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Chairman's Choice: Wieser Concrete Products

38 Wieser Concrete Products Builds a Lasting Legacy Through Three Generations

On the Cover:

Brothers (from left) Andy, Mark and Dan Wieser are second-generation precasters with Wieser Concrete Products. In October, Mark was elected chairman of the NPCA Board of Directors.

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CHAIRMAN'S **INSIGHTS**

A Message from NPCA Chairman Mark Wieser



The New Year Brings Fresh Opportunities

Challenge and change. Those seem to have been the only constants during these past two years.

As we near the end of 2021, it is natural to look back and reflect on what's behind us. But that's not my style. We all know what's back there. I prefer to look forward and talk about where we are headed.

The coming year presents NPCA and its members with opportunities to strike a new path for precast concrete, one we can forge together for decades to come.

And as your new chairman, I look forward to the direction we are on.

Our strategic plan in place provides us with clear, specific objectives. You can read more about that on Page 64.

We will use analytics and advanced marketing strategies to increase the visibility and significance of precast concrete products in infrastructure projects as well as general construction. Our goal is to not just be more visible to the media and government officials but the population at large.

We also will continue to work within the precast community, our sister organizations and the construction industry on key issues and advocacy.

Through discussions with high schools, trade schools and community colleges, we are tapping new sources to fill the workforce. And through the soon-to-be-released Onboarding Program, we will instill those workers with the confidence and knowledge to succeed.

I've been around precast concrete my entire life and worked at a precast facility my whole career. Just as my father and his generation laid the groundwork for us, we will tackle these challenges and changes to our industry to lay the foundation for the next generation.

I'm looking forward to the year ahead. Not only because I'm optimistic about the pandemic winding down and the job market settling but also because of the opportunities that it will bring to NPCA and its membership.

A handwritten signature in black ink, appearing to read "Mark Wieser". The signature is fluid and cursive, written in a professional style.

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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 posted on precast.org.

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

Frank writes:

What is concrete bleed water?

NPCA Technical Services engineers answer:

Bleeding in fresh concrete refers to the process where free water in the concrete mix is pushed upward to the concrete surface because of the settlement of heavier solid particles in the mix, such as cement. Some bleeding is normal, but excessive bleeding can be problematic. Fortunately, bleed water can be controlled.

The water-to-cement ratio (w/c) of a concrete mix has the greatest impact on the amount of bleed water a fresh concrete mix will exhibit. A higher w/c can lead to more bleeding. Additionally, the mix proportions, raw materials and the form height also affect bleeding.

The goal is not necessarily to eliminate bleed water, because it is an inherent characteristic and result of properly curing concrete. Instead, it is important to manage bleed water and prevent excessive bleeding. An appropriate amount of bleed water is beneficial and can help ensure moist curing conditions for the unformed concrete surface.



NPCA file photo

According to the commentary in Section 4.4.4 of the NPCA QC Manual, “Excess bleed water on the surface should be removed using a squeegee or a rubber hose pulled across the surface before finishing the concrete. The surface should then be floated using a magnesium float, followed by troweling, if required. For hard, dense surfaces, repeated troweling may be needed.”

Diane writes:

What is the ASTM standard for watertightness testing by vacuum (negative pressure) of a septic tank?

NPCA Technical Services engineers answer:

There are two ASTM standards that cover vacuum testing for precast concrete septic tanks.

The first is ASTM C1227, “Standard Specification for Precast Concrete Septic Tanks.” This is the standard for precast concrete septic tanks that covers concrete materials, tank design, etc., and also includes hydrostatic watertightness testing as well as the vacuum testing method for watertightness. This vacuum test can be conducted at the precast manufacturing plant or on the jobsite prior to installation. This is the one that is most often used and specified.

The other ASTM standard that covers vacuum testing for precast concrete tanks is ASTM C1719, “Standard Test Method for Installed Precast Concrete Tanks and Accessories by the Negative Air Pressure (Vacuum) Test Prior to Backfill.” This document only covers the test method. It



NPCA file photo

does not address concrete materials, tank design or anything else. An important note for this test method is that it is to be conducted on the jobsite when the tank has been installed but not yet backfilled. This standard also can be used for precast grease interceptors and some other structures.

Vacuum testing not only demonstrates that the structure is watertight – a characteristic critical to the performance of the septic tank and the entire treatment system – but it also can be used to demonstrate structural integrity.

Note that it is generally not advised to vacuum test septic tanks made of alternative materials as they could implode. ■

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PERMEABILITY REDUCING ADMIXTURES:

It is Your Density!

By Claude Goguen, P.E., LEED AP

Durability. Out of precast concrete's many attributes, this is the one that makes it among the most-used building and infrastructure materials on the planet.

Sure, products must meet precise dimensions, required strength and varying levels of appearance, but nothing beats the significance of long service life, which affects other important attributes such as sustainability and resiliency.

Threats to concrete durability can originate from many different sources, but there is one primary strategy that will protect against the majority of those risks: reducing the permeability of the concrete and densifying it to prevent intrusion of harmful materials.

Low permeability concrete can be achieved through the use of quality materials and proper manufacturing practices. Permeability reducing admixtures also can be a valuable asset in the quest for enhancing durability. There are many options for permeability reducing admixtures on the market, so it's important to know which to choose for each application.

TRANSPORT MECHANISMS OF LIQUIDS AND GASES INTO CONCRETE

In order for a liquid or gas to enter or travel through concrete, it needs help from specific types of conduits. These conduits can take the form of:

- PORES
- CAPILLARIES
- CRACKS

Pores are air- or water-filled voids in concrete that can vary in size and number depending on multiple factors. Water added to concrete serves two purposes: to hydrate cement and create paste and to make the concrete workable so it can be placed. Excess water left behind after the cement hydration may remain in the concrete after it hardens and create water-filled pores or dry out and leave air-filled pores.

Entrapped air also is a type of pore. Pores can be separate distinct voids or connected by capillaries. The number and volume of pores are measured as porosity, which is the ratio of the volume of voids in a material to the total volume of the material and is expressed as a percentage.

Capillaries are microscopic channels left behind in hardened concrete from when water travels through fresh concrete. For example, when concrete is placed and heavier materials in the mix – such as coarse aggregate – ever so slightly sink, extra mix water can get pushed toward the concrete surface. The water that appears at the surface as a result of this action is known as bleed water. The channels left behind from that movement are called capillaries – sometimes referred to as capillary pores.

Finally, cracks may form after internal fracturing of the paste. Most cracks are too small to see with the naked eye. These “microcracks” are not large enough to cause any structural issues, but they could facilitate the passage of liquids or gases.

Microcracks may heal through a process known as “autogenous healing.” This can occur without the addition of any special admixtures as long as the crack is relatively stable and there is water and cementitious compounds that can react and produce material to fill the crack. The water’s velocity flowing through the crack will affect the healing rate.¹

Good concreting practices aim to minimize these pores, capillaries and cracks and keep ingress and passage of liquids and gases through concrete to a minimum. That ingress is measured as permeability. While porosity and permeability are not directly proportional, a higher porosity contributes to a higher permeability. Excessive bleeding could lead to more capillaries, which also could facilitate the entry of liquids.

Water can enter concrete using one of two primary mechanisms: absorption or ingress under pressure.

Absorption is a mechanism that can occur in the absence of hydrostatic pressure. Sometimes, this mechanism is referred to as “wicking.” Liquids can be drawn into the concrete because of capillary absorption. It’s the same force that draws water up into a piece of paper towel or blood from the tip of a finger into a small tube. If you place a dry concrete cylinder in a shallow dish full of water, moisture will absorb and wick upward counter to gravitational pull.

Ingress under pressure means there is a hydrostatic pressure or hydraulic head pushing water into the concrete. In other words, the structure is submerged and water is forced into the concrete by that pressure, which increases with depth. Concrete surfaces buried below the water table are subjected to hydrostatic pressure. The surface above the water table does not experience that pressure but still could allow ingress through absorption. Of the two mechanisms, absorption tends to be the fastest means of water ingress.

While permeability technically applies to water under pressure, it generally is used to describe the passage of liquids through concrete under both mechanisms.

REDUCING PERMEABILITY

It is practically impossible to make concrete completely impermeable, but permeability can be reduced to a point where it no longer poses a threat to a structure’s durability. This can be achieved through optimizing mix proportions as well as good manufacturing and curing processes. It also can be achieved by using certain supplementary cementitious materials (SCMs) or admixtures that help fill voids in the concrete. These products are sometimes called densifiers, waterproofing admixtures or permeability reducing admixtures (PRA).

While there are many PRAs on the market, they can be broken down into two main categories, as defined in ACI 212.3R, “Report on Chemical Admixtures for Concrete,” Chapter 15.²

- **PRAN.** Permeability reducing admixtures – non-hydrostatic. These types of admixtures, also referred to as damp-proofers, are designed to prevent the absorption of liquids that are not under hydraulic pressure. Most PRANs consist of a hydrophobic or water-repellant material. Others contain finely divided solids that increase density and help resist passage of liquids and gases by forming a precipitate and partially blocking voids.
- **PRAH.** Permeability reducing admixtures – hydrostatic. These types of admixtures often are called water-proofers and are designed for hydrostatic pressure conditions. Many PRAHs are crystalline based while some rely on other technologies to densify the concrete. Paul Laskey, national manager for concrete innovation with Sika, said, “In the presence of water, the ingredients of these crystalline products react to form non-soluble crystals that fill and plug the pores and microcracks in concrete.” The reaction may occur with calcium hydroxide (CH) or cement particles to create additional calcium silicate hydrate (CSH) gel and other precipitates. It is a similar mechanism to that of using a pozzolan that reacts with CH to form more CSH, which can fill additional voids in the concrete and reduce permeability. Paul Derby, technical consultant with Xypex, said, “Crystalline development is initiated with the excess mix water. Additionally, water curing of the concrete helps improve crystalline development and reduce permeability, and in the case of liquid holding structures, the sooner they are put into immersion the better as it also aids in crystalline development.”

Some PRAHs are hydrophobic or may contain a blend of hydrophilic and hydrophobic elements. Some products use polymer-based agents. These admixtures contain monomers, which react with calcium and moisture to polymerize and form hard globules similar to rubber to block voids.

PRA technology has come a long way in recent years and continues to evolve.

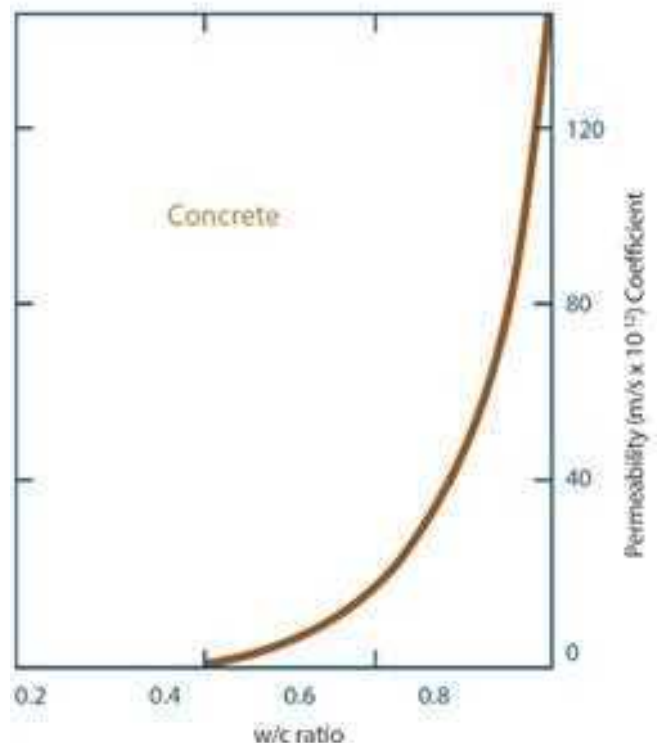


Figure 1. Effect of w/c on permeability. Source: Neville, 1981.

Sam Lines, engineering manager with Concrete Sealants, said, “As science is allowing us to know more about the cement hydration process, researchers are learning new and innovative approaches to creating nano-scale products which reduce the transport properties of liquids and gases through concrete. In the next decade, the industry will see even more options available to the precast industry to reduce permeability, enhance durability and provide environmentally green solutions.”

OTHER POTENTIAL BENEFITS OF PRAS

Some PRAs can bring about additional benefits to plastic and hardened concrete.

- **Strength enhancement.** Some PRAs can result in increased concrete strength. Pores can't withstand loads, so it's logical that fewer pores equates to higher strength. CSH primarily is responsible for strength development in concrete. Therefore, when PRAs react with CH to create more CSH, this helps enhance strength. The interfacial transition zone (ITZ) denotes the very thin region of cement paste around the aggregate particles. In some cases, CH or pores can form in the ITZ, thus negatively affecting strength. PRAs that reduce CH, fill pores and enhance ITZ quality also increase strength. It's important not to consider the potential PRA-induced strength increase in the final design as this increase can vary significantly.
- **Set retardation or acceleration.** PRAs can influence setting times. Those that do mostly extend set times, which can end up enhancing hydration and overall concrete quality. If set retardation is desired, then that can be a benefit of certain PRAs. Conversely, some accelerate the hydration process, which also can be beneficial in the right conditions. Accelerated hydration can lower bleeding, which reduces capillaries and allows finishers to start sooner. It's important to determine the set time impacts through trial batches and testing so any necessary adjustments can be made.
- **Workability.** Some PRAs enhance workability by acting a bit like a water reducer. This could be because of the specific proprietary chemical formulation or the actual addition of a high-range water reducer (HRWR). This could result in slightly higher spread or slump test results.
- **Efflorescence control.** Efflorescence is a phenomenon where a deposit forms on the surface of a concrete or masonry product caused by evaporation of a salt-containing solution. The deposit usually is white or slightly off-white. This process is promoted by water ingress where the solution moves back out to the surface to evaporate. Repetitive cycles of wetting and drying are a cause, but the primary contributor is high concrete permeability. Many times, PRAs are sufficient to slow permeability enough to prevent moving liquids and thus preventing efflorescence.
- **Self-healing.** Microcracks may self-heal when the admixture reactivates in the presence of moisture, a reaction occurs and they are filled with crystalline deposit. It is common that concrete self-seals hairline cracks up to 0.5 mm (0.02 in.).

CHOOSING A PRA

By virtue of the name, PRAs are designed to reduce permeability, but this is not usually the end goal when using these admixtures.

The end goal usually includes one or a combination of the following:

controlling efflorescence, maintaining an architectural appearance or extending durability in a mild or aggressive environment.

STANDARDS AND TESTS

Many PRAs are compliant with ASTM C494, “Standard Specification for Chemical Admixtures for Concrete” under the classification Type S – specific performance admixture³. Some PRAs also may fall under other classifications if they contain additional admixtures or satisfy specific criteria. This standard helps ensure quality and uniformity but is not a performance test.

The most common types of permeability tests for PRAs include:

- **Army Corps of Engineers test CRD C48-92, “Standard Test Method For Water Permeability Of Concrete.”**⁴ This test method consists of subjecting a concrete sample to water under 200 psi (1.38 MPa) of pressure. After several days, the water loss reservoir is converted to a permeability value.
- **German standard DIN 1048 (Part 5) Testing of Hardened Concrete, Water Permeability.**⁵ Measures water penetration into concrete samples subjected to 72.5 psi (0.5 MPa) of hydrostatic pressure over a period of three days.
- **ASTM C1585, “Standard Test Method for Measurement of Rate of Absorption of Water by Hydraulic-Cement Concretes.”**⁶ This test method measures absorption of water into a concrete sample. This is achieved by drying the sample to a known moisture content, weighing it, exposing the bottom to water for a period of time and weighing it again.
- **ASTM C1202, “Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration.”**⁷ This test method often is called the rapid chloride permeability (RCP) test. It was primarily designed to measure concrete's ability to resist chloride ion penetration. The test records a total electrical charge passed through a specimen in coulombs, and that is converted to an estimated permeability rate. This test is popular because of its speed but is not always the most accurate test to determine permeability depending on mix design constituents.

BATCHING

Many PRAs come in powder form while some come in liquid form. Most powdered products come in pulvable, shreddable or water-soluble bags, which allows the user to simply throw the entire bag into the mixer. Whether the bag is added to the mixer, or the packaging is opened and the admixture is added manually, considerations must be given to the ease of doing so with every batch, and mitigation of any associated safety risks.

“One of our precast producers uses the product in bulk and has installed a dedicated hopper and auger system to dispense the admixture into the mixer,” Derby said.

The PRA dosing and sequencing must be determined by the product supplier. They will need details of your mix design and mixer and may want to run some tests prior to suggesting a dosage rate and batching sequence. Most powdered admixtures have dosage rates around 1% to 2% by weight of cementitious materials, while dosage rates for liquid admixtures range from just a few ounces to 40 ounces per 100 pounds of cementitious material. Dosages also will depend on use of concentrated and pigmented formulas.

Sequencing of powdered PRAs tend to be at the very beginning of the mix cycle or with aggregates.

Mark Bury, product manager - admixture systems with Master Builders, said, "Our product should be added up front in the empty mixer, followed by the water addition and mixing for a few seconds. Immediately after that, add the remaining ingredients and continue mixing. The product can also be added with the aggregates or placed on the aggregate belt."

Some liquid admixture suppliers recommend adding their product with mix water or to a wetted mix and warn against late addition to avoid delayed or even accelerated set times.

POTENTIAL IMPACTS ON PLASTIC CONCRETE PROPERTIES AND INTERACTION WITH OTHER MATERIALS

Those considering using PRAs will want to know how they affect plastic concrete properties such as set times and slump or spread. They also will want to know potential influences on short- and long-term concrete strength. Most PRAs have minimal negative interactions with other admixtures and cementitious materials, but suppliers may suggest slight modifications such as air entrainment dosage and HRWR type and/or dosage.

Many PRAs offer a pigmented option that will turn the concrete a specific shade.

"Some precast producers utilize a tinted version of the admixture for identification purposes to prove that the admixture is in the mixture, and to identify the treated structures in their inventory," Bury said.

GREAT OPTION TO BOOST DURABILITY

Permeability reducing admixtures can be a reliable means of enhancing the inherent durability of a high-quality precast concrete structure, but remember that they will not fix poor quality concrete. The work has to be put in up front to optimize raw materials and mix proportions, control moisture levels, keep the water-to-cementitious materials ratio low and properly place and cure the product. Once that system is in place and working well, PRAs can offer additional reduction in permeability as well as the associated boost to one of precast concrete's most important attributes: durability. **PI**

Claude Goguen is the director of outreach and technical education at NPCA.

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HYDROSTATIC CONCRETE PRESSURE:

A Look at Hydrostatic Loads on Forms

By Eric Carleton, P.E.

The Hoover Dam holds back a tremendous amount of water, and, depending on the water level in Lake Mead, the resulting pressure can be as high as 45,000 pounds per square foot at its base.

As the dam was built using more than 3.25 million cubic yards of concrete, workers dealt with a similar, albeit far lesser pressure on the formwork. Since fresh concrete is fluid, placing that concrete exerted outward pressure on the forms, which had to be reinforced with outer bracing to keep the form walls from breaking open.

These loads are present whenever a fluid is contained or being restrained from gravity-induced flow. When applied across an area or

surface, these loads cause hydrostatic pressure.

Precast manufacturers must consider these loads and the resultant concrete lateral pressure distribution when casting concrete to ensure that the forms resist this pressure to allow the concrete to cure and harden into its designed shape.

WHO IS RESPONSIBLE FOR FORM DESIGN CRITERIA?

Not all precasters have the engineering staff and capacity to construct elaborate formwork on their own, so they must rely on established form manufacturers to design forms that meet the anticipated loading conditions.

GUIDANCE FOR SPECIALIZED FORM DESIGN ENGINEERS

ACI Committee 347 – Formwork for Concrete published its first guide on concrete formwork in 1963. This committee has continued to review the latest research and refine the design criteria for formwork with the latest guide, ACI 347R-14, “Guide to Formwork for Concrete.”

As described within the guide, many factors related to fresh concrete affect the hydrostatic form pressure at any given height and within certain time parameters. The most basic approach and assumption is that fresh concrete is simply a constant heavy fluid for the entire casting. In that case, the concrete lateral pressure distribution can be calculated as:

$$C_{CP} = wh$$

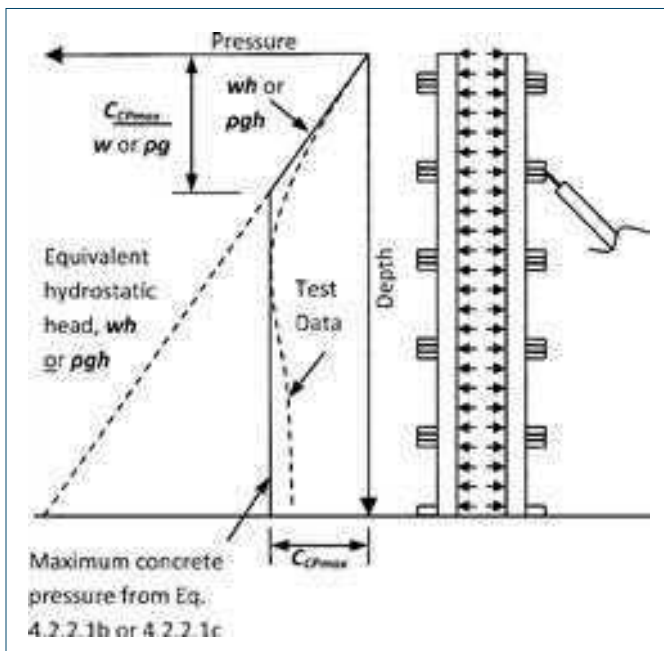
where:

- “ C_{CP} ” is concrete lateral pressure (lb/ft² or Pa)
- “ w ” is unit weight of concrete (lb/ft³ or kg/m³)
- “ h ” is depth of plastic concrete from top of placement to point of consideration in the form (feet or meters)

For normal-weight concrete with a density between 140-150 lbs/ft³ (2,240 to 2,400 kg/m³), the minimum design value of C_{CP} is 600 lbs/ft² (28.7 KPa), but in no case shall it be greater than wh .

Though easy to calculate, research has shown that the actual developed form pressure of poured concrete can be much less when concrete stiffening begins. Concrete stiffening is when the previously cast concrete in the lower portion of the form begins to set and harden. This stiffening is dependent upon many factors, such as:

- The speed of placement.
- Mix design parameters, including cement type and use of supplementary cementitious materials, retarders, accelerators, etc.
- Concrete temperature at the time of placement.



Graphic courtesy of the American Concrete Institute.

Source: ACI 347R-14



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Precast manufacturers must consider load and the resultant concrete lateral pressure distribution when casting concrete to ensure that the forms resist this pressure to allow the concrete to cure and harden into its designed shape.

Formwork for many large cast-in-place building projects constitutes a major expense within the constructed project. Reducing the design pressure of the concrete on the formwork relates to reduced structural bracing to resist this concrete pressure, which in turn simplifies the formwork and reduces the cost of the project.

In addition to the simple formula previously discussed, ACI 347R-14 also provides two more elaborate concrete lateral pressure distribution equations that incorporate concrete stiffening criteria, specifically the rate of concrete placement and the temperature of the concrete at the time of placement.

ACI 347-14 provides guidance that outlines which of the three concrete lateral pressure distribution equations to use. The deciding factors are based on the fresh concrete's slump, the internal vibration depth and the element's height.

WHAT ABOUT PRECAST?

Because of the nature of plant-produced precast concrete products, forms typically are not as large or tall as those used in cast-in-place projects. Where cast-in-place routinely can have formwork of 15 to 40 feet and higher, a tall precast form rarely exceeds 10 feet.

Additionally, because the volume of concrete to fill a precast form is relatively small compared to the concrete mixer capacity, the concrete placement is speedy – often measured in minutes – to completely fill a form, while large cast-in-place pours can be measured in feet per hour as provided within the ACI 347R-14 design equations.

Consequently, it is appropriate to assume as a minimum that lateral concrete pressure on precast forms is $C_{CP} = wh$. However, that is a minimum value for the variety of precast concrete forms and type of concrete being utilized, according to Hamilton Forms Senior Engineer Skip Plotnicki.

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Precasters must account for any additional pressure for short-term vibration of lower slump wet cast concrete mixes.

FORMS FOR CONVENTIONAL WET CAST CONVENTIONAL

Manufactured wet cast forms from a qualified fabricator are designed to accommodate the fluid concrete pressures described above. Some form producers recommend adding an additional 15% pressure for short-term vibration of lower slump wet cast concrete mixes. Additionally, precast operations often will have the product cast in one location, and the entire formwork and pallet are then moved to another

area for curing. In those special cases, the formwork design needs to include considerations for the dynamic loads caused by lifting and moving the precast structures.

Intuitively, large flat rectangular forms in a vertical position require additional steel angle iron reinforcement to resist bending or bowing of the flat form surfaces. Alternatively, forms for manholes and similar products enjoy the benefit of a circular shape, allowing the steel core to handle the loading in ring compression while the exterior jacket is in uniform tension, which reduces the need for extensive structural support.

Regardless of the form shape, it is important to ensure latches and hinges all are in good working order and utilized appropriately. The load path of all the described form pressures is concentrated and passes through the latches. ACI 347R-14 recommends the minimum factor of safety for form hardware to be 2 to 1.

If a form has four latches and two are broken, do not close properly or simply are not latched, then there is a real potential for harsh physical lessons learned on hydrostatic loads on forms.

FORMS FOR DRY CAST CONCRETE

It often is said that dry cast forms are built like battleships – stout and sturdy. On the surface, this would seem to contradict the form pressure doctrine that implies a stiff concrete, such as dry cast, would exert less hydrostatic form pressure than a high slump conventional concrete.

According to Dave Stoller, global vice president of engineering at

Afinitas, although a dry cast mix is more “solid” than wet cast mix, vibration typically is used to consolidate this type of mix. Vibration essentially liquifies the mix, so we assume that the fresh dry cast concrete acts as a pure liquid with a density equal to that of the concrete mix. Static pressure calculations are based on this assumption.

“An even more significant loading is present, and this load is due to pressing in a joint forming ring ‘header’ or ‘profile ring,’” Stoller said. “Most dry cast forming processes involve placing a top ring under pressure to trap and pressurize the concrete mix under vibration. This pressing or press-heading step subjects the forms to relatively large loads.”

The pressure generated by this pressing process is calculated by dividing the pressing force by the projected area of the top ring. This pressure is added to the static liquid force of the concrete mass because of gravity.

“The other major design consideration is due to the vibration, which can range from 2 to 10 G of acceleration,” Stoller said. “The allowable stresses in the forming structures must often be reduced to remain under the fatigue limit of steel. This is a much more stringent requirement than a simple safety factor against yielding. Consequently, dry cast forming is typically built much heavier than equivalent wet cast forming.”

ENGINEERED FORM PANELS

Engineered form panels are a popular option among precast concrete manufacturers that produce a variety of different-sized or custom products such as wing walls, special drainage inlets or “one-off” vault structures.

Form panels can be made of a variety of materials, including steel, aluminum, wood and plastic. Each material offers different benefits.

Accordingly, each form type has certain defined structural capacity to resist hydrostatic form pressure. This is based on the panel manufacturer’s specific design and is included within the product information.

A panel’s structure and stiffness are built in by the panel producer, but the form system requires erection by the precast concrete producer. This will include side-by-side panel connections using pins or hardware and wall-to-wall connections using wall ties – also referred to as form ties or snap ties. These ties become the critical structural element holding the facing form panels together under the load and resultant pressure of the fresh concrete.

Similar to other forming hardware, the design guidelines are to provide a 2-to-1 working load factor of safety for wall ties. Damaged or missing ties quickly can increase the stress on the remaining ties to a point of failure. This can lead to a bowing of the form filled with concrete, which is difficult if not impossible to correct, or worse, a panel blowout. Both can have severe ramifications.

WHAT ABOUT SCC?

While self-consolidating concrete (SCC) is just starting to gain traction in the ready-mix market, it has become a mainstay product for many precast operations. One reason for reticence within the onsite construction world is the initial lack of understanding and research related to the hydrostatic form pressure on formwork. The current design pressure assumption used today is as written within 347R-14, which states:

“When working with self-consolidating concrete, the lateral

pressure for design should be the full liquid head unless the effect on formwork pressure is understood by measurement or prior studies and experience.”

However, researchers at institutions such as the University of Illinois¹ and Missouri University S&T² have investigated SCC form pressure to study data and develop testing methods in areas such as reliable pressure decay curve development.

ACI Committee 237 – Self-Consolidating Concrete soon is expected to publish PRC 237.2-21, “Form Pressure Exerted by Self-Consolidating Concrete: Primary Factors and Prediction Models.” This document can then be utilized by ACI Committee 347 to incorporate appropriate vertical form pressure design criteria for SCC within an updated guide.

Understanding of loads in a precast plant during setup, casting, curing and stripping are critical to safety and quality. Many plants use numerous different mix designs in a single form, so the lateral concrete pressure distribution on the formwork will vary with each mix design.

It’s important to make sure forms are designed for the worst-case scenario. Consult with your formwork supplier to ensure your forms are ready for the next challenge. **PI**

Eric Carleton was the director of codes and standards at NPCA.

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BEST PRACTICES:

Watertight Risers for Onsite Wastewater Tanks

By Kayla Hanson, P.E.



In the septic tank manufacturing industry, the tank often is viewed as the heart of the onsite wastewater treatment system.

A strong, durable, watertight precast concrete septic tank provides reliable and efficient initial treatment before transferring the effluent to the next stage of the treatment process. The tank undoubtedly anchors the system. However, the tank's auxiliary features – including the risers – also are major contributors to the system's success, and they play an unassuming role in achieving and maintaining watertightness.

RISERS' ROLES

Precast concrete septic tanks may be buried at a variety of depths. The depth of bury depends on the system's geographical location, the local water table height, surrounding soil conditions and other factors.

Risers are used to provide at-grade access to buried structures for inspections and maintenance, and they extend from the septic tank's top slab up to the ground surface or within a few inches thereof. Although risers appear to be a simple means of ingress to take care of a dirty job, they play a critical role in the function and watertightness of the tank.

WATERTIGHTNESS

Septic tanks are required to be watertight to prevent wastewater from seeping out of the tank and contaminating the surrounding environment while also preventing groundwater from seeping into the tank and disrupting the treatment environment.

"It's a mark of quality of the product," said Jeff Hoffman, owner of Flemington Precast & Supply of Flemington, N.J., and 45-year veteran of the precast concrete industry. "It means there's no infiltration of groundwater into the tank and no exfiltration of effluent or sewage that can get out of it. It's keeping groundwater safe and unpolluted by septic effluent water."

FIVE COMPONENTS THAT AFFECT WATERTIGHTNESS

There are five critical components that affect the watertightness of any buried structure:

- **The material of which the structure is manufactured.**
- **The design of the structure.**
- **The structure's installation.**
- **The structure's joints and any other areas where the material is discontinuous.**
- **Backfill procedures.**

Not only do all five of these components apply to septic tanks, but they also apply to the risers.

COMPONENT 1: RISER MATERIAL

Septic tank risers typically are made of precast concrete or plastic. Precast concrete risers often are used with precast concrete tanks. However, most precast tanks can accommodate plastic risers, too. No matter the material, septic tank risers always should be manufactured in accordance with a strict

quality control/quality assurance program.

Manufacturing risers with strong, dense and durable materials is the first key to ensuring a watertight riser system. Precast concrete risers should be manufactured using the same high-quality concrete that is used to make precast concrete septic tanks.

"Make your risers as good as your tanks," Hoffman said.

The mix design for precast risers should be proportioned in accordance with the following American Concrete Institute (ACI) publications:

- **ACI 211.1**, "Practice for Selecting Proportions for Structural Lightweight Concrete" for traditional wet-cast concrete.
- **ACI 211.3**, "Practice for Selecting Proportions for No-Slump Concrete" for dry-cast or zero-slump concrete.
- **ACI 237**, "Self-Consolidating Concrete" for self-consolidating (SCC) concrete.

Riser mix designs must have a water-to-cementitious materials ratio (w/cm) of 0.48 or lower. Risers that will be exposed to freezing shall have a w/cm of 0.45 or lower. Additionally, the concrete's minimum compressive strength must be at least 4,000 psi at 28 days or the age specified by design, and the riser sections must be cast and cured in a carefully controlled environment. Also consider using supplementary cementitious materials (SCMs) to improve density.

All of these factors contribute to making strong, dense, durable and watertight risers.

COMPONENT 2: RISER DESIGN

Engineering design primarily is based on the design element's intended use during service. Materials, products and structures are designed with capacities based on the anticipated application and use, expected occupancy, predicted wear and repetition, climate and service life.

The same is true of risers.

Appropriate for their intended use

It is imperative that only structures designed to function as risers are used as risers, and they must be appropriate for their intended use. There is no shortage of stories about unique, homemade risers that inspectors and regulators have come across in the field.

"We have seen some guys use pipe as a riser," Hoffman said. "It's not designed to be used vertically. Some inspectors don't know you can't use it."

Products designed to be installed horizontally, including various types of pipe, shall not be used as risers. Doing so poses a significant risk to the integrity of the risers and the onsite system, as well as to the health and safety of those nearby.

Additionally, some risers are specifically designed to withstand freeze-thaw cycles. Others require some simple yet important steps before the risers can be used in areas where freezing is expected. This may include removing certain components to allow for material expansion and contraction throughout the seasons. Review the riser supplier's instructions for any precautions.



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Installed properly and in accordance with the manufacturer's recommendations, a product's integrity and structure improve performance and safety.

Able to withstand the anticipated loads

Risers usually are round but also may be square or rectangular depending on the application and tank access needs. They must be designed to withstand the load of subsequent riser sections, applied loads and surcharge loads at the ground surface, and lateral loads from soil and groundwater.

"There are different risers for different applications," said Michael Kistner, a 45-year veteran of the precast concrete industry and vice president of Kistner Concrete Products of Lockport, N.Y. "There are light duty, non-traffic-rated residential septic tank risers all the way up to heavy duty commercial risers."

Be sure to supply appropriate risers for traffic-rated tanks.

Many manufacturers' warranties are void if the product is used in a way other than the scenario for which it was designed. Always consult the riser manufacturer for guidance on proper use and applications for each type of riser.

COMPONENT 3: RISER JOINTS AND PENETRATIONS

Any area of material discontinuity, including joints and penetrations, could become an opportunity for a leak if not properly addressed. Similar to how exterior doors use weather stripping to prevent moisture and air infiltration and engines rely on gaskets to keep oil, fuel and coolant in their required locations, precast concrete onsite wastewater structures use preformed flexible joint sealants to create strong, watertight seals.

Proper preparation of riser joints begins at the precast plant when the tank's top slab or top section is cast. Whenever possible, the riser's base section should be cast into the tank's top slab (for top-seam tanks) or top section (for mid-seam or multi-segment tanks). This creates continuity between the tank and the first riser section and reduces the potential for discontinuity and leakage. When using plastic risers with

concrete tanks, make sure the riser lid is positioned on the riser during casting to prevent the riser section from deforming under the weight of the surrounding fresh concrete.

In many cases, however, the riser's base section is not cast into the lid or top section of tank. Rather, it is installed later on the job site. In this case, the joint between the tank and the first riser section is a key opportunity to ensure a watertight seal.

No matter the riser material and joint configuration, proper joint sealant application is imperative. Always use joint sealant that complies with ASTM C990, "Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants." Check out the recent NPCA article, titled "Best Practices for Preformed Flexible Joint Sealant," for a detailed discussion on the topic of sealants, joints, and rigid vs. flexible connections.

"We need to keep the groundwater out," Hoffman said. "If you have groundwater going into the tank and out to the drain field, that infiltration could overload the septic system which was designed for a certain capacity."

In addition to using preformed flexible joint sealant, consider taking extra precautions in areas with a high water table where the risers are routinely exposed to hydrostatic pressure and in regions with sandy soil, as sand particles could compromise a joint seal if the joint surface and sealant are not properly prepared. In some cases, an external joint wrap may be recommended.

"The concrete is watertight," Kistner said. "If you see infiltration in the risers, it's because they were improperly installed or sealed."

COMPONENT 4: RISER INSTALLATION

The installation of a product or structure is the make-or-break point of any project. If it's not installed properly and in accordance with the manufacturer's recommendations, the product's integrity or structure

can be compromised and threaten its performance and safety.

It is the riser manufacturer's responsibility to provide detailed installation instructions, and it is the installer's responsibility to follow the instructions. Sometimes – particularly in the case of precast risers – the riser supplier also may be the installer.

“Install the risers per the instructions provided by the riser manufacturer,” Kistner said.

What may seem like a routine task for the installers who assemble thousands of riser sections annually is still an integral component of a watertight treatment system and should be treated as such. If you install the risers, be sure all the necessary equipment and tools are on-hand before getting started. This includes the correct type and quantity of screws for plastic risers and a sufficient supply of preformed flexible joint sealant. If you supply the risers with the tank shipment, consider providing a material checklist along with the installation instructions.

“The installation may seem obvious, but we provide the information anyway,” said Kistner, whose company only supplies precast concrete risers. “We provide a manual and literally show them, tell them and document how to do it. We'll also have the contractor sign off saying he received the installation documentation during the delivery. It eliminates a lot of problems.”

Installation of the first riser sets the tone for the subsequent riser sections.

“The riser should be centered over the opening in the top of the tank, and the sealant has to be mounted right,” Hoffman said.

There should be equal spacing around the entire riser perimeter, and the riser must be level. Inconsistent spacing or an uneven riser could cause gaps or insufficient seals.

For plastic risers, make sure every screw is used to secure the connection and help achieve a watertight seal. Most suppliers recommend tightening the screws in an alternating or star-shaped pattern – just like lug nuts on a car tire – to ensure even tightening and a smooth seal.

For precast risers, the most important factor during installation is proper sealant application from one riser section to the next to create a strong, watertight seal.

“Make sure the installation is properly

executed,” Kistner said. “The installation is critical.”

Before applying the sealant, the joint surfaces should be clean, dry and free of debris. Apply the sealant as close to the center of the joint as possible to ensure the sealant remains within the confines of the joint when it is compressed. Joint sealant that is allowed to squeeze out of the joints could compromise the seal.

COMPONENT 5: BACKFILLING

Backfilling is an important final step to ensure watertight risers and a watertight treatment system. In addition to filling the excavation, the backfill material can provide support to the buried structure. The greatest concern at this stage is that the risers could shift under the force of the incoming fill or that they could be knocked out of position with a backhoe.

Be sure to use only approved or specified soils for backfilling. The material should be free from large rocks, stones and other items that could cause unintended point loads on the buried structure.

“Be very careful not to hit the riser with the backhoe bucket when you backfill,” Hoffman said. “Don't cause the riser to shift, especially if it's already been vacuum tested. It's best to do the backfill in lifts and give it a little bit of compaction as you're going up.”

Kistner agreed.

“Fill the excavation evenly around the structure to avoid eccentrically loading the risers,” he said. “Use proper backfill material, and backfill in lifts as recommended by local regulations, and you won't have a problem disturbing a riser joint.”

WATERTIGHTNESS AT ANY DEPTH

In many aspects, the septic tank is the nucleus of the onsite wastewater treatment system with so much of the treatment and continuous workings of the system depending solely on the tank.

However, many other tank components, such as the risers, can bolster – or hinder – the system's watertightness. Optimize each system's watertightness, and each tank's watertightness, by focusing on these key components to ensuring watertight risers. **PI**

Kayla Hanson is the director of technical services at NPCA.

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Taking Your Precast Company to the **NEXT LEVEL**

Recognizing signs and opportunities for precast plant growth and advice on how to get started.

By Claude Goguen, P.E., LEED AP

The precast concrete industry is continually advancing. Technologies in both manufacturing and mix designs are helping producers manufacture higher-quality products while enhancing production efficiency. The construction industry's use of precast also is expanding, creating a greater demand for new products.

Additionally, there is an immense need for infrastructure rehabilitation and expansion coupled with the passage of the bipartisan infrastructure bill. All of these changes may lead NPCA members to ask, "Is it time to grow?"

If you haven't asked that question already, here are some of the signs that may signal it is time.

Cannot take on new work: Not every occurrence of turning down work requires contemplation of growth. However, when it happens at an increasing rate, it may be time to consider expansion. Clients and customers who find themselves repeatedly denied by a producer may seek out an alternative source.

Cannot meet current obligations due to production limitations:

It's difficult to tell a customer their product shipment must be pushed back. Causes can range from labor issues to equipment trouble to weather. While these causes may be legitimate schedule-busters, there comes a time when a producer must examine ways to minimize impact.

Lack of room in the plant to get everything done: The day's production cycle can involve an innovative choreography of formwork, supplies and products in the plant. A plant manager or owner eventually may realize that the continuous shuffling of these items is not efficient or sustainable. Insufficient space in the plant can lead to inefficiencies in production, quality issues and even safety risks for employees.

Stress in the plant due to waiting for concrete or other materials: How many plant managers have seen an eager employee standing alongside a "hungry" form? This may be a sign of too many mouths to feed with a batch plant that can only generate so much concrete in so much time. Everyone needing the next batch can increase anxiety and stress.

Ample overtime: Some employees may enjoy the benefits of overtime hours because of workload. However, this may not be economically, logistically or physically sustainable over long periods. Tired employees may make more mistakes, risking quality issues or even injury. Equipment used for long hours will require more maintenance. Managers may find that capital investments in production expansion can give a return on investment sooner than anticipated – with less overtime.

Greater demand on QC personnel: If QC staff start noticing a marked increase in items that need to be remedied, the plant could benefit significantly from conducting a root cause analysis. This analysis may reveal some factors that are related to the issues listed above and can help identify and resolve the issues and prevent them from occurring again.

HOW TO GROW

Growing a company may conjure up visions of acquiring more land, moving to a larger location, adding more manufacturing space, hiring more employees and buying more equipment. The good news is that expanding production capacity doesn't always require all of these actions. Instead, growing may mean examining the process, identifying inefficiencies and making changes within existing conditions. Adding personnel and/or implementing a change in employee responsibilities may seem small but have a big impact.

Assuming it's time to consider operational growth, owners should first consider what they want their companies to become. It's important to establish and confirm a goal and finish line, then work toward it. Some may want to specialize in a specific field, such as wastewater treatment, retaining walls or architectural products. Others may opt to manufacture a variety of new product lines. Envisioning the destination will make it easier to plot out the journey.

Once a company identifies the direction, ownership should develop a strategic plan and assess if it has the capacity, competency and capital to grow into that vision. Does that growth entail expansion? Expansion can refer to both production capacity and market. In terms of market expansion, producers must decide whether they are seeking to make more of their existing products or if they'd like to diversify their product lines.

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EXPANDING THE MARKET

Expanding the market can mean enhancing visibility. Precast plants sometimes can operate in obscurity. Owners often depend solely on word-of-mouth and can have little to no online presence. While this may work now, it can change suddenly as old accounts are closed, contacts retired and the owner is not equipped to replenish the lost income. Those considering growing their operations should closely examine their online presence. Technology has changed how manufacturers produce precast. It's also changed how customers buy and interact with suppliers. Creating and maintaining a robust online presence is key to supporting growth efforts.

Enhancing visibility also can apply to plant appearance. Precast plants are not like car dealerships. Rarely are plants and their products highly visible from a main road with pristine landscaping surrounding ornate buildings. These measures are not necessary, but producers should consider renovating the entrance and signage. Doing so can help expand visibility to potential customers and attract a high-quality workforce.

TALKING WITH CUSTOMERS

When considering growth, it's imperative to fully understand current and potential customers' needs and challenges. Start by engaging with existing customers. Listen and observe how they unload, store and install precast products. Speaking with them is the best way to identify any potential modifications to existing structures and the need for new products.

Let's say a customer purchases utility vaults from a producer. That producer stays in contact with the customer, identifying the challenges the customer encounters in the field. One such challenge could be installing the pipes, valves and other equipment. The customer must rely on other trades and good weather to get these components in before backfilling the vault. The producer goes back to the plant and assesses how the product could be enhanced to address the customer's challenges. What if the components are preassembled and installed at the plant? Here, the opportunity is not a new precast product, but, instead, the evolution of an existing one. This added service will require additional expertise and space but likely will pay for itself – and then some – in a short amount of time.

There also may be opportunities to diversify your product lines. Many ideas for new products originate with customer requests. Greg Stratis, president of Shea Concrete Products, once got a request to make oil containment curbs for electrical utilities.

"These were small structures that required inexpensive formwork," he said. "We thought this would be a temporary addition, but now, we sell them all the time."

Not all customer requests turn out to be viable long-term diversification opportunities. Shea once received an order to manufacture floating docks. While Stratis described the experience as fun and engaging, widespread demand doesn't exist, and manufacturing the pieces is not very profitable.

A unique project may be appealing and could generate an impressive addition to your list of projects. However, it's important to conduct a thorough assessment of future needs for any product beyond a one-time use. Will the cost of the equipment and materials justify further production?

Doug Starr, plant manager at Barbour Concrete – a Forterra Company, recalled getting the company's first order for

telecommunication shelters. They considered the project and decided to take a chance. The shelters turned out to be a reliable product line, and Barbour Concrete has been manufacturing them ever since.

"When the recession hit and residential construction was down, the telecommunication buildings helped a lot in keeping us going," Starr said.

A thorough review of the market may reveal a need for specific products. This also may turn into an opportunity for diversification. When diversifying into a new product line, first determine if other businesses in the market already supply the product. Are these businesses successful at making the product? If so, determine if your operation has the competence and ability to compete with the other suppliers before deciding to diversify.

"These were small structures that required inexpensive formwork. We thought this would be a temporary addition, but now, we sell them all the time."

– Greg Stratis, *Shea Concrete Products*

ASSESSING YOUR WORKFORCE

Some growth strategies may suggest adding employees. Before doing that, however, producers must first examine the efficiency of the current workforce. Like many organizations, you likely have a core group of valuable employees that the business could not operate without. This core group will be invaluable during growth periods. Therefore, managers and owners should make sure they secure that relationship.

Sometimes, workers just need to know how much they are valued. This could involve bonuses, incentives and gifts.

Offering educational opportunities is another way to tell employees you are committing to a long-lasting career at your plant. Training employees in a few different departments and roles can boost morale and enhance productivity.

You also may find implementing lean production processes effective as you assess your workforce. Cutting down on waste through this process may help you discover that you don't need as many new employees as originally forecasted.

Once a thorough analysis is conducted, identify any new roles the plant needs to be filled. With anticipated growth, there may be a need to discontinue outsourcing some services and hiring new positions, such as engineering, quality control, human resources, information technology and sales.

ASSESSING YOUR EQUIPMENT AND MATERIALS

Growth does not always mean buying additional equipment, but sometimes equipment may be hampering efforts to add productivity and keep pace with demand.

Smaller changes also could pay huge dividends. Adding heat to the plant could improve productivity during the winter season. Adding a curing system could expedite product stripping and turning over forms. Sometimes, not using a certain mix ingredient can cause ineffective production. For example, using an accelerator may help offset slower

set times, or using self-consolidating concrete could lead to eliminating the consolidation stage of production.

Before moving ahead with any expansion plans, assess your current technology at the plant along with what is available in the marketplace. Networking with fellow NPCA members – particularly through the NPCA Annual Convention and The Precast Show – is especially useful during this evaluation. If you plan to buy used equipment, ensure you have resources available for servicing. Some used equipment may come from manufacturers that are no longer in business.

EXPANDING THE PRODUCTION FACILITY

If you are considering an expansion of your production facility, first consider whether the expansion and potential future expansions can fit on the current piece of land. If not, can additional adjoining land be acquired? Depending on your situation, it may be time to consider looking at another site or moving your entire operation.

When planning on how much space will be needed, think big.

“When you make plans to expand, add more space even though you think you might have enough as it is,” said Greg Roache, president of Gainey’s Concrete Products in Holden, La. “During our last expansion, we added 30% more space than planned and still ran out of room in a year and a half.”

For Columbia Precast Products in Woodland, Wash., increasing opportunities in the marketplace necessitated more space. The company’s 4-acre facility wasn’t big enough to accommodate future

expansion, so they moved to a 23.5-acre facility and built a new operation.

“We require a lot of space to stage and stock our products because they take up a lot of real estate,” said Ron Sparks, founder and former general manager of Columbia Precast.

Many other considerations should be taken into account when expanding on current property or moving to a new one. For more information, refer to “Bigger and Better: Expanding Your Precast Plant” in the November-December 2016 issue of Precast. Inc. magazine.¹

SMALL STEPS LEAD TO BIG REWARDS

It’s easy for precast plant owners and managers to find themselves on the proverbial hamster wheel day in and day out. When focused on keeping up with current production, it can be challenging to stop and consider adding more production capability. But as the precast industry continues to grow, it’s important not to be left behind. Remember that growth can be accomplished in small steps. Adding a product line, training employees and upgrading equipment can all lead to successful growth for your business. **PI**

Claude Goguen, P.E., LEED AP, is NPCA’s director of technical education and outreach.

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A man with a beard, wearing a yellow hard hat and an orange safety vest over a blue long-sleeved shirt, is holding a set of blueprints. He is looking towards the camera with a slight smile. The background is a blurred industrial setting.

ADULT LEARNING & TECHNOLOGY

By Alex Morales, M.Ed.

Editor's Note:
This is Part 3 of 3
in a Precast Inc.
magazine series on
adult learning.

Adults acquire knowledge very differently than children do. Adults are more results-driven, goal-oriented and typically self-directed. Adults want new knowledge that they can implement immediately, prefer a learning environment where they can share their own knowledge and are inclined to work at their own pace.

When it comes to technology, however, it is more difficult to characterize the preferences or learning styles of all the adult learners. We cannot assume that all adult learners understand or know to use the available technology. As a result, there is going to be a learning curve for at least some.

It's a reality you must plan for.

TECHNOLOGY IS PERVASIVE

Technology is embedded in everyday life. Think about this: Members of younger generations have never needed change for a phone booth, sought directions from a map or hailed a cab. Instead, they interact with their phones for all of those services.

Shoppers can now purchase an entire month's worth of groceries and never step foot in a supermarket, saving money through coupons they didn't have to "clip."

While technological advances are all around us, people interact with it in a variety of ways. And while it is generally true that younger individuals are more adept to new technology, it's not hard and fast. The best educators meet their learners where they are. Talk to adults and gauge their comfort level within your planning.

TECHNOLOGY AND EDUCATION

Technology in education is not a new concept. Learning is constantly shaped by technology as classrooms keep up with advances.

For example, as mail delivery became well-established and trusted, higher education institutions used the mail to deliver materials to learners. The concept of correspondence with schools could not have been envisioned if not first for the advent of the mail system.

In the early- to mid-20th century, radio and television expanded access to higher education. Empire State College in Saratoga Springs, N.Y., was among the first to bring college education "home." British Open University was doing the same in Europe.

Technology certainly has affected formal course delivery. Even Ivy League universities offer distance education coursework.

But technology also affects the way we learn informally.

Internet searches, YouTube tutorials and user-developed content are consumed by millions every day. With so much tech-rich learning, simply putting content online might seem sufficient. However, the need to understand and properly interpret information remains key to learning well. Simply posting a YouTube video is not teaching, and simply viewing a video is not necessarily learning.

ADULT EDUCATION AND TECHNOLOGY

The tenets of dialogue education should be present in education offerings regardless of the platform. In previous articles in this series, we discussed three from Jane Vella's "Learning to Listen, Learning to Teach" – respect for learners as decisions-makers, immediacy and safety.

Respecting learners as decision-makers means offering content that your audience wants rather than what you would like to convey.

Immediacy means presenting content in a way that an adult learner can immediately use. Checklists, specific action steps and action-oriented content are received better than one-way dialogue.

Safety means offering a learning environment that is easy to participate in and free from criticism when adults talk about their own experiences.

Making the Most of Training Technology in Your Business

Technology provides ample resources for creating and delivering training for your employees, but not all organizations have the time nor staff to develop their own content. NPCA member resource offerings and easy-to-use technology can bring training directly to your employees.

Visit precast.org/education to learn more!

PRODUCTION AND QUALITY SCHOOL (PQS)

NPCA offers many of its Production and Quality School (PQS) courses in formats that meet your workers' needs from the comfort of their own electronic device. PQS I, PQS II QA/QC and the four-hour PQS II Safety module all are available 24/7 on NPCA's website. Additionally, NPCA offers PQS II Technical as a two-week webinar series to allow students to participate without leaving their plants.

WEBINARS

NPCA offers a variety of monthly webinar topics suited to a wide range of personnel. From production to safety to quality to HR, NPCA's live webinars bring industry experts directly to your team for precast-specific content and live Q&A sessions. The webinars also are recorded so they can be accessed on-demand at your convenience.

ONLINE CLASS LIBRARY

NPCA's online library has more than 150 hours of prerecorded education classes. These classes are a great way to customize your training plan for individual employees based on their roles. New classes are added monthly, so check back often.

ONBOARDING

NPCA's Onboarding Program is coming soon. This dynamic series includes a downloadable onboarding manual to guide your company through the onboarding process. Additionally, the series includes 14 videos to help you get your new employees up and running quickly. Topics include:

- ▶ A day in the life of a precaster.
- ▶ Basic plant safety.
- ▶ Common terminology and machines used in production.
- ▶ Basic skills training needed for jobs such as rebar assembly, consolidation and form setup.

Look for more information about this exciting new series coming soon.

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CHOOSING A TECHNOLOGY

The heart of adult learning is independent of the technology used to deliver it. The choice of technology should be informed by what the intended audience is comfortable with. Whether posting a tutorial or offering a webinar, you need to be the expert on the technology both as an education provider and a learner.

You are unlikely to find one technology platform that every learner is familiar with. The most important factor when choosing the right technology, therefore, is you.

Plan time to get to know your platform and become the expert who can assist learners with any issue. NPCA offers monthly webinars and periodically offers webinars to specifiers. There are many webinar platforms to choose from, including:

- ▶ **GoToWebinar**
- ▶ **Microsoft Teams**
- ▶ **WebEx**
- ▶ **Zoom**

Although Zoom became a household name during the COVID-19 pandemic, NPCA continued to use the GoToWebinar platform. NPCA staff is well-versed with the technology, has documented processes and can help any learner with dial-in issues or audio issues. The ability to provide that service is what's most valuable to attendees.

There are always newer options marketed to be faster and easier to use. The one you choose may differ from NPCA's.

In the end, your ability to help your learners best should be the deciding factor when choosing a technology.

Whatever vehicle for education you choose, it is important to monitor the comments section for each video or to turn off comments if you're unable to interact readily with others. Although a video file may age, the viewer perceives the content as new whenever he or she engages with a posted video – and immediacy for the learner is important for you to provide. Manage your settings to ensure you are notified when comments are made, and update your contact information if notifications go to an employee who is no longer there.

LEARNING MANAGEMENT SYSTEMS

Learning management systems (LMS), sometimes called education management systems (EMS), are software platforms that you own for the express purpose of uploading course content. Students create accounts and navigate coursework in a closed system.

Many of these programs, such as Blackboard and Canvas, are used in K-12 and post-secondary classrooms. Unless you are engaged full time in education content creation and delivery, investing in such a system likely is too much technology – and cost. Focus on the platforms that are readily accessible to the general public. You can be successful with those platforms.

ENGAGE YOUR LEARNERS

No matter the technology, course content must be delivered in engaging ways and should aim to provide the same level of interaction, immediacy and safety as any in-person event. To remove any barriers to learning presented by the technology itself, be the expert in the use of any platform you use so that you can readily assist any attendees or learners and ensure they are focused squarely on your content. **PI**

Alex Morales, M.Ed., is the former NPCA director of workforce development.



NPCA file photo

NPCA Director of Technical Services Kayla Hanson leads a recent installment of NPCA's Monthly Webinar Series, which uses adult learning strategies to deliver often highly technical content.

INDIANA'S JONES FOR PRECAST

Precast Bridge Beams Feature in Massive Highway Project

Indiana has been a hotbed of road construction for the past several years, with improvements to multiple interstates occurring simultaneously. This includes the project to extend I-69 from the Martinsville area to I-465, the sixth and final section of a 142-mile connection between Evansville and Indianapolis. The Indiana Department of Transportation (INDOT) estimates this final leg will save drivers 11 minutes of travel time between Martinsville and Indianapolis and help prevent approximately 1,300 crashes per year.

Precast beams factor into work for new bridges that are part of the project, including a recent span built over a creek in Indianapolis. Working with Milestone Contractors, Central Rent-A-Crane, a member of the ALL Family of Companies, provided cranes for the dual picks needed to set each precast beam, which were 153 feet long and weighed 214,000 pounds.

Central recommended two large all terrain cranes for the job, a 500-USL Liebherr LTM 1400-7.1 and a 550-USL Grove GMK7550. "The size and mobility of these units make them ideal for this work," said Tim Welty, project estimator for Central. "They were able to back up to the existing bridge end bents with no issue, and had the reach and capacity to accommodate the precast beams. Add

two skilled operators, and you've got the perfect team assembled for a smooth lift."

Both cranes were configured with 100 feet of main boom and 264,000 pounds of counterweight. Combined, the cranes were configured to handle a total 300,000 pounds per lift, making even the heavy weight of the beams well within capacity.

The precast beams were trucked to the site individually, where they were rigged to be picked by the LTM 1400 and GMK7550. The flatbed carrying a beam pulled parallel to the bridge location and each crane, on their respective end bents above, would swing toward it, attach to the rigging, lift, and swing the beam into position.



Work was scheduled for two days, in which seven beams were picked and set. Central Rent-A-Crane is slated to work on several more bridge projects in the coming months for the I-69 project. "There's a big push for infrastructure work in Indy,"

said Welty. "We're proud to be involved in projects that will reshape the vehicular travel experience in our region for generations to come."

Work on the entire I-69 project is expected to be done by 2024.

For more information, 800-232-4100 or www.allcrane.com.

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Repetition to Build Retention:

OSHA'S REQUIRED ANNUAL TRAINING FOR PRECASTERS

While annual training is required in more than a dozen safety focus areas, going beyond simple compliance helps create and sustain a strong safety culture.

By Mason Nichols

From initial concepting to design, production and transportation, safety is at the heart of all work performed at precast concrete manufacturing plants.

To help support worker safety, the Occupational Safety and Health Administration (OSHA) requires annual safety training across 14 distinct focus areas for employees in construction and general industry.

Abiding by OSHA's annual training requirements allows facilities to maintain compliance with OSHA standards. But more importantly, it also helps establish the required foundation to support a strong safety culture. Be sure to check out NPCA's free safety resources related to these topics at precast.org/safety.

TIPS FOR TRAINING SUCCESS

Safety must be the cornerstone of every company and woven throughout all processes.

"Engaging in OSHA's required training will help remind your team members of what needs to be done at a minimum," said Jason Brewster, safety and compliance manager at Atlantic TNG in Sarasota, Fla.

Establishing that baseline is important, because it sets a standard required for every job, especially when companies are short-staffed because of illness, vacations or labor shortages. A bedrock of safety throughout company culture ensures that regardless of staffing or production challenges, a team is always working with safety in mind.

To counteract this, Brewster said it is important to train workers on all 14 OSHA areas alongside any safety training measures and programming specific to a site or required by local jurisdictions. This leads to a well-rounded team that keeps safety top of mind every time.

"Each month, we cover one or two of the required annual OSHA trainings, but we will also conduct a few safety toolbox talks on additional topics," Brewster said. "We have a revolving schedule each year that keeps us in compliance but also covers (other) areas that affect our team members."

Brewster suggested auditing each work area within a plant to determine specific safety focus areas to stress during the onboarding process with new employees, as well as in ongoing annual safety training for current employees. Identify areas of potential safety issues within the plant, then devise training and training schedules to address each of them. It is important to keep records of all safety training for employees for validation. Also, keep in mind the need to provide safety training in a language the employee understands.



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OSHA'S REQUIREMENTS

OSHA's required annual training for construction and general industry covers 14 primary categories. The following is a summary of each topic.

► Occupational Noise Exposure (1910.95, 1926.52)

These standards ensure protection against the effects of noise exposure when sound levels exceed identified levels.¹ An employer must institute a training program for all employees who are exposed to noise "at or above an 8-hour time weighted average of 85 decibels and shall ensure employee participation in the program."

Additionally, employees must be informed of the effects of noise on hearing, the purpose of hearing protectors and how to use them and the purpose of audiometric testing.

► Hazardous Waste Operations and Emergency Response (1910.120, 1926.65)

Employers must develop and implement a written safety and health program for team members involved in hazardous waste operations. This program is intended to "identify, evaluate and control safety and health hazards, and provide for emergency response for hazardous waste operations."²

In general, employees must be trained annually on the names of on-site personnel responsible for site safety and health; safety, health and other hazards present on the site; proper use of personal protective equipment; practices to minimize risks from hazards; safe use of engineering controls and equipment on-site; and more.

► Respiratory Protection (1910.134, 1926.103)

In workplaces where respirators are necessary, OSHA requires the establishment and maintenance of a respiratory protection program. The program shall include required worksite-specific procedures and elements for respirator use.³

Annual training also must be administered to ensure team members demonstrate knowledge of why the respirator is necessary; the respirator's limitations and capabilities; how to effectively use the respirator in emergency situations; and proper care, inspection and maintenance procedures for the respirator.

► Crystalline Silica (1926.1153)

Respirable crystalline silica can pose a significant danger to workers at precast concrete plants. OSHA's recently established standard on



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respirable crystalline silica reduces the permissible exposure limit to 50 micrograms per cubic meter of air, averaged over an 8-hour shift.⁴

Precasters must provide annual training to ensure team members demonstrate knowledge and understanding of the health hazards associated with exposure to respirable crystalline silica; specific tasks in the workplace that could result in exposure; and specific measures the employer has implemented to protect employees from exposure.⁵

► **Portable Fire Extinguishers (1910.157, 1926.150)**

When workplaces provide portable fire extinguishers for employee use during a fire emergency, annual training is required to help familiarize employees with “the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting.”⁶

This training must be provided when a new employee is hired and at least yearly thereafter.

► **Mechanical Power Presses (1910.217)**

Because of their use in high-production manufacturing and integral operator involvement, mechanical power presses present maximum safety hazards. To mitigate potential issues, employers must annually train both operator and maintenance personnel on safe and proper use.

The employer “shall train and instruct the operator in the safe method of work before starting work on any operation” and “ensure by adequate supervision that correct operating procedures are being followed.”⁷ Employers also should maintain a certification record to track this training through time.

► **Bloodborne Pathogens (1910.1030)**

OSHA defines bloodborne pathogens as “pathogenic microorganisms that are present in human blood and can cause disease in humans.”⁸ Annual training in this area must include a wide variety of components, such as a general explanation of epidemiology and the symptoms of bloodborne diseases; an explanation of the modes of transmission of bloodborne pathogens; an explanation of the employer’s exposure control plan and the means by which an employee can obtain a copy of the written plan; an explanation on the basis of selection of personal protective equipment; and more.

Additional requirements are outlined in OSHA 1910.1030.

► **Lockout/Tagout (1910.147)**

This standard requires that procedures be developed, documented and used “for the control of potentially hazardous energy” when



NPCA file photo

employees are engaged in a variety of activities, such as the use of heavy equipment or machinery.⁹

Employees must receive annual training to ensure they have proper knowledge and skills required for the safe application, usage and removal of energy controls. Training should include lockout/tagout procedures, responsibility for lock out/tag out equipment and processes.



► **Heat Illness Prevention**

While no specific OSHA standard guides appropriate measures for heat illness prevention, steps must be taken to ensure employees know the risks.

The OSHA website features a landing page dedicated to heat illness prevention that identifies specific dangers of working in extreme temperatures. The page also includes areas of focus for training, such as identifying the types of heat-related illnesses, the importance of providing first aid to affected workers, procedures for contacting emergency medical services and more.¹⁰

► **Hazard Communication (1910.1200, 1926.59)**

These standards ensure that employers provide team members with “effective information and training on hazardous chemicals in their work area” when initially hired and whenever a new chemical hazard is introduced.¹¹

Annual training must cover, at a minimum, methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area; specific hazards associated with the release of chemicals in the work area; measures employees can take to protect themselves from these hazards; and the details of the hazard communication plan developed by the employer. Additionally,



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chemical-specific information must always be available through labels and safety data sheets (SDS).

► **Emergency Preparedness and Emergency Drills (1910.38, 1926.35)**

A wide assortment of incidents in a precast plant may lead to an emergency. Annual required training in this category helps ensure that team members are adequately equipped for response if one of these emergencies occurs. OSHA 1926.35 specifically notes that an emergency action plan must be developed that covers “those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.”¹²

The employer must also designate and train a sufficient number of staff members to assist in the execution of the emergency action plan.

► **Ladder Safety (1926.1060, 1926.1053)**

Ladders commonly are used in precast plants to access areas at height, such as the top of tall forms. Employers must provide annual training that allows team members to recognize hazards related to ladders and stairways and the steps that must be taken to mitigate those hazards.

This includes the nature of fall hazards in the work area; the correct procedures for erecting, maintaining and disassembling fall protection systems to be used; the proper construction, use, placement and care in handling of all stairways and ladders; and the maximum intended load-carrying capacities of ladders used.¹³

► **Walking and Working Surfaces (1910.30)**

Walking-working surfaces include horizontal and vertical surfaces such as floors, stairs, roofs, ladders, ramps, scaffolds, elevated walkways and fall protection systems.

Annual training in this area is intended to protect workers from serious injuries resulting from working in these areas and must at a minimum include the nature of fall hazards in the work area and how to recognize them; the procedures that must be followed to minimize those hazards; the correct procedures for installing, inspecting, operating, maintaining and disassembling fall protection systems; and the correct use of such fall protection systems.¹⁴

► **Fall Protection (1926.503)**

Falls can occur in a variety of places around the plant – from forms, ladders, elevated structures and more.

To protect employees, OSHA requires that employers provide annual training that covers the nature of fall hazards in their work area; the correct procedures for erecting, maintaining, disassembling and inspecting the fall protection systems to be used; the use and operation of fall protection equipment and systems; and more. In addition to annual training, periodic retraining may be required due to changes in the workplace or modifications to fall protection systems and equipment.¹⁵

ADDITIONAL SUPPORT

The National Precast Concrete Association, in conjunction with NPCA’s Safety Committee, has developed materials to help you establish and execute the safety training required for your team members. To access these tools and other important resources, visit precast.org/safety. **PI**

Mason Nichols is a Grand Rapids, Mich.-based writer and editor who has covered the precast concrete industry since 2013.

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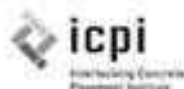
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CHAIRMAN'S
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Wieser Concrete
Products

WIESER CONCRETE BUILDS A LASTING LEGACY

Editor's Note: The "Chairman's Choice" story features Mark Wieser and Wieser Concrete Products. Mark is the newly elected NPCA Chairman of the Board.

By Joe Frollo

Grounded. Dedicated. Visionary.

These attributes define Wieser Concrete Products, which for more than 50 years has been a model for how a family business grows and prospers.

Those traits also describe Mark Wieser, the company's vice president and recently elected NPCA Chairman of the Board.

Mark Wieser (center), with sons Adam (left) and Austin.





CHAIRMAN'S
CHOICE

Wieser Concrete
Products

Wieser Concrete Products has steadily expanded through the decades with locations now spanning Wisconsin, Illinois and Minnesota. Its foundation is built upon its reputation of dependability, with steadfast leadership and a commitment to innovative advancement.

/ GROWING UP AROUND PRECAST /

Mark's introduction to working in precast concrete was cutting rebar as a 12-year-old and eventually installing products at his father's plant. He found he had a knack for it, and he enjoyed doing it.

As time passed, Mark's father, Joe, added responsibilities. Mark's skill set expanded, and his role around the plant grew. By the time he left for college to study engineering, he was well-versed in a plant's inner workings. Internships and summer positions provided added insight from front-office perspectives.



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Mary and Joe Wieser started Wieser Concrete Products in 1965 and were the company's only two employees that year.

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Congratulations Mark Wieser!

We thank you and the entire Wieser Concrete Products team for your business and strong relationship over the years. Best of luck in your new endeavor as Chairman of the NPCA!

CHAIRMAN'S CHOICE

Wieser Concrete Products



NPCA file photo

What started as a small, family business has grown to a six-facility company across three states in the upper Midwest.

Degree in hand, Mark was preparing to set his own path. Newly married to his longtime love, Angie, the two were eager to explore life's options. It wasn't long, though, before an opportunity in the family business led him back to Wieser Concrete.

"Dad was building a new facility between where I grew up and where I went to college," Mark said. "They hired a manager who quit before he started. Then they had another manager, and I still wasn't sure. I talked to Andy about it, and he basically said it's a no-brainer. It's what I needed to do. So, I talked to my wife, and I came in as an engineer."

Soon after, Mark took over the management role in Portage, Wis., where he's been ever since.

/ ALL IN THE FAMILY /

The seeds for what Wieser Concrete Products would become were planted long before Mark and his brothers came on board.

Like all companies, it started small. Founded in 1965 by Joe

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CHAIRMAN'S CHOICE

Wieser Concrete Products

and Mary Wieser, they were the only two employees that first year.

“We literally started out with a shovel, a wheelbarrow, a little concrete mixer, a welder and a cutting torch,” said Joe, who passed Nov. 20 before this article was published.

Joe built septic tanks at first and soon added agricultural products.

That little “yard” right outside the family home eventually grew to manufacturing facilities in Maiden Rock, Menomonie, Portage and Fond du Lac, Wis.; Roxana, Ill.; Rosemount, Minn.; and distribution sites in Spooner, Wis., and Jordan, Minn. Another site in Iowa is now Wieser Precast, which is separately owned and run by Mark’s sister, Cindy Maxwell, her husband, Roger, and their sons, Joey and Dennis.

Wieser family members can be found in nearly all of the company locations. Andy and Mark’s brother Dan works at the Maiden Rock facility. Andy’s son Drew is now one of the owners and the general manager in Roxana, while his other son Cody works in sales. Mark’s sons Adam and Austin both work at the Portage location.

“I really enjoy that part of it – so many of us together to where we



Photo courtesy Wieser Concrete Products

Wieser Concrete Products developed this 40,000-gallon storage tank for a single project. Now these mega-tanks are part of the company’s regular product line.

can snowmobile or vacation in the offseason,” Mark said. “Family is an important part of our lives. And not just the people we are related to by blood. We have people at our plants who have been there 20-25-plus years, and they are family, too.”

Like the Wieser family, the company has grown from just Joe and Mary to more than 160 team members, allowing Wieser Concrete to

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CHAIRMAN'S
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Products

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/ MONUMENTS TO SUCCESS /

Looking back at his now nearly three decades with the business, Mark is proud of the projects that stand as testaments to the company's work.

There's the company's 40,000-gallon storage tank, the first of its size. Wieser built a form for the tank and when they were ready to produce, the first project was canceled. Now, those big tanks are regular sellers.

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There's a 10-foot diameter precast crib that sits about a mile offshore at the bottom of Lake Michigan protecting the Gary, Ind., water supply. The intake system helps deliver nearly 40 million gallons of water each day to area residents.

The crib was manufactured from 17 precast pieces produced from steel molds and installed 50 feet underwater. To prepare, Wieser Concrete hosted a dry run assembly at its Portage facility.

Another project near to Mark's heart – for various reasons – is a sound wall barrier that runs along the freeway leading to Lambeau Field in Green Bay, Wis.

A lifelong Packers fan, Mark and his team oversaw the creation and installation of what was at the time the largest project in company history.

Then there was the time Wieser Concrete was tasked with creating 100 loads of bunker silo panels and transporting them to Waco, Texas – 1,150 miles away.

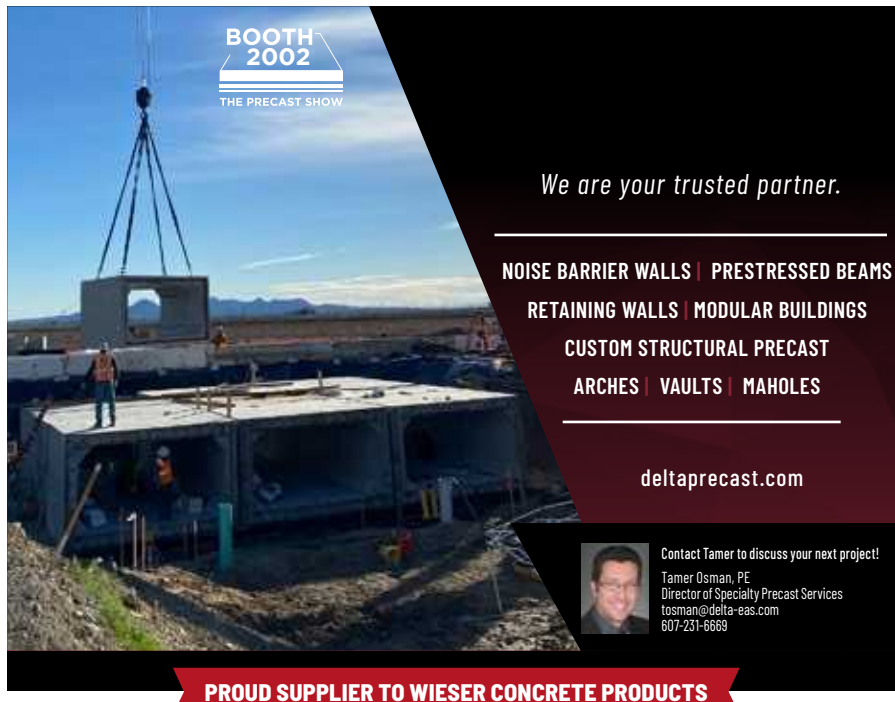
“That’s a long way,” Mark said. “Coordinating the logistics and transportation of that much material was a challenge and one we enjoyed completing. Our dispatching team of Lori and Mike really did a great job on that one.”

The project that Mark is most proud of, though, is a series of burial vaults, crypts and columbarium niches that the company continues to build for veterans cemeteries nationwide.



Photo courtesy Wieser Concrete Products

Workers that constructed the water intake system that rests a mile offshore from Gary, Ind., used Wieser Concrete Products as a staging area before the underwater assembly.




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CONGRATULATIONS MARK WIESER

CHAIRMAN'S CHOICE

Wieser Concrete
Products



Photo courtesy Wieser Concrete Products

The sound barrier that runs along the freeway leading up to Lambeau Field in Green Bay, Wis., was constructed with pieces cast by Wieser Concrete Products.

For example:

- At Fort Snelling National Cemetery in Minneapolis, Wieser Concrete produced and delivered 10,500 double-depth lawn crypts in 15 weeks for its first-ever veterans cemetery project.
- At Abraham Lincoln National Cemetery in Elwood, Ill., Wieser Concrete has manufactured, delivered and installed more than 25,000 double-depth lawn crypts over the years.
- At Kansas Veterans' Cemetery in Fort Riley, Kan., Wieser Concrete manufactured, delivered and installed eight 96-unit columbarium niches.

Spanning Indiana to Oklahoma and North Dakota to Arkansas, Wieser products can be found in 28 cemeteries dedicated to the men and women who served in the armed forces.

“That’s an ongoing project and one that means a great deal to us,” Mark said.

/ GROWING AT THE RIGHT PACE /

Success breeds opportunity, and Wieser Concrete can point to a steady list of accomplishments.

Still, when it comes to business planning and expansion, Wieser’s growth mindset is grounded in quality calculation.

“We’ve always thought that controlled growth is the right direction,” Mark said. “It doesn’t necessarily mean that we need to add facilities to keep growing. We can continuously work on improving our existing facilities and seeking new opportunities. We want to continue to develop the people who work here into leaders and make the company better as a whole.”

The goal of every project is to not just do a good job but to learn from it and build upon the process for next time.

“We’re big about figuring out how we can save a minute or two minutes producing something,”

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CHAIRMAN'S CHOICE

Wieser Concrete Products

Andy said. "How can we be more efficient or easier on the workers and save time without sacrificing quality?"

"To do that, you have to be out in the plants and see what people are doing. We've always been hands-on, even in leadership positions. We will jump in a truck, go out and deliver a septic tank, if that's what's needed."

/ CHAIRMAN OF THE BOARD /

Another Wieser family tradition continued in October when Mark was elected NPCA Chairman of the Board at the 56th Annual Convention. Joe served as chairman in 1985-86, and Andy held the position in 2016-17.



Photo courtesy Wieser Concrete Products

Through innovation and an eye on the market, the Wieser Concrete product line has grown exponentially from the little shop started by Joe and Mary Wieser.

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CHAIRMAN'S CHOICE

Wieser Concrete
Products

Wieser Concrete Products is a third-generation, family-owned business that has been in operation more than 50 years.

In building a company that now employs about 160 people, some of those staff members have been part of Wieser Concrete as long as most family members.

Precast Inc. caught up with some employees at the Maiden Rock, Wis., facility and asked why they've dedicated their careers to Wieser Concrete.

DAN MCKINNEY

24 years with Wieser Concrete

Position: Superintendent of Installation/Ag Sales Manager



Dan McKinney

"I've enjoyed working here because the Wieser family is very hands-on and treat the employees very well. In my time with Wieser Concrete, I've seen many products and projects that have put it on the leading edge of precasters in terms of efficiency and ingenuity, and it is great to be part of that."

ANDY WINKLER

20 years with Wieser Concrete

Position: General Manager



Andy Winkler

"I like that Wieser Concrete is family-owned and that we can take any concept or idea and build the molds and forms that are efficient and durable. The people that work here have a strong work ethic, they are dedicated, and they have helped build this company into what it is today."



NPCA file photo

Three generations of Wiesers have grown Wieser Concrete Products from a small family business to a company that spans much of the Upper Midwest. Mark (left) is currently serving as NPCA Chairman of the Board, while father Joe (second from left) and brother Andy (second from right) are past chairmen. Drew is in his 11th year as the Roxana, Ill., plant manager. Joe Wieser passed away Nov. 20.

Mark enters the role at an important juncture for the association and the industry. The launch of NPCA's newly announced strategic plan and the prospect of precast concrete helping to rebuild the U.S. infrastructure will provide members the opportunity to utilize advanced marketing, analytics and database tools to enhance their ability to compete in the marketplace.

NPCA's Onboarding Program also will assist members in engaging and retaining their workforce in order to develop long-term careers within facilities.

"The main thing that NPCA can do right now is help with workforce development," Mark said. "Reorganizing the staff to where there is now a department dedicated to membership and workforce development will go a long way toward that."

"The biggest constraint for many companies right now isn't time or money or resources. It's a steady, trained workforce that can produce at the same rate that the jobs coming in require."

Mark credits NPCA and its membership for helping Wieser Concrete grow and succeed.

"We wouldn't be where we are without it," Mark said. "It's not just the resources, but whenever we have a technical question or something that comes up that's new for us, all we have to do is pick up the phone and there are dozens of people ready to help."

In turn, Andy takes pride in he and his family serving as mentors to newer industry members.

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CHAIRMAN'S
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Wieser Concrete
Products



NPCA file photo



Photo courtesy of Wieser Concrete products

Quality precast concrete products manufactured at Wieser Precast Concrete facilities can be found coast to coast throughout the United States and into parts of Canada and Mexico.

“As a group, we are able to bounce things back and forth and learn from each other,” Andy said. “It’s been that way for us and our parents. It will be that way for the next generation as well.

“When I was younger, I was on the phone three nights a week talking with people for hours at a time about questions I had. Now, it’s me and Mark and others who have grown up in the industry picking up the phone and helping others.”

More than a half-century has passed since Joe began converting his life from farmer into precaster. A lot has changed, but Joe’s sons

remain a steady influence not just on the business but through industry leadership at NPCA.

“We are just seeing the tip of the iceberg as to what precast concrete is, compared to what it can become,” Mark said. “More specifiers are choosing precast. As long as we can look at ourselves honestly, do what needs to be done and produce a quality product, the possibilities are endless.” **PI**

Joe Frolo is the NPCA director of communications and public affairs.

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then & NOW

Then & Now is a new series for *Precast Inc.* magazine this year. Each issue, NPCA will catch up with companies previously featured in what was then called *MC magazine*.

Jensen Precast

Photos courtesy of Jensen Precast

For this issue's Then & Now feature, NPCA caught up with Dale Godwin, who has been employed at a Phoenix, Ariz., facility operated by Smith Pre-Cast, then U.S. Concrete and now Jensen Precast. He was part of a story in 2004 following the transition from Smith to U.S. Concrete. A lot has changed at that facility over the years, and Godwin has been front and center for it.



Dale Godwin, Jensen Precast

Q: What is the evolution of the facility where you work from Smith Pre-Cast to U.S. Concrete to Jensen Precast?

A: This plant started about 70 years ago as Smith Septic Tanks way back in the day. In 2001, U.S. Concrete acquired the business as tenants, and we became known as U.S. Concrete at that point. Then Jensen bought out that business in December 2012.

Q: What has your role at the facility been throughout the years?

A: I started out as a boom truck driver. That was 25 years ago. I did that for about three years, and then I moved into the field installation side of things. Back then, we were a contractor as well. We did a lot of manholes. That was our primary business, so we had crews that would go out and cast in place manhole bases while we made the manhole itself in the plant, then went out and stacked it the next day.

I took over as the field operations manager and ran those crews for quite a while. From there, I transitioned over to operations manager. I was responsible for everything that occurred inside and outside of the plant.

When the facility transitioned to Jensen Precast, I spent about seven years in various roles, including plant manager, quality control and safety manager. Then an opportunity came to become general manager, and I have been in this position as GM of Jensen Precast-Phoenix since February 2020.

Q: What are some of the projects you've worked on over the years that you look back on and smile?

A: One was years ago with U.S. Concrete. We were part of the largest phase, Phase 1, of the Phoenix Sky Harbor Sky Train project.



The project extended the light rail – which is still expanding to this day – to the Phoenix Sky Harbor Airport Terminal 4. We produced 130 prestressed girders suspended throughout the east portion of the airport on piers elevated as high as 110 feet. I was very involved as project manager, and we were responsible for construction and installation of the girders, which ranged from about 65 feet to 100 feet in length and weighed as much as 140,000 pounds. The erection of the girders had to be done at night to avoid the busy congestion of the airport during the day. We're kind of used to everything we produce being buried underground, so we don't typically see our products after they get backfilled. That's one project that is very visible to this day, as the airport Sky Train rolls over it many times a day.



As for more standard-type products, I've driven over hundreds of grease interceptors at fast-food restaurants that we've manufactured over the years. My wife always rolls her eyes when she hears me say, "Hey, there's our precast." My whole family is very familiar with me looking at the ground and saying, "We put this tank in. We did that there."

We've done a lot of larger projects in terms of electrical vaults or other products where you are getting into the bigger size of the products and/or projects themselves that are memorable. South Central Light Rail is one of those large projects that comes to mind. We've supplied a lot of large pipe, box culvert material and pipe fittings on Central Avenue in the middle of Phoenix for that project in the last year or so. That particular project was also unique in that it was only about two miles from our plant. That proximity to our plant was a good thing, as there were a lot of moving parts with box culverts, pipe and wet well installations that had to be coordinated during the project.



Q: Shortly after becoming general manager, COVID-19 struck. What was that like?

A: They say timing is everything, right? The time since that, and not long after that, set off a chain reaction in the business world in general, and precast was no different in that we were reacting to all the different things occurring. Fortunately, we were deemed an essential business here as part of construction in Arizona, so we've stayed open.

A lot of people thought COVID was really going to slow down the work, and people were forecasting pretty dire situations. If anything, we've seen business increase during the pandemic, though we obviously had to change how we did some things.

So now you have more business coming at you and opportunities for the company. On the other hand, we are in a situation where it is really hard on people and has been for more than a year. That makes it tricky when it comes to staffing. While the work was picking up, we had fewer people coming through the door to apply for positions. I guess most of it was people didn't want to work outside the home, but we were constantly looking for people to fill positions throughout the plant.

We feel like we're just now starting to come out of that and starting to get good candidates again. We are working hard to identify and find those people and place them where they can do well.

Q: How does your facility deal with the heat and high temperatures of the Arizona climate?

A: You would think in our market that summer should be a slower time. If anything, it is busier during the hot summer months. The benefit of that, of course, is you have more daylight, but, of course, safety is huge for us. Within our company, from the president on



down, the message is, “If we need to do something to make us safer, make processes safer, no matter the cost, let’s do it.”

We have open-air production areas in our plant where the hot wind blows right through. Even in the shade it can get to 115 degrees for 10, 12 days in a row, so you’ve got to take precautions and prepare with things like annual training about heat illness prevention and hydration stations. We tell the staff and all our personnel to look out for each other. We also make sure everyone drinks water when they need to, and for new people that can be intimidating to take extra water breaks.

We constantly reinforce that people hydrate themselves 24/7. Then we encourage conversation. If you need a break, don’t wait until break time. Take a little break. Take care of it when it’s small, so it doesn’t become something big.

Q: The feature article in 2004 focused mostly on the opportunities that come with change and how change is a constant throughout the precast industry. Does that still hold true?

A: Yeah, about the only thing that is constant is change, if that makes sense. I feel that way about the industry in general. We have always been active with NPCA education, conventions and trade shows, and we still are. We want to expose ourselves to what’s new out there, because it seems like in our industry there are always new methods. A lot of people probably still do stuff the old-fashioned way, and that’s great if it works for them. But little by little you have to take advantage of new ideas, new equipment, new processes.

By attending events like The Precast Show, you go on plant tours and see what other people are doing. How are they solving the same problems you are facing? I’ve probably seen 20 or 25 other precast plants in my career, and no matter what size it is or what they produce, there will be something you can pick up. “Wow, that’s something we haven’t seen before,” or “That’s a good idea. We didn’t realize that tool was available.”

At Jensen, we are typically very quick to react when old equipment needs to be replaced or a process can be improved with a little investment.

Q: As general manager, you no longer are on the front line. It’s your responsibility to ensure everyone else has the equipment and knowledge to succeed. How has that role been?

A: Everybody needs the right tools to do the job. And it’s a little bit different in philosophy from when I started. Back then in the old days, you had to figure out how to do something with what you had and get it done whatever it takes kind of a thing. In some ways that may have led to more innovation but wasn’t necessarily the optimal way of doing things.

Today, we have newer form systems and equipment that really works well for precast. The end result is so much better, but it takes planning and budgeting to have the right equipment in place to do the job. Doing that work in advance makes it easier when the job is underway. This also lets us tackle more complex jobs than we would have imagined 25 years ago. A little investment and planning goes a long way.



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Q: What about the personnel end of your role? You talked a little about the challenges to find staffing during COVID, but what is your strategy moving forward?

A: Without the right people in place, no equipment in the world will get the job done. As GM, you try to find good people and find the right fit for them. They may not even see themselves doing what you envision, but you trust them, you teach them, you empower them and you let them grow. It's not 100% guaranteed, but good people tend to do good work.

I've always considered myself someone who can get along with anybody, someone who can communicate with anybody. But it takes more than that. You have to be constantly present. That's not just people who directly report to you. You have to be available to everyone. Stop and chat with and listen to people so they know they are important and you are there for them.

Everybody has somewhere to be and something they can be doing, but I like to take a minute, stop and say "Hi" or ask about their families. "What did you do last weekend?" Those kinds of things build relationships, which I think is important for having and retaining good people.

We grow together as a company. That's why it's important that everybody on the leadership team is doing it. I want to have a

relationship with every person in our plant. I don't want to be a stranger to them. I know their first names. People generally want to know that you care about them, that they are part of the team.

Q: You've pretty much been and seen it all during your career. How do you keep improving at what you do?

A: Jensen Precast management as a whole has given us the tools and support we need to succeed. I have a great direct supervisor, Josh Myers, who is the vice president of operations. He supports me and challenges me constantly. It can be quantified in a lot of ways, but if we're not improving then something is wrong. Overall, Jensen Precast has the support structure in place that makes it possible to keep improving on what we do.

An example of that would be the property our plant sits on. It has been here about 70 years operating as a precast plant, but since the Smith days it has been leased. Jensen recently purchased the property, which besides being a big commitment for our market, it is allowing us to do a lot of things with the property that will help us continue improving our capabilities. I'm grateful to be part of it and look forward to what's coming next. **PI**

Joe Frollo is the NPCA director of communications and public affairs.



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Working For You

IN 2021

NPCA's Annual Precast Days: Bringing it Back

In its third year, NPCA's Precast Days initiative centered on creating new avenues of membership involvement, encouraging industry-wide collaboration and workforce development. This year, Precast Days largely involved in-person events after being nearly all virtual in 2020, and several new elements were added to cultivate a more dynamic and inclusive industry event, including sponsorship opportunities and virtual meeting registration. NPCA also collaborated with industry partners in 2021 to call attention to Precast Days as a workforce development initiative for the precast concrete industry. These elements came together to make Precast Days 2021 a highly opportunistic event for both Producer and Associate members of NPCA.

Precast Days 2021 saw nearly 30 members host events and had a notable increase in Associate member involvement on various fronts. Each of the hosting members picked a date between Nov. 1-12 to open their doors (virtually for some) to their local communities and

hold plant tours, presentations, product demonstrations, career fairs and much more.

Associate members had several pathways to participate in Precast Days this year. In addition to hosting their own events or participating in a precaster's event (i.e., set up a vendor booth, give product demonstrations), Associate members also had the opportunity to secure a Precast Days sponsorship.

The newly launched Precast Days sponsorship program featured three tiers – gold, silver and bronze – and each provided logo recognition through varying channels, including on the Precast Days attendee registration webpage and on Precast Days national marketing materials deployed in print and digitally. All 11 sponsorship opportunities were sold by the end of May and brought in \$20,000 to offset the cost of marketing Precast Days.

The sponsorship opportunities provide yet another avenue for members to get involved in Precast Days and to contribute to the



NPCA file photos

betterment of the precast concrete industry. Afinitas Global Marketing Leader Joan Suda said the pipe and precast industry supplier jumped at the chance to support Precast Days by securing the single gold level sponsorship available.

“For Afinitas, sponsoring Precast Days is an opportunity to show our support for NPCA programming that shines a light on the great work our industry partners are doing to build the nation’s infrastructure,” Suda said. “Events like these create more awareness of the work the precast concrete industry does and the business and employment opportunities we bring to communities. This awareness benefits all of us in our shared mission to sustain and grow the industry.”

Raising awareness of the workforce development component of Precast Days in 2021 also required industry-wide collaboration. Early in the planning process, NPCA’s Outreach Committee acknowledged a dire need for industry partners to have a united front in tackling shortages within the precast concrete workforce.

“The NPCA Outreach Committee recognizes that precasters must endeavor to take the lead over their peer competition to ensure a resilient workforce pipeline,” Outreach Committee Chairman Jeff Malcolm said. “Precast Days is the first ‘cog in the wheel’ of NPCA’s comprehensive plan for workforce development. Widespread membership involvement and use of the tools provided will be the key to the success of our efforts.”

Nearly half of the members hosting Precast Days 2021 held workforce development related events, including open houses for students, job fairs and open interviews to showcase employment opportunities and connect with potential hires.

Furthermore, Precast Days 2021 partially aligned with National Apprenticeship Week (NAW), hosted by the U.S. Department of Labor on Nov. 8-12. NAW is a weeklong celebration that highlights the benefits of apprenticeship in preparing a highly skilled workforce to meet the needs of employers across diverse industries. Similar to Precast Days, NAW provides sponsors with an opportunity to showcase

“For Afinitas, sponsoring Precast Days is an opportunity to show our support for NPCA programming that shines a light on the great work our industry partners are doing to build the nation’s infrastructure.”

– Joan Suda, Afinitas Global marketing leader

their programs, facilities and apprentices within their community. NPCA participated in NAW by issuing an industry proclamation that called upon precast concrete manufacturers to recognize the value of apprenticeships and to promote industry awareness and expansion during NAW through Precast Days.

Precast Days has achieved new heights each year during its three-year tenure. The inaugural Precast Days event opened in 2019 with 28 member hosts and brought in more than 1,400 attendees. In 2020, Precast Days was held in the midst of the COVID-19 pandemic. Thirty-two members committed to participate, and seven of those plants were able to open their doors for in-person events. There was still a considerable turnout despite the uncertainties, with nearly 500 people who attended in-person and virtual events collectively. Precast Days 2021 was a year dedicated to bringing back the connections we missed in 2020.

A SPECIAL THANK YOU GOES OUT TO THE FIRST PRECAST DAYS SPONSORS, FOR HELPING TO MAKE THIS YEAR A SUCCESS!

GOLD LEVEL



SILVER LEVEL



BRONZE LEVEL





NPCA Strategic Plan

is Rooted in Marketing and Workforce Development

By Joe Frolo

Precast concrete is built to last. It is enduring and sustainable. The world, though, is ever-evolving. As technology advances, so too must the ways that the National Precast Concrete Association and its members examine the market and seek opportunities.

To adapt to this changing landscape, NPCA's Board of Directors recently revised the association's strategic plan and the vision

for how the industry moves forward.

At its core, NPCA's mission remains the same: To provide industry leadership by promoting quality concrete across all markets, addressing industry challenges and developing opportunities for member success.

NPCA will remain the trusted resource and voice for the precast concrete industry and continue to provide stewardship, service, integrity, advancement and education.

How all that happens, though, is defined through an updated strategic plan.

NPCA Board of Directors in 2021 unveiled a vision for the future that includes an emphasis on both external and internal marketing along with an increased emphasis on workforce development.

The NPCA staff is working to deliver on that plan.



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EXTERNAL MARKETING

Precast concrete is a critical element within the construction industry, especially pertaining to infrastructure. It is important that the public knows this.

NPCA will highlight precast products, member facilities and the employees who work there, crafting messages that focus on the technical expertise required to produce highly engineered products.

Resilience, sustainability, durability and diversity will become synonymous with the precast concrete products that can get to market quicker and superior alternative materials.

“We will communicate in one voice across the industry about what makes precast concrete the No. 1 choice for specifiers and why it is the natural decision when building to



NPCA file photo

last,” NPCA Chairman Mark Wieser said.

These messages will reach stakeholders and the public at large through both NPCA-led initiatives and grassroots member campaigns, maximizing social media and other avenues for communication.

“Through data, case studies, white papers and shared experience, we will share how precast concrete is used, why it is chosen for each project and where it stands as a testament to lasting construction,” Wieser said.

INTERNAL MARKETING

NPCA will accomplish its external marketing plan by bolstering internal marketing and data collection.

By studying both trends and analyzing hard numbers, NPCA will cull the most useful information and use it to educate both staff and members about what is relevant.

“In part, this will be accomplished by expanding our marketing staff, including the hiring of a new vice president of marketing and communications,” NPCA President Fred Grubbe said. “Marketing and communications will then work hand in hand to determine the best models to first gather the information then deliver it in the most useful way, establishing NPCA as the go-to provider for data and business practices within the precast concrete industry.”

WORKFORCE DEVELOPMENT

Finally, NPCA will help members find and secure skilled workers who have the skills to contribute to the industry and find longterm careers in precast.

In the next few months, NPCA will begin

offering its Onboarding Program video series that facilities can use to both educate new workers and help veteran employees who may be changing positions on the tasks they will be expected to perform. The series includes instruction ranging from basic precast concrete facts to quality and safety to role-based education.

“NPCA’s Onboarding Program is an excellent way for members to bring workers up to speed quickly so they can do their jobs better,” said Ron Sparks, NPCA chairman in 2020-21 who led the effort to develop the new strategic plan. “Now, we are going to take those same ideas and share them with people and institutions that can embed those skills before workers even get to our facilities.”

NPCA currently partners with five universities across the United States in offering precast concrete-specific curriculum to engineering students. Similar programs also can be developed for community college students and even high school students engaged with a vocational school.

“As two-year colleges become an increasingly popular option for students who don’t want to take on the debt burden of a four-year degree, this opens myriad opportunities for NPCA to meet the future workforce where it is,” Sparks said. ■

Joe Frollo is the NPCA director of communications and public affairs.



View the entire NPCA strategic plan at:
Precast.org/NPCA

NPCA Convention WRAP-UP

NPCA Staff Report





NPCA file photos

The NPCA 56th Annual Convention on Oct. 28-30 in Colorado Springs, Colo., brought together friends, families and colleagues for a week of business and fun. Located on the foothills of the Rocky Mountains Southern Slope, The Broadmoor provided the perfect scenery for the event.

A year after the first NPCA Virtual Convention because of the COVID-19 pandemic, more than 420 members attended the three-day event, second-most in Annual Convention history.

In addition, there were 90 exhibitor/sponsor tabletops, most ever for an NPCA convention.

Among the highlights:



NPCA file photo

Mark Wieser (left) became NPCA Chairman during the 56th Annual Convention, receiving his gavel from outgoing chairman Ron Sparks.

PASSING THE GAVEL

The Annual Convention marked the end of Ron Sparks' year as NPCA Chairman and the start in that position for Mark Wieser.

Sparks passed the gavel to Wieser during Saturday's Annual Business Meeting Breakfast, where a slate of new board members and officers were installed as well. Among them:

- ▶ **Joel Sheets, chairman-elect**
- ▶ **Bill Bundschuh, secretary-treasurer**
- ▶ **Megan Kitchner, director**
- ▶ **Betsy Mack Nespeca, director**
- ▶ **Clay Prewitt, director**
- ▶ **Magda Muka, director representing Associate members**

Sparks reflected on the accomplishments of the past year, especially impressive as both member companies and the association overcame challenges brought on by the pandemic, supply chain issues and other obstacles.

The implementation of an updated strategic plan will drive the association's direction, while the appointment of two new task forces (Cyber Protection Task Force and Alternative Materials Task Force) will secure member data and place precast concrete as the No. 1 choice for specifiers and contractors.

“The Board of Directors provided extraordinary leadership these past 12 months, and I owe each member a debt of gratitude for their support and hard work,” Sparks said.

With more than 20 family members on hand, Wieser said he looks forward to continuing the success he’s seen develop these past few years. With a father and brother who previously served as NPCA Chairman, Wieser knows the responsibility he is assuming.

“This association has had such an impact on my family’s daily lives, the products we sell, how we conduct business and how we solve problems,” Wieser said. “The Board will continue to work to increase the visibility and significance of precast concrete products in construction and our nation’s infrastructure.”

A YOAKUM TEAR-JERKER

The annual Robert E. Yoakum Award went to Barry Fleck of ALP Supply, who was overcome with emotion while accepting the award from his longtime friend and 2020 winner, Gene Martin.



NPCA file photo

Barry Fleck (left) of ALP Supply is the 2021 Robert E. Yoakum Award winner. Gene Martin (right) presented Fleck with the award during the 56th Annual Convention in Colorado Springs, Colo.

“When you look down the list of people who have won this award, you just think, ‘I could never hope to be part of that group.’ It is such an honor, and I am humbled by this.”

– Barry Fleck, 2021 Robert E. Yoakum Award recipient

“When you look down the list of people who have won this award, you just think, ‘I could never hope to be part of that group,’” Fleck said. “It is such an honor, and I am humbled by this.”

The Douglas G. Hoskin award was presented to Kevin Camp for recruiting the most new members in the past year. Camp also went



Stresscon conducts a double-tee load test for visitors to observe during the plant tours.

home with a Top Gun bomber jacket for recruiting his 20th new member all-time for NPCA.

The Awards Luncheon also included a tribute to Greg Chase, who died this past March. Chase was instrumental in creating Precast University and continued to teach classes every spring at The Precast Show. For his years of service, Chase was posthumously named an Honorary Master Precaster.

The full list of Yoakum, Hoskin and Top Gun award winners can be found at [Precast.org/nPCA-industry-awards](https://www.precast.org/nPCA-industry-awards). Look for the Yoakum presentation video and a reaction video on NPCA’s YouTube channel.

TRIPLE THE PLANT TOUR

More than 125 convention-goers took the opportunity to visit three nearby precast facilities – two owned by Lindsay Precast and the other by Stresscon.

With the Rocky Mountains providing a picturesque backdrop to all three plants, the tours were engaging and enabled attendees to interact with plant personnel in a relaxed atmosphere. Visitors got an up-close look at the equipment and the opportunity to bring ideas back to their own plants.

Lindsay’s combined facilities cover 47 acres and include 60 workers. An NPCA member since 1982, both facilities have been NPCA-certified since 1988.

Stresscon, a PCI-certified plant, conducted a double-tee load test for attendees in which they loaded two 23,000-pound precast blocks on the center of a tee to observe its behavior.



NPCA file photo



NPCA file photo

Keynote speaker Jim Davidson, a mountain climber and New York Times best-selling author who survived two harrowing adventures, discussed the power of experience and resilience during the Thursday luncheon at Annual Convention.

A MESSAGE OF RESILIENCE

As a climber for 39 years, Jim Davidson is a high-altitude expedition leader and an expert in resilience. Davidson delivered a talk covering his adventures atop mountains and how he and his team overcame the challenges they were presented.

Davidson tied his own experiences into the trials many have faced these past two years through the pandemic. Namely, “Overcoming adversity makes us stronger. It also makes us less fearful the next time a challenge comes.”

A GOLD-MEDAL FINAL EVENT

The three-day convention closed Saturday night with more than 250 people visiting the U.S. Olympic and Paralympic Museum.

With food, drinks, music and dancing available, visitors also could tour the 60,000-square-foot, three-story facility filled with stories, memorabilia and interactive exhibits. The first-person emersion simulators allowed individuals to run sprints against Jesse Owens, take a shot at competitive archery, try their hand at being a blind goalie and more.



NPCA file photo

Visitors to Lindsay Precast observe the mixing process during the Annual Convention Plant Tours.



NPCA file photo

NPCA members try their hand at a downhill skiing simulator during the 56th Annual Convention final event at the U.S. Olympic and Paralympic Museum.

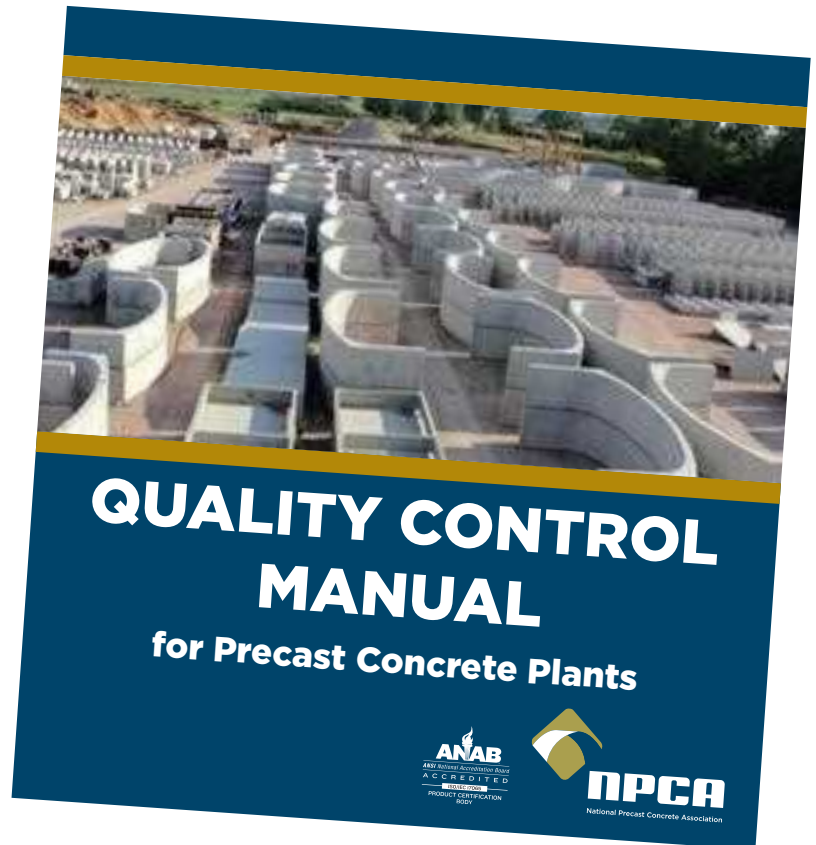
NPCA Plant Certification Changes for 2022

The NPCA Quality Control Manual for Precast Concrete Plants serves as the guidance document for the association's plant certification program. As a management tool and technical resource for quality production and manufacturing practices, the manual is continuously scrutinized to ensure it remains current with industry technology advances.

Each year, the NPCA Quality Assurance/Quality Control Committee reviews the NPCA Quality Control Manual content with the goal of clarifying and improving the information. For the 15th edition of the manual (2022 version), the committee made several changes that members and specifiers may review during a 60-day comment period, which opened Nov. 1 and ends Dec. 31.

THE NPCA QA/QC COMMITTEE VOTED AND APPROVED THE FOLLOWING SECTION CHANGES AND A NUMBER OF EDITORIAL CHANGES TO THE QC MANUAL:

- ▶ **Section 1.1.3 QC Personnel Training** – Added requirements
- ▶ **Section 2.3.6 Joint Sealants and Connectors** – Removed
- ▶ **Section 4.1.3 Forms and Forming Equipment** – Updated language
- ▶ **Section 4.1.7 Plant Requirements** – Updated language
- ▶ **Section 4.3.3 Positioning of Reinforcement** – Updated language
- ▶ **Section 4.4.6 Hot Weather Precautions** – Updated language
- ▶ **Section 5.2.2.2 Self-Consolidating Concrete** – Updated language
- ▶ **Section 5.3.1.2 Slump Flow and Visual Stability Index** – Updated language



These changes ensure the highest quality manufacturing processes from NPCA-certified plants and provide assurance to customers regarding quality. NPCA-certified plants are required to review their plant-specific QC manuals and processes annually, along with a complete review of all critical sections that apply to the products manufactured. **PI**

The 60-day **comment period** for the 15th edition of the NPCA Quality Control Manual for Precast Concrete Plants opened Nov. 1, 2021, and ends Dec. 31, 2021.



For a complete copy of the addendum and the highlighted version of the proposed 2022 QC Manual that includes the sections mentioned above, visit precast.org/qcmanual.

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PRECAST PROUD
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NPCA'S ONBOARDING PROGRAM

Go from Employee Seeker to Employee Keeper with NPCA's Onboarding Program

Coming soon, NPCA will offer its latest member workforce development resource: the new producer onboarding program. This online subscription program consists of an employer onboarding guide and employee training/orientation video series.

Designed to help employers effectively train, integrate and retain employees, it also supports employers in understanding the motivations and expectations of Gen Z and Millennial candidates. This new program will help NPCA members:

- Enhance communications with new hires.
- Set appropriate expectations.
- Empower workers to succeed.
- Detect employee growth potential.

Watch for more information on this exciting program!



NPCA

National Precast Concrete Association

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NPCA Foundation WRAP-UP

NPCA file photo

Shannon Hayhurst and her teammates celebrate after Hayhurst drained a 30-foot putt for an eagle on No. 17 at The Broadmoor East Course. Hayhurst's foursome finished in a tie for third at the NPCA Foundation Golf Tournament.

NPCA Staff Report

The NPCA Foundation hosted a golf tournament Oct. 29 in conjunction with NPCA's 56th Annual Convention in Colorado Springs, Colo. More than 80 golfers took on The Broadmoor's East Course for the tournament, which also included a putting contest, a long drive contest and a closest to the pin contest.

The winning foursome for the best-ball scramble was Ron Sparks, Tommy Harreld, Andy Wieser and Drew Wieser, who combined for 15-under.

Finishing second at 9-under was Stephen Suleski, Jon Leavell, Paul Bilson and Asher Kazmann. Two groups scored 7-under to tie for third. The first group was Shannon Hayhurst, Brad Hyronimus, Kevin Book and Bob Carter. The other was Robert Bacarella, Mike McGuane, Eric Mosier and David Savant.

Longest drive winners were Aaron Ausen and Suzanne Runion,

while Mike McGuane took closest to the pin.

Winning the putting contest was Pat Mulhall, who drained a 40-foot try to earn a customized Foundation golf bag.

A special thanks goes to all of the sponsors and golfers for their support. Their generosity allows the Foundation to continue its mission to advance the precast industry through grants to universities for precast concrete curriculum, scholarships, internships opportunities and more.

"The Foundation Golf Outing was a tremendous success," NPCA Foundation Chairman Aaron Ausen said. "It was great to see everyone out on the beautiful course enjoying the scenery and challenging golf. The money raised is greatly appreciated and will aid in the Foundation's mission of infusing precast in colleges and universities and developing the workforce for tomorrow."



NPCA file photo

Quint Coles blasts out of a sand trap on No. 16 during the NPCA Foundation Golf Tournament.

FOUNDATION BOARD REPORT

In addition to the golf tournament, the NPCA Foundation Board of Directors met during the Annual Convention. Ausen reported that the Foundation, in conjunction with PCI's Foundation, is supporting precast-specific content and labs at five universities across the United States, including:

- ▶ **New Jersey Institute of Technology**
- ▶ **California State University-Chico**
- ▶ **Kansas State University**
- ▶ **Idaho State University**
- ▶ **McNeese State University**



NPCA file photo

NPCA Foundation Chairman Aaron Ausen delivered the state of the foundation address during the 56th Annual Convention.

THANK YOU, NPCA GOLF FUNDRAISER SPONSORS

ON-COURSE BEVERAGES

Advanced Concrete Technologies Inc.
Blackthorn LLC
H2 Pre-Cast Inc.
Haarup North America Inc.
Hill and Griffith Co.
PRETECH Corp.
SKAKO Concrete Inc.
USF Fabrication Inc.
Wieser Form Fabrication

BOXED LUNCHES

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Closest to the Pin
Haarup North America Inc.
IMER Group

LONGEST DRIVE (MEN)

IMER Group
Hill and Griffith Co.

LONGEST DRIVE (WOMEN)

IMER Group
Shea Concrete Products

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Garden State Precast Inc.
Haarup North America Inc.
Hamilton Kent
Hill and Griffith Co.
Lindsay Precast
Pennsylvania Insert Corp.
Permatile Concrete Products Co.

PRETECH Corp.
Smith-Midland Corp.
Western Precast Concrete Inc.

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Forterra Pipe & Precast
Gainey's Concrete Products Inc.
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Jefferson Concrete Corp.
Jersey Precast
Lindsay Precast
Materials Inc.
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NPCA
Norwalk Concrete Industries
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PRIZES

ALP Supply
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Hoot Systems LLC
Panhandle Concrete Products Inc.
Golf Towel
H2 Pre-Cast Inc.

HOLE-IN-ONE

Champion Precast Inc.
Delta Specialty Precast Concrete
Engineers
National Precast dba E.C.C.
Norwalk Concrete Industries
PRETECH Corp.
Wieser Concrete Products Inc.

Ausen also recognized outgoing Foundation Board of Directors members Randy Lindsay-Brisbin, Jim Wright and Wade Pink. Ausen thanked them for their support of the Foundation throughout their terms.

Visit precast.org/foundation to learn more about the upcoming silent auction fundraiser that will be held in conjunction with The Precast Show 2022 in Kansas City.



To see all of the photos from the NPCA Foundation Golf Tournament, visit NPCA's Flickr account.

www.flickr.com/photos/nationalprecast

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 jfrollo@precast.org.

TINDALL CELEBRATES NEW FACILITY

Tindall Corporation has expanded its utility division with the opening of a new facility in Spartanburg, S.C.

Featuring state-of-the-art automation, the new facility increases the company's production capacity, facilitates the creation of custom solutions and streamlines the process of manufacturing standard precast components.



Tindall Corporation Grand Opening in Spartanburg, S.C.

TITAN ADDS CREDIT CARD PROCESSING

Titan Precast Management System announced a partnership with BASYS to integrate credit and debit card processing into the Titan 3000 plant management system.

The integration allows Titan users to process payments efficiently and economically, with transactions reflected in the Titan system.

CFS OFFERS STEEL FIBERS FOR UHPC

Concrete Fiber Solutions introduced steel fibers with specifications for Ultra-High Performance Concrete.

The CFS 300-Series carbon steel fibers protect against traffic wear and harsh elements and extend the projected life of concrete.

WELLS NAMES NEW SENIOR VP OF SAFETY

Wells has promoted **Phyllis Felsing** to its executive leadership team as senior vice president of safety. Felsing is responsible for leading and implementing employee safety and health programs along with environmental and department of transportation compliance.

With nearly 30 years of experience in safety and human resources leadership, Felsing previously served as director of safety at Spancrete, which Wells acquired in 2020.

HANES RETIRES FROM ADELPHIA METALS

Rob Hanes announced his retirement from Adelpia Metals, effective Sept. 30. Hanes has worked in the rebar industry since 1986.

Hanes' son-in-law, Sammy Curto, has been tapped to fill his position.

PAPPADÀ GINO CREATES STRAND LAYING SOLUTION

Pappadà Gino of Compiano, Italy, has introduced a new machine designed to solve the tensioning strand



Pappadà Gino tensioning formwork machine.

laying problem within formwork to produce prestressed concrete beams.

This allows the entire rebar cage to be prefabricated, and the tensioning strands to be installed while the cage is in the formwork.

JLG REPRESENTING TEKSAM

Teksam announced a cooperation with JLG & Associates to represent Teksam's product line, including machinery, molds and equipment, in 11 states across the southeast and southcentral regions of the United States.

TAYLOR PARTNERS WITH PROTERRA ON ELECTRIC VEHICLES

Taylor Machine Works Inc. will power its next-generation Taylor ZLC Series electric container handler and ZH Series electric forklift using Proterra's battery technology.

Taylor expects to deliver the first Proterra-powered Taylor vehicle to customers in 2022.



SCALE-TRON PRESIDENT RETIRES

Robin Shepherdson, president of Scale-Tron Inc., has announced his retirement after sale of the company to

Robin Shepherdson

employees Chris Shawcroft and Susie Michel.

Shepherd, the initial designer of all the company's products, was an NPCA Associate member for more than 30 years.

basins and precast tops are available at suppliers nationwide.

This bolt-adjusted riser technology reduces the crew, time and equipment required, streamlining the paving process while keeping traffic moving and protecting roads from unnecessary wear.



Hugh Martin

MARTIN RECEIVES ASTM INTERNATIONAL AWARD OF MERIT

Oldcastle Infrastructure Engineering Manager Hugh Martin, P.E., recently

received ASTM's International Award of

Merit from Committee C13. It is the highest award granted by the society to an individual member, recognizing distinguished service and participation in ASTM International committee activities.

Martin has contributed to ASTM both through his participation in the ASTM C13 Committee on Concrete Pipe and in ASTM C27 Committee on Precast Concrete Products. A licensed engineer in 13 states, he has been a member of ASTM C13 since 2005 and served as chair of ASTM Subcommittee C13.02 on Reinforced Sewer and Culvert Pipe from 2014-20. In addition, Martin was chair of Subcommittee C27.10 on Utility Structures from 2007-16 and currently is chair of Subcommittee C27.30 on Water and Wastewater Containers. **PI**

RIMRISER SOLUTIONS AVAILABLE NATIONWIDE

RimRiser Inc. announced its Rimriser adjust-to-grade systems for manholes, catch

Precise Forms All-Aluminum Precast Riser Form

- * Reduce Labor Cost
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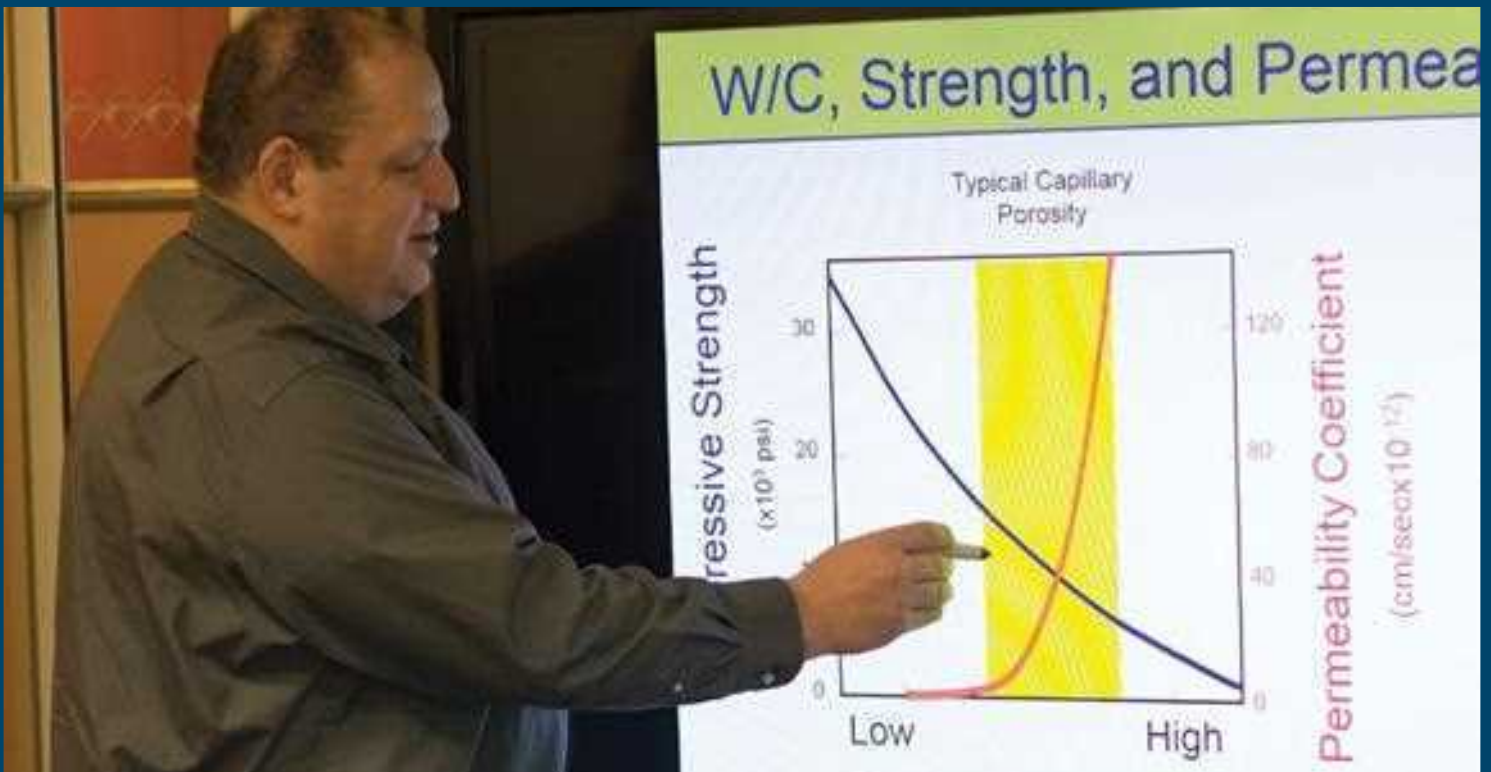
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2022 NPCA Webinars

NPCA conducts webinars throughout the year, providing precasters with vital education for all facets of running a precast plant.

For course descriptions and registration, visit precast.org/webinars

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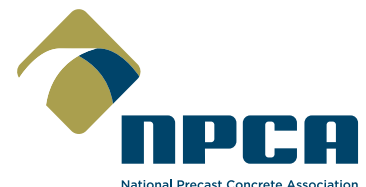
Access to the entire NPCA Webinar Library for 1 year (over 125 hours of webinar training)

Webinars:

All webinars begin at noon Eastern

- Jan. 20** What You Need to Know When Creating an Employee Handbook
- Feb. 3** Applied Ethics in the Precast Industry
- March 17** Onboarding: Go from Employee Seeker to Employee Keeper
- April 14** What You Need to Know about Precast Mixers
- May 12** Identifying Mix Design Efficiencies
- June 9** Testing Fresh Concrete
- July 14** Making That Big Purchase: What You Need to Know About Large Capital Expenditures
- Aug. 11** Lean 101

- Sept. 8** Get Packing! We Are on a Quest to Better Concrete with Combined Aggregate Gradation
- Oct. 13** AutoCAD Tips and Tricks
- Nov. 10** Best Practices for Steel Reinforcement Fabrication, Placement and Inspection
- Dec. 8** Increase Sales by Building and Enhancing Relationships



CALENDAR OF EVENTS



March 3-5, 2022
THE PRECAST SHOW 2022
 Kansas City Convention Center
 Kansas City, Mo.



Nov. 3-5, 2022
NPCA 57TH ANNUAL CONVENTION
 Omni Amelia Island Resort
 Amelia Island, Fla.



Feb. 23-25, 2023
THE PRECAST SHOW 2023
 Greater Columbus Convention Center
 Columbus, Ohio



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

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GCI Pipe Products Inc.

THE
**PRECAST
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**A Complete Turnkey Solution
To Drive Efficiency In Your
Wetcast Operation**

A Global Provider of Precast Solutions

GCI Pipe Products Inc was founded in 1984 having a design and R&D office (headquarters) in Shawnee, Kansas has carved a remarkable niche in the market. We are a manufacturer of innovative products catering to the concrete pipe and precast industry and ensuring high quality at competitive prices.

Our Precast Plant and Machinery Solutions

GCI has ventured into a range of precast molds that are simple, efficient, reliable, and easy to maintain. Steel molds of different shapes and sizes are equipped with strip assist features resulting in quicker turnarounds and ROI. These products are being used in various construction projects wherein control and uniformity are required.

Wet and Dry Cast Molds

- ▶ Modular Box Culvert
- ▶ Concrete Pipe
- ▶ Jacking Pipe
- ▶ Manhole related products
- ▶ Custom products

Precast Machinery

- ▶ CPM 2500
- ▶ CPM 3600
- ▶ APS

Joint Rings

- ▶ Round
- ▶ Arch
- ▶ Box
- ▶ Elliptical Shapes

Our High-Speed Continuous Casting Technology

Over the past few years, there has been a positive growth of automation in global precast concrete markets. According to Grand View Research, "The global precast concrete market size was valued at USD 92.14 billion in 2020 and is expected to grow at a compound annual growth rate (CAGR) of 5.3% from 2021 to 2028".

Labor shortages have become a significant barrier following the consequences of the global pandemic. Reducing dependency on labor and increasing productivity is the need of the hour. GCI believes that automation is the answer. We present our solution to enhance your wet cast production capabilities, namely, Automated Precast System (APS). We work hand-in-glove with the customer and act as an end-to-end supplier for automating and optimizing your wet cast production.

Our proposed system utilizes the 'Assembly line' principle for wet cast production and creates a process "flow". APS offers the tools to increase throughput and profitability. Many precast producers will find APS helpful in optimizing their production activities while increasing their product range with minimal investment. From design to installation, our experts will be there to support you.

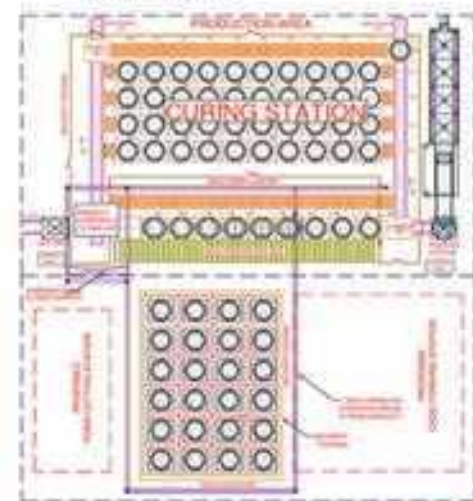
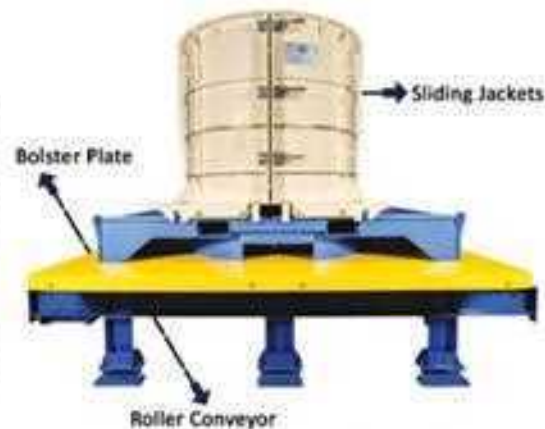
Design Methodology

APS utilizes a closed production loop, where forms are subjected to workstations. A standard set of tasks are performed at each workstation. All required tools and equipment to complete tasks are provided at the station. Once these tasks are completed, forms move to the next station. This enables a transition from an inherently inefficient 'cast on the floor' method to an assembly line principle.

The assembly line reduces dependency on forklifts and overhead transport of concrete buckets. Instead, molds are transported via, transfer carts and conveyor systems, thereby, increasing safety.

Every form rides on a bolster plate, providing a common size for handling. Molds are equipped with strip-assist features like sliding jackets and collapsible cores for a quicker turnaround. Automated product handling and special demolding equipment are provided to suit a wide range of products. Demolding equipment comes with different gripper attachments to handle products of a particular shape and size.

A complete solution for producing manhole bases can also be provided on request. From robotic machining of EPS invert channels to providing custom CAD software, GCI can assist you in your manhole base production activities and provide a tailor-made solution.



APS enables you to increase your capacity and capability without a commensurate increase in labor requirements and overheads. It drives your lean manufacturing initiatives by generating a continuous flow and achieving 'Takt Time' production rates. This helps you to boost productivity and expose bottlenecks in your operation to take corrective action.

Range of products

- ▶ Manhole bases
- ▶ Manhole risers
- ▶ Eccentric and concentric manhole cones
- ▶ Catch basins
- ▶ Precast barriers (Depends on size and design)
- ▶ Any wet cast form or product which meets the technical limitations of plant supporting equipment

Advantages of APS

- ▶ Assembly line efficiency
- ▶ Reduced Labor costs
- ▶ Increased profitability and throughput
- ▶ Improved plant conditions
- ▶ Adaptability and Durability
- ▶ Reduced floor space requirements

APS is a customer-driven plant that is flexible with several options available. Each plant can be designed to meet the specific requirements of the customer in terms of production quantity and cost.

With the right implementation, you can achieve high levels of productivity and efficiency while increasing product quality and profits. Have questions about the automation process for your specific needs? Our experts will offer insights to automate your wetcast production.

Make your production faster and accurate with GCI's automated precast machinery.

Associate Members Of



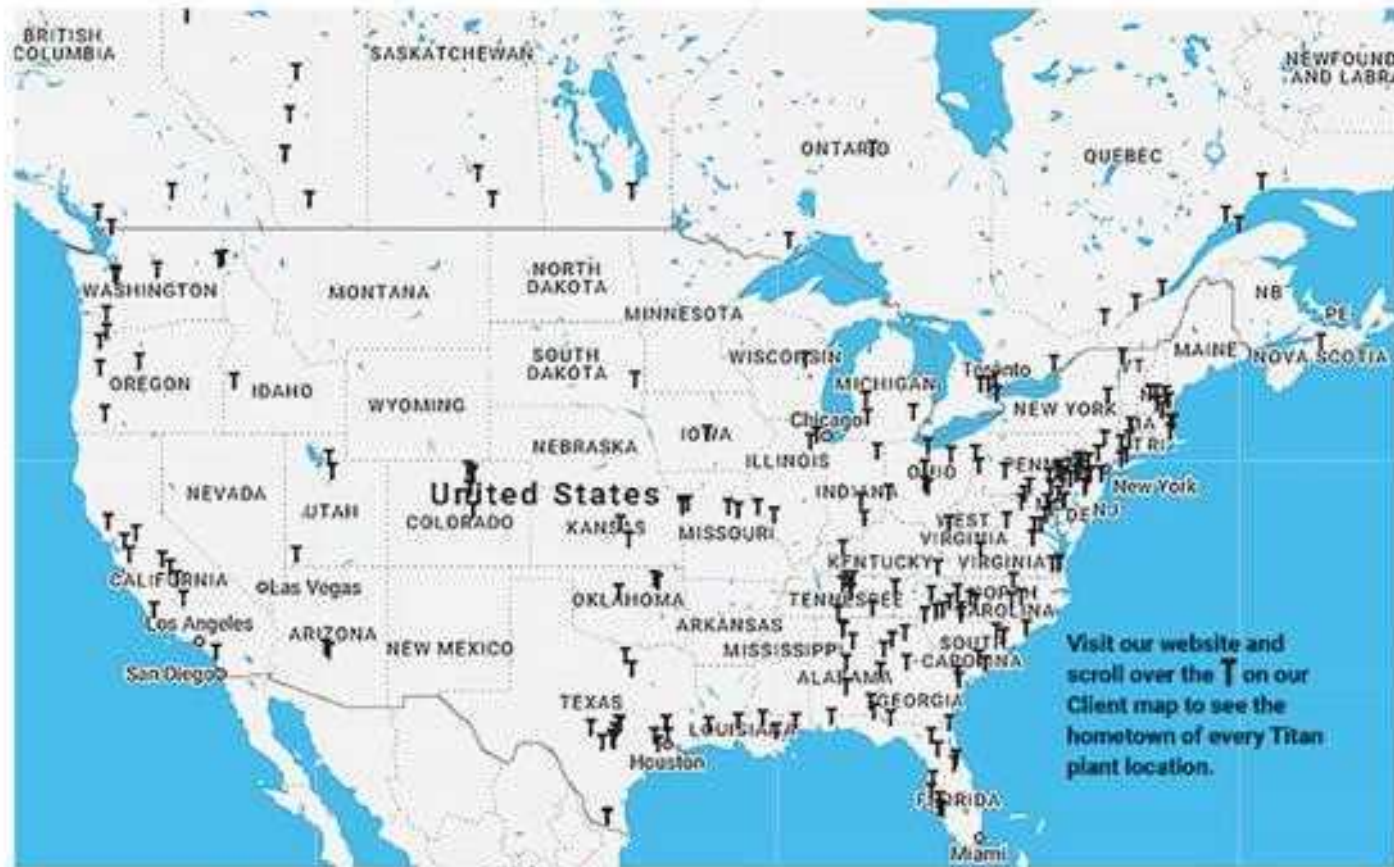
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From Sea to Shining Sea!



Titan Users Span the Continent

Where can you find Titan Precast Management System users? Just about everywhere. Now in our third decade, we have been developing, refining and improving our comprehensive precast-specific plant management software since 2000. And we're continuing to grow the Titan community with:

- Over 2,500 Titan users
- Over 136 individual precast companies
- Over 255 plant locations



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PRIMA

A SMARTER WAY TO WETCAST



PRIMA Automated Wetcast System



NEW! Prima Forms

A Complete System to Eliminate Waste and Increase Profitability

Maximize Labor

Assembly-line layout of specialized workstations brings products to the workers removing extra steps, searching for tools and moving concrete around.

Drive Throughput

Prima provides the intelligence to manage the process, down to the piece. You'll see bottlenecks in real-time and can quickly flex to optimize efficiency.

Increase ROI

With data-driven production planning, the ability to use your existing wetcast forms, and new business from added capabilities, the advantages are clear. Also, when you add Prima forms, their advanced features can reduce cycle times, helping you deliver product faster.

Coming Soon!

**PRIMA
BASE**

Monolithic Manhole
Base Technology



Ready to learn more?

Contact your local HawkeyePedershaab
or BFS sales rep or visit
afinitas.com/prima.



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Afinitas is a global, comprehensive and customer-oriented infrastructure equipment and services platform that combines the strengths of:
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