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

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

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### Getting Specific:

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**On the Cover:**

*The Ausen family, owners of Dalmaray Precast Concrete Products, manufactured a river seat wall as part of a waterfront revitalization effort in their hometown of Janesville, Wis.*

*photo by Kirk Stelsel, CAE*

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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](http://precast.org).

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

**Raja writes:**

**We are using crushed stone and sand, and our moisture content is 11%. Is this usable or not usable?**

**NPCA Technical Services engineers answered:**

Aggregate absorption values and specific gravities can vary widely depending on the geology and geography. This can even vary within close regional pit locations. Even so, moisture content of 11% is very high. American Concrete Institute gives a range between zero and 8% for normal weight aggregate. Aggregate with higher absorption levels are generally seen in lightweight, low-density or recycled aggregate. With such high values, durability and strength loss in hardened concrete may be a concern. A careful mix proportion must be chosen if you use this type of aggregate.

**Carlos writes:**

**How do you avoid the risk of getting a notch in the longitudinal bar due to tack welding stirrups or any transverse reinforcement?**

**NPCA Technical Services engineers answered:**

American Welding Society A3.0, “Standard Welding Terms and Definitions,” defines a tack weld as: “A weld made to hold the parts of a weldment in proper alignment until the final welds are made.”

In the abstract, “Fatigue Tests of Reinforcing Bars-Tack Welding of Stirrups,” American Concrete Institute acknowledged that tack welding reinforcement can cause damage to the longitudinal bars and reduce the quality of the reinforcement. R26.6.3.1 in ACI 318, “Building Code Requirements for Structural Concrete and Commentary,” states, “Tack welding (welding crossing bars) can seriously weaken a bar at the point welded by creating a metallurgical notch effect. This operation can be performed safely only when the material

welded and welding operations are under continuous competent control, as in the manufacture of welded wire reinforcement.”

If tack welding must be done, it is important that the welds follow AWS D1.4, “Structural Welding Code – Reinforcing Steel.”

Two other articles for reference are, “Tack Welding Reinforcement Bars,”<sup>1</sup> and, “Welding Reinforcement Steel: AWS D1.4/D1.4M: 2011.”<sup>2</sup>

**RESOURCES:**

- 1 [twi-global.com/news-events/case-studies/tack-welding-reinforced-bars-139/](http://twi-global.com/news-events/case-studies/tack-welding-reinforced-bars-139/)
- 2 [structuremag.org/?p=1342](http://structuremag.org/?p=1342)

**Ernest writes:**

**At what area intervals should vibration be done in a 6-inch-thick slab using a poker?**

**NPCA Technical Services engineers answered:**

Table 5.1 of ACI 309R-09, “Guide for Consolidation of Concrete,” suggests using a vibrator with a 1 1/4-to-2 1/2-inch diameter head for thin slabs and a 2-to-3 1/2-inch head for heavy slabs. Section 7.2, “Procedure for Internal Vibration,” recommends systematically inserting the vibrator vertically at a uniform spacing over the entire placement area. The distance between insertions should be approximately 1 1/2 times the radius of influence.

The radius of influence can be obtained from the vibrator manufacturer, or the vibrator can be tested by inserting it into the concrete mix placed in the form. Observe and measure the visible movement of the mix as you move the vibrator directly up and down into the concrete mix. The spacing of the vibrator should not allow dead zones between insertion spots. For more information about proper consolidation best practices, view the NPCA Precast Learning Lab video at [precast.org/learning-lab](http://precast.org/learning-lab).

**Dr. Rao writes:**

**How effective is limestone powder in slag cement? We use 2/3 ground-granulated blast-furnace slag (GGBFS) and 1/3 ordinary portland cement (OPC) for making masonry concrete blocks. Can we mix limestone powder as a part of GGBFS or OPC?**

**NPCA Technical Services engineers answered:**

As shown in Table 1 in the article, “Portland-Limestone Cement,” cement with 35% slag was able to maintain similar 28-day strength results when using varying amounts of limestone powder. Your strength results may differ depending on the amounts of slag and limestone used so I would encourage carefully monitoring test specimens.<sup>1</sup>

One bonus when using limestone powder is a reduced environmental impact. The usage of limestone as an ingredient in blended cement at levels of 5 to 15% by mass results in less clinker produced for an equivalent amount of cement. This means less energy is used, and carbon dioxide emissions and greenhouse gases are reduced. As far as mixing limestone powder with GGBFS or OPC, this depends on the application. If you plan to use it for construction, it is important to check with the standards body in your area to see what limits there are on limestone powder usage. If you are mixing limestone powder for testing purposes, there are no limits.

If you are interested in further information, we would recommend reading, “State-of-the-Art Report on Use of Limestone in Cements at Levels of up to 15%,” from the Portland Cement Association<sup>2</sup> and “Improvement of the Early-Age Reactivity of Fly Ash and Blast Furnace Slag Cementitious Systems Using Limestone Filler.”<sup>3</sup> **PI**

**RESOURCES:**

- 1 [precast.org/portland-limestone](http://precast.org/portland-limestone)
- 2 [www.cptechcenter.org/ncc/documents/SN3148\\_Use%20of%20Limestone%20in%20Cements.pdf](http://www.cptechcenter.org/ncc/documents/SN3148_Use%20of%20Limestone%20in%20Cements.pdf)
- 3 [link.springer.com/article/10.1617%2Fs11527-010-9637-1](http://link.springer.com/article/10.1617%2Fs11527-010-9637-1)

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# Reducing Shrinkage Cracking

Recognize, manage and prevent shrinkage cracking in concrete.

By Mitch Rector

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

One of the first things you learn about the properties of concrete is it has much greater compressive strength than tensile strength. Reinforcing with rebar is a great way to add the missing tensile strength to a concrete structure to prevent any structural cracking from occurring, but sometimes shallow cracks can occur near the surface during production. For most products, these cracks do not threaten the immediate structural integrity of the concrete, but they still create a negative appearance on the concrete surface. This article will focus on how plastic shrinkage cracks develop, as well as precautions you can take to minimize their development.

## OVERVIEW OF SHRINKAGE

When concrete is deposited in a form, gravity causes heavier particles – like aggregate or cement – to segregate and sink, which displaces water. That water has nowhere to go but to the surface. Referred to as bleed water, it will typically evaporate. As the bleed water evaporates, a negative pressure will develop in the paste. Thankfully, the evaporated water is replaced by the additional rising bleed water within the mix. However, when the rising bleed water rate does not match the rate of evaporation, the concrete will dry out and shrink.

The Portland Cement Association identifies six major



contributors to rapid surface moisture evaporation as:

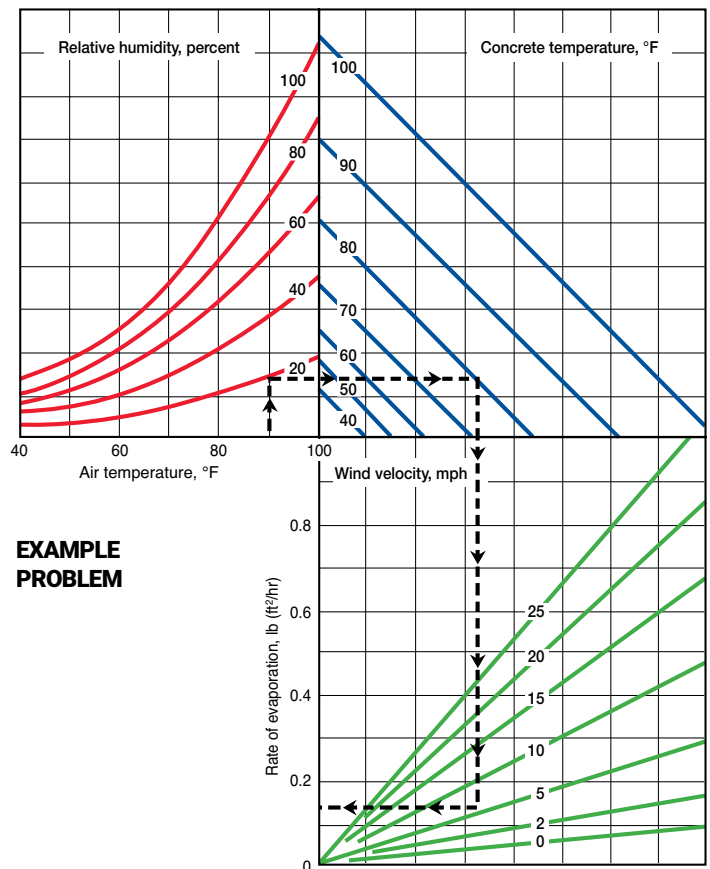
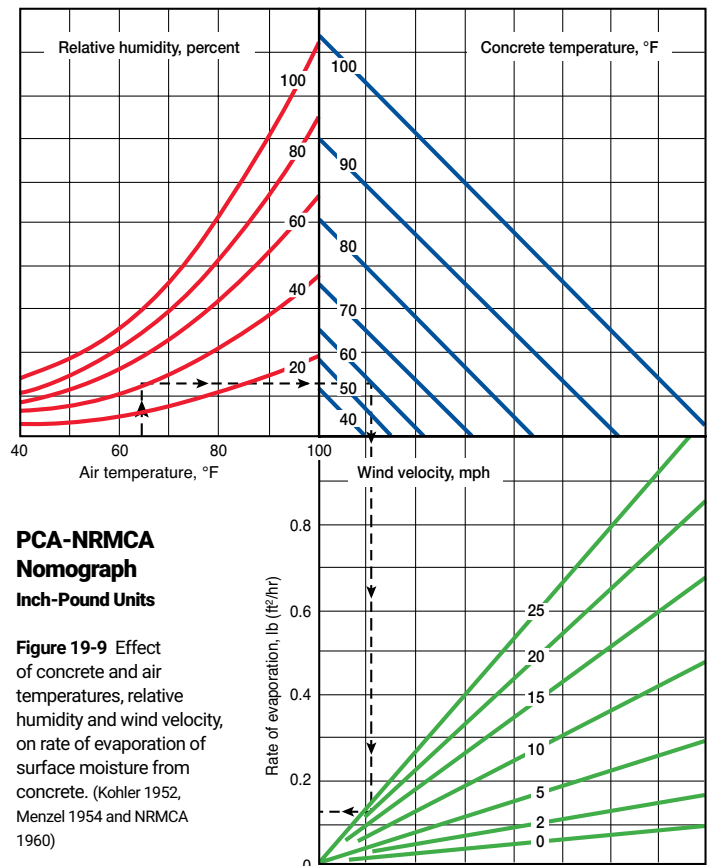
- 1. High cementitious materials content.** The more cement there is in a mix, the more paste will be created. The paste in concrete is most prone to shrinkage.
- 2. Low water-cement ratio.** An excessively low w/c ratio means there may not be enough water to replace what has evaporated.
- 3. High concrete temperature.** As the cement hydrates, it creates a large amount of heat. If that heat is allowed to build up, it will cook the water off, similar to letting a pan of water sit on the stove for too long.
- 4. High air temperature.** High air temperature is an obvious contributor to evaporation. Just like a damp towel in a hot dryer, concrete will lose moisture rapidly when the air surrounding it is hot.
- 5. Low humidity.** Chapped lips and knuckles are one of the worst parts of a long winter. This occurs as dry air wicks away moisture from your hands and the same can happen to concrete.
- 6. Wind.** Inside and outside air currents blowing over the surface of concrete will both take any surface moisture. This is one of the reasons special precautions need to be taken when casting outside.

All of these factors can cause some major headaches. Accurately predicting the rate of evaporation is difficult, but the National Ready Mix Concrete Association has created a nomograph that can give an approximation of the evaporation rate. This chart is used by starting with the air temperature and working your way around the graph in a clockwise manner.

For example, let's say we are casting concrete on a hot summer day outside in the production yard and it is 90 degrees Fahrenheit. On the graph, we will start by finding the 90 F mark by air temperature. We then move upward until we intersect with the line corresponding with the relative humidity. Air temperature and humidity must be measured at approximately 5 feet above the evaporating surface and on the windward side shielded from the sun's rays. Perhaps it is a dry day. If so, we will then move up to the 20% mark. We must next consider the concrete temperature and follow the graph horizontally to the line corresponding with our concrete temperature. In our case, the concrete is around 80 F. We then move downward to wind velocity by measuring the average horizontal wind speed in miles per hour at approximately 2 inches from the face of the concrete. For our scenario, we will assume the wind is averaging 5 miles per hour. Lastly, we move left to read the approximate rate of evaporation – about 0.12 pounds of water per square foot per hour.

Volume changes are a natural part of concrete. However, when concrete is held in place, shrinkage can transform into internal stresses. This is why it is not a good idea to leave an unopened soda can in the freezer. As the soda freezes, it tries to expand but has nowhere to go. Eventually, the pressure causes the can to fracture to allow the soda to escape.

As the top layer of concrete shrinks, the concrete underneath may not be able to keep up since it is still wet. The concrete underneath will try to hold the top layer in place while the top layer will pull itself together due to the negative pressure from





If shrinkage cracks have already occurred, sealants and fillers can be used to protect against some intrusive damage.

Epoxies, polyurethane and silicones are all common examples of sealants and fillers.

moisture evaporation. These two forces trying to make the concrete behave differently will cause tensile forces to develop in the concrete's top layer. The tensile stress will eventually overcome the early tensile strength of the concrete and create cracks. Following proper curing procedures is a valuable way to reduce cracking that could occur.

### EFFECTS OF SHRINKAGE

The most obvious effect of shrinkage cracking is an unsightly appearance on the surface of the concrete. Cracks will begin to form immediately as the cement reacts with the water. They can range in length from a few inches to several feet. When wind is blowing over the surface of the concrete, the cracks will follow a regular pattern, running perpendicular to the wind. If the wind is swirling, cracks can form a random pattern along the surface, running in several different directions. Cracks will typically appear on horizontal surfaces of the product where the water is evaporating.

Even though shrinkage cracking does not immediately threaten the structure of a product, it can potentially reduce the product's lifespan. Rebar in concrete plays a similar role to the bones in our bodies. And just as our skin

protects our bodies from germs or bacteria, the outer layer of concrete plays an important role in protecting the rebar from any deleterious substances. Cracks along the surface essentially offer an open doorway for dirt and corrosive materials to enter a product. This is especially dangerous because it may lead to corrosion of reinforcing steel.

The expanding oxidizing steel could potentially lead to additional cracking and more exposed steel and corrosion, which may eventually reduce the strength or service life of the product. Precast concrete wall panels or slabs that are placed in an environment high in chlorides or other corrosive materials are especially at risk of damage.

### COUNTERMEASURES

As the saying goes, "The best defense is a good offense." In this case, you want to take proactive measures to minimize the possibility of plastic shrinkage cracking.

Start by cooling aggregates and mix water. ACI 305R-10, "Guide to Hot Weather Concreting," states that water cooled to 32 degrees Fahrenheit may be used as long as the quantity of cooled water does not exceed the batch water requirement. ACI 305 even permits the use of ice as a replacement for part of the batch water. Ice should be crushed or shaved into small pieces to melt completely



### The NPCA Learning Lab,

a new online feature, is now available! The Learning Lab is **free to members** and contains short videos covering best practices in sales and marketing and precast concrete production. Videos can be used for training and staff development. New videos will be added each year. To access the videos, visit *myNPCA* at [portal.precast.org](http://portal.precast.org), log in to your account and click the "Precast Learning Lab" box on the *myNPCA* home page. Need help logging in? Call us at (800) 366-7731.



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and uniformly before the concrete mixing is complete. Ice usage will typically not exceed 75% of the batch water requirement.

Adding fibers to the mix is a way to increase the tensile strength of your concrete. This will help keep the tensile stresses from exceeding the strength of your mix. It is important to understand the fiber attributes being used and how to properly batch the fibers into the concrete as they will affect the water demand of the mix.

Windbreaks and sunshades can be erected around and over the concrete in order to reduce the velocity of wind and protect against sunlight. Damp burlap is often used to protect against sun and ensure a moist curing environment.

Fog sprays will increase the relative humidity of the air above the concrete. Because high levels of relative humidity correspond with a lower rate of evaporation, keeping the concrete in a humid environment is preferable. Curing as soon as possible and being as consistent as possible is the best way to ensure high-strength and reliable concrete. ACI 308R-16, "Guide to External Curing Concrete," contains detailed information on how to ensure a healthy curing environment.

A common mistake to watch out for is bleed water that is worked back into the top layer of concrete. This will increase the w/c ratio of the top layer of concrete, which causes a reduction in strength among other critical surface issues. This also creates a problem by eliminating water that would normally evaporate, increasing the temperature of

the concrete and subsequently increasing the occurrence of cracking. Do not begin finishing the concrete before most of the bleed water has evaporated.

If shrinkage cracks have already occurred, sealants and fillers can be used to protect against some intrusive damage. Epoxies, polyurethane and silicones are all common examples of sealants and fillers. Application of a filler should not be considered a common practice because it adds more steps and time to the production of a product. When sealants are used, read the manufacturer's directions thoroughly.

### DEVELOP A PREVENTIVE APPROACH TO CRACKING

We all have heard the phrase, "Never judge a book by its cover." However, in the case of concrete, the cover is a good indicator of quality. Keeping your product free of any cracking or crazing is key to delivering a quality product. Managing the rates of evaporation and being consistent with curing procedures should be a part of any plant's quality control process. By taking preventive measures early, you can save yourself lot of time, effort and money in repairs or touching up after the fact. **PI**

*Mitch Rector is a technical services engineer with NPCA.*

### RESOURCE:

[Portland Concrete Association, Design and Control of Concrete Mixtures, 16th Edition](#)



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# Concrete Mix Design: Understanding Aggregate

## Aggregate shape's effect on concrete quality.

By Frank Bowen

**Editor's Note:** This is the second article in a year-long series that explores the science of concrete to provide a better understanding of mix design. The series will be collaboratively written by Paul Ramsburg, technical sales specialist at Sika Corp., and Frank Bowen, quality control manager at Piedmont Precast.

**P**recasters are economically limited to readily available aggregates from their local quarries and stock yards. Understanding the characteristics of these materials allows producers to sharpen their mix designs. By focusing on the physical properties of concrete aggregates, precasters can achieve improvements in concrete workability and paste-aggregate bond.

This starts with collecting some key information about the available aggregates. Producers should first examine the shape of their aggregates and (possibly using a microscope) determine the surface texture quality. This visual inspection allows the producer to gain insight into the aggregate's ability to bond with the paste. Next, it is essential to review a current copy of the gradation analysis for all fine and coarse aggregates. Lastly, determine the total volume percent used by coarse aggregates by gathering the results of testing the dry rodded unit weight known as bulk density. DRUW is determined by compacting dry aggregate into a container of a known specific volume as described in ASTM C29, "Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate." The weight of the aggregate is measured and divided by the volume of the measure used to yield the DRUW. Results are expressed as mass per volume. For example, a given crushed limestone could weigh 93 lbs./ft.<sup>3</sup>. By knowing the DRUW of a coarse aggregate, the maximum nominal aggregate size and the fineness modulus of the fine aggregate, the weight of the coarse aggregate needed per cubic yard of concrete

mix can be estimated.

Aggregate shape plays a key role in the function of freshly mixed concrete workability. According to American Concrete Institute, there are five categories of shape that describe concrete aggregates: angular, rounded, flaky, elongated and flaky/elongated. Aggregates with a round shape, such as sand and gravel from beaches or rivers, typically have a low percentage of void spacing and a low surface-to-volume ratio. Rounded aggregates demand less cement paste to produce a workable mix due to a reduction in frictional resistance. However, rounded aggregates are not typically considered suitable for high-strength concrete designs because of their poor interlocking behavior and weaker bond strengths.

Crushed stone, on the other hand, has better bond characteristics with the cement paste, which can help develop higher strengths. Crushed stone is less likely to segregate during handling and placing, but may require an increased use of admixture dosages to achieve the desired slump or spread. When using angular aggregates, it is also important to know that more air may be entrapped in the fresh concrete during mixing and placing. This can be resolved through attentive and careful placing and proper consolidation.

Aggregates with angular shapes typically have a higher percentage of void spacing between them and produce less workable concrete than rounded aggregate. Water demand is higher because of higher friction resistance and greater surface area-to-volume ratios, resulting in the need for more cement to maintain the desired water-cement ratio. Angular aggregates are preferred for manufacturing high-strength concrete because of an improved bond between the aggregate and paste.

The types of aggregates considered unsuitable for



concrete mixing are flaky, elongated or a combination of both. Flaky aggregates tend to be aligned in one plane, thereby causing issues with concrete durability. Aggregates are considered flaky when the smallest dimension of the aggregate is less than the 60% of its mean dimension. That is, when the thickness of the aggregate is compared with its length and width. Slate is an example of a flaky aggregate.

When the length of aggregate is greater than 180% of its mean dimension (thickness and width combined), then it is considered elongated. Aggregate is deemed flaky and elongated when it satisfies both the previously mentioned conditions. Elongated or flaky particles exceeding 15% should be considered unsuitable for concrete use.

When considering the combined gradation for the aggregates, a compromise between workability and economy is necessary to produce a suitable mix. Typically, the benefits of using crushed aggregates outweigh the advantages of rounded aggregates when considering bond and strength. The needed amount of cement paste is dependent upon the amount of aggregate voiding that must be filled and the

surface area that must be covered. With poorly graded aggregates, the voiding is the greatest. The more these voids are filled, the less workable the concrete becomes. Proper grading of coarse aggregates is important to achieve dense and interconnected packing. The voids left by larger particles are filled by smaller particles, thereby reducing the possibility of segregation and improving the ability to compact the concrete. Once all of this is addressed carefully, it is then time to test batch and determine conformance to the concrete's required physical specifications.

For further reading on the effects of aggregate shape and gradation, ACI 238 provides an in-depth review of workability and rheology of fresh concrete. In addition, when testing aggregates, refer to ASTM C33, ASTM C136 and ASTM C29. **PI**

*Frank Bowen, a 2013 Master Precaster graduate, received his M.B.A. from Middle Tennessee State University through the Concrete Industry Management graduate program in 2014 and is the director of quality assurance at Piedmont Precast in Atlanta, Ga.*



Physical properties of aggregate such as size, shape and texture have a large impact on the strength, durability and workability of concrete. Pictured is Frank Bowen, director of quality assurance at Piedmont Precast in Atlanta, Ga.

Photo courtesy of Frank Bowen

# Taking SEPTIC TANKS *to the* Next Level

## Cluster and Package Systems

By Claude Goguen, PE., LEED AP

**Editor's Note:** *This is the last part of a three-part series that is intended to educate wastewater structure manufacturers about the nature of septic tank influent, what happens to wastewater in a typical tank and what else can be done to increase that level of treatment. The series also offers suggestions on ways to increase the level of serviceability by offering different types of systems and treatment options for a wider range of needs.*

**W**hen we started this series, our intent was to show how precasters that manufacture water and wastewater systems could expand their product lines to serve a more diverse market. First, we focused on what happens in a septic tank. Second, we discussed advanced treatment and how members can incorporate different systems and processes in their tanks to address specific challenges. Now, with this last article in the series, we think big and look at how members can benefit from another emerging market in decentralized wastewater treatment – larger-capacity systems that can serve multiple residences or large facilities such as schools, campgrounds, rest areas and factories.





Photo courtesy of Megan O'Leary Photography

## WHY DECENTRALIZED CLUSTER SYSTEMS?

According to the 2015 U.S. Census Bureau's American Housing Survey, approximately 20% of all households and 16% of new housing units are served by individual decentralized systems. Once considered a temporary installation until the centralized sewer could be connected, decentralized wastewater treatment has become a safe, affordable and sustainable long-term wastewater treatment option.

Centralized wastewater treatment systems are beneficial in large, densely populated areas but are not used much in smaller communities since the resources to operate and maintain these systems properly can often surpass local capacities. As a result, some systems are poorly maintained and result in discharges. According to the U.S. Environmental Protection Agency, small communities using centralized sewers to treat and discharge wastewater account for most noncompliance violations.

The investment needed to install new or upgraded services can be much more attainable when considering decentralized treatment. The smaller piping keeps costs low and makes installation easier. These systems are also generally affordable to operate, maintain and replace since relatively simple equipment can be used.

Since decentralized systems treat wastewater close to the source and often use passive treatment, such as soil dispersal, these systems may offer substantial savings in energy costs. A 2002 Electric Power Research Institute report stated that at least 4% of energy use in the U.S. is associated directly with water transport and treatment. On a community level, this can translate to about 25% of a community's energy use. Plus, having a decentralized system promotes local business and job opportunities.

Regarding treatment, decentralized systems can produce effluent quality that is equal to or higher than centralized treatment, as it possesses the same advanced treatment technologies as centralized systems. Since decentralized systems use the treatment capacity of the soil, they achieve high quality treatment at a lower cost than other options.

Another reason for the upward trend in community or cluster systems is the desire to avoid individual treatment systems. Some developers prefer to use a shared system in a subdivision to allow for smaller lot sizes and reduced infrastructure costs. Also, transferring maintenance responsibility from homeowners to a third-party management entity avoids common issues.

## HOW DOES IT WORK?

Clustered systems can be as simple as a conventional subsurface disposal field shared by two lots and served by individual septic tanks, or as complex as a neighborhood collection treatment and disposal system that is comparable in size and scope to a small municipal sewer system. Larger systems can also be installed to serve industrial or institutional facilities or

## CASE STUDY

### Shannock Woods Cluster Subdivision, R.I.

This steep-sloped community, located in South Kingston, R.I., selected a 7,200-gallon-per-day cluster system for wastewater treatment of a 16-lot cluster subdivision rather than installing multiple individual systems. The decision aimed to minimize soil erosion, maintain scenic views and protect the drinking water, which is located in a highly permeable aquifer recharge area. The selection of a cluster system for the subdivision instead of individual on-site systems drastically reduced the amount of land needed for wastewater treatment and disposal. It helped to preserve 50% of the land for open space and protect individual drinking water wells from contamination. The system selected was able to remove 50% of the nitrogen.

clusters of businesses.

Cluster systems transport wastewater via alternative sewers to either a conventional treatment plant or a pretreatment facility followed by soil absorption of the effluent.

There are different types of systems that can be used, based on conditions and scope. The piping can be pressurized, gravity or vacuum.

#### Pressure

Pressure systems can use a grinder pump that shreds sewage at each home prior to pumping. Another system that uses pressure piping is known as a septic tank



### Small Town; Big Sewage Issue

The City of Afton, Minn., installed a new wastewater collection system and Large Subsurface Sewage Treatment System to resolve the wastewater treatment issue within the Old Village area.



Visit [precast.org/septic-system-case-study](https://precast.org/septic-system-case-study) to read more about the project.

effluent pumping system. A STEP system uses individual septic tanks at each residence that remove solids and grease. Then it pumps the effluent into a pump chamber and finally to a central location for soil-based treatment.

### Gravity

A septic tank system that uses gravity to flow from each tank to a central location is sometimes called a septic tank effluent gravity system. These systems can coexist with STEP systems within the same decentralized sewer.

### Vacuum

Vacuum systems rely on suction created at a central pumping station. Small holding tanks may be used at each home. When a certain level is reached, a valve is opened allowing the effluent to be transported to a central location for treatment. This type of system works best in flat or gently rolling terrain.

### Package wastewater treatment plants

When supplying residential septic tanks, the typical capacity range is 750-to-2,500 gallons. What if a prospective client needs to treat 500,000 gallons per day, or perhaps 1 million gallons per day? Having the capability to supply complete package systems can quickly open new markets.

These large systems can include a series of tanks, modular multi-cell tanks or post-tensioned rectangular or circular tanks.

The ability to not only supply these structures, but to also design the system

based on the effluent limits can make your company a valuable resource for developers and contractors. Effluent parameters and limitations such as biological oxygen demand, suspended solids, nitrogen, phosphorous, dissolved oxygen, chlorine residual, coliform levels and many others may need to be addressed.

Many of these package systems include components such as:

- ▶ Flow comminution and screening pretreatment
- ▶ Influent lift station
- ▶ Trash trap
- ▶ Activated sludge aeration
- ▶ Secondary clarification
- ▶ Activated sludge return
- ▶ Scum removal
- ▶ Froth control
- ▶ Rapid sand filtration
- ▶ Ultraviolet disinfection
- ▶ Chlorination and dechlorination
- ▶ Post aeration and sludge dewatering

When supplying large systems, the effluent can contain materials that require more than conventional residential wastewater treatment. Waste from a commercial kitchen may be more involved and would require a grease interceptor. A large school that has a working garage would require an oil separator. These components are not uncommon for large package systems.

## HOW CAN PRODUCERS TAKE ADVANTAGE OF THIS GROWING MARKET?

For cluster or community systems, producers may already possess the means to produce and furnish structures for this type of infrastructure. Individual septic tanks used to perform initial separation are similar to conventional tanks. Some systems may require smaller holding tanks and/or pump tanks. Some manufacturers have found ways to incorporate the pump system within the settlement tank. When considering package wastewater systems, upgrades in manufacturing may be required to produce specific components. In addition, this type of product would require partnerships with suppliers of advanced treatment systems and other technologies so the final product and service are turnkey. The key is to make it easy for developers to choose your product. That means being aware of the types of systems allowed by your authority having jurisdiction, knowing what contractors and developers prefer and supplying a quality, durable product. **PI**

*Claude Coguen, P.E., LEED AP, is NPCA's director of sustainability and technical education.*

### RESOURCES:

U.S. Environmental Protection Agency Office of Wastewater Management Decentralized Program, [epa.gov/uic/large-capacity-septic-systems#lcss](http://epa.gov/uic/large-capacity-septic-systems#lcss)

Small Community Wastewater Cluster Systems - Purdue University Cooperative Extension Service, [extension.purdue.edu/extmedia/ID/ID-265.pdf](http://extension.purdue.edu/extmedia/ID/ID-265.pdf)



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# Getting Specific *with Precast*

Make 2018 the year your company starts focusing more intently on **building strong relationships** with specifiers.

By Bridget McCrea



Western Precast Concrete in El Paso, Texas, invited local specifiers to a lunch and learn and plant tour in order to establish and develop relationships.

Photo courtesy of Western Precast Concrete

“In fact, architects rely primarily on the existing relationships they have established over the years with building product manufacturers (BPMs),” according to AIA Architect.<sup>1</sup>

“When a specifier engages in an emotional relationship — he or she has seen beyond the building products to the company at large,” according to Epiphany Studios’ Grow Sales by Creating a Preference for Your Building or Architectural Product. “Specifiers will defend the products that they have a preference for. They will not be moved by cheaper substitutes or faster delivery times. Products may come and products may go, but a relationship will endure the change.”<sup>2</sup>

Companies like Pro-Cast Products of Highland, Calif., rely on strong relationships and two-way communication with specifiers to keep their job pipelines full. In some cases, those communications revolve around tweaking an initial request for proposal to reflect a newer, more feasible or more economical product or technique.

Warren Taylor, president and CEO, said he encountered this situation recently when a specifier wasn’t aware of the various size options for precast

box culverts. Originally specified as an 18-foot-wide, single-cell box, which would have pushed the limits, Taylor said he instead introduced the specifier to his company’s monolithic double-box culverts — a viable option that reduced the amount of reinforcement needed.

“We were able to save the owner some money by getting the specifier to tweak the original plan and still be able to accomplish what he set out to do,” said Taylor, whose team puts a regular effort into developing relationships, educating and consulting with project specifiers and engineers.

“We consider ourselves experts in what we do, but a specifier may not be,” Taylor said. “By having those relationships in place, and by cultivating those connections over time, we can work through those subtle product changes that make projects more buildable and/or economical — as opposed to what the specifier had in mind.”

In most cases, Pro-Cast takes on that role during the bidding process as a normal course of action.

“We can’t spend enough time on it because in some cases we don’t even know who the specifier is until the job comes out for bid,” Taylor said.

Sometimes project specifiers will contact Pro-Cast in advance and initiate the conversations, while others are largely non-receptive to making changes to their original designs.

“Some of these folks are just plugging along and not interested in making any changes,” Taylor said. “That’s always a challenge, although for the most part specifiers are pretty open to listening to what we have to say.”

To get important points across to those who aren’t as receptive, Taylor and his team take an educational approach that’s both

**“Specifiers will defend the products that they have a preference for. They will not be moved by cheaper substitutes or faster delivery times. Products may come and products may go, but a relationship will endure the change.”**

– Epiphany Studios

It may be stating the obvious, but no organization can succeed and grow without cultivating strong, long-term relationships with its customers and suppliers. Although obvious, it’s easier said than done. For precasters, this all starts with knowing who strongly influences product and/or service procurement decisions. These professionals often come on the scene even before projects are put out to bid and the wheels of procurement are put into motion. Today, precasters often find themselves up against alternative materials and/or processes, making the need for strong specifier relationships that can get you in the door early more important than ever.

## BEYOND THE PRODUCT

From a recent survey titled, “The Architect Specification Journey: Understanding the Role of Building Product Manufacturers Today & Tomorrow,” the American Institute of Architects found relationships count big-time when it comes to the materials used in new construction.



Photo courtesy of Western Precast Concrete

Precasters that regularly educate and partner with specifiers, installers and end users ensure they understand the advantages and proper usage of precast concrete products.



If you want to give your staff some **fresh ideas** on how to build strong, effective specifier relationships, view the two new NPCA Precast Learning Lab videos at [precast.org/learning-lab](https://precast.org/learning-lab)

These videos can be used for training and staff development.



Photo courtesy of Western Precast Concrete

consistent and persuasive. If, for example, a specifier has chosen cast-in-place concrete or another non-precast alternative on a specific project, Taylor looks for magazine articles, trade association reports and other collateral material to support his assertions.

And in situations where precast isn't necessarily the best material for the job, Taylor is willing to step back and allow the process to happen without his intervention.

"Look, to a carpenter everything looks like a nail," he said. "And to a precaster, everything looks like it can be done in precast. The bottom line is that sometimes a project makes sense with our materials and sometimes it doesn't.

"In some situations, there's going to be a certain amount of trepidation around whether we're just trying to sell our product versus actually adding value and efficiency to a project. To break through those barriers, you really just have to get out there and talk to people, form the relationships, and then stay on top of it."

## A FOOT IN THE DOOR

As the vice president and general manager for Tindall Corporation's utility division in Spartanburg, S.C., Joel Sheets said it's no secret that specifiers and engineers hold most of the cards when it comes

to project material selection. He said forming relationships with those professionals early in the game is particularly important when working with contractors versus the project owners themselves.

"Oftentimes it's the owner's engineer who is being paid to approve and bless the project," Sheets said. "If you're fortunate enough to have your name on the plans, you stand a much better shot of selling the job to the installation contractor – who is your ultimate customer."

To make that happen, Sheets said Tindall's sales force pays close attention to upcoming jobs and any related specifications and requirements. With municipal jobs, for instance, the company finds itself working with project engineers who may or may not have specified precast in their original plans. For the latter, the company will hold on-site or off-site lunch-and-learn sessions that incorporate PowerPoint presentations and other means of conveying the value of precast for specific applications.

"We try to educate them on the value of what we're offering," said Sheets, who adds that strong relationships with contractors tend to be indispensable for flipping jobs to precast from some other material. "A contractor can be your best friend on the job when they're being asked to use cast in place, and when they know that precast will save them time. They'll advocate for you with the engineer of record."

To get through to that engineer of record, Sheets and his company's sales team uses lunch and learns – usually

held at the engineer's office – some of which are accredited and count for continuing education hours.

"Those CE hours are great selling points that can help you get a foot in the door," Sheets said.

Rich Krolewski, NPCA's director of certification and regulatory services, has developed relationships with U.S. Federal Highway Administration officials, state department of transportation officers, and health department regulators – alliances that go a long way in helping the precast concrete industry compete effectively. He said precasters who find themselves losing market share to competitive products should carefully examine the strength of their own specifier relationships.

"Nine times out of 10, those situations happen because instead of being proactive, the producing company takes a reactive stance to scenarios like over-engineering or over-reinforcing," Krolewski said. "If a job specification has already been approved – or the document has been in place for a long time – going back and revising it is very difficult."

To avoid this challenge, Krolewski advises precasters to figure out which individuals at municipal engineering departments are making the decisions on target projects and then open dialog with those individuals.

“You may have to dig deep when identifying your market and determining who the decision makers are,” Krolewski said. “It also helps to have a good reason why that person should make a change to a specification.”

### YOUR FIRST LINE OF OFFENSE

For precasters looking to cultivate stronger alliances with specifiers, Sheets said your company’s sales force should be the first line of offense.

“We rely on a very talented sales force that has these relationships in place and that isn’t afraid to build those bonds,” said Sheets, who advises companies to take a long-term approach to the task, versus just focusing on one-off interactions with specifiers and engineers. “It’s not about knowing them and working with them once; it’s about keeping these professionals apprised of changes in the industry, new product developments, new solutions and job success stories. Focus on making specifiers the heroes by helping them introduce new options to project owners or municipalities that are struggling to understand their best, most economical or most efficient options.”

In return, Sheets said, precasters can expect an improved shot at selling the job, better future job prospects, and an overall lift in awareness of the precast

industry and its products.

“Even if there’s no guarantee that your company is going to win the bid, work to express your value by connecting with folks and forming those valued, long-term relationships,” Sheets said. “If nothing else, you just may get a last look and the opportunity to provide value in areas that no one else recognized.”

Taylor concurs, and said that when manufacturers can effectively make the argument that precast is better, faster and easier, the overall job usually goes easier. Work to get those points across, he said, and realize that the payoff may not be immediate.

“Forming relationships is definitely worth the effort and in most cases, it does pay off down the line,” he 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.*

### RESOURCES:

- 1 [architectmagazine.com/aia-architect/aiafeature/the-truth-about-specification\\_0](http://architectmagazine.com/aia-architect/aiafeature/the-truth-about-specification_0)
- 2 [epiphany-studio.com/blog/2017/05/16/grow-sales-by-creating-a-preference-for-your-building-or-architectural-product](http://epiphany-studio.com/blog/2017/05/16/grow-sales-by-creating-a-preference-for-your-building-or-architectural-product)

“Even if there’s no guarantee that your company is going to win the bid, work to **express your value** by connecting with folks and forming those **valued, long-term relationships.**”

– Joel Sheets,  
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# Preparing for the UNEXPECTED

Lessons learned in handling a personnel crisis from those who have experienced them.

By Mindi Zissman

**Editor's Note:**

*All situations and advice are real, but those who shared their personal experiences are not named to protect their privacy.*

Injuries and other adverse personnel situations are inevitable in any workplace. Most are minor, but when they are significant, the effect on the company, management, employees, customers and the community has lasting consequences – particularly if the situation is not handled properly.

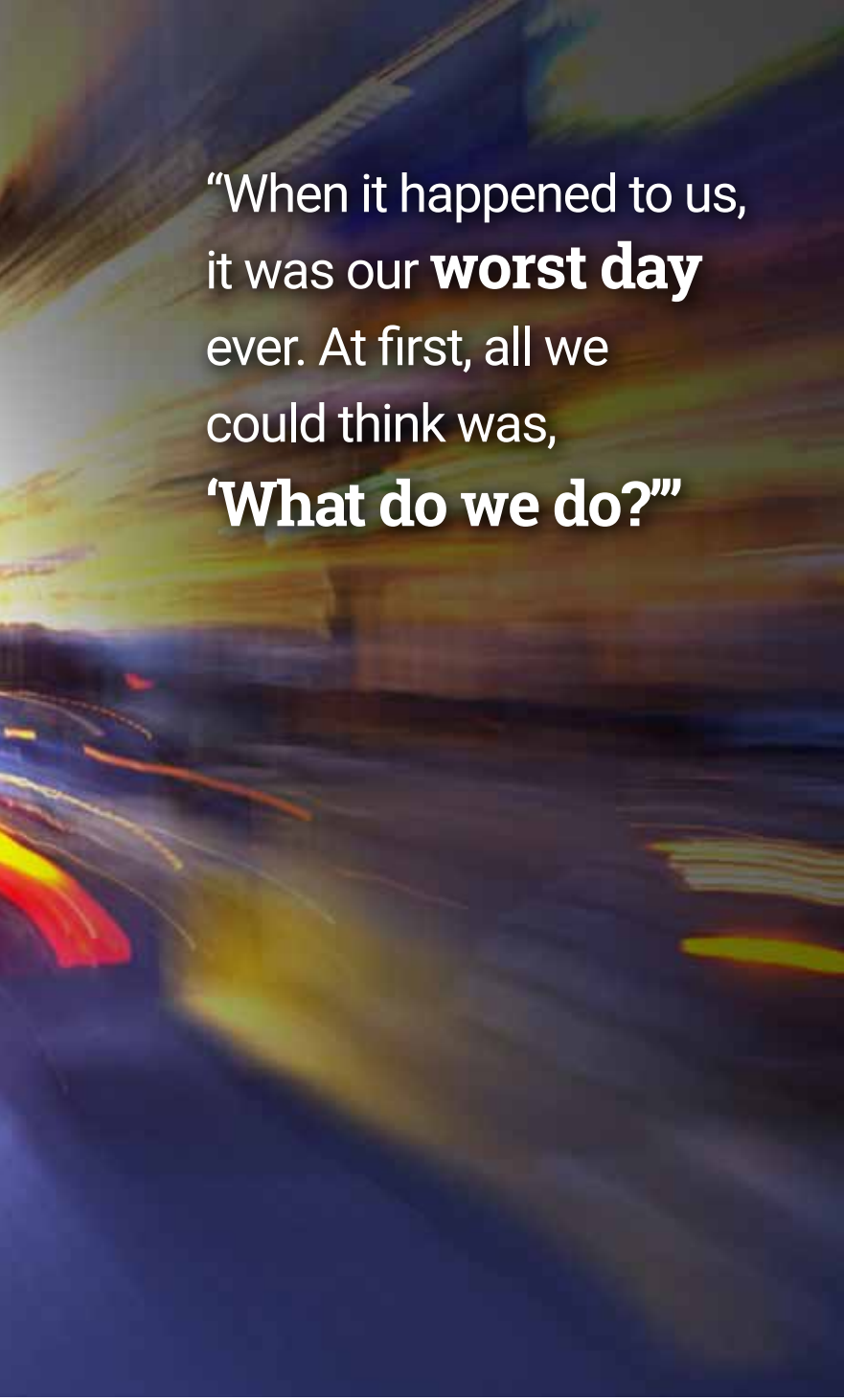
Preparing for the worst is not fun and, as a result, many owners and managers abdicate and hope for the best. This leaves many unprepared when the unexpected does occur. To ensure this does not happen to you, it's important to have written plans and policies and to know who you will contact in a crisis. It is also helpful to know who among your network of peers may be able to provide advice based on their experiences.

**IT HAPPENS FAST**

If a personnel crisis does occur in your company, every situation is different and must be handled accordingly. But one constant is they happen fast. The incidences described here are real, but the names have been omitted due to the sensitive nature of the situations.

It was late Friday afternoon at a precast plant – an optimistic time when everyone is excited for the weekend ahead – when a piece of concrete fell on an employee, leading to his death.

“As the manager, it’s the worst possible thing that could happen,” said the plant owner. “When it happened to us, it was our worst day ever. At first, all we could think was, ‘What do we do?’”



“When it happened to us, it was our **worst day** ever. At first, all we could think was, **‘What do we do?’**”

The owner called emergency services immediately, who called OSHA. Both were on hand quickly.

“After it happened, we kept everyone in a separate area of the plant and talked to everyone before they left to make sure they were ok,” he said. “We made sure we had current contact numbers. We had no idea if we’d be shutting down for a day, a week, a year or more.”

Next, he contacted a labor and employment attorney, who helped answer questions and dispel myths.

“We were numb from the accident,” the plant owner said. “You don’t think of what you should do, what you should say and what your rights are. [The attorney] helped us think of things we didn’t, like a media response and what our rights were with OSHA.”

An attorney can help slow your mind, organize your thoughts and set forth a plan of action for the immediate future.



## **PREPARE** **for Trauma** *Outside* the Workplace

Tragic incidents that occur outside of the plant can have a lasting impact on plant personnel as well. Whether it’s an injury or a death, having a quick way to disseminate information and knowing a few best practices to follow for dealing with affected employees can help abate stress and worry.

Last year, a long-time worker at one precast plant disappeared after work. A call from his wife led co-workers to search for him. Eventually, two co-workers found him in his pickup truck after he had taken his life.

After telling his family, the employees notified the plant owner. He initiated a call chain to let the plant managers know. They, in turn, told some of their lead people, and employees were given as much time off work as they needed.

“[With] suicide, the question is: ‘Why?’” said the plant owner. “[We start to] place blame on ourselves and other people.”

This is just one example of a non-work-related incident that affected the entire team in a very emotional way. If you find yourself in a similar situation, consider the following best practices:

- Hire a grief counselor.** No matter what the circumstances, the death of a colleague can be devastating. Consider hiring a professional to speak to the entire staff immediately after the death. Offer on- or off-site counseling for anyone who wants it, both in the immediate weeks following, and ongoing. Remember that it may take time for the emotional backlash to surface.
- Do something in remembrance.** After the suicide, the plant owner set up a fund for the deceased’s children and pledged to match any employee donations. Directly helping their former co-worker’s children provided a way for employees to positively engage when they felt helpless.
- Be understanding.** Give employees time to mourn and heal after a co-worker’s death. Be on the lookout for warning signs from employees close to the situation, and be as flexible as you can with days off, leaving early or even reduced responsibilities in the short term.



“Once an incident happens, the dominos fall very fast and you don’t have time to be reaching out to others for resources,” said the attorney the company used, who specializes in workplace occupational safety and health. “When it happens, it becomes a crisis management situation.”

## RELY ON THE EXPERTS

After calling emergency services, contacting an attorney helps keep your investigation of the accident under the attorney-client privilege. The attorney can also serve as a guide during the OSHA inspection. For example, OSHA will ask for specific information and documentation. You’ll need to know what you’re obligated to provide by law, and what you can opt to supply voluntarily.

“If I, as your lawyer, tell you to do an investigation – take pictures, interview witnesses, do a root cause analysis – that becomes my investigation, and its findings and conclusions are protected by the attorney-client relationship and not discoverable,” the attorney said. “If you do an accident investigation on your own, OSHA investigators or plaintiffs’ attorneys and any other third-party in litigation will be able to access it and all the conclusions you draw. They can put you under oath and ask you to answer their questions.”

According to the attorney, you also need to contact OSHA. Under federal law, after an amputation, hospitalization for treatment (not just observation) or loss of an eye, OSHA must be contacted within 24 hours. When there’s a fatality, the timeline decreases to eight hours. In some cases of serious injury or fatality, emergency services will contact OSHA. But, the legal obligation is yours. Make sure you call, even if you know or suspect someone else already has.

When OSHA comes, plant management will answer basic questions, including the time of the accident and the nature of the injury. If OSHA asks a question such as how the accident could have been prevented, for example, having counsel is critical as your answers could incriminate you or lead to further plant investigation.

“You want to treat the OSHA compliance officer kindly and with respect, but you also want to take and maintain control of the OSHA inspection,” the attorney said. “If they show up because of a fatality, they have the right to inspect the accident, not to walk through your facility and interview everyone there on any topic. The uninformed employer lets them walk around and talk to anyone about anything.

“This opens the door to citations for all sorts of things around the plant having nothing to do with the fatality or catastrophe.”

In some cases, even though OSHA may be on-site to investigate a serious or fatal accident, the inspector may also have a legal basis for looking for, or asking questions about, other issues in the plant. You’ll want to consult your attorney before allowing an expanded inspection or answering the inspector’s additional questions. For example, after months of inspecting the fatality cited above, OSHA handed down four citations. Three of the four had nothing to do with the accident.

Another critical expert you want to have on hand is a grief counselor.

“After the accident, the police chief gave us the number of a local counselor who came out and talked to the managers that night, and addressed the staff the next morning,” the precaster said. “In hindsight, it was the best thing we did. We had everyone come in, whether they were involved or not.

“He sat everyone in a room and let them speak freely, without any managers there. Later, they called the managers in and it went on for another couple of hours. We offered additional, individual counseling after for those that wanted it.”

The precaster found having a grief counselor so important that the plant has signed an annual contract with the counselor, who is now accessible to anyone going through any issue.

Lastly, if you have peers who have experienced a similar situation, their advice or even just their understanding and having someone to talk with can help with coping.

## COMMUNICATE, COMMUNICATE, COMMUNICATE

It’s imperative to establish a channel for open, honest communication immediately post-accident. You need to know how your employees are doing and what they are feeling, and they need to hear from you as well. It’s important to dispel any misinformation that may be spreading and make it clear you are there for them.

“We made sure everyone in the company knew what happened so incorrect information wasn’t floating around out there,” the precaster said. “We called a meeting and told them right away what happened. They knew this guy, and they knew he was killed doing what they do every day.”

## DON'T BE CAUGHT FLAT-FOOTED

A thorough plan for a crisis can’t be developed in one day. It requires significant thought, input and buy-in from many and likely the advice of an expert.

“Having an emergency response program that anticipates something like this happening, as you would for a tornado or other natural disaster, is a must,” the attorney said.

Create a list of emergency numbers to call. On that list, have the name and number of a trusted labor and employment attorney and consider reaching out to the attorney to establish a relationship. Also on that list should be a grief counselor who can come immediately to talk to staff. Again, a prior or ongoing relationship is a consideration.

Document a policy for responding to the media and letting family members know about an accident. Prepare a simple media response that can be adapted as necessary. Maintain a contract with a company that can come in and take care of the immediate, physical needs of the plant as well, if needed.

You should also train employees that in the event of a serious accident, all plant rules still apply. If an accident does occur, let them know in advance they should refrain from taking pictures or making calls, or at least check with the plant manager before doing so.

There’s no way to anticipate an accident, but it’s beneficial to be as prepared as possible for an event you hope never happens. At the very least, the right training and plan will minimize trauma and help plant managers and employees mobilize during and after the accident. Such preparedness can prevent an accident from becoming a disaster. **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.*

**There’s no way to anticipate an accident, but it’s beneficial to be as prepared as possible for an event you hope never happens.**



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Nestled in southern Wisconsin, **Dalmaray Precast Concrete Products** keeps a lean staff and modest production facility, but has grown into a **significant player** in the industry thanks to its core values.

# Small AND Mighty

By Kirk Stelsel, CAE



## In Memory of Robert D. Ausen



November 13, 1924 – January 15, 2018

*Bob Ausen, seen here during NPCA's visit for this story just four weeks before he passed away, loved the family business and came into the office nearly every day.*

**T**hose close to the Ausen family would likely not hesitate to describe them as humble. The Ausens are selfless and praise-deflecting, proud of what they do but far from boastful. They are also forward-thinking and have no fear of change, yet so understated you would be forgiven for thinking otherwise.

Similarly, their business, Dalmaray Precast Concrete Products, is an inconspicuous building on a quiet street in Janesville, Wis. But behind the front doors, all of these preconceived notions give way – assuming you can get the Ausens to break from the even-keel demeanor that belies their energy and ambition, of course.

Combine all that with an unrelenting insistence on the highest quality and a customer-centric focus and a much clearer picture emerges of who the Ausens are and what Dalmaray Precast is all about.

### **ROB AUSEN AND SONS**

When Aaron and Kyle Ausen talk about their father, Rob, the admiration is palpable. True to Ausen form, they don't use flowery words or shower him with compliments, but you can clearly see on their faces and hear in their tone that they are proud of him and honored to be working alongside him. Both Aaron and Kyle have always been enamored with the family business, as exemplified by their vivid memories.



“I think it’s the coolest thing in the world,” Kyle said. “Most people think it’s just a piece of concrete, but one of my earliest memories was [from] kindergarten when my dad brought one of the boom trucks. We had all the kids out there looking at it and everyone was oohing and ahhing.

“I’m generally just proud and always just want to show everyone what we do and what we’re about.”

Aaron also recalls the boom trucks impressing the neighbor kids when his dad would bring one home.

“That was the first time I was like, ‘I want to be a part of this,’” he added.

With that, both were bit by the precast bug. Aaron and Kyle – Rob’s third son works outside the family business – started in the plant working on tasks like cleanup or bending rebar. Next came operating

the dry-cast machine, something Aaron calls a “promotion” with a sly grin on his face.

Similarly, Rob remembers the hard manual labor he did as a kid after moving from Ohio to Wisconsin so his dad, Bob, could take over the business from his wife’s aunt and her husband. Bob didn’t have any industry experience – he managed a fertilizer plant prior to the move – but he saw the promise of the industry then and that optimism never faded. In fact, he shared his enthusiasm for the industry and the family company during an interview for this story just four weeks before he passed away at age 93 on January 15, 2018.

“I didn’t know a thing about fertilizer, so why should I know anything about concrete?” he said during the interview. “It kind of comes natural once

Above: Justin Weberg, NPCA Master Precaster, has brought many skills and lessons he learned in the Precast University courses back to the plant.

Right: Kyle Ausen has many roles at the plant, including leading the production of the company’s septic tank products.



NCEA/INPHOTO



Photo by Aaron O'Leary Photography

you get going on what you can do with it. I say the future is wide open for precast.”

Despite facing significant health issues, Bob came into the office to open mail and write checks every day right until the end. That work ethic and optimism flowed down to his son and his grandsons.

Kyle now leads the septic tank side of the business, Rob serves as president and Aaron is vice president. Together, they work closely to grow the business through the core principles of hard work, quality, never saying no and always being on time. They all acknowledge the hard work and long hours – and the disagreements – that go into making a family business successful but cherish the process.

“Anybody who tells you a family business is always great and everything works smooth all the time has some serious problems, but this business has served our family well,” Rob said. “All three of my sons have college degrees and it’s basically all been through working here to fund it. That alone to me is immeasurable.”

“I think we’ve had days we want to throw tools at each other,” Aaron added with a laugh. “It’s part of it; you don’t always see eye-to-eye but at the end of the day we are doing pretty well and you take pride in that. You can see the hard work from everybody – everybody believes in it.”

The tank market is an important component of Dalmaray’s business.





Quality is at the forefront for the company and every employee is trained on the importance of manufacturing quality products.

NPCA file photo

## GROWING, GROWING, DRAWN

Every growth story in the precast industry has its own twists, turns and anecdotes. A poignant and crystalizing moment for Rob and Aaron came in 2002 when they purchased their batch plant at The Precast Show. Armed with pens and any scratch paper they could find in their hotel room, including napkins, the two drew up their vision and took it out onto the trade show floor the next day. One of the exhibitors, Advanced Concrete Technologies, had what the Ausens wanted.

“We drew it up on a bar napkin and a year later the batch plant was completely put together at the Salt Lake City show and then it was brought here,” Rob said. “Our experience with ACT was incredible.”

“Those experiences, you can never forget those,” Aaron added. “It’s so cool.”

Simultaneously, the company doubled the size of its plant, marking it the biggest transformation since Rob and his father moved the company off the original property and into a brand new plant in 1994. Over the years, the family has added bigger forms, panel forms for custom products, bigger boom trucks, new products, more employees and various other equipment. It’s a process that requires careful consideration, and a willingness to take a chance, something Bob felt his family had done particularly well.

“You can pour concrete any place, you can pour it in a tire if you want, but is there a market for it?” he said. “If you’re going to do only

septic tanks, chances are you aren’t going to make it. You have to diversify.”

Never lost in the growth cycle, however, are quality and meeting deadlines. These are hallmarks for the company and have earned it business as far away as Mississippi through nothing more than reputation.

“What gets me up every morning is being able to haul that piece of precast to the customer and having them say, ‘Wow, does that look nice,’” Rob said. “It may be going underground but it’s going about 100 miles down the road first. If you keep doing that and spreading and growing, customers will talk to each other.”

Other changes have allowed the company to be more visible and able to deal with last-minute requests, urgent orders and customizations. For Kyle, the addition of a production board has helped them be more organized. Every Friday, he, Aaron and the plant manager meet at the board to plan the week ahead.

Aaron has led the charge with marketing, constantly working on the company’s online presence whether it’s their website or social media channels. All this, along with an insistence that the word no is never an option when a customer asks, “Is it possible to make this?” have been key.

“When other people tell them no, we say, ‘Sure, we’ll do that for you,’” Aaron said. “Sometimes you go home and you think, ‘What I did

today was pretty amazing.' That's one of the greatest parts of the job."

### EXTENDED FAMILY

The Ausen family is a tight-knit bunch, but their alliances extend well beyond a last name. The company has a number of long-term employees and others with shorter tenures but no less impact. If an employee invests in the company with energy and commitment, the Ausens will invest right back. For example, Justin Weberg, plant manager, graduated from National Precast Concrete Association's Precast University as a Master Precaster in 2017 and recently completed the one-year Leadership NPCA course.

"He's brought a lot of aspects from that as far as conflict resolution and how to convey yourself as a leader," Aaron said. "There's a lot I've learned from him. It's grown him to where he is and where he's going.

"If you have a good employee, you have to hang on to them. You need to listen to your people, what they're doing and what they're dealing with."

Fellow precasters have also played a major role in the company's history and will continue to be important in the future – including its competition in Wisconsin.



The Ausen family has ties to the Mader, Olson and Wieser families that span generations. Joe Wieser, whose picture hung proudly behind Bob's desk, sponsored Dalmaray when the company joined NPCA in 1973. Aaron considers Deke Mader a close friend and reaches out to him often, making it a third-generation friendship.

Dalmaray has continued to increase the size of its tank product line over the years, including its newest form for a 13,000 gallon tank.



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“Wisconsin is a very tight-knit precast community and always has been,” Rob said. “I am 100% comfortable with calling one of my competitors to ask how to do something and he’ll give me an honest answer and it’s the same the other way. We’re competitors, but we also get along.”

“It’s actually more like a family. I still talk with Steve Olson every Friday at about 5:00. It used to be, ‘How was your week?’ and it’s changed now that he’s sold the business, but we still talk pretty much every Friday.”

Rob cited a recent instance at Wieser Concrete’s plant in Maiden Rock, Wis., as a perfect example. The plant hosted a Crane Institute Certification training course and the written exams never arrived at the plant. He recalled how the Wiesers and their employees bent over backwards to get approval for an electronic exam and then got all hands on deck to get everyone on a computer.

Through NPCA, the family has met many other members. Aaron still recalls meeting the Wegner family from New Hampton Metal Fab as a kid during his first-ever trade show in about 1993 and how awesome it was to see the connection between members.

The Ausens are also quick to point out how crucial vendors are to the company’s success. Whether it’s showing up at the plant, answering calls late at night, or the president of the company being available on The Precast Show floor, the relationships and results of the knowledge sharing are invaluable.

“Scott Grams with MAPEI-GRT has been pretty much a





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Photo by Meghan O'Leary Photography

part-time employee for us,” Aaron said. “Helix was a game changer for the septic tanks and manholes for us, and from what we’ve been doing recently with Seaman Corporation, it’s going to find its home very quickly, just to name a few.”

### DIGGING DEEP

In the office Aaron and Kyle share, it’s not uncommon to find Aaron’s wife, Ashley, helping out as one or more of their sons plays nearby. Just by being present at the office and forming early, vivid memories of their own, the youngest Ausens are already a part of the Dalmaray legacy.

Rob’s goal is to fully retire from the company when the time is right and Aaron plans to continue to take an ever-growing senior leadership role and would love to see his sons become involved, just as he did many years ago.

“The way I think now is I want my kids to do that because that was a pretty good path that we walked – to be able to admire what your dad and grandpa did and be a part of that chain,” he said. “You want that legacy to continue.”

Still waters definitely run deep in the Ausen family. If you dig down far enough, you’ll find relentless passion for precast, the family business and success. And that will be what propels the business and the family forward and creates opportunity for the Dalmaray story to continue in the years, decades and generations to come. **PI**

Dalmaray’s first endeavor into the solar market included the production of 1,659 custom-designed precast tracker pads for a solar array in Beloit, Wis.

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



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# Working For You

## NPCA Offers Educational Sessions at World of Concrete 2018

By Mason Nichols

For more than two decades, the National Precast Concrete Association has worked diligently to extol the many benefits of precast concrete products at the World of Concrete. By exhibiting at the event and networking with those in attendance, NPCA professional staff members have helped increase the presence of precast products in the marketplace. To further extend this effort, NPCA took a different approach in 2018. For the first time, the association conducted two educational sessions in partnership with the show.

Claude Goguen, P.E., LEED AP, NPCA's director of sustainability and technical education, led a session on residential precast titled, "Precast in Residential Construction – Enhancing Speed & Quality." More than 60 contractors, engineers and other industry professionals attended the class, which focused on how foundation walls, roofs and other precast products can shorten construction schedules while enhancing resiliency. According to Goguen, the topic generated ample interest.

"After the class concluded, a lot of people came up to me to ask follow-up questions," he said. "We actually had to be kicked out of the room so the next class could start because there were so many people eager to discuss the topic further. That was a great way to gauge the presentation's success."

NPCA also partnered with precast pavement expert Shiraz Tayabji, president of Advanced Concrete Pavement Consultancy, to present a course on precast concrete jointed pavement. The session, titled, "Rapid Highway Repairs with Precast Concrete Jointed Pavement Systems," drew about 20 highway engineers, contractors and NPCA members together to discuss current practices related to precast pavement technology and projects on which precast pavement has been installed.

Marti Harrell, NPCA's vice president of technical services



Shiraz Tayabji, president of Advanced Concrete Pavement Consultancy, led an NPCA-sponsored session on jointed precast concrete pavement at World of Concrete 2018.

and professional development, noted that the smaller size of the pavement session allowed for increased engagement among the attendees.

"The class was exciting because members weighed in from the producer side while the contractors and engineers asked questions," she said. "This resulted in an open, roundtable-type discussion."

Goguen explained that the impact of presenting a session extends far beyond what takes place at World of Concrete. In addition to increasing attendees' awareness of precast, NPCA and the resources available on [precast.org](http://precast.org), speaking to industry professionals allowed Goguen to better understand their concerns. He can next share that information with members to address those issues. But, as he explained, the process doesn't stop there.

"Every touch, every contact and every business card further extends the reach," he said. "It's all about how we follow up." **PI**

*Mason Nichols is NPCA's director of strategic outreach.*

### CONCRETE INDUSTRY MANAGEMENT

In addition to the educational sessions offered at World of Concrete 2018, NPCA professional staff members attended events hosted by the Concrete Industry Management program's National Steering Committee. Professional staff members connected with directors at each of the four universities currently running CIM programs as well as the board members of the National Steering Committee.

In 2019, the CIM program at California State University, Chico, will launch a precast-specific course as part of its curriculum. The NPCA Foundation provided a grant to the university to kick-start this course.

"We're hopeful that once the class launches, the National Steering Committee will see the value in it and help advocate for it to be included at

other CIM schools," said Marti Harrell, NPCA's vice president of technical services and professional development and executive director of the NPCA Foundation.

NPCA and the NPCA Foundation will continue working with the National Steering Committee to find additional opportunities for precast concrete to play a role in CIM university coursework.



# NPCA Foundation Sponsors ASCE Concrete Canoe National Competition



During the 2017 ASCE Concrete Canoe National Competition, the NPCA Foundation hosted a hospitality tent where Foundation Board members and NPCA professional staff shared information about the precast concrete industry, job opportunities, and Foundation scholarships for concrete canoe teams and for students pursuing degrees related to the industry.

For the third-consecutive year, the NPCA Foundation will sponsor the American Society of Civil Engineers' Concrete Canoe National Competition. This year's competition will be held at San Diego State University, June 23-25, 2018.

This sponsorship enables NPCA professional staff and NPCA Foundation board members to interact with students enrolled in engineering programs across the country. The NPCA Foundation representatives will discuss the many applications of precast concrete, as well as career opportunities within the industry.

In addition, the NPCA Foundation awarded \$500 scholarships to 22 schools to support the research, development and production of their canoes thanks to the generosity of the NPCA membership. More than \$43,000 was raised through the casino night, silent auction and special live auction "Fund-a-Need" campaign at the 52nd Annual Convention. As a result, the NPCA Foundation was able to fund 50% more scholarships than originally budgeted for 2018.

Because of the ongoing generous support of the NPCA membership, the NPCA Foundation is able to continue to expand its outreach to schools, students and faculty across the country.

PI

## CONCRETE CANOE SCHOLARSHIP RECIPIENTS:

1. City College of New York
2. Fairmont State University
3. FAMU-FSU
4. Milwaukee School of Engineering
5. Minnesota State
6. Notre Dame
7. New York University
8. Purdue University
9. San Diego State
10. South Dakota School of Mines
11. Southern Illinois University Edwardsville
12. Southern Illinois University Carbondale
13. The College of New Jersey
14. University of California
15. University of Florida
16. University of Alabama
17. University of Maryland
18. University of Minnesota
19. University of New Orleans
20. University of Pittsburgh
21. University of Texas
22. Youngstown State University

## Build Your INTERNSHIP PROGRAM

Are you interested in starting an internship program at your plant? The NPCA Foundation, in partnership with the PCI Foundation, has developed an internship template that can be used to launch your program. The template covers a wide range of topics, including legal considerations, the benefits of hiring an intern, recruitment and more.

 To download the template and view additional resources, visit [precast.org/internships](http://precast.org/internships)

If you've already established your program and are looking to hire an intern, you can also post open internship positions using the above URL.



To watch a wrap-up video from last-year's event, visit [precast.org/2017canoe](http://precast.org/2017canoe)

# New Benefits for NPCA Certified Plants Coming Soon



## The Producer Portal

The National Precast Concrete Association Quality Assurance Committee announced improvements to the NPCA Plant Certification program that will make it easier than ever to organize and save your production documents. Available for certified plants, this free member service is located in the plant documents section of the Producer Portal.

The new section matches the table of contents of the NPCA Quality Control Manual for Precast Concrete Plants, making it easy to organize and store the current and historical quality-related documents that are required by the plant certification program. The portal is secure and confidential. The only people who can see the documents are designated plant employees, NPCA program administrators and the plant certification auditor. This enhancement enables plants to upload and organize documents specific to each chapter, section and subsection of the manual.

Log in to the Producer Portal at [precast.org/certification](http://precast.org/certification) and choose Plant Documents from the menu on the left side of the screen to explore the options. To access historical data, simply choose Archived Documents from the drop-down list at the top of the page. To navigate between sections, use the “jump to” feature.

For more information or help logging in, contact Andi Pierce at (800) 366-7731 or [apierce@precast.org](mailto:apierce@precast.org). **PI**


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## NPCA Offers New Water and Wastewater Tank Product Certification

If you manufacture precast concrete tanks, NPCA's new ANSI-accredited product listing will take the certification of your tanks to a new level. ANSI has granted NPCA a program scope extension of the Plant Certification program to offer the product-specific listing exclusively for water and wastewater tanks.

By obtaining a product listing for your tank models, you give specifiers the assurance that your products are designed and manufactured to applicable industry standards and ensure you are able to supply products in areas where a listing is required. While plants interested in participating must be NPCA certified, there is no additional cost to be listed. This optional program goes beyond plant processes with additional criteria such as a watertightness test of a randomly selected tank. In addition, tanks models listed will appear on the NPCA website during member searches so specifiers can see which models are listed by your plant.

Plants opting for product certification must submit a complete package of information based on the most current applicable ASTM and industry standards. The detailed submittal covers criteria such as materials and manufacture, structural design, physical design, quality control, performance testing data, and dimensional details including tolerance and product marking. For more information, contact Phillip Cutler, P.E., NPCA's Director of Quality Assurance Programs at [pcutler@precast.org](mailto:pcutler@precast.org) or (800) 366-7731. **PI**

 For the latest NPCA news, visit [precast.org](http://precast.org)

# NPCA Awards Program Recognizes Certified Plants

NPCA honored its Top 25 plants and recognized plants achieving milestone anniversaries at the Keynote Luncheon Featuring Industry Awards and Graduations, held Feb. 22 at the Colorado Convention Center in Denver.

Held in connection with The Precast Show, the keynote luncheon included the Sustainability Awards, the graduation of the 2018 Master Precaster class, the graduation of the 2017 Leadership NPCA cohort and the introduction of the 2018 Leadership NPCA cohort. Additional coverage of The Precast Show and the awards luncheon and graduations will be included in the next issue of Precast Inc.

## NPCA TOP 25 PLANTS

Based on scores from NPCA Plant Certification Program independent third-party audits

Blalock Ready Mix, Sevierville, TN  
Brayman Precast LLC, Saxonburg, PA  
Capital Precast Inc., San Marcos, TX  
Coastal Pipeline Products Corp., Calverton, NY  
Coastal Precast Inc., Eunice, LA  
Concrete Pipe & Precast LLC, Summerville, SC  
Encore Precast LLC, Seven Mile, OH  
Forterra Pipe & Precast, Hermitage, TN  
Forterra Pipe & Precast, Lenoir City, TN  
Gillespie Precast LLC, Chestertown, MD  
Granite Precasting & Concrete Inc., Bellingham, WA  
Kistner Concrete Products Inc. Lockport Plant, Lockport, NY  
Mack Vault of Toledo, Bowling Green, OH  
Monarch Precast Concrete Corp., Allentown, PA  
Oldcastle Precast Inc., Middle Island, NY  
Oldcastle Precast Inc., Jacksonville, FL  
Oldcastle Precast Inc., San Antonio, TX  
Oldcastle Precast Inc., Loveland, CO  
Redi Rock Structures of OKI LLC, Milford, OH  
Speed Fab-Crete, Kennedale, TX  
Trenwa Inc., Brookshire, TX  
Trenwa Inc., Lakeland, FL  
VanHooseCo Precast LLC, Loudon, TN  
WASKEY, Baton Rouge, LA  
Western Precast Concrete Inc., El Paso, TX

## PLANT CERTIFICATION ANNIVERSARIES

### 25 YEAR ANNIVERSARIES

Binghamton Precast & Supply Corp., Binghamton, NY  
Michie Corp., Henniker, NH  
Terre Hill Concrete Products Inc., Lebanon, PA

### 20 YEAR ANNIVERSARIES

E.C. Babbert Inc. - Lancaster Plant, Lancaster, OH  
Oldcastle Precast Inc., Ogden, UT  
Superior Concrete Products, Euless, TX  
Vaughn Concrete Products Inc., Henderson, CO

### 15 YEAR ANNIVERSARIES

A & R Concrete Products LLC, New Windsor, NY  
A.C. Miller Concrete Products Inc., Blairsville, PA  
Camp Precast Concrete Products Inc., Milton, VT  
Durastone Corp., Lincoln, RI  
Forterra Pipe & Precast, Hermitage, TN  
Forterra Pipe & Precast, Elizabethtown, KY  
Garden State Precast Inc., Wall Township, NJ  
Jensen Precast, Sparks, NV  
Mack Industries of Pennsylvania, Vienna, OH  
MST Concrete Products Inc., Central, SC  
Oldcastle Precast Inc., Lexington, KY  
Oldcastle Precast Inc., Lebanon, TN  
Roman Stone Construction Co., Bay Shore, NY  
United Concrete Products Inc., Yalesville, CT  
Wilbert Precast Inc., Spokane, WA

### 10 YEAR ANNIVERSARIES

A & T Concrete Supply Inc., Fort Branch, IN  
Albuquerque Vault Co., Albuquerque, NM  
Capital Concrete Products, Hamburg, NY  
Concrete Pipe & Precast LLC, Salem, VA  
Concrete Pipe & Precast LLC, Rincon, GA  
Creter Concrete Products - Creter Vault Corp., Flemington, NJ  
Dellinger Precast Inc., Denver, NC  
Fi-Hoff Concrete Inc., Johnstown, PA  
Forterra Pipe & Precast, Lenoir City, TN  
Forterra Pipe & Precast, Lorena, TX  
Forterra Pipe & Precast, Athens, GA  
Forterra Pipe & Precast, Montgomery, AL  
Forterra Pipe & Precast, Grand Prairie, TX  
Forterra Pipe & Precast, La Place, LA  
Forterra Pipe & Precast, Houston, TX  
Geneva Pipe, Salt Lake City, UT  
Gillespie Precast LLC - Plant #3, Greenwood, DE  
Jarrett Concrete Products & Supply, Ashland City, TN  
Jensen Precast, Lockeford, CA  
Knight's Precast, Summerville, SC  
KOI Precast Concrete Products Inc., Burlington, KY  
Mack Industries Inc., Sharpsburg, NC  
McCann Concrete Products, Dorsey, IL  
Milan Vault Inc., Milan, MI  
Oldcastle Precast Inc., Chandler, AZ  
Panhandle Concrete Products Inc., Scottsbluff, NE  
Precast Systems LLC, Greencastle, PA

Pre-Con Products, Simi Valley, CA  
Reading Rock Inc., Cincinnati, OH  
Robertson Manufacturing Inc., Hyde Park, UT  
Sanders Pre-Cast Concrete Systems Inc., Whitestown, IN  
Scranton Craftsmen Inc., Throop, PA  
Spencer Concrete Products Inc., Switz City, IN  
Superior Tank Inc., Waldorf, MD  
Trenwa Inc., Dacono, CO

### 5 YEAR ANNIVERSARIES

A.C. Miller Concrete Products Inc., Royersford, PA  
Automatic Wilbert Vault Co. Inc. and Puget Sound Precast, Tacoma, WA  
Cannon Builders Inc., Blackfoot, ID  
Forterra Pipe & Precast, Gretna, FL  
Hardrives Inc., Waite Park, MN  
Jamestown Macadam Inc., Jamestown, NY  
Jensen Precast, Kapolei, HI  
JJ's Concrete Construction LLC, Montgomery, IN  
Meredith Brothers Inc., Columbus, OH  
Mid Hudson Concrete Products Inc., Cold Spring, NY  
Oberfields LLC, Delaware, OH  
Precast Solutions Inc., Browns Summit, NC  
Precast Supply Co. Inc., Concord, NC  
Precision Precast LLC, Columbia, MO  
Ramtek Fabrication Co. Inc., Kapolei, HI  
Shea Concrete Products - Wilmington, Wilmington, MA  
Tribute Precast Systems LLC, Ashley, IN  
Watson Concrete Pipe Co., Lenoir, NC  
Wellington Hamrick Precast Inc., Boiling Springs, NC

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## SUSTAINABILITY AWARDS

**The NPCA Sustainability Awards program** recognizes member companies for contributing to sustainable construction projects and for instituting sustainable practices in their plants. NPCA presented four awards during a luncheon at The Precast Show 2018, Feb. 22, at the Colorado Convention Center in Denver. Here are summaries of the winning projects.



#### GET SMaRT: COLUMBIA PRECAST TAKES SUSTAINABLE PRODUCTION TO A NEW LEVEL

Sustainability is embedded in the culture of **Columbia Precast Products** – from the design of its new plant in Woodland, Wash., to the products that it manufactures and its pledge to the community to be a good steward of the environment.

To back up its sustainable plant credentials, Columbia Precast became the first underground infrastructure concrete plant in North America to earn SMaRT certification.

Sustainable Materials Rating Technology (SMaRT) is the world's standard for sustainable product development and manufacturing. Products manufactured under the SMaRT certification improve the health of the environment.

By earning SMaRT certification, Columbia Precast Products has achieved the ultimate goal in sustainability – the triple bottom line. The company's products and processes are good for the environment, good for the economy and good for the global community.



#### FROM BONEYARD TO MARINE HABITAT

The world is an imperfect place. Mistakes happen in production, last-minute change orders come through and sometimes precast products end up in the boneyard. **Garden State Precast** turned some of that imperfection on its head last year, donating 1,500 tons of unusable precast concrete structures to create what the local news called, "a habitat for marine life and a recreational angler's paradise."

Garden State provided its precast rejects to the Reicon Group, a marine construction company that barged the structures to the Manasquan River Inlet. As a tugboat steadied the barge, precast pieces originally meant for underground infrastructure were pushed overboard by a front-end loader to create the new habitat.



#### WATER RECYCLING SYSTEM

Process water is a common byproduct of the production process, and how to deal responsibly with that water is an issue every precaster needs to tackle. **Matec America** developed a solution that recovers wash water without chemical additives.

The Matec Concrete Water Recycling system treats process water and sludge that develops during the production process. The main component in the system is the Matec Filter Press. The filter press is a simple machine that separates the solids contained in the process water and compresses them into dry cakes that may be disposed of easily. The simplicity of the machine guarantees high-efficiency and reliability.

Feeding pumps inject the slurry into the filter press from the feeding head. A cloth material, combined with high pressure, compresses and dries the solid waste into dense cakes that reduce the volume of the solids by 80%. The remaining water can be reused for washing mixers and concrete recovery units.



#### NO DRIPS, NO RUNS, NO HAZARDOUS WASTE

A Houston-based precast concrete company, **Locke Solutions** designs and manufactures precast concrete structures primarily for underground utilities along with other metal fabrication services. As a company that prides itself on finding answers for others, Locke's production team wanted to fix an issue in its own plant and landed upon a simple, sustainable solution.

**The Challenge:** Design a way to eliminate fresh concrete from dripping from the mixer chute to the floor – a situation that introduces hazardous waste to the water drainage system.

**The Solution:** Tie in to the air-actuated door system to enable the chute cover to close and open in sequence with the mixer batch door.

**How it Works:** Two air-actuated cylinders were installed on the mixer door system. This synced the chute cover with the opening and closing of the chute and eliminated the dripping concrete. Now, when the valve opens the mixer door, the chute door also opens and freshly mixed concrete flows into the bucket. When the valve is shut, both doors close automatically and the concrete stays off the floor and out of the wastewater system.

 For additional details, please visit [precast.org/awards](http://precast.org/awards)

NPCA announced its **2017 Safety Awards** winners at The Precast Show in Denver, with 48 plants earning honors for exemplary safety records last year. Based on the OSHA 300 log, safety awards are presented in four categories. The Platinum Award is presented to those plants with no recorded incidents or injuries during the calendar year. Plants in the gold, silver and bronze categories had limited recordable injuries and registered the lowest rates in each category other than platinum winners.

**The OSHA Recordable Incident Rate is calculated by multiplying the number of recordable cases by 200,000, and then dividing that number by the number of labor hours at the company.**

**NPCA plants measured an injury rate of 2.65. The industry average is 4.3, which means NPCA member plants are 38% safer than the national average.**

**CATEGORY I (0-60,000 HOURS)**

**Platinum Award**

- Bates Precast Concrete Inc., Lake Park, GA
- Carr Precast Concrete Inc., Dunn, NC
- E.C. Babbert Inc., Lancaster, OH
- Forterra Pipe & Precast, Cullman, AL
- Forterra Pipe & Precast, Montgomery, AL
- Forterra Pipe & Precast, Hattiesburg, MS
- Husted Concrete Products Inc., New York Mills, NY
- Jensen Precast, Kapolei, HI
- Oldcastle Precast Inc., Morgan Hill, CA
- Oldcastle Precast Inc., Medley, FL
- Oldcastle Precast Inc., Edgewood, MD
- Oldcastle Precast Inc., Concord, NC
- Oldcastle Precast Inc., Lebanon, PA
- Oldcastle Precast Inc., Telford, PA
- Precast of Maine, Topsham, ME
- TRENWA Inc., Florence, IN

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Wieser Precast Inc., Williamsburg, IA  
Wieser Concrete Products Inc., Roxana, IL

**Gold Award**

Oldcastle Precast Inc., Jacksonville, FL

**Silver Award**

Concrete Pipe & Precast, Greencastle, PA

**Bronze Award**

Wieser Concrete Products Inc., Portage, WI

**CATEGORY II (60,001–120,000 HOURS)**

**Platinum Award**

Columbia Precast Products, Woodland, WA  
Concrete Pipe & Precast, Harrisonburg, VA  
Concrete Pipe & Precast, Salem, VA  
Forterra Pipe & Precast, Houston, TX  
Forterra Pipe & Precast, San Antonio, TX  
Oldcastle Precast Inc., Lakeside, CA  
Oldcastle Precast Inc., Madera, CA  
Oldcastle Precast Inc., Newnan, GA  
Oldcastle Precast Inc., Lexington, KY  
Oldcastle Precast Inc., Fuquay Varina, NC  
Oldcastle Precast Inc., Lebanon, TN  
S&M Precast Inc., Henryville, IN  
Wichita Concrete Pipe, Wichita, KS  
Wieser Concrete Products Inc., Maiden Rock, WI

**Gold Award**

Oldcastle Precast Inc., Houston, TX

**Silver Award**

Concrete Pipe & Precast, Summerville, SC

**Bronze Award**

Oldcastle Precast Inc., Easton, PA

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Oldcastle Precast Inc., Loveland, CO  
Oldcastle Precast Inc., Cape Coral, FL  
Oldcastle Precast Inc., Stone Mountain, GA  
Oldcastle Precast Inc., Mansfield, TX  
Oldcastle Precast Inc., Ogden, UT  
WASKEY, Baton Rouge, LA

**Gold Award**

Oldcastle Precast Inc., Chandler, AZ

**Silver Award**

Oldcastle Precast Inc., Pleasanton, CA

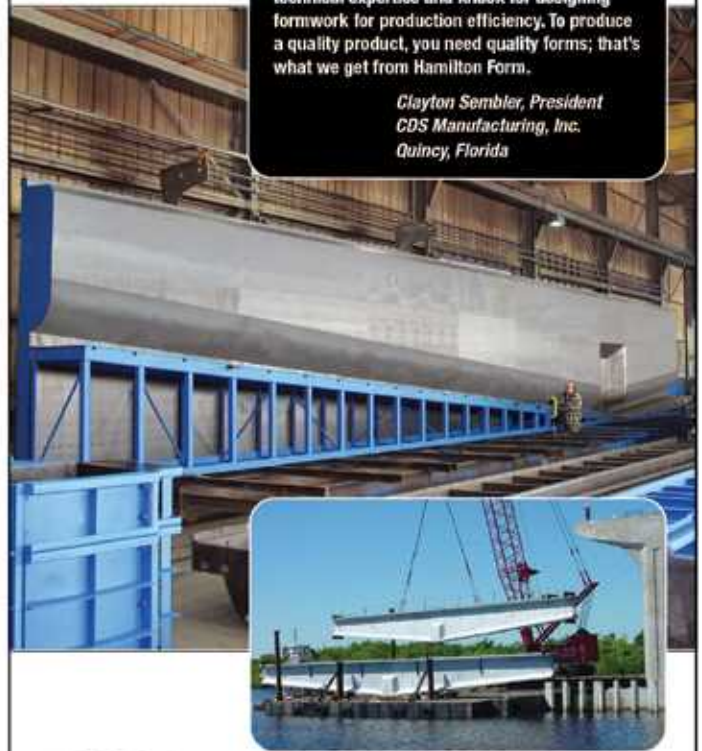
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Oldcastle Precast Inc., Auburn, WA

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**The Challenge:**

The multi-span bridge called for Florida FIBs and a haunch girder. The haunch girder is 114-feet long and 11-feet tall at the center, sloping to 6'-6" at the ends. A recess in the sideform creates the haunch at centerline.

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Hamilton Form delivered formwork for the FIBs and the haunch girder complete with hinged catwalks and railings. Hamilton Form also supplied galvanized embed and beveled plates for the project.

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# Taxing Matters:

## What the **New Law** Means for Precasters

By Bridget McCrea

**A**s Smith-Midland Corp.'s yearly Christmas employee luncheon was winding down, Ashley Smith, president and COO, stood up and made an announcement that made the whole room very happy.

"I thanked everyone for their hard work, and then told them that they'd all be getting \$625 bonus checks," Smith said. "A big cheer rang out. Everyone was pretty excited."

One young worker who had only been working for the company for two weeks approached Smith and asked if he too was eligible for the bonus.

"Yes, I told him," he recounts. "It's for everyone."

Smith-Midland's idea of doling out a substantial year-end bonus can be traced back to the new tax law, which created a positive windfall for the precaster. Much like Home Depot, FedEx, and JP Morgan Chase have decided to use their tax surpluses to reward employees through bonuses, pay raises or a combination of the two, Smith-Midland has taken a similar approach to sharing the wealth with its employee base.

"We decided to pay it out during Christmas week, so that everyone had some extra cash to either save or spend," Smith said. "Had it not been for the tax cut, it's unlikely that we would have even done a bonus last year. And if we had, it would have been much smaller than \$625 per employee."

### SHARING THE SURPLUS

Whether it's due to the lower tax rate, the new depreciation rules, the treatment of pass-through limited liability corporation and subchapter-S entities, or any of the other adjustments made to the U.S. tax law in late-2017, many precasters will begin to feel the positive effects of the new tax law as early as this year.

Smith-Midland, for example, did some rough calculations in 2017 and determined that the new 21% tax rate would create a cash surplus. In today's tight labor market – where finding and keeping good employees is becoming more challenging every day – the company decided to share that surplus with its most valued asset: its staff.

Smith said the company is also putting more money into training programs this year.

"We already do quite a bit of training, but this will give us even more resources with which to train our folks," Smith said. "The tax cut will allow us to hire more people, invest in more technology and invest at least \$500,000 more in capital expenditures with which to grow our business."

### THREE KEY POINTS

Particularly beneficial for small to mid-size businesses, the 2018 Tax Reform Law comes with several favorable changes that precasters will be able to take advantage of. Among them are these three key changes:

- ▶ **Corporate taxation.** The graduated tax rate structure for corporations, which used to top out at 35%, has been replaced with a flat rate of 21%. This will help reduce the tax liability for many C corporations. These cuts are permanent.
- ▶ **Section 179 deduction.** This tax deduction allows companies to deduct the full purchase price of qualifying equipment – either purchased or financed, during the tax year – and once capped at \$500,000 (of the cost of qualified business property). With the new law, the deduction limit for Section 179 increases to \$1 million for 2018. The limit on equipment purchases has increased to \$2.5 million, and the bonus depreciation, which now also includes used equipment, is 100% and has been made retroactive to Sept. 27, 2017, and is good through 2022.
- ▶ **Pass-through entities.** The net income of partnerships, S corporations, LLCs and sole proprietors is effectively taxed at individual tax rates. The new law creates a 20% deduction (Section 199A) on income for pass-through entities, subject to certain limitations. The deduction applies only to qualified business income and can't be claimed by taxpayers in service businesses, making precasters prime candidates to benefit from this new deduction.

The new tax law includes numerous other changes that will impact precasters, but the three outlined above will likely create the biggest positive impact for manufacturers in 2018. See, “A Guide to the Tax Changes,” at [factcheck.org](http://factcheck.org) for a complete list of changes for both businesses and individual taxpayers.<sup>1</sup>

“This brings down tax rates for all individual businesses, and especially for companies with less than \$315,000 in income, which will automatically qualify for the 20% small business deduction,” said Palmer Schoening, chairman of the Family Business Coalition and president of Schoening Strategies, a government affairs and economic consulting firm that advises associations and family businesses on tax policy.

Even precasters with higher income levels can qualify for the 20% deduction, said Schoening, as long as they can prove, for example, that they aren't operating as sole proprietors.<sup>2</sup> Schoening sees the 20% deduction and the new, lower corporate rates coming together to create an environment where precasters can afford to give pay raises and other bonuses to employees over the next few years.

## A GREAT TIME TO BUY EQUIPMENT

If your precast plant needs an upgrade, or even just a new piece of equipment here or there, this is the year to dust off that plan of action and kick it into gear.

“It's a great time to buy new or used equipment,” Schoening said.

Where different types of equipment were expensed over time using specific depreciation schedules, most of the equipment on a precaster's wish list can be expensed in the same year it was acquired.

“This is a huge step in the right direction for manufacturers,” Schoening said.

NPCA President Ty Gable concurs, and said this new level of rapid depreciation, will likely push many precasters from the sidelines and into equipment acquisition mode.

“A lot of firms hold off on making capital expenditures and wind up patching that machine, patching that truck, or getting another year out of that piece of equipment,” Gable said. “Knowing that they can now depreciate a new or used purchase on a more rapid schedule will

encourage more businesses to buy more equipment.”

The best news is that this movement will, in turn, help put more money in employees' pockets and wind up boosting the U.S. economy as a whole – a trend that will positively impact the business world.

“Not only are employees going to be able to have more modern equipment to work with and bigger paychecks, but they'll also be getting bonuses,” said Gable, who has been involved with industry lobbying and issues management for more than 40 years. “This new law is a win-win-win for our members. I've never seen a piece of legislation be this positive for small business.”

## LEVERAGING THE BENEFITS

Your company may not have even filed its 2017 tax returns yet, but that doesn't mean you can't start thinking about how to fully leverage the new tax law.

“The first thing to do is sit down and talk to a tax professional or CPA and find out exactly what the changes mean for your firm,” Gable advises. “Look at how you can invest any financial wins back into your business and into your people, and then use those surpluses to your advantage.”

## Understand how the **new tax law** impacts small manufacturers, how to **take advantage** of the change, and why now is the **time to invest** in your employees and new equipment.

Schoening also tells precasters to consult the new payroll tax withholding tables,<sup>3</sup> and then start communicating any tax advantages to their individual employees. Also, encourage employees to revisit their W-4 forms for 2018 to make sure they're claiming the right number of deductions and addressing any other key details.

“This is important to do on both the public relations and human resource side of things as these benefits trickle down to workers,” Schoening said. “Everyone needs to know and understand exactly how the change in the law is affecting what they bring home to their families.”

Finally, both Schoening and Gable said precasters should assess their current, individual situations to determine what the best moves are – equipment purchases, corporate entity selections, employee bonuses or raises – for the year ahead.

“Everyone has to look at their own situations and figure out what's best for them,” said Schoening, “knowing that investing in your business and your people are two of the best things you can do for the future of your business.” **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.*

## RESOURCES:

<sup>1</sup> [factcheck.org/2017/12/guide-tax-changes/](http://factcheck.org/2017/12/guide-tax-changes/)

<sup>2</sup> This is a particularly complex area of the new law that should be discussed with an accountant.

<sup>3</sup> The 2018 Percentage Method Withholding Tables can be found in Notice 1036 at [irs.gov/pub/irs-pdf/n1036.pdf](http://irs.gov/pub/irs-pdf/n1036.pdf).

# People & Products

## People & Products

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

*For possible inclusion, send your press releases and photos to [sgeer@precast.org](mailto:sgeer@precast.org).*



### JENSEN PRECAST CELEBRATES 50TH ANNIVERSARY

NPCA member Jensen Precast celebrates 50 years in business. Founded by Donald Jensen in Reno, Nev., the manufacturer provides communities, businesses and government agencies with precast concrete products and services for underground infrastructure needs.



Donald Jensen

Donald began casting concrete parking curbs as a teenager attending Reno High School. After founding Jensen Precast in 1968 with a single facility in Reno, he expanded operations in 1978 to Las Vegas. Over the next four decades, Jensen Precast grew in size and reputation as it opened branches

across California, Hawaii and Arizona. The company continues to introduce new products in step with market demands, including stormwater and on-site wastewater systems. Today, the company operates 11 branches throughout the Western U.S.

For details on the 50th anniversary celebration, visit [jensenprecast.com/50th](http://jensenprecast.com/50th).

### CONCRETE SEALANTS ADDS NEW TEAM MEMBER



Ed Gebauer

Concrete Sealants announced Ed Gebauer has joined its team as a technical sales specialist. He will promote ConBlock products, which includes antimicrobial and densifying admixtures, concrete surface densifiers and water repellents. Gebauer has served on the Wisconsin

Precast Concrete Association Board and received the WPCA Founder's Award.

### M.A. INDUSTRIES ANNOUNCES NEW HIRE, PROMOTION

M.A. Industries announced Tommy Harreld has joined its precast supplies division as senior sales manager. Harreld will direct sales efforts of the company's direct and independent representatives.



Tommy Harreld

The company also announced the promotion of Scott Peacock to senior vice president of sales for all three of the company's divisions. He has worked at M.A. Industries for more than 25 years and was previously the vice president of sales for the precast supplies division.



Scott Peacock

### HAMILTON KENT ADDS TO SALES AND ENGINEERING



Marcus Barnett

Hamilton Kent announced Marcus Barnett has joined the sales team as a territory manager and is responsible for the U.S. southeastern region. He will provide technical and sales support while maintaining and growing the company in the concrete pipe and precast concrete industries.

Barnett is a National Precast Concrete Association Master Precaster, holds certifications with several department of transportations and is on several ASTM committees and subcommittees.

In addition, Mike Rossi joined Hamilton Kent's engineering team as a product manager. He will be responsible for customer technical support for research and evaluation of new product designs and for client quote submittal.

**COMBILIFT OPENS NEW FACTORY**

Combilift, an Ireland-based manufacturer of multi-directional forklifts and long-load material handling solutions, will open a new factory on April 30, 2018. The opening of the 500,000-square-foot factory coincides with the company's 20th anniversary celebration and the launch of a new product range.



**NEW OWNERSHIP FOR SIOUX CORP.**

The Finger family has sold Sioux Corp. to three employees Brad Hyronimus, Eric Hansen, and Meg Andersen. As principals, the three have transitioned to the respective roles of president and chief executive officer, vice president of operations, and chief financial officer.

The ownership change was timed with the retirement of Jack Finger, president and CEO, who during a 22-year tenure is credited with implementing lean manufacturing initiatives, value engineering of legacy and new product lines, entering new markets and growing exports.



**MANAGEMENT CHANGES AT PALFINGER**

Palfinger announced that Mark Woody, vice president of sales and marketing and president of Palfinger, will be retiring after 25 years of service.

Woody joined Palfinger in 1993 and made substantial contributions to the success of the company, including strengthening the market position and the local value creation in North America.

Tim Arkilander will be appointed as president. As executive vice president of sales and business, Arkilander's strong business background brings more than 30 years of experience into the leadership role.

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# CALENDAR OF Events



**Oct. 4-6, 2018**  
**NPCA 53RD ANNUAL CONVENTION**  
Omni Providence Hotel  
Providence, R.I.



**Feb. 28 - March 2, 2019**  
**THE PRECAST SHOW 2019**  
Kentucky International Convention Center  
Louisville, Ky.



**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



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

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