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NPCA is a trade association representing the manufacturers of plant-produced concrete products and the suppliers to the industry around the world.

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GOOD TIMES

A Minnesota precaster rises to the top with the **right products** and **pride** in its work.

Learn how to implement integral color at your precast plant
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Marijuana puts workplace drug policies to the test
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Precast PIONEERS

J.T. Lendrum, NPCA President, 1975

E.C. Babbert *(left)* presented J.T. Lendrum the Robert E. Yoakum Award of Merit in 1976 for service to NPCA and the precast concrete industry.

1.) Tell us what the precast industry was like when you got started?

Most producers started in the burial vault industry, which gave them some common background. Most were small by current standards. Products were typically septic tanks, small products and steps. Product lines were not as diverse as today for most members. A big factor in the beginning was the Canadian producers who were a major part of the group.

I did not attend the first meeting, our partner Reese Lawyer attended. He reported back that, like us, everyone believed it was a great idea and should be followed up but he questioned whether this was the group. Our primary motivator, Bob Yoakum, died before the meeting which created some confusion.

2.) Why did you get involved with NPCA and decide to become chairman?

Part of my interest might be mercenary. We had a mold and septic truck business and everyone was a potential customer. On the other hand, I knew almost all the producers and, in many cases, may have helped them get started.

My father, A.M. Lendrum, was on the road selling equipment a great deal of the time and this made my name public. With this start, it was a natural position and I was honored when the group selected me.

3.) What was the best thing you accomplished as chairman?

Bob Walton created our home base with his company. I believe I had a lot of influence bringing Bob on board as our director and establishing NPCA's home office. Bob had the experience to make NPCA more than it was and without his steady hand the association probably would have faltered.

4.) What's your favorite NPCA memory?

My favorite memories are creating close relationships with the members, particularly at our conventions and on-site trips. Our family developed relationships that we still have today. I had many friends from the U.S. and Canada, which means a lot to me. I like them all. We learned as much during the social interaction sessions as we did in the meetings. I guess the modern term is networking!

5.) How has precast as a product changed over the years?

Precast is more a story of materials and handling equipment. As the equipment improved and got larger, it permitted the size of items cast and product lines to evolve. Also, the need for quality control became key to our product line. Possibly above all is the willingness of NPCA producers to try anything, "You dream it, we will produce it."

6.) How did the friendships formed via NPCA impact your business and life?

In just about every way – aside from my friends in our community, my closest friends are in the precast industry along with a few hangovers from the military. It was nice to be able to converse and socialize with people that had the same experiences. We had some wonderful trips and great experiences with NPCA friends. Some of the fun we had is better left unprinted.

7.) When you first got involved with NPCA, did you envision it becoming what it is today?

No way. Most organizations dry up after a few years and it was probably the late '80s before I figured NPCA was strong enough to survive. We had times where they had to pass the hat to cover the cost of meetings and even then there were some difficult times for NPCA. The group was built on the dedication of primarily small family companies with great spirit and work ethic. We must keep bringing in the new blood and, most important, the Bob Waltons and Ty Gables of the world must be well considered by producer members. **PI**

EDITOR'S NOTE:

NPCA will celebrate **50 years** at its Annual Convention in Minnesota this October.

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Do you understand the thermal properties of precast concrete?

By Claude Goguen, P.E., LEED AP

Night and day, precast concrete panels help regulate building temperatures thanks to thermal mass and resistance.

In an era when resiliency and energy efficiency are more important than ever, manufacturers of precast concrete should be able to explain the beneficial properties of their products. This goes beyond compressive strength, air content and watertightness. Thermal properties continue to grow in importance with the increase in development of energy-efficient and net-zero-energy-use buildings. When explaining the thermal properties of precast concrete, it's important to avoid confusion about thermal mass versus thermal resistance. Thermal mass and resistance often get labled as the same thing but work in very different ways. Together, they provide the best performance for keeping a building comfortable for its occupants, and that makes precast concrete an optimal choice for a building material.

THERMAL MASS

Thermal mass is the property that allows a material to absorb, store and later release significant amounts of heat. A lot of heat energy is required to change the temperature of high-density materials like precast concrete, which is why concrete has high thermal mass. Heating wooden walls, by comparison, is much easier but they store less heat and release that heat faster. Precast concrete walls act

like thermal sponges, absorbing heat during the day and then slowly releasing the heat as temperatures fall at night. As the night air cools the walls, they store it and transfer it back into the building during the day. This cycle repeats itself each day. When outside temperatures are fluctuating throughout the day, the thermal mass of concrete also flattens out temperature changes.

This effect reduces heating and cooling loads on the building's HVAC system, resulting in energy savings. When outdoor temperatures are at their peak, the inside of the building remains cooler. The heat has not yet penetrated the precast concrete mass, which is still releasing the cooler air from the previous evening, producing a time lag as seen in Figure 1. This heat transfer delay is known as damping.

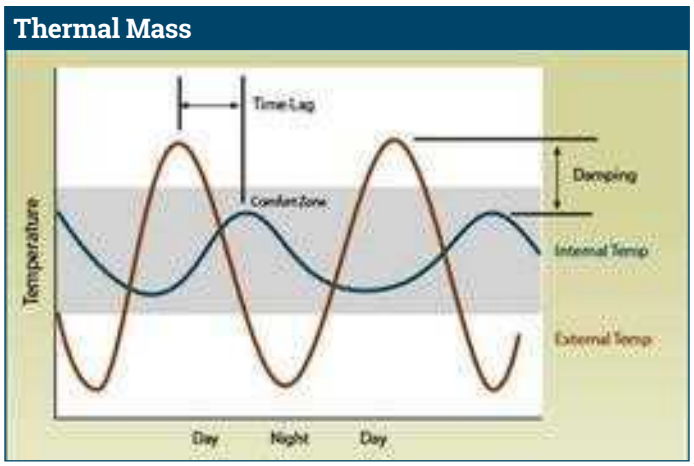

Figure 1

The result of this damping effect is improved energy conservation, which is mandated by the national Energy Policy Act of 1992 for commercial buildings. Can we quantify thermal mass? We can through specific heat, which is a material's ability to store heat energy. Specific heat is defined as the ratio of the amount of heat required to raise the temperature of a unit mass of a material by one unit of temperature to the heat needed to raise an equal mass of water by the same unit of temperature.

THERMAL CONDUCTIVITY AND RESISTANCE

If you're a person who likes to cook, you know the value of a good frying pan. When you are comparing frying pans, you will notice the more expensive a frying pan is, the heavier it is. Concrete is heavy, so why is there no market for precast concrete frying pans? It's all about thermal conductivity.

The thermal conductivity of a material measures how that material absorbs and transmits energy. It is also defined as the quantity of heat transmitted through a unit thickness of a material – in a direction normal to a surface of unit area – due to a unit temperature gradient under steady state conditions. It is measured in SI units by watts per meter Kelvin and in imperial by British thermal units per hour foot Fahrenheit.

When the heat of the stove comes in contact with the pan, the energy from that heat source is transmitted to the pan, which increases the kinetic energy. The heat is then transmitted to nearby materials that are at a lower kinetic energy level. The higher the thermal conductivity of the material, the faster it will heat up and the faster the heat will spread to unheated areas of the same piece of material. Frying pans made with high thermal conductivity material work best because they transmit heat quickly, resulting in a faster response to thermal changes. This is why many times a frying pan's handle is made from a different material with a lower thermal conductivity. Cast iron has a high thermal conductivity of 50 to 80 watts per meter Kelvin, while concrete has a low thermal conductivity of around 1 watt per meter Kelvin. That may be why your line of precast concrete cookware is not flying off the shelf.

All materials have a thermal resistance value which is a measure of that material's resistance to conductive heat flow. This measure is expressed with an R value. Precast concrete has low R values which vary based on the concrete's density. For 150 pounds per cubic feet of concrete, the R value is approximately 0.7 per inch. As concrete density decreases, the R value increases. Add rigid insulation and you can get an R value of around 5 per inch depending on the type of insulation.

The R value for precast concrete wall panels with insulation typically varies from R-5 to R-50. The types of rigid of insulation generally used with precast concrete wall panels are:

- EPS – Expanded Polystyrene: R values typically 3.8-to-4.4
- XPS – Extruded Polystyrene: R values typically around 5
- Polyisocyanurate: R values typically 6-to-8

BRINGING THE TWO TOGETHER

To review, thermal mass is the ability of a material to store heat energy and thermal resistivity is the ability of a material to slow

down the transfer of heat energy. A precast concrete building is good at regulating its own temperature. Precast concrete walls with rigid insulation such as sandwich panels or thin wall panels create an ideal building envelope as they provide high R values while regulating temperature fluctuations. The end result is an energy efficient material that is unmatched.

Energy-efficient and net-zero-energy buildings are popping up everywhere. We even have a net-zero energy precast plant among NPCA's distinguished members. Environmentally conscious construction is no longer restricted to the fringe of the industry. It is mainstream. As the building market recovers, the green construction industry is growing at a rapid pace. According to the United States Green Building Council, total revenue across this industry should grow to $245 billion by 2016, comprising more than half of all nonresidential building.[1]

Owners, specifiers and builders are more focused than ever on designing and constructing energy-efficient and durable buildings. Often, this is mandated in order to meet requirements of the following:

- Leadership in Energy and Environmental Design v4
- American Society of Heating, Refrigeration and Air Conditioning Engineers
- International Green Construction Code
- U.S. Federal Government Executive Order 13514

The last ensures that all new government building construction and major renovations meet the Guiding Principles for High-Performance Sustainable Buildings and achieve zero-net energy by year 2030. A zero-net energy building means the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site.

The thermal properties of precast concrete help improve a building's energy performance. It is an important asset for designers who need to cut heating and air conditioning costs associated with HVAC systems and still keep building occupants comfortable. And, it is an important selling point for your precast products. **PI**

THERMAL MASS
is the ability of a material to *store* heat energy.

THERMAL RESISTIVITY
is the ability of a material to *slow down the transfer* of heat energy.

Claude Goguen, P.E., LEED AP, is NPCA's director of Sustainability and Technical Education.

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DOES THE LRFD STANDARD work for all precast?

A review of the standard's applicability to various products.

By Ron Thornton, P.E.

NPCA file photo

Precast circular manhole sections for drainage per AASHTO M199 (ASTM C478) positioned for DOT deep burial.

If you are a precaster who makes any products related to highway or bridge construction, you have probably at least heard of American Association of State Highway and Transportation's Load Resistance Factor Design and HL-93 loading. If you produce box culverts, bridge beams, three-sided or arch bridges, and/or wingwalls, you have likely accepted LRFD as the new norm and are designing your products accordingly. However, if you are making manholes, inlets and utility vaults, you're probably wondering what is going on with this new standard and why you have to change your designs that have served the industry well for many years.

First, what is LRFD? It is intended as a means to provide a more uniform and consistent level for bridge safety under a wide range of load and resistance models. It is based on the statistical reliability of a structural element exceeding a given limit state. A limit state is a condition beyond which the bridge or component ceases to satisfy the provisions for which it was designed. AASHTO LRFD defines four limit states including strength, extreme event, service and fatigue.

To put the LRFD methodology into perspective, we need to take a trip back into the history of reinforced concrete design. Prior to the early '70s, concrete was designed

using a method called allowable stress or working stress. Loads and forces, flexure, shear and axial were computed at service level and the resulting steel and concrete stress was determined and compared to code-mandated allowables. By today's standards, the computation method was reasonably simple, which was good because the most advanced tool for performing these calculations at the time was the slide rule. In the ASD method, there is no distinction between types of loads.

During the '70s, as electronic calculators became more prevalent, more engineers began using the load factor design method. This method places different factors based on the type of load such as dead, live, wind, ice, etc. The combination of factored loads results in an ultimate load being placed on the element. The ultimate load is then compared to the nominal strength of the element. Once the strength determination is made, the engineer has to go back and compute service load stresses, just like the ASD method, in order to check serviceability criteria for crack control.

While there may have been some differences in load factors and serviceability criteria between the AASHTO Standard Specification and the American Concrete Institute, the method of design and computations for many years were similar. However, sometime after 1999, ACI applied its research and started modifying some if its load factors and certain calculations such as crack control and rebar development. AASHTO, however, was moving in a completely different direction when it officially rolled out LRFD in 1993. Coincidentally, this is about the time that personal computers were becoming more commonplace, which is a good thing because the number of computations needed to complete an LRFD design increased exponentially from those required using ASD and traditional load factor design.

While the LRFD code has been in existence since 1993, it was not widely used until it was mandated for all federally funded bridges going into the design phase beginning in the fall of 2007. It is important to understand that the LRFD code is nearly 2,000 pages long and has been meticulously calibrated for every structural component specifically defined in the code to ensure that it meets a reliability index of between 3.3 and 3.8. It is well beyond the scope of this article to describe what a reliability index is, but the above numbers translate to a failure probability range of roughly 2 in 10,000.

Not only has LRFD changed our design methodology, but we now have a whole new load designation to deal with. Gone is HS20-44 that, like an old shoe, we have become comfortable with for so many years. We now have something called HL-93, which is not so much an actual load but rather a set of loads that includes a standard truck that actually is the same as an HS-20 vehicle, a tandem axle and a uniform lane load.

H-20 and HS-20 revolve around a 16,000-pound dual truck wheel. This definition works well for precast vault and manhole designs because you generally apply one wheel over the structure. By contrast, HL-93 is geared toward determining the load effects from an entire axle and driving lane. This is an appropriate and logical approach for bridges but immaterial to the precast box sitting on the side of the road.

Getting back to our original question, is there any rational basis for converting precast inlet, manhole and vault designs from HS-20 to HL-93? Arguably, the answer is no and for several good reasons:

- Nowhere in the nearly 2,000 pages of the LRFD specification are any of these products specifically referenced. Therefore, it is logical to assume that they have not been calibrated to the reliability index and yet there is little doubt that these products have a long history of being extremely reliable in service.
- The HL-93 standard truck is identical to an HS-20 vehicle and the uniform lane load does not apply to spans less than 15 feet. Also, a simple analysis shows that the tandem axle does not control over the standard truck for spans less than about 14 feet. Very few precast manholes, inlets and vaults fall into this category.
- Typically, only two of the four limit states – service and strength – as required by LRFD apply to these units, which is essentially no different than traditional load factor design.
- The design and manufacturing of precast products is well covered by various ASTM standards. These standards define specific loading requirements for traffic conditions that are consistent with AASHTO standard specification and they reference ACI 318 for design methodology.

ASTM standards are universally specified for ready-mixed concrete and constituent materials, structural and reinforcing steel, bolts and hardware, testing methods and many other products that are used in both highway and commercial construction. Likewise, specifying the appropriate ASTM standards for precast products rather than converting to LRFD is a much better way to ensure consistency, reliability, structural integrity and quality for any project. **PI**

Ron Thornton is Precast Concrete Association of New York's executive director.

Small precast inlet structures designed per ASTM C890 for HS-20 surface conditions require minimum reinforcement.

WHAT IS LRFD?

Load resistance factor design is a means to provide a more **uniform** and **consistent level** for **bridge safety** under a wide range of load and resistance models.

MARIJUANA AND THE WORKPLACE: A Cloudy Issue

By Evan Gurley

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Marijuana laws versus a drug-free workplace: **Can the two coexist?**

Many precast company managers are aware of the rapid movement to legalize marijuana both medically and recreationally. It's debated at plants and job sites. It's been featured across news headlines. It's discussed among safety professionals. And no matter your stance on the issue, one thing is certain: It's not going away any time soon.

Safety professionals know that the topic of marijuana will be a hot-button issue for some time as laws are changing constantly. As a business, many precast plants maintain the stance that they are drug-free workplaces. That is the policy, period. But, when it comes to recent marijuana laws and what that might mean for workplace safety, there are still questions yet to be answered. The language of each law varies, leaving all parties involved having to navigate a legal maze when it comes to employers' and workers' rights.

As of November 2014, there were four states and the District of Columbia that had voted to approve the legalization of marijuana. Another five states are expected to introduce ballot measures to legalize recreational marijuana in 2016: California, Massachusetts, Maine, Arizona and Nevada. And by the end of 2016, activists are expecting five more states to vote on legalization bills in their state legislatures. But that's not all. Six other states are looking at creating or expanding medical marijuana programs or are vastly scaling back penalties for small-time possession. Ever since voters in Colorado and Washington allowed the sale of legalized marijuana in 2014, the push for marijuana legalization has become a popular nationwide effort.

In 2014, 36 state legislatures had bills under consideration to create new medical marijuana laws, to impose only a fine for possession of marijuana, and/or to regulate marijuana similarly to alcohol. Several of those proposals were enacted. Three state legislatures, Maryland,

Minnesota and New York, passed medical marijuana laws this year, while Maryland, Missouri and the District of Columbia replaced possible jail time with fines for simple possession of marijuana.

At the federal level, marijuana is considered to be a schedule 1 substance – classification perceived to have a high potential for abuse and no medical value. Currently, the federal government argues that there isn't enough evidence to prove that marijuana has a medical value. As a result of the schedule and the legal restrictions tied to the drug, it's technically still illegal under federal law to use, own and buy marijuana – even in states where it's considered legal.

Whether you're personally for it or against it, many states are moving forward with legalizing or decriminalizing marijuana. Precasters need to **understand their respective laws** and **formulate a game plan** for addressing marijuana usage at their plants.

MARIJUANA ON THE JOB

If an employer can prove a worker is impaired on the job, it can take action regardless of the residing state. That much is clear. It gets a little cloudy when a worker shows no impairment but tests positive for marijuana. Legal consultants suggest that precasters implement a zero-tolerance drug policy in the workplace, even when there is risk for litigation.

"It started way back when medical marijuana was legalized in Colorado; that's when we first started to address the issue," said Penny Hayward, president of Colorado Precast. "We knew it was coming. We, at that point in time, put it in our employee handbook that we were a zero-tolerance company and that did include medical marijuana." However, that was challenged by an employee who wanted unemployment benefits.

"It took about six months or more to run through that challenge," she said. "He was released with a medical marijuana card, but he never showed it to me. So, that ran through quite a few appeals and I took it all the way up to the Colorado Court of Appeals and we won."

The federal government has said it will not prosecute people who abide by their state's marijuana laws. As to whether employers can ban its use by workers, including those with prescriptions to use medical marijuana outside of the workplace for chronic diseases and conditions, the answer depends on each individual state. In some states, including Washington, Oregon and Michigan, judges have ruled on the side of the employers. In other states, including Minnesota, Arizona and Delaware, lawmakers have added specific protections for workers with medical marijuana prescriptions, protecting them from action by employers based solely on a positive test result, according to the National Safety Council.

In states where medical marijuana is legal, precasters should increase awareness and ensure they keep a closer eye on their employees. Get a visual on them. Be aware if they seem absentminded at work. Heightened awareness should be elevated to ensure a safe workplace.

In response to many states passing medical marijuana laws, the Department of Transportation issued a compliance notice regarding its policy for safety-sensitive transportation employees, such as pilots, school bus drivers and truck drivers. The compliance notice stated that a driver cannot be considered a qualified driver under the federal motor carrier regulations if the individual is taking medical marijuana. While the act prohibits an employer from terminating or disciplining an employee based solely on a positive drug test, it can be argued that the reason for disciplining, transfering, or terminating of a commercial drivers license driver with a positive drug test is because of the CDL rules and the effect that the positive drug test has on the CDL.

ADDRESSING MARIJUANA AT THE PLANT

There are numerous ways precasters have addressed the marijuana issue at the workplace in states where medical and recreational marijuana is legal. Hayward

HOW DOES MARIJUANA AFFECT WORK PERFORMANCE?

Marijuana is a mind-altering drug that contains more than 400 chemicals, according to the Drug Enforcement Administration. One of those chemicals, THC, is believed to be the main cause of psychoactive effects as it travels from the bloodstream to the brain.

Marijuana affects every user differently and those effects can depend on:

- **The person's mood, personality, size and weight**
- **The amount taken and whether it is mixed with anything else**
- **The environment where the drug is used**

If marijuana is used in the workplace it can affect the health and safety of the person taking it, those around them, and have an adverse effect on productivity. Marijuana is known to have the following effects:

- **Short-term memory problems**
- **Impaired thinking**
- **Loss of balance and coordination**
- **Decreased concentration**
- **Changes in sensory perception**
- **Impaired ability to perform complex tasks**
- **Decreased alertness**
- **Decreased reaction time**

Effects of marijuana can last two to six hours. These side effects may make it hazardous to use marijuana at work, particularly if a person is operating heavy machinery or driving a vehicle. There is also a greater risk of an accident occurring due to the difficulty of performing simple manual tasks. Regular marijuana users may start to exhibit signs of loss of energy and interest in their tasks, causing performance to suffer. They may also find it difficult to learn new work skills.

Employers and workers should treat medical marijuana the same as other prescription drugs such as Vicodin or Percocet, which can impair mental and physical abilities and affect worker safety. Workers also should know their state and company rules, particularly if they are subject to DOT regulations or if their employer has federal contracts that can supersede state laws.

said that after Colorado Precast tackled the medical marijuana issue and placed its zero-tolerance stance in the employee handbook, the message did not change when marijuana became legal.

Hayward added that the company has released employees caught in random testing, but none have challenged the decision. A drug program is offered for those employees who want to take it and possibly be rehired. The employee must pay for his or her own testing and be drug free for a solid six months.

"Once hired back they understand that at any time during their employment, we can pull them even without doing a random test," Hayward said.

However, according to Darrin Cary, chief of operations at Wilbert Precast Inc., when marijuana became legal in Spokane, Wash., it caught the whole staff off guard.

"You're trying to maintain a safe workplace and now you've added something else in there that is legal," he said. "Our conversations would always end with, 'And oh yeah, it's legal.' So how can you tell people they can't do something that's legal?"

To make sure both staff and employees receive fair treatment, the company decided to amend its drug policy by taking out marijuana testing during pre-employment and random drug testing with the exception of its CDL drivers. Marijuana is tested after an accident or under reasonable suspicion and is treated the same as alcohol. The drug policy remains a living document and will be revised as more information becomes available, he said.

"What we are still struggling with is if an employee tests positive with a post-accident screen, we still can't confirm he was high at the time," he said. "For now, HR has instructed us to use our gut and other data to make a determination. The big issue is we're still waiting for that magic range to see if an employee is under the influence."

Nevada has not legalized medical marijuana, but Jensen Precast Inc. follows the same zero-tolerance policy as Colorado Precast, said Donald Graham, director of safety. Currently, in states where Jenson Precast has plants – Nevada, California, Arizona and Hawaiii – there are no state-mandated standards for the active ingredient in marijuana. The company has chosen to follow the DOT standard cutoff concentration that considers 15 milligrams of THCA (the active ingredient in marijuana) a positive test. Graham said employees who are caught are given the choice to attend the company's substance abuse program. No employees are immediately terminated.

RECOMMENDATIONS

Every precaster should be fully aware of what is going on in their respective state and should know how they plan to address marijuana laws. On top of knowing the laws, industry professionals have suggested the following recommendations when tackling marijuana issues at the workplace:

- **Revise employment policy manuals**, specifically the drug testing policies. Make revisions consistent for potential use of medical marijuana, impairment at work from medical marijuana, prescription or synthetic drugs, and addressing safety-sensitive positions.
- Employers with drivers who have CDLs or who are subject to DOT or other federal drug statutes and regulations should **review those policies** to ensure they are consistent with the respective state laws.
- Employers should **train supervisors** to recognize signs of impairment or drug abuse and document and respond to employee impairment.
- Reasonable **suspicion checklists** are an effective tool to help supervisors document observations of impairment.

Whether you're personally for it or against it, many states are moving forward with legalizing or decriminalizing marijuana in some way, shape or form. Precasters need to understand their respective laws and formulate a game plan for addressing marijuana usage at their plants. As Hayward said, "If it's not in your employee handbook, that's when you end up in trouble. You have to face it head on; spell it out in the very beginning." PI

Evan Gurley is a technical services engineer with NPCA.

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THE ART OF NEGOTIATION

An in-depth look at how precasters can hone their **negotiating tactics** and come out ahead **when engaging** with customers and suppliers.

By Bridget McCrea

NPCA file photo

Howard Wingert of Concrete Sealants, Inc. talks with Mary and Virgil Knox of Hampton Concrete Products on the floor of The Precast Show, where negotiation takes center stage.

In his famous book "How to Win Friends and Influence People," sales guru Dale Carnegie writes that "by fighting you never get enough, but by yielding you get more than you expected." This quote, originally published in 1936, is just as applicable in today's business world as it was nearly eight decades ago. Jensen Precast Inc., in Sparks, Nev., for example, has put both time and effort into sharpening its negotiation approach process.

HONESTY AND FACTS ARE KEY

"Everything in life is a negotiation," points out Donald Graham, director of safety for Jensen Precast. For precasters, the need to negotiate often surfaces on the job site, where everything from damaged products to budgetary constraints to client expectations can push manufacturers into a mediator's role.

"You have to be able to work with your customers and

make sure they're getting the value that they expect while also protecting your own company's profits," Graham said.

That delicate balance isn't always easy to achieve. According to Graham, the team at Jensen Precast works through that challenge by maintaining an air of trust and honesty. Position yourself as the honest person who is bent on giving customers a good and fair deal, he suggests, and your customers will understand the need for a little negotiation here and there.

Maintaining factual accuracy is also critical when negotiating with customers who may question small details or challenge the precaster on specific issues when trying to prove their points.

"You really have to know what you're talking about," said Graham, who recently advised a customer on the need for a trench box on a manhole excavation job. The customer was not pleased with the fact that he would have to pay more to have the trench box built and installed and reluctant to follow the precaster's advice – at least at first.

"We explained why the trench box was necessary, how it would keep employees safe, and also how it would keep OSHA off the customer's back," Graham explained. "Plus, the work itself would be finished faster." In the end, the customer understood and decided to follow the precaster's advice.

The same negotiating rules apply when working with vendors, said Graham, who pays close attention to quantity and contract-based discounts when they are offered. For example, when buying 100 pieces of a certain product results in a significant price break or when committing to a corporate or national contract equates to clear cost savings, Jensen Precast will consider the expanded purchase option.

"Those are two strategies that we use to drive our own costs down and to help maintain and/or boost our bottom line," Graham said.

IT'S AN ART FORM

We all know that negotiating is a part of our everyday lives, but in the business world the ability to haggle successfully is often critical to a company's success. Poor negotiation tactics can bring a company to its knees, particularly when important contracts, bids and jobs are on the line. And while winning a round of negotiations is often seen as the ultimate goal, in reality the best negotiation experience is when all parties involved walk away feeling they received a good outcome and treatment.

For precast concrete manufacturers, much of the negotiation process starts in the purchasing department – where buyers are charged with getting the best possible prices on the best quality products.

"Too many companies gloss over the purchasing function," said Chris White, principal at The Corporate Performance Group, a business consultancy in Tulsa, Okla. "Very few business owners put buyers in real, managerial positions and instead look at procurement as a clerical-type position."

One way to get around this obstacle is by training buyers to multi-source when purchasing raw materials and equipment. That way your procurement team will always have leverage when working to get to the right pricing and terms on a specific order. The main obstacle in this scenario, he explained, is the fact that it's much easier to develop single-source relationships with vendors.

"Buyers get comfortable with certain suppliers and, as a result, never go out and ask a second source to provide a quote," White said. "By simply requiring buyers to multi-source, you can avoid this very simple negotiating trap and start creating a more dynamic purchasing atmosphere."

GO BEYOND PRICE

During the negotiation process, White said precasters should look beyond bottom-line costs and consider the terms and conditions of specific orders and contracts. One vendor may offer the cheapest cost, for instance, but may tack on delivery fees. Another may not be the low-cost provider, but may be located nearby and offer free delivery. By factoring in all costs, terms and conditions to the buying process, precasters can better assess total costs and pinpoint the most profitable choices.

Taking a holistic viewpoint can prove particularly useful when working with municipalities that often request extended payment terms. In such cases, White suggests turning around and requesting similar treatment from vendors. If you

12 ways

TO IMPROVE YOUR NEGOTIATION SKILLS

Precasters looking to **improve negotiation skills** can borrow a page from one of the most negotiation-intensive business fields: real estate. In its online "Negotiation Tool Kit," the National Association of REALTORS® gives these **simple tips** that agents can use to **master the art of negotiating**:

1. **Learn everything you can** about the situation, the issues and the participants.
2. **Understand** all the participants' **needs** and interests.
3. **Set reasonable goals** for what you hope to achieve during the negotiation and **rank them** by priority.
4. **Work within a range** that includes minimums, targets and maximums.
5. **Anticipate** the other parties' comments and **prepare** your responses.
6. **Remain calm**, pleasant and unflappable.
7. **Build trust** by clearly stating what your client wants and **respecting** what the other parties want.
8. Create an atmosphere of **joint problem solving** that focuses on the benefits to all parties.
9. **Remain flexible** and open to a range of options.
10. When other people speak, **listen attentively** and hear them out fully.
11. **Use sympathetic comments**, gestures and facial expressions to smooth over difficult situations.
12. Always **underpromise** and **overdeliver**.

get pushback during this process, take Graham's honest approach and tell your vendors about the cash flow difficulties your company will experience if forced to pay within the typical 30-day terms.

"When you ask for 60-day terms to match the terms on your own customer's contract, you're going beyond price and finding ways to even things out without having to ask your vendors for severe price reductions," White said.

DEVELOPING STRONG RELATIONSHIPS

In his role as CEO of Perceptive Selling Initiative Inc., in Highland Park, Ill., Jim Herst helps businesses build sales and accelerate cash flow. In that role, Herst often finds himself serving as a negotiation coach – doling out tips and strategies that clients can use to hone their negotiation techniques. For precasters, he said the first step should be to develop and maintain strong, ongoing relationships within the marketplace with customers and suppliers. This rule is especially applicable to sales representatives.

"The precast manufacturer's rep must know, be respected and be well received by his or her prospects, who should be made aware of product quality, delivery perfection, ease of relationship, and access, especially when it comes to job site help," Herst said, noting that performance reliability, when understood by the prospect, can have a bigger impact on the sale than price alone. "When you give customers the right support and service networks, you're contributing to more profitable sales."

Consider, for example, the customer who needs daily technical support on site during the course of a 2-week job. On the other side of the equation is a precaster who would benefit greatly from prompt payment – something that's not always easy to come by in the construction industry. By marrying these two needs, the precaster emerges in a win-win situation where the customer gets ongoing support in exchange for the prompt or even early payments.

"Few would argue with this arrangement and yet it's a strategy that's often overlooked during contract negotiations," Herst said.

GUARANTEE YOUR WORK

As many other industries have already learned, offering a product and/or workmanship guarantee helps put customers at ease, knowing that their purchase will be supported in the case of product failure. Precasters who use this strategy can effectively position themselves as go-to providers – even when they don't necessarily offer the lowest cost. This is an effective negotiation strategy for small-to-midsized firms that lack the buying power of their larger competitors.

"Maybe you can't offer the lowest prices on the market, but you can back up your work in a way that makes customers want to do business with you," said Herst, who recently worked with a maker of greenhouses who offered a 2-year guarantee in exchange for surety of payment. This was a new move in an industry where 1-year guarantees are the norm, Herst said. Plus, in the construction industry it's fairly well known that if something is going to go wrong it generally will happen within the first 12 months.

"This company really took on no additional, major risk by offering the 2-year guarantee," Herst said. "In exchange, it got paid very quickly and never had a need for a callback – which it expected, based on the quality of the product being offered."

GETTING TO YES

Having dealt with numerous negotiation situations over the years, Graham said precasters should explore the numerous resources available through books, trade journals and trade organizations like the National Precast Concrete Association.

"Educate yourself on the fine points of negotiating knowing that in the end, it all comes down to knowing what you want and what you're willing to compromise on to attain that goal," Graham said. **PI**

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

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HOW TO INTEGRATE INTEGRAL COLOR at Your Plant

Best practices from **concrete color experts** and **precasters**.

By Debbie Sniderman

Photo courtesy Soloman Colors

The four pigment colors offered in granular form.

Of all the adjectives that come to mind when you think of precast concrete, beautiful is probably not high on the list. However, adding color to concrete, when done correctly, can add depth, meaning and beauty to a product. Architects specify color in pieces such as exterior façades for a variety of reasons such as looks or to help a project become safer. Color can also affect the solar reflectivity, solar reflectance index, and heat effects of a piece, and some reflective pigments can help builders attain LEED points and sustainable credits for structures.

Integral color, applying color pigment throughout the concrete, is the most popular method of coloring precast structures. The coloring process involves obtaining the color pigments, adding pigments to the concrete mix, curing, setting the product in place at the job site, and cleaning or finishing. Larger pieces such as architectural panels may be cleaned by the manufacturer before installation, and smaller pieces like ornamental fills or keystones are often cleaned after they are installed.

Several precast manufacturers agreed the most important factor in coloring concrete is achieving consistency from panel to panel, batch to batch and month to month. Most of their recommendations and practices revolve around reaching this goal.

USING PIGMENTS

Determining the exact color mix depends on many factors. Precasters spend a fair amount of time working with a color lab to specify the pigment colors, how much to use, delivery and storage. Precasters most commonly use a dry powder pigment. These are the least expensive and are available in sized bags that are emptied or

added into a mixer. Powders also have an unlimited shelf life as long as they are kept dry.

Liquid pigments have been used to color concrete for more than two decades. They are a slurry made from powdered pigments suspended in a liquid and are used with automated dispensers for larger jobs. Liquid is more expensive than powders but the color develops faster in the mix, and automated dispensing increases consistency.

Granular pigments are powders that go through a dry spray process and are clumped together in small balls. Pigment granules are mainly used in concrete paver plants and are rarely used for architectural precast. Automated granular dispensers are fairly expensive, and the granules need to be broken down into powder form before the color develops, so it takes longer to mix.

Dale Keller, director of marketing at Solomon Colors Inc., recommends using dry pigments if less than 40,000 pounds of pigment will be used per year. Users approaching the 40,000 pounds-per-year volume should evaluate liquid pigments and automated dispensing to see if the costs and advantages make sense. Whereas dry pigment must be ordered for every project, only the four primary colors – yellow, light red, dark red and black – are ordered in liquid form. Then a computer-controlled system with a customized formula creates the required color. Keller said a producer would need to use 80,000-100,000 pounds of pigment per year for the granular form to be a cost-effective option.

HOW MUCH PIGMENT TO USE?

The amount of color is specified by weight and batch size. "The amount of color pigment to use is based on the weight of the cement, not the sand, or water, or any other admixtures going into the concrete," Keller explains. "To color a one-yard concrete job that has 564 pounds of Portland cement, typical loading is 2% of 564 pounds of cement. So 11.28 pounds of pigment are needed to color that yard of concrete."

Cathy Higgins is vice president of sales at Dynamic Color Solutions, another color pigment supplier for the construction industry. She suggests an industry rule of thumb of using 1-to-5%.

"Don't use less than 1% of the weight of the cement," she said. "Under that amount, it is harder to control the color, get a consistent blend or be sure the color is dispersed evenly throughout the mix. Adding more color from 1-5% increases the intensity, but don't use more than 5%."

"It's a waste of money and problems with strength and set times will be on the higher additions over 5%. More than 10% can affect the concrete's compressive strength."

How much pigment is needed also depends on the color of the cement. Typically, less pigment is needed to color white cement than grey Portland cement. Higgins said her customers who are most interested in color consistency only use white cement. They request a pigment to add to white since they are not going to use grey.

"Even though white cement is twice as expensive as grey, this makes sense after looking at the cost of inconsistency versus the cost of materials," said Higgins.

AGGREGATE COLOR ALSO MATTERS

The color of aggregates affects the final color, so a best practice is to routinely check the base color of all of the cementitious materials. Color labs will make samples and match colors of all of the materials that will be used in the final mix. Another best practice that both color suppliers recommend is to keep track of the cement and

Precast concrete manufacturer Speed Fab-Crete places colored concrete in MSE wall forms.

Photo courtesy Speed Fab-Crete

aggregates over time. Create and retain small samples of each and perform a visual color check to make sure nothing has changed. Even small color changes affect the final color. Higgins also recommends keeping small volumes of pigment samples as well.

FOLLOW CONSISTENT MIXING PROCEDURES

Producers using dry color pigment typically add bags of pigment manually into the mixer. Some bags are water soluble and pre-weighed into batch-sized bags, so one entire bag can be added into the batch without having to open it. With liquid pigment and an automated delivery system, users enter the batch size and the system computes how much pigment is needed. It weighs and pumps the pigment directly into the mixer.

The best mixing practice is to have a mixing order and follow it. Keller recommends adding aggregates to the mixer, then a little water, then add the pigment and let it disperse before adding the cement. Whatever the mixing procedure is, it should be consistent. The ingredients should always be added in the same order. If the procedure changes from batch to batch, the color will change.

"Those that work with color daily have mixing procedures based around color," he said. "For those that don't work with color often, it's important to discuss the mixing process used with the color supplier to make sure the process may not cause any trouble."

PLAN TIME FOR CURING AND CLEANING

Higgins said hardly anyone waits until concrete samples are fully dry to submit them for approval, but it's important to do so

Increte's Automated Granular Dispenser, the Color-Matic G (Granular).

Far left: Inside view of Solomon Color's Liquid Color Dispenser Container.

Above: Measuring colors at the Solomon Colors laboratory.

when using grey cement or pigments that use synthetic yellow oxides. It takes longer for grey cement to cure and its appearance changes as it does. Precast concrete is darker when it is first poured because of high amounts of moisture.

"A wait time is definitely needed to see the yellows, especially when used with overpowering grey concrete," she explains. "Yellow iron oxides aren't visible until the grey is cured."

Another best practice is to wait to clean colored concrete products. Typical precast structures are poured and pulled from a form or mold. When released, the bond breaker will leave a residue and needs to be cleaned off the piece. The longer the cement cures, the harder the concrete becomes and the less damage cleaning will do to the surface. Also, both color vendors recommend not finishing the surface of colored precast structures because most of the color variation in form finished pieces is on the surface. Higgins said removing the surface reveals a much more consistent color underneath, but it's not possible to make a form-finished piece look consistent in color on the surface because of how the product dries.

BEST PRACTICES FOR ACHIEVING CONSISTENCY

Procedural consistency is the most effective way to achieve color consistency on both large and small jobs. Olympian Precast in Redmond, Wash., is an architectural precast plant that creates exterior building façades and building components and has been coloring concrete for 80 years. Kevin Jewell, Olympian's semi-retired operations manager, estimates that they use around 10,000-20,000 pounds of color per year.

Jewell said the key to Olympian's consistency is that they manually weigh the color with precision to make sure the color-to-cement ratio is accurate. They use a gram scale to weigh out pigment and put it in a Ziploc bag for the next day.

"Pre-weighed, pre-formulated bags from the vendor that dissolve in the mix are great, but one day we may need eight yards and the next day nine yards," Jewell said. "If we used the same size bag each day, the color would be different. This way our ratio is consistent. We're coloring the cement, not the coarse aggregates or the sand."

Olympian also looks at the color of the base and never switches cement types. Jewell said he stocks enough pigment so if the supplier did make a change for some reason, he'd have enough to finish existing jobs.

On high-volume jobs, automated delivery systems increase consistency and offer many other advantages. Increte Systems, a precaster in Nothern California, completed a colored architectural precast panel project for a high-end fitness resort. Rich Nagler, West Coast Integral Color Specialist for Euclid Chemical, introduced a granular color dispensing system to create the two colors specified by the architect. Nagler set up an on-site lab, found color formulas that matched the architectural samples and married color with a high-performance concrete mix containing admixtures.

"It reduced labor costs since the colors didn't need to be weighed and added by hand," he said. "And, it saved money and storage space since fewer primary colors needed to be held in inventory instead of a large stock of pre-blended powders." **PI**

Debbie Sniderman is an engineer and CEO of VI Ventures LLC, an engineering consulting company.

Visit **precast.org/integralcolor** to read about Speed Fab-Crete's MSE wall form project.

FOR MORE INFORMATION:

Speed Fab-Crete
www.speedfabcrete.com

Solomon Colors
www.solomoncolors.com

Dynamic Color Solutions Inc.
www.dynamiccolorsolutions.com

Olympian Precast
www.olyprecast.com

Increte Systems – The Euclid Chemical Company
www.increte.com

A Minnesota precaster **rises to the top** with the right **products** and **pride** in its work.

GOOD TIMES

Story and photos by Sara Geer

CREST PRECAST INC.

A company that enjoys the challenge of creating quality precast products, on time and free of error, is one to trust.

Crest Precast Inc. has forged that reputation of trust as an NPCA certified plant with a loyal customer base across the United States. Celebrating 50 years in 2014, the company, located in La Crescent, Minn., ranks high in Google searches for storm shelters and specialty products in the Midwest and management favors its position at the top.

A BACKLOG OF PROMISE

Steve Mader, president and co-owner, said Crest Precast has seen ups and downs over the years. Yet, he is glad to say 2015 looks bright. For starters, he's never seen such a large backlog going into January.

"You go back to 2000, to 2008, at the end of the year we were done and we would look for new business," he said. "Now, it seems like business never goes away."

Competition still remains for bidding on jobs, but the recent business pie is large enough for the company to find new work all the time. "We play offensive football, not defensive" is his favorite saying when describing the company's approach for bidding. This aggressive approach has rewarded Crest Precast with a renewed excitement for the future.

Today the company is chasing after three different product divisions – sound wall, prestress, and underground and wastewater products – that continuously add challenges as the company wishes to manufacture larger products at a higher capacity.

But, it still embraces manufacturing those off-the-wall specialty precast products that people contact it for from prior positive customer referrals or random online searches.

"We have a diverse enough product line, we don't know if we want to add any more," Mader jokingly said. "We just have our niche markets where our customers keep coming back."

Crest Precast had 20 to 30 active projects in September 2014. There is no lack of work for the company even in the winter.

> “PEOPLE TRUST US NOW, EVEN WHEN THEY DON’T KNOW US, BECAUSE THEY SEE WE’RE CERTIFIED.”

– Steve Mader, *Crest Precast president and co-owner*

Crest Precast traces its roots to ice, brick and block manufacturing prior to precast concrete. Pictured is Steve Mader and his son, Deke, standing next to Mader’s great uncle’s 100-year-old ice truck.

ICE BLOCKS TO CONCRETE BLOCKS

Crest Precast traces its roots back to 1914 when Mader’s great uncle delivered ice blocks door-to-door during hot, summer days. The Maders purchased their first ice truck even before the local fire department purchased its own vehicle. The truck, now 100 years old, is still in storage at the plant.

Ice blocks turned to concrete blocks in the early ‘50s when Mader’s father took a job for a block company in town. A partnership blossomed between him and his brother-in law, Al Wieser, who worked at the same location. The two created Wie-Mar Concrete Products and later split up to found individual companies – Al’s Concrete and Crest Precast – in 1964. Both still exist in La Crescent. Steve Mader and his brother, Gary, now co-own the family business. Mader’s son, Deke and nephew, Lee, also have careers in the business, investing their time in the future growth of the company. Crest Precast now has a second manufacturing facility located in Barneveld, Wis., called Crest Concrete Products Inc.

“That original company from 1957 evolved into manufacturing full-fledged precast products and started making septic tanks and steps,” he said. “After that, it was moderate growth until the ‘70s when people started to diversify product lines with NPCA’s help by going to classes and plant tours.”

He believes it was in the company’s best interest to join NPCA. The certification program has helped to acquire more

business and to attain a comfort level knowing product quality issues are covered under regular plant inspections.

A BIG BOOST

"People trust us now, even when they don't know us, because they see we're certified," he said. "In fact, we can't get DOT work without being certified now. NPCA has come a long way where most of the states in our area now adopt its standards.

"If you're certified, you bid the work. If not, you can't even throw a number out there."

Not only has NPCA helped Crest Precast improve over the years, it also helped get its start on the Internet. Twenty years ago, Mader visited The Precast Show where Tony Shanks, president of Jensen Precast, introduced him to the Web. The discussion started about the search list that appeared when "grease interceptors" was typed in at the time.

"The only items that came up about grease interceptors were the ones made for under commercial sinks," he said. "I was like, 'Wow!' He couldn't find any precast ones. So, when I went back home, I teamed with our local newspaper to develop a Web page for us."

He spent weeks writing categories and descriptions for each individual product line and, to this day, those write-ups still appear in top Google searches. In fact, the company now depends on those searches as it receives 20% of its sales from

Above: Crest Precast's foundation product, the residential septic system.

Left: A production team member guides a 15,000-gallon tank through the plant to prepare for shipping. The largest tank the company produced was 40,000 gallons.

> “WE’RE REALLY EXCITED THAT WE’RE A LEADER IN MANUFACTURING TORNADO SHELTERS.”
>
> – **Steve Mader,** *Crest Precast president and co-owner*

Steve and Gary Mader, co-owners of Crest Precast in La Crescent, Minn.

the Internet. Never in his life did he believe he could sell precast on the Internet.

Since the company now sells specialty precast items made to order for customers across the U.S., management makes an effort to keep the website fresh with up-to-date product information. The comments received from visitors still amaze Mader every day.

“At first I was hesitant to answer each comment, yet our Web person told me to. ‘Yes, of course, respond back to everyone,’” he said. “The other day I asked what a person was looking for and out of the blue I got a new request to make a 40-person storm shelter. It’s all because they find us on the Web.”

The Web also helps the company schedule products and coordinate delivery schedules using Google Docs. Multiple personnel can access information at the same time in different locations.

STORM SHELTER LEADERS

One popular item sold online is an above-ground storm shelter. The company got into the business three years ago after noticing manufacturing competition was slim in the Midwest.

Mader said any precast company could sell storm shelters with two key components in place – the marketing to sell the product and the engineering team to make certain the final product can withstand the force of an EF5 tornado. Engineering is important since it helps determine if a certain size building won’t overturn or disintegrate when faced with 250-mile-per-hour winds.

The company has seen an increased need for tornado shelters over the years and manufactures both residential and commercial shelters. The 8-person capacity residential units look similar to garden sheds and are seamless except for the triple-locked door. It also features a small escape hatch should a tree or car become lodged up against it during a storm. The door swings in, making it easier to escape into when high winds approach.

The demand for commercial storm shelters has also increased. Crest Precast manufactures units large enough to house 250 people. In 2014, the company built The GSI Group LLC, a grain storage manufacturer, three 250-person storm shelters. In addition, BASF Corp. ordered its second and Caterpillar ordered its 26th. Large corporations are requesting storm shelters to protect employees while at work.

“We’re really excited that we’re a leader in manufacturing tornado shelters,” he said. “We really think by being first, we’re going to get future business.”

Other niche precast product markets the company is involved with include manufacturing bathrooms for state parks and large tanks for ARC, a Minneapolis-based aquatic recreation supplier. The demand for installing large tanks underneath public splash pads and kiddie pools is to avoid massive amounts of chlorinated water reaching city sewers. Crest Precast partners with ARC by manufacturing the tanks and providing shipping to the final destination. Crest Precast also manufactures tanks and vaults for a Wisconsin-based designer for zero-depth pools to conserve water as people enter and exit the pool.

“It’s a really neat market for our large tanks and they are big tanks – 8,000- to 10,000-gallon tanks,” he said. “Some of these projects use multiple tanks to handle surge flows.”

A SOUND WALL BUSINESS

It's not easy to get started in the sound wall industry in Minnesota and Wisconsin, as local DOTs require strict product specifications such as barriers should show no signs of deterioration due to harsh winter weather conditions and freeze/thaw cycles.

Mader said Crest Precast struggled for years to get its sound walls approved and found no easy solution to sell the product. However, a chance encounter with JBM Solutions changed that and now the future for the product line looks very promising.

Five years ago, the company became a licensee of JBM Solutions with rights to produce JBM75®, a wood fiber concrete consisting of mineralized wood chips, cement and water. The results were positive as JBM75® is not only extremely durable, it absorbs 85% of highway noise. WisDOT had previously approved the dual-sided composite sound walls many years ago and started erecting them all over the state. A recent project Crest Precast just completed included manufacturing 1,400 panels for the Highway 14 West Belt Line project in Madison.

Word of the sound wall success must have traveled across state lines as the company just received approval from Minnesota DOT to erect the walls there as well. The state is considering the dual-sided sound walls since current wood plank walls are deteriorating and letting in too much light and sound through the wall.

Crest Precast performs daily in-house testing to ensure the quality of the composite walls and recently created its own video showing a delamination test that showed the complete bond between wood and concrete sections. Each DOT project also requires a sound transmission loss, noise reduction, salt scale and freeze/thaw test.

Above: Crest Precast's sound walls along Highway 14 in Madison.

Left: Each dual-sided composite sound wall is capable of absorbing 85% of highway noise.

Crest Precast is adding a 12,000-square-foot addition to one of its three plants. Construction on the addition started September 2014.

CELEBRATING 50 YEARS

To celebrate 50 successful years in the precast concrete business, the company is building a large addition to one of its three plants in La Crescent. Mader said the sound wall business has taken on a new depth and that more capacity is needed to keep up with demand.

"We're excited about being on Minnesota's list, but we honestly can't handle much more work," he said. "That's why we're adding 12,000 square feet of production area. I've never seen the future for this product look so bright."

The company was hesitant at first to begin planning, designing and engineering for the new addition after seeing how much it would cost to build. However, as the phone kept ringing with new sound wall jobs and other leads, the decision to build was clear. Equipment such as a batch plant and cranes have already been purchased in preparation for the new building. All that's needed is for the steel workers to arrive to put the building together, he said.

The 50-year celebration presented a perfect time for the whole company to look back and reflect on how much business has grown. Management even worked on big plans for turning over the business to the next generation and bought new equipment to boost confidence.

Mader said it's a neat feeling knowing that a backlog allows the company to hire more people and not slow down staff hours during winter months.

"I think we have a good thing going on now," he said. "It's always been good, but now, it's even better." **PI**

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

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ANDO

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It's warm. If you're coming from cooler climates, you'll be ready to enjoy temperatures that average in the mid-70s at the beginning of March.

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THE PRECAST SHOW

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For the meeting and special event schedules of NPCA and ACPA, please visit ThePrecastShow.org.

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2:00 p.m. – 7:00 p.m. **The Precast Show Welcome Reception** *(includes hors d'oeuvres and host bar from 4:00 p.m -7:00 p.m. – open to all attendees)*

FRIDAY, MARCH 6

7:30 a.m. – Noon Precast Show Education

Noon – 6:00 p.m. **The Precast Show**

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7:45 a.m. – 11:00 a.m. Precast Show Education

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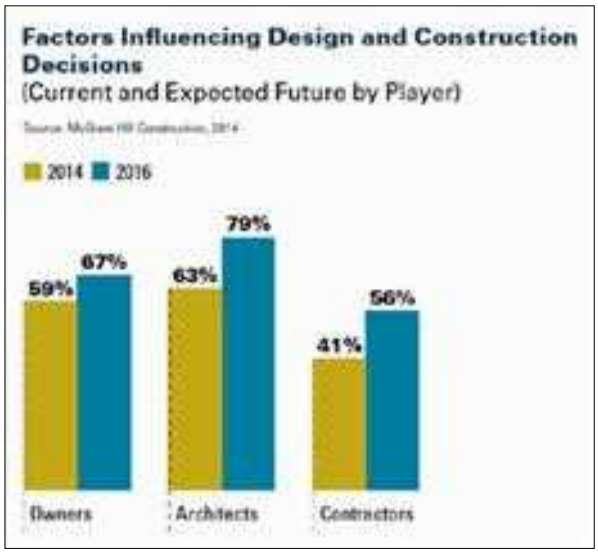
How Healthy IS YOUR PRECAST?

By Claude Goguen, P.E., LEED AP

As the green building movement continues its steadfast march, developers and specifiers want to know more about the construction materials they choose. We've written about Environmental Product Declarations, a new tool that enables specifiers to quantify the environmental impacts of different materials in order to make an informed decision on what to use. EPDs provide an environmental footprint but do not factor in health.

Perhaps you've heard of sick building syndrome. The term describes situations in which building occupants experience health and comfort effects that appear to be linked to their physical surroundings. Lack of fresh air is one of the major causes and is especially common in newer, energy-efficient buildings where windows have been sealed shut. Another cause of SBS is poor air quality from emissions of volatile organic compounds by sources such as carpeting, adhesives, paints, manufactured wood products and other building products. Since most people spend 75-to-90% of their time indoors, the interior air quality can have a significant impact on their health. This puts a spotlight on indoor environmental quality.



According to a McGraw Hill report titled "The Drive Toward Healthier Buildings," the health and comfort of building occupants is expected to have a higher impact on building design and construction decisions in the next two years.

A few years ago, a group of green building industry leaders came together to develop a tool to fill the need for health information, thus the Health Product Declaration was created. An HPD is a report of the materials or ingredient contents of a building product and its associated health effects. The HPD provides an inventory of contents and associated health hazards, but stops short of assessing risk with the actual use of the product.

The HPD Version 1.0 was introduced at Greenbuild 2012, and the non-profit Health Product Declaration Collaborative was launched as a customer-led membership organization to develop the HPD.[1] LEED v4 includes the HPD as an acceptable documentation pathway for the new Materials and Resources credit: Building product disclosure and optimization-materials ingredients. So how does it

Concentrations and Emission Rates of VOCs for Common Materials

Building Material	VOC Concentration, mg/m^3	VOC Emission Rate, mg/m^2h
Concrete with water-based form-release agent	0.018	0.003
Acrylic latex paint	2.00	0.43
Epoxy, clear floor varnish	5.45	1.3
Felt carpet	1.95	0.080
Gypsum board	N/A	0.026
Linoleum	5.19	0.22
Particle board	N/A	2.0
Plastic silicone sealer	77.9	26.0
Plywood paneling	N/A	1.0
Putty strips	1.38	0.34
PVA glue cement	57.8	10.2
Sheet vinyl flooring	54.8	2.3
Silicone caulk	N/A	<2.0
Water-based EVA wall and floor glue	1,410.0	271.0

Table 1

work? It's actually easier compared to other sustainability-related documentation.

After going to the Health Product Declaration Collaborative website and creating an account, you are asked to add the intentional contents of the structure. For example, if I start to type in cement, it will autofill the entry with Portland cement. Then you fill in additional information detailing the percentage of final weight, recycled content and role of this material. Based on this and other data inputs, the tool creates an HPD that can be handed to specifiers as required.

PRECAST = INDOOR AIR QUALITY

Precast concrete contains little-to-negligible levels of VOCs. That level can be controlled by careful selection of low-emitting form releases, curing compounds, damp proofing materials and sealants. Table 1 contains VOC concentrations and emission rates for concrete and other common materials.

Precast concrete wall panels that are 3 inches or more thick act as an air barrier and limit moisture intrusion thus contributing to indoor air quality. Due to its thermal mass, concrete also aids in controlling indoor temperature fluctuations which is a large factor in occupant comfort.

The good news is precast concrete buildings inherently help provide a healthy environment for occupants, yet manufacturers must be prepared to provide documentation to support this claim. The amount of requests for HPDs is growing. In fact, an NPCA member was asked for an HPD earlier this year. Don't be caught off guard. Be ready when that request comes across your desk. **PI**

Claude Goguen, P.E., LEED AP, is NPCA's director of Sustainability and Technical Education.

RESOURCES:

Health Product Declaration Collaborative, www.hpdcollaborative.org

EPA "Indoor Air Facts No.4, Sick Building Syndrome," 1991, www.epa.gov/iaq/pdfs/sick_building_factsheet.pdf

PCA Concrete Thinking – Indoor Air Quality – www.concretethinker.com/solutions/Indoor-Air-Quality.aspx

McGraw Hill Construction – The Drive Toward Healthier Buildings, 2014

[1] www.hpdcollaborative.org

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FOCUSED MARKETING CAMPAIGN PAYS OFF

By Kirk Stelsel

Have you ever wondered how trade associations started? Trade associations in North America have a rich history that can be traced back to the late 1700s and the Chamber of Commerce of the State of New York – which, amazingly, still exists today. Historically, they performed many functions and have evolved as the needs and demands of members have shifted.

Some of the traditional roles of trade associations such as establishing common ground among peers and networking are still vital. Building awareness of member products and their benefits also remains a long-standing goal, and is particularly important in today's society of constant interpersonal connection and 24/7 information dissemination.

NPCA has approached marketing in many different ways over the past 49 years. Most recently, a task force was created in 2012 to discuss specific ways to help NPCA and members tell the story of precast concrete to a wider audience. The task force hired a national marketing firm to conduct research on the precast concrete industry and to recommend a marketing plan. The research uncovered the need to better explain the benefits of precast and advances in products.

With the theme "Take a New Look at Precast" as the defining message, the campaign started with the distribution of a free Marketing Toolkit to members. The Toolkit, which is still being distributed, includes resources that enable precasters to create custom messages in a variety of different formats.

Today, the Toolkit is in the hands of nearly 250 members and a new, two-year campaign is at its halfway point. The current task force includes Chairman Greg Stratis of Shea Concrete in Amesbury, Mass., Chris Hindley of A.L. Patterson in Fairless Hills, Pa., Greg Roache of Gainey's Concrete Products in Holden, La., Jen Burkhart of Arrow Concrete in Granby, Conn., and Mike Hoffman of Lindsay Concrete Companies in Canal Fulton, Ohio.

The task force developed a national marketing plan last year to further the message using traditional and new media. The campaign positions precast as a versatile, modern, high-tech material to make it "top-of-mind" in the specifying community.

The national messages target engineers, DOTs, architects and other specifiers. The campaign includes a limited print component and a heavy focus on electronic advertising. Placements in the media were selected based on audience to effectively reach individuals that are most likely to purchase precast products manufactured by NPCA members. The outlets chosen include Roads & Bridges, Water & Wastes Digest, Storm Water Solutions, Architect, Public Works and Civil + Structural Engineer. Pay-per-click advertising on Google AdWords was chosen to enable NPCA and the marketing message to appear prominently in key searches. NPCA is also advertising with the American Society of Civil Engineers and the Canadian Society of Civil Engineers and has increased distribution of Precast Solutions, the marketing publication of NPCA, by 10,000 recipients.

In 2014, the two-year campaign reached more than

NPCA's "Take a New Look at Precast" Marketing Campaign Toolkit is now in the hands of 250 members. The overall campaign has reached more than six million screen impressions and has garnered over 25,000 ad clicks to the **precast.org** website.

MEET THE **MARKETING TASK FORCE** PANEL

GREG STRATIS
Shea Concrete Products

CHRIS HINDLEY
A.L. Patterson

GREG ROACHE
Gainey's Concrete Products

JEN BURKHART
Arrow Concrete

MIKE HOFFMAN
Lindsay Concrete Companies

six million impressions. What does that mean? It simply means the ad appeared on the screen of an end user. Even more importantly, 25,000-plus clicks on those ads led back to the precast.org website. If you're doing the math, that's a less than 1% click rate, but in the world of electronic advertising that is respectable and every click is a person who has made a conscious choice to learn more about precast concrete. Online, that is the start of the conversion process that ends with an action such as signing up for a newsletter or buying a product. These numbers far exceed the goals of 100,000 impressions and 10,000 clicks set for the entire campaign.

The task force reviewed a number of options to add to the campaign in 2015 including adding to the budget allocated for the Google AdWords campaign due to its cost effectiveness and success; investing in re-marketing, which targets those who have visited precast.org; conducting a survey of Precast Solutions readers to find out how to enhance the magazine; and an enrichment of the campaign's landing page on precast.org.

Marketing is a tough business to get right and is anything but a refined or exact science. Solid research and analyzing statistics help but marketing can be a bit of a quixotic effort in an irrational world. Consumers make decisions for a wide range of reasons that shift constantly. But, the only thing more frustrating than trying to figure out marketing is wondering why the competition is winning and then realizing it's because they're marketing and you're not.

The driving force of the entire program is the understanding that competing materials are out there marketing and that the precast industry needs to better equip itself with plans and tools to overcome those challenges. If you have questions about the campaign, please feel free to contact task force chair Greg Stratis at gregs@sheaconcrete.com or staff liaison Kirk Stelsel at kstelsel@precast.org. **PI**

Kirk Stelsel is NPCA's director of Communication and Marketing.

PRECAST FORECAST 2015

Momentum Continues

NPCA Staff Report

NPCA file photo

"While there are some potential pitfalls and ongoing uncertainty, the mood of the **industry is optimistic** heading into 2015 and beyond."

– Ty Gable, *NPCA President*

Despite a flat public works sector and questions about federal funding for highway projects, the precast concrete industry should continue its upward momentum in 2015 with a growth of 6%, bringing industry sales to slightly more than $18 billion in North America. It would be a third-straight year of solid growth, after increases of 5.2% in 2013 and an expected 5% increase in 2014, according to the National Precast Concrete Association's Benchmarking Report.

"While there are some potential pitfalls and ongoing uncertainty, the mood of the industry is optimistic heading into 2015 and beyond," said Ty Gable, NPCA president. "We won't be approaching the peak year of 2007 any time soon, but we are back on solid ground and headed in the right direction."

The precast sector started its decline in 2008, hitting bottom in 2011 at about 45% down from the peak. Recovery started slowly but has quickened in the past 18 months, even though the housing sector, commercial building and public works have been unsteady.

"The diversity of precast products helps and there are some emerging areas of growth such as precast pavement systems for highway repair that keep us moving forward," Gable said. "If we could get a long-term highway bill and some movement on rebuilding the failing infrastructure, we'd be in full recovery mode."

OPTIMISTIC OUTLOOK

The forecast for the construction industry as a whole is even more optimistic after several years of tepid recovery. Robert Murray, chief economist and vice president of Dodge Data & Analytics, forecasts a 9% increase in construction starts in the Dodge Construction 2015 Outlook report.

"I think we're moving beyond a hesitant, gradual recovery into something more broad based," Murray

said at the McGraw Hill Outlook Executive Conference last November in Washington, D.C. "We are in a cyclical upturn reminiscent of the early 1990s."

That upturn was the leading edge of an unprecidented 20-year expansion in construction. And while Murray said he doesn't think this expansion will last 20 years, "the broad picture is of a market that is strengthening," he said. "The cyclical upturn that has taken longer to get going is continuing to unfold."

The American Institute of Architects Consensus Construction Forecast echoes that analysis. The AIA forecast averaged seven industry economic reports to arrive at an 8.1% increase for 2015 in total nonresidential construction. AIA's Architecture Billing Index, a leading indicator of future construction activity, has also been trending upward to its highest levels since before the last downturn, said Kermit Baker, AIA chief economist, during a webcast of economists sponsored by Construction Market Data (formerly known as Reed Construction Data). The billing index has topped 55 in recent months. Any score above 50 indicates an increase in design activity. One of the reasons for the increase, Baker said, is that "firms are reporting that stalled projects during the downturn are coming back to life and they're seeing work come out of the projects that were previously on hold. And secondly, a lot of new design projects are coming in, which will generate future billings in the months to come."

Ken Simonson, chief economist for the Associated General Contractors of America, agrees with NPCA president Gable that funding for highway projects will likely remain flat. Simonson believes the lack of appetite to fund highway and street construction in Congress will not change.

"It's going to be very hard for Congress to agree next year on extending the highway aid bill," Simonson said. "It's been passed through the end of May but there are a lot of members of Congress and in the Republican majority who would like to see the federal program cut back and hardly any willing to vote for either general fund transfers, which we've had the last several years, or new taxes. And yet without those, the states won't be able to go ahead with nearly as much new construction as we've been seeing."

So while the overall outlook for the construction industry is mostly positive, the anticipated funding level for public works projects will likely create a drag on the overall growth in the precast concrete industry in 2015 and 2016. **PI**

FORECAST BY PRECAST SEGMENT

NPCA's Precast Forecast 2015 is segmented by product line and includes five major sectors of the precast concrete industry and an "other" category that encompasses a wide variety of products. These figures are based on the annual Precast Industry Benchmarking Report published by NPCA. Compiled by Industry Insights, an independent manufacturing research firm, the NPCA Benchmarking Report is based on a survey of precast concrete manufacturers in North America.

Building and Landscaping Products
$3.65 billion
Includes architectural wall panels, architectural building components, prestressed structural building elements, basement/wall foundation panels, steps and basement entries, burial vaults and other related landscaping and building products.

Sanitary and Stormwater Products
$4.7 billion
Includes manholes, concrete pipe, stormwater management and retention structures, curb inlets, catch basins and other related products.

Transportation Products
$3.2 billion
Includes box culverts, 3-sided structures, highway and traffic barrier, retaining wall systems, sound wall/barrier, prestressed bridge elements, precast concrete pavement systems and other related products.

Utility and Industrial Products
$4.15 billion
Includes utility vaults, utility buildings and other related products.

Water and Onsite Wastewater Products
$1.4 billion
Includes septic tanks, grease interceptors and other related products.

All Other Precast Concrete Products:
$1.1 billion

Total Precast Sales Volume:
$18.2 billion

Total Resale Items:
$2.6 billion

Total Volume Including Resale Items:
$20.8 billion

MAKING Connections

NPCA Foundation Board is exploring ways to **increase member involvement** in vocational and higher learning schools in 2015.

By Sara Geer

Courtesy of New Jersey Institute of Technology

Sika Corp. finds great value in working closely with the CIM program. Shown here, Director of Recruiting for Sika Corp., Karin Franz, interviews students for internships and full time positions at a recent Patrons meeting.

Many children aspire to become doctors, police officers or firefighters. Fewer kids wake up one day and say, "I want to work in concrete."

The NPCA Foundation Board of Directors is exploring ways to connect producer and associate members with educational programs that will encourage students to dream of career possibilities offered by the concrete industry.

Marti Harrell, NPCAF's managing director, said the board wants to continue focusing on recruiting quality people into the industry and educating students about precast in 2015.

"When we make a presentation to a university engineering class we may only get a few engineering students to ultimately join the precast industry, but if we make them aware of precast in their roles as designers, engineers or sepcifiers, that's equal to a win for us," she said. "That's why we are starting to see the benefit of members who have built relationships with local schools and professors."

Engineering students learn a lot about concrete as a material, but courses specifically about precast concrete are rare. Related programs and courses can be created if universities are approached, and students and precasters can benefit from the partnership, said Harrell.

REWARDING RELATIONSHIPS

John Ohmes, CEO of Champion Precast in Troy, Mo., said working with the local technology school, Lincoln-Pike

Technical Center, has helped the company hire valuable employees who possess basic welding, diesel mechanic, pneumatic or automotive skills. The partnership has lasted for 10 years and every May, close to graduation, the company tells the school how many positions it has open for students to apply.


John Ohmes

"The school regularly sends quality applicants," Ohmes said. "They have the basic skills, plus some skillsets that are directly related to our business."

Ohmes recommends that precast plants start working with schools since other similar companies are also struggling to find good employees. The partnership created with Lincoln-Pike has been a good luck charm for the company, he said, adding that students hired possess a higher success rate and a good work ethic.

If working with a vocational school is not an option, there are other ways for precast companies to get involved with schools.

Paul Heidt, general manager of Garden State Precast Inc. in Wall Township, N.J., participates every year in the Construction Industry Advancement career fair sponsored by the Utility and Transportation Contractors Association of New Jersey. He helps college sophomore and junior construction students gain valuable interview skills for landing an internship and hires interns through the program at the same time.

"This is also our time to sell ourselves to people who are possibly going into contractor offices," Heidt said. "We sell ourselves not only to the students, but to the other companies that are presenting at the career fair. Then they know who we are and a little bit about what we do."


Paul Heidt

Heidt also volunteers to teach a night class about precast at the New Jersey Institute of Technology as part of its Concrete Industry Management program. He focuses the course on the general idea of what precast is, how the process of ordering and deploying products works and what a career in precast can offer the students.

The benefit of continuing to teach the precast course year after year is that Heidt continues to see his former students in various jobs in the construction industry. They may show up at the engineering office reviewing his company's submittals or become a project manager at a contractor's office. He gets a thrill seeing the penetration his course has created for the industry.

"It allows the student to pick up a phone and call someone instead of sending back the submittal with an 'I don't know' answer," Heidt said. "They have enough knowledge of what precast is and understand how to start a relationship, network and communicate what exactly is needed."

PARTICIPATION NEEDED

The ultimate goal for NPCA membership involvement is to influence the next generation of students to consider precast concrete careers, yet more participation is needed.

This is the main message Jamie Gentoso, vice president of marketing and key accounts at Sika Corp., wanted to emphasize. Teaching Concrete 101 at NJIT, she sees how the companies love to hire future employees from the CIM program and don't mind giving monetary donations to improve and enhance the program to draw the best and brightest students. However, a company's time is needed just as much as money.

Gentoso said time could include having the owner or plant manager give a presentation or lecture, inviting students to visit the plant or being a student mentor.


Jamie Gentoso

Teaching students about concrete gives her a fresh look at the industry. Gentoso sees what students are going through and can help shape what they are learning. This is great for the industry as a whole since what's missing from most engineering programs is an in depth understanding of concrete and all of its possibilities, she said.

"Many times engineers utilize a standard set of plans and specifications for concrete products," she said. "But I think the opportunity for students to understand the manufacturing process and materials even before they get out of school is very important.

"When they join the workforce armed with this knowledge they are more likely to think precast first and second, think outside the box and be more innovative in design."

For Megan Stenftenagel, an architectural student at Ball State

> "I think the opportunity for students to understand the manufacturing process and materials even before they get out of school is very important."
>
> – Jamie Gentoso, *Sika Corp.*

PLANT TOURS OPEN DOORS TO IDEAS

Students from Virginia visited NPCA member company Permatile Concrete Products Co. in Bristol, Va.

Students visited Permatile to learn how to design and build a two-story wine storage building. Each student also learned more about the advantages of using precast products on such a project.

Photo provided by Permatile Concrete Product Co.

University in Muncie, Ind., a plant tour taken at ATMI Indy LLC helped her understand how precast can be integrated into the design process. Knowing precast's strength, structure and assembly time, she is able to design durable and even artful buildings, she said.

Stenftenagel saw how precast is economically used for wall panels, floor panels and various other building parts that are produced off site.

"In my studio projects, I can now imagine how precast walls are made in the plant rather than thinking they just appeared in a sketchbook," she said.

John Gress, business development manager at ATMI Indy LLC, said the partnership made with BSU opens lines of communication and possibilities for building materials architecture students never would think of using. Students are starting to see the value precast offers to the marketplace. Also, it sets future work in motion for the company. He envisions this first plant tour organized with the school becoming an annual tradition and a long-lasting partnership.

"If they don't know about precast, they won't draw it," he said. "And if they don't know what the capabilities are, it's never going to cross their minds. So when opening your plant, you also open the door that allows that to all happen."

PICK UP THE PHONE AND CALL

These examples of members working with schools and creating relationships with students can easily be achieved by making a simple phone call.

Darryl Cloud, president of the NPCA Foundation and national sales manager for Concrete Sealants Inc. in Tipp City, Ohio, said members can contact a local school and talk with the outreach representative or career counselor in charge to find out what types of courses are available.


Darryl Cloud

The NPCAF board realizes that the partnership is a two-way street – schools need students to join these programs and individuals need to be aware that there are high-paying technical careers available at large corporations and small family businesses. Therefore, next steps for the board include bringing highly qualified academicians into future discussions to help focus efforts to promote concrete technology education programs and create more links between schools and precasters.

Cloud said Luke Snell, P.E. at Western Technologies, has agreed to be one of the professionals joining the board during Committee Week 2015 in Indianapolis. His comments, along with others involved, will offer direction for achieving this goal.

"We've had business professionals come and talk with us, but we now need people with tremendous academia knowledge to tell us how to think and what to do," Cloud said. "We're looking forward to hearing what they can offer us and how we can shape these programs to be even more impactful for students and our membership going forward." **PI**

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

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NPCA PLANT CERTIFICATION:
What's New

Clarification on changes in the 12th edition of the **NPCA Quality Control Manual.**

NPCA Staff Report

The NPCA Quality Assurance Committee is dedicated to a continuous improvement plan for the certification program and makes timely and necessary changes each year to answer the never-ending call for higher quality from owners and specifiers across the country. In 2015, we will again raise the bar on quality and move our industry forward.

The latest edition will include many editorial changes and important updates, but perhaps the most significant is the new grading scheme found in the Standardized Grading Tables for all critical sections of the manual. Changes include updates to how critical sections are weighed. According to NPCA Quality Assurance Chairman Richard Alvarado, who is assistant general manager and quality control director for Western Precast Concrete Inc. in El Paso, Texas, updates need to be incorporated into the manual each year to fulfill requirements for continuous improvement and to recognize requests received from DOTs.

"The audit and certification programs are always under review by sources such as the QA Committee, DOTs that require certification, regional specifying agencies and member plants that participate in the programs," he said. "The system of continuous monitoring directs the evolution of the certification program. It is a living document that changes to meet the ever-changing requirements of the industry."


NPCA file photo

Committee member Andy Wieser added that DOTs enjoy seeing a program that challenges precast concrete plants to strive for improvement.

"We believe the new grading schedule will accomplish this," he said. "To verify to the DOTs that a certified plant will be using approved materials, we will be requiring a third-party testing company to obtain credentials."

The benefits for maintaining a strong quality control program are that the requirements stand up to the most stringent specification and evolving technologies and practices.

"There will be very little change in the inspection process," Wieser said. "The inspectors will just be using different grading percentages in the standardized grading tables for critical sections. The scores will be affected very little for some plants and substantially for others.

"All the plants have to do is follow the requirements of the NPCA QC Manual and they will have a positive inspection process."

"I do encourage anyone who isn't clear to contact NPCA with questions," Alvarado added.

Major updates to the NPCA Quality Control Manual for Precast Concrete Plants that will be incorporated into the 12th Edition are shown at right in *italics*. **PI**

5.1.1 Raw Material & Test Records

Records of incoming raw materials *and certifications, credentials of third party personnel and calibration records for third party and/or plant owned test equipment* shall be kept by the precast plant for a minimum of three (3) years. These records shall at a minimum include the following:

a. Cement mill certificates
b. Aggregate reports
c. Mix water potability or suitability tests
d. Chemical admixture and supplementary cementitious material certifications
e. *Reinforcement mill certifications*
f. Joint sealant, gasket and connector supplier reports
g. Accessories supplier reports
h. Batching records or ready-mixed concrete delivery tickets
i. Buy America Provisions as required by specific project
j. Certificate of compliance for all lifting inserts
k. *Laboratory Accreditation or ACI certificates and test equipment calibration records of any third party firm or testing agency.*

5.1.1.1 Independent Third Party Testing Laboratory

Third party laboratories may be accredited to ISO/IEC 17025, or the applicable AASHTO laboratory accreditation.

Plants that employ a third party laboratory for testing and/or calibration services shall, at a minimum, obtain the credentials of personnel performing the testing and the calibration records for the equipment used.

Technicians from a third party laboratory performing plastic concrete testing at the precast facility shall provide a current ACI Field Technician Level I certification. Technicians from a third party laboratory performing compressive strength testing and/or aggregate testing shall provide an appropriate and current ACI certification for the testing being performed along with a current equipment calibration certificate.

Plants subject to owner specific certification and testing requirements shall have appropriate documentation on file for auditor review.

5.2.2 Moisture Content

5.2.2.1 Conventional and/or Dry-Cast Concrete

For conventional and/or dry-cast concrete, aggregate surface moisture content (i.e., water in excess of that absorbed by the aggregates) shall be determined at least once per day in accordance with ASTM C70, "Standard Test Method for Surface Moisture in Fine Aggregate," by alternate methods such as moisture meters or probes, or by ASTM C566, "Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying." Drying aggregate using a microwave or hot plate shall be permitted in addition to using an oven.

For conventional and/or dry-cast processes when aggregate bins fitted with moisture probes or meters, aggregate surface moisture content shall be determined a minimum of once per week in order to validate moisture probe calibration.

5.2.2.2 Self-Consolidating Concrete

For SCC processes when *aggregate bins are fitted* with moisture probes or meters used with automatic mixing water adjustment systems, the aggregate surface moisture content shall be determined *a minimum of once per week in order to validate moisture probe or meter calibration*. Moisture tests shall be performed in accordance with ASTM C70, "Standard Test Method for Surface Moisture in Fine Aggregate," or by ASTM C566, "Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying." Drying aggregate using a microwave or hot plate shall be permitted in addition to using an oven. Samples for moisture tests shall be taken as close as possible to the area where the probe is located.

For SCC *processes* made without moisture probes or meters and automatic mixing water adjustment systems, the aggregate surface moisture content shall be determined at least once a day prior to making the first SCC batch and then once every four hours of elapsed time after the first batch, while SCC is being mixed. Moisture tests shall be performed in accordance with ASTM C70, "Standard Test Method for Surface Moisture in Fine Aggregate," or by ASTM C566, "Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying." Drying aggregate using a microwave or hot plate shall be permitted in addition to using an oven. In addition, Slump Flow and VSI tests shall be performed in accordance with section 5.3.1.2 for every three batches of SCC produced (This is to ensure that moisture fluctuations of aggregates are accounted for correctly). In lieu of this additional Slump Flow and VSI testing, moisture tests may be performed as specified in this section every three batches.

More information on plant certification can be found at precast.org/certify.

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

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

BESSER PIPE & PRECAST SALES TEAM PROGRESSES


Russ Lane


Dennis Pelleymounter


Tom Howell

Russ Lane and Dennis "Pelley" Pelleymounter retired from Besser in the fall of this year. Throughout their careers they cultivated strong business relationships but more importantly formed lasting friendships with industry members. Producers from coast to coast benefited from their hands-on approach to customer service.

As these two follow new pursuits, Tom Howell has rejoined the Besser Pipe & Precast Sales Team. Tom jumped back into his role as sales representative for pipe and precast in October. His previous role was focused on the sales and service of precast forms. He gained a tremendous amount of knowledge about the industry and our product line during his years with the company.

Tom enjoys assisting customers in their plants, learning firsthand about their operation and formulating ideas to help them improve production by streamlining operations with new techniques and/or forms.

Producers can contact Tom at (989) 354-4111 ext. 4113 and thowell@besser.com.

NEW ENGINEERING PROGRESSIVE VISITS FADDIS CONCRETE PRODUCTS

Fifteen members of New Engineering Progressive, a national organization of precasters in Japan, visited Faddis Concrete Products King George, Va. plant in late October.

The group was greeted by Faddis President and COO Bob Hess and several staff members.

After enjoying refreshments and the exchange of gifts, NEP presented about their organization and product lines. The concept of NEP activity was described by three key phrases, pursuit of high quality, improvement of the environment and construction cost reduction.


Japan's New Engineering Progressive visits Faddis Concrete Products

HAWKEYEPEDERSHAAB AND NEW HAMPTON METAL FAB TO FORM ALLIANCE

HawkeyePedershaab, manufacturer of dry-cast pipe and manhole machinery, has forged an alliance with New Hampton Metal Fab, a North American wet-cast equipment provider, to develop new wet-cast forming technologies. In addition to HawkeyePedershaab serving as the international sales arm for New Hampton Metal Fab's products.

New Hampton Metal Fab was founded in 1945 and today is owned and operated by the Wegner Family. HawkeyePedershaab, dual headquartered in Iowa and Bronderslev, Denmark was founded in 1915 and is owned by Kohlberg & Co.

NMHG ANNOUNCES PROMOTION OF CHUCK PASCARELLI TO PRESIDENT, AMERICAS

NACCO Materials Handling Group announced that Chuck Pascarelli, president of Sales and Marketing, Americas, has been promoted to president, effective January 2015.

In this new position, Pascarelli will oversee all sales, marketing, manufacturing, finance and pricing functions for the Hyster® and Yale® product lines, as well as their extensive distribution networks across the Americas.

Pascarelli joined NMHG in 2013, and has built a strong management team in the sales and marketing area. In his expanded role, he will be charged with growing the customer base of Hyster and Yale, while further improving the operational and financial performance of the Americas division.

TY GABLE TO LEAD NPCA THROUGH 2019

Ty Gable

The National Precast Concrete Association Board of Directors has extended President Ty Gable's contract through 2019. Gable, a certified association executive and a fellow with the American Society of Association Executives, has led NPCA for the last 20 years.

Since Gable joined NPCA in 1994, the association's membership has more than doubled and its annual trade show has grown into the largest event for the manufactured concrete products industry in North America. NPCA's plant certification program has evolved from a handful of plants to more than 370 facilities. NPCA certification is now recognized in 40 states and is accredited by the American National Standards Institute. Other NPCA innovations in recent years include the launch of Precast University with a curriculum for precast production workers that concludes with a Master Precaster designation, online education and a new industry marketing program.

Michael Tidwell, chairman of the NPCA Board of Directors, announced the contract renewal after the association's Dec. 17 board meeting.

"Over the past 20 years, NPCA has emerged as a premier industry association under the leadership of Mr. Gable and we look forward to his continued involvement during the coming years," Tidwell said. "We thank him for his prior contributions and anticipate that he will play a central role in NPCA's continued growth and success."

Gable said he is looking forward to the next five years. "This is an exciting time to be in the precast concrete industry," Gable said. "Concrete is the best building material in the world, and the growing emphasis on modularity, sustainable construction and new technology aligns with many of the benefits of precast. This is a dynamic sector of the concrete industry and we are well-positioned for the future." **PI**

CALENDAR OF Events

March 5-7, 2015
THE PRECAST SHOW 2015
Orange County Convention Center
Orlando, Florida

October 21-24, 2015
NPCA 50TH ANNUAL CONVENTION
Minneapolis Marriott City Center
Minneapolis, Minnesota

March 3-5, 2016
THE PRECAST SHOW 2016
Gaylord Opryland Hotel
Nashville, Tennessee

February 22-24, 2018
THE PRECAST SHOW 2018
Hyatt Regency Denver
Denver, Colorado

THE PRECAST SHOW 2017
To be determined

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

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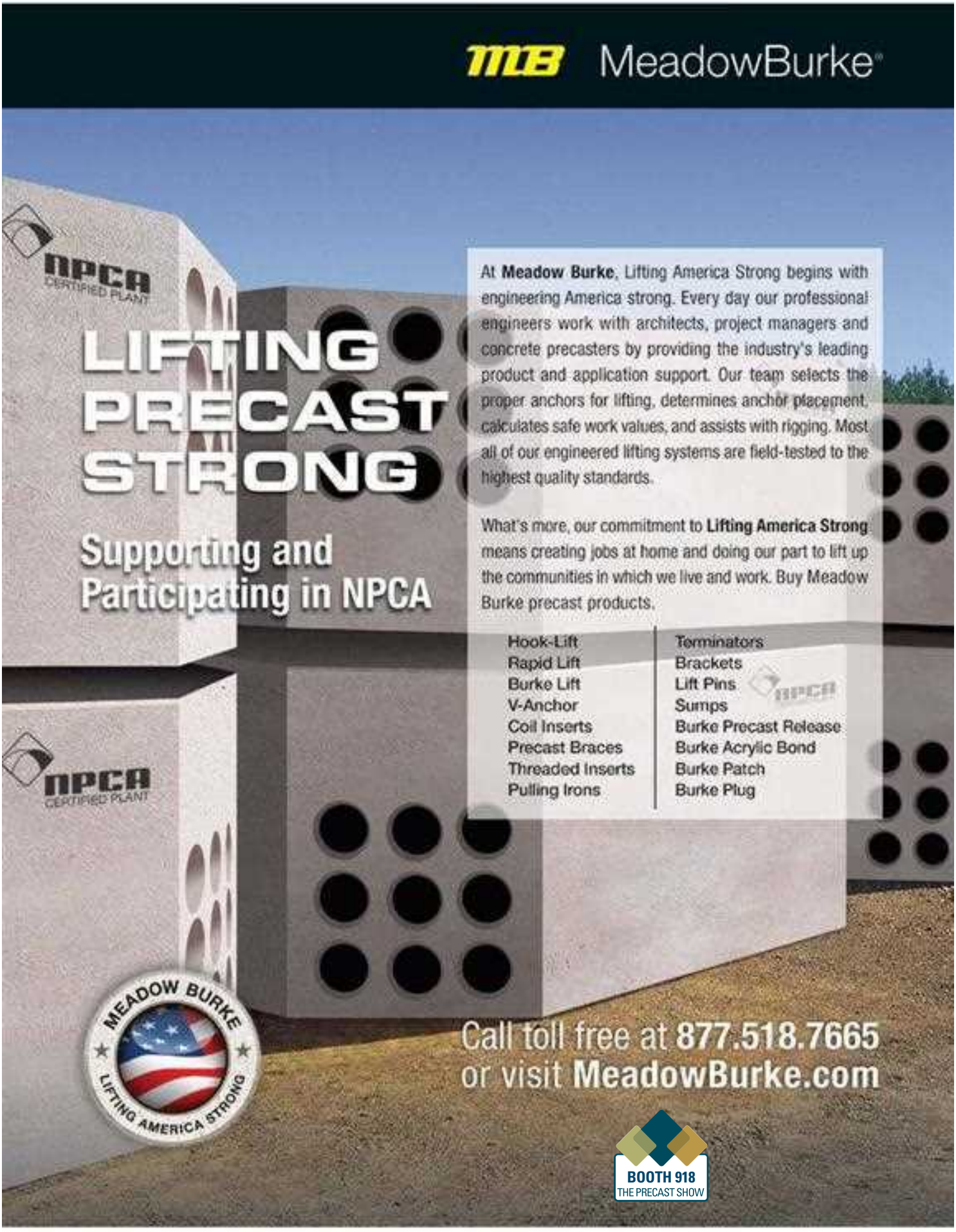
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LIFTING PRECAST STRONG
Supporting and Participating in NPCA
At Meadow Burke, Lifting America Strong begins with engineering America strong. Every day our professional engineers work with architects, project managers and concrete precasters by providing the industry's leading product and application support. Our team selects the proper anchors for lifting, determines anchor placement, calculates safe work values, and assists with rigging. Most all of our engineered lifting systems are field-tested to the highest quality standards.
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HAMILTON FORM CREATES FUNCTION

21 CASE STUDY

ARCHED SOFFIT FOR CURVED BRIDGE BEAM

"The curved beams for this project were critical. Hamilton Form delivered a soffit for the beams that made the casting simple – we supplied the drawings, they did the rest. I'd count on them for any project when the dimensional accuracy and quality of the product are essential."

Dennis Fink, General Manager, Plant Operations
Northeast Prestressed Products, LLC

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The Project:

The original Frederick Avenue Bridge in Baltimore was a two-span concrete arch design built in 1930. In keeping with the historical character of the area, the replacement bridge is a two-span prestressed concrete structure designed to imitate the original bridge.

The Challenge:

Northeast Prestressed Products, LLC in Cressona Pennsylvania is supplying the precast elements for the project, including 12 arched sections assembled to create 2 arches on each side of bridge replicating the look of the original double arches.

The Solution:

To cast the beams, Hamilton Form fabricated a soffit that is 44' long and curves to a 52'6" radius. To form the radius, the understructure material was cut with a high-definition plasma cutter to hold tight dimensional tolerances.

The Results:

Just like the quality of the precast product is dependent on the form it's cast in, the quality of a curved soffit depends on the understructure. The accuracy of the understructure allowed the skin to be easily welded in place. The resulting product is stunning.

When your project calls for innovative, flexible formwork solutions. Call on Hamilton Form. 817 590-2111 or sales@hamiltonform.com

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