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A PUBLICATION OF THE NATIONAL PRECAST CONCRETE ASSOCIATION

precast TODAY

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ENVIRONMENTAL PRODUCT DECLARATIONS

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NPCA

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30"+

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32	32	32
34	34	34
	36	36

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Chair's Insights

A MESSAGE FROM NPCA CHAIR JOEL SHEETS

Joel Sheets
NPCA Chair of the Board

Welcome to the second edition of Precast Today. I hope you enjoy this new format and find the information valuable.

I encourage you to share this magazine with your customers and specifiers as it is designed as a comprehensive look at the state of the precast concrete industry. The digital versions can be found at Precast.org/PrecastToday.

As summer nears, some states are preparing to begin requiring environmental product declarations (EPDs) for manufactured products.

An EPD tells the life cycle story of a product in a single, comprehensive report, providing information about a product's impact upon the environment, such as global warming potential, smog creation, ozone depletion and water pollution.

EPDs break down each product and process within a facility to measure materials, energy and waste. The conflict right now is there are some advantages of precast concrete that fall outside of EPDs because the results are seen after the product leaves the manufacturer's control.

Shipping, installation, use and longevity currently are not included in a precaster's EPD even though a project may benefit from the product's sustainability and long life cycle. Local availability, ease of installation, durability, low maintenance and resilience also fall outside the report because the product is no longer in the manufacturer's hands.

It is a complex, shifting situation, and right now our focus as an industry is on data collection. Early challenges should lead to changes down the line that better reflect reality. NPCA staff, through Board guidance, is working to inform legislators about these shortfalls.

Read more about EPDs, what is coming and how to prepare in Claude Goguen's article on Page 14. A free webinar on EPDs also is available through your myNPCA member portal.

I hope the coming months treat you well and that you and your teams remain busy creating the best construction material on the market.

Enjoy the magazine.

Industry Insights

MIXED SIGNALS CLOUD ECONOMIC OUTLOOK

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.

The U.S. economy continues to experience inflation levels that have not been seen in 40 years. While inflation has fallen considerably since mid-2022, further declines likely are needed to stimulate economic recovery.

A majority of economists are leaning toward the United States narrowly avoiding recession. However, there are a variety of views on what the economy looks like for the next 12 to 18 months.

According to Teneo Research, there is broad consensus that the United States economic slowdown will continue in early 2023 as the impact of the Federal rate rise from late 2022 starts to feed into the economy.

In a best-case scenario, the United States likely will see a "soft landing" with low or slow growth across 2023 before picking up in 2024. However, a downside scenario is the possibility of the nation entering a prolonged recession lasting well into 2024.

Economists are dealing with a confluence of factors and mixed signals. Economic headwinds include ongoing supply chain issues and labor shortages along with high borrowing costs, which could cancel projects and reduce buying power. On the upside, we are seeing declining inflation, wage increases, continued job growth and increased government spending, which is driving growth in some construction market segments.

According to Dodge, public works construction will increase by 18% in 2023 to $225 billion. The Infrastructure Investment and Jobs Act (IIJA), signed into law at the end of 2021, provided $1.2 trillion to invest in the nation's roads, bridges, transit systems, airports, waterways, drinking water and wastewater systems, as well as energy infrastructure.

However, uncertainty surrounds much of the expected investment in infrastructure. In a survey conducted by the Associated General Contractors of America

There is broad consensus that the United States economic slowdown will continue in early 2023, according to Teneo Research. In a best-case scenario, the United States will have low or slow growth before picking up in 2024.

Public Works Construction ↑ 18% in 2023 to $23 Billion Source: Dodge

(AGC) and Sage in November and December, only 5% of the nearly 1,000 responding contractors reported working on new projects funded by the law. Another 6% stated that they had won bids but had not started work, while 5% had bid on projects but had not won any awards yet.

Of the growth sectors, manufacturing is one of the bright spots. Investment in data centers, microchip production facilities, auto assembly and electric-vehicle battery plants is expected to continue. Renewable energy projects are expected to grow as well, including offshore wind turbines, onshore wind and solar fields in a variety of states and thousands of electric vehicle-charging stations across the country.

Impacts of the Infrastructure Investment & Jobs Act

5% Contractors working on new projects funded by the law

6% Contractors who have won bids but not started work

5% Contractors who bid on projects but had not yet won awards

Source: Associated General Contractors of America (AGC) and Sage in November and December 2022. Based on 1,000 responding contractors.

"Homebuilding, already deeply in recession, is likely to stay that way for most of the year if not beyond," said Ken Simonson, AGC economist. "And then you have a bunch of vulnerable categories because of those rising construction and financing costs that are no longer being matched by rising rents. That would cover multifamily, warehouse, retail, office and lodging. And then I'd also put university construction at risk."

Given this mixed economic outlook, manufactured precast concrete producers who can pivot to sectors experiencing growth are likely to be rewarded.

Government Insights

BUY AMERICA INTEREST FOR THE PRECAST INDUSTRY

By Barbera Burchett

Barbera Burchett is co-principal of Innovative Advocacy, which works with NPCA to advance the interests of the precast concrete industry in Washington, D.C.

There's been a lot of talk in the nation's capital about Buy America, also referred to as Buy American or Build America, Buy America. The reason for this word salad on the federal government's plate is because of an executive order by President Joe Biden requesting federal agencies to review and enhance their Buy America policies in the wake of the $1.2 trillion Infrastructure Investment Jobs Act of 2021. Agencies currently are reaching out for public comments on proposed changes.

Specific to NPCA members, the proposed guidance sets domestic manufacturing standards for construction materials.

UNDERSTANDING THE POLICY

The "Buy American Act" of 1933 first required the federal government to purchase American-made goods whenever possible. This applied only to direct federal purchases. Requirements on purchases made by the recipients of federal grants came in 1977 with a series of "Buy America" laws. However, the requirements vary for different kinds of infrastructure.

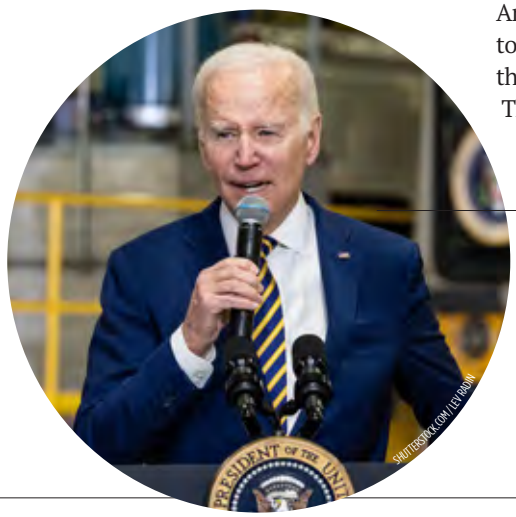
The Trump administration grouped all of these policies under the umbrella term "Buy American." The Biden administration uses the term "Made in America Laws" for all of the statutes.

Let's use Buy America for simplification.

An important aspect of Buy America is the discretion agencies possess to waive domestic content laws. Waivers are extended if petitioners can prove that there is no American-made source for a needed product or that the American-made versions are cost prohibitive. The Biden administration has centralized the waiver process under the White House Office of Management and Budget (OMB) and a Made in America director, so proposed waivers go there.

As a result, waivers are harder to come by.

"The previous administration didn't take Buy American seriously enough," Biden said. "Federal agencies waived the requirement without much pushback at all. Big corporations and special interests have long fought for loopholes to redirect American taxpayers' dollars to foreign companies where the products are being made. The result: tens of billions of



President Biden has made it an administration priority to spend U.S. federal dollars with U.S. companies and products. The result is a stricter interpretation of the Buy America laws.

Build America, Buy America guidance helps agencies:

- Ensure that appropriate programs and projects are covered by Made in America conditions for iron and steel, manufactured products, and construction materials.
- Transition to new policies as efficiently and possible.
- Develop transparent processes by which to consider waiver requests and criteria to apply when making decisions on waivers.
- Apply policies consistently to help grant recipients, manufacturers, and other stakeholders understand and navigate new procedures.
- Use waivers not as an alternative to domestic sourcing, but as a strategic step toward greater domestic sourcing once domestic manufacturing scales up.

Buy America's main goal is to utlize U.S. manufactured products for federally funded projects. Finished precast concrete products, though sometimes made with foreign-purchased ingredients out of necessity, are manufactured at more than 2,700 facilities across the United States.

American taxpayers' dollars supporting foreign jobs and foreign industries."

Biden's blanket statement caused heartburn with career employees at the U.S. Department of Transportation. Modal administrations, such as the Federal Highway Administration (FHWA), take their independent review of waivers seriously. Under Biden, the granting agency must assess whether a significant portion of the cost advantage of a foreign-sourced product is the result of the use of dumped steel, iron or manufactured goods.

WHY PAY ATTENTION?

The OMB's new guidance is designed to help federal agencies implement the bipartisan infrastructure law's Buy America provisions to strengthen Made in America requirements and help ensure that federally funded infrastructure projects use American-made iron, steel, construction materials and manufactured products.

The guidance recognizes that the bipartisan infrastructure law presents a dual opportunity to create good jobs in both construction and manufacturing. It also recognizes that America's critical supply chains have gaps – and that waivers will be needed while manufacturers scale up to meet demand. To that end, the guidance calls on agencies to issue waivers strategically and only as needed to help ensure that Made in America goods are used once firms make needed investments to expand domestic production.

Finally, the guidance provides preliminary direction to agencies for determining when construction materials are "Made in America" so that projects funded in the near future can boost the use of U.S. goods while the administration seeks further input from affected stakeholders to develop more lasting standards.

NPCA supports these objectives and emphasizes the need to transition to new policies when supply issues are not weak. However, during times of supply chain struggles and limited availability of raw materials, waivers must be provided for construction demand under the IIJA.

In April, NPCA President and CEO Fred Grubbe signed a joint letter with PCI to OMB and to FHWA asking to maintain the inclusion of precast materials under Buy America and to respect the exemption of cementitious materials that is provided in the Build America, Buy America sections of the IIJA.

Buy America

Buy American

Build America, Buy America

Historically, these three terms mean slightly different things. In modern colloquial usage, though, they describe a singular policy to require U.S. made materials from U.S. manufacturing facilities in federally funded projects.

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/plant-resources/technical-services.

CHUCK ASKS:

HOW IS SCC (SELF-CONSOLIDATING CONCRETE) DEFINED BY SPECIFIERS? PARTICULARLY, ARE VISCOSITY MODIFYING ADMIXTURES NECESSARY TO BE INCLUDED?

NPCA TECHNICAL EXPERTS ANSWER:

With regard to what defines SCC, a good source is ACI's web page of standards, codes and articles about SCC, found here: Concrete.org/topicsinconcrete.aspx.

The definition of SCC is taken directly from Section 1.1 of PRC-237, formerly ACI 237R, and reads: "Self-consolidating concrete (SCC) is highly flowable, non-segregating concrete that can spread into place, fill the formwork and encapsulate the reinforcement without any mechanical consolidation. In general, SCC is concrete made with conventional concrete materials and, in some cases, with a viscosity-modifying admixture (VMA). SCC also has been described as self-compacting concrete, self-placing concrete and self-leveling concrete, which all are subsets of SCC."

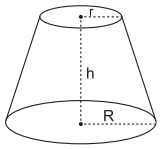
Note that while VMAs are mentioned, they alone do not define what constitutes SCC. Rather, it is merely the physical properties or behavior of the plastic concrete that is used to define SCC.

Granted, that definition does not make it explicitly clear what constitutes "highly flowable" concrete. We must delve into the ACI and ASTM specs a little further for that answer.

Starting with ASTM C143, the venerable slump test, the user is warned in Section 4.3, Note 2 that, "Concretes having slumps greater than about 9 inches (230 mm) may not be adequately cohesive for this test to have significance."

Truncated cone

Height (h)	12 in.
Base radius (R)	4 in.
Top radius (r)	2 in.

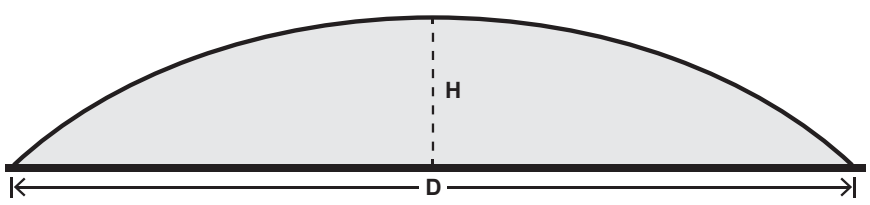


Volume 352 in.^{3}

Since ASTM C1611 on slump flow measurement conversely does not define a range of slump flow diameters, we must refer to ACI PRC-237 Section 8.2.2, where we learn that, "A common range of slump flow for SCC is 18 to 30 in. (450 to 760 mm)."

This is intuitively correct since, if one were to take the volume of the slump cone and convert that same volume to a dome shape 3 inches tall, the smallest the base diameter could possibly be is 17 inches. And we intuitively know that the resulting pile of concrete, be it SCC or otherwise, would not be perfectly dome-shaped but would be even flatter and wider at the base.

Diameter (D)	Height (H)
17 in.	3 in.



Volume 352 in.^{3}

Same volume, two different shapes. The amount of concrete inside a standard slump cone would require at least 17 inches of floor space if it were reshaped into a perfectly geometric dome that is 3 inches tall.

KAREN ASKS:

ARE THERE ANY CHANGES TO THE LATEST EDITION OF THE QUALITY CONTROL MANUAL FOR PRECAST CONCRETE PLANTS THAT ARE CURRENTLY UNDER REVIEW REGARDING THE DEFINITION OF SCC?

NPCA TECHNICAL EXPERTS ANSWER:

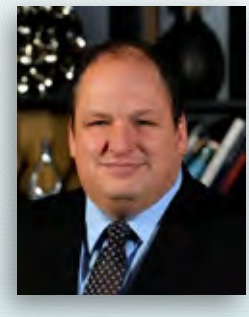
Regarding the latest edition of the NPCA's Quality Control Manual for Precast Concrete Plants, the QA/QC Committee made some changes to the 16th Edition of the QC Manual for 2023 to address SCC.

A PDF document available at Precast.org/certification/quality-control-manual outlines the changes. Additions have been made to the Commentary of Sections, and 3.1.1.1, 3.1.1.2, 5.3.1.1 and 5.3.1.2 have been added the new edition, which was finalized in February.

When self-consolidating concrete (SCC) dries, there is no discernible difference in the look of the finished product from traditional precast concrete.

Environmental Product Declarations

EPDs TELL THE LIFE CYCLE STORY OF A PRODUCT IN A SINGLE, COMPREHENSIVE REPORT



By Claude Goguen, P.E.

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

Ask precast concrete products manufacturers about concrete strength, water-to-cementitious ratio or air content, and they immediately can provide accurate details.

Ask for a product's global warming potential and expect a puzzled look.

While strength, durability and cost remain important numbers for specifier selection criteria, global warming potential (GWP) likely will soon join that select group.

Case in point: Starting July 1, the Colorado Department of Transportation is requiring GWP data in the form of type III product specific environmental product declarations (EPD) for precast concrete products – one of many authorities requiring the data.

REGULATIONS AND TRANSPARENCY

Sustainability-related initiatives and regulations are nothing new. Demand for this has ebbed and flowed for decades. Some affect precast concrete manufacturers, specifically those who supply to building construction projects.

Precasters supplying to the underground infrastructure sector typically avoided these regulations, but those days are over. The tide is coming in fast, and it is targeted at underground and transportation infrastructure products.

There is a growing push asking for increased transparency and newfound limitations on the sustainable impacts of construction products. In December 2021, significant progress was achieved. That is when President Biden signed Executive Order 14057, titled Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability.

This order focuses on five primary goals, including one most significant for the precast concrete industry: net-zero emissions from federal procurement no later than 2050, including a Buy Clean policy to promote use of construction materials with lower embodied emissions.

LOW-CARBON DIET

The key word within this initiative is "carbon."

Carbon emissions. Low-carbon materials. Carbon footprint. Embodied carbon. We have all heard these terms, and there is no doubt this chemical element is the target.

To be precise, the target is carbon dioxide, the primary greenhouse gas (GHG) that traps heat in the atmosphere.

Carbon and other gases, including methane and nitrous oxide, absorb heat at different rates. GWP measures how much energy the emissions of 1 ton of a gas absorbs over a given time relative to the emissions of 1 ton of CO_2. The larger the GWP, the more a gas affects the Earth's temperature compared to CO_2. GWP of a given material is expressed in equivalent kilograms of CO_2 or kg CO_2 eq.

CO_2 is naturally present in the atmosphere, but human activities continue to add a considerable amount. The combustion of fossil fuels – such as coal and natural gas – and fuel-burning transportation are the main contributors of human generated GHGs.

Industrial processes such as cement production also contribute, primarily from two sources: fuel combustion to heat kilns and calcination, a chemical reaction resulting from heating certain raw materials.

Cement production often is mentioned when discussing industrial emissions. However, when considering only industrial processes, it is far from the greatest source. According to a 2020 Environmental Protection Agency study, cement accounts for less than 3% of U.S. CO_2 emissions, well below other materials such as petroleum (21.8%), chemicals (22.2%) and iron/steel (9%).

Nonetheless, through its inherent use of cement, concrete has become one of the main targets in Buy Clean legislations and related regulations.

Government authorities obtain information on a construction material's GWP through a standardized report that has been around for many years: the environmental product declaration – or EPD.

Percent of U.S. CO_2 Emissions by Material:

Cement	>3%
Petroleum	21.8%
Chemicals	22.2%
Iron/Steel	9%

Source: 2020 Environmental Protection Agency study

WHO IS REQUIRING EPDs?

On a federal level, the U.S. General Services Administration (GSA) was the first government entity to implement GWP-related standards. In March 2022, a memorandum issued by the GSA announced the implementation of new national standards for low embodied carbon concrete and environmentally preferable asphalt.

The new standard calls for contractors to provide product-specific cradle-to-gate Type III EPDs for each concrete mix design specified in the contract and used at the project. The requirements apply to all GSA projects that use at least 10 cubic yards of concrete. Precast is not specifically mentioned in the language.

On a state level, the aforementioned Colorado DOT currently is requiring type III product-specific EPDs for concrete used on projects with an estimated cost of $3 million or greater. Precast concrete structures such as manholes, pipe and box culverts will be added to that requirement on July 1. California, Washington, Oregon, Massachusetts and Georgia have similar policies in place, and more states are close behind.

On a county level, King County, Wash., wrote its 2020 Strategic Climate Action Plan with commitments for specifying low-carbon materials in the county's capital projects. That plan specifically mentions concrete. This year, the county will require EPDs for concrete. By 2024, it will require a maximum global warming potential for all concrete products.

THE ABCs OF EPDs

The first step in getting a plant- or product-specific EPD is to conduct a life cycle assessment (LCA) of the facility's processes and

A growing number of local, state and federal procurement policies require EPDs for reporting the embodied carbon of eligible products.

NPCA FILE PHOTO

products. This assessment takes data supplied by the manufacturer and converts it into impacts. The data is taken from a 12-month period, usually the preceding calendar year, and is broken down into three main categories:

- **PRODUCT.** Quantity of materials used from cement to reinforcing to form release to water. This also includes the amount of products that are manufactured at the precast facility.
- **ENERGY.** How much energy is consumed to make the final precast structure? From electricity to power the plant to the fuels used in the fork trucks.
- **WASTE.** How much waste is generated during the manufacturing of the precast structure? This includes wastes sent to landfill, recycling facilities and incinerators.

The resulting LCA report can be long and complex, so an EPD serves as a summary for all or specific products breaking down the data to the essential information jurisdictions are seeking. Life cycle assessments are written according to certain parameters and conditions that are laid out in another document – a product category rule (PCR).

A PCR addresses specific products and is created and maintained by a committee. There are PCRs for reinforcing steel, cements, ready mix concrete and precast concrete.

EPDs are defined by International Standards Organization 14025 as "quantifying environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function."

Think of an EPD as a nutrition label, such as one on a cereal box that defines serving size and amounts of calories, fat and sugar. This enables a consumer to compare different products based on dietary impacts.

SOURCE: THINK EPD, A DIVISION OF THINKSTEP ANZ

In a similar way, an EPD is a standardized list that defines a product in terms of volume or weight unit along with environmental impacts such as acidification, smog creation potential and global warming potential.

With nutrition labels, dieters may focus specifically on one indicator, such as calories. With EPDs, jurisdictions most often are interested in global warming potential over other indicators.

NOT ALL EPDs ARE THE SAME

There are different types of EPDs. Type II EPDs are self-declared and require no verification. Type III are third-party verified EPDs, and those are required within the construction industry.

Within Type III, there are varieties based on scope.

- **Industrywide EPDs.** In 2015, NPCA partnered with PCI and CPCI to create industrywide EPDs based on information supplied by members of all three associations. Representative North American EPDs were created for three categories: underground products, aboveground structural and architectural/insulated wall panel.

CO_2 is naturally present in the atmosphere, but human activities continue to add a considerable amount. The combustion of fossil fuels – such as coal and natural gas – and fuel-burning transportation are the main contributors of human generated primary greenhouse gases.

- **Facility-specific EPDs.** These are based on data from every product manufactured in one plant or a group of plants owned by the same company in one geographic location. Depending on product diversity and manufacturing methods, multiple facility-specific EPDs would be needed. For most NPCA members, one EPD should cover all products.
- **Product-specific EPDs**. These are the gold standard. Based solely on data from a product's materials and manufacturing, this EPD covers multiple sizes for manholes, box culverts sound walls, etc., as long as the functional unit is based on cubic yards or tons of concrete used.

Type III product-specific EPDs predominantly are required by jurisdictions.

Life cycle assessments and EPDs also are written for specific stages of a product's life cycle. For precast concrete, that assessment summarizes raw materials extraction and manufacturing, shipping materials to a facility, manufacturing, storage, shipping products to a job site, installation, usage and disposal.

The life cycle of a product is divided into four main categories:

- **Product stage**
- **Construction process stage**
- **Use stage**
- **End-of-life stage**

Product Stage			Construction Process Stage		Use Stage							End-of-Life Stage				Benefits and loads beyond the system boundary		
Raw material supply	Transport	Manufacturing	Transport to building site	Installation into building	Use/application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D

Chart 1

The phases under a manufacturer's control end at the time a precast product ships. Once in the contractor's hands, a precaster has no official "control" over its installation, use and end of life.

That is why scope is cradle-to-gate, meaning the precast facility's gate. Impacts are measured from raw material extraction and manufacturing to storage.

The omission of these later stages in a precast product's life cycle leaves out the most sustainable attributes of precast concrete:

- **Local availability.** Reduced transportation compared to alternative material products.
- **Ease of installation.** Reduced site impacts and schedules.
- **Durability.** Length of use phase that far exceeds other materials.
- **Low maintenance.** Related to durability but lowers impact related to repair and replacement.
- **Resilience.** Holds up to natural and man-made disasters better than other materials.
- **Carbon uptake through carbonation.** Natural process when concrete reacts with CO_2 in the air and removing it from the atmosphere. (Can absorb 100% of the CO_2 emitted due to calcination in the cement manufacturing process for the amount used in the product.)
- **Recycling.** Precast concrete structures can be crushed and recycled at end of life for other uses.

Why would precast concrete manufacturers not include the most relevant stages in concrete's sustainable performance? Unfortunately, these later stages are not in the manufacturer's control.

But be assuaged. The intent is not to use EPDs to make material choices. It is to gather data, benchmark and to foster improvement.

GETTING AN EPD

If all of this sounds daunting so far, fear not. While the process of getting to a final verified EPD involves many parties and processes, NPCA is prepared to assist members through every step. The process starts with getting a life cycle assessment conducted on an entire precast facility.

Even though EPDs may only be required for certain products such as manholes or retaining walls, all products made at the facility must be considered for the assessment. NPCA can guide members to third parties who require data to write the assessments.

NPCA already has an EPD survey created on an Excel format to help members gather the data. NPCA members also have access to an on-demand video presented by Emily Lorenz, an independent consultant and expert in LCAs and EPDs. Lorenz provides


NPCA FILE PHOTO

background and goes through the steps on the spreadsheet to enter the appropriate data.

Chart 2 below is an excerpt from the spreadsheet. First, total tonnage of precast products produced in 2022 is entered in the appropriate categories. These categories are defined on the first page of the spreadsheet. Yellow cells indicate where data must be entered.

For this example, the plant makes retaining walls and architectural fence panels as well as utility, stormwater and sanitary structures.

A. LOCATION AND PRODUCTION DATA

IN THE YELLOW CELLS BELOW, ENTER THE LOCATION AND PLANT PRODUCTION DATA.

Select a location from the drop down list.

#	Location	Location	
1	Plant Location	Connecticut	Units
	Production Data	Amount	
2	A-Structural Products	45.00	short ton
3	B-Architectural Products	10.00	short ton
4	C-Insulated Architectural Products	0.00	short ton
5	D-Underground Products	450.00	short ton
	Total Production for Specified Reporting Period	505.00	short ton

Chart 2

For one of the cements, the plant used 200 tons, and it was delivered by truck from a cement plant 89 miles away. The 200 tons is entered along with the distance under the appropriate mode of transport. All other cements used also must be included.

PORTLAND CEMENT SOURCES

IN THE YELLOW CELLS BELOW, ENTER THE TOTAL QUANTITIES, LOCATIONS AND TRANSPORTATION DISTANCES AND MODES OF CEMENT SOURCES, FOR THE "Plant Inputs" WORKSHEET.

Define the locations, masses and transportation modes and distances of each cement source.

							One-way Distance from Material Source to Plant by Transportation Mode					
#	Material	Source Location	Amount	Units	Masses	Units	Truck	Rail	Ocean	Barge	Read This	Units
1	Portland Cement Source #1	Connecticut	200.00	short ton	200.00	short ton	89.00				MS	mile
2	Portland Cement Source #2	Insert Location		short ton	0.00	short ton					MS	mile
3	Portland Cement Source #3	Insert Location		short ton	0.00	short ton					MS	mile
4	Portland Cement Source #4	Insert Location		short ton	0.00	short ton					MS	mile
				Total	200.00	short ton	89.00	0.00	0.00	0.00		mile

Chart 3

This plant uses electricity from the grid as well as gasoline, diesel and some heavy fuel oils.

C. PRECAST CONCRETE PLANT OPERATING ENERGY CONSUMPTION

IN THE YELLOW CELLS BELOW, ENTER THE PLANT OPERATING ENERGY CONSUMPTION DATA FOR THIS REPORTING PERIOD.

Define the operation and maintenance data for the precast concrete plant.						Global Warming Potential (CO_2e)	Total Primary Energy Consumption	Per Short Ton of Precast	
#	Energy Type	Amount	Units	Per Short Ton of Precast		short ton	MMBtu	lbs/short ton	MBtu/ short ton
1	Purchased Electricity (from Regional Electricity Grid)	30,000	kWh	59.4	kWh/short ton	20.8	352.6	82.2	698.2
2	On-site Generated Electricity – Solar	0	kWh	0.0	kWh/short ton	0.0	0.0	0.0	0.0
3	On-site Generated Electricity – Wind	0	kWh	0.0	kWh/short ton	0.0	0.0	0.0	0.0
4	On-site Generated Electricity – Hydroelectric	0	kWh	0.0	kWh/short ton	0.0	0.0	0.0	0.0
5	On-site Generated Electricity – Geothermal	0	kWh	0.0	kWh/short ton	0.0	0.0	0.0	0.0
6	On-site Generated Electricity – Biomass	0	kWh	0.0	kWh/short ton	0.0	0.0	0.0	0.0
7	Gasoline	2,800	gallon	5.5	gallon/short ton	29.6	422.1	117.1	835.9
8	Natural Gas	0	ft3	0.0	ft3/short ton	0.0	0.0	0.0	0.0
9	Diesel	1,200	gallon	2.4	gallon/short ton	15.9	202.4	63.0	400.8
10	Heavy Fuel Oil	130	gallon	0.3	gallon/short ton	2.0	23.9	8.1	47.3
11	LPG (Liquified Propane Gas)	0	gallon	0.0	gallon/short ton	0.0	0.0	0.0	0.0
					Total	68.3	1,001.0	270.4	1,982.1

Chart 4

Once all data is entered, the third-party service writes the life cycle assessment. Once that is done, EPDs are written using the same software. The EPD must then be verified by an approved third-party verifier. Some product-specific EPD software can be preverified.

Once the EPD is verified, it is ready to be submitted to the contractor or authority. The good news: EPDs are valid for five years.

NOT OVER YET

Once an EPD is written and submitted, work is not over. Most jurisdictions, including the Colorado DOT, are just looking for disclosure at this point. There is no failing grade. Just submit your numbers. However, by 2025, the policy dictates that CDOT must establish a benchmark based on the accumulated data since 2022. That means products will have to be at or below certain global warming thresholds.

The General Service Administration skipped the data gathering and went straight to the benchmark. For a standard mix concrete with a specified compressive strength from 4,500 to 5,499 pounds per square inch, the maximum GWP per 385 kg/m^3 CO_2 eq. (648.94 lbs/yd^3 CO_2 eq).

How will facilities measure up to these benchmarks? They won't know until they figure out where they are now. It's like stepping on the bathroom scale.

Precast manufacturers may have to evaluate their production process and see where they can trim impact. Strategies include buying local when possible, enhancing production efficiencies, implementing plans for energy reduction and cutting down waste. Along with helping a product qualify for a Buy Clean policy, this also could save the plant on costs. Getting an EPD written is the first step in a significant facility improvement.

Having an EPD in hand also could lead to expanding markets. These policies will evolve from simple disclosure of product GWP-related information to targeted reductions to qualify that product for use.

Precast concrete is positioned to take advantage of these requirements since mixes can be modified to reduce GWP by using numerous strategies, including use of supplementary cementitious materials (fly ash, slag), admixtures to lower cement demand, carbon capture and other evolving technologies. Competitors to precast concrete such as steel and plastic are not as easily modified to reduce GWP.

Some work up front that could pay off in many ways. Regardless of where legislation is in your state, get started now and gather the data.

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Producing Self-Consolidating Concrete: Where to Start?

AS WITH MOST TECHNOLOGY, A SOLID PLAN AND THOROUGH TESTING TAKES THE APPREHENSION OUT OF CHANGE

By Terry Harris

Terry Harris is an ACI Fellow and the technical services director at Chryso and GCP.

Self-consolidating concrete – commonly referred to as SCC – has been available throughout North America for more than 20 years.

SCC is a highly fluid mixture designed to flow and consolidate under its own weight. The mix is cohesive and capable of filling spaces without bleeding. By now, most people in the precast concrete industry are aware of SCC's benefits versus standard slump concrete.

But for those still contemplating whether to make the move to SCC, there are measures to consider.

EQUIPMENT, MATERIALS AND OPERATIONS

The first step is a plant evaluation to determine what, if anything, is needed for transition. NPCA and its members can be a resource here alongside chemical admixture suppliers.

MIXERS AND MIX DESIGN

Paste loss from a leaking mixer can cause significant issues, so mixers need to be leak-free to produce SCC as SCC's viscosity can be significantly lower than slump concrete.

Mixes also may require a higher powder content than traditional concrete, which results in a lower water-to-cement ratio. So, mixers must be capable of handling these types of mixtures.

QUALITY CONTROL

SCC typically is more sensitive to changes in water content, so regular moisture checks on aggregates are required to ensure adequate control.

As a facility transitions to SCC, the frequency of testing plastic properties initially increases to ensure that the mix is performing consistently and to evaluate the mix robustness.

DELIVERY METHODS

Leaking buckets, tuckers, hoppers, chutes and other forms of conveyance can cause serious issues for SCC production.

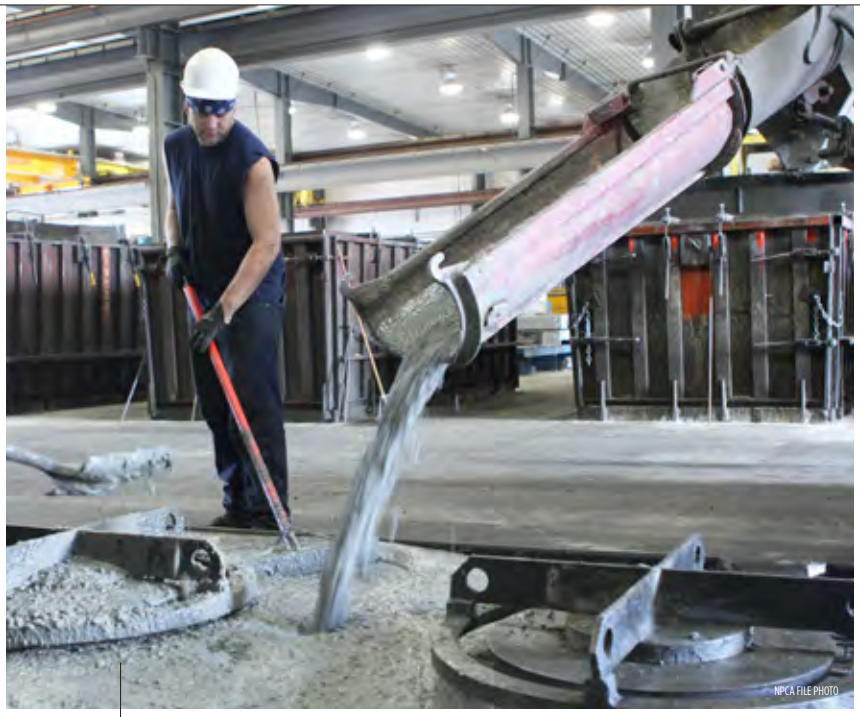
Early on for SCC pioneers, one of the biggest issues was leaking forms. Even if everything else is perfect, SCC placed into leaking forms leads to ugly, hardened concrete with paste bleed at the corners, resulting in severe honeycombing.

AGGREGATE

In most cases, the materials a plant currently uses to make concrete will work for producing SCC. A typical exception is coarse aggregate. Where a plant may be using a

During a spread test, the viscosity of the SCC mixture can be estimated by measuring the time taken for the concrete to reach a certain spread diameter from the moment the slump cone is lifted.

NPCA FILE PHOTO



Evaluating how long a mix remains in the placeable range could be different for each plant. It may even vary within a plant for different types of production.

1-inch or 3/4-inch aggregate, often a ½-inch or 3/8-inch coarse aggregate works better.

Fine aggregates certainly play a significant role in SCC production success, and, in general, the sand a plant already uses typically works.

Work alongside an admixture supplier on a paper evaluation for aggregate properties. Current and 30-day average gradations that include specific gravity, absorption and shape along with any deleterious materials such as mica or clay allow an experienced SCC practitioner to provide a reasonable evaluation.

CEMENT

While cement fineness plays a role in SCC stability, few cements are incompatible with SCC.

Additional powders such as slag, fly ash, silica fume, natural pozzolans, metakaolin and ground glass pozzolans all have various impacts on SCC properties and should be tested at early stages of incorporation.

ADMIXTURES

Chemical admixtures play a vital role in successful SCC production, and admixture suppliers are the best resource to determine what is appropriate.

A polycarboxylate-based HRWR is required to produce a robust SCC mixture. A viscosity or rheology modifier also may be required with some aggregate combinations or if lower powder contents are desired.

WHAT DO I NEED?

Facilities starting down the road with SCC won't know everything at the start. Like most transitions, experience is the best educator.

- What slump flow do I need?
- How much slump flow life do I need?
- What about air content?
- How about strength?

These are standard questions for any mix, and some may not have an obvious starting point based on a plant's history with SCC. Suppliers and fellow NPCA members can offer guidance on these questions based on what pieces are being produced.

The slump flow question is important because proportioning for a 22-inch slump flow results in a different mix than proportioning for a 30-inch slump flow. The key is to proportion the mix for what is needed.

The mix cost can increase significantly when comparing a 30-inch flow to a 22-inch flow, and the difficulty of producing a consistent mix likely increases for high slump flows.

Evaluating how long the mix remains in the placeable range is important and will be different for each plant. It may even vary within a plant for different types of production.

Once a targeted slump flow is identified, ACI 237 offers information for powder contents required to produce a robust SCC mixture.

STRENGTH AND WATER-TO-CEMENT RATIO

The next step is to make sure that strength and water-to-cement requirements are met using the powder content. The water required to produce an SCC mixture may be different than the amount used to produce slump concrete, but for mix development, start with the same water content.

Once the powder and water contents are determined, the target air content is determined.

A proportioning tool that shows workability, mix coarseness and a graphical representation of the combined aggregate gradation then determines aggregate contents is helpful. If such a tool is not available, use a simple spreadsheet.

There are a variety of available tools that allow a proportioner to see the paste content, mortar content and other key mix attributes before conducting the first trial batch.

Start with three or four different mixtures, then run them all in a laboratory mixer to see how they perform.

"See" is a key word, because looking at the mix while first in the mixer and then in the wheelbarrow after sitting are necessary

NPCA FILE PHOTO

Run trial batches of the size expected during production, starting with the same material sequencing as already established.

to properly evaluate the mix and all of the plastic properties. Don't overlook mix viscosity as mixtures with a lower T20 tend give a better formed finish.

INITIAL FLOOR TESTING

Once lab trials achieve satisfactory results, the next step is to run a trial batch through the plant mixer.

The key here: Do not go straight from the lab mixer to production. The mixing action is significantly different in the plant mixer than in the lab, admixture efficiency may be different, and the time to have a stable mix may differ in the plant mixer versus the lab.

Run trial batches of the size expected during production, starting with the same material sequencing as already established. If it is possible to safely do so, visually check the mix for thoroughness and stability to determine the amount of mix time needed.

There is no magic mix time nor is there a perfect material sequence. There are only standard recommendations.

NO NEED TO RUSH

If the first production trial batch meets all of the requirements for slump flow, slump flow life, air, unit weight, stability, it is time to cast some product. If the mix is unsatisfactory, go back to the lab mixer and make adjustments. If it only needs some minor changes, then make the tweaks and run the trial.

If major changes are required, the best practice is to go back to the beginning and put together three or four mixtures to evaluate. But remember, fellow NPCA members are here to help. Do not hesitate to ask for help in troubleshooting. All of us had to start somewhere, and all of us needed help.

Once the mix is right, it is time to evaluate delivery and placing processes. Many publications, including ACI 237, offer guidance on placing SCC.

Be aware that the appearance of bug holes, sand streaking and other surface blemishes will be affected by the process.

Take videos to evaluate each production process step – from batching, discharge, delivery and then placement. This will show where in the production process that things went awry.

And remember: No matter how good an SCC mix is, excessive form oil can cause bug holes and possible discoloration. While placing the concrete observe:

- **How far the concrete is flowing from the point of placement.**
- **Whether there is any blocking or segregation.**
- **The discharge speed.**
- **How high each lift is.**
- **Foaming or other signs of segregation.**

It is important to check forms 10 to 15 minutes after placement to make sure the mix remains stable. With SCC, the proof is truly in the pudding – or in this case, in the hardened concrete. Properly proportioned, mixed and placed SCC into clean, lightly oiled non-leaky forms provide a better-formed finish than slump concrete.

And as with every step along the way, keep testing and try things out. Along with all of the standard tests, good spot checks for an SCC mixture include slump flow, J-ring, column segregation, rapid assessment of static segregation and VSI. It also is important to determine how long the slump flow life is for a mixture as this may change as materials and ambient conditions change.

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Reading Shop Drawings

By Hugh Martin, P.E.

Hugh Martin, P.E., is the director of technical resources at NPCA.

Owners and managers need to ensure the time necessary to train personnel on the proper use and interpretation of shop drawings.

A picture is worth 1,000 words.

In precast concrete engineering, it easily could require 1,000 words to describe a single object in detail.

And that is assuming the reader and the author both speak the same technical language.

Instead, engineers use singular markings to illustrate universal ideas, describing them in mere instants, regardless of commonality between author and reader. This applies to items that we can either see or visualize.

The power of a visual representation to replace a multitude of words and phrases is common in precast concrete shop drawings and necessary to efficiently communicate important details.

DETAILED PLANS FOR DETAIL-ORIENTED PEOPLE

When manufacturing full-scale products for sale in the marketplace, particularly products that weigh several tons and require heavy machinery for handling, shipping and installation, it is vitally important to have a detailed and accurate plan for fabrication.

In the hustling world of precast concrete manufacturing, producers are hard-pressed to shorten the drawing-creation step as much as possible, sometimes even eliminating it altogether.

Yet for products that require so many resources to produce, detailed plans are a crucial step in the process. Properly prepared shop drawings with thoughtfully selected views, drawn to a practical size or uniform scale with crucial information such as dimensions, tolerances and weights take time to deliver but save days in the overall job cycle.

Here is a good thought experiment.

Draw a circle on a sheet of paper, then ask several people to name the object the circle represents.

Some will see a ball. Others, a ring. Still others, a coin or a disk – even the end of a circular column or solid bar. Without another view showing the third dimension, it is impossible to know.

For maximum usefulness, a shop drawing must depict a fabricated product in at least three dimensions: length,

width and depth. And at a minimum, shop drawings should include at least two views:

- **A plan view** either from top down or the primary view along its long axis.
- **A profile view**, or elevation view, that captures the third dimension, usually from the side looking horizontally.

If the drawn object's makeup cannot be accurately determined from only two views, add additional views – usually side views or end views – to provide clarity and eliminate ambiguity.

The more profile views there are, the easier it becomes to visualize the final product, but that also requires more space on the drawing page.

MAKE GOOD USE OF SPACE

It can be a struggle for a designer or drafter to balance the amount of information needing to be conveyed with the amount of space available on a page.

Ø or DIA	Diameter
EL	Elevation
℄ or CL	Centerline
F℄ or FL	Flow line
TYP	Typical
LF	Linear Feet
OC	On-Center
OCEW or OCBW	On-Center Each Way / On-Center Both Ways
TC	Top of Casting (also Top of Curb)
INV	Invert
MIN or MAX	Minimum or Maximum
CLR	Clearance
CVR	Clear Cover
NTS	Not To Scale
STA	Station
DS	Downstream
US	Upstream

Chart 1 – Common symbols and abbreviations

This especially is true for software systems that automatically generate their own shop drawings with only a plan view and a single profile view.

This limitation can, in turn, make reading those shop drawings challenging, such that further training is necessary to become more familiar with the format of a particular program's output drawing.

It often is tempting to take whatever drawing is available, usually an isometric catalog drawing, and repurpose it as a shop drawing. However, even with a judicious use of sections cuts, at least two walls are partially hidden from view with some of the product viewed from the outside and some viewed from the inside. This causes confusion.

Arguably the best format for precast shop drawings is a variation of the standard multiview projection format used in machine drawings. Profile views in precast shop drawings usually show each side of the product in the vertical orientation with each side being depicted on the drawing in the same orientation in which it is being manufactured on the plant floor. Whereas, in a true multi-view projection, profile views are orthogonal to the plan view, that is, aligned with and adjacent to the plan view so some profile views are actually shown sideways or upside-down on the page.

Orthographic projections are a way of representing three-dimensional objects by several two-dimensional views. This method works well for certain types of manufacturing, but in a precast concrete plant environment, turning a drawing multiple different directions in order to orient the drawing with the product can be tedious and can lead to mistakes.

THE BUTTERFLY EFFECT

Some manufacturers use another variation of an orthographic projection, colloquially referred to as a "butterfly layout drawing." In a butterfly layout, each wall is shown as having been folded flat yet still attached to the horizontal slab, either the top slab in the case of a top section or the bottom slab in the case of a base section. This type of layout drawing is relatively easy to automate with software, making it a favored format for some

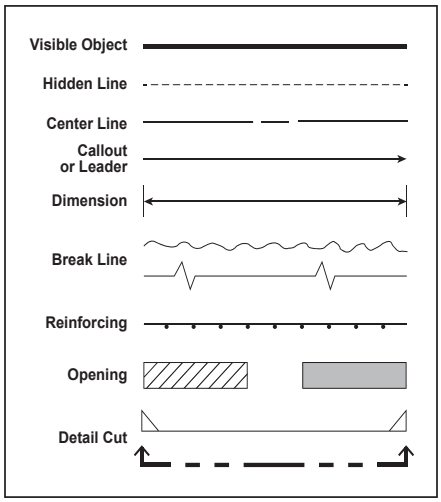


Chart 2 – Common line weights and types

software programs.

One of the main problems with this drawing format is that all the openings and cast-in elements are shown from the inside-looking-out perspective, where in actuality, forms or molds are prepared from the outside-looking-in perspective.

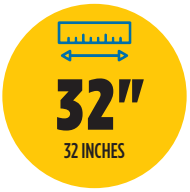
Sometimes, workers using this type of shop drawing can be seen holding it up to the light, looking through the back of the page so that the objects' orientation on the page matches the same objects' orientation on the formwork. It is easy to see how this can lead to mistakes and increased setup time unless each user is trained to recognize and interpret how these drawings match the actual formwork.

Regardless of the layout type or orientation, shop drawings contain all the details necessary to produce a final product.

They include such things as dimensions, locations of openings, types and locations of embedded items or hardware, fabrication tolerances, handling weight, connection details, materials needed, design details such as the design concrete strength and what type and quantity of reinforcement is needed.

They also contain any special instructions needed for fabrication, such as special coatings or hardware that are needed for the product to function properly. Like most fabrication drawings, they should follow a universally accepted set of rules regarding line thicknesses,

Know your measurements. Both are correct!



Two people looking at the same drawing may read it differently based on their backgrounds. That is why it is imperative to use universal markings whenever possible.

line types, text size and style, hatching, shading, abbreviations, common symbols and phrases.

Make sure to learn what these standard rules and conventions are and what they mean.

DIFFERENT SYSTEMS FOR U.S. AND ABROAD

Outside the United States, both engineering and shop drawings follow the International System of Units. Within the United States, a reader also must be able to recognize two other U.S. customary scales.

Most U.S. engineering and construction drawings received from project owners are drawn to the Engineer Scale in tenths of a foot to match surveyors' instruments. Shop drawings, however, should be drawn and dimensioned using the Architect's Scale to match the common U.S. customary tape measure.

Some shop drawings show dimensions in feet and inches while others depict only inches.

For example: 2'-8" versus 32" (2 feet, 8 inches vs. 32 inches).

Both are correct. The advantage to showing only inches is that it matches the numbers on the tape measure. The disadvantage is that an overall sense of scale can be lost. Most people are not able to tell how many feet are in 168 inches without stopping to do the math but have no problem visualizing a length of 14 feet.

Some shop drawings do not match any scale at all. Such drawings should have NTS or Not To Scale somewhere on the page, usually in the title block with the other project information. Another issue in this age of photo-realistic scanners and printers, the scale listed on the drawing may not be accurate because of multiple cycles of scanning and duplication over multiple revisions.

USE COMMON SENSE BUT DON'T ASSUME

Manufacturing tolerances, vital to ensuring the finished product conforms to specifications, should be included in every drawing. If dimensional tolerances are not shown on the shop drawing, make sure to check the plant-specific quality control manual for all applicable tolerances to the dimensions shown. Typically, dimensional tolerances used for formwork setup should be about half as much as the tolerances for the finished product.

Since precast concrete products are designed to be handled and moved by heavy equipment, individual section weights should be listed prominently on the shop drawing. Make sure all lifting inserts cast into the product and equipment used for handling are properly sized. Even though others likely will have reviewed the shop drawing before it was approved for use in fabrication, it is best not to assume the product weights have properly been checked.

In fact, it is best not to assume anything when it comes to safety.

For instance, if a product weight is listed as 12,000 pounds, but it required four cubic yards of concrete to pour, the weight listed on the drawing clearly is not correct since one cubic yard of concrete weighs about 4,050 pounds. Knowing the product weight is important not only for safe handling but also for shipping to make sure trucks are not inadvertently overloaded.

Drawing scale, tolerances and material weights are especially important when it comes to the size and spacing of reinforcing steel, particularly rebar. The spacing between bars is the on-center (OC)

dimension, whereas longitudinal distances between bar bends are measured to the outside surface of the bar.

Pay particular attention to the spacing tolerances between bars to ensure the correct total number of bars are tied to the cage, and make sure handling equipment is properly sized to lift and move the fully assembled cage from the fabrication area to the production area.

On the profile view of reinforcing drawings, readers may sometimes count the dots on a reinforcing section and notice that the number does not match up with the same quantity of bars shown in the plan view. In another example, a reader may notice an object in one view but notice the same object missing in an adjacent hidden view.

When there are conflicts between different views on a drawing, always first try to get the correct information from the drawing's creator. In general, though, object lines should take precedence over hidden lines or dots in adjacent views.

For a reader, experience is the best teacher. Building familiarity with a company's documentation goes a long way toward making the reading of a particular style of shop drawings easier over time.

COMMUNICATION HELPS AVOID CONFUSION

These are just a few practical tips for reading shop drawings. The importance of training for a specific manufacturing operation cannot be overstressed. Every manufacturing environment is different, and every manufacturer has its own preferred drawing format.

Just ask any of the consulting companies that provide drafting services for our industry. Owners and managers need to ensure the time necessary to train personnel on the proper use and interpretation of shop drawings.

For a reader, experience is the best teacher. Building familiarity with a company's documentation goes a long way toward making the reading of a particular style of shop drawings easier over time. If there is ever any question about what is being depicted on the page, never assume. Ask.

While stopping to ask questions may slow down the manufacturing process, it is much more important that the product be made right the first time.

The goal in any communication is to make all expectations as clear as possible, whether through words or though pictures, especially in business. Shop drawings are an effective and universally understood way of communicating those expectations to others.

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The Role of QC

AT A PRECAST CONCRETE FACILITY

By Scott Crumpler

Scott Crumpler is the senior manager of quality assurance/quality control at Concrete Pipe & Precast.

A quality control department is an important element in any precast concrete manufacturing operation.

Considering the potential pitfalls that can affect a plant due to faulty or out-of-specification product, it quickly becomes clear that an effective, well-trained and well-equipped QC team is not just necessary but essential.

A robust QC department develops over time. How much time it takes depends on a few factors: the complexity of the product line, the demands of state and local oversight elements and the plant's dedication to being compliant.

Along with a plant's product line, its manufacturing styles affect the necessary elements needed to get a QC department up and running. Every plant requires the ability to make and evaluate concrete test cylinders. That is the industry standard to measure the effectiveness of our design and batching operation.

This process drives the need for cylinder molds and lids, wheelbarrows, scoops and a place to store the fresh cylinders overnight. The next morning, the molds are stripped, requiring a stripping tool and a hammer. Cylinders not tested that day for overnight strengths need to be stored in an environment consistent with how the plant's products are stored, most commonly storage racks or open-faced cabinets.

Compression tests can be done internally or subbed out to a third-party lab, but that can get expensive over time.

For a dry cast operation, cylinders are still needed, but the process and equipment are different. A vibrating table is necessary to properly compact the low slump concrete into a cylinder mold along with weighted discs to help consolidate the concrete. The rest of the process, including compression testing, is the same as for wet cast cylinders.

The other essential element of concrete testing is air testing. Control of entrained air in concrete is critical to success. It is essential that every QC department has the equipment to perform this test. This test is something that must be done onsite at the mixer and is not an element that can be sent off to a third party.

Other tests include:

- **Concrete temperature**
- **Ambient temperature**
- **SCC slump flow and VSI testing**
- **Slump tests for standard slump concrete**

Unit weight tests can be performed with an air pot and a scale.

Other advanced SCC testing includes:

- **J-ring tests**
- **Static segregation tests on initial qualification**, which is requested by many state departments of transportation. Equipment for this can be shared or borrowed and need not be an investment.

5 Things I Wish I Knew Earlier

HERE ARE FIVE THINGS SCOTT CRUMPLER WISHES HE KNEW ABOUT QUALITY ASSURANCE AND QUALITY CONTROL WHEN HE STARTED:

- The importance of proper physical handling of fresh concrete strength cylinders and how it affects break results.
- How strong, honest self-reports are the first line of prevention and the breaking of bad habits within operations.
- The number of necessary certifications that QC personnel require and how often they each have to be renewed.
- The sensitivity level of entrained air in concrete and how it reacts with changes to raw materials and admixtures.
- How sensitive SCC is to inconsistencies in the fineness modules in sand.

PHOTO COURTESY OF CONCRETE PIPE & PRECAST


NPCA FILE PHOTO

Testing and measuring are essential parts of a manufactured precast concrete facility's solid quality control plan.

Setting aside the proper amount of space to perform these tests is important, too. Space produces inconsistent results. Develop a dedicated area for the QC department to do its job. Work toward freeing them from the elements. Provide good lighting, electricity for compression testing and water for cleaning equipment.

And this is just to get started.

Once up and running, the No. 1 role for a good QC department is to properly document every process. A clean, dry, secure space is required to perform the documentation and preserve it in a way that is easily accessible.

Later on, it might be necessary to look for one document among countless created. But if you don't know how to find that one record, it can mean starting over.

Like all departments within a precast concrete facility, the most valuable resource to any QC department is people. All of the equipment, sound processes and procedures available lose their worth without trained staff to effectively follow those procedures put in place.

Whether it is one person whose part-time duties include QC functions or a team of professionals who work together, those people must be properly trained to perform the tasks. That means training for, taking and passing the requisite exams to achieve certifications necessary to be compliant with local, state and national oversight organizations.

As time goes on and a plant grows, a QC staff should grow right alongside the production crew. Keep the number manageable, but ensure there is enough time in each day to cover the mandatory pre- and post-checks, trailer checks and the fresh and finished concrete testing. Ensure the department has the time to document the results of each day's work, whether with paper files, computer documentation or a comibination of both.

No matter a facility's size, the essential elements of strong quality control are the same: Trained and willing people, equipment, space and time.

Empower the team and provide the time and the tools it needs to keep the plant in compliance, to help keep the production team focused on doing the right things the right way and be relentless in their pursuit of perfection.

Putting Employee Feedback to Work

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.

POSITIVE, NEGATIVE OR OTHERWISE, EMPLOYEE FEEDBACK PLAYS AN IMPORTANT ROLE IN A PRECAST MANUFACTURER'S CONTINUOUS IMPROVEMENT PLAN.

Finding people and filling positions are just the first steps in building a strong workforce. By empowering staff members to feel confident in providing feedback, companies have found answers from up and down the duty roster.

SHUTTERSTOCK.COM

Employee engagement in the United States is at an all-time low. This should be motivation enough for companies to get team members more involved in the organization's overall success. Defined by Gallup polling as someone's emotional commitment to an organization and its goals, employee engagement dropped to 32% last year (compared to 34% in 2021) with 18% of individuals claiming to be "actively disengaged" while at work.

This is just one of several examples for manufacturers to pay attention to.

With national unemployment rates sticking to 53-year lows of 3.4% early in 2023, for example, workers have a lot of job options at their fingertips. Even as the tech sector cools off and scales back its workforce, jobs in manufacturing, construction and distribution remain plentiful. According to the National Association of Manufacturers, the construction sector had about 800,000 job openings for most of 2022, and manufacturing may wind up with 2.1 million unfilled jobs by 2030 – a gap that could result in a $1 trillion loss of revenues per year.

In light of these and other human resources challenges, companies are tightening their recruiting and retention strategies with the goal of keeping valued team members in place at a time when the next job is just one screen tap or mouse click away.

Companies focused on employee engagement are reaping the rewards of their efforts. By one Global Human Capital Trends survey's estimates, high engagement levels can lead to 21% profitability boosts, thanks in some part to the fact that individuals who are engaged in their work are 38% more likely to have above-average productivity rates.

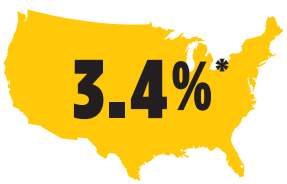
The question is: How can precast manufacturers get their teams more involved and on board with the company's broader goals and missions while supporting individual goals, addressing issues and nurturing successes? One way to do this is by simply listening to what those team members have to say – good, bad or otherwise –then addressing that feedback in a deliberate, dedicated manner.

In some cases, the best course is to quickly act on the feedback. In others, taking it into consideration and explaining why no actions have resulted is enough to let employees know that their voices are being heard.

A CULTURE OF ACTIVE LISTENING

One of the best ways to boost workplace productivity is listening to employees. This gives them a sense of ownership over their work. It also helps establish rapport and trust between team members and

National Unempolyment Rate:



* EARLY 2023

Unfilled Construction Sector Job Openings in 2022:

800,000

Source: National Association of Manufacturers

"Continuous improvement has to be a part of your corporate culture, and it should always incorporate employee feedback, both good and bad."

– Kirby O'Malley, Garden State Precast

their managers, bonds that also contribute to a more productive, positive workplace focused on continuous improvement.

At Garden State Precast, President Kirby O'Malley said achieving these goals may require a cultural shift. It also requires regular monitoring of where the company is at, its goals and how well it is achieving those benchmarks.

"Continuous improvement has to be a part of your corporate culture, and it should always incorporate employee feedback, both good and bad," O'Malley said.

In some cases, that feedback may need to be coaxed out of employees – particularly if it's never been invited or encouraged before. He speaks regularly with managers and supervisors, for example, and poses questions such as: What are you working on right now to help fix a problem, make processes better or just generally improve our overall operations?

"I also encourage them to talk to their teams and ask them similar questions, knowing that if we're not listening and putting new (initiatives) in place, then we're not going to improve as an organization," O'Malley said.

Many times the answers to those questions turn into action on the company's part. For example, Garden State makes block-outs for hole-formers and traditionally used tie-ins when constructing the products. When a group of team members came up with a different approach to the job, the precaster listened.

"They came up with a way to use magnets instead, so we totally got away from using any kind of tie-in or rebar for the block-outs," O'Malley said. "That's just one little shift that made a difference in an operation where we take a lot of small steps to get to a finished product. If we can save just five minutes a day by using magnets instead of tie-ins, it can really add up."

Employee Engagement:

Someone's emotional commitment to an organization and its goals

32%
2022

34%
2021

Source: Gallup

In another example, O'Malley said that a supervisor and a member of the maintenance staff are working on a telescoping metal slide instead of risers in the company's precast forms.

"When that's finished, it'll be a big deal, because we'll be able to eliminate the need for all of the wood in our plant," he said. "Wood is expensive and a pain in the neck to work with, so we're looking forward to that."

SUGGESTION BOXES

Sam Lines, engineering manager at Concrete Sealants, once worked for a precast company that used an employee suggestion box to encourage feedback from team members. Some people used the forum to complain about thermostat settings in the office, and others offered broad, unactionable feedback like, "I wish the floors in the plant were cleaner."

To get their employees thinking more specifically about what could be done to correct issues and improve the company's operations, managers began requiring actionable steps for all suggestions. So instead of "we need to make our concrete better," the input had to include suggestions such as "we should begin measuring the amount of water in our aggregates" or "we need to

NPCA FILE PHOTO

Workers who feel heard are statistically happier in their jobs and feel respected.

use probes in our aggregate bins."

Fast-forward to today, and Lines said Concrete Sealants takes its own employees' feedback seriously by gathering a group of individuals together – all of whom understand the specific process or problem at hand – reviewing the suggestions and acting on them accordingly.

There is no better source for feedback than the men and women who work in production every day.

"We'll have a brainstorming session to hear every idea," Lines said. "No one is allowed to tear down or to reject any idea that's presented. We strive for complete input."

Using the lean manufacturing brainstorming model, the group considers several iterations of the idea, knowing that suggestion No. 1 may lead to suggestion Nos. 2, 3 and 4 before becoming an actionable step. Lines said the company also uses a "multi-voting" approach whereby 10 ideas are put up on a board and everyone votes on their top two ideas to cull through the ideas and determine which of them have the most potential.

"When you use multi-voting, you can take a step back and quickly see whether the group wholeheartedly believes that item X is probably the best way to tackle the problem," Lines said. "This not only ensures that everyone's voice is heard in the continuous improvement process, but it also allows the committee as a whole to create a unified buy-in on a specific solution."

FIND A PROBLEM, FIX A PROBLEM

To precast manufacturers who either want to start a new employee feedback program or improve upon an existing one, Alan Pritchard said focusing on the company's challenges, pain points and headaches is a good way to get team members thinking about potential solutions and suggestions.

"Get them thinking in terms of 'find a problem, fix a problem,'" said Pritchard, the research and development leader and quality manager at Smith-Midland Corp. "This small step helps employees really get engaged and enthused about helping to fix issues that they may be experiencing on the job."

Establish an "open environment" where associates aren't afraid to speak up, knowing that employee feedback at all levels is a critical component of a lean operation that's focused on continuous improvement.

"It's about recognizing, accepting and addressing defects; praising everyone who brings up a problem; and then addressing those issues as they arise," Pritchard said. "And make sure management and leadership are onboard with the effort, which has to be part of your corporate culture versus expecting employees to fix things on their own without any support."

NPCA Plant Certification Changes FOR 2023

By Phillip Cutler, P.E.

Phillip Cutler, P.E., is the director of quality assurance programs at NPCA.

The NPCA Quality Control Manual for Precast Concrete Plants serves as the guidance document for the association's plant certification program. As the management tool and technical resource for manufacturing processes and the production of quality precast products, the manual is reviewed and updated annually to keep pace with advancing technologies in the precast industry.

With so much competition in the marketplace, precast concrete manufacturers should seek out ways to set themselves apart and attract more business. The top of that list should include NPCA Plant Certification.

The certification process begins with the most fundamental approach: a commitment from management and production personnel to manufacture the highest-quality products during every pour. There is no path to success without this dedication from leadership and a similar response from production personnel. Sound processes and manufacturing procedures also help build this into company culture.

Certified plants must continually meet stringent requirements to maintain certified status – all while choosing how to get there via the processes and procedures that shape quality production.

Production efficiency requires a systematic manufacturing approach. A documented set of plant-specific policies and procedures lay the necessary groundwork to set up an efficient production space. With processes and policies in writing, this establishes a clear path to a higher level of product consistency.

Combining this with highly efficient production operations helps streamline processes and eliminate waste. This is where the NPCA Quality Control Manual for Precast Concrete Plants provides a great outline of general and product-specific requirements – no matter which products are manufactured. Applying an efficient and systematic approach to material validation, mix design, batching and mixing, testing, casting, stripping, yarding, and shipment are all critical steps on the path to success.

The NPCA Quality Assurance/Quality Control Committee reviews the content each year with the primary goal of making sure the language is clear, concise, accurate and up to date. For program year 2023 and the 16th edition, the committee made several changes to clarify language. Those changes were posted for a 60-day comment period that ended Jan. 7.

The NPCA QA/QC Committee voted and approved the following section changes and a number of editorial changes to the 2023 QC Manual.

- **Section 3.2.4.3 Dry-Cast Concrete** – Added requirements
- **Section 4.6.5 Plant Requirements** – Added option to requirement
- **Under Section 1.1.5.2,** NPCA Certified Plants are required to review their plant-specific QC manual. It is recommended that the plant complete this review by including a review of all critical sections that apply to the products produced at the plant.

Certified plants must continually meet stringent requirements to maintain their certified status.

To download the QC Manual visit precast.org/certification/quality-control-manual

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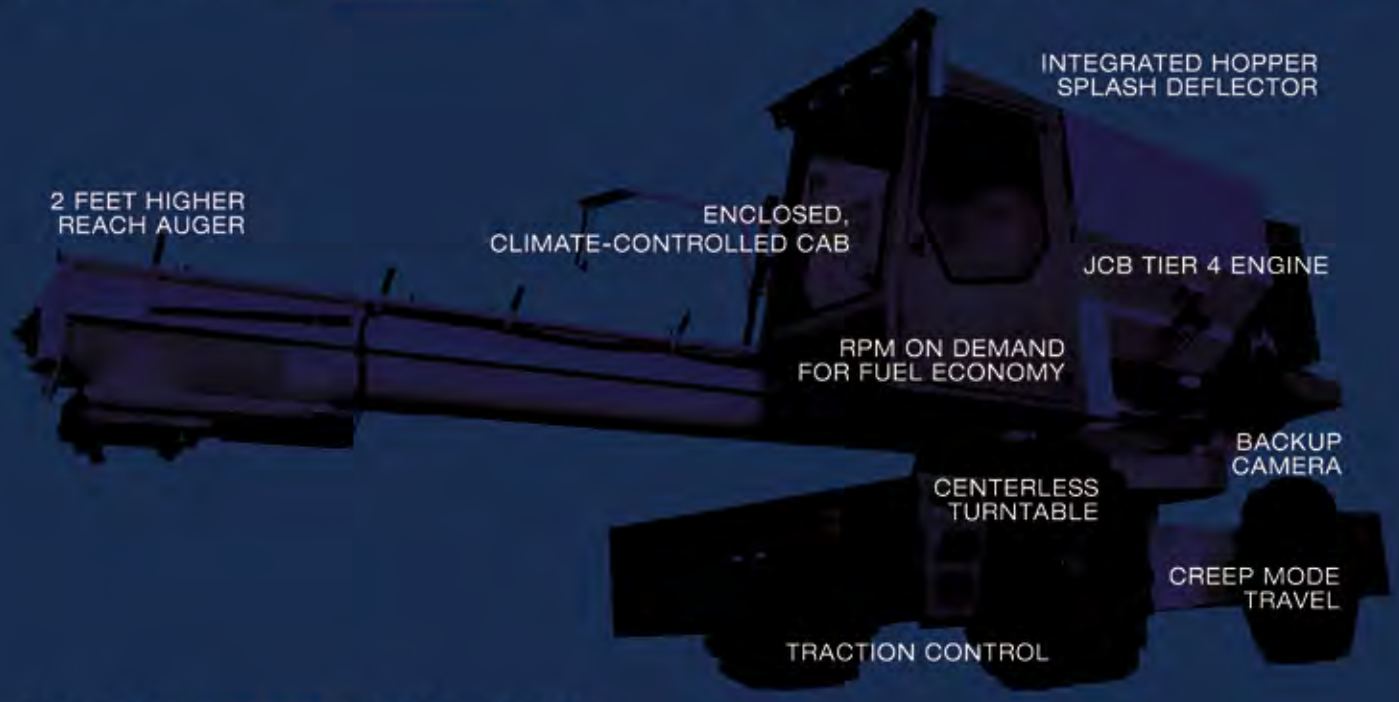

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Handling Heat and Extreme Weather

By Mason Nichols

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

TAKE ACTION TO PROTECT EMPLOYEES AGAINST HIGH TEMPERATURES AND SIGNIFICANT WEATHER EVENTS AT YOUR PRECAST PLANT

Safe operations in the precast concrete industry encompass a wide variety of factors and situations.

Cranes, heavy equipment and massive products all are part of the equation and must be considered when developing effective safety plans. But while big, easily visible machinery and stock stand out as potential risk areas, there is another more difficult to discern concern, especially in the summer months.

Heat.

According to the Occupational Safety and Health Administration, thousands of U.S. workers become sick from heat exposure every year.

And here's the thing. Heat illness is 100 percent preventable.

But when left unchecked, it can be extremely dangerous and even fatal.

"We want to make sure we talk about this every day, so we consistently cover what the exposures are, what the temperatures are and what the signs are."

–John Braun, Jensen Precast

TRAINING AND ACCLIMATION

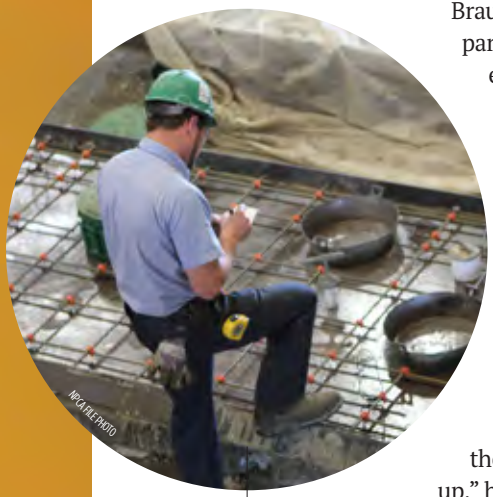
Heat stress arises in varying forms of severity, ranging from minor cases of heat rash to deadly heat stroke. Across the spectrum, there are several signs to watch for, including:

- Headaches
- Dizziness
- Heavy sweating
- Nausea
- Muscle cramps
- High body temperatures

As is the case with any safety-related endeavor, proper training on these warning signs and knowing the appropriate steps to take in response are key to success.

According to John Braun, director of environmental, health and safety at Jensen Precast, training should be in place throughout the year, particularly during warmer months.

"Training someone once a year isn't ideal," he said. "We want to make sure we talk about this every day, so we consistently cover what the exposures are, what the temperatures are and what the signs are. Then, it becomes an instinct to respond appropriately when something does happen."



NPCA FILE PHOTO

Dress for the job. Individuals who are not working hands-on with products can utilize short sleeves and remove their heavy gloves when the opportunity allows.

Braun noted that training is particularly important for new employees. In some cases, these team members may be so focused on proving themselves that attention is drawn away from other crucial areas, including safety.

Tim Weidrick, safety director at Mack Industries, agreed.

"A new hire is typically concentrated on learning the job and picking things up," he said. "There's a lot going

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"Drinking throughout the day is crucial, because when you're thirsty, you're already one step behind."

– John Braun, Jensen Precast

on, so they might not be paying attention to their body. Meanwhile, they could be sweating a quart of water every hour."

Braun and Weidrick suggest toolbox talks on the topic several times per week during the hottest months. Repetition builds retention, encouraging employees to think about how their bodies respond to the heat each day during their shifts.

Jensen primarily operates in the West and Southwest. To prepare for working in high temperatures, new Jensen Precast employees undergo a "ramp-up" period, beginning their first week of work on a Wednesday or Thursday to allow time for their bodies to adjust to the weather. Another effective approach is to ensure that all team members at a plant begin properly hydrating ahead of the warmer season. When the hot weather hits, they'll already be acclimated to the changes brought about by higher temperatures.

The same hydration and acclimatization process some workers went through as high school athletes – developed by the Korey Stringer Institute and the University of Connecticut – are applicable to precast concrete workers.

Supervisor oversight plays a big role in keeping everyone on track, but being able to recognize the signs of heat stress – both in yourself and others – empowers the entire team.

Jensen Precast team members also work in small groups so that potential heat-related issues or other safety concerns are quickly identified and addressed.

MEASURES FOR MITIGATION

Advanced training is critical in protecting workers from heat-related illness, but many steps can be taken once the warm weather arrives.

- **Provide shaded areas for employees wherever possible – both to perform outside work and to take breaks.**
- **Break rooms, lockers rooms and other areas with air conditioning offer additional relief.**
- **Make sure that team members have ample opportunities to take breaks throughout their shifts.**
- **Get out of direct sunlight occasionally to avoid prolonged exposure.**

Being amply hydrated upon arrival also is key.

"We work to ensure that our employees have access to water or other forms of hydration and electrolytes at all times," Braun said. "Drinking throughout the day is crucial, because when you're thirsty, you're already one step behind."

Weidrick said that supervisors at Mack Industries drive around the plants in pickup trucks loaded with coolers containing Gatorade and ice. At their Astatula, Fla., plant, the company takes things one step further.

"Out there, we've got huge commercial ice makers that run around the clock," he

NPCA FILE PHOTO

Proper heat safety does not conflict with everyday safety procedures, such as wearning gloves, a helmet and eyewear. Good ventilation and adequate hydration breaks allow for increased safety in warmer months.

Open large bay doors whenever possible during hot and humid days. A cross breeze along with proper hydration goes a long way to helping to lessen the chance for heat illness.

said. "The team can fill water jugs, coolers and whatever else they need. We go through hundreds of pounds of ice every day."

Adjust work schedules to help mitigate the effects of working in the heat. Start earlier in the morning or work later into the evening when the sun is down, avoiding active hours during the day's hottest times, typically in the afternoon.

Humidity also can generate problems, both due to workers and products. Having ample air flow throughout facilities reduces this issue. Weidrick said that Mack Industries uses 4-foot cattle fans and other air-moving equipment at all their locations.

COMBATING OTHER EXTREME WEATHER CONDITIONS

In addition to high heat, many precast plants are exposed to a variety of other extreme weather events based on their location. Tornadoes, earthquakes, fires, hurricanes and severe thunderstorms with lightning strikes all generate life-threatening situations.

Developing a plan for addressing each of these weather events is key, including how to respond and where to report to for shelter. The approach should be communicated to new team members during orientation, referenced at least once annually and discussed in greater length during peak seasons.

"We have protocols and programming for all different weather conditions," Braun said. "The protocols and standard operating procedures we have in place are directed at our employees, but we also want that information to trickle down to families and friends. If your family is not in a safe place, your mind is not going to be on making precast."

By extending efforts beyond the plant and into employees' homes, Jensen Precast sends a message of care to all team members and helps to ensure that their minds can stay focused on remaining safe and productive at work.

At Mack Industries' Florida plant, lightning is a common concern. Severe storms can contain frequent cloud-to-ground lightning, creating dangerous situations.

"You have guys working on outside crane pads with gantry cranes, overhead cranes and things like that," Weidrick said. "If we hear a close clap of thunder or see lightning in the vicinity, we pull our team inside until we've had 30 minutes without it."

This is the same rule any parent knows from coaching or watching their kids play outdoor youth sports.

Weidrick added that while floor-level supervisors typically make the decision to halt operations due to lightning, employees are encouraged to speak up if they hear or see something that causes them to feel unsafe.

This is also the case at Jensen Precast, where Braun said employees are encouraged to look out for one another and bring any concerns they may have about safety to him or another member of the safety team to be addressed.

THE BEST POSSIBLE ENVIRONMENT

Ultimately, while heat-related illness and extreme weather events can present significant dangers in the precast industry, arming team members with the knowledge needed to counteract issues, the tools needed to mitigate potential effects and appropriate protective measures go a long way toward preventing serious incidents.

Ensuring that team members feel comfortable talking to supervisors and members of the safety team about these topics is paramount.

"Employees want to do a good job and are very proud of the work they perform," Braun said. "It's up to management to ensure we are providing the right tools for our employees and that they're working in the best possible environment. Take care of your employees – if you do that, safety, production and quality will all be taken care of as well."

"If we hear a close clap of thunder or see lightning in the vicinity, we pull our team inside until we've had 30 minutes without it."

– Tim Weidrick, Mack Industries

(From left) Craig Hoffman, Justin Hoffman and Andrew Nashawaty learned how to run a precast concrete facility by watching their fathers. Now, the three of them are moving Scituate Concrete Products forward into new opportunities.

NPCA PHOTO / JOE FROLLO

Scituate Concrete Products

By Joe Frollo

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

Photos courtesy Scituate Concrete Products

THIRD-GENERATION COMPANY LOOKS TO GROW PRODUCT LINE AND MARKET SHARE WHILE ADHERING TO FOUNDING PRINCIPLES

Situated on the U.S. Eastern Seaboard midway between Boston and Cape Cod, Mass., Scituate Concrete Products is a third-generation, family-owned company that takes pride in doing the little things right.

And that results in big opportunities to help reshape Massachusetts' infrastructure, piers and other projects up and down the coastline.

With NPCA-certified facilities in Scituate and Marshfield, along with one in Pembroke, Justin Hoffman, Craig Hoffman and Andrew Nashawaty lead a team who create and sell a wide selection of manufactured concrete products that serve both commercial and residential purposes.

With one eye on the needs of today and another focused squarely on innovation, the company has built its reputation and client list on a sense of community. Scituate employees live in the communities where they work, so they ensure that the job is done right to serve not just their own families but future generations as well.

The trap dock repair in Chatham, Mass., includes pile caps and deck panels manufactured by Scituate Concrete Products.

STARTING SIMPLE IN SEPTIC

Founded by William "Moose" Hoffman in 1959, the company that came to be known as Scituate Concrete Products began with Moose operating a backhoe to install septic systems in rural areas of Eastern Massachusetts.

As is the case when many small business stories get started, Moose looked to expand his services but was not happy with the supply chains and lead times open to him. He solved that by soon producing his own concrete pipes.

"He did so well that it got to the point where he decided to get out of the contracting business and get into production full time," Justin Hoffman said. "He saw that there was a need that was not being filled – between the quantity and the quality. So he filled it."

Backed by loans from a bank and a relative, it was not long before Moose supplied concrete pipes and related products to construction companies throughout New England.

As Moose's sons, Richard and William Jr., came of age, they also took on prominent roles in the company, leading an expansion in which Scituate acquired other concrete companies in Massachusetts – one of those being the Marshfield facility previously operated by Nashawaty's family.

As the company grew, the product line also expanded. Once focused on pipes, by the 1990s, Scituate manufactured box culverts, vaults, curbs, sanitary products, retaining walls, drainage systems, septic tanks and more. Today, Scituate offers more than 20 major product lines.

Still, the crux of Scituate Concrete Products comes back to Moose and his vision.

"Our versatility has allowed us to take on a lot of different projects over the years, but it all comes back to our drainage products and custom structures," Justin Hoffman said.

THE NEW GENERATION

In 2010, Justin and Craig Hoffman ascended to vice president roles, bringing the third generation into leadership. Justin and Craig are cousins. William Jr. is Justin's father, and Richard is Craig's father.

Nashawaty also has a precast heritage. He grew up in his father's plant, then called Ray Precast in Marshfield.

Nashawaty was 5 when he attended his first NPCA National Convention alongside his parents, Richard and Judi.

"My father always said there was nowhere better to gain a national perspective on industry issues than with NPCA," Nashawaty said. "Their pride in NPCA stuck with me, and their favorite part was the people."

Nashawaty – like the Hoffmans – spent most weekends at the

"Our versatility has allowed us to take on a lot of different projects over the years, but it all comes back to our drainage products and custom structures."

– Justin Hoffman, Scituate Concrete Products

Scituate Concrete Products worked on a wharf replacement project in Plymouth, Mass., that included 23 pile caps measuring 26 inches by 26 inches by 58 feet.

plant, operating forklifts long before he got his driver's license. He learned by watching and eventually doing as a part-time employee during high school summers.

In 1997, Nashawaty came to work for Scituate Concrete Products, and now he, Justin Hoffman and Craig Hoffman are part of a leadership team bringing Scituate into a new era.

"I remember coming up to the plant on Saturday mornings and riding my Big Wheel around," Nashawaty said. "All of these big, strong men went to my dad for direction, and I just admired that so much. I wanted to follow in his footsteps when I grew up."

Site Contractors install an 85,000-pound junction box as part of a Springfield, Mass., sewer project.

WORK THAT LASTS

Scituate Concrete Product prides itself on its ability to adapt to every job.

In 2016, Scituate was intricate in building an 18,360-square-foot T Wharf pier in Plymouth, Mass., that stands as a testament to the fishing and tourism industries.

A long, linear portion of the pier is comprised of six 60-by-2-by-3-foot solid precast beams, each of which weighs 55,000 pounds and was delivered by barge to the site.

The new pier is a boon to the area's lobster and groundfish industries as well as a developing shellfish aquaculture. The new facility also includes amenities and services for visiting boaters and creates a more aesthetically pleasing waterfront for thousands of visitors each year.

At the time, it was the largest project that Scituate Concrete Products had taken on.

"To evolve as a company and as an industry, sometimes you have to push the limits," said C.J. Scott, the Scituate production manager who oversaw the project.

Other projects for Scituate include:

- **A solar array in Falmouth, Mass., that includes 1,280 units at 24 inches by 144 inches by 19 inches.**
- **York Street sewer improvements that include four custom sewer structures. The largest of these weighs 85,000 pounds and is 8 feet by 18 feet by 13 feet.**
- **8-feet-by-10-feet tunnel tanks that can hold from 10,000 gallons to 100,000 gallons.**
- **Trap dock repairs in Chatham, Mass., where pile caps measured 28 inches by 24 inches by 43 feet.**

EDUCATION IS IMPORTANT

The key for any business is a shared vision that starts at the top. Nashawaty said he, Craig and Justin have just that.

"I couldn't work for a better family or two better guys," Nashawaty said. "Honestly, our families were pretty close-knit anyway since we were young, and we've all known each other well enough that we get along, keep the peace and keep moving the company forward in the right direction."

The trio seek multiple points of view before coming to a consensus. Input could come from each other, other team leaders or anyone along the line who identifies an opportunity for improvement.

Scott, as production manager, drives a lot of direction. Another is John Michael Bruno, an assistant production manager at the Marshfield location. A third is Chris Bonney, the sales coordinator.

All three were members of the 2023 Master Precaster class that received their diplomas in February at The Precast Show. They earned this distinction by completing a two-year course of study that included production, safety, technical, quality control and leadership.

Continuing education is a point of focus at Scituate, Nashawaty said.

"When I became general manager, one of the first things at

For the York Street sewer improvements project, Scituate created four custom sewer structures, the largest weighing 85,000 pounds and measuring 8-by-18-by-13 feet.

the top of my list was educating employees," Nashawaty said. "Justin really reinforces that as well. We talk a lot about investing in employees and recognizing the ones who put in the effort to make themselves more knowledgeable."

Justin Hoffman said building a company's human resources is not always something easily identifiable on a spread sheet, but it is important to invest time and money into personnel.

"It may not be billable hours, but it improves your company overall," Justin said. "Re-investing in people is just as important as investing in equipment or software."

This also is the mindset behind Nashawaty's engagement with NPCA. He currently is a member of the Engineering and Technology Committee, his sixth committee assignment in 15 years, including being chair of the QA/QC Committee in 2017-18.

"Ever since I first became involved with NPCA, beyond what I watched my parents do growing up, I realize how we share common values with other members, common questions and common concerns," he said. "By offering a little time and opening up our minds to what's going on across the country, we see just how important that fellowship and networking is."

Scituate Concrete Products started out as a concrete pipe manufacturing facility. That product line is still going strong 60 years later.

Justin Hoffman agrees.

"At our core, we are a family-owned business, so our core group of customers are like family to us," Justin said. "When we work on their homes or in their neighborhoods, we take pride in it because we see ourselves there as well. Our business is about relationships, and taking the care that goes into each job is what keeps people coming back to us."

"Our business is about relationships, and taking the care that goes into each job is what keeps people coming back to us."

– Justin Hoffman, Scituate Concrete Products

Industry Influencer

JOAN BLECHA

Joan Blecha

INDUSTRY INFLUENCERS IS A QUARTERLY SERIES IN PRECAST TODAY MAGAZINE 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.

Q. YOU DON'T COME FROM A FAMILY WITH A LONG HISTORY IN THE PRECAST CONCRETE INDUSTRY. HOW DID YOU FIND YOUR WAY INTO IT?

A. I had gone back to school after my husband passed away and studied accounting. I went to work for, at the time, one of the big eight accounting firms. I was there for quite a while, and one of the guys that I had gone through classes with at school left public accounting and went to work with his stepfather in a concrete ready-mix business. It kind of got to the point that he couldn't do operations and finances, and so he asked me to come to work for him.

They did ready-mix concrete, but they were starting up a precast company at the same time. They were purchasing forms. At the time, I didn't really think about it being concrete. It was just an opportunity, and I had picked up a lot of travel and my son was going to be a senior in high school. I didn't want to be on the road that much, especially during his senior year, so it sounded like a great opportunity. So I took it, and the rest is history.

Q. YOU CAME IN FROM THE FINANCIAL AND ACCOUNTING SIDE, NOT THE PLANT FLOOR. HOW DID YOUR INVOLVEMENT IN NPCA BEGIN?

A. The company was a member of NPCA. We were still kind of growing. We were looking for a new software package, and they were having a committee meeting in San Diego to discuss IT for the precast industry. I had a double major when I went back to school – one was accounting, and the other was information systems. And so it was suggested that I go to it, and I did. We had a good meeting and kind of just went from there. It's kind of like getting involved on a committee and then you just kind of get involved with everything else in NPCA.

Q. AND THEN YOU ENDED UP BEING CHAIR OF THE NPCA BOARD OF DIRECTORS. HOW DID YOU FIND YOURSELF IN A LEADERSHIP ROLE?

A. Strange things happen, don't they? What happened at the time is that they had asked me to teach. They were developing an educational program. I think they called it the Young Leaders Conference, which was the next generation of young people that were coming into the businesses. By now, those guys have been Chair of the Board, too.

They had put together a course at the World of Concrete in Las Vegas. They had a person come in to discuss marketing, and then I handled the financial, accounting and IT stuff. It was a big success in terms of plants' participation.

That's really kind of the origin of the Leadership NPCA course that they have now. It was the association reaching down to grab that next group of young people that were coming up through the precast industry, because the industry is such a family-oriented business organization. And it really grew into a lot of the educational classes that they have now. They took that and did several different accounting classes and several different financial environment classes. After that, one was like purchasing capital assets and budgeting and controlling your inventory costs and just using financials to manage your business.

In that process, of course, I was fortunate enough to come across an awful lot of these people, and not just the younger generation but also my counterparts. It was just a great opportunity for me to get involved in the industry, and it was a lot of fun doing it.

Your journey through life is probably a little bit about expectations, education and opportunity. And not everyone grows up with the same expectations. And so the association, I think, did a great job of identifying me and putting the education out there to help people have that opportunity.

I've always said whenever we get to the conventions or conferences or training sessions or committee weeks or any of that, we really kind of leave our competitor's hat at the door, and we walk in as a group to better the industry.

I mean, look at everything that has happened. It's been internal to external. It hasn't been government regulations coming to us. It's been us going, pushing it out there in terms of the plant certification program with a quality product.

Joan Blecha and Ted Coons

Q. AS THE FIRST WOMAN TO SERVE AS NPCA CHAIR OF THE BOARD, DID YOU RUN INTO ANY CHALLENGES IN A MALE-DOMINATED INDUSTRY?

A. It was unusual in terms of that you have to be aware of the fact that you are a woman but, you know, it was a group of guys that elected me. So how can you argue with that in terms of opportunity?

Not so much from the association standpoint, but from the industry standpoint, the people that I worked with took a little bit of kidding about working for a woman in the industry, and they handled it really well. And frankly, they made me look good every day of my life as I was working there. I had time to develop that trust with the guys that I worked with. It was unusual, I thought, for me to be able to have that opportunity when I had it. But as you know, the biggest debate was trying to figure out whether to call the chairman or chairwoman or chairperson. It's funny how those little things like that pop up that you don't really think about.

I had never ever felt among any of the association members that the fact that I was a woman had anything to do with it because like I said, those are the people that that put me in that position in the first place. So how could you question their motives? It never really entered my mind. I never felt like it was an obstacle. And I think that's because I was with a great group of people.

I had the feeling of an obstacle at times in my career. You had to keep proving yourself through different situations. You had to be almost a little bit better. You had to be a little bit more aware that your bad decisions were judged a little bit more than your good decisions by some people. But I never had that with the association or any of the membership that I worked with. It was one of the highlights of my life quite frankly. It was one of the greatest honors of my life.

Q. ONE OF YOUR MANY NOTABLE ACHIEVEMENTS AS CHAIR WAS THE MODERNIZATION AND EXPANSION OF THE CERTIFICATION PROGRAM. WHAT WAS YOUR APPROACH TO RAISING ITS PROMINENCE?

A. The certification program was alive and kicking. I just happened to come at a time when we were really pushing the expansion. What comes to mind is a conversation I had about plant certification, and my comment was we're never going to get the plant certification program to grow where we want it unless we hire someone specifically trained to go out there and sell the certification to the industry regulators and professionals. And that's when we brought in a position into the association specifically designed to do that.

There had been tremendous work done on it in terms of the technical ability. But

> **"Your journey through life is probably a little bit about expectations, education and opportunity. And not everyone grows up with the same expectations."**
>
> *– Joan Blecha*

NPCA FILE PHOTO

what putting that guy out there selling the program did was it changed the way we think about it. It was us saying, "Look, we're going to put these additional requirements on ourselves in order to make sure that you get a quality product."

All you have to do as the DOT or the specifiers is say, "Yeah, these people have already taken on the burden voluntarily to do this for a quality product. Therefore, we want to make sure that you're one of these people that's doing a quality product."

When you do that, it raises the level of the quality of the stuff that you're shipping, and it's certainly a better quality product. But also out of that you get the evolution of the safety program with the employees and everything else. So it's just raising the expectations of the industry in terms of what it means to be a precaster. That's when it took off from being just a handful of plants to I think it's around 400 today, which is phenomenal.

It was a thought over a drink late at night in a bar in Indianapolis, because it was to me the obvious next step. The membership and the Board trusted me enough to say this is probably a good idea and create that position. So it always comes back to respecting all the thoughts and the efforts of everybody that's out there. The technical guys had been back there slugging their way through this for years, but not necessarily thinking in terms of marketing the product that they produce.

Rhode Island recently became the 41st state to recognize NPCA certification. That's incredible progress.

That's phenomenal. I don't remember how many states there were in 2005, but it sure wasn't 41. That's a situation like we got the product now. We just got to go market it. You either sell to satisfy demand that is already out there or you create demand in order to be successful. I think the certification program was a little bit of both.

Because we were going to the specifiers and the regulators and saying, "Wow, don't you want this?" So in that particular case, I think the association created that demand.

Q. YOU'VE TALKED ABOUT THE IMPORTANCE OF MARKETING OR SELLING THE CERTIFICATION PROGRAM. HOW WOULD YOU SELL MEMBERSHIP IN NPCA TO SOMEONE WHO HADN'T YET BECOME A MEMBER?

A. I had a speech professor in college who said if you want to be an effective speaker talk about something you're passionate about. So they could probably talk to a lot of people in the industry that have that passion, explaining what they're going to get from being a part of the association.

I couldn't sell a glass of water to a man dying of thirst in the desert. But I could talk about the precast industry endlessly. So, I think it's the passion. It needs to be there.

How could you walk around the trade show floor and look at it and not say, "Man, I want to be a part of this." That's the passion coming from the staff.

You can't be peripheral and reap the same benefits in this industry that you can by being a part of it. You can't be as good a company. You can sell precast for really low prices and maybe get some work, but you're not leading. That's not a long-term solution. I think to be a quality precaster and be competitive, you got to be part of this group. You can do a lot on your own, but you can't do everything. And so the association fills in the everything. Once again, it's about expectations, education and opportunity. And NPCA is creating those.

Q. I THINK IT'S SAFE TO SAY THAT A LOT OF PEOPLE IN THIS INDUSTRY ADORE YOU AND VALUE YOUR LEADERSHIP, YOUR INPUT AND ADVICE. WHAT WOULD YOU LIKE THEM TO KNOW?

A. I think that I would say to them that they couldn't possibly adore me any more than I adore them.

They've been a large factor in my success in life. And I am thankful for that every morning when I get up.

It's obviously mutual. The NPCA staff is a very special group of people, a special culture. (NPCA Chair of the Board) Joel (Sheets) and I talked about it a little bit. And I met (NPCA President and CEO) Fred (Grubbe) for the first time and had a delightful conversation with him. I just I would tell you that it's mutual. That's, that's about all I could say.


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A Tight Squeeze

JENSEN PRECAST HELPS BRING THE TRUCKEE BRIDGE PROJECT TO LIFE IN THE SIERRA NEVADA

By Shari Held

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

Photos courtesy of Jensen Precast

Regular communication and coordination were crucial at every step for a precast arch culvert bridge that stands as a key component of a California town's master plan.

Located below the crest of the Sierra Nevada, just north of Lake Tahoe, lies the mountain town of Truckee. This site of the historic Donner Party tragedy is now a thriving cultural and outdoor sports center with a reputation as one of the best places to live in California.

An influx of new residents and tourists spurred the town to create the Truckee Railyard Mixed-Use Development Master Plan. The plan provides for new housing, restaurants, retail space, office space and entertainment venues along with new infrastructure to support it, including the Church Street Extension project. Due for completion in 2024, the project will connect the extended Church Street to a new roundabout on Glenshire Drive, linking the Railyard development to downtown Truckee.

At the heart of the project is a new precast arch culvert bridge crossing Trout Creek, which was realigned to allow it to flow into the Truckee River. The creek restoration will improve water quality, manage local runoff and provide 100-year floodplain protection for the town.

TICKING ALL THE BOXES

A precast arch culvert was the perfect choice for the new bridge, said Dan Wilkins, Public Works Director and Town Engineer for the Town of Truckee. Precast was preferred over cast-in-place concrete for the higher level of quality control that can be achieved during the production process and its speedy installation.

"The town had some specific requirements as far as the roadway going across the structure, and the buried bridge allowed them to do what they needed with the road and meet all the geometry requirements of the road."

– Jeff Von Handorf, P.E., Pretek Group

"Precast installations tend to go in much more quickly than cast-in-place where you have to do the formwork and rebar tying in the field," Wilkins said.

An arch culvert design offered more advantages than other bridge types.

"They could have used three box culverts side by side," said Jeff Von Handorf, P.E., a partner at Bellbrook, Ohio-based Pretek Group, the bridge designer. "But with the arch culvert, they could span the whole 32 feet without placing piers in the water. They didn't have to disturb the stream bed during construction."

Wilkins cited another advantage: "We were also looking for a structure that would have adequate clear span to create the hydraulic flow and floodplain area that was needed underneath the bridge but still allow us to have a natural bottom on the creek – as compared to a box culvert, for example."

A buried arch culvert bridge easily accommodates variable widths of the road, sidewalks and berms lying on its surface.

"The town had some specific requirements as far as the roadway going across the structure, and the buried bridge allowed them to do what they needed with the road and meet all the geometry requirements of the road," Von Handorf said.

Aesthetics was another consideration. The bridge will be visible from surrounding streets, and as the main entryway into the new Railyard development, it needs to be appealing.

OVERCOMING CHALLENGES

The project's proximity to Union Pacific Railroad property and Congressional Railroad right-of-way along with the restoration and redirection of Trout Creek required significant coordination with several entities to obtain special permits.

"The main challenge of the creek restoration and placement of the arch culvert was timing, to meet the environmental permitting requirements," said Scott Mathot, P.E., senior engineer for the Town of Truckee. "Trout Creek needed to be diverted around the project area for the creek restoration to occur, which required significant coordination with the Lahontan RWQCB (Regional Water Quality Control Board) to approve the diversion plan and to meet the implementation timeline."

Quick action also was important to ensure the precast bridge

elements would be available as needed.

"The precast bridge was the first hurdle we encountered," said Sam Duner, project engineer for general contractor Q&D Construction, headquartered in Sparks, Nev. "It was very important to get on Jensen's production books early because they can get booked up quickly. The project required constant communication with them to make sure production was continual."

One rather unusual, tricky challenge was that the slope of the head walls had to be an exact match to the existing grade.

"There was no room for error on this bridge," Jensen Production Manager-Wetcast Abraham Ramirez said. "We had numerous meetings about it with Pretek to go over the plans and the form. There were so many components that had to line up just right when the precast pieces arrived at the field."

FABRICATING FOR PERFECTION

Jensen Precast, headquartered in Reno, Nev., fabricated the precast components for the bridge – 14 arch culvert pieces, two headwalls and four wingwalls – at its Lockeford, Calif., plant. Each arch culvert piece measures 32 feet wide by 6 feet long by 10 feet high and weighs nearly 24 tons. The headwalls weigh more than five tons apiece and each wingwall weighs 10 tons.

A standard 5,000 psi concrete mix reinforced with prefab wire matting was used for the pieces. Each of the 14 span pieces were poured into a steel form and stripped via an overhead crane the following day. The wing walls were formed on a table, using 10- to 12-inch steel T-channel and poured separately.

To ensure a perfect lineup, the head walls were match-cast to the arch in the plant then disassembled prior to shipping.

The fabrication process took three weeks in June 2022. Each piece was inspected by Jensen's QC technicians before shipment.

"The guys on the floor did a great job of making sure the job was poured right, and the rebar was installed according to the blueprints," Ramirez said. "Everything went well, without any hiccups."

Over a period of three days, a Mi-Jack crane loaded specific pieces onto flatbed trucks for the more than two-hour trek across the Sierra Nevada mountains.

One snag occurred related to the massive size of the elements. The trucks were prohibited from passing through the greater Sacramento area between the hours of 7 to 9 a.m.

"It was imperative that everything got loaded the day before and the trucks were on the road prior to 5 a.m. so we could set the bridge," Duner said.

MASTERING THE LOGISTICS

Installation began the second week of July. Everything had to be precisely and proactively orchestrated.

The bridge hardware was delivered a week prior to the installation, lined up and ready for the precast pieces' arrival.

"The precast bridge was one of the key pieces to the whole project since it will bring a lot of traffic into the new development," Duner said. "So, a lot of the planning centered around it. For example, the precast arch footings had to be dead on, so we had our foreman checking everything constantly."

The bridge was installed east to west beginning with the headwall. Setting the elements went quickly – often the day's quota was set by 12:30 p.m. – with the elements bolted together later that afternoon. Workers continued their way upstream until the arch was completed. The wingwalls were the last pieces to go in.

Q&D Construction installed the bridge in just three days. In retrospect, Duner figures it could probably have been completed in two days.

"Once the logistics were worked out, it was all smooth sailing," Duner said.

Ramirez was also pleased with the results.

"It definitely was a challenge," he said. "But we figured it out and made sure everybody involved was on the same page."

Learn more about Precast Days at Precast.org/PrecastDays

Successful Precast Days Events Are Built Now

By Joe Frollo

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

JOIN OTHER NPCA MEMBERS IN CELEBRATING THE INDUSTRY AND OPENING YOUR FACILITY TO THE PUBLIC FOR AN UPCLOSE LOOK AT THE WORK WE DO

Precast Days is an initiative of the National Precast Concrete Association designed to raise awareness of precast manufacturing across the United States — educating local communities about career opportunities, precast products and modern manufacturing techniques.

In 2022, more than 30 NPCA member facilities opened their doors and invited community members in to see how precast concrete is made and meet the men and women who get it done.

Precast Days 2023 is scheduled once again for October, and NPCA members are encouraged to sign up now to jumpstart thinking about how to get the most out of this event.

Here are four things your company can do in the coming months to help host a great Precast Days in the fall.

SET GOALS AND OUTCOMES

There is an old adage about trying to be everything to everyone. Most often, that approach leads to mixed messages and confusion.

NPCA FILE PHOTO/ARMANDO SOLARES

NPCA FILE PHOTO/ARMANDO SOLARES

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PHOTO COURTESY OF CONCRETE, PIPE & PRECAST

Large Precast Day crowds and successful events do not just happen magically. Like everything else a precaster does, it takes hard work and dedication to make these come to life. That is why it is important to start planning now.

Instead, set some parameters to what success looks like. Precast concrete manufacturers are among the most meticulous people in construction.

Designing down to the finest detail is the only way to produce high quality precast products, so planning ahead for Precast Days is nothing different.

Which of these goals are priorities?

- **Increasing brand footprint in the community**
- **Expanding a customer base**
- **Thanking current customers and employees**
- **Engaging students and potential workforce applicants**
- **Something else?**

If your goal is simply to promote the facility and the industry, a plant tour and


PHOTO COURTESY OF MITCHE CORP.


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Food, fun and a walk around the facility are three key ingredients to a successful Precast Days event. They also make great photo opportunities for social media, helping to drive engagement in future years.

some food probably are enough. By contrast, if you want to walk away from the day with sales leads, then your marketing and sales team must prepare handouts and opportunities to talk in a quieter, less trafficked area than the production floor.

Make sure the entire staff knows the desired outcome, and plan accordingly.

CREATE A TARGET LIST

Like in real estate, a good event doesn't just throw the doors open and hope people walk through. Identify the key players you want to engage with and work to make that happen.

Who are you trying to attract? A Precast Days event designed for customers and specifiers will look much different than one focused on students and potential workers.

Is it enough to host local and county DOT personnel, or are you trying to entice the governor to stop by? The larger the target, the more advanced planning is required.

Governors, senators and representatives all have schedulers who book their appearances months in advance. Get these people on the phone as soon as possible.

Similarly, it takes some legwork to draw students to a Precast Days event. Make sure the date you pick doesn't conflict with breaks, midterms or finals. Talk to high school administrators or college professors about building the trip into their syllabus.

Is the event designed to deepen already established relationships or build new ones? Reaching out to an already existing customer base is easy. The contact information already is in your system.

Also, while success may look like large throngs and leads-a-plenty in the imagination, keep the guest list in line with staff personnel who can effectively work the crowd.

SET A BUDGET

It usually comes down to this, doesn't it?

Coffee and donuts are nice for a small, intimate gathering but food and drinks should run hand in hand with the goals, outcomes and invitations discussed above.

Grilled hamburgers and hot dogs go a long way for building an event. Some NPCA members have brought in food trucks to incorporate other community businesses and diversify the offerings.

Is overtime required to keep people around, or is the window short enough to stick to a regular shift?

How are you getting the word out? Leaflets and word of mouth, or are advertising and social media campaigns involved?

Find the number that is right for you, and work to build the best event around it.

TALK TO OTHER NPCA MEMBERS

Precast Days is entering its fourth year, and some NPCA members have been taking part since its inception. Never be shy about reaching out to another member to pick their brain, find out what worked for them and what didn't.

If you are contemplating whether to host a Precast Days but want more information on what goes into it, reach out to NPCA for answers. We also can connect you with fellow members to discuss how budgeting the right amount of time and money pays off in dividends down the line.

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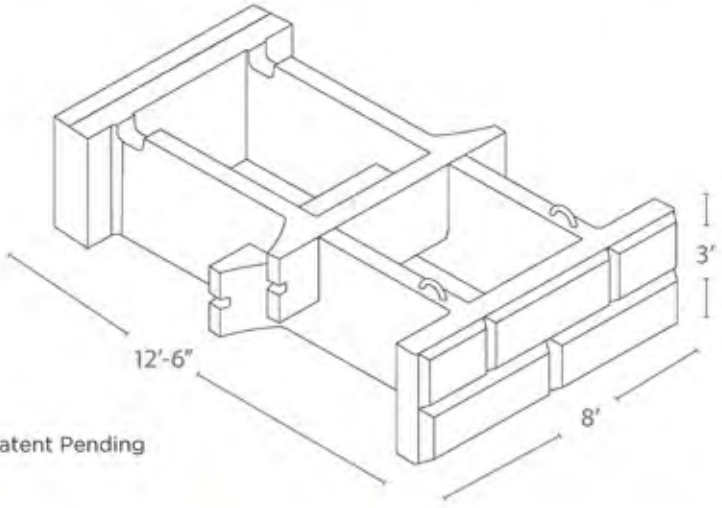

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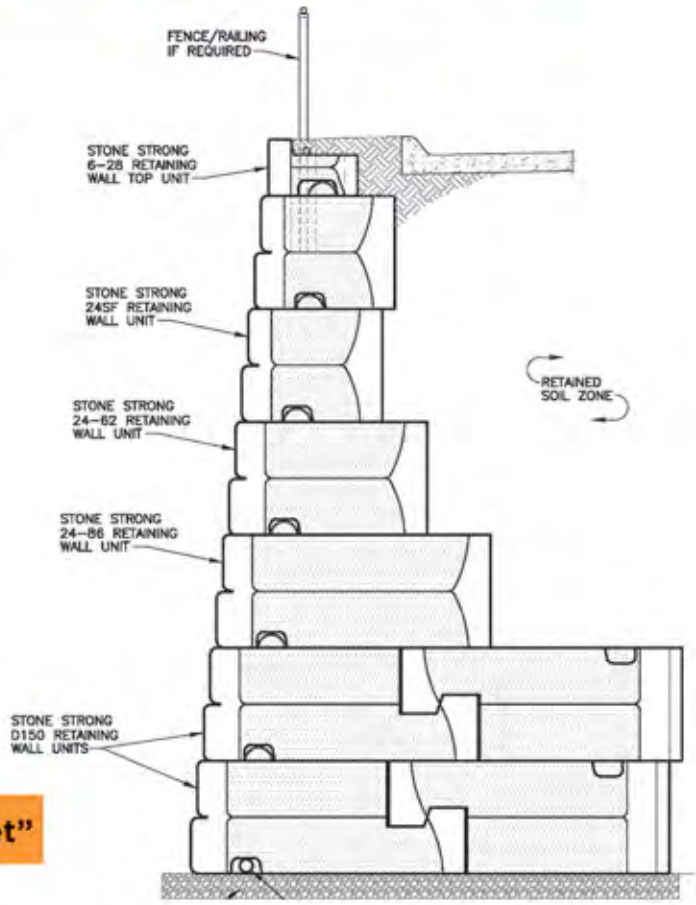

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NPCA WORKING for YOU


ConExpo Con/Agg

CONEXPO CON/AGG

NPCA President and CEO Fred Grubbe, Vice President of Development Brenda Ibitz and Senior Director of Memberships and Regulatory Services Chris Frederick attended ConExpo Con/Agg on March 14-18 in Las Vegas.

Grubbe, Ibitiz and Frederick represented NPCA, its members and the precast concrete industry at this event, billed as the largest construction trades show in the world. With more than 1,800 exhibitors covering 2.7 million square feet of space, ConExpo-Con/Agg is a draw for members of the concrete, asphalt, aggregates, digging, lifting and mining industries.

The trio shared the benefits of manufactured precast concrete with industry leaders from around the world, reinforcing the durability and sustainability of building with concrete. By making connections at events such as this, NPCA is able to lead conversations, expand the association's footprint and advance the industry as a whole.

2023 Specifier Webinars

Designed specifically for engineers, department of transportation personnel and others who specify construction projects to learn more about the benefits of using precast concrete, these free webinars are available at Precast.org.

Earn personal development hours while hearing expert perspectives about new technologies and best practices.

Here is the 2023 lineup:

- **JUL 20** — LONGER LASTING CONCRETE WITH COATING AND SEALERS
- **AUG 31** — BUILDING SMARTER WITH CLIMATE RESILIENT INFRASTRUCTURE
- **AUG 3** — PRECAST STORMWATER MANAGEMENT SOLUTIONS: DETENTION SYSTEMS
- **NOV 2** — GETTING THE MOST OUT OF PARTNERSHIPS WITH PRECAST CONCRETE SUPPLIERS

Visit Precast.org/specifierwebinars to learn more.

COMMITTEE WEEK

NPCA Committee Week is an intensive series of working sessions for participating members to focus on key issues, engage in discussions and develop ideas.

Committee Week 2023 was May 22-24 at the Conrad Indianapolis hotel and included meetings with the following groups:

- Aboveground Products and Infrastructure Committee
- Education Committee
- Engineering and Technology Committee
- Environmental Subcommittee
- Gravity Grease Interceptor Subcommittee
- QA/QC Committee
- Outreach Committee
- Safety Committee
- Transportation Infrastructure Products Committee
- Underground Products Committee
- Wastewater Treatment Products Committee

A committee callout for the coming year will start in June. All employees at NPCA member facilities are eligible to join committees.

Learn more at Precast.org/NPCA/Committees.

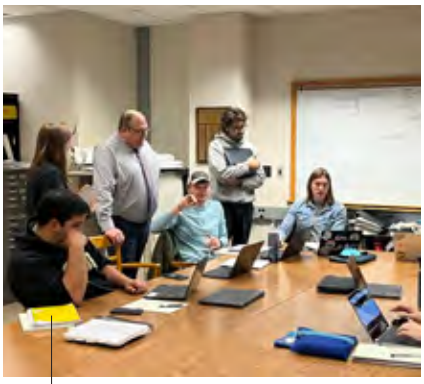
NPCA ON THE ROAD

NPCA staff members have been Working For You at several industry events throughout the first half of 2023. Some of these events include:

North Carolina Septic Tank Association Convention and Expo – Jan. 26-28 in Hickory, N.C.

NPCA Director of Outreach and Technical Education Claude Goguen exhibited on NPCA's behalf then served as a presenter, speaking about the inspection and installation of precast wastewater treatment products.

The NCSTA advances the standards of the onsite wastewater industry in North Carolina and creates uniform rules for the protection of the environment, public health and investment.



NPCA's Claude Goguen traveled to Purdue University in February to speak to and work with Purdue civil engineering students.

Purdue University – Feb. 16 in West Lafayette, Ind.

Goguen and NPCA Director of Education Programs Kathy Ritsmon traveled up Interstate 65 to speak to Purdue Lyles School of Civil Engineering students. Goguen presented on utilizing precast concrete structures for the Big 4 Trail project as part of the group's capstone design course.

After the lecture, Goguen discussed the project with individual cohorts, providing precast-specific information to questions.

Wieser Concrete Products – March 14 by virtual presentation

Goguen provided an update on NPCA's H2S field study, a program with the University of Wisconsin-Stevens Point that is examining H2S gas movement through wastewater systems.

This was one of four collaborations between NPCA and Wieser Concrete Products where Goguen presented creative and unique uses of precast concrete with Wieser employees, customers and specifiers.

For a full list of where NPCA staff members are going and where they have been, visit Precast.org/WorkingForYou.

BOARD REPORT

The following is a report on the NPCA Board of Directors' meetings for the first quarter of 2023.

Board Meeting – Feb. 25 in Columbus, Ohio

- Approved the Consent Agenda, which includes the Board minutes from the Annual Business Meeting on Nov. 2 and the virtual Board meeting on Dec. 20. The Consent Agenda also includes Board and Product Committee reports.
- Approved the 2022 Annual Audit Report, the IRS Forms 990 and 990T (Informational Report and Unrelated Business Income Tax report).
- Approved the Jan. 31 Financial Statements and Investment Summaries.
- Approved the Draft Policies for Dues and Booth Fees, noting that they are guidelines.
- Approved a funding request for specifier research. The goal is to develop an understanding of construction material specifiers to establish precast as the construction material of choice and grow the precast market.

NPCA is working alongside Wieser Concrete Products to present a series of wastewater topics to Wisconsin producers, suppliers and specifiers.

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For possible inclusion, send your press releases and photos to jfrollo@precast.org.

BÉDARD NAMED HONORARY ACI MEMBER

Claude Bédard, former president of Euclid Admixture Canada, in April was named a 2023 honorary member of the American Concrete Institute, the group's highest honor.

Membership was bestowed upon Bédard for his impact as an ACI ambassador, his dedication and commitment to improving relations between industry and academic researchers and for his central role in the chairing and success of the Strategic Development Council.

Bédard has been active in the concrete industry for more than 40 years. He currently is a strategic consultant at Euclid Chemical and also serves as an ambassador for the Centre for Research on Concrete Infrastructures.

EUCLID CHEMICAL EARNS INNOVATIVE FIBER AWARDS

Euclid Chemical received two Innovative Fiber Project of the Year Awards at the 2023 World of Concrete.

In the macrofiber category, Euclid Chemical won first place for supplying its TUF-STRAND SF synthetic macrofiber to the Tesla Gigafactory 5 project in Austin, Texas. In the microfiber category, Euclid Chemical won second place for supplying its new PSI Fiberstrand REPREVE 225 synthetic microfiber to a Tractor Supply Company project in Olive Branch, Miss.

Euclid partnered with Unifi to develop the PSI Fiberstrand line of synthetic microfibers. With a low environmental impact, PSI Fiberstrand REPREVE 225 is a fine denier monofilament synthetic microfiber that is manufactured using resourced polyester material from plastic bottles. For every pound of PSI Fiberstrand REPREVE 225 that is used to reinforce concrete, nearly 10 plastic bottles are diverted from landfills.

OLDCASTLE INFRASTRUCTURE WINS DIGITAL LEADERSHIP AWARDS

Oldcastle Infrastructure received the top prize in the Data category of the Ventana Research 15th Annual Digital Leadership Awards.

With data siloed across so many systems, bringing it together was a significant challenge. The solution was a rebuilding by the Oldcastle Infrastructure team of the foundation of the Data and Analytics platform, which improved technical capabilities and effectively opened the data flood gates.

PLOETNER BECOMES MANAGING PARTNER AT ISI

André Ploetner is the new managing partner at Industrial Services International. He had been the company's general manager since June 2020 and previously worked as regional manager for Rampf Molds as well as general manager for Hess Machinery in Mexico.

Miriam Ploetner also was promoted to admin/finance manager in the company. She will be responsible for all administration and finance related matters.

Bea Andreas and **Bernd Andreas** will continue being involved with other ISI activities.

HAARUP EXPANDING, MAKES NEW HIRES

Haarup North America in March opened a new 25,000-square-foot facility in Ridgefield, Wash. This larger office and warehouse allows for a growing staff, an expanding inventory, assembly and production.

J.P. Gianotti

Alex Hows

J.P. Gianotti began his role as director of sales for Haarup North America in January. Gianotti has 32 years of experience in the industry with designing and selling concrete batch plants and as a precast producer.

Haarup also hired **Alex Hows** as its new sales manager. Hows has five years of sales experience in the precast concrete industry and will help with project management and sales of Haarup mixers and batch plants.

WELLS ANNOUNCES NEW HIRES

Mike Hemberger is the new senior vice president of real estate development at Wells. The new role enables Wells to develop its own real estate portfolio. Hemberger most recently led Wells' Mountain States division as president and COO.

Hemberger has been in the construction industry for more than 31 years and has 15 years of experience in real estate.

Wells also promoted **Amy McGlothlen** to senior vice president of human resources. Assuming an executive leadership role, McGlothlen aims to enhance employee experience and culture at Wells.

McGlothlen has been part of the Wells team for more than nine years.

Mike Mortensen was promoted to vice president of sales at Wells, overseeing Iowa, Minnesota, Missouri, North Dakota and South Dakota.

Mortensen has been with Wells since 2000, starting in field operations. He brings an understanding of the prefabricated building solutions process, where he has spent time in estimating, project management and sales, most recently as a sales manager.

Cheryl Lang

LANG IS ACTING PRESIDENT OF TINDALL CORPORATION

Cheryl Lang is now president of Tindall Corporation.

Lang joined Tindall in 1990 as a controller and worked in that role until 2006, when she was named vice president and CFO. She was promoted again in 2022 to senior vice president of administration, where she was responsible for accounting and finance, human resources, safety, trucking, information technology and marketing.

Tindall also announced several recent changes to its Virginia Division sales staff, which includes the retirement of former sales representative Keith McCartney.

Chris Andrews, P.E.

Bruce Thomas

Chris Andrews, P.E., was promoted to sales manager. After joining Tindall in 2005, Andrews worked four years as a design engineer before transitioning to the sales engineer role he's held for the past 13 years.

Bruce Thomas is now the business development manager. Thomas comes to Tindall with more than 30 years of practice within the commercial new build sector and experience in the Mission Critical market that has been prominent in the Mid-Atlantic region over the past decade.

SIEBENTHALER FOUNDS AS3 PRECAST SALES

Alan Siebenthaler

After 16 years with Hamilton Kent, **Alan Siebenthaler** now represents both Hamilton Kent and Concrete Sealants as an independent sales representative through his company AS3 Precast Sales. Siebenthaler will promote and service both company's products to precast concrete and concrete pipe producers in the Upper Midwest.

Siebenthaler has been a member of the precast concrete industry since 1996 and now serves on the NPCA Board of Directors. Previously, he served two three-year terms on the NPCA Foundation Board as well as stints on various NPCA committees.

HOLCIM US EXPANDS ECOPACT LOW-CARBON CONCRETE

Holcim US announced the expansion of its ECOPact low-carbon concrete with a launch in Minnesota and North Dakota markets. Providing 30% to 90% lower CO_2 emissions compared to standard concrete, ECOPact allows for high-performing, sustainable and circular construction.

As the world's largest diversified supplier of building materials, Holcim is among the first in the industry to offer low-carbon concrete, low-carbon cement, recycled aggregates, services that promote sustainability and transparency through environmental product declarations.

TERBERG TAYLOR BREAKS GROUND IN MISSISSIPPI

Terberg Taylor Americas Group recently began a $20 million building project in the Golden Triangle region of Mississippi.

The facility will focus on a specialty hauling vehicle and set up a distribution network for the sales, after-sales and rental of the Terberg models of terminal tractors.

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Calendar of Events

OCT. 12-14, 2023

NPCA 58th ANNUAL CONVENTION

Omni Oklahoma City Hotel
Oklahoma City, Okla.

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.

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- Create a custom reporting dashboard for metrics
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Timely product delivery is critical to every precast business. That's where Titan's PickIT app comes in. PickIT simplifies your staging needs by confirming that products scheduled for delivery have been fully produced and quality checked. With PickIT, simply scan a product's barcode to verify that the correct item is ready to load, and then double-check the log to ensure that all necessary quality control steps have been taken. It's easy – and mobile – with PickIT!

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