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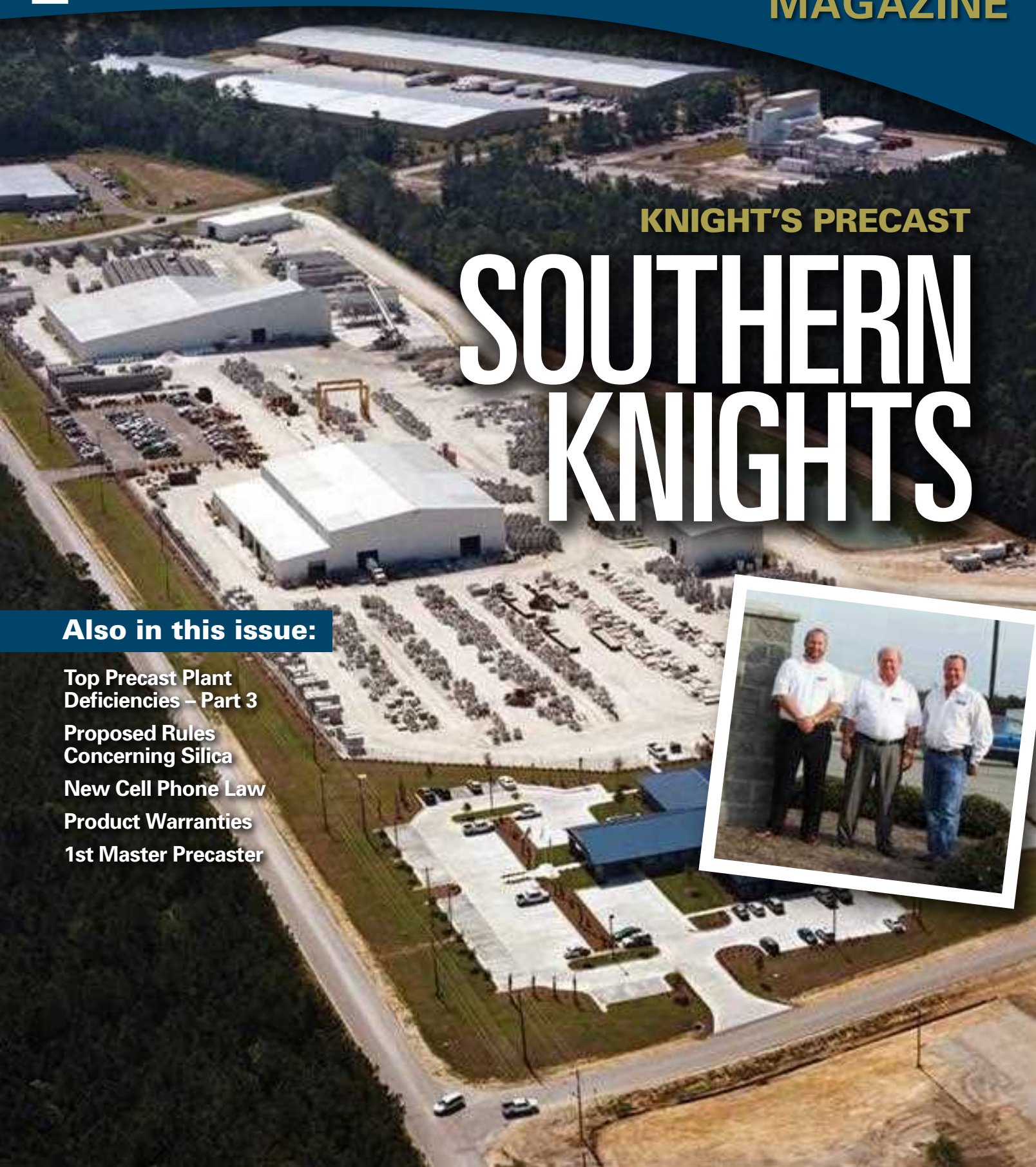
MAGAZINE



KNIGHT'S PRECAST
SOUTHERN KNIGHTS

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- Proposed Rules Concerning Silica
- New Cell Phone Law
- Product Warranties
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A Commencement Address

BY TY GABLE | *President, National Precast Concrete Association*

It's graduation season, the annual rite of passage when high schools, community colleges and universities send their students out into the world. Esteemed scholars, alumni and celebrities will don gowns and mortar boards and pass along their wisdom to auditoriums filled with anxious graduates ready to start new chapters in their lives.

In the precast concrete industry, we've already celebrated a memorable graduation. At the Precast Show earlier this year in Orlando, we honored Mike Loy as the first graduate of Precast University (see page 40). Mike will forever hold the distinction as the industry's first "Master Precaster," and he's a great role model for all production employees who aspire to leadership positions in the plant.

We didn't have a commencement address filled with wisdom for Mike. He's been in the industry for more than 25 years, so he's already handled just about every imaginable situation that can develop on a production floor. But in the spirit of the season, if we had an auditorium filled with anxious precasters ready to make their way into this challenging, competitive, amazing industry, I would offer this humble advice in my commencement address to our future precast industry leaders. Like many such speeches, it takes the form of a list – in this case, a list of things we should all stop doing (both future and current leaders) if we want to succeed in the years to come. The list comes from a blog I wrote last month (see precast.org/blog for more).

1. **STOP LIVING IN THE PAST.** You are forging into the future, and the good old days of the mid 2000s are gone. The construction industry took a major hit between 2007 and 2011, and it is a new world now – leaner and even more competitive. We need to accept what we have and make the most of it.

2. **STOP DEPENDING ON OTHERS TO FIX INDUSTRY PROBLEMS.** Fix them yourself. Think about what you can do to benefit your company and the industry as a whole, whether that's a hard look at quality, branching out to provide products that specifiers may not consider "precast" products, or aggressively promoting your business using the sophisticated tools and technology available today.

3. **STOP BELIEVING EVERYONE IN WASHINGTON DOESN'T HAVE A CLUE** except "your guy" in Congress and realize there is a huge, systemic lack of courage and leadership in the United States Congress. I have close acquaintances with opposite political beliefs, but one thing we can agree on is that the situation in Washington is dire. Apathy is no longer an option if we want a productive government that truly represents the needs of the country and its people. So let "your guy" know that you want real action and measurable results instead of political posturing.

4. **STOP WAITING FOR THE PHONE TO RING.** Thomas Friedman, a *New York Times* columnist, has a mantra: "Average is Over." He believes that "Everyone needs to find their 'extra' – their unique value contribution that makes them stand out in whatever is their field of employment." I couldn't agree more. In the precast industry, average has been over for some time now. If your company doesn't find its "extra," whether that's thinking of complete solutions, investigating new markets and products, stepping out of its comfort zone and the traditional jobs it bids, or making the business easier to find* you're in danger of becoming average.

   **Hint: That's no longer the Yellow Pages.*

5. **STOP THINKING YOU'RE "JUST" IN THE PRECAST CONCRETE BUSINESS.** Look at your current products and think about complete solutions by identifying the peripheral products you can provide. Specifiers are more likely to go to the one-stop shop. Make it easy for them. You are not a precaster. You are an expert in an extremely important niche of the construction industry, and you are the "go to" person when an engineer/architect/specifier wants to know anything about precast.

6. **STOP BLAMING THE ECONOMY.** The economy isn't going anywhere in a hurry. It's what we have, so rather than sit back and complain, take action and make your business the most attractive, highest quality complete solution it can be – and then get out there and promote it in every way available.

If you do these things, I would tell our future leaders, you will be as well equipped as anybody for a long and fruitful career in the dynamic world of precast concrete manufacturing.

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Story by Kirk Stelsel

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STAFF:

Publisher: Ty Gable

Executive Editor: Bob Whitmore

Editor: Ron Hyink

Associate Editor: Kirk Stelsel

Technical Editor: Sue McCraven

Graphic Design: Molly Flick Tippner

Advertising: Brenda C. Ibitz
bibitz@precast.org (317) 571-9500

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Address your letters and comments to the editor:
Precast Inc./Editor
1320 City Center Drive Suite 200
Carmel, IN 46032
(800) 366-7731 • Fax: (317) 571-0041
E-mail: npca@precast.org
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Manhole Frame and Cover Load Bearing Definitions

Clarifying the confusion between proof loads and design loads for castings.

BY PETE DEHAAN

Much confusion exists in the marketplace about the load-bearing ability of manhole covers and grates. This confusion is understandable and is the result of many different government specifications and industry standards. A summary of the loading of castings and some recommended criteria are listed here.

Photo courtesy of ES

Brief history of load-bearing criteria as it applies to construction castings

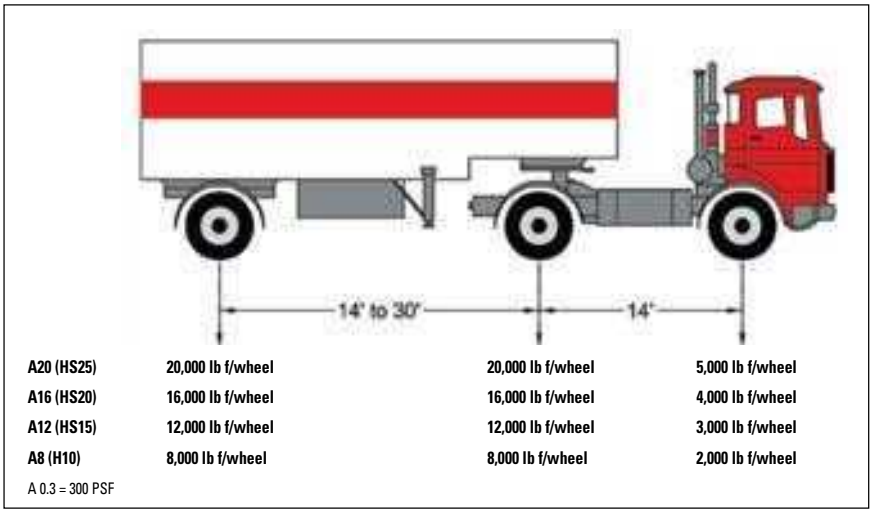
Pre-1940s: The need for cast iron construction castings was met by local foundries. Castings were made from gray iron. Nearly every town had its own foundry, and each foundry had its own designs. Usually the foundries did not complete in-depth loading calculations. Rather, casting design was an educated guess based on trial and error, so adding a safety factor consisted of adding more iron. This is one reason why many old cover designs are so heavy – when in doubt, more material was added.

Post-1940s:

- *H-20 Loading:* American Association of State Highway Transportation Officials (AASHTO) published its bridge design criteria, commonly known as H-20 or HS-20. It consists of truck axle loading of 32,000 lbs, or wheel loading of 16,000 lbs. This design criteria did NOT specifically address loading on construction castings, but due to casting size, usually only one tire can be on a casting at a time. When contractors ask for H-20 or HS-20 loading, they are asking only for a casting to meet the design criteria of 16,000 lbs. If they do not ask for a safety factor in construction castings, they may not get the quality they are expecting.
- *General Services Administration Specification RR-F-621*: This specification was put out by the federal government and is the first widespread specification that directly addressed construction castings performance. There are many versions of this specification, such as RR-F-621b or RR-F-621e. This casting has since been renamed the CID (Commercial Item Description) A-A-60005 and is the latest version of this specification.

This specification is important, because it is the first to state that all castings must be able to maintain a 25,000-lb load applied in the center of the casting on a 9-in. by 9-in. pad. The casting is rated as heavy duty if it meets those criteria. There is no direct correlation between the H-20 design load and the 25,000-lb proof load.

- *AASHTO M306:* This is the newest specification, first published by AASHTO in 1989 and completely revised in 2005. It requires castings to maintain a proof load of 40,000 lbs applied on a 9-in. by 9-in. pad in the center of the casting. This 40,000-lb proof load represents a 2.5 safety factor over the H-20 design load of 16,000 lbs.
- *FAA AC: 150/5370-10, item D-751 and FAA AC: 150/5320-6 Appendix 3:* These are Federal Aviation Administration guidelines that provide design load criteria for aircraft. This guideline basically states that items must be able to accept a wheel load of 100,000 lbs with a wheel pressure of 250 psi. There is no proof load specification or safety factor specifically mentioned.



What is the difference between design load and proof load?

One common issue that comes up is determining what casting to provide when a loading specification is unclear. It is common for a project to have loading criteria for a manhole frame and cover, and is often just listed on a drawing. Some examples of these loading criteria are: "must maintain H-20 loading" or "must maintain 25 kip loading." There is no safety factor listed, so it is unclear whether the safety factor must be added by the casting supplier. Most manufacturers assume that when a specific loading is requested, it is a design criterion, so they add a safety factor and identify it as a product that has an appropriate proof load.

The problem with this approach is that the safety factor may have already been incorporated by the engineer into the loading requirement on the drawing, and with the additional supplier safety factor, the product is significantly more expensive than what is actually needed. To clarify, specifying that castings meet ASHTO M306 or "Airport Rated" requirements will ensure the incorporation of a factor of safety, or proof load. Specifying an ASHTO H-20, HS-20 or FAA-compliant casting is a design load and will not include a factor of safety.

Most common loading definitions

- *Non Traffic*: Due either to the strength or physical characteristics, this casting should not be placed in traffic. This usually refers to decorative items such as tree grates or other items such as beehive grates and ditch grates. The duty rating is 0 to 2,500 lbs, so nothing weighing more than 2,500 lbs should be placed on it.
- *Light Duty:* This casting may be able to withstand some loading, but it should not be placed in traffic. It can accept loading from 2,500 to 16,000 lbs. An example of this type of product is the meter box, which is usually placed in grassy areas where nothing heavier than a lawn mower will run over it, although meter boxes often end up in driveways and parking lots.
- *Medium Duty:* This casting can accept loading from 16,000 to 40,000 lbs. As mentioned, above 16,000 lbs is the H-20 design loading criteria. This casting can accept traditional loading, but it does not have the most up-to-date safety factor. Many castings with the medium duty designation have been used safely in traffic areas for years.
- *HL-93:* This refers to a "live load," which is described in Article 3.6.1.2 of AASHTO LRFD Bridge Design Specification. The HL-93 live load consists of the design truck (32,000-lb axle, identical to the HS-20 truck of the Standard Specifications) or a design tandem (two 25,000-lb axles spaced 4 ft apart). As a result, castings that meet the AASHTO M306 HS-20 rating meet or exceed this requirement.
- *Traffic-Rated:* This casting meets the AASHTO M306 proof load, and the loading criterion is 40,000 to 100,000 lbs. This designation is appropriate for traditional traffic loading.
- *Airport-Rated:* This casting can accept loading from 200,000 lbs and up and includes an additional safety factor beyond FAA design loading.

As confusing as this subject may be, it is important to keep three things in mind:

1. Construction castings are tested using a proof load testing process. It is recommended that castings have a proof load test that is at least twice the expected wheel load.
2. It is important to educate people on the difference between proof loading and design loading.
3. When in doubt, always provide a stronger casting.

Pete DeHaan is district manager, Corporate Accounts with EJ, East Jordan, Mich. (East Jordan Iron Works is now EJ.)

PART 3

Top Precast Plant Operational Deficiencies

A staff engineer reports on pre-assessment audits for the NPCA Plant Certification Program.

BY EVAN GURLEY

Editor's Note: *In the first two parts of this four-part series, we addressed 10 of the most common problems encountered during a typical pre-assessment plant inspection relating to Chapters 1 to 5 in the NPCA QC Manual. In parts three and four of this series, we will focus primarily on product-specific deficiencies relating to Chapter 6, "Special Requirements."*

The requirements in Chapter 6 are in addition and complementary to the requirements in Chapters 1 through 5. Sections 6.1 through 6.5 are intended to demonstrate that the final product is consistent with ASTM International specifications and other industry standards used to verify acceptable product manufacturing and performance.

11 Proof of conformance

If the plant claims to manufacture certain products that meet ASTM specifications or other industry standards, then the plant should be able to prove such claims. Proof of conformance to specific ASTM or other industry standards should be documented and kept in the plant records for all products that fall under this category. Too many times, a plant will claim that a product is being manufactured to ASTM or other industry standards, but then it will have no proof, documentation or referenced standards/drawings to back up these claims.

NPCA file photo

A PLANT CLAIMING TO MANUFACTURE ACCORDING TO INDUSTRY STANDARDS MUST SHOW PROOF OF CONFORMANCE, SUCH AS DESIGN CALCULATIONS AND DRAWINGS.

When talking about proof of conformance, we're talking about the plant providing hard documentation that a product is being manufactured to, and adhering to, industry minimum requirements. Proof of conformance consists of one or more of the following:

- Design calculations and drawings
- Documentation of performance testing
- Documentation of the design conditions and specific requirements stated in individual ASTM International standards

If the precast plant is manufacturing a product to a state DOT-approved drawing, has the most current state-approved drawing/specification on hand and is manufacturing the product according to the requirements, this will suffice. If the plant does not have the most recent drawing/specifications on file and is not performing the checks and balances to ensure the product is being manufactured to the specified requirements, then the plant will receive a deficiency in this area.

Proof of conformance with ASTM or other industry standards should be a normal part of the quality control operations, unless more stringent design requirements are specified for products/projects.

NPCA file photo

Does every product covered in ASTM specifications require that the drawing be stamped by a licensed professional engineer? No, reinforced precast concrete pipe manufactured to ASTM C76 does not require a PE-stamped drawing, so in this case, ASTM requires product testing in order to conform to minimum standards.

For example, ASTM C76 states that pipe manufactured to ASTM C76 must conform to one of two separate alternatives:

- Basis of plant load-bearing tests, material tests, and inspection of manufactured pipe for visual defects and imperfections
- Basis of material tests and inspection of manufactured pipe for defects and imperfections

Independent of the method of acceptance, ASTM C76 states that all pipe shall be designed to meet both the 0.01-in. crack and ultimate strength requirements specified in Tables 1 to 5 of that standard.

12 Reinforcing steel inspection (pipe, manhole, box culvert)

Critically important but often overlooked, reinforcing steel inspections outlined in Sections 6.2.1, 6.3.1 and 6.4.3 are essential elements within the NPCA grading schedule (requires a 75% or higher score). They are also critical factors in achieving the design structural strength of the final product itself.

Most plants realize that they are required to perform pre-pour inspections on all products (exclusive of dry-cast, three or 3% inspections as noted later) before casting. But not all plants realize that they are required to perform an additional, in-depth reinforcement inspection for products outlined in Chapter 6. Standard pre-pour checks include everything from inspecting form dimensions and release agent application to positioning and securing of reinforcing. While standard pre-pour inspections do touch on the positioning and securement of reinforcing, additional measures and inspections are required for pipe, manholes and box culverts. Additional reinforcing steel inspections include maintaining documentation of cage inspections with information on the required cage design versus the actual cage design used, including WWR style, steel area, wire diameter, cage diameter, cage length and welded/tied wire laps. It is a critical requirement that plants perform a detailed reinforcing steel inspection on a minimum of three reinforcing steel cages or 3% of each fabrication run daily, whichever is greater. Test specimens must be chosen on a random basis by QC personnel, regardless of fabrication method. (For products that do not fall under Chapter 6 requirements but are outlined in Chapters 1 to 5, a detailed inspection is required on one piece or 3% of daily or shift-produced products unless the product is machine-cast or dry-cast.)

So, why is accurate placement of reinforcing steel in the concrete member so important? The answer can be seen easily when calculating the moment for a section of a precast concrete product. To calculate the moment of the specimen, use the simple equation below:

REINFORCING STEEL INSPECTIONS ARE CRITICAL FACTORS IN ACHIEVING DESIGN STRUCTURAL STRENGTH.

$$M = F \times d$$

The moment *(M)* is equal to the force *(F)* multiplied by the distance *(d)*. We can put in an arbitrary number for the force *(F)* of the steel reinforcing, so let's say in this example it is 60,000 lbs and the distance to the properly placed reinforcement *(d)* is equal to 4 in. Using the simple equation, we find that the moment *(M)* in this specimen is 240,000 lbs/in. Now let's say that the reinforcement was improperly placed at a depth of 3 in. instead of the required 4 in. Performing the same calculation, 60,000 lbs multiplied by the distance *(d)* of 3 in. equals a moment *(M)* of 180,000 lbs/in. The design calls for a moment *(M)* of 240,000 lbs/in., but since the reinforcement was improperly placed by 1 in., the design of the structure is totally thrown off. This is why proper placement of reinforcement is so important.

If the location of the steel reinforcement is off, the concrete structure will also not have the proper concrete coverage. This is important, because when the concrete structure is loaded, the concrete will begin to crack. But if the steel reinforcement is located in the proper location, the cracks will extend only to where the steel reinforcement is located, then the stress will be transferred to the steel reinforcement and the cracks should not develop further. If the steel reinforcement is not located in the proper location, the cracks may develop, loads may exceed the design, and structural damage may occur.

13 Absorption testing (pipe, manhole, box culvert)

Similar to the reinforcing steel inspection testing requirements previously addressed, absorption testing requirements show

up in numerous sections under Chapter 6 in the NPCA QC Manual. And similar to the reinforcing steel inspection testing requirements previously addressed, nonconformance related to absorption testing inconsistencies are frequent.

The NPCA QC Manual states: "Verification of conformance to the concrete absorption requirements of applicable standards shall be documented by performance testing in accordance with ASTM C497 (Test Method A or B). Testing shall be performed a minimum of once per year on the mix design with the lowest amount of cementitious material used at each operation or manufacturing station. Both in-plant and laboratory testing shall be permitted."

This requirement shows up in Sections 6.2, 6.3 and 6.4 of the NPCA QC Manual, and is a critical requirement in Section 6.2. The inconsistency seen with plant adherence to this requirement is related to the amount of testing and what is tested. If a plant has only one standard concrete mix design used for the manufacture of all three products, only one absorption test (total) will be required per year, as the plant has only one concrete mix with one water-cementitious materials ratio. If a plant manufactures precast concrete pipe, manholes and box culverts, and uses three different mix designs for each product, it must perform three separate absorption tests per year. If a plant manufactures only pipe but has 10 mix designs, the plant is required to perform an absorption test on the mix design with the lowest amount of cementitious material once per year.

Often a plant will perform an absorption test on a product using its standard mix design, but not on the mix design with the lowest amount of cementitious material. This will lead to a deficiency. Even if a plant uses the mix design with lower cementitious materials only one time per year, the plant must perform an absorption test using it since it has the least amount of cementitious material.

This requirement is true for a plant that manufactures both wet-cast and dry-cast products. For example, if a precast concrete plant manufactures wet-cast and dry-cast manholes, an absorption test must be performed for the wet-cast mix and the dry-cast product with the lowest amount of cementitious material in the mix.

A careful review of the NPCA QC Manual requirements (Sections 6.2, 6.3 and 6.4) and ASTM C497 (Test Method A or B) for your standard product line and your mix designs will reduce confusion and the number of deficiencies noted during the inspection process.

End of Part 3, to be continued in *Precast Inc.* July-August 2012.

Evan Gurley is a technical services engineer with NPCA.

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The Value of a WARRANTY

Warranties for high-quality precast concrete products can grow your market share.

BY ROLAND BYDLON, P.E., MBA

Catherine Roe, an executive at Google, defines it as the "zero moment of truth." It's the instant when your customer decides to buy your product or your competitor's. The customer has done the research, talked to the "experts," figured out what's needed, looked at all the products he thinks will meet his needs, compared prices, and then made a decision.

What drives this decision? Is it price? Is it the reputation of the manufacturer? Is it the personal relationship the salesman has made with the customer? Depending on the value of the product or service, it is probably all of these.

Peace of mind – the customer's sense of confidence that he or she made the right choice – is an intangible that is also a factor in the decision to purchase. In some cases, peace of mind is the most important determinant. A customer will often pay a higher price for a product if he or she knows that the company stands behind it. Without a warranty, the buyer takes all the risk.

Five viewpoints on warranties

Scott Flood, a marketing and advertising consultant, suggests offering a warranty for your product or service for many reasons. According to Flood, after the advertising has caught your customer's attention, your sales pitch has delivered the details and your pricing has nearly sealed the deal, a warranty could remove any final barriers to making the purchase – especially if one of your competitors is offering one.

Flood says there are two reasons why many companies don't consider offering a warranty. The first is because they don't have a high level of confidence in the quality of their product. If that is the case, there are bigger problems to address. The second reason is because they are afraid dishonest people will take unfair advantage of them. While there are dishonest people out there, he maintains that you cannot shut down your business because of a small percentage of customers. You need to accept that there is risk to doing business and create an allowance for some potential loss on your books.

If the seller is willing to take some of the risk, the customer may be more willing to buy the product at the moment of truth. So what is the value of a warranty? If you are already making a quality product, why should you offer one?

A warranty helps establish and solidify a relationship with key customers. Greg Stratis, manager of Shea Concrete Products in Amesbury, Mass., offers a limited warranty to customers buying his underground water tanks. The warranty states that the product will not fail for 30 years due to natural external corrosion or internal corrosion if the tank is used solely for water.

John Mion, vice president at Central Precast Inc. in Ottawa, wrote the following: "A warranty is only as good as the company that is going to back it up. As a CSA[1] certified precast producer, we are required to provide a minimum five-year warranty, unless otherwise specified, on all precast architectural/structural products. For masonry accessories such as sills, lintels and banding, a one-year warranty is typical. However, because of our certification and QC procedures, we have been fortunate that we have only had a few small warranty-related issues over the past 55-plus years. Even if the issues showed up after the five-year period, we found it was better PR to just repair or replace than to argue fault. This type of approach gets you more long-term clients than all the advertising you could do. Since there are so many competitive products out there, we feel it is important to provide a good warranty that is well backed. It also sets us apart from the fly-by-night precasters who undercut the market just to get a job."

David Miller, product manager at Weaver Precast in Tampa, Fla., stated, "We produce the Superior Walls below-grade foundation system and offer a 15-year warranty. This definitely helps drive business, because so few systems are willing to offer such a long warranty."

Sam Lines, safety engineer and lean coordinator at Concrete Sealants in Tipp City, Ohio, added "In my past life with a precast producer, we offered a five-year warranty on a septic tank and, if I recall correctly, a 10-year warranty on a controlled-environment vault. In my decade of overseeing quality management, we did not replace very many units, and we had a very low warranty repair rate."

Subjective review

So let's review a bit. If you know you have a good product (critical assumption), offering a warranty will help you build trust with key customers. Those customers will say "yes" more often at the zero moment of truth. You will sell more product and have happier customers who are more likely to tell others about your products since not very many companies in the industry offer comprehensive warranties.

Warranties sound like a good strategy, but many owners of small and large businesses are skeptical, saying they are in a business-to-business market and service is no longer valued in this economy. However, offering a warranty program requires understanding your market, knowing your products and managing risk. Some common producer questions:

1. Can I charge extra for a warranty?
2. How long a warranty should I offer?
3. How do I know how many products will fail?
4. How do I justify this program to my CEO or my accountant?
5. How will this grow my business?

In order to answer these and other questions, let's introduce a hypothetical example using fictitious names. Keep in mind that every business is different, and there are no answers that apply to every situation, but hopefully this scenario will facilitate conversation about ways to grow your business and compete in innovative ways.

A hypothetical case: Panther Precast

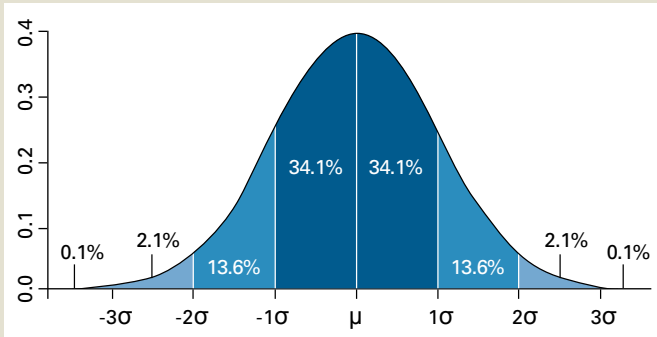
Joe Salem, the CEO of Panther Precast, started his company more than 30 years ago. The company makes a variety of products including septic tanks, catch basins, manholes, utility vaults and specialty concrete products, about 50% of which are septic tanks and distribution boxes sold to a number of installers.

Quality precast product but no warranty: The company is profitable, but growth has been very slow over the past few years due to the slowdown in home construction. Panther is well respected in the industry and makes a high-quality tank that exceeds ASTM standards but does not offer a written warranty. Joe's son Bob, the operations manager, said they will stand by their product. "If something is wrong we will fix it."

Market competitor offers warranty: Panther has always lost some business to tanks of low quality, but lately several installers in the area have begun selling the *Plastitank* line of plastic septic tanks. The manufacturer of the tank claims it is better than concrete, because it will not corrode and is much easier to install. Additionally, the manufacturer is offering a 10-year warranty against system failure. One of Bob's installers said that customers are buying *Plastitank*, because they think it is higher in quality and more reliable than concrete. He asked Bob if Panther would be willing to match the 10-year warranty, otherwise he may recommend to all of his clients that they buy the *Plastitank* product.

Joe and Bob are deciding how to react. Joe has never offered a warranty and doesn't feel he needs to. "My word is my promise." They are confident that concrete is far superior to plastic. But the reality is that Panther is losing business.

Considering a product warranty for the first time: Bob's son Travis, who has worked at the plant since he was 16, has just returned from his first year in business school. Travis knows Panther makes a good product and that its tanks last a long time. He also knows that if customers want a high-quality product, they would be interested in considering concrete. If a customer wants a warranty, Panther should be able to offer one



Dark blue is less than one standard deviation from the mean. For the normal distribution, this accounts for about 68% of the set, while two standard deviations from the mean (medium and dark blue) account for about 95%, and three standard deviations (light, medium and dark blue) account for about 99.7%.

FIGURE 1, STANDARD NORMAL DISTRIBUTION CURVE

– but first he will need to understand how long Panther tanks last historically, what their failure rate is and how to predict the failure rate going forward.

How to determine length of warranty: Travis figured that the average life of a Panther tank, installed and maintained correctly, is 20 years. He also determined that a plot of the number of tanks failing per year followed a standard normal distribution curve (see Figure 1). In mathematical notation, μ is the mean of the distribution, and σ is its standard deviation.

Looking at some records of tank failures, Travis estimates that the standard deviation under the curve was 2.5 years. In statistics the 68-95-99.7 rule states that for a normal distribution nearly all values lie within 3 standard deviations of the mean. If N = 20 years and 2 σ = 5, this means that about 97.8% of the tanks will last longer than 15 years.

If Travis offers a 15-year warranty and the failure rate continues to hold to this normal distribution, he could expect about 97.8% of tanks to be operational at 15 years. If we were to draw a vertical line at -2 σ the area under the curve to the left of this line is the failure zone, or in this case, it would be 2.2 tanks out of every 100. Statistically, 2.2 Panther tanks out of every 100 can be expected to fail before 15 years (see Figure 2).

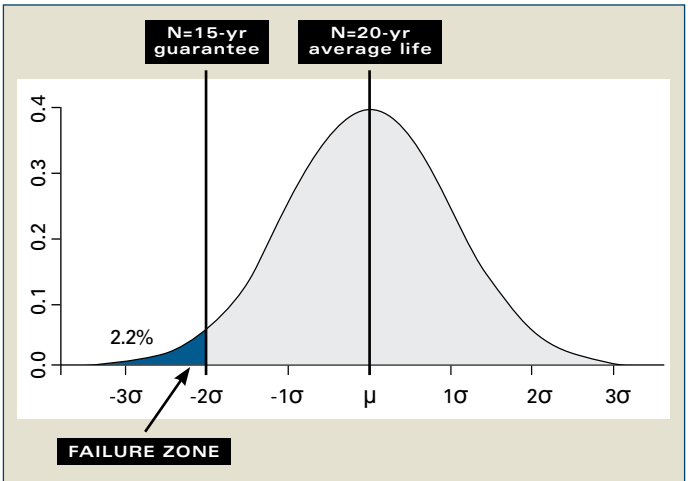
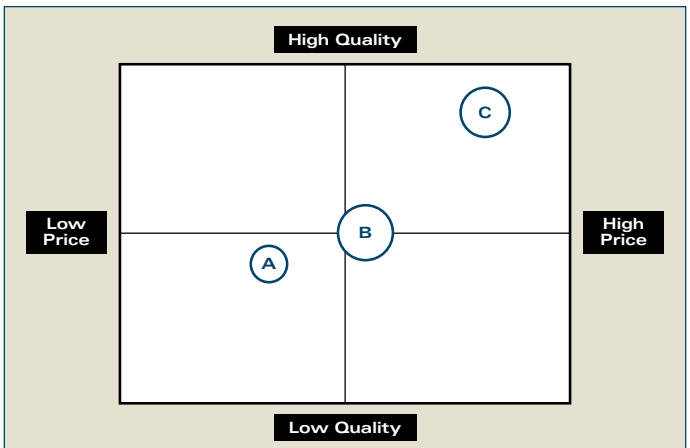


FIGURE 2, FAILURE RATE

Cost of warranty: The cost of a 15-year warranty for each tank statistically would be the cost of replacing just 2.2 tanks for every 100 tanks produced. If we were to offer a 12.5-year warranty (N-(3*σ)), there would be almost no area under the curve. The shorter the warranty, the fewer expected failures and less the expected cost.

Assessing customer base and product market share: Travis understands that there are three different kinds of customers (Figure 3) who have unique wants and needs:

1. A value customer who desires a tank that meets minimum requirements (Product A). Panther does not currently have a product in this area.
2. A customer who wants a better tank and is willing to pay more for it (Product B). This is Panther's current product market.
3. A customer who wants the best and values a warranty. This customer does not want to worry about the tank and is willing to pay extra to be assured that if something happens to it, the installer will make it right (Product C). This is the customer *Plastitank* is appealing to. Panther currently does not have a product in this area.



The size of the circle (above) is the potential size of the market

FIGURE 3, PRODUCT POSITIONING MAP

Two different products: Travis reasons that Panther needs to focus on what they do best. For 30 years Panther has delivered high-quality products. They never intended to make a tank for everyone, but they want to serve their market and exceed the expectations of their target customer.

- *Recommendation #1* - Create a new product to compete in market C. The launch of *Plastitank* has validated that there

is a customer in the marketplace who will demand and pay for a tank backed by a warranty. Panther has a "better" tank and confidence in at least a 15-year service life (see Figure 4). Travis recommends that Panther develop a "best" tank by adding an admixture to the concrete during the manufacturing process that will decrease permeability and increase the tank's resistance to water and corrosive materials in the tank. In addition, he recommends giving this tank a 15-year warranty. The cost of the admixture and the warranty can be added to the price. This will allow Panther to compete head-to-head with *Plastitank*. In his opinion, the customer given an equivalent warranty will choose concrete over plastic.

- *Recommendation #2* - Leave market A for others. Panther has positioned itself as a quality brand. Capacity at the plant is limited and should be directed toward areas where quality and service are highly valued. Travis recommends leaving the base product for others to manufacture and sell.

Conclusion

There are customers who want and are willing to pay extra for the peace of mind that a long-term warranty offers. Some customers view a product warranty as an indication of product quality, especially where customers (including regulatory agencies) have difficulty assessing product performance – for example, durability relative to concrete compressive strength. Producers of high-quality precast concrete tanks can offer warrantied products targeted to this customer group to grow their market share and improve business.

Market	A	B	C
Classification	Base	Better	Best
Strength (psi)	4,000	6,500	6,500
Added features		High gauge steel	High gauge steel
			Waterproofing admixture
			15-year Warranty

FIGURE 4, MARKET PRODUCT TYPES

Roland Bydlon, P.E., MBA, is NPCA's vice president of Technical Services.

[1] Canadian Standards Association

Silica: It's Not Just Dust

Deaths from silicosis in the construction industry may be significantly underreported. New proposed rules and current emphasis programs will impact precast concrete producers.

BY DON J. GARVEY, CIH, CSP

Silica is a chemical compound consisting of oxygen and silicon (silicon dioxide) and is one of the most abundant minerals in the earth's crust. In the form of sand, it is a critical component of concrete. There are two primary forms of silica: crystalline and amorphous. Crystalline silica is significantly more hazardous than amorphous silica. In this article, "silica" refers to respirable crystalline silica – particles small enough to be inhaled and retained deep within the lungs.

NON-SILICA (SAND) ABRASIVES MAY STILL GENERATE SILICA DUST WHEN ABRASIVE-BLASTING CONCRETE PRODUCTS. NIOSH-CERTIFIED SUPPLIED-AIR ABRASIVE BLAST HELMETS MUST BE USED. *Photo courtesy of 3M*

Silicosis: a centuries-old disease

It has been known for centuries that repeated, prolonged exposure to silica-containing dust such as concrete dust can cause silicosis, a debilitating lung disease. Old texts describe grinders' rot and stonecutters' disease – names that reflect how certain trades were associated with the disease. Workers with silicosis may suffer from:

- Shortness of breath
- Severe cough
- Fatigue
- Loss of appetite
- Chest pains
- Fever

Excessive exposure may cause lung scarring and interfere with oxygen transfer, which may eventually lead to death. Because it weakens the lungs, silicosis can also increase the risk of contracting tuberculosis. Some occupational health organizations have classified silica as an occupational carcinogen.

While the incidence of silicosis has been greatly reduced over the past 100 years, cases of silicosis still regularly occur. The National Institute for Occupational Safety and Health (NIOSH) states that more than 200 workers die from silicosis annually. While this is already too many fatalities, there is a concern that the actual number of cases may be significantly underreported. In response to this, U.S. OSHA is taking steps to further reduce the occurrence of silica-induced disease. For information regarding laws in Canada, also see the sidebar "Silica Regulations in Canada."

Notice of proposed rulemaking

In February 2011, U.S. OSHA sent a Notice of Proposed Rule Making for crystalline silica to the Office of Management and Budget for mandatory review under Executive Order 12866. It remains under review. While the specifics of the proposed rules are not known at this time, it is likely they will be similar to other chemical-specific regulations, including:

- Permissible Exposure Limit (PEL) – possibly lower than the current OSHA PEL
- Regulated areas
- Worker exposure assessment
- Methods of compliance
- Respiratory protection
- Worker protective clothing
- Housekeeping/hygiene
- Employee information and training
- Record keeping

Currently, the only silica-specific OSHA regulation is the silica PEL. Some states, however, promulgate and enforce their own rules regarding silica. New Jersey law, for example, bans the dry cutting and grinding of masonry materials on construction work sites. Wet methods to dampen dust and prevent exposure to silica must be used whenever feasible. California has similar rules.

National Emphasis Program

While a final silica-specific regulation is likely years away, in 2008 OSHA promulgated a silica National Emphasis Program (NEP), Directive CPL 03-00-007. The intent of the NEP "is to significantly reduce/eliminate employee overexposure to silica and therefore control the health hazards associated with such exposures. This goal will be accomplished by a combined effort of inspection targeting, outreach to employers and compliance assistance." Targeted industry groups include:

1987 SIC[1] Code	1987 SIC Industry Title	2002 NICS[2] Code
3271	Concrete block and brick	327331
3272	Concrete products	327332, 327390, 32799
3273	Ready-mixed concrete	327320
3281	Cut stone/stone products	327991

As part of the NEP, during an inspection OSHA will enforce multiple current general safety and health regulations that are applicable to crystalline silica. These general regulations are covered in six key areas:

1. Employee exposure monitoring

OSHA will ask to see any employee exposure monitoring (air sampling) results and may conduct its own monitoring. There is no current silica-specific regulation requiring air monitoring. OSHA regulation 29 CFR 1910.134, "Respiratory Protection," does require an employee exposure assessment of some kind (usually air monitoring) if respirators are used, to determine whether equipment provides adequate protection. Therefore, if there is an exposure above the PEL, and respirators are used to control that exposure, OSHA will ask to see exposure assessment data used to select the respirator in use. Exposure monitoring and data interpretation can be complex and should be done by a trained safety and health professional such as a Certified Industrial Hygienist (CIH). A listing of CIH consultants can be found on the American Industrial Hygiene Association website (www.aiha.org) under the Consumer Info tab. Several other websites give expected ranges of exposures for various tools such as grinders and saws and can be used for a first approximation of worker exposure.

USE OF POWERED OR SUPPLIED-AIR RESPIRATORS CAN PROVIDE HIGHER LEVELS OF RESPIRATORY PROTECTION WITH INTEGRATION OF HEAD, EYE, FACE AND HEARING PROTECTION. *Photo courtesy of 3M*

2. Engineering and work practice controls

If employee exposures exceed the PEL, under 29 CFR 1910.1000 or 29 CFR1926.55, OSHA requires that all feasible engineering controls be used, such as local exhaust ventilation, water sprays, isolated control rooms or enclosures. Feasible controls that significantly lower exposure should be implemented even if they do not reduce it below the PEL. This reduces the need to rely solely on respirators to control exposure and may give employers increased flexibility in respirator selection. Because silica has been classified as an occupational carcinogen by several occupational health organizations, some administrative controls, such as employee rotation to limit individual exposure duration, are usually considered inappropriate to control these exposures.

NIOSH has recently published "Dust Control Handbook for Industrial Minerals, Mining and Processing," DHHS (NIOSH) Publication No. 2012–112 (www.cdc.gov/niosh). While primarily for the mining industry, the text offers information on basic ventilation system design, air cleaners and wet spray systems that may help in the design of engineering controls.

3. Respiratory protection

If respirators are used to protect workers from silica exposures above the PEL, OSHA will evaluate whether all aspects of the respirator regulation 29 CFR1910.134 are in place. OSHA will ensure that:

- Only NIOSH-certified respirators are used; at this time all NIOSH-approved particulate filters, including N95 particulate filters, are allowable
- Exposure level is within the maximum use concentration as determined by considering the PEL and the assigned protection factor of the respirator
- Employees have been medically evaluated to determine if they can safely wear respirators
- Employees have been fit-tested and trained on the proper selection, use, limitations and care of a respirator
- Only NIOSH-certified supplied air abrasive blasting respirators are allowed for abrasive blasting

In addition, respirator use should always follow the manufacturer's recommendations.

4. Hazard communication

Any exposure to crystalline silica triggers regulations in 29 CFR.1910.1200, which include:

- Employee training on the hazards of silica and methods to minimize exposure
- MSDS[3] for silica readily available; the MSDS must include a warning on carcinogenicity
- Proper labeling of containers or products that contain silica

5. Housekeeping/hygiene practice

29 CFR 1910.141 requires surfaces be kept as free as practical of silica-containing dust. Wet wiping or HEPA (High Efficiency Particulate Air) filtered vacuums should be used. Compressed or forced air should not be used to clean silica-contaminated surfaces, as this can generate significant airborne dust concentrations. Hand and face washing facilities must be readily available.

6. Exposure and medical records

Per 29 CFR 1910.1020, all medical and exposure monitoring records must be kept for at least 30 years. This includes respirator medical evaluations and air monitoring results for silica. When employees are first hired and annually thereafter, the employer must inform all employees of the existence, location and availability of records covered by this regulation and who will provide access to those records.

Conclusion

While OSHA's revised rules on silica in the workplace may be years away, it is still a continuing threat that must be addressed today. Compliance with general safety and health regulations provides a starting point in controlling this hazard. It also gives employers a head start in anticipating compliance with the new silica-specific regulations when they are published.

Don Garvey, CIH, CSP, is a technical service specialist for construction with 3M Occupational Health & Environmental Safety Division in St. Paul, Minn. Previously he was the construction industrial hygienist for the St. Paul Fire and Marine Insurance Co. He is the past chair of the American Industrial Hygiene Association Construction Technical Committee.

Silica Regulations in Canada

Silica and respirator regulations in Canada will vary depending on the province. Two examples are Ontario and British Columbia.

Several regulatory references concern crystalline silica in Ontario:

- *Designated Substances (O.Reg.490/09):* Workplaces where exposure is possible requires an Assessment and Exposure Control Plan designed to maintain worker exposure as low as reasonably achievable. The quartz silica exposure limit is 0.1 mg/m^3.
- *Code for Respiratory Equipment for Silica:* Assigned Protection Factors, training, facial hair, cleaning, and supplied air systems must meet CSA Z180.1-00.
- Code for Medical Surveillance of Silica Exposed Workers.
- Ministry of Labour Guideline – Silica on Construction Projects (www.labour.gov.on.ca). This classifies silica-generating tasks such as concrete grinding into one of three types. The guidance then lists recommended respirators and other exposure-reducing procedures that should be followed.

British Columbia has general regulations such as Section 5.54 of the Occupational Health and Safety regulations that are applicable to silica (www.worksafebc.com). This requires that an exposure control plan be developed when worker exposure exceeds or may exceed 50% of the allowable limit. Worksafe BC has sample programs on its website to assist employers in developing their own site-specific plan. WorkSafe BC has a crystalline silica occupational exposure limit of 0.025mg/m^3.

The bottom line is that in Canada, it is critical for employers to verify silica and respirator regulations for each province in which they have operations.

[1] SIC stands for the Standard Industrial Classification codes
[2] NICS stands for North American Industry Classification System
[3] Material Safety Data Sheet

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Photo courtesy of Dellinger Precast Inc.

Hands on the Wheel & Eyes on the Road

A new U.S. law prohibiting cell phone use by commercial drivers gets needed clarification.

BY SUE McCRAVEN

Alexander Graham Bell and Henry Ford never saw the coming collision. At one end of the road came the rapid advance of communications technology with rampant cell phone use, and the automobile, with all its modern safety enhancements, barreled headlong from the opposite direction. Today we have witnessed the horrific crash that was bound to happen: Two technologies, no matter how well designed, can be incompatible – unless some basic rules are also put into motion.

The U.S. government has done just that by applying new rules that, in its estimation, will make the highways safer. A new joint rule of the Federal Motor Carrier Safety Administration (FMCSA) and Pipeline and Hazardous Materials Safety Administration (PHMSA), set forth by the U.S. Department of Transportation in January, bans cell phone use by commercial motor vehicle (CMV) drivers.

The new rule banning cell phones is based on a determination that "the action of taking one's eyes off the forward roadway to reach for and dial a hand-held mobile telephone" carries the greatest risk of distraction and accidents. It affects not just professional drivers, but anyone driving a vehicle with a gross weight of 10,001 lbs or greater – including service trucks used for smaller deliveries or towing equipment at precast companies. In other words, if you're hauling precast, this means you!

Laws in Canada

Since 2010, distracted driving laws similar to those adopted in the United States have been enacted by all Canadian provinces. Fines and driver's license demerit points accrued for violations depend on the province of jurisdiction.

Basis for the new cell phone rule

TERRY McGINNIS EXPLAINS THAT IT'S NO SIMPLE MATTER TO PULL OVER OR PARK A 70-FT RIG TO MAKE A CELL PHONE CALL.

The intent behind the new FMCSA/PHMSA rule is to prevent driver distraction and accidents – by insuring that both hands remain on the steering wheel and the eyes are focused on the road at all times.[1]

Researchers classify driver distraction into four categories:

1. Visual *(taking one's eyes off the road)*
2. Manual *(taking one's hands off the wheel)*
3. Cognitive *(thinking about something other than the road or driving)*
4. Auditory *(listening to the radio or someone talking)*

Research has shown that using a mobile telephone while driving poses a greater risk than, say, eating fast food or adjusting the radio, because it involves all four types of driver distraction listed. Based on this research, the FMCSA and PHMSA determined that drivers who use mobile phones may not be capable of safely operating a vehicle.

Here are some facts surrounding the new ruling:

- FMCSA determined that the action of taking one's eyes off the forward roadway to reach for and dial a mobile telephone is a highly risky activity.
- Drivers cannot use cell phones while stopped in traffic but must pull off the roadway and stop (no longer operating a vehicle in traffic) to place a call.
- Any violations of the new ruling can result in (maximum) fines of $11,000 to the company and $2,750 to the driver.
- CMV drivers are allowed to use a one-button device with an earpiece.
- Drivers need strong consistent support from upper

management in compliance with this ruling.
- CMV operators may still use cell phones for emergency or (homeland) security response activities.
- The FCC (Federal Communications Commission) definition for mobile telephone does not include two-way or citizens band (CB) radio services.
- Nine states and the District of Columbia have traffic laws prohibiting all motor vehicle drivers from using a hand-held mobile telephone while driving.
- State and federal employees (including military drivers) are exempt.

Photo courtesy of Concrete Step Units Inc.

JEFF HUGHES SAYS THAT BIG-RIG DRIVERS ARE CONSTANTLY CHALLENGED WHEN AUTOMOBILE DRIVERS ARE ZIPPING AROUND USING ONE HAND WHILE TEXTING OR DIALING.

Rule requires strong management support

"Precast owners must expect that they will need to make procedural modifications to comply with the new rule," says Dennis Powell, risk control director with CNA Insurance and an expert in fleet safety. "A good way to think of the rule is if a device requires the driver to look for, reach for, hold or dial it, the device cannot be used."

"Drivers need strong support for the new policy right from the top," says Nancy Nealon of Concrete Step Units Inc., Scranton, Pa. "These new rules require constant vigilance and strict policies. We support our people, but we will not tolerate abuses. If anyone is caught using a cell phone while driving, they will be terminated," she says.

"We've been very strict with the policy, but the rule needs to have more clarity," says Betsy Mack of Mack Industries, Vienna, Ohio. "With an $11,000 fine, management will not tolerate cell phone use while driving." Mack said she has concerns about how the compliance will affect customer service. "Time is money, and the time to pull over to make a call may delay a delivery," says Mack. "We need to know where our drivers are and customers need to know when the product will be delivered."

Powell agrees. "It will take additional time for precast drivers to get off the road and be safely parked to respond to a cell phone call from the main office about delivery time or the driver's location," he says. CMV drivers of precast delivery trucks (and some service trucks) can no longer depend on a hand-held communication device like a cell phone while driving. "Only a one-button device, like a two-way radio or CB, is not affected by the ruling." Powell noted that GPS tracking voice-activated devices are some tools that precast manufacturers can use and still be in compliance with the new rule.

Drivers weigh in

Making a cell phone call on the road under the new rule poses challenges for truck drivers. "My truck and trailer rig is long, over 70 feet, so it is no simple matter to pull over or park to make a cell phone call," says Terry McGinnis of Dellinger Precast Inc. in Denver, N.C. And that, of course, goes back to the "time is money" matter.

Where safety is at issue, truck drivers generally agree that, in fairness, the rule should apply across the board. "In my mind, the ruling's biggest disadvantage is that it is discriminatory to mandate a strict rule for commercial drivers when everyone else on the road is using cell phones and texting. We see it all the time," says McGinnis, who has 38 years of commercial driving experience. "If we want driving to be safe, these rules on cell phone usage must be for everyone on the road."

"I think it's a very good rule but should be applied to personal vehicles also – it's obvious that the use of cell phones while driving is a safety issue for anyone who drives a vehicle, not just commercial drivers or truckers," says Jeff Hughes, a CMV driver for Concrete Step Units Inc. "These trucks that we drive are 8 feet wide and over 35 feet long and not meant for an emergency pull-off on a highway shoulder."

From his experience, Hughes estimates that about five out of 10 drivers are using a phone or texting. "It's a constant challenge to be handling a big rig when automobile drivers are zipping around using one hand to text or scroll or enter a phone number," he says. "I always drive defensively."

Is the new rule discriminatory?

Nealon and Mack agree that the ruling is unfair in singling out CMV drivers when other people, teens and adults, are driving while using cell phones and texting indiscriminately.

Nicole Dellinger of Dellinger Precast Inc. added that the statistics are staggering concerning the increase in accidents and vehicular deaths related to cell phone use. "While this is a good ruling, we feel it's a good ruling for everyone who drives, not just commercial drivers," she says.

This regulatory trend is expected to increase as more states ban the use of cell phones while driving, based on research that directly correlates cell phone distractions with an increase in roadway accidents. "It seems the rule targets big truckers in a way that is discriminatory," adds Nealon. "If it's a good rule for driving safety for truckers to refrain from cell phone use, then it is a good ruling across the board for everyone – teenagers, soccer moms, salesmen, anyone who drives."

Sue McCraven, NPCA technical consultant and Precast Solutions *editor, is a civil and environmental engineer.*

[1] Rule may be found at www.fmcsa.dot.gov/rules-regulations/administration/rulemakings/final/Mobile_phone_NFRM.pdf

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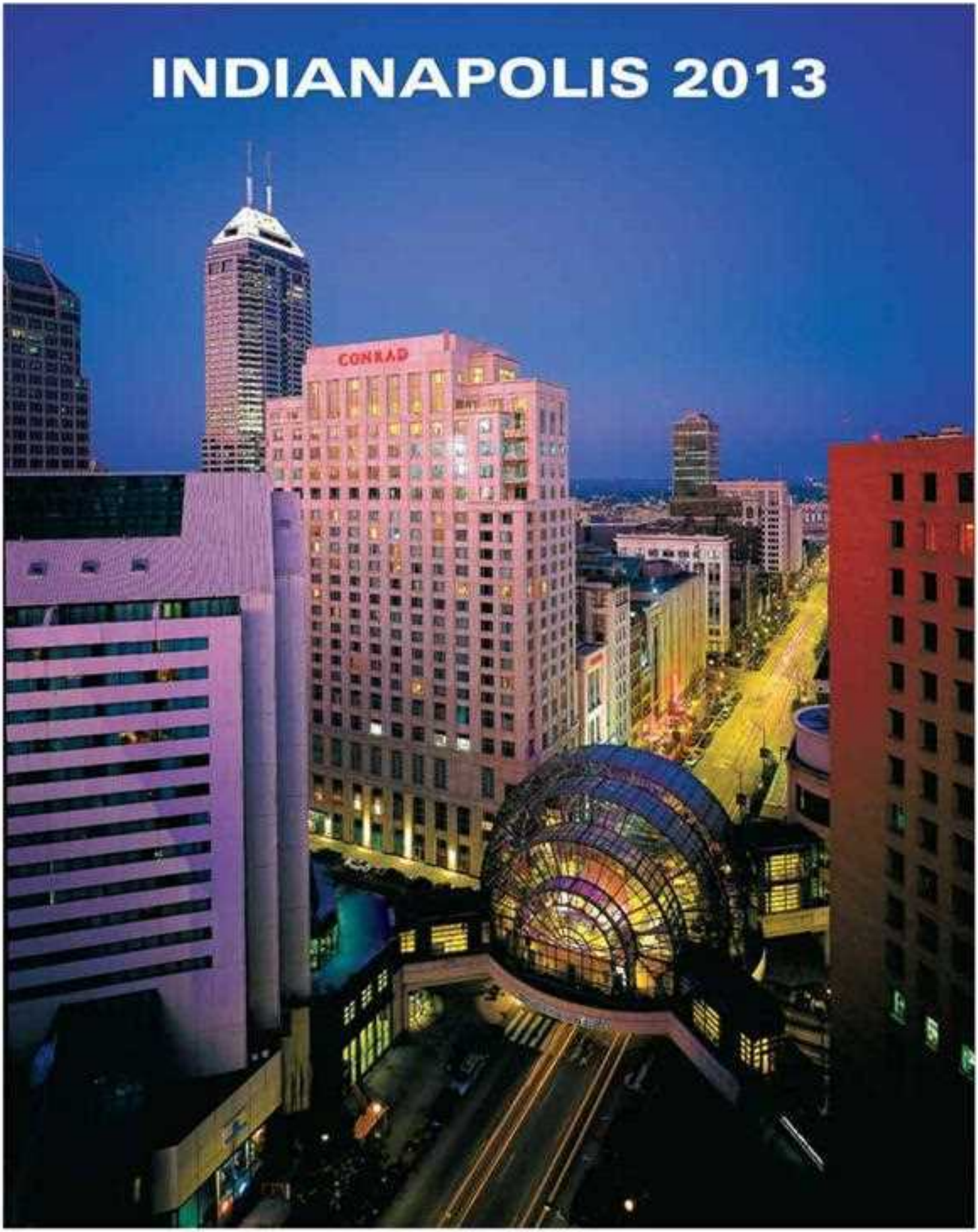

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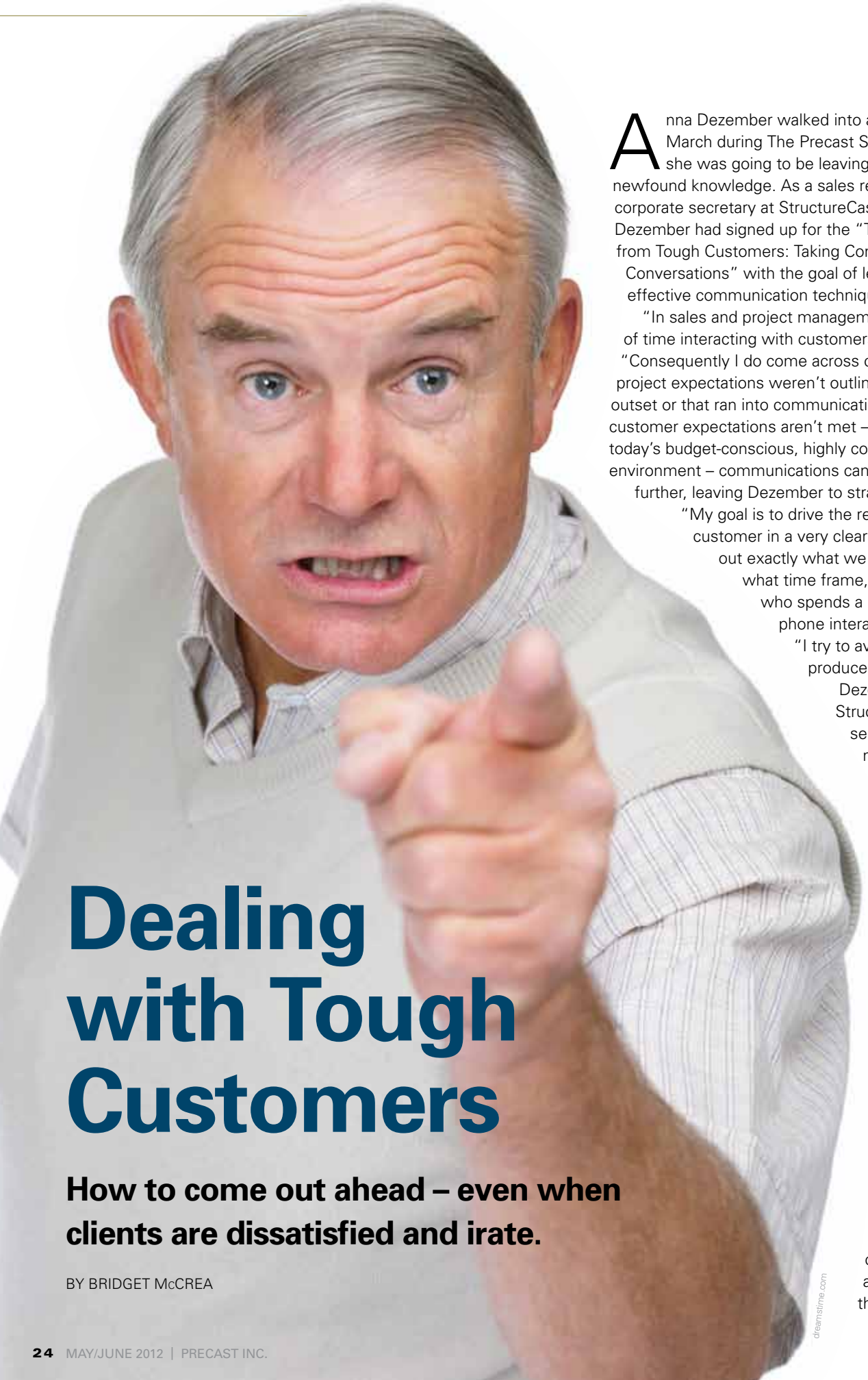

Dealing with Tough Customers

How to come out ahead – even when clients are dissatisfied and irate.

BY BRIDGET McCREA

Anna Dezember walked into a classroom in March during The Precast Show knowing that she was going to be leaving the session with newfound knowledge. As a sales representative and corporate secretary at StructureCast in Bakersfield, Calif., Dezember had signed up for the "Tough Questions from Tough Customers: Taking Control of Difficult Conversations" with the goal of learning some new, effective communication techniques.

"In sales and project management, I spend a lot of time interacting with customers," says Dezember. "Consequently I do come across customers whose project expectations weren't outlined properly at the outset or that ran into communication issues." When customer expectations aren't met – particularly in today's budget-conscious, highly competitive business environment – communications can break down even further, leaving Dezember to straighten things out.

"My goal is to drive the relationship with the customer in a very clear manner that spells out exactly what we can do and within what time frame," says Dezember, who spends a lot of time on the phone interacting with clients. "I try to avoid situations that produce unhappy customers."

Dezember's critical role in StructureCast's customer service organization made her the perfect candidate for speaker Anthony Huey's presentation.

"The session title intrigued me," she says. "I wanted to see what kind of professional, effective techniques I could use to address difficult situations from a point of strength."

The session didn't disappoint. According to Dezember, the top three takeaways that she's already put to work at her own company are: always address the question that the customer is

dreamstime.com

asking; select an approach and stick with it; and make sure you are getting your point across. Dezember says the first tactic is key for companies that would otherwise prefer to take the "conflict avoidance" stance and completely ignore the complaints and gripes.

"Even if the situation is stressful, you have to answer that phone call or email, or it's just going to get worse," says Dezember. "You don't have to answer every question on the spot, but you do have to address the issue and let the customer know that you're doing something about it."

Getting your point across – even if the customer is upset and boisterous – is equally as important, and goes hand in hand with basic acknowledgement of the complaint. "Tell them you hear what they're saying, and then move right into your key point," says Dezember. "Keep it succinct and easy to remember, and repeat it a few times if you have to. Whatever it takes, let customers know that you're aware of the issue and that you're working on a solution."

Dezember also learned a thing or two about dealing with the media, particularly in negative circumstances. A failed product that inflicts injuries or claims lives, for example, can quickly spiral into a media nightmare if the precaster doesn't have proper training on how to handle it.

"Good news has to be delivered quickly, but bad news – like an employee filing a lawsuit – must be distributed and/or addressed even faster," says Dezember, who hopes that her firm is never in the position to have to use that basic media-handling rule. "But if it does happen, I'll be much better prepared to deal with it."

Planning ahead

Huey, president of Reputation Management Associates in Columbus, Ohio, attempted to break down a very difficult topic into digestible chunks. His aim with the "Tough Questions from Tough Customers" session was to help companies take a methodical, strategic approach to difficult questions from clients, media representatives, business partners and others.

"In today's business world, everyone needs to know how to handle difficult questions," says Huey. The problem, he adds, is that many people are fearful of the questions they'll be presented with and, as a result, want to ignore them or turn the other cheek. Hoping that the problem will go away won't cut it, says Huey, who advises precasters to come up with a uniform plan for dealing with customer inquiries.

Part of that plan can be a simple "throwaway line," says Huey. "This is a perfectly memorized, meaningless phrase that you can use to buy some 'think time' for yourself," he explains, noting that it takes only five seconds for the human mind to come up with a response to a difficult question. A good example of a throwaway line would be: "That's an interesting question. Let me take some time to explain my point of view to you."

Throwaway lines are end-alls, according to Huey, who teaches a three-part formula to respond to difficult questions:

1. Address the question or satisfy the questioner (you cannot ignore the question).
2. Get away from the question with a technique (bridge, bump and run, or turn the tables).
3. Say whatever you want to say (focus on your agenda).

Here's an example of the formula in action:

Customer: *Can you tell me what*

> "In today's business world, everyone needs to know how to handle difficult questions."
>
> – Anthoney Huey, Reputation Management Associates

Coffee with *60 Minutes*

In the modern business world of instant communications, dealing with the media is not something to be passed off to other staff members or dismissed as unimportant. According to Huey, it begins with your commitment to learn and follow basic guidelines, such as:

- Responding to questions as directly and briefly as you can in a positive manner
- Making yourself accessible to reporters
- Providing supplemental information in the form of fact sheets
- Having a professional understanding of the media's needs

And it's just as important not to:

- Mislead or lie
- Say "no comment"
- Argue with reporters (remember, says Huey, they always have the last word)

"In today's media-intense climate, business leaders must realize one truism," says Huey, "and that's the fact that relationships with the news media are now a corporate responsibility and not just a concern for the public relations department."

By learning the "how-tos" of media interviewing, executives can calmly walk through the door of their offices, even if 60 Minutes is waiting in the lobby with cameras and reporters. "As a modern business leader, you need to be prepared, coached and aggressive," says Huey. "Then invite 60 Minutes in for some coffee!"

caused the accident?

Precaster: *No, not at this time (addresses the question), but I can tell you this (the bridge technique): We will leave no stone unturned in discovering what happened here today. Our number one concern is for the safety of our workers and for the safety of everyone on this job site (the agenda).*

Huey says the bridge technique is a particularly effective strategy for diffusing tough situations. "A bridge is something that gets you from where you are to where you want to be, generally over an obstacle," he says. "Similarly, a verbal bridge gets you from the subject that you don't really want to focus on and working toward a solution to the customer issue. It appeases the client enough to give you time to research the facts and get to the root of the problem."

Having an agenda in mind before going face to face with the customer is also important. "If you've experienced a catastrophic failure with one of your products, and if you're heading down to the job site to deal with it, make sure you have an agenda," says Huey. Consider, for example, what types of questions you'll be asked and rehearse your answers in advance.

"Being able to anticipate those questions and think out the responses is the magic wand," says Huey. "The problem is that very few people prepare in advance for these difficult situations and wind up blindsided."

5 Public Speaking Tips

Giving speeches in public is difficult, even for the best of us. "Polls continue to rank public speaking as the number one fear in America, even over death," says Huey. "In fact, more people are afraid to speak than to be eaten by a shark, get burned, go blind, or dozens of other horrific things."

Call it fear, Huey says, but what you are really going through is an over-supply of adrenaline. "When your system receives too much adrenaline, the hormone creates fear and anxiety," he says.

Here are Huey's tips on how to reduce that problem and become an effective public speaker:

1. **Be prepared.** Studies show that nervousness can be reduced by about 60 percent if you are well prepared. This means reading your speech or presentation out loud at least five times. Do it in front of someone and ask for an evaluation. "Reading silently to yourself is mostly a waste of time," says Huey.
2. **Deep breathing.** About five minutes before speaking, take in a very deep breath, then exhale slowly as you let all your muscles relax. Try doing it while standing and don't do it more than twice ("you may pass out," says Huey).
3. **Minor exercising.** Go out in the hall and speed-walk for a few minutes. Exercise your legs and arms at the table while awaiting your turn. Get rid of that excess adrenaline.
4. **Don't announce your anxiety.** "I cringe when a speaker starts out with, 'I am a bit nervous, so here goes…'" says Huey. "In my training, I videotape participants and show them over and over again that, while they are nervous, no one can tell it during the video replay."
5. **It really is all in your head.** As nervous, shaky and sweaty as you are, you're probably the only one who knows it. "That knowledge alone, gained through the videotape exercise and critique sessions," says Huey, "is often enough to reduce nervousness by 30 to 40%."

Putting the advice to work

Another attendee at Huey's session was Michael Tidwell, president of Bartow Precast in Cartersville, Ga. In his role, Tidwell manages both customer and employee relations on a daily basis. He says he signed up for the session to get some tips on managing those relationships and to hear what other precasters had to say about difficult communication.

"My employees take care of the standard and routine tasks, and it's up to me to handle the more challenging situations," says Tidwell, who came away from the session a bit more educated on the most professional, effective ways to deal with tough questions. He says Huey's advice to "always address the question" was particularly useful, as were the speaker's myriad examples of how to use "bridging" techniques.

"He showed us how to respond so that it doesn't sound like we're trying to avoid the facts, even if there was no perfect answer for the situation," says Tidwell. "He also gave us some advice on how to satisfy the person on the other end of the conversation without necessarily having to go overboard by giving out information that didn't need to be shared."

Ultimately, Huey says following the Boy Scout's motto to "be prepared" will help precasters navigate difficult communications with clients, media, business partners and anyone else who poses a difficult question.

"If you don't know how to answer difficult questions from a customer, and if you lose that customer, then you'll definitely want to rethink making the time to learn how to respond to these situations," says Huey. "Remember that 30 years of hard work can be destroyed in 30 seconds. To avoid the destruction, you have to be able to communicate effectively, face the tough questions and not get caught off guard."

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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Photo by Kirk Stelsel

KNIGHT'S PRECAST OF SOUTH CAROLINA IS A FAMILY AFFAIR

SOUTHERN KNIGHTS

BY KIRK STELSEL

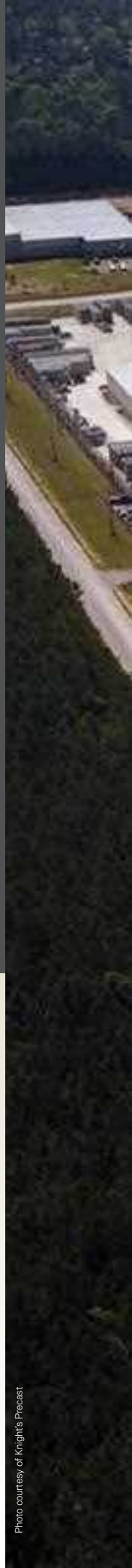

Photo courtesy of Knight's Precast

If you ask 100 different precast concrete plant owners how they landed in the industry, you'll get 100 different answers.

Some have grown up in the family business. Others have taken more indirect paths. If you ask Bud Knight, owner of Knight's Precast in Summerville, S.C., whether he thought he'd ever be where he is today, the answer is an easy one. "Not in my dreams could I have imagined anything like this when I started – sure couldn't," said Bud, or Mr. Knight as his employees call him.

Bud's journey began in 1969, and today it has yielded more unexpected returns than he ever thought possible.

A MAN, A WILL AND A PUMPER TRUCK

"I was 24 years old in 1969, and I started with one little truck by myself," Bud said. If that sounds like a pretty modest beginning for a septic tank pumping business, consider that the one truck he had he built himself. It wasn't glamorous, but he knew he wanted to go into business for himself ever since he was a young boy.

To get started, he gave up a good-paying job making $6.30 an hour and a company truck, which didn't make his father too happy. But Bud's business grew, and he soon found himself doing repair work in addition to the pumping. His next move was the purchase of a backhoe so he could start into the installation business, and by 1972 he was successful enough to start bringing on

"NOT IN MY DREAMS COULD I HAVE IMAGINED ANYTHING LIKE THIS WHEN I STARTED."

– BUD KNIGHT

THE EVOLUTION OF KNIGHT'S PRECAST...

Photo courtesy of Knight's Precast

Photo courtesy of Knight's Precast

Photo courtesy of Knight's Precast

Photo by Kirk Steisel

TOP TO BOTTOM: BUD KNIGHT BUILT HIS FIRST PUMPER TRUCK TO START HIS BUSINESS; BUD KNIGHT'S FIRST BUILDING, WHERE HE BEGAN POURING SEPTIC TANKS; EXPANSION OF THE SECOND PLANT PROVIDED MORE SQUARE FOOTAGE AND ADDITIONAL HEIGHT; KNIGHT'S BATCH PLANT AND SEPTIC TANK BUILDING CAN BE SEEN IN THE BACKGROUND BEHIND ITS OFFICE AND TWO PRECAST BUILDINGS.

other employees. One of the employees he brought on board early on, at the ripe age of about six or seven years old, was his son Michael.

"Michael has been a part of this company since he was pretty much old enough to walk," Bud said. "In high school he'd come home from school and pump tanks until dark."

Today, Michael runs the company's septic tank division. A lifetime in the business has afforded him an intimate knowledge of the area and his customers' needs. According to his co-workers, a call can come from anywhere in the area, and just from the address Michael can tell what kind of system it's going to require and how often the system will need to be pumped.

"I've been doing the septic tanks all my life, so it's just natural," Michael said. "I've done it all, from sweeping floors on up."

After years in the installation business, the next logical step for Bud was to begin manufacturing the tanks himself. He had started pouring lids in the '80s, which was his first shot at precasting, so the transition was a natural one.

In 1990, he purchased his first molds from Bethlehem Manufacturing and began pouring his own tanks. At the time, he had to order concrete from local ready-mix companies, but that was only a viable option for so long because he couldn't get the concrete when he wanted it, and he would get cut short or get other people's concrete.

Taking matters into his own hands, his first batch plant went up in 1995. At that point, the company that had started with one homemade pumper truck had turned into a full-fledged septic tank business that included batching, casting and installation. But even with all that growth, what would eventually become Knight's Companies was just getting started. The addition of a few more key people, as well as some new divisions, would soon take the company to new levels.

LIKE A FATHER

When Bud hired Chuck Layton part time in 1991, he wasn't quite sure what to make of him. He could see his potential, but was never sure whether Layton would be at work the next day or not. "He started working for me in his wild, young days and I never dreamed he'd still be here today," Bud said, "but I've always known he was capable, and he has turned into a big asset to our company."

By 1997, Christianity began to play a central role in Layton's life, which he credits for everything he has since accomplished. Bud could sense the change and had been considering starting a division to expand into other precast products, so he offered

"I'VE BEEN DOING THE SEPTIC TANKS ALL MY LIFE, SO IT'S JUST NATURAL. I'VE DONE IT ALL, FROM SWEEPING FLOORS ON UP."

– MICHAEL KNIGHT

Photo by Kirk Stelsel

PETE KNIGHT, BUD KNIGHT AND MICHAEL KNIGHT REPRESENT THE ENTIRE "FAMILY" OF KNIGHT'S PRECAST.

him a full-time position leading the effort. Neither one knew much about precast, but Bud promised they'd learn it together.

"Since Mr. Knight and I made that deal, I haven't looked back," Layton said. "He's been a man of his word, and he's been like a dad to me more than anything else. I lost my dad when I was 12 years old, and the trust Mr. Knight's put in me has been a changing factor in my life."

The first step was to construct a building using an overhead crane. Until then, Knight's had stripped the septic tanks out of a modest, open-air structure using a truck. The building they put up was too low, which became one of many lessons they would learn together. They remedied this two years later when they added square footage and height.

After getting started, an acquaintance put an NPCA directory in Layton's hands and put him in touch with Quinn Machine & Foundry, now a division of Besser Company.

"The guy said to me, 'Look, you can get all the information

"IT'S NOT ABOUT ONE, IT'S ABOUT A TEAM. WE TRY TO INSTILL THE TEAM ATMOSPHERE OUT OF THE GATE, WHICH HAS PLAYED A GREAT DEAL INTO THE SUCCESS WE HAVE TODAY."

– PETE KNIGHT

THE KNIGHT'S CREW

Photo by Kirk Stelsel

you need out of this directory,'" he said. "That has since been one of our biggest tools because of connections we made through NPCA like with NPC for boots, which is now Trelleborg."

Layton got in touch with Denny Anderson at Quinn who was able to put him in contact with plants outside of Knight's competition area, which played a critical role in its growth. With the NPCA directory in hand, Layton also recalls telling Bud they needed to become a part of the association. After joining NPCA, he attended his first show in Columbus, Ohio, in 1998 and got his hands on his first issue of *MC Magazine*, the predecessor of *Precast Inc*.

"I remember getting the first magazine and looking at it and seeing the cover, and I thought, 'You have to really be something to get involved with this magazine,'" he said.

A FEW GOOD MEN

To help grow the newly formed precast division, Layton hired Pete Johnson, who brought experience in production, and Jim Gowan, a seasoned precast salesman who has led sales efforts at Knight's ever since.

"I knew we were going to take off, but getting experience was going to be key," Layton said. "That's when we approached Pete and Jim. They came aboard and quickly became key people in precast, as far as building our customer base and figuring out where we wanted to go and how large."

The company had started with 48-in.-diameter manholes and some knockout boxes, but with Johnson on board that quickly changed. Soon, the biggest challenge became keeping up with all the forms he wanted to order.

The next year, 1999, proved to be another big year for personnel. Layton hired Joey Thomas, known as JT, to be plant manager, and Bud's younger son, Pete Knight, joined the company full time after graduating from high school. With them on board, Layton was able to step out of the precast division for a while to get his general contractor license and help the company with expansion.

"I don't see us being where we are without any of those guys," Layton said. "Like with a clay pot, the hands forming it shape it, and they've helped shape the company."

A "CAN DO" MENTALITY

With Pete Knight leading the precast and ready-mix divisions, the company has never been afraid to take a few risks in the pursuit of greater rewards. Whether that's a new plant, new product lines, mix designs or filling a niche in the custom market, the company is always moving forward.

The single biggest investment the company has made is the

A BOX CULVERT IS INSTALLED USING KNIGHT'S PRECAST.

Photo by Kirk Stelsel

THE BOEING LIFT

After the bottom of the economy dropped out, Knight's Companies pushed through two hard years that tested the resolve of the entire team. Pouring dropped from a peak of 100 yds a day in 2007 down to 10 in 2009, and that led to a reduction in the work force.

"For Mr. Knight, one of the hardest things we ever had to do was to let people go when things went south," said construction manager Chuck Layton. "Nobody has taken a pay cut like Mr. Knight – he's all in. He's liquidated assets and he's sacrificed to keep people employed through the down times."

Bud Knight echoed those thoughts. "Letting people go hurt my heart," he said. "It's not so bad to let a sorry person go, but it's hard to let a good, dedicated person go. It's what it had to be, and fortunately we've been able to hire back some of those people."

Photo courtesy of Knight's Precast

THE STRUCTURES FOR BOEING REQUIRED A DUAL PICK DUE TO WEIGHT.

As things began to improve in 2010, the company received exactly the lift it needed when Boeing Co. came to the area. Its big presence brought big-time needs, and although Knight's had never poured anything of the magnitude Boeing needed, the team found a way to make it work.

With little time to plan, Knight's Precast was pouring mega structures of 80 tons that could accommodate 108-in.-diameter pipe. The original specs had called for poured-in-place, but the pace of the job and the stringent safety regulations wouldn't allow it. Using precast not only met those requirements but also saved Boeing on cost.

With the biggest gantry crane on site able to lift only 50 tons, Knight's found a partner to do tandem picks and remained innovative throughout the job to stay at a competitive price. The job went about three or four months right through the hottest months of 2010, but the end result was truly impressive and earned Knight's more jobs with Boeing down the road.

"We've got a lot of great employees from management down who allow us to make these projects work," Pete Knight said. "It's more so a family than a company. It's not about one, it's about a team. We try to instill the team atmosphere out of the gate, which has played a great deal into the success we have today."

Photo by Kirk Stelsel

A WORKER STENCILS ON THE KNIGHT'S PRECAST AND NPCA CERTIFIED PLANT LOGOS.

development of its current location in 2004. With enough land for a ready-mix operation, an office building that can house 40 employees, and six additional buildings for fabrication, maintenance, the septic tank division, precast division and a block division, the Knight's Companies footprint is much bigger than ever before.

"This expansion was all Pete Knight," Layton said. "With him and Pete Johnson on board, all of a sudden you had to buckle up because it was like we put jet packs on."

Another big change the company made was to begin pouring its products with self-consolidating concrete (SCC). Knight's Precast began experimenting with SCC in 2004, and has slowly ramped up the use of it ever since. Today, the revolutionary mix has come to play an important part in almost every product line it produces.

"We started experimenting with SCC with Master Builders (now a part of BASF) and in the last three or four years we've come a long way," Layton said. "Without the right management and watching it close, you can ruin a whole load quick, so you have to have key people in place to implement it, but it's a whole other ball game."

The company also prides itself in its ability to meet the needs of just about any customer when it comes to custom boxes, storm drains and wet wells, thanks to longtime partnerships with companies like Western Forms and ConSeal.

"Cookie cutter things, anybody can do," Layton said. "Western Forms has helped us a lot with our versatility, and ConSeal we've known about for ages because we've used them since the day we poured our first tank. With these custom projects we can hardly keep up, which is a good place to be."

A GOOD KNIGHT

There's no shortage of stories when it comes to Bud and the company's past. Stories like how he couldn't sleep at night after he had to make payments on his first backhoe or how he used to keep everyone's hours in his shirt pocket are told with admiration. That's because everyone at the company has a deep-seated respect for him and the way he built the company from scratch with dependability, quality and dedication always coming first.

"His heart's as big as Texas and he'd do anything for anyone," Layton said. "When he tells you something, you can bank on it. Knight's Precast has been successful because if we say we're going to do something, we'll make it happen. That's what people remember."

When he looks back, Bud can hardly fathom how fast the time has gone, but he's happy with how everything has turned out.

"What's kept Knight's going is a lot of hard work, seven days a week, 24 hours a day and having my kids working here," he said. "I guess that's why we are where we are today. We've got some good guys that do good and we try to do good by them. We've grown to be like a family, and I wouldn't trade it for anything."

Kirk Stelsel is NPCA's assistant director of Communication and associate editor of Precast Inc. magazine.

Want to see more from our visit to Knight's Precast? To see a video and additional photos, simply visit http://precast.org/knights or scan this QR code with your smart phone or tablet.

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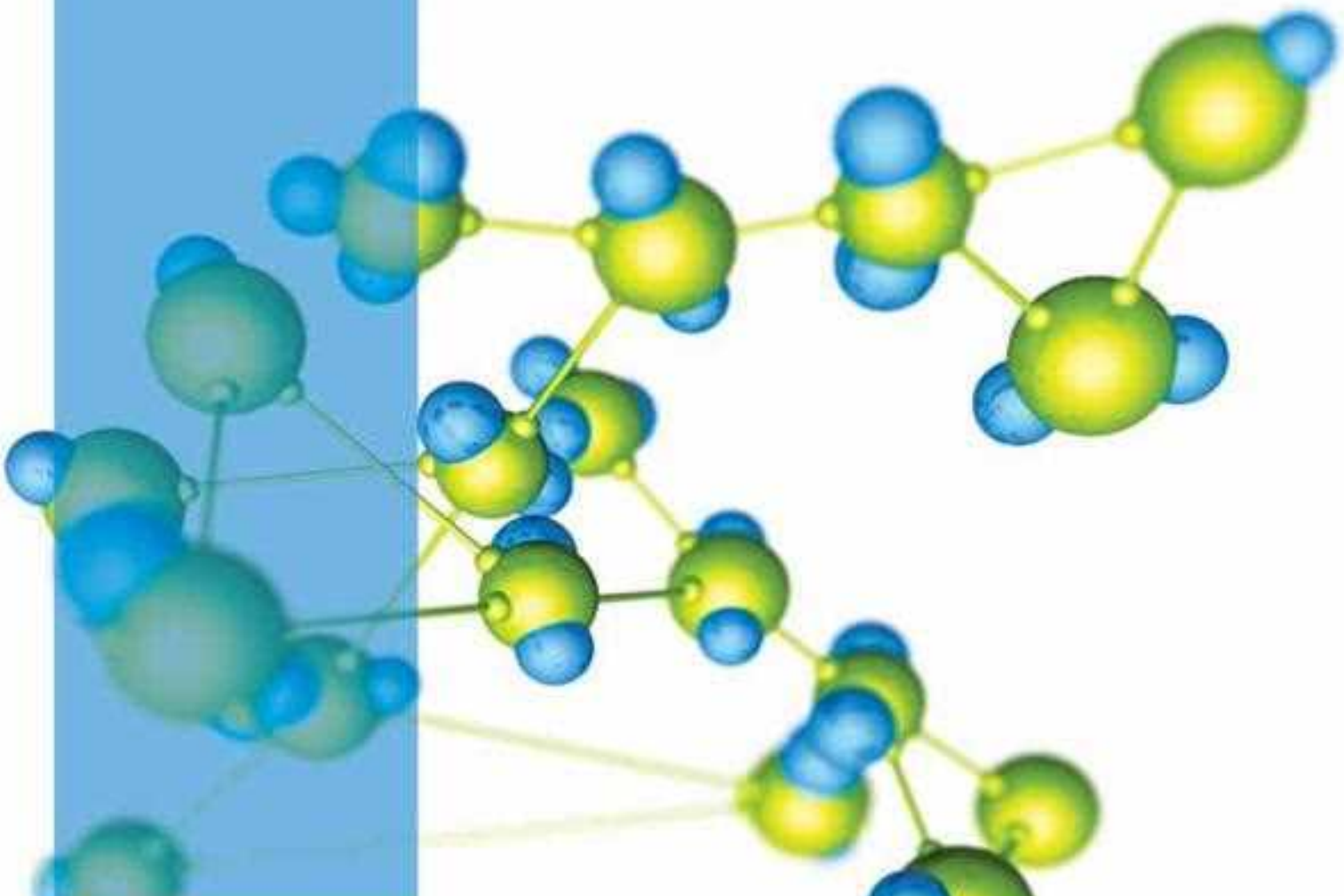


Photo by Kirk Stelsel

Can Underreporting Injuries Increase Management Costs?

It may be safer and more economical to address workplace near misses and injuries as soon as they occur by accurately reporting all incidents.

BY SUE McCRAVEN

Hoping his supervisor wouldn't see his painful efforts to stand up straight, John hobbled to the break room after injuring his back while tying rebar cages. John knew he should report his injury, but he hesitated. It didn't help that his supervisor was a tough taskmaster who often touted the precast plant's excellent safety record. In just six weeks, staff would be celebrating one year of no lost-day injuries with a company picnic at a local park. Also influencing his final decision, John's co-workers covertly assisted him in toughing out the rest of the afternoon in production. He called in sick the next day, taking pain medication and resting at home.

What forces kept John from reporting his back injury as mandated by OSHA 300[1] recording procedures, and how can this typical scenario lead to increased management costs?

Disincentives to report injuries are many

The U.S. Government Accountability Office found that workplace injuries and illnesses are significantly underreported in construction industries.[2] Unfortunately, there are many forces that may discourage workers and employers alike from reporting work-related injuries, including:

1. Lack of safety enforcement from top management
2. Management fear of increased workers' compensation insurance premiums
3. Poorly designed and implemented safety-incentive programs, including prizes, for no lost-time injuries, and safety competitions with other production facilities that pressure workers to maintain "perfect" safety records for their plant or department
4. Inaccurate employer perception of workers' compensation and related costs (costs of replacing an injured worker, lost production time)
5. Worker fear of reprisal from a supervisor (fear of job loss or disciplinary action) or from co-workers (pressure to maintain the status quo)
6. Employer pressure on health practitioners to provide insufficient medical treatment that effectively negates the need to record an incident
7. Illegal worker status (the death rate among Hispanic workers is almost 40% higher than that of other workers in the construction industry, yet recorded work-related injuries for Hispanic workers is much lower)
8. Plant's flawless safety record that takes precedence over recording near-misses and work-related injuries, creating complacency among both workers and supervisors (supervisors are no longer aware of risky situations as they occur, and are unable to identify safety problem areas to address and prevent poor work habits)
9. Company absenteeism plans that punish or even dismiss workers because of lost-day injuries or illnesses
10. Workers' lack of awareness of the company workers' compensation program and associated benefits and services for work-related injuries

"When workers know that help is available to them immediately after an injury," says Mike Ladd, CNA Risk Control consulting director, "this eases their anxiety, and they are more likely to work with management and the insurance provider to work out the best plan for recovery."

Underreporting: safety programs aren't working

Data from the U.S. Bureau of Labor Statistics indicate that smaller construction companies (under 50 employees) are underreporting injuries, particularly lost-workday incidents.

Underreporting of work-related injury and illness is a serious problem, because when incidents are not reported, management has an inaccurate picture of the company-wide safety program's effectiveness. This means the safety program is not responsive to actual work conditions and that existing problems are not being identified and addressed.

Also, if OSHA collects erroneous data, the manufacturing and construction industries will use skewed information as the basis of safety programs. Without accurate data, safety programs are not as effective in identifying risky situations and preventing worker injury and death.

Hiding problems: real cost to management

In addition to the value of accurate statistics to effective safety programs, how can the scenario of John's unreported back injury end up costing the precast company more money? Let's assume that in addition to not reporting his injured back, John does not receive adequate medical attention and his condition worsens. Eventually, he herniates a disc on the job and an ambulance takes him to the hospital. Out of fear of losing his job and under pressure from creditors, he contacts an injury attorney. Now management is looking at workers' compensation, attorney involvement that may lead to more time lost, additional medical tests, increased claim costs and the loss of a valuable employee for several months after surgery. Other management costs include increased record keeping, lost production and training time for a temporary replacement worker while John recuperates.

Early coordination with insurance carrier saves money

As soon as management learns of a work-related injury or illness, the insurance claim handler can provide valuable assistance by working with the physician in determining the diagnosis and proper medical treatment. "When the injured worker and family are contacted as soon as possible by concerned management and the claim handler," says Ladd, "there is a greater probability that the worker will receive adequate medical care at an approved health care facility and will work directly with his employer on a post-injury plan that will enable the worker to return more quickly to his job." (Watch for Ladd's upcoming article, "Injury Cost Containment," in the July-August 2012 issue of *Precast Inc.* magazine).

Reasons to report all near-misses and injuries

1. ***It's the law.*** If a facility has 11 or more employees, OSHA CFR 1904.2 (a) mandates keeping accurate OSHA 300 injury and illness records (including all medical treatment beyond first aid; restricted work activity; job transfer; lost days; and loss of consciousness and death). Any company found to keep erroneous OSHA 300 records (underreporting, falsification of data) is subject to monetary fines from the regional OSHA.
2. ***Accurate OSHA 300 records improve identification of workplace hazards.*** Only factual data can lead to safety problems being addressed as they occur, thereby ensuring valid safety program improvement and effectiveness.
3. ***It's a moral obligation.*** Doing everything possible to prevent human injury and suffering is an ethical responsibility for both workers and management.
4. ***A rapid response by management and its insurance carrier can reduce injury management costs.*** By allaying the injured worker's fears of losing his or her job, the worker is more likely to cooperate with the company and insurance carrier on a plan that will return the employee to work as quickly as possible and prevent potential legal hurdles.
5. ***Management must have an accurate record of all near misses, accidents and injuries to maintain an effective safety program.*** "One of the worst drawbacks in the OSHA 300 reporting arena," says Ladd, "is that when management has inaccurate data on near misses and work-related injuries, it is going to have an ineffective safety program that will, in the long run, incur greater potential injury-management costs."

Here's a test on OSHA 300 reporting that you can use during your regularly scheduled safety or staff meeting. All are true-false statements, and the answers are listed below.

1. Cases listed on OSHA 300 logs do not mean that a worker was at fault or that an OSHA standard was violated. **T F**
2. OSHA Form 300A, the yearly summary of work-related injuries and illnesses, must be posted for employee viewing. **T F**
3. Medical treatment does not include first aid such as: temporary immobilization devices; hot or cold treatments; eye patches; bandages; and cleaning, flushing and soaking wounds on the surface of the skin. **T F**
4. Underreporting injuries is a serious problem, because it conceals an ineffective safety program, which can incur greater risk and injury-management costs. **T F**
5. Lack of commitment to safety by top management may be the greatest cause of underreporting of workplace injuries and illnesses. **T F**

Sue McCraven, NPCA technical consultant and Precast Solutions *editor, is a civil and environmental engineer.*

[1] The U.S. Department of Labor's (DOL's) Occupational Safety and Health Administration (OSHA) is responsible for protecting the safety and health of the nation's workers. OSHA Act of 1970 requires the DOL to collect all work-related injury and illness data. OSHA 29 CFR 1904 requires each organization to maintain (minimum of five years) a log of injuries/illnesses (Form 300) and to post a summary report (Form 300 A) every year. By law, manufacturing industries with 11 or more employees must record and report work-related injuries.

[2] www.gao.gov/products/%20GAO-10-10

Answers: *1. True 2. True 3. True 4. True 5. True*

green PIECE

Ecolabels – Nutrition Labels for your Precast Concrete Product

Ecolabels will soon specify the life-cycle environmental performance of precast concrete products and allow specifiers to compare competing building products.

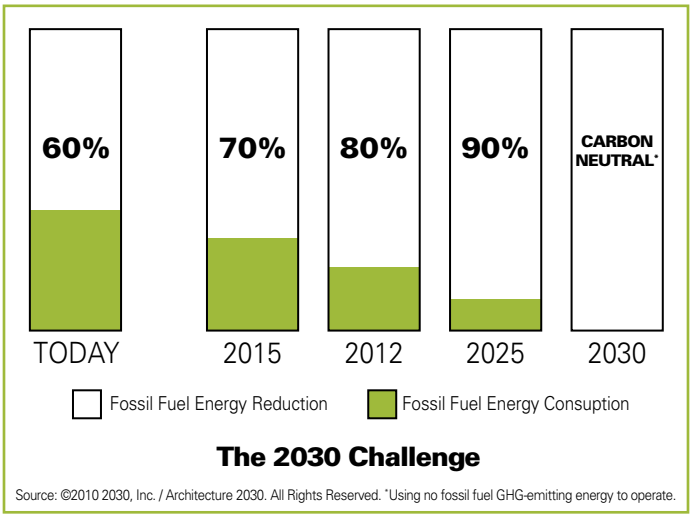
BY CLAUDE GOGUEN, P.E., LEED AP

When a specifier asks about the strength of your concrete product, what type of cement you use or what your water-cementitious ratio is, you can answer without hesitation. But what if you're asked about the global warming potential of your septic tank, or the eutrophication impact of your sound wall panel? Who would ask for such product environmental-impact information? Specifiers would – and they will be asking more and more. Will you be ready to answer them? Possessing that information can definitely separate you from your competition.

As owners, developers and specifiers continue to focus on sustainable development, they are turning their attention to the material used in their projects. They want to know the environmental footprint of that material, and they want to be able to compare it with those of other potential building materials. The problem with conducting that comparison has been a lack of consistency in the evaluation methods of different products. It was like comparing apples to oranges; therefore, there was a need for standardization in product evaluations.

Measuring a product's environmental attributes

Bring on the acronyms! Introducing EPDs, PCRs and LCAs. Let's start with EPD. It's an Environmental Product Declaration and, simply put, an independently verified measure of a product's environmental attributes, including a Life Cycle Assessment (LCA) and embodied energy.



Similar to a nutrition label for food, an EPD reports environmental impacts such as carbon footprint and others such as acidification or ozone depletion potential. EPDs list quantified life-cycle product data and are owned by the product or brand producer. For example, the amount of nonrenewable manufacturing energy used by a specific product, such as a precast concrete sound wall, would be listed as MJ/m^3. A

product's global warming would be listed as kg of CO_2.

EPDs are defined by ISO 14025, an international standard for environmental labels and declarations, and are in wider use in other parts of the world (namely Europe) and for a variety of product categories, including structural steel and laminate flooring. National standards that apply are the U.S. Federal Trade Commission's guidelines for use of environmental market claims and Canada's voluntary guidance per "Plus 14021."

The LCA is a compilation and evaluation of the inputs, outputs and potential environmental impacts of a product system throughout its life cycle (cradle to grave). It considers the embodied energy of materials, the long-term effects of manufacturing processes, the stages of construction, building performance and operations, durability and maintenance of existing structures, and – in the end – demolition, material recycling and future land use ramifications. NPCA commissioned the drafting of an LCA of precast concrete products in 2009.

Rationale for PCRs: product comparisons

The PCRs (Product Category Rules) are rules specific to the building industry that regulate EPD and LCA standards to address manufacturing, use and end-of-life conditions unique to that product. Writing an EPD and LCA for laminate flooring will differ from those for precast concrete. In order to compare the environmental footprints of materials or products, it is important that consistent assumptions are made when the footprint is evaluated. Without category-specific PCRs, it's not possible to create comparable EPDs. PCRs are, in effect, environmental accounting standards.

A concrete-specific PCR is being developed by the Carbon Leadership Forum, which is an industry-academic collaborative research effort hosted by the University of Washington's College of Built Environments.

The standard is expected to help people in the building industry meet the 2030 Challenge for Products. What is this challenge?

The Architecture 2030 Challenge

Buildings are the major source of global demand for energy and materials that produce byproduct greenhouse gases (GHG). Slowing the growth rate of GHG emissions and then reversing it is the key to addressing climate change and keeping global average temperature below a 2-C increase over pre-industrial levels.

To accomplish this, Architecture 2030 issued The 2030 Challenge asking the global architecture and building community to adopt the following targets:

- All new buildings, developments and major renovations shall be designed to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 60% below the regional (or country) average for that building type.
- At a minimum, an equal amount of existing building area shall be renovated annually to meet a fossil fuel, GHG-emitting, energy-consumption performance standard of 60% of the regional (or country) average for that building type.
- The fossil fuel reduction standard for all new buildings and major renovations shall be increased to:
  - 70% in 2015
  - 80% in 2020
  - 90% in 2025
  - Carbon-neutral in 2030 (using no fossil fuel GHG emitting energy to operate).

These targets may be accomplished by implementing innovative sustainable design strategies, generating on-site renewable power and/or purchasing (20% maximum) renewable energy. These strategies include developing EPDs for building materials and products.

Product ecolabels: coming to U.S.

According to ASTM International, today's market is demanding more information and documentation related to sustainable marketing claims as evidenced by the development of ISO 21930 and the Federal Trade Commission's re-examination of the Green Guides.

"It's (an EPD) the most rigorous and scientific method for determining a product's carbon footprint," says Architecture 2030's Francesca Desmarais, who oversees the organization's 2030 Challenge for Products and, along with Architecture 2030 founder Edward Mazria, chairs the Vision 2020 Energy and Carbon focus area. "It's really the missing ingredient if we're serious about meeting our goals [for energy and carbon reductions]."

These product ecolabel initiatives are still in their infancy, and the NPCA Sustainability Committee and NPCA staff are committed to help you navigate these unfamiliar waters. Please continue to check the Sustainability page on NPCA's website (www.precast.org) for updates and information.

Direct any questions to Claude Goguen at cgoguen@precast.org or (317) 571-9500.

Claude Goguen, P.E., LEED AP, is NPCA's director of Technical Services.

Additional Resources

For more information on topics covered in this article, please visit the following sites:

- http://yosemite.epa.gov/R10/ECOCOMM.NSF/Programs/lca_epd
- www.carbonleadershipforum.org/Carbon_Leadership_fourm/Welcome.html
- www.architecture2030.org/2030_challenge/the_2030_challenge
- ASTM Work Item 23356 - New Practice for Development of Product Category Rules for Use in Development of Environmental Declarations for Building Products and Systems (www.astm.org/DATABASE.CART/WORKITEMS/WK23356.htm)

Meet Mike Loy, the Industry's First Master Precaster

MIKE LOY

Mike Loy, plant manager at Bethlehem Precast Inc., Bethlehem, Pa., recently became the first graduate of NPCA's Precast University and the industry's first Master Precaster. To mark the historic event, NPCA presented Loy, a 25-year employee at Bethlehem, with a gold-colored hardhat stamped with a Master Precaster logo during a special event held March 3 in conjunction with The Precast Show in Orlando.

The Master Precaster designation represents the pinnacle of the Precast University educational curriculum. To graduate, Loy passed six courses in NPCA's Production and Quality School, starting with the fundamental aspects of precast production, advancing into more technical topics, then covering the critical areas of quality, safety and leadership.

Loy actually started taking NPCA educational courses in 1999, before Precast University was formed, and has supplemented his in-plant experience with a variety of courses beyond the Precast University curriculum during the past 13 years.

Tom Engelman, Bethlehem's president, targeted Loy for training because of his experience and his dedication to the company. "I made a conscious decision to give Mike the first chance to go through the program," Engelman said. "He took a liking to it. He really enjoyed the classes and thought they were very relevant. As he progressed through it, his sense of pride grew, his professionalism grew, he became more knowledgeable, and he was able to take that to production and give the guys on the floor the idea that there's a future here in precast.

"As an employer, I was willing to make the investment to let him advance," Engelman added. "It's cheaper to develop your employees than to try to hire expertise from the outside. Your employees already know your culture, and it's just a great thing to watch people come up through your plant and gain skills."

When the NPCA Education Committee added courses to the Precast University curriculum, Mike Loy was ready. "It was one step at a time," he said. "I took PQS, and then maybe a year later, NPCA came out with PQS II and I took that, and then a year later they came out with PQS III." Loy finished the last course in the sequence last fall, and was proud to be the first graduate of the new Precast University.

"The training gives you a path to follow," he said. "Not everyone's path is the same, but the training gives you somewhere to start. You learn how to get yourself out of different situations, solve problems and learn how to do different things. In management, it's really helped me tremendously," he added.

The training has also helped as the company grew and Loy's responsibilities increased. "We've got a lot bigger workload now," he said. "We're a lot bigger, but I've learned through PQS and other courses to enhance my management skills and how to handle people and handle certain situations in the office.

"The men respect me for what I know," he said of his co-workers. "They're constantly coming to me with their problems, and 99.9% of the time I can solve them myself without having to go into the engineer or the estimator. When it's something that's on the floor, they know they can come to me and they'll get the right answer, and it will be a safe and good answer."

Loy credits his boss with giving him the opportunity for ongoing education. "Tom Engelman encouraged me to do the courses," he said. "It brightened my future tremendously. I learned a lot not just through the courses, but through all the additional people you meet through the courses and teachers of PQS. The instructors are the most intelligent people I know in the world of precast concrete. There's a lot to be learned out there, and there's still a lot to be learned in the world of precast."

Western Precast takes home 2012 Pinnacle Award

In front of a packed house of more than 250 attendees, representatives from eight companies presented their creative solutions for everyday challenges that occur in the precast plant as part of the annual Pinnacle Awards Program held at The Precast Show.

The Pinnacle Awards program, sponsored by Spillman Co., provides NPCA Producer Members with a forum to showcase their innovations such as labor-saving inventions, employee recognition programs, marketing innovations and safety enhancements. The Pinnacle Award traveling trophy is presented during a special all-employee luncheon at the winning plant.

After voting by the luncheon attendees was calculated, Western Precast of El Paso, Texas, was declared the winner at the Epic Grand Celebration, held at Disney's Hollywood Studios on the last night of the show. Western Precast's entry, titled METRO (Motivating Employees Through Recognition Onsite!) Program, is an incentive program it uses to reward, recognize and motivate its employees.

"We know that motivating employees is essential," said Leo Feuerstein, Western's operations manager and secretary-treasurer. "We as employers would always like to pay more and that is one piece of the puzzle, but another is keeping people motivated.

"Every employee wants to go home feeling they are valuable,

and this program helps us let staff know they are valued, which is vital."

The development of the METRO Program was driven by the need to inspire employees to "approach each day like it is the first day on the job." Western Precast strives daily to assure each individual that they are important to the task at hand – no staff member is more important or less important than another. Employees are recognized through an annual awards ceremony with catered lunch, a wall of honor and a monthly newsletter. The company also hosts a variety of annual events like its Halloween and Christmas parties. Other benefits include flu shots, a $10 monthly gym membership and educational events with local medical professionals.

"This award brings a tremendous amount of pride to Western Precast and our employees because there were seven other entries that were all well-presented," Feuerstein said. "We are already making plans to implement or further explore the other ideas, and have so much to learn from all NPCA members.

"The program is a true value, because attending the Pinnacle Awards is a little like taking plant tours without having to leave lunch."

NPCA and Spillman Co. congratulate Western Precast and all entrants of the 2012 Pinnacle Awards on a great year of presentations.

Photo by Marti Harrell

WESTERN PRECAST EMPLOYEES ENJOYED A LUNCH SPONSORED BY SPILLMAN CO. AND NPCA IN RECOGNITION OF WINNING THE PINNACLE AWARD.

Correction to Safety Awards

In the March-April 2012 issue of *Precast Inc.* magazine, we failed to include **Wieser Concrete Products Inc.**, Portage, Wis., among the Platinum Award winners in Category II (60,001-120,000 hours) of the 2011 Safety Awards. NPCA and *Precast Inc.* magazine regret the error. Congratulations to the Wieser Portage plant!

NPCA Top 25 Certified Plants for 2011

Every year, based on unannounced plant inspections, the 25 North American precast concrete plants with the top overall scores in the NPCA Plant Certification Program are officially recognized for their outstanding quality and performance. With nearly 400 plants in the program, the Top 25 Award represents the top 6% of all certified plants. This year, 26 plants were presented the Top 25 Award due to a tie. Plants are presented in alphabetical order.

A.C. Miller Concrete Products Inc.

Blairsville, Pa.

www.acmiller.com

Executive management: Michael R. Buchan, general manager/vice president

Production facility size: 50,000 sq ft

Property size: 62 acres

Number of employees: 80

Years in business: 40+

Interesting jobs and projects: Tunnel liner segments for North Shore Connecter Project (Pittsburgh); Lock transfer chutes- Charleroi Lock and Dam (Charleroi, Pa.); Architectural stone finish box culverts/wing walls for numerous PA DCNR and DEP projects; Single and double-cell DOT box culverts/ wing walls; Conveyer tunnels/ stacker tubes for coal/limestone handling facilities; Specialized, over-sized manhole vault and tank assemblies

Armtec|Durisol

Mitchell, Ontario

www.armtec.com

Executive management: Mark Anderson, president & CEO; Kevin Young, vice president, Central Region

Production facility size: 100,000 sq ft

Property size: 21 acres

Number of employees: 85

Years in business: 59

Interesting jobs and projects: Ministry of Transportation Ontario, Highway 7 & 8 Kitchener - Waterloo, Ontario – 275,000 sq ft of noise barrier walls including traffic barriers; Massachusetts Department of Transportation, Route 3, Chelmsford, Mass. – 33,800 sq ft of noise barrier walls plus 10,700 sq ft of retaining walls

Blalock Ready Mix

Sevierville, Tenn.

www.blalockconstruction.com

Executive management: Kevin Blalock, vice president

Production facility size: 12,000 sq ft

Property size: 4 acres

Number of employees: 20

Years in business: 66

Interesting jobs and projects: Most all of the precast sound walls in the eastern Tennessee area used on the TDOT interstate system were cast in our yard

By-Crete

Lebanon, Pa.

www.bycrete.com

Executive management: Jay Behney, president; Jeffrey Behney, vice president

Production facility size: 92,000 sq ft

Property size: 18.5 acres

Number of employees: 40

Years in business: 47

Interesting jobs and projects: Quiet Rail MDT rail ties, U.S. Army Artillery Firing Range Training Structures, Explosion Containment Tank

C.R. Barger & Sons Inc.

Lenoir City, Tenn.

www.bargerandsons.com

Executive management: Mickey Barger, president; Eric Barger, vice president

Production facility size: 16,800 sq ft

Property size: 25 acres

Number of employees: 25

Years in business: 62

Interesting jobs and projects: Foothill Parkway, Stone Strong Retaining Wall; Cleveland Municipal Airport

Champion Materials Inc. – Precast Division

Carthage, N.Y.

www.championmaterials.com

Executive management: James D. Uhlinger, Jr., president/owner; Jason R. Uhlinger, general manager

Production facility size: 8,000 sq ft

Property size: 214 acres

Number of employees: 15

Years in business: 12

Interesting jobs and projects: NYS (Elmira) Route 17, 12 miles of temporary barrier; NYS Exit 23/24 Route 87, 14 miles of temporary barrier

Colorado Precast Concrete Inc.

Loveland, Colo.

www.coloprecast.com

Executive management: Penny Hayward, CEO/president;

K. Scott Hayward, vice president/ general manager

Production facility size: 100,000 sq ft

Property size: 50 acres

Number of employees: 75

Years in business: 37

Interesting jobs and projects: Large WWTP precast vaults, a series of seven vaults to make up a 24x53x13-ft treatment system for Shambhala Mountain Resort in Red Feather Lakes, Colo.; Gas pipeline expansion vaults, approximately 100 three-sided tunnel section 5x8x5-ft in Big Piney, Wyo.; Underground electric vaults (37) 8x24x8-ft electric vaults for an underground transmission line from Longmont, Colo., to Fort Collins, Colo.

Concrete Building Supply, a Division of Graymont

Plattsburgh, N.Y.

www.concretebuildingsupply.com

Executive management: Todd Kempainen, president

Production facility size: 5,500 sq ft

Property size: 47 acres

Number of employees: 16

Years in business: 74

Interesting jobs and projects: Redi Rock manufacturer, box culverts, custom architectural precast, utility vaults, PCANY-certified septic tanks, storm and sanitary manholes

County Materials Corp.

Roberts, Wis.

www.countymaterials.com

Executive management: Tim Sonnentag, president

County Materials is a manufacturer of concrete pipe and a variety of supporting products including manholes, box culverts and specialty precast products. Our diversified product line helps to fulfill the infrastructure needs of the Midwestern United States.

Products include prestressed and structural products, bridge beams, hollow core, sanitary and stormwater products, catch basins, curb inlets, manholes, reinforced concrete pipe, trench drain products, box culverts, median barriers, traffic barriers and tunnel segments

Dellinger Precast Inc.

Denver, N.C.

Executive management: Gary Dellinger, president; Virginia Dellinger, vice president; Gabe Dellinger, general manager

Production facility size: 40,000 sf

Property size: 40 acres

Number of employees: 46

Years in business: 41

Interesting jobs and projects: Rockhill, S.C., sewer treatment plant, a 9x9x30-ft diversion structure with a 30-ft-tall baffle wall inside, heaviest piece weighed 75,200 lbs.; Greensboro, N.C., airport annexation, 96-in. headwall with an 18-in.-thick base with 12-in.-thick wing walls and a total height of 10½ ft with a total length of 24 ft

Diamond Concrete Products LLC

Rincon, Ga.

Executive management: Alan Zipperer, owner

Production facility size: 31,500 sq ft

Property size: 20 acres

Number of employees: 15

Years in business: 5

Interesting jobs and projects: 5th Brigade Infrastructure, Ft. Stewart, Ga.

Firebaugh Precast – Dacono

Dacono, Colo.

www.firebaughprecast.com

Executive management: Randy Lindsay-Brisbin, vice president/ general manager

Production facility size: 10,000 sq ft

Property size: 40 acres

Number of employees: 17

Years in business: 11

Interesting jobs and projects: Wide variety of underground utility and drainage structures; Stone Strong retaining walls; products for oil and gas industries

Firebaugh Precast - Colorado Springs

Colorado Springs, Colo.

www.firebaughprecast.com

Executive management: Randy Lindsay-Brisbin, vice president/ general manager

Production facility size: 15,000 sq ft

Property size: 30

Number of employees: 35

Years in business: 16

Interesting jobs and projects: Solar inverter shelters, armament target ranges, physical security products, custom underground utility structures

The Fort Miller Co. Inc.

Greenwich, N.Y.

www.fmgroup.com

Executive management: John Hedbring, CEO; Butch Marcelle, president

Production facility size: 150,000 sq ft

Property size: 300 acres

Number of employees: 150

Years in business: 63

Interesting jobs and projects: Walkway over the Hudson River, Poughkeepsie N.Y.; Route 86, Wilmington Notch, Wilmington, N.Y.; Tappan Zee Toll Plaza, Tarrytown, N.Y.

Gerber Construction

Lehi, Utah

Executive management: Allen Gerber, president

Production facility size: We operate in various parts of our yard

Property size: 10 acres

Number of employees: 100

Years in business: 46

Interesting jobs and projects: Retaining wall panels for Utah Transit Authorities Trax Project; various precast barrier projects for UDOT.

H2 Pre-Cast Inc.

East Wenatchee, Wash.

www.h2precast.com

Executive management: Russ Haven, president/owner

Production facility size: 50,000 sq ft

Property size: 15.3 acres

Number of employees: 65

Years in business: 28

Interesting jobs and projects: The George Sellar Bridge Bypass job in East Wenatchee, Wash., required three aesthetically pleasing pedestrian tunnels – H2 Precast used three-sided box culvert with an Ashler Rock Finish integrated to the inside with form liners

Mack Vault of Toledo

Bowling Green, Ohio

www.mackconcrete.com

Mack Industries has been making quality precast concrete products since 1932. We provide a broad range of concrete products and services. Mack Industries originated in Valley City, Ohio. Under the direction of three generations of the Mack family, the company continues to grow in size and scope.

Products include custom precast, DOT highway products, sanitary and stormwater manholes, utility manholes and vaults, box culverts, septic tanks, grease interceptors, home aeration systems, sound barriers, package lift/dump stations and sewage treatments

Oldcastle Precast – Telford

Telford, Pa.

www.oldcastleprecast.com

Executive management: George Hand, president; Mike Grapsy, COO

Production facility size: 90,000 sq ft

Property size: 47 acres

Number of employees: 55

Years in business: 48

Interesting jobs and projects: N/A

Oldcastle Precast – Nampa

Nampa, Idaho

www.oldcastleprecast.com

Executive management: Brian Rheese, COO

Production facility size: 48,900 sq ff

Property size: 20 acres

Number of employees: 27

Years in business: 27

Interesting jobs and projects: Lemolo #2 discharge reroute, 2448 ft of 96x12-ft RCP, 360 ft of 108x12-ft RCP, plus special elbows and fittings; McMilian and Locust Grove box culvert, 552 ft of 14x5-ft BC with elbows and wing walls

Phoenix Precast Products

Concord, N.H.

www.phoenixprecast.com

Executive management: Chuck Morley, president & owner

Production facility size: 26,000 sq ft

Property size: 10 acres

Number of employees: 100

Years in business: 19

Interesting jobs and projects: 200-ft concrete sluiceway; 60-ft rock-faced headwall; concrete fence pole replacements for U.S. Army Corp of Engineers dam; cable trenches for power plants and substations

Shea Concrete Products – Amesbury

Amesbury, Mass.

www.sheaconcrete.com

Executive management: Edward Shea, president; Judi Shea, vice president

Production facility size: 40,000 sq ft

Property size: 35 acres

Number of employees: 60

Years in business: 60

Interesting jobs and projects: 22-ft-high gravity retaining wall at Burlington Heights, Burlington, Mass.; box culvert with vertical slope for MassDOT, Haverhill, Mass.; utility structures for airports along the East Coast; precast restroom 12x60 ft for Melrose, Mass., high school

Southern Precast Inc.

Alachua, Fla.

www.southernprecast.com

Executive management: Roland Lindsay Jr., president; Buzz Morgan, general manager

Production facility size: Three buildings, 70,800 sq ft

Property size: 100 acres

Number of employees: 46

Years in business: 24

Interesting jobs and projects: Farley nuclear plant, Alabama; backyard training facility, Eglin AFB; Boeing facility, Charleston

S.C.; Gainesville biomass facility, Gainesville Fla.; Orlando International Airport taxiway

Terre Hill Concrete Products - Plant #2

East Earl, Pa.

www.terrehill.com

Executive management: Gene Martin, president; Nelson Martin, vice president of operations

Production facility size: 30,000 sq ft

Property size: 10 acres

Number of employees: 45

Years in business: 92

Interesting jobs and projects: Storm and sanitary manholes, 4 to 12-ft diameter; highway drainage products for DOTs in Pennsylvania, New Jersey, Maryland and Delaware; proprietary stormwater management solutions

Terre Hill Concrete Products - Plant #4

Lebanon, Pa.

www.terrehill.com

Executive management: Gene Martin, president; Nelson Martin, vice president of operations

Production facility size: 52,000 sq ft

Property size: 19 acres

Number of employees: 65

Years in business: 92

Interesting jobs and projects: Manufacturers of short span bridges, box culverts, Conspan arch culverts, and the patented Terre Arch & Terre Box stormwater detention/retention structures

Universal Precast

Theodore, Ala.

www.alabamapipeandsupply.com

Executive management: Bill MacWilliam, owner; David Jones, owner

Production facility size: 30,000 sq ft

Property size: 20 acres

Number of employees: 15

Years in business: 10

Interesting jobs and projects: ThyssenKrupp steel mill, largest in North America; I-10, grade, drain, base and pave (ALDOT)

Zeiser Wilbert Vault Inc.

Elmira, N.Y.

www.zeiserwilbertvault.com

Executive management: Charles R. Kottwitz, president; Robert Warner, general manager

Production facility size: 42,000 sq ft

Property size: 5 acres

Number of employees: 30

Years in business: 66

Interesting jobs and projects: Double cell box culvert with monolithic headwall; steam tunnel and steam vault; 10,000-gal. potable water tank

Upcoming NPCA Webinars

NPCA provides webinars on an ongoing basis throughout the year to provide producers with vital education for all facets of running a precast concrete plant. Following is a listing with course descriptions of some of the upcoming webinars.

To register for any of the webinars, please visit **www.precast.org/education/online-education.**

1. The Do's and Don'ts of Placing Reinforcement in Precast Concrete Structures

Date: June 27, 2012

Length: 1 hour

Learning Objectives: At the end of this course, participants will be able to:

- Explain the importance of the bond between concrete and reinforcement
- Distinguish poorly placed reinforcement from properly placed reinforcement
- Describe proper lap splicing procedures for reinforcement

Course description: This course takes a holistic and simplified approach to understanding how reinforcement works in concrete, what type works best in whatever situation, and how placement and consolidation play a huge role in producing a reliable product. Common mistakes when working with reinforcing will also be discussed.

This class is intended for: Production workers, QC personnel, production supervisors, plant managers, and anyone aspiring to these positions

Presenter: Claude Goguen, P.E., LEED AP

2. Top 10 Pre-Assessment Plant Deficiencies for NPCA Plant Certification (Chapters 1-5)

Date: Aug. 8, 2012

Length: 1 hour

Learning Objectives: At the end of the course, participants will be able to:

- Identify the 10 most common NPCA QC plant deficiencies (do you have any in your plant?)
- Provide clarification to your plant personnel and management about NPCA QC Manual requirements
- Create a corrective action plan to address areas of nonconformance in your plant

Course Description: In this course, we will review 10 of the most frequently violated NPCA QC Manual requirements as found in pre-assessment audits and plant certification inspections. We will also identify common areas of nonconformance, provide clarification to the NPCA QC Manual requirements, and provide corrective action based on industry best practices.

Preseter: Evan Gurley

3. So, how much can you lift ... safely?

Date: Sept. 12, 2012

Length: 1 hour

Learning Objectives: At the end of this course, participants will be able to:

- Describe the safety hazards associated with lifting precast
- Examine lifting equipment to verify it meets safety standards
- Identify basic calculations and assumptions associated with lifting design

Course description: We will discuss the importance of using proper equipment for the task at hand, how to identify potential safety hazards, and routine inspections needed to ensure your plant personnel are practicing safe lifting procedures. Finally, we'll review basic calculations that are associated with lifting design.

This class is intended for: Production workers, QC personnel, yard workers, safety managers, plant managers

Presenter: Chris Von Handorf, P.E., MBA, NPCA Technical Services Engineer

4. PQS II – Technical

Dates: Oct. 31, 2012
Nov. 7, 2012
Nov. 14, 2012

(Participants are required to attend all three sessions in order to receive credit for this course.)

Length: 12 hours total

Each of the three sessions will be 4 hours.

Learning Objectives: At the end of this course, participants will be able to:

- Identify basic mechanics and fundamental aspects related to stress, strain and stiffness
- Interpret the basics of blueprint reading and reinforcement as it relates to plans
- Apply proper lifting techniques of concrete elements to prevent unexpected movements or failures
- Discuss the development of standards and the requirements to comply with them

Course description: PQS Level II – Technical is designed for plant personnel who are responsible for the design, interpretation of drawings, product setup or quality control in the plant. We will discuss the mechanical properties of concrete and steel, blueprint reading, proper rigging and lifting, knowledge of specifications and much more. A scientific calculator is recommended for this course.

This class is intended for: QC personnel, production supervisors, plant managers, and anyone aspiring to these positions

Presenter: Claude Goguen, P.E., LEED AP

Walk of Honor Salutes Military Veterans

PHOTOS COURTESY OF UNIVERSAL PRECAST CONCRETE INC.

Universal Precast Concrete Inc. of Redding, Calif., recently contributed to the final touches of a long-anticipated Veterans Walk of Honor. The memorial, erected in a vacant lot owned by the nearby City of Anderson, is a tribute to the men and women who have served in the U.S. military, whether in times of war or peace.

The Walk of Honor includes a 72-ft-long, 20-ft-high wall made of seven precast concrete panels that Universal Precast formed with the image of the American flag. A bronze latticed wall on the opposite side of the memorial park bears the names of about 300 local veterans who have served their country with honor. Arranged throughout the Walk of Honor are 6-ft-tall precast concrete letters, also cast by Universal. The letters represent major American conflicts:

- WWI for World War I
- WWII for World War II
- K representing the Korean War
- V representing the conflict in Vietnam
- DS representing Desert Storm
- I representing the war in Iraq
- A representing the struggle in Afghanistan

Universal also provided an 8-ft-tall precast concrete bald eagle sculpture and a monument sign bearing the seals of the branches of service. The park also features a 30-ft-tall flagpole, a brick walkway and benches. The entire project, which was two years in the planning and cost upwards of $300,000, was funded primarily from private donations with some public funds.

The Strong Home:

Making a Case for Precast Concrete

Tornadoes, hurricanes and termites are just some of the reasons for building a strong precast concrete home.

BY SUE McCRAVEN

Is a precast concrete home measurably different from everything else in the homebuilding market? Can a strong case be made for the advantages of precast concrete compared with more conventional wood-framed or concrete block construction? The most credible answer is found by examining the facts.

Evidence for building a solid precast concrete house is presented by the project architect and engineer, the builder and the precast producer of a beautiful coastal residence in Florida. Exhibits, pro and con, for a precast concrete home can help a prospective homeowner in making the best decision.

Precast exhibits: from the creepy to the explosive

Exhibit A: Storms. Bad weather makes the strongest case for a precast concrete home. The frequency of billion-dollar disasters caused by tornadoes, hurricanes and flooding is depicted in the map from the National Climate Data Center (see facing page). It's clear that no matter where you build a home in North America, you can benefit from the storm resistance of precast concrete walls.

Photo courtesy of John Valdes & Associates

Exhibit B: Bugs – the destructive kind. From the invasive carpenter ants of U.S. and Canadian northern forests to the ever-hungry termites of more temperate southern regions, a precast concrete home is the best defense against residential insect infestation. Because most homes are built with wood framing, carpenter ants and termites cause billions of dollars in damages annually – more destruction than that caused by all other natural disasters.[1]

Exhibit C: A 2 x 4 traveling at 296 mph. Lab testing mimics the explosive force of projectiles driven by the very worst storms. "We've had more than enough experience with hurricanes and tornadoes to understand the severe damages to homes from high winds and driving rain," says John Blanchard, general manager of Quick Wall, a division of Manning Building Supplies in Lakeland, Fla. "Our 5-in. or thicker insulated precast concrete walls use 7,400 psi, self-compacting concrete that is resistant to water penetration as well as damage from flying projectiles during storms, and we can back up these claims with

results from a certified testing lab. In addition, our precast wall product has an insulation R-value of 8 and a fire-resistance rating of 1 inch per hour."

Exhibit D: Freedom of design. While a precast concrete home is resistant to insect attack, Les Thomas, an architect in St. Augustine, Fla., has discovered important advantages from an architect's point of view. "Round windows and curved wall panels are some of the design options that are afforded by precast concrete," says Thomas. "The precast system is especially well suited for coastal style homes, because it allows us to angle a house against strong winds while opening it up to the best ocean views for the owner." Tight tolerances, a home that fits together perfectly and rapid construction are important advantages, but the building site must be accessible by crane for erecting the precast panels.

Exhibit E: Engineers like rapid construction and durability. For Bill Freeman of Freeman Design Group Inc., Lake City, Fla., the precast concrete home in St. Augustine's Davis Shores was his first experience with a precast design. "The biggest advantage of the Quick Wall system in my opinion is the speed of construction," says Freeman. "With more than 15 years of structural engineering experience in precast concrete, Ron Devlen, P.E., of Devlen Engineering Inc. in Lake Mary, Fla., said, "All engineers understand that a plant-produced product will offer much tighter tolerances than any system constructed at the job site," says Devlen. "The most important asset of precast concrete walls is durability."

Exhibit F: Finding a contractor who understands precast. "The greatest challenge when building a precast home in an established residential community is accessibility for the large transport trucks and the 200-ton mobile crane used to 'fly' the panels into position," said John Valdes of John Valdes & Associates, St. Augustine, Fla. "Precast concrete homes, in my opinion, if designed and built correctly, are the answer to storm wind resistance." Valdes says that contractors seem averse to anything 'new,' which to builders can mean "untested, an expensive learning curve, risk, liability and potential loss." To counter this natural aversion to something new, the precast industry has work to do. Precasters need to educate contractors and address any hesitation to building with a new system by providing everything from engineering assistance and an experienced erection crew to information on precast concrete's advantages and how rapidly built homes translate into more jobs completed and higher profit.

Exhibit G: The happy precast concrete homeowner. Bill and Shelley Desvousges, who have lived in their Pelican Reef home for more than a year, said, "We knew we wanted to build a precast concrete home, but we were surprised on so many levels. It's not just the solidity and security of our home, but even with lots of windows, it is cozy and quiet – we actually have to look outside to see if it's raining." Precast concrete was less expensive than a concrete-masonry-unit home, and the Desvousges wanted to feel confident in the security of their dream home during hurricane season.

Sue McCraven, NPCA technical consultant and Precast Solutions *editor, is a civil and environmental engineer.*

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[1] Source: http://bct.eco.umass.edu/publications/by-title/controlling-termites-and-carpenter-ants/

People & Products is a forum where NPCA members and nonprofit organizations can share inormation 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 NPCA. Attn: Precast Inc. magazine, 1320 City Center Drive Suite #200, Carmel, IN 46032 or email them to rhyink@precast.org.

Besser announces three new products

Besser Company, a global equipment manufacturer for the precast concrete and pipe industry, has released three new products: the Horizontal Pour T Form, the Vision 3 Automation System, and the Besser Connector.

The Horizontal Pour T Form, displayed in Besser's booth at The Precast Show 2012 in Orlando, Fla., offers producers the ability to produce horizontal T's with reduced production time and improve product quality by using this form instead of modifying traditionally manufactured pipe, says the company. The T Form is available in an unlimited number of pipe and manhole T sizes. The form is easy to set up and strip with collapsible cores for both the pipe and manhole sections, and a tapered end section that helps alignment during setup. Built for durability and long life, the form features pantographed reinforcing supports that assure jacket shape, and heavy-duty door hinges. Other features include a standard riser shovel plate, groove-forming pallet and more. The T Form is a three-piece jacket design, and a two-piece design for a vertical pour is also available.

HORIZONTAL POUR T FORM

The Vision 3 Automation System provides the utmost in precision and reliability for pipe manufacturing using bidirectional and conventional packerhead pipe machines. The freestanding supervisor's console, which is located on the plant floor near the pipe machine, contains a programmable logic controller for solid-state electronic control and a color flat panel touch-screen interface that controls four high-definition Ethernet cameras. Preprogrammed logic maintains control of the basic machine cycle and numerous built-in features, including setup information for up to 200 different pipe sizes and configurations.

VISION 3 AUTOMATION SYSTEM

Besser and IQity Solutions LLC have formed a partnership to produce The Besser Connector, a new technology platform that maximizes the operational efficiency and profits of concrete products manufacturers. Powered by IQ-Fusion, IQity's flagship product, the Besser Connector helps producers manage operations proactively. Its user-friendly graphics illustrate where the most costly production mistakes – or the most profitable practices – are happening. This real-time data empowers producers to immediately make adjustments so that operators and managers focus on the right things at the right time for maximum profitability, says the company.

BESSER CONNECTER

For more information, visit www.besser.com.

Besser welcomes sales and technical support rep

Besser Company has announced that longtime industry veteran David Smith joined the Besser customer service team. Smith assumes the role of sales and technical support representative covering Florida, Georgia, Alabama and Mississippi. He replaces Jack Terhofter, who is now providing technical service on a global basis.

DAVID SMITH

Smith has more than 30 years of field sales and service experience, and his skills include hands-on plant management, equipment installation, mechanical and electrical troubleshooting, conducting training and plant evaluations. He had spent six years previously as a field service and parts sales representative for Besser. Smith will be based in Florida and can be reached at (817) 714-7355 or via email at dsmith@besser.com.

New Hampton Metal Fab to represent Streamline Automation

New Hampton Metal Fabrication, a leading manufacturer of form equipment for the precast concrete products industry based in New Hampton, Iowa, has reached an agreement to represent Streamline Automation in North American markets.

Streamline Automation offers the most complete line of styrene foam-cutting equipment on the market, says the company, especially milling channels for manhole inverts. Streamline also works with its clients to help them take their production processes and their businesses to new levels.

New Hampton Metal Fab has been serving various industries for more than 60 years, specializing in manhole,

box, utility, flare, safety end, pipe and specialty product form equipment. The company is also the North American representative for Colle S.p.a., which offers a wide range of fully automated and manual machines for vibration machinery, packerhead machinery, vibration tables, wire cage machines and automatic pallet cleaning machines for the pipe and precast industry.

For more information, call (641) 394-4111 or visit www.newhamptonmetalfab.com.

U.S. Precast Corp. consolidates to form United Concrete Products LLC

U.S. Precast Corp. and Florida Rock and Sand Prestress Co. Inc., two of South Florida's largest precast concrete structure manufacturers, have announced the consolidation of both companies into one operating unit: United Concrete Products LLC.

United Concrete Products will offer clients an expanded product portfolio that features precast, prestressed, pipe and pile services. The joining of their facilities, staff and vendor base, along with nearly 100 years of combined industry experience, will help to deliver market-leading products and services, and broaden the company's market presence, says the company.

Headquarters for United Concrete Products will be located in Medley, Fla. The existing Florida Rock and Sand operations will be merged into the U.S. Precast Corp. sites located in Medley and West Palm Beach over the next several months.

U.S. Precast Corp. has been a leader in precast concrete structures, reinforced concrete pipes, box culvert, and tunnel sections in Florida for more than 75 years. For more information, visit www.usprecast.com.

Florida Rock and Sand Prestress Precast Co. Inc. has been producing precast drainage structures, sanitary drainage systems, concrete specialty structures, concrete piling, deck slabs and seawall panels for the Florida marine and foundation construction industry for more than 30 years. For more information, visit www.frsprestress.com.

Haarup North America now open for business

Haarup North America has opened for business. The new company, 100% owned by Haarup Maskinfabrik A/S in Denmark, is located in Portland, Ore., with offices and a warehouse.

Haarup North America is stocking millions of dollars worth of parts for mixers, hoists and other Haarup equipment. The company will be focused on supporting existing customers and selling equipment, complete plants and retrofits for the concrete industry in the United States and Canada.

Haarup has had a close relationship for many years with Columbia Machine in Vancouver, Wash. This cooperation will continue as Columbia Machine markets and services Haarup equipment in the United States. Haarup North America will be an extension of Haarup's commitment to the North American market with service, support and spare parts located in its North America warehouse.

In Canada, Haarup will continue its relationship with Mel C. Marshall – Industrial Consultants.

Haarup North America plans to have personnel for both mechanical and electrical service. As the company grows, it will begin to assemble and produce Haarup equipment in North America. For more information about Haarup, visit www.haarup.com.

Columbia Machine's oldest machine contest

In honor of Columbia Machine's 75-year celebration, a contest is being held to identify the oldest operating Columbia machine. The customer identified as having the oldest operating machine will receive a $10,000 parts and mold credit as well as a free Columbia customer care visit. In addition, there will be a "participation drawing prize" for a $7,500 parts and mold credit. This will be rewarded regardless of the manufactured date.

The oldest operating machine contest began March 1 and will run until July 1, 2012. During this period, all Columbia customers are invited to submit the details of their machines. The campaign ends July 1 to allow enough time to visit the customer locations, verify machine details and confirm the equipment is running. The winning customer will be recognized at the 75-year celebration Aug. 18 at Columbia Machine Inc., Vancouver, Wash.

For more information about the contest, visit www.columbiamachine.com/oldestmachine.

GSE unveils global rebrand

GSE Lining Technology LLC, a global manufacturer and provider of geosynthetic lining products and services based in Houston, has announced the launch of its rebranded identity as GSE Environmental. This rebrand reflects the company's transition from a multiregional company to a global organization.

GSE's new brand identity, including the name change, logo and tagline, "Durability runs deep," were direct results of the research and rebranding process. Additionally, the corporate website was completely redesigned to better represent GSE's extensive worldwide capabilities, products and expertise.

For more information, visit www.gseworld.com.

Dayton Superior Taper-Lock Anchors receive accreditation

Dayton Superior, a leading North America provider of specialized products in the concrete construction industry, has announced that its Taper-Lock End Anchors recently received accreditation by the International Association of Plumbing and Mechanical Officials (IAPMO).

The Dayton Superior Taper-Lock End Anchors are heavy discs with a female taper threaded hole through the middle. The proprietary tapered thread serves to mechanically anchor steel reinforcing bar sizes #4 through #18 into concrete. The end anchors also serve as an alternative to bent or hooked reinforcing bars to reduce overall congestion.

Since 1926, IAPMO has been instrumental in codes and standards development for building products. IAPMO's evaluation reports and subsequent accreditation provide, through independent, third-party review, professional substantiation that a manufacturer's building product, material or component fully complies with particular codes and standards. By receiving accreditation through IAPMO, building industry decision-makers can easily identify products that meet the required building codes.

For more information, visit www.daytonsuperior.com.

Spancrete hires new senior research and development/design engineer

Spancrete Global Services has hired Nicholas Passint as its new senior research and development/design engineer.

Passint comes to Spancrete Global Services from Pflow Industries Inc., where he was head product engineer. He holds a bachelor's degree in engineering from the University of Wisconsin, as well as an MBA in international business from the University of Wisconsin-Milwaukee Lubar School of Business.

For more information about Spancrete, visit www.spancrete.com.

CRSI names chief financial officer

The Concrete Reinforcing Steel Institute (CRSI), Schaumburg, Ill., has announced the appointment of Kim Michael-Lee, CPA, as its chief financial officer.

Michael-Lee comes to CRSI from the American Veterinary Medical Association, where she was the chief financial officer and director of Business and Financial Services. There she was responsible for both financial and operations areas and managed the organization's Association, Foundation, Auxiliary, PAC, and Property Association functions. Prior to that she

KIM MICHAEL-LEE

worked as the chief financial officer and vice president of Finance/Administration/IT/HR for National Multiple Sclerosis – Greater Illinois Chapter. Her experience also includes work as the chief financial officer of the American Academy of Pediatrics and Family Support America.

She received a bachelor's degree in finance/accounting and economics from Northern Illinois University, an MBA in financial management from Illinois Benedictine College, and is a certified public accountant.

For more information about CRSI, visit www.crsi.org.

ASCC appoints director of member services

The American Society of Concrete Contractors, St. Louis, has named Teresa Burton as its director of member services. Burton was membership director for the Chesterfield, Mo., Chamber of Commerce, and prior to that she was director of member services with AAIM Management Association, St. Louis.

TERESA BURTON

ASCC is a nonprofit organization dedicated to enhancing the capabilities of those who build with concrete and providing them a unified voice in the construction industry. For more information, visit www.ascconline.org or call (866) 788-2722.

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NPCA CALENDAR

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

Meeting	Location	Date
NPCA 47th Annual Convention	Ritz-Carlton – New Orleans	Oct. 3-6, 2012
The Precast Show 2013	Indiana Convention Center – Indianapolis	Jan. 11-13, 2013
The Precast Show 2014	George R. Brown Convention Center – Houston	Feb. 13-15, 2014
The Precast Show 2015	Orange County Convention Center - Orlando, Fla.	Feb. 5-7, 2015

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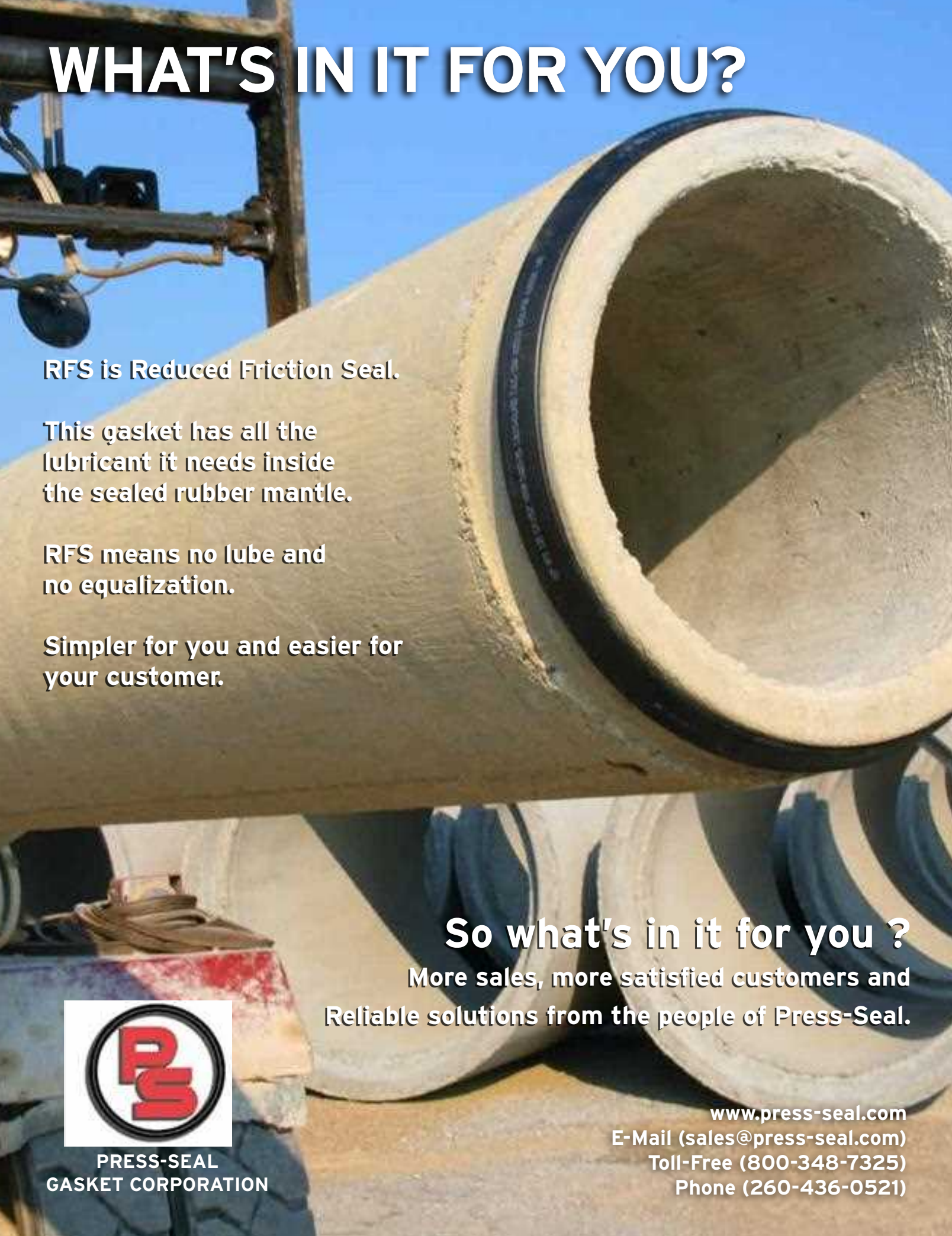
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