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Vice president, Jefferson Concrete Group

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PUBLISHER
Michael Hoffman

EXECUTIVE EDITOR
Tom Rodak

MANAGING EDITOR
Heather Bremer

TECHNICAL EDITOR
Brad Chinery, P.E.

TECHNICAL CONTRIBUTORS
Phillip Cutler, P.E.
Claude Goguen, P.E.
Hugh Martin, P.E.
Ron Naumann, P.E.

GRAPHIC DESIGN
Molly Tippner

ADVERTISING
Brenda C. Ibitz
bibitz@precast.org | (317) 571-9500

Chris Frederick
cfrederick@precast.org | (317) 571-9500

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Address your letters and comments to the editor:
Precast Today/Editor
1320 City Center Drive, Suite 200, Carmel, IN 46032
(800) 366-7731 | Fax: (317) 571-0041
Email: npca@precast.org

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Congratulations Bill Bundschuh!

We thank you and the entire PRETECH Corp. team for your business and strong relationship over the years. Best of luck in your new endeavor as Chair of NPCA!

Chair's Insights

A MESSAGE FROM NPCA CHAIR WILLIAM J. BUNDSCHUH

William J. Bundschuh
NPCA Chair of the Board

First off, I want to say thank you to the NPCA membership for putting your trust in me as Chair. I am honored by the responsibility and humbled by your faith in me.

I hope everyone enjoyed the 58th Annual Convention in Oklahoma City. I want to once again welcome the new Board members and committee chairs. I also want to thank outgoing board members Mark Wieser, Jeff Malcom, Chuck Piwowarski and Sam Lines for their time and contributions.

As Chair, I am looking forward to the next 12 months and all that we can accomplish together.

To start, we will continue to drive NPCA initiatives and projects already under way thanks to Joel Sheets, Mark Wieser, Ron Sparks and Chairs before them. NPCA's marketing initiative is putting precast concrete front and center with state and local specifiers. We also are working with a group in Washington, D.C., to address issues on the national stage.

As a result, precast concrete remains a highly sought-after choice by DOTs, government agencies and the private sector. The work is out there.

Within this edition, I recommend you check out the article on Page 68 by NPCA Director of Technical Services Brad Chinery, P.E. In August, the U.S. Office of Management and Budget issued its final guidance on how to apply the Build America, Buy America guidelines. The resulting regulations basically are what we have been working under since 2021. NPCA is working with a group in Washington, D.C., to address the discrepancy in regulations between manufactured precast concrete and cast-in-place concrete. Watch the blog site at Precast.org for updates.

Thank you again. I want to see all of you at The Precast Show in Denver, and here is looking toward a great 2024.

Industry Insights

CONSTRUCTION TO FINISH 2023 STRONG, SLOWDOWN EXPECTED IN 2024

By Tom Rodak

Each quarter, NPCA Vice President of Marketing and Communications Tom Rodak takes a look at where the precast concrete industry is and where indicators show it is headed.

After a year of stronger-than-expected GDP growth, driven largely by government spending and increased business investment in factories and equipment, the U.S. economy is expected to slow as the calendar moves into 2024. Elevated inflation, high interest rates, dissipating savings and rising consumer debt will create mounting headwinds for the coming year.

Despite the Fed's 17-month drive to curb inflation – which was down to 3.7% at the end of the third quarter – the reshuffling of labor markets and supply chains have made it difficult for monetary policy alone to ease prices. Worker shortages and ongoing high inflation have kept wages high and unemployment low. All while the fluctuating availability of critical input materials and higher energy costs have kept prices elevated.

At the September FOMC meeting, U.S. Federal Reserve Chairman Jerome Powell eluded to one last rate hike in 2023, signaling that the Fed may be nearing the end of its inflation-fighting campaign.

Inflation down to

3.7%

in the third quarter of 2023.

Source: US Federal Reserve

NPCA FILE PHOTO

Government funding will continue to drive public projects throughout the rest of 2023 and at least the first half of 2024, keeping precast concrete facilities busy.

According to the latest Consensus Construction report from The American Institute of Architects (AIA), leading industry economists expect spending growth for commercial, institutional and industrial buildings to peak at 19.7% this year.

"The first half of this year has seen gains in construction spending on nonresidential buildings approaching 20%. However, this scorching growth rate is expected to moderate a bit moving into the third and fourth quarters," AIA Chief Economist Kermit Baker wrote. "Even with the easing in supply chain issues and the improved pricing of many construction materials and products, elevated interest rates, more restrictive lending on the part of banks, nervousness over the direction of the economy and construction labor constraints are expected to slow the pace of growth."

With smaller gains expected in 2024, the AIA forecast anticipates a 2% increase in overall building spending next year and just a 5% increase in spending in the industrial sector. Even with the anticipated slowdown, construction spending is

expected to remain elevated through next year.

Growth is forecast to continue in the manufacturing and data center segments while multifamily, retail, warehouse, office and lodging will begin to slow primarily due to rising interest rates.

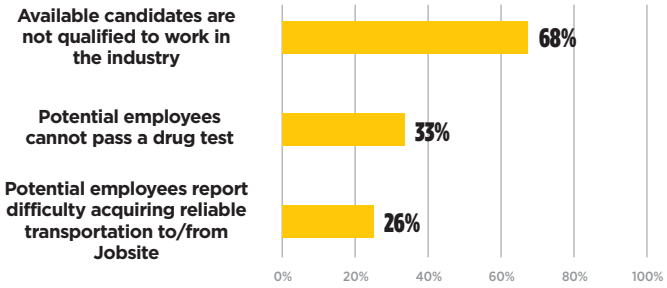
Government funding, including the Infrastructure Investment and Jobs Act, CHIPS and Science Act and the Inflation Reduction Act will continue to drive infrastructure, manufacturing and power construction. However, funds will take time to reach construction projects and Build America, Buy America (BABA) could potentially delay construction starts for years.

There are several unknowns that cloud next year's forecast. The potential for a government shutdown (as of this writing) in November, the Israel-Hamas war and UAW strikes will impact the global economy, to what extent remains to be seen.

NPCA FILE PHOTO

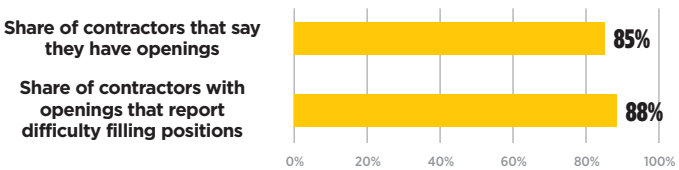
Low unemployment continues to create worker shortages in areas throughout the United States. That, along with higher wages and fluctuating availability of resources, continues to drive prices up.

Difficulty filling positions – share of respondents that report:



Source: 2023 AGC of America/Autodesk Workforce Survey

Workforce challenges for hourly craft workers:



Source: 2023 AGC of America/Autodesk Workforce Survey

Government Insights

THE CHAOTIC CONGRESS

Let's See What Happened to Know Where We Are

By Petra Smeltzer

Petra Smeltzer is a consultant for Innovative Advocacy, which works with NPCA to advance the interests of the precast concrete industry in Washington, D.C.

The U.S. House of Representatives can be an unpredictable body. Even so, it has never been as subject to impulse as in the past months.

In late September, the burning question of what is happening in Washington, D.C., was about a looming government shutdown. Because of a deal to delay a shutdown, the House ousted Speaker Kevin McCarthy (R-Calif.), rendering Congress hamstrung and powerless to conduct necessary business.

The Senate cannot function alone when it comes to legislative matters such as funding the federal government.

Ironically, both the shutdown threat and the House leader situation stem from the same problems: a deep partisan divide between Democrats and Republicans alongside a splintered Republican party with a razor thin majority unable to unify, creating chaos within the Republican conference.

A Republican majority unable to bond only means Congressional paralysis. Under any speaker, the House easily may again become paralyzed when negotiating the question of how to fund the government for the fiscal year.

Kevin McCarthy was removed as Speaker of the Hosue and replaced by Mike Johnson (R-La.).

STATE OF PLAY

October marked the first time in U.S. history that the Speaker's office has been vacant. Importantly, with a constitutionally required office in flux, the bi-cameral Congressional system could not advance legislation, including appropriations bills. The fissure inside the Republican party made it impossible for either GOP wing to have enough votes to overcome an ideological battle over spending.

Eventually, to continue funding the government, any Republican speaker will have to negotiate with the Democratic Senate and the White House to agree on spending that all sides can tolerate. Yet the hardline

A Constitutional Duty

The office of Speaker was established in 1789 by Article I, Section II of the U.S. Constitution. The Speaker is the political and parliamentary leader of the House and simultaneously its presiding officer. Though not specifically required by the Constitution to be an elected House member, the Speaker is the only House officer who traditionally has been chosen from the sitting House membership.

wing of the Republican conference seems ready to undermine any compromise. As a result, government shutdown threats will become the normal course of strategy for hardliners.

EFFECTS ON THE PRECAST CONCRETE INDUSTRY

At the time of this writing, a mid-November shutdown seems a strong likelihood, and the precast concrete industry can be affected in various ways. The extent of the impact depends on several factors, including the duration of the shutdown.

- **PERMITTING AND REGULATORY DELAYS:** Government agencies are responsible for issuing permits and regulating construction and manufacturing. During a government shutdown, federal agencies operate with reduced staff or temporarily close, leading to delays in obtaining necessary permits or approvals for projects using precast concrete. This slows down construction and business operations.
- **INFRASTRUCTURE PROJECTS:** Government-funded infrastructure projects such as bridges, pipes, paving, public works and public buildings can be delayed or put on hold during a government shutdown. Reduced demand for precast components affects production and revenue even if it is only for federally funded infrastructure.
- **FEDERAL CONTRACTS:** Some precast concrete manufacturers may already have contracts with government agencies, including federal, state or local governments. A government shutdown can disrupt these contracts, delay payments or even lead to contract cancellations.
- **ECONOMIC UNCERTAINTY:** Government shutdowns create economic uncertainty, which leads to reduced consumer and business confidence. As a result, construction projects can face delays or cancellations due to concerns about the economic environment.
- **SUPPLY CHAIN DISRUPTIONS:** Government agencies play a role in regulating and facilitating transportation and logistics, including the movement of raw materials and finished products. Shutdown-related disruptions in supply chains can affect the availability of essential materials and transportation services.
- **RESEARCH AND DEVELOPMENT FUNDING:** Government agencies often provide funding for research and development in construction and building materials industries. Shutdowns can disrupt these funding programs, potentially affecting innovation and technological advancements.
- **LEGISLATION:** If Congress is at a stalemate in its responsibility to fund the government and keep it running, there will be delays in introducing and advancing policy initiatives such as the Water Resources Development Act, Workforce Development legislation and other bills of interest to the industry.


NPCA FILE PHOTO

A shutdown of the federal government will not hinder any projects already allocated but could put delays on new money to fund federal and state projects.

PRECAST CONCRETE INDUSTRY RECOURSE

Given the extreme politics in play within the Republican-led House, the chance of a shutdown likely will repeat itself prior to the 2024 election.

The impact of a government shutdown on the precast concrete industry can vary depending on regional factors, the specific products manufactured and the industry's reliance on government contracts and regulatory approvals.

Staying informed and tuned into funding programs, including grants, can help precast concrete manufacturers better anticipate and navigate the effects of future shutdowns.

Questions from the Field

QUESTIONS FROM THE FIELD IS A SELECTION OF QUESTIONS NPCA TECHNICAL SERVICES ENGINEERS RECEIVED FROM CALLS, EMAILS, PLANT EVALUATIONS AND COMMENTS ON BLOG POSTS OR MAGAZINE ARTICLES POSTED TO PRECAST.ORG.

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

MARTHA ASKS:

WHEN STORING HOG SLATS, WHAT IS THE BEST WAY TO PLACE THE DUNNAGE TO PREVENT CRACKING?

NPCA TECHNICAL EXPERTS ANSWER:

There is a tremendous amount of expense and effort into casting products with superior quality while meeting a demanding production schedule. The last thing precast concrete producers want is for those products to experience defects while in the yard awaiting shipment.

To ensure proper storage, start from the ground up.

First, make sure that the ground is flat and level. Any undulations or uneven areas may cause racking stresses in the longitudinal direction of the first layer of product through load concentrations from the dunnage. The recommendation to remedy this issue is to regrade and ensure proper soil compaction for a flat and level surface. Additionally, maintain the laydown area. Address small puddles before they become bigger puddles, which may damage the subgrade.

As additional products are stacked, ensure that the dunnage is vertically aligned for the most efficient load transfer through the stack to the ground. Any offset in the dunnage may create a shear force and moment in the layer between the misaligned pieces.

PHOTO COURTESY WIESER CONCRETE PRODUCTS

Properly stored and stacked slats allow for a clean, neat and damage-free environment when put to use.

PHOTO COURTESY WIESER CONCRETE PRODUCTS

Further, make sure that the dunnage width is equivalent to the product width to provide full latitudinal support.

Finally, the most ideal location to place the dunnage for a uniformly loaded slab is $\frac{L}{2+2\sqrt{2}}$ (or approximately L/5) from each edge. By placing the dunnage at one-fifth the length of the slab from each edge, the internal moment in the slab is minimized, and the positive and negative moments are equal in magnitude. If the product is not uniformly loaded, additional analysis may be needed to identify the proper placement of dunnage to minimize the moment and shear forces in the stacked product.

CLAYTON ASKS:

WHAT ARE THE STRUCTURAL REQUIREMENTS FOR A PRECAST CONCRETE WET WELL FOR A FIRE SUPPRESSION SYSTEM?

Standards for precast concrete manholes are specific to their needs and uses.

NPCA TECHNICAL EXPERTS ANSWER:

The governing standard for a precast concrete manhole is ASTM C478, Standard Specification for Circular Precast Reinforced Concrete Manhole Sections. This code outlines the applicable aggregate, mix, reinforcing and performance requirements for the overall structure as well as specific requirements for the independent pieces of the overall product – grade rings, tops, risers, base sections, and steps and ladders.

One consideration to highlight is the area of steel requirement in flat slab tops. ASTM C478 13.4.3 states that the minimum area of reinforcement is 0.12 inch square per linear foot in each direction. However, the requirements in the latest edition of ACI 318 also must be checked. In ACI 318-19, two-way slab reinforcement is addressed in 8.6.1.1 and requires $0.0018 = \frac{A_{s,min}}{A_g}$.

This ratio is determined by dividing the reinforcement area by the gross area of concrete. For a 12-inch thick flat slab top the gross area of concrete, it is $A_g = 12in * 12in = 144in^2$. Using No. 4 bars at 12 inches on center, it is $A_s = 0.2\ in^2$, which gives a ratio of $\frac{0.2in^2}{144in^2}$. While this meets the requirement in ASTM C478, it does not meet the ACI requirement for shrinkage and temperature reinforcement.

To figure out the $A_{s,min}$ multiply the ratio by A_g the or $0.0018 * 144in^2 = 0.26$. The No. 5 bar at $A_s = 0.31in^2$ meets all requirements.

Staying a Step Ahead of De-icing

SOLUTIONS FOR REMOVING SNOW AND ICE FROM PRECAST CONCRETE STEPS WITHOUT DETERIORATING THE PRODUCT

By Eric Carleton, P.E

Eric Carleton, P.E., is a former director of codes and standards at NPCA. He is an ASTM fellow and former chairman of C13.08 Precast Concrete Joints subcommittee.

The best option a homeowner or business owner can take to clear the way, avoid ice and not damage steps without using chemicals is to remove snow immediately following a weather event.

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Since the 1940s, precast concrete manufacturers have offered steps among their stable of products, though they have become more niche than mainstream over the years.

The benefits of precast concrete steps mirror that of other precast products. Namely, they are produced in a controlled environment of batching, mixing, casting and curing to provide the most uniform and highest quality concrete. They also get slippery when wet or frozen.

To combat those conditions, homeowners and commercial maintenance professionals turn to de-icing materials, which present a series of issues on their own. De-icing chemicals potentially can lead to damaging concrete steps and reduced service life. Consequently, an overwhelming recommendation by the precast step producers nationally is to never use de-icing chemicals.

There is a dichotomy between precast concrete step producers' recommended policy of not using de-icing chemicals and an awareness by those producers that people will use them regardless in wanting to make icy steps as safe and slip free as possible.

However, if both parties become fully educated on the specific de-icing issues and implement best practices under their control to mitigate the potential detrimental effects that chloride de-icing chemicals may have on precast concrete, it will make the world a safer place, one step at a time.

Precast concrete step manufacturers unilaterally recommend against chemical agents or salt as de-icing agents. Still, purchasers need solutions to clearing the slippery conditions.

DE-ICING PRECAST CONCRETE

The application of de-icing products and salt help provide safe movement up and down steps by removing some of the slipperiness.

TEMPERATURE RANGE FOR DE-ICING SALTS

TYPE OF SALT	Chemical	Lowest practical melting temperature	Eutectic temperature	Optimum brine concentration
SALTS THAT CONTAIN CHLORIDE	Sodium chloride (NaCl or rock salt)	15 F	-6 F	23%
	Magnesium Chloride ($MgCl_2$)	minus-10 F	-28 F	27 to 30%
	Calcium Chloride ($CaCl_2$)	minus-20 F	-60 F	30%

DEFINITIONS:

Lowest practical melting temperature. The temperature that a salt will melt ice in a reasonable amount of time. The melting rate slows down tremendously below this temperature until the "Eutectic Temperature" is met.

Eutectic temperature. The lowest temperature that a salt can melt ice.

Table 1 Source: Minnesota Pollution Control Agency Minnesota Stormwater Manual

Chemicals in de-icing agents lower the freezing point of water and break the bond between ice and pavement. But while effective in reducing the ice hazard on concrete surface, some chemicals can affect durability.

The most common de-icing salts used by the general public include sodium chloride (NaCL or "rock salt"), calcium chloride ($CaCl_2$) and magnesium chloride ($MgCl_2$). All three come in bags or 5-gallon containers and typically are sold as crystalline or pellets.

Each product offers different attributes regarding the temperature range in which they work best.

Each also has a different capacity to potentially harm concrete.

BUYER BEWARE, BUYER BE INFORMED

Studies on the effects of de-icing chemicals on precast concrete steps are few. The Environmental Protection Agency offers a "Safer Choice" designation for deicer products that fulfil certain criteria. However, there is no national standard nor labeling requirements for de-icer packaging.

Claims such as "environmentally friendly" or "pet friendly" very well could be pure marketing with no science to back it up. So be sure to do some research and make decisions accordingly based on ingredients and guidance.

There is plenty of research, however, on the effects de-icing

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products have on concrete roads and bridges. And while precast concrete steps are a much smaller scale than roadway systems, both have the same basic functionality – moving people safely from one location to another in slippery winter conditions.

Much of this research can be applied to de-icing strategies and practices for precast concrete steps. So it is OK to extrapolate a little.

Certain field conditions or contact with specific chemicals or acids cause what the Federal Highway Administration describes as material related destress (MRD). This condition is broken down into physical and chemical mechanisms.

The mechanisms in Table 2 show specific FHWA-identified MRDs that are related to freeze-thaw damage and those based on the use of de-icing chemicals.

Advancements in the production and mixing process could one day lead to concrete that releases heat in cold conditions, thus keeping the way clear for users.

For more than a decade, a deleterious attack on concrete pavement joints has been identified and researched (Sutter, J. Weiss, Farnum, et al) due to the application of calcium chloride and magnesium chloride de-icing chemicals and the creation of calcium oxychloride. Concentrated applications of these same chemicals to precast concrete steps may also produce problematic expansive reaction through the creation of calcium oxychloride within the concrete matrix causing spalling and cracking.

Research has shown that the use of secondary cementitious materials (SCMs) – specifically fly ash, slag and silica fume – in the concrete mix reduces the calcium hydroxide available for problematic calcium oxychloride formation through dilution and pozzolanic reaction within SCMs. Consequently, this greatly reduces the potential of calcium oxychloride formation.

Another reason to utilize SCMs beyond improved concrete performance is they typically are good for the environment and increase profitability. However, fly ash's availability is becoming limited with changing environmental and power policy.

With that in mind, a recent paper, "Mitigation Calcium Oxychloride Formation in Cementitious Paste Using Alternative Supplementary Cementitious Materials," (Jones, Ramanathan, Suraneni, Hale), was published in March 2023 that prepared laboratory samples of concrete using traditional and alternative

SUMMARY OF COMMON CONCRETE PAVEMENT MRD TYPES DUE TO PHYSICAL MECHANISMS

TYPE OF MRD	OBSERVED DISTRESS	CAUSE	TIME OF APPEARANCE
Freeze-thaw deterioration of hardened cement paste	Crazing, surface scaling, joint spalling or deterioration. Generally, initiates near joints or cracks. Possible internal disruption of concrete matrix.	Deterioration of HCP due to repeated freeze-thaw cycles in a saturated state. Entrained air-void system insufficient to protect HCP from damage.	1 to 10 years
Deicer scaling/ deterioration	Crazing or surface scaling with possible alteration of the concrete pore system or the HCP, leading to staining at joints and cracks, followed by joint deterioration.	De-icing chemicals amplify freeze-thaw deterioration by increasing the level of saturation and pressures generated; may interact chemically with HCP (Sutter et al. 2006; Jones et al. 2013).	1 to 5 years
Freeze-thaw deterioration of aggregate	Cracking parallel to joints and cracks, followed by spalling. May be accompanied by surface staining.	Freezing and thawing of susceptible coarse aggregates results in fracturing or excessive dilation of aggregate.	10 to 25 years
Corrosion of embedded steel	Spalling, cracking and deterioration at areas above or surrounding embedded steel.	Chloride ions penetrate concrete, facilitating corrosion of embedded steel. Increased volume of corrosion products causes distress.	3 to 20 years

Table 2 (based on Van Dam et al. 2002a)

SCMs. The study compared each materials' capacity to mitigate the formation of calcium oxychloride.

The rankings of most effective to least was as follows:

- Rice husk ash
- Type C fly ash
- Type F fly ash
- Bottom ash
- Nepheline syenite filler
- Silica flour
- Limestone filler
- Sandstone filler

Additional testing would be needed to verify the concrete characteristics with alternate SCMs meet or exceed the existing concrete characteristics utilizing traditional SCMs.

THE FUTURE OF CONCRETE ICE MELTING

A 2017 research collaboration between Drexel University, Purdue University and Oregon State University titled "Incorporating Phase Change Materials in Concrete Pavement to Melt Snow and Ice" has shown by that introducing phase change materials into a concrete mix can store energy, which can be released as heat when temperatures drop and material begins to solidify.

The phase change material utilized within this project was

PROPOSED ADDITION TO FHWA TABLE BASED ON EXTENSIVE RESEARCH INFORMATION TO ADDRESS CHEMICAL ATTACK AND FORMATION OF CALCIUM OXYCHLORIDE

TYPE OF MRD	OBSERVED DISTRESS	CAUSE	TIME OF APPEARANCE
Chemical deicer attack	Spalling, cracking and deterioration.	Formation of expansive calcium oxychloride via calcium hydroxide reaction with concentrations of calcium chloride and magnesium chloride.	1 to 5 years

Table 3

Source: Ensuring Durability of Concrete Paving Mixtures: Part 1: Mechanisms and Mitigation FHWA-HIF-16-033

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paraffin wax. Though promising, the technology remains preliminary with additional research required to determine the optimum phase change material and the effect it may have on fresh and hardened concrete properties along with durability considerations.

One potential future result is precast concrete steps where the approach is "no salt, no shovel, no ice."

BEST PRACTICES FOR DE-ICING

There needs to be a balance between concrete step producers who advise against all deicers and peoples' needs to scale the steps safely. Here are some approaches:

- **Remove the snow.** The best and simplest means to reduce the formation of slippery ice on steps – which over time can damage the concrete – is to remove the snow prior to ice formation as soon as possible by shovel or broom.
- **Topical concrete sealant.** Either during production or shortly after delivery and installation, apply a silane, siloxane or agriculturally based soy methyl ester polystyrene coating in accordance with manufacturers requirements on tread, rise and platform surfaces. This should be an ongoing maintenance item for durability. A simple test to determine if reapplication of a topical sealant is needed is to pour water onto a dry step. If water beads, it is OK. If it absorbs water, it is time to reseal. The frequency of reapplication can vary from three years to 10 years depending on step use and pedestrian usage volume.
- **Temporary rubber covers.** Place removable rubber covers over the step tread and platform, which can form a barrier between the step and ice. This can be lifted exposing a clean, safe, non-slippery surface.
- **Utilize a traction material.** In lieu of a de-icing salt spread, use an abrasive sand or native bird seed such as white millet or "no-mess" sunflower seeds.

Prior to using chloride chemical as a step de-icer:

- **Know your steps.** It is universally recommended that any precast or cast-in-place concrete not have de-icing agents applied within one year of the curing cycle completion. Utilize an abrasive, such as sand, for step and platform traction. The techniques described above should cover that first winter.
- **Choose wisely.** When using a chloride de-icing chemical, choose the correct chemical for the temperature conditions.
- **Be wary.** Claims within some deicer packaging of "safe" with respect to concrete, pets, plants and environment can be misleading or false. With respect to concrete durability, research has shown that sodium chloride (NaCl) on properly produced concrete is the least deleterious de-icing agent when compared to calcium chloride (CaCl) or magnesium chloride (MgCl).
- **More is not better.** Do not use a scoop-and-dump technique. Apply the de-icing chloride evenly and sparingly.
- **Get ahead of the storm.** If possible, place the de-icer appropriately prior to a storm event. If that can't happen, shovel off the snow layer, then apply the salt.
- **Remove the slush.** After the de-icing chemical has done its job of creating a brine that will break the formed ice from the concrete step, it is important to remove the ice and slush slurry as soon as possible. This prohibits the slurry material from potentially providing critical degree of saturation of brine water into the concrete, effectively filling all the air entrainment void space and possibly creating cracking or scaling when the water refreezes within the concrete.
- **Clean up.** After the snow has cleared and steps have dried, clean up any large deposits of de-icing residue or clumps of de-icing salts that may have gathered during spreading or slush drainage. Wash down steps to clear off de-icing chemicals for when warm temperatures arrive.

NPCA FILE PHOTO

Precast concrete step manufacturers can help homeowners and business owners protect against snow and ice down the line by managing the materials they use.

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PRECAST PRODUCERS BEST PRACTICES

There also are steps that precast concrete step producers can take to help customers preserve the product. The simplest is adhering to the concrete mix and production requirements for optimum precast step durability when subjected to freeze-thaw conditions and potential de-icing chemical exposure.

Here are others:

- **Water/cementitious ratio.** Reinforced concrete containing ferrous metal reinforcement (rebar or fibers) should not exceed 0.4. Non-reinforced concrete should not exceed 0.45.
- **Secondary cementitious materials.** Utilize fly ash, silica flume or slag as cement replacement percentages between 15-30%. This improves the concrete matrix density with corresponding reduced water and chemical transport properties and mitigates potential for deleterious expansive calcium hydroxide formation when calcium chloride or magnesium chloride is utilized as a de-icing agent.
- **Aggregates.** Coarse aggregates should come from sources that have test confirmation to resist freeze-thaw (D-cracking) in accordance with local DOT agency experience and criteria.
- **Air entrainment.** For wet-cast concrete between 6-8%, test in accordance with ASTM C231, ASTM C173 or other recognized air-void testing methods such as utilizing the Super Air Meter apparatus per AASHTO T395. Production practices should provide air content verification to occur not less than for each 150 cubic yards (115 cubic meters) of concrete but not less often than once each day.
- **Finishing.** Exposed surfaces of treads and platforms should have screeds and trowels of wood or magnesium. All bleed water should be removed or allowed to evaporate prior to final troweling or broom finish. Finished surfaces of treads and platform should be checked by rigid straight edge or other devices to verify no small water ponding low spots.
- **Curing.** Curing methods should follow the guidelines established within the 2023 NPCA Quality Control Manual for Precast Plants Section 4.5 Curing Concrete.

PRODUCER VALUE ADDED PRACTICES

Additional practices or products that a producer may offer as purchaser options:

- **Topical concrete sealant.** Apply a silane, siloxane or agriculturally based soy methyl ester polystyrene coating in accordance with manufacturers requirements on tread, rise and platform surfaces.
- **Concrete densification admixture.** The current marketplace provides admixture innovation with crystalline densifiers, latex-modified concrete or hydrophobic additives in different ways to further reduce water and chemical intrusion into the concrete and resistance to scaling. Suppliers of many of these products can be found on the NPCA website. (Precast.org/find)
- **Internal heating elements.** Precast concrete steps contain a hollow space that some precast step producers provide retrofitting stock inventory steps with electrical heating elements that are placed against the inside surfaces of the step tread and platform to radiate heat and melt the snow and ice. Alternatively, some precasters offer special step fabrication by casting the heating elements directly into the foot traffic areas during the pouring operation. Advertisement claims of snow and ice-free steps in three to five hours upon activation with minimal electrical expense per storm event.

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HOW TO GET STARTED WITH AN

Environmental Product Declaration

By James Salazar

James Salazar is the director of sustainability at WAP Sustainability.

The demand for demonstrating product sustainability is here for the precast concrete industry.

Many large-scale procurers of construction materials – including some states – now require transparency about the products they consider for projects.

Thus the need to develop an environmental product declaration, or EPD for short.

Some precast producers already have EPDs ready to go, but others are encountering the requirement for the first time when bidding on new projects.

There is no need to wait until the specifier requirement. There is plenty producers can do now to prepare for EPDs.

WHAT IS AN EPD?

EPDs quickly have become the standard for reporting the environmental impacts of construction products.

EPDs are similar to nutrition labels in that they summarize environmental information in a standardized way to help consumers make more informed choices about the products they are buying.

The background research used to develop EPDs is called life cycle assessment (LCA). As the name suggests, LCA research considers the life cycle of the product that includes the extraction of raw materials, the processing these materials undergo and transportation across the supply chain to the eventual construction site.

While LCA and EPDs can consider the entire life cycle that includes use, maintenance and end-of-life, EPDs on construction materials typically are limited to the "cradle-to-gate" portion of the life cycle that ends with products at the manufacturer ready for shipment. The global warming potential (GWP) of a cradle-to-gate EPD sometimes is referred to as "embodied carbon."

WHY DO I NEED EPDS?

As the private and public sectors have progressed in combating climate change, many large-scale procurers of construction materials are now requiring embodied carbon transparency through EPDs.

While several U.S. agencies and companies have long incorporated low-carbon policies into their procurement practices, a major jumpstart arrived in August 2022 when the Inflation Reduction Act became law.

Among other efforts targeted at climate change within the act, it includes billions of dollars in spending for the development of EPDs, the purchasing of low carbon products by the Federal Highway Administration and the General Services Administration along with an unlimited amount allocated to FEMA.

These funds should incentivize industries to increase their familiarity with low carbon procurement methods.

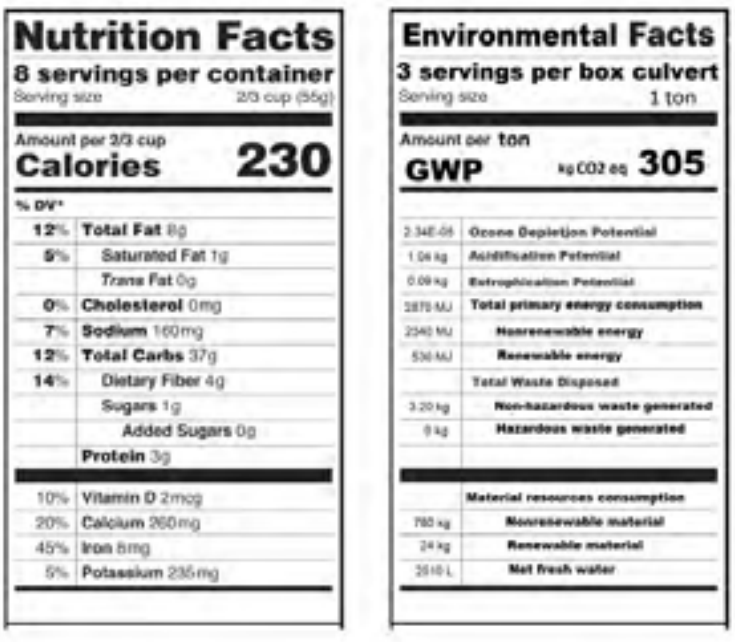
GETTING READY

The increased demand for embodied carbon transparency has led to an emergence of custom software for the concrete industry to produce EPDs. These software solutions seek to ease the pain of what historically has been an expensive and time-consuming exercise typically undertaken by industry associations and larger individual companies.

The data required to generate an EPD reflects the fact that concrete EPDs, and EPDs of structural construction products in general, cover the cradle-to-gate portion of the life cycle, including:

- **Raw materials.** Extraction of raw materials such as limestone, gravel and other precursor materials as well the production of cement, SCMs (Supplementary Cementitious Materials), admixtures, etc.
- **Transportation.** Transportation of materials from their production facilities to the concrete producer.
- **Product manufacturing.** Concrete plant operations up to the point that the product is packaged and ready for shipment.

The three life cycle modules included in EPDs each require specific data.



Similar to nutrition labels on foods, environmental product declarations list the carbon footprint for manufactured products, including precast concrete.

Environmental Product Declarations are designed to track, report and eventually lessen the amount of carbon released into the environment through manufactured products.

Raw Materials

EPDs are increasingly required to be supply-chain specific where possible. This means that EPDs from a given supplier will be used when available with industry average data used as a backup when specific data is unavailable.

When preparing EPD data, a producer also provides information for all materials supplied to a given facility. This includes cement and SCM providers, aggregate, admixtures, steel products and other materials specific to a given product line.

To ease the process, EPD software for concrete should include a supplier directory for each company that allows users to enter the relevant information once, then apply these suppliers to a given production facility.

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Transportation

Once the supplier directory is completed, the next step is to link suppliers to a given production facility.

To facilitate the transportation portion, provide the distances that materials travel from suppliers to the production facilities and the mode of travel. Note that train and ocean freight cause significantly less environmental impact per mile than trucking.

Product Manufacturing

Concrete plant operations are modeled based on the most recent year of available data. Required data includes total production at the plant as well as the generation of waste and direct emissions.

Energy use at a given facility is gathered in this phase and includes both electricity and fuel use such as natural gas and heating oil. The electricity will then be modeled based on the region-specific grid that is specific to that facility.

GET STARTED NOW

Getting a head start with preparing for EPDs is a good idea given the rapid increase in demand for this information. NPCA members can benefit from the association's partnership with WAP Sustainability through its software and systems designed to facilitate data collection.

It is important to remember that EPDs cover multiple phases in a product's life cycle, so data that is required to develop an EPD likely will come from a range of different sources within a given company.

The timeline to produce an EPD can be reduced significantly by organizing data in advance of customer needs. Such an approach allows companies a competitive advantage as both the private and public sectors seek suppliers that are willing to provide them the upstream transparency that they require to meet their own commitments.

WAP Sustainability

NPCA has reached an agreement with WAP Sustainability to partner on assisting NPCA members with obtaining EPDs. WAP Sustainability provides a variety of resources that members can utilize, including information and software. **Visit them at WAPSustainability.com.**

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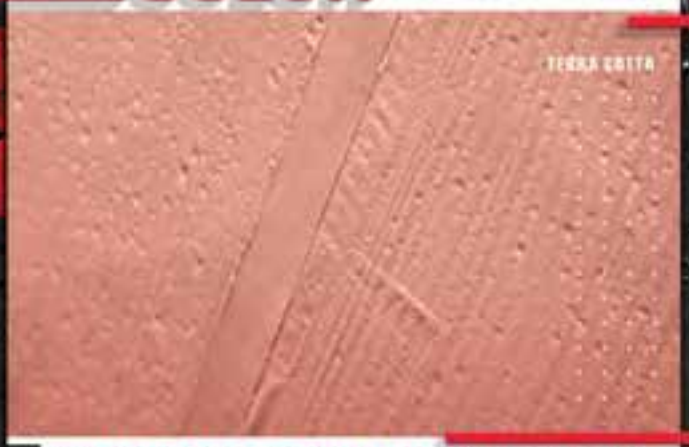

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Tried & True

ALTERNATIVE MATERIALS ARE TRYING TO MAKE INROADS INTO THE PRECAST MANHOLE MARKET, BUT PRECAST CONCRETE REMAINS THE STANDARD

By Shari Held

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

Underneath the ground, hidden from view, lies a vast network of utility systems. Sewer lines, storm water systems and electrical utilities stretch nationwide.

Connecting us to those underground networks are approximately 22 million manholes, providing access needed for utility inspections and maintenance to keep cities running efficiently.

Since the 1850s, concrete has been the mainstay building material for manholes. The most common usage of precast manholes is for sanitary sewer and stormwater conveyance, carrying wastewater to sewer treatment plants and rainwater to retention structures. Precast also is commonly used for concrete storage bunkers, lift stations and utility access.

According to the Environmental Protection Agency, approximately 5.5 million manholes currently need repairs, and new infrastructure projects continue to come in on the federal, state and local levels.

Alternative material manufacturers are making some bold claims when it comes to what their products are expected to do. However, precasters can say with certainty – with a century and a half of examples to point out – exactly how precast concrete is the best fit for every job.

NPCA FILE PHOTO

Manufactured precast concrete producers have been creating manholes for more than 100 years, securing U.S. infrastructure and ensuring that products live up to their guarantees.

HOW THE COMPETITION'S SHAPING UP

Manholes constructed from alternative materials include brick and stone, cast-in-place concrete, fiberglass, fiberglass reinforced concrete (FRC) and plastics such as high-density polyethylene (HDPE) and polyvinyl chloride (PVC). What is available depends on the location.

In the South, especially Florida and Texas, it is HDPE, other plastics and fiberglass, all relatively new materials for this type of construction.

These newer materials are aggressively marketing their manhole products. In the areas these companies have targeted, precasters face competition.

"Typically, concrete manholes are the backbone of the underground sewer systems of any municipality and alternative products are the relative newcomer being used in limited circumstances, but (alternative materials) are always encroaching into the market with untested and unproven claims," said Leo Feuerstein, operations manager of Western Precast Concrete, based in El Paso, Texas.

Feuerstein sees stiff competition from fiberglass, and resin- or petroleum-based plastics in smaller sizes of round manholes used in the sanitary sewer sector.

"Their industry has promoted their products as being superior in fighting against sewer gasses and microbial-induced corrosion," he said.

The most common claims are based on outdated studies and ignore advancements in precast concrete manufacturing, Feuerstein said.

If effluent from a sewer system doesn't move waste through fast enough, the waste can generate sewer gas (mainly hydrogen sulfide and carbon dioxide) that can degrade concrete and corrode steel reinforcement. This issue most often occurred in past decades in flat terrain areas.

Modern anti-microbial additives and coatings for concrete now make this a non-issue.

"Additives and coatings are cost-effective insurance against corrosion that doesn't drive the cost of a precast item anywhere near the cost of a polymer or HDPE structure," said Ron Sparks, CEO and partner of National Precast, based in Vancouver, Wash.

Feuerstein agrees.

"Concrete products with the proper admixtures and coatings not only provide strength and durability but provide proven performance against deterioration from external forces such as sewer gas," he said.

This is the narrative against alternative material claims.

THE SUPERIORITY OF PRECAST

Here are some of the many advantages precast has over alternative products.

Quality

"First and foremost is the quality control that goes into each manhole produced in a controlled environment," Feuerstein said. "Wall thickness, concrete strength, reinforcement and all other aspects of production are monitored to conform to ASTM C-478 specifications, the national standard."

Sparks said that when he was with Columbia Precast Products in

Woodland, Wash., the deviation from the mix design to the actual produced mix was less than 0.05% over 40,000 batches. This is a distinct advantage over alternative methods such as cast-in-place in terms of precision, uniformity and quality.

Cost-effectiveness

Being constructed offsite and in bulk allows specifiers to get the most out of their dollars in precast concrete.

"You burn a lot of labor into building one cast-in-place manhole when you could build 20 or 30 precast manholes in the same timeframe," said Clark Simmons, technical services manager at MBO Precast, based in Carver, Mass.

Fiberglass, HDPE, PVC and other plastic manholes also are more costly compared to precast concrete. On some projects, Feuerstein has seen the cost of alternative products come in at three times the cost of precast.

It's not just a matter of the initial cost to the project owner, either. When a Florida municipality ruled concrete unacceptable for its sanitary sewer manholes four years ago, the local Home Builders Association showed the municipality that using alternative materials increased the final cost by 30% for each lot.

Within 45 days, concrete was reinstated to the municipality's list of accepted materials.

Ease of Installation

"Precast is quicker to install and less labor-intensive," said Dennis Morrissey, executive vice president of Foley Products, headquartered in Newnan, Ga. "You may need three workers to install cast-in-place versus two for precast."

Morrissey said corrosion-resistant HDPE liners, which some agencies now request, are easily installed at the plant but not in the field.

Fiberglass, HDPE and other plastic alternative materials also present installation issues. A 24-inch precast manhole weighs about 2,800 pounds while a 24-inch fiberglass manhole weighs about 280 pounds, making it difficult and time-consuming to stack the manhole components and keep them level. Unlike precast, fiberglass requires fabric slings or other special equipment to protect it from damage during installation.

"Using alternative materials slows things down," Sparks said. "Precast manholes are heavy enough that they can stack vertically and stay level. The installer can begin backfilling around it immediately."

With a specific gravity of 2.4 and a powerful resistance to friction, precast concrete manholes are better able to resist the buoyant forces associated with underground construction.

> **"Using alternative materials slows things down. Precast manholes are heavy enough that they can stack vertically and stay level. The installer can begin backfilling around it immediately."**
>
> *– Ron Sparks, National Precast*

"Fiberglass and HDPE have specific gravities of 1.86 and 0.97 respectively, so they require tie-downs or concrete placements, concrete bases and covers and precast does not," Simmons said. "This leads to more cost and carbon emissions."

High Adaptability

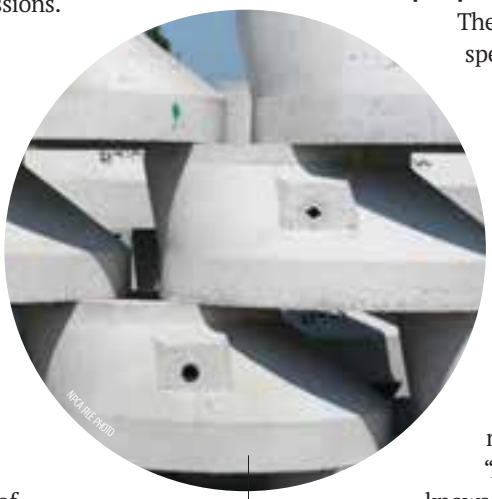
Triangles, squares, rounded … precast concrete molds to obtain most any shape a customer desires.

"Your dream and imagination is our only limit," Morrissey said.

Precast concrete accommodates manhole sizes ranging from 24 inches to 144 inches and most any internal piping configuration.

Precast's adaptability lends itself to more creative functions.

Simmons said he once worked on a project where a precast manhole was painted to look like a buoy that marks the southernmost part of the continental United States. Another project used two concrete-filled precast manholes to anchor a banner advertising the Miami Super Bowl that spanned a four-lane highway. Both jobs were completed when he worked at U.S. Precast in Hialeah, Fla.



NPCA members produce and ship manholes to projects across North America, including many state and federal projects currently under way.

Speedy Availability and Delivery

The No. 1 advantage of precast for Sparks is speed of delivery.

"Most precasters make stock products, then modify them for specific projects," Sparks said. "Once we have an approved drawing, it's typically a two- to four-day turnaround, while delivery of alternative material products sometimes takes weeks or months."

Polymer manholes ship from three sites: Texas, Arizona and Utah. Customers may have to fill a truckload to place an order, and orders are required weeks or even months in advance.

"Anybody who's running a utility project knows there's changes – elevation changes, pipe

changes, etc.," Feuerstein said. "That unfriendly delivery schedule can cause a lot of problems."

Strength and Durability

Precast manholes can be designed to meet H-20 heavy traffic requirements (up to 32,000 pounds per axle load). The load-bearing capacity for traffic and exterior soils comes from its inherent structural capacity.

Alternative products require concrete structures at the base and slab to achieve similar load requirements.

Precast concrete will not rust, rot or burn. Simmons said that at 200 degrees F, fiberglass will lose its structure, and plastic will melt and burn. This is relevant with the increased number of reported wildfires across North America.

HDPE becomes brittle and can break when exposed to UV radiation such as in sunlight. Fiberglass also is susceptible to sunlight and moisture and needs to be coated to prevent expansion and decay.

Precast concrete, with a proven life span of 100-plus years, is one of the most durable construction materials.

"Other materials may say that, but they can't really prove it in the real world," Sparks said. "The question I always ask people is: Why would you risk using a product that isn't proven or that doesn't have some of the qualities that a precast structure does? Manholes are a major part of our infrastructure, and they have to last and be structurally sound."

Sustainability

"There's nothing more green or earth friendly than concrete," Feuerstein said. "Concrete manholes are produced using locally sourced natural materials – rock, sand and other core materials – that typically come directly from the earth."

Concrete can be recycled indefinitely, leaving nothing behind to harm the soil.

In contrast, plastics are not eco-friendly. HDPE is produced using petroleum, and PVC is produced by a chemical reaction between chloride, carbon and ethylene. It releases harmful chemicals into the environment during production. Plus, it takes plastics 450 years to decompose.

Fiberglass is considered eco-friendly, but like HDPE and other plastics, it, too, typically must be trucked a far distance to the customer, using more petroleum. Precast concrete, by comparison, is locally sourced, shaped and shipped.

"In nine cases out of 10, when you buy concrete you're supporting the local economy, local employees and reducing the carbon footprint," Sparks said.

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A Case for Risk Planning

EVERYTHING FROM REGULAR DAILY OPERATIONS TO CRISIS MANAGEMENT DESERVES FORETHOUGHT

NPCA FILE PHOTO

Manufacturing and installation often is about establishing a routine and doing the same job repeatedly. How individual workers go about performing those tasks is part of risk management.

By Brad Chinery, P.E.

Brad Chinery is director of technical services at NPCA.

Every company takes on risk. The assessment of risk depends on circumstances and the level of leadership's comfort.

The key is whether the organization manages risk or lets risk dictate the course of action.

Risk often is associated with a new project or initiative. However, risks also apply to daily core operations. This is why risk planning is an integral piece of operations management.

A risk planning program considers what could happen, analyzes potential impact, outlines how to mitigate potential impacts and forges a path to avoiding the situation in the future.

Consider how a precast plant that does not practice risk management would respond to the following:

- A coarse aggregate supplier experiences critical equipment failure. As a result, shipment is delayed three days.
- A storm knocks out power for two days.
- A facility's lone quality control lead, the person who has spent years as the QC expert on site, turns in their two-week notice, taking all of that knowledge out the door. It has been nine years since the most recent written update of the QC processes.

The results are sure to include some long meetings, even longer days, extra work distributed throughout the plant and heightened stress shared by all. Some companies pride themselves on being able to pull through challenges and meet business demands – even wear it as a badge of honor.

The reality is these challenges are self-inflicted and only occurred as result of a lack of planning. The effects of failed risk management goes far

beyond any singular incident. Reduced quality, inefficient operations and employee turnover due to heightened stress ultimately cuts sharply into the bottom line.

RISK PLANNING

Risk planning includes all actions to control risk and the impact that the risk may have on a business, its personnel and the brand. The risk planning process comprises the following steps:

- Risk assessment
- Risk mitigation
- Risk monitoring

RISK ASSESSMENT

Definitions differ for risk assessment depending on the industry and functions involved. However, they all have at least one of the following things in common:

- Risk identification
- Analysis to determine the frequency and impact of those risks
- Risk evaluation

Identifying risk typically involves a team of experts walking through a process to identify potential dangers. The list is analyzed and evaluated so that risk mitigation efforts are leveraged in order of which poses the greatest threat to the organization.

A straightforward tool to complete this analysis and evaluation is the 5-by-5 risk matrix.

A 5-by-5 risk matrix defines boundaries and provides an objective score for each risk in order to provide an action list.

This evaluation is a prerequisite for starting risk mitigation activities. It does not, however, stand alone.

For example, an aggregate delivery delay would have a major impact on any facility. However, the probability is unlikely (medium, 8).

A precast plant in an area prone to weather-related power outages may deem the probability as almost certain and the impact as severe (extreme, 25). A facility in an area not prone to such storms would have a much lower number.

A QC leader resigning with little notice may have a severe impact but is unlikely due to employment history and overall morale (high, 10).

These are examples of how the same situation may require different levels of attention based on a facility's circumstances.

RISK MITIGATION

Now that risks are identified, there are several options to determine how to proceed with mitigation. It is important to remember that not every defined risk needs to have an action plan right away. Instead, focus on the most severe and most likely risks first. Some situations may not even be addressed until future exercises.

Each risk can be:

- **Accepted.** Acknowledge that the risk exists but intentionally decide not to take any actions to mitigate the risk.
- **Avoided.** The requirement or process causing the risk can be removed.
- **Controlled.** This is a decision to take action to mitigate the risk directly or indirectly.
- **Transferred.** Shared with or completely offloaded to another party.

When acceptance, avoidance or transference are not an option, risk needs to be controlled. For example, a precast plant may choose to invest in backup power generation for essential equipment while choosing to take no action toward an aggregate supply chain or personnel departures.

Depending on a risk's impact, a team may be needed to develop an action plan to ensure that the appropriate actions are being considered across the different functional areas. Once the action plan is determined, actions are assigned and tracked to close the gaps and take advantage of opportunities to improve the plant.

Load improvement actions into a task management system in order to assign an owner, a due date and have a recurring method to ensure that the appropriate progress is being made. This means written processes – not relying on any worker's or workers' memory.

If the identified risk involves more complex effort, such as in the example with the generator, a project management approach can break down the effort into value-add parts, establish milestones, manage resources and drive project implementation.

At this point, risks are identified and actions are taken to implement the upgrades needed to close out that risk, but the process still isn't done. A properly executed risk planning process includes ongoing risk monitoring and iterates through the planning process regularly, or as needed.

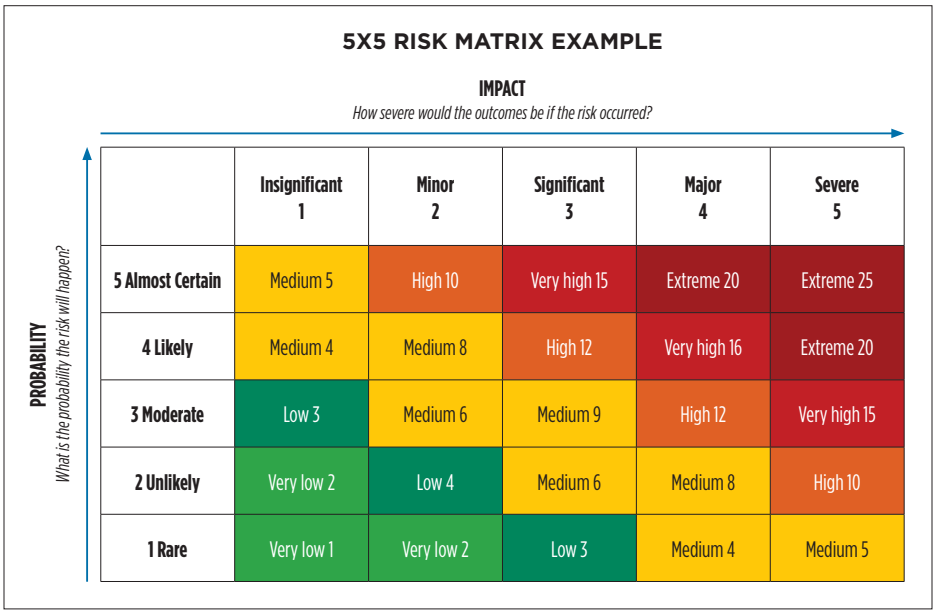

Figure 1: 5x5 risk matrix

Source: SafetyCulture.com

Moving finished products from the facility floor to the yard and onto trucks brings with it an increased risk of damage. Put the proper procedures in place to lower the chance for breakage.

RISK MONITORING

Risk monitoring starts as the team determines the actions to address identified risks. After all, what good is acting to eliminate a risk if there is no way to know if that action achieved the desired end state?

Monitoring typically is not considered until after the work is done. This critical piece of the process is what validates the efforts taken, provides concrete proof that risk has been managed and is the information to allow for data-based decisions.

Risk monitoring includes two elements as appropriate depending on the risk: metrics and reviews.

The first step is to define the metric – number of days missed, number of complaints, percent of target, etc. Who is accountable for the performance of the metric, and at what frequency is the metric reported?

"That which is measured improves," writes British mathematician and statistician Karl Pearson in Pearson's Law. "That which is measured and reported improves exponentially."

The number of metrics tracked tends to grow over time, so it is a good idea to define the targeted success early and, once reached, consider celebrating and then retiring the metric.

For example, a plant that identifies employee absences as a risk worth mitigating can start a program to reward attendance. The incentive program's impact is measured by monitoring the difference in missed days and production.

Sometimes, risk gap closure is not something that can be tracked with a meaningful metric. For example, increasing the number of approved aggregate suppliers from one to two.

In these cases, implementing a periodic review may be more beneficial to ensuring that the risk remains sufficiently mitigated. Regardless of the method, a monitoring process ensures that a risk remains acceptably mitigated and may inform additional actions.

RISK PLANNING AT A PRECAST PLANT

The next step involves a practical discussion of the risk planning process. Because every plant is in its own unique state and condition, the resulting discussion must be tailored to that individual facility.

There are many ways to organize a methodical review of plant operations: value stream and function.

According to the Project Management Institute, "a value stream is the set of actions that take place to add value for customers from the initial request through realization of value by the customers."

A precast plant value stream includes the following:

- Raw material acquisition
- Supplier risks
- Quality control
- Production planning and preparation
- Design and engineering
- Production capacity
- Production
- Health and safety
- Production practices
- Quality control and assurance
- Equipment maintenance
- Logistics and transportation
- Storage capacity
- Delivery scheduling
- Transportation risks
- Installation
- Project coordination
- Contractor capability

There also are some aspects to be considered throughout the value stream.

- Customer relations and communication
- Contracts
- Expectation management
- Problem resolution
- Environmental and regulatory compliance
- Environmental impact
- Compliance
- Continuous improvement
- Post-installation evaluation / feedback
- Lessons learned
- Corrective actions

An alternative approach is to assess risk by function. A list of functions may include:

- Sales and marketing
- Operations
- Financial
- Project management
- Cybersecurity
- Supply chain
- Legal, compliance, regulatory
- Workforce and personnel
- Business continuity
- Weather and disaster recovery

Regardless of the approach, a cross-functional team must complete the risk planning process together. Each department will view the same risk area with a different perspective, and by working as a group provides the most comprehensive assessment, mitigation strategy and overall reduction in risk to plant operations.

Risk planning, when executed correctly, is an ongoing process to incrementally improve the business while reducing or eliminating risks. The process may integrate well with an already established continuous improvement program or quarterly planning process.

The entirety of the risk planning process does not need to be perfectly implemented and executed from day one. However, it is critical to get started and take the first step.

Risk management is an integral part of quality assurance and quality control at a precast concrete facility. Even the most simple daily tasks that are routinely done by experienced workers deserve to be examined and improved when possible.

Safety First

PPE FOR PRECAST CONCRETE PLANTS

By Bridget McCrea

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

Whether working within the four walls of the plant, out in the yard or at a jobsite, precast concrete employees encounter hazards as they go about their day-to-day activities.

Exposure to cement dust, falls from heights, electrical hazards, chemical burns and overexertion can lead to serious injury without proper precautions. And while unavoidable accidents may occur, in many cases good personal protective equipment (PPE) creates a safer and healthier work environment.

A critical part of any manufacturing environment, different types of PPE help protect workers from hearing loss, fall-related injuries, chemical burns and the dust and fumes that are generated in a production environment.

Knowing this, federal and state regulators have laid out the rules governing the use of PPE such as hard hats, safety glasses, goggles, ear protection, respirators and protective clothing among other equipment.

SAFETY FIRST

The Occupational Health and Safety Administration (OSHA) defines PPE as equipment that helps minimize exposure to hazards that cause serious workplace injuries and illnesses.

"These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical or other workplace hazards," OHSA points out.

It also said that all PPE should be safely designed and constructed and that it should be maintained in a clean and reliable fashion.

OHSA advises that manufacturers establish PPE programs that both show workers how to use the equipment properly and that include monitoring to ensure the long-term effectiveness

OHSA ADVISES THAT MANUFACTURERS ESTABLISH PPE PROGRAMS THAT BOTH SHOW WORKERS HOW TO USE THE EQUIPMENT PROPERLY AND THAT INCLUDE MONITORING TO ENSURE THE LONG-TERM EFFECTIVENESS OF THE PROGRAM.

Protective gloves are critical PPE for handling rebar and mesh. A cut on the hand can cost a worker days or sometimes weeks off the job.

of the program. The latter requires diligence, particularly when employees regularly "forget to wear" their goggles, hard hats or other types of protective equipment.

At Wilbert Precast in Spokane, Wash., Occupational Safety and Health Manager Thomas Jimeno said employees are required to wear a variety of different PPE depending on the work they are doing.

In plants that use overhead cranes, all workers are required to wear hard hats at all times. They also must wear proper eye protection.

For example, anyone who is working with a grinder or cutting torch must wear safety glasses and eye shields. Other jobs require respirators, which also may be used on a voluntary basis by other workers.

Jimeno said all plant workers must wear boots that go above ankle height to prevent ankle strains. For noise, he said Wilbert Precast's facilities are "below the permissible exposure limit, so we don't require PPE for hearing protection."

However, the facility does provide ear plugs and earmuffs to employees who want to use that PPE on a voluntary basis.

With two plants in Washington and one in Idaho, Wilbert Precast must adhere to the PPE rules set forth by two different agencies. Idaho is OSHA-regulated, and Washington follows state Labor & Industries' (L&I) rules.

"L&I is far more stringent than OSHA, so we just keep all of our plants at the Washington level for compliance," Jimeno said.

BEATING THE HEAT

Ruben Gallegos, EH&S Manager at Jensen Precast in Fontana, Calif., said his company requires similar PPE for its indoor operations. It also has production lines operating outside of the building, where employees, especially in summer months, often are exposed to direct sunlight.

For them, the company provides shades that attach to their full-brim hard hats – either around the brim, or in some cases, cloth shades that attach to the back of the hat and protect the back of the neck – and shaded safety glasses.

Full protective equipment is just as important outside the manufacturing facility, especially when handling wet concrete.

"We also highly suggest that they wear light-colored, lightweight long-sleeve shirts when working outside," Gallegos said.

When temperatures rise, Jensen Precast gives workers umbrellas that are either stationary or portable and can be attached to their tool carts. And in plants where noise levels are high, workers must use the required hearing protection.

In response to the extreme heat that most of the country felt last summer, Jensen Precast purchased misting fans that blew a continual, cooling mist into an employee's work area.

Also in 2023, Jensen Precast built a new, air conditioned "cool down" room adjacent to its plant work areas.

"Anytime someone wants to get into the AC and sit down and have a drink of water, they can," Gallegos said. "We also give them bottled water and electrolyte powder (e.g., Sqwincher sticks) that they can put in their water to stay hydrated throughout the day."

IT BECOMES 'PART OF THEM'

It is one thing to make PPE available to employees, but getting them to wear it on a consistent basis is not just something supervisors can mention at orientation and forget about.

Jimeno said his company's safety committee manages

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enforcement and that all managers regularly walk around the plants, looking for anyone not following safety protocols.

"If someone becomes a habitual offender, we'll issue a formal oral warning followed by a written warning," he said. "After that, we can choose to do time off without pay for that person."

At Jensen Precast, Gallegos said the company stresses the importance of making PPE a habit versus something that is "optional" and may be ignored or forgotten about. Much like a forklift driver is expected to wear a seatbelt when operating the vehicle, employees are consistently reminded of the importance of using PPE.

"PPE can become a nuisance for employees who may want to take their ear plugs out or remove their dust masks," said Gallegos, who encourages supervisors to watch their respective areas while he and the plant manager regularly walk the facility, coaching and enforcing as potential issues are identified.

Over time, the coaching and reminding should become less and less necessary.

"When workers understand what the expectation is, using the PPE becomes a routine and a habit," Gallegos said. "It just becomes 'part of them.'"

> **"When workers understand what the expectation is, using the PPE becomes a routine and a habit."**
>
> *– Ruben Gallegos, Jensen Precast*

USE THE BUDDY SYSTEM

When it comes to getting employees to use PPE on the job, Mike Dooley has a few tricks up his sleeve.

As general manager at Columbia Precast Products in Woodland, Wash., Dooley uses a "four corners" worker safety philosophy. The premise is simple: Make sure every corner of your plant and everyone working in it is covered, and don't miss an inch.

Employees are expected to use the required gloves, goggles, hard hats, boots and protective clothing. They also look out for one another using a "buddy system" approach.

The lengthy heatwave that took hold this past summer reinforced the value of Columbia Precast's buddy system.

"Someone may be experiencing heat stress and not even know it," Dooley said. "If it's 100 degrees out and your buddy isn't sweating, then there may be a problem."

In some cases, the solution could be to change the plant schedule so that certain tasks are done earlier in the day when temperatures are not as high.

For the most up-to-date information on PPE for precasters, Dooley recommends checking out the NPCA's expansive catalog of safety-related resources.

"We all belong to the NPCA for a reason – because it represents our industry and offers the resources we need, including videos, PowerPoints and training tools," he said. "Just click on 'safety' and drill down from there."

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Pretech Corp.

By Joe Frollo

Photos courtesy of Pretech

BILL BUNDSCHUH GREW UP ENJOYING THE THRILL OF PUTTING THINGS TOGETHER. AFTER SOME EARLY BUMPS, HE HAS BUILT PRETECH INTO A KANSAS CITY POWERHOUSE.

Bill Bundschuh (center) is the co-founder, president and owner of Pretech Corp. in Kansas City, Kan. The next generation of Bundschuhs – Ryan (left) and Kaitlynn – already are helping lead the company's growth.

Bill Bundschuh's road to becoming NPCA Chair of the Board was a half-century in the making.

Looking back, though, there is no doubt the direction life was taking him.

Bundschuh grew up in St. Louis and spent summers at his grandfather's concrete finishing and masonry company in Minneapolis, Kan. The tiny town may be 100 miles from the nearest city anyone has heard of often, but for those important, informative years, it was the center of Bundschuh's universe.

It also was where Bundschuh came to realize two things: He was happiest working with his hands, and he wanted to own his own business.

"It's funny how it took going all the way out in the middle of nowhere Kansas to find something you love," Bundschuh said. "But as the years went on, I learned more and more about the concrete and masonry business and knew that is where I wanted to be."

Fifty years later, Bundschuh is president and owner of Pretech Corp. in Kansas City, Kan. The company is celebrating its 30-year anniversary.

In October, Bundschuh was elected NPCA Chair of the Board during the 58th Annual Convention.

Pretech's longevity and his rise within the association's leadership are the result of his hard work, dedication and respect for NPCA members. It is a natural result of his life experiences that took root in that small Kansas town and first set him down the path.

THE START OF IT ALL

Coming out of Kansas State University with a degree in civil engineering, Bundschuh first worked for a contractor then joined on at Vanguard Products as a production engineer. He stayed there five years until realizing that working for someone else inherently comes with a ceiling.

"As good of a job I was doing and as good of a relationship I had with the family, there wasn't a lot of room to advance," he said. "I wanted to make something for myself."

"I didn't set out to get into precast concrete from the start. I found some used equipment in Colorado and went from there. I bought a bunch of used forms. Things just kind of fell in line, some by plan and some by accident."

– Bill Bundschuh, owner of Pretech and NPCA Chair of the Board

The Kansas City streetcar is a popular mode of transportation for both downtown workers and tourists. Pretech provided electrical vaults, storm utility boxes and reinforced concrete pipe during a recent multiphase project.

> **"We have the best quality products, but we also have the best service. It's what we are known for, and it all starts with Bill."**
>
> *– Kelly Poretta, Pretech*

In 1993, with loans secured from both his father and father-in-law, Bundschuh founded Pretech in Stillwell, Kan. Two years later, the company relocated to Kansas City, Kan.

In what seemed like a blink of the eye, what was once a dream was now real responsibilities.

"I didn't set out to get into precast concrete from the start," Bundschuh said. "I found some used equipment in Colorado and went from there. I bought a bunch of used forms. Things just kind of fell in line, some by plan and some by accident."

Bundschuh and his brother Bob drew up what he called "an ambitious business plan."

"We had big ideas, but they cost a lot more money than we had, so we tried it again."

Their father, William Bundschuh, had instilled in his sons a work ethic to see jobs through. Nothing was done halfway around the Bundschuh house.

William Bundschuh made his living as an aerospace engineer, and he built furniture on the side. He took great pride in his sons but even as they struggled early on, he walked the line of making them earn their way and protecting his investment. He did not let his children off lightly.

"He was tougher on us than any bank would be in terms of paying back the loan," Bundschuh said. "We had to pay him on the first of each month. Not the second, the first. There were times he wired us a loan just to cover the interest payments that we would turn right back around and send to him. He taught us that you always pay your bills."

INVEST IN PEOPLE

William Bundschuh's fiscal lessons have carried through for Bill.

Life – and business – have not always been easy. Especially at the beginning. But Pretech always found a way through the lean times.

There were others who helped, too, along the way. People who Bundschuh thinks about and thanks to this day.

And it was NPCA that brought Bundschuh together with this support group.

Jim VanSickle of Vanguard Products took Bundschuh to his first Precast Show. Walking up and down the aisles, VanSickle taught

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Pretech helped renovate Arrowhead Stadium, home of the Kansas City Chiefs, with a series of 10-by-10 and 12-by-12 electrical vaults.

Bundschuh the importance of meeting everyone and shaking hands.

"We talked to every single exhibitor," Bundschuh said. "We asked them about their products, and we asked them about themselves. You never know when a relationship will pay off. You may need that product a few years later, or you may meet that person again when they are somewhere else."

It was at The Precast Show that Bundschuh met Leroy Larson, Doug Keen, Pat Voinis, Tom Karvasale and others he still does business with today.

The Precast Show also is where Bundschuh came to understand that every NPCA member company is important.

"You never know when that $200,000 a year company will blossom into something bigger," he said. "Maybe a new owner or a second-generation owner has the right idea that leads to expansion. Suddenly, that little company is taking on bigger and bigger projects."

Those relationships opened doors, leading to jobs. Pretech built a reputation of value in the Kansas City area, and word spread regionally as well.

"We had a lot of good people and a lot of good customers," Bundschuh said. "When times were thin, like in 2009 and 2010 especially, and we owed everybody, I found that people who knew us through NPCA were willing to help us and trust us so we could make it back."

A FAMILY AFFAIR

In the early days of Pretech, much of the decision-making and responsibility fell to Bundschuh. Today, he has a lot of help, including from some family members.

Pretech Corp. has grown from Bill Bundschuh, his brother Bob and a handful of workers to nearly 100 employees in a pair of Kansas City-area locations.

His son, Ryan, is growing into a leadership role and makes many of the day-to-day operation calls.

His daughter, Kaitlynn, runs the business office, bringing increased efficiency and organization to their processes.

Bob Bundschuh has left Pretech, but Bill's other brother, Mike, now oversees Pretech's second facility in Tonganoxie, Kan.

Twenty miles separate the two plants, but the leadership team has the company operating like one well-oiled machine.

"I try to keep an open door and guide people more than run things anymore," Bill Bundschuh said. "I will answer questions with questions. I have all the faith in the world in everyone at Pretech."

"Bundschuh allows his managers the freedom to make decisions and control their areas," said Larry Mauck, Pretech sales and marketing manager. Bundschuh also is not timid about getting his hands dirty when necessary.

"He wants to know what is going on, but he also encourages us to manage people our own way," Mauck said.

This freedom leads to longevity, Mauck said. Key production positions are staffed by employees with decades of experience. It also leads to an efficiency that keeps Pretech products moving to job sites.

"If we tell you something is going to be there on Tuesday, it will be there Tuesday," Mauck said.

Bundschuh has instilled a culture of response, said Kelly Poretta, a member of the sales team. Pretech does not have answering machines or voicemail. If a call comes in, someone picks up the phone. And if the call comes in after hours, it forwards to Bundschuh's cell phone.

"We have the best quality products, but we also have the best service," Poretta said. "It's what we are known for, and it all starts with Bill."

Bundschuh takes this approach beyond the 9-to-5, said Jeremy Haskin, the former pipe plant production manager at Pretech who now runs production for the Tonganoxie plant. As the company has grown to nearly 100 employees, it retains a small, family-owned feel where employees are encouraged to work hard but also know that they will be able to take care of personal issues that arise.

"Bill always knows what is going on in our lives," Haskin said. "In large part because we talk regularly and share those kinds of things. He's helped me and so many others out when things came up at home."

The Turkey Creek Flood Control includes manholes, inlets and nearly 5,000 feet of reinforced concrete box sections produced by Pretech.

A FIXTURE IN KANSAS CITY

Pretech products are installed in some of the most recognizable structures in Kansas City.

Stadiums. Highways. Universities. The airport.

It is rare for a Pretech employee's daily commute to not include driving by a past project.

Among them:

- The Kansas Department of Transportation tunnel on Interstate 435 and U.S. 69 includes a 48-foot ConSpan Tunnel produced with 88 slightly curved pieces.
- Kansas City Chiefs Arrowhead Stadium renovations that include 10-by-10 and 12-by-12 electrical vaults.
- A multiphase project with the Kansas City streetcar that includes electrical vaults, storm utility boxes and reinforced concrete pipe.
- The University of Kansas Medical Center Parking Garage StormTrap detention system and a variety of custom-ordered concrete products.
- The Turkey Creek Flood Control that includes manholes, inlets and nearly 5,000 feet of reinforced concrete box sections.
- The Kansas City International Airport electrical vaults as well as storm and sanitary structures.
- The KDOT U.S. 69 Express that includes 580,000 feet of sound wall, 49,500 feet of reinforced concrete pipe 5,000 feet of reinforced concrete box structures and 885 storm structures.

Pretech's footprint also includes projects throughout Omaha, Neb. What started with a few jobs in that market has turned into, "probably 20% of our business is shipping up there," Bundschuh said.

"You go where the jobs take you," he said. "And if they like your work, you tend to end up going back there."

> **"You go where the jobs take you. And if they like your work, you tend to end up going back there."**
>
> *– Bill Bundschuh, owner of Pretech and NPCA Chair of the Board*

BUILDING IN HIS BLOOD

Bundschuh is a long way from Minneapolis, Kan. Maybe not as the bird flies but certainly when it comes to life experiences.

He will never forget the summer before high school when he helped his Uncle Ron construct a 12-foot wide stone arch out in the middle of a pasture.

The arch does not serve any functional purpose but still sticks with a 14-year-old boy who enjoys building things that last.

It is still there to see.

"I thought that was the greatest thing ever, and I had so much fun doing it," Bundschuh said. "I thought at the time I might never build anything better."

Bundschuh is still building. A time will come when he and his wife, Cindy, can enjoy retirement and he can build random things for the sheer enjoyment.

For the time being, he has Pretech and the NPCA chairmanship to keep him busy.

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Melvina Ditch Reservoir: Streamlining with Precast

By Mason Nichols

Mason Nichols is a Grand Rapids, Mich.-based writer and editor who has covered the precast concrete industry for more than a decade.

Photos courtesy of Aster Brands

MORE THAN A HALF-MILE OF PRECAST CONCRETE RETAINING WALL OFFERS ATTRACTIVE FLOOD MITIGATION SUPPORT IN SUBURBAN CHICAGO.

In a recent study conducted using NASA satellite data, researchers found that the proportion of the world's population exposed to floods has grown by 20% to 24% in just the past two decades. Rising global temperatures, which have increased at an average rate of 0.32 F since 1981, are a major part of the equation.

As temperatures continue to rise, the potential for severe weather events increases, placing a significant burden on commercial and residential properties around the world – and the infrastructure systems that support them. Increased urbanization results in more hardscapes, which increases stormwater runoff.

Add climate-change-induced heavy rain events, and this becomes a challenge for stormwater management infrastructure.

This was the situation in the southwest suburbs of Chicago. The Melvina Ditch Reservoir, originally constructed in 1965 to help mitigate stormwater runoff, could no longer meet the needs.

As a result, the Metropolitan Water Reclamation District (MWRD) of Greater Chicago broke ground in 2018 on an extensive expansion project that would more than double the reservoir's holding capacity to 117.3 million gallons, reducing flooding risk for more than 400 residential properties in the area.

Part of the work entailed major improvements to the downstream Melvina Ditch, a key stormwater

The Melvina Ditch project in suburban Chicago doubled a reservoir's holding capacity and reduced the risk of flooding for more than 400 residential properties.

diversion channel connected to the reservoir that diverts runoff water away from the affected neighborhoods.

SETTING UP FOR SUCCESS

Despite being a critical part of the reservoir's drainage system, little to no work had ever been done to fortify the Melvina Ditch's walls. This, combined with years of streambank erosion, meant that a resilient, sustainable solution was necessary to complement the expansion work upstream.

Given the nature of the site and the project's needs, officials with Chicago's MWRD – in conjunction with general contractor Rausch Infrastructure and installer Cardinal State – selected Redi-Rock precast concrete retaining wall blocks for the work. The team partnered

"Residents in the area received the benefit of a water retention retaining wall that adds beauty to the neighborhood while providing security from erosion for generations to come."

– Roger Wiese, Cardinal State

with Brown-Wilbert of Minnesota to manufacture the precast.

While primarily a burial vault producer, Brown-Wilbert picked up some experience with Redi-Rock retaining walls through a previous job in Madison, Wis. The Melvina Ditch project was about twice the size of the Madison work, representing a 2,600-foot stretch of wall and more than 5,600 blocks.

While the work offered a new challenge, Brown-Wilbert Vice President Jeff Bauer said that his team met the task head on, making the necessary modifications to their plant in Sun Prairie, Wis., to accommodate the job's scale.

Because the concrete had to meet DOT specifications, Bauer and his team partnered with LYCON Inc. and GeoTest. LYCON brought ready-mix trucks into the plant each day to perform a double pour, which was necessary to produce enough blocks to keep pace with the project's schedule. GeoTest provided the equipment and assessments needed to ensure each Redi-Rock block produced met DOT requirements.

Initially, Brown-Wilbert had to increase the number of forms used inside its Sun Prairie location from 20 to 30. This meant rearranging the plant a few times to establish the most efficient logistical setup. Additionally, due to the effects of COVID at the time, Brown-Wilbert also was producing more burial vaults than usual.

Despite the difficulties and extenuating circumstances surrounding the effort, the Brown-Wilbert team successfully implemented a working system.

"Once we worked through some of the initial difficulties, we established a solid routine," Bauer said. "At that point, for the rest of the project period, it was pretty much going through the motions."

LESS LABOR, MORE EFFICIENCY

At the project site in Chicago Ridge, Cardinal State encountered challenges of its own. Drawings associated with the ditch were not accurate, resulting in many of the utilities located on-site being unaccounted for. There also were schedule hiccups.

"If it rained on a Monday, we'd shut down work for that day," Cardinal State President Roger Wiese said. "But then on Wednesday, two days after the rain event, water from the reservoir would be released and flood the ditch again. Essentially, each rain day was doubly detrimental due to that second wave of water being released."

All parties involved knew that precast concrete was the best building material for the job, as it allowed Wiese and his team to get the work done with extreme precision and efficiency.

"With the precast, it is delivered to the site as blocks, so we're literally unloading them from a truck and putting them right in place," Wiese said.

Wiese added that the entire process is streamlined thanks to the way the precast concrete Redi-Rock blocks are designed.

"It's just a better system," he said. "Everything connects with simplicity, almost like Lego blocks. In the end, precast is more cost effective to install, performs better and lasts longer."

In addition to addressing the flooding needs of the area, the blocks, which were poured with a Ledgestone texture, offer an aesthetic improvement from the Melvina Ditch's previous appearance, which largely consisted of grass and weeds. This represents a source of pride for Brown-Wilbert, whose products typically are used

"It's just a better system. Everything connects with simplicity, almost like Lego blocks. In the end, precast is more cost effective to install, performs better and lasts longer."

– Roger Wiese, Cardinal State

Installation of the precast concrete retaining wall took about six months.

underground and are out of sight.

"We can finally see our work," Bauer said. "And honestly, in addition to addressing a difficult problem for those in the area, that's one of the most gratifying things about this project."

All parties worked closely together, keeping in constant communication throughout the process, to ensure that the project was completed on time. Installation took approximately six months and was completed in December 2021.

Due to the effectiveness of the system installed, the project was recognized by Stormwater Solutions as one if its Top 10 of 2022.

More than 5,600 pieces of Redi-Rock precast concrete retaining wall blocks were used in the Melvina Ditch project, spanning 2,600 feet.

BEAUTY AND SECURITY FOR GENERATIONS TO COME

While the risk of flooding will continue to present issues in cities across the United States and around the world, much can be accomplished by bolstering infrastructure systems with the use of precast concrete products.

Both Bauer and Wiese said that the Melvina Ditch project has inspired their companies to pursue similar projects in the future and serve the communities facing these issues.

"This process was ideal for us," Wiese said. "After completing Melvina Ditch, we're now bidding on every single one of these projects that comes our way."

Bauer agreed, noting that the positive effects generated through the Melvina Ditch retaining wall are far-reaching and long-lasting.

"Residents in the area received the benefit of a water retention retaining wall that adds beauty to the neighborhood while providing security from erosion for generations to come," he said.

Industry Influencer

Mark Thompson

MARK THOMPSON

VICE PRESIDENT, JEFFERSON CONCRETE GROUP

INDUSTRY INFLUENCERS IS A SERIES IN PRECAST TODAY IN WHICH WE TALK WITH PEOPLE WHO ARE LOOKED TO FOR GUIDANCE AND ADVICE BY NPCA MEMBERS ACROSS GENERATIONS.

By Heather Bremer

Heather Bremer is the digital content director at NPCA.

Photos courtesy of Jefferson Concrete Group

Q. YOUR CAREER PATH STARTED IN BANKING. HOW DID THAT LEAD YOU TO THE PRECAST CONCRETE INDUSTRY?

A. As a very young man, I was working for a local bank. I had been hired to work in agricultural lending. The farming industry was certainly my background, the dairy cattle business.

And even back in the ’70s, employers were challenged with people, and I got detoured coming out of my training program at the bank. Instead of going into agricultural lending, I got planted as a branch manager when I was 22 years old, which I was totally unprepared for, but sometimes immersion is a great education. And, boy, I got thrown to the wolves and relocated to the Watertown, N.Y., area, which is where Jefferson is located. It was a great learning experience, and I met a lot of people. I learned a lot of the things about business, banking and life in a hurry.

I never was real content in the branch manager’s chair. I had gotten to know one of the owners of Jefferson Concrete back in the day through Kiwanis.

He and I were sitting at Kiwanis meeting, and he was lamenting about where he was at with the man who was running his office and doing the accounting.

Mark Thompson has been with Jefferson Concrete Group since 1977.

I said, "Well, could I do that job?"

And he said, "Surely, so."

That became the impetus for me to come aboard in September 1977. I knew nothing about the precast concrete industry. I certainly had some familiarity with a smaller precaster 60 miles north of here, a precaster who is still in business and certainly a good friend of mine today.


NPCA FILE PHOTO

Mark Thompson (right) receives the 2016 Robert E. Yoakum Award from Chuck Babbert.

Q. WHAT WAS JEFFERSON CONCRETE LIKE WHEN YOU STARTED?

A. We were much smaller company back then. We do in a week now what we used to do in one month or one year back then. We were a company of 11 people, and our product lines were burial vaults and residential septic tanks.

We did some agricultural products back in those days. We had more cattle than we did people in this region.

Q. HOW DID YOU COME TO BE INVOLVED IN NPCA?

A. The man that I worked for was kind of active in the New York state and national concrete burial vault associations. Herb, the man that I worked for, went to an NPCA convention in Columbus in late '70s. Alan Chase followed Herb back from the NPCA show in Columbus, Ohio, and stopped at our office and encouraged us to become members of NPCA. Unfortunately, it wasn't until the early '90s that I was able to get active in NPCA.

But to this day, I still have many, many, many of the publications, the newsletters that Ted Coons generated back early on. So, I learned a lot about the industry, and I learned a lot about people just because I had access to any information that filtered out of NPCA headquarters in Indianapolis. When I finally was presented with the opportunity to get involved with NPCA, I felt like I knew much of the history. I felt like I had met many of the people and I hadn't. I felt like I knew them just because there were some pretty good publications as the association grew back in the '70s and '80s.

Q. YOU HAD AN INTERESTING ENCOUNTER WITH SOME INDUSTRY PIONEERS IN THOSE EARLY DAYS OF NPCA INVOLVEMENT.

A. One of the men that I was working with, he and I were in Denver in the mid-'90s. We walked into the first breakfast, and I recognized faces, but they were people I didn't know. Tim and I walked by a table that had two chairs empty. The fellas at the chairs said, "You guys looking for a seat?"

I said, "Absolutely."

He said, "Well, join us."

We sat down and it was Roland Lindsay and Joe Wieser. We couldn't have landed in a better place.


Mark Thompson and Barry Fleck.

> **"Things are changing. We as an industry have got to roll with the changes."**
>
> *– Mark Thompson*

Things just evolved from there, and I'll never forget it. Wieser looks at me and he says, "Watertown, New York. Roland and I were near your yard a month ago. We were out toward the northeast and pulled off Interstate 81 on a Sunday morning. Nobody was around."

He said, "We looked through your yard. You guys make some pretty nice looking products."

That was our introduction to really get involved. I cherish that memory because I became very, very good friends with both Joe and Roland through the years. That's part of the joy of the involvement with NPCA.

Q. WHAT, ASIDE FROM THE RELATIONSHIPS, HAVE YOU GAINED FROM BEING INVOLVED IN NPCA? OR ARE THE RELATIONSHIPS THE CORE OF WHAT LEADS TO EVERYTHING ELSE?

A. I think relationship is exactly what's at the core of my involvement with the association. Personally, I am gratified and thankful of the visions of that time. It was Ty Gable and the visions of the boards that I worked with over the years.

I'll never forget sitting in Seattle. This was the late '90s. There was a tremendous concern throughout our industry about the plastic septic tank business. We all sat in a room in Seattle, and there was a whole series of questions that were asked, and we all had clickers in our hands to say yes or no. The message that came out of that session was we recognize this plastic

septic tank evolution is happening before us. But we also have to recognize that probably our greatest competition is our own poor quality. Tremendous eye opener.

And that's a hard thing for people sit and look at themselves and say, "Huh, is that true?"

But I think if you talk to people, you'll find that really was the impetus to really allow the plant certification program to get more traction. It became a basis to develop an education program.

The time will come when Mark Thompson (right) can relax, retire and share more quality time with friends and family. Until then, Thompson continues to operate Jefferson Concrete.

We put together an education committee, and I chaired it. We had a wonderful, visionary working committee. And one of the things that just seemed to resonate was we really need to find a way to train our people.

And that got the ball rolling. We started back far enough that there was no internet. We did it over the telephone. We had opportunities to listen to speakers over the telephone in our conference rooms and actually did some classes. And then that was the evolution of classroom training at The Precast Show.

I know we were in Indianapolis when I went before the Board of Directors, and we had started working on the concept of Precast University. That was the meeting that I introduced the notion of Master Precaster to the board of directors. And the rest is history.

I'm so gratified at this stage of my life and with the involvement that I had. With the help of many other people, I think we just have made tremendous strides within our industry as it relates to classroom training as it relates to the numbers of precasters.

I like to think that we're providing a path that this can be a career. I've had three people retire since last October. Two of them were Master Precasters. I think I've got six or seven other Master Precasters, and the plan is I'll have two more in Denver. I really hope that this program helps them to have the vision to make a lifetime commitment. The fact that any employee in our association can take PQS I for $99. What a deal. I probably don't utilize it enough, but it certainly is one heck of an introduction into our industry and hopefully help spoon feed people's desires to have that thirst to learn more about the whats and hows of precast concrete.

Q. YOU SAID YOU'VE HAD ONE, MAYBE TWO VACATIONS SINCE YOU STARTED WORKING AND THAT YOU'RE STILL WEARING A LOT OF HATS AT JEFFERSON. DO YOU SEE YOURSELF SLOWING DOWN AT ALL?

A. I'll be 70 this year. I'd like to start doing maybe a little less. Seventy-hour weeks aren't unusual for me, but I am getting tired.

It's a unique industry that has the benefit of a lot of good, hardworking, honest, visionary people. And I think that's what I enjoy the most.

Q. WHAT DOES THE INDUSTRY NEED TO DO IN THE NEXT FEW YEARS, IN THE NEXT DECADE OR SO, TO KEEP IT VIABLE TO KEEP IT MOVING FORWARD?

A. Things are changing. We as an industry have got to roll with the changes. That's much of the focus of what's going on within the association as we deal with the development of new cements, the carbon footprint issue, the people issue. I think these types of concerns are going to be a real challenge in the next few years.

My greatest concern up close is how long can this frenzy out of Washington last? And I'll include Albany, N.Y., also. The monies that are being expended. How long can this last? That's my greatest concern today.

Coming out of COVID, I think most companies have experienced some pretty positive times. We certainly have. I think it gave us a chance to look at ourselves and say, "You know, there's no reason we can't be more profitable. And we're going to be and we are." And, and I think, perhaps a lot of businesses made that assessment

Mark Thompson is a strong believer in worker training and the NPCA education program.

> **"I like to think that we're providing a path that this can be a career."**
>
> *– Mark Thompson*

coming out of COVID, but I'm fearful. I remember the Carter years. I remember the early '80s. It wasn't long after I left the banking business. As I'm getting closer to retirement years, I worry about what that impact could be on small business.

Q. IF YOU FOUND YOURSELF SITTING AT A TABLE AT THE PRECAST SHOW OR ANNUAL CONVENTION AND YOU OFFERED SOMEONE WALKING BY A CHAIR TO SIT DOWN, WHAT WOULD YOU TELL ABOUT WHY THEY NEED TO BE A MEMBER OF NPCA?

A. Well, the first message I love to distribute is this is a great industry. We're in an industry that has plenty of opportunity. What we do, it's chemistry for a good future. It's storm and sanitary and it's roads and bridges. And funerals. I tell customers we're going to get you one way or another. I love to tell them we're gonna be the last to let you down.

If you really want to go places with this industry, get involved with NPCA, because NPCA is about people. I think that there's right back to the basics. They have so much to share, so much to offer. A staff that has all the resources you need.

I love to get my people on The Precast Show floor, and I want them there for two reasons. I want them to see and know what's innovative, what's changing and what's available in our industry. No better place to do it. No better place. But when I take people, I expect them to give me the bulk of their time on the show floor because I want them to develop relationships. Relationships are how I grew up in this company, and that's what I want my people to do. I want them in these booths getting to know these people from all these vendors that we deal with.

And the more that they do that, the closer these people are to being a phone call away. Because there's days that you need that phone call away for guidance, or you need something desperately because somebody didn't tell you we were out of that pallet of sealer. That's what's allowed me to grow within this industry are the relationships that were gleaned from NPCA.

58TH ANNUAL CONVENTION

A-OK in OKC

By Joe Frollo

Photos by Heather Bremer

More than 400 NPCA members, exhibitors and professional staff gathered Oct. 12-14 in Oklahoma City for the 58th Annual Convention.

The week was marked with meetings, committees, sightseeing, social events and camaraderie among colleagues and friends spanning the United States and abroad.

Bill Bundschuh was elected Chair of the Board during the Annual Business Meeting Breakfast, receiving his gavel from outgoing chair Joel Sheets. Kevin Camp became Chair-Elect with Asher Kazmann ascending to secretary/treasurer.

Jason Lambert, Allen Lee, Jim Tully and Rick Terrill were elected to three-year terms on the Board of Directors.

Held at the Omni Oklahoma City Hotel, NPCA members enjoyed food, drinks, amenities and a 70-acre park next door to the facility.

Here is a look at some of the highlights.

A SOLUMN MOMENT IN TIME

More than half of the convention attendees visited the Oklahoma City National Memorial and Museum, which is dedicated to the memory of the 1995 Oklahoma City bombings.

The memorial tells the story of those who were killed, those who survived and those whose lives were changed forever.

Home to more than 1 million documents, artifacts and photographs, the museum is a place of quiet reflection, healing and hope. Many stood in the shade of the Survivor Tree, an elm tree rooted just yards away from the explosion site that killed 168 and injured hundreds more.

A reflecting pool, a field of empty chairs and a survivor wall also stand a remembrances of that day.

Clockwise from opposite page: NPCA display in lights at the Oklahoma History Center; NPCA Annual Convention education sessions included five sessions where instructors and participants explored a variety of industry topics, including Navigating Generational Tensions in the Workplace with Rich McLaughlin, NPCA members had the opportunity to experience the Oklahoma City National Memorial, dedicated to the victims and survivors of the 1995 bombing; The 58th Annual Convention closed with an evening at the Oklahoma History Center, where guests could eat, drink and walk through the state's rich history.

Nick Rhoad

RHOAD ANNOUNCED AS PRESIDENT AND CEO

NPCA Immediate Past Chair Joel Sheets announced during the Annual Business Meeting Breakfast that Nick Rhoad is the association's new President and CEO. Based in the Indianapolis area, Rhoad brings more than 20 years of experience in association management, government service and private sector economic development to his new role.

Rhoad begins his role at NPCA on Dec. 1. He most recently served as CEO of the Association of Real Estate License Law Officials (ARELLO), which is an international association. Prior to that, he was Vice President of Economic Development for a private sector company supporting manufacturers with property tax reductions. Rhoad also served in state government under two Indiana governors.

ISAACSON WINS YOAKUM AWARD

Richard Isaacson, the principal owner of iwi Concrete Equipment Group in Norcross, Ga., received the 2023 NPCA Robert E. Yoakum Award, given each year to an individual who plays a

SEE MORE PHOTOS! Visit NPCA's Flickr account to view photo galleries from the 58th Annual Convention. Flickr.com/nationalprecast

Convention By The Numbers:

13
COMMITTEES THAT MET DURING ANNUAL CONVENTION.

83
TABLETOP DISPLAYS IN THE EXHIBITOR HALL.

153
NPCA MEMBERS WHO TOURED CORESLAB STRUCTURE'S FACILITY.

432
COMBINED ATTENDANCE AT FIVE EDUCATIONAL SESSIONS.

$20K
RAISED AT NPCA FOUNDATION TOPGOLF EVENT.

** by Andy Wieser, Drew Wieser, Ron Sparks, Cody Wieser and Barry Bauer.*

Clockwise from top left: NPCA Board members drove to Wednesday's dinner in style as classic convertible cars picked them up at the hotel and cruised to a nearby steakhouse; NPCA Producer members joined Associate exhibitors Thursday and Friday evening for food, drinks and discussions on what new products, innovations and technologies are coming to the industry; Optional Tour participants had the opportunity to mix their own spices and combine a variety of smells and flavors; Coreslab Structures welcomed the NPCA Plant Tour, sharing how it goes about constructing materials and installing it at sites across the Southwest.

leading role in the precast concrete industry.

Isaacson currently sits on the NPCA Exhibitor Council, the Membership Engagement Task Force and the Outreach Committee. He served on the Board of Directors from 2008-10 and has been a member of 13 different committees and task forces, including chair of the NPCA Concrete Industry Management Course Task Force.

Clockwise from top left: More than 100 NPCA members took part in the NPCA Foundation Topgolf Fundraiser, enjoying a morning of swings and swag; 2022 Robert E. Yoakum Award winner Lisa Roache presents this year's award to Richard Isaacson, who could not attend the event in Oklahoma City but joined the Leadership Awards Luncheon crowd via video; Former Tampa Bay Rays pitcher Jim Morris shared his life story during the Keynote Luncheon, encouraging the audience to be Dream Makers and not Dream Takers; Incoming NPCA Chair Bill Bundschuh (left) receives his gavel from outgoing NPCA Chair Joel Sheets during the 2023 Annual Business Meeting Breakfast.

SEE YOU IN SEPTEMBER!

THE 59TH ANNUAL CONVENTION IS SEPT. 26-28 IN TUCSON, ARIZ.

PACKED ROOM FOR KEYNOTE SPEAKER

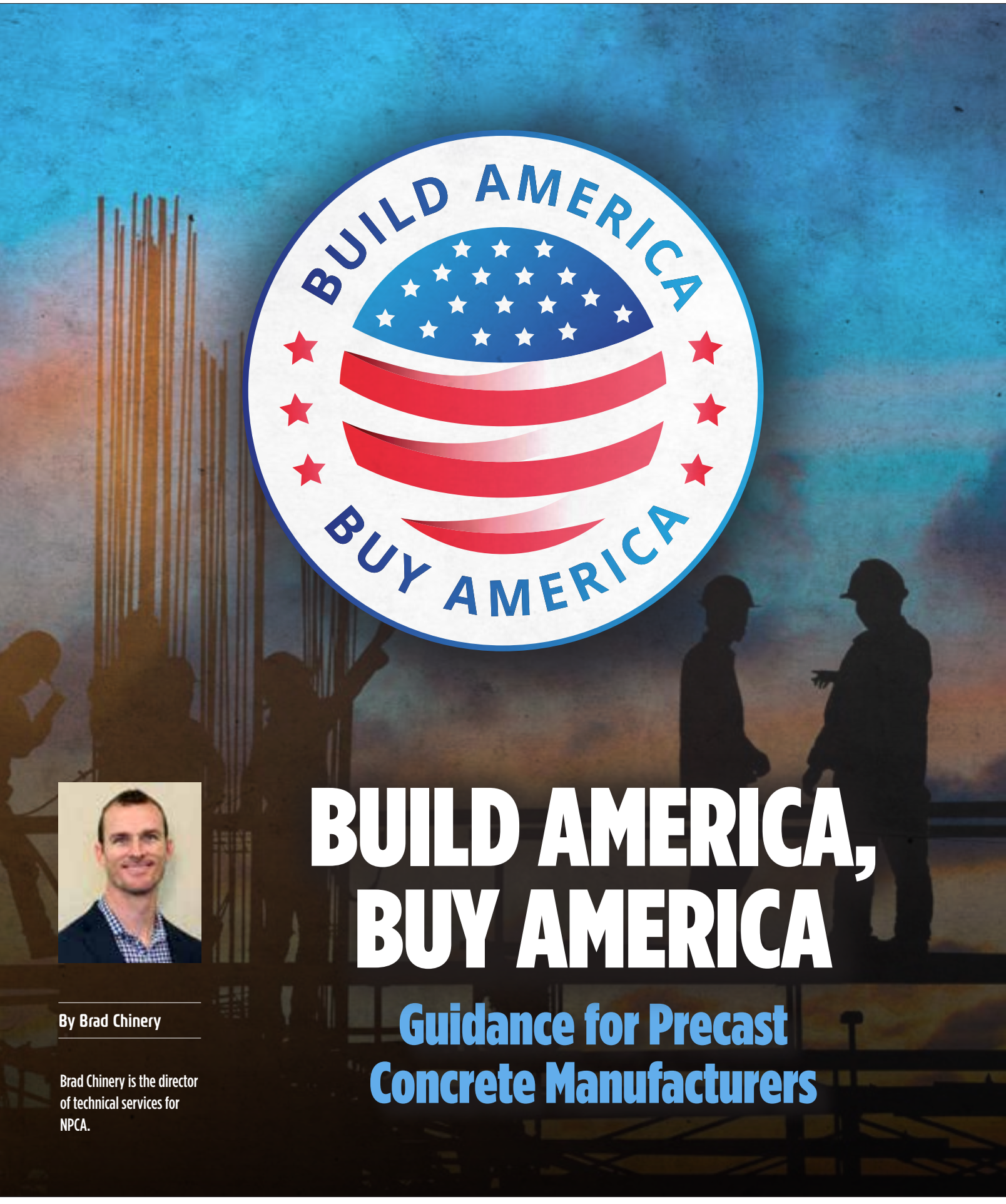
Former Tampa Bay Rays pitcher Jim Morris filled the Omni's Oklahoma Ballroom for his talk during the Keynote Luncheon. Morris delivered a message of how he strives every day to be a Dream Maker and not a Dream Taker.

Morris, whose road to the major leagues was told in the Disney movie "The Rookie," shared his life story and how growing up in rural Texas shaped the decisions he continues to make to this day.

A NIGHT AT THE MUSEUM

The Annual Convention closed with more than 200 members and staff gathering at the Oklahoma History Center for a night of food, music and local history. Three stories of exhibits explored Oklahoma's history of Native culture, pioneers, aviation, commerce and more.

A live band played throughout the night while NPCA members enjoyed a spread of barbecue, sides and fresh pies for dessert.



BUILD AMERICA, BUY AMERICA

Guidance for Precast Concrete Manufacturers

By Brad Chinery

Brad Chinery is the director of technical services for NPCA.

The **Build America, Buy America (BABA) Act** was signed into law as part of the Infrastructure Investment and Jobs Act (IIJA) in November 2021. BABA requires the head of each covered federal agency to ensure that "none of the funds made available for a Federal financial assistance program for infrastructure, including each deficient program, may be obligated for a project unless all of the iron, steel, manufactured products, and construction materials used in the project are produced in the United States."

BABA has a direct influence on the manufactured precast concrete industry, which supplies critical infrastructure structures across the United States. NPCA members need to understand the different product classifications, potential impacts and risks to compliance, the waiver process and how BABA compliments the Buy American (BA) Act to stay compliant and competitive.

The U.S. Office of Management and Budget (OMB) in August issued final guidance on how to apply Build America, Buy America preferences, and the resulting regulations will have a significant impact on some NPCA members.

According to the OMB's determination, every construction-related product is classified into one of three defined categories:

- Iron or steel
- Construction material
- Manufactured product

Each category has its own threshold to meet the Buy America preference.

For iron or steel products, the manufacturing processes from the initial melting stage through the application of coatings must all occur in the United States.

For construction materials, all manufacturing processes must occur in the United States to meet the Buy America preference. Construction materials are defined as articles, materials or supplies incorporated into an infrastructure project that consist of only one or more of the following materials:

- Non-ferrous metals
- Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)
- Glass (including optic glass)
- Fiber optic cable
- Optical fiber
- Lumber
- Drywall

There is an exception that states that if one or more of the previously listed materials is only combined with a binding agent, the binding agent is disregarded and it is still assessed as a construction material.

The amount of iron and steel within a precast concrete product will cost against the 55-percent threshold. If that cost reaches 50 percent of the total production, new standards will apply.

Precast concrete is defined as a manufactured product and as such has two requirements to comply with the Buy America preference:

- The product is manufactured in the United States.
- The cost of components mined, produced and/or manufactured in the United States is greater than 55% of the total cost of all components.

According to OMB, "manufactured products" means goods brought to the construction site for incorporation into the building or work that has been either:

- Processed into a specific form and shape.
- Combined with other articles, materials or supplies to create a product that has different properties than the individual articles, materials or supplies.

Manufactured products originally were defined in the negative – specifically as "not iron or steel" and "not a construction material." However, this definition was updated in the final guidance, separating precast concrete from cast-in-place concrete among other items.

Since cast-in-place concrete does not arrive at the construction site in its final form, it is not defined as a manufactured product. More on that below.

OMB's final guidance further clarified that a product is predominately iron or steel if the cost of iron or steel in the product is 50% or greater of the total cost of the product.

This definition is important because some NPCA members may need to adhere to this threshold when producing reinforced products. If the cost of permanently incorporated iron or steel increases disproportionately with the cost of other inputs into a precast structure to the point that the iron or steel component

Cast-in-place concrete projects do not have the same made-in-the-United States requirements as precast concrete. NPCA continues to work with the U.S. federal government to address this discrepancy.

BUY AMERICA BACKGROUND

The U.S. Office of Management and Budget's initial implementation guidance to agencies came in April 2022. This instruction served as the starting point for industry representatives and other stakeholders to provide comments and gain clarity on undefined terms or processes before a final guidance was established.

NPCA acted on behalf of the industry and filed a joint letter alongside PCI with comments and industry recommendations. Those recommendations included a proposal to exempt precast concrete's elements in the same way that cast-in-place concrete is excluded.

OMB received approximately 1,950 public comments and in August issued its final guidance, which did not include the changes that NPCA argued for.

is 50% or greater of the total cost of the precast structure, the precast structure is assessed as a predominately iron or steel product for the Buy America preference.

CAST-IN-PLACE VS. PRECAST CONCRETE

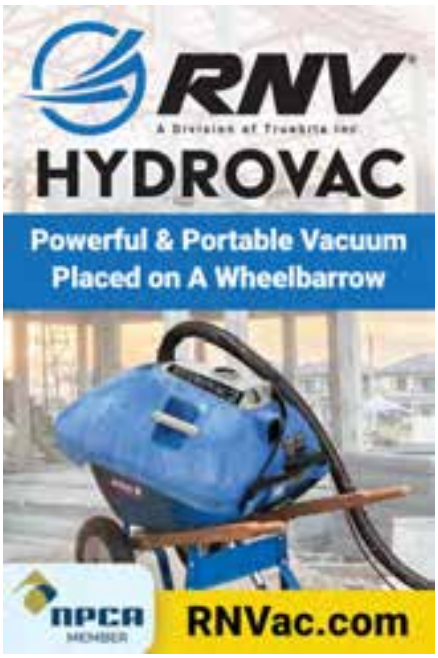
In the Build America, Buy America Act, Congress identifies specific materials that are entirely excluded from coverage, denoted as 70917(c) materials. These include:

- Cement and cementitious materials.
- Aggregates such as stone, sand or gravel.
- Aggregate binding agents or additives.

OMB specifically asked for stakeholder input on how to treat these excluded materials in the context of a manufactured product, because BABA did not specifically address this.

In the final guidance, OMB determined that section 70917(c) materials are not considered manufactured products only when they are used at or combined proximate to the work site – such as is the case with wet concrete or hot mix asphalt.

And even though precast concrete is made of the same components, because it is processed into a specific shape or form and is in such state when brought to the



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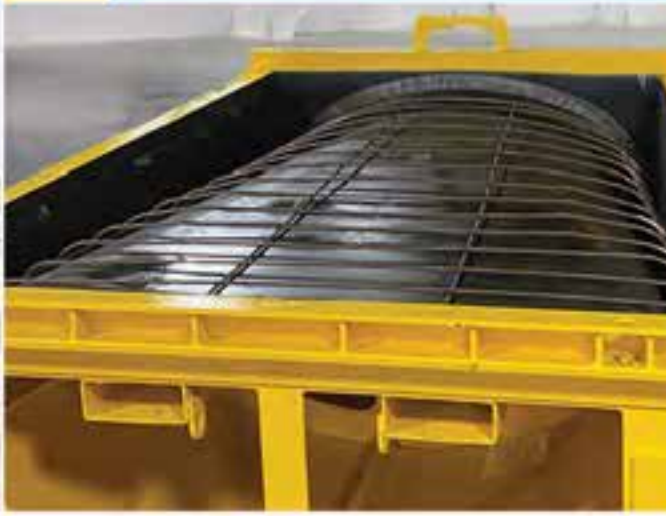
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COST OF COMPONENTS EXAMPLE

The following is an example of the cost of components calculations for wet cast, dry cast and SCC. It is understood that prices and incorporated transportation costs will vary from the assumed costs below by region and manufacturer.

PRODUCT	COST	COST VS. CALCULATION
Cement	$130 per metric ton	$0.06 per pound
Water	$73 per month	Negligible
Fine aggregate	$30 per ton	$0.02 per pound
Course aggregate	$30 per ton	$0.02 per pound
Fly ash	$93 per metric ton	$0.04 per pound
Admixture	$2,700 per 55-gallon drum	$0.38 per ounce
Steel		$1 per pound

Other production costs, including rebar chairs, ties, etc., oftern are considered negligible to the cost of the overall product.

work site, it falls under a different category based on specific Buy America language that defines "manufactured products."

Additionally, the updated definition of a manufactured product adds a time element, namely "brought to the construction site," for when the product should be assessed and that a manufactured product has to be processed into a specific form and shape. This drives the difference in classification between cast-in-place and precast concrete.

As a result, aggregates, cement and additives often are assessed for BABA compliance only when incorporated into a manufactured product such as precast concrete.

As a manufactured product, precast concrete must pass the 55% cost of components test to be considered for the Buy America preference.

DETERMINING COST OF COMPONENTS

As a manufactured product, precast concrete must meet the 55% cost of components test to determine applicability of the BABA preference.

Before performing the cost of components calculation for a manufactured product there are several things to note:

- The cost of transportation and any applicable duty is included in the cost of the component.
- For components manufactured by the manufacturer, profit is excluded from the cost of that component, but allocable overhead cost is included in the cost of the component.

MIX DESIGN COST ESTAMATES

Here is an example of a mix design for different types of precast concrete. Each example produces 1 cubic yard of concrete. As seen, the dry cast example would be assessed as a predominately iron and steel product because of the 53% cost of steel.

	WET CAST			DRY CAST			SCC		
	Weight	Price	Percentage	Weight	Price	Percentage	Weight	Price	Percentage
Cement	534	$ 31.50	15%	584	$ 34.45	18%	700	$ 41.29	18%
Water	251		0%	222		0%	315		0%
Fine Aggregate	1299	$ 19.49	9%	1065	$ 15.98	9%	1429	$ 21.44	9%
Coarse Aggregate	1835	$ 27.53	13%	2466	$ 36.99	20%	1365	$ 20.48	9%
Fly Ash	94	$ 3.96	2%			0%			0%
Admixture	64	$ 24.39	12%			0%	126	$ 48.32	21%
Steel		$ 100.00	48%		$ 100.00	53%		$ 100.00	43%
	Total	$ 206.86			$ 187.41			$ 231.52	

- If the cost of iron or steel in a product is more that 50% of the total cost of the product, it is considered predominately iron or steel and assessed under the iron or steel product category in which all manufacturing processes must occur in the United States.

To complete the cost of components calculations to determine if a specific product meets the BABA preference requirements:

- Determine the cost of each component in a product.
- Add all component costs to get the total cost of the product.
- Add the cost of the components that were mined, produced or manufactured in the United States.
- Divide the cost of components that were mined, produced or manufactured in the United States by the total cost of the product.

If the answer is greater than 0.55 (or 55%), the product meets the requirements of BABA, assuming the cost of steel or iron is less than 50% of the total product cost.

BUY AMERICAN VS. BUY AMERICA

Buy American sometimes is confused with Build America, Buy America. There are distinct differences.

The Buy American Act was signed into law in 1933 and applies to direct federal procurement. It provides a preference for the purchase of domestic end products and domestic construction materials.

The president has the authority to waive Buy American within terms of a reciprocal agreement. For example, President Carter in 1979 waived the requirements for the U.S.-Israel Free Trade Agreement and President Clinton in 1996 did the same for the Agreement on Government Procurement.

NPCA FILE PHOTO

The Federal Highway Administration has its own regulation where 100% of steel in a manufactured product must be domestic.

There are two requirements to qualify as a domestic end product:

- The end product is manufactured in the United States.
- More than 60% of the cost of components must be mined, produced or manufactured in the United States.

In 2024, the threshold will increase to 65%, then to 75% in 2029. If the product is classified as wholly or predominantly iron or steel, the cost of domestic components must be 95%.

The Buy American Act generally is applied to direct federal procurement – that is, the goods that the U.S. government buys for its own use.

In contrast, Build America, Buy America Act generally applies to awards made with federal financial assistance.

While contract specifications typically include applicable acts and requirements outlined, precast concrete producers can quickly determine if either Buy American or

BABA may apply to a project by knowing the source of funding, how it is issued and the how it will ultimately be used.

If neither is specifically identified as requirements for a fully or partially federally funded project, ask the project administration.

WHEN ARE WAIVERS ALLOWED?

Waivers to the Build America, Buy American preferences are allowed. However, only the head of a federal agency may waive preference for one of the following conditions:

- **PUBLIC INTEREST WAIVER.** Applying the domestic content procurement preference would be inconsistent with the public interest.
- **NONAVAILABILITY WAIVER.** Types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality.
- **UNREASONABLE COST WAIVER.** The inclusion of iron, steel, manufactured products or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

OMB guidance is for waivers to be project-specific whenever possible. However, general applicability waivers are allowed and may be applied across multiple projects.

If a general applicability waiver is issued, it must be reviewed no less than every five years to ensure the conditions still exist to support the waiver.

CHECK YOUR SUPPLY LINES

Build America, Buy America is intended to bolster American manufacturers when supporting federally funded infrastructure projects. However, for manufacturers along the borders, these requirements can disrupt established and economical supply chains.

WAIVER EXAMPLES

An example of some approved and pending waivers that may impact precast concrete manufacturers include:

- **The Department of Transportation waiver** for infrastructure projects located in the Commonwealth of Northern Mariana Islands (CNMI), Guam and American Samoa as well as the Freely Associated States in the Pacific.
- **A Department of Transportation waiver** that shows the total value of the non-compliant products is no more than the lesser of $1 million or 5% of total applicable costs for the project.
- **A Department of Transportation waiver** that shows the total amount of Federal financial assistance applied to the project, through awards or subawards, is below $500,000.
- **A longstanding Federal Highway Administration waiver** for manufactured products.

NPCA recommends that any manufacturer currently supplying or that may supply product to a federally funded project to take the time now to understand the cost of components breakdown and any potential risks to meeting Buy America preferences.

For more information on this topic, visit the NPCA blog (Precast.org/blog) or call (800) 366-7731.

Precast concrete manufacturers can request a federal waiver through their local agencies.

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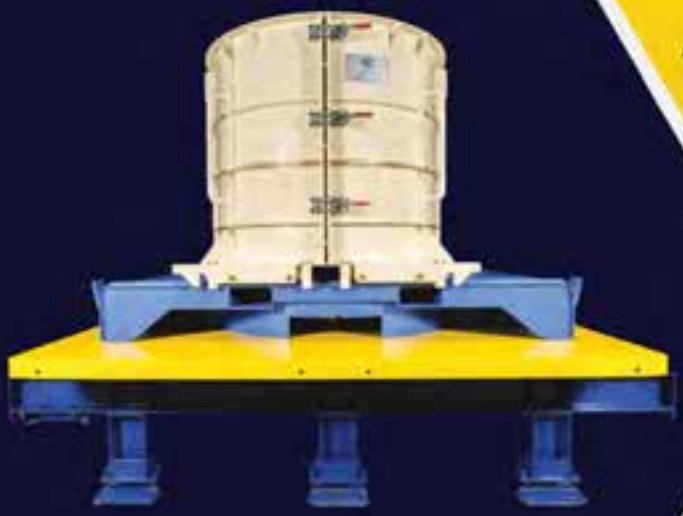

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BECOME INVOLVED WITH STATE AND NATIONAL ORGANIZATIONS IN ORDER TO ADD YOUR VOICE

By Claude Goguen, P.E.

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

NPCA FILE PHOTO

The Florida Onsite Wastewater Association Conference meets each year and includes NPCA members such as Florida Septic.

Most NPCA Producer members supply products to the decentralized (onsite) wastewater treatment industry. Products range from smaller residential septic tanks to larger, more complex systems for commercial, industrial and multi-residential projects.

The people involved in decentralized wastewater treatment include not only precast producers but designers, installers, maintenance providers, inspectors and regulators. There also is a large academic presence in the industry, mostly through university extension programs that focus on onsite wastewater management.

All of these industry professionals form a community. And while there are some national associations that can bring many of them together, the state-based wastewater associations generally are most effective at addressing local opportunities and challenges. That is why most states have had their own onsite wastewater association for many years

"Our involvement with FOWA has allowed us to help shape regulations and contribute to improving the quality of septic tanks in Florida."

– Susan Allen, Florida Septic

and more are organizing every year.

NPCA has long supported these associations and their efforts to improve the quality of decentralized wastewater treatment. Support has come through various roles, including as sponsors, presenters, exhibitors, committee members and board members.

The manufactured precast concrete industry is served best when NPCA Associate and Producer members join NPCA staff members at the association events, presenting a unified and amplified message.

However, there are times when NPCA is the only precast manufacturer representation there.

While NPCA strives to be effective flag bearers for precast, the association works best when local members stand with it.

The benefits of getting involved can be significant.

A VALUABLE PARTNERSHIP

Currently, there are approximately 35 state- or region-based onsite wastewater associations in the United States and seven in Canada.

Some, such as the Oklahoma Onsite Wastewater Association (OOWA) and North Dakota Onsite Wastewater Recycling Association (NDOWRA) formed in just the past few years. Others have been around for more than 50 years.

Florida Onsite Wastewater Association (FOWA) joined the 50-year club in 2023 and celebrated in style with a post-annual conference cruise to the Bahamas.

One thing most wastewater groups have in common is an origin story: a few onsite wastewater treatment professionals getting together to address a specific challenge.

Susan Allen is owner and president of Florida Septic. Her father, Treston Vause, was one of the 10 original founders of FOWA, which originally was called Florida Septic Tank Association.

Allen and her sister, Ellen Vause, have fond memories of going to FOWA events as young girls. Their involvement continued with Vause eventually becoming FOWA's president and Susan currently serving on their Board of Directors.

The North Carolina Septic Tank Association Conference is a great place to meet and network with precast industry members in the Tar Heel state.

NPCA FILE PHOTO

ONE MAN'S ROLE WITH WASTEWATER ASSOCIATIONS

For the past 15 years, I have participated with local, state and national onsite wastewater organizations, including as a member of the Indiana Onsite Wastewater Professionals Association board of directors.

My experience so far with IOWPA has opened my eyes to the impact of these associations. I worked on projects alongside state legislators to enhance onsite wastewater professional's certification programs, revising exams for installers, reviewing state code language revisions and helping organize our annual conference.

I also joined the National Onsite Wastewater Recycling Association board of directors. NOWRA is the largest organization in the United States dedicated to representing the onsite wastewater treatment industry.

This experience has given me unprecedented perspective on national issues and challenges. NOWRA has an affiliate membership program for state associations and currently has 23 members. I started a project to create a toolkit to help these affiliate members enhance their education programs and live events.

I have been inspired by the dedication of other board members of both IOWPA and NOWRA. I have enjoyed the experience and gained some valuable knowledge. I hope to pass on this knowledge and passion to serve to our NPCA producer members.

If you have yet to participate with your state onsite wastewater association, make this the year to take that first step.

See the box on Page 78 for a list of state association. Contact them and ask them how you can get involved.

Membership fees are low, and the benefits can be immeasurable.

Join a committee. Sponsor and event. Exhibit at the next conference. At the very least, make a point to attend their next annual conference. Those simple steps can lead to incredible opportunities for you and your company.

Andy Winkler of Wieser Concrete Products summed it up: "You get from it what you put into it"

If you have any questions about joining a state onsite wastewater association, contact me at cgoguen@precast.org.

– Claude Goguen

Here is a look at a wastewater association in each state that offers one.

STATE	ASSOCIATION NAME	WEBSITE
Alabama	Alabama Onsite Wastewater Association	https://aowainfo.org
Arizona	Arizona Onsite Water Reclamation Association	https://www.azowra.org
Arkansas	Arkansas Onsite Wastewater Association	http://www.arkowa.com
California	California Onsite Water Association	https://www.cowa.org
Colorado	Colorado Professionals in Onsite Wastewater	https://www.cpow.net
Connecticut	Connecticut Onsite Wastewater Recycling Association	https://www.cowra-online.org
Delaware	Delaware On-Site Wastewater Recycling Association	http://dowra.org
Florida	Florida Onsite Wastewater Association	https://www.fowaonsite.com
Georgia	Georgia Onsite Wastewater Association	https://gowa.wildapricot.org
Idaho	Onsite Wastewater Association of Idaho	Facebook Page
Illinois	Onsite Wastewater Professionals of Illinois	http://www.owpi.org/home
Indiana	Indiana Onsite Wastewater Professionals Association	https://iowpa.org
Iowa	Iowa Onsite Waste Water Association	https://www.iowwa.com
Kansas	Kansas Small Flows Association	http://ksfa.org
Maryland	Maryland Onsite Wastewater Professionals Association	https://mowpa.org
Massachusetts	Yankee Onsite Wastewater Association	https://www.yankeeonsite.org
Michigan	Michigan Onsite Wastewater Recycling Association	www.mowra.org
Minnesota	Minnesota Onsite Wastewater Association	https://www.mowa-mn.com
Missouri	Missouri Smallflows Organization	http://www.mosmallflows.org
Nebraska	Nebraska Onsite Waste Water Association	https://www.nowwa.org
New Hampshire	Granite State Onsite Wastewater Association	https://gsowa.org
New Mexico	Professional Onsite Wastewater Reuse Association of New Mexico	https://www.powranm.org
New York	New York Onsite Wastewater Treatment Training Network	https://otnny.org
North Carolina	North Carolina Septic Tank Association	https://www.ncsta.net
North Dakota	North Dakota Onsite Wastewater Recycling Association	https://ndowra.org
Ohio	Ohio Onsite Wastewater Association	https://www.ohioonsite.org
Oklahoma	Oklahoma Onsite Wastewater Association	https://oowaok.org
Oregon	Oregon Onsite Wastewater Association	www.o2wa.org
Pennsylvania	Pennsylvania Onsite Wastewater Recycling Association	https://www.powra.org
Tennessee	Tennessee Onsite Wastewater Association	http://tnonsite.org
Texas	Texas Onsite Wastewater Association	https://txowa.org
Utah	Utah Onsite Wastewater Association	https://www.utahonsite.org
Virginia	Virginia Onsite Wastewater Recycling Association	http://www.vowra.org
Washington	Washington On-Site Sewage Association	https://wossa.org
Wisconsin	Wisconsin Onsite Water Recycling Association	https://www.wowra.com
National	National Onsite Wastewater Recycling Association	https://www.nowra.org

At this year's annual conference, Florida Septic had one of the largest booths at FOWA, was a sponsor of the event and was one of the session presenters.

"It's given us a voice in the industry," Allen said. "Our involvement with FOWA has allowed us to help shape regulations and contribute to improving the quality of septic tanks in Florida."

With the help of FOWA Executive Director Roxanne Groover, members work closely with their departments of environmental protection and departments of health to address various issues.

"This involvement keeps us informed of changes in regulations so we can prepare well in advance of implementation," Allen said. "Our involvement exposes us to new companies and evolving technologies in wastewater treatment. We also get to connect with our customers. It's like family to us."

Steve Wolfe, owner of Evergreen Precast in Sumner, Wash., shares a similar story.

"My dad, Jim Wolfe, was one of the founding members of Washington On-Site Sewage Association (WOSSA) back in the early 90s," Wolfe said.

Wolfe and his family continue to support the association. Wolf has served many positions on its board, including president. He sees the impact he and WOSSA have had on state regulation and policy.

"Back when COVID hit, the state designated our industry as non-essential, so we were not able to work," he said.

As a result, Wolfe and other WOSSA members made their case that installation of onsite wastewater treatment systems is vital to homeowners and businesses. They got the designation changed so they could return to work.

Andy Winkler, general manager with Wieser Concrete Products in Maiden Rock, Wisc., is no stranger to wastewater associations. Wieser participates with at least six state associations, including Wisconsin Onsite Wastewater Recycling Association (WOWRA) and Minnesota Onsite Wastewater Association (MOWA).

Winkler and Wieser Concrete's

involvement goes back many years to when Joe Wieser helped form WOWRA in 1974. Winkler twice served as MOWA president.

"There's no better way to stay informed about the industry," he said. "It also allows us to connect with our customers."

Doug Lassiter is the executive director and lobbyist for the North Carolina Septic Tank Association (NCSTA), one of the largest wastewater associations in the country.

Lassiter has a unique perspective dating to even before his role with NCSTA. He was a precast tank manufacturer.

He loves to see precasters involved in NCSTA.

"If tank manufacturers are not at the table when regulations are written or changed, this forces others with little to no knowledge of precast to make these decisions," he said.

Lassiter recalls a situation where state regulators were questioning the structural integrity of mid-seam versus top seam septic tanks.

"There's no better way to stay informed about the industry. It also allows us to connect with our customers."

– Andy Winkler, Wieser Concrete Products

"We brought them to a plant to witness a vacuum test of two 1500-gallon tanks – one top seam and one mid-seam," he said. "We tested them to failure. The mid-seam tank outlasted the top seam tank. One state regulator was shocked at this result. It was a great opportunity to educate them about precast concrete tank design."

While some onsite wastewater associations have precast concrete representation, that is not the case across the board. A review of 25 top association boards revealed that only eight have precast industry representation. Out of a total 321 board members, 11 are precast manufacturers.

That's just short of 3.5%.

Conversely, almost every association board has a member representing plastic or fiberglass tank manufacturers.

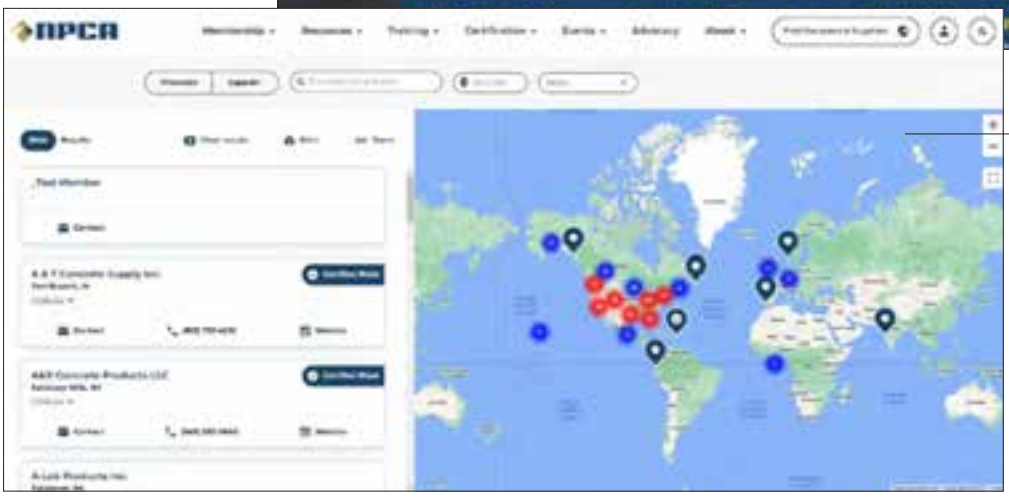
Why?

"Some justify it by saying they're too busy," Wolfe said. "They can't free someone up. But they don't realize the impact it can have on their business"

Or, as Winkler puts it: "If you're not there talking to your customers, someone else will be."

WORKING for YOU

Visitors to Precast.org will quickly find what they are looking for based on whether they are a Producer member or specifier looking to learn more about precast.



The newly launched NPCA website redesign includes a simpler and faster Find function to connect producers, suppliers and specifiers.

Visit Precast.org today to see what's new, and take advantage of all NPCA has to offer.

NPCA Website Launches

NEW LOOK. NEW FEEL. SAME GREAT CONTENT. THAT IS WHAT THE NEWLY REDESIGNED PRECAST.ORG BRINGS TO YOU.

The NPCA marketing and communications department worked with an Indianapolis-area company to design a website that simplifies navigation, quickly taking visitors with hubs designed specifically to feature all the NPCA resources that members utilize every day. The website is optimized for speed, with streamlined content, digital forms and super-fast load times.

And it's the place on the web where the world can learn why precast concrete is the No. 1 choice for construction materials.

In addition, NPCA redesigned a more mobile-friendly Find feature that is easier to use, connecting precasters with specifiers and suppliers.

Leadership NPCA members met for an intensive two-day session in Jacksonville, where they combined training and team building.

LNPCA BOOT CAMP MEETS IN JACKSONVILLE

The 2023 Leadership NPCA cohort met Aug. 29-30 for its fall training session in Jacksonville, Fla. The two-day intensive session, facilitated by Nicole Perrotta of NMP Transformations, focused on goal setting, professional and personal leadership development with each cohort member creating an individual leadership development plan.

The cohort continued to forge relationships by competing in an evening scavenger hunt through the streets of downtown Jacksonville.

LNPCA offers member companies an extraordinary opportunity to accelerate the growth of high-potential employees, providing them with:

- **Knowledge of current industry issues**
- **Enhanced leadership skills**
- **Experience in networking and relationship building**
- **An understanding of NPCA operation and available resources**
- **A sense of industry pride**

Learn more at Precast.org/LeadershipNPCA.

NPCA ON THE ROAD

NPCA staff members have been Working for You at several industry events throughout the fall.

AASHTO COMMITTEE ON MATERIALS AND PAVEMENTS
July 30 to Aug. 3 – San Diego

NPCA staff members Chris Frederick, Phillip Cutler, P.E., and Brad Chinery, P.E., joined 45 department of transportation and two Canadian province representatives at the AASHTO Committee on Materials and Pavements (COMP). COMP is a meeting of state DOT leaders and materials experts to discuss and align on materials testing, specification and performance.

Along with the Technical Subcommittee discussions, NPCA staff members promoted the precast industry through the major topic discussions, including supply chain challenges, sustainability, environmental impacts and funding and inflation.

FLORIDA ONSITE WASTEWATER ASSOCIATION CONVENTION
Aug. 2-3 – Daytona Beach, Fla.

NPCA's Ron Naumann, P.E., and Claude Goguen, P.E., represented the association's precast septic tank producers at the FOWA convention.

The pair spoke to producers and exhibitors, answering questions from participants related to concrete mix designs and issues.

ASTM C13
Sept. 11-13 – Minneapolis

NPCA engineers Hugh Martin, P.E., Chinery and Naumann joined 70 other ASTM members at the annual meeting of ASTM Committee C13 on concrete pipe. Committee C13 has jurisdiction over 70 ASTM standards, including standards for precast concrete manholes such as ASTM C478 for manufacture, C1244 for testing and C1821 for installation. Discussions to advance the industry included review of and suggested improvements to existing standards, opportunities for clarification, refinement of new standards in process and how advances in technology may be included in existing standards.

NPCA engineers Claude Goguen (left) and Ron Naumann represented the precast concrete industry at the FOWA convention in Daytona Beach, Fla.

2024 SILENT AUCTION

YOUR SUPPORT WILL MAKE A DIFFERENCE

DONATE NOW
at precast.org/donate

The NPCA Foundation is joining forces with fellow industry foundations to advance the precast concrete industry through academic grants, scholarships and curricula development. You can help ensure our industry's future success by donating to the 2024 Silent Auction, held during The Precast Show in Denver.

Your donation ...

- Promotes precast curriculum at schools.
- Supports the student design competition.
- Provides funding for scholarships.
- May be tax-deductible.

HELP US BEAT OUR 2024 AUCTION GOAL OF

$150,000

WITH YOUR DONATION OF ...

- Gift baskets or experiences unique to your area.
- Tickets to sporting events or tailgate packages.
- Products and services.
- Gift cards.

Visit precast.org/donate to make your donation today!

NPCA FOUNDATION · PCI FOUNDATION · icpi Foundation for Education and Research · NCMA FDN Education & Research Foundation

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.

Taylor Machine Works

TINDALL EXPANDS TEXAS DIVISION

Tindall Corporation recently completed expansion of its Texas facility, adding 69,000 square feet to the location, enhancing its capacity to a total of 180,000 square feet. In addition, the corporation's workforce grew by approximately 150 team members.

The heightened capacity is a significant achievement for Tindall as it positions the company to better serve the commercial construction industry in the South Central states. This investment reflects the company's dedication to providing its expertise for even more businesses in the market for everything from data center development to multi-use commercial structures.

EUCLID CHEMICAL OPENS NEW FACILITIES

Euclid Chemical has opened a new cement additives laboratory at its Cleveland campus along with an admixture plant in Calgary, Alberta.

The cement additives facility is utilized for new product development and material testing to optimize the use of additives in the cement manufacturing process. The laboratory, along with a full staff of technicians, provides comprehensive analysis that supports in-house research and detailed customer support.

The admixture plant will assist with quick and efficient product delivery throughout the area, improving overall service levels.

TAYLOR MACHINE AND CUMMINS TO INTEGRATE HYDROGEN ENGINES

Cummins and Taylor Machine Works plan to integrate the Cummins 6.7-liter and 15-liter hydrogen engines into the Taylor product line. This collaboration will help realize the decarbonization goals of industrial steel, wood products, concrete, oil and gas and port operations markets.

Taylor has undertaken the challenge of manufacturing lite equipment that not only serves heavy material handling needs but also brings positive change, including a plan to develop low- and zero-carbon solutions across its entire product line.

NPCA HIRES McCOY AS CFO

Dwayne McCoy joined NPCA in September as chief financial officer. McCoy brings 12 years of experience as a CFO at MIBOR Realtor Association, a trade association, and the Little Star Center, an autism support group where he worked alongside the board of directors.

He earned a degree in accounting from the University of Oakland City and an MBA from Indiana University.

EMH INTRODUCES DOUBLE-GIRDER FREE-STANDING CRANE

Engineered Material Handling recently introduced double-girder NOMAD® free-standing cranes for rugged operational


EMH double-girder NOMAD® free-standing cranes

demands or when better space utilization is required. NOMAD Cranes are available in widths up to 50 feet and heights up to 25 feet with capacities of 2 tons to 10 tons.

NOMAD Free-Standing Cranes are modular and come standard with radio controls, providing flexible solutions for manufacturers when needs change or when a traditional overhead crane installation is either difficult or impractical.

CYCLONAIRE CELEBRATES ITS 50TH ANNIVERSARY

Founded in 1973, Cyclonaire is celebrating 50 years of business. In August, the company welcomed nearly 300 guests consisting of current and past employees, partners, community members, representatives, vendors and their families to celebrate its longevity and rich history, including homage to its late founder, Don Baker.

As part of the celebration, Cyclonaire unveiled The Don Baker Breakroom, designed to serve as a meeting place and constructed to reflect each of the company's primary sectors – cement, rubber, rail, mineral and battery.

SIKA RESEARCHING CONCRETE-RECYCLING TECHNOLOGY

Sika announced that its reCO_2ver technology is now receiving targeted support as part of a climate protection program. The technology involves a concrete recycling process that allows old concrete to be entirely reused while facilitating the sequestration of CO_2.

To support the use of the technology, Switzerland's Climate Cent Foundation is guaranteeing the purchase of CO_2 certificates from the program for an initial amount of CHF 10 million.

VOLLER MIXERS ACQUIRES TWO COMPANIES

Voeller Mixers has acquired Texaloy Foundry Company and MERTS.

Texaloy Foundry Company, based in Floresville, Texas, specializes in supplying custom replacement wear parts. Voeller

Mixers, through Texaloy, now has an expanded foundry, offering replacement wear parts for both Voeller and non-Voeller mixers.

MERTS, based in Leesburg, Ga., manufactures and builds custom-ready mix plants and components for concrete producers across North America. MERTS is known for its Big EZ Modular batching plant, which produces up to 300 cubic yards of concrete per hour.

MASTER BUILDERS SOLUTIONS BUILDS MIXING APP

Master Builders Solutions' new Concrete Now! app is available in desktop and mobile versions. It equips concrete practitioners with fiber dosage, carbon footprint, surface evaporation and mix temperature or volume calculator or estimator tools.

Other functionality includes:

- Assisting in the replacement of conventional steel rebar or welded-wire reinforcement by calculating slab-on-grade and composite metal deck slab fiber requirements.
- Analyzing key metrics to provide a comprehensive view of carbon dioxide emissions associated with concrete production.
- Determining plastic-shrinkage cracking potential by gauging concrete performance under anticipated weather conditions.
- Considering the specific heat and mass of a load's ingredients to effectively address hot or cold weather concreting challenges.

EMH'S NEW GANTRY EASES PRODUCTIVITY

Engineered Material Handling's new Single Leg Semi Gantry Crane makes it easy to transfer loads between workstations while freeing up overhead cranes to handle other tasks. With its 10-ton capacity, shop floor productivity is dramatically improved. With its exclusive poly wheel design, the need to have built-in floor rails is eliminated, reducing costs and improving floor safety.


EMH Single Leg Semi Gantry Crane

Safety features include a trolley adjustment with integrated staging that stays tightly together during adjustment. The hoist has a more spacious enclosure to accommodate larger control panels and variable frequency drives.

Calendar of Events

FEB. 8-10, 2024

THE PRECAST SHOW 2024

Colorado Convention Center
Denver, Colo.

SEPT. 26-28, 2024

NPCA 59th ANNUAL CONVENTION

JW Marriott Tucson Starr Pass Resort & Spa
Tucson, Ariz.

FEB. 5-7, 2025

THE PRECAST SHOW 2025

JW Marriott Indianapolis
Indianapolis

Streamline Your Payables With A New AI-Powered Service

Introducing AP+, our new AI-powered Accounts Payable and Inventory Receipts Processing Service for the Titan 3000 Precast Management System

Are you tired of manually processing your Accounts Payable Invoices and Inventory Receipts? Do you want to save time and reduce errors? Look no further than our AI-powered service!

AP+ uses the latest in AI technology to process your invoices and inventory receipts quickly and accurately. Our system is designed to handle large volumes of data, so you can focus on other important tasks. Our AI-powered service can help you:

- **Reduce Errors and Improve Accuracy:** **AP+** is designed to minimize errors using advanced algorithms to ensure that your invoices and inventory receipts are processed with the highest level of accuracy.
- **Save Time/Increase Productivity:** **AP+** is fast and efficient, so you spend less time processing invoices and more time on other important tasks.
- **Streamline the Payment Process:** Stop printing paper checks, pay your vendors when you want quickly and easily through your bank by creating an ACH file to upload.

Don't waste time manually processing your Accounts Payable Invoices and Inventory Receipts. Contact us today to learn more about AP+, our AI-powered service!

AP+ is a product of Market PRJ, LLC through development with Muka Development Group

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Use 25% less steel
15% less floor space
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Powered by a standard cordless drill — safer, easier and saves time and space!

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Whether it is a formwork system for your next project or tools to make plants safer and processes simpler, count on Afinitas to add innovation into everything we deliver. For example, our NEXTGEN forms provide the same quality and durability as previous forms, but require less steel and floor space. And our line of "smart" tools will speed up production while keeping your workers safe. At Afinitas, our goal is to take you where you want to grow.

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