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Taking the Initiative

Unit Precast (Breslau) continually focuses on improving its water and wastewater products.

On the Cover:
 Unit Precast (Breslau) recently expanded its plant and added a 25-ton capacity crane, new forms and automation.

Photo by Sara Geer

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Questions from the Field

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

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

Michael writes:

What requirements do we need to be aware of regarding risers, stack outs and other access ways with respect to confined spaces?

NPCA Technical Services engineers answered:

Whether a manhole riser is a 48-inch diameter or a 120-inch diameter, it would still be a confined space in the eyes of the Occupational Safety and Health Administration. In some cases, even open-ended culverts have been determined to be confined spaces. Consequently, all confined space requirements need to be implemented before entering into an all-service manhole. During construction, some aspects of the confined space rule may not apply, but, nonetheless, specific safety rules and considerations still need to be followed prior to entry.

A confined space has one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere; contains material that has the potential to engulf an entrant.
- Has walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant.
- Contains any other recognized safety or health hazard, such as unguarded machinery, exposed live wires or heat stress.¹



Confined spaces such as manholes, crawl spaces and tanks are not designed for continuous occupancy and are difficult to exit in the event of an emergency. People working in confined spaces face life-threatening hazards, including toxic substances, electrocutions, explosions and asphyxiation.²

RESOURCES:

- 1 <https://www.osha.gov/SLTC/confinedspaces/>
- 2 <https://www.osha.gov/confinedspaces/index.html>

Asif writes:

What is the importance of bond strength, surface texture and geography of steel reinforcement?

NPCA Technical Services engineers answered:

The surface texture of the steel bar is critical to the development of friction and the ability of the concrete to lock in the bar to create the maximum bond between the two. You can easily visualize that a smooth bar embedded in concrete would provide less pull-out resistance than a bar with ribbed protrusions. It would require some concrete shearing before the bar can move. In fact, a bar with a protruding ribbed surface may actually require the concrete to be crushed before the bar will move. Consequently, most design codes provide different factors to be used if the reinforcement is ribbed or smooth.

There have been many tests and quite a bit of research related to the behavior of traditionally ribbed steel rebar. Consequently, there is a high level of confidence in the bond characteristics



that is reflected in design factors. However, there are many surface configurations and composite-yielding characteristics for embedded fiberglass reinforcing bars that require further research before similar confidence and rational uniform design factors can be used.

If the bar geography deals with the placement location of the bar, such as with respect to the concrete cover, then the bond strength of the bar can be affected by a concrete slabbing failure. This can occur when the tensile forces within the bar, typically in a curved shape (arch or pipe) or connection detail (floor or beam to a column), exceed the shear resistance of the concrete, allowing the bar to pull itself through the concrete cover. That drastic condition creates a bond issue. Besides the durability, this is another important reason to maintain the minimum concrete cover required by product standards or keep a minimum development length dimension when terminating using a hook within walls. ■

ONE THING

AGGREGATE MOISTURE CONTENT TESTING

By Kayla Hanson

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



Ask among precasters, and you'll hear all sorts of unique ways aggregate moisture content has been tested over the years. Can you tell by grabbing a handful of aggregate and squeezing? Can you tell just by looking at it? How about picking up some sand, throwing it against a concrete wall, and inspecting the damp mark left behind? Or, creatively, putting a clump of sand inside your cheek and giving it a little chew.

Fortunately, reliable aggregate moisture content test methods exist today that provide precasters with accurate, consistent and repeatable results – and do not require you to ingest aggregate.

AGGREGATE MOISTURE CONTENT

Aggregates are porous materials capable of both absorbing moisture internally and adsorbing moisture on the exterior surface. Although we seek out hard, dense, clean, sound, stable and non-reactive aggregates for use in precast concrete, high-quality coarse aggregate still contain miniscule pores. These pores are capable of holding measurable amounts of moisture, which can drastically affect a concrete mix. Fine aggregate also need to be carefully monitored since they are susceptible to bulking, which causes fine aggregate to hold water between the aggregate particles.

WHY IT MATTERS

Aggregate moisture content fluctuates from day-to-day and can even change from hour-to-hour depending on how they are stored as well as exposure conditions like sun, wind, rain and humidity. Weighing and batching wet aggregate into a mix without accounting for its unique moisture condition at the time of batching would result in adding an insufficient amount of aggregate to the mix while adding excess water. The opposite is true when weighing and batching dry aggregate without accounting for their moisture condition.

GOVERNING STANDARDS

There are three commonly used test methods for performing moisture content tests of normal-weight and lightweight aggregates.

- ▶ **ASTM C566**, "Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying," is applicable to both fine or coarse aggregate and is the most commonly used procedure.
- ▶ **ASTM C70**, "Standard Test Method for Surface Moisture in Fine Aggregate," is another test method but is only for use on fine aggregate. It is less widely used because its procedure is more involved and relies on measuring displaced volumes.
- ▶ **AASHTO T255**, "Standard Method of Test for Determining Total Moisture and Free Moisture in Aggregate (Coarse and Fine)," is the third test method, which has many similarities to the method outlined in ASTM C566 and can also be used on both fine or coarse aggregates. However, it is typically used in preparation for hot-mix asphalt applications.

FREQUENCY

The NPCA Quality Control Manual for Precast Concrete Plants requires plants to determine the moisture content of each aggregate



at least once daily in accordance with ASTM C566 or ASTM C70. When plants use moisture probes or automatic mixing water adjustment systems, plants must still conduct an aggregate moisture content test on each aggregate at least once per week to validate the moisture probe accuracy and performance.

Aggregate bins with high walls keeps aggregate types and sizes separated.

EQUIPMENT

Aggregate moisture content tests require the following equipment:

- ▶ A balance or scale that must be accurate to within 0.1% of the test load at any point within the balance's range of use.
- ▶ A source of heat such as electric hot plate, gas burner, ventilated microwave oven or ventilated oven. Where close temperature control is required, the ventilated oven must be able to maintain a 110 degrees C ambient temperature plus or minus 5 degrees C. Where close temperature control is unnecessary, a hot plate or microwave oven is sufficient.
- ▶ A sample container that must be made of a heat-resistant material large enough to contain the sample during stirring, and of a sufficient width that the depth of the sample does not exceed one fifth of the sample container's width. For example, if the sample container has a diameter of 10 inches, the depth of the aggregate sample must be 2 inches or less.
 - If using a microwave oven or an oven to dry the sample, it may be helpful to use a wide, shallow sample container (like a heat-proof baking dish) that will allow the aggregate to lay in a thin layer. Only use non-metallic sample containers and equipment inside a microwave.
 - If using a hot plate or burner to dry the aggregate, use a sample container that fits entirely, or close to entirely, on the hot plate rather than a sample container that extends over the edges of the heating surface to ensure consistent heating of the aggregate.
- ▶ A stirrer such as a metal spoon or spatula that is a convenient size and safe length.
- ▶ A heat-resistant glove or hot pad.

PROCEDURE

Preparation

First, ensure you have the necessary and properly functioning equipment and personal protective equipment readily available.

Before collecting the sample, weigh the sample container. Turn the balance on and ensure it displays a measurement of zero. If the scale does not read zero, press the “clear” or “tare” option to reset it. Then place the empty sample container on the scale and record its weight to the nearest 0.1%, including the unit of measurement (ounces, pounds, grams or kilograms). It may be helpful to record the sample container’s weight directly on the sample container with a permanent marker. Be sure to validate this weight measurement periodically, but not less than annually.

Collect the sample

Collect a representative aggregate sample from the stockpile in accordance with ASTM D75, “Standard Practice for Sampling Aggregates.” The minimum aggregate sample weight needed for the test depends on the nominal maximum size aggregate of the aggregate being tested. These minimum sample weights are outlined in “Table 1: Sample Size for Aggregate” in ASTM C566. The nominal maximum size aggregate can be found in the plant’s aggregate gradation documentation. Keep in mind the larger the sample size beyond the values required in Table 1, the longer it may take to conduct the test.

Table 1: Sample Size for Aggregate

Nominal Maximum Size of Aggregate, mm (in.) ^A	Mass of Normal Weight Aggregate Sample, min, kg ^B (lb.)
4.75 (0.187) (No. 4)	0.5 (1.1)
9.5 (3/8)	1.5 (3.3)
12.5 (1/2)	2 (4.4)
19.0 (3/4)	3 (6.6)
25.0 (1)	4 (8.8)
37.5 (1 ½)	6 (13.2)
50 (2)	8 (17.6)

A Based on sieves meeting Specification E11.

B Determine the minimum sample mass for lightweight aggregate by multiplying the value listed by the dry-loose unit mass of the aggregate in kg/m³ (determined using Test Method C29/C29M) and dividing by 1600.

Reprinted with permission from ASTM C566-13, “Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying.” Copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. A copy of the complete standard may be obtained at astm.org.

Ensure the sample that is collected represents the entire stockpile of aggregate not only in size and gradation, but also in moisture content. The aggregate near the bottom edges of the coarse aggregate stockpile may be slightly larger in size than the general gradation of the entire stockpile, as bigger pieces have a tendency to roll to the bottom. Also, keep in mind the moisture content of the aggregate within the stockpile will vary depending on depth in the stockpile and environmental exposure conditions. Aggregate deep in the stockpile may be wetter since it is not exposed to the drying sun or wind. Conversely, aggregate on the surface of the stockpile may be wetter than those further down if there was a recent rain or if covered in morning dew.

Ensure the collected aggregate sample is protected from moisture loss or gain prior to performing the test.

Determine the sample weight

Turn the balance on, ensure it reads zero and then place the receptacle containing the aggregate sample on the scale. Record the weight and the unit of measurement. This value is the combined weight of the sample container plus the aggregate sample.

Next, subtract the weight of the sample container from the combined weight of the container plus the aggregate sample. Record the weight to the nearest 0.1% and include the unit of measurement. This value is the weight of the aggregate sample.

Begin drying the aggregate sample

If using a hot plate, place the sample container with the aggregate on the hot plate first and then turn it on. If using an oven, place the sample container with the aggregate inside the oven first and then turn on the oven. Rapid heating of coarse aggregate can cause some particles to explode, which is both a safety concern and will result in the loss of aggregate particles and skew the testing results. Allowing the heat source to gradually heat the aggregate can help prevent the aggregate from exploding.

Gradually heat the aggregate sample using the selected method. If using a hot plate or burner, use the stirrer periodically during the heating process to help expedite moisture evaporation and to prevent localized overheating of the aggregate. When heating fine aggregate, it may tend to stick to the stirrer while it’s wet or damp. Carefully tap the stirrer on the side of sample container to remove any stuck-on aggregate and ensure it goes back into the rest of the sample for drying. If using a microwave or oven, stirring the sample during heating is optional.

There is no set duration for heating and drying the aggregate sample. The amount of time needed to achieve oven-dry aggregate will vary depending on the size of the sample, the aggregate gradation, the method of heating and the wetness of the representative aggregate sample. Although the aggregate may appear to dry quickly to the naked eye, it’s imperative to ensure the pores within the aggregate are completely dry as well.

Carefully watch the sample during the heating and drying process and never leave the sample unattended.

Determine the weight of the dried sample

Before removing the dry sample from the heat source, turn on the scale, place a hot pad on the scale, zero the scale by pressing the “clear” or “tare” button and ensure it shows a reading of zero with the hot pad on the scale.

Carefully remove the sample container with the aggregate from the heat source using hot pads and place the sample container on the hot pad positioned on the scale. Ensure the heat source is turned off. Record the value to the nearest 0.1% including the unit of measurement. This value is the combined weight of the sample container plus the dried aggregate sample.

Next, subtract the weight of the sample container from the combined weight of the sample container plus the dried aggregate sample. Record the weight to the nearest 0.1% and include the unit of measurement. This value is the weight of the dried aggregate sample.

Continue drying the aggregate sample

Using hot pads, carefully place the sample container back on the hot plate or burner, or back in the microwave or oven, and turn on the heat source. Continue to gradually heat the sample, taking care to consistently heat the sample. You may choose to continue stirring the sample.

Continue to carefully watch the sample during the drying process. After some time of continued heating and drying and just before removing the sample from the heat source, turn the scale on, place a hot pad on the scale, zero the scale by pressing the “clear” or “tare” button and ensure it shows a reading of zero with the hot pad on the scale.

Determine the weight of the secondarily dried sample

Carefully remove the sample container with the aggregate from the heat source using hot pads and place the sample container on the hot pad positioned on the scale. Ensure the heat source is turned off. Record the value to the nearest 0.1% including the unit of measurement. This value is the combined weight of the sample container plus the



The NPCA QC Manual requires plants to determine the moisture content of each aggregate at least once daily in accordance with ASTM C566 or ASTM C70.

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secondarily dried aggregate sample.

Next, subtract the weight of the sample container from the combined weight of the sample container plus the dried aggregate sample. Record the weight to the nearest 0.1% and include the unit of measurement. This value is the weight of the secondarily dried aggregate sample.

Determine whether the aggregate is sufficiently dry

Since there is no set heating duration that will result in perfectly oven-dried aggregate each time, it is important to carefully monitor the two dried aggregate sample weights that were recorded. The sample is considered sufficiently dry when further heating causes, or would cause, less than 0.1% additional loss in weight.

Compare the two weights of the dried aggregate sample to determine how much additional loss in weight was achieved, if any, by the secondary drying period. Subtract the weight of the secondarily dried sample from the weight of the initial dried sample. Then divide this value by the weight of the secondarily dried sample. Then multiply this value by 100. If the resulting value is less than 0.1, the sample is considered sufficiently dry. However, if the value is greater than or equal to 0.1, the sample must be dried further. If additional drying is needed, repeat the same process as outlined above.

Example equation:

$$\left(\frac{wt_1 - wt_2}{wt_2} \right) \times 100,$$

where: wt_1 = weight of initial dried sample
 wt_2 = weight of secondarily dried sample

The unit weight for a given volume of a sufficiently dry aggregate sample will be constant. Although not recommended, a sufficiently dry aggregate sample could be heated for hours, and both the final dried sample weight and the unit weight will remain the same. If the test procedure is conducted on another aggregate sample from the same stockpile later in the day, or on a different day, the starting weight of the new sample may be different, but the unit weight per volume of the final dried sample will remain the same day-to-day.

Determine the moisture content of the representative aggregate sample

Once the sample is determined to be sufficiently dry, subtract the weight of the sufficiently dried sample from the weight of the original representative aggregate sample. The resulting value is the weight of the moisture held by the aggregate. Be careful to use the value of the original sample and final dried sample only. Do not use the combined weight of the sample container plus the aggregate sample. Then divide the weight of the moisture held by the aggregate by the weight of the sufficiently dried sample. Then multiply this value by 100. The resulting value is the aggregate moisture content as a percent.

Example equation:

$$\left(\frac{wt_0 - wt_2}{wt_2} \right) \times 100,$$

where: wt_0 = weight of original representative sample before drying
 wt_2 = weight of secondarily dried sample

Make necessary adjustments to the mix

Any necessary mix water adjustments can be made at this point. Compare the measured aggregate moisture content to its absorption capacity. This is usually found within the aggregate supplier documentation, which shows the aggregate's conformance to ASTM C33, "Standard Specification for Concrete Aggregates," or it may be found on the gradation documentation.

A measured moisture content that is greater than the absorption capacity indicates the aggregate is wetter than the ideal saturated surface dry state, meaning it is holding free moisture on its surface in addition to having full pores. Free moisture needs to be accounted for in the mix design as additional mix water being added to the fresh concrete mix. A calculated amount of additional aggregate will need to be added to the mix to maintain the required quantities of raw materials and to achieve the expected yield.

A measured moisture content less than the absorption capacity indicates the aggregate is dryer than the ideal saturated surface dry state, meaning its pores may be only partially full. A calculated amount of additional mix water will need to be added during batching to maintain the required quantity of raw materials and to achieve the expected yield.

MAKE THE TEST RESULTS WORK FOR YOU

Performing aggregate moisture burns is an easy way to validate the moisture content of the aggregate being batched into each mix. The test provides crucial information about the moisture conditions of the aggregate in the stockpile, which will not only affect the water-cement ratio of the mix, but also the strength, watertightness and long-term durability and performance of the precast concrete product being manufactured.

Routinely checking aggregate moisture content and making the corresponding adjustments to the batch values will save time, headaches, product waste and dollars by ensuring the mix design is adjusted as needed prior to dispensing the batch and performing the fresh concrete tests. Catching an out-of-tolerance value during fresh concrete testing may be too late.

RESOURCES

For more information on aggregate moisture conditions, how they affect a concrete mix, and how to calculate aggregate moisture content, watch the webinar, "In Any Weather: Adjusting Batch Water to Account for Aggregate Moisture Content," available in the Online Learning Center at precast.org. You can also refer to the NPCA Quality Control Manual for Precast Concrete Plants for more information on the frequency of aggregate moisture content testing.

In addition, read the September-October 2018 Precast Inc. article, "Concrete Mix Design: Proportioning," for more information on how to conduct raw material and batch adjustments to account for aggregate moisture content. **PI**

Kayla Hanson is NPCA's director of technical services.

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Photo courtesy of TEKA North America

Precast concrete manufacturers must ensure that mixer guards are in place to protect workers.

Getting Mixer Safety Right

Safeguarding workers from mixer hazards.

By Mindi Zissman

Whether it's removing machine guarding, opening the hood during a batch run or cleaning without disabling the motor, mixer safety remains one of the biggest hazards in a precast concrete plant.

Just ask Mike Mueller of Teka North America, a mixer manufacturer.

"I went on a concrete plant visit recently and the mixer's hood had been totally removed," Mueller said. "There was equipment, including a walkway, over the mixer. If you fell over the rail, through

the walkway, there would be nothing to stop you from falling into the mixer.

"The risks that plants are taking are very real and scary, and the dangers may even be unknown to workers themselves."

An issue for large and small plants alike, mixer safety is outlined in a company's safety rules and enforced by regulatory bodies like the Occupational Safety and Health Administration during inspections as well as the plant's insurance company at policy renewal. Consider the following best practices for ensuring mixer safety.



Photo courtesy of Hanrup North America

A lockout/tagout system provides an extra layer of security for mixer cleaning and maintenance.

SAFETY REDUNDANCIES

There are a number of mixers in the U.S. market and any of them can include additional safety redundancies. For example, some manufacturers outfit mixers with an inspection window that has a protective steel grate, allowing a safe view of the concrete mix, and an opening through which small amounts of the raw materials can be added in, but nothing else.

Many precasters choose to purchase a lockout/tagout system for their mixer, providing an extra layer of security for mixer cleaning and maintenance by having a single lock and key added to the electrical panel that governs the mixer's on/off switch. Before performing maintenance and entering the mixer, the operator puts the key in the lock position and then takes it into the mixer when performing the maintenance. With a lockout/tagout system, there is no way for anyone else to accidentally start the mixer since the only override key is with the operator.

Additionally, more businesses are opting for mixers outfitted with automatic pressure washout systems. This is an automated system that uses water to clean the inside of the mixer. While these systems may still require an operator to clean parts of the mixer, it will reduce the amount of time spent inside the mixer.

Multiple safety features on a single mixer allow for redundancies. If one precaution fails, the second will prevail and so on.

A COMPANY'S **SAFETY POLICY** SHOULD INCLUDE MIXER CLEANING, MAINTENANCE, GUARDING AND ACCESS RULES.

CLEAR, OBLIGATORY SAFETY POLICIES

Enforce wearing safety gear and maintaining machine guarding. Create a system of safety inspections that occur daily, weekly, monthly and quarterly. A company's safety policy should include mixer cleaning, maintenance, guarding and access rules. Finally, it's never too late to establish and enforce a safety policy.

SITE-SPECIFIC TRAINING

Conduct site-specific training and point out the safety features of each mixer. To initially run the mixer, safety features must be enabled. Ensure workers do not disable them in order to make their daily work easier.

"A lot of producers like to have visual access to the inside of the mixer," Mueller said. "To gain that, you have to open the mixer hood. We see it all too often that the safety features are purposely disconnected so the hood can be opened and they can see inside."

According to Søren Pederson, vice president and director of sales at Haarup North America, this problem can be solved with training. When workers are trained to wear the proper safety gear, they can also be instructed on how to do their job efficiently and effectively while working with protective guarding.

"This has to be a policy you strictly enforce, otherwise workers will take the guarding off because it's easier," Pederson said. "Be strict about this. Have safety coordinators come in and verify that

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workers are doing their lockout/tagout at all times and that they're not taking off machine guarding."

During new hire onboarding, conduct the same training every time and convey the same safety message to show new hires that your plant is serious about safety. Consider biannual or quarterly site-specific training instead of just an annual mixer safety class.

The responsibility for safety lies with everyone. The plant's owner/operator and all levels of workers need to be constantly retrained on the equipment's safety features, rules of the plant and proper procedures to ensure they are complying with the company's policies.

DON'T OVERLOOK DAILY CLEANING

Cleaning and maintenance are the most common causes of mixer accidents and personnel injury. Ideally, the operator who knows the mixer best should be the one charged with its daily maintenance and cleaning. Schedule a specific time for daily cleaning and allot the proper amount of time to clean the mixer effectively. Too many plants minimize cleaning time to be more productive, but this challenges the plant operator to do as much as possible in too little time.

SCHEDULE REGULAR MAINTENANCE

Like a car, a mixer will run its best when regularly maintained per manufacturer specifications.

"Companies that allow for cleaning and maintenance can actually

schedule their down time," Pederson said. "Those that don't, yes, they may be more productive for months of the year, but then are going to be putting out fires. Scheduled maintenance is basically free.

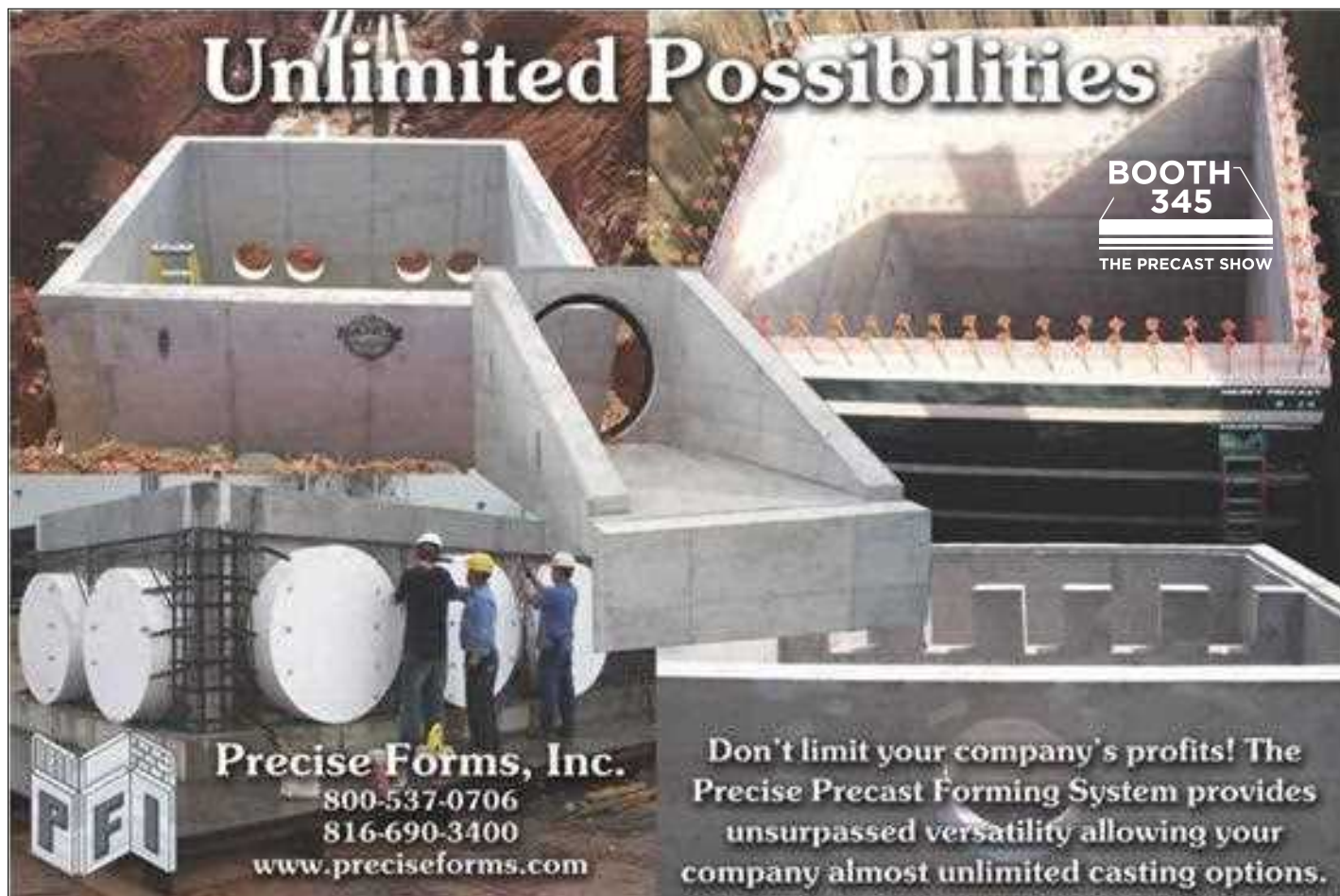
"Unscheduled maintenance is costly. You could shut down production or, worse, someone could get seriously injured."

With regular cleaning and maintenance, Pederson said even an old mixer can continue working and operating efficiently.

COMMON SENSE IS NECESSARY

It's possible to drive without a seatbelt and not get hurt, although the driver is still unsafe. Similarly, it's possible to use a precast mixer without the hood on, or without the protective guarding. But, that's a risk responsible plant owners and operators don't want to take. Beside the potential for employee injury, it also could be considered a safety violation within an OSHA inspection, which will add to the citation fine. Train plant staff to ask themselves, "Is this safe?" before performing each new or unprecedented action in the heat of the moment. If the answer is, "no," then a broader safety conversation needs to take place with all parties involved. **PI**

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



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Workforce Development: **ATTRACTING TALENT**

By Alex Morales, M. Ed.

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

What comes to mind when you think about millennials? The manufacturing workforce shortage is real, which means we need to think through our perceptions of millennials and ensure we focus on how to effectively integrate them into our workforce. A recent study by the Brookings Institution, a nonprofit public policy organization in Washington, D.C., predicts that by 2025 up to 75% of the workforce will be millennials.¹ You simply can't remain competitive if you focus on the negatives of 75% of the workforce when the overall number of available employees is dwindling.

UNDERSTAND THE NEW GENERATION

In order to understand millennials and the Gen Z generation (those born between 1995 and 2010), keep in mind they know only a digitally connected world. When precasters and suppliers work to find plant talent today, you're not just competing against other NPCA members, you're also competing against industries that didn't exist 10 years ago. That's going to be increasingly true in 2025. Your tried-and-true human resource practices and policies will need refining, as will your general approach to onboarding.

Moreover, we need to accept that manufacturing environments, like precast, are relatively standard production environments that have not changed drastically in decades. That's not to say there haven't been innovative concrete technology or automation advancements over the years. But day-to-day tasks on most manufacturing production floors are basically the same today and we're facing a new generation that society has conditioned to look for the next new thing: the latest smart phone, app, etc.

THE NEW NORMAL

Hiring and interviewing practices tend to focus on the company's needs. But during today's hiring process, we should think more in terms of what employees are looking for, which may be a huge change for small businesses. In a recent report, "Evolution of Work 2.0: The Me vs. We Mindset," ADP Research International states, "while ... a global workforce [has] led to more efficient and streamlined business practices, they have also created a one-size-fits-all script to HR policies that risks being too impersonal to attract and retain the best talent."

That's important to understand. Our HR practices must evolve to be more personal even in the pre-hiring phase.

Remember, information is easily available to today's employees who are always online, can constantly share job-related details with one another and maintain social networks that employers may never see. Employees have access to a plethora of information about what other employees are doing and what other companies are offering them. This is the new normal.

Millennials and Gen Zers are more comfortable being constantly connected than previous generations.

EMPLOYEE EXPECTATIONS

A connected world is an HR challenge in the manufacturing sector of our economy because, as many have experienced, some employees will leave even if another opportunity offers just a minimal increase in pay. That's a sign showing we're not focused on the right incentives to stay and, consequently, don't have the right package to attract new employees.

As a new generation of employees enters the workforce, they bring with them a unique set of expectations of their employers regarding work-life balance, employee-focused working conditions and personalized opportunities for advancement, to name a few.² Manufacturers must come to terms with those expectations and adjust their own if they're going to succeed in hiring and keeping employees. We'll talk more about keeping employees in the fourth article of this series on retention strategies.

Work-life balance

All generations say they struggle with work-life balance. Remaining connected after work hours and feeling guilty about taking all their vacation days are common themes, but work-life balance is defined differently by younger employees. For instance, millennials and Gen Zers are more comfortable being constantly connected than previous generations and are more likely to work during off-hours and do non-work tasks during work hours. Access to social media is often an impediment on the precast concrete plant floor; however, plant-floor employees are more likely to feel disengaged from life when work disallows them access to their devices.

In an employee engagement study, Randstad USA found that 45% of U.S. employees "say their bosses don't help them disconnect from work while on vacation."³ Make sure there is consistency between your policy regarding cell phone usage while at work and your actions when employees are not on the clock. If you disallow employees access to their devices during work hours, you should be as strict about not engaging them during off-hours or while they are on vacation. Otherwise, they might not see you as providing fair work-life balance.



HAVE YOU CONSIDERED UPGRADING YOUR LOCKER ROOM OR LUNCH AREAS? SURVEY YOUR PLANT-FLOOR EMPLOYEES ABOUT WHAT AMENITIES WILL IMPROVE THEIR EXPERIENCE AT WORK AND MARKET YOUR IMPROVEMENTS TO NEW RECRUITS.

Employee-focused working conditions

Work-life balance is closely related to flexible work schedules. While automation can create high-tech jobs in the industry with strict pour schedules and stripping times, it is more difficult to provide a traditional type of flexible schedule in precast manufacturing. Hence, improving working conditions is important to help your plant stand out as the better manufacturer to work for locally.

Make sure overall employee experience is considered. Well-kept locker rooms, access to a well-resourced lunch room and even the installation of showers for plant-floor employees can improve their sense of well-being. These amenities can also help your plant stand out among local competitors and attract employees because, remember, they will share their experiences (see related story on page 20).

Personalized opportunities for advancement

If the baby boom generation was the “me” generation, some call millennials the “me, me, me” generation, with anecdotes about being coddled and everybody getting a trophy. Discussions about participation trophies aside, it’s important to view younger generations’ expectations through a job satisfaction lens. Personalized approaches can appear to be daunting to HR. How can you give employees individual attention and convince them to choose your precast plant as a long-term career, and still get your own work done?

NPCA’s Precast University is a great way to tout your company’s commitment to individual employees, and it’s a built-in personalized program. Hopefully, you’re already taking advantage of this program and are committed to training your employees for the long term. If not, visit precast.org/precastuniversity. Use that commitment as a recruiting tool and work with your new employees to learn if they’re interested in production, production leadership, quality, safety or technical training. The Master Precaster designation is a worthwhile long-term goal but remember to engage your new employees in conversations about their individual interests and let them know you will invest in them, their choices, and their career. We’ll dive further into the training topic in the next installment of this series but, for now, think of training as a recruiting tool. If you haven’t done so, documenting your commitment to training employees may serve as a morale-boost purpose for you. Of course, this effort to personalize the employee experience is pointless if you can’t find new employees in the first place.

SEARCHING FOR TALENT

At the end of each article in the remainder of this series, we’ll showcase a precaster that is on the leading edge of workforce development initiatives. Here, we’ll take a look at what Gainey’s Concrete Products is doing to attract new talent to their plant.

High school

High schools are challenging places for manufacturers to incubate

future talent, primarily because school systems (and parents!) are conditioned to encourage their children to pursue advanced degrees. In most cases, high schools are incentivized to improve their college placement rates but some school districts are realizing that not all high school graduates have personal aspirations to obtain advanced degrees. Hence, high school career fairs are a good place to start.

“We speak at local high schools for career day, and we send notices to guidance counselors at the end of the school year of openings for graduating seniors who do not intend to immediately go to college,” said Lisa Roache, COO of Gainey’s Concrete Products.

Although some have considered a push for elementary school-aged children to be introduced to local precast careers, for more immediate results it’s best to focus on high school upper classmen.

Veterans administration

The U.S. Department of Veterans Affairs has partnered with the U.S. Department of Labor and publishes myriad resources on its website.⁴ The site includes a toolkit specific to hiring qualified veterans, and the current administration has even established the HIRE Vets Medallion Program to recognize employers who hire our nation’s heroes. Plants that successfully work with local veterans administrations are encouraged to take part in the program at hirevets.gov.

Work release programs

Gainey’s also participates in work release programs and in two drug rehabilitation programs. Work release programs are a great way to promote community involvement as your company works to employ those who have completed their debt to society.

Gainey’s goes the extra mile participating in drug rehabilitation programs, which speaks to their efforts to personalize the employment experience for the current workforce. Roache goes on to explain that Gainey’s is trying to get a grant to set up transitional housing. As a workforce development initiative, this is a fantastic example of personalizing the employment experience for their employees. It undoubtedly takes a lot of work, but such is the task of ensuring precast concrete is the preferred manufacturing industry of employment in your local market. Gainey’s is focused on the positive, mutual benefit of their employment relationship with new employees – and that’s what it takes to ensure your precast plant is successfully finding talent well into the future.

UP NEXT: TRAINING

In the next installment of this series, we’ll take a look at how training is more than an onboarding initiative. Some precasters are realizing the importance of continued training and assisting their employees with life-skills outside of on-the-job skills necessary to succeed in precast. This hits on several important workforce development initiatives and can set your plant apart from other manufacturing options available to your local talent. **PI**

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

RESOURCES:

- https://www.brookings.edu/wp-content/uploads/2016/06/Brookings_Winogradfinal.pdf
- [Employee Engagement study, Randstad USA](#)
- <https://www.dol.gov/veterans/hireaveteran>

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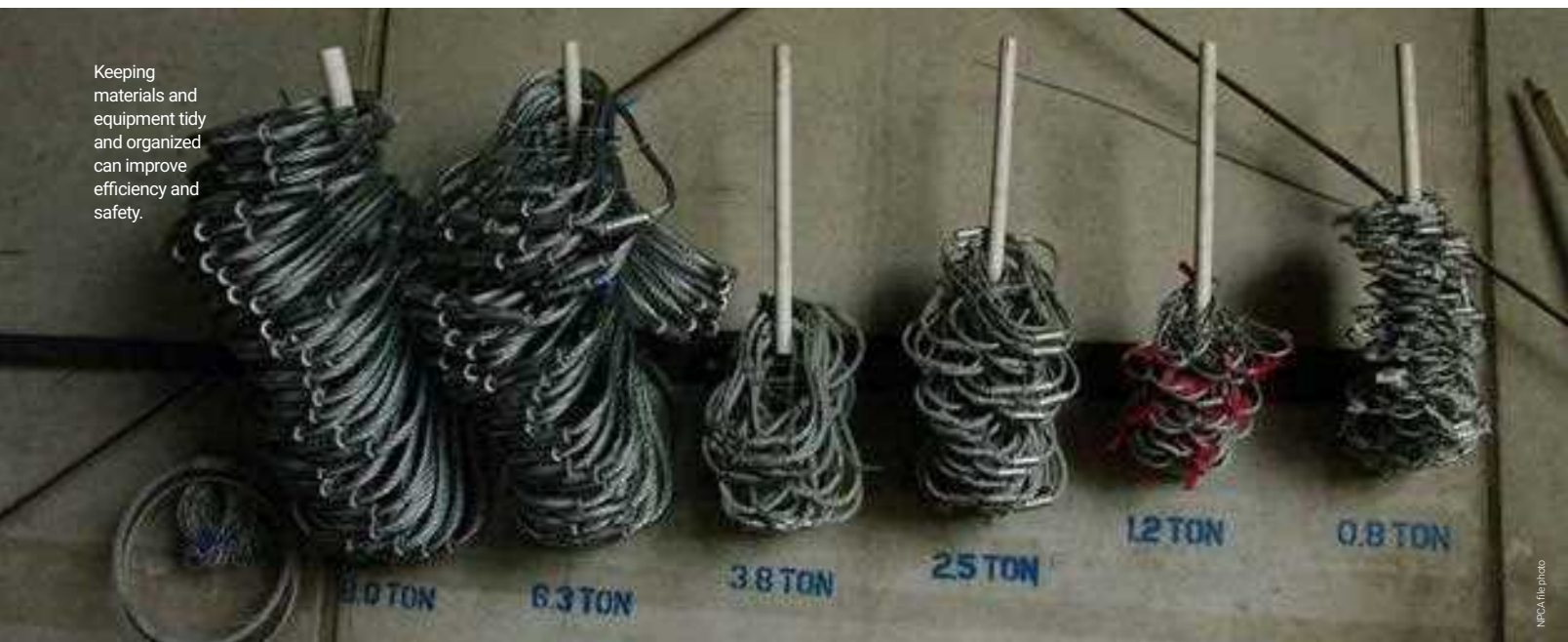
Getting Your Precast Plant

IN ORDER

By Bridget McCrea

Precasters can improve plant safety and efficiency by implementing housekeeping, cleaning and organizing initiatives.

Keeping materials and equipment tidy and organized can improve efficiency and safety.



For Operations Manager Jude Mandes, keeping Gillespie Precast's three plants clean, organized and operating at their fullest potential is a daily battle, but one that's well worth the time and effort that he and his team put into it.

Whether that means arranging tools to ensure good accessibility when employees need them, keeping floors clear of debris and waste or cleaning plant equipment regularly to make sure it remains operational, the overall act of plant/shop housekeeping is an important exercise that Gillespie takes seriously.

"We use a clean-as-you-go policy, which we try to enforce every day, all day," said Mandes.

Introduced as part of the precaster's new employee orientation, housekeeping is positioned as a fundamental safety practice.

"We really try to be practical with it and get all our workers on board with the idea that good housekeeping helps to create a safe, organized productive workplace," Mandes said.

Mandes, who has been a Gillespie employee for 16 years, said the company has been focused on creating a safe, clean workplace for its employees since day one. It has also honed its approach over time and taken it a few steps further over the years. Every time it introduces a new concept or process, the precaster realizes that there will be some cultural changes.

Veteran employees who have always just dropped their stuff and moved along, for example, are reluctant to conform to new ways of organizing tools and equipment. Younger employees, on the other hand, expect others to clean up after them, said Mandes.

“We basically have to beat the bush from the top-down and monitor it all day,” he said.

CREATING A CLEAN, SAFE WORK ENVIRONMENT

An organized manufacturing plant shows that you and your employees value your organization, safety, your customers and your business partners. It also makes for a very welcoming atmosphere and shows that everyone at your company takes great pride in the facility. Perhaps most importantly, cleanliness also translates into a safer workplace since clean, dry factory floors help prevent accidents. Finally, having a clean, organized plant can also be a great sales and marketing tool when current or prospective customers drop in for a visit.

For many companies, simple directives like putting tools back in their proper places can fall by the wayside when business picks up and workdays get busy. Unfortunately, when a plant employee can't find the right tool for a specific task – or when someone slips and falls on a spill that was ignored and never cleaned up – it can definitely take a toll on a plant's productivity. Luckily, this vicious cycle can be avoided with good, ongoing plant cleaning, housekeeping and organizational policies.

After initially outfitting all of its plants with a plethora of brooms and sweepers that employees could use to sweep their messes into piles, Gillespie tried something else. It equipped those locations with multiple wheelbarrows to encourage the continuous collection and disposal of waste.

“We want wheelbarrows all over our plant so that when our employees strip forms, cut wire and make plugs, they can drop the trash and concrete right into the wheelbarrows,” Mandes said.

Workers also use the handy receptacles to quickly scoop up any debris piles on the floor – eventually wheeling all of it to the center of the building for disposal.

“That's one strategy that's really worked well for us,” Mandes said. “The key is to have an abundance of wheelbarrows scattered around the plant because it really encourages everyone to clean continuously.”

SETTING A GOOD EXAMPLE

Maintaining a clean, safe plant doesn't have to be a challenge, nor does it have to be expensive or time consuming. It does, however, require a commitment from managers, supervisors and employees to keep the workplace in good working order on a 24/7/365 basis – not just for annual inspections or quarterly checkups.

Sam Lines worked at a precast plant for 15 years before joining Concrete Sealants 13 years ago as an engineering manager. Lines said the fact that it's difficult to keep a shop clean in the precasting environment makes plant cleanliness particularly difficult for companies to achieve.

“Concrete products by their very nature produce a lot of dirt and dust,” Lines said.

For these reasons, Lines said precast owners, managers and

supervisors should shift their thinking to setting good examples for employees, as opposed to just dictating rules and policies down the chain of command. By leveraging the “do as I do” management approach, they can effectively infuse good housekeeping strategies into the workplace without ruffling too many feathers.

“If you're leading an organization and you're not practicing good organization and housekeeping, and if you're not cleaning your office and keeping your environment clean, then how can you expect others to participate in keeping their areas clean?” Lines said.

Along with setting a good example in these areas, Lines said leaders also have to establish a vision for what they want that clearly illustrates exactly what's expected of workers when it comes to plant and workspace housekeeping, cleaning and organization.

“Set the example and be the example,” Lines said. “Then, create that mental image of what perfect looks like and convey it to employees.”

One way to achieve the latter is by taking pictures of those perfect scenarios and hanging those pictures in strategic locations throughout the shop. Organize the nearest workbench or tool board exactly how you'd like it to look every day, take a picture of it and post it right next to that workbench or tool board.

“Doing this gives the workers an opportunity to see what perfect looks like,” Lines said. “This

is important because without expectations, it's difficult for anyone to understand what is expected of them in terms of cleaning, organization and housekeeping.”

THE BEDROCK OF A GREAT OPERATION

Tatsuya Nakagawa, co-founder of sustainable floor coating firm Castagra, said when developing a housekeeping action plan, precast concrete manufacturers should start by focusing on keeping facilities tidy and organized. Do it in the name of safety first and understand other benefits (efficiencies, employee satisfaction, etc.) will come naturally once the wheels are set in motion.

“All companies right now are running very lean and trying to eke as much as they can out of their operations,” Nakagawa said. “Any level of disorganization is going to negatively impact their bottom lines and/or safety records.”

Having an organized plant also allows precasters to start optimizing their operations.

“If the individual pieces aren't organized, then manufacturers can't really leverage optimization because they're spending too much time trying to figure out where everything is and where everything's going,” Nakagawa said. “For this and other reasons, being organized is the bedrock of a great operation.”

Greg Stratis, president of Shea Concrete Products, concurs and said his company prides itself in always maintaining a neat and orderly operation – from its delivery vehicles to its offices to its production plant.

“We look at all of it as a billboard for our company,” Stratis said. “We want to make sure that when customers, employees and even competitors see our facilities, that they don't see precast as a messy, dirty, oily job.”

Focused on maintaining a polished image, Shea Concrete emphasizes the need for a clean and orderly workspace right when employees

“GOOD HOUSEKEEPING
HELPS TO CREATE A
SAFE, ORGANIZED
PRODUCTIVE
WORKPLACE.”

– Jude Mandes, *Gillespie Precast*

are hired, and then continues to train them on the merits of this philosophy over time. And because cleanliness often equates to better safety records in the heavy manufacturing industry, the company gets the highest payout in the form of a safe, secure workplace. Employee morale is also better, said Stratis, when the workplace itself is neat, clean and organized.

“We want to be able to bring someone by – be it a customer or a prospective employee – without having to run around and clean up every time,” Stratis said. “We’re always ready for company.”

LONG-TERM SUCCESS

Tom Richert, principal at LeanProject, has worked with many industrial companies that needed help developing effective housekeeping and organizational strategies for their plants and factories. A lean manufacturing expert, Richert said developing continuous improvement processes for cleanliness not only creates operational efficiencies, but it also makes for a more pleasant work environment. The latter is particularly important at times when companies are grappling with a skilled worker shortage and a historically low unemployment rate of 3.7%, as of September 2018, according to the U.S. Bureau of Labor Statistics.

“BEING ORGANIZED IS THE BEDROCK OF A GREAT OPERATION.”

– Tatsuya Nakagawa, *Castagra*

For manufacturers, Richert said good plant organization starts at the production process itself, which in many cases is handled in a “seat of the pants” fashion and, as such, has a lot of waste built into it.

“If you take the time to map out how work would ideally be done, and then look at how it’s being done now, you’ll probably detect some pretty big differences between the two,” Richert said. “Only then can you start taking some of the unnecessary steps – many of which contribute to factory messiness – out of the process.”

Another good step is to keep inventories to a minimum out on the shop floor. In fact, workers should only have exactly what they need to do their jobs. In return, Richert said precasters can expect benefits like improved worker productivity, better employee engagement, fewer safety incidences and better overall plant efficiencies.

“The companies that focus on creating a culture where people want to participate in making the work better – and that includes cleanliness and organization – are always the ones that are most vibrant and successful over the long term,” Richert said. ■

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

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TAKING THE **Initiative**

UNIT PRECAST (Breslau)

By Sara Geer



Unit Precast (Breslau)'s most recent equipment purchase was an automated turning bar that has helped increase efficiency for the production staff.

The Kitchener-Waterloo area of Ontario, Canada, is famous for its entrepreneurial success. Known as its Silicon Valley, the region has the second-highest density of technology startups in the world. Even large technology companies such as Google are building offices there to snatch up the talent coming from surrounding universities. This has been great news for the area in terms of providing new opportunities.

This entrepreneurial spirit, however, is not new to the region. Kitchener-Waterloo has long been an incubator for successful businesses across all industries, including precast concrete.

Innovation and drive can extend to any field of work. It all depends on unique ideas, an individual's passion for building something great and their willingness to push themselves to the limits to achieve big goals.

Forty-four years ago, Doug Robinson embodied these same characteristics. He founded Unit Precast (Breslau) at a young age with not much in his wallet, but a lot of innovative ideas for designing and manufacturing water and wastewater products. Doug's son and business manager, Scott Robinson, said through hard work, long hours, faith, prayer and through involvement with different associations, including the National Precast Concrete Association, his father was able to continually evolve his company to remain competitive and meet the ever-changing market demands.

A SERIES OF FORTUNATE EVENTS

Incredible things can happen when you're in the right place at the right time. That was the case with Doug when a series of events led to him owning Unit Precast. At age 18, he started working for a septic tank manufacturer at the location where Unit Precast resides today. The owner asked him to purchase the business, but at that stage in life he could not afford it. A few years later, the business was sold to an accountant, Dave Butterworth, who was involved with four other partners who owned precast unit step businesses at the time and wanted to venture more into septic tanks. Dave took Doug under his wing and brought him along to tour other precast businesses.

"After a year of working for them and managing part of the business, the owner (Dave) said, 'Why don't we start up a partnership?'" Doug said. "Because he was an accountant and didn't want to work here, he said, 'We'll start up a new company.' That's why we're called Unit Precast (Breslau) instead of Breslau Precast or Robinson Precast, because of our association with unit step."

A couple years after he set up the partnership with a buy/sell agreement, a serious car accident landed Dave in the hospital for nearly a year. Doug would often visit Dave in the hospital and they even designed a 5,000 IG tank from the hospital bed. The events of the car accident made Dave rethink the precast business and he sold his shares to Doug.

Doug became sole owner of Unit Precast and incorporated the business in 1974. The last step was to purchase the property that his first employer still owned.

"I looked at other plants around Breslau (a block plant) but realized it was going to be too expensive to change everything," Doug said. "So, we decided that we would stay here and expand this company. It's been slow growth, but it's been good growth."

"That's also when my wife (Rose) came on board. We built a little office that was not very big and eventually this became Scott's playpen later when he was born."



Doug and Scott Robinson

Photo courtesy of Unit Precast (Breslau)



Scott said the first office more resembled a shed but remembers fondly growing up at the plant and working summer jobs sweeping the floors and doing other odd jobs. Helping around the plant provided good motivation for him to attend the University of Guelph and work hard toward a degree in business.

“The job market was a little tough after graduation, so I came on just to help them out with getting started with wastewater treatment systems,” Scott said. “Turned out I fell in love with wastewater treatment and the products and I’m still here.”

Scott officially joined Unit Precast in 2000 and spearheaded the next phase of the company’s growth.

TWO COMPANIES, ONE GOAL

While attending NPCA meetings early in his career, Doug remembered thinking very few members were involved with wastewater treatment systems. He thought it would be the future for protecting the environment and reducing pollution. That passion led him to partner with a U.S. product supplier to sell wastewater treatment systems in Ontario.

“We got involved with that company for quite a while,” Doug said. “In fact, we sold a lot of units – more than 1,000 units.”

However, through servicing the units, they discovered the systems weren’t always meeting Ontario’s stringent regulations and performance criteria set by the Ontario Ministry of the Environment at the time. Regulations required that each effluent sample be taken from each system to a laboratory and the results submitted to the Ministry.

“Being a company that wanted to look ourselves in the mirror and say, ‘We’re doing right for our customers and the environment,’ we needed to look at different technologies,” Scott said.

In an effort to improve its wastewater treatment products, Scott looked abroad to see what other countries were doing. He even visited Europe with his wife for their first wedding anniversary and toured Germany to bring back ideas. While abroad, he noticed rainwater harvesting systems were an improvement to the cisterns that the company sold and brought back these ideas.

“We started to get involved with organizations like NOWRA to continue to improve and educate ourselves on wastewater treatment and to understand where the market was headed,” Scott said.

Through continued research and education, Scott found a new technology partner and created a new company called RH2O North America.

“That was how we got involved in a new generation of wastewater treatment products,” Scott said. “That work really is what has been



Unit Precast (Breslau) manufactured and installed wastewater tanks at Camp Oochigeas in Toronto, Ontario.

pushing our precast here at Unit Precast in commercial and residential sales.”

Now the two companies work in tandem. Customers are assured that Scott and his team understand every segment of service from monitoring the technology to building quality precast concrete tanks. Scott manages both businesses and said it has been a rewarding experience for him.

“We’ve actually worked with other precasters, and I like being able to help them out,” he said. “Because often they’re in the same circumstance or working with a system that isn’t meeting all the requirements. That’s been great for our industry.”

“And, for the most part, our business has grown organically and we’re really happy how it’s taken off.”

Tim Hortons, the “Dunkin Donuts of Canada,” is the largest



“We decided that we would stay here and expand this company. It’s been slow growth, but it’s been good growth.”

– Doug Robinson, owner of Unit Precast (Breslau)

customer. Unit Precast has worked with Tim Hortons throughout Ontario and RH2O has supplied systems for Hortons’ stores across Canada. Unit Precast even installed a rainwater and wastewater system for its own staff and office building. This supports their goal to improve the environment and helps them to understand fully how their system will work in the field.

IMPROVING SEPTIC TANK DESIGN

Since the decision was made to keep the company on the original property, the amount of available land made it difficult to diversify product lines. The company didn’t see that as a hindrance, however, and instead used it to reevaluate its current products and become experts in the field of residential and commercial wastewater treatment.

“We didn’t get into retaining walls or high volume, low margin products because we didn’t have space for it,” Scott said. “The move to commercial wastewater was to maximize the value added out of the concrete boxes we could produce.”

The move was a smart one, since in recent years the residential market in Ontario is shrinking due to the government’s desire to focus on urban centers to stop urban sprawl. Due to the recent boom in the commercial market, the company is now sending product farther than ever.

“A residential septic tank may only be cost effectively delivered within an hour, a residential treatment plant can go 2-3 hours, yet for a commercial treatment plant we’re going 6-7 hours away completing those projects,” Scott said. “So, we’re going all over the place with commercial wastewater. We’re also the only precaster in Ontario that does a full design, build, install and service.”

Unit Precast was the first precaster in Canada to have its septic tanks be Canada Standards Association (CSA) certified. The company also changed other septic tank design elements that started to become standard among other precast concrete manufacturers in the area.

“I was one of the first precasters to put the manholes over the inlet and outlet baffles,” Doug said. “Often, they were either in the center or to the side, which was too far from the end of the tank for installation and service. And, it wasn’t long after that others started doing it too because it was a good thing. Something that should have been done years ago.”

The Robinsons encourage a family environment among the plant’s employees.



Below: Unit Precast (Breslau) is one of the only precast manufacturers in Ontario that provides design, manufacturing, installation and service.



Scott said the company was also one of the first to start using plastic risers and flexible boot seals on its tanks. They are always looking to improve the product that they are selling.

One thing the company is taking a serious interest in is improving septic tank and wastewater treatment design by actively researching and testing ways to eliminate microbially induced corrosion (MIC) that occurs with a small percentage of tanks.

“My dad would try and speak with different cement suppliers and was told, “It is just a little segment, don’t worry about it,” Scott said. “But there was always something that we’ve tried to do different, whether it would be changing mix designs or using a special spray above the waterline, but in each case, we found different issues.”

Scott joined the NPCA Water and Wastewater Product Committee because of his dad’s passion for solving MIC in tanks. He’s also seen the same passion from other NPCA members he served with on the NPCA MIC Task Force.

“I’ve been an active member in testing a lot of septic tanks,” Scott said. “I had the NPCA sensors here for a number of tests and then was able to get the local CPA (Concrete Precasters Association of Ontario) to purchase two sensors for me to use. I continue to do testing and I’m really excited about the information I’ve been sharing back with many other precasters.”

UNITING ONTARIO PRECASTERS

Unit Precast has always been a company open to helping other precast concrete manufacturers – even its own competitors – succeed. In an effort to work toward improving the quality and perception of precast concrete septic tanks, Doug joined with other Ontario precasters to create the CPA of Ontario.

“I think one of my dad’s biggest fears back in the day was that plastic tanks were coming in,” Scott said. “They had a huge marketing effort and, coincidentally, they came in and were having lots of problems that actually helped concrete septic tanks in our area become the go-to standard.”

Since CPA of Ontario’s formation, Doug has served as president and Unit Precast has remained an active member. The group is close. They often call each other for guidance about unknown situations or concerns.



Above: Unit Precast (Breslau) installed a commercial wastewater treatment system for a highway rest stop with phosphorus removal.



Left: Unit Precast (Breslau) manufactured and installed a precast concrete ping-pong table for Tremaine Park in Kitchener, Ontario.

“At first, when precasters started getting together we didn’t like sharing too many secrets, but gradually people came around in an effort to ensure we were all making precast tanks the right way,” Doug said.

The company’s love for helping has also extended into the community. The staff at Unit Precast had fun one day playing with glass-reinforced-fiber concrete and donated a precast ping-pong table to a local park.

“We’ve always wanted to give back to the community, but most people don’t raise their hands and say, ‘Can I have a septic tank?’” Scott said. “So, we were able to give back a ping-pong table which was a really cool project for us.”

PLANT ADDITIONS AND FUTURE GROWTH

Unit Precast recently completed its fourth addition to its plant. The addition brought with it more room for a 25-ton capacity crane, new forms and automation, including a new batching control system.

“One of our most recent purchases was an automated turning bar,” Scott said. “Before this our guys actually had to turn the product by hand. We also found that the wastewater treatment systems were taking off so much we needed another form and needed to expand our production facility.”

With dreams of potentially expanding more, adding new product lines and updating equipment in the future, another big goal for the company is to one day have the plant be NPCA certified. Scott sees the opportunities available for his company and is working hard toward making those goals a reality, like his dad did before him.

“Through NPCA and all they offer – networking and staff training that we are able to implement back into our business – the return investment is helping our company be the best it can be,” Scott said. **PI**

Sara Geer is NPCA’s communication manager and is managing editor of Precast Inc.

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Precast
bioretention
system in
Ranson, W.Va.

Diversifying Your Products

FOR A RAINY DAY

By Claude Goguen, P.E., LEED AP

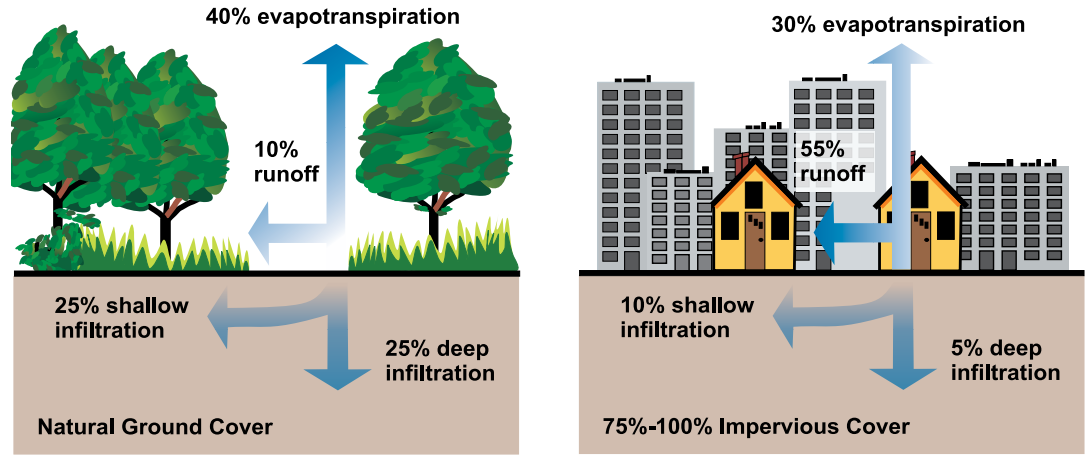
It seems like we see more news every year about floods ravaging areas throughout the country. It would be logical to assume that if we are getting more floods, we are getting more rain. However, it's not the overall rainfall amount, but rather the increase in heavy downpours that is partially to blame. In the United States, the amount of rain falling in very heavy precipitation events has been rising significantly. This increase has been greatest in the Northeast, Midwest and upper Great Plains, which are seeing increases of 55%, 42% and

29%, respectively, in heavy rain events since 1958.¹ In terms of flooding events causing more than \$1 billion in losses, there have been 29 since 1980.²

The other contributing factor to increased flooding is the ever-expanding use of impermeable surfaces in the form of roofs, roadways and parking lots. When you mix higher rainfall with larger amounts of surface runoff, you get more water moving quickly to streams and rivers.

According to the U.S. Environmental Protection Agency, when rain falls on an undisturbed natural area, 50% is infiltrated into the soil, 40% is absorbed by plants and trees and 10% remains as surface runoff. When rain falls in a developed urban area, there is 15% soil infiltration, 30% absorbed by plants and trees and 55% runoff.³ This means 45% more water runs over the surface to the closest sewer or body of water. To make matters worse, the runoff captures sediment, pesticides, nutrients, bacteria, viruses, road salts and other pollutants, and takes them to rivers, ponds and lakes. This constitutes or creates a negative impact on the community in terms of environment, social and economic pillars.

NATURAL VS. URBAN STORMWATER DRAINAGE



Relationship between impervious cover and surface runoff. (Source: EPA – Protecting Water Quality from Urban Runoff - Document No. EPA 841-F-03-003)

NOW FOR THE GOOD NEWS

In response to the increase in surface water pollution and flooding due to stormwater runoff in urban areas, many cities throughout the U.S. are realizing the old ways of managing stormwater may not always work. They are looking at approaches to land development or redevelopment that work in tandem with nature to manage stormwater as close to its source as possible. In other words, communities are using systems that mimic the natural environment and treat stormwater as a resource rather than a waste product. This has launched a green infrastructure initiative known as low impact development.

Recently, National Precast Concrete Association professional staff attended an American Society of Civil Engineers conference devoted

to LID education. Hundreds of stormwater management professionals from cities large and small attended the event to discuss LID strategies. It quickly became apparent these professionals were serious about the practice and were hungry for new technologies and ideas. This could represent an opportunity for precast concrete manufacturers to supply products that enhance LID systems' functionality and durability. These LID strategies include simple measures such as disconnecting rooftop downspouts to more complex measures such as land-use optimization. Here are a few LID initiatives that could benefit from the use of precast concrete.

LID MITIGATION STRATEGIES

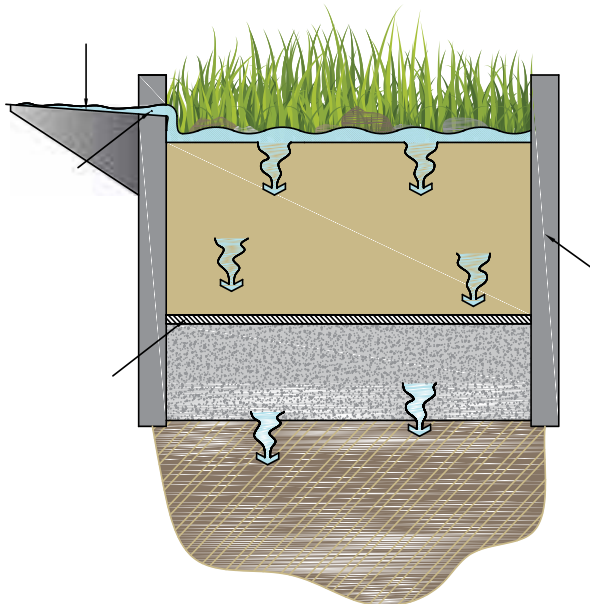
Bioretention systems

Bioretention systems, also known as filtration planters or bioretention cells, are shallow, vegetated basins that collect and absorb stormwater runoff. Smaller versions of these systems are called rain gardens. These systems are highly suitable for new construction or can be retrofitted in commercial and residential sites.

These systems mimic natural hydrology by infiltration and evapotranspiration of runoff water. Physical, biological and chemical processes help remove harmful pollutants from stormwater before discharging it to underground aquifers or surface waters. The planters also act as temporary storage for runoff water, helping minimize discharge rates. A percentage of water captured can also provide irrigation for vegetation in the planters, further contributing to the overall reduction in the volume of stormwater runoff. Typical components found in bioretention systems include grass buffer strips, sand beds, an organic layer, planting soil and vegetation.

The ability of the soil to absorb the water will dictate the size and type of planters. Some are bottomless, allowing water to filter through. Others have a bottom that treats and retains runoff water before discharging it into the sewer system. Precast concrete can enhance these systems by encapsulating the basin and adding to its efficiency and durability while reducing maintenance demands. Some producers already offer all-in-one-type systems that can be used to hold trees, filters and additional treatment components.

Precast concrete biofiltration systems can be also be manufactured modularly. Read the Precast Solutions Winter 2015 article, "Where



Elements of a biofiltration cell

Does the Rain Go?" about a filtration planter installed in Ranson, W.Va.

Another LID strategy is to collect rainwater runoff from a structure or other impervious surface and store it for later use. These uses could include water for laundry, flushing toilets and urinals, irrigation, outdoor ponds and water features, and even for potable water when treated and tested.

Traditionally, this involves harvesting the rain from a roof. The rain will collect in gutters that channel the water into a storage vessel. Precast concrete can serve as a durable and strong rainwater harvesting tank for residential and commercial sites.

Permeable pavement

Permeable pavement has become a popular LID strategy. It allows water to infiltrate into underlying soils, therefore reducing storm runoff and promoting pollutant treatment and groundwater recharge. There are several types of permeable pavement systems that offer different infiltration capacities and structural strengths. Permeable pavement materials can be used for parking lots, driveways, sidewalks, utility access and residential roads.

There are two main types of permeable pavements. One is solid pavers, referred to as segmented permeable or interlocking pavements, separated by small joints or gaps to let water through. These systems allow rainwater to pass through the paver joints and seep into the ground naturally, acting as a stormwater retention and treatment system. A bed of open-graded stone is often used under the pavement to collect and store water before discharging. The nature of the underlying soil will dictate whether the water can be allowed to seep through or be collected by a network of drain pipes and routed to another system.

Another type of permeable pavement is to manufacture pavers of permeable concrete. This type of concrete is made to incorporate a



discharge into the underlying soil or a pipe system.

This technology has been dominated by the ready-mix industry; however, more precast manufacturers have been entering this market.

Pomona College Parking Garage with green roof.

Green roofs

Green roofs are vegetated roof systems that help reduce the number of impervious surfaces in an urban landscape, and can partially or fully replace rooftop gutters and drains that feed into sewers. The green roof's soil helps to retain rainwater and filter out contaminants in the rainwater while the vegetation removes water from the roof structure through evapotranspiration. Precast concrete roof systems are ideal for these applications as they are strong, durable and versatile, and enable designers to incorporate a variety of green roof ideas. StructureCast, an NPCA member in Bakersfield, Calif., contributed structures to a parking garage at Pomona State College that features a soccer field on the roof. This essentially met two objectives of LID: a parking garage helps reduce the impermeable area compared to a single-level parking lot and the green roof helps reduce stormwater runoff.⁴

OPPORTUNITY AWAITS

Although some LID strategies may involve replacement of traditional precast stormwater structures such as pipe and manholes, there are many other opportunities for precast in this burgeoning movement. The first step is to educate yourself on LID and research what is being done in your market area to assess if this may be a viable new product line to explore. For more information about LID systems, visit U.S. EPA's website⁵ or contact NPCA at (800) 366-7731. **PI**

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

RESOURCES:

- 1 ClimateCentral.org : More Downpours: Increase in Heaviest Precipitation Events, Feb 2018 <http://www.climatecentral.org/gallery/maps/more-downpours-increase-in-heaviest-precip-events>
- 2 NOAA (National Oceanic and Atmospheric Administration) – National Centers for Environmental Information - Billion-Dollar Weather and Climate Disasters: Summary Stats: As of October 9, 2018: <https://www.ncdc.noaa.gov/billions/summary-stats>
- 3 Environmental Protection Agency (EPA) Document 841-F-03-003 - Protecting Water Quality from Urban Runoff. February 2003. https://www3.epa.gov/npdes/pubs/nps_urban-facts_final.pdf
- 4 <https://precast.org/2013/02/sustainable-parking-garage/?fs=pomona>
- 5 <https://www.epa.gov/nps/urban-runoff-low-impact-development>



Examples of permeable pavers. Photos courtesy of Techo Bloc.

system of highly permeable interconnected voids. It uses a mixture of cement, water and chemical admixtures to form a paste that forms a thick coating around coarse aggregate particles. Little-to-no sand is used. The concrete sits on a bed of stone to allow for retention and

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THE PRECAST SHOW

NPCA PRODUCER PORTAL: A Free Benefit for NPCA Certified Plants

Plant Profile

Plants can provide detailed information about the physical location of the plant and contact information for the plant's liaison to the auditor.



Production Log

Plants can enter, import and download daily concrete production in three categories: architectural, general precast and prestressed.



Self-Audit

This feature can be used by plant personnel at any time to assess their readiness or status against the current NPCA QC Manual.



Plant Documents

Plants can view their current year files, and also access archived documents.



For decades, physical paperwork has been a necessary evil in offices far and wide. One advantage of the digital revolution has been the reduction in storage of paper files and now the National Precast Concrete Association Plant Certification Program has joined those ranks.

The NPCA Producer Portal for NPCA certified plants makes it easier to manage your plant certification records and store

information securely online in one convenient location. In 2017, the NPCA Quality Assurance Committee announced significant improvements to make it even easier to organize and save your records. Now, for 2019, the QA committee has announced a new round of enhancements to the producer portal.

Is the producer portal secure and confidential? Yes, you can rest assured it is secure and confidential. The only

people who can access your individual plant information are your designated plant employees, NPCA program administrators, and the plant certification auditor. As part of NPCA's American National Standards Institute Accreditation under ISO/IEC 17065:2012, "Conformity assessment – Requirements for Bodies certifying products, processes and services," our operating policies and procedures are bound by strict requirements for

confidentiality and impartiality. Each year we are audited to these requirements by ANSI assessors.

PRODUCER PORTAL FEATURES:

Plant profile

Once logged in, the default landing page is the plant profile. From here, plants can provide detailed information about the physical location of the plant and contact information for the plant's liaison to the auditor. Additional information

about plant operation, products manufactured, auditor personal protective equipment requirements and plant shutdown schedules are located on the plant profile tab. Once the plant profile is saved, the remaining tabs on the left-hand side of the landing page are for production logs, plant documents, plant audits, self-audits and certificates.

Production log

Under the production log tab plants can enter, import and download daily concrete production in three categories: architectural, general precast and prestressed. The page keeps running totals for each of the three categories, as well as the cumulative total from January 1 to December 31 of each production year.

Plant documents

Under the plant documents tab, the default screen will show files for the current year. However, in the pull-down menu just below the plant documents header, plants can access archived documents. There is also a green “download documents” button that allows the plant to select and download any document from the list. Shown in the document types on this page is a file folder for each section and sub-section of the NPCA Quality Control Manual for Precast Concrete Plants for that particular program year. Plant users can either scroll down the list or use the “jump to” button to navigate to a specific section or subsection. Under each section and sub-section heading there are helpful descriptions pertaining to that section. On the far-right side of the page is the “hide folder”

button allowing the plant to hide sections and sub-sections that do not apply or those they do not want to see on a regular basis.

Plant audits

Under the plant audits tab all past plant inspection reports are stored in PDF format by inspection date. In addition, there is a “view audit” button where plants can view and respond to deficiencies; view improvements, comments and the grading schedule for the audit; and obtain information about the auditor that performed the plant inspection.

Self-audits

Next, the self-audits tab is one of the newest continuous-improvement features in the producer portal. Under this tab, the plant can perform its own self-audit using the same tool that NPCA independent third-party inspectors use. The formatting follows the NPCA QC Manual and the report formatting and scoring are the same. This feature can be used by plant personnel at any time to assess their readiness or status against the current program manual.

Certificate

Lastly, under the certificate tab plants can download a copy of their current certificate at any time.

To get started in the producer portal or take the virtual tour, visit precast.org/qcmanual and watch the Producer Portal Tutorial video.

For plant certification questions, contact Andi Pierce, apierce@precast.org, or Phillip Cutler, P.E., pcutler@precast.org, or call NPCA at (800) 366-7731. **PI**

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ANYTHING IS POSSIBLE WITH A Strong Work Ethic

Civil engineering student **Hannah Workman** is working with NPCA to bring precast education to Fairmont State University.

By Sara Geer



“A CONCRETE CAREER IS RIGHT FOR ME BECAUSE I’VE ALWAYS LOOKED FOR JOB STABILITY. THAT’S BEEN MY MAIN PRIORITY WHEN LOOKING FOR A CAREER. AND, THERE IS ALWAYS GOING TO BE A NEED FOR CONCRETE ANYWHERE.”

– Hannah Workman

As a coal miner’s daughter, Hannah Workman learned early on the importance of developing a strong work ethic. Her parents taught her a valuable lesson as she was growing up in a small town that inspires her now to scope out every opportunity available to help herself and her fellow Fairmont State University students.

“My parents told me a specific lesson that I always remembered, ‘Your last name means nothing in this town and your parents don’t have the money to buy it for you, so everything you get you’ll have to work for,’” she said. “I took that to heart and I’m running with it.”

Workman said her love and exposure to concrete didn’t start until she attended Fairmont State for civil engineering. There, she said, students either embrace concrete or leave. There are no other options.

“They love concrete there, and they make sure you are going to love it too,” she said. “And, I did. Concrete has already opened countless doors for me.”

MAKING NPCA CONNECTIONS

Some of those doors opened through her participation on Fairmont State’s concrete canoe team. She learned valuable skills such as time management (balancing school and work), communication, research and producing a high-quality end product. During the 2017-2018 school year, Workman was assigned to a new position as the team’s compliance officer. The job required knowing the competition rules thoroughly and ensuring every member of the team followed them.

“The job was very involved and stressful at times, but rewarding in the end,” she said. “We even had other quality control and quality assurance people, so trying to triangulate with them and bridge a gap between departments worked well in the end. I think the position will come back again.”

Another great opportunity was meeting individuals from the National Precast Concrete Association Foundation while attending the 2018 American Society of Civil Engineers National Concrete Canoe Competition held at San Diego State University. She said since Fairmont received the concrete canoe scholarship from the Foundation in recent years, she researched more about NPCAF’s individual scholarships with plans to apply. However, when she found out applicants needed to be sponsored by an NPCA member, she realized the school has no connections with any members.

“While at the competition, I walked up to the NPCA table and talked with Marti Harrell and asked if she could name someone in our region to contact as a sponsor,” Workman said. Harrell is NPCA’s vice president of technical services and professional development and the executive director of the Foundation. “She started thinking about it, and the closest she could think of was a company in Maryland. So, we exposed a gap in networking.”

Their conversation also sparked an idea to coordinate with Fairmont to have an NPCA professional staff member visit to talk with students about precast concrete. The relationship would be beneficial for both

students and NPCA, Workman said.

In addition, Workman learned about NPCA's online courses while attending the competition and wants to share them to students as another way to learn more about precast concrete. She has already taken Production and Quality School Level 1 and plans to take more classes as time allows. The information learned from the class has not only helped her with school but has reinforced that a career in concrete is her path.

"A concrete career is right for me because I've always looked for job stability," she said. "That's been my main priority when looking for a career. And, there is always going to be a need for concrete anywhere.

"It's the most used manmade building material in the world and not having a working knowledge about concrete, everything that goes into it can be used anywhere with any industry. That is what's most appealing to me about concrete."

NEXT STEPS AT FAIRMONT STATE

Throughout college, Workman's goal has been to complete an internship in each facet of the manufacturing industry.

"The industry is so broad for civil engineering," she said. "You do yourself a disservice if you don't explore all your options."

She's already completed internships with:

- ▶ West Virginia Department of Highways where she learned the basics about construction.
- ▶ A land surveyor where she performed field surveys on surface coal mines in southern West Virginia.
- ▶ A consulting firm where she's experienced ecological, technical and structural engineering and more.

With new connections made with NPCA and the potential to bring more awareness about precast concrete back to Fairmont State, the next internship on her list is to work at a manufacturing company to learn

"I LOVE MY STATE, AND I WANT TO BRING AS MANY OPPORTUNITIES TO IT AS POSSIBLE."

- Hannah Workman

how concrete products are produced. She said this internship may also help provide her the knowledge needed to inspire other students to start a robust precast concrete industry in West Virginia.

"I love my state, and I want to bring as many opportunities to it as possible," she said. "I know it's a pretty ambitious goal for a college student, but I just hope something good will flourish out of it even after I've graduated and continue (to have) an interest in precast in West Virginia." **PI**

Sara Geer is NPCA's communication manager, and is managing editor of Precast Inc.

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Photo courtesy of Lindsay Precast

Noah Baughman's internship at Lindsay Precast's plant in Alachua, Fla., helped him figure out his career path.

One Student at a Time

The future of the precast industry lies with the **next generation.**

By Kirk Stelsel, CAE

Internships as we know them today are relatively new. While apprenticeships have been around for centuries, modern internships started showing up just 50 or 60 years ago.¹

They range from paid to unpaid positions and attract college and high school students and even mid-career professionals looking for a change. While anyone can be an intern, no one is guaranteed the same experience. Part of the experience is up to the employer, but part is incumbent upon the intern to make the most of it.

In the precast concrete industry, formal internships are less common

than a more informal approach where the son or daughter of the owner, or an employee or friend of the company, works during the summer for extra cash, to experience manual labor or to learn the company from the ground up. But the NPCA Foundation is working to expand on that practice and, as a result, share the industry with individuals who may eventually end up working in a precast plant or in a construction-related field as a specifier.

The program is in its infancy, but the early results have shown great promise for both the students and the businesses that host them.

BUILDING A FOUNDATION

When Noah Baughman arrived at Lindsay Precast's plant in Alachua, Fla., he was like a sponge, ready to soak up the entire experience. He hoped it would inform not just his education but his entire career. Baughman had just transferred to the University of Florida for his sophomore year and planned to pursue a degree in materials engineering, but he had a lot of uncertainty about what he wanted to do with his career.

"The big thing is pulling them into our industry and keeping them interested," said Todd Hadorn, director of employee development for Lindsay Precast. "With Noah, on his resume, he's a materials engineering student but he said right on his resume and during his interview that he wasn't sure if he was going to go into precast or if he was going to go pre-med and into med school. Being here, his interest has really been piqued and we liked him so much that we offered him a part-time job while he's in school."

Baughman's internship was a 10-week program that rotated weekly to give him exposure to as many departments of the company as possible. He spent time with production, quality control, estimating, engineering, scheduling, purchasing, batching and shipping. Each week, he wrote a report covering not only what he learned, but at least one piece of advice for the company based on what he observed.

Hadorn said that type of feedback is critical not only to inform them of what they can do better for the next student – the company already has a student lined up for next summer – but it also improves the company and its operational procedures. Some of the suggestions the company was able to address right on the spot, others are topics it will consider for the future.

"Personally, for me, and for the Florida Division of Lindsay, it was an awesome experience," Hadorn said. "It's a win-win for anybody who does it. You're obviously promoting the precast industry but at the same time you're getting feedback on your industry and gaining insight from a younger generation."

Hadorn said another critical aspect of the experience for Baughman was the opportunity to live on his own and earn his own way for a summer before going to school. Lindsay not only paid him for his work, but also covered his housing.

For Baughman, a lot of the work was eye-opening. For example, seeing first-hand how things learned in textbooks are not always so cut and dry in reality showed him what a large role common sense plays when faced with solving real-world problems. In addition, one major portion of his week with QC was learning how concrete testing is conducted. He was able to help pour the testing samples in cylinders, run slump tests and conduct other QC tests. This was especially interesting to him as it closely relates to materials engineering.

"I felt that I gained a lot seeing the materials engineering in action as the various admixtures, water adjustments and quality control processes go into ensuring the concrete produced is both quality and economical," he said. "I liked how it all comes together. I really like precast because if you do a good job in the plant, it creates a permanent thing in the world for a lot of people to share."



"I DEFINITELY LEARNED A LOT ABOUT **CONCRETE** AND ALSO ABOUT **PEOPLE SKILLS** – HOW TO BE FLEXIBLE AND HOW TO MANAGE A LOT OF MOVING PARTS."

– Noah Baughman

CONCRETE in the CLASSROOM

The NPCA Foundation has worked with the Concrete Industry Management program for more than a decade to increase the amount of precast-specific learning students get in the curriculum. The CIM program is a degree program now offered at four schools including Middle Tennessee State University, New Jersey Institute of Technology, California State University Chico and Texas State. A fifth school is on the horizon.

In the program, students are taught a broad array of skills with a focus on business courses that teach management skills applicable in any industry but developed specifically for the concrete industry. Marti Harrell, NPCA Foundation executive director, was recently elected to the CIM National Steering Committee that oversees the CIM programs and the Foundation has ramped up its involvement in recent years.

Students and professors from CIM schools are always invited to attend The Precast Show and take education for free, and the 2019 show will mark the third year the Foundation will host a networking event where students and professors can talk with NPCA members. In addition, the Foundation launched a student competition which challenges CIM students to take a real-world cast-in-place project and convert it to precast. The students will make their final presentations to a panel of industry experts at The Precast Show 2019 in Louisville, with the winner announced at the networking event.

The Foundation also provided a grant to Mohammed Albahtiti, Ph.D., a professor at Chico State, to develop a precast-specific course, which is owned by the Foundation, for its CIM program. The course will launch in January 2019, and will be a requirement for CIM students to graduate. The Foundation is hopeful other CIM schools will adopt the curriculum and has plans to share the curriculum with other engineering and construction management schools.

Students in the CIM programs are great targets for precasters and associate members to recruit as interns and/or to hire given their education in business management and concrete, and their obvious interest in the industry. In addition, the CIM schools are currently looking for more local industry participation. NPCA producer and associate members are encouraged to get involved in their local patrons' groups to represent the precast sector of the industry.

For information on getting involved please contact Marti Harrell at mharrell@precast.org or (800) 366-7731.



Learn more about the CIM program at concretedegree.com



“I REALLY LIKED THE **HANDS-ON EXPERIENCE**. MY SUPERVISOR WOULD MOVE ME AROUND EVERY OTHER WEEK, SO I GOT A FEEL FOR ALL OF THE DEPARTMENTS.”

– Carlos Enriquez

“One important feature I noted was the redundancy required and precaution built into all required levels to ensure the products produced by Lindsay do not fail. I learned how important every detail is. If a bridge is going into a roadway, it has to be perfect or it could put people in danger. There is so much work to make sure everything works well.”

Another lesson that stuck with Baughman was the important role of every employee in the company, how Lindsay maximizes their value and how good ideas can come from anywhere.

“I definitely learned a lot about concrete and also about people skills – how to be flexible and how to manage a lot of moving parts,” he said. “It was very interesting to see how far practical critical thinking skills can go into increasing efficiency. As I hope to move into management later in my career, being aware that employees can have these ‘out of the box’ abilities hopefully will help me better locate talent to reward creative behavior and reward innovation.

“Typically, in school we do not cover these types of informal approaches, but in some circumstances they can be equally if not more so efficient, and I feel that seeing them first hand was a real eye opener.”

MATERIAL LEARNING

When Carlos Enriquez, a student at California State University Chico, also known as Chico State, used to think about precast concrete, the first thing that came to mind was 3-D printed material. That’s before he took a class that incorporated precast into the curriculum as part of his Concrete Industry Management program and his internship at Jensen Precast’s plant in Sacramento, Calif.

Jensen placed Enriquez in the QC department but he experienced many other parts of the company as well. His day started by reviewing the production schedule to make sure everything being poured that day matched the schedule. Next was QC tests and to make sure the pre-pour inspection was done. He was also involved in production, working on manholes and other products.

“I really liked the hands-on experience,” he said. “My supervisor would move me around every other week, so I got a feel for all of the departments. I also liked the people I worked with.”

Through his hands-on engagement with the material, Enriquez said he that precast manufacturing is much more mechanical than he realized. He also learned how to read the schedules and identify the products once they were in the yard, and then how to find them. Of course, the amount of work was more than he realized when he started. The experience in the plant has given him a desire to learn even more, not just about how things are done at the plant and in the office, but also on the job site.

“I would like to learn more about the business side of things, like product management and estimating,” he said. “But I also want to learn

more about the application of the products such as how to set it up on the job site. How do you know which end goes where and how to install it – things like that.”

As he prepares for the rest of his courses at Chico State, Enriquez is particularly excited to take a class that will focus on precast, which he feels very confident about now that he’s worked in a precast plant. But the learning he did during his internship extends far beyond the classroom.

“Going in, I didn’t even know the precast industry makes products for things like sewer systems and the walls for sound barriers,” he said. “I didn’t know anything about that and it was pretty cool learning about it. The precast industry is definitely on my radar for after graduation now and the experience also helped me realize the amount of work I have to do to get ready for my career.”



Carlos Enriquez interned at Jensen Precast’s plant in Sacramento, Calif.

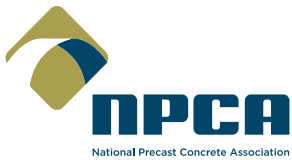
INVEST EARLY AND OFTEN

With the economy humming along and labor in short supply, it can be hard to find time for anything other than trying to keep up with the flow of work coming through the front door. But, like the power of compound interest – which only works if you start early – the same is true of the investment in the students who will become employees and specifiers. Starting now ensures they understand the full capabilities of the precast industry when they step into their future careers. **PI**

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

RESOURCES:

1 <https://www.businessinsider.com/the-weird-history-of-how-internships-came-to-be-2016-6>



Working For You

The NPCA professional staff works to expand the use of quality precast concrete products in many ways. To keep you informed of these ongoing efforts, we created the **Working For You** page at precast.org/working-for-you.

NPCA Presents, Exhibits at Water and Wastewater Industry Events

NPCA professional staff will participate in a total of 12 water and wastewater conferences in January and February to educate the industry about the many benefits of precast concrete products. By exhibiting at these events and networking with attendees, NPCA staff increases the visibility of precast products in the marketplace. Additionally, Claude Goguen, PE., LEED AP, director of outreach and technical education, and Kayla Hanson, director of technical services, will present education sessions at each event. NPCA's substantial participation in water and wastewater events furthers our mission to promote quality precast, address challenges and develop opportunities for member success within the industry.

These water and wastewater events will span coast to coast. In January, NPCA professional staff will travel to conferences in Michigan, Iowa, Indiana, Missouri, North Carolina, Washington State, Utah and Tennessee followed by conferences in Kansas, Nebraska and Indiana during February.

The impact of presenting a session and exhibiting extends well beyond what takes place during the conferences. Greg Barrett, sales manager at SI Precast Concrete and NPCA Water and Wastewater Product Committee chairman, said he recognizes the importance of NPCA's participation in the industry.

"NPCA's participation in local on-site events keeps concrete relevant and gives local precasters credibility in a highly competitive industry," Barrett said.

Increasing attendees' awareness of precast concrete and the resources NPCA offers facilitates relationships between industry professionals and NPCA members. Also, interacting with specifiers and regulators at water and wastewater conferences creates an opportunity for NPCA professional



NPCA professional members are increasing their presence at various on-site wastewater conferences and trade shows throughout 2019.

staff to make an impact and better understand concerns or challenges industry professionals are facing. As a result, members are better equipped to address those challenges locally.



For a complete listing of NPCA's technical services representation, visit precast.org/technical-services-representation

PEOPLE & PRODUCTS

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

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

Jensen Precast Acquires Brooks Products

Jensen Precast has acquired Brooks Products, a private manufacturer of precast concrete underground enclosures with facilities in Portland, Ore., and Ontario, Calif. The acquisition enables Jensen Precast to provide its customers with an expanded product line and expedited service for a variety of growing underground infrastructure needs.

The addition of the Portland facility extends market opportunities for Jensen Precast into Oregon. Adding the Ontario location gives Jensen Precast a robust will-call service for Southern California customers seeking walk-in purchases.

Along with producing precast concrete meter boxes, catch basins, curb valve boxes, traffic valve boxes, pull boxes, traffic pull boxes, sectional vaults, parking bumpers, and splash and sprinkler blocks, Brooks Products has a strong focus in serving the municipal utilities market.

“Our number one goal as a company is to always strive to serve our customers with the right products in the right timeframes so they can complete their jobs on time and within budget,” said Eric Jensen, president of Jensen Precast. “Our purchase of Brooks Products positions us to offer more products and better service for our customers throughout the Western United States.”

Sika Acquires Concrete Fiber Company; Appoints New Vice President

Sika has acquired a global concrete fibers business from Propex Holding, which includes a U.S. plant that manufactures

synthetic fiber for use in concrete reinforcement, sales operations in Sika’s three geographical regions and a strong brand.

Sika will now sell the Fibermesh brand and offer technical expertise. The nearly 130,000-square-foot production facility supports Sika’s growth going forward, particularly in the Americas.

In addition, Thomas Strittmatter has been named vice president of Sika’s concrete admixtures business. In his new role, Strittmatter will be responsible for defining and implementing the strategic direction of Sika’s concrete admixture business in the U.S. with a constant focus on profitable growth. Strittmatter joined Sika in December 2017, and most recently held the position of vice president of sales-Caribbean.



Thomas Strittmatter



Steve Barnhardt

CONAC Hires new Sales Director

CONAC, Concrete Accessories announced that Steve Barnhardt has joined the team as sales director. He

is based in the Atlanta corporate office and will be responsible for CONAC’s sales growth in the U.S. and Canada. Barnhardt brings

more than 25 years of sales management experience in the construction material field and has been active with PCI and NPCA for the past several years. Barnhardt holds a bachelor’s degree in history and education from Western Carolina University.

Reading Rock Acquires Russell Cast Stone

Reading Rock and Russell Cast Stone have combined their cast stone operations, bringing together 168 years of industry experience.

Combined, the Reading Rock-Russell entity is the largest producer of architectural stone products in the U.S. offering architectural masonry veneer units, custom cast stone, architectural precast and lightweight stone products.

Wieser Hosts NOWRA Conference and Plant Tour

The National Onsite Wastewater Recycling Association Mega-Conference was held in Bloomington, Minn., in place of the Minnesota Onsite Wastewater Association Convention. Wieser Concrete Products sponsored a booth in the expo hall, showcasing its precast concrete treatment/holding tanks, building panels, commodity storage and other commercial products.

On the final day of the NOWRA Conference, Wieser hosted an extensive, guided tour of its Maiden Rock, Wis., facility. The tour group, which included engineers, designers, installers, pumpers, manufacturers and regulators, toured the 101,000-square-foot plant and viewed Wieser’s product inventory.



Wieser NOWRA Plant Tour

In addition to the plant tour, participants were bused to the large subsurface sewage treatment system in Afton, Minn., and the St. Croix Bluffs Regional Park campground septic system site in Hastings, Minn., both of which use Wieser concrete tanks.



Bruce Christensen

Bruce J. Christensen Leads BASF's North American Admixture Systems Business

Bruce J. Christensen, vice president, will take over the responsibility of BASF's admixture systems business in the U.S. and Canada, effective immediately. Christensen succeeds Juan Alfonso Garcia, who was named head of construction chemicals Latin America in

October, 2018.

Christensen will be responsible for leading BASF's admixture systems business operations with a focus on the ready-mixed, precast/prestressed, manufactured concrete products and underground construction market sectors. Christensen has more than 25 years of industry experience, including several years in BASF's construction chemicals division.

Christensen holds bachelor's degrees in both chemical engineering and materials science and engineering from the University of Minnesota. He has a Ph.D. in materials and engineering from Northwestern University, where he studied portland cement chemistry and concrete technology. **PI**

HAMILTON FORM CREATES FUNCTION

7 CASE STUDY

Self-Stressing Architectural Table

The casting tables work together quickly and easily. The hydraulically operated side rails are attached on both sides of the casting tables and drop down to allow edge picking of the panels. This smooth, more efficient process facilitates utilizing whole panels reducing daily set-up and cooling cycles.

*Steve Jackson, General Manager
Wells Concrete Products Company*

Wells Concrete installed several self-stressing architectural casting tables in its plants from Hamilton Form Company. A self-stressing frame transfers the prestress load. A wood deck is installed over the frame finished with an epoxy coating that creates a glass like surface for casting precast/prestressed architectural panels.

These tables help efficiently deliver the high quality architectural panels Wells Concrete is known for. When your castings call for an efficient, quality solution, call on Hamilton Form to deliver. 817-590-2111. www.hamiltonform.com

BOOTH 745

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CALENDAR OF EVENTS



Feb. 28 - March 2, 2019
THE PRECAST SHOW 2019

Kentucky International
Convention Center
Louisville, Ky.



Oct. 3-5, 2019
**NPCA 54TH ANNUAL
CONVENTION**

Hyatt Regency Seattle
Seattle, Wash.



March 5-7, 2020
THE PRECAST SHOW 2020

Fort Worth Convention Center
Fort Worth, Texas



Oct. 15-17, 2020
**NPCA 55TH ANNUAL
CONVENTION**

Omni Amelia Island Resort
Amelia Island, Fla.



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

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ARCHITECTURAL PRECAST MOLDS (USED)

Formerly: California Precast Stone Mfg. Inc.

- Wall Cap & Col. Cap / Moldings – Sills
- Columns – Product Directory Available
- Heavy Duty – Steel and Fiber Glass Molds
- Single, multi-part and gang molds = Avg. 30 parts per gang mold

Additional Info. Cut sheets, product photos, mold photos, pricing

**Contact: john@californiaprecast.com
Cell: (951) 377-1136**

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OVERVIEW



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PRIMA is a cutting-edge production management system designed to bring assembly line efficiency to precast production. PRIMA incorporates an intuitive production management system that reduces labor, increases productivity, and improves safety. It also provides advanced planning tools to log production metrics and analyze production parameters to balance manpower demand and optimize throughput.



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