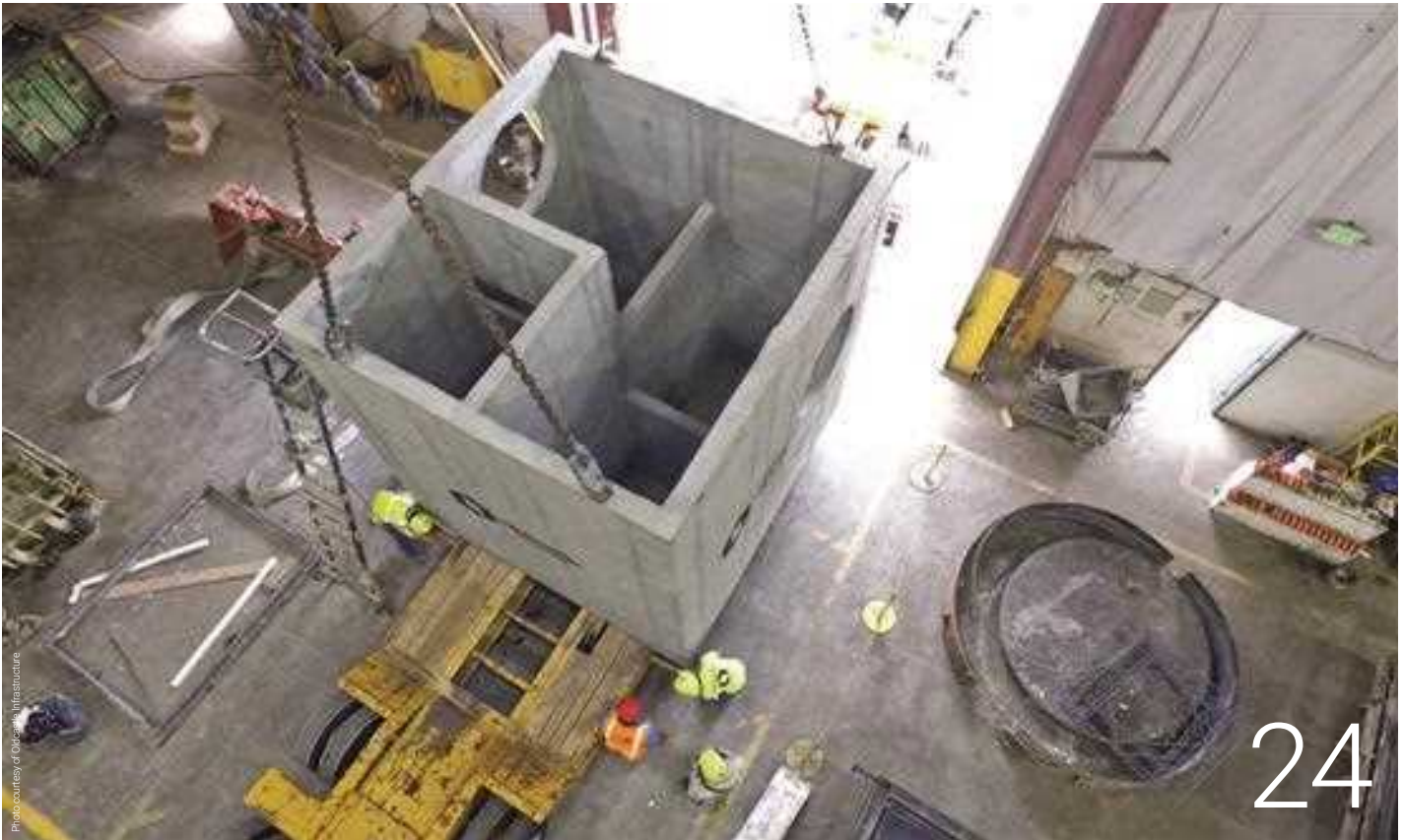


Photo courtesy of Oldcastle Infrastructure

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On the Cover: Nonbuilding construction, including infrastructure work, will likely play a large role in the precast industry in 2019.

Photo courtesy of Oldcastle Infrastructure

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Questions from the Field

Questions from the Field is a selection of questions NPCA Technical Services engineers received from calls, emails and comments on blog posts or magazine articles on precast.org.

If you have a technical question, contact us by calling (800) 366-7731 or visit precast.org/technical-services.

Paul writes:

What factors could cause bugholes? How does aggregate gradation affect bugholes?

NPCA Technical Services engineers answered:

There are many different variables that could affect the surface finish of hardened concrete and cause bugholes. For conventional wet-cast concrete, the consensus is that the primary culprit is improper vibration, but that's true even with self-consolidating concrete.

The rapid placement of SCC could lead to entrapped air and, if procedures to remove the air aren't in place, bugholes could form. Try to slow down the placement of fresh SCC into the form to see if this provides beneficial results. Also, you may need to reevaluate where the concrete is being placed in the form. The concrete may be getting pushed too far and trapping air on tricky corner sections or in areas with heavy reinforcement congestion. Other factors, including not properly applying form release agent, could also promote bughole development.

Your suggestion of aggregate gradations certainly can contribute to surface defects, including bugholes. The Portland Cement Association states, "Mix design can also be considered a significant contributor to bughole formation. Mix designs vary widely in their use of aggregate type, size, and grading and their use of admixtures and air-entrainment."

PCA also states, "Workable, flowing mixtures are easier to place and consolidate and therefore reduce the risk of bughole formation. Concrete with an optimally graded aggregate that avoids excessive quantities of fine aggregate, properly proportioned cement content, and any admixture that provides increased flow, workability, or ease of consolidation contributes to bughole reduction."

Another item to look into is the gradation of the fines. Very fine sands tend to hold more water, increase bleed water and add to the potential for trapped water, all of which could lead to bugholes. Also, sands that are very coarse without uniform gradation have been known to trap more air and, consequently, form bugholes. The best solution is to set up trial mixes to optimize the best results.



Jason writes:

Is there a specification regarding the exposed ends of supporting reinforcement in precast concrete? For example, exposed longitudinal ends in a precast concrete pipe.

NPCA Technical Services engineers answered:

Yes, there are provisions that address these situations. ASTM C76, "Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe," Section 8.2, "Longitudinal Reinforcement," (and the equivalent U.S. transportation standard AASHTO M170) states, "Each line of circumferential reinforcement shall be assembled into a cage that shall contain sufficient longitudinal bars or members to maintain the reinforcement in shape and in position within the form to comply with permissible variations in 8.1. The exposure of the ends of longitudinals, stirrups, or spacers that have been used to position the cages during the placement of the concrete shall not be a cause for rejection."

Similar language can be found within the standards for precast concrete manholes and box culverts. The industry and owners recognize through decades of in-ground performance that these minimal areas of exposure have not shown to provide durability concerns or increased corrosion conditions. Forensic review of buried pipe or other precast products shows the oxide formation on these small steel ends is skin deep. It is believed the pH conditions of the surrounding concrete prohibit continued corrosion.

With respect to pipe and manholes which may be exposed to highly corrosive effluent conditions such as sanitary sewage or other special waste, it is considered a best practice to use non-corrosive spacers (coated steel or plastic) on the effluent side of the formwork. However, even in this case their exposure or presence is not a cause for rejection, per the standard or accepted production practices. **PI**



ONE THING

SAMPLING FRESH CONCRETE

By Kayla Hanson

Editor's Note:
This is the second article in a year-long series that focuses on the details and more technical aspects of one common thing precast concrete producers do on a daily basis.

Collecting fresh concrete samples is a routine, yet critical, procedure performed daily at precast plants. The concrete sample is used to test the concrete's slump (or in the case of self-consolidating concrete, the slump flow and visual stability index), temperature, density and air content. The sample is also used to prepare specimens for testing the concrete's compressive strength. Although we place significant emphasis on the test procedures and results, the validity of the tests and the accuracy of the results depend on the collection of a truly representative sample of concrete.

A representative sample is a portion of a fresh concrete batch that accurately reflects the characteristics of the batch as a whole. If the sample is not truly representative, then test results will not accurately reflect the characteristics of the product made with that concrete, even if testing is performed in strict accordance with applicable standards. If anomalies in test results point to having not used a truly representative sample, it is impossible to go back and obtain a new sample. The importance of obtaining a sample properly cannot be overstated.

ASTM C172

There are various standards that outline how to obtain a representative sample when using various types of mixing and conveyance equipment (see sidebar). However, ASTM C172, "Standard Practice for Sampling Freshly Mixed Concrete," is the sampling procedure referenced in the ASTM fresh concrete testing methods and ASTM methods for creating compressive strength specimens that are cited in the NPCA Quality Control Manual for Precast Concrete Plants.

PRECAUTIONS

When following ASTM C172 procedures, be sure to use best practices throughout the collection process to help ensure the composite sample is truly representative of the nature and condition of the concrete batch.

Sampling should be performed when the fresh concrete is delivered from the mixer to the conveyance equipment used to deposit the concrete into the forms. Note that some specifications may require the sample to be obtained at other points.

Take care to protect the sample from the elements like sun, wind, rain, snow, temperature fluctuations, sources of rapid evaporation or unintended added moisture and sources of contamination.

Collecting the sample, conducting the fresh concrete tests and fabricating the compressive strength specimens are time-sensitive procedures. In addition to preparing the fresh concrete sampling equipment, also be sure to have the fresh concrete testing and compressive strength cylinder fabrication equipment ready before collecting the concrete sample.

DURATION

A representative sample will consist of two or more portions of fresh concrete combined into a single composite sample. The elapsed time between collecting the first and final portions of the composite sample must not exceed 15 minutes. Here's why it's important to conduct the procedure this way and what could happen if the protocols aren't followed:

- ▶ Allowing more than 15 minutes to elapse while collecting portions of fresh concrete for the composite sample could result in a nonrepresentative sample. The longer the fresh concrete sits idle – whether in the mixer, chute or sample collection container – the higher the likelihood for segregation, which would result in a nonhomogeneous sample.
- ▶ If more than 15 minutes have elapsed, the sample must be discarded and may not be used for any testing or compressive strength specimen fabrication.

SAMPLE SIZE

Whether the sample is collected from a stationary mixer, revolving drum truck mixer or continuous mixer, the total volume of the composite sample must be at least one cubic foot. Here's why:

- ▶ The required sample size is dependent upon the maximum aggregate size used in the mix and increases as aggregate size increases. This ensures the sample will contain a sufficient volumetric ratio of paste-to-aggregate and helps provide an accurate representation of the whole batch.
- ▶ Using a composite sample smaller than one cubic foot may not provide a sufficient volume of concrete to perform all the fresh concrete tests and fabricate the required number of compressive strength cylinders.

COLLECTING THE COMPOSITE SAMPLE

Whether sampling from a stationary mixer, revolving drum truck mixer or continuous mixer, collect portions of fresh concrete for the composite sample only after all raw materials (including water, admixtures and fibers) have been added to the mixer and the mixing cycle has completed.

- ▶ Collecting portions of concrete from the mixer after all the raw materials have been added but before the mixer has completely mixed the concrete will result in a nonrepresentative composite sample.

Collect two or more portions of fresh concrete obtained at regularly spaced intervals from the middle portion of the batch. When sampling from a continuous mixer, and after any mix proportioning adjustments

have been made, allow at least five cubic feet of concrete to discharge from the mixer prior to collecting portions of fresh concrete for the composite sample.

- ▶ It is recommended that composite samples should not be collected from the first 10% or last 10% of the batch in order to focus on the bulk of the batch. However, it can be challenging to determine how much of the batch has been discharged, so this is usually a guideline rather than a strict requirement.

Obtain each portion of concrete by passing the sample collection container completely through the concrete discharge stream or by completely diverting it into the sample container. The sample container must be a receptacle with a nonabsorbent surface and must be a suitable size to contain the sample and allow for hand mixing.

- ▶ Collecting the portions of fresh concrete in a fluid motion helps ensure the concrete is homogeneous and representative of the entire batch. If the discharge stream is started and stopped while collecting the sample, the individual portions of concrete collected for the composite sample may have paste-to-aggregate ratios slightly different than that of the entire batch.
- ▶ Be sure the concrete flow is not restricted when dispensing from the mixer, chute or transportation equipment. This could result in segregation and may alter the homogeneity of the concrete that is collected.
- ▶ When sampling from a revolving drum truck mixer, regulate the concrete flow rate by adjusting the revolution rate of the drum rather than by adjusting the gate opening.

Transport the sample collection container with the composite sample to the QC lab, wherever the fresh concrete tests will be performed and/or where the compressive strength specimens will be cast.

Combine and mix the portions of concrete in the sample collection container with a shovel or scoop to create a composite sample. Mix the concrete only for the minimum time necessary to ensure a homogeneous mix.



Collecting a representative composite sample is the first step in properly performing fresh concrete tests and fabricating compressive strength specimens.

GOVERNING STANDARDS

There are various standards that govern obtaining a representative concrete sample from various types of mixing equipment:

- **ASTM C172**, “Standard Practice for Sampling Freshly Mixed Concrete,” describes how to obtain a representative, composite fresh concrete sample in preparation for fresh concrete tests and creating compressive strength test specimens. This standard dictates practices for fresh concrete sampling from a variety of equipment including stationary mixers, ready-mix trucks and volumetric mixers.
- **ASTM C685**, “Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing,” includes supplemental information regarding fresh concrete sampling from a continuous or volumetric batching mixer.
- **AASHTO T141**, “Standard Specification for Sampling Freshly Mixed Concrete,” also sets sampling guidelines.

- ▶ Continuing to mix the composite sample after the concrete portions are sufficiently combined into a homogeneous sample could lead to segregation of aggregate sizes or separation of paste from the aggregate.

CONDUCTING FRESH CONCRETE TESTS AND FABRICATING COMPRESSIVE STRENGTH SPECIMENS

Begin slump, temperature and air content tests within five minutes after obtaining the final portion of the composite sample. Begin fabricating compressive strength specimens within 15 minutes of collecting the final portion of the composite sample. When sampling from a continuous mixer, wait at least two minutes but not more than five minutes before beginning fresh concrete tests or fabricating compressive strength specimens.

- ▶ Fresh concrete tests must be conducted efficiently. The test procedures must be performed only on freshly mixed concrete. A mix’s characteristics and, in turn, fresh concrete test results can change rapidly as time progresses after discharging from the mixer as cement hydration begins.

ASTM C172 outlines different sampling procedures for different mixer types.

- ▶ Enforcing timeframes for starting and completing fresh concrete tests and compressive strength specimen fabrication also helps reduce variability in the test results.
- ▶ The two- to five-minute waiting period between collecting a composite sample from a continuous mixer and beginning fresh concrete tests is required because the mix water is added only seconds prior to discharging the concrete from a continuous mixer.
- ▶ Regardless of mixer type, slightly more time is allowed after collecting a sample and beginning compressive strength specimen fabrication. The results of fresh concrete tests are more sensitive to the elapsed time between collecting the sample and beginning the tests. Allowing up to 15 minutes between collecting the composite sample and starting to fabricate the test specimens is unlikely to have a measurable impact on the compressive strength results.
- ▶ Be mindful of time limits for completing the fresh concrete tests and finishing fabrication of compressive strength specimens as outlined in the applicable ASTM test methods.

BEST PRACTICES IN YOUR PLANT

Collecting a sample properly is as important to slump, slump flow, visual stability index, temperature, density and air content test results as conducting the tests in accordance with the ASTM test methods.

A truly representative fresh concrete sample will provide an accurate example of the whole concrete batch, but a nonrepresentative sample could render the test results invalid and even cause an entire batch to be rejected.

Take this opportunity to review the sampling procedures that apply to each mixer type outlined in ASTM C172, and consider reviewing the sampling procedures and best practices at your next QC meeting or toolbox talk. ■

Kayla Hanson is NPCA’s director of technical services.





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Carrying the Load Responsibly

OSHA's new rule serves as a reminder of the importance of **safe crane operation** for all precast employers and employees.

By Mindi Zissman

Editor's Note: *This article is intended to serve as a reference guide for entry-level production workers.*

A lot of emphasis and attention has been given to crane operators over the past decade as the Occupational Safety and Health Administration has worked with industry experts, including the National Precast Concrete Association, to develop a new rule for operator certification. Now in effect, the OSHA rule has expanded its crane operation policy to clarify an employer's duty to ensure worker safety when operating a crane. The final rule required crane operators to be certified or licensed in crane operation as of December 2018 and evaluated by their employer on operator skill with proper documentation as of April 2019.

The rule applies when precast concrete products are delivered to a job site and a crane is used to arrange the product in a particular

sequence for hoisting or to set the product in an excavated area. It does not apply when construction materials are delivered to a job site and a crane is used to set them on non-excavated ground in no particular order.

Authored to improve safety across the construction industry – both in the field and on job sites – OSHA's new rule has been well received by precast employers and workers alike in their desire to eliminate potential accidents and fatalities.

"Whether it's equipment damage, injury or potential fatalities, you hear about things falling from cranes or cranes collapsing," said Joe Toth, senior safety consultant at Colorado Crane Operator School and MSC Safety Solutions, a crane operation training and consulting

Using taglines to guide products keeps workers at a safe distance while the load is suspended.



Photo courtesy of Infrastructure Canada

The 4-1-1 on Crane Operator Certification

There are three nationally-accredited agencies currently providing certification for crane operation, per OSHA's new rule: National Commission for the Certification of Crane Operators, National Center for Construction Education & Research and Crane Institute Certification.

Each agency has its own curriculum required to obtain certification. All will require the following:

1. **Written exam.**
2. **Hands-on evaluation of practical operator skills mimicking real world scenarios.**
3. **Shut-down procedures, including securing the crane at the end of the day.**
4. **Time and experience in the field, which could be as many as 1,000 hours operating crane equipment annually.**

2. USE A BARRIER. Using a physical barrier to act as a buffer between the concrete product edges and lifting equipment will help prevent damage to the concrete.

“We use firehoses that are no longer in service to protect our rigging and the product itself,” said Adam Vaughn, fleet manager at Vaughn Concrete Products. “Using hose pieces at the edges of the products creates a buffer between the products and the rigging.”

Vaughn originally purchased a number of firehoses from an auction. When those ran out, he reached out to local fire departments, making a donation in exchange for retired hoses.

3. USE TAGLINES. Tying a piece of non-conductive rope to two of the lifting locations on the same side of the product during lifting allows workers to apply pressure to each of those lines individually and guide the piece of concrete safely while in the air.

“Having taglines on the same side allows everyone to see and know what’s going on and eliminates workers involved in a tug of war, which is what happens when you tie off on opposing sides,” Vaughn said. “Which side should you pick? Whichever is the safest for access on the site.”

4. IMPLEMENT A SHADOW PROGRAM. Consider creating an employee shadow program that pairs new hires with an experienced employee. This gives the new employee a chance to observe the lifting process, see the proper safety procedures in action and gain a greater understanding of the site’s unique process and work flow. “Have a debriefing after each product delivery,” Vaughn said. “Ask them, ‘Do you have any questions? What came to your mind that you didn’t understand?’”

5. TRAIN EFFECTIVELY. There’s almost always a right and wrong way to perform each task in the plant and on the job site. Employees should be trained to recognize the wrong procedures and shortcuts and be able to both identify and follow the right procedures as part of a company’s formal training program. Best practice calls for training

company. “They’re completely avoidable incidents.”

The best way to minimize risk is to institute proven safety initiatives across the precast plant and job site. The following are 10 best practices for lifting concrete safely:

1. LABEL EVERYTHING. Labeling each piece of heavy concrete with its weight and every lifting component with its load capacity ensures everyone on site takes necessary precautions, from the crane operator to the site supervisor.

“The biggest misconception is the strength of the sling that operators use to hoist the materials onto the job site,” Toth said. “If you know the height and weight of the piece, you can determine if you have sufficient capacity to pick it up.”

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Crane Certification Resources

The NPCA Crane Task Force has worked with NCCCO to create certification exams that are based on cranes and load charts commonly found in the precast industry.

For example, a Telescopic Boom-Swing Cab Restricted operator certification program for operators of boom trucks with short booms was specifically developed for operators of this type of crane in the precast concrete industry.

If not enough precasters take advantage of these specialized exams, it is possible NCCCO will stop offering them. NPCA encourages precasters to use this resource for ensuring the safety and compliance of its operators.

For more information regarding crane certification, testing resources and third-party crane operator organizations, visit precast.org/cranes.

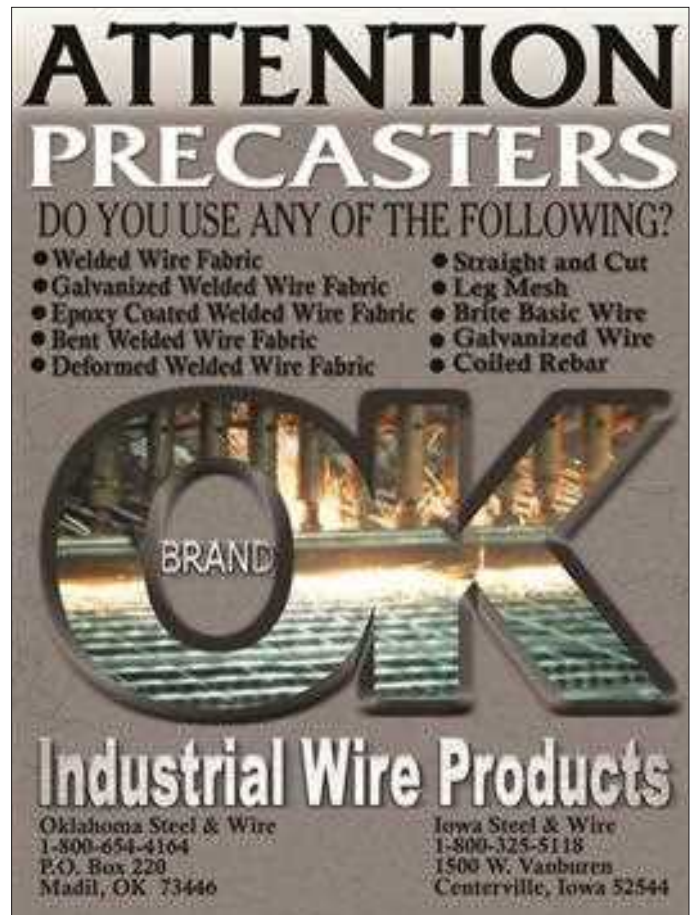
when onboarding new hires and at least annually thereafter. It's also a good idea to include refreshers on lifting safety during monthly safety meetings and morning toolbox talks.

"A lot of workers are afraid to say, 'I'm not properly trained for this,'" Toth said. "Train workers to speak up when they don't know how to perform a task or operate a certain piece of equipment."

6. CONSIDER RIGGING ORIENTATION. Rigging orientation is a specific type of training and a critical exercise for crane operators. From lifting a piece with four sides to removing the sling from its hook, rigging orientation will zero in on the specifics of each crane-related task, presenting specialized real-world exercises and instruction. Many rigging companies offer free rigger and lifting training courses, too. Consult your supplier and see if this free service is available to you.

7. STAY ON TOP OF MANUFACTURER-REQUIRED MAINTENANCE. The measurement for determining construction vehicle maintenance schedules is by hours of use, not per mile driven. Maintenance is typically required every 400 hours of use for most diesel machines, whether a generator, semi-truck, delivery van or crane. Change filters and oil and inspect coolant levels at the frequency outlined by the owner's manuals. Daily or weekly spot checks are also a good idea between regularly scheduled preventative maintenance. Don't forget to service hooks, latches and hoisting cables as well. Manufacturers will have different inspection intervals for each product.

8. PERFORM PRE-SHIFT INSPECTIONS. The crane operator or site supervisor responsible for the daily actions of the crane should walk around the vehicle each morning to make sure everything is as it should be before operating it. "Many don't take the time to make sure the crane is level," Toth said. "If it's not level, then the crane will likely not be able to handle the listed capacities."



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Proper rigging is important for all products, and can become increasingly complicated as they get larger and heavier.

Photo courtesy of Shingon Precast

their own. For example, Vaughn Concrete Products discovered that its crew members had difficulty aligning precast products during setting at a job site without exposing them to getting fingers pinched or falling off ladders, etc. As a result, poorly aligned precast sections sometimes showed leaking joints or lack of sealant adhesion. The solution was to fabricate a small steel channel with an upper edge flared outward that was mounted 6 to 8 inches above the joint to the outside or inside of the precast product. Once the product is lowered into the guide channels, its position is properly maintained until the section is set. The ingenuity improved the product's watertight joints, saved time during placement and improved the company's reputation.

THE DEVIL IS IN THE DETAILS

Every precast concrete structure is different; therefore, when it comes to lifting, each task and maneuver will have its own capacities and hazards. Paying attention to these details will ultimately determine the success of each concrete lift.

"I always inform everyone on site that they have the power to stop a lift if they see something problematic – maybe the crane operator didn't notice a hook out of place or an outrigger shift," Vaughn said. "If anyone sees something questionable, let the operator know. A few seconds delay could stop a potentially dangerous situation." **PI**

Mindi Zissman is a Chicago, Ill.-based freelance writer who has covered the AEC industry, commercial liability and health care for more than 15 years.

9. CONDUCT A JOB SAFETY/HAZARD ANALYSIS. Analyze each role and crew member's responsibility at the plant and on the job site. Break down the tasks into steps to help determine the associated hazards for each task and each crew member. Similarly, know the limitations of the equipment in operation, including manufacturer-listed measurements. Everyone who uses each piece of equipment – from hooks to slings to cranes – should know the equipment's strict limitations.

10. THINK OUTSIDE THE BOX. Encourage crew members to come up with innovative ideas for establishing safe lifting best practices of

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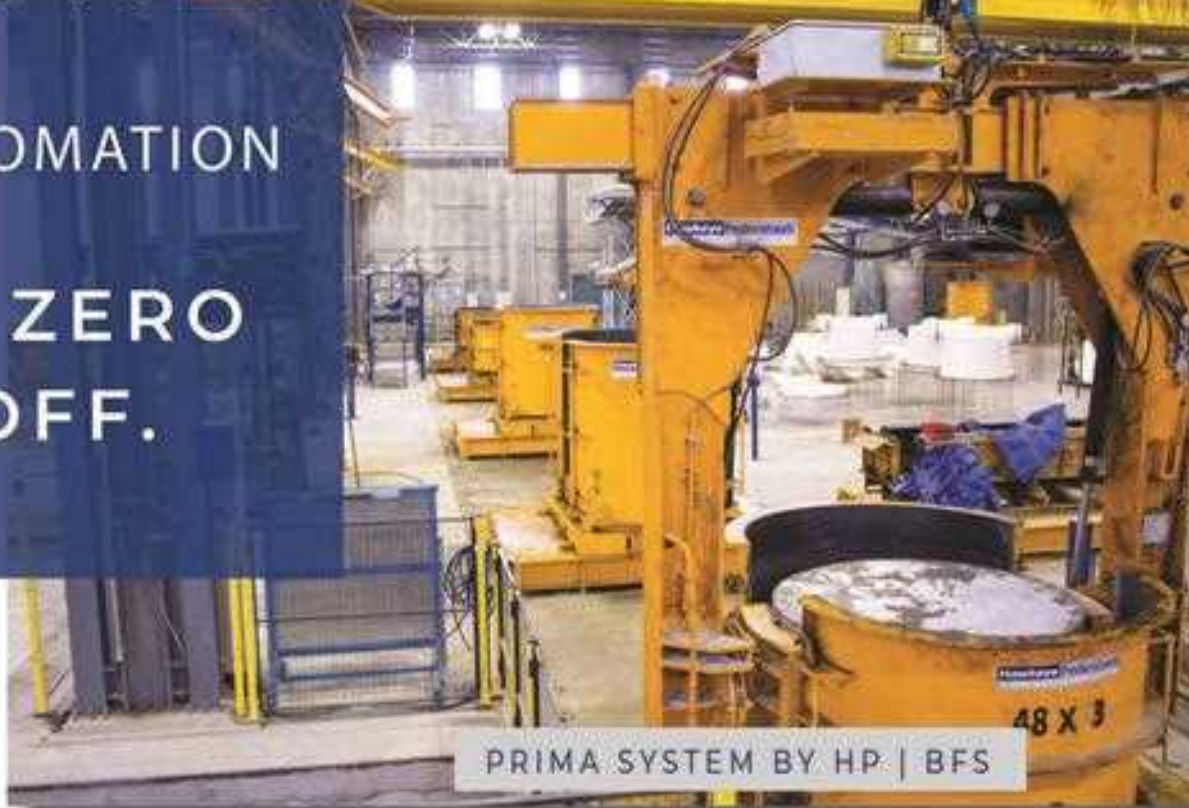
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Workforce Development: TRAINING & DEVELOPMENT

By Alex Morales, M. Ed.

Editor's Note:
This is the third article of a four-part series on attracting, training and retaining talent.

The median employee tenure has been trending upward since 2000, but as of January 2018 it still stood at 4.2 years, according to the Bureau of Labor Statistics.¹ While that represents a 20% increase, it is impacted by the 30% of baby boomers postponing retirement into their 80s, not by an increase in how long younger workers stay.² The country's low median employee tenure still represents consistent turnover, which may make you reluctant to invest in proper training. But if you're worried about training someone who might leave, consider what happens if you don't train them and they stay.

In the first article of this series, we discussed the reality of talent shortages that precasters across the country have confirmed. The low median employee tenure can create additional worries. It requires the precast industry to

If you're worried about training someone who might leave, consider what happens if you don't train them and they stay.

rethink employee training. In the report, "The Future of the Workforce," Deloitte Global states, "Focusing on internal training and development programs holds the highest promise to mitigate talent shortage among ... the skilled production workforce."

Training production floor employees cannot be an afterthought for a precast business. It must be considered as part of your overall strategic planning.

TRAINING THE AGE OF THE CONSUMER

The Age of the Consumer began post-2010 and is characterized by the expectations of millennials and Gen Zers. What we've learned from these generations is that in order to attract personnel we need to cater to employee experiences, which includes creating personalized training plans.

There are many forms of training:

- ▶ On-the-job
- ▶ One-on-one mentoring
- ▶ Classroom
- ▶ Online
- ▶ Training sessions at industry conferences and more



Classroom options will continue to exist.



Precasters are encouraged to incorporate informal training and apprenticeship options.

It's important to know all the options because when we add training as a strategic objective, it applies to all employees. Although millennials and Gen Zers might be more comfortable with online courses, we need to keep in mind that baby boomers may prefer a different setting. For every employee, training should be customized to the preferences and learning styles of the individual.

INTEGRATED TRAINING AND DEVELOPMENT STRATEGIES

Training won't solve the workforce shortage problem overnight. Working with individuals on their training goals, however, presents an opportunity for a company to develop employees in targeted ways. This can have mutually beneficial outcomes – the employee is specifically trained in the areas that interest him/her, and you can plan your business around the strengths of your workforce.

As you are thinking strategically about employee

development, consider creating an initial plan with each new hire. But it is also helpful to think of employee development as a continuous process for your entire team. Consider, for example, the training required to introduce new technology to a longtime, baby boomer employee and how it might differ from training a new hire Gen Zer on that same technology. Precasters are now training across generations, and there isn't a one-size-fits-all solution.

Classroom options will continue to exist but precasters are encouraged to incorporate informal training, apprenticeship options, ongoing support, and/or coaching and online options as well. New technologies can play a critical role in training, especially with many online options available today. For example, tutorials on YouTube and learning labs on LinkedIn provide information on a variety of topics. National Precast Concrete Association has an ever-expanding online presence as well for precast-specific training.

NPCA ONLINE

In the article, "Corporate Learning Redefined," Deloitte Global stated, "It's a new age for learning and development. Online content ... now fuel(s) a training model where employees own their own skills."³

NPCA has embraced that concept with online options for Production & Quality School courses, webinars (more than 100 hours of training available at precast.org), the NPCA Precast Learning Lab and more.

Ron Sparks of Columbia Precast Products said his company is putting together a comprehensive employee training program.

"With the cost of PQS Level I online reduced to \$99, we're sending all of our current employees through the course and making it mandatory for all new employees once they have made it through their probationary period," he said.

PQS Level I covers every step of the precast production process and provides an overview of a precast operation. It is recommended both as an industry introduction and a refresher course to keep up-to-date with industry trends.

PRECAST UNIVERSITY

PQS courses are part of Precast University, which also includes PQS Level II curricula on quality assurance, safety, production and technical. When creating training plans for employees, you can create a multi-year plan around an employees' interests. If they're interested in a thorough, deep understanding of the industry, they can take all PQS Level II courses and advance to PQS Level III – Leadership, which ensures they're ready for manager- or director-level assignments. Individuals who complete the entire

Online Learning

There's an important distinction between online learning options that provide direct, immediate access to the instructor and those that do not.

Synchronous

A live course where the student and instructor are fully present and engaged in the transfer of knowledge at the same time. This can be in a traditional classroom or during a live webinar.

Asynchronous

A prepared course where the student accesses content after the instructor has prepared and provided it. This can be an online course or a correspondence course. The student and the instructor are said to be separated by time.

Asynchronous options are not necessarily inferior to synchronous options. YouTube videos, for instance, can provide information on how to complete a task that you benefit from even though the author never verifies you learned something. Likewise, simply being in a classroom with an instructor doesn't guarantee you're going to learn something. Whether synchronous or asynchronous, online learning options require that the student own responsibility for knowledge transfer.



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PQS series obtain the Master Precaster designation.

“We have one Master Precaster, another ready to graduate in February and a third who is about halfway through the program,” Sparks said. “It is an exclusive, coveted designation in our plant.”

However, that designation may not interest all employees. Some may want to focus only on one area such as quality control. Sparks said the PQS Level II courses help Columbia Precast Products offer “specific modules for specific people” who want to focus on one area.

According to Deloitte Global, “Evidence is ... emerging that specialization can ... increase productivity.” That’s the idea behind NPCA’s slate of education offerings – to offer specialized, precast-specific training to help you increase productivity in your plants.

“We’re using every training tool NPCA has to our company’s benefit,” Sparks said.

WEBINARS

NPCA webinars can help fill the gap when online classes are synchronous offerings (see sidebar) you must wait to take. Webinars are held monthly and registration is offered for individual webinars and for a package of webinars. A package purchase grants you access to the entire library of past courses which allows you to completely turn over ownership for training to each employee. Recorded webinars are offered on-demand, and you can gauge employees’ initiative to learn about the industry and their craft with very little ongoing HR effort.

LIFE SKILLS TRAINING

If you’re really committed to overall training, providing general life skills training will require some effort. However, going the extra mile in this area can set you apart from local manufacturers and establish your plant as an attractive place to work. In the 2018 Millennial Survey Report, Deloitte Global states, “Gen Z respondents ... feel they need to develop their confidence and interpersonal skills ... based on experience. They anticipate looking to employers for both formal and informal support in areas such as communication, leadership, finance, economics, language ... and analytical skills.”⁴

Garden State Precast provides an excellent example of life skills training with a solution President Kirby O’Malley found when they realized many of their employees struggled to communicate in English.

“We started an English as a Second Language training program at the plant that met for 13 weeks,” O’Malley said.

A local community college professor taught the ESL class, a testament to the high-quality training O’Malley wanted.

“We received a grant from the local Manufacturing Extension Partnership Program that covered the cost entirely, minus the employee’s time while in class,” O’Malley said. “They were on the clock during class.”

O’Malley insists it was a bargain.

“We trained 12 people with the ESL class,” he said. “And around the holidays we provide lunch to the entire plant to further develop a comradery with all our employees.”

Training definitely correlates with relationship building among employees. In the second article of this series, we showcased Gainey’s Concrete Products and how they work with two local drug rehabilitation programs. These are excellent examples of what

precasters can do to personalize training and career development initiatives for each employee.

MANUFACTURING EXTENSION PROGRAM

Garden State's use of the MEP highlights the fact that training needs to be funded.

"Every state has a Manufacturing Extension Program that gives out federal grants," O'Malley said. "My local MEP program helps Garden State Precast by providing seminars, classes, webinars and inventory controls that manufacturers need."

It's not necessarily precast-specific, but funds for general training for manufacturers, such as ESL coursework, safety audits and lean manufacturing, may be available to create programs that benefit your plant and your employees. Each plant has its own needs and each state its own funding. Visit nist.gov/mep to find contact information for a program near you and check out the NPCA blog at precast.org/mep for additional information.

CULTIVATE RELATIONSHIPS WITH YOUR EMPLOYEES

With median employee tenure at a mere 4.2 years and an overall talent shortage that is predicted to intensify over the next 10 years, it's daunting to think about how to find and keep employees. However, placing an emphasis on training and developing your employees can

serve as a recruiting tool and offers intangible benefits. A personalized career development plan for each employee, coupled with a concerted effort to get to know your employees, will meet the expectations of the millennial and Gen Z generations and set you apart from other local manufacturers. Tapping into NPCA's myriad online resources and attending live training at The Precast Show will introduce your employees to a nationwide industry and online coursework, and, in particular, will assist in putting the focus on the employee.

As employees meet people from all over the country who are in the same line of work, they will stop thinking their work is just a job and start seeing themselves as having a career with your company. If you add life skills and other non-work-related training, you're well on your way to retaining employees beyond the 4.2 year median employee tenure. But training isn't the only retention strategy, as you'll see in the next installment of this series. **PI**

Alex Morales, M. Ed., is NPCA's director of workforce development.

RESOURCES:

- 1 <https://www.bls.gov/news.release/tenure.nr0.htm>
- 2 <http://money.cnn.com/2012/10/23/retirement/delaying-retirement/index.html>
- 3 <https://www2.deloitte.com/insights/us/en/focus/human-capital-trends/2014/hc-trends-2014-corporate-learning-redefined.html#endnote-sup-2>
- 4 <https://www2.deloitte.com/global/en/pages/about-deloitte/articles/millennialsurvey.html>

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WHEN CRISIS HITS,

Will Your Precast Plant be Ready to Handle it?

When reputation and revenue are on the line, precasters need **crisis management plans** that address a wide range of issues to prepare employees and managers.

By Bridget McCrea

It's the phone call that no precast manufacturer ever wants to get: an employee was working outside in a storm and got struck by lightning. Fortunately, the accident wasn't fatal and the worker – after being transported to the hospital and checked out by multiple physicians – was able to get back to his family and his normal day-to-day activities within a short timeframe.

But the story doesn't end there, at least not for Roman Stone Construction of Long Island, N.Y. In fact, it started a media frenzy the

precaster wasn't prepared to handle. And when the story details began to turn into the game of telephone we all played as children, Roman Stone Construction's problems exacerbated a bit more.

"This person was a very good worker who was outside and alone at the time," said Tom Montalbine, president. "He was telling people that he crawled back into the plant after the lightning strike, and we have cameras in the plant that all showed him walking back in."

When EMTs arrived on site that day, they first checked to see if the

worker's belt buckle or shoes had been melted by the lightning strike. An EMT himself, Montalbine said neither had happened, which meant internal injuries due to the lightning were unlikely.

"To be honest, he came in and sat down and our office employees called 911," said Montalbine, who added that this was his company's first go-round with a newsworthy accident or event outside of its press releases and the occasional county executive coming to tour the plant.

"As soon as the news was out that a man was hit by lightning, the media outlets grabbed onto it," he said.

DEALING WITH A MEDIA FRENZY

Covered by numerous news outlets – including one that flew an aerial drone above Roman Stone's plant to get footage – the story quickly gained traction with the media. When Montalbine arrived back to the plant from a job site, the reporters had already gathered and were asking for his comments. He gave a press interview, telling the reporters that he hoped the employee was alright.

But when Montalbine saw six media vans had parked out in front of Roman Stone's plant, and that aerial drones were circling the plant, he knew the issue wasn't going to go away quickly.

"We have a problem here," he remembers saying to himself just before picking up the phone to call his company's attorney.

"He (the attorney) told me not to say anything to anyone, so we basically shut down communications at that point," Montalbine said.

Montalbine then gathered his team and instructed all employees not to say anything to anyone, knowing that the reporters were waiting for quitting time to come so they could interview workers as they walked to their cars. Even without additional input from Roman Stone, the news spread quickly. Montalbine fielded calls from a lot of people, including the chief of the ambulance company that he's an EMT for, and read about it months later in a Thanksgiving news article about "what we have to be thankful for."

WHEN IT HITS THE FAN

Known as the guy to call during a crisis, Gerard Braud is all too familiar with the crisis that Roman Stone grappled with. An expert in crisis communications and author of "Don't Talk to the Media Until..." Braud said that for precasters, being prepared for the inevitable is important for two key reasons: reputation and revenue.

"It only takes one mismanaged act to destroy a lifetime of reputation and revenue for a company," Braud said. "Most business owners don't ever stop to think of how much financial damage will be done to their business if something hits the fan. Everybody is focused on selling more."

Sales are important, of course, along with good production levels and other business-related goals. But much like a football team can't win championships with only an offensive line, a defensive strategy is equally as critical.

"You need to take measures to ensure that one thing that hits the fan



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5 STEPS to Take Now

Maria Gonzalez, a senior partner at the Gonzberg Agency in San Francisco, often works with companies that need help dealing with PR crises. She tells precasters to take the following steps to prepare to deal with issues effectively when they rear their heads:

- 1. FIRST, TAKE A DEEP BREATH AND CALM DOWN.** Then, when you can be objective, determine the extent to which this negative press could cause real damage to your company and brand, and how quickly. “If the negative press will cause you more emotional turmoil than monetary damage and/or loss of goodwill, then let it go,” Gonzalez said.
- 2. GET IN CRISIS MANAGEMENT MODE.** Basically, you will need to keep a clear head and stay focused, in order to determine the right course(s) of action, plan and implement your next steps, manage media relations, and relay effectively to employees and customers how you are dealing with the situation.
- 3. CREATE A CRISIS COMMUNICATIONS PLAN.** Minimizing the damage requires creating a crisis communications plan, where you and anyone else involved take an active stance and do all three of the following: tell the whole story, get it out quickly and say the truth. Then, based on that plan, prepare a statement and talking points where you will:
 - ▶ Admit that there is an issue. Even if you are not to blame, you need to get in front of this, and show that you and your company have the integrity to take this on and not hide.
 - ▶ Explain that you handled it and how you handled it. Show, and/or tell, that you are doing what is needed to re-establish credibility and confidence. Your actions will speak louder than your words.
 - ▶ Lay out how you will handle it, if it happens again. This shows that, more than anything else, you are putting your money where your mouth is.
- 4. AS SOON AS POSSIBLE, GET THAT STATEMENT OUT TO THE MEDIA.** Then, do what you can to get coverage based on your actions and stance, and also rely on the core message for other necessary communications (e.g., people calling your company, social media responses, advertising, etc.)

“Also, make sure that anyone else involved in implementation or even on the periphery, but who has an association with you and your company is on board and brought up to speed,” Gonzalez said.
- 5. DON'T HIDE OR SAY, “NO COMMENT.”** This will only make things worse. Also, know that if the coverage is based on falsehoods, don't expect a retraction of the negative press or an apology. And, no matter how much you're in the right, or even if you do get a retraction or some other positive outcome, chances are the negative story angle will generate more interest and will live forever online.

“Therefore, your primary goal should be minimizing both the short- and long-term damage from the negative news,” Gonzalez said.

doesn't take your whole company down,” said Braud, who points to social media as one very good reason why precasters can no longer afford to ignore this point. “Any plant visitor, employee or contractor can use his or her cellphone to snap a photo at any minute. That could mean videoing or photographing an actual crisis, or taking a picture that's later taken out of context, and that becomes a crisis.

“It frightens me to death to see good companies go out of business, or to experience serious reputational and revenue damage, because of one social media post.”

SOCIAL MEDIA AMPLIFICATION

Knowing that precasters don't have public relations departments, Braun said in most cases a member of the management team must step forward as a spokesperson when crisis strikes.

“Decide who that person is and who will serve as their backup,” Braun advised. “That person also needs the tools that will help them perform a difficult task in the simplest way possible.”

Other key steps precasters should take include conducting a vulnerability assessment (e.g., a list of all things that could impact your company's reputation and revenue), developing a crisis communications plan to put into action when something happens, and writing press releases that convey your company's position.

“If your audience is getting information and rumors from social media, then you have a problem,” said Braun, who tells precasters to pre-write their press releases that will take just 10-15 minutes to complete and publish online.

Braud said precasters should also invest in media training for their spokespeople to ensure they add perspective, context and truth when speaking to the media.

“Using media training and conducting a crisis drill in advance both allow spokespeople to mess up in private so they do not mess up in person,” Braun said.

ADVICE FROM ONE WHO'S BEEN THERE

To other precasters who may not have experienced this type of media frenzy, or don't have a plan in place for dealing with such crises, Montalbine said to remember that any accident or potentially-fatal event can quickly turn into a news story.

“I was out in the field and got a microphone stuck in my face when I came back to the plant,” Montalbine said. “That was the first time I'd dealt with that, and I said a couple of things that I probably shouldn't have said.”

From the legal perspective, Montalbine tells all National Precast Concrete Association members to have a plan in place for dealing with a potential crisis – even if your plant has never experienced the kind of media frenzy his company did. Have written procedures in place, share those procedures with employees and have a lawyer on speed dial.

“The main thing is not to say anything that can be used against you and/or your company at a later point,” Montalbine said. **PI**

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

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PRECAST FORECAST

2019

Public Works

Could Fuel **Positive Year** in Precast

NPCA's annual Precast Forecast predicts a 3% increase in total sales next year, raising the industry's bottom line to \$21.2 billion.

NPCA Staff Report

While some economists foresee a slowdown in the overall economy and a flat construction industry in 2019, the precast concrete sector could fare slightly better. There is no single factor that points to a solid year ahead for precasters, but many variables should fall in line to keep the slow-but-steady growth pattern in place for at least one more year. The National Precast Concrete Association's annual Precast Forecast predicts a 3% increase in total sales next year, raising the industry's bottom line to \$21.2 billion in annual sales of precast concrete, prestressed concrete and reinforced concrete pipe products in North America.

If that forecast holds true, the precast sector should fare slightly better than the overall construction industry, which appears headed for flat or low single-digit growth in 2019, according to several of the leading construction economists, who see a period of slow growth ahead.

If this is the end of the 10-year expansion that started with the recovery from the Great Recession, it is likely to be markedly different from the last downturn, in which precasters and most other construction companies experienced rapid declines of up to 40% of their revenue. The next recession should be more of a soft landing, most economists believe.

The fundamentals continue to be sound, according to Robert A. Murray, chief economist for Dodge Data and Analytics. Speaking at the

2019 Dodge Construction Outlook Conference last fall, Murray said his data points to a deceleration of the double-digit growth experienced the last several years as the current cycle winds down.

"We seem to be rounding the peak," he said.

That doesn't mean the construction industry will necessarily be declining in the coming years, Murray noted. "It's a deceleration – a slower rate of growth, but not a decline."

Murray's forecast actually shows a 0% rate of growth for 2019, but that is not a pessimistic outlook, he stressed. After a 10-year period of orderly growth, we are "maintaining the enhanced level that we achieved in 2018," he said.

Ken Simonson, chief economist for Associated General Contractors of America, said contractors are bullish on 2019, based on a recent survey completed by more than 1,300 AGC members. The survey asks contractors to forecast whether they believe the dollar volume of available projects in the coming year will be higher, lower or about the same. When more contractors respond higher than lower, the net is positive.

"There were 14 or 15 construction categories, and in every one of these categories the net came out positive, so that's still a very strong reading," Simonson said.

More specific to the precast sector, one of the highest levels of confidence came in the water and sewer category, where positive responses outpointed negatives by 14 points.

"I would describe my outlook as modest to moderate improvement

– low to mid-single digit increases in spending put in place,” Simonson said, adding that, “some of that will be eaten up by higher costs for materials and labor.”

Given all those concerns, Simonson still isn’t ready to forecast a recession.

“I’m agnostic on the prospects of a coming downturn right now,” he said, stating global economic factors and other unforeseen influences could provide a slowdown. “But I’m not ready to predict a recession for the overall economy or even a negative quarter for the overall economy or construction.”

Contractors aren’t the only ones who are confident in the future right now. The National Association of Manufacturers reported in its fourth quarter manufacturers’ outlook survey in December that confidence among its members was at a record high in 2018. The quarterly survey asks respondents to rate the outlook for their company. In 2018, 92.4% of respondents had a positive outlook. That confidence carried over to their feelings about 2019, with manufacturers expecting to increase production by an average of 4.3%. In the subcategory of small manufacturers (50 or fewer employees), survey respondents were slightly less optimistic, anticipating increased production of 3.9% in 2019.

If there is a drag on the construction economy in 2019, it will likely come in the residential construction sector. After the housing market – and nearly the entire economy – crashed in 2008, single-family and multi-family housing recovered in fits and starts. Since 2015, there has been a steady upturn of 5% to 10% growth each year, with solid expansion in the multi-family sector led by a trend toward condo and multi-use construction in downtown areas of large and mid-sized cities, as more young professionals opt to move to the city core rather than buy homes in the suburbs. That multi-family building boom has likely played out. The Dodge forecast sees an 8% decline in multi-family housing starts (6% in dollar volume) and a 3% decline in single family home starts (0% in dollar volume), leading to an overall decline of about 5% in housing starts and 2% in the contract value of those homes.

The outlook appears better in those sectors that would be of interest to most precasters. Categorized as nonbuilding construction, this sector would include highways and bridges, sewer systems, stormwater conveyance and storage, utilities and other environmental and public works. The Dodge outlook predicts growth in this sector, with total public works rising 4% in 2019.

That includes the environmental public works segment, which received a boost when Congress passed the America’s Water Infrastructure Act last October. That legislation includes an update to the Water Resources Development Act and more money for state revolving fund loans. When added to strong activity at the local level for large wastewater and stormwater projects, the demand for precast structures in the water market should remain strong.

Of course, precast concrete is primarily a regional product, so making predictions about total construction starts doesn’t

mean the same thing in Peoria, Ill., say, as it does in New York City. Regionally, the South Central states – anchored by Texas – are set for the highest growth rate at 6%, according to the Dodge Construction Outlook. The Western region should grow by about 3%, with the Northeast and Midwest dropping back about 2% and the South Atlantic declining 4%. As might be expected, much of the growth is expected in the usual construction hotbeds of New York City and the Washington, D.C. region, Sun Belt regions and booming cities like Austin, Texas, and Portland, Ore. But there are also major projects on deck in cities like Charlotte, N.C., and Spokane, Wash., after the passage of local construction bonds.

Ty Gable, NPCA president, reached back into political history when looking at the forecast for precast, citing Tip O’Neill, the Congressional leader and former Speaker of the House in the 1980s.

“Tip O’Neill famously said all politics is local,” Gable said. “Precast is that way too. While federal funding provides a baseline for everybody, the local economic environment can make the difference between a flat year and a great year for a precast concrete manufacturer.”

Gable agrees that the 10-year run of growth is probably not sustainable, given the normal construction cycle.

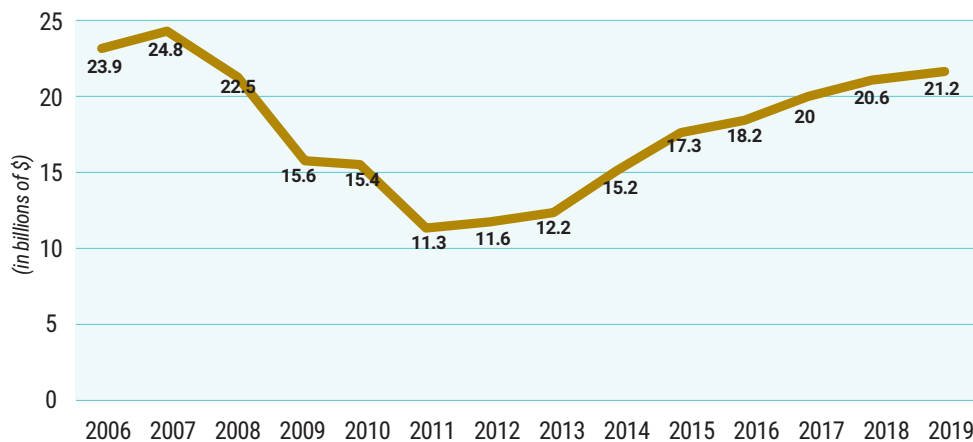
“We’ve recovered most of that 40% crash in business felt by most precasters during the Great Recession, but a day of reckoning is coming,” he said. “Probably not in 2019, but more likely in the last half of 2020 or in 2021. It’s just part of the normal cycle.”

“It doesn’t appear to be anything drastic, but more of a decline in the high single digits over a couple years, followed by a return to orderly growth.”

That could all change, Gable added, but for now, most precasters should be confident that there will be plenty of opportunities ahead.

“One issue we’ll be working on in 2019 with our trade association partners is the passage of a meaningful infrastructure bill – this year,” Gable said. “A significant infrastructure package is seriously needed in this country to keep us competitive around the world, and it would create significant opportunities for the precast concrete industry. But it needs to happen in 2019,” he added, “because a major piece of legislation like that would have a difficult path in an election year.” **PI**

PRECAST INDUSTRY TOTAL SALES (2006-2019) INDUSTRY ESTIMATES FOR U.S. AND CANADA



2018 sales are projected; 2019 sales are estimated

PRECAST FORECAST

2019

OPPORTUNITIES and Optimism



Photocourtesy of Okta-able Infrastructure

Photocourtesy of Crest Precast

NPCA members from across the U.S. discuss where they feel the market, product lines and the industry are trending.

There's no shortage of topics to occupy the headlines these days, especially with our 24-hour, always-on news cycle. From politics to pop culture and everything in between, the conversation never ends.

With all this noise, important conversations can get lost in the shuffle. The economy, for one, does not always make the same splash. While there has been a

lot written about the state of the U.S. economy, it's not top of mind for most.

As NPCA members look to the future, they remain optimistic about the precast industry, where it's headed and how it will fare in the face of uncertainty in both the economy and federal policies.

INFRASTRUCTURE AND THE LONG WAIT FOR FUNDING

There's no question infrastructure investment is the bread and butter of the precast industry. The problem is funding at the federal level has been hit-and-miss in recent years. And while there is plenty of talk about a major infrastructure bill in Washington, D.C. these days, whether that translates into actual dollars invested and dirt moved remains to be seen. Even with the uncertainty of a major infrastructure

package, precasters anticipate staying busy through 2019 and beyond.

"While current federal programs fail to provide sufficient funding to improve America's aging infrastructure, we are seeing positive momentum at the state and local level to fill the gaps," said Jason Jackson, president of Oldcastle Infrastructure, West Region. "We continue to remain optimistic about the infrastructure market as a whole."

Also in the West region of the country, Stephanie Loud, president and owner of Mountain West Precast, said there are still plenty of opportunities, with airport, municipality and corporate projects keeping her company busy in 2019.

"We continue to see high demand for department of transportation and residential product lines," Loud said. "Given the current make-up of Congress, we are anticipating a healthy focus on infrastructure spending. So, we would expect to see more precast projects that touch bridges and roads."

In the Midwest, Steve Mader, president of Crest Precast, has experienced no shortage of work for underground infrastructure products. In fact, volume was up 17% in 2018.

"All sectors of underground wastewater, including lift stations,



Photocourtesy of Smith Midland

water treatment units and primary electric products are very busy,” Mader said. “Sound walls for DOT use and private use are strong markets as well.”

Moving on to the East Coast, Ashley Smith, president of Smith-Midland Corp., whose company has several locations along the Atlantic Coast, he also had an ongoing demand for infrastructure products thanks to public private partnerships, which have created opportunities that otherwise may have taken decades to break ground. Smith also noted that projects funded at the state and local level are filling the gaps.

THE POLICY PIECE OF THE PUZZLE

While commercial projects and locally funded government work help to fill the production schedule for precasters, funding from all levels of government is required to keep the industry healthy.

Oldcastle Infrastructure’s Jackson has seen local bonds and state-led gas tax initiatives tie directly to the funding of infrastructure projects recently approved in his region. In the upper Midwest, Mader said he saw a significant increase in precast concrete use in Minnesota, Wisconsin, Illinois, Iowa and South Dakota as result of the Tax Cuts and Jobs Act passed in 2018.

While the tax bill helped, another federal action didn’t. The tariff issue and its impact on steel prices have been a tough pill to swallow.

Mountain West’s Stephanie Loud noted that rising steel costs affected her company in 2018 and that the impact of rising steel prices was likely felt throughout the industry.

“We definitely have been impacted by the tariffs,” said AJ Krick, chief financial officer with Smith-Midland. “We have seen about a 30% rise in the cost of our steel. What we were expecting was that the Chinese steel prices would go up and American prices would stay the same, but as soon as the tariffs went into place, the American steel companies raised their prices as well, so that has had a major impact on our cost and margins.”

On the positive side, Krick agreed that the tax law changes had a positive impact on Smith-Midland Corp., and enabled the company to reinvest in itself and its people.

CATERING TO INDUSTRY NEEDS

While product lines that are industry stalwarts are still thriving, precasters are also adding new offerings as the market dictates. For example, modular building is a worldwide construction trend, spurred by new technology, labor shortages, site restrictions and accelerated timelines. Loud said Mountain West has seen an uptick in this trend in her area, leading to demand for precast buildings.

“Modular buildings are a huge time saver for contractors,” Loud said. “We can show up on site and drop a building in place in only a

“Given the current make-up of Congress, we are anticipating a healthy focus on infrastructure spending.” – Stephanie Loud, *Mountain West Precast*



few hours. So, in that aspect, manufacturing modular buildings has changed everything about how we do business.”

On the East Coast, Smith says his company is taking advantage of a booming multi-family residential building market in the D.C. area that goes hand-in-hand with construction of the new Silver Line metro rail from Falls Church, Va., to Dulles International Airport and beyond.

“They call it transit-oriented development,” Smith said. “It means wherever the stations are located along the metro rail, there is tremendous amounts of new construction.”

Smith-Midland has also stayed busy with high-rise office buildings, as well as fielding a rising demand for wall panels and modular buildings, similar to what Loud has seen in the West.

“It’s going to move to a lot more construction off-site, thus reducing production which results in quicker delivery,” Krick said of the trend toward modularity. “This off-site construction also reduces the number of contractors on site and provides fully delivered packages which, in turn, reduces costs and provides shorter lead times.”

Smith added that the loss of 20% to 30% of the construction workforce during the Great Recession continues to fuel the push for modularity. In addition, the remaining workers are retiring at a higher rate than the pipeline of young contractors coming into the industry. Companies are dealing with the declining workforce by deploying innovative techniques to reduce on-site labor.

AN UNCLEAR, BUT HOPEFUL, FUTURE

The industry has welcomed the uptick in work each year since the end of the recession, but challenges still abound. Unfortunately for precasters, labor shortages are not confined to field contracting work. A common theme heard at NPCA meetings, in classrooms, hallways and social events, is the tremendous challenge of finding quality labor

to keep up with demand. No matter the region or even the type of position – plant floor or office, manager or laborer – the pool is small.

Mountain West’s Loud said they are experiencing an extreme labor shortage thanks to 3.1% unemployment in the region, making it difficult to maintain a qualified labor workforce. But in her eyes, these are welcomed challenges that the industry will overcome. For her, perspective is important. While labor is tight and the market will see a dip at some point, recent memory helps her keep a bright outlook.

“After 2008 things were tough,” she said. “I remember sitting in an NPCA class when Joan Blecha (NPCA’s former chairman of the board) asked, ‘How many of you have seen this kind of downturn before?’ She responded with, ‘Well, you haven’t, because this kind of downturn has never happened before.’

“But, 10 years later, the industry has rebounded, and you now see precast concrete products going in everywhere – above and underground – if you know where look for it.”

Loud said that while the Great Recession was a huge challenge, the companies who survived are better equipped for the future because of it. Companies have learned how to work smarter and leverage technology.

Smith agrees and has placed a heavy emphasis on lean manufacturing at his company, while Oldcastle Infrastructure’s Jackson said the industry’s ability to move forward will depend on a commitment to innovation and being a proactive leader.

Quality production practices have long been a focus of the precast industry, but as it moves forward, innovation in product lines, labor-saving production practices, lean practices and technology use will keep the opportunities coming and the optimism flowing. **PI**



Photo courtesy of Mountain West Precast

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Redefining TRASH

Is your company sending **tons of waste material** to the landfill each year? This practice could be doing some **serious damage** to your bottom line – *not to mention the planet.*

By Shari Held

The U.S. produces an estimated 7.6 billion tons of industrial waste each year.¹ Unfortunately, much of that tonnage ends up in landfills. That's a lose-lose for businesses as well as for the environment because the costs associated with waste disposal can quickly add up. On average, the cost of sending waste to the landfill is \$50 per ton, while incinerating industrial waste can cost \$65 to \$75 per ton.²

Fortunately, precasters and other manufacturers can do the right thing for the planet while saving money, increasing employee pride and enhancing their reputation with a waste management plan. The idea is to find ways to reduce, repurpose,

recycle or sell unneeded materials. A trip to the landfill should be the last resort.

GETTING DOWN TO BUSINESS

Selecting the right mix of team members to lead the effort is important. M.A. Industries, an NPCA Associate Member and a precast industry supplier based in Peachtree City, Ga., went through this process several years ago. Its team included the head of maintenance and facilities, a member of the accounting department and a production manager.

A logical starting point is an audit of the different types of industrial waste generated by your facility. You'll want to know how much of each type you dispose and how much it

costs to collect and dispose of each. This will give you real data that you can use to develop an effective waste management plan. In M.A. Industries' case, cardboard, plastic straps and plastic shrink wrap made up the bulk of its waste. The company filled two 30-yard dumpsters that needed to be emptied several times a week at a cost of \$375 each time.

"We started out by asking 'What can we do differently?' and went on from there," said Scott Peacock, senior vice president of sales for M.A. Industries.

Here are some other questions to consider when determining the appropriate waste management option for the waste materials on your list:



- **Where can you reduce?** What items can be eliminated before they hit your door? Can you approach vendors and request different packaging, for instance?
- **Can you reuse or repurpose any of the material?**
- **What materials can be recycled?** Currently the U.S. recycles approximately 30% of its waste stream, but that is far short of the U.S. Environmental Protection Agency estimate that up to 75% of landfill items are recyclable.³
- **Can you sell any of your industrial waste?**
- **Do federal or local laws or regulations apply to any of your waste materials?**

M.A. Industries determined it could regrind plastic or reuse some boxes internally to hold parts. It opted to recycle plastic straps, plastic shrink wrap, paper and cardboard. According to the EPA, paper and cardboard make up the bulk of industrial waste products. Recycling those two items alone can make a big difference.

Be sure to set measurable goals such as reducing waste by a specific number of tons for the year, increasing recycling by X percent or saving Y dollars in disposal costs.

GET THE CREATIVE JUICES FLOWING

To reduce or dispose of your Styrofoam, lumber and steel – items precasters and suppliers probably have lying around – here are some facts and tips to consider:

- **STYROFOAM (expanded polystyrene, or EPS):** The amount of EPS that Americans use each year would circle the globe 426 times.⁴ No surprise, it's estimated that EPS takes up 30% of the world's landfills.⁵ It's a lightweight – 95- to 98% of EPS is air – space hog that isn't biodegradable. The cost of transporting it to a recycling plant, if you can find one that accepts it, can be cost-prohibitive. Depending on the volume of EPS (and other recyclables) you have, you may want to consider a one-time purchase of a baler to produce uniform bales of Styrofoam that are easier to store and transport.⁶ There are also machines that melt polystyrene into a gooey substance that can be recycled.⁷ Perhaps the best solution is to reduce your Styrofoam use in the first place. Request vendors to use alternative shipping methods. Unlike large Styrofoam blocks, EPS "peanuts" or pellets can be reused or donated to your local UPS store.
- **LUMBER/WOOD PRODUCTS:** Wood, as long as it is free from contaminants, can be recycled into mulch, material for engineered wood products, compost material, animal bedding and boiler fuel. If you plan to collect wood for recycling, don't purchase pallets chemically treated with methylbromide (marked with an MB) since these can't be recycled.⁸ Can you reuse the wood for repairs or create shelves or something needed in the plant? Donating is another option. You might find a trade school that would welcome your unneeded lumber/wood products.
- **STEEL:** According to the American Iron and Steel Institute, steel is the most recycled material. No wonder, since it can be endlessly recycled without degrading its properties. Each year, 70 million tons

of domestic scrap steel is used to make new steel. That means there's a big market for scrap steel. Contact your local scrap yard to find out how much cash you could recoup from pieces of steel rebar and other odd pieces of steel you may have lying around.

FINDING THE RIGHT PARTNER(S)

You'll need to find local outlets that collect and recycle or dispose of the waste produced in your plant and then analyze costs. Don't forget to factor in any costs associated with meeting their requirements for disposing of the material – and your ability or willingness to meet those requirements. For example, can you bale the cardboard or is collecting it in a dumpster more feasible?

Locating an outlet proved the most challenging part of setting up a waste management program for M.A. Industries.

"The closest recycling center we found was 50 miles from us," Peacock said. "They told us we didn't produce enough of any of these products to warrant them putting a bin here."

But M.A. Industries didn't give up. Instead, employees resorted to one of the most time-tested methods of all.

"We're in an industrial park and we started asking people we knew at the other companies what they did," Peacock said.

That's how they located a company that recycled cardboard, pallets and other items that was located less than a quarter mile away. M.A. Industries uses its own truck to drop off recyclables.

“It’s a perfect situation for us,” Peacock said. “We’re fine with just giving the materials to them because we don’t have to pay for the expense of sending it to the landfill.”

SUCCESSFULLY IMPLEMENTING YOUR PLAN

Even a well-thought-out game plan won’t guarantee success if you overlook the internal implementation piece. As with all company initiatives, acceptance is easier when the plan has support from the top. Making it as effortless as possible for employees to follow will also improve compliance. You may even want to consider implementing your plan in stages.

Questions to consider during this time are:

- Where will the waste be collected?
- Who will be responsible for collecting it?
- How will we communicate the plan to all employees?

M.A. Industries set up collection bins for cardboard, plastic straps and plastic shrink wrap in three locations of the building. All offices are equipped with separate containers for recycling paper and unrecyclable waste. According to Peacock, it took some upfront education to achieve compliance from employees who were initially skeptical.

“Once people understood why we were doing this – that it was a cost-saving measure as well as helping the environment – they really got onboard,” he said.

FOLLOWING UP

Keep tabs on your program to determine if you’re meeting or exceeding your goals and make adjustments accordingly. M.A. Industries’ waste management initiative saved the company more than \$50,000 in the first year by eliminating the two 30-yard dumpsters that were emptied several times a week. The company replaced them with one eight-yard dumpster that was picked up weekly for a mere \$100 per month. That was

seven years ago. Since then the company has enjoyed even more savings and has begun recycling electronics and even opened that program up to employees.

Peacock’s advice for others who are considering creating a waste management plan is to set your mind to it and then stick to it.

“Don’t go backwards,” he said. **PI**

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

RESOURCES:

- 1 <https://recoverusa.com/industrial-waste-management/>
- 2 <https://recoverusa.com/industrial-waste-management/>
- 3 <https://recoverusa.com/industrial-waste-management/>
- 4 <https://www.thebalancesmb.com/expanded-polystyrene-foam-recycling-eps-facts-and-figures-2877914>
- 5 <http://www.all-recycling-facts.com/recycling-styrofoam.html#ixzz3JQVGguAl>
- 6 <http://www.all-recycling-facts.com/recycling-for-profit.html>
- 7 <https://earth911.com/business-policy/recycling-mysteries-styrofoam/>
- 8 <http://thinkpowerrecycling.com/wood-and-pallets/>



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NEVER TOO LATE TO LEARN: Bill Wilson

By Kirk Stelsel, CAE

What can a 25-year veteran of the precast concrete industry who has spent his entire career in the plant learn in a classroom setting? As it turns out, a lot, and not all of it specific to precast.

Bill Wilson, quality control manager for Mack Industries' location in Valley City, Ohio, started working for the company part time in high school and found more than just a summer job – he found a career. The industry tends to have sons or daughters of a plant owner or an employee continue on after a summer job, but it's far less common for someone outside of the company to do so. However, Mack Industries has a track record of developing its key talent right out of high school or college as their first career job. The benefit is employees like Wilson grow and achieve solid experience from the basic level and gain early responsibilities. Wilson applied himself to learning the business and

has continued to push himself to achieve more within the company and learn about the material that drew him in all those years ago.

MIXING IT UP

For Wilson, concrete has never been just any building material. His work has allowed him to understand the details of a mix design and how a fine-tuned mix turns concrete into the perfect building material at the mix design stage. Needless to say, concrete has become a passion.

"I kind of like concrete," Wilson said. "It fascinates me. In my current role I'm QC, so I'm dealing with mix designs on a daily basis, and playing around with the different mix designs is something I enjoy."

Wilson not only manages four technicians who run the day-to-day operations, he ensures the mix designs he's creating are following all the proper specifications for the different departments of transportation. He



"I kind of like concrete. It fascinates me."

– Bill Wilson

even travels to the company's other locations to help with their mix designs as needed.

Through his work at the plant, Wilson has learned a lot about concrete mix designs in a way that only hands-on experience can teach. He has seen new products enter the market, experimented, and learned what works and what doesn't. That type of knowledge is invaluable to him and the company, but he is not one to simply sit back and assume he knows everything. The desire to learn more led him to seek a different kind of education that began with the first course in the Production and Quality School education track offered by the National Precast Concrete Association. The class is part of Precast University and is the first class on the path to the Master Precaster Certification.

THE GOLD STANDARD

When Wilson took PQS Level 1, NPCA was still developing the curriculum for Precast University. So, when new classes were offered, he enrolled. What he learned in the classroom complemented what he had learned in the plant and offered a fresh way of looking at his everyday tasks.

"Being in QC, a lot of the stuff you go through in the classroom, you go, 'OK, that's why this is important,'" he said. "It takes what you've learned in the plant and teaches you why. When you're in the plant, you don't necessarily know the why, you just know it's the way that it's done."

As the capstone to his roughly five-year



Bill Wilson received his Master Precaster certificate at The Precast Show 2017 in Cleveland from Aaron Ausen (left), former NPCA Education Committee Chair and Greg Stratis (right), former NPCA Board of Directors Chair.

pursuit of the Master Precaster designation, he enrolled in PQS III – Leadership, which ended up being the most memorable of his experience despite it not even being about concrete.

“To me, going through the leadership class was my favorite class and the one I took the most away from,” he said. “It was different. Being in the industry for 25 years, there’s a lot of things you’ve touched upon, and going through the class it makes sense, but you don’t necessarily go through these leadership classes, so by far those were my favorite.”

Graduation proved to be a special experience for Wilson, as it just so happened that The Precast Show 2017 was in Cleveland – 45 minutes from his home. His wife made the drive over to cheer him on as he donned the signature gold hardhat all graduates receive, adding to the sense of accomplishment and pride of finishing the program.

As he thinks through what type of education he’ll pursue next, Leadership NPCA is high on the list. The program, now in its third year, is a natural next step for those

who graduate from Precast University with a desire to learn more about leadership.

In addition to pursuing more education for himself, he has also encouraged other employees to seek continuing education opportunities, and perhaps even consider the Precast University program.

“Most of them have done PQS I, and I think it’s important to do the other classes because you learn the why,” he said.

CRITICAL SUPPORT

Anytime an employee requests funds to attend continuing education, it requires approval from management. But what makes the experience far more meaningful and beneficial is when management not only approves, but truly buys in and supports the employee, such was the case for Wilson.

“I generated the idea, and I took it to Betsy Mack Nespeca, our president/owner, and our general manager, Jim Thompson, and told them, ‘This is my goal, and this is what I want to do,’” he said. “Both of them supported me 100% with it.”

Through the years, Thompson, as Wilson’s direct boss, would check on how the classes were going, and the two would meet on a yearly basis to talk about Wilson’s goals and what classes he was going to take next. Management support and a willingness to learn on the behalf of the employee creates the perfect environment for not only bettering the workforce but also the entire company and industry. Mack Nespeca continues to challenge Wilson to use his knowledge and teach others to be better problem solvers and quality leaders.

After 25 years on the job, Wilson remains motivated and is prepared to pay it forward by offering the same support to the employees he supervises. The virtuous cycle has begun, as the resulting learning impacts all facets of the company and trickles down to other employees, along with the lesson that continued education is a viable path to advancing your career. **PI**

Kirk Stelsel, CAE, is NPCA’s director of communication.

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CONCRETE Runs in the Family

By Matt Werner



Growing up in Garfield, N.J., Nikolaos Benyamin had typical interests – he loved going fishing and playing sports, particularly soccer, tennis and track.

But once his older sister Narguis, a Concrete Industry Management major at New Jersey Institute of Technology, started telling him about the things she was learning, he soon had another interest – concrete.

Hearing what his sister was able to learn and achieve in her major, Benyamin followed her footsteps and now attends NJIT and is in the CIM program majoring in engineering technology. He is also a recipient of a National Precast Concrete Association Foundation scholarship.

“I am a very independent person, and everything I am responsible for, I pay for, including my college tuition,” Benyamin said. “The reason I am independent is because I was raised that way. My parents raised me to be responsible at a young age, so I can be prepared for what the real world can throw.”

He first learned of the scholarship when he attended The Precast Show 2017 in Cleveland, Ohio, and went to a student networking session. He saw it as a great opportunity to help him pay for college and gain valuable work experience.

“Once (at The Precast Show), I met other students and industry professionals, and the NPCA team gave out the applications for the NPCA Foundation Scholarship,” he said. “I took it and applied, and the rest is history.”

The scholarship made it possible

for Benyamin to work full time at a precast concrete plant. After serving as an intern at Garden State Precast for 10 weeks, he was hired full time and worked there for nearly a year and a half. Wanting to be a little closer to home, he now works for Peerless Concrete Products Co.

He’s enjoyed working at both plants and learning along the way.

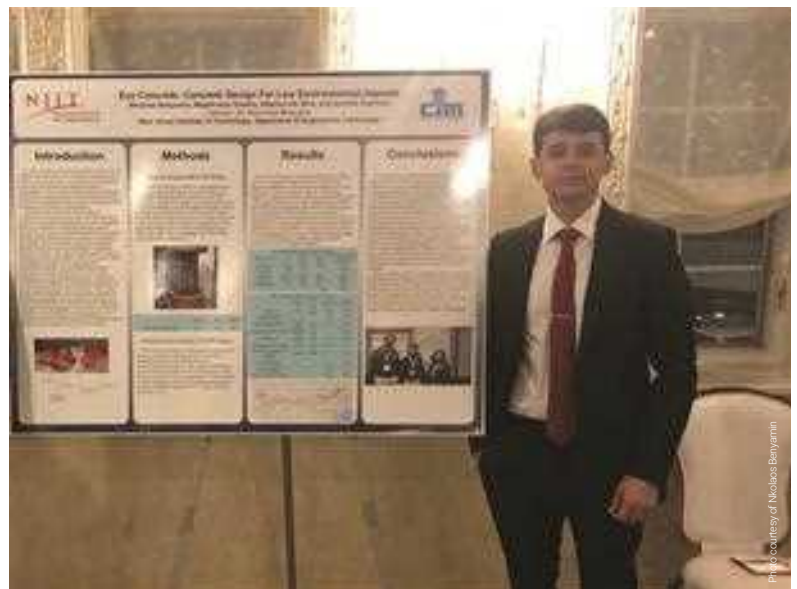
“My internship experience has taught me everything I know about the precast industry,” he said. “I learned all areas of how the industry operates. I learned estimating and sales, quality control/assurance, project managing, production and shipping.”

The work experience exposed him to all the benefits of precast concrete, and he sees a bright future for the industry.

“I think precast is the future of the concrete industry,” he noted. “I believe that it is best to create structures in a controlled environment and ship to the job site where they are built like Legos, in simple terms.”

“Precast is the future, and possibly, my working in the industry can push it to that future.”

– Nikolaos Benyamin



Scheduled to graduate in May 2020, Benyamin is also the president of the NJIT American Concrete Institute Student Chapter. He's enjoyed everything he's learned in both the classroom and plant, but the thing he's liked most is the travel.

"CIM takes students often to conventions for networking and educational purposes," he said. "(The ACI Student Chapter) provides lots of traveling experience and competition experience where we take our knowledge in classes and put it towards problems given to us by the ACI National Chapter."

None of this would have been possible without the scholarship he received from the NPCA Foundation.

"With the NPCA Foundation requiring me to work, I have learned a lot of valuable information that I have brought to my classes," he said. "My work experience has prepared me and gotten me ahead in my school education. The scholarship and resources provided by NPCA have been a huge benefactor in my college career."

Once he graduates from NJIT, he plans to take the FE exam and eventually the PE exam and he hopes to continue his career in the precast industry.

"I believe that there will be a big rise in the precast industry, and I plan on staying in the industry to see it happen," he said. "Precast is the future, and possibly, my working in the industry can push it to that future." **PI**

Matt Werner is the managing editor of Precast Solutions magazine and is NPCA's communication manager.

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*Gregg Jacobson, General Manager
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Precast Takes Flight in New FAA Specification

By Bob Whitmore



Photo courtesy of Bartow Precast

Bartow's nighttime deliveries of grease interceptors enabled overnight installation with minimal disruption at the world's busiest airport in Atlanta.

Underground infrastructure projects at airports will get a lot easier for precasters to bid after the release of the new 717-page Approved Advisory Circular Specifications for 2019 published by the Federal Aviation Administration. The new circular specifies precast concrete for all underground drainage structures for the first time. It is the result of three years of collaboration between FAA and NPCA, and specifically mentions the NPCA Plant Certification Program (or equivalent) as the required QA/QC component for FAA projects that include precast structures.

The new specification, now in effect, comes on the heels of last fall's 5-year Congressional reauthorization of the Federal Aviation Act, which earmarks \$96.7 billion for aviation, a portion of which will go to infrastructure improvements at airports across the United States. The new FAA specification is mandatory for the more than 19,000 airport authorities under FAA jurisdiction and projects funded under the Airport Improvement Program.

"This is an important specification upgrade for the precast concrete industry," said Ty Gable, president of the National Precast Concrete Association. "The old FAA spec did not mention precast concrete and was not up to date on materials such as self-consolidating concrete and some commonly used admixtures. We worked closely with the FAA to align the specification with the appropriate ASTMs.

"The result is that precast concrete is now specified for underground drainage structures and there is a clear distinction between precast and poured-in-place concrete."

While precast producers were able to acquire FAA work under the old specification, in most cases they would have to persuade the local project engineers of the benefits of converting the job from poured-in-place to precast.

"Now, it's in the spec," Gable said. "It should be much easier to bid on FAA work without having to go through a complicated conversion discussion."

The NPCA certification requirement also aligns the new FAA specification with the U.S. Department of Defense certification requirement in the Unified Facilities Guide Specification.

It started with a phone call

It all started with a phone call to Rich Krolewski, NPCA director of certification and regulatory services, from Buzz Morgan, general manager at Lindsay Precast's plant in Alachua, Fla. Morgan was wondering if it would be possible to get newer technology such as SCC and admixtures recognized as viable materials for FAA work.

"We had been fairly successful at submitting and getting approved on precast designs, but we were constantly getting rejected on the use of SCC," Morgan said. "The specifications were old, had not been updated in many years and anyone we tried to work with at a local level was not willing to vary away from the written specs. Because the spec didn't allow for the use of SCC, the cost was higher due to the labor-intensive nature of pouring."

It's a situation that Morgan was finding with multiple bids.

"We were bidding electrical manholes on multiple different projects over the years from Atlanta to South Florida," he said. "We were looking for help in getting the specifications updated, which governed

all jobs. I believe they were still referring to specs written in 1985, but worse was they did not allow for high-range water reducers or even allow for flowable concrete admixtures."

After hearing Morgan's issues, Krolewski met in Washington, D.C., with John Dermody, FAA director of Airport Safety and Standards, and described the advantages of updating FAA specifications to align with ASTM standards. After receiving approvals from Dermody, Krolewski met repeatedly over the next three years with Greg Cline, FAA's senior pavement engineer, to create the language in the document. When Cline met Krolewski, he was just starting to review the FAA specification and did not know that precast manufacturers were encountering barriers bidding on jobs.

"We appreciated the initial contact and the support Rich and NPCA provided in updating the advisory circular," Cline said. "I believe in coordination with industry through the updating process, which is how I've always accomplished such efforts throughout my career."

"This is an important specification upgrade for the precast concrete industry. We worked closely with the FAA to align the specification with the appropriate ASTMs."

– Ty Gable, NPCA president



Terre Hill has had past success converting cast-in-place work to precast, such as this project at Baltimore-Washington International.

Photo courtesy of Terre Hill Concrete Products

Tough specifications

Gene Martin, president of Terre Hill Concrete Products, said his company has done a variety of work at airports over the years, but the specifics of airport construction and converting jobs to precast has its challenges.

“It hasn’t been impossible to get, but typically the specifications are pretty tough,” Martin said.

The requirements to account for heavy wheel loads call for structures with thick walls, which means very heavy pieces when you are converting a utility vault specified as cast-in-place to precast, for example. That’s where a specification change might help.

“If you could take something that was designed at 4,000 or 5,000 psi and do it with 6,000 or 7,000 psi and be able to reduce the wall thicknesses and possibly the reinforcing steel, it would be a lot better from the precasting standpoint,” Martin said.

Terre Hill Concrete won a Creative Use of Precast Award from NPCA in 2014 for converting a job at Baltimore-Washington International Airport to precast. Martin’s team manufactured a series of trench drains, manholes, vaults and leveling pads to create a drainage system that BWI uses in glycol reclamation for aircraft de-icing. The vaults weighed in at about 167,000 pounds each. The beauty of the project is that it was completed in three weeks with precast providing the ideal solution for minimal disruption and speedy installation.

“All of those structures were designed as cast-in-place,” Martin said. “What we did was basically broke them up into sections so they could be precast. However, they did not let us make exceptions to the wall thicknesses and the rebar and concrete strengths and we did not use SCC.”

With the new spec in place, jobs like this will be designed with precast from the start. And, Terre Hill already has a track record with airport work.

“I’d like to feel that we at least cracked the door open,” Martin said. “I think the precast projects that were done were very successful, but certainly being able to upgrade to things like SCC is going to be a real benefit.”

The other benefit is the status that comes with precast concrete being required in the specification along with the added QA/QC component of NPCA plant certification.

“We’re obviously not working with any

direct representatives of FAA,” Martin said. “For the most part, we’re working with consulting engineers who do the design work. Having your foot in the door at a level above the design engineer is certainly where you want to be.”

Overnight, with minimal disruption

While most precast work at airports came through converting poured-in-place structures under the old spec, in the case of Bartow Precast, airport engineers knew right at the start that precast was the best solution for installing grease interceptors. They approached Bartow several years ago during an expansion of Hartsfield-Jackson Atlanta International Airport, which bills itself as the busiest airport in the world. Bartow’s experience illustrates the advantages of using precast for airport construction projects.

“All the benefits of precast – building an engineered product in a controlled environment – go hand-in-hand with that application.”

– Michael Tidwell, *Bartow Precast Inc.*

“During their expansion they were bringing on a lot of new restaurants and they needed grease interceptors,” said Michael Tidwell, Bartow’s president.

Because of the need for quick, overnight installation with minimal disruption, there was no way the grease interceptors could be cast-in-place. Bartow’s team worked with engineers, to create a new spec for the project.

“With help from engineers, we designed and built a 1,500-gallon grease interceptors for them and delivered it to comply with their strict requirements, and it just kind of grew from there,” Tidwell said. “Every time they added a new restaurant, they contacted us.”

Precast made it much easier than casting in place.

“The complication is, number one, getting on the property with security clearances and then, number two, the timing,” Tidwell said. “It’s not like they can just close down a terminal. So, we were doing them at night, and more than anything we had to be quick.

“That’s where precast was the real winner over cast-in-place. We would have everything staged. They would open up the runway and escort us in. We would use our crane trucks to set the grease interceptors in the excavation and then we’d get out of there. The contractor would work all night to get ready for the next day.”

Broad perspective

As a former NPCA Chairman of the Board, Tidwell has a broad perspective of the updated FAA specification. While precasters across the country will benefit from the new opportunities to bid airport work, he feels the real beneficiary is the airport authority.

“The ability to turn product quickly is key to them,” he said. “Cleanliness is also important, I’ve been told by contractors, because they don’t want debris around runways. It’s just a precise, quick turnaround.

“All the benefits of precast – building an engineered product in a controlled environment – go hand-in-hand with that application.”

Morgan said the new pro-precast stance should enhance the bidding process.

“We could bid jobs, we just could not take full advantage of our precast designs due to the outdated specs,” he said. “We just could not bid as aggressively as we normally would because of them not recognizing new technology.”

The addition of the NPCA plant certification requirement should pay dividends for precasters and the FAA, Morgan said.

“That change will certainly have a positive impact on those of us that bid FAA and DOD projects by using the everyday technology at our hands,” he said. “The quality should improve and that should help continue to improve the reputation of the NPCA and precast in general.”

For Cline, the 3-year process took longer than expected, but was worth the effort.

“We made it through with a great update to our FAA specifications and it also provided FAA with a great working relationship,” he said. “This supports the concept that government and industry should – and do – work together.” **PI**

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

Little Space in Little Italy:

ALL Crane collaborates on condo build in tight quarters

Cleveland's Little Italy is a close-knit, historic community. When a 75-ton capacity crane shows up—and starts winding through tight alleyways—people take notice. Such was the scene when a new residential construction project began last summer.

A new multi-unit residential complex was planned for a 3/4-acre lot, with limited road access and close neighbors. Cranes and other construction equipment had to travel down an alley just 15 feet wide, make a 90-degree turn to the job site, and then traverse a 30 percent grade through an 18-foot opening down into a hole dug for foundation work and a parking level.

The general contractor, Pride One, hired Mack Industries to provide precast concrete for the job. Mack, in turn, contracted with ALL Erection & Crane Rental of Cleveland, a member of the ALL Family of Companies, to provide the cranes for setting the concrete. It was a partnership that paid off for everyone involved in the project.

ALL Crane provided several cranes for the job, with a 75-USL Link-Belt TCC-750 telecrawler doing the bulk of the work. "Any other crane would have been too large to assemble on-site," said Brian Meek, equipment specialist for ALL Crane. "There wasn't room to assemble the boom for a conventional lattice crawler, and we didn't feel a large rough-terrain crane would be productive because its positioning could impede the access of other construction vehicles."

In addition to Meek, another key player in the project was Renita Hamm, a project manager for Mack Industries. She spent countless hours on a plan that



sequenced every lift, color-coded and in order, so crews knew which pieces to set, when to set them, how much counterweight was needed, and, within inches, where the crane had to be positioned to accomplish each task with appropriate swing.

"In a space this tight, if you start randomly setting beams, soon you'll have built yourself into a corner," said Hamm. "The thought was to break each pick into quadrants. Install hollowcore floors, put beams and plank above, then review boom interference and ask, 'How far can I reach before I start hitting product I've already installed?'"

Using Hamm's plan, the TCC-750 set precast concrete beams, mostly ranging in weight from 10,000 pounds to 20,000 pounds (the largest was 55,000 pounds and measured 40 feet across).

As the project progressed and space became even narrower, sequencing of lifts became even more important. With assistance from ALL Crane's crawler division, the team determined an exit point for the TCC-750 and planned the steps for walking it out from the now-nearly enclosed subterranean space to close out the structure.

"It was a satisfying project," said Meek. "It allowed us to use many tools in our toolbox—sourcing the right crane for the right job, collaborating, and lending our crane expertise to a successful job."

An enduring image from the project? The TCC-750 with an Italian flag hanging from its boom. "We wanted the neighborhood to know we respected the history and appreciated their accommodation as we built these new homes."

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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.



Bill Cox

Manitex Hires New Business Manager

Manitex announced Bill Cox is its new regional business manager for Manitex Articulating Cranes in the South-

Central region. Cox was most recently employed in sales and rental of mobile cranes and crawler cranes at Terex Cranes and Tadano Mantis. He has been an active board member of the Crane Rental Association of Canada and has regularly attended industry conferences. A graduate of the University of Tennessee-Knoxville, Cox has more than 30 years of progressive sales experience.

flexible MSM-M mesh welding plant that welds reinforcing steel mesh off the coil according to individual specifications.

The DRA-M multiple rotor straightening and cutting machine automatically supplies the wires for flexible mesh production off the coil. The compact plant system requires very little space and the modularity of the system allows for individual, customer-specific solutions.

Concrete Specialties Acquired by Oldcastle Infrastructure

Concrete Specialties, which manufactures precast concrete products in Chicago, Southern Wisconsin and Northern Indiana, is now part of Oldcastle Infrastructure. The new partnership builds on existing community relationships and affords customers expanded product lines and capabilities as well as the know-how and resources to tackle custom projects.

MAX USA CORP. Announces Promotions, Honoree

MAX USA Corp. promoted James Sullivan to senior midwest sales executive. For the last four years, Sullivan has consistently increased sales, achieved plans and driven business in his territory.



James Sullivan

In addition, Bruce Imig became the first employee to be inducted into the MAX Sales Hall of Fame. The award was initiated to recognize the sales results of company employees. Imig celebrated his 10th anniversary with MAX in 2018. Throughout his career, he has established his region as the leading performer year-after-year in sales volume and growth. He was also recently promoted to senior vice president of sales in Western North America.



Bruce Imig

mbk Develops Flexible MSM-M Mesh Welding Plant

mbk Maschinenbau has developed the



Welch Equipment Company Joins Taylor Machine Works as a Dealer

Taylor Machine Works has a new partner joining the "Big Red Team." Welch Equipment Company will serve Taylor customers in Colorado and in counties of Daggett, Uintah, Duchesne and Carbon in northeast Utah. **PI**

NPCA Foundation Scholarship Students Seek Internships

For students, an internship in the precast industry is an invaluable way to learn more about the industry and the many opportunities for employment following graduation.

The NPCA Foundation requires scholarship recipients to work a minimum of 320 hours per academic year at an NPCA member company, and the Foundation currently is seeking NPCA members who are interested in hiring interns for summer 2019. If you are interested in learning more or need to be connected with students, contact Andi Pierce at apierce@precast.org.

NOT SURE HOW TO GET STARTED?

The NPCA Foundation, in partnership with the Precast/Prestressed Concrete Institute Foundation, has created an internship template and webinar that can be used to help launch an internship program. These resources are free and can be viewed at precast.org/internship. Precast manufacturers and suppliers can also post internship opportunities for undergraduate and graduate students there as well.



To view internship resources, visit precast.org/internship

NPCA Foundation Scholarship Applications Due Soon

The deadline for undergraduate and Daneen S. Barbour graduate scholarships is April 1, 2019. The scholarship provides financial aid – up to \$14,500 – and increases the student's awareness of the many benefits precast concrete products can provide the specifying community. Applications are available at precast.org/scholarships.



To view scholarship applications, visit precast.org/scholarships

NPCA SAFETY AWARDS

Promoting safe working practices has been a cornerstone of NPCA's Safety, Health and Environmental Committee since its inception several decades ago. This year, 51 NPCA plants have qualified for safety awards based on their OSHA 300 forms for 2018. Highlighting this year's awards, two plants have entered the Safety Hall of Fame for achieving five consecutive years with no recordable injuries. The Safety Hall of Fame recipients were honored at The Keynote Luncheon during The Precast Show, Feb. 28 in Louisville, Ky. NPCA's Safety Awards program is sponsored by Overton Safety Training Inc.



SAFETY HALL OF FAME

Husted Concrete Products Inc., *New York Mills, NY*
Wieser Precast Inc., *Williamsburg, IA*

CATEGORY I (0–60,000 HOURS)

Platinum Award

Aber Fence & Supply Co., *Houston, TX*
Concrete Pipe & Precast, *Greencastle, PA*
Dalmaray Concrete Products Inc., *Janesville, WI*
Foley Products Company, *Lenoir City, TN*
Husted Concrete Products Inc., *New York Mills, NY*
Inland Northwest Precast, *Newman Lake, WA*
Jensen Precast, *Ontario, CA*
Oldcastle Infrastructure, *Concord, NC*
Oldcastle Infrastructure, *Middle Island, NY*
Oldcastle Infrastructure, *Keizer, OR*
Oldcastle Infrastructure, *Logan, Hyde Park, UT*
Precast Solutions Inc., *Whitestown, IN*
Trenwa Inc., *Florence, IN*
USA Precast Concrete, *Canal Fulton, OH*
Wieser Precast Inc., *Williamsburg, IA*

Gold Award

Forterra Pipe & Precast, *Louisville, KY*

Silver Award

Foley Products Company, *Hermitage, TN*

Bronze Award

Oldcastle Infrastructure, *Lebanon, PA*

Most Improved

USA Precast Concrete, *Canal Fulton, OH*

CATEGORY II (60,001–120,000 HOURS)

Platinum Award

Bates Precast Concrete Inc., *Lake Park, GA*
Columbia Precast Products LLC, *Woodland, WA*
Concrete Pipe & Precast, *Harrisonburg, VA*
Concrete Pipe & Precast, *Martinsburg, WV*
Forterra Pipe & Precast, *Deland, FL*
Oldcastle Infrastructure, *Jacksonville, FL*
Oldcastle Infrastructure, *Orlando, FL*

Oldcastle Infrastructure, *Nampa, ID*
Oldcastle Infrastructure, *Lexington, KY*
Oldcastle Infrastructure, *Edgewood, MD*
Oldcastle Infrastructure, *Fuquay Varina, NC*
Oldcastle Infrastructure, *Telford, PA*
Oldcastle Infrastructure, *Lebanon TN*
Oldcastle Infrastructure, *Houston, TX*
S & M Precast, *Henryville, IN*
Wichita Concrete Pipe, *Wichita, KS*
Winchester Building Supply, *Winchester, VA*

Gold Award

Faddis Concrete Products, *King George, VA*

Silver Award

Jensen Precast, *Phoenix, AZ*

Bronze Award

Oldcastle Infrastructure, *Fredericksburg, VA*

Most Improved

Oldcastle Infrastructure, *Orlando, FL*

CATEGORY III (120,001+ HOURS)

Platinum Award

Concrete Pipe & Precast, *Ashland, VA*
Oldcastle Infrastructure, *Fontana, CA*
Oldcastle Infrastructure, *Loveland, CO*
Oldcastle Infrastructure, *Brookshire, TX*
Oldcastle Infrastructure, *Ogden, UT*

Gold Award

Capital Precast Inc., *San Marcos, TX*

Silver Award

Oldcastle Infrastructure, *Mansfield, TX*

Bronze Award

Oldcastle Infrastructure, *Pleasanton, CA*

Most Improved

Oldcastle Infrastructure, *Ogden, UT*

CALENDAR OF EVENTS



Oct. 3-5, 2019
NPCA 54TH ANNUAL CONVENTION
 Hyatt Regency Seattle
 Seattle, Wash.



March 5-7, 2020
THE PRECAST SHOW 2020
 Fort Worth Convention Center
 Fort Worth, Texas



Oct. 15-17, 2020
NPCA 55TH ANNUAL CONVENTION
 Omni Amelia Island Resort
 Amelia Island, Fla.



Feb. 25-27, 2021
THE PRECAST SHOW 2021
 Ernest N. Morial Convention Center
 New Orleans, La.



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

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