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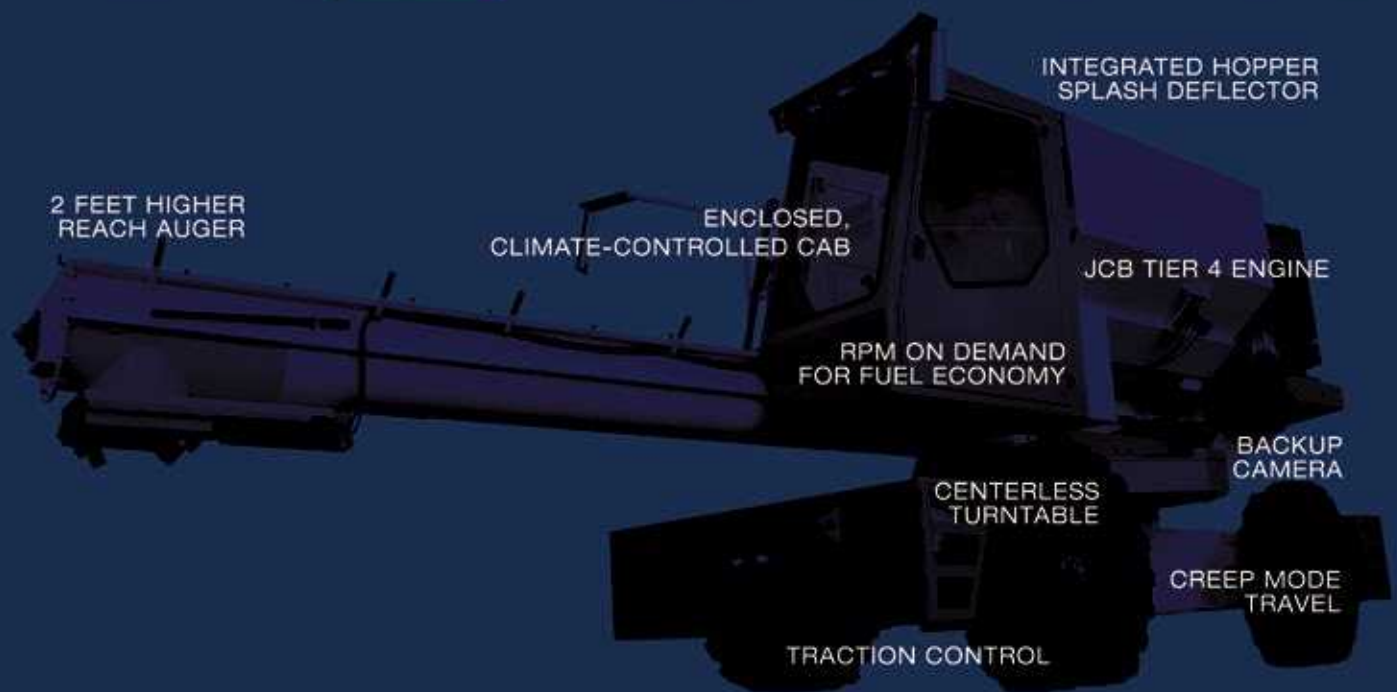
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**18** Three international projects demonstrate how precast concrete’s versatility meets construction standards while giving structures a bold new look.

**On the Cover:**  
V&A Dundee was constructed using long, narrow precast concrete panels.

*Photo courtesy of Hufton + Crow Photography*

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# COVID-19

## AND THE PRECAST CONCRETE INDUSTRY

Image © CDC

Businesses across the globe are facing unprecedented challenges due to the COVID-19 pandemic. With the situation evolving on a daily and sometimes hourly basis, it can be tough to keep track of relevant information. NPCA remains committed to helping our members and the industry stay informed.

### RESOURCE LANDING PAGE

We have created a page on our website at [precast.org/covid-19](https://precast.org/covid-19) dedicated to resources available including:

- NPCA's actions.
- News about COVID-19's impact on construction.
- Resources to track state-level actions.
- OSHA resources.
- U.S. Small Business Administration resources.
- Safety and health recommendations and best practices.



### NPCA COVID-19 WEBINARS

NPCA has created free webinars for members relating to key business functions during the COVID-19 pandemic. Webinars include information about business continuity, human resources, safety, IT considerations, small business grants and more.

You can access them at [precast.org/covid-19-webinars](https://precast.org/covid-19-webinars)

### YOU CAN HELP!

NPCA members can donate critical PPE such as N95 masks and face shields to the medical and healthcare industry. More information is available at [findthemasks.com](https://findthemasks.com).

If you have made a donation already, please let NPCA Communication Manager Matt Werner know at [mwerner@precast.org](mailto:mwerner@precast.org) so we can track the impact our industry is having.



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# Questions from the Field

**Questions from the Field** is a selection of questions NPCA Technical Services engineers received from calls, emails and comments on blog posts or magazine articles on [precast.org](http://precast.org).

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

**Tracey writes:**

## How often do precast plants have to perform silica exposure assessments?

**NPCA Technical Services engineers answered:**

Exposures are to be reassessed whenever there is a change in production, process, control equipment, personnel, or work practices that may reasonably be expected to result in new or additional exposures to crystalline silica above the action level, or when there is reason to believe that new or additional exposures at or above the action level have occurred.<sup>1</sup>

**Tim writes:**

## What is the significance of the silica rule being added to OSHA's National Emphasis Program? Has the rule changed?

**NPCA Technical Services engineers answered:**

In June 2018, the Occupational Safety and Health Administration began enforcing a new rule regarding silica exposure for general industry, which includes precast concrete manufacturing facilities. Now, OSHA is including the rule in its National Emphasis Program, meaning states will be targeting this rule as a point of enforcement. Neither the rule nor the compliance requirements have changed.

NPCA has developed numerous resources that address OSHA's silica rule so you have the tools to ensure your precast concrete plant is in compliance. In addition, NPCA and the Precast/Prestressed Concrete Institute produced a precast-specific

silica exposure control manual that will help you implement the necessary processes and meet OSHA's compliance standard.

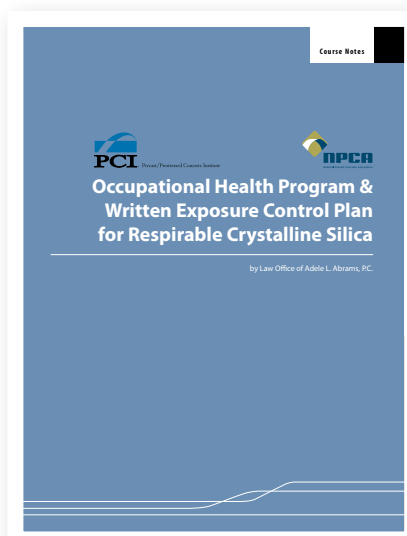
To download your copy of the manual, which is free for NPCA members, visit NPCA's online shop at [precast.org/silica-manual](http://precast.org/silica-manual).

The OSHA silica rule establishes an 8-hour, time-weighted average (TWA) permissible exposure limit (PEL) of 50 micrograms of silica per cubic meter ( $\mu\text{g}/\text{m}^3$ ), and an action level (AL) of 25  $\mu\text{g}/\text{m}^3$ . It also requires other employee protections, like performing exposure assessments, using exposure control methods, using respiratory protection, establishing regulated areas, developing and implementing a written exposure control plan, offering medical surveillance, developing hazard communication information and keeping silica-related records.

An employer can claim exclusion from the standard if they meet certain conditions outlined in the rule. **PI**

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For more NPCA safety resources, visit [precast.org/safety](http://precast.org/safety)



# A Closer Look:

## AIR ENTRAINMENT

By Alex Morales, M.Ed.

**Editor's Note:** This is the third article in a year-long series explaining common raw materials used in precast.

**A**ir-entrainment of concrete refers to the intentional creation of tiny air bubbles in a fresh concrete mix. In an industry that consolidates concrete to drive out air, it may seem counterintuitive to want air in concrete. However, entrained air differs greatly from entrapped air. Entrapped air – large, irregularly sized pockets of air caused by the mixing and placement of concrete – must be minimized because it is detrimental to concrete's performance, reduces compressive strength, increases permeability and decreases watertightness. Conversely, entrained air is the result of adding an air-entraining agent during batching which develops an evenly distributed network of stable, microscopic voids which provide many fresh and hardened concrete benefits and remain in the mix as it cures.

In its plastic state, air-entrained concrete exhibits better workability. The air voids act like ball bearings, reducing friction during the fresh concrete's movement, allowing it to flow better during placement.

Although better workability is a desirable property of fresh concrete, it is considered a value-added benefit of air-entrainment. The primary

purpose of air-entrainment is to provide hardened concrete better resistance to freeze-thaw cycles.

### HISTORY OF AIR-ENTRAINMENT

#### Early research

The benefits of air-entrainment were first noticed in the 1930s.<sup>1</sup> Engineers found certain highway sections performed better in freeze-thaw environments than others and conducted research to figure out why. Studies found highway sections exhibiting better freeze-thaw resistance were made with cement milled at plants using beef tallow as a grinding agent. Further scrutiny revealed the beef tallow was an unintended air-entraining agent which contributed to the improved durability of concrete. By 1938, several state highway departments conducted studies that, "indicated definitely the possibilities of utilizing the air-entraining characteristic of certain materials to improve durability."<sup>2</sup>



## Mixing's impact on entrained air bubbles

As researchers continued their work, they discovered as the entrained air bubbles collide repeatedly as a result of longer mixing times, the collisions can cause the individual air bubbles to join (a function of reduced interfacial tension) creating bubbles of larger sizes. Significantly larger entrained air bubbles are undesirable because they possess a greater buoyant force, which can cause them to rise to the surface and escape the mix. As a result, longer mixing times were associated with a reduction in entrained air content.

Throughout the 1940s and 1950s, studies of the behavior of entrained air voids helped researchers conclude that some intervention would be required to prevent the bubbles from joining together during the mixing process. In addition to the reduction in entrained air voids seen during the mixing process, the air void system also saw deterioration when driving out entrapped air pockets during concrete consolidation.<sup>3</sup> Researchers postulated that some film at the interface of the air bubbles would be required to prevent them from joining and escaping during both placement and consolidation processes.

## Impact of dilatancy

Earlier research from the Bureau of Public Roads, now the Federal Highway Administration, tested various commercially available admixtures for potential air-entrainment properties.<sup>4</sup> The studies identified admixtures that created entrained air systems, but not all admixtures produced air bubbles that provided freeze-thaw resistance.<sup>5</sup> Studying the air-inducing effect of then-common admixtures, early researchers identified the difference between entrained air that provided no dilatancy and entrained air that could sustain short-term loads within fresh concrete.

The film surrounding entrained air bubbles exhibited dilatancy by reducing the hydrophilic quality of the surface of each bubble rendering it hydrophobic. In a hydrophobic state, researchers noted the entrained air bubble would cling to cement and aggregate particles in the plastic mix while it resisted coalescence with surrounding air voids during the mixing, placing and consolidation processes. This phenomenon contributes to both workability and increases in slump.

The ideal air-entraining admixture was one that created microscopic air voids, each surrounded by a film strong enough to resist coalescence during agitation and prevent their buoyant expulsion from the mix.

## Air-entrainment's impact on freeze-thaw durability

Early researchers also sought to understand the mechanism by which air-entrainment improved freeze-thaw resistance of hardened concrete. Research showed that the value of the air void system in hardened concrete was two-fold:

1. Size of the individual entrained air bubbles.
2. Spacing within the system.

The impact of the air-entrainment system on the freeze-thaw resistance of hardened concrete is directly related to the distance from any point in the paste to the nearest air void. This is the distance water that has penetrated the concrete would have to travel as it expands

### di·lat·an·cy

/dī' lātnsē/

*noun*

CHEMISTRY

the phenomenon exhibited by some fluids and gels in which they become more viscous or solid under pressure.

19

## HAMILTON FORM CREATES FUNCTION

### CASE STUDY

#### MANOR EXPRESSWAY SOUND WALLS

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**The Project:** MSE retaining walls with a decorative precast concrete coping play a major role in bringing the "Central Texas Heritage" design theme to life on the Manor Expressway near Austin, Texas.

**The Challenge:** The coping has an intricate series of cut outs, recesses and textures. The product is 15 feet long, 5 feet tall and has variable depths, making handling complex.

**The Solution:** The formwork was designed to simplify production, stripping and handling. Sideforms were slightly offset to eliminate a visible seam at the center. Chamfer is used to locate block outs, and a hanging back pan with integral top ties creates the ledge.

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during the freezing process in order to reach an air void. The closer together the entrained air voids are, the less hydraulic pressure is created during the freezing process because the freezing water would have a nearby air void within which to expand.

“The principal purpose of entraining air in concrete is to protect the [hardened] paste from the potentially destructive [hydraulic] forces generated during the freezing process. This protection is derived from the cellular paste structure produced by the randomly dispersed air bubbles.”<sup>6</sup>

**The nature of an air-entraining agent impacts the air void system it produces in a particular mix at a particular w/c.**

## AIR-ENTRAINING ADMIXTURES TODAY

Today’s air-entraining admixtures are primarily liquids, typically produced from byproducts of wood resins.<sup>7</sup> This is no surprise since studies from the 1950s stated, “One agent in powder form was found to develop a system of voids significantly different from that developed by the same agent used in solution form,” pointing to the benefit of liquid air-entraining admixtures.<sup>8</sup> That was an important discovery that has implications still today in the precast concrete industry.

The nature of an air-entraining agent impacts the air void system it produces in a particular mix at a particular w/c. Modern day air-entraining admixtures will produce air void structures with varying bubble size (although they tend to be about less than 1 millimeter in diameter) and spacing, depending on the type of cement used, chemical makeup of the water batched into the system, gradation of the aggregate used, use of other admixtures and more.

### Interaction with raw materials

Today’s admixtures take advantage of the lessons learned from early research and preserve the entrained air bubbles in the concrete paste throughout the production process. Controlling the consistency of concrete ingredients (as well as consistency in batching, mixing, placing and finishing practices) is key to ensuring the reliable and predictable performance of an air-entraining admixture. This is also another major benefit of producing concrete in a quality-controlled plant environment.

#### ► Cement

An increase in cement’s Blaine fineness can result in less air-entrainment for the dosage rate. Therefore, a change from Type I cement to Type III cement may require an increased air-entraining admixture dosage to keep the same percentage of entrained air.

Conversely, as the cement’s soluble alkali content increases, so does the air-entrainer’s potential to entrain air. An increase in cement content will also decrease the efficacy of an air-entrainer. Consequently, a lower w/c may require an increased air-entrainment dosage.

#### ► Fly Ash

Like cement Blaine, as the fineness of fly ash increases, the air-entraining admixture’s ability to entrain air decreases. Fly ash with higher carbon contents also tends to result in decreased entrained air

potential. Using fly ash at higher replacement percentages of portland cement may require an increase in air-entrainment dosage.

#### ► Aggregate

As with cement and fly ash, finer particles (those passing the #100 sieve) tend to necessitate a higher dosage of air-entrainment to achieve the same entrained air content as a mix using only larger aggregate sizes. Maintaining the aggregate’s fineness modulus from batch to batch is critical to ensure a consistent level of entrained air in these concrete mixtures.

Additionally, aggregates in an oven-dry or air-dry condition tend to soak up liquid air-entraining admixtures, reducing their dispersion and overall effectiveness. Consider wetting aggregates prior to batching or consider alternative batching sequences when batching dry aggregates to prevent a decrease in the air-entraining admixture’s effectiveness.

Dirty aggregates coated with dust and other extremely fine contaminants will also reduce the effectiveness of air entrainers.

Air-entraining admixtures have also been shown to be more effective when used with rounded aggregate particles as opposed to irregularly shaped or rough-textured aggregates like crushed stone.

#### ► Water

Hard water, such as well water, tends to reduce the amount of entrained air achieved by a particular dosage of air-entraining admixture. Water softeners, on the other hand, tend to have the opposite effect.

### Batching and mixing considerations

As with any raw material, the batching sequence and mixing duration is crucial to the performance of air-entraining admixtures. Air-entrainers are often batched into the mixer along with the aggregate. However, precasters should rely on the admixture supplier for guidance specific to their mix design. Additionally, mixing beyond two minutes in most mixer types will begin to reduce the admixture’s air-entraining potential.

**Air-entraining admixtures significantly improve the workability of fresh concrete.**

### Fresh concrete considerations

Many current-day studies prove air-entraining admixtures significantly improve the workability of fresh concrete, which, in turn, can increase the slump or slump flow as compared to the same mix without air-entrainment. Additionally, as slump increases up to about 6 inches, so does the air-entraining admixture’s ability to entrain air.<sup>9</sup>

The structure of the entrained air void system, including the number, size and distribution of bubbles along with the dilatancy of each individual bubble, can be impacted by seasonal changes in production processes:<sup>10</sup>

- Hot concrete temperatures can reduce an air-entrainer’s effectiveness by up to 25%.
- Cool concrete temperatures (less than 75 F) can increase an air-entrainer’s effectiveness by up to 40%.

Therefore, with all other factors remaining the same, precasters may notice a reduction in a mix’s entrained air content in warmer months compared to cooler months.



Excessive vibration can also reduce the entrained air content of a mix. In addition, evidence shows that the bleeding rate decreases as a mix's entrained air content increases.<sup>11</sup> Watch for these effects when adding air-entrainment to a known mix.

Any change in raw material, proportions or production processes can have an impact on the chemistry of the mix and, ultimately, on the performance of an air-entrainer. Each mix design and its source for each raw material must be assessed to determine the right air-entraining admixture at the right dose for its individual application.

### ADMIXTURE COMPATIBILITY

Many concrete mix designs use more than one admixture. Even when the dosing of an air-entrainer is perfected and necessary adjustments are made to account for the chemical makeup of raw materials, it is important to note the mix design's performance may change when a new admixture is introduced. Any change in raw material, proportions or production processes can have an impact on

the chemistry of the mix and, ultimately, on the performance of an air-entrainer. Each mix design and its source for each raw material must be assessed to determine the right air-entraining admixture at the right dose for its individual application. Precasters are advised to work closely with their admixture supplier to run trial batches to determine the best solution for each particular plant. **PI**

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

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# Design Fixation: Avoid It and Innovate More

By Stuart G. Walesh, Ph.D., P.E.

Regardless of our job descriptions, we are responsible for driving specific outcomes – it’s what we do. When we are faced with a new technical or non-technical problem, we often engage in a productive conversation about similar problems we have faced and recount how we solved them.

We know that the process usually works – it solves the problem. That’s good news.

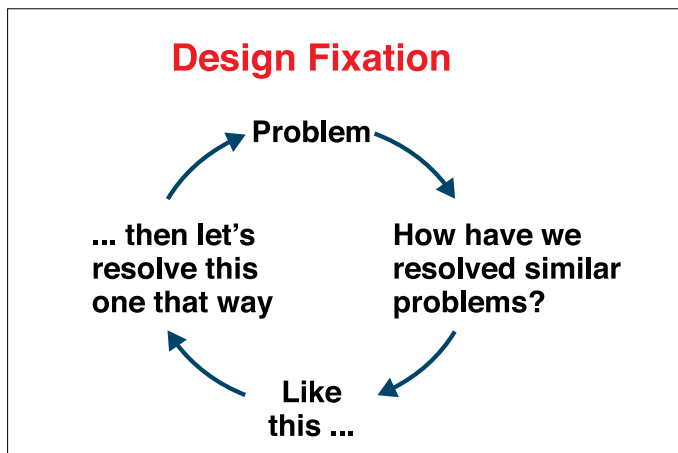
If that’s all we do, whether we realize it or not, we are practicing design fixation, also called reproductive thinking or the Einstellung Effect. The German word Einstellung means usual approach, mindset or attitude. We’re assuming that if this solution worked in the past for similar problems, it will work for our current problem – a reasonable assumption.

## WHY MESS WITH SUCCESS?

Why question what works? While we, individually and for our company, want to move forward, we could unwittingly and habitually be locking ourselves in the past. Focusing only on what has worked often causes us to miss opportunities to innovate.

Design fixation closes the door on creative problem solving because we become prisoners of the past. Economist John Maynard Keynes said it this way: “The difficulty lies not so much in developing new ideas as in escaping from the old ones.”

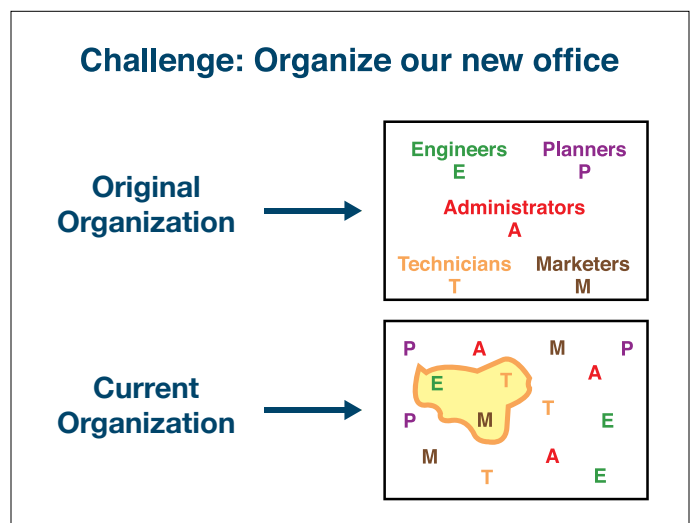
We can’t fix something if we don’t know it exists.



## BENEFITS OF SEEING AND AVOIDING DESIGN FIXATION

Consider some examples of how design fixation was avoided and innovation occurred. My engineering firm colleagues and I had an opportunity to design how we would use space for our branch office on the entire floor of a new building. Our initial thought, following design fixation thinking, was to apply the same logical layout we always used across our company. It always worked.

We would group people with similar functions together – engineers with engineers, planners with planners, marketers with marketers, technicians with technicians, and administrators with administrators – as shown in the upper part of the following figure.



Fortunately, we escaped design fixation by not following our initial impulse. Instead, we decided to mix everyone up. This arrangement, heterogeneous with respect to job functions, could enhance communication relative to our traditional homogeneous arrangement. Each of us would have more opportunities to learn about others and their work and, as a result, more fully appreciate our company’s diversity of expertise, function, projects and clients/owners.

It worked. For example, I, an engineer, was given an office with a technician on one side and a marketing person on the other side. As a result, I gained more appreciation for the creative and sophisticated



field work done by our technicians, and I received a “short course” in marketing.

Another example is the construction of the Panama Canal, which started in 1903. The project was facing many challenges when railroad engineer John Frank Stevens took over in 1905. He did not see this effort as mainly an excavation challenge, which was common in canal projects. Instead, he considered digging to be the least important thing at the time. Stevens rejected design fixation thinking.

He concluded that while excavating was a challenge, hauling the excavated rock and earth to either coast, or to wherever fill was needed, was a much bigger challenge. Therefore, his objective was “to create a system of dirt trains that would function like a colossal conveyor belt, rolling endlessly beside steam shovels working at several levels at once. The goal was to keep an empty muck car next to the steam shovel every second of every work shift.” Although he initially received criticism for focusing on building a rail system instead of ‘digging,’ his detractors were clearly the ones suffering from design fixation thinking.

It’s unlikely you are deciding how to use a new company space or expedite construction of a canal. However, you are responsible for creating results.

Say you are seeing too many bugholes in your precast concrete product. The last time this happened, you realized the form oil application was too heavy, and once the employee responsible for applying the form oil was trained, the problem went away. Therefore, you could simply do the same thing here. Or, you could also examine the form oil applicator itself. Does it have the right nozzle? Is the air pressure correct? A solution may exist that would make form oil application much more foolproof.

Think about the tasks you frequently perform; the objects you routinely use; and the structure, facility, system, product or process you are designing. Ask yourself, “How could I eliminate, combine, or simplify and reduce costs while retaining desired functions or results?” One way to avoid design fixation is to stimulate broader and deeper thinking by using the double-diamond process.

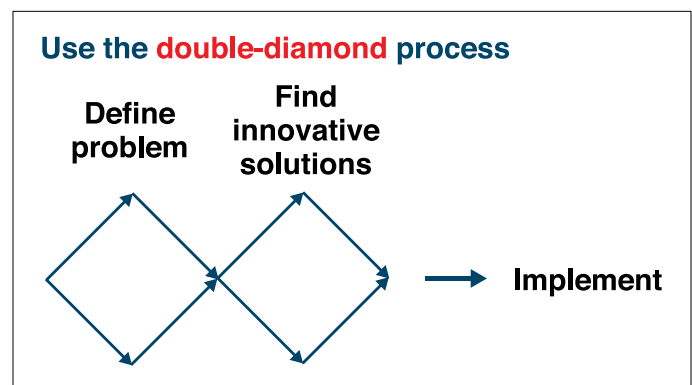
## DOUBLE-DIAMOND PROCESS

My studies of invention case studies and tools used to encourage fresh thinking and collaboration convinced me that we will be more innovative if we use a whole-brain approach. We should strive to use our left and right hemispheres so the logical, verbal, and abstract capabilities of our left side interacts synergistically with the emotional, intuitive, and synthesizing capabilities of our right side. In doing this, we must apply our conscious minds, of which we are well aware, to more fully engage our much more cognitively active, but elusive, subconscious minds.

Whole-brain thinking, as an alternative to design fixation, is nicely encapsulated in the double-diamond process as illustrated above right.

In the first diamond, we use divergent thinking to explore possible problem definitions – more is better at this stage and almost anything may be suggested. Divergent thinking is all about generating ideas. Scientist Linus Pauling said, “The best way to have a good idea is to have lots of ideas.”

American writer John Steinbeck noted, “Ideas are like rabbits. You get a couple, and learn how to handle them, and pretty soon you have a dozen.” After thorough divergent thinking, we use convergent thinking to select the best problem definition, and that completes the first diamond.



For some of us, giving adequate attention to the problem-definition diamond is challenging because of our impatient “let’s get it done” attitude. This may be considered admirable, but rushing through problem definition – the first diamond – may lead to solving the wrong problem, missing benefits that could arise from a different solution, failing to serve some stakeholders, spending more than necessary or harming the environment. Instead, slow down.

Armed with a solid problem definition, move into the second diamond and repeat the broad and deep divergent-convergent thinking process to fully explore a wide range of possible solutions – not just those we used in the past – then select the best option. Clearly, the two diamonds must be done in the indicated order to force discipline, stimulate broad and deep individual and group thinking, and enable us to avoid design fixation.

In precast manufacturing, early-age cracking can be a challenging problem to solve. We may rush to a possible solution by making adjustments to our aggregate gradation. Instead, we could also apply the double-diamond process by first defining the problem. Early-age cracking is often caused by premature evaporation of the surface water. Causes of that could be mix design-related or production-related and could be broken down into many possible culprits. Once the most likely cause is identified – in this case we’ll assume it’s too much air movement across the unformed surface – then many solutions can be discussed including keeping big overhead doors closed, covering products or moving products to another area. After identifying viable solutions, the best one can be determined.

## KEY IDEAS

If you want to move forward, minimize design fixation. This constraining force, which unwittingly and habitually locks you into what has worked in the past, can easily cause you and your company to miss opportunities.

Your company is loaded with creative ideas. Your personnel are a gold mine of innovation. Mine the gold for everyone’s benefit by moving from design fixation to whole-brain thinking. **PI**

*Stuart G. Walesh, Ph.D., P.E., consultant, teacher and author, worked in the business, public and academic sectors before starting his sole proprietor business.*

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# DON'T BE A TARGET

## HOW TO AVOID CYBERSECURITY AND DATA **EXPOSURE ISSUES**

By Bridget McCrea

As cybercriminals continue to move beyond just attacking high-profile organizations, precasters must take the steps necessary to protect themselves and their customers.



There was a time when cybercriminals set their sights squarely on bringing down highly visible organizations like Yahoo!, Target, Marriott and Equifax. In each of these breaches, cybercriminals were targeting one main prize: customer's personal data.

Fast-forward to 2020, and it's clear cybercriminals aren't just interested in large organizations anymore. In fact, Cybint Solutions said 43% of cyberattacks target small companies. In total, 64% of all companies have experienced web-based attacks, 62% experienced phishing and social engineering attacks, 59% were hit with malicious code and botnets, and 51% were impacted by denial of service attacks.<sup>1</sup>

## MAKING CYBERSECURITY TOP OF MIND

Cybersecurity and data protection may not be the most obvious challenges for a precast concrete manufacturer, but the reality is these companies are just as vulnerable to cyberattacks. They're transacting business with customers, for example, which means safeguarding the actual payment processes while maintaining customer data should be of utmost concern.

Because industrial manufacturing companies aren't exactly seen as a "technology hotbed," it could present a major opportunity for a cybercriminal.

"When most of us think of a data breach, we think of large corporations like Equifax, but the reality is that most data breaches occur at small-to-mid-sized operations," said Shannon Walcott, a senior sales executive at debit and credit card processing provider at BASYS Processing in Lenexa, Kan. "For the most part, that's because [smaller] organizations are less equipped to defend themselves from cyberthreats."

Taking steps to keep payment data safe really does need to be a priority to protect your reputation, but it can also protect your bottom line. For example, Walcott said 60% of small businesses victimized by a cyberattack go out of business within six months.

"This is definitely an issue that is impacting the financial well-being and even the livelihood of organizations nationwide," Walcott added.

In many cases, a fundamental misunderstanding of what actually leads to a data breach creates an environment whereby attackers gain access to critical information.

"Ninety-three percent of data breaches are completely avoidable," Walcott pointed out. "A lot of people picture some hacker that has a personal vendetta against their company sitting behind his computer. That might happen occasionally, but most data breaches are far less complicated, with more than half of them caused by internal employee error."

Consider the Equifax breach, for example. Because a single employee in the firm's technology department neglected to install a recommended software update, the personal information (i.e., social security numbers, birth dates, addresses, drivers' license numbers) of 143 million consumers was exposed. In addition, 209,000 consumers had their credit card data exposed as a result of the breach.<sup>2</sup>

"The best thing you can really do for the security of your company is arm your entire staff with the knowledge and training they need to securely handle sensitive information," Walcott said. "The biggest challenge with this is compliance – everyone in your organization, from the CEO to the receptionist, needs to be onboard and complying with your security policies."

## CATCHING UP QUICKLY

For precasters, getting up to speed on customer data protection means ensuring all operating systems, software and any third-party applications are up to date and running on the latest software versions (which include patches and security enhancements meant to ward off the latest threats). Employee training is equally as important.

"Overexposed data presents a major risk to organizations regardless of size, industry or location," Varonis Data Lab pointed out in its 2019 Data Risk Report.<sup>3</sup> "Organizations that are not accountable for their data will need to catch up – and quickly."

Government regulations are also shining a brighter spotlight on how companies manage their customers' data. Enacted in 2018, the California Consumer Privacy Act (CCPA) governs consumer rights relating to the access to, deletion of and sharing of personal information collected by businesses.

"There are now fines involved if a company doesn't inform its customers that data was compromised or lost," Aaron Turner, president and chief security officer at cybersecurity software developer HighSide, Inc., warned. "The fines are hefty enough to put a smaller organization out of business."

## IT'S BIGGER THAN YOU

When developing cybersecurity and data protection plans, many companies focus on their own four walls. This tunnel-vision approach can lead the businesses to incorrectly assume that hackers wouldn't take the time to bother with their organizations.

"If you're just running a precast plant and making stuff for a large construction project, why would anyone bother, right?" said Turner. "The reality is that someone might see that company as an easy mark."

From there, the hacker would use the precaster's infrastructure to attack an upstream portion of the supply chain (e.g. a larger conglomerate or government entity that the manufacturer is working with). Turner said the precaster that keeps these potential threats in mind can go a long way in protecting customer data and information.

"The key is to view cybersecurity from more of a global perspective and understand that someone would use a smaller company to attack the greater ecosystem versus just coming after the precaster directly," Turner said.

## FIRST THINGS FIRST

There are some steps that manufacturers can take now to secure their customer data, shield their financial information and ward off cyberattacks. Colin Ma, founder of the Orange County Tech Alliance in Mission Viejo, Calif., said one of the first steps is to make sure your website is using Hypertext Transfer Protocol Secure (HTTPS), the de facto web security protocol for companies that want an enhanced security layer for sensitive data and transactions (i.e., user logins, billing details and credit card transactions).

By adding a layer of security on the data in transit through a secure socket layer (SSL) or transport layer security (TLS) protocol connection, HTTPS, which is now required by Google, enables encrypted communication and a secure connection between a remote user and the primary web server.<sup>4</sup>

"If one of your customers is sitting in Starbucks, using a public Wi-Fi connection and accessing your non-HTTPS site, it's easy for someone with a packet sniffer or analyzer to intercept that data and capture the payment information," Ma explained and added that HTTPS also helps

to create an overall more secure data environment. “This is one of the biggest things that manufacturers can do right now to improve their cybersecurity approaches.”

### PROTECTING CUSTOMER DATA

When it comes to protecting customer data, Walcott said the first step is to realize not everyone in your company needs access to all of the data.

“Restricting access to a need-to-know basis prevents a lot of risk,” she advised.

Along the same lines, not every company needs every piece of information on the organizations and individuals that it’s working with.

“Many companies collect data that they just don’t need,” Walcott said. “Financial institutions need a social security number and that’s fine, but precast concrete companies don’t need to be collecting that information. It’s a waste of resources, and you’re compromising the security of that data.”

For data that is essential to your business operations, encryption and password-protection are both vital.

“If you have a credit card number on file, it can be used to process a payment, but the end user will not have access to the full card number,” Walcott said. “From their end, it would just be the first few digits and the last four digits. That protects your company from exploitation by your own employees (rare, but it does happen) and from malicious outside sources.”

Next, understand there are a number of convenient and affordable solutions to help you process cards safely. Point-to-point-encryption, data truncation and tokenization are all common security measures that your processor should be able to implement for you, Walcott explained.

Finally, Walcott said precasters should pay attention to the Payment Card Industry Data Security Standard (aka, “PCI compliance”), which helps companies process credit and debit cards safely. If you don’t know whether the payments you’re processing are compliant, ask your credit card processor.

### EVERYONE IS VULNERABLE

Most hackers are opportunists who are looking for an easy target. For example, they’ll seek out companies with existing vulnerabilities in their networks.

Precasters need to install software updates as soon they become available, store information in compliance with PCI data security standards and use strong password protection with two-factor authentication.

In return, precasters can rest easier knowing their customer data and their own internal systems are as safe as they possibly can be in our digital age. They’ll also gain the trust of their customers who want to know that they’re doing business with organizations that take issues like cybersecurity and data protection seriously.

“Many industries have felt like they are immune and don’t think

# NPCA PRECAST DAYS October - November 2020



Join National Precast Concrete Association members who will be opening their doors to showcase their businesses and products as part of the second-annual Precast Days event, October 19 - November 6, 2020. To learn more about this opportunity and participate, visit [precast.org/precastdays](https://precast.org/precastdays).



**Learn more and register at [precast.org/precastdays](https://precast.org/precastdays)**



## BEST PRACTICES TO PROTECT AGAINST ACH AND WIRE FRAUD

Running a successful business requires vigilance about protecting your corporate assets. When dealing with payments like Automated Clearing House (ACH) payment or wire transfers, corporate accounts must be protected with minimum risk. Unfortunately, ACH and wire fraud are more prevalent in our cyber-connected world.

Stefan Siegals, CEO of Advanced Concrete Technologies, shared some best practices and policies his company has put into place to protect against ACH and wire fraud.

- ▶ **Know your vendors and customers and be aware of suspicious activity.**
- ▶ **Apply a multi-level verification system.** Ensure every invoice or bill that comes in is checked on multiple levels and is confirmed by the department that originally ordered it. "We have placed three different stages of reviewing, and it goes fairly quickly to not hold up the process," Siegals said.
- ▶ **Install the latest anti-virus and malware prevention programs on the desktops or laptops where payments are made.**
- ▶ **Never respond to emails, download programs, or open attachments from foreign or misspelled email addresses asking for business account information.** "Sometimes my coworkers will get the occasional email that looks like it came from me asking for money," Siegals said. "But we instruct everyone to look at the email address carefully because it often reveals the email is spam."
- ▶ **Review bank statements regularly.** "Ultimately, the key for us is to check our bank statement at least on a weekly basis to detect any issues," Siegals said. "By setting these precautionary policies and best practices in place, we can quickly catch a payment issue at the very beginning of the process."

the bad guys aren't coming after them," said Turner. "Unfortunately, those days are done. We're starting to see the age where everyone is vulnerable." PI

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

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SCOTLAND

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# PRECAST TAKES CENTER STAGE WORLDWIDE

THREE INTERNATIONAL PROJECTS DEMONSTRATE HOW  
**PRECAST CONCRETE'S VERSATILITY** MEETS CONSTRUCTION  
STANDARDS WHILE GIVING STRUCTURES A BOLD NEW LOOK.

NPCA Staff Report



Image courtesy of Shinya Baba, Resey Architecture



AUSTRALIA



With the world of design and engineering constantly evolving due to advancements in standards, changes in environmental factors and new

design trends, construction materials must be versatile to rise to the challenge. Precast concrete has proven to be the construction material that architects, contractors and engineers need to strike a balance of quality, strength and beauty.



**Moda the Hills**

*Kellyville, New South Wales*  
AUSTRALIA

AUSTRALIA

**PRECAST ENHANCES A LUXURY AUSTRALIAN APARTMENT BUILDING**

Australia is home to many iconic and distinctive features. The Great Barrier Reef is the world's largest reef system and home to 400 types of coral and 1,500 species of tropical fish.<sup>1</sup> The country is also the undisputed home of the kangaroo, and its Outback is one of the largest swaths of intact natural lands on Earth. Australia also holds the unique distinction of being the only country that is also a continent.

Despite being one of the least densely populated countries in the world, it is home to nearly 25 million people with more than 5 million of them calling Sydney home. Like any major city, the core's density makes suburban life appealing, and just northwest of Sydney, Kellyville, New South Wales, is rising to the opportunity with sleek, modern accommodations for the city's growing population.

Creating upscale homes for thousands of potential residents, the soon-to-be-finished Moda the Hills development incorporates suburban favorites such as rooftop terraces, walking paths, shopping and golf with a nearby business district.

The development's four residential towers will be wrapped in 999 panels of precast concrete when

Precast concrete provides aesthetic versatility to construction projects.

CANADA



complete, manufactured by Sydney-based Alpha Precast. The panels offered the architect and developer a range of benefits including thermal efficiency, fire and insect resistance, speed of installation as well as a cleaner worksite. The panels for the three 12-story towers and one 6-story tower are loadbearing and feature shiplap joints and starter bars to connect to the floor slabs. They will be installed over the course of 16 weeks.

In addition, the precast panels bring to life the sophisticated design and desired luxury aesthetic the architects and developers envisioned. Due to be completed in December 2020, the towers will soon transition from beautiful renderings to beautiful homes complete with rooftop gardens, a pool and fitness facilities.

Precast panels bring to life the sophisticated design and desired luxury aesthetic the architects and developers envisioned.



Image courtesy of The Property Investors Alliance



Image courtesy of The Property Investors Alliance





Image courtesy of Hutton + Crow Photography



## V&A Museum

Dundee  
SCOTLAND

## SCOTLAND

### WHERE TERRAIN AND THE ARTS BECOME ONE

Rising like a lush, craggy oasis out of the Atlantic Ocean and North Sea, Scotland's terrain is as distinct as the country's iconic whisky or its famous links.

It is no surprise, then, that the country's first design museum pays homage to its noteworthy landscape. Victoria & Albert Museum, better known as V&A Dundee, located in

Dundee, Scotland, is situated on the north shore of the Firth of Tay – a location with a historical connection to the area's once-thriving maritime industry.

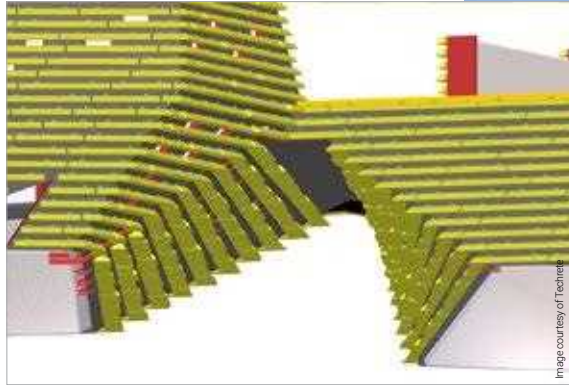
The architect sought to pay homage to Scotland's bold, sturdy cliffs, and no material is better at fulfilling that vision than precast concrete. The two inverted pyramids work in tandem to frame a one-of-a-kind view of the River Tay as they twist horizontally and vertically to mimic the shape of a ship's hull.

In order to get the details right and ensure the complex design could be realized, an integrated BIM 3D model was used to study the building's design. Precast was chosen for appearance, quality assurance, uniformity, cost savings and phased delivery. Precast manufacturer Techrete cast panels for an entire year, averaging 12 panels per day.

To accommodate the varying size and shape of the planks,

Techrete devised a steel form that rotated on large rollers and locked at given angles. Using this innovative forming technique, Techrete's manufacturing team was able to quickly and easily adjust between pours, eliminating the need for numerous custom forms and lengthy set-up. A retarding agent was applied to the surface of each panel to partially expose some of the granite used in the concrete mix design, evoking Scotland's cliffs.

Installation of the panels and their 18,000 cast-in channels required a GPS system and custom-engineered connections. The end result is a stunning, one-of-a-kind structure that has won numerous honors and awards including British Precast's Best Project, Irish Concrete Society's International Project of the Year, an award for use of BIM and inclusion in *Time* magazine's "World's Greatest Places 2019."



3D models and analysis tools were used by engineers to craft the shape of V&A Dundee in Scotland.



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**PRECAST TAKES CENTER STAGE IN SURREY'S CITY CENTER**

Jutting out of the heart of British Columbia, the Canadian Rockies and multiple other mountain systems are the defining feature of Canada's third-largest province by size. Nestled into a valley in this mountainous landscape, Vancouver plays host to the National Hockey League's Canucks, a tremendous amount of annual precipitation and five public universities.

Simon Fraser University, situated in the metro Vancouver area in Surrey's city center, recently embarked on a fast-tracked project to construct a five-story building to house its new sustainable energy and engineering program. The program's energy engineering focus emphasizes clean



Image courtesy of Surespan Construction, Ltd.



Image courtesy of Shawn Bukhari, Revery Architecture, Inc.



Manufactured by Surespan Structures, the shape and texture of the 330 unique, energy-efficient panels were designed to imitate the pattern of an electrical circuit board.

technology and renewable and sustainable energies.

By overlapping the design and construction schedules, the university saved time but needed methods and materials to accommodate the ambitious plan. The design team chose precast concrete panels for the building's facade because of the quality control aspect of plant-produced product, its design

flexibility, durability and the ability to quickly close the building envelope.

The shape and texture of the 330 unique, energy-efficient panels were intended to imitate the pattern of an electrical circuit board. Manufactured by Surespan Structures, the panels feature insulation and reflective glazing as well as a brilliant white color thanks to white sand imported from Ontario and white cement from Mexico. Surespan used specialty formliners to create a wave-like pattern on the curved panels.

The completed building houses the university's Sustainable Energy Engineering program, serving hundreds of students yearly eager to leave their mark in the clean energy sector. **PI**

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# The Seven Wastes

## Waste #3:

# Motion Waste

By Alan Pritchard

**Editor's Note:** This is the third article in a year-long series about how seven common types of waste in manufacturing can create unprofitable activity and how to address them in your plant.

**W**hy do organizations focus on the seven wastes identified by Taichi Ohno, Toyota's chief engineer? The short answer is it's an excellent tool to use when identifying and evaluating how to improve basic processes.

When looking at motion waste, we are talking about the physical act of moving more than necessary. Furthermore, motion relates to time, and time waste benefits no one. So in order to eliminate motion waste, we need to identify the scale of movements and put more standards in place for reducing the waste.

### WHAT IS MOTION AS A WASTE?

Motion waste is generally related to a person's movements, but it can also be unnecessary machine movement. Daily, our staff at Smith-Midland Corp. commits time to improve our processes, including cutting down

on waste. To benefit, we must make movement improvements that matter. It can be difficult for everyone to understand motion waste and how they can eliminate it.

Before getting into defining and classifying motion waste, we need to step back and ask ourselves what specific tasks are actually necessary. One type of waste is often related to or caused by another type of waste. The goal is to eliminate it and not to pigeonhole what type of waste it is.

One of the phrases that is often thrown around at our plant is "learning to see" the waste. If we don't see the waste, we will not be able to eliminate it.

### IDENTIFYING WASTED MOTION

To help find motion waste, ask, "What (waste) is involved in one process?" If that doesn't help, narrow it down to a specific step of that process. This can be repeated by substituting any type of waste.

Motion waste can be as simple as walking to and from the production area, the yard, the fabrication area, the office, etc. It can be the act of composing internal emails or working on reports for your customer or management. Every step we take throughout the day has some type of motion element. While 80% of our motion may take place between the production shop and delivery of the product, those conditions may be a result of sales or billing processes.

Another way to help identify motion waste is to categorize the motion as either large or small.

Large motions take place when someone has to reach outside of a work zone. These are often easier to identify because they require larger blocks of effort and time. Common examples of large motions are looking for tools that are used in multiple locations, going to get a tool from a shadow board, taking welding rods back to dry in the oven, or walking beside the loads being handled on the overhead cranes.

Small motions occur within a constrained task area. These are often overlooked in precast plants because many of these are only done a few times a day, because they only take seconds to complete, or it is part of a small work group and insulated from management. Common examples of small motions are walking across or climbing over to the opposite side of a form, pulling a hammer out from a tool belt and flipping it over to orient the grip in your hand, or even using a bolt that is too long that requires extra turns to tighten.

We came up with a simple solution when trying to reduce small motions. When put into motion, they add up to a lot of time saved for production employees. Every day, one of our teams would come in to begin work on median barriers and utility structures. In order to get their tools, they would walk across the shop floor and an extra 100-plus feet around a casting bed for prestressed posts. Each time they needed something from the cabinet or needed to return an item, they either climbed over the bed or walked around it.

### Lean tools to use for limiting MOTION WASTE include:

- ▶ 5S: sort, set, sweep, standardize, sustain
- ▶ Water strider or spider
- ▶ Milk runs
- ▶ Manufacturing enterprise systems
- ▶ Visual management



One solution offered by an outside observer was to build a set of steps to make it easier to climb over the bed. When the team looked at the situation more closely, they came up with a beautifully simple solution. The cabinet was relocated to the other side of the shop, closer to where the tools were actually used. The solution required minimal effort and no material cost. It was easier, safer, faster and cheaper, and hundreds of hours a year are being saved.

### ASK QUESTIONS BEFORE GIVING SOLUTIONS

If you are looking for motion waste in someone else's work, you should know if they have a standard and whether they are following it. A process cannot be improved past its current level of stability. In other words, the deviation must be limited to an

acceptable level, and the products' quality must meet minimum standards.

Management has it tough because they must eliminate waste from their own work while supporting and coaching others on how to improve. They tend to see work as it is performed without recognizing the conditions that influenced and created the current method or situation. I strongly suggest you keep asking open questions about processes before offering solutions.

For instance, one motion that occurs regularly in a precast plant is creating reports on small process implementations and determining the return on investment. Often, it's better to just implement it and move on. We can sometimes be guilty of overthinking something which can waste time. If you know that it is going to net a positive return, there is little difference between recuperating costs

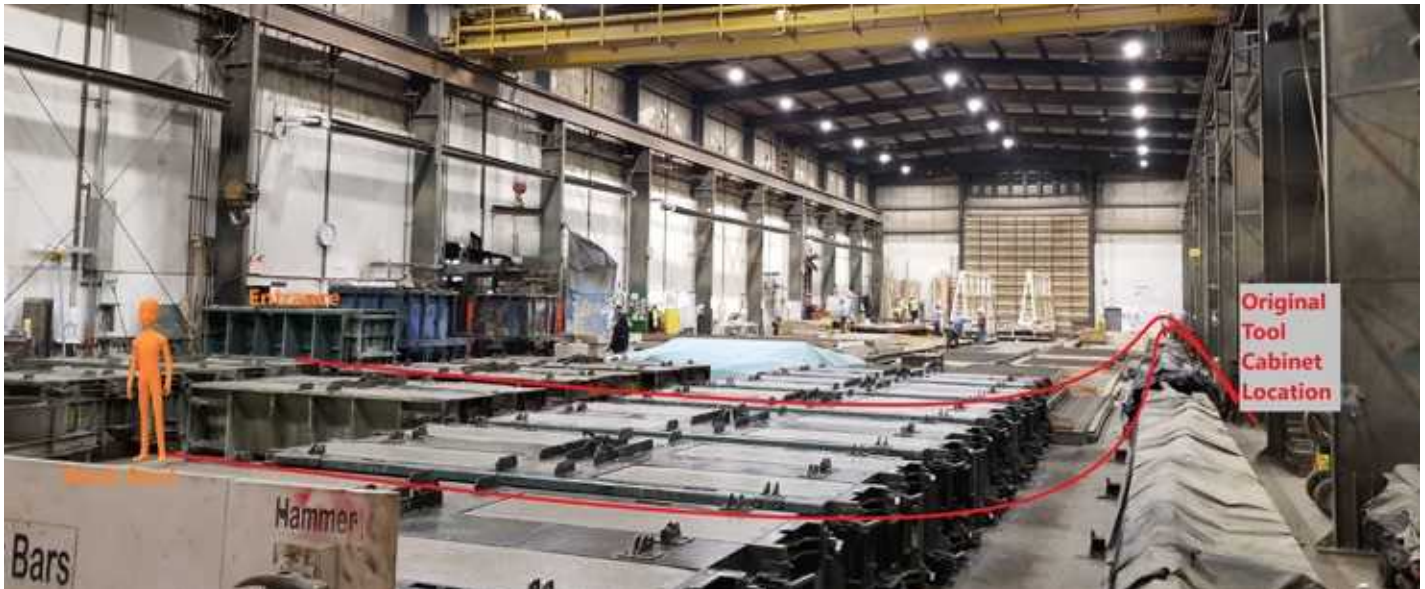
in two months instead of three months. The customer, company, employees and suppliers can then all benefit.

### MAKE THE EFFORT TO REDUCE

Motion is a significant factor within the seven wastes and every effort should be made to remove it from your processes to both increase efficiencies as well as make work easier for all those involved. Movement is not work, but it costs you time and money. Look to lean tools to help you reduce and eliminate excessive motion from your processes. **PI**

*Alan Pritchard is plant manager at Smith-Midland Corp. He is a 2016 Master Precaster graduate and a 2018 graduate of Leadership NPCA.*

Below: The top photo shows an excess of motion discovered at Smith-Midland Corp. and the bottom example shows the solution.



Photos provided by Alan Pritchard





# The Precast Show 2020

**T**he Precast Show 2020, held March 5-7 in Fort Worth, Texas, welcomed more than 4,000 attendees and included more than 350 exhibitors, 100-plus hours of live education and various special events. The National Precast Concrete Association (NPCA) jointly hosted the annual event with the Precast/Prestressed Concrete Institute (PCI).

With a healthy mix of longtime suppliers and new exhibitors, the trade show filled the Fort Worth Convention Center with the latest products, equipment, services and technology for precast concrete manufacturers.

During the week, NPCA announced its 2020-2021 class for Leadership NPCA, held a graduation ceremony for 49 Master Precasters and 10 Leadership NPCA students from the 2019-20 class, while also presenting numerous awards for safety and best practices.

In conjunction with the NPCA Foundation and PCI Foundations, student participation in The Precast Show remained strong, with networking events, a student poster display and a student design competition. PCI also held its annual Convention at the show, and courses and meetings were offered by the Canadian Precast/Prestressed Concrete Institute and the Cast Stone Institute.

The Precast Show 2021 will be held at the New Orleans Ernest N. Morial Convention Center, in New Orleans, La., Feb. 25-27. Visit [theprecastshow.org](http://theprecastshow.org) for details. **PI**





## 2019 SAFETY AWARDS WINNERS

The annual NPCA Safety Awards program honors plants that make safety a top priority.

### SAFETY HALL OF FAME

Trenwa Inc., Florence, IN

### CATEGORY I (0–60,000 HOURS)

#### Platinum Award

Carr Precast Concrete Inc., Dunn, NC  
 Concrete Pipe & Precast LLC, Greencastle, PA  
 Dalmaray Concrete Products Inc., Janesville, WI  
 Fast Cast Inc., Winfield, WV  
 Forterra Pipe & Precast, Elizabethtown, KY  
 Forterra Pipe & Precast, New Caney, TX  
 Husted Concrete Products Inc.,  
 New York Mills, NY  
 Jensen Precast, Ontario, CA  
 Oldcastle Infrastructure, Concord, NC  
 Oldcastle Infrastructure, Ogden, UT  
 Oldcastle Infrastructure – Fayetteville, NC  
 Precast of Maine, Topsham, ME  
 Rogue Valley Precast, White City, OR  
 Smith Precast, Poca, WV  
 Wieser Concrete Products Inc., Roxana, IL  
 Wieser Precast Inc., Williamsburg, IA

#### Gold Award

Jensen Precast, Bruce, Las Vegas, NV

#### Silver Award

Lindsay Precast Inc., Dacono, CO

#### Bronze Award

K & P Precast Inc., O'Fallon, MO

#### Most Improved

Precast of Maine, Topsham, ME

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

#### Platinum Award

Concrete Pipe & Precast LLC, Salem, VA

Forterra Pipe & Precast, Deland, FL  
 Forterra Pipe & Precast, Lubbock, TX  
 Lindsay Precast Inc., Franklinton, NC  
 Lindsay Precast Inc., Alachua, FL  
 Oldcastle Infrastructure, Edgewood, MD  
 Oldcastle Infrastructure, Houston, TX  
 Oldcastle Infrastructure, Lakeside, CA  
 Wichita Concrete Pipe Inc., Wichita, KS

#### Gold Award

Oldcastle Infrastructure, San Antonio, TX

#### Silver Award

Oldcastle Infrastructure, Loveland, CO

#### Bronze Award

Lee's Precast Concrete Inc., Aberdeen, MS

#### Most Improved

Oldcastle Infrastructure, Lakeside, CA

### CATEGORY III (120,001+ HOURS)

#### Platinum Award

Concrete Pipe & Precast, Dunn, NC  
 Oldcastle Infrastructure, Auburn, WA  
 Oldcastle Infrastructure, Fontana, CA  
 Waskey, Baton Rouge, LA

#### Gold Award

Oldcastle Infrastructure, Ogden, UT

#### Silver Award

Concrete Pipe & Precast LLC, Ashland, VA

#### Bronze Award

Jensen Precast, Lockeford, CA

#### Most Improved

Oldcastle Infrastructure, Auburn, WA

## 2020 BEST PRACTICES AWARDS WINNERS

Full project descriptions can be viewed at [precast.org/best-practices-awards-winners](https://precast.org/best-practices-awards-winners)

### 1ST PLACE

Smith-Midland Corp.  
 Midland, Va.  
*Kanban Pull Card System*

### 2ND PLACE

MBO Precast  
 Carver, Mass.  
*Value Stream Mapping (VSM)*

### 3RD PLACE

Smith-Midland Corp.  
 Midland, Va.  
*Lean-focused chat on WhatsApp*

# Dustin McMinn: A PASSION FOR LEADERSHIP

**Master Precaster** Dustin McMinn trades one passion for another on his path to leadership within the precast concrete industry.

By Sara Geer

As a former U.S. Army Sergeant, Crossland Prefab plant manager Dustin McMinn is no stranger to being a leader. Feeling responsible for his peers' and coworkers' well-being and training comes natural to him. Yet, he mentioned being a leader in the military looks quite different than in the civilian world.

"When I got out seven years ago, I had to retrain everything and adapt to new ways and ideas," he said.

Fortunately, his love for concrete led him to pursue a leadership position in the precast concrete industry. His first job out of the military was at a construction company in Manhattan, Kan., where he learned basic knowledge about construction. A few years later, he moved back to his hometown in Scammon and applied for a job at Crossland Prefab in Columbus, Kansas. There, he learned about precast concrete.

McMinn said he started working as a finisher first and gradually moved up into the company to his current position as plant manager. His knowledge of precast at the time stemmed mostly from on-the-job training and hands-on work. When he learned all he could about finishing precast concrete, his boss approached him about expanding his knowledge by taking NPCA's Production & Quality School courses and completing the Master Precaster program. McMinn jumped at the chance to learn more and grow.

"I know people think making concrete is as simple as putting rock and sand together, but there is a science behind it," McMinn said, "And I find the science very fascinating."

## IMMEDIATE RESULTS

McMinn said taking the courses helped him to solve immediate challenges in the workplace. For example, while he was learning about mix designs, the very same day a real-life mix design issue happened.

"I was able to take the information from the class and put it into play to solve my problem," he said. "It was really cool to watch that I had just sat an hour through my mix design class, and within the hour I applied



Photo courtesy of Dustin McMinn

the knowledge that I gained. It was a surreal moment and was accurate and very true."

McMinn also said since Crossland Prefab is a relatively new company, many of the workers are new to the industry. By taking the classes, he was able to provide immediate feedback to address questions, concerns and curiosities.

"I grew and they grew because I took what I wanted as a student and then became the teacher, and now a leader," he said.

The networking gained from taking the classes was also beneficial when he realized the problems experienced at Crossland Prefab weren't unique precast concrete issues.

"It's always nice to have the problem-solving network."

## A NEW, YET FAMILIAR PASSION

While he enjoyed learning from each course, his path toward leadership really took off after he finished the PQS Level III – Leadership course at The Precast Show 2019. It's a familiar, yet new role for him that he hopes will help others succeed.

"I've left my passion for concrete to the people who do that every day and have taken a passion into developing myself as a leader to help develop others as leaders," he said.

McMinn mentioned PQS Level III instructor Sam Lines' advice and mentorship has been valuable, and he is eager to find more ways to be involved with NPCA. Lines said he saw in McMinn a drive for success similar to his own at that age. It's his way of paying it forward to the next



generation of leaders.

“We have similar life values, and I could see in him an eagerness to grow beyond where he was,” Lines said. “He’s where I was a couple decades ago, so it’s nice to be able to use some of my past experience and skills to pour into someone who is younger, who in turn wants to share his talents and knowledge to others.”

Lines suggested a couple of avenues for McMinn to build his reputation in the precast concrete industry, which included applying for Leadership NPCA and being a member of a panel discussion of three leaders at different levels in the company as part of the PQS II – Technical class. McMinn happily pursued both.

Lines said it’s encouraging and fulfilling for him to see students from PQS III – Leadership guide their lives around what the class teaches.

“It’s actually one of my life goals to do something for someone else that they cannot do for themselves, and I want to try to do that as much as possible,” Lines said.

McMinn plans pass along what he has learned both by modeling the behavior as well as coaching his employees. He is excited to see what the future holds both for himself and the company.

“I’d like to give all my glory to God, because without Him I wouldn’t be able to have all these opportunities,” he said. “I’m truly humbled and blessed.” ❏

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# NPCA FOUNDATION WRAP-UP: Student Competition, Silent Auction and Board Updates

The Second Annual NPCA Foundation Student Competition was held in Fort Worth, Texas, as part of The Precast Show 2020. Teams from across the country presented their solution to a real-world challenge. This year's challenge presented students with a project in which an NPCA member had to provide precast for a secondary containment system in a chemical storage tank field with very limited space.

The teams presented to a panel of industry experts and the top three teams were:

**FIRST PLACE** - New Jersey Institute of Technology

**SECOND PLACE** - California State University, Chico

**THIRD PLACE** - Idaho State University

The NPCA and PCI Foundations also held a silent auction during The Precast Show and raised more than \$49,000. Net proceeds will benefit the NPCA and PCI Foundations' mission to grow the precast industry through education. To see a list of all of the donations and winners visit [precast.org/2020-silent-auction](http://precast.org/2020-silent-auction). There, you may also download an associate or producer form to donate for the 2021 silent auction.

During the NPCA Foundation Board of Directors' meeting, the Board received an update from Dr. Mustafa Mashal, Ph.D., P.E., assistant professor of civil and environmental engineering, about Idaho State University's precast-specific engineering studio, which was jointly funded by NPCA's and PCI's Foundations. Additionally, Board members discussed how they can provide funding for future development of precast-specific courses at colleges and universities. ■



To learn more about the NPCA Foundation, visit [precast.org/foundation](http://precast.org/foundation)



New Jersey Institute of Technology won first place at the second annual NPCA Foundation Student Competition.



The NPCA Foundation Board of Directors.





# Working For You

## Successful Outreach Depends on Everyone's Involvement

Outreach can be a driving force that elevates your company's brand identity and establishes your products as a material of choice within the construction, academic, regulating and specifier communities. When done successfully, it goes beyond just promoting your products to a consumer audience. It also encompasses community engagement and relationship-building to promote the precast concrete industry.

There is no limit to the opportunities to educate others and build connections. By implementing a sustainable strategy that is unique to your business and using NPCA's resources, you can ensure even a little outreach goes a long way.

### THE ELEMENTS OF A SUSTAINABLE STRATEGY

A sustainable strategy is one that is focused on long-term success. The first step is to identify what exactly you hope to accomplish. What is your goal? You have to know where you are going to determine if you got there or not or if you are on the right path along the way.

Your strategy must allow for the amount of time, funding and energy you have available to allocate toward engaging a target audience of your choice. Subsequently, these factors can be used to determine the type of outreach activities you participate in and the depth of your involvement. Finally, a sustainable strategy is one with measurable outcomes because knowing what worked and what didn't is important when considering where to allocate your future resources.



### HOW CAN NPCA HELP?

NPCA has several tools available to supplement your outreach strategy. You can conduct education outreach by using pre-made PowerPoint presentations, webinars and precast concrete curriculum developed for professors at [precast.org/professor-resources](http://precast.org/professor-resources). Or, kickstart your outreach efforts by viewing NPCA Learning Lab videos dedicated to providing insight on outreach-related efforts at the plant level at [precast.org/learning-lab](http://precast.org/learning-lab).

In addition, share your local specifications with us. NPCA works with regulators to develop precast-related construction specifications at the local, state and federal level. By creating these specifications, precasters can more easily bid on projects and bring in more opportunities.

Lastly, participate in NPCA's Precast Days event to connect with the surrounding community. Precast Days 2020 will take place between October 19 and November 6. Participating plants may sign-up to conduct plant tours, provide information sessions, offer continuing education courses for local engineers and architects, and hold open interviews for available positions. More information is available at [precast.org/precastdays](http://precast.org/precastdays).

Getting started is often the most difficult part. However, keep in mind any strategy will evolve as lessons are learned along the way and that it's important to not let perfect get in the way of good enough as you begin this journey. ■





# BUILT FOR SPEED.

Precast/crane combo gets apartment foundation, parking decks up in 45 days

**W**hen you need to get a new apartment building above ground in 45 days, it takes the right material and the right crane. Pride One Construction, precast maker Mack Industries, and ALL Erection & Crane Rental, a member of the ALL Family of Companies, came together to achieve that goal for Dexter Place Apartments, luxury units in the trendy Ohio City neighborhood of Cleveland.

The plan called for jump-starting the project by constructing the foundation, basement, and two floors of parking in just a month and a half. ALL provided a 300-UST Liebherr LTM 1250-6.1 and several scissor lifts for the work.

"Because the storm sewer had already been constructed underground, we knew we wouldn't be able to place a crane inside the building footprint," said Brian Meek, sales rep and equipment specialist for ALL, citing the risk of damage to underground utilities. "Instead, we needed to choose a crane with the capacity and reach to place the precast while positioned outside." The LTM 1250 was chosen for these reasons and because of its smaller size, which was ideal to navigate an urban job site.

The project showcased a wide variety of precast from Mack Industries. There were 975 pieces in all, including columns, beams, shear walls, and hollow core planks. For most lifts, the LTM 1250 was configured with 157

feet of main boom and 214,000 pounds of counterweight. The heaviest pick was approximately 40,000 pounds.

Meek noted that, after the first two weeks of construction, the crane operator was making many of the picks "blind" because he could no longer see past the exterior walls. "At that point, he was relying on the ground team as they relayed instructions to him," Meek said.

The crane had a total of three setup locations for the job, including a street neighboring the construction where they spent one week, which required closing the roadway.

The speedy construction timetable drove the project. Precast was the ideal material, and its use, in turn, dictated the choice of crane. Meek estimated that the LTM 1250 picked and set 15 to 30 pieces of precast per day, depending on their size and where they needed to be positioned.

Because the site had no lay-down room, an allotment of precast arrived daily by truck. Mack Industries prepared a meticulous delivery schedule, coded to each day's work, to maintain logical order and keep construction running smoothly.

When complete, Dexter Place will have 115 apartments and 8,000 square feet of retail space. And ALL will have made one more customer very happy.



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# 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 [kstelsel@precast.org](mailto:kstelsel@precast.org).



Scott Dull, P.E.

## Afinitas Adds New Sales and Engineering Team Members

Afinitas announced the addition of **Scott Dull, P.E.**, and **Kyle Hignett** to its Forming Systems Division sales team as well as **Dan Hodel** to the engineering team.

Dull, who will manage the South Central/Eastern sales territory for the Afinitas Forming Systems Division, has nearly 35 years of experience in a wide range of areas and industries within construction including product sales, marketing and engineering.

Hignett will be based in Columbus, Ohio, and will manage the Central/Northeast sales territory for the Afinitas Forming Systems Division. He brings more than 15 years of diverse business experience to this role, including 10 years with Advanced Drainage Systems, Inc.



Kyle Hignett

Hodel joined Afinitas in January 2020 as a senior automation engineer. He has a bachelor's degree in electrical engineering with an emphasis in controls and audio from the University of Wisconsin – Madison. Hodel will be based in Iowa.



Dan Hodel



Wes Dees

## Wes Dees joins BUILDTECH Sourcing

**Wes Dees** has returned to the role of senior advisor at BUILDTECH Sourcing. Previously serving as precast market manager for Seaman Corp., Dees aided with the creation and development of the new corrosion-resistant XR QuikLiner PVC membrane liner product.



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## Duane Losack Joins Taylor Sales Team

Taylor Machine Works announced **Duane Losack** as Rail King sales and product manager.

Losack played briefly for the Denver Broncos before going to work with a large equipment dealer for more than 35 years. During that time, Losack had various roles which included Taylor/Trackmobile specialist and general manager of several locations.



Duane Losack

## Command Alkon Announces Definitive Acquisition Agreement with Thoma Bravo

Command Alkon and Thoma Bravo announced a definitive agreement for the acquisition of Command Alkon by Thoma Bravo. Once completed, the acquisition is expected to speed the execution of Command Alkon's strategy to integrate intercompany supply chain operations in heavy construction via CONNEX, the company's many-to-many technology platform. **PI**



## Does your company have news to share?

Submit your press releases and photos to Kirk Stelsel at [kstelsel@precast.org](mailto:kstelsel@precast.org) for possible inclusion.

# CALENDAR OF EVENTS



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

Omni Amelia Island Resort  
Amelia Island, Fla.



**Feb. 25-27, 2021**  
**THE PRECAST SHOW 2021**

Ernest N. Morial Convention Center  
New Orleans, La.



**Oct. 28-30, 2021**  
**NPCA 56TH ANNUAL CONVENTION**

The Broadmoor Hotel  
Colorado Springs, Colo.



**March 3-5, 2022**  
**THE PRECAST SHOW 2022**

Kansas City Convention Center  
Kansas City, Mo.

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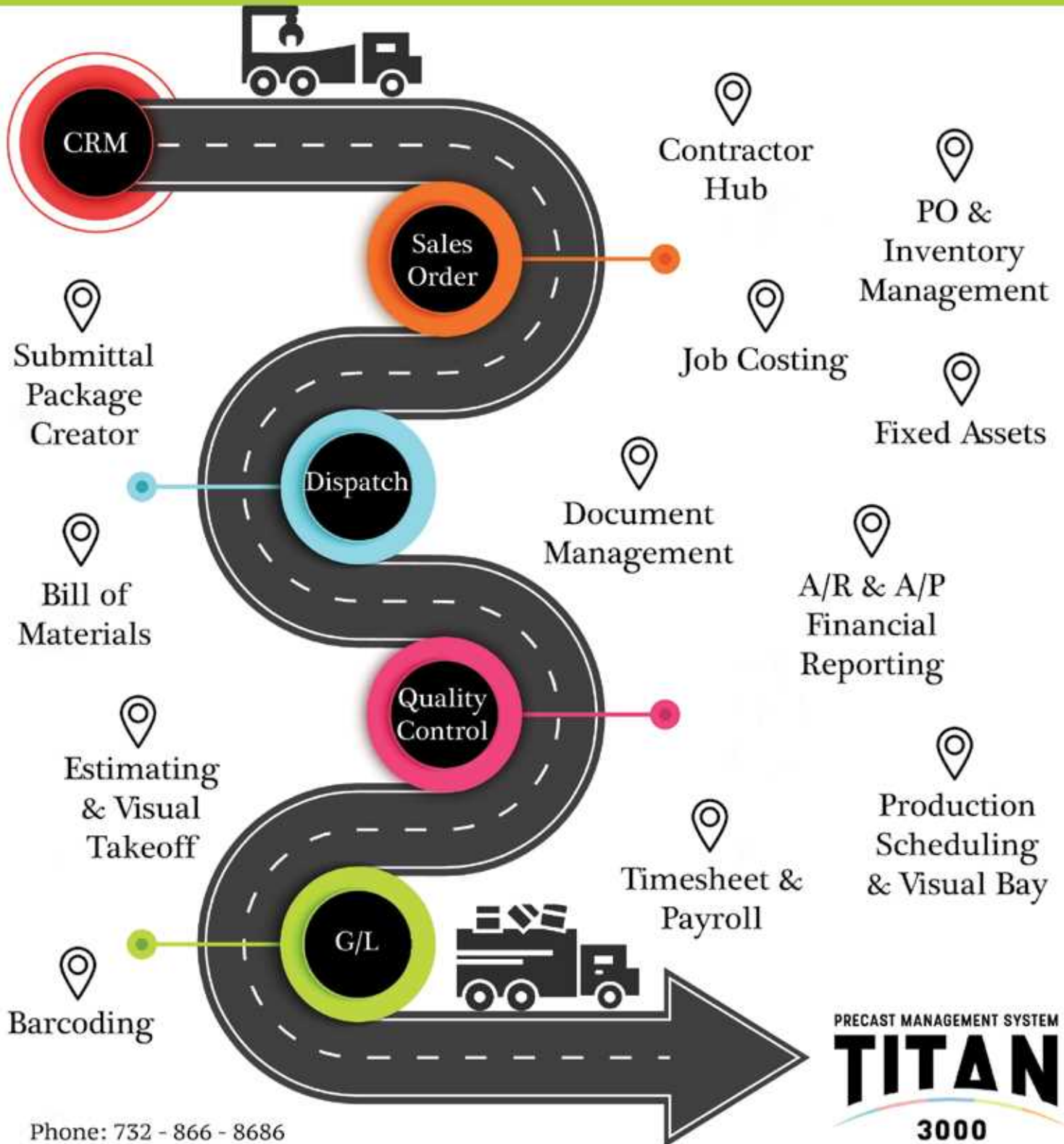


For the most up-to-date information about NPCA events, visit [precast.org/meetings](https://precast.org/meetings)

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